Appendix H-1

Phase I Environmental Site Assessment

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Phase I Environmental Site Assessment Report

EFI Global Project No.: 045.08254

Wiley Canyon Development

24924 Hawkbryn Avenue
Santa Clarita, California 91321

Date of Issuance: February 28, 2022

Prepared For:

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EXECUTIVE SUMMARY

EFI Global, Inc. has performed a Phase I Environmental Site Assessment (Phase I) for MBK Rental Living LLC (Client) for a storage and unimproved vacant property located at 24924 Hawkbryn Avenue, in Los Angeles County, and the City of Santa Clarita, California, Assessor's Parcel Numbers (APNs): 2825-012-007, 2825-012-010, and 2825-012-011. The research conducted for this study and the report prepared are in conformance with the United States Environmental Protection Agency (USEPA) All Appropriate Inquiry (AAI) standard and the ASTM International E1527-13 and E1527-21 scope of work.

SITE DESCRIPTION

According to our research and information provided by the Client, the following address has been found to be associated with the subject property: 24924 Hawkbryn Avenue, Santa Clarita, California. The subject property is located to the west and east sides of Wiley Canyon Road, approximately 60 feet south of Hawkbryn Avenue, and bounded by the Golden State (Interstate 5) Freeway to the west, in the City of Santa Clarita. The subject property is approximately 31.34 acres in size and is developed with two single-story storage structures, a former mule barn structure, and two mobile homes along the north portion, which are approximately 17,750 square feet in total size. The northwest storage structure is utilized for the storage of recreational vehicles and portable sanitation stations, and the storage structure on the northeast portion is divided into two units for oral supplements storage by Youtheory Collagen and for movie prop storage. A small wooden shed with inactive water well equipment is also located along the northwest portion of the subject property. The remaining portions of the property consist of concrete paved parking and storage areas on the northern portion, unimproved farm land with animal corrals in the central portion and unimproved vacant land with tall shrubs on the eastern and southern portions. Drainage for the South Fork of the concrete-lined Santa Clara River exists on the east side of the subject property, approximately 7 to 15 feet deep.

The surrounding area consists of residential and and commercial structures and vacant land. Groundwater is estimated to be approximately 120 to 125 feet below ground surface (bgs) in the area of the site and is assumed to flow towards the north-northwest.

- A small wooden shed with inactive water well equipment was observed along the northwest portion of the subject property. Just south of this shed was an inactive well pump and a reservoir used formerly for water storage. The unlined water reservoir was dry during the site reconnaissance and no evidence of hazardous material disposal, spills, or stains were observed. According to Ms. Ashlyn Mangandi, the property owner representative and agent, the water well for former irrigation activities is not active. A review of the Los Angeles County Department of Public Works (LACDPW) online database also identified a second inactive water well along the southern portion of the subject property, under Well Number 5843. This well was measured ranging between 80 to 95 feet beginning October 7, 1931 to until November 17, 1947, the last measuring date. EFI Global recommends proper abandonment or removal of the water wells prior to the redevelopment activities if not intended to be utilized in the future.

- Based on a review of User Provided documentation, the two mobile homes are connected to a septic system onsite that is solely utilized for domestic waste. No regulatory agency records with regard to the septic system were identified. Based on the residential nature of the structures, and connection to the restrooms only, the on-site septic system is not expected to represent a significant environmental concern at this time. However, EFI Global, Inc. recommends proper removal of the septic system under the oversight of a local regulatory agency prior to any future redevelopment.

- EFI Global, Inc. was unable to inspect all interior and exterior ground surfaces due to the presence of stored goods and parked vehicles and tall shrubs, respectively. However, based on the information obtained from other sources, including historical documentation and regulatory agency information, this limitation is not expected to change the conclusions of this assessment.

- Additionally, EFI was not able to gain access to the residential mobile home interiors as a direct result of precautionary and exposure restrictions associated with the outbreak of COVID-19. In order to abide by social distancing measures and protect the health of both EFI Global team members and the residential occupants, the EFI COVID-19 guidance [based on Centers for Disease Control and Prevention (CDC) guidelines] for safe interactions were followed upon entering any buildings. Proactive measures were taken, where permissible, to view interior occupied mobile homes from the entries or through ground-floor windows.

- No significant hazardous material storage or recognized environmental conditions were observed at the site. Those interviewed, as persons familiar with the site were not aware of any negative environmental conditions associated with the property.

- The subject property is planned for redevelopment in the future, which will include a seniors campus with assisted living and mixed commercial units, additional residential apartment buildings, and a park on the southern portion.

HISTORICAL LAND USE

According to EFI Global, Inc.'s interpretation of the historical research data and User Provided Documentation, the subject property consisted of a roadway along the east corner, a creek/ drainage of the Santa Clara River on the east portion, a trail or unimproved road on the east portion, and undeveloped land with vegetation cover in the remainder sometime prior to 1928 through at least 1947. By 1952, ranch land with a water reservoir was developed on the center. By 1969, the development in the central portion was removed, a small barn-like structure was developed on the southwest portion and unimproved trails appeared on the south portion. The two existing storage buildings (formerly barn structures) and sheds on the northwest portion were developed in 1978/1979. By 1986, the two existing mobile homes on the north portion, and a water reservoir on the west-northwest portion were developed. By 1994, additional vegetation cover appeared on the southeast portion. By 2009, the area around the storage buildings was utilized for trailer storage and the ranch land was expanded to the southeast. In at least 2004, the existing storage structures on the north portion were utilized as shops for wooden furniture and cabinet manufacturing. The subject property has remained in this configuration through the present.

Historical occupants of the subject property have included: unnamed ranch land (1952), Smiser Mule Ranch (1979-2000), wooden furniture and cabinet manufacturing shop (2004), Montreverde Ranch (2005), Adolfo R. Santana (2010), warehouse storage (2015-present), and Valencia Support Yard (2019).

- The subject property was historically utilized for agricultural purposes from 1938 to 1947 and as a mule ranch from at least 1979 to at least 1995. There is a potential that during the period from 1938 to 1947 agricultural chemicals, such as pesticides, herbicides, and fertilizers, were applied to site soils consistent with normal application practices. Agricultural chemicals tend to accumulate in the near-surface soils. Additionally, according to a discussion with the Los Angeles County Agricultural Commissioner's office, on February 21, 2022, mule ranches could also utilize agricultural chemicals, especially if they are growing forage and feed for their livestock. Additionally, rangeland typically utilize agricultural chemicals for management of the land. Due to the time period of the operations, the Los Angeles County Agricultural Commissioner's office does not maintain records for the subject property. Based on the proposed redevelopment for residential use, the former agricultural and mule ranch operations and the potential use of agricultural chemicals represent a recognized environmental condition (REC) for the subject property.

- In at least 2004, the existing storage structures on the north portion were utilized as shops for wooden furniture and cabinet manufacturing. No regulatory agency records were identified with regard to these former operations. Based on the small scale nature of the operations, good condition of the pavement within the structures, and operation during a period of stringent regulatory oversight, these operations are not expected to represent an environmental concern for the subject property.

- None of the historical resources utilized as a part of this assessment covered the period from 1953 to 1968 constituting a data gap. However, based on the undeveloped and ranch land nature of the site in 1952 and 1969, it is assumed that the subject property would have been utilized for similar purposes during this time period. Based on the foregoing, this limitation is not expected to significantly alter the finding of this report.

ENVIRONMENTAL DATA SEARCH

Valencia Support Yard (24924 Hawkbryn Avenue) - The subject property is listed on California Integrated Water Quality System (CIWQS) and National Pollutant Discharge Elimination System (NPDES) databases. According to the information provided in the listings, Valencia Support Yard was regulated for discharging stormwater from construction activities into the public sewer from February 6, 2019 to May 15, 2019 with no violations or enforcement actions noted relating to the discharge. Based on the lack of violations or enforcement actions taken against the facility by the local regulatory agencies, this formerly discharged stormwater is not expected to represent a significant environmental concern for the subject property.

- In our opinion, none of the other sites listed on the regulatory database report pose a significant threat to the subject property as there is no indication of a release at the respective sites, a release has occurred but groundwater has not been impacted, a release has occurred but the case is closed, or the sites are located cross or down gradient of the subject property and in excess of 1/10 mile from the subject property.

The Los Angeles Regional Water Quality Control Board (LARWQCB), Department of Toxic Substances Control (DTSC), South Coast Air Quality Management District (SCAQMD), Los Angeles County Fire Department Health and Hazardous Materials Division (LACFD HHMD), Los Angeles County Sanitation District (LACSD), Los Angeles County Department of Public Works (LACDPW), and the Santa Clarita City Clerk's Office (SCCCO) were contacted regarding permits, air emissions, site investigation files, hazardous materials, underground storage tank, and industrial waste discharge records for the subject property. Additionally, the State Water Resources Control Board's (SWRCB) GeoTracker, SCAQMD's Facility Information Detail (FIND), DTSC's EnviroStor and Hazardous Waste Tracking System (HWTS), the LACFD HHMD Active and Inactive CUPA Program Records, Site Mitigation Unit (SMU) Case Records, and California Accidental Release Program (CalARP) online databases were reviewed for information pertaining to the subject property.

- According to the responses to our requests from the LARWQCB, DTSC, SCAQMD, LACSD, and LACDPW, and a review of the HWTS, FIND, GeoTracker, and EnviroStor online databases, there are no files for the subject property.

- The SCCCO provided building permits for the subject property which are summarized in Section 4.2 of this report.

- A review of the LACFD HHMD online databases identified Smiser Mule Ranch on the Inactive CUPA Program Records database, under the Facility ID FA0013309. However, the LACFD HHMD did not identify records for the subject property.

- No significant data gaps were encountered during our agency file reviews.

The California Department of Conservation, Geologic Energy Management Division (CalGEM) online mapping application Well Finder was reviewed for information pertaining to oil and gas exploration on or nearby the subject property.

- According to the map reviewed, one oil well is depicted approximately 500 feet north-northeast of the subject property. The well is assigned the American Petroleum Institute (API): 0403720828 and Well Number 76X-4. The well was first drilled in April 1969 and was subsequently abandoned in October 1969 as no oil or gas was found in the well and it was categorized as a dry hole. The well maintains a plugged and abandoned status by CalGEM. Based on the proper abandonment of this offsite well with no oil or gas found, and lack of oil sumps in the vicinity of the subject property, this former well in the surrounding of the subject property is not expected to represent a significant environmental concern for the subject property.

- The User was not aware of any environmental cleanup liens or activity and use limitations encumbering the subject property. The User provided EFI Global, Inc. with a Preliminary Title Report, performed by First American Title Insurance Company for the subject property, dated January 8, 2020, which was reviewed by EFI Global, Inc. No environmental cleanup liens or activity and use limitations encumbering the subject property were identified in our review. Furthermore, based on our review of the DTSC EnviroStor Database, no environmental liens enforced by the DTSC were identified.

ADDITIONAL ISSUES

- Based on the age of the on-site structures (1978), there is a potential for asbestos-containing building materials at the subject property; however, no testing was completed as part of this report. Suspect asbestos-containing materials (ACMs) were observed in the form of drywall and associated mastics. All building materials appeared in good condition at the time of our site reconnaissance. Individual suspect materials would need to be tested as part of an asbestos survey prior to any renovation or demolition in order to confirm the presence or non-presence of asbestos.

- Based on the age of the on-site structure (1978), there is a potential for lead-based paint at the subject property. All painted surfaces appeared in good condition at the time of our site reconnaissance. Individual suspect materials would need to be tested as part of a lead-based paint survey prior to any renovation or demolition in order to confirm the presence or non-presence of lead-based paint.

- Based on research by the USEPA, low concentrations of radon are located in the vicinity of the subject property.

- EFI Global, Inc. did not observe visible or olfactory indications of the presence of mold, nor did EFI Global, Inc. observe obvious indications of significant water damage. No sampling was conducted as part of this assessment.

- The Los Angeles County Department of Public Works, Solid Waste Information System was reviewed to determine if the property is within 1,000 feet of a landfill or 300 feet of an oil well. According to the information reviewed, the oil well with API: 03713221 is depicted within 300 feet east of the subject property. However, upon a review of the CalGEM online mapping application Well Finder, this well is actually located approximately 2,700 feet northeast of the subject property. Therefore, the potential for the presence of methane beneath the property is considered low.

CONCLUSIONS

EFI Global, Inc. has performed a Phase I in conformance with the scope and limitations of ASTM International E1527-13 and E1527-21, at 24924 Hawkbryn Avenue, Santa Clarita, California, the subject property. Any exceptions to or deletions from this practice are described in the individual sections of this report. This assessment has revealed no evidence of recognized environmental conditions or *de minimis* conditions in connection with the subject property, except for the following:

RECOGNIZED ENVIRONMENTAL CONDITIONS (REC)

The former agricultural and mule ranch operations and the potential use of agricultural chemicals represent a REC for the subject property.

HISTORICAL RECOGNIZED ENVIRONMENTAL CONDITIONS (HREC)

In our opinion, no HRECs were identified during the course of this assessment.

CONTROLLED RECOGNIZED ENVIRONMENTAL CONDITIONS (CREC)

In our opinion, no CRECs were identified during the course of this assessment.

DE MINIMIS CONDITIONS

In our opinion, no *de minimis* conditions were identified during the course of this assessment.

RECOMMENDATIONS

Based upon the foregoing, a Phase II Environmental Site Assessment is recommended.

Additionally, EFI Global recommends proper abandonment or removal of the water wells and septic system prior to the redevelopment activities if not intended to be utilized in the future.

1.0 INTRODUCTION

EFI Global, Inc. has performed a Phase I Environmental Site Assessment (Phase I) for the property located at 24924 Hawkbryn Avenue, in Los Angeles County, and the City of Santa Clarita, California (Subject Property). This report has been prepared for the sole use of MBK Rental Living LLC (Client).

The research conducted for this study and the report prepared are in general conformance with the United States Environmental Protection Agency (USEPA) All Appropriate Inquiry (AAI) standard and the ASTM International E1527-13 and E1527-21 "Standard Practices for Environmental Site Assessments: Phase I Environmental Site Assessment Process". The primary purpose for performing a Phase I ESA is to "...permit a user to satisfy one of the requirements to qualify for the innocent landowner, contiguous property owner, or bona fide prospective purchaser limitations on CERCLA liability" (ASTM, 2021). An environmental site assessment meeting or exceeding this practice and completed less than 180 days prior to the date of acquisition is presumed to be valid under this standard. In order to maintain landowner liability protections, the User also has the following continuing obligations: "(1) No disposal of hazardous substances can occur after the person acquires the property; (2) Provide all legally required notices with respect to the discovery or release of any hazardous substances at the facility; (3) Exercise appropriate care with respect to hazardous substances by taking reasonable steps to stop any continuing release; prevent any threatened future releases; and prevent or limit human, environmental, or natural resource exposure to any previously released hazardous substance; (4) Provide full cooperation, assistance, and access to persons who are authorized to conduct response actions or natural resource restoration (including the cooperation and access necessary for the installation, integrity, and maintenance of any complete or partial response actions or natural resource restoration; (5) Comply with any land use restrictions established or relied on in connection with the response action, and not impede the effectiveness or integrity of any institutional control employed at the vessel or facility in connection with a response action; and (6) Comply with any request for information or administrative subpoena issued under CERCLA" (ASTM, 2021). Further, it is the goal of this study to identify business risks related to the property associated with environmental conditions. This investigation is not an environmental compliance audit and is not designed to determine if the operations of an existing facility are in compliance with applicable environmental laws and regulations.

The goal of this process is to identify any (1) recognized environmental conditions (RECs), (2) historical recognized environmental conditions (HRECs), (3) controlled recognized environmental conditions (CRECs), and/or (4) *de minimis* conditions associated with the subject property.

- A **recognized environmental condition** is defined as "...(1) the presence of hazardous substances or petroleum products in, on, or at the subject property due to a release to the environment; (2) the likely presence of hazardous substances or petroleum products in, on, or at the subject property due to a release or likely release to the environment; or (3) the presence of hazardous substances or petroleum products in, on, or at the subject property under conditions that pose a material threat of a future release to the environment" (ASTM, 2021).

- A **historical recognized environmental condition** is defined as "a previous release of hazardous substances or petroleum products affecting the subject property that has been addressed to the satisfaction of the applicable regulatory authority or authorities and meeting unrestricted use criteria established by the applicable regulatory authority or

authorities without subjecting the subject property to any controls (for example, activity and use limitations or other property use limitations). A historical recognized environmental condition is not a
recognized environmental condition" (ASTM, 2021). The HREC designation requires the comparison of residual contamination concentrations, if any, to current regulatory standards.

- A **controlled recognized environmental condition** is defined as a "recognized environmental condition affecting the subject property that has been addressed to the satisfaction of the applicable regulatory authority or authorities with hazardous substances or petroleum products allowed to remain in place subject to implementation of required controls (for example, activity and use limitations or other property use limitations)" (ASTM, 2021).

- A ***de minimis condition*** is defined as "a condition related to a
release that generally does not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies. A condition determined to be a de minimis condition is not a recognized environmental condition nor a controlled recognized environmental condition" (ASTM, 2021).

In order to identify environmental conditions at the site, the Phase I ESA includes a site inspection, interviews with parties familiar with the property, historical research into the past uses of the property, and an environmental records search with regard to the subject property, adjoining and immediately surrounding properties, and the surrounding area. In addition, EFI Global, Inc. provides an opinion regarding the potential for asbestos containing materials, lead-based paints, mold, radon, oil and gas exploration, and methane as they relate to the subject property. Reviewing those documents that are publicly available, reasonably ascertainable, and practically reviewable controls the completeness of this assessment. The inability to review documents which do not exist or are not publicly available, reasonably ascertainable, or practically reviewable may result in a data gap.

1.1 Significant Assumptions

While this report provides an overview of potential environmental concerns, both past and present, the environmental assessment is limited by the availability of information at the time of the assessment. It is possible that unreported disposal of waste or illegal activities impairing the environmental status of the property may have occurred which could not be identified. The conclusions and recommendations regarding environmental conditions that are presented in this report are based on a scope of work authorized by the Client. Note, however, that virtually no scope of work, no matter how exhaustive, can identify all contaminants or all conditions above and below ground.

1.2 Limitations and Exceptions

This report has been prepared in accordance with generally accepted environmental methodologies referred to in ASTM E1527-13 and E1527-21, and contains all of the limitations inherent in these methodologies. No other warranties, expressed or implied, are made as to the professional services provided under the terms of our contract and included in this report. The conclusions of this report are based in part, on the information provided by others. The possibility remains that unexpected

environmental conditions may be encountered at the site in locations not specifically investigated. The services performed and outlined in this report were based, in part, upon visual observations of the site and attendant structures. Our opinion cannot be extended to portions of the site that were unavailable for direct observation, reasonably beyond the control of EFI Global, Inc. The objective of this report was to assess environmental conditions at the site, within the context of our contract and existing environmental regulations within the applicable jurisdiction. Evaluating compliance of past or future owners with applicable local, provincial, and federal government laws and regulations was not included in our contract for services. Our observations relating to the condition of environmental media at the site are described in this report. It should be noted that compounds or materials other than those described could be present in the site environment.

1.3 Reliance

This report has been prepared for the sole use of MBK Rental Living LLC. The contents should not be relied upon by any other parties without the express written consent of MBK Rental Living LLC and EFI Global, Inc.

1.4 User Responsibilities

The USEPA AAI and ASTM International E1527-13 and E1527-21 Phase I Standards require that the User conduct independent research and consider certain information before purchasing a property. The User is defined as the party seeking to use Practice E1527 to complete an environmental site assessment of the property. A user may include, without limitation, a potential purchaser of property, a potential tenant of property, an owner of property, a lender, or a property manager. These considerations include the following:

- Obtain and review Land Title Records and Judicial Records for Environmental Liens and Activity and Use Limitations by relying on Transaction-Related Title Insurance Documentation Such as Preliminary Title Reports and Title Commitments or Title Search Information Reports Such as Condition of Title, Title Abstracts, and AUL/Environmental Lien Reports. If environmental cleanup liens or AULs encumbering the subject property or in connection with the subject property are identified, the User should provide that information to the Environmental Professional (EFI Global, Inc.). If the User has actual knowledge of environmental cleanup liens or AULs encumbering the subject property or in connection with the subject property, the User should provide that information to the Environmental Professional (EFI Global, Inc.).

- The User should provide the Environmental Professional (EFI Global, Inc.) with any specialized knowledge the User has with regard to recognized environmental conditions in connection with the property.

- If the User is aware of any commonly known information in the community about the subject property with respect to recognized environmental conditions, the User should provide the information to the Environmental Professional (EFI Global, Inc.).

- If this Phase I ESA was prepared as due diligence for a property transaction, it is the responsibility of the User to consider the relationship of the purchase price to the fair market value of the property. If the purchase price is significantly lower than the fair market

value, the User should identify the alternate reason for the low purchase price if the lower purchase price is not related to the property being affected by hazardous substances or petroleum products.

2.0 SITE DESCRIPTION

EFI Global, Inc. has performed a Phase I for a storage and unimproved vacant property located at 24924 Hawkbryn Avenue, in Los Angeles County, and the City of Santa Clarita, California. The subject property is located to the west and east sides of Wiley Canyon Road, approximately 60 feet south of Hawkbryn Avenue, and bounded by the Golden State (Interstate 5) Freeway to the west, in the City of Santa Clarita. The subject property is approximately 31.34 acres in size and is developed with two single-story storage structures, a former mule barn structure, and two mobile homes along the north portion, which are approximately 17,750 square feet in total size. The northwest storage structure is utilized for the storage of recreational vehicles and portable sanitation stations, and the storage structure on the northeast portion is divided into two units for oral supplements storage by Youtheory Collagen and for movie prop storage. A small wooden shed with inactive water well equipment is also located along the northwest portion of the subject property. The remaining portions of the property consist of concrete paved parking and storage areas on the northern portion, unimproved farm land with animal corrals in the central portion and unimproved vacant land with tall shrubs on the eastern and southern portions. Drainage for the South Fork of the concrete-lined Santa Clara River exists on the east side of the subject property, approximately 7 to 15 feet deep.

The surrounding area consists of residential and and commercial structures and vacant land.

Natural gas and electrical services are provided to the subject property by Southern California Gas and Southern California Edison, respectively. Potable water and sewer services are provided by the Santa Clarita Valley Water Agency and a private septic system.

2.1 Current and Historical Addresses

According to our research and information provided by the Client, the following address has been found to be associated with the subject property: 24924 Hawkbryn Avenue, Santa Clarita, California.

2.2 Legal Description

According to the Los Angeles County Assessor's Office, the subject property is located in the City of Santa Clarita, and is described by the Assessor's Parcel Numbers: 2825-012-007, 2825-012-010, and 2825-012-011.

2.3 Physical Setting

The elevation of the subject property is approximately 1,301 feet above mean sea level (United States Geological Survey Oat Mountain, California 7.5 minute topographic quadrangle). Based on our review of the GeoCheck Section of the Environmental Data Resources, Inc. (EDR) Radius report, the subject property is situated within a 100-year Federal Environmental Management Agency (FEMA) Flood Zone. No wetlands were identified at the property or adjoining/immediately surrounding properties. Based on our review of groundwater data presented in the State Water Resources Control Board (SWRCB) GeoTracker website, groundwater was detected at a leaking underground storage tank site (24605 San Fernando Road) approximately 1.77 miles east-northeast of the subject property at approximately 120 to 125 feet below ground surface (bgs). However, perched and semi-perched aquifers may be present beneath the site. Based on topographic map interpretation, regional groundwater flow direction is estimated to be towards the north-northwest; however, local groundwater flow direction may vary.

3.0 SITE RECONNAISSANCE/INTERVIEWS

3.1 Site Reconnaissance

On February 16, 2022, Ms. Diana Arellano with EFI Global, Inc. conducted a site reconnaissance of the subject property. The site inspection was conducted to attempt to identify current site use(s), current hazardous materials storage, and evidence of past site uses and hazardous material storage and to identify evidence of other recognized environmental conditions. The following table summarizes our Site Reconnaissance observations:

Yes	No	Observed Feature(s)
	✔	Hazardous Substances and Petroleum Products Containers
✔		Underground and/or Aboveground Storage Tanks
	✔	Drains/Sumps/Clarifiers/Sewer Interceptors/Septic Systems
	✔	Stained or Corroded Surfaces/Stained Soil or Stressed Vegetation
	✔	Pits/Ponds/Lagoons/Wetlands
✔		Electrical Equipment with the Potential to contain Fluids
✔		Production/ Monitoring/ or Water Wells
	✔	Evidence of Solid Waste Disposal/Dumping/Fill Areas

3.1.1 Exterior Observations

The exterior portions of the subject property consist of concrete paved parking and storage areas on the northern portion, unimproved farm land with animal corrals in the central portion and unimproved vacant land with tall shrubs on the eastern and southern portions. The exterior areas are enclosed with chain-link fencing.

To the west of the northwest storage structure, EFI Global observed several containers ranging less than 5-gallons in size of either paint or sealant stored on the concrete pavement. No evidence of spills or stains were observed in the vicinity of the containers and based on the small quantities observed, these materials are not expected to represent an environmental concern. The northwest portion of the subject property consists of trailer storage.

Additionally, an empty 500-gallon aboveground storage tank (AST) for water with an attached boiler was observed on the northeast portion of the subject property. Two trash dumpsters for nonhazardous debris and wood pallet storage were also observed along the north portion of the subject property. Drainage for the South Fork of the Santa Clara River exists on the east side of the subject property, approximately 7 to 15 feet deep.

Three pole-mounted transformers were observed on the western boundary of the subject property. No evidence of staining or leaks from the transformers was observed. Based on the good condition of the equipment, the presence of the pole-mounted transformers is not expected to represent a significant environmental concern for the subject property.

A small wooden shed with inactive water well equipment was observed along the northwest portion of the subject property. Just south of this shed was an inactive well pump and a reservoir used formerly for water storage. The unlined water reservoir was dry during the site reconnaissance and no evidence of hazardous material disposal, spills, or stains were observed. According to Ms. Ashlyn Mangandi, the property owner representative and agent, the water well

for former irrigation activities is not active. A review of the Los Angeles County Department of Public Works (LACDPW) online database also identified a second inactive water well along the southern portion of the subject property, under Well Number 5843. This well was measured ranging between 80 to 95 feet beginning October 7, 1931 to until November 17, 1947, the last measuring date. EFI Global recommends proper abandonment or removal of the water wells prior to the redevelopment activities if not intended to be utilized in the future.

Additionally, two mobile homes are also located along the northernmost portion of the subject property. Based on a review of User Provided documentation, the mobile homes are connected to a septic system onsite that is solely utilized for domestic waste. No regulatory agency records with regard to the septic system were identified. Based on the residential nature of the structures, and connection to the restrooms only, the on-site septic system is not expected to represent a significant environmental concern at this time. However, EFI Global, Inc. recommends proper removal of the septic system under the oversight of a local regulatory agency prior to any future redevelopment.

No recognized environmental conditions were observed in the exterior portions of the subject property.

3.1.2 Interior Observations

The subject property contains two single-story storage structures of metal and concrete block construction on concrete slab-on-grade foundations with pitched roofs. Building materials observed included drywall partitions and ceilings, concrete block walls, steal beam ceilings, and bare concrete paved floors. The building materials were observed in good condition. The structures are currently rented as storage spaces. The northwest structure is utilized for the storage of recreational vehicles and portable sanitation stations. Within this structure, EFI Global observed an inactive air compressor and small containers of surface cleaners and paint and one 5-gallon container of acetone. The materials were stored on the pavement, however, no evidence of surface cracking or staining was observed in the vicinity. Ms. Mangandi indicated these materials are not utilized onsite and are solely stored. Based on this information, the presence of these materials onsite is not expected to represent an environmental concern.

The structure on the northeast portion is divided into two units. The northern unit consisted of product storage specifically oral supplements by Youtheory Collagen. The southern unit is utilized by a movie prop storage business and consisted of several storage racks throughout. Only household cleaning supplies less than one gallon in size were observed on a shelf with no evidence of spills or stains in the vicinity.

The subject property also consists of a former mule barn structure of wood-frame construction, along the northwest portion. Only stables and old tires were observed within the barn structure. Two mobile homes are also located along the northernmost portion of the subject property. EFI Global did not access the interior of the structures at the time of the site reconnaissance, however did walk the exterior of the mobile homes.

No significant hazardous material storage or recognized environmental conditions were observed in the interior portions of the subject property.

3.1.3 Reconnaissance Limitations

EFI Global, Inc. was unable to inspect all interior and exterior ground surfaces due to the presence of stored goods and parked vehicles and tall shrubs, respectively. However, based on the information obtained from other sources, including historical documentation and regulatory agency information, this limitation is not expected to change the conclusions of this assessment.

Additionally, EFI was not able to gain access to the residential mobile home interiors as a direct result of precautionary and exposure restrictions associated with the outbreak of COVID-19. In order to abide by social distancing measures and protect the health of both EFI Global team members and the residential occupants, the EFI COVID-19 guidance [based on Centers for Disease Control and Prevention (CDC) guidelines] for safe interactions were followed upon entering any buildings. Proactive measures were taken, where permissible, to view interior occupied mobile homes from the entries or through ground-floor windows.

3.2 Adjoining and Immediately Surrounding Properties

The adjoining and immediately surrounding properties (within 100-feet of the subject property boundary) were visually and physically observed from public right-of ways and the subject property in an attempt to identify recognized environmental conditions. Our observations are summarized in the following table:

Location	Address(es)	Uses/Observations
North	25000 Hawkbryn Avenue	Mulberry Mobile Home Park
East	Not applicable	Vacant mountainous land
South	24640 Wiley Canyon Road	Sports and Fitness Complex
West	Not applicable	Interstate 5 Freeway

The adjoining/immediately surrounding properties to the north and southeast were listed on the regulatory database report and are further discussed in Section 5.2 below.

3.3 Surrounding Area Observations

3.3.1 Surrounding Property Uses

The surrounding area consists of residential and and commercial structures and vacant land.

3.3.2 Surrounding Geography

The surrounding area has a slight topographic slope to the north-northwest. Gavin Canyon is located immediately to the east of the subject property and Wiley Canyon is located approximately 350 feet to the west across the Interstate 5 Freeway.

Drainage for the South Fork of the Santa Clara River exists on the east side of the subject property. No other lakes, ponds, rivers or streams were observed in the surrounding area.

3.4 Interviews

3.4.1 Property Owner

Ms. Lina Gomez, the property owner representative, completed a User Questionnaire for the purpose of this report, dated February 25, 2022. Ms. Gomez indicated that a water well for irrigation is located onsite. Ms. Gomez has been associated to the subject property for three years and is unaware of any environmental conditions associated with the property.

3.4.2 Key Site Manager

Ms. Ashlyn Mangandi, the property owner representative and with management, was interviewed during the course of the site reconnaissance conducted on February 16, 2022. Ms. Mangandi was not aware of any environmental conditions at the subject property.

3.4.3 Property Occupants

No occupants were available for interview during the completion of this report.

3.4.4 Past Owners, Operators and Occupants

Past owners, operators and occupants were not able to be identified for an interview for this report.

3.4.5 Prospective Purchaser

Mr. Matthew Badran, the prospective purchaser representative, completed a User Questionnaire for the purpose of this report, dated February 24, 2022. Mr. Badran indicated the subject property is planned for residential development in the future. Mr. Badran was unaware of any recognized environmental conditions such as underground storage tanks or any generated hazardous materials associated with the property.

3.4.6 Neighboring Property Owners/Tenants

Per ASTM, an attempt to interview neighboring property owners/tenants should be conducted when the subject property is vacant and unsecured land.

As the subject property is currently consists of storage and gated vacant land, no neighboring property owners/tenants were interviewed during this assessment.

3.5 User Provided Information

The USEPA AAI and ASTM International E1527-13 and E1527-21 Phase I Standards require that the User conduct independent research and consider certain information before purchasing a property. EFI Global, Inc. recommends that the User documents completion of the following items:

3.5.1 Lien Search

The User is required to obtain a recent (less than 180 days old) title report prepared for the subject property. The report should be reviewed to obtain information regarding environmental clean-up liens or activity and use limitations with regard to the subject property. If environmental cleanup liens or activity and use limitations encumbering the subject property or in connection with the subject property are identified, the User should provide that information to the Environmental Professional (EFI Global, Inc.). If the User has actual knowledge of

environmental cleanup liens or activity and use limitations encumbering the subject property or in connection with the subject property, the User should provide that information to the Environmental Professional (EFI Global, Inc.).

- The User was not aware of any environmental cleanup liens or activity and use limitations encumbering the subject property. The User provided EFI Global, Inc. with a Preliminary Title Report, performed by First American Title Insurance Company for the subject property, dated January 8, 2020, which was reviewed by EFI Global, Inc. No environmental cleanup liens or activity and use limitations encumbering the subject property were identified in our review. Furthermore, based on our review of the DTSC EnviroStor Database, no environmental liens enforced by the DTSC were identified.

3.5.2 Specialized Knowledge

The User should provide the Environmental Professional (EFI Global, Inc.) with any specialized knowledge the User has with regard to recognized environmental conditions in connection with the property.

- The User has no specialized knowledge with respect to recognized environmental conditions in connection with the property.

3.5.3 Commonly Known or Reasonably Ascertainable Information

If the User is aware of any commonly known information in the community about the subject property with respect to recognized environmental conditions, the User should provide the information to the Environmental Professional (EFI Global, Inc.).

- The User is not aware of any commonly known information in the community about the subject property with respect to recognized environmental conditions.

3.5.4 Property Valuation

If this Phase I ESA was prepared as due diligence for a property transaction, it is the responsibility of the User to consider the relationship of the purchase price to the fair market value of the property. If the purchase price is significantly lower than the fair market value, the User should identify the alternate reason for the low purchase price if the lower purchase price is not related to the property being affected by hazardous substances or petroleum products.

- According to the User, the purchase price generally reflects the fair market value of the property.

3.5.5 Purpose of Performing Phase I ESA

According to the User, the User is a prospective purchaser of the subject property and the Phase I is being performed to qualify for landowner liability protections under CERCLA as well as identify business risks related to the property associated with environmental conditions.

3.6 User Provided Documents

Gabriel Environmental Services (GES), Phase I Environmental Site Assessment (ESA), Smiser Mule Ranch, 24924 Hawkbryn Avenue, Santa Clarita, California 91321, dated August 11, 2004 - According to this report, the subject property was undeveloped land as early as 1928 and developed with a pump/sump potentially related to gas/oil well exploration. GES indicated that in a previous Phase I ESA conducted by West Coast Environmental and Engineering (WCE) on August 15, 2003, a gas and oil well search was conducted on the subject property and no wells were identified onsite. This previous Phase I ESA was not appended to the report for review by EFI Global. The current improvements were constructed between 1976 and 1989.

During GES's site visit, the subject property consisted of two single-story metal buildings, two mobile homes, mule barns and one man-made lake. The metal structures were historically utilized as barns for the ranch, and were utilized as a shops for wooden furniture and cabinet manufacturing at the time of the site reconnaissance and for the previous three months. No hazardous materials associated to these operations were observed during the site reconnaissance. Several 55-gallon drums for the storage of domestic waste were observed onsite. Additionally, two water wells, two aboveground water tanks, two propane tanks, and a septic system for the residential structures were observed onsite. GES recommended that if these features were not in use, they should be properly abandoned or removed. No recognized environmental conditions were found, however GES indicated asbestos containing materials may be present onsite given the age of the structures.

The User provided several other documents for the subject property. Several traffic studies, acoustical assessments, geotechnical, archaeological, biological, and oak tree reports have been conducted for the subject property in preparation of the proposed development. The reports relevant to this Phase I ESA are discussed below:

- **ALTA Land Title Survey, dated December 29, 2020 -** This diagram depicts two large storage buildings, one building to the south (existing barn), sheds, trailer storage, a water reservoir, and a AST on the northeast portion.

- **Pacific Advanced Civil Engineering (PACE), Sediment Sampling and Grain Size Analysis Data, dated March 20, 2020 -** Two test pits along the cannel alignment on the east portion were selected for sampling and reported sediments consisting of poorly graded sands with silt and gravel and cobbles.

- **Allan E. Seward Engineering Geology, Inc., Geotechnical Report, dated February 11, 2021 -** At the time of the report, the subject property consisted of vacant land with the exception of barn and storage structures and two mobile homes on the northern portion, a dry water reservoir on the northwest portion, and drainage for the South Fork of the Santa Clara River on the east side of the subject property, approximately 7 to 15 feet deep. The proposed development consists of senior living/ multi-family and commercial development, with retaining walls, drive aisles, parking areas, carports, trash enclosures, swimming pool and cabana areas, and maintenance buildings. Based on this investigation, the proposed development was feasible with the implementation of design and construction recommendations, including grading, fill compaction, and bank protection.

These documents were provided by the client and were reviewed by EFI Global, Inc. in good faith. EFI Global, Inc. relies on the information in these documents to be true information for the subject property.

4.0 HISTORICAL LAND USE

A review of historical data derived from standard historical resources is provided in this section. The objective of consulting historical sources is to develop a history of the previous uses of the property and surrounding area, in order to help identify the likelihood of past uses having led to recognized environmental conditions in connection with the property. During our historical review, acute attention is paid to the subject property. Data relating to the adjoining and immediately surrounding properties (within 100-feet of the subject property boundary) and the surrounding area is reviewed to the extent that it is revealed in the course of researching the property itself.

4.1 Aerial Photography Review

Aerial Photography of many portions of the United States dates back to the 1920's. Items searched for in each photograph included, but were not limited to: evidence of tanks, gas stations, industrial site usage, water drainage pathways, areas which show evidence of drums or excessive debris, discolored or stained soils, areas of distressed vegetation, et cetera.

Aerial Photograph Coverage was available from EDR for the years: 1928, 1938, 1940, 1947, 1952, 1969, 1970, 1972, 1986, 1989, 1990, 1994, 2002, 2005, 2009, 2012, and 2016. A summary of our observations is presented in the following table.

Year	Subject Property	Notable Adjoining Property Observations	Notable Observations of the Surrounding Area
1928	The subject property appears to be developed with a roadway along the east corner, a trail or unimproved road and a creek on the east portion, and undeveloped land with vegetation cover in the remainder.	**North:** Vacant land, trails, and sparse vegetation cover. terrain, and trails. **Southeast:** Vacant land and trails. **West:** Vacant land, shed structure, and roadway and vacant land and rugged train beyond. **South:** Vacant land and trails.	The surrounding area appears to consist of predominantly undeveloped land and minor scattered residential developments.
1938, 1940, and 1947	No significant change from the previous aerial, except for the undeveloped land appears to be potentially utilized for agricultural uses.	**North:** Vacant land and residential structures. **East:** Agricultural land. **Southeast:** Vacant land and trails. **West:** Vacant land, shed structure, and roadway and vacant land and rugged train beyond; a residential structure beyond the roadway by 1947. **South:** Vacant land and trails, and a residential structure.	The surrounding area appears to consist of predominantly undeveloped land and minor scattered residential developments.

Year	Subject Property	Notable Adjoining Property Observations	Notable Observations of the Surrounding Area
1952	No significant change from the previous aerial, except for ranch land with an unlined water reservoir was developed on the center.	**North:** Vacant land, trails, sparse vegetation cover, and residential structures. **East:** Vacant land and rugged terrain. **Southeast:** Vacant land and trails. **West:** Vacant land, shed structure, and roadway and two residential structures, vacant land, and rugged train beyond. **South:** Vacant land, a residential structure, and trails.	The surrounding area appears to consist of predominantly undeveloped land and minor scattered residential developments.
1969, 1970, and 1972	The subject property appears to be developed with vacant land on the northwest and southeast portions, undeveloped land with vegetation cover on the northeast portion, a creek on the east portion, an unspecified structure on the southwest portion, trails on the south portion, and ranch land on the center.	**North:** Vacant land and residential structures; vacant land was no longer present by 1970. **East:** Vacant land, rugged terrain, roadway and residential structures beyond. **Southeast:** Vacant land. **West:** Two roadways and a residential structure, vacant land, and rugged train beyond. **South:** Vacant land and roadway.	The surrounding area appears to consist of predominantly undeveloped land and residential and commercial structures.
1986, 1989, and 1990	The subject property appears to be developed with the two existing storage buildings and sheds on the northwest portion, mobile homes on the north portion, vacant land on the northeast and southeast portions, an unlined water reservoir on the west-northwest portion, and ranch land on the center.	**North:** Residential structures. **East:** Vacant land, rugged terrain, roadway and residential structures beyond. **Southeast:** Three commercial structures and parking lot. **West:** Two roadways and vacant land and rugged train beyond. **South:** Vacant land and roadway and residential structures beyond.	The surrounding area appears to consist of predominantly undeveloped land and residential, commercial, and light industrial structures.

Year	Subject Property	Notable Adjoining Property Observations	Notable Observations of the Surrounding Area
1994, 2002, and 2005	No significant change from the previous aerial, except for the southeast portion was covered in vegetation.	**North:** Residential structures. **East:** Vacant land, rugged terrain, roadway and residential structures beyond. **Southeast:** Three commercial structures and parking lot. **West:** Two roadways and vacant land and rugged train beyond. **South:** Vacant land and roadway and residential structures beyond.	The surrounding area appears to consist of predominantly undeveloped land and residential, commercial, and light industrial structures.
2009, 2012, and 2016	No significant change from the previous aerial, except for area around the storage buildings was utilized for trailer storage and the ranch land was expanded to the southeast.	**North:** Residential structures. **East:** Vacant land, rugged terrain, roadway and residential structures beyond. **Southeast:** Three commercial structures and parking lot. **West:** Two roadways and vacant land and rugged train beyond. **South:** Vacant land and roadway and residential structures beyond.	The surrounding area appears to consist of predominantly undeveloped land and residential, commercial, and light industrial structures.

- Aerial photographs indicated that the subject property was utilized for agricultural purposes from 1938 to 1947 and for ranch operations since 1972. For further discussion, refer to Section 4.5.1.

4.2 Building Department Records Review

The subject property address was researched at the City of Santa Clarita Building Division. Items considered in the course of the building permit review are previous site usage, previous ownership, and the construction or demolition of any structures that may have had a negative environmental impact on the property. The following table summarizes relevant building permits obtained and reviewed:

24924 Hawkbryn Avenue		
Date	**Owner/Occupant**	**Purpose**
02/04/1978	Sue Smiser	Permit for a septic tank
05/01/1978	Sue Smiser	Construct a mule barn

24924 Hawkbryn Avenue		
Date	**Owner/Occupant**	**Purpose**
10/09/1979	Sam Smiser	New structure for a pre-fabricated metal building for storage of farm implements
09/17/1980	Smiser Freight	Permit for operating a 750-gallon septic tank
02/03/1981	Smiser Freight	Plumbing permit

- Building permit indicate a septic tank was located onsite in 1978 and 1980. For further discussion on this tank, refer to Section 3.1.1.

- The remaining permits obtained and reviewed were for minor tenant improvements, sign permits, or other permits which are not significant and did not contain information about the historical site use or the potential for recognized environmental conditions.

4.3 City Directory Review

City directories have been published since the 1800's and provide detailed occupant information for the property and its surrounding area at five-year intervals. The purpose of the City Directory research is to attempt to determine the businesses that historically occupied the subject property. Historical City Directories provided by EDR and reviewed by EFI Global, Inc. are listed below.

24924 Hawkbryn Avenue	
Date	**Listing**
1982	Haven Reninger and Smiser Mule Ranch
1987	Smiser Mule Ranch
1992	Glenn Mcintosh and Smiser Mule Ranch
1995	Eddie Ruiz and Smiser Mule Ranch
2000	Sue Smiser and S. Torres
2005	Monteverde Ranch
2010	Adolfo R. Santana

- The following city directories were found for the adjoining properties:
    - the north adjoining properties (25000 Hawkbyrn Avenue and 24935 Wiley Canyon Road) were utilized for residential purposes from 1967 to at least 2014.

    - the southeast adjoining property (24640 Wiley Canyon Road) was utilized by a sports center from 2005 to at least 2014 and an automotive business from 1982 to at least 1987. For further discussion refer to Section 5.2.

4.4 Sanborn Map Review

Originally compiled by the Sanborn Map Company of Pelham, New York for fire insurance companies to assess fire risks related to building materials and hazardous materials storage, today Sanborn Maps are an invaluable tool for Environmental Professionals in determining historical site use and the potential for environmental conditions. Sanborn Map Coverage is available from as early as 1867

in some cities. Although Sanborn maps were created for approximately twelve thousand cities and towns in the United States, Canada, and Mexico, Sanborn Map Coverage is not available in newer and more rural communities.

- Sanborn Map Coverage was not available for the subject property. The remaining Historical Land Use data in our opinion is sufficient to accurately ascertain the historical site use.

4.5 Historical Summary

4.5.1 Subject Property

According to EFI Global, Inc.'s interpretation of the historical research data and User Provided Documentation, the subject property consisted of a roadway along the east corner, a creek/ drainage of the Santa Clara River on the east portion, a trail or unimproved road on the east portion, and undeveloped land with vegetation cover in the remainder sometime prior to 1928 through at least 1947. By 1952, ranch land with a water reservoir was developed on the center. By 1969, the development in the central portion was removed, a small barn-like structure was developed on the southwest portion and unimproved trails appeared on the south portion. The two existing storage buildings (formerly barn structures) and sheds on the northwest portion were developed in 1978/1979. By 1986, the two existing mobile homes on the north portion, and a water reservoir on the west-northwest portion were developed. By 1994, additional vegetation cover appeared on the southeast portion. By 2009, the area around the storage buildings was utilized for trailer storage and the ranch land was expanded to the southeast. In at least 2004, the existing storage structures on the north portion were utilized as shops for wooden furniture and cabinet manufacturing. The subject property has remained in this configuration through the present.

Historical occupants of the subject property have included: unnamed ranch land (1952), Smiser Mule Ranch (1979-2000), wooden furniture and cabinet manufacturing shop (2004), Montreverde Ranch (2005), Adolfo R. Santana (2010), warehouse storage (2015-present), and Valencia Support Yard (2019).

- The subject property was historically utilized for agricultural purposes from 1938 to 1947 and as a mule ranch from at least 1979 to at least 1995. There is a potential that during the period from 1938 to 1947 agricultural chemicals, such as pesticides, herbicides, and fertilizers, were applied to site soils consistent with normal application practices. Agricultural chemicals tend to accumulate in the near-surface soils. Additionally, according to a discussion with the Los Angeles County Agricultural Commissioner's office, on February 21, 2022, mule ranches could also utilize agricultural chemicals, especially if they are growing forage and feed for their livestock. Additionally, rangeland typically utilize agricultural chemicals for management of the land. Due to the time period of the operations, the Los Angeles County Agricultural Commissioner's office does not maintain records for the subject property. Based on the proposed redevelopment for residential use, the former agricultural and mule ranch operations and the potential use of agricultural chemicals represent a recognized environmental condition (REC) for the subject property.

- In at least 2004, the existing storage structures on the north portion were utilized as shops for wooden furniture and cabinet manufacturing. No regulatory agency records were identified with regard to these former operations. Based on the small scale nature

of the operations, good condition of the pavement within the structures, and operation during a period of stringent regulatory oversight, these operations are not expected to represent an environmental concern for the subject property.

4.6 Historical Data Gaps

None of the historical resources utilized as a part of this assessment covered the period from 1953 to 1968 constituting a data gap. However, based on the undeveloped and ranch land nature of the site in 1952 and 1969, it is assumed that the subject property would have been utilized for similar purposes during this time period. Based on the foregoing, this limitation is not expected to significantly alter the finding of this report.

5.0 REGULATORY DATABASE REPORT

A radial database search was conducted in accordance with the specifications defined in ASTM International E1527-13 and E1527-21 which sets the radial search distances for each regulatory database. The radial database search was conducted by EDR on February 10, 2022. A copy of the database report is presented in Appendix III of this report. The following table summarizes required databases reviewed, the approximate search distances, and indicates if the subject site, adjoining/ immediately surrounding properties or surrounding sites are listed on the respective database.

Following the table are summaries of the information found in the relevant database listings and our opinion regarding the potential for the subject property to be impacted. Our opinion is based on the information found in the database listings, through other historical and regulatory resources, "Standard Guide for Vapor Encroachment Screening on Property Involved in Real Estate Transactions" (ASTM International E2600-15), and assumed groundwater flow direction. As discussed in Section 2.3, groundwater is estimated to be approximately 120 to 128 feet below ground surface in the area of the site and is assumed to flow towards the north-northwest.

DATABASE	Search Distance (Miles)	Subject Site (Yes/No)	Adjacent Site (Yes/No)	Total Listings (#)
Federal National Priorities List (NPL)	1.0	No	No	0
Federal De-listed NPL	1.0	No	No	0
Federal CERCLIS	0.5	No	No	0
Federal CERCLIS NFRAP	0.5	No	No	0
Federal RCRA CORRACTS	1.0	No	No	0
Federal RCRA non-CORRACTS TSD	0.5	No	No	0
Federal RCRA Generators	0.25	No	Yes	2
Federal Institutional/Engineering Controls	0.5	No	No	0
Federal ERNS	Property	No	No	0
State/Tribal Equivalent NPL	1.0	No	No	1
State/Tribal Equivalent CERCLIS	1.0	No	No	1
State/Tribal Landfill	0.5	No	No	0
State/Tribal Underground Storage Tank (UST)	0.25	No	No	4
State/Tribal Leaking Underground Storage Tank (LUST/ CPS-SLIC)	0.5	No	No	0
State/Tribal Institutional/Engineering Controls	0.5	No	No	0
State/Tribal Voluntary Clean-up Sites	0.5	No	No	0
State/Tribal Brownfield Sites	0.5	No	No	0

5.1 Subject Property

Valencia Support Yard (24924 Hawkbryn Avenue) - The subject property is listed on California Integrated Water Quality System (CIWQS) and National Pollutant Discharge Elimination System (NPDES) databases. According to the information provided in the listings, Valencia Support Yard was regulated for discharging stormwater from construction activities into the public sewer from February 6, 2019 to May 15, 2019 with no violations or enforcement actions noted relating to the

discharge. Based on the lack of violations or enforcement actions taken against the facility by the local regulatory agencies, this formerly discharged stormwater is not expected to represent a significant environmental concern for the subject property.

5.2 Adjoining and Immediately Surrounding Properties

Morelli Motors Ltd./ Canyon Pontiac Buick / Canyon Motors (24640 Wiley Canyon Road) - The southeast adjoining property (hydrologically up-gradient) is listed on Hazardous Substance Storage Container Database (HIST UST), Statewide Environmental Evaluation and Planning System Underground Storage Tank (SWEEPS UST), Resource Conservation and Recovery Act - Small Quantity Generator (RCRA-SQG), Facility Index System/Facility Registry System (FINDS), and Enforcement Compliance History Online (ECHO) databases. According to the HIST UST and SWEEPS UST listings, the site installed four USTs in 1981, including one 500-gallon waste oil UST, two 5,000-gallon gasoline USTs, and one 1,500-gallon waste UST. The RCRA-SQG, FIND, and ECHO listings indicated that Canyon Pontiac Buick was listed under US Environmental Protection Agency (EPA) Identification (ID) number CAD981689219 and Registry ID number 110002753645. The site was reported as a small quantity generator of hazardous waste on October 30, 1986, however; the quantity, type, and disposal method of the generated waste were not specified. No violations were found. Based on the lack of database listings pertaining to a release, these listings are not expected to represent a significant environmental concern.

Crute Mobil Home Contractor (25000 Hawkybryn Avenue) - The north adjoining property (hydrologically down-gradient) is listed on EDR Exclusive Historic Gas Stations (EDR Hist Auto) database. According to the information provided in the listing, Crute Mobil Home Contractor operated as a gasoline station from at least 1996 to at least 2000. No additional information was provided. Based on the operation as a mobile home park, it is likely this listing related to a private fuel system. However, additional information relating to a UST was not provided in the listing. Based on lack of evidence of a documented release, and cross-gradient location with regard to the subject property, this former gasoline service station is not expected to represent a significant environmental concern for the subject property.

Canyon Country Datsun / Morelli Motors Limited (LTD) / Canyon Imports (23955 Calgrove Boulevard) - The southeast adjoining property (hydrologically up-gradient) is listed on SWEEPS UST, Los Angeles County Hazardous Material Storage - Industrial Waste and Underground Storage Tank Sites Street Number List (LA Co. HMS), Hazardous Substance Storage Container Database (HIST UST), Hazardous Waste Tracking System (HWTS), RCRA-SQG, FINDS, ECHO, and Facility and Manifest Data (HAZNET) databases. According to the UST listings and information from the State Water Resource Control Board's (SWRCB) GeoTracker online database, Morelli Motors LTD maintained one 500-gallon waste oil UST and one 1,000-gallon car wash & engine cleaning wastewater UST that were installed on-site in 1976. No additional information is provided. Canyon Country Datsun was associated with two USTs. No additional details regarding quantities, capacities, or contents of the USTs were provided in the listing. The LA Co. HMS listing indicated that Canyon Country Datsun was associated with two permits relating to industrial wastewater discharge (Permit Number: 000005120) and tank (Permit Number: 00000290T). Both permits are reported as removed. No additional information was provided in the listing. According to the information provided in the HWTS and HAZNET listings, Canyon Imports was assigned the USEPA ID number CAD982058653 from March 1, 1988 to June 30, 1995. Canyon Imports generated between 0.072- and 8.74-ton of hazardous waste annually from 1988 to 1993. Types of hazardous waste generated include waste oil and mixed oil, unspecified solvent mixture, unspecified organic liquid mixture, other empty containers 30 gallons or more, tank bottom waste, hydrocarbon solvents (benzene, hexane,

Stoddard, etc.), oxygenated solvents (acetone, butanol, ethyl acetate, etc.), and unspecified aqueous solution. Hazardous waste was disposed via a recycler and transfer station. The RCRA-SQG, FIND, and ECHO listings indicated that Canyon Imports was listed under Registry ID number 110006477160. The site was reported as a large quantity generator of hazardous waste on October 1, 1987 and small quantity generator of hazardous waste on September 1, 1996. The quantity, type, and disposal method of the generated waste were not specified. No violations were found. Based on the lack of evidence of a documented release and proper documented disposal of the wastes, these listings are not expected to represent a significant environmental concern.

No other adjoining/immediately surrounding properties (within 100-feet) were listed on any of the regulatory databases researched or the listings were not associated with the storage or disposal of hazardous wastes including aboveground or underground storage tanks, did not indicate a known chemical release, and did not indicate a property use where the use of hazardous chemicals would be expected.

5.3 Surrounding Area

In our opinion, none of the other sites listed on the regulatory database report pose a significant threat to the subject property as there is no indication of a release at the respective sites, a release has occurred but groundwater has not been impacted, a release has occurred but the case is closed, or the sites are located cross or down gradient of the subject property and in excess of 1/10 mile from the subject property.

5.4 Orphan Sites

Orphan sites are unmappable sites which appear in a list form in the Radius Map Report rather than on the standard Radius Map. Two orphan sites were identified in the Radius Map Report prepared for this site. The sites were manually mapped to determine the location of the site relative to the subject property and groundwater gradient. The following conclusions were made:

In our opinion, none of the orphan sites listed pose a significant threat to the subject property as there is no indication of a release at the respective sites, or the sites are located cross or down gradient of the subject property and in excess of 1/10 mile from the subject property.

6.0 AGENCY FILE REVIEWS

6.1 State Agencies

The Los Angeles Regional Water Quality Control Board (LARWQCB), Department of Toxic Substances Control (DTSC), and South Coast Air Quality Management District (SCAQMD) were contacted regarding permits, air emissions, and site investigation files for the subject property. Additionally, the State Water Resources Control Board's (SWRCB) GeoTracker, SCAQMD's online Facility Information Detail (FIND), and DTSC's EnviroStor and Hazardous Waste Tracking System (HWTS) online databases were searched for information on the subject property to identify any evidence of previous or current hazardous material usage.

- According to the responses to our requests from the LARWQCB, DTSC, and SCAQMD, and a review of the aforementioned online databases, there are no files for the subject property.

The California Department of Conservation, Geologic Energy Management Division (CalGEM) online mapping application Well Finder was reviewed for information pertaining to oil and gas exploration on or nearby the subject property.

- According to the map reviewed, one oil well is depicted approximately 500 feet north-northeast of the subject property. The well is assigned the American Petroleum Institute (API): 0403720828 and Well Number 76X-4. The well was first drilled in April 1969 and was subsequently abandoned in October 1969 as no oil or gas was found in the well and it was categorized as a dry hole. The well maintains a plugged and abandoned status by CalGEM. Based on the proper abandonment of this offsite well with no oil or gas found, and lack of oil sumps in the vicinity of the subject property, this former well in the surrounding of the subject property is not expected to represent a significant environmental concern for the subject property.

6.2 City/County Agencies

The Los Angeles County Fire Department Health and Hazardous Materials Division (LACFD HHMD), Los Angeles County Sanitation District (LACSD), Los Angeles County Department of Public Works (LACDPW), and the Santa Clarita City Clerk's Office (SCCCO) were contacted regarding hazardous materials, underground storage tank, and industrial waste discharge records for the subject property. Additionally, the LACFD HHMD Active and Inactive CUPA Program Records, Site Mitigation Unit (SMU) Case Records, and California Accidental Release Program (CalARP) online databases were reviewed for information pertaining to the subject property.

- According to responses to our requests from LACSD and LACDPW, there are no files for the subject property.

- The SCCCO provided building permits for the subject property which are summarized in Section 4.2 of this report.

- A review of the LACFD HHMD online databases identified Smiser Mule Ranch on the Inactive CUPA Program Records database, under the Facility ID FA0013309. However, the LACFD HHMD did not identify records for the subject property.

6.3 Agency File Review Limitations

No significant data gaps were encountered during our agency file reviews.

7.0 NON-SCOPE ENVIRONMENTAL RISKS

ASTM International E1527-13 and E1527-21 identifies additional conditions which, should they exist at the subject property, may create a human health risk to the occupants of the site. These risks may also create additional costs to the property owner in the form of identification, operations & maintenance, and cleanup or remediation.

7.1 Asbestos Containing Building Materials

Asbestos is a group of naturally occurring minerals used in many products, including building materials vehicle brakes, insulation and other products that require resistance to heat and corrosion. Asbestos includes: chrysotile, amosite, crocidolite, tremolite asbestos, anthophyllite asbestos, actinolite asbestos, and any of these materials that have been chemically treated and/or altered.

The inhalation of asbestos fibers by workers can cause cancer and other serious diseases of the lungs and other organs that may not appear until years after the exposure has occurred. For instance, asbestosis can cause a buildup of scar-like tissue in the lungs and result in loss of lung function. Asbestos fibers associated with these health risks are too small to be seen with the naked eye, and smokers are at higher risk of developing some asbestos-related diseases.

Asbestos-containing materials (ACM) do not always pose a hazard to occupants and workers in buildings that contain these materials. Intact, undisturbed ACMs generally do not pose a health risk. ACMs may become hazardous and pose an inhalation risk when they are damaged, disturbed in some manner, or deteriorate over time and asbestos fibers are released into building air.

ACM can be found in a multitude of building products which include decorative and acoustical plaster texture, fire-proofing (Monokote), joint compound, attic and wall insulation, resilient floor covering, mastic, recessed lighting fixtures, wiring, elevator brakes, fire doors, pipe insulation, pipe gaskets, duct insulation, duct tape, siding and roofing materials (tar/shingles), textured paint, stucco, concrete, asphalt underlayment (Petromat) and plaster.

Local jurisdictions have specific laws and regulations regarding asbestos and actions including building renovations and building demolition.

- Based on the age of the on-site structures (1978), there is a potential for asbestos-containing building materials at the subject property; however, no testing was completed as part of this report. Suspect asbestos-containing materials (ACMs) were observed in the form of drywall and associated mastics. All building materials appeared in good condition at the time of our site reconnaissance. Individual suspect materials would need to be tested as part of an asbestos survey prior to any renovation or demolition in order to confirm the presence or non-presence of asbestos.

7.2 Lead-Based Paint

Although the use of lead-based paint in residential structures has been prohibited since 1978, it may still be used in commercial and industrial buildings. It is approximated that 80 percent of buildings built prior to 1978 contain lead paint. Even at low levels, lead poisoning can cause IQ deficiencies, reading and learning disabilities, impaired hearing, reduced attention spans, hyperactivity and other behavior problems with children under 6 years old being most at risk.

Lead is a highly toxic metal that was used for many years in products found in and around our homes and commercial buildings. Lead can be found in dust from friction surfaces of windows and doors that are painted with lead-based paint and from building components coated with lead-based paint that has begun peeling, flaking and chalking. There is also the potential for soil to have elevated lead levels due to leaching from lead based paint on nearby structures and deposition of airborne lead when leaded fuel was in use prior to the 1976 ban and phase out.

Since the 1980's, lead has been phased out in gasoline, reduced in drinking water, reduced in industrial air pollution, and banned or has been limited in use in consumer products.

Between the local, State and Federal agencies, including the Environmental Protection Agency (EPA), Department of Housing and Urban Development (HUD), Occupational Safety & Health Administration (OSHA) and the California Department of Public Health (CDPH), each state has various action limits that have been enacted with the intent to prevent human exposure and contamination of the surrounding environment.

- Based on the age of the on-site structure (1978), there is a potential for lead-based paint at the subject property. All painted surfaces appeared in good condition at the time of our site reconnaissance. Individual suspect materials would need to be tested as part of a lead-based paint survey prior to any renovation or demolition in order to confirm the presence or non-presence of lead-based paint.

7.3 Radon

Radon is a radioactive gas that has been found in structures all over the United States. Radon is produced from the natural breakdown of uranium in soil, rock, and water. Radon typically moves up through the ground and into structures through cracks and other holes in the foundation. Movement of radon through the earth is strongly influenced by moisture content and permeability of soil, porosity, and degree of fracturing in rocks, as well as surface meteorological conditions. High levels of radon have been discovered in every state.

Radon cannot be seen, smelled, or tasted. Breathing air-containing radon may increase the risk of getting lung cancer. The Surgeon General of the United States has warned that radon is the second leading cause of lung cancer in the United States today after smoking.

Testing for the presence of radon is fairly inexpensive, simple and is the only way to be certain of the on-site concentrations. Various types of sampling methods exist to determine the concentration. On-site radon sampling was not performed during the completion of this assessment.

- Based on our research by the USEPA, the average radon concentrations for Los Angeles County are between 2.0 picocuries per liter (pCi/L) and 4.0 pCi/L, which is below the 4.0 pCi/L action level set by the USEPA. Further, the California Geological Survey *Radon Potential Radon Zone Map for Southern California*, dated January 2005, shows low concentrations of radon in the vicinity of the subject property. Site specific radon levels vary greatly within the USEPA radon zones and on-site radon measurements would need to be collected in order to determine the radon levels at the subject property.

7.4 Wetlands

According to the Clean Water Act, a wetland is "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions." Wetland areas have been identified as ecologically diverse and sensitive areas and are generally subject to more stringent development, re-development, and building regulations.

- The U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory was reviewed to determine if the subject property is situated within an identified wetland. According to the USFWS, the subject property consists of a riverine/ creek along the east portion.

7.5 Mold

Mold and mildew are simple, microscopic organisms in the Fungi kingdom that can grow virtually anywhere if they have adequate moisture, nutrients, air and appropriate temperatures. Depending on the particular mold or fungus, growing colonies can be almost any color. Most household molds and fungi (mildews) are white, black, grey, or brown colored. Spores of dozens of kinds of mold and fungus (mildew) are present at all times in indoor and outdoor air. These spores can settle, germinate and grow wherever good growth conditions are found. They can grow on soil, plants, dead plant materials, foods, fabrics, paper, wood and many other materials found within buildings. Many molds are not harmful and actually have a beneficial role in the environment and in living systems. In soil, molds play a crucial part in decomposition of organic matter and in making nutrients available to plants.

When mold and fungi (mildews) growth occurs in buildings, it can be very destructive to the materials on which they grow and cause high levels of airborne mold spores and volatile organic compounds associated with the characteristic musty / moldy odor. They cause staining, decomposition (rotting of materials) and objectionable, musty odors. Where colonies are extensive they can also produce enough spores, and by-products to be harmful to health. Many of the by-products of mold and fungus (mildew) are irritating to skin, eyes and respiratory tracts. Some molds produce true allergic sensitization and allergic reactions in susceptible people. Some molds produce toxic by-products that could be harmful to skin, and poisonous if ingested or inhaled in quantity. Persons with compromised immune systems may even experience systemic fungal infections of the respiratory tract.

EFI Global, Inc. observed a limited amount of interior areas of the subject buildings in order to identify the significant, visible presence of mold. This activity was not intended to discover all areas which may be affected by mold growth at the subject property. Potential areas of mold not observed as part of this limited assessment, include but are not limited to, pipe chases, HVAC systems and within enclosed wall and ceiling cavities that may be present in the subject property. A complete mold assessment, which may include various types of sampling, would be required to determine if mold levels within the subject buildings are at levels acceptable by industry standards.

- EFI Global, Inc. did not observe visible or olfactory indications of the presence of mold, nor did EFI Global, Inc. observe obvious indications of significant water damage. No sampling was conducted as part of this assessment.

7.6 Methane Gas

In response to growing concern regarding methane intrusion into buildings and to the potential for methane build-up underneath buildings, certain municipalities have established methane requirements for structures based on the proximity to oil wells and landfills. If a subject property is located in the proximity of active or abandoned oil wells or landfills, methane mitigation devices installed prior to construction activities at a subject property may be necessary.

- The Los Angeles County Department of Public Works, Solid Waste Information System was reviewed to determine if the property is within 1,000 feet of a landfill or 300 feet of an oil well. According to the information reviewed, the oil well with API: 03713221 is depicted within 300 feet east of the subject property. However, upon a review of the CalGEM online mapping application Well Finder, this well is actually located approximately 2,700 feet northeast of the subject property. Therefore, the potential for the presence of methane beneath the property is considered low.

8.0 FINDINGS

EFI Global, Inc. has performed a Phase I for MBK Rental Living LLC (Client) for a storage and unimproved vacant property located at 24924 Hawkbryn Avenue, in Los Angeles County, and the City of Santa Clarita, California, Assessor's Parcel Numbers: 2825-012-007, 2825-012-010, and 2825-012-011. The research conducted for this study and the report prepared are in conformance with the USEPA AAI standard and the ASTM International E1527-13 and E1527-21 scope of work.

8.1 CONCLUSIONS

EFI Global, Inc. has performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM International E1527-13 and E1527-21, at 24924 Hawkbryn Avenue, Santa Clarita, California, the subject property. Any exceptions to or deletions from this practice are described in the individual sections of this report. This assessment has revealed no evidence of recognized environmental conditions or *de minimis* conditions in connection with the subject property, except for the following:

Recognized Environmental Condition (REC)

The former agricultural and mule ranch operations and the potential use of agricultural chemicals represent a REC for the subject property.

Historical Recognized Environmental Condition (HREC)

In our opinion, no HRECs were identified during the course of this assessment.

Controlled Recognized Environmental Condition (CREC)

In our opinion, no CRECs were identified during the course of this assessment.

De Minimis Condition

In our opinion, no *de minimis* conditions were identified during the course of this assessment.

8.2 RECOMMENDATIONS

Based upon the foregoing, a Phase II Environmental Site Assessment is recommended.

Additionally, EFI Global recommends proper abandonment or removal of the water wells and septic system prior to the redevelopment activities if not intended to be utilized in the future.

9.0 SIGNATURES

I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. I have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

Prepared By: Date: February 28, 2022

Diana Arellano
Project Manager

I declare that, to the best of my professional knowledge and belief, I meet the definition of Environmental Professional as defined in § 312.10 of 40 CFR 312. I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. I have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

Reviewed By: Date: February 28, 2022

Christopher Rude
Senior Project Manager

10.0 REFERENCES

Allan E. Seward Engineering Geology, Inc., February 11, 2021. Geotechnical Report, 24924 Hawkbryn Avenue, Santa Clarita, California 91321

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ASTM International, 2015. Subcommittee E50.2 on Real Estate Assessment and Management, "Standard Guide for Vapor Encroachment Screening on Property Involved in Real Estate Transactions", Designation E2600-15, West Conshohocken, PA 34 pp.

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California Department of Conservation, California Geologic Survey - http://www.consrv.ca.gov/CGS

California Department of Water Resources, Individual Basin Descriptions -http://www.groundwater.water.ca.gov/bulletin118

County of Los Angeles Heath Hazardous Materials Division - https://www.fire.lacounty.gov/hhmd/public-records-requests/

DTSC Hazardous Waste Tracking System (HWTS) Reports - http://hwts.dtsc.ca.gov/report_list.cfm

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Google Earth - http://earth.google.com/

Los Angeles County Office of the Assessor - http://maps.assessor.lacounty.gov/

Pacific Advanced Civil Engineering (PACE), March 20, 2020. Sediment Sampling and Grain Size Analysis Data, 24924 Hawkbryn Avenue, Santa Clarita, California 91321

RealQuest- http://www.realquest.com/jsp/rq.jsp?action=switch&page=main

Solid Waste Information Management System - https://dpw.lacounty.gov/epd/swims/OnlineServices/search-methane-hazards-esri.aspx

South Coast Air Quality Management District Facility Information Detail System (FIND)- http://www3.aqmd.gov/webappl/fim/prog/search.aspx

Wetlands Mapper - https://www.fws.gov/wetlands/Data/Mapper.htm

APPENDIX I

ILLUSTRATIONS

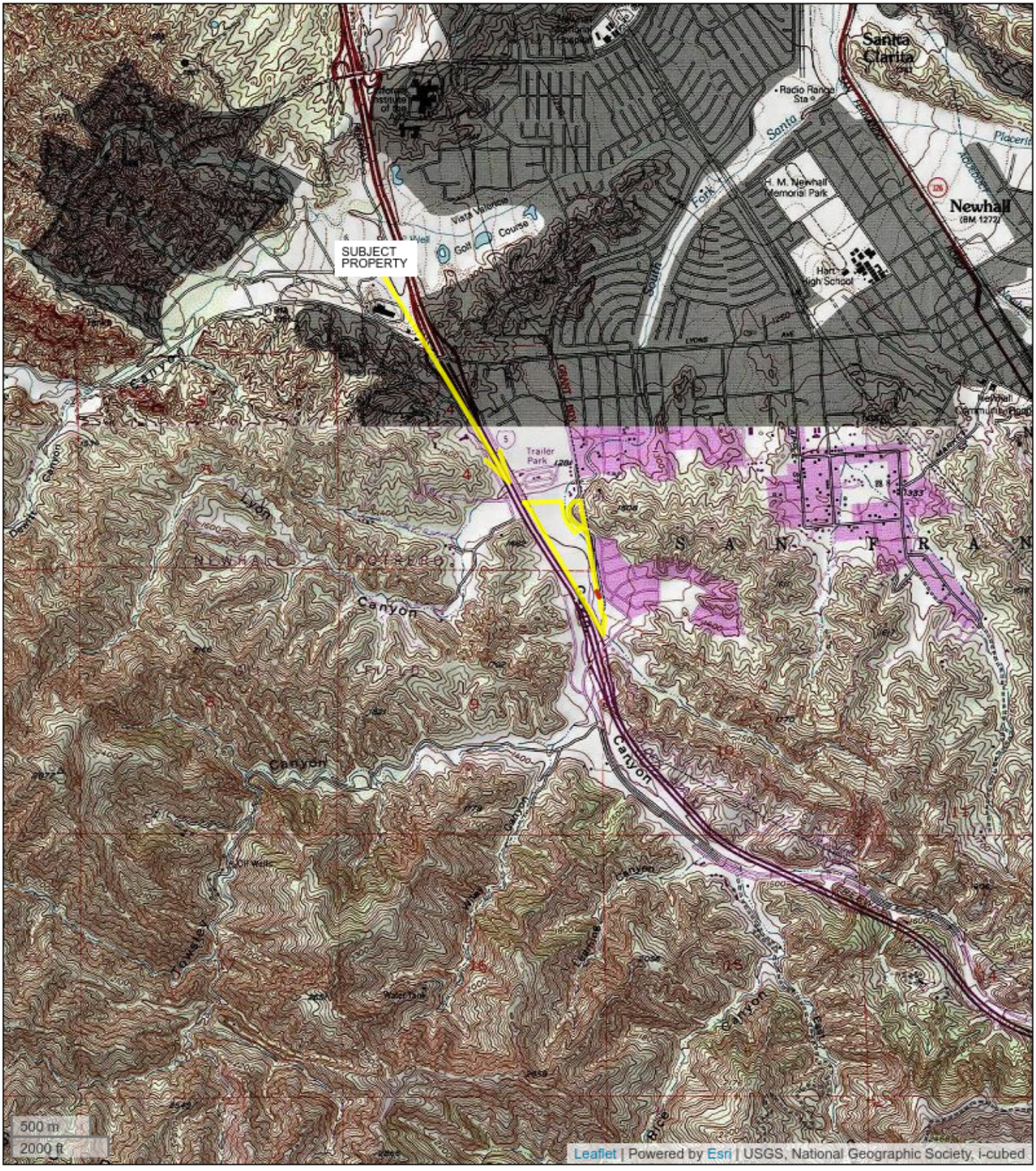


Figure 1: TOPOGRAPHIC MAP

24924 Hawkbryn Avenue, Santa Clarita, California 91321

MBK Rental Living LLC

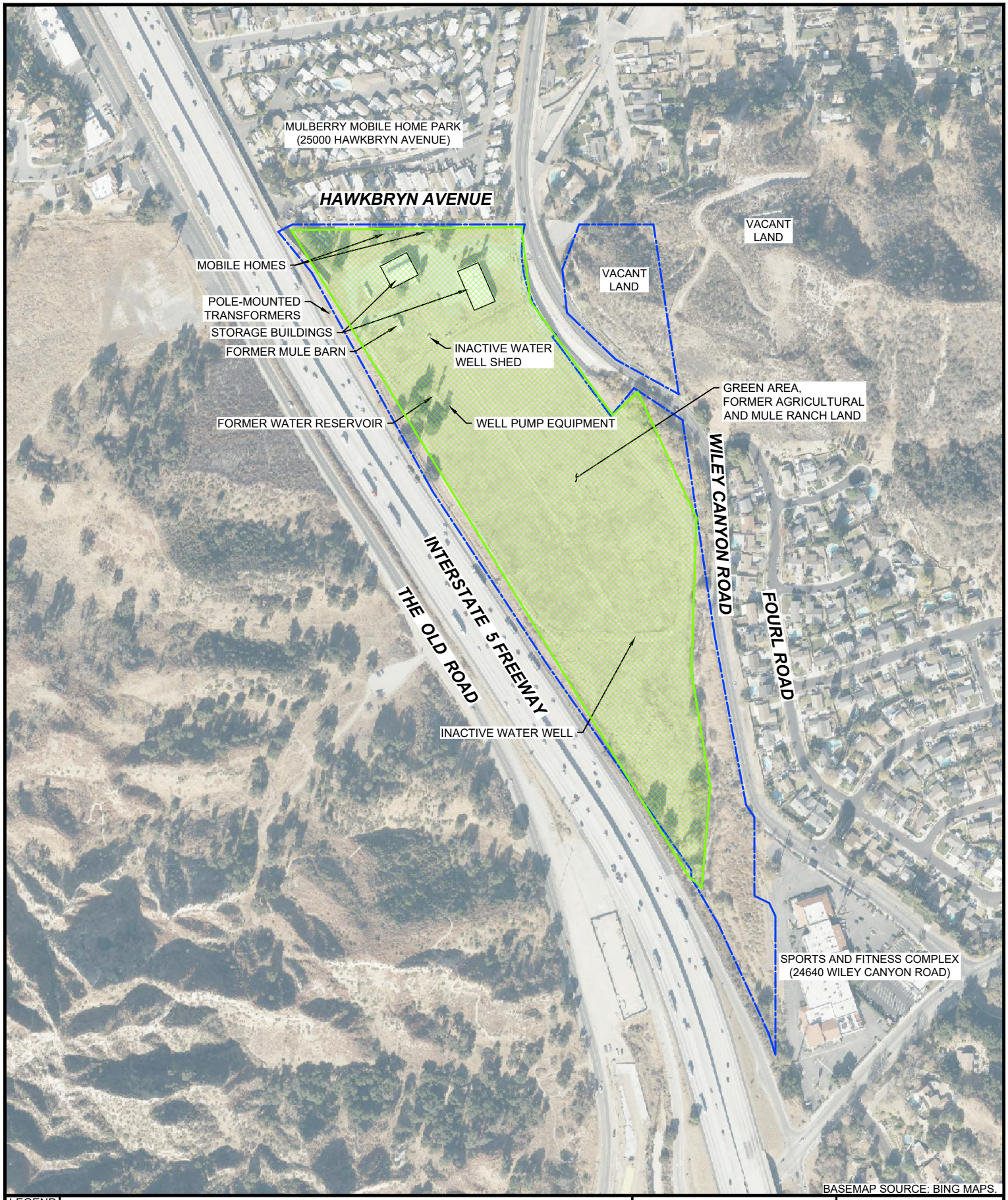
EFI Project Number: 045.08254

Figure 2: SITE LOCATION MAP

24924 Hawkbryn Avenue, Santa Clarita, California 91321

MBK Rental Living LLC

EFI Project Number: 045.08254



LEGEND

PROPERTY LINE

SUBJECT STRUCTURE

N

APPROX. SCALE: 1"=400'

0 200' 400'

SITE PLAN

24924 HAWKBRYN AVENUE
NEWHALL, CA 91321

efi global

PN:045.08254	FIGURE
DT: 02/23/2022	3
DB:ID CB:DA	

K:\AE 2022\Projects 2022\045 Projects 2022\045.08254_24924 Hawkbryn Avenue Newhall CA 91321_PHI\045.08254_CAD\045.08254_SITE_PLAN

APPENDIX II

PHOTOS

Photo 1: View of the storage structure on the northwest portion.

Photo 2: View of the northwest structure from the west portion.

Photo 3: View of RV storage within the northwest structure.

Photo 4: Additional view of RV storage.

Photo 5: View of miscellaneous storage.

Photo 6: View of an air compressor.

Photo 7: View of sanitation station storage.

Photo 8: View of the northeast strcture.

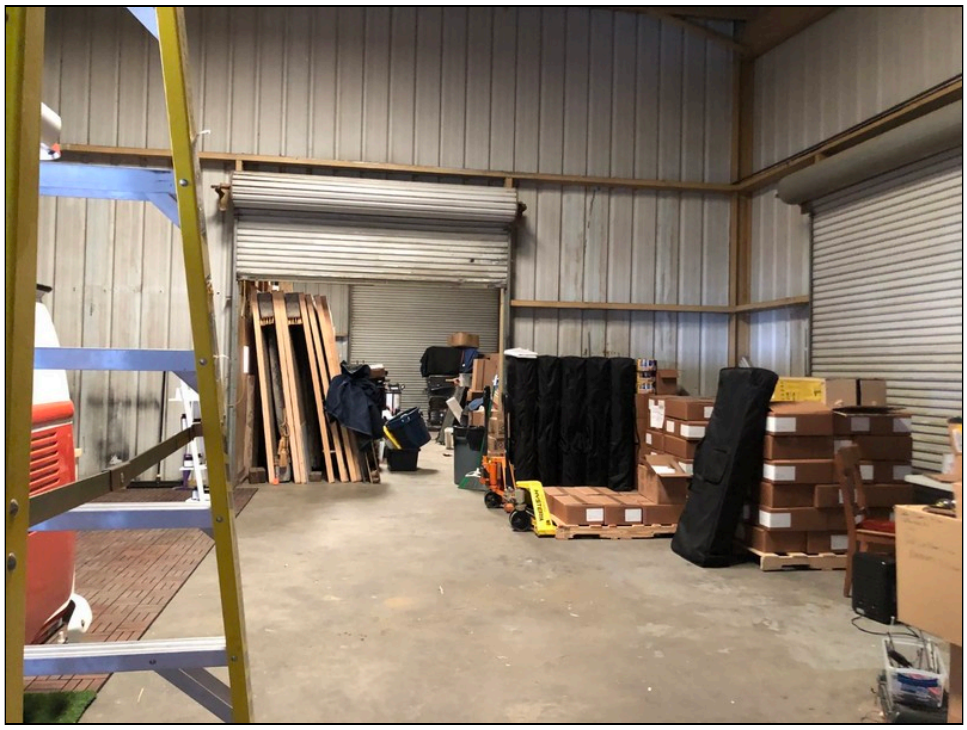


Photo 9: View of storage.

Photo 10: Additional view of miscellaneous storage.

Photo 11: View of the movie prop storage.

Photo 12: Additional view of the prop storage.

Photo 13: Additional view of storage areas.

Photo 14: View of a trash dumpster.

Photo 15: View of the northern parking areas.

Photo 16: Additional view of parking areas.

Photo 17: View of a former barn structure.

Photo 18: Interior view of the barn.

Photo 19: View of former well pump equipment shed.

Photo 20: View of the well pump equipment.

Photo 21: View of the former ranch area.

Photo 22: Additional view of the ranch area.

Photo 23: View of a former well pump.

Photo 24: View of a former water reservoir.

Photo 25: View of the southern portion.

Photo 26: View of the northeast portion.

Photo 27: View of a former water tank.

Photo 28: View of trailer storage along the northwest portion.

Photo 29: View of the mobile home on the northern portion.

Photo 30: Additional view of the mobile home on the northern portion.

Photo 31: View of the southern boundary.

Photo 32: Additional view of the southern boundary.

Photo 33: View of the vacant land on the east portion.

Photo 34: View of the north adjoining properties.

Photo 35: View of the west adjoining freeway.

Photo 36: View of the south adjoining properties.

Photo 37: View of the drainage along the east portion.

APPENDIX III

RADIUS MAP REPORT

045.08254_24924 Hawkbryn Avenue
24924 Hawkbryn Avenue
Newhall, CA 91321

Inquiry Number: 6855472.2s
February 10, 2022

The EDR Radius Map™ Report with GeoCheck®

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

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Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E1527-21), the ASTM Standard Practice for Environmental Site Assessments for Forestland or Rural Property (E 2247-16), the ASTM Standard Practice for Limited Environmental Due Diligence: Transaction Screen Process (E 1528-14) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

24924 HAWKBRYN AVENUE
NEWHALL, CA 91321

COORDINATES

Latitude (North):	34.3684540 - 34ˆ 22' 6.43''
Longitude (West):	118.5568170 - 118ˆ 33' 24.54''
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	356845.3
UTM Y (Meters):	3803913.0
Elevation:	1301 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	5630759 OAT MOUNTAIN, CA
Version Date:	2012
North Map:	5636847 NEWHALL, CA
Version Date:	2012

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	20140531, 20140514
Source:	USDA

MAPPED SITES SUMMARY

Target Property Address:
24924 HAWKBRYN AVENUE
NEWHALL, CA 91321

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
A1	VALENCIA SUPPORT YAR	24924 HAWKBRYN AVENU	CIWQS		TP
A2	VALENCIA SUPPORT YAR	24924 HAWKBRYN AVENU	NPDES		TP
B3	MORELLI MOTORS LTD	24640 WILEY CANYON R	HIST UST	Higher	143, 0.027, SSE
B4	CANYON PONTIAC BUICK	24640 N WILEY CYN RD	RCRA-SQG, FINDS, ECHO	Higher	143, 0.027, SSE
B5	CANYON MOTORS	24640 WILEY CANYON R	SWEEPS UST	Higher	203, 0.038, SSE
6	CRUTE MOBIL HOME CON	25000 HAWKBRYN AVE S	EDR Hist Auto	Higher	224, 0.042, NW
7	VALENCIA OAKS RANCH	24945 THE OLD RD	RCRA NonGen / NLR, FINDS, ECHO	Higher	263, 0.050, WNW
C8	CANYON COUNTRY DATSU	23955 CALGROVE BLVD	SWEEPS UST, LOS ANGELES CO. HMS	Higher	416, 0.079, SSE
C9	MORELLI MOTORS LTD	23955 CALGROVE BLVD	HIST UST	Higher	416, 0.079, SSE
C10	CANYON IMPORTS	23955 CALGROVE BLVD	RCRA-SQG, FINDS, ECHO, HAZNET, HWTS	Higher	416, 0.079, SSE
11	ERIC SCANTLAND	23929 FAMBROUGH STRE	RCRA NonGen / NLR	Higher	469, 0.089, ESE
12	TONY & RONALEE ASTRI	23905 DARBUN DRIVE	RCRA NonGen / NLR	Higher	587, 0.111, East
13	CEFRE, CRISTINA	24219 WABUSKA STREET	RCRA NonGen / NLR	Lower	742, 0.141, NNW
14	CHRIS PORTER	23828 DAISETTA DR.	RCRA NonGen / NLR	Higher	834, 0.158, SE
15	MAYA HAMMOUD	24435 CHERYL KELTON	RCRA NonGen / NLR	Lower	1112, 0.211, NW
D16	DOUG HARLAND	25083 FOURL RD	RCRA NonGen / NLR	Lower	1144, 0.217, North
17	BRYAN RUPP	24305 CHERYL KELTON	RCRA NonGen / NLR	Lower	1271, 0.241, North
D18	CECILIA ESPINO	25102 FOURL RD	RCRA NonGen / NLR	Lower	1311, 0.248, North
19	OLD ORCHARD SHOPPING	23357 LYONS AVENUE	RESPONSE, ENVIROSTOR	Lower	4987, 0.945, NE

EXECUTIVE SUMMARY

TARGET PROPERTY SEARCH RESULTS

The target property was identified in the following records. For more information on this property see page 9 of the attached EDR Radius Map report:

Site	Database(s)	EPA ID
VALENCIA SUPPORT YAR 24924 HAWKBRYN AVENU VALENCIA, CA 91607	CIWQS	N/A
VALENCIA SUPPORT YAR 24924 HAWKBRYN AVENU VALENCIA, CA 91607	NPDES Facility Status: Terminated	N/A

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Lists of Federal NPL (Superfund) sites

NPL ---------- National Priority List
Proposed NPL ---------- Proposed National Priority List Sites
NPL LIENS ---------- Federal Superfund Liens

Lists of Federal Delisted NPL sites

Delisted NPL ---------- National Priority List Deletions

Lists of Federal sites subject to CERCLA removals and CERCLA orders

FEDERAL FACILITY ---------- Federal Facility Site Information listing
SEMS ---------- Superfund Enterprise Management System

Lists of Federal CERCLA sites with NFRAP

SEMS-ARCHIVE ---------- Superfund Enterprise Management System Archive

Lists of Federal RCRA facilities undergoing Corrective Action

CORRACTS ---------- Corrective Action Report

Lists of Federal RCRA TSD facilities

RCRA-TSDF ---------- RCRA - Treatment, Storage and Disposal

EXECUTIVE SUMMARY

Lists of Federal RCRA generators

RCRA-LQG ..... RCRA - Large Quantity Generators
RCRA-VSQG ..... RCRA - Very Small Quantity Generators (Formerly Conditionally Exempt Small Quantity Generators)

Federal institutional controls / engineering controls registries

LUCIS ..... Land Use Control Information System
US ENG CONTROLS ..... Engineering Controls Sites List
US INST CONTROLS ..... Institutional Controls Sites List

Federal ERNS list

ERNS ..... Emergency Response Notification System

Lists of state and tribal landfills and solid waste disposal facilities

SWF/LF ..... Solid Waste Information System

Lists of state and tribal leaking storage tanks

LUST ..... Geotracker's Leaking Underground Fuel Tank Report
INDIAN LUST ..... Leaking Underground Storage Tanks on Indian Land
CPS-SLIC ..... Statewide SLIC Cases

Lists of state and tribal registered storage tanks

FEMA UST ..... Underground Storage Tank Listing
UST ..... Active UST Facilities
AST ..... Aboveground Petroleum Storage Tank Facilities
INDIAN UST ..... Underground Storage Tanks on Indian Land

Lists of state and tribal voluntary cleanup sites

VCP ..... Voluntary Cleanup Program Properties
INDIAN VCP ..... Voluntary Cleanup Priority Listing

Lists of state and tribal brownfield sites

BROWNFIELDS ..... Considered Brownfieds Sites Listing

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS ..... A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT ..... Waste Management Unit Database
SWRCY ..... Recycler Database
HAULERS ..... Registered Waste Tire Haulers Listing

EXECUTIVE SUMMARY

INDIAN ODI	Report on the Status of Open Dumps on Indian Lands
DEBRIS REGION 9	Torres Martinez Reservation Illegal Dump Site Locations
ODI	Open Dump Inventory
IHS OPEN DUMPS	Open Dumps on Indian Land

Local Lists of Hazardous waste / Contaminated Sites

AOCONCERN	Key Areas of Concerns in Los Angeles County
US HIST CDL	Delisted National Clandestine Laboratory Register
HIST Cal-Sites	Historical Calsites Database
SCH	School Property Evaluation Program
CDL	Clandestine Drug Labs
Toxic Pits	Toxic Pits Cleanup Act Sites
CERS HAZ WASTE	CERS HAZ WASTE
US CDL	National Clandestine Laboratory Register
PFAS	PFAS Contamination Site Location Listing
AQUEOUS FOAM	Former Fire Training Facility Assessments Listing

Local Lists of Registered Storage Tanks

CERS TANKS	California Environmental Reporting System (CERS) Tanks
CA FID UST	Facility Inventory Database

Local Land Records

LIENS	Environmental Liens Listing
LIENS 2	CERCLA Lien Information
DEED	Deed Restriction Listing

Records of Emergency Release Reports

HMIRS	Hazardous Materials Information Reporting System
CHMIRS	California Hazardous Material Incident Report System
LDS	Land Disposal Sites Listing
MCS	Military Cleanup Sites Listing
SPILLS 90	SPILLS 90 data from FirstSearch

Other Ascertainable Records

FUDS	Formerly Used Defense Sites
DOD	Department of Defense Sites
SCRD DRYCLEANERS	State Coalition for Remediation of Drycleaners Listing
US FIN ASSUR	Financial Assurance Information
EPA WATCH LIST	EPA WATCH LIST
2020 COR ACTION	2020 Corrective Action Program List
TSCA	Toxic Substances Control Act
TRIS	Toxic Chemical Release Inventory System
SSTS	Section 7 Tracking Systems
ROD	Records Of Decision
RMP	Risk Management Plans
RAATS	RCRA Administrative Action Tracking System
PRP	Potentially Responsible Parties
PADS	PCB Activity Database System
ICIS	Integrated Compliance Information System
FTTS	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

EXECUTIVE SUMMARY

MLTS	Material Licensing Tracking System
COAL ASH DOE	Steam-Electric Plant Operation Data
COAL ASH EPA	Coal Combustion Residues Surface Impoundments List
PCB TRANSFORMER	PCB Transformer Registration Database
RADINFO	Radiation Information Database
HIST FTTS	FIFRA/TSCA Tracking System Administrative Case Listing
DOT OPS	Incident and Accident Data
CONSENT	Superfund (CERCLA) Consent Decrees
INDIAN RESERV	Indian Reservations
FUSRAP	Formerly Utilized Sites Remedial Action Program
UMTRA	Uranium Mill Tailings Sites
LEAD SMELTERS	Lead Smelter Sites
US AIRS	Aerometric Information Retrieval System Facility Subsystem
US MINES	Mines Master Index File
ABANDONED MINES	Abandoned Mines
FINDS	Facility Index System/Facility Registry System
DOCKET HWC	Hazardous Waste Compliance Docket Listing
ECHO	Enforcement & Compliance History Information
UXO	Unexploded Ordnance Sites
FUELS PROGRAM	EPA Fuels Program Registered Listing
CA BOND EXP. PLAN	Bond Expenditure Plan
Cortese	"Cortese" Hazardous Waste & Substances Sites List
CUPA Listings	CUPA Resources List
DRYCLEANERS	Cleaner Facilities
EMI	Emissions Inventory Data
ENF	Enforcement Action Listing
Financial Assurance	Financial Assurance Information Listing
HAZNET	Facility and Manifest Data
ICE	ICE
HIST CORTESE	Hazardous Waste & Substance Site List
LOS ANGELES CO. HMS	HMS: Street Number List
HWP	EnviroStor Permitted Facilities Listing
HWT	Registered Hazardous Waste Transporter Database
MINES	Mines Site Location Listing
MWMP	Medical Waste Management Program Listing
PEST LIC	Pesticide Regulation Licenses Listing
PROC	Certified Processors Database
Notify 65	Proposition 65 Records
LA Co. Site Mitigation	Site Mitigation List
UIC	UIC Listing
UIC GEO	UIC GEO (GEOTRACKER)
WASTEWATER PITS	Oil Wastewater Pits Listing
WDS	Waste Discharge System
WIP	Well Investigation Program Case List
MILITARY PRIV SITES	MILITARY PRIV SITES (GEOTRACKER)
PROJECT	PROJECT (GEOTRACKER)
WDR	Waste Discharge Requirements Listing
CERS	CERS
NON-CASE INFO	NON-CASE INFO (GEOTRACKER)
OTHER OIL GAS	OTHER OIL & GAS (GEOTRACKER)
PROD WATER PONDS	PROD WATER PONDS (GEOTRACKER)
SAMPLING POINT	SAMPLING POINT (GEOTRACKER)
WELL STIM PROJ	Well Stimulation Project (GEOTRACKER)
MINES MRDS	Mineral Resources Data System
LOS ANGELES CO LF METHANE	Methane Producing Landfills

HWTS Hazardous Waste Tracking System

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP EDR Proprietary Manufactured Gas Plants
EDR Hist Cleaner EDR Exclusive Historical Cleaners

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF Recovered Government Archive Solid Waste Facilities List
RGA LUST Recovered Government Archive Leaking Underground Storage Tank

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

STANDARD ENVIRONMENTAL RECORDS

Lists of Federal RCRA generators

RCRA-SQG: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

A review of the RCRA-SQG list, as provided by EDR, and dated 09/13/2021 has revealed that there are 2 RCRA-SQG sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
CANYON PONTIAC BUICK EPA ID:: CAD981689219	***24640 N WILEY CYN RD***	***SSE 0 - 1/8 (0.027 mi.)***	***B4***	***11***
CANYON IMPORTS EPA ID:: CAD982058653	***23955 CALGROVE BLVD***	***SSE 0 - 1/8 (0.079 mi.)***	***C10***	***21***

Lists of state- and tribal (Superfund) equivalent sites

RESPONSE: Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

A review of the RESPONSE list, as provided by EDR, has revealed that there is 1 RESPONSE site within approximately 1 mile of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
OLD ORCHARD SHOPPING	***23357 LYONS AVENUE***	***NE 1/2 - 1 (0.945 mi.)***	***19***	***49***
Database: RESPONSE, Date of Government Version: 10/25/2021 Facility Id: 19720018 Status: Active				

Lists of state- and tribal hazardous waste facilities

ENVIROSTOR: The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

A review of the ENVIROSTOR list, as provided by EDR, and dated 10/25/2021 has revealed that there is 1 ENVIROSTOR site within approximately 1 mile of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
OLD ORCHARD SHOPPING	***23357 LYONS AVENUE***	***NE 1/2 - 1 (0.945 mi.)***	***19***	***49***
Facility Id: 19720018 Status: Active				

ADDITIONAL ENVIRONMENTAL RECORDS

Local Lists of Registered Storage Tanks

SWEEPS UST: Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

A review of the SWEEPS UST list, as provided by EDR, and dated 06/01/1994 has revealed that there are 2 SWEEPS UST sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
CANYON MOTORS	24640 WILEY CANYON R	SSE 0 - 1/8 (0.038 mi.)	B5	14

Status: A
Tank Status: A
Comp Number: 7596

CANYON COUNTRY DATSU	***23955 CALGROVE BLVD***	***SSE 0 - 1/8 (0.079 mi.)***	***C8***	***19***

Status: A
Tank Status: A
Comp Number: 4664

HIST UST: Historical UST Registered Database.

A review of the HIST UST list, as provided by EDR, and dated 10/15/1990 has revealed that there are 2 HIST UST sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
MORELLI MOTORS LTD Facility Id: 00000046869	24640 WILEY CANYON R	SSE 0 - 1/8 (0.027 mi.)	B3	10
MORELLI MOTORS LTD Facility Id: 00000047276	23955 CALGROVE BLVD	SSE 0 - 1/8 (0.079 mi.)	C9	20

Other Ascertainable Records

RCRA NonGen / NLR: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

A review of the RCRA NonGen / NLR list, as provided by EDR, and dated 09/13/2021 has revealed that there are 9 RCRA NonGen / NLR sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
VALENCIA OAKS RANCH EPA ID:: CAD982445124	***24945 THE OLD RD***	***WNW 0 - 1/8 (0.050 mi.)***	***7***	***16***
ERIC SCANTLAND EPA ID:: CAC003017021	23929 FAMBROUGH STRE	ESE 0 - 1/8 (0.089 mi.)	11	29
TONY & RONALEE ASTRI EPA ID:: CAC002987953	23905 DARBUN DRIVE	E 0 - 1/8 (0.111 mi.)	12	31
CHRIS PORTER EPA ID:: CAC002968525	23828 DAISETTA DR.	SE 1/8 - 1/4 (0.158 mi.)	14	36

Lower Elevation	Address	Direction / Distance	Map ID	Page
CEFRE, CRISTINA EPA ID:: CAC002976634	24219 WABUSKA STREET	NNW 1/8 - 1/4 (0.141 mi.)	13	34
MAYA HAMMOUD EPA ID:: CAC003043020	24435 CHERYL KELTON	NW 1/8 - 1/4 (0.211 mi.)	15	39
DOUG HARLAND	25083 FOURL RD	N 1/8 - 1/4 (0.217 mi.)	D16	41

EPA ID:: CAC003047581				
BRYAN RUPP	24305 CHERYL KELTON	N 1/8 - 1/4 (0.241 mi.)	17	44
CECILIA ESPINO	25102 FOURL RD	N 1/8 - 1/4 (0.248 mi.)	D18	46
EPA ID:: CAC003043811				

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR Hist Auto: EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

A review of the EDR Hist Auto list, as provided by EDR, has revealed that there is 1 EDR Hist Auto site within approximately 0.125 miles of the target property.

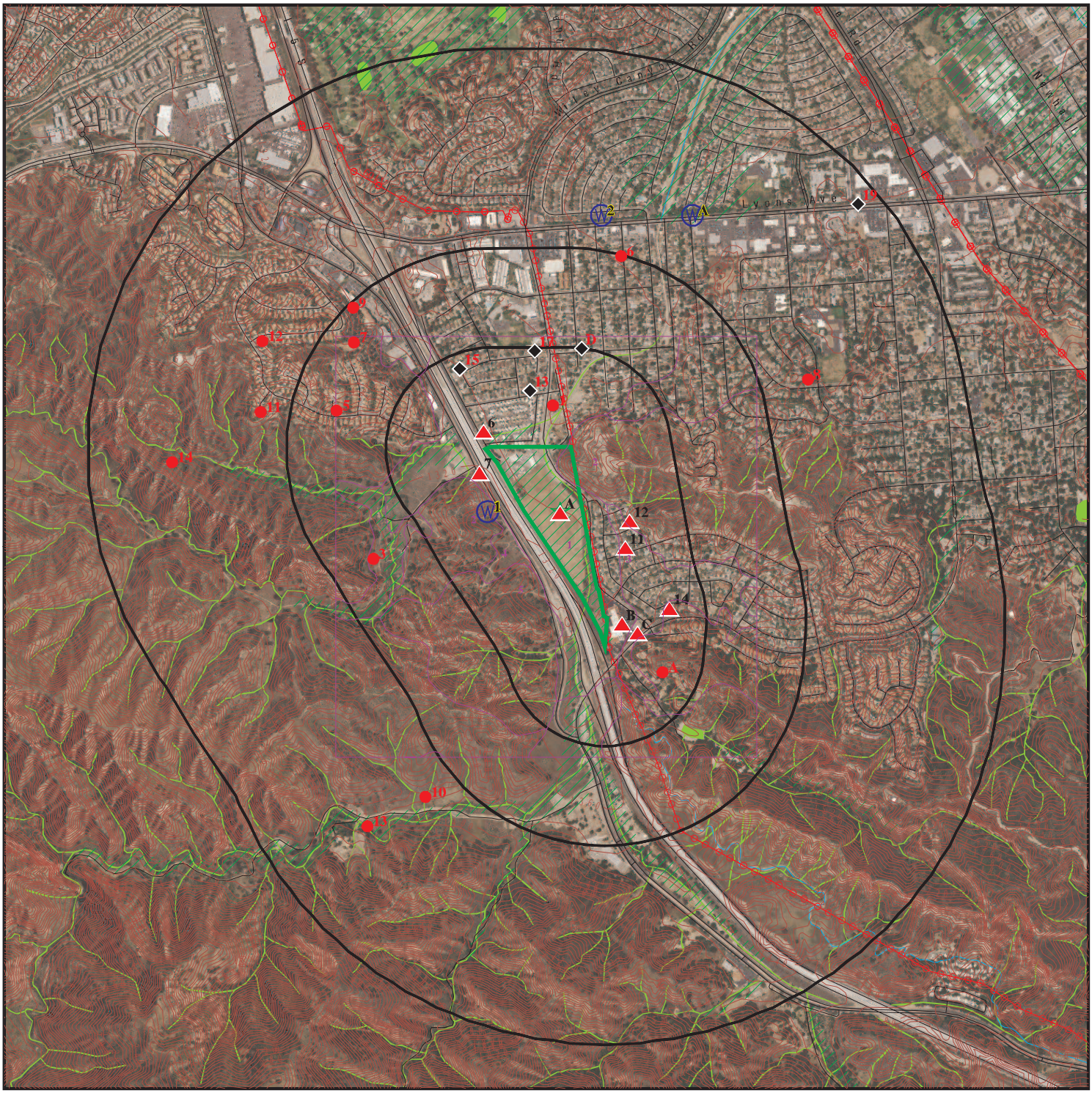
Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
CRUTE MOBIL HOME CON	25000 HAWKBRYN AVE S	NW 0 - 1/8 (0.042 mi.)	6	16

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped. Count: 2 records.

Site Name	Database(s)
HANGERS CLEANERS	DRYCLEANERS
HANGERS CLEANERS, BYOUNG LEE	DRYCLEANERS

OVERVIEW MAP - 6855472.2S



Target Property

Sites at elevations higher than or equal to the target property

Sites at elevations lower than the target property

Manufactured Gas Plants

National Priority List Sites

Dept. Defense Sites

0 1/4 1/2 1 Miles

Indian Reservations BIA

Power transmission lines

100-year flood zone

500-year flood zone

National Wetland Inventory

State Wetlands

Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME:	045.08254_24924 Hawkbryn Avenue	CLIENT:	EFI Global Inc.
ADDRESS:	24924 Hawkbryn Avenue Newhall CA 91321	CONTACT:	Diana Arellano
		INQUIRY #:	6855472.2s
LAT/LONG:	34.368454 / 118.556817	DATE:	February 10, 2022 6:25 pm

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DETAIL MAP - 6855472.2S

Target Property

Sites at elevations higher than or equal to the target property

Sites at elevations lower than the target property

Manufactured Gas Plants

Sensitive Receptors

National Priority List Sites

Dept. Defense Sites

0 1/8 1/4 1/2 Miles

Indian Reservations BIA

Power transmission lines

100-year flood zone

500-year flood zone

National Wetland Inventory

State Wetlands

Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME:	045.08254_24924 Hawkbryn Avenue	CLIENT:	EFI Global Inc.
ADDRESS:	24924 Hawkbryn Avenue Newhall CA 91321	CONTACT:	Diana Arellano
		INQUIRY #:	6855472.2s
LAT/LONG:	34.368454 / 118.556817	DATE:	February 10, 2022 6:26 pm

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MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Lists of Federal NPL (Superfund) sites								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	1.000		0	0	0	0	NR	0
Lists of Federal Delisted NPL sites								
Delisted NPL	1.000		0	0	0	0	NR	0
Lists of Federal sites subject to CERCLA removals and CERCLA orders								
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
SEMS	0.500		0	0	0	NR	NR	0
Lists of Federal CERCLA sites with NFRAP								
SEMS-ARCHIVE	0.500		0	0	0	NR	NR	0
Lists of Federal RCRA facilities undergoing Corrective Action								
CORRACTS	1.000		0	0	0	0	NR	0
Lists of Federal RCRA TSD facilities								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
Lists of Federal RCRA generators								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		2	0	NR	NR	NR	2
RCRA-VSQG	0.250		0	0	NR	NR	NR	0
Federal institutional controls / engineering controls registries								
LUCIS	0.500		0	0	0	NR	NR	0
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROLS	0.500		0	0	0	NR	NR	0
Federal ERNS list								
ERNS	TP		NR	NR	NR	NR	NR	0
Lists of state- and tribal (Superfund) equivalent sites								
RESPONSE	1.000		0	0	0	1	NR	1
Lists of state- and tribal hazardous waste facilities								
ENVIROSTOR	1.000		0	0	0	1	NR	1
Lists of state and tribal landfills and solid waste disposal facilities								
SWF/LF	0.500		0	0	0	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
Lists of state and tribal leaking storage tanks								
LUST	0.500		0	0	0	NR	NR	0
INDIAN LUST	0.500		0	0	0	NR	NR	0
CPS-SLIC	0.500		0	0	0	NR	NR	0
Lists of state and tribal registered storage tanks								
FEMA UST	0.250		0	0	NR	NR	NR	0
UST	0.250		0	0	NR	NR	NR	0
AST	0.250		0	0	NR	NR	NR	0
INDIAN UST	0.250		0	0	NR	NR	NR	0
Lists of state and tribal voluntary cleanup sites								
VCP	0.500		0	0	0	NR	NR	0
INDIAN VCP	0.500		0	0	0	NR	NR	0
Lists of state and tribal brownfield sites								
BROWNFIELDS	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
WMUDS/SWAT	0.500		0	0	0	NR	NR	0
SWRCY	0.500		0	0	0	NR	NR	0
HAULERS	TP		NR	NR	NR	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
ODI	0.500		0	0	0	NR	NR	0
IHS OPEN DUMPS	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
AOCONCERN	1.000		0	0	0	0	NR	0
US HIST CDL	TP		NR	NR	NR	NR	NR	0
HIST Cal-Sites	1.000		0	0	0	0	NR	0
SCH	0.250		0	0	NR	NR	NR	0
CDL	TP		NR	NR	NR	NR	NR	0
Toxic Pits	1.000		0	0	0	0	NR	0
CERS HAZ WASTE	0.250		0	0	NR	NR	NR	0
US CDL	TP		NR	NR	NR	NR	NR	0
PFAS	0.500		0	0	0	NR	NR	0
AQUEOUS FOAM	TP		NR	NR	NR	NR	NR	0
Local Lists of Registered Storage Tanks								
SWEEPS UST	0.250		2	0	NR	NR	NR	2
HIST UST	0.250		2	0	NR	NR	NR	2

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
CERS TANKS	0.250		0	0	NR	NR	NR	0
CA FID UST	0.250		0	0	NR	NR	NR	0
Local Land Records								
LIENS	TP		NR	NR	NR	NR	NR	0
LIENS 2	TP		NR	NR	NR	NR	NR	0
DEED	0.500		0	0	0	NR	NR	0
Records of Emergency Release Reports								
HMIRS	TP		NR	NR	NR	NR	NR	0
CHMIRS	TP		NR	NR	NR	NR	NR	0
LDS	TP		NR	NR	NR	NR	NR	0
MCS	TP		NR	NR	NR	NR	NR	0
SPILLS 90	TP		NR	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		3	6	NR	NR	NR	9
FUDS	1.000		0	0	0	0	NR	0
DOD	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
US FIN ASSUR	TP		NR	NR	NR	NR	NR	0
EPA WATCH LIST	TP		NR	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
TSCA	TP		NR	NR	NR	NR	NR	0
TRIS	TP		NR	NR	NR	NR	NR	0
SSTS	TP		NR	NR	NR	NR	NR	0
ROD	1.000		0	0	0	0	NR	0
RMP	TP		NR	NR	NR	NR	NR	0
RAATS	TP		NR	NR	NR	NR	NR	0
PRP	TP		NR	NR	NR	NR	NR	0
PADS	TP		NR	NR	NR	NR	NR	0
ICIS	TP		NR	NR	NR	NR	NR	0
FTTS	TP		NR	NR	NR	NR	NR	0
MLTS	TP		NR	NR	NR	NR	NR	0
COAL ASH DOE	TP		NR	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
PCB TRANSFORMER	TP		NR	NR	NR	NR	NR	0
RADINFO	TP		NR	NR	NR	NR	NR	0
HIST FTTS	TP		NR	NR	NR	NR	NR	0
DOT OPS	TP		NR	NR	NR	NR	NR	0
CONSENT	1.000		0	0	0	0	NR	0
INDIAN RESERV	1.000		0	0	0	0	NR	0
FUSRAP	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
LEAD SMELTERS	TP		NR	NR	NR	NR	NR	0
US AIRS	TP		NR	NR	NR	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
ABANDONED MINES	0.250		0	0	NR	NR	NR	0
FINDS	TP		NR	NR	NR	NR	NR	0
DOCKET HWC	TP		NR	NR	NR	NR	NR	0
ECHO	TP		NR	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
UXO	1.000		0	0	0	0	NR	0
FUELS PROGRAM	0.250		0	0	NR	NR	NR	0
CA BOND EXP. PLAN	1.000		0	0	0	0	NR	0
Cortese	0.500		0	0	0	NR	NR	0
CUPA Listings	0.250		0	0	NR	NR	NR	0
DRYCLEANERS	0.250		0	0	NR	NR	NR	0
EMI	TP		NR	NR	NR	NR	NR	0
ENF	TP		NR	NR	NR	NR	NR	0
Financial Assurance	TP		NR	NR	NR	NR	NR	0
HAZNET	TP		NR	NR	NR	NR	NR	0
ICE	TP		NR	NR	NR	NR	NR	0
HIST CORTESE	0.500		0	0	0	NR	NR	0
LOS ANGELES CO. HMS	TP		NR	NR	NR	NR	NR	0
HWP	1.000		0	0	0	0	NR	0
HWT	0.250		0	0	NR	NR	NR	0
MINES	0.250		0	0	NR	NR	NR	0
MWMP	0.250		0	0	NR	NR	NR	0
NPDES	TP	1	NR	NR	NR	NR	NR	1
PEST LIC	TP		NR	NR	NR	NR	NR	0
PROC	0.500		0	0	0	NR	NR	0
Notify 65	1.000		0	0	0	0	NR	0
LA Co. Site Mitigation	TP		NR	NR	NR	NR	NR	0
UIC	TP		NR	NR	NR	NR	NR	0
UIC GEO	TP		NR	NR	NR	NR	NR	0
WASTEWATER PITS	0.500		0	0	0	NR	NR	0
WDS	TP		NR	NR	NR	NR	NR	0
WIP	0.250		0	0	NR	NR	NR	0
MILITARY PRIV SITES	TP		NR	NR	NR	NR	NR	0
PROJECT	TP		NR	NR	NR	NR	NR	0
WDR	TP		NR	NR	NR	NR	NR	0
CIWQS	TP	1	NR	NR	NR	NR	NR	1
CERS	TP		NR	NR	NR	NR	NR	0
NON-CASE INFO	TP		NR	NR	NR	NR	NR	0
OTHER OIL GAS	TP		NR	NR	NR	NR	NR	0
PROD WATER PONDS	TP		NR	NR	NR	NR	NR	0
SAMPLING POINT	TP		NR	NR	NR	NR	NR	0
WELL STIM PROJ	TP		NR	NR	NR	NR	NR	0
MINES MRDS	TP		NR	NR	NR	NR	NR	0
LOS ANGELES CO LF METHANE	0.500		0	0	0	NR	NR	0
HWTS	TP		NR	NR	NR	NR	NR	0

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP	1.000		0	0	0	0	NR	0
EDR Hist Auto	0.125		1	NR	NR	NR	NR	1
EDR Hist Cleaner	0.125		0	NR	NR	NR	NR	0

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF	TP		NR	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
RGA LUST	TP		NR	NR	NR	NR	NR	0
- Totals --		2	10	6	0	2	0	20

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

A1 **VALENCIA SUPPORT YARD** **CIWQS** **S123406467**
Target **24924 HAWKBRYN AVENUE** **N/A**
Property **VALENCIA, CA 91607**

Site 1 of 2 in cluster A

Actual: **1301 ft.**

CIWQS:

Name:	VALENCIA SUPPORT YARD
Address:	24924 HAWKBRYN AVENUE
City,State,Zip:	VALENCIA, CA 91607
Agency:	Southern California Edison
Agency Address:	2244 Walnut Grove Ave GO 1 Quad 2C, Rosemead, CA 91770
Place/Project Type:	Construction - Other: Laydown Yard
SIC/NAICS:	Not reported
Region:	4
Program:	CONSTW
Regulatory Measure Status:	Terminated
Regulatory Measure Type:	Storm water construction
Order Number:	2009-0009-DWQ
WDID:	4 19C385955
NPDES Number:	CAS000002
Adoption Date:	Not reported
Effective Date:	02/06/2019
Termination Date:	05/15/2019
Expiration/Review Date:	Not reported
Design Flow:	Not reported
Major/Minor:	Not reported
Complexity:	Not reported
TTWQ:	Not reported
Enforcement Actions within 5 years:	0
Violations within 5 years:	0
Latitude:	34.369319
Longitude:	-118.557499

A2 **VALENCIA SUPPORT YARD** **NPDES** **S123302719**
Target **24924 HAWKBRYN AVENUE** **N/A**
Property **VALENCIA, CA 91607**

Site 2 of 2 in cluster A

Actual: **1301 ft.**

NPDES:

Name:	VALENCIA SUPPORT YARD
Address:	24924 HAWKBRYN AVENUE
City,State,Zip:	VALENCIA, CA 91607
Facility Status:	Terminated
NPDES Number:	CAS000002
Region:	4
Agency Number:	0
Regulatory Measure ID:	505423
Place ID:	Not reported
Order Number:	2009-0009-DWQ
WDID:	4 19C385955
Regulatory Measure Type:	Enrollee
Program Type:	Construction
Adoption Date Of Regulatory Measure:	Not reported
Effective Date Of Regulatory Measure:	02/06/2019
Termination Date Of Regulatory Measure:	05/15/2019
Expiration Date Of Regulatory Measure:	Not reported
Discharge Address:	2244 Walnut Grove Ave GO 1 Quad 2C
Discharge Name:	Southern California Edison

VALENCIA SUPPORT YARD (Continued) **S123302719**

Discharge City:	Rosemead
Discharge State:	California
Discharge Zip:	91770
Status:	Not reported
Status Date:	Not reported
Operator Name:	Not reported
Operator Address:	Not reported
Operator City:	Not reported
Operator State:	Not reported
Operator Zip:	Not reported

Name:	VALENCIA SUPPORT YARD
Address:	24924 HAWKBRYN AVENUE
City,State,Zip:	VALENCIA, CA 91607
Facility Status:	Not reported
NPDES Number:	Not reported
Region:	Not reported
Agency Number:	Not reported
Regulatory Measure ID:	Not reported
Place ID:	Not reported
Order Number:	Not reported
WDID:	4 19C385955
Regulatory Measure Type:	Construction
Program Type:	Not reported
Adoption Date Of Regulatory Measure:	Not reported
Effective Date Of Regulatory Measure:	Not reported
Termination Date Of Regulatory Measure:	Not reported
Expiration Date Of Regulatory Measure:	Not reported
Discharge Address:	Not reported
Discharge Name:	Not reported
Discharge City:	Not reported
Discharge State:	Not reported
Discharge Zip:	Not reported
Status:	Terminated
Status Date:	08/13/2019
Operator Name:	Southern California Edison
Operator Address:	2244 Walnut Grove Ave GO 1 Quad 2C
Operator City:	Rosemead
Operator State:	California
Operator Zip:	91770

B3 **MORELLI MOTORS LTD** **HIST UST** **U001567311**
SSE **24640 WILEY CANYON RD** **N/A**
< 1/8 **NEWHALL, CA 91321**
0.027 mi.
143 ft. **Site 1 of 3 in cluster B**

Relative:
Higher

Actual:
1330 ft.

HIST UST:

Name:	MORELLI MOTORS LTD
Address:	24640 WILEY CANYON RD
City,State,Zip:	NEWHALL, CA 91321
File Number:	00027250
URL:	http://geotracker.waterboards.ca.gov/ustpdfs/pdf/00027250.pdf
Region:	STATE
Facility ID:	00000046869
Facility Type:	Other
Other Type:	AUTO DEALERSHIP
Contact Name:	JOSEPH R. MORELLI

MORELLI MOTORS LTD (Continued) **U001567311**

Telephone:	8052542114
Owner Name:	JOSEPH R. MORELLI AND DOROTHY
Owner Address:	23955 CALGROVE BLVD.
Owner City,St,Zip:	NEWHALL, CA 91321
Total Tanks:	0004
Tank Num:	001
Container Num:	003
Year Installed:	1981
Tank Capacity:	00000500
Tank Used for:	WASTE
Type of Fuel:	WASTE OIL
Container Construction Thickness:	Not reported
Leak Detection:	Visual
Tank Num:	002
Container Num:	002
Year Installed:	1981
Tank Capacity:	00005000
Tank Used for:	PRODUCT
Type of Fuel:	UNLEADED
Container Construction Thickness:	Not reported
Leak Detection:	Visual
Tank Num:	003
Container Num:	001
Year Installed:	1981
Tank Capacity:	00005000
Tank Used for:	PRODUCT
Type of Fuel:	UNLEADED
Container Construction Thickness:	Not reported
Leak Detection:	Visual
Tank Num:	004
Container Num:	004
Year Installed:	1981
Tank Capacity:	00001500
Tank Used for:	WASTE
Type of Fuel:	Not reported
Container Construction Thickness:	Not reported
Leak Detection:	Visual

Click here for Geo Tracker PDF:

B4 **CANYON PONTIAC BUICK** **RCRA-SQG** **1000441911**
SSE **24640 N WILEY CYN RD** **FINDS** **CAD981689219**
< 1/8 **NEWHALL, CA 91321** **ECHO**
0.027 mi.
143 ft. **Site 2 of 3 in cluster B**

Relative:
Higher

Actual:
1330 ft.

RCRA-SQG:

Date Form Received by Agency:		19861030
Handler Name:	CANYON PONTIAC BUICK	
Handler Address:		24640 N WILEY CYN RD
Handler City,State,Zip:		NEWHALL, CA 91321
EPA ID:		CAD981689219
Contact Name:		ENVIRONMENTAL MANAGER
Contact Address:		24640 N WILEY CYN RD

CANYON PONTIAC BUICK (Continued) **1000441911**

Contact City,State,Zip:	NEWHALL, CA 91321
Contact Telephone:	805-254-2114
Contact Fax:	Not reported
Contact Email:	Not reported
Contact Title:	Not reported
EPA Region:	09
Land Type:	Not reported
Federal Waste Generator Description:	Small Quantity Generator
Non-Notifier:	Not reported
Biennial Report Cycle:	Not reported
Accessibility:	Not reported
Active Site Indicator:	Handler Activities
State District Owner:	CA
State District:	3
Mailing Address:	N WILEY CYN RD
Mailing City,State,Zip:	NEWHALL, CA 91321
Owner Name:	CANYON PONTIAC BUICK CORP
Owner Type:	Private
Operator Name:	NOT REQUIRED
Operator Type:	Private
Short-Term Generator Activity:	No
Importer Activity:	No
Mixed Waste Generator:	No
Transporter Activity:	No
Transfer Facility Activity:	No
Recycler Activity with Storage:	No
Small Quantity On-Site Burner Exemption:	No
Smelting Melting and Refining Furnace Exemption:	No
Underground Injection Control:	No
Off-Site Waste Receipt:	No
Universal Waste Indicator:	No
Universal Waste Destination Facility:	No
Federal Universal Waste:	No
Active Site Fed-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site Converter Treatment storage and Disposal Facility:	Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site State-Reg Handler:	---
Federal Facility Indicator:	Not reported
Hazardous Secondary Material Indicator:	NN
Sub-Part K Indicator:	Not reported
Commercial TSD Indicator:	No
Treatment Storage and Disposal Type:	Not reported
2018 GPRA Permit Baseline:	Not on the Baseline
2018 GPRA Renewals Baseline:	Not on the Baseline
Permit Renewals Workload Universe:	Not reported
Permit Workload Universe:	Not reported
Permit Progress Universe:	Not reported
Post-Closure Workload Universe:	Not reported
Closure Workload Universe:	Not reported
202 GPRA Corrective Action Baseline:	No
Corrective Action Workload Universe:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No
TSDFs Only Subject to CA under Discretionary Auth Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No

CANYON PONTIAC BUICK (Continued) **1000441911**

Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required:	Not reported
Handler Date of Last Change:	20000915
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	Not reported
Manifest Broker:	Not reported
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Operator
Owner/Operator Name:	NOT REQUIRED
Legal Status:	Private
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	NOT REQUIRED
Owner/Operator City,State,Zip:	NOT REQUIRED, ME 99999
Owner/Operator Telephone:	415-555-1212
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Owner/Operator Indicator:	Owner
Owner/Operator Name:	CANYON PONTIAC BUICK CORP
Legal Status:	Private
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	NOT REQUIRED
Owner/Operator City,State,Zip:	NOT REQUIRED, ME 99999
Owner/Operator Telephone:	415-555-1212
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Historic Generators:

Receive Date:	19861030
Handler Name: CANYON PONTIAC BUICK	
Federal Waste Generator Description:	Small Quantity Generator
State District Owner:	CA
Large Quantity Handler of Universal Waste:	No
Recognized Trader Importer:	No
Recognized Trader Exporter:	No
Spent Lead Acid Battery Importer:	No
Spent Lead Acid Battery Exporter:	No
Current Record:	Yes

CANYON PONTIAC BUICK (Continued) **1000441911**

Non Storage Recycler Activity: Not reported
Electronic Manifest Broker: Not reported

List of NAICS Codes and Descriptions:
NAICS Codes: No NAICS Codes Found

Facility Has Received Notices of Violations:
Violations: No Violations Found

Evaluation Action Summary:
Evaluations: No Evaluations Found

FINDS:
Registry ID: 110002753645

Click Here:

Environmental Interest/Information System:
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:
Envid: 1000441911
Registry ID: 110002753645
DFR URL: http://echo.epa.gov/detailed-facility-report?fid=110002753645
Name: CANYON PONTIAC BUICK
Address: 24640 N WILEY CYN RD
City,State,Zip: NEWHALL, CA 91321

B5 **CANYON MOTORS** **SWEEPS UST** **S106923997**
SSE **24640 WILEY CANYON RD** **N/A**
< 1/8 **SANTA CLARITA, CA**
0.038 mi.
203 ft. **Site 3 of 3 in cluster B**

Relative: **Higher**
Actual: **1326 ft.**

SWEEPS UST:
Name: CANYON MOTORS
Address: 24640 WILEY CANYON RD
City: SANTA CLARITA
Status: Active
Comp Number: 7596
Number: 9
Board Of Equalization: 44-008204
Referral Date: 06-30-89
Action Date: Not reported
Created Date: 06-30-89
Owner Tank Id: Not reported
SWRCB Tank Id: 19-000-007596-000001
Tank Status: A

CANYON MOTORS (Continued) **S106923997**

Capacity: Not reported
Active Date: 06-30-89
Tank Use: UNKNOWN
STG: W
Content: Not reported
Number Of Tanks: 4

Name: CANYON MOTORS
Address: 24640 WILEY CANYON RD
City: SANTA CLARITA
Status: Active
Comp Number: 7596
Number: 9
Board Of Equalization: 44-008204
Referral Date: 06-30-89
Action Date: Not reported
Created Date: 06-30-89
Owner Tank Id: Not reported
SWRCB Tank Id: 19-000-007596-000002
Tank Status: A
Capacity: Not reported
Active Date: 06-30-89
Tank Use: UNKNOWN
STG: W
Content: Not reported
Number Of Tanks: Not reported

Name: CANYON MOTORS
Address: 24640 WILEY CANYON RD
City: SANTA CLARITA
Status: Active
Comp Number: 7596
Number: 9
Board Of Equalization: 44-008204
Referral Date: 06-30-89
Action Date: Not reported
Created Date: 06-30-89
Owner Tank Id: Not reported
SWRCB Tank Id: 19-000-007596-000003
Tank Status: A
Capacity: Not reported
Active Date: 06-30-89
Tank Use: UNKNOWN
STG: W
Content: Not reported
Number Of Tanks: Not reported

Name: CANYON MOTORS
Address: 24640 WILEY CANYON RD
City: SANTA CLARITA
Status: Active
Comp Number: 7596
Number: 9
Board Of Equalization: 44-008204
Referral Date: 06-30-89
Action Date: Not reported
Created Date: 06-30-89

CANYON MOTORS (Continued) **S106923997**

Owner Tank Id:	Not reported
SWRCB Tank Id:	19-000-007596-000004
Tank Status:	A
Capacity:	Not reported
Active Date:	06-30-89
Tank Use:	UNKNOWN
STG:	W
Content:	Not reported
Number Of Tanks:	Not reported

6
NW
< 1/8
0.042 mi.
224 ft.

CRUTE MOBIL HOME CONTRACTOR **EDR Hist Auto** **1021111891**
25000 HAWKBRYN AVE SPC 22 **N/A**
NEWHALL, CA 91321

Relative:
Higher

Actual:
1302 ft.

EDR Hist Auto

Year:	Name:	Type:
1996	CRUTE MOBIL HOME CONTRACT	Gasoline Service Stations
1997	CRUTE MOBIL HOME CONTRACTOR	Gasoline Service Stations
1998	CRUTE MOBIL HOME CONTRACTOR	Gasoline Service Stations
1999	CRUTE MOBIL HOME CONTRACTOR	Gasoline Service Stations
2000	CRUTE MOBIL HOME CONTRACTOR	Gasoline Service Stations

7
WNW
< 1/8
0.050 mi.
263 ft.

VALENCIA OAKS RANCH **RCRA NonGen / NLR** **1000473067**
24945 THE OLD RD **FINDS** **CAD982445124**
NEWHALL, CA 91321 **ECHO**

Relative:
Higher

Actual:
1328 ft.

RCRA NonGen / NLR:

Date Form Received by Agency:	20001003
Handler Name: VALENCIA OAKS RANCH	
Handler Address:	24945 THE OLD RD
Handler City,State,Zip:	NEWHALL, CA 91321
EPA ID:	CAD982445124
Contact Name:	LOWELL MOORE
Contact Address:	4000 WARNER BLVD
Contact City,State,Zip:	BURBANK, CA 91522
Contact Telephone:	818-954-2890
Contact Fax:	Not reported
Contact Email:	Not reported
Contact Title:	Not reported
EPA Region:	09
Land Type:	Other
Federal Waste Generator Description:	Not a generator, verified
Non-Notifier:	Not reported
Biennial Report Cycle:	Not reported
Accessibility:	Not reported
Active Site Indicator:	Not reported
State District Owner:	Not reported
State District:	Not reported
Mailing Address:	4000 WARNER BLVD
Mailing City,State,Zip:	BURBANK, CA 91522
Owner Name:	WARNER BROS INC

VALENCIA OAKS RANCH (Continued) **1000473067**

Owner Type:	Private
Operator Name:	NOT REQUIRED
Operator Type:	Private
Short-Term Generator Activity:	No
Importer Activity:	No
Mixed Waste Generator:	No
Transporter Activity:	No
Transfer Facility Activity:	No
Recycler Activity with Storage:	No
Small Quantity On-Site Burner Exemption:	No
Smelting Melting and Refining Furnace Exemption:	No
Underground Injection Control:	No
Off-Site Waste Receipt:	No
Universal Waste Indicator:	No
Universal Waste Destination Facility:	No
Federal Universal Waste:	No
Active Site Fed-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site Converter Treatment storage and Disposal Facility:	Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site State-Reg Handler:	---
Federal Facility Indicator:	Not reported
Hazardous Secondary Material Indicator:	NN
Sub-Part K Indicator:	Not reported
Commercial TSD Indicator:	No
Treatment Storage and Disposal Type:	Not reported
2018 GPRA Permit Baseline:	Not on the Baseline
2018 GPRA Renewals Baseline:	Not on the Baseline
Permit Renewals Workload Universe:	Not reported
Permit Workload Universe:	Not reported
Permit Progress Universe:	Not reported
Post-Closure Workload Universe:	Not reported
Closure Workload Universe:	Not reported
202 GPRA Corrective Action Baseline:	No
Corrective Action Workload Universe:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No
TSDFs Only Subject to CA under Discretionary Auth Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required:	Not reported
Handler Date of Last Change:	20020627
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	Not reported
Manifest Broker:	Not reported

VALENCIA OAKS RANCH (Continued) **1000473067**

Sub-Part P Indicator: No

Handler - Owner Operator:
Owner/Operator Indicator: Owner
Owner/Operator Name: WARNER BROS INC
Legal Status: Private
Date Became Current: Not reported
Date Ended Current: Not reported
Owner/Operator Address: NOT REQUIRED
Owner/Operator City,State,Zip: NOT REQUIRED, ME 99999
Owner/Operator Telephone: 415-555-1212
Owner/Operator Telephone Ext: Not reported
Owner/Operator Fax: Not reported
Owner/Operator Email: Not reported

Owner/Operator Indicator: Operator
Owner/Operator Name: NOT REQUIRED
Legal Status: Private
Date Became Current: Not reported
Date Ended Current: Not reported
Owner/Operator Address: NOT REQUIRED
Owner/Operator City,State,Zip: NOT REQUIRED, ME 99999
Owner/Operator Telephone: 415-555-1212
Owner/Operator Telephone Ext: Not reported
Owner/Operator Fax: Not reported
Owner/Operator Email: Not reported

Historic Generators:
Receive Date: 20001003
Handler Name: VALENCIA OAKS RANCH
Federal Waste Generator Description: Not a generator, verified
State District Owner: Not reported
Large Quantity Handler of Universal Waste: No
Recognized Trader Importer: No
Recognized Trader Exporter: No
Spent Lead Acid Battery Importer: No
Spent Lead Acid Battery Exporter: No
Current Record: Yes
Non Storage Recycler Activity: Not reported
Electronic Manifest Broker: Not reported

List of NAICS Codes and Descriptions:
NAICS Codes: No NAICS Codes Found

Facility Has Received Notices of Violations:
Violations: No Violations Found

Evaluation Action Summary:
Evaluations: No Evaluations Found

FINDS:
Registry ID: 110002814401

VALENCIA OAKS RANCH (Continued) **1000473067**

Click Here:

Environmental Interest/Information System:
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:

Envid:	1000473067
Registry ID:	110002814401
DFR URL:	http://echo.epa.gov/detailed-facility-report?fid=110002814401
Name:	VALENCIA OAKS RANCH
Address:	24945 THE OLD RD
City,State,Zip:	NEWHALL, CA 91321

C8 **CANYON COUNTRY DATSUN** **SWEEPS UST** **U002279519**
SSE **23955 CALGROVE BLVD** **LOS ANGELES CO. HMS** **N/A**
< 1/8 **NEWHALL, CA 91321**
0.079 mi.
416 ft. **Site 1 of 3 in cluster C**

Relative: Higher

Actual: 1338 ft.

SWEEPS UST:

Name:	CANYON COUNTRY DATSUN
Address:	23955 W CALGROVE BLVD
City:	SANTA CLARITA
Status:	Active
Comp Number:	4664
Number:	9
Board Of Equalization:	44-007829
Referral Date:	06-30-89
Action Date:	Not reported
Created Date:	06-30-89
Owner Tank Id:	Not reported
SWRCB Tank Id:	19-000-004664-000001
Tank Status:	A
Capacity:	Not reported
Active Date:	06-30-89
Tank Use:	UNKNOWN
STG:	W
Content:	Not reported
Number Of Tanks:	2

Name:	CANYON COUNTRY DATSUN
Address:	23955 W CALGROVE BLVD
City:	SANTA CLARITA
Status:	Active
Comp Number:	4664
Number:	9
Board Of Equalization:	44-007829
Referral Date:	06-30-89
Action Date:	Not reported
Created Date:	06-30-89

CANYON COUNTRY DATSUN (Continued) **U002279519**

Owner Tank Id: Not reported
SWRCB Tank Id: 19-000-004664-000002
Tank Status: A
Capacity: Not reported
Active Date: 06-30-89
Tank Use: UNKNOWN
STG: W
Content: Not reported
Number Of Tanks: Not reported

LOS ANGELES CO. HMS:
Name: CANYON COUNTRY DATSUN
Address: 23955 CALGROVE BLVD
City,State,Zip: NEWHALL, CA 91321
Region: LA
Permit Category: I
Facility Id: 4495-I04664
Facility Type: 01
Facility Status: Removed
Area: 7A
Permit Number: 000005120
Permit Status: Removed

Name: CANYON COUNTRY DATSUN
Address: 23955 CALGROVE BLVD
City,State,Zip: NEWHALL, CA 91321
Region: LA
Permit Category: T
Facility Id: 4495-004664
Facility Type: 0
Facility Status: Removed
Area: 7A
Permit Number: 00000290T
Permit Status: Removed

C9 **MORELLI MOTORS LTD** **HIST UST** **U001567310**
SSE **23955 CALGROVE BLVD** **N/A**
< 1/8 **NEWHALL, CA 91321**
0.079 mi.
416 ft. **Site 2 of 3 in cluster C**

Relative: **Higher**
Actual: **1338 ft.**

HIST UST:
Name: MORELLI MOTORS LTD
Address: 23955 CALGROVE BLVD
City,State,Zip: NEWHALL, CA 91321
File Number: 00027253
URL: http://geotracker.waterboards.ca.gov/ustpdfs/pdf/00027253.pdf
Region: STATE
Facility ID: 00000047276
Facility Type: Other
Other Type: AUTO DEALERSHIPS
Contact Name: JOSEPH R. MORELLI
Telephone: 8052552020
Owner Name: JOSEPH R. MORELLI AND DOROTHY
Owner Address: 23955 CALGROVE BLVD
Owner City,St,Zip: NEWHALL, CA 91321
Total Tanks: 0002

MORELLI MOTORS LTD (Continued) **U001567310**

Tank Num:	001
Container Num:	1
Year Installed:	1976
Tank Capacity:	00000500
Tank Used for:	WASTE
Type of Fuel:	WASTE OIL
Container Construction Thickness:	Not reported
Leak Detection:	Visual

Tank Num:	002
Container Num:	2
Year Installed:	1976
Tank Capacity:	00001000
Tank Used for:	WASTE
Type of Fuel:	Not reported
Container Construction Thickness:	Not reported
Leak Detection:	Visual

Click here for Geo Tracker PDF:

C10 **CANYON IMPORTS** **RCRA-SQG** **1000441915**
SSE **23955 CALGROVE BLVD** **FINDS** **CAD982058653**
< 1/8 **CANYON COUNTRY, CA 91351** **ECHO**
0.079 mi. **HAZNET**
416 ft. **Site 3 of 3 in cluster C** **HWTS**

Relative: **Higher**
Actual: **1338 ft.**

RCRA-SQG:

Date Form Received by Agency:		19960901
Handler Name:	CANYON IMPORTS	
Handler Address:		23955 CALGROVE BLVD
Handler City,State,Zip:		CANYON COUNTRY, CA 91351
EPA ID:		CAD982058653
Contact Name:		Not reported
Contact Address:		Not reported
Contact City,State,Zip:		Not reported
Contact Telephone:		Not reported
Contact Fax:		Not reported
Contact Email:		Not reported
Contact Title:		Not reported
EPA Region:		09
Land Type:		Not reported
Federal Waste Generator Description:		Small Quantity Generator
Non-Notifier:		Not reported
Biennial Report Cycle:		Not reported
Accessibility:		Not reported
Active Site Indicator:		Handler Activities
State District Owner:		CA
State District:		3
Mailing Address:		23955 CALGROVE BLVD
Mailing City,State,Zip:		CANYON COUNTRY, CA 91351
Owner Name:		Not reported
Owner Type:		Not reported
Operator Name:		NOT REQUIRED
Operator Type:		Private
Short-Term Generator Activity:		No
Importer Activity:		No
Mixed Waste Generator:		No
Transporter Activity:		No

CANYON IMPORTS (Continued) **1000441915**

Transfer Facility Activity:	No
Recycler Activity with Storage:	No
Small Quantity On-Site Burner Exemption:	No
Smelting Melting and Refining Furnace Exemption:	No
Underground Injection Control:	No
Off-Site Waste Receipt:	No
Universal Waste Indicator:	No
Universal Waste Destination Facility:	No
Federal Universal Waste:	No
Active Site Fed-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site Converter Treatment storage and Disposal Facility:	Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site State-Reg Handler:	---
Federal Facility Indicator:	Not reported
Hazardous Secondary Material Indicator:	NN
Sub-Part K Indicator:	Not reported
Commercial TSD Indicator:	No
Treatment Storage and Disposal Type:	Not reported
2018 GPRA Permit Baseline:	Not on the Baseline
2018 GPRA Renewals Baseline:	Not on the Baseline
Permit Renewals Workload Universe:	Not reported
Permit Workload Universe:	Not reported
Permit Progress Universe:	Not reported
Post-Closure Workload Universe:	Not reported
Closure Workload Universe:	Not reported
202 GPRA Corrective Action Baseline:	No
Corrective Action Workload Universe:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No
TSDFs Only Subject to CA under Discretionary Auth Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required:	Not reported
Handler Date of Last Change:	20020627
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	Not reported
Manifest Broker:	Not reported
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Operator
Owner/Operator Name:	NOT REQUIRED
Legal Status:	Private

CANYON IMPORTS (Continued) **1000441915**

Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	NOT REQUIRED
Owner/Operator City,State,Zip:	NOT REQUIRED, ME 99999
Owner/Operator Telephone:	415-555-1212
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported
Owner/Operator Indicator:	Owner
Owner/Operator Name:	JESEPH MORELL
Legal Status:	Private
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	NOT REQUIRED
Owner/Operator City,State,Zip:	NOT REQUIRED, ME 99999
Owner/Operator Telephone:	415-555-1212
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Historic Generators:

Receive Date:	19960901
Handler Name: CANYON IMPORTS	
Federal Waste Generator Description:	Small Quantity Generator
State District Owner:	CA
Large Quantity Handler of Universal Waste:	No
Recognized Trader Importer:	No
Recognized Trader Exporter:	No
Spent Lead Acid Battery Importer:	No
Spent Lead Acid Battery Exporter:	No
Current Record:	Yes
Non Storage Recycler Activity:	Not reported
Electronic Manifest Broker:	Not reported
Receive Date:	19871001
Handler Name: CANYON IMPORTS	
Federal Waste Generator Description:	Large Quantity Generator
State District Owner:	CA
Large Quantity Handler of Universal Waste:	No
Recognized Trader Importer:	No
Recognized Trader Exporter:	No
Spent Lead Acid Battery Importer:	No
Spent Lead Acid Battery Exporter:	No
Current Record:	No
Non Storage Recycler Activity:	Not reported
Electronic Manifest Broker:	Not reported

List of NAICS Codes and Descriptions:

NAICS Codes:	No NAICS Codes Found

Facility Has Received Notices of Violations:

Violations:	No Violations Found

Evaluation Action Summary:

CANYON IMPORTS (Continued) **1000441915**

Evaluations: No Evaluations Found

FINDS:
Registry ID: 110006477160

Click Here:

Environmental Interest/Information System:
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:

Envid:	1000441915
Registry ID:	110006477160
DFR URL:	http://echo.epa.gov/detailed-facility-report?fid=110006477160
Name:	CANYON IMPORTS
Address:	23955 CALGROVE BLVD
City,State,Zip:	CANYON COUNTRY, CA 91351

HAZNET:

Name:	CANYON IMPORTS
Address:	23955 CALGROVE BLVD
Address 2:	Not reported
City,State,Zip:	CANYON COUNTRY, CA 913210000
Contact:	UNDELIVERABLE FEES FORM 95 LC
Telephone:	--
Mailing Name:	Not reported
Mailing Address:	23955 CALGROVE BLVD
Year:	1993
Gepaid:	CAD982058653
TSD EPA ID:	CAT080013352
CA Waste Code:	221 - Waste oil and mixed oil
Disposal Method:	R01 - Recycler
Tons:	8.74
Year:	1993
Gepaid:	CAD982058653
TSD EPA ID:	CAD008252405
CA Waste Code:	214 - Unspecified solvent mixture
Disposal Method:	R01 - Recycler
Tons:	0.63
Year:	1993
Gepaid:	CAD982058653
TSD EPA ID:	CAD008252405
CA Waste Code:	214 - Unspecified solvent mixture
Disposal Method:	-
Tons:	0.072

CANYON IMPORTS (Continued) **1000441915**

Year: 1992
Gepaid: CAD982058653
TSD EPA ID: CAD099452708
CA Waste Code: 343 - Unspecified organic liquid mixture
Disposal Method: H01 - Transfer Station
Tons: 2.627

Year: 1992
Gepaid: CAD982058653
TSD EPA ID: CAD008252405
CA Waste Code: 214 - Unspecified solvent mixture
Disposal Method: R01 - Recycler
Tons: 1.555

Year: 1992
Gepaid: CAD982058653
TSD EPA ID: CAD982484933
CA Waste Code: 512 - Other empty containers 30 gallons or more
Disposal Method: -
Tons: 5.55

Year: 1992
Gepaid: CAD982058653
TSD EPA ID: CAD981458466
CA Waste Code: 241 - Tank bottom waste
Disposal Method: -
Tons: 3.336

Year: 1992
Gepaid: CAD982058653
TSD EPA ID: CAT080013352
CA Waste Code: 241 - Tank bottom waste
Disposal Method: R01 - Recycler
Tons: 1.0842

Year: 1991
Gepaid: CAD982058653
TSD EPA ID: Not reported
CA Waste Code: 213 - Hydrocarbon solvents (benzene, hexane, Stoddard, Etc.)
Disposal Method: 01 -
Tons: 0.05

Year: 1991
Gepaid: CAD982058653
TSD EPA ID: CAD008252405
CA Waste Code: 214 - Unspecified solvent mixture
Disposal Method: R01 - Recycler
Tons: 1.355

Click this hyperlink while viewing on your computer to access
33 additional CA HAZNET: record(s) in the EDR Site Report.

Additional Info:
Year: 1993
Gen EPA ID: CAD982058653

CANYON IMPORTS (Continued) **1000441915**

Shipment Date:	19930629
Creation Date:	9/11/1995 0:00:00
Receipt Date:	19930630
Manifest ID:	92741113
Trans EPA ID:	CAD000628636
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAT080013352
Trans Name:	Not reported
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	221 - Waste oil and mixed oil
RCRA Code:	Not reported
Meth Code:	R01 - Recycler
Quantity Tons:	8.74
Waste Quantity:	2300
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Shipment Date:	19930506
Creation Date:	9/7/1995 0:00:00
Receipt Date:	19930506
Manifest ID:	92515366
Trans EPA ID:	CAD008252405
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD008252405
Trans Name:	Not reported
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	214 - Unspecified solvent mixture
RCRA Code:	Not reported
Meth Code:	R01 - Recycler
Quantity Tons:	0.126
Waste Quantity:	35
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Shipment Date:	19930506
Creation Date:	9/7/1995 0:00:00
Receipt Date:	19930506
Manifest ID:	92515366
Trans EPA ID:	CAD008252405
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD008252405

CANYON IMPORTS (Continued) **1000441915**

Trans Name:	Not reported
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	214 - Unspecified solvent mixture
RCRA Code:	Not reported
Meth Code:	- Not reported
Quantity Tons:	0.072
Waste Quantity:	20
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	19930401
Creation Date:	9/6/1995 0:00:00
Receipt Date:	19930401
Manifest ID:	92041438
Trans EPA ID:	CAD008252405
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD008252405
Trans Name:	Not reported
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	214 - Unspecified solvent mixture
RCRA Code:	Not reported
Meth Code:	R01 - Recycler
Quantity Tons:	0.198
Waste Quantity:	55
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	19930310
Creation Date:	9/1/1995 0:00:00
Receipt Date:	19930310
Manifest ID:	92037391
Trans EPA ID:	CAD008252405
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD008252405
Trans Name:	Not reported
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	214 - Unspecified solvent mixture
RCRA Code:	Not reported
Meth Code:	R01 - Recycler
Quantity Tons:	0.0864
Waste Quantity:	24
Quantity Unit:	G

CANYON IMPORTS (Continued) **1000441915**

Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	19930211
Creation Date:	9/7/1995 0:00:00
Receipt Date:	19930211
Manifest ID:	92033916
Trans EPA ID:	CAD008252405
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD008252405
Trans Name:	Not reported
TSDF Alt EPA ID:	CAD008252405
TSDF Alt Name:	Not reported
Waste Code Description:	214 - Unspecified solvent mixture
RCRA Code:	Not reported
Meth Code:	R01 - Recycler
Quantity Tons:	0.126
Waste Quantity:	35
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	19930114
Creation Date:	9/15/1995 0:00:00
Receipt Date:	19930114
Manifest ID:	92032407
Trans EPA ID:	CAD008252405
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD008252405
Trans Name:	Not reported
TSDF Alt EPA ID:	CAD008252405
TSDF Alt Name:	Not reported
Waste Code Description:	214 - Unspecified solvent mixture
RCRA Code:	Not reported
Meth Code:	R01 - Recycler
Quantity Tons:	0.0936
Waste Quantity:	26
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

HWTS:

Name:	CANYON IMPORTS
Address:	23955 CALGROVE BLVD

CANYON IMPORTS (Continued) **1000441915**

Address 2:	Not reported
City,State,Zip:	CANYON COUNTRY, CA 913210000
EPA ID:	CAD982058653
Inactive Date:	06/30/1995
Create Date:	03/01/1988
Last Act Date:	09/14/2004
Mailing Name:	Not reported
Mailing Address:	23955 CALGROVE BLVD
Mailing Address 2:	Not reported
Mailing City,State,Zip:	CANYON COUNTRY, CA 913210000
Owner Name:	--
Owner Address:	--
Owner Address 2:	Not reported
Owner City,State,Zip:	--, 99 --
Contact Name:	UNDELIVERABLE FEES FORM 95 LC
Contact Address:	--
Contact Address 2:	Not reported
City,State,Zip:	--, 99 --

11
ESE
< 1/8
0.089 mi.
469 ft.

ERIC SCANTLAND **RCRA NonGen / NLR** **1025837430**
23929 FAMBROUGH STREET **CAC003017021**
SANTA CLARITA, CA 91321

Relative:
Higher

Actual:
1320 ft.

RCRA NonGen / NLR:

Date Form Received by Agency:		20190529
Handler Name:	ERIC SCANTLAND	
Handler Address:		23929 FAMBROUGH STREET
Handler City,State,Zip:		SANTA CLARITA, CA 91321
EPA ID:		CAC003017021
Contact Name:		ERIC SCANTLAND
Contact Address:		23929 FAMBROUGH STREET
Contact City,State,Zip:		SANTA CLARITA, CA 91321
Contact Telephone:		661-755-2085
Contact Fax:		Not reported
Contact Email:		BEVERLYPENDOLINO@ALLIANCE-ENVIRO.COM
Contact Title:		Not reported
EPA Region:		09
Land Type:		Not reported
Federal Waste Generator Description:		Not a generator, verified
Non-Notifier:		Not reported
Biennial Report Cycle:		Not reported
Accessibility:		Not reported
Active Site Indicator:		Handler Activities
State District Owner:		Not reported
State District:		Not reported
Mailing Address:		23929 FAMBROUGH STREET
Mailing City,State,Zip:		SANTA CLARITA, CA 91321
Owner Name:		ERIC SCANTLAND
Owner Type:		Other
Operator Name:		ERIC SCANTLAND
Operator Type:		Other
Short-Term Generator Activity:		No
Importer Activity:		No
Mixed Waste Generator:		No
Transporter Activity:		No
Transfer Facility Activity:		No

ERIC SCANTLAND (Continued) **1025837430**

Recycler Activity with Storage:	No
Small Quantity On-Site Burner Exemption:	No
Smelting Melting and Refining Furnace Exemption:	No
Underground Injection Control:	No
Off-Site Waste Receipt:	No
Universal Waste Indicator:	Yes
Universal Waste Destination Facility:	Yes
Federal Universal Waste:	No
Active Site Fed-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site Converter Treatment storage and Disposal Facility:	Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site State-Reg Handler:	---
Federal Facility Indicator:	Not reported
Hazardous Secondary Material Indicator:	N
Sub-Part K Indicator:	Not reported
Commercial TSD Indicator:	No
Treatment Storage and Disposal Type:	Not reported
2018 GPRA Permit Baseline:	Not on the Baseline
2018 GPRA Renewals Baseline:	Not on the Baseline
Permit Renewals Workload Universe:	Not reported
Permit Workload Universe:	Not reported
Permit Progress Universe:	Not reported
Post-Closure Workload Universe:	Not reported
Closure Workload Universe:	Not reported
202 GPRA Corrective Action Baseline:	No
Corrective Action Workload Universe:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No
TSDFs Only Subject to CA under Discretionary Auth Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required:	Not reported
Handler Date of Last Change:	20190627
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Owner
Owner/Operator Name:	ERIC SCANTLAND
Legal Status:	Other
Date Became Current:	Not reported

ERIC SCANTLAND (Continued) **1025837430**

Date Ended Current:	Not reported
Owner/Operator Address:	23929 FAMBROUGH STREET
Owner/Operator City,State,Zip:	SANTA CLARITA, CA 91321
Owner/Operator Telephone:	661-755-2085
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported
Owner/Operator Indicator:	Operator
Owner/Operator Name:	ERIC SCANTLAND
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	23929 FAMBROUGH STREET
Owner/Operator City,State,Zip:	SANTA CLARITA, CA 91321
Owner/Operator Telephone:	661-755-2085
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Historic Generators:

Receive Date:	20190529
Handler Name: ERIC SCANTLAND	
Federal Waste Generator Description:	Not a generator, verified
State District Owner:	Not reported
Large Quantity Handler of Universal Waste:	No
Recognized Trader Importer:	No
Recognized Trader Exporter:	No
Spent Lead Acid Battery Importer:	No
Spent Lead Acid Battery Exporter:	No
Current Record:	Yes
Non Storage Recycler Activity:	Not reported
Electronic Manifest Broker:	Not reported

List of NAICS Codes and Descriptions:

NAICS Code:	56299
NAICS Description:	ALL OTHER WASTE MANAGEMENT SERVICES

Facility Has Received Notices of Violations:

Violations:	No Violations Found

Evaluation Action Summary:

Evaluations:	No Evaluations Found

12
East
< 1/8
0.111 mi.
587 ft.

TONY & RONALEE ASTRINO **RCRA NonGen / NLR** **1024768073**
23905 DARBUN DRIVE **CAC002987953**
NEWHALL, CA 91321

Relative:
Higher

Actual:
1338 ft.

RCRA NonGen / NLR:

Date Form Received by Agency:	20181105
Handler Name:	TONY & RONALEE ASTRINO
Handler Address:	23905 DARBUN DRIVE
Handler City,State,Zip:	NEWHALL, CA 91321

TONY & RONALEE ASTRINO (Continued) **1024768073**

EPA ID:	CAC002987953
Contact Name:	TONY & RONALEE ASTRINO
Contact Address:	23905 DARBUN DRIVE
Contact City,State,Zip:	NEWHALL, CA 91321
Contact Telephone:	614-477-5550
Contact Fax:	Not reported
Contact Email:	RONALEE.ASMNO@GMAIL.COM
Contact Title:	Not reported
EPA Region:	09
Land Type:	Not reported
Federal Waste Generator Description:	Not a generator, verified
Non-Notifier:	Not reported
Biennial Report Cycle:	Not reported
Accessibility:	Not reported
Active Site Indicator:	Handler Activities
State District Owner:	Not reported
State District:	Not reported
Mailing Address:	23905 DARBUN DRIVE
Mailing City,State,Zip:	NEWHALL, CA 91321
Owner Name:	TONY & RONALEE ASTRINO
Owner Type:	Other
Operator Name:	TONY & RONALEE ASTRINO
Operator Type:	Other
Short-Term Generator Activity:	No
Importer Activity:	No
Mixed Waste Generator:	No
Transporter Activity:	No
Transfer Facility Activity:	No
Recycler Activity with Storage:	No
Small Quantity On-Site Burner Exemption:	No
Smelting Melting and Refining Furnace Exemption:	No
Underground Injection Control:	No
Off-Site Waste Receipt:	No
Universal Waste Indicator:	Yes
Universal Waste Destination Facility:	Yes
Federal Universal Waste:	No
Active Site Fed-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site Converter Treatment storage and Disposal Facility:	Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site State-Reg Handler:	---
Federal Facility Indicator:	Not reported
Hazardous Secondary Material Indicator:	N
Sub-Part K Indicator:	Not reported
Commercial TSD Indicator:	No
Treatment Storage and Disposal Type:	Not reported
2018 GPRA Permit Baseline:	Not on the Baseline
2018 GPRA Renewals Baseline:	Not on the Baseline
Permit Renewals Workload Universe:	Not reported
Permit Workload Universe:	Not reported
Permit Progress Universe:	Not reported
Post-Closure Workload Universe:	Not reported
Closure Workload Universe:	Not reported
202 GPRA Corrective Action Baseline:	No
Corrective Action Workload Universe:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No

TONY & RONALEE ASTRINO (Continued) **1024768073**

TSDFs Only Subject to CA under Discretionary Auth Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required:	Not reported
Handler Date of Last Change:	20181120
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Operator
Owner/Operator Name:	TONY & RONALEE ASTRINO
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	23905 DARBUN DRIVE
Owner/Operator City,State,Zip:	NEWHALL, CA 91321
Owner/Operator Telephone:	614-477-5550
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Owner/Operator Indicator:	Owner
Owner/Operator Name:	TONY & RONALEE ASTRINO
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	23905 DARBUN DRIVE
Owner/Operator City,State,Zip:	NEWHALL, CA 91321
Owner/Operator Telephone:	614-477-5550
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Historic Generators:

Receive Date:	20181105
Handler Name: TONY & RONALEE ASTRINO	
Federal Waste Generator Description:	Not a generator, verified
State District Owner:	Not reported
Large Quantity Handler of Universal Waste:	No
Recognized Trader Importer:	No
Recognized Trader Exporter:	No

TONY & RONALEE ASTRINO (Continued) **1024768073**

Spent Lead Acid Battery Importer: No
Spent Lead Acid Battery Exporter: No
Current Record: Yes
Non Storage Recycler Activity: Not reported
Electronic Manifest Broker: Not reported

List of NAICS Codes and Descriptions:
NAICS Code: 56299
NAICS Description: ALL OTHER WASTE MANAGEMENT SERVICES

Facility Has Received Notices of Violations:
Violations: No Violations Found

Evaluation Action Summary:
Evaluations: No Evaluations Found

13
NNW
1/8-1/4
0.141 mi.
742 ft.

CEFRE, CRISTINA **RCRA NonGen / NLR** **1024756802**
24219 WABUSKA STREET **CAC002976634**
NEWHALL, CA 91321

Relative:
Lower

Actual:
1285 ft.

RCRA NonGen / NLR:

Date Form Received by Agency:		20180820
Handler Name:	CEFRE, CRISTINA	
Handler Address:		24219 WABUSKA STREET
Handler City,State,Zip:		NEWHALL, CA 91321
EPA ID:		CAC002976634
Contact Name:		CEFRE, CRISTINA
Contact Address:		24219 WABUSKA STREET
Contact City,State,Zip:		NEWHALL, CA 91321
Contact Telephone:		661-254-0739
Contact Fax:		Not reported
Contact Email:		ANDREWC@PWSEI.COM
Contact Title:		Not reported
EPA Region:		09
Land Type:		Not reported
Federal Waste Generator Description:		Not a generator, verified
Non-Notifier:		Not reported
Biennial Report Cycle:		Not reported
Accessibility:		Not reported
Active Site Indicator:		Handler Activities
State District Owner:		Not reported
State District:		Not reported
Mailing Address:		24219 WABUSKA STREET
Mailing City,State,Zip:		NEWHALL, CA 91321
Owner Name:		CEFRE, CRISTINA
Owner Type:		Other
Operator Name:		CEFRE, CRISTINA
Operator Type:		Other
Short-Term Generator Activity:		No
Importer Activity:		No
Mixed Waste Generator:		No
Transporter Activity:		No
Transfer Facility Activity:		No

CEFRE, CRISTINA (Continued) **1024756802**

Recycler Activity with Storage:	No
Small Quantity On-Site Burner Exemption:	No
Smelting Melting and Refining Furnace Exemption:	No
Underground Injection Control:	No
Off-Site Waste Receipt:	No
Universal Waste Indicator:	Yes
Universal Waste Destination Facility:	Yes
Federal Universal Waste:	No
Active Site Fed-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site Converter Treatment storage and Disposal Facility:	Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site State-Reg Handler:	---
Federal Facility Indicator:	Not reported
Hazardous Secondary Material Indicator:	N
Sub-Part K Indicator:	Not reported
Commercial TSD Indicator:	No
Treatment Storage and Disposal Type:	Not reported
2018 GPRA Permit Baseline:	Not on the Baseline
2018 GPRA Renewals Baseline:	Not on the Baseline
Permit Renewals Workload Universe:	Not reported
Permit Workload Universe:	Not reported
Permit Progress Universe:	Not reported
Post-Closure Workload Universe:	Not reported
Closure Workload Universe:	Not reported
202 GPRA Corrective Action Baseline:	No
Corrective Action Workload Universe:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No
TSDFs Only Subject to CA under Discretionary Auth Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required:	Not reported
Handler Date of Last Change:	20180905
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Owner
Owner/Operator Name:	CEFRE, CRISTINA
Legal Status:	Other
Date Became Current:	Not reported

CEFRE, CRISTINA (Continued) **1024756802**

Date Ended Current: Not reported
Owner/Operator Address: 24219 WABUSKA STREET
Owner/Operator City,State,Zip: NEWHALL, CA 91321
Owner/Operator Telephone: 661-254-0739
Owner/Operator Telephone Ext: Not reported
Owner/Operator Fax: Not reported
Owner/Operator Email: Not reported

Owner/Operator Indicator: Operator
Owner/Operator Name: CEFRE, CRISTINA
Legal Status: Other
Date Became Current: Not reported
Date Ended Current: Not reported
Owner/Operator Address: 24219 WABUSKA STREET
Owner/Operator City,State,Zip: NEWHALL, CA 91321
Owner/Operator Telephone: 661-254-0739
Owner/Operator Telephone Ext: Not reported
Owner/Operator Fax: Not reported
Owner/Operator Email: Not reported

Historic Generators:
Receive Date: 20180820
Handler Name: CEFRE, CRISTINA
Federal Waste Generator Description: Not a generator, verified
State District Owner: Not reported
Large Quantity Handler of Universal Waste: No
Recognized Trader Importer: No
Recognized Trader Exporter: No
Spent Lead Acid Battery Importer: No
Spent Lead Acid Battery Exporter: No
Current Record: Yes
Non Storage Recycler Activity: Not reported
Electronic Manifest Broker: Not reported

List of NAICS Codes and Descriptions:
NAICS Code: 56299
NAICS Description: ALL OTHER WASTE MANAGEMENT SERVICES

Facility Has Received Notices of Violations:
Violations: No Violations Found

Evaluation Action Summary:
Evaluations: No Evaluations Found

14
SE
1/8-1/4
0.158 mi.
834 ft.

CHRIS PORTER **RCRA NonGen / NLR** **1024748742**
23828 DAISETTA DR. **CAC002968525**
SANTA CLARITA, CA 91321

Relative:
Higher

Actual:
1354 ft.

RCRA NonGen / NLR:
Date Form Received by Agency: 20180627
Handler Name: CHRIS PORTER
Handler Address: 23828 DAISETTA DR.
Handler City,State,Zip: SANTA CLARITA, CA 91321

CHRIS PORTER (Continued) **1024748742**

EPA ID:	CAC002968525
Contact Name:	CHRIS PORTER
Contact Address:	23828 DAISETTA DR.
Contact City,State,Zip:	SANTA CLARITA, CA 91321
Contact Telephone:	818-800-4618
Contact Fax:	Not reported
Contact Email:	FAVILA@BURNS-ENVIRO.COM
Contact Title:	Not reported
EPA Region:	09
Land Type:	Not reported
Federal Waste Generator Description:	Not a generator, verified
Non-Notifier:	Not reported
Biennial Report Cycle:	Not reported
Accessibility:	Not reported
Active Site Indicator:	Handler Activities
State District Owner:	Not reported
State District:	Not reported
Mailing Address:	23828 DAISETTA DR.
Mailing City,State,Zip:	SANTA CLARITA, CA 91321
Owner Name:	CHRIS PORTER
Owner Type:	Other
Operator Name:	CHRIS PORTER
Operator Type:	Other
Short-Term Generator Activity:	No
Importer Activity:	No
Mixed Waste Generator:	No
Transporter Activity:	No
Transfer Facility Activity:	No
Recycler Activity with Storage:	No
Small Quantity On-Site Burner Exemption:	No
Smelting Melting and Refining Furnace Exemption:	No
Underground Injection Control:	No
Off-Site Waste Receipt:	No
Universal Waste Indicator:	Yes
Universal Waste Destination Facility:	Yes
Federal Universal Waste:	No
Active Site Fed-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site Converter Treatment storage and Disposal Facility:	Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site State-Reg Handler:	---
Federal Facility Indicator:	Not reported
Hazardous Secondary Material Indicator:	N
Sub-Part K Indicator:	Not reported
Commercial TSD Indicator:	No
Treatment Storage and Disposal Type:	Not reported
2018 GPRA Permit Baseline:	Not on the Baseline
2018 GPRA Renewals Baseline:	Not on the Baseline
Permit Renewals Workload Universe:	Not reported
Permit Workload Universe:	Not reported
Permit Progress Universe:	Not reported
Post-Closure Workload Universe:	Not reported
Closure Workload Universe:	Not reported
202 GPRA Corrective Action Baseline:	No
Corrective Action Workload Universe:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No

CHRIS PORTER (Continued) **1024748742**

TSDFs Only Subject to CA under Discretionary Auth Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required:	Not reported
Handler Date of Last Change:	20180831
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Owner
Owner/Operator Name:	CHRIS PORTER
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	23828 DAISETTA DR.
Owner/Operator City,State,Zip:	SANTA CLARITA, CA 91321
Owner/Operator Telephone:	818-800-4618
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Owner/Operator Indicator:	Operator
Owner/Operator Name:	CHRIS PORTER
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	23828 DAISETTA DR.
Owner/Operator City,State,Zip:	SANTA CLARITA, CA 91321
Owner/Operator Telephone:	818-800-4618
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Historic Generators:

Receive Date:	20180627
Handler Name: CHRIS PORTER	
Federal Waste Generator Description:	Not a generator, verified
State District Owner:	Not reported
Large Quantity Handler of Universal Waste:	No
Recognized Trader Importer:	No
Recognized Trader Exporter:	No

CHRIS PORTER (Continued) **1024748742**

Spent Lead Acid Battery Importer: No
Spent Lead Acid Battery Exporter: No
Current Record: Yes
Non Storage Recycler Activity: Not reported
Electronic Manifest Broker: Not reported

List of NAICS Codes and Descriptions:
NAICS Code: 56299
NAICS Description: ALL OTHER WASTE MANAGEMENT SERVICES

Facility Has Received Notices of Violations:
Violations: No Violations Found

Evaluation Action Summary:
Evaluations: No Evaluations Found

15
NW
1/8-1/4
0.211 mi.
1112 ft.

MAYA HAMMOUD **RCRA NonGen / NLR** **1025862314**
24435 CHERYL KELTON PL **CAC003043020**
NEWHALL, CA 91321

Relative:
Lower

Actual:
1300 ft.

RCRA NonGen / NLR:
Date Form Received by Agency: 20191113
Handler Name: MAYA HAMMOUD
Handler Address: 24435 CHERYL KELTON PL
Handler City,State,Zip: NEWHALL, CA 91321-2330
EPA ID: CAC003043020
Contact Name: MAYA HAMMOUD
Contact Address: 24435 CHERYL KELTON PL
Contact City,State,Zip: NEWHALL, CA 91321-2330
Contact Telephone: 661-645-3582
Contact Fax: Not reported
Contact Email: SHAY@JCENVIRONMENTALINC.COM
Contact Title: Not reported
EPA Region: 09
Land Type: Not reported
Federal Waste Generator Description: Not a generator, verified
Non-Notifier: Not reported
Biennial Report Cycle: Not reported
Accessibility: Not reported
Active Site Indicator: Not reported
State District Owner: Not reported
State District: Not reported
Mailing Address: 24435 CHERYL KELTON PL
Mailing City,State,Zip: NEWHALL, CA 91321-2330
Owner Name: MAYA HAMMOUD
Owner Type: Other
Operator Name: MAYA HAMMOUD
Operator Type: Other
Short-Term Generator Activity: No
Importer Activity: No
Mixed Waste Generator: No
Transporter Activity: No
Transfer Facility Activity: No

MAYA HAMMOUD (Continued) **1025862314**

Recycler Activity with Storage:	No
Small Quantity On-Site Burner Exemption:	No
Smelting Melting and Refining Furnace Exemption:	No
Underground Injection Control:	No
Off-Site Waste Receipt:	No
Universal Waste Indicator:	No
Universal Waste Destination Facility:	No
Federal Universal Waste:	No
Active Site Fed-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site Converter Treatment storage and Disposal Facility:	Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site State-Reg Handler:	---
Federal Facility Indicator:	Not reported
Hazardous Secondary Material Indicator:	N
Sub-Part K Indicator:	Not reported
Commercial TSD Indicator:	No
Treatment Storage and Disposal Type:	Not reported
2018 GPRA Permit Baseline:	Not on the Baseline
2018 GPRA Renewals Baseline:	Not on the Baseline
Permit Renewals Workload Universe:	Not reported
Permit Workload Universe:	Not reported
Permit Progress Universe:	Not reported
Post-Closure Workload Universe:	Not reported
Closure Workload Universe:	Not reported
202 GPRA Corrective Action Baseline:	No
Corrective Action Workload Universe:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No
TSDFs Only Subject to CA under Discretionary Auth Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required:	Not reported
Handler Date of Last Change:	20191122
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Operator
Owner/Operator Name:	MAYA HAMMOUD
Legal Status:	Other
Date Became Current:	Not reported

MAYA HAMMOUD (Continued) **1025862314**

Date Ended Current:	Not reported
Owner/Operator Address:	24435 CHERYL KELTON PL
Owner/Operator City,State,Zip:	NEWHALL, CA 91321-2330
Owner/Operator Telephone:	661-645-3582
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported
Owner/Operator Indicator:	Owner
Owner/Operator Name:	MAYA HAMMOUD
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	24435 CHERYL KELTON PL
Owner/Operator City,State,Zip:	NEWHALL, CA 91321-2330
Owner/Operator Telephone:	661-645-3582
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Historic Generators:

Receive Date:	20191113
Handler Name: MAYA HAMMOUD	
Federal Waste Generator Description:	Not a generator, verified
State District Owner:	Not reported
Large Quantity Handler of Universal Waste:	No
Recognized Trader Importer:	No
Recognized Trader Exporter:	No
Spent Lead Acid Battery Importer:	No
Spent Lead Acid Battery Exporter:	No
Current Record:	Yes
Non Storage Recycler Activity:	Not reported
Electronic Manifest Broker:	Not reported

List of NAICS Codes and Descriptions:

NAICS Code:	56299
NAICS Description:	ALL OTHER WASTE MANAGEMENT SERVICES

Facility Has Received Notices of Violations:

Violations:	No Violations Found

Evaluation Action Summary:

Evaluations:	No Evaluations Found

D16 **DOUG HARLAND** **RCRA NonGen / NLR** **1026041447**
North **25083 FOURL RD** **CAC003047581**
1/8-1/4 **NEWHALL, CA 91321**
0.217 mi.
1144 ft. **Site 1 of 2 in cluster D**

Relative: **Lower**
Actual: **1279 ft.**

RCRA NonGen / NLR:

Date Form Received by Agency:		20191217
Handler Name:	DOUG HARLAND	
Handler Address:		25083 FOURL RD
Handler City,State,Zip:		NEWHALL, CA 91321

DOUG HARLAND (Continued) **1026041447**

EPA ID:	CAC003047581
Contact Name:	DOUG HARLAND
Contact Address:	25083 FOURL RD
Contact City,State,Zip:	NEWHALL, CA 91321
Contact Telephone:	661-775-2495
Contact Fax:	Not reported
Contact Email:	ANAB@PWSEI.COM
Contact Title:	Not reported
EPA Region:	09
Land Type:	Not reported
Federal Waste Generator Description:	Not a generator, verified
Non-Notifier:	Not reported
Biennial Report Cycle:	Not reported
Accessibility:	Not reported
Active Site Indicator:	Not reported
State District Owner:	Not reported
State District:	Not reported
Mailing Address:	25083 FOURL RD
Mailing City,State,Zip:	NEWHALL, CA 91321
Owner Name:	DOUG HARLAND
Owner Type:	Other
Operator Name:	DOUG HARLAND
Operator Type:	Other
Short-Term Generator Activity:	No
Importer Activity:	No
Mixed Waste Generator:	No
Transporter Activity:	No
Transfer Facility Activity:	No
Recycler Activity with Storage:	No
Small Quantity On-Site Burner Exemption:	No
Smelting Melting and Refining Furnace Exemption:	No
Underground Injection Control:	No
Off-Site Waste Receipt:	No
Universal Waste Indicator:	No
Universal Waste Destination Facility:	No
Federal Universal Waste:	No
Active Site Fed-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site Converter Treatment storage and Disposal Facility:	Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site State-Reg Handler:	---
Federal Facility Indicator:	Not reported
Hazardous Secondary Material Indicator:	N
Sub-Part K Indicator:	Not reported
Commercial TSD Indicator:	No
Treatment Storage and Disposal Type:	Not reported
2018 GPRA Permit Baseline:	Not on the Baseline
2018 GPRA Renewals Baseline:	Not on the Baseline
Permit Renewals Workload Universe:	Not reported
Permit Workload Universe:	Not reported
Permit Progress Universe:	Not reported
Post-Closure Workload Universe:	Not reported
Closure Workload Universe:	Not reported
202 GPRA Corrective Action Baseline:	No
Corrective Action Workload Universe:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No

DOUG HARLAND (Continued) **1026041447**

TSDFs Only Subject to CA under Discretionary Auth Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required:	Not reported
Handler Date of Last Change:	20200210
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Operator
Owner/Operator Name:	DOUG HARLAND
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	25083 FOURL RD
Owner/Operator City,State,Zip:	NEWHALL, CA 91321
Owner/Operator Telephone:	661-775-2495
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Owner/Operator Indicator:	Owner
Owner/Operator Name:	DOUG HARLAND
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	25083 FOURL RD
Owner/Operator City,State,Zip:	NEWHALL, CA 91321
Owner/Operator Telephone:	661-755-2495
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Historic Generators:

Receive Date:	20191217
Handler Name: DOUG HARLAND	
Federal Waste Generator Description:	Not a generator, verified
State District Owner:	Not reported
Large Quantity Handler of Universal Waste:	No
Recognized Trader Importer:	No
Recognized Trader Exporter:	No

DOUG HARLAND (Continued) **1026041447**

Spent Lead Acid Battery Importer: No
Spent Lead Acid Battery Exporter: No
Current Record: Yes
Non Storage Recycler Activity: Not reported
Electronic Manifest Broker: Not reported

List of NAICS Codes and Descriptions:
NAICS Code: 56299
NAICS Description: ALL OTHER WASTE MANAGEMENT SERVICES

Facility Has Received Notices of Violations:
Violations: No Violations Found

Evaluation Action Summary:
Evaluations: No Evaluations Found

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17 **BRYAN RUPP** **RCRA NonGen / NLR** **1026720565**
North **24305 CHERYL KELTON PLACE** **CAC003109284**
1/8-1/4 **SANTA CLARITA, CA 91321**
0.241 mi.
1271 ft.

Relative: **Lower**
Actual: **1283 ft.**

RCRA NonGen / NLR:
Date Form Received by Agency: 20210310
Handler Name: BRYAN RUPP
Handler Address: 24305 CHERYL KELTON PLACE
Handler City,State,Zip: SANTA CLARITA, CA 91321
EPA ID: CAC003109284
Contact Name: BRYAN RUPP
Contact Address: 24305 CHERYL KELTON PLACE
Contact City,State,Zip: SANTA CLARITA, CA 91321
Contact Telephone: 661-309-8263
Contact Fax: Not reported
Contact Email: BRYANDRUPP@GMAIL.COM
Contact Title: Not reported
EPA Region: 09
Land Type: Not reported
Federal Waste Generator Description: Not a generator, verified
Non-Notifier: Not reported
Biennial Report Cycle: Not reported
Accessibility: Not reported
Active Site Indicator: Not reported
State District Owner: Not reported
State District: Not reported
Mailing Address: 24305 CHERYL KELTON PLACE
Mailing City,State,Zip: SANTA CLARITA, CA 91321
Owner Name: BRYAN RUPP
Owner Type: Other
Operator Name: BRYAN RUPP
Operator Type: Other
Short-Term Generator Activity: No
Importer Activity: No
Mixed Waste Generator: No
Transporter Activity: No
Transfer Facility Activity: No

BRYAN RUPP (Continued) **1026720565**

Recycler Activity with Storage:	No
Small Quantity On-Site Burner Exemption:	No
Smelting Melting and Refining Furnace Exemption:	No
Underground Injection Control:	No
Off-Site Waste Receipt:	No
Universal Waste Indicator:	No
Universal Waste Destination Facility:	No
Federal Universal Waste:	No
Active Site Fed-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site Converter Treatment storage and Disposal Facility:	Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site State-Reg Handler:	---
Federal Facility Indicator:	Not reported
Hazardous Secondary Material Indicator:	N
Sub-Part K Indicator:	Not reported
Commercial TSD Indicator:	No
Treatment Storage and Disposal Type:	Not reported
2018 GPRA Permit Baseline:	Not on the Baseline
2018 GPRA Renewals Baseline:	Not on the Baseline
Permit Renewals Workload Universe:	Not reported
Permit Workload Universe:	Not reported
Permit Progress Universe:	Not reported
Post-Closure Workload Universe:	Not reported
Closure Workload Universe:	Not reported
202 GPRA Corrective Action Baseline:	No
Corrective Action Workload Universe:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No
TSDFs Only Subject to CA under Discretionary Auth Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required:	Not reported
Handler Date of Last Change:	20210312
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Owner
Owner/Operator Name:	BRYAN RUPP
Legal Status:	Other
Date Became Current:	Not reported

BRYAN RUPP (Continued) **1026720565**

Date Ended Current:	Not reported
Owner/Operator Address:	24305 CHERYL KELTON PLACE
Owner/Operator City,State,Zip:	SANTA CLARITA, CA 91321
Owner/Operator Telephone:	661-309-8263
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported
Owner/Operator Indicator:	Operator
Owner/Operator Name:	BRYAN RUPP
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	24305 CHERYL KELTON PLACE
Owner/Operator City,State,Zip:	SANTA CLARITA, CA 91321
Owner/Operator Telephone:	661-309-8263
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Historic Generators:

Receive Date:	20210310
Handler Name: BRYAN RUPP	
Federal Waste Generator Description:	Not a generator, verified
State District Owner:	Not reported
Large Quantity Handler of Universal Waste:	No
Recognized Trader Importer:	No
Recognized Trader Exporter:	No
Spent Lead Acid Battery Importer:	No
Spent Lead Acid Battery Exporter:	No
Current Record:	Yes
Non Storage Recycler Activity:	No
Electronic Manifest Broker:	No

List of NAICS Codes and Descriptions:

NAICS Code:	56299
NAICS Description:	ALL OTHER WASTE MANAGEMENT SERVICES

Facility Has Received Notices of Violations:

Violations:	No Violations Found

Evaluation Action Summary:

Evaluations:	No Evaluations Found

D18 **CECILIA ESPINO** **RCRA NonGen / NLR** **1025863062**
North **25102 FOURL RD** **CAC003043811**
1/8-1/4 **NEWHALL, CA 91321**
0.248 mi.
1311 ft. **Site 2 of 2 in cluster D**

Relative: RCRA NonGen / NLR:
Lower

Actual: Date Form Received by Agency:		20191118
1277 ft. Handler Name:	CECILIA ESPINO	
Handler Address:		25102 FOURL RD
Handler City,State,Zip:		NEWHALL, CA 91321-2420

CECILIA ESPINO (Continued) **1025863062**

EPA ID:	CAC003043811
Contact Name:	CECILIA ESPINO
Contact Address:	25102 FOURL RD
Contact City,State,Zip:	NEWHALL, CA 91321-2420
Contact Telephone:	661-645-3582
Contact Fax:	Not reported
Contact Email:	ATIOFFICE@YAHOO.COM
Contact Title:	Not reported
EPA Region:	09
Land Type:	Not reported
Federal Waste Generator Description:	Not a generator, verified
Non-Notifier:	Not reported
Biennial Report Cycle:	Not reported
Accessibility:	Not reported
Active Site Indicator:	Not reported
State District Owner:	Not reported
State District:	Not reported
Mailing Address:	25102 FOURL RD
Mailing City,State,Zip:	NEWHALL, CA 91321-2420
Owner Name:	CECILIA ESPINO
Owner Type:	Other
Operator Name:	CECILIA ESPINO
Operator Type:	Other
Short-Term Generator Activity:	No
Importer Activity:	No
Mixed Waste Generator:	No
Transporter Activity:	No
Transfer Facility Activity:	No
Recycler Activity with Storage:	No
Small Quantity On-Site Burner Exemption:	No
Smelting Melting and Refining Furnace Exemption:	No
Underground Injection Control:	No
Off-Site Waste Receipt:	No
Universal Waste Indicator:	No
Universal Waste Destination Facility:	No
Federal Universal Waste:	No
Active Site Fed-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site Converter Treatment storage and Disposal Facility:	Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site State-Reg Handler:	---
Federal Facility Indicator:	Not reported
Hazardous Secondary Material Indicator:	N
Sub-Part K Indicator:	Not reported
Commercial TSD Indicator:	No
Treatment Storage and Disposal Type:	Not reported
2018 GPRA Permit Baseline:	Not on the Baseline
2018 GPRA Renewals Baseline:	Not on the Baseline
Permit Renewals Workload Universe:	Not reported
Permit Workload Universe:	Not reported
Permit Progress Universe:	Not reported
Post-Closure Workload Universe:	Not reported
Closure Workload Universe:	Not reported
202 GPRA Corrective Action Baseline:	No
Corrective Action Workload Universe:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No

CECILIA ESPINO (Continued) **1025863062**

TSDFs Only Subject to CA under Discretionary Auth Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required:	Not reported
Handler Date of Last Change:	20191122
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Owner
Owner/Operator Name:	CECILIA ESPINO
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	25102 FOURL RD
Owner/Operator City,State,Zip:	NEWHALL, CA 91321-2420
Owner/Operator Telephone:	661-645-3582
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Owner/Operator Indicator:	Operator
Owner/Operator Name:	CECILIA ESPINO
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	25102 FOURL RD
Owner/Operator City,State,Zip:	NEWHALL, CA 91321-2420
Owner/Operator Telephone:	661-645-3582
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Historic Generators:

Receive Date:	20191118
Handler Name: CECILIA ESPINO	
Federal Waste Generator Description:	Not a generator, verified
State District Owner:	Not reported
Large Quantity Handler of Universal Waste:	No
Recognized Trader Importer:	No
Recognized Trader Exporter:	No

CECILIA ESPINO (Continued) **1025863062**

Spent Lead Acid Battery Importer: No
Spent Lead Acid Battery Exporter: No
Current Record: Yes
Non Storage Recycler Activity: Not reported
Electronic Manifest Broker: Not reported

List of NAICS Codes and Descriptions:
NAICS Code: 56299
NAICS Description: ALL OTHER WASTE MANAGEMENT SERVICES

Facility Has Received Notices of Violations:
Violations: No Violations Found

Evaluation Action Summary:
Evaluations: No Evaluations Found

19
NE
1/2-1
0.945 mi.
4987 ft.

OLD ORCHARD SHOPPING CENTER **RESPONSE** **S117038650**
23357 LYONS AVENUE **ENVIROSTOR** **N/A**
SANTA CLARITA, CA 91355

Relative:
Lower

Actual:
1260 ft.

RESPONSE:
Name: OLD ORCHARD SHOPPING CENTER
Address: 23357 LYONS AVENUE
City,State,Zip: SANTA CLARITA, CA 91355
Facility ID: 19720018
Site Type: State Response
Site Type Detail: State Response or NPL
Acres: 0.1
National Priorities List: NO
Cleanup Oversight Agencies: SMBRP
Lead Agency Description: DTSC - Site Cleanup Program
Project Manager: Tajinder Gill
Supervisor: Jose Diaz
Division Branch: Cleanup Chatsworth
Site Code: 301525
Site Mgmt. Req.: NONE SPECIFIED
Assembly: 38
Senate: 27
Special Program Status: Not reported
Status: Active
Status Date: 06/12/2011
Restricted Use: NO
Funding: Responsible Party
Latitude: 34.38093
Longitude: -118.5424
APN: 2831014002, 2856011207, 2856011208, 2856011209, 2856011210, 2856011211, 2856011212
Past Use: DRY CLEANING
Potential COC : Tetrachloroethylene (PCE Trichloroethylene (TCE
Confirmed COC: Tetrachloroethylene (PCE Trichloroethylene (TCE
Potential Description: IA, OTH, SOIL, SV
Alias Name: CONCORD/MILESTONE PLUS LP
Alias Type: Alternate Name

OLD ORCHARD SHOPPING CENTER (Continued) **S117038650**

Alias Name: OLD ORCHARD SHOPPING CENTER
Alias Type: Alternate Name
Alias Name: PALACE DRY CLEANERS
Alias Type: Alternate Name
Alias Name: Palace Cleaners
Alias Type: Alternate Name
Alias Name: 2831014002
Alias Type: APN
Alias Name: 2856011207
Alias Type: APN
Alias Name: 2856011208
Alias Type: APN
Alias Name: 2856011209
Alias Type: APN
Alias Name: 2856011210
Alias Type: APN
Alias Name: 2856011211
Alias Type: APN
Alias Name: 2856011212
Alias Type: APN
Alias Name: 110033610368
Alias Type: EPA (FRS #)
Alias Name: 301525
Alias Type: Project Code (Site Code)
Alias Name: 19720018
Alias Type: Envirostor ID Number

Completed Info:
Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 10/17/2019
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 09/02/2020
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 09/28/2021
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 07/07/2014
Comments: Accepted report as final on 7/7/2014 via email; comments were issued in the overall requirement to fully investigate and delineate the extent of contamination.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 12/02/2014

OLD ORCHARD SHOPPING CENTER (Continued) **S117038650**

Comments: Document accepted.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 06/30/2015
Comments: Document accepted.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Fieldwork
Completed Date: 10/08/2015
Comments: Soil gas sampling was completed and RI Report submitted. Additional investigation may be needed to determine extent of groundwater contamination.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 10/19/2015
Comments: Document accepted

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 02/08/2016
Comments: Document accepted as final

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 04/18/2016
Comments: Accepted

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Remedial Investigation Workplan
Completed Date: 12/06/2016
Comments: Work Plan approved for implementation.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 08/02/2016
Comments: Accepted as final deliverable

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 11/16/2016
Comments: Accepted

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 02/22/2017
Comments: Report accepted as final.

OLD ORCHARD SHOPPING CENTER (Continued) **S117038650**

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Fieldwork
Completed Date: 02/03/2018
Comments: Indoor Air Sampling was done on February 3, 2018.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 05/18/2017
Comments: Report accepted

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 05/18/2017
Comments: Report accepted.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Plan
Completed Date: 11/06/2017
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Standard Voluntary Agreement
Completed Date: 11/25/1997
Comments: DTSC entered into a Voluntary Cleanup Agreement with a representa of the owner for a Preliminary Endangerment Assessment on the dry cleaner portion of the shopping center.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 09/05/2017
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 09/25/2018
Comments: Annual oversight cost estimate sent via email to the shopping center representative via email on Sept 24th and to the Palace Cleaners operator via first class mail on Sept 25th.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 12/08/2017
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Project Management
Completed Date: 06/30/2021
Comments: Not reported

OLD ORCHARD SHOPPING CENTER (Continued) **S117038650**

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Pre-HARP Form
Completed Date: 01/15/2019
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Pre-HARP Form
Completed Date: 01/13/2020
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Pre-HARP Form
Completed Date: 01/26/2021
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Correspondence
Completed Date: 06/17/2014
Comments: Document accepted as final

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Correspondence
Completed Date: 07/29/2014
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Correspondence
Completed Date: 05/02/2014
Comments: Document accepted

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Correspondence
Completed Date: 08/25/2014
Comments: Letter sent to Palace Cleaners Operator

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 09/26/2014
Comments: Completed and mailed out to both addresses

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Correspondence
Completed Date: 03/09/2015
Comments: Document accepted

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Correspondence

OLD ORCHARD SHOPPING CENTER (Continued) **S117038650**

Completed Date: 04/21/2015
Comments: Document accepted

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Lien Satisfaction
Completed Date: 10/09/2014
Comments: Filed on 10/09/2014

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Correspondence
Completed Date: 12/15/2014
Comments: Document accepted.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Correspondence
Completed Date: 01/16/2015
Comments: Accepted.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Correspondence
Completed Date: 04/20/2015
Comments: Document accepted

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Correspondence
Completed Date: 06/15/2015
Comments: Document accepted

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Correspondence
Completed Date: 02/17/2015
Comments: Report accepted.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Correspondence
Completed Date: 12/22/2014
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Correspondence
Completed Date: 09/17/2015
Comments: Document accepted.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Correspondence
Completed Date: 08/17/2015
Comments: document accepted as final

OLD ORCHARD SHOPPING CENTER (Continued) **S117038650**

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Correspondence
Completed Date: 01/18/2016
Comments: Document accepted

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 09/19/2016
Comments: Estimate emailed

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Correspondence
Completed Date: 01/18/2016
Comments: Document accepted

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Correspondence
Completed Date: 09/19/2015
Comments: document accepted

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 09/10/2015
Comments: Estimate emailed

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Correspondence
Completed Date: 06/16/2015
Comments: Document accepted

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Correspondence
Completed Date: 04/18/2016
Comments: accepted

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 07/16/2020
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 10/13/2020
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report

OLD ORCHARD SHOPPING CENTER (Continued) **S117038650**

Completed Date: 12/15/2020
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Fieldwork
Completed Date: 11/19/2020
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 01/22/2021
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Characterization Workplan
Completed Date: 04/06/2021
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 03/29/2021
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Fieldwork
Completed Date: 02/22/2021
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 09/01/2021
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Characterization Workplan
Completed Date: 04/22/2021
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 09/22/2017
Comments: GSB concurs with the revised report.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Community Profile
Completed Date: 07/31/2018
Comments: Not reported

OLD ORCHARD SHOPPING CENTER (Continued) **S117038650**

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 11/30/2017
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 03/14/2018
Comments: Report accepted.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 04/30/2018
Comments: Report accepted.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 08/15/2018
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Remedial Investigation Report
Completed Date: 06/28/2019
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Fieldwork
Completed Date: 03/19/2019
Comments: Sampling was done on March 18th and oversight was provided by GSB.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 06/10/2019
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Fieldwork
Completed Date: 06/19/2019
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 11/27/2019
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Fieldwork

OLD ORCHARD SHOPPING CENTER (Continued) **S117038650**

Completed Date: 10/02/2019
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 12/09/2019
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 06/07/2018
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Fieldwork
Completed Date: 06/13/2019
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 10/22/2019
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 01/09/2019
Comments: Revised report accepted.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 03/05/2019
Comments: Report accepted.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 04/18/2019
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Fact Sheets
Completed Date: 06/20/2018
Comments: Community survey sent out on June 20, 2018

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Fieldwork
Completed Date: 03/12/2019
Comments: Not reported

OLD ORCHARD SHOPPING CENTER (Continued) **S117038650**

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Fieldwork
Completed Date: 01/03/2020
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 07/10/2020
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Work Notice
Completed Date: 06/06/2019
Comments: Per PPS email the Work Notices were distributed and posted today.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Work Notice
Completed Date: 06/13/2019
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Fieldwork
Completed Date: 01/13/2020
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 10/13/2020
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Fieldwork
Completed Date: 08/07/2021
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Technical Workplan
Completed Date: 01/13/2020
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 05/22/2020
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report

OLD ORCHARD SHOPPING CENTER (Continued) **S117038650**

Completed Date: 05/22/2020
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Fieldwork
Completed Date: 03/31/2020
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 09/16/2020
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 10/13/2020
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 06/19/2020
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: CEQA - Notice of Exemption
Completed Date: 06/25/2012
Comments: CEQA NOE 06/25/2012

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 11/09/2011
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Letter - Demand
Completed Date: 05/08/2012
Comments: First Collection Notice sent on 05/08/2012

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Correspondence
Completed Date: 06/04/2012
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: No Further Action Letter
Completed Date: 02/05/1998
Comments: Based on available Site data at the time, DTSC issued a NFA determination letter.

OLD ORCHARD SHOPPING CENTER (Continued) **S117038650**

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Lien
Completed Date: 05/06/2013
Comments: Lien recorded/filed in Official Records Recorder's Office, Los Angeles County

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 10/10/2012
Comments: Annual Oversight Cost Estimate FY 2012/2013

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Imminent and/or Substantial Endangerment Order
Completed Date: 07/02/2013
Comments: I&SE Order Effective July 2, 2013

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Letter - Demand
Completed Date: 10/10/2012
Comments: First Collection Notice 10/10/2012

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Letter - Demand
Completed Date: 08/29/2014
Comments: Letter sent

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 02/05/1998
Comments: Phase I and II Site Assessments detected volatile organic chemicals (VOCs) in subsurface soil. However, the health risk assessment concluded that the release of VOCs at the Site does not pose a threat to public health or environment. Based on available Site data at the time, DTSC issued a NFA determination letter.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Characterization Report
Completed Date: 08/29/2011
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Characterization Workplan
Completed Date: 11/02/2011
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Characterization Report
Completed Date: 07/10/2012

OLD ORCHARD SHOPPING CENTER (Continued) **S117038650**

Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Community Profile
Completed Date: 05/01/2012
Comments: Community Profile for Palace Cleaners (DTSC, May 2012)

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Fact Sheets
Completed Date: 05/18/2012
Comments: Fact Sheet No. 2 will be mailed out to the community mailing list for in-home delivery by Monday May 21, 2012.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Public Notice
Completed Date: 05/18/2012
Comments: Notice of Public Comment Period. This notice will also be printed in The Signal newspaper (Santa Clarita) on Monday May 21, 2012.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Removal Action Workplan
Completed Date: 06/25/2012
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Fact Sheets
Completed Date: 01/11/2012
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Technical Workplan
Completed Date: 03/14/2012
Comments: Secondary/supplemental indoor air sampling at St. Stephen's Church to validate the VOCs detected in the initial indoor air sampling.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Characterization Report
Completed Date: 09/17/2012
Comments: DTSC approved the Off-Site Indoor Air Quality Sampling Report

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Characterization Workplan
Completed Date: 09/24/2012
Comments: DTSC conditionally approved the Work Plan for Off-Site Investigation

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Technical Workplan
Completed Date: 06/21/2012

OLD ORCHARD SHOPPING CENTER (Continued) **S117038650**

Comments: DTSC approved implementation of indoor air mitigation measure

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Risk Assessment Report
Completed Date: 11/13/2012
Comments: DTSC approved the revised HHRA Reports (October 5, 2012)

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Work Notice
Completed Date: 09/28/2012
Comments: Field work implementation of the IRMP to commence 10/01/2012

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 05/07/2013
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Fieldwork
Completed Date: 10/12/2012
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Technical Workplan
Completed Date: 11/15/2012
Comments: On November 15, 2012, DTSC approved the Technical Memorandum for Indoor Air Sampling for implementation.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Fieldwork
Completed Date: 12/19/2012
Comments: SVE system startup on 12/19/2012.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Fieldwork
Completed Date: 01/23/2013
Comments: Conducted site visit during routine weekly O&M visit with consultant.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Voluntary Cleanup Agreement Termination Notification
Completed Date: 04/25/2013
Comments: DTSC issued a 30 day notice to terminate the VCA.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 05/15/2013
Comments: Not reported

OLD ORCHARD SHOPPING CENTER (Continued) **S117038650**

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 07/25/2013
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Characterization Report
Completed Date: 07/15/2014
Comments: Report is accepted. DTSC issued comments that require response and further action.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 02/18/2014
Comments: Document accepted

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Other Report
Completed Date: 12/03/2013
Comments: DTSC reviewed and approved the Scoping Document.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Other Report
Completed Date: 01/13/2014
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 02/19/2014
Comments: Document accepted.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 07/15/2014
Comments: Report accepted. DTSC issued comments that required responses by August 15, 2014

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 11/17/2014
Comments: Document accepted, but additional work is required

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Plan
Completed Date: 04/01/2014
Comments: DTSC approved the plan for implementation on 4/1/2014 via email

Completed Area Name: PROJECT WIDE

OLD ORCHARD SHOPPING CENTER (Continued) **S117038650**

Completed Sub Area Name: Not reported
Completed Document Type: Other Report
Completed Date: 03/08/2014
Comments: Report accepted

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Other Report
Completed Date: 05/28/2014
Comments: Document accepted

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Technical Workplan
Completed Date: 04/21/2014
Comments: GSU staff had a 4/2/2014 deadline to review the document that was never completed. PM was away from the office from 4/7/14 till 4/18/2014 and RP consultant sent an email on 4/7/2014 that the work proposed work in this plan was to be implemented on Thursday 4/10/2014. Work was done without DTSC formal approval.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Remedial Investigation Workplan
Completed Date: 05/13/2015
Comments: RI Work plan approved.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Remedial Investigation Report
Completed Date: 03/14/2016
Comments: RI Report approved

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Standard Voluntary Agreement
Completed Date: 06/17/2011
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Letter - Demand
Completed Date: 06/15/2012
Comments: Second Collection Notice sent on 06/15/2012

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Letter - Demand
Completed Date: 08/23/2012
Comments: Final Collection Notice sent on 08/23/2012

Future Area Name: PROJECT WIDE
Future Sub Area Name: Not reported
Future Document Type: Remedial Action Completion Report
Future Due Date: 2023
Future Area Name: PROJECT WIDE
Future Sub Area Name: Not reported

OLD ORCHARD SHOPPING CENTER (Continued) **S117038650**

Future Document Type:	Certification
Future Due Date:	2022
Future Area Name:	PROJECT WIDE
Future Sub Area Name:	Not reported
Future Document Type:	Land Use Restriction
Future Due Date:	2023
Future Area Name:	PROJECT WIDE
Future Sub Area Name:	Not reported
Future Document Type:	Site Characterization Report
Future Due Date:	2022
Schedule Area Name:	Not reported
Schedule Sub Area Name:	Not reported
Schedule Document Type:	Not reported
Schedule Due Date:	Not reported
Schedule Revised Date:	Not reported

ENVIROSTOR:

Name:	OLD ORCHARD SHOPPING CENTER
Address:	23357 LYONS AVENUE
City,State,Zip:	SANTA CLARITA, CA 91355
Facility ID:	19720018
Status:	Active
Status Date:	06/12/2011
Site Code:	301525
Site Type:	State Response
Site Type Detailed:	State Response or NPL
Acres:	0.1
NPL:	NO
Regulatory Agencies:	SMBRP
Lead Agency:	SMBRP
Program Manager:	Tajinder Gill
Supervisor:	Jose Diaz
Division Branch:	Cleanup Chatsworth
Assembly:	38
Senate:	27
Special Program:	Not reported
Restricted Use:	NO
Site Mgmt Req:	NONE SPECIFIED
Funding:	Responsible Party
Latitude:	34.38093
Longitude:	-118.5424
APN:	2831014002, 2856011207, 2856011208, 2856011209, 2856011210, 2856011211, 2856011212
Past Use:	DRY CLEANING
Potential COC:	Tetrachloroethylene (PCE Trichloroethylene (TCE
Confirmed COC:	Tetrachloroethylene (PCE Trichloroethylene (TCE
Potential Description:	IA, OTH, SOIL, SV
Alias Name:	CONCORD/MILESTONE PLUS LP
Alias Type:	Alternate Name
Alias Name:	OLD ORCHARD SHOPPING CENTER
Alias Type:	Alternate Name
Alias Name:	PALACE DRY CLEANERS
Alias Type:	Alternate Name
Alias Name:	Palace Cleaners
Alias Type:	Alternate Name
Alias Name:	2831014002
Alias Type:	APN

OLD ORCHARD SHOPPING CENTER (Continued) **S117038650**

Alias Name: 2856011207
Alias Type: APN
Alias Name: 2856011208
Alias Type: APN
Alias Name: 2856011209
Alias Type: APN
Alias Name: 2856011210
Alias Type: APN
Alias Name: 2856011211
Alias Type: APN
Alias Name: 2856011212
Alias Type: APN
Alias Name: 110033610368
Alias Type: EPA (FRS #)
Alias Name: 301525
Alias Type: Project Code (Site Code)
Alias Name: 19720018
Alias Type: Envirostor ID Number

Completed Info:
Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 10/17/2019
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 09/02/2020
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 09/28/2021
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 07/07/2014
Comments: Accepted report as final on 7/7/2014 via email; comments were issued in the overall requirement to fully investigate and delineate the extent of contamination.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 12/02/2014
Comments: Document accepted.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 06/30/2015
Comments: Document accepted.

OLD ORCHARD SHOPPING CENTER (Continued) **S117038650**

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Fieldwork
Completed Date: 10/08/2015
Comments: Soil gas sampling was completed and RI Report submitted. Additional investigation may be needed to determine extent of groundwater contamination.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 10/19/2015
Comments: Document accepted

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 02/08/2016
Comments: Document accepted as final

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 04/18/2016
Comments: Accepted

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Remedial Investigation Workplan
Completed Date: 12/06/2016
Comments: Work Plan approved for implementation.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 08/02/2016
Comments: Accepted as final deliverable

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 11/16/2016
Comments: Accepted

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 02/22/2017
Comments: Report accepted as final.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Fieldwork
Completed Date: 02/03/2018
Comments: Indoor Air Sampling was done on February 3, 2018.

Completed Area Name: PROJECT WIDE

OLD ORCHARD SHOPPING CENTER (Continued) **S117038650**

Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 05/18/2017
Comments: Report accepted

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 05/18/2017
Comments: Report accepted.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Plan
Completed Date: 11/06/2017
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Standard Voluntary Agreement
Completed Date: 11/25/1997
Comments: DTSC entered into a Voluntary Cleanup Agreement with a representa of the owner for a Preliminary Endangerment Assessment on the dry cleaner portion of the shopping center.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 09/05/2017
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 09/25/2018
Comments: Annual oversight cost estimate sent via email to the shopping center representative via email on Sept 24th and to the Palace Cleaners operator via first class mail on Sept 25th.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 12/08/2017
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Project Management
Completed Date: 06/30/2021
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Pre-HARP Form
Completed Date: 01/15/2019
Comments: Not reported

OLD ORCHARD SHOPPING CENTER (Continued) **S117038650**

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Pre-HARP Form
Completed Date: 01/13/2020
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Pre-HARP Form
Completed Date: 01/26/2021
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Correspondence
Completed Date: 06/17/2014
Comments: Document accepted as final

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Correspondence
Completed Date: 07/29/2014
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Correspondence
Completed Date: 05/02/2014
Comments: Document accepted

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Correspondence
Completed Date: 08/25/2014
Comments: Letter sent to Palace Cleaners Operator

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 09/26/2014
Comments: Completed and mailed out to both addresses

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Correspondence
Completed Date: 03/09/2015
Comments: Document accepted

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Correspondence
Completed Date: 04/21/2015
Comments: Document accepted

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Lien Satisfaction

OLD ORCHARD SHOPPING CENTER (Continued) **S117038650**

Completed Date: 10/09/2014
Comments: Filed on 10/09/2014

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Correspondence
Completed Date: 12/15/2014
Comments: Document accepted.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Correspondence
Completed Date: 01/16/2015
Comments: Accepted.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Correspondence
Completed Date: 04/20/2015
Comments: Document accepted

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Correspondence
Completed Date: 06/15/2015
Comments: Document accepted

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Correspondence
Completed Date: 02/17/2015
Comments: Report accepted.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Correspondence
Completed Date: 12/22/2014
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Correspondence
Completed Date: 09/17/2015
Comments: Document accepted.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Correspondence
Completed Date: 08/17/2015
Comments: document accepted as final

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Correspondence
Completed Date: 01/18/2016
Comments: Document accepted

OLD ORCHARD SHOPPING CENTER (Continued) **S117038650**

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 09/19/2016
Comments: Estimate emailed

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Correspondence
Completed Date: 01/18/2016
Comments: Document accepted

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Correspondence
Completed Date: 09/19/2015
Comments: document accepted

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 09/10/2015
Comments: Estimate emailed

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Correspondence
Completed Date: 06/16/2015
Comments: Document accepted

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Correspondence
Completed Date: 04/18/2016
Comments: accepted

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 07/16/2020
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 10/13/2020
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 12/15/2020
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Fieldwork

OLD ORCHARD SHOPPING CENTER (Continued) **S117038650**

Completed Date: 11/19/2020
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 01/22/2021
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Characterization Workplan
Completed Date: 04/06/2021
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 03/29/2021
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Fieldwork
Completed Date: 02/22/2021
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 09/01/2021
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Characterization Workplan
Completed Date: 04/22/2021
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 09/22/2017
Comments: GSB concurs with the revised report.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Community Profile
Completed Date: 07/31/2018
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 11/30/2017
Comments: Not reported

OLD ORCHARD SHOPPING CENTER (Continued) **S117038650**

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 03/14/2018
Comments: Report accepted.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 04/30/2018
Comments: Report accepted.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 08/15/2018
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Remedial Investigation Report
Completed Date: 06/28/2019
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Fieldwork
Completed Date: 03/19/2019
Comments: Sampling was done on March 18th and oversight was provided by GSB.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 06/10/2019
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Fieldwork
Completed Date: 06/19/2019
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 11/27/2019
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Fieldwork
Completed Date: 10/02/2019
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report

OLD ORCHARD SHOPPING CENTER (Continued) **S117038650**

Completed Date: 12/09/2019
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 06/07/2018
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Fieldwork
Completed Date: 06/13/2019
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 10/22/2019
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 01/09/2019
Comments: Revised report accepted.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 03/05/2019
Comments: Report accepted.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 04/18/2019
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Fact Sheets
Completed Date: 06/20/2018
Comments: Community survey sent out on June 20, 2018

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Fieldwork
Completed Date: 03/12/2019
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Fieldwork
Completed Date: 01/03/2020
Comments: Not reported

OLD ORCHARD SHOPPING CENTER (Continued) **S117038650**

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 07/10/2020
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Work Notice
Completed Date: 06/06/2019
Comments: Per PPS email the Work Notices were distributed and posted today.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Work Notice
Completed Date: 06/13/2019
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Fieldwork
Completed Date: 01/13/2020
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 10/13/2020
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Fieldwork
Completed Date: 08/07/2021
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Technical Workplan
Completed Date: 01/13/2020
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 05/22/2020
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 05/22/2020
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Fieldwork

OLD ORCHARD SHOPPING CENTER (Continued) **S117038650**

Completed Date: 03/31/2020
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 09/16/2020
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 10/13/2020
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 06/19/2020
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: CEQA - Notice of Exemption
Completed Date: 06/25/2012
Comments: CEQA NOE 06/25/2012

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 11/09/2011
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Letter - Demand
Completed Date: 05/08/2012
Comments: First Collection Notice sent on 05/08/2012

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Correspondence
Completed Date: 06/04/2012
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: No Further Action Letter
Completed Date: 02/05/1998
Comments: Based on available Site data at the time, DTSC issued a NFA determination letter.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Lien
Completed Date: 05/06/2013
Comments: Lien recorded/filed in Official Records Recorder’s Office, Los

OLD ORCHARD SHOPPING CENTER (Continued) **S117038650**

Angeles County

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Annual Oversight Cost Estimate
Completed Date: 10/10/2012
Comments: Annual Oversight Cost Estimate FY 2012/2013

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Imminent and/or Substantial Endangerment Order
Completed Date: 07/02/2013
Comments: I&SE Order Effective July 2, 2013

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Letter - Demand
Completed Date: 10/10/2012
Comments: First Collection Notice 10/10/2012

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Letter - Demand
Completed Date: 08/29/2014
Comments: Letter sent

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 02/05/1998
Comments: Phase I and II Site Assessments detected volatile organic chemicals (VOCs) in subsurface soil. However, the health risk assessment concluded that the release of VOCs at the Site does not pose a threat to public health or environment. Based on available Site data at the time, DTSC issued a NFA determination letter.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Characterization Report
Completed Date: 08/29/2011
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Characterization Workplan
Completed Date: 11/02/2011
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Characterization Report
Completed Date: 07/10/2012
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Community Profile

OLD ORCHARD SHOPPING CENTER (Continued) **S117038650**

Completed Date: 05/01/2012
Comments: Community Profile for Palace Cleaners (DTSC, May 2012)

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Fact Sheets
Completed Date: 05/18/2012
Comments: Fact Sheet No. 2 will be mailed out to the community mailing list for in-home delivery by Monday May 21, 2012.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Public Notice
Completed Date: 05/18/2012
Comments: Notice of Public Comment Period. This notice will also be printed in The Signal newspaper (Santa Clarita) on Monday May 21, 2012.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Removal Action Workplan
Completed Date: 06/25/2012
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Fact Sheets
Completed Date: 01/11/2012
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Technical Workplan
Completed Date: 03/14/2012
Comments: Secondary/supplemental indoor air sampling at St. Stephen's Church to validate the VOCs detected in the initial indoor air sampling.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Characterization Report
Completed Date: 09/17/2012
Comments: DTSC approved the Off-Site Indoor Air Quality Sampling Report

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Characterization Workplan
Completed Date: 09/24/2012
Comments: DTSC conditionally approved the Work Plan for Off-Site Investigation

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Technical Workplan
Completed Date: 06/21/2012
Comments: DTSC approved implementation of indoor air mitigation measure

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Risk Assessment Report

OLD ORCHARD SHOPPING CENTER (Continued) **S117038650**

Completed Date: 11/13/2012
Comments: DTSC approved the revised HHRA Reports (October 5, 2012)

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Work Notice
Completed Date: 09/28/2012
Comments: Field work implementation of the IRMP to commence 10/01/2012

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 05/07/2013
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Fieldwork
Completed Date: 10/12/2012
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Technical Workplan
Completed Date: 11/15/2012
Comments: On November 15, 2012, DTSC approved the Technical Memorandum for Indoor Air Sampling for implementation.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Fieldwork
Completed Date: 12/19/2012
Comments: SVE system startup on 12/19/2012.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Fieldwork
Completed Date: 01/23/2013
Comments: Conducted site visit during routine weekly O&M visit with consultant.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Voluntary Cleanup Agreement Termination Notification
Completed Date: 04/25/2013
Comments: DTSC issued a 30 day notice to terminate the VCA.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 05/15/2013
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 07/25/2013
Comments: Not reported

OLD ORCHARD SHOPPING CENTER (Continued) **S117038650**

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Characterization Report
Completed Date: 07/15/2014
Comments: Report is accepted. DTSC issued comments that require response and further action.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 02/18/2014
Comments: Document accepted

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Other Report
Completed Date: 12/03/2013
Comments: DTSC reviewed and approved the Scoping Document.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Other Report
Completed Date: 01/13/2014
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 02/19/2014
Comments: Document accepted.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 07/15/2014
Comments: Report accepted. DTSC issued comments that required responses by August 15, 2014

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Report
Completed Date: 11/17/2014
Comments: Document accepted, but additional work is required

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Monitoring Plan
Completed Date: 04/01/2014
Comments: DTSC approved the plan for implementation on 4/1/2014 via email

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Other Report
Completed Date: 03/08/2014
Comments: Report accepted

Completed Area Name: PROJECT WIDE

OLD ORCHARD SHOPPING CENTER (Continued) **S117038650**

Completed Sub Area Name: Not reported
Completed Document Type: Other Report
Completed Date: 05/28/2014
Comments: Document accepted

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Technical Workplan
Completed Date: 04/21/2014
Comments: GSU staff had a 4/2/2014 deadline to review the document that was never completed. PM was away from the office from 4/7/14 till 4/18/2014 and RP consultant sent an email on 4/7/2014 that the work proposed work in this plan was to be implemented on Thursday 4/10/2014. Work was done without DTSC formal approval.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Remedial Investigation Workplan
Completed Date: 05/13/2015
Comments: RI Work plan approved.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Remedial Investigation Report
Completed Date: 03/14/2016
Comments: RI Report approved

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Standard Voluntary Agreement
Completed Date: 06/17/2011
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Letter - Demand
Completed Date: 06/15/2012
Comments: Second Collection Notice sent on 06/15/2012

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Letter - Demand
Completed Date: 08/23/2012
Comments: Final Collection Notice sent on 08/23/2012

Future Area Name: PROJECT WIDE
Future Sub Area Name: Not reported
Future Document Type: Remedial Action Completion Report
Future Due Date: 2023
Future Area Name: PROJECT WIDE
Future Sub Area Name: Not reported
Future Document Type: Certification
Future Due Date: 2022
Future Area Name: PROJECT WIDE
Future Sub Area Name: Not reported
Future Document Type: Land Use Restriction
Future Due Date: 2023

OLD ORCHARD SHOPPING CENTER (Continued) **S117038650**

Future Area Name:	PROJECT WIDE
Future Sub Area Name:	Not reported
Future Document Type:	Site Characterization Report
Future Due Date:	2022
Schedule Area Name:	Not reported
Schedule Sub Area Name:	Not reported
Schedule Document Type:	Not reported
Schedule Due Date:	Not reported
Schedule Revised Date:	Not reported

Count: 2 records. ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
SANTA CLARITA	S105888379	HANGERS CLEANERS	26858 THE OLD RD	91355	DRYCLEANERS
VALENCIA	S121695239	HANGERS CLEANERS, BYOUNG LEE	26858 THE OLD ROAD #A	91355	DRYCLEANERS

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Lists of Federal NPL (Superfund) sites

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 10/20/2021
Date Data Arrived at EDR: 11/05/2021
Date Made Active in Reports: 11/29/2021
Number of Days to Update: 24

Source: EPA
Telephone: N/A
Last EDR Contact: 02/03/2022
Next Scheduled EDR Contact: 04/11/2022
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 3
Telephone 215-814-5418

EPA Region 4
Telephone 404-562-8033

EPA Region 5
Telephone 312-886-6686

EPA Region 10
Telephone 206-553-8665

EPA Region 6
Telephone: 214-655-6659

EPA Region 7
Telephone: 913-551-7247

EPA Region 8
Telephone: 303-312-6774

EPA Region 9
Telephone: 415-947-4246

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 10/20/2021
Date Data Arrived at EDR: 11/05/2021
Date Made Active in Reports: 11/29/2021
Number of Days to Update: 24

Source: EPA
Telephone: N/A
Last EDR Contact: 02/03/2022
Next Scheduled EDR Contact: 04/11/2022
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

Lists of Federal Delisted NPL sites

Delisted NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 10/20/2021
Date Data Arrived at EDR: 11/05/2021
Date Made Active in Reports: 11/29/2021
Number of Days to Update: 24

Source: EPA
Telephone: N/A
Last EDR Contact: 02/03/2022
Next Scheduled EDR Contact: 04/11/2022
Data Release Frequency: Quarterly

Lists of Federal sites subject to CERCLA removals and CERCLA orders

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 05/25/2021
Date Data Arrived at EDR: 06/24/2021
Date Made Active in Reports: 09/20/2021
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 12/29/2021
Next Scheduled EDR Contact: 04/11/2022
Data Release Frequency: Varies

SEMS: Superfund Enterprise Management System

SEMS (Superfund Enterprise Management System) tracks hazardous waste sites, potentially hazardous waste sites, and remedial activities performed in support of EPA's Superfund Program across the United States. The list was formerly know as CERCLIS, renamed to SEMS by the EPA in 2015. The list contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This dataset also contains sites which are either proposed to or on the National Priorities List (NPL) and the sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 10/20/2021
Date Data Arrived at EDR: 11/05/2021
Date Made Active in Reports: 11/29/2021
Number of Days to Update: 24

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 02/03/2022
Next Scheduled EDR Contact: 04/25/2022
Data Release Frequency: Quarterly

Lists of Federal CERCLA sites with NFRAP

SEMS-ARCHIVE: Superfund Enterprise Management System Archive

SEMS-ARCHIVE (Superfund Enterprise Management System Archive) tracks sites that have no further interest under the Federal Superfund Program based on available information. The list was formerly known as the CERCLIS-NFRAP, renamed to SEMS ARCHIVE by the EPA in 2015. EPA may perform a minimal level of assessment work at a site while it is archived if site conditions change and/or new information becomes available. Archived sites have been removed and archived from the inventory of SEMS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list the site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. The decision does not necessarily mean that there is no hazard associated with a given site; it only means that. based upon available information, the location is not judged to be potential NPL site.

Date of Government Version: 10/20/2021
Date Data Arrived at EDR: 11/05/2021
Date Made Active in Reports: 11/29/2021
Number of Days to Update: 24

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 02/03/2022
Next Scheduled EDR Contact: 04/25/2022
Data Release Frequency: Quarterly

Lists of Federal RCRA facilities undergoing Corrective Action

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 09/13/2021
Date Data Arrived at EDR: 09/15/2021
Date Made Active in Reports: 10/12/2021
Number of Days to Update: 27

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 12/17/2021
Next Scheduled EDR Contact: 04/04/2022
Data Release Frequency: Quarterly

Lists of Federal RCRA TSD facilities

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 09/13/2021
Date Data Arrived at EDR: 09/15/2021
Date Made Active in Reports: 10/12/2021
Number of Days to Update: 27

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 12/17/2021
Next Scheduled EDR Contact: 04/04/2022
Data Release Frequency: Quarterly

Lists of Federal RCRA generators

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 09/13/2021
Date Data Arrived at EDR: 09/15/2021
Date Made Active in Reports: 10/12/2021
Number of Days to Update: 27

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 12/17/2021
Next Scheduled EDR Contact: 04/04/2022
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 09/13/2021
Date Data Arrived at EDR: 09/15/2021
Date Made Active in Reports: 10/12/2021
Number of Days to Update: 27

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 12/17/2021
Next Scheduled EDR Contact: 04/04/2022
Data Release Frequency: Quarterly

RCRA-VSQG: RCRA - Very Small Quantity Generators (Formerly Conditionally Exempt Small Quantity Generators)

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Very small quantity generators (VSQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 09/13/2021
Date Data Arrived at EDR: 09/15/2021
Date Made Active in Reports: 10/12/2021
Number of Days to Update: 27

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 12/17/2021
Next Scheduled EDR Contact: 04/04/2022
Data Release Frequency: Quarterly

Federal institutional controls / engineering controls registries

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 11/15/2021
Date Data Arrived at EDR: 11/16/2021
Date Made Active in Reports: 02/08/2022
Number of Days to Update: 84

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 02/07/2022
Next Scheduled EDR Contact: 05/23/2022
Data Release Frequency: Varies

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 08/23/2021
Date Data Arrived at EDR: 08/23/2021
Date Made Active in Reports: 11/12/2021
Number of Days to Update: 81

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 11/18/2021
Next Scheduled EDR Contact: 03/07/2022
Data Release Frequency: Varies

US INST CONTROLS: Institutional Controls Sites List

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 08/23/2021
Date Data Arrived at EDR: 08/23/2021
Date Made Active in Reports: 11/12/2021
Number of Days to Update: 81

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 11/19/2021
Next Scheduled EDR Contact: 03/07/2022
Data Release Frequency: Varies

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 09/13/2021
Date Data Arrived at EDR: 09/21/2021
Date Made Active in Reports: 12/15/2021
Number of Days to Update: 85

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 12/16/2021
Next Scheduled EDR Contact: 04/04/2022
Data Release Frequency: Quarterly

Lists of state- and tribal (Superfund) equivalent sites

RESPONSE: State Response Sites

Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

Date of Government Version: 10/25/2021
Date Data Arrived at EDR: 10/26/2021
Date Made Active in Reports: 01/14/2022
Number of Days to Update: 80

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/25/2022
Next Scheduled EDR Contact: 05/09/2022
Data Release Frequency: Quarterly

Lists of state- and tribal hazardous waste facilities

ENVIROSTOR: EnviroStor Database

The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

Date of Government Version: 10/25/2021
Date Data Arrived at EDR: 10/26/2021
Date Made Active in Reports: 01/14/2022
Number of Days to Update: 80

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/25/2022
Next Scheduled EDR Contact: 05/09/2022
Data Release Frequency: Quarterly

Lists of state and tribal landfills and solid waste disposal facilities

SWF/LF (SWIS): Solid Waste Information System

Active, Closed and Inactive Landfills. SWF/LF records typically contain an inve ntory of solid waste disposal facilities or landfills. These may be active or i nactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 11/08/2021
Date Data Arrived at EDR: 11/09/2021
Date Made Active in Reports: 01/28/2022
Number of Days to Update: 80

Source: Department of Resources Recycling and Recovery
Telephone: 916-341-6320
Last EDR Contact: 02/08/2022
Next Scheduled EDR Contact: 05/23/2022
Data Release Frequency: Quarterly

Lists of state and tribal leaking storage tanks

LUST REG 3: Leaking Underground Storage Tank Database
Leaking Underground Storage Tank locations. Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz counties.

Date of Government Version: 05/19/2003
Date Data Arrived at EDR: 05/19/2003
Date Made Active in Reports: 06/02/2003
Number of Days to Update: 14

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-542-4786
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: No Update Planned

LUST REG 4: Underground Storage Tank Leak List
Los Angeles, Ventura counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6710
Last EDR Contact: 09/06/2011
Next Scheduled EDR Contact: 12/19/2011
Data Release Frequency: No Update Planned

LUST REG 5: Leaking Underground Storage Tank Database
Leaking Underground Storage Tank locations. Alameda, Alpine, Amador, Butte, Colusa, Contra Costa, Calveras, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Lassen, Madera, Mariposa, Merced, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba counties.

Date of Government Version: 07/01/2008
Date Data Arrived at EDR: 07/22/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 9

Source: California Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-4834
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: No Update Planned

LUST REG 7: Leaking Underground Storage Tank Case Listing
Leaking Underground Storage Tank locations. Imperial, Riverside, San Diego, Santa Barbara counties.

Date of Government Version: 02/26/2004
Date Data Arrived at EDR: 02/26/2004
Date Made Active in Reports: 03/24/2004
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Colorado River Basin Region (7)
Telephone: 760-776-8943
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST REG 6L: Leaking Underground Storage Tank Case Listing
For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/09/2003
Date Data Arrived at EDR: 09/10/2003
Date Made Active in Reports: 10/07/2003
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Lahontan Region (6)
Telephone: 530-542-5572
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 8: Leaking Underground Storage Tanks
California Regional Water Quality Control Board Santa Ana Region (8). For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/14/2005
Date Data Arrived at EDR: 02/15/2005
Date Made Active in Reports: 03/28/2005
Number of Days to Update: 41

Source: California Regional Water Quality Control Board Santa Ana Region (8)
Telephone: 909-782-4496
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

LUST REG 9: Leaking Underground Storage Tank Report
Orange, Riverside, San Diego counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 03/01/2001
Date Data Arrived at EDR: 04/23/2001
Date Made Active in Reports: 05/21/2001
Number of Days to Update: 28

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-637-5595
Last EDR Contact: 09/26/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: No Update Planned

LUST REG 6V: Leaking Underground Storage Tank Case Listing

Leaking Underground Storage Tank locations. Inyo, Kern, Los Angeles, Mono, San Bernardino counties.

Date of Government Version: 06/07/2005
Date Data Arrived at EDR: 06/07/2005
Date Made Active in Reports: 06/29/2005
Number of Days to Update: 22

Source: California Regional Water Quality Control Board Victorville Branch Office (6)
Telephone: 760-241-7365
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 1: Active Toxic Site Investigation

Del Norte, Humboldt, Lake, Mendocino, Modoc, Siskiyou, Sonoma, Trinity counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/01/2001
Date Data Arrived at EDR: 02/28/2001
Date Made Active in Reports: 03/29/2001
Number of Days to Update: 29

Source: California Regional Water Quality Control Board North Coast (1)
Telephone: 707-570-3769
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST: Leaking Underground Fuel Tank Report (GEOTRACKER)

Leaking Underground Storage Tank (LUST) Sites included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 09/07/2021
Date Data Arrived at EDR: 09/07/2021
Date Made Active in Reports: 11/29/2021
Number of Days to Update: 83

Source: State Water Resources Control Board
Telephone: see region list
Last EDR Contact: 12/07/2021
Next Scheduled EDR Contact: 03/21/2022
Data Release Frequency: Quarterly

LUST REG 2: Fuel Leak List

Leaking Underground Storage Tank locations. Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma counties.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: California Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-622-2433
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: No Update Planned

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 10/12/2021
Date Data Arrived at EDR: 11/15/2021
Date Made Active in Reports: 02/08/2022
Number of Days to Update: 85

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 01/18/2022
Next Scheduled EDR Contact: 05/02/2022
Data Release Frequency: Varies

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 10/12/2021
Date Data Arrived at EDR: 11/15/2021
Date Made Active in Reports: 02/08/2022
Number of Days to Update: 85

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 01/18/2022
Next Scheduled EDR Contact: 05/02/2022
Data Release Frequency: Varies

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 04/28/2021
Date Data Arrived at EDR: 06/11/2021
Date Made Active in Reports: 09/07/2021
Number of Days to Update: 88
Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 01/18/2022
Next Scheduled EDR Contact: 05/02/2022
Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 10/12/2021
Date Data Arrived at EDR: 11/15/2021
Date Made Active in Reports: 02/08/2022
Number of Days to Update: 85
Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 01/18/2022
Next Scheduled EDR Contact: 05/02/2022
Data Release Frequency: Varies

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 10/12/2021
Date Data Arrived at EDR: 11/15/2021
Date Made Active in Reports: 02/08/2022
Number of Days to Update: 85
Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 01/18/2022
Next Scheduled EDR Contact: 05/02/2022
Data Release Frequency: Varies

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 10/12/2021
Date Data Arrived at EDR: 11/15/2021
Date Made Active in Reports: 02/08/2022
Number of Days to Update: 85
Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 01/18/2022
Next Scheduled EDR Contact: 05/02/2022
Data Release Frequency: Varies

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land
Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 10/12/2021
Date Data Arrived at EDR: 11/15/2021
Date Made Active in Reports: 02/08/2022
Number of Days to Update: 85
Source: EPA, Region 5
Telephone: 312-886-7439
Last EDR Contact: 01/18/2022
Next Scheduled EDR Contact: 05/02/2022
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 05/28/2021
Date Data Arrived at EDR: 06/22/2021
Date Made Active in Reports: 09/20/2021
Number of Days to Update: 90
Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 01/18/2022
Next Scheduled EDR Contact: 05/02/2022
Data Release Frequency: Varies

CPS-SLIC: Statewide SLIC Cases (GEOTRACKER)
Cleanup Program Sites (CPS; also known as Site Cleanups [SC] and formerly known as Spills, Leaks, Investigations, and Cleanups [SLIC] sites) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 09/07/2021
Date Data Arrived at EDR: 09/07/2021
Date Made Active in Reports: 11/29/2021
Number of Days to Update: 83
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/07/2021
Next Scheduled EDR Contact: 03/21/2022
Data Release Frequency: Varies

SLIC REG 1: Active Toxic Site Investigations

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2003
Date Data Arrived at EDR: 04/07/2003
Date Made Active in Reports: 04/25/2003
Number of Days to Update: 18

Source: California Regional Water Quality Control Board, North Coast Region (1)
Telephone: 707-576-2220
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 2: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-286-0457
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: No Update Planned

SLIC REG 3: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/18/2006
Date Data Arrived at EDR: 05/18/2006
Date Made Active in Reports: 06/15/2006
Number of Days to Update: 28

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-549-3147
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: No Update Planned

SLIC REG 4: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/17/2004
Date Data Arrived at EDR: 11/18/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 47

Source: Region Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6600
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: No Update Planned

SLIC REG 5: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/01/2005
Date Data Arrived at EDR: 04/05/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 16

Source: Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-3291
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

SLIC REG 6V: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/24/2005
Date Data Arrived at EDR: 05/25/2005
Date Made Active in Reports: 06/16/2005
Number of Days to Update: 22

Source: Regional Water Quality Control Board, Victorville Branch
Telephone: 619-241-6583
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

SLIC REG 6L: SLIC Sites
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35
Source: California Regional Water Quality Control Board, Lahontan Region
Telephone: 530-542-5574
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

SLIC REG 7: SLIC List
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/24/2004
Date Data Arrived at EDR: 11/29/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 36
Source: California Regional Quality Control Board, Colorado River Basin Region
Telephone: 760-346-7491
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 8: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2008
Date Data Arrived at EDR: 04/03/2008
Date Made Active in Reports: 04/14/2008
Number of Days to Update: 11
Source: California Region Water Quality Control Board Santa Ana Region (8)
Telephone: 951-782-3298
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

SLIC REG 9: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/10/2007
Date Data Arrived at EDR: 09/11/2007
Date Made Active in Reports: 09/28/2007
Number of Days to Update: 17
Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-467-2980
Last EDR Contact: 08/08/2011
Next Scheduled EDR Contact: 11/21/2011
Data Release Frequency: No Update Planned

Lists of state and tribal registered storage tanks

FEMA UST: Underground Storage Tank Listing
A listing of all FEMA owned underground storage tanks.

Date of Government Version: 10/14/2021
Date Data Arrived at EDR: 11/05/2021
Date Made Active in Reports: 02/01/2022
Number of Days to Update: 88
Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 02/07/2022
Next Scheduled EDR Contact: 04/18/2022
Data Release Frequency: Varies

MILITARY UST SITES: Military UST Sites (GEOTRACKER)
Military ust sites

Date of Government Version: 09/07/2021
Date Data Arrived at EDR: 09/07/2021
Date Made Active in Reports: 11/29/2021
Number of Days to Update: 83
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/07/2021
Next Scheduled EDR Contact: 03/21/2022
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

UST: Active UST Facilities

Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 09/07/2021
Date Data Arrived at EDR: 09/07/2021
Date Made Active in Reports: 11/30/2021
Number of Days to Update: 84

Source: SWRCB
Telephone: 916-341-5851
Last EDR Contact: 12/07/2021
Next Scheduled EDR Contact: 03/21/2022
Data Release Frequency: Semi-Annually

UST CLOSURE: Proposed Closure of Underground Storage Tank (UST) Cases

UST cases that are being considered for closure by either the State Water Resources Control Board or the Executive Director have been posted for a 60-day public comment period. UST Case Closures being proposed for consideration by the State Water Resources Control Board. These are primarily UST cases that meet closure criteria under the decisional framework in State Water Board Resolution No. 92-49 and other Board orders. UST Case Closures proposed for consideration by the Executive Director pursuant to State Water Board Resolution No. 2012-0061. These are cases that meet the criteria of the Low-Threat UST Case Closure Policy. UST Case Closure Review Denials and Approved Orders.

Date of Government Version: 08/18/2021
Date Data Arrived at EDR: 09/08/2021
Date Made Active in Reports: 12/03/2021
Number of Days to Update: 86

Source: State Water Resources Control Board
Telephone: 916-327-7844
Last EDR Contact: 12/07/2021
Next Scheduled EDR Contact: 03/21/2022
Data Release Frequency: Varies

AST: Aboveground Petroleum Storage Tank Facilities

A listing of aboveground storage tank petroleum storage tank locations.

Date of Government Version: 07/06/2016
Date Data Arrived at EDR: 07/12/2016
Date Made Active in Reports: 09/19/2016
Number of Days to Update: 69

Source: California Environmental Protection Agency
Telephone: 916-327-5092
Last EDR Contact: 12/08/2021
Next Scheduled EDR Contact: 03/28/2022
Data Release Frequency: Varies

INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 10/14/2021
Date Data Arrived at EDR: 11/15/2021
Date Made Active in Reports: 02/08/2022
Number of Days to Update: 85

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 01/18/2022
Next Scheduled EDR Contact: 05/02/2022
Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 10/12/2021
Date Data Arrived at EDR: 11/15/2021
Date Made Active in Reports: 02/08/2022
Number of Days to Update: 85

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 01/18/2022
Next Scheduled EDR Contact: 05/02/2022
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 05/28/2021
Date Data Arrived at EDR: 06/22/2021
Date Made Active in Reports: 09/20/2021
Number of Days to Update: 90

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 01/18/2022
Next Scheduled EDR Contact: 05/02/2022
Data Release Frequency: Varies

INDIAN UST R10: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 10/12/2021
Date Data Arrived at EDR: 11/15/2021
Date Made Active in Reports: 02/08/2022
Number of Days to Update: 85

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 01/18/2022
Next Scheduled EDR Contact: 05/02/2022
Data Release Frequency: Varies

INDIAN UST R7: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 10/12/2021
Date Data Arrived at EDR: 11/15/2021
Date Made Active in Reports: 02/08/2022
Number of Days to Update: 85

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 01/18/2022
Next Scheduled EDR Contact: 05/02/2022
Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 10/12/2021
Date Data Arrived at EDR: 11/15/2021
Date Made Active in Reports: 02/08/2022
Number of Days to Update: 85

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 01/18/2022
Next Scheduled EDR Contact: 05/02/2022
Data Release Frequency: Varies

INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 10/12/2021
Date Data Arrived at EDR: 11/15/2021
Date Made Active in Reports: 02/08/2022
Number of Days to Update: 85

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 01/18/2022
Next Scheduled EDR Contact: 05/02/2022
Data Release Frequency: Varies

INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 04/06/2021
Date Data Arrived at EDR: 06/11/2021
Date Made Active in Reports: 09/07/2021
Number of Days to Update: 88

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 02/09/2022
Next Scheduled EDR Contact: 05/02/2022
Data Release Frequency: Varies

Lists of state and tribal voluntary cleanup sites

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng

A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 07/08/2021
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

VCP: Voluntary Cleanup Program Properties

Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

Date of Government Version: 10/25/2021
Date Data Arrived at EDR: 10/26/2021
Date Made Active in Reports: 01/14/2022
Number of Days to Update: 80

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/25/2022
Next Scheduled EDR Contact: 05/09/2022
Data Release Frequency: Quarterly

INDIAN VCP R1: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 07/27/2015
Date Data Arrived at EDR: 09/29/2015
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 142

Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 12/14/2021
Next Scheduled EDR Contact: 04/04/2022
Data Release Frequency: Varies

Lists of state and tribal brownfield sites

BROWNFIELDS: Considered Brownfieds Sites Listing

A listing of sites the SWRCB considers to be Brownfields since these are sites have come to them through the MOA Process.

Date of Government Version: 09/20/2021
Date Data Arrived at EDR: 09/21/2021
Date Made Active in Reports: 12/08/2021
Number of Days to Update: 78

Source: State Water Resources Control Board
Telephone: 916-323-7905
Last EDR Contact: 12/16/2021
Next Scheduled EDR Contact: 04/04/2022
Data Release Frequency: Quarterly

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 06/10/2021
Date Data Arrived at EDR: 06/10/2021
Date Made Active in Reports: 08/17/2021
Number of Days to Update: 68

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 12/08/2021
Next Scheduled EDR Contact: 03/28/2022
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT: Waste Management Unit Database

Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

Date of Government Version: 04/01/2000
Date Data Arrived at EDR: 04/10/2000
Date Made Active in Reports: 05/10/2000
Number of Days to Update: 30

Source: State Water Resources Control Board
Telephone: 916-227-4448
Last EDR Contact: 01/24/2022
Next Scheduled EDR Contact: 05/09/2022
Data Release Frequency: No Update Planned

SWRCY: Recycler Database

A listing of recycling facilities in California.

Date of Government Version: 09/07/2021
Date Data Arrived at EDR: 09/08/2021
Date Made Active in Reports: 11/29/2021
Number of Days to Update: 82

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 12/07/2021
Next Scheduled EDR Contact: 03/21/2022
Data Release Frequency: Quarterly

HAULERS: Registered Waste Tire Haulers Listing

A listing of registered waste tire haulers.

Date of Government Version: 09/14/2021
Date Data Arrived at EDR: 11/11/2021
Date Made Active in Reports: 11/23/2021
Number of Days to Update: 12

Source: Integrated Waste Management Board
Telephone: 916-341-6422
Last EDR Contact: 02/07/2022
Next Scheduled EDR Contact: 05/23/2022
Data Release Frequency: Varies

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands

Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 01/24/2022
Next Scheduled EDR Contact: 05/09/2022
Data Release Frequency: Varies

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations

A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 01/13/2022
Next Scheduled EDR Contact: 05/02/2022
Data Release Frequency: No Update Planned

ODI: Open Dump Inventory

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

IHS OPEN DUMPS: Open Dumps on Indian Land

A listing of all open dumps located on Indian Land in the United States.

Date of Government Version: 04/01/2014
Date Data Arrived at EDR: 08/06/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 176

Source: Department of Health & Human Serivces, Indian Health Service
Telephone: 301-443-1452
Last EDR Contact: 01/28/2022
Next Scheduled EDR Contact: 05/09/2022
Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL: National Clandestine Laboratory Register

A listing of clandestine drug lab locations that have been removed from the DEAs National Clandestine Laboratory Register.

Date of Government Version: 11/16/2021
Date Data Arrived at EDR: 11/18/2021
Date Made Active in Reports: 02/08/2022
Number of Days to Update: 82

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 11/16/2021
Next Scheduled EDR Contact: 03/07/2022
Data Release Frequency: No Update Planned

HIST CAL-SITES: Calsites Database

The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

Date of Government Version: 08/08/2005
Date Data Arrived at EDR: 08/03/2006
Date Made Active in Reports: 08/24/2006
Number of Days to Update: 21

Source: Department of Toxic Substance Control
Telephone: 916-323-3400
Last EDR Contact: 02/23/2009
Next Scheduled EDR Contact: 05/25/2009
Data Release Frequency: No Update Planned

SCH: School Property Evaluation Program

This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.

Date of Government Version: 10/25/2021
Date Data Arrived at EDR: 10/26/2021
Date Made Active in Reports: 01/14/2022
Number of Days to Update: 80

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/25/2022
Next Scheduled EDR Contact: 05/09/2022
Data Release Frequency: Quarterly

CDL: Clandestine Drug Labs

A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

Date of Government Version: 12/31/2019
Date Data Arrived at EDR: 01/20/2021
Date Made Active in Reports: 04/08/2021
Number of Days to Update: 78

Source: Department of Toxic Substances Control
Telephone: 916-255-6504
Last EDR Contact: 01/13/2022
Next Scheduled EDR Contact: 04/18/2022
Data Release Frequency: Varies

TOXIC PITS: Toxic Pits Cleanup Act Sites

Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

Date of Government Version: 07/01/1995
Date Data Arrived at EDR: 08/30/1995
Date Made Active in Reports: 09/26/1995
Number of Days to Update: 27

Source: State Water Resources Control Board
Telephone: 916-227-4364
Last EDR Contact: 01/26/2009
Next Scheduled EDR Contact: 04/27/2009
Data Release Frequency: No Update Planned

CERS HAZ WASTE: CERS HAZ WASTE

List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Hazardous Chemical Management, Hazardous Waste Onsite Treatment, Household Hazardous Waste Collection, Hazardous Waste Generator, and RCRA LQ HW Generator programs.

Date of Government Version: 10/18/2021
Date Data Arrived at EDR: 10/19/2021
Date Made Active in Reports: 01/12/2022
Number of Days to Update: 85

Source: CalEPA
Telephone: 916-323-2514
Last EDR Contact: 01/19/2022
Next Scheduled EDR Contact: 05/02/2022
Data Release Frequency: Quarterly

US CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 11/16/2021
Date Data Arrived at EDR: 11/18/2021
Date Made Active in Reports: 02/08/2022
Number of Days to Update: 82

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 11/16/2021
Next Scheduled EDR Contact: 03/07/2022
Data Release Frequency: Quarterly

AQUEOUS FOAM: Former Fire Training Facility Assessments Listing

Airports shown on this list are those believed to use Aqueous Film Forming Foam (AFFF), and certified by the Federal Aviation Administration (FAA) under Title 14, Code of Federal Regulations (CFR), Part 139 (14 CFR Part 139). This list was created by SWRCB using information available from the FAA. Location points shown are from the latitude and longitude listed on the FAA airport master record.

Date of Government Version: 12/01/2019
Date Data Arrived at EDR: 08/19/2021
Date Made Active in Reports: 10/28/2021
Number of Days to Update: 70

Source: State Water Resources Control Board
Telephone: 916-341-5455
Last EDR Contact: 12/10/2021
Next Scheduled EDR Contact: 03/21/2022
Data Release Frequency: Varies

PFAS: PFAS Contamination Site Location Listing

A listing of PFAS contaminated sites included in the GeoTracker database.

Date of Government Version: 09/07/2021
Date Data Arrived at EDR: 09/08/2021
Date Made Active in Reports: 12/01/2021
Number of Days to Update: 84

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/07/2021
Next Scheduled EDR Contact: 03/21/2022
Data Release Frequency: Varies

Local Lists of Registered Storage Tanks

SWEEPS UST: SWEEPS UST Listing

Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

Date of Government Version: 06/01/1994
Date Data Arrived at EDR: 07/07/2005
Date Made Active in Reports: 08/11/2005
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/03/2005
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

HIST UST: Hazardous Substance Storage Container Database

The Hazardous Substance Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

Date of Government Version: 10/15/1990
Date Data Arrived at EDR: 01/25/1991
Date Made Active in Reports: 02/12/1991
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 916-341-5851
Last EDR Contact: 07/26/2001
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SAN FRANCISCO AST: Aboveground Storage Tank Site Listing

Aboveground storage tank sites

Date of Government Version: 11/04/2021
Date Data Arrived at EDR: 11/05/2021
Date Made Active in Reports: 01/24/2022
Number of Days to Update: 80

Source: San Francisco County Department of Public Health
Telephone: 415-252-3896
Last EDR Contact: 01/28/2022
Next Scheduled EDR Contact: 05/16/2022
Data Release Frequency: Varies

CA FID UST: Facility Inventory Database

The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data.

Date of Government Version: 10/31/1994
Date Data Arrived at EDR: 09/05/1995
Date Made Active in Reports: 09/29/1995
Number of Days to Update: 24

Source: California Environmental Protection Agency
Telephone: 916-341-5851
Last EDR Contact: 12/28/1998
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CERS TANKS: California Environmental Reporting System (CERS) Tanks

List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Aboveground Petroleum Storage and Underground Storage Tank regulatory programs.

Date of Government Version: 10/18/2021
Date Data Arrived at EDR: 10/19/2021
Date Made Active in Reports: 01/12/2022
Number of Days to Update: 85

Source: California Environmental Protection Agency
Telephone: 916-323-2514
Last EDR Contact: 01/19/2022
Next Scheduled EDR Contact: 05/02/2022
Data Release Frequency: Quarterly

Local Land Records

LIENS: Environmental Liens Listing

A listing of property locations with environmental liens for California where DTSC is a lien holder.

Date of Government Version: 08/25/2021
Date Data Arrived at EDR: 09/03/2021
Date Made Active in Reports: 11/22/2021
Number of Days to Update: 80

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 11/22/2021
Next Scheduled EDR Contact: 03/14/2022
Data Release Frequency: Varies

LIENS 2: CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 10/20/2021
Date Data Arrived at EDR: 11/05/2021
Date Made Active in Reports: 11/29/2021
Number of Days to Update: 24

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 02/03/2022
Next Scheduled EDR Contact: 04/11/2022
Data Release Frequency: Semi-Annually

DEED: Deed Restriction Listing

Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Date of Government Version: 08/30/2021
Date Data Arrived at EDR: 08/31/2021
Date Made Active in Reports: 11/19/2021
Number of Days to Update: 80

Source: DTSC and SWRCB
Telephone: 916-323-3400
Last EDR Contact: 11/30/2021
Next Scheduled EDR Contact: 03/14/2022
Data Release Frequency: Semi-Annually

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 09/12/2021
Date Data Arrived at EDR: 09/13/2021
Date Made Active in Reports: 09/28/2021
Number of Days to Update: 15

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 12/16/2021
Next Scheduled EDR Contact: 04/04/2022
Data Release Frequency: Quarterly

CHMIRS: California Hazardous Material Incident Report System

California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

Date of Government Version: 09/30/2021
Date Data Arrived at EDR: 10/19/2021
Date Made Active in Reports: 01/12/2022
Number of Days to Update: 85

Source: Office of Emergency Services
Telephone: 916-845-8400
Last EDR Contact: 01/19/2022
Next Scheduled EDR Contact: 05/02/2022
Data Release Frequency: Semi-Annually

LDS: Land Disposal Sites Listing (GEOTRACKER)

Land Disposal sites (Landfills) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 09/07/2021
Date Data Arrived at EDR: 09/07/2021
Date Made Active in Reports: 11/29/2021
Number of Days to Update: 83

Source: State Water Qualilty Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/07/2021
Next Scheduled EDR Contact: 03/21/2022
Data Release Frequency: Quarterly

MCS: Military Cleanup Sites Listing (GEOTRACKER)

Military sites (consisting of: Military UST sites; Military Privatized sites; and Military Cleanup sites [formerly known as DoD non UST]) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 09/07/2021
Date Data Arrived at EDR: 09/07/2021
Date Made Active in Reports: 11/29/2021
Number of Days to Update: 83

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/07/2021
Next Scheduled EDR Contact: 03/21/2022
Data Release Frequency: Quarterly

SPILLS 90: SPILLS90 data from FirstSearch

Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 06/06/2012
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 02/22/2013
Number of Days to Update: 50

Source: FirstSearch
Telephone: N/A
Last EDR Contact: 01/03/2013
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators / No Longer Regulated

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 09/13/2021
Date Data Arrived at EDR: 09/15/2021
Date Made Active in Reports: 10/12/2021
Number of Days to Update: 27

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 12/17/2021
Next Scheduled EDR Contact: 04/04/2022
Data Release Frequency: Quarterly

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 10/26/2021
Date Data Arrived at EDR: 11/16/2021
Date Made Active in Reports: 02/08/2022
Number of Days to Update: 84

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 11/16/2021
Next Scheduled EDR Contact: 02/28/2022
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/10/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 62

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 01/14/2022
Next Scheduled EDR Contact: 04/25/2022
Data Release Frequency: Semi-Annually

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 04/02/2018
Date Data Arrived at EDR: 04/11/2018
Date Made Active in Reports: 11/06/2019
Number of Days to Update: 574

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 01/07/2022
Next Scheduled EDR Contact: 04/18/2022
Data Release Frequency: N/A

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 01/01/2017
Date Data Arrived at EDR: 02/03/2017
Date Made Active in Reports: 04/07/2017
Number of Days to Update: 63

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 02/08/2022
Next Scheduled EDR Contact: 05/23/2022
Data Release Frequency: Varies

US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 09/13/2021
Date Data Arrived at EDR: 09/15/2021
Date Made Active in Reports: 09/28/2021
Number of Days to Update: 13

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 12/17/2021
Next Scheduled EDR Contact: 04/04/2022
Data Release Frequency: Quarterly

EPA WATCH LIST: EPA WATCH LIST

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 08/30/2013
Date Data Arrived at EDR: 03/21/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: 617-520-3000
Last EDR Contact: 02/01/2022
Next Scheduled EDR Contact: 05/16/2022
Data Release Frequency: Quarterly

2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 09/30/2017
Date Data Arrived at EDR: 05/08/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 73

Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 02/03/2022
Next Scheduled EDR Contact: 05/16/2022
Data Release Frequency: Varies

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2016
Date Data Arrived at EDR: 06/17/2020
Date Made Active in Reports: 09/10/2020
Number of Days to Update: 85

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 12/17/2021
Next Scheduled EDR Contact: 03/28/2022
Data Release Frequency: Every 4 Years

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 08/14/2020
Date Made Active in Reports: 11/04/2020
Number of Days to Update: 82

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 11/16/2021
Next Scheduled EDR Contact: 02/28/2022
Data Release Frequency: Annually

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 10/18/2021
Date Data Arrived at EDR: 10/20/2021
Date Made Active in Reports: 01/10/2022
Number of Days to Update: 82

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 01/19/2022
Next Scheduled EDR Contact: 05/02/2022
Data Release Frequency: Annually

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 10/20/2021
Date Data Arrived at EDR: 11/05/2021
Date Made Active in Reports: 11/29/2021
Number of Days to Update: 24

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 02/03/2022
Next Scheduled EDR Contact: 03/14/2022
Data Release Frequency: Annually

RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 10/20/2021
Date Data Arrived at EDR: 11/05/2021
Date Made Active in Reports: 11/12/2021
Number of Days to Update: 7

Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 01/18/2022
Next Scheduled EDR Contact: 05/02/2022
Data Release Frequency: Varies

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

PRP: Potentially Responsible Parties
A listing of verified Potentially Responsible Parties

Date of Government Version: 10/20/2021
Date Data Arrived at EDR: 11/05/2021
Date Made Active in Reports: 12/15/2021
Number of Days to Update: 40
Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 02/03/2022
Next Scheduled EDR Contact: 05/16/2022
Data Release Frequency: Quarterly

PADS: PCB Activity Database System
PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 11/19/2020
Date Data Arrived at EDR: 01/08/2021
Date Made Active in Reports: 03/22/2021
Number of Days to Update: 73
Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 01/07/2022
Next Scheduled EDR Contact: 04/18/2022
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System
The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 11/18/2016
Date Data Arrived at EDR: 11/23/2016
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 79
Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/29/2021
Next Scheduled EDR Contact: 04/18/2022
Data Release Frequency: Quarterly

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25
Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: No Update Planned

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25
Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: No Update Planned

MLTS: Material Licensing Tracking System
MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 07/29/2021
Date Data Arrived at EDR: 08/24/2021
Date Made Active in Reports: 11/19/2021
Number of Days to Update: 87
Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 01/18/2022
Next Scheduled EDR Contact: 05/02/2022
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

COAL ASH DOE: Steam-Electric Plant Operation Data
A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2019
Date Data Arrived at EDR: 12/01/2020
Date Made Active in Reports: 02/09/2021
Number of Days to Update: 70
Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 11/30/2021
Next Scheduled EDR Contact: 03/14/2022
Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List
A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 01/12/2017
Date Data Arrived at EDR: 03/05/2019
Date Made Active in Reports: 11/11/2019
Number of Days to Update: 251
Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 12/02/2021
Next Scheduled EDR Contact: 03/14/2022
Data Release Frequency: Varies

PCB TRANSFORMER: PCB Transformer Registration Database
The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 09/13/2019
Date Data Arrived at EDR: 11/06/2019
Date Made Active in Reports: 02/10/2020
Number of Days to Update: 96
Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 02/04/2022
Next Scheduled EDR Contact: 05/16/2022
Data Release Frequency: Varies

RADINFO: Radiation Information Database
The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 07/01/2019
Date Data Arrived at EDR: 07/01/2019
Date Made Active in Reports: 09/23/2019
Number of Days to Update: 84
Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 12/27/2021
Next Scheduled EDR Contact: 04/11/2022
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing
A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40
Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing
A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

DOT OPS: Incident and Accident Data

Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 01/02/2020
Date Data Arrived at EDR: 01/28/2020
Date Made Active in Reports: 04/17/2020
Number of Days to Update: 80

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 01/24/2022
Next Scheduled EDR Contact: 05/08/2022
Data Release Frequency: Quarterly

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 09/30/2021
Date Data Arrived at EDR: 10/13/2021
Date Made Active in Reports: 01/10/2022
Number of Days to Update: 89

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 01/03/2022
Next Scheduled EDR Contact: 04/18/2022
Data Release Frequency: Varies

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2019
Date Data Arrived at EDR: 09/15/2021
Date Made Active in Reports: 12/14/2021
Number of Days to Update: 90

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 12/17/2021
Next Scheduled EDR Contact: 04/04/2022
Data Release Frequency: Biennially

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 07/14/2015
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 546

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 01/04/2022
Next Scheduled EDR Contact: 04/18/2022
Data Release Frequency: Semi-Annually

FUSRAP: Formerly Utilized Sites Remedial Action Program

DOE established the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1974 to remediate sites where radioactive contamination remained from Manhattan Project and early U.S. Atomic Energy Commission (AEC) operations.

Date of Government Version: 07/26/2021
Date Data Arrived at EDR: 07/27/2021
Date Made Active in Reports: 10/22/2021
Number of Days to Update: 87

Source: Department of Energy
Telephone: 202-586-3559
Last EDR Contact: 01/31/2022
Next Scheduled EDR Contact: 05/16/2022
Data Release Frequency: Varies

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 08/30/2019
Date Data Arrived at EDR: 11/15/2019
Date Made Active in Reports: 01/28/2020
Number of Days to Update: 74

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 12/09/2021
Next Scheduled EDR Contact: 02/28/2022
Data Release Frequency: Varies

LEAD SMELTER 1: Lead Smelter Sites

A listing of former lead smelter site locations.

Date of Government Version: 10/20/2021
Date Data Arrived at EDR: 11/05/2021
Date Made Active in Reports: 11/29/2021
Number of Days to Update: 24

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 05/03/2022
Next Scheduled EDR Contact: 04/11/2022
Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites

A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36

Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)

The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US AIRS MINOR: Air Facility System Data

A listing of minor source facilities.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

MINES VIOLATIONS: MSHA Violation Assessment Data

Mines violation and assessment information. Department of Labor, Mine Safety & Health Administration.

Date of Government Version: 06/30/2021
Date Data Arrived at EDR: 07/01/2021
Date Made Active in Reports: 09/28/2021
Number of Days to Update: 89

Source: DOL, Mine Safety & Health Admi
Telephone: 202-693-9424
Last EDR Contact: 12/20/2021
Next Scheduled EDR Contact: 03/14/2022
Data Release Frequency: Quarterly

US MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 08/09/2021
Date Data Arrived at EDR: 08/24/2021
Date Made Active in Reports: 11/19/2021
Number of Days to Update: 87

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 11/22/2021
Next Scheduled EDR Contact: 03/07/2022
Data Release Frequency: Semi-Annually

US MINES 2: Ferrous and Nonferrous Metal Mines Database Listing

This map layer includes ferrous (ferrous metal mines are facilities that extract ferrous metals, such as iron ore or molybdenum) and nonferrous (Nonferrous metal mines are facilities that extract nonferrous metals, such as gold, silver, copper, zinc, and lead) metal mines in the United States.

Date of Government Version: 05/06/2020
Date Data Arrived at EDR: 05/27/2020
Date Made Active in Reports: 08/13/2020
Number of Days to Update: 78

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 11/22/2021
Next Scheduled EDR Contact: 03/07/2022
Data Release Frequency: Varies

US MINES 3: Active Mines & Mineral Plants Database Listing

Active Mines and Mineral Processing Plant operations for commodities monitored by the Minerals Information Team of the USGS.

Date of Government Version: 04/14/2011
Date Data Arrived at EDR: 06/08/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 97

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 11/22/2021
Next Scheduled EDR Contact: 03/07/2022
Data Release Frequency: Varies

ABANDONED MINES: Abandoned Mines

An inventory of land and water impacted by past mining (primarily coal mining) is maintained by OSMRE to provide information needed to implement the Surface Mining Control and Reclamation Act of 1977 (SMCRA). The inventory contains information on the location, type, and extent of AML impacts, as well as, information on the cost associated with the reclamation of those problems. The inventory is based upon field surveys by State, Tribal, and OSMRE program officials. It is dynamic to the extent that it is modified as new problems are identified and existing problems are reclaimed.

Date of Government Version: 09/14/2021
Date Data Arrived at EDR: 09/15/2021
Date Made Active in Reports: 12/15/2021
Number of Days to Update: 91

Source: Department of Interior
Telephone: 202-208-2609
Last EDR Contact: 12/14/2021
Next Scheduled EDR Contact: 03/21/2022
Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 05/05/2021
Date Data Arrived at EDR: 05/18/2021
Date Made Active in Reports: 08/17/2021
Number of Days to Update: 91

Source: EPA
Telephone: (415) 947-8000
Last EDR Contact: 11/22/2021
Next Scheduled EDR Contact: 03/14/2022
Data Release Frequency: Quarterly

UXO: Unexploded Ordnance Sites

A listing of unexploded ordnance site locations

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 07/02/2020
Date Made Active in Reports: 09/17/2020
Number of Days to Update: 77

Source: Department of Defense
Telephone: 703-704-1564
Last EDR Contact: 01/11/2022
Next Scheduled EDR Contact: 04/25/2022
Data Release Frequency: Varies

DOCKET HWC: Hazardous Waste Compliance Docket Listing
A complete list of the Federal Agency Hazardous Waste Compliance Docket Facilities.

Date of Government Version: 05/06/2021
Date Data Arrived at EDR: 05/21/2021
Date Made Active in Reports: 08/11/2021
Number of Days to Update: 82
Source: Environmental Protection Agency
Telephone: 202-564-0527
Last EDR Contact: 11/23/2021
Next Scheduled EDR Contact: 03/07/2022
Data Release Frequency: Varies

ECHO: Enforcement & Compliance History Information
ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

Date of Government Version: 01/01/2022
Date Data Arrived at EDR: 01/04/2022
Date Made Active in Reports: 01/10/2022
Number of Days to Update: 6
Source: Environmental Protection Agency
Telephone: 202-564-2280
Last EDR Contact: 01/04/2022
Next Scheduled EDR Contact: 04/18/2022
Data Release Frequency: Quarterly

FUELS PROGRAM: EPA Fuels Program Registered Listing
This listing includes facilities that are registered under the Part 80 (Code of Federal Regulations) EPA Fuels Programs. All companies now are required to submit new and updated registrations.

Date of Government Version: 11/15/2021
Date Data Arrived at EDR: 11/15/2021
Date Made Active in Reports: 02/01/2022
Number of Days to Update: 78
Source: EPA
Telephone: 800-385-6164
Last EDR Contact: 11/15/2021
Next Scheduled EDR Contact: 02/28/2022
Data Release Frequency: Quarterly

CA BOND EXP. PLAN: Bond Expenditure Plan
Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

Date of Government Version: 01/01/1989
Date Data Arrived at EDR: 07/27/1994
Date Made Active in Reports: 08/02/1994
Number of Days to Update: 6
Source: Department of Health Services
Telephone: 916-255-2118
Last EDR Contact: 05/31/1994
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CORTESE: "Cortese" Hazardous Waste & Substances Sites List
The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites).

Date of Government Version: 09/20/2021
Date Data Arrived at EDR: 09/21/2021
Date Made Active in Reports: 12/08/2021
Number of Days to Update: 78
Source: CAL EPA/Office of Emergency Information
Telephone: 916-323-3400
Last EDR Contact: 12/16/2021
Next Scheduled EDR Contact: 04/04/2022
Data Release Frequency: Quarterly

CUPA LIVERMORE-PLEASANTON: CUPA Facility Listing
list of facilities associated with the various CUPA programs in Livermore-Pleasanton

Date of Government Version: 05/01/2019
Date Data Arrived at EDR: 05/14/2019
Date Made Active in Reports: 07/17/2019
Number of Days to Update: 64
Source: Livermore-Pleasanton Fire Department
Telephone: 925-454-2361
Last EDR Contact: 02/08/2022
Next Scheduled EDR Contact: 05/23/2022
Data Release Frequency: Varies

DRYCLEAN SOUTH COAST: South Coast Air Quality Management District Drycleaner Listing
A listing of dry cleaners in the South Coast Air Quality Management District

Date of Government Version: 11/17/2021
Date Data Arrived at EDR: 11/18/2021
Date Made Active in Reports: 02/07/2022
Number of Days to Update: 81
Source: South Coast Air Quality Management District
Telephone: 909-396-3211
Last EDR Contact: 11/16/2021
Next Scheduled EDR Contact: 03/07/2022
Data Release Frequency: Varies

DRYCLEANERS: Cleaner Facilities

A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaner's agents; linen supply; coin-operated laundries and cleaning; drycleaning plants, except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

Date of Government Version: 08/27/2021
Date Data Arrived at EDR: 09/01/2021
Date Made Active in Reports: 11/19/2021
Number of Days to Update: 79
Source: Department of Toxic Substance Control
Telephone: 916-327-4498
Last EDR Contact: 02/07/2022
Next Scheduled EDR Contact: 03/14/2022
Data Release Frequency: Annually

DRYCLEAN AVAQMD: Antelope Valley Air Quality Management District Drycleaner Listing

A listing of dry cleaners in the Antelope Valley Air Quality Management District.

Date of Government Version: 08/24/2021
Date Data Arrived at EDR: 08/25/2021
Date Made Active in Reports: 11/17/2021
Number of Days to Update: 84
Source: Antelope Valley Air Quality Management District
Telephone: 661-723-8070
Last EDR Contact: 11/23/2021
Next Scheduled EDR Contact: 03/14/2022
Data Release Frequency: Varies

EMI: Emissions Inventory Data

Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2019
Date Data Arrived at EDR: 06/10/2021
Date Made Active in Reports: 08/27/2021
Number of Days to Update: 78
Source: California Air Resources Board
Telephone: 916-322-2990
Last EDR Contact: 12/17/2021
Next Scheduled EDR Contact: 03/28/2022
Data Release Frequency: Varies

ENF: Enforcement Action Listing

A listing of Water Board Enforcement Actions. Formal is everything except Oral/Verbal Communication, Notice of Violation, Expedited Payment Letter, and Staff Enforcement Letter.

Date of Government Version: 11/10/2021
Date Data Arrived at EDR: 11/11/2021
Date Made Active in Reports: 02/03/2022
Number of Days to Update: 84
Source: State Water Resoruces Control Board
Telephone: 916-445-9379
Last EDR Contact: 01/28/2022
Next Scheduled EDR Contact: 05/02/2022
Data Release Frequency: Varies

Financial Assurance 1: Financial Assurance Information Listing

Financial Assurance information

Date of Government Version: 10/05/2021
Date Data Arrived at EDR: 10/06/2021
Date Made Active in Reports: 12/29/2021
Number of Days to Update: 84
Source: Department of Toxic Substances Control
Telephone: 916-255-3628
Last EDR Contact: 01/13/2022
Next Scheduled EDR Contact: 05/02/2022
Data Release Frequency: Varies

Financial Assurance 2: Financial Assurance Information Listing

A listing of financial assurance information for solid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 11/18/2021
Date Data Arrived at EDR: 11/19/2021
Date Made Active in Reports: 02/07/2022
Number of Days to Update: 80

Source: California Integrated Waste Management Board
Telephone: 916-341-6066
Last EDR Contact: 02/07/2022
Next Scheduled EDR Contact: 05/23/2022
Data Release Frequency: Varies

HAZNET: Facility and Manifest Data

Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method. This database begins with calendar year 1993.

Date of Government Version: 12/31/2019
Date Data Arrived at EDR: 04/15/2020
Date Made Active in Reports: 07/02/2020
Number of Days to Update: 78

Source: California Environmental Protection Agency
Telephone: 916-255-1136
Last EDR Contact: 01/07/2022
Next Scheduled EDR Contact: 04/18/2022
Data Release Frequency: Annually

ICE: ICE

Contains data pertaining to the Permitted Facilities with Inspections / Enforcements sites tracked in Envirostor.

Date of Government Version: 11/15/2021
Date Data Arrived at EDR: 11/15/2021
Date Made Active in Reports: 02/03/2022
Number of Days to Update: 80

Source: Department of Toxic Subsances Control
Telephone: 877-786-9427
Last EDR Contact: 11/15/2021
Next Scheduled EDR Contact: 02/28/2022
Data Release Frequency: Quarterly

HIST CORTESE: Hazardous Waste & Substance Site List

The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES]. This listing is no longer updated by the state agency.

Date of Government Version: 04/01/2001
Date Data Arrived at EDR: 01/22/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/22/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

HWP: EnviroStor Permitted Facilities Listing

Detailed information on permitted hazardous waste facilities and corrective action ("cleanups") tracked in EnviroStor.

Date of Government Version: 11/15/2021
Date Data Arrived at EDR: 11/15/2021
Date Made Active in Reports: 02/03/2022
Number of Days to Update: 80

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 11/15/2021
Next Scheduled EDR Contact: 02/28/2022
Data Release Frequency: Quarterly

HWT: Registered Hazardous Waste Transporter Database

A listing of hazardous waste transporters. In California, unless specifically exempted, it is unlawful for any person to transport hazardous wastes unless the person holds a valid registration issued by DTSC. A hazardous waste transporter registration is valid for one year and is assigned a unique registration number.

Date of Government Version: 10/04/2021
Date Data Arrived at EDR: 10/05/2021
Date Made Active in Reports: 12/22/2021
Number of Days to Update: 78

Source: Department of Toxic Substances Control
Telephone: 916-440-7145
Last EDR Contact: 01/04/2022
Next Scheduled EDR Contact: 04/18/2022
Data Release Frequency: Quarterly

MINES: Mines Site Location Listing
A listing of mine site locations from the Office of Mine Reclamation.

Date of Government Version: 09/07/2021
Date Data Arrived at EDR: 09/07/2021
Date Made Active in Reports: 11/29/2021
Number of Days to Update: 83
Source: Department of Conservation
Telephone: 916-322-1080
Last EDR Contact: 12/07/2021
Next Scheduled EDR Contact: 03/21/2022
Data Release Frequency: Quarterly

MWMP: Medical Waste Management Program Listing
The Medical Waste Management Program (MWMP) ensures the proper handling and disposal of medical waste by permitting and inspecting medical waste Offsite Treatment Facilities (PDF) and Transfer Stations (PDF) throughout the state. MWMP also oversees all Medical Waste Transporters.

Date of Government Version: 08/05/2021
Date Data Arrived at EDR: 08/31/2021
Date Made Active in Reports: 11/19/2021
Number of Days to Update: 80
Source: Department of Public Health
Telephone: 916-558-1784
Last EDR Contact: 11/30/2021
Next Scheduled EDR Contact: 03/14/2022
Data Release Frequency: Varies

NPDES: NPDES Permits Listing
A listing of NPDES permits, including stormwater.

Date of Government Version: 11/09/2021
Date Data Arrived at EDR: 11/09/2021
Date Made Active in Reports: 01/27/2022
Number of Days to Update: 79
Source: State Water Resources Control Board
Telephone: 916-445-9379
Last EDR Contact: 02/08/2022
Next Scheduled EDR Contact: 05/23/2022
Data Release Frequency: Quarterly

PEST LIC: Pesticide Regulation Licenses Listing
A listing of licenses and certificates issued by the Department of Pesticide Regulation. The DPR issues licenses and/or certificates to: Persons and businesses that apply or sell pesticides; Pest control dealers and brokers; Persons who advise on agricultural pesticide applications.

Date of Government Version: 08/30/2021
Date Data Arrived at EDR: 08/31/2021
Date Made Active in Reports: 11/19/2021
Number of Days to Update: 80
Source: Department of Pesticide Regulation
Telephone: 916-445-4038
Last EDR Contact: 11/30/2021
Next Scheduled EDR Contact: 03/14/2022
Data Release Frequency: Quarterly

PROC: Certified Processors Database
A listing of certified processors.

Date of Government Version: 06/04/2021
Date Data Arrived at EDR: 06/04/2021
Date Made Active in Reports: 08/27/2021
Number of Days to Update: 84
Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 11/29/2021
Next Scheduled EDR Contact: 03/21/2022
Data Release Frequency: Quarterly

NOTIFY 65: Proposition 65 Records
Listings of all Proposition 65 incidents reported to counties by the State Water Resources Control Board and the Regional Water Quality Control Board. This database is no longer updated by the reporting agency.

Date of Government Version: 03/12/2021
Date Data Arrived at EDR: 03/16/2021
Date Made Active in Reports: 06/01/2021
Number of Days to Update: 77
Source: State Water Resources Control Board
Telephone: 916-445-3846
Last EDR Contact: 12/08/2021
Next Scheduled EDR Contact: 03/28/2022
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

UIC: UIC Listing
A listing of wells identified as underground injection wells, in the California Oil and Gas Wells database.

Date of Government Version: 06/03/2021
Date Data Arrived at EDR: 06/03/2021
Date Made Active in Reports: 08/25/2021
Number of Days to Update: 83

Source: Deaprtment of Conservation
Telephone: 916-445-2408
Last EDR Contact: 12/07/2021
Next Scheduled EDR Contact: 03/21/2022
Data Release Frequency: Varies

UIC GEO: Underground Injection Control Sites (GEOTRACKER)
Underground control injection sites

Date of Government Version: 09/07/2021
Date Data Arrived at EDR: 09/07/2021
Date Made Active in Reports: 11/29/2021
Number of Days to Update: 83

Source: State Water Resource Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/07/2021
Next Scheduled EDR Contact: 03/21/2022
Data Release Frequency: Varies

WASTEWATER PITS: Oil Wastewater Pits Listing
Water officials discovered that oil producers have been dumping chemical-laden wastewater into hundreds of unlined pits that are operating without proper permits. Inspections completed by the Central Valley Regional Water Quality Control Board revealed the existence of previously unidentified waste sites. The water boards review found that more than one-third of the region's active disposal pits are operating without permission.

Date of Government Version: 02/11/2021
Date Data Arrived at EDR: 07/01/2021
Date Made Active in Reports: 09/29/2021
Number of Days to Update: 90

Source: RWQCB, Central Valley Region
Telephone: 559-445-5577
Last EDR Contact: 01/07/2022
Next Scheduled EDR Contact: 04/18/2022
Data Release Frequency: Varies

WDS: Waste Discharge System
Sites which have been issued waste discharge requirements.

Date of Government Version: 06/19/2007
Date Data Arrived at EDR: 06/20/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 9

Source: State Water Resources Control Board
Telephone: 916-341-5227
Last EDR Contact: 11/15/2021
Next Scheduled EDR Contact: 02/28/2022
Data Release Frequency: No Update Planned

WIP: Well Investigation Program Case List
Well Investigation Program case in the San Gabriel and San Fernando Valley area.

Date of Government Version: 07/03/2009
Date Data Arrived at EDR: 07/21/2009
Date Made Active in Reports: 08/03/2009
Number of Days to Update: 13

Source: Los Angeles Water Quality Control Board
Telephone: 213-576-6726
Last EDR Contact: 12/14/2021
Next Scheduled EDR Contact: 04/04/2022
Data Release Frequency: No Update Planned

MILITARY PRIV SITES: Military Privatized Sites (GEOTRACKER)
Military privatized sites

Date of Government Version: 09/07/2021
Date Data Arrived at EDR: 09/07/2021
Date Made Active in Reports: 11/29/2021
Number of Days to Update: 83

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/07/2021
Next Scheduled EDR Contact: 03/21/2022
Data Release Frequency: Varies

PROJECT: Project Sites (GEOTRACKER)
Projects sites

Date of Government Version: 09/07/2021
Date Data Arrived at EDR: 09/07/2021
Date Made Active in Reports: 11/29/2021
Number of Days to Update: 83
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/07/2021
Next Scheduled EDR Contact: 03/21/2022
Data Release Frequency: Varies

WDR: Waste Discharge Requirements Listing

In general, the Waste Discharge Requirements (WDRs) Program (sometimes also referred to as the "Non Chapter 15 (Non 15) Program") regulates point discharges that are exempt pursuant to Subsection 20090 of Title 27 and not subject to the Federal Water Pollution Control Act. Exemptions from Title 27 may be granted for nine categories of discharges (e.g., sewage, wastewater, etc.) that meet, and continue to meet, the preconditions listed for each specific exemption. The scope of the WDRs Program also includes the discharge of wastes classified as inert, pursuant to section 20230 of Title 27.

Date of Government Version: 09/07/2021
Date Data Arrived at EDR: 09/08/2021
Date Made Active in Reports: 12/01/2021
Number of Days to Update: 84
Source: State Water Resources Control Board
Telephone: 916-341-5810
Last EDR Contact: 12/07/2021
Next Scheduled EDR Contact: 03/21/2022
Data Release Frequency: Quarterly

CIWQS: California Integrated Water Quality System

The California Integrated Water Quality System (CIWQS) is a computer system used by the State and Regional Water Quality Control Boards to track information about places of environmental interest, manage permits and other orders, track inspections, and manage violations and enforcement activities.

Date of Government Version: 08/30/2021
Date Data Arrived at EDR: 08/31/2021
Date Made Active in Reports: 11/19/2021
Number of Days to Update: 80
Source: State Water Resources Control Board
Telephone: 866-794-4977
Last EDR Contact: 11/30/2021
Next Scheduled EDR Contact: 03/14/2022
Data Release Frequency: Varies

CERS: CalEPA Regulated Site Portal Data

The CalEPA Regulated Site Portal database combines data about environmentally regulated sites and facilities in California into a single database. It combines data from a variety of state and federal databases, and provides an overview of regulated activities across the spectrum of environmental programs for any given location in California. These activities include hazardous materials and waste, state and federal cleanups, impacted ground and surface waters, and toxic materials

Date of Government Version: 10/18/2021
Date Data Arrived at EDR: 10/19/2021
Date Made Active in Reports: 01/12/2022
Number of Days to Update: 85
Source: California Environmental Protection Agency
Telephone: 916-323-2514
Last EDR Contact: 01/19/2022
Next Scheduled EDR Contact: 05/02/2022
Data Release Frequency: Varies

NON-CASE INFO: Non-Case Information Sites (GEOTRACKER)

Non-Case Information sites

Date of Government Version: 09/07/2021
Date Data Arrived at EDR: 09/07/2021
Date Made Active in Reports: 11/29/2021
Number of Days to Update: 83
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/07/2021
Next Scheduled EDR Contact: 03/21/2022
Data Release Frequency: Varies

OTHER OIL GAS: Other Oil & Gas Projects Sites (GEOTRACKER)

Other Oil & Gas Projects sites

Date of Government Version: 09/07/2021
Date Data Arrived at EDR: 09/07/2021
Date Made Active in Reports: 11/29/2021
Number of Days to Update: 83
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/07/2021
Next Scheduled EDR Contact: 03/21/2022
Data Release Frequency: Varies

PROD WATER PONDS: Produced Water Ponds Sites (GEOTRACKER)
Produced water ponds sites

Date of Government Version: 09/07/2021
Date Data Arrived at EDR: 09/07/2021
Date Made Active in Reports: 11/29/2021
Number of Days to Update: 83
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/07/2021
Next Scheduled EDR Contact: 03/21/2022
Data Release Frequency: Varies

SAMPLING POINT: Sampling Point ? Public Sites (GEOTRACKER)
Sampling point - public sites

Date of Government Version: 09/07/2021
Date Data Arrived at EDR: 09/07/2021
Date Made Active in Reports: 11/29/2021
Number of Days to Update: 83
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/07/2021
Next Scheduled EDR Contact: 03/21/2022
Data Release Frequency: Varies

WELL STIM PROJ: Well Stimulation Project (GEOTRACKER)
Includes areas of groundwater monitoring plans, a depiction of the monitoring network, and the facilities, boundaries, and subsurface characteristics of the oilfield and the features (oil and gas wells, produced water ponds, UIC wells, water supply wells, etc?) being monitored

Date of Government Version: 09/07/2021
Date Data Arrived at EDR: 09/07/2021
Date Made Active in Reports: 11/29/2021
Number of Days to Update: 83
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/07/2021
Next Scheduled EDR Contact: 03/21/2022
Data Release Frequency: Varies

HWTS: Hazardous Waste Tracking System
DTSC maintains the Hazardous Waste Tracking System that stores ID number information since the early 1980s and manifest data since 1993. The system collects both manifest copies from the generator and destination facility.

Date of Government Version: 07/13/2021
Date Data Arrived at EDR: 07/14/2021
Date Made Active in Reports: 10/06/2021
Number of Days to Update: 84
Source: Department of Toxic Substances Control
Telephone: 916-324-2444
Last EDR Contact: 01/28/2022
Next Scheduled EDR Contact: 04/18/2022
Data Release Frequency: Varies

PCS ENF: Enforcement data
No description is available for this data

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 02/05/2015
Date Made Active in Reports: 03/06/2015
Number of Days to Update: 29
Source: EPA
Telephone: 202-564-2497
Last EDR Contact: 12/29/2021
Next Scheduled EDR Contact: 04/18/2022
Data Release Frequency: Varies

PCS: Permit Compliance System
PCS is a computerized management information system that contains data on National Pollutant Discharge Elimination System (NPDES) permit holding facilities. PCS tracks the permit, compliance, and enforcement status of NPDES facilities.

Date of Government Version: 07/14/2011
Date Data Arrived at EDR: 08/05/2011
Date Made Active in Reports: 09/29/2011
Number of Days to Update: 55
Source: EPA, Office of Water
Telephone: 202-564-2496
Last EDR Contact: 12/29/2021
Next Scheduled EDR Contact: 04/18/2022
Data Release Frequency: Semi-Annually

PCS INACTIVE: Listing of Inactive PCS Permits
An inactive permit is a facility that has shut down or is no longer discharging.

Date of Government Version: 11/05/2014
Date Data Arrived at EDR: 01/06/2015
Date Made Active in Reports: 05/06/2015
Number of Days to Update: 120
Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 12/29/2021
Next Scheduled EDR Contact: 04/18/2022
Data Release Frequency: Semi-Annually

MINES MRDS: Mineral Resources Data System
Mineral Resources Data System

Date of Government Version: 04/06/2018
Date Data Arrived at EDR: 10/21/2019
Date Made Active in Reports: 10/24/2019
Number of Days to Update: 3
Source: USGS
Telephone: 703-648-6533
Last EDR Contact: 11/23/2021
Next Scheduled EDR Contact: 03/07/2022
Data Release Frequency: Varies

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: EDR Proprietary Manufactured Gas Plants
The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A
Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR Hist Auto: EDR Exclusive Historical Auto Stations
EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A
Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR Hist Cleaner: EDR Exclusive Historical Cleaners
EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF: Recovered Government Archive Solid Waste Facilities List

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Resources Recycling and Recovery in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/13/2014
Number of Days to Update: 196

Source: Department of Resources Recycling and Recovery
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA LUST: Recovered Government Archive Leaking Underground Storage Tank

The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the State Water Resources Control Board in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 12/30/2013
Number of Days to Update: 182

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

COUNTY RECORDS

ALAMEDA COUNTY:

CS ALAMEDA: Contaminated Sites

A listing of contaminated sites overseen by the Toxic Release Program (oil and groundwater contamination from chemical releases and spills) and the Leaking Underground Storage Tank Program (soil and ground water contamination from leaking petroleum USTs).

Date of Government Version: 01/09/2019
Date Data Arrived at EDR: 01/11/2019
Date Made Active in Reports: 03/05/2019
Number of Days to Update: 53

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 12/28/2021
Next Scheduled EDR Contact: 04/18/2022
Data Release Frequency: Semi-Annually

UST ALAMEDA: Underground Tanks

Underground storage tank sites located in Alameda county.

Date of Government Version: 09/30/2021
Date Data Arrived at EDR: 10/01/2021
Date Made Active in Reports: 12/15/2021
Number of Days to Update: 75

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 12/28/2021
Next Scheduled EDR Contact: 04/18/2022
Data Release Frequency: Semi-Annually

AMADOR COUNTY:

CUPA AMADOR: CUPA Facility List
Cupa Facility List

Date of Government Version: 11/01/2021
Date Data Arrived at EDR: 11/02/2021
Date Made Active in Reports: 01/24/2022
Number of Days to Update: 83

Source: Amador County Environmental Health
Telephone: 209-223-6439
Last EDR Contact: 01/28/2022
Next Scheduled EDR Contact: 05/16/2022
Data Release Frequency: Varies

BUTTE COUNTY:

CUPA BUTTE: CUPA Facility Listing
Cupa facility list.

Date of Government Version: 04/21/2017
Date Data Arrived at EDR: 04/25/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 106

Source: Public Health Department
Telephone: 530-538-7149
Last EDR Contact: 12/28/2021
Next Scheduled EDR Contact: 04/18/2022
Data Release Frequency: No Update Planned

CALVERAS COUNTY:

CUPA CALVERAS: CUPA Facility Listing
Cupa Facility Listing

Date of Government Version: 09/15/2021
Date Data Arrived at EDR: 09/16/2021
Date Made Active in Reports: 12/09/2021
Number of Days to Update: 84

Source: Calveras County Environmental Health
Telephone: 209-754-6399
Last EDR Contact: 12/28/2021
Next Scheduled EDR Contact: 04/04/2022
Data Release Frequency: Quarterly

COLUSA COUNTY:

CUPA COLUSA: CUPA Facility List
Cupa facility list.

Date of Government Version: 04/06/2020
Date Data Arrived at EDR: 04/23/2020
Date Made Active in Reports: 07/10/2020
Number of Days to Update: 78

Source: Health & Human Services
Telephone: 530-458-0396
Last EDR Contact: 01/28/2022
Next Scheduled EDR Contact: 05/16/2022
Data Release Frequency: Semi-Annually

CONTRA COSTA COUNTY:

SL CONTRA COSTA: Site List
List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 10/22/2021
Date Data Arrived at EDR: 10/26/2021
Date Made Active in Reports: 01/19/2022
Number of Days to Update: 85

Source: Contra Costa Health Services Department
Telephone: 925-646-2286
Last EDR Contact: 01/24/2022
Next Scheduled EDR Contact: 05/09/2022
Data Release Frequency: Semi-Annually

DEL NORTE COUNTY:

CUPA DEL NORTE: CUPA Facility List
Cupa Facility list

Date of Government Version: 10/01/2021
Date Data Arrived at EDR: 11/02/2021
Date Made Active in Reports: 01/24/2022
Number of Days to Update: 83

Source: Del Norte County Environmental Health Division
Telephone: 707-465-0426
Last EDR Contact: 01/24/2022
Next Scheduled EDR Contact: 05/09/2022
Data Release Frequency: Varies

EL DORADO COUNTY:

CUPA EL DORADO: CUPA Facility List
CUPA facility list.

Date of Government Version: 07/30/2021
Date Data Arrived at EDR: 08/03/2021
Date Made Active in Reports: 10/26/2021
Number of Days to Update: 84

Source: El Dorado County Environmental Management Department
Telephone: 530-621-6623
Last EDR Contact: 02/07/2022
Next Scheduled EDR Contact: 05/09/2022
Data Release Frequency: Varies

FRESNO COUNTY:

CUPA FRESNO: CUPA Resources List
Certified Unified Program Agency. CUPA's are responsible for implementing a unified hazardous materials and hazardous waste management regulatory program. The agency provides oversight of businesses that deal with hazardous materials, operate underground storage tanks or aboveground storage tanks.

Date of Government Version: 04/09/2021
Date Data Arrived at EDR: 06/23/2021
Date Made Active in Reports: 09/17/2021
Number of Days to Update: 86

Source: Dept. of Community Health
Telephone: 559-445-3271
Last EDR Contact: 12/21/2021
Next Scheduled EDR Contact: 04/11/2022
Data Release Frequency: Semi-Annually

GLENN COUNTY:

CUPA GLENN: CUPA Facility List
Cupa facility list

Date of Government Version: 01/22/2018
Date Data Arrived at EDR: 01/24/2018
Date Made Active in Reports: 03/14/2018
Number of Days to Update: 49

Source: Glenn County Air Pollution Control District
Telephone: 830-934-6500
Last EDR Contact: 01/13/2022
Next Scheduled EDR Contact: 05/02/2022
Data Release Frequency: No Update Planned

HUMBOLDT COUNTY:

CUPA HUMBOLDT: CUPA Facility List
CUPA facility list.

Date of Government Version: 08/12/2021
Date Data Arrived at EDR: 08/12/2021
Date Made Active in Reports: 11/08/2021
Number of Days to Update: 88

Source: Humboldt County Environmental Health
Telephone: N/A
Last EDR Contact: 11/11/2021
Next Scheduled EDR Contact: 02/28/2022
Data Release Frequency: Semi-Annually

IMPERIAL COUNTY:

CUPA IMPERIAL: CUPA Facility List
Cupa facility list.

Date of Government Version: 10/18/2021
Date Data Arrived at EDR: 10/20/2021
Date Made Active in Reports: 01/12/2022
Number of Days to Update: 84

Source: San Diego Border Field Office
Telephone: 760-339-2777
Last EDR Contact: 01/13/2022
Next Scheduled EDR Contact: 05/02/2022
Data Release Frequency: Varies

INYO COUNTY:

CUPA INYO: CUPA Facility List
Cupa facility list.

Date of Government Version: 04/02/2018
Date Data Arrived at EDR: 04/03/2018
Date Made Active in Reports: 06/14/2018
Number of Days to Update: 72

Source: Inyo County Environmental Health Services
Telephone: 760-878-0238
Last EDR Contact: 11/11/2021
Next Scheduled EDR Contact: 02/28/2022
Data Release Frequency: Varies

KERN COUNTY:

CUPA KERN: CUPA Facility List
A listing of sites included in the Kern County Hazardous Material Business Plan.

Date of Government Version: 11/10/2021
Date Data Arrived at EDR: 11/12/2021
Date Made Active in Reports: 02/02/2022
Number of Days to Update: 82

Source: Kern County Public Health
Telephone: 661-321-3000
Last EDR Contact: 01/28/2022
Next Scheduled EDR Contact: 05/16/2022
Data Release Frequency: Varies

UST KERN: Underground Storage Tank Sites & Tank Listing
Kern County Sites and Tanks Listing.

Date of Government Version: 11/10/2021
Date Data Arrived at EDR: 11/12/2021
Date Made Active in Reports: 02/02/2022
Number of Days to Update: 82

Source: Kern County Environment Health Services Department
Telephone: 661-862-8700
Last EDR Contact: 01/28/2022
Next Scheduled EDR Contact: 05/16/2022
Data Release Frequency: Quarterly

KINGS COUNTY:

CUPA KINGS: CUPA Facility List
A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 12/03/2020
Date Data Arrived at EDR: 01/26/2021
Date Made Active in Reports: 04/14/2021
Number of Days to Update: 78

Source: Kings County Department of Public Health
Telephone: 559-584-1411
Last EDR Contact: 12/22/2021
Next Scheduled EDR Contact: 02/28/2022
Data Release Frequency: Varies

LAKE COUNTY:

CUPA LAKE: CUPA Facility List
Cupa facility list

Date of Government Version: 11/04/2021
Date Data Arrived at EDR: 11/05/2021
Date Made Active in Reports: 01/24/2022
Number of Days to Update: 80

Source: Lake County Environmental Health
Telephone: 707-263-1164
Last EDR Contact: 01/10/2022
Next Scheduled EDR Contact: 04/25/2022
Data Release Frequency: Varies

LASSEN COUNTY:

CUPA LASSEN: CUPA Facility List
Cupa facility list

Date of Government Version: 07/31/2020
Date Data Arrived at EDR: 08/21/2020
Date Made Active in Reports: 11/09/2020
Number of Days to Update: 80

Source: Lassen County Environmental Health
Telephone: 530-251-8528
Last EDR Contact: 01/13/2022
Next Scheduled EDR Contact: 05/02/2022
Data Release Frequency: Varies

LOS ANGELES COUNTY:

AOCONCERN: Key Areas of Concerns in Los Angeles County
San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office. Date of Government Version: 3/30/2009 Exide Site area is a cleanup plan of lead-impacted soil surrounding the former Exide Facility as designated by the DTSC. Date of Government Version: 7/17/2017

Date of Government Version: 03/30/2009
Date Data Arrived at EDR: 03/31/2009
Date Made Active in Reports: 10/23/2009
Number of Days to Update: 206

Source: N/A
Telephone: N/A
Last EDR Contact: 12/08/2021
Next Scheduled EDR Contact: 03/28/2022
Data Release Frequency: No Update Planned

HMS LOS ANGELES: HMS: Street Number List
Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 10/14/2021
Date Data Arrived at EDR: 10/19/2021
Date Made Active in Reports: 01/13/2022
Number of Days to Update: 86

Source: Department of Public Works
Telephone: 626-458-3517
Last EDR Contact: 01/13/2022
Next Scheduled EDR Contact: 04/18/2022
Data Release Frequency: Semi-Annually

LF LOS ANGELES: List of Solid Waste Facilities
Solid Waste Facilities in Los Angeles County.

Date of Government Version: 10/08/2021
Date Data Arrived at EDR: 10/08/2021
Date Made Active in Reports: 12/29/2021
Number of Days to Update: 82

Source: La County Department of Public Works
Telephone: 818-458-5185
Last EDR Contact: 01/11/2022
Next Scheduled EDR Contact: 04/25/2022
Data Release Frequency: Varies

LF LOS ANGELES CITY: City of Los Angeles Landfills
Landfills owned and maintained by the City of Los Angeles.

Date of Government Version: 01/01/2021
Date Data Arrived at EDR: 02/18/2021
Date Made Active in Reports: 05/10/2021
Number of Days to Update: 81

Source: Engineering & Construction Division
Telephone: 213-473-7869
Last EDR Contact: 01/07/2022
Next Scheduled EDR Contact: 04/25/2022
Data Release Frequency: Varies

LOS ANGELES AST: Active & Inactive AST Inventory
A listing of active & inactive above ground petroleum storage tank site locations, located in the City of Los Angeles.

Date of Government Version: 06/01/2019
Date Data Arrived at EDR: 06/25/2019
Date Made Active in Reports: 08/22/2019
Number of Days to Update: 58

Source: Los Angeles Fire Department
Telephone: 213-978-3800
Last EDR Contact: 12/16/2021
Next Scheduled EDR Contact: 04/04/2022
Data Release Frequency: Varies

LOS ANGELES CO LF METHANE: Methane Producing Landfills
This data was created on April 30, 2012 to represent known disposal sites in Los Angeles County that may produce and emanate methane gas. The shapefile contains disposal sites within Los Angeles County that once accepted degradable refuse material. Information used to create this data was extracted from a landfill survey performed by County Engineers (Major Waste System Map, 1973) as well as historical records from CalRecycle, Regional Water Quality Control Board, and Los Angeles County Department of Public Health

Date of Government Version: 10/12/2021
Date Data Arrived at EDR: 10/13/2021
Date Made Active in Reports: 01/04/2022
Number of Days to Update: 83

Source: Los Angeles County Department of Public Works
Telephone: 626-458-6973
Last EDR Contact: 01/07/2022
Next Scheduled EDR Contact: 04/25/2022
Data Release Frequency: No Update Planned

LOS ANGELES HM: Active & Inactive Hazardous Materials Inventory
A listing of active & inactive hazardous materials facility locations, located in the City of Los Angeles.

Date of Government Version: 04/19/2021
Date Data Arrived at EDR: 06/17/2021
Date Made Active in Reports: 06/28/2021
Number of Days to Update: 11

Source: Los Angeles Fire Department
Telephone: 213-978-3800
Last EDR Contact: 12/17/2021
Next Scheduled EDR Contact: 04/04/2022
Data Release Frequency: Varies

LOS ANGELES UST: Active & Inactive UST Inventory
A listing of active & inactive underground storage tank site locations and underground storage tank historical sites, located in the City of Los Angeles.

Date of Government Version: 04/19/2021
Date Data Arrived at EDR: 06/17/2021
Date Made Active in Reports: 09/14/2021
Number of Days to Update: 89

Source: Los Angeles Fire Department
Telephone: 213-978-3800
Last EDR Contact: 12/17/2021
Next Scheduled EDR Contact: 04/04/2022
Data Release Frequency: Varies

SITE MIT LOS ANGELES: Site Mitigation List
Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 05/26/2021
Date Data Arrived at EDR: 07/09/2021
Date Made Active in Reports: 09/29/2021
Number of Days to Update: 82

Source: Community Health Services
Telephone: 323-890-7806
Last EDR Contact: 01/13/2022
Next Scheduled EDR Contact: 04/24/2022
Data Release Frequency: Annually

UST EL SEGUNDO: City of El Segundo Underground Storage Tank
Underground storage tank sites located in El Segundo city.

Date of Government Version: 01/21/2017
Date Data Arrived at EDR: 04/19/2017
Date Made Active in Reports: 05/10/2017
Number of Days to Update: 21

Source: City of El Segundo Fire Department
Telephone: 310-524-2236
Last EDR Contact: 01/07/2022
Next Scheduled EDR Contact: 04/25/2022
Data Release Frequency: No Update Planned

UST LONG BEACH: City of Long Beach Underground Storage Tank
Underground storage tank sites located in the city of Long Beach.

Date of Government Version: 04/22/2019
Date Data Arrived at EDR: 04/23/2019
Date Made Active in Reports: 06/27/2019
Number of Days to Update: 65

Source: City of Long Beach Fire Department
Telephone: 562-570-2563
Last EDR Contact: 01/13/2022
Next Scheduled EDR Contact: 05/02/2022
Data Release Frequency: Varies

UST TORRANCE: City of Torrance Underground Storage Tank
Underground storage tank sites located in the city of Torrance.

Date of Government Version: 02/02/2021
Date Data Arrived at EDR: 04/28/2021
Date Made Active in Reports: 07/13/2021
Number of Days to Update: 76

Source: City of Torrance Fire Department
Telephone: 310-618-2973
Last EDR Contact: 01/13/2022
Next Scheduled EDR Contact: 05/02/2022
Data Release Frequency: Semi-Annually

MADERA COUNTY:

CUPA MADERA: CUPA Facility List
A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 08/10/2020
Date Data Arrived at EDR: 08/12/2020
Date Made Active in Reports: 10/23/2020
Number of Days to Update: 72

Source: Madera County Environmental Health
Telephone: 559-675-7823
Last EDR Contact: 11/11/2021
Next Scheduled EDR Contact: 02/28/2022
Data Release Frequency: Varies

MARIN COUNTY:

UST MARIN: Underground Storage Tank Sites
Currently permitted USTs in Marin County.

Date of Government Version: 09/26/2018
Date Data Arrived at EDR: 10/04/2018
Date Made Active in Reports: 11/02/2018
Number of Days to Update: 29

Source: Public Works Department Waste Management
Telephone: 415-473-6647
Last EDR Contact: 12/20/2021
Next Scheduled EDR Contact: 04/11/2022
Data Release Frequency: Semi-Annually

MENDOCINO COUNTY:

UST MENDOCINO: Mendocino County UST Database
A listing of underground storage tank locations in Mendocino County.

Date of Government Version: 09/22/2021
Date Data Arrived at EDR: 11/18/2021
Date Made Active in Reports: 11/22/2021
Number of Days to Update: 4

Source: Department of Public Health
Telephone: 707-463-4466
Last EDR Contact: 11/16/2021
Next Scheduled EDR Contact: 03/07/2022
Data Release Frequency: Annually

MERCED COUNTY:

CUPA MERCED: CUPA Facility List
CUPA facility list.

Date of Government Version: 08/11/2021
Date Data Arrived at EDR: 08/12/2021
Date Made Active in Reports: 11/08/2021
Number of Days to Update: 88

Source: Merced County Environmental Health
Telephone: 209-381-1094
Last EDR Contact: 11/23/2021
Next Scheduled EDR Contact: 02/28/2022
Data Release Frequency: Varies

MONO COUNTY:

CUPA MONO: CUPA Facility List
CUPA Facility List

Date of Government Version: 02/22/2021
Date Data Arrived at EDR: 03/02/2021
Date Made Active in Reports: 05/19/2021
Number of Days to Update: 78

Source: Mono County Health Department
Telephone: 760-932-5580
Last EDR Contact: 01/13/2022
Next Scheduled EDR Contact: 03/07/2022
Data Release Frequency: Varies

MONTEREY COUNTY:

CUPA MONTEREY: CUPA Facility Listing
CUPA Program listing from the Environmental Health Division.

Date of Government Version: 10/04/2021
Date Data Arrived at EDR: 10/06/2021
Date Made Active in Reports: 12/29/2021
Number of Days to Update: 84

Source: Monterey County Health Department
Telephone: 831-796-1297
Last EDR Contact: 01/07/2022
Next Scheduled EDR Contact: 04/11/2022
Data Release Frequency: Varies

NAPA COUNTY:

LUST NAPA: Sites With Reported Contamination
A listing of leaking underground storage tank sites located in Napa county.

Date of Government Version: 01/09/2017
Date Data Arrived at EDR: 01/11/2017
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 50

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 11/16/2021
Next Scheduled EDR Contact: 03/07/2022
Data Release Frequency: No Update Planned

UST NAPA: Closed and Operating Underground Storage Tank Sites
Underground storage tank sites located in Napa county.

Date of Government Version: 09/05/2019
Date Data Arrived at EDR: 09/09/2019
Date Made Active in Reports: 10/31/2019
Number of Days to Update: 52

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 11/16/2021
Next Scheduled EDR Contact: 03/07/2022
Data Release Frequency: No Update Planned

NEVADA COUNTY:

CUPA NEVADA: CUPA Facility List
CUPA facility list.

Date of Government Version: 10/26/2021
Date Data Arrived at EDR: 10/27/2021
Date Made Active in Reports: 01/20/2022
Number of Days to Update: 85

Source: Community Development Agency
Telephone: 530-265-1467
Last EDR Contact: 01/24/2022
Next Scheduled EDR Contact: 05/09/2022
Data Release Frequency: Varies

ORANGE COUNTY:

IND_SITE ORANGE: List of Industrial Site Cleanups
Petroleum and non-petroleum spills.

Date of Government Version: 10/08/2021
Date Data Arrived at EDR: 11/04/2021
Date Made Active in Reports: 01/24/2022
Number of Days to Update: 81

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 01/31/2022
Next Scheduled EDR Contact: 05/16/2022
Data Release Frequency: Annually

LUST ORANGE: List of Underground Storage Tank Cleanups
Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 10/08/2021
Date Data Arrived at EDR: 11/02/2021
Date Made Active in Reports: 01/24/2022
Number of Days to Update: 83

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 01/31/2022
Next Scheduled EDR Contact: 05/16/2022
Data Release Frequency: Quarterly

UST ORANGE: List of Underground Storage Tank Facilities
Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 10/29/2021
Date Data Arrived at EDR: 10/29/2021
Date Made Active in Reports: 01/20/2022
Number of Days to Update: 83

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 10/29/2021
Next Scheduled EDR Contact: 05/16/2022
Data Release Frequency: Quarterly

PLACER COUNTY:

MS PLACER: Master List of Facilities
List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 09/07/2021
Date Data Arrived at EDR: 09/09/2021
Date Made Active in Reports: 11/29/2021
Number of Days to Update: 81

Source: Placer County Health and Human Services
Telephone: 530-745-2363
Last EDR Contact: 11/23/2021
Next Scheduled EDR Contact: 03/14/2022
Data Release Frequency: Semi-Annually

PLUMAS COUNTY:

CUPA PLUMAS: CUPA Facility List
Plumas County CUPA Program facilities.

Date of Government Version: 03/31/2019
Date Data Arrived at EDR: 04/23/2019
Date Made Active in Reports: 06/26/2019
Number of Days to Update: 64

Source: Plumas County Environmental Health
Telephone: 530-283-6355
Last EDR Contact: 01/13/2022
Next Scheduled EDR Contact: 05/02/2022
Data Release Frequency: Varies

RIVERSIDE COUNTY:

LUST RIVERSIDE: Listing of Underground Tank Cleanup Sites
Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 09/29/2021
Date Data Arrived at EDR: 09/30/2021
Date Made Active in Reports: 12/14/2021
Number of Days to Update: 75
Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 12/08/2021
Next Scheduled EDR Contact: 03/28/2022
Data Release Frequency: Quarterly

UST RIVERSIDE: Underground Storage Tank Tank List
Underground storage tank sites located in Riverside county.

Date of Government Version: 09/29/2021
Date Data Arrived at EDR: 09/30/2021
Date Made Active in Reports: 12/15/2021
Number of Days to Update: 76
Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 12/08/2021
Next Scheduled EDR Contact: 03/28/2022
Data Release Frequency: Quarterly

SACRAMENTO COUNTY:

CS SACRAMENTO: Toxic Site Clean-Up List
List of sites where unauthorized releases of potentially hazardous materials have occurred.

Date of Government Version: 06/18/2021
Date Data Arrived at EDR: 09/28/2021
Date Made Active in Reports: 12/14/2021
Number of Days to Update: 77
Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 12/29/2021
Next Scheduled EDR Contact: 04/11/2022
Data Release Frequency: Quarterly

ML SACRAMENTO: Master Hazardous Materials Facility List
Any business that has hazardous materials on site - hazardous material storage sites, underground storage tanks, waste generators.

Date of Government Version: 08/02/2021
Date Data Arrived at EDR: 08/04/2021
Date Made Active in Reports: 11/02/2021
Number of Days to Update: 90
Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 12/29/2021
Next Scheduled EDR Contact: 04/11/2022
Data Release Frequency: Quarterly

SAN BENITO COUNTY:

CUPA SAN BENITO: CUPA Facility List
Cupa facility list

Date of Government Version: 11/04/2021
Date Data Arrived at EDR: 11/05/2021
Date Made Active in Reports: 01/24/2022
Number of Days to Update: 80
Source: San Benito County Environmental Health
Telephone: N/A
Last EDR Contact: 01/28/2022
Next Scheduled EDR Contact: 05/16/2022
Data Release Frequency: Varies

SAN BERNARDINO COUNTY:

PERMITS SAN BERNARDINO: Hazardous Material Permits
This listing includes underground storage tanks, medical waste handlers/generators, hazardous materials handlers, hazardous waste generators, and waste oil generators/handlers.

Date of Government Version: 08/11/2021
Date Data Arrived at EDR: 08/12/2021
Date Made Active in Reports: 11/08/2021
Number of Days to Update: 88

Source: San Bernardino County Fire Department Hazardous Materials Division
Telephone: 909-387-3041
Last EDR Contact: 01/31/2022
Next Scheduled EDR Contact: 05/16/2022
Data Release Frequency: Quarterly

SAN DIEGO COUNTY:

HMMD SAN DIEGO: Hazardous Materials Management Division Database

The database includes: HE58 - This report contains the business name, site address, business phone number, establishment 'H' permit number, type of permit, and the business status. HE17 - In addition to providing the same information provided in the HE58 listing, HE17 provides inspection dates, violations received by the establishment, hazardous waste generated, the quantity, method of storage, treatment/disposal of waste and the hauler, and information on underground storage tanks. Unauthorized Release List - Includes a summary of environmental contamination cases in San Diego County (underground tank cases, non-tank cases, groundwater contamination, and soil contamination are included.)

Date of Government Version: 08/30/2021
Date Data Arrived at EDR: 08/31/2021
Date Made Active in Reports: 11/19/2021
Number of Days to Update: 80

Source: Hazardous Materials Management Division
Telephone: 619-338-2268
Last EDR Contact: 11/30/2021
Next Scheduled EDR Contact: 03/14/2022
Data Release Frequency: Quarterly

LF SAN DIEGO: Solid Waste Facilities

San Diego County Solid Waste Facilities.

Date of Government Version: 10/01/2020
Date Data Arrived at EDR: 11/23/2020
Date Made Active in Reports: 02/08/2021
Number of Days to Update: 77

Source: Department of Health Services
Telephone: 619-338-2209
Last EDR Contact: 01/13/2022
Next Scheduled EDR Contact: 05/02/2022
Data Release Frequency: Varies

SAN DIEGO CO LOP: Local Oversight Program Listing

A listing of all LOP release sites that are or were under the County of San Diego's jurisdiction. Included are closed or transferred cases, open cases, and cases that did not have a case type indicated. The cases without a case type are mostly complaints; however, some of them could be LOP cases.

Date of Government Version: 07/22/2021
Date Data Arrived at EDR: 10/19/2021
Date Made Active in Reports: 01/13/2022
Number of Days to Update: 86

Source: Department of Environmental Health
Telephone: 858-505-6874
Last EDR Contact: 01/13/2022
Next Scheduled EDR Contact: 05/02/2022
Data Release Frequency: Varies

SAN DIEGO CO SAM: Environmental Case Listing

The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

Date of Government Version: 03/23/2010
Date Data Arrived at EDR: 06/15/2010
Date Made Active in Reports: 07/09/2010
Number of Days to Update: 24

Source: San Diego County Department of Environmental Health
Telephone: 619-338-2371
Last EDR Contact: 11/23/2021
Next Scheduled EDR Contact: 03/14/2022
Data Release Frequency: No Update Planned

SAN FRANCISCO COUNTY:

CUPA SAN FRANCISCO CO: CUPA Facility Listing

Cupa facilities

Date of Government Version: 08/05/2021
Date Data Arrived at EDR: 08/05/2021
Date Made Active in Reports: 10/29/2021
Number of Days to Update: 85

Source: San Francisco County Department of Environmental Health
Telephone: 415-252-3896
Last EDR Contact: 01/28/2022
Next Scheduled EDR Contact: 05/16/2022
Data Release Frequency: Varies

LUST SAN FRANCISCO: Local Oversite Facilities
A listing of leaking underground storage tank sites located in San Francisco county.

Date of Government Version: 09/19/2008
Date Data Arrived at EDR: 09/19/2008
Date Made Active in Reports: 09/29/2008
Number of Days to Update: 10

Source: Department Of Public Health San Francisco County
Telephone: 415-252-3920
Last EDR Contact: 01/28/2022
Next Scheduled EDR Contact: 05/16/2022
Data Release Frequency: No Update Planned

UST SAN FRANCISCO: Underground Storage Tank Information
Underground storage tank sites located in San Francisco county.

Date of Government Version: 11/10/2021
Date Data Arrived at EDR: 11/11/2021
Date Made Active in Reports: 02/02/2022
Number of Days to Update: 83

Source: Department of Public Health
Telephone: 415-252-3920
Last EDR Contact: 01/28/2022
Next Scheduled EDR Contact: 05/16/2022
Data Release Frequency: Quarterly

SAN JOAQUIN COUNTY:

UST SAN JOAQUIN: San Joaquin Co. UST
A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 06/22/2018
Date Data Arrived at EDR: 06/26/2018
Date Made Active in Reports: 07/11/2018
Number of Days to Update: 15

Source: Environmental Health Department
Telephone: N/A
Last EDR Contact: 09/09/2021
Next Scheduled EDR Contact: 12/27/2021
Data Release Frequency: Semi-Annually

SAN LUIS OBISPO COUNTY:

CUPA SAN LUIS OBISPO: CUPA Facility List
Cupa Facility List.

Date of Government Version: 11/15/2021
Date Data Arrived at EDR: 11/16/2021
Date Made Active in Reports: 02/03/2022
Number of Days to Update: 79

Source: San Luis Obispo County Public Health Department
Telephone: 805-781-5596
Last EDR Contact: 11/11/2021
Next Scheduled EDR Contact: 02/28/2022
Data Release Frequency: Varies

SAN MATEO COUNTY:

BI SAN MATEO: Business Inventory
List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 02/20/2020
Date Data Arrived at EDR: 02/20/2020
Date Made Active in Reports: 04/24/2020
Number of Days to Update: 64

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 12/10/2021
Next Scheduled EDR Contact: 03/21/2022
Data Release Frequency: Annually

LUST SAN MATEO: Fuel Leak List
A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 03/29/2019
Date Data Arrived at EDR: 03/29/2019
Date Made Active in Reports: 05/29/2019
Number of Days to Update: 61

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 12/02/2021
Next Scheduled EDR Contact: 03/21/2022
Data Release Frequency: Semi-Annually

SANTA BARBARA COUNTY:

CUPA SANTA BARBARA: CUPA Facility Listing
CUPA Program Listing from the Environmental Health Services division.

Date of Government Version: 09/08/2011
Date Data Arrived at EDR: 09/09/2011
Date Made Active in Reports: 10/07/2011
Number of Days to Update: 28

Source: Santa Barbara County Public Health Department
Telephone: 805-686-8167
Last EDR Contact: 11/11/2021
Next Scheduled EDR Contact: 02/28/2022
Data Release Frequency: No Update Planned

SANTA CLARA COUNTY:

CUPA SANTA CLARA: Cupa Facility List
Cupa facility list

Date of Government Version: 11/19/2021
Date Data Arrived at EDR: 11/22/2021
Date Made Active in Reports: 02/07/2022
Number of Days to Update: 77

Source: Department of Environmental Health
Telephone: 408-918-1973
Last EDR Contact: 11/18/2021
Next Scheduled EDR Contact: 02/27/2022
Data Release Frequency: Varies

HIST LUST SANTA CLARA: HIST LUST - Fuel Leak Site Activity Report
A listing of open and closed leaking underground storage tanks. This listing is no longer updated by the county. Leaking underground storage tanks are now handled by the Department of Environmental Health.

Date of Government Version: 03/29/2005
Date Data Arrived at EDR: 03/30/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 22

Source: Santa Clara Valley Water District
Telephone: 408-265-2600
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: No Update Planned

LUST SANTA CLARA: LOP Listing
A listing of leaking underground storage tanks located in Santa Clara county.

Date of Government Version: 03/03/2014
Date Data Arrived at EDR: 03/05/2014
Date Made Active in Reports: 03/18/2014
Number of Days to Update: 13

Source: Department of Environmental Health
Telephone: 408-918-3417
Last EDR Contact: 11/16/2021
Next Scheduled EDR Contact: 03/07/2022
Data Release Frequency: No Update Planned

SAN JOSE HAZMAT: Hazardous Material Facilities
Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 11/03/2020
Date Data Arrived at EDR: 11/05/2020
Date Made Active in Reports: 01/26/2021
Number of Days to Update: 82

Source: City of San Jose Fire Department
Telephone: 408-535-7694
Last EDR Contact: 01/28/2022
Next Scheduled EDR Contact: 05/16/2022
Data Release Frequency: Annually

SANTA CRUZ COUNTY:

CUPA SANTA CRUZ: CUPA Facility List
CUPA facility listing.

Date of Government Version: 01/21/2017
Date Data Arrived at EDR: 02/22/2017
Date Made Active in Reports: 05/23/2017
Number of Days to Update: 90

Source: Santa Cruz County Environmental Health
Telephone: 831-464-2761
Last EDR Contact: 11/11/2021
Next Scheduled EDR Contact: 02/28/2022
Data Release Frequency: Varies

SHASTA COUNTY:

CUPA SHASTA: CUPA Facility List
Cupa Facility List.

Date of Government Version: 06/15/2017
Date Data Arrived at EDR: 06/19/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 51

Source: Shasta County Department of Resource Management
Telephone: 530-225-5789
Last EDR Contact: 11/11/2021
Next Scheduled EDR Contact: 02/28/2022
Data Release Frequency: Varies

SOLANO COUNTY:

LUST SOLANO: Leaking Underground Storage Tanks
A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 06/04/2019
Date Data Arrived at EDR: 06/06/2019
Date Made Active in Reports: 08/13/2019
Number of Days to Update: 68

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 11/23/2021
Next Scheduled EDR Contact: 03/14/2022
Data Release Frequency: Quarterly

UST SOLANO: Underground Storage Tanks
Underground storage tank sites located in Solano county.

Date of Government Version: 09/15/2021
Date Data Arrived at EDR: 09/16/2021
Date Made Active in Reports: 12/09/2021
Number of Days to Update: 84

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 11/23/2021
Next Scheduled EDR Contact: 03/14/2022
Data Release Frequency: Quarterly

SONOMA COUNTY:

CUPA SONOMA: Cupa Facility List
Cupa Facility list

Date of Government Version: 07/02/2021
Date Data Arrived at EDR: 07/06/2021
Date Made Active in Reports: 07/14/2021
Number of Days to Update: 8

Source: County of Sonoma Fire & Emergency Services Department
Telephone: 707-565-1174
Last EDR Contact: 12/14/2021
Next Scheduled EDR Contact: 04/04/2022
Data Release Frequency: Varies

LUST SONOMA: Leaking Underground Storage Tank Sites
A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 06/30/2021
Date Data Arrived at EDR: 06/30/2021
Date Made Active in Reports: 09/24/2021
Number of Days to Update: 86

Source: Department of Health Services
Telephone: 707-565-6565
Last EDR Contact: 12/14/2021
Next Scheduled EDR Contact: 04/04/2022
Data Release Frequency: Quarterly

STANISLAUS COUNTY:

CUPA STANISLAUS: CUPA Facility List
Cupa facility list

Date of Government Version: 11/09/2021
Date Data Arrived at EDR: 11/11/2021
Date Made Active in Reports: 02/02/2022
Number of Days to Update: 83

Source: Stanislaus County Department of Ennvironmental Protection
Telephone: 209-525-6751
Last EDR Contact: 01/10/2022
Next Scheduled EDR Contact: 04/25/2022
Data Release Frequency: Varies

SUTTER COUNTY:

UST SUTTER: Underground Storage Tanks
Underground storage tank sites located in Sutter county.

Date of Government Version: 08/23/2021
Date Data Arrived at EDR: 08/25/2021
Date Made Active in Reports: 11/17/2021
Number of Days to Update: 84

Source: Sutter County Environmental Health Services
Telephone: 530-822-7500
Last EDR Contact: 11/23/2021
Next Scheduled EDR Contact: 03/14/2022
Data Release Frequency: Semi-Annually

TEHAMA COUNTY:

CUPA TEHAMA: CUPA Facility List
Cupa facilities

Date of Government Version: 01/13/2021
Date Data Arrived at EDR: 01/14/2021
Date Made Active in Reports: 04/06/2021
Number of Days to Update: 82

Source: Tehama County Department of Environmental Health
Telephone: 530-527-8020
Last EDR Contact: 01/28/2022
Next Scheduled EDR Contact: 05/16/2022
Data Release Frequency: Varies

TRINITY COUNTY:

CUPA TRINITY: CUPA Facility List
Cupa facility list

Date of Government Version: 10/18/2021
Date Data Arrived at EDR: 10/20/2021
Date Made Active in Reports: 01/13/2022
Number of Days to Update: 85

Source: Department of Toxic Substances Control
Telephone: 760-352-0381
Last EDR Contact: 01/13/2022
Next Scheduled EDR Contact: 05/02/2022
Data Release Frequency: Varies

TULARE COUNTY:

CUPA TULARE: CUPA Facility List
Cupa program facilities

Date of Government Version: 04/26/2021
Date Data Arrived at EDR: 04/28/2021
Date Made Active in Reports: 07/13/2021
Number of Days to Update: 76

Source: Tulare County Environmental Health Services Division
Telephone: 559-624-7400
Last EDR Contact: 01/28/2022
Next Scheduled EDR Contact: 05/16/2022
Data Release Frequency: Varies

TUOLUMNE COUNTY:

CUPA TUOLUMNE: CUPA Facility List
Cupa facility list

Date of Government Version: 04/23/2018
Date Data Arrived at EDR: 04/25/2018
Date Made Active in Reports: 06/25/2018
Number of Days to Update: 61

Source: Divison of Environmental Health
Telephone: 209-533-5633
Last EDR Contact: 01/13/2022
Next Scheduled EDR Contact: 05/02/2022
Data Release Frequency: Varies

VENTURA COUNTY:

BWT VENTURA: Business Plan, Hazardous Waste Producers, and Operating Underground Tanks
The BWT list indicates by site address whether the Environmental Health Division has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) information.

Date of Government Version: 09/29/2021
Date Data Arrived at EDR: 10/26/2021
Date Made Active in Reports: 01/13/2022
Number of Days to Update: 79

Source: Ventura County Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 01/18/2022
Next Scheduled EDR Contact: 05/02/2022
Data Release Frequency: Quarterly

LF VENTURA: Inventory of Illegal Abandoned and Inactive Sites
Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites.

Date of Government Version: 12/01/2011
Date Data Arrived at EDR: 12/01/2011
Date Made Active in Reports: 01/19/2012
Number of Days to Update: 49

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 12/20/2021
Next Scheduled EDR Contact: 04/11/2022
Data Release Frequency: No Update Planned

LUST VENTURA: Listing of Underground Tank Cleanup Sites
Ventura County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 05/29/2008
Date Data Arrived at EDR: 06/24/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 37

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 02/07/2022
Next Scheduled EDR Contact: 05/23/2022
Data Release Frequency: No Update Planned

MED WASTE VENTURA: Medical Waste Program List
To protect public health and safety and the environment from potential exposure to disease causing agents, the Environmental Health Division Medical Waste Program regulates the generation, handling, storage, treatment and disposal of medical waste throughout the County.

Date of Government Version: 09/29/2021
Date Data Arrived at EDR: 10/21/2021
Date Made Active in Reports: 01/13/2022
Number of Days to Update: 84

Source: Ventura County Resource Management Agency
Telephone: 805-654-2813
Last EDR Contact: 01/18/2022
Next Scheduled EDR Contact: 05/02/2022
Data Release Frequency: Quarterly

UST VENTURA: Underground Tank Closed Sites List
Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 07/26/2021
Date Data Arrived at EDR: 09/08/2021
Date Made Active in Reports: 11/29/2021
Number of Days to Update: 82

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 12/07/2021
Next Scheduled EDR Contact: 03/21/2022
Data Release Frequency: Quarterly

YOLO COUNTY:

UST YOLO: Underground Storage Tank Comprehensive Facility Report
Underground storage tank sites located in Yolo county.

Date of Government Version: 09/23/2021
Date Data Arrived at EDR: 09/28/2021
Date Made Active in Reports: 12/15/2021
Number of Days to Update: 78

Source: Yolo County Department of Health
Telephone: 530-666-8646
Last EDR Contact: 12/20/2021
Next Scheduled EDR Contact: 04/11/2022
Data Release Frequency: Annually

YUBA COUNTY:

CUPA YUBA: CUPA Facility List
CUPA facility listing for Yuba County.

Date of Government Version: 10/26/2021
Date Data Arrived at EDR: 10/27/2021
Date Made Active in Reports: 01/20/2022
Number of Days to Update: 85

Source: Yuba County Environmental Health Department
Telephone: 530-749-7523
Last EDR Contact: 01/24/2022
Next Scheduled EDR Contact: 05/09/2022
Data Release Frequency: Varies

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data
Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 11/11/2021
Date Data Arrived at EDR: 11/12/2021
Date Made Active in Reports: 02/01/2022
Number of Days to Update: 81

Source: Department of Energy & Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 11/12/2021
Next Scheduled EDR Contact: 02/21/2022
Data Release Frequency: No Update Planned

NJ MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 04/10/2019
Date Made Active in Reports: 05/16/2019
Number of Days to Update: 36

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 01/07/2022
Next Scheduled EDR Contact: 04/18/2022
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data
Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 01/01/2019
Date Data Arrived at EDR: 10/29/2021
Date Made Active in Reports: 01/19/2022
Number of Days to Update: 82

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 01/28/2022
Next Scheduled EDR Contact: 05/09/2022
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

PA MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 06/30/2018
Date Data Arrived at EDR: 07/19/2019
Date Made Active in Reports: 09/10/2019
Number of Days to Update: 53

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 01/10/2022
Next Scheduled EDR Contact: 04/25/2022
Data Release Frequency: Annually

RI MANIFEST: Manifest information
Hazardous waste manifest information

Date of Government Version: 12/31/2019
Date Data Arrived at EDR: 02/11/2021
Date Made Active in Reports: 02/24/2021
Number of Days to Update: 13

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 11/29/2021
Next Scheduled EDR Contact: 02/28/2022
Data Release Frequency: Annually

WI MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 05/31/2018
Date Data Arrived at EDR: 06/19/2019
Date Made Active in Reports: 09/03/2019
Number of Days to Update: 76

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 12/06/2021
Next Scheduled EDR Contact: 03/21/2022
Data Release Frequency: Annually

Oil/Gas Pipelines
Source: Endeavor Business Media
Petroleum Bundle (Crude Oil, Refined Products, Petrochemicals, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)) N = Natural Gas Bundle (Natural Gas, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)). This map includes information copyrighted by Endeavor Business Media. This information is provided on a best effort basis and Endeavor Business Media does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of Endeavor Business Media.

Electric Power Transmission Line Data
Source: Endeavor Business Media
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Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.
Daycare Centers: Licensed Facilities
Source: Department of Social Services
Telephone: 916-657-4041

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Fish and Wildlife
Telephone: 916-445-0411

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

STREET AND ADDRESS INFORMATION

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GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

045.08254_24924 HAWKBRYN AVENUE
24924 HAWKBRYN AVENUE
NEWHALL, CA 91321

TARGET PROPERTY COORDINATES

Latitude (North):	34.368454 - 34ˆ 22’ 6.43’’
Longitude (West):	118.556817 - 118ˆ 33’ 24.54’’
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	356845.3
UTM Y (Meters):	3803913.0
Elevation:	1301 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	5630759 OAT MOUNTAIN, CA
Version Date:	2012
North Map:	5636847 NEWHALL, CA
Version Date:	2012

EDR’s GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

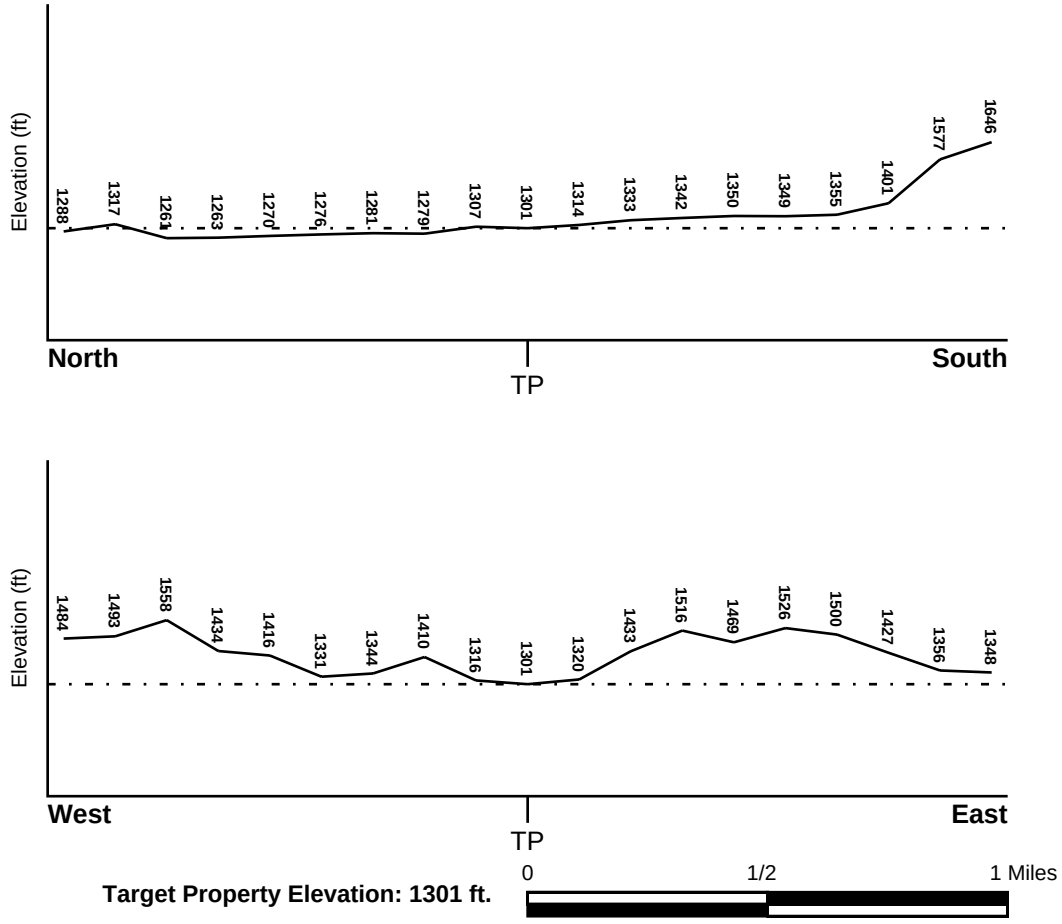
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General NNW

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Target Property Elevation: 1301 ft.

Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Flood Plain Panel at Target Property	FEMA Source Type
06037C1031F	FEMA FIRM Flood data

Additional Panels in search area:	FEMA Source Type
06037C0815F	FEMA FIRM Flood data
06037C0820F	FEMA FIRM Flood data
06037C1030F	FEMA FIRM Flood data

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
NOT AVAILABLE	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Site-Specific Hydrogeological Data*:

Search Radius:	1.25 miles
Status:	Not found

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

* ©1996 Site−specific hydrogeological data gathered by CERCLIS Alerts, Inc., Bainbridge Island, WA. All rights reserved. All of the information and opinions presented are those of the cited EPA report(s), which were completed under a Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS) investigation.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

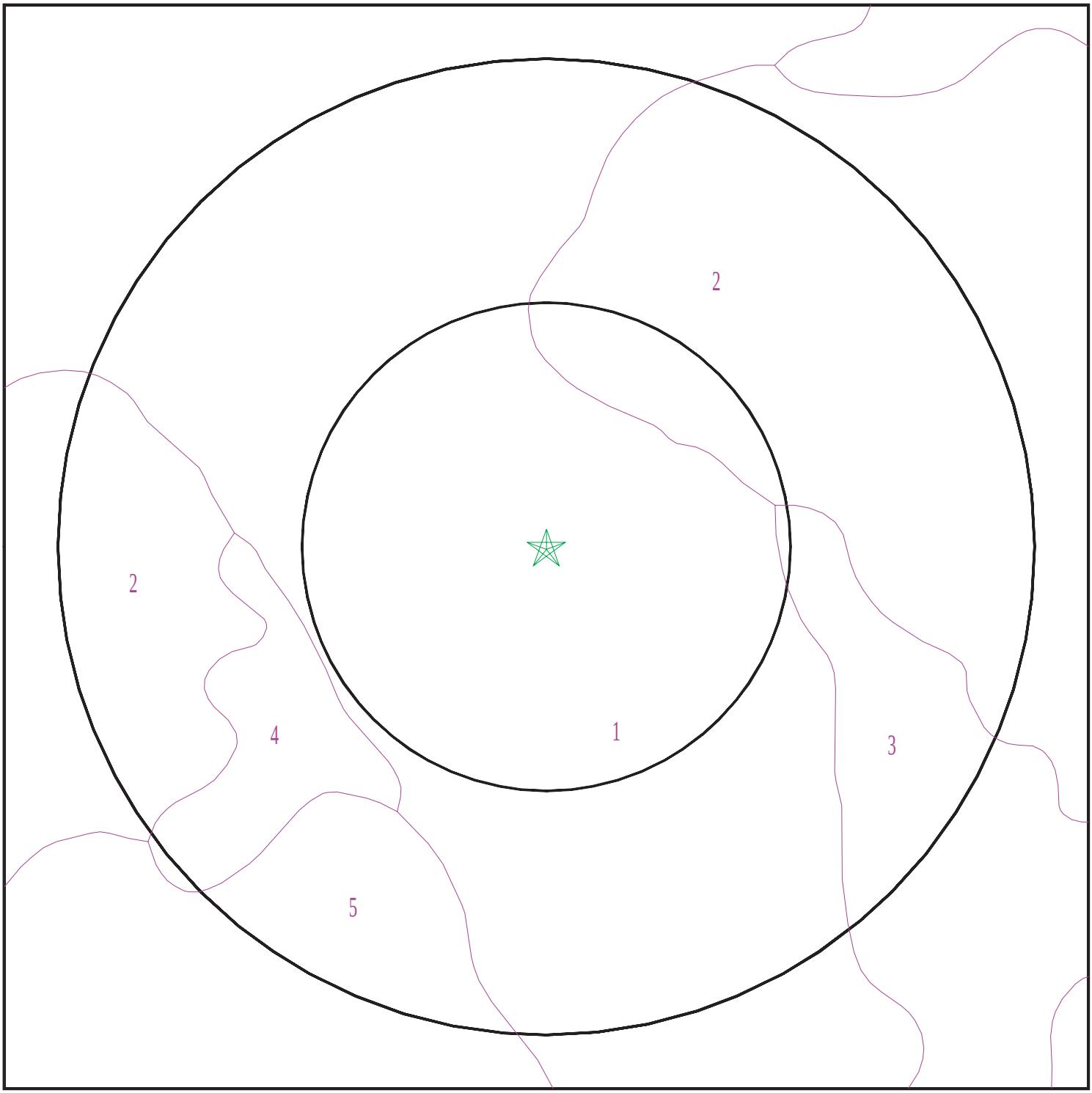
Era:	Cenozoic
System:	Tertiary
Series:	Pliocene
Code:	Tp *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Stratified Sequence

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

SSURGO SOIL MAP - 6855472.2s



SITE NAME:	045.08254_24924 Hawkbryn Avenue	CLIENT:	EFI Global Inc.
ADDRESS:	24924 Hawkbryn Avenue Newhall CA 91321	CONTACT:	Diana Arellano
LAT/LONG:	34.368454 / 118.556817	INQUIRY #:	6855472.2s
		DATE:	February 10, 2022 6:26 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: Yolo

Soil Surface Texture: loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	18 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 14 Min: 4	Max: 7.3 Min: 5.6
2	18 inches	72 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 14 Min: 4	Max: 7.3 Min: 5.6

Soil Map ID: 2

Soil Component Name: Saugus

Soil Surface Texture: loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	14 inches	loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	Not reported	Max: 0 Min: 0	Max: Min:
2	14 inches	42 inches	loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	Not reported	Max: 0 Min: 0	Max: Min:
3	42 inches	46 inches	weathered bedrock	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	Not reported	Max: 0 Min: 0	Max: Min:

Soil Map ID: 3

Soil Component Name: Yolo

Soil Surface Texture: loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	18 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 14 Min: 4	Max: 7.3 Min: 5.6
2	18 inches	72 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 14 Min: 4	Max: 7.3 Min: 5.6

Soil Map ID: 4

Soil Component Name: Hanford

Soil Surface Texture: sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	7 inches	sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 7.8 Min: 6.1

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
2	7 inches	70 inches	fine sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 7.8 Min: 6.1

Soil Map ID: 5

Soil Component Name: Castaic

Soil Surface Texture: silty clay loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Well drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	9 inches	silty clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	Not reported	Max: 1.4 Min: 0.42	Max: Min:
2	9 inches	25 inches	silty clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	Not reported	Max: 1.4 Min: 0.42	Max: Min:

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
3	25 inches	29 inches	weathered bedrock	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	Not reported	Max: 1.4 Min: 0.42	Max: Min:

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No Wells Found		

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
1	CADWR0000030472	1/8 - 1/4 Mile West

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE DATABASE WELL INFORMATION

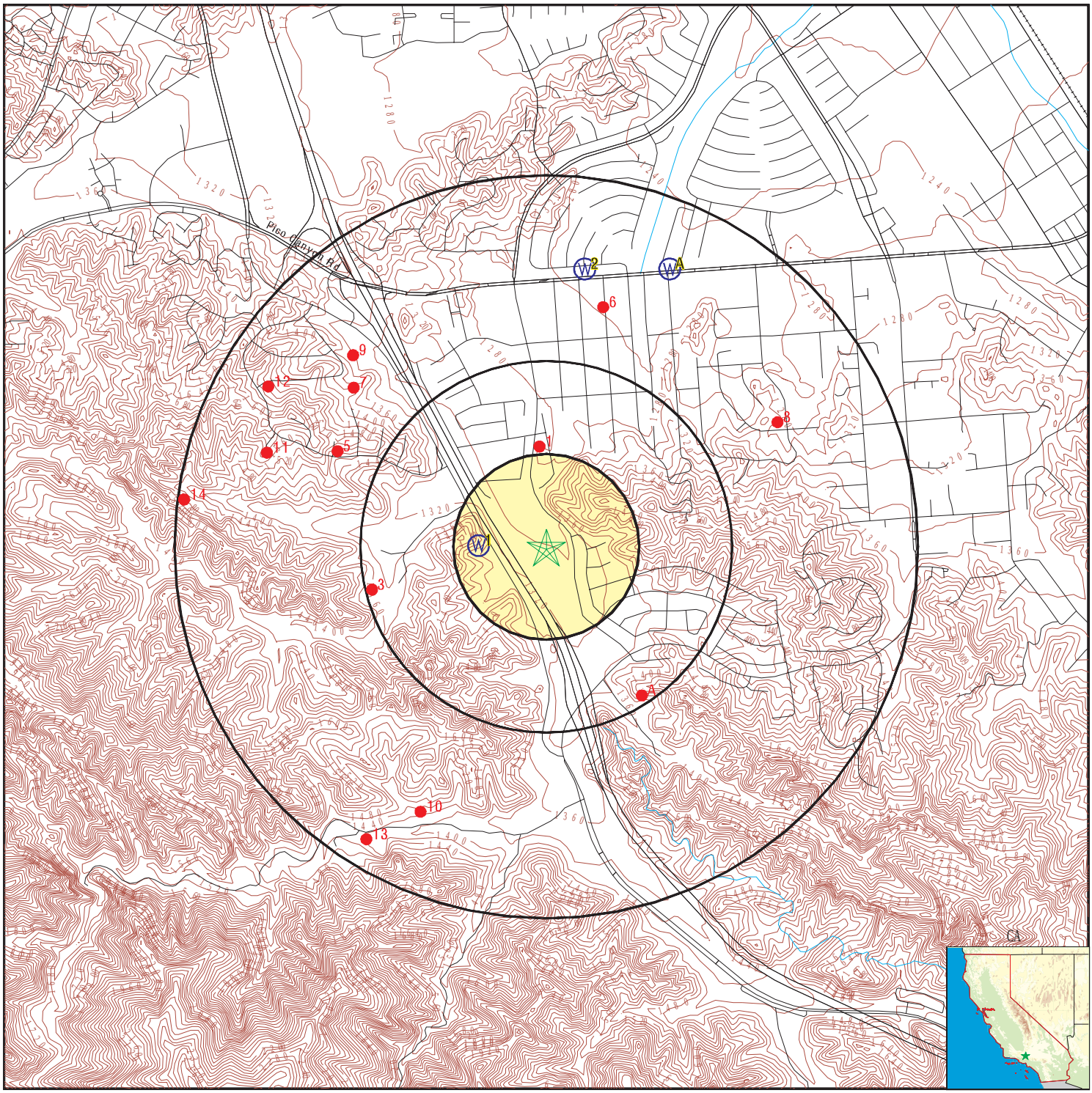
MAP ID	WELL ID	LOCATION FROM TP
2	CADWR0000008855	1/2 - 1 Mile North
A3	CADWR0000014912	1/2 - 1 Mile NNE
A4	CADWR0000033817	1/2 - 1 Mile NNE
A5	CADWR0000031830	1/2 - 1 Mile NNE

OTHER STATE DATABASE INFORMATION

STATE OIL/GAS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
1	CAOG14000000163	1/4 - 1/2 Mile North
A2	CAOG14000190259	1/4 - 1/2 Mile SSE
3	CAOG14000000071	1/4 - 1/2 Mile WSW
A4	CAOG14000190278	1/4 - 1/2 Mile SSE
5	CAOG14000145108	1/2 - 1 Mile WNW
6	CAOG14000190429	1/2 - 1 Mile NNE
7	CAOG14000145110	1/2 - 1 Mile NW
8	CAOG14000190225	1/2 - 1 Mile ENE
9	CAOG14000145106	1/2 - 1 Mile NW
10	CAOG14000190249	1/2 - 1 Mile SSW
11	CAOG14000145109	1/2 - 1 Mile WNW
12	CAOG14000145107	1/2 - 1 Mile WNW
13	CAOG14000190250	1/2 - 1 Mile SSW
14	CAOG14000014180	1/2 - 1 Mile West

PHYSICAL SETTING SOURCE MAP - 6855472.2s



- County Boundary
- Major Roads
- Contour Lines
- Earthquake Fault Lines
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons
- Groundwater Flow Direction
- GI Indeterminate Groundwater Flow at Location
- GV Groundwater Flow Varies at Location
- HD Closest Hydrogeological Data
- Oil, gas or related wells

SITE NAME:	045.08254_24924 Hawkbryn Avenue	CLIENT:	EFI Global Inc.
ADDRESS:	24924 Hawkbryn Avenue Newhall CA 91321	CONTACT:	Diana Arellano
		INQUIRY #:	6855472.2s
LAT/LONG:	34.368454 / 118.556817	DATE:	February 10, 2022 6:26 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

1
West
1/8 - 1/4 Mile
Higher

CA WELLS **CADWR0000030472**

Well ID:	03N16W04Q001S	Well Type:	UNK
Source:	Department of Water Resources		
Other Name:	03N16W04Q001S	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DWR&samp_date=&global_id=&assigned_name=03N16W04Q001S&store_num=		
GeoTracker Data:	Not Reported		

2
North
1/2 - 1 Mile
Lower

CA WELLS **CADWR0000008855**

Well ID:	03N16W04A002S	Well Type:	UNK
Source:	Department of Water Resources		
Other Name:	03N16W04A002S	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DWR&samp_date=&global_id=&assigned_name=03N16W04A002S&store_num=		
GeoTracker Data:	Not Reported		

A3
NNE
1/2 - 1 Mile
Lower

CA WELLS **CADWR0000014912**

Well ID:	03N16W03D003S	Well Type:	UNK
Source:	Department of Water Resources		
Other Name:	03N16W03D003S	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DWR&samp_date=&global_id=&assigned_name=03N16W03D003S&store_num=		
GeoTracker Data:	Not Reported		

A4
NNE
1/2 - 1 Mile
Lower

CA WELLS **CADWR0000033817**

Well ID:	03N16W03D001S	Well Type:	UNK
Source:	Department of Water Resources		
Other Name:	03N16W03D001S	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DWR&samp_date=&global_id=&assigned_name=03N16W03D001S&store_num=		
GeoTracker Data:	Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

A5
NNE
1/2 - 1 Mile
Lower | **CA WELLS** | **CADWR0000031830**

Well ID:	03N16W03D002S	Well Type:	UNK
Source:	Department of Water Resources		
Other Name:	03N16W03D002S	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DWR&samp_date=&global_id=&assigned_name=03N16W03D002S&store_num=		
GeoTracker Data:	Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

1
North **OIL_GAS** **CAOG14000000163**
1/4 - 1/2 Mile

API #:	0403720828	Well #:	76X-4
Well Status:	Plugged	Well Type:	Dry Hole
Lease Name:	Sorenson	Field Name:	Any Field
Area Name:	Any Area	GIS Source:	hud
Confidential Well:	N	Directionally Drilled:	N
Spud Date:	Not Reported		

A2
SSE **OIL_GAS** **CAOG14000190259**
1/4 - 1/2 Mile

API #:	0403721079	Well #:	1
Well Status:	Plugged	Well Type:	Dry Hole
Lease Name:	Scott-Lassalle	Field Name:	Newhall
Area Name:	Pico Canyon (ABD)	GIS Source:	hud
Confidential Well:	N	Directionally Drilled:	N
Spud Date:	Not Reported		

3
WSW **OIL_GAS** **CAOG14000000071**
1/4 - 1/2 Mile

API #:	0403706017	Well #:	1
Well Status:	Plugged	Well Type:	Dry Hole
Lease Name:	Ayers	Field Name:	Any Field
Area Name:	Any Area	GIS Source:	hud
Confidential Well:	N	Directionally Drilled:	N
Spud Date:	Not Reported		

A4
SSE **OIL_GAS** **CAOG14000190278**
1/4 - 1/2 Mile

API #:	0403712840	Well #:	1
Well Status:	Plugged	Well Type:	Dry Hole
Lease Name:	Lassalle	Field Name:	Newhall
Area Name:	Townsite (ABD)	GIS Source:	hud
Confidential Well:	N	Directionally Drilled:	N
Spud Date:	Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

5
WNW **OIL_GAS** **CAOG14000145108**
1/2 - 1 Mile

API #:	0403720885	Well #:	36X-4
Well Status:	Plugged	Well Type:	Oil & Gas
Lease Name:	Well No.	Field Name:	Lyon Canyon (ABD)
Area Name:	Any Area	GIS Source:	hud
Confidential Well:	N	Directionally Drilled:	N
Spud Date:	Not Reported		

6
NNE **OIL_GAS** **CAOG14000190429**
1/2 - 1 Mile

API #:	0403713221	Well #:	44-1
Well Status:	Plugged	Well Type:	Dry Hole
Lease Name:	Lassalle	Field Name:	Newhall
Area Name:	Townsite (ABD)	GIS Source:	hud
Confidential Well:	N	Directionally Drilled:	N
Spud Date:	01/24/1943		

7
NW **OIL_GAS** **CAOG14000145110**
1/2 - 1 Mile

API #:	0403720738	Well #:	35X-4
Well Status:	Plugged	Well Type:	Oil & Gas
Lease Name:	Well No.	Field Name:	Lyon Canyon (ABD)
Area Name:	Any Area	GIS Source:	hud
Confidential Well:	N	Directionally Drilled:	N
Spud Date:	Not Reported		

8
ENE **OIL_GAS** **CAOG14000190225**
1/2 - 1 Mile

API #:	0403713212	Well #:	1
Well Status:	Plugged	Well Type:	Dry Hole
Lease Name:	Miller Ranch	Field Name:	Newhall
Area Name:	Townsite (ABD)	GIS Source:	hud
Confidential Well:	N	Directionally Drilled:	N
Spud Date:	Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

9
NW
1/2 - 1 Mile

OIL_GAS **CAOG14000145106**

API #:	0403705851	Well #:	1
Well Status:	Plugged	Well Type:	Dry Hole
Lease Name:	Well No.	Field Name:	Lyon Canyon (ABD)
Area Name:	Any Area	GIS Source:	hud
Confidential Well:	N	Directionally Drilled:	N
Spud Date:	Not Reported		

10
SSW
1/2 - 1 Mile

OIL_GAS **CAOG14000190249**

API #:	0403712829	Well #:	1
Well Status:	Plugged	Well Type:	Dry Hole
Lease Name:	Lassalle	Field Name:	Newhall
Area Name:	Wiley Canyon (ABD)	GIS Source:	hud
Confidential Well:	N	Directionally Drilled:	N
Spud Date:	Not Reported		

11
WNW
1/2 - 1 Mile

OIL_GAS **CAOG14000145109**

API #:	0403720815	Well #:	26X-4
Well Status:	Plugged	Well Type:	Oil & Gas
Lease Name:	Well No.	Field Name:	Lyon Canyon (ABD)
Area Name:	Any Area	GIS Source:	hud
Confidential Well:	N	Directionally Drilled:	N
Spud Date:	Not Reported		

12
WNW
1/2 - 1 Mile

OIL_GAS **CAOG14000145107**

API #:	0403720942	Well #:	24X-4
Well Status:	Plugged	Well Type:	Oil & Gas
Lease Name:	Well No.	Field Name:	Lyon Canyon (ABD)
Area Name:	Any Area	GIS Source:	hud
Confidential Well:	N	Directionally Drilled:	N
Spud Date:	Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

13
SSW
1/2 - 1 Mile

OIL_GAS **CAOG14000190250**

API #:	0403712830	Well #:	2
Well Status:	Plugged	Well Type:	Dry Hole
Lease Name:	Lassalle	Field Name:	Newhall
Area Name:	Wiley Canyon (ABD)	GIS Source:	hud
Confidential Well:	N	Directionally Drilled:	N
Spud Date:	Not Reported		

14
West
1/2 - 1 Mile

OIL_GAS **CAOG14000014180**

API #:	0403706268	Well #:	1
Well Status:	Plugged	Well Type:	Dry Hole
Lease Name:	Well No.	Field Name:	Any Field
Area Name:	Any Area	GIS Source:	hud
Confidential Well:	N	Directionally Drilled:	N
Spud Date:	Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

State Database: CA Radon

Radon Test Results

Zipcode	Num Tests	> 4 pCi/L
91321	19	0

Federal EPA Radon Zone for LOS ANGELES County: 2

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for Zip Code: 91321

Number of sites tested: 1

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	-0.800 pCi/L	100%	0%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	Not Reported	Not Reported	Not Reported	Not Reported

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

HYDROLOGIC INFORMATION

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Fish and Wildlife
Telephone: 916-445-0411

HYDROGEOLOGIC INFORMATION

AQUIFLOW^{R} Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Service, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

OTHER STATE DATABASE INFORMATION

Groundwater Ambient Monitoring & Assessment Program
State Water Resources Control Board
Telephone: 916-341-5577
The GAMA Program is Californias comprehensive groundwater quality monitoring program. GAMA collects data by testing the untreated, raw water in different types of wells for naturally-occurring and man-made chemicals. The GAMA data includes Domestic, Monitoring and Municipal well types from the following sources, Department of Water Resources, Department of Heath Services, EDF, Agricultural Lands, Lawrence Livermore National Laboratory, Department of Pesticide Regulation, United States Geological Survey, Groundwater Ambient Monitoring and Assessment Program and Local Groundwater Projects.

Water Well Database
Source: Department of Water Resources
Telephone: 916-651-9648

California Drinking Water Quality Database
Source: Department of Public Health
Telephone: 916-324-2319
The database includes all drinking water compliance and special studies monitoring for the state of California since 1984. It consists of over 3,200,000 individual analyses along with well and water system information.

California Oil and Gas Well Locations
Source: Dept of Conservation, Geologic Energy Management Division
Telephone: 916-323-1779
Oil and Gas well locations in the state.

California Earthquake Fault Lines
Source: California Division of Mines and Geology
The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

RADON

State Database: CA Radon
Source: Department of Public Health
Telephone: 916-210-8558
Radon Database for California

PHYSICAL SETTING SOURCE RECORDS SEARCHED

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

California Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines, prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

STREET AND ADDRESS INFORMATION

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APPENDIX IV
HISTORICAL DOCUMENTATION

045.08254_24924 Hawkbryn Avenue

24924 Hawkbryn Avenue

Newhall, CA 91321

Inquiry Number: 6855472.8

February 14, 2022

The EDR Aerial Photo Decade Package

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Aerial Photo Decade Package

02/14/22

Site Name:

045.08254_24924 Hawkbryn A
24924 Hawkbryn Avenue
Newhall, CA 91321
EDR Inquiry # 6855472.8

Client Name:

EFI Global Inc.
5261 West Imperial Highway
Los Angeles, CA 90045
Contact: Diana Arellano

Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

Search Results:

Year	Scale	Details	Source
2016	1"=500'	Flight Year: 2016	USDA/NAIP
2012	1"=500'	Flight Year: 2012	USDA/NAIP
2009	1"=500'	Flight Year: 2009	USDA/NAIP
2005	1"=500'	Flight Year: 2005	USDA/NAIP
2002	1"=500'	Flight Date: June 10, 2002	USDA
1994	1"=500'	Acquisition Date: June 01, 1994	USGS/DOQQ
1990	1"=500'	Flight Date: September 07, 1990	USDA
1989	1"=500'	Flight Date: August 22, 1989	USDA
1986	1"=500'	Flight Date: August 22, 1986	USDA
1972	1"=500'	Flight Date: October 31, 1972	EDR Proprietary Brewster Pacific
1970	1"=500'	Flight Date: April 03, 1970	EDR Proprietary Brewster Pacific
1969	1"=500'	Flight Date: July 25, 1969	USGS
1952	1"=500'	Flight Date: April 11, 1952	USDA
1947	1"=500'	Flight Date: September 12, 1947	USGS
1940	1"=500'	Flight Date: May 13, 1940	USDA
1938	1"=500'	Flight Date: June 15, 1938	USDA
1928	1"=500'	Flight Date: January 01, 1928	FAIR

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INQUIRY #: 6855472.8
YEAR: 2016
= 500'
N
EDR

INQUIRY #: 6855472.8
YEAR: 2012
= 500'
N
EDR

INQUIRY #: 6855472.8

YEAR: 2009

= 500'

N

EDR

INQUIRY #: 6855472.8
YEAR: 2005
= 500'
N
EDR

INQUIRY #: 6855472.8
YEAR: 2002
= 500'
N
EDR

INQUIRY #: 6855472.8

YEAR: 1994

= 500'

N

EDR

INQUIRY #: 6855472.8

YEAR: 1990

= 500'

N

EDR

INQUIRY #: 6855472.8
YEAR: 1989
= 500'
N
EDR

INQUIRY #: 6855472.8
YEAR: 1986
= 500'
N
EDR

INQUIRY #: 6855472.8

YEAR: 1972

= 500'

N

EDR

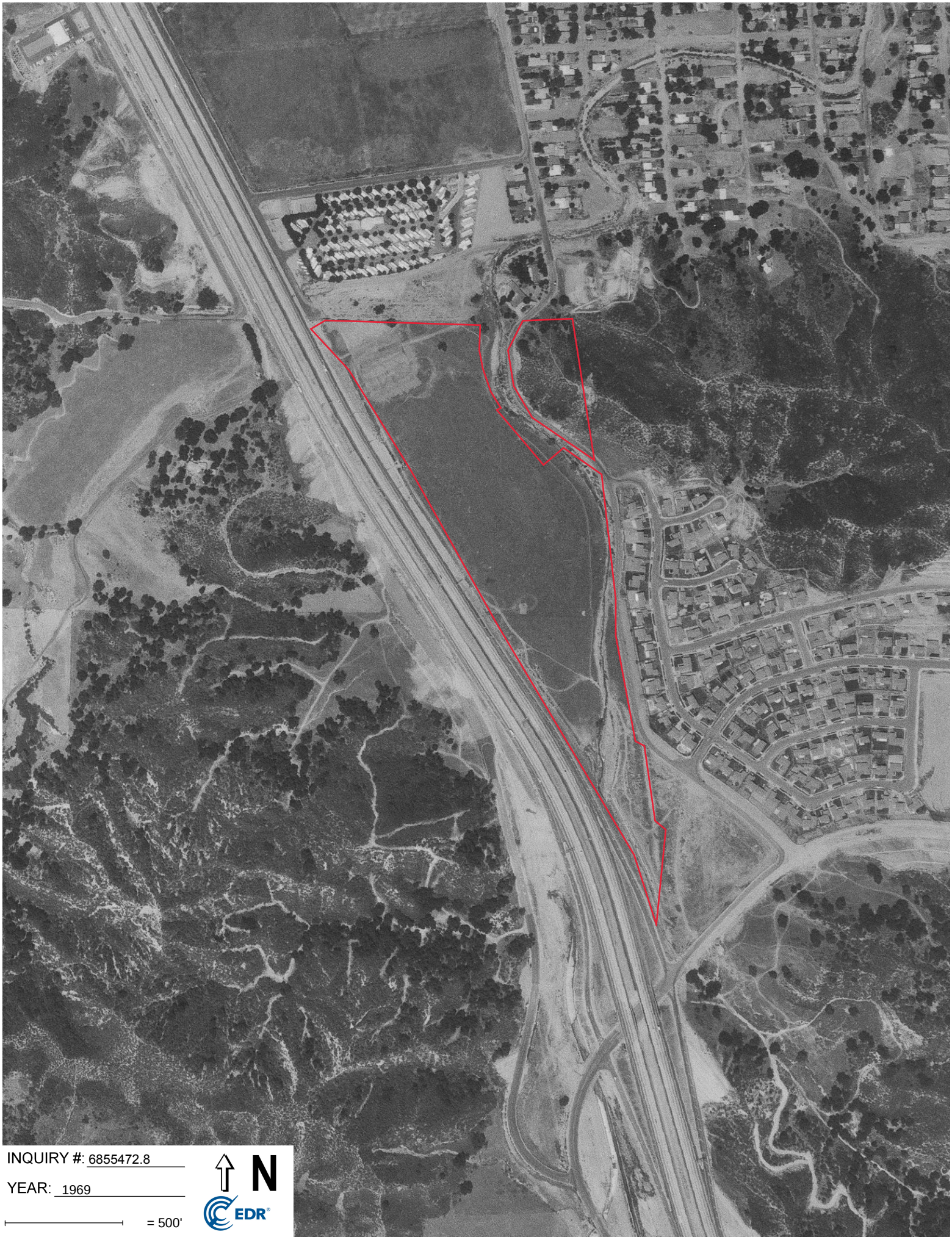
INQUIRY #: 6855472.8

YEAR: 1970

= 500'

N

EDR



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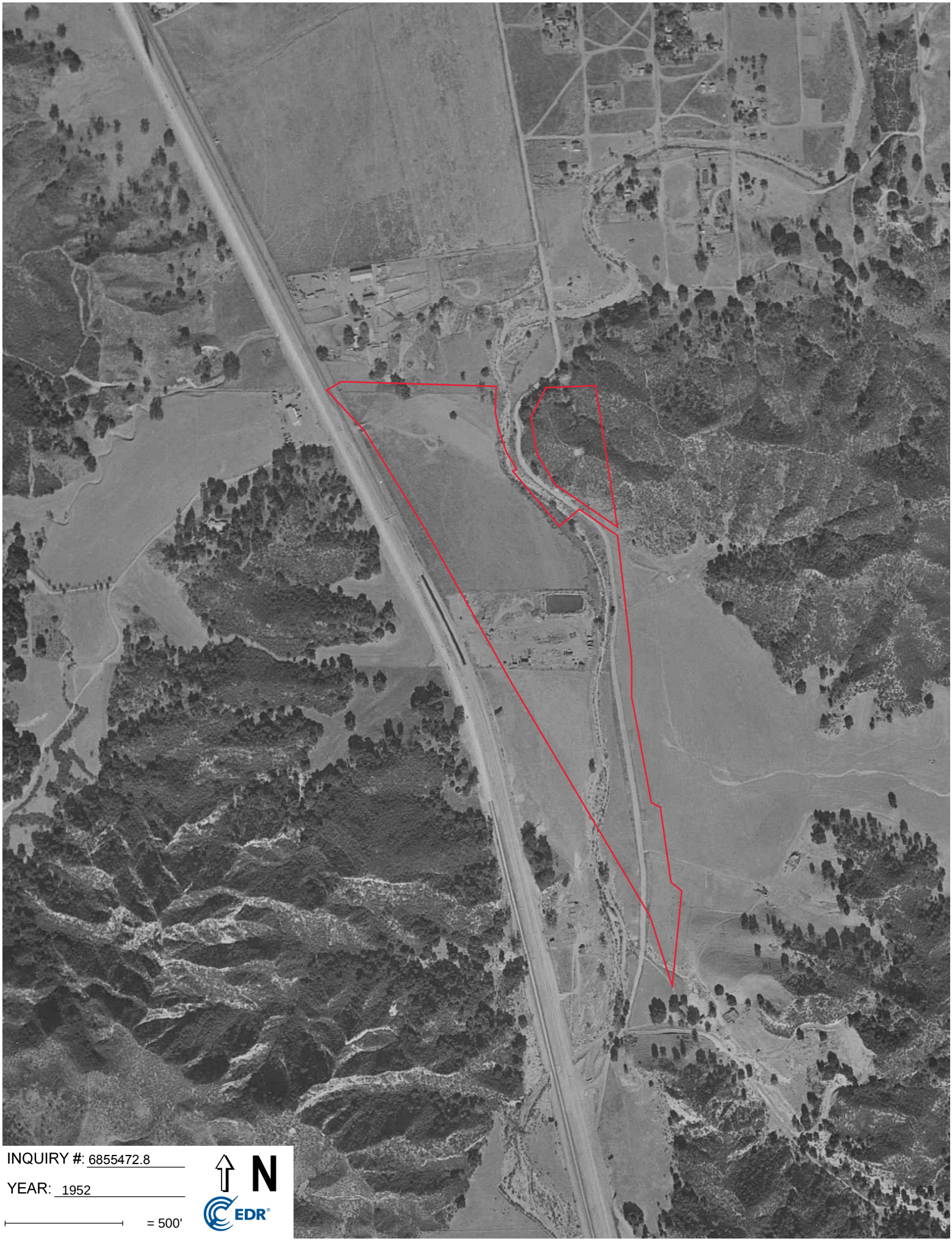
EDR



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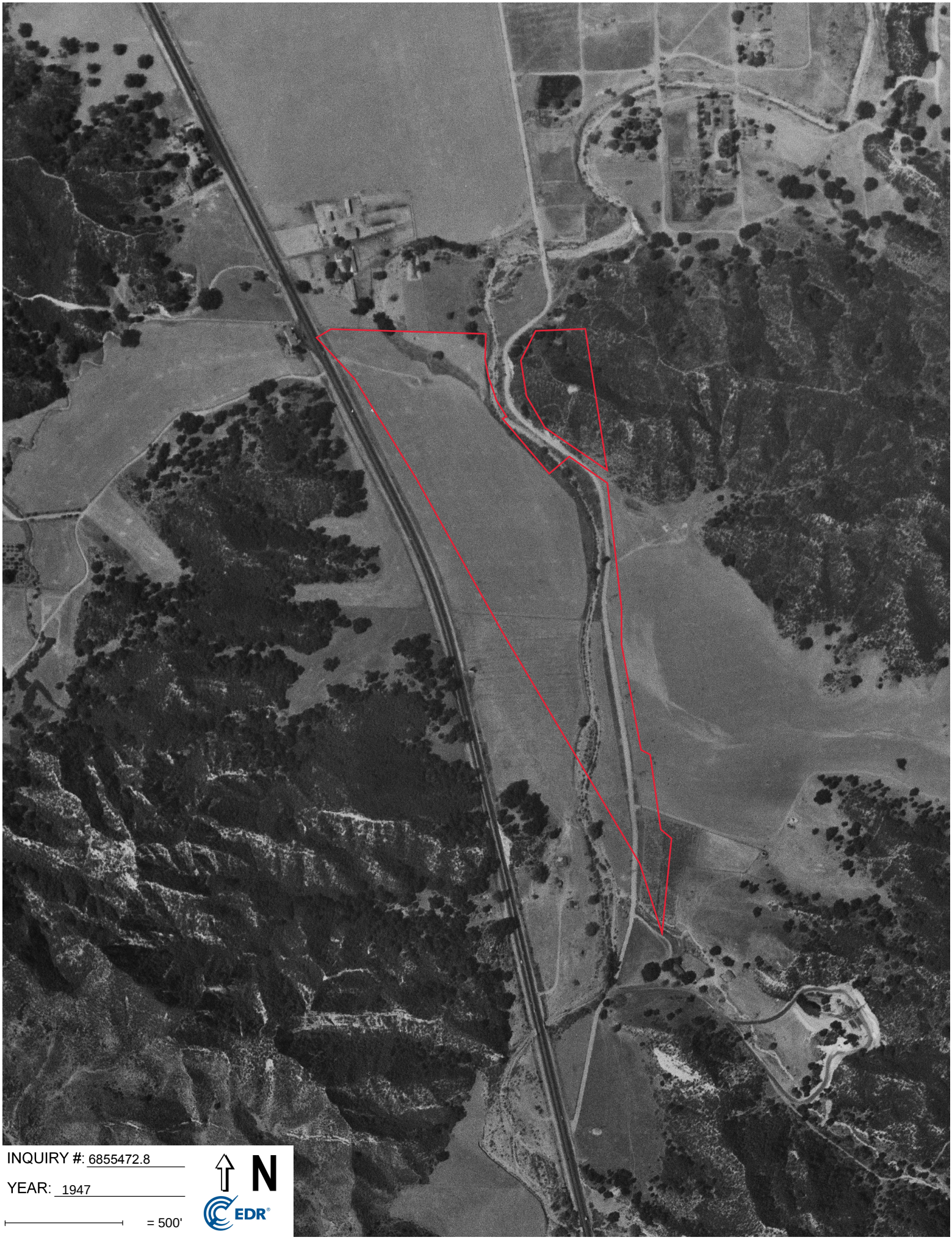
EDR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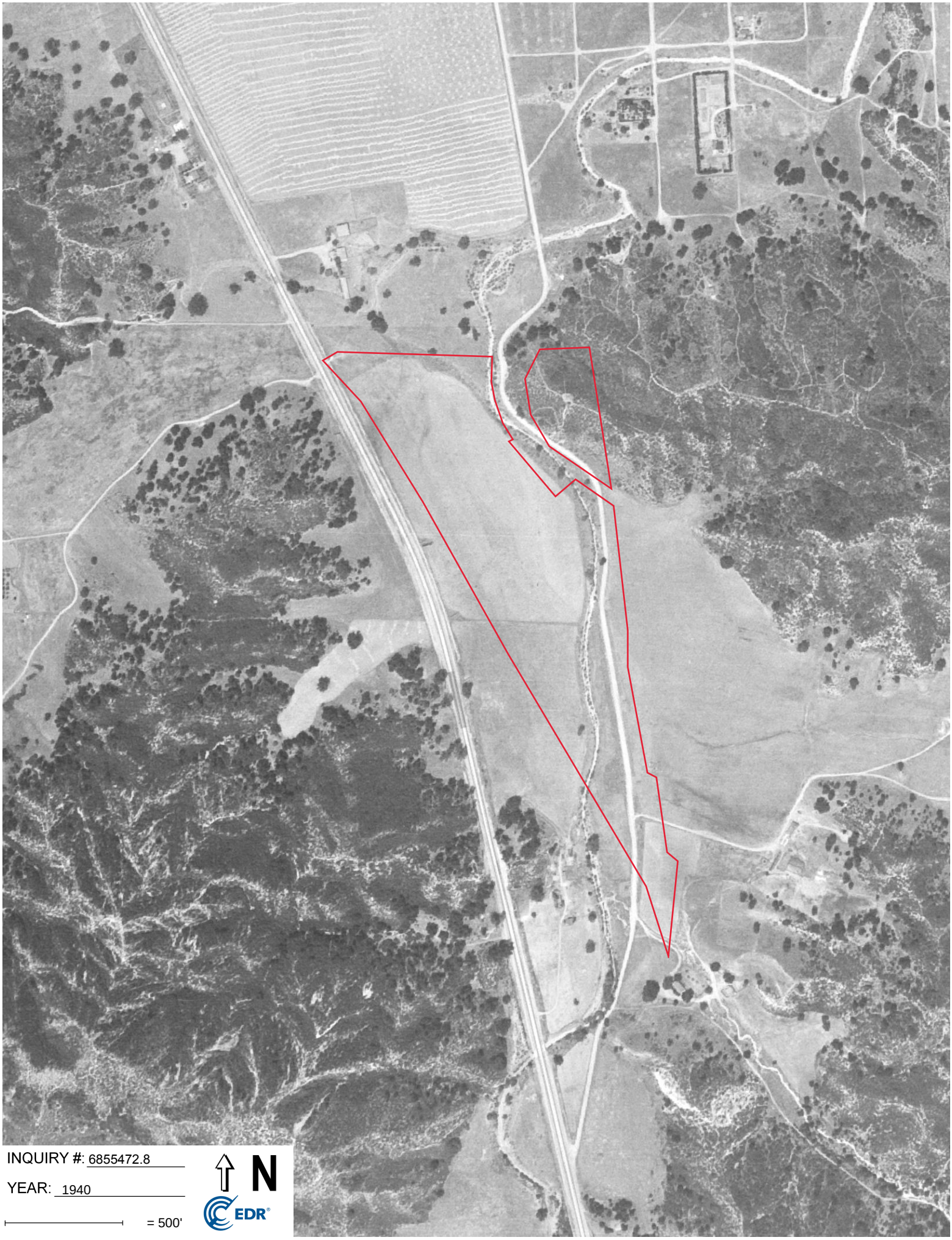
EDR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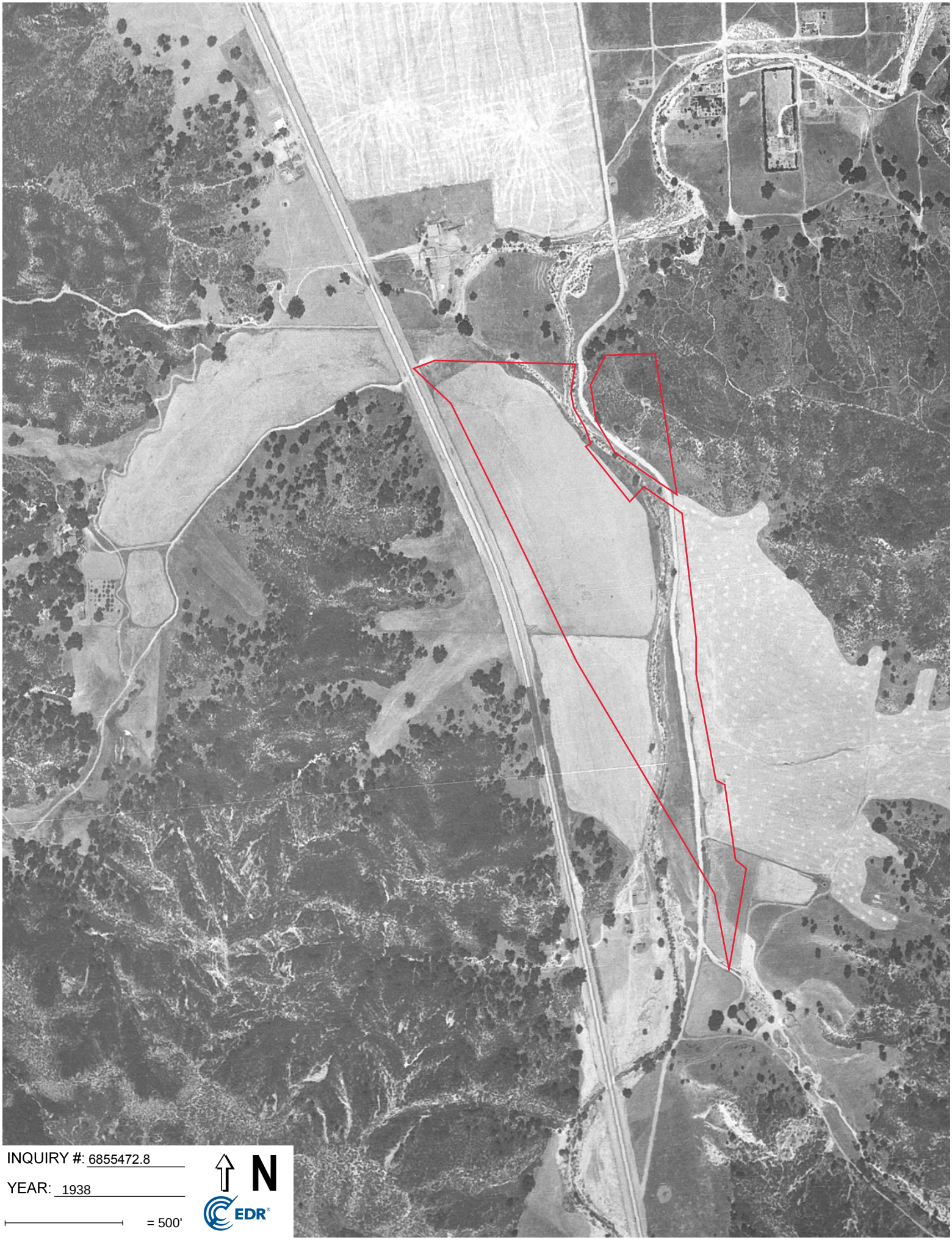
EDR



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YEAR: 1938

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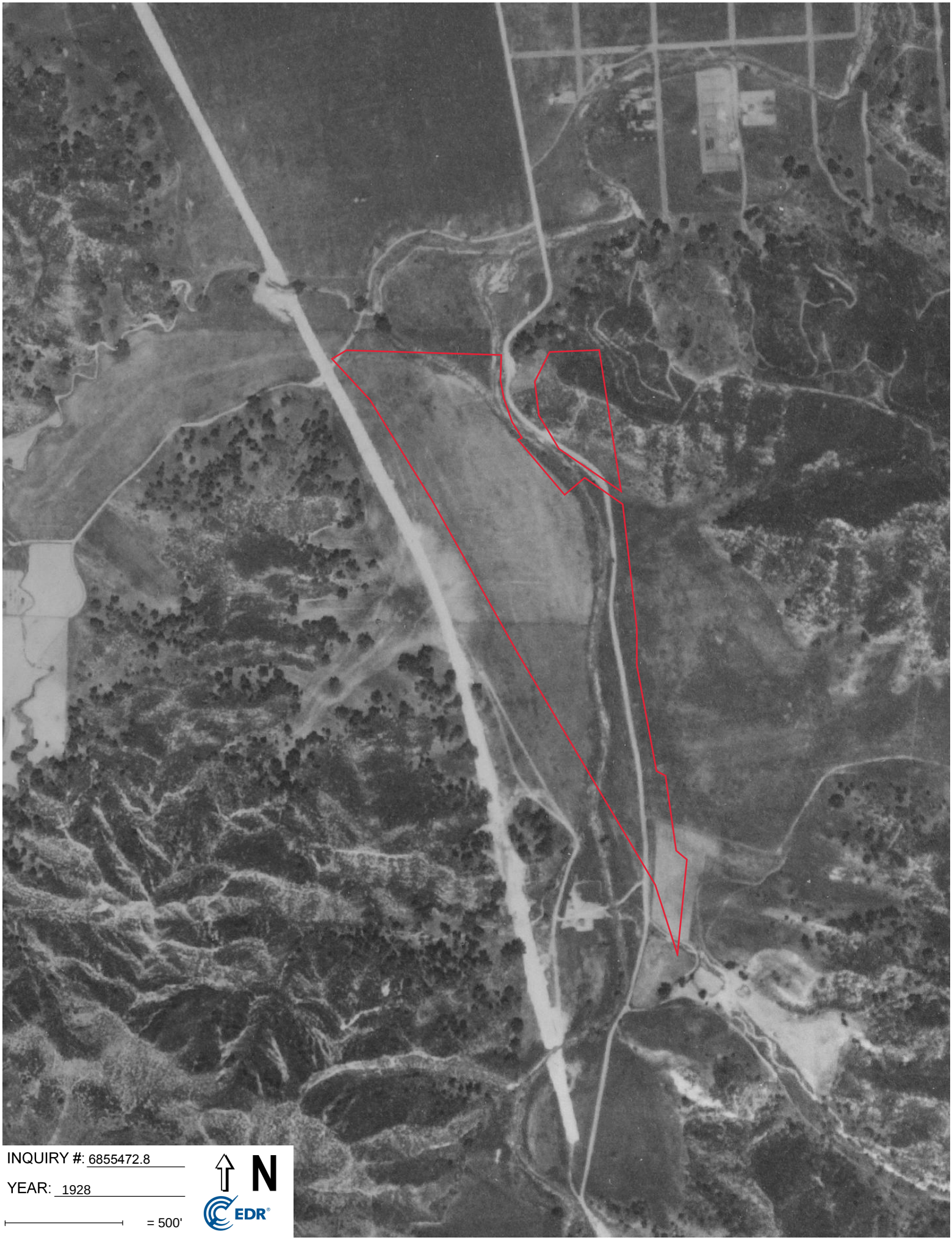
EDR


INQUIRY #: 6855472.8
YEAR: 1928
= 500'
N
EDR

045.08254_24924 Hawkbryn Avenue

24924 Hawkbryn Avenue

Newhall, CA 91321

Inquiry Number: 6855472.3

February 10, 2022

Certified Sanborn® Map Report

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

02/10/22

Site Name:

045.08254_24924 Hawkbryn A
24924 Hawkbryn Avenue
Newhall, CA 91321
EDR Inquiry # 6855472.3

Client Name:

EFI Global Inc.
5261 West Imperial Highway
Los Angeles, CA 90045
Contact: Diana Arellano

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The Sanborn Library is continually enhanced with newly identified map archives. This report accesses all maps in the collection as of the day this report was generated.

Certified Sanborn Results:

Certification # C091-4CDF-A5E8

PO # NA

Project 045.08254

UNMAPPED PROPERTY

This report certifies that the complete holdings of the Sanborn Library, LLC collection have been searched based on client supplied target property information, and fire insurance maps covering the target property were not found.

Sanborn® Library search results

Certification #: C091-4CDF-A5E8

The Sanborn Library includes more than 1.2 million fire insurance maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow and others which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ☑ Library of Congress
- ☑ University Publications of America
- ☑ EDR Private Collection

The Sanborn Library LLC Since 1866™

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045.08254_24924 Hawkbryn Avenue
24924 Hawkbryn Avenue
Newhall, CA 91321

Inquiry Number: 6855472.5
February 16, 2022

The EDR-City Directory Image Report

EDR® Environmental Data Resources Inc

6 Armstrong Road
Shelton, CT 06484
800.352.0050
www.edrnet.com

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SECTION

Executive Summary

Findings

City Directory Images

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EXECUTIVE SUMMARY

DESCRIPTION

Environmental Data Resources, Inc.'s (EDR) City Directory Report is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's City Directory Report includes a search of available city directory data at 5 year intervals.

RECORD SOURCES

EDR's Digital Archive combines historical directory listings from sources such as Cole Information and Dun & Bradstreet. These standard sources of property information complement and enhance each other to provide a more comprehensive report.

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Data by
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RESEARCH SUMMARY

The following research sources were consulted in the preparation of this report. A check mark indicates where information was identified in the source and provided in this report.

Year	Target Street	Cross Street	Source
2014	☑	☑	EDR Digital Archive
2010	☑	☑	EDR Digital Archive
2005	☑	☑	EDR Digital Archive
2000	☑	☑	EDR Digital Archive
1995	☑	☑	EDR Digital Archive
1992	☑	☑	EDR Digital Archive
1987	☑	☑	Haines Criss-Cross Directory
1982	☑	☑	Haines Criss-Cross Directory
1976	☑	☑	Haines Criss-Cross Directory
1971	☑	☑	B & G City Directory
1967	☑	☐	B & G City Directory

FINDINGS

TARGET PROPERTY STREET

24924 Hawkbryn Avenue
Newhall, CA 91321

Year	*CD Image*	*Source*

WILEY CANYON RD

2014	pg A4	EDR Digital Archive
2010	pg A7	EDR Digital Archive
2005	pg A10	EDR Digital Archive
2000	pg A13	EDR Digital Archive
1995	pg A16	EDR Digital Archive
1992	pg A18	EDR Digital Archive
1987	pg A21	Haines Criss-Cross Directory
1982	pg A24	Haines Criss-Cross Directory
1982	pg A25	Haines Criss-Cross Directory
1976	pg A28	Haines Criss-Cross Directory
1971	pg A31	B & G City Directory
1971	pg A32	B & G City Directory
1967	pg A33	B & G City Directory
1967	pg A34	B & G City Directory

FINDINGS

CROSS STREETS

Year	*CD Image*	*Source*	
HAWKBRYN AVE			
2014	pg. A2	EDR Digital Archive	
2010	pg. A5	EDR Digital Archive	
2005	pg. A8	EDR Digital Archive	
2000	pg. A11	EDR Digital Archive	
1995	pg. A14	EDR Digital Archive	
1992	pg. A17	EDR Digital Archive	
1987	pg. A19	Haines Criss-Cross Directory	
1987	pg. A20	Haines Criss-Cross Directory	
1982	pg. A22	Haines Criss-Cross Directory	
1982	pg. A23	Haines Criss-Cross Directory	
1976	pg. A26	Haines Criss-Cross Directory	
1976	pg. A27	Haines Criss-Cross Directory	
1971	pg. A29	B & G City Directory	
1971	pg. A30	B & G City Directory	
1967	-	B & G City Directory	Street not listed in Source

City Directory Images

Target Street	Cross Street	Source
-	✓	EDR Digital Archive

HAWKBRYN AVE 2014

25000	ADKINS, AMBER L
	AGUIRRE, MARLENY
	ALCALA, MARIA
	AMEZCUA, LUIS A
	ANDERSON, JOHN E
	BANUELOS, E
	BEADLES, JUDY M
	CABRERA, MATEA
	CARMINE, LORETTA M
	CHAVEZ, EVERARDO
	CHOTIKASUPASER, SUE
	CRAMER, KATHY M
	CRUZ, LUIS
	DAVID, HENRY
	DOMINQUEZ, TERES M
	ELDER, DONALD F
	ELLIS, EMERALD
	FELIX, ROSALES
	FERNANDEZ, CLARA F
	FLORES, FRANCISCO
	FORCUM, RC C
	GARNICA, ERNESTO Z
	GODINEZ, PLACIDO L
	GOGERTY, TRACY
	GOMEZ, EUSEBIO
	GONZALEZ, JOHNNY
	GUZMAN, AGUSTINA
	HEATH, BARBARA A
	HERRERA, FILIMAN L
	HERRERA, SERGIO A
	HOSSAIN, MOHAMMED Z
	IBARRA, MANUEL
	ISLAS, RAFAEL
	JARQUIN, MELVIN G
	JIMENEZ, ANTONIO
	JUAREZ, IRMA C
	LUBY, CAROL A
	MANZO, STEPHEN A
	MARTIN, CHERYL L
	MARTINEZ, JUAN
	MELCHOR, ANTONIA
	MELCHOR, CELESTINO
	MELENDES, AMY
	MENDOZA, RODRIGO
	MONTALVO, JUAN M
	MONTOYA, SALVADOR
	MOON, AMY
	MULBERRY MOBIL HOME PARK
	NOVELO, JESSICA V
	ORONA, JUAN M

Target Street	Cross Street	Source
-	✓	EDR Digital Archive

HAWKBRYN AVE 2014 (Cont'd)

25000 PACHECO, RAUL
PENA, PELAYO M
PRIETO, NORMA
REYES, MARIO R
REYNOLDS, ROSE
ROSALES, RODOLFO
RUIZ, MANUEL
SCHWARTZ, JESSE J
STEWART, RICHARD C
VARGAS, JOSE
VASQUEZ, ROSALIO
WHITNEY, PEGGY H
ZAVALA, EDUARDO
25022 PARTNERS FOR POTENTIAL

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

WILEY CANYON RD 2014

24640	SANTA CLARITA ATHLETIC CLUB
24935	SCOGGINS, ALAN M
24970	BEAMAN, LONNIE J
24971	WEDDLE, SHAYNA M
24972	OCCUPANT UNKNOWN,
24974	BAGNALL, STEVEN R
25002	OCCUPANT UNKNOWN,
25006	SANCHEZ, JOSE J
25012	RANKEN, ELIZABETH
25016	HORN, DENNIS M
25022	PETROVIT, ROBERT J
25025	MILLER, JOEL H
25033	TERRY, TERRI A
25036	CONWAY, JASON J
25041	BARTON, TODD M
25046	VELDMAN, JACQUELYN Y
	VELDMANS ELECTRICAL CO
25056	THORN, BRAD R
25058	DOUGHERTY, JAMES M
25064	PHILIPOUS, FREDRICK
25068	POITEVINT, ERIC G
25072	BARDSLEY, AVA
25078	SMITH, STACEY I
25084	MOORE, MARIANN C
25088	MALDONADO, ROGA G
25102	GALDOS, JOSE
25108	CASTANEDA, AGUSTIN M
25112	REYES, MARIO S
25116	ROBLES, MARCOS
25122	JIMENEZ, FEDERICO
25128	GUERRERO, SERGIO D
25132	MOSQUEDA, JUAN M
25138	ENDRESEN, MICHELLE L
25142	DEJESUS, ROMAN
25148	RAMIREZ, LUIS R
	ROMO CLEANING SERVICES
25152	OCCUPANT UNKNOWN,
25158	OCCUPANT UNKNOWN,
25162	MCCOLL, DAVID E
25168	RAMOS, LEOBARDO
25172	AGUILAR, SIMON V
25222	RISE & SHINE PRESCHOOL
	VALLEY COMMUNITY CHURCH
25235	BUSY BEE DRY CLEANERS & ALTERATIONS

Target Street	Cross Street	Source
-	✓	EDR Digital Archive

HAWKBRYN AVE 2010

24924 SANTANA, ADOLFO R
25000 A L FOLLETT ROOFING
ACUNA, IRENE E
AGOPIAN, EDWARD
AGUIRRE, YULMA
ALCALA, MARIA
ANDERSON, JOHN E
ANTONIO, LUCAS
AVINA, GUADALUPE
BALTAZAR, ANA M
BEADLES, JUDY
BERRETTA, ROBERT
BOTELLO, ANGIE
BRAVO, LAURA
CABALLERO, MIRELLA
CARON, RICHARD G
CEJA, ANGELICA
CEJA, ESPERANZA
CHAVEZ, EVERARDO
CORONA, JAVIER
CRAMER, CARL
DOMINQUEZ, TERES M
ELDER, DONALD F
EMERALD, KEN J
FERNANDEZ, CLARA F
FLORES, FELIPE
FOLLETT, ANTHONY L
FORCUM, RC C
GARCIA, EDGAR
GARCIA, MICHEL
GARNICA, ERNESTO Z
GASTELUM, ISABEL C
GLOVER, HARRY T
GODINEZ, PLACIDO L
GOMEZ, VEANEY
GONZALEZ, ALEJANDRO
GUZMAN, AGUSTINA
HEATH, BARBARA
HERNANDEZ, GERMAN
HERRERA, FILIMAN L
HERRERA, G J
IBARRA, MANUEL
JARQUIN, DORIS M
JIMENEZ, ANTONIO
JOBE, WESTLY R
JUAREZ, IGNACIA
JUAREZ, IRMA C
KELLY, LAWRENCE T
LAGUNAS, ALEXIS
LARA, NEREIDA

Target Street	Cross Street	Source
-	✓	EDR Digital Archive

HAWKBRYN AVE 2010 (Cont'd)

25000 LELONG, LEONARD G
LEON, KARLA Y
LOPEZ, ROSA
LUBY, CAROL A
LUCAS, CATALINA
MANZANARES, SANTOS
MANZO, MARTHA E
MARTIN, CHERYL L
MARTINEZ, CIRILO
MELCHOR, CELESTINO
MELENDEZ, IRMA
MONTALVO, JUAN M
MONTOYA, SALVADOR
MOON, AMY
MULBERRY MOBIL HOME PARK
NORTON, CONSTANCE
ORONA, JUAN M
OTERO, SAUL
PEREZ, FREDY
PERRETTA, ULDA C
PRIETA, N
REYES, ARACELI
REYES, PEDRO
REYNOLDS, RUTH M
RICHARDSON, MARCH G
ROMANO, LYNN
ROSALES, NICOLAS
ROSALES, RODOLFO
SANCHEZ, CARLOS L
SCHWARTZLER, J
STEWART, EDWARD E
TURNER, LENARD L
URQUHART, KEVIN L
VALADEZ, ARTURO L
VARGAS, ELIZABETH
VASQUEZ, ROSALIO
VICENCIO, ROSA
WARD, TERENCE M
WATERWORKS PLUMBING
WHITNEY, PEGGY H
YANEZ, NOEMI
ZAVALA, EDUARDO
25022 SANTA CLARITA PRESCHOOL

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

WILEY CANYON RD 2010

24640	CALIFORNIA PEAK FITNESS FIGHT ACADEMY
24935	SCOGGINS, ALAN M
24970	BEAMAN, LONNIE J
24971	WEDDLE, SHARON M
24974	BAGNALL, STEVEN Y
25002	ALLSTATE FINANCIAL SVC
	OCCUPANT UNKNOWN,
25006	SANCHEZ, JOSE J
25012	RANKEN, ROBERT J
25016	HORN, DENNIS M
25022	PETROVIT, ROBERT J
25025	OCCUPANT UNKNOWN,
25033	ALLENSWORTH, SCOTT D
25036	CONWAY, JASON J
25041	OCCUPANT UNKNOWN,
25046	VELDMAN, JACQUELYN Y
25056	CHANEY, TABATHA
25058	DOUGHERTY, JAMES M
25064	PHILIPOUS, FREDRICK
25068	POITEVINT, ERIC G
25078	SMITH, PRESTON L
25084	MOORE, MARIANN C
25088	MALDONADO, ROGA G
25102	GALDOS, JOSE
25108	CASTANEDA, AGUSTIN M
25112	REYES, MARIO S
25116	ROBLES, MARCOS
25122	JIMENEZ, FEDERICO
25128	GUERRERO, SERGIO D
25132	GOMEZ, FELIX C
25138	ENDRESEN, LINDA J
25142	DEJESUS, ROMAN
25148	RAMIREZ, LUIS R
25152	LUNA, SUSANA
25158	MERCER, RICHARD D
25168	RAMOS, LEOBARDO
25172	REYNA, JAVIER D
25222	RISE & SHINE PRESCHOOL
25235	BUSY BEE DRY CLEANERS

Target Street	Cross Street	Source
-	✓	EDR Digital Archive

HAWKBRYN AVE 2005

24924 MONTEVERDE RANCH
25000 AGUILAR, MAER
AL FOLLETT ROOFING
ANTONIO, LUCAS
BARIOS, I M
BEADLES, JUDY
BERNABE, LORENZO
CASEY, HARLOD L
CEJA, ESPERANZA
CHAVEZ, EVERARDO
CRAMER, CARL
CRUZ, MARICELA
DAVID, KAY
DELEON, REFUGIO D
DIDRICKSON, STACEY L
DOMINGUEZ, ALVARO M
ELDER, DONALD F
EMERALD, KEN J
ESTRADA, DEMETRIO
FOLLETT, ANTHONY L
FORCUM, RC C
GAMINO, SIMON
GARNICA, ERNESTO Z
GASTELUM, CORONA I
GODINEZ, PLACIDO
GONZALEZ, ROQUE A
GORDON, MEARS
HARBESON, KIRK P
HEATH, BARBARA
HERNANDEZ, PEDRO
HERNANDEZ, TINA R
JIMENEZ, JUAN
JUAREZ, IGNACIA
KELLY, PATRICIA J
LEON, KARLA Y
LEYVA, INES M
LIEVANOS, HUMBERTO
LOPEZ, S F
LUBY, CAROL A
LUSK, LLOYD W
MANZO, VICTOR H
MARTIN, C
MELCHOR, CELESTINO
MELENDEZ, IRMA
MONTALVO, JUAN M
MONTOYASOLANO, SALVADOR
MULBERRY MOBIL HOME PARK
MUNOZ, CESAR A
NICHELSON, THERESA S
NORTON, CONSTANCE

Target Street	Cross Street	Source
-	✓	EDR Digital Archive

HAWKBRYN AVE 2005 (Cont'd)

25000 ORONA, JUAN M
PEREZ, FREDY R
PETE, CLAUDE L
PIMA, IRMA
PONCE, LEONEL
RAMIREZ, JASON L
REILLY, WILLIAM L
REYNOLDS, RUTH M
RISCH, CLAYTON F
ROE, STANLEY M
ROSALES, ALICIA P
ROWAT, STACIE
SANCHEZ, CARLOS
SANTINO, WILLIAM J
SCHWARTZ, JESSE J
SOSA, ARMANDO
STEWART, EDWARD E
STUART, ROBERT M
TURNER, LENARD U
URQUHART, KEVIN
VARGAS, OMAR
WATTS, MARY K
WHITNEY, PEGGY H
ZAVALA, EDUARDO

25022 FUTURE GENERATIONS PRESCHOOL INC
SANTA CLARITA PRESCHOOL & INFANT CEN

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

WILEY CANYON RD 2005

24640	CLUB CAFE
	CLUB TAN
	SANTA CLARITA ATHLETIC CLUB
	TRILLIUM MASSAGE THERAPY
	TRILLIUM SPORTS MEDICINE
24935	SCOGGINS, ALAN M
24970	BEAMAN, LONNIE J
24971	WEDDLE, SHARON M
24972	OCCUPANT UNKNOWN,
24974	BAGNALL, STEVEN R
25002	OCCUPANT UNKNOWN,
25006	SANCHEZ, JOSE
25012	RANKEN, ROBERT J
25016	HORN, DENNIS M
25022	PETROVIT, ROBERT J
25025	WYLAN, JACQUES
25033	ALLENSWORTH, SCOTT N
25036	CONWAY, ANNE W
25041	MILLER, JOEL
25046	VELDMAN, HENRY C
25056	CHANEY, CLARENCE C
25058	DOUGHERTY, JAMES M
25064	PHILIPOUS, FREDRICK
25068	ERIC POITEVINT
	POITEVINT, ERIC C
25078	SMITH, PRESTON L
25084	MOORE, MARIANN C
25088	MALDONADO, ROGA G
25102	GALDOS, JOSE
25108	CASTANEDA, AGUSTIN M
25112	REYES, MARIO S
25116	SHANLEY, GEORGE W
25122	ERUE, ERNEST R
25128	GUERRERO, SERGIO D
25132	GOMEZ, FELIX C
25138	CRAIG, DANNY J
25142	ESPINOZA, RUTH
25148	RAMIREZ, LUIS R
25152	LUNA, SUSANA
25158	YAN, WILLIAM
25162	SERAZIO, STEVE
25168	VALDIVIA, ENRIQUE B
25172	VARGAS, SIMON
25222	RISE & SHINE
	VALLEY COMMUNITY CHURCH
25235	BUSY BEE DRY CLEANERS & ALTERATIONS

Target Street	Cross Street	Source
-	✓	EDR Digital Archive

HAWKBRYN AVE 2000

24924	SMISER, SUE
	TORRES, S
25000	AARNESS, ROBERT G
	ACQUAVIVA, PAUL
	AGUERO, G
	AGUERO, ROBERTO
	ANDERSON, RICHARD D
	BELL, DEBBIE K
	BRICE, KERRY M
	CABRERA, JORGE
	CALSADA, MAURA
	CERVANTES, F
	CHAPPLE, M
	CHOTIKASUPASERA, C
	CORRELL, JILL C
	DIAZ, REFUGIO
	EMERALD, KEN
	FAJARDO, JUAN A
	FOLLETT, ANTHONY L
	FORCUM, RC
	GARCIA, C
	GLEASON, SCOTT C
	GODINEZ, P
	HART, JOHN L
	HERNANDEZ, G
	HERRERA, A
	HUGHES, DREW E
	IRZABA, E
	JOBE, JERRY A
	KALANICK, CORY C
	KELLY, P J
	KOTTENBACH, RAYMOND
	LAVIN, JAVIER
	LAWSON, CAROL L
	LEWIS, RUTH
	MACDONALD, BRIAN
	MAYORGA, FELITA
	MULLER, DEBRA J
	MUNOZ, CESAR
	NASH, CANDICE A
	ORONA, JUAN M
	PARADA, G
	PATTERSON, M
	PEREZ, FREDY
	PREECE, JAMES S
	PRIORE, RUSSELL A
	REILLY, WILLIAM
	RICHARDSON, AFTON
	RISCH, CLAYTON F
	RIVERA, CARLOS A

Target Street	Cross Street	Source
-	✓	EDR Digital Archive

HAWKBRYN AVE 2000 (Cont'd)

25000 ROE, STANLEY M
ROSALES, ALICIA
SCHWARTZ, JESSE
STUART, ROBERT M
TREZISE, RACHEL
TURNER, LENARD
WHITAKER, ROBERT

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

WILEY CANYON RD 2000

24640 HINES, COLIN D
24935 SCOGGINS, ALAN M
24970 BEAMAN, ALLEN
24971 WEDDLE, SHARON
24972 OCCUPANT UNKNOWN,
25002 REAGAN, JAMES D
25006 OCCUPANT UNKNOWN,
25012 RANKEN, ROBERT J
25016 HORN, DENNIS M
25022 PETROVIT, ROBERT
25025 SOSA, ADOLF
25033 TERRY, TERRI A
25041 HARROLD, JEAN A
25046 VELDMAN, J Y
25056 CHANEY, C C
25058 OCCUPANT UNKNOWN,
25064 PHILIPOUS, EDWARD
25068 POITEVINT, ERIC G
25072 NEHER, FLOYD
25078 MCLAUGHLIN, SEAN E
25083 DOUGHERTY, ERIC B
25084 MOORE, EUGENE A
25112 REYES, MARIO
25116 SHANLEY, GEORGE W
25122 ERUE, ERNEST R
25128 OCCUPANT UNKNOWN,
25132 OCCUPANT UNKNOWN,
25138 CRAIG, DANNY J
25142 OCCUPANT UNKNOWN,
25148 RAMIREZ, LUIS
25152 OCCUPANT UNKNOWN,
25158 VAZQUEZ, ED
25162 LIMBAUGH, RICHARD
25168 VALDIVIA, ENRIQUE
25172 AGUILAR, SIMON
25222 OCCUPANT UNKNOWN,

Target Street	Cross Street	Source
-	✓	EDR Digital Archive

HAWKBRYN AVE 1995

24924 RUIZ, EDDIE
SMISER MULE RANCH
25000 AGUERO, G
AGUERO, ROBERTO
BARRON, F
BENSON, HELEN
CAICEDO, DANIELE
CARLSON, DORIS A
ELDER, DONALD F
EMERALD, KEN
EWING, TYLOR
FORCUM, R C
GLOVER, HARRY
GOODWIN, J A
GORDON, ALVIN
GREGORY, IDA
HALVORSEN, B J
HART, JOHN L
HEATH, ALLEN R
HERNANDEZ, G
HUNTER, GWEN
JOBE, JERRY
KELLY, P J
KLINDT, HAROLD
KOTTENBACH, RAYMOND
LARUE, P
LEMMON, EDDIE R
LEWIS, RUTH
LOPEZ, JULIAN K
MACDONALD, TINA
MAGALLON, CELSO
MOREAU, M
MOSS, BOB
MOUNTS, L D
MULBERRY MOBILHOME PARK
MUNN, BRUCE G
MYERS, L M
NORTON, C
PATTERSON, M
PENALOZA, REFUGIO
PRIORE, RUSSELL A
RAMIREZ, CHERYL
REILLY, WILLIAM
RICHARDSON, AFTON
RISCH, CLAYTON F
ROBERSON, DIANNE
ROSKILLY, A
ROWDON, LAURA
SANGER, JAMES E
SARGENT, DOUG

Target Street	Cross Street	Source
-	✓	EDR Digital Archive

HAWKBRYN AVE 1995 (Cont'd)

25000 SOTELO, EILEEN
SWEET, W
THOMSON, C P
TROTHE, ALFRED
TURNER, LENARD
URQUHART, KEVIN
WORROLL, CINDY
25022 SANTA CLARITA PRE SCHOOL

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

WILEY CANYON RD 1995

25002	REAGAN, BEVERLY R
25006	WRIGHT, DONNA R
25007	OCCUPANT UNKNOWNN
25012	OCCUPANT UNKNOWNN
25016	HORN, DENNIS M
25022	PETROVIT, ROBERT
25025	EVANS, JON C
25033	SMITH, HOLMES J
25041	HARROLD, JEAN A
25046	GOLDWATE, J Y
25056	CHANEY, C C
25058	DOUGHERTY, JAMES
25064	PHILIPOUS, EDWARD
25072	NEHER, FLOYD
25078	OCCUPANT UNKNOWNN
25084	OCCUPANT UNKNOWNN
25088	MALDONADO, ROGA G
25102	VINCENTI, FRANK
25108	CASTANEDA, AGUSTIN M
25112	REYES, MARIO
25116	SHANLEY, GEORGE W
25122	ERUE, ERNEST R
25128	GARIBAY, MARIA S
25132	OCCUPANT UNKNOWNN
25138	CRAIG, LINDA J
25142	COCHRAN, WILLIAM R
25148	RAMIREZ, LUIS
25152	CARPENTER, WILLIAM
25158	MERCER, RICHARD D
25162	OCCUPANT UNKNOWNN
25168	VALDIVIA, CARMELI
25172	GAGE, BENNETT G
25222	NEW VISTA CHRISTIAN COUNSELING
	RISE & SHINE PRESCHOOL
	VALLEY COMMUNITY CHURCH
25235	BUSY BEE DRY CLEANERS

Target Street	Cross Street	Source
-	✓	EDR Digital Archive

HAWKBRYN AVE 1992

24924	MCINTOSH, GLENN
	SMISER MULE RANCH
25000	CARLSON, D
	CARLSON, DONALD
	CHRISTENSEN, MATTHEW
	HERNANDEZ, G
	HURD, RAY W
	KLINDT, HAROLD
	MOUNTS, L D
	MULBERRY MOBILHOME
	MYERS, L M
	OFFERMANS, FRANS
	OFFERMANS, FRANS J
	SANGER, JAMES E
	SULLIVAN, DONALD
	TURNER, LENARD
25022	SANTA CLRTA PRE SC

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

WILEY CANYON RD 1992

25016	HORN, DENNIS M
25033	SMITH, HOLMES J
25041	HARROLD, JEAN A
25056	CHANEY, C C
25058	DOUGHERTY, JAMES
25072	NEHER, FLOYD
25078	MCLAUGHLIN, SEAN
25088	MALDONADO, ROGA G
25102	VINCENTI, FRANK
25112	REYES, MARIO
25116	SHANLEY, GEORGE W
25128	GARIBAY, RUBEN
25142	COCHRAN, WILLIAM R
25148	RAMIREZ, LUIS
25162	MCCOLL, DAVID E
25168	VALDIVIA, ENRIQUE
25172	GAGE, BENNETT G
	GUNTER, TROY
25222	RISE&SHINE PRESCHL
	VALLEY COMMUNITY CH
25235	BUSY BEE DRY CLNRS

Target Street	Cross Street	Source
-	✓	Haines Criss-Cross Directory

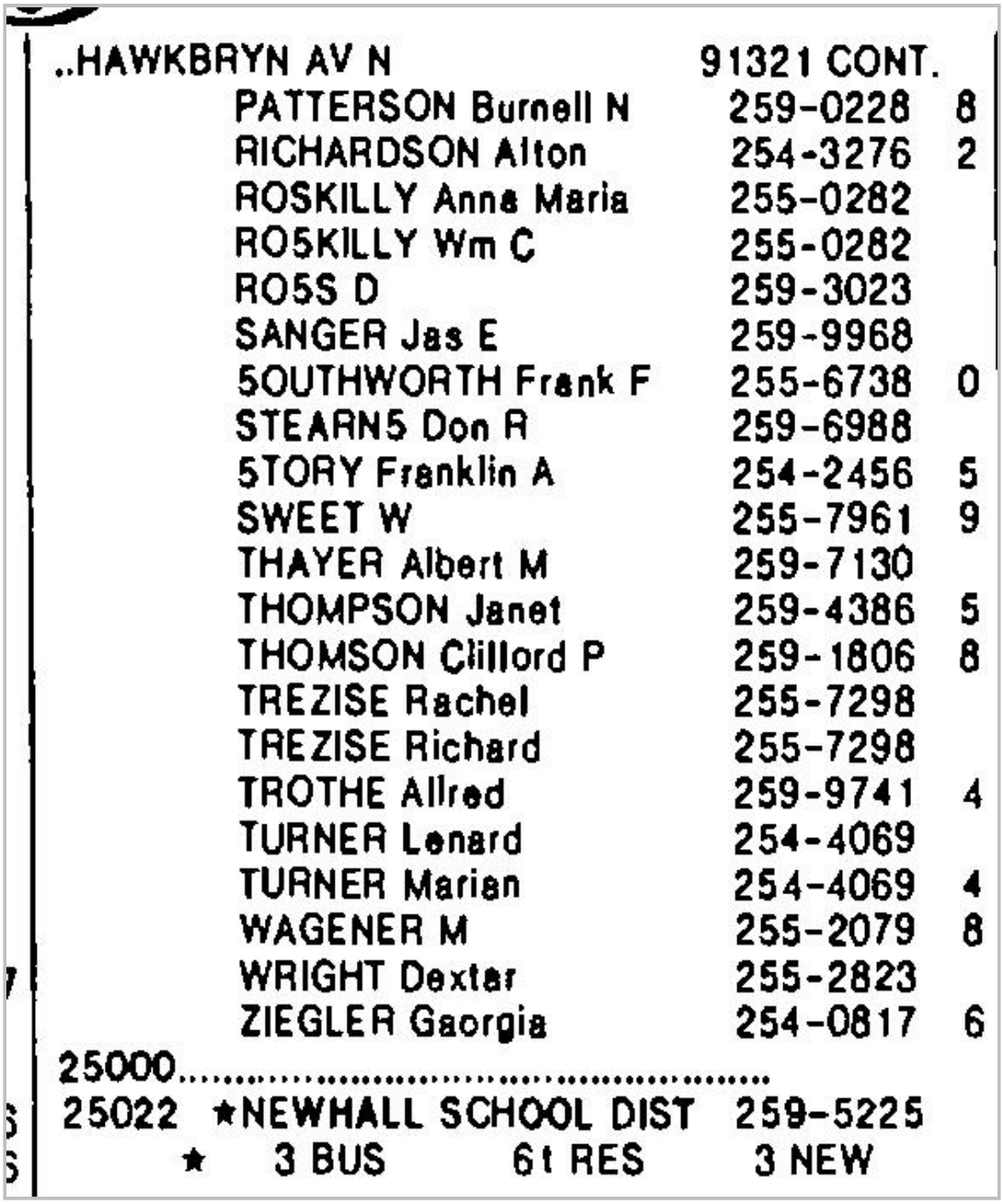
HAWKBRYN AVE 1987

HAWKBRYN AV N 91321
NEWHALL

24924	★SMISER MULE RANCH	259-1838	9
25000.....	MULBERRY MBL HM PK		
	ANDERSON Gordon E	255-2133	
	BARRON F	259-7291	5
	BIRKHEAD John N	259-4225	
	BURRI5 J	255-5116	2
	CALHOUN Noel T	259-9256	+7
	CSEREKLYEI Zoltan	255-2445	
	DiGIOVANNI 5am	255-0903	4
	ENGLIN Carl T	254-0504	5
	EOMURIAN Walter H	255-3613	5
	FERBER Nick	259-6007	
	FORCUM Ronald	255-0824	1
	GIBSON Geo W	254-0649	1
	GORDON Alvin	259-8223	
	GORDON Helen	259-8223	
	GOTTHELF P G	254-0328	4
	HALVORSEN B J	259-2485	
	HART John L	259-9295	5
	HA5TINGS Jack R	259-6703	
	HEATH Allan R	259-7856	
	HERNANDEZ G	259-1351	+7
	KELLY P J	255-6959	
	KISTER M K	259-8629	
	LARUE P	254-3930	4
	LEE P	254-2343	5
	LEWIS Ruth	259-4274	5
	LUNN J M	259-1843	
	LYONS N M	259-8120	
	MCKISICK E	259-9583	2
	MCOUARY V	255-9439	1
	MCVAY Lawrence E	255-5884	1
	MILES V E	254-1259	0
	MLECZEK Robt R	259-2703	
	MORPHIS Don P	254-4049	4
	MOSS Bob	259-7291	5
	MOUNTS L D	255-7380	3
	★MULBERRY MOBILHOME	259-3678	
	MYER5 L M	259-7674	9
	NEWMAN Wayne E	259-2306	1
	NYLANDER G I	259-5796	3
	ODIORNE J H	259-0550	+7
	OMARA Don	255-0275	3

Target Street	Cross Street	Source
-	✓	Haines Criss-Cross Directory

HAWKBRYN AVE 1987



..HAWKBRYN AV N 91321 CONT.

PATTERSON Burnell N	259-0228	8
RICHARDSON Alton	254-3276	2
ROSKILLY Anna Maria	255-0282	
RO5KILLY Wm C	255-0282	
RO5S D	259-3023	
SANGER Jas E	259-9968	
5OUTHWORTH Frank F	255-6738	0
STEARN5 Don R	259-6988	
5TORY Franklin A	254-2456	5
SWEET W	255-7961	9
THAYER Albert M	259-7130	
THOMPSON Janet	259-4386	5
THOMSON Clillord P	259-1806	8
TREZISE Rachel	255-7298	
TREZISE Richard	255-7298	
TROTHE Allred	259-9741	4
TURNER Lenard	254-4069	
TURNER Marian	254-4069	4
WAGENER M	255-2079	8
WRIGHT Dexter	255-2823	
ZIEGLER Gaorgia	254-0817	6

25000.....

25022 ★NEWHALL SCHOOL DIST 259-5225

★ 3 BUS 6t RES 3 NEW

Target Street	Cross Street	Source
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WILEY CANYON RD 1987

WILEY CNYN RD N 91321
NEWHALL

24640	★CANYON PONTC BUICK	254-2114	2
	★CANYON PONTIAC BCK	716-9515	2
24935	XXXX	00	
24971	XXXX	00	
25006	WOOD Gary R	254-8120	+7
	WOOD Jackie	254-8120	+7
25012	XXXX	00	
25016	HORN Dennis M	259-8229	5
25025	XXXX	00	
25033	SMITH Holmes J	259-3782	
25041	HARROLD J A	259-4479	
25046	XXXX	00	
25056	CHANEY Clarance	254-2851	2
25058	XXXX	00	
25064	XXXX	00	
25068	XXXX	00	
25072	NEHER Floyd	259-2359	
25078	MCLAUGHLIN Sasn	254-4188	6
	MCLAUGHLIN Shelley	254-4188	
25084	SLOCUM Boyd K	259-5318	
25088	SLOCUM Clarance	259-6581	
25102	JACKSON S A	259-6601	
25112	PANGAN Antonio Jr	254-5835	4
25116	SHANLEY Gao W	259-9476	
25132	XXXX	00	
25138	XXXX	00	
25142	COCHRAN Wm R	259-8501	0
25148	ANDERSON Robi L	254-2193	3
25152	XXXX	00	
25158	XXXX	00	
25162	MCCOLL Dsvid E	259-5305	6
25168	THOMPSON B J	259-2793	9
25172	GAGE Bannatt G	254-4899	4
	WALKER David	254-3283	+7
	WINTERS Jas C Jr	254-4322	4
25222	★RISE&SHINE PRESCHL	259-0407	6
	★VALLEY COMMUNITY CH	259-4388	1
25235	★BUSY BEE DRY CLNRS	254-3275	2
25237	XXXX	00	
25239	★HEY INSTANT PRNTG	255-9703	5

★ 6 BUS 34 RES 3 NEW

Target Street	Cross Street	Source
-	✓	Haines Criss-Cross Directory

HAWKBRYN AVE 1982

HAWKBRYN N 91321
NEWHALL

24924	RENINGER HAVEN	255-3823	1
	SMISER MULE RANCH	259-1838	9
25000.....	MULBERRY MBL HM PK		
	ANDERSON ARCHIE LEE	259-7166	9
	ANDERSON GORDON E	255-2133	6
	BEST G	254-0880	1
	BIRKHEAD JOHN N	259-4225	7
	BURRIS J	255-5116	+2
	CAMPBELL R A	255-9288	0
	COPPA MICHAEL	259-6648	6
	COX CARL R	259-9626	8
	CSEREKLYEI ZOLTAN	255-2445	6
	DANCES EDW W	259-7106	4
	DEAN KENNETH D	259-2174	
	DUMONT ALBERT M	259-6411	1
	EWING E J	255-8414	+2
	FEAGAN GLEN	255-8782	6
	FERBER NICK	259-6007	6
	FORCUM RONALD	255-0824	1
	FORD RHEA	255-8782	6
	GIBSON GEO W	254-0649	1
	GIFFORD D M	259-7234	
	GORDON ALVIN	259-8223	+2
	GOTTHELF PATRICIA	254-0328	0
	GREENWALD JILL	259-3073	1
	GROETKEN WM E	255-0300	4
	HALVORSEN B J	259-2485	3
	HANSHAW MIRTH	259-0437	7
	HASTINGS JACK R	259-6703	3
	HEATH ALLEN R	259-7856	5
	HENDRICKS LEMUEL	259-2036	
	HITCHCOCK R M	255-7140	6
	ISHII HARRIET	259-7018	
	JOHNDREW PHILIP	259-0363	
	KELLY P J	255-6959	5
	KISTER M K	259-8629	4
	KLINDT HAROLD C	259-0780	3
	LEPRE S	259-2598	0
	LUNKLEY CHAS	259-2998	9
	LUNN J M	259-1843	
	LYONS N M	259-8120	3
	MALONE M	255-1981	0
	MANUEL S L	259-5583	1
	MCKISICK E	259-9583	+2
	MCOUARY V	255-9439	1
	MCVAY LAWRENCE E	255-5884	1
	MILES V E	254-1259	0
	MILLER JAS W	259-5984	
	MLECZEK ROBT R	259-2703	
	MOORE M C	255-7541	7
	MULBERRY MOBILHOME	259-3678	
	MUNN BRUCE	255-7026	5
	MYERS L M	259-7674	9
	NEWMAN WAYNE E	259-2306	1
	NYLANDER G I	259-8532	
	PATTERSON BURNELL N	259-0228	8
	PHERIGO LEN	255-3195	0
	POWELL JAS D	254-3972	+2
	PRICE V E	259-4685	3
	RICCIO E	255-0846	1

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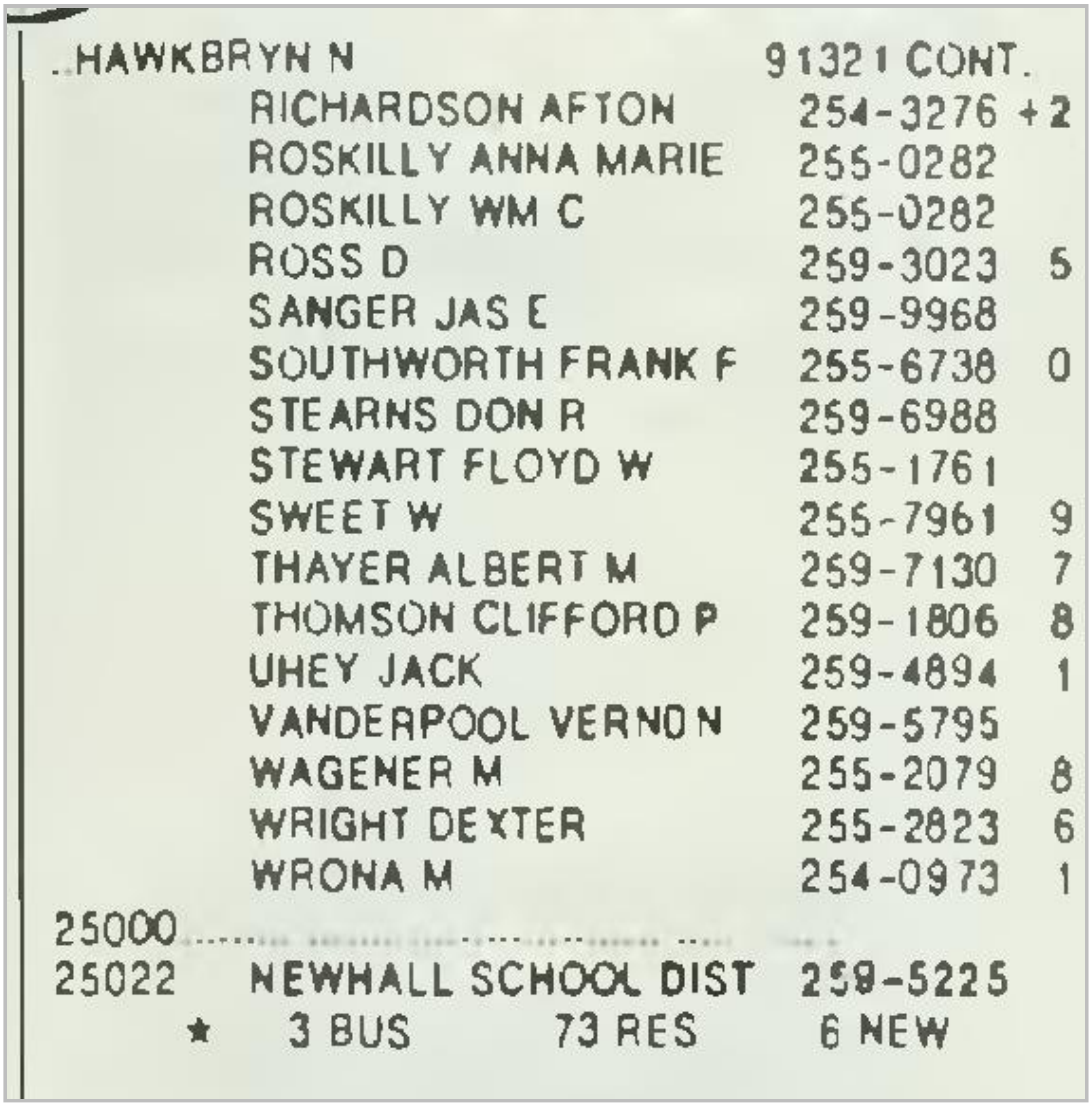
-	✓	Haines Criss-Cross Directory

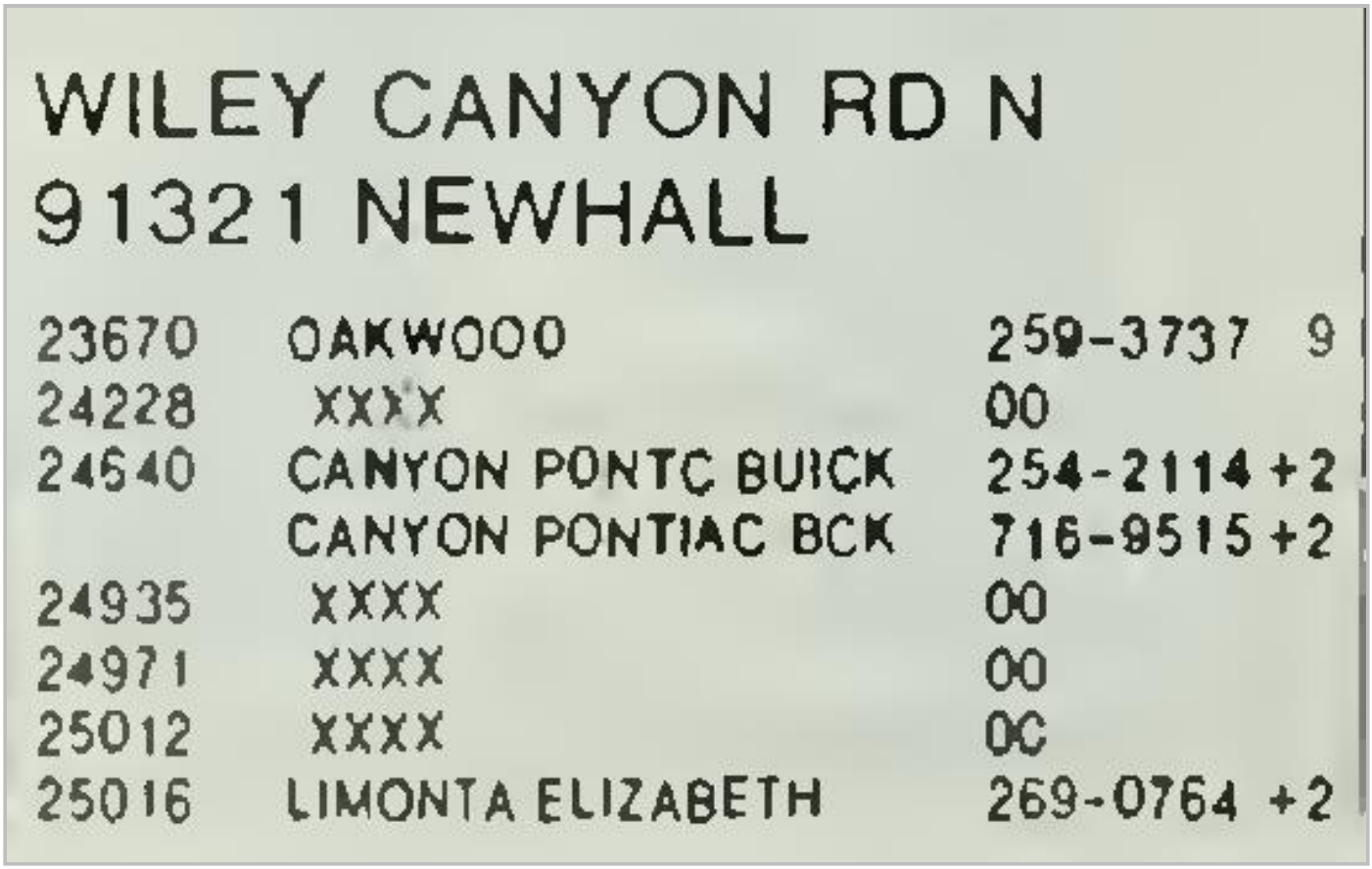
HAWKBRYN AVE 1982



..HAWKBRYN N		91321 CONT.	
	RICHARDSON AFTON	254-3276	+2
	ROSKILLY ANNA MARIE	255-0282	
	ROSKILLY WM C	255-0282	
	ROSS D	259-3023	5
	SANGER JAS E	259-9968	
	SOUTHWORTH FRANK F	255-6738	0
	STEARNS DON R	259-6988	
	STEWART FLOYD W	255-1761	
	SWEET W	255-7961	9
	THAYER ALBERT M	259-7130	7
	THOMSON CLIFFORD P	259-1806	8
	UHEY JACK	259-4894	1
	VANDERPOOL VERNON	259-5795	
	WAGENER M	255-2079	8
	WRIGHT DEXTER	255-2823	6
	WRONA M	254-0973	1
25000			
25022	NEWHALL SCHOOL DIST	259-5225	
★	3 BUS 73 RES	6 NEW	

Target Street	Cross Street	Source
✓	-	Haines Criss-Cross Directory

WILEY CANYON RD 1982



WILEY CANYON RD N

91321 NEWHALL

23670	OAKWOOD	259-3737 9
24228	XXXX	00
24540	CANYON PONTC BUICK	254-2114 +2
	CANYON PONTIAC BCK	716-9515 +2
24935	XXXX	00
24971	XXXX	00
25012	XXXX	00
25016	LIMONTA ELIZABETH	269-0764 +2

Target Street	Cross Street	Source
✓	-	Haines Criss-Cross Directory

WILEY CANYON RD 1982

WILEY CANYON RD N		91321 CONT	
25025	XXXX	00	
25033	SMITH HOLMES J	259-3782	
25041	HARROLD J A	259-4479	
25046	OLIVA LUIS	255-0987	1
25056	CHANEY CLARENCE	254-2851	+2
25058	XXXX	00	
25064	XXXX	00	
25068	MARTIN TIM K	255-7253	1
25072	NEHER FLOYD	259-2359	
25078	SHIELDS BRETT	259-8117	+2
	SHIELDS JOEL D	254-1389	1
25084	SLOCUM BOYD K	259-5318	
25088	SLOCUM CLARENCE	259-6581	
25102	JACKSON S A	259-6601	6
25112	VIRAY L T	255-7582	+2
25116	SHANLEY GEO W	259-9476	
25132	LEE DON	259-4713	
25138	XXXX	00	
25142	COCHRAN WM R	259-8501	0
25148	MOORE R E	259-6582	
25152	XXXX	00	
25158	GUDYKA G	255-2181	+2
	HUEBLER DOUGLAS	255-6157	9
25162	CROWN ROOTER&PLBG	259-8644	9
25168	THOMPSON B J	253-2793	9
25172	WINTERS JAS C JR	259-4662	1
25222	VALLEY COMMUNITY CH	259-4366	1
25235	BUSY BEE ALTERATNS	254-3275	+2
25237	XXXX	00	
25239	ONE STOP PRINTERS	259-1098	1
*	7 BUS 31 RES	8 NEW	

Target Street	Cross Street	Source
-	✓	Haines Criss-Cross Directory

HAWKBRYN AVE 1976

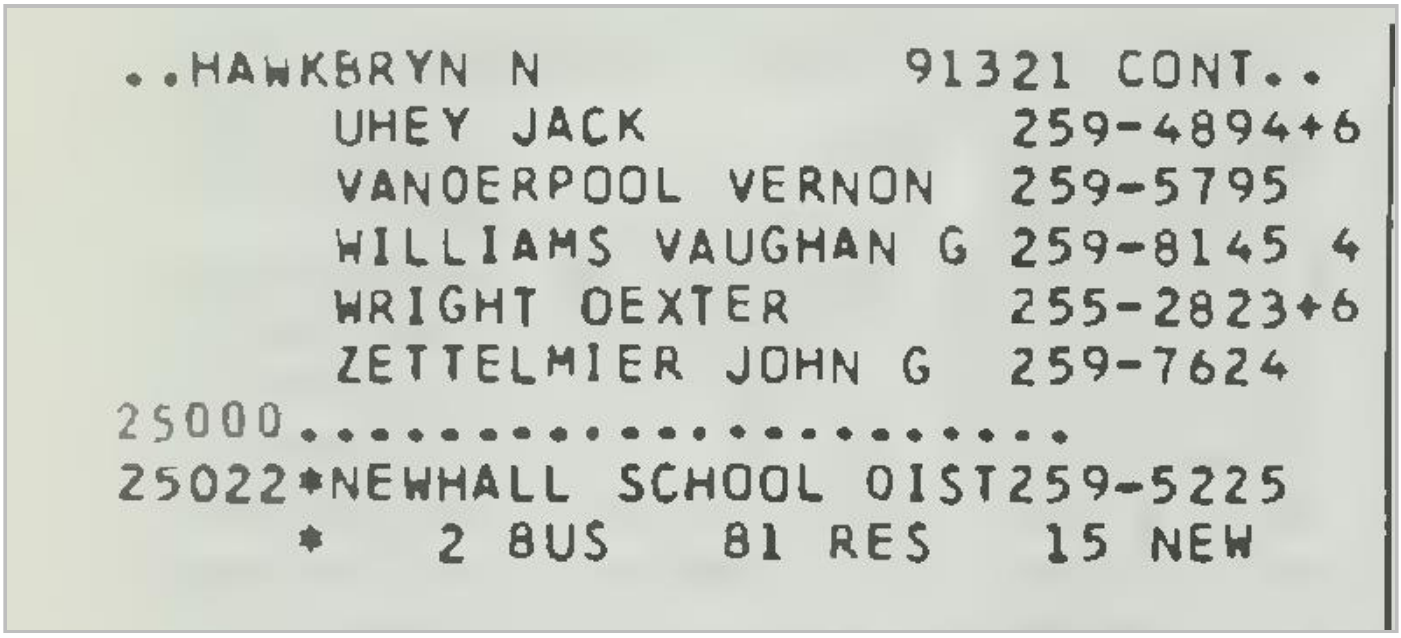
HAWKBRYN N 91321 NEWHALL

25000...MUL8ERRY M8L HM PK

AOAMS LEWIS	255-1253
ANOERSON GOROON E	255-2133+6
ANOREWS LEO L	255-0750
8ENNETT WM SCOTT	255-7816 5
800I JOHN M	259-5347 3
800TH EMMELINE MRS	259-6087
CHAM8ERS W A	255-8414+6
COPPA MICHAEL	259-6648+6
CRAWFORO M G	255-6641 5
CSEREKLYEI ZOLTAN	255-2445+6
CURLEY FRANK	255-7284 5
OANCES EOW W	259-7106 4
OEAN KENNETH O	259-2174
OECKER JOE S	259-3953
OUNHAM GARY L	259-8308 5
OUNN JENNIE	255-6418 3
FARREN ALICE A	259-7646
FEAGAN GLEN	255-8782+6
FER8ER NICK	259-6007+6
FORO RHEA	255-8782+6
GIFFORO HAROLO J	259-7234
GILMORE WM E SR	255-7517 3
GLANVILLE A H	255-7804 5
GOMNESS CURTIS N	259-1803
GROETKEN WM E	255-0300 4
GROSH RO8T A	255-7232 5
HALVORSEN 8 J	259-2485 3
HAROY HAROLO	255-2768+6
HARRIS CLIFFORO H	255-0167
HASTINGS JACK R	259-6703 3
HEAOLEY 8YRON	255-0760 5
HEATH ALLEN R	259-7856 5
HENORICKS LEMUEL	259-2036
HITCHCOCK R M	255-7140+6
HOPKINS MILTON S	259-0547
ISHII HARRIET	259-7018
JENSEN LELA M	259-4866
JOHNOREW PHILIP	259-0363
KELLY P J	255-6959 5
KISTER M K	259-8629 4
KLINOT HAROLO C	259-0780 3
KRAUS MERL G	259-3873
KRYSZTOF STANLEY	255-0170 4
KYLE MERLIN O	259-4828 4
LEOFORO JAS E	255-8215+6
LINOSAY 8RUCE 8	259-6805 5
LUNN J M	259-1843
LYONS N M	259-8120 3
MAOOEN RO8T J	255-1267 5
MANN LOWELL H	259-1806
MATHEUS RO8T M	259-9583
MCOONALO WM O	255-7541 5
MILLER ELVIN	259-0538 4
MILLER JAS W	259-5984
MLECZEK RO8T R	259-2703
MORTON WM J	255-0629+6
*MUL8ERRY MO8LEHM PK	259-3678
MUNN 8RUCE	255-7026 5
NYLANDER G I	259-8532
PANTER OALE E	259-0384
PANTER J C	259-2306 3
PAUL JOYCE M	255-2657+6
PLEOGER HOWARO	255-6738 3
POLOSKY JOHN M	259-1447
PRICE V E	259-4685 3
RASHER RUSSELL	255-8736+6
REEO GLENN W	259-8223
ROSKILLY ANNAMARIE	255-0282
ROSKILLY WM C	255-0282
ROSS D	259-3023 5
ROSSITER J R	259-3676
ROUSE PHILLIP	259-6548
SANGER JAS E	259-9968
SMITH ANNA L	259-9373
STEARNS OON R	259-6988
STEWART FLOYO W	255-1761
TINGLEY M	259-6945 4

Target Street	Cross Street	Source
-	✓	Haines Criss-Cross Directory

HAWKBRYN AVE 1976



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..HAWKBRYN N                    91321 CONT..
        UHEY JACK                    259-4894+6
        VANOERPOOL VERNON            259-5795
        WILLIAMS VAUGHAN G           259-8145 4
        WRIGHT OEXTER                255-2823+6
        ZETTELMIER JOHN G            259-7624
25000.....................
25022*NEWHALL SCHOOL OIST259-5225
      *   2 BUS   81 RES   15 NEW
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Target Street	Cross Street	Source
✓	-	Haines Criss-Cross Directory

WILEY CANYON RD 1976

WILEY CANYON RD 91321 NEWHALL

25016	BORLAND GARTH	259-1346 3
25025	SORENSEN RICHARD A	259-9408
25033	SMITH HOLMES J	259-3782
25041	HARROLD J A	259-4479
25058	PATTERSON GEO H	255-7735 5
25064	XXXX	DO
25068	WHITE GEO D	259-4189
25072	NEHER FLOYD	259-2359
25078	HUBER ISOTTA HOSPE	255-1585 5
25084	SLOCUM BOYD K	259-5318
25088	SLOCUM CLARENCE	259-6581
25102	JACKSON S A	259-6601+6
25112	SCHOLEFIELD ROBT L	255-1423 3
25116	SHANLEY GEO W	259-9476
25132	LEE DON	259-4713
25138	BIRKHEAD JOHN N	259-4225
25142	SCHLARB PAUL L	255-2471+6
25148	MOORE R E	259-6582
25158	WIRTANEN WAYNE	259-2176 3
25162	RATLIFF RALPH W	255-6513+6
25168	SOUZA TOM	255-8773+6
25222*	FIRST ASMBLY OF GOD	259-4366 P

* 1 BUS 21 RES 4 NEW

Target Street	Cross Street	Source
-	✓	B & G City Directory

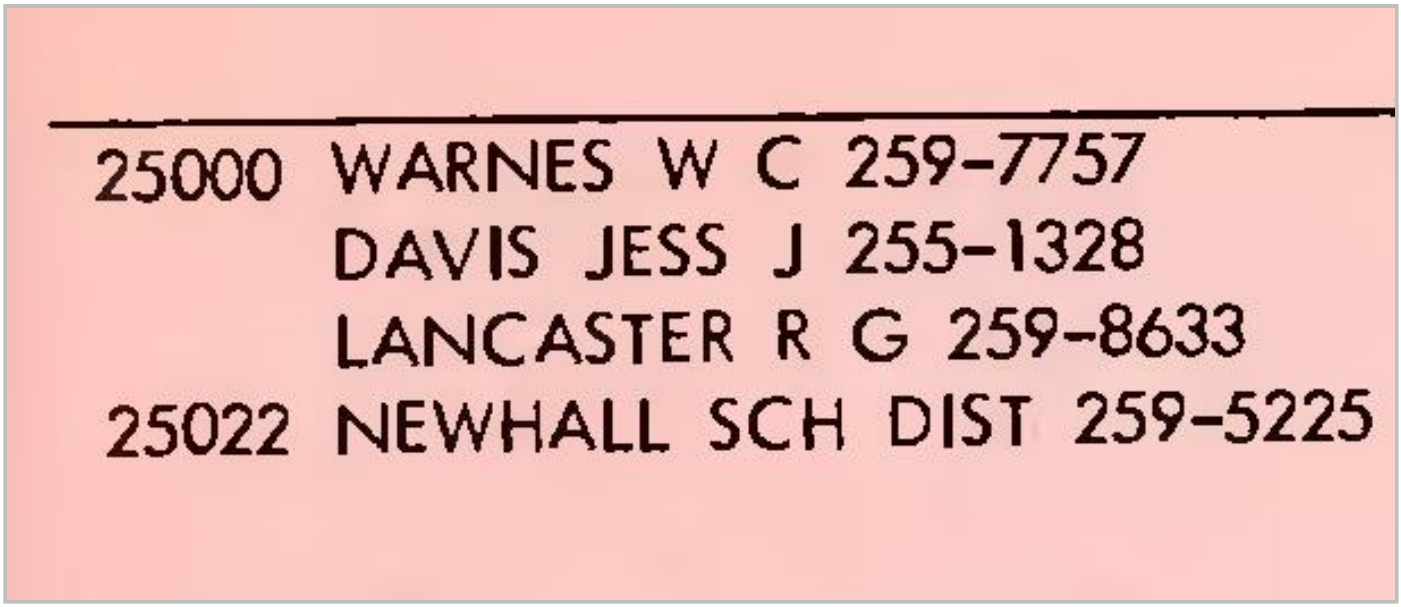
HAWKBRYN AVE 1971

HAWKBRYN (NEWHALL) 91321

25000 MULBERRY MOBILEHOME PARK 259-3678
DOUGLAS B G 259-9636
DEAN KENNETH 259-2174
DECKER JOE S 259-3953
BYRD JOHN K 259-6929
BYRD REX B 259-6498
ANDREWS H W 259-6369
ASHBURN G M 259-4124
BOOTH E MRS 259-6087
DOWNES WALTER 259-1754
DAILEY THOMAS 259-3794
JOINER DAVID S 259-6019
ROSSITER J R 259-3676
SANGER JAMES E 259-9968
SCHIADA STEPHEN 259-5929
PETERS WILLIAM C 259-5347
PHILLIPS O A 259-8518
MARTIN LESTER 259-2741
MAURER R MRS 259-1206
HOPKINS MILTON 259-0547
POLOSKY JOHN M 259-1447
PRAWALSKY FLOYD 259-7590
WILLIAMS V L 259-7243
WEILLIE ARTHUR 259-2858
ISHII HARRIET 259-7018
PRICE EDWARD 259-4685
VERNON VIRGEL 259-6840
MLECZEK ROBERT 259-2703
MC CONNELL E 259-1634
JOSE MIMA 259-3093
FORD RHEA 259-4826
SIMMONS C F 259-0729
ROSKILLY WM C 255-0282
CHEEVER ROBERT 259-6287
MACKEY ROBERT 259-9439
MANN LOWELL 259-1806
KNOWLES D 259-0113
ADAMS LEWIS 255-1253
HENDRICKS L 259-2036
FARREN H MRS 259-7646
HIBLER WILLIAM 259-0527
HODGSON JOE 259-5673
HOGAN JOHN E 259-5683
SCRIVNER CHAS B 259-3143
JOHNDREW PHILIP 259-0363
HALE HELEN B 259-7527
FULMER GLEN 259-1650
KRAUS MERL G 259-3873
KRIEG EDWIN F 259-4591
HOLMES JAMES W 259-0234
FEAGAN GLEN 259-4826
KILLEN H L 259-8318
OELRICH CHAS 259-3580
PANTER DALE E 259-0384
BUTLER BERTRAND 259-3844
THOMPSON HERVEY 259-9785
GODDARD WALTER 259-4964
MATHEUS ROBERT 259-9583
GILSON ELMER F 259-0585
VANDERPOOL V 259-5795
JUSTIS IRA 255-0791
JENSEN LELA M 259-4866
CUSICK EDWIN 259-1312
SORENSEN FRED 259-3678
HAMIL MAURIE 255-0166
SMITH ANNA L 259-9373
SMITH CLEMENS 259-6048
ZETTELMIER JOHN 259-7624
LUNN J M MRS 259-1843
LUNKLEY CHAS 259-2301
GOMNESS C N 259-1803
ROUSE PHILLIP 259-6548
REED GLENN W 259-8223
RADCLIFF CLARENCE 255-0412
POLLOCK JAMES 259-0878
POLICH-BENEDICT CONSTR 259-6063
AYCRIGG M P 259-8923
MILLER JAMES 259-5984
TIBBS C J 259-5898
COLVER T P 259-1034
RIDOUT RICHARD 259-3803
SORENSEN RICHD 259-3678

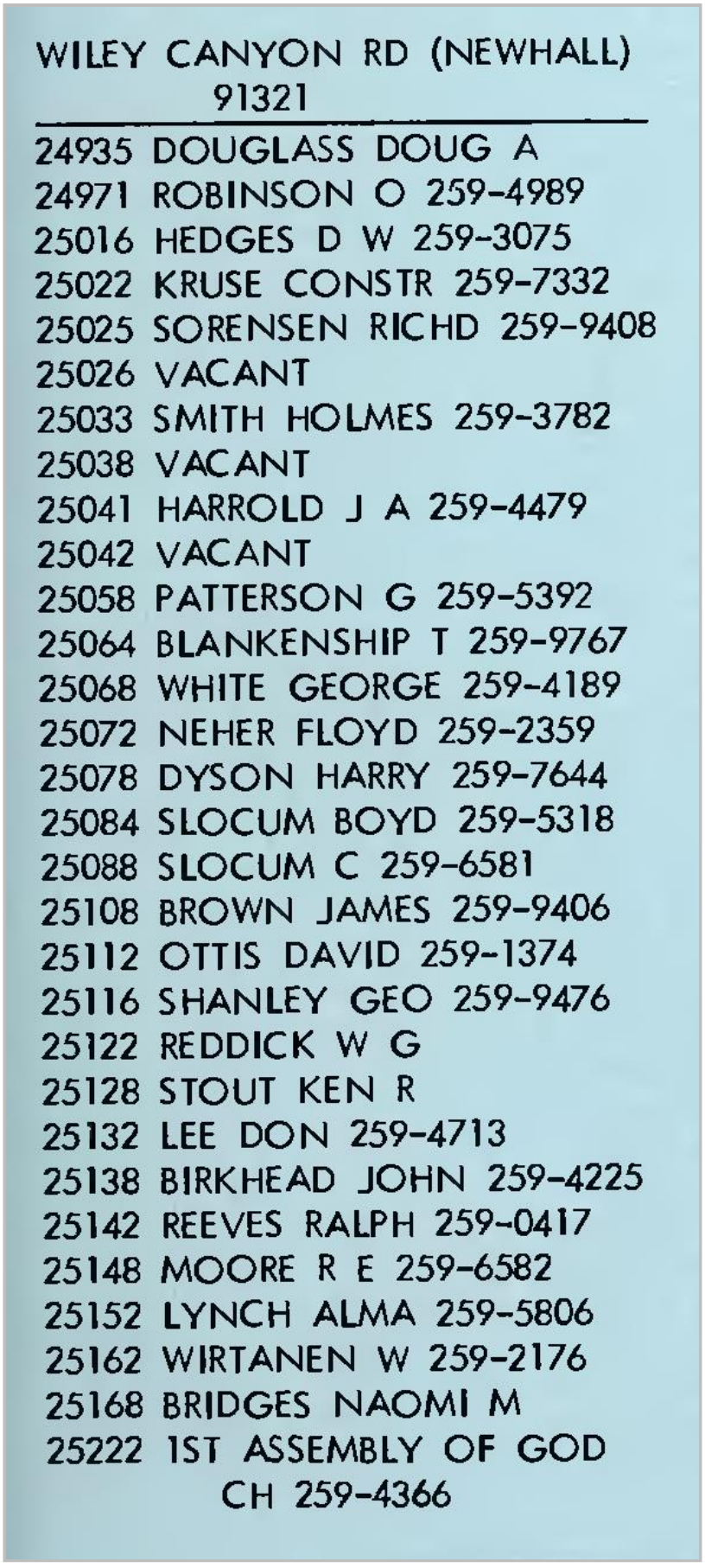
Target Street	Cross Street	Source
-	✓	B & G City Directory

HAWKBRYN AVE 1971



Target Street	Cross Street	Source
✓	-	B & G City Directory

WILEY CANYON RD 1971

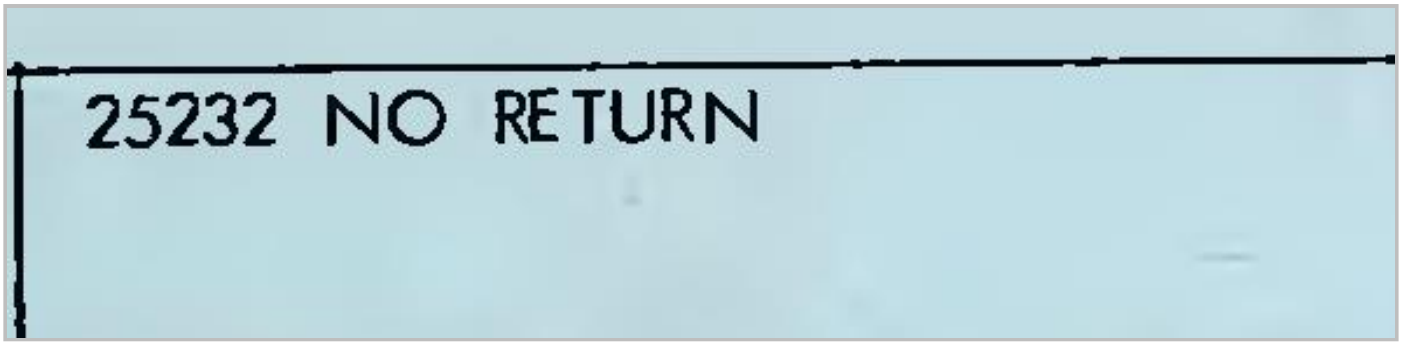


WILEY CANYON RD (NEWHALL)
91321

24935 DOUGLASS DOUG A
24971 ROBINSON O 259-4989
25016 HEDGES D W 259-3075
25022 KRUSE CONSTR 259-7332
25025 SORENSEN RICHD 259-9408
25026 VACANT
25033 SMITH HOLMES 259-3782
25038 VACANT
25041 HARROLD J A 259-4479
25042 VACANT
25058 PATTERSON G 259-5392
25064 BLANKENSHIP T 259-9767
25068 WHITE GEORGE 259-4189
25072 NEHER FLOYD 259-2359
25078 DYSON HARRY 259-7644
25084 SLOCUM BOYD 259-5318
25088 SLOCUM C 259-6581
25108 BROWN JAMES 259-9406
25112 OTTIS DAVID 259-1374
25116 SHANLEY GEO 259-9476
25122 REDDICK W G
25128 STOUT KEN R
25132 LEE DON 259-4713
25138 BIRKHEAD JOHN 259-4225
25142 REEVES RALPH 259-0417
25148 MOORE R E 259-6582
25152 LYNCH ALMA 259-5806
25162 WIRTANEN W 259-2176
25168 BRIDGES NAOMI M
25222 1ST ASSEMBLY OF GOD
CH 259-4366

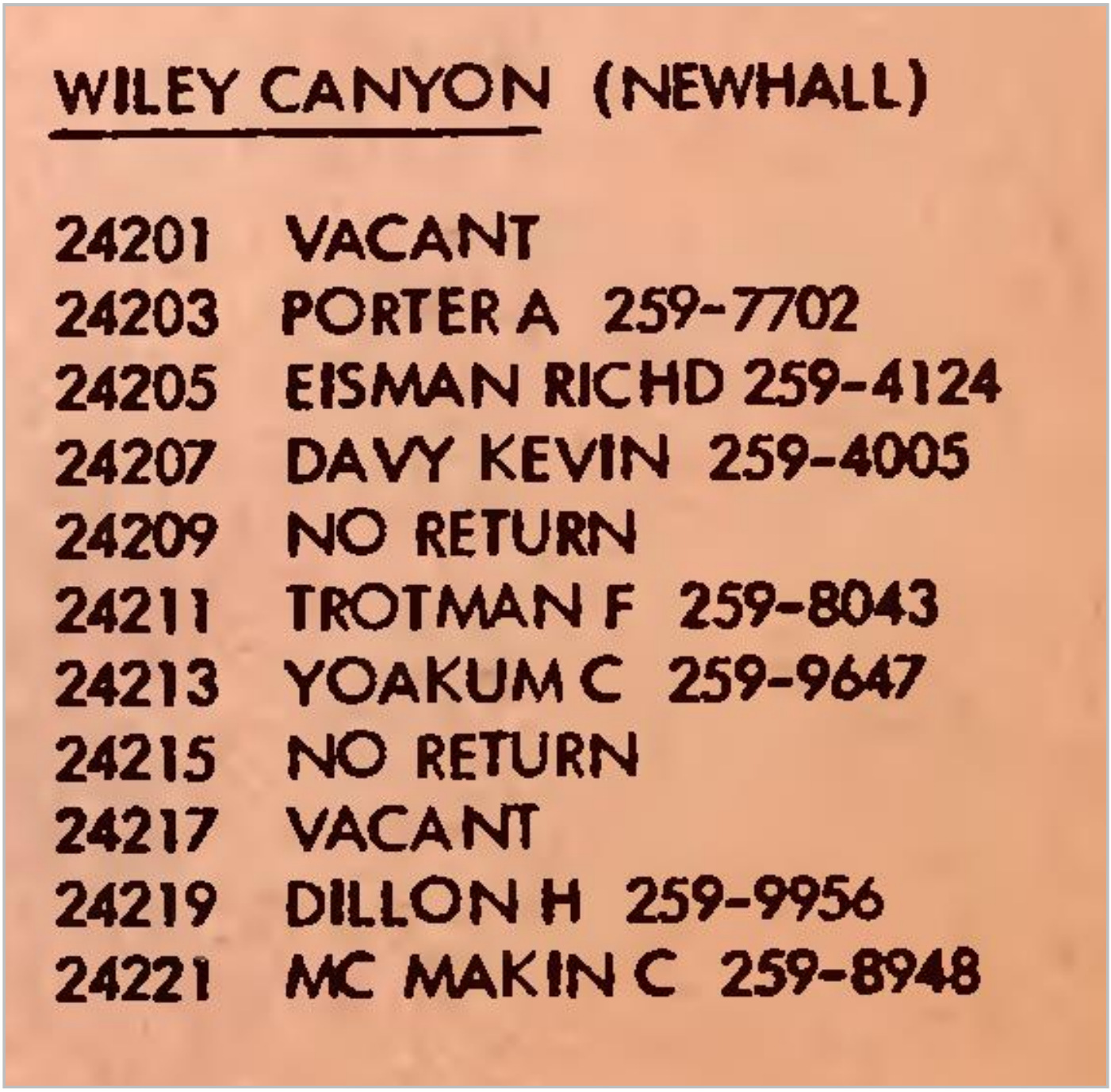
Target Street	Cross Street	Source
✓	-	B & G City Directory

WILEY CANYON RD 1971



Target Street	Cross Street	Source
✓	-	B & G City Directory

WILEY CANYON RD 1967



WILEY CANYON (NEWHALL)

24201 VACANT
24203 PORTER A 259-7702
24205 EISMAN RICHD 259-4124
24207 DAVY KEVIN 259-4005
24209 NO RETURN
24211 TROTMAN F 259-8043
24213 YOAKUM C 259-9647
24215 NO RETURN
24217 VACANT
24219 DILLON H 259-9956
24221 MC MAKIN C 259-8948

Target Street	Cross Street	Source
✓	-	B & G City Directory

WILEY CANYON RD 1967

24223	NO RETURN
24225	DEGONIA ED 259-8079
24227	HINTON H 259-0870
24935	FEDDERSON H 259-4749
24935	KIGER BILLIE 259-4749
24971	ROBINSON O 259-4989
25016	HEDGES D 259-3075
25022	CORLEY L 259-5941
25025	SORENSEN R 259-3549
25026	STORM JACK 259-4773
25033	SMITH H 259-3782
25038	MARSH JAS 259-5416
25041	HARROLD J 259-4479
25042	SLOCUM B 259-5318
25058	PATTERSON G 259-5392
25072	HARRIS BERT 259-5269
25078	VAN ACKER A 259-3543
25088	SLOCUM C 259-6581
25108	PRATT HARLEY 259-3028
25112	OTTIS DAVID 259-1374
25116	SHANLEY G 259-5495
25122	REDDICK W 259-4825
25128	STOUT KEN 259-1109
25132	BIRKHEAD J 259-4225
25142	REEVES RALPH 259-0417
25148	MOORE R E 259-6582
25168	BRIDGES N 259-2425
25222	1ST ASSEMBLY OF GOD 259-4366
25232	RILEY WM 259-6148

Code Enforcement Case: CE-14-1932

Entered on: 08/18/2014 10:56 AM
Printed on: 02/14/2022

Topic: Zoning Violation
Due Date: 12/31/16
Initiated by: Community member
Hearing Date:

Status: Closed
Assigned To: Norm Sieger
Hearing Time:

Permit

Permit #:
Business name:
License #:

Property Location

Occupant Name: IG / MONTEVERDE DEVELOPMENT COMPANY
Address: 24924 HAWKBRYN AVENUE , 91321
Phone:
Cell #:
APN : 2825-012-011

Owner Information

Owner Name: MATTHEW CRAIG / MONTEVERDE DEVELOPMENT COMPANY
Address: 28100 BOUQUET CANYON RD #216
SANTA CLARITA, CA 91350
Phone:
Cell #:

Actions

Action	By	Date	Time	Hours	Note/Observation
Complaint	Kira Barlow	08/18/2014	10:56 am	0.50	Request 1852653- Didn't the taxpayers throw in a couple million dollars for the landscaping at the Lyons off ramp??? We does the city allow the blight that is all of the construction trucks, cars, buses and other vehicles that are being stored at the mule ranch? We are trying to impress the world with the landscaping but our reputation is damaged by what they see first when they come over the hill into our great city. Please HELP.
Case Notes	Norm Sieger	08/25/2014	3:27 pm	0.50	Site inspection revealed numerous vehicles stored at location. Photos taken Due to the complexity and political sensitivity of this case, forwarded case to Supervisor Duggan for further action (Smiser Ranch)
Case Notes	Sam Duggan	11/04/2014	4:34 pm	0.50	Photos taken of storage lot with RV, buses, comm vehicles
Warning Notice	Sam Duggan	11/05/2014	9:01 am	0.50	Send to (Owner)
Case Notes	Sam Duggan	11/19/2014	8:50 am	0.25	Discussion with Jason smisko as to what planning will require. Jason will get back to me as to what planning will require. Sending email to tom Cole updating him that planning will get back to us.
Administrative Citation	Sam Duggan	12/19/2014	11:03 am	0.25	Administrative Citation 2849, Send to (Owner)
Case Notes	Sam Duggan	12/19/2014	11:04 am	0.50	No progress from warning notice deadline. 1st citation to be sent.
Case Notes	Sam Duggan	04/22/2015	1:12 pm	0.25	Ben emailed over a tup outline for the property to come into compliance within a year. spoke to Danny and he said to reassign the case back to me and work the timeline.
Case Notes	Sam Duggan	04/22/2015	1:20 pm	0.25	deadline for compliance is February 26, 2016.
Notice of Extension	Sam Duggan	04/24/2015	4:27 pm	0.25	Send to (Owner)

Notice of Extension	Sam Duggan	06/03/2015	9:06 am	0.25	Send to (Owner)
Case Notes	Sam Duggan	06/03/2015	9:08 am	0.25	Extension sent to property owner for 92 day extension granted from Ben in Planning based upon the CUP. Next mile stone will be Sept. 1, 2015.
Case Notes	Sam Duggan	06/03/2015	4:31 pm	0.25	Ben stopped by to say that Capt Perez called concerning the vehicles being stored within the structures on the property. TUP only addresses the external storage of vehicles on open land and not in the building.
Pen Credit	Kira Barlow	06/30/2015	8:41 am	0.25	Per Daniel Rivas AC 2849 will be placed on hold for 60 days before proceeding to Pen Credit. See attachment.
Case Notes	Norm Sieger	09/24/2015	2:44 pm	1.00	Site inspection Photos taken of storage on property. Attached TUP
Complaint	Sydney Yeseta	09/28/2015	11:49 am	0.25	New e-service request: Request 2382067- Why do we allow our city to look like a dump with all of the storage right on the freeway as the first thing people see when they come to Santa Clarita????????? See additional address for s info.
Case Notes	Norm Sieger	10/07/2015	4:32 pm	0.25	C/p requesting an update on Staffs actions. I advised him that a TUP was obtained . He became upset and insisted to talk to a planner. I transferred him to Ben Jarvis for further information
Phone Call	Norm Sieger	10/14/2015	3:58 pm	0.25	Received call from M Property Owner rep. He said he was told that the admin cite that was issued would go away once the TUP was obtained. I asked him who told him that and he could not give me a name of a city staff member. I then explained the Admin Cite review procedure and the 21 day filing period mentioned on the Admin Cite letter. He asked if I could send him an Admin Review form and I advised I would.
Admin Review - Form	Norm Sieger	10/14/2015	3:58 pm	0.50	Send to (Owner), Citation Number (2849), Citation Date (12-19-14)
Complaint	Sydney Yeseta	02/04/2016	8:49 am	0.25	new RSC request: 2542323: It is a shame that the first thing that anyone sees when hey come into our beautiful city is a giant ugly storage yard. I had heard that 10 years ago new storage yards in our city were stopped. What happened here?
Case Notes	Norm Sieger	02/17/2016	3:13 pm	0.25	received e mail from g requesting an update. Attempted contact via telephone number disconnected. E mailed c/p advising him to contact me.
Case Notes	Norm Sieger	03/03/2016	1:00 am	1.00	2nd Site inspection Storage of vehicles remain. Photos taken
Inspection	Daniel Rivas	03/04/2016	10:33 am	0.25	Failure to comply with Temporary Use Permit No. 14-207; Un-permitted outdoor commercial storage within a Mixed Use Neighborhood Zone.
Warning Notice	Daniel Rivas	03/04/2016	11:33 am	0.25	Send to (Owner,Property Location)
Case Notes	Norm Sieger	03/22/2016	3:53 pm	1.00	3rd site inspection Vehicles remain at location. photos taken
Administrative Citation	Norm Sieger	03/22/2016	3:53 pm	0.25	Administrative Citation 3749, Send to (Owner)
Case Notes	Norm Sieger	04/05/2016	10:44 am	1.00	4th site inspection conducted. Vehicles remain stored to the exterior of all buildings. Photos taken
Case Notes	Norm Sieger	05/02/2016		0.25	Per administrator Rivas, P/O has made an agreement to resolve all issues on the property by 12-31-16
Case Notes	Norm Sieger	10/31/2016	11:46 am	0.25	Per Manager Rivas case to be reassigned to him for further investigation.
Phone Call	James Sapko	11/02/2016	9:56 am	0.25	I received a phone call from and spoke with Captain Harry Perez from LA County Fire Station 124. He said that his dept. is investigating the location for fire code violations related to a repair business being operated form a building on this property. He asked if the City was also addressing the repair business as a violation. I told him that the violations being addressed concern the outdoor storage of vehicles. He asked if the property owner had any permissions to operate a repair business. I told him that any use permits would be issued by City Planning and provided him with their phone number. He said he would contact Planning, thanked me for the information, and the conversation was ended.

Case Notes	Norm Sieger	06/13/2017 11:00 am	1.00	4th site inspection conducted. All vehicles removed from location. case to be closed
Case Notes	Monica Moreno	07/20/2021 2:35 pm	0.25	Produced case records per Public Records Request RSC number 5792766.

Violations

#	Violation Type	Due Date	Status	Closed Date
1	Commercial Use Types - Vehicle Storage Corrections Required:Cease all outdoor commercial storage of any vehicles on property immediately.		Open	
2	Commercial Use Types - Boat and Camper/Recreational Vehicle Sales and Services Corrections Required:Cease all outdoor commercial storage of boats and or camper/recreational vehicles on property immediately.		Open	
3	Commercial Use Types - Heavy Equipment Sales and Services Corrections Required:Cease all outdoor commercial storage of heavy equipment and tractors on property immediately.		Open	
4	Commercial Use Types - Truck, Large, Sales and Services Corrections Required:Cease all outdoor commercial storage of large trucks and buses on property immediately.		Open	

Additional Addresses

Address Type:Complainant Name: Address: Phone:(661) 212-4039 Cell #:	Address Type:Complainant Name: Address: Phone: Cell #:
Address Type: Name: Address: Phone:	Address Type:Other Name: Address: Phone: Cell #:

Fees

Fee Type	Date	Charges	Payments	Details
Administrative Citation - First	12/19/2014	100.00		Administrative Citation AC# 2849
Administrative Citation - First	03/22/2016	400.00		Administrative Citation AC# 3749
		500.00	**0.00**	

Inspection Notes

Date: _____ Time: _____

Findings: _____

_____

_____

_____

Code Enforcement Case: CE-15-0807

Entered on: 05/14/2015 4:55 PM
Printed on: 02/14/2022

Topic: Zoning Violation
Due Date: 06/13/15
Initiated by: County
Hearing Date:

Status: Closed
Assigned To: Sam Duggan
Hearing Time:

Permit

Permit #:
Business name:
License #:

Property Location

Occupant Name:
Address: 24924 HAWKBRYN AVENUE , 91321
Phone:
Cell #:
APN : 2825-012-011

Owner Information

Owner Name: MONTEVERDE DEVELOPMENT COMPANY
Address: 28100 BOUQUET CANYON RD #216
SANTA CLARITA, CA 91350
Phone:
Cell #:

Actions

Action	By	Date	Time	Hours	Note/Observation
Complaint	James Sapko	05/14/2015	4:55 pm	0.00	from fire station 124 (661-254-4404) states that there are storage facilities, machine shops, etc. at this property that may be un-permitted.
Case Notes	Sam Duggan	05/15/2015	9:11 am	0.00	Spoke to Jeff Hogan and he decided to address this issue in the established case ce14-1932. We'll look into these allegations during our next insp for the progress of ce14-1932. Closing this case.
Case Notes	Monica Moreno	07/20/2021	2:29 pm	0.25	Produced case records per Public Records Request RSC number 5792766.

Violations

#	Violation Type	Due Date	Status	Closed Date

Inspection Notes

Date: _____ Time: _____

Findings: _____

_____

_____

Code Enforcement Case: CE-19-1735

Entered on: 06/19/2019 00:00
Printed on: 02/14/2022

Topic: Tree Hazard
Due Date: 08/23/19
Initiated by: City Staff
Hearing Date:

Status: Closed
Assigned To: Enrique Alvarado
Hearing Time:

Permit

Permit #:
Business name:
License #:

Property Location

Occupant Name:
Address: 24924 HAWKBRYN AVENUE , 91321
Phone:
Cell #:
APN : 2825-012-011

Owner Information

Owner Name: MONTEVERDE DEVELOPMENT CO
Address: 28100 BOUQUET CANYON RD
SAUGUS, CA 91350
Phone:
Cell #:

Actions

Action	By	Date	Time	Hours	Note/Observation
Complaint	Enrique Alvarado	05/20/2019	12:28 pm	0.25	Received and RSC request which states as follows: Request 4451510- there is a dead Oak tree that is located across the street from the above address on the old Wiley Cyn Rd. I thought this would be something you would need to look into.
Case Notes	Enrique Alvarado	06/19/2019	8:20 am	0.25	I received an e-mail from Robert Sartain, City Arborist advising that the tree in question has been verified to be dead and he is requesting further enforcement to remove the tree. See attached e-mail.
Case Notes	Enrique Alvarado	06/19/2019	2:40 pm	0.25	1st site inspection conducted: I observed what appeared to be a dead oak tree on the south end of the above-mentioned address which is adjacent to Wiley Canyon Road and near the South Fork Santa Clara River. I contacted the City Oak Tree Inspector Robert Sartain via telephone assigned the case to the undersigned and he stated to have the property owner (P/O) removed the dead oak tree. He stated P/O must obtain an exemption permit from himself to remove the oak tree from the property. Photos were taken and attached. First notice of violation to be issued.
Inspection	Enrique Alvarado	06/19/2019	2:40 pm	1.00	A dead oak tree located on the south end of the property adjacent to Wiley Canyon Road is causing a potential safety hazard to pedestrian and vehicular traffic.
Notice of Violation	Enrique Alvarado	06/21/2019	8:23 am	0.50	Send to (Owner,Property Location)
Case Notes	Enrique Alvarado	07/22/2019	1:15 pm	1.00	2nd site inspection conducted: I observed that the dead oak tree on the south end of the above-mentioned property is still located on the hillside and has not been removed or moved whatsoever. Photos taken and are attached.
Phone Call	Enrique Alvarado	07/23/2019	12:02 pm	0.25	I received a phone call from a 661)212-1477; (661)296-0288, Project Manager for the property owner. He stated he was out of the country and just received the Notice of Violation and also stated he was obtaining an oak permit from Robert Sartain. I will contact Robert Sartain at a later time in order to verify this information.
Phone Call	Enrique Alvarado	07/24/2019	8:55 am	0.25	I contacted Robert Sartain, City Oak Tree Inspector, via telephone to verify that contacted him in order to obtain an oak tree permit to remove the dead oak tree from the above-mentioned property. According to Mr. Sartain did contact him yesterday, 7/23/19, and stated he issued the permit to . and stated would

					need more time to remove the oak tree. Due to this information I will provide a Proactive Extension to allow time to remove the oak tree. Thus far, he is being cooperative.
Proactive Letter - Extension	Enrique Alvarado	07/24/2019	9:01 am	0.50	Send to (Owner)
Phone Call	Enrique Alvarado	07/25/2019	2:25 pm	0.25	, Project Manager for Monteverde contacted me via telephone and left a voicemail stating that he received a fine and believes it to be unjustified. I will contact the Finance Department and Community Preservation Manager as this fee may have been issued in error.
Case Notes	Enrique Alvarado	07/29/2019	8:11 am	0.25	I contacted Sarah Carey, General Accounting Specialist, in order to verify if the fees for this address were showing. Per Sarah, she ran a report and the above-mentioned address does not show any pending fees.
Phone Call	Enrique Alvarado	08/08/2019	3:44 pm	0.25	I received a voicemail from who stated he has completed removing the dead oak tree and has picture to provide proof. I attempted to contact via telephone to return his phone call, no answer. I left a voicemail providing him with my work email and my work cell phone number.
Case Notes	Enrique Alvarado	08/27/2019	3:16 pm	1.00	3rd site inspection conducted: I observed that the oak tree has been removed from the property. Photos taken and attached. Due to violation being corrected case to be closed.
Case Notes	Monica Moreno	07/20/2021	2:31 pm	0.25	Produced case records per Public Records Request RSC number 5792766.

Violations

#	Violation Type	Due Date	Status	Closed Date
	Oak Tree Preservation - Permit Required		Closed	08/27/2019
1	Corrections Required:Please remove the dead oak tree causing the potential safety hazard from the property. Prior to removing the dead tree, Please obtain all necessary approvals and permits from the City's Urban Forestry Division. Please contact Robert Sartain, City Arborist at (661)294-2556 for further information.			

Additional Addresses

Address Type:Complainant Name: Address: Phone: Cell #:	Address Type: Name: Address: Phone: , Cell #:

Inspection Notes

Date: _____ Time: _____

Findings: _____

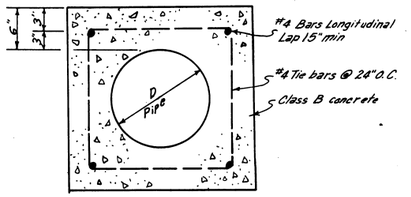
_____

_____

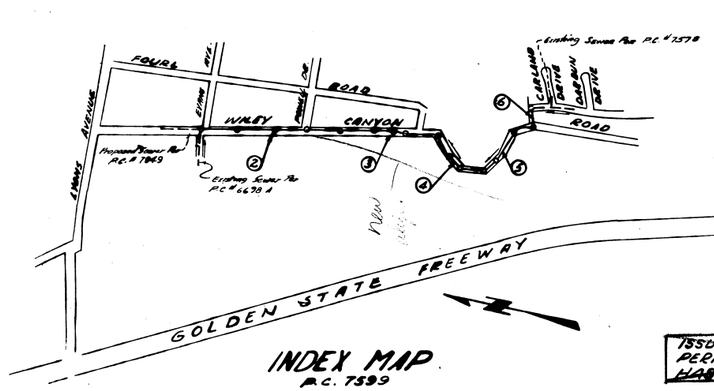
_____

B.M. SL 642 ELEV. 1262.071
Road Dept. B.M. Tag North Side Conc. Base at N.E. Corner Edison High Tension Tower No. M-373 W2.3 S. South of Centerline of Lyons Ave. and 330' East of Centerline of Wiley Canyon Road.

NEWHALL QUAD. 1958



SPECIAL ENCASEMENT DETAIL
Terminate longitudinal Bars 3" from each end of encasement



INDEX MAP
P.C. 7599
SCALE 1" = 600'

Any connection to the sewage system of County Sanitation District, provided directly or indirectly by the sewers shown on these plans, shall be considered a temporary connection until all area sewered is annexed to said district, at which time the connection shall become permanent. If for any reason the annexation to the district of any area sewered hereunder is not completed, the property not in the district will be required to disconnect unless a contract is entered into with the district providing for the disposal of sewage from the area.

REVISIONS By, I.S.
Revised location of J.C. @ Sta. 16+32.65 to 14+18.15. Revised Alignment from Sta. 16+52.75 to 20+19.62. Added Special Encasement Detail
By Ralph Schafer DCE 13966 Date 7/19/66

ISSUE NO HOUSE CONNECTION PERMITS UNTIL OUTFALL SEWER HAS BEEN CONSTRUCTED

NEWHALL BLDG. DIST. NO. 8.2

NOTES:

1. PROVIDE STAKES ON THE PROPERTY LINE OR PROPERTY LINES PRODUCED AT RIGHT ANGLES TO THE SEWER LINE AT THE CENTER LINE OF EACH MANHOLE.
2. NO REPRESENTATIVE OF THE COUNTY ENGINEER WILL SURVEY OR LAY OUT ANY PORTION OF THE WORK.
3. ~~THE PRIVATE ENGINEER SHALL FURNISH THE COUNTY ENGINEER WITH GRADE SHEETS AND STATIONING FOR ALL HOUSE LATERALS AND Y-BRANCHES AND SHALL PROVIDE STAKES FOR THEM AT THEIR PROPER LOCATIONS WITH STATIONING PLAINLY MARKED. ALL HOUSE LATERALS SHALL BE CONSTRUCTED IN A STRAIGHT ALIGNMENT AT RIGHT ANGLES FROM THE MAIN LINE SEWER EXCEPT AS SHOWN ON THE PLANS. HOUSE LATERALS FROM CHIMNEYS SHALL NOT HAVE AN ANGLE OF LESS THAN 45° WITH THE MAIN LINE SEWER.~~ ANY CHANGE IN ALIGNMENT SHALL BE REQUESTED IN WRITING BY THE PRIVATE ENGINEER.
4. ~~THE PRIVATE ENGINEER SHALL FURNISH THE HOUSE LATERAL DEPTH AT THE PROPERTY LINE BELOW THE TOP OF CURB ELEVATION FOR EACH HOUSE LATERAL ON THE GRADE SHEET.~~
5. NO REVISIONS SHALL BE MADE IN THESE PLANS WITHOUT THE APPROVAL OF THE COUNTY ENGINEER.
6. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION DIVISION BY TELEPHONE, MADISON 9-4747, EXT. 81531, AT LEAST TWENTY-FOUR HOURS BEFORE STARTING ANY WORK UNDER THIS CONTRACT.
7. MANHOLES SHALL BE BRICK SEWER STRUCTURES PER S-3 PRECAST CONCRETE MANHOLES PER S-5 OR S-6 MAY BE USED AS AN ALTERNATE IN LOCATIONS APPROVED BY THE COUNTY ENGINEER.
8. USE STANDARD MANHOLE FRAMES AND COVERS, S-15 , ~~EXCEPT AS NOTED.~~
9. ~~MANHOLE TOPS IN UNIMPROVED RIGHTS-OF-WAY TO BE SIX INCHES ABOVE FINISHED GRADE.~~
10. USE EXTRA STRENGTH PIPE. ALL PIPE IS STANDARD DEPTH EXCEPT AS NOTED.
11. USE MECHANICAL COMPRESSION JOINTS FOR ALL V.C.P. JOINTS PER SPEC'S., SECS. 36 & ~~42.09~~
12. ~~WHERE OVER GROUND WATER IS ENCOUNTERED DURING THE CONSTRUCTION OF THE SEWERS, THE V.C.P. JOINTS SHALL BE OF JOINT COMPOUND PER SPEC'S., SECS. 33.5-8.10, OR MECHANICAL COMPRESSION JOINTS PER SPEC'S., SEC. 36.~~
13. IF A POWER POLE IS WITHIN THREE FEET OF THE SEWER, THE SEWER SHALL BE ENCASED, PER S-23 , CASE III, TWO FEET ON EACH SIDE FROM THE POINT OF INTERFERENCE.
14. ~~IF DURING THE COURSE OF CONSTRUCTION IT IS DETERMINED THAT GRADE IS LESS THAN THREE FEET OF COVER OVER THE TOP OF A MAIN LINE OR HOUSE LATERAL V.C.P. SEWER WHICH IS NOT INDICATED ON THE PLANS, THE PIPE SHALL BE ENCASED PER S-23 , CASE III, UNLESS OTHERWISE APPROVED BY THE COUNTY ENGINEER.~~
15. ~~HOUSE LATERALS TO BE CONSTRUCTED WITH GRADES AT PERCENT GRADE SHOWN ON GRADE SHEETS EXCEPT AS NOTED.~~
16. ~~BACKFILL ALL TRENCHES WITHIN PAVED AREAS TO MEET L.A. COUNTY ROAD DEPT. OR CALIFORNIA STATE HIGHWAY REQUIREMENTS IN ACCORDANCE WITH PERMITS.~~
17. FOR ALLOWABLE LEAKAGE TEST USE FORMULA NO. 2 , SPEC'S., SEC. 54.
18. ~~ALL PIPE TO BE INSPECTED BY CCTV EQUIPMENT.~~
19. ALL STATE AND LOCAL TRENCH SAFETY ORDERS WILL BE RIGIDLY ENFORCED
20. CONSTRUCTION IN FILLED AREAS
    (a) AN ACCEPTABLE CERTIFICATION OF COMPACTION TEST RESULTS SHALL BE SUBMITTED TO THE CONSTRUCTION DIVISION COMPACTION TESTS ARE TO BE MADE IN ACCORDANCE WITH A.S.T.M. STANDARD METHOD OF TEST D-698-42 T.
    (b) NO CONSTRUCTION IS PERMITTED IN FILLED AREAS WHERE THE RELATIVE DENSITY OF COMPACTION IS LESS THAN 90%.
    (c) IF THE RELATIVE DENSITY OF COMPACTION IS LESS THAN 90% ALL MAIN LINE AND HOUSE LATERALS SHALL BE CRADLED PER S-25 OR HAVE A SPECIAL BASE COURSE PER S-22, SPECIAL MANHOLE BASES PER S-14 ARE REQUIRED.
    (d) IF THE RELATIVE DENSITY OF COMPACTION IS 90% OR GREATER, THE SPECIAL PROVISIONS (c) ARE NOT REQUIRED.
21. ALL AREAS WHERE SPECIAL BACK FILL IS CALLED FOR SHALL COMPLY WITH THE FOLLOWING:
    (a) BACKFILL TRENCH AND REPLACE OTHER EARTH REMOVED SO AS TO RESTORE THE PRE-EXISTING GRADES AND SLOPES
    (b) ALL BACK FILL AND EARTH REPLACED SHALL BE MECHANICALLY COMPACTED TO A MINIMUM OF 90% OF MAXIMUM DENSITY AS DETERMINED BY A.S.T.M. STANDARD METHOD OF TEST D-698-42 T.
    (c) AN ACCEPTABLE CERTIFICATION OF COMPACTION TEST RESULTS SHALL BE SUBMITTED TO THE CONSTRUCTION DIVISION. COMPACTION TESTS ARE TO BE MADE IN ACCORDANCE WITH A.S.T.M. STANDARD METHOD OF TEST D-698-42 T

COLLECT CHARGES AS INDICATED
Ralph Schafer

NO CONNECTIONS FOR THE DISPOSAL OF INDUSTRIAL WASTES SHALL BE MADE TO SEWERS SHOWN ON THESE DRAWINGS WITHOUT WRITTEN PERMISSION FROM THE CHIEF ENGINEER AND GENERAL MANAGER

PROFILE ALIGNMENT AND GRADE OF P.C. 7599
SANITARY SEWERS PAGE 1
TO BE CONSTRUCTED IN D-13

WILEY CANYON ROAD

PRIVATE CONTRACT NO. 7599

W.S. 62

3 SHEETS; 6 PAGES

SCALE: VERT. 1"=5' HORIZ. 1"=50' MAY , 1966

38634

PREPARED IN THE OFFICES OF
JENNINGS ENGINEERING CO.
1100 S. BEVERLY DRIVE, LOS ANGELES, CALIFORNIA
By: E. J. Jennings
REG. C. E. NO. 7858

FOR LEGEND SEE PLAN NO. S-1

NOTE:
GRADES TO WHICH THIS IMPROVEMENT IS TO BE CONSTRUCTED ARE SHOWN ON PLANS AND PROFILES. GRADE POINTS FOR TOP OF CURBS, CENTER LINE OF STREETS, OR CENTER LINE OF ALLEYS ARE SHOWN BY CIRCLES ON PROFILES. AT ARC POINTS BETWEEN DESIGNATED POINTS THE GRADE SHALL BE ESTABLISHED SO AS TO CONFORM TO A STRAIGHT LINE DRAWN BETWEEN SAID DESIGNATED POINTS.
ELEVATIONS ARE IN FEET ABOVE U.S.C. & G.S. SEA LEVEL DATUM OF 1929.
THIS DRAWING AND THE DATA HEREON ARE HEREBY MADE A PART OF THE SPECIFICATIONS.
WORK SHALL BE CONSTRUCTED ACCORDING TO STANDARD SPECIFICATIONS DATED Supplement 1 AS REVISED ON FILE IN THE OFFICE OF THE COUNTY ENGINEER AND SHALL BE PROSECUTED ONLY IN THE PRESENCE OF THE COUNTY INSPECTOR.
BEFORE WORK CAN BE STARTED, THE CONTRACTOR MUST OBTAIN A PERMIT TO EXCAVATE IN COUNTY STREETS FROM THE L.A. COUNTY ROAD DEPT., DISTRICT OFFICE NO. 3 AND PAY A FEE TO THE COUNTY ENGINEER, ROOM 320, COUNTY ENGINEERING BUILDING, 900 SOUTH FREMONT AVENUE, ALHAMBRA, CALIFORNIA, REGIONAL OFFICE, SUFFICIENT TO COVER THE COST OF INSPECTION DURING CONSTRUCTION AND RECORD PLANS.
APPROVAL OF THIS PLAN BY THE COUNTY OF LOS ANGELES DOES NOT CONSTITUTE A REPRESENTATION AS TO THE ACCURACY OF THE LOCATION OF OR THE EXISTENCE OR NON-EXISTENCE OF ANY UNDERGROUND UTILITY PIPE, OR STRUCTURE WITHIN THE LIMITS OF THIS PROJECT. THIS NOTE APPLIES TO ALL PARTIES.
IF WORK IS TO BE DONE IN A STATE HIGHWAY, A PERMIT MUST BE OBTAINED FROM THE STATE OF CALIFORNIA, DIVISION OF HIGHWAYS, 120 SOUTH SPRING STREET, LOS ANGELES, CALIFORNIA.

COUNTY OF LOS ANGELES, CALIFORNIA
JOHN A. LAMBIE, COUNTY ENGINEER J. B. PARKHURST, CHIEF ENGINEER

APPROVED BY: Richard S. Kern, ASSISTANT SANITATION ENGINEER
APPROVED BY: [signature], CO. SAN. DIST. NO. 32 OFFICE ENGINEER

CHECKED BY: Ralph Schafer 6/2/66, REG. C. E. NO. 13906

2 OF 11 7

J. N. 0367.27

P. C. 7572 PAGE 2D-14

EXTRA DEPTH IN M.L.

DOUBLE SCALE
CONNECT CHANNELS
AS INDICATED

1280
1270
1260

Existing surface over sewer

T&L

Pacific Telephone Cable (Approx Depth)

12" V.C.P 2.56%

13" V.C.P 0.40%

15" V.C.P 0.10%

15" V.C.P 0.40%

27'1.60'

27'1.61'

27'1.62'

55.18

3861.32

25' EVANS AVE (PRIVATE ROAD)

R.S.

25

ANNEX. TO SAN DISTRICT 32 REQUIRED

30-32

23' O'NEILL AVE (PRIVATE ROAD)

310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 520

REIMBURSEMENT CHARGE
CALL SAN. DIV.

6" A.C. Water Main
Bouquet Canyon Water Co.

2" So. Calif Gas

Existing 15" V.C.P. Sewer PC 7549

WILEY ℄ 12" V.C.P Sewer

8" Pacific Telephone Cable (Direct Buried)

℄ of Street

CANYON ROAD

6" V.C.P Sewer

See Page 3

E. LYONS AVE.

1+00.00 J.C. 8+60.09 per existing PC 7549

Join Existing 12" Stub

FUTURE R/W LINE

ISSUE NO PERMITS - STREET MUST BE DOUBLE LINED

Retaining Wall

SEE P.C. 8497

E 1/2 SEC. 4 T3N. R16W

249 (4-7)

ANNEX. TO SAN. DISTRICT 32 REQUIRED

REIMBURSEMENT CHARGE
CALL SAN. DIV.

G"A.C. Water Main
Bouquet Canyon Water Co.

WILEY CANYON ROAD

12" V.C.P. Sewer

3" Pacific Telephone Cable (Direct Buried)

8" W.L.

EVANS AVE. PRIVATE ROAD

LEMONS AVE.

FUTURE R/W LINE

ISSUE NO PERMITS - STREET MUST BE DOUBLE LINED

See Page 3

SEE PG. 2497

246-11-7

D-15

PC 7599 PAGE 3

EXTRA DEPTH IN M.L.

EXTRA DEPTH IN PAR.

DOUBLE SCALE

Existing Surface over Sewer

Existing Surface over Sewer

Existing Surface over Sewer

Pacific Telephone Cable (Approx. Depth)

15"V.C.P. @ 0.40%

12"V.C.P. @ 0.40%

10"V.C.P. 1.00%

10"V.C.P. 6.00%

COLLECT CHARGES AS INDICATED

38636

REIMBURSEMENT CHARGE CALL SAN. DIV.

ANNEX. TO SAN. DIST. 32 REQUIRED

2" So. Calif. Gas

WILEY ROAD

CANYON ROAD

3" Pacific Telephone Cable (Direct Burial)

6" A.C. Water Main Bogart Canyon Water Co.

℄ of Street

485'

165'

260'

Encase 50' of 10"V.C.P. For Special Encasement Detail Fig. 2.

NOTE: One Traffic lane to remain open at all time. Bridge Dept. to be notified before Work. Fill is made. Phone CA 3-1677 or X 73091

ISSUE NO PERMIT - STREET MUST BE DOUBLE LINED

E½ SEC. 4, T3N, R16W

SEE P.C. 7698

SWABLISKA ST.

REIMBURSEMENT CHARGE CALL SAN. DIV.

E½. SEC. 4, T3N R16W

ANNEX TO SAN DIST. 32 REQUIRED

See Sheet 2

Guy

Abbot

Anchor

=20+19.04 Back
=20+19.62 Ahead M.H.
50+18.62 ℄ Cover

PC 2592 PAGE 3

EXTRA DEPTH IN M.L.

DOUBLE SCALE

Existing surface over sewer

Pacific Telephone Cable (Approx. depth)

18" V.C.P. @ 2.40%

10" V.C.P. @ 1.00%

1280

1270

1260

REIMBURSEMENT CHARGE CALL SAN. DIV.

ANNEX. TO SAN. DIST. 32 REQUIRED

Lots 536 & 537 Annexation to San. Dist 32 Pcl 8-7-75 Reel at No 75-136 Q

Recorded Tentative Map of 12-4-79 Receipt No 6185 54 Sheet 1 of 1

Paid 8-5-10 Receipt No 6509

Paid 3-17-76 Receipt No 4-59-76

522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 796 795 793

WILEY K-15 K 4 4/5

CANYON

ROAD

5" Pacific Telephone Cable (Direct Buried)

6" A.C. Water Main Boquet Canyon Water Co.

℄ of Street

C.L. 8420

Ensure 50' of 10 V.C.P. For Special Encasement Detail No. 1

NOTE: Gate Traffic here to remain open at all times. Bridge Deed to be notified before Road Fill is made. Phone 259-1677 ask for Tom W.

ANNEX TO SAN DIST. 32 REQUIRED

REIMBURSEMENT CHARGE CALL SAN. DIV.

ISSUE NO PERMIT - STREET MUST BE DOUBLE LINED

E½ SEC. 4, T3N., R16W

E½ SEC. 4, T3N R16W

SEE P.C. 7690

WABUSKA ST.

See Sheet 2

246 H 17

D-16

AC 7599 PAGE 4

DOUBLE SCALE

COLLECT CHARGES AS INDICATED

38631

Extra Depth in Main Line

Existing Surface over Sewer

ENCASE

10" V.C.P.

1.80%

1.96%

12" V.C.P.

0.30%

IDENTICAL

PRIOR TO CONSTRUCTING IN THIS AREA THE CONTRACTOR SHALL SUBMIT A PLAN FOR SHORING TO DIVISION OF INDUSTRIAL SAFETY, ROOM 910, 3460 WILSHIRE BLVD. L.A. 5 PHONE DU-1-3951 ATT. MR. E.V. MILLER

REIMBURSEMENT CHARGE
CALL SAN. DIV.
E½ SEC. 4 T3N R16W

ANNEX TO SAN. DISTR. 32 REQUIRED

WILEY

CANYON

ROAD

Edge of Pavement

Center Line of Street

SEWER CURVE DATA
Δ = 19°12'30"
R = 216 L = 72.16

ANNEX. TO SAN DISTR 32 REQ'D.

REIMBURSEMENT CHARGE
CALL SAN DIV

E ½ SEC. 4 T3N R16W

IDENTICAL

REIMBURSEMENT CHARGE
CALL SAN. DIV.

ANNEX TO SAN DIST 32 REQUIRED

E½ SEC. 4 T3N R16W

REIMBURSEMENT CHARGE
CALL SAN. DIV.

ANNEX TO SAN DIST 32 REQUIRED

E½ SEC. 4 T3N R16W

266 P 1

D-16

PC 7599 PAGE 2

Extra Depth in Main Line

EQUIVALENT SECTION

EQUIVALENT CROSSING FOR INTERCEPTOR

1300

1290

1280

IDENTICAL

PRIOR TO CONSTRUCTING IN THIS AREA THE CONTRACTOR SHALL SUBMIT A PLAN FOR SHORING TO DIVISION OF INDUSTRIAL SAFETY, ROOM 910, 3450 WILSHIRE BLVD. L.A. 5 PHONE DU. 1-5261 OR PH. 8.F. MILLER

REIMBURSEMENT CHARGE
CALL SAN. DIV.
E½ SEC. 4 T3N R16W
ANNEX TO SAN. DISTR. 32 REQUIRED

Sewer Change Data
At Sta 13+30
Is 20.18 to 22.16

20+19.62 M.H.
20+18.62 & Cover

E.P. 16" V.C.P. Sewer

WILEY

ROAD

CANYON

CL of Street

Existing Ground Surface

Existing Surface over Sewer

235' x $5 = $1175.00
0.76 Ac x $3241/Ac = 2398
Adj. to 11/1/70 = 7.84
$1202.82 Total reimb to PC 7599

Jeffrey 11/27/70

ANNEX TO SAN. DISTR. 32 REQ'D.

REIMBURSEMENT CHARGE
CALL SAN. DIV.

E½ SEC. 4 T3N R16W

246 #17

D-17

PC7599 PAGE 5

DOUBLE SCALE

COLLECT CHARGES AS INDICATED

38638

EXTRA DEPTH IN M.L.

1310 1300 1290

Existing surface over sewer

Existing surface over sewer

24+61.59

30+03.12

32+21.14

M.H.

ENCASE 10' OF 12" V.C.P.

12" V.C.P. 0.40%

12" V.C.P. 0.40%

06 07 28 29 30 31 32

341.58 218.19

E ½ SEC. 4, T.3.N., R.16.W.

ANNEX TO SAN. DIST. 32 REQUIRED

LOT 46

REIMBURSEMENT CHARGE CALL SAN. DIV.

TRACT Nº 2703 M.B. 28 - 20/26

44

24+61.59 M.H. 10+60.59 & cover

Y=27+24

280'±

Y=29+20

15"

36"

Y=30+37.4

Y=34+27.5

210'±

12" V.C.P. Sewer

Existing Graded Contour

C=12°26'V.S.

T of Street

CANYON ROAD

WILEY

ENCASE 100' OF 12" V.C.P. PER S-23

C=12°26'V.S.

30+03.17 M.H. 30+02.17 & cover

Y=30+50

70'±

LOT 46

115'±

44

Y=31+57

TRACT LINE

10' Easement to the County of Los Angeles for Sanitary Sewer Purposes

LOT 1 TRACT NO. 30340 M.B. 741 - 67/68

32+21.36 M.H. 32+20.36 & cover

E½ SEC. 4 T. 3N. R. 16W.

ANNEX TO SAN DIST. 32 REQUIRED

REIMBURSEMENT CHARGE CALL SAN. DIV.

SEWER CURVE DATA Δ=12°10'38" R=215' L=45.71

TRACT Nº 2703 MB. 28-29/26

24 14 117

D-19

P.C. 7599 PAGE 6

DOUBLE SEWER
COLLECT CHARGES
AS INDICATED

30639

EXTRA DEPTH IN M.H.

SPECIAL BACKFILL

Existing Surface
Elev. 1310.7

1310

1300

1290

32+21.36

M.H.

12" V.C.P.
@ 4.0%

Elev. 1288.7
Invert Elev. 1278.7

Elev. 1288.7
Invert Elev. 1278.7

Elev. 1288.7
Invert Elev. 1278.7

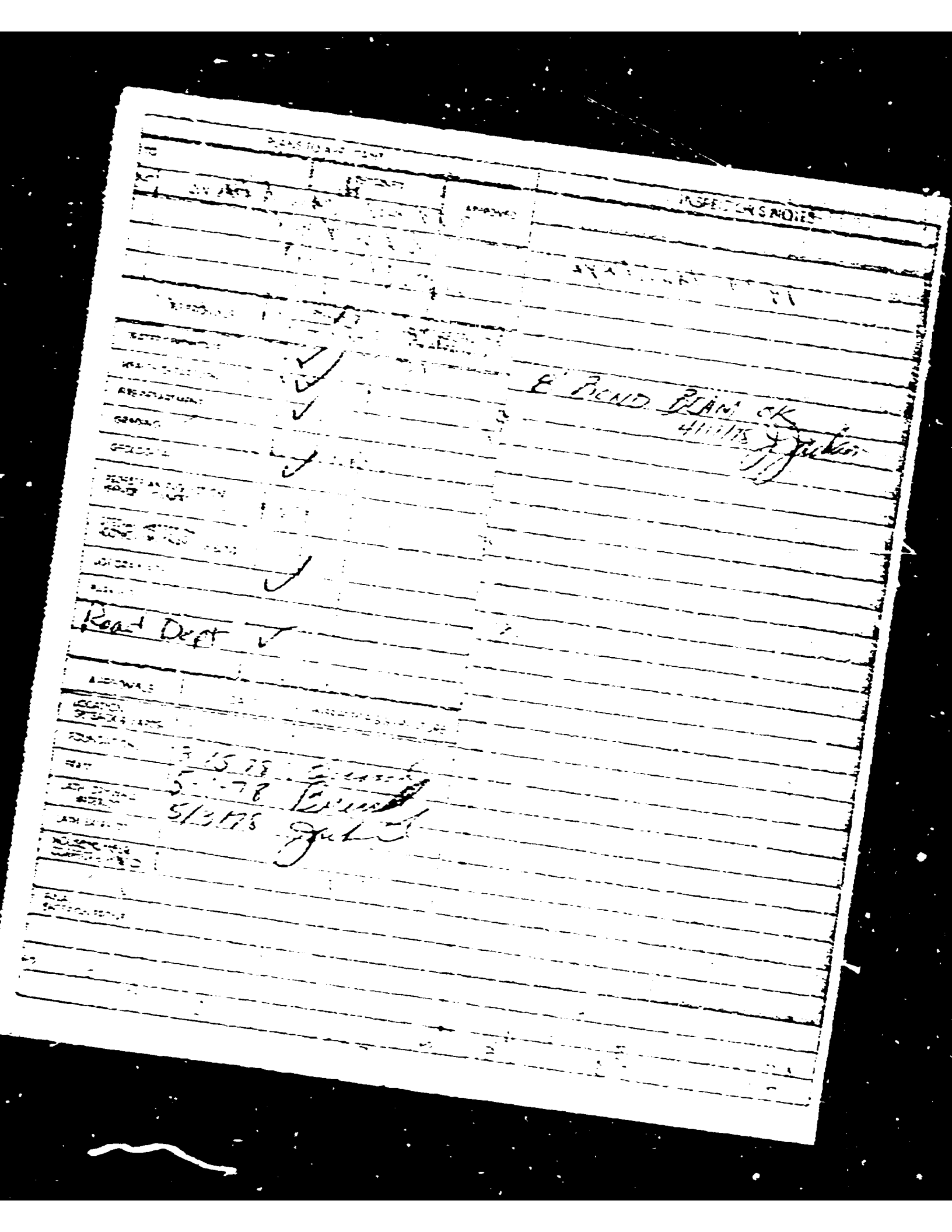
APPLICATION FOR BUILDING PERMIT

COUNTY OF LOS ANGELES
DEPARTMENT OF COUNTY ENGINEER
BUILDING AND SAFETY DIVISION

1

24924 HAWKBRYN
NEWHALL
WABUSKA
2825
6282 V A F.D.
19
246H117
A-2
HAWKBRYN
56 - 20
76 L Var
5-1-78
304 SF
PERMIT VALIDATION
406.00

24924 HAWKBRYN
Newhall
Sec Suc Smiger
Seth Cole
Seth Jay Cole
120 W Parkside Henston
Texan Comm
Architect & Builder
Lancaster
6250
Model
Mike Barr
Cole Texan Homes
Seth Cole
Texas Bldg
Lancaster
PLAN CHECK VALIDATION
TP.


INSPECTION NOTES
EAST FORK BEAN CK
Road Dept

APPLICATION FOR ELECTRICAL PERMIT

COUNTY OF LOS ANGELES
DEPARTMENT OF COUNTY ENGINEER
BUILDING AND SAFETY DIVISION

FOR APPLICANT TO FILL IN

	EACH	NO	FEE
New Residential Bldgs. & Prem. 1 & 2 Family Sq. Ft.	$ .05	—	$
Multi-Family Sq. Ft.	.02	—	
Residential Swimming Pools	25.00		
Outlets, Rec. ____ 1st ____ Sw. ____ First 20	.50		
Total # ____ Add'l each	.25		
Lighting Fixtures First 20	.50		
Add'l each	.30		
Total No. ____			
Fixed Appliances Not Over 1 HP	.50		
Range ___ Heater ___ Oven ___			
Dryer ___ Disp. ___ A.C. ___			
Fan ___ F.A.U. ___ W.H. ___			
Wash ___ Fur. ___ Other ___			
Door ___ Room A.C. Cond. ___			
Power Appliances & Motors (Appliances Size & Each HP, KW, KVA or KVAR)			
____ Up to 1 Incl.	2.50		
____ Over 1 to 10 Incl.	5.00		
____ Over 10 to 50 Incl.	12.50		
____ Over 50 to 100 Incl.	25.00		
____ Over 100	50.00		
Services 0 - 200 Amp. Under 600 V.	12.50		
201 - 1000 Amp. Under 600 V.	25.00		
Over 1000 Amp. or Over 600 V.	50.00		
Temp. Power Pole & Accessories	10.00	1	10 —
Sign with One Branch Circuit	10.00		
Additional Sign Branch Circuits	2.00		
Misc. Conduits & Conductors	10.00		
Other: See Complete Fee Schedule			
		Sub Total	
PERMIT FEE	One Fourth Permit Fee		
PLAN CHECKING FEE	$ .00		
PERMIT ISSUING FEE			
TOTAL FEE			17.00

PLAN CHECK VALIDATION ____ CASH

JOB ADDRESS 24934 HAWKHALL
LOCALITY NEWHALL
NEAREST CROSS ST. Tourney Circle
OWNER OR FIRM NAME Tourney Circle
MAIL ADDRESS 23600 N. Dixie Dr. Tel. No. 948-3035
CITY Newhall
PLAN CHECK APPLICANT
ADDRESS Tel. No.
CITY
PERMIT APPLICANT
ADDRESS Tel. No.
CITY Class. B-1
LICENSE OR REG. NUMBER 223333

I HEREBY ACKNOWLEDGE THAT I HAVE READ THIS APPLICATION AND STATE THAT THE ABOVE IS CORRECT AND AGREE TO COMPLY WITH ALL CITY ORDINANCES AND STATE LAWS REGULATING ELECTRICAL WORK.

I HEREBY CERTIFY THAT I AM LICENSED UNDER THE PROVISIONS OF CHAPTER 9 (COMMENCING WITH SECTION 7000) OF DIVISION 3 OF THE BUSINESS AND PROFESSIONS CODE AND MY LICENSE IS IN FULL FORCE AND EFFECT, OR THAT I AM EXEMPTED THEREFROM FOR THE REASON STATED IN THE APPLICATION; OR THAT I AM INSURED OR HAVE A CERTIFICATE OF CONSENT TO SELF-INSURE FOR THE PAYMENT OF WORKER'S COMPENSATION, OR THAT I HAVE A CERTIFICATE OF EXEMPTION FROM WORKER'S COMPENSATION LIABILITY. I AM LICENSED IN LOS ANGELES COUNTY AND STATE OF CALIFORNIA OR THAT I AM EXEMPTED THEREFROM FOR THE REASON STATED IN THE APPLICATION; AND THAT I AM INSURED OR HAVE A CERTIFICATE OF CONSENT TO SELF-INSURE FOR THE PAYMENT OF WORKER'S COMPENSATION, OR THAT I HAVE A CERTIFICATE OF EXEMPTION FROM WORKER'S COMPENSATION LIABILITY. I AM THE OWNER OF THE ABOVE DESCRIBED RESIDENTIAL PROPERTY.

PERMITTEE SIGNATURE

PROCESSED BY

DISTRICT NO. 8.2	DATE
APPROVALS	
TEMP. POWER POLE	1-27-78
UNDERSLAB WORK	
ROUGH CONDUIT	5278
WIRING	
FIXTURES	
POWER AUTHORIZED	
UTILITY CO. NOTIFIED	
FINAL	
NOTES	

PERMIT VALIDATION

7 3 95 58 22 2

SEE BACK OF APPLICATION FOR COMPLETE SCHEDULE

APPLICATION FOR PLUMBING PERMIT

34924

BUILDING AND SAFETY DIVISION

NUMBER	2
WATER CLOSET	2
BATH TUB	
URINAL	
LAVATORY	2
SINK	
DISHWASHER	
CLOTHES WASHER	
NON-RESIDENTIAL POOL HEATER	
LAWN SPRINKLER SYSTEM	
WATER HEATER	
GAS SYSTEM	
OTHER PLUMBING FIXTURES	
SIZE OF WATER SERVICE	3" & 1"
SIZE OF SEWER	3" & 1"
PUBLIC WORKS ADDRESS	24 West Hawthorne
LOCATION	New hall
NEAREST CROSS STREET	
OWNER	TURCON CONSTRUCTION, INC
MAIL ADDRESS	43845 N. Division St. Lancaster, Ca. TEL NO 8-3095
CONTRACTOR	T M Plbg Co
ADDRESS	PO Box 2348 TEL NO 942-0523
CITY	Lancaster
STATE LICENSE NO	247368 LIC CLASS C-36
PLAN CHECK FEE	7
PLUMBING PERMIT ISSUANCE FEE $	
TOTAL FEE	19

DISTRICT 3 | GROUP B-2 | ZONE | PROCESSED BY

INDUSTRIAL WASTE APPROVAL

INSPECTION RECORD

	DATE	INSPECTOR'S SIGNATURE
APPROVED		
UNDERSLAB PIPE	5-17-79	
ROUGH PLUMBING		
GAS TEST		
HOT WATER HEATER		
OTHER FIXTURES		
GAS TEST		
FINAL PLUMBING		
FINAL	5-17-79	

I HEREBY CERTIFY THAT I HAVE READ THIS APPLICATION AND STATE THAT THE ABOVE INFORMATION IS CORRECT AND THAT I AM THE OWNER OR AUTHORIZED AGENT OF THE OWNER.

I HEREBY AGREE THAT ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE LAWS OF THE STATE OF CALIFORNIA AND ORDINANCES OF THE CITY OF LANCASTER AND THAT I WILL NOTIFY THE BUILDING AND SAFETY DIVISION WHEN THE WORK IS READY FOR INSPECTION AS REQUIRED BY THE APPLICABLE CODES AND LAWS. I UNDERSTAND THAT A PERMIT MAY BE REVOKED IF ANY FALSE STATEMENT IS GIVEN IN THIS APPLICATION.

SIGNATURE OF APPLICANT / FEE [signature]

PLAN CHECK FEE PAID DATE

PERMIT VALIDATION

TO SEWER P 5

19.00

INSPECTOR COPY

POLICY HOLDER:
POLICY NUMBER:

Date

State Compensation Insurance Fund

#46 0853

Exp 7/1/98

APPLICATION for ELECTRICAL PERMIT

COUNTY OF LOS ANGELES
DEPARTMENT OF COUNTY ENGINEER
BUILDING AND SAFETY DIVISION
FOR APPLICANT TO FILL IN

	EACH	NO.	FEE
Pole(s) or Standard(s) or Bridge & Pedestal	$ 1.25	—	$
1 & 2 Family Dwg. Sq. Ft.	.02	—	
Multi-family Sq. Ft.	25.00		
Private Pool and Swimming Pools	25		
Outlets, Fixtures, Receptacles	27	80	
Switches	64		
Lighting Fixtures	First 20		
Total No.	25	Additional	
Appliances Not Over 1 HP			
Range ___ Heater ___ Dryer ___ Water Heater ___			
Oven ___ Dryer ___ Water Heater ___			
Disp ___ Dishwasher ___ Vent Fan 1			
Hood ___ Fan ___ Other ___			
Heat ___ Room AC ___ Comb ___	2.50	2	5 00
Motors, Apparatus & Large Appliances			
Single & Three Phase HP, KW, KVA or KVAR			
7 Up to 1 HP	2.50		
5 Over 1 to 10 HP	5.00		50
___ Over 10 to 50 HP	12.50		
___ Over 50 to 100 HP	25.00		
___ Over 100	40.00		
Services			
0 - 200 Amps Under 600 V	12.50	1	12 50
201 - 1000 Amps Under 600 V	25.00		
Over 1000 Amps or Over 600 V	50.00		
Temp. Power Pole & Accessories	10.00		
Signs with One Branch Circuit	10.00		
Reinforced Sign Branch Circuits	2.50		
Misc. Conduit & Construction	10.00		
Other — See Complete Fee Schedule			
SUBTOTAL FEE			
PLAN CHECK FEE (Only Required When Plans Are Filed)			$7.50
PERMIT ISSUING FEE			1 50
TOTAL FEE			64 50

RECEIVED VALIDATION ___ CK ___ MO ___ CASH ___

SEE BACK OF APPLICATION FOR COMPLETE SCHEDULE

JOB ADDRESS 24424 N Park Avenue
LOCALITY Newhall
NEAREST CROSS ST. Wolfskill
OWNER OR FIRM NAME Smiser Mule Ranch
MAIL ADDRESS 5610 Dianetic
CITY Santa Clarita Tel. No. 772-8
FRANCHISE APPLICANT
ADDRESS
CITY Tel. No.
PERMIT APPLICANT Jerry Electrical Service
ADDRESS 30652 Sierra Hwy.
CITY Acton Tel. No. 268-
LICENSE OR REG. NUMBER 287-291 Class C-10

I HEREBY ACKNOWLEDGE THAT I HAVE READ THIS APPLICATION AND STATE THAT THE ABOVE IS CORRECT AND AGREE TO COMPLY WITH ALL COUNTY ORDINANCES AND STATE LAWS REGULATING ELECTRICAL WIRING.

I HEREBY CERTIFY THAT I AM PROPERLY REGISTERED AND/OR LICENSED AS REQUIRED BY LOS ANGELES COUNTY AND STATE OF CALIFORNIA ORDINANCES AND THE LEGAL OWNER OF THE ABOVE DESCRIBED RESIDENTIAL PROPERTY.

PERMITTEE SIGNATURE J. Wilson

DISTRICT NO. 8r2 PROCESSED BY 13

APPROVALS	DATE	SIGNATURE
TEMP. POWER POLE		
UNDERSLAB WORK		
ROUGH CONDUIT		
WIRING		
FIXTURES		
POWER AUTHORIZED		
UTILITY CO. NOTIFIED		
FINAL	5-16-77	
NOTES		

PERMIT VALIDATION ___ NO. ___

TOTAL 1 2 64 50

Paul Cook

APPLICATION FOR PERMIT

SEWER—SEWAGE DISPOSAL

COUNTY OF LOS ANGELES
DEPARTMENT OF COUNTY ENGINEER
BUILDING AND SAFETY DIVISION

BUILDING ADDRESS 24924 Hawthorne
LOCALITY Newhall
NEAREST CROSS ST Walnuska
OWNER
MAIL ADDRESS
CITY TEL. NO.

DISTRICT NO 8.21 | GROUP | MAP | PS | PROCESSED BY T.D.

FOR APPLICANT TO FILL IN

LEGAL DESCRIPTION LOT NO
BLOCK TRACT
SIZE OF LOT AREA OF BLDG. NEW SQ. FT.
USE OF BUILDING
CONTRACTOR Starks Co St.
ADDRESS 26261 Hunsdale Ave
CITY Saugus TEL. NO 252-Be?
STATE LICENSE NO 12355 LIC. CLASS 42

NO.	DESCRIPTION OF WORK	FEE	
	NO SEWER CONNECTING TO PUBLIC SEWER	$ 7.00	
1	SEPTIC TANK, SEE PARA PIT OR SEEPAGE PIT OR DRAINFIELD	$ 10.00	22.00
1	HOUSE SEWER CONNECTING TO PRIVATE DISPOSAL SYSTEM	$ 3.50	7
	CONNECT ACCESSORY BLDG OR WORK TO HOUSE SEWER	$ 3.00	
	CESSPOOL, SEEPAGE PIT OR DRAINFIELD EXTEND CESSPOOL OR TRENCH	$ 3.00	
	ALTER, REPAIR OR ABANDON HOUSE SEWER OR DISPOSAL SYSTEM	$ 3.00	
	MANHOLE	$ 7.00	

OWNER'S AUTHORIZATION

PERMIT $ 7.00
TOTAL FEE 36.00

I HAVE AT THIS DATE A CONTRACT WITH THE HEREIN NAMED CONTRACTOR TO CONNECT THE ABOVE DESCRIBED EXISTING DWELLING TO THE PUBLIC SEWER

SIGNED THIS ____ DAY OF ____ 19__
OWNER OR
OWNER'S AGENT ____

ADDRESS ____

I HEREBY ACKNOWLEDGE THAT I HAVE READ THIS APPLICATION AND STATE THAT THE ABOVE IS CORRECT AND AGREE TO COMPLY WITH ALL COUNTY ORDINANCES AND STATE LAWS REGULATING PLUMBING AND SEWERS

I HEREBY CERTIFY THAT I AM PROPERLY REGISTERED AND OR LICENSED AS REQUIRED BY LOS ANGELES COUNTY AND STATE OF CALIFORNIA OR THAT I AM THE LEGAL OWNER OF AND INTEND TO RESIDE IN THE ABOVE DESCRIBED RESIDENTIAL PROPERTY.

SIGNATURE OF PERMITTEE [signature]

CONNECTION DATA

STAT DIV DEPTH
MANHOLE REFERENCE UPPER LOWER
TYPE OF CONNECTION Y CURB P.L. LENGTH FROM P.L. TO P.L.
P.C. NO
CC PERMIT NO JOB NO
PLUMB PERMIT NO ROAD PERMIT NO

AFFIDAVIT	WAIVER	LICENSE	RECORD MSTR NO	DATE

HWY. JT. ST. WIDENING
ST. IMPROVEMENT PERMIT NO
INDUSTRIAL WASTE APPROVAL

CHARGES

CONNECTION CHARGE FEE
RE-INSPECTMENT FEE

APPROVALS

	DATE	INSPECTOR'S SIGNATURE
NEW HOUSE SEWER	5-8	[signature]
CONNECT ADDITIONAL BUILDING OR WORK		
SEPTIC TANK, SEEP PITS, AND OR DRAINFIELD	5-8	[signature]
CESSPOOL ☐ DRYWELL ☐		
ALTER REPAIR SEWER OR SEWAGE DISPOSAL SYSTEM		
DISCONNECT PLUG AND ABANDON HOUSE SEWER		
BACK FILL SEPTIC TANKS ☐ SEEP PITS ☐ CESSPOOLS ☐		

VALIDATION M.O. CASH

INSPECTOR COPY

TP

2. INDICATE AND DIMENSION SEWAGE DISPOSAL SYSTEM WITH TIE DISTANCES TO BUILDINGS AND PROPERTY LINES.

3. INDICATE SIZE OF SEPTIC TANK-DEPTH OF SEEPAGE PIT SIZE OF CESSPOOLS.

4. INDICATE NORTH DIRECTION ON PLOT

5. INDICATE BOTH STREETS IF CORNER

ST ALLEY

FIELD NOTES

APPLICATION FOR ELECTRICAL PERMIT

COUNTY OF LOS ANGELES
DEPARTMENT OF COUNTY ENGINEER
BUILDING AND SAFETY DIVISION

FOR APPLICANT TO FILL IN

ADDRESS	24924 HAWKBRYN
LOCALITY	NEWHALL, CA
NEAREST CROSS STREET	HABUSKA ST.
OWNER OR COMPANY NAME	SMISER FREIGHT
MAIL ADDRESS	24924 HAWKBRYN
CITY	NEWHALL
PLAN CHECK APPLICANT	
ADDRESS	
CITY	Tel No
PERMIT APPLICANT	BARNEY'S ELECTRIC CORP.
ADDRESS	P.O. BOX 310
CITY	NEWHALL Tel No 259-8003
LICENSE REG NUMBER	357936 Class 10

I HEREBY CERTIFY THAT I HAVE READ THIS APPLICATION AND STATE THAT THE ABOVE IS CORRECT AND AGREE TO COMPLY WITH ALL COUNTY ORDINANCES AND STATE LAWS RELATING TO BUILDING CONSTRUCTION. I HEREBY AUTHORIZE REPRESENTATIVES OF THIS COUNTY TO ENTER THE ABOVE-MENTIONED PROPERTY FOR INSPECTION PURPOSES.

I HEREBY CERTIFY THAT I AM PROPERLY REGISTERED AND LICENSED UNDER THE PROVISIONS OF CHAPTER 9, DIVISION 3 OF THE BUSINESS AND PROFESSIONS CODE OF THE STATE OF CALIFORNIA AND MY LICENSE IS IN FULL FORCE AND EFFECT. I AUTHORIZE REPRESENTATIVES OF THIS COUNTY TO ENTER THE ABOVE-MENTIONED PROPERTY FOR INSPECTION PURPOSES.

SIGNATURE OF APPLICANT OR AGENT: [signature]

25	Over 100 to 200	2.50
	Over 200 to 500	
	Over 500 to 1000	
	Over 1000	
	Each Additional 1000 or fraction thereof	1.00
	Each Motor 1 HP or less	1.00
	Each Motor over 1 HP to 10 HP	2.50
	Each Motor over 10 HP to 50 HP	5.00
	Each Motor over 50 HP to 100 HP	10.00
	Each Motor over 100 HP	20.00
	Each Power Pole & Accessories	10.00
	Each Mast Type Pedestal Or Unit	2.50
	Each Service Stub Pedestal Or Unit	2.50
	Wall Connection & Connection	10.00
	Other Fee Computed Fee Schedule	
		125.00
PERMIT FEE		
PLAN CHECK NO FEE	One Fourth Permit Fee	31.25
SPECIAL ASSN NO FEE		7.50
TOTAL FEE		163.75

PLAN CHECK VALIDATION

LAST INSPECTION	PROCESSED BY
3-2	[signature]

APPROVALS	DATE	INSPECTORS SIGNATURE
TEMP POWER POLE		
UNDERSLAB WORK		
UNDER CONDUIT		
BOND		
FIXTURES		
POWER AUTHORIZED	3/16	[signature]
UTILITY CO NOTIFIED		
FINAL		

NOTES: [signature]

PERMIT VALIDATION

CK MO CASH

32.50

SEE BACK OF APPLICATION FOR COMPLETE SCHEDULE

INSPECTION COPY

POLICY HOLDER:

POLICY NUMBER:

A-53

APPLICATION OR PERMIT
HEATING - VENTILATING - AIR CONDITIONING

BUILDING AND SAFETY DIVISION

FOR APPLICANT TO FILL IN		
NO.	TYPE OF APPLIANCE OR EQUIPMENT	FEE
	ABSORPTION UNIT BTU	
	AIR-HANDLING UNIT CFM	
	BOILER BTU	
1	COMPRESSOR BTU 24 000	10 00
	VENTILATION SYSTEM	
	EVAPORATIVE COOLER	
1	FURNACE FAN FROM FLOOR BTU 23 000	10 00
	HEATER BTU SPECIFIED	
	Plan check fee 20% of above	
	PERMIT ISSUING FEE $	7 00
	TOTAL FEE	37 00

PLAN CHECK APPLICANT

NAME

ADDRESS

CITY TEL NO

I HEREBY AGREE TO COMPLY WITH ALL THE LAWS REGULATING THE ERECTION, ALTERATION OR REPAIR OF BUILDINGS AND STRUCTURES AND STATE THAT THE ABOVE INFORMATION IS CORRECT AND AGREE TO CONFORM TO ORDINANCE AND LAWS AND TO NOTIFY THE BUILDING DEPARTMENT BEFORE COVERING ANY WORK.

I HEREBY CERTIFY THAT I AM NOT REQUIRED TO FURNISH EVIDENCE OF COMPLIANCE WITH CHAPTER 9 (COMMENCING WITH SECTION 7000) OF DIVISION 3 OF THE BUSINESS AND PROFESSIONS CODE OF THE STATE OF CALIFORNIA.

SIGNATURE OF APPLICANT

PLAN CHECK VALIDATION

BUILDING ADDRESS	24924 Hawkbeyn
LOCALITY	Newhall
NEAREST CROSS ST	
OWNER	Tuttle Constructed
MAIL ADDRESS	43843 Division
CITY	Lancaster TEL NO 948-9075
CONTRACTOR	American Mechanical Corp.
ADDRESS	45325 Division
CITY	Lancaster TEL NO 946009
STATE LICENSE NO	239675 LIC CLASS C-20

B-1	B-2	all

INSPECTION RECORD

W[illegible]ATION

POLICYHOLDER: Aetna C

POLICY NUMBER: FSOK953122

CPT

CK# 11/21

COUNTY OF LOS ANGELES
DEPARTMENT OF COUNTY ENGINEER
BUILDING AND SAFETY DIVISION

MULE BARN.

SPECIAL INSPECTOR'S REPORT

EACH INSPECTOR MUST COMPLETE THIS REPORT AND MAIL IT TO THE DISTRICT OFFICE OF THE BUILDING AND SAFETY DIVISION.

WEEKLY ☐ FINAL ☐

TOTAL TIME ON JOB (IN DAYS) ONE BUILDING PERMIT NO. 738 DISTRICT NO. VALENCIA

JOB ADDRESS 24924 HAWKBRYN - NEW HALL.

GENERAL CONTRACTOR TURCON CONST CO

SIZE OF BLDG. 75 X 90 TYPE OF WALL METAL NO. OF STORIES ONE

TYPE OF WORK: REINFORCED CONCRETE ☐ MASONRY ☐ HI-TENSILE BOLTING ☒

PRESTRESSED CONCRETE ☐ WELDING ☐ GYPSUM CONCRETE ☐

DESCRIPTION OF WORK INSPECTED APPLIED TENSION OF 353 FT LBS ON NINETY SIX 3/4 HIGH STRENGTH BOLTS. ALSO APPLIED TENSION OF 200 FT LBS ON TO ONE HUNDRED SIXTEEN 7/8 HIGH STRENGTH BOLTS.

LOCATION IN STRUCTURE: ROOF AND TOP OF COLUMNS

REMARKS CONST. OF BIG IN VERY good CONDITION

All work on this job to date has been satisfactorily completed and conforms to the approved plans and requirements of the Los Angeles County Building Code.

APRIL 22, 1975
Date

W. A. Cunningham
Special Inspector

ID No. 0120

BSPE-303, 6-72

REQUEST FOR INSPECTION

Date

Permit

Requested

Name of Owner

Contact for

TREACH FORMS	[ ]	ROUGH ELEC. WIRING	[ ]	UNDERSLAB PLUMBING	[ ]
TEMP POWER POLE	[ ]	ELECTRICAL FIXTURES	[ ]	ROUGH PLUMBING	[ ]
MASONRY	[ ]	LATH	[ ]	GAS	[ ]
GRADING	[ ]	DRYWALL	[ ]	SEWAGE DISPOSAL	[ ]
FRAME	[ ]	REINFORCED STEEL	[ ]	HOUSE SEWER	[ ]
MOBILEHOME INSTALLATION	[ ]	AIR CONDITIONING	[ ]	HEATING	[ ]
BUILDING FINAL	[ ]	ELECTRICAL FINAL	[ ]	PLUMBING FINAL	[ ]
SWIMMING POOL	[ ]	OCCUPANCY	[ ]	INSULATION	[ ]

MONDAY TUESDAY WEDNESDAY THURSDAY FRIDAY

LOS ANGELES COUNTY LETTERGRAM

TO	Mr. Carlson B&S	FROM	Jerry Wonnum M.O.S - Ad. Dept.

Subject: Plan Check #14 24724 N. Hawthorne Av. Date: 11-14-77 No.

Do not begin this site improvement. The provisions of the ordinance. The undersigned agrees to pay grading plan check fees, permit fees, inspection fees, and all other fees required by the Los Angeles County Building Code, and any other ordinances, rules, etc. thereto.

Thank you very much

LOS ANGELES COUNTY ROAD DEPARTMENT
1545 ALCAZAR STREET
LOS ANGELES CALIFORNIA 90033

Plan Check No. _____

NOTICE OF IMPROVEMENT

Date Filed 11-7-79

PLEASE FILL OUT COMPLETELY

Applicant Dale Turner Telephone No. 948-3085

Address 43843 W Division Lancaster
NO. STREET CITY ZONE

Owner Sam + Sue Switzer Telephone No. _____

Address 8810 Atkinson Blvd. South Gate
NO. STREET CITY ZONE

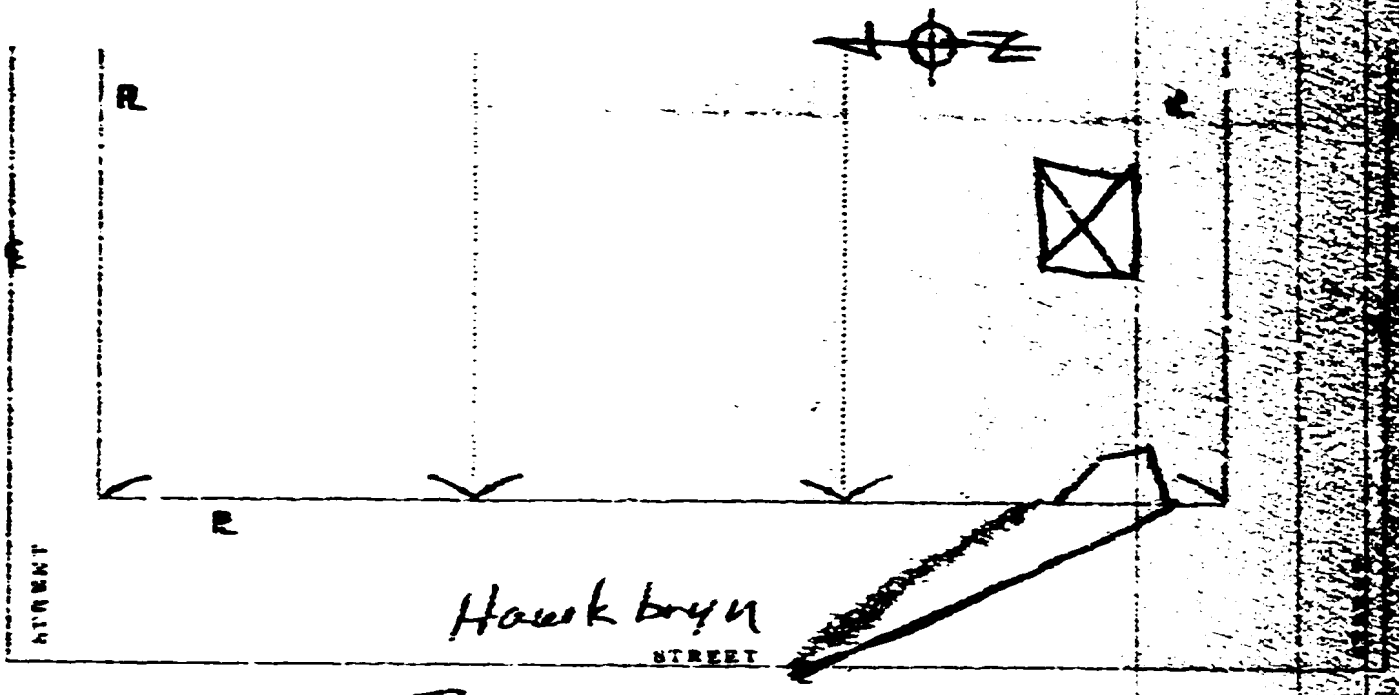
Use of Building Mule Barn No. of Stories 1

Legal Description of Property:

Lot(s) _____ Block _____ Tract _____

Job Location 24924 N. Hawkbryn - Newhall 200 I
NO. STREET FRONTAGE FT No. Driveways

BUILDING & SAFETY OFFICE
COUNTY OF LOS ANGELES
DEPARTMENT OF COUNTY ENGINEER
BUILDING AND SAFETY DIVISION
23757 W. Valencia Boulevard
Valencia, California 91355
BY



(TO BE FILLED IN BY ROAD DEPARTMENT)

IMPROVEMENTS

	EXISTING CONDITION	REQUIREMENTS
Right of Way		
Curb & Gutter		
Sidewalk		
Driveways		
Drainage		

REMARKS: _____

Road Department Requirements Met _____ Date _____

ORIGINAL COPY

FROM: COUNTY OF LOS ANGELES DEPARTMENT OF HEALTH SERVICES
COMMUNITY HEALTH SERVICES

TO: COUNTY OF LOS ANGELES DEPARTMENT OF BUILDING SERVICES

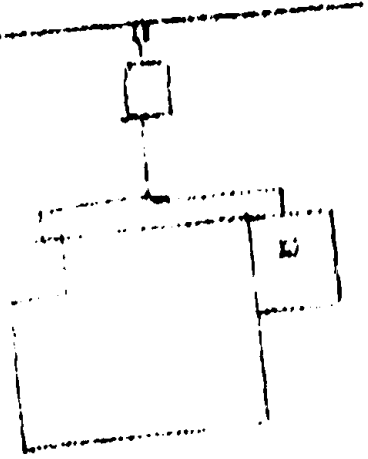
_____ OFFICE

DATE 2/16/78

NAME Sanitarian

ADDRESS [illegible]

N



The requirements of Los Angeles County Ordinance No. 2269 can be met by a properly installed disposal system including the following:

- [X] SEPTIC TANK
- [ ] SEEPAGE PIT
- [ ] CESSPOOL
- [ ] One or more seepage pits depending upon type of soil encountered.
- [ ] GREASE TRAP
- [X] DRAINFIELD

2 / Length 100 Width 3 Depth 5

BUILDING DEPT.

THIS APPROVAL RELATES ONLY TO THE MINIMUM REQUIREMENTS OF THE PLUMBING CODE, AND DOES NOT INCLUDE AN EVALUATION OF ~~GEOLOGIC/WATER PROBLEMS~~ ENCOUNTERED THE LOCATION OF THE ~~SEWAGE DISPOSAL MUST BE REVISED~~

FOR ~~LOS ANGELES~~ County Health Department

GEOLOGIC REVIEW SHEET

COUNTY OF LOS ANGELES
DEPARTMENT OF COUNTY ENGINEER

DESIGN DIVISION
ENGINEERING GEOLOGY SECTION

SHEET 1 OF

DISTRIBUTION:
- ☐ Plan Check
- ☐ Dist. Engineer
- ☐ Developer-Owner
- ☐ Site Engineer
- ☐ Geologist
- ☐ Soils Engineer
- ☐ Geol. Sect. File
- ☐ Grading Section

Site Address 2424 Hawkins
Location Newhall
Developer/Owner Pfizer
Engineer ---
Geologist ---
Soils Engineer ---

PLAN CHECK NO. OR DATE OF REPORT(S)

Review of:
- ☐ Grading Plan No.
- ☒ Building Plan No. 4(Mineral bldg)
- ☐ Geologic Report Dated
- ☐ Soils Report Dated
- ☐ Other

Action:
- ☒ Plan is approved
- ☐ Plan is not approved for reasons below
- ☐ Plan approved subject to conditions below
- ☐ Submit plans for recheck

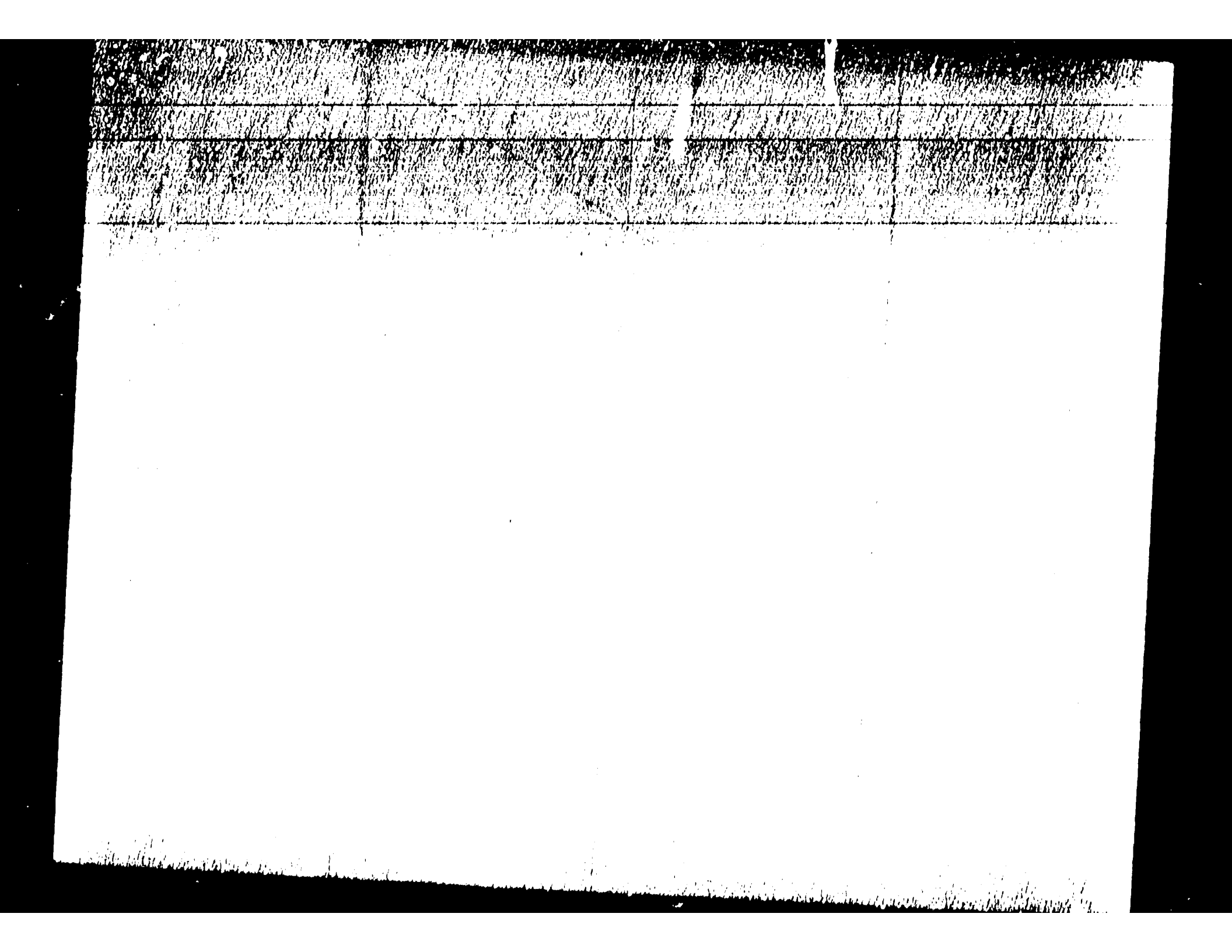
Remarks:

NOTE: District Engineer

Apparently three "Old" wells exist on the subject property.

Prepared by _____ Reviewed by _____ Date Nov. 23, 19[illegible]

SITE MAP



BURNA Engineers, Inc.
TESTING • INSPECTION
1781 CALLENS ROAD • VENTURA, CALIFORNIA 93003 • PHONE (805) 642-6727 • (805) 487-3691
POST OFFICE BOX 2866 • LANCASTER, CALIFORNIA 93534 • PHONE (805) 948-7373

December 26, 1977 B-1305-L01

Project: Proposed Mule Barn
S. Miser Freight Service
24924 Hawkbryn
Newhall, California
Plan Check No. 474
District 8.2

Subject: Expansion Index Test

This is a report of one Expansion Index test performed on a sample of soil recieved at this laboratory December 14, 1977 from Turcon Construction Company identified from the referenced project The sample was tested in accordance with UBC 29-2.

The Expansion Index test resulted in an E.I. of 23.

In accordance with Los Angeles County Building Laws (1975) the proposed structure will need to be designed for expansive soils (E.I. greater than 20).

The following is recommended:

1) Footings bearing at 18" below finish grade

2) Reinforcement of 2#4 rebar in footings; 1 top; 1 bottom

3) Slab on grade nominal 4" with minimum #3 bars at 24" on center both ways.

4) Slabs dowelled to footing stems with #3 bars at 24" O.C.

5) Minimum 4 inches of sand/rock beneath slabs

6) Soil beneath slab presoaked to depth of 12" prior to placing concrete.

BURNA ENGINEERS, INC.

Kenneth M. Clements

cc: 2 - Turcon
2 - A.V. Engineering
2 - File

PRELIMINARY REPORT

AMENDED

LEGAL DESCRIPTION:

PARCEL 1:

That portion of Lot 7 and of the Southwest quarter of the South
East quarter of Section 4, Township 3 South, Range 16 West
San Bernardino Meridian, in the County of Los Angeles,
State of California, according to the official plat thereof,
described as follows:

Beginning at the Southeast corner of said Section 4; thence
North along the Easterly line of said Section to the
Northeasterly corner of said Lot 7; thence Westerly along the
Northerly line of said Lot 7 to the Easterly line of the West
Easterly line of said Lot 7 to the Northeasterly line of the
land first of said Lot; thence Southeasterly along said last mentioned
Easterly line to the Southerly line of the Northerly 370
of said Lot 7; thence Easterly along said Southerly line
to the Southeasterly prolongation to the Northeasterly line of the
land described in the deed to the State of California, recorded
on June 20, 1919, as Document No. 1005, in Book 8478, Page 1
Official Records, in the office of the County Recorder of
County; thence Southeasterly along said Northeasterly line
to the Southeasterly line of the land described
Parcel 2-A (Amended) of the Final Order of Condemnation
entered in Case No. 81021, Superior Court of the State of
California for the County of Los Angeles, a certified copy
of which was recorded on May 23, 1958, as Document No.
1561, in Book D-2944, Page 451, Official Records of said
County, to the Southerly line of said Section; thence Easterly
along said Southerly line to the point of beginning.

PARCEL 2:

That portion of Lot 7 and of the Southeast quarter
of the Southeast quarter of Section 4, Township 3 North,
Range 16 West, San Bernardino Meridian, in the
County of Los Angeles, State of California, according to the
official plat thereof, described as follows:

Beginning at the intersection of the Northerly line of said
Lot 7 with the Easterly line of the Westerly 340 feet of said
Lot 7; thence Southerly along said Easterly line to the
Northerly line of the Southerly 370 feet of said Lot 7; thence
Easterly along said Northerly line and its Easterly prolongation
to the Northeasterly line of the land described in the deed
to the State of California, recorded on June 20, 1919, as
Document No. 1005, in Book 8478, Page 187, Official Records

PRELIMINARY REPORT

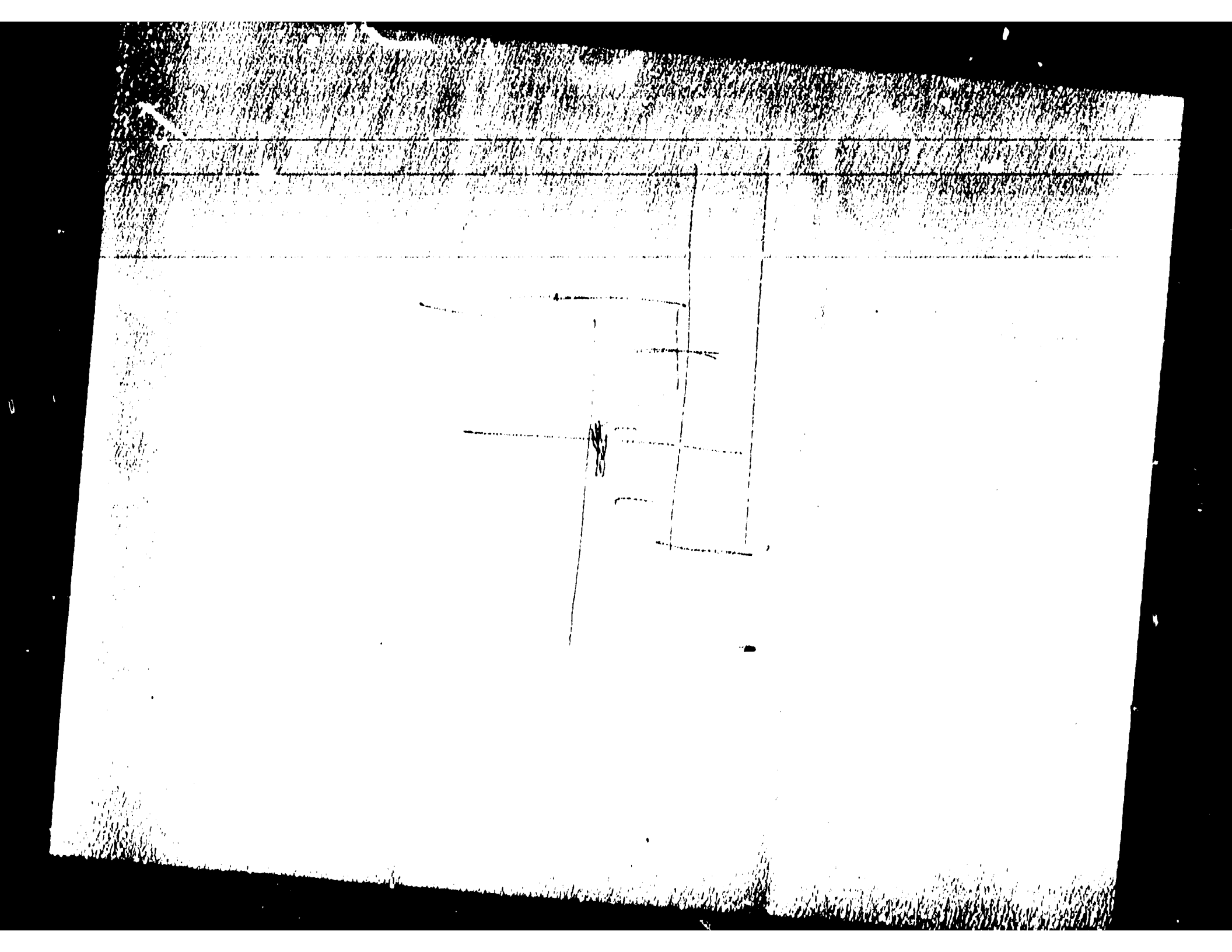
Addendum

(cont. that portion of the Southwest quarter of the Southeast quarter of Section [illegible] of said Section, and that portion of Lot 7 in said Section [illegible] both included within a strip of land 12.00 feet wide, the [illegible] westerly line of said strip being described as follows:

Beginning at a point in the South line of said Section, distant thereon South 89° 38' 37" East, 125.15 feet from the intersection of said South line with the Northeasterly line of the parcel of land described in deed to the State of California, recorded in Book 3172, Page 137 of Official Records in the Office of the County Recorder of said County; thence North 35° 29' 07" West, 482.15 feet to said Northeasterly line; thence along said Northeasterly line North 47° 43' 00" East to the most Southerly corner of the land described in Parcel 4 of the deed to the State of California, recorded in Book [illegible] Page 25 of said Official Records.

Together with the right to enter upon and to use as a temporary construction area, that portion of the above described land included within two strips of land, each 15.00 feet wide, adjacent to and on each side of the above described [illegible]. It is understood that this temporary right shall terminate on or before July 1, 1965.

11. A deed of trust to secure an indebtedness.
Amount : $298,000.00
Trustor : Walter L. Bowen and [illegible], husband and wife, as [illegible] an unmarried man
Trustee : Title Insurance [illegible] a corporation
Beneficiary : Lawrence Lyon, executor [illegible] of Edith S. Lyon, deceased
Dated : December 9, 1964
Recorded : December 14, 1964, in Book [illegible] Official Records



4. An easement for the purposes shown and incidental purposes
recorded in the docs
For : In Book 761, Page 393 of
Affects : Said purposes
: A strip, 40 feet wide, in the
portion of the South half of
Quarter of said Section,
the lines of the Utility

5. An easement for electric lines and incidental purposes, as
granted to Southern California Edison Company, a corporation
Recorded
Affects : In Book 12224, Page 174, Official
: As follows:

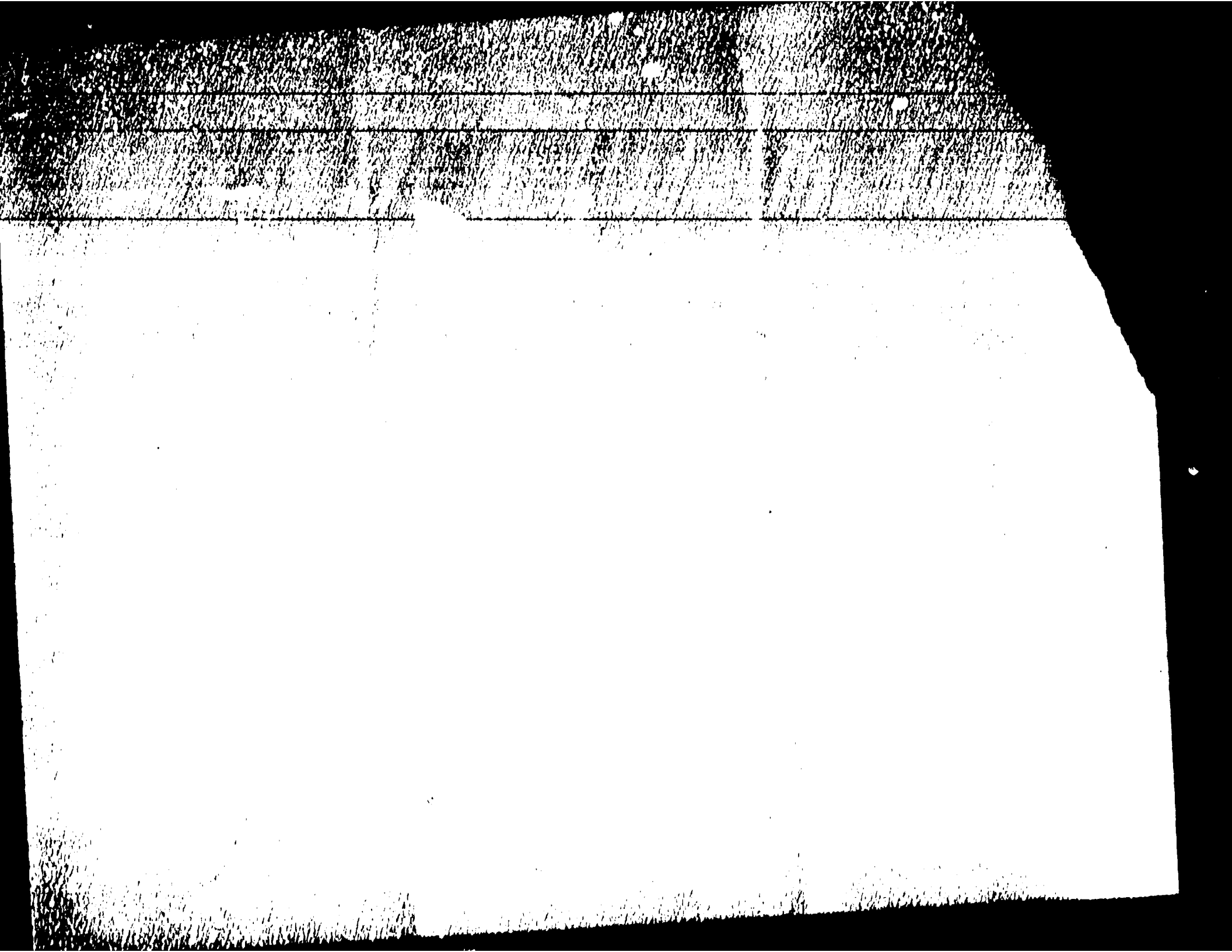
The poles of said line shall be located within 1 foot of the
following described line:

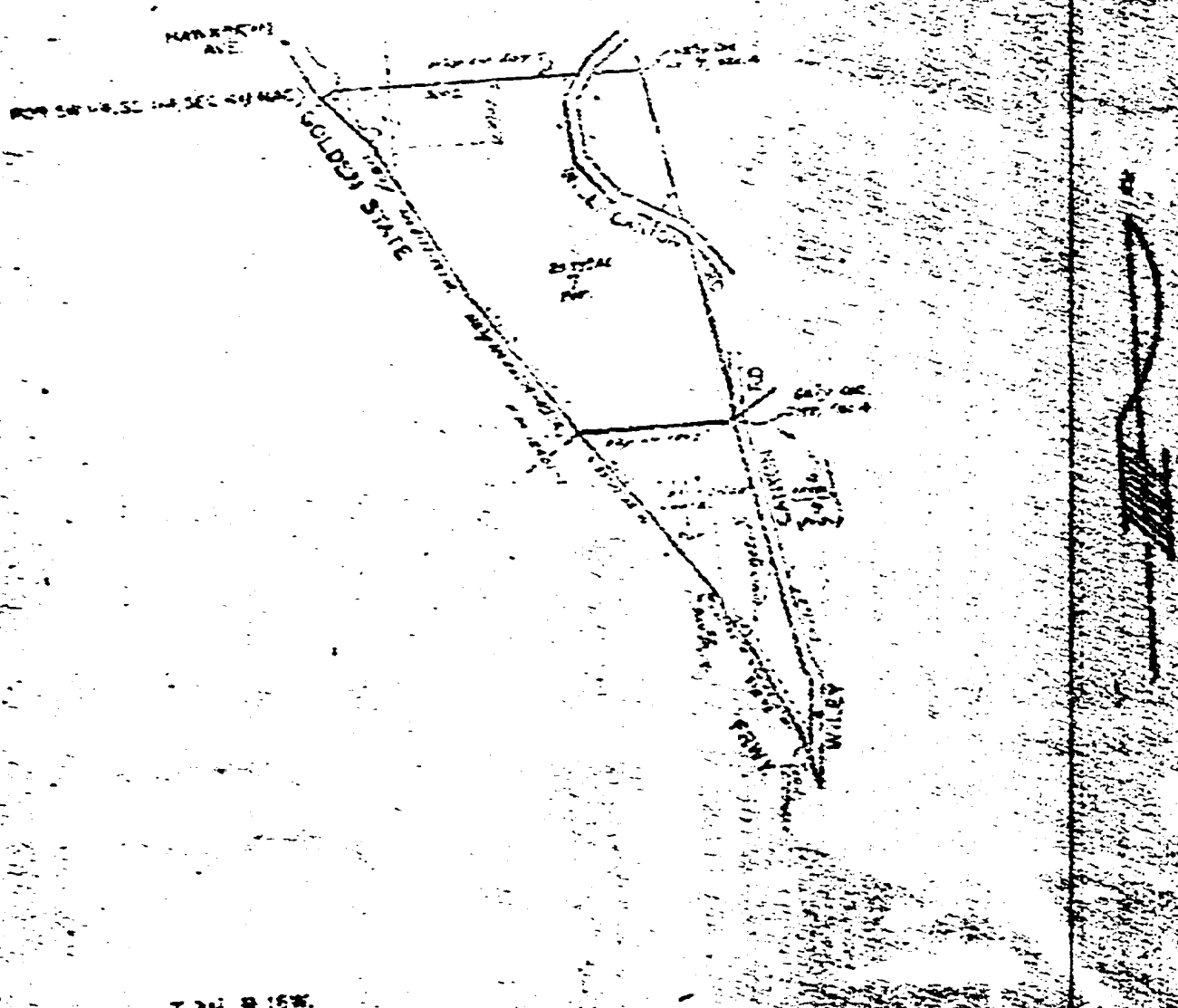
Beginning at a point in the North line of said Southeast Quarter
of Northeast Quarter of Section 4, which point is one foot
Westerly, measured at right angles, from the Southeasterly
of said Santa Ynez River right of way; thence from said point of
beginning, Southeasterly parallel with and at a uniform distance
1 foot Southwesterly from said Southeasterly line of said right of way
a distance of 1,400 feet, more or less, to a point in the
of said Government Lot 7.

6. An easement for electric lines and incidental purposes, as
granted to Southern California Edison Company, a corporation
Recorded
Affects : In Book 20690, Page 351, Official
: As follows:

The poles of said line shall be located within 1 foot of the
following described line:

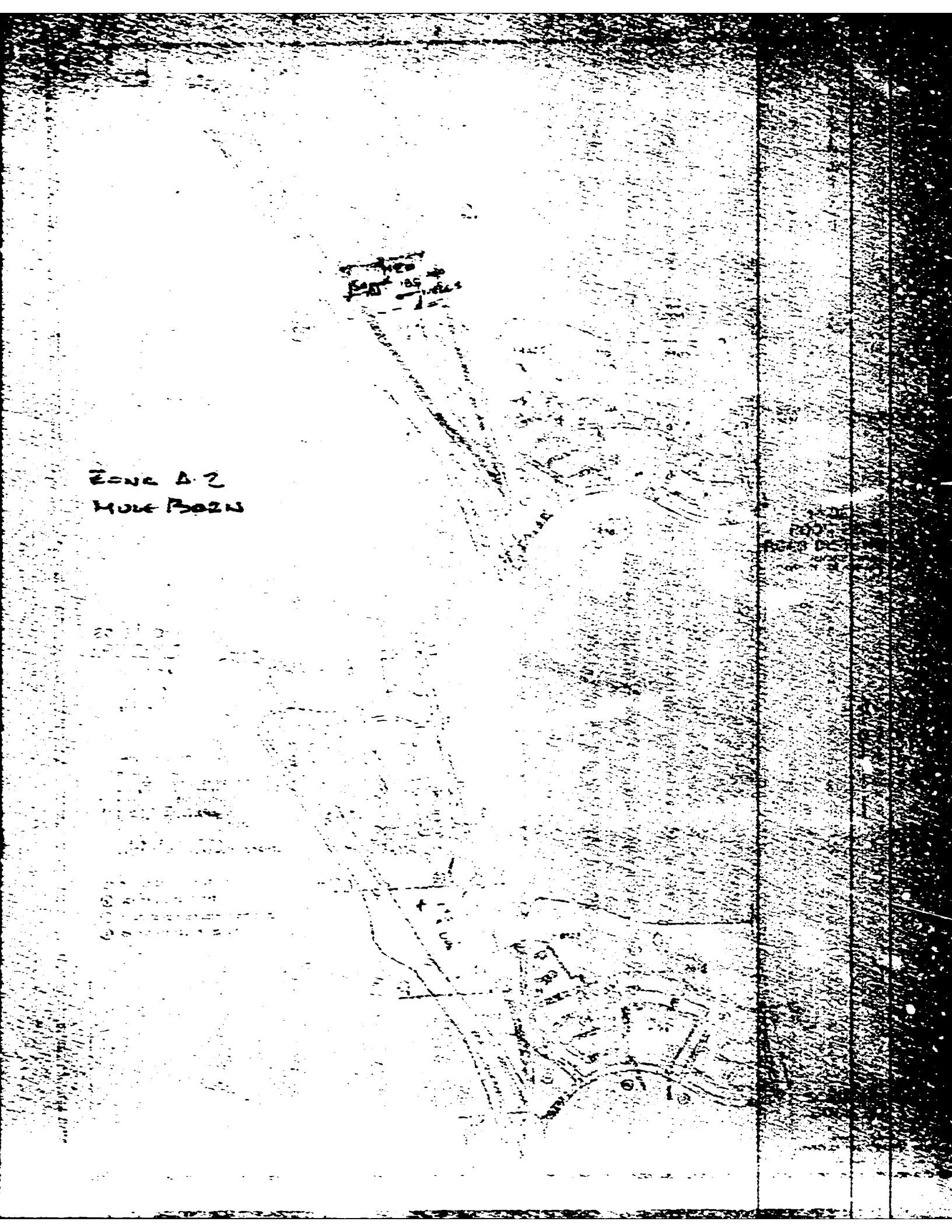
Beginning at an existing Pole No. 5001301 in the Southeast corner
side of Refugio Canyon Road, approximately 1,310 feet Southwesterly
from the Northerly line of the Southeast Quarter of said Section
4; thence Northeasterly in a straight line, 432 feet to a

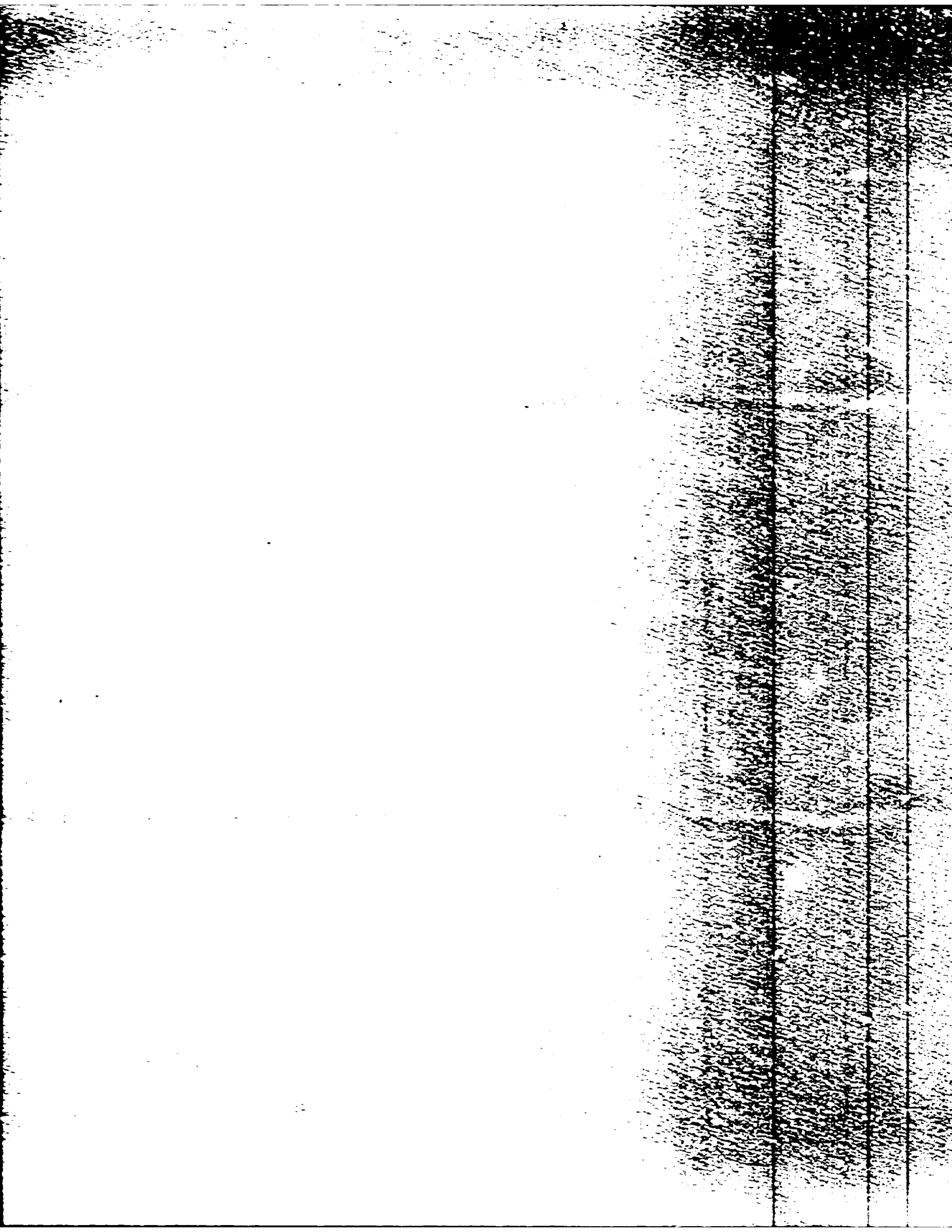




IMPORTANT: This plat is not a Survey. It is furnished as a convenience to locate the land indicated herein with reference to streets and other parcels. The Company assumes no liability for loss or damage by reason of reliance hereon.

CHICAGO TITLE INSURANCE COMPANY


ZONE A-2
HOLE BORN



PRELIMINARY REPORT

ADDED PAGE

That portion of Section 4, Township 3 North, Range 1[illegible] Meridian, according to the official [illegible] of said land filed in the District Land Office March [illegible] conveyed to Walter A. Berner and wife, and Charles H. [illegible] Deed (Grant's Number Deed recorded April 14, 1971, in Book [illegible] Page 906 to and including of Official Records, in the [illegible] of the County Recorder of said County, included within a [illegible] of land, 12.00 feet wide, the southwesterly line of said [illegible] being described as follows:

Beginning at the intersection of the Northwesterly line of [illegible] conveyed parcel of land with a line parallel with and 40.00 [illegible] southwesterly 40.00 feet, measured at right angles from the [illegible] northeasterly line of said conveyed parcel of land; thence along said parallel line South 27° 43' 02" East, 171.89 feet to the Southwesterly line of said conveyed parcel of land; thence along said Southwesterly line South 49° 40' 14" East 54.17 feet.

Grantors also hereby grants to Grantee the following rights:

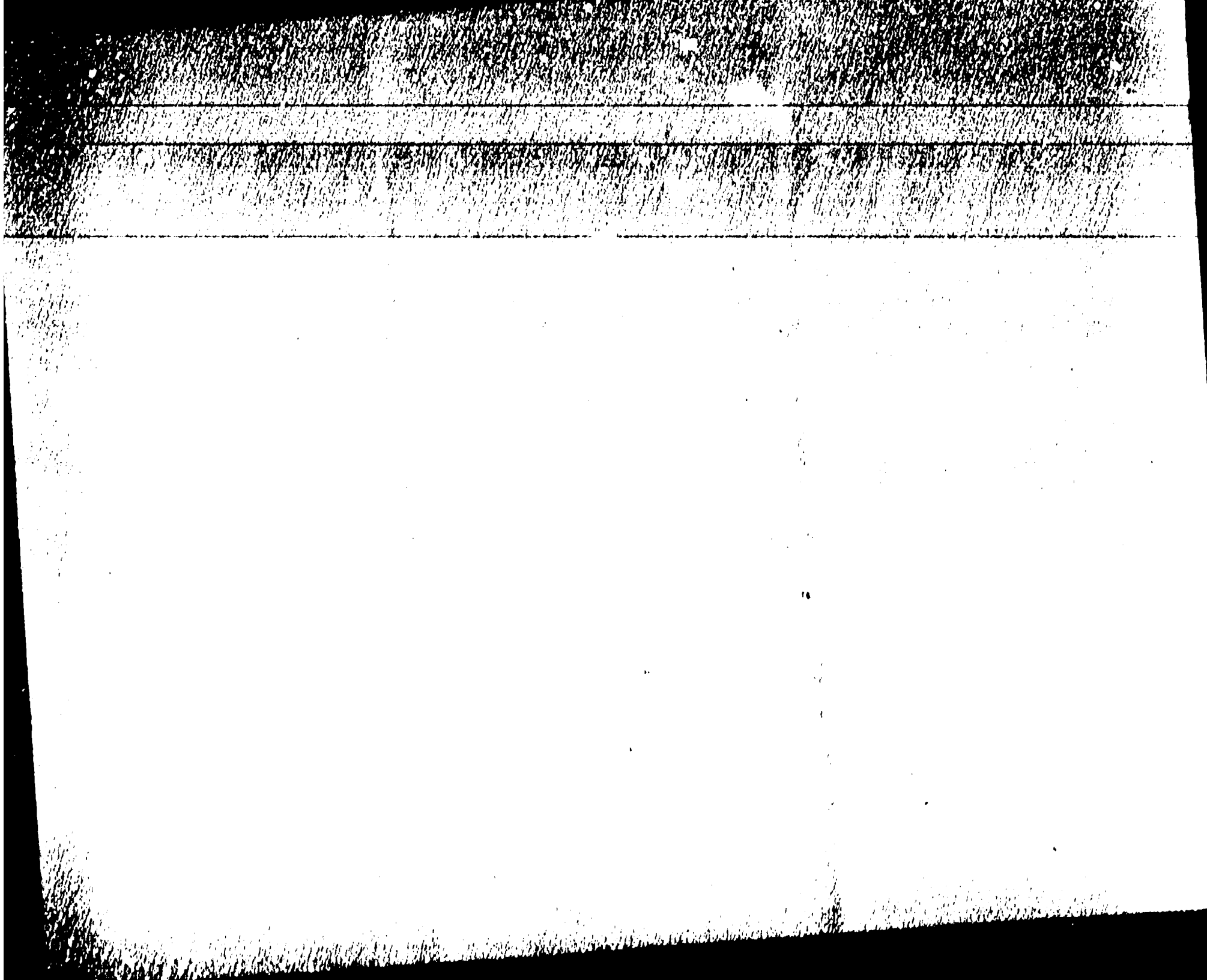
1. Ingress and egress from any and all parts of said [illegible] and its system on adjoining real property and for such purposes all rights to use and improved any private road [illegible] property;

2. To clear and keep cleared all trees, roots and other obstructions from the surface and subsurface of said strip and [illegible] to prevent, pursuant to clear and use an additional [illegible] as required within fifty feet of the center line of said [illegible]

3. To install gates and stiles in any fences intersecting [illegible] strip of land as may be mutually agreed upon by Grantors and Grantee.

16. This preliminary report will remain incomplete until [illegible] of liability from the parties to this transaction have been [illegible] sitted to this Company so a name search can be made.

Plats Enclosed:
ND/cbg



2000-486 3/72

COUNTY OF LOS ANGELES FIRE DEPARTMENT

TO: DEPARTMENT OF COUNTY ENGINEER
BUILDING AND SAFETY DIVISION

SUBJECT: APPROVAL TO OCCUPY PREMISES

On 6-26-81 an inspection was made at:

Name of Business SMISER MULE RANCH

Address 24924 HAWKBURN, NEWHALL

Sufficient compliance with Fire Department requirements has been made to permit occupancy of premises.

Insp. Jack Frost
Captain - Inspector

NOT TO SCALE

FROM: COUNTY OF LOS ANGELES DEPARTMENT OF HEALTH SERVICES
COMMUNITY HEALTH SERVICES

TO: COUNTY OF LOS ANGELES DEPARTMENT OF BUILDING SERVICES

ALHAMBRA OFFICE

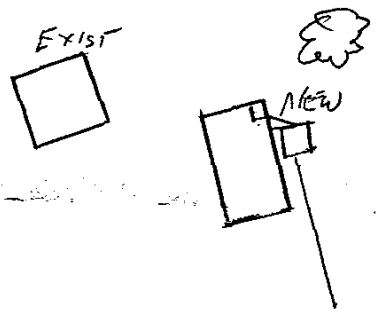
DATE 4/12/80

NAME SMISER FREIGHT

ADDRESS 24424 HAWKBYRN

NEWHALL CALIF

N



The requirements of Los Angeles County Ordinance No. 2269 can be met by a properly installed disposal system including the following:

☒ SEPTIC TANK 750 Gal 7FU

☐ SEEPAGE PIT

☐ CESSPOOL 40 CLASS

☐ One or more seepage pits depending upon type of soil encountered.

☐ GREASE TRAP

☒ DRAINFIELD

Length 100 Width 3 Depth 3

BUILDING DEPT.

Remarks: IF ANY DOMESTIC WATER LINES ARE ENCOUNTERED THE LOCATION OF THE SEWAGE DISPOSAL MUST BE REVISED.

76R285H H-154 (REV. 11-73)

THIS APPROVAL RELATES ONLY TO THE MINIMUM REQUIREMENTS OF THE PLUMBING CODE, AND DOES NOT IMPLY APPROVAL BY ALL APPLICABLE AGENCIES.

Los Angeles County Health Department

Bueno Engineers, Inc.

POST OFFICE BOX 2866 · LANCASTER, CALIFORNIA 93534 · PHONE (805) 948-7538

August 23, 1979 B-1637-L01

Project: Smiser Freight Mule Farms
Newhall, California

Subject: Report of Grading Inspection and
Compaction Tests
Pad Area - Final

This is a report of grading inspection and compaction tests performed during grading operations for Smiser Freight Mule Farms, Newhall, California. Grading was performed by R.C. Becker and Sons using standard heavy grading equipment.

Prior to the commencement of grading, the pad area was cleared of all debris and vegetation. The resulting surface was scarified, moistened and compacted to a minimum of 90% relative compaciton. Imported fill material was then placed in thin (6" to 8") lifts, moistened and compacted.

Compaction tests were taken in accordance with ASTM D 1556 and D 2922 at locations and elevations indicated on the attached plan and report sheet. Failing areas were recompacted and retested. Test reults indicate that a minimum of 90% relative compaction has been achieved in the proposed pad area.

Maximum density-optimum moisture was determined in accordance with ASTM D 1557, Methods A and C. Results follow:

Description	Maximum Density	Optimum Moisture
Native Br Silty fine SAND	117.2	10.0
Import Lt.Br.M-C Sand w/gravel and trace Clay	133.5	6.8

Based on results from these tests, we certify that fill has been placed in accordance with Los Angeles County Building Laws, Chapter 29 and that fill is adequate to support loads of 1500 psf when foundations are designed in accordance with applicable requirements for non-expansive soils.

August 23, 1979 B-1637-L01

Respectfully submitted,

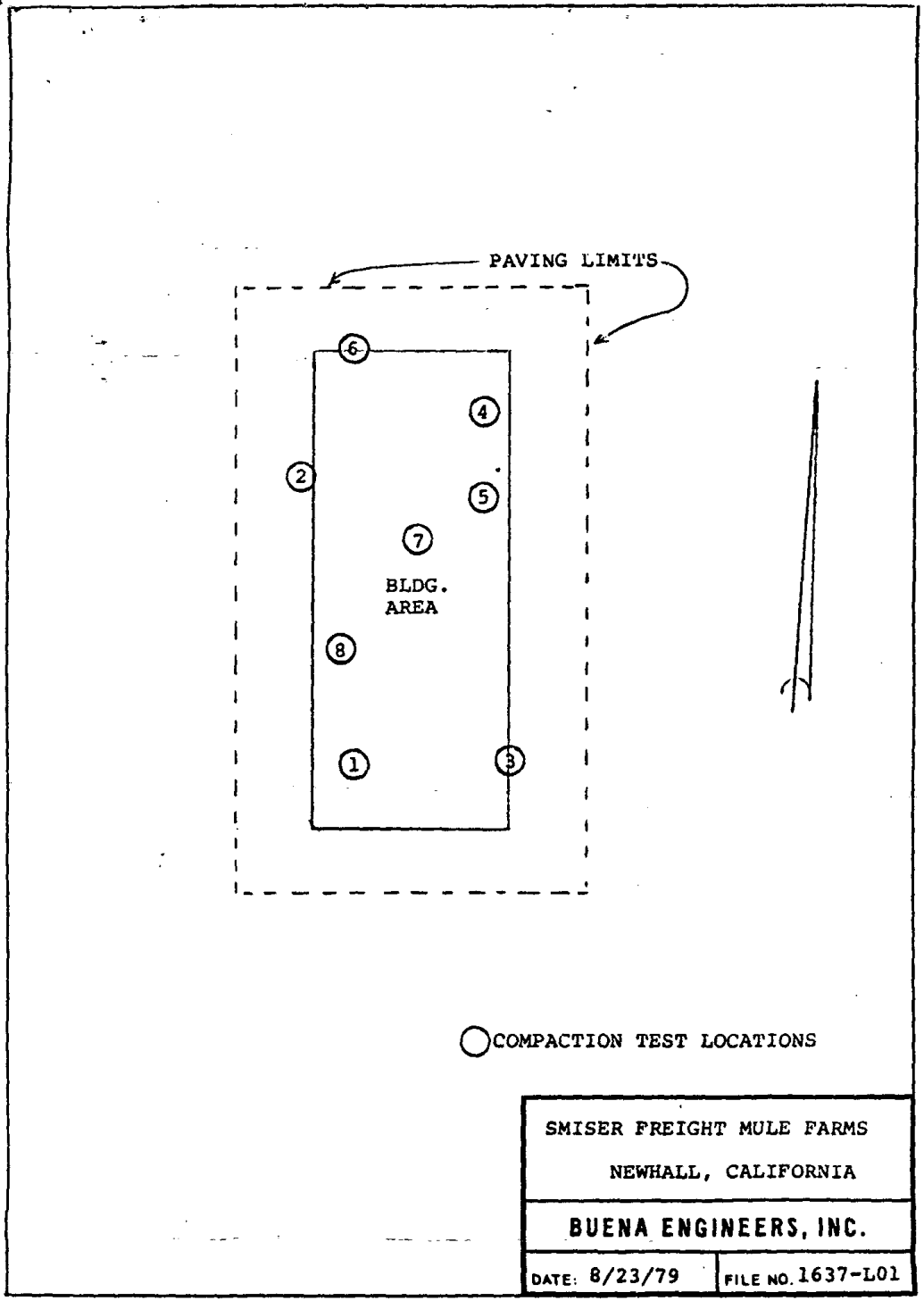
BUENA ENGINEERS, INC.

Kenneth M. Clements
KMC/AL/rm

Reviewed:

Alfred Letcher
C.E. #12910

cc: 2 - Smiser Freight
1 - R.C. Becker & Sons
2 - Turcon
1 - File


PAVING LIMITS
6
4
2
5
7
BLDG.
AREA
8
1
3
COMPACTION TEST LOCATIONS
SMISER FREIGHT MULE FARMS
NEWHALL, CALIFORNIA
BUENA ENGINEERS, INC.
DATE: 8/23/79
FILE NO. 1637-L01

Buena Engineers, Inc.
ENGINEERING
TESTING • INSPECTION
42326-10th STREET WEST • P. O. BOX 2866 • LANCASTER, CALIFORNIA 93534 • PHONE (805) 948-7538

REPORT OF RELATIVE COMPACTIONS

CONTRACTOR: Becker & Son
DATE: 8/24/79
Job No. B-1637-L01
Report No.
ADDRESS:
JOB & LOCATION:

TEST No.	DATE TESTED 1979	DESCRIPTION	% MOISTURE IN PLACE	DRY DENSITY IN PLACE	RELATIVE COMPACTION	MAXIMUM DENSITY
1	8/9	Per Diagram @-2.0	3.2	99.7	85*	117.2
2	"	" " @-2.0	6.6	86.3	74*	"
1A	8/10	Retest #1 @-2.0	9.4	107.2	91**	
3	"	Per Diagram @-2.0	11.6	104.8	90	"
4	8/13	" "	4.8	105.3	90	"
5	"	" " @-2.0	4.1	105.3	90	"
2A	"	Retest #2 @-2.0	10.3	108.2	92**	"
6	8/21	Per Diagram @Finish Grade	4.6	114.8	86*	133.5
6A	"	Retest #6	6.8	119.7	90**	"
7	"	Per Diagram @ Finish Grade	7.1	126.1	94	"
8	"	" " " "	6.2	125.9	94	"

WE CERTIFY THAT THESE TESTS WERE PERFORMED IN CONFORMANCE WITH ASTM D 2922.

COPIES:

MD-OM determined in accordance with ASTM D 1557.
*Denotes failing test.
**Denotes retest.

BUENA ENGINEERS, INC

Irving Manley File: Oak Mountain 1E

ENVIRONMENTAL DEVELOPMENT DIVISION

BUILDING PLAN DRAINAGE REVIEW Elmer Gilbert

(SECTION 308-a, ORDINANCE NO. 2225) (213) 773-8902

Plan Check No. 3046 Builder/Owner Emigner

Address 24924 Hawkbryn

Architect/Engineer

☒ Approved ~~(with minimum foundation requirements (Section 2907 (a))~~ See Below

☐ Prior to approval resubmit plot plan with revisions and corrections as circled below. Return this review sheet and check print for reference.

1. Elevate the top of foundation _____ inches minimum above (existing or finish grade, whichever is higher) (crown of road) (top of curb) with no wall openings. Show elevation of floors & adjacent grades on the plan.

2. Or provide for the contributory storm water by constructing interceptor swales or other approved devices. Show details of all drainage devices including sizes, elevations, type of material, inlet and outlet structures, energy dissipator, etc.--and show sufficient ground elevations to establish the drainage pattern.

3. Comply with approved drainage plan for Parcel/Tract Map No. _____.

(4.) See Below This property is in a Federally designated flood hazard area. The min. floor elev. is 1297.5 per Bench Mark Ref. No. _____ located at Elev. assumed by the Civil Engineer. Floor elev. shall be certified by a Land Surveyor or Civil Engineer.

5. Extend the foundation _____ inches below natural grade.

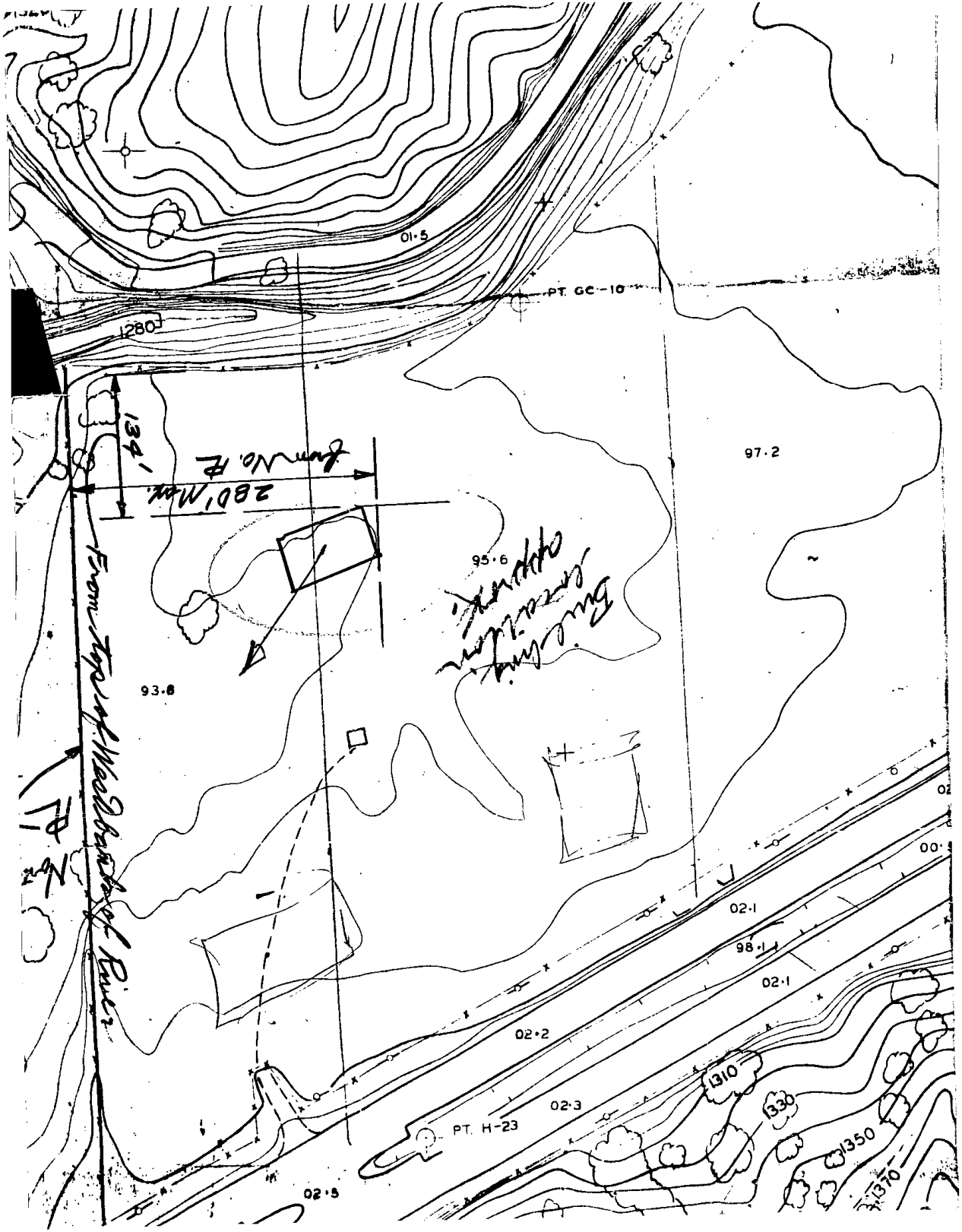
6. The building is located within a flood hazard area. Relocate the structure or remove the flood hazard. Plans showing provisions for removing the flood hazard must be prepared by a Registered Civil Engineer.

7. See comments in red on plan.

8. A grading permit may be required--Contact Building and Safety Div.

9. Refer to the attached comments as noted on drainage policy.

(10.) Other The foundation or slab must be elevated 12" above the highest natural grade point. This could be required by elevations S.E. corner of building and top of fence to be at least 0.134' from the most Westerly point on the west bank of the River S.E. corner or southside to be 280' So/We Property line.


01·5
PT. GC-10
1280
97·2
95·6
93·8
98·1
02·1
02·2
02·3
02·5
PT. H-23
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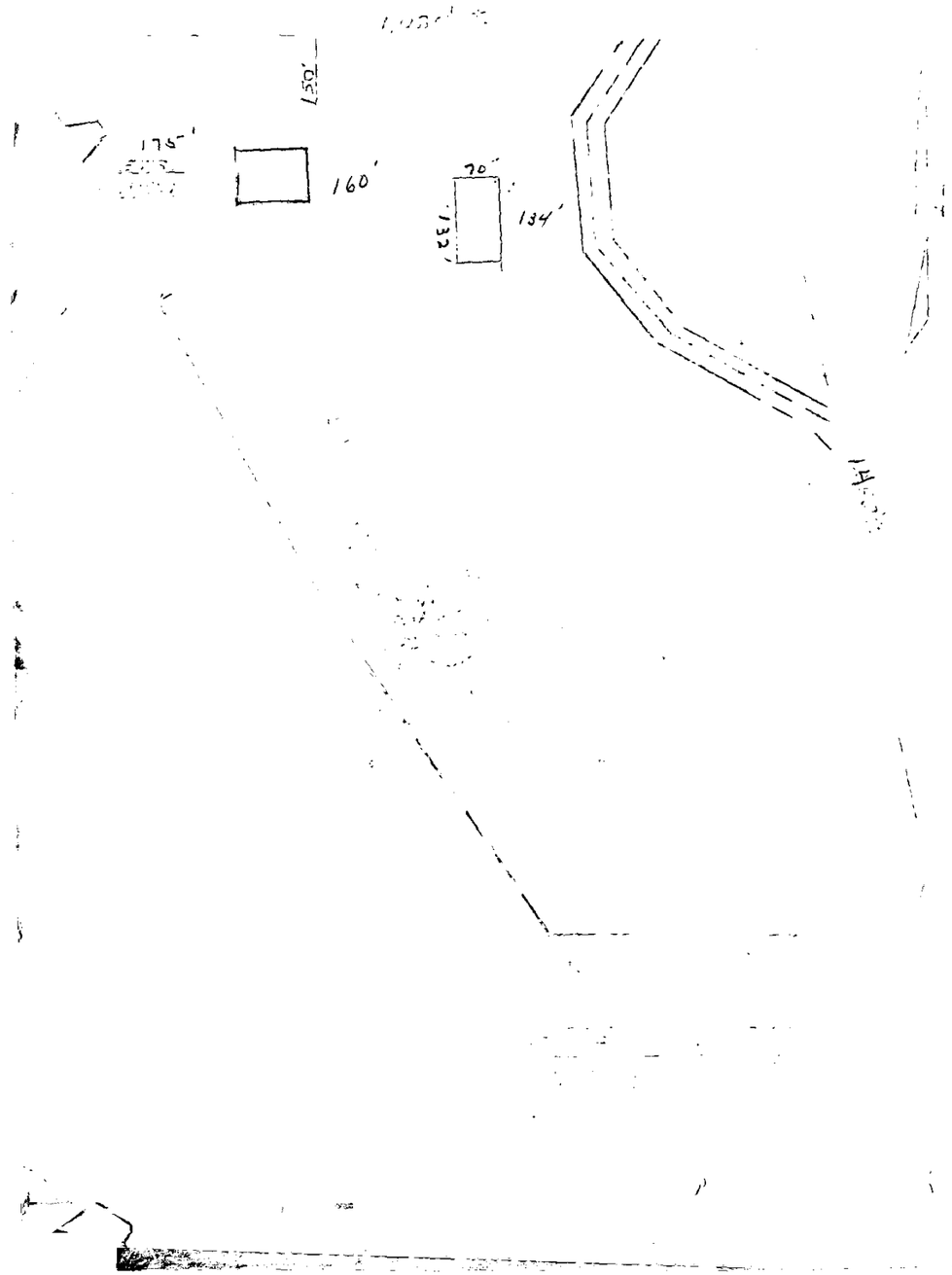


COUNTY OF LOS ANGELES
FIRE DEPARTMENT
FIRE PROTECTION ENGINEERING

APPROVED

FIRE HYDRANT REQUIREMENTS ONLY

By K.M. HARMS Date 9-8-80

File: Oak Mountain 13

ENVIRONMENTAL DEVELOPMENT DIVISION

BUILDING PLAN DRAINAGE REVIEW

(SECTION 308-a, ORDINANCE NO. 2225)

Plan Check No. 3046 ~~Builder~~/Owner Smyers

Address 24924 Hawkbryn

Architect/Engineer

☒ Approved ~~(with minimum foundation requirements (Section 2907 (a))~~ See Below

☐ Prior to approval resubmit plot plan with revisions and corrections as circled below. Return this review sheet and check print for reference.

1. Elevate the top of foundation 12 inches minimum above (existing ~~or finish~~ grade, ~~whichever is higher) (crown of road) (top of curb~~) with no wall openings. Show elevation of floors & adjacent grades on the plan.

2. Or provide for the contributory storm water by constructing interceptor swales or other approved devices. Show details of all drainage devices including sizes, elevations, type of material, inlet and outlet structures, energy dissipator, etc.--and show sufficient ground elevations to establish the drainage pattern.

3. Comply with approved drainage plan for Parcel/Tract Map No. _____.

4. This property is in a Federally designated flood hazard area. The min. floor elev. is _____ per Bench Mark Ref. No. _____ located at _____. Floor elev. shall be certified by a Land Surveyor or Civil Engineer.

5. Extend the foundation _____ inches below natural grade.

6. The building is located within a flood hazard area. Relocate the structure or remove the flood hazard. Plans showing provisions for removing the flood hazard must be prepared by a Registered Civil Engineer.

7. See comments in red on plan.

8. A grading permit may be required--Contact Building and Safety Div.

9. Refer to the attached comments as noted on drainage policy.

10. Other

Date 9/15/80 By R H Morelle

76A667A
CE 817 (2-80)

APPLICATION FOR PLUMBING PER

COUNTY OF LOS ANGELES — **BUILDING AND SAFETY**

WORKERS' COMPENSATION DECLARATION

I hereby affirm that I have a certificate of consent to self insure, or a certificate of Workers' Compensation Insurance, or a certified copy thereof (Sec. 3800, Lab. C.)

Policy No. 92-05579 Company STATE FARM

☐ Certified copy is hereby furnished.

☐ Certified copy is filed with the county building inspection department.

Date _____ Applicant _____

CERTIFICATE OF EXEMPTION FROM WORKERS' COMPENSATION INSURANCE

(This section need not be completed if the work involved by the permit is for one hundred dollars ($100) or less.)

I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the Workers' Compensation Laws.

Date _____ Applicant _____

NOTICE TO APPLICANT: If, after making this Certificate of Exemption, you should become subject to the Workers' Compensation provisions of the Labor Code, you must forthwith comply with such provisions or this permit shall be deemed revoked.

LICENSED CONTRACTORS DECLARATION

I hereby affirm that I am licensed under provisions of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code, and my license is in full force and effect.

License Number 341497 Lic. Class C-36

Contractor ARDENT PLUMB Date 10-9-80

☐ I am exempt from the licensing requirements as I am a licensed architect or a registered professional engineer acting in my professional capacity (Section 7051, Business and Professions Code).

Lic. or Reg. No. _____ Date _____

HOME OWNER-BUILDER DECLARATION

I hereby affirm that I am exempt from the Contractor's License Law for the following reason (Section 7031.5, Business and Professions Code):

☐ I, as owner of the property, am exclusively contracting with licensed contractors to construct the project (Section 7044, Business and Professions Code).

CONSTRUCTION LENDING AGENCY

I hereby affirm that there is a construction lending agency for the performance of the work for which this permit is issued (Sec. 3097, Civ. C.).

Lender's Name _____

Lender's Address _____

I certify that I have read this application and state that the above information is correct. I agree to comply with all County ordinances and State laws regulating Plumbing, and hereby authorize representatives of this County to enter upon the above-mentioned property for inspection purposes.

Edward Messelaar 10-9-80

Signature of Permittee — Date

FOR APPLICANT TO FILL IN (PRINT OR TYPE)

NUMBER	FIXTURE OR ITEM	•	FEE
1	WATER CLOSET		3 00
	BATH TUB		
	SHOWER		
1	LAVATORY		3 00
	SINK		
	DISHWASHER		
	CLOTHES WASHER		
	SWIMMING POOL RECEPTOR		
	LAWN SPRINKLER SYSTEM		
1	WATER HEATER		3 00
1	GAS SYSTEM OUTLETS	2	3 00
	OUTLETS OVER 5 PER SYSTEM		
Plan check fee			
PLUMBING PERMIT ISSUING FEE $			7 00
	TOTAL FEE		19 00

Plan check applicant

Name

Address

City Tel. No.

BUILDING ADDRESS 24924 HAWK BYRN

LOCALITY NEW hall

NEAREST CROSS ST.

OWNER SMISER FRIGHT

MAIL ADDRESS 24924 HAWK BYRN

CITY NEW hall TEL. NO.

CONTRACTOR ARDENT Plumbing

ADDRESS 3551 EAST AVE T-4

CITY Palmdale TEL. NO. (805) 273-3858

STATE LICENSE NO. 341497 LIC. CLASS C-36

DISTRICT NO. 8.2

PROCESSED BY

FINAL DATE 2/3/81

VALIDATION

FINAL BY

INSPECTOR COPY

SEE REVERSE FOR EXPLANATORY LANGUAGE

ALS	DATE	INSPECTOR'S SIGNATURE
SLAB WORK		
ROUGH PLUMBING	1/24/01	
GAS PIPING		
GAS VENT		
HOT WATER HEATER		
PLUMBING FIXTURES		
GAS TEST		
UTILITY CO. NOTIFIED		
FINAL	Cover on Front	
INDUSTRIAL WASTE APPROVAL		

INSPECTOR'S NOTES

Not Ready 1-10 Lr

INSPECTOR'S NOTES

OWNER-BUILDER DECLARATION

I hereby affirm that I am exempt from the Contractor's License Law for the following reason *(Section 7031.5, Business and Professions Code): Any city or county which requires a permit to construct, alter, improve, demolish, or repair any structure, prior to its issuance, also requires the applicant for such permit to file a signed statement that he is licensed pursuant to the provisions of the Contractor's License Law (Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code) or that he is exempt therefrom and the basis for the alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than five hundred dollars ($500).:*

☐ I, as owner of the property will do the work, and the structure is not intended or offered for sale.
(Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who does such work himself provided that such improvements are not intended or offered for sale. If, however, the building or improvement is sold within one year of completion, the owner-builder will have the burden of proving that he did not build or improve for the purpose of sale.)

I am exempt under Sec. _____,

B & P.C. for this reason _____

_____

Date _____

Owner _____

76A663
CE-806G (2-80)

APPLICATION FOR ELECTRICAL PERMIT

COUNTY OF LOS ANGELES — **BUILDING AND SAFETY**

1

INSPECTOR COPY

WORKERS' COMPENSATION DECLARATION

I hereby affirm that I have a certificate of consent to self insure, or a certificate of Workers' Compensation Insurance, or a certified copy thereof (Sec. 3800, Lab. C.)

Policy No. _____ Company _____

☐ Certified copy is hereby furnished.

☐ Certified copy is filed with the county building inspection department.

Date _____ Applicant _____

CERTIFICATE OF EXEMPTION FROM WORKERS' COMPENSATION INSURANCE

(This section need not be completed if the work involved by the permit is for one hundred dollars ($100) or less.)

I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the Workers' Compensation Laws.

Date Oct 14 80 Applicant J W. Wanfing

NOTICE TO APPLICANT: If, after making this Certificate of Exemption, you should become subject to the Workers' Compensation provisions of the Labor Code, you must forthwith comply with such provisions or this permit shall be deemed revoked.

LICENSED CONTRACTORS DECLARATION

I hereby affirm that I am licensed under provisions of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code, and my license is in full force and effect.

License Number 287891 Lic. Class C-10

Contractor Jerry Electrical Date Oct 14 80

HOME OWNER-BUILDER DECLARATION

I hereby affirm that I am exempt from the Contractor's License Law for the following reason (Section 7031.5, Business and Professions Code):

☐ I, as owner of the property, will do the work and the structure is not intended or offered for sale (Section 7044, Business and Professions Code).

CONSTRUCTION LENDING AGENCY

I hereby affirm that there is a construction lending agency for the performance of the work for which this permit is issued (Sec. 3097, Civ. C.).

Lender's Name _____

Lender's Address _____

I certify that I have read this application and state that the above information is correct. I agree to comply with all County ordinances and State laws regulating Electrical wiring, and hereby authorize representatives of this County to enter upon the above-mentioned property for inspection purposes.

Jerry W Wanfing Oct 14 80

Signature of Permittee — Date

FOR APPLICANT TO FILL IN	EACH	NO.	FEE
New Residential Bldgs. & Pools	$	—	$
1 & 2-Family, Sq. Ft.		—	
Multi-family Sq. Ft.			
Residential Swimming Pools			
Outlets: Rec 34 Light 30 Sw. 18			10 00
Total No. 82 First 20 / Additional			18 60
Lighting Fixtures First 20			10 00
Total No. 30 Additional			3 00
Fixed Appliances Not Over 1 HP			
Range ___ Heater ___ D.W. ___			
Oven ___ Dryer ___ W.M. ___			
Top ___ FAU ___ W.H. ___			
Hood ___ Fan ___ Other ___			
Disp. ___ Room Air Cond. ___			
Power Apparatus & Large Appliances			
Size & Type HP, KW, KVA, or KVAR			
_____ Up to 1 Incl.			
_____ Over 1 to 10 Incl.			
_____ Over 10 to 50 Incl.			
_____ Over 50 to 100 Inc.			
_____ Over 100			
Services			
0-200 Amp. Under 600 V		1	25 00
201-1000 Amp. Under 600 V			
Over 1000 Amp. or Over 600 V			
Temp. Power Pole & Appurtenances			
Sign with One Branch Circuit			
Additional Sign Branch Circuits			
Misc. Conduits & Conductors			
Other (See Complete Fee Schedule)			
PERMIT FEE (Sub-Total)			
PLAN CHECKING FEE (One-Fourth Permit Fee)			
PERMIT ISSUING FEE			7 00
TOTAL FEE			73 00

JOB ADDRESS 24929 Hawk Brave

LOCALITY New Hall

NEAREST CROSS ST Wa Bus KM

OWNER OR FIRM NAME Sam Smiser

MAIL ADDRESS 8610 Alantic Blvd

CITY South Gate Tel No.

PLAN CHECK APPLICANT

ADDRESS

CITY Tel No.

PERMIT APPLICANT Jerry Electrical Service

ADDRESS 3052 Sierra Hwy

CITY Rosamond Ca Tel No. 256-3761

LICENSE OR REG. NUMBER 287891 Class C-10

DISTRICT NO. 18.2

PROCESSED BY

FINAL DATE 2/3/81

FINAL BY

VALIDATION

#7601P
#•••••2
1••7360
•••7360B
1014-80

SEE REVERSE FOR EXPLANATORY LANGUAGE

APPROVALS	DATE	INSPECTOR'S SIGNATURE
TEMP. POWER POLE		
UNDERSLAB WORK	10/15/81	Field
ROUGH CONDUIT	1-8-82	Field
WIRING		
FIXTURES		
POWER AUTHORIZED		
UTILITY CO. NOTIFIED		
FINAL	Enter on Front	
NOTES		

1-29-81 Field

1-29-81 Field

Field confirms owner takes on Jobs

OWNER-BUILDER DECLARATION

I hereby affirm that I am exempt from the Contractor's License Law for the following reason *(Section 7031.5, Business and Professions Code): Any city or county which requires a permit to construct, alter, improve, demolish, or repair any structure, prior to its issuance, also requires the applicant for such permit to file a signed statement that he is licensed pursuant to the provisions of the Contractor's License Law (Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code) or that he is exempt therefrom and the basis for the alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than five hundred dollars ($500).:*

☐ I, as owner of the property will do the work, and the structure is not intended or offered for sale.
(Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who does such work himself provided that such improvements are not intended or offered for sale. If, however, the building or improvement is sold within one year of completion, the owner-builder will have the burden of proving that he did not build or improve for the purpose of sale.)

I am exempt under Sec. _____.

B & P.C. for this reason _____

_____

Date _____

Owner _____

76A642D
CE 808 (2-80)

APPLICATION FOR PERMIT
SEWER-SEWAGE DISPOSAL

COUNTY OF LOS ANGELES — **BUILDING AND SAFETY**

1

WORKERS' COMPENSATION DECLARATION

I hereby affirm that I have a certificate of consent to self insure, or a certificate of Workers' Compensation Insurance, or a certified copy thereof (Sec. 3800, Lab. C.)

Policy No. _____ Company _____

☐ Certified copy is hereby furnished.

☒ Certified copy is filed with the county building inspection department.

Date 1-8-81 Applicant STAATS CONST.

CERTIFICATE OF EXEMPTION FROM WORKERS' COMPENSATION INSURANCE

(This section need not be completed if the work involved by the permit is for one hundred dollars ($100) or less.)

I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the Workers' Compensation Laws.

Date _____ **Applicant** _____

NOTICE TO APPLICANT: If, after making this Certificate of Exemption, you should become subject to the Workers' Compensation provisions of the Labor Code, you must forthwith comply with such provisions or this permit shall be deemed revoked.

LICENSED CONTRACTORS DECLARATION

I hereby affirm that I am licensed under provisions of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code, and my license is in full force and effect.

License Number _____ Lic. Class _____

Contractor _____ Date _____

☐ I am exempt from the licensing requirements as I am a licensed architect or a registered professional engineer acting in my professional capacity (Section 7051, Business and Professions Code).

Lic. or Reg. No. _____ Date _____

HOME OWNER-BUILDER DECLARATION

I hereby affirm that I am exempt from the Contractor's License Law for the following reason (Section 7031.5, Business and Professions Code):

☐ I, as owner of the property, will do the work and the structure is not intended or offered for sale (Section 7044, Business and Professions Code).

CONSTRUCTION LENDING AGENCY

I hereby affirm that there is a construction lending agency for the performance of the work for which this permit is issued (Sec. 3097, Civ. C.).

Lender's Name _____

Lender's Address _____

I certify that I have read this application and state that the above information is correct. I agree to comply with all County ordinances and State laws regulating Plumbing and Sewers, and hereby authorize representatives of this County to enter upon the above-mentioned property for inspection purposes.

1-8-81

Signature of Applicant — Date

FOR APPLICANT TO FILL IN

BUILDING ADDRESS 24924 HAWKHEAD

LOCALITY NEWHALL

NEAREST CROSS ST WALNUSKA

OWNER SMISER

MAIL ADDRESS

CITY — TEL. NO.

LEGAL DESCRIPTION — LOT NO.

BLOCK — TRACT OD Le 12

SIZE OF LOT — NO. OF BLDGS. NOW ON LOT

USE OF BUILDINGS

CONTRACTOR STAAT CONST.

ADDRESS 24951 FIREWALL

CITY Saugus TEL. NO. 259-1300

STATE LICENSE NO. 123859 LIC. CLASS C-42

NO.	DESCRIPTION OF WORK	FEE	
	HOUSE SEWER CONNECTING TO PUBLIC SEWER		
1	SEPTIC TANK, SEEPAGE PIT OR PITS AND/OR DRAINFIELD	28	00
1	HOUSE SEWER CONNECTING TO PRIVATE DISPOSAL SYSTEM	9	00
	CONNECT ADDITIONAL BLDG. OR WORK TO HOUSE SEWER		
	OVERFLOW SEEPAGE PIT, DRAINFIELD EXTN., CESSPOOL, DRYWELL, MANHOLE		
	ALTER, REPAIR OR ABANDON HOUSE SEWER OR DISPOSAL SYSTEM		

OWNER'S AUTHORIZATION

Permit $ 8 50

TOTAL FEE 45 50

I HAVE AT THIS DATE A CONTRACT WITH THE HEREIN NAMED CONTRACTOR TO CONNECT THE ABOVE DESCRIBED EXISTING DWELLING TO THE PUBLIC SEWER.

SIGNED THIS _____ DAY OF _____ 19 ___

OWNER OR OWNERS AGENT _____

ADDRESS _____

CONNECTION DATA

STATION — DEPTH

MANHOLE REFERENCE — UPPER / LOWER

TYPE OF CONNECTION Y. CURB P.L. — LENGTH FROM M.L. TO P.L.

CO. IMP. NO. — P.C. NO. JOB NO.

TRUNK PERMIT NO. — ROAD PERMIT NO.

AFFIDAVIT	WAIVER	EASEMENT	RECORD	INSTR. NO.	DATE

HWY. OR ST. WIDENING

STATE ENCROACHMENT PERMIT NO.

CHARGES

CONNECTION CHARGE FEE

REIMBURSEMENT FEE

DISTRICT NO.	GROUP	MAP BK	MAP PG	PROCESSED BY
8.2	M-1			

FINAL DATE 1/9/81

FINAL BY

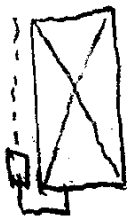
VALIDATION

E04278
#••••10
I••4550
•••4550H
01.08-81

INSPECTOR COPY

SEE REVERSE FOR EXPLANATORY LANGUAGE

APPROVALS	DATE	INSPECTOR'S SIGNATURE
NEW HOME SEWER		
CONNECT ADDITIONAL BUILDING OR WORK		
SEPTIC TANK SEEP, PIT(S) AND/OR DRAINFIELD		
CESSPOOL ☐ DRYWELL ☐		
ALTER, REPAIR, SEWER OR SEWAGE DISPOSAL SYSTEM		
DISCONNECT PLUG AND ABANDON HOUSE SEWER		
BACKFILL SEPTIC TANKS ☐ SEEP, PIT(S) ☐ CESSPOOLS ☐		



INSPECTOR'S NOTES

INSPECTOR'S NOTES

OWNER-BUILDER DECLARATION

I hereby affirm that I am exempt from the Contractor's License Law for the following reason *(Section 7031.5, Business and Professions Code): Any city or county which requires a permit to construct, alter, improve, demolish, or repair any structure, prior to its issuance, also requires the applicant for such permit to file a signed statement that he is licensed pursuant to the provisions of the Contractor's License Law (Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code) or that he is exempt therefrom and the basis for the alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than five hundred dollars ($500).:*

☐ I, as owner of the property will do the work, and the structure is not intended or offered for sale.
(Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who does such work himself provided that such improvements are not intended or offered for sale. If, however, the building or improvement is sold within one year of completion, the owner-builder will have the burden of proving that he did not build or improve for the purpose of sale.)

I am exempt under Sec. _____.

B & P.C. for this reason _____

_____

Date _____

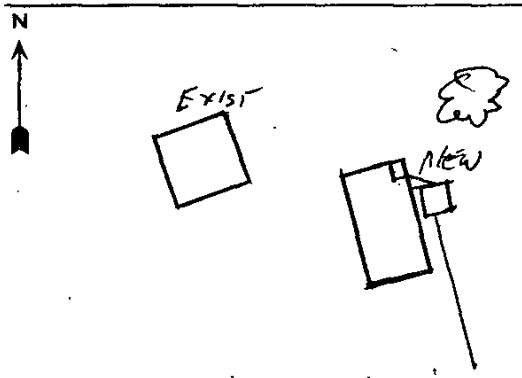
Owner _____

NOT TO SCALE

FROM: COUNTY OF LOS ANGELES DEPARTMENT OF HEALTH SERVICES
COMMUNITY HEALTH SERVICES

TO: COUNTY OF LOS ANGELES DEPARTMENT OF BUILDING SERVICES

Alhambra OFFICE



Remarks: IF ANY DOMESTIC WATER LINES ARE ENCOUNTERED THE LOCATION OF THE SEWAGE DISPOSAL MUST BE REVISED.

76R285H H-154 (REV. 11-73)

DATE 9/17/80

NAME Smiser Freight

ADDRESS 24924 Hawkbyrn

Newhall Calif

The requirements of Los Angeles County Ordinance No. 2269 can be met by a properly installed disposal system including the following:

- [X] SEPTIC TANK 7FU 750Gal
- [ ] SEEPAGE PIT
- [ ] CESSPOOL 40 CLASS
- [ ] One or more seepage pits depending upon type of soil encountered.
- [ ] GREASE TRAP
- [X] DRAINFIELD

Length 100 Width 3 Depth 5

BUILDING DEPT.

APPLICATION FOR BUILDING PERMIT

COUNTY OF LOS ANGELES — **BUILDING AND SAFETY**

1

INSPECTOR COPY

WORKERS' COMPENSATION DECLARATION

I hereby affirm that I have a certificate of consent to self insure, or a certificate of Workers' Compenstion Insurance, or a certified copy thereof (Sec. 3800, Lab. C.)

Policy No. 72WB401454 Company Hartford

☐ Certified copy is hereby furnished.

☑ Certified copy is filed with the county building inspection department.

Date 9-22-80 Applicant Dale Turner

CERTIFICATE OF EXEMPTION FROM WORKERS' COMPENSATION INSURANCE

(This section need not be completed if the permit is for one hundred dollars ($100) or less.)

I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the Workers' Compensation Laws.

Date _____ Applicant _____

NOTICE TO APPLICANT: If, after making this Certificate of Exemption, you should become subject to the Workers' Compensation provisions of the Labor Code, you must forthwith comply with such provisions or this permit shall be deemed revoked.

LICENSED CONTRACTORS DECLARATION

I hereby affirm that I am licensed under provisions of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code, and my license is in full force and effect.

License Number C 33333 Lic. Class B

Contractor TURCON CONSTR. Date 9-22-80

☐ I am exempt from the licensing requirements as I am a licensed architect or a registered professional engineer acting in my professional capacity (Section 7051, Business and Professions Code).

Lic. or Reg. No. _____ Date _____

OWNER-BUILDER DECLARATION

I hereby affirm that I am exempt from the Contractor's License Law for the following reason (Section 7031.5, Business and Professions Code):

☐ I, as owner of the property, or my employees with wages as their sole compensation, will do the work and the structure is not intended or offered for sale (Section 7044, Business and Professions Code).

☐ I, as owner of the property, am exclusively contracting with licensed contractors to construct the project (Section 7044, Business and Professions Code).

CONSTRUCTION LENDING AGENCY

I hereby affirm that there is a construction lending agency for the performance of the work for which this permit is issued (Sec. 3097, Civ. C.).

Lender's Name _____

Lender's Address _____

I certify that I have read this application and state that the above information is correct. I agree to comply with all County ordinances and State laws relating to building construction, and hereby authorize representatives of this County to enter upon the above-mentioned property for inspection purposes.

Dale Turner 9-22-80

Signature of Applicant or Agent — Date

76 A638A CE803A (REV. 1/80)

FOR APPLICANT TO FILL IN

BUILDING ADDRESS 24924 N. HAWKBRYN

CITY Newhall ZIP

SIZE OF LOT 26 ACS. NO. OF BLDGS. NOW ON LOT 1

TRACT | BLOCK | LOT NO.

OWNER Sam Smiser TEL. NO.

ADDRESS 8610 ATLANTIC BLVD

CITY South Gate ZIP 90280

ARCHITECT OR ENGINEER A.V. ENGINEERING TEL. NO. 948-0805

ADDRESS 129 W. PONDERA LANCASTER

CONTRACTOR TURCON CONSTR. TEL. NO. 948-3095

ADDRESS 43843 N. DIVISION LIC. NO. C 33333

CITY Lancaster LIC. CLASS B

SQ. FT SIZE	NO. OF STORIES	NO. OF FAMILIES	CHECK ONE
9240	1	0	

DESCRIPTION OF WORK Pre-fab metal building for storage of farm implements

NEW ☑ ADD ☐ ALTER ☐ REPAIR ☐ DEMOL ☐

USE OF EXISTING BLDG Mule barn

APPLICANT (PRINT) DALE TURNER TEL. NO. 948-3095

ADDRESS 43843 N. DIVISION LANCASTER

PRESENT BUILDING ADDRESS

LOCALITY

MOVING CONTRACTOR TEL. NO.

ADDRESS

REQUIRED SET BACK	YARD	HWY	TOTAL SETBACK FROM PROP. LINE	EXIST. WIDTH
FRONT P.L.	20	56	76	56
SIDE P.L.				

P.C. Fee $ 228.00 — Permit Fee 285.-

Issuance Fee 7.-

Investigation Fee — Total Fee 292.-

SEE REVERSE FOR EXPLANATORY LANGUAGE

BUILDING ADDRESS 24924 HAWKBRYN

LOCALITY NEWHALL

NEAREST CROSS ST. WABUSKA

ASSESSOR MAP BOOK 2825 | PAGE | PARCEL

USE ZONE A-2-1 | MAP NO. | SPECIAL CONDITIONS

DISTRICT	GROUP	TYPE CONST.	FIRE ZONE	PROCESSED BY
8-2	M-1	PREFAB	4	T.W.

STATISTICAL CLASSIFICATION CLASS NO. 19 DWELL. UNITS 0 | APT. | CONDO.

SEWER MAP BK. PG.

VALIDATION

VALUATION $

$

FINAL DATE 10/2/80

FINAL By

3046

23

228.00

10-9-79

177.1

1-39.0

1932-8

PLANS TO APPLICANT

To:		Returned		Approved
No.	Date	No.	Date	

Approvals	Required Yes	Required No	Date Received or Approved
Water Certificate			
Health Department			
Fire Department			
Grading			
Geological			
Pedestrian Protection (Fence) (Canopy)			
Special Inspection (Conc.) (Masonry) (Welding)			
Lot Drainage			
Parking			

Approvals	Date	Inspector's Signature
Location—(Setback & Yards)		
Foundations		
Slab		
Frame		
Energy Insulation		
Lath/Drywall—Interior		
Lath—Exterior		
House Number—Correct & Posted		
Final—Enter on Front		

INSPECTOR'S NOTES

10/16/80 owner - sales owner wanted ramps omitted from plan - field

OWNER-BUILDER DECLARATION

I hereby affirm that I am exempt from the Contractor's License Law for the following reason. (Sec. 7031.5) *Business and Professions Code: Any city or county which requires a permit to construct, alter, improve, demolish, or repair any structure, prior to its issuance, also requires the applicant for such permit to file a signed statement that he is licensed pursuant to the provisions of the Contractor's License Law (Chapter 9) (commencing with Section 7000) of Division 3 of the Business and Professions Code) or that he is exempt therefrom and the basis for the alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than five hundred dollars ($500).):*

☐ I, as owner of the property, or my employees with wages as their sole compensation, will do the work, and the structure is not intended or offered for sale (Sec. 7044) *Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who does such work himself or through his own employees, provided that such improvements are not intended or offered for sale. If, however, the building or improvement is sold within one year of completion, the owner-builder will have the burden of proving that he did not build or improve for the purpose of sale).*

☐ I, as owner of the property, am exclusively contracting with licensed contractors to construct the project (Sec. 7044) *Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who contracts for such projects with a contractor(s) licensed pursuant to the Contractor's License Law).*

☐ I am exempt under Sec._____, B.&P.C. for this reason_____.

Date_____ Owner_____

INSPECTOR'S NOTES

COUNTY OF LOS ANGELES
DEPARTMENT OF COUNTY ENGINEER
BUILDING AND SAFETY DIVISION

MULE BARN

SPECIAL INSPECTOR'S REPORT

EACH INSPECTOR MUST COMPLETE THIS REPORT AND MAIL IT TO THE DISTRICT OFFICE OF THE BUILDING AND SAFETY DIVISION.

WEEKLY ☐ FINAL ☐

TOTAL TIME ON JOB (IN DAYS) ONE BUILDING PERMIT NO. 6771 DISTRICT NO. Valencia

JOB ADDRESS 24924 HAWKBRYN, NEWHALL

GENERAL CONTRACTOR TURCON CONST. CO. INC. 948-3095

SIZE OF BLDG. 70 X 132 TYPE OF WALL METAL NO. OF STORIES ONE

TYPE OF WORK: REINFORCED CONCRETE ☐ MASONRY ☐ HI-TENSILE BOLTING ☒

PRESTRESSED CONCRETE ☐ WELDING ☐ GYPSUM CONCRETE ☐

DESCRIPTION OF WORK INSPECTED APPLIED A TENSION OF 355 FT. LBS. ON TO 170 ¾ HIGH STRENGTH BOLTS.

LOCATION IN STRUCTURE: ROOF LEVEL

REMARKS CONSTRUCTION IN EXCELLENT CONDITION.

All work on this job to date has been satisfactorily completed and conforms to the approved plans and requirements of the Los Angeles County Building Code.

DEC. 31,1980
Date

W. A. Cunningham
Special Inspector I D No.0120

BSRE-003/6-72

W.A.CUNNINGHAM

APPENDIX V

INTERVIEW AND USER PROVIDED DOCUMENTATION

First American	ALTA Commitment for Title Insurance
Commitment	ISSUED BY **First American Title Insurance Company** File No: NCS-997344-LA2

COMMITMENT FOR TITLE INSURANCE

Issued By

FIRST AMERICAN TITLE INSURANCE COMPANY

NOTICE

IMPORTANT-READ CAREFULLY: THIS COMMITMENT IS AN OFFER TO ISSUE ONE OR MORE TITLE INSURANCE POLICIES. ALL CLAIMS OR REMEDIES SOUGHT AGAINST THE COMPANY INVOLVING THE CONTENT OF THIS COMMITMENT OR THE POLICY MUST BE BASED SOLELY IN CONTRACT.

THIS COMMITMENT IS NOT AN ABSTRACT OF TITLE, REPORT OF THE CONDITION OF TITLE, LEGAL OPINION, OPINION OF TITLE, OR OTHER REPRESENTATION OF THE STATUS OF TITLE. THE PROCEDURES USED BY THE COMPANY TO DETERMINE INSURABILITY OF THE TITLE, INCLUDING ANY SEARCH AND EXAMINATION, ARE PROPRIETARY TO THE COMPANY, WERE PERFORMED SOLELY FOR THE BENEFIT OF THE COMPANY, AND CREATE NO EXTRACONTRACTUAL LIABILITY TO ANY PERSON, INCLUDING A PROPOSED INSURED.

THE COMPANY'S OBLIGATION UNDER THIS COMMITMENT IS TO ISSUE A POLICY TO A PROPOSED INSURED IDENTIFIED IN SCHEDULE A IN ACCORDANCE WITH THE TERMS AND PROVISIONS OF THIS COMMITMENT. THE COMPANY HAS NO LIABILITY OR OBLIGATION INVOLVING THE CONTENT OF THIS COMMITMENT TO ANY OTHER PERSON.

COMMITMENT TO ISSUE POLICY

Subject to the Notice; Schedule B, Part I-Requirements; Schedule B, Part II-Exceptions; and the Commitment Conditions, ***First American Title Insurance Company***, a Nebraska Corporation (the "Company"), commits to issue the Policy according to the terms and provisions of this Commitment. This Commitment is effective as of the Commitment Date shown in Schedule A for each Policy described in Schedule A, only when the Company has entered in Schedule A both the specified dollar amount as the Proposed Policy Amount and the name of the Proposed Insured.

If all of the Schedule B, Part I-Requirements have not been met within six months after the Commitment Date, this Commitment terminates and the Company's liability and obligation end.

First American Title Insurance Company

Dennis J. Gilmore
President

Jeffrey S. Robinson
Secretary

If this jacket was created electronically, it constitutes an original document.

This page is only a part of a 2016 ALTA® Commitment for Title Insurance issued by First American Title Insurance Company. This Commitment is not valid without the Notice; the Commitment to Issue Policy; the Commitment Conditions; Schedule A; Schedule B, Part I-Requirements; Schedule B, Part II-Exceptions.

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COMMITMENT CONDITIONS

1. DEFINITIONS

(a) "Knowledge" or "Known": Actual or imputed knowledge, but not constructive notice imparted by the Public Records.
(b) "Land": The land described in Schedule A and affixed improvements that by law constitute real property. The term "Land" does not include any property beyond the lines of the area described in Schedule A, nor any right, title, interest, estate, or easement in abutting streets, roads, avenues, alleys, lanes, ways, or waterways, but this does not modify or limit the extent that a right of access to and from the Land is to be insured by the Policy.
(c) "Mortgage": A mortgage, deed of trust, or other security instrument, including one evidenced by electronic means authorized by law.
(d) "Policy": Each contract of title insurance, in a form adopted by the American Land Title Association, issued or to be issued by the Company pursuant to this Commitment.
(e) "Proposed Insured": Each person identified in Schedule A as the Proposed Insured of each Policy to be issued pursuant to this Commitment.
(f) "Proposed Policy Amount": Each dollar amount specified in Schedule A as the Proposed Policy Amount of each Policy to be issued pursuant to this Commitment.
(g) "Public Records": Records established under state statutes at the Commitment Date for the purpose of imparting constructive notice of matters relating to real property to purchasers for value and without Knowledge.
(h) "Title": The estate or interest described in Schedule A.

2. If all of the Schedule B, Part I—Requirements have not been met within the time period specified in the Commitment to Issue Policy, this Commitment terminates and the Company's liability and obligation end.

3. The Company's liability and obligation is limited by and this Commitment is not valid without:
(a) the Notice;
(b) the Commitment to Issue Policy;
(c) the Commitment Conditions;
(d) Schedule A;
(e) Schedule B, Part I—Requirements; and
(f) Schedule B, Part II—Exceptions.

4. COMPANY'S RIGHT TO AMEND

The Company may amend this Commitment at any time. If the Company amends this Commitment to add a defect, lien, encumbrance, adverse claim, or other matter recorded in the Public Records prior to the Commitment Date, any liability of the Company is limited by Commitment Condition 5. The Company shall not be liable for any other amendment to this Commitment.

5. LIMITATIONS OF LIABILITY

(a) The Company's liability under Commitment Condition 4 is limited to the Proposed Insured's actual expense incurred in the interval between the Company's delivery to the Proposed Insured of the Commitment and the delivery of the amended Commitment, resulting from the Proposed Insured's good faith reliance to:
  (i) comply with the Schedule B, Part I—Requirements;
  (ii) eliminate, with the Company's written consent, any Schedule B, Part II—Exceptions; or
  (iii) acquire the Title or create the Mortgage covered by this Commitment.
(b) The Company shall not be liable under Commitment Condition 5(a) if the Proposed Insured requested the amendment or had Knowledge of the matter and did not notify the Company about it in writing.
(c) The Company will only have liability under Commitment Condition 4 if the Proposed Insured would not have incurred the expense had the Commitment included the added matter when the Commitment was first delivered to the Proposed Insured.
(d) The Company's liability shall not exceed the lesser of the Proposed Insured's actual expense incurred in good faith and described in Commitment Conditions 5(a)(i) through 5(a)(iii) or the Proposed Policy Amount.
(e) The Company shall not be liable for the content of the Transaction Identification Data, if any.
(f) In no event shall the Company be obligated to issue the Policy referred to in this Commitment unless all of the Schedule B, Part I—Requirements have been met to the satisfaction of the Company.
(g) In any event, the Company's liability is limited by the terms and provisions of the Policy.

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6. LIABILITY OF THE COMPANY MUST BE BASED ON THIS COMMITMENT

(a) Only a Proposed Insured identified in Schedule A, and no other person, may make a claim under this Commitment.
(b) Any claim must be based in contract and must be restricted solely to the terms and provisions of this Commitment.
(c) Until the Policy is issued, this Commitment, as last revised, is the exclusive and entire agreement between the parties with respect to the subject matter of this Commitment and supersedes all prior commitment negotiations, representations, and proposals of any kind, whether written or oral, express or implied, relating to the subject matter of this Commitment.
(d) The deletion or modification of any Schedule B, Part II—Exception does not constitute an agreement or obligation to provide coverage beyond the terms and provisions of this Commitment or the Policy.
(e) Any amendment or endorsement to this Commitment must be in writing and authenticated by a person authorized by the Company.
(f) When the Policy is issued, all liability and obligation under this Commitment will end and the Company's only liability will be under the Policy.

7. IF THIS COMMITMENT HAS BEEN ISSUED BY AN ISSUING AGENT

The issuing agent is the Company's agent only for the limited purpose of issuing title insurance commitments and policies. The issuing agent is not the Company's agent for the purpose of providing closing or settlement services.

8. PRO-FORMA POLICY

The Company may provide, at the request of a Proposed Insured, a pro-forma policy illustrating the coverage that the Company may provide. A pro-forma policy neither reflects the status of Title at the time that the pro-forma policy is delivered to a Proposed Insured, nor is it a commitment to insure.

9. ARBITRATION

Arbitration provision intentionally removed.

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Transaction Identification Data for reference only:

Issuing Agent: First American Title Insurance Company National Commercial Services
Commitment No.: NCS-997344-LA2
Property Address: 24924 Hawkbryn Avenue, Santa Clarita, CA 91321
Revision No.:

Issuing Office: 777 South Figueroa Street, Suite 400, Los Angeles, CA 90017
Issuing Office File No.: NCS-997344-LA2
Escrow Officer/Assistant: /

Phone: /
Email: /
Title Officer/Assistant: Anthony Rivera/Leticia Sianez
Phone: (213)271-1700/(213)271-1746
Email: arivera@firstam.com/lbsianez@firstam.com

SCHEDULE A

1. Commitment Date: January 08, 2020 at 8:00 AM
2. Policy to be issued:

   (a) ☐ 2006 ALTA® Policy
   Proposed Insured:
   Proposed Policy Amount: $

   (b) ☐ 2006 ALTA® Policy
   Proposed Insured:
   Proposed Policy Amount: $

   (c) ☐ 2006 ALTA® Policy
   Proposed Insured:
   Proposed Policy Amount: $

3. The estate or interest in the Land described or referred to in this Commitment is

   Fee

4. The Title is, at the Commitment Date, vested in:

   Wiley Cyn, LLC, a California limited liability company

5. The Land is described as follows:

   See Exhibit "A" attached hereto and made a part hereof

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Commitment No.: NCS-997344-LA2

SCHEDULE B, PART I

Requirements

All of the following Requirements must be met:

A. The Proposed Insured must notify the Company in writing of the name of any party not referred to in this Commitment who will obtain an interest in the Land or who will make a loan on the Land. The Company may then make additional Requirements or Exceptions.

B. Pay the agreed amount for the estate or interest to be insured.

C. Pay the premiums, fees, and charges for the Policy to the Company.

D. Documents satisfactory to the Company that convey the Title or create the Mortgage to be insured, or both, must be properly authorized, executed, delivered, and recorded in the Public Records.

E. Releases(s) or Reconveyance(s) of Item(s): 37

F. Other: None

G. You must give us the following information:
   a. Any off record leases, surveys, etc.
   b. Statement(s) of Identity, all parties.
   c. Other: None

The following additional requirements, as indicated by "X", must be met:

[X] H. Provide information regarding any off-record matters, which may include, but are not limited to: leases, recent works of improvement, or commitment statements in effect under the Environmental Responsibility Acceptance Act, Civil Code Section 850, et seq.

The Company's Owner's Affidavit form (as provided by the company) must be completed and submitted prior to close in order to satisfy this requirement. This Commitment will then be subject to such further exceptions and/or requirements as may be deemed necessary.

[] I. An ALTA/NSPS survey of recent date, which complies with the current minimum standard detail requirements for ALTA/NSPS land title surveys, must be submitted to the Company for review. This Commitment will then be subject to such further exceptions and/or requirements as may be deemed necessary.

This page is only a part of a 2016 ALTA® Commitment for Title Insurance issued by First American Title Insurance Company. This Commitment is not valid without the Notice; the Commitment to Issue Policy; the Commitment Conditions; Schedule A; Schedule B, Part I-Requirements; Schedule B, Part II-Exceptions.

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[X] J. The following LLC documentation is required from:

(i) a copy of the Articles of Organization
(ii) a copy of the Operating Agreement, if applicable
(iii) a Certificate of Good Standing and/or other evidence of current Authority to Conduct Business within the State
(iv) express Company Consent to the current transaction

[] K. The following partnership documentation is required **:**

(i) a copy of the partnership agreement, including all applicable amendments thereto
(ii) a Certificate of Good Standing and/or other evidence of current Authority to Conduct Business within the State
(iii) express Partnership Consent to the current transaction

[] L. The following corporation documentation is required:

(i) a copy of the Articles of Incorporation
(ii) a copy of the Bylaws, including all applicable Amendments thereto
(iii) a Certificate of Good Standing and/or other evidence of current Authority to Conduct Business within the State
(iv) express Corporate Resolution consenting to the current transaction

[X] M. Based upon the Company's review of that certain partnership/operating agreement dated **Not disclosed** for the proposed insured herein, the following requirements must be met:
Any further amendments to said agreement must be submitted to the Company, together with an affidavit from one of the general partners or members stating that it is a true copy, that said partnership or limited liability company is in full force and effect, and that there have been no further amendments to the agreement. This Commitment will then be subject to such further requirements as may be deemed necessary.

[] N. A copy of the complete lease, as referenced in Schedule A, #3 herein, together with any amendments and/or assignments thereto, must be submitted to the Company for review, along with an affidavit executed by the present lessee stating that it is a true copy, that the lease is in full force and effect, and that there have been no further amendments to the lease. This Commitment will then be subject to such further requirements as may be deemed necessary.

[X] O. Approval from the Company's Underwriting Department must be obtained for issuance of the policy contemplated herein and any endorsements requested thereunder. This Commitment will then be subject to such further requirements as may be required to obtain such approval.

[] P. Potential additional requirements, if ALTA Extended coverage is contemplated hereunder, and work on the land has commenced prior to close, some or all of the following requirements, and any other requirements which may be deemed necessary, may need to be met:

[] Q. The Company's "Indemnity Agreement I" must be executed by the appropriate parties.

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[] R. Financial statements from the appropriate parties must be submitted to the Company for review.

[] S. A copy of the construction contract must be submitted to the Company for review.

[] T. An inspection of the Land must be performed by the Company for verification of the phase of construction.

[] U. The Company's "Mechanic's Lien Risk Addendum" form must be completed by a Company employee, based upon information furnished by the appropriate parties involved.

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Commitment No.: NCS-997344-LA2

SCHEDULE B, PART II

Exceptions

THIS COMMITMENT DOES NOT REPUBLISH ANY COVENANT, CONDITION, RESTRICTION, OR LIMITATION CONTAINED IN ANY DOCUMENT REFERRED TO IN THIS COMMITMENT TO THE EXTENT THAT THE SPECIFIC COVENANT, CONDITION, RESTRICTION, OR LIMITATION VIOLATES STATE OR FEDERAL LAW BASED ON RACE, COLOR, RELIGION, SEX, SEXUAL ORIENTATION, GENDER IDENTITY, HANDICAP, FAMILIAL STATUS, OR NATIONAL ORIGIN.

The Policy will not insure against loss or damage resulting from the terms and provisions of any lease or easement identified in Schedule A, and will include the following Exceptions unless cleared to the satisfaction of the Company:

1. Any defect, lien, encumbrance, adverse claim, or other matter that appears for the first time in the Public Records or is created, attaches, or is disclosed between the Commitment Date and the date on which all of the Schedule B, Part I-Requirements are met.

2. (a) Taxes or assessments that are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the Public Records; (b) proceedings by a public agency that may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the Public Records.

3. Any facts, rights, interests, or claims that are not shown by the Public Records but that could be ascertained by an inspection of the Land or that may be asserted by persons in possession of the Land.

4. Easements, liens or encumbrances, or claims thereof, not shown by the Public Records.

5. Any encroachment, encumbrance, violation, variation, or adverse circumstance affecting the Title that would be disclosed by an accurate and complete land survey of the Land and not shown by the Public Records.

6. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b), or (c) are shown by the Public Records.

7. General and special taxes and assessments for the fiscal year 2020-2021, a lien not yet due or payable.

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8. General and special taxes and assessments for the fiscal year 2019-2020.

First Installment:	$675.14, PAID
Penalty:	$0.00
Second Installment:	$675.12, OPEN
Penalty:	$0.00
Tax Rate Area:	00219
A. P. No.:	2825-012-007

(Affects Parcel 1 of Parcel A)

9. General and special taxes and assessments for the fiscal year 2019-2020.

First Installment:	$13,366.76, PAID
Penalty:	$0.00
Second Installment:	$13,366.74, OPEN
Penalty:	$0.00
Tax Rate Area:	00224
A. P. No.:	2825-012-010

(Affects Parcel B)

10. This item has been intentionally deleted.

11. General and special taxes and assessments for the fiscal year 2019-2020.

First Installment:	$79,126.16, PAID
Penalty:	$0.00
Second Installment:	$79,126.16, OPEN
Penalty:	$0.00
Tax Rate Area:	00219
A. P. No.:	2825-012-011

(Affects Parcels 2 and 3 of Parcel A)

12. This item has been intentionally deleted.

13. The lien of supplemental taxes, if any, assessed pursuant to Chapter 3.5 commencing with Section 75 of the California Revenue and Taxation Code.

14. An oil and gas lease executed by Walter E. Berman and Dorothy Berman, husband and wife, as to an undivided one-half (1/2) interest; and Charles M. Monell, an unmarried man, as to an undivided one-half (1/2) interest as lessor and W. O. Anderson and J. I. Anderson as lessee, recorded as Book M3146 Page 316 of Official Records.

Defects, liens, encumbrances or other matters affecting the leasehold estate, whether or not shown by the public records are not shown herein.

(Affects Parcel A)

15. An easement for road purposes over a strip of land 40 feet wide, includes in Wiley Canyon Road, as shown on County Surveyor's Map No. 6664 on file in the Office of the county surveyor of said County of Los Angeles.

(Affects Parcel A)

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16. An easement for public utility and incidental purposes, recorded May 13, 1966 as Instrument No. 3063 in Book D3304 Page 451 of Official Records.
In Favor of: State of California
Affects: as described therein

(Affects Parcel A)

17. A waiver of any claims for damages by reason of the location, construction, landscaping or maintenance of a contiguous freeway, highway or roadway, as contained in the document recorded as Book D3304 Page 451 of Official Records.

(Affects Parcel A)

18. An easement for pole lines and incidental purposes in the document recorded in Book 2646 of Deeds, Page 261.

The location of the easement cannot be determined from record information.

(Affects Parcel B)

19. An easement for pipe line for the transportation of water and incidental purposes, recorded in Book 4130 of Deeds, Page 27.
In Favor of: Standard Oil Company, a Corporation
Affects: as described therein

The location of the easement cannot be determined from record information.

(Affects Parcel B)

20. An easement for pipe lines for the transportation of oil, petroleum, gas or water and for telegraph and telephone lines and incidental purposes, recorded in Book 6741 of Deeds, Page 15.
In Favor of: Standard Oil Company, a Corporation
Affects: as described therein

The location of the easement cannot be determined from record information.

(Affects Parcel B)

21. An easement shown or dedicated on the map of Assessor's Map recorded on file in Book 2825, Page 012, of Assessor's Maps.
For: Drainage and incidental purposes.

(Affects Parcel B)

22. Easements and rights of way over the lands herein described which may be necessary for the lessee in the lease recorded October 16, 1951 in Book 37430 Page 234, Official Records, in its operation upon the lands retained by it under the provisions of said lease.

The location of the easement cannot be determined from record information.

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(Affects Parcel B)

23. An easement for drainage, pipe, communication and power lines and temporary construction purposes and incidental purposes, recorded June 21, 1965 as Instrument No. 940, In Book D2947 Page 229 of Official Records.
In Favor of: State Of California
Affects: as described therein

The terms and provisions contained in the document entitled "Director'S Deed" recorded June 17, 1969 as Instrument No. 2524 of Official Records.

(Affects Parcel B)

24. Abutter's rights of ingress and egress to or from Golden State Freeway have been relinquished in the document recorded June 21, 1965 as Instrument No. 940 of Official Records.

(Affects Parcel B)

25. A waiver of any claims for damages by reason of the location, construction, landscaping or maintenance of a contiguous freeway, highway or roadway, as contained in the document recorded June 21, 1965 as Instrument No. 940 of Official Records.

(Affects Parcel B)

26. Abutter's rights of ingress and egress to or from freeway have been relinquished in the document recorded April 14, 1971 as Instrument No. 1770 of Official Records.

(Affects Parcel 1 of Parcel A)

27. An easement for public utilities and incidental purposes, recorded October 17, 1973 as Instrument No. 2858 of Official Records.
In Favor of: The Pacific Telephone and Telegraph Company
Affects: as described therein

(Affects Parcel B)

28. Any private easements or lesser rights in, to, over Wiley Canyon Road that were not affected by the proceedings vacating said road, as the same was vacated by instrument recorded May 24, 1974 as Instrument No. 4414, Official Records.

(Affects Parcel B)

29. An easement for public utilities and incidental purposes, recorded March 20, 1975 as Instrument No. 2388 of Official Records.
In Favor of: Southern California Edison Company, a Corporation
Affects: as described therein

(Affects Parcel A)

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30. An easement for underground cables, wires, wave guides and conduits together with all necessary related underground surface and above ground pedestals and incidental purposes, recorded April 10, 1975 as Instrument No. 1597 of Official Records.
In Favor of: The Pacific Telephone and Telegraph Company, a Corporation
Affects: as described therein

(Affects Parcel A)

31. An easement for public utilities and incidental purposes, recorded May 05, 1982 as Instrument No. 1982-462869 of Official Records.
In Favor of: The Pacific Telephone and Telegraph Company
Affects: as described therein

The location of the easement cannot be determined from record information.

(Affects Parcel B)

32. An easement for public utilities and incidental purposes, recorded May 18, 1982 as Instrument No. 1982-506871 of Official Records.
In Favor of: The Pacific Telephone and Telegraph Company
Affects: as described therein

The location of the easement cannot be determined from record information.

(Affects Parcel B)

33. An easement for public utilities and incidental purposes, recorded July 22, 1985 as Instrument No. 1985-839958 of Official Records.
In Favor of: Pacific Bell
Affects: as described therein

The location of the easement cannot be determined from record information.

(Affects Parcel B)

34. An easement for slope and incidental purposes, recorded September 28, 1998 as Instrument No. 1998-1754090 of Official Records.
In Favor of: The City of Santa Clarita
Affects: as described therein

(Affects Parcel A)

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35. Survey prepared by SR Consultants West, Inc., dated December 21, 2004, revised January 14, 2005 and revised March 10, 2005, under Job No. 946 H, shows the following:

A. The facts that power poles and signs are located on said land.

B. The fact that parking spaces are located along the southeasterly portion of said land.

(Affects Parcel B)

36. Survey prepared by Michael A. Kennada LS 5642, dated May 18, 2018, under Job No. (undisclosed), shows the following:

A. Trailer homes encroaches into the northerly portion of the subject property

B. Fence crosses the northerly portion of the subject property.

C. End of fence crosses the easterly property line by 3.4 feet into adjoining land.

(Affects Parcel B)

37. A deed of trust to secure an original indebtedness of $7,700,000.00 recorded January 08, 2020 as Instrument No. 2020-23228 of Official Records.

Dated:	January 03, 2020
Trustor:	Wiley Cyn, LLC, a California limited liability company
Trustee:	First American Title Company, a California corporation
Beneficiary:	Monteverde Development Co., a corporation and Copperhill Valley, LLC

38. Rights of the public in and to that portion of the Land lying within any road, street and/or highway.

39. Water rights, claims or title to water, whether or not shown by the public records.

40. Rights of parties in possession.

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INFORMATIONAL NOTES

ALERT - CA Senate Bill 2 imposes an additional fee of $75 up to $225 at the time of recording on certain transactions effective January 1, 2018. Please contact your First American Title representative for more information on how this may affect your closing.

1. According to the latest available equalized assessment roll in the office of the county tax assessor, there is located on the land a(n) Commercial Structure known as 24924 Hawkbryn Avenue, Santa Clarita, CA.

   (Affects Parcels 2 and 3 of Parcel A)

2. The property covered by this report is vacant land.

   (Affects Parcel B and Parcel 1 of Parcel A)

3. According to the public records, there has been no conveyance of the land within a period of twenty four months prior to the date of this report, except as follows:

   A document recorded January 08, 2020 as Instrument No. 2020-23227 of Official Records.

From:	Monteverde Development Co., a California corporation and Copperhill Valley, LLC, a California limited liability company
To:	Wiley Cyn, LLC, a California limited liability company

4. This preliminary report/commitment was prepared based upon an application for a policy of title insurance that identified land by street address or assessor's parcel number only. It is the responsibility of the applicant to determine whether the land referred to herein is in fact the land that is to be described in the policy or policies to be issued.

The map attached, if any, may or may not be a survey of the land depicted thereon. First American Title Insurance Company expressly disclaims any liability for loss or damage which may result from reliance on this map except to the extent coverage for such loss or damage is expressly provided by the terms and provisions of this Commitment or the Policy, if any, to which the map is attached.

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Exhibit A

File No.: NCS-997344-LA2

The Land referred to herein below is situated in the City of Santa Clarita, County of Los Angeles, State of California, and is described as follows:

PARCEL A:

PARCEL 1:

ALL THAT CERTAIN PARCEL OF LAND ACQUIRED BY THE STATE OF CALIFORNIA BY PARCEL 4 OF DEED 63, RECORDED MARCH 22, 1951 AS INSTRUMENT NO. 3206 IN BOOK 35868 PAGE 28, OF OFFICIAL RECORDS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY AND THAT CERTAIN PARCEL OF LAND ACQUIRED BY THE STATE OF CALIFORNIA BY DEED 31, RECORDED IN BOOK 8172 PAGE 187, OF SAID OFFICIAL RECORDS, BOUNDED NORTHWESTERLY BY THAT CERTAIN COURSE HAVING A BEARING AND DISTANCE OF NORTH 62°16'58" EAST 50.27 FEET IN PARCEL 2 OF STATE HIGHWAY RELINQUISHMENT NUMBER 602, RECORDED IN BOOK R6678 PAGE 858 OF SAID OFFICIAL RECORDS, AND BOUNDED SOUTHWESTERLY BY THE FOLLOWING DESCRIBED LINE:

BEGINNING AT THE SOUTHWESTERLY CORNER OF SAID PARCEL 4; THENCE NORTHWESTERLY IN A DIRECT LINE TO THE SOUTHWESTERLY TERMINUS OF SAID COURSE, HAVING A BEARING OF NORTH 62°16'18" EAST, TOGETHER WITH ALL THE RIGHTS OF ACCESS AS ACQUIRED BY THE STATE OF CALIFORNIA BY SAID PARCEL 4.

EXCEPT THEREFROM ALL OIL, GAS, MINERALS, AND OTHER HYDROCARBON SUBSTANCES LYING BELOW THE SURFACE OF SAID LAND, BUT WITH NO RIGHT OF SURFACE ENTRY AS PROVIDED IN DEEDS OF RECORDS.

ALSO EXCEPT THEREFROM, ALL OIL, MINERALS, NATURAL GAS AND OTHER HYDROCARBONS BY WHATSOEVER NAME KNOWN THAT MAY BE WITHIN OR UNDER THE HEREIN CONVEYED PARCEL OF LAND, AND THE RIGHTS THERETO, TOGETHER WITH CERTAIN OTHER CONDITIONS, AS ACCEPTED AND RESERVED IN SAID DEED 63.

ALL THAT CERTAIN PARCEL OF LAND AS DESCRIBED IN AND CONVEYED BY THAT CERTAIN DIRECTOR'S DEED AS RECORDED ON APRIL 14, 1971 AS INSTRUMENT NO. 1770 OF THE OFFICIAL RECORDS IN THE OFFICE OF THE COUNTY RECORDER OF THE COUNTY OF LOS ANGELES, STATE OF CALIFORNIA.

PARCEL 2:

THAT PORTION OF LOT 7 AND OF THE SOUTHWEST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 4, TOWNSHIP 3 NORTH, RANGE 16 WEST, SAN BERNARDINO BASE AND MERIDIAN, IN THE CITY OF SANTA CLARITA, IN THE COUNTY OF LOS ANGELES, STATE OF CALIFORNIA, ACCORDING TO THE OFFICIAL PLAT MAP THEREOF, DESCRIBED AS FOLLOWS:

BEGINNING AT THE SOUTHEAST CORNER OF SAID SECTION 4; THENCE NORTHERLY ALONG THE EASTERLY LINE OF SAID SECTION TO THE NORTHEAST CORNER OF SAID LOT 7; THENCE WESTERLY ALONG THE NORTHERLY LINE OF SAID LOT 7 TO THE EASTERLY LINE OF THE WESTERLY 380 FEET OF SAID LOT 7; THENCE SOUTHERLY ALONG SAID LAST MENTIONED EASTERLY LINE TO THE SOUTHERLY LINE OF THE NORTHERLY 270 FEET OF SAID LOT 7; THENCE WESTERLY ALONG SAID SOUTHERLY LINE AND ITS WESTERLY PROLONGATION TO THE NORTHEASTERLY LINE OF THE LAND DESCRIBED IN THE DEED TO THE STATE OF CALIFORNIA, RECORDED ON JUNE 28, 1929 AS INSTRUMENT NO. 1085, IN BOOK 8172 PAGE 187, OFFICIAL RECORDS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY; THENCE SOUTHEASTERLY ALONG SAID NORTHEASTERLY LINE, TO AND ALONG THE NORTHEASTERLY LINE TO THE

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LAND DESCRIBED IN PARCEL 2-A (AMENDED) OF THE FINAL ORDER OF CONDEMNATION ENTERED IN CASE NO. 860012, SUPERIOR COURT OF THE STATE OF CALIFORNIA FOR THE COUNTY OF LOS ANGELES, A CERTIFIED COPY OF WHICH BEING RECORDED ON MAY 13, 1966 AS INSTRUMENT NO. 3063 IN BOOK D3304 PAGE 451, OFFICIAL RECORDS, OF SAID COUNTY TO THE SOUTHERLY LINE OF SAID SECTION; THENCE EASTERLY ALONG SAID SOUTHERLY LINE TO THE POINT OF BEGINNING.

EXCEPT THEREFROM THAT PORTION OF SAID LAND DESCRIBED AS PARCEL NO. 117A IN THE FINAL ORDER OF CONDEMNATION, ENTERED IN CASE NO. C 546819, SUPERIOR COURT OF LOS ANGELES, RECORDED MAY 22, 1990 AS INSTRUMENT NO. 90-925383, OCTOBER 1, 1990 AS INSTRUMENT NO. 90-1674164, AND FEBRUARY 4, 1991 AS INSTRUMENT NO. 91-166097, ALL OF OFFICIAL RECORDS.

ALSO EXCEPT THEREFROM THAT PORTION OF SAID LAND DESCRIBED IN EXHIBIT "A" AND DEPICTED IN EXHIBIT "B" IN THE DEED TO THE CITY OF SANTA CLARITA, RECORDED SEPTEMBER 28, 1998 AS INSTRUMENT NO. 98-1754090, OFFICIAL RECORDS.

PARCEL 3:

THAT PORTION OF LOT 7 AND OF THE SOUTHWEST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 4, TOWNSHIP 3 NORTH, RANGE 16 WEST, SAN BERNARDINO BASE AND MERIDIAN, IN THE CITY OF SANTA CLARITA, COUNTY OF LOS ANGELES, STATE OF CALIFORNIA, ACCORDING TO THE OFFICIAL PLAT MAP THEREOF, DESCRIBED AS FOLLOWS:

BEGINNING AT THE INTERSECTION OF THE NORTHERLY LINE OF SAID LOT 7 WITH THE EASTERLY LINE OF THE WESTERLY 380 FEET OF SAID LOT 7; THENCE SOUTHERLY ALONG SAID EASTERLY LINE TO THE SOUTHERLY LINE OF THE NORTHERLY 270 FEET OF SAID LOT 7; THENCE WESTERLY ALONG SAID SOUTHERLY LINE AND ITS WESTERLY PROLONGATION TO THE NORTHEASTERLY LINE OF THE LAND DESCRIBED IN THE DEED TO THE STATE OF CALIFORNIA, RECORDED ON JUNE 28, 1929 AS INSTRUMENT NO. 1085, IN BOOK 8172 PAGE 187, OFFICIAL RECORDS, IN SAID OFFICE OF THE COUNTY RECORDER; THENCE NORTHWESTERLY ALONG SAID NORTHEASTERLY LINE TO THE NORTHERLY LINE OF SAID SOUTHWEST QUARTER THENCE EASTERLY ALONG SAID NORTHERLY LINE AND SAID NORTHERLY LINE OF LOT 7 TO THE POINT OF BEGINNING.

EXCEPT THAT PORTION WITHIN THE LINES OF THE LAND DESCRIBED IN PARCEL 4 OF THE DEED TO THE STATE OF CALIFORNIA, RECORDED MARCH 22, 1951 AS INSTRUMENT NO. 3206, IN BOOK 35868 PAGE 28, OF SAID OFFICIAL RECORDS.

PARCEL B:

PARCEL 1:

THAT PORTION OF THE NORTHEAST QUARTER OF FRACTIONAL SECTION 9, TOWNSHIP 3 NORTH, RANGE 16 WEST, SAN BERNARDINO MERIDIAN, IN THE CITY OF SANTA CLARITA, IN THE COUNTY OF LOS ANGELES, STATE OF CALIFORNIA, ACCORDING TO THE OFFICIAL PLAT OF SAID LAND FILED IN THE DISTRICT LAND OFFICE ON JUNE 29, 1897, DESCRIBED AS FOLLOWS:

BEGINNING AT THE SOUTHEAST CORNER OF THE NORTHEAST QUARTER OF SAID SECTION 9; THENCE ALONG THE EAST LINE OF SAID QUARTER SECTION, NORTH 0° 12' EAST 1508.90 FEET TO THE TRUE POINT OF BEGINNING; THENCE SOUTH 4° 25' WEST 200.90 FEET; THENCE SOUTH 12° 35' WEST 356.04 FEET; THENCE SOUTH 32° 25' WEST TO THE EASTERLY TERMINUS OF THAT CERTAIN COURSE DESCRIBED IN THE DEED TO THE STATE OF CALIFORNIA, RECORDED APRIL 6, 1951 AS INSTRUMENT NO. 3492, IN BOOK 35992 PAGE 102, OFFICIAL RECORDS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, AS HAVING A BEARING AND LENGTH OF "NORTH 75° 26' 10" EAST 251.75 FEET"; THENCE WESTERLY ALONG SAID CERTAIN COURSE TO THE WESTERLY LINE OF WILEY CANYON ROAD, 40 FEET WIDE, AS SHOWN ON COUNTY SURVEYOR'S MAP NO. 6664 ON FILE IN THE OFFICE OF THE COUNTY ENGINEER OF SAID COUNTY, SAID WESTERLY LINE BEING ALSO THE EASTERLY LINE OF THE LAND DESCRIBED IN PARCEL 1 OF THE DEED TO THE STATE OF CALIFORNIA, RECORDED ON JUNE 21, 1965 AS INSTRUMENT NO. 940, IN BOOK D-2947 PAGE 229, OFFICIAL RECORDS OF SAID COUNTY; THENCE NORTHERLY AND NORTHWESTERLY ALONG

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THE EASTERLY AND NORTHEASTERLY LINES OF SAID PARCEL 1 TO THE NORTHERLY LINE OF SAID SECTION; THENCE EASTERLY AND SOUTHERLY ALONG THE NORTHERLY AND EASTERLY LINES OF SAID SECTION TO THE POINT OF BEGINNING.

EXCEPT ANY PORTION LYING EASTERLY OF THE WESTERLY LINE OF WILEY CANYON ROAD, 40 FEET WIDE, AS DESCRIBED IN BOOK 761 PAGE 303 OF DEEDS.

PARCEL 2:

THAT PORTION OF WILEY CANYON ROAD, 40 FEET WIDE, IN THE COUNTY OF LOS ANGELES, STATE OF CALIFORNIA, AS SHOWN ON MAP OF TRACT NO. 30340, FILED IN BOOK 741 PAGES 62 TO 68 INCLUSIVE OF MAPS, IN THE OFFICE OF THE RECORDER OF SAID COUNTY, WHICH EXTENDS FROM THE NORTHERLY PROLONGATION OF THAT CERTAIN COURSE OF NORTH 18° 50' 39" WEST 260.94 FEET IN THE WESTERLY BOUNDARY OF LOT 135 OF SAID TRACT, NORTHERLY TO THE NORTHWESTERLY CONTINUATION OF THAT CERTAIN 1240 FOOT RADIUS CURVE IN THE NORTHEASTERLY BOUNDARY OF SAID LOT.

For conveyancing purposes only: APN
2825-012-007 (Affects Parcel 1 of Parcel A)
2825-012-010 (Affects Parcel B)
2825-012-011 (Affects Parcels 2 and 3 of Parcel A)

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LEGAL DESCRIPTION:

PARCEL A:
PARCEL I:

ALL THAT CERTAIN PARCEL OF LAND ACQUIRED BY THE STATE OF CALIFORNIA BY PARCEL 4 OF DEED 63, RECORDED MARCH 22, 1951 AS INSTRUMENT NO. 3206 IN BOOK 35868 PAGE 28, OF OFFICIAL RECORDS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY AND THAT CERTAIN PARCEL OF LAND ACQUIRED BY THE STATE OF CALIFORNIA BY DEED 31, RECORDED IN BOOK 8172 PAGE 187, OF SAID OFFICIAL RECORDS, BOUNDED NORTHWESTERLY BY THAT CERTAIN COURSE HAVING A BEARING AND DISTANCE OF NORTH 62°16'58" EAST 50.27 FEET IN PARCEL 2 OF STATE HIGHWAY RELINQUISHMENT NUMBER 602, RECORDED IN BOOK R6678 PAGE 858 OF SAID OFFICIAL RECORDS, AND BOUNDED SOUTHWESTERLY BY THE FOLLOWING DESCRIBED LINE:

BEGINNING AT THE SOUTHWESTERLY CORNER OF SAID PARCEL 4; THENCE NORTHWESTERLY IN A DIRECT LINE TO THE SOUTHWESTERLY TERMINUS OF SAID COURSE, HAVING A BEARING OF NORTH 62°16'18" EAST, TOGETHER WITH ALL THE RIGHTS OF ACCESS AS ACQUIRED BY THE STATE OF CALIFORNIA BY SAID PARCEL 4.

EXCEPT THEREFROM ALL OIL, GAS, MINERALS, AND OTHER HYDROCARBON SUBSTANCES LYING BELOW THE SURFACE OF SAID LAND, BUT WITH NO RIGHT OF SURFACE ENTRY AS PROVIDED IN DEEDS OF RECORDS.

ALSO EXCEPT THEREFROM, ALL OIL, MINERALS, NATURAL GAS AND OTHER HYDROCARBONS BY WHATSOEVER NAME KNOWN THAT MAY BE WITHIN OR UNDER THE HEREIN CONVEYED PARCEL OF LAND, AND THE RIGHTS THERETO, TOGETHER WITH CERTAIN OTHER CONDITIONS, AS ACCEPTED AND RESERVED IN SAID DEED 63.

ALL THAT CERTAIN PARCEL OF LAND AS DESCRIBED IN AND CONVEYED BY THAT CERTAIN DIRECTOR'S DEED AS RECORDED ON APRIL 14, 1971 AS INSTRUMENT NO. 1770 OF THE OFFICIAL RECORDS IN THE OFFICE OF THE COUNTY RECORDER OF THE COUNTY OF LOS ANGELES, STATE OF CALIFORNIA.

PARCEL 2:

THAT PORTION OF LOT 7 AND OF THE SOUTHWEST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 4, TOWNSHIP 3 NORTH, RANGE 16 WEST, SAN BERNARDINO BASE AND MERIDIAN, IN THE CITY OF SANTA CLARITA, IN THE COUNTY OF LOS ANGELES, STATE OF CALIFORNIA, ACCORDING TO THE OFFICIAL PLAT MAP THEREOF, DESCRIBED AS FOLLOWS:

BEGINNING AT THE SOUTHEAST CORNER OF SAID SECTION 4; THENCE NORTHERLY ALONG THE EASTERLY LINE OF SAID SECTION TO THE NORTHEAST CORNER OF SAID LOT 7; THENCE WESTERLY ALONG THE NORTHERLY LINE OF SAID LOT 7 TO THE EASTERLY LINE OF THE WESTERLY 380 FEET OF SAID LOT 7; THENCE SOUTHERLY ALONG SAID LAST MENTIONED EASTERLY LINE TO THE SOUTHERLY LINE OF THE NORTHERLY 270 FEET OF SAID LOT 7; THENCE WESTERLY ALONG SAID SOUTHERLY LINE AND ITS WESTERLY PROLONGATION TO THE NORTHEASTERLY LINE OF THE LAND DESCRIBED IN THE DEED TO THE STATE OF CALIFORNIA, RECORDED ON JUNE 28, 1929 AS INSTRUMENT NO. 1085, IN BOOK 8172 PAGE 187, OFFICIAL RECORDS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY; THENCE SOUTHEASTERLY ALONG SAID NORTHEASTERLY LINE, TO AND ALONG THE NORTHEASTERLY LINE TO THE LAND DESCRIBED IN PARCEL 2-A (AMENDED) OF THE FINAL ORDER OF CONDEMNATION ENTERED IN CASE NO. 860012, SUPERIOR COURT OF THE STATE OF CALIFORNIA FOR THE COUNTY OF LOS ANGELES, A CERTIFIED COPY OF WHICH BEING RECORDED ON MAY 13, 1966 AS INSTRUMENT NO. 3063 IN BOOK D3304 PAGE 451, OFFICIAL RECORDS, OF SAID COUNTY TO THE SOUTHERLY LINE OF SAID SECTION; THENCE EASTERLY ALONG SAID SOUTHERLY LINE TO THE POINT OF BEGINNING.

EXCEPT THEREFROM THAT PORTION OF SAID LAND DESCRIBED AS PARCEL NO. 117A IN THE FINAL ORDER OF CONDEMNATION, ENTERED IN CASE NO. C 546819, SUPERIOR COURT OF LOS ANGELES, RECORDED MAY 22, 1990 AS INSTRUMENT NO. 90-925383, OCTOBER 1, 1990 AS INSTRUMENT NO. 90-1674164, AND FEBRUARY 4, 1991 AS INSTRUMENT NO. 91-166097, ALL OF OFFICIAL RECORDS.

ALSO EXCEPT THEREFROM THAT PORTION OF SAID LAND DESCRIBED IN EXHIBIT "A" AND DEPICTED IN EXHIBIT "B" IN THE DEED TO THE CITY OF SANTA CLARITA, RECORDED SEPTEMBER 28, 1998 AS INSTRUMENT NO. 98-1754090, OFFICIAL RECORDS.

PARCEL 3:

THAT PORTION OF LOT 7 AND OF THE SOUTHWEST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 4, TOWNSHIP 3 NORTH, RANGE 16 WEST, SAN BERNARDINO BASE AND MERIDIAN, IN THE CITY OF SANTA CLARITA, COUNTY OF LOS ANGELES, STATE OF CALIFORNIA, ACCORDING TO THE OFFICIAL PLAT MAP THEREOF, DESCRIBED AS FOLLOWS:
BEGINNING AT THE INTERSECTION OF THE NORTHERLY LINE OF SAID LOT 7 WITH THE EASTERLY LINE OF THE WESTERLY 380 FEET OF SAID LOT 7; THENCE SOUTHERLY ALONG SAID EASTERLY LINE TO THE SOUTHERLY LINE OF THE NORTHERLY 270 FEET OF LOT 7; THENCE WESTERLY ALONG SAID SOUTHERLY LINE AND ITS WESTERLY PROLONGATION TO THE NORTHEASTERLY LINE OF THE LAND DESCRIBED IN THE DEED TO THE STATE OF CALIFORNIA, RECORDED ON JUNE 28, 1929 AS INSTRUMENT NO. 1085, IN BOOK 8172 PAGE 187, OFFICIAL RECORDS, IN SAID OFFICE OF THE COUNTY RECORDER; THENCE NORTHWESTERLY ALONG SAID NORTHEASTERLY LINE TO THE NORTHERLY LINE OF SAID SOUTHWEST QUARTER THENCE EASTERLY ALONG SAID NORTHERLY LINE AND SAID NORTHERLY LINE OF LOT 7 TO THE POINT OF BEGINNING.

EXCEPT THAT PORTION WITHIN THE LINES OF THE LAND DESCRIBED IN PARCEL 4 OF THE DEED TO THE STATE OF CALIFORNIA, RECORDED MARCH 22, 1951 AS INSTRUMENT NO. 3206, IN BOOK 35868 PAGE 28, OF SAID OFFICIAL RECORDS.

PARCEL B:
PARCEL I:

THAT PORTION OF THE NORTHEAST QUARTER OF FRACTIONAL SECTION 9, TOWNSHIP 3 NORTH, RANGE 16 WEST, SAN BERNARDINO MERIDIAN, IN THE CITY OF SANTA CLARITA, IN THE COUNTY OF LOS ANGELES, STATE OF CALIFORNIA, ACCORDING TO THE OFFICIAL PLAT OF SAID LAND FILED IN THE DISTRICT LAND OFFICE ON JUNE 29, 1897, DESCRIBED AS FOLLOWS:

BEGINNING AT THE SOUTHEAST CORNER OF THE NORTHEAST QUARTER OF SAID SECTION 9; THENCE ALONG THE EAST LINE OF SAID QUARTER SECTION, NORTH 0° 12' EAST 1508.90 FEET TO THE TRUE POINT OF BEGINNING; THENCE SOUTH 4° 25' WEST 200.90 FEET; THENCE SOUTH 12° 35' WEST 356.04 FEET; THENCE SOUTH 32° 25' WEST TO THE EASTERLY
TERMINUS OF THAT CERTAIN COURSE DESCRIBED IN THE DEED TO THE STATE OF CALIFORNIA, RECORDED APRIL 6, 1951 AS INSTRUMENT NO. 3492, IN BOOK 35992 PAGE 102, OFFICIAL RECORDS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, AS HAVING A BEARING AND LENGTH OF "NORTH 75° 26' 10" EAST 251.75 FEET", THENCE WESTERLY
ALONG SAID CERTAIN COURSE TO THE WESTERLY LINE OF WILEY CANYON ROAD, 40 FEET WIDE, AS SHOWN ON COUNTY SURVEYOR'S MAP NO. 6664 ON FILE IN THE OFFICE OF THE COUNTY ENGINEER OF SAID COUNTY, SAID WESTERLY LINE BEING ALSO THE EASTERLY LINE OF THE LAND DESCRIBED IN PARCEL 1 OF THE DEED TO THE STATE OF CALIFORNIA,
RECORDED ON JUNE 21, 1965 AS INSTRUMENT NO. 940, IN BOOK D-2947 PAGE 229, OFFICIAL RECORDS OF SAID COUNTY; THENCE NORTHERLY AND NORTHWESTERLY ALONG THE EASTERLY AND NORTHEASTERLY LINES OF SAID PARCEL 1 TO THE NORTHERLY LINE OF SAID SECTION; THENCE EASTERLY AND SOUTHERLY ALONG THE NORTHERLY AND EASTERLY LINES OF SAID SECTION TO THE POINT OF BEGINNING.

EXCEPT ANY PORTION LYING EASTERLY OF THE WESTERLY LINE OF WILEY CANYON ROAD, 40 FEET WIDE, AS DESCRIBED IN BOOK 761 PAGE 303 OF DEEDS.

PARCEL 2:

THAT PORTION OF WILEY CANYON ROAD, 40 FEET WIDE, IN THE COUNTY OF LOS ANGELES, STATE OF CALIFORNIA, AS SHOWN ON MAP OF TRACT NO. 30340, FILED IN BOOK 741 PAGES 62 TO 68 INCLUSIVE OF MAPS, IN THE OFFICE OF THE RECORDER OF SAID COUNTY, WHICH EXTENDS FROM THE NORTHERLY PROLONGATION OF THAT CERTAIN COURSE OF NORTH 18° 50' 39" WEST 260.94 FEET IN THE WESTERLY BOUNDARY OF LOT 135 OF SAID TRACT, NORTHERLY TO THE NORTHWESTERLY CONTINUATION OF THAT CERTAIN 1240 FOOT RADIUS CURVE IN THE NORTHEASTERLY BOUNDARY OF SAID LOT.

APN: 2825-012-007 (Affects: Parcel I of Parcel A)
2825-012-011 (Affects: Parcels 2 and 3 of Parcel A)
and 2825-012-010 (Affects: Parcel B)

EASEMENTS

1. General and special taxes and assessments for the fiscal year 2020-2021, a lien not yet due or payable.

2. The lien of defaulted taxes for the fiscal year 2019-2020, and any subsequent delinquencies.
Tax Rate Area: 00219
A. P. No.: 2825-012-007
Amount to redeem: $808.13
Valid through: October 2020
Amount to redeem: $818.26
Valid through: November 2020
Please contact the tax office to verify the payoff amount.
(Affects Parcel 1 of Parcel A)

3. The lien of defaulted taxes for the fiscal year 2019-2020, and any subsequent delinquencies.
Tax Rate Area: 00224
A. P. No.: 2825-012-010
Amount to redeem: $15,530.41
Valid through: October 2020
Amount to redeem: $15,730.91
Valid through: November 2020
Please contact the tax office to verify the payoff amount.
(Affects Parcel B)

4. The lien of defaulted taxes for the fiscal yeasr 2019-2020, and any subsequent delinquencies.
Tax Rate Area: 00219
A. P. No.: 2825-012-011
Amount to redeem: $91,811.33
Valid through: October 2020
Amount to redeem: $92,998.23
Valid through: November 2020
Please contact the tax office to verify the payoff amount.
(Affects Parcels 2 and 3 of Parcel A)

5. The lien of supplemental taxes, if any, assessed pursuant to Chapter 3.5 commencing with Section 75 of the California Revenue and Taxation Code.

6. An easement for pole lines and incidental purposes in the document recorded in Book 2646 of Deeds, Page 261. (6)
(Affects Parcel B)
The location of the easement cannot be determined from record information.

7. An easement for pipe line for the transportation of water and incidental purposes, recorded in Book 4130 of Deeds, Page 27.
In Favor of: Standard Oil Company, a Corporation
Affects: Parcel B, as described therein
The location of the easement cannot be determined from record information.
SAID EASEMENT IS BLANKET IN NATURE

8. An easement for pipe lines for the transportation of oil, petroleum, gas or water and for telegraph and telephone lines and incidental purposes, recorded in Book 6741 of Deeds, Page 15.
In Favor of: Standard Oil Company, a Corporation
Affects: Parcel B, as described therein
The location of the easement cannot be determined from record information.
SAID EASEMENT IS INDETERMINATE IN NATURE

EASEMENTS (con't)

9. An oil and gas lease executed by Walter E. Berman and Dorothy Berman, husband and wife, as to an undivided one-half (1/2) interest; and Charles M. Monell, an unmarried man, as to an undivided onehalf (1/2) interest as lessor and W. O. Anderson and J. I. Anderson as lessee, recorded as Book M3146 Page 316 of Official Records.
Defects, liens, encumbrances or other matters affecting the leasehold estate, whether or not shown by the public records are not shown herein.
(Affects Parcel A)
NOT A PLOTTABLE EASEMENT

10. An easement for road purposes over a strip of land 40 feet wide, includes in Wiley Canyon Road, as shown on County surveyor's map No. 6664 on file in the Office of the county surveyor of said County of Los Angeles. (10)
(Affects Parcel A)

11. An easement for public utility and incidental purposes, recorded May 13, 1966 as Instrument No. 3063 in Book D3304 Page 451 of Official Records.
In Favor of: State of California
Affects: Parcel A, as described therein (14)

12. A waiver of any claims for damages by reason of the location, construction, landscaping or maintenance of a contiguous freeway, highway or roadway, as contained in the document recorded as Book D3304 Page 451 of Official Records.
(Affects Parcel A)
NOT A PLOTTABLE EASEMENT

13. Easements and rights of way over the lands herein described which may be necessary for the lessee in the lease recorded October 16, 1951 in Book 37430 Page 234, Official Records, in its operation upon the lands retained by it under the provisions of said lease.
(Affects Parcel B)
The location of the easement cannot be determined from record information.
NOT A PLOTTABLE EASEMENT

14. An easement for drainage, pipe, communication and power lines and temporary construction purposes and incidental purposes, recorded June 21, 1965 as Instrument No. 940, in Book D2947 Page 229 of Official Records.
In Favor of: State Of California (14)
Affects: Parcel B, as described therein
The terms and provisions contained in the document entitled "Director's Deed" recorded June 17, 1969 as Instrument No. 2524 of Official Records.

15. Abutter's rights of ingress and egress to or from Golden State Freeway have been relinquished in the document recorded June 21, 1965 as Instrument No. 940 of Official Records.
(Affects Parcel B)
NOT A PLOTTABLE EASEMENT

16. A waiver of any claims for damages by reason of the location, construction, landscaping or maintenance of a contiguous freeway, highway or roadway, as contained in the document recorded June 21, 1965 as Instrument No. 940 of Official Records.
(Affects Parcel B)
NOT A PLOTTABLE EASEMENT

17. Abutter's rights of ingress and egress to or from freeway have been relinquished in the document recorded April 14, 1971 as Instrument No. 1770 of Official Records.
(Affects Parcel 1)
NOT A PLOTTABLE EASEMENT

18. An easement for public utilities and incidental purposes, recorded October 17, 1973 as Instrument No. 2858 of Official Records.
In Favor of: The Pacific Telephone and Telegraph Company (29)
Affects: Parcel B, as described therein

19. Any private easements or lesser rights in, to, over Wiley Canyon Road that were not affected by the proceedings vacating said road, as the same was vacated by instrument recorded May 24, 1974 as Instrument No. 4414, Official Records. (19)
(Affects Parcel B)

20. An easement for public utilities and incidental purposes, recorded March 20, 1975 as Instrument No. 2388 of Official Records.
In Favor of: Southern California Edison Company, a Corporation (20)
Affects: Parcel A, as described therein

21. An easement for underground cables, wires, wave guides and conduits together with all necessary related underground surface and above ground pedestals and incidental purposes, recorded April 10, 1975 as Instrument No. 1597 of Official Records.
In Favor of: The Pacific Telephone and Telegraph Company, a Corporation (21)
Affects: Parcel A, as described therein

22. An easement for public utilities and incidental purposes, recorded May 05, 1982 as Instrument No. 82-462869 of Official Records.
In Favor of: The Pacific Telephone and Telegraph Company
Affects: Parcel B, as described therein
The location of the easement cannot be determined from record information.
SAID EASEMENT IS INDETERMINATE IN NATURE

23. An easement for public utilities and incidental purposes, recorded May 18, 1982 as Instrument No. 82-506871 of Official Records.
In Favor of: The Pacific Telephone and Telegraph Company
Affects: Parcel B, as described therein
The location of the easement cannot be determined from record information.
SAID EASEMENT IS INDETERMINATE IN NATURE

24. An easement for public utilities and incidental purposes, recorded July 22, 1985 as Instrument No. 85-839958 of Official Records.
In Favor of: Pacific Bell
Affects: Parcel B, as described therein (24)
The location of the easement cannot be determined from record information.

25. An easement for slope and incidental purposes, recorded September 28, 1998 as Instrument No. 98-1754090 of Official Records.
In Favor of: The City of Santa Clarita
Affects: Parcel A, as described therein (25)

26. Survey prepared by SR Consultants West, Inc., dated , dated March 10, 2005, under Job No. 946 H, shows the following:
A. The facts that power poles and signs are located on said land.
B. The fact that parking spaces are located along the southeasterly portion of said land..
(Affects Parcel B)

27. An easement shown or dedicated on the map of Assessor's map recorded on file in book 2825, page 012, of Assessor's Maps.
For: Drainage and incidental purposes. (27)
(Affects Parcel B)

28. Any facts, rights, interests or claims that may exist or arise by reason of the following matters disclosed by an ALTA/ survey made by Michael A. Kennada LS 5642 on May 18, 2018, designated Smiser Property:
A. Trailer homes encroaches into the northerly portion of the subject property.
B. Fence crosses the northerly portion of the subject property.
C. End of fence crosses the easterly property line by 3.4 feet into adjoining land.
(Affects Parcel B)

29. A deed of trust to secure an original indebtedness of $7,700,000.00 recorded January 08, 2020 as Instrument No. 2020-23228 of Official Records.
Dated: January 03, 2020
Trustor: Wiley Cyn, LLC, a California limited liability company
Trustee: First American Title Company
Beneficiary: Monteverde Development Co., a corporation and Copperhill Valley, LLC

30. Water rights, claims or title to water, whether or not shown by the Public Records.

31. Rights of the public in and to that portion of the Land lying within any road, street and/or highway.

32. Rights of parties in possession.

SURVEYOR'S CERTIFICATE:

TO: WILEY CYN LLC AND FIRST AMERICAN TITLE INSURANCE COMPANY:

THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2016 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/NSPS LAND TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND INCLUDES ITEMS 2, 3, 4, 6, 8 AND 14 OF TABLE A THEREOF. THE FIELDWORK WAS COMPLETED ON MAY 18, 2018 AND UPDATED ON DECEMBER 22, 2020.

DATE OF MAP : 12/29/20

Michael A. Kennada

MICHAEL A. KENNADA LS 5642

LICENSED LAND SURVEYOR
MICHAEL A. KENNADA
L.S.5642
STATE OF CALIFORNIA

BASIS OF BEARINGS:

THE BEARINGS SHOWN HEREON ARE BASED ON THE BEARING NORTH 10°55'20" WEST OF THE WESTERLY LINE OF THE RANCHO SAN FRANCISCO AS SHOWN ON RECORD OF SURVEY FILED IN BOOK 258 PAGES 31 THROUGH 38, INCLUSIVE, OF RECORD OF SURVEY, IN THE OFFICE OF THE COUNTY RECORDER OF LOS ANGELES COUNTY, AND SHOWN AS NORTH 10°55'18" WEST ON THIS MAP.

NOTES

FLOOD ZONE DESIGNATION:
BASED ON THE FEDERAL EMERGENCY AGENCY (FEMA) FLOOD INSURANCE RATE MAP COMMUNITY PANEL NOS. 06037C1031F DATED SEPTEMBER 26, 2008, THE SUBJECT SITE IS IN ZONE "A" AND "AO (DEPTH 3')".

ZONE "A" DEFINED AS "NO BASE FLOOD ELEVATIONS DETERMINED".
ZONE "AO" DEFINED AS "FLOOD DEPTHS OF 1 TO 3 FEET (USUALLY SHEET FLOW ON SLOPING TERRAIN); AVERAGE DEPTHS DETERMINED. FOR AREAS OF ALLUVIAL FAN FLOODING, VELOCITIES ALSO DETERMINED".

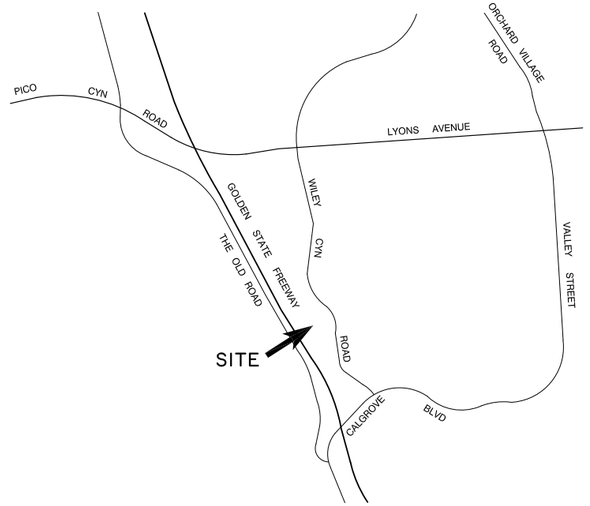
GROSS AREA OF LAND: 31.786 ACRES

EXISTING ZONING: MX-N

ADDRESS OF SURVEYED PROPERTY:
24924 HAWKBRYN AVENUE
SANTA CLARITA, CA 91350

EASEMENTS

EASEMENTS ARE BASED ON FIRST AMERICAN TITLE INSURANCE COMPANY REPORT ORDER NO. NCS-1032560-LA2 DATED SEPTEMBER 11, 2020.



VICINITY MAP

PREPARED FOR:
WILEY CYN LLC
13120 TELFAIR AVENUE
SYLMAR, CA 91342

NO.	REVISION	DATE	CHK'D BY
1	UPDATE BASED ON NEW TITLE REPORT	12/29/20	MAK

Vertex Survey, Inc.
28348 Constellation Road, Suite 800
Santa Clarita, CA 91355
Tel: 661-254-1928
Fax: 661-254-1929

VERTEX SURVEY INC.

ALTA/NSPS LAND TITLE SURVEY
FOR
SMISER PROPERTY

W.O.:	SCALE:	DATE: 05/28/2018	SHEET 1 OF 4 SHEETS

98-1754090 BOUNDARY OF LAND OF THE CITY OF SANTA CLARITA AS DESCRIBED IN DEED RECORDED SEPTEMBER 28, 1998 AS INSTRUMENT NO. 98-1754090, OR ESTAB. AT RECORD ANGLES AND DISTANCES PER SAID DEED

91-166097 BOUNDARY OF LAND OF THE LOS ANGELES COUNTY FLOOD CONTROL DISTRICT AS DESCRIBED IN DEED RECORDED FEBRUARY 4, 1991 AS INSTRUMENT NO. 91-166097, OR ESTAB. AT RECORD ANGLES AND DISTANCES PER SAID DEED

90-925383 BOUNDARY OF LAND OF THE LOS ANGELES COUNTY FLOOD CONTROL DISTRICT AS DESCRIBED IN DEED RECORDED MAY 22, 1990 AS INSTRUMENT NO. 90-925383, AND RECORDED OCTOBER 1, 1990 AS INSTRUMENT NO. 90-1674164, OR ESTAB. AT RECORD ANGLES AND DISTANCES PER SAID DEED

D3304/451 BOUNDARY OF LAND OF THE STATE OF CALIFORNIA AS DESCRIBED IN DEED RECORDED MAY 13, 1966 AS INSTRUMENT NO. 3063 IN BOOK D3304 PAGE 451, OR. PARCEL 2A (AMENDED). ESTAB. AT RECORD ANGLES AND DISTANCES PER RS 281-1-13

8172/187 BOUNDARY OF LAND OF THE STATE OF CALIFORNIA AS DESCRIBED IN DEED RECORDED JUNE 28, 1929 AS INSTRUMENT NO. 1085 IN BOOK 8172 PAGE 187, OR. ESTAB. AT RECORD ANGLES AND DISTANCES PER RS 281-1-13

D2947/229 BOUNDARY OF LAND OF THE STATE OF CALIFORNIA AS DESCRIBED IN DEED RECORDED JUNE 21, 1965 AS INSTRUMENT NO. 940 IN BOOK D2947 PAGE 229, OR. ESTAB. AT RECORD ANGLES AND DISTANCES PER RS 281-1-13

INST4414 BOUNDARY OF LAND OF DESCRIBED IN DEED RECORDED MAY 24, 1974 AS INSTRUMENT NO. 4414, OR. ESTAB. AT RECORD ANGLES AND DISTANCES PER SAID DEED

SOUTH ¼ CORNER SECTION 4
FD. COUNTY SURVEYOR BRASS CAP
MONUMENT "RE 7078" PER CSB 5390

FD. 1 ½" IP, EMPTY
N89°22'13"W 2.01'
HELD FOR LINE EAST-WEST

PARCEL A:
PARCEL 1

PARCEL A:
PARCEL 3

PARCEL A:
PARCEL 2

PARCEL B:
PARCEL 1

PARCEL B:
PARCEL 2

GOLDEN STATE FREEWAY

WILEY CANYON ROAD

SOUTHWESTERLY LINE OF THE RANCHO SAN FRANCISCO

WESTERLY LINE OF THE RANCHO SAN FRANCISCO

EASTERLY LINE SECTION 4

EAST LINE OF THE WEST 380' OF LOT 7 SE¼ FRACTIONAL SECTION 4

NORTH LINE LOT 7 SE¼ FRACTIONAL SECTION 4

SOUTHEAST CORNER SECTION 4
FD. COUNTY SURVEYOR BRASS CAP
MONUMENT "RE 7078" PER CSB 5390
POB
PARCEL A:
PARCEL 2

POB
PARCEL A:
PARCEL 3

STA. NO. 3
RANCHO SAN FRANCISCO
FD. SPIKE AND WASHER "LS 5930"
PER RS 204-20-21

FD. ¾" IP "LS 5930"
PER RS 204-20-21

FD. LT & TAG "LS 5930"
PER RS 204-20-21

FD. ¾" IP , NO TAG IN LIEU OF
"LS 5930" PER RS 204-20-21.
S17°56'19"W 0.48'.
ESTAB. BY INTERSECTION

Ⓐ SAN FRANCISCO NO. 4
FD. SPIKE AND WASHER "LS 5930"
PER RS 204-20-21
S03°43'59"E 0.57'
ESTAB.AT RECORD ANGLE AND
DISTANCE PER RS 258-31-38

Ⓑ FD. SPIKE AND WASHER "LS 5930"
PER RS 204-20-21.
S01°40'02"E 0.57'

Ⓒ FD. SPIKE AND WASHER "LS 5930"
PER RS 204-20-21.
S48°52'14"W 0.61'

Ⓓ OLD WILEY CANYON ROAD PER CS 6664.
ESTAB. AT RECORD ANGLE AND DISTANCE
PER RS 258-31-38

Ⓔ FD. LT & TAG "LS 5930" PER RS 204-20-21.
S01°51'41"E 0.44'

Ⓕ FD. ¾" IP , NO TAG IN LIEU OF
"LS 5930" PER RS 204-20-21.
S17°56'19"W 0.48'.
ESTAB. BY INTERSECTION

Ⓖ NORTHERLY PROLONGATION OF THE WESTERLY LINE OF LOT
135 OF TRACT NO. 30340 MB 741-62-68.
ESTAB. AT RECORD ANGLE AND DISTANCE PER SAID TRACT.

Ⓗ FD. ¾" IP "LS 5930"
PER RS 204-20-21.
N06°24'09"E 3.56'
ESTAB. BY INTERSECTION

Ⓘ FD. ¾" IP "LS 5930"
PER RS 204-20-21.
S47°06'20"E 2.83'

Ⓙ FD. ¾" IP "LS 5930"
PER RS 204-20-21.
S45°16'11"E 2.76'

Ⓚ FD. ¾" IP "LS 5930"
PER RS 204-20-21.
S45°44'01"E 2.81'

Ⓛ FD. ¾" IP "LS 5930"
PER RS 204-20-21.
S45°42'57"E 2.82'

REFERENCES
RI RS 204-20-21

0' 50' 100' 200' 300' 400'
SCALE: 1" = 100'

PREPARED FOR:
WILEY CYN LLC
13120 TELFAIR AVENUE
SYLMAR, CA 91342

NO.	REVISION	DATE	CHK'D BY
1	UPDATE BASED ON NEW TITLE REPORT	12/29/20	MAK

Vertex Survey, Inc.
28348 Constellation Road, Suite 800
Santa Clarita, CA 91355
Tel: 661-254-1928
Fax: 661-254-1929

ALTA/NSPS LAND TITLE SURVEY
FOR
SMISER PROPERTY

W.O.: _____ SCALE: 1" = 100' DATE: 05/28/2018 SHEET 2 OF 4 SHEETS

LEGEND

BELL	BELL SYSTEM MANHOLE
BM	PAC BELL UNDERGROUND MARKER RISER
CH	CONCRETE CHANNEL
GP	GUY POLE
GW	GUY WIRE
POL	POINT ON CHAIN LINK FENCE
PP	POWER POLE
TP	TELEPHONE COMPANY PEDESTAL

0' 30' 60' 120' 180' 240'

SCALE: 1" = 60'

PREPARED FOR:

WILEY CYN LLC
13120 TELFAIR AVENUE
SYLMAR, CA 91342

NO.	REVISION	DATE	CHK'D BY
1	UPDATE BASED ON NEW TITLE REPORT	12/29/20	MAK

Vertex Survey, Inc.
28348 Constellation Road, Suite 800
Santa Clarita, CA 91355
Tel: 661-254-1928
Fax: 661-254-1929

VERTEX SURVEY INC.

ALTA/NSPS LAND TITLE SURVEY
FOR
SMISER PROPERTY

W.O.: _____ SCALE: 1" = 60' DATE: 05/28/2018 SHEET 3 OF 4 SHEETS

LEGEND

BELL BELL SYSTEM MANHOLE
BM PAC BELL UNDERGROUND MARKER RISER
CH CONCRETE CHANNEL
GP GUY POLE
GW GUY WIRE
POL POINT ON CHAIN LINK FENCE
PP POWER POLE
TP TELEPHONE COMPANY PEDESTAL

PREPARED FOR:

WILEY CYN LLC
13120 TELFAIR AVENUE
SYLMAR, CA 91342

NO.	REVISION	DATE	CHK'D BY
1	UPDATE BASED ON NEW TITLE REPORT	12/29/20	MAK

Vertex Survey, Inc.
28348 Constellation Road, Suite 800
Santa Clarita, CA 91355
Tel: 661-254-1928
Fax: 661-254-1929

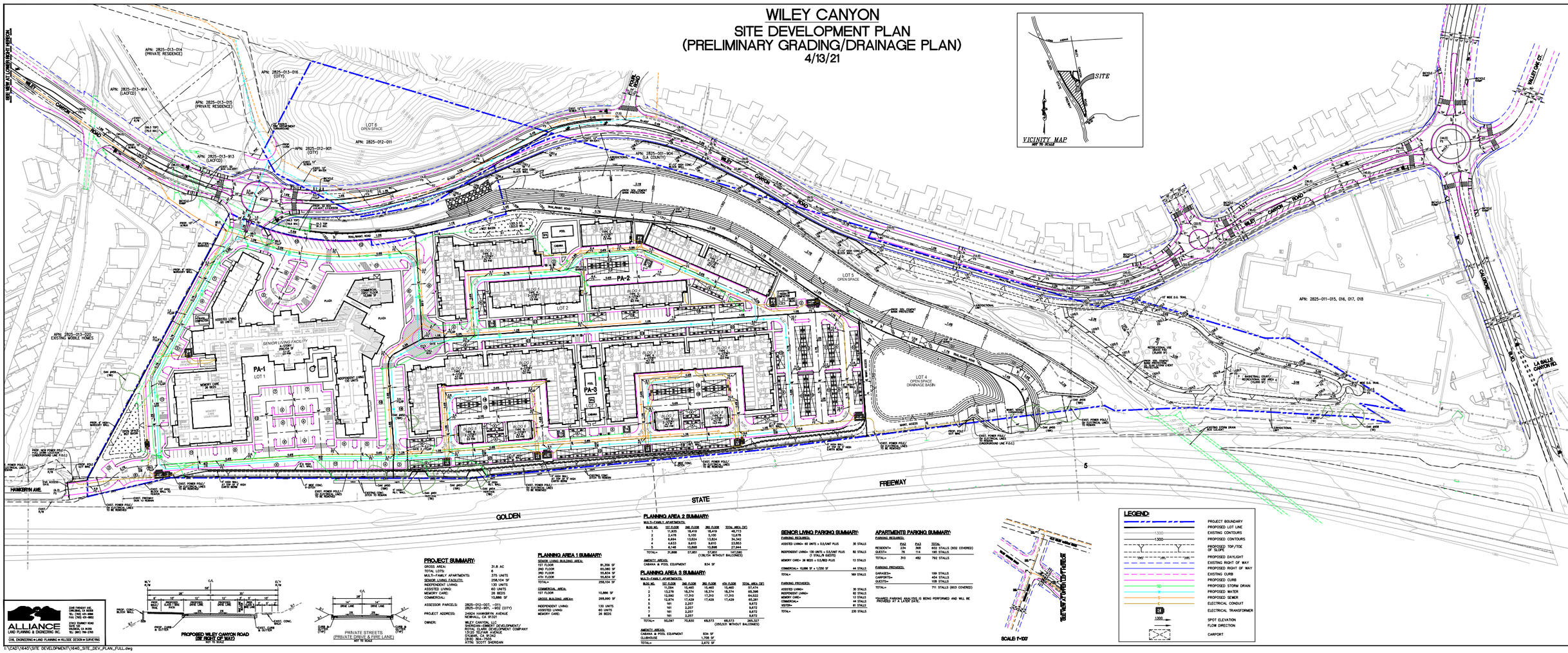
VERTEX SURVEY INC.

0' 30' 60' 120' 180' 240'
SCALE: 1" = 60'

ALTA/NSPS LAND TITLE SURVEY
FOR
SMISER PROPERTY

W.O.: _____ SCALE: 1" = 60' DATE: 05/28/2018 SHEET 4 OF 4 SHEETS

WILEY CANYON
SITE DEVELOPMENT PLAN
(PRELIMINARY GRADING/DRAINAGE PLAN)
4/13/21


WILEY CANYON ROAD
HAWKINS AVE.
GOLDEN STATE FREEWAY
5
LA BELLE CANYON RD.
GALLOPE
WALLER PARK CT.
PA-1
PA-2
PA-3
LOT 1
LOT 2
LOT 3
LOT 4
OPEN SPACE DRAINAGE BASIN
LOT 5
OPEN SPACE
LOT 6
OPEN SPACE
SENIOR LIVING FACILITY
ASSISTED LIVING
60 UNITS
MEMORY CARE
26 BEDS
COMMUNITY CENTER
1,500 SF
POOL
CABANA
PLAZA
APN: 2825-013-914 (LACFCD)
APN: 2825-013-016 (CITY)
APN: 2825-013-015 (PRIVATE RESIDENCE)
APN: 2825-013-913 (LACFCD)
APN: 2825-012-011
APN: 2825-013-901 (CITY)
APN: 2825-001-904 (LA COUNTY)
APN: 2825-011-015, 016, 017, 018
APN: 2825-013-020 EXISTING MOBILE HOMES
EXIST. POWER POLL/ ELECTRICAL LINES TO BE REMOVED
EXIST. POWER POLL/ ELECTRICAL LINES TO BE REMAIN
EXIST. POWER POLL/ ELECTRICAL LINES TO BE REMOVED (UNDERGROUND LINE F.O.C.)
EXIST. PATERNITY SIGN TO REMAIN
EXIST. 8" WATER LINE TO REMAIN
EXIST. 12" WATER LINE TO REMAIN
EXIST. 8" SEWER LINE TO REMAIN
EXIST. 12" SEWER LINE TO REMAIN
EXIST. 24" STORM DRAIN TO REMAIN
EXIST. 30" STORM DRAIN TO REMAIN
EXIST. 36" STORM DRAIN TO REMAIN
EXIST. 42" STORM DRAIN TO REMAIN
EXIST. 48" STORM DRAIN TO REMAIN
EXIST. 54" STORM DRAIN TO REMAIN
EXIST. 60" STORM DRAIN TO REMAIN
EXIST. 72" STORM DRAIN TO REMAIN
EXIST. 84" STORM DRAIN TO REMAIN
EXIST. 96" STORM DRAIN TO REMAIN
EXIST. 108" STORM DRAIN TO REMAIN
EXIST. 120" STORM DRAIN TO REMAIN
EXIST.

PA 1		PA 2	PA3
7.27 acres		4.47 acres	7.53 acres
130 Independent units		152 units	227 units
60 Assisted Living units			
26 Memory Care beds			
10,886 sf commercial			

Parking Provided	
Independent Living	82
Assisted Living	30
Memory Care	13
Commercial	44
Guest	61
TOTAL	230

Parking Provided (PA 2 and PA 3)	
Resident Covered	595
Guest open	116
TOTAL	711

WILEY CANYON

SANTA CLARITA, CALIFORNIA

WILEY CANYON, LLC
13120 TELFAIR AVENUE, SYLMAR, CA 91342
(818) 364-7505

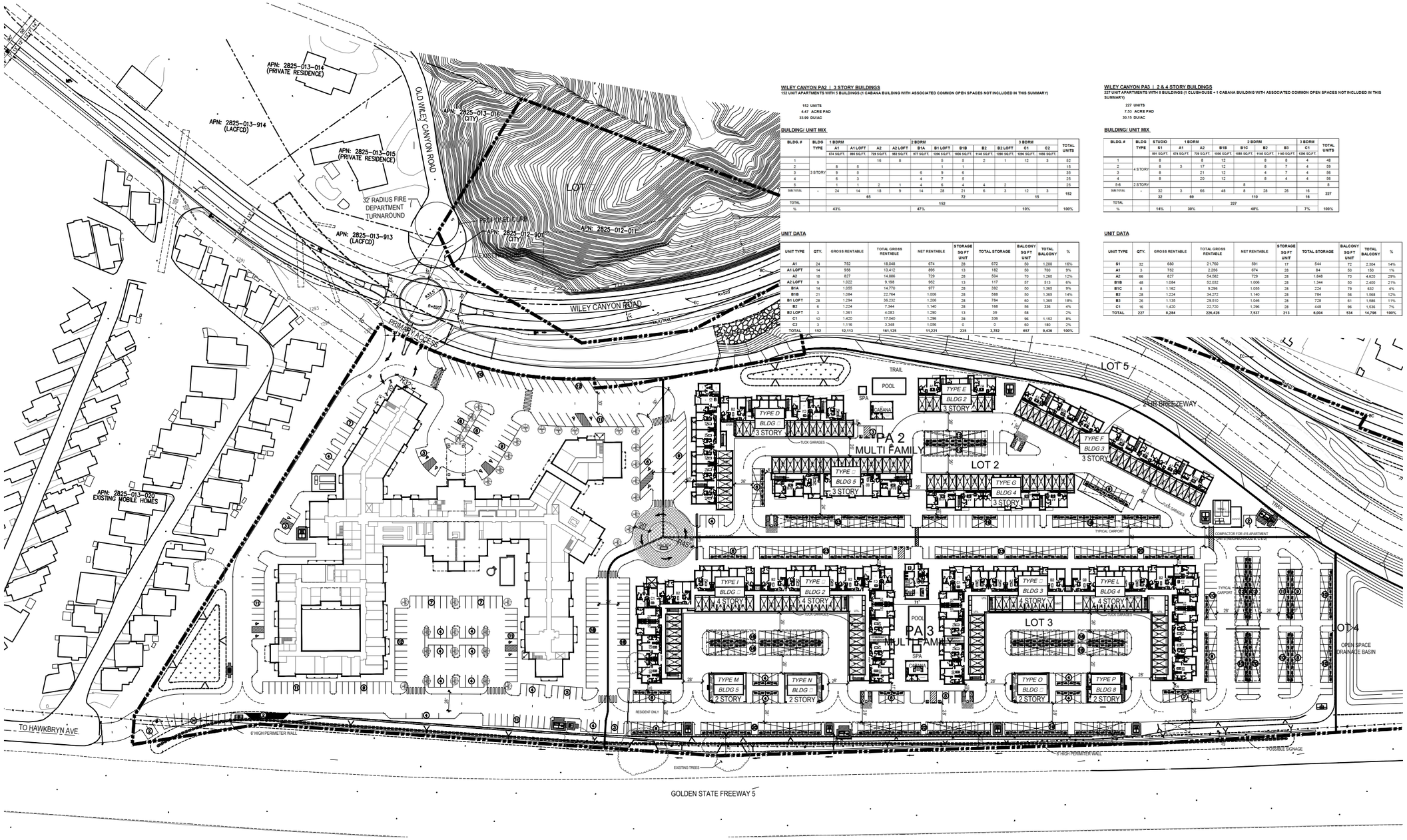
CONCEPTUAL SITE PLAN

DATE: 04-23-2021
JOB NO.: 2019-107

ARCHITECTS ORANGE
144 NORTH ORANGE ST., ORANGE, CA 92866
(714) 639-9860

Architecture. Design. Relationships.

R:\2019\2019-107 Wiley Canyon Smiser Ranch, Santa Clarita\03 Design\02 Schematic\02 AutoCAD\Civil\2020-0603\1640_SITE_DEV_PLAN_FULL_052720\1640_SITE_DEV_PLAN_FULL for graphic.dwg



WILEY CANYON PA2 | 3 STORY BUILDINGS
152 UNIT APARTMENTS WITH 5 BUILDINGS (1 CABANA BUILDING WITH ASSOCIATED COMMON OPEN SPACES NOT INCLUDED IN THIS SUMMARY)

152 UNITS
4.47 ACRE PAD
33.99 DU/AC

BUILDING/ UNIT MIX

BLDG.#	BLDG TYPE	1 BDRM		2 BDRM						3 BDRM		TOTAL UNITS
		A1 674 SQ.FT.	A1 LOFT 898 SQ.FT.	A2 729 SQ.FT.	A2 LOFT 952 SQ.FT.	B1A 977 SQ.FT.	B1 LOFT 1,056 SQ.FT.	B1B 1,056 SQ.FT.	B2 1,140 SQ.FT.	B2 LOFT 1,290 SQ.FT.	C1 1,296 SQ.FT.	C2 1,656 SQ.FT.	
1				16	8		5	5	2	1	12	3	52
2		8	5				1	1					15
3	3 STORY	9	5			6	9	6					35
4		6	3			4	7	5					25
5		1	1	2	1	4	6	4	4	2			25
SUB TOTAL	-	24	14	18	9	14	28	21	6	3	12	3	152
		65					72				15		
TOTAL		152											
%		43%				47%					10%		100%

UNIT DATA

UNIT TYPE	QTY.	GROSS RENTABLE	TOTAL GROSS RENTABLE	NET RENTABLE	STORAGE SQ FT UNIT	TOTAL STORAGE	BALCONY SQ FT UNIT	TOTAL BALCONY	%
A1	24	782	18,048	674	28	672	50	1,200	16%
A1 LOFT	14	958	13,412	895	13	182	50	700	9%
A2	18	827	14,886	729	28	504	70	1,260	12%
A2 LOFT	9	1,022	9,198	952	13	117	57	513	6%
B1A	14	1,056	14,770	977	28	392	50	1,365	9%
B1B	21	1,084	22,764	1,006	28	588	50	1,365	14%
B1 LOFT	28	1,294	36,232	1,206	28	784	60	1,365	18%
B2	6	1,224	7,344	1,140	28	168	56	336	4%
B2 LOFT	3	1,361	4,083	1,290	13	39	58	174	2%
C1	12	1,420	17,040	1,296	28	336	96	1,152	8%
C2	3	1,116	3,348	1,056	0	0	60	180	2%
TOTAL	152	12,113	161,125	11,221	235	3,792	657	9,436	100%

WILEY CANYON PA3 | 2 & 4 STORY BUILDINGS
227 UNIT APARTMENTS WITH 8 BUILDINGS (1 CLUBHOUSE + 1 CABANA BUILDING WITH ASSOCIATED COMMON OPEN SPACES NOT INCLUDED IN THIS SUMMARY)

227 UNITS
7.53 ACRE PAD
30.15 DU/AC

BUILDING/ UNIT MIX

BLDG.#	BLDG TYPE	STUDIO	1 BDRM		2 BDRM				3 BDRM		TOTAL UNITS
		S1 591 SQ.FT.	A1 674 SQ.FT.	A2 729 SQ.FT.	B1B 1,006 SQ.FT.	B1C 1,055 SQ.FT.	B2 1,140 SQ.FT.	B3 1,140 SQ.FT.	C1 1,296 SQ.FT.		
1		8		8	12		8	8	4	48	
2	4 STORY	8	3	17	12		8	7	4	59	
3		8		21	12		4	7	4	56	
4		8		20	12		8	4	4	56	
5-8	2 STORY					8				8	
SUB TOTAL	-	32	3	66	48	8	28	26	16	227	
		32	69			110			16		
TOTAL		227									
%		14%	30%			48%			7%	100%	

UNIT DATA

UNIT TYPE	QTY.	GROSS RENTABLE	TOTAL GROSS RENTABLE	NET RENTABLE	STORAGE SQ FT UNIT	TOTAL STORAGE	BALCONY SQ FT UNIT	TOTAL BALCONY	%
S1	32	680	21,760	591	17	544	72	2,304	14%
A1	3	752	2,256	674	28	84	50	150	1%
A2	66	827	54,582	729	28	1,848	70	4,620	29%
B1B	48	1,084	52,032	1,006	28	1,344	50	2,400	21%
B1C	8	1,162	9,296	1,055	28	224	79	632	4%
B2	28	1,224	34,272	1,140	28	784	56	1,568	12%
B3	26	1,135	29,510	1,046	28	728	61	1,586	11%
C1	16	1,420	22,720	1,296	28	448	96	1,536	7%
TOTAL	227	8,284	226,428	7,537	213	6,004	534	14,796	100%

NORTH

0 30 60 120 180

WILEY CANYON

WILEY CANYON, LLC

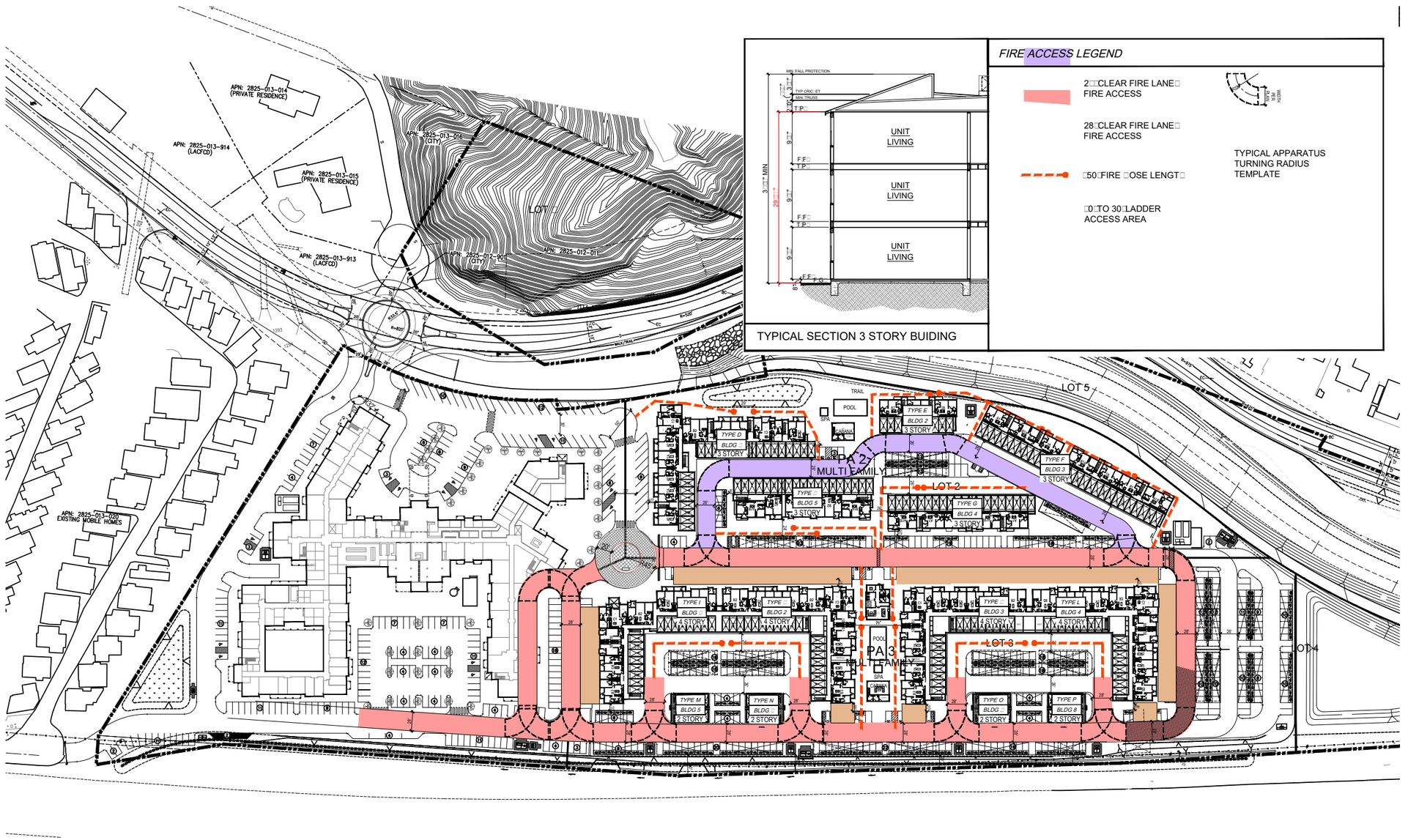
SANTA CLARITA, CALIFORNIA

PA2 CONCEPTUAL SITE PLAN

DATE: 4-23-2021
JOB NO.: 2019-107

ARCHITECTS ORANGE

A



A□2

WILEY CANYON

SANTA CLARITA, CALIFORNIA

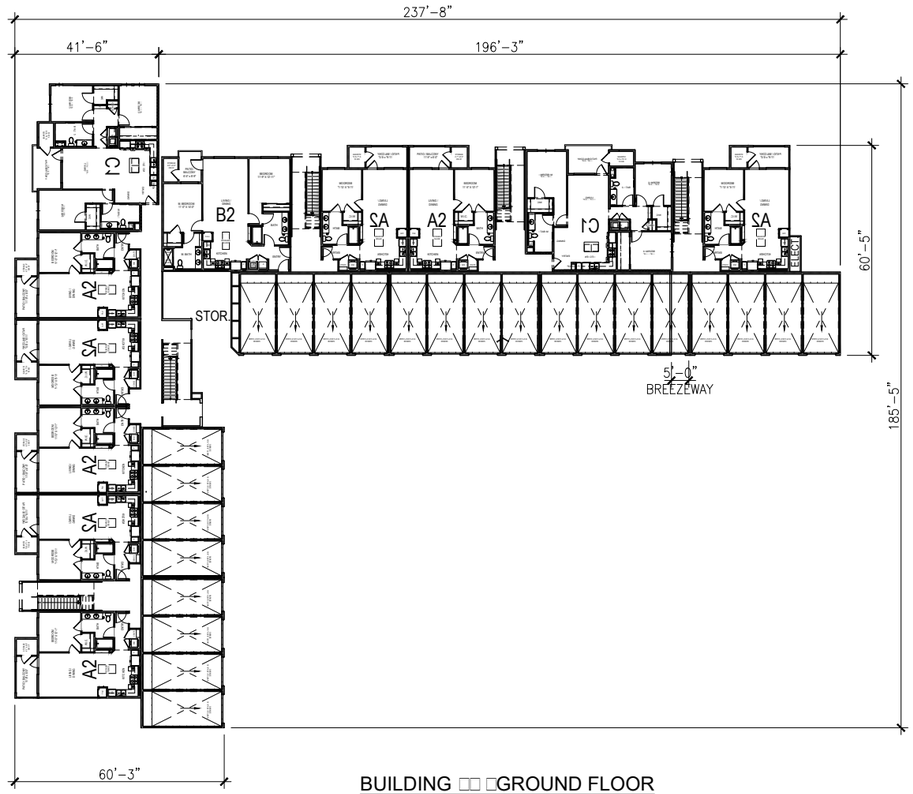
FIRE ACCESS EXHIBIT

DATE: 4-23-2021
JOB NO.: 2019-107

WILEY CANYON, LLC
13120 TELFAIR AVENUE, SYLMAR, CA 91342
(818) 364-7505

ARCHITECTS ORANGE
144 NORTH ORANGE ST., ORANGE, CA 92866
(714) 639-9860

Architecture. Design. Relationships.



BUILDING □□ □GROUND FLOOR

3 STORY □TYPE D

48□□□3 GSF TOTAL

NORT□

0 8□ □□□ 32□ 48□

□□□"□□□0"

PA2 BUILDING □□ □ GROUND FLOOR

A2□0

DATE: 4-23-2021

JOB NO.: 2019-107

WILEY CANYON

SANTA CLARITA, CALIFORNIA

WILEY CANYON, LLC

13120 TELFAIR AVENUE, SYLMAR, CA 91342

(818) 364-7505

ARCHITECTS ORANGE

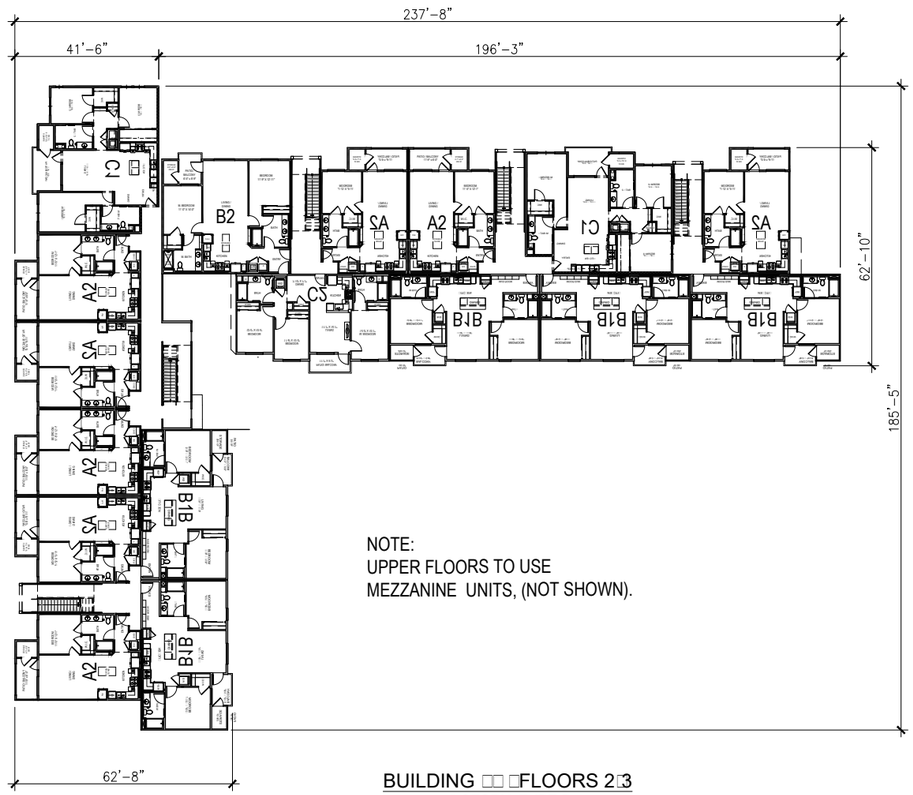
144 NORTH ORANGE ST., ORANGE, CA 92866

(714) 639-9860

Architecture. Design. Relationships.

T:□□da□□A□1□22□202□9:30:39 AM

R:□20□9/20□9□10□WILEY CANYON SMISER RANC□□□SANTA CLARITA\D3 DESIGN\02 SC□□EMATIC\02 AUTOCAD□19□0□□A2.0 PA2 BUILDING PLANS.DWG



NOTE:
UPPER FLOORS TO USE
MEZZANINE UNITS, (NOT SHOWN).

BUILDING □□ □FLOORS 2□3
3 STORY□TYPE D
48□□33 GSF TOTAL

NORT□

0 8□ □□□ 32□ 48□

PA2 BUILDING □ □ FLOORS 2□3

A2□□

DATE: 4-23-2021
JOB NO.: 2019-107

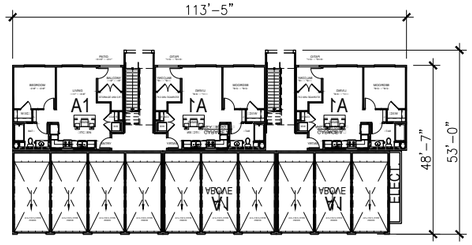
WILEY CANYON
SANTA CLARITA, CALIFORNIA

WILEY CANYON, LLC
13120 TELFAIR AVENUE, SYLMAR, CA 91342
(818) 364-7505

ARCHITECTS ORANGE
144 NORTH ORANGE ST., ORANGE, CA 92866
(714) 639-9860

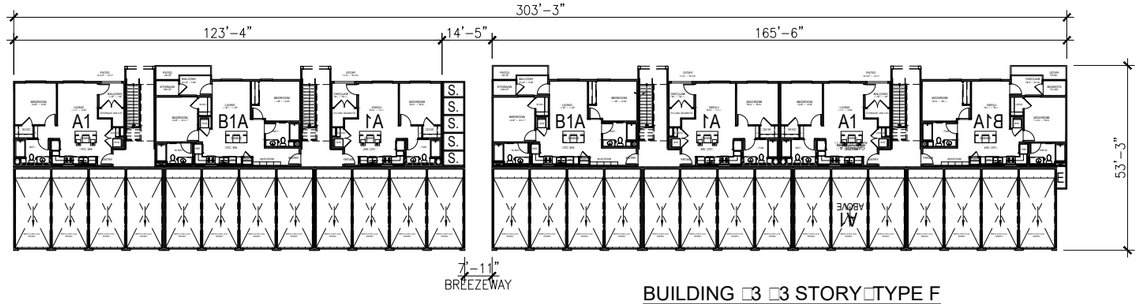
Architecture. Design. Relationships.

T:□□□DA□12'2021 9:40:30 AM
R:20□19\20□9□10□WILEY CANYON SMISER RANC□□SANTA CLARITA 03 DESIGN\02 SC□EMATIC\02 AUTOCAD□9□10□□A2.0 PA2 BUILDING PLANS.DWG



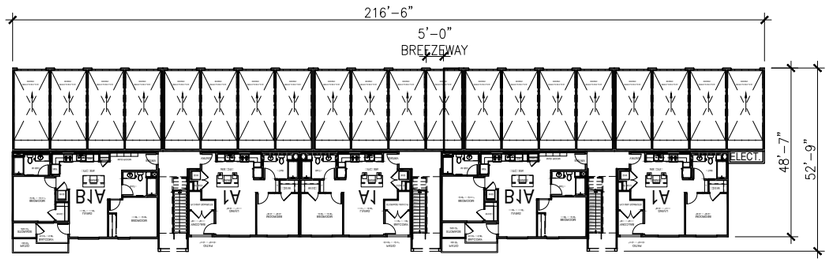
BUILDING □2 □3 STORY□TYPE E

□2□□□8 GSF TOTAL



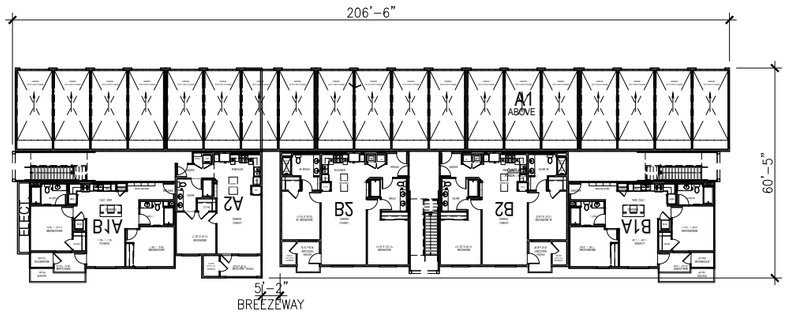
BUILDING □3 □3 STORY□TYPE F

34□342 GSF TOTAL



BUILDING □4 □3 STORY□TYPE G

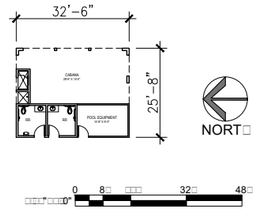
23□853 GSF TOTAL



BUILDING □5 □3 STORY□TYPE □

2□□994 GSF TOTAL

NOTE:
UPPER FLOORS TO USE
MEZZANINE UNITS, (NOT SHOWN).



CABANA BUILDING

834 GSF TOTAL

PA2 BUILDINGS 2□5 □ CABANA □ GROUND FLOOR

A2□□

DATE: 4-23-2021
JOB NO.: 2019-107

T:□□Jobs□PA-2□122-202□-9424□AM
R:□20□8□20□9□10□WILEY CANYON SM#SER RANC□□SANTA CLARITA□03 DESIGN□02 SC□□EMATIC□02 AUTOCAD□9□10□□□A2.0 PA2 BUILDING PLANS.DWG

WILEY CANYON

SANTA CLARITA, CALIFORNIA

WILEY CANYON, LLC
13120 TELFAIR AVENUE, SYLMAR, CA 91342
(818) 364-7505

ARCHITECTS ORANGE
144 NORTH ORANGE ST., ORANGE, CA 92866
(714) 639-9860

Architecture. Design. Relationships.

□□ELEVATION

3:32"□□□0"

0 4□ □0□ 20□ 30□

MATERIAL □COLOR LEGEND

□	LIG□T SAND FINIS□ STUCCO □20:30□
2	CONCRETE TILE ROOF
3	VINYL WINDOWS□DOORS
4	EAVE FOAM CORBELS
5	FOAM TRIM
□	DECORATIVE METAL RAILING
□	DECORATIVE S□UTTERS
8	DECORATIVE TILE
9	FABRIC AWNING
□0	DECORATIVE METAL RAILING
□□	DECORATIVE IRON WALL GRILL
□2	DECORATIVE LIG□T FI□TURE
□3	DECORATIVE POTS□ELF
□4	WOOD COLUMNS □ BEAMS

FOR FURT□ER INFORMATION NOT S□OWN □ERE□REFER TO T□E COLOR AND MATERIAL BOARD

2□ELEVATION

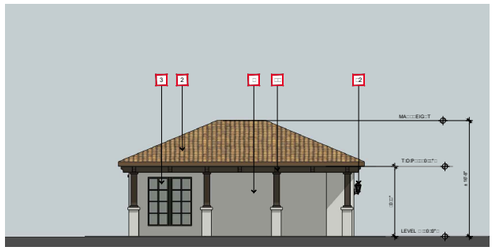
□□□"□□□0"

0 □0□ 20□ 30□ 40□

3□ELEVATION

□□□"□□□0"

0 □0□ 20□ 30□ 40□



CABANA ELEVATION

□8"□□□0"

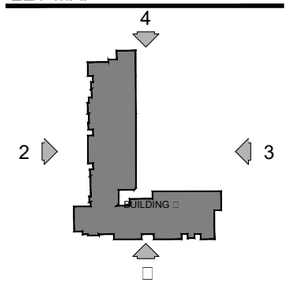
0 4□ 8□ □□□

4□ELEVATION

□□□"□□□0"

0 □0□ 20□ 30□ 40□

□EY MAP



PA2 BUILDING □□CABANA CONCEPTUAL ELEVATIONS

A2□9

DATE: 4-23-2021
JOB NO.: 2019-107

WILEY CANYON

SANTA CLARITA, CALIFORNIA

WILEY CANYON, LLC
13120 TELFAIR AVENUE, SYLMAR, CA 91342
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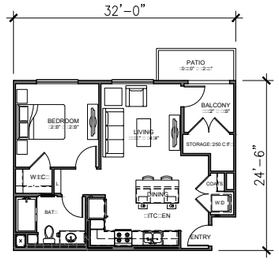
ARCHITECTS ORANGE
144 NORTH ORANGE ST., ORANGE, CA 92866
(714) 639-9860

Architecture. Design. Relationships.

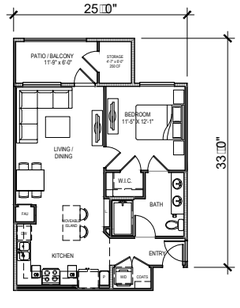
T□□□te□A□4/22/202□□9:0□:2□ PM
R□20□9:20□9:10□WILEY CANYON□SMI□SER RANC□□□SANTA CLARITA 03 DESIGN□02 SC□EMATIC□02 AUTOCAD□19:10□□A2.9 -A2□□ BUILDING ELEVATIONS.DWG



UNIT A□□ □BR □□BA

LIVABLE AREA:□□4 SQ.□FT.□
BALCONY:□50 SQ.□FT.□
PATIO:□□00 SQ.□FT.□
STORAGE:□250 CU.□FT.□

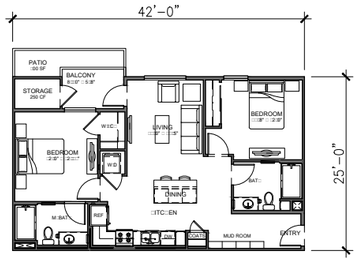
□OCCURS 24 TIMES.□



UNIT A2□ □BR □□BA

LIVABLE AREA:□ □29 SQ.□FT.□
PATIO.BALCONY:□ □0 SQ.□FT.□
STORAGE:□250 CU.FT.□

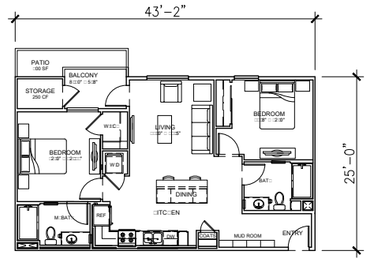
□OCCURS □8 TIMES.□



UNIT B□A□ 2BR □2BA

LIVABLE AREA:□9□□ SQ.□FT.□
BALCONY:□50 SQ.□FT.□
PATIO:□ □00 SQ.□FT.□
STORAGE:□250 CU.□FT.□

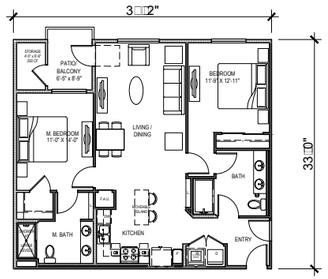
□OCCURS □4 TIMES.□



UNIT B□B□ 2BR □2BA

LIVABLE AREA:□ □00□ SQ.□FT.□
BALCONY:□50 SQ.□FT.□
PATIO:□ □00 SQ.□FT.□
STORAGE:□250 CU.□FT.□

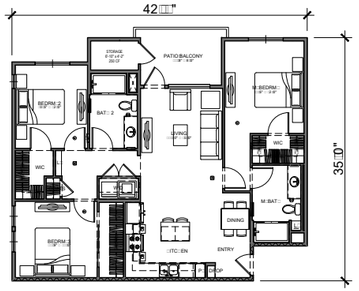
□OCCURS 2□ TIMES.□



UNIT B2□ 2BR □2BA

LIVABLE AREA:□ □40 SQ.□FT.□
PATIO.BALCONY:□5□ SQ.□FT.□
STORAGE:□250 CU.FT.□

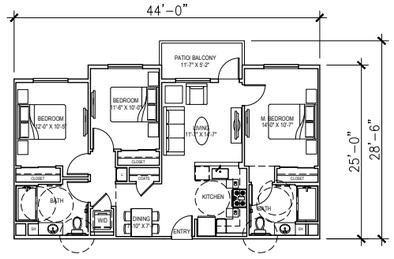
□OCCURS □ TIMES.□



UNIT C□□ 3BR □2BA

LIVABLE AREA:□□29□ SQ.□FT.□
PATIO.BALCONY:□9□ SQ.□FT.□
STORAGE:□ 250 CU.FT.□

□OCCURS □2 TIMES.□



UNIT C2□ 3BR □2BA

LIVABLE AREA:□□05□ SQ.□FT.□
PATIO □BALCONY:□ □0 SQ.□FT.□
□STORAGE ASSUMED TO BE IN GARAGE OR STORAGE LOC□ERS

□OCCURS 3 TIMES.□

□8"□□□0" 0 4□ 8□ □□ 24□

PA2 UNIT PLANS

A3□0

DATE: 4-23-2021
JOB NO.: 2019-107

WILEY CANYON

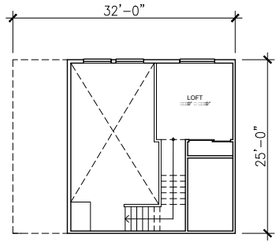
SANTA CLARITA, CALIFORNIA

WILEY CANYON, LLC
13120 TELFAIR AVENUE, SYLMAR, CA 91342
(818) 364-7505

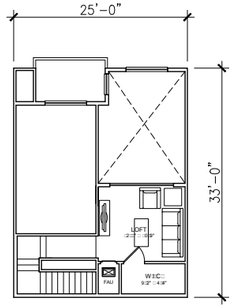
ARCHITECTS ORANGE
144 NORTH ORANGE ST., ORANGE, CA 92866
(714) 639-9860

Architecture. Design. Relationships.

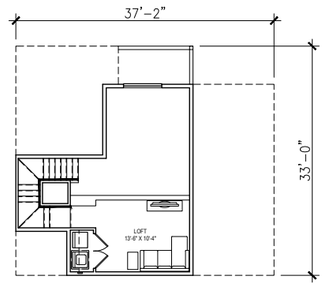
T:□□ate□24□1□22□202□□ 9□3□0□ AM
R:□20□9□20□9□10□WILEY CANYON SM\ISSER RANC□□□SANTA CLARITA 03 DESIGN 02 SC□ EMATIC\02 AUTOCAD □9□10□□A3.0 UNIT PLANS.DWG



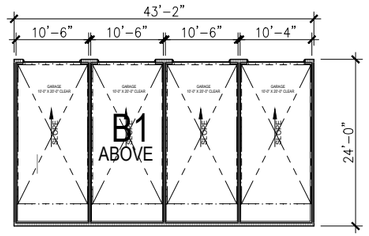
LOFT:□□8 SQ.:FT.□



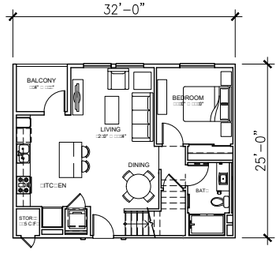
LOFT:2□□SQ.:FT.□



LOFT:20□ SQ.:FT.□



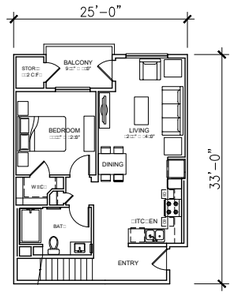
GARAGE B□
AREA.:□03.:SQ.:FT.□



UNIT A□□LOFT□ □BR □□BA

LIVABLE AREA:□895 SQ.:FT.□
□LOWER□□2□□SQ.:FT.□LOFT□□□8 SQ.:FT.□
BALCONY:□ 50 SQ.:FT.□
STORAGE□ □□5 CU.:FT.□□REMAINING TO BE IN GARAGE OR LOC.□ER□

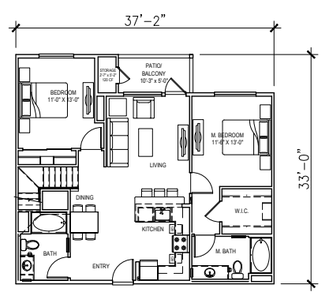
□OCCURS □4 TIMES.□



UNIT A2□LOFT□ □BR □□BA

LIVABLE AREA:□952 SQ.:FT.□
□LOWER:□□43 SQ.:FT.□LOFT:□2□□ SQ.:FT.□
BALCONY:□5□SQ.:FT.□
STORAGE□ □□5 CU.:FT.□□REMAINING TO BE IN GARAGE OR LOC.□ER□

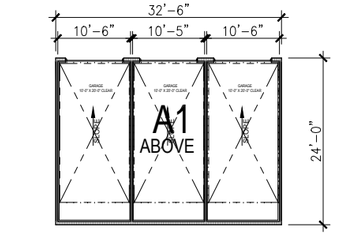
□OCCURS 9 TIMES.□



UNIT B2□LOFT□ 2BR □2BA

LIVABLE AREA:□□290 SQ.:FT.□
□LOWER:□ 083 SQ.:FT.□LOFT□20□SQ.:FT.□
PATIO.BALCONY:□58 SQ.:FT.□
STORAGE□□20 CU.FT.□□REMAINING TO BE IN GARAGE OR LOC.□ER□

□OCCURS 3 TIMES.□



GARAGE A□
AREA.□80 SQ.:FT.□

0 4□ 8□ □□ 24□
□8"□□□0"

PA2 UNIT PLANS

A3

DATE: 4-23-2021
JOB NO.: 2019-107

WILEY CANYON

SANTA CLARITA, CALIFORNIA

WILEY CANYON, LLC
13120 TELFAIR AVENUE, SYLMAR, CA 91342
(818) 364-7505

ARCHITECTS ORANGE
144 NORTH ORANGE ST., ORANGE, CA 92866
(714) 639-9860

Architecture. Design. Relationships.

T:□□dc□A□□22□202□□□9:30 AM
R:□20□9□20□9□10□WILEY CANYON SMISER RANC□□□SANTA CLARITA 03 DESIGN 02 SC□□EMATIC\02 AUTOCAD□□9□10□□A3.0 UNIT PLANS.DWG

Ⓐ Snowbound SW7004
Sherwin Williams

Ⓑ Balanced Beige SW7037
Sherwin Williams

Ⓒ Well-Bred Brown SW7027
Sherwin Williams

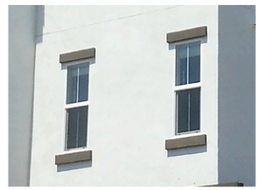
Ⓓ Caviar SW6990
Sherwin Williams

① Exterior Plaster
20/30 Sand Finish to match Paint Specs

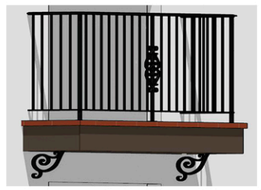
② Eagle Roofing - Capistrano
3814 San Pablo Blend

③ Vinyl Windows/ Doors
Tan

④ Eave Foam Corbels
To match Paint Specs



⑤ Foam Lintels & Sills
To match Paint Spec C



⑥ Decorative Railing & Brackets
To match Paint Spec D

⑦ Endicott Triple Tile
7 5/8" x 7 5/8"
Medium Ironspot #77

⑧ Decorative Ceramic Tile
La Quinta Malibu Ceramic Tile - 30839

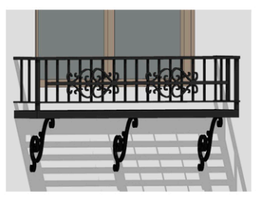
⑨ Sunbrella Fabric Awnings
Taupe 4648-0000

⑩ Foam Trim
Shape and Sizes may vary
To match Paint Spec C

⑪a Decorative Iron Wall Grill
To match Paint Spec D

⑪b Decorative Iron Wall Grill
To match Paint Spec D

⑫ Faux Wood Shutters
To match paint spec C



⑬ Metal Pot Shelves
To match paint spec D

WILEY CANYON
Santa Clarita, CA
WILEY CANYON, LLC

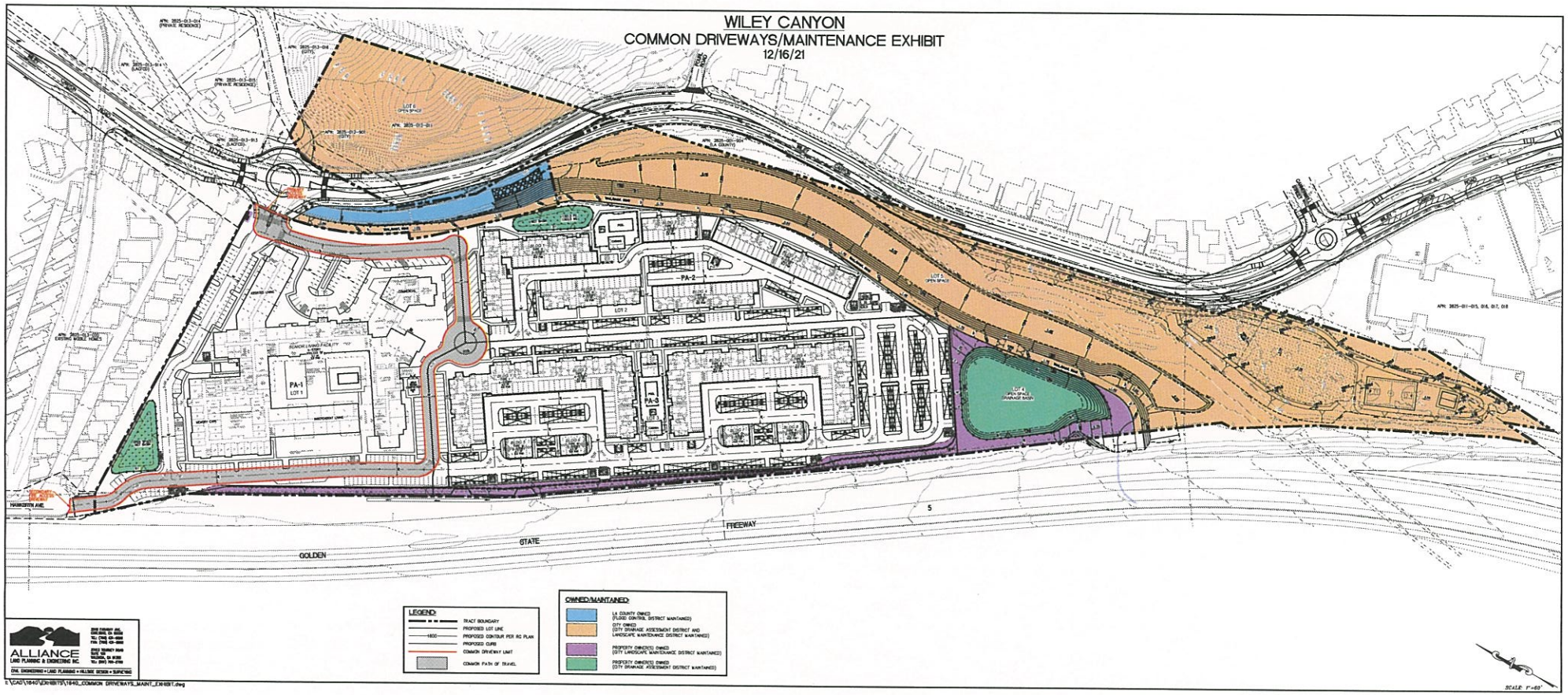
MATERIAL BOARD
PA2 Elevation

Architecture.
Design.
Relationships.

Job No. 2020-415
Date 2021-04-23

01

- Park district
- Landscape MD



LEGEND:

- TRACT BOUNDARY
- PROPOSED LOT LINE
- 1600 PROPOSED CONTOUR PER RG PLAN
- PROPOSED CURB
- COMMON DRIVEWAY LIMIT
- COMMON PATH OF TRAVEL

OWNED/MAINTAINED:

- LA COUNTY OWNED (FLOOD CONTROL DISTRICT MAINTAINED)
- CITY OWNED (CITY DRAINAGE ASSESSMENT DISTRICT AND LANDSCAPE MAINTENANCE DISTRICT MAINTAINED)
- PROPERTY OWNER(S) OWNED (CITY LANDSCAPE MAINTENANCE DISTRICT MAINTAINED)
- PROPERTY OWNER(S) OWNED (CITY DRAINAGE ASSESSMENT DISTRICT MAINTAINED)

Survey Questionnaire – Please Return to Fax Number Below

A. GENERAL

1. Subject Property Address: 24924 Hawkbryn Dr, Newhall, CA 91321

2. Name of business(es) occupying the subject property: Wiley Cyn, LLC

3. Person completing this questionnaire:

Lina Gomez	(818) 364-7505
Name	Telephone Number
Project Manager	Feb 25, 2022
Title	Date
N/A	3 years
Relationship to Property	How Long?

4. If you are the person who has ordered this report, what is the purpose of this report?
Purchase ☐ Sale ☐ Refinance ☐

B. PROPERTY DESCRIPTION

1. **Land**

A. What is the approximate square footage of the land? approx +/-30 acres

B. Were there any buildings or other improvements on the property prior to the existing improvements?
Yes ☑ No ☐ DK ☐

If yes, what were the buildings used for? _____

C. Is or has there been a well on the subject property? Yes ☑ No ☐ DK ☐

If yes, what type of well is it?: ☐ Drinking Water ☑ Irrigation ☐ Monitoring ☐ Dry Well

D. Is or has there been a septic system on the subject property? Yes ☐ No ☑ DK ☐

E. Has fill of unknown origin been imported onto the subject property?
Yes ☐ No ☑ DK ☐

2. **Improvements (Buildings) - This includes all buildings**

A. What is the approximate square footage of the onsite structure? various totaling +/- 10K

B. What year was the onsite structure built? DK

5261 West Imperial Highway, Los Angeles, California 90045
Toll Free: 888-705-6300 Phone: 310-854-6300 Fax: 310-854-0199 Web: https://www.efiglobal.com/our-services/environmental/

C. Is there a heating system at the site? Yes ☐ No ☑ DK ☐

If yes, what is it fueled by?: ☐ Natural Gas, ☐ Fuel Oil ☐ Electricity, ☐ Solar

D. Is there a boiler at the site? Yes ☐ No ☑ DK ☐

If yes, what is it fueled by?: ☐ Natural Gas, ☐ Fuel Oil ☐ Electricity, ☐ Solar

E. Who provides the following utility services to the subject property?

Natural Gas: So. Cal Gas

Electrical: Southern CA Edison

Sewer: City of Santa Clarita

Water: Santa Clarita Valley Water Agency

F. Do you have copies of the Subject Property's construction, site, and/or "as-built" drawings and building specifications? Yes ☐ No ☑ If so, please provide copies of same.

C. STORAGE TANKS

1. Are there any registered or unregistered (active or inactive) Underground Storage Tanks ("UST") or Aboveground Storage Tanks ("AST") located on the premises? Yes ☐ No ☑ DK ☐

2. Do you have any knowledge of USTs or ASTs that once existed on the Subject Property and whether such tanks were removed or abandoned? Yes ☐ No ☑ DK ☐

D. HAZARDOUS MATERIALS

1. Are any regulated hazardous materials, chemicals, or waste stored/used on-site? Yes ☐ No ☑ DK ☐

If "yes" please provide a copy of the chemical inventory.

2. To the best of your knowledge, do any of the following operations take place on the Subject Property or have ever taken place on the Subject Property:

Dry Cleaning:	Yes ☐ No ☑	Battery Storage/Sales:	Yes ☐ No ☑
Paint Storage/Sales:	Yes ☐ No ☑	Petroleum Storage/Sales:	Yes ☐ No ☑
Landfill/Dumping:	Yes ☐ No ☑	Junkyard:	Yes ☐ No ☑
Photo or X-Ray Finishing:	Yes ☐ No ☑	Electric Equip Manufacturing:	Yes ☐ No ☑
Solvent Storage or Sales:	Yes ☐ No ☑	Chemical Manufacture/Sales:	Yes ☐ No ☑
Automobile Storage or Repair:	Yes ☐ No ☑	Agriculture:	Yes ☑ No ☐
Metals Machining:	Yes ☐ No ☑	Metals Heat Treating:	Yes ☐ No ☑

Any other commercial or industrial process which may have included the use of chemicals: Yes ☐ No ☑

If yes, Please specify:_____

5261 West Imperial Highway, Los Angeles, California 90045

Toll Free: 888-705-6300 Phone: 310-854-6300 Fax: 310-854-0199 Web: https://www.efiglobal.com/our-services/environmental/

E. REGULATORY ACTION

1. Has the subject property ever been subject to any environmental enforcement action by the local government, federal, or state entities? Yes ☐ No ☑ DK ☐

2. Do you have any knowledge of pending or proposed environmental actions against the subject property or neighboring properties? Yes ☐ No ☑ DK ☐

3. Have there been any formal or informal citizen or tenant complaints regarding environmental or health matters in connection with the Subject Property? Yes ☐ No ☑ DK ☐

4. Are you aware of any releases of hazardous materials on the Subject Property? Yes ☐ No ☑ DK ☐

F. ADDITIONAL INFORMATION

1. Do you have knowledge of any previous environmental reports conducted for the site such as Phase I ESA, Phase II ESA, Site Characterization, Removal or Remediation, Geotechnical Reports, Lead Based Paint or Asbestos Survey or Removal, or other relevant material?

   Yes ☑ No ☐ If yes, please provide a copy.

2. Do you have a recent Title Report for the subject property?

   Yes ☑ No ☐ If yes, please provide a copy.

3. Can you provide the contact information of the former owner/occupant of the property? Yes ☐ No ☑
   If yes, please provide contact information below.

_____ _____
Name Telephone Number

_____ _____
Business Name Relationship to Property

5261 West Imperial Highway, Los Angeles, California 90045
Toll Free: 888-705-6300 Phone: 310-854-6300 Fax: 310-854-0199 Web: https://www.efiglobal.com/our-services/environmental/

USER QUESTIONNAIRE

As part of the All Appropriate Inquiry (AAI) standard for conducting Phase I Environmental Site Assessments set by the Environmental Protection Agency (EPA), the following questions are to be asked of the prospective purchaser.

Please return to fax number below or e-mail to your project manager. Please also provide a **Title Report, previous environmental reports including Phase I and Phase II, Site Characterization, Removal or Remediation, Geotechnical Reports, Lead Based Paint or Asbestos Survey or Removal,** or other relevant material, as available**.**

A. GENERAL

1. Subject Property Address 24924 Hawkbryn Ave, Santa Clarita, CA 91321

2. Person completing this questionnaire:

Matthew Badran — Name

949-789-9311 — Telephone Number

Buyer Representative — Relationship to Property

2/24/2022 | 8:43 AM PST — Date

3. What is your intended use of the property?

☐ No Change ☒ Residential Development ☐ Commercial/Industrial Development

4. What is the purpose of ordering a Phase I ESA?

☒ Purchase ☐ Refinance ☐ Other (please specify)_____

B. AAI STANDARD QUESTIONS

1. Are you aware of any environmental liens or activity and use limitations (AULs), such as engineering controls, land use restrictions or institutional controls that are in place at the property and/or have filed or recorded against the property under federal, tribal, state or local law? Yes ☐ No ☒ If Yes, Please Explain _____

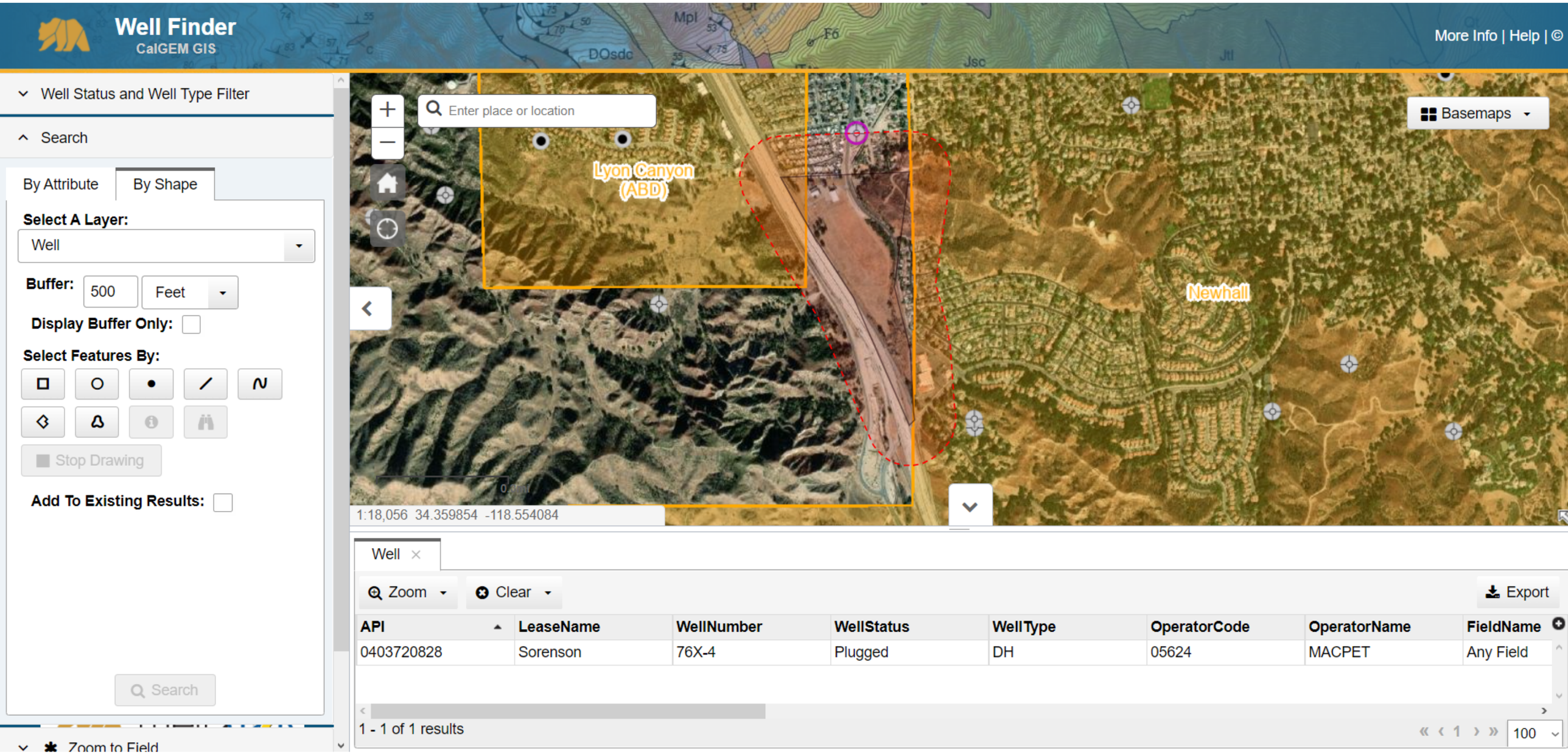
2. Do you have any specialized knowledge or experience that is material to recognized environmental conditions in connection with the property? Yes ☐ No ☒ If Yes, Please Explain _____

3. Are you aware of any commonly known or reasonably ascertainable information within the local community about the property that is material to recognized environmental conditions in connection with the property? Yes ☐ No ☒ If Yes, Please Explain_____

4. Is the purchase price of the property comparable to the fair market value of the property? Yes ☒ No ☐ N/A ☐
If the purchase price is significantly lower than the fair market value, the user must identify the alternate reason for the low purchase price if the lower purchase price is not related to the property being affected by hazardous substances or petroleum products._____

APPENDIX VI

REGULATORY AGENCY FILE REVIEWS


Well Finder
CalGEM GIS
More Info | Help | ©
Well Status and Well Type Filter
Search
By Attribute
By Shape
Select A Layer:
Well
Buffer:
500
Feet
Display Buffer Only:
Select Features By:
Stop Drawing
Add To Existing Results:
Search
Zoom to Field
Enter place or location
Basemaps
Lyon Canyon (ABD)
Newhall
1:18,056 34.359854 -118.554084
Well
Zoom
Clear
Export
API
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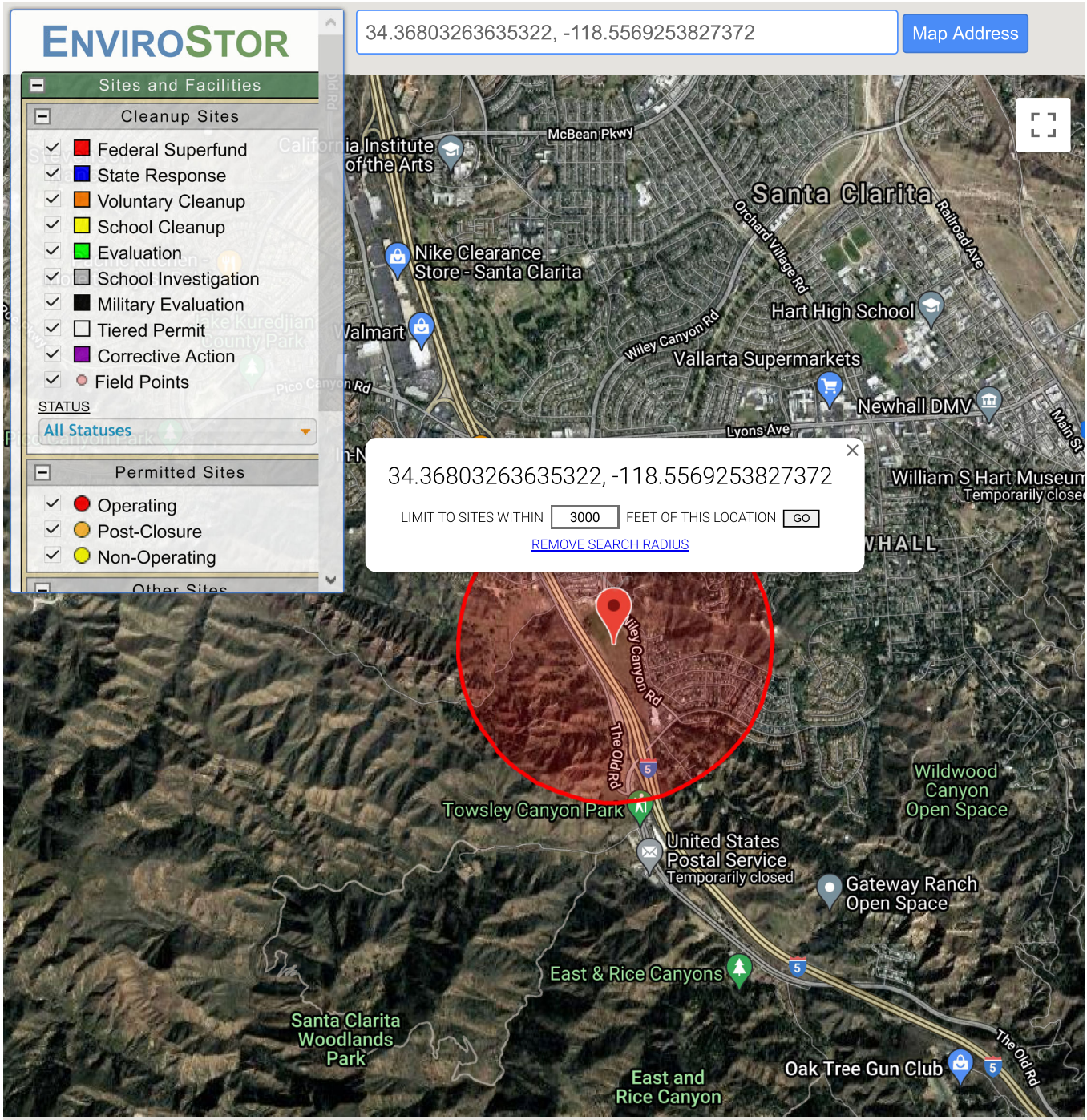
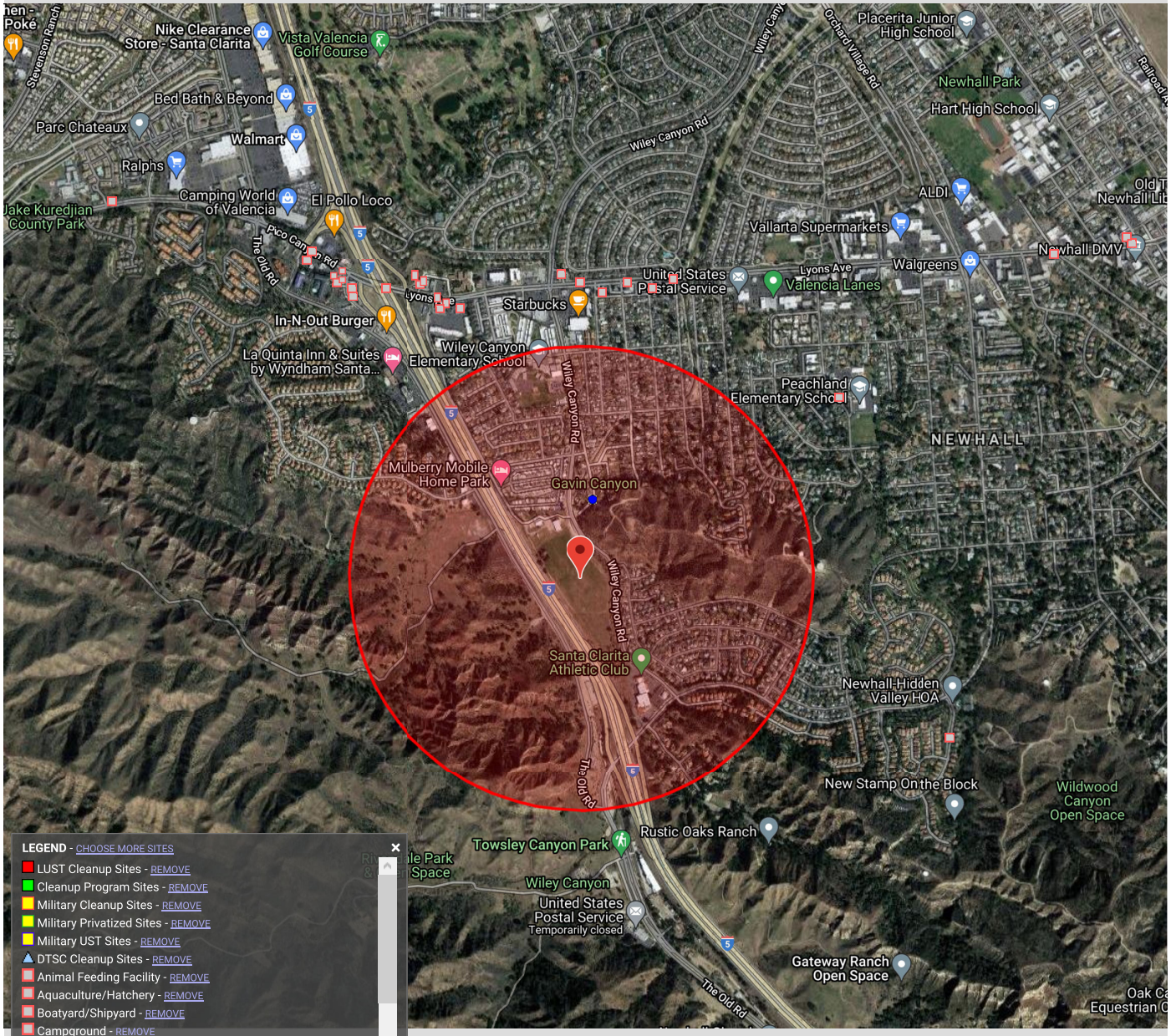


SITES FOUND IN SEARCH RADIUS — 0 SITES LISTED — EXPORT THIS LIST TO EXCEL

PROJECT NAME	STATUS	PROJECT TYPE	ADDRESS	CITY



LEGEND - CHOOSE MORE SITES

- LUST Cleanup Sites - REMOVE
- Cleanup Program Sites - REMOVE
- Military Cleanup Sites - REMOVE
- Military Privatized Sites - REMOVE
- Military UST Sites - REMOVE
- DTSC Cleanup Sites - REMOVE
- Animal Feeding Facility - REMOVE
- Aquaculture/Hatchery - REMOVE
- Boatyard/Shipyard - REMOVE
- Campground - REMOVE
- Cannabis Site - REMOVE
- Collection_System - REMOVE
- Composting Facility - REMOVE
- Concrete Manufacturing - REMOVE
- Development - REMOVE
- Development Site, NEC - REMOVE
- Domestic Site NEC - REMOVE
- Dredge/Fill Site - REMOVE
- Educational Facilities - REMOVE
- FERTILIZER/PESTICIDE HANDLING - REMOVE
- Facility - REMOVE
- Food Processing - REMOVE
- Food Processor - REMOVE
- Gasoline Service Station - REMOVE
- Groundwater Cleanup Site - REMOVE
- Habitat Restoration Area - REMOVE
- Hot Springs - REMOVE
- Irrigated Land - REMOVE

SITES VISIBLE ON MAP - CHOOSE FIELDS

SITE NAME	FAC ID	STATUS

Map data ©2022 Google Imagery ©2022 , CNES / Airbus, Maxar Technologies, U.S. Geological Survey, USDA Farm Service Agency

Sites Shown on Map: 9 Total Sites | 0 Open Sites | 9 Closed Sites | 0 Sites w/Water Quality Data

Attention Customers

Search...

Welcome to our eService site! You can submit various items for Building & Safety, Planning & Environmental Services using this site.

For FASTER SERVICE: Our Planning, Engineering Services & Building & Safety team is available at our Public Counter at the Permit Center at City Hall and is OPEN for normal business daily.

Mon – Thur: 7:30am – 5:00pm
Friday: 8:00am – 5:00pm

If you are more comfortable submitting online, we are continuing to process applications submitted through the eService system in the order of submittal. Please continue to check your email for status updates.

For Building & Safety questions, please call: 661-255-4935
For Planning Department questions, please call: 661-255-4330
For Environmental Services questions, please call: 661-286-4098

For Engineering Services submittals, please call for more info: 661-286-4060

Thank you –
The Permit Center Team

Home | Building | Licenses | Environmental Services

Create an Application | **Search Applications** | Schedule an Inspection

Records

Showing 0-0 of 0

Date	Record Number	Record Type	Project Name	Address	Status	Action
No records found.						

Search for Records

Enter information below to search for records.

- Site Address
- Contractor License Information
- Parcel Number
- Record Information
- Contact Information

Select the search type from the drop-down list.

General Search

General Search

Search my records only
Search All Records

Record Number:

Record Type: --Select--

Start Date: 02/11/2020

End Date: 02/10/2022

License Type: --Select--

State License Number:

Name of Business:

First: Last:

Street No.: From - To Street Name: Street Type: --Select-- Unit No.:

City: State: Zip:

Parcel No.: 2825012007

Search Additional Criteria

Notice:
Your search returned no results. Please modify your search criteria and try again.

Attention Customers

Search...

Welcome to our eService site! You can submit various items for Building & Safety, Planning & Environmental Services using this site.

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Thank you –
The Permit Center Team

Home | Building | Licenses | Environmental Services

Create an Application | **Search Applications** | Schedule an Inspection

Records

Showing 0-0 of 0

Date	Record Number	Record Type	Project Name	Address	Status	Action
No records found.						

Search for Records

Enter information below to search for records.

- Site Address
- Contractor License Information
- Parcel Number
- Record Information
- Contact Information

Select the search type from the drop-down list.

General Search

General Search

Search my records only
Search All Records

Record Number:

Record Type: --Select--

Start Date: 02/11/2020

End Date: 02/10/2022

License Type: --Select--

State License Number:

Name of Business:

First: Last:

Street No.: From - To Street Name: Street Type: --Select-- Unit No.:

City: State: Zip:

Parcel No.: 2825012010

Search Additional Criteria

Notice:
Your search returned no results. Please modify your search criteria and try again.

Attention Customers

Search...

Welcome to our eService site! You can submit various items for Building & Safety, Planning & Environmental Services using this site.

For FASTER SERVICE: Our Planning, Engineering Services & Building & Safety team is available at our Public Counter at the Permit Center at City Hall and is OPEN for normal business daily.

Mon – Thur: 7:30am – 5:00pm
Friday: 8:00am – 5:00pm

If you are more comfortable submitting online, we are continuing to process applications submitted through the eService system in the order of submittal. Please continue to check your email for status updates.

For Building & Safety questions, please call: 661-255-4935
For Planning Department questions, please call: 661-255-4330
For Environmental Services questions, please call: 661-286-4098

For Engineering Services submittals, please call for more info: 661-286-4060

Thank you –
The Permit Center Team

Home | Building | Licenses | Environmental Services

Create an Application | **Search Applications** | Schedule an Inspection

Records

Showing 0-0 of 0

Date	Record Number	Record Type	Project Name	Address	Status	Action
No records found.						

Search for Records

Enter information below to search for records.

- Site Address
- Contractor License Information
- Parcel Number
- Record Information
- Contact Information

Select the search type from the drop-down list.

General Search

General Search

Search my records only
Search All Records

Record Number:

Record Type: --Select--

Start Date: 02/11/2020

End Date: 02/10/2022

License Type: --Select--

State License Number:

Name of Business:

First: Last:

Street No.: From - To Street Name: Street Type: --Select-- Unit No.:

City: State: Zip:

Parcel No.: 2825012011

Search Additional Criteria

Search

Notice:
Your search returned no results. Please modify your search criteria and try again.

Public Records Request

CHANGE TOPIC

*** Describe your problem or question in detail**

This firm is performing a Phase I Environmental Site Assessment for the property located at the following addresses: 24924 Hawkbryn Avenue, Newhall, Santa Clarita, CA 91321 with APNs: 2825-012-007, 2825-012-010, and 2825-012-011

We are requesting any information from your departments pertaining to:

- building permit records including demolitions, construction, tenant improvements, major sewer installations/removals, and certificates of occupancy on the property
- any reports of the storage, release or spillage of hazardous materials (HAZMAT), or substances or petroleum products that have ever been located on the property
- any underground storage tanks (USTs) and aboveground storage tanks (ASTs) on the property
- industrial wastewater discharge, clarifiers, storm water, or industrial wastewater, including permits to operate and notices of violation on the property
- contaminated ground water or soil records on the property
- air emissions, including permits to operate, equipment lists and notices of violation on the property

Please feel free to contact Diana Arellano with any questions or concerns at 310-854-6300 or Diana.Arellano@EFIGLOBAL.com. Thank you for your assistance with this information.

Drag image(s) here, or click to select file(s)

Please Note: The City DOES NOT provide the following types of records: Copies of marriage licenses, birth certificates, fictitious name statements, business licenses, or real property inquiries.

MORE

* indicates required field

SUBMIT

Download on the App Store (https://apps.apple.com/us/app/santa-clarita-mobile-app/id425563366)

GET IT ON Google Play (https://play.google.com/store/apps/details?id=com.govoutreach.sceservice)

Powered by (http://www.gogovapps.com)

PUBLIC RECORDS REQUEST FORM

ATTENTION REQUESTOR: To fulfill your request for records, please fill out this form completely, and identify specifically the type of records you are requesting. Requests must reasonably describe identifiable records prepared, owned, used, or retained by the Sanitation Districts.

REQUESTOR INFORMATION

Name: Diana Arellano		Date: 2/11/2022
Company: EFI Global		
Mailing Address: 5261 West Imperial Highway		
City: Los Angeles	State: CA	Zip Code: 90,045
Phone No: 310-854-6300	Fax No. (optional) 310-854-0199	
Email (recommended): Diana.Arellano@EFIGLOBAL.com		

REQUESTED RECORDS

Please clearly describe each requested record or document.
Use additional copies of this form, as necessary. *

Time Period of Document Requested	From: 1/1/1900	To: 2/11/2022

This firm is performing a Phase I Environmental Site Assessment for the property located at the following address: 24924 Hawkbryn Avenue, Newhall, Santa Clarita, CA 91321 with APNs: 2825-012-007, 2825-012-010, and 2825-012-011

We are requesting any information from your departments pertaining to industrial wastewater discharge, clarifiers, storm water, or industrial wastewater, including permits to operate and notices of violation on the property.

Time Period of Document Requested	From:	To:

Time Period of Document Requested	From:	To:

* Requests that are not specific and focused will be returned for more information. If requested, the Sanitation Districts will assist you in making focused and effective requests for identifiable records. The Sanitation Districts will not create new documents or records in response to a request.

_____
Signature of Requestor

Submit requests by email, mail or fax to:

LOS ANGELES COUNTY SANITATION DISTRICTS
Converting Waste Into Resources

Records Administrator
Los Angeles County Sanitation Districts
P.O. Box 4998
Whittier, CA 90607-4998
records_administrator@lacsd.org
Fax: (562) 699-5442

ilked@destekengineering.com

From: ilked@destekengineering.com
Sent: Friday, February 11, 2022 12:17 AM
To: 'records_administrator@lacsd.org'
Subject: Public Records Request
Attachments: Public_Records_Request_Form for LACSD.pdf

Hello,

This firm is requesting a review of all current and historical files/reports for the following addresses: 24924 Hawkbryn Avenue, Newhall, Santa Clarita, CA 91321 with APNs: 2825-012-007, 2825-012-010, and 2825-012-011

Please feel free to contact Diana Arellano with any questions or concerns at 310-854-6300 or Diana.Arellano@EFIGLOBAL.com. Thank you for your assistance with this information.

Regards,

Ilke Duman | Environmental Specialist
ilked@destekengineering.com
Destek Engineering on behalf of EFI Global, Inc.
Los Angeles, CA
DIRECT 310.854.6300 | FAX 310.854.0199
CSLB License #: 885902
www.efiglobal.com | Caring counts®

Arellano, Diana

From: ilked@destekengineering.com
Sent: Friday, February 11, 2022 7:43 AM
To: Arellano, Diana
Subject: FW: Response For Arellano of EFI Global dated 2-10-22
Attachments: Arellano of EFI Global Request.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

045.08254

Regards,

Ilke Duman | Environmental Specialist
ilked@destekengineering.com
Destek Engineering on behalf of EFI Global, Inc.
Los Angeles, CA
DIRECT 310.854.6300 | FAX 310.854.0199
CSLB License #: 885902
www.efiglobal.com | Caring counts®

From: Orona, Maria <MOrona@lacsd.org>
Sent: Friday, February 11, 2022 6:33 PM
To: ilked@destekengineering.com
Subject: Response For Arellano of EFI Global dated 2-10-22

To: Diana Arellano:

The Los Angeles County Sanitation Districts have received your California Public Records Act (CPRA) Request dated **2-10-22,** regarding 24924 Hawkbryn Avenue, Newhall Santa Clarita 91321. The Sanitation Districts have no non-exempt, non-privileged, records that are responsive to your request.

Thank You,

Maria Orona
Senior Clerk Typist | Industrial Waste Section
562-908-4288 ext 2928 |
morona@lacsd.org

LOS ANGELES COUNTY SANITATION DISTRICTS
Converting Waste into Resources

Website | Facebook | Twitter | Instagram | YouTube

From: ilked@destekengineering.com <ilked@destekengineering.com>
Sent: Thursday, February 10, 2022 1:17 PM
To: Records_Administrator <Records_Administrator@lacsd.org>
Subject: Public Records Request

CAUTION: EXTERNAL EMAIL.

Hello,

This firm is requesting a review of all current and historical files/reports for the following addresses: 24924 Hawkbryn Avenue, Newhall, Santa Clarita, CA 91321 with APNs: 2825-012-007, 2825-012-010, and 2825-012-011

Please feel free to contact Diana Arellano with any questions or concerns at 310-854-6300 or Diana.Arellano@EFIGLOBAL.com. Thank you for your assistance with this information.

Regards,

Ilke Duman | Environmental Specialist
ilked@destekengineering.com
Destek Engineering on behalf of EFI Global, Inc.
Los Angeles, CA
DIRECT 310.854.6300 | FAX 310.854.0199
CSLB License #: 885902
www.efiglobal.com | Caring counts®

ilked@destekengineering.com

From: ilked@destekengineering.com
Sent: Friday, February 11, 2022 12:18 AM
To: 'RB4-PublicRecords@waterboards.ca.gov'
Subject: Public Records Request

Hello,

This firm is performing a Phase I Environmental Site Assessment for the property located at the following address: 24924 Hawkbryn Avenue, Newhall, Santa Clarita, CA 91321 with APNs: 2825-012-007, 2825-012-010, and 2825-012-011

We are requesting any information from your department pertaining to the above property.

Please feel free to contact Diana Arellano with any questions or concerns at 310-854-6300 or Diana.Arellano@EFIGLOBAL.com. Thank you for your assistance with this information.

Regards,

Ilke Duman | Environmental Specialist
ilked@destekengineering.com
Destek Engineering on behalf of EFI Global, Inc.
Los Angeles, CA
DIRECT 310.854.6300 | FAX 310.854.0199
CSLB License #: 885902
www.efiglobal.com | Caring counts®

Arellano, Diana

From: ilked@destekengineering.com
Sent: Wednesday, February 16, 2022 11:16 PM
To: Arellano, Diana
Subject: FW: Public Records Request / Tracking No. 2022021005

Follow Up Flag: Follow up
Flag Status: Flagged

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

#045.08254

Regards,

Ilke Duman | Environmental Specialist
ilked@destekengineering.com
Destek Engineering on behalf of EFI Global, Inc.
Los Angeles, CA
DIRECT 310.854.6300 | FAX 310.854.0199
CSLB License #: 885902
www.efiglobal.com | Caring counts®

From: Schmid, Andrea@Waterboards <Andrea.Schmid@Waterboards.ca.gov> **On Behalf Of** WB-RB4-PublicRecords
Sent: Thursday, February 17, 2022 3:00 AM
To: ilked@destekengineering.com; WB-RB4-PublicRecords <RB4-PublicRecords.RB4-PublicRecords@waterboards.ca.gov>
Cc: Schmid, Andrea@Waterboards <Andrea.Schmid@Waterboards.ca.gov>
Subject: RE: Public Records Request / Tracking No. 2022021005

The Los Angeles Regional Board has reviewed its files and has concluded that it does not have any records that are responsive to your request.

Andrea Schmid
Staff Services Analyst
Los Angeles Regional Water Quality Control Board
320 West 4th St., Suite 200, Los Angeles, CA 90013
andrea.schmid@waterboards.ca.gov

Public Records and Freedom of Information Act
Rb4-Publicrecords@waterboards.ca.gov

****
This message, including any attachments, may include privileged, confidential and/or inside information. Any distribution or use of this communication by anyone other than the intended recipient is strictly prohibited and may be unlawful. If you are not the intended recipient, please notify the sender by replying to this message and then delete it from your system.

From: ilked@destekengineering.com <ilked@destekengineering.com>
Sent: Thursday, February 10, 2022 1:18 PM
To: WB-RB4-PublicRecords <RB4-PublicRecords.RB4-PublicRecords@waterboards.ca.gov>
Subject: Public Records Request

EXTERNAL:

Hello,

This firm is performing a Phase I Environmental Site Assessment for the property located at the following address: 24924 Hawkbryn Avenue, Newhall, Santa Clarita, CA 91321 with APNs: 2825-012-007, 2825-012-010, and 2825-012-011

We are requesting any information from your department pertaining to the above property.

Please feel free to contact Diana Arellano with any questions or concerns at 310-854-6300 or Diana.Arellano@EFIGLOBAL.com. Thank you for your assistance with this information.

Regards,

Ilke Duman | Environmental Specialist
ilked@destekengineering.com
Destek Engineering on behalf of EFI Global, Inc.
Los Angeles, CA
DIRECT 310.854.6300 | FAX 310.854.0199
CSLB License #: 885902
www.efiglobal.com | Caring counts®

SOUTH COAST AQMD

PUBLIC RECORDS REQUEST FORM

Request Information (For Office Use Only)

Date Stored

Time Stored

Public Record Request Nbr

Public Record Request Tracking Nbr
119559

Attention Requestor

Please fill out this form completely. You may include an attachment to the form, if necessary.

Requestor Information

Requestor Name
Diana Arellano_045.08254

Requestor Address
5261 West Imperial Highway

Requestor Company
EFI Global

Requestor City
Los Angeles

Requestor Email *
DIANA.ARELLANO@EFIGLOBAL.COM

Requestor State
California

Requestor Phone
(310)854-6300

Requestor Zip Code

Type of Requested Record(s).

REQUESTED RECORDS. **Please be as specific as possible in describing the records you are seeking.** The more specific you are, the easier it will be to determine if such records exist in District files. Please contact the Public Records Unit if you need assistance in identifying District records.

Note: Permits to Operate, Equipment Lists, Notices of Violation, Notices to Comply, and Emissions Summaries are available through SCAQMD's FIND page at http://www3.aqmd.gov/webappl/fim/prog/search.aspx (you need to copy and paste this link into your browser).

Please Enter a description of the records you are requesting here: *
We are requesting any information from your departments pertaining to air emissions, including permits to operate, equipment lists and notices of violation.

Time Period of Documents Requested

Start Date *
1/1/1900

End Date *
2/11/2022

Requested Facility or Site Information (if applicable)

Note: You may only include one Facility or Site per Form.

Facility ID (if known)

Address
24924 Hawkbryn Avenue (APNs:2825-012-007, 2825-012-010, and 2825-012-011)

Facility Name (if known)

City
Newhall

Zip Code
91321

Requested Application or Permit List. (if applicable)

Please click the Add Button to the right to enter a Application/Permit Number

Authorization Letter Attachment (0)

Authorization Letter

Note: Please use the above button for attaching an Authorization Letter from the facility to release confidential information for your public records request.

Supplemental Attachments (0)

Supplemental Documents

Note: Please use the above button for attaching additional documents that will help define your public records request.
Also Note: You MUST press the "Submit Your Public Records Request" button to complete this form otherwise the form will be automatically deleted!

INSTRUCTIONS FOR REQUESTING RECORDS

(California Public Records Act, Govt. Code Sections 6250-6276.48)

1. In order to expedite your request, please fill out the form completely. Requests may also be submitted by phone at (909) 396-3700, by facsimile to (909) 396-3330, or by email to PublicRecordsRequests@aqmd.gov.

2. Requests must be for records prepared, owned, used, or retained by the District (Gov. Code Sec. 6252(e)). Requests should be for clearly identifiable records. The District is not required to create a new record in response to a request. The District will assist the requestor in making a request that describes reasonably identifiable records (Gov. Code Sec. 6253.1). Documents will not be provided if disclosure would infringe upon a copyright, trade secret, or is otherwise exempt in accordance with state law.

3. A search for facility records can only be conducted by one or all of the following:

-- a) Facility Name, Address, or Identification Number

-- b) Facility Application Number, or Permit to Operate Number; or

-- c) Facility Notice of Violation/Notice to Comply Number.

4. You will be notified within ten (10) days whether your request seeks copies of disclosable public records prepared, owned, used, or retained by this agency. In some cases, the District may need an additional 14 days to respond. If so, you will be notified in writing. You will also be provided an estimated date of when the records will be made available.

5. Communications regarding your request, and any records, will be provided by email, unless specified otherwise.

6. If the search for records finds the records voluminous, you will be notified of the approximate number of pages and/or length of time it will take to process your request.

7. If the records you requested have been marked confidential by the source of the record, you will be notified and given the option of continuing with the District's Trade Secret process.

8. If your request is to review records, rather than receive copies, the District will notify you once the records are gathered, and arrangements will be made for your review.

9. The charge for the direct cost of duplication is as follows: Paper Copies, $0.15/page each over 10 pages (first 10 pages are free); Copied CD's or flash drives, no charge; and Copied Audio Tapes, $5.00 each. After a preliminary estimate, advance payment may be required.

10. If the request is for information in an electronic format, the requestor shall bear the cost of producing a copy of the record, including the cost to construct the record and the cost of programming and computer services necessary to produce a copy of the record, when either of the following applies: (1) the District would be required to produce a copy of an electronic record and the record is one that is produced only at otherwise regularly scheduled intervals, or (2) the request would require data compilation, extraction, or programming to produce the record. (Gov. Code Sec. 6253.9(b)). The transfer of gathered electronic records onto CD, DVD or flash drive typically costs $10.00 each. An invoice will accompany your records when completed.

Note: For further information, please refer to the District's Guidelines for Implementing the California Public Records Act. The Guidelines are available in the lobby of the District Headquarters or on the District's web site at www.aqmd.gov.

Note: If you have questions pertaining to the submittal of a Public Records Act request, you may contact the Public Records Unit, (909) 396-3700, Tuesday through Friday, 7:00 a.m. to 5:30 p.m. Our Fax number is (909) 396-3330. Our email address is PublicRecordsRequests@aqmd.gov.

Arellano, Diana

From: mcard@aqmd.gov
Sent: Friday, February 11, 2022 10:42 AM
To: Arellano, Diana
Cc: ob_pr_support_docs@aqmd.gov
Subject: SCAQMD Public Records Request# 1410481, -- Completion Letter
Attachments: ATT00001.tif

Follow Up Flag: Follow up
Flag Status: Flagged

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

South Coast Air Quality Management District

Diana Arellano
Efi Global
5261 W Imperial
Los Angeles, Ca 90045

Ref: Request for Records; Control No. **1410481**, Received 2/10/2022
RE: P/O'S, EQL'S & NOV'S FOR 24924 HAWKBRYN AVE, NEWHALL, CA, FROM 1/1/1900-2/11/2022.

After a thorough search of this agency's records:

NO REQUESTED RECORDS WERE FOUND FOR THE ABOVE REFERENCED FACILITY OR FACILITY SITE.

Should you have any questions or need additional information, please do not hesitate to contact me at (909) 396-3700, Tuesday through Friday, between the hours of **8:00 a.m.** and **4:30 p.m.**

Sincerely,

Michelle Card
For Colleen Paine
Public Records Coordinator
Information Management

ilked@destekengineering.com

From: ilked@destekengineering.com
Sent: Friday, February 11, 2022 12:18 AM
To: 'ChatsworthFileRoom@dtsc.ca.gov'
Subject: Public Records Request

Hello,

This firm is performing a Phase I Environmental Site Assessment for the property located at the following address: 24924 Hawkbryn Avenue, Newhall, Santa Clarita, CA 91321 with APNs: 2825-012-007, 2825-012-010, and 2825-012-011

We are requesting any information from your department pertaining to the above property.

Please feel free to contact Diana Arellano with any questions or concerns at 310-854-6300 or Diana.Arellano@EFIGLOBAL.com. Thank you for your assistance with this information.

Regards,

Ilke Duman | Environmental Specialist
ilked@destekengineering.com
Destek Engineering on behalf of EFI Global, Inc.
Los Angeles, CA
DIRECT 310.854.6300 | FAX 310.854.0199
CSLB License #: 885902
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Department of Toxic Substances Control

Meredith Williams, Ph.D., Director
9211 Oakdale Avenue
Chatsworth, California 91311

Jared Blumenfeld
Secretary for
Environmental Protection

Gavin Newsom
Governor

February 10, 2022

Ilke Duman
Destek Engineering
ilked@destekengineering.com

Public Records Request Number: PR3-021022-04

Location: 24924 Hawkbryn Avenue, Newhall, Santa Clarita

APNs: 2825-012-007, 2825-012-010, and 2825-012-011

Dear Ms. Duman:

On February 10, 2022, the Department of Toxic Substances Control (DTSC) received your email of the same date requesting records under the Public Records Act. After a thorough review of our files, no site records were found pertaining to the site/facility referenced above.

Many of our records are available on EnviroStor, an online database that provides non-confidential, public access to DTSC's data management system. It tracks our cleanup, permitting, enforcement, and investigation efforts at hazardous waste facilities and sites with known or suspected contamination issues. EnviroStor is available 24/7, 365 days a year. The data reflects the latest updates as they are entered in the system. Access it from your computer or smartphone, the local library – anywhere Internet access is available. Just go to www.envirostor.dtsc.ca.gov. You'll find a step-by-step tour of EnviroStor under the "How to Use EnviroStor" menu on the website.

If you have any questions or would like further information regarding your request, please contact me via email at ChatsworthFileRoom@dtsc.ca.gov.

Sincerely,

Roya Nejad

Roya Nejad
Records Mgmt. Asst. Coordinator

Arellano, Diana

From: Christine Belden <CBelden@acwm.lacounty.gov>
Sent: Monday, February 21, 2022 3:57 PM
To: Arellano, Diana
Subject: RE: Former Mule Ranch operations

Follow Up Flag: Follow up
Flag Status: Flagged

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Good afternoon,

Mule ranches, like horse ranches, could use agricultural chemicals, especially if they are growing forage and feed for their livestock. Typically, there will be at least rangeland that is managed, using some chemicals. Our office, however, will not have records of that nature, that far back.

As far as the regulations involving land development, you will want to check with the local zoning office. Unincorporated Los Angeles county's office would be the Department of Regional Planning. Best way to reach them is by looking up their contact information online. I have emailed them a few times with the general email address and have received a prompt response.

Good luck, and thank you for contacting our office,

Christine Belden
Deputy Ag Comm
Pesticide Use Enforcement
636-575-5466 main

From: Arellano, Diana <Diana.Arellano@EFIGLOBAL.com>
Sent: Monday, February 21, 2022 3:15 PM
To: ACWM-EnvProt <Envprot@acwm.lacounty.gov>
Subject: Former Mule Ranch operations

CAUTION: External Email. Proceed Responsibly.

Hello,

I am conducting due diligence on a property in Los Angeles County that was formerly utilized as a mule ranch from the 1970s through the 1990s. I was wondering if these operations are known to utilize agricultural chemicals, such as pesticides, herbicides, and fertilizers in their operations?

Also, are there any regulations in Los Angeles County for redeveloping a site from agricultural use to residential use? Is pesticide sampling required prior to development?

Regards,

Diana Arellano | Project Manager
EFI Global, Inc.
Los Angeles, CA
DIRECT 310.854.6300 | FAX 310.854.0199
CELL 310.800.0817 | EMAIL Diana.Arellano@efiglobal.com
CSLB License #: 885902
www.efiglobal.com | Caring counts®

Any personal data acquired, processed or shared by us will be lawfully processed in line with applicable data protection legislation. If you have any questions regarding how we process personal data refer to our Privacy Notice https://www.sedgwick.com/global-privacy-policy. Any communication including this email and files/attachments transmitted with it are confidential and are intended solely for the use of the individual or entity to whom they are addressed. If this message has been sent to you in error, you must not copy, distribute or disclose of the information it contains and you must notify us immediately (contact is within the privacy policy) and delete the message from your system.

Arellano, Diana

From: ilked@destekengineering.com
Sent: Friday, February 25, 2022 3:47 AM
To: Arellano, Diana
Subject: FW: LACoFD Public Records Center:: H046717-021022

Follow Up Flag: Follow up
Flag Status: Flagged

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

#045.08254

Regards,

Ilke Duman | Environmental Specialist
ilked@destekengineering.com
Destek Engineering on behalf of EFI Global, Inc.
Los Angeles, CA
DIRECT 310.854.6300 | FAX 310.854.0199
CSLB License #: 885902
www.efiglobal.com | Caring counts®

From: LACoFD <lacountyfire@govqa.us>
Sent: Thursday, February 24, 2022 8:38 PM
To: ilked@destekengineering.com
Subject: LACoFD Public Records Center:: H046717-021022

--- Please respond above this line ---

RE: PRA of February 10, 2022, Reference # H046717-021022.

Dear İLKE DUMAN,

The Los Angeles County Fire Department, Health Hazardous Materials Division, being the custodian or keeper of records, certify that a thorough search for the records you requested has been carried out.

Re: 24924 HAWKBYRN RD
SANTA CLARITA CA 91321

The search revealed that no records were found for the above noted address.

It should be understood that this does not mean that the records you requested do not exist. It is possible that such records may be misfiled; exist under another spelling, another name, or may have been destroyed based on this Department's Record Retention Policy. However, with the information furnished to our office, and to the best of our knowledge, no records were located.

For businesses in Burbank, CulverCity, Downey, City of LA, La Habra, Monrovia, Pasadena, Santa Monica, Torrance& Underground Storage Tanks in Los Angeles County jurisdiction click here.

If you have any questions regarding your request, please contact our office at (818) 364-7120.

Los Angeles County Fire Department

Health Hazardous Materials Division

Site Administrator

LOS ANGELES COUNTY CUPA
ACTIVE - FACILITY INVENTORY

FACILITY NAME	SITE ADDRESS					CITY	ZIP	CERS ID	Facility ID	PE
THOMAS RESERVOIR			HASTINGS RANCH DR THOMAS			PASADENA	91107	10423696	FA0045839	7070
GRAND CENTRAL RECYCLING	999		HATCHER	AVE		CITY OF INDUSTRY	91748	10266202	FA0013301	3001
GRAND CENTRAL RECYCLING	999		HATCHER	AVE		CITY OF INDUSTRY	91748	10266202	FA0013301	1001
GRAND CENTRAL RECYCLING	999		HATCHER	AVE		CITY OF INDUSTRY	91748	10266202	FA0013301	7124
VINCENTS GENERAL SERVICES INC	1037	S	HATCHER	AVE		INDUSTRY	91748	10286539	FA0037360	3701
VINCENTS GENERAL SERVICES INC	1037	S	HATCHER	AVE		INDUSTRY	91748	10286539	FA0037360	3001
VINCENTS GENERAL SERVICES INC	1037	S	HATCHER	AVE		INDUSTRY	91748	10286539	FA0037360	1003
AT&T MOBILITY- INDUSTRY SOUTH OVLY-C409 (USID12132)	1135	S	HATCHER	ST	B	ROWLAND HEIGHTS	91748	10198588	FA0035573	3000
CALIFORNIA WATER SERVICE CO. - ELA-59	4324		HAUCK	ST		LOS ANGELES	90063	10268857	FA0013303	3000
CHOURA EVENTS	540		HAWAII	AVE		TORRANCE	90503	10131529	FA0013305	7100
GOLDEN STATE WATER (20702 HAWAIIAN)	20702		HAWAIIAN	AVE		LAKEWOOD	90715	10264030	FA0013307	3001
TACOS EL UNICO	2041		HAWKINS	CIR		LOS ANGELES	90001	10280632	FA0040351	3000
TJ MAXX 1064	1401		HAWTHORNE	BLVD		REDONDO BEACH	90278	10499773	FA0045728	1001
RALPHS GROCERY #120	1413		HAWTHORNE	BLVD		REDONDO BEACH	90278	10160167	FA0013312	1001
RALPHS GROCERY #120	1413		HAWTHORNE	BLVD		REDONDO BEACH	90278	10160167	FA0013312	3000
ULTA BEAUTY #457 (REDONDO BEACH, CA)	1513		HAWTHORNE	BLVD		REDONDO BEACH	90278	10684834	FA0049756	1000
SPROUTS FARMERS MARKET #222	1515		HAWTHORNE	BLVD		REDONDO BEACH	90278	10616998	FA0047609	3000
SPROUTS FARMERS MARKET #222	1515		HAWTHORNE	BLVD		REDONDO BEACH	90278	10616998	FA0047609	1001
NORDSTROM RACK SO. BAY	1517		HAWTHORNE	BLVD		REDONDO BEACH	90278	10688860	FA0049199	1001
KOHL'S, INC. - STORE #1376	1799		HAWTHORNE	BLVD		REDONDO BEACH	90278	10450738	FA0047734	1001
MACYS 517-SOUTH BAY	1801		HAWTHORNE	BLVD		REDONDO BEACH	90278	10300228	FA0041648	1001
MACYS 517-SOUTH BAY	1801		HAWTHORNE	BLVD		REDONDO BEACH	90278	10300228	FA0041648	3001
EXPRESS 917	1815		HAWTHORNE	BLVD		REDONDO BEACH	90278	10735255	FA0049260	1000
BATH & BODY WORKS #787	1815		HAWTHORNE	BLVD	246	REDONDO BEACH	90278	10746115	FA0049599	1001
CALIFORNIA PIZZA KITCHEN	1815		HAWTHORNE	BLVD	146	REDONDO BEACH	90278	10300246	FA0034158	3000
BATH & BODY WORKS #787	1815		HAWTHORNE	BLVD	246	REDONDO BEACH	90278	10746115	FA0049599	3001
LENSCRAFTERS #819	1815		HAWTHORNE	BLVD	236	REDONDO BEACH	90278	10421686	FA0034927	1002
LENSCRAFTERS #819	1815		HAWTHORNE	BLVD	236	REDONDO BEACH	90278	10421686	FA0034927	2002
ABERCROMBIE & FITCH 10507	1815		HAWTHORNE	BLVD	168	REDONDO BEACH	90278	10779010	FA0042199	1001
WALGREENS #6496	2321		HAWTHORNE	BLVD		REDONDO BEACH	90278	10299739	FA0045007	1001
LINCOLN AUTO REPAIR	10029	S	HAWTHORNE	BLVD		INGLEWOOD	90304	10296505	FA0013383	1000
LINCOLN AUTO REPAIR	10029	S	HAWTHORNE	BLVD		INGLEWOOD	90304	10296505	FA0013383	3001
VALLARTAS AUTO REPAIR	10101	S	HAWTHORNE	BLVD		INGLEWOOD	90304	10296502	FA0013382	1000
VALLARTAS AUTO REPAIR	10101	S	HAWTHORNE	BLVD		INGLEWOOD	90304	10296502	FA0013382	3001
AUTOZONE #5396	10110		HAWTHORNE	BLVD		INGLEWOOD	90304	10139509	FA0032468	3001

LOS ANGELES COUNTY CUPA
ACTIVE - CALARP FACILITY INVENTORY

FACILITY NAME	SITE ADDRESS					CITY	ZIP	CERS ID	FACILITY ID	PE
EINSTEIN NOAH RESTAURANT GROUP INC	10050		MISSION MILL	RD		PICO RIVERA	90601	10279636	FA0018213	3503
MWD - WEYMOUTH WATER TREATMENT PLANT	700		MORENO	AVE		LA VERNE	91750	10029544	FA0018354	3509
GROW MORE INC	15600		NEW CENTURY	DR		GARDENA	90248	10271422	FA0018663	3502
FRESHLY INC	4000		NOAKES	ST		COMMERCE	90023	10272205	FA0018711	3503
SHINE FOOD, INC (TORRANCE, CA)	19216	S	NORMANDIE	AVE		TORRANCE	90502	10735990	FA0033948	3504
US FOOD SERVICE, INC.	15155		NORTHAM	ST		LA MIRADA	90638	10290010	FA0018937	3503
PLANT & GAC	2692	N	OLIVE	AVE		ALTADENA	91001	10265611	FA0036904	3502
FRESHPOINT SOUTHERN CALIFORNIA	155		ORANGE	AVE		INDUSTRY	91744	10284523	FA0037228	3503
TROPICANA PRODUCTS INC	240	N	ORANGE	AVE		INDUSTRY	91744	10282546	FA0019457	3503
ARTISTIC SILVER PLATING INC	2344		ORANGE	AVE		SIGNAL HILL	90755	10267306	FA0035373	3501
KCI NEWPORT INC	15763		ORNELAS	ST		IRWINDALE	91706	10285060	FA0036170	3501
ALLEN BOOSTER AND RESERVOIR	2073		PINECREST	DR		ALTADENA	91001	10265731	FA0033367	3501
LOS COYOTES WATER RECLAMATION PLANT	16515		PIUMA	AVE		CERRITOS	90703	10313710	FA0021006	3503
AMERICOLD	14840	E	PROCTOR	AVE		INDUSTRY	91746	10271794	FA0021319	3502
CACIQUE INC	14940	E	PROCTOR	AVE		INDUSTRY	91746	10283926	FA0021306	3503
PQ CORPORATION	8401		QUARTZ	AVE		SOUTH GATE	90280	10153419	FA0021425	3502
ALTA DENA CERTIFIED DAIRY - COI-SOUTH	17851	E	RAILROAD	ST	A	INDUSTRY	91748	10286452	FA0021483	3506
BALDWIN PARK WATER TREATMENT PLANT #2	15342	E	RAMONA	BLVD		BALDWIN PARK	91706	10791646	FA0051158	3501
MATERIAL LOGISTICS AND SERVICES	20455	S	REEVES	AVE		CARSON	90810	10174057	FA0021775	3509
Charlie's Produce	5301		RIVERGRADE	RD		IRWINDALE	91706	10460056	FA0031854	3503
SONIC PLATING CO	1930	W	ROSECRANS	AVE		GARDENA	90249	10295629	FA0022357	3501
WHITTIER NARROWS WATER RECLAMATION PLANT	301	N	ROSEMEAD	BLVD		SOUTH EL MONTE	91733	10264795	FA0022632	3502
AMES TREATMENT PLANT	3371		RUBIO CANYON	RD		ALTADENA	91001	10274857	FA0022723	3502
LAC PUBLIC WORKS WATERWORKS	43035		RUCKER	ST		LANCASTER	93535	10288615	FA0039938	3501
SPECTRUM LABORATORY PRODUCTS	14422	S	SAN PEDRO	ST		GARDENA	90248	10289563	FA0023496	3504
SOLVAY USA, INC.	20851	S	SANTA FE	AVE		CARSON	90810	10197358	FA0023728	3507
UNIBRIGHT FOODS, INC	7101		SCOUT	AVE		BELL GARDENS	90201	10281130	FA0024165	3502
Messer LLC	1290	E	SEPULVEDA	BLVD		CARSON	90745	10275673	FA0024459	3503
PHILLIPS 66 COMPANY, CARSON PLANT	1520	E	SEPULVEDA	BLVD		CARSON	90745	10263874	FA0024460	3512
AMERICOLD	1610	E	SEPULVEDA	BLVD		CARSON	90745	10271950	FA0032122	3503
TESORO REFINING AND MARKETING COMPANY LLC	1801	E	SEPULVEDA	BLVD		CARSON	90745	10152751	FA0024456	3513
32 COLD, LLC	6020	E	SHEILA	ST		COMMERCE	90040	10273027	FA0024578	3501
Rexford Industrial Realty, L.P.	6110		SHEILA	ST		COMMERCE	90040	10289248	FA0037420	3502
METAL SURFACES INTERNATIONAL, LLC	6060		SHULL	ST		BELL GARDENS	90201	10279585	FA0024775	3504
BERRY PETROLEUM COMPANY	25121	N	SIERRA	HWY		NEWHALL	91321	10266601	FA0024877	3505
CITY OF SIERRA MADRE-MAINT YARD	621	E	SIERRA MADRE	BLVD		SIERRA MADRE	91024	10282792	FA0024966	3503
ENGINEERED POLYMER SOLUTIONS	5501	E	SLAUSON	AVE		COMMERCE	90040	10153871	FA0025145	3506
SMITHWAY & ASSOCIATES	5743		SMITHWAY	ST	106	COMMERCE	90040	10273978	FA0025288	3502

LOS ANGELES COUNTY CUPA
INACTIVE - FACILITY INVENTORY

FACILITY NAME	SITE ADDRESS					CITY	ZIP	CERS ID	Facility ID	PE
THOMAS RESERVOIR			HASTINGS RANCH DR THOMAS			PASADENA	91107	10423696	FA0045839	7072
THOMAS RESERVOIR			HASTINGS RANCH DR THOMAS			PASADENA	91107	10423696	FA0045839	3000
JAMES METALS CO	1123	S	HATCHER	AVE		INDUSTRY	91748	0	FA0013299	1002
JAMES METALS CO	1123	S	HATCHER	AVE		INDUSTRY	91748	0	FA0013299	3001
SG WHOLESALE ROOFING SUPPLIES INC	1123	S	HATCHER	AVE	F	INDUSTRY	91748	10802722	FA0013302	3003
GENCHI MFG CO	1135	S	HATCHER	AVE		INDUSTRY	91748	0	FA0013300	3001
WELL #2 (HATCHWAY ST.)	2015	E	HATCHWAY	ST		COMPTON	90222	10272244	FA0044942	3000
WELL #2 (HATCHWAY ST.)	2015	E	HATCHWAY	ST		COMPTON	90222	10272244	FA0044942	3501
SPRINT CELL SITE	0	E	HAUSER MOUNTAIN	RD		ACTON	93510	10650586	FA0038669	3000
CHOURA EVENTS	540		HAWAII	AVE		TORRANCE	90503	10131529	FA0013305	1000
CHOURA EVENTS	540		HAWAII	AVE		TORRANCE	90503	10131529	FA0013305	7100
CHOURA EVENTS	540		HAWAII	AVE		TORRANCE	90503	10131529	FA0013305	7100
CUNICO CORPORATION	214	N	HAWAIIAN	AVE		WILMINGTON	90744	0	FA0013306	1003
GOLDEN STATE WATER (20702 HAWAIIAN)	20702		HAWAIIAN	AVE		LAKEWOOD	90715	10264030	FA0013307	3500
LARRY CURTI TRUCK & EQUIPMNT	21821	S	HAWAIIAN	AVE		HAWAIIAN GARDENS	90716	10659043	FA0013308	1001
LARRY CURTI TRUCK & EQUIPMNT	21821	S	HAWAIIAN	AVE		HAWAIIAN GARDENS	90716	10659043	FA0013308	3003
SMISER MULE RANCH	24924		HAWKBYRN	RD		SANTA CLARITA	91321	0	FA0013309	3001
DEL RANCHO PRODUCE	2000		HAWKINS	CIR		LOS ANGELES	90001	10268842	FA0040347	1001
DEL RANCHO PRODUCE	2000		HAWKINS	CIR		LOS ANGELES	90001	10268842	FA0040347	3000
TROPICALE FOODS, INC	2030		HAWKINS	CIR		LOS ANGELES	90255	10270165	FA0040348	3001
NUTRITIONAL PRODUCTS	2040		HAWKINS	CIR		LOS ANGELES	90001	10268872	FA0040350	3001
RALPHS GROCERY #120	1413		HAWTHORNE	BLVD		REDONDO BEACH	90278	10160167	FA0013312	7080
RALPHS GROCERY #120	1413		HAWTHORNE	BLVD		REDONDO BEACH	90278	10160167	FA0013312	7080
RALPHS GROCERY #120	1413		HAWTHORNE	BLVD		REDONDO BEACH	90278	10160167	FA0013312	7080
RALPHS GROCERY #120	1413		HAWTHORNE	BLVD		REDONDO BEACH	90278	10160167	FA0013312	7080
TAVISTOCK FREEBIRDS LLC	1509		HAWTHORNE	BLVD	#101	REDONDO BEACH	90278	10649668	FA0048795	3000
HOME DEPOT EXPO #6659	1519		HAWTHORNE	BLVD		REDONDO BEACH	90278	0	FA0037072	7080
HOME DEPOT EXPO #6659	1519		HAWTHORNE	BLVD		REDONDO BEACH	90278	0	FA0037072	7080
GALLERIA ONE HOUR PHOTO	1815		HAWTHORNE	BLVD	339	REDONDO BEACH	90278	0	FA0013362	1001
CALIFORNIA PIZZA KITCHEN	1815		HAWTHORNE	BLVD	146	REDONDO BEACH	90278	10300246	FA0034158	7080
LENSCRAFTERS #819	1815		HAWTHORNE	BLVD	236	REDONDO BEACH	90278	10421686	FA0034927	7080
LENSCRAFTERS #819	1815		HAWTHORNE	BLVD	236	REDONDO BEACH	90278	10421686	FA0034927	3001
VICTORIA SECRET STORE#81	1815		HAWTHORNE	BLVD	186	REDONDO BEACH	90278	10746250	FA0050010	1001
LENSCRAFTERS #819	1815		HAWTHORNE	BLVD	236	REDONDO BEACH	90278	10421686	FA0034927	7080
NORDSTROM	1835		HAWTHORNE	BLVD		REDONDO BEACH	90278	10301077	FA0043878	1001

LOS ANGELES COUNTY CUPA
Site Mitigation Inventory

Facility Name	Address	City	Zip Code	Site ID / Case ID		Status
EXPRESS CLEANERS	503-513 E COLORADO ST	GLENDALE	91205	SD0000290	RO0001291	
ONE STOP CLEANERS	3115 FOOTHILL BLVD	LA CRESCENTA	91214	SD0000020	RO0000044	
JIM DANDY CLEANERS	28708 ROADSIDE DR	AGOURA HILLS	91301	SD0000554	RO0001553	
GELSON'S CALABASAS	22279 MULHOLLAND HWY UNIT 22243	CALABASAS	91302	SD0000829	RO0001827	ACTIVE
EXCLUSIVE AUTO	22217 SHERMAN WAY	CANOGA PARK	91303	SD0010028	RO0010028	
MONTGOMERY WARD AUTO SVC.	6601 OWENSMOUTH	CANOGA PARK	91303	SD0011404	RO0011404	
HANOVER WARNER CENTER	21050 KITTRIDGE AVE	CANOGA PARK	91303	SD0000791	RO0001789	
EVOLUTION APARTMENTS	6606 VARIEL AVE	CANOGA PARK	91303	SD0000745	RO0001743	
ACE PLATING & POLISHING	7310 DEERING AVE	CANOGA PARK	91303	SD0000398	RO0001399	
UPRR-BURBANK BRANCH/MTA	7900 CANOGA AVE	CANOGA PARK	91304	SD0010604	RO0010604	
CHATSWORTH PLATING	8865 CANOGA AVE	CANOGA PARK	91304	SD0010522	RO0000374	
GOLDEN CLEANERS	8225 TOPANGA CANYON BLVD	LOS ANGELES	91304	SD0010026	RO0010026	
DARLING CLEANERS	23733-23735 ROSECOE BLVD	LOS ANGELES	91304	SD0000036	RO0000024	
FALLBROOK AVENUE SITE	7606 FALLBROOK AVE	WEST HILLS	91304	SD0000543	RO0001542	ACTIVE
O MELIA PROPERTY	20761 PARTHENIA ST	CANOGA PARK	91306	SD0010369	RO0000493	
MOSS & CO.	6804 DE SOTO AVE	LOS ANGELES	91306	SD0010453	RO0000283	
PLATT VILLAGE QUALITY CLEANERS	6528 PLATT AVE	LOS ANGELES	91307	SD0000033	RO0000026	
FALLBROOK CENTER	22950 VANOWEN AVE	WEST HILLS	91307	SD0000325	RO0001326	
TARZANA DEVELOPMENT	9839 TOPANGA CANYON BLVD	CHATSWORTH	91311	SD0010508	RO0000561	
ELECTROTEK INDUSTRIES	9625 COZYCROFT AVE	CHATSWORTH	91311	SD0010515	RO0010515	
PHOTOTECH CIRCUITRY INC	9615 COZYCROFT AVE #P	CHATSWORTH	91311	SD0000399	RO0001400	
ANO PLATE INC	9531 COZYCROFT AVE	CHATSWORTH	91311	SD0000400	RO0001401	
AMBITECH	8944 FULLBRIGHT AVE	CHATSWORTH	91311	SD0000401	RO0001402	
MICROWAVE DESIGN & MFG	9533 IRONDALE AVE	CHATSWORTH	91311	SD0000402	RO0001403	
GEOULA PROPERTY	17933 VENTURA BLVD	ENCINO	91316	SD0000251	RO0000255	
EMERY CLEANERS	17314 VENTURA BLVD	ENCINO	91316	SD0000265	RO0000654	
SNOW WHITE CLEANERS	17701 VENTURA BLVD	ENCINO	91316	SD0000558	RO0001557	
MWD PROPERTY - LOT #7	22221 12TH ST	NEWHALL	91321	SD0000094	RO0000098	
BUSY BEE CLEANERS	25235 WILEY CANYON RD	NEWHALL	91321	SD0000800	RO0001798	ACTIVE
NEEDHAM RANCH PHASE 1 DEVELOPMENT	23287 SIERRA HWY	SANTA CLARITA	91321	SD0000696	RO0001694	
ROYAL CLEANERS	9643 RESEDA BLVD	NORTHRIDGE	91324	SD0000035	RO0000025	
FORMER DOC MILGROM'S CLEANING CLINIC	19524 NORDHOFF ST	NORTHRIDGE	91324	SD0000070	RO0000073	
HILLCRESTCLEANERS/RREEF FUNDS	18527 DEVONSHIRE ST	NORTHRIDGE	91324	SD0010575	RO0010575	
FORMER TELEDYNE/LITTON	19601 NORDHOFF ST	NORTHRIDGE	91324	SD0000563	RO0001561	
RYDELL CHEVROLET	18600 DEVONSHIRE ST	NORTHRIDGE	91324	SD0000485	RO0001485	
FORMER JMP PLATING	19019 PARTHENIA ST 108	NORTHRIDGE	91324	SD0000404	RO0001405	

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needed. 254-1046.

RANCH hand: full-time, over 18 years, must speak English, mule experience helpful. E.O.E. Apply in person 24924 Hawkbryn Ave., Newhall.

COOK & WAITRESS

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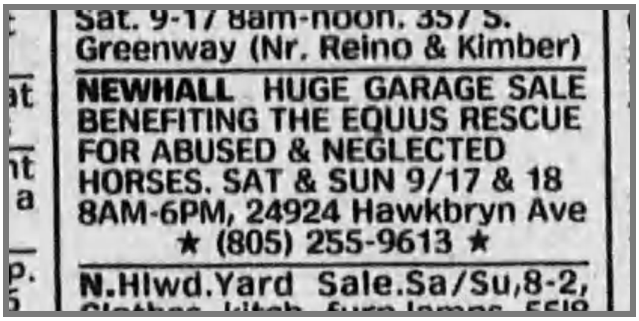
Sat. 9-17 8am-noon. 357 S. Greenway (Nr. Reino & Kimber)

NEWHALL HUGE GARAGE SALE BENEFITING THE EQUUS RESCUE FOR ABUSED & NEGLECTED HORSES. SAT & SUN 9/17 & 18 8AM-6PM, 24924 Hawkbryn Ave ★ (805) 255-9613 ★

N.Hlwd.Yard Sale.Sa/Su,8-2,

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Department of Toxic Substances Control

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Filters | Advanced Search

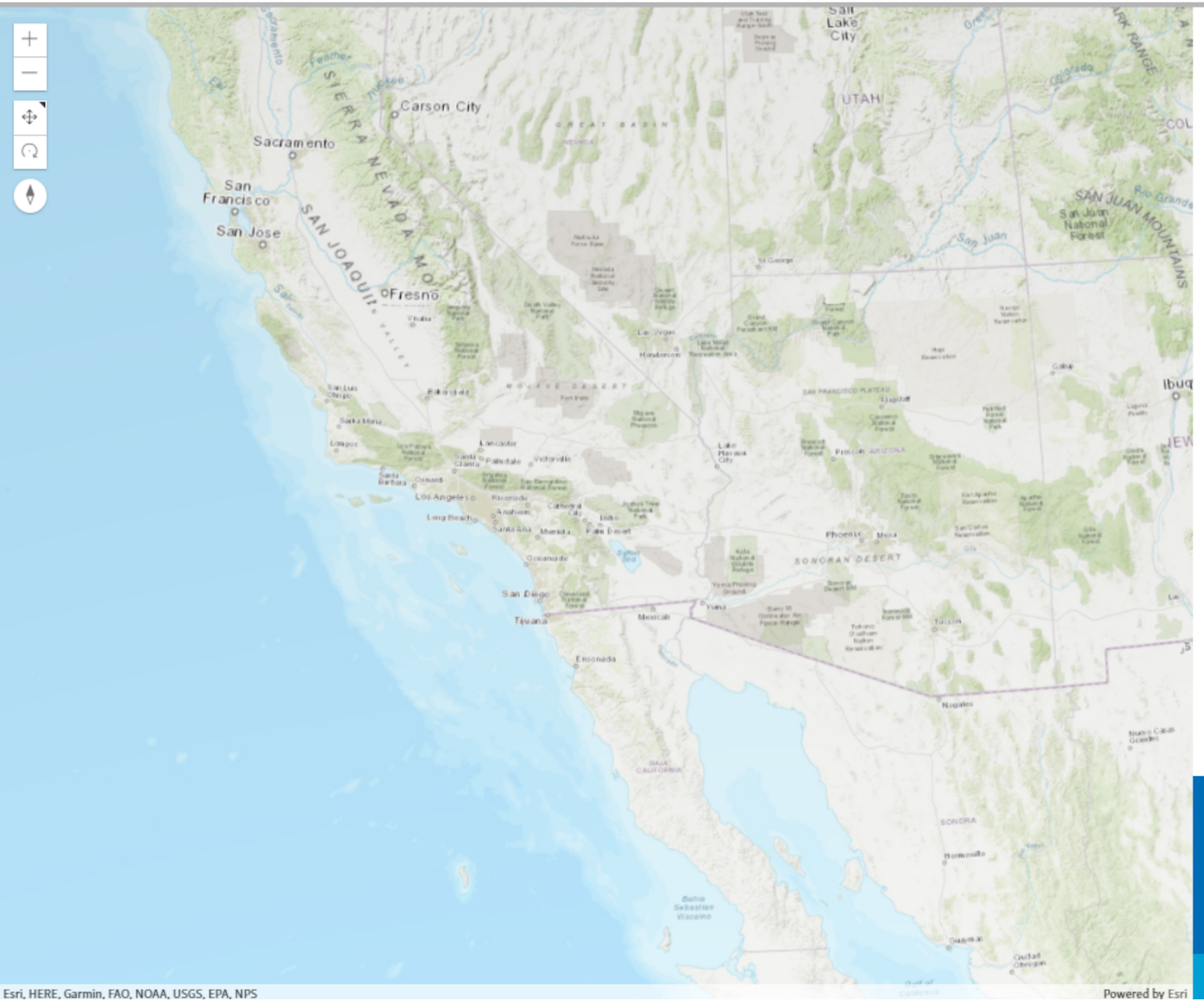
Physical Address | Hawkbryn | City... | 91321 | County... | Handler... | Status... | Category... | ID Type... | Update | Clear

No Results Found.

South Coast AQMD

Facility INformation Detail (F.I.N.D.)

Select Search Type	Name	Street	City	Zip			
Find a Facility		Hawkbryn		91321	☐ RECLAIM	☐ TITLE V	SEARCH



SEARCH RESULTS

0 Results

Street: Hawkbryn

Zip: 91321

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There are no facilities that match your search criteria. If you think this result is incorrect, call the number below.

South Coast AQMD

South Coast Air Quality Management District
21865 Copley Dr, Diamond Bar, CA 91765
909-396-2000

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Public Works
LOS ANGELES COUNTY

Public Works
pw.lacounty.gov

Clean LA for Residents
Solid Waste Information Management System (SWIMS)
Clean LA for Business
Clean LA for Government
Clean LA is for ALL
Los Angeles County

Organic Waste Management
Reduce, Reuse, Recycle, Rethink
Trash Collection / Illegal Dumping
Household Hazardous Waste / Electronic Waste
Used Motor Oil Recycling
Industrial Waste
Underground Storage Tanks
Solid Waste
Stormwater
Water Conservation
Youth Education

Online File Review

Industrial Waste / Underground Storage Tanks / Stormwater

Back

You searched the following address:

Street Number: 24924 Street Name: Hawkbryn

Our office does not have any records (related to industrial waste/underground storage tanks/stormwater) for the requested site address.

Please double check the spelling of the street name or search a different address. Both street number and street name must be exact and spelled correctly as they appear for the facility on file. Do not include street direction prefix (i.e. N, S, E, W, etc...) or suffix (i.e. ST, AVE, RD, BLVD, etc...) unless they appear in the street name (i.e. AVENUE K, AVENIDA CESAR CHAVEZ, 10TH ST EAST, CROSSROADS PKWY N, etc...). Do not include any extra spaces after the street number or after the street name.

Back

APPENDIX VII

PREVIOUS REPORTS

GABRIEL
ENVIRONMENTAL SERVICES

PHASE I ENVIRONMENTAL SITE ASSESSMENT

SMISER MULE RANCH @ 24924 HAWKBRYN AVENUE

SANTA CLARITA, LOS ANGELES COUNTY, CA 91321

PREPARED ON BEHALF OF:
CHINATRUST BANK (USA)
AUGUST 11, 2004

P.O Box 1161 Redlands, CA 92373 USA * 909-545-0250 *

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I. EXECUTIVE SUMMARY

The following is a general summary of the Phase I Environmental Site Assessment, its investigations, findings, and conclusions. The detailed information regarding any investigations, findings, or issues relating to the subject site can be found in Sections II-VI of this report.

Gabriel Environmental Services, LP (GES) was retained to perform a Phase I Environmental Site Assessment (ESA) on an improved tract that contains approximately 23.13 acres of land located along both the easterly right-of-way line of Hawkbryn Avenue and the westerly right-of-way line of Wiley Canyon Road, in the City of Santa Clarita, Los Angeles County, California. The subject site is asymmetrical in shape. It consists of 23.41 acres of land described as follows:

- LAND DESC IN DOC 0001770, 71-4-14*POR OF SW 1/4 OF SE 1/4 OF SEC 4 T 3N R 16W;
- FOR DESC SEE ASSESSO'R MAPS POR OF SE 1/4 AND POR OF LOT 7 IN SEC 4 T3N R16W.

Its physical address is 24924 Hawkbryn Avenue, Santa Clarita, California. The subject site is geographically located at latitude 34.370700 and longitude 118.558800.

Mr. Ara Kourouyan of ChinaTrust Bank (USA) authorized GES to conduct the ESA. On August 3, 2004 the property was inspected by GES consultant Henry Gabriel. GES also relied on a previous Phase I ESA performed on the subject property by West Coast Environmental and Engineering (WCE) in the preparation of this report. That report was dated August 15, 2003 and was provided to GES by the client.

The site under consideration in this project or the designated property in review consists of 23.13 acres of partly improved land that is developed with two single-story metal buildings, two mobile homes, mule barns, and one man-made lake. This property supports a natural cover of grass, brush, and trees. All vegetation on site appeared to be healthy and absent of any staining or discoloration. A portion of the property appears to have historically been utilized as a mule ranch and as pasture land. In an interview with Mr. James Rodgers, owner of the property, the subject site was previously occupied by a mule ranch known as Smiser Mule Ranch.

Based on the Los Angeles County Assessor's records, the improvements on the subject site were constructed in 1978 and 1980 and the buildings are 6,750 square feet and 9,380 square feet, respectively. The buildings are steel frame structures, sit on reinforced concrete slab foundations, have pitched roofs covered with metal roofing material, and have metal exterior walls. The floors are concrete or concrete covered with floor tile or carpeting.

In the previous ESA, a historical aerial photograph search was conducted on the subject property. Seven (7) aerial photographs were reviewed by WCE for the following years: 1928, 1947, 1952, 1968, 1976, 1989, and 1994. GES reviewed a 2002 aerial photograph. Based upon a review of aerial photograph maps, it appears that the part of the current improvements on site was first erected sometime between 1976 and 1989. From the 1952 aerial photograph, there was an improvement on the subject site which appeared to WCE that it could have been a pit/sump related to gas/oil well exploration. The research conducted on the subject site by WCE did not reveal any permits or records regarding oil/gas activity on the subject site.

In the previous ESA, a review of historical Sanborn Maps was also conducted on the subject property by Environmental Data Resources, Inc. to evaluate present and past land use, structures, improvements, and historical development of the subject site and surrounding properties. No coverage was found for the subject property.

In the previous ESA, a gas and oil well search was conducted on the subject property. Based on the search conducted, no gas and oil exploration or production wells were identified on the subject site. The closest identified wells were located to the east approximately 400 feet from the subject site and across Wiley Canyon Road and to the north approximately 500 feet.

GES noted the presence of several 55-gallon drums on the subject property. The drums were utilized for the storage of domestic waste and were therefore not deemed to constitute an environmental concern at this time. However, GES recommends that the drums and waste be removed from the subject property and be disposed of accordingly.

UES noted the presence of two water wells, two above ground water tanks, two propane tanks, and an underground septic system in the vicinity of the residential structures on the subject property. The presence of water well, propane tanks, and septic tanks were not deemed to constitute an environmental concern. However, GES recommends that if the septic system and water wells are not in use, that they be properly abandoned or removed following all pertinent regularly requirements.

For the last three months, the two metal buildings on site are currently used as shops where wooden furniture and cabinets are manufactured. Before that time, these two buildings were used as barns for the ranch.

Based on the site reconnaissance, no other recognized environmental conditions were discovered. No evidence of acutely hazardous chemical storage problems, waste disposal concerns, leaking transformers, deteriorating lead based paint, sumps, pits, catch basins, pipeline easements, landfill activities, bodies of water, unusual odors, or other environmental conditions were observed on the property in review. There was no physical or visual evidence of stressed vegetation, soil discoloration, odors, or other indicators of environmental exposure to the surface areas or soil on the subject property.

Given the above, it was not suspected that there had been any occupants or tenants on the subject property that would have conducted any process, fabrication, or manufacturing activities during the course of conducting their normal daily activities. There was no reason to suspect that any acutely hazardous substances would have been utilized or deposited on site.

To the north of the subject property is a mobile home park. To the south are residential dwellings, a fitness facility and raw land. To the east are Wiley Canyon Road and a flood channel. Across Wiley Canyon Road are residential dwellings and raw land. The west is Interstate Highway 5. Across Interstate Highway 5 is raw land.

The subject site is essentially surrounded by residential use, commercial businesses, or raw land. The tenants on surrounding properties did not appear to have needed to conduct any process or manufacturing activities during the course of conducting their day-to-day business. Therefore, there is no reason to suspect that any of them would have utilized or deposited any acutely hazardous substances on the site. All noted wastes are non-acutely hazardous. No improper/irresponsible handling of wastes was observed or suspected.

There is no industrial use in the vicinity of the subject tract. Nor are there any facilities surrounding the subject property that are suspected of utilizing any hazardous materials or of having any currently leaking petroleum storage tanks.

CA FID is the Facility Inventory Database that contains active and inactive underground storage tank locations. The source of this information is from the State Water Resource Control Board. A review of the CA FID UST list, provided by EDR, revealed that there is one CA FID UST site within a quarter of a mile of the target property. This facility is known as the California Highway Patrol and is located at 25111 Chiquella Lane or within an eighth of a mile to the west of the subject site. No leaks were reported from this facility. Based on its reported status, it was not deemed likely to constitute an environmental risk to the subject site.

A review of the Los Angeles County Industrial Waste and Underground Storage Tank Sites (HMS) list revealed the presence of one site within an eighth of a mile radius from the subject site. This facility's status is reported as 'closed'. It is not deemed to constitute an environmental concern at this time.

There are no (0) facilities that are on the RCRA, CERCLA, CORTESE, LUST, AWP, CAL-SITES, CHMIRS, CERCLIS, NPL, VCP, or SPL lists that are located within the ASTM recommended search radii from the subject property. Nor were there any permitted landfills that are located within a half of a mile distance from the property in review. According to the State's Spill Incident report, no (0) spill incidents were discovered to have taken place in the vicinity of subject property.

GES has reviewed the orphan sites in EDR's Radius Map Report and none of the sites or uses listed appear to have been located on the subject site.

No sampling for asbestos containing materials was conducted. The presence of asbestos containing materials on the subject property was deemed possible considering the fact that the improvements on it were first erected before 1979, when the use of such materials was not yet banned. Federal regulations are in effect which require removal of friable or potentially friable ACM prior to demolition (defined as wrecking or removing any load-supporting member) or renovation of a building.

No sampling for lead based paint was conducted. The presence of lead-based paint on the subject property was deemed possible considering the fact that the improvements on it were first erected before 1980, when the use of such materials was not yet banned. All painted surfaces on the property in review appeared to be in fair shape. They were not cracking or peeling at the time of the site visit. They also appeared to have been encapsulated with several layers of newer paint.

GES performed the ESA in conformance with the scope and limitations of the ASTM Standard Practice for Site Assessments: Phase I Environmental Site Assessment Process (E 1527). Based on the site information gathered herein, the assessment revealed no evidence of environmental concerns in connection with the subject property, except for the suspected presence of asbestos containing materials, as described herein above.

This report is prepared for the attention of: ChinaTrsut Bank (USA)

Note: The conclusions in this report are based on the findings of the investigation described herein above. Such an assessment can never absolutely conclude that a site does not contain hazardous materials inside structures, on its surface, or in its subsurface or that any such materials have not impacted the condition of the site. As long as the assessment is conducted properly and all due considerations are made, a degree of assurance can be achieved. The degree of assurance is determined by the amount of available information, scope of the assessment, and complexity of analyses performed. An absolute warranty can never be expressed or implied that no environmental liabilities exist on the site.

II. OBJECTIVES

II.A. Purpose and Scope of the Environmental Site Assessment:

- The purpose of the Phase I Environmental Site Assessment (ESA) is to satisfy **due diligence** requirements. It entails independent investigations by environmental professionals of key issues or facts related to potential environmental liabilities associated with the property transaction. It is an investigation of the real property conducted in order to determine or discover the obviousness of the presence or likely presence of a release or threatened release of hazardous substances on the real property and adjacent properties.

- The ESA consists of a review of various sources of information concerning the previous ownership and use of the real property. A historical review of the records of past use of the site and adjacent properties is conducted. Past and present owners are interviewed and investigated. An on site inspection and evaluation of the property's current use is conducted and areas of potential environmental concern are identified. In addition, records from federal, state and local government, as well as private agencies, are examined and aerial photographs can be provided, if available.

- All ESA's meet the requirements as outlined in the ASTM (E 1527). The most notable element included in the scope of this report is related to the fact that as a buyer of real property, it limits the amount of liability, resulting from preceding property activity, which the buyer might eventually have to face as a landowner. It clearly states that if the site assessment is conducted in due diligence, the new owner is entitled to be considered an "**innocent land owner**".

- The investigation of the subject site included a review of aerial photographs; interviews with knowledgeable site contacts; a review of federal, state, and local contaminated site lists; a review of underground storage tank and landfill databases; a visual inspection of the property and all improvements thereon; and a visual inspection for the suspected presence of asbestos containing materials and lead-based paint. No physical sampling for asbestos or lead-based paint was conducted. Nor was a subsurface investigation of the property undertaken as part of this assessment.

II.B. Limitations of the Site Assessment:

- This report is prepared for the sole and exclusive use of the clients and their representatives and may not be dispersed, disclosed to, or relied upon, in whole or in part, by any other persons or entities without the prior written consent of GES.

- The ESA is limited and based solely on the information collected in the field and office, secondary services, and personal interviews, as collected by GES during the conduct of the investigation. This report is based on the noted conditions, operations, and practices as noted on the date of the site visit on the property in review. Subsurface investigations of the site or surrounding areas were not considered as part of this ESA.

- The professional opinions expressed herein do not represent scientific certainties. All recommendations, findings, and conclusions stated in the report are based upon facts and circumstances as they existed at the time that this report was prepared (e.g. federal, state, local law, rules, regulations, and other matters that GES deemed relevant). A change in any fact or circumstances upon which this report is based may adversely affect the recommendations, findings, and conclusions presented in it.

- GES does not represent that the site referred to herein contains hazardous or toxic substances or other latent conditions beyond those observed during the site assessment. GES does not assume responsibility for the discovery of any special resources, nor does it assume responsibility for the elimination of hazards or adverse conditions that may cause accidents, injuries, damage, client liabilities, or environmentally adverse conditions.

III. SITE REVIEW

III.A. Location - Site Address, City, County, State, Coordinates & Dimensions:

The property in review consists of an improved tract that contains approximately 23.13 acres of land located along both the easterly right-of-way line of Hawkbryn Avenue and the westerly right-of-way line of Wiley Canyon Road, in the City of Santa Clarita, Los Angeles County, California. The subject site is asymmetrical in shape. It consists of 23.41 acres of land described as follows:

- LAND DESC IN DOC 0001770, 71-4-14*POR OF SW 1/4 OF SE 1/4 OF SEC 4 T 3N R 16W;
- FOR DESC SEE ASSESSO'R MAPS POR OF SE 1/4 AND POR OF LOT 7 IN SEC 4 T3N R16W.

Its physical address is 24924 Hawkbryn Avenue, Santa Clarita, California. The subject site is geographically located at latitude 34.370700 and longitude 118.558800.

III.B. General Description:

IMPROVEMENTS/ACTIVITIES ON SUBJECT PROPERTY/PROPERTY HISTORY:

The site under consideration in this project or the designated property in review consists of 23.13 acres of partly improved land that is developed with two single-story metal buildings, two mobile homes, mule barns, and one man-made lake. This property supports a natural cover of grass, brush, and trees. All vegetation on site appeared to be healthy and absent of any staining or discoloration. A portion of the property appears to have historically been utilized as a mule ranch and as pasture land. In an interview with Mr. James Rodgers, owner of the property, the subject site was previously occupied by a mule ranch known as Smiser Mule Ranch.

For the last three months, the two metal buildings on site are currently used as shops where wooden furniture and cabinets are manufactured. Before that time, these two buildings were used as barns for the ranch.

IMPROVEMENTS

Based on the Los Angeles County Assessor's records, the improvements on the subject site were constructed in 1978 and 1980 and the buildings are 6,750 square feet and 9,380 square feet, respectively. The buildings are steel frame structures, sit on reinforced concrete slab foundations, have pitched roofs covered with metal roofing material, and have metal exterior walls. The floors are concrete or concrete covered with floor tile or carpeting.

SITE HISTORY

In the previous ESA, a historical aerial photograph search was conducted on the subject property. Seven (7) aerial photographs were reviewed by WCE for the following years: 1928, 1947, 1952, 1968, 1976, 1989, and 1994. GES reviewed a 2002 aerial photograph. Based upon a review of aerial photograph maps, it appears that the part of the current improvements on site was first erected sometime between 1976 and 1989. From the 1952 aerial photograph, there was an improvement on the subject site which appeared to WCE that it could have been a pit/sump related to gas/oil well exploration. The research conducted on the subject site by WCE did not reveal any permits or records regarding oil/gas activity on the subject site.

In the previous ESA, a review of historical Sanborn Maps was also conducted on the subject property by Environmental Data Resources, Inc. to evaluate present and past land use, structures, improvements, and historical development of the subject site and surrounding properties. No coverage was found for the subject property.

In the previous ESA, a gas and oil well search was conducted on the subject property. Based on the search conducted, no gas and oil exploration or production wells were identified on the subject site. The closest identified wells were located to the east approximately 400 feet from the subject site and across Wiley Canyon Road and to the north approximately 500 feet.

FINDINGS

GES noted the presence of several 55-gallon drums on the subject property. The drums were utilized for the storage of domestic waste and were therefore not deemed to constitute an environmental concern at this time. However, GES recommends that the drums and waste be removed from the subject property and be disposed of accordingly.

GES noted the presence of two water wells, two above ground water tanks, two propane tanks, and an underground septic system in the vicinity of the residential structures on the subject property. The presence of water well, propane tanks, and septic tanks were not deemed to constitute an environmental concern. However, GES recommends that if the septic system and water wells are not in use, that they be properly abandoned or removed following all pertinent regularly requirements.

Based on the site reconnaissance, no other recognized environmental conditions were discovered. No evidence of acutely hazardous chemical storage problems, waste disposal concerns, leaking transformers, deteriorating lead based paint, sumps, pits, catch basins, pipeline easements, landfill activities, bodies of water, unusual odors, or other environmental conditions were observed on the property in review. There was no physical or visual evidence of stressed vegetation, soil discoloration, odors, or other indicators of environmental exposure to the surface areas or soil on the subject property.

Given the above, it was not suspected that there had been any occupants or tenants on the subject property that would have conducted any process, fabrication, or manufacturing activities during the course of conducting their normal daily activities. There was no reason to suspect that any acutely hazardous substances would have been utilized or deposited on site.

NEIGHBORING SITES:

North: To the north of the subject property is a mobile home park.
South: To the south are residential dwellings, a fitness facility, and raw land.
East: To the east are Wiley Canyon Road and a flood channel. Across Wiley Canyon Road are residential dwellings and raw land.
West: To the west is Interstate Highway 5. Across Interstate Highway 5 is raw land.

The subject site is essentially surrounded by residential use, commercial businesses, or raw land. The tenants on surrounding properties did not appear to have needed to conduct any process or manufacturing activities during the course of conducting their day-to-day business. Therefore, there is no reason to suspect that any of them would have utilized or deposited any acutely hazardous substances on the site. All noted wastes are non-acutely hazardous. No improper/irresponsible handling of wastes was observed or suspected.

There is no industrial use in the vicinity of the subject tract. Nor are there any facilities surrounding the subject property that are suspected of utilizing any hazardous materials or of having any currently leaking petroleum storage tanks.

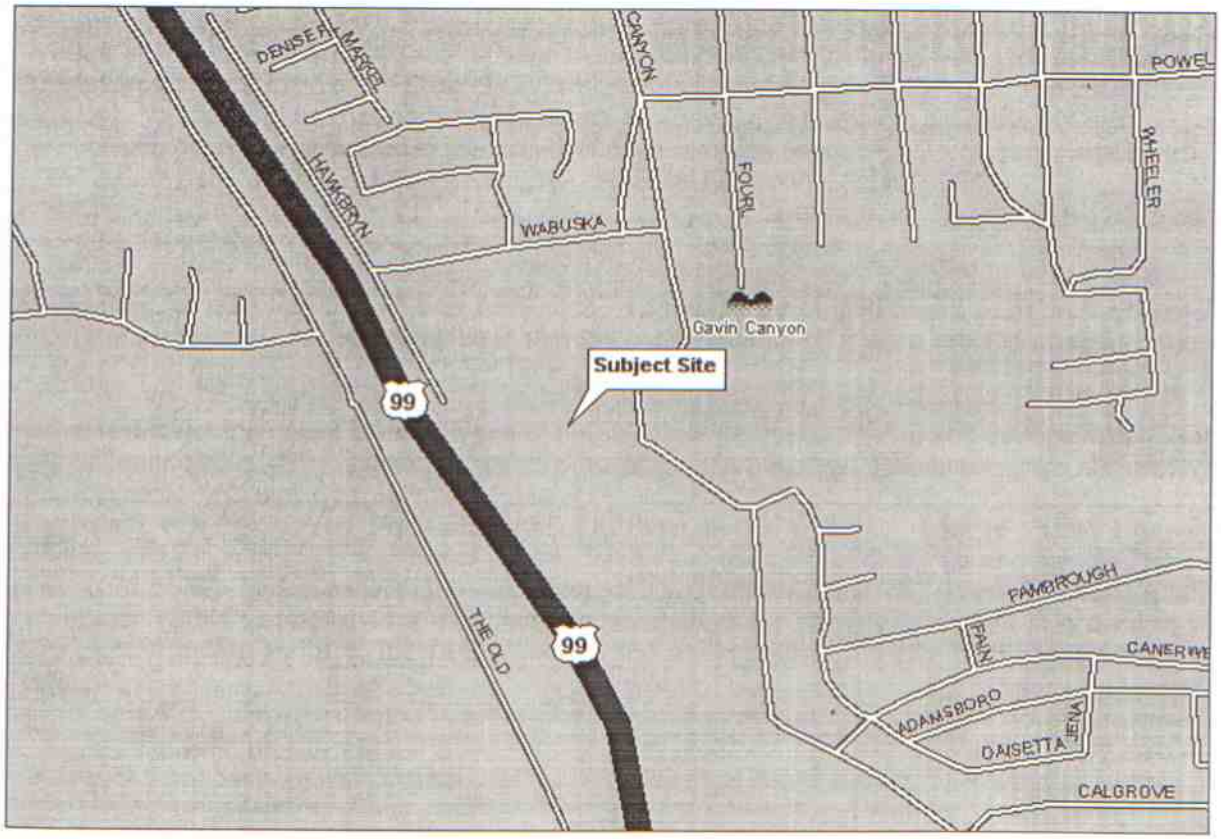
GENERAL TOPOGRAPHY:

Potential receptors are surface or subsurface features present or adjacent to the site. These include storm sewer inlets, sanitary sewer manholes/subsurface piping, underground telephone utilities, and natural receptors that are in the vicinity of the property in review. Given the above, the nearest natural receptor is the south fork of the Santa Clara River, which runs along the easterly property boundary.

According to the United States Geological Survey (USGS) 7.5 Minute Topographical Map, Oat Mountain Quadrangle, which covers the area in review, the subject property is located at an elevation of 1294 feet. The slope was nearly level, with the general gradient trending towards the northeast.

The subject property appeared to be well drained. From the visual inspection, there did not appear to be any adverse soil or subsoil conditions on the property or on nearby improved properties.

SITE LOCATION MAP:



UTILITIES:

It appeared to the consultants on site that some of the utility companies have their service in place on the property in review and on surrounding properties. They are:

Electric: Southern California Edison Company;
Telephone: Verizon;
Gas: Southern California Gas Company.
Water/Sewer: Water and sewer needs are serviced individually.

SPECIAL RESOURCES/REGIONAL SETTING:

The site in review is not deemed to have any special resources. There are no special resources on the subject property including wetlands, endangered species, or cultural resources. The property is not suspected of being a historical landmark.

Based on the information obtained from the US Fish and Wildlife Service, the property in review does not appear to be a suitable habitat for the federally listed endangered golden-cheeked warbler or the black-capped vireo. These birds are protected under the Endangered Species Act.

California State Law and Historic Preservation, a publication of the State Office of Historic Preservation (OHP), is a comprehensive compilation of state statutes and regulations that govern the identification, designation, and protection of the State of California's significant historical resources. The subject property is not registered as having historical or archaeological significance to the State of California. The subject property is not located in the vicinity of any ecological or geological landmarks registered in the Department of Interior's National Registry of National Landmarks (dated 1988).

III.C. Lead-Based Paint:

No sampling for lead based paint was conducted. The presence of lead-based paint on the subject property was deemed possible considering that the improvements on it were erected at a time when the use of such materials had not yet been banned.

Lead was a major ingredient in many types of house paints for years, prior to and through World War II. In the early 1950s, other pigment materials became popular, but lead compounds were still used in some pigments and as drying agents. Federal regulatory efforts began with the enactment of the Lead-Based Paint Poisoning Prevention Act (LBPPPA) in 1971, which required Public Housing Agencies and Indian Housing Authorities to conduct random sampling of dwellings and common areas where children live or are expected to live (Section 302). In 1972, the Consumer Products Safety Commission (CPSC) established a maximum lead content of 0.5 percent by weight in a dry film of newly applied paint. In 1978, the CPSC lowered the allowable lead level to 0.06 percent lead by weight.

All painted surfaces on site were in good shape. They were not cracking or peeling. They also all appeared to have been well encapsulated with several layers of newer paint.

III.D. Asbestos Containing Materials:

No sampling for asbestos containing materials was conducted. The presence of asbestos containing materials on the subject property was deemed likely considering the fact that the improvements on it were first erected before 1980, when the use of such materials was not yet banned. Based on current regulations, all buildings must be surveyed for the presence of asbestos containing materials prior to the performance of any renovation or demolition (defined as wrecking or removing any load-supporting member) activities irrespective of when they were constructed. Federal regulations are in effect which require removal of friable or potentially friable ACM prior to demolition or renovation of a building.

With regard to the above-presumed ACM on the subject property, UES recommends that an asbestos operation and maintenance (O&M) program be implemented. An O&M program will spell out the procedures and practices that must be applied to building cleaning, maintenance, renovation, and general operation to maintain the structure on the property as free of asbestos contamination as possible. The O&M program will have to remain in effect until all asbestos containing materials have been removed from the property.

The three primary objectives for the O&M program would be:

(1) To clean existing contamination and minimize future fiber release by controlling access to the ACM;
(2) To develop a written plan that serves as a legal document. Properly prepared, this plan will act as a first line of defense, documenting the building owners' prudence in dealing with asbestos in the building; and
(3) To defer more permanent abatement action (i.e. removal) and associated costs.

The reasoning behind such a program is to minimize the potential for airborne hazards stemming from a release of asbestos fibers. The plan will apply to maintenance staff, employees, occupants, and visitors. This includes maintenance personnel, custodians, administrators, and, generally, all employees. The management of the program must be placed under the direction and responsibility of one "Designated Person".

III.E. PCB Containing Power Equipment:

Polychlorinated biphenyls (PCBs), a hazardous group of chlorinated aromatic hydrocarbons, were used in a wide range of products including hydraulic and electrical equipment. PCB-containing equipment has the potential to cause soil and groundwater contamination. During the site visit, the property was surveyed for the presence of power transformers and other potential PCB containing electrical equipment. GES noted the presence of a number of pole-mounted transformers in locations surrounding the perimeter of the subject property.

According to the power company, the possibility exists that these transformers are filled with PCB oil. The utility company, however, is responsible for any leaks or contamination caused by PCB containing equipment. Current regulations do not require the removal of these transformers unless they are found to be in bad shape and/or were leaking. If requested, the utility company will test to determine the presence of PCBs in these transformers. There is a fee for this service.

It is generally understood that transformers under the jurisdiction of utilities companies are divided into three categories: those that have a PCB content of less than 50 parts per million (PPM), which is the level that is within the federally stipulated requirements for all new transformers; those that are between 50 and 500 PPM; and those that are above 500 PPM. All the transformers were observed to be in good shape and were not rusty or leaking.

As far as the electromagnetic fields (EMF's) generated by the overhead electric lines, several studies have been made to determine their harm to human health. EPRI, the Electrical Power Research Institute, the foremost authority that utilities companies rely on, conducted studies all over the country and determined that there is no evidence that these EMF's constitute a danger. One must note here that there are several items in the home, such as electric stoves, which generate more EMF's than the cables in reference.

III.F. Landfill Activity:

A landfill is a disposal facility or part of a facility where hazardous waste is placed in or on land and which is not a land treatment facility, a surface impoundment, or an injection well. According to the EPA, a landfill is defined as an engineered (by excavation or construction) or natural hole in the ground where wastes have been disposed and are covered by backfilling or by contemporaneous soil deposition with waste disposal, covering wastes from view. The problems that the agency deems to be associated with landfills are the migration of leachates and wastes from it into the ground and adjacent surface and subsurface waters, subsidence of the grounds in and above it, methane gas generation, the formation of pockets within it, and erosion. During the site visit, the area surrounding the property was surveyed for the evidence of landfill activity. None was found.

III.G. Surface Impoundments:

A surface impoundment is a facility or part of a facility which is a natural topographic depression, man-made excavation, or diked area formed primarily of earthen materials (although it may be lined with man-made materials), which is designed to hold an accumulation of liquid wastes or wastes containing free liquids and which is not an injection well. Examples of surface impoundments are holding, storage, settling, and aeration pits, ponds and lagoons. During the site visit, GES searched for evidence of surface impoundments and found one man-made pond at the subject site.

III.H. Air Emissions:

There is no evidence of air emissions on site.

III.I. Photographic Documentation:

The photographs taken during the site visit are hereby attached in Appendix I.

III.J. On Site Regulated Substance Identification/Inventory:

Some regulated substances were found on site as described above.

IV. SITE BACKGROUND RESEARCH

IV.A. Aerial Photographs:

In the previous ESA, a historical aerial photograph search was conducted on the subject property. The aerial photographs obtained were from 1928, 1947, 1952, 1968, 1976, 1989, and 1994.

1928: Part of the subject property is undeveloped vacant land. Wiley Canyon Road has been constructed to the east of the subject site. No apparent structures are seen adjacent to the subject site.

1947: The subject property remained the same as in the 1928 aerial photograph. Highway 99 has been constructed. Some development is apparent on the property adjacent and to the north of the subject site.

1952: There is a large pit or sump and several structures at the subject site. The property adjacent and to the north appears to be a cattle ranch with several structures and cattle apparent in the picture.

1968: In the 1968 aerial photograph, the subject property is vacant. Interstate 5 has been developed to the west of the subject site. A trailer park has been developed to the north of the subject site. Across Wiley Canyon Road to the east, a residential tract has been developed.

1976: The subject property is vacant. There are no apparent changes from the previous photograph except for a residential development to the north of the trailer park.

1989: The current structures were present at the subject site. There are no changes in the adjacent properties from the preceding photograph.

1994: The current structures were present at the subject site. There are no changes in the adjacent properties from the preceding photograph.

2002: The current structures were present at the subject site. There are no changes in the adjacent properties from the preceding photograph.

Based upon a review of aerial photograph maps, it appears that part of the current improvements on site was first erected sometime between 1976 and 1989.

IV.B. Sanborn Maps:

A review of historical Sanborn Maps was also conducted on the subject property by EDR to evaluate present and past land use, structures, improvements, and historical development of the subject site and surrounding properties. No coverage was found for the subject property.

IV.C. Site Maps:

Site Maps are hereby attached, including an ESA map with a one mile radius marked around the property and a USGS topographical map.

V. GEOLOGY

GEOLOGY:

According to the United States Department of Agriculture Soil Conservation Service Soil Survey of Antelope Valley Area, Los Angeles County, the subject property is underlain by the Yolo Loam, 0 to 2 percent slopes (YoA).

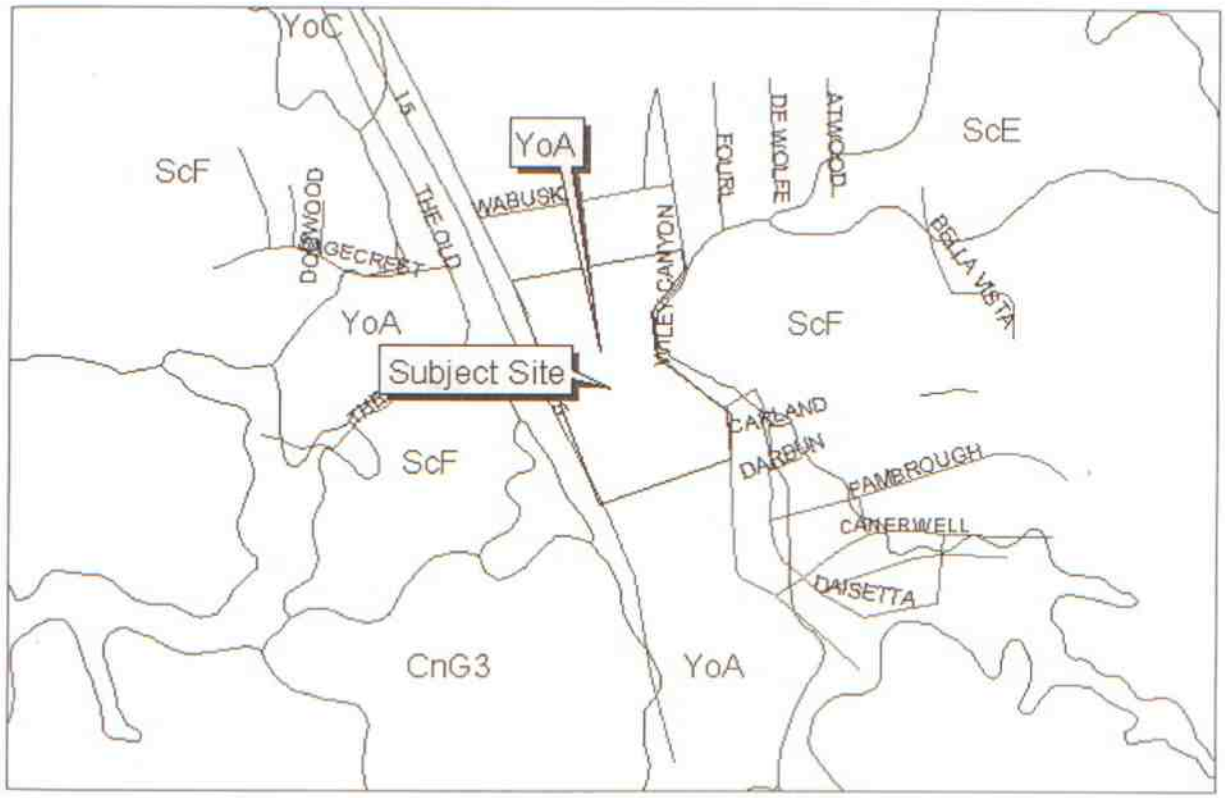


FIG: USDA SOIL MAP OF THE SUBJECT SITE

Yolo loam soils consist of well drained, moderately fine textured to moderately coarse textured soils, which are underlain by sedimentary alluvium. They are formed on nearly level to moderately sloping alluvial plains and fans. The soils exhibit good drainage, moderate permeability, and have a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Yolo loam is partially hydric soil. A hydric soil is a soil that forms under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part. Hydric soils along with hydrophytic vegetation and wetland hydrology are used to define wetlands.

VI. ENVIRONMENTAL/REGULATORY AGENCY INQUIRIES

The following information on the subject property and its surrounding area was obtained from governmental agencies directly or through secondary sources. The third party database company who provided the information presented in our report is EDR in Southport, Connecticut.

VI.A. Resource Conservation and Recovery Act (RCRA) Sites:

The RCRA notifiers list identifies those facilities that indicate that they generate, transport, treat, store, or dispose of hazardous waste regulated under the Resource Conservation Recovery Act of 1976 (RCRA). RCRA is an amendment to the first piece of Federal solid waste legislation called the Solid Waste Disposal Act of 1965. RCRA was amended in 1980 and most recently in 1984 by the HSWA (Hazardous and Solid Waste Amendments of 1984). This list is compiled by the EPA. Generators are required to have US EPA ID numbers on all waste manifest disposal records. The extent to which these facilities actually handle such wastes varies greatly from small-quantity generators to active treatment, storage, and disposal facilities. Based on the environmental database review, no RCRA registered facility was found located within a quarter of a mile radius from the subject property.

VI.B. Comprehensive Environmental Response, Compensation, and Liability Act Sites:

The CERCLIS is a US EPA database that lists those sites identified by federal, state, or local regulatory agencies as being of potential environmental concern due to past or current activities. This list designates such contaminated properties under the Federal Superfund Program pursuant to the Comprehensive Environmental Response Conservation and Liability Act (CERCLA). CERCLA sites represent an environmental concern for the discharge of hazardous materials by hazardous waste generators, treatment and storage facilities, and waste disposal sites. The status of CERCLIS sites range from those that have never been investigated, to those that have been investigated and proven to be of lower priority, to those that are in the process of gaining NPL status. According to the environmental database search, no facilities were registered as CERCLA sites within a radius of one-half of a mile from the subject property.

VI.C. National Priorities List (NPL) Sites:

The National Priority List (NPL) identifies those sites that are currently involved in CERCLA or Superfund actions related to abandoned or inactive hazardous wastes. It is compiled from the designated CERCLIS list. NPL sites are prioritized as to their significant risk to human health and the environment. This list targets those sites to receive remedial funding under CERCLA. The NPL lists the nation's highest priority sites for remedial action. Only NPL sites can receive CERCLA funding. In consideration of the above, no NPL sites were found within a mile radius from the subject site.

VI.D. Underground Storage Tanks (USTs):

California Underground Storage Tank (CA UST) list contains the active UST facilities in the State of California. Active UST facilities are gathered from the local regulatory agencies. According to database review, no CA UST sites were found within a half of a mile radius from the subject site. The source of this information was State Water Resources Control Board (SWRCB).

A review of the Los Angeles County Industrial Waste and Underground Storage Tank Sites (HMS) list revealed the presence of one site within an eighth of a mile radius from the subject site. This facility's status is reported as 'closed'. It is not deemed to constitute an environmental concern at this time.CA

FID is the Facility Inventory Database that contains active and inactive underground storage tank locations. The source of this information is from the State Water Resource Control Board. A review of the CA FID UST list, provided by EDR, revealed that there is one CA FID UST site within a quarter of a mile of the target property. This facility is known as the California Highway Patrol and is located at 25111 Chiquella Lane or within an eighth of a mile to the west from the subject site. No leaks were reported from this facility Based on its reported status, it was not deemed likely to constitute an environmental risk to the subject site.

VI.E. Leaking Petroleum Storage Tanks (LPSTs):

According to the environmental database review, no registered LUST (Leaking Underground Storage Tank) facilities were found located within a half of a mile radius from the subject property. The source of the information was State Water Resources Control Board Leaking Underground Storage Tank Information System.

VI.F. "Cortese" Hazardous Waste & Substance Sites List:

According to the environmental database review, no CORTESE sites were found within a half of a mile radius from the subject site. This database identifies public drinking water wells with detectable level of contamination, hazardous substance site selected for remedial action, sites with known toxic material identified through the abandoned site assessment program, sites with USTs having a reportable release and all solid waste disposal facilities from which there is known migration.

VI.G. Spill Incidents:

The EPA's Emergency Response Notification System (ERNS) list and the TCEQ's Spill Incident Report contain spill records and store information of reported releases of oil and hazardous substances. These databases derive information from spill reports made to federal and local authorities to include the EPA, Coast Guard, National Response Center and Department of Transportation. These lists are updated quarterly. According to the ERNS list, no spill incidents were discovered to have taken place in the vicinity of the subject site.

VI.H. California Voluntary Cleanup Program Sites:

The California Voluntary Cleanup Program contains low level threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's cost. Based on the environmental database review, no Voluntary Program Cleanup Sites were found located within a half of a mile radius from the subject property.

VII. CONCLUSIONS

Gabriel Environmental Services, Inc. performed the Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM Standard Practice for Site Assessments: Phase I Environmental Site Assessment Process (E 1527-00). Based on the site information gathered herein, the assessment revealed no evidence of environmental concerns in connection with the subject property, except for the suspected presence of asbestos containing materials, as described herein above.

Our search of the available sources could not prove or disprove that any hazardous materials were ever introduced to the site or that a hazardous waste spill occurred on site at any given time.

In the professional opinion of GES, an appropriate level of inquiry has been made into the previous ownership and use of the property consistent with good commercial and customary practice in an effort to minimize liability.

The conclusions in this report are based on the findings of the investigation described herein above. Such an assessment can never absolutely conclude that a site does not contain hazardous materials inside structures, on its surface, or in its subsurface or that any such materials have not impacted the condition of the site. As long as the assessment is conducted properly and all due considerations are made, a degree of assurance can be achieved. The degree of assurance is determined by the amount of available information, scope of the assessment and complexity of analyses performed. An absolute warranty can never be expressed or implied that no environmental liabilities exist on the site.

August 11, 2004

Henry Gabriel
Environmental Consultant
REM # 10601, REA # 07661

Mary Foote
Environmental Consultant
REM # 11708

Salamat Ullah
Environmental Consultant

VIII. REFERENCES

VIII.A. Regulatory Records and Public Documents:

The third party database company who provided the information presented in our report is EDR of Southport, Connecticut.

VIII.B. Published References:

1. OSHA, Title 20, Part 1926, of the Code of Federal Regulations
2. OSHA. Title 29, Part 1910, of the Code of Federal Regulations
3. Environmental Protection Agency (EPA) Title 40, Part 61, Sub-part A of the Code of Federal Regulations
4. Environmental Protection Agency (EPA) Title 40 CFR 763 (Asbestos Material in Schools Final Rule)
5. EPA National Emission Standard for Asbestos, Title 40, Part 61, Sub-part M of the Code of Federal Regulations
6. United States Department of the Interior Geological Survey; 7.5-Minute Series (Topographic), Oat Mountain Quadrangle, Los Angeles County, California.
7. United States Department of the Interior, Fish and Wildlife Service; National Wetlands Inventory Oat Mountain Quadrangle Map (Topographic), Los Angeles County.
8. Federal Drinking Water Act
9. Federal Manual for Identifying and Delineating Jurisdictional Wetlands, 1987
10. American Society for Testing and Materials (ASTM) Standard Practice for Site Assessments: Phase I Environmental Site Assessment Process (E 1527)
11. US Fish and Wildlife Service, Endangered Species Act
12. National Registry of National Landmarks, US Department of Interior, 1988

Acronym List

Governmental Agency Names

ASTM	American Society for Testing and Materials
CFR	Code of Federal Regulations
CPSC	Consumer Products Safety Commission
DOT	Department of Transportation
OSHA	Occupational Safety & Health Administration
EPA	Environmental Protection Agency
EPRI	Electrical Power Research Institute
TDH	Texas Department of Health
TNRCC	Texas Natural Resource Conservation Commission
TNRIS	Texas Natural Resource Information System
TWC	Texas Water Commission
USNRCS	United States Natural Resource Conservation Service (former Soil Conservation Service)
USSCS	United States Department of Agriculture Soil Conservation Service
USGS	United States Geological Survey

Governmental Regulations

AHERA	Asbestos Hazard Emergency Response Act
CERCLIS	Comprehensive Emergency Response, Compensation and Liability Information System
CFR	Code of Federal Regulations
ERNS	Emergency Response Notification System
LBPPPA	Lead-Based Paint Poisoning Prevention Act
NPDES	National Pollutants Discharge Elimination System
NPL	National Priorities List
RCRA	Resource Conservation and Recovery Act
SPCC	Spill Prevention, Control Countermeasures
TRI	Toxic Release Inventory

Environmental Terms & Measurements

ACBM	Asbestos Containing Building Material
ACM	Asbestos Containing Material
AST	Aboveground Storage Tank
BDL	Below Detection Limits
BTEX	Benzene, Toluene, Ethylbenzene, Xylene
ESA	Environmental Site Assessment
FRP	Fiberglass Reinforced Plastic
LPST	Leaking Petroleum Storage Tank
LUST	Leaking Underground Storage Tank
MCL	Maximum Contaminant Level
MSW	Municipal Solid Waste Site
PACM	Presumed Asbestos Containing Material
PCB	Polychlorinated Biphenyl
PCi/l	PicoCurries of Radon per Liter of Air
PCM	Phase Contrast Microscopy
PLM	Polarized Light Microscopy
PPM	Part Per Million
PST	Petroleum Storage Tank
REC	Recognized Environmental Condition
TEM	Transmission Electron Microscopy
TPH	Total Petroleum Hydrocarbons
UST	Underground Storage Tank
VOC	Volatile Organic Compounds

WILEY CANYON (SMISER RANCH) DEVELOPMENT

Oak Tree Report

Prepared for
Wiley Canyon, LLC.

April 2020

WILEY CANYON (SMISER RANCH) DEVELOPMENT

Oak Tree Report

Prepared for
Wiley Canyon, LLC.

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WILEY CANYON (SMISER RANCH) MIXED USE DEVELOPMENT

Oak Tree Report

Summary

- Number of coast live oak (*Quercus agrifolia*) trees surveyed 10
  - Number of dead trees surveyed 0
  - Number of off-site coast live oak trees surveyed 1
  - Number of living coast live oak trees surveyed not subject to the Santa Clarita Tree Preservation Ordinance (i.e., not protected due to size considerations) 0
  - Number of coast live oak trees surveyed subject to the Santa Clarita Tree Preservation Ordinance (i.e., protected oaks) 10
- Number of protected coast live oak trees proposed for removal 1
  - Non heritage 1
  - Heritage 0
- Number of protected coast live oak trees proposed for pruning or encroachment 4
  - Non heritage 2
  - Heritage 2
- Total number of protected coast live oak trees requiring a Santa Clarita Tree Preservation Permit 5
  - Non heritage 3
  - Heritage 2
- Number of protected coast live oak trees surveyed not impacted by the proposed project 5

WILEY CANYON (SMISER RANCH) MIXED USE DEVELOPMENT

Oak Tree Report

Introduction

The purpose of this oak tree report is to document occurrences of oak trees that are protected by the City of Santa Clarita Oak Tree Ordinance and Oak Tree Preservation and Protection Guidelines in order to obtain an Oak Tree Permit for Wiley Canyon Mixed Use Development Project (hereinafter referred to as the "Project") in Los Angeles County, California.

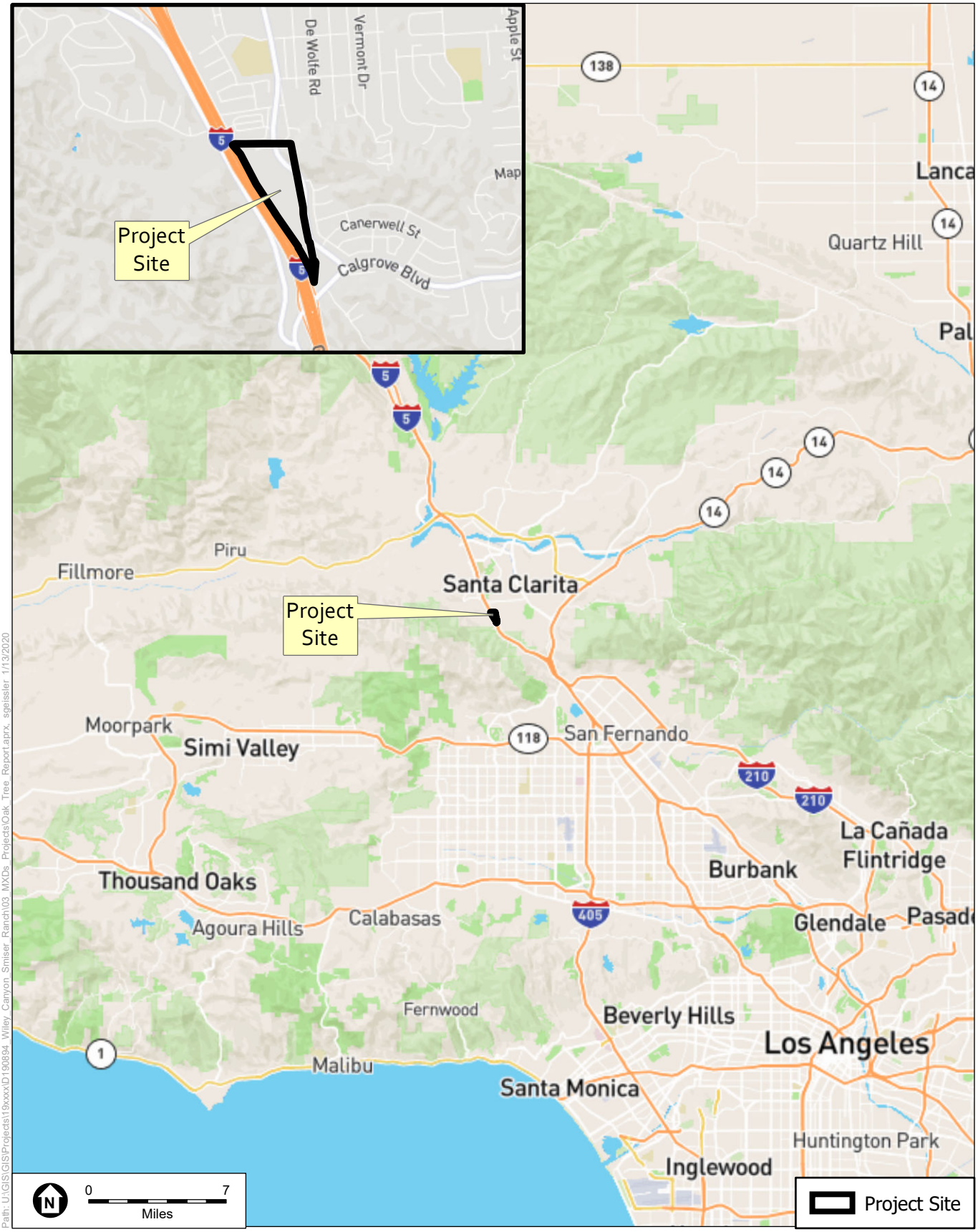
Background and Assignment

The proposed Project is located on an approximately 31-acre site located at 24924 Hawkbryn Avenue, Santa Clarita, County of Los Angeles (project site). The project site is located immediately east of Interstate Highway 5 (I5), north of Calgrove Boulevard, and with access from and west of Wiley Canyon Road (**Figure 1 – Project Location**). The project site consists of two parcels (APNs 2825-012-010 and 2825-012-011) that are currently used for agricultural uses. A 2.5-acre portion of parcel APN 2825-012-011, which contains a 0.51-acre slope easement, lies east of Wiley Canyon Road and will remain in the current undeveloped condition. The project site also includes parcel APN 2825-012-007, which is 0.18 acre and located in the northwest corner of the project site. There are no oak trees located in this small parcel. Thirteen (13) acres of the project site will remain as open space, designated for the widening of Wiley Canyon Road, and the creation of storm water basins. A portion of the South Fork of the Santa Clara River runs along the eastern boundary of the property with the north end of the drainage being channelized, becoming part of a storm drain system, within a Los Angeles County Flood Control District parcel.

Surrounding land uses include Interstate Highway 5 on the west, a small commercial area to the south, and residential uses on the north and east. Regional access to the project site is provided by Interstate Highway 5 and Calgrove Boulevard to the southwest of the project site.

Project Description

The project proposes to develop a mixed-use facility organized into five neighborhoods, with 560 residential units, inclusive of a 150-unit assisted living facility, on 15.8 acres and a commercial office building on 3 acres. The remainder of the project site, about 13 acres, would be retained for open space, recreation, road infrastructure, and drainage purposes. The primary project access would be from Wiley Canyon Road in the northeast portion of the project site. The project site is zoned Mixed Use Neighborhood (MX-N) and with the same land use category. A conditional use permit is anticipated to be needed for the assisted living component of the project.



SOURCE: Open Street Map; ESA, 2019.

Wiley Canyon Oak Survey

Figure 1
Project Location Map

ESA

Existing Conditions

The project site is agricultural land with large expanses of heavily disturbed land surrounded by fencing, some former equestrian facilities, and various small accessory buildings. Native trees occurring on the project site or immediately adjacent include coast live oak (*Quercus agrifolia*), western sycamore (*Platanus racemosa*), and blue elderberry (*Sambucus nigra* ssp. *caerulea*) and non-native ornamental trees such as deodar cedar (*Cedrus deodara*), Chinese elm (*Ulmus parvifolia*), Peruvian pepper (*Schinus molle*) and Canary Island pine (*Pinus canariensis*) are also present.

A previous tree survey was conducted by Andrew Forde of Forde Biological in 2006 and provided canopy direction, trunk locations, and other various measurements for eight recorded oak trees, numbered 78 to 85. Those trees were reassessed and are included in this report. The oak trees occurring on the 2.5-acre portion of the project site east of Wiley Canyon Road, to remain in the current undeveloped condition, were not surveyed.

Regulatory Authority

The city of Santa Clarita Municipal Code 17.51.040 – Oak Tree Preservation protects all native oak trees, including but not limited to, canyon oak (*Quercus chrysolepis*), coast live oak, interior live oak (*Quercus wislizenii*), valley oak (*Quercus lobata*), and scrub oak (*Quercus dumosa*[1]) in recognition of their historical, aesthetic, and environmental value. Trees protected by the ordinance must have a trunk with a circumference measuring 6 inches (approximately 1.9" diameter) or larger; measured four and one half feet above natural grade. Heritage oak trees measuring one hundred eight (108) inches or more in circumference (approximately 34.3-inch diameter) or in the case of a multiple trunk tree, two (2) or more trunks measuring seventy-two (72) inches each or greater in circumference (approximately 22.9-inch diameter). In addition, the Planning Commission and/or City Council may classify any oak tree as a heritage tree regardless of size, if a majority vote determines a tree has exceptional historic, aesthetic, and/or environmental qualities of major significance or prominence to the community.

Methodology

Environmental Science Associates (ESA) Registered Consulting Arborist Douglas Gordon-Blackwood (See **Appendix C – Resume**) measured the diameter of each oak tree on the property using a diameter tape and measured height and dripline radius at eight (8) compass directions (north, northwest, west, southwest, south, southeast, east, northeast) using a Nikon Forestry Pro laser hypsometer. Ratings were assigned to health, vigor, aesthetic and balance on an A to F scale. Numbered non-corrosive aluminum tree tags were attached to the tree using aluminum nails and were affixed to the north side of the tree at a height of three and one-half feet (3 ½ feet) above the natural elevation. Trees also had tags installed by both Forde Biological Consultants in

[1] Considered *Q. dumosa* at time of ordinance publication, the species was split into multiple indistinct species. *Quercus berberidifolia*, which was formerly classified as *Q. dumosa* is more likely to occur near the City of Santa Clarita. In addition, *Q. john-tuckeri*, Tucker's oak, has been recorded within the City of Santa Clarita.

2006 and by Caltrans at an unknown time. Because multiple trees were missing tags, new tags were affixed to each tree.

Survey data for each tree is provided in **Appendix A – Coast Live Oak Tree Measurements**, attached. For each tree already previously recorded, trunk location was confirmed and corresponding data was recorded. For trees not previously recorded, the trunk of each tree was recorded with a Garmin GPS Maps 64s (GPS) with 1-meter accuracy and recorded within Google Earth Pro. The following data was collected for each tree:

Physical Characteristics

- Diameter at Breast Height (DBH) – measured four feet, six inches from the base of the tree using a forester's diameter-equivalent tape. Circumference was then calculated by multiplying diameter by pi (π, 3.14159265…).
- Canopy spread: The canopy spread from the trunk to the dripline in eight (8) directions (N, NE, E, SE, S, SW, W, NW).
- Height – Measured using a Nikon Forestry Pro Laser hypsometer.
- Balance and symmetry of the tree based on the crown radius measurements and whether the tree leans or is otherwise unstable.

Physical Condition

- Identification of damage caused by pathogens or insect pests, by natural causes such as lightning, or by human activity.
- Evaluation of vigor based on such parameters as amount of new growth, leaf color, abnormal bark, dead wood, evidence of wilt, excessive necrosis or leaf chlorosis, thinning of crown, etc.
- Assessment of the overall health of the tree based on the evaluation of vigor, presence of damage, and comparison to the typical archetype tree of the same species.
- Evaluation of vigor based on such parameters as amount of new growth, leaf color, abnormal bark, dead wood, evidence of wilt, excessive necrosis or leaf chlorosis, thinning of crown, etc.
- Notes about damage caused by pathogens or insect pests, by natural causes such as lightning, or by human activity. Assessment of the overall health of the tree based on the evaluation of vigor, presence of damage, and comparison to the typical archetype tree of the same species.

Rating

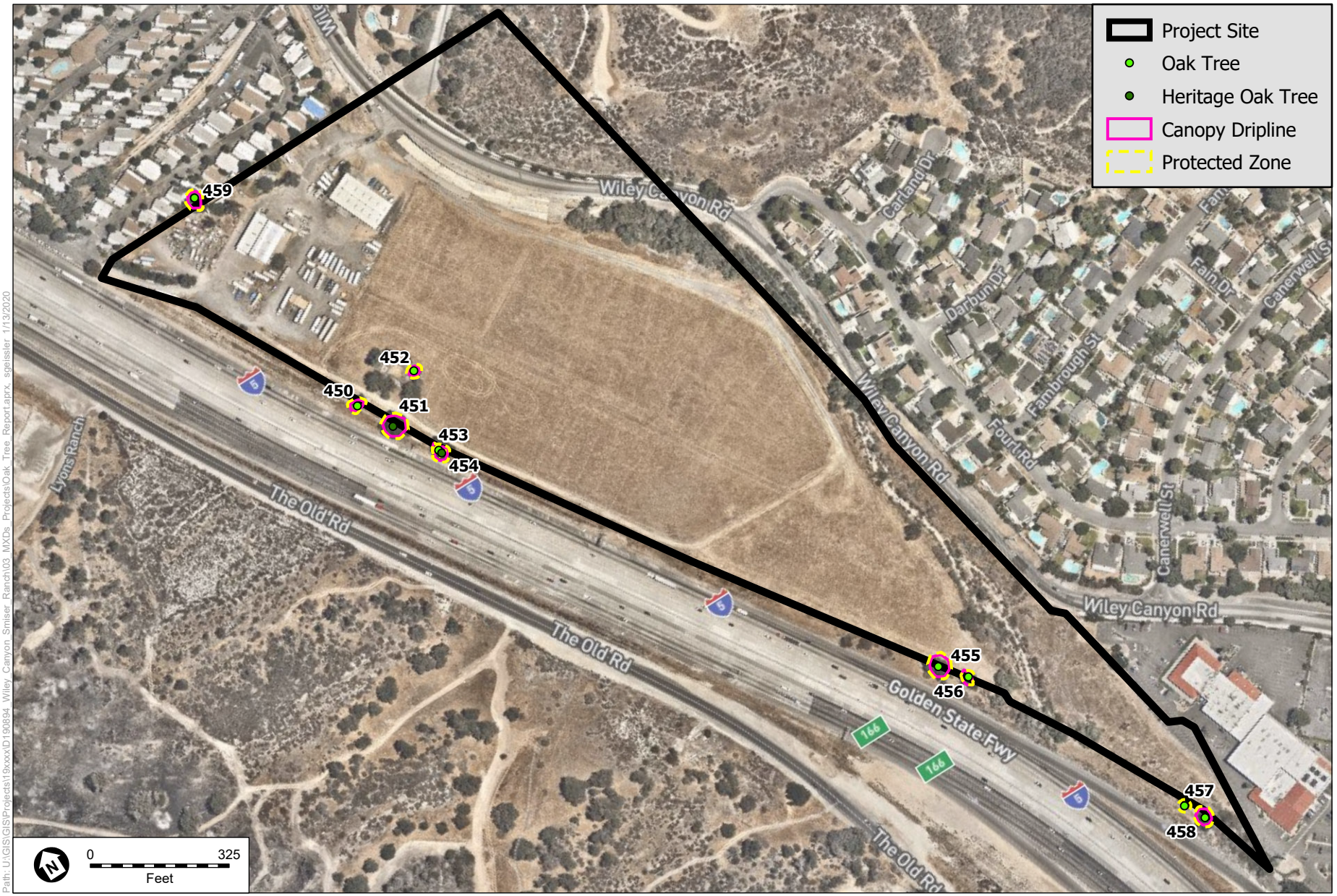
For each tree, a subjective alphabetical rank of "A" through "F" was assigned for health, vigor, balance and aesthetic. Ranks were based on the criteria described below:

- "A" = Very Healthy/Excellent: A healthy and vigorous tree characteristic of its species and reasonably free of any visible signs of stress, disease, or pest infestation. With regards to balance and aesthetics, trunks are straight and canopies well balanced and the tree exemplifies the ideal archetype for the species.
- "B" = Healthy/Good: A healthy and vigorous tree with minor visible signs of stress, disease, and/or pest infestation. Some maintenance measures may need to be implemented, such as pruning of dead wood or broken branches. Tree may lean slightly, canopies may not be evenly balanced, or the tree may otherwise be marginally challenged aesthetically.
- "C" = Average Health/Fair: Although healthy in overall appearance, there is abnormal amount of stress or disease/insect infestation, and a substantial amount of maintenance may be needed. The trunk may be growing at a more substantial angle or the canopy may have "holes" or be further out of balance.
- "D" = Dying/Poor: A tree that may be exhibiting substantially more stress, disease, or insect damage than what is expected for the species. The tree may be in a state of rapid decline, and may show various signs of dieback, necrosis, or other symptoms caused by pathogens or insect pests. The tree may lean significantly and the canopy is far out of balance.
- "F" = Dead/Very Poor: This tree has no foliage and exhibits no sign of life or vigor. Tree may be prone on the ground or otherwise severely aesthetically compromised.

Results

A total of ten (10) coast live oaks that meet the minimum requirements described in the City of Santa Clarita Oak Tree Preservation and Protection Guidelines, numbered 450 through 459, are located on or immediately adjacent to the property. All ten trees were identified as coast live oaks. Two of the trees located on the property exceed the size threshold to be considered to have 'heritage' status as described in the ordinance (trees 451 and 454). Seven of the oak trees (trees 451, 453, 454, 455, 456, 457, and 458) occur along the western property boundary and may be offsite in the Caltrans highway right-of-way. Tree 459 is located off the property on the north side. The locations of the 10 confirmed oak trees are provided in **Figure 2 – Oak Tree Locations**. A summary of the oak tree characteristics is provided in **Appendix A – Oak Tree Measurements.** Representative photographs of each tree are provided in **Appendix B – Oak Tree Photographs.**

The 2006 Forde oak tree inventory recorded 8 coast live oak trees on the property. The two previously unrecorded oaks (trees 450 and 457) occur along the western boundary adjacent to Interstate 5 freeway, and at the southern property boundary. It is assumed that these oaks may not have met the threshold dbh/circumference during the previous survey in 2006.



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SOURCE: ESA, 2019.

Wiley Canyon Oak Survey

Figure 2

Oak Tree Locations

ESA

In general, the overall physical condition of the oak trees was consistent with that of trees found within urban areas. Trees 458 and 459 have been improperly pruned for utility or property clearance, reducing the overall balance or health ratings. Tree 459 is not located within the project site. Barrels of potentially hazardous hydraulic oil are leaking in the vicinity of two oak trees (Trees 453 and 454) and require urgent attention. Tree 453 also has a pronounced lean, but this is not out of the ordinary for coast live oak trees.

Trees 455, 456, 458 were previously recorded during the 2006 survey, but are not within the proposed project design area and are not likely to be impacted. Tree 457 is also outside the proposed project design area. Continued monitoring is recommended.

Trees 450, 451, 452, 453, and 454 fall within the proposed project design area and Tree 452 will likely be removed from the proposed project grading. Trees 450, 451, 453, and 454 may be impacted from project construction if any tree requires cutting, pruning, or encroachment. These project impacts will require the project proponent to submit additional information and request an oak tree permit. A discussion of oak tree permit conditions follows below if the removal of these oaks is required.

Discussion

It is the policy of the City of Santa Clarita to require the preservation of all protected trees unless compelling reasons justify their removal. The project proponent must design the project in order to avoid the removal, cutting, pruning, or encroachment of protected trees to the maximum extent feasible. The ordinance states that no person shall cut, prune, remove or relocate oak trees or encroach into their protected zones on any public or private property within the City of Santa Clarita unless done in accordance with the conditions of a valid oak tree permit.

The Community Development Director of the City of Santa Clarita may approve, deny, or conditionally approve a request for an oak tree permit for the removal of three (3) or fewer oak trees, with exception to heritage oak trees, as provided in the ordinance. The Director can approve a request for an oak tree permit based upon one or more of the following:

1. The condition or location of the oak tree(s) requires cutting to maintain or aid its health, balance, or structure.

2. The condition of the tree(s) with respect to disease, danger of falling, proximity to existing lots, pedestrian walkways, or interference with utility services cannot be controlled or remedied through reasonable preservation and/or preventative procedures and practices.

3. It is necessary to remove, relocate, prune, cut, or encroach into the protected zone of an oak tree to enable reasonable use of a property.

4. The approval of the request will not conflict with the general purpose and intent of the ordinance.

The Planning Commission must review requests for the removal of four (4) or more oak trees and for project requiring the removal of one or more heritage trees. The Planning Commission can approve a request for an oak tree permit based upon one or more of the above or the following:

5. The Planning Commission will not allow the removal of heritage oak trees unless its continued existence would prevent reasonable development of the property and that no reasonable alternative exists due to the unique physical constraints of the property. The Planning Commission must also find that the removal of such heritage oak trees will not be unreasonably detrimental to the community and surrounding area.

Oak tree permits issued by the City of Santa Clarita will require the project proponent to relocate or replace all trees proposed for removal or will require the payment of a fee or donation of boxed trees to the City of Santa Clarita or other approved public agency. The City of Santa Clarita will also require that the project proponent protect all oak trees that do not require removal, pruning, or encroachment, during the construction phase of the project by installing a chain-link fence at the outermost edge of the protected zone of each protected tree or group of trees. The fences will remain in place throughout the construction phase of the project until the City of Santa Clarita authorizes removal.

Signs attached to the fences will state:

WARNING!

THIS FENCE SHALL NOT BE REMOVED OR RELOCATED WITHOUT WRITTEN AUTHORIZATION FROM THE CITY OF SANTA CLARITA DEPARTMENT OF PLANNING AND COMMUNITY DEVELOPMENT

Certain conditions included within the oak tree preservation ordinance may be imposed on the oak permit at the discretion of the approving authority, including, but not limited to, any of the following:

a) A condition requiring the replacement or placement of additional trees on the subject property to offset the impacts associated with the loss of a tree, limbs, or encroachment into the protected zone of an oak tree.

b) The relocating of trees on site or off site, or the planting of new trees on site or off site to offset the loss of a tree. The applicant shall be responsible for periodic submission of affidavits by a qualified oak tree expert at the conclusion of grading and construction for a minimum of one (1) year after the planting of replacement or relocated trees and a minimum of two (2) years after the planting of replacement or relocated trees for on-site trees only. Such affidavit shall certify compliance with all conditions of the permit and the health of all replacement or relocated trees. This requirement shall be supplemented by random inspections by the City. The applicant's acceptance of an approved permit and the exercise of rights thereunder shall be deemed consent to allowing City officials reasonable access to the property for the purpose of conducting such inspections

c) A condition requiring an objectively observable maintenance and care program to be initiated to ensure the continued health and care of oak trees on the property

d) Payment of a fee or donation of boxed trees to the City or other approved public agency to be used elsewhere in the City. Such fee or boxed trees shall be of equivalent value to any and all oak trees removed from the property as defined by the current edition of the "Guide for Plant Appraisal," published by the International Society of Arboriculture (ISA), a copy of which shall be kept on file in the City's Planning and/or Urban Forestry Division. The applicant shall be credited with the value of any replacement oak trees which may be required. Such fees shall be utilized for the purpose of furthering the preservation and regeneration of oak trees, the identification and official designation of heritage oak trees, the purchase, monitoring and ongoing maintenance of oak trees, landscaping and other habitat refurbishment and for educational and informational programs related to oak trees and their preservation. As an alternative to the payment of all or a portion of the fees described above, an applicant may also be credited with the value of any accepted dedications of property within the City which are suitable for the planting and survival of oak trees. Fees imposed under this section may be reduced as mitigated by specific circumstances and corrective measures undetected by the property owner.

e) For mitigation of oaks due to removal, and/or major encroachment of non-heritage oak trees on a property occupied by a single-family residence, any required tree replacements shall be based on a six (6) inch increment as follows:

   i. Eight (8) inches to twelve (12) inches = Two (2) twenty-four (24) inch box native oaks.

   ii. Twelve (12) inches to eighteen (18) inches = Three (3) twenty-four (24) inch box native oaks.

   iii. Eighteen (18) inches to twenty-four (24) inches = Four (4) twenty-four (24) inch box native oaks.

   iv. Twenty-four (24) inches to thirty (30) inches = Five (5) twenty-four (24) inch box native oaks.

   v. Thirty (30) inches to thirty-six (36) inches = Six (6) twenty-four (24) inch box native oaks.

   vi. One (1) additional twenty-four (24) inch box native oak per incremental increase of six (6) inches.

   Replacement trees shall be planted on the same property from which they were removed unless there is no appropriate place for planting. If an appropriate on-site location for replanting does not exist, mitigation trees may be donated to the City following the replacement schedule above or their monetary value may be paid to the City to the satisfaction of the Director.

Some pruning may be required for clearance if Trees 450, 451, 453, and 454 are to remain in the final project design. The removal of dying branches and deadwood is considered in the City of Santa Clarita Municipal Code as routine maintenance as follows;

> "Oak tree, routine maintenance" mean actions taken for the continued health of an oak tree such as insect control spraying, limited watering, fertilization, deadwooding and ground aeration. For the purposes of this code, routine maintenance shall include pruning pursuant to the requirements of Section 17.51.040 (Oak Tree Preservation).[2]

The City's municipal code further requires the pruning of limbs or deadwood to not exceed six (6) inches in circumference at the location of the cut. It restricts any pruning that is excessive, overly injurious to the tree, or affects the aesthetic nature of the tree. Pruning should be conducted by an International Society of Arboriculture certified arborist in accordance with American National Standards Institute (ANSI) A300 Standards[3].

[2] https://www.codepublishing.com/CA/SantaClarita/html/SantaClarita17/SantaClarita1751.html#17.51.040

[3] http://www.tcia.org/TCIA/Build_Your_Business/A300_Standards/A300_Standards.aspx?hkey=96ef3b27-af56-4ada-8670-d848787d1e30&WebsiteKey=b9a41e1f-978d-4585-9172-c411c78c5c14

Branches growing toward specified clearance areas, minimizing conflict with future infrastructure or buildings, should be reduced to lateral branches or removed to parent stems growing outside and/or away from the clearance area (directional pruning). When a minimum clearance distance is required, a branch removal or reduction cut should be made beyond the specified clearance distance at a suitable branch union. When a reduction cut cannot be made to a suitable lateral branch, and to avoid an unnecessarily large pruning cut at the parent stem, a heading cut should be considered. When frequent or excessive pruning is required to achieve objectives due to species, growth habit and/or location, alternatives such as relocation, treatment with growth regulators, or removal and replacement with an appropriate plant, should be considered.

Installation of the proposed parking, berm and wall along the southeast parking lot would be considered major encroachment of Trees 450, 451, 453, and 454. Encroachment is defined as activities including pruning, grading, excavating, trenching, dumping of materials, parking of commercial vehicles, placement of incompatible landscaping or animal corrals, storage of materials or equipment, or the construction of structures, paving or other improvements within the protected zone of the oaks.

Coast live oak trees have a very sensitive root system that consists of both shallow and deep roots. Grading, cutting, or trenching around oak trees is often detrimental due mainly to the shallow feeder roots being cut or damaged by machinery, or exposed by scraping away the topsoil. This may weaken the tree by reducing its ability to take up water and nutrients from the soil. Where possible, grading/trenching should be restricted to areas outside the drip line and root zone of the trees. If trenches must be dug under oak trees, every effort should be made to put all utilities, etc. in one trench rather than digging many trenches. Tunnels and hand trenches are less destructive alternatives to machine trenching. Any roots permanently exposed from grading or scraping of topsoil should be cleanly cut just below the new soil grade.

Filling (adding soil) and/or compaction under the drip line of oaks is also harmful because it impairs the ability of roots to “breathe”. Oxygen is essential to root respiration and is directly related to the processes of active water absorption and nutrient uptake. Compaction caused by fine grading eliminates “pockets” of oxygen and/or water within the soil. If paving is unavoidable, the developer should strive to keep paving out of the drip line of the tree and no closer than about 15 feet from the tree trunk. A porous paving material, such as brick with sand joints, open bricks, or pervious concrete (this will allow some water penetration and gas exchange). Even with porous paving, the area around the trunk (at least a 10-ft radius) should be left natural and uncovered.

Certification of Performance

I, Douglas Gordon-Blackwood, certify:

- That I have personally inspected the tree(s) and/or the property referred to in this report, and have stated my findings accurately. The extent of the evaluation and appraisal is stated in the attached report and the Terms of Assignment;
- That I have no current or prospective interest in the vegetation or the property that is the subject of this report and have no personal interest or bias with respect to the parties involved;
- That the analysis, opinions, and conclusions stated herein are my own;
- That my analysis, opinions, and conclusions were developed and this report has been prepared according to commonly accepted arboricultural practices;
- The no one provided significant professional assistance to the consultant, except as indicated within the report;
- That my compensation is not contingent upon the reporting of a predetermined conclusion that favors the cause of the client or any other party.

I further certify that I am a member of the American Society of Consulting Arborists, Registered Consulting Arborist #689, and acknowledge, accept, and adhere to the ASCA Standards of Professional Practice. I am an International Society of Arboriculture Certified Arborist, and have been involved in the practice of arboriculture and the study of trees for over 13 years.

Signed:

Date: 03/31/2020

Douglas Gordon-Blackwood
Registered Consulting Arborist, #689
Certified Arborist, WE-11726-AU
Qualified Tree Risk Assessor

This report comprises a total of 13 pages and three full-size maps. Unauthorized separation or removal of any portion of this report deems it invalid as a whole.

Conditions represented in this report are limited to the inventory date and time. Rating for health and structure do no constitute a health or structural guarantee beyond that date. Risk assessments were not performed for the purposes of this report.

APPENDIX A

Oak Tree Measurements

APPENDIX A
COAST LIVE OAK TREE MEASUREMENTS

Tree Tag #	DBH (inches)	Circumference (inches)[1]		Height (feet)	Canopy Measurements (feet)								Health	Vigor	Aesthetic	Balance	Heritage	Comments
					N	NE	E	SE	S	SW	W	NW						
450	12.2, 12.6	38.3	39.6	20	13	15	19	11	5	14	18	19	B	A	C	C	No	Lean, Cavity in trunk
451	27.1, 14.1, 28.5	89.8	84.8	31	26	27	33	32	28	24	22	25	B	B	A	A	Yes	Trunk growing over fence, dead branches in crown
452	15.2	47.8	0	24	10	12	15	14	13	13	15	11	B	A	B	A	No	Galls throughout canopy
453	16.4	51.5	0	20	21	8	1	1	1	1	1	16	C	C	C	D	No	Strong lean, hydraulic oil drums leaking near base
454	37.5, 19.3	117.8	60.6	25	15	15	16	14	18	18	19	16	B	B	B	A	Yes	Hydraulic oil drums leaking near base, some dieback in crown
455	21.1, 33.4, 11.3, 15.6	104.9	66.3	33	27	29	28	27	28	24	20	21	B	B	B	B	No	Galls throughout canopy, small cavities in trunk
456	18.3, 21.1	57.8	66.3	28	20	9	6	8	22	19	16	18	B	B	C	C	No	Lean, no old tags present, Asymmetrical due to utility line clearance, small cavities in trunk
457	9.9	30.8	0	9	6	7	5	6	8	6	5	6	A	A	A	B	No	slight lean, no old tag
458	24.9	78.5	0	35	25	21	16	16	18	18	18	23	A	B	A	A	No	Galls throughout canopy
459	19.4, 18.7	60.9	58.7	31	16	16	16	15	28	24	19	16	C	B	C	D	No	Flush cuts along trunk and throughout crown, sparse canopy, crown raised

[1] For trees with two or more trunks, the two greatest circumferences are provided.

APPENDIX B

Oak Tree Photographs

APPENDIX B
Oak Tree Photographs

Photograph 1 - Coast live oak #450, facing north

Photograph 2 - Coast live oak #451, facing northwest

Photograph 3 - Coast live oak #452, facing north

Photograph 4 - Coast live oak #453, facing west. Note strong lean and hydraulic oil barrels near base.

Photograph 5 - Coast live oak tree #454, facing west. Hydraulic oil barrels can be seen to the left of the trunk.

Photograph 6 - Coast live oak tree #455, facing west

Photograph 7 - Coast live oak tree #456, facing west

Photograph 8 - Coast live oak tree #457, facing west

Photograph 9- Coast live oak tree #458, facing west. Note lopsided canopy due to utility line clearance

Photograph 10 - Coast live oak #459, facing northeast

Photograph 11 - View of aluminum tree tag attached north side of coast live oak #450, facing south

Photograph 12 - Leaking hydraulic oil drums present within the critical root zone of the coast live oak trees 453 and 454.

Photograph 13 - View of Wiley Canyon property from southern boundary facing north

Photograph 14 - View of Wiley Canyon property from northern boundary facing south

APPENDIX C

Resume

Douglas Gordon-Blackwood

Botanist/Arborist

EDUCATION

BS, Botany, California State Polytechnic University, Pomona

13 YEARS OF EXPERIENCE

CERTIFICATIONS/ REGISTRATION

International Society of Arboriculture, Certified Arborist/Utility Specialist - #WE-11726-AU

International Society of Arboriculture, Tree Risk Assessment Qualified (TRAQ)

American Society of Consulting Arborists (ASCA) Registered Consulting Arborist (RCA) #689

Wetland Training Institute 40-hour Wetland Delineator Certification Program 2018

CDFW Rare Plant Voucher Collecting Permit 2081(a)-17-021-V

PROFESSIONAL AFFILIATIONS

California Native Plant Society

California Invasive Plant Council

International Society of Arboriculture

Utility Arborist Association

American Society of Consulting Arborists

Douglas Gordon-Blackwood is a consulting biologist with 8 years of experience in biological resources and habitat restoration, and 13 years with arboriculture. During his career he has conducted and supervised biological surveys and mapping of plant communities, jurisdictional areas and wildlife throughout Southern California. He has acted as lead biologist on several large utilities, development, and transportation projects throughout Southern California.

His experience includes extensive survey experience for biological resource assessments, habitat and vegetation mapping, nesting bird surveys, restoration site assessments, arboricultural assessments, invasive species eradication, and biological compliance monitoring.

Relevant Experience

Calamigos Ranch Oak, Native, and Ornamental Tree Survey, Calabasas, CA. *Arborist.* Douglas acted as arborist for the 30-acre Calamigos Ranch property. Douglas provided arboricultural, mapping, tagging and reporting services for approximately 350 protected, mature, and ornamental trees within the ranch.

Trumark Homes Henry Avocado Ranch Tree Survey, Escondido, CA Escondido, CA. *Arborist.* Douglas acted as arborist for the 50-acre Henry Avocado Ranch property. Douglas provided arboricultural, mapping and reporting services for approximately 305 protected, mature, and ornamental trees within the Henry Avocado Ranch project.

Triunfo Canyon Corporate Retreat, Agoura Hills, CA. *Botanist/Arborist.* Douglas conducted rare plants, wildlife and habitat mapping of the Oak Canyon Ranch property within Triunfo Canyon. Douglas also conducted tree inventories and hazardous tree assessments.

Los Angeles World Airport Landside Access Modernization Project Tree Survey, Los Angeles, CA. *Arborist.* Douglas acted as project manager and arborist for the 127-acre Manchester Square property adjacent to the Los Angeles World Airport. Douglas provided arboricultural, mapping and reporting services for approximately 1100 ornamental trees within the Los Angeles World Airport property.

SCE HTRP/DRHTP Hazardous Tree Removal & Drought Related Hazardous Tree Program, Southern California. *Biologist/Arborist.* Douglas acted as an arborist and biologist for SCE's hazardous tree program. Douglas conducted tree surveys, habitat assessment, jurisdictional assessments, and tree removal monitoring for hazardous trees in Tulare, Kern, Orange, Riverside, San Bernardino, Los Angeles, and Ventura counties.

Berkeley Tuolumne Family Campground, Tuolumne Meadows, CA. *Lead Arborist.* Douglas conducted an arboricultural inventory for 2000+ trees burned during

the 2013 Rim Fire within the City of Berkeley Family Campground. Douglas conducted tree risk assessments for each tree, mapped each location using sub-meter GPS, and tagged trees with appropriate tagging. Douglas also conducted vegetation mapping of portions of the site.

Seefried Industrial Properties Project, Fontana, CA. *Lead Arborist.* Douglas conducted arboricultural surveys and reporting for the 17.6-acre proposed industrial site within Fontana, CA. Reporting was prepared in accordance with the City of Fontana Tree Policy Manual.

SCE Tehachapi Renewable Transmission Project (TRTP) – Kern, Los Angeles, and San Bernardino Counties, CA. *Lead Botanist/Biologist*. Douglas served as lead botanist, arborist, lead biological monitor, lead weed abatement monitor, nesting bird surveyor, and restoration ecologist for the Southern California Edison's (SCE) TRTP project spanning a 173-mile transmission line corridor, including construction of 500 kV overhead and underground high-voltage electric transmission lines. Douglas conducted rare plant surveys throughout Kern, Los Angeles, and San Bernardino counties. Douglas oversaw tree inventories, stump mapping, oak and walnut mapping, invasive species mapping and removal throughout the Angeles National Forest, Puente Hills habitat preserve, and Tonner Canyon preserves. He acted as a support for riparian bird and nesting bird surveys throughout the project area for species including Coastal California gnatcatcher, least Bell's vireo, southwestern willow flycatcher, and burrowing owls. He also provided oversight for plant salvage activities within the Angeles National Forest.

SCE Mira Loma-Serrano Alignment Project, Yorba Linda, CA. *Restoration Ecologist.* Douglas oversaw willow stake planting, maintenance and restoration for a disturbed arroyo willow thicket along a large transmission line corridor.

Los Angeles County Department of Public Works Creek Fire Restoration Projects, Sylmar, CA. *Biologist*. Douglas conducted rare plant and oak tree surveys, conducted vegetation mapping, and general habitat assessments for two sites (MM 15.12 and MM15.67) along Little Tujunga Road within the Angeles National Forest.

ALLAN E. SEWARD
ENGINEERING GEOLOGY, INC.
Geological And Geotechnical Consultants

March 20, 2020 Job No.: 20-2593-4

Wiley Canyon LLC
c/o Sheridan Ebbert Development
13120 Telfair Avenue
Sylmar, California 91342

Attention: Mr. Scott Sheridan

Subject: **GEOTECHNICAL REPORT**
Sediment Sampling and Grain Size Analysis Data

Project: Tentative Tract Map
Smiser Ranch
Santa Clarita, California

Dear Mr. Sheridan:

This report presents the results of grain-size analyses performed on alluvial sediments collected in the Gavin Canyon drainage, along the north side of the project site, for use in a scour study to be performed by Pacific Advanced Civil Engineering (PACE).

1.0 INTRODUCTION

The sampling and laboratory testing programs were developed based on discussions with PACE in order to provide a representative sample basis for their studies. Two locations along the channel alignment were selected and samples were collected from test pits excavated at each location. The test pit locations were chosen in order to provide data representative of the observed variability along the creek alignment. The two test pit locations are summarized below and are shown on the appended **Sediment Sample Location Map** (Plate I).

Test Pit Designation	Coordinates	Approx. Station Location	Sample Depths (ft)
STP-1	N 34.366809°, W 118.555738°	1,300 ft downstream of I-5 overcrossing	0 to 2.5'
			2.5 to 5'
STP-2	N 34.368706°, W 118.555815°	450 ft upstream of lined channel	0 to 2'4"
			3 to 4.5'

2.0 EXCAVATION AND SAMPLING PROCEDURES

Two independent samples were collected at each test pit location described above, which were excavated by hand to a target depth of 5 feet. At each location, the field weight (with moisture) of all material excavated from the test pit was incrementally determined as the excavation progressed, then processed over a sieve tray with a 2-inch nominal maximum size (square openings). Samples were collected from Test Pit STP-1 at a depth of 0 to 2.5 ft and at 2.5 to 5 ft, and from Test Pit STP-2 at a depth of 0 to 2'4" and at 3 to 4.5 ft.

The material retained on the 2-inch sieve tray was subsequently sieved in the field to determine the surface-dry weight of material retained on the 2-inch, 3-inch, 4-inch, 6-inch, and 12-inch sieve sizes.

The material passing the 2-inch sieve tray was stockpiled and a representative bulk sample was collected and transported to our laboratory to complete the particle-size analyses of this fraction. The size of the bulk sample was selected to achieve a minimum dry weight of at least 25 kg based on criteria in ASTM D6913 test method (particle-size distribution of soils using sieve analysis) for a 2-inch maximum particle size.

The test pits were excavated by hand laborers to eliminate potential environmental impacts from heavy equipment. Neither caving nor groundwater was encountered during excavation of STP-1 and the target depth of 5 feet was reached. At STP-2 groundwater seepage was encountered at a depth of 2'4" and the total depth achieved was limited to 4.5 feet due to large cobbles and groundwater. The general stratigraphy of the alluvium observed in each test pit was logged (see Appendix A for logs) and photos were taken to illustrate the general conditions of the channel during excavation and sampling (see **Figures A1** and **A2).**

3.0 LABORATORY TEST PROCEDURES

The collected samples were processed and tested as follows in our laboratory:

- A representative portion of material was obtained from the bulk sample to determine the field moisture content and the dry weight of all material passing the 2-inch sieve size in the field.
- The total dry sample weight was calculated as the sum of the surface-dry weight of material retained on the 2-inch sieve (as measured in the field) and the dry weight of all material passing the 2-inch sieve (based on the laboratory oven-dried sample).
- Remaining material in each bulk sample was processed through the 1.5-inch, 1-inch, 0.75-inch, 0.375-inch and #4 sieve trays and oven-dried to determine the dry weight retained for each sieve size.

- The remaining sample passing through the #4 sieve was split again for washing per ASTM criteria.
- The split sample passing the #4 sieve was washed, dried and passed through the #10, #20, #40, #60, #140 and #200 sieves to determine the weight retained on each and the weight of sediment passing the #200 sieve (i.e., silt and clay sizes).
- The sample weights were adjusted to correct for the noted sample splits and the moisture content to obtain the percent retained on each sieve for the entire dry sample weight.
- The data obtained were input into the Geosystem program to generate graphical particle size distribution test reports and backup test data sheets.

4.0 RESULTS OF TESTING

Sampling and laboratory testing of sediments obtained at 2 sample sites along the Santa Clara River were completed in compliance with ASTM Test Method D6913. The results of our sampling and testing are summarized below.

1. Geotechnical logs and photographs of each sample site are presented in **Appendix A**.
2. The location of each sample site is illustrated on the attached Sediment Sample Location Map (**Plate I**).
3. The results of laboratory sediment gradation testing are presented on graphical, particle size distribution test reports (see **Figures B1** and **B2** in **Appendix B**). The backup grain size distribution test data sheets for each site are also provided. Many of the significant test parameters and results are presented in the summary table of sediment sampling and testing (**Appendix B**).
4. The observed sediments consist dominantly of poorly graded sands with silt and gravel with varying quantities of cobbles. Interbeds of well graded sand, well graded gravel, and sandy silt were locally observed. The maximum cobble/boulder size observed in Test Pit TP-1 exceeded 12 inches (see Photo Exhibit, Figure A1), though these were not fully excavated and not included in the laboratory testing. The maximum cobble size observed in Test Pit TP-2 and included in the laboratory testing was between 6 and 12 inches. At each location larger rocks were observed elsewhere in the channel.
5. Water was actively flowing in the channel at the time of excavation. The test pits were located in representative areas on the bank adjacent to the flowing water. Groundwater seepage was observed in Test Pit STP-2 at a depth of 2’4”.

This opportunity to be of service is appreciated. Please contact us if you would like to discuss this report further.

Respectfully submitted,

Kevin P. Callahan, MS, GE 2989
Geotechnical Engineer

The following attachments and appendices complete this report.

APPENDIX A – SUBSURFACE LOGS AND PHOTOS

- Test Pits STP-1 and STP-2
- Photo Exhibits – Test Pits and Channel Conditions — Figures A1 and A2

APPENDIX B – LABORATORY TEST RESULTS

- Particle Size Distribution Test Reports — Figures B1 and B2
- Grain Size Distribution Test Data Sheets (4 sheets)

Sediment Sample Location Map (**Plate I**)

Distribution via email in PDF format:

Sheridan-Ebbert Development
Attn: Mr. Scott Sheridan

PACE
Attn: Mr. Jose Cruz

Appendix A

CLIENT: Wiley Canyon LLC		JOB NO: 20-2593-9	**TRENCH LOG NO.** STP-1
PROJECT: Tentative Tract Map Smiser Ranch Santa Clarita, California		DATE: 3/20/20	
		LOGGED BY: KPC	
		EXCAVATED: 2/25/20	
EXCAVATION METHOD: Hand labor		ELEVATION:	

DEPTH (feet)	SAMPLE TYPE	SAMPLE NUMBER	GRAPHIC LOG	USCS SYMBOL	DESCRIPTION	ATTITUDES	LABORATORY TESTS: Moisture Content (%)	LABORATORY TESTS: Dry Density (pcf)	LABORATORY TESTS: Other Tests
0				SP-SM	**ALLUVIUM; Qal (0 - 5')** @ 0 - 5' Poorly graded SAND with silt and gravel; medium dense; moist; abundant cobbles		8.5		Gradation % fines=6.7
2.5							8.4		Gradation % fines=5.4
5					NOTES: - Test pit consisted of approximately 3-ft diameter hole - All excavated material considered in sieve analysis				
7.5									
10									

TOTAL DEPTH: 5 feet

SCALE: 1 inch = 2.5 feet

No Ground Water
No Caving

CLIENT: Wiley Canyon LLC		JOB NO: 20-2593-9	**TRENCH LOG NO.** STP-2
PROJECT: Tentative Tract Map Smiser Ranch Santa Clarita, California		DATE: 3/20/20	
		LOGGED BY: KPC	
		EXCAVATED: 2/25/20	
EXCAVATION METHOD: Hand labor		ELEVATION:	

DEPTH (feet)	SAMPLE TYPE	SAMPLE NUMBER	GRAPHIC LOG	USCS SYMBOL	DESCRIPTION	ATTITUDES	LABORATORY TESTS: Moisture Content (%)	LABORATORY TESTS: Dry Density (pcf)	LABORATORY TESTS: Other Tests
0				SP-SM	**ALLUVIUM; Qal (0 - 4.5')** @ 0' Poorly graded SAND with silt and gravel; medium dense; moist; abundant small cobbles @ 1' - finer-grained sand with less cobbles; roots and rootlets to 2.5'		13.0		Gradation % fines=7.1
2.5				ML	@ 2.5' Sandy SILT; soft; wet; dark brown to black @ 3' Well-graded SAND with silt and gravel; medium dense; wet		15.7		Gradation % fines=8.2
5					NOTES: - Test pit consisted of approximately 3-ft diameter hole - All excavated material considered in sieve analysis - Seep at depth of 2'4"				
7.5									
10									

TOTAL DEPTH: 4.5 feet

SCALE: 1 inch = 2.5 feet

2'4" Ground Water
No Caving

Site: STP-1 *View*: Upstream

Site: STP-1

View: Test pit excavation with cobbles/boulders > than 12"

ALLAN E. SEWARD
ENGINEERING GEOLOGY, INC.
Geological and Geotechnical Consultants

PHOTO EXHIBIT

JOB NO.: 20-2593-4

DATE: 3/20/20 | FIGURE: A1

Site: STP-2 *View*: Upstream (left); downstream (right)

ALLAN E. SEWARD
ENGINEERING GEOLOGY, INC.
Geological and Geotechnical Consultants

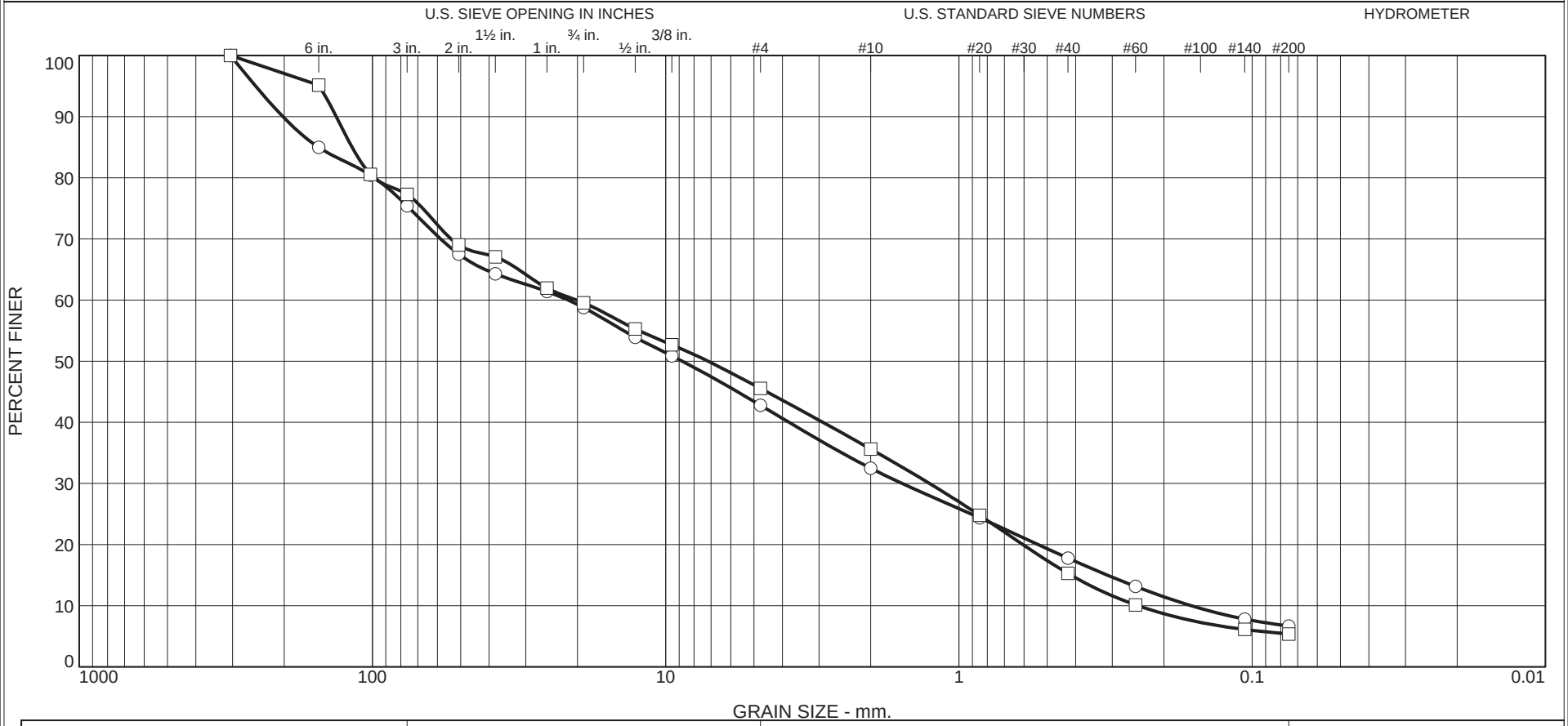
PHOTO EXHIBIT

JOB NO.: 20-2593-4

DATE: 3/20/20 | FIGURE: A2

Appendix B

Particle Size Distribution Test Report



	% +3"	% Gravel		% Sand			% Fines
		Coarse	Fine	Coarse	Medium	Fine	Silt
○	24.6	16.6	16.0	10.3	14.7	11.1	6.7
□	22.7	17.8	14.0	9.9	20.3	9.9	5.4

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	STP-1		0-2.5	2/25/20	SP-SM	poorly graded sand with silt, gravel and cobbles	8.5	NV	NP
□	STP-1		2.5-5	2/25/20	SP-SM	poorly graded sand with silt, gravel and cobbles	8.4	NV	NP

Client Wiley Canyon LLC

Project Tentative Tract Map

Smiser Ranch

Project No. 20-2593-9 Figure B1

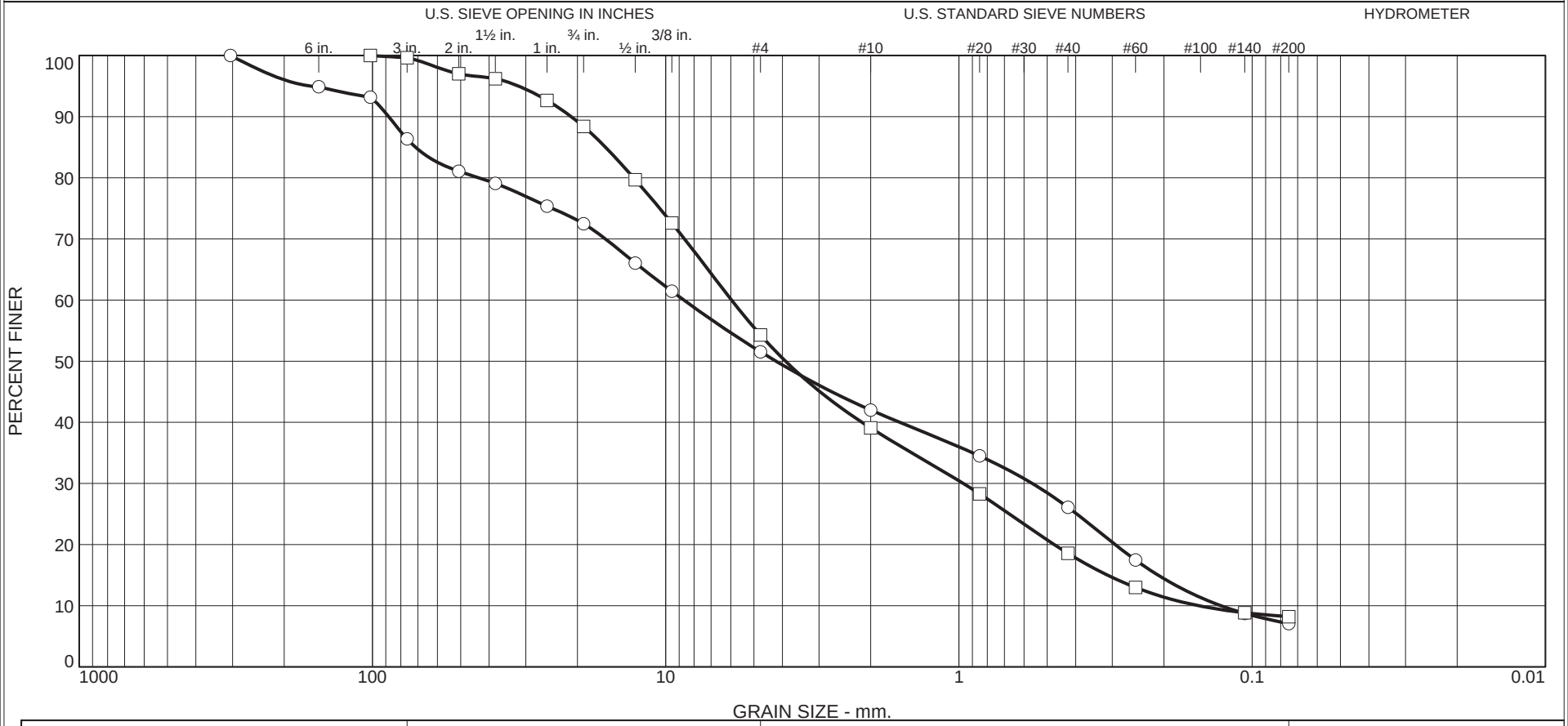
ALLAN E. SEWARD

ENGINEERING GEOLOGY, INC.

Valencia, California

○ Mixture of alluvial sediments
□ Mixture of alluvial sediments

Particle Size Distribution Test Report



	% +3"	% Gravel		% Sand			% Fines
		Coarse	Fine	Coarse	Medium	Fine	Silt
○	13.6	13.9	21.0	9.5	15.9	19.0	7.1
□	0.4	11.2	34.1	15.2	20.5	10.4	8.2

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	STP-2		0-2.3	2/25/20	SP-SM	poorly graded sand with silt, gravel and cobbles	13.0	NV	NP
□	STP-2		3-4.5	2/25/20	SW-SM	well-graded sand with silt and gravel	15.7	NV	NP

Client Wiley Canyon LLC

Project Tentative Tract Map

Smiser Ranch

Project No. 20-2593-9 Figure B2

ALLAN E. SEWARD

ENGINEERING GEOLOGY, INC.

Valencia, California

○ Mixture of alluvial sediments
□ Mixture of alluvial sediments

GRAIN SIZE DISTRIBUTION TEST DATA

3/20/2020

Client: Wiley Canyon LLC
Project: Tentative Tract Map
Smiser Ranch
Santa Clarita, California
Project Number: 20-2593-9
Location: STP-1
Depth: 0-2.5
Material Description: poorly graded sand with silt, gravel and cobbles
Date: 2/25/20 **Natural Moisture:** 8.5
Liquid Limit: NV **Plastic Limit:** NP **USCS Class.:** SP-SM
Testing Remarks: Mixture of alluvial sediments

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
608992.00	0.00	0.00	12	0.00	100.0
			6	91480.00	85.0
			4	119180.00	80.4
			3	149740.00	75.4
			2	197880.00	67.5
27792.70	0.00	0.00	1.5	1322.50	64.3
			1	2514.40	61.4
			0.75	3597.90	58.8
			.5	5597.30	53.9
			0.375	6848.50	50.9
			#4	10180.60	42.8
436.43	0.00	0.00	#10	105.00	32.5
			#20	187.59	24.4
			#40	255.08	17.8
			#60	302.16	13.2
			#140	356.83	7.8
			#200	368.44	6.7

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
24.6	16.6	16.0	32.6	10.3	14.7	11.1	36.1			6.7

D_5	D_{10}	D_{15}	D_{20}	D_{30}	D_{40}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.1614	0.3119	0.5372	1.5621	3.7966	8.7762	21.5187	98.5367	152.6411	201.9098	250.2972

Fineness Modulus	C_u	C_c
6.16	133.34	0.70

GRAIN SIZE DISTRIBUTION TEST DATA

3/20/2020

Client: Wiley Canyon LLC
Project: Tentative Tract Map
Smiser Ranch
Santa Clarita, California
Project Number: 20-2593-9
Location: STP-1
Depth: 2.5-5
Material Description: poorly graded sand with silt, gravel and cobbles
Date: 2/25/20 **Natural Moisture:** 8.4
Liquid Limit: NV **Plastic Limit:** NP **USCS Class.:** SP-SM
Testing Remarks: Mixture of alluvial sediments

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
399085.00	0.00	0.00	12	0.00	100.0
			6	19340.00	95.2
			4	77600.00	80.6
			3	90660.00	77.3
			2	123700.00	69.0
30271.50	0.00	0.00	1.5	849.60	67.1
			1	3087.40	62.0
			0.75	4149.20	59.5
			.5	6029.60	55.3
			0.375	7157.00	52.7
			#4	10292.80	45.5
432.69	0.00	0.00	#10	94.16	35.6
			#20	197.12	24.8
			#40	287.30	15.3
			#60	336.40	10.1
			#140	374.43	6.1
			#200	381.72	5.4

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
22.7	17.8	14.0	31.8	9.9	20.3	9.9	40.1			5.4

D_5	D_{10}	D_{15}	D_{20}	D_{30}	D_{40}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.2455	0.4144	0.6057	1.2602	2.9087	7.1867	20.1462	98.7690	117.2810	132.8219	151.6767

Fineness Modulus	C_u	C_c
5.97	82.06	0.32

GRAIN SIZE DISTRIBUTION TEST DATA

3/20/2020

Client: Wiley Canyon LLC
Project: Tentative Tract Map
Smiser Ranch
Santa Clarita, California
Project Number: 20-2593-9
Location: STP-2
Depth: 0-2.3
Material Description: poorly graded sand with silt, gravel and cobbles
Date: 2/25/20 **Natural Moisture:** 13.0
Liquid Limit: NV **Plastic Limit:** NP **USCS Class.:** SP-SM
Testing Remarks: Mixture of alluvial sediments

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
469827.00	0.00	0.00	12	0.00	100.0
			6	23960.00	94.9
			4	31960.00	93.2
			3	64060.00	86.4
			2	88900.00	81.1
28852.50	0.00	0.00	1.5	708.00	79.1
			1	2031.80	75.4
			0.75	3058.60	72.5
			.5	5347.20	66.1
			0.375	6986.40	61.4
			#4	10517.40	51.5
256.41	0.00	0.00	#10	47.39	42.0
			#20	84.69	34.5
			#40	126.56	26.1
			#60	169.48	17.5
			#140	212.93	8.7
			#200	221.28	7.1

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
13.6	13.9	21.0	34.9	9.5	15.9	19.0	44.4			7.1

D_5	D_{10}	D_{15}	D_{20}	D_{30}	D_{40}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.1279	0.2094	0.2933	0.5633	1.5940	4.2102	8.6650	43.3268	71.2902	88.0105	161.8765

Fineness Modulus	C_u	C_c
5.11	67.73	0.29

GRAIN SIZE DISTRIBUTION TEST DATA

3/20/2020

Client: Wiley Canyon LLC
Project: Tentative Tract Map
Smiser Ranch
Santa Clarita, California
Project Number: 20-2593-9
Location: STP-2
Depth: 3-4.5
Material Description: well-graded sand with silt and gravel
Date: 2/25/20 **Natural Moisture:** 15.7
Liquid Limit: NV **Plastic Limit:** NP **USCS Class.:** SW-SM
Testing Remarks: Mixture of alluvial sediments

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
146941.00	0.00	0.00	4	0.00	100.0
			3	520.00	99.6
			2	4400.00	97.0
31785.40	0.00	0.00	1.5	261.50	96.2
			1	1428.20	92.6
			0.75	2820.40	88.4
			.5	5679.70	79.7
			0.375	7998.00	72.6
			#4	13998.00	54.3
296.39	0.00	0.00	#10	83.00	39.1
			#20	141.90	28.3
			#40	194.97	18.6
			#60	225.49	13.0
			#140	248.11	8.8
			#200	251.60	8.2

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.4	11.2	34.1	45.3	15.2	20.5	10.4	46.1			8.2

D_5	D_{10}	D_{15}	D_{20}	D_{30}	D_{40}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.1524	0.3116	0.4733	0.9673	2.1397	3.9042	5.9619	12.8771	16.0392	20.9740	31.6389

Fineness Modulus	C_u	C_c
4.67	39.12	1.03

Source: *Google Earth Pro V 7.3.2.5776 (11/19/18 Imagery Date)*

ALLAN E. SEWARD
ENGINEERING GEOLOGY, INC.
Geological and Geotechnical Consultants

SEDIMENT SAMPLE LOCATION MAP

JOB NO.: *20-2593-4*

DATE: *3/20/20*

PLATE 1

SEWER AREA STUDY

APPROVED
CITY OF SANTA CLARITA
ENGINEERING SERVICES DIVISION
SIGNATURE
DATE 8/21/2020

WILEY CANYON

APNs: 2825-012-007, -010, -011, -901
Santa Clarita, CA

SAS20-00003

Prepared For:
SHERIDAN-EBBERT DEVELOPMENT/
ROYAL CLARK DEVELOPMENT COMPANY
13120 Telfair Avenue
Sylmar, CA 91342
(818) 364-7505

Prepared By:
Alliance Land Planning & Engineering, Inc.
2248 Faraday Ave.
Carlsbad, CA 92008
(760) 431-9896

AUGUST 10, 2020

REGISTERED PROFESSIONAL ENGINEER
CRAIG M. WHITTEKER
C 51929
EXP. 6-30-22
CIVIL
STATE OF CALIFORNIA

Prepared Under the Direction of:

Craig M. Whitteker R.C.E. No. 51929 8/10/20 Date

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APPENDICES

Appendix A ----------Flow Coefficients and Capacity Requirements

Appendix B ----------Zoning and Land Use Data

Appendix C ----------SMD Maps

Appendix D ----------Sewer Capacity Calculations/Flow Test Results

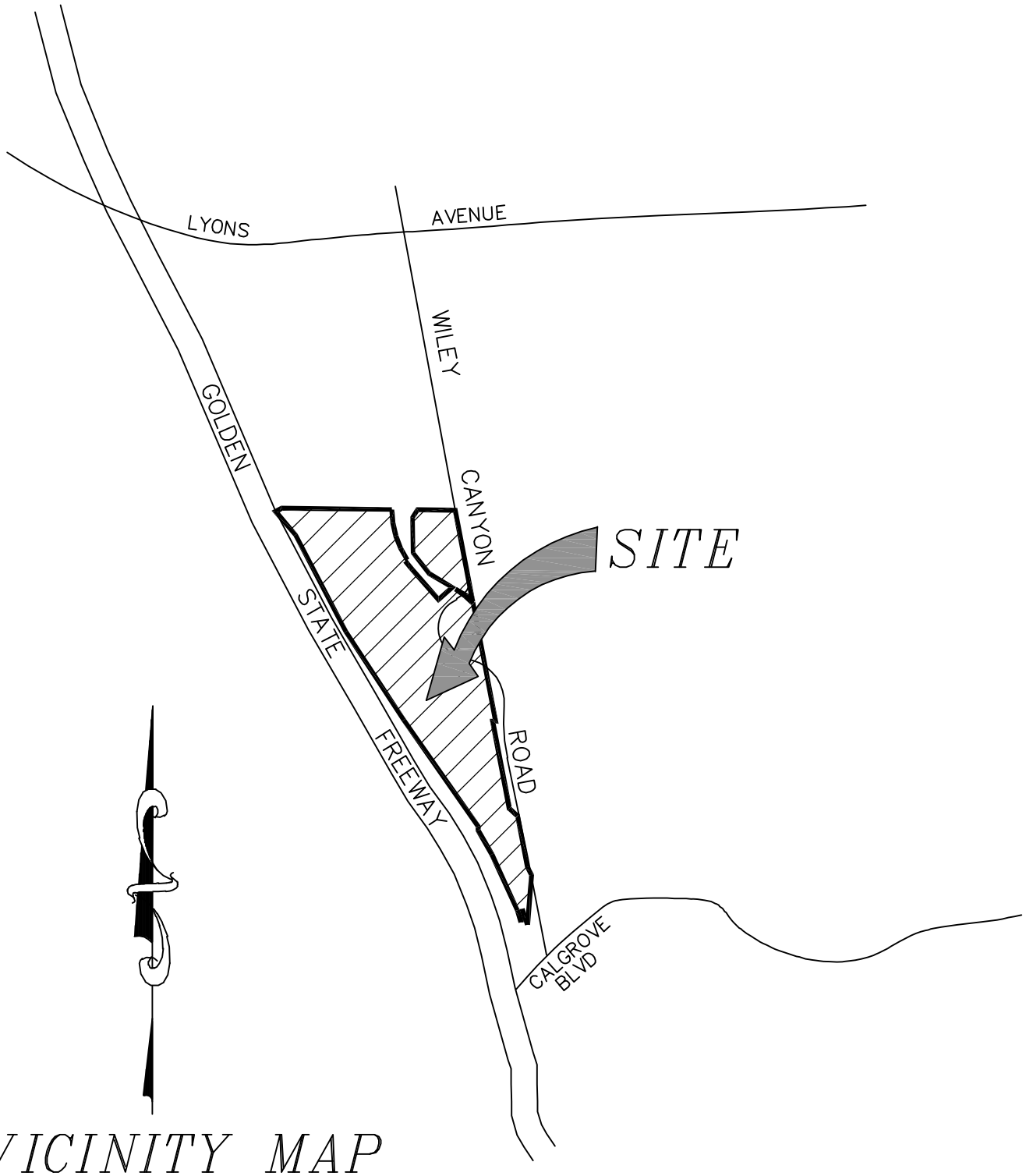
Appendix E----------APN/Tract Maps

Appendix F ----------Sewer Plans

Appendix G ----------Sewer Area Study Maps

EXHIBITS

Exhibit 1 - Sewer Area Study Map (Existing, Proposed and Future Condition)



VICINITY MAP

NOT TO SCALE

INTRODUCTION

The proposed project site lies within the jurisdiction of the City of Santa Clarita. This Sewer Area Study has been prepared by Alliance Land Planning & Engineering, Inc. for Sheridan-Ebbert Development/Royal Clark Development Company located at 13120 Telfair Avenue, Sylmar, CA 91342. This study is being prepared at the request of the City of Santa Clarita Engineering Department to evaluate the capacity of the existing sewer systems that will serve this proposed development. The purpose of this study is to evaluate the capacity of the existing off-site downstream sewer sections from our development to the Los Angeles County Sanitation District maintained trunk sewer and determine if the existing sewer facilities can adequately serve the proposed development.

References used in the preparation of this study: LA County Sewer Maintenance Division Maps, LA County Department of Public Works As-builts, Sanitary Sewer Drawings (PC 7549, PC 7599 and PC 8132), City of Santa Clarita Zoning Maps, City of Santa Clarita standards, approved off-site Sewer Area Study for TTM No. 43896 and sewer flow test data performed in June 2020.

This study evaluates the downstream off-site facilities and includes all tributary flows to the existing sewer system from the existing, proposed and future developments within the overall tributary areas. This study will show and determine the potential impacts of our proposed development.

SITE AND PROJECT DESCRIPTION

The Wiley Canyon project encompasses 31.8 acres and the proposed project is mixed use with a combination of commercial and residential land uses.

AREA ID	LAND USE	AREA OR NO. UNITS
1	Commercial	7.0 AC
2	Multi-family Residential	145 Units
3	Multi-family Residential	230 Units

The development lies halfway between Wabuska Street and Calgrove Avenue directly adjacent to the east side of Golden State Freeway 5 in Santa Clarita. The property information is APN's 2825-012-007, -010, -011 and -901. C.S.M.D. Index No. N-1258, N-1259, N-1297 and N-1298. Thomas Guide 4640 D1-D2, E-E2, F1-F3, 4550 E7, F7 and G7. See Exhibit 1 for project location and surrounding areas.

The following area study has been prepared to show that the capacity is adequate for the existing downstream sewer segments from the proposed development site to the Los Angeles County Sanitation District (LACSD) trunk sewer (24" line within diversion structure) located at approximately 225 feet south of Wiley Canyon Road and Orchard Village Road intersection at manhole #781.

The developed areas of Wiley Canyon flows into an existing manhole #49 with an existing 10"-15" downstream sewer lines (PC 7599), existing 12"-18" sewer lines (PC 7549) and then to existing 24" La County Sanitary District trunk sewer line (within diversion structure at manhole #781); see the Sewer Area Study Exhibit (Exhibit 1, Appendix G) within the pocket of this report for the layout of the existing and proposed sewer systems.

DESCRIPTION OF EXISTING SEWER SYSTEM

The existing downstream sewer system consists of approximately 9,600 linear feet of gravity sewer pipe ranging in size from 10" to 18" before connecting to the 24" Sanitation District trunk line (within diversion structure at manhole #781).

Analysis of the existing sewer system begins at MH #49, located in Wiley Canyon Road approximately 840 feet south of Wiley Canyon Road and Wabuska Street intersection and terminates at the Sanitation District trunk line located at approximately 240 feet south of Wiley Canyon Road and Orchard Village Road intersection at manhole #781.

SEWER CAPACITY ANALYSIS

The sewer capacity analysis performed for this project includes calculating the proposed flow due to The Wiley Canyon development. See Table 1 for capacity calculations for each Planning Area. See Appendix A for Kutter Formula Calculations for each capacity and pipe size. See Sewer Area Study Map in the pocket of this report for sewer layout and capacity calculations.

The analysis also includes the percentage full of the pipes within the system. For the basis of this study all proposed sewer lines are calculated using a 1.0% slope. The percentage full for each pipe segment is shown on the Sewer Area Study Map in the pocket of this report.

The total flowrate generated by Wiley Canyon project is 0.480 cfs and enters the existing 10" sewer (PC 7599) at manhole #49, this pipe segment from MH #49 to #48 will be at 29.1% full (see Appendix A for calculation and flow capacity table within exhibit 1, Appendix G).

Only one segment (segment 41) of the existing 18" sewer line is over 75% full (84.4%) based on theoretical flow calculations. A flow test was performed at three locations, upstream MH 28, upstream MH 780 and existing 18" trunk line manhole northeast of MH 781, see flow test results within Appendix D of this report. Due to the very low flowrate at the existing 18" trunk line manhole, further investigation was performed and found that there is a diversion structure at MH 781 which directed all upstream flow to an existing 24" CDS trunk line. Based on the flow test data (actual flowrate of 2.500 cfs) at the upstream MH 28 and accumulated flow from upstream tributary areas, total Q for segment 41 is now 6.107 cfs which is currently 39.9% full for this segment before entering the diversion structure.

CONCLUSION

The Wiley Canyon project generates a total flowrate of 0.480 cfs which enters the existing 10"-15" sewer lines (PC 7599), existing 12"-18" sewer lines (PC 7549) and then to existing 24" LA County Sanitary District trunk sewer line (diversion structure). The pipe sizing shown on the Sewer Area Study Map is adequate to meet the City of Santa Clarita standards for a maximum of 50% full for the existing 10" to 12" downstream pipe segments and meet standards for a maximum of 75% full for the existing 15" to 18" downstream pipe segments. Therefore, it can be concluded that the existing downstream sewer system is of adequate size and capacity to accept the proposed flow from this project.

LAND USE/ SEWER GENERATION TABLE

AREA I.D.	LAND USE	AREA OR NO. UNITS	PEAK Q COEF.	PEAK Q
1	COMMERCIAL	7.0 AC	0.015 cfs/AC	0.105 cfs
2	MULTI-FAMILY RESIDENTIAL	145 UNITS	0.001 cfs/AC	0.145 cfs
3	MULTI-FAMILY RESIDENTIAL	230 UNITS	0.001 cfs/AC	0.230 cfs

FLOW CAPACITY FOR PROPOSED DEVELOPMENT

BASIN ID	PROPOSED PIPE SIZE (in)	SLOPE (%)	FLOWRATE, Q* (cfs)	CAPACITY, Q* (cfs)	Q/Q* (% FULL) 12" ≤ PIPE	Q/Q* (% FULL) 15" ≥ PIPE
1	8	1.00	0.105	1.212	8.7	N/A
2	8	1.00	0.145	1.212	12.0	N/A
3	8	1.00	0.230	1.212	19.0	N/A
P1	8	1.00	0.480	1.212	36.9	N/A

(EXISTING, PROPOSED AND FUTURE DEVELOPMENT)
FLOW CAPACITY FOR ONSITE / DOWNSTREAM SEWERS
WILEY CANYON ROAD TO EXISTING 24" DIVERSION TRUNK SEWER AT MH #781

SEGMENT	MH TO MH	EXISTING PIPE SIZE (in)	SLOPE (%)	FLOWRATE, Q (cfs)	CAPACITY, Q* (cfs)	Q/Q* (% FULL) 12" < PIPE	Q/Q* (% FULL) 15" > PIPE	TRIBUTARY AREA	CALCULATED FLOW (cfs)	EXIST. PIPE ADEQUATE	NOTES
(1)	49–48	10	1.80	0.876	3.012	29.1	N/A	A1–A3, ONSITE P1	0.876	YES	
(2)	48–47	10	6.32	0.878	5.649	15.5	N/A	A3	0.002	YES	
(3)	47–43	10	1.00	0.881	2.243	39.3	N/A	A3	0.003	YES	
(4)	43–42	12	0.40	0.884	2.341	37.8	N/A	A3	0.004	YES	
(5)	42–36	12	0.40	0.889	2.341	38.0	N/A	A3	0.005	YES	
(6)	36–35	15	0.40	0.978	4.321	N/A	22.6	A3–A4	0.089	YES	
(7)	35–34	15	0.40	0.982	4.321	N/A	22.7	A3	0.004	YES	
(8)	34–33	15	0.40	0.983	4.321	N/A	22.7	A6	0.001	YES	
(9)	33–32	15	0.40	1.083	4.321	N/A	25.1	A5–A6	0.100	YES	
(10)	32–428	15	0.40	1.088	4.321	N/A	25.2	A6	0.005	YES	
(11)	428–427	12	2.56	1.092	5.946	18.4	N/A	A6	0.004	YES	
(12)	427–426	15	0.56	1.891	5.118	N/A	36.9	A7–A12	0.799	YES	
(13)	426–425	15	1.24	1.891	7.628	N/A	24.8			YES	
(14)	425–424	15	0.56	1.891	5.118	N/A	36.9			YES	
(15)	424–423	15	0.72	2.100	5.807	N/A	36.2	A13–A15	0.209	YES	
(16)	423–362	18	0.60	2.100	8.720	N/A	24.1			YES	
(17)	362–363	15	0.60	2.254	5.299	N/A	42.5	A17–A18	0.154	YES	
(18)	363–380	15	0.60	2.273	5.299	N/A	42.9	A18	0.019	YES	
(19)	380–381	15	0.60	2.277	5.299	N/A	43.0	A18	0.004	YES	
(20)	381–392	15	0.60	2.281	5.299	N/A	43.0	A18	0.004	YES	
(21)	393–394	12	2.00	2.286	5.255	43.5	N/A	A18	0.005	YES	
(22)	394–398	18	0.24	2.588	5.495	N/A	47.1	A18–A21	0.302	YES	
(23)	398–389	18	0.24	2.593	5.495	N/A	47.2	A21	0.005	YES	
(24)	389–387	18	0.24	2.621	5.495	N/A	47.7	A21	0.028	YES	
(25)	387–374	18	0.24	2.665	5.495	N/A	48.5	A21	0.044	YES	
(26)	374–372	18	0.24	2.726	5.495	N/A	49.6	A21	0.061	YES	
(27)	372–344	18	0.24	2.786	5.495	N/A	50.7	A21	0.060	YES	
(28)	344–345	18	0.76	2.845	9.819	N/A	29.0	A21	0.059	YES	
(29)	345–346	18	0.68	2.847	9.286	N/A	30.7	A21	0.002	YES	
(30)	346–349	18	0.40	2.862	7.111	N/A	40.2	A21	0.015	YES	
(31)	349–310	18	0.64	2.944	9.007	N/A	32.7	A22–A23	0.082	YES	
(32)	310–312	15	1.04	2.996	6.984	N/A	42.9	A23–A24	0.052	YES	
(33)	312–319	18	0.60	3.027	8.720	N/A	34.7	A24	0.031	YES	
(34)	319–320	18	0.64	3.054	9.007	N/A	33.9	A24	0.027	YES	
(35)	320–326	18	0.40	3.200	7.111	N/A	45.0	A24–A27	0.146	YES	
(36)	326–327	18	0.40	3.225	7.111	N/A	45.4	A24	0.025	YES	
(37)	327–328	18	0.40	3.227	7.111	N/A	45.4	A24	0.002	YES	
(38)	328–784	18	1.12	3.584	11.927	N/A	30.0	A28–A32	0.357	YES	
(39)	784–783	18	0.60	3.584	8.720	N/A	41.1			YES	
(40)	783–782	18	0.60	3.584	8.720	N/A	41.1			YES	
(41)	782–781 DIV. STRUC.	18	1.84	12.902 6.107**	15.295	N/A	84.4 39.9**	A33–A34	9.318 2.523**	NO YES**	ACTUAL FLOWRATE OF 2.500 cfs AT UPSTREAM MH #28 PER FLOW TEST PERFROMED IN JUNE 2020

* NOTE: MAXIMUM % FULL TO BE 50% FOR 12" PIPE OR SMALLER AND 75% FOR 15" PIPE OR LARGER.
** NOTE: ACUTAL FLOWREATE OF 2.500 cfs AT UPSTREAM MH #28 PER FLOW TEST PERFORMED IN JUNE 2020.

“WILL SERVE”

SANITATION DISTRICTS OF LOS ANGELES COUNTY

Converting Waste Into Resources

Robert C. Ferrante
Chief Engineer and General Manager
1955 Workman Mill Road, Whittier, CA 90601-1400
Mailing Address: P.O. Box 4998, Whittier, CA 90607-4998
(562) 699-7411 • www.lacsd.org

October 28, 2019

Ref. DOC 5335146

Ms. Ashley Holland, Project Coordinator
Alliance Land Planning & Engineering
2248 Faraday Avenue
Carlsbad, CA 92008

Dear Ms. Holland:

Will Serve Letter for Wiley Canyon Project

The Santa Clarita Valley Sanitation District (District) received your will serve letter request for the subject project on September 26, 2019. We offer the following comments regarding sewerage service:

1. The project area is outside the jurisdictional boundaries of the District and will require annexation into the District before sewerage service can be provided to the proposed development. For a copy of the District's Annexation Information and Processing Fee sheets, go to www.lacsd.org, Wastewater & Sewer Systems, Will Serve Program, and click on the appropriate link. For more specific information regarding the annexation procedure and fees, please contact Ms. Donna Curry at (562) 908-4288, extension 2708.

2. The wastewater flow originating from the proposed project will discharge to a local sewer line, which is not maintained by the District, for conveyance to either or both the District's Valencia Trunk Sewer, located in Orcharge Village Road east of Wiley Canyon Road, or the District No. 32 Main Trunk Sewer, located in a private right of way northeast of the intersection of Wiley Canyon Road and Orcharge Village Road. The District's 24–inch diameter Valencia Trunk Sewer has a capacity of 9.4 million gallons per day (mgd) and conveyed a peak flow of 1.9 mgd when last measured in 2018. The District's 18-inch diameter District No. 32 Main Trunk Sewer has a capacity of 3.3 mgd and conveyed a peak flow of 0.1 mgd when last measured in 2018.

3. The District operates two water reclamation plants (WRPs), the Saugus WRP and the Valencia WRP, which provide wastewater treatment in the Santa Clarita Valley. These facilities are interconnected to form a regional treatment system known as the Santa Clarita Valley Joint Sewerage System (SCVJSS). The SCVJSS has a capacity of 28.1 mgd and currently produces an average recycled water flow of 19.6 mgd.

4. The expected average wastewater flow from the project, described in the request as 150 assisted living units, 415 multi-family residential units, 10,000 square feet of commercial space and a 60,000 square-foot office building, is 100,105 gallons per day. For a copy of the District's average wastewater generation factors, go to www.lacsd.org, Wastewater & Sewer Systems, click on Will Serve Program, and click on the Table 1, Loadings for Each Class of Land Use link.

Printed on Recycled Paper

5. The District is empowered by the California Health and Safety Code to charge a fee for the privilege of connecting (directly or indirectly) to the District's Sewerage System for increasing the strength or quantity of wastewater discharged from connected facilities. This connection fee is a capital facilities fee that is imposed in an amount sufficient to construct an incremental expansion of the Sewerage System to accommodate the proposed project. Payment of a connection fee will be required before a permit to connect to the sewer is issued. For more information and a copy of the Connection Fee Information Sheet, go to www.lacsd.org, Wastewater & Sewer Systems, click on Will Serve Program, and search for the appropriate link. In determining the impact to the Sewerage System and applicable connection fees, the Districts' Chief Engineer and General Manager will determine the user category (e.g. Condominium, Single Family home, etc.) that best represents the actual or anticipated use of the parcel or facilities on the parcel. For more specific information regarding the connection fee application procedure and fees, please contact the Connection Fee Counter at (562) 908-4288, extension 2727.

6. In order for the District to conform to the requirements of the Federal Clean Air Act (CAA), the capacities of District wastewater treatment facilities are based on the regional growth forecast adopted by the Southern California Association of Governments (SCAG). Specific policies included in the development of the SCAG regional growth forecast are incorporated into clean air plans, which are prepared by the South Coast and Antelope Valley Air Quality Management Districts in order to improve air quality in the South Coast and Mojave Desert Air Basins as mandated by the CCA. All expansions of District facilities must be sized and service phased in a manner that will be consistent with the SCAG regional growth forecast for the counties of Los Angeles, Orange, San Bernardino, Riverside, Ventura, and Imperial. The available capacity of District treatment facilities will, therefore, be limited to levels associated with the approved growth identified by SCAG. As such, this letter does not constitute a guarantee of wastewater service, but is to advise you that the District intends to provide this service up to the levels that are legally permitted and to inform you of the currently existing capacity and any proposed expansion of District facilities.

If you have any questions, please contact the undersigned at (562) 908-4288, extension 2717.

Very truly yours,

Adriana Raza
Customer Service Specialist
Facilities Planning Department

AR:ar

cc: D. Curry
A. Schmidt
A. Howard

Appendix A

Flow Coefficients and Capacity Requirements

City of Santa Clarita
Engineering Services Division

SEWAGE FLOW COEFFICIENTS

ZONING		DESCRIPTION	COEFFICIENT
			(cfs/gross acreage)
Residential	RE	Residential Estate – large custom single family homes on uniquely configured lots	0.00075
	RVL	Residential Very Low Density - 1 DU/AC	0.001
	RL	Residential Low Density – 2.2 DU/AC	0.0015
	RS	Residential Suburban - 5 DU/AC	0.005
	RM	Residential Moderate – 11 DU/AC	0.012
	RMH	Residential Medium High – 20 DU/AC	0.015
	RH	Residential High – 28 DU/AC	0.023
The above coefficients shall be used for undeveloped land, land that is not entitled, and apartment complexes. For developed land, and for entitled residential developments (except apartment complexes), a value of 0.001 cfs/dwelling unit shall be used in lieu of the above coefficients.			
Agricultural	A	Agricultural - 1 single family home/ legal lot	0.0002
Mixed-Use	MU	existing zone + 16 dwelling units per acre	existing zone coefficient + 0.016
Open Space	OS	Open Space - Natural / Unimproved	0
		Open Space - Parks	0.0002
		Community Rooms	0.0005
		Community Pool Facilities	0.001
Commercial	CTC	Commercial Town Center	0.015
	CC	Community Commercial	
	CN	Commercial Neighborhood	
	CO	Commercial Office	
Industrial	VSR	Visitor Serving/Resort	0.021
	BP	Business Park	
	IC	Industrial Commercial	
	I	Industrial	
SP 3: Newhall Specific Plan	UG1	Urban General 1	0.005
	UG2	Urban General 2	0.012
	UC	Urban Center	0.015
	COR	Corridor	0.021
	CD	Creative District	0.021
	OS	Open Space	0
			(gal/student)
Schools		Elementary & Junior High Schools	25
		High School	37.5
		University & College	50
		College with dormitories	212.5

Estimated Average Daily Sewage Flows for Various Occupancies

Occupancy	Abbreviation	*Average daily flow	
Apartment Buildings:			
Bachelor or Single dwelling units	Apt	100	gal/D.U. → 150
1 bedroom dwelling units	Apt	150	gal/D.U. → 200
2 bedroom dwelling units	Apt	200	gal/D.U. → 250
3 bedroom or more dwelling units	Apt	250	gal/D.U. → use 300 GPD per SHD
Auditoriums, churches, etc.	Aud	5	gal/seat
Automobile parking	P	25	gal/1000 sq ft gross floor area
Bars, cocktails lounges, etc.	Bar	20	gal/seat
Commercial Shops & Stores	CS	100	gal/1000 sq ft gross floor area
Hospitals (surgical)	HS	500	gal/bed
Hospitals (convalescent)	HC	85	gal/bed
Hotels	H	150	gal/room
Medical Buildings	MB	300	gal/1000 sq ft gross floor area
Motels	M	150	gal/unit
Office Buildings	Off	200	gal/1000 sq ft gross floor area
Restaurants, cafeterias, etc.	R	50	gal/seat
Schools:			
Elementary or Jr. High	S	10	gal/student
High Schools	HS	15	gal/student
Universities or Colleges	U	20	gal/student
College Dormitories	CD	85	gal/student

*Multiply the average daily flow by 2.5 to obtain the peak flow

Zoning Coefficients

Zone	Coefficient (cfs/Acre)
Agriculture	0.001
Residential+:	
R-1	0.004
R-2	0.008
R-3	0.012
R-4	0.016*
Commercial:	
C-1 through C-4	0.015*
Heavy Industrial:	
M1 through M-4	0.021*

***Individual building, commercial or industrial plant capacities shall be the determining factor when they exceed the coefficients shown**

+ Use 0.001 (cfs/unit) for condominiums only

Appendix B

Zoning and Land Use Data

City of Santa Clarita Zoning Descriptions

Chapter 17.31
ZONING DESIGNATION PURPOSE

Sections:

17.31.010 Purpose.

17.31.020 Consistency with the Zoning Map.

17.31.010 Purpose.

The non-urban, urban residential, commercial, industrial, mixed use, open space, public/institutional, specific plan, and corridor plan zones are established to achieve the following purposes:

A. To reserve appropriate areas for the continuation of existing farms and ranches, residential living at a broad range of dwelling unit densities; for office uses, retail stores, service establishments, and wholesale businesses, offering commodities and services required by residents of the City and its surrounding market area; for industrial uses and the protection of these areas from intrusion by dwellings and other inharmonious uses consistent with the Santa Clarita General Plan and with sound standards to preserve public health, safety and welfare.

B. To minimize traffic congestion and to avoid the overloading of public services and utilities by preventing the construction of buildings of excessive bulk or number in relation to the land area around them.

C. To facilitate the provision of utility services and other public facilities commensurate with anticipated population, dwelling unit densities and service requirements.

D. To promote high standards for site planning, architecture and landscape design for development within the City while preserving the City's historical and natural resources such as oak trees, river areas and ridgelines.

E. To protect residential and commercial uses from noise, odor, dust, smoke, light intrusion, truck traffic and other objectionable influences and to prevent fire, explosion, radiation, and other hazards incidental to certain industrial activities.

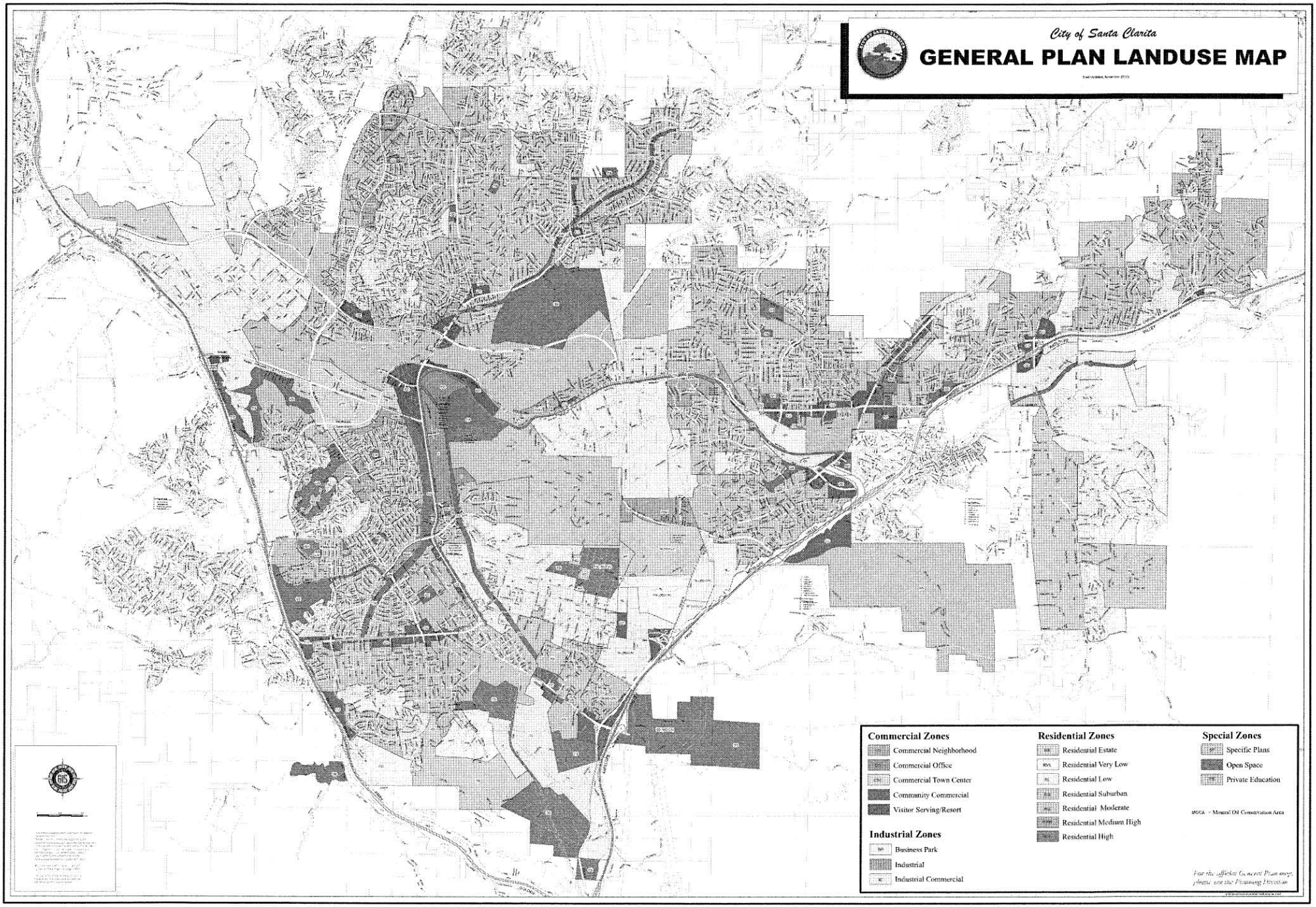
F. To ensure adequate light, air, privacy and open space for each dwelling and to provide sufficient open space around commercial and industrial structures to protect them from hazard and to minimize the impact of commercial and industrial operations on nearby residential zones.

G. To encourage commercial and industrial uses to concentrate for the convenience of the public and for a more mutually beneficial relationship. (Ord. 13-8 § 4 (Exh. A), 6/11/13)

17.31.020 Consistency with the Zoning Map.

The zoning designations contained within this code shall correspond and be consistent with the zoning map as approved by Council ordinance. (Ord. 13-8 § 4 (Exh. A), 6/11/13)

City of Santa Clarita
Zoning Map
Last Update: September 2015
Urban Residential
UR1 - 2.0 du/a
UR2 - 5.0 du/a
UR3 - 11.0 du/a
UR4 - 18.0 du/a
UR5 - min. 15 du/a - max. 30.0 du/a
Non-Urban Residential
NUR1 - 0.05 du/a
NUR2 - 0.1 du/a
NUR3 - 0.2 du/a
NUR4 - 0.5 du/a
NUR5 - 1.0 du/a
Commercial
CC - Community Commercial
CN - Neighborhood Commercial
CR - Regional Commercial
Open Space
OS-NF - Open Space—National Forest
OS-A - Open Space—Agriculture
OS - Open Space
OS-BLM - Open Space—Bureau of Land Management
Mixed Use
CP - Corridor Plan
MXC - Mixed Use - Corridor
MXN - Mixed Use - Neighborhood
Industrial
BP - Business Park
I - Industrial
Other
PI - Public/Institutional
Specific Plan
SP
Boundaries
City Boundary
Zoning Boundary


City of Santa Clarita
GENERAL PLAN LANDUSE MAP
Commercial Zones
Commercial Neighborhood
Commercial Office
Commercial Town Center
Community Commercial
Visitor Serving/Resort
Industrial Zones
Business Park
Industrial
Industrial Commercial
Residential Zones
Residential Estate
Residential Very Low
Residential Low
Residential Suburban
Residential Moderate
Residential Medium High
Residential High
Special Zones
Specific Plans
Open Space
Private Education
MOCA = Mineral Oil Conservation Area
For the official General Plan map, please see the Planning Division.

Appendix C

SMD Maps

SEE SHT. NO. N-1257

A-42
A-47

SEE SHT. NO. 1219

SEE SHT. NO. N-1297

SEE SHT. NO. N-1259

THIS MAP IS INTENDED FOR USE ONLY AS OPERATIONS MAP BY LOS ANGELES COUNTY SEWER MAINTENANCE DISTRICTS. LOS ANGELES COUNTY EXPRESSLY DISCLAIMS ANY LIABILITY FOR ANY INACCURACIES WHICH MAY BE PRESENT IN THIS MAP.

AUTOMATED GRAPHICS

METERS
0 50 100 200 250
0 200 400 600 800
FEET

LEGEND

- CLAY SEWERS MAINTAINED BY SMD, 8" UNLESS OTHERWISE NOTED
- PLASTIC SEWERS
- CONCRETE SEWERS
- CLAY SEWERS, LINED
- CEMENT SEWERS, LINED
- FORCE MAINS
- SEWERS NOT MAINTAINED BY SMD
- TRUNK SEWERS
- CITY BOUNDARY
- STANDARD MANHOLE
- DROP MANHOLE
- SHALLOW MANHOLE
- TRAP MANHOLE
- WEIR MANHOLE
- C.O. CLEANOUT
- L.H. LAMP HOLE
- PUMP STATION

TOTAL MH'S THIS MAP: 649

MAP REV
11-09-06

DATA BASE REV
05-16-88

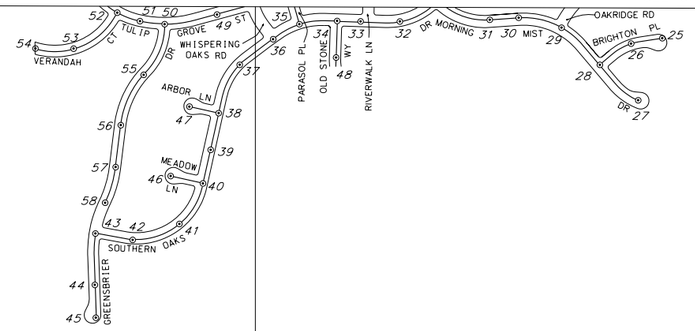
CONSOLIDATED S.M.D.

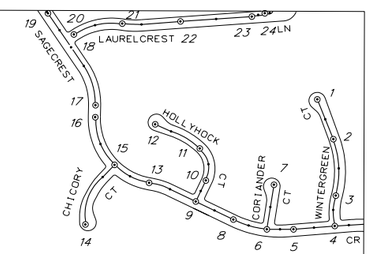
N-1258

T: 4550 C-7

2307.2409.1258

SEE SHT. NO. N-1258





A-25
A-42

SEE SHT. NO. N-1298

THIS MAP IS INTENDED FOR USE ONLY AS OPERATIONS MAP BY LOS ANGELES COUNTY SEWER MAINTENANCE DISTRICTS. LOS ANGELES COUNTY EXPRESSLY DISCLAIMS ANY LIABILITY FOR ANY INACCURACIES WHICH MAY BE PRESENT IN THIS MAP.

LOS *ANGELES* *COUNTY*

AUTOMATED GRAPHICS

METERS
0 50 100 200 250
0 200 400 600 800
FEET

LEGEND

- CLAY SEWERS MAINTAINED BY SMD, 8" UNLESS OTHERWISE NOTED
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- CONCRETE SEWERS
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- CEMENT SEWERS, LINED
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- DROP MANHOLE
- SHALLOW MANHOLE
- TRAP MANHOLE
- WEIR MANHOLE
- C.O. CLEANOUT
- L.H. LAMP HOLE
- PUMP STATION

CITY OF SANTA CLARITA

TOTAL MH'S THIS MAP: 58

1220

E 4,107,000

N 4,241,500

MAP REV
01-18-06

DATA BASE REV
08-01-88

CONSOLIDATED S.M.D.

N-1259

T: 4640 E-3

2307.2309.1259

SEE SHT. NO. N-1296

A-41
A-42
A-47
A-48
X-48

THIS MAP IS INTENDED FOR USE ONLY AS OPERATIONS MAP BY LOS ANGELES COUNTY SEWER MAINTENANCE DISTRICTS. LOS ANGELES COUNTY EXPRESSLY DISCLAIMS ANY LIABILITY FOR ANY INACCURACIES WHICH MAY BE PRESENT IN THIS MAP.

SEE SHT. NO. N-1258

SEE SHT. NO. N-1336

SEE SHT. NO. N-1298

N 4,249,000

E 4,117,000

CITY OF SANTA CLARITA

AUTOMATED GRAPHICS

METERS
0 50 100 200 250
0 200 400 600 800
FEET

LEGEND

- CLAY SEWERS MAINTAINED BY SMD, 8" UNLESS OTHERWISE NOTED
- PLASTIC SEWERS
- CONCRETE SEWERS
- CLAY SEWERS, LINED
- CEMENT SEWERS, LINED
- FORCE MAINS
- SEWERS NOT MAINTAINED BY SMD
- TRUNK SEWERS
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- STANDARD MANHOLE
- DROP MANHOLE
- SHALLOW MANHOLE
- TRAP MANHOLE
- WEIR MANHOLE
- C.O. CLEANOUT
- L.H. LAMP HOLE
- PUMP STATION

TOTAL MH'S THIS MAP: 920

MAP REV
09-12-07

DATA BASE REV
06-02-88

CONSOLIDATED S.M.D.

N-1297

T: 4550 F-7

2311-2411-1297

SEE SHT. NO. N-1297

A-25
A-26
A-41
A-42

THIS MAP IS INTENDED FOR USE ONLY AS OPERATIONS MAP BY LOS ANGELES COUNTY SEWER MAINTENANCE DISTRICTS. LOS ANGELES COUNTY EXPRESSLY DISCLAIMS ANY LIABILITY FOR ANY INACCURACIES WHICH MAY BE PRESENT IN THIS MAP.

SEE SHT. NO. N-1259

SEE SHT. NO. N-1337

CITY OF LOS ANGELES

CITY OF SANTA CLARITA

SANTA CLARITA

COUNTY

T3N R16W

SEC 4

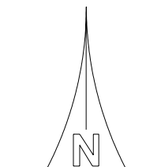
SEC 10

THE OLD GOLDEN STATE FWY

SAGASSO CT
DOGWOOD CT
FOXTAIL CT
SAGECREST
DENISE PL
HAWKBERN
MARKEL DR
WILEY CANYON ELEM
LISA
KELTON PL
KELTON
CHERYL
JENNIFER
KERRY
ROBIN DR
PL
POWELL RD
WABUSKA
CYN
ROUND
SANTA CLARA
FOURL
DE WOLFE
ATWOOD
EVERETT
VERMONT
WHEELER
HIGHSPRING
GREENMILL AV
PARCHMAN AV
LAWNSIDE DR
NEARGATE
AIRVILLE AV
OAKRUN
ST
ARLEN DR
8TH
HEATHER KNOLLS PL
LLOYD HOUGHTON PL
APPLE
HIGHLAND GLEN DR
PEACHLAND
ROSEPARK CT
LAURA
ADRIAN
CARLAND DR
DARBUN DR
FAMBROUGH
FAITH
HARBY DR
CANERWELL DR
ADAMSBORO
JENA
LITTLE OAK LN
DAISETTA DR
CANYON RD
WILEY CANYON
SOUTH FORK
CALGROVE
VALLEY OAK CT
WHITE OAK
HERITAGE OAK CT
LA SALLE CANYON
EBELDEN DR
MAPLE
WINDCREST PL
STILLWATER DR
THISTLE
CREST VIEW
SAGEBRUSH
CLOVERDALE CT
GLENRIDGE
THORNEWOOD
MENTRY
BELLA CT
CARY CT
DARCY LN
CREEKSIDE DR
CLEARBANK LN
BRIARDALE WY
HERITAGE LN
VALLEY
BV
ALAMOS LN
CHAMPAGNE LN
CROSSWINDS PL
COLWYN AV
CROSS
DAVEY AV
WILDWOOD
WILDWOOD DEBRIS BASIN
WILDWOOD RD
OAKRUN LN
ACORN CT
BURR CT
VISTA
TRESURE
DERIAN DR
CEDARTOWN
MARKET
ELLIOTT LN
JANEL AV
TIMON LN
SHADELAND
MIDDLE BANK
LOGDELL AV
PARKVIEW DR
SCCC
AGRAMONTE
HASKELL VISTA
OAKBRIDGE LN
TOWSLEY CANYON RD
OLD RD
FRWY

E 4,117,000
N 4,241,500

1299



METERS
0 50 100 200 250
0 200 400 600 800
FEET

LEGEND

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- CLAY SEWERS, LINED
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- DROP MANHOLE
- SHALLOW MANHOLE
- TRAP MANHOLE
- WEIR MANHOLE
- C.O. CLEANOUT
- L.H. LAMP HOLE
- PUMP STATION

TOTAL MH'S THIS MAP: 416

MAP REV
05-07-07

DATA BASE REV
05-20-93

CONSOLIDATED S.M.D.

N-1298

T: 4640 G-3

2311-2311.1298

N-1297

SEE SHT. NO. N-1257

SEE SHT. NO. N-1296

SEE SHT. NO. N-1319

SEE SHT. NO. N-1336

SEE SHT. NO. N-1337

LOS ANGELES COUNTY

CITY OF SANTA CLARITA

SANTA CLARITA

THIS MAP IS INTENDED FOR USE ONLY AS OPERATIONS MAP BY LOS ANGELES COUNTY SEWER MAINTENANCE DISTRICTS. LOS ANGELES COUNTY EXPRESSLY DISCLAIMS ANY LIABILITY FOR ANY INACCURACIES WHICH MAY BE PRESENT IN THIS MAP.

A-41
A-42
A-43
A-48
X-48

A-26
A-41
A-42

AUTOMATED GRAPHICS

METERS
0 50 100 200 250
0 200 400 600 800
FEET

LEGEND

- VC SEWERS MAINTAINED BY SMD, UNLESS OTHERWISE NOTED
- PLASTIC SEWERS
- CONCRETE SEWERS
- CLAY SEWERS, LINED
- CEMENT SEWERS, LINED
- FORCE MAINS
- SEWERS NOT MAINTAINED BY SMD
- TRUNK SEWERS
- CITY BOUNDARY
- STANDARD MANHOLE
- DROP MANHOLE
- SHALLOW MANHOLE
- TRAP MANHOLE
- WEIR MANHOLE
- C.O. CLEANOUT
- L.H. LAMP HOLE
- PUMP STATION

TOTAL MH'S THIS MAP: 919

TOTAL MH'S THIS MAP: 431

MAP REV
08-16-05
DATA BASE REV
08-01-88

CONSOLIDATED S.M.D.

N-1259

N-1298

Appendix D

Sewer Capacity Calculations

Worksheet for ONSITE 8" PIPE P1

Project Description

Friction Method	Kutter Formula
Solve For	Discharge

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.01000	ft/ft
Normal Depth	0.620	ft
Diameter	0.667	ft

Results

Discharge	1.212	ft^3/s
Flow Area	0.34	ft^2
Wetted Perimeter	1.74	ft
Hydraulic Radius	0.195	ft
Top Width	0.34	ft
Critical Depth	0.521	ft
Percent Full	93.0	%
Critical Slope	0.01259	ft/ft
Velocity	3.58	ft/s
Velocity Head	0.20	ft
Specific Energy	0.82	ft
Froude Number	0.63	
Maximum Discharge	1.21	ft^3/s
Discharge Full	1.11	ft^3/s
Slope Full	0.01194	ft/ft
Flow Type	SubCritical	

GVF Input Data

Downstream Depth	0.000	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.000	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	92.954	%
Downstream Velocity	Infinity	ft/s

Worksheet for ONSITE 8" PIPE P1

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	0.620	ft
Critical Depth	0.521	ft
Channel Slope	0.01000	ft/ft
Critical Slope	0.01259	ft/ft

Worksheet for SEGMENT 1

Project Description

Friction Method	Kutter Formula
Solve For	Discharge

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.01800	ft/ft
Normal Depth	0.775	ft
Diameter	0.833	ft

Results

Discharge	3.012	ft^3/s
Flow Area	0.53	ft^2
Wetted Perimeter	2.17	ft
Hydraulic Radius	0.243	ft
Top Width	0.42	ft
Critical Depth	0.752	ft
Percent Full	93.0	%
Critical Slope	0.01821	ft/ft
Velocity	5.70	ft/s
Velocity Head	0.51	ft
Specific Energy	1.28	ft
Froude Number	0.90	
Maximum Discharge	3.01	ft^3/s
Discharge Full	2.76	ft^3/s
Slope Full	0.02145	ft/ft
Flow Type	SubCritical	

GVF Input Data

Downstream Depth	0.000	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.000	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	93.037	%
Downstream Velocity	Infinity	ft/s

Worksheet for SEGMENT 1

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	0.775	ft
Critical Depth	0.752	ft
Channel Slope	0.01800	ft/ft
Critical Slope	0.01821	ft/ft

Worksheet for SEGMENT 2

Project Description

Friction Method	Kutter Formula
Solve For	Discharge

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.06320	ft/ft
Normal Depth	0.775	ft
Diameter	0.833	ft

Results

Discharge	5.649	ft^3/s
Flow Area	0.53	ft^2
Wetted Perimeter	2.17	ft
Hydraulic Radius	0.243	ft
Top Width	0.42	ft
Critical Depth	0.825	ft
Percent Full	93.0	%
Critical Slope	0.06855	ft/ft
Velocity	10.69	ft/s
Velocity Head	1.78	ft
Specific Energy	2.55	ft
Froude Number	1.69	
Maximum Discharge	5.65	ft^3/s
Discharge Full	5.17	ft^3/s
Slope Full	0.07545	ft/ft
Flow Type	SuperCritical	

GVF Input Data

Downstream Depth	0.000	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.000	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	93.037	%
Downstream Velocity	Infinity	ft/s

Worksheet for SEGMENT 2

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	0.775	ft
Critical Depth	0.825	ft
Channel Slope	0.06320	ft/ft
Critical Slope	0.06855	ft/ft

Worksheet for SEGMENT 3

Project Description

Friction Method	Kutter Formula
Solve For	Discharge

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.01000	ft/ft
Normal Depth	0.775	ft
Diameter	0.833	ft

Results

Discharge	2.243	ft^3/s
Flow Area	0.53	ft^2
Wetted Perimeter	2.17	ft
Hydraulic Radius	0.243	ft
Top Width	0.42	ft
Critical Depth	0.669	ft
Percent Full	93.0	%
Critical Slope	0.01187	ft/ft
Velocity	4.25	ft/s
Velocity Head	0.28	ft
Specific Energy	1.06	ft
Froude Number	0.67	
Maximum Discharge	2.24	ft^3/s
Discharge Full	2.05	ft^3/s
Slope Full	0.01190	ft/ft
Flow Type	SubCritical	

GVF Input Data

Downstream Depth	0.000	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.000	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	93.037	%
Downstream Velocity	Infinity	ft/s

Worksheet for SEGMENT 3

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	0.775	ft
Critical Depth	0.669	ft
Channel Slope	0.01000	ft/ft
Critical Slope	0.01187	ft/ft

Worksheet for SEGMENTS 4-5

Project Description

Friction Method	Kutter Formula
Solve For	Discharge

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.00400	ft/ft
Normal Depth	0.930	ft
Diameter	1.000	ft

Results

Discharge	2.341	ft^3/s
Flow Area	0.76	ft^2
Wetted Perimeter	2.61	ft
Hydraulic Radius	0.292	ft
Top Width	0.51	ft
Critical Depth	0.655	ft
Percent Full	93.0	%
Critical Slope	0.00789	ft/ft
Velocity	3.08	ft/s
Velocity Head	0.15	ft
Specific Energy	1.08	ft
Froude Number	0.44	
Maximum Discharge	2.34	ft^3/s
Discharge Full	2.15	ft^3/s
Slope Full	0.00475	ft/ft
Flow Type	SubCritical	

GVF Input Data

Downstream Depth	0.000	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.000	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	93.000	%
Downstream Velocity	Infinity	ft/s

Worksheet for SEGMENTS 4-5

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	0.930	ft
Critical Depth	0.655	ft
Channel Slope	0.00400	ft/ft
Critical Slope	0.00789	ft/ft

Worksheet for SEGMENTS 6-10

Project Description

Friction Method	Kutter Formula
Solve For	Discharge

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.00400	ft/ft
Normal Depth	1.163	ft
Diameter	1.250	ft

Results

Discharge	4.321	ft^3/s
Flow Area	1.19	ft^2
Wetted Perimeter	3.26	ft
Hydraulic Radius	0.365	ft
Top Width	0.64	ft
Critical Depth	0.842	ft
Percent Full	93.0	%
Critical Slope	0.00729	ft/ft
Velocity	3.63	ft/s
Velocity Head	0.20	ft
Specific Energy	1.37	ft
Froude Number	0.47	
Maximum Discharge	4.32	ft^3/s
Discharge Full	3.97	ft^3/s
Slope Full	0.00473	ft/ft
Flow Type	SubCritical	

GVF Input Data

Downstream Depth	0.000	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.000	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	93.040	%
Downstream Velocity	Infinity	ft/s

Worksheet for SEGMENTS 6-10

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	1.163	ft
Critical Depth	0.842	ft
Channel Slope	0.00400	ft/ft
Critical Slope	0.00729	ft/ft

Worksheet for SEGMENT 11

Project Description

Friction Method	Kutter Formula
Solve For	Discharge

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.02560	ft/ft
Normal Depth	0.930	ft
Diameter	1.000	ft

Results

Discharge	5.946	ft^3/s
Flow Area	0.76	ft^2
Wetted Perimeter	2.61	ft
Hydraulic Radius	0.292	ft
Top Width	0.51	ft
Critical Depth	0.954	ft
Percent Full	93.0	%
Critical Slope	0.02581	ft/ft
Velocity	7.81	ft/s
Velocity Head	0.95	ft
Specific Energy	1.88	ft
Froude Number	1.13	
Maximum Discharge	5.95	ft^3/s
Discharge Full	5.45	ft^3/s
Slope Full	0.03034	ft/ft
Flow Type	SuperCritical	

GVF Input Data

Downstream Depth	0.000	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.000	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	93.000	%
Downstream Velocity	Infinity	ft/s

Worksheet for SEGMENT 11

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	0.930	ft
Critical Depth	0.954	ft
Channel Slope	0.02560	ft/ft
Critical Slope	0.02581	ft/ft

Worksheet for SEGMENTS 12, 14

Project Description

Friction Method	Kutter Formula
Solve For	Discharge

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.00560	ft/ft
Normal Depth	1.163	ft
Diameter	1.250	ft

Results

Discharge	5.118	ft^3/s
Flow Area	1.19	ft^2
Wetted Perimeter	3.26	ft
Hydraulic Radius	0.365	ft
Top Width	0.64	ft
Critical Depth	0.917	ft
Percent Full	93.0	%
Critical Slope	0.00815	ft/ft
Velocity	4.30	ft/s
Velocity Head	0.29	ft
Specific Energy	1.45	ft
Froude Number	0.55	
Maximum Discharge	5.12	ft^3/s
Discharge Full	4.70	ft^3/s
Slope Full	0.00662	ft/ft
Flow Type	SubCritical	

GVF Input Data

Downstream Depth	0.000	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.000	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	93.040	%
Downstream Velocity	Infinity	ft/s

Worksheet for SEGMENTS 12, 14

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	1.163	ft
Critical Depth	0.917	ft
Channel Slope	0.00560	ft/ft
Critical Slope	0.00815	ft/ft

Worksheet for SEGMENT 13

Project Description

Friction Method	Kutter Formula
Solve For	Discharge

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.01240	ft/ft
Normal Depth	1.163	ft
Diameter	1.250	ft

Results

Discharge	7.628	ft^3/s
Flow Area	1.19	ft^2
Wetted Perimeter	3.26	ft
Hydraulic Radius	0.365	ft
Top Width	0.64	ft
Critical Depth	1.096	ft
Percent Full	93.0	%
Critical Slope	0.01289	ft/ft
Velocity	6.41	ft/s
Velocity Head	0.64	ft
Specific Energy	1.80	ft
Froude Number	0.83	
Maximum Discharge	7.63	ft^3/s
Discharge Full	7.01	ft^3/s
Slope Full	0.01466	ft/ft
Flow Type	SubCritical	

GVF Input Data

Downstream Depth	0.000	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.000	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	93.040	%
Downstream Velocity	Infinity	ft/s

Worksheet for SEGMENT 13

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	1.163	ft
Critical Depth	1.096	ft
Channel Slope	0.01240	ft/ft
Critical Slope	0.01289	ft/ft

Worksheet for SEGMENT 15

Project Description

Friction Method	Kutter Formula
Solve For	Discharge

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.00720	ft/ft
Normal Depth	1.163	ft
Diameter	1.250	ft

Results

Discharge	5.807	ft^3/s
Flow Area	1.19	ft^2
Wetted Perimeter	3.26	ft
Hydraulic Radius	0.365	ft
Top Width	0.64	ft
Critical Depth	0.975	ft
Percent Full	93.0	%
Critical Slope	0.00911	ft/ft
Velocity	4.88	ft/s
Velocity Head	0.37	ft
Specific Energy	1.53	ft
Froude Number	0.63	
Maximum Discharge	5.81	ft^3/s
Discharge Full	5.34	ft^3/s
Slope Full	0.00851	ft/ft
Flow Type	SubCritical	

GVF Input Data

Downstream Depth	0.000	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.000	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	93.040	%
Downstream Velocity	Infinity	ft/s

Worksheet for SEGMENT 15

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	1.163	ft
Critical Depth	0.975	ft
Channel Slope	0.00720	ft/ft
Critical Slope	0.00911	ft/ft

Worksheet for SEGMENTS 16, 33, 39-40

Project Description

Friction Method	Kutter Formula
Solve For	Discharge

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.00600	ft/ft
Normal Depth	1.395	ft
Diameter	1.500	ft

Results

Discharge	8.720	ft^3/s
Flow Area	1.71	ft^2
Wetted Perimeter	3.91	ft
Hydraulic Radius	0.438	ft
Top Width	0.77	ft
Critical Depth	1.143	ft
Percent Full	93.0	%
Critical Slope	0.00800	ft/ft
Velocity	5.09	ft/s
Velocity Head	0.40	ft
Specific Energy	1.80	ft
Froude Number	0.60	
Maximum Discharge	8.72	ft^3/s
Discharge Full	8.03	ft^3/s
Slope Full	0.00707	ft/ft
Flow Type	SubCritical	

GVF Input Data

Downstream Depth	0.000	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.000	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	93.000	%
Downstream Velocity	Infinity	ft/s

Worksheet for SEGMENTS 16, 33, 39-40

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	1.395	ft
Critical Depth	1.143	ft
Channel Slope	0.00600	ft/ft
Critical Slope	0.00800	ft/ft

Worksheet for SEGMENTS 17-20

Project Description

Friction Method	Kutter Formula
Solve For	Discharge

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.00600	ft/ft
Normal Depth	1.163	ft
Diameter	1.250	ft

Results

Discharge	5.299	ft^3/s
Flow Area	1.19	ft^2
Wetted Perimeter	3.26	ft
Hydraulic Radius	0.365	ft
Top Width	0.64	ft
Critical Depth	0.933	ft
Percent Full	93.0	%
Critical Slope	0.00838	ft/ft
Velocity	4.45	ft/s
Velocity Head	0.31	ft
Specific Energy	1.47	ft
Froude Number	0.57	
Maximum Discharge	5.30	ft^3/s
Discharge Full	4.87	ft^3/s
Slope Full	0.00710	ft/ft
Flow Type	SubCritical	

GVF Input Data

Downstream Depth	0.000	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.000	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	93.040	%
Downstream Velocity	Infinity	ft/s

Worksheet for SEGMENTS 17-20

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	1.163	ft
Critical Depth	0.933	ft
Channel Slope	0.00600	ft/ft
Critical Slope	0.00838	ft/ft

Worksheet for SEGMENT 21

Project Description

Friction Method	Kutter Formula
Solve For	Discharge

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.02000	ft/ft
Normal Depth	0.930	ft
Diameter	1.000	ft

Results

Discharge	5.255	ft^3/s
Flow Area	0.76	ft^2
Wetted Perimeter	2.61	ft
Hydraulic Radius	0.292	ft
Top Width	0.51	ft
Critical Depth	0.929	ft
Percent Full	93.0	%
Critical Slope	0.02002	ft/ft
Velocity	6.90	ft/s
Velocity Head	0.74	ft
Specific Energy	1.67	ft
Froude Number	1.00	
Maximum Discharge	5.25	ft^3/s
Discharge Full	4.82	ft^3/s
Slope Full	0.02381	ft/ft
Flow Type	SubCritical	

GVF Input Data

Downstream Depth	0.000	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.000	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	93.000	%
Downstream Velocity	Infinity	ft/s

Worksheet for SEGMENT 21

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	0.930	ft
Critical Depth	0.929	ft
Channel Slope	0.02000	ft/ft
Critical Slope	0.02002	ft/ft

Worksheet for SEGMENTS 22-27

Project Description

Friction Method	Kutter Formula
Solve For	Discharge

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.00240	ft/ft
Normal Depth	1.395	ft
Diameter	1.500	ft

Results

Discharge	5.495	ft^3/s
Flow Area	1.71	ft^2
Wetted Perimeter	3.91	ft
Hydraulic Radius	0.438	ft
Top Width	0.77	ft
Critical Depth	0.904	ft
Percent Full	93.0	%
Critical Slope	0.00606	ft/ft
Velocity	3.21	ft/s
Velocity Head	0.16	ft
Specific Energy	1.55	ft
Froude Number	0.38	
Maximum Discharge	5.49	ft^3/s
Discharge Full	5.06	ft^3/s
Slope Full	0.00282	ft/ft
Flow Type	SubCritical	

GVF Input Data

Downstream Depth	0.000	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.000	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	93.000	%
Downstream Velocity	Infinity	ft/s

Worksheet for SEGMENTS 22-27

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	1.395	ft
Critical Depth	0.904	ft
Channel Slope	0.00240	ft/ft
Critical Slope	0.00606	ft/ft

Worksheet for SEGMENT 28

Project Description

Friction Method	Kutter Formula
Solve For	Discharge

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.00760	ft/ft
Normal Depth	1.395	ft
Diameter	1.500	ft

Results

Discharge	9.819	ft^3/s
Flow Area	1.71	ft^2
Wetted Perimeter	3.91	ft
Hydraulic Radius	0.438	ft
Top Width	0.77	ft
Critical Depth	1.209	ft
Percent Full	93.0	%
Critical Slope	0.00902	ft/ft
Velocity	5.73	ft/s
Velocity Head	0.51	ft
Specific Energy	1.91	ft
Froude Number	0.68	
Maximum Discharge	9.82	ft^3/s
Discharge Full	9.04	ft^3/s
Slope Full	0.00896	ft/ft
Flow Type	SubCritical	

GVF Input Data

Downstream Depth	0.000	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.000	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	93.000	%
Downstream Velocity	Infinity	ft/s

Worksheet for SEGMENT 28

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	1.395	ft
Critical Depth	1.209	ft
Channel Slope	0.00760	ft/ft
Critical Slope	0.00902	ft/ft

Worksheet for SEGMENT 29

Project Description

Friction Method	Kutter Formula
Solve For	Discharge

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.00680	ft/ft
Normal Depth	1.395	ft
Diameter	1.500	ft

Results

Discharge	9.286	ft^3/s
Flow Area	1.71	ft^2
Wetted Perimeter	3.91	ft
Hydraulic Radius	0.438	ft
Top Width	0.77	ft
Critical Depth	1.178	ft
Percent Full	93.0	%
Critical Slope	0.00849	ft/ft
Velocity	5.42	ft/s
Velocity Head	0.46	ft
Specific Energy	1.85	ft
Froude Number	0.64	
Maximum Discharge	9.29	ft^3/s
Discharge Full	8.55	ft^3/s
Slope Full	0.00801	ft/ft
Flow Type	SubCritical	

GVF Input Data

Downstream Depth	0.000	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.000	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	93.000	%
Downstream Velocity	Infinity	ft/s

Worksheet for SEGMENT 29

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	1.395	ft
Critical Depth	1.178	ft
Channel Slope	0.00680	ft/ft
Critical Slope	0.00849	ft/ft

Worksheet for SEGMENTS 30, 35-37

Project Description

Friction Method	Kutter Formula
Solve For	Discharge

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.00400	ft/ft
Normal Depth	1.395	ft
Diameter	1.500	ft

Results

Discharge	7.111	ft^3/s
Flow Area	1.71	ft^2
Wetted Perimeter	3.91	ft
Hydraulic Radius	0.438	ft
Top Width	0.77	ft
Critical Depth	1.033	ft
Percent Full	93.0	%
Critical Slope	0.00687	ft/ft
Velocity	4.15	ft/s
Velocity Head	0.27	ft
Specific Energy	1.66	ft
Froude Number	0.49	
Maximum Discharge	7.11	ft^3/s
Discharge Full	6.55	ft^3/s
Slope Full	0.00471	ft/ft
Flow Type	SubCritical	

GVF Input Data

Downstream Depth	0.000	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.000	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	93.000	%
Downstream Velocity	Infinity	ft/s

Worksheet for SEGMENTS 30, 35-37

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	1.395	ft
Critical Depth	1.033	ft
Channel Slope	0.00400	ft/ft
Critical Slope	0.00687	ft/ft

Worksheet for SEGMENTS 31, 34

Project Description

Friction Method	Kutter Formula
Solve For	Discharge

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.00640	ft/ft
Normal Depth	1.395	ft
Diameter	1.500	ft

Results

Discharge	9.007	ft^3/s
Flow Area	1.71	ft^2
Wetted Perimeter	3.91	ft
Hydraulic Radius	0.438	ft
Top Width	0.77	ft
Critical Depth	1.161	ft
Percent Full	93.0	%
Critical Slope	0.00824	ft/ft
Velocity	5.26	ft/s
Velocity Head	0.43	ft
Specific Energy	1.82	ft
Froude Number	0.62	
Maximum Discharge	9.01	ft^3/s
Discharge Full	8.29	ft^3/s
Slope Full	0.00754	ft/ft
Flow Type	SubCritical	

GVF Input Data

Downstream Depth	0.000	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.000	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	93.000	%
Downstream Velocity	Infinity	ft/s

Worksheet for SEGMENTS 31, 34

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	1.395	ft
Critical Depth	1.161	ft
Channel Slope	0.00640	ft/ft
Critical Slope	0.00824	ft/ft

Worksheet for SEGMENT 32

Project Description

Friction Method	Kutter Formula
Solve For	Discharge

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.01040	ft/ft
Normal Depth	1.163	ft
Diameter	1.250	ft

Results

Discharge	6.984	ft^3/s
Flow Area	1.19	ft^2
Wetted Perimeter	3.26	ft
Hydraulic Radius	0.365	ft
Top Width	0.64	ft
Critical Depth	1.059	ft
Percent Full	93.0	%
Critical Slope	0.01132	ft/ft
Velocity	5.87	ft/s
Velocity Head	0.54	ft
Specific Energy	1.70	ft
Froude Number	0.76	
Maximum Discharge	6.98	ft^3/s
Discharge Full	6.42	ft^3/s
Slope Full	0.01231	ft/ft
Flow Type	SubCritical	

GVF Input Data

Downstream Depth	0.000	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.000	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	93.040	%
Downstream Velocity	Infinity	ft/s

Worksheet for SEGMENT 32

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	1.163	ft
Critical Depth	1.059	ft
Channel Slope	0.01040	ft/ft
Critical Slope	0.01132	ft/ft

Worksheet for SEGMENT 38

Project Description

Friction Method	Kutter Formula
Solve For	Discharge

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.01120	ft/ft
Normal Depth	1.395	ft
Diameter	1.500	ft

Results

Discharge	11.927	ft^3/s
Flow Area	1.71	ft^2
Wetted Perimeter	3.91	ft
Hydraulic Radius	0.438	ft
Top Width	0.77	ft
Critical Depth	1.311	ft
Percent Full	93.0	%
Critical Slope	0.01170	ft/ft
Velocity	6.96	ft/s
Velocity Head	0.75	ft
Specific Energy	2.15	ft
Froude Number	0.82	
Maximum Discharge	11.93	ft^3/s
Discharge Full	10.98	ft^3/s
Slope Full	0.01320	ft/ft
Flow Type	SubCritical	

GVF Input Data

Downstream Depth	0.000	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.000	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	93.000	%
Downstream Velocity	Infinity	ft/s

Worksheet for SEGMENT 38

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	1.395	ft
Critical Depth	1.311	ft
Channel Slope	0.01120	ft/ft
Critical Slope	0.01170	ft/ft

Worksheet for SEGMENT 41

Project Description

Friction Method	Kutter Formula
Solve For	Discharge

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.01840	ft/ft
Normal Depth	1.395	ft
Diameter	1.500	ft

Results

Discharge	15.295	ft^3/s
Flow Area	1.71	ft^2
Wetted Perimeter	3.91	ft
Hydraulic Radius	0.438	ft
Top Width	0.77	ft
Critical Depth	1.412	ft
Percent Full	93.0	%
Critical Slope	0.01841	ft/ft
Velocity	8.93	ft/s
Velocity Head	1.24	ft
Specific Energy	2.63	ft
Froude Number	1.05	
Maximum Discharge	15.30	ft^3/s
Discharge Full	14.09	ft^3/s
Slope Full	0.02169	ft/ft
Flow Type	SuperCritical	

GVF Input Data

Downstream Depth	0.000	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.000	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	93.000	%
Downstream Velocity	Infinity	ft/s

Worksheet for SEGMENT 41

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	1.395	ft
Critical Depth	1.412	ft
Channel Slope	0.01840	ft/ft
Critical Slope	0.01841	ft/ft

Worksheet for MH 28 DISCHARGE

Project Description

Friction Method	Kutter Formula
Solve For	Discharge

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.00280	ft/ft
Normal Depth	0.917	ft
Diameter	1.500	ft

Results

Discharge	3.809	ft^3/s
Flow Area	1.13	ft^2
Wetted Perimeter	2.69	ft
Hydraulic Radius	0.420	ft
Top Width	1.46	ft
Critical Depth	0.746	ft
Percent Full	61.1	%
Critical Slope	0.00550	ft/ft
Velocity	3.36	ft/s
Velocity Head	0.18	ft
Specific Energy	1.09	ft
Froude Number	0.67	
Maximum Discharge	5.94	ft^3/s
Discharge Full	5.47	ft^3/s
Slope Full	0.00137	ft/ft
Flow Type	SubCritical	

GVF Input Data

Downstream Depth	0.000	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.000	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	61.133	%
Downstream Velocity	Infinity	ft/s

Worksheet for MH 28 DISCHARGE

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	0.917	ft
Critical Depth	0.746	ft
Channel Slope	0.00280	ft/ft
Critical Slope	0.00550	ft/ft

Worksheet for MH 780 DISCHARGE

Project Description

Friction Method	Kutter Formula
Solve For	Discharge

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.00240	ft/ft
Normal Depth	1.098	ft
Diameter	1.500	ft

Results

Discharge	4.535	ft^3/s
Flow Area	1.39	ft^2
Wetted Perimeter	3.08	ft
Hydraulic Radius	0.450	ft
Top Width	1.33	ft
Critical Depth	0.818	ft
Percent Full	73.2	%
Critical Slope	0.00571	ft/ft
Velocity	3.27	ft/s
Velocity Head	0.17	ft
Specific Energy	1.26	ft
Froude Number	0.56	
Maximum Discharge	5.49	ft^3/s
Discharge Full	5.06	ft^3/s
Slope Full	0.00194	ft/ft
Flow Type	SubCritical	

GVF Input Data

Downstream Depth	0.000	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.000	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	73.200	%
Downstream Velocity	Infinity	ft/s

Worksheet for MH 780 DISCHARGE

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	1.098	ft
Critical Depth	0.818	ft
Channel Slope	0.00240	ft/ft
Critical Slope	0.00571	ft/ft

Worksheet for 18" TRUNK LINE MH DISCHARGE

Project Description

Friction Method	Kutter Formula
Solve For	Discharge

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.00480	ft/ft
Normal Depth	0.088	ft
Diameter	1.500	ft

Results

Discharge	0.038	ft^3/s
Flow Area	0.04	ft^2
Wetted Perimeter	0.73	ft
Hydraulic Radius	0.057	ft
Top Width	0.70	ft
Critical Depth	0.071	ft
Percent Full	5.8	%
Critical Slope	0.01260	ft/ft
Velocity	0.91	ft/s
Velocity Head	0.01	ft
Specific Energy	0.10	ft
Froude Number	0.66	
Maximum Discharge	7.79	ft^3/s
Discharge Full	7.18	ft^3/s
Slope Full	0.00000	ft/ft
Flow Type	SubCritical	

GVF Input Data

Downstream Depth	0.000	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.000	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	5.833	%
Downstream Velocity	Infinity	ft/s

Worksheet for 18" TRUNK LINE MH DISCHARGE

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	0.088	ft
Critical Depth	0.071	ft
Channel Slope	0.00480	ft/ft
Critical Slope	0.01260	ft/ft

Flow Test Results

Site Report 6/16/2020

Confidential Proprietary Information

Alliance

2020.06 Langston MH 28

MH at ~25457 Langston St

Santa Clarita, CA 91355

MH # 28

Access:

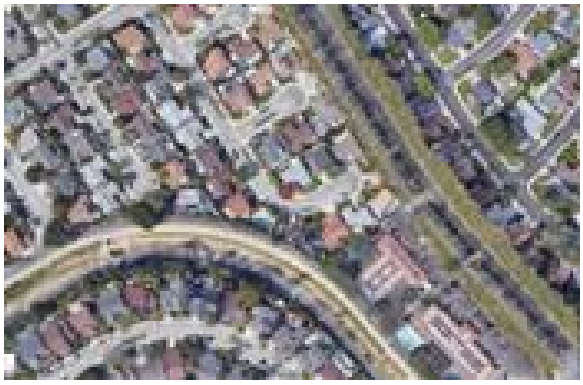
MH in northbound lane, north of address

System Type:

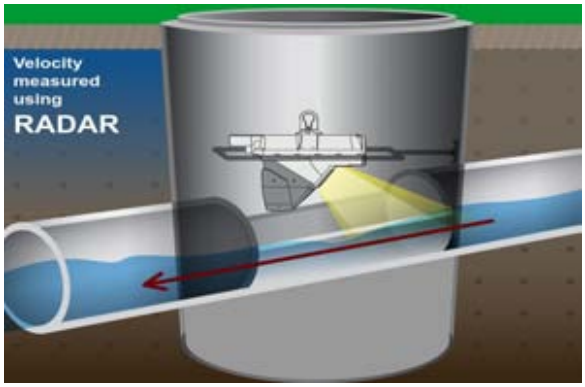
Sanitary [X] Storm [ ]

Install Date: 6/04/2020

Map



Technology



Sewer Plan

Flow Meter			
Meter Depth: 222"			
MH Coordinates: 34.390918, -118.549891			
Moderate open channel hydraulics; difficult to calibrate due to depth of MH			
Avg Velocity	Avg Measured Level		Multiplier
2.0 fps	8.66"		1.0
Gas			
O2	H2S	CO	LEL
20.9	0	0	0
Notes			
No laterals; monitored the upstream line as it generally provides the best hydraulics.			
Traffic Safety			
No formal TCP required; used cones & signs per site-specific CA MUTCD TC requirements.			
Land Use			
Residential	Commercial	Industrial	Trunk
X			

Manhole Depth	247"
Monitored Pipe Size	18"
Inner Pipe Size (In/Out)	18"/18"
Pipe Shape	Round
Pipe Condition	Good
Manhole Material	Concrete
Silt	None observed
Velocity Profile Data	*
Velocity Profile Taken	0.4 2-D
Sensor Offset	24.32"
Sensor Dist. to Crown	6.32"
Sensor Direction	Upstream
Flow Heading	East

Meter Site Document

2020.06 Langston MH 28

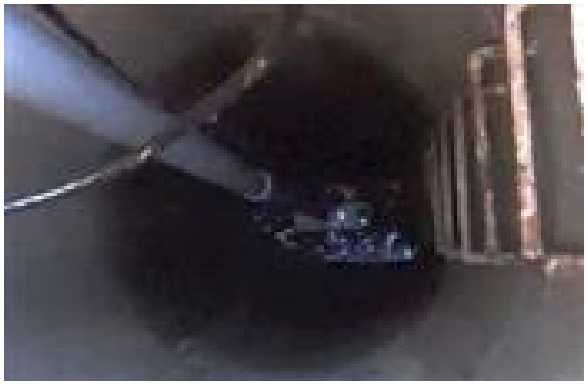
MH at ~25457 Langston St

Santa Clarita, CA 91355

Site

Manhole Before Install

Installation Process



Installed

Upstream

Downstream

Temporary Flow Study

Alliance

2020.06 Langston MH 28

Meter Start Date		From	6/4/2020
Meter Stop Date		To	6/12/2020
Velocity (fps)		Level (in)	Flow (mgd)
Average	1.935	8.732	1.123
Maximum	2.500	11.010	1.827
Minimum	0.940	5.070	0.278
Pipe Size		18.000	
Estimated Capacity (mgd)		Not Calculated	
Capacity Used		Not Calculated	
Sensor Type		Hach - Flodar	

Utility Systems, Science and Software

9314 Bond Av, Suite A
El Cajon, CA 92021

601 N. Parkcenter Dr, Suite 209
Santa Ana, CA 92705

Site Report 6/16/2020

Confidential Proprietary Information

Alliance

2020.06 Orchard Village MH 780

MH at ~25456 Orchard Village Rd

Santa Clarita, CA 91355

MH # 780

Access:

MH on sidewalk next to river trailhead, north of road

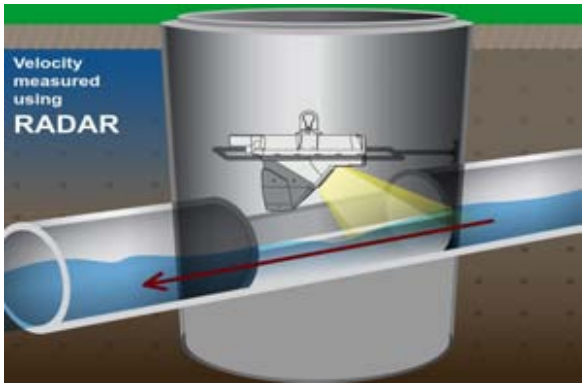
System Type:

Sanitary [X] Storm [ ]

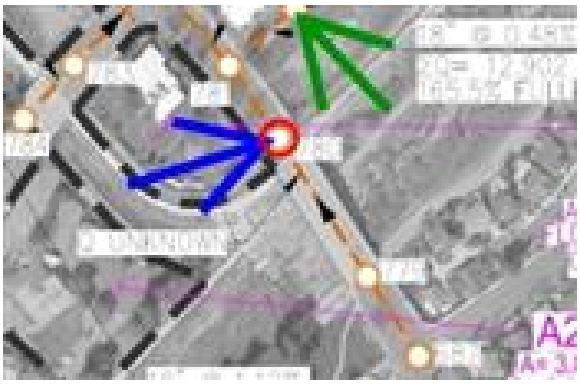
Install Date: 6/04/2020

Map

Technology



Sewer Plan



Flow Meter			
Meter Depth: 280"			
MH Coordinates: 34.389020, -118.546608			
Moderate open channel hydraulics; difficult to calibrate due to depth of MH			
Avg Velocity	Avg Measured Level		Multiplier
1.5 fps	10.75"		1.0
Gas			
O2	H2S	CO	LEL
20.9	0	0	0
Notes			
No laterals; monitored the upstream line as it generally provides the best hydraulics.			
Traffic Safety			
No formal TCP required; used cones & signs to designate work space for pedestrians.			
Land Use			
Residential	Commercial	Industrial	Trunk
X			

Manhole Depth	305"
Monitored Pipe Size	18"
Inner Pipe Size (In/Out)	18"/18"
Pipe Shape	Round
Pipe Condition	Good
Manhole Material	Concrete
Silt	1.5"
Velocity Profile Data	*
Velocity Profile Taken	0.4 2-D
Sensor Offset	25.11"
Sensor Dist. to Crown	7.11"
Sensor Direction	Upstream
Flow Heading	North

Meter Site Document

2020.06 Orchard Village MH 780

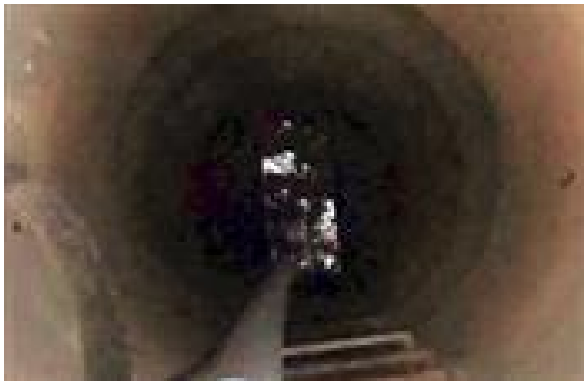
MH at ~25456 Orchard Village Rd

Santa Clarita, CA 91355

Site

Manhole Before Install

Installation Process



Installed

Upstream

Downstream

Temporary Flow Study

Alliance

2020.06 Orchard Village MH 780

Meter Start Date		From	6/4/2020
Meter Stop Date		To	6/12/2020
Velocity (fps)		Level (in)	Flow (mgd)
Average	1.506	10.838	1.050
Maximum	2.230	13.180	1.794
Minimum	0.510	8.410	0.250
Pipe Size		18.000	
Estimated Capacity (mgd)		Not Calculated	
Capacity Used		Not Calculated	
Sensor Type		Hach - Flodar	

Utility Systems, Science and Software

9314 Bond Av, Suite A
El Cajon, CA 92021

601 N. Parkcenter Dr, Suite 209
Santa Ana, CA 92705

Site Report 6/16/2020

Confidential Proprietary Information

Alliance

2020.06 Wiley Canyon MH

MH at ~23520 Wiley Canyon Rd
Santa Clarita, CA 91355
MH # unknown

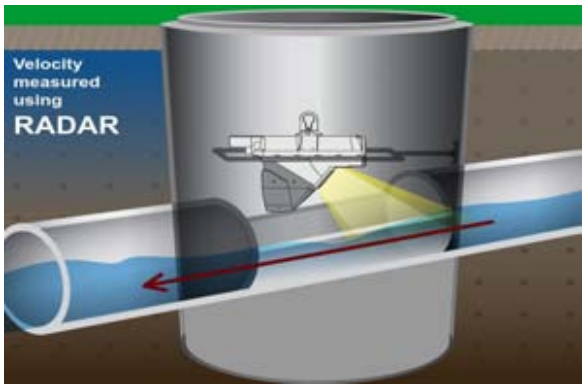
Access:
MH in open space, east of address

System Type:
Sanitary [X] Storm [ ]

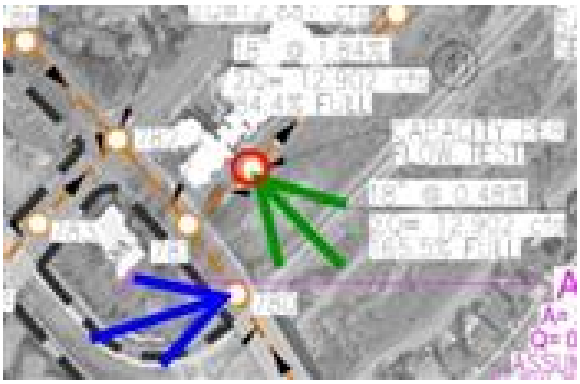
Install Date: 6/04/2020

Map

Technology



Sewer Plan



Flow Meter		
Meter Depth: 192"		
MH Coordinates: 34.389601, -118.546630		
Low to no flow; difficult to calibrate due to depth of MH & flow levels		
Avg Velocity	Avg Measured Level	Multiplier
0.5 fps	0.25"	1.0

Gas			
O2	H2S	CO	LEL
20.9	0	0	0

Notes
No laterals; monitored the upstream line as it generally provides the best hydraulics.

Traffic Safety
MH in open space, no traffic control required.

Land Use			
Residential	Commercial	Industrial	Trunk
X			X

Manhole Depth	226"
Monitored Pipe Size	18"
Inner Pipe Size (In/Out)	18"/18"
Pipe Shape	Round
Pipe Condition	Good
Manhole Material	Concrete
Silt	Intermittent
Velocity Profile Data	*
Velocity Profile Taken	0.4 2-D
Sensor Offset	34.28"
Sensor Dist. to Crown	16.28"
Sensor Direction	Upstream
Flow Heading	East

Meter Site Document

2020.06 Wiley Canyon MH

MH at ~23520 Wiley Canyon Rd

Santa Clarita, CA 91355

Site

Manhole Before Install

Installation Process

Installed

Upstream

Downstream

Temporary Flow Study

Alliance

2020.06 Wiley Canyon MH

Meter Start Date		From	6/4/2020
Meter Stop Date		To	6/12/2020
Velocity (fps)		Level (in)	Flow (mgd)
Average	0.488	0.255	0.004
Maximum	2.980	1.050	0.060
Minimum	0.000	0.000	0.000
Pipe Size		18.000	
Estimated Capacity (mgd)		Not Calculated	
Capacity Used		Not Calculated	
Sensor Type		Hach - Flodar	

Utility Systems, Science and Software

9314 Bond Av, Suite A
El Cajon, CA 92021

601 N. Parkcenter Dr, Suite 209
Santa Ana, CA 92705

Appendix E

APN/Tract Maps

2825 12

SCALE 1" = 400'

7404
7407.3
741010
741011
741015
771027
860626
860812
880321
880427
9007/902006001-.
9312200701000 1-B1
950314
960506
1999012902006001-B1
20051026100030 01-B1

HAWKBRYN AVE.

POR. SW. 1/4, SE. 1/4, SEC. 4 (FRAC.)

WILEY CANYON RD.

CITY

15,640± □'

See Detail "B"

38,040± □'

0.18±Ac

L.A. Co. F.C.D.

GOLDEN STATE

658.90

N. 27°50'10" W.

N. 33°28'07" W. 651.15

F.M. 12401-1

800.21

N. 35°00'35" W.

7 Por. 23.76± Ac.
0.51 " " St. Ease
23.25± Ac.

7.86± Ac.
1.87 " " (Or Ease)
5.99 ± Ac.

4 (Frac.)
9 (Frac.)

Por.

Drainage Ease

WILEY CANYON

W ly In. lot 46, Tr. No. 2703

See detail "A"

slope ease

Varies

50.27

N. 40° 19' 34" W. 164.74

S. 83°57'55" W. 53.85

N. 40°21'45" E. 53.85

N. 27°50'10" W. 20

60

DETAIL "B"
NO SCALE

FRWY.

BK. 2826

219 — 224

224 — 223

DETAIL "A"
NO SCALE

S 1/4 In. Lot 46 Tr. No. 2703

S. 7°15'18" E. 332.97 ft. from the most N'ly Cor. Lot 135, Tr. No. 30340

N. 64°51'53" W., 4.09

N. 27°59'56" W., 32.51

E. line Sec. 9 Lot 1

SW. line Sec 10 Lot 1

N. 3°56'14" E.

W. ln. lot 135, Tr. No. 30340

S. line Lot 1

POR. SE. 1/4, NE. 1/4, SEC. 9

CODE
219
223
224

T. 3N., R. 16W.

FOR PREV. ASSM'T SEE
2825 - 5 & 7

ASSESSOR'S MAP
COUNTY OF LOS ANGELES, CALIF.

LEGAL DESCRIPTION:

PARCEL A:
PARCEL 1:
ALL THAT CERTAIN PARCEL OF LAND ACQUIRED BY THE STATE OF CALIFORNIA BY PARCEL 4 OF DEED 63, RECORDED MARCH 22, 1951 AS INSTRUMENT NO. 3206 IN BOOK 35868 PAGE 28, OF OFFICIAL RECORDS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY AND THAT CERTAIN PARCEL OF LAND ACQUIRED BY THE STATE OF CALIFORNIA BY DEED 31, RECORDED IN BOOK 8172 PAGE 187, OF SAID OFFICIAL RECORDS, BOUNDED NORTHWESTERLY BY THAT CERTAIN COURSE HAVING A BEARING AND DISTANCE OF NORTH 62°16'58" EAST 50.27 FEET IN PARCEL 2 OF STATE HIGHWAY RELINQUISHMENT NUMBER 602, RECORDED IN BOOK R6678 PAGE 858 OF SAID OFFICIAL RECORDS, AND BOUNDED SOUTHWESTERLY BY THE FOLLOWING DESCRIBED LINE:

BEGINNING AT THE SOUTHWESTERLY CORNER OF SAID PARCEL 4; THENCE NORTHWESTERLY IN A DIRECT LINE TO THE SOUTHWESTERLY TERMINUS OF SAID COURSE, HAVING A BEARING OF NORTH 62°16'18" EAST, TOGETHER WITH ALL THE RIGHTS OF ACCESS AS ACQUIRED BY THE STATE OF CALIFORNIA BY SAID PARCEL 4.

EXCEPT THEREFROM ALL OIL, GAS, MINERALS, AND OTHER HYDROCARBON SUBSTANCES LYING BELOW THE SURFACE OF SAID LAND, BUT WITH NO RIGHT OF SURFACE ENTRY AS PROVIDED IN DEEDS OF RECORDS.

ALSO EXCEPT THEREFROM, ALL OIL, MINERALS, NATURAL GAS AND OTHER HYDROCARBONS BY WHATSOEVER NAME KNOWN THAT MAY BE WITHIN OR UNDER THE HEREIN CONVEYED PARCEL OF LAND, AND THE RIGHTS THERETO, TOGETHER WITH CERTAIN OTHER CONDITIONS, AS ACCEPTED AND RESERVED IN SAID DEED 63.

ALL THAT CERTAIN PARCEL OF LAND AS DESCRIBED IN AND CONVEYED BY THAT CERTAIN DIRECTOR'S DEED AS RECORDED ON APRIL 14, 1971 AS INSTRUMENT NO. 1770 OF THE OFFICIAL RECORDS IN THE OFFICE OF THE COUNTY RECORDER OF THE COUNTY OF LOS ANGELES, STATE OF CALIFORNIA.

PARCEL 2:
THAT PORTION OF LOT 7 AND OF THE SOUTHWEST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 4, TOWNSHIP 3 NORTH, RANGE 16 WEST, SAN BERNARDINO BASE AND MERIDIAN, IN THE CITY OF SANTA CLARITA, IN THE COUNTY OF LOS ANGELES, STATE OF CALIFORNIA, ACCORDING TO THE OFFICIAL PLAT MAP THEREOF, DESCRIBED AS FOLLOWS:

BEGINNING AT THE SOUTHEAST CORNER OF SAID SECTION 4; THENCE NORTHERLY ALONG THE EASTERLY LINE OF SAID SECTION TO THE NORTHEAST CORNER OF SAID LOT 7; THENCE WESTERLY ALONG THE NORTHERLY LINE OF SAID LOT 7 TO THE EASTERLY LINE OF THE WESTERLY 380 FEET OF SAID LOT 7; THENCE SOUTHERLY ALONG SAID LAST MENTIONED EASTERLY LINE TO THE SOUTHERLY LINE OF THE NORTHERLY 270 FEET OF SAID LOT 7; THENCE WESTERLY ALONG SAID SOUTHERLY LINE AND ITS WESTERLY PROLONGATION TO THE NORTHEASTERLY LINE OF THE LAND DESCRIBED IN THE DEED TO THE STATE OF CALIFORNIA, RECORDED ON JUNE 28, 1929 AS INSTRUMENT NO. 1085, IN BOOK 8172 PAGE 187, OFFICIAL RECORDS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY; THENCE SOUTHEASTERLY ALONG SAID NORTHEASTERLY LINE, TO AND ALONG THE NORTHEASTERLY LINE TO THE LAND DESCRIBED IN PARCEL 2-A (AMENDED) OF THE FINAL ORDER OF CONDEMNATION ENTERED IN CASE NO. 860012, SUPERIOR COURT OF THE STATE OF CALIFORNIA FOR THE COUNTY OF LOS ANGELES, A CERTIFIED COPY OF WHICH BEING RECORDED ON MAY 13, 1966 AS INSTRUMENT NO. 3063 IN BOOK D3304 PAGE 451, OFFICIAL RECORDS, OF SAID COUNTY TO THE SOUTHERLY LINE OF SAID SECTION; THENCE EASTERLY ALONG SAID SOUTHERLY LINE TO THE POINT OF BEGINNING.

EXCEPT THEREFROM THAT PORTION OF SAID LAND DESCRIBED AS PARCEL NO. 117A IN THE FINAL ORDER OF CONDEMNATION, ENTERED IN CASE NO. C 546819, SUPERIOR COURT OF LOS ANGELES, RECORDED MAY 22, 1990 AS INSTRUMENT NO. 90-925383, OCTOBER 1, 1990 AS INSTRUMENT NO. 90-1674164, AND FEBRUARY 4, 1991 AS INSTRUMENT NO. 91-166097, ALL OF OFFICIAL RECORDS.

ALSO EXCEPT THEREFROM THAT PORTION OF SAID LAND DESCRIBED IN EXHIBIT "A" AND DEPICTED IN EXHIBIT "B" IN THE DEED TO THE CITY OF SANTA CLARITA, RECORDED SEPTEMBER 28, 1998 AS INSTRUMENT NO. 98-1754090, OFFICIAL RECORDS.

PARCEL 3:
THAT PORTION OF LOT 7 AND OF THE SOUTHWEST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 4, TOWNSHIP 3 NORTH, RANGE 16 WEST, SAN BERNARDINO BASE AND MERIDIAN, IN THE CITY OF SANTA CLARITA, COUNTY OF LOS ANGELES, STATE OF CALIFORNIA, ACCORDING TO THE OFFICIAL PLAT MAP THEREOF, DESCRIBED AS FOLLOWS:

BEGINNING AT THE INTERSECTION OF THE NORTHERLY LINE OF SAID LOT 7 WITH THE EASTERLY LINE OF THE WESTERLY 380 FEET OF SAID LOT 7; THENCE SOUTHERLY ALONG SAID EASTERLY LINE TO THE SOUTHERLY LINE OF THE NORTHERLY 270 FEET OF LOT 7; THENCE WESTERLY ALONG SAID SOUTHERLY LINE AND ITS WESTERLY PROLONGATION TO THE NORTHEASTERLY LINE OF THE LAND DESCRIBED IN THE DEED TO THE STATE OF CALIFORNIA, RECORDED ON JUNE 28, 1929 AS INSTRUMENT NO. 1085, IN BOOK 8172 PAGE 187, OFFICIAL RECORDS, IN SAID OFFICE OF THE COUNTY RECORDER; THENCE NORTHWESTERLY ALONG SAID NORTHEASTERLY LINE TO THE NORTHERLY LINE OF SAID SOUTHWEST QUARTER THENCE EASTERLY ALONG SAID NORTHERLY LINE AND SAID NORTHERLY LINE OF LOT 7 TO THE POINT OF BEGINNING.

EXCEPT THAT PORTION WITHIN THE LINES OF THE LAND DESCRIBED IN PARCEL 4 OF THE DEED TO THE STATE OF CALIFORNIA, RECORDED MARCH 22, 1951 AS INSTRUMENT NO. 3206, IN BOOK 35868 PAGE 28, OF SAID OFFICIAL RECORDS.

PARCEL B:
PARCEL 1:
THAT PORTION OF THE NORTHEAST QUARTER OF FRACTIONAL SECTION 9, TOWNSHIP 3 NORTH, RANGE 16 WEST, SAN BERNARDINO MERIDIAN, IN THE CITY OF SANTA CLARITA, IN THE COUNTY OF LOS ANGELES, STATE OF CALIFORNIA, ACCORDING TO THE OFFICIAL PLAT OF SAID LAND FILED IN THE DISTRICT LAND OFFICE ON JUNE 29, 1897, DESCRIBED AS FOLLOWS:

BEGINNING AT THE SOUTHEAST CORNER OF THE NORTHEAST QUARTER OF SAID SECTION 9; THENCE ALONG THE EAST LINE OF SAID QUARTER SECTION, NORTH 0° 12' EAST 1508.90 FEET TO THE TRUE POINT OF BEGINNING; THENCE SOUTH 4° 25' WEST 200.90 FEET; THENCE SOUTH 12° 35' WEST 356.04 FEET; THENCE SOUTH 32° 25' WEST TO THE EASTERLY TERMINUS OF THAT CERTAIN COURSE DESCRIBED IN THE DEED TO THE STATE OF CALIFORNIA, RECORDED APRIL 6, 1951 AS INSTRUMENT NO. 3492, IN BOOK 35992 PAGE 102, OFFICIAL RECORDS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, AS HAVING A BEARING AND LENGTH OF "NORTH 75° 26' 10" EAST 251.75 FEET"; THENCE WESTERLY ALONG SAID CERTAIN COURSE TO THE WESTERLY LINE OF WILEY CANYON ROAD, 40 FEET WIDE, AS SHOWN ON COUNTY SURVEYOR'S MAP NO. 6664 ON FILE IN THE OFFICE OF THE COUNTY ENGINEER OF SAID COUNTY, SAID WESTERLY LINE BEING ALSO THE EASTERLY LINE OF THE LAND DESCRIBED IN PARCEL 1 OF THE DEED TO THE STATE OF CALIFORNIA, RECORDED ON JUNE 21, 1965 AS INSTRUMENT NO. 940, IN BOOK D-2947 PAGE 229, OFFICIAL RECORDS OF SAID COUNTY; THENCE NORTHERLY AND NORTHWESTERLY ALONG THE EASTERLY AND NORTHEASTERLY LINES OF SAID PARCEL 1 TO THE NORTHERLY LINE OF SAID SECTION; THENCE EASTERLY AND SOUTHERLY ALONG THE NORTHERLY AND EASTERLY LINES OF SAID SECTION TO THE POINT OF BEGINNING.

EXCEPT ANY PORTION LYING EASTERLY OF THE WESTERLY LINE OF WILEY CANYON ROAD, 40 FEET WIDE, AS DESCRIBED IN BOOK 761 PAGE 303 OF DEEDS.

PARCEL 2:
THAT PORTION OF WILEY CANYON ROAD, 40 FEET WIDE, IN THE COUNTY OF LOS ANGELES, STATE OF CALIFORNIA, AS SHOWN ON MAP OF TRACT NO. 30340, FILED IN BOOK 741 PAGES 62 TO 68 INCLUSIVE OF MAPS, IN THE OFFICE OF THE RECORDER OF SAID COUNTY, WHICH EXTENDS FROM THE NORTHERLY PROLONGATION OF THAT CERTAIN COURSE OF NORTH 18° 50' 39" WEST 260.94 FEET IN THE WESTERLY BOUNDARY OF LOT 135 OF SAID TRACT, NORTHERLY TO THE NORTHWESTERLY CONTINUATION OF THAT CERTAIN 1240 FOOT RADIUS CURVE IN THE NORTHEASTERLY BOUNDARY OF SAID LOT.

APN: 2825-012-007 (Affects: Parcel 1 of Parcel A)
2825-012-011 (Affects: Parcels 2 and 3 of Parcel A)
and 2825-012-010 (Affects: Parcel B)

EASEMENTS

8. Rights of the public in and to that portion of the land lying within any road, street and/or highway.

9. Water rights, claims or title to water, whether or not shown by the public records.
(Affects Parcel 1 of Parcel A and Parcel B)

10. Any facts, rights, interests or claims which would be disclosed by a correct ALTA/NSPS survey.

11. Rights of parties in possession.

THE FOLLOWING MATTERS AFFECT PARCEL A:

12. An oil and gas lease executed by Walter E. Berman and Dorothy Berman, husband and wife, as to an undivided one-half (1/2) interest; and Charles M. Monell, an unmarried man, as to an undivided one-half (1/2) interest as lessor and W. O. Anderson and J. I. Anderson as lessee, recorded as Book M3146 Page 316 of Official Records. Defects, liens, encumbrances or other matters affecting the leasehold estate, whether or not shown by the public records are not shown herein.

13. An easement for road purposes over a strip of land 40 feet wide, includes in Wiley Canyon Road, as shown on County Surveyor's Map No. 6664 on file in the Office of the county surveyor of said County of Los Angeles. (13)

14. An easement for public utility and incidental purposes, recorded May 13, 1966 as Instrument No. 3063 in Book D3304 Page 451 of Official Records. (14)
In Favor of: State of California
Affects: as described therein

15. A waiver of any claims for damages by reason of the location, construction, landscaping or maintenance of a contiguous freeway, highway or roadway, as contained in the document recorded as Book D3304 Page 451 of Official Records.

16. Abutter's rights of ingress and egress to or from freeway have been relinquished in the document recorded April 14, 1971 as Instrument No. 1770 of Official Records.
(Affects Parcel 1)

17. An easement for public utilities and incidental purposes, recorded March 20, 1975 as Instrument No. 2388 of Official Records. (17)
In Favor of: Southern California Edison Company, a Corporation
Affects: as described therein

18. An easement for underground cables, wires, wave guides and conduits together with all necessary related underground surface and above ground pedestals and incidental purposes, recorded April 10, 1975 as Instrument No. 1597 of Official Records. (18)
In Favor of: The Pacific Telephone and Telegraph Company, a Corporation
Affects: as described therein

19. An easement for slope and incidental purposes, recorded September 28, 1998 as Instrument No. 98-1754090 of Official Records. (19)
In Favor of: The City of Santa Clarita
Affects: as described therein

20. A notice of power to sell tax defaulted property dated June 30, 2012 executed by the county tax collector for non-payment of delinquent taxes recorded August 19, 2015 as Instrument No. 2015-1018841 of Official Records.
(Affects Parcel 1)

21. A notice of power to sell tax defaulted property dated June 30, 2012 executed by the county tax collector for non-payment of delinquent taxes recorded August 19, 2015 as Instrument No. 2015-1018843 of Official Records.
(Affects Parcels 2 and 3)

THE FOLLOWING MATTERS AFFECT PARCEL B:

22. An easement for pole lines and incidental purposes in the document recorded in Book 2646 of Deeds, Page 261. The location of the easement cannot be determined from record information. (22)

23. An easement for pipe line for the transportation of water and incidental purposes, recorded in Book 4130 of Deeds, Page 27.
In Favor of: Standard Oil Company, a Corporation SAID EASEMENT IS BLANKET IN NATURE
Affects: as described therein
The location of the easement cannot be determined from record information.

24. An easement for pipe lines for the transportation of oil, petroleum, gas or water and for telegraph and telephone lines and incidental purposes, recorded in Book 6741 of Deeds, Page 15.
In Favor of: Standard Oil Company, a Corporation SAID EASEMENT IS INDETERMINATE IN NATURE
Affects: as described therein
The location of the easement cannot be determined from record information.

25. Easements and rights of way over the lands herein described which may be necessary for the lessee in the lease recorded October 16, 1951 in Book 37430 Page 234, Official Records, in its operation upon the lands retained by it under the provisions of said lease.
The location of the easement cannot be determined from record information.

26. An easement for drainage, pipe, communication and power lines and temporary construction purposes and incidental purposes, recorded June 21, 1965 as Instrument No. 940, In Book D2947 Page 229 of Official Records. (26)
In Favor of: State Of California
Affects: as described therein
The terms and provisions contained in the document entitled "Director's Deed" recorded June 17, 1969 as Instrument No. 2524 of Official Records.

27. Abutter's rights of ingress and egress to or from Golden State Freeway have been relinquished in the document recorded June 21, 1965 as Instrument No. 940 of Official Records.

28. A waiver of any claims for damages by reason of the location, construction, landscaping or maintenance of a contiguous freeway, highway or roadway, as contained in the document recorded June 21, 1965 as Instrument No. 940 of Official Records.

29. An easement for public utilities and incidental purposes, recorded October 17, 1973 as Instrument No. 2858 of Official Records. (29)
In Favor of: The Pacific Telephone and Telegraph Company
Affects: as described therein

30. Any private easements or lesser rights in, to, over Wiley Canyon Road that were not affected by the proceedings vacating said road, as the same was vacated by instrument recorded May 24, 1974 as Instrument No. 4414, Official Records. (30)

31. An easement for public utilities and incidental purposes, recorded May 05, 1982 as Instrument No. 82-462869 of Official Records.
In Favor of: The Pacific Telephone and Telegraph Company
Affects: as described therein SAID EASEMENT IS INDETERMINATE IN NATURE
The location of the easement cannot be determined from record information.

32. An easement for public utilities and incidental purposes, recorded May 18, 1982 as Instrument No. 82-506871 of Official Records.
In Favor of: The Pacific Telephone and Telegraph Company
Affects: as described therein SAID EASEMENT IS INDETERMINATE IN NATURE
The location of the easement cannot be determined from record information.

33. An easement for public utilities and incidental purposes, recorded July 22, 1985 as Instrument No. 85-839958 of Official Records. (33)
In Favor of: Pacific Bell
Affects: as described therein
The location of the easement cannot be determined from record information.

34. Survey prepared by SR Consultants West, Inc., dated December 21, 2004, revised January 14, 2005 and revised March 10, 2005, under Job No. 946 H, shows the following:
A. The facts that power poles and signs are located on said land.
B. The fact that parking spaces are located along the southeasterly portion of said land.

35. A notice of power to sell tax defaulted property dated June 30, 2012 executed by the county tax collector for non-payment of delinquent taxes recorded August 19, 2015 as Instrument No. 2015-1018842 of Official Records.

36. An easement shown or dedicated on the map of Assessor's Map recorded on file in Book 2825, Page 012, of Assessor's Maps. (36)
For: Drainage and incidental purposes

SURVEYOR'S CERTIFICATE:

TO: WILEY CYN LLC AND FIRST AMERICAN TITLE INSURANCE COMPANY:

THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2016 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/NSPS LAND TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND INCLUDES ITEMS 2, 3, 4, 6, 8 AND 14 OF TABLE A THEREOF. THE FIELDWORK WAS COMPLETED ON MAY 18, 2018.

LICENSED LAND SURVEYOR
MICHAEL A. KENNADA
L.S.5642
STATE OF CALIFORNIA

DATE OF MAP : 05/28/18

MICHAEL A. KENNADA LS 5642

BASIS OF BEARINGS:

THE BEARINGS SHOWN HEREON ARE BASED ON THE BEARING NORTH 10°55'20" WEST OF THE WESTERLY LINE OF THE RANCHO SAN FRANCISCO AS SHOWN ON RECORD OF SURVEY FILED IN BOOK 258 PAGES 31 THROUGH 38, INCLUSIVE, OF RECORD OF SURVEY, IN THE OFFICE OF THE COUNTY RECORDER OF LOS ANGELES COUNTY, AND SHOWN AS NORTH 10°55'18" WEST ON THIS MAP.

NOTES

FLOOD ZONE DESIGNATION:
BASED ON THE FEDERAL EMERGENCY AGENCY (FEMA) FLOOD INSURANCE RATE MAP COMMUNITY PANEL NOS. 06037C1031F DATED SEPTEMBER 26, 2008, THE SUBJECT SITE IS IN ZONE "A" AND "AO (DEPTH 3')".

ZONE "A" DEFINED AS "NO BASE FLOOD ELEVATIONS DETERMINED".
ZONE "AO" DEFINED AS "FLOOD DEPTHS OF 1 TO 3 FEET (USUALLY SHEET FLOW ON SLOPING TERRAIN); AVERAGE DEPTHS DETERMINED. FOR AREAS OF ALLUVIAL FAN FLOODING, VELOCITIES ALSO DETERMINED".

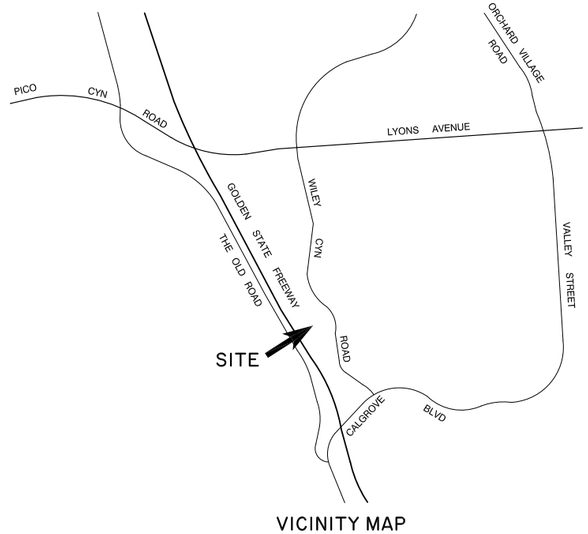
GROSS AREA OF LAND: 31.786 ACRES

EXISTING ZONING: MX-N

ADDRESS OF SURVEYED PROPERTY:
24924 HAWKBRYN AVENUE
SANTA CLARITA, CA 91350

EASEMENTS

EASEMENTS ARE BASED ON FIRST AMERICAN TITLE INSURANCE COMPANY REPORT ORDER NO. NCS-883272-LA3 DATED MARCH 9, 2018, UPDATED MARCH 20, 2018.



VICINITY MAP

PREPARED FOR:
WILEY CYN LLC
13120 TELFAIR AVENUE
SYLMAR, CA 91342

NO.	REVISION	DATE	CHK'D BY

Vertex Survey, Inc.
28348 Constellation Road, Suite 800
Santa Clarita, CA 91355
Tel: 661-254-1928
Fax: 661-254-1929

VERTEX SURVEY INC.

ALTA/NSPS LAND TITLE SURVEY
FOR
SMISER PROPERTY

W.O.: _____ SCALE: _____ DATE: 05/28/2018 SHEET 1 OF 4 SHEETS

98-1754090 BOUNDARY OF LAND OF THE CITY OF SANTA CLARITA AS DESCRIBED IN DEED RECORDED SEPTEMBER 28, 1998 AS INSTRUMENT NO. 98-1754090, OR ESTAB. AT RECORD ANGLES AND DISTANCES PER SAID DEED

91-166097 BOUNDARY OF LAND OF THE LOS ANGELES COUNTY FLOOD CONTROL DISTRICT AS DESCRIBED IN DEED RECORDED FEBRUARY 4, 1991 AS INSTRUMENT NO. 91-166097, OR ESTAB. AT RECORD ANGLES AND DISTANCES PER SAID DEED

90-925383 BOUNDARY OF LAND OF THE LOS ANGELES COUNTY FLOOD CONTROL DISTRICT AS DESCRIBED IN DEED RECORDED MAY 22, 1990 AS INSTRUMENT NO. 90-925383, AND RECORDED OCTOBER 1, 1990 AS INSTRUMENT NO. 90-1674164, OR ESTAB. AT RECORD ANGLES AND DISTANCES PER SAID DEED

D3304/451 BOUNDARY OF LAND OF THE STATE OF CALIFORNIA AS DESCRIBED IN DEED RECORDED MAY 13, 1966 AS INSTRUMENT NO. 3063 IN BOOK D3304 PAGE 451, OR. PARCEL 2A (AMENDED). ESTAB. AT RECORD ANGLES AND DISTANCES PER RS 281-1-13

8172/187 BOUNDARY OF LAND OF THE STATE OF CALIFORNIA AS DESCRIBED IN DEED RECORDED JUNE 28, 1929 AS INSTRUMENT NO. 1085 IN BOOK 8172 PAGE 187, OR. ESTAB. AT RECORD ANGLES AND DISTANCES PER RS 281-1-13

D2947/229 BOUNDARY OF LAND OF THE STATE OF CALIFORNIA AS DESCRIBED IN DEED RECORDED JUNE 21, 1965 AS INSTRUMENT NO. 940 IN BOOK D2947 PAGE 229, OR. ESTAB. AT RECORD ANGLES AND DISTANCES PER RS 281-1-13

INST4414 BOUNDARY OF LAND OF DESCRIBED IN DEED RECORDED MAY 24, 1974 AS INSTRUMENT NO. 4414, OR. ESTAB. AT RECORD ANGLES AND DISTANCES PER SAID DEED

SOUTH ¼ CORNER SECTION 4
FD. COUNTY SURVEYOR BRASS CAP
MONUMENT "RE 7078" PER CSB 5390

FD. 1 ½" IP, EMPTY
N89°22'13"W 2.01'
HELD FOR LINE EAST-WEST

PARCEL A:
PARCEL 1

PARCEL A:
PARCEL 3

PARCEL A:
PARCEL 2

PARCEL B:
PARCEL 1

PARCEL B:
PARCEL 2

GOLDEN STATE FREEWAY

WILEY CANYON ROAD

EAST LINE OF THE WEST 380' OF LOT 7 SE¼ FRACTIONAL SECTION 4

NORTH LINE LOT 7 SE¼ FRACTIONAL SECTION 4

WESTERLY LINE OF THE RANCHO SAN FRANCISCO

EASTERLY LINE SECTION 4

SOUTHWESTERLY LINE OF THE RANCHO SAN FRANCISCO

FD. ¾" IP "LS 5930"
PER RS 204-20-21

FD. LT & TAG "LS 5930"
PER RS 204-20-21

STA. NO. 3
RANCHO SAN FRANCISCO
FD. SPIKE AND WASHER "LS 5930"
PER RS 204-20-21

SOUTHEAST CORNER SECTION 4
FD. COUNTY SURVEYOR BRASS CAP
MONUMENT "RE 7078" PER CSB 5390
POB
PARCEL A:
PARCEL 2

POB PARCEL A: PARCEL 3

(A) SAN FRANCISCO NO. 4
FD. SPIKE AND WASHER "LS 5930"
PER RS 204-20-21
S03°43'59"E 0.57'
ESTAB.AT RECORD ANGLE AND
DISTANCE PER RS 258-31-38

(B) FD. SPIKE AND WASHER "LS 5930"
PER RS 204-20-21
S01°40'02"E 0.57'

(C) FD. SPIKE AND WASHER "LS 5930"
PER RS 204-20-21.
S48°52'14"W 0.61'

(D) OLD WILEY CANYON ROAD PER CS 6664.
ESTAB. AT RECORD ANGLE AND DISTANCE
PER RS 258-31-38

(E) FD. LT & TAG "LS 5930" PER RS 204-20-21.
S01°51'41"E 0.44'

(F) FD. ¾" IP , NO TAG IN LIEU OF
"LS 5930" PER RS 204-20-21.
S17°56'19"W 0.48'.
ESTAB. BY INTERSECTION

(G) NORTHERLY PROLONGATION OF THE WESTERLY LINE OF LOT
135 OF TRACT NO. 30340 MB 741-62-68.
ESTAB. AT RECORD ANGLE AND DISTANCE PER SAID TRACT.

(H) FD. ¾" IP "LS 5930"
PER RS 204-20-21.
N06°24'09"E 3.56'
ESTAB. BY INTERSECTION

(I) FD. ¾" IP "LS 5930"
PER RS 204-20-21.
S47°06'20"E 2.83'

(J) FD. ¾" IP "LS 5930"
PER RS 204-20-21.
S45°16'11"E 2.76'

(K) FD. ¾" IP "LS 5930"
PER RS 204-20-21.
S45°44'01"E 2.81'

(L) FD. ¾" IP "LS 5930"
PER RS 204-20-21.
S45°42'57"E 2.82'

REFERENCES
RI RS 204-20-21

0' 50' 100' 200' 300' 400'
SCALE: 1" = 100'

PREPARED FOR:
WILEY CYN LLC
13120 TELFAIR AVENUE
SYLMAR, CA 91342

NO.	REVISION	DATE	CHK'D BY

Vertex Survey, Inc.
28348 Constellation Road, Suite 800
Santa Clarita, CA 91355
Tel: 661-254-1928
Fax: 661-254-1929

VERTEX SURVEY INC.

ALTA/NSPS LAND TITLE SURVEY
FOR
SMISER PROPERTY

W.O.: _____ SCALE: 1" = 100' DATE: 05/28/2018 SHEET 2 OF 4 SHEETS

HAWKBRYN AVENUE

WILEY CANYON ROAD

GOLDEN STATE FREEWAY

WILEY CANYON ROAD

TRAILER

TRAILER

TRAILER

TANK

BUILDING

BUILDING

BUILDING

SHEDS

TRAILER

WALL

WALL

WALL

BARRIER

CURB

CURB

SLOPE

TEMPORARY CONSTRUCTION

ROAD

PP NO.

PP#1693556E

GW 2.9' IN

14' HIGH RETAINING WALL

WALL 0.5' IN

BELL

PP#1693556E

BM 3.1' IN

BEGIN WALL 3.4' IN

BEGIN FENCE 1.9' IN

POL 1.3' IN

6' HIGH CHAIN LINK FENCE

POL 1.1' IN

PP#1693555E

POL 1.2' IN

POL 1.2' IN

PP#1693554E

POL 0.9' IN

CONCRETE CHANNEL

GP 0.7' IN

BM 2.4' IN

GW 2.2' IN

BELL

POL 1.1' IN

GW 2.1' OUT

POL 1.8' IN

6' HIGH CHAIN LINK FENCE

GW 2.4' IN

GW 2.9' IN

GP 2.1' IN

LEGEND

BELL	BELL SYSTEM MANHOLE
BM	PAC BELL UNDERGROUND MARKER RISER
CH	CONCRETE CHANNEL
GP	GUY POLE
GW	GUY WIRE
POL	POINT ON CHAIN LINK FENCE
PP	POWER POLE
TP	TELEPHONE COMPANY PEDESTAL

0' 30' 60' 120' 180' 240'

SCALE: 1" = 60'

PREPARED FOR:

WILEY CYN LLC
13120 TELFAIR AVENUE
SYLMAR, CA 91342

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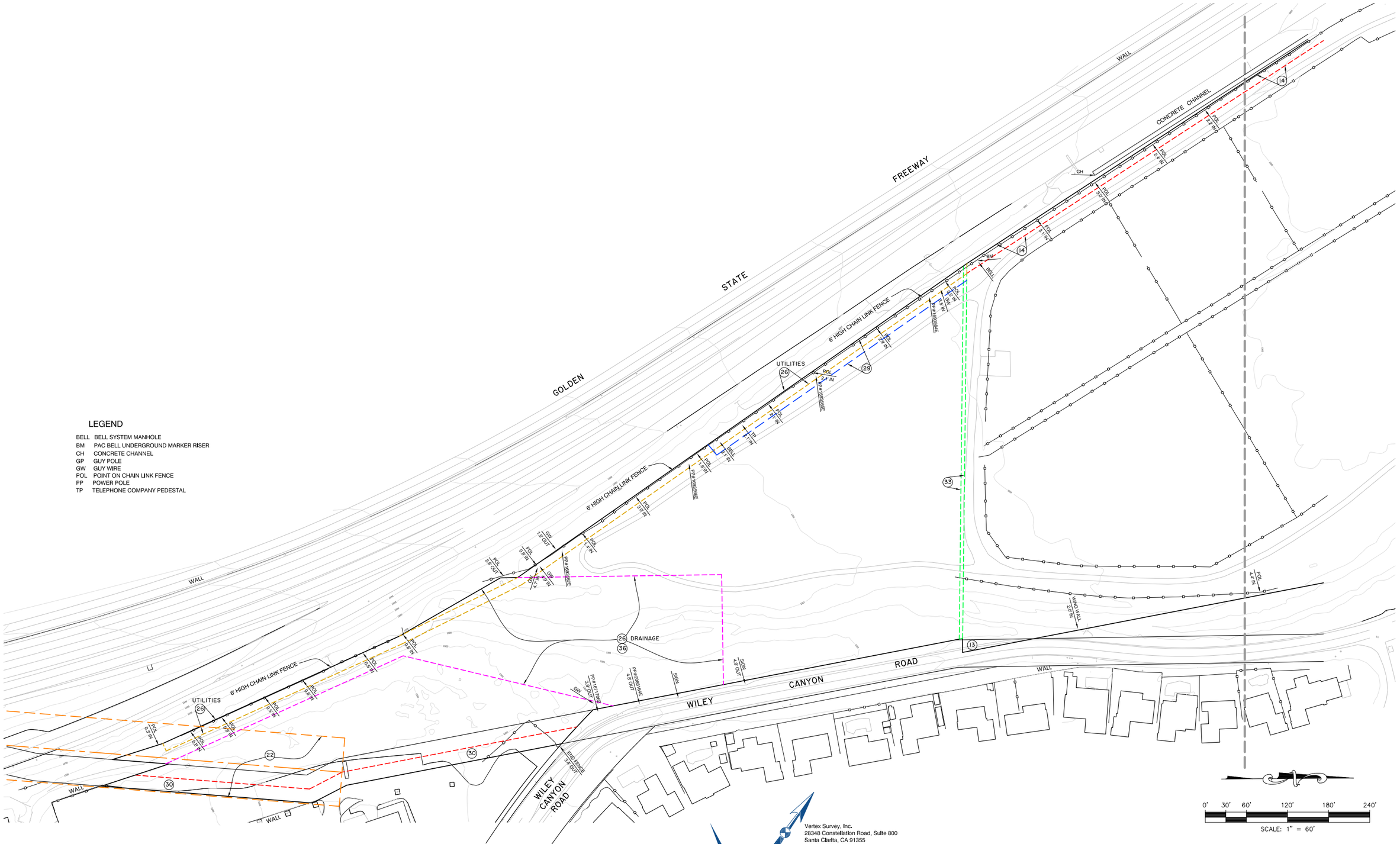
VERTEX SURVEY INC.

ALTA/NSPS LAND TITLE SURVEY
FOR
SMISER PROPERTY

W.O.: _____ | SCALE: 1" = 60' | DATE: 05/28/2018 | SHEET 3 OF 4 SHEETS

LEGEND

BELL BELL SYSTEM MANHOLE
BM PAC BELL UNDERGROUND MARKER RISER
CH CONCRETE CHANNEL
GP GUY POLE
GW GUY WIRE
POL POINT ON CHAIN LINK FENCE
PP POWER POLE
TP TELEPHONE COMPANY PEDESTAL



PREPARED FOR:

WILEY CYN LLC
13120 TELFAIR AVENUE
SYLMAR, CA 91342

NO.	REVISION	DATE	CHK'D BY

Vertex Survey, Inc.
28348 Constellation Road, Suite 800
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Tel: 661-254-1928
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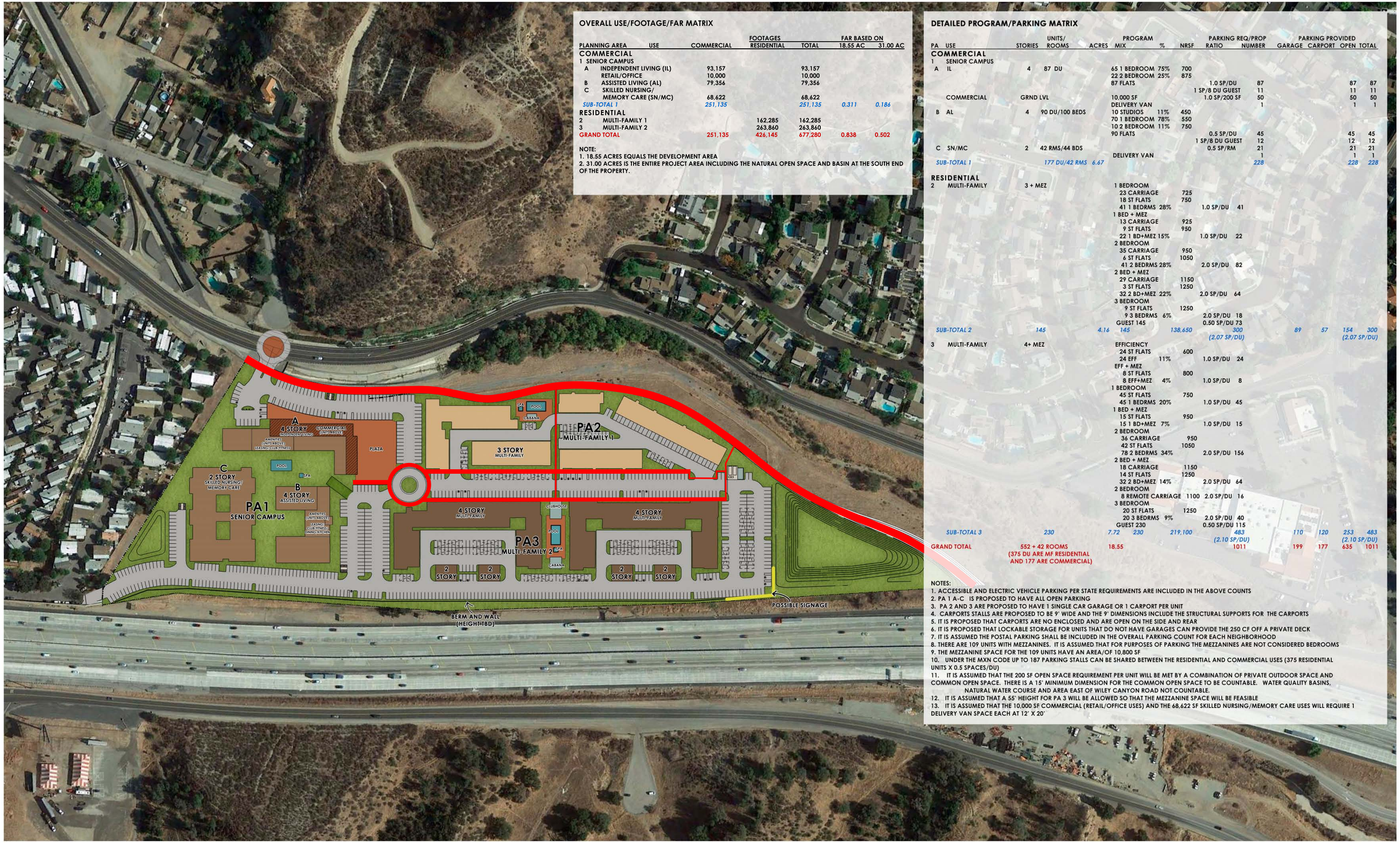
VERTEX SURVEY INC.

ALTA/NSPS LAND TITLE SURVEY
FOR
SMISER PROPERTY

W.O.: _____ SCALE: 1" = 60' DATE: 05/28/2018 SHEET 4 OF 4 SHEETS



OVERALL USE/FOOTAGE/FAR MATRIX

PLANNING AREA	USE	COMMERCIAL	FOOTAGES RESIDENTIAL	TOTAL	FAR BASED ON 18.55 AC	31.00 AC
COMMERCIAL						
1	SENIOR CAMPUS					
A	INDEPENDENT LIVING (IL)	93,157		93,157		
	RETAIL/OFFICE	10,000		10,000		
B	ASSISTED LIVING (AL)	79,356		79,356		
C	SKILLED NURSING/ MEMORY CARE (SN/MC)	68,622		68,622		
SUB-TOTAL 1		*251,135*		*251,135*	*0.311*	*0.186*
RESIDENTIAL						
2	MULTI-FAMILY 1		162,285	162,285		
3	MULTI-FAMILY 2		263,860	263,860		
GRAND TOTAL		251,135	426,145	677,280	0.838	0.502

NOTE:
1. 18.55 ACRES EQUALS THE DEVELOPMENT AREA
2. 31.00 ACRES IS THE ENTIRE PROJECT AREA INCLUDING THE NATURAL OPEN SPACE AND BASIN AT THE SOUTH END OF THE PROPERTY.

DETAILED PROGRAM/PARKING MATRIX

PA	USE	STORIES	UNITS/ ROOMS	ACRES	PROGRAM MIX	%	NRSF	PARKING REQ/PROP RATIO	NUMBER	PARKING PROVIDED GARAGE	CARPORT	OPEN	TOTAL
COMMERCIAL													
1	SENIOR CAMPUS												
A	IL	4	87 DU		65 1 BEDROOM	75%	700						
					22 2 BEDROOM	25%	875						
					87 FLATS			1.0 SP/DU	87			87	87
								1 SP/8 DU GUEST	11			11	11
	COMMERCIAL	GRND LVL			10,000 SF			1.0 SP/200 SF	50			50	50
					DELIVERY VAN				1			1	1
B	AL	4	90 DU/100 BEDS		10 STUDIOS	11%	450						
					70 1 BEDROOM	78%	550						
					10 2 BEDROOM	11%	750						
					90 FLATS			0.5 SP/DU	45			45	45
								1 SP/8 DU GUEST	12			12	12
C	SN/MC	2	42 RMS/44 BDS					0.5 SP/RM	21			21	21
					DELIVERY VAN				1			1	1
SUB-TOTAL 1			*177 DU/42 RMS*	*6.67*					*228*			*228*	*228*
RESIDENTIAL													
2	MULTI-FAMILY	3 + MEZ			1 BEDROOM								
					23 CARRIAGE		725						
					18 ST FLATS		750						
					41 1 BEDRMS	28%		1.0 SP/DU	41				
					1 BED + MEZ								
					13 CARRIAGE		925						
					9 ST FLATS		950						
					22 1 BD+MEZ	15%		1.0 SP/DU	22				
					2 BEDROOM								
					35 CARRIAGE		950						
					6 ST FLATS		1050						
					41 2 BEDRMS	28%		2.0 SP/DU	82				
					2 BED + MEZ								
					29 CARRIAGE		1150						
					3 ST FLATS		1250						
					32 2 BD+MEZ	22%		2.0 SP/DU	64				
					3 BEDROOM								
					9 ST FLATS		1250						
					9 3 BEDRMS	6%		2.0 SP/DU	18				
					GUEST 145			0.50 SP/DU	73				
SUB-TOTAL 2			*145*	*4.16*	*145*		*138,650*		*300*	*89*	*57*	*154*	*300*
									(2.07 SP/DU)				*(2.07 SP/DU)*
3	MULTI-FAMILY	4+ MEZ			EFFICIENCY								
					24 ST FLATS		600						
					24 EFF	11%		1.0 SP/DU	24				
					EFF + MEZ								
					8 ST FLATS		800						
					8 EFF+MEZ	4%		1.0 SP/DU	8				
					1 BEDROOM								
					45 ST FLATS		750						
					45 1 BEDRMS	20%		1.0 SP/DU	45				
					1 BED + MEZ								
					15 ST FLATS		950						
					15 1 BD+MEZ	7%		1.0 SP/DU	15				
					2 BEDROOM								
					36 CARRIAGE		950						
					42 ST FLATS		1050						
					78 2 BEDRMS	34%		2.0 SP/DU	156				
					2 BED + MEZ								
					18 CARRIAGE		1150						
					14 ST FLATS		1250						
					32 2 BD+MEZ	14%		2.0 SP/DU	64				
					2 BEDROOM								
					8 REMOTE CARRIAGE		1100	2.0 SP/DU	16				
					3 BEDROOM								
					20 ST FLATS		1250						
					20 3 BEDRMS	9%		2.0 SP/DU	40				
					GUEST 230			0.50 SP/DU	115				
SUB-TOTAL 3			*230*	*7.72*	*230*		*219,100*		*483*	*110*	*120*	*253*	*483*
									(2.10 SP/DU)				*(2.10 SP/DU)*
GRAND TOTAL			552 + 42 ROOMS (375 DU ARE MF RESIDENTIAL AND 177 ARE COMMERCIAL)	18.55					1011	199	177	635	1011

NOTES:
1. ACCESSIBLE AND ELECTRIC VEHICLE PARKING PER STATE REQUIREMENTS ARE INCLUDED IN THE ABOVE COUNTS
2. PA 1 A-C IS PROPOSED TO HAVE ALL OPEN PARKING
3. PA 2 AND 3 ARE PROPOSED TO HAVE 1 SINGLE CAR GARAGE OR 1 CARPORT PER UNIT
4. CARPORTS STALLS ARE PROPOSED TO BE 9' WIDE AND THE 9' DIMENSIONS INCLUDE THE STRUCTURAL SUPPORTS FOR THE CARPORTS
5. IT IS PROPOSED THAT CARPORTS ARE NO ENCLOSED AND ARE OPEN ON THE SIDE AND REAR
6. IT IS PROPOSED THAT LOCKABLE STORAGE FOR UNITS THAT DO NOT HAVE GARAGES CAN PROVIDE THE 250 CF OFF A PRIVATE DECK
7. IT IS ASSUMED THE POSTAL PARKING SHALL BE INCLUDED IN THE OVERALL PARKING COUNT FOR EACH NEIGHBORHOOD
8. THERE ARE 109 UNITS WITH MEZZANINES. IT IS ASSUMED THAT FOR PURPOSES OF PARKING THE MEZZANINES ARE NOT CONSIDERED BEDROOMS
9. THE MEZZANINE SPACE FOR THE 109 UNITS HAVE AN AREA/OF 10,800 SF
10. UNDER THE MXN CODE UP TO 187 PARKING STALLS CAN BE SHARED BETWEEN THE RESIDENTIAL AND COMMERCIAL USES (375 RESIDENTIAL UNITS X 0.5 SPACES/DU)
11. IT IS ASSUMED THAT THE 200 SF OPEN SPACE REQUIREMENT PER UNIT WILL BE MET BY A COMBINATION OF PRIVATE OUTDOOR SPACE AND COMMON OPEN SPACE. THERE IS A 15' MINIMUM DIMENSION FOR THE COMMON OPEN SPACE TO BE COUNTABLE. WATER QUALITY BASINS, NATURAL WATER COURSE AND AREA EAST OF WILEY CANYON ROAD NOT COUNTABLE.
12. IT IS ASSUMED THAT A 55' HEIGHT FOR PA 3 WILL BE ALLOWED SO THAT THE MEZZANINE SPACE WILL BE FEASIBLE
13. IT IS ASSUMED THAT THE 10,000 SF COMMERCIAL (RETAIL/OFFICE USES) AND THE 68,622 SF SKILLED NURSING/MEMORY CARE USES WILL REQUIRE 1 DELIVERY VAN SPACE EACH AT 12' X 20'

WILEY CANYON

SANTA CLARITA, CA

WILEY CANYON, LLC

OPTION ONE
Site Plan

0 50' 100' 200' 300'
SCALE: 1" = 100'-0"

Architecture. Design. Relationships.

01

Job No. 2019-107
Date 2020-03-11

Appendix F

Sewer Plans

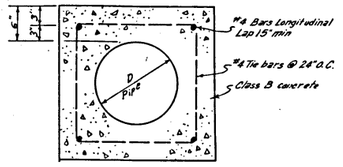
SEWER REFERENCE

PC 7599

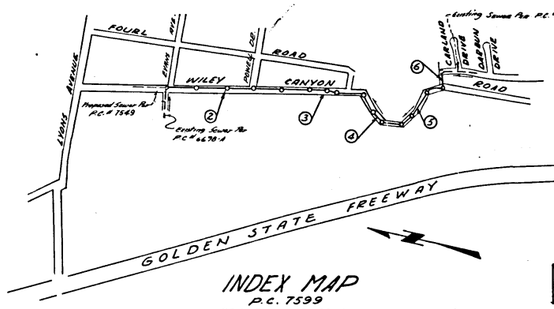
B.M. SL. 642 ELEV. 1262.071
Brass Cap. Set in Top of Curb, Easterly Side of Lyons Ave., Northerly Prolongation of Center Line of Wiley Canyon Road, 0.3 ft. N. & 0.3 ft. E. of Intersection of Said Lines.

NEWHALL QUAD. 1958

75-#1
010



SPECIAL ENCASEMENT DETAIL
Terminate longitudinal Bars 3" from each end of encasement



INDEX MAP
P.C. 7599
SCALE 1"=600'

Any connection to the sewage system of County Sanitation District, provided directly or indirectly by the sewers shown on these plans, shall be considered a temporary connection until all area sewered is annexed to said district, at which time the connection shall become permanent. If for any reason the annexation to the district of any area sewered hereunder is not completed, the property not in the district will be required to disconnect unless a contract is entered into with the district providing for the disposal of sewage from the area.

REVISIONS Pg. 1&2
Revised location of J.C. @ Sta. 14+32.65 To 14+12.75 & Deleted Alignment from Sta. 14+12.75 to 20+19.62. Added Special Encasement Detail.
By Ralph Schafer RCE 19906 date 7/1/66

ISSUE NO HOUSE CONNECTION PERMITS UNTIL OUTFALL SEWER HAS BEEN CONSTRUCTED

NEWHALL BLDG. DIST. NO. 8.2

NOTES:

1. PROVIDE STAKES ON THE PROPERTY LINE OR PROPERTY LINES PRODUCED AT RIGHT ANGLES TO THE SEWER LINE AT THE CENTER LINE OF EACH MANHOLE.
2. NO REPRESENTATIVE OF THE COUNTY ENGINEER WILL SURVEY OR LAY OUT ANY PORTION OF THE WORK.
3. THE PRIVATE ENGINEER SHALL FURNISH THE COUNTY ENGINEER WITH GRADE SHEETS AND STATIONING FOR ALL HOUSE LATERALS AND Y-BRANCHES AND SHALL PROVIDE STAKES FOR THEM AT THEIR PROPER LOCATIONS WITH STATIONING PLAINLY MARKED. ALL HOUSE LATERALS SHALL BE CONSTRUCTED ON A STRAIGHT ALIGNMENT AT RIGHT ANGLES FROM THE MAIN LINE SEWER EXCEPT AS SHOWN ON THE PLANS. HOUSE LATERALS FROM CHIMNEYS SHALL NOT HAVE AN ANGLE OF LESS THAN 45° WITH THE MAIN LINE SEWER; ANY CHANGE IN ALIGNMENT SHALL BE REQUESTED IN WRITING BY THE PRIVATE ENGINEER.
4. THE PRIVATE ENGINEER SHALL FURNISH THE HOUSE LATERAL DEPTH AT THE PROPERTY LINE BELOW THE TOP OF CURB ELEVATION FOR EACH HOUSE LATERAL ON THE GRADE SHEET.
5. NO REVISIONS SHALL BE MADE IN THESE PLANS WITHOUT THE APPROVAL OF THE COUNTY ENGINEER.
6. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION DIVISION BY TELEPHONE, MADISON 9-4747, EXT. 8558, AT LEAST TWENTY-FOUR HOURS BEFORE STARTING ANY WORK UNDER THIS CONTRACT.
7. MANHOLES SHALL BE BRICK SEWER STRUCTURES PER S-3 . PRECAST CONCRETE MANHOLES PER S-5 OR S-6 MAY BE USED AS AN ALTERNATE IN LOCATIONS APPROVED BY THE COUNTY ENGINEER.
8. USE STANDARD MANHOLE FRAMES AND COVERS, S-7 , EXCEPT AS NOTED.
9. MANHOLE TOPS IN UNIMPROVED RIGHTS-OF-WAY TO BE 0.5 FEET INCHES ABOVE FINISHED GRADE
10. USE EXTRA STRENGTH PIPE. ALL PIPE IS STANDARD DEPTH EXCEPT AS NOTED.
11. USE MECHANICAL COMPRESSION JOINTS FOR ALL V.C.P. JOINTS PER SPECS., SECS. 26 & 46.09
12. WHERE EVER GROUND WATER IS ENCOUNTERED DURING THE CONSTRUCTION OF THE SEWERS, THE V.C.P. JOINTS SHALL BE OF POSITIVE DIAMOND PRO SPECS., SECS. 26 & 46, OR HYDRAULICA COMPRESSION JOINTS PER SPECS., SEC. 26.
13. IF A POWER POLE IS WITHIN THREE FEET OF THE SEWER, THE SEWER SHALL BE ENCASED, PER S-29 , CASE III, TWO FEET ON EACH SIDE FROM THE POINT OF INTERFERENCE.
14. IF DURING THE COURSE OF CONSTRUCTION IT IS DETERMINED THAT THERE IS LESS THAN FOUR FEET OF COVER OVER THE TOP OF A MAIN LINE OR HOUSE LATERAL V.C.P. SEWER WHICH IS NOT INDICATED ON THE PLANS, THE PIPE SHALL BE ENCASED PER S-29 , CASE III, UNLESS OTHERWISE APPROVED BY THE COUNTY ENGINEER.
15. HOUSE LATERALS TO BE CONSTRUCTED WITH INVERTS AT PROPERTY LINE..... FEET BELOW CURB GRADE EXCEPT AS NOTED.
16. RESURFACE ALL TRENCHES WITHIN PAVED AREAS TO MEET L.A. COUNTY ROAD DEPT. OR CALIFORNIA STATE HIGHWAY REQUIREMENTS IN ACCORDANCE WITH PERMITS.
17. FOR ALLOWABLE LEAKAGE TEST USE FORMULA NO. ..2..... SPECS., SEC. 24.
18. ALL V-Y TO BE CONSTRUCTED AT 45° STANDARD OR UNLESS.
19. ALL STATE AND LOCAL TRENCH SAFETY ORDERS WILL BE RIGIDLY ENFORCED
20. CONSTRUCTION IN FILLED AREAS.
   (a.) AN ACCEPTABLE CERTIFICATION OF COMPACTION TEST RESULTS SHALL BE SUBMITTED TO THE CONSTRUCTION DIVISION. COMPACTION TESTS ARE TO BE MADE IN ACCORDANCE WITH A.S.T.M. STANDARD METHOD OF TEST D 698-42 T.
   (b.) NO CONSTRUCTION IS TO BE STARTED IN FILLED AREAS UNLESS THE RELATIVE DENSITY OF COMPACTION IS LESS THAN 90%
   (c.) IF THE RELATIVE DENSITY OF COMPACTION IS LESS THAN 90% ALL STUB LINE AND HOUSE LATERALS SHALL BE CONSTRUCTED PER S-25 AND HAVE A SPECIAL BASE COURSE PER S-22, 3/4" CRUSHED GRAVEL OR E. SAND BEDDING PER S-18 AS REQUIRED.
   (d.) WHERE RELATIVE DENSITY OF COMPACTION IS 90% OR GREATER, THE SPECIAL PROVISIONS (c) ARE NOT REQUIRED.
21. ALL TRENCHES WHERE SPECIAL BACK-FILL IS CALLED FOR SHALL COMPLY WITH THE FOLLOWING:
   (a) BACK-FILL TO BE PLACED IN LAYERS NOT EXCEEDING SIX INCHES BEFORE BEING MOISTENED AS TO ACCURATELY PACK.
   (b) ALL BACK-FILL SHALL BE TAMPED.
   (c) ALL BACK-FILL SHALL BE MECHANICALLY COMPACTED TO A MINIMUM RELATIVE DENSITY OF 90% AS DETERMINED BY THE ABOVE METHOD.
   (d) AN ACCEPTABLE CERTIFICATION OF COMPACTION TEST RESULTS SHALL BE SUBMITTED TO THE CONSTRUCTION DIVISION. COMPACTION TESTS ARE TO BE MADE IN ACCORDANCE WITH A.S.T.M. STANDARD METHOD OF TEST D 698-42 T.

COLLECT CHARGES AS INDICATED
Ralph Schafer

NO CONNECTIONS FOR THE DISPOSAL OF INDUSTRIAL WASTES SHALL BE MADE TO SEWERS SHOWN ON THESE DRAWINGS WITHOUT WRITTEN PERMISSION FROM THE CHIEF ENGINEER AND GENERAL MANAGER OF THE COUNTY SANITATION DISTRICTS.

PROFILE ALIGNMENT AND GRADE OF P.C. 7599
SANITARY SEWERS PAGE 1
TO BE CONSTRUCTED IN
WILEY CANYON ROAD
PRIVATE CONTRACT NO. 7599

W.S. 62
3 SHEETS, 6 PAGES
SCALE: VERT. 1"=8' HORIZ. 1"=40' MAY , 1966
38634

PREPARED IN THE OFFICES OF
JENNINGS ENGINEERING CO.
1100 S. BEVERLY DRIVE, LOS ANGELES, CALIFORNIA
By: R. J. Jennings REG. C. E. NO. 7858

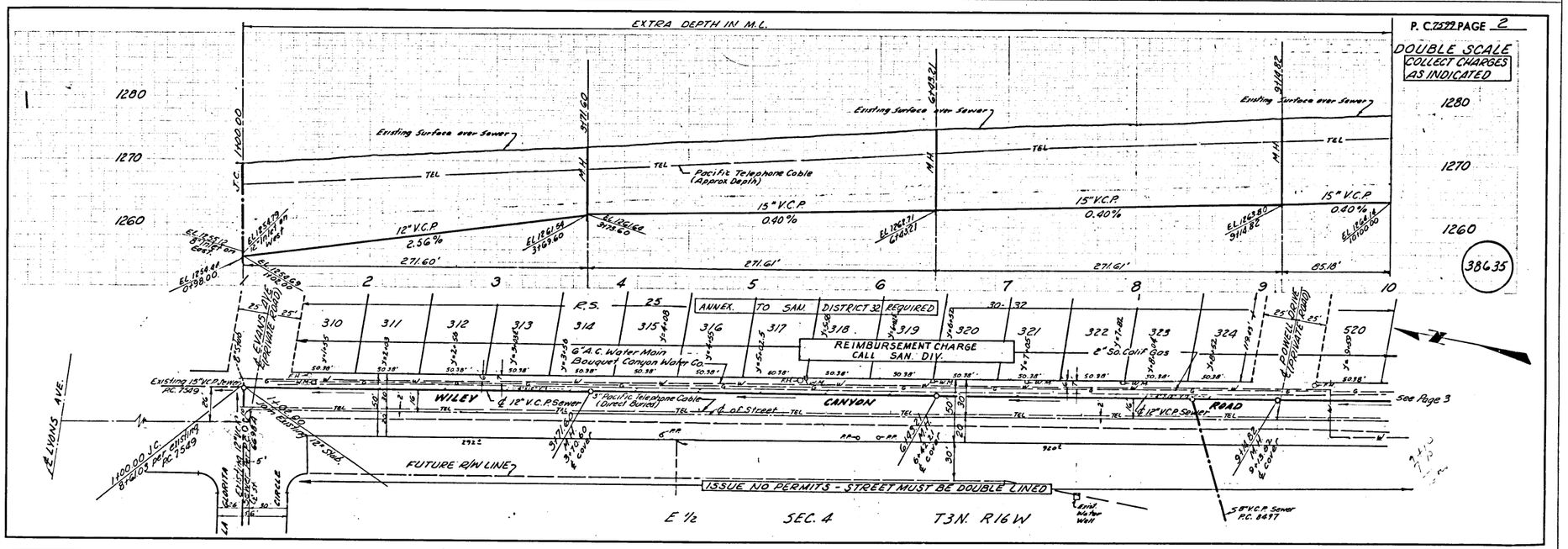
FOR LEGEND SEE PLAN NO. S-1

NOTE:
GRADES TO WHICH THIS IMPROVEMENT IS TO BE CONSTRUCTED ARE SHOWN ON PLANS AND PROFILES. GRADE POINTS FOR TOP OF CURBS, CENTER LINE OF STREETS, OR CENTER LINE OF ALLEYS ARE SHOWN BY CIRCLES ON PROFILES. AT ALL POINTS BETWEEN DESIGNATED POINTS THE GRADE SHALL BE ESTABLISHED SO AS TO CONFORM TO A STRAIGHT LINE DRAWN BETWEEN SAID DESIGNATED POINTS.
ELEVATIONS ARE IN FEET ABOVE U.S.C. & G.S. SEA LEVEL DATUM OF 1929.
THIS DRAWING AND THE DATA HEREON ARE HEREBY MADE A PART OF THE SPECIFICATIONS. AS REVISED
WORK SHALL BE CONSTRUCTED ACCORDING TO STANDARD SPECIFICATIONS DATED 5/25/62 ON FILE IN THE OFFICE OF THE COUNTY ENGINEER AND SHALL BE PERFORMED ONLY IN THE PRESENCE OF THE COUNTY ENGINEER.
BEFORE WORK CAN BE STARTED, THE CONTRACTOR MUST OBTAIN A PERMIT TO EXCAVATE IN COUNTY STREETS FROM THE L.A. COUNTY ROAD DEPT., DISTRICT OFFICE NO. ..7.. AND PAY A FEE TO THE COUNTY ENGINEER, ROOM 350, COUNTY ENGINEERING BUILDING, 900 WEST SECOND STREET OR ..2017 E. DUARTE, VALLEY.. REGIONAL OFFICE, SUFFICIENT TO COVER THE COST OF CONSTRUCTION INSPECTION AND RECORD PLANS.
APPROVAL OF THIS PLAN BY THE COUNTY OF LOS ANGELES DOES NOT CONSTITUTE A REPRESENTATION AS TO THE ACCURACY OF THE LOCATION OF OR THE EXISTENCE OR NON-EXISTENCE OF ANY UNDERGROUND UTILITY PIPE, OR STRUCTURE WITHIN THE LIMITS OF THIS PROJECT. THIS NOTE APPLIES TO ALL PAPERS.
IF WORK IS TO BE DONE IN A STATE HIGHWAY, A PERMIT MUST BE OBTAINED FROM THE STATE OF CALIFORNIA, DIVISION OF HIGHWAYS, 120 SOUTH SPRING STREET, LOS ANGELES, CALIFORNIA.

COUNTY OF LOS ANGELES, CALIFORNIA
JOHN A. LAMBIE, COUNTY ENGINEER J. D. PARKHURST, CHIEF ENGINEER
CO. SAN. DIST. NO. 8
APPROVED BY, R. C. S. Ko ASSISTANT SANITATION ENGINEER
APPROVED BY, [illegible] OFFICE ENGINEER
CHECKED BY, Ralph Schafer 6/2/66 REG. C.E. NO. 19906

J. N. 0367.27

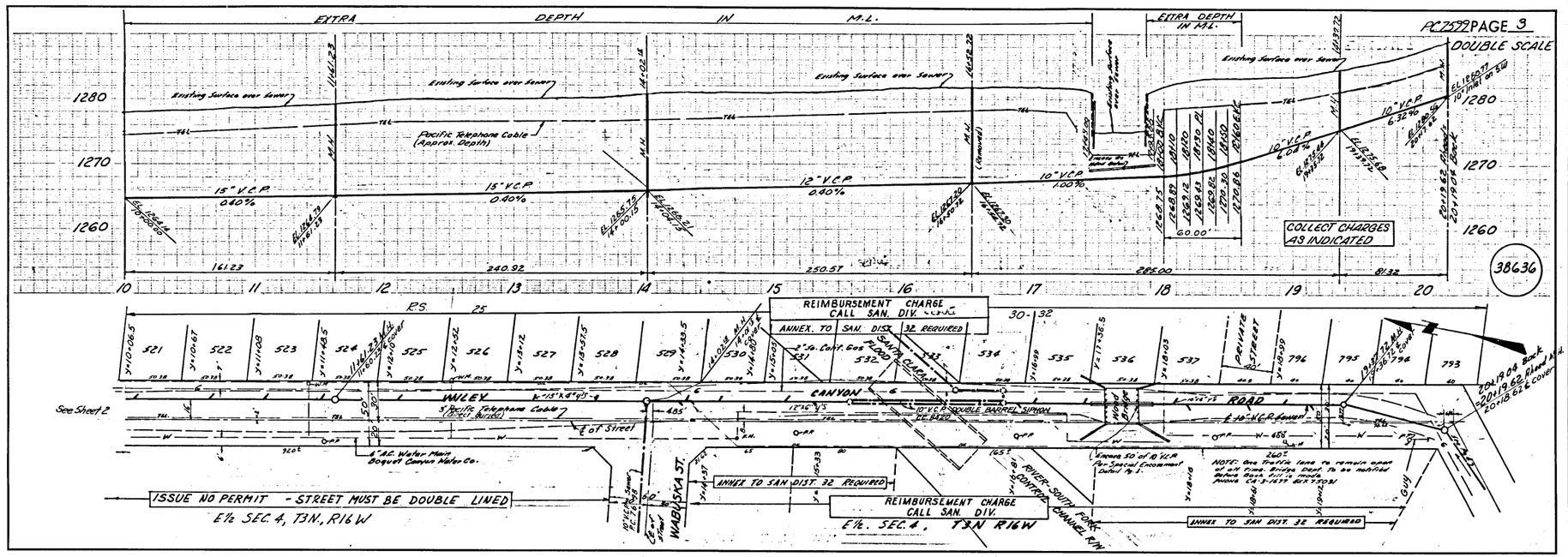
P. C. 7599 PAGE 2
DOUBLE SCALE
COLLECT CHARGES AS INDICATED



38635

AC 7599 PAGE 3

DOUBLE SCALE

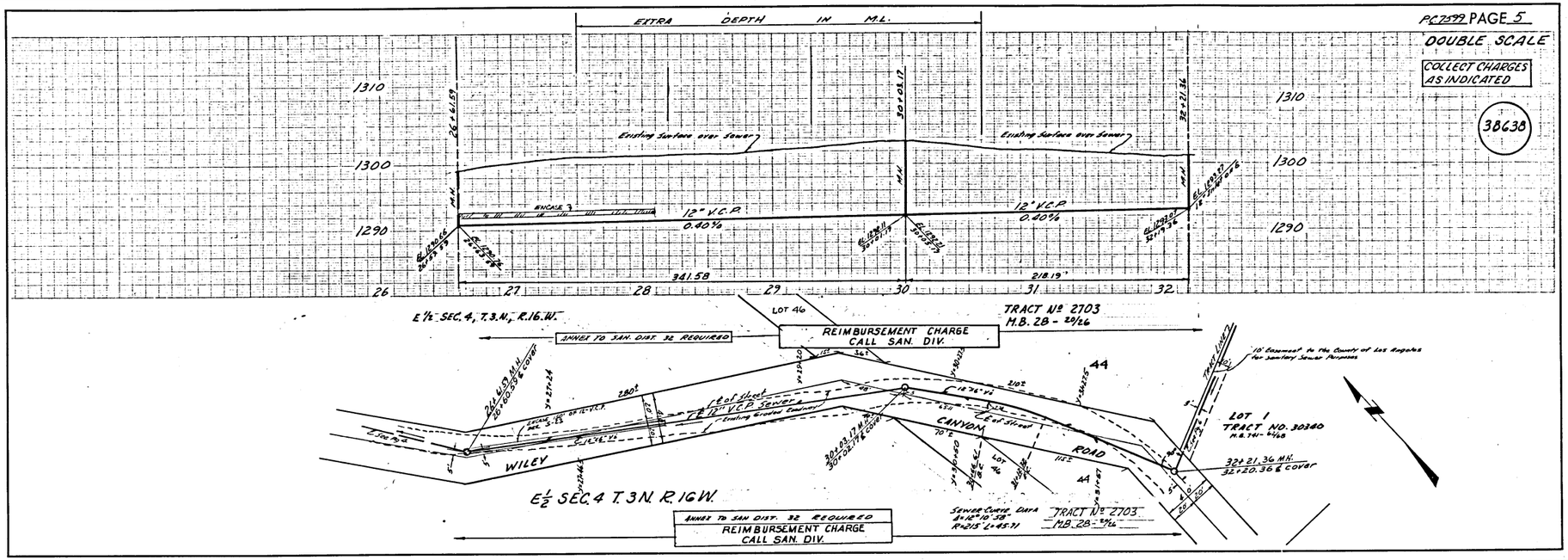


P.C. 7599 PAGE 5

DOUBLE SCALE

COLLECT CHARGES AS INDICATED

38638

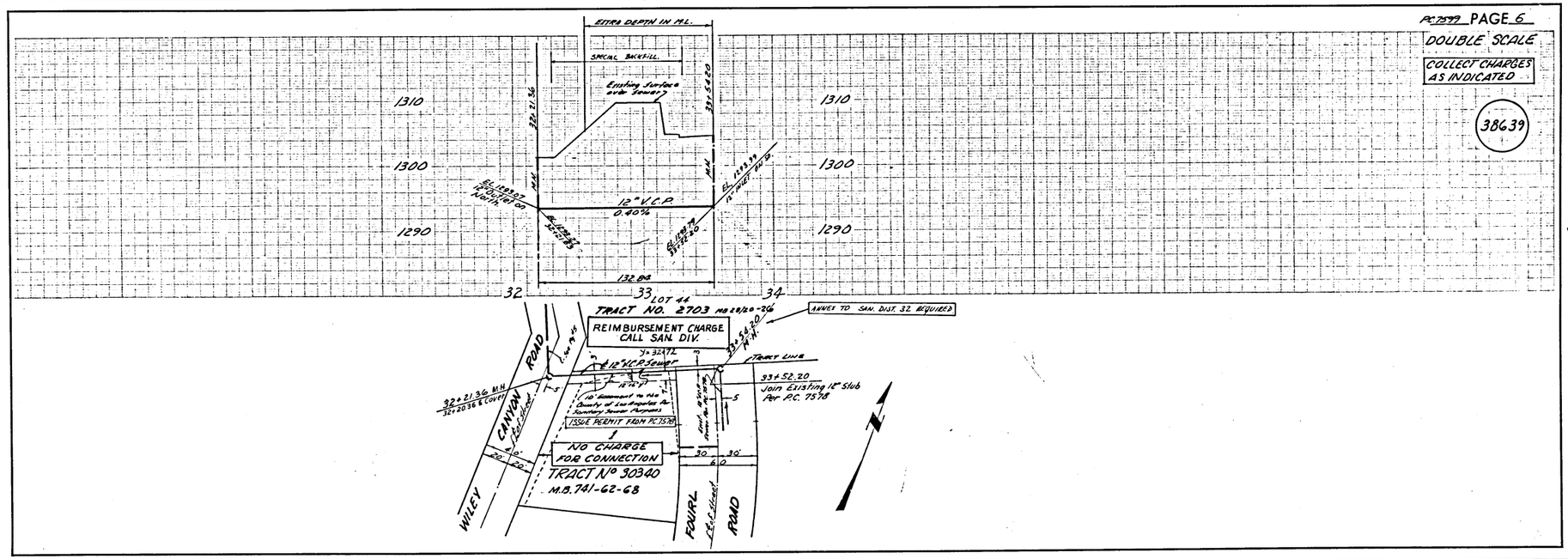


P.C. 7599 PAGE 6

DOUBLE SCALE

COLLECT CHARGES AS INDICATED

38639



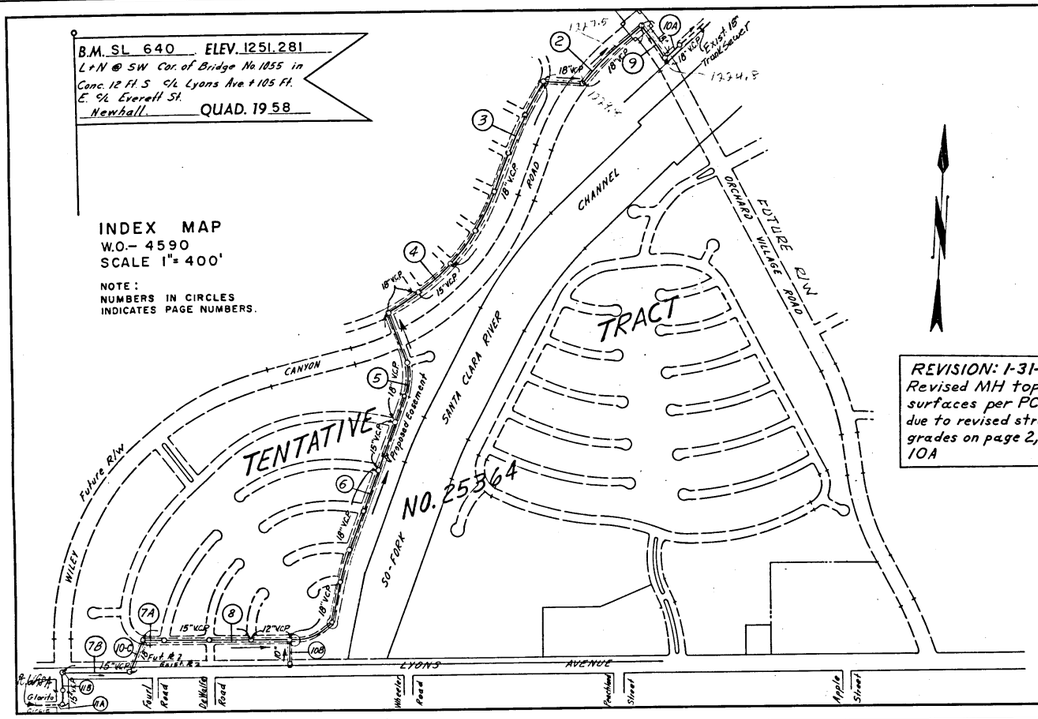
SEWER REFERENCE

PC 7549

B.M. SL 640 ELEV. 1251.281
L+N @ SW Cor. of Bridge No 1855 in Conc. 12 Ft S C/L Lyons Ave + 105 Ft. E. C/L Everett St. Newhall. QUAD. 1958

INDEX MAP
W.O.- 4590
SCALE 1"= 400'

NOTE:
NUMBERS IN CIRCLES INDICATES PAGE NUMBERS.



DOUBLE SCALE
NEW HALL BLDG. DIST. NO. 8.2

NOTES:

1. PROVIDE STAKES ON THE PROPERTY LINE OR PROPERTY LINES PRODUCED AT RIGHT ANGLES TO THE SEWER LINE AT THE CENTER LINE OF EACH MANHOLE.
2. NO REPRESENTATIVE OF THE COUNTY ENGINEER WILL SURVEY OR LAY OUT ANY PORTION OF THE WORK.
3. THE PRIVATE ENGINEER SHALL FURNISH THE COUNTY ENGINEER WITH GRADE SHEETS AND STATIONING FOR ALL HOUSE LATERALS AND Y BRANCHES AND SHALL PROVIDE STAKES FOR THEM AT THEIR PROPER LOCATIONS WITH STATIONING PLAINLY MARKED. ~~ALL HOUSE LATERALS SHALL BE CONSTRUCTED IN A STRAIGHT ALIGNMENT AT RIGHT ANGLES FROM THE MAIN LINE SEWER EXCEPT AS SHOWN ON THE PLANS. HOUSE LATERAL FROM CHANGING GRADE NOT HAVE AN ANGLE OF LESS THAN 45° WITH THE MAIN LINE SEWER.~~ ANY CHANGE IN ALIGNMENT SHALL BE REQUESTED IN WRITING BY THE PRIVATE ENGINEER.
4. THE PRIVATE ENGINEER SHALL FURNISH THE HOUSE LATERAL DEPTH AT THE PROPERTY LINE BELOW THE TOP OF CURB ELEVATION FOR EACH HOUSE LATERAL ON THE GRADE SHEET.
5. NO REVISIONS SHALL BE MADE IN THESE PLANS WITHOUT THE APPROVAL OF THE COUNTY ENGINEER.
6. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION DIVISION BY TELEPHONE, MADISON 9-4747, EXT. 81551, AT LEAST TWENTY-FOUR HOURS BEFORE STARTING ANY WORK UNDER THIS CONTRACT.
7. MANHOLES SHALL BE BRICK SEWER STRUCTURES PER S-2 PRECAST CONCRETE MANHOLES PER S-5 OR S-6 MAY BE USED AS AN ALTERNATE IN LOCATIONS APPROVED BY THE COUNTY ENGINEER.
8. USE STANDARD MANHOLE FRAMES AND COVERS, S-15, EXCEPT AS NOTED.
9. MANHOLE TOPS IN UNIMPROVED RIGHTS-OF-WAY TO BE SIX INCHES ABOVE FINISHED GRADE.
10. USE EXTRA STRENGTH PIPE. ALL PIPE IS STANDARD DEPTH EXCEPT AS NOTED.
11. USE CEMENT MORTAR OR MECHANICAL COMPRESSION JOINTS FOR ALL V.C.P. JOINTS PER SPEC'S., SECS. 36 & 48.
12. ~~WHERE EVER GROUND WATER IS ENCOUNTERED DURING THE CONSTRUCTION OF THE SEWERS, THE V.C.P. JOINTS SHALL BE OF JOINT COMPOUND PER SPEC'S., SECS. 36 & 48, OR MECHANICAL COMPRESSION JOINTS PER SPEC'S., SEC. 36.~~
13. IF A POWER POLE IS WITHIN 1-~~0~~ FEET OF THE SEWER, THE SEWER SHALL BE ENCASED, PER S-23 TWO FEET ON EACH SIDE FROM THE POINT OF INTERFERENCE.
14. IF DURING THE COURSE OF CONSTRUCTION IT IS DETERMINED THAT THERE IS LESS THAN FOUR FEET OF COVER OVER THE TOP OF A MAIN LINE OR HOUSE LATERAL V.C.P. SEWER WHICH IS NOT INDICATED ON THE PLANS, THE PIPE SHALL BE ENCASED PER S-23 UNLESS OTHERWISE APPROVED BY THE COUNTY ENGINEER.
15. ~~HOUSE LATERALS TO BE CONSTRUCTED WITH INVERTS AT PROPERTY LINE ..... FEET BELOW CURB GRADE UNLESS AS NOTED.~~
16. RESURFACE ALL TRENCHES WITHIN PAVED AREAS TO MEET L.A. COUNTY ROAD DEPT. OR CALIFORNIA STATE HIGHWAY REQUIREMENTS IN ACCORDANCE WITH PERMITS.
17. FOR ALLOWABLE LEAKAGE TEST USE FORMULA NO. ~~4~~ ....., SPEC'S., SEC. 54.
18. ALL STATE AND LOCAL TRENCH SAFETY ORDERS WILL BE RIGIDLY ENFORCED
19. ALL JOINTS BETWEEN CAST IRON PIPE AND VITRIFIED CLAY PIPE SHALL BE MADE WITH A RUBBER SLEEVE JOINT (WITH HOODS, IF NECESSARY) PER STANDARD SPECIFICATIONS, SEC. 36, OR APPROVED EQUAL.

REVISION: 1-31-69
Revised MH tops & surfaces per PC8197 due to revised street grades on page 2, 9, & 10A

COLLECT CHARGES AS INDICATED
Ralph Schafer

BEFORE BREAKING INTO ANY EXISTING STRUCTURE AND BEFORE FINAL ACCEPTANCE OF THIS WORK, COUNTY SANITATION DISTRICT (DU 4-1281) SHALL BE NOTIFIED IN ORDER THAT REQUIRED INSPECTION CAN BE MADE.

NO CONNECTIONS FOR THE DISPOSAL OF INDUSTRIAL WASTES SHALL BE MADE TO SEWERS SHOWN ON THESE DRAWINGS WITHOUT WRITTEN PERMISSION FROM THE CHIEF ENGINEER AND GENERAL MANAGER OF THE COUNTY SANITATION DISTRICTS

PROFILE ALIGNMENT AND GRADE OF P.C. 7549
SANITARY SEWERS PAGE 1
TO BE CONSTRUCTED IN R W

NORTH OF LYONS AVENUE

PRIVATE CONTRACT NO. 7549

W.S. 62
6 SHEETS; 12 PAGES
SCALE: VERT. 1"=8' HORIZ. 1"=40' FEBRUARY, 1966

38652

PREPARED IN THE OFFICES OF
VOORHEIS - TRINDLE CO.
By: J. R. Delson
REG. C. E. NO. 8781

FOR LEGEND SEE PLAN NO. S-1

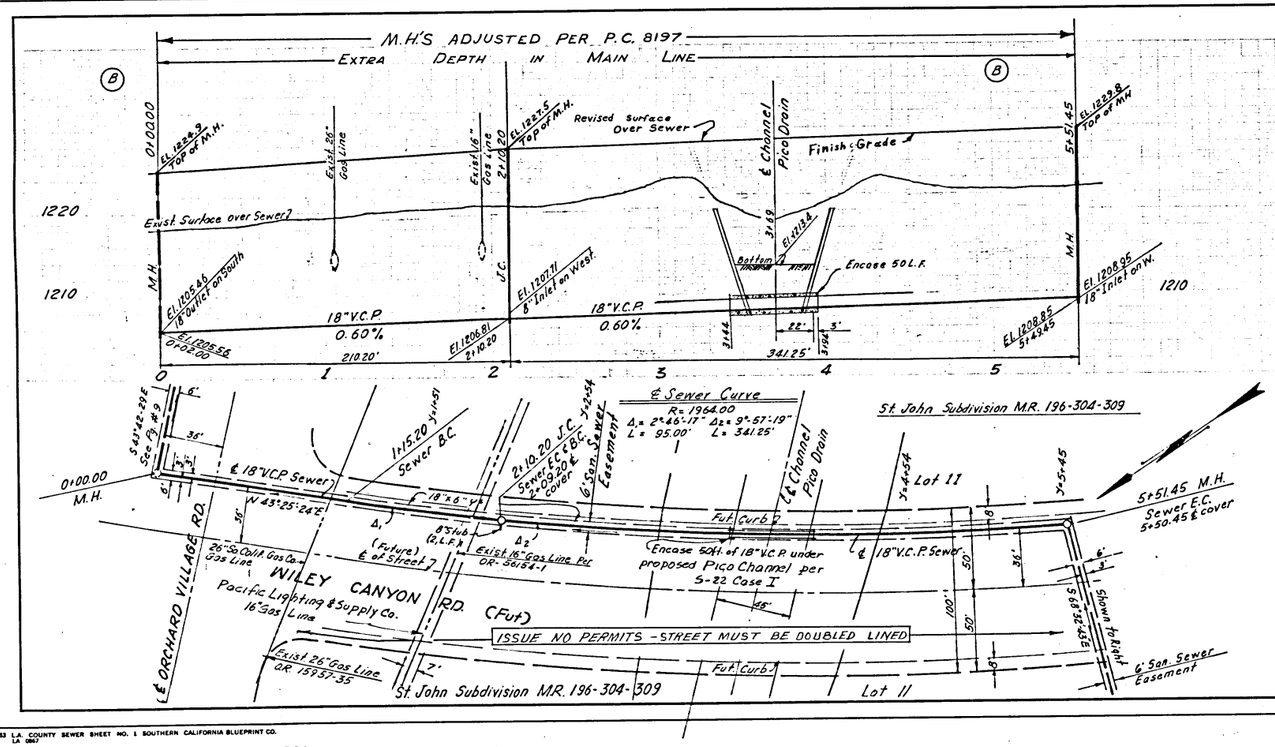
NOTE:
GRADES TO WHICH THIS IMPROVEMENT IS TO BE CONSTRUCTED ARE SHOWN ON PLANS AND PROFILES. GRADE POINTS FOR TOP OF CURBS, CENTER LINE OF STREETS, OR CENTER LINE OF ALLEYS ARE SHOWN BY CIRCLES ON PROFILES. AT ALL POINTS BETWEEN DESIGNATED POINTS THE GRADE SHALL BE ESTABLISHED SO AS TO CONFORM TO A STRAIGHT LINE DRAWN BETWEEN SAID DESIGNATED POINTS.
ELEVATIONS ARE IN FEET ABOVE U.S.C. & G.S. SEA LEVEL DATUM OF 1929.
THIS DRAWING AND THE DATA HEREON ARE HEREBY MADE A PART OF THE SPECIFICATIONS ~~dated~~ used WORK SHALL BE CONSTRUCTED ACCORDING TO STANDARD SPECIFICATIONS DATED May 25, 1962 ON FILE IN THE OFFICE OF THE COUNTY ENGINEER AND SHALL BE PROSECUTED ONLY IN THE PRESENCE OF THE COUNTY ENGINEER.
BEFORE WORK CAN BE STARTED, THE CONTRACTOR MUST OBTAIN A PERMIT TO EXCAVATE IN COUNTY STREETS FROM THE L.A. COUNTY ROAD DEPT., DISTRICT OFFICE NO. ... AND PAY A FEE TO THE COUNTY ENGINEER, ROOM 330, COUNTY ENGINEERING BUILDING, 108 WEST SECOND STREET OR ... ANTELOPE ... VALLEY ... REGIONAL OFFICE, SUFFICIENT TO COVER THE COST OF CONSTRUCTION INSPECTION AND RECORD PLANS.
APPROVAL OF THIS PLAN BY THE COUNTY OF LOS ANGELES DOES NOT CONSTITUTE A REPRESENTATION AS TO THE ACCURACY OF THE LOCATION OF OR THE EXISTENCE OR NON-EXISTENCE OF ANY UNDERGROUND UTILITY PIPE, OR STRUCTURE WITHIN THE LIMITS OF THIS PROJECT. THIS NOTE APPLIES TO ALL PAGES.
IF WORK IS TO BE DONE IN A STATE HIGHWAY, A PERMIT MUST BE OBTAINED FROM THE STATE OF CALIFORNIA, DIVISION OF HIGHWAYS, 120 SOUTH SPRING STREET, LOS ANGELES, CALIFORNIA.

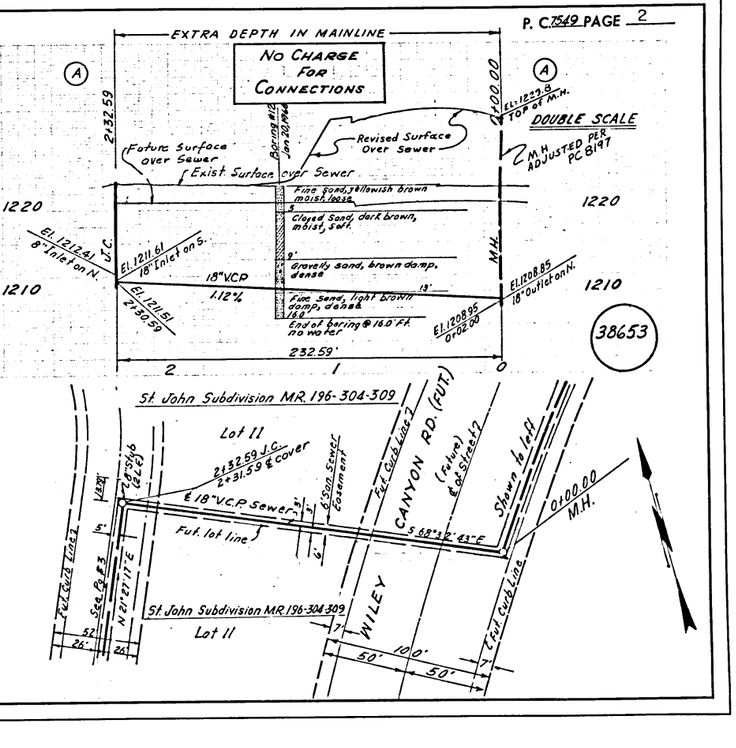
COUNTY OF LOS ANGELES, CALIFORNIA
JOHN A. LAMBIE, COUNTY ENGINEER J. D. PARKHURST, CHIEF ENGINEER
CO. SAN. DIST. NO. 32
APPROVED BY: Richard E. Kahn, ASSISTANT SANITATION ENGINEER APPROVED BY: W. Martinez, OFFICE ENGINEER

CHECKED BY: Ralph Schafer 5/10/66
REG. C.E. NO. 13926

J.N. 0366.91

P.C. 7549 PAGE 2





38653

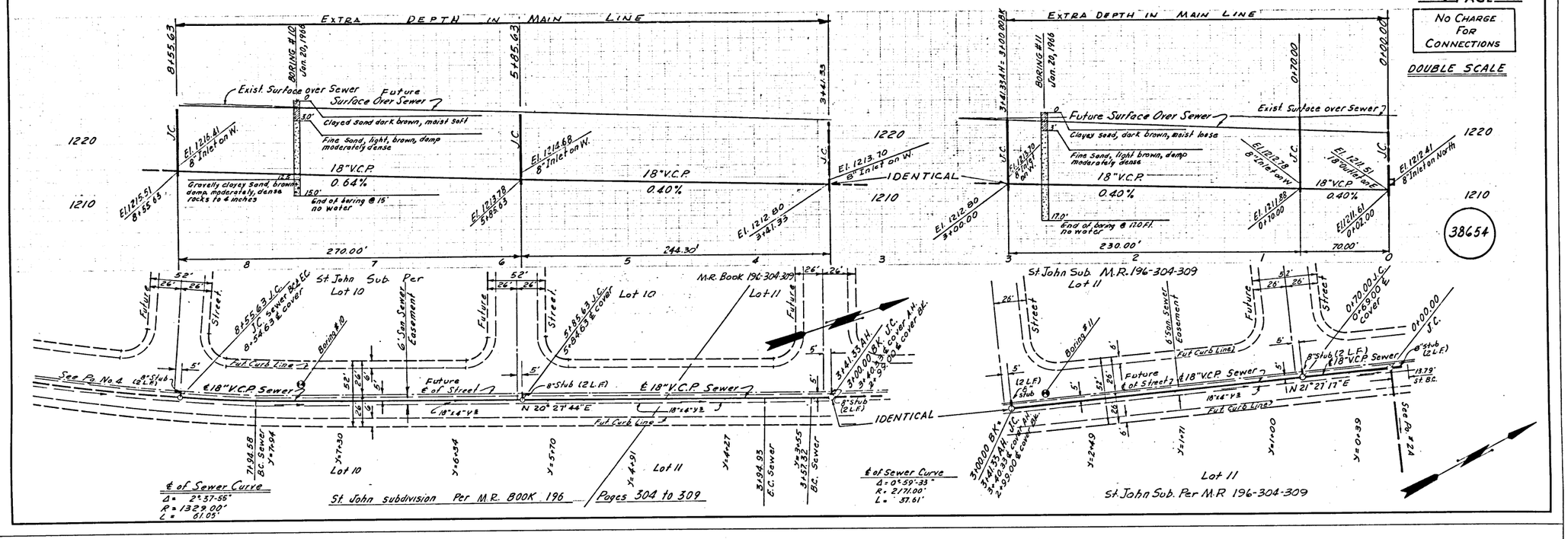
K&E 175133 L.A. COUNTY SEWER SHEET NO. 1 SOUTHERN CALIFORNIA BLUEPRINT CO. LA 0867

PC 7549 PAGE 3

NO CHARGE FOR CONNECTIONS

DOUBLE SCALE

38654

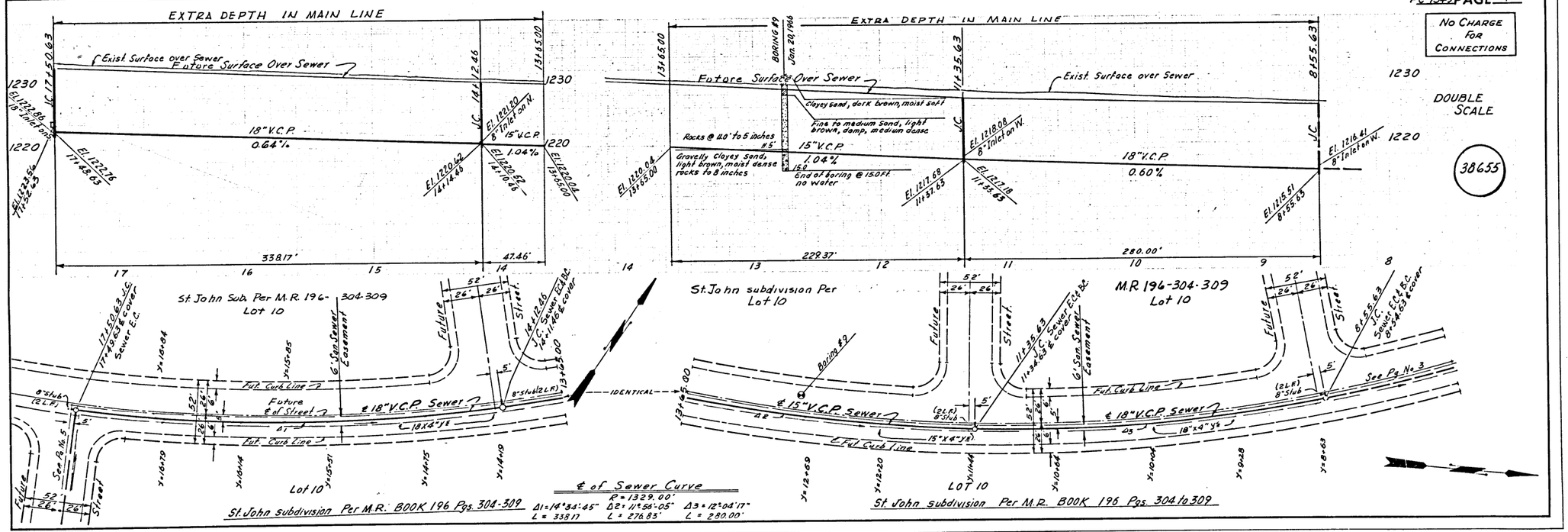


PC 7549 PAGE 4

NO CHARGE FOR CONNECTIONS

DOUBLE SCALE

38655

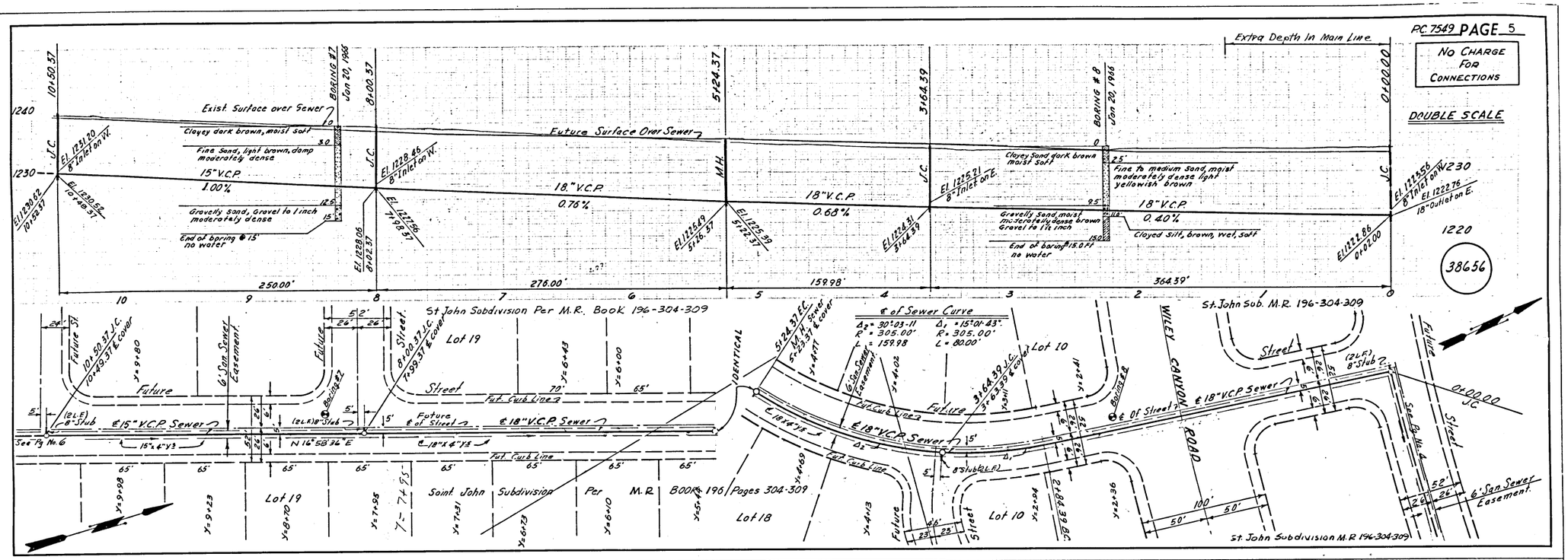


K&E 175153 LA COUNTY SEWER SHEET NO. 2 SO. CAL. BLUEPRINT CO. LA 0867

PC 7549 PAGE 5

NO CHARGE FOR CONNECTIONS

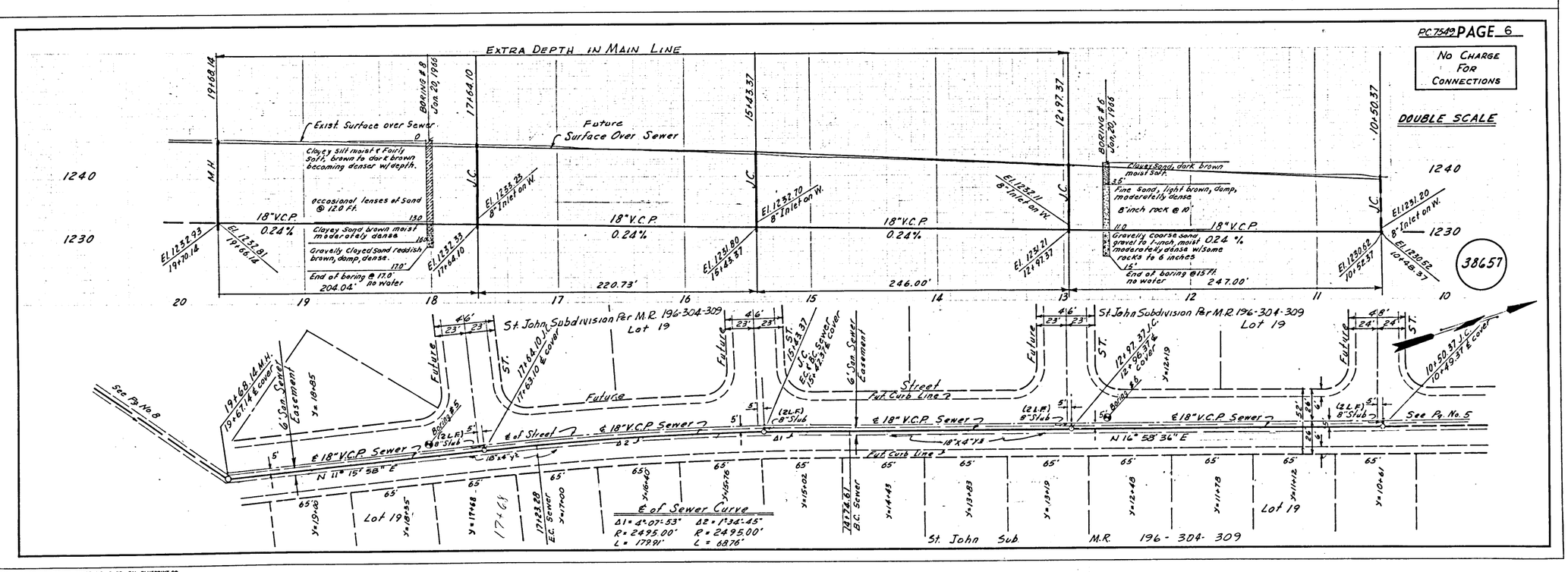
DOUBLE SCALE



PC 7549 PAGE 6

NO CHARGE FOR CONNECTIONS

DOUBLE SCALE



K&E 175153 LA COUNTY SEWER SHEET NO. 2 SO. CAL. BLUEPRINT CO.

PC 7549 PAGE 7

EXTRA DEPTH IN MAIN LINE

B — B

Grade of Centerline of Street

37+58 End Encase End Plug
37+40.51 J.C.
BORING #1 Jan 20, 1966
34+39.90

Clayed Sand, brown, moist, moderately dense.
Fine to medium Sand, yellowish, brown, damp, dense, becoming Sandier with depth, Gravel at bottom of boring.
Exist 12" Gas.
6" Water line
Fut 96" Storm Drain
Tow at El. 1250±
Future 75" Storm Drain
El. 1247.39 15" Inlet on South
El. 1244.69 18" Outlet on NE
El. 1245.59 8" Inlet on East
El. 1245.69 8" Inlet on South
J.C.

1260
1250
15.49 LF 8"VCP @ 40%
El. 1248.12 37+58.00
El. 1248.06 37+42.51
15"VCP
0.72%
300.61'
El. 1245.34 34+41.90
End of boring at 18' elevation
Encase per S-22-Code 2 (14 LF)
38 37 36 35 34

St John Subdivision Per M.R. Book 196-304-309
NO CHARGE FOR CONNECTIONS
SERVICE STATION (FUTURE)
Lot 19
ISSUE PERMIT FROM PAGE 10C
Future Property Line
Future 96" Storm Drain
Exist R/W
6' San Sewer Easement
Ext Lot line
N 30°14'28"E See Pg 10C
Fut. lot line

ROAD
37+58 End Encase End Plug
37+44
Bench No 1
4" STD. OIL CO. WATER LINE
SO. CAL. GAS CO. 2"
SO. CAL. GAS CO. 4"
PROPOSED
EXISTING
EXISTING PER PC 7549
Encase 4" of 8" VCP Per S-22 Code 2
37+40.51 J.C.
37+39.51 ℄ Cover
37+58.00 END PC 7549
Future 75" Storm Drain
WILEY CANYON Prepared for Subdivision No 118 See Pg No 11 B
STANDARD OIL CO. SAN. LINE
EDISON TOWER
MOSE
BIB
FIRE HYD.
28'
5'
5.63
70'
PROPOSED ℄
℄ 15"V.C.P Sewer
Exist Pvmt
N 86°03'10"E
12" SO. COUNTIES GAS CO. 14 S/O ℄
15"x6" Y
8"x6" Y
8" Stub (a.l.f.)
(BT&T)
PROP BURIED TEL CABLE 30" C
34+39.90 J.C.
Exist Curb
6" Water Line Bouquet Canyon Water Co.
4 Valves
Valve
Cons Gas
Cons Gas
LYONS AVENUE
Y=35+70
Y=36+65
X=32+48
X=33+27
ANNEXATION TO SAN. DIST. REQUIRED
LOT 20
NO CHARGE FOR CONNECTIONS — — WAIVER. REQUIRED
ST JOHN SUBDIVISION MR-136 306 309
25' 25' 25' 25' 25'
L.S. 25-30-32
MM LL KK JJ HH GG
Street Light
Fire Alarm
Street Sign
FOURL RD

A — A

COLLECT CHARGES AS INDICATED
DOUBLE SCALE

Extra Depth in Main Line
Future Surface Over Sewer
Exist. Surface over Sewer
31+75.06
29+70.70
1260
1250
J.C.
El. 1248.14 18" Inlet on South
El. 1242.51 8" Inlet on North
El. 1243.62 8" Inlet on West
204.36'
15"VCP
0.60%
31+75.06 J.C.
31+44.06 ℄ Cover
29+70.70 J.C.
29+63.70 ℄ cover
38658
St John Subdivision M.R. 196-304-309
Lot 19
NO CHARGE FOR CONNECTIONS
48' 24' 24'
Future
Street
6' San Sewer Easement
8" Stub (a.l.f.)
18" Stub (a.l.f.)
℄ 15" VCP Sewer
15"x6" Y
Fut. ℄ of Street See Page 8 N 86°03'10"E
Curb Line
65'
NO CHARGE FOR CONNECTIONS
St. John Sub M.R. 196-304-309 Lot 19

℄ of Sewer Curve
Δ = 29°00'00"
R = 190.00'
L = 96.17'

6' San Sewer Easement
N 30°14'28"E See Pg 10C
Fut. lot line
31+68.87 Ext. Sewer Rad N 75°33'00"E

PC 7549 PAGE 8

EXTRA DEPTH IN MAIN LINE

No Charge For Connections

38659

DOUBLE SCALE

29+70.70
BORING #3 Jan 20, 1966
27+23.70
24+77.70
22+44.70
BORING #4 Jan 20, 1966
19+68.14

Future Surface Over Sewer
Exist. Surface over Sewer
1250
1240
J.C.
El. 1242.51 8" Inlet on North
Clayed Sand, dark moist Soft (SM-13-15)
Fine to medium sand light, brown, damp, moderately dense occasional Gravel @ 11.0 Ft.
El. 1241.03 8" Inlet on North
El. 1240.35 8" Inlet on South
El. 1239.47 8" Inlet on North
El. 1234.39 10" Inlet on South
Clayed Sand, dark brown moist, Soft.
Fine Sand, light brown, damp, moderately dense occasional cobbles @ 9.0 Ft. & becoming Cleaner and coarser grained, occasional thin layers Clayed Sand
Moisture increasing @ 14 Ft.
Gravelly Sand, W/ Clay matrix, dense gravel to 1 inch
15"VCP
0.60%
Gravel Sand, cohesionless, damp moderately dense 40% gravel rocks 12 6" inches
End of boring @ 16.0 Ft. no water
24700'
246.00'
12"VCP
2.00%
233.00'
18"V.C.P.
0.24%
276.56'
El. 1241.88 29+70.70
El. 1238.89 24+24.70
El. 1238.72 24+20.70
El. 1234.21 22+46.70
El. 1233.58 22+41.70
El. 1232.81 19+66.14
El. 125293 19+70.14
30 29 28 27 26 25 24 23 22 End boring @ 16.5' no water 21 20

St. John. Sub M.R. 196-304-309 Lot 19

℄ of Sewer Curve
Δ = 33°14'22"
R = 300.00'
L = 174.04'

20' Sewer Easement
N 52°48'38"E
See Pg. M.H.
N 11°56'58"E
19+68.14 M.H.

Future
Street
29+70.70 J.C.
29+63.70 ℄ cover
Y=28+92
6' San Sewer Easement
8" Stub (a.l.f.)
℄ 15" V.C.P Sewer
15"x4" Y
See Pg. No. 7A
65' 65' 65' 65'
Y=29+14
Y=28+50
Y=27+85
Boring #5
DE WOLFE ROAD
5' 26'
Fut. Curb Line
Fut. ℄ of Street N 86°03'10"E
27+23.70 J.C.
27+22.70 ℄ cover
8" Stub (a.l.f.)
℄ 15" V.C.P Sewer
Fut. Curb Line
24+77.70 J.C.
24+76.70 ℄ cover
℄ 12" V.C.P Sewer
12"x4" Y
Encase 63' of 12" VCP Per S-23
Y=26+28
Y=25+81
Y=25+28
Lot 19 Per M.R. BOOK 196 Pgs. 304-309
Y=24+73
Y=23+81
Y=23+28
Y=22+75
22+44.70 J.C.
22+43.70 ℄ cover
Encase 53' of 18" VCP Per S-23
Y=22+35
24729.9 Sewer E.C.
Y=22+25
15.51'
18"x4" Y
℄ 18" V.C.P Sewer
℄ of Street Prod.
Y=21+12
See Pg. No. 10B 6' S.S. Easement

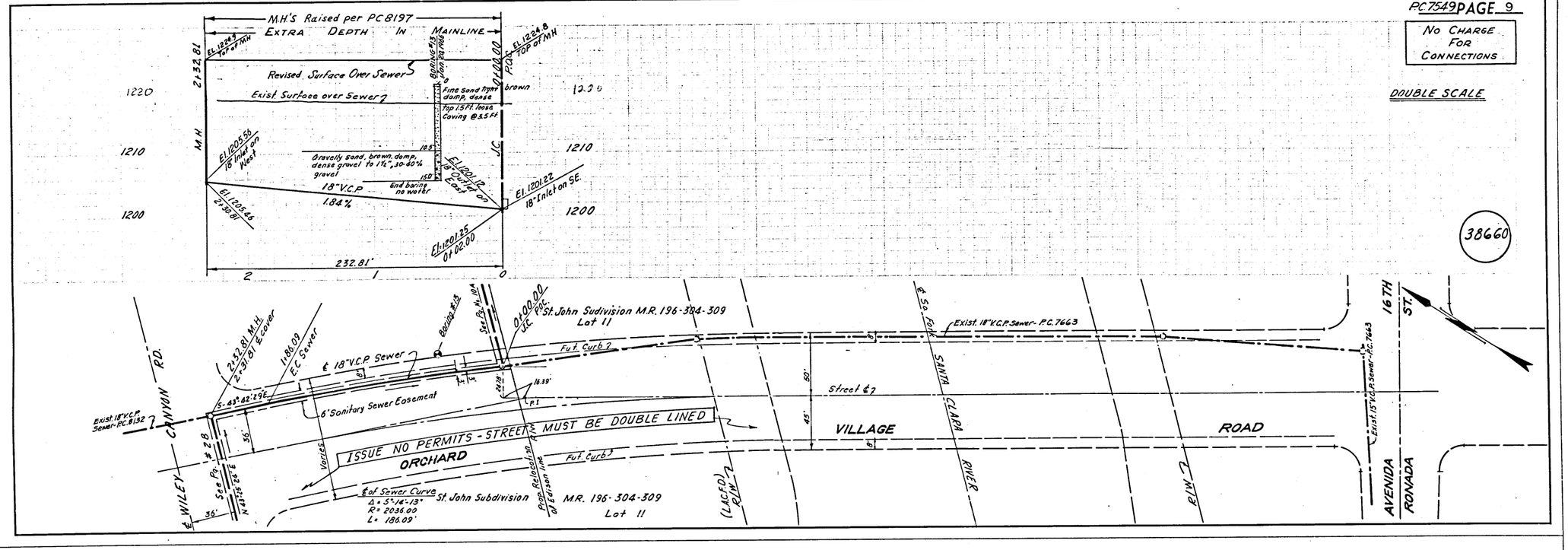
K&E 175153 L.A. COUNTY SEWER SHEET NO. 2 SO. CAL. BLUEPRINT CO. LA 0867

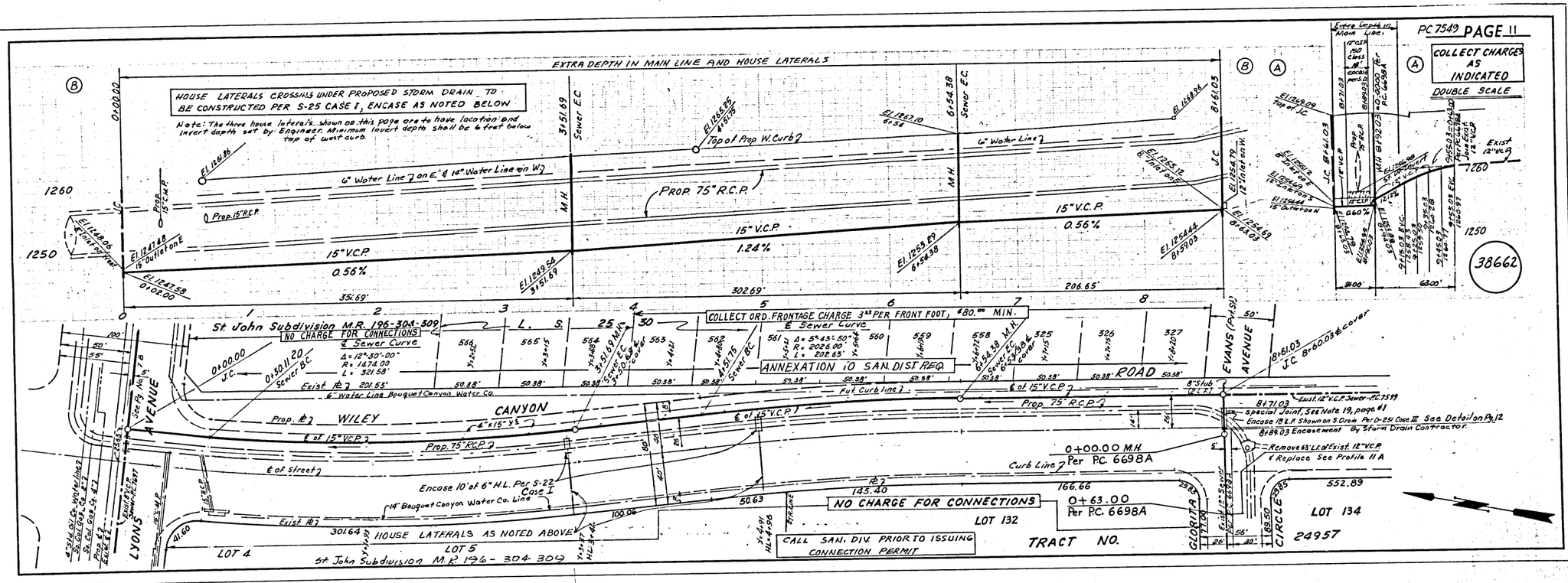
P.C. 7549 PAGE 9

NO CHARGE FOR CONNECTIONS

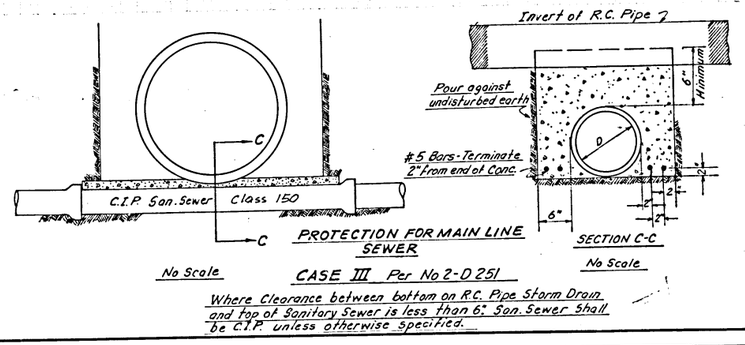
DOUBLE SCALE

38660


M.H.'S Raised per P.C. 8197
EXTRA DEPTH IN MAINLINE
El. 1224.9 Top of MH
El. 1224.8 TOP OF MH
P.O.C. 0+00.00
Boring #1 Jan. 24, 1968
Revised Surface Over Sewer
Exist. Surface over Sewer
Fine sand light brown damp, dense
Top 1.5 Ft. loose, Caving @ 5.5 Ft.
Gravelly sand, brown, damp, dense gravel to 1½", 30-60% gravel
End boring no water
18" V.C.P. 1.84%
El. 1205.56 18" Inlet on West
El. 1205.45 2+30.81
El. 1201.12 18" Outlet on East
El. 1201.22 18" Inlet on SE.
El. 1201.25 Or 02.00
232.81'
M.H
J.C.
1220
1210
1200
Boring #2
Fine sand light brown damp, dense
Top 1.5 Ft. loose, Caving @ 5.5 Ft.
Gravelly sand, brown, damp, dense gravel to 1½", 30-60% gravel
End boring no water
18" V.C.P.
El. 1201.12 18" Outlet on East
El. 1201.22 18" Inlet on SE.
El. 1201.25 Or 02.00
1210
1200
St. John Sudivision M.R. 196-304-309 Lot 11
0+00.00 P.O.C.
Exist. 18" V.C.P. Sewer - P.C. 7663
16TH ST.
AVENIDA RONADA
SANTA CLARA RIVER
VILLAGE ROAD
ORCHARD
WILEY CANYON RD.
Exist. 18" V.C.P. Sewer - P.C. 8132
2+32.81 M.H. 2+31.81 E cover
180.09 E.C. Sewer
℄ 18" V.C.P. Sewer
Boring #3
Sta. 2+ 46.04
3-43°-42'-29E
6' Sanitary Sewer Easement
Fut. Curb ℄
Street ℄
ISSUE NO PERMITS - STREET MUST BE DOUBLE LINED
Voltec
℄ of Sewer Curve Δ = 5°-16'-13" R = 2036.00 L = 186.09'
St. John Subdivision M.R. 196-304-309 Lot 11
Prop. Relocation of Edison Line
(L.A.C.F.C.D.) ℄ R/W
℄ R/W
Exist. 15" V.C.P. Sewer - P.C. 7663
16.39'
49'
59'
36'
Sta. Pg. #2
N 43°25'28"E
Exist. 18" V.C.P. Sewer - P.C. 8048
Exist. 12" V.C.P. Sewer - P.C. 8048
Exist. 10" V.C.P. Sewer
Exist. Lot Line
Exist. 8" V.C.P. Sewer
Exist. 10" V.C.P. Sewer
Exist. 12"
Exist. 8"
Exist. 10"
Exist. 8" V.C.P. Sewer
Exist. 10" V.C.P. Sewer



38663

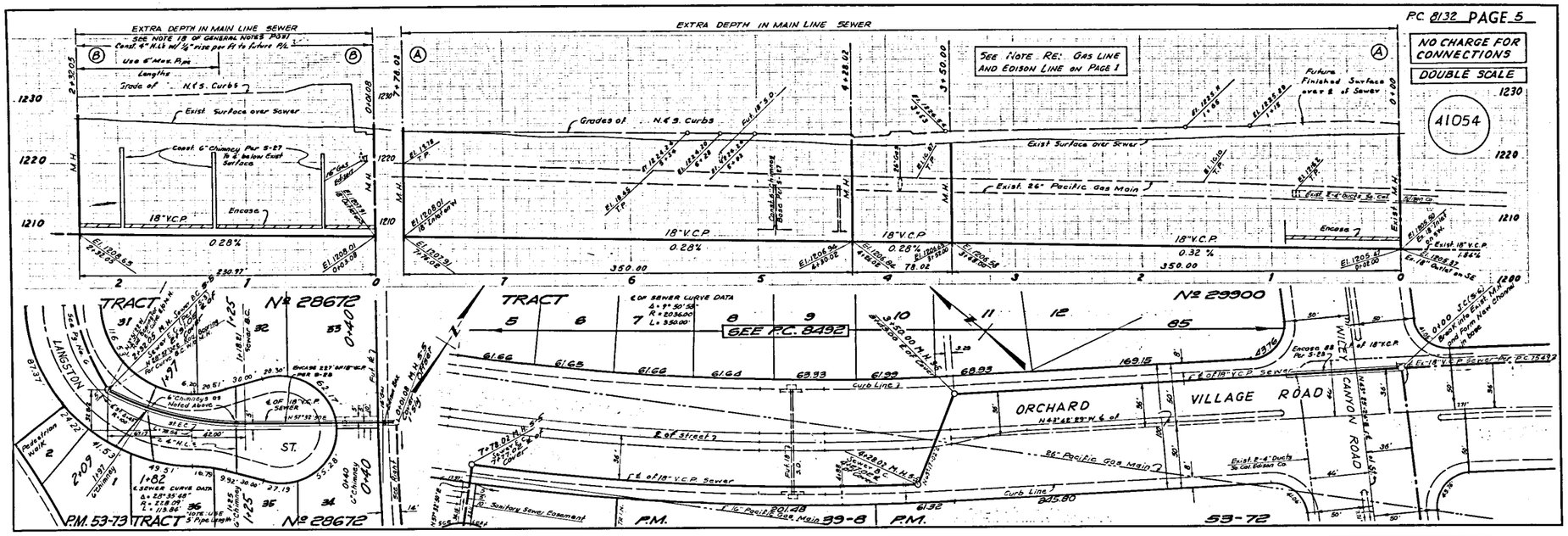


K&E 175153 L.A. COUNTY SEWER SHEET NO. 2 SO. CAL. BLUEPRINT CO. LA 0867

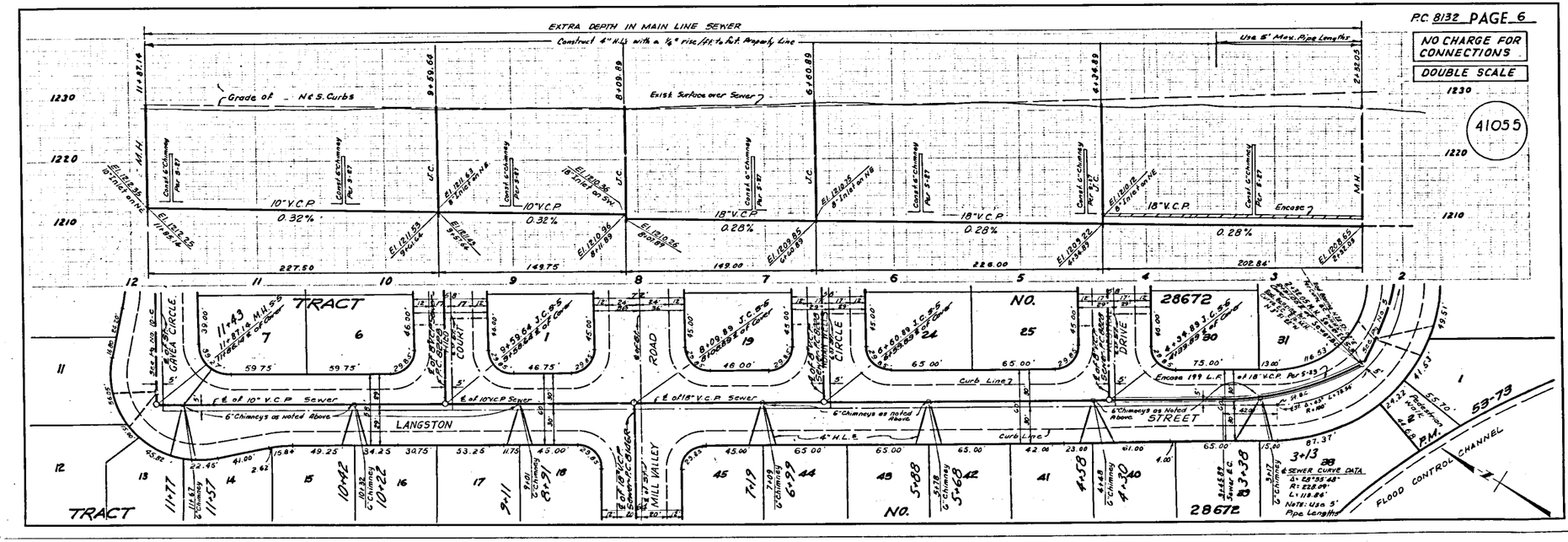
SEWER REFERENCE

PC 8132

PC 8132 PAGE 5



PC 8132 PAGE 6



SEWER REFERENCE

SAS TM No. 43896

STEVENSON RANCH AND VICINITY

SEWER AREA STUDY

TRACT NO. 43896 -P.C. 11476

SEWER AREA STUDY
TRACT 43896
SUMMARY

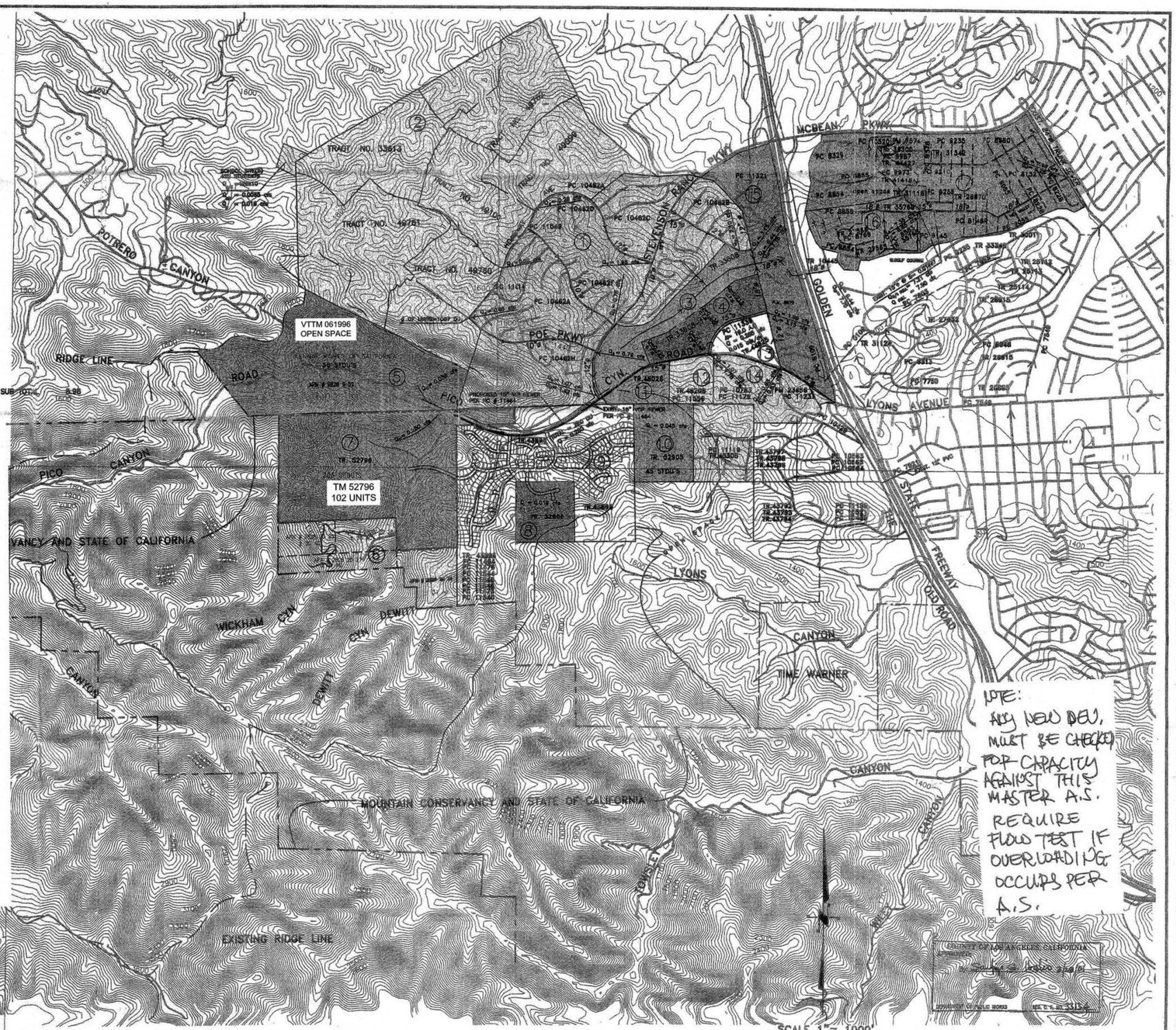
AREA	Q peak (cfs)	REMARKS
1	2.303	(EXISTING)
2	1.642	(EXISTING)
3	0.154	APPROVED TENT. TRACT 33808
4	0.706	APPROVED TENT. TRACT 33808-1
5	0.036	LENNAR HOMES FUTURE
6	0.046	FUTURE
7	0.203	PROPOSED TENT. TRACT 52796
8	0.019	APPROVED TENT. TRACT 52908
9	0.280	(EXISTING)
10	0.045	PROPOSED TENT. TRACT 52905
11	0.066	TENT. TR. 48026
12	0.046	APPROVED TENT. TRACT 48208
13	0.285	(EXISTING)
14	0.63	(EXISTING)
15	1.30	(EXISTING)
16	0.909	(EXISTING)
Exist. Peak Q(Qe) = 7.35 cfs (1,2,9,13, 14, 15 & 16) Ultimate Peak Q (Qu) = 8.85 cfs (1 Thr 16)		
17	0.631	(EXISTING)
TOTAL Qe	7.98	Flow to existing 24" trunk sewer
TOTAL Qu	9.28	

6/20/01
N/A
N/A
10/5/01

SEWER AREA STUDY
WITH CURRENT LAND USE
FOR TM 52796 AND VTTM 061996

AREA	Q peak (cfs)	REMARKS
1	2.303	UNCHANGED
2	1.642	UNCHANGED
3	0.154	UNCHANGED
4	0.706	UNCHANGED
5	**0.000**	***OPEN SPACE***
6	0.046	UNCHANGED
7	**0.102**	***102 UNIT Q***
8	0.019	UNCHANGED
9	0.28	UNCHANGED
10	0.045	UNCHANGED
11	0.066	UNCHANGED
12	0.046	UNCHANGED
13	0.285	UNCHANGED
14	0.63	UNCHANGED
15	1.3	UNCHANGED
16	0.909	UNCHANGED
Exist. Peak Q(Qe) = 7.35 cfs (1,2,9,13,14,15 & 16) Ultimate Peak Q (Qu) = **8.53 cfs** (1 thru 16)		
17	0.631	UNCHANGED
TOTAL Qe	7.98	Flows to existing 24" trunk sewer
TOTAL Qu	**9.16**	

TABLE PER ALLIANCE LAND PLANNING AND ENGINEERING
APRIL 7, 2014



NOTE:
ANY NEW DEV. MUST BE CHECKED FOR CAPACITY AGAINST THIS MASTER A.S. REQUIRE FLOW TEST IF OVERLOADING OCCURS PER A.S.

NO.	REVISION DESCRIPTION	BY	DATE

SR CONSULTANTS

SEWER AREA STUDY
TRACT NO. 43896 -P.C. 11476

SR CONSULTANTS, INC.
LAND PLANNING • ENGINEERING • SURVEYING
26999 McBEAN PARKWAY, SUITE 110, VALENCIA, CA. 91355
Phone 1 (661) 295-0404, Fax 1 (661) 295-0405

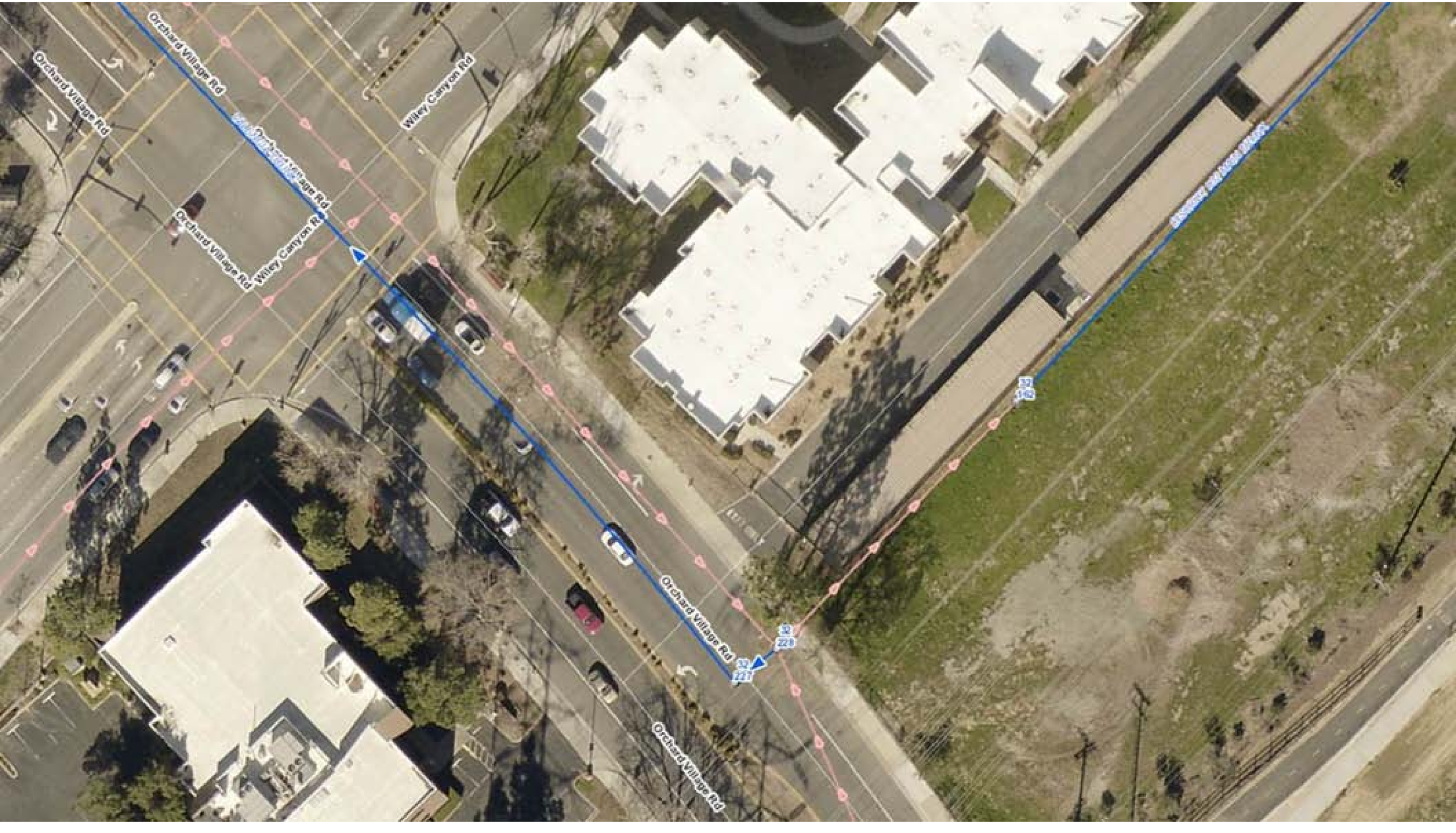
DESIGNED:	H.HARIRCHI
DRAWN:	H.HARIRCHI
CHECKED:	H.HARIRCHI
SUPERVISED:	H.HARIRCHI
PROJ. ENGINEER:	H.HARIRCHI
DATE:	05/27/2000
SCALE:	1"=1000'
JOB NUMBER:	501-001

SHEET NO.
1
OF 1 SHEET

FILE \\Master\sedar-sewer-studying

SEWER REFERENCE

Diversion Structure (24” CDS Trunk Line)

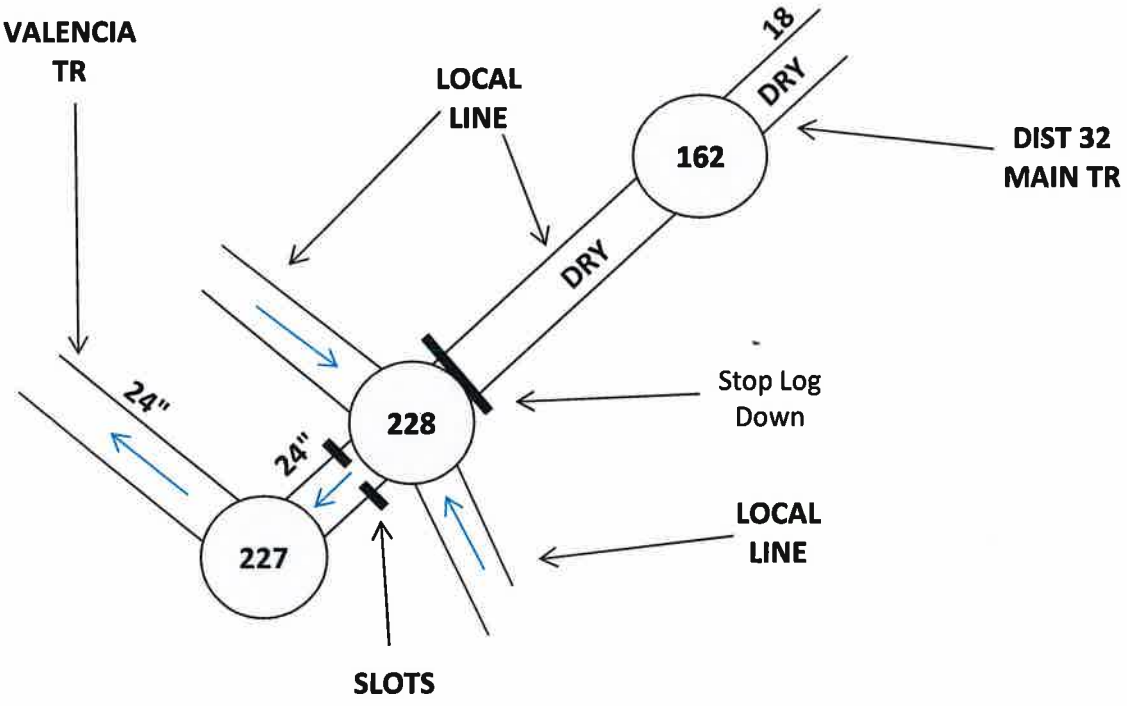

Orchard Village Rd
Wiley Canyon Rd
Orchard Village Rd
Wiley Canyon Rd
Orchard Village Rd
Orchard Village Rd
Orchard Village Rd

COUNTY SANITATION DISTRICTS

OF LOS ANGELES, CALIF.

Date:	03/14/18
Page:	13
Prepared by:	SA
Checked by:	RR/DS

DISTRICT: 32 MAIN TR



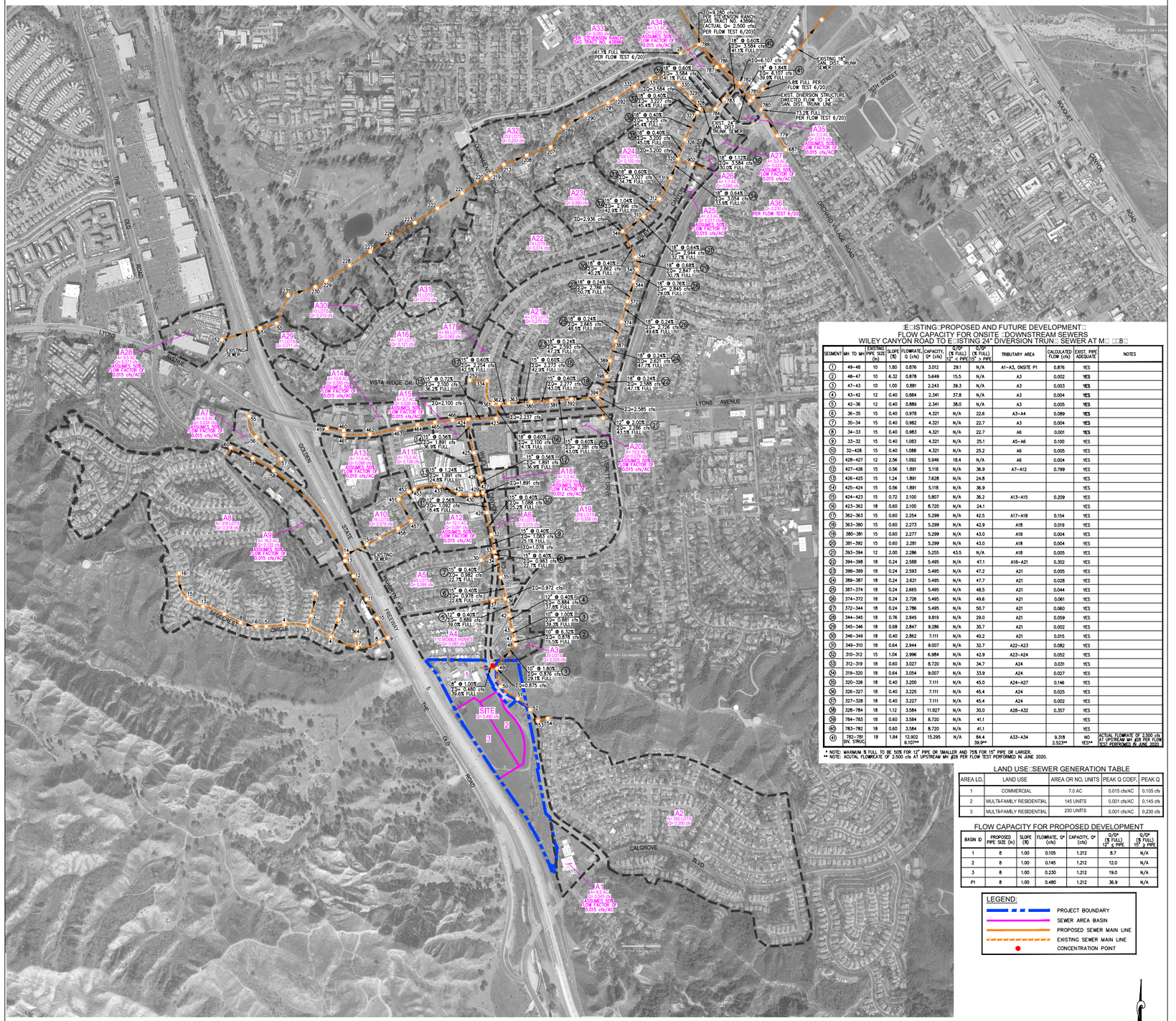
Appendix G

Sewer Area Study Map

WILEY CANYON

SEWER AREA STUDY E□□IBIT

8□□0□20



E□ISTING□PROPOSED AND FUTURE DEVELOPMENT□
FLOW CAPACITY FOR ONSITE □DOWNSTREAM SEWERS
WILEY CANYON ROAD TO E□ISTING 24" DIVERSION TRUN□ SEWER AT M□ □8□

SEGMENT	MH TO MH	EXISTING PIPE SIZE (in)	SLOPE (S)	FLOWRATE, Q (cfs)	CAPACITY, Q* (cfs)	Q/Q* (S FULL) 12" < PIPE	Q/Q* (S FULL) 15" > PIPE	TRIBUTARY AREA	CALCULATED FLOW (cfs)	EXIST. PIPE ADEQUATE	NOTES
①	49–48	10	1.80	0.878	3.012	29.1	N/A	A1–A3, ONSITE P1	0.878	YES	
②	48–47	10	6.32	0.878	5.649	15.5	N/A	A3	0.002	YES	
③	47–43	10	1.00	0.881	2.243	39.3	N/A	A3	0.003	YES	
④	43–42	12	0.40	0.884	2.341	37.8	N/A	A3	0.004	YES	
⑤	42–36	12	0.40	0.889	2.341	38.0	N/A	A3	0.005	YES	
⑥	36–35	15	0.40	0.978	4.321	N/A	22.6	A3–A4	0.089	YES	
⑦	35–34	15	0.40	0.982	4.321	N/A	22.7	A3	0.004	YES	
⑧	34–33	15	0.40	0.983	4.321	N/A	22.7	A6	0.001	YES	
⑨	33–32	15	0.40	1.083	4.321	N/A	25.1	A5–A6	0.100	YES	
⑩	32–428	15	0.40	1.088	4.321	N/A	25.2	A6	0.005	YES	
⑪	428–427	12	2.56	1.092	5.946	18.4	N/A	A6	0.004	YES	
⑫	427–426	15	0.56	1.891	5.118	N/A	36.9	A7–A12	0.799	YES	
⑬	426–425	15	1.24	1.891	7.628	N/A	24.8			YES	
⑭	425–424	15	0.56	1.891	5.118	N/A	36.9			YES	
⑮	424–423	15	0.72	2.100	5.807	N/A	36.2	A13–A15	0.209	YES	
⑯	423–362	18	0.60	2.100	8.720	N/A	24.1			YES	
⑰	362–363	15	0.60	2.254	5.299	N/A	42.5	A17–A18	0.154	YES	
⑱	363–380	15	0.60	2.273	5.299	N/A	42.9	A18	0.019	YES	
⑲	380–381	15	0.60	2.277	5.299	N/A	43.0	A18	0.004	YES	
⑳	381–392	15	0.60	2.281	5.299	N/A	43.0	A18	0.004	YES	
㉑	393–394	12	2.00	2.286	5.255	43.5	N/A	A18	0.005	YES	
㉒	394–398	18	0.24	2.588	5.495	N/A	47.1	A18–A21	0.302	YES	
㉓	398–389	18	0.24	2.593	5.495	N/A	47.2	A21	0.005	YES	
㉔	389–387	18	0.24	2.621	5.495	N/A	47.7	A21	0.028	YES	
㉕	387–374	18	0.24	2.665	5.495	N/A	48.5	A21	0.044	YES	
㉖	374–372	18	0.24	2.726	5.495	N/A	49.6	A21	0.061	YES	
㉗	372–344	18	0.24	2.786	5.495	N/A	50.7	A21	0.060	YES	
㉘	344–345	18	0.76	2.845	9.819	N/A	29.0	A21	0.059	YES	
㉙	345–346	18	0.68	2.847	9.286	N/A	30.7	A21	0.002	YES	
㉚	346–349	18	0.40	2.862	7.111	N/A	40.2	A21	0.015	YES	
㉛	349–310	18	0.64	2.944	9.007	N/A	32.7	A22–A23	0.082	YES	
㉜	310–312	15	1.04	2.996	6.984	N/A	42.9	A23–A24	0.052	YES	
㉝	312–319	18	0.60	3.027	8.720	N/A	34.7	A24	0.031	YES	
㉞	319–320	18	0.64	3.054	9.007	N/A	33.9	A24	0.027	YES	
㉟	320–326	18	0.40	3.200	7.111	N/A	45.0	A24–A27	0.146	YES	
㊱	326–327	18	0.40	3.225	7.111	N/A	45.4	A24	0.025	YES	
㊲	327–328	18	0.40	3.227	7.111	N/A	45.4	A24	0.002	YES	
㊳	328–784	18	1.12	3.584	11.927	N/A	30.0	A28–A32	0.357	YES	
㊴	784–783	18	0.60	3.584	8.720	N/A	41.1			YES	
㊵	783–782	18	0.60	3.584	8.720	N/A	41.1			YES	
㊶	782–781 DIV. STRUC.	18	1.84	12.902 / 6.107**	15.295	N/A	84.4 / 39.9**	A33–A34	9.318 / 2.523**	NO / YES**	ACTUAL FLOWRATE OF 2.500 cfs AT UPSTREAM MH #28 PER FLOW TEST PERFORMED IN JUNE 2020.

* NOTE: MAXIMUM % FULL TO BE 50% FOR 12" PIPE OR SMALLER AND 75% FOR 15" PIPE OR LARGER.
** NOTE: ACUTAL FLOWRATE OF 2.500 cfs AT UPSTREAM MH #28 PER FLOW TEST PERFORMED IN JUNE 2020.

LAND USE□SEWER GENERATION TABLE

AREA I.D.	LAND USE	AREA OR NO. UNITS	PEAK Q COEF.	PEAK Q
1	COMMERCIAL	7.0 AC	0.015 cfs/AC	0.105 cfs
2	MULTI-FAMILY RESIDENTIAL	145 UNITS	0.001 cfs/AC	0.145 cfs
3	MULTI-FAMILY RESIDENTIAL	230 UNITS	0.001 cfs/AC	0.230 cfs

FLOW CAPACITY FOR PROPOSED DEVELOPMENT

BASIN ID	PROPOSED PIPE SIZE (in)	SLOPE (%)	FLOWRATE, Q* (cfs)	CAPACITY, Q* (cfs)	Q/Q* (% FULL) 12" ≤ PIPE	Q/Q* (% FULL) 15" > PIPE
1	8	1.00	0.105	1.212	8.7	N/A
2	8	1.00	0.145	1.212	12.0	N/A
3	8	1.00	0.230	1.212	19.0	N/A
P1	8	1.00	0.480	1.212	36.9	N/A

LEGEND:
- PROJECT BOUNDARY
- SEWER AREA BASIN
- PROPOSED SEWER MAIN LINE
- EXISTING SEWER MAIN LINE
- CONCENTRATION POINT

SCALE: 1"=400'

ALLIANCE
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Lawson & Associates

Geotechnical Consulting, Inc.

Preliminary Geotechnical Investigation for the Proposed Development at 24924 Hawkbryn Drive, City of Santa Clarita, California

Dated: March 25, 2004

Project No. 033022-01

Prepared For:

Monteverde/Calvista LLC
23328 Champagne Lane
Newhall, CA 91321

2045 Royal Avenue • Suite 125 • Simi Valley, CA 93065-4667 • (805) 579-3434 • Fax (805) 579-3435

Lawson & Associates

Geotechnical Consulting, Inc.

March 25, 2004

Project No. 033022-01

Mr. Jay Rodgers
Monteverde/Calvista, LLC
23328 Champagne Lane
Newhall, CA 91321

Subject: ***Preliminary Geotechnical Investigation for the Proposed Development Located at 24924 Hawkbryn Drive, City of Santa Clarita, California***

In accordance with your request, Lawson & Associates Geotechnical Consulting, Inc. (LGC) has performed a preliminary geotechnical investigation for a proposed development to be located at 24924 Hawkbryn Drive in the city of Santa Clarita, California. The purpose of our investigation was to evaluate the existing onsite geotechnical conditions, review geotechnical and geologic reports and maps pertinent to the site, and prepare a report indicating our findings, conclusions, opinions, and recommendations for site development. This report presents the results of our subsurface investigation and geotechnical analysis, and provides our conclusions, opinions and recommendations relative to the proposed development of the site.

If you have any questions regarding our report, please contact this office. We appreciate this opportunity to be of service.

Respectfully submitted,

LAWSON & ASSOCIATES GEOTECHNICAL CONSULTING, INC.

Basil Hattar RCE 60270
Principal Engineer

REGISTERED PROFESSIONAL ENGINEER
BASIL HATTAR
C60270
Expires 06/30/04
CIVIL
STATE OF CALIFORNIA

Matthew Hawley, CEG 2122
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REGISTERED GEOLOGIST
MATTHEW HAWLEY
No. 2122
CERTIFIED
ENGINEERING
GEOLOGIST
STATE OF CALIFORNIA

BIH/MCH/

Distribution: (6) Addressee

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1.0 INTRODUCTION

1.1 Purpose and Scope of Services

The main purpose of our investigation was to evaluate the pertinent geotechnical conditions at the site and to provide geotechnical design criteria for grading construction, foundation design, retaining walls, pavement design and other relevant aspects relative to the proposed development of the site. This report presents the results of our geotechnical investigation for the proposed development. Environmental issues pertaining to the site were not investigated by LGC and it is our understanding that environmental issues (if any) will be addressed by others.

Our scope of services included:

- Review of geotechnical reports and geologic maps (Appendix A).

- A subsurface investigation including the excavation, sampling, and logging of five small-diameter exploratory borings, and four cone penetrometer test soundings (CPT). The borings are labeled B-LGC-1 through B-LGC-5, and the CPT soundings are labeled as CPT-1 through CPT-4. Logs of the borings and print out of the CPT soundings are presented in Appendix B, and their approximate locations are depicted on both of the Exploration Location Maps, Figures 2 and 3. All of the excavations were sampled and logged under the supervision of an engineer or geologist from our firm. The borings were excavated to evaluate the general characteristics of the subsurface conditions on the site including classification of site soils, determination of depth to groundwater, and to obtain representative soil samples.

- Laboratory testing of representative soil samples obtained during our subsurface investigation (Appendix C).

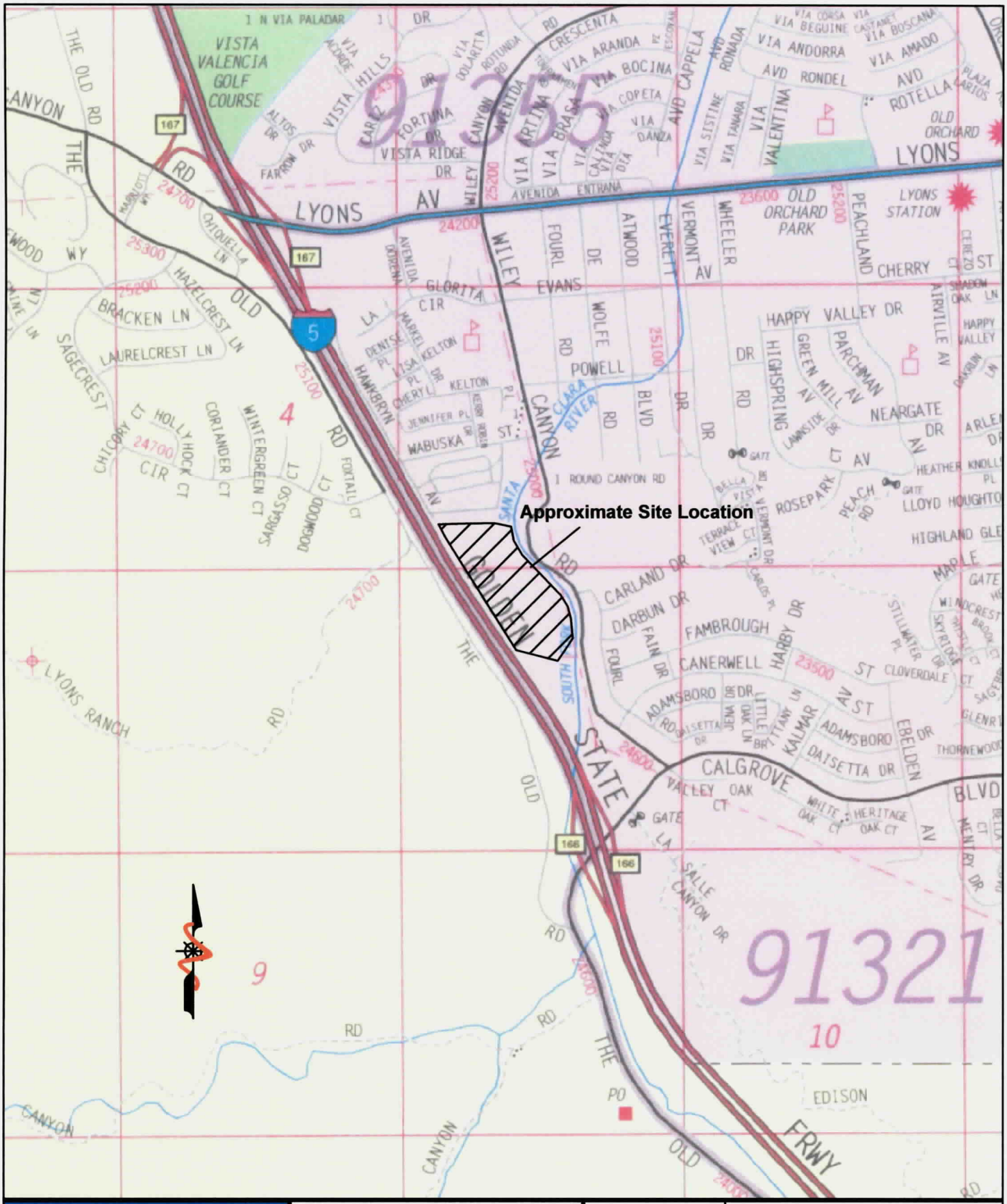
- Geotechnical analysis of the data obtained.

- Preparation of this report presenting our findings, opinions, conclusions and recommendations with respect to the proposed site development.

1.2 Site and Project Description

The site is roughly rectangular-shaped totaling approximately 29 acres located at 24924 Hawkbryn Avenue in the city of Santa Clarita (see Site Location Map, Figure 1). The site currently has three metal buildings and a small water reservoir located in the northern portion of the site. The site is mainly undeveloped and consists of open area for a horse/mule farm. The site is generally bound to the north and south by residential and commercial structures, to the west by the Interstate 5 freeway and to the east by Wiley Canyon Road. Topographically, the site is essentially flat sloping approximately 10 feet across the site with sheet flow to the northwest.

We understand the proposed development will consist of demolition of the existing structures and construction of multi story structures and associated improvement. At this time, it is our understanding that the development may consist of a podium type product constructed with steel and wood framing, consisting of four-story residential over retail shops, along with a four to five story concrete parking structure, and a 10 to 12 story hotel. Due to the relatively flat nature of the existing site, cuts and fills are anticipated to be relatively minor at this time; however, import may increase the amount of additional fill above the existing grade. It is also our understanding that import of up to approximately 300,000 cubic yards of soil may occur pending conceptual development plans. If import soils of this magnitude are brought to the site the import soils and their proposed final location should be reviewed in order to provide supplemental geotechnical recommendations. *At the time of this report, a preliminary grading plan was not available for our review.*



LGC	**Site Location Map**

Project Name	Monteverde/Hawkbryn Ave.
Project No.	033022-01
Eng. / Geol.	BIH/MCH
Scale	n/a
Date	3/25/04

1.3 Subsurface Investigation

Our subsurface investigation was performed on February 3, 2004 and consisted of four CPT soundings (CPT-1 to CPT-4) extended to depths ranging from approximately 13 feet to 47 feet below existing ground surface, and five hollow stem auger borings (B-LGC-1 to B-LGC-5) extended to depths ranging from approximately 31.5 to 51.5 feet below existing ground surface. Refusal of the four CPT soundings occurred prior to the targeted depth of 50 feet, presumably due to the presence of a dense sandy/gravel layer. One piezometer reading was performed in CPT-1 in order to estimate site groundwater depth. The locations of the borings and CPT soundings were coordinated on the site in order to avoid potential underground conflicts and rig accessibility. The approximate locations of the borings and CPT soundings are shown on both Figures 2 and 3. At the conclusion of the subsurface investigation, the borings were backfilled with native materials and the CPT soundings were filled with bentonite chips, and capped with native material. Minor settlement of the backfill soils may occur over time.

CPT soundings have the advantage of providing a near continuous interpretation of subsurface conditions compared to exploratory small-diameter borings that were performed with samples obtained at intervals of 2.5 or 5 feet. For analytical review, the borings along with the CPTs allowed for easy correlation of layers across the site, which can be instrumental in determining potential liquefaction risk. The SPT blow counts for the borings and the CPT data was used for liquefaction analysis.

During our subsurface investigation, representative bulk and relatively undisturbed samples were retained for laboratory testing. Laboratory testing was performed on representative soil samples and included moisture and density tests, maximum density and optimum moisture content, sieve analysis, corrosion testing, expansion, consolidation and collapse testing, and direct shear testing. A discussion of the tests performed and a summary of the results are presented in Appendix C. The moisture and density test results are presented on the boring logs in Appendix B.

2.0 GEOTECHNICAL CONDITIONS

2.1 Regional Geology

The site is located within the northeast portion of the Oat Mountain quadrangle north of the San Fernando Valley, within the Transverse Ranges geomorphic province of California. The site location lies at the southern end of the Santa Clarita Valley, north of Gavin Canyon. The Santa Clarita Valley has received sediment from small drainage areas in the surrounding Santa Susana Mountains. This accumulated sediment is composed of undifferentiated fluvial and alluvial deposits of light brown to brown silty or clayey fine to coarse sand units with some gravel and cobbles, light brown to brown gravelly sand units, and interbeds of brown sandy silt (CGS, 2001).

2.2 Site-Specific Geology

The subject site is underlain by alluvium composed of variable thickness of sand and silt layers and some minor amounts of clay with finer-grained sandy soils dominating. In general, the upper 10 to 12 feet of site soils were loose and soft, and were underlain by medium dense to dense and stiff, sand and silt layers to the maximum explored depth of 51.5 feet. Only the upper 6-inches to one foot in the open field contain organic material, presumable from the site use as a horse/mule farm. Bedrock was not encountered during our investigation, but is anticipated to be within a few tens of feet from the bottom of the explorations.

2.3 Geologic Structure

Geologic structure does not necessarily apply to the site. Structure of the alluvium is anticipated to be horizontal or nearly so with possible cross-bedding within coarse-grained layers. Because the depth to bedrock at the site is greater than the maximum excavation depth of 51.5 feet, the orientation of bedding within bedrock is not known. Based on the regional geology the bedding is generally striking east-west with a northeast dip ranging from approximately 20 to 60 degrees. Because bedrock is relatively deep, orientation of the bedrock is not considered relevant for this study.

2.4 Landslides

Review of geologic literature does not indicate the presence of landslides on or adjacent to the site. In addition, since there are no significant slopes on or adjacent to the site, the potential for the existence of landslides is considered insignificant.

2.5 Groundwater

Groundwater was not encountered during the current subsurface investigation up to the maximum excavation depths of 51.5 feet. One piezometric CPT reading was also performed during the investigation in order to estimate the depth to site groundwater. The reading taken in CPT-1 was inconclusive and depth to groundwater is interpreted from the borings.

In general, groundwater levels in alluvium fluctuate with seasonal variations and local zones of perched groundwater may occur within the near-surface deposits when precipitation is high. Review of SHZR 005 (CGS, 2001) indicates the highest recorded groundwater levels. These levels have subsequently dropped due to groundwater withdrawal for consumptive and agricultural uses. For liquefaction analysis the "worst-case" groundwater level is required. Based on CGS 1997 revised 2001 the highest recorded groundwater levels for the site are indicated at 30 feet below ground surface.

2.6 Surface Water

Based on our review of site maps, sheet flow is to the northwest. Surface water runoff relative to project design is the purview of the project civil engineer and should be designed to be directed away from planned structures.

2.7 Faulting

The subject site is not located within an Alquist-Priolo Earthquake Fault Zone and there are no known faults (active, potentially active, or inactive) onsite. The possibility of damage due to ground rupture is considered nil since active faults are not known to cross the site.

Secondary effects of seismic shaking resulting from large earthquakes on the major faults in the southern California region, which may affect the site, include soil liquefaction and dynamic settlement. Other secondary seismic effects include ground lurching, shallow ground rupture, and seiches and tsunamis. In general, these secondary effects of seismic shaking are a possibility throughout the Southern California region and are dependant on the distance between the site and causative fault and the onsite geology. The major active fault that could produce these secondary effects is the Santa Susana Fault located approximately 3.0 miles (4.8 km) from the site. Other faults that may result in shaking to the site include the Holser Fault, and Northridge Fault, San Gabriel Fault, and Sierra Madre Fault among others. The site is located in a State of California Seismic Hazard Zone for liquefaction. A discussion of liquefaction and these secondary effects is provided in the following sections.

2.7.1 Liquefaction and Dynamic Settlement

Liquefaction is a seismic phenomenon in which loose, saturated, granular soils behave similarly to a fluid when subject to high-intensity ground shaking. Liquefaction occurs when three general conditions exist: 1) shallow groundwater; 2) low density non-cohesive (granular) soils; and 3) high-intensity ground motion. Studies indicate that saturated, loose to medium dense, near surface cohesionless soils exhibit the highest liquefaction potential, while dry, dense, cohesionless soils and cohesive soils exhibit low to negligible liquefaction potential. In general, cohesive soils are not considered susceptible to liquefaction. Cohesive soils may be susceptible to liquefaction if they meet all of the following criteria that is commonly referred to as the "Chinese Criteria" (Seed et al, 1985):

- Clay content (defined as percent finer than 0.005 mm) less than 15 percent
- A liquid limit less than 35 percent
- An in-situ moisture content greater than 0.9 times the liquid limit

Effects of liquefaction on level ground include settlement, sand boils, and bearing capacity failures below structures. Dynamic settlement of dry sands can occur as the sand particles tend to settle and densify as a result of a seismic event.

Site soils encountered in the geotechnical borings and CPT soundings were primarily soft to stiff, fine-grained silty layers and loose to medium dense sandy layers within the upper 10 to 12 feet underlain by medium dense to dense sandy layers and stiff silty layers up to the maximum excavated depths of 51.5 feet. The sand to silty sand layers encountered may be susceptible to liquefaction, however measurements indicate relatively high densities, which would generally preclude liquefaction and the negative effects to structures from liquefaction. Groundwater was not encountered in our geotechnical borings or CPT sounding; however the highest historic groundwater level for the site is approximately 30 feet below the surface (CGS, sed 2001). Therefore, a groundwater level of 30 feet below the surface was used in our preliminary liquefaction analysis.

Based on our preliminary review and liquefaction analysis, the potential for liquefaction to occur is low.

2.7.2 Lurching and Shallow Ground Rupture

Soil lurching refers to the rolling motion on the ground surface by the passage of seismic surface waves. Effects of this nature are not likely to be significant where the thickness of soft sediments do not vary appreciably under structures. Ground rupture due to active faulting is not likely to occur on site due to the absence of known active fault traces. Cracking due to shaking from distant seismic events is not considered a significant hazard, although it is a possibility at any site.

2.7.3 Tsunamis and Seiches

Based on the elevation of the proposed development at the site with respect to sea level and its distance from large open bodes of water, the potential of seiche and/or tsunami is considered to be nil.

2.8 Seismicity

The main seismic parameters to be considered when discussing the potential for earthquake-induced damage on the site are the distances to the causative faults, earthquake magnitudes, and expected ground accelerations. LGC performed a site-specific analysis based on these seismic parameters for the site using the computer program FRISKSP prepared by Thomas Blake (Blake, 2000). The results of our analysis are discussed in terms of the "Design-Basis Earthquake Ground Motion" which is defined as the ground motion that has a 10 percent chance of being exceeded in 50 years (U.B.C., 1997, Section 1627).

The Santa Susana Fault is located approximately 3.0 miles (4.8 km) from the site and is considered to have the most significant effect at the site from a probabilistic design standpoint. Attenuation relations prepared by Campbell and Bozorgnia (1997), Sadigh et al (1997) and Abrahamson & Silva (1997) were used to determine the probabilistic horizontal ground motion for the subject site. Based on the average of the attenuation relations used, we conclude the design earthquake (10 percent chance of being exceeded in 50 years) could produce a magnitude weighted Peak Horizontal Ground Acceleration (PHGA) of 0.65g at the site (Blake, 2000).

2.9 Seismic Design Criteria

The following are the soil parameters per the 2002 City of Los Angeles Building Code (based on the 2001 CBC and the 1997 U.B.C):

Causative Fault: Santa Susana
Seismic Source Type: B
Distance to Site: Approximately 4.8 km (3.0 miles)
Seismic Zone: 4
Soil Profile Type: S_D
Near Source Factor, Na: 1.0
Near Source Factor, Nv: 1.2

2.10 Slope Stability

No significant slopes exist onsite, therefore slope stability is not considered a threat to the site development.

2.11 Laboratory Testing

Laboratory testing of the onsite soils was performed on representative samples obtained from the borings and included moisture and density tests, maximum density and optimum moisture, sieve and hydrometer analysis, sulfate content testing, expansion potential, consolidation and collapse testing, corrosion potential and direct shear testing. Laboratory testing was performed by RJR laboratory. A discussion of the tests performed and a summary of the results are presented in Appendix C. The moisture and density test results are presented on the boring logs in Appendix B.

These results/assumptions should be confirmed at the completion of site grading.

Expansion potential testing indicated expansion index of 20 and 22, “Very Low to Low” (1997 Uniform Building Code, UBC, EI from 0 to 50).

Direct shear testing was performed on two undisturbed samples, and one bulk sample obtained during our investigation at depths of 0-5 feet, 21 feet and 51 feet. Results for the undisturbed samples were a peak friction ranging from 42 to 43 degrees and an apparent cohesion ranging from 325 to 700 psf, and an ultimate friction angle of 43 degrees and an apparent cohesion ranging from 225 to 550 psf. Results for the bulk sample remolded to 90 percent relative compaction were a peak friction angle of 47 degrees and an apparent cohesion ranging of 425 psf and an ultimate friction angle of 46 degrees and an apparent cohesion of 475 psf.

Hydro-collapse potential of the underlying alluvium within the project site was evaluated based upon available data, in-situ densities and collapse test results. The collapse test results for samples of the alluvium deposits at a depth of 11 feet indicate that there is a potential for 3.5% to 5% consolidation to occur, and collapse test results below the upper 12 feet indicate less than 0.5% consolidation. Hence, the consolidation settlement of the underlying alluvium is considered minor, and no mitigation measures (other than removal and compaction as addressed in section 4.1.2) appear to be warranted.

2.12 Corrosivity of Soils

A corrosion suite (pH, resistivity, soluble sulfate, and chloride content) was performed on a sample obtained from boring B-LGC-1 and a sulfate content test was also performed on sample obtained from B-LGC-5 to estimate the corrosion potential of onsite soils. The resistivity tests resulted in a minimum resistivity of 940 ohm-centimeters, a pH of 7.6, and chloride content of 31 ppm. The results of the soluble sulfate content tests were 0.1080 and 0.0021 percent ("Negligible to Moderate" per 1997 UBC Table 19-A-4). Caltrans defines a severely corrosive area where any of the following conditions exist: the soil contains more than 500 ppm of chlorides, more than 2,000 ppm (0.2 percent) of sulfates, a minimum resistivity of less than 1,000 ohm-centimeters, or a pH of 5.5 or less.

3.0 CONCLUSIONS

Based on the results of our geotechnical investigation, it is our opinion that the proposed development is feasible from a geotechnical standpoint, provided the conclusions and recommendations contained in this report are considered and incorporated into the project design process. Based on our current understanding of the possible site improvements, relatively light wood framed structures three to four-stories may be supported on shallow foundations or post-tensioned slabs. Multi-story heavier loaded structures are anticipated to be supported on a pile foundation system, as is the typical design for these types of structures. The data set at this time is incomplete and other foundation systems may prove more feasible based on the actual building types and loads, future conceptual plans, and possible future studies and laboratory testing. The following is a summary of the primary geotechnical factors determined from our geotechnical investigation.

- Based on our subsurface exploration and review of pertinent geologic maps and reports, the site is underlain by alluvium, and bedrock (at depth).
- The site is not located within an Alquist-Priolo Earthquake Fault Zone (Hart and Bryant, 1997).
- The site is located within an area deemed to have a potential for liquefaction (CDMG, 1997).
- The upper approximate 10 to 12 feet of site soils are primarily loose to soft silty sands to sandy silts with gravel. Soils below this depth increase in relative density and become medium dense to very dense generally below the upper 12 feet in depth.
- The upper 6-inches to one foot in the open field areas contain organic material.
- There are no geotechnical constraints for importing up to 300,000 yds^3 of material to the site.
- The onsite soils below recommended remedial grading depths have a low potential for consolidation.
- Groundwater was not encountered during this investigation to the maximum excavation depth of 51.5 feet below existing elevations; however, higher groundwater levels and perched groundwater conditions may occur during seasonal fluctuations.
- Based on the conclusions of our subsurface explorations and review of the data, the potential for liquefaction on site is low.
- Surface manifestations of liquefaction during a strong earthquake is not expected.
- Active or potentially active faults are not known to exist on the site.
- The main seismic hazard that may affect the site is from ground shaking from one of the nearby active regional faults. The estimated peak horizontal ground acceleration with a 10 percent of probability of exceedance in 50 years is 0.65g. Other secondary seismic effects are not considered significant for the proposed development.
- There are no known landslides impacting the site.
- Laboratory test results of the onsite soils indicate a very low to low expansion potential, and negligible to moderate potential for soluble sulfate attack on normal concrete.
- Laboratory tests indicate that soils underlying the upper 12 feet have a negligible potential of hydro-collapse.
- From a geotechnical perspective, the existing onsite soils appear to be suitable material for use as fill, provided they are relatively free from rocks (larger than 6 inches in maximum dimension), construction debris, and organic material as encountered in the open field areas. It is anticipated that the onsite soils may be excavated with conventional heavy-duty construction equipment.

4.0 RECOMMENDATIONS

4.1 Site Earthwork

We anticipate that earthwork at the site will consist of site preparation and remedial grading followed by construction of slab-on-grade type or deep foundations, followed by asphalt paving of the parking area and driveways. We recommend that earthwork onsite be performed in accordance with the following recommendations, the City of Santa Clarita Grading Requirements, and the General Earthwork and Grading Specifications for Rough Grading included in Appendix D. In case of conflict, the following recommendations shall supersede those included as part of Appendix D.

4.1.1 Site Preparation

Prior to grading of areas to receive structural fill or engineered structures, the areas should be cleared of surface obstructions, any existing debris, potentially compressible material (such as undocumented fill soils, or unsuitable alluvium) and stripped of vegetation. Vegetation and debris should be removed and properly disposed of offsite. The upper 6-inches to one foot from the open field areas should be removed and disposed of offsite because it appears to contain a large amount of organics, from its use as a horse/mule farm. All debris from the proposed demolition activities at the site should also be removed. Holes resulting from the removal of buried obstructions or utilities, which extend below finished site grades should be replaced with suitable compacted fill material. Areas to receive fill and/or other surface improvements should be scarified to a minimum depth of 6 inches, brought to a near-optimum moisture condition, and recompacted to at least 90 percent relative compaction (based on American Standard of Testing and Materials [ASTM] Test Method D1557).

4.1.2 Removal and Recompaction

As discussed in Section 2.2, the upper portion of the site is underlain by potentially compressible/hydro-collapsible soils, which may settle under the surcharge of fill and/or foundation loads. Compressible/collapsible materials not removed by the planned grading should be excavated to competent material and replaced with compacted fill soils. We anticipate removals on the site to be on the order of 10 to 12 feet below existing grade; however, localized, deeper removals should be anticipated where deemed necessary by the geotechnical consultant based on observations during grading. Based on our site investigation groundwater was not encountered to the maximum excavation depth of 50 feet, however, Based on CGS 1997 revised 2001 the highest recorded groundwater levels for the site are indicated at 30 feet below ground surface.

From a geotechnical perspective, material that is removed may be placed as fill provided the material is relatively free from rocks (greater than 6 inches in maximum dimension), organic material and construction debris, is moisture-conditioned or dried (as needed) to obtain above-optimum moisture content, and then recompacted prior to additional fill placement or construction.

4.1.3 Shrinkage/Bulking

The preliminary estimated shrinkage factors of 10 to 15 percent for the existing fills and alluvium may be used for consideration of earthwork calculations. These are preliminary rough estimates which may vary with depth of removal, stripping losses, field conditions at the time of grading, etc. (Handling losses, and reduction in volume due to removal of oversized material, are not included in the estimates).

4.1.4 Temporary Stability of Removal Excavations

Due to the recommended depth of remedial grading (on the order of 10 to 12 feet), the temporary stability of the excavations along the perimeter of the site needs to be considered. All excavations for the proposed development should be performed in accordance with current OSHA (Occupational Safety and Health Agency) regulations and those of other regulatory agencies, as appropriate.

Temporary excavations maybe cut vertically up to five feet. Excavations over five feet should be slot-cut, shored, or cut to a 1H:1V (horizontal, H: vertical, V) slope gradient. Surface water should be diverted away from the exposed cut, and not be allowed to pond on top of the excavations. Temporary cuts should not be left open for an extended period of time.

Where sufficient space is not available for sloped cuts directly adjacent to existing structures or improvements the cut shall be performed by the A-B-C slot method as outlined below.

1. The banks of the excavation shall be made at 1H:1V or a combination of vertical cut and a 1H :1V.

2. Vertical cuts, not exceeding 15 feet in width are made in the locations of the first slot “A”.

3. Back-fill and compact the first slot.

4. The second adjacent slot, “B” is excavated.

5. Back-fill and compact the second slot.

6. Then the third slot “C” is excavated.

7. Back-fill and compact the third slot.

8. Repeat the above steps until all the required excavations are performed adjacent to the existing improvements.

4.1.5 Flexible and Braced Shoring

Temporary Solder pile (flexible) shoring, if used, should be designed to resist a lateral earth pressure equivalent to a fluid density of 30 pounds per cubic foot (pcf). That is to say, a triangular pressure distribution should be used, that increases by 30 pounds per square foot (psf) per foot of depth below level ground.

Tied back or braced shoring is recommended to limit shoring deflections in areas where the shoring will be located closer to existing improvements. Braced shoring can be designed using a uniform rectangular soil pressure of 20H in pounds per square foot, where H is equal to the depth of the excavation being shored. Braces should be installed and pre-loaded as the excavation progresses to reduce shoring deflections and to maintain at-rest earth pressures within the retained soil mass.

In addition to the above lateral forces due to retained earth, surcharge due to improvements, such as adjacent structures, or vehicle traffic, should be considered for design of the shoring. Loads applied within a 1H:1V projection behind the shoring should be considered as lateral surcharge. Lateral pressures from uniform vertical surcharge loads, such as floor slab loads, can be assumed to act as a uniform lateral pressure with a magnitude of 50 percent of the uniform vertical surcharge.

It is recommended that LGC review any changes to the plans and specifications for the proposed shoring, if any shoring is necessary. Lateral deflection of the shoring system should be verified periodically during construction so that if excessive deflections occur, they can be detected early and appropriate measures can be taken. A licensed surveyor should be retained to establish monuments on the shoring and the surrounding ground prior to excavation. Such monuments should be monitored for horizontal and vertical movement during construction. Results of the monitoring program should be provided immediately to the project structural (shoring) engineer and LGC for review and evaluation.

4.1.6 Fill Placement and Compaction

From a geotechnical perspective, the onsite soils are generally suitable for use as compacted fill, provided they are screened of rocks greater than 6 inches in maximum dimension, organic materials and construction debris. Areas prepared to receive structural fill and/or other surface improvements should be scarified to a minimum depth of 6 inches, brought to at least optimum-moisture content, and recompacted to at least 90 percent relative compaction (based on ASTM Test Method D1557). The optimum lift thickness to produce a uniformly compacted fill will depend on the type and size of compaction equipment used. In general, fill should be placed in uniform lifts generally not exceeding 8 inches in compacted thickness. Placement and compaction of fill should be performed in accordance with local grading ordinances under the observation and testing of the geotechnical consultant.

In general, oversized material shall not be placed within 10 vertical feet of finish grade

or within 2 feet of future utilities or underground construction. Rebar should be removed from concrete rubble prior to burial or mixing with fill. Oversize material may be incorporated into design fills in accordance with our standard grading details.

If possible, import soils should contain no materials over 6 inches in maximum dimension and have a low expansion potential.

4.1.7 Trench Backfill and Compaction

The onsite soils may generally be suitable as trench backfill provided they are screened of rocks and other material over 6 inches in diameter and organic matter. Trench backfill should be compacted in uniform lifts (generally not exceeding 8 inches in compacted thickness) by mechanical means to at least 90 percent relative compaction (per ASTM Test Method D1557).

If trenches are shallow and the use of conventional equipment may result in damage to the utilities; clean sand, having sand equivalent (SE) of 30 or greater, should be used to bed and shade the utilities. Sand backfill should be densified. The densification may be accomplished by jetting or flooding and then tamping to ensure adequate compaction. A representative from LGC should observe, probe, and test the backfill to verify compliance with the project specifications.

4.2 Foundation Selection

4.2.1 General

Preliminary recommendations for foundation design and construction are presented herein. When the final structural loads for the proposed structures are know they should be provided to our office for the recommendations presented herein should be verified.

The following foundation recommendations are provided. The three foundations recommended for the proposed structures are: (1) Conventional foundation (light structures); (2) Post-Tension foundations (for the 4-story residential buildings); and (2) deep foundations, piers/piles (for the parking and hotel structures).

The information and recommendations presented in this section are not meant to supersede design by the project structural engineer or civil engineer specializing in the structural design nor a corrosion consultant.

4.2.2 Conventional Foundations

Continuous footings should have minimum widths of 12 inches, 15 inches or 18 inches for one-story, two-story or three-story structures, respectively. Individual column footings should have a minimum width of 24 inches.

Footings for proposed structures should have minimum depths (below lowest adjacent finish grade) of 24 inches and 18 inches for exterior and interior footings, respectively for very low to low expansion potential (0-50 Expansion Index).

Shallow foundations may be designed for a maximum allowable bearing capacity of 2,000 lb/ft^2 (gross), for continuous and spread footings founded in compacted fill. A factor of safety greater than 3 was used in evaluating the above bearing capacity values.

Lateral forces on footings may be resisted by passive earth resistance and friction at the bottom of the footing. Foundations may be designed for a coefficient of friction of 0.35, and a passive earth pressure of 250 $lb/ft^2/ft$. The passive earth pressure incorporates a factor of safety of about 1.5.

All footing excavations should be cut square and level, and should be free of sloughed materials. Subgrade soils should be pre-moistened for the assumed medium to high expansion potential (to be determined at the end of grading).

The subgrade should be moisture-conditioned and proof-rolled just prior to construction to provide a firm, relatively unyielding surface, especially if the surface has been loosened by the passage of construction traffic.

The floor slab should be underlain by 4 inches of sand or gravel. If a moisture-sensitive floor is to be used, a 10-mil plastic vapor barrier is recommended. This sheeting should be covered with approximately 2 inches of sand.

Subgrade soils should be pre-saturated to optimum moisture content to a depth of 12 inches for a low expansion potential. Expansion index testing should be performed at the end of grading for confirmation. The minimum thickness of the floor slabs should be at least 4 inches, and joints should be provided per usual practice.

4.2.3 Post-Tension Foundations (4-Story Residential Structure over retail)

Based on the site geotechnical conditions and provided the remedial recommendations provided herein are implemented, the site may be considered suitable for the support of the anticipated four-story structures using a post-tensioned slab-on-grade foundation system. The following section summaries our recommendations for the foundation system.

TABLE 1

Preliminary Geotechnical Parameters for Post-Tensioned Foundation Design

Parameter	Value
Expansion Classification:	Low Expansion
Percent that is Finer than 0.002 mm in the Fraction Passing the No. 200 Sieve:	< 30 percent (assumed)
Clay Mineral Type:	Montmorillonite (assumed)
Thornthwaite Moisture Index:	-20
Depth to Constant Soil Suction (estimated as the depth to constant moisture content over time, but within U.B.C. limits):	7 feet
Constant Soil Suction:	PF 3.6
Moisture Velocity:	0.7 inches/month
Center Lift Edge moisture variation distance, e_m: Center lift, y_m:	 5.5 feet 2.0 inches
Edge Lift Edge moisture variation distance, e_m: Edge lift, y_m:	 3.0 feet 0.75 inches
Soluble Sulfate Content for Design of Concrete Mix in Contact with Site Soils in Accordance with U.B.C., 1997 Table 19-A-4:	Moderate Exposure (see report)
Corrosivity of Earth Materials to Ferrous Metals:	Moderately (see report)
Modulus of Subgrade Reaction, k (assuming presaturation as indicated below):	150 pci
Additional Recommendations: 1. Presaturate slab subgrade to a minimum optimum-moisture content, to a minimum depth of 12 inches below ground surface. 2. Install a 10-mil Visqueen (or equivalent) moisture barrier covered by a minimum of 2 inches of sand above *. 3. Other types of stiff slabs (such as a mat foundation) may be used in place of the U.B.C. post-tensioned slab design provided that, in the opinion of the structural engineer, the alternative type of slab is at least as stiff and strong as that designed by the U.B.C. method. 4. Two No. 5 rebar should be located at the bottom perimeter beams, extending 10 feet into the interior beams unless superceded by the foundation engineer. 5. Minimum perimeter foundation embedment below finish grade for moisture cut off should be 24 inches.	

* The above sand and Visqueen recommendations are traditionally included with geotechnical foundation recommendations although they are generally not a major factor influencing the geotechnical performance of the foundation. The sand and Visqueen requirements are the purview of the foundation engineer/corrosion engineer and the homebuilder to ensure that the concrete cures correctly, is protected from corrosive environments and moisture penetration of the floor is acceptable to the future homeowners. Therefore, the above recommendations may be superceded by the requirements of the previously mentioned parties.

4.2.3 Deep Foundations (Parking Structure and Hotel Structure)

Based on anticipated high design loads for the multi-story parking structure and hotel structure, deep foundations appear to be the most suitable choice as a foundation system for the proposed structure. The structure may be supported on either cast-n-drilled-hole (CIDH) piles or driven piles. Ground water at the site was not encountered in our borings up to the maximum excavated depth of 50 feet below the existing ground surface and may fluctuate depending on climatic conditions and seasonal precipitation. CIDH piles that extend below groundwater table may encounter problems associated with pile construction below groundwater and caving. Driven piles, if selected, should have a minimum embedment depth of 50 feet. Vibration and noise during pile driving may have adverse impact on sensitive equipment in the vicinity of the site and should be considered in selecting the foundation type. Allowable axial and lateral capacities of CIDH piles or driven piles can be presented once actual proposed building types and foundation loads are know.

4.2.4 Foundation Settlement

Based on our current understanding of the project, the results of the our site investigation and the recommended remedial grading with shallow foundations embedded into compacted fills with the recommended removals, we estimate the post-construction settlement of the site to be less than 1-inch with a differential settlement of approximately of 0.5-inch in 30 feet for shallow foundations. The total and differential settlement of the piles is estimated to be on the order of ½ inch and ¼ inch, respectively, for deep foundations.

4.3 Lateral Earth Pressures and Retaining Wall Design Considerations

The following are lateral earth pressures for retaining walls, if any are proposed. Due to the expansive nature of onsite soils, we recommend the import of low expansive soils for retaining wall backfill. The recommended lateral pressures for approved import soils (expansion index less than 30 per U.B.C. 18-I-B) for level or sloping backfill are presented on Table 2.

TABLE 2
Lateral Earth Pressures for Import Soils

Conditions	Equivalent Fluid Weight (pcf)	
	Level Backfill	2:1 Backfill Sloping Upwards
Active	35	46
At-Rest	50	73
Passive	250	—

Embedded structural walls should be designed for lateral earth pressures exerted on them. The magnitude of these pressures depends on the amount of deformation that the wall can yield under load. If the wall can yield enough to mobilize the full shear strength of the soil, it can be designed for "active" pressure. If the wall cannot yield under the applied load, the shear strength of the soil cannot be mobilized and the earth pressure will be higher. Such walls should be designed for "at-rest" conditions. If a structure moves toward the soils, the resulting resistance developed by the soil is the "passive" resistance. The passive earth pressure values assumes sufficient slope setback (see previous section).

For design purposes, the recommended equivalent fluid pressure for each case for walls founded above the static groundwater and backfilled with import soils (expansion index less than 30) is provided in Table 2. The equivalent fluid pressure values assume free-draining conditions. The backfill soils (having an expansion index less than 30 per U.B.C. 18-I-B) should be compacted to at least 90 percent relative compaction (based on ASTM Test Methods D2922 and D3017). The walls should be constructed and backfilled as soon as possible after backcut excavation. Prolonged exposure of backcut slopes may result in some localized slope instability. If conditions other than those assumed above are anticipated, the equivalent fluid pressure values should be provided on an individual-case basis by the geotechnical engineer.

Surcharge loading effects from the adjacent structures should be evaluated by the geotechnical and structural engineers. All retaining wall structures should be provided with appropriate drainage and appropriately waterproofed. The outlet pipe should be sloped to drain to a suitable outlet. Typical wall drainage design is illustrated on Figure 4. It should be noted that the recommended subdrain does not provide protection against seepage through the face of the wall and/or efflorescence. Efflorescence is generally a white crystalline powder (discoloration) that results when water, which contains soluble salts, migrates over a period of time through the face of a retaining wall and evaporates. If such seepage or efflorescence is undesirable, retaining walls should be waterproofed to reduce this potential.

For sliding resistance, the friction coefficient of 0.35 may be used at the concrete and soil interface. Wall footings should be designed in accordance with structural considerations. The passive resistance value may be increased by one-third when considering loads of short duration such as wind or seismic loads.

Foundations for retaining walls in properly compacted fill should be embedded at least 18 inches below lowest adjacent grade. At this depth, an allowable bearing capacity of 1,500 psf may be assumed.

All excavations should be made in accordance with Cal OSHA. Excavation safety is the sole responsibility of the contractor.

4.4 Pavement Recommendations

Based on an assumed R-value of 35, and assumed Traffic Indices (TI's) of 5, 6 and 7, we recommend the following minimum pavement sections. These recommendations should be confirmed by additional testing at the completion of grading. Final pavement sections should be confirmed by the project civil engineer based upon the project traffic index and the City of Los Angeles minimum requirements.

TABLE 3

Recommended Minimum Pavement Sections

Traffic Index	5	6	7
Asphalt Concrete (in.)	3	4	5
Aggregate Base (in.)	4	5	7

The aggregate base material should conform to the specifications for Class 2 Aggregate Base (Caltrans) or Crushed Aggregate Base (Standard Specifications for Public Works Construction). The base material should be compacted to achieve a minimum relative compaction of 95 percent. The subgrade should achieve a minimum relative compaction of 90 percent through the upper 12 inches. Base and subgrade materials should be moisture-conditioned to a relatively uniform moisture content at or slightly over optimum. The R-value should be obtained during the concluding stages of grading, and the final pavement section will then be designed accordingly. TI's for the streets within the subject project site should be obtained from the City, County or calculated by a traffic engineer. The above recommendations are considered applicable if complete removals of the compressible materials are performed in the pavement areas.

4.5 Corrosivity to Concrete and Metal

The National Association of Corrosion Engineers (NACE) defines corrosion as "a deterioration of a substance or its properties because of a reaction with its environment." From a geotechnical viewpoint, the "environment" is the prevailing foundation soils and the "substances" are the reinforced concrete foundations or various buried metallic elements such as rebars, piles, pipes, etc., which are in direct contact with or within close vicinity of the foundation soil.

In general, soil environments that are detrimental to concrete have high concentrations of soluble sulfates and/or pH values of less than 5.5. Table 19-A-4 of the U.B.C., 1997, provides specific guidelines for the concrete mix design when the soluble sulfate content of the soils exceeds 0.1 percent by weight or 1,000 ppm. The minimum amount of chloride ions in the soil environment that are corrosive to steel, either in the form of reinforcement protected by concrete cover, or plain steel substructures such as steel pipes or piles, is 500 ppm per California Test 532.

Based on testing performed during this investigation within the project site, the onsite soil are classified as having a negligible to moderate sulfate exposure condition in accordance with Table 19-A-4 of U.B.C., 1997. Therefore, concrete in contact with onsite soils should be designed in accordance with Table 19-A-4 for the moderate category. It is also our opinion that onsite soils should be considered corrosive to buried metals.

Despite the minimum recommendation above, LGC is not a corrosion-engineering firm. Therefore, we recommend that you consult with a competent corrosion engineer and conduct additional testing (if required) to evaluate the actual corrosion potential of the site and to provide recommendations to reduce the corrosion potential with respect to the proposed improvements. The recommendations of the corrosion engineer may supercede the above requirements.

4.6 Nonstructural Concrete Flatwork

Concrete flatwork (such as walkways, bicycle trails, etc.) has a high potential for cracking due to changes in soil volume related to soil-moisture fluctuations. To reduce the potential for excessive cracking and lifting, concrete should be designed in accordance with the minimum guidelines outlined in Table 4. These guidelines will reduce the potential for irregular cracking and promote cracking along construction joints, but will not eliminate all cracking or lifting. Thickening the concrete and/or adding additional reinforcement will further reduce cosmetic distress.

TABLE 4

Nonstructural Concrete Flatwork

	Homeowner Sidewalks	Private Drives	Patios/Entryways	City Sidewalk Curb and Gutters
Minimum Thickness (in.)	4 (nominal)	5 (full)	5 (full)	City/Agency Standard
Presaturation	120% of optimum m/c to 12 inches	120% of optimum m/c to 12 inches	120% of optimum m/c to 18 inches	City/Agency Standard
Reinforcement	—	No. 3 at 24 inches on centers	No. 3 at 24 inches on centers	City/Agency Standard
Thickened Edge	—	8” x 8”	8” x 8”	City/Agency Standard
Crack Control	Saw cut or deep tool joint to a minimum of 1/3 the concrete thickness	Saw cut or deep tool joint to a minimum of 1/3 the concrete thickness	Saw cut or deep tool joint to a minimum of 1/3 the concrete thickness	City/Agency Standard
Maximum Joint Spacing	5 feet	10 feet or quarter cut whichever is closer	6 feet	City/Agency Standard
Aggregate Base	—	2 inches	2 inches	City/Agency Standard

4.7 Control of Surface Water and Drainage Control

Positive drainage of surface water away from structures is very important. No water should be allowed to pond adjacent to buildings. Positive drainage may be accomplished by providing drainage away from buildings at a gradient of at least 2 percent for a distance of at least 5 feet, and further maintained by a swale or drainage path at a gradient of at least 1 percent. Where necessary, drainage paths may be shortened by use of area drains and collector pipes. Eave gutters are recommended and reduce water infiltration into the subgrade soils if the downspouts are properly connected to appropriate outlets.

Planters with open bottoms adjacent to buildings should be avoided. Planters should not be designed adjacent to buildings unless provisions for drainage, such as catch basins, liners, and/or area drains, are made. Overwatering must be avoided.

4.8 Plan Review, Construction Observation and Testing

Geotechnical review of the grading and improvement plan should be performed when the plan becomes available from the project civil engineer. Modifications to the plan may arise from our review therefore our review should be performed as soon as practical.

The recommendations provided in this report are based on limited subsurface observations and geotechnical analysis. The interpolated subsurface conditions should be checked in the field during construction by a representative of LGC.

Construction observation and testing should also be performed by the geotechnical consultant during future grading, excavations, backfill of utility trenches, preparation of pavement subgrade and placement of aggregate base, foundation or retaining wall construction or when an unusual soil condition is encountered at the site. Grading plans, foundation plans, and final project drawings should be reviewed by this office prior to construction.

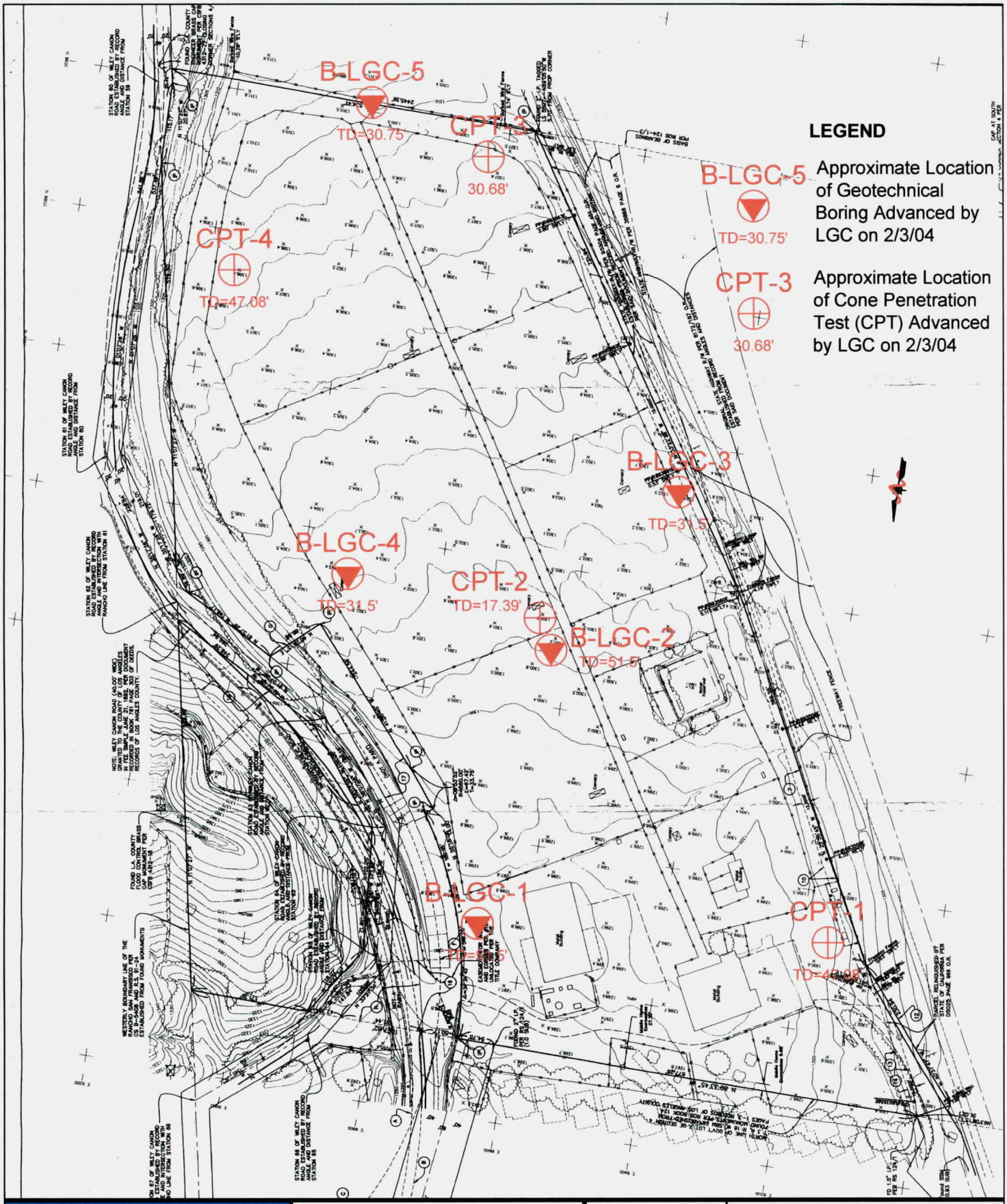
5.0 LIMITATIONS

Our services were performed using the degree of care and skill ordinarily exercised, under similar circumstances, by reputable engineers and geologists practicing in this or similar localities. No other warranty, expressed or implied, is made as to the conclusions and professional advice included in this report. The samples taken and submitted for laboratory testing, the observations made and the in-situ field testing performed are believed representative of the entire project; however, soil and geologic conditions revealed by excavation may be different than our preliminary findings. If this occurs, the changed conditions must be evaluated by the project soils engineer and geologist and design(s) adjusted as required or alternate design(s) recommended.

This report is issued with the understanding that it is the responsibility of the owner, or of his/her representative, to ensure that the information and recommendations contained herein are brought to the attention of the architect and/or project engineer and incorporated into the plans, and the necessary steps are taken to see that the contractor and/or subcontractor properly implements the recommendations in the field. The contractor and/or subcontractor should notify the owner if they consider any of the recommendations presented herein to be unsafe.

The findings of this report are valid as of the present date. However, changes in the conditions of a property can and do occur with the passage of time, whether they be due to natural processes or the works of man on this or adjacent properties.

In addition, changes in applicable or appropriate standards may occur, whether they result from legislation or the broadening of knowledge. Accordingly, the findings of this report may be invalidated wholly or partially by changes outside our control.



LGC

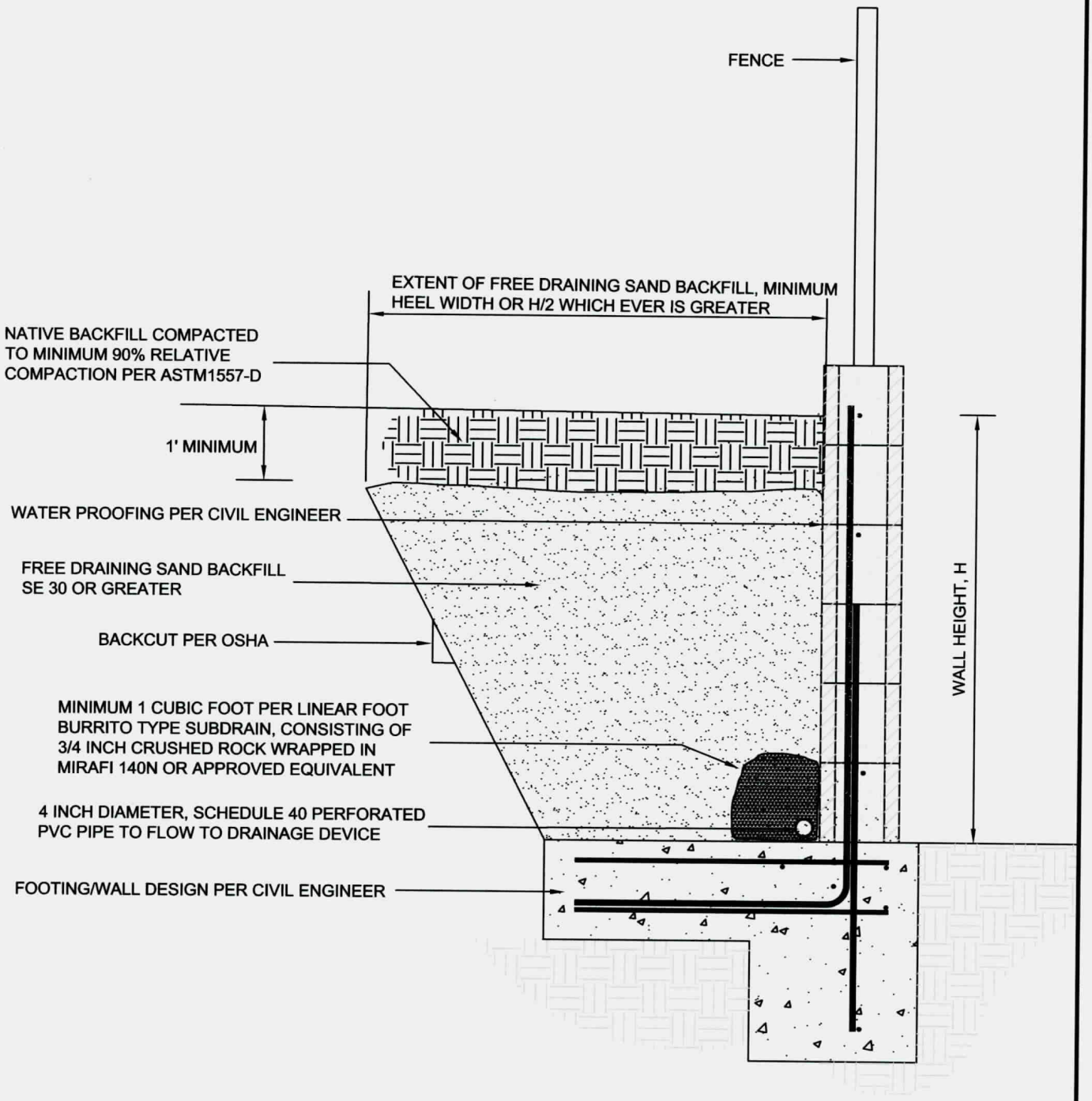
Figure 2: Exploration Location Map

Project Name	Monteverde/Hawkbryn Ave.
Project No.	033022-01
Eng. / Geol.	BIH/MCH
Scale	n/a
Date	3/25/04

LGC

Figure 3: Exploration Location Map-Photo

Project Name	Monteverde/Hawkbryn Ave.
Project No.	033022-01
Eng. / Geol.	BIH/MCH
Scale	n/a
Date	3/25/04



LGC

Figure 4: Retaining Wall Detail, Sand Backfill

Project Name	Monteverde/Hawkbryn Ave.
Project No.	033022-01
Eng. / Geol.	BIH/MCH
Scale	n/a
Date	3/25/04

APPENDIX A

References

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APPENDIX B

FIELD EXPLORATION

B-1 General

A reconnaissance of the site was carried out by LGC's personnel. The locations of the exploratory excavations were chosen to obtain subsurface information needed to achieve the objective for this investigation.

Underground Service Alert (USA) was contacted to provide clearance for drilling with respect to any underground utility lines.

A visual survey was conducted to verify that the proposed excavations would not encounter any subsurface utility lines. No underground lines were encountered during the field exploratory program.

B-2 Excavation, Drilling and Sampling

The subsurface exploration program for this project was performed on February 3, 2004, and consisted of the excavation of five borings, B-LGC-1 through B-LGC-5, and four Cone Penetration Tests (CPTs) to maximum depths of 50 feet below the existing grade. The approximate locations of the borings and CPT soundings are shown on the Exploration Location Map and Photo, Figures 2 and 3.

Borings B-LGC-1 through B-LGC-5 were excavated using a truck-mounted 8-inch-diameter hollow-stem auger drill rig supplied by Prosonic Corporation of Signal Hill, California. The borings were excavated and sampled at regular intervals: every 2.5 feet to a depth of 10 feet and every 5 feet thereafter to maximum depth which was about 50 feet. The borings were sampled using a 2-3/8 inch-inside-diameter (ID) Modified California Sampler or a 1-3/8-inch ID Standard Penetration Test (SPT) sampler. Samples were obtained as the sampler was driven into the bottom of the boring by a 140-pound CME automatic-trip hammer free falling from a height of 30 inches.

The ring samples were placed in plastic cans, labeled, and transported to the laboratory. The SPT soil samples were examined and carefully removed from the sampler, bagged, sealed, labeled, and transported to the laboratory for testing as well.

Bulk samples also were collected during the course of drilling by taking cuttings obtained from the auger flights. The bulk samples were selected for classification and testing purposes and may represent a mixture of soils within the noted depths. Recovered samples were bagged and returned to the laboratory for further classification and testing.

B-3 Miscellaneous

The boring logs describe the earth materials encountered, sampling method used, and field and laboratory tests performed. The logs also show the boring number, date of completion, and the name of the logger and drilling subcontractor. A staff geologist logged the borings in accordance with the Standard Practice for Description and Identification of Soils (Visual-Manual Procedure) ASTM D2488-93. The boundaries between soil types shown on the logs are approximate and the transition between different soil layers may be gradual. The logs of the borings are presented on the following pages.

Groundwater was not encountered in any of the borings across the site up to the maximum excavation depth of 50 feet. Borings were backfilled with native cuttings.

Geotechnical Boring Log B-LGC-1

Date: 2/03/04	Page: 1 of 2
Project Name: Monteverde/Hawkbryn Ave.	Project Number: 033022-01
Drilling Company: Prosonic	Type of Rig: CME-85
Drive Weight: 140 lbs.	Drop: 30" Hole Dia: 8"
Elevation of Top of Hole: 1298 ft	Hole Location: On Access Road - See Map

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION Logged By: SLV Sampled By: SLV	Type of Test
1298	0		BULK				SM	@ 0' Silty SAND with trace clay	
			1	25	99.6	6.0		@ 2.5' Silty SAND: moderate yellowish-brown, slightly moist, medium dense; trace clay and gravel	
1293	5		2	73				@ 5' More gravel	
			3	35				@ 7.5' Silty SAND: moderate yellowish-brown to dark yellowish-brown, slightly moist, dense; little gravel (crushed rock), no clay	
1288	10		4	5 17 50/1"	101.8	7.0	SP-SM	@ 10' SAND to Silty SAND: moderate yellowish-brown, slightly moist, dense; trace gravel	
1283	15		5	35		5.8		@ 15' SAND to Silty SAND with crushed rock: moderate yellowish-brown, slightly moist, dense; only 10" recovered, fine to medium grained	
1278	20		6	65		9.3	SM	@ 20' Silty SAND: moderate yellowish-brown, moist, dense; trace clay, some gravel and trace cobbles	
1273	25		NS	24				@ 25' No Sample - sampler empty, medium dense	
1268	30								

LGC

■ = Ring sample
⊠ = SPT sample
BULK = Bulk sample

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GEOTECHNICAL CONSULTING INC.

Geotechnical Boring Log B-LGC-1

Date: 2/03/04	Page: 2 of 2
Project Name: Monteverde/Hawkbryn Ave.	Project Number: 033022-01
Drilling Company: Prosonic	Type of Rig: CME-85
Drive Weight: 140 lbs.	Drop: 30" Hole Dia: 8"
Elevation of Top of Hole: 1298 ft	Hole Location: On Access Road - See Map

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION Logged By: SLV Sampled By: SLV	Type of Test
1268	30		7	23		7.0	SM	@ 30' Silty SAND: moderate yellowish-brown, moist, medium dense; fine to course grained, little gravel	
1263	35		8	20			SM	@ 35' Silty SAND: moderate yellowish-brown to dark yellowish-brown, moist, medium dense; no gravel	
1258	40		9	54		8.3		@ 40' with gravel (crushed rock), dense	
1253	45		10	26			SM	@ 45' Silty SAND: moderate yellowish-brown, moist, medium dense; fine to course grained, trace gravel @ 48' Hard drilling	
1248	50		11	35		10.5		@ 50' Very moist, little gravel	
1243	55							**Notes:** -Total Depth = 51.5' -No Groundwater Encountered -Backfilled with Native (Cuttings)	
1238	60								

LGC

■ = Ring sample
☒ = SPT sample
BULK = Bulk sample

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Geotechnical Boring Log B-LGC-2

Date: 2/03/04	Page: 1 of 2
Project Name: Monteverde/Hawkbryn Ave.	Project Number: 033022-01
Drilling Company: Prosonic	Type of Rig: CME-85
Drive Weight: 140 lbs.	Drop: 30" Hole Dia: 8"
Elevation of Top of Hole: 1301 ft	Hole Location: In Field - See Map

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION Logged By: SLV Sampled By: SLV	Type of Test
1301	0		BULK					@ 0' Grass/organic material in silty SAND	
			1	11			SM	@ 2.5' Silty Fine SAND: moderate yellowish brown to pale yellowish-brown, slightly moist, loose; roots, trace gravel and silt	
1296	5		2	18	96.5	8.0	SP-SM	@ 5' SAND to Silty SAND: moderate yellowish-brown, slightly moist, medium dense; roots, little gravel	
			3	4			SM	@ 7.5' Silty Fine SAND: moderate yellowish-brown, slightly moist, very loose; no gravel	
1291	10		4	7				@ 10' Silty SAND: moderate yellowish-brown, slightly moist, loose; moderate yellowish-brown to pale yellowish-brown clay lenses in top 1' of sampler, trace organic material	
1286	15		5	17		4.9	SM	@ 15' Silty SAND: moderate yellowish-brown, slightly moist, medium dense; fine to medium grained, no gravel	
1281	20		6	74				@ 20' Silty SAND with Gravel: moderate yellowish-brown, slightly moist to moist, dense	
1276	25		7	44		6.8		@ 25' Slightly moist, crushed whitish-gray rock in bottom 4" of sampler, little gravel above	
1271	30								

LGC

■ = Ring sample
⊠ = SPT sample
BULK = Bulk sample

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Geotechnical Boring Log B-LGC-2

Date: 2/03/04	Page: 2 of 2
Project Name: Monteverde/Hawkbryn Ave.	Project Number: 033022-01
Drilling Company: Prosonic	Type of Rig: CME-85
Drive Weight: 140 lbs.	Drop: 30" Hole Dia: 8"
Elevation of Top of Hole: 1301 ft	Hole Location: In Field - See Map

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION Logged By: SLV Sampled By: SLV	Type of Test
1271	30		8	29			SM	@ 30' Silty SAND: moderate yellowish-brown, slightly moist, medium dense; trace gravel, fine to medium grained	
1266	35		9	23		8.0		@ 35' More gravel (crushed rock)	
1261	40		10	56				@ 40' Fine to course grained, large crushed rock (rock fragments) at 40.5', only 5 rings, dense	
1256	45		11	27				@ 45' Trace gravel, fine to medium grained	
1251	50		12	84				@ 50' Fine to course grained with more gravel, very dense	
1246	55							**Notes:** -Total Depth = 51.5' -No Groundwater Encountered -Backfilled with Native (Cuttings)	
1241	60								

LGC

■ = Ring sample
☒ = SPT sample
BULK = Bulk sample

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Geotechnical Boring Log B-LGC-3

Date: 2/03/04	Page: 1 of 2
Project Name: Monteverde/Hawkbryn Ave.	Project Number: 033022-01
Drilling Company: Prosonic	Type of Rig: CME-85
Drive Weight: 140 lbs.	Drop: 30" Hole Dia: 8"
Elevation of Top of Hole: 1303 ft	Hole Location: Side of Access Road - See Map

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION Logged By: SLV Sampled By: SLV	Type of Test
1303	0						ML	@ 0' Sandy SILT with grass/small plants	
			1	9				@ 2.5' Sandy SILT: moderate yellowish-brown, slightly moist, loose	
1298	5		2	3	93.3	8.0		@ 5' Trace gravel	
			3	7				@ 7.5' No gravel	
1293	10		4	11				@ 10' White stringers, trace clay	
1288	15		5	15		5.8	SM	@ 15' Silty SAND: moderate yellowish-brown, slightly moist, Medium dense; trace gravel	
1283	20		6	29				@ 20' medium dense	
1278	25		7	16		9.5			
1273	30								

LGC

■ = Ring sample
⊠ = SPT sample
BULK = Bulk sample

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Geotechnical Boring Log B-LGC-3

Date: 2/03/04	Page: 2 of 2
Project Name: Monteverde/Hawkbryn Ave.	Project Number: 033022-01
Drilling Company: Prosonic	Type of Rig: CME-85
Drive Weight: 140 lbs.	Drop: 30" Hole Dia: 8"
Elevation of Top of Hole: 1303 ft	Hole Location: Side of Access Road - See Map

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION Logged By: SLV Sampled By: SLV	Type of Test
1273	30		8	27			SM	@ 30' Silty SAND: pale yellowish-brown to moderate yellowish-brown, slightly moist, medium dense; fine-grained **Notes:** -Total Depth = 31.5' -No Groundwater Encountered -Backfilled with Native (Cuttings)	
1268	35								
1263	40								
1258	45								
1253	50								
1248	55								
1243	60								

LGC

■ = Ring sample
☒ = SPT sample
BULK = Bulk sample

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GEOTECHNICAL CONSULTING INC.

Geotechnical Boring Log B-LGC-4

Date: 2/03/04	Page: 1 of 2
Project Name: Monteverde/Hawkbryn Ave.	Project Number: 033022-01
Drilling Company: Prosonic	Type of Rig: CME-85
Drive Weight: 140 lbs.	Drop: 30" Hole Dia: 8"
Elevation of Top of Hole: 1303 ft	Hole Location: In Field - See Map

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION Logged By: SLV Sampled By: SLV	Type of Test
1303	0							@ 0' Grass/organic material in silty SAND	
			1	16			SM	@ 2.5' Silty SAND: moderate yellowish-brown to pale yellowish-brown, slightly moist, loose; roots, trace gravel, silt	
1298	5		2	40		4.8		@ 5' Silty SAND: moderate yellowish-brown, slightly moist, medium dense; trace roots, little gravel, sample in bag (disturbed)	
			3	5				@ 7.5' Loose, trace gravel, 12" recovered	
1293	10		4	26	109.2	4.0		@ 10' Moist, medium dense, fine to course grained	
1288	15		5	43				@ 15' With gravel (crushed rock), dense @ 17' Hard Drilling	
1283	20		6	60	92.2	8.0		@ 20' Silty SAND with Gravel: moderate yellowish-brown, slightly moist, dense, course grained	
1278	25		7	36		4.5		@ 25' Only trace gravel	
1273	30								

LGC

■ = Ring sample
☒ = SPT sample
BULK = Bulk sample

LAWSON & ASSOCIATES
GEOTECHNICAL CONSULTING INC.

Geotechnical Boring Log B-LGC-4

Date: 2/03/04	Page: 2 of 2
Project Name: Monteverde/Hawkbryn Ave.	Project Number: 033022-01
Drilling Company: Prosonic	Type of Rig: CME-85
Drive Weight: 140 lbs.	Drop: 30" Hole Dia: 8"
Elevation of Top of Hole: 1303 ft	Hole Location: In Field - See Map

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION	Type of Test
1273	30		8	49		4.6	SM	@ 30' Silty SAND: moderate yellowish-brown, slightly moist, dense; with white crushed rock and other gravels **Notes:** -Total Depth = 31.5' -No Groundwater Encountered -Backfilled with Native (Cuttings)	
1268	35								
1263	40								
1258	45								
1253	50								
1248	55								
1243	60								

Logged By: SLV

Sampled By: SLV

LGC

■ = Ring sample
☒ = SPT sample
BULK = Bulk sample

LAWSON & ASSOCIATES
GEOTECHNICAL CONSULTING INC.

Geotechnical Boring Log B-LGC-5

Date: 2/03/04	Page: 1 of 2
Project Name: Monteverde/Hawkbryn Ave.	Project Number: 033022-01
Drilling Company: Prosonic	Type of Rig: CME-85
Drive Weight: 140 lbs.	Drop: 30" Hole Dia: 8"
Elevation of Top of Hole: 1310 ft	Hole Location: Side of Access Road - See Map

Logged By: SLV

Sampled By: SLV

Elevation (ft)	Depth (ft)	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION	Type of Test
1310	0						@ 0' Sandy SILT and trace organic material	
		1	5			ML	@ 2.5' Sandy SILT: moderate yellowish-brown, slightly moist, soft	
1305	5	2	12	99.4	6.0	SM	@ 5' Silty SAND: moderate yellowish-brown, slightly moist, loose; little gravel (crushed rock)	
		3	5				@ 7.5' Only trace gravel	
		BULK						
1300	10	4	9				@ 10' Silty Fine SAND: moderate yellowish-brown, slightly moist, loose; no gravel	
1295	15	5	44		4.4	SM	@ 15' Silty SAND: moderate yellowish-brown to pale yellowish-brown, slightly moist, dense; little gravel (crushed rock)	
1290	20	6	26 50/3"				@ 20' Silty SAND: moderate yellowish-brown, slightly moist, very dense; fine grained @ 22' Hard Drilling	
1285	25	7	40		6.0		@ 25' Dense, little gravel (crushed rock), fine to medium grained	
1280	30							

LGC

■ = Ring sample
☒ = SPT sample
BULK = Bulk sample

LAWSON & ASSOCIATES
GEOTECHNICAL CONSULTING INC.

Geotechnical Boring Log B-LGC-5

Date: 2/03/04	Page: 2 of 2
Project Name: Monteverde/Hawkbryn Ave.	Project Number: 033022-01
Drilling Company: Prosonic	Type of Rig: CME-85
Drive Weight: 140 lbs.	Drop: 30" Hole Dia: 8"
Elevation of Top of Hole: 1310 ft	Hole Location: Side of Access Road - See Map

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION Logged By: SLV Sampled By: SLV	Type of Test
1280	30		8	12 50/3"			SM	@ Silty SAND with Gravel: moderate yellowish-brown, slightly moist, very dense; fine to course grained, sample disturbed **Notes:** -Total Depth = 30' 9" -No Groundwater Encountered -Backfilled with Native (Cuttings)	
1275	35								
1270	40								
1265	45								
1260	50								
1255	55								
1250	60								

LGC

■ = Ring sample
☒ = SPT sample
BULK = Bulk sample

LAWSON & ASSOCIATES
GEOTECHNICAL CONSULTING INC.

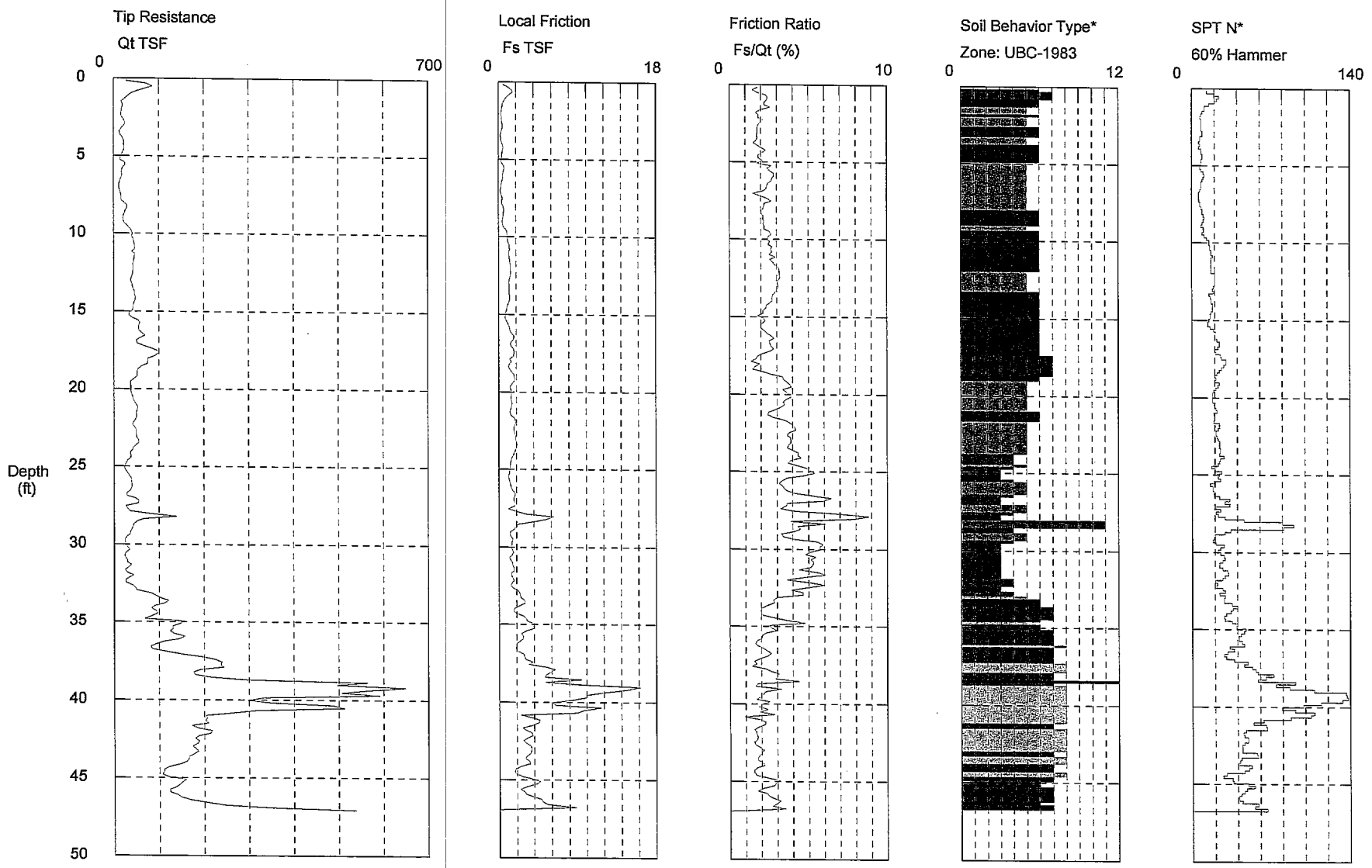
B-4 CPT Data

Four Cone Penetration Tests (CPTs) were advanced at the subject site and the logs are presented on the following pages. They are identified as CPT-1 through CPT-4 with their approximate locations shown on the Exploration Location Map and Photo, Figures 2 and 3.

Lawson & Associates

Operator: Victor & Mike
Sounding: CPT-01
Cone Used: DSA0408

CPT Date/Time: 2/3/2004 11:32:03 AM
Location: Jay Rodgers Comm. Development
Job Number: 033022-01



Maximum Depth = 47.08 feet

Depth Increment = 0.164 feet

1 sensitive fine grained
2 organic material
3 clay
SDF-01

4 silty clay to clay
5 clayey silt to silty clay
6 sandy silt to clayey silt

7 silty sand to sandy silt
8 sand to silty sand
9 sand

10 gravelly sand to sand
11 very stiff fine grained (*)
12 sand to clayey sand (*)

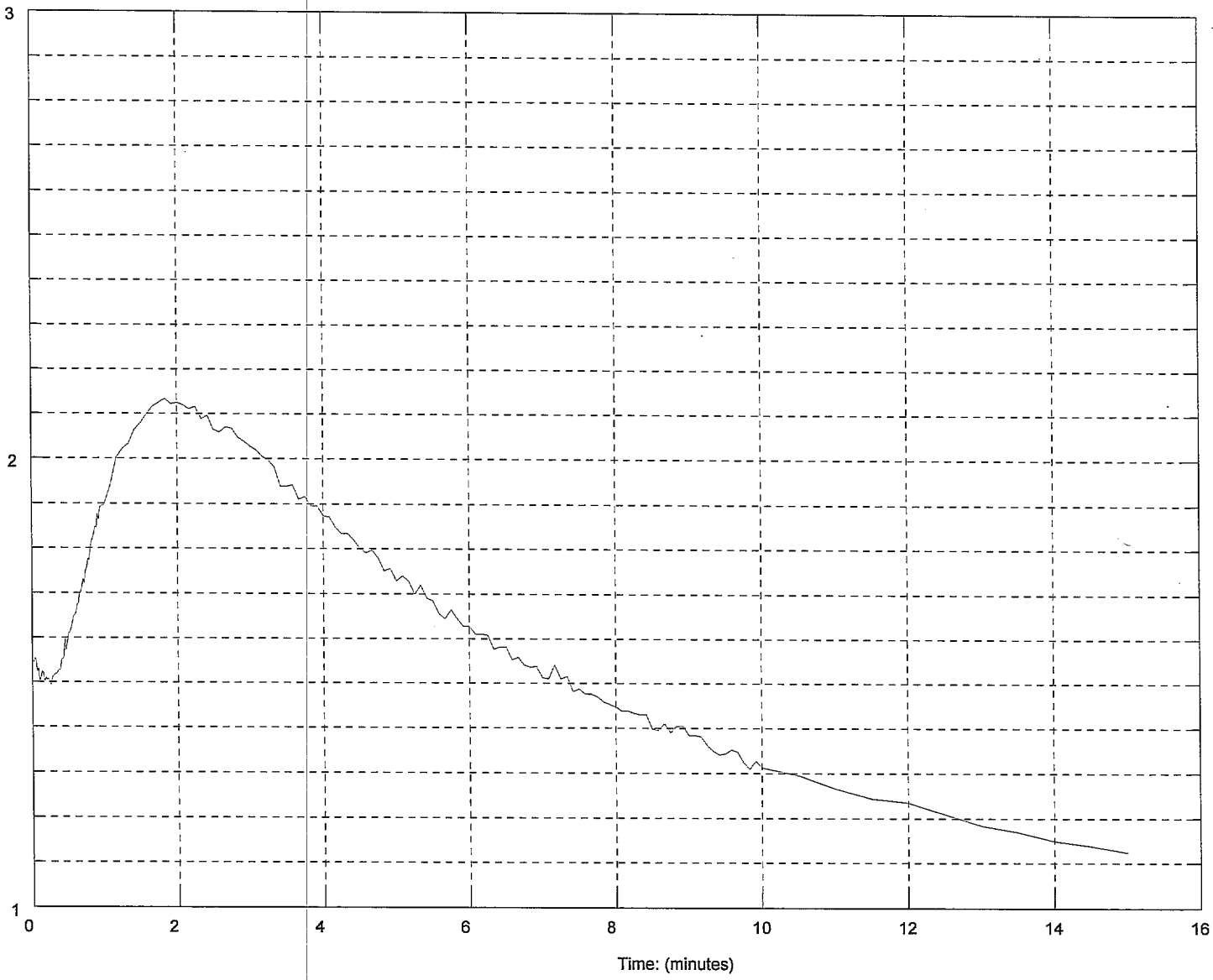
*Soil behavior type and SPT based on data from UBC-1983

Lawson & Associates

Operator Victor & Mike
Sounding: CPT-01
Cone Used: DSA0408

CPT Date/Time: 2/3/2004 11:32:03 AM
Location: Jay Rodgers Comm. Development
Job Number: 033022-01

Selected Depth(s) (feet)
41.011



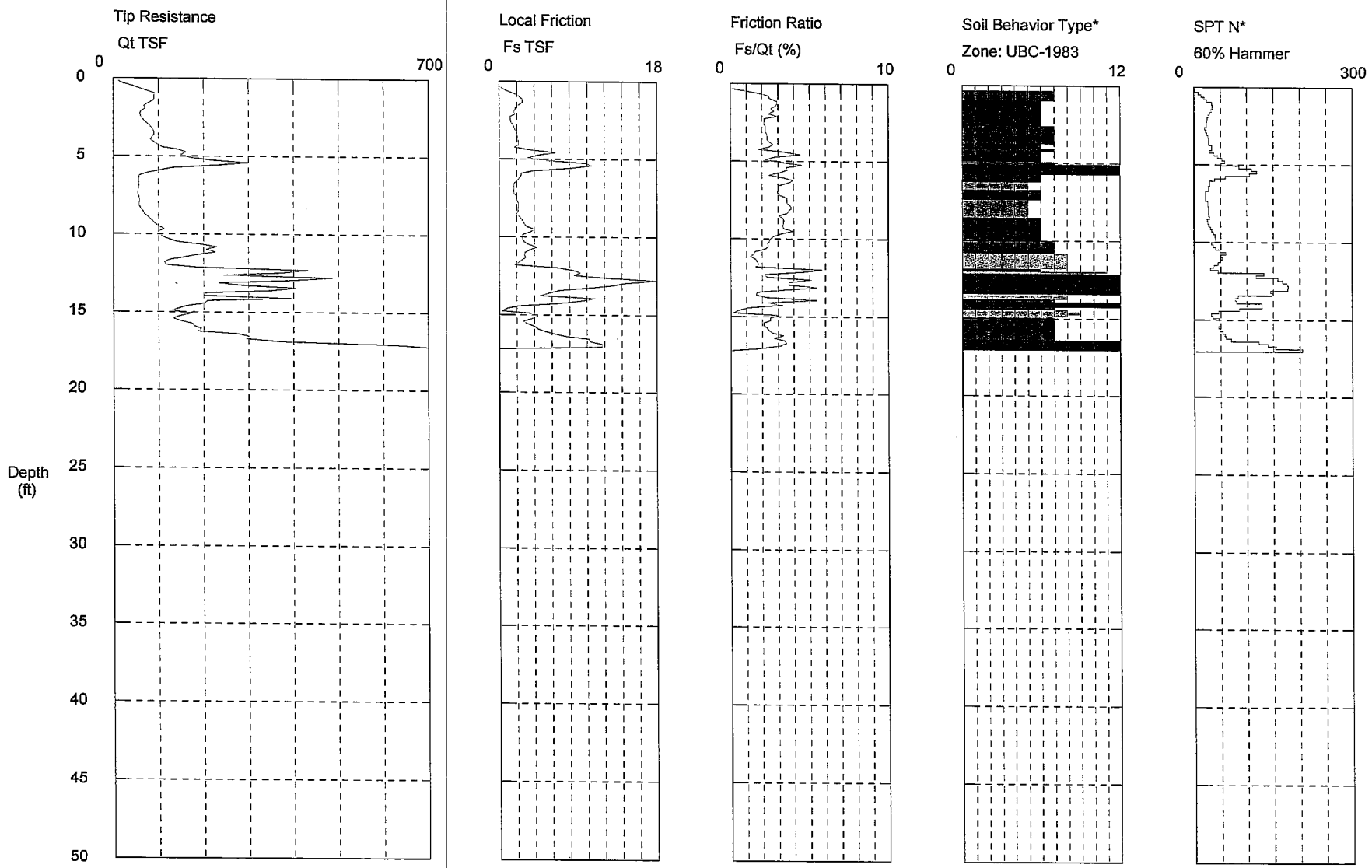
Maximum Pressure = 2.133 psi
Hydrostatic Pressure = 17.799 psi

SDF-01

Lawson & Associates

Operator: Victor & Mike
Sounding: CPT-02C
Cone Used: DSA0408

CPT Date/Time: 2/3/2004 3:51:24 PM
Location: Jay Rodgers Comm. Development
Job Number: 033022-01



Maximum Depth = 17.39 feet

Depth Increment = 0.164 feet

1 sensitive fine grained
2 organic material
3 clay
SDF-10

4 silty clay to clay
5 clayey silt to silty clay
6 sandy silt to clayey silt

7 silty sand to sandy silt
8 sand to silty sand
9 sand

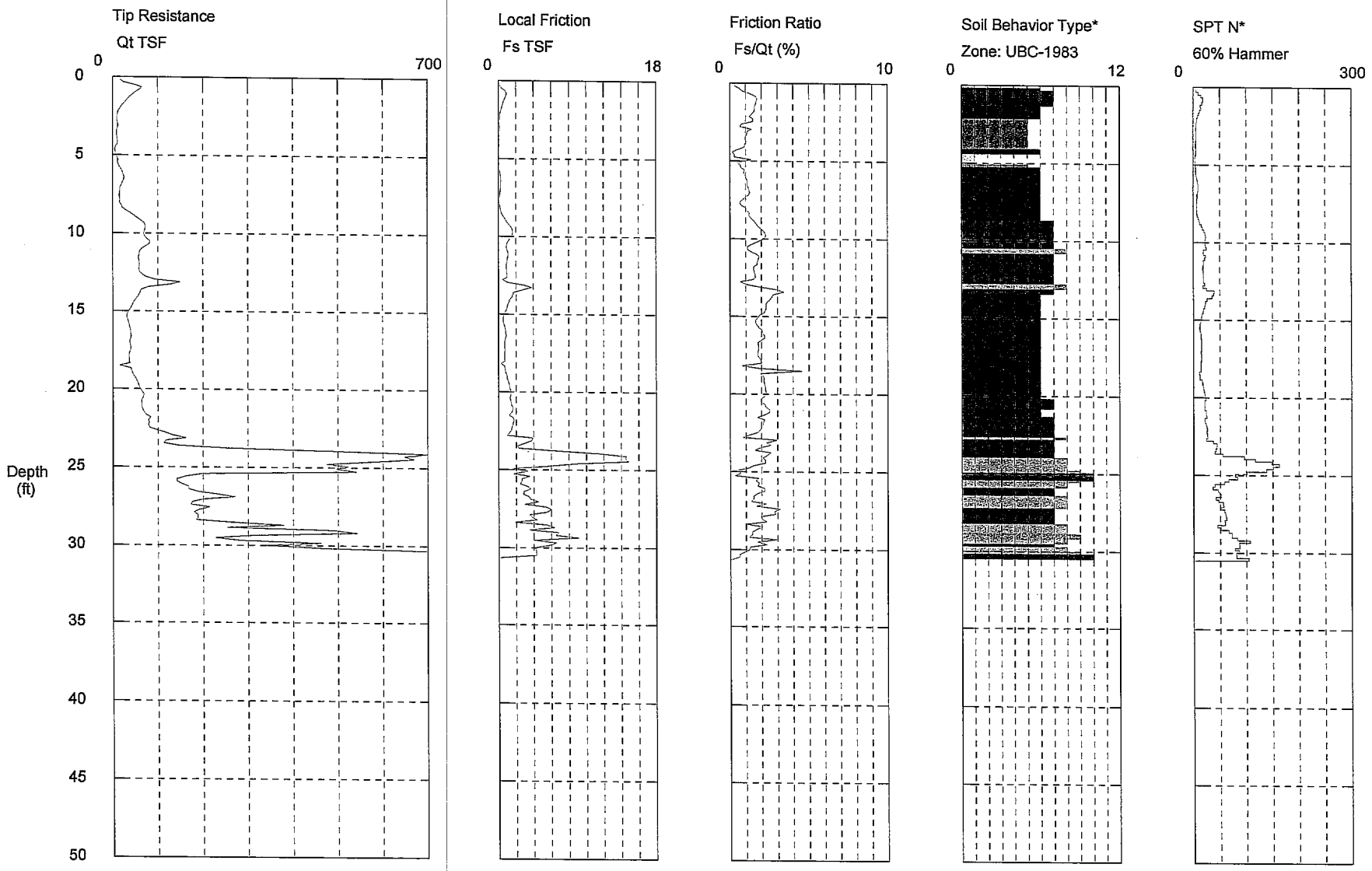
10 gravelly sand to sand
11 very stiff fine grained (*)
12 sand to clayey sand (*)

*Soil behavior type and SPT based on data from UBC-1983

Lawson & Associates

Operator: Victor & Mike
Sounding: CPT-03A
Cone Used: DSA0408

CPT Date/Time: 2/3/2004 1:07:01 PM
Location: Jay Rodgers Comm. Development
Job Number: 033022-01



Maximum Depth = 30.84 feet

Depth Increment = 0.164 feet

1 sensitive fine grained
2 organic material
3 clay
SDF-03

4 silty clay to clay
5 clayey silt to silty clay
6 sandy silt to clayey silt

7 silty sand to sandy silt
8 sand to silty sand
9 sand

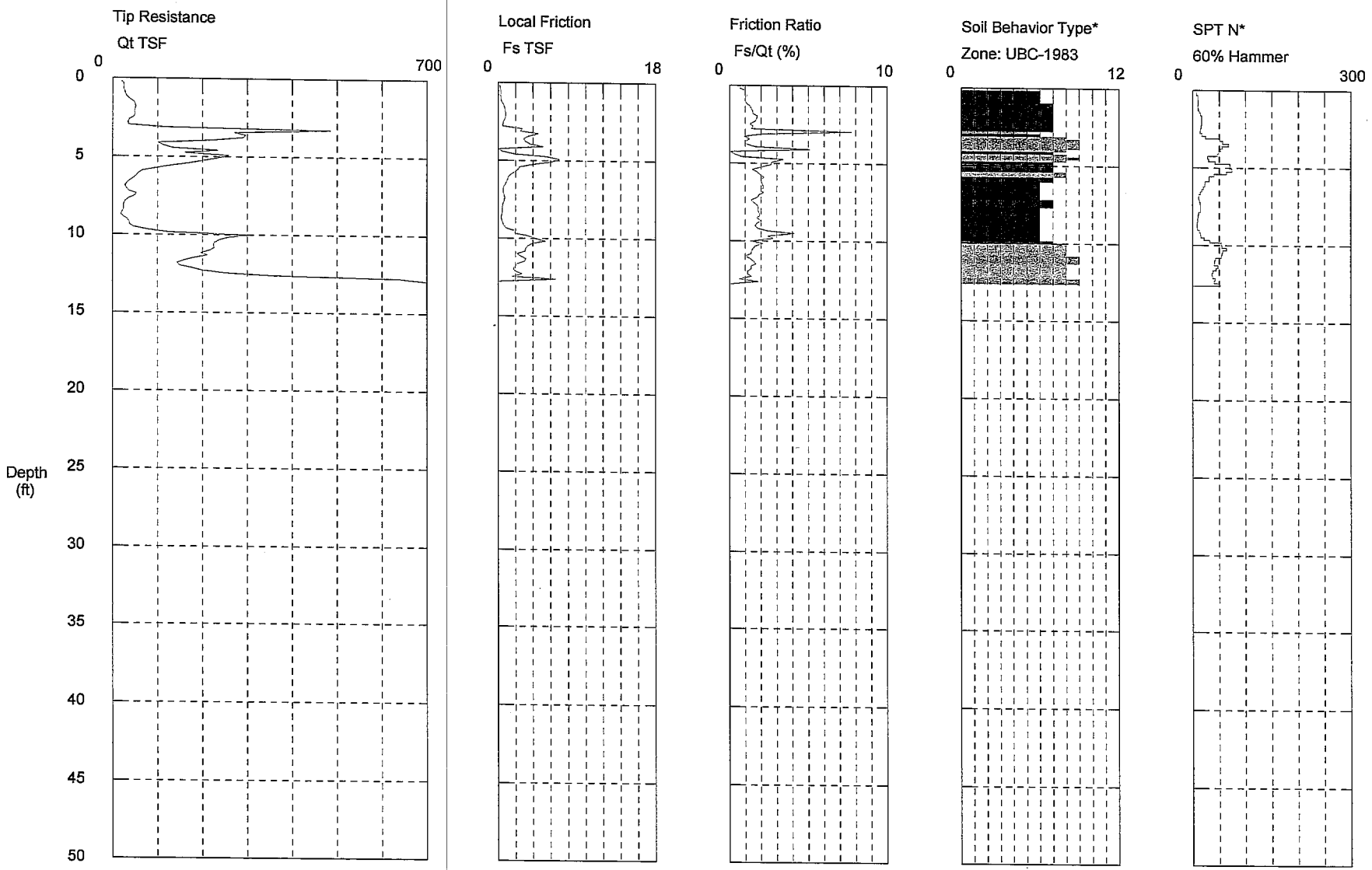
10 gravelly sand to sand
11 very stiff fine grained (*)
12 sand to clayey sand (*)

*Soil behavior type and SPT based on data from UBC-1983

Lawson & Associates

Operator: Victor & Mike
Sounding: CPT-04B
Cone Used: DSA0408

CPT Date/Time: 2/3/2004 2:25:16 PM
Location: Jay Rodgers Comm. Development
Job Number: 033022-01



Maximum Depth = 12.96 feet

Depth Increment = 0.164 feet

1 sensitive fine grained
2 organic material
3 clay
4 silty clay to clay
5 clayey silt to silty clay
6 sandy silt to clayey silt
7 silty sand to sandy silt
8 sand to silty sand
9 sand
10 gravelly sand to sand
11 very stiff fine grained (*)
12 sand to clayey sand (*)

SFD-06

*Soil behavior type and SPT based on data from UBC-1983

CPT INTERPRETATIONS

SOUNDING : SDF-01 CPT-01 PROJECT No.: 033022-01
PROJECT : Jay Rodgers Comm CONE/RIG : DSA0408
DATE/TIME: 2/3/2004 11:32:

DEPTH (m)	DEPTH (ft)	TIP RESISTANCE (tsf)	FRICTION RATIO (%)	SOIL BEHAVIOR TYPE	N(60)	N1(60)	Dr (%)	Su (tsf)	PHI (Degrees)
.150	.49	84.85	1.73	SILTY SAND to SANDY SILT	28	45	72		
.300	.98	37.14	2.35	SANDY SILT to CLAYEY SILT	15	24		2.5	
.450	1.48	15.52	2.56	CLAYEY SILT to SILTY CLAY	8	12		1.0	
.600	1.97	16.38	1.83	CLAYEY SILT to SILTY CLAY	8	13		1.3	
.750	2.46	16.29	1.92	CLAYEY SILT to SILTY CLAY	8	13		1.3	
.900	2.95	23.74	1.76	SANDY SILT to CLAYEY SILT	9	15		1.9	
1.050	3.44	11.83	1.75	CLAYEY SILT to SILTY CLAY	6	9		.9	
1.200	3.94	20.33	1.78	SANDY SILT to CLAYEY SILT	8	13		1.6	
1.350	4.43	22.95	2.02	SANDY SILT to CLAYEY SILT	9	15		1.8	
1.500	4.92	16.70	2.10	CLAYEY SILT to SILTY CLAY	8	13		1.3	
1.650	5.41	23.51	2.39	CLAYEY SILT to SILTY CLAY	12	19		1.5	
1.800	5.91	17.13	2.81	CLAYEY SILT to SILTY CLAY	9	14		1.1	
1.950	6.40	16.54	2.45	CLAYEY SILT to SILTY CLAY	8	13		1.1	
2,100	6.89	11.25	2.15	CLAYEY SILT to SILTY CLAY	6	9		.9	
2.250	7.38	14.08	2.39	CLAYEY SILT to SILTY CLAY	7	11		1.1	
2.400	7.87	16.45	2.19	CLAYEY SILT to SILTY CLAY	8	12		1.3	
2.550	8.37	28.86	2.01	SANDY SILT to CLAYEY SILT	12	17		2.3	
2.700	8.86	21.02	2.20	CLAYEY SILT to SILTY CLAY	11	15		1.6	
2.850	9.35	23.77	2.20	SANDY SILT to CLAYEY SILT	10	13		1.5	
3.000	9.84	39.37	2.46	SANDY SILT to CLAYEY SILT	16	21		2.6	
3.150	10.33	42.89	2.44	SANDY SILT to CLAYEY SILT	17	22		2.8	
3.300	10.83	45.86	2.70	SANDY SILT to CLAYEY SILT	18	23		3.0	
3.450	11.32	46.50	2.56	SANDY SILT to CLAYEY SILT	19	23		3.1	
3.600	11.81	43.50	3.09	CLAYEY SILT to SILTY CLAY	22	26		2.9	
3.750	12.30	42.58	3.18	CLAYEY SILT to SILTY CLAY	21	25		2.8	
3.900	12.80	39.27	3.03	CLAYEY SILT to SILTY CLAY	20	23		2.6	
4.050	13.29	40.31	2.98	CLAYEY SILT to SILTY CLAY	20	23		2.6	
4.200	13.78	45.78	2.69	SANDY SILT to CLAYEY SILT	18	21		3.0	
4.350	14.27	47.74	2.35	SANDY SILT to CLAYEY SILT	19	21		3.1	
4.500	14.76	42.03	2.11	SANDY SILT to CLAYEY SILT	17	18		2.7	
4.650	15.26	32.40	2.27	SANDY SILT to CLAYEY SILT	13	14		2.1	
4.800	15.75	58.09	2.01	SILTY SAND to SANDY SILT	19	20	53		38.0
4.950	16.24	55.84	2.65	SANDY SILT to CLAYEY SILT	22	23		3.7	
5.100	16.73	58.66	2.57	SANDY SILT to CLAYEY SILT	23	24		3.8	
5.250	17.22	64.31	2.60	SANDY SILT to CLAYEY SILT	26	26		4.2	
5.400	17.72	98.30	1.67	SILTY SAND to SANDY SILT	33	32	66		39.5
5.550	18.21	74.97	1.61	SILTY SAND to SANDY SILT	25	24	58		38.5
5.700	18.70	54.04	2.66	SANDY SILT to CLAYEY SILT	22	21		3.5	
5.850	19.19	50.72	3.61	CLAYEY SILT to SILTY CLAY	25	24		2.9	
6.000	19.69	37.34	3.39	CLAYEY SILT to SILTY CLAY	19	18		2.4	
6.150	20.18	37.70	3.88	CLAYEY SILT to SILTY CLAY	19	18		2.1	

*INDICATES OVERCONSOLIDATED OR CEMENTED MATERIAL
ASSUMED TOTAL UNIT WT = 115 pcf
ASSUMED DEPTH OF WATER TABLE = 38.0 ft
N(60) = EQUIVALENT SPT VALUE (60% Energy)
N1(60) = OVERBURDEN NORMALIZED EQUIVALENT SPT VALUE (60% Energy)
Dr = OVERBURDEN NORMALIZED EQUIVALENT RELATIVE DENSITY
Su = OVERBURDEN NORMALIZED UNDRAINED SHEAR STRENGTH
PHI = OVERBURDEN NORMALIZED EQUIVALENT FRICTION ANGLE

Interpretations based on: Robertson and Campanella, 1989.

SOUNDING : SDF-01 CPT-01

DEPTH (m)	DEPTH (ft)	TIP RESISTANCE (tsf)	FRICTION RATIO (%)	SOIL BEHAVIOR TYPE	N(60)	N1(60)	Dr (%)	Su (tsf)	PHI (Degrees)
6.300	20.67	42.68	3.49	CLAYEY SILT to SILTY CLAY	21	20		2.8	
6.450	21.16	53.01	2.50	SANDY SILT to CLAYEY SILT	21	19		3.5	
6.600	21.65	49.78	3.43	CLAYEY SILT to SILTY CLAY	25	22		2.9	
6.750	22.15	43.52	4.15	CLAYEY SILT to SILTY CLAY	22	19		2.5	
6.900	22.64	49.26	3.64	CLAYEY SILT to SILTY CLAY	25	22		2.8	
7.050	23.13	50.16	3.89	CLAYEY SILT to SILTY CLAY	25	22		2.9	
7.200	23.62	48.68	3.97	CLAYEY SILT to SILTY CLAY	24	21		2.8	
7.350	24.11	35.96	4.51	CLAY to SILTY CLAY	24	20		2.0	
7.500	24.61	30.49	4.26	CLAY to SILTY CLAY	20	17		1.7	
7.650	25.10	22.49	5.38	CLAY	22	19		1.2	
7.800	25.59	33.32	3.37	CLAYEY SILT to SILTY CLAY	17	14		2.1	
7.950	26.08	38.94	3.45	CLAYEY SILT to SILTY CLAY	19	16		2.5	
8.100	26.57	35.17	5.35	CLAY	35	28		2.0	
8.250	27.07	46.86	3.66	CLAYEY SILT to SILTY CLAY	23	19		2.7	
8.400	27.56	26.05	4.05	CLAY to SILTY CLAY	17	14		1.6	
8.550	28.05	77.83	7.95	*VERY STIFF FINE GRAINED	78	61			
8.700	28.54	50.57	4.32	CLAY to SILTY CLAY	34	26		2.9	
8.850	29.04	39.15	3.27	CLAYEY SILT to SILTY CLAY	20	15		2.5	
9.000	29.53	28.51	5.55	CLAY	29	22		1.6	
9.150	30.02	23.88	5.77	CLAY	24	18		1.3	
9.300	30.51	26.80	5.44	CLAY	27	20		1.5	
9.450	31.00	28.91	5.27	CLAY	29	22		1.6	
9.600	31.50	30.82	5.61	CLAY	31	23		1.7	
9.750	31.99	42.62	3.61	CLAYEY SILT to SILTY CLAY	21	16		2.4	
9.900	32.48	26.18	5.00	CLAY	26	19		1.4	
10.050	32.97	50.20	4.64	CLAY to SILTY CLAY	33	24		2.8	
10.200	33.46	103.54	2.81	SANDY SILT to CLAYEY SILT	41	30		6.0	
10.350	33.96	89.43	1.97	SILTY SAND to SANDY SILT	30	21	54		37.0
10.500	34.45	96.02	2.92	SANDY SILT to CLAYEY SILT	38	27		5.5	
10.650	34.94	156.24	2.49	SILTY SAND to SANDY SILT	52	37	70		39.0
10.800	35.43	130.98	2.26	SILTY SAND to SANDY SILT	44	31	64		38.0
10.950	35.93	156.88	1.75	SAND to SILTY SAND	39	27	69		38.5
11.100	36.42	93.51	2.14	SILTY SAND to SANDY SILT	31	22	54		37.0
11.250	36.91	117.32	2.37	SILTY SAND to SANDY SILT	39	27	61		38.0
11.400	37.40	225.96	1.69	SAND to SILTY SAND	56	39	79		40.5
11.550	37.89	244.11	2.61	SILTY SAND to SANDY SILT	81	55	81		41.0
11.700	38.39	180.11	2.90	SILTY SAND to SANDY SILT	60	41	73		39.0
11.850	38.88	563.75	1.63	SAND	100	76	100		
12.000	39.37	568.42	2.13	*SAND to CLAYEY SAND	100	100			
12.150	39.86	334.20	2.50	SILTY SAND to SANDY SILT	100	75	90		42.5
12.300	40.35	487.50	2.39	*SAND to CLAYEY SAND	100	100			
12.450	40.85	264.41	.94	SAND	53	35	83		41.0
12.600	41.34	202.14	2.21	SILTY SAND to SANDY SILT	67	45	75		39.5
12.750	41.83	185.87	1.65	SAND to SILTY SAND	46	31	73		39.0
12.900	42.32	187.06	1.71	SAND to SILTY SAND	47	31	73		39.0
13.050	42.81	185.04	1.89	SAND to SILTY SAND	46	30	73		39.0
13.200	43.31	186.50	1.89	SAND to SILTY SAND	47	31	73		39.0
13.350	43.80	165.15	2.03	SILTY SAND to SANDY SILT	55	36	69		38.5
13.500	44.29	122.61	1.50	SAND to SILTY SAND	31	20	61		37.5
13.650	44.78	105.87	2.48	SILTY SAND to SANDY SILT	35	23	56		37.0

*INDICATES OVERCONSOLIDATED OR CEMENTED MATERIAL
ASSUMED TOTAL UNIT WT = 115 pcf
ASSUMED DEPTH OF WATER TABLE = 38.0 ft
N(60) = EQUIVALENT SPT VALUE (60% Energy)
N1(60) = OVERBURDEN NORMALIZED EQUIVALENT SPT VALUE (60% Energy)
Dr = OVERBURDEN NORMALIZED EQUIVALENT RELATIVE DENSITY
Su = OVERBURDEN NORMALIZED UNDRAINED SHEAR STRENGTH
PHI = OVERBURDEN NORMALIZED EQUIVALENT FRICTION ANGLE

Interpretations based on: Robertson and Campanella, 1989.

SOUNDING : SDF-01 CPT-01

DEPTH (m)	DEPTH (ft)	TIP RESISTANCE (tsf)	FRICTION RATIO (%)	SOIL BEHAVIOR TYPE	N(60)	N1(60)	Dr (%)	Su (tsf)	PHI (Degrees)
13.800	45.28	151.26	2.78	SILTY SAND to SANDY SILT	50	33	66		38.0
13.950	45.77	122.52	2.30	SILTY SAND to SANDY SILT	41	26	60		37.5
14.100	46.26	147.82	3.19	SANDY SILT to CLAYEY SILT	59	38		8.5	
14.250	46.75	248.26	3.52	*SAND to CLAYEY SAND	100	80			

*INDICATES OVERCONSOLIDATED OR CEMENTED MATERIAL
ASSUMED TOTAL UNIT WT = 115 pcf
ASSUMED DEPTH OF WATER TABLE = 38.0 ft
N(60) = EQUIVALENT SPT VALUE (60% Energy)
N1(60) = OVERBURDEN NORMALIZED EQUIVALENT SPT VALUE (60% Energy)
Dr = OVERBURDEN NORMALIZED EQUIVALENT RELATIVE DENSITY
Su = OVERBURDEN NORMALIZED UNDRAINED SHEAR STRENGTH
PHI = OVERBURDEN NORMALIZED EQUIVALENT FRICTION ANGLE

Interpretations based on: Robertson and Campanella, 1989.

CPT INTERPRETATIONS

SOUNDING : SDF-10 CPT-02C
PROJECT : Jay Rodgers Comm
DATE/TIME: 2/3/2004 3:51:2
PROJECT No.: 033022-01
CONE/RIG : DSA0408

DEPTH (m)	DEPTH (ft)	TIP RESISTANCE (tsf)	FRICTION RATIO (%)	SOIL BEHAVIOR TYPE	N(60)	N1(60)	Dr (%)	Su (tsf)	PHI (Degrees)
.150	.49	41.29	1.04	SILTY SAND to SANDY SILT	14	22	51		
.300	.98	91.23	2.46	SILTY SAND to SANDY SILT	30	49	74		
.450	1.48	84.91	2.83	SANDY SILT to CLAYEY SILT	34	54		5.0	
.600	1.97	69.46	2.40	SANDY SILT to CLAYEY SILT	28	44		4.6	
.750	2.46	59.67	2.11	SANDY SILT to CLAYEY SILT	24	38		4.0	
.900	2.95	75.59	2.17	SILTY SAND to SANDY SILT	25	40	68		47.0
1.050	3.44	88.96	2.29	SILTY SAND to SANDY SILT	30	47	73		47.0
1.200	3.94	82.10	2.68	SANDY SILT to CLAYEY SILT	33	53		5.5	
1.350	4.43	108.55	3.47	SANDY SILT to CLAYEY SILT	43	69		6.4	
1.500	4.92	149.24	2.20	SILTY SAND to SANDY SILT	50	80	88		47.5
1.650	5.41	299.29	3.51	*SAND to CLAYEY SAND	100	100			
1.800	5.91	103.69	2.44	SILTY SAND to SANDY SILT	35	55	77		45.5
1.950	6.40	55.12	3.70	CLAYEY SILT to SILTY CLAY	28	44		3.2	
2.100	6.89	56.06	3.01	SANDY SILT to CLAYEY SILT	22	36		3.7	
2.250	7.38	53.64	3.55	CLAYEY SILT to SILTY CLAY	27	41		3.1	
2.400	7.87	58.07	3.76	CLAYEY SILT to SILTY CLAY	29	43		3.4	
2.550	8.37	59.95	3.58	CLAYEY SILT to SILTY CLAY	30	43		3.5	
2.700	8.86	74.54	3.37	SANDY SILT to CLAYEY SILT	30	42		4.4	
2.850	9.35	92.51	3.36	SANDY SILT to CLAYEY SILT	37	50		5.4	
3.000	9.84	98.34	2.74	SANDY SILT to CLAYEY SILT	39	52		5.8	
3.150	10.33	123.06	2.33	SILTY SAND to SANDY SILT	41	53	80		44.0
3.300	10.83	229.37	1.55	SAND to SILTY SAND	57	73	98		46.0
3.450	11.32	188.31	1.59	SAND to SILTY SAND	47	58	91		45.0
3.600	11.81	112.31	1.56	SILTY SAND to SANDY SILT	37	45	76		43.0
3.750	12.30	430.81	2.15	SAND to SILTY SAND	100	100	100		48.0
3.900	12.80	485.32	3.70	*SAND to CLAYEY SAND	100	100			
4.050	13.29	286.29	3.44	*SAND to CLAYEY SAND	100	100			
4.200	13.78	205.00	2.28	SILTY SAND to SANDY SILT	68	77	91		44.5
4.350	14.27	209.34	3.25	SANDY SILT to CLAYEY SILT	84	92		12.3	
4.500	14.76	142.88	.17	SAND	29	31	80		43.0
4.650	15.26	145.97	2.51	SILTY SAND to SANDY SILT	49	52	80		43.0
4.800	15.75	174.85	2.29	SILTY SAND to SANDY SILT	58	61	84		43.5
4.950	16.24	187.16	3.33	SANDY SILT to CLAYEY SILT	75	77		11.0	
5.100	16.73	294.22	3.53	*SAND to CLAYEY SAND	100	100			
5.250	17.22	764.35	*****		0	0			

*INDICATES OVERCONSOLIDATED OR CEMENTED MATERIAL
ASSUMED TOTAL UNIT WT = 115 pcf
ASSUMED DEPTH OF WATER TABLE = 38.0 ft
N(60) = EQUIVALENT SPT VALUE (60% Energy)
N1(60) = OVERBURDEN NORMALIZED EQUIVALENT SPT VALUE (60% Energy)
Dr = OVERBURDEN NORMALIZED EQUIVALENT RELATIVE DENSITY
Su = OVERBURDEN NORMALIZED UNDRAINED SHEAR STRENGTH
PHI = OVERBURDEN NORMALIZED EQUIVALENT FRICTION ANGLE

Interpretations based on: Robertson and Campanella, 1989.

CPT INTERPRETATIONS

SOUNDING : SDF-03 CPT-03A
PROJECT : Jay Rodgers Comm
DATE/TIME: 2/3/2004 1:07:0
PROJECT No.: 033022-01
CONE/RIG : DSA0408

DEPTH (m)	DEPTH (ft)	TIP RESISTANCE (tsf)	FRICTION RATIO (%)	SOIL BEHAVIOR TYPE	N(60)	N1(60)	Dr (%)	Su (tsf)	PHI (Degrees)
.150	.49	49.04	.74	SILTY SAND to SANDY SILT	16	26	56		
.300	.98	48.86	1.70	SILTY SAND to SANDY SILT	16	26	56		49.5
.450	1.48	30.20	1.55	SANDY SILT to CLAYEY SILT	12	19		2.4	
.600	1.97	15.85	1.40	SANDY SILT to CLAYEY SILT	6	10		1.3	
.750	2.46	9.83	1.44	CLAYEY SILT to SILTY CLAY	5	8		.8	
.900	2.95	10.43	1.35	CLAYEY SILT to SILTY CLAY	5	8		.8	
1.050	3.44	8.35	.97	SENSITIVE FINE GRAINED	4	7		.8	
1.200	3.94	10.16	.93	CLAYEY SILT to SILTY CLAY	5	8		1.0	
1.350	4.43	6.23	.16	SENSITIVE FINE GRAINED	3	5		.6	
1.500	4.92	6.86	1.34	SENSITIVE FINE GRAINED	3	5		.7	
1.650	5.41	10.52	.68	SANDY SILT to CLAYEY SILT	4	7		1.0	
1.800	5.91	18.10	.95	SANDY SILT to CLAYEY SILT	7	12		1.4	
1.950	6.40	24.80	1.08	SANDY SILT to CLAYEY SILT	10	16		2.0	
2.100	6.89	19.55	1.20	SANDY SILT to CLAYEY SILT	8	12		1.5	
2.250	7.38	15.57	.94	SANDY SILT to CLAYEY SILT	6	10		1.2	
2.400	7.87	15.47	.73	SANDY SILT to CLAYEY SILT	6	9		1.5	
2.550	8.37	21.18	1.24	SANDY SILT to CLAYEY SILT	8	12		1.7	
2.700	8.86	46.46	1.51	SILTY SAND to SANDY SILT	15	22	54		39.5
2.850	9.35	69.68	1.94	SILTY SAND to SANDY SILT	23	32	66		42.0
3.000	9.84	70.24	2.28	SANDY SILT to CLAYEY SILT	28	37		4.6	
3.150	10.33	75.29	1.42	SILTY SAND to SANDY SILT	25	33	66		42.0
3.300	10.83	72.28	1.29	SILTY SAND to SANDY SILT	24	31	64		41.0
3.450	11.32	58.91	1.79	SILTY SAND to SANDY SILT	20	24	58		39.5
3.600	11.81	58.40	1.52	SILTY SAND to SANDY SILT	19	24	57		39.0
3.750	12.30	58.04	1.59	SILTY SAND to SANDY SILT	19	23	56		39.0
3.900	12.80	72.83	.66	SAND to SILTY SAND	18	21	62		40.0
4.050	13.29	127.24	2.95	SANDY SILT to CLAYEY SILT	51	58		7.4	
4.200	13.78	61.08	2.64	SANDY SILT to CLAYEY SILT	24	27		4.0	
4.350	14.27	49.81	2.26	SANDY SILT to CLAYEY SILT	20	22		3.3	
4.500	14.76	40.19	2.16	SANDY SILT to CLAYEY SILT	16	17		2.6	
4.650	15.26	30.84	1.61	SANDY SILT to CLAYEY SILT	12	13		2.4	
4.800	15.75	34.58	1.85	SANDY SILT to CLAYEY SILT	14	15		2.7	
4.950	16.24	38.57	2.16	SANDY SILT to CLAYEY SILT	15	16		2.5	
5.100	16.73	39.66	1.78	SANDY SILT to CLAYEY SILT	16	16		3.1	
5.250	17.22	38.44	1.79	SANDY SILT to CLAYEY SILT	15	15		3.0	
5.400	17.72	36.50	1.86	SANDY SILT to CLAYEY SILT	15	14		2.8	
5.550	18.21	35.81	.77	SILTY SAND to SANDY SILT	12	12	37		36.0
5.700	18.70	39.78	1.93	SANDY SILT to CLAYEY SILT	16	15		2.6	
5.850	19.19	47.16	2.14	SANDY SILT to CLAYEY SILT	19	18		3.1	
6.000	19.69	55.76	2.25	SANDY SILT to CLAYEY SILT	22	21		3.6	
6.150	20.18	64.72	2.14	SILTY SAND to SANDY SILT	22	20	52		38.0

*INDICATES OVERCONSOLIDATED OR CEMENTED MATERIAL
ASSUMED TOTAL UNIT WT = 115 pcf
ASSUMED DEPTH OF WATER TABLE = 38.0 ft
N(60) = EQUIVALENT SPT VALUE (60% Energy)
N1(60) = OVERBURDEN NORMALIZED EQUIVALENT SPT VALUE (60% Energy)
Dr = OVERBURDEN NORMALIZED EQUIVALENT RELATIVE DENSITY
Su = OVERBURDEN NORMALIZED UNDRAINED SHEAR STRENGTH
PHI = OVERBURDEN NORMALIZED EQUIVALENT FRICTION ANGLE

Interpretations based on: Robertson and Campanella, 1989.

SOUNDING : SDF-03 CPT-03A

DEPTH (m)	DEPTH (ft)	TIP RESISTANCE (tsf)	FRICTION RATIO (%)	SOIL BEHAVIOR TYPE	N(60)	N1(60)	Dr (%)	Su (tsf)	PHI (Degrees)
6.300	20.67	64.27	2.20	SANDY SILT to CLAYEY SILT	26	24		4.2	
6.450	21.16	64.27	2.50	SANDY SILT to CLAYEY SILT	26	23		4.2	
6.600	21.65	74.07	2.18	SILTY SAND to SANDY SILT	25	22	55		38.0
6.750	22.15	80.10	2.00	SILTY SAND to SANDY SILT	27	24	57		38.0
6.900	22.64	97.91	1.20	SAND to SILTY SAND	24	21	63		38.5
7.050	23.13	161.57	2.32	SILTY SAND to SANDY SILT	54	47	77		41.5
7.200	23.62	145.73	1.58	SAND to SILTY SAND	36	31	73		40.5
7.350	24.11	708.49	2.05	*SAND to CLAYEY SAND	100	100			
7.500	24.61	580.12	1.50	SAND	100	98	100		
7.650	25.10	496.85	.66	GRAVELLY SAND to SAND	83	69	100		46.0
7.800	25.59	162.77	1.64	SAND to SILTY SAND	41	34	75		40.5
7.950	26.08	151.75	2.16	SILTY SAND to SANDY SILT	51	41	73		40.0
8.100	26.57	190.74	1.48	SAND to SILTY SAND	48	39	79		41.5
8.250	27.07	200.51	2.24	SILTY SAND to SANDY SILT	67	54	81		42.0
8.400	27.56	213.86	2.81	SILTY SAND to SANDY SILT	71	57	82		42.0
8.550	28.05	187.34	2.02	SILTY SAND to SANDY SILT	62	49	78		41.0
8.700	28.54	264.37	2.06	SAND to SILTY SAND	66	52	88		42.5
8.850	29.04	489.48	1.39	SAND	98	76	100		45.5
9.000	29.53	228.00	1.75	SAND to SILTY SAND	57	44	83		42.0
9.150	30.02	337.09	1.22	SAND	67	51	94		43.5
9.300	30.51	765.61	.56	GRAVELLY SAND to SAND	100	96	100		

*INDICATES OVERCONSOLIDATED OR CEMENTED MATERIAL
ASSUMED TOTAL UNIT WT = 115 pcf
ASSUMED DEPTH OF WATER TABLE = 38.0 ft
N(60) = EQUIVALENT SPT VALUE (60% Energy)
N1(60) = OVERBURDEN NORMALIZED EQUIVALENT SPT VALUE (60% Energy)
Dr = OVERBURDEN NORMALIZED EQUIVALENT RELATIVE DENSITY
Su = OVERBURDEN NORMALIZED UNDRAINED SHEAR STRENGTH
PHI = OVERBURDEN NORMALIZED EQUIVALENT FRICTION ANGLE

Interpretations based on: Robertson and Campanella, 1989.

CPT INTERPRETATIONS

SOUNDING : SDF-06 CPT-04B
PROJECT : Jay Rodgers Comm
DATE/TIME: 2/3/2004 2:25:1
PROJECT No.: 033022-01
CONE/RIG : DSA0408

DEPTH (m)	DEPTH (ft)	TIP RESISTANCE (tsf)	FRICTION RATIO (%)	SOIL BEHAVIOR TYPE	N(60)	N1(60)	Dr (%)	Su (tsf)	PHI (Degrees)
.150	.49	25.35	1.01	SANDY SILT to CLAYEY SILT	10	16		2.0	
.300	.98	28.25	.98	SILTY SAND to SANDY SILT	9	15	40		47.5
.450	1.48	46.15	1.36	SILTY SAND to SANDY SILT	15	25	54		47.5
.600	1.97	49.13	1.75	SILTY SAND to SANDY SILT	16	26	56		46.5
.750	2.46	46.45	1.30	SILTY SAND to SANDY SILT	15	25	54		46.0
.900	2.95	35.44	7.71	CLAY	35	57		2.1	
1.050	3.44	271.51	1.25	SAND	54	87	100		
1.200	3.94	221.60	1.64	SAND to SILTY SAND	55	89	99		
1.350	4.43	132.32	.36	SAND	26	42	84		47.5
1.500	4.92	258.53	2.71	SILTY SAND to SANDY SILT	86	100	100		
1.650	5.41	169.56	1.44	SAND to SILTY SAND	42	68	91		47.5
1.800	5.91	65.98	2.18	SILTY SAND to SANDY SILT	22	35	64		43.5
1.950	6.40	45.06	2.08	SANDY SILT to CLAYEY SILT	18	29		3.0	
2.100	6.89	26.88	2.15	SANDY SILT to CLAYEY SILT	11	17		1.8	
2.250	7.38	52.99	1.38	SILTY SAND to SANDY SILT	18	27	58		41.5
2.400	7.87	27.69	1.82	SANDY SILT to CLAYEY SILT	11	16		2.2	
2.550	8.37	23.82	1.92	SANDY SILT to CLAYEY SILT	10	14		1.9	
2.700	8.86	23.66	1.73	SANDY SILT to CLAYEY SILT	9	13		1.9	
2.850	9.35	37.60	2.41	SANDY SILT to CLAYEY SILT	15	21		2.5	
3.000	9.84	123.70	2.76	SILTY SAND to SANDY SILT	41	55	81		44.0
3.150	10.33	237.04	1.63	SAND to SILTY SAND	59	77	99		46.5
3.300	10.83	226.37	1.35	SAND to SILTY SAND	57	72	97		46.0
3.450	11.32	210.37	1.51	SAND to SILTY SAND	53	65	94		46.0
3.600	11.81	143.67	1.36	SAND to SILTY SAND	36	44	83		44.0
3.750	12.30	199.66	1.36	SAND to SILTY SAND	50	59	92		45.0
3.900	12.80	638.70	*****		0	0			40.0

*INDICATES OVERCONSOLIDATED OR CEMENTED MATERIAL
ASSUMED TOTAL UNIT WT = 115 pcf
ASSUMED DEPTH OF WATER TABLE = 38.0 ft
N(60) = EQUIVALENT SPT VALUE (60% Energy)
N1(60) = OVERBURDEN NORMALIZED EQUIVALENT SPT VALUE (60% Energy)
Dr = OVERBURDEN NORMALIZED EQUIVALENT RELATIVE DENSITY
Su = OVERBURDEN NORMALIZED UNDRAINED SHEAR STRENGTH
PHI = OVERBURDEN NORMALIZED EQUIVALENT FRICTION ANGLE

HOLGUIN, FAHAN & ASSOCIATES, INC.

Interpretations based on: Robertson and Campanella, 1989.

APPENDIX C

Laboratory Testing Procedures and Test Results

The laboratory testing program was directed towards providing quantitative data relating to the relevant engineering properties of the soils. Samples considered representative of site conditions were tested in general accordance with American Society for Testing and Materials (ASTM) procedure and/or California Test Methods (CTM), where applicable. The following summary is a brief outline of the test type and a table summarizing the test results.

Grain Size Distribution: Representative samples were dried, weighed, and soaked in water until individual soil particles were separated (per ASTM D421) and then washed on a No. 200 sieve. The portion retained on the No. 200 sieve was dried and then sieved on a U.S. Standard brass sieve set in accordance with ASTM D422 (CTM 202).

Sample Location	Description	% Passing # 200 Sieve
B-LGC-1 @ 35.0’	Silty Sand	25.0
B-LGC-1 @ 45.0’	Silty Sand	21.0
B-LGC-2 @ 31.0’	Silty Sand	25.0
B-LGC-2 @ 45.0’	Silty Sand	20.0
B-LGC-3 @ 31.0’	Silty Sand	30.0

Soil Classification: Soils were classified according the Unified Soil Classification System (USCS) in accordance with ASTM Test Methods D2487 and D2488. This system uses relies on the Atterberg Limits and grain size distribution of a soil. The soil classifications (or group symbol) are shown on the laboratory test data, and boring logs.

Hyrdo-consolidation: Hydro-consolidation tests (collapse) were performed on selected, relatively undisturbed ring samples (ASTM D4546). Samples were placed in a consolidometer and a load approximately equal to the in-situ overburden pressure was applied. Water was then added to the sample and the percent hydro-consolidation under the applied load was measured. The percent for the load was calculated as the ratio of the amount of vertical deformation to the original sample height. The percent hydroconsolidation is presented below:

Sample Location	Percent Hydroconsolidation %
B-LGC-3 @ 11’	5.0
B-LGC-3 @ 21’	0.25
B-LGC-5 @ 11’	3.5

Note: Positive values of hydro-consolidation represent collapse of the soil structure, while negative values represent heave (or swelling) or the soil structure.

Direct Shear: Direct shear tests were performed on selected remolded and/or undisturbed samples, which were soaked for a minimum of 24 hours under a surcharge equal to the applied normal force during testing. After transfer of the sample to the shear box, and reloading the sample, pore pressures set up in the sample due to the transfer were allowed to dissipate for a period of approximately 1 hour prior to application of shearing force. The samples were tested under various normal loads, a motor-driven, strain-controlled, direct-shear testing apparatus at a strain rate of less than 0.001 to 0.5 inch per minute (depending upon the soil type). The test results are presented in the test data.

Sample Location	Sample Description	Friction Angle (degrees)	Apparent Cohesion (psf)
B-LGC-1 @51’	Silty Sand	Peak : 42 Ultimate: 43	Peak: 700 Ultimate: 550
B-LGC-2 @0-5’	Silty Sand	Peak : 47 Ultimate: 46	Peak: 425 Ultimate: 475
B-LGC-8 @16’	Silty Sand	Peak : 43 Ultimate: 43	Peak: 325 Ultimate: 225

Moisture and Density Determination Tests: Moisture content (ASTM D2216) and dry density determinations (ASTM D2937) were performed on relatively undisturbed samples obtained from the test borings and/or trenches. The results of these tests are presented in the boring and/or trench logs. Where applicable, only moisture content was determined from undisturbed or disturbed samples.

Maximum Density Tests: The maximum dry density and optimum moisture content of typical materials were determined in accordance with ASTM D1557. The results of these tests are presented in the table below:

Sample Location	Sample Description	Maximum Dry Density (pcf)	Optimum Moisture Content (%)
B-LGC-2 @ 1-5’	Silty Sand with Clay	125.0	10.0

Expansion Index: The expansion potential of selected samples were evaluated by the Expansion Index Test, U.B.C. Standard No. 18-2 and/or ASTM D4829. Specimens are molded under a given compactive energy to approximately the optimum moisture content and approximately 50 percent saturation or approximately 90 percent relative compaction. The prepared 1-inch-thick by 4-inch-diameter specimens are loaded to an equivalent 144 psf surcharge and are inundated with tap water until volumetric equilibrium is reached. The results of these tests are presented in the table below:

Sample Location	Sample Description	Expansion Index	Expansion Potential*
B-LGC-1 @ 1-5’	Silty Sand with trace Clay	20	Very Low
B-LGC-5 @ 1-5’	Silty Sand with trace Clay	22	Low

* Per Table 18-1-B of 1997 UBC.

Chloride Content: Chloride content was tested in accordance with Caltrans Test Method (CTM) 422. The results are presented below:

Sample Location	Chloride Content, ppm
B-LGC-1 @ 1-5’	31

Minimum Resistivity and pH Tests: Minimum resistivity and pH tests were performed in general accordance with CTM 643 and standard geochemical methods. The electrical resistivity of a soil is a measure of its resistance to the flow of electrical current. As a results of soil’s resistivity decreases corrosivity increases. The results are presented in the table below:

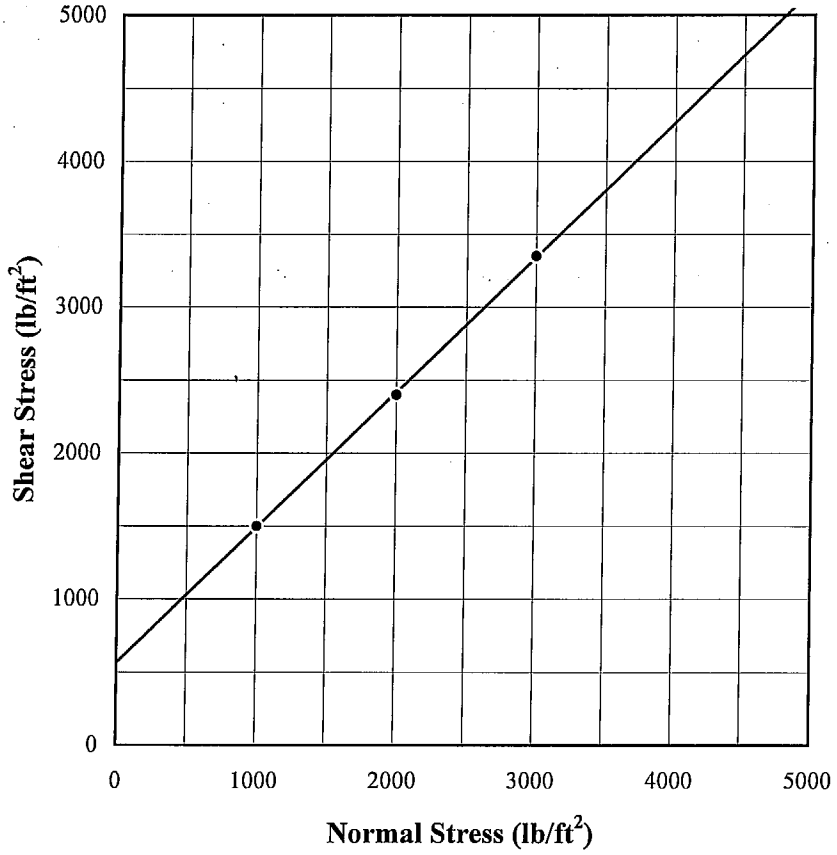
Sample Location	Sample Description	pH	Minimum Resistivity (ohms-cm)
B-LGC-1 @ 1-5’	Silty Sand with trace Clay	7.6	940

Soluble Sulfates: The soluble sulfate contents of selected samples were determined by standard geotechnical methods (CTM 417). The soluble sulfate content is used to determine the appropriate cement type and maximum water-cement ratios. The test results are presented in the table below:

Sample Location	Sample Description	Sulfate Content (%)*	Sulfate Exposure**
B-LGC-1 @ 1-5'	Silty Sand with trace Clay	0.1080	Moderate
B-LGC-5 @ 1-5'	Silty Sand with trace Clay	0.0021	Negligible

*Expressed as the percentage of water-soluble sulfate (SO_4) in soil, percentage by weight.

** Based on the 1997 edition of the Uniform Building Code (U.B. C.), Table No. 19-A-4, prepared by the International Conference of Building Officials (ICBO, 1997).



—— Least-Squares Best Fit Line (c =550 lb/ft2, phi =43 degrees)

• LGC 2004, B-LGC-1 @ 51', Silty Sand, Undisturbed Sample, 1st-Run Ultimate

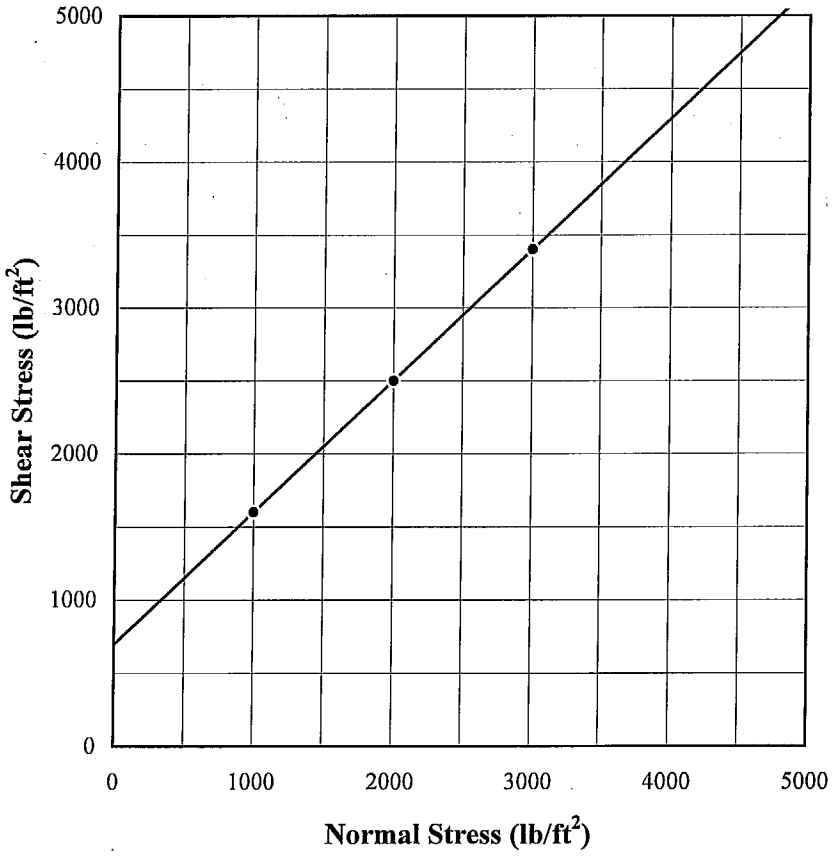
DIRECT SHEAR TEST

Hawkbryn, Santa Clarita

Project No: 033022-01
Drafted By: BIH
Date : 03/24/04

Figure No :

LGC



—— Least-Squares Best Fit Line (c =700 lb/ft2, phi =42 degrees)

• LGC 2004, B-LGC-1 @ 51', Silty Sand, Undisturbed Sample, 1st-Run Peak

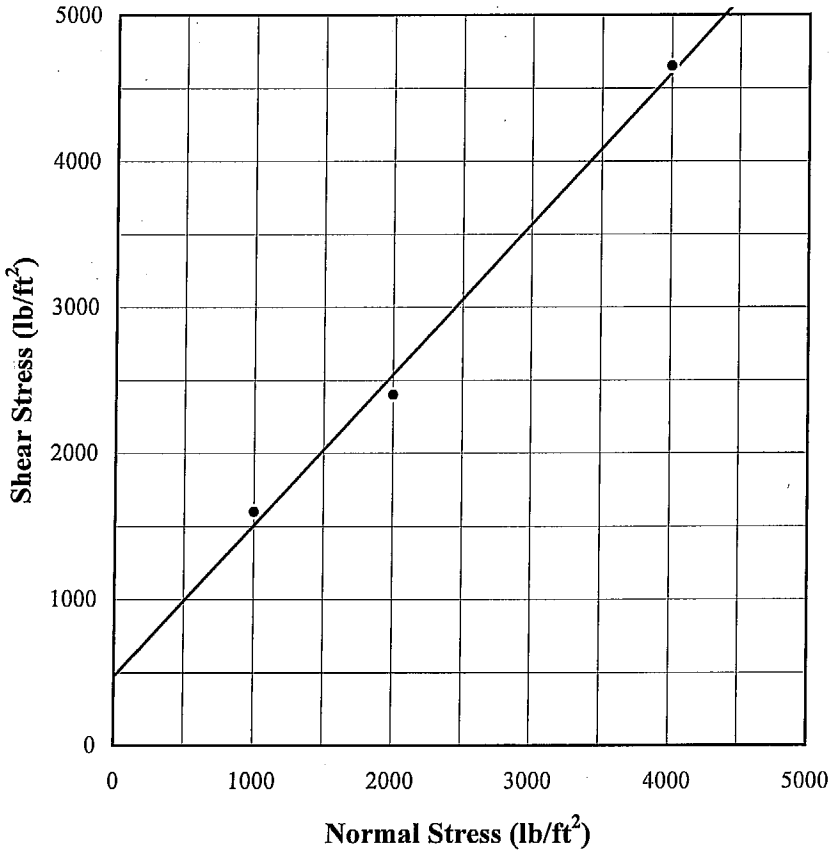
DIRECT SHEAR TEST

Hawkbryn, Santa Clarita

Project No: 033022-01
Drafted By: BIH
Date : 03/24/04

Figure No :

LGC



—— Least-Squares Best Fit Line (c =475 lb/ft2, phi =46 degrees)

• LGC 2004, B-LGC-2 @ 0-5', Silty Sand, Remolded Sample to 90%RC, 1st-Run Ultimate

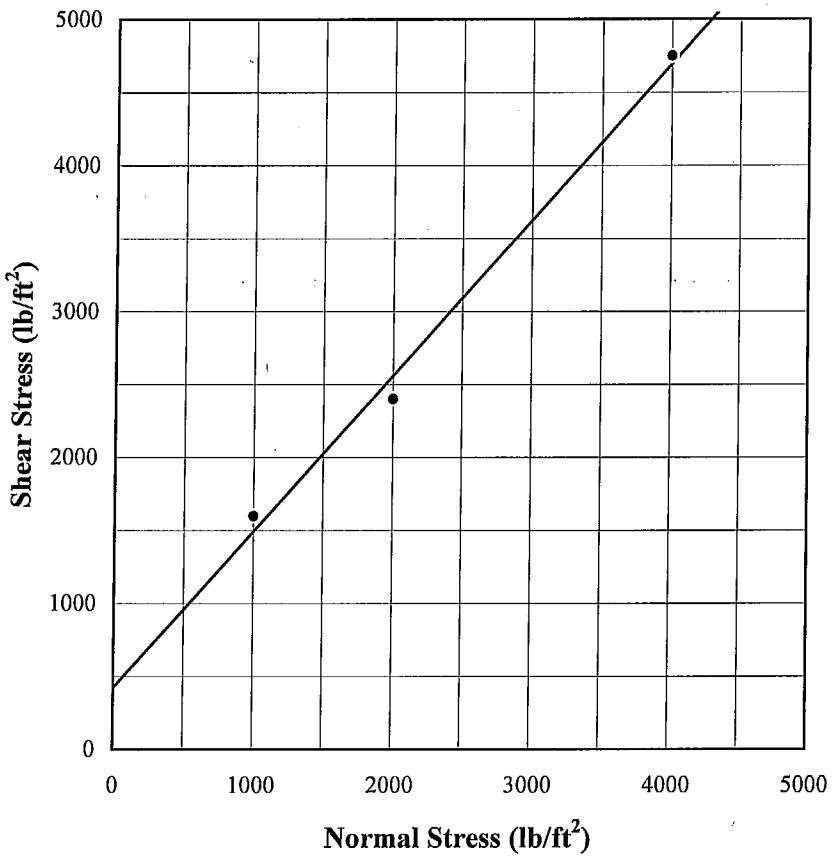
DIRECT SHEAR TEST

Hawkbryn, Santa Clarita

Project No: 033022-01
Drafted By: BIH
Date : 03/24/04

Figure No :

LGC



—— Least-Squares Best Fit Line (c =425 lb/ft2, phi =47 degrees)

• LGC 2004, B-LGC-2 @ 0-5', Silty Sand, Remolded Sample to 90%RC, 1st-Run Peak

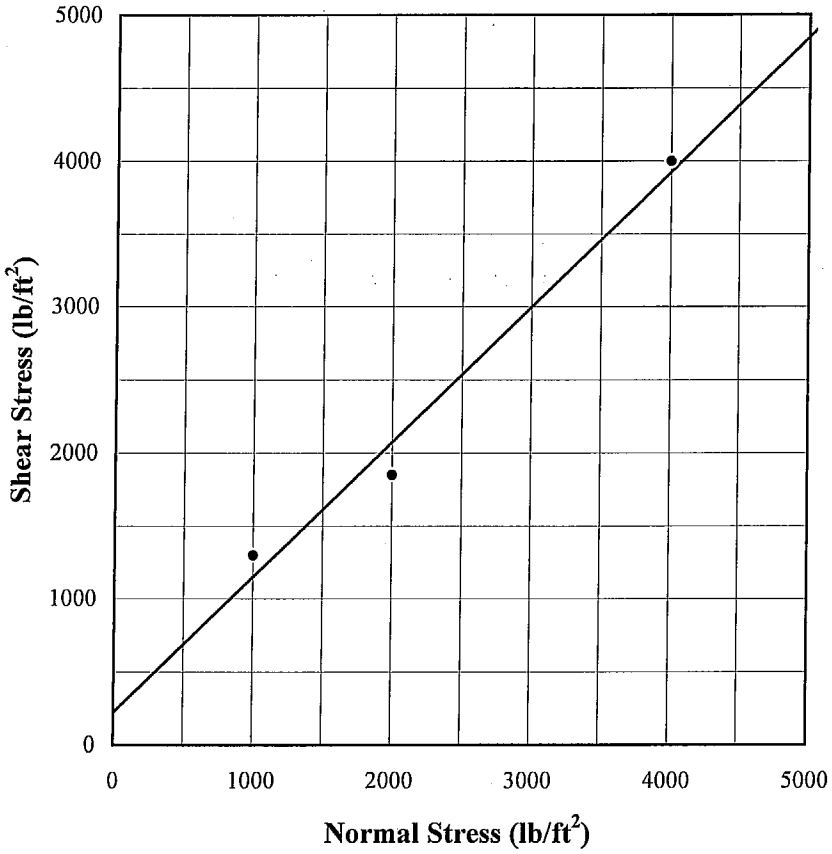
DIRECT SHEAR TEST

Hawkbryn, Santa Clarita

Project No: 033022-01
Drafted By: BIH
Date : 03/24/04

Figure No :

LGC



——— Least-Squares Best Fit Line (c =225 lb/ft2, phi =43 degrees)

• LGC 2004, B-LGC-3 @ 21', Silty Sand, Undisturbed Sample, 1st-Run Ultimate

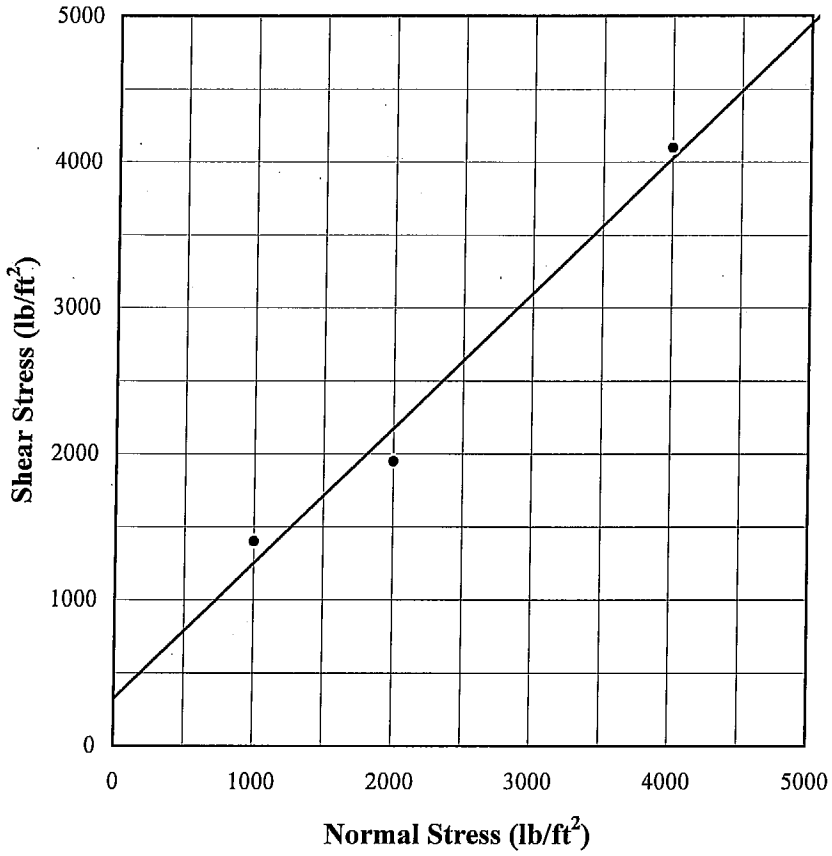
DIRECT SHEAR TEST

Hawkbryn, Santa Clarita

Project No: 033022-01
Drafted By: BIH
Date : 03/24/04

Figure No :

LGC



—— Least-Squares Best Fit Line (c =325 lb/ft2, phi =43 degrees)

• LGC 2004, B-LGC-3 @ 21', Silty Sand, Undisturbed Sample, 1st-Run Peak

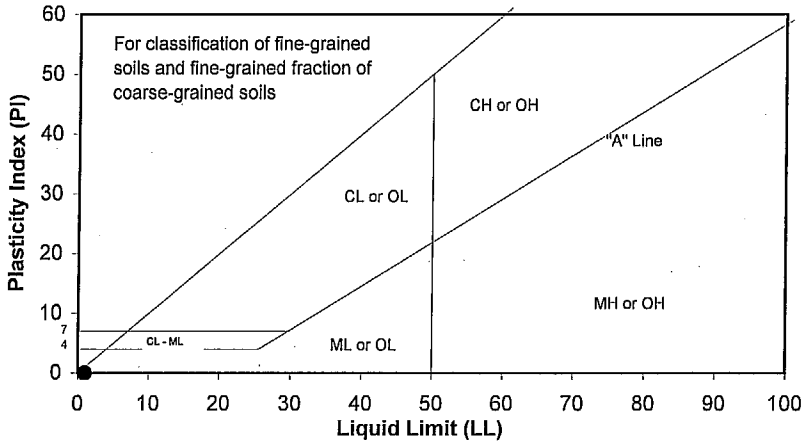
DIRECT SHEAR TEST

Hawkbryn, Santa Clarita

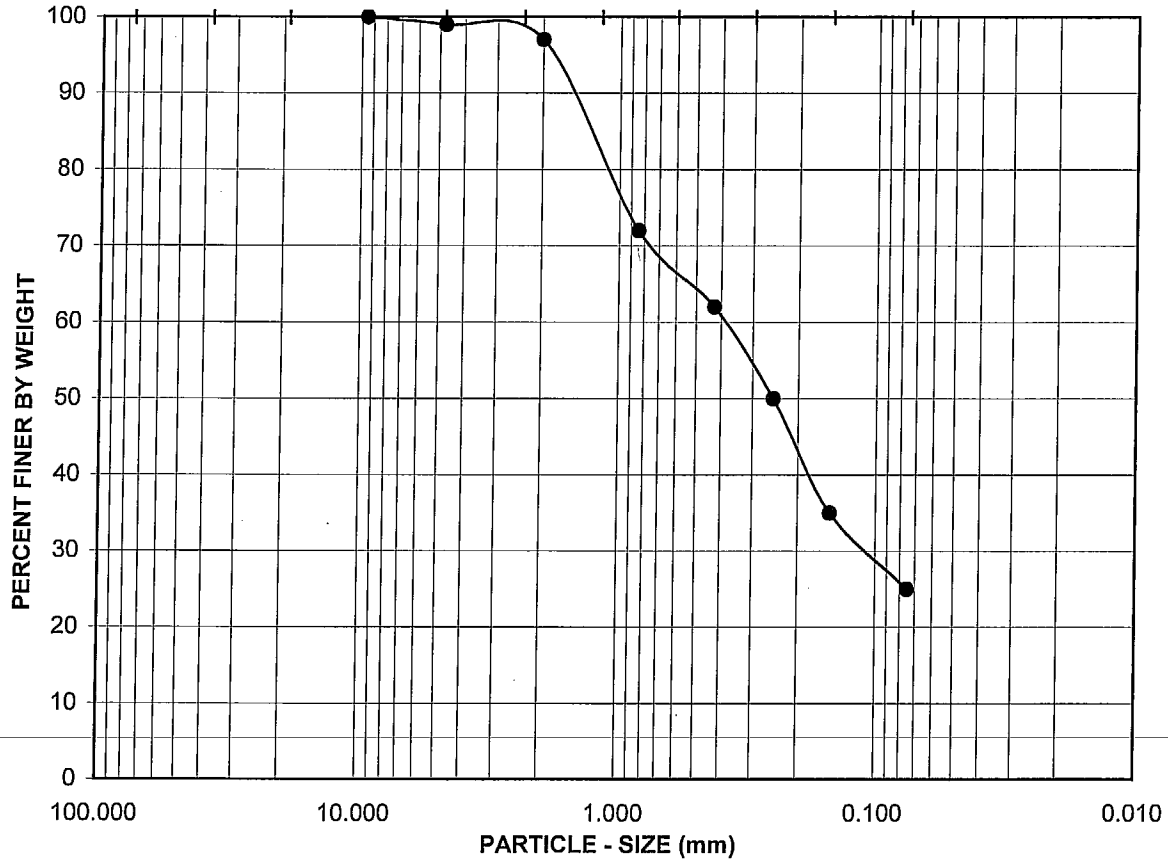
Project No: 033022-01
Drafted By: BIH
Date : 03/24/04

Figure No :

LGC



GRAVEL		SAND			FINES
COARSE	FINE	CRSE	MEDIUM	FINE	SILT
U.S. STANDARD SIEVE OPENING		U.S. STANDARD SIEVE NUMBER			HYDROMETER



Boring No.:	Sample No.:	Depth (ft.):	Soil Type	GR:SA:FI	LL,PL,PI
B-LGC-1	S-8	35	SM	1 : 74 : 25	N/A , N/A , N/A

Visual Sample Description:

Medium Brown Silty Sand

LGC

Project No.: 033022-01

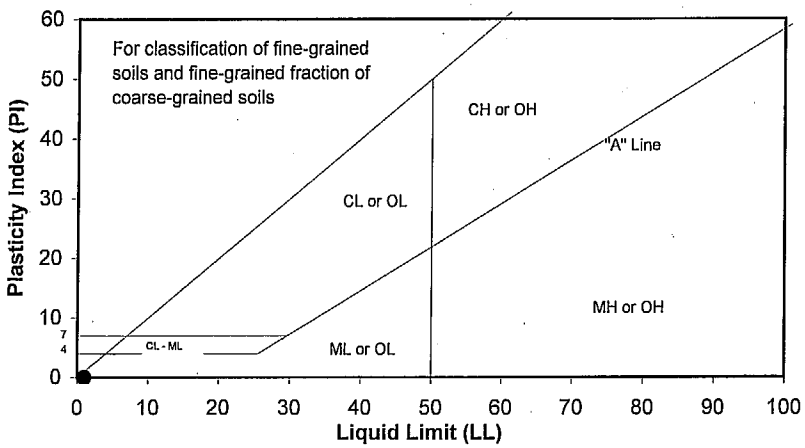
LGC/Monteverde

ATTERBERG LIMITS, PARTICLE - SIZE CURVE

ASTM D 4318, D 422

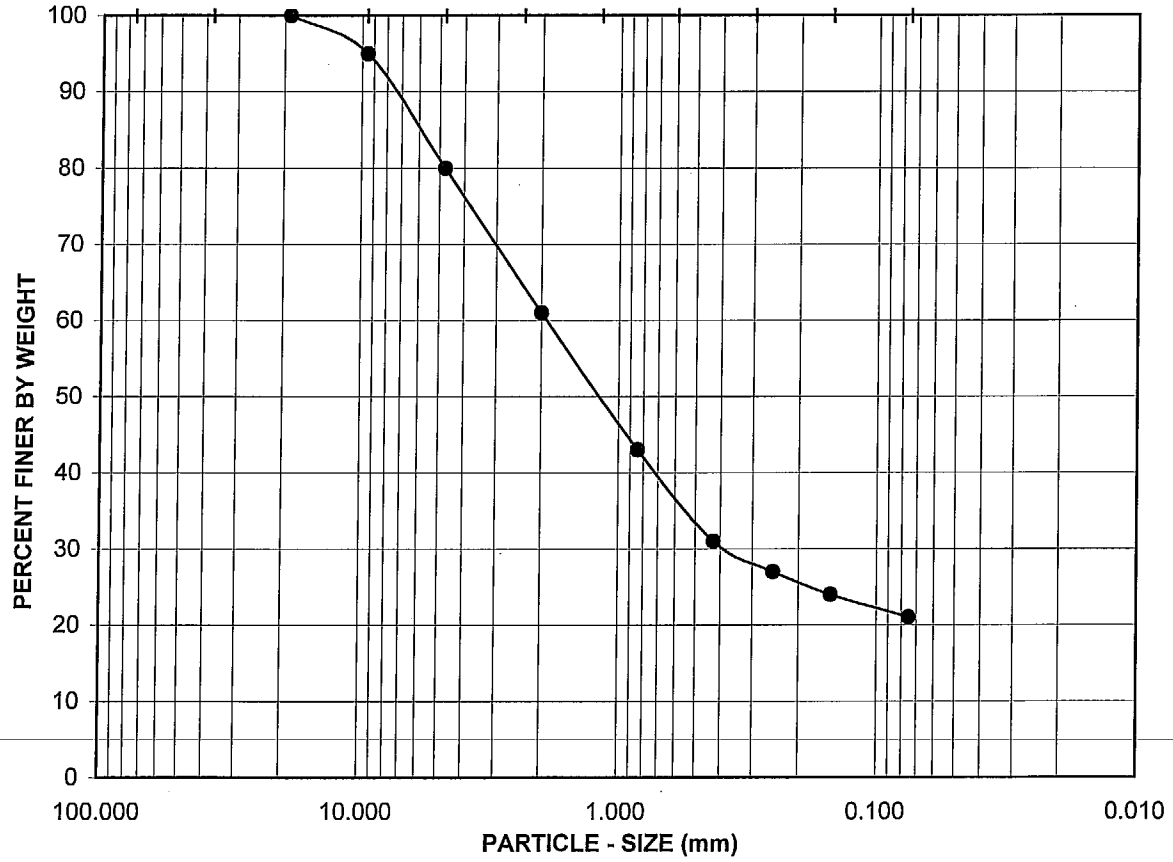
03-04

Sievemontblgc1s8



GRAVEL		SAND			FINES
COARSE	FINE	CRSE	MEDIUM	FINE	SILT

U.S. STANDARD SIEVE OPENING U.S. STANDARD SIEVE NUMBER HYDROMETER



Boring No.:	Sample No.:	Depth (ft.):	Soil Type	GR:SA:FI	LL,PL,PI
B-LGC-1	S-10	45	SM	20 : 59 : 21	N/A, N/A, N/A

Visual Sample Description:

Medium Brown Silty Sand

LGC

Project No.: 033022-01

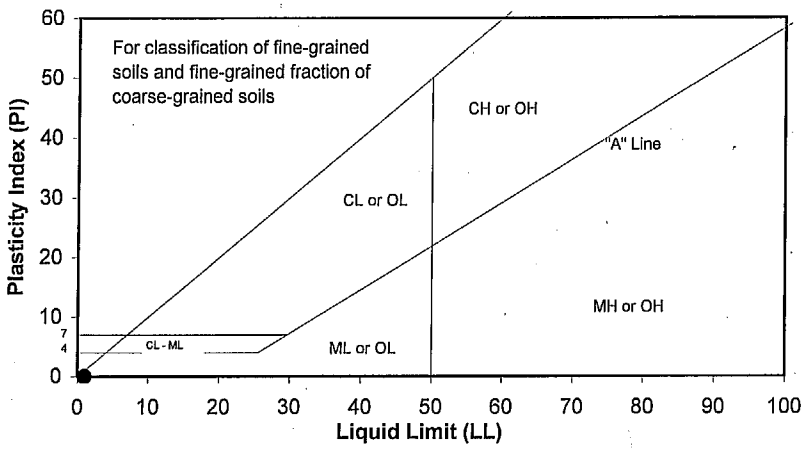
LGC/Monteverde

ATTERBERG LIMITS, PARTICLE - SIZE CURVE

ASTM D 4318, D 422

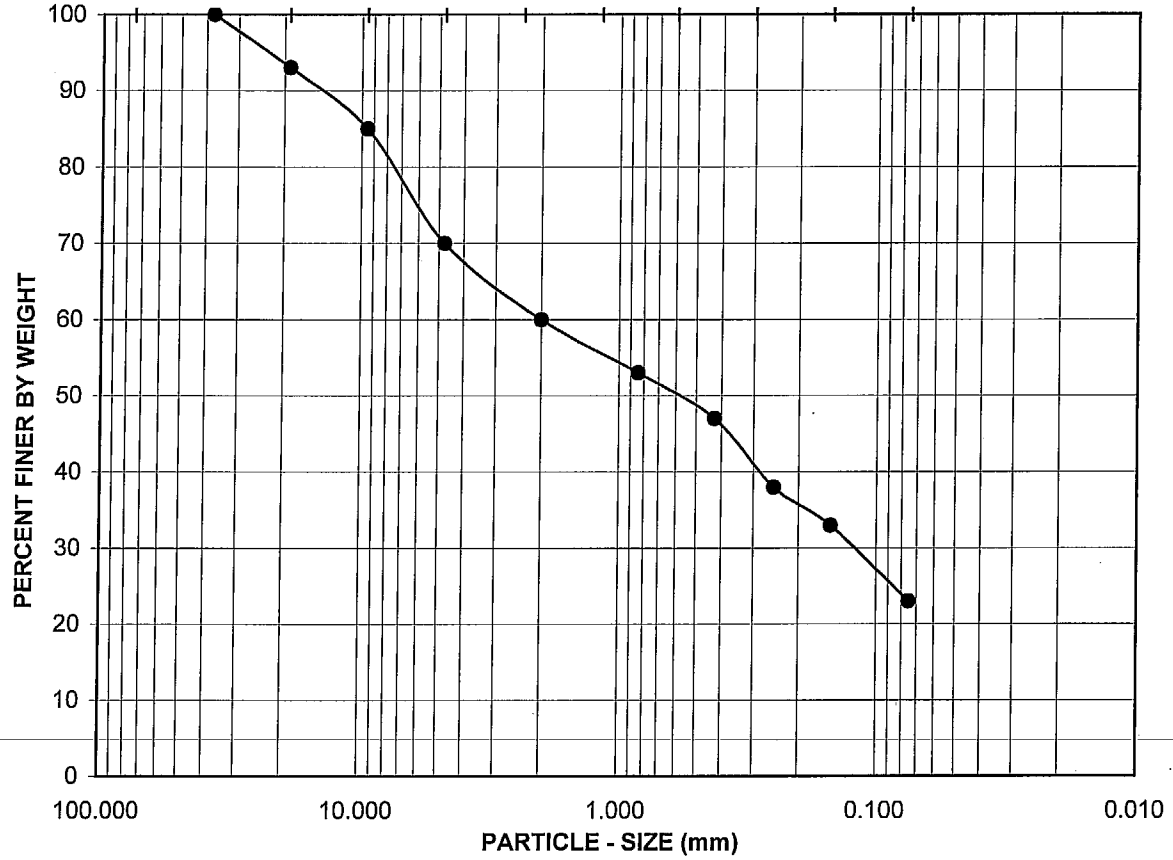
03-04

Sievemontblgc1s10



GRAVEL		SAND			FINES
COARSE	FINE	CRSE	MEDIUM	FINE	SILT

U.S. STANDARD SIEVE OPENING U.S. STANDARD SIEVE NUMBER HYDROMETER



Boring No.:	Sample No.:	Depth (ft.):	Soil Type	GR:SA:FI	LL,PL,PI
B-LGC-2	S-8	31	SM	30 : 47 : 23	N/A, N/A, N/A

Visual Sample Description:

Medium Brown Gravelley Silty Sand

LGC

Project No.: 033022-01

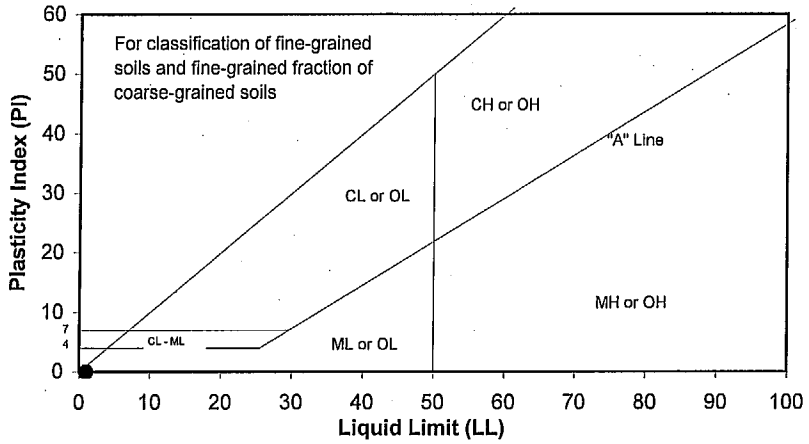
LGC/Monteverde

ATTERBERG LIMITS, PARTICLE - SIZE CURVE

ASTM D 4318, D 422

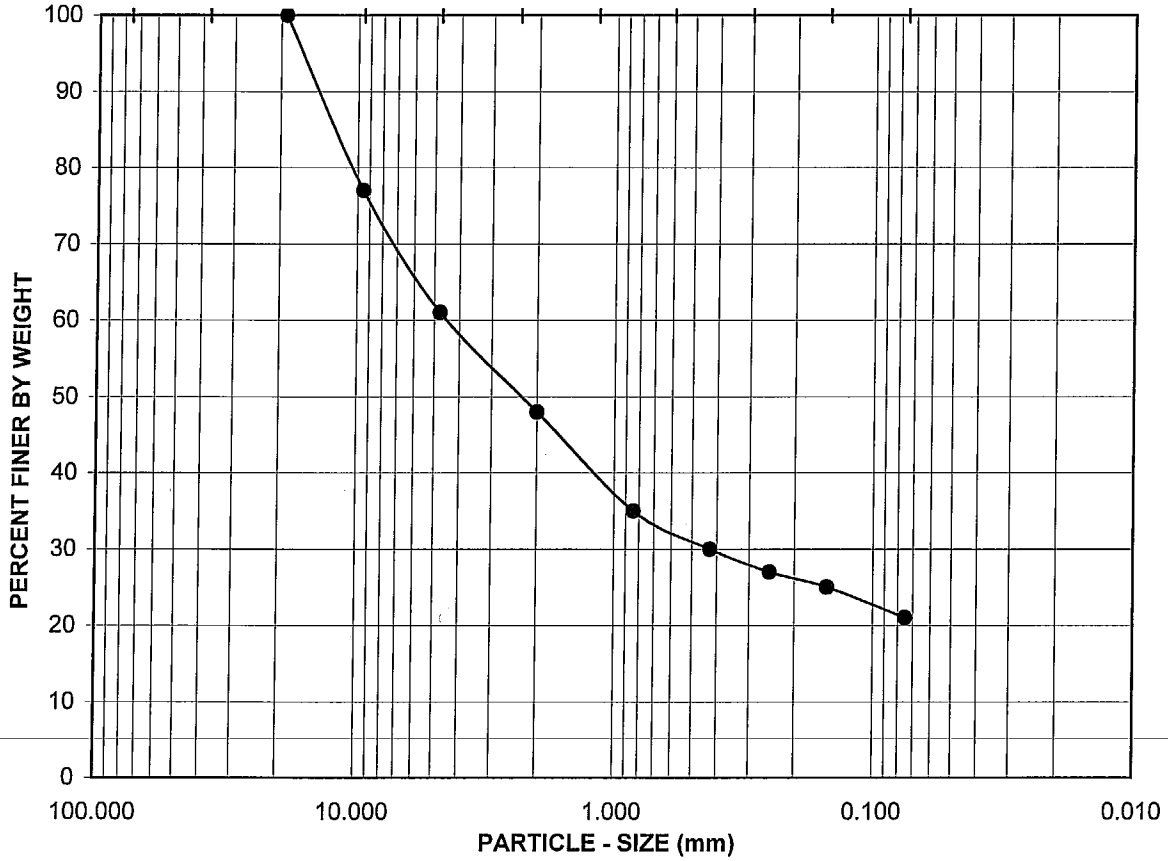
03-04

Sievemontblgc2s8



GRAVEL		SAND			FINES
COARSE	FINE	CRSE	MEDIUM	FINE	SILT

U.S. STANDARD SIEVE OPENING U.S. STANDARD SIEVE NUMBER HYDROMETER



Boring No.:	Sample No.:	Depth (ft.):	Soil Type	GR:SA:FI	LL,PL,PI
B-LGC-2	S-11	45	SM	39 : 40 : 21	N/A, N/A, N/A

Visual Sample Description:

Medium Brown Gravelley Sand with Silt

LGC

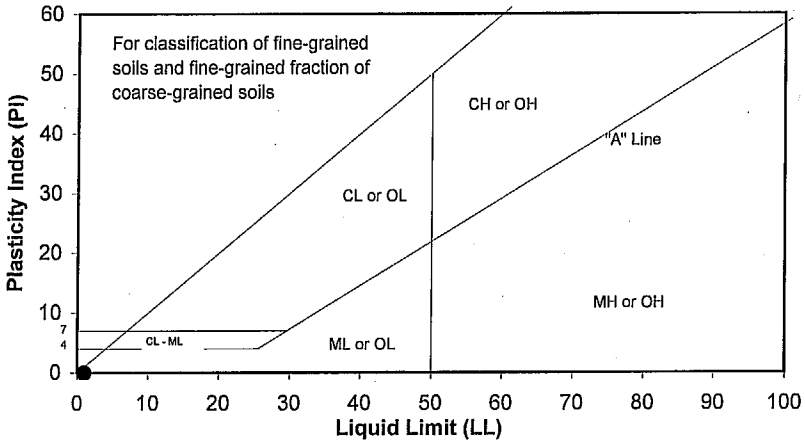
Project No.: 033022-01

LGC/Monteverde

ATTERBERG LIMITS, PARTICLE - SIZE CURVE

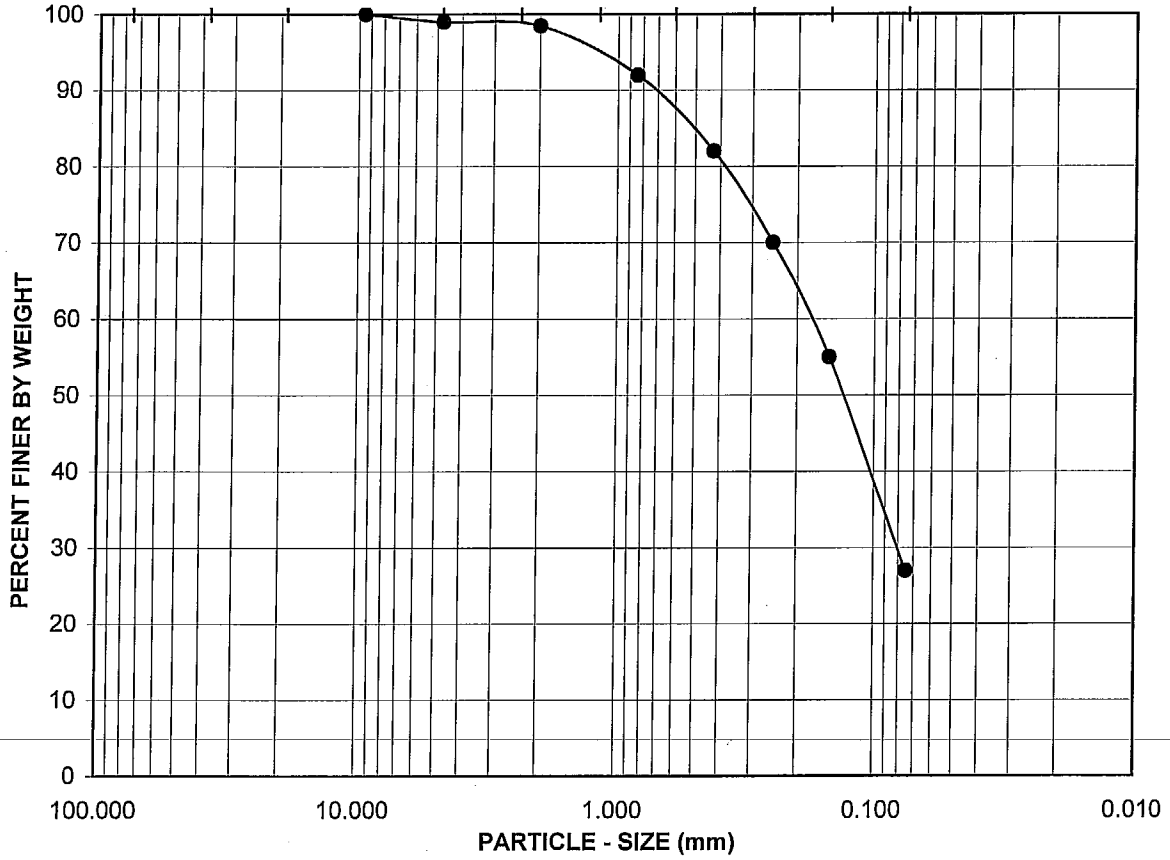
ASTM D 4318, D 422

03-04



GRAVEL		SAND			FINES
COARSE	FINE	CRSE	MEDIUM	FINE	SILT

U.S. STANDARD SIEVE OPENING U.S. STANDARD SIEVE NUMBER HYDROMETER



Boring No.:	Sample No.:	Depth (ft.):	Soil Type	GR:SA:FI	LL,PL,PI
B-LGC-3	S-8	31	SM	1 : 72 : 27	N/A, N/A, N/A

Visual Sample Description:

Medium Brown Silty Sand

LGC

Project No.: 033022-01

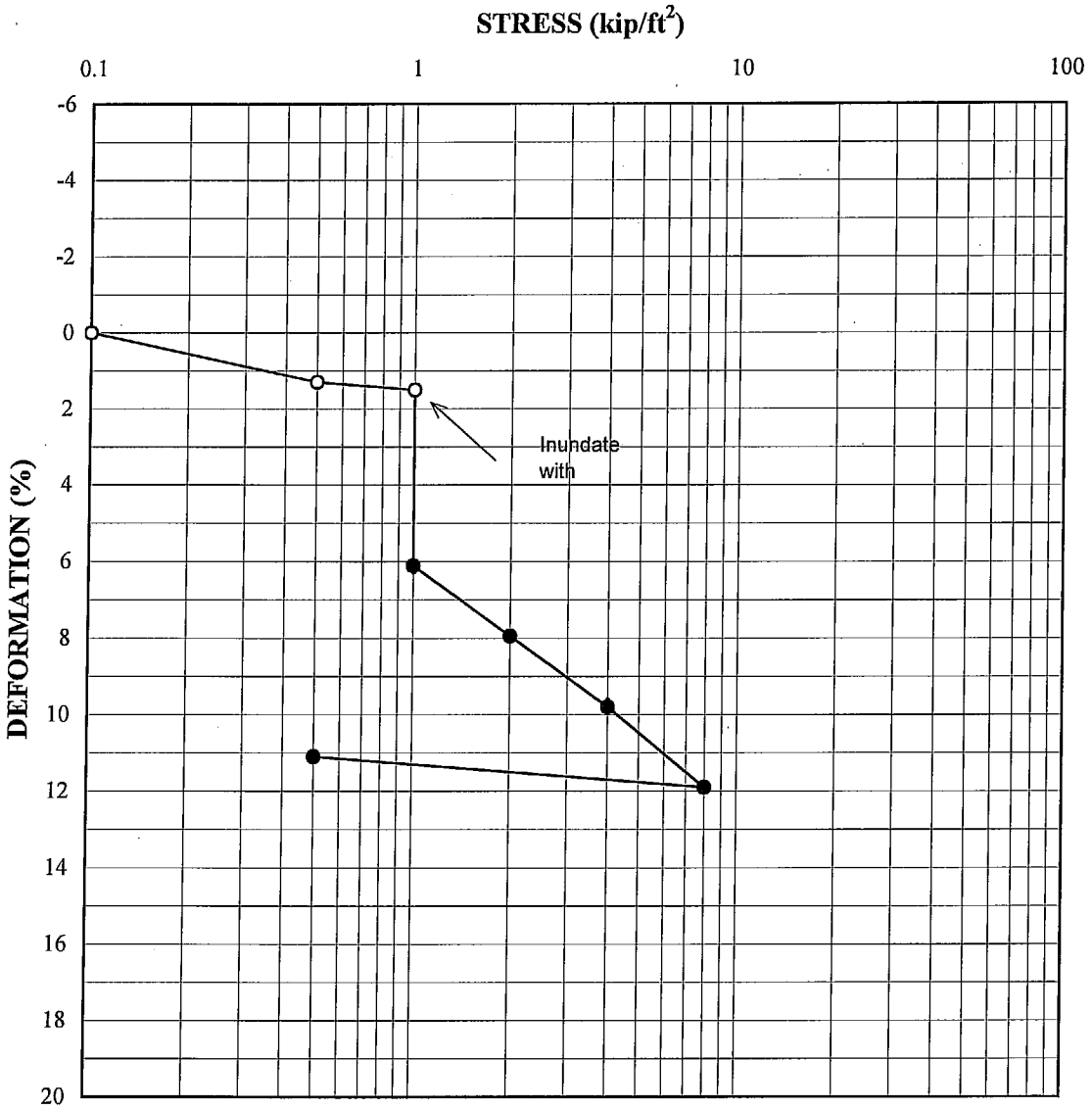
LGC/Monteverde

ATTERBERG LIMITS, PARTICLE - SIZE CURVE

ASTM D 4318, D 422

03-04

Sievemontblgc3s8



—O— LGC 2004, B-LGC-3 @ 11.0', S-4, Silty Sand with Clay

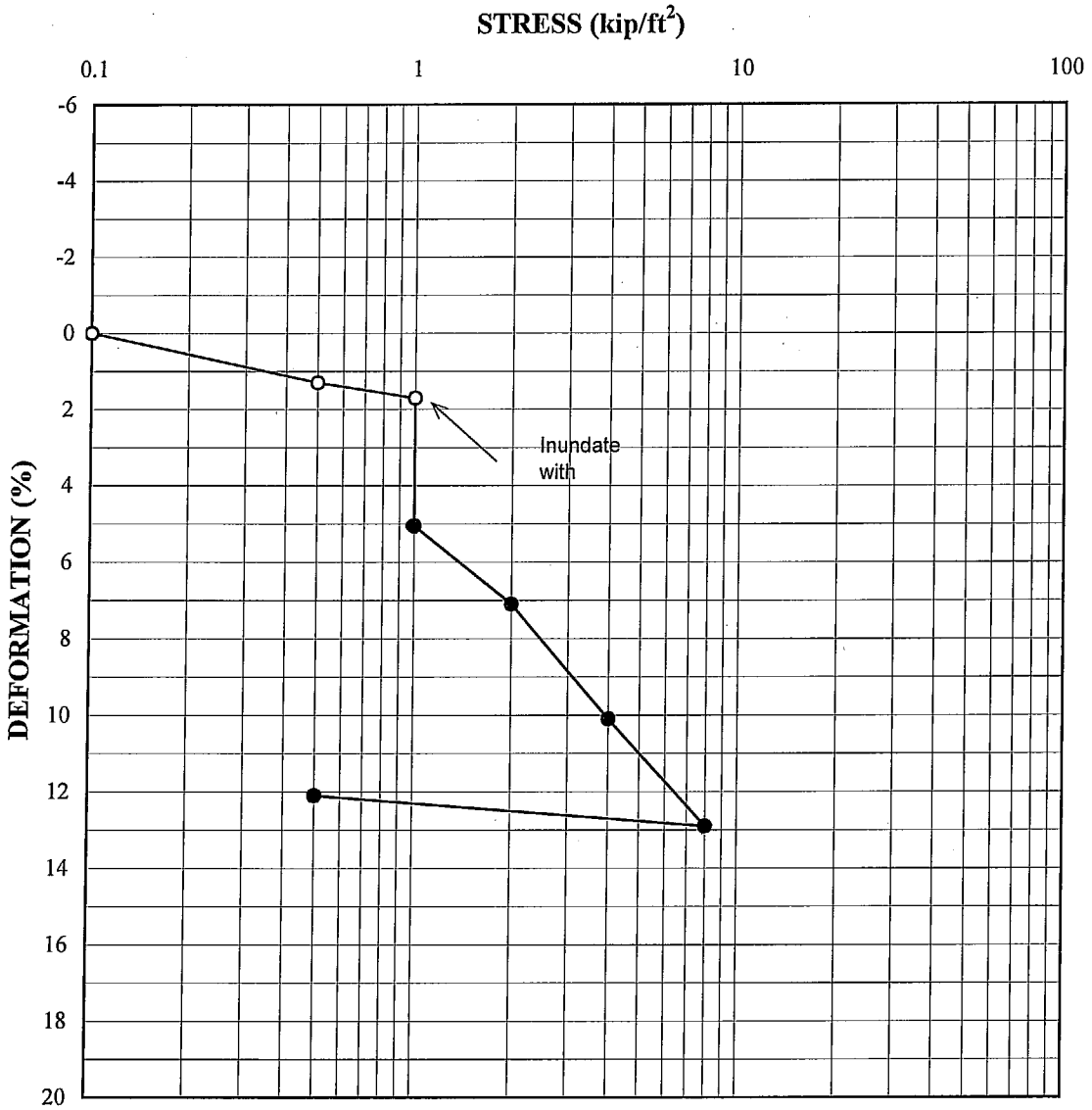
CONSOLIDATION TEST RESULTS

Hawkbryn, Santa Clarita

Project No: 033022-01
Drafted By: BIH
Date : 03/24/04

Figure No :

LGC



—○— LGC 2004, B-LGC-5 @ 11.0', S-4, Silty Sand with Clay

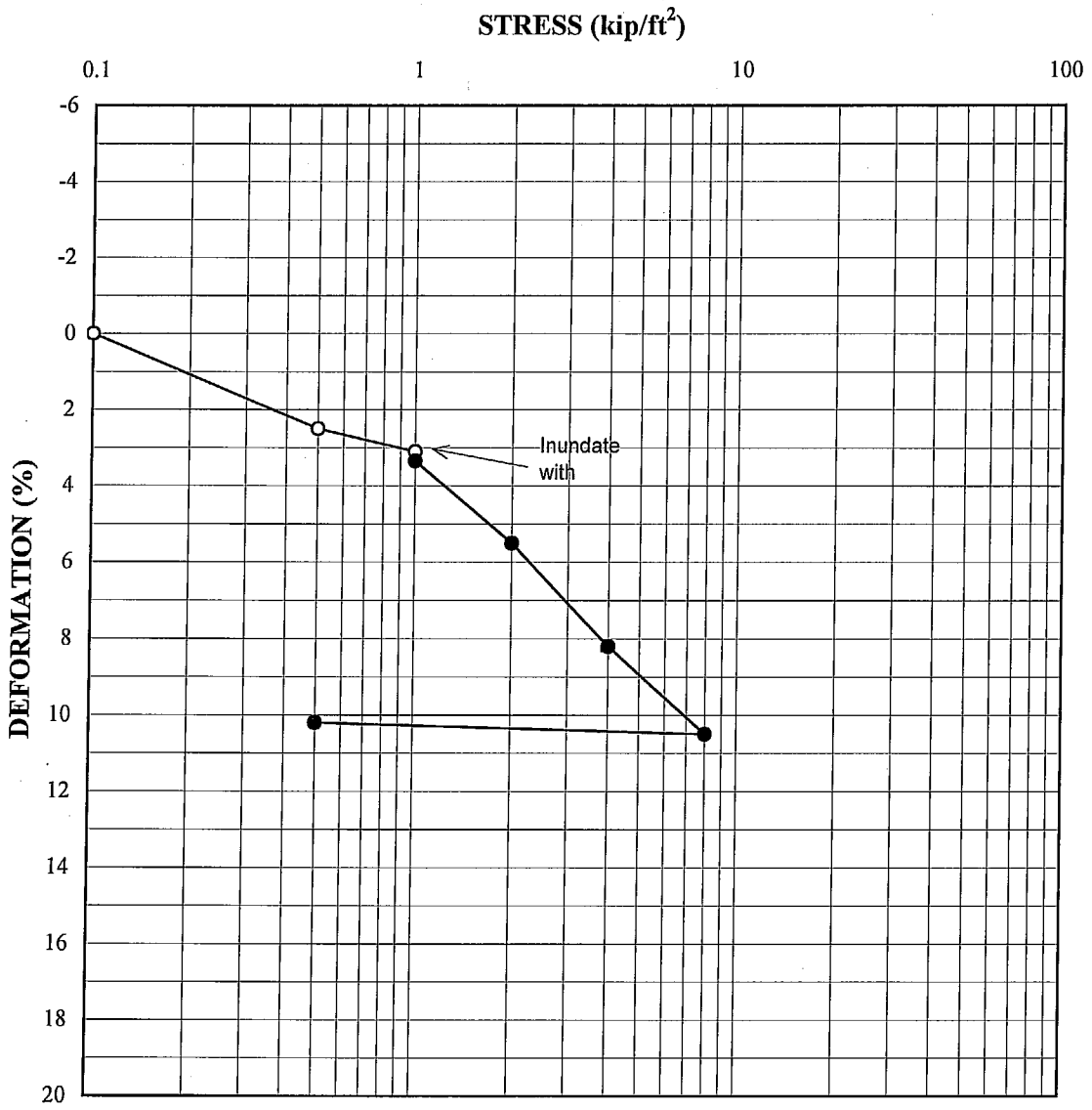
CONSOLIDATION TEST RESULTS

Hawkbryn, Santa Clarita

Project No: 033022-01
Drafted By: BIH
Date : 03/24/04

Figure No :

LGC



—○— LGC 2004, B-LGC-3 @ 21.0', S-6, Silty Sand with Clay

CONSOLIDATION TEST RESULTS

Hawkbryn, Santa Clarita

Project No: 033022-01
Drafted By: BIH
Date : 3/24/04

Figure No :

LGC

Appendix D

LAWSON & ASSOCIATES GEOTECHNICAL CONSULTING, INC.

General Earthwork and Grading Specifications For Rough Grading

1.0 General

1.1 Intent: These General Earthwork and Grading Specifications are for the grading and earthwork shown on the approved grading plan(s) and/or indicated in the geotechnical report(s). These Specifications are a part of the recommendations contained in the geotechnical report(s). In case of conflict, the specific recommendations in the geotechnical report shall supersede these more general Specifications. Observations of the earthwork by the project Geotechnical Consultant during the course of grading may result in new or revised recommendations that could supersede these specifications or the recommendations in the geotechnical report(s).

1.2 The Geotechnical Consultant of Record: Prior to commencement of work, the owner shall employ a qualified Geotechnical Consultant of Record (Geotechnical Consultant). The Geotechnical Consultant shall be responsible for reviewing the approved geotechnical report(s) and accepting the adequacy of the preliminary geotechnical findings, conclusions, and recommendations prior to the commencement of the grading.

Prior to commencement of grading, the Geotechnical Consultant shall review the "work plan" prepared by the Earthwork Contractor (Contractor) and schedule sufficient personnel to perform the appropriate level of observation, mapping, and compaction testing.

During the grading and earthwork operations, the Geotechnical Consultant shall observe, map, and document the subsurface exposures to verify the geotechnical design assumptions. If the observed conditions are found to be significantly different than the interpreted assumptions during the design phase, the Geotechnical Consultant shall inform the owner, recommend appropriate changes in design to accommodate the observed conditions, and notify the review agency where required.

The Geotechnical Consultant shall observe the moisture-conditioning and processing of the subgrade and fill materials and perform relative compaction testing of fill to confirm that the attained level of compaction is being accomplished as specified. The Geotechnical Consultant shall provide the test results to the owner and the Contractor on a routine and frequent basis.

1.3 The Earthwork Contractor: The Earthwork Contractor (Contractor) shall be qualified, experienced, and knowledgeable in earthwork logistics, preparation and processing of ground to receive fill, moisture-conditioning and processing of fill, and compacting fill. The Contractor shall review and accept the plans, geotechnical report(s), and these

Specifications prior to commencement of grading. The Contractor shall be solely responsible for performing the grading in accordance with the project plans and specifications. The Contractor shall prepare and submit to the owner and the Geotechnical Consultant a work plan that indicates the sequence of earthwork grading, the number of "equipment" of work and the estimated quantities of daily earthwork contemplated for the site prior to commencement of grading. The Contractor shall inform the owner and the Geotechnical Consultant of changes in work schedules and updates to the work plan at least 24 hours in advance of such changes so that appropriate personnel will be available for observation and testing. . The Contractor shall not assume that the Geotechnical Consultant is aware of all grading operations.

The Contractor shall have the sole responsibility to provide adequate equipment and methods to accomplish the earthwork in accordance with the applicable grading codes and agency ordinances, these Specifications, and the recommendations in the approved geotechnical report(s) and grading plan(s). If, in the opinion of the Geotechnical Consultant, unsatisfactory conditions, such as unsuitable soil, improper moisture condition, inadequate compaction, insufficient buttress key size, adverse weather, etc., are resulting in a quality of work less than required in these specifications, the Geotechnical Consultant shall reject the work and may recommend to the owner that construction be stopped until the conditions are rectified. It is the contractor's sole responsibility to provide proper fill compaction.

2.0 Preparation of Areas to be Filled

2.1 Clearing and Grubbing: Vegetation, such as brush, grass, roots, and other deleterious material shall be sufficiently removed and properly disposed of in a method acceptable to the owner, governing agencies, and the Geotechnical Consultant.

The Geotechnical Consultant shall evaluate the extent of these removals depending on specific site conditions. Earth fill material shall not contain more than 1 percent of organic materials (by volume). No fill lift shall contain more than 10 percent of organic matter. Nesting of the organic materials shall not be allowed.

If potentially hazardous materials are encountered, the Contractor shall stop work in the affected area, and a hazardous material specialist shall be informed immediately for proper evaluation and handling of these materials prior to continuing to work in that area.

As presently defined by the State of California, most refined petroleum products (gasoline, diesel fuel, motor oil, grease, coolant, etc.) have chemical constituents that are considered to be hazardous waste. As such, the indiscriminate dumping or spillage of these fluids onto the ground may constitute a misdemeanor, punishable by fines and/or imprisonment, and shall not be allowed. The contractor is responsible for all hazardous waste relating to his work. The Geotechnical Consultant does not have

expertise in this area. If hazardous waste is a concern, then the Client should acquire the services of a qualified environmental assessor.

2.2 ***Processing:*** Existing ground that has been declared satisfactory for support of fill by the Geotechnical Consultant shall be scarified to a minimum depth of 6 inches. Existing ground that is not satisfactory shall be overexcavated as specified in the following section. Scarification shall continue until soils are broken down and free from oversize material and the working surface is reasonably uniform, flat, and free from uneven features that would inhibit uniform compaction.

2.3 ***Overexcavation:*** In addition to removals and overexcavations recommended in the approved geotechnical report(s) and the grading plan, soft, loose, dry, saturated, spongy, organic-rich, highly fractured or otherwise unsuitable ground shall be overexcavated to competent ground as evaluated by the Geotechnical Consultant during grading.

2.4 ***Benching:*** Where fills are to be placed on ground with slopes steeper than 5:1 (horizontal to vertical units), the ground shall be stepped or benched. Please see the Standard Details for a graphic illustration. The lowest bench or key shall be a minimum of 15 feet wide and at least 2 feet deep, into competent material as evaluated by the Geotechnical Consultant. Other benches shall be excavated a minimum height of 4 feet into competent material or as otherwise recommended by the Geotechnical Consultant. Fill placed on ground sloping flatter than 5:1 shall also be benched or otherwise overexcavated to provide a flat subgrade for the fill.

2.5 ***Evaluation/Acceptance of Fill Areas:*** All areas to receive fill, including removal and processed areas, key bottoms, and benches, shall be observed, mapped, elevations recorded, and/or tested prior to being accepted by the Geotechnical Consultant as suitable to receive fill. The Contractor shall obtain a written acceptance from the Geotechnical Consultant prior to fill placement. A licensed surveyor shall provide the survey control for determining elevations of processed areas, keys, and benches.

3.0 Fill Material

3.1 ***General:*** Material to be used as fill shall be essentially free from organic matter and other deleterious substances evaluated and accepted by the Geotechnical Consultant prior to placement. Soils of poor quality, such as those with unacceptable gradation, high expansion potential, or low strength shall be placed in areas acceptable to the Geotechnical Consultant or mixed with other soils to achieve satisfactory fill material.

3.2 ***Oversize:*** Oversize material defined as rock, or other irreducible material with a maximum dimension greater than 8 inches, shall not be buried or placed in fill unless location, materials, and placement methods are specifically accepted by the Geotechnical Consultant. Placement operations shall be such that nesting of oversized material does not occur and such that oversize material is completely surrounded by

compacted or densified fill. Oversize material shall not be placed within 10 vertical feet of finish grade or within 2 feet of future utilities or underground construction.

3.3 ***Import:*** If importing of fill material is required for grading, proposed import material shall meet the requirements of Section 3.1. The potential import source shall be given to the Geotechnical Consultant at least 48 hours (2 working days) before importing begins so that its suitability can be determined and appropriate tests performed.

4.0 Fill Placement and Compaction

4.1 ***Fill Layers:*** Approved fill material shall be placed in areas prepared to receive fill (per Section 3.0) in near-horizontal layers not exceeding 8 inches in loose thickness. The Geotechnical Consultant may accept thicker layers if testing indicates the grading procedures can adequately compact the thicker layers. Each layer shall be spread evenly and mixed thoroughly to attain relative uniformity of material and moisture throughout.

4.2 ***Fill Moisture Conditioning:*** Fill soils shall be watered, dried back, blended, and/or mixed, as necessary to attain a relatively uniform moisture content at or slightly over optimum. Maximum density and optimum soil moisture content tests shall be performed in accordance with the American Society of Testing and Materials (ASTM Test Method D1557-91).

4.3 ***Compaction of Fill:*** After each layer has been moisture-conditioned, mixed, and evenly spread, it shall be uniformly compacted to not less than 90 percent of maximum dry density (ASTM Test Method D1557-91). Compaction equipment shall be adequately sized and be either specifically designed for soil compaction or of proven reliability to efficiently achieve the specified level of compaction with uniformity.

4.4 ***Compaction of Fill Slopes:*** In addition to normal compaction procedures specified above, compaction of slopes shall be accomplished by backrolling of slopes with sheepsfoot rollers at increments of 3 to 4 feet in fill elevation, or by other methods producing satisfactory results acceptable to the Geotechnical Consultant. Upon completion of grading, relative compaction of the fill, out to the slope face, shall be at least 90 percent of maximum density per ASTM Test Method D1557-91.

4.5 ***Compaction Testing:*** Field tests for moisture content and relative compaction of the fill soils shall be performed by the Geotechnical Consultant. Location and frequency of tests shall be at the Consultant's discretion based on field conditions encountered. Compaction test locations will not necessarily be selected on a random basis. Test locations shall be selected to verify adequacy of compaction levels in areas that are judged to be prone to inadequate compaction (such as close to slope faces and at the fill/bedrock benches).

4.6 ***Frequency of Compaction Testing:*** Tests shall be taken at intervals not exceeding 2 feet in vertical rise and/or 1,000 cubic yards of compacted fill soils embankment. In addition, as a guideline, at least one test shall be taken on slope faces for each 5,000 square feet of slope face and/or each 10 feet of vertical height of slope. The Contractor shall assure that fill construction is such that the testing schedule can be accomplished by the Geotechnical Consultant. The Contractor shall stop or slow down the earthwork construction if these minimum standards are not met.

4.7 ***Compaction Test Locations:*** The Geotechnical Consultant shall document the approximate elevation and horizontal coordinates of each test location. The Contractor shall coordinate with the project surveyor to assure that sufficient grade stakes are established so that the Geotechnical Consultant can determine the test locations with sufficient accuracy. At a minimum, two grade stakes within a horizontal distance of 100 feet and vertically less than 5 feet apart from potential test locations shall be provided.

5.0 Subdrain Installation

Subdrain systems shall be installed in accordance with the approved geotechnical report(s), the grading plan, and the Standard Details. The Geotechnical Consultant may recommend additional subdrains and/or changes in subdrain extent, location, grade, or material depending on conditions encountered during grading. All subdrains shall be surveyed by a land surveyor/civil engineer for line and grade after installation and prior to burial. Sufficient time should be allowed by the Contractor for these surveys.

6.0 Excavation

Excavations, as well as over-excavation for remedial purposes, shall be evaluated by the Geotechnical Consultant during grading. Remedial removal depths shown on geotechnical plans are estimates only. The actual extent of removal shall be determined by the Geotechnical Consultant based on the field evaluation of exposed conditions during grading. Where fill-over-cut slopes are to be graded, the cut portion of the slope shall be made, evaluated, and accepted by the Geotechnical Consultant prior to placement of materials for construction of the fill portion of the slope, unless otherwise recommended by the Geotechnical Consultant.

7.0 Trench Backfills

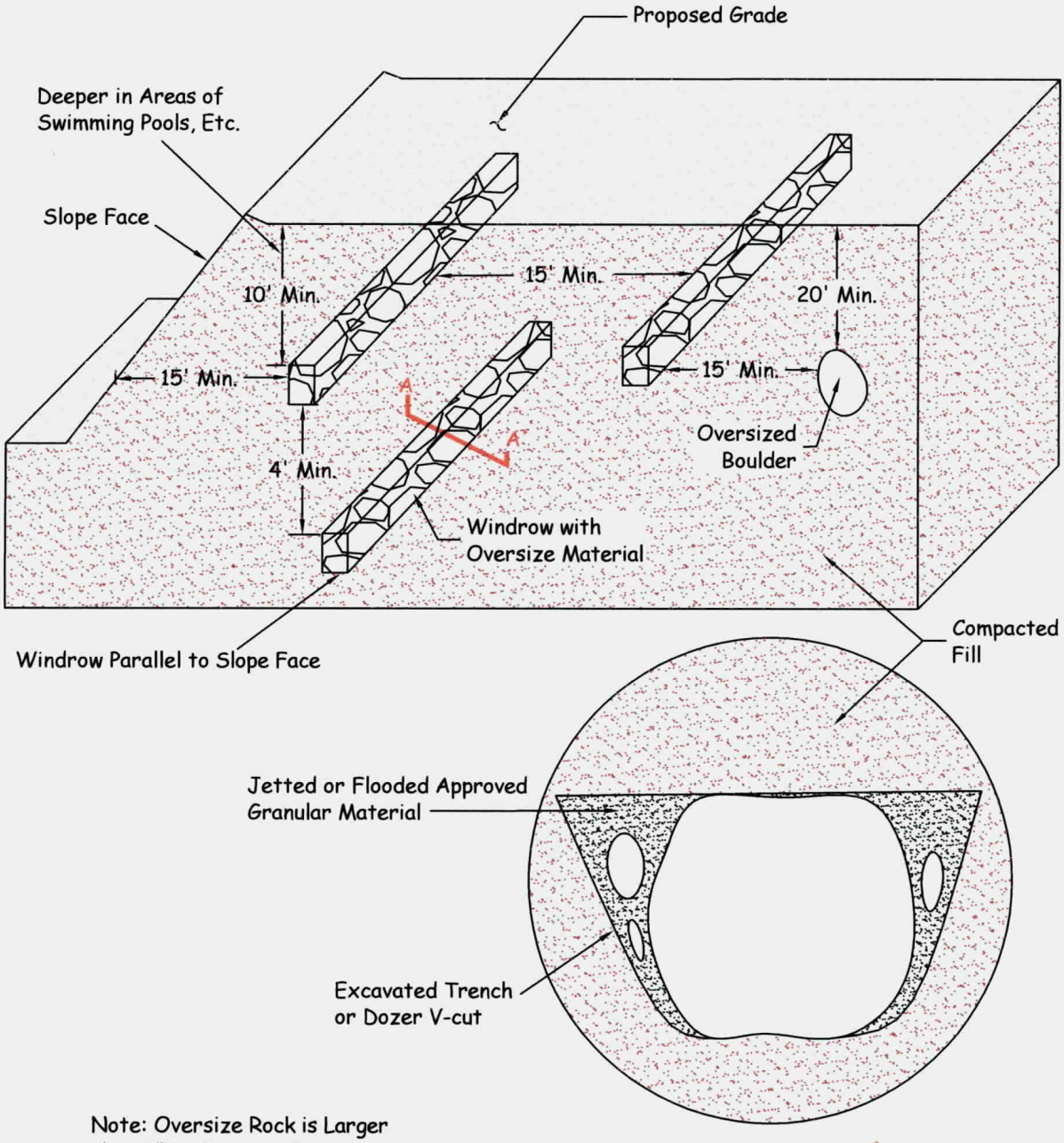
7.1 The Contractor shall follow all OHSA and Cal/OSHA requirements for safety of trench excavations.

7.2 All bedding and backfill of utility trenches shall be done in accordance with the applicable provisions of Standard Specifications of Public Works Construction. Bedding material shall have a Sand Equivalent greater than 30 (SE>30). The bedding shall be placed to 1 foot over the top of the conduit and densified by jetting. Backfill shall be placed and densified to a minimum of 90 percent of maximum from 1 foot above the top of the conduit to the surface.

7.3 The jetting of the bedding around the conduits shall be observed by the Geotechnical Consultant.

7.4 The Geotechnical Consultant shall test the trench backfill for relative compaction. At least one test should be made for every 300 feet of trench and 2 feet of fill.

7.5 Lift thickness of trench backfill shall not exceed those allowed in the Standard Specifications of Public Works Construction unless the Contractor can demonstrate to the Geotechnical Consultant that the fill lift can be compacted to the minimum relative compaction by his alternative equipment and method.



Note: Oversize Rock is Larger than 8" in Maximum Dimension.

Section A-A'

LGC

Oversize Rock Disposal Detail

Project Name	Monteverde/Hawkbryn Ave.
Project No.	033022-01
Eng. / Geol.	BIH/MCH
Scale	n/a
Date	3/25/04

APPENDIX E

LIQUEFACTION ANALYSIS

```
*****************************
*                           *
*      L I Q U E F Y 2      *
*                           *
*       Version 1.50        *
*                           *
*****************************
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EMPIRICAL PREDICTION OF
EARTHQUAKE-INDUCED LIQUEFACTION POTENTIAL

JOB NUMBER: 033022-01 DATE: 03-23-2004

JOB NAME: Hawkbryn B-1

SOIL-PROFILE NAME: hawk1a.LDW

BORING GROUNDWATER DEPTH: 30.00 ft

CALCULATION GROUNDWATER DEPTH: 30.00 ft

DESIGN EARTHQUAKE MAGNITUDE: 7.50 Mw

SITE PEAK GROUND ACCELERATION: 0.650 g

BOREHOLE DIAMETER CORRECTION FACTOR: 1.00

SAMPLER SIZE CORRECTION FACTOR: 1.20

N60 HAMMER CORRECTION FACTOR: 1.30

MAGNITUDE SCALING FACTOR METHOD: Idriss (1997, in press)

Magnitude Scaling Factor: 1.000

rd-CORRECTION METHOD: Seed (1985)

FIELD SPT N-VALUES ARE CORRECTED FOR THE LENGTH OF THE DRIVE RODS.

Rod Stick-Up Above Ground: 3.0 ft

CN NORMALIZATION FACTOR: 1.044 tsf

MINIMUM CN VALUE: 0.6

SOIL NO.	CALC. DEPTH (ft)	TOTAL STRESS (tsf)	EFF. STRESS (tsf)	FIELD N (B/ft)	FC DELTA N1_60	C N	CORR. (N1)60 (B/ft)	LIQUE. RESIST RATIO	r d	INDUC. STRESS RATIO	LIQUE. SAFETY FACTOR
1	0.25	0.014	0.014	17	~	*	*	*	*	*	**
1	0.75	0.043	0.043	17	~	*	*	*	*	*	**
1	1.25	0.072	0.072	17	~	*	*	*	*	*	**
1	1.75	0.101	0.101	17	~	*	*	*	*	*	**
1	2.25	0.129	0.129	17	~	*	*	*	*	*	**
1	2.75	0.158	0.158	17	~	*	*	*	*	*	**
1	3.25	0.187	0.187	17	~	*	*	*	*	*	**
1	3.75	0.216	0.216	17	~	*	*	*	*	*	**
1	4.25	0.244	0.244	17	~	*	*	*	*	*	**
1	4.75	0.273	0.273	17	~	*	*	*	*	*	**
2	5.25	0.302	0.302	49	~	*	*	*	*	*	**
2	5.75	0.331	0.331	49	~	*	*	*	*	*	**
2	6.25	0.359	0.359	49	~	*	*	*	*	*	**
2	6.75	0.388	0.388	49	~	*	*	*	*	*	**
2	7.25	0.417	0.417	49	~	*	*	*	*	*	**
2	7.75	0.446	0.446	49	~	*	*	*	*	*	**
2	8.25	0.474	0.474	49	~	*	*	*	*	*	**
2	8.75	0.503	0.503	49	~	*	*	*	*	*	**
2	9.25	0.532	0.532	49	~	*	*	*	*	*	**
2	9.75	0.561	0.561	49	~	*	*	*	*	*	**
3	10.25	0.589	0.589	50	~	*	*	*	*	*	**
3	10.75	0.618	0.618	50	~	*	*	*	*	*	**
3	11.25	0.647	0.647	50	~	*	*	*	*	*	**
3	11.75	0.676	0.676	50	~	*	*	*	*	*	**
3	12.25	0.704	0.704	50	~	*	*	*	*	*	**
3	12.75	0.733	0.733	50	~	*	*	*	*	*	**
3	13.25	0.762	0.762	50	~	*	*	*	*	*	**
3	13.75	0.791	0.791	50	~	*	*	*	*	*	**
3	14.25	0.819	0.819	50	~	*	*	*	*	*	**
3	14.75	0.848	0.848	50	~	*	*	*	*	*	**
4	15.25	0.877	0.877	35	~	*	*	*	*	*	**
4	15.75	0.906	0.906	35	~	*	*	*	*	*	**
4	16.25	0.934	0.934	35	~	*	*	*	*	*	**
4	16.75	0.963	0.963	35	~	*	*	*	*	*	**
4	17.25	0.992	0.992	35	~	*	*	*	*	*	**
4	17.75	1.021	1.021	35	~	*	*	*	*	*	**
4	18.25	1.049	1.049	35	~	*	*	*	*	*	**
4	18.75	1.078	1.078	35	~	*	*	*	*	*	**
4	19.25	1.107	1.107	35	~	*	*	*	*	*	**
4	19.75	1.136	1.136	35	~	*	*	*	*	*	**
5	20.25	1.164	1.164	44	~	*	*	*	*	*	**
5	20.75	1.193	1.193	44	~	*	*	*	*	*	**
5	21.25	1.222	1.222	44	~	*	*	*	*	*	**

NCEER [1997] Method — LIQUEFACTION ANALYSIS SUMMARY — PAGE 2

File Name: hawk1a.OUT

| SOIL | CALC. DEPTH | TOTAL STRESS | EFF. STRESS | FIELD N | FC DELTA | C | CORR. (N1)60 | LIQUE. RESIST | r | INDUC. STRESS | LIQUE. SAFETY |

NO.	(ft)	(tsf)	(tsf)	(B/ft)	N1_60	N	(B/ft)	RATIO	d	RATIO	FACTOR
5	21.75	1.251	1.251	44	≈	*	*	*	*	*	**
5	22.25	1.279	1.279	44	≈	*	*	*	*	*	**
5	22.75	1.308	1.308	44	≈	*	*	*	*	*	**
5	23.25	1.337	1.337	44	≈	*	*	*	*	*	**
5	23.75	1.366	1.366	44	≈	*	*	*	*	*	**
5	24.25	1.394	1.394	44	≈	*	*	*	*	*	**
5	24.75	1.423	1.423	44	≈	*	*	*	*	*	**
6	25.25	1.453	1.453	24	≈	*	*	*	*	*	**
6	25.75	1.483	1.483	24	≈	*	*	*	*	*	**
6	26.25	1.513	1.513	24	≈	*	*	*	*	*	**
6	26.75	1.543	1.543	24	≈	*	*	*	*	*	**
6	27.25	1.573	1.573	24	≈	*	*	*	*	*	**
6	27.75	1.603	1.603	24	≈	*	*	*	*	*	**
6	28.25	1.633	1.633	24	≈	*	*	*	*	*	**
6	28.75	1.663	1.663	24	≈	*	*	*	*	*	**
6	29.25	1.693	1.693	24	≈	*	*	*	*	*	**
6	29.75	1.723	1.723	24	≈	*	*	*	*	*	**
7	30.25	1.753	1.745	23	5.81	0.770	33.5	Infin	0.920	0.390	NonLiq
7	30.75	1.783	1.759	23	5.81	0.770	33.5	Infin	0.917	0.393	NonLiq
7	31.25	1.813	1.774	23	5.81	0.770	33.5	Infin	0.914	0.395	NonLiq
7	31.75	1.843	1.788	23	5.81	0.770	33.5	Infin	0.912	0.397	NonLiq
7	32.25	1.872	1.802	23	5.81	0.770	33.5	Infin	0.909	0.399	NonLiq
7	32.75	1.902	1.817	23	5.81	0.770	33.5	Infin	0.906	0.401	NonLiq
7	33.25	1.932	1.831	23	5.81	0.770	33.5	Infin	0.903	0.402	NonLiq
7	33.75	1.962	1.846	23	5.81	0.770	33.5	Infin	0.899	0.404	NonLiq
7	34.25	1.992	1.860	23	5.81	0.770	33.5	Infin	0.896	0.406	NonLiq
7	34.75	2.022	1.874	23	5.81	0.770	33.5	Infin	0.893	0.407	NonLiq
8	35.25	2.052	1.889	20	6.95	0.741	30.1	Infin	0.889	0.408	NonLiq
8	35.75	2.082	1.903	20	6.95	0.741	30.1	Infin	0.886	0.410	NonLiq
8	36.25	2.112	1.918	20	6.95	0.741	30.1	Infin	0.882	0.411	NonLiq
8	36.75	2.143	1.932	20	6.95	0.741	30.1	Infin	0.878	0.412	NonLiq
8	37.25	2.173	1.946	20	6.95	0.741	30.1	Infin	0.874	0.412	NonLiq
8	37.75	2.203	1.961	20	6.95	0.741	30.1	Infin	0.871	0.413	NonLiq
8	38.25	2.233	1.975	20	6.95	0.741	30.1	Infin	0.866	0.414	NonLiq
8	38.75	2.263	1.990	20	6.95	0.741	30.1	Infin	0.862	0.414	NonLiq
8	39.25	2.293	2.004	20	6.95	0.741	30.1	Infin	0.858	0.415	NonLiq
8	39.75	2.323	2.018	20	6.95	0.741	30.1	Infin	0.854	0.415	NonLiq
9	40.25	2.353	2.033	36	6.80	0.714	46.9	Infin	0.849	0.415	NonLiq
9	40.75	2.383	2.047	36	6.80	0.714	46.9	Infin	0.845	0.415	NonLiq
9	41.25	2.413	2.062	36	6.80	0.714	46.9	Infin	0.840	0.416	NonLiq
9	41.75	2.443	2.076	36	6.80	0.714	46.9	Infin	0.836	0.415	NonLiq
9	42.25	2.473	2.090	36	6.80	0.714	46.9	Infin	0.831	0.415	NonLiq
9	42.75	2.503	2.105	36	6.80	0.714	46.9	Infin	0.826	0.415	NonLiq
9	43.25	2.533	2.119	36	6.80	0.714	46.9	Infin	0.822	0.415	NonLiq

File Name: hawk1a.OUT

SOIL NO.	CALC. DEPTH (ft)	TOTAL STRESS (tsf)	EFF. STRESS (tsf)	FIELD N (B/ft)	FC DELTA N1_60	C N	CORR. (N1)60 (B/ft)	LIQUE. RESIST RATIO	r d	INDUC. STRESS RATIO	LIQUE. SAFETY FACTOR
9	43.75	2.563	2.134	36	6.80	0.714	46.9	Infin	0.817	0.414	NonLiq

HAWK1A

9	44.25	2.593	2.148	36	6.80	0.714	46.9	Infin	0.812	0.414	NonLiq
9	44.75	2.623	2.162	36	6.80	0.714	46.9	Infin	0.807	0.413	NonLiq
10	45.25	2.653	2.177	26	5.84	0.690	33.8	Infin	0.802	0.413	NonLiq
10	45.75	2.683	2.191	26	5.84	0.690	33.8	Infin	0.797	0.412	NonLiq
10	46.25	2.713	2.206	26	5.84	0.690	33.8	Infin	0.792	0.411	NonLiq
10	46.75	2.743	2.220	26	5.84	0.690	33.8	Infin	0.787	0.411	NonLiq
10	47.25	2.773	2.234	26	5.84	0.690	33.8	Infin	0.782	0.410	NonLiq
10	47.75	2.803	2.249	26	5.84	0.690	33.8	Infin	0.776	0.409	NonLiq
10	48.25	2.833	2.263	26	5.84	0.690	33.8	Infin	0.771	0.408	NonLiq
10	48.75	2.863	2.278	26	5.84	0.690	33.8	Infin	0.766	0.407	NonLiq
10	49.25	2.893	2.292	26	5.84	0.690	33.8	Infin	0.761	0.406	NonLiq
10	49.75	2.923	2.306	26	5.84	0.690	33.8	Infin	0.756	0.405	NonLiq

```
*******************************
*                             *
*      L I Q U E F Y 2        *
*                             *
*       Version 1.50          *
*                             *
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EMPIRICAL PREDICTION OF
EARTHQUAKE-INDUCED LIQUEFACTION POTENTIAL

JOB NUMBER: 033022-01 DATE: 03-23-2004

JOB NAME: Hawkbryn B-2

SOIL-PROFILE NAME: hawk2a.LDW

BORING GROUNDWATER DEPTH: 30.00 ft

CALCULATION GROUNDWATER DEPTH: 30.00 ft

DESIGN EARTHQUAKE MAGNITUDE: 7.50 Mw

SITE PEAK GROUND ACCELERATION: 0.650 g

BOREHOLE DIAMETER CORRECTION FACTOR: 1.00

SAMPLER SIZE CORRECTION FACTOR: 1.20

N60 HAMMER CORRECTION FACTOR: 1.30

MAGNITUDE SCALING FACTOR METHOD: Idriss (1997, in press)

Magnitude Scaling Factor: 1.000

rd-CORRECTION METHOD: Seed (1985)

FIELD SPT N-VALUES ARE CORRECTED FOR THE LENGTH OF THE DRIVE RODS.

Rod Stick-Up Above Ground: 3.0 ft

CN NORMALIZATION FACTOR: 1.044 tsf

MINIMUM CN VALUE: 0.6

NCEER [1997] Method — LIQUEFACTION ANALYSIS SUMMARY — PAGE 1

File Name: hawk2a.OUT

SOIL NO.	CALC. DEPTH (ft)	TOTAL STRESS (tsf)	EFF. STRESS (tsf)	FIELD N (B/ft)	FC DELTA N1_60	C N	CORR. (N1)60 (B/ft)	LIQUE. RESIST RATIO	r d	INDUC. STRESS RATIO	LIQUE. SAFETY FACTOR
1	0.25	0.014	0.014	7	~	*	*	*	*	*	**
1	0.75	0.043	0.043	7	~	*	*	*	*	*	**
1	1.25	0.072	0.072	7	~	*	*	*	*	*	**
1	1.75	0.101	0.101	7	~	*	*	*	*	*	**
1	2.25	0.129	0.129	7	~	*	*	*	*	*	**
1	2.75	0.158	0.158	7	~	*	*	*	*	*	**
1	3.25	0.187	0.187	7	~	*	*	*	*	*	**
1	3.75	0.216	0.216	7	~	*	*	*	*	*	**
1	4.25	0.244	0.244	7	~	*	*	*	*	*	**
1	4.75	0.273	0.273	7	~	*	*	*	*	*	**
2	5.25	0.302	0.302	12	~	*	*	*	*	*	**
2	5.75	0.331	0.331	12	~	*	*	*	*	*	**
2	6.25	0.359	0.359	12	~	*	*	*	*	*	**
2	6.75	0.388	0.388	12	~	*	*	*	*	*	**
2	7.25	0.417	0.417	12	~	*	*	*	*	*	**
2	7.75	0.446	0.446	12	~	*	*	*	*	*	**
2	8.25	0.474	0.474	12	~	*	*	*	*	*	**
2	8.75	0.503	0.503	12	~	*	*	*	*	*	**
2	9.25	0.532	0.532	12	~	*	*	*	*	*	**
2	9.75	0.561	0.561	12	~	*	*	*	*	*	**
3	10.25	0.589	0.589	4	~	*	*	*	*	*	**
3	10.75	0.618	0.618	4	~	*	*	*	*	*	**
3	11.25	0.647	0.647	4	~	*	*	*	*	*	**
3	11.75	0.676	0.676	4	~	*	*	*	*	*	**
3	12.25	0.704	0.704	4	~	*	*	*	*	*	**
3	12.75	0.733	0.733	4	~	*	*	*	*	*	**
3	13.25	0.762	0.762	4	~	*	*	*	*	*	**
3	13.75	0.791	0.791	4	~	*	*	*	*	*	**
3	14.25	0.819	0.819	4	~	*	*	*	*	*	**
3	14.75	0.848	0.848	4	~	*	*	*	*	*	**
4	15.25	0.877	0.877	17	~	*	*	*	*	*	**
4	15.75	0.906	0.906	17	~	*	*	*	*	*	**
4	16.25	0.934	0.934	17	~	*	*	*	*	*	**
4	16.75	0.963	0.963	17	~	*	*	*	*	*	**
4	17.25	0.992	0.992	17	~	*	*	*	*	*	**
4	17.75	1.021	1.021	17	~	*	*	*	*	*	**
4	18.25	1.049	1.049	17	~	*	*	*	*	*	**
4	18.75	1.078	1.078	17	~	*	*	*	*	*	**
4	19.25	1.107	1.107	17	~	*	*	*	*	*	**
4	19.75	1.136	1.136	17	~	*	*	*	*	*	**
5	20.25	1.164	1.164	50	~	*	*	*	*	*	**
5	20.75	1.193	1.193	50	~	*	*	*	*	*	**
5	21.25	1.222	1.222	50	~	*	*	*	*	*	**

NCEER [1997] Method — LIQUEFACTION ANALYSIS SUMMARY — PAGE 2

File Name: hawk2a.OUT

SOIL	CALC. DEPTH	TOTAL STRESS	EFF. STRESS	FIELD N	FC DELTA	C	CORR. (N1)60	LIQUE. RESIST	r	INDUC. STRESS	LIQUE. SAFETY

NO.	(ft)	(tsf)	(tsf)	(B/ft)	N1_60	N	(B/ft)	RATIO	d	RATIO	FACTOR
5	21.75	1.251	1.251	50	~	*	*	*	*	*	**
5	22.25	1.279	1.279	50	~	*	*	*	*	*	**
5	22.75	1.308	1.308	50	~	*	*	*	*	*	**
5	23.25	1.337	1.337	50	~	*	*	*	*	*	**
5	23.75	1.366	1.366	50	~	*	*	*	*	*	**
5	24.25	1.394	1.394	50	~	*	*	*	*	*	**
5	24.75	1.423	1.423	50	~	*	*	*	*	*	**
6	25.25	1.452	1.452	44	~	*	*	*	*	*	**
6	25.75	1.481	1.481	44	~	*	*	*	*	*	**
6	26.25	1.509	1.509	44	~	*	*	*	*	*	**
6	26.75	1.538	1.538	44	~	*	*	*	*	*	**
6	27.25	1.567	1.567	44	~	*	*	*	*	*	**
6	27.75	1.596	1.596	44	~	*	*	*	*	*	**
6	28.25	1.624	1.624	44	~	*	*	*	*	*	**
6	28.75	1.653	1.653	44	~	*	*	*	*	*	**
6	29.25	1.682	1.682	44	~	*	*	*	*	*	**
6	29.75	1.711	1.711	44	~	*	*	*	*	*	**
7	30.25	1.741	1.733	20	7.06	0.773	31.2	Infin	0.920	0.390	NonLiq
7	30.75	1.772	1.748	20	7.06	0.773	31.2	Infin	0.917	0.393	NonLiq
7	31.25	1.803	1.764	20	7.06	0.773	31.2	Infin	0.914	0.395	NonLiq
7	31.75	1.834	1.780	20	7.06	0.773	31.2	Infin	0.912	0.397	NonLiq
7	32.25	1.866	1.795	20	7.06	0.773	31.2	Infin	0.909	0.399	NonLiq
7	32.75	1.897	1.811	20	7.06	0.773	31.2	Infin	0.906	0.401	NonLiq
7	33.25	1.928	1.827	20	7.06	0.773	31.2	Infin	0.903	0.403	NonLiq
7	33.75	1.959	1.842	20	7.06	0.773	31.2	Infin	0.899	0.404	NonLiq
7	34.25	1.991	1.858	20	7.06	0.773	31.2	Infin	0.896	0.406	NonLiq
7	34.75	2.022	1.874	20	7.06	0.773	31.2	Infin	0.893	0.407	NonLiq
8	35.25	2.053	1.889	23	5.72	0.740	32.3	Infin	0.889	0.408	NonLiq
8	35.75	2.084	1.905	23	5.72	0.740	32.3	Infin	0.886	0.409	NonLiq
8	36.25	2.116	1.921	23	5.72	0.740	32.3	Infin	0.882	0.411	NonLiq
8	36.75	2.147	1.936	23	5.72	0.740	32.3	Infin	0.878	0.411	NonLiq
8	37.25	2.178	1.952	23	5.72	0.740	32.3	Infin	0.874	0.412	NonLiq
8	37.75	2.209	1.968	23	5.72	0.740	32.3	Infin	0.871	0.413	NonLiq
8	38.25	2.241	1.983	23	5.72	0.740	32.3	Infin	0.866	0.414	NonLiq
8	38.75	2.272	1.999	23	5.72	0.740	32.3	Infin	0.862	0.414	NonLiq
8	39.25	2.303	2.015	23	5.72	0.740	32.3	Infin	0.858	0.414	NonLiq
8	39.75	2.334	2.030	23	5.72	0.740	32.3	Infin	0.854	0.415	NonLiq
9	40.25	2.366	2.046	38	6.97	0.712	49.2	Infin	0.849	0.415	NonLiq
9	40.75	2.397	2.061	38	6.97	0.712	49.2	Infin	0.845	0.415	NonLiq
9	41.25	2.428	2.077	38	6.97	0.712	49.2	Infin	0.840	0.415	NonLiq
9	41.75	2.459	2.093	38	6.97	0.712	49.2	Infin	0.836	0.415	NonLiq
9	42.25	2.491	2.108	38	6.97	0.712	49.2	Infin	0.831	0.415	NonLiq
9	42.75	2.522	2.124	38	6.97	0.712	49.2	Infin	0.826	0.415	NonLiq
9	43.25	2.553	2.140	38	6.97	0.712	49.2	Infin	0.822	0.414	NonLiq

NCEER [1997] Method

LIQUEFACTION ANALYSIS SUMMARY

File Name: hawk2a.OUT

SOIL NO.	CALC. DEPTH (ft)	TOTAL STRESS (tsf)	EFF. STRESS (tsf)	FIELD N (B/ft)	FC DELTA N1_60	C N	CORR. (N1)60 (B/ft)	LIQUE. RESIST RATIO	r d	INDUC. STRESS RATIO	LIQUE. SAFETY FACTOR
9	43.75	2.584	2.155	38	6.97	0.712	49.2	Infin	0.817	0.414	NonLiq

9	44.25	2.616	2.171	38	6.97	0.712	49.2	Infin	0.812	0.413	NonLiq
9	44.75	2.647	2.187	38	6.97	0.712	49.2	Infin	0.807	0.413	NonLiq
10	45.25	2.678	2.202	27	5.91	0.686	34.8	Infin	0.802	0.412	NonLiq
10	45.75	2.709	2.218	27	5.91	0.686	34.8	Infin	0.797	0.411	NonLiq
10	46.25	2.741	2.234	27	5.91	0.686	34.8	Infin	0.792	0.410	NonLiq
10	46.75	2.772	2.249	27	5.91	0.686	34.8	Infin	0.787	0.410	NonLiq
10	47.25	2.803	2.265	27	5.91	0.686	34.8	Infin	0.782	0.409	NonLiq
10	47.75	2.834	2.281	27	5.91	0.686	34.8	Infin	0.776	0.408	NonLiq
10	48.25	2.866	2.296	27	5.91	0.686	34.8	Infin	0.771	0.407	NonLiq
10	48.75	2.897	2.312	27	5.91	0.686	34.8	Infin	0.766	0.406	NonLiq
10	49.25	2.928	2.328	27	5.91	0.686	34.8	Infin	0.761	0.405	NonLiq
10	49.75	2.959	2.343	27	5.91	0.686	34.8	Infin	0.756	0.403	NonLiq

January 14, 2020

Mr. Scott Sheridan
Wiley Canyon, LLC
136120 Telfair Avenue
Sylmar, CA 91342

Subject: Preliminary Acoustical Assessment for Wiley Canyon Mixed Use Project; City of Santa Clarita, California

Dear Mr. Sheridan:

Environmental Science Associates (ESA) acoustical specialist has reviewed the preliminary site plan for the proposed Wiley Canyon Mixed Use project in the City of Santa Clarita, California. The following summarizes ESA's professional opinion on the feasibility of the proposed land uses based on potential noise impact associated with traffic on the Interstate 5 Freeway.

Project Understanding

Wiley Canyon, LLC proposes to develop a mixed use project that includes senior and non-senior residential, office, and retail uses in the City of Santa Clarita, California (Project). The project site is located between Wiley Canyon Road and Interstate 5 (I-5 Freeway). Based on the preliminary site plan (Architects Orange, December 19, 2019), the Project would include commercial uses and assisted living units along Wiley Canyon Road. There will be a 3-story office building in the northwest portion of the project site. Along the western boundary of the project site, there will be buffer townhomes with enhanced elevations (no windows or decks) facing the freeway. ESA's preliminary acoustical assessment for the feasibility of the proposed land uses is presented below.

Preliminary Acoustical Assessment

City Noise Standards

The City of Santa Clarita has set land use standards for noise in its General Plan Noise Element (June 25, 1991; First Amendment, May 23, 2000). One of the goals of the Noise Element is to mitigate, and if possible prevent, significant noise levels in residential neighborhoods. It requires that developers of new single-family and multi-family residential neighborhoods in areas where the ambient noise level exceeds 55 dBA (night) and 65 dBA (day) (or the equivalent of 65 dBA CNEL) provide mitigation measures for the new residences to reduce interior noise levels. Medical office buildings are acceptable in areas up to 70 dBA CNEL where no outdoor active uses are proposed and the interior noise levels are mitigated (California Department of Health 1978).

Freeway Traffic Noise

Based on Caltrans Website, annualized daily traffic volumes on the portion of the I-5 Freeway near Lyons Avenue ranges from 182,000 to 205,000 on a daily basis. For a balanced analysis, a daily traffic volume of 196,000 is used in this preliminary noise impact analysis. Using the posted speed limit of 65 miles per hour (mph) for the vehicles traveling through this area, and a 72-foot-wide (3 travel lanes each way) freeway with 30 feet active half width (AHW), the 24-hour weighted average community noise equivalent level (CNEL) is calculated at various distances

from the freeway centerline. Based on the preliminary site plan, the project's property line is approximately 66 to 115 feet from the nearest (northbound) travel lane. The proposed townhome buildings are located approximately 8 to 23 feet from the project's boundary. Therefore, for the worst case scenario, the proposed townhome buildings would be located approximately 110 feet from the freeway centerline. At this distance, freeway traffic would result in a noise level of 82 dBA CNEL with no sound walls or other intervening structures.

The project proposes to construct 3-story townhome buildings along the western boundary, with no windows or decks (or other outdoor active use areas) facing the freeway. These buildings essentially function as noise barriers for receptors on the project site and shield the traffic noise from receptors on the east side of the buildings. Using 30 feet as the height of the noise barriers, freeway traffic noise will be reduced from 82 dBA CNEL to 64 dBA CNEL. Therefore, receptors on the project site would not be exposed to freeway traffic noise exceeding the City's 65 dBA CNEL criteria.

The proposed townhome buildings should not have any gaps between the buildings to prevent any leakage of the traffic noise through the gaps. If these buildings desire to have windows facing the freeway direction, they should be upgraded with sound transmission class (STC) rating high enough to achieve the 45 dBA CNEL interior noise criteria for residential uses, as required by the State and City.

The proposed office building in the northwest portion of the project site would be exposed to traffic noise from the I-5 exceeding 70 dBA CNEL. However, no outdoor active use areas would be exposed to high traffic noise levels. Standard commercial building windows would provide sufficient exterior-to-interior noise attenuation to achieve the desirable interior noise environment for the office building. Assisted living units in the northeast corner of the project site will be mostly shielded from the I-5 traffic noise. With proper upgrades for windows associated with these assisted living units that are exposed to freeway traffic noise, the interior noise criteria of 45 dBA CNEL can be achieved.

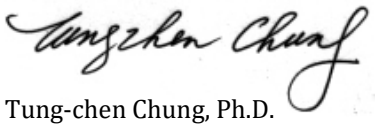
Other Noise Sources

In the project area, Wiley Canyon Road is another source for traffic noise that could potentially affect the proposed land uses. However, it is not a major thoroughfare and traffic noise from this roadway can be mitigated with sound walls along the project boundary. Sound wall height can range from 6 to 10 feet, depending on the projected future cumulative traffic volumes on Wiley Canyon Road. Actual wall height required will be analyzed when the future traffic volumes on Wiley Canyon Road are available. In addition, window STC rating should be determined with the projected future traffic volumes as well.

Conclusion and Recommendation

Based on the above analysis, it is ESA's opinion that the proposed land uses would not have significant noise impacts with the proposed design features along the I-5 Freeway and sound walls along Wiley Canyon Road, if required.

Sincerely,



Tung-chen Chung, Ph.D.
Principal Associate
ESA

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esassoc.com

technical memorandum

date	January 13, 2020
to	Mr. Scott Sheridan, Wiley Canyon LLC
cc	Ms. Erin Stanley, Alliance Engineering Ms. Lina Gomez, Wiley Canyon LLC
from	Alan Sako, LEED AP BD+C, ESA Daryl Koutnik, Ph.D, ESA
subject	Preliminary Air Quality Assessment from Proximity to the Interstate 5 Freeway for the Wiley Canyon Mixed Use Project; City of Santa Clarita, California

Introduction and Project Understanding

Environmental Science Associates (ESA) has reviewed the preliminary site plan for the proposed Wiley Canyon Mixed Use Project in the City of Santa Clarita, California. The following summarizes ESA's professional opinion on potential air quality impacts to future Project occupants from emissions generated by vehicles and trucks traveling on the Interstate 5 (I-5) Freeway in the vicinity of the Project Site.

The Wiley Canyon LLC proposes to develop a mixed use Project that includes senior and non-senior residential, assisted living, office, and retail uses in the City of Santa Clarita, California (Project). The Project Site is located between Wiley Canyon Road and the I-5 Freeway, south of Wabuska Street and north of Calgrove Boulevard. The proposed Project would serve as a gateway to the City of Santa Clarita connecting to the greater Los Angeles and Southern California regions to the south.

Based on the preliminary site plan (Architects Orange, January 10, 2020), the proposed Project would include commercial uses and assisted living units along Wiley Canyon Road in the eastern portion of the Project Site. The northwest portion of the Project Site would be developed with a 3-story office building. The western portion of the Project Site towards the I-5 Freeway would be developed with townhomes with enhanced elevations and no windows or decks facing the freeway. The closest lane of traffic on the I-5 Freeway would be approximately 66 feet to 115 feet from the Project Site property line where development would occur. The townhomes along the Project Site's western boundary would have an additional buffer distance ranging from approximately 5 feet to 24 feet from the property line. ESA's preliminary assessment of air quality impacts to the future Project occupants from emissions generated by vehicles and trucks traveling on the I-5 Freeway is presented below.

Relevant Air Quality Guidance and Regulations

The State and federal agencies have adopted regulations and guidance documents for the purpose of reducing mobile source emissions and reducing potential exposures and related health effects to such emissions. Regulations and guidance documents particularly relevant to emissions from vehicles traveling on freeways are discussed below.

Regulations that Reduce Mobile Source Emissions

Passenger Vehicle and Light-Duty Truck Regulation

In April 2010, federal standards were adopted for passenger cars and light-duty trucks for model years 2012 through 2016. The rule surpassed the prior Corporate Average Fuel Economy (CAFE)[1] standards and required an average fuel economy standard of 35.5 miles per gallon (mpg) and 250 grams of carbon dioxide (CO_2) per mile by model year 2016, based on U.S. Environmental Protection Agency (USEPA) calculation methods.

In August 2012, vehicle emission standards for passenger cars and light-duty trucks were adopted for model years 2017 through 2025. However, in September 2019, the USEPA published the final Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule in the Federal Register,[2] which maintains the CAFE and CO_2 standards applicable in model year 2020 for model years 2021 through 2026. The estimated CAFE and CO_2 standards for model year 2020 are 43.7 mpg and 204 grams of CO_2 per mile for passenger cars and 31.3 mpg and 284 grams of CO_2 per mile for light trucks, projecting an overall industry average of 37 mpg, as compared to 46.7 mpg under the standards issued in 2012. In September 2019, the USEPA also published the final rule for the One National Program on Federal Preemption of State Fuel Economy Standards that finalizes critical parts of the SAFE Vehicles Rule, makes clear that federal law preempts state and local tailpipe greenhouse gas (GHG) emissions standards as well as zero emission vehicle (ZEV) mandates, and revokes California's federal Clean Air Act waiver for adopting more stringent standards. The SAFE Vehicles Rule and One National Program on Federal Preemption of State Fuel Economy Standards are currently in litigation.

Truck and Bus Regulation

In 2008, the California Air Resources Board (CARB) approved the Truck and Bus regulation to reduce nitrogen oxide (NO_X), respirable particulate matter with a diameter of 10 microns or less (PM10), and fine particulate matter with a diameter of 2.5 microns or less (PM2.5) emissions from trucks and buses operating in California (California Code of Regulations, Title 13, Section 2025). The regulation applies to nearly all medium- and heavy-duty diesel-fueled trucks and buses with a gross vehicle weight rating (GVWR) greater than 14,000 pounds and generally requires the installation of particulate matter (PM) best available control technology (BACT), typically PM filters that reduce diesel particulate matter by 85 percent, and replacing engines with models that meet the 2010 engine standards or better.

For the largest trucks and buses in the fleet, those with a GVWR greater than 26,000 pounds, pre-1996 model year engines were required to be replaced with model year 2010 engines by 2016. Model year 1996 and newer engines were required to meet the PM BACT requirements by 2014 (or by 2016 if using the regulation's fleet-

[1] The Corporate Average Fuel Economy standards are regulations in the United States, first enacted by Congress in 1975, to improve the average fuel economy of cars and light trucks. The U.S Department of Transportation has delegated the National Highway Traffic Safety Administration as the regulatory agency for the Corporate Average Fuel Economy standards.

[2] Federal Register, Vol. 84, No. 188, Friday, September 27, 2019, Rules and Regulations, 51310-51363.

wide "phase-in" option for large trucks and buses) and are required to phase-in model year 2010 engines from 2020 through 2023. For lighter trucks and buses with a GVWR of 14,001 to 26,000 pounds, engine model year 1999 and older were required to be replaced with model year 2010 engines by 2019 (or by 2020 if using the PM BACT compliance option for lighter trucks and buses). Model year 2000 and newer are required to phase-in model year 2010 engines from years 2020 through 2023. School buses as defined by the California Vehicle Code (CVC) section 545, with a GVWR more than 14,000 pounds were required to phase-in PM filters from 2012 to 2014. If a school bus engine cannot be equipped with a PM filter, as of 2018, it had to be replaced with a model year 2010 engine or an engine that meets the compliance schedule for large trucks and buses or lighter trucks and buses as described above.

As of January 1, 2020, to help ensure that the benefits of this regulation are achieved, Senate Bill 1 (Beall, 2017) was approved and only allows vehicles compliant with this regulation to be registered by the California Department of Motor Vehicles. According to CARB, "heavy-duty on-road vehicles are… a significant source of pollutants" and "the Truck and Bus Regulation is one of the most far-reaching and important tools to reduce smog-forming and toxic emissions and protect public health in disadvantaged communities" and "is a key element in CARB's Diesel Risk reduction plan and the State Implementation Plan, both of which are designed to provide clean air for Californians by helping to meet state and federal health-protective standards."[3]

All CARB regulations for trucks, buses, and off-road vehicles, including the Truck and Bus Regulation, continue to be California law. In particular, the Truck and Bus regulation did not require a federal Clean Air Act waiver from the USEPA and therefore is not at issue in the action of the Trump Administration under the One National Program on Federal Preemption of State Fuel Economy Standards, which revoked California's waiver for the passenger vehicle and light-duty truck emission standards (currently in litigation).

California Air Resources Board Air Quality and Land Use Handbook

The CARB Air Quality and Land Use Handbook[4] was published in 2005 as a guidance to assist local planning agencies in reducing health risks from air pollution in all California communities. The guidance is not regulatory or binding on local agencies; however, it provides recommendations for siting new sensitive uses near sources of air pollution including near freeways. According to the guidance, mobile sources of emissions on freeways generate three carcinogenic toxic air contaminants that constitute the majority of the known health risk from motor vehicle traffic: diesel particulate matter (diesel PM) emitted from diesel-fueled trucks, and benzene and 1,3-butadiene from emitted from gasoline-fueled passenger vehicles.

The guidance states that freeway toxic air contaminant exposure and health risk drops substantially within the first 300 feet from the freeway and generally recommends to avoid siting new sensitive land uses within 500 feet of a freeway, urban roads with 100,000 vehicles per day, or rural roads with 50,000 vehicles per day. The guidance also recognizes that local planning agencies have a responsibility to balance other considerations, including housing and transportation needs, economic development priorities and other quality of life issues and to consider site-specific project design features that reduce air pollution exposures. In addition, the guidance

3 California Air Resources Board, Truck and Bus Regulation – About, https://ww2.arb.ca.gov/our-work/programs/truck-and-bus-regulation/about. Accessed January 6, 2020.

4 California Air Resources Board, Air Quality and Land Use Handbook: A Community Health Perspective, April 2005.

recognizes that health risks from mobile sources, in particular diesel PM, will decrease over time as cleaner technology phases in.

California Air Resources Board Technical Advisory

In April 2017, CARB published a Technical Advisory[5] supplement to the Air Quality and Land Use Handbook that provides planners and other stakeholders involved in land use planning and decision-making with information on scientifically based strategies to reduce exposure to traffic emissions near high-volume roadways.

The Technical Advisory incorporates research conducted after publication of the 2005 Air Quality and Land Use Handbook, and indicates that it is possible that near-roadway pollution exposure had been previously underestimated and that people living as much as 1,000 feet from freeways are adversely impacted by poor air quality at night and in the early morning hours due to time-of-day-changes in air pollutant dispersion patterns. However, the additional research also demonstrates that there are alternative strategies that can protect public health. The strategies include those that reduce traffic emissions, such as vehicle speed reduction mechanisms, including roundabouts, traffic signal management, and speed limit reductions on high-speed roadways. Strategies also include those that increase the dispersion of traffic emissions, such as implementing designs that promote air flow and pollutant dispersion along transportation corridors (e.g., wider sidewalks, bicycle lanes, streets characterized by buildings of varying heights), solid barriers such as sound walls, and vegetation for pollutant dispersion. Other strategies include those that remove pollution from the air such as indoor high efficiency filtration.

According to CARB, this Technical Advisory demonstrates that planners, developers, and local governments can pursue infill development while simultaneously reducing exposure to traffic-related pollution by implementing strategies and policies that promote sustainable communities in line with overall State of California planning priorities that emphasize infill development, which can help attain goals to promote equity, strengthen communities and the economy, protect the environment, reduce air pollutant and GHG emissions, and promote public health and safety. This Technical Advisory is not intended as guidance for any specific project, nor does it create any presumption regarding the feasibility of mitigation measures for purposes of compliance with the California Environmental Protection Act (CEQA). While this Technical Advisory acknowledges that it is possible that people may be adversely impacted by poor air quality within 1,000 feet from freeways, it also acknowledges that a compact development pattern is a key strategy in reducing air pollutant emissions, achieving the State's legislative mandate to reduce GHG emissions, improving public health through physical activity, and other community and economic benefits. As stated in the Technical Advisory, a development strategy that mandates far separation distances may spur more dispersed development, which is associated with more vehicle travel and thus more emissions, which would undercut the environmental and health benefits.

Preliminary Air Quality Assessment from Proximity to Freeway

Declining Mobile Source Emissions

The mobile source regulations described above have resulted in emissions reductions from passenger vehicles, light-duty trucks, and heavy-duty trucks and buses and will continue to reduce emissions as older vehicle models

5 California Air Resources Board, Technical Advisory: Strategies to Reduce Air Pollution Exposure Near High-Volume Roadways, April 2017.

are retired and replaced with newer, less polluting models. In particular, emissions from trucks and buses have declined and ambient diesel PM concentrations in California dropped 68 percent between 1990 and 2012[6] even though total vehicle miles traveled have increased over the same time period. Compliance with post-2012 regulatory mandates, particularly the 2023 deadline for the Truck and Bus regulation, would result in further reductions in mobile source emissions, including diesel PM. The South Coast Air Quality Management District (SCAQMD), which is the local air quality management agency for the region consisting of Los Angeles County (excluding the Antelope Valley), Orange County and urbanized portions of Riverside and San Bernardino Counties, has estimated that approximately 90 percent of toxic air contaminant health risks is attributable to emissions associated with mobile sources and that nearly 70 percent of this risk is associated with diesel PM emissions.[7] Therefore, declining mobile source emissions, particularly diesel PM, as a result of compliance with current and future year regulatory mandates are expected to result in substantial reductions in toxic air contaminant exposures and health risks beyond 2020 when the Project, if approved, would become operational.

Project Design Features to Reduce Exposures to Toxic Air Contaminants

As described above, the closest lane of traffic on the I-5 Freeway would be approximately 66 feet to 115 feet from the Project Site property line where development would occur. The townhomes along the Project Site's western boundary would have an additional buffer distance ranging from approximately 5 feet to 24 feet from the property line. While the total buffer distance to the I-5 Freeway from sensitive land uses would be less than the recommended distances in CARB's 2005 Air Quality and Land Use Handbook and the 2017 Technical Advisory, the Project would incorporate several features to reduce exposures consistent with CARB's Technical Advisory.

Solid Barriers

The western portion of the Project Site towards the I-5 Freeway would be developed with 3-story townhome buildings with enhanced elevations and no windows or decks facing the freeway. Since these townhomes would not have windows or decks facing the freeway, they would act as solid barriers. According to the CARB Technical Advisory, solid barriers reduce near-road downwind concentrations by increasing vertical dispersion of pollutants emitted by vehicles with downwind reduction in pollutant concentrations ranging from 10 percent to 50 percent compared to concentrations measured on or directly adjacent to high-volume roadways. Studies cited in the Technical Advisory found decreased air pollutant concentrations downwind of the barrier and that higher barriers would result in greater downwind reductions. Therefore, the 3-story townhome buildings on the Project's western boundary with enhanced elevations would have a beneficial effect for increasing pollutant dispersion and reducing downwind pollutant concentrations. This would also benefit the proposed residential, assisted living uses, and commercial uses on the interior and eastern portions of the Project Site by reducing downwind pollutant concentrations from the I-5 Freeway.

Indoor High Efficiency Filtration

According to the USEPA, the average American spends approximately 90 percent of their time indoors.[8] Thus, reducing the entry of air pollutants into indoor environments from nearby roadways is critical for mitigating adverse health impacts as is acknowledged in the CARB Technical Advisory. The California Title 24-2019

6 Propper, R., et al., Ambient and emission trends of toxic air contaminants in California. Environmental Science & Technology, 2015.

7 South Coast Air Quality Management District, Final Report: Multiple Air Toxics Exposure Study in the South Coast Air Basin, May 2015.

8 U.S. Environmental Protection Agency, Report to Congress on indoor air quality: Volume 2, EPA/400/1-89/001C, 1989.

building energy efficiency standards, which went into effect on January 1, 2020, require indoor air filters in non-residential, low-rise residential, and high-rise residential that have a rating equal to or greater than the American Society of Heating, Refrigeration and Air-Conditioning Engineers (ASHRAE) Standard 52.2 Minimum Efficiency Reporting Value (MERV) 13, which has reduction efficiencies of 50, 85, and 90 percent for particles with diameter ranges of 0.3 to 1.0 micrometers (µm), 1.0 to 3.0 µm, and 3.0 to 10.0 µm, respectively. While, the ASHRAE Standard 52.2 does not specify removal efficiencies for ultra-fine particles (UFP) smaller than 0.3 µm in diameter, the CARB Technical Advisory notes that a few studies have evaluated the performance of high efficiency filtration on UFPs and concluded that MERV 13 filters are effective in removing UFPs and that MERV 13 or higher can achieve substantial removal of UFPs in real residential environments (greater than 50 percent removal efficiency).

Site-Specific Features

The Project Site is located to the east of the I-5 Freeway. Based on meteorological data from the SCAQMD from the nearest station to the Project Site (Station #23130 located at the Van Nuys Airport approximately 11 miles to the south-southeast of the Project Site), the dominant wind direction during the daytime hours (i.e., 7:00 a.m. to 7:00 p.m.) is from the south-southeast, which would tend to disperse pollutants from the I-5 Freeway away from the Project Site. There are two dominant wind directions during the nighttime hours (i.e., 7:00 p.m. to 7:00 a.m.) from the south-southeast, which would tend to disperse pollutants from the I-5 Freeway away from the Project Site, and from the west-northwest-north, which would tend to disperse pollutants from the I-5 Freeway towards the Project Site. While wind directions can vary throughout the day in all directions, this wind pattern data indicates that, given the Project's location on the east side of the I-5 Freeway, pollutants from the I-5 Freeway would tend to be dispersed away from the Project Site more often than towards the Project Site, which would help to reduce pollutant exposures that would otherwise occur if the dominant wind pattern was in the direction of the Project Site for the majority of the time.

Conclusion and Recommendation

Based on the above preliminary analysis, it is ESA's opinion that the proposed Project includes appropriate design features and is located in an appropriate direction relative to the I-5 Freeway such that air pollutant exposures and related health effects from emissions generated by vehicles on the I-5 Freeway would be substantially reduced. The incorporation of indoor air filters rated at the required MERV 13 level would substantially reduce concentrations of diesel PM within the Project's building interiors.

Nonetheless, ESA recommends that a quantitative freeway health risk assessment be conducted to estimate the health risk impacts to the future Project occupants. The assessment would incorporate emissions reductions from mobile sources pursuant to the regulations and project design features discussed above, and provide quantitative health risk data for decision makers and the public that would allow for more informed decision making, such as determining if additional feasible design considerations or mitigation measures should be considered. Additional measures could include: indoor air filters rated higher than MERV 13 (e.g., MERV 14, etc.); created additional buffer space to increase the separation distance between the I-5 Freeway and sensitive land uses on the Project Site (e.g., place parking between the 3-story townhomes and the I-5 Freeway); among other considerations.

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memorandum

date August 24, 2020

to Scott Sheridan
Wiley Canyon, LLC
136120 Telfair Avenue
Sylmar, CA 91342

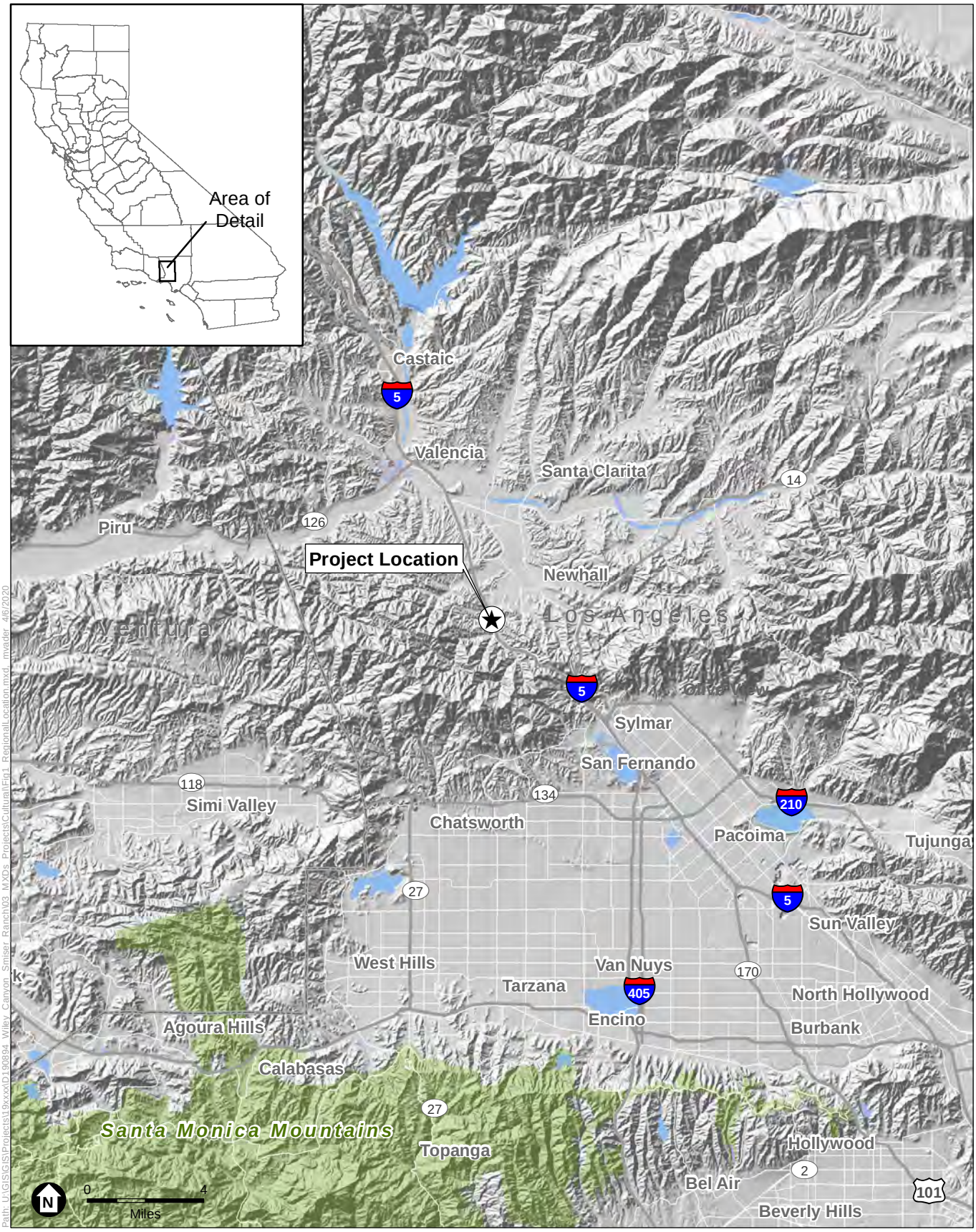
from Monica Strauss and Michael Vader
Environmental Science Associates

subject Paleontological Resources Assessment for the Wiley Canyon (Smiser Ranch) Mixed-Use Project, City of Santa Clarita, California

Wiley Canyon, LLC (Applicant) has retained Environmental Science Associates (ESA) to prepare a paleontological resources assessment for the Wiley Canyon (Smiser Ranch) Mixed Use Project (Project) in support of an Environmental Impact Report (EIR) being prepared pursuant to the California Environmental Quality Act (CEQA). The Project encompasses an area of 31 acres and proposes the construction of five neighborhoods (Neighborhoods A-E) within 18 acres, leaving 13 acres of open space. This paleontological resources assessment summarizes the methods and results of a paleontological database search from the Natural History Museum of Los Angeles County (LACM), a geologic map review, and review of available geotechnical studies to identify unique geological features and paleontological resource that could be impacted by Project activities and to assess the Project area's paleontological sensitivity. The City of Santa Clarita (City) is the lead state agency responsible for compliance with CEQA.

Project Location

The 31-acre Project area is located in west-central Los Angeles County, within the southwestern portion of the City of Santa Clarita (**Figure 1**). The Project includes Assessor Parcel Numbers (APNs) 2825-012-010 and 2825-012-011 and is located immediately east of Interstate Highway 5 (I-5), north of Calgrove Boulevard, and west of Wiley Canyon Road. Specifically, the Project is located in Sections 4 and 9 of Township 3 North, Range 14 West on the Oat Mountain, CA U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle (**Figure 2**).

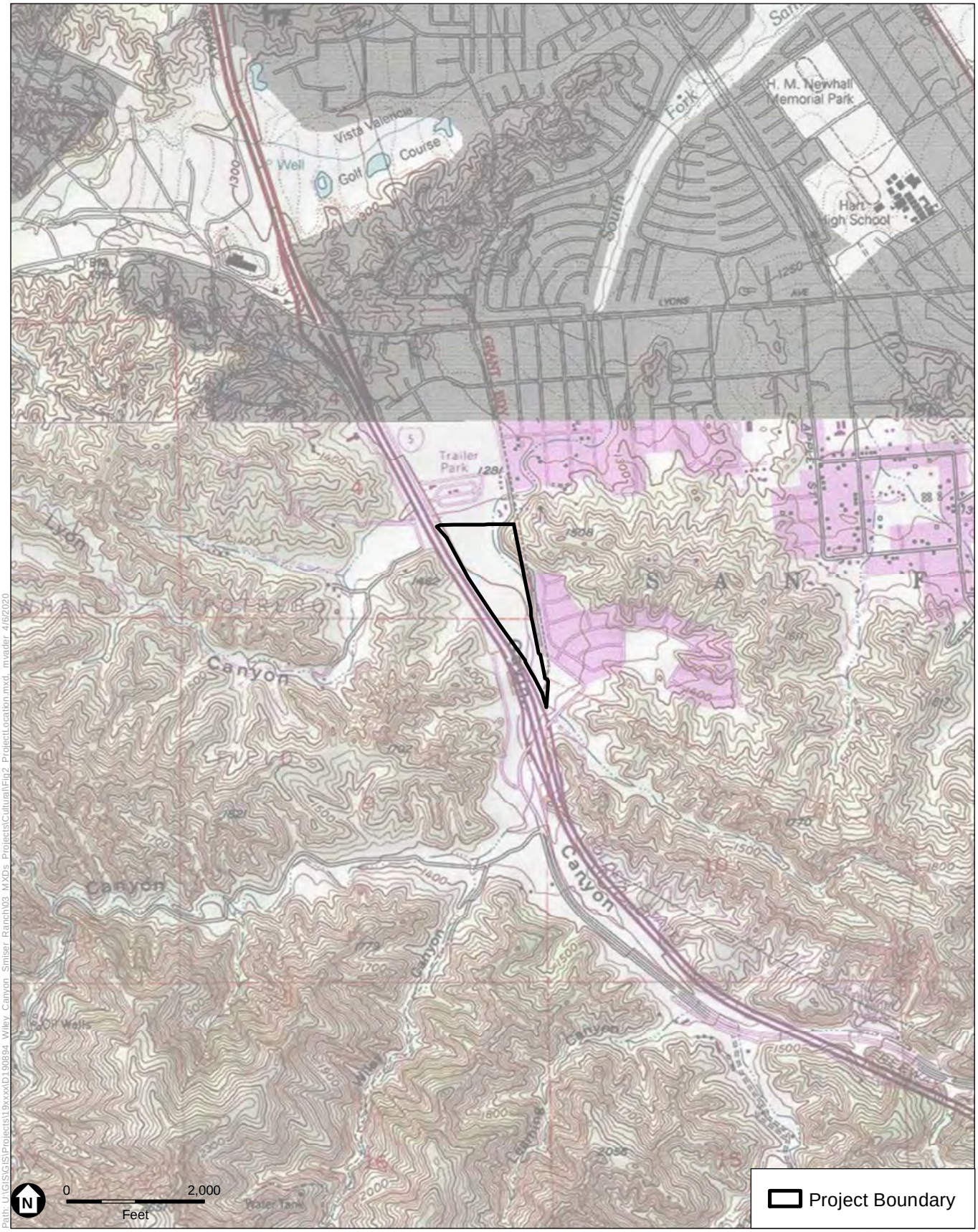


SOURCE: ESRI

Wiley Ranch (Smiser Canyon) Mixed-Use Project

Figure 1
Regional Location

ESA



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TOPO QUAD: Oat Mountain and Newhall, CA 7.5-minute

Wiley Canyon (Smiser Ranch) Mixed-Use Project

Figure 2
Project Location

ESA

Project Description

The Project proposes the development of five neighborhoods within 18 acres of the 31-acre Project area. The remaining 13 acres will be open space, designated for widening of Wiley Canyon Creek and the creation of storm water basins. The Project would require that 100 commercial parking stalls be shared with the residential uses. There will be two water quality basins designated as private open space areas. The project would also include interconnected walking paths connecting all neighborhoods with active and passive recreation areas, featuring a central pedestrian promenade and trail along the spacious open space adjacent to Wiley Canyon. There would also be a large open plaza area to be used for various community activities such as a Farmer's Market or evening entertainment.

Methods

This assessment includes a paleontological resources records search conducted by LACM, and a review of geologic maps and geotechnical studies to identify unique geologic features and paleontological resources that may be impacted by Project ground disturbance and to assess the paleontological sensitivity of the Project area. The LACM records search results are included in **Appendix A**.

Paleontological sensitivity is defined as the potential for a geologic formation to produce scientifically significant fossils. This is determined by rock type, past history of the geologic unit in producing significant fossils, and fossil localities recorded from that unit. Paleontological sensitivity is derived from the known fossil data collected from the entire geologic unit, not just from a specific survey. In its "Standard Guidelines for the Assessment and Mitigation of Adverse Impacts to Non-Renewable Paleontologic Resources," the Society of Vertebrate Paleontology (SVP, 2010) defines four categories of paleontological sensitivity (potential) for rock units: 1) High Potential, rock units from which vertebrate or significant invertebrate, plant, or trace fossils have been recovered are considered to have a high potential for containing additional significant paleontological resources; 2) Low Potential, rock units that are poorly represented by fossil specimens in institutional collections, or based on general scientific consensus only preserve fossils in rare circumstances and the presence of fossils is the exception not the rule; 3) Undetermined Potential, rock units for which little information is available concerning their paleontological content, geologic age, and depositional environment; and 4) No Potential, rock units like high-grade metamorphic rocks (such as gneisses and schists) and plutonic igneous rocks (such as granites and diorites) that will not preserve fossil resources.

Results

Physical Setting

The Project is located within the Transverse Ranges geomorphic province. This geomorphic province is characterized as a band of west-trending mountain ranges and valleys, varying from 50 km to 130 km in width that extends about 400 km from Point Arguello on the west-northwest to the eastern San Bernardino Mountains on the east-southeast (Yerkes and Campbell 2005). The east-west grain of the Transverse Ranges Province presents a stark and abrupt interruption of the general northwesterly trends of the Peninsular Ranges Province to the south and the northwesterly to northerly grain of the California Coast Ranges, the Great Valley, the Sierra Nevada, and the Mojave Provinces to the north.

Geology

The surficial geology of the Project area as mapped by Yerkes and Campbell (2005) is largely comprised of Holocene-age (approximately < 10,000 years old) undifferentiated alluvial deposits (map unit Qa) with the northeastern corner of the Project area mapped as the Late Pliocene to the Early Pleistocene (3.6 to 1.8 million years ago) Saugus Formation (map Unit QTs) (**Figure 3**). The undifferentiated alluvial deposits are comprised of unconsolidated gravel, sand and silt in active or recently active streambeds. The Saugus formation is comprised of slightly consolidated, poorly sorted, coarse-grained, cross-bedded sandstone and pebble conglomerate.

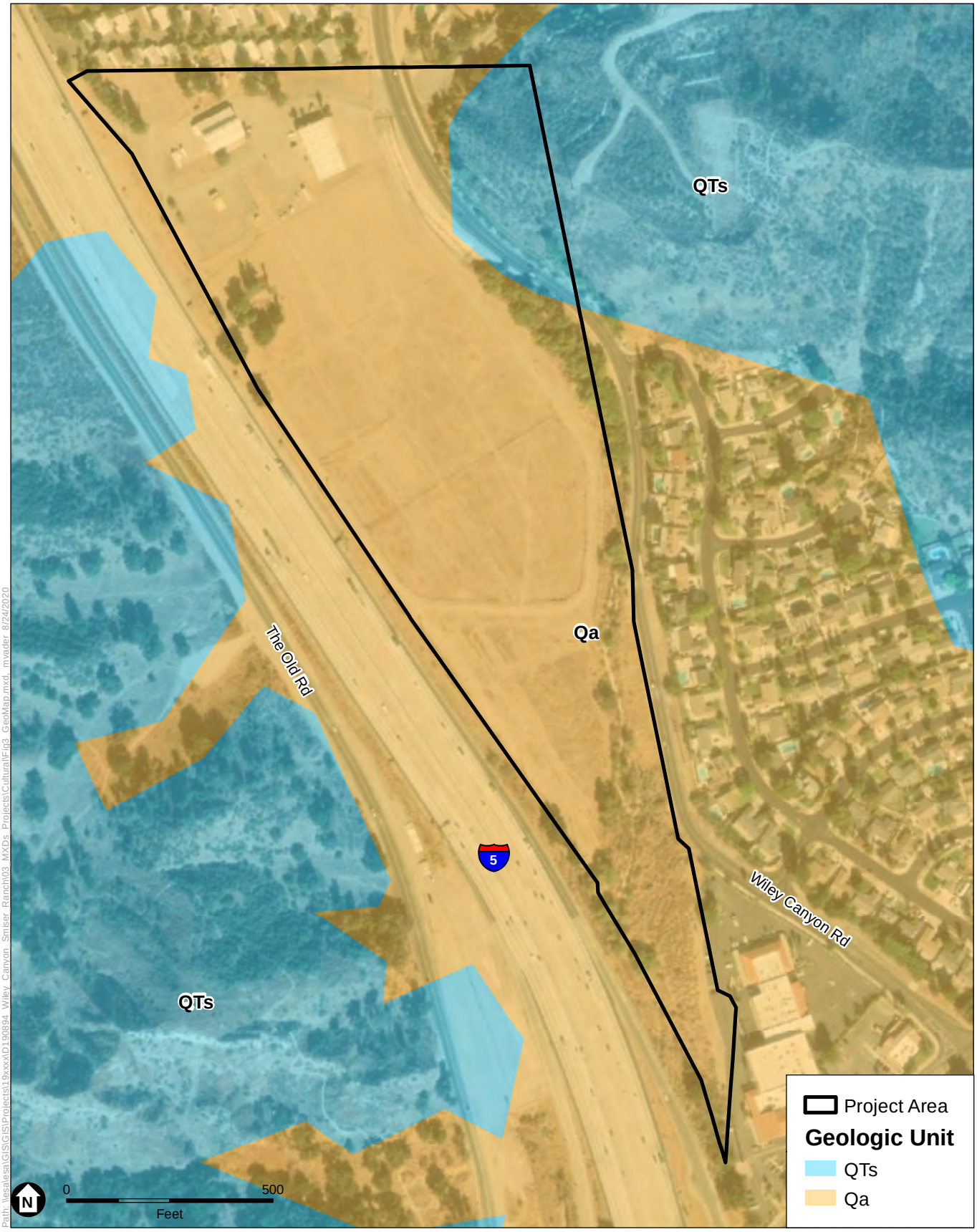
Geotechnical testing conducting within and adjacent to the Project area indicates it is largely underlain by undifferentiated quaternary alluvial and fluvial deposits consisting of brown to yellowish brown, fine- to coarse-grained sands with some gravel and cobbles, with silty to clayey sand and sandy silt interbeds (Seward and Callahan, 2018). The geotechnical testing identified the Saugus format was encountered at depths of 65-75 feet, underlying the alluvial and fluvial deposits within portions of the Project mapped as containing undifferentiated alluvial deposits.

LACM Records Search and Literature Review

The LACM reflects what is indicated as part of the geologic map review: that much of the Project is mapped as containing Holocene-age undifferentiated alluvial deposits, with the exception of the Project area's northeastern corner, which is mapped as the Saugus Formation. The Holocene-age alluvial deposits are often underlain at relatively shallow depths by Pleistocene-age (2,580,000 to 11,700 years ago) alluvial deposits, which are of appropriate age to contain paleontological resources (McLeod 2020).

The LACM records search did not identify the presence of paleontological resources within the Project area, but indicated that nine fossil localities have been recovered from Pleistocene-age alluvial deposits and the Saugus Formation within the Project vicinity. Of these nine localities, four occur within Pleistocene-age alluvial sediments and include: 1) LACM 5745 - fossil specimens of mastodon (*Mammut*) and horse (*Equus*) approximately 5 miles southeast of the Project; 2) LACM 3397 - fossil specimens of bison (*Bison*) at a depth of 75 feet below the ground surface approximately 6 miles southeast of the Project; 3) LACM 7152 – fossil specimens of mammoth (*Mammuthus*) and bison (*Bison*) approximately 6 miles southeast of the Project; and 4) LACM 1733 – fossil specimens of horse (*Equus*) approximately 6 miles southeast of the Project.

The LACM indicates that five fossil localities within the vicinity of the Project originate from the Saugus Formation and include: 1) LACM 1293 - fossil specimens of camel (*Camelidae*) approximately 3 miles northwest of the Project; 2) LACM 6803 and 6804 – fossil specimens of camel (*Camelidae*) and horse (*Equus*) approximately 3.75 miles northeast of the Project; 3) LACM 6063 - fossil specimen of horse (*Equus*) approximately 6 miles northwest of the Project; and 4). LACM 6062 – fossil specimens of alligator lizard (*Gerrhonotus*), rabbit (*Leporida*), pocket mouse (*Perognathus*), and pocket gopher (*Thomomys*) approximatley 6.5 miles northwest of the Project.



SOURCE: ESRI

Wiley Canyon (Smiser Ranch) Mixed-Use Project

Figure 3
Geologic Map

ESA

Paleontological Sensitivity Analysis

The geologic map and geotechnical review, as well as the LACM records search results, were used to assign paleontological sensitivity to the geologic units within the Project area, following the guidelines of the SVP (1995, 2010):

- **Alluvial deposits (Qa) –** These Holocene-age deposits are present at surface within the Project area and are too young to preserve paleontological resources; however, these deposits may be underlain at depth by older Pleistocene deposits that may contain paleontological resources. Therefore, these deposits have low to high paleontological sensitivity that increases with depth.

- **Saugus Formation (QTs) –** The Late Pliocene to Early Pleistocene Saugus Formation is mapped at the surface in the northwestern corner of the Project area and is of appropriate age to preserve paleontological resources as indicated by known fossil localities originating from similar deposits in the vicinity of the Project. Therefore, these deposits have high paleontological sensitivity.

Summary and Recommendations

The paleontological resources review identified two geologic units mapped at surface within the Project area: the Holocene-age alluvial deposits (Qa) and the Late Pliocene to Early Pleistocene-age Sespe Formation (QTs). Holocene-age alluvial deposits are mapped at the surface within much of the Project area and are likely underlain at depth by Pleistocene-age alluvium, which has high sensitivity for the presence of paleontological resources. The Late Pliocene to Early Pleistocene Sespe Formation is mapped at the surface in the Project's northeastern corner and underlies the surface alluvial deposits in the remainder of the Project area at depths of 75 feet below the ground surface. The Sespe Formation also has high sensitivity for the presence of paleontological resources. Project ground disturbing activities would extend to a maximum depth of 30 feet below the ground surface and, therefore, have the potential to contact geological units with high paleontological sensitivity per the SVP (2010) procedural guidelines. As such, there exists the potential to encounter unknown paleontological resources at surface within the northeastern portion of the Project area mapped as the Sespe Formation, and at depth in the remainder of the Project area mapped as Holocene-age alluvial deposits. Therefore, the following four mitigation measures presented below are recommended to reduce potential impacts to paleontological resources to less than significant.

Mitigation Measure PAL-1: Retain Qualified Paleontologist. Prior to the start of construction activities, the City shall retain a Qualified Paleontologist that meets the standards of the Society for Vertebrate Paleontology (2010) to carry out all mitigation measures related to paleontological resources.

Mitigation Measure PAL-2: Paleontological Resources Sensitivity Training. Prior to start of any ground disturbing activities, the Qualified Paleontologist shall conduct pre-construction worker paleontological resources sensitivity training. The Qualified Paleontologist shall contribute to any construction worker cultural resources sensitivity training either in person or via a training module. The training shall include information on what types of paleontological resources could be encountered during excavations, what to do in case an unanticipated discovery is made by a worker, and laws protecting paleontological resources. All construction personnel shall be informed of the possibility of encountering fossils and instructed to immediately inform the construction foreman or supervisor if any bones or other potential fossils are unexpectedly unearthed in an area where a paleontological monitor is not present. The

City shall ensure that construction personnel are made available for and attend the training and retain documentation demonstrating attendance.

Mitigation Measure PAL-3: Paleontological Monitoring. The Qualified Paleontologist shall supervise a paleontological monitor meeting the Society for Vertebrate Paleontology standards (2010) who shall be present during all excavations extending beyond a depth of 5 feet. Monitoring shall consist of visually inspecting fresh exposures of rock for larger fossil remains and, where appropriate, collecting wet or dry screened standard sediment samples (up to 4.0 cubic yards) of promising horizons for smaller fossil remains (SVP, 2010). Per the Society for Vertebrate Paleontology standards (2010), once 50 percent of excavations or other ground disturbing activities are complete within geologic units assigned high paleontological sensitivity and no fossils are identified, monitoring can be reduced to part-time inspections or ceased entirely if determined adequate by the Qualified Paleontologist in consultation with the City. Monitoring activities shall be documented in a Paleontological Resources Monitoring Report to be prepared by the Qualified Paleontologist at the completion of construction and shall be provided to the City within six (6) months of Project completion. If fossil resources are identified during monitoring, the report will also be filed with the Natural History Museum of Los Angeles County.

Mitigation Measure PAL-4: Inadvertent Discoveries. If a paleontological resource is discovered during construction, the paleontological monitor shall be empowered to temporarily divert or redirect grading and excavation activities in the area of the exposed resource to facilitate evaluation of the discovery. An appropriate buffer area shall be established by the Qualified Paleontologist around the find where construction activities shall not be allowed to continue. Work shall be allowed to continue outside of the buffer area. At the Qualified Paleontologist's discretion and to reduce any construction delay, the grading and excavation contractor shall assist in removing rock samples for initial processing and evaluation of the find. All significant fossils shall be collected by the paleontological monitor and/or the Qualified Paleontologist. Collected fossils shall be prepared to the point of identification and catalogued before they are submitted to their final repository. Any fossils collected shall be curated at a public, non-profit institution with a research interest in the materials, such as the Natural History Museum of Los Angeles County, if such an institution agrees to accept the fossils. If no institution accepts the fossil collection, they shall be donated to a local school in the area for educational purposes. Accompanying notes, maps, and photographs shall also be filed at the repository and/or school.

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Appendix A: Natural History Museum of Los Angeles County Records Search

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www.nhm.org

NATURAL HISTORY MUSEUM
LOS ANGELES COUNTY

Vertebrate Paleontology Section
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e-mail: smcleod@nhm.org

6 February 2020

Environmental Science Associates
550 West C Street, Suite 750
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Attn: Michael Vader, Cultural Resources

re: Paleontological resources for the proposed Wiley Canyon (Smiser Ranch) Mixed-Use Project, Project # D190894.00, in the City of Santa Clarita, Los Angeles County, project area

Dear Michael:

I have thoroughly searched our paleontology collection records for the locality and specimen data for the proposed Wiley Canyon (Smiser Ranch) Mixed-Use Project, Project # D190894.00, in the City of Santa Clarita, Los Angeles County, project area as outlined on the portion of the Oat Mountain USGS topographic quadrangle map that you sent to me via e-mail on 23 January 2020. We do not have any vertebrate fossil localities that lie directly within the proposed project area boundaries, but we do have localities nearby from the same sedimentary deposits that occur in the proposed project area, either at the surface or at depth.

In the lower lying terrain occupying most of the proposed project area there are surface deposits of younger Quaternary Alluvium. These younger Quaternary alluvial deposits typically do not contain significant vertebrate fossils in the uppermost layers, but at relatively shallow depth there are older sedimentary deposits that may well contain significant fossil vertebrate remains. Our closest fossil vertebrate locality in older Quaternary deposits is LACM 5745, southeast of the proposed project area east of the Golden State Freeway (I-5) and south of the Foothill Freeway (I-210), that contained fossil mastodon, *Mammut*, and horse, *Equus*, in fill dirt. Our next closest vertebrate fossil localities in these older Quaternary deposits occur southeast of the proposed project area at or near the Van Norman Reservoir, including LACM 3397 that produced fossil bison, *Bison*, at a seventy-five foot depth, LACM 7152 that produced fossil

mammoth, *Mammuthus*, and bison, *Bison*, in terrace deposits and LACM 1733 that produced fossil horse, *Equus*, at unknown depth.

In the elevated terrain in the northeastern portion of the proposed project area there are exposures of the Plio-Pleistocene Saugus Formation. Our closest vertebrate fossil locality from the Saugus Formation is LACM 1293, northwest of the proposed project area on the north side of Potrero Canyon, that produced a fossil specimen of camel, Camelidae. Northeast of the proposed project area, in Saugus just southeast of the junction of Bouquet Canyon Road and Soledad Canyon Road, our Saugus Formation localities LACM 6803-6804, produced fossil specimens of camel, Camelidae, and horse, *Equus*. Slightly further northwest of the proposed project area, up the small canyon on the west side of Castaic Creek between Hasley Canyon and the Saugus - Ventura Road (Highway 126), our Saugus Formation locality LACM 6063 produced a fossil specimen of horse, *Equus*. Slightly farther north in Hasley Canyon our Saugus Formation locality LACM 6062 produced fossil specimens of alligator lizard, *Gerrhonotus*, rabbit, Leporidae, pocket mouse, *Perognathus*, and pocket gopher, *Thomomys*.

Shallow excavations in the younger Quaternary Alluvium exposed in most of the proposed project area are unlikely to encounter any significant vertebrate fossils. Deeper excavations in the proposed project area that extend down into older sedimentary deposits, or any excavations in the Saugus Formation exposed in the northeastern portion of the proposed project area, however, may well uncover significant fossil vertebrate specimens. Any substantial excavations in the proposed project area, therefore, should be closely monitored to quickly and professionally recover any potential vertebrate fossils without impeding development. Also, sediment samples should be collected and processed to determine the small fossil potential in the proposed project area. Any fossils recovered during mitigation should be deposited in an accredited and permanent scientific institution for the benefit of current and future generations.

This records search covers only the vertebrate paleontology records of the Natural History Museum of Los Angeles County. It is not intended to be a thorough paleontological survey of the proposed project area covering other institutional records, a literature survey, or any potential on-site survey.

Sincerely,

Samuel A. McLeod

Samuel A. McLeod, Ph.D.
Vertebrate Paleontology

enclosure: invoice

INTENSIVE PHASE I ARCHAEOLOGICAL SURVEY OF THE SMISER RANCH, SANTA CLARITA, LOS ANGELES COUNTY, CALIFORNIA

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24 January 2007

MANAGEMENT SUMMARY

An intensive Phase I archaeological survey was conducted for the Smiser Ranch study area, a 36.3 acres parcel located in Santa Clarita, northern Los Angeles County, California. This involved a review of existing published and unpublished references on local prehistory and history, and an intensive, on-foot survey of the study area. No archeological sites had been previously recorded nor were discovered within the study area. Based on the absence of archaeological sites of any kind, prehistoric or historical, development and use of this property does not have the potential to result in adverse impacts to archaeological resources.

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INTENSIVE PHASE I ARCHAEOLOGICAL SURVEY OF SMISER RANCH, SANTA CLARITA, LOS ANGELES COUNTY, CALIFORNIA

1.0 INTRODUCTION

Pursuant to a request from Mr. Matt Craig, Monteverde Development, an intensive Phase I archaeological survey was conducted by W&S Consultants for the Smiser Ranch study area. This 36.3 acres parcel is located in Gavin Canyon, within the City of Santa Clarita, northwestern Los Angeles County, California (Figure 1). The survey of this study area was conducted in January, 2007. It was intended to identify all cultural resources (prehistoric and historical archaeological sites) within the study area.

This document summarizes the background research conducted as part of the study; outlines the field techniques employed to intensively survey the parcel; describes the results of the survey; and makes final recommendations for the study area. We begin with a discussion of the background studies, before considering these additional topics in turn.

2.0 BACKGROUND STUDIES

2.1 Project Location and Environment

The study area consists of a 36.3 acres parcel located in the bottom of Gavin Canyon near its junction with Lyon Canyon. The I-5 freeway forms the western edge of the study area. It is surrounded in the other directions by suburban housing and commercial development. With the exception of a small ridge area on the NE side of the study area, it is flat and open, with elevation falling at an average of about 1300 feet a.s.l.

Vegetation within the study area has been altered by recent activities, with the study area now covered by pastures and equestrian facilities.

Originally the property was most likely a low cover oak woodland, similar to what is present in nearby Lyon Canyon.

2.2 Ethnographic Background

The Santa Clarita region, including the study area, appears to have been inhabited during the ethnographic past by an ethnolinguistic group known as the Tataviam. Some controversy exists in reference to this attribution: according to King and Blackburn (1976) the Tataviam are now extinct and were effectively so prior to the initiation of systematic anthropological studies at the turn of the century. But, based on a few existing word lists, descriptions provided by early travelers, mission placenames, and the recollections of other aboriginal informants, the Tataviam are generally accepted as the aboriginal inhabitants of this region. Their language is believed to represent a member of the Takic branch of the Uto-Aztecan linguistic family (King and Blackburn 1976). In this sense, it was related to other Takic languages in the Los Angeles County region, such as Gabrielino/Fernandeño of the Los Angeles Basin proper, and Kitanemuk of the Antelope Valley.

The Tataviam are thought to have inhabited the upper Santa Clara River drainage from about Piru eastwards to just beyond the Vasquez Rocks/Agua Dulce area; southwards as far as Newhall and the crests of the San Gabriel and Santa Susana Mountains; and northwards to include the middle reaches of Piru Creek, the Liebre Mountains and the southwesternmost fringe of the Antelope Valley (ibid; Kroeber 1925; Earle 1990; Johnson and Earle 1990). Their northern boundary most likely ran along the northern foothills of the Liebre Mountains (i.e., the edge of the Antelope Valley), and then crossed to the southern slopes of the Sawmill Mountains and the Sierra Pelona, extending as far east as Soledad Pass (Earle 1990:94). Ethnographically, at least, the Tataviam do not appear to have controlled the Leona Valley or areas to the north, with the Elizabeth Lake area proper a zone of uncertainty.

Known Tataviam villages during the historic period include: pi?irukung and ?akavaya, both near modern Piru; tsavayu(?u)ng, San Francisquito; etseng, kuvung and huyung, on Piru Creek above Piru; tochonanga, near Newhall; kwarung, Elizabeth Lake; and tsawayung, near Castaic Junction.

At kamulus, near modern Rancho Camulos, a mixed Chumash-Tataviam population lived (King and Blackburn 1976:535-6). Because the name kamulus is unquestionably Chumash and not Tataviam, however, the toponym has been viewed as problematical (Johnson and Earle 1990:197); that is, as not reflecting the original (Tataviam) name for this village. Regardless of original name, however, the Spanish missionary Señan, writing in 1804, indicated that the Chumash inhabitants of the village of sécpey had migrated to kamulos, accounting for this admixture (Señan 1962:15). Sécpey is of course now known as Sespe, near the modern town of Fillmore.

Culturally-speaking, the Tataviam were in most respects similar to their Fernandeño and Chumash neighbors, to the south and west, respectively (King and Blackburn 1976). In this sense, they were hunters-gatherers, with subsistence emphasizing yucca, acorns, juniper berries, sage seeds and islay. Game was also hunted, with small animals, such as rabbits/hares and rodents, probably representing more significant contributions of meat protein than larger game, such as deer.

Almost nothing is known of Tataviam social and political organization. Based on analogies with surrounding groups, however, it can be suggested that they were organized in a series of tribelets, similar to the naciones described by Earle (1990) for the Antelope Valley, and found to be characteristic of much of California aboriginal socio-political organization (cf. Kroeber 1925). The tribelet represented an autonomous land-holding unit, minimally controlled by a head-chief or big-man. They usually included one large, 'capital' village, sometimes occupied year-around, and a series of smaller, seasonally inhabited hamlets. Whether the Tataviam may have had exogamous clans and moieties, like the Cahuilla and Serrano to the east, is unknown. However, it is estimated that the Tataviam population was less than 1000 people at the time of Euro-American contact, and that only two or three of the largest villages throughout their territory were inhabited at any given time (King and Blackburn 1976).

It is also likely that Tataviam religion followed the patterns of their surrounding neighbors. In this case, shamanism would have functioned as the central element. This posits a direct and personal relationship between each individual and the supernatural world, with this relationship

enacted by entering a trance or hallucinatory state (usually based on the ingestion of psychoto-mimetic plants, such as jimsonweed or native tobacco). Shamans, per se, who were considered individuals with an unusual degree of supernatural power, served as ritual specialists: ceremonies and rites were infrequent in occasion and limited in type. Perhaps most importantly, shamans served as healers or curers, with the etiology of disease as well as its cure held to lie in the supernatural world. Shamans are also known to have produced the rock art of this region (Whitley 1992), which depicted the hallucinations and spirits they observed in their vision quests.

Although the Tataviam were one of the earliest groups contacted by Spanish missionaries, with a number of their villages described by members of the Portolá expedition of 1769, a general lack of information on this group exists because, by 1810, all Tataviam had been baptized at Mission San Fernando and were quickly absorbed by other groups through intermarriage. The last speaker of Tataviam died in 1916 (King and Blackburn 1976).

2.3 Archaeological Background

Archaeologically speaking, more information is available on the Santa Clarita area, although here, too, less is known than for many of the surrounding regions of southern California. In general terms, the prehistory of this inland area appears to parallel that of the Santa Barbara Channel/southern California coastal zone (cf. McIntyre 1990), with William Wallace's (1955) cultural historical framework appropriate as a chronological system of reference.

Correspondingly, the earliest evidence for human occupation of this region corresponds to Wallace's Early Millingstone Period (or, alternatively, the Early Horizon), dated from about 7000 to 4000 years before present (B.P.). This represents a period during which subsistence and adaptation are said to have emphasized the collecting and processing of hard seeds, with inland artifact assemblages, correspondingly, dominated by mullers and millingstones known as manos and metates. Evidence for an Early Millingstone occupation of the Upper Santa Clara Valley region is, admittedly, very limited, and has been found at only two

sites. Both of these are located near Vasquez Rocks, with temporal attribution based on the presence of a small number of Olivella barrel beads (McIntyre 1990). Such bead types have subsequently proven unreliable temporal indicators, throwing doubt on human inhabitation of this region before about 4000 years ago. Further, recent excavations at one of these putative early locales, the Escondido Canyon Site, failed to uncover evidence for occupation prior to about 2700 years B.P. (Love 1990).

The second temporal unit in Wallace's chronology is the Intermediate Period (or Middle Horizon), dated from 3500 to 1500 years B.P. It is marked by a shift to the mortar and pestle, with an increased emphasis on hunting and hunting tools in artifact assemblages. Population appears to have increased during this period, with more temporary camps founded. Evidence for Intermediate Period occupation of the Upper Santa Clara Valley region is substantial, in that it has been found at a number of sites and has been based on radiocarbon, obsidian hydration and typological dating (McIntyre 1990). The Agua Dulce village complex, for example, includes occupation extending back to the Intermediate Period, at which time population of the village may have been 50 or more people (King et al n.d.). Furthermore, the Intermediate Period appears to represent a time during which a substantial exploitation of mid-altitude environments first began, with considerable use, for example, of portions of the nearby Hathaway Ranch (located to northwest of the study area) beginning at this time.

Assuming that the Upper Santa Clara River region was first significantly occupied during the Intermediate Period, as existing evidence now suggests, a parallel can be drawn with the inland Ventura County region, where a similar pattern has been identified (Whitley and Beaudry 1991), as well as possibly the Antelope Valley and western Mojave Desert (Sutton 1988a, 1988b). In all of these areas a major expansion in settlement, the establishment of large site complexes, and an increase in the range of environments exploited, appear to have occurred sometime roughly around 3000 years ago. Although most efforts to explain this expansion have focussed on very local circumstances and events, it is increasingly clear that this was a major southern California-wide occurrence, and therefore that explanation of it must be sought at a larger level of analysis.

There is a continuity in the inland regions between the Intermediate Period and subsequent times, labeled the Late Prehistoric Period, lasting from 1500 years B.P. to historic contact, at about 200 years B.P. Site complexes first occupied in the Intermediate Period continued to be inhabited, although they increased in size, with more specialized and diversified sites added to the kinds of sites present. In fact, the principal distinction between Intermediate and Late Prehistoric sites in the inland regions is a change in certain diagnostic artifact types (notably, projectile points, with a shift from spear points to bow and arrow points). This change in fact may not signify consequential changes in culture, adaptation or subsistence, although the trends begun in the Intermediate accelerate over time during the Late Prehistoric. For example, a large number of Late Prehistoric Period sites are known from the Upper Santa Clara River/Agua Dulce region (cf. McIntyre 1990), with the Agua Dulce village complex estimated to have grown to a population of 200 to 300 people around A.D. 1500 - 1600 (King et al n.d.). Sometime during this period the Tataviam can be hypothesized to have occupied this region, although it is possible that they may have appeared somewhat earlier. However, the important point is that, during the Late Prehistoric Period, the patterns of lifeways recorded for the ethnographic period were fully in operation.

During the Historic Period, the aboriginal population appears to have dropped considerably. This, without doubt, can be attributed to the effects of missionization and its attendant relocation of the aboriginal population to centralized locales, along with the depredations of introduced Old World diseases. The Upper Santa Clara River region appears to be one of those inland zones, like the Antelope Valley to the north, that quickly and completely lost its aboriginal population. In particular, the aboriginal population from the Upper Santa Clara Valley was moved into Mission San Fernando, in the San Fernando Valley, and the area was effectively depopulated.

2.4 Historical Background

As noted previously, Euro-American mention of the upper Santa Clara River Valley region first occurred in the chronicles of the Portolá

expedition of 1769, which passed through the San Fernando Valley to Newhall, then to the Castaic Junction area, and then down the Santa Clara River, to Ventura, on its way to Monterey (Bolton 1971; Boneau Companys 1983; Brandes 1970; Cleland 1940). Portolá, in fact, camped at the confluence of the Santa Clara and Castaic Creeks - modern Castaic Junction - and suggested this locale as an appropriate spot for a mission. Portolá described Castaic Junction as follows:

> The country...is delightful and beautiful in the plain, although the mountains that surround it are bare and rough. In the plain we saw many tall and thick cottonwoods and oaks; the watering place [Castaic Junction] consists of an arroyo with a great deal of water which runs in a moderately wide valley, well grown with willows and cottonwoods. We stopped on the bank of the arroyo, where we found a populous village in which people lived without any cover, for they had no more than a light shelter fenced in like a corral...As soon as we arrived they gave us many baskets of different kinds of seeds, and a sort of sweet preserve like little raisins, and another resembling honeycomb, very sweet and purging, and made of the dew which sticks to the reed grass. It is a very suitable site for a mission, with much good land, many palisades, two very large arroyos of water, and five large villages close by.
>
> (Bolton 1971:153)

This description, which bears the ledger entry of Tuesday, August 8, 1769, apparently describes a temporary, late summer encampment of Tataviam, judging from the description of the corral-like huts of the village's inhabitants.

Although the Upper Santa Clara Valley region was traversed by a number of Spanish explorers in subsequent years, it initially remained isolated due to rugged topography, even though Portolá had suggested it as a locale for a mission. With the establishment of Missions San Buenaventura, in 1782, and San Fernando, in 1797, late-18th century historical events largely occurred in areas to the west and south of the Upper Santa Clara Valley proper, particularly inasmuch as the Camino Real - the Spanish Royal Road - was eventually established through the Conejo Corridor rather than down the Santa Clara Valley.

However, as the missions increased in size and their herds grew, it became necessary for many of them to establish mission ranchos, or estancias, to allow their cattle to graze some distance from the mission vineyards and fields, per se. With this geographical expansion of mission influence and activities, the Upper Santa Clara Valley region became important, if not pivotal, in a number of events central to the development of southern California. San Francisco Xavier served as the estancia for Mission San Fernando. It comprised the upper reaches of the Santa Clara Valley down to Piru (Cleland 1940; Perkins 1957; Smith 1977) - essentially what would become the Newhall Ranch - and was established in 1804, a few years after the founding of the mission itself. The headquarters of Estancia San Francisco Xavier was constructed at Castaic Junction, on a bluff overlooking the confluence of the Santa Clara and Castaic Creeks from the south. Eventually it was raised from the status of Estancia to Asistencia, or sub-mission.

The Asistencia de San Francisco Xavier represents the first European settlement of the Santa Clarita region. During this period, its primary function was as a ranching and perhaps agricultural out-station, although it undoubtedly served as a religious outpost as well. Placed at the location suggested for a mission earlier by Father Crespi of the Portolá expedition, it consisted of two rectangular adobe buildings, measuring 105 by 17 feet and 107 by 22 feet, respectively, in size, one of which included a tiled sacristy (Reynolds 1992:17). Eventually a third adobe structure, referred to as the "Old Milk House", was constructed downhill from the main structures, an undated photo of which was published by Perkins (1957:112).

William Lewis Manly, for reasons discussed below, provided a description of the Asistencia in 1849. At that time it was no longer an adjunct to Mission San Fernando but had transferred in ownership to Antonio del Valle when the Asistencia's land was granted as Rancho San Francisco to del Valle by Governor Alvarado in 1839. Notably, Antonio del Valle had served as majordomo and later administrator of Mission San Fernando and its lands from 1834 to 1837, and the family had made supplications to the governor in 1835 and 1837 to obtain a grant in the Santa Clara Valley (Newhall 1958:36; Perkins 1957). When finally awarded, the rancho contained slightly more than 46,000 acres which, as Smith (1977)

acknowledges, was just under the maximum of 11 square leagues then legally allowed.

Manly's description pertains to the period when the Asistencia buildings served as a ranch headquarters for one of a number of del Valle's properties, while he and his family continued to live in Los Angeles. Manly described the Asistencia, his first sighting of California mission architecture, as follows:

> A house on higher ground soon appeared in sight. It was low, of one story with a flat roof, gray in color, and of a different style of architecture from any we had ever seen before. There was no fence around it, and there were no animals or wagons or persons to be seen...but a mule tied to a post told us there was some one about...The house...was built of sun-dried bricks about one by two feet in size, and one end was used as a storehouse...down the hill...[was a]...small, poorly, fenced field which was sometimes cultivated.
>
> (Manly 1924:178-179)

In 1845 the rancho passed to Antonio del Valle's son, Ygnacio. Ygnacio del Valle ultimately became a prominent politician in southern California, serving as Alcalde (mayor) of Los Angeles during the Mexican period, as a member of the Territorial Deputation when California was admitted into the Union in 1850, and in the State Legislature. Forced to fight off efforts by Pedro Carrillo to obtain the western portions of Rancho San Francisco, Ygnacio built a corral at Camulos (the approximate site of the Chumash-Tataviam village of kamulus) in 1841, and finally the Camulos Adobe in 1864, as well as one of the first commercial wineries in the state in 1867 (Smith 1977). The Camulos Adobe, which then became the del Valle family home, was visited by Helen Hunt Jackson in 1882, and served as the setting for her famous early California novel Ramona. (The D.W. Griffith film "Ramona", starring Mary Pickford, was also filmed at the adobe in 1911).

However, prior to the development of Camulos, the Del Valle ranch headquarters remained at the old site of the Asistencia de San Francisco, above Castaic Junction. Furthermore, it was to the Asistencia that the lead

group of the Manly-Walker party - the "Death Valley '49ers" - first emerged out of the wilderness from their efforts to cross the Mojave Desert (Manly 1924:178-179). Manly's description of the Asistencia's buildings, quoted above, represent not only his first sighting of California mission architecture, but his first encounter with civilization, after his harrowing escape from Death Valley.

Following established California agrarian practices, Rancho San Francisco was employed by the del Valles primarily for raising cattle, although Mexican law also required the establishment of an orchard and other agricultural endeavors to validate a land grant (Smith 1977). Perkins (1957:107), for example, recorded that del Valle raised 600 head of cattle on the ranch and planted wheat in a marshy area below Camulos. Notably, however, the original diseño or land grant map for Rancho San Francisco, drawn in 1843, labels the Santa Susana Mountains and hills, south of the Santa Clara River and west of Castaic Junction, as lomas esterilas, "sterile hills" (Smith 1977: frontispiece; Johnson and Earle 1990: Figure 2) which, presumably, was of marginal use to them.

Rancho San Francisco is, ultimately, the origin for the Newhall Ranch and the Newhall Land and Farming Company. Because the history of this ranch is very well documented, with complete published accounts provided by Newhall (1958), Perkins (1957), Reynolds (1992), Rolle (1991) and Smith (1977), we provide only a brief summary here.

As is discussed below, del Valle sold the majority of Rancho San Francisco in 1865 for $1.25/acre, retaining only 1500 acres around Rancho Camulos. This 1865 sale was precipitated by the discovery of tar seeps in Pico Canyon, immediately to the south of the original land grant, where oil had been discovered in 1859. The purchasers of the ranch were Thomas A. Scott and Thomas Bard, representing the Philadelphia and California Petroleum Company. Because they believed that ranching and oil were incompatible activities, Scott and Bard subsequently sold 39,503 acres of the ranch to Henry Mayo Newhall, a San Francisco financier, in January, 1875, for $2.20/acre (Newhall 1958; Rolle 1991; Smith 1977). According to Thompson and West (1880:104), shortly thereafter Newhall placed 7000 acres of the ranch under cultivation for wheat and barley, and raised 700 head of cattle and 10,000 sheep. Headquarters for the ranch was adjacent to the Asistencia, in the area of the modern Magic Mountain

parking lot.

The town of Newhall was created the following year, as a result of the Southern Pacific Railroad Company's move to place a rail line down the Santa Clara Valley to the coast at Ventura. Although the original development was unsuccessful - due to frequent sandstorms the town's six buildings and name of Newhall were moved three miles to the south in 1878, with the original townsite becoming known as Saugus – ultimately the rail line provided an outlet for the agricultural and ranching products of the ranch, and greatly stimulated oil production in the immediate area (Franks and Lambert 1985:7). For obvious reasons, both circumstances stimulated the commercial development of the Newhall Ranch.

Henry Mayo Newhall was thrown from his horse on the ranch and died, in San Francisco, in 1883. The ranch then passed to his heirs. According to Rolle (1991:145), the Newhall financial empire subsequently went into decline, coming close to liquidation in 1930. At that point Athol McBean, son-in-law of William Mayo Newhall, was appointed chairman. McBean reorganized the Newhall Land and Farming Company and, aided by a restitution award of three-quarters of a million dollars resulting from the Saint Francis Dam catastrophe (see below), moved the ranch and company back onto sound financial footing. The company has continued as the major agricultural/ranching and land development concern in the region to the present time.

The upper reaches of the Santa Clara Valley also figured in three other important episodes in southern California history, two of which are landmarks in the economic history of the state. The first of these is the discovery of gold. Although the history of gold discovery and exploitation in California is often linked with James Marshall's 1848 discovery of gold in John Sutter's Coloma mill-race, it is a well-known fact that gold was found earlier in California 1842, in Placerita Canyon, by Francisco Lopez, Manuel Cota and Domingo Bermudez (Smith 1977; Outland 1986; Reynolds 1992). But it is by no means clear that even this well-documented incident represents the first true discovery of gold in the state. Instead, a variety of lines of historical evidence suggest that gold may have been mined in the Santa Clara Valley region one to three decades earlier (e.g., see Clark 1970:176).

According to an account published by Outland (1986), a local tale indicates that a group of about 20 men, led by one Santiago Feliciano, left Mission San Fernando in 1820 to explore the Castaic region. After reaching the Castaic Junction area, they headed up Hasley Canyon, and traveled up it about 10 miles. There they discovered gold, and a mining camp, "San Feliciano" (from which San Feliciano Canyon apparently gets its name), was born. The region from San Feliciano to Soledad Canyon was subsequently prospected and mined (mostly for placer deposits) for a number of years, with little record of these efforts presumably resulting because of the legal complications involved in recording gold claims in Mexican California: while the granting of land for agricultural purposes could be effected by the Governor of California, the recording of a gold claim under Mexican law required a trip to Mexico City, an effort none were apparently willing to gamble.

Although, as Outland notes, there is no clear verification for this tale (which ultimately derives from the prominent early settler and local historian S.P. Guiberson), there is nonetheless fairly strong evidence that the Placeritas discovery in 1842 was by no means the first in this region (Smith 1977; Outland 1986; Clark 1970). In 1832, for example, Ewing Young discovered an old ore smelting oven in San Emigdio Canyon (Outland 1986), suggesting that gold mining in the area had occurred for one or two decades prior to the 1842 event, and a number of other sources indicate that the presence of gold in the area was known at least a few years prior to the famous 1842 Placeritas Canyon incident (Smith 1977:32-33), in which gold was discovered by Francisco Lopez.

Lopez's discovery is often trivialized as accidental: a fortuitous event resulting from digging up a wild onion. In fact, Lopez had been educated at a mining college in Mexico City, and was known to have been systematically prospecting the region prior to the 1842 discovery. As the uncle of Antonio del Valle's widow, he had leased portions of Rancho San Francisco for cattle, and was headquartered at the old Asistencia. There is every reason to assume, thus, that this "official" discovery of gold resulted from intentional prospecting activities, carried out by the then-resident of the Asistencia.

Be this as it may, the 1842 discovery did have one important repercussion: it caused Lopez to continue to look further afield for gold,

resulting in his second gold discovery of the state in San Feliciano Canyon (Perkins 1958). In turn, this led to the granting of Rancho Temescal to Lopez and Jose Arellanes, in 1843. This grant included most of Piru Creek, as well as Placerita and San Feliciano Canyons, and totaled over 13,000 acres. Apparently, the legality of this grant under Mexican law has always been a point of some question for, as noted previously, the Governor of California only held the right to award agricultural but not mining grants. However, Thompson and West (1886:74) record that the area was worked by miners from Sonora, Mexico, between 1842 and 1846, at which time they returned to Mexico, and that they extracted between six and eight thousand dollars of gold per year during that period. Nonetheless, about a dozen years later, Rancho Temescal was acquired by Ygnacio del Valle and added to his Rancho San Francisco holdings.

Thus, not only was this region the first in California in which gold was discovered, it was also the first where true oil drilling occurred (Smith 1977), which was the second historical event of statewide importance in the region. This led to discoveries of oil on Rancho San Francisco and, ultimately, throughout the Santa Clara Valley region. This first major discovery of oil resulted when Ygnacio del Valle sold the majority of his Rancho San Francisco holdings to Thomas Bard, representing Senator Thomas A. Scott, in 1865. Seven weeks later, the first oil well came in on the south side of the Santa Clara River, on property acquired by Bard, near the del Valle adobe (Smith 1977). This discovery was instrumental in the regional oil boom that ensued.

Following the discovery of oil in the valley, and with the depletion of the (relatively small) placer gold deposits in the region by the 1880s, the Upper Santa Clara Valley region became renowned both for its oil and (ultimately) for its citrus crops.

The third local event of historical importance was the collapse of Los Angeles Department of Water and Power's St. Francis Dam and the resulting flood of the Santa Clara River Valley on March 12 and 13, 1928. With the failure of dam close to midnight on March 12, water raged down San Francisquito Canyon to Castaic Junction, which it effectively leveled, and then on to Fillmore, Santa Paula and ultimately to the Pacific, causing great loss of life and destruction along the way. At Castaic Junction, the only survivor of the flood was George MacIntyre, son of the owner of

McIntyre's motel and gas station. George was washed northwards by a great arc of the floodwaters, towards Castaic Canyon, where he was able to grab hold of a power pole and avoid drowning; the bodies of his father and one brother were found in Santa Paula; another brother's body was never recovered. All told, at least 336 known deaths were caused by the flood, 101 individuals were missing and can now be presumed dead, 909 homes were destroyed, and countless acres of orchards were flattened (Outland 1963).

Within the larger Newhall Ranch at Blue Cut in Ventura County the flood waters rose to the level of the highway. The restriction of the Santa Clara River stream course at this spot momentarily bottled the flood, resulting in a temporary upsurge of waters against the flood current, creating a whirlpool. An Edison Company work camp of tents housing 150 men had been established at the railroad siding of Kemp, immediately east of Blue Cut, which was inundated by the upsurge. When the flood waters receded, 84 of these men had been drowned by the catastrophe (Outland 1963:106-107).

In retrospect, it is interesting to note that the Newhall Land and Farming Company had independently hired Harmon Bonte, a consulting engineer, to review the suitability of the Saint Francis Dam in 1924, prior to its construction. Arguing against LADWP's William Mulholland, Bonte contended on the part of his clients that the conglomerate bedrock at the proposed dam site was unfit for dam anchorage. His report was widely published after the disaster, as an indictment of Mulholland's engineering studies (Outland 1963:43), and no doubt contributed to Mulholland's subsequent decision to retire from professional and public life.

The Smiser Ranch study area itself falls outside of the original Rancho San Francisco/Newhall Ranch boundaries, and thus played no part in the historical events in this region. In contemporary times it has served as the Smiser Ranch Mule Farm.

3.0 ARCHIVAL RECORDS SEARCH

An archival records search of the 36.3 acres Smiser Ranch study area was completed by the California State University, Fullerton, Archaeological Information Center (AIC) staff to determine whether any prehistoric or historical sites were known on the property, and/or whether all or portions of it had been previously systematically surveyed by archaeologists.

A complete copy of the records search is included as Appendix A to this report. In summary, three previous archaeological studies had covered the study area, and no sites had been discovered or recorded within it or in the immediate vicinity.

Examination of the 1903 Santa Susana 15' topographic quadrangle (and its 1941 reprint) show no evidence of early use.

In summary, the records search indicates that the study area has no known sites and a low sensitivity for archaeological resources.

4.0 SURVEY METHODS

The intensive Phase I survey of the 36.3 acres study area was conducted on 7 January 2007, with Joseph M. Simon conducting the field study.

Field procedures involved walking the property in transects spaced at approximately 10 - 15 meter intervals. The groundsurface was examined during these transects to identify evidence of prehistoric sites. Such evidence might include surface artifacts, dark organically rich midden soils, fire-cracked rock resulting from earth ovens and roasting pits, and shell and bone that might represent remnants of dietary remains. Alternatively historical remains in the form of metal, glass and ceramic were also considered possible finds within the study area.

During the survey special attention was paid to geomorphological

conditions that affect the preservation of archaeological remains. Road or bank-cuts that expose subsurface stratigraphy, for example, along with stable geomorphic and depositional environments were carefully examined for evidence of cultural remains. Furthermore, rodent backdirt piles were carefully examined inasmuch as they can reveal the presence of buried archaeological deposits.

5.0 FIELD RESULTS

Field conditions for the intensive Phase I survey of the 36.3 acres study area were good. It currently contains an equestrian facility with barns and related structures towards the north, and large open pastures towards the south. Currently, only a single mule occupies the ranch. Groundsurface visibility was very good.

No archaeological sites of any kind, prehistoric or historical, were found within the study area during the systematic survey, thereby confirming the previous studies on this property.

6.0 SUMMARY AND RECOMMENDATIONS

An intensive Phase I archaeological survey was conducted for the Smiser Ranch study area, Santa Clarita, northwestern Los Angeles County, California. This involved an on-foot survey of the 36.3 acres property and a review of written and unpublished documents on the archaeology, history and ethnography of the region. No cultural resources of any kind had been previously recorded or were discovered during the current study.

6.1 Recommendations

Based on the fact that no archaeological sites of any kind have been found within the Smiser Ranch study area, use of this property does not have the potential to result in adverse impacts to known archaeological resources. We recommend no additional archaeological work on it. However, in the unlikely event that cultural resources are encountered during excavation or grading, it is recommended that an archaeologist be contacted to assess the remains.

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8.0 Figures

List of Figures

1 - The Smiser Ranch study area , northwestern Los Angeles County, CA.

Figure 1: Project location on Oat Mountain, CA. 1:24 000 USGS quadrangle.

9.0 APPENDIX A: ARCHIVAL RECORDS SEARCH

South Central Coastal Information Center
California Historical Resources Information System
California State University, Fullerton
Department of Anthropology
800 North State College Boulevard
Fullerton, CA 92834-6846
714.278.5395 / FAX 714.278.5542
anthro.fullerton.edu/sccic.html - sccic@fullerton.edu

Ventura
Los Angeles
Orange

December 18, 2006

SCCIC # 7137.4314

Mr. Joseph M. Simon
W and S Consultants
2242 Stinson Street
Simi Valley, CA 93065
(805) 581-3577

RE: Records Search for Smiser Ranch (36.3 ac.) in Santa Clarita

Dear Mr. Simon,

As per your request received on December 3, 2006, a records search was conducted for the above referenced project. The search includes a review of all recorded archaeological sites within a 1-mile radius of the project site as well as a review of cultural resource reports on file. In addition, the California Points of Historical Interest (PHI), the California Historical Landmarks (CHL), the California Register of Historical Places (CR), the National Register of Historic Places (NR), and the California State Historic Resources Inventory (HRI) listings were reviewed for the above referenced project. The following is a discussion of the findings.

Oat Mountain, CA, USGS 7.5' Quadrangle

ARCHAEOLOGICAL RESOURCES:

No archaeological sites have been identified within a 1/8-mile radius of the project site. No archaeological sites are located within the project site. No isolates have been identified within a 1/8-mile radius of the project site. No isolates are located within the project site.

HISTORIC RESOURCES:

Copies of our historic maps – Santa Susana (1903 and 1941) 15' USGS - are enclosed for your review.

The California Point of Historical Interest (2006) of the Office of Historic Preservation, Department of Parks and Recreation, lists no properties within a 1/8-mile radius of the project site.

The California Historical Landmarks (2006) of the Office of Historic Preservation, Department of Parks and Recreation, lists no properties within a 1/8-mile radius of the project site.

The California Register of Historic Places (2006) lists no properties within a 1/8-mile radius of the project site. These are properties determined to have a National Register of Historic Places Status of 1 or 2, a California Historical Landmark numbering 770 and higher, or a Point of Historical Interest listed after 1/1/1998.

The National Register of Historic Places (2006) lists no properties within a 1/8-mile radius of the project site.

The California Historic Resources Inventory (2006) lists no properties that have been evaluated for historical significance within a 1/8-mile radius of the project site.

PREVIOUS CULTURAL RESOURCES INVESTIGATIONS:

Seven studies (LA23, LA103*, LA578*, LA1062, LA2950, LA3000, and LA5533*) have been conducted within a 1/8-mile radius of the project site. Of these, three are located within the project site. There are twelve additional investigations located on the Oat Mountain 7.5' USGS Quadrangle that are potentially within a 1/8-mile radius of the project site. These reports are not mapped due to insufficient locational information.
(= Located within the project site)*

Please forward a copy of any reports from this project to the office as soon as possible. Due to the sensitive nature of archaeological site location data, we ask that you **do not include** records search maps in your report. If you have any questions regarding the results presented herein, contact the office at 714.278.5395 Monday through Thursday 8:00 am to 3:30 pm.

Should you require any additional information for the above referenced project, reference the SCCIC number listed above when making inquiries. Requests made after initial invoicing will result in the preparation of a separate invoice.

Sincerely,
SCCIC

Thomas David Shackford
Lead Staff Researcher

Enclosures:

(X) Maps – Oat Mountain 7.5' USGS Quadrangle, Santa Susana 15' USGS Quadrangle 4 – pages
(X) Bibliography – 2 pages
(X) Confidentiality Form
(X) Invoice # 7137.4314

Bibliography: Smiser Ranch (36.3 ac.) in Santa Clarita

IC ID#: LA103 DATE: 1975 PAGES: 8
AUTHOR: Singer, Clay A.
FIRM: University of California Los Angeles Archaeological Survey
TITLE: Archaeological Resource Survey of Portions of the South Fork, Santa Clara River, Los Angeles County, California
AREA:
SITES: None

QUADNAME: Newhall, Oat Mountain
MEMO:

IC ID#: LA1062 DATE: 1981 PAGES: 11
AUTHOR: Schliz, Allen J.
FIRM: Westec Services, Inc.
TITLE: Archaeological Survey of the Sylmar Development Project Site, Los Angeles County, California
AREA: 470 ac
SITES: None

QUADNAME: Oat Mountian
MEMO:

IC ID#: LA23 DATE: 1974 PAGES: 6
AUTHOR: Leonard, N. Nelson III
FIRM: University of California Los Angeles Archaeological Survey
TITLE: Archaeological Reconnaissance of Tentative Tract # 31399, a Residential Development Near Newhall California
AREA:
SITES: None

QUADNAME: Newhall
Oat Mtn
MEMO: Golden Knolls

Bibliography: Smiser Ranch (36.3 ac.) in Santa Clarita

IC ID#: LA2950 DATE: 1992 PAGES: 356
AUTHOR: Anonymous
FIRM: Peak and Associates
TITLE: Consolidated Report: Cultural Resource Studies for the Proposed Pacific Pipeline Project
AREA: 172 ac
SITES: See Report

QUADNAME: See Report
MEMO:

IC ID#: LA3000 DATE: 1993 PAGES: 31
AUTHOR: Simon, Joseph M. and David S. Whitley
FIRM: W and S Consultants
TITLE: Phase I Archaeological Survey and Cultural Resources Assessment for the 225 Acres Alternative Site 2 Study Area, Santa Clarita, Los Angeles County, California
AREA: 225 ac
SITES:

QUADNAME: Oat Mountain
MEMO:

IC ID#: LA5533 DATE: 2000 PAGES: 4
AUTHOR: Smith, Philomene C.
FIRM: Caltrans District 7
TITLE: Negative Archaeological Report: rock-lined section and the addition of an access to paved section of drainage channel near Interstate 5 in Santa Clarita
AREA: <1 li mi
SITES: none

QUADNAME: Oat Mountain
MEMO:

Bibliography: Smiser Ranch (36.3 ac.) in Santa Clarita

IC ID#: LA578 DATE: 1979 PAGES: 14

AUTHOR: BAKSH, MICHAEL G.

FIRM:

TITLE: Archaeological Evaluation of Tentative Tract NO.35555, Los Angeles County, California

AREA: 42 ac

SITES: none

QUADNAME: Oat Mountain

MEMO:

Biological Resource Assessment
Smiser Mule Ranch
City of Santa Clarita, California

Prepared for:

Monteverde Companies
28100 Bouquet Canyon Road
Santa Clarita, California 91350

Prepared by:

compliance·biology

6770 San Onofre Drive
Camarillo, CA 93012
Dave Crawford
President/Principal Biologist

November 2006

Introduction

This report details findings of a biological resource assessment conducted on the Smiser Mule Ranch project site located in the City of Santa Clarita, California (**Exhibit 1**). The subject property is situated on the east side of Interstate 5, west of Wiley Canyon Road and north of Calgrove Boulevard, within the City of Santa Clarita (**Exhibit 2**). The purpose of the study was to evaluate existing conditions with respect to potential impacts to sensitive biological resources associated with future proposed development.

This report is intended to provide the project applicant and and the City of Santa Clarita with general information regarding the suitability of on-site habitats to support sensitive biological resources and potential impacts to those resources associated with a proposed commercial development project.

Methods

Literature Search

In order to identify special-status plant and animal species (those species considered rare, threatened, endangered, or otherwise sensitive by various state and federal resource agencies) known to historically occur in the vicinity of the project site, the May 2006 update of the California Natural Diversity Data Base (CNDDB) for the Newhall and Oat Mountain, California USGS 7.5-minute quadrangle maps. Other data sources reviewed included: (1) the Federal Register listing package for each federally-listed endangered or threatened species potentially occurring on the project site or in the project vicinity; (2) literature pertaining to habitat requirements of special-status species potentially occurring on the project site; and (3) plant and animal distribution data contained in Hall (1981); Holland (1986); CDFG (1990); Stebbins (1985); and Jennings and Hayes (1994).

Sources used to determine the sensitivity status of biological resources include: **Plants** - U.S. Fish and Wildlife Service (USFWS 1993 and 1996), California Department of Fish and Game (CDFG 1998), CNDDB 2006, and California Native Plant Society (CNPS) (2001); **Wildlife** - USFWS (1994 and 1996), CDFG (1998), and CNDDB (2006); **Habitats** - CNDDB (2006).

Field Survey

Field surveys were conducted on the subject site on October 8, 2006 by Compliance Biology, Inc. to record plant and wildlife species observed, and to evaluate potential habitat for special-status wildlife species that would potentially be impacted by proposed future development. The entire site was examined on foot. All dominant plant species wildlife observed or detected on the site was recorded.

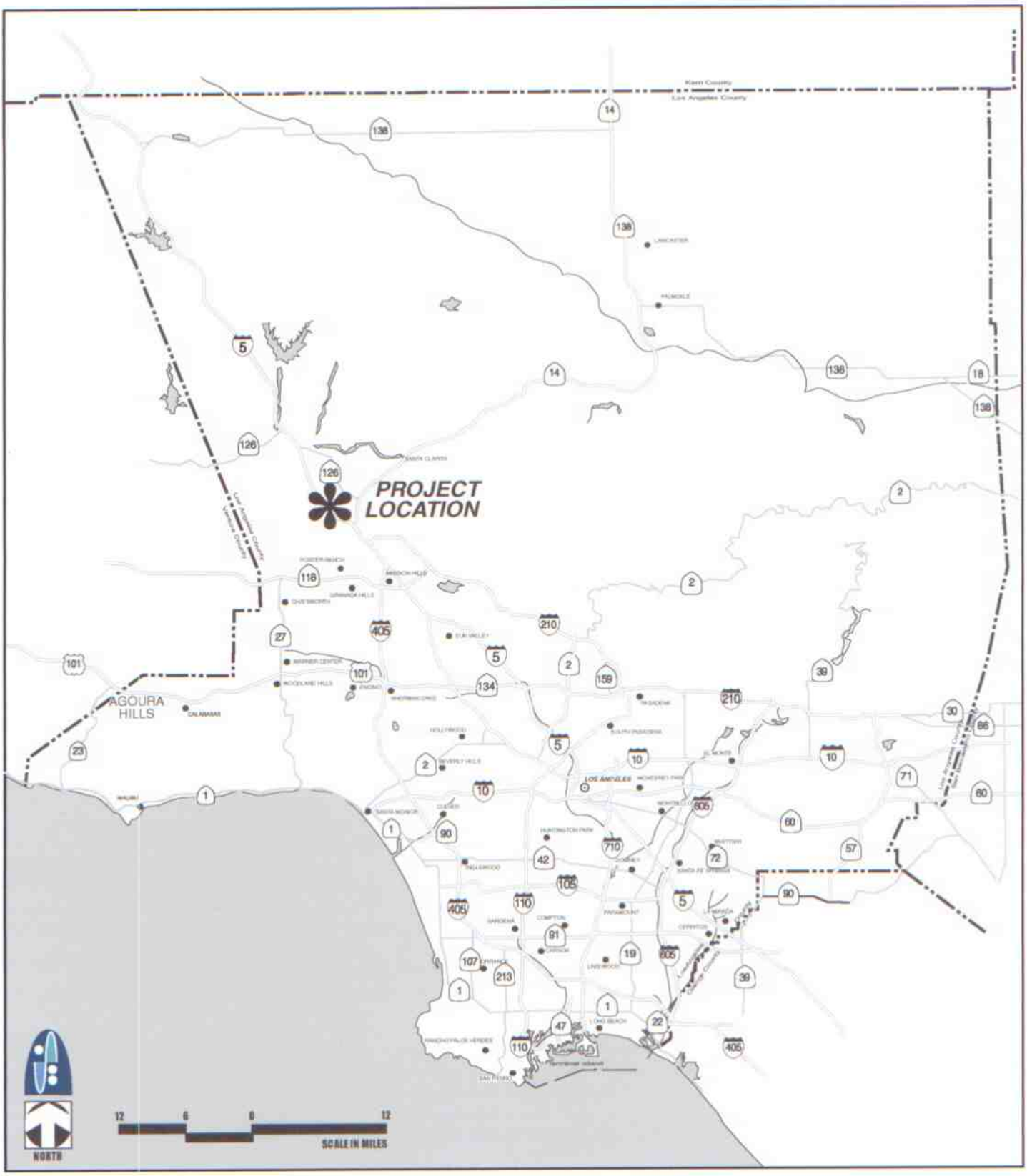

exhibit 1
Regional Location

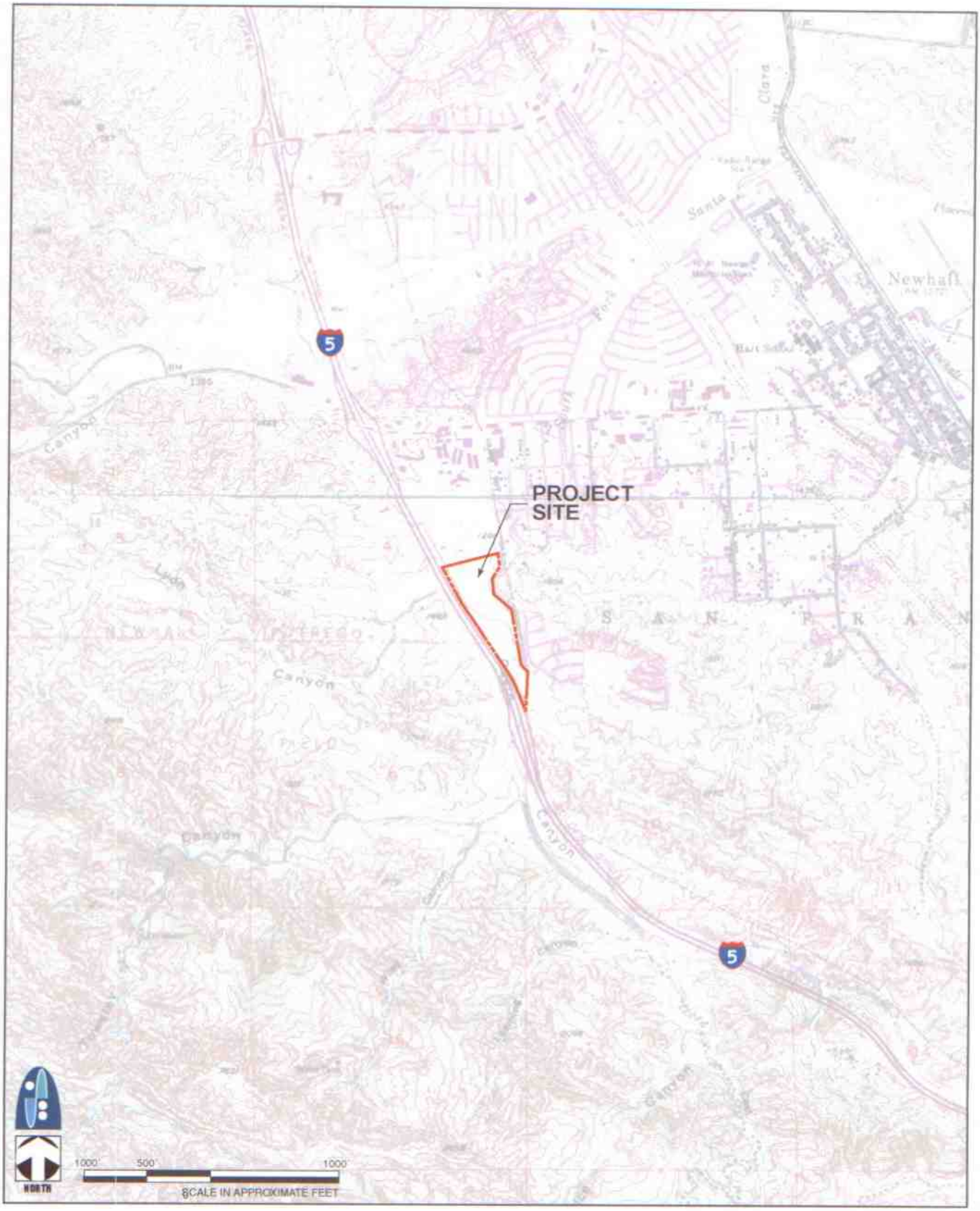

exhibit 2
PROJECT LOCATION

Results

Literature Search

The literature search revealed that a total of six (6) special-status plant species have been recorded from the project area. Additionally, 21 special-status wildlife species have been recorded in the CNDDB, and/or are otherwise known to occur in the project vicinity based on documented species distributional ranges. The field studies were therefore, focused on evaluating the existing conditions on site to determine if they were suitable to support any of these special-status species.

Field Survey

Exhibit 3 provides an illustration of existing conditions on site. The majority of the site is disturbed as it has been historically used as an equine ranch, supporting multiple corrals and associated ranch structures and regular clearance of vegetation. What vegetation does occur within these areas is limited to annual non-native ruderal species.

A small area of disturbed alluvial scrub occurs in the southern portion of the property. This area too supports a large contingent of annual non-native species including mustard (*Hirschfeldia* and *Brassica* spp.) and thistle (*Centaurea* sp.), but also supports native shub species including California sagebrush (*Artemisia californica*), telegraph weed (*Heterotheca grandiflora*), California buckwheat (*Eriogonum fasciculatum*), and a few scattered elderberry (*Sambucus mexicana*).

Scattered native oaks and ornamental trees occur around the site's boundaries. An oak tree survey following the City of Santa Clarita guidelines was prepared by Forde Biological Consultants and the report discussing the results of the survey is provided at the end of this report as **Appendix A**. The survey determined that eight coast live oak trees (*Quercus agrifolia*), meeting the City's criteria as a protected tree, occur on site. Please refer to the appended report for more details regarding the subject oak trees.

A stream channel flows along the eastern boundary across the southern portion of the site. That supports with riparian woodland habitat, At the northern limits, the on-site channel changes from a concrete flood control structure, to a somewhat more natural condition. There was a low flow of water in the northern portion of the stream at the time of the survey which indicates this section of stream supports a perennial or nearly perennial condition. The drainage flows southward and crosses the southern portion of the property where it becomes dry and more ephemoral in nature and exits through a concrete culvert. The riparian vegetation in the perennial section of the drainage is characterized by mature Fremont cottonwood (*Populus fremontii*) with patches of red willow (*Salix laevigata*) and mule fat (*Baccharis salicifolia*). The riparian trees form a nearly complete closed canopy, but little understory vegetation is present. The presences of cut branches and absence of understory vegetation suggests this area is regularly cleared for flood control purposes.

exhibit 3

EXISTING CONDTIONS

Vegetation within the southern portions of the drainage are more consistent with upland scrub and disturbed species, further indicating this porition of the drainage does not support long-term flows.

Common wildlife species observed or detected on the subject property at the time of the surveys were typical of the disturbed habitat conditions on and included side-blotched lizard (*Uta stansbuirana*), western fence lizard (*Sceloporous occidentalis*), scrub jay (*Aphelocoma coerulescens*), American crow (*Corous brachyrhynchos*), greater roadrunner (*Geococcyx californianus*), mallard (*Anas platyrhynchos*), black phoebe (*Sayornis nigricans*), scrub jay (*Thryomanes bewickii*), California towhee (*Pipilo crissalis*), house finch (*Carpodacus mexicanus*), Virginia opossum (*Didelphis virginiana*), dusky-footed woodrat (*Neotoma fuscipes*), Botta's pocket gopher (*Thomomys bottae*), desert cottontail (*Sylvilagus audubonii*), raccoon (*Procyon lotor*), and California ground squirrel (*Spermophilus beecheyi*). All of these species are tolerant of human disturbance and commonly occur in and near developed areas.

Single point-in-time observations of wildlife do not provide an accurate representation of the diversity of species that reside on a given site or that have the potential to occur seasonally or as periodic visitants. As such, inferrences must be made based on habitat types present, the condition of those habitat types, as well as external factors such as current and historic land use practices and surrounding land uses. Though an accurate compendia of all wildlife species potentially occurring on the subject property is not possible from a single day evaluation, it is reasonable to assume, based on existing conditions, that there is a relatively low diversity of common wildlife species (species not afforded sensitivity status by regulatory agencies) present on site.

Special-Status Resources

Special-status Plants

As discussed, six plant species considered to be of special status have been documented in the region of the project site. No special-status plant species were observed during the site surveys and based on existing conditons within the site boundaries, none are expected to have a high potential for occurrence. Please refer to **Attachment A** for a discussion regarding potential occurrence on site for each special-status plant species identified as occurring in the project region.

Special-status Wildlife

The literature search indicates that at least 21 species of wildlife have been recorded in the region that are considered to be of special-status by federal, state, and/or local agencies. **Attachment B** provides a complete list of all regionally documented special-status wildlife species and their potential to occur on the subject parcel.

None of the special-status wildlife species listed were observed during field studies and based on existing conditions, none are considered to have a high potential for occurrence on the subject property.

Jurisdictional Resources

Direct and indirect impacts on drainage features may be subject to the jurisdiction of several state and federal agencies, including the U.S. Army Corps of Engineers (ACOE), the California Department of Fish and Game (CDFG), and the Los Angeles Regional Water Quality Control Board (RWQCB). A jurisdictional delineation of wetlands and waters following ACOE recommended guidelines was completed on site by Dr. Edith Read and attached to this report as **Appendix B**.

The drainage course on site does support features that lie within the jurisdiction of CDFG, ACOE and RWQCB. As such, any proposed project would be required to avoid the jurisdictional boundaries, or if infeasible, would require permits from each agency. The appended jurisdictional delineation provides detailed information regarding the area and boundaries of resources occurring within each of the agencies' jurisdictions.

Wildlife Movement Corridors

Wildlife movement corridors link together areas of suitable wildlife habitat that are otherwise separated by rugged terrain, changes in vegetation, by human disturbance, or by the encroachment of urban development. Movement corridors are important as the combination of topography and other natural factors, in addition to urbanization, has fragmented or separated large open space areas. The fragmentation of natural habitat creates isolated 'islands' of vegetation that may not provide sufficient area to accommodate sustainable populations and can adversely impact genetic and species diversity. Corridors mitigate the effects of this fragmentation by (1) allowing animals to move between remaining habitats, which allows depleted populations to be replenished and promotes genetic exchange with separate population; (2) providing escape routes from fire, predators, and human disturbances, thus reducing the risk that catastrophic events (such as fire, flood, or disease) will result in population or species extinction; and (3) serving as travel paths for individual animals as they wander about or disperse from their home ranges in search of food, water, mates, and other needs.

The project site is essentially surrounded by existing development. Because of the existing surrounding land uses the project site does not provide a link between large open space areas in the region. Therefore, the project site is not considered to be used as, or a part of, an important regional corridor connecting large open space habitats.

Conclusions

Pusuant to State and local laws and policies, impacts to special-status biological resources must be assessed when development is proposed. Based on the current site conditions, historic land use on site, and surrounding land uses, there are no special-status plant or wildlife species considered to have a high potential for occurrence. Sensitive resource present on site are limited to the drainage course and associated riparian vegetation and the mature oak trees. Although the condition of the riparian habitat is considerably disturbed, any impacts to this habitat would require permitting from,

and review by, federal, state and local regulatory agencies. Likewise, removal of, or encroachment into, the protected zone of oak trees are regulated and any such impacts would be considered potentially significant without mitigation.

Although the potential for occurrence of special-status birds nesting on site is relativley low, the federal Migratory Bird Treaty Act and the State of California Fish and Game Code prohibit the disturbance or destruction of active nests of nearly all bird species. As such, an proposed grubbing of vegetation and/or grading during the active nesting season (February 1 through July 30) has the potential to impact active nests. As this action would be in violation of state and federal regulations, grading and grubbing is a potentially significant impact without mitigation. Therefore, vegetation removal or other site preparation activities should be timed to avoid the active nesting season. If not feasible, a qualified biologist should conduct a thorough nesting bird survey no more than seven days and no less than one day prior to any vegetation disturbance.

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Attachment A

Summary of Special-Status Plant Species Recorded in the Vicinity of the Project Site

compliance • biology

Attachment A
Summary of Special Status Plant Species Recorded in the Vicinity of the Project Site

Scientific and Common Name	Status			Habitat Requirements	Elevation Range, Life Form, and Flowering Period	Potential Occurrence
	Federal	State	CNPS			
Slender mariposa lily *Calochortus clavatus* var. *gracilis*	--	--	1B	Chaparral and oak woodlands; associated with shaded canyons and grassy slopes. Often associated with serpentine soils.	0-3,300 ft. PH(b) March	Low potential; very limited suitable habitat present in southern portion of site.
Plummer's mariposa lily *Calochortus plummerae*	--	--	1B	Chaparral, cismontane woodlands, coastal scrub, Lower coniferous forests, and grasslands; associated with granitic soils.	325 - 5,600 ft. PH (b) May-July	Low potential; very limited suitable habitat present in southern portion of site.
San Fernando Valley spineflower *Chorizanthe parryi* ssp. *fernandina*	FC	CE	1B	Coastal scrub; associated with open, sandy soil habitats.	660-1,150 ft. AH April-June	Low potential; very limited suitable habitat present in southern portion of site.
Santa Susana tarplant *Deinandra mintnhornii*	--	CR	1B	Chenopod scrub, shallow freshwater marshes, playas, vernal pools, and ditches.	100 - 4,265 ft. AH April-June	Not expected; no suitable habitat present on site.
Slender-horned spineflower *Dodecahema leptoceras*	FE	CE	1B	Alluvial scrub vegetation; associated with older successional phases in open, sandy, flood deposited rivers and washes.	650-2,300 ft. AH April-June	Low potential; very little suitable habitat present in the southern end of the subject parcel.
California Orcutt grass *Orcuttia californica*	FE	CE	1B	Vernal pools.	0-2,050 ft. AH May-June	Not expected; no suitable habitat present on site.

Attachment A (continued)
Summary of Special Status Plant Species Recorded in the Vicinity of the Project Site

STATUS KEY:

Federal
FE: Federally Endangered
FC: Federal Candidate Species

State
CE: State Endangered
CR: State Rare

CNPS
List 1B: Plants rare and endangered in California and elsewhere

LIFE FORM KEY:

AH: Annual Herb
PH: Perennial Herb
(b): bulb

Attachment B

Special-Status Wildlife Species Recorded or Otherwise Known to Occur in the Vicinity of the Project Site

ATTACHMENT B

Special-Status Wildlife Species Recorded or Otherwise Known to Occur in the Vicinity of the Project Site

Common Name *Scientific Name*	Status		Habitat Requirements	Potential Occurrence on the Project Site
	Federal	State		
INVERTEBRATES				
Monarch butterfly (wintering sites) *Danaus plexippus*	--	◆	Winter roost sites located in wind-protected tree groves (gum trees, Monterey pine, and cypress trees), with nectar and water sources nearby.	Not expected; no suitable roost sites present.
AMPHIBIANS				
Western spadefoot *Scaphiopus hammondii*	--	CSC, CP	Open areas in lowland grasslands, chaparral, and pine-oak woodlands; require temporary rainpools that last approximately three weeks and lack exotic predators.	Low potential; flat areas on site highly disturbed. No areas of standing water or cryptogammic soils observed.
REPTILES				
San Diego horned lizard *Phrynosoma coronatum blainvillii*	--	CSC, CP (full species)	Exposed gravelly-sandy soils with minimal shrubs, riparian woodland clearings, dry chamise chaparral, and annual grasslands	Low potential; very little suitable habitat present in southern portion of site.

ATTACHMENT B (continued)
Special-Status Wildlife Species Recorded or Otherwise Known to Occur in the Vicinity of the Project Site

Common Name *Scientific Name*	Status		Habitat Requirements	Potential Occurrence on the Project Site
	Federal	State		
California horned lizard *Phrynosoma coronatum frontale*	--	CSC, CP (full species)	Exposed gravelly-sandy soils with minimal shrubs, riparian woodland clearings, dry chamise chaparral, and annual grasslands	Low potential; very little suitable habitat present in southern portion of site.
Coastal whiptail *Cnemidophorus tigris multiscutatus*	--	◆	Open areas in semiarid grasslands, scrublands, and woodlands.	Low potential; very little suitable habitat present in southern portion of site.
Silvery legless lizard *Anniella pulchra pulchra*	--	CSC	Stabilized dunes, beaches, dry washes, pine, oak, and riparian woodlands, and chaparral; associated with sparse vegetation with sandy or loose, loamy soils.	Low to Moderate Potential; limited suitable habitat present on site associated with areas adjacent to riparian zone.
Two-striped garter snake *Thamnophis hammondii*	--	CSC, CP	Perennial and intermittent streams having rocky or sandy beds and artificially-created aquatic habitats (man-made lakes and stock ponds); requires dense riparian vegetation.	Low Potential; limited suitable habitat present on site associated with riparian habitat, but habitat likely too disturbed and isolated to support this species. No aquatic prey base observed.

ATTACHMENT B (continued)

Special-Status Wildlife Species Recorded or Otherwise Known to Occur in the Vicinity of the Project Site

Common Name *Scientific Name*	Status		Habitat Requirements	Potential Occurrence on the Project Site
	Federal	State		
BIRDS				
White-tailed kite (nesting) *Elanus leucurus*	--	CFP	Open vegetation and uses dense woodlands for cover.	Low potential; may occur as infrequent forager. Limited suitable nesting habitat on site in riparian area. Proximity to street likely precludes riparian trees for from nesting.
Northern harrier (nesting) *Circus cyaneus*	--	CSC	Coastal salt marsh, freshwater marsh, grasslands, and agricultural fields.	Low potential; may occur as infrequrent forager and no suitable nesting habitat present on site.
Sharp-shinned hawk (nesting) *Accipiter striatus*	--	CSC	Woodlands and forages over dense chaparral and scrublands.	Low potential; may occur as infrequent forager. Limited suitable nesting habitat on site in riparian area. Proximity to street likely precludes riparian trees for from nesting.
Cooper's hawk (nesting) *Accipiter cooperi*	--	CSC	Dense stands of live oaks and riparian woodlands.	Low potential; may occur as infrequent forager. Limited suitable nesting habitat on site in riparian area. Proximity to street likely precludes riparian trees for from nesting.
Western burrowing owl (burrow sites) *Athene cunicularia hypugea*	--	CSC	Grasslands and open scrub.	Not expected; no suitable burrows present and very little suitable foraging habitat.
California horned lark Eremophila alpestris actia	--	CSC	Grasslands, disturbed areas, agriculture fields, and beach areas.	Low potential; may occur as infrequent forager. No suitable nesting habitat on site.
California gnatcatcher *Polioptila californica*	FT	CSC	Coastal sage scrub in areas of flat or gently sloping terrain.	Not expected; no suitable habitat present on site.

ATTACHMENT B (continued)
Special-Status Wildlife Species Recorded or Otherwise Known to Occur in the Vicinity of the Project Site

Common Name *Scientific Name*	Status		Habitat Requirements	Potential Occurrence on the Project Site
	Federal	State		
California thrasher *Toxostoma redivivum*	--	◆	Coastal sage scrub, chaparral	Low potential; very limited suitable habitat present in southern portion of site.
Least Bell's vireo (nesting) *Vireo bellii pusillus*	FE	CE	Riparian vegetation with extensive willows below 2,000 ft.	Not expected; no suitable habitat present on site.
S. California rufous-crowned sparrow *Aimophila ruficeps canescens*	--	CSC	Coastal sage scrub.	Low potential; very limited suitable habitat present in southern portion of site.
MAMMALS				
Yuma myotis *Myotis yumanensis*	--	CSC	Found in a variety of habitats; optimal habitats are open forests and woodlands with sources of water over within to feed.	Low Potential; may occur in the area, but no suitable foraging or hibernacula present on site.
Pallid bat *Antrozous pallidus*	--	CSC	Arid habitats, including grasslands, shrublands, woodlands, and forests; prefers rocky outcrops, cliffs, and crevices with access to open habitats for foraging.	Low potential; very limitied suitable habitat present on site.
San Diego black-tailed jackrabbit *Lepus californicus bennettii*	--	CSC	Chaparral and coastal sage scrub.	Not expected; the limited suitable habitat on site and surrounding development likely precludes this species from occurring.
San Diego desert woodrat *Neotoma lepida intermedia*	--	CSC	Chaparral and coastal sage scrub.	Low potential; limitied suitable habitat present on site associated with upland edges of riparian habitat.

ATTACHMENT B (continued)
Special-Status Wildlife Species Recorded or Otherwise Known to Occur in the Vicinity of the Project Site

KEY:

(nesting) = For most taxa the CNDDB is interested in sightings for the presence of resident populations. For some species (primarily birds), the CNDDB only tracks certain parts of the species range or life history (e.g., nesting locations). The area or life stage is indicated in parenthesis after the common name.

Status:

Federal – U.S. Fish and Wildlife Service

FE: Federally Endangered
FT: Federally Threatened

State -- California Department of Fish and Game

CE: California Endangered
CFP: California Fully Protected
CP: California Protected
CSC: California Species of Special Concern

◆ : California Special Animal (species with no official federal or state status, but are included on CDFG's Special Animals list)

APPENDIX A

OAK TREE REPORT

Prepared by
Forde Biological Consultants

compliance·biology

INTENSIVE PHASE I ARCHAEOLOGICAL SURVEY OF THE SMISER RANCH, SANTA CLARITA, LOS ANGELES COUNTY, CALIFORNIA

Prepared For:

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24 January 2007

MANAGEMENT SUMMARY

An intensive Phase I archaeological survey was conducted for the Smiser Ranch study area, a 36.3 acres parcel located in Santa Clarita, northern Los Angeles County, California. This involved a review of existing published and unpublished references on local prehistory and history, and an intensive, on-foot survey of the study area. No archeological sites had been previously recorded nor were discovered within the study area. Based on the absence of archaeological sites of any kind, prehistoric or historical, development and use of this property does not have the potential to result in adverse impacts to archaeological resources.

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INTENSIVE PHASE I ARCHAEOLOGICAL SURVEY OF SMISER RANCH, SANTA CLARITA, LOS ANGELES COUNTY, CALIFORNIA

1.0 INTRODUCTION

Pursuant to a request from Mr. Matt Craig, Monteverde Development, an intensive Phase I archaeological survey was conducted by W&S Consultants for the Smiser Ranch study area. This 36.3 acres parcel is located in Gavin Canyon, within the City of Santa Clarita, northwestern Los Angeles County, California (Figure 1). The survey of this study area was conducted in January, 2007. It was intended to identify all cultural resources (prehistoric and historical archaeological sites) within the study area.

This document summarizes the background research conducted as part of the study; outlines the field techniques employed to intensively survey the parcel; describes the results of the survey; and makes final recommendations for the study area. We begin with a discussion of the background studies, before considering these additional topics in turn.

2.0 BACKGROUND STUDIES

2.1 Project Location and Environment

The study area consists of a 36.3 acres parcel located in the bottom of Gavin Canyon near its junction with Lyon Canyon. The I-5 freeway forms the western edge of the study area. It is surrounded in the other directions by suburban housing and commercial development. With the exception of a small ridge area on the NE side of the study area, it is flat and open, with elevation falling at an average of about 1300 feet a.s.l.

Vegetation within the study area has been altered by recent activities, with the study area now covered by pastures and equestrian facilities.

Originally the property was most likely a low cover oak woodland, similar to what is present in nearby Lyon Canyon.

2.2 Ethnographic Background

The Santa Clarita region, including the study area, appears to have been inhabited during the ethnographic past by an ethnolinguistic group known as the Tataviam. Some controversy exists in reference to this attribution: according to King and Blackburn (1976) the Tataviam are now extinct and were effectively so prior to the initiation of systematic anthropological studies at the turn of the century. But, based on a few existing word lists, descriptions provided by early travelers, mission placenames, and the recollections of other aboriginal informants, the Tataviam are generally accepted as the aboriginal inhabitants of this region. Their language is believed to represent a member of the Takic branch of the Uto-Aztecan linguistic family (King and Blackburn 1976). In this sense, it was related to other Takic languages in the Los Angeles County region, such as Gabrielino/Fernandeño of the Los Angeles Basin proper, and Kitanemuk of the Antelope Valley.

The Tataviam are thought to have inhabited the upper Santa Clara River drainage from about Piru eastwards to just beyond the Vasquez Rocks/Agua Dulce area; southwards as far as Newhall and the crests of the San Gabriel and Santa Susana Mountains; and northwards to include the middle reaches of Piru Creek, the Liebre Mountains and the southwesternmost fringe of the Antelope Valley (ibid; Kroeber 1925; Earle 1990; Johnson and Earle 1990). Their northern boundary most likely ran along the northern foothills of the Liebre Mountains (i.e., the edge of the Antelope Valley), and then crossed to the southern slopes of the Sawmill Mountains and the Sierra Pelona, extending as far east as Soledad Pass (Earle 1990:94). Ethnographically, at least, the Tataviam do not appear to have controlled the Leona Valley or areas to the north, with the Elizabeth Lake area proper a zone of uncertainty.

Known Tataviam villages during the historic period include: pi?irukung and ?akavaya, both near modern Piru; tsavayu(?u)ng, San Francisquito; etseng, kuvung and huyung, on Piru Creek above Piru; tochonanga, near Newhall; kwarung, Elizabeth Lake; and tsawayung, near Castaic Junction.

At kamulus, near modern Rancho Camulos, a mixed Chumash-Tataviam population lived (King and Blackburn 1976:535-6). Because the name kamulus is unquestionably Chumash and not Tataviam, however, the toponym has been viewed as problematical (Johnson and Earle 1990:197); that is, as not reflecting the original (Tataviam) name for this village. Regardless of original name, however, the Spanish missionary Señan, writing in 1804, indicated that the Chumash inhabitants of the village of sécpey had migrated to kamulos, accounting for this admixture (Señan 1962:15). Sécpey is of course now known as Sespe, near the modern town of Fillmore.

Culturally-speaking, the Tataviam were in most respects similar to their Fernandeño and Chumash neighbors, to the south and west, respectively (King and Blackburn 1976). In this sense, they were hunters-gatherers, with subsistence emphasizing yucca, acorns, juniper berries, sage seeds and islay. Game was also hunted, with small animals, such as rabbits/hares and rodents, probably representing more significant contributions of meat protein than larger game, such as deer.

Almost nothing is known of Tataviam social and political organization. Based on analogies with surrounding groups, however, it can be suggested that they were organized in a series of tribelets, similar to the naciones described by Earle (1990) for the Antelope Valley, and found to be characteristic of much of California aboriginal socio-political organization (cf. Kroeber 1925). The tribelet represented an autonomous land-holding unit, minimally controlled by a head-chief or big-man. They usually included one large, 'capital' village, sometimes occupied year-around, and a series of smaller, seasonally inhabited hamlets. Whether the Tataviam may have had exogamous clans and moieties, like the Cahuilla and Serrano to the east, is unknown. However, it is estimated that the Tataviam population was less than 1000 people at the time of Euro-American contact, and that only two or three of the largest villages throughout their territory were inhabited at any given time (King and Blackburn 1976).

It is also likely that Tataviam religion followed the patterns of their surrounding neighbors. In this case, shamanism would have functioned as the central element. This posits a direct and personal relationship between each individual and the supernatural world, with this relationship

enacted by entering a trance or hallucinatory state (usually based on the ingestion of psychoto-mimetic plants, such as jimsonweed or native tobacco). Shamans, per se, who were considered individuals with an unusual degree of supernatural power, served as ritual specialists: ceremonies and rites were infrequent in occasion and limited in type. Perhaps most importantly, shamans served as healers or curers, with the etiology of disease as well as its cure held to lie in the supernatural world. Shamans are also known to have produced the rock art of this region (Whitley 1992), which depicted the hallucinations and spirits they observed in their vision quests.

Although the Tataviam were one of the earliest groups contacted by Spanish missionaries, with a number of their villages described by members of the Portolá expedition of 1769, a general lack of information on this group exists because, by 1810, all Tataviam had been baptized at Mission San Fernando and were quickly absorbed by other groups through intermarriage. The last speaker of Tataviam died in 1916 (King and Blackburn 1976).

2.3 Archaeological Background

Archaeologically speaking, more information is available on the Santa Clarita area, although here, too, less is known than for many of the surrounding regions of southern California. In general terms, the prehistory of this inland area appears to parallel that of the Santa Barbara Channel/southern California coastal zone (cf. McIntyre 1990), with William Wallace's (1955) cultural historical framework appropriate as a chronological system of reference.

Correspondingly, the earliest evidence for human occupation of this region corresponds to Wallace's Early Millingstone Period (or, alternatively, the Early Horizon), dated from about 7000 to 4000 years before present (B.P.). This represents a period during which subsistence and adaptation are said to have emphasized the collecting and processing of hard seeds, with inland artifact assemblages, correspondingly, dominated by mullers and millingstones known as manos and metates. Evidence for an Early Millingstone occupation of the Upper Santa Clara Valley region is, admittedly, very limited, and has been found at only two

sites. Both of these are located near Vasquez Rocks, with temporal attribution based on the presence of a small number of Olivella barrel beads (McIntyre 1990). Such bead types have subsequently proven unreliable temporal indicators, throwing doubt on human inhabitation of this region before about 4000 years ago. Further, recent excavations at one of these putative early locales, the Escondido Canyon Site, failed to uncover evidence for occupation prior to about 2700 years B.P. (Love 1990).

The second temporal unit in Wallace's chronology is the Intermediate Period (or Middle Horizon), dated from 3500 to 1500 years B.P. It is marked by a shift to the mortar and pestle, with an increased emphasis on hunting and hunting tools in artifact assemblages. Population appears to have increased during this period, with more temporary camps founded. Evidence for Intermediate Period occupation of the Upper Santa Clara Valley region is substantial, in that it has been found at a number of sites and has been based on radiocarbon, obsidian hydration and typological dating (McIntyre 1990). The Agua Dulce village complex, for example, includes occupation extending back to the Intermediate Period, at which time population of the village may have been 50 or more people (King et al n.d.). Furthermore, the Intermediate Period appears to represent a time during which a substantial exploitation of mid-altitude environments first began, with considerable use, for example, of portions of the nearby Hathaway Ranch (located to northwest of the study area) beginning at this time.

Assuming that the Upper Santa Clara River region was first significantly occupied during the Intermediate Period, as existing evidence now suggests, a parallel can be drawn with the inland Ventura County region, where a similar pattern has been identified (Whitley and Beaudry 1991), as well as possibly the Antelope Valley and western Mojave Desert (Sutton 1988a, 1988b). In all of these areas a major expansion in settlement, the establishment of large site complexes, and an increase in the range of environments exploited, appear to have occurred sometime roughly around 3000 years ago. Although most efforts to explain this expansion have focussed on very local circumstances and events, it is increasingly clear that this was a major southern California-wide occurrence, and therefore that explanation of it must be sought at a larger level of analysis.

There is a continuity in the inland regions between the Intermediate Period and subsequent times, labeled the Late Prehistoric Period, lasting from 1500 years B.P. to historic contact, at about 200 years B.P. Site complexes first occupied in the Intermediate Period continued to be inhabited, although they increased in size, with more specialized and diversified sites added to the kinds of sites present. In fact, the principal distinction between Intermediate and Late Prehistoric sites in the inland regions is a change in certain diagnostic artifact types (notably, projectile points, with a shift from spear points to bow and arrow points). This change in fact may not signify consequential changes in culture, adaptation or subsistence, although the trends begun in the Intermediate accelerate over time during the Late Prehistoric. For example, a large number of Late Prehistoric Period sites are known from the Upper Santa Clara River/Agua Dulce region (cf. McIntyre 1990), with the Agua Dulce village complex estimated to have grown to a population of 200 to 300 people around A.D. 1500 - 1600 (King et al n.d.). Sometime during this period the Tataviam can be hypothesized to have occupied this region, although it is possible that they may have appeared somewhat earlier. However, the important point is that, during the Late Prehistoric Period, the patterns of lifeways recorded for the ethnographic period were fully in operation.

During the Historic Period, the aboriginal population appears to have dropped considerably. This, without doubt, can be attributed to the effects of missionization and its attendant relocation of the aboriginal population to centralized locales, along with the depredations of introduced Old World diseases. The Upper Santa Clara River region appears to be one of those inland zones, like the Antelope Valley to the north, that quickly and completely lost its aboriginal population. In particular, the aboriginal population from the Upper Santa Clara Valley was moved into Mission San Fernando, in the San Fernando Valley, and the area was effectively depopulated.

2.4 Historical Background

As noted previously, Euro-American mention of the upper Santa Clara River Valley region first occurred in the chronicles of the Portolá

expedition of 1769, which passed through the San Fernando Valley to Newhall, then to the Castaic Junction area, and then down the Santa Clara River, to Ventura, on its way to Monterey (Bolton 1971; Boneau Companys 1983; Brandes 1970; Cleland 1940). Portolá, in fact, camped at the confluence of the Santa Clara and Castaic Creeks - modern Castaic Junction - and suggested this locale as an appropriate spot for a mission. Portolá described Castaic Junction as follows:

> The country...is delightful and beautiful in the plain, although the mountains that surround it are bare and rough. In the plain we saw many tall and thick cottonwoods and oaks; the watering place [Castaic Junction] consists of an arroyo with a great deal of water which runs in a moderately wide valley, well grown with willows and cottonwoods. We stopped on the bank of the arroyo, where we found a populous village in which people lived without any cover, for they had no more than a light shelter fenced in like a corral...As soon as we arrived they gave us many baskets of different kinds of seeds, and a sort of sweet preserve like little raisins, and another resembling honeycomb, very sweet and purging, and made of the dew which sticks to the reed grass. It is a very suitable site for a mission, with much good land, many palisades, two very large arroyos of water, and five large villages close by.
>
> (Bolton 1971:153)

This description, which bears the ledger entry of Tuesday, August 8, 1769, apparently describes a temporary, late summer encampment of Tataviam, judging from the description of the corral-like huts of the village's inhabitants.

Although the Upper Santa Clara Valley region was traversed by a number of Spanish explorers in subsequent years, it initially remained isolated due to rugged topography, even though Portolá had suggested it as a locale for a mission. With the establishment of Missions San Buenaventura, in 1782, and San Fernando, in 1797, late-18th century historical events largely occurred in areas to the west and south of the Upper Santa Clara Valley proper, particularly inasmuch as the Camino Real - the Spanish Royal Road - was eventually established through the Conejo Corridor rather than down the Santa Clara Valley.

However, as the missions increased in size and their herds grew, it became necessary for many of them to establish mission ranchos, or estancias, to allow their cattle to graze some distance from the mission vineyards and fields, per se. With this geographical expansion of mission influence and activities, the Upper Santa Clara Valley region became important, if not pivotal, in a number of events central to the development of southern California. San Francisco Xavier served as the estancia for Mission San Fernando. It comprised the upper reaches of the Santa Clara Valley down to Piru (Cleland 1940; Perkins 1957; Smith 1977) - essentially what would become the Newhall Ranch - and was established in 1804, a few years after the founding of the mission itself. The headquarters of Estancia San Francisco Xavier was constructed at Castaic Junction, on a bluff overlooking the confluence of the Santa Clara and Castaic Creeks from the south. Eventually it was raised from the status of Estancia to Asistencia, or sub-mission.

The Asistencia de San Francisco Xavier represents the first European settlement of the Santa Clarita region. During this period, its primary function was as a ranching and perhaps agricultural out-station, although it undoubtedly served as a religious outpost as well. Placed at the location suggested for a mission earlier by Father Crespi of the Portolá expedition, it consisted of two rectangular adobe buildings, measuring 105 by 17 feet and 107 by 22 feet, respectively, in size, one of which included a tiled sacristy (Reynolds 1992:17). Eventually a third adobe structure, referred to as the "Old Milk House", was constructed downhill from the main structures, an undated photo of which was published by Perkins (1957:112).

William Lewis Manly, for reasons discussed below, provided a description of the Asistencia in 1849. At that time it was no longer an adjunct to Mission San Fernando but had transferred in ownership to Antonio del Valle when the Asistencia's land was granted as Rancho San Francisco to del Valle by Governor Alvarado in 1839. Notably, Antonio del Valle had served as majordomo and later administrator of Mission San Fernando and its lands from 1834 to 1837, and the family had made supplications to the governor in 1835 and 1837 to obtain a grant in the Santa Clara Valley (Newhall 1958:36; Perkins 1957). When finally awarded, the rancho contained slightly more than 46,000 acres which, as Smith (1977)

acknowledges, was just under the maximum of 11 square leagues then legally allowed.

Manly's description pertains to the period when the Asistencia buildings served as a ranch headquarters for one of a number of del Valle's properties, while he and his family continued to live in Los Angeles. Manly described the Asistencia, his first sighting of California mission architecture, as follows:

> A house on higher ground soon appeared in sight. It was low, of one story with a flat roof, gray in color, and of a different style of architecture from any we had ever seen before. There was no fence around it, and there were no animals or wagons or persons to be seen...but a mule tied to a post told us there was some one about...The house...was built of sun-dried bricks about one by two feet in size, and one end was used as a storehouse...down the hill...[was a]...small, poorly, fenced field which was sometimes cultivated.
>
> (Manly 1924:178-179)

In 1845 the rancho passed to Antonio del Valle's son, Ygnacio. Ygnacio del Valle ultimately became a prominent politician in southern California, serving as Alcalde (mayor) of Los Angeles during the Mexican period, as a member of the Territorial Deputation when California was admitted into the Union in 1850, and in the State Legislature. Forced to fight off efforts by Pedro Carrillo to obtain the western portions of Rancho San Francisco, Ygnacio built a corral at Camulos (the approximate site of the Chumash-Tataviam village of kamulus) in 1841, and finally the Camulos Adobe in 1864, as well as one of the first commercial wineries in the state in 1867 (Smith 1977). The Camulos Adobe, which then became the del Valle family home, was visited by Helen Hunt Jackson in 1882, and served as the setting for her famous early California novel Ramona. (The D.W. Griffith film "Ramona", starring Mary Pickford, was also filmed at the adobe in 1911).

However, prior to the development of Camulos, the Del Valle ranch headquarters remained at the old site of the Asistencia de San Francisco, above Castaic Junction. Furthermore, it was to the Asistencia that the lead

group of the Manly-Walker party - the "Death Valley '49ers" - first emerged out of the wilderness from their efforts to cross the Mojave Desert (Manly 1924:178-179). Manly's description of the Asistencia's buildings, quoted above, represent not only his first sighting of California mission architecture, but his first encounter with civilization, after his harrowing escape from Death Valley.

Following established California agrarian practices, Rancho San Francisco was employed by the del Valles primarily for raising cattle, although Mexican law also required the establishment of an orchard and other agricultural endeavors to validate a land grant (Smith 1977). Perkins (1957:107), for example, recorded that del Valle raised 600 head of cattle on the ranch and planted wheat in a marshy area below Camulos. Notably, however, the original diseño or land grant map for Rancho San Francisco, drawn in 1843, labels the Santa Susana Mountains and hills, south of the Santa Clara River and west of Castaic Junction, as lomas esterilas, "sterile hills" (Smith 1977: frontispiece; Johnson and Earle 1990: Figure 2) which, presumably, was of marginal use to them.

Rancho San Francisco is, ultimately, the origin for the Newhall Ranch and the Newhall Land and Farming Company. Because the history of this ranch is very well documented, with complete published accounts provided by Newhall (1958), Perkins (1957), Reynolds (1992), Rolle (1991) and Smith (1977), we provide only a brief summary here.

As is discussed below, del Valle sold the majority of Rancho San Francisco in 1865 for $1.25/acre, retaining only 1500 acres around Rancho Camulos. This 1865 sale was precipitated by the discovery of tar seeps in Pico Canyon, immediately to the south of the original land grant, where oil had been discovered in 1859. The purchasers of the ranch were Thomas A. Scott and Thomas Bard, representing the Philadelphia and California Petroleum Company. Because they believed that ranching and oil were incompatible activities, Scott and Bard subsequently sold 39,503 acres of the ranch to Henry Mayo Newhall, a San Francisco financier, in January, 1875, for $2.20/acre (Newhall 1958; Rolle 1991; Smith 1977). According to Thompson and West (1880:104), shortly thereafter Newhall placed 7000 acres of the ranch under cultivation for wheat and barley, and raised 700 head of cattle and 10,000 sheep. Headquarters for the ranch was adjacent to the Asistencia, in the area of the modern Magic Mountain

parking lot.

The town of Newhall was created the following year, as a result of the Southern Pacific Railroad Company's move to place a rail line down the Santa Clara Valley to the coast at Ventura. Although the original development was unsuccessful - due to frequent sandstorms the town's six buildings and name of Newhall were moved three miles to the south in 1878, with the original townsite becoming known as Saugus – ultimately the rail line provided an outlet for the agricultural and ranching products of the ranch, and greatly stimulated oil production in the immediate area (Franks and Lambert 1985:7). For obvious reasons, both circumstances stimulated the commercial development of the Newhall Ranch.

Henry Mayo Newhall was thrown from his horse on the ranch and died, in San Francisco, in 1883. The ranch then passed to his heirs. According to Rolle (1991:145), the Newhall financial empire subsequently went into decline, coming close to liquidation in 1930. At that point Athol McBean, son-in-law of William Mayo Newhall, was appointed chairman. McBean reorganized the Newhall Land and Farming Company and, aided by a restitution award of three-quarters of a million dollars resulting from the Saint Francis Dam catastrophe (see below), moved the ranch and company back onto sound financial footing. The company has continued as the major agricultural/ranching and land development concern in the region to the present time.

The upper reaches of the Santa Clara Valley also figured in three other important episodes in southern California history, two of which are landmarks in the economic history of the state. The first of these is the discovery of gold. Although the history of gold discovery and exploitation in California is often linked with James Marshall's 1848 discovery of gold in John Sutter's Coloma mill-race, it is a well-known fact that gold was found earlier in California 1842, in Placerita Canyon, by Francisco Lopez, Manuel Cota and Domingo Bermudez (Smith 1977; Outland 1986; Reynolds 1992). But it is by no means clear that even this well-documented incident represents the first true discovery of gold in the state. Instead, a variety of lines of historical evidence suggest that gold may have been mined in the Santa Clara Valley region one to three decades earlier (e.g., see Clark 1970:176).

According to an account published by Outland (1986), a local tale indicates that a group of about 20 men, led by one Santiago Feliciano, left Mission San Fernando in 1820 to explore the Castaic region. After reaching the Castaic Junction area, they headed up Hasley Canyon, and traveled up it about 10 miles. There they discovered gold, and a mining camp, "San Feliciano" (from which San Feliciano Canyon apparently gets its name), was born. The region from San Feliciano to Soledad Canyon was subsequently prospected and mined (mostly for placer deposits) for a number of years, with little record of these efforts presumably resulting because of the legal complications involved in recording gold claims in Mexican California: while the granting of land for agricultural purposes could be effected by the Governor of California, the recording of a gold claim under Mexican law required a trip to Mexico City, an effort none were apparently willing to gamble.

Although, as Outland notes, there is no clear verification for this tale (which ultimately derives from the prominent early settler and local historian S.P. Guiberson), there is nonetheless fairly strong evidence that the Placeritas discovery in 1842 was by no means the first in this region (Smith 1977; Outland 1986; Clark 1970). In 1832, for example, Ewing Young discovered an old ore smelting oven in San Emigdio Canyon (Outland 1986), suggesting that gold mining in the area had occurred for one or two decades prior to the 1842 event, and a number of other sources indicate that the presence of gold in the area was known at least a few years prior to the famous 1842 Placeritas Canyon incident (Smith 1977:32-33), in which gold was discovered by Francisco Lopez.

Lopez's discovery is often trivialized as accidental: a fortuitous event resulting from digging up a wild onion. In fact, Lopez had been educated at a mining college in Mexico City, and was known to have been systematically prospecting the region prior to the 1842 discovery. As the uncle of Antonio del Valle's widow, he had leased portions of Rancho San Francisco for cattle, and was headquartered at the old Asistencia. There is every reason to assume, thus, that this "official" discovery of gold resulted from intentional prospecting activities, carried out by the then-resident of the Asistencia.

Be this as it may, the 1842 discovery did have one important repercussion: it caused Lopez to continue to look further afield for gold,

resulting in his second gold discovery of the state in San Feliciano Canyon (Perkins 1958). In turn, this led to the granting of Rancho Temescal to Lopez and Jose Arellanes, in 1843. This grant included most of Piru Creek, as well as Placerita and San Feliciano Canyons, and totaled over 13,000 acres. Apparently, the legality of this grant under Mexican law has always been a point of some question for, as noted previously, the Governor of California only held the right to award agricultural but not mining grants. However, Thompson and West (1886:74) record that the area was worked by miners from Sonora, Mexico, between 1842 and 1846, at which time they returned to Mexico, and that they extracted between six and eight thousand dollars of gold per year during that period. Nonetheless, about a dozen years later, Rancho Temescal was acquired by Ygnacio del Valle and added to his Rancho San Francisco holdings.

Thus, not only was this region the first in California in which gold was discovered, it was also the first where true oil drilling occurred (Smith 1977), which was the second historical event of statewide importance in the region. This led to discoveries of oil on Rancho San Francisco and, ultimately, throughout the Santa Clara Valley region. This first major discovery of oil resulted when Ygnacio del Valle sold the majority of his Rancho San Francisco holdings to Thomas Bard, representing Senator Thomas A. Scott, in 1865. Seven weeks later, the first oil well came in on the south side of the Santa Clara River, on property acquired by Bard, near the del Valle adobe (Smith 1977). This discovery was instrumental in the regional oil boom that ensued.

Following the discovery of oil in the valley, and with the depletion of the (relatively small) placer gold deposits in the region by the 1880s, the Upper Santa Clara Valley region became renowned both for its oil and (ultimately) for its citrus crops.

The third local event of historical importance was the collapse of Los Angeles Department of Water and Power's St. Francis Dam and the resulting flood of the Santa Clara River Valley on March 12 and 13, 1928. With the failure of dam close to midnight on March 12, water raged down San Francisquito Canyon to Castaic Junction, which it effectively leveled, and then on to Fillmore, Santa Paula and ultimately to the Pacific, causing great loss of life and destruction along the way. At Castaic Junction, the only survivor of the flood was George MacIntyre, son of the owner of

McIntyre's motel and gas station. George was washed northwards by a great arc of the floodwaters, towards Castaic Canyon, where he was able to grab hold of a power pole and avoid drowning; the bodies of his father and one brother were found in Santa Paula; another brother's body was never recovered. All told, at least 336 known deaths were caused by the flood, 101 individuals were missing and can now be presumed dead, 909 homes were destroyed, and countless acres of orchards were flattened (Outland 1963).

Within the larger Newhall Ranch at Blue Cut in Ventura County the flood waters rose to the level of the highway. The restriction of the Santa Clara River stream course at this spot momentarily bottled the flood, resulting in a temporary upsurge of waters against the flood current, creating a whirlpool. An Edison Company work camp of tents housing 150 men had been established at the railroad siding of Kemp, immediately east of Blue Cut, which was inundated by the upsurge. When the flood waters receded, 84 of these men had been drowned by the catastrophe (Outland 1963:106-107).

In retrospect, it is interesting to note that the Newhall Land and Farming Company had independently hired Harmon Bonte, a consulting engineer, to review the suitability of the Saint Francis Dam in 1924, prior to its construction. Arguing against LADWP's William Mulholland, Bonte contended on the part of his clients that the conglomerate bedrock at the proposed dam site was unfit for dam anchorage. His report was widely published after the disaster, as an indictment of Mulholland's engineering studies (Outland 1963:43), and no doubt contributed to Mulholland's subsequent decision to retire from professional and public life.

The Smiser Ranch study area itself falls outside of the original Rancho San Francisco/Newhall Ranch boundaries, and thus played no part in the historical events in this region. In contemporary times it has served as the Smiser Ranch Mule Farm.

3.0 ARCHIVAL RECORDS SEARCH

An archival records search of the 36.3 acres Smiser Ranch study area was completed by the California State University, Fullerton, Archaeological Information Center (AIC) staff to determine whether any prehistoric or historical sites were known on the property, and/or whether all or portions of it had been previously systematically surveyed by archaeologists.

A complete copy of the records search is included as Appendix A to this report. In summary, three previous archaeological studies had covered the study area, and no sites had been discovered or recorded within it or in the immediate vicinity.

Examination of the 1903 Santa Susana 15' topographic quadrangle (and its 1941 reprint) show no evidence of early use.

In summary, the records search indicates that the study area has no known sites and a low sensitivity for archaeological resources.

4.0 SURVEY METHODS

The intensive Phase I survey of the 36.3 acres study area was conducted on 7 January 2007, with Joseph M. Simon conducting the field study.

Field procedures involved walking the property in transects spaced at approximately 10 - 15 meter intervals. The groundsurface was examined during these transects to identify evidence of prehistoric sites. Such evidence might include surface artifacts, dark organically rich midden soils, fire-cracked rock resulting from earth ovens and roasting pits, and shell and bone that might represent remnants of dietary remains. Alternatively historical remains in the form of metal, glass and ceramic were also considered possible finds within the study area.

During the survey special attention was paid to geomorphological

conditions that affect the preservation of archaeological remains. Road or bank-cuts that expose subsurface stratigraphy, for example, along with stable geomorphic and depositional environments were carefully examined for evidence of cultural remains. Furthermore, rodent backdirt piles were carefully examined inasmuch as they can reveal the presence of buried archaeological deposits.

5.0 FIELD RESULTS

Field conditions for the intensive Phase I survey of the 36.3 acres study area were good. It currently contains an equestrian facility with barns and related structures towards the north, and large open pastures towards the south. Currently, only a single mule occupies the ranch. Groundsurface visibility was very good.

No archaeological sites of any kind, prehistoric or historical, were found within the study area during the systematic survey, thereby confirming the previous studies on this property.

6.0 SUMMARY AND RECOMMENDATIONS

An intensive Phase I archaeological survey was conducted for the Smiser Ranch study area, Santa Clarita, northwestern Los Angeles County, California. This involved an on-foot survey of the 36.3 acres property and a review of written and unpublished documents on the archaeology, history and ethnography of the region. No cultural resources of any kind had been previously recorded or were discovered during the current study.

6.1 Recommendations

Based on the fact that no archaeological sites of any kind have been found within the Smiser Ranch study area, use of this property does not have the potential to result in adverse impacts to known archaeological resources. We recommend no additional archaeological work on it. However, in the unlikely event that cultural resources are encountered during excavation or grading, it is recommended that an archaeologist be contacted to assess the remains.

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8.0 Figures

List of Figures

1 - The Smiser Ranch study area , northwestern Los Angeles County, CA.

Figure 1: Project location on Oat Mountain, CA. 1:24 000 USGS quadrangle.

9.0 APPENDIX A: ARCHIVAL RECORDS SEARCH

South Central Coastal Information Center
California Historical Resources Information System
California State University, Fullerton
Department of Anthropology
800 North State College Boulevard
Fullerton, CA 92834-6846
714.278.5395 / FAX 714.278.5542
anthro.fullerton.edu/sccic.html - sccic@fullerton.edu

Ventura
Los Angeles
Orange

December 18, 2006

SCCIC # 7137.4314

Mr. Joseph M. Simon
W and S Consultants
2242 Stinson Street
Simi Valley, CA 93065
(805) 581-3577

RE: Records Search for Smiser Ranch (36.3 ac.) in Santa Clarita

Dear Mr. Simon,

As per your request received on December 3, 2006, a records search was conducted for the above referenced project. The search includes a review of all recorded archaeological sites within a 1-mile radius of the project site as well as a review of cultural resource reports on file. In addition, the California Points of Historical Interest (PHI), the California Historical Landmarks (CHL), the California Register of Historical Places (CR), the National Register of Historic Places (NR), and the California State Historic Resources Inventory (HRI) listings were reviewed for the above referenced project. The following is a discussion of the findings.

Oat Mountain, CA, USGS 7.5' Quadrangle

ARCHAEOLOGICAL RESOURCES:

No archaeological sites have been identified within a 1/8-mile radius of the project site. No archaeological sites are located within the project site. No isolates have been identified within a 1/8-mile radius of the project site. No isolates are located within the project site.

HISTORIC RESOURCES:

Copies of our historic maps – Santa Susana (1903 and 1941) 15' USGS - are enclosed for your review.

The California Point of Historical Interest (2006) of the Office of Historic Preservation, Department of Parks and Recreation, lists no properties within a 1/8-mile radius of the project site.

The California Historical Landmarks (2006) of the Office of Historic Preservation, Department of Parks and Recreation, lists no properties within a 1/8-mile radius of the project site.

The California Register of Historic Places (2006) lists no properties within a 1/8-mile radius of the project site. These are properties determined to have a National Register of Historic Places Status of 1 or 2, a California Historical Landmark numbering 770 and higher, or a Point of Historical Interest listed after 1/1/1998.

The National Register of Historic Places (2006) lists no properties within a 1/8-mile radius of the project site.

The California Historic Resources Inventory (2006) lists no properties that have been evaluated for historical significance within a 1/8-mile radius of the project site.

PREVIOUS CULTURAL RESOURCES INVESTIGATIONS:

Seven studies (LA23, LA103*, LA578*, LA1062, LA2950, LA3000, and LA5533*) have been conducted within a 1/8-mile radius of the project site. Of these, three are located within the project site. There are twelve additional investigations located on the Oat Mountain 7.5' USGS Quadrangle that are potentially within a 1/8-mile radius of the project site. These reports are not mapped due to insufficient locational information.
(= Located within the project site)*

Please forward a copy of any reports from this project to the office as soon as possible. Due to the sensitive nature of archaeological site location data, we ask that you **do not include** records search maps in your report. If you have any questions regarding the results presented herein, contact the office at 714.278.5395 Monday through Thursday 8:00 am to 3:30 pm.

Should you require any additional information for the above referenced project, reference the SCCIC number listed above when making inquiries. Requests made after initial invoicing will result in the preparation of a separate invoice.

Sincerely,
SCCIC

Thomas David Shackford
Lead Staff Researcher

Enclosures:

(X) Maps – Oat Mountain 7.5' USGS Quadrangle, Santa Susana 15' USGS Quadrangle 4 – pages
(X) Bibliography – 2 pages
(X) Confidentiality Form
(X) Invoice # 7137.4314

Bibliography: Smiser Ranch (36.3 ac.) in Santa Clarita

IC ID#: LA103 DATE: 1975 PAGES: 8
AUTHOR: Singer, Clay A.
FIRM: University of California Los Angeles Archaeological Survey
TITLE: Archaeological Resource Survey of Portions of the South Fork, Santa Clara River, Los Angeles County, California
AREA:
SITES: None

QUADNAME: Newhall, Oat Mountain
MEMO:

IC ID#: LA1062 DATE: 1981 PAGES: 11
AUTHOR: Schliz, Allen J.
FIRM: Westec Services, Inc.
TITLE: Archaeological Survey of the Sylmar Development Project Site, Los Angeles County, California
AREA: 470 ac
SITES: None

QUADNAME: Oat Mountian
MEMO:

IC ID#: LA23 DATE: 1974 PAGES: 6
AUTHOR: Leonard, N. Nelson III
FIRM: University of California Los Angeles Archaeological Survey
TITLE: Archaeological Reconnaissance of Tentative Tract # 31399, a Residential Development Near Newhall California
AREA:
SITES: None

QUADNAME: Newhall
Oat Mtn
MEMO: Golden Knolls

Bibliography: Smiser Ranch (36.3 ac.) in Santa Clarita

IC ID#: LA2950 DATE: 1992 PAGES: 356
AUTHOR: Anonymous
FIRM: Peak and Associates
TITLE: Consolidated Report: Cultural Resource Studies for the Proposed Pacific Pipeline Project
AREA: 172 ac
SITES: See Report

QUADNAME: See Report
MEMO:

IC ID#: LA3000 DATE: 1993 PAGES: 31
AUTHOR: Simon, Joseph M. and David S. Whitley
FIRM: W and S Consultants
TITLE: Phase I Archaeological Survey and Cultural Resources Assessment for the 225 Acres Alternative Site 2 Study Area, Santa Clarita, Los Angeles County, California
AREA: 225 ac
SITES:

QUADNAME: Oat Mountain
MEMO:

IC ID#: LA5533 DATE: 2000 PAGES: 4
AUTHOR: Smith, Philomene C.
FIRM: Caltrans District 7
TITLE: Negative Archaeological Report: rock-lined section and the addition of an access to paved section of drainage channel near Interstate 5 in Santa Clarita
AREA: <1 li mi
SITES: none

QUADNAME: Oat Mountain
MEMO:

Bibliography: Smiser Ranch (36.3 ac.) in Santa Clarita

IC ID#: LA578 DATE: 1979 PAGES: 14

AUTHOR: BAKSH, MICHAEL G.

FIRM:

TITLE: Archaeological Evaluation of Tentative Tract NO.35555, Los Angeles County, California

AREA: 42 ac

SITES: none

QUADNAME: Oat Mountain

MEMO:

Biological Resource Assessment
Smiser Mule Ranch
City of Santa Clarita, California

Prepared for:

Monteverde Companies
28100 Bouquet Canyon Road
Santa Clarita, California 91350

Prepared by:

compliance·biology

6770 San Onofre Drive
Camarillo, CA 93012
Dave Crawford
President/Principal Biologist

November 2006

Introduction

This report details findings of a biological resource assessment conducted on the Smiser Mule Ranch project site located in the City of Santa Clarita, California (**Exhibit 1**). The subject property is situated on the east side of Interstate 5, west of Wiley Canyon Road and north of Calgrove Boulevard, within the City of Santa Clarita (**Exhibit 2**). The purpose of the study was to evaluate existing conditions with respect to potential impacts to sensitive biological resources associated with future proposed development.

This report is intended to provide the project applicant and and the City of Santa Clarita with general information regarding the suitability of on-site habitats to support sensitive biological resources and potential impacts to those resources associated with a proposed commercial development project.

Methods

Literature Search

In order to identify special-status plant and animal species (those species considered rare, threatened, endangered, or otherwise sensitive by various state and federal resource agencies) known to historically occur in the vicinity of the project site, the May 2006 update of the California Natural Diversity Data Base (CNDDB) for the Newhall and Oat Mountain, California USGS 7.5-minute quadrangle maps. Other data sources reviewed included: (1) the Federal Register listing package for each federally-listed endangered or threatened species potentially occurring on the project site or in the project vicinity; (2) literature pertaining to habitat requirements of special-status species potentially occurring on the project site; and (3) plant and animal distribution data contained in Hall (1981); Holland (1986); CDFG (1990); Stebbins (1985); and Jennings and Hayes (1994).

Sources used to determine the sensitivity status of biological resources include: **Plants** - U.S. Fish and Wildlife Service (USFWS 1993 and 1996), California Department of Fish and Game (CDFG 1998), CNDDB 2006, and California Native Plant Society (CNPS) (2001); **Wildlife** - USFWS (1994 and 1996), CDFG (1998), and CNDDB (2006); **Habitats** - CNDDB (2006).

Field Survey

Field surveys were conducted on the subject site on October 8, 2006 by Compliance Biology, Inc. to record plant and wildlife species observed, and to evaluate potential habitat for special-status wildlife species that would potentially be impacted by proposed future development. The entire site was examined on foot. All dominant plant species wildlife observed or detected on the site was recorded.

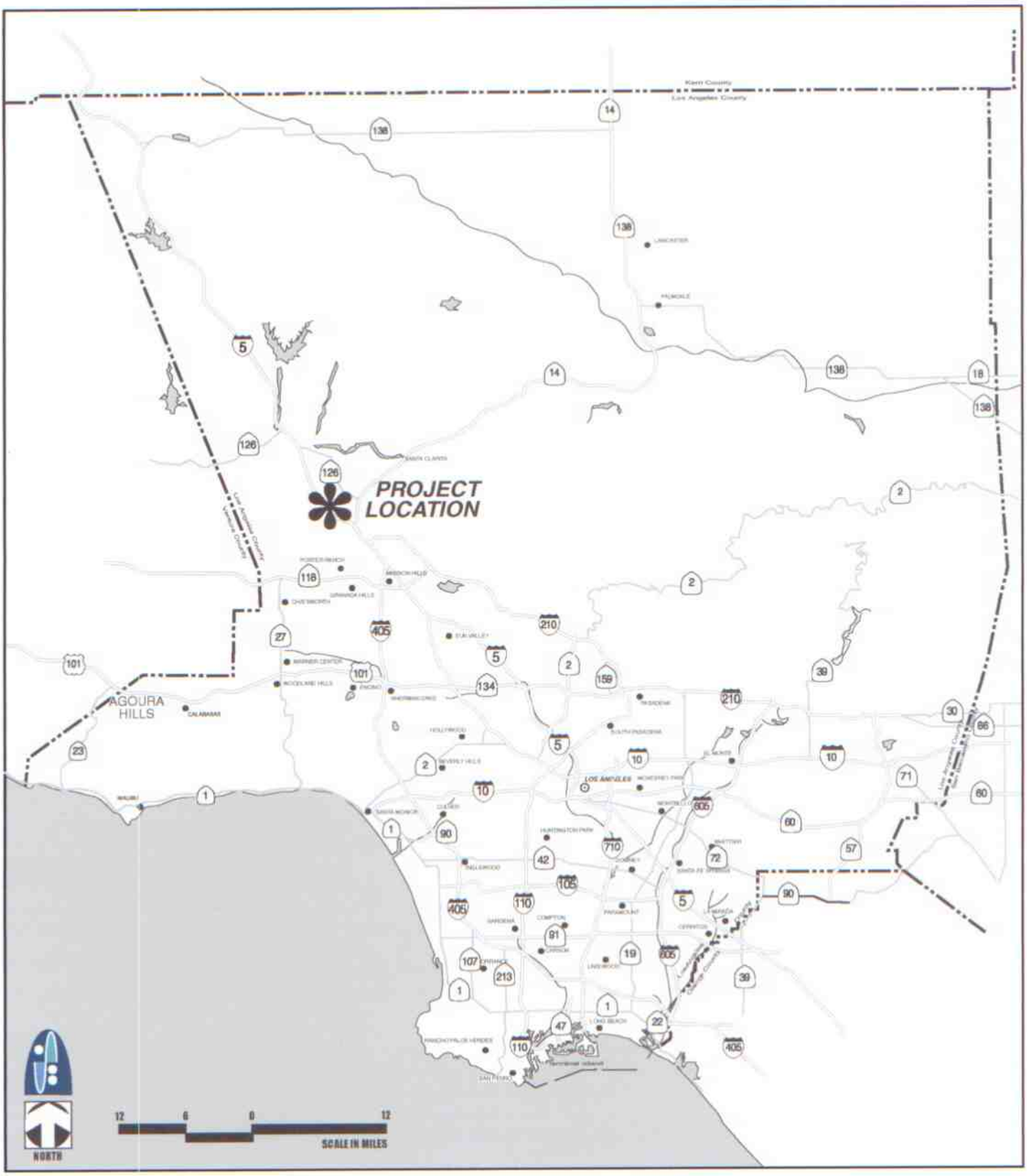

exhibit 1
Regional Location

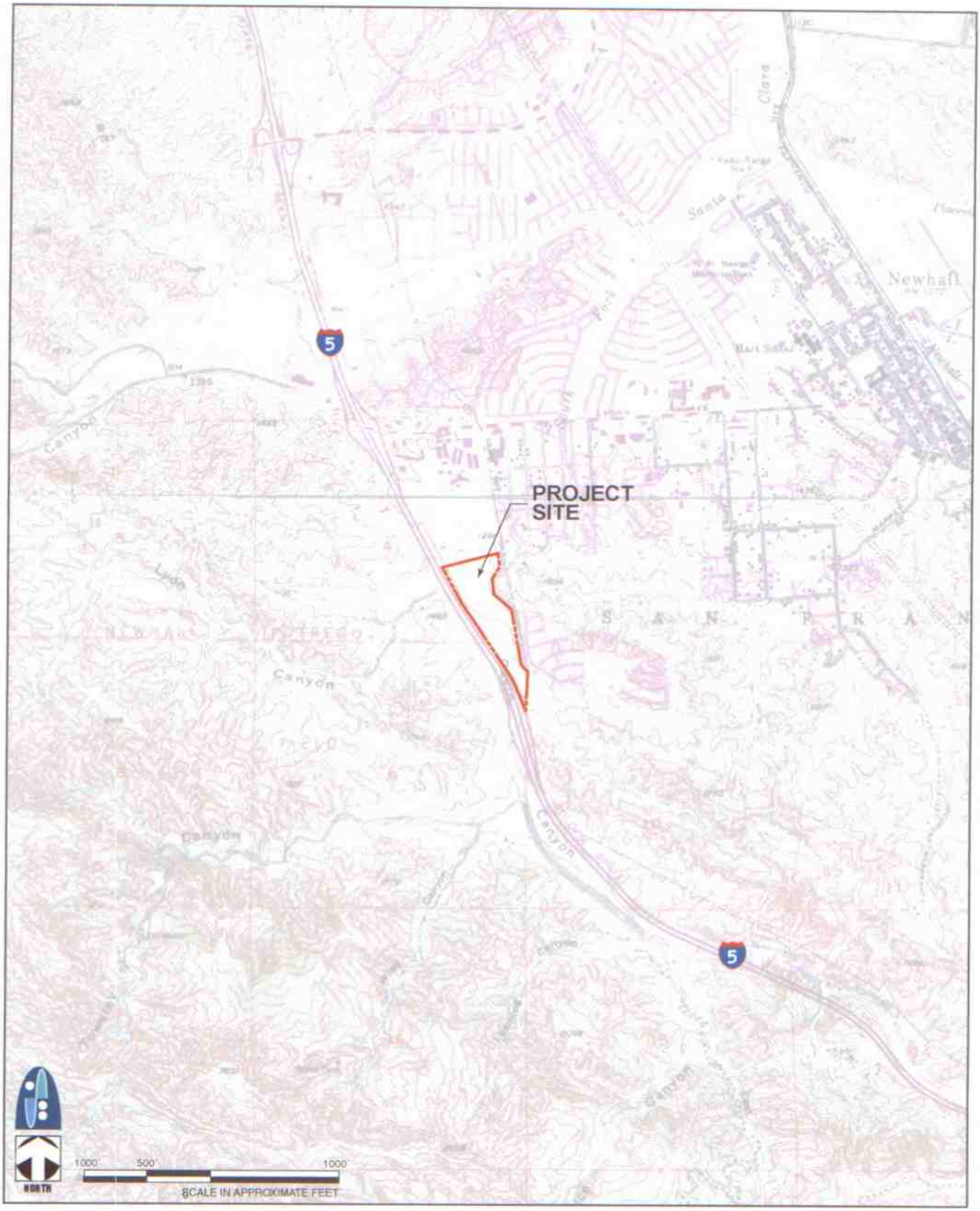

exhibit 2
PROJECT LOCATION

Results

Literature Search

The literature search revealed that a total of six (6) special-status plant species have been recorded from the project area. Additionally, 21 special-status wildlife species have been recorded in the CNDDB, and/or are otherwise known to occur in the project vicinity based on documented species distributional ranges. The field studies were therefore, focused on evaluating the existing conditions on site to determine if they were suitable to support any of these special-status species.

Field Survey

Exhibit 3 provides an illustration of existing conditions on site. The majority of the site is disturbed as it has been historically used as an equine ranch, supporting multiple corrals and associated ranch structures and regular clearance of vegetation. What vegetation does occur within these areas is limited to annual non-native ruderal species.

A small area of disturbed alluvial scrub occurs in the southern portion of the property. This area too supports a large contingent of annual non-native species including mustard (*Hirschfeldia* and *Brassica* spp.) and thistle (*Centaurea* sp.), but also supports native shub species including California sagebrush (*Artemisia californica*), telegraph weed (*Heterotheca grandiflora*), California buckwheat (*Eriogonum fasciculatum*), and a few scattered elderberry (*Sambucus mexicana*).

Scattered native oaks and ornamental trees occur around the site's boundaries. An oak tree survey following the City of Santa Clarita guidelines was prepared by Forde Biological Consultants and the report discussing the results of the survey is provided at the end of this report as **Appendix A**. The survey determined that eight coast live oak trees (*Quercus agrifolia*), meeting the City's criteria as a protected tree, occur on site. Please refer to the appended report for more details regarding the subject oak trees.

A stream channel flows along the eastern boundary across the southern portion of the site. That supports with riparian woodland habitat, At the northern limits, the on-site channel changes from a concrete flood control structure, to a somewhat more natural condition. There was a low flow of water in the northern portion of the stream at the time of the survey which indicates this section of stream supports a perennial or nearly perennial condition. The drainage flows southward and crosses the southern portion of the property where it becomes dry and more ephemoral in nature and exits through a concrete culvert. The riparian vegetation in the perennial section of the drainage is characterized by mature Fremont cottonwood (*Populus fremontii*) with patches of red willow (*Salix laevigata*) and mule fat (*Baccharis salicifolia*). The riparian trees form a nearly complete closed canopy, but little understory vegetation is present. The presences of cut branches and absence of understory vegetation suggests this area is regularly cleared for flood control purposes.

exhibit 3

EXISTING CONDTIONS

Vegetation within the southern portions of the drainage are more consistent with upland scrub and disturbed species, further indicating this porition of the drainage does not support long-term flows.

Common wildlife species observed or detected on the subject property at the time of the surveys were typical of the disturbed habitat conditions on and included side-blotched lizard (*Uta stansbuirana*), western fence lizard (*Sceloporous occidentalis*), scrub jay (*Aphelocoma coerulescens*), American crow (*Corous brachyrhynchos*), greater roadrunner (*Geococcyx californianus*), mallard (*Anas platyrhynchos*), black phoebe (*Sayornis nigricans*), scrub jay (*Thryomanes bewickii*), California towhee (*Pipilo crissalis*), house finch (*Carpodacus mexicanus*), Virginia opossum (*Didelphis virginiana*), dusky-footed woodrat (*Neotoma fuscipes*), Botta's pocket gopher (*Thomomys bottae*), desert cottontail (*Sylvilagus audubonii*), raccoon (*Procyon lotor*), and California ground squirrel (*Spermophilus beecheyi*). All of these species are tolerant of human disturbance and commonly occur in and near developed areas.

Single point-in-time observations of wildlife do not provide an accurate representation of the diversity of species that reside on a given site or that have the potential to occur seasonally or as periodic visitants. As such, inferrences must be made based on habitat types present, the condition of those habitat types, as well as external factors such as current and historic land use practices and surrounding land uses. Though an accurate compendia of all wildlife species potentially occurring on the subject property is not possible from a single day evaluation, it is reasonable to assume, based on existing conditions, that there is a relatively low diversity of common wildlife species (species not afforded sensitivity status by regulatory agencies) present on site.

Special-Status Resources

Special-status Plants

As discussed, six plant species considered to be of special status have been documented in the region of the project site. No special-status plant species were observed during the site surveys and based on existing conditons within the site boundaries, none are expected to have a high potential for occurrence. Please refer to **Attachment A** for a discussion regarding potential occurrence on site for each special-status plant species identified as occurring in the project region.

Special-status Wildlife

The literature search indicates that at least 21 species of wildlife have been recorded in the region that are considered to be of special-status by federal, state, and/or local agencies. **Attachment B** provides a complete list of all regionally documented special-status wildlife species and their potential to occur on the subject parcel.

None of the special-status wildlife species listed were observed during field studies and based on existing conditions, none are considered to have a high potential for occurrence on the subject property.

Jurisdictional Resources

Direct and indirect impacts on drainage features may be subject to the jurisdiction of several state and federal agencies, including the U.S. Army Corps of Engineers (ACOE), the California Department of Fish and Game (CDFG), and the Los Angeles Regional Water Quality Control Board (RWQCB). A jurisdictional delineation of wetlands and waters following ACOE recommended guidelines was completed on site by Dr. Edith Read and attached to this report as **Appendix B**.

The drainage course on site does support features that lie within the jurisdiction of CDFG, ACOE and RWQCB. As such, any proposed project would be required to avoid the jurisdictional boundaries, or if infeasible, would require permits from each agency. The appended jurisdictional delineation provides detailed information regarding the area and boundaries of resources occurring within each of the agencies' jurisdictions.

Wildlife Movement Corridors

Wildlife movement corridors link together areas of suitable wildlife habitat that are otherwise separated by rugged terrain, changes in vegetation, by human disturbance, or by the encroachment of urban development. Movement corridors are important as the combination of topography and other natural factors, in addition to urbanization, has fragmented or separated large open space areas. The fragmentation of natural habitat creates isolated 'islands' of vegetation that may not provide sufficient area to accommodate sustainable populations and can adversely impact genetic and species diversity. Corridors mitigate the effects of this fragmentation by (1) allowing animals to move between remaining habitats, which allows depleted populations to be replenished and promotes genetic exchange with separate population; (2) providing escape routes from fire, predators, and human disturbances, thus reducing the risk that catastrophic events (such as fire, flood, or disease) will result in population or species extinction; and (3) serving as travel paths for individual animals as they wander about or disperse from their home ranges in search of food, water, mates, and other needs.

The project site is essentially surrounded by existing development. Because of the existing surrounding land uses the project site does not provide a link between large open space areas in the region. Therefore, the project site is not considered to be used as, or a part of, an important regional corridor connecting large open space habitats.

Conclusions

Pusuant to State and local laws and policies, impacts to special-status biological resources must be assessed when development is proposed. Based on the current site conditions, historic land use on site, and surrounding land uses, there are no special-status plant or wildlife species considered to have a high potential for occurrence. Sensitive resource present on site are limited to the drainage course and associated riparian vegetation and the mature oak trees. Although the condition of the riparian habitat is considerably disturbed, any impacts to this habitat would require permitting from,

and review by, federal, state and local regulatory agencies. Likewise, removal of, or encroachment into, the protected zone of oak trees are regulated and any such impacts would be considered potentially significant without mitigation.

Although the potential for occurrence of special-status birds nesting on site is relativley low, the federal Migratory Bird Treaty Act and the State of California Fish and Game Code prohibit the disturbance or destruction of active nests of nearly all bird species. As such, an proposed grubbing of vegetation and/or grading during the active nesting season (February 1 through July 30) has the potential to impact active nests. As this action would be in violation of state and federal regulations, grading and grubbing is a potentially significant impact without mitigation. Therefore, vegetation removal or other site preparation activities should be timed to avoid the active nesting season. If not feasible, a qualified biologist should conduct a thorough nesting bird survey no more than seven days and no less than one day prior to any vegetation disturbance.

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Attachment A

Summary of Special-Status Plant Species Recorded in the Vicinity of the Project Site

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Attachment A
Summary of Special Status Plant Species Recorded in the Vicinity of the Project Site

Scientific and Common Name	Status			Habitat Requirements	Elevation Range, Life Form, and Flowering Period	Potential Occurrence
	Federal	State	CNPS			
Slender mariposa lily *Calochortus clavatus* var. *gracilis*	--	--	1B	Chaparral and oak woodlands; associated with shaded canyons and grassy slopes. Often associated with serpentine soils.	0-3,300 ft. PH(b) March	Low potential; very limited suitable habitat present in southern portion of site.
Plummer's mariposa lily *Calochortus plummerae*	--	--	1B	Chaparral, cismontane woodlands, coastal scrub, Lower coniferous forests, and grasslands; associated with granitic soils.	325 - 5,600 ft. PH (b) May-July	Low potential; very limited suitable habitat present in southern portion of site.
San Fernando Valley spineflower *Chorizanthe parryi* ssp. *fernandina*	FC	CE	1B	Coastal scrub; associated with open, sandy soil habitats.	660-1,150 ft. AH April-June	Low potential; very limited suitable habitat present in southern portion of site.
Santa Susana tarplant *Deinandra mintnhornii*	--	CR	1B	Chenopod scrub, shallow freshwater marshes, playas, vernal pools, and ditches.	100 - 4,265 ft. AH April-June	Not expected; no suitable habitat present on site.
Slender-horned spineflower *Dodecahema leptoceras*	FE	CE	1B	Alluvial scrub vegetation; associated with older successional phases in open, sandy, flood deposited rivers and washes.	650-2,300 ft. AH April-June	Low potential; very little suitable habitat present in the southern end of the subject parcel.
California Orcutt grass *Orcuttia californica*	FE	CE	1B	Vernal pools.	0-2,050 ft. AH May-June	Not expected; no suitable habitat present on site.

Attachment A (continued)
Summary of Special Status Plant Species Recorded in the Vicinity of the Project Site

STATUS KEY:

Federal
FE: Federally Endangered
FC: Federal Candidate Species

State
CE: State Endangered
CR: State Rare

CNPS
List 1B: Plants rare and endangered in California and elsewhere

LIFE FORM KEY:

AH: Annual Herb
PH: Perennial Herb
(b): bulb

Attachment B

Special-Status Wildlife Species Recorded or Otherwise Known to Occur in the Vicinity of the Project Site

ATTACHMENT B

Special-Status Wildlife Species Recorded or Otherwise Known to Occur in the Vicinity of the Project Site

Common Name *Scientific Name*	Status		Habitat Requirements	Potential Occurrence on the Project Site
	Federal	State		
INVERTEBRATES				
Monarch butterfly (wintering sites) *Danaus plexippus*	--	◆	Winter roost sites located in wind-protected tree groves (gum trees, Monterey pine, and cypress trees), with nectar and water sources nearby.	Not expected; no suitable roost sites present.
AMPHIBIANS				
Western spadefoot *Scaphiopus hammondii*	--	CSC, CP	Open areas in lowland grasslands, chaparral, and pine-oak woodlands; require temporary rainpools that last approximately three weeks and lack exotic predators.	Low potential; flat areas on site highly disturbed. No areas of standing water or cryptogammic soils observed.
REPTILES				
San Diego horned lizard *Phrynosoma coronatum blainvillii*	--	CSC, CP (full species)	Exposed gravelly-sandy soils with minimal shrubs, riparian woodland clearings, dry chamise chaparral, and annual grasslands	Low potential; very little suitable habitat present in southern portion of site.

ATTACHMENT B (continued)
Special-Status Wildlife Species Recorded or Otherwise Known to Occur in the Vicinity of the Project Site

Common Name *Scientific Name*	Status		Habitat Requirements	Potential Occurrence on the Project Site
	Federal	State		
California horned lizard *Phrynosoma coronatum frontale*	--	CSC, CP (full species)	Exposed gravelly-sandy soils with minimal shrubs, riparian woodland clearings, dry chamise chaparral, and annual grasslands	Low potential; very little suitable habitat present in southern portion of site.
Coastal whiptail *Cnemidophorus tigris multiscutatus*	--	◆	Open areas in semiarid grasslands, scrublands, and woodlands.	Low potential; very little suitable habitat present in southern portion of site.
Silvery legless lizard *Anniella pulchra pulchra*	--	CSC	Stabilized dunes, beaches, dry washes, pine, oak, and riparian woodlands, and chaparral; associated with sparse vegetation with sandy or loose, loamy soils.	Low to Moderate Potential; limited suitable habitat present on site associated with areas adjacent to riparian zone.
Two-striped garter snake *Thamnophis hammondii*	--	CSC, CP	Perennial and intermittent streams having rocky or sandy beds and artificially-created aquatic habitats (man-made lakes and stock ponds); requires dense riparian vegetation.	Low Potential; limited suitable habitat present on site associated with riparian habitat, but habitat likely too disturbed and isolated to support this species. No aquatic prey base observed.

ATTACHMENT B (continued)

Special-Status Wildlife Species Recorded or Otherwise Known to Occur in the Vicinity of the Project Site

Common Name *Scientific Name*	Status		Habitat Requirements	Potential Occurrence on the Project Site
	Federal	State		
BIRDS				
White-tailed kite (nesting) *Elanus leucurus*	--	CFP	Open vegetation and uses dense woodlands for cover.	Low potential; may occur as infrequent forager. Limited suitable nesting habitat on site in riparian area. Proximity to street likely precludes riparian trees for from nesting.
Northern harrier (nesting) *Circus cyaneus*	--	CSC	Coastal salt marsh, freshwater marsh, grasslands, and agricultural fields.	Low potential; may occur as infrequrent forager and no suitable nesting habitat present on site.
Sharp-shinned hawk (nesting) *Accipiter striatus*	--	CSC	Woodlands and forages over dense chaparral and scrublands.	Low potential; may occur as infrequent forager. Limited suitable nesting habitat on site in riparian area. Proximity to street likely precludes riparian trees for from nesting.
Cooper's hawk (nesting) *Accipiter cooperi*	--	CSC	Dense stands of live oaks and riparian woodlands.	Low potential; may occur as infrequent forager. Limited suitable nesting habitat on site in riparian area. Proximity to street likely precludes riparian trees for from nesting.
Western burrowing owl (burrow sites) *Athene cunicularia hypugea*	--	CSC	Grasslands and open scrub.	Not expected; no suitable burrows present and very little suitable foraging habitat.
California horned lark Eremophila alpestris actia	--	CSC	Grasslands, disturbed areas, agriculture fields, and beach areas.	Low potential; may occur as infrequent forager. No suitable nesting habitat on site.
California gnatcatcher *Polioptila californica*	FT	CSC	Coastal sage scrub in areas of flat or gently sloping terrain.	Not expected; no suitable habitat present on site.

ATTACHMENT B (continued)
Special-Status Wildlife Species Recorded or Otherwise Known to Occur in the Vicinity of the Project Site

Common Name *Scientific Name*	Status		Habitat Requirements	Potential Occurrence on the Project Site
	Federal	State		
California thrasher *Toxostoma redivivum*	--	◆	Coastal sage scrub, chaparral	Low potential; very limited suitable habitat present in southern portion of site.
Least Bell's vireo (nesting) *Vireo bellii pusillus*	FE	CE	Riparian vegetation with extensive willows below 2,000 ft.	Not expected; no suitable habitat present on site.
S. California rufous-crowned sparrow *Aimophila ruficeps canescens*	--	CSC	Coastal sage scrub.	Low potential; very limited suitable habitat present in southern portion of site.
MAMMALS				
Yuma myotis *Myotis yumanensis*	--	CSC	Found in a variety of habitats; optimal habitats are open forests and woodlands with sources of water over within to feed.	Low Potential; may occur in the area, but no suitable foraging or hibernacula present on site.
Pallid bat *Antrozous pallidus*	--	CSC	Arid habitats, including grasslands, shrublands, woodlands, and forests; prefers rocky outcrops, cliffs, and crevices with access to open habitats for foraging.	Low potential; very limitied suitable habitat present on site.
San Diego black-tailed jackrabbit *Lepus californicus bennettii*	--	CSC	Chaparral and coastal sage scrub.	Not expected; the limited suitable habitat on site and surrounding development likely precludes this species from occurring.
San Diego desert woodrat *Neotoma lepida intermedia*	--	CSC	Chaparral and coastal sage scrub.	Low potential; limitied suitable habitat present on site associated with upland edges of riparian habitat.

ATTACHMENT B (continued)
Special-Status Wildlife Species Recorded or Otherwise Known to Occur in the Vicinity of the Project Site

KEY:

(nesting) = For most taxa the CNDDB is interested in sightings for the presence of resident populations. For some species (primarily birds), the CNDDB only tracks certain parts of the species range or life history (e.g., nesting locations). The area or life stage is indicated in parenthesis after the common name.

Status:

Federal – U.S. Fish and Wildlife Service

FE: Federally Endangered
FT: Federally Threatened

State -- California Department of Fish and Game

CE: California Endangered
CFP: California Fully Protected
CP: California Protected
CSC: California Species of Special Concern

◆ : California Special Animal (species with no official federal or state status, but are included on CDFG's Special Animals list)

APPENDIX A

OAK TREE REPORT

Prepared by
Forde Biological Consultants

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Draft

WILEY CANYON (SMISER RANCH) DEVELOPMENT

Biological Resources Report

Prepared for
Wiley Canyon, LLC
13120 Telfair Avenue
Sylmar. CA 91342

August 2020

Draft

WILEY CANYON (SMISER RANCH) DEVELOPMENT

Biological Resources Report

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WILEY CANYON (SMISER RANCH) DEVELOPMENT
BIOLOGICAL RESOURCES REPORT

1.0 INTRODUCTION

1.1 BACKGROUND AND PURPOSE

This Biological Resources Report (BRR) presents the findings of a biological survey conducted by ESA for the Wiley Canyon Mixed Use Development located at 24924 Hawkbryn Avenue, Santa Clarita (Project). This BRR analyzes potential impacts to plant and wildlife species, including special-status species and their associated habitats that have potential to occur in the Project vicinity. In addition, potential impacts to raptors, and protected trees are also assessed. This report is intended to disclose information related to the biological resources on the Study Area in accordance with the California Environmental Quality Act (CEQA).

1.2 SOURCES

This BRR is based on information compiled through field reconnaissance and appropriate reference materials. A general biological survey, vegetation mapping, tree inventory and investigation of jurisdictional waters was conducted by ESA. No focused surveys for special-status plant or wildlife species were conducted. The information sources used in preparation of this BRR are provided in Section 9.0, *References*.

1.3 SCOPE OF STUDY

The scope of this BRR encompasses methods of study and existing site conditions including vegetation communities and the potential for special-status biological resources, followed by an evaluation of impacts to special-status biological resources pursuant to CEQA thresholds and regulatory requirements. Avoidance, minimization, and/or mitigation measures are proposed to reduce any potentially significant impacts.

2.0 PROJECT DESCRIPTION

The proposed Project is located on an approximately 31-acre site located at 24924 Hawkbryn Avenue, Santa Clarita, County of Los Angeles (project site). The project site is located immediately east of Interstate Highway 5 (I5), north of Calgrove Boulevard, and with access from and west of Wiley Canyon Road, as shown in **Figure 1,** *Regional Map*. The project site consists of two parcels (APNs 2825-012-010 and 2825-012-011) that are currently used for agricultural uses. A 2.5-acre portion of parcel APN 2825-012-011, which contains a 0.51-acre slope easement, lies east of Wiley Canyon Road and will remain in the current undeveloped condition. The project site also includes parcel APN 2825-012-007, which is 0.18 acre and located in the northwest corner of the project site. Specifically, the project site is located on U.S. Geological Survey (USGS) 7.5' Oat Mountain topographic quadrangle map (**Figure 2**, *Vicinity Map*).

The project proposes to develop a mixed-use facility organized into five neighborhoods, with 560 residential units, inclusive of a 150-unit assisted living facility, on 15.8 acres and a commercial office building on 3 acres. The remainder of the project site, about 13 acres, would be retained for open space, recreation, road infrastructure, and drainage purposes. The primary project access would be from Wiley Canyon Road in the northeast portion of the project site. The project site is zoned Mixed Use Neighborhood (MX-N) and with the same land use category. A conditional use permit is anticipated to be needed for the assisted living component of the project.

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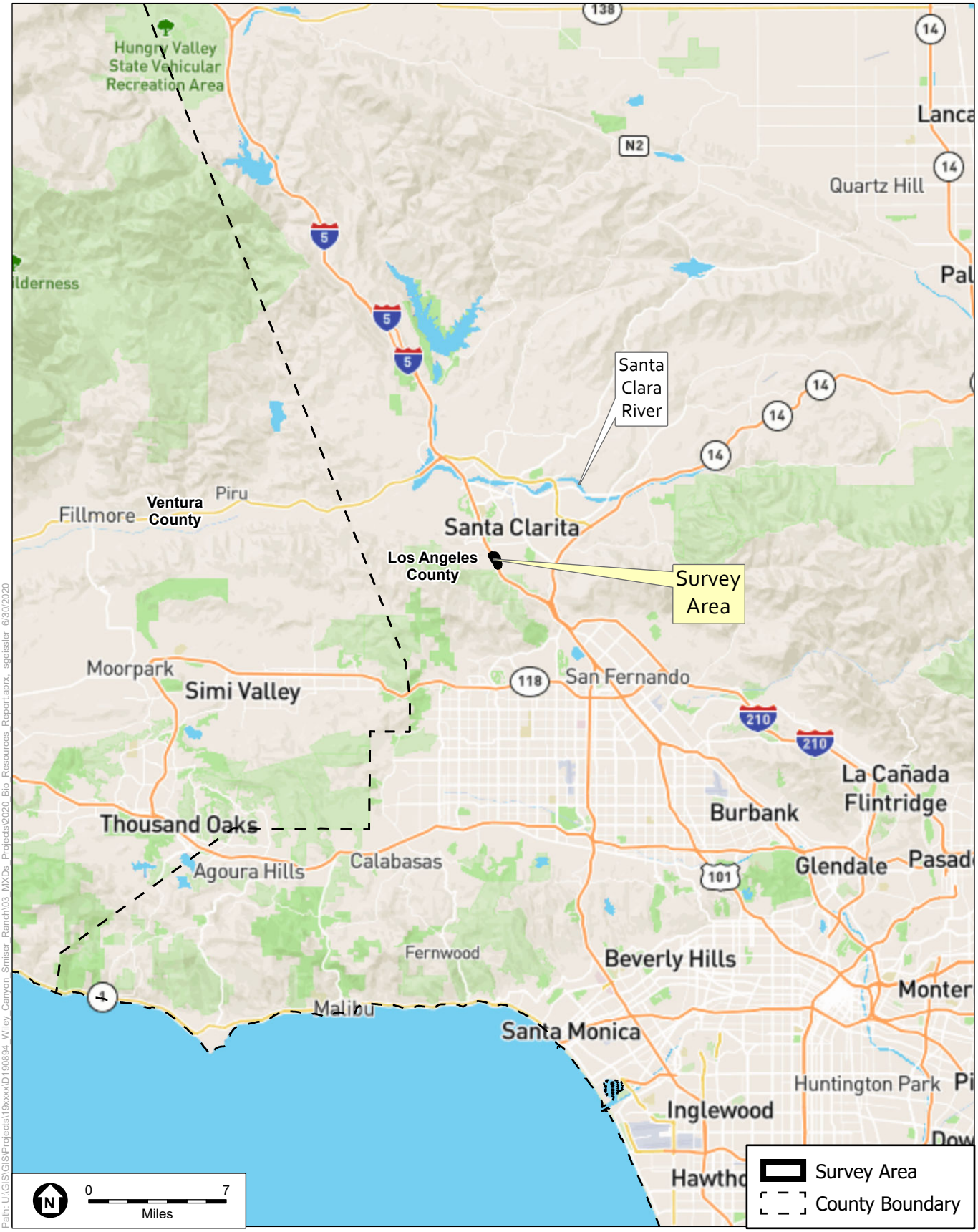
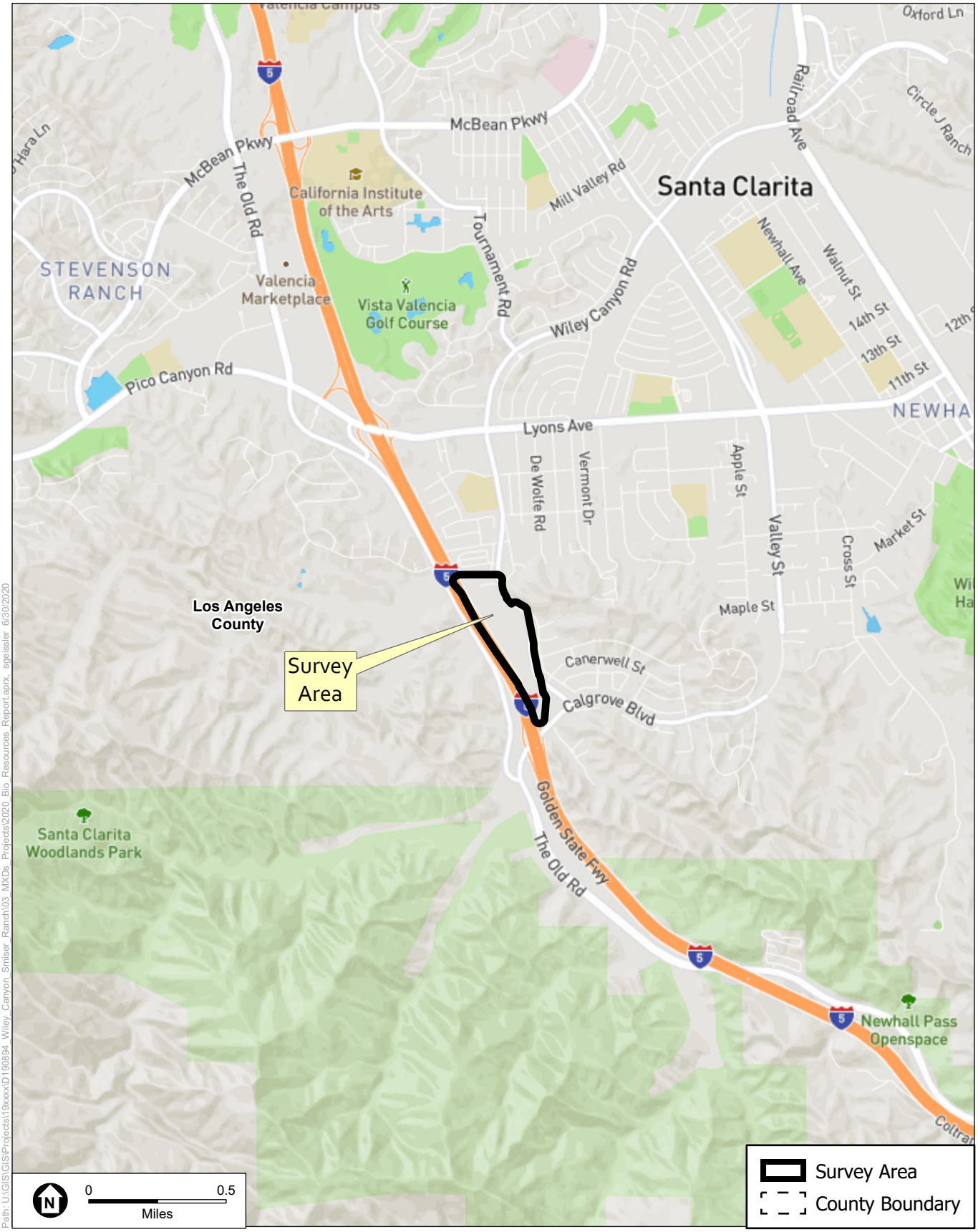


SOURCE: Open Street Map; ESA, 2019.

Wiley Canyon (Smiser Ranch) Mixed Use Project

Figure 1
Regional Map

ESA



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SOURCE: Open Street Map; ESA, 2019.

Wiley Canyon (Smiser Ranch) Mixed Use Project

Figure 2
Vicinity Map

ESA

SOURCE: NearMap; ESA, 2020.

Wiley Canyon (Smiser Ranch) Mixed Use Project

Figure 3
Site Plan

ESA

3.0 METHODS OF STUDY

3.1 APPROACH

This assessment of the biological resources on the Study Area is based on information compiled during field reconnaissance and found in appropriate reference materials. The Study Area included the approximately 31-acre project site and an up to 100-foot buffer around the project site, for a total of 45.3 acres.

3.2 LITERATURE REVIEW

ESA reviewed relevant literature on the biological resources of the Project site and surrounding vicinity. The California Natural Diversity Database (CNDDB), a California Department of Fish and Wildlife (CDFW) species account database, was reviewed for all pertinent information regarding the localities of known observations of special-status species and habitats in the vicinity of the Project site (CDFW 2020). The project site is within the Oat Mountain USGS quadrangle, and the vicinity of the Project site included the following surrounding USGS topographic quadrangles: Val Verde, Newhall, Mint Canyon, Santa Susana, San Fernando, Calabasas, Canoga Park, and Van Nuys. Other data sources reviewed included USFWS critical habitat maps (USFWS 2020) and United States Department of Agriculture Natural Resources Conservation Service (NRCS) soils mapping (NRCS 2020). In addition, the regional flora (Baldwin et al 2012) was utilized to assist in the identification of plant species, *CDFW Natural Communities List* for vegetation classification (CDFW 2020), and relevant local policies and guidelines were reviewed such as the Los Angeles County's Sensitive Bird Species (Los Angeles County Sensitive Bird Species Working Group 2009). Previous biological resource reports were also reviewed. A list of all relevant references reviewed is included in Section 9.0, *References*.

3.3 FIELD INVESTIGATIONS

An investigation of jurisdictional waters, general biological survey, and vegetation mapping was conducted on June 3, 2020 by ESA biologists Douglas Gordon-Blackwood and May Lau. The purpose of the survey was to identify potential jurisdictional features and to document the existing biological conditions relating to plant communities and determine the potential presence of special-status species. An investigation of protected trees on the property was conducted by Douglas Gordon-Blackwood on January 7, 2020.

During the course of the field visit, an inventory of all plant and wildlife species observed was compiled, focusing on dominant plant species for the purposes of vegetation mapping. The observed vegetation communities, special-status species (if present), and potentially jurisdictional drainage features (if present) were mapped on aerial photographs. Survey coverage of the entire Study Area, with special attention to sensitive habitats or those areas potentially supporting special-status flora or fauna, was ensured using aerial photographs. The methodology for these surveys is provided below.

3.3.1 Plant Community Mapping

Plant communities were recorded in Collector for ArcGIS using a sub-meter accuracy Bad Elf GNSS surveyor GPS and a smart phone. Plant community names and descriptions follow *A Manual of California Vegetation; Second Edition* (Sawyer, Keeler-Wolf and Evans 2009). After completing the fieldwork, the plant community polygons were digitized using Geographic Information System (GIS) technology to calculate acreages.

3.3.2 Sensitive Plant Communities

Sensitive natural habitats are listed by CDFW on their *List of California Terrestrial Natural Communities* (CDFW 2020).[1] Communities on this list are given a global (G) and state (S) rarity ranking on a scale of 1 to 5, where communities with a ranking of 5 are the most common and communities with a ranking of 1 are the rarest and of the highest priority to preserve. These high priority communities are denoted on the CDFW list with asterisks. For the purpose of this report, sensitive habitats are those communities that have a state ranking of S3 or rarer. Any sensitive habitats for the study area were identified based on the natural communities mapped for the Study Area (see Section *3.3.1 Plant Community Mapping* above).

3.3.3 General Plant Inventory

All plant species observed during the general surveys were either identified in the field or collected and later identified using taxonomic keys. Plant taxonomy follows Baldwin et al (2012). Common plant names, when not available from Baldwin, were taken from Munz (1974). Common names vary significantly between references, so scientific names are included upon initial mention of each species; common names consistent throughout the report are employed thereafter. All plant species observed are included in the **Appendix A**, *Floral and Faunal Compendia*, attached.

3.3.4 Special-Status Plant Species

The potential for special-status plant species was assessed based upon the known occurrence of species in the area as identified from CDFW, USFWS and CNPS databases (see Section 3.2, *Literature Review*), and the presence or absence of suitable habitat within the Project site based on plant community mapping (see Section 3.3.1, *Plant Community Mapping*). Suitable habitat was defined as areas with appropriate vegetation communities, soils and/or topography (elevation at MSL) to support the species based on known occurrences in those habitats and/or CDFW and CNPS documented habitat descriptions for the species. A table of special-status plant species for which potentially suitable habitat occurs within the Study Area was prepared prior to the field survey, and the potential for occurrence of each species was determined following completion of the vegetation mapping and updated following completion of the focused surveys. The potential for occurrence of each species is summarized in **Appendix B**, *Special-Status Plant Species.*

3.3.5 General Wildlife Inventory

All wildlife species observed within the Study Area, as well as any diagnostic sign (call, tracks, nests, scat, remains, or other sign), were recorded in field notes. Binoculars and regional field guides were utilized for the identification of wildlife, as necessary. Wildlife taxonomy follows Stebbins (2003) and California Herps (2015) for amphibians and reptiles, the American Ornithologists' Union (1998) for birds, and Jameson and Peeters (1988) for mammals. Scientific names are used during the first mention of a species; common names only are used in the remainder of the text. A list of all wildlife species detected is included in **Appendix A**, *Floral and Faunal Compendia,* attached.

3.3.6 Special-Status Wildlife Species

The potential for special-status wildlife species was assessed based upon the known occurrence of species in the area as identified from CDFW and USFWS databases (see Section 3.2, *Literature Review*), and the presence or absence of suitable habitat within the Study Area based on plant community mapping (see Section 3.3.1, *Plant Community Mapping*). Suitable habitat was defined as areas with appropriate vegetation communities and/or topography (elevation at MSL) to support the species based on known occurrences in those habitats and/or CDFW

[1] *Available online at: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=153609&inline*

documented habitat descriptions for the species. A table of special-status wildlife species for which potentially suitable habitat occurs within the Study Area was prepared prior to the field survey, and the potential for occurrence for each species was determined following completion of the vegetation mapping and updated following completion of habitat assessments or focused surveys for specific species. The potential for occurrence for each species is summarized in **Appendix C**, *Special-Status Wildlife Species*.

3.3.7 Regional Connectivity/Wildlife Movement Corridor

An analysis of wildlife movement was undertaken based on information compiled from the literature, analysis of aerial photographs and topographic maps, direct observations made in the field during survey work, and an analysis of existing wildlife movement functions. Relative to corridor issues, the focus of this assessment is to determine if the proposed change at the Study Area will have significant impacts on the regional wildlife movement associated with the Project site and the immediate vicinity. The *South Coast Missing Linkages: A Wildland Network for the South Coast Ecoregion* document was reviewed (South Coast Wildlands 2008) to identify any linkage proposed within the Project site vicinity.

3.3.8 Investigation of Jurisdictional Waters

The Study Area was examined for any features that may potentially be jurisdictional. The potential for USACE jurisdictional "waters of the U.S." was based primarily on the presence or absence of jurisdictional field indicators consistent with the USACE guidelines (USACE 2008) such as the presence of an ordinary high water mark (OHWM) and/or secondary indicators of hydrology, including evidence of the deposition of debris, scour, sediment sorting, and changes in vegetation. The extent of CDFW jurisdiction was assessed based on the limits of the defined bed and bank and includes riparian streambed associated vegetation, where applicable. A separate jurisdictional delineation report has been prepared for the project.

4.0 EXISTING CONDITIONS

4.1 GENERAL PROJECT SITE DESCRIPTION

The Project study area is located within the jurisdictions of the City of Santa Clarita. The Project site is situated on the east side of Interstate 5 freeway, west of Wiley Canyon Road, and north of Calgrove Boulevard. The project site is former agricultural land with large expanses of disturbed land surrounded by fencing, some former equestrian facilities, and various small accessory buildings.

Plant communities typically found within the region include a mosaic of xeric communities such as coastal sage scrub and chaparral throughout lower elevations directly abutted by development and ruderal habitats. The habitats and resources found within the region are known to support a wide variety of common plant and wildlife species, as well as many special-status species protected by federal, state, and/or local regulations.

The topography of the site remains flat throughout the majority of the site at 1300 feet. Elevations on site range from a low of approximately 1282 feet above mean sea level (MSL) within the south fork of the Santa Clara River, to approximately 1400 feet above MSL on the parcel north of Wiley Canyon Road (APN 2825-012-007).

Two soil types were mapped for the Project, Yolo Loam, fan piedmont, 0 to 9 percent slope, MLRA 20 was the dominant soil type throughout the flat portions of the site, and Saugus loam, 30 to 50 percent slopes comprised the slopes on the north side of Wiley Canyon Road (NRCS 2020). Representative figures depicting typical soils on site are provided in **Figure 5**, *Soils*.

The project site lies roughly 0.50 mile to the northeast of the Santa Clarita Woodlands Park and Ed Davis Park at Towsley Canyon, and is approximately 3 miles to the west of the Angeles National Forest. The Study Area is generally surrounded to the north, west and southeast by developed land and the Interstate 5 freeway. Open lands exist to the northeast of Wiley Canyon Road and west of the Interstate 5 Freeway. Representative photographs depicting the natural vegetation and general site topography are provided in **Figures 4a, 4b, and 4c,** *Site Photographs*.

4.2 PLANT COMMUNITIES

Descriptions of each plant community found on the Study Area based on the classification specific to *A Manual of California Vegetation, Edition 2* (Sawyer et al 2009) are provided below. **Table 1**, *Plant Communities*, lists each of the plant communities observed, as well as the acreage within the Project site, and locations of each of the plant communities are shown in **Figure 6**, *Plant Communities*.

PHOTOGRAPH 1: View from northeast corner of property facing south. Photo depicts ruderal vegetation and old ranch facilities.

PHOTOGRAPH 2: View from eastern boundary of Study Area facing west, depicting the channelized south fork of the Santa Clara River in foreground with ruderal vegetation in background.

PHOTOGRAPH 3: View from eastern boundary of Study Area facing southwest, depicting the channelized south fork of the Santa Clara River in foreground with ruderal vegetation in background.

PHOTOGRAPH 4: View from southern end of 3-acre proposed impact area facing northwest. Photo depicts large span of ruderal habitat within the center of the site.

PHOTOGRAPH 5: View of the center of the site, taken from the center of the site facing southwest. Photo depicts ruderal habitat and former agricultural facilities.

PHOTOGRAPH 6: View of the northwest corner of the site, facing west. Photo depicts ruderal and non-native woodland vegetation communities.

D190894.00

SOURCE: ESA, 2020

Wiley Canyon (Smiser Ranch) Mixed Use Project

Figure 4A
Site Photographs

ESA

PHOTOGRAPH 7: View of parcel APN 2825-012-007 in the northeast corner of the site, depicting chamise chaparral.

PHOTOGRAPH 8: View facing north along Wiley Canyon Road and facing downstream along eastern bank of the South Fork of the Santa Clara River. Photo depicts mulefat scrub in foreground and Fremont cottonwood forest in background.

PHOTOGRAPH 9: View facing south along Wiley Canyon Road and facing upstream along eastern bank of the South Fork of the Santa Clara River. Photo depicts mulefat scrub in foreground and Fremont cottonwood forest in background.

PHOTOGRAPH 10: View downstream of South Fork of Santa Clara River, facing north. Photo depicts surrounding mulefat scrub.

PHOTOGRAPH 11: View upstream of South Fork of Santa Clara River, facing south. Photo depicts interface between channelized and natural portion of Santa Clara River. Several southern California black walnuts are visible in the left and right portions of the image.

PHOTOGRAPH 12: View downstream of South Fork of Santa Clara River, facing north.

D190894.00

SOURCE: ESA, 2020

Wiley Canyon (Smiser Ranch) Mixed Use Project

Figure 4B
Site Photographs

ESA

PHOTOGRAPH 13: View of southern portion of Study Area, facing south. Photo depicts coast live oak – arroyo willow – tree tobacco shrubland in background, California buckwheat scrub in foreground.

PHOTOGRAPH 14: View facing east towards eastern boundary of Study Area depicting interface of California sycamore woodland and ruderal vegetation communities.

PHOTOGRAPH 15: View of southern California black walnut growing along the South Fork of the Santa Clara River, facing west.

PHOTOGRAPH 16: View of coast live oak #452 facing north. This oak is likely to be removed as a result of the project.

PHOTOGRAPH 17: View of big sagebrush within southern portion of Study Area, facing south.

PHOTOGRAPH 18: View of water retention basin surrounded by non-native woodland, facing northeast.

D190894.00

SOURCE: ESA, 2020

Wiley Canyon (Smiser Ranch) Mixed Use Project

Figure 4C
Site Photographs

ESA

TABLE 1
PLANT COMMUNITIES

Alliance Scientific Name	Common Name	CA Rarity / Global Rarity	Acreage
Quercus agrifolia / Coastal Sage Scrub	Coast live oak / Coastal sage scrub	N/A[a]	0.13
Populus fremontii / Baccharis salicifolia Forest Alliance	Fremont cottonwood / Mule fat Forest	S3.2/G4	0.48
Populus fremontii Forest Alliance	Fremont cottonwood forest	S3.2/G4	1.31
Adenostoma fasciculatum Shrubland Alliance	Chamise chaparral	S5/G5	0.10
Baccharis salicifolia Shrubland Alliance	Mulefat thickets	S4/G5	0.70
Salix lasiolepis Shrubland Alliance	Arroyo willow thickets	S4/G4	0.29
Artemisia tridentata Shrubland Alliance	Big Sagebrush	S5/G5	1.57
Eriogonum fasciculatum Shrubland Alliance	California buckwheat scrub	S5/G5	0.48
Quercus agrifolia – Salix lasiolepis – Nicotiana glauca Woodland Alliance	Coast live oak – arroyo willow – tree tobacco woodland	N/A[a]	0.41
Platanus racemosa Woodland Alliance	California sycamore woodlands	S3/G3	0.12
Non-native Woodland	Non-native Woodland	N/A	0.83
Ruderal	Ruderal	N/A	22.65
Developed	Developed	N/A	16.20
TOTAL			45.27

NOTES:
[a] State/Global community ranks not described within *A Manual of California Vegetation*
SOURCE: ESA 2019

4.2.1 Coast Live Oak / Coastal Sage Scrub (*Quercus agrifolia* / Coastal Sage Scrub)

Coast live oak / coastal sage scrub has an overstory of coast live oak (*Quercus agrifolia*) as the dominant species and an understory of coastal sage species including California sagebrush (*Artemisia californica*) and California buckwheat (*Eriogonum fasciculatum*). This community typically occurs in a variety of habitats including upland savannahs and woodlands, to riparian forests and canyon lands. Within the Study Area, this community comprises a small portion of the southern boundary. The Coast live oak / coastal sage scrub occupies approximately 0.13 acres of the Study Area.

4.2.2 Fremont Cottonwood / Mulefat Forest (*Populus fremontii / Baccharis salicifolia* Forest Alliance)

Fremont cottonwood / mulefat forest has Fremont cottonwood (*Populus fremontii* ssp. *fremontii*) as the dominant species, with mulefat (*Baccharis salicifolia* ssp. *salicifolia*) as the dominant scrub layer species. This community typically occurs along perennial and intermittent streams, within floodplains, springs and canyons. Within the Study Area, this community occurs to the east of Interstate 5 Freeway where the Southern Fork of the Santa Clara River conveys flows beneath the freeway. The Fremont cottonwood / mulefat forest occupies approximately 0.48 acre.

4.2.3 Fremont Cottonwood Forest (*Populus fremontii* Forest Alliance)

Fremont cottonwood forest has Fremont cottonwood as the dominant species, with a sparse understory. This community typically occurs along perennial and intermittent streams, within floodplains, springs and canyons. Within the Study Area, this community occurs along a portion of the south fork of the Santa Clara River. The Fremont cottonwood forest occupies 1.31 acres.

4.2.4 Chamise Chaparral (*Adenostoma fasciculatum* Shrubland Alliance)

Chamise chaparral has chamise (*Adenostoma fasciculatum*) as the dominant species in the shrub layer, with California buckwheat, Whipple's yucca (*Hesperoyucca whipplei*) and nonnative grasses as common understory plants and typically occurs on dry, shallow colluvial soils on sun exposed slopes at low to moderate elevations. Within the Study Area, this community occupies the upslope area northeast of Wiley Canyon Road, outside of the development area. The chamise chaparral occupies approximately 0.10 acres.

4.2.5 Mulefat Thickets (*Baccharis salicifolia* Shrubland Alliance)

Mulefat thickets has mulefat as the dominant species in the shrub canopy. This scrub typically occurs in canyon bottoms, floodplains, lake margins, and streambeds at low to moderate elevations. Within the Study Area, this community occupies a portion of the South Fork of the Santa Clara River. Mulefat thickets occupies approximately 0.70 acres.

4.2.6 Arroyo Willow Thickets (*Salix lasiolepis* Shrubland Alliance)

Arroyo willow thickets has arroyo willow (*Salix lasiolepis*) as the dominant species in the tree or scrub layer, with subdominant species including mulefat, California sagebrush and Fremont cottonwood. This scrub typically grows on seasonally or intermittently flooded sites. Within the Study Area, this community occupies a portion of the South Fork of the Santa Clara River. Arroyo willow thickets occupies approximately 0.29 acre.

4.2.7 Big Sagebrush (*Artemisia tridentata* Shrubland Alliance)

Big sagebrush has common sagebrush (*Artemisia tridentata*) as the dominant species in the scrub layer, lacking other dominant species This scrub typically grows on plains, alluvial fans, valley bottoms, and dry washes. Within the Study Area, this community occupies a portion of the site east of the southern portion of the South Fork of the Santa Clara River. Big sagebrush occupies approximately 1.57 acres.

4.2.8 California Buckwheat Scrub (*Eriogonum fasciculatum* Shrubland Alliance)

California buckwheat scrub has California buckwheat as the dominant species, with California sagebrush, and deer weed (*Acmispon glaber*) as sub dominants. Within the Study Area, this community occupies small areas on the east-facing slopes along the boundary with Interstate 5 Freeway. The California buckwheat scrub occupies approximately 0.48 acre.

4.2.9 Coast live oak – arroyo willow – tree tobacco woodland (*Quercus agrifolia – Salix lasiolepis – Nicotiana glauca* Woodland Alliance)

Coast live oak – arroyo willow – tree tobacco woodland has coast live oak as the dominant species in the tree layer, with arroyo willow, and tree tobacco (*Nicotiana glauca*) as dominants in the shrub layer. Within the Study Area, this community occupies a small patch at the very southern boundary of the site. The coast live oak – arroyo willow – tree tobacco woodland occupies approximately 0.41 acre.

4.2.10 California sycamore woodlands (*Platanus racemosa Woodland Alliance*)

California sycamore woodlands has California sycamore (*Platanus racemosa*) as the dominant species in the tree layer, with mulefat and tree tobacco in small quantities in the shrub layer. Within the Study Area, this community occupies a small patch along the South Fork of the Santa Clara River. The California sycamore woodland occupies approximately 0.12 acre.

4.2.11 Non-native Woodland

This community is dominated by primarily non-native, landscape trees and occurs on various slopes and aspects. On the Study Area, the community is consisted of deodar cedar (*Cedrus deodara*) and Canary Island pine (*Pinus canariensis*) that were planted around a retention pond and in the vicinity of former residences on the property. Non-native woodland occupied approximately 0.83 acres.

4.2.12 Ruderal

The species assemblage and community characteristics of the ruderal habitat was largely disturbed by agricultural activity and the understory was primarily dominated by non-native forbs such as tocalote (*Centaurea melitensis*), and shortpod mustard (*Hirschfeldia incana*) and non-native grasses as a result of the previous intensive agricultural uses. Ruderal habitat comprises the majority of the proposed impact area on site. This community comprised 22.65 acres.

4.2.13 Developed

The developed areas on the Study Area included the paved right-of-way for the Interstate 5 Freeway, Wiley Canyon Road, and Calgrove Boulevard. It also included facilities and residences on site, as well as residential developments directly to the east, and north. Developed land use comprised approximately 16 acres.

4.3 GENERAL PLANT INVENTORY

The plant communities discussed above are composed of a variety of plant species, both native and non-native. Observations regarding the plant species present were made during the field visit to the Project site, and a list of all plant species identified is provided in **Appendix C**. Special-status plant species occurring or potentially occurring within the Study Area are discussed below in Section 4.7.3, *Special-Status Plant Species*.

4.4 GENERAL WILDLIFE INVENTORY

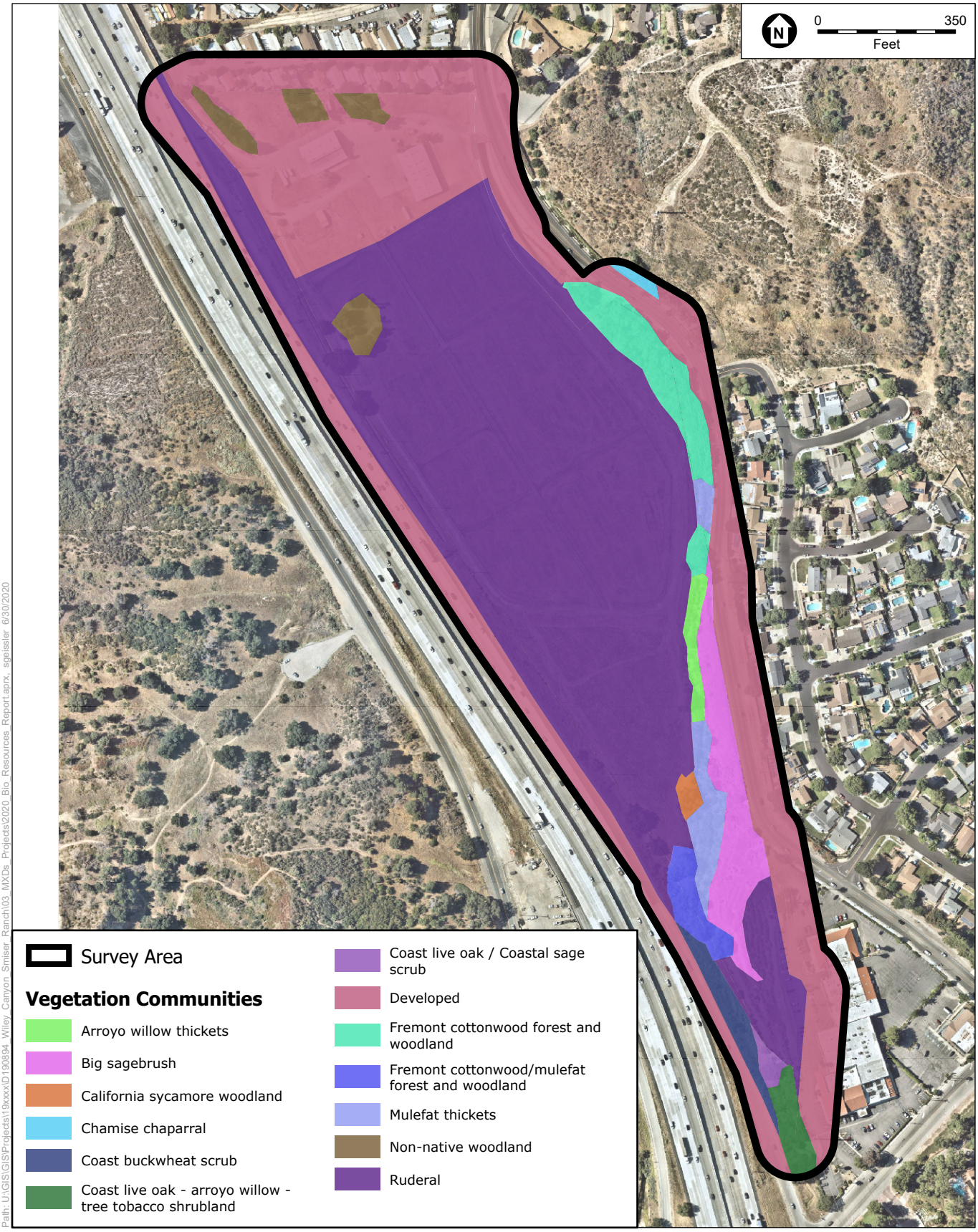
The plant communities discussed above provide habitat for various common wildlife species. Observations regarding the wildlife species present were made during the field visit to the Project site, and a list of all species observed is provided in **Appendix C**. Non-native habitats, such as the ruderal community, in addition to the native habitats, can provide habitat for these species. Special-status wildlife species occurring or potentially occurring are discussed below in Section 4.7.4, *Special-Status Wildlife Species*.

SOURCE: NRCS, 2020; ESA, 2020.

Wiley Canyon (Smiser Ranch) Mixed Use Project

Figure 5
Soils Map

ESA



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SOURCE: NearMap; ESA, 2020.

Wiley Canyon (Smiser Ranch) Mixed Use Project

Figure 6
Plant Communities

ESA

4.5 WILDLIFE MOVEMENT CORRIDORS

The fragmentation of open space areas by urbanization creates isolated "islands" of wildlife habitat. Wildlife corridors link together areas of suitable habitat that are otherwise separated by rugged terrain, changes in vegetation, or human disturbance. The project site does not represent significant corridors for wildlife movement to and from adjacent sites. The South fork of the Santa Clara River is a regional wildlife movement corridor. Although a portion of the South Fork of the Santa Clara River that lies to the north of the Project site is primarily channelized, the majority of the Santa Clara River on site is natural and persists as a wildlife refuge as numerous species can access this area for shelter, water, and food sources. This area will persist, and will not be impacted as a result of Project implementation. The majority of wildlife movement likely occurs to the southeast of the Study Area, in the open spaces east of the Interstate 5 Freeway (Ed Davis Park, Towsley Canyon, Santa Clarita Woodlands Park, Lyons Ranch). No impacts are expected to occur within this natural portion of the Santa Clara River.

The Project site is not within any linkages identified by the South Coast Missing Linkages report; the nearest linkage design identified is for the Santa Monica-Sierra Madre Connection located approximately 1.4 miles southeast of the Project Site (South Coast Wildlands 2008). The Interstate 5 Freeway and surrounding development act as the primary barrier to wildlife movement in the area. Since the Project site is not identified as a linkage by the South Coast Wildlands, and it does not support habitat that connects two or more habitat patches that would otherwise be fragmented or isolated from one another, the Project site is not considered a wildlife corridor.

4.6 JURISDICTIONAL WATERS AND WETLANDS

A formal jurisdictional determination was conducted and the Study Area was evaluated for any potential jurisdictional features that may be present. The findings are presented within the Wiley Canyon (Smiser Ranch) Aquatic Resources Delineation Report, presented within **Appendix D**. In summary, the two aquatic features mapped from the field delineation are considered to be waters of the U.S., waters of the State, and features subject to FGC Section 1600 et seq. A discussion of both follows below.

4.6.1 South Fork Santa Clara River (IS-1)

The South Fork Santa Clara River is an intermittent stream originating in the Santa Susana Mountains, just east of East Canyon. It generally parallels the Interstate 5 Freeway until it reaches the survey area. This stream is heavily modified and channelized (i.e., concrete-lined) as it flows through urbanized areas. Riparian or alluvial scrub vegetation is generally present in the earthen segments of the stream. Within the survey area, the stream segment (IS-1) is dominated by Fremont cottonwood forest/woodland and flows northeasterly across the site.

4.6.2 Unnamed Intermittent Stream (IS-2)

IS-2 is an intermittent stream originating in La Salle Canyon, south of the survey area and east of the Interstate 5 Freeway. IS-2 flows in a northerly direction down the canyon, and then enters a detention basin prior to an underground culvert that is connected to the southern portion of the survey area. Within the survey area, IS-2 is dominated by coast live oak and ruderal habitats.

4.7 SPECIAL-STATUS BIOLOGICAL RESOURCES

The following discussion describes the plant and wildlife species present, or potentially present, within the Study Area that have been afforded special recognition by Federal, State, or local resource conservation agencies and organizations. These species have declining or limited population sizes, usually resulting from habitat loss. Also

discussed are habitats that are unique, of relatively limited distribution, or of particular value to wildlife. Protected special-status species are classified by either Federal or State resource management agencies, or both, as threatened or endangered, under provisions of the Federal and State Endangered Species Acts (FESA and CESA, respectively).

4.7.1 Special-Status Resource Classification

Federal Protection and Classifications

The FESA of 1973 defines an endangered species as "any species which is in danger of extinction throughout all or a significant portion of its range." A threatened species is defined as "any species which is likely to become an Endangered species within the foreseeable future throughout all or a significant portion of its range." Under provisions of Section 9(a)(1)(B) of the FESA, unless properly permitted, it is unlawful to "take" any listed species. "Take" is defined in Section 3(18) of FESA: "...harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Further, the USFWS, through regulation, has interpreted the terms "harm" and "harass" to include certain types of habitat modification as forms of "take." These interpretations, however, are generally considered and applied on a case-by-case basis and often vary from species to species.

All references to Federally-protected species in this report include the most current published status or candidate category to which each species has been assigned by USFWS.

For purposes of this assessment the following acronyms are used for Federal status species, as applicable:

FE	Federally-listed as Endangered
FT	Federally-listed as Threatened
FPE	Federally proposed for listing as Endangered
FPT	Federally proposed for listing as Threatened
FPD	Federally proposed for delisting
FC	Federal candidate species

The Migratory Bird Treaty Act (MBTA) protects individuals as well as any part, nest, or eggs of any bird listed as migratory. In practice, Federal permits issued for activities that potentially impact migratory birds typically have conditions that require pre-disturbance surveys for nesting birds. In the event nesting is observed, a buffer area with a specified radius must be established, within which no disturbance or intrusion is allowed until the young have fledged and left the nest, or it has been determined that the nest has failed. If not otherwise specified in the permit, the size of the buffer area varies with species and local circumstances (e.g., presence of busy roads, intervening topography, etc.), and is based on the professional judgment of a monitoring biologist.

State of California Protection and Classifications

California's Endangered Species Act (CESA) defines an endangered species as:

> "…a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant which is in serious danger of becoming extinct throughout all, or a significant portion, of its range due to one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, or disease."

The State defines a threatened species as:

> "a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that, although not presently threatened with extinction, is likely to become an endangered species in the foreseeable future in the absence of the special protection and management efforts required by this chapter. Any animal determined by the commission as rare on or before January 1, 1985 is a threatened species."

Candidate species are defined as:

> "…a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that the commission has formally noticed as being under review by the department for addition to either the list of endangered species or the list of threatened species, or a species for which the commission has published a notice of proposed regulation to add the species to either list."

Candidate species may be afforded temporary protection as though they were already listed as threatened or endangered at the discretion of the Fish and Game Commission. Unlike the FESA, CESA does not include listing provisions for invertebrate species.

Article 3, Sections 2080 through 2085, of the CESA addresses the taking of threatened or endangered species by stating:

> "no person shall import into this State, export out of this State, or take, possess, purchase, or sell within this State, any species, or any part or product thereof, that the commission determines to be an endangered species or a threatened species, or attempt any of those acts, except as otherwise provided."

Under the CESA, "take" is defined as, "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill."

Additionally, some special-status mammals and birds are protected by the State as Fully Protected Mammals or Fully Protected Birds, as described in the California Fish and Game Code, Sections 4700 and 3511, respectively.

California Species of Special Concern are species designated as vulnerable to extinction due to declining population levels, limited ranges, and/or continuing threats. Informally listed species are not protected per se, but warrant consideration in the preparation of biological assessments. For some species, the CNDDB is only concerned with specific portions of the life history, such as roosts, rookeries, or nest areas.

For the purposes of this assessment, the following acronyms are used for State status species, as applicable:

SE	State-listed as Endangered
ST	State-listed as Threatened
SR	State-listed as Rare
SCE	State candidate for listing as Endangered
SCT	State candidate for listing as Threatened
SFP	State Fully Protected
SSC	Species of Special Concern

California Native Plant Society

The CNPS is a private plant conservation organization dedicated to the monitoring and protection of special-status species in California. CNPS has compiled an inventory comprised of the information focusing on geographic distribution and qualitative characterization of Rare, Threatened, or Endangered vascular plant species of California (CNPS, 2015). The inventory serves as the candidate list for listing as Threatened and Endangered by CDFW. CNPS has developed six categories of rarity termed the California Rare Plant Ranks (CRPR), and in which species ranked 1A, 1B, 2A, and 2B are considered particularly sensitive:

Rank 1A Plants presumed extirpated in California and either rare or extinct elsewhere.

Rank 1B Plants rare, threatened, or endangered in California and elsewhere.
Rank 2A Plants presumed extirpated in California, but common elsewhere.
Rank 2B Plants rare, threatened, or endangered in California, but more common elsewhere.
Rank 3 Plants about which more information is needed – a review list.
Rank 4 Plants of limited distribution – a watch list.

The CNPS adds "threat ranks" which parallel the ranks used by the CNDDB. These ranks are added as a decimal code after the CRPR (e.g., 1B.1). The threat ranks are as follows:

.1 – Seriously threatened in California (over 80% of occurrences threatened/high degree and immediacy of threat);
.2 – Moderately threatened in California (20-80% occurrences threatened/moderate degree and immediacy of threat);
.3 – Not very threatened in California (<20% of occurrences threatened/low degree and immediacy of threat or no current threats known).

Special-status species that occur or potentially could occur within the Study Area are based on one or more of the following: (1) the direct observation of the species within the Study Area during the field survey; (2) a record reported in the CNDDB; and (3) the Study Area is within known distribution of a species and contains appropriate habitat.

4.7.2 Sensitive Plant Communities

The Study Area supports three sensitive plant communities that are considered high priority by CDFW based on its state ranking of S3 or rarer, namely the Fremont cottonwood / mulefat forest, Fremont cottonwood forest, and the California sycamore woodland. The Fremont cottonwood / mulefat forest totaled 0.48 acres within the southern portion of the Project Area. The Fremont cottonwood forest totaled 1.31 acres within the southern portion of the Project Area. The California sycamore woodland totaled 0.12 acre within the southern portion of the Project Area. No project impacts are proposed for any of the sensitive plant communities within the Project Area.

4.7.3 Special-Status Plant Species

Special-status plants include those listed, or candidates for listing, by the USFWS and CDFW, and species considered special-status by the CNPS (particularly CRPR 1A, 1B, 2A, and 2B). A total of 49 special-status plant species were reported in the vicinity based on CNDDB and CNPS within the 9-quadrangle search area. From this search, one special-status species was identified as having a potential to occur within the Study Area based on the literature review and habitat anticipated within the Study Area; Greata's aster (*Symphyotrichum greatae*). Two additional CNPS insufficiently known or watch list species (CRPR 3 and 4, respectively) were identified as having potential to occur within the Study Area. These species include ocellated Humboldt lily (*Lilium humboldtii* ssp. *ocellatum*) and paniculate tarplant (*Deinandra paniculata*). These species were not observed during field surveys, and were considered absent from the project area. Surveys were conducted during suitable bloom period for all 4 species, and due to the disturbed nature of the site, were determined to be absent from the Study Area. One CRPR 4 species was observed along the Santa Clara River, southern California black walnut (*Juglans californica*) but the plants occur outside of the proposed impact area, and will not be affected by the proposed activities.

While focused special-status plant surveys were not conducted, all plants encountered during the general biological survey were identified and are listed in **Appendix A**, *Floral and Faunal Compendia* Of the potential special-status plant species, all bloom or were morphologically identifiable at the time when the survey was conducted.

4.7.4 Special-Status Wildlife Species

Special-status wildlife species include those listed as Endangered or Threatened under the FESA or CESA, candidates for listing by the USFWS or CDFW, and species of special concern to the CDFW or USFS. In addition, the Los Angeles Chapter of the Audubon Society has published a list of special-status bird species occurring in Los Angeles County (Los Angeles County Sensitive Bird Species Working Group, 2009). A total of 52 special-status wildlife species were reported in the vicinity based on CNDDB within the 9-quadrangle search area. From this search, a total of ten species were identified as having some potential to occur within the Study Area or use the Study Area based on the literature review and habitat anticipated within the Study Area.

Of the 52 species, three (3) species were considered to have a moderate potential to occur on the Study Area, including Crotch bumble bee (*Bombus crotchii*), Cooper's hawk (*Accipiter cooperii*), and least Bell's vireo (*Vireo bellii pusillus*). Of the 52 species, marginally suitable habitat exists on site for seven (7) species including California legless lizard (*Anniella* spp.), coastal whiptail (*Aspidoscelis tigris stejnegeri*), arroyo toad (*Anaxyrus californicus*), golden eagle (*Aquila chrysaetos*), Swainson's hawk (*Buteo swainsoni*), southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*), and overwintering California populations of monarch (*Danaus plexippus* pop. 1)

Three watch list species from the Los Angeles County Sensitive Bird Species list were observed within the Study Area; California towhee (*Melozone crissalis*), oak titmouse (*Baeolophus inornatus*) and turkey vulture (*Cathartes aura*). These species were observed foraging within the general area but were not observed nesting in the area and the survey took place during nesting season. A list of special-status wildlife species that have some potential to occur on the Study Area is provided in **Appendix C,** *Special-Status Wildlife Species.*

Migratory Bird and Raptor Species: The Study Area supports potential nesting and foraging habitat for migratory birds (including shrubs and trees), and also potential foraging habitat for birds including. Several species of birds were observed on-site (see Appendix A) and California towhee, oak titmouse and turkey vulture were identified as potentially occurring within the 9-quadrangle search area (described above).

4.8 Protected Tree Resources

The City of Santa Clarita Municipal Code 17.51.040 – Oak Tree Preservation protects all native oak trees, including but not limited to, canyon oak (*Quercus chrysolepis*), coast live oak, interior live oak (*Quercus wislizenii*), valley oak (*Quercus lobata*), and scrub oak (*Quercus dumosa*[2]) in recognition of their historical, aesthetic, and environmental value. Trees protected by the ordinance must have a trunk with a circumference measuring 6 inches (approximately 1.9" diameter) or larger; measured four and one half feet above natural grade. Heritage oak trees measuring one hundred eight (108) inches or more in circumference (approximately 34.3-inch diameter) or in the case of a multiple trunk tree, two (2) or more trunks measuring seventy-two (72) inches each or greater in circumference (approximately 22.9-inch diameter). In addition, the Planning Commission and/or City Council may classify any oak tree as a heritage tree regardless of size, if a majority vote determines a tree has exceptional historic, aesthetic, and/or environmental qualities of major significance or prominence to the community. Ten (10) coast live oaks were observed within the project area. One (1) coast live oak is anticipated to be removed as a result of the project, and four (4) coast live oaks are anticipated to be encroached upon as a result of the project. A full report about the protected tree resources within the Project Area can be found within **Appendix E – Wiley Canyon (Smiser Ranch) Development Oak Tree Report**, attached.

[2] Considered *Q. dumosa* at time of ordinance publication, the species was split into multiple indistinct species. *Quercus berberidifolia*, which was formerly classified as *Q. dumosa* is more likely to occur near the City of Santa Clarita. In addition, *Q. john-tuckeri*, Tucker's oak, has been recorded within the City of Santa Clarita.

5.0 APPROACH TO THE ANALYSIS

5.1 REGULATORY SETTING

Special-status species are provided protection by either Federal or State resource management agencies, or both, under provisions of the FESA and CESA. In addition, the environmental review process required under CEQA for discretionary action mandates Lead Agencies to evaluate the potential for significant impact to special-status biological resources and provide mitigation to reduce such impacts. The following provides a discussion of Federal Regulations, State of California Regulations, and CNPS.

There are a number of performance criteria and standard conditions that must be met as part of any review and approval of the proposed project. These include compliance with all of the terms, provisions, and requirements with applicable laws that relate to Federal, State, and local regulating agencies related to potential impacts to special-status plant and wildlife species, wetlands, riparian habitats, and blue line stream courses.

5.1.1 Federal Regulations

As previously discussed in Section 4.8.1, Sensitive Resource Classification, under provisions of Section 9(a)(1)(B) of the FESA, unless properly permitted, it is unlawful to "take" any listed species. In a case where a property owner seeks permission from a federal agency for an action which could affect a federally-listed plant and animal species, the property owner and agency are required to consult with USFWS to obtain appropriate permits. Section 9(a)(2)(b) of the FESA addresses the protections afforded to listed plants.

5.1.2 State of California Regulations

As previously discussed in Section 4.8.1, Sensitive Resource Classification, Article 3, Sections 2080 through 2085, of the CESA addresses the taking of threatened or endangered species. Exceptions authorized by the State to allow "take" require permits or memoranda of understanding and can be authorized for "endangered species, threatened species, or candidate species for scientific, educational, or management purposes." Sections 1901 and 1913 of the California Fish and Game Code provide that notification is required by an initiator prior to disturbance.

5.1.3 California Native Plant Society

As previously discussed in Section 4.8.1, Sensitive Resource Classification, the CNPS has compiled an inventory comprised of the information focusing on geographic distribution and qualitative characterization of rare, threatened, or endangered vascular plant species of California which classifies plant species into categories of rarity. Informally listed species are not protected per se, but warrant consideration in the preparation of biological assessments. However, CNPS has no formal regulatory authority.

6.0 THRESHOLDS OF SIGNIFICANCE

The environmental impacts relative to biological resources are assessed using impact significance threshold criteria which mirror the policy statement contained in the CEQA, Section 21001(c) of the California Public Resources Code. Accordingly, the State Legislature has established it to be the policy of the State to:

> *"Prevent the elimination of fish or wildlife species due to man's activities, ensure that fish and wildlife populations do not drop below self-perpetuating levels, and preserve for future generations representations of all plant and animal communities..."*

Determining whether a project may have a significant effect, or impact, plays a critical role in the CEQA process. According to State CEQA Guidelines, Section 15064.7, Thresholds of Significance, each public agency is encouraged to develop and adopt (by ordinance, resolution, rule, or regulation) thresholds of significance that the agency uses in the determination of the significance of environmental effects. A threshold of significance is an identifiable quantitative, qualitative or performance level of a particular environmental effect, non-compliance with which means the effect will normally be determined to be significant by the agency and compliance with which means the effect normally will be determined to be less than significant. In the development of thresholds of significance for impacts to biological resources State CEQA Guidelines provides guidance primarily in Section 15065, Mandatory Findings of Significance, and the State CEQA Guidelines, Appendix G, *Environmental Checklist Form*. Section 15065(a) states that a project may have a significant effect where:

> *"The project has the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or wildlife community, reduce the number or restrict the range of an endangered, rare, or threatened species..."*

Appendix G of the State CEQA Guidelines is more specific in addressing biological resources and encompasses a broader range of resources to be considered, including: candidate, sensitive, or special-status species; riparian habitat or other special-status natural communities; Federally protected wetlands; fish and wildlife movement corridors; local policies or ordinances protecting biological resources; and, adopted HCPs. This is done in the form of a checklist of questions to be answered during the Initial Study leading to the preparation of the appropriate environmental documentation for a project [i.e., Negative Declaration, Mitigated Negative Declaration, or Environmental Impacts Report (EIR)]. Because these questions are derived from standards in other laws, regulations, and other commonly used thresholds, it is reasonable to use these standards as a basis for defining significance thresholds in an EIR. Therefore, for the purpose of this analysis, impacts to biological resources are considered potentially significant (before considering offsetting mitigation measures) if one or more of the following conditions would result from implementation of the proposed project.

Threshold BIO-A Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

Threshold BIO-B Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U. S. Fish and Wildlife Service?

Threshold BIO-C Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

Threshold BIO-D Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery areas?

Threshold BIO-E Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

Threshold BIO-F Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

For the purposes of this impact analysis the following definitions apply:

- "Substantial adverse effect" means loss or harm of a magnitude which, based on current scientific data and knowledge would: (1) substantially reduce population numbers of a listed, candidate, sensitive, rare, or otherwise special status species; (2) substantially reduce the distribution of a sensitive natural community/habitat type; or (3) eliminate or substantially impair the functions and values of a biological resource (e.g., streams, wetlands, or woodlands) in a geographical area defined by interrelated biological components and systems. In the case of this analysis the prescribed geographical area is considered to be the region that includes the USGS topographic quadrangles for the Study Area, namely Triunfo Pass. For some species, the geographic area may extend to the vicinity of the Project site based on known distributions of the species. The vicinity of the Study Area is considered to comprise the following USGS topographic quadrangles: Triunfo Pass, Point Dume, Point Mugu, Thousand Oaks, Newbury Park, and Camarillo.

- "Conflict" means contradiction of a magnitude, which based on foreseeable circumstances, would preclude or prevent substantial compliance.

- "Rare" means: (1) that the species exists in such small numbers throughout all, or a significant portion of, its range that it may become endangered if its environment worsens; or (2) the species is likely to become endangered within the foreseeable future throughout all or a significant portion of its range and may be considered "threatened" as that term is used in the FESA.

7.0 PROJECT RELATED IMPACTS

7.1 APPROACH TO THE ANALYSIS

The following discussion examines the potential impacts to plant and wildlife resources that may occur as a result of implementation of the Project or occurred subsequent to the development of the four Project Sites. For the purpose of this assessment, project-related impacts take two forms, direct and indirect. Direct impacts are considered to be those that involve the loss, modification or disturbance of natural habitats (i.e., vegetation or plant communities), which in turn, directly affect plant and wildlife species dependent on that habitat. Direct impacts also include the destruction of individual plants or wildlife, which is typically the case in species of low mobility (i.e., plants, amphibians, reptiles, and small mammals). The collective loss of individuals in these manners may also directly affect regional population numbers of a species or result in the physical isolation of populations thereby reducing genetic diversity and, hence, population stability.

Indirect impacts are considered to be those that involve the effects of increases in ambient levels of sensory stimuli (e.g., noise, light), unnatural predators (e.g., domestic cats and other non-native animals), and competitors (e.g., exotic plants, non-native animals). Indirect impacts may be associated with the construction and/or operation of a project; therefore, these impacts may be both short-term and long-term in their duration. These impacts are commonly referred to as "edge effects" and may result in changes in the behavioral patterns of wildlife and reduced wildlife diversity and abundance in habitats adjacent to the Study Area.

The determination of impacts in this analysis is based on both the proposed Project development plan and the biological values of the habitat and/or sensitivity of plant and wildlife species to be affected. Any recommended mitigation measures are discussed in Section 8.0 below.

The biological values of resources within, adjacent to, and outside the area to be affected by the proposed Project sites were determined by consideration of several factors, as applicable. These included the overall size of habitats to be affected, the Study Area's previous land uses and disturbance history, the Study Area's surrounding environment and regional context, the on-site biological diversity and abundance, the potential presence of sensitive and special-status plant and wildlife species, the Study Area's importance to regional populations of these species, and the degree to which on-site habitats are limited or restricted in distribution on a regional basis and, therefore, are considered sensitive in themselves. Whereas this assessment is comprehensive, the focus is on sensitive plant communities/habitats, resources that play an important role in the regional biological systems, and special-status species.

7.2 IMPACT ANALYSIS

Direct impacts typically represent the physical alteration (i.e., habitat degradation or loss) of biological conditions that are expected to occur within a site as a result of the project's implementation. Indirect impacts are those reasonably foreseeable effects on remaining or adjacent biological resources that are expected to be caused by the project subsequent to its implementation. Impacts can also be short- or long-term, depending on the duration of the effect on a given biological resource. Short-term impacts are temporary, arising from direct impacts to biological resources during a project's implementation, but not after completion. Long-term impacts result in the permanent modification of a biological resource caused by the project's implementation.

The physical alteration of habitat is not, in itself, a significant impact under CEQA. Significance is determined by comparing physical alteration of habitat to each of the significance threshold criteria defined above. For example, should the alteration of habitat result in the direct or indirect loss or have an otherwise substantial adverse effect on

a species identified as a "candidate, sensitive, or special-status species in local or regional plans, policies, or regulations or by the CDFG or USFWS," impacts would be considered significant unless a project implements mitigation that would reduce the impact to a less than significant level.

An evaluation of whether an impact on biological resources would be substantial and, therefore, a significant impact must consider both the resource and the CEQA threshold of significance criteria. For example, because of the dependence of most plant and wildlife species on native habitats to satisfy various life cycle requirements, a habitat-based approach that addresses the overall biological value of a particular plant community or habitat area is appropriate when determining whether alteration of that habitat will substantially affect special-status species, sensitive habitats, wetlands, and movement corridors. The relative biological value of a particular habitat area—its functions and values—can be determined by such factors as disturbance history, biological diversity, its importance to particular plant and wildlife species, its uniqueness or sensitivity status, the surrounding environment, and the presence or absence of special-status resources.

However, direct impacts with respect to specific plant and wildlife resources (e.g., active nests and individual plants and wildlife) are also evaluated and discussed when impacts to these resources, in and of themselves, could be considered significant or in conflict with local, state, and federal statutes or regulations. The significance of impacts with respect to direct impacts to individuals or populations of plant and wildlife species takes into consideration the number of individual plants or animals potentially affected; how common or uncommon the species is, both within a site and from a regional perspective; and the sensitivity status if the species is considered of special status by resource agencies. These factors are evaluated based on the results of on-site biological surveys and studies, results of literature and database reviews, discussions with biological experts, and established and recognized ecological and biodiversity theory and assumptions.

7.2.1 Impacts to Special-Status Species

Threshold BIO-A: Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

Less than Significant (Special-Status Plant Species)

Less than Significant with Recommended Project Design Feature (Special-Status Wildlife Species)

7.2.1.1 Special-Status Plant Species

Development of the Project site would result in the direct removal of common plant species within the ruderal area, which are primarily non-native forb and grass species (**Figure 8**, *Impacts to Plant Communities*). A list of plant species observed within the Study Area is included in Appendix A. Common plant species present within the Study Area occur in large numbers throughout the region and their removal does not meet the significance thresholds defined in Section 6.0, *Thresholds of Significance* above. Therefore, impacts to common plant species would not be considered a significant impact and no mitigation measures are required.

As discussed in Section 4.7.3, *Special-Status Plant Species*, there is only one special-status plant species with a potential to occur on the Study Area, Greata's aster. This species was not observed on the project during seasonally appropriate surveys and is considered absent. One CRPR watch list species was also observed within the study area. For southern California black walnut, this species is restricted to the riparian habitats along the South Fork of the Santa Clara River. No impacts to the South Fork of the Santa Clara River and associated riparian vegetation are proposed as part of the project. Since no special-status plant species were located as a result of the survey, no further action shall be required.

7.2.1.2 Special-Status Wildlife Species

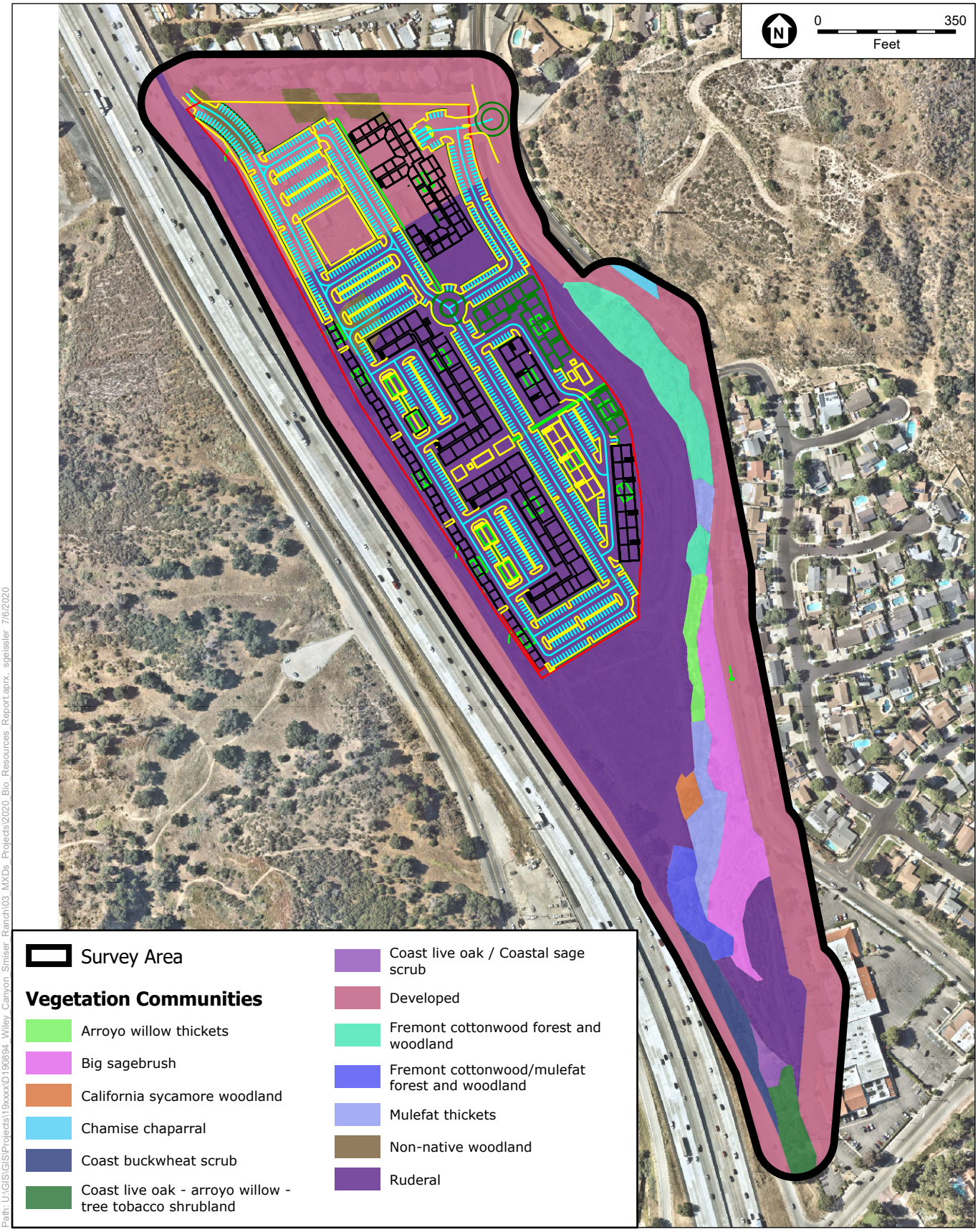
Proposed grading and development of the site will be primarily restricted to ruderal areas within the Survey Area. Because vegetation removal would occur within the ruderal area and the majority of native vegetation in the remainder of the site would remain intact, these impacts would not be expected to reduce the general wildlife populations below self-sustaining levels within the region, and impacts to common wildlife species do not meet the significance thresholds defined in Section 6.0, *Thresholds of Significance* above. The three watch list bird species, California towhee, oak titmouse and turkey vulture, can easily escape harm's way prior to project construction. It is recommended that a biologist should conduct a preconstruction survey to confirm that none of these species are nesting prior to the start of construction. A list of wildlife species observed within the Study Area is included in Appendix A.

A total of 35 special-status wildlife species of the 52 species identified as occurring in the project vicinity in available databases (see Section 4.7.4 above) are not considered to have a potential to occur within the Study Area due to the lack of suitable habitat or because the site is outside the known distribution range for the species. These species are listed in Appendix C. Since these species are not expected to be present within the Study Area, no impacts would occur as a result of development and no mitigation measures are required.

Conducting work outside of the nesting bird season (February through September) will ensure that no impacts to nesting birds occur. If work occurs during the nesting season, a qualified biologist will need to conduct nesting bird surveys prior to any vegetation-disturbing activity. Any nests present will be flagged with the qualified biologist establishing a buffer area. A qualified biologist will monitor the nests on a weekly basis to ensure that construction activities do not disturb or disrupt nesting activities. If the qualified biologist determines that construction activities are disturbing or disrupting nesting activities, the biologist will notify the client who has the authority to stop or modify construction to reduce the noise and/or disturbance to the nests. Responses may include, but are not limited to, increasing the size of the exclusionary buffer, turning off vehicle engines and other equipment whenever possible to reduce noise, installing a protective noise barrier between the nest and the construction activities, and avoiding working in other areas until the young have fledged. If more than 30 days passes between the preconstruction survey and construction start date at that location, the survey will be repeated. Further information about nesting bird surveys are addressed in **7.2.4 - Impacts to Wildlife Movement and Migratory Species**, below.

The remaining seventeen special-status wildlife species were determined to have some potential to occur within the Study Area. Only four of these species are federally- or state-listed as endangered or threatened species; least Bell's vireo, Swainson's hawk, southwestern willow flycatcher, and arroyo toad. Of the seventeen species with the potential to occur, thirteen species were considered to have a low potential to occur. Two species, Cooper's hawk and least Bell's vireo, were determined to have moderate potential to nest or roost on the Study Area. The three observed Los Angeles County Sensitive Bird Species, California towhee, oak titmouse and turkey vulture, are expected to leave the Project construction area with the commencement of the Project work. A preconstruction nesting bird prior to site construction to confirm presence or absence of nesting birds would reduce the significance to less than significant levels. If nesting birds are found to be on site prior to construction, a nesting bird management plan is recommended

Marginally suitable habitat is present in the Study Area for special-status species. Preconstruction surveys are recommended for least Bell's vireo. If preconstruction surveys indicate the presence of LBV, work shall be halted until the qualified biologist contacts USFWS and CDFW to ensure suitable minimization are in place to avoid impacts to these species. The habitat is marginally suitable; least Bell's vireo is anticipated to be absent in the Study Area



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SOURCE: NearMap; ESA, 2020.

Wiley Canyon (Smiser Ranch) Mixed Use Project

Figure 7
Impacts to Plant Communities

ESA

No direct impacts would occur to Cooper's hawks or least Bell's vireo and indirect impacts to foraging habitat would be considered less than significant if no impacts to riparian vegetation occurs. Direct impacts to the remaining potential special-status species are not expected since the majority of native vegetation in the bulk of the Study Area will not be removed, although some indirect disturbance may occur during site clearing and construction. Additionally, higher quality habitat occurs within the open areas to north and northwest of the Study Area within Santa Anita Canyon below. Based on this, any impacts would be considered less than significant with recommended mitigation measures included.

7.2.2 Impacts to Sensitive Plant Communities

Threshold BIO-B: Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U. S. Fish and Wildlife Service?

Less than Significant (Sensitive Natural Community)

The Study Area supports three sensitive plant communities that are considered high priority by CDFW based on their state ranking of S3 or rarer, namely the Fremont cottonwood / mulefat forest, Fremont cottonwood forest, and the California sycamore woodland. These communities are isolated and lie completely outside the proposed impact area, it is unlikely that impacts will occur and should be considered less-than-significant with no mitigation required.

7.2.3 Impacts to Wetlands

Threshold BIO-C: Would the project have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

No Impacts

There are 1.081-acres (3,209 linear feet) of federally and state protected waters (e.g., wetlands or drainages) identified on-site. The two aquatic features mapped from the field delineation are considered to be waters of the U.S., waters of the State, and features subject to FGC Section 1600 et seq. Both features remain outside of the proposed impact area. No impacts will occur as a result of the Project's implementation and no mitigation is required.

7.2.4 Impacts to Wildlife Movement and Migratory Species

Threshold BIO-D: Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery areas?

No Impacts (Wildlife Movement)

Less than Significant Impacts with Project Design Feature (Migratory Species)

7.2.4.1 Wildlife Movement

The Study Area supports potential live-in and movement habitat for species on a local scale (i.e., some limited live-in and at least marginal movement habitat for reptile, bird, and mammal species), but it likely provides little to no function to facilitate wildlife movement for wildlife species on a regional scale, and is not identified as a regionally important dispersal or seasonal migration corridor. Movement on a local scale is restricted within the project area

due to frequent vehicular ingress/egress and human presence, and occurs in more suitable habitats to the north, east and west of each of the Project Site. Although implementation of the Project would, and may have in the recent past, resulted in disturbances to local wildlife movement within the Project site, those species adapted to disturbed areas would be expected to persist on-site following construction. As such, impacts would be less than significant and no mitigation measures would be required. Since the Study Area does not function as a regional wildlife corridor and is not known to support wildlife nursery area(s), no impacts would occur and no mitigation measures would be required.

7.2.4.2 Migratory Species

Migratory Birds: As previously discussed in Section 4.7.4, *Special-Status Wildlife Species*, the site supports potential nesting and foraging habitat for migratory birds. Potential foraging habitat for raptors exists throughout the project site. Potential foraging and nesting habitat for other migratory birds exists within the Study Area, which includes the various vegetation communities discussed in Sections 4.2.1 through 4.2.12. Therefore, impacts to foraging habitat would be considered potentially significant without consideration for compliance with the requirements of MBTA and California Fish and Game Code Section 3503, 3503.5 and 3513. Direct impacts to the migratory and nest bird species would be avoided through compliance with the MBTA and the Fish and Game Code.

The Study Area has the potential to support songbird nests due to the presence of shrubs and trees and potential Project impact will be avoided through implementation of a pre-construction nest survey, as described below. Nesting activity typically occurs from February 1 (January 15 for raptors) to August 31. Disturbing or destroying active nests is a violation of the MBTA (16 U.S.C. 703 et seq.). In addition, nests and eggs are protected under Fish and Game Code Section 3503. The removal of vegetation during the breeding season is considered a potentially significant impact as defined by the thresholds of significance (Threshold BIO-D) in Section 6.0 above. Any potential impacts to raptor and songbird nests would be considered potentially significant. Compliance with the MBTA would reduce impacts to a less than significant level. Compliance may be demonstrated by implementing the following recommend project design feature.

Prior to construction commencement require and the removal of potential habitat for raptor and songbird nests, the project proponent shall demonstrate that either of the following have been or will be accomplished:

1) Vegetation removal activities are scheduled outside the nesting season (September 1 to January 31 for songbirds; September 1 to January 14 for raptors) to the greatest extent feasible, to avoid potential impacts to nesting birds; 2) Construction activities planned during the bird nesting/breeding season, generally January through March for early nesting birds (e.g., Cooper's hawks or hummingbirds) and from mid-March through August for most bird species, shall be preceded by bird nest survey conducted by a qualified biologist; pre-construction nesting bird surveys should be conducted weekly, within 30 days prior to initiation of ground-disturbing activities to determine the presence of active nests. The surveys should continue on a weekly basis with the last survey being conducted no more than three days before the start of clearance/construction work. If ground-disturbing activities are delayed, additional pre-construction surveys are recommended so that no more than three days will have elapsed between the survey and ground-disturbing activities.

If active nests are detected during pre-construction surveys, clearing and construction activities within 50 feet of the nest (100 feet for raptors) will be postponed or halted until the nest is vacated and juveniles have fledged, as determined by the biologist, and there is no evidence of a second attempt at nesting. Limits of construction to avoid an active nest should be established in the field with flagging, fencing, or other appropriate barriers and construction personnel should be instructed on the sensitivity of nest areas. The biologist would serve as a construction monitor during those periods when construction activities will occur near active nest areas to ensure that no inadvertent impacts on these nests will occur. The results of the survey, and any avoidance measures taken, should be submitted to the CDFW within 30 days of completion of the pre-construction surveys and/or construction monitoring to document compliance with applicable state and federal laws pertaining to the protection of native birds.

7.2.5 Consistency with Local Policies and Ordinances

Threshold BIO-E: Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

Less than Significant Impact with Project Design Feature (City of Santa Clarita Oak Tree Preservation Ordinance)

7.2.5.1 City of Santa Clarita Municipal Code 17.51.040 – Oak Tree Preservation

As previously discussed above in Section 4.8 – Protected Tree Resources, The City of Santa Clarita Oak Tree Preservation Ordinance prohibits the removal of or damage to any oaks that meets the specified DBH requirement without the approval of a tree permit. The Study Area supports 10 coast live oak that are primarily located outside of the proposed impacts of the Study Area. As currently designed, one coast live oak tree is proposed for removal. In addition, installation of the proposed parking, berm and wall along the southeast parking lot would be considered major encroachment of four other coast live oak trees. An Oak Tree Permit will be required to encroach and/or remove these coast live oaks. Further information can be found in Appendix F – Wiley Canyon (Smiser Ranch) Development Oak Tree Report, attached.

7.2.6 Consistency with Adopted Natural Community Conservation Plan

Threshold BIO-F: Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

No Impact

The Project does not occur within the limits of any adopted HCP, NCCP, or other approved local, regional, or state habitat conservation plan. As such, no impacts will occur.

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APPENDIX A

Floral and Faunal Compendia

APPENDIX A – WILEY CANYON

Floral Compendium

Scientific Name	Common Name	Nativity	Status
EUDICOTS			
Adoxaceae	Muskroot Family		
Sambucus nigra subsp. *caerulea*	blue elderberry	Native	
Amaranthaceae	Amaranth Family		
Amaranthus albus	tumbleweed	Naturalized	
Asteraceae	Sunflower Family		
Ambrosia psilostachya	iwestern ragweed	Native	
Artemisia californica	California sagebrush	Native	
Artemisia douglasiana	mugwort	Native	
Artemisia tridentata	big sagebrush	Native	
Baccharis salicifolia subsp. *salicifolia*	mule fat	Native	
Carduus pycnocephalus subsp. *pycnocephalus*	Italian thistle	Naturalized	
Centaurea melitensis	tocalote	Naturalized	
Deinandra fasciculata	clustered tarplant	Native	
Erigeron canadensis	horseweed	Native	
Heterotheca grandiflora	telegraph weed	Native	
Lactuca serriola	prickly lettuce	Naturalized	
Malacothrix saxatilis var. *tenuifolia*	short leaved cliff aster	Native	
Pseudognaphalium californicum	ladies' tobacco	Native	
Sonchus asper subsp. *asper*	prickly sow thistle	Naturalized	
Uropappus lindleyi	silver puffs	Native	
Boraginaceae	Borage Family		
Amsinckia intermedia	common fiddleneck	Native	
Phacelia cicutaria subsp. *hispida*	caterpillar phacelia	Native	
Brassicaceae	Mustard Family		
Hirschfeldia incana	shortpod mustard	Naturalized	
Lepidium latifolium	perennial pepperweed	Naturalized	
Chenopodiaceae	Goosefoot Family		
Salsola tragus	Russian thistle	Naturalized	
Convolvulaceae	Morning-Glory Family		
Cuscuta californica	chaparral dodder	Native	
Euphorbiaceae	Spurge Family		
Croton setiger	turkey-mullein	Native	
Ricinus communis	castor bean	Naturalized	
Fabaceae	Legume Family		
Acmispon glaber	deerweed	Native	
Lupinus succulentus	arroyo lupine	Native	
Melilotus indicus	sourclover	Naturalized	
Fagaceae	Oak Family		
Quercus agrifolia	coast live oak	Native	
Geraniaceae	Geranium Family		
Erodium botrys	big heron bill	Naturalized	

Erodium brachycarpum	white-stemmed filaree	Naturalized	
Erodium cicutarium	redstem filaree	Naturalized	
Juglandaceae	Walnut Family		
Juglans californica	southern California black walnut	Native	4.2
Lamiaceae	Mint Family		
Salvia apiana	white sage	Native	
Salvia mellifera	black sage	Native	
Malvaceae	Mallow Family		
Malva parviflora	cheeseweed	Naturalized	
Myrsinaceae	Myrsine Family		
Lysimachia arvensis	scarlet pimpernel	Naturalized	
Oleaceae	Olive Family		
Fraxinus uhdei	shamel ash	Naturalized	
Onagraceae	Evening-Primrose Family		
Clarkia unguiculata	woodland clarkia	Native	
Plantaginaceae	Plantain Family		
Keckiella cordifolia	heart leaved keckiella	Native	
Platanaceae	Sycamore Family		
Platanus racemosa	western sycamore	Native	
Polemoniaceae	Phlox Family		
Gilia angelensis	chaparral gilia	Native	
Polygonaceae	Buckwheat Family		
Eriogonum fasciculatum	California buckwheat	Native	
Polygonum aviculare	knotweed	Naturalized	
Rhamnaceae	Buckthorn Family		
Rhamnus ilicifolia	evergreen buckthorn	Native	
Rosaceae	Rose Family		
Adenostoma fasciculatum	chamise	Native	
Salicaceae	Willow Family		
Populus fremontii subsp. *fremontii*	Fremont cottonwood	Native	
Salix exigua	sandbar willow	Native	
Salix gooddingii	Goodding's black willow	Native	
Salix laevigata	red willow	Native	
Salix lasiolepis	arroyo willow	Native	
Solanaceae	Nightshade Family		
Datura wrightii	jimsonweed	Native	
Nicotiana glauca	tree tobacco	Naturalized	
Solanum douglasii	Douglas' nightshade	Native	
Solanum xanti	chaparral nightshade	Native	
Ulmaceae	Elm Family		
Ulmus parviflora	Chinese elm	Naturalized	
Urticaceae	Nettle Family		
Urtica dioica subsp. *holosericea*	hoary nettle	Native	
Urtica urens	dwarf nettle	Naturalized	
Zygophyllaceae	Caltrop Family		
Tribulus terrestris	puncturevine	Naturalized	
MONOCOTS			
Arecaceae	Palm Family		
Washingtonia robusta	Mexican fan palm	Naturalized	
Cyperaceae	Sedge Family		
Bolboschoenus maritimus subsp. *paludosus*	saltmarsh bulrush	Native	
Cyperus eragrostis	tall cyperus	Native	
Cyperus involucratus	umbrella plant	Naturalized	
Juncaceae	Rush Family		
Juncus bufonius	toad rush	Native	
Poaceae	Grass Family		

Avena barbata	slender wild oat	Naturalized
Bromus diandrus	ripgut grass	Naturalized
Bromus rubens	red brome	Naturalized
Cynodon dactylon	Bermuda grass	Naturalized
Festuca myuros	rattail sixweeks grass	Naturalized
Festuca perennis	rye grass	Naturalized
Hordeum murinum	wall barley	Naturalized
Polypogon monspeliensis	annual beard grass	Naturalized
Polypogon viridis	water beard grass	Naturalized
Schismus barbatus	Common Mediterraeab	Naturalized
Stipa miliacea var. *miliacea*	smilo grass	Naturalized
Typhaceae	Cattail Family	
Typha latifolia	broadleaf cattail	Native

Key to Species Listing Status Codes

FE	*Federally Endangered*
FT	*Federally Threatened*
FC	*Federal Candidate*
FPE	*Federally Proposed as Endangered*
FPT	*Federally Proposed as Threatened*
FPD	*Federally Proposed for Delisting*
SE	*State Listed as Endangered*
ST	*State Listed as Threatened*
SCE	*State Candidate for Endangered*
SCT	*State Candidate for Threatened*
SFP	*State Fully Protected*

California Native Plant Society (CNPS)

Rank 1A: Presumed extirpated in California and either Rare or Extinct elsewhere. *Rank 1B: Rare, threatened, or endangered in California and elsewhere.* *Rank 2A: Presumed extirpated in California, but more common elsewhere.* *Rank 2B: Rare, threatened, or endangered in California, but more common in other states.* *Rank 3: Plant species about which more information is needed.* *Rank 4: Species of limited distribution in California.*	*New Threat Code extensions and their meanings:* *1 Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)* *2 Moderately threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat)* *3 Not very threatened in California (<20% of occurrences threatened / low degree and immediacy of threat or no current threats known*)

Source: ESA 2020.

APPENDIX A – WILEY CANYON

Faunal Compendium

Class	Family	Family Alias	Scientific Name	Common Name	Special-status?
Mammalia					
	Sciuridae	Squirrels, Chipmunks and Marmots	*Ostospermophilus Beecheyi*	California Ground Squirrel	N
Aves					
	Cathartidae	New World Vultures	*Cathartes aura*	Turkey Vulture	Y
	Trochilidae	Hummingbirds	*Selasphorus sasin*	Allen's Hummingbird	N
	Trochilidae	Hummingbirds	*Calypte anna*	Anna's Hummingbird	N
	Apodidae	Swifts	*Aeronautes saxatalis*	White-throated Swift	N
	Tyrannidae	Tyrant Flycatchers	*Tyrannus vociferans*	Cassin's Kingbird	N
	Aegithalidae	Long-tailed Tits and Bushtits	*Psaltriparus minimus*	Bushtit	N
	Corvidae	Crows and Jays	*Aphelocoma californica*	California Scrub-Jay	N
	Passerellidae	New World Sparrows	*Melozone crissalis*	California Towhee	N
	Paridae	Chickadees and Titmice	*Baeolophus inornatus*	Oak Titmouse	N
	Accipitridae	Hawks, Kites, Eagles, and Allies	*Buteo jamaicensis*	Red-tailed Hawk	N
	Passeridae	Old World Sparrows	*Passer domesticus*	House Sparrow	N
	Icteridae	Blackbirds	*Icterus cucullatus*	Hooded Oriole	N
	Mimidae	Mockingbirds and Thrashers	*Mimus polyglottos*	Northern Mockingbird	N
Reptilia					
	Phrynosomatidae	Spiny lizards	*Sceloporus occidentalis*	Western Fence Lizard	N
	Phrynosomatidae	Spiny lizards	*Uta stansburiana*	Common Side-blotched Lizard	N
Amphibia					
	Bufonidae	True Toads	*Anaxyrus boreas*	Western Toad	N

APPENDIX B

Special-Status Plant Species

APPENDIX B – SPECIAL-STATUS PLANT POTENTIAL TO OCCUR
WILEY CANYON (SMISER RANCH) MIXED USE PROJECT

Scientific Name	Common Name	Flowering Period	CNPS	State	Federal	Preferred Habitat	Potential For Occurrence[1]
Angiosperms (Dicotyledons)							
Acanthoscyphus parishii var. *parishii*	Parish's oxytheca	Jun-Sep	4.2	None	None	Sandy or gravelly soils in chaparral, lower montane coniferous forest	**None.** Suitable habitat is not present.
Arenaria paludicola	marsh sandwort	May-Aug	1B.1	Endangered	Endangered	Growing up through dense mats of *Typha*, *Juncus*, *Scirpus*, etc. in freshwater marsh, wetlands and swamps. Sandy soil. 3-170 m.	**None.** Suitable habitat is not present.
Astragalus brauntonii	Braunton's milk-vetch	Jan-Aug	1B.1	None	FE	Recent burns or disturbed areas, usually sandstone with carbonate layers in chaparral, coastal scrub, valley and foothill grassland	**None.** Suitable habitat is not present.
Berberis nevinii	Nevin's barberry	(Feb)Mar-Jun	1B.1	CE	FE	Sandy or gravelly soils in chaparral, cismontane woodland, coastal scrub, riparian scrub	**None.** Suitable habitat is not present.
Calystegia peirsonii	Peirson's morning-glory	Apr-Jun	4.2	None	None	Chaparral, Chenopod scrub, Cismontane woodland, Coastal scrub, lower montane coniferous forest, valley and foothill grassland	**None.** Suitable habitat is not present.
Canbya candida	white pygmy-poppy	Mar-Jun	4.2	None	None	Gravelly, sandy, granitic soils in Joshua tree woodland, Mojavean desert scrub, pinyon and juniper woodland	**None.** Suitable habitat is not present.
Castilleja gleasoni	Mt. Gleason paintbrush	May-Jun(Sep)	1B.2	CR	None	Granitic soils in chaparral, lower montane coniferous forest, pinyon and juniper woodland	**None.** Suitable habitat is not present.
Centromadia parryi ssp. *australis*	southern tarplant	May-Nov	1B.1	None	None	Marshes and swamps (margins), valley and foothill grassland (vernally mesic), vernal pools	**None.** Suitable habitat is not present.
Cercocarpus betuloides var. *blancheae*	island mountain-mahogany	Feb-May	4.3	None	None	Closed-cone coniferous forest, Chaparral	**None.** Suitable habitat is not present.
Chorizanthe parryi var. *fernandina*	San Fernando Valley spineflower	Apr-Jul	1B.1	CE	FC	Coastal scrub (sandy), valley and foothill grassland	**None.** Suitable habitat is not present.
Chorizanthe parryi var. *parryi*	Parry's spineflower	Apr-Jun	1B.1	None	None	Sandy or rocky openings in Chaparral, cismontane woodland, coastal scrub, valley and foothill grassland	**None.** Suitable habitat is not present.
Clinopodium mimuloides	monkey-flower savory	Jun-Oct	4.2	None	None	Streambanks, mesic soils in chaparral, North Coast coniferous forest	**None.** Suitable habitat is not present.
Convolvulus simulans	small-flowered morning-glory	Mar-Jul	4.2	None	None	Clay, serpentinite seeps and openings in chaparral, coastal scrub, valley and foothill grassland	**None.** Suitable habitat is not present.
Deinandra minthornii	Santa Susana tarplant	Jul-Nov	1B.2	CR	None	Rocky soils in chaparral, coastal scrub	**None.** Suitable habitat is not present.
Deinandra paniculata	paniculate tarplant	(Mar)Apr-Nov(Dec)	4.2	None	None	usually vernally mesic, sometimes sandy soils in coastal scrub, valley and foothill grassland, vernal pools	**Absent.** Species was not observed at the time of survey.

[1] **OBSERVED** = species observed during focused surveys; **NONE** = species not expected to occur due to the lack of suitable habitat, or the site's location outside of the species' range; **ABSENT** = potentially suitable habitat is present but the species was not observed during the focused surveys.

Delphinium parryi ssp. *purpureum*	Mt. Pinos larkspur	May-Jun	4.3	None	None	Chaparral, Mojavean desert scrub, Pinyon and juniper woodland	**None.** Suitable habitat is not present.
Dodecahema leptoceras	slender-horned spineflower	Apr-Jun	1B.1	CE	FE	Sandy soils in chaparral, cismontane woodland, coastal scrub (alluvial fan)	**None.** Suitable habitat is not present.
Dudleya blochmaniae ssp. blochmaniae	Blochman's dudleya	Apr-Jun	1B.1	None	None	Coastal bluff scrub, Chaparral, Coastal scrub, Valley and foothill grassland	**None.** Suitable habitat is not present.
Dudleya cymosa ssp. *agourensis*	Agoura Hills dudleya	May-Jun	1B.2	None	FT	Chaparral, Cismontane woodland	**None.** Suitable habitat is not present.
Dudleya multicaulis	many-stemmed dudleya	Apr-Jul	1B.2	None	None	Chaparral, Coastal scrub, Valley and foothill grassland	**None.** Suitable habitat is not present.
Harpagonella palmeri	Palmer's grapplinghook	Mar-May	4.2	None	None	Clay soils and open grassy areas within chaparral, coastal scrub, valley and foothill grassland	**None.** Suitable habitat is not present.
Helianthus inexpectatus	Newhall sunflower	Aug-Oct	1B.1	None	None	Freshwater, seeps in marshes and swamps, riparian woodland	**None.** Suitable habitat is not present.
Horkelia cuneata var. *puberula*	mesa horkelia	Feb-Jul(Sep)	1B.1	None	None	Sandy or gravelly soils in chaparral (maritime), cismontane woodland, coastal scrub	**None.** Suitable habitat is not present.
Hulsea vestita ssp. *parryi*	Parry's sunflower	Apr-Aug	4.3	None	None	Granitic or carbonate, rocky, openings in lower montane coniferous forest, pinyon and juniper woodland, upper montane coniferous forest	**None.** Suitable habitat is not present.
Juglans californica	Southern California black walnut	Mar-Aug	4.2	None	None	Alluvial chaparral, cismontane woodland, coastal scrub, riparian woodland	**Observed.** Seven trees were observed along South Fork of Santa Clara River
Lasthenia glabrata ssp. *coulteri*	Coulter's goldfields	Feb-Jun	1B.1	None	None	Marshes and swamps (coastal salt), playas, vernal pools	**None.** Suitable habitat is not present.
Lepidium virginicum var. *robinsonii*	Robinson's pepper-grass	Jan-Jul	4.3	None	None	Often clay soils in chaparral, coastal scrub	**None.** Suitable habitat is not present.
Lupinus paynei	Payne's bush lupine	Mar-Apr(May-Jul)	1B.1	None	None	Sandy soils in coastal scrub, riparian scrub, valley and foothill grassland	**None.** Suitable habitat is not present.
Malacothamnus davidsonii	Davidson's bush-mallow	Jun-Jan	1B.2	None	None	Chaparral, cismontane woodland, coastal scrub, riparian woodland	**None.** Suitable habitat is not present.
Monardella hypoleuca ssp. *hypoleuca*	white-veined monardella	Jun-Aug	1B.3	None	None	Dry slopes in oak woodland, chaparral	**None.** Suitable habitat is not present.
Navarretia fossalis	spreading navarretia	Apr-Jun	1B.1	None	FT	Chenopod scrub, marshes and swamps (assorted shallow freshwater), playas, vernal pools	**None.** Suitable habitat is not present.
Navarretia ojaiensis	Ojai navarretia	May-Jul	1B.1	None	None	Chaparral (openings), coastal scrub (openings), valley and foothill grassland	**None.** Suitable habitat is not present.
Navarretia setiloba	Piute Mountains navarretia	Apr-Jul	1B.1	None	None	Clay or gravelly loam in cismontane woodland, pinyon and juniper woodland, valley and foothill grassland	**None.** Suitable habitat is not present.
Opuntia basilaris var. *brachyclada*	short-joint beavertail	Apr-Jun(Aug)	1B.2	None	None	Chaparral, Joshua tree woodland, Mojavean desert scrub, pinyon and juniper woodland	**None.** Suitable habitat is not present.
Phacelia hubbyi	Hubby's phacelia	Apr-Jul	4.2	None	None	Gravelly, rocky, talus soils in chaparral, coastal scrub, valley and foothill grassland	**None.** Suitable habitat is not present.

Phacelia mohavensis	Mojave phacelia	Apr-Aug	4.3	None	None	Sandy or gravelly soils in cismontane woodland, lower montane coniferous forest, meadows and seeps, pinyon and juniper woodland	**None.** Suitable habitat is not present.
Pseudognaphalium leucocephalum	white rabbit-tobacco	(Jul)Aug-Nov(Dec)	2B.2	None	None	Chaparral, Cismontane woodland, Coastal scrub, Riparian Sandy, alluvial benches and gravelly soils in chaparral, cismontane woodland, coastal scrub, riparian woodland	**None.** Suitable habitat is not present.
Senecio aphanactis	chaparral ragwort	Jan-Apr(May)	2B.2	None	None	Sometimes alkaline soils in chaparral, cismontane woodland, coastal scrub	**None.** Suitable habitat is not present.
Stylocline masonii	Mason's neststraw	Mar-May	1B.1	None	None	Sandy soils in chenopod scrub, pinyon and juniper woodland	**None.** Suitable habitat is not present.
Symphyotrichum greatae	Greata's aster	Jun-Oct	1B.3	None	None	Mesic soils in broad-leafed upland forest, chaparral, cismontane woodland, lower montane coniferous forest, riparian woodland	**Absent.** Species was not observed at the time of survey.
Angiosperms (Monocotyledons)							
Calochortus catalinae	Catalina mariposa lily	(Feb)Mar-Jun	4.2	None	None	Chaparral, cismontane woodland, coastal scrub, valley and foothill grassland	**None.** Suitable habitat is not present.
Calochortus clavatus var. *clavatus*	club-haired mariposa lily	(Mar)May-Jun	4.3	None	None	Usually serpentinite, clay, rocky soils in chaparral, cismontane woodland, coastal scrub, valley and foothill grassland	**None.** Suitable habitat is not present.
Calochortus clavatus var. *gracilis*	slender mariposa lily	Mar-Jun(Nov)	1B.2	None	None	Chaparral, coastal scrub, valley and foothill grassland	**None.** Suitable habitat is not present.
Calochortus fimbriatus	late-flowered mariposa lily	Jun-Aug	1B.3	None	None	Often serpentinite soils in chaparral, cismontane woodland, riparian woodland	**None.** Suitable habitat is not present.
Calochortus palmeri var. *palmeri*	Palmer's mariposa lily	Apr-Jul	1B.2	None	None	Mesic soils in chaparral, lower montane coniferous forest, meadows and seeps	**None.** Suitable habitat is not present.
Calochortus plummerae	Plummer's mariposa lily	May-Jul	4.2	None	None	Granitic, rocky soils in chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, valley and foothill grassland	**None.** Suitable habitat is not present.
Hordeum intercedens	vernal barley	Mar-Jun	3.2	None	None	Coastal dunes, coastal scrub, valley and foothill grassland (saline flats and depressions), vernal pools	**None.** Suitable habitat is not present.
Lilium humboldtii ssp. *ocellatum*	ocellated Humboldt lily	Mar-Jul(Aug)	4.2	None	None	Openings in chaparral, cismontane woodland, coastal scrub, Lower montane coniferous forest, riparian woodland	**Absent.** Species was not observed at the time of survey.
Nolina cismontana	chaparral nolina	(Mar)May-Jul	1B.2	None	None	Sandstone or gabbro substrates in chaparral, coastal scrub	**None.** Suitable habitat is not present.
Orcuttia californica	California Orcutt grass	Apr-Aug	1B.1	CE	FE	Vernal pools	**None.** Suitable habitat is not present.

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FE	*Federally Endangered*	SE	*State Listed as Endangered*
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California Native Plant Society (CNPS)

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APPENDIX C

Special-Status Wildlife Species

Scientific Name	Common Name	Federal	State	Other Status	Preferred Habitat	Potential For Occurrence[1]
Insects						
Bombus crotchii	Crotch bumble bee	None	Candidate Endangered		Coastal California east to the Sierra-Cascade crest and south into Mexico. Food plant genera include *Antirrhinum*, *Phacelia*, *Clarkia*, *Dendromecon*, *Eschscholzia*, and *Eriogonum*.	**Potential**. Species was not observed or detected at the time of survey. *Clarkia, Phacelia* and *Eriogonum* present on site.
Danaus plexippus pop. 1	Monarch - California overwintering population	None	None	USFS_S-Sensitive	Winter roost sites extend along the coast from northern Mendocino to Baja California, Mexico. Roosts located in wind-protected tree groves (*Eucalyptus*, Monterey pine, cypress), with nectar and water sources nearby.	**Not Expected**. Species was not observed or detected at the time of survey. Wind protected tree groves not present.
Euphydryas editha quino	quino checkerspot butterfly	Endangered	None	XERCES_CI-Critically Imperiled	Sunny openings within chaparral & coastal sage shrublands in parts of Riverside & San Diego counties. Hills and mesas near the coast. Need high densities of food plants *Plantago erecta*, *P. ovata* var. *insularis*, and *Castilleja exserta*.	**None.** Host plants and food plants are absent.
Birds						
Accipiter cooperii	Cooper's hawk	None	None	CDFW_WL-Watch List | IUCN_LC-Least Concern	Woodland, chiefly of open, interrupted or marginal type. Nest sites mainly in riparian growths of deciduous trees, as in canyon bottoms on river flood-plains; also, live oaks.	**Potential**. Species was not observed or detected at the time of survey but suitable habitat is present.
Agelaius tricolor	tricolored blackbird	None	Threatened	BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_EN-Endangered | NABCI_RWL-Red Watch List | USFWS_BCC-Birds of Conservation Concern	Highly colonial species, most numerous in Central Valley & vicinity. Largely endemic to California. Requires open water, protected nesting substrate, and foraging area with insect prey within a few km of the colony.	**None**. Suitable habitat is not present
Aimophila ruficeps canescens	southern California rufous-crowned sparrow	None	None	CDFW_WL-Watch List	Resident in Southern California coastal sage scrub and sparse mixed chaparral. Frequents relatively steep, often rocky hillsides with grass and forb patches.	**Not Expected**. Species was not observed or detected at the time of survey.
Ammodramus savannarum	grasshopper sparrow	None	None	CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern	Dense grasslands on rolling hills, lowland plains, in valleys and on hillsides on lower mountain slopes. Favors native grasslands with	**None**. Suitable habitat is not present

[1] **NONE** = species not expected to occur due to the lack of suitable habitat, or the site's location is outside of the species' range; **NONE (N)** = species not expected to nest due to the lack of suitable habitat, or the site's location is outside of the species' range; **NONE (F)** = species not expected to forage due to lack of food sources, or the site's location is outside of the species' range; **NOT EXPECTED** = preferred habitat was considered potentially present based on the literature review and anticipated habitat in the study area, however no individuals were observed and/or suitable habitat was absent based on the general field survey or focused surveys; **POTENTIAL** = preferred habitat was considered potentially present based on the literature review and observed habitat in the Project site. **OBSERVED** = Observed onsite.

					a mix of grasses, forbs and scattered shrubs. Loosely colonial when nesting.	
Aquila chrysaetos	golden eagle	None	None	BLM_S-Sensitive | CDF_S-Sensitive | CDFW_FP-Fully Protected | CDFW_WL-Watch List | IUCN_LC-Least Concern | USFWS_BCC-Birds of Conservation Concern	Rolling foothills, mountain areas, sage-juniper flats, and desert. Cliff-walled canyons provide nesting habitat in most parts of range; also, large trees in open areas.	**Not Expected**. Species was not observed or detected at the time of survey.
Artemisiospiza belli belli	Bell's sage sparrow	None	None	CDFW_WL-Watch List | USFWS_BCC-Birds of Conservation Concern	Nests in chaparral dominated by fairly dense stands of chamise. Found in coastal sage scrub in south of range. Nest located on the ground beneath a shrub or in a shrub 6-18 inches above ground.	**None.** Suitable habitat is not present.
Athene cunicularia	burrowing owl	None	None	BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern | USFWS_BCC-Birds of Conservation Concern	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	**None.** Suitable habitat is not present.
Buteo swainsoni	Swainson's hawk	None	Threatened	BLM_S-Sensitive | IUCN_LC-Least Concern | USFWS_BCC-Birds of Conservation Concern	Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, & agricultural or ranch lands with groves or lines of trees. Requires adjacent suitable foraging areas such as grasslands, or alfalfa or grain fields supporting rodent populations.	**Not Expected**. Species was not observed or detected at the time of survey.
Coccyzus americanus occidentalis	western yellow-billed cuckoo	Threatened	Endangered	BLM_S-Sensitive | NABCI_RWL-Red Watch List | USFS_S-Sensitive | USFWS_BCC-Birds of Conservation Concern	Riparian forest nester, along the broad, lower flood-bottoms of larger river systems. Nests in riparian jungles of willow, often mixed with cottonwoods, with lower story of blackberry, nettles, or wild grape.	**None.** Suitable habitat is not present.
Elanus leucurus	white-tailed kite	None	None	BLM_S-Sensitive | CDFW_FP-Fully Protected | IUCN_LC-Least Concern	Rolling foothills and valley margins with scattered oaks & river bottomlands or marshes next to deciduous woodland. Open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.	**None.** Suitable habitat is not present.
Empidonax traillii extimus	southwestern willow flycatcher	Endangered	Endangered	NABCI_RWL-Red Watch List	Willow & Cottonwood dominated riparian woodlands in Southern California.	**Not Expected**. Species was not observed or detected at the time of survey.
Eremophila alpestris actia	California horned lark	None	None	CDFW_WL-Watch List | IUCN_LC-Least Concern	Coastal regions, chiefly from Sonoma County to San Diego County. Also main part of San Joaquin Valley and east to foothills. Short-grass prairie, "bald" hills, mountain meadows, open coastal plains, fallow grain fields, alkali flats.	**None.** Suitable habitat is not present.
Gymnogyps californianus	California condor	Endangered	Endangered	CDF_S-Sensitive CDFW_FP-Fully Protected IUCN_CR-Critically Endangered NABCI_RWL-Red Watch List	Require vast expanses of open savannah, grasslands, and foothill chaparral in mountain ranges of moderate altitude. Deep canyons containing clefts in the rocky walls provide nesting sites. Forages up to 100 miles from roost/nest	**None.** Suitable habitat is not present.
Icteria virens	yellow-breasted chat	None	None	CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern	Summer resident; inhabits riparian thickets of willow and other brushy tangles near watercourses. Nests in low, dense riparian, consisting of willow, blackberry, wild grape; forages and nests within 10 ft. of ground.	**None.** Suitable habitat is not present.
Lanius ludovicianus	loggerhead shrike	None	None	CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern | USFWS_BCC-Birds of Conservation Concern	Broken woodlands, savannah, pinyon-juniper, Joshua tree, and riparian woodlands, desert oases, scrub & washes. Prefers open country for hunting, with perches for scanning, and fairly dense shrubs and brush for nesting.	**None.** Suitable habitat is not present.
Polioptila californica californica	coastal California gnatcatcher	Threatened	None	CDFW_SSC-Species of Special Concern |	Obligate, permanent resident of coastal sage scrub below 2500 ft. in Southern California. Low, coastal sage scrub in arid washes,	**None.** Suitable habitat is not present.

				NABCI_YWL-Yellow Watch List	on mesas and slopes. Not all areas classified as coastal sage scrub are occupied.	
Riparia riparia	bank swallow	None	Threatened	BLM_S-Sensitive | IUCN_LC-Least Concern	Colonial nester; nests primarily in riparian and other lowland habitats west of the desert. Requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, ocean to dig nesting hole.	**None.** Suitable habitat is not present.
Setophaga petechia	yellow warbler	None	None	CDFW_SSC-Species of Special Concern | USFWS_BCC-Birds of Conservation Concern	Riparian plant associations in close proximity to water. Also nests in montane shrubbery in open conifer forests in Cascades and Sierra Nevada. Frequently found nesting and foraging in willow shrubs and thickets, and in other riparian plants including cottonwoods, sycamores, ash, and alders.	**None.** Suitable habitat is not present.
Vireo bellii pusillus	least Bell's vireo	Endangered	Endangered	IUCN_NT-Near Threatened | NABCI_YWL-Yellow Watch List	Summer resident of Southern California in low riparian in vicinity of water or in dry river bottoms; below 2000 ft. Nests placed along margins of bushes or on twigs projecting into pathways, usually willow, *Baccharis*, mesquite.	**Potential**. Species was not observed or detected at the time of survey but suitable habitat is present.
Fish						
Catostomus santaanae	Santa Ana sucker	Threatened	None	AFS_TH-Threatened | IUCN_VU-Vulnerable	Endemic to Los Angeles Basin south coastal streams. Habitat generalists, but prefer sand-rubble-boulder bottoms, cool, clear water, and algae.	**None.** Suitable habitat is not present. This portion of the South Fork of the Santa Clara River is channelized both upstream and downstream of site and does not possess adequate hydrology to support this species.
Gasterosteus aculeatus williamsoni	unarmored threespine stickleback	Endangered	Endangered	AFS_EN-Endangered | CDFW_FP-Fully Protected	Weedy pools, backwaters, and among emergent vegetation at the stream edge in small Southern California streams. Cool (<24 C), clear water with abundant vegetation.	**None.** Suitable habitat is not present. This portion of the South Fork of the Santa Clara River is channelized both upstream and downstream of site and does not possess adequate hydrology to support this species.
Gila orcuttii	arroyo chub	None	None	AFS_VU-Vulnerable | CDFW_SSC-Species of Special Concern | USFS_S-Sensitive	Native to streams from Malibu Creek to San Luis Rey River basin. Introduced into streams in Santa Clara, Ventura, Santa Ynez, Mojave & San Diego river basins. Slow water stream sections with mud or sand bottoms. Feeds heavily on aquatic vegetation and associated invertebrates.	**None.** Suitable habitat is not present. This portion of the South Fork of the Santa Clara River is channelized both upstream and downstream of site and does not possess adequate hydrology to support this species.
Rhinichthys osculus ssp. 3	Santa Ana speckled dace	None	None	AFS_TH-Threatened | CDFW_SSC-Species of Special Concern | USFS_S-Sensitive	Headwaters of the Santa Ana and San Gabriel rivers. May be extirpated from the Los Angeles River system. Requires permanent flowing streams with summer water temps of 17-20 C. Usually inhabits shallow cobble and gravel riffles.	**None.** Suitable habitat is not present. This portion of the South Fork of the Santa Clara River is channelized both upstream and

						downstream of site and does not possess adequate hydrology to support this species.
Mammals						
Antrozous pallidus	pallid bat	None	None	BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern | USFS_S-Sensitive | WBWG_H-High Priority	Deserts, grasslands, shrublands, woodlands and forests. Most common in open, dry habitats with rocky areas for roosting. Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	**None.** Suitable habitat is not present.
Corynorhinus townsendii	Townsend's big-eared bat	None	None	BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern | USFS_S-Sensitive | WBWG_H-High Priority	Throughout California in a wide variety of habitats. Most common in mesic sites. Roosts in the open, hanging from walls and ceilings. Roosting sites limiting. Extremely sensitive to human disturbance.	**Not Expected**. Species was not observed or detected at the time of survey.
Euderma maculatum	spotted bat	None	None	BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern | WBWG_H-High Priority	Occupies a wide variety of habitats from arid deserts and grasslands through mixed conifer forests. Feeds over water and along washes. Feeds almost entirely on moths. Needs rock crevices in cliffs or caves for roosting.	**Not Expected**. Species was not observed or detected at the time of survey.
Eumops perotis californicus	western mastiff bat	None	None	BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | WBWG_H-High Priority	Many open, semi-arid to arid habitats, including conifer & deciduous woodlands, coastal scrub, grasslands, chaparral, etc. Roosts in crevices in cliff faces, high buildings, trees and tunnels.	**Not Expected**. Species was not observed or detected at the time of survey.
Lasionycteris noctivagans	silver-haired bat	None	None	IUCN_LC-Least Concern | WBWG_M-Medium Priority	Primarily a coastal and montane forest dweller, feeding over streams, ponds & open brushy areas. Roosts in hollow trees, beneath exfoliating bark, abandoned woodpecker holes, and rarely under rocks. Needs drinking water.	**None.** Suitable habitat is not present.
Lasiurus cinereus	hoary bat	None	None	IUCN_LC-Least Concern | WBWG_M-Medium Priority	Prefers open habitats or habitat mosaics, with access to trees for cover and open areas or habitat edges for feeding. Roosts in dense foliage of medium to large trees. Feeds primarily on moths. Requires water.	**Not Expected**. Species was not observed or detected at the time of survey.
Lepus californicus bennettii	San Diego black-tailed jackrabbit	None	None	CDFW_SSC-Species of Special Concern	Intermediate canopy stages of shrub habitats & open shrub / herbaceous & tree / herbaceous edges. Coastal sage scrub habitats in Southern California.	**None.** Suitable habitat is not present.
Macrotus californicus	California leaf-nosed bat	None	None	BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern | WBWG_H-High Priority	Desert riparian, desert wash, desert scrub, desert succulent scrub, alkali scrub and palm oasis habitats. Needs rocky, rugged terrain with mines or caves for roosting.	**None.** Suitable habitat is not present.
Neotoma lepida intermedia	San Diego desert woodrat	None	None	CDFW_SSC-Species of Special Concern	Coastal scrub of Southern California from San Diego County to San Luis Obispo County. Moderate to dense canopies preferred. They are particularly abundant in rock outcrops, rocky cliffs, and slopes.	**None.** Suitable habitat is not present.
Onychomys torridus ramona	southern grasshopper mouse	None	None	CDFW_SSC-Species of Special Concern	Desert areas, especially scrub habitats with friable soils for digging. Prefers low to moderate shrub cover. Feeds almost exclusively on arthropods, especially scorpions and orthopteran insects.	**None.** Suitable habitat is not present.
Perognathus longimembris brevinasus	Los Angeles pocket mouse	None	None	CDFW_SSC-Species of Special Concern	Lower elevation grasslands and coastal sage communities in and around the Los Angeles Basin. Open ground with fine, sandy soils. May not dig extensive burrows, hiding under weeds and dead leaves instead.	**Not Expected**. Species was not observed or

						detected at the time of survey.
Taxidea taxus	American badger	None	None	CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Needs sufficient food, friable soils and open, uncultivated ground. Preys on burrowing rodents. Digs burrows.	**None.** Suitable habitat is not present.
Reptiles						
Anniella spp.	California legless lizard	None	None	CDFW_SSC-Species of Special Concern	Contra Costa County south to San Diego, within a variety of open habitats. This element represents California records of *Anniella* not yet assigned to new species within the *Anniella pulchra* complex. Variety of habitats; generally, in moist, loose soil. They prefer soils with a high moisture content.	**Not Expected**. Species was not observed or detected at the time of survey.
Arizona elegans occidentalis	California glossy snake	None	None	CDFW_SSC-Species of Special Concern	Patchily distributed from the eastern portion of San Francisco Bay, southern San Joaquin Valley, and the Coast, Transverse, and Peninsular ranges, south to Baja California. Generalist reported from a range of scrub and grassland habitats, often with loose or sandy soils.	**None.** Suitable habitat is not present.
Aspidoscelis tigris stejnegeri	coastal whiptail	None	None	CDFW_SSC-Species of Special Concern	Found in deserts and semi-arid areas with sparse vegetation and open areas. Also found in woodland & riparian areas. Ground may be firm soil, sandy, or rocky.	**Not Expected**. Species was not observed or detected at the time of survey.
Emys marmorata	western pond turtle	None	None	BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_VU-Vulnerable | USFS_S-Sensitive	A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation, below 6000 ft elevation. Needs basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 km from water for egg-laying.	**None.** Suitable habitat is not present.
Phrynosoma blainvillii	coast horned lizard	None	None	BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern	Frequents a wide variety of habitats, most common in lowlands along sandy washes with scattered low bushes. Open areas for sunning, bushes for cover, patches of loose soil for burial, and abundant supply of ants and other insects.	**None.** Suitable habitat is not present.
Thamnophis hammondii	two-striped gartersnake	None	None	BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern | USFS_S-Sensitive	Coastal California from vicinity of Salinas to northwest Baja California. From sea to about 7,000-foot elevation. Highly aquatic, found in or near permanent fresh water. Often along streams with rocky beds and riparian growth.	**None.** Suitable habitat is not present.
Amphibians						
Anaxyrus californicus	arroyo toad	Endangered	None	CDFW_SSC-Species of Special Concern | IUCN_EN-Endangered	Semi-arid regions near washes or intermittent streams, including valley-foothill and desert riparian, desert wash, etc. Rivers with sandy banks, willows, cottonwoods, and sycamores; loose, gravelly areas of streams in drier parts of range.	**Not Expected**. Species was not observed or detected at the time of survey.
Rana draytonii	California red-legged frog	Threatened	None	CDFW_SSC-Species of Special Concern | IUCN_VU-Vulnerable	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation. Requires 11-20 weeks of permanent water for larval development. Must have access to estivation habitat.	**None.** Suitable habitat is not present.
Rana muscosa	southern mountain yellow-legged frog	Endangered	Endangered	CDFW_WL-Watch List | IUCN_EN-Endangered | USFS_S-Sensitive	Federal listing refers to populations in the San Gabriel, San Jacinto and San Bernardino mountains (southern DPS). Northern DPS was determined to warrant listing as endangered, Apr 2014, effective Jun 30, 2014. Always encountered within a few feet of water. Tadpoles may require 2 - 4 yrs. to complete their aquatic development.	**None.** Suitable habitat is not present.
Spea hammondii	western spadefoot	None	None	BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_NT-Near Threatened	Occurs primarily in grassland habitats, but can be found in valley-foothill hardwood woodlands. Vernal pools are essential for breeding and egg-laying.	**None.** Vernal pool habitat not present

Taricha torosa	Coast Range newt	None	None	CDFW_SSC-Species of Special Concern	Coastal drainages from Mendocino County to San Diego County. Lives in terrestrial habitats & will migrate over 1 km to breed in ponds, reservoirs & slow moving streams.	**Not Expected**. Species was not observed or detected at the time of survey.
Arachnids						
Socalchemmis gertschi	Gertsch's socalchemmis spider	None	None	Global Rank G1, State Rank S1	Known from only 2 localities in Los Angeles County: Brentwood (type locality) and Topanga Canyon.	**None**. Suitable habitat is not present
Crustaceans						
Branchinecta lynchi	vernal pool fairy shrimp	Threatened	None	IUCN_VU-Vulnerable	Vernal pool and Wetland endemic to the grasslands of the Central Valley, Central Coast mountains, and South Coast mountains, in astatic rain-filled pools.	**None.** Vernal pool habitat not present
Streptocephalus woottoni	Riverside fairy shrimp	Endangered	None	IUCN_EN-Endangered	Endemic to Western Riverside, Orange, and San Diego counties in areas of tectonic swales/earth slump basins in grassland and coastal sage scrub. Inhabit seasonally astatic pools filled by winter/spring rains. Hatch in warm water later in the season.	**None.** Vernal pool habitat not present

FE	*Federally Endangered*	SE	*State Endangered*	BLM	*Bureau of Land Management*	USFWS	*United States Fish & Wildlife Service*
FT	*Federally Threatened*	ST	*State Threatened*	CDFW	*California Department of Fish & Wildlife*	NCBI	*North American Bird Conservation Initiative*
FC	*Federal Candidate*	SCE	*State Candidate Endangered*	IUCN	*International Union for Conservation of Nature*		
FPE	*Federally Proposed as Endangered*	SCT	*State Candidate Threatened*	WBWG	*Western Bat Working Group*		
FPT	*Federally Proposed as Threatened*	SFP	*State Fully Protected Species*	AFS	*American Fisheries Society*		
FPD	*Federally Proposed for Delisting*	SSC	*State Species of Special Concern*	USFS	*United States Forest Service*		

APPENDIX D

Wiley Canyon (Smiser Ranch) Development Aquatic Resources Delineation Report

APPENDIX E

Wiley Canyon (Smiser Ranch) Development Oak Tree Report

APPENDIX F

Wiley Canyon (Smiser Ranch) Development Resumes

Douglas Gordon-Blackwood

Biologist III

EDUCATION

BS, Botany, California State Polytechnic University, Pomona

14 YEARS OF EXPERIENCE

CERTIFICATIONS/ REGISTRATION

American Society of Consulting Arborists Registered Consulting Arborist #689

International Society of Arboriculture, Certified Arborist/Utility Specialist - #WE-11726-AU

International Society of Arboriculture, Tree Risk Assessment Qualified (TRAQ)

Wetland Training Institute 40-hour Wetland Delineator Certification Program 2018

Helicopter Flight/Safety Training, Burns & McDonnell

CDFW Rare Plant Voucher Collecting Permit 2081(a)-17-021-V

PROFESSIONAL AFFILIATIONS

California Native Plant Society

California Invasive Plant Council

American Society of Consulting Arborists

Douglas is a consulting biologist with 9 years of experience in biological resources and habitat restoration, and 14 years with arboriculture. During his career he has conducted or supervised biological surveys and mapping of plant communities, jurisdictional areas and wildlife throughout Southern California. He has acted as lead biologist on many large restoration, development, and transportation projects throughout Southern California. His experience includes extensive survey experience for biological resource assessments, habitat and vegetation mapping, nesting bird surveys, restoration site assessments, arboricultural assessments, invasive species eradication, and biological compliance monitoring.

Relevant Experience

Calamigos Tennis Ranch Biological Support, Calabasas, CA. *Biologist/Arborist.* Douglas conducted oak and native tree inventory, biological survey, mapped sensitive environmental resource areas, and provided reporting for an 8-acre mixed-use facility among oak woodland in support of the Santa Monica Mountains LCP Biological Assessment requirements. October 2019 – Present

Legado Properties Playa Del Rey Beachfront Properties Project, Playa Del Rey, CA. *Biologist.* Douglas conducted a vegetation mapping, post impact analysis, and a historical site assessment for beachfront properties located within coastal fore-dune scrub. August 2019

Berkeley Tuolumne Family Campground, Tuolumne Meadows, CA. *Lead Arborist.* Douglas conducted an arboricultural inventory for 2000+ trees burned during the 2013 Rim Fire within the City of Berkeley Family Campground. Douglas conducted large scale tree risk assessments and conducted vegetation mapping. January – February 2018

SCE Deteriorated Pole Replacement, Southern California, CA. *Biologist.* Douglas conducted Habitat Resource Assessments for multiple deteriorated SCE utility poles throughout Southern California. Douglas conducted habitat and vegetation mapping, prepared project evaluation memos and conducted desktop analysis and monitored pole replacement in a wide range of sensitive species habitats. June 2017 - March 2018.

SCE HTRP/DRHTP Hazardous Tree Removal Program & Drought Related Hazardous Tree Program, Southern California, CA. *Biologist/Arborist.* Douglas acted as an arborist for SCE's hazardous tree program. Douglas conducted tree surveys, habitat assessment, jurisdictional assessments, and tree removal monitoring for hazardous trees throughout Southern California. June 2017 - March 2018.

SCE/Plains Kinsey 12 kV Restoration Site, Gorman, CA. *Restoration Ecologist* Douglas oversaw seed collection, seeding, planting, BMP maintenance, and weed abatement of a SCE and Plains Pipeline chaparral restoration site within the Angeles National Forest. December 2017- March 2018

SCE McGrath Beach Substation and Peaker Station, Oxnard, CA. *Lead Botanist /Restoration Ecologist.* Douglas conducted Daubenmire cover class vegetation sampling and rare plant surveys for the SCE McGrath Beach Peaker Station. Douglas also oversaw site restoration, weed abatement, and irrigation maintenance of a 37-acre coastal dune site associated with SCE's McGrath Beach Substation. April 2017 – August 2018.

SCE Santa Catalina Pole Replacement Surveys, Santa Catalina, CA. *Lead Botanist.* Douglas oversaw and lead botanical, wildlife and habitat assessment surveys of pole replacement impact areas for SCE distribution lines throughout Santa Catalina Island. Douglas also conducted detailed reporting and impact assessment. April 2017.

SCE Lake Success Project, Porterville, CA *Lead Botanist.* Douglas conducted botanical and vegetation mapping of the Option 2 SCE alignment surrounding Lake Success in riparian and blue oak woodland habitats. April 2017 – May 2017.

SCE Tehachapi Renewable Transmission Project (TRTP) – Kern, Los Angeles, and San Bernardino Counties, CA. *Lead Botanist/ Lead Biological Monitor*. Douglas served as lead botanist, lead biological monitor, lead weed abatement monitor, nesting bird surveyor, and restoration ecologist for the Southern California Edison's (SCE) 173-mileTRTP project corridor. Douglas conducted rare plant surveys, oversaw invasive species mapping and removal, and monitored for plant salvage activities. March 2011 – March 2017.

Los Angeles County Department of Public Works Santa Monica Mountains/Mulholland Highway Storm Repair Project, Malibu, CA. *Botanist/Arborist.* Douglas provided biological monitoring and biological assessments for various road repair sites along Mulholland Highway and within oak woodland and riparian habitats of the Santa Monica Mountains. December 2019 – Present.

Irvine Ranch Water District Syphon Reservoir Improvement Project, Irvine, CA *Botanist/Arborist.* Douglas conducted habitat assessments, tree mapping, western spadefoot toad surveys and rare plant surveys within Syphon Reservoir. December 2018 – December 2019

Triunfo Canyon Corporate Retreat, Agoura Hills, CA. *Botanist/Arborist.* Douglas conducted oak tree assessments, rare plants, wildlife and habitat mapping of the Oak Canyon Ranch property within Triunfo Canyon. May 2019 – June 2019

City of San Diego Wetland/Restoration Mitigation Opportunities Site Evaluations, San Diego, CA. *Botanist.* Douglas conducted Wetlands Mitigation Opportunities assessments and Site Evaluations for riparian mitigation sites throughout the City of San Diego. March 2019 – Present.

May Lau

Permitting Program Manager

EDUCATION

BS, Environmental Science, University of California, Santa Barbara

16 YEARS OF EXPERIENCE

SPECIALIZED TRAINING

Wetland Delineations, Wetland Training Institute

USACE Regional Supplement Training, Richard Chinn Environmental Training

Environmental Site Restoration/Mitigation Creative Planning and Implementation, Northwest Environmental Training Center

Riparian Plant Identification for Coastal Southern California Rivers and Streams, Wetland Training Institute

Flowering Plant Families, Friends of the Jepson Herbarium, University of California, Berkeley

California Rapid Assessment Method (CRAM), Riverine, University of California, Davis Extension

May is a permitting program manager and senior project manager with 16 years of experience in the environmental consulting industry. Her primary responsibilities include providing project management; permitting strategies; review of permit applications and supporting documentation; technical analyses for a variety of water/wastewater, energy, transportation, private development, and restoration projects; and informing her clients and ESA staff of the most current regulations governing aquatic and biological resources. May's management and technical capabilities include review and preparation of environmental documents in compliance with National Environmental Policy Act (NEPA), California Environmental Quality Act (CEQA), Federal Endangered Species Act (FESA), and California Endangered Species Act (CESA); wetland and jurisdictional delineations; Clean Water Act permitting; streambed alteration agreements; coastal development permits; mitigation planning; biological assessments; and natural resource studies. She has consulted extensively with the United States Army Corps of Engineers (USACE), United States Fish and Wildlife Service (USFWS), California Department of Fish and Wildlife (CDFW)), California coastal agencies, and regional water quality control boards (RWQCBs) to secure permits/authorizations, as well as to provide feasible and successful mitigation to her clients.

Relevant Experience

Castaic Dam High Intake Tower Access Bridge Seismic Retrofit Project, California Department of Water Resources, Castaic Lake, Los Angeles County, CA. *Permitting Program Manager.* This project involves seismic retrofit of an existing outlet tower bridge at Castaic Lake. ESA prepared an Initial Study/Mitigated Negative Declaration (IS/MND), biological and cultural surveys and reports to support CEQA and permitting. May led agency consultations and obtaining the Section 401 Water Quality Certification and Streambed Alteration Agreement for the project.

Cedar Springs Dam Spillway Repair Project, California Department of Water Resources, Silverwood Lake, Unincorporated San Bernardino County, CA. *Project Manager.* This project involves replacing a deteriorating asbestos spillway heel drain pipe and construction of a new gravel access road to the right side of the spillway. ESA prepared the nesting bird management plan, performed preconstruction wildlife surveys, conducted biological and archaeological monitoring, and prepared weekly monitoring reports during project construction.

Lyons Canyon Ranch Project, D.R. Horton, Santa Clarita, Los Angeles County, CA. *Regulatory Specialist.* The Lyons Canyon Ranch development consists of 106 lots comprised of 92 single-family residential lots, one (1) condominium lot with 93 senior condominium units, five (5) open space lots, six (6) debris/detention basin lots, one (1) park lot, and one (1) fire station lot. The project is sited on an undeveloped, approximately 232-acre property located

just west of The Old Road and Golden State Freeway (I-5). May lead the permitting effort, including performing the jurisdictional delineation; preparing of a Section 404 Individual Permit, Section 404(b)(1) alternatives analysis, Section 401 Water Quality Certification, and Streambed Alteration Agreement; and lead agency field visits and consultations.

Perris Dam Emergency Release Facility Project, California Department of Water Resources, Perris, Riverside County, CA. *Project Manager/Permitting Program Manager*. The Perris Dam Emergency Release Facility Project would modify the existing emergency outlet facility for the Perris Dam and construct a water conveyance channel to connect with the Perris Valley Channel in the event of a need for an emergency drawdown. ESA prepared the EIR for the Perris Dam Remediation Program, conducted biological and cultural resources surveys, and prepared reports in support of permitting and compliance with the EIR's Mitigation Monitoring and Reporting Program (MMRP). May managed the biological and permitting efforts and led agency consultations with the USACE, RWQCB, and CDFW to obtain Section 404 and 401 Clean Water Act permits and a Streambed Alteration Agreement.

San Gabriel River Confluence with Cattle Canyon Improvements Project, Watershed Conservation Authority, Angeles National Forest, Los Angeles County, CA. *Project Manager*: This project involves recreational improvements and ecological restoration opportunities to address resource management challenges resulting from high public use of a 1.5-mile reach of the East Fork San Gabriel River, near its confluence with Cattle Canyon Creek, within designated critical habitat for Santa Ana sucker. As a subconsultant to BlueGreen Consulting, ESA is providing environmental services for the project, including preparation of a joint NEPA/CEQA document (EIS/EIR), biological and cultural surveys and reports, hydrology and soils report, jurisdictional delineation, conceptual geomorphology and hydrology investigation, and support of the conceptual restoration approach during the feasibility/design stages. May is responsible for managing the staffing, schedule, and budgets, internal and client meetings/coordination, as well as review of all technical reports and the EIS/EIR.

Ballona Wetlands Restoration Project, California Coastal Conservancy, Playa Del Rey, CA. *Senior Biologist.* ESA is preparing an EIS/EIR to assess the potential environmental impacts of wetland restoration of the Ballona Wetlands. May is responsible for review of existing biological reports and data, coordination with various resource agencies and subconsultants, and preparation of the biological resources chapter of the EIR.

Los Cerritos Wetlands Authority, Los Cerritos Wetlands Restoration Program EIR, Long Beach and Seal Beach, CA. *Senior Biologist/Regulatory Specialist.* Lead by the Los Cerritos Wetlands Authority (LCWA), a joint powers agreement between the San Gabriel and Lower Los Angeles Rivers and Mountains Conservancy (RMC), State Coastal Conservancy (SCC), City of Long Beach, and City of Seal Beach, ESA was retained to develop an Optimized Restoration Alternative and Restoration Plan for 500 acres of salt marsh, seasonal wetlands, and other freshwater marsh in the Los Cerritos Wetland Complex. The Restoration Plan will proceed through the CEQA review process in the form of a Program Environmental Impact Report (PEIR). In addition to the Restoration Plan, as part of the PEIR, ESA is facilitating a series of public workshops and technical advisory committee meetings. May is responsible for peer review of the jurisdictional delineation report and biological reports; and evaluation of the program's compliance with federal, state, and local regulatory requirements.

Daryl Koutnik, PhD

Principal, Biological and Environmental Compliance

EDUCATION

PhD, Botany, University of California, Davis

MS, Botany, University of California, Davis

BA. Mathematics and Biology, California State University, Northridge

25+ YEARS OF EXPERIENCE

Dr. Koutnik has over 25 years of experience managing and conducting biological resources field studies for environmental compliance and planning. Fourteen years of which he worked in and managed the environmental review section of the Los Angeles County Department of Regional Planning.

Dr. Koutnik has directed, managed, and performed hundreds of biological resources inventories, special-status species surveys and identification, environmental impact assessments, biological constraints analyses, plant and wildlife studies, habitat restoration plans, and mitigation and monitoring plans for a wide variety of private and public sector clients. These have been prepared in compliance and/or coordination with CEQA, NEPA, USACE, USFWS, CDFW, and RWQCB and related to residential, commercial, industrial, infrastructure, and educational developments.

In addition to biology, he is an expert in the application of federal and State Endangered Species Acts, the California Environmental Quality Act (CEQA), and other regulations relevant to biological resources, as well as processing and acquisition of Coastal Development Permits within the California Coastal Zone.

As Supervising Regional Planner and Senior Biologist for the Department of Regional Planning, Dr. Koutnik managed the preparation of more than 30 EIRs for a wide variety of project types. In addition to EIRs, he managed and prepared a report on the biological resources of the Los Angeles County Santa Monica Mountains Local Coastal Program with the inclusion of resource protection provisions and criteria for the designation of Coastal Zone environmentally sensitive habitat areas (ESHA). As a result, he has unparalleled insight into the County's procedures and preferences relative to processing environmental documents.

Relevant Experience

Aidlin Hills Residential Development EIR, Stevenson Ranch, Unincorporated Los Angeles County, CA. *Project Manager.* The project proposed a 102-unit residential project on 210 acres in Stevenson Ranch with roadway access from Pico Canyon Road. Dr. Koutnik served as the project manager for entire CEQA process, including preparation of the project EIR, coordination with Native America Tribal Consultation, manage biological resource field surveys, and processing of regulatory permits.

Hidden Creeks Estates EIR, Los Angeles, CA. *Biology Manager.* Hidden Creek Estates is a proposed 188-unit residential project adjacent to Porter Ranch on 285 acres with the construction of a bridge over Mormon Canyon for primary access from the east. Dr. Koutnik managed the biological resource field

inventories and supervise the preparation of the Biological Resources section for the EIR.

Deerlake Ranch, Los Angeles County, CA. *Project Manager*. The Deerlake Ranch project involved a revised project design for an approved 325-unit residential project on 400 acres, including the construction of internal circulation and two bridges. As project manager, Dr. Koutnik was responsible for the preparation of three Addendum EIRs, requiring coordination with County planning staff, consultant processing the regulatory permits and the oak tree reports.

Vista Canyon Residential Project, Santa Clarita, CA. *Biology Manager*. The Vista Canyon Specific Plan project includes a mixed-use community of 1,110 residential units and including nearly 1 million square feet of office and retail space, installation of Vista Canyon bridge, new Metrolink station and transit center on 185 acres in Santa Clarita. As the biology manager he managed the field surveys, including for special-status species like spadefoot toad, and the preparation of the Biological Resources section for the EIR.

Neptune Marina Apartments/Woodfin Suites Hotel and Wetlands Park Project EIR, Marina del Rey, Los Angeles County, CA. *Project Manager*. Dr. Koutnik managed the preparation and certification of the EIR for the multi-component Neptune Marina Apartment and Anchorage/Woodfin Suite Hotel and Timeshare Resort residential and hotel project. The proposed project included the restoration of a public wetland and upland park.

Cielo Vista Residential Project, Unincorporated Orange County, CA. *Project Biology Lead.* Dr. Koutnik coordinated with ESA staff in the preparation of the Biological Resources section for the project EIR for the proposed development of up to 112 residential units within two separate planning areas on a total 48 acres within the 84-acre undeveloped site. Dr. Koutnik was also lead on addressing the biological comments in drafting responses for the Final EIR.

The Marina del Rey Marriott Courtyard and Residence Inn Hotel (formerly Woodfin Suite Hotel and Timeshare Resort), Marina Del Rey, Los Angeles County, CA. *Project Director*. Dr. Koutnik served as the Project Director for the Addendum to the Certified EIR for the same project at a reduced scale known as The Marina del Rey Marriott Courtyard and Residence Inn Hotel. The Reduced-Scale Project includes development of the northerly approximately 2.2 acres of Parcel 9U and is referred to as the "The Marina del Rey Marriott Courtyard and Residence Inn Hotel." Proposed development under the Reduced-Scale Project consists of one structure containing a five-story hotel "wing" and a six-story hotel wing with 288 hotel studios, suites, and standard guest rooms, which would include two meeting rooms, a hotel-oriented restaurant and bar/lounge, fitness center, and associated hotel operations space, such as the lobby, hallways, elevator shafts, mechanical rooms, offices, and laundry, maintenance and custodial facilities.

Oaks at Monte Nido, **Santa Monica Mountains, Unincorporated Los Angeles County, CA.** *Project Manager.* Dr. Koutnik managed the preparation of biological resources report, including oak and native tree surveys and the EIR preparation for the proposed development of 15 single-family residences on separate individual recorded parcels within the Monte Nido Community, along the scenic route of Piuma Road.

January 14, 2020

Mr. Scott Sheridan
Wiley Canyon, LLC
136120 Telfair Avenue
Sylmar, CA 91342

Subject: Preliminary Acoustical Assessment for Wiley Canyon Mixed Use Project; City of Santa Clarita, California

Dear Mr. Sheridan:

Environmental Science Associates (ESA) acoustical specialist has reviewed the preliminary site plan for the proposed Wiley Canyon Mixed Use project in the City of Santa Clarita, California. The following summarizes ESA's professional opinion on the feasibility of the proposed land uses based on potential noise impact associated with traffic on the Interstate 5 Freeway.

Project Understanding

Wiley Canyon, LLC proposes to develop a mixed use project that includes senior and non-senior residential, office, and retail uses in the City of Santa Clarita, California (Project). The project site is located between Wiley Canyon Road and Interstate 5 (I-5 Freeway). Based on the preliminary site plan (Architects Orange, December 19, 2019), the Project would include commercial uses and assisted living units along Wiley Canyon Road. There will be a 3-story office building in the northwest portion of the project site. Along the western boundary of the project site, there will be buffer townhomes with enhanced elevations (no windows or decks) facing the freeway. ESA's preliminary acoustical assessment for the feasibility of the proposed land uses is presented below.

Preliminary Acoustical Assessment

City Noise Standards

The City of Santa Clarita has set land use standards for noise in its General Plan Noise Element (June 25, 1991; First Amendment, May 23, 2000). One of the goals of the Noise Element is to mitigate, and if possible prevent, significant noise levels in residential neighborhoods. It requires that developers of new single-family and multi-family residential neighborhoods in areas where the ambient noise level exceeds 55 dBA (night) and 65 dBA (day) (or the equivalent of 65 dBA CNEL) provide mitigation measures for the new residences to reduce interior noise levels. Medical office buildings are acceptable in areas up to 70 dBA CNEL where no outdoor active uses are proposed and the interior noise levels are mitigated (California Department of Health 1978).

Freeway Traffic Noise

Based on Caltrans Website, annualized daily traffic volumes on the portion of the I-5 Freeway near Lyons Avenue ranges from 182,000 to 205,000 on a daily basis. For a balanced analysis, a daily traffic volume of 196,000 is used in this preliminary noise impact analysis. Using the posted speed limit of 65 miles per hour (mph) for the vehicles traveling through this area, and a 72-foot-wide (3 travel lanes each way) freeway with 30 feet active half width (AHW), the 24-hour weighted average community noise equivalent level (CNEL) is calculated at various distances

from the freeway centerline. Based on the preliminary site plan, the project's property line is approximately 66 to 115 feet from the nearest (northbound) travel lane. The proposed townhome buildings are located approximately 8 to 23 feet from the project's boundary. Therefore, for the worst case scenario, the proposed townhome buildings would be located approximately 110 feet from the freeway centerline. At this distance, freeway traffic would result in a noise level of 82 dBA CNEL with no sound walls or other intervening structures.

The project proposes to construct 3-story townhome buildings along the western boundary, with no windows or decks (or other outdoor active use areas) facing the freeway. These buildings essentially function as noise barriers for receptors on the project site and shield the traffic noise from receptors on the east side of the buildings. Using 30 feet as the height of the noise barriers, freeway traffic noise will be reduced from 82 dBA CNEL to 64 dBA CNEL. Therefore, receptors on the project site would not be exposed to freeway traffic noise exceeding the City's 65 dBA CNEL criteria.

The proposed townhome buildings should not have any gaps between the buildings to prevent any leakage of the traffic noise through the gaps. If these buildings desire to have windows facing the freeway direction, they should be upgraded with sound transmission class (STC) rating high enough to achieve the 45 dBA CNEL interior noise criteria for residential uses, as required by the State and City.

The proposed office building in the northwest portion of the project site would be exposed to traffic noise from the I-5 exceeding 70 dBA CNEL. However, no outdoor active use areas would be exposed to high traffic noise levels. Standard commercial building windows would provide sufficient exterior-to-interior noise attenuation to achieve the desirable interior noise environment for the office building. Assisted living units in the northeast corner of the project site will be mostly shielded from the I-5 traffic noise. With proper upgrades for windows associated with these assisted living units that are exposed to freeway traffic noise, the interior noise criteria of 45 dBA CNEL can be achieved.

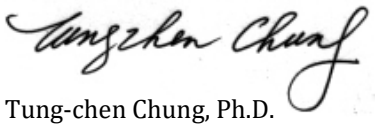
Other Noise Sources

In the project area, Wiley Canyon Road is another source for traffic noise that could potentially affect the proposed land uses. However, it is not a major thoroughfare and traffic noise from this roadway can be mitigated with sound walls along the project boundary. Sound wall height can range from 6 to 10 feet, depending on the projected future cumulative traffic volumes on Wiley Canyon Road. Actual wall height required will be analyzed when the future traffic volumes on Wiley Canyon Road are available. In addition, window STC rating should be determined with the projected future traffic volumes as well.

Conclusion and Recommendation

Based on the above analysis, it is ESA's opinion that the proposed land uses would not have significant noise impacts with the proposed design features along the I-5 Freeway and sound walls along Wiley Canyon Road, if required.

Sincerely,



Tung-chen Chung, Ph.D.
Principal Associate
ESA

ALLAN E. SEWARD
ENGINEERING GEOLOGY, INC.
Geological And Geotechnical Consultants

September 21, 2020 Job No.: 20-2593-4

Wiley Canyon LLC
c/o Sheridan Ebbert Development
13120 Telfair Avenue
Sylmar, CA. 91342

Attention: Mr. Scott Sheridan

Subject: **GEOTECHNICAL LETTER**
Preliminary Evaluation of Infiltration Rates

Project: Wiley Canyon
USMP/LID Exhibit dated 8/18/20
Santa Clarita, California

References: at end of text

Dear Mr. Sheridan:

This letter presents the results of field testing performed to estimate preliminary infiltration rates of on-site alluvium and associated conclusions regarding potential stormwater infiltration locations at the project site. Based on the results of our evaluation, the use of Low Impact Development (LID) stormwater quality control measures with an infiltration component is not recommended.

1.0 INTRODUCTION

The Wiley Canyon USMP/LID Exhibit prepared by Alliance Land Planning & Engineering, dated 8/18/20, illustrates two drainage basins at the southerly end of the project site, and a water quality basin at the northerly end of the project site. It is our understanding that these locations were previously being considered for stormwater infiltration. In January 2020, field testing was conducted at the water quality basin at the northerly portion of the project and at the southerly basin (north of the creek) using boring percolation test procedures. Infiltration rates of alluvium were measured at proposed basin invert elevations, which ranged from 9 to 12 feet below the existing ground surface. The appended Geotechnical Map illustrates the percolation test boring locations. The 8/18/20 Wiley Canyon USMP/LID Exhibit was used as a base for the Geotechnical Map.

2.0 REGULATORY REQUIREMENTS

In accordance with City of Santa Clarita policy, siting of stormwater quality control measures that are designed for infiltration must be in conformance with the requirements of Administrative Manual GS200.2 – Guidelines for Geotechnical Investigation and Reporting Low Impact Development Stormwater Infiltration, dated 6/30/2017, prepared by the Los Angeles County Department of Public Works, Geotechnical and Materials Engineering Division (GMED). Based on the current grading concept, the following requirements addressed in this report are considered to be the most critical to feasibility of stormwater infiltration:

- Subsurface materials shall have a corrected infiltration rate equal to or greater than 0.3 inches per hour.
- The invert of the storm water infiltration shall be at least 10 feet above the groundwater elevation.

3.0 GENERAL SUBSURFACE CONDITIONS

The subject site is underlain by undifferentiated quaternary alluvial and fluvial deposits. Based on the boring logs presented in the referenced reports these deposits generally consist of brown to yellowish brown, fine- to coarse-grained sands with some gravel and cobbles, with common interbeds of silty to clayey sand and sandy silt. At the locations of the percolation test borings, the alluvial deposits encountered consist of fine-grained silty sand and sandy silts in the upper 20 feet. The measured fines content of soil samples collected approximately at the proposed infiltration invert elevations ranged from 52 to 54 percent.

Ground water was encountered in 6 hollow-stem auger borings during LGC's subsurface exploration in 2007 (see Ref 3). The depth to groundwater ranged from about 58 to 66 feet below the ground surface at borings B-LGC-1, -2, -4 and -5, which are located within the central and northerly portions of the site. At borings B-LGC-8 and -9 located within the adjacent parcels to the south, groundwater was encountered from 35 to 42 feet below the ground surface. Based on the historically highest ground water contours included in the Seismic Hazard Zone Report for the Oat Mountain 7.5-Minute Quadrangle, the interpolated historic high ground water elevation is approximately 30 feet beneath the elevation of the existing ground surface.

4.0 FIELD AND LABORATORY INVESTIGATION

4.1 Subsurface Exploration

Two (2) 8-inch diameter hollow-stem auger borings (PB-1 and PB-2) were drilled by Choice Drilling Inc. to a maximum depth of 25 feet and logged by the undersigned Geotechnical Engineer on 1/15/20. The locations of the borings are shown on the Geotechnical Map (**Plate I**). The borings were drilled to evaluate subsurface conditions at and below proposed infiltration inverts. California drive ring samples and bulk samples were collected for laboratory testing. Following completion of logging and sampling the borings were backfilled with the excavated soils in an uncompacted state. Logs of the hollow-stem auger borings are included in **Appendix A**.

4.2 Field Infiltration Testing

4.2.1 Test Procedure

Infiltration testing was performed adjacent to each of the two hollow-stem-auger boring locations using the "Boring Percolation" test procedure outlined in the GMED LID Guidelines. The infiltration testing was performed as described below:

- At each location an 8-inch diameter borehole was excavated to at least 12 inches below the proposed infiltration invert using the hollow-stem-auger drill rig.
- A water delivery pipe with end cap was installed in the borehole to introduce water during the test. The water delivery pipe consisted of 2-inch diameter Schedule 40 PVC pipe, with Schedule 40 PVC slotted well screen in the lower 2 feet.
- A separate pipe was installed to monitor the water level during the test. This pipe consisted of 2-inch diameter Schedule 40 PVC slotted well screen.
- Following installation of the pipes, the annular space was backfilled with filter pack material to at least 6 inches above the slotted section of the water delivery pipe.
- Clear water was introduced into the boreholes using flexible tubing connected to a 13,000 mL graduated cylinder. The boreholes were filled to a water level 3 feet above the bottom of the borehole. A ball valve on the flexible tubing was used to maintain a constant head of 3 feet above the bottom during the test period. A flow meter was connected at the hydrant to record the volume of water used.
- After the initial filling, a ball valve on the flexible tubing was used to maintain a constant head elevation of 3 feet above the borehole bottom during the test period. The volume of water required to maintain the constant head was recorded using the graduated cylinders at 10-minute intervals until the flow rate stabilized.

4.2.2 Test Results

Results of the infiltration test as elapsed time (minutes) versus the raw, incremental infiltration rate (inches/minute) are graphically illustrated on the attached Boring Percolation Test Reports, **Figures 1 and 2**. The measured raw infiltration rates at a stabilized flow rate ranged from approximately 2.2 inches/hour at PB-1 to 0.6 inches/hour at PB-2. The infiltration surface area used to calculate the infiltration rate is equal to the sum of the wetted bottom surface area and wetted sidewall surface area for a 3-ft water height in the borehole.

4.2.3 Reduction Factors

In accordance with County of Los Angeles GMED infiltration design requirements, the measured infiltration rate should be corrected using the reduction factors defined below in **Table 1** to determine a design value that will represent the long-term performance of the storm water infiltration device.

Table 1 – Reduction Factors

REDUCTION FACTOR	DEFINITION	VALUE
RF_T	Test-specific reduction factor to account for direction of flow during the test and reliability of the test.	2
RF_V	Site variability, number of tests, and thoroughness of subsurface investigation	1 to 3
RF_S	Long-term siltation, plugging, and maintenance	1 to 3
Total reduction factor, $RF = RF_T + RF_V + RF_S$		
Design infiltration rate = measured infiltration rate / RF		

The stabilized infiltration rates measured in the field using the Boring Percolation test procedure should be adjusted using a reduction factor $RF_T = 2$, as indicated in the GMED LID Guidelines[1].

A reduction of the measured infiltration rate due to number of tests and thoroughness of investigation is not considered applicable at this time and an infiltration reduction factor of $RF_V = 1$ has been assumed for best-case scenario.

It is assumed that the storm water will be pre-treated prior to infiltration and that the infiltration devices will be subject to an operation and maintenance plan for ongoing

[1] Per the County of Los Angeles Department of Public Works, Geotechnical and Materials Engineering Division (GMED) Administrative Manual GS200.2 (dated 6/30/17).

maintenance provisions. However, long-term performance due to siltation has been shown to reduce infiltration rates even with maintenance. Therefore, a reduction factor of $RF_S = 2$ is assumed.

A summary of the measured infiltration rates, applied reduction factors, and associated corrected infiltration rates are provided in **Table 2**.

Table 2 – Summary of Infiltration Test Results

Geologic Unit	Infiltration Test	Finer than No. 200 Sieve Size, %	Measured Infiltration Rate, inches/hour	Reduction Factors			Corrected Infiltration Rate, inches/hour
				RF_T	RF_V	RF_S	
Qal	PB-1	52	2.2	2	1	2	0.4
	PB-2	54	0.6	2	1	2	0.1

Results of on-site field testing indicate measured (i.e. uncorrected) infiltration rates ranging from of 0.6 to 2.2 in/hr, with an average corrected infiltration rate less than **0.3 in/hr**.

4.3 Laboratory Testing

Laboratory testing was performed on samples collected from the hollow-stem auger borings to evaluate the in-situ dry density and moisture content (ASTM D2216 and D7263) within the upper 10 feet of the alluvium. Additional testing was performed at samples recovered approximately at the infiltration test elevation to aid in classifying the soils in accordance with the Unified Soil Classification System (USCS), including Percent Finer than No. 200 Sieve Size (ASTM D1140). Based on the laboratory test results, the alluvial soils that would be exposed at the planned infiltration locations classify as sandy silt with fines contents ranging from 52 to 54 percent (see **Figure 3**).

5.0 GENERAL CONCLUSIONS AND RECOMMENDATIONS

- Soils encountered in the borings used for the percolation tests are generally representative of conditions across the project site. The soils to a depth of 20 feet are predominately fine-grained soils or interbedded fine-grained and coarse-grained soils. Coarse-grained sandy soils are more predominant at depths below 20 ft at the site.
- Ground water is not anticipated to be a constraint for stormwater infiltration for at grade basin bottoms.
- Groundwater is expected to be a constraint for infiltration into the sandy soils at depth (i.e., use of dry wells).

- The average corrected infiltration rates from the test locations is **less than 0.3 inch/hour**. This infiltration rate is based on an applied reduction factor of 5. The measured infiltration rates are considered representative of the upper 20 feet of alluvium at the test locations.
- The average corrected infiltration rate measured in fine-grained alluvial soils is not considered suitable for infiltration-based water quality control measures.

6.0 LIMITATIONS

This report has been prepared for the exclusive use of Wiley Canyon LLC and their design consultants for the specific site discussed herein. This report should not be considered transferable. Prior to use by others, we should be notified, as additional work may be required to update this report.

In the event that any modifications in the design or location of the proposed development, as discussed herein, are planned, the conclusions and recommendations contained in this report will require a written review by this firm with respect to the planned modifications.

In performing these professional services, this firm has used the degree of care and skill ordinarily exercised under similar circumstances by reputable geologists and geotechnical engineers practicing in this or similar localities. The data presented in this report are based on results of pertinent field and laboratory testing. It should be recognized that subsurface conditions can vary in time, and laterally, and with depth at a given site and that the conclusions and recommendations presented in this report are based on our observations and testing. Therefore, our **conclusions** and **recommendations** are **professional opinions** and are **not meant** to be a control of nature. We make no other **warranty,** either **expressed** or **implied**.

This opportunity to be of service is appreciated. If you have any questions concerning this report, please call us.

Respectfully submitted,

Eric J. Seward, CEG 2110
Certified Engineering Geologist
Vice President

Kevin P. Callahan, MS, GE 2989
Geotechnical Engineer

The following attachment and appendix complete this report.

References

APPENDIX A

- Percolation Borings PB-1 and PB-2 and Key to Boring Log Symbols
- Boring Percolation Test Reports — Figures 1 and 2
- Particle-Size Distribution Test Report — Figure 3

Geotechnical Map — **Plate I**

Distribution:

Sheridan Ebbert Development (PDF format)
Attn: Mr. Scott Sheridan

Alliance Land Planning & Engineering (PDF format)
Attn: Mr. Craig Whitteker

REFERENCES

Published

County of Los Angeles, Department of Public Works, 2014, Low Impact Development Standards Manual, February.

County of Los Angeles, Department of Public Works, Geotechnical and Materials Engineering Division, 2017, Administrative Manual GS 200.2, Guidelines for Geotechnical Investigation and Reporting Low Impact Development Stormwater Infiltration, June 30.

County of Los Angeles, Department of Public Works, Geotechnical and Materials Engineering Division, 2013, Manual for Preparation of Geotechnical Reports, July 1.

By: Lawson & Associates Geotechnical Consulting, Inc.

1. **Preliminary Geotechnical Investigation**
   Proposed Development
   Located at 24923 Hawkbryn Drive
   Santa Clarita, California
   Dated March 25, 2004 – Project No: 033022-01

2. **Preliminary Geotechnical Investigation**
   8.28-Acre Site (known as the Taylor Parcel)
   West of Wiley Canyon Road
   Santa Clarita, California
   Dated February 23, 2005 – Project No: 033022-03

By: LGC Valley, Inc.

3. **Supplemental Geotechnical Investigation Report**
   Proposed Commons Development
   West of Wiley Canyon Road
   Santa Clarita, California
   Dated February 23, 2007 – Project No: 033022-05

Appendix A

CLIENT: Wiley Canyon LLC		JOB NO.: 20-2593-9	**DRILL HOLE LOG**
PROJECT: Tentative Tract Map Wiley Canyon		DATE: 9/21/20	
		LOGGED BY: KPC / CHS	
DRILLING COMPANY: Choice Dilling Inc.		DRILLED: 11/14/19	
DRILLING METHOD: Hollow-stem Auger		HOLE DIA: 8"	**BORING NO.** PB-1
HAMMER TYPE: Automatic		AVERAGE DROP: 30	
DRIVING WEIGHTS: 140 lbs.		ELEVATION: 1301'	

DEPTH (feet)	SAMPLE TYPE	BLOWS / 12"	GRAPHIC LOG	USCS SYMBOL	DESCRIPTION	LABORATORY TESTS: Moisture Content (%)	Dry Density (pcf)	% Fines	Other Tests
0				ML	**<u>ALLUVIUM</u>; Qal (0 - 20')** @ 0 - 9' Sandy SILT; moist; dark brown to medium brown with depth				Surface logged @ 0 - 9' Infiltration test conducted in separate, adjacent hole with infiltration invert at 9' depth
10	■	29		ML	@ 9' - stiff; damp; yellowish brown	3.8	105	52	Sieve
	■	31				5.5	107		
15	■	24				4.5	111		
20	■	27				6.1	112		
					TOTAL DEPTH 20' (Elev. 1281') No Ground Water				
25									
30									
35									

CLIENT: Wiley Canyon LLC		JOB NO.: 20-2593-9	**DRILL HOLE LOG**
PROJECT: Tentative Tract Map Wiley Canyon		DATE: 9/21/20	
		LOGGED BY: KPC / CHS	
DRILLING COMPANY: Choice Dilling Inc.		DRILLED: 11/14/19	
DRILLING METHOD: Hollow-stem Auger		HOLE DIA: 8"	**BORING NO.** PB-2
HAMMER TYPE: Automatic		AVERAGE DROP: 30	
DRIVING WEIGHTS: 140 lbs.		ELEVATION: 1314'	

DEPTH (feet)	SAMPLE TYPE	BLOWS / 12"	GRAPHIC LOG	USCS SYMBOL	DESCRIPTION	LABORATORY TESTS: Moisture Content (%)	Dry Density (pcf)	% Fines	Other Tests
0				SM-ML	**<u>ALLUVIUM</u>; Qal (0 - 25')** @ 0 - 12' Silty, fine-grained SAND to sandy SILT; loose/soft; moist; dark brown				Surface logged @ 0 - 12' Infiltration test conducted in separate, adjacent hole with infiltration invert at 12' depth
10				ML	@ 12' Sandy SILT; very stiff; moist; dark brown	10.4	112	54	Sieve
15		32							
		33				7.8	117		
20		29		SM-ML	@ 20' Sandy SILT to silty, fine-grained SAND; very stiff/medium dense; medium brown; scattered gravel	7.8	110		
25		Ref/ 6"			@ 25' - slightly more gravel; no recovey on CD sample				Small Bulk @ 25' from the cuttings
					TOTAL DEPTH 25' (Elev. 1289') No Ground Water				
30									
35									

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS GRAPH	SYMBOLS LETTER	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS (MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE)	GRAVEL AND GRAVELLY SOILS (MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE SIZE)	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	Well-graded gravels, gravel-sand mixtures, little or no fines
				GP	Poorly-graded gravels, gravel-sand mixtures, little or no fines
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	Silty gravels, gravel-sand-silt mixtures
				GC	Clayey gravels, gravel-sand-clay mixtures
	SAND AND SANDY SOILS (MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE SIZE)	CLEAN SANDS (LITTLE OR NO FINES)		SW	Well-graded sands, gravelly sands, little or no fines
				SP	Poorly-graded sands, gravelly sands, little or no fines
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SM	Silty sands, sand-silt mixtures
				SC	Clayey sands, sand-clay mixtures
FINE GRAINED SOILS (MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE)	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	Inorganic silts and very fine sands, clayey silts with slight plasticity
				CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, lean clays
				OL	Organic silts and organic silty clays of low plasticity
	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	Inorganic silts, micaceous or diatomaceous fine, sandy or silty soils, elastic silts
				CH	Inorganic clays of high plasticity, fat clays
				OH	Organic clays of medium to high plasticity, organic silts
HIGHLY ORGANIC SOILS				PT	Peat and other highly organic soils

Notes:
(1) Dual USCS symbols, such as SP-SM, denote 5 to 12% of minor constituent.
(2) Dual USCS symbols, such as SM/ML, denote borderline soil classifications.
(3) Subsurface information from boring and test pit logs depict conditions only at the specific locations. and dates indicated. Soil conditions and water levels at other locations may differ from conditions at these locations. Also, the conditions at these locations may change with time.
(4) Blow counts on logs are the number of blows to drive the sampler with the weight and drop height indicated on each log.
(5) Split-barrel sampler driving record applies only to hollow-stem-auger and rotary-wash borings.
(6) These logs are subject to the limitations, conclusions, and recommendations in this report.

HS: Hollow-stem-auger boring
RW: Rotary-wash boring
B: Bucket-auger boring

SAMPLE TYPE

STANDARD PENETRATION TEST
Split barrel sampler in accordance with ASTM D-1586 Test Method

CALIFORNIA DRIVE
Split-barrel sampler in accordance with ASTM D-3550 Test Method

DISTURBED CALIFORNIA DRIVE

SHELBY TUBE
Thin-walled sampler in accordance with ASTM D-1587 Test Method

BULK SAMPLE

NO RECOVERY

GROUND WATER DATA

GROUND WATER WHILE DRILLING

GROUND WATER AFTER DRILLING

DENSITY OF GRANULAR SOILS	
DESCRIPTION	SPT BLOWS PER FOOT
Very Loose	< 4
Loose	4 - 10
Medium Dense	11 - 30
Dense	31 - 50
Very Dense	> 50

STRENGTH OF COHESIVE SOILS	
CONSISTENCY	SPT BLOWS PER FOOT
Very Soft	< 2
Soft	2 - 4
Firm	5 - 8
Stiff	9 - 15
Very Stiff	16 - 30
Hard	> 30

SPLIT-BARREL SAMPLER DRIVING RECORD	
BLOW COUNT	DESCRIPTION
25	25 blows drove the sampler 12 inches, after initial 6 inches of seating
50/7"	50 blows drove the sampler 7 inches, after initial 6 inches of seating
Ref/3"	50 blows drove the sampler 3 inches during initial 6-inch seating interval

LABORATORY TESTING ABBREVIATIONS

Plasticity Index	PI	Compaction Curve	Curve=A
Liquid Limit	LL	Consolidation / Collapse	Consol
Hydrometer	%-5 micron	Direct Shear / Reshear / Remold	Shear Test
Expansion Index	EI		
Corrosivity Analysis	Cor		

ALLAN E. SEWARD
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USCS Soil Classification and Key to Boring Log Symbols

ALLAN E. SEWARD
ENGINEERING GEOLOGY, INC.
GEOLOGICAL AND GEOTECHNICAL CONSULTANTS

BORING PERCOLATION TEST REPORT
CONSTANT HEAD

Client:	Wiley Canyon LLC			Borehole Depth [ft]:	9
Project:	Tentative Tract Map Wiley Canyon			Borehole Diameter [in]:	8
				Seasonal High GW Elev.:	1271
Project No.:	20-2593-4			Test Invert Elevation:	1292
Test Date:	1/15/20	Test By:	K. Callahan	Soil Type at Invert:	Qal
Location:	PB-1			USCS Soil Type at Invert:	ML

Test Start Time:	2:00 PM	Stabilized flow rate [in^3/min]:	35.3
Standard Time Interval (min):	10	Total volume infiltrated [in^3]:	3587
Test Duration (min):	100	Total Reduction Factor:	5
Water Remaining after 24 hr?:	No	***Design Infiltration Rate (in/hr):***	**0.4**

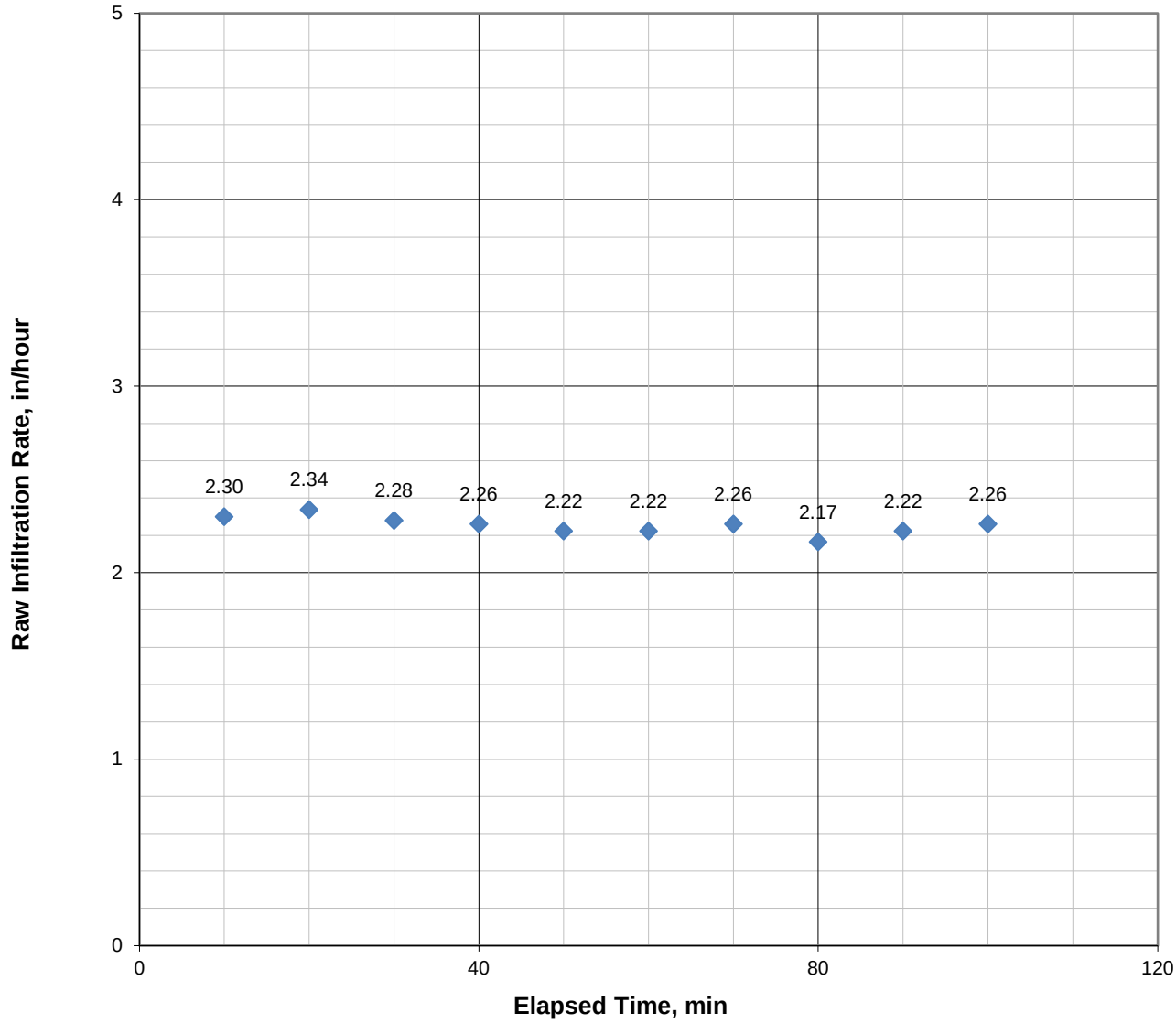


Figure 1

ALLAN E. SEWARD
ENGINEERING GEOLOGY, INC.
GEOLOGICAL AND GEOTECHNICAL CONSULTANTS

BORING PERCOLATION TEST REPORT
CONSTANT HEAD

Client:	Wiley Canyon LLC			Borehole Depth [ft]:	12
Project:	Tentative Tract Map Wiley Canyon			Borehole Diameter [in]:	8
				Seasonal High GW Elev.:	1284
Project No.:	20-2593-4			Test Invert Elevation:	1302
Test Date:	1/15/20	Test By:	K. Callahan	Soil Type at Invert:	Qal
Location:	PB-2			USCS Soil Type at Invert:	ML

Test Start Time:	2:00 PM	Stabilized flow rate [in^3/min]:	10.4
Standard Time Interval (min):	10	Total volume infiltrated [in^3]:	1147
Test Duration (min):	100	Total Reduction Factor:	5
Water Remaining after 24 hr?:	No	***Design Infiltration Rate (in/hr):***	**0.1**

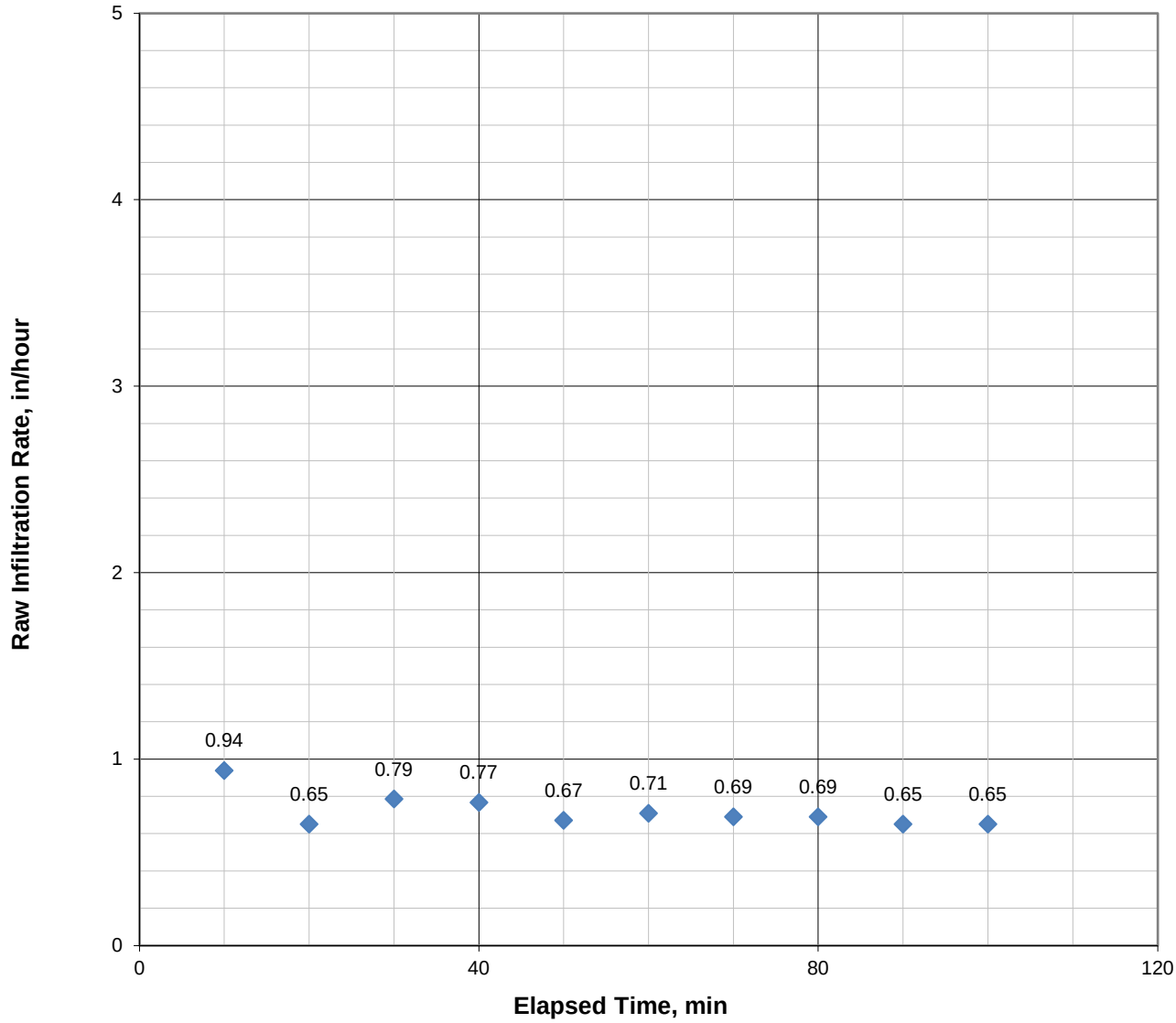
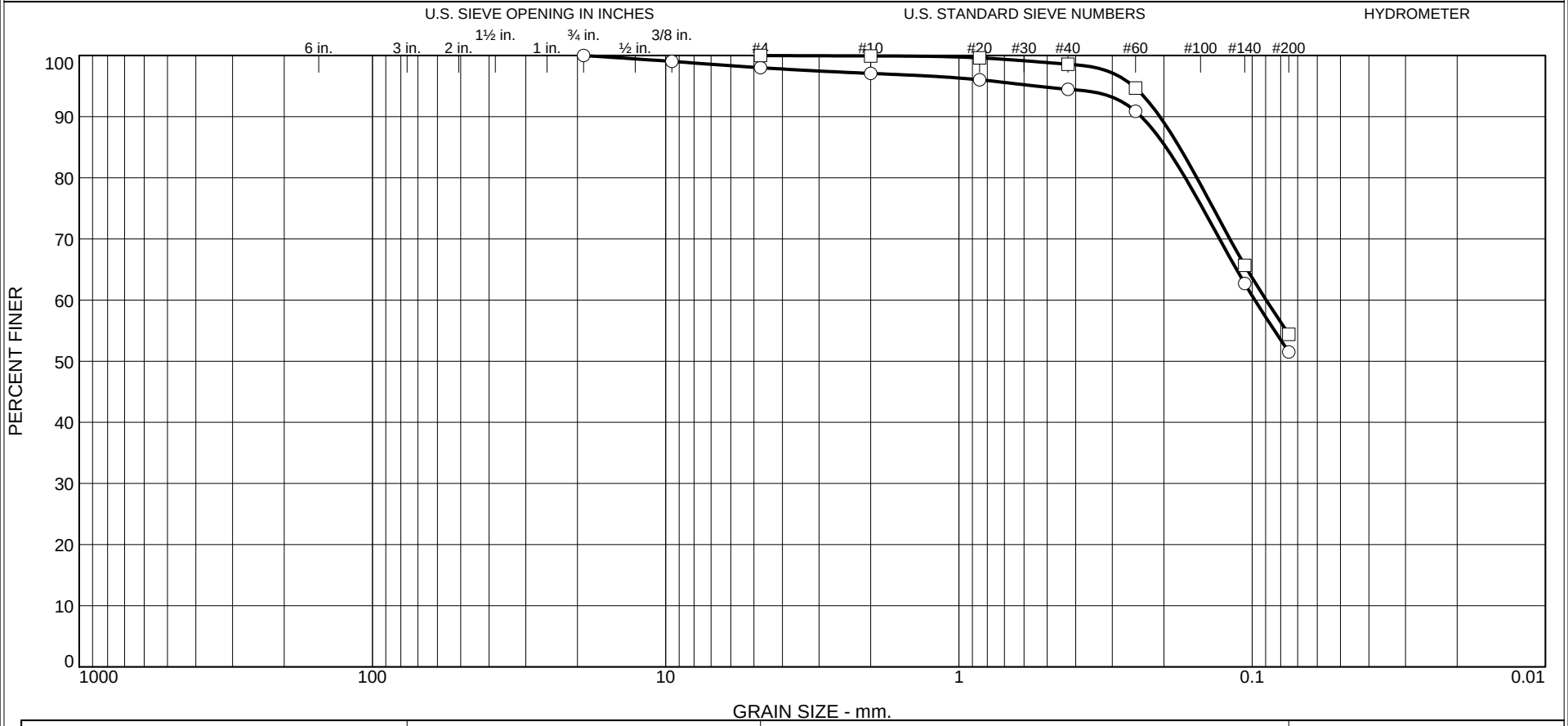


Figure 2

Particle Size Distribution Test Report



	% +3"	% Gravel		% Sand			% Fines
		Coarse	Fine	Coarse	Medium	Fine	Silt
○	0.0	0.0	2.0	0.9	2.6	43.0	51.5
□	0.0	0.0	0.0	0.1	1.3	44.2	54.4

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	PB-1		9'	11-14-19	ML	Yellowish-brown sandy SILT			
□	PB-2		12'	11-14-19	ML	Dark-brown, sandy SILT			

Client Wiley Canyon LLC

Project Tentative Tract Map

Wiley Canyon

Project No. 20-2593-9 Figure 3

ALLAN E. SEWARD

ENGINEERING GEOLOGY, INC.

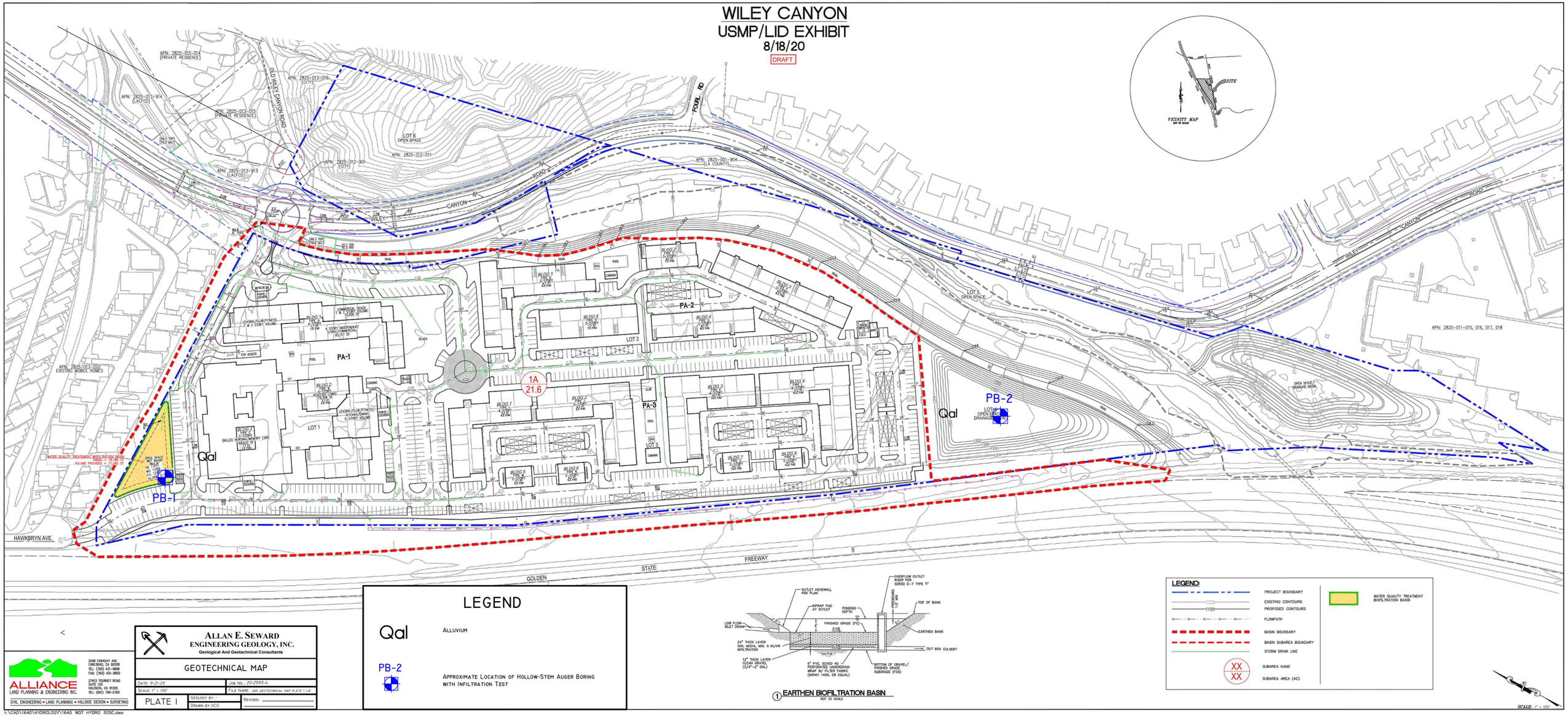
Valencia, California

○ Alluvium encountered in vicinity of proposed infiltration invert elevation

□ Alluvium encountered in vicinity of proposed infiltration invert elevation

WILEY CANYON
USMP/LID EXHIBIT
8/18/20

DRAFT



LEGEND

Qal	ALLUVIUM
PB-2	APPROXIMATE LOCATION OF HOLLOW-STEM AUGER BORING WITH INFILTRATION TEST

① EARTHEN BIOFILTRATION BASIN
NOT TO SCALE

LEGEND:

- PROJECT BOUNDARY
- EXISTING CONTOURS
- PROPOSED CONTOURS
- FLOWPATH
- BASIN BOUNDARY
- BASIN SUBAREA BOUNDARY
- STORM DRAIN LINE
- XX / XX — SUBAREA NAME / SUBAREA AREA (AC)
- WATER QUALITY TREATMENT BIOFILTRATION BASIN

SCALE: 1" = 100'

ALLIANCE LAND PLANNING & ENGINEERING INC.
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ALLAN E. SEWARD ENGINEERING GEOLOGY, INC.
Geological And Geotechnical Consultants

GEOTECHNICAL MAP

DATE: 9-21-20	JOB NO.: 20-2593-4
SCALE: 1" = 100'	FILE NAME: AES GEOTECHNICAL MAP PLATE I LID
PLATE I	GEOLOGY BY: -
	DRAWN BY: VCG
	REVISED:

I:\CAD\1640\HYDROLOGY\1640 WQT HYDRO SOSC.dwg

626 Wilshire Boulevard
Suite 1100
Los Angeles, CA 90017
213.599.4300 phone
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esassoc.com

technical memorandum

date	January 13, 2020
to	Mr. Scott Sheridan, Wiley Canyon LLC
cc	Ms. Erin Stanley, Alliance Engineering Ms. Lina Gomez, Wiley Canyon LLC
from	Alan Sako, LEED AP BD+C, ESA Daryl Koutnik, Ph.D, ESA
subject	Preliminary Air Quality Assessment from Proximity to the Interstate 5 Freeway for the Wiley Canyon Mixed Use Project; City of Santa Clarita, California

Introduction and Project Understanding

Environmental Science Associates (ESA) has reviewed the preliminary site plan for the proposed Wiley Canyon Mixed Use Project in the City of Santa Clarita, California. The following summarizes ESA's professional opinion on potential air quality impacts to future Project occupants from emissions generated by vehicles and trucks traveling on the Interstate 5 (I-5) Freeway in the vicinity of the Project Site.

The Wiley Canyon LLC proposes to develop a mixed use Project that includes senior and non-senior residential, assisted living, office, and retail uses in the City of Santa Clarita, California (Project). The Project Site is located between Wiley Canyon Road and the I-5 Freeway, south of Wabuska Street and north of Calgrove Boulevard. The proposed Project would serve as a gateway to the City of Santa Clarita connecting to the greater Los Angeles and Southern California regions to the south.

Based on the preliminary site plan (Architects Orange, January 10, 2020), the proposed Project would include commercial uses and assisted living units along Wiley Canyon Road in the eastern portion of the Project Site. The northwest portion of the Project Site would be developed with a 3-story office building. The western portion of the Project Site towards the I-5 Freeway would be developed with townhomes with enhanced elevations and no windows or decks facing the freeway. The closest lane of traffic on the I-5 Freeway would be approximately 66 feet to 115 feet from the Project Site property line where development would occur. The townhomes along the Project Site's western boundary would have an additional buffer distance ranging from approximately 5 feet to 24 feet from the property line. ESA's preliminary assessment of air quality impacts to the future Project occupants from emissions generated by vehicles and trucks traveling on the I-5 Freeway is presented below.

Relevant Air Quality Guidance and Regulations

The State and federal agencies have adopted regulations and guidance documents for the purpose of reducing mobile source emissions and reducing potential exposures and related health effects to such emissions. Regulations and guidance documents particularly relevant to emissions from vehicles traveling on freeways are discussed below.

Regulations that Reduce Mobile Source Emissions

Passenger Vehicle and Light-Duty Truck Regulation

In April 2010, federal standards were adopted for passenger cars and light-duty trucks for model years 2012 through 2016. The rule surpassed the prior Corporate Average Fuel Economy (CAFE)[1] standards and required an average fuel economy standard of 35.5 miles per gallon (mpg) and 250 grams of carbon dioxide (CO_2) per mile by model year 2016, based on U.S. Environmental Protection Agency (USEPA) calculation methods.

In August 2012, vehicle emission standards for passenger cars and light-duty trucks were adopted for model years 2017 through 2025. However, in September 2019, the USEPA published the final Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule in the Federal Register,[2] which maintains the CAFE and CO_2 standards applicable in model year 2020 for model years 2021 through 2026. The estimated CAFE and CO_2 standards for model year 2020 are 43.7 mpg and 204 grams of CO_2 per mile for passenger cars and 31.3 mpg and 284 grams of CO_2 per mile for light trucks, projecting an overall industry average of 37 mpg, as compared to 46.7 mpg under the standards issued in 2012. In September 2019, the USEPA also published the final rule for the One National Program on Federal Preemption of State Fuel Economy Standards that finalizes critical parts of the SAFE Vehicles Rule, makes clear that federal law preempts state and local tailpipe greenhouse gas (GHG) emissions standards as well as zero emission vehicle (ZEV) mandates, and revokes California's federal Clean Air Act waiver for adopting more stringent standards. The SAFE Vehicles Rule and One National Program on Federal Preemption of State Fuel Economy Standards are currently in litigation.

Truck and Bus Regulation

In 2008, the California Air Resources Board (CARB) approved the Truck and Bus regulation to reduce nitrogen oxide (NO_X), respirable particulate matter with a diameter of 10 microns or less (PM10), and fine particulate matter with a diameter of 2.5 microns or less (PM2.5) emissions from trucks and buses operating in California (California Code of Regulations, Title 13, Section 2025). The regulation applies to nearly all medium- and heavy-duty diesel-fueled trucks and buses with a gross vehicle weight rating (GVWR) greater than 14,000 pounds and generally requires the installation of particulate matter (PM) best available control technology (BACT), typically PM filters that reduce diesel particulate matter by 85 percent, and replacing engines with models that meet the 2010 engine standards or better.

For the largest trucks and buses in the fleet, those with a GVWR greater than 26,000 pounds, pre-1996 model year engines were required to be replaced with model year 2010 engines by 2016. Model year 1996 and newer engines were required to meet the PM BACT requirements by 2014 (or by 2016 if using the regulation's fleet-

[1] The Corporate Average Fuel Economy standards are regulations in the United States, first enacted by Congress in 1975, to improve the average fuel economy of cars and light trucks. The U.S Department of Transportation has delegated the National Highway Traffic Safety Administration as the regulatory agency for the Corporate Average Fuel Economy standards.

[2] Federal Register, Vol. 84, No. 188, Friday, September 27, 2019, Rules and Regulations, 51310-51363.

wide "phase-in" option for large trucks and buses) and are required to phase-in model year 2010 engines from 2020 through 2023. For lighter trucks and buses with a GVWR of 14,001 to 26,000 pounds, engine model year 1999 and older were required to be replaced with model year 2010 engines by 2019 (or by 2020 if using the PM BACT compliance option for lighter trucks and buses). Model year 2000 and newer are required to phase-in model year 2010 engines from years 2020 through 2023. School buses as defined by the California Vehicle Code (CVC) section 545, with a GVWR more than 14,000 pounds were required to phase-in PM filters from 2012 to 2014. If a school bus engine cannot be equipped with a PM filter, as of 2018, it had to be replaced with a model year 2010 engine or an engine that meets the compliance schedule for large trucks and buses or lighter trucks and buses as described above.

As of January 1, 2020, to help ensure that the benefits of this regulation are achieved, Senate Bill 1 (Beall, 2017) was approved and only allows vehicles compliant with this regulation to be registered by the California Department of Motor Vehicles. According to CARB, "heavy-duty on-road vehicles are… a significant source of pollutants" and "the Truck and Bus Regulation is one of the most far-reaching and important tools to reduce smog-forming and toxic emissions and protect public health in disadvantaged communities" and "is a key element in CARB's Diesel Risk reduction plan and the State Implementation Plan, both of which are designed to provide clean air for Californians by helping to meet state and federal health-protective standards."[3]

All CARB regulations for trucks, buses, and off-road vehicles, including the Truck and Bus Regulation, continue to be California law. In particular, the Truck and Bus regulation did not require a federal Clean Air Act waiver from the USEPA and therefore is not at issue in the action of the Trump Administration under the One National Program on Federal Preemption of State Fuel Economy Standards, which revoked California's waiver for the passenger vehicle and light-duty truck emission standards (currently in litigation).

California Air Resources Board Air Quality and Land Use Handbook

The CARB Air Quality and Land Use Handbook[4] was published in 2005 as a guidance to assist local planning agencies in reducing health risks from air pollution in all California communities. The guidance is not regulatory or binding on local agencies; however, it provides recommendations for siting new sensitive uses near sources of air pollution including near freeways. According to the guidance, mobile sources of emissions on freeways generate three carcinogenic toxic air contaminants that constitute the majority of the known health risk from motor vehicle traffic: diesel particulate matter (diesel PM) emitted from diesel-fueled trucks, and benzene and 1,3-butadiene from emitted from gasoline-fueled passenger vehicles.

The guidance states that freeway toxic air contaminant exposure and health risk drops substantially within the first 300 feet from the freeway and generally recommends to avoid siting new sensitive land uses within 500 feet of a freeway, urban roads with 100,000 vehicles per day, or rural roads with 50,000 vehicles per day. The guidance also recognizes that local planning agencies have a responsibility to balance other considerations, including housing and transportation needs, economic development priorities and other quality of life issues and to consider site-specific project design features that reduce air pollution exposures. In addition, the guidance

3 California Air Resources Board, Truck and Bus Regulation – About, https://ww2.arb.ca.gov/our-work/programs/truck-and-bus-regulation/about. Accessed January 6, 2020.

4 California Air Resources Board, Air Quality and Land Use Handbook: A Community Health Perspective, April 2005.

recognizes that health risks from mobile sources, in particular diesel PM, will decrease over time as cleaner technology phases in.

California Air Resources Board Technical Advisory

In April 2017, CARB published a Technical Advisory[5] supplement to the Air Quality and Land Use Handbook that provides planners and other stakeholders involved in land use planning and decision-making with information on scientifically based strategies to reduce exposure to traffic emissions near high-volume roadways.

The Technical Advisory incorporates research conducted after publication of the 2005 Air Quality and Land Use Handbook, and indicates that it is possible that near-roadway pollution exposure had been previously underestimated and that people living as much as 1,000 feet from freeways are adversely impacted by poor air quality at night and in the early morning hours due to time-of-day-changes in air pollutant dispersion patterns. However, the additional research also demonstrates that there are alternative strategies that can protect public health. The strategies include those that reduce traffic emissions, such as vehicle speed reduction mechanisms, including roundabouts, traffic signal management, and speed limit reductions on high-speed roadways. Strategies also include those that increase the dispersion of traffic emissions, such as implementing designs that promote air flow and pollutant dispersion along transportation corridors (e.g., wider sidewalks, bicycle lanes, streets characterized by buildings of varying heights), solid barriers such as sound walls, and vegetation for pollutant dispersion. Other strategies include those that remove pollution from the air such as indoor high efficiency filtration.

According to CARB, this Technical Advisory demonstrates that planners, developers, and local governments can pursue infill development while simultaneously reducing exposure to traffic-related pollution by implementing strategies and policies that promote sustainable communities in line with overall State of California planning priorities that emphasize infill development, which can help attain goals to promote equity, strengthen communities and the economy, protect the environment, reduce air pollutant and GHG emissions, and promote public health and safety. This Technical Advisory is not intended as guidance for any specific project, nor does it create any presumption regarding the feasibility of mitigation measures for purposes of compliance with the California Environmental Protection Act (CEQA). While this Technical Advisory acknowledges that it is possible that people may be adversely impacted by poor air quality within 1,000 feet from freeways, it also acknowledges that a compact development pattern is a key strategy in reducing air pollutant emissions, achieving the State's legislative mandate to reduce GHG emissions, improving public health through physical activity, and other community and economic benefits. As stated in the Technical Advisory, a development strategy that mandates far separation distances may spur more dispersed development, which is associated with more vehicle travel and thus more emissions, which would undercut the environmental and health benefits.

Preliminary Air Quality Assessment from Proximity to Freeway

Declining Mobile Source Emissions

The mobile source regulations described above have resulted in emissions reductions from passenger vehicles, light-duty trucks, and heavy-duty trucks and buses and will continue to reduce emissions as older vehicle models

5 California Air Resources Board, Technical Advisory: Strategies to Reduce Air Pollution Exposure Near High-Volume Roadways, April 2017.

are retired and replaced with newer, less polluting models. In particular, emissions from trucks and buses have declined and ambient diesel PM concentrations in California dropped 68 percent between 1990 and 2012[6] even though total vehicle miles traveled have increased over the same time period. Compliance with post-2012 regulatory mandates, particularly the 2023 deadline for the Truck and Bus regulation, would result in further reductions in mobile source emissions, including diesel PM. The South Coast Air Quality Management District (SCAQMD), which is the local air quality management agency for the region consisting of Los Angeles County (excluding the Antelope Valley), Orange County and urbanized portions of Riverside and San Bernardino Counties, has estimated that approximately 90 percent of toxic air contaminant health risks is attributable to emissions associated with mobile sources and that nearly 70 percent of this risk is associated with diesel PM emissions.[7] Therefore, declining mobile source emissions, particularly diesel PM, as a result of compliance with current and future year regulatory mandates are expected to result in substantial reductions in toxic air contaminant exposures and health risks beyond 2020 when the Project, if approved, would become operational.

Project Design Features to Reduce Exposures to Toxic Air Contaminants

As described above, the closest lane of traffic on the I-5 Freeway would be approximately 66 feet to 115 feet from the Project Site property line where development would occur. The townhomes along the Project Site's western boundary would have an additional buffer distance ranging from approximately 5 feet to 24 feet from the property line. While the total buffer distance to the I-5 Freeway from sensitive land uses would be less than the recommended distances in CARB's 2005 Air Quality and Land Use Handbook and the 2017 Technical Advisory, the Project would incorporate several features to reduce exposures consistent with CARB's Technical Advisory.

Solid Barriers

The western portion of the Project Site towards the I-5 Freeway would be developed with 3-story townhome buildings with enhanced elevations and no windows or decks facing the freeway. Since these townhomes would not have windows or decks facing the freeway, they would act as solid barriers. According to the CARB Technical Advisory, solid barriers reduce near-road downwind concentrations by increasing vertical dispersion of pollutants emitted by vehicles with downwind reduction in pollutant concentrations ranging from 10 percent to 50 percent compared to concentrations measured on or directly adjacent to high-volume roadways. Studies cited in the Technical Advisory found decreased air pollutant concentrations downwind of the barrier and that higher barriers would result in greater downwind reductions. Therefore, the 3-story townhome buildings on the Project's western boundary with enhanced elevations would have a beneficial effect for increasing pollutant dispersion and reducing downwind pollutant concentrations. This would also benefit the proposed residential, assisted living uses, and commercial uses on the interior and eastern portions of the Project Site by reducing downwind pollutant concentrations from the I-5 Freeway.

Indoor High Efficiency Filtration

According to the USEPA, the average American spends approximately 90 percent of their time indoors.[8] Thus, reducing the entry of air pollutants into indoor environments from nearby roadways is critical for mitigating adverse health impacts as is acknowledged in the CARB Technical Advisory. The California Title 24-2019

6 Propper, R., et al., Ambient and emission trends of toxic air contaminants in California. Environmental Science & Technology, 2015.

7 South Coast Air Quality Management District, Final Report: Multiple Air Toxics Exposure Study in the South Coast Air Basin, May 2015.

8 U.S. Environmental Protection Agency, Report to Congress on indoor air quality: Volume 2, EPA/400/1-89/001C, 1989.

building energy efficiency standards, which went into effect on January 1, 2020, require indoor air filters in non-residential, low-rise residential, and high-rise residential that have a rating equal to or greater than the American Society of Heating, Refrigeration and Air-Conditioning Engineers (ASHRAE) Standard 52.2 Minimum Efficiency Reporting Value (MERV) 13, which has reduction efficiencies of 50, 85, and 90 percent for particles with diameter ranges of 0.3 to 1.0 micrometers (µm), 1.0 to 3.0 µm, and 3.0 to 10.0 µm, respectively. While, the ASHRAE Standard 52.2 does not specify removal efficiencies for ultra-fine particles (UFP) smaller than 0.3 µm in diameter, the CARB Technical Advisory notes that a few studies have evaluated the performance of high efficiency filtration on UFPs and concluded that MERV 13 filters are effective in removing UFPs and that MERV 13 or higher can achieve substantial removal of UFPs in real residential environments (greater than 50 percent removal efficiency).

Site-Specific Features

The Project Site is located to the east of the I-5 Freeway. Based on meteorological data from the SCAQMD from the nearest station to the Project Site (Station #23130 located at the Van Nuys Airport approximately 11 miles to the south-southeast of the Project Site), the dominant wind direction during the daytime hours (i.e., 7:00 a.m. to 7:00 p.m.) is from the south-southeast, which would tend to disperse pollutants from the I-5 Freeway away from the Project Site. There are two dominant wind directions during the nighttime hours (i.e., 7:00 p.m. to 7:00 a.m.) from the south-southeast, which would tend to disperse pollutants from the I-5 Freeway away from the Project Site, and from the west-northwest-north, which would tend to disperse pollutants from the I-5 Freeway towards the Project Site. While wind directions can vary throughout the day in all directions, this wind pattern data indicates that, given the Project's location on the east side of the I-5 Freeway, pollutants from the I-5 Freeway would tend to be dispersed away from the Project Site more often than towards the Project Site, which would help to reduce pollutant exposures that would otherwise occur if the dominant wind pattern was in the direction of the Project Site for the majority of the time.

Conclusion and Recommendation

Based on the above preliminary analysis, it is ESA's opinion that the proposed Project includes appropriate design features and is located in an appropriate direction relative to the I-5 Freeway such that air pollutant exposures and related health effects from emissions generated by vehicles on the I-5 Freeway would be substantially reduced. The incorporation of indoor air filters rated at the required MERV 13 level would substantially reduce concentrations of diesel PM within the Project's building interiors.

Nonetheless, ESA recommends that a quantitative freeway health risk assessment be conducted to estimate the health risk impacts to the future Project occupants. The assessment would incorporate emissions reductions from mobile sources pursuant to the regulations and project design features discussed above, and provide quantitative health risk data for decision makers and the public that would allow for more informed decision making, such as determining if additional feasible design considerations or mitigation measures should be considered. Additional measures could include: indoor air filters rated higher than MERV 13 (e.g., MERV 14, etc.); created additional buffer space to increase the separation distance between the I-5 Freeway and sensitive land uses on the Project Site (e.g., place parking between the 3-story townhomes and the I-5 Freeway); among other considerations.

Development Review Committee
Master Case No. 20-074
One Stop 20-009
July 2, 2020

Project Planner: Erika Iverson

Applicant: Wiley Canyon, LLC
c/o Tom Clark and Scott Sheridan
13120 Telfair Avenue
Sylmar, CA 91342

Engineer: Erin Stanley; Alliance Engineering
27413 Tourney Road
Santa Clarita, CA 91355

Location: 24924 Hawkbryn Avenue
Santa Clarita, CA 91321
Assessor Parcel Numbers: 2825-012-007, -010, -011; and
2825-012-901 and -902

Proposal: The applicant is requesting a One Stop Review for a mixed-use project in the Mixed Use Neighborhood (MX-N) zone. The project includes 375 multi-family residential units, 87 independent senior living units, a 100-bed assisted living facility, an 88-bed skilled nursing/memory care facility, and 10,000 square feet of ground floor commercial space. Total new floor area on the site would be 677,280 square feet. The project site is approximately 31 acres, is located within 500' of Interstate 5, and is located in a Planned Development Overlay zone, flood hazard zone, seismic zone, and a fire hazard zone.

Note: The comments provided in this document are preliminary. Additional comments or conditions of approval may be issued upon re-submittal. If you have any questions or need more information, please call Erika Iverson, Associate Planner, at (661) 255-4330. Your planner is always available to meet with you by appointment.

Key Observations

- The subject property has significant environmental issues and an Environmental Impact Report is required. See Comment PL4.
- A Health Risk Assessment is required. See Comment PL6.
- The subject property is in the Planned Development Overlay zone. Any development will require a Conditional Use Permit. See Comment PL7.
- The proposed development does not meet the minimum floor area ratio for the commercial component required by the MX-N zone. See Comment PL9.

- The proposed development includes improvements on property under the ownership of Los Angeles County Flood Control District and City of Santa Clarita and will require coordination/approval for right of way improvements and flood channel alterations. See Comments PL14 and EN 16.
- The project is located adjacent to the I-5 freeway and Caltrans right of way. The project should incorporate design features to provide appropriate visual and sound buffer for the residential uses. Proposed improvements may require additional permits from Caltrans. See Comments PL18, PL26, PL55, LR6, and EN17.
- Required residential parking spaces shall be covered. See Comments PL45 and PL46.
- The project is located in FEMA Flood Zone (A, AO) and will be required to provide a floodplain study and complete a CLOMAR. See Comment EN12.
- Extensive roadway improvements will be required. See Comments TR4-TR6.
- The applicant shall be responsible to pay the applicable development impact fees including Park Land Dedication fee and Bridge and Thoroughfare District fee. See Comments TR12 and PR1.
- The site plan does not meet the access requirements from the Los Angeles County Fire Department and will need to be revised. See LACFD Comments in Appendix A.
- A noise study will be required to ensure interior noise levels in habitable rooms will not exceed 45 dB. See Comment BS8.
- A natural trail connecting Wiley Canyon Road and Calgrove Boulevard will be required. See Comment PR3 and PL20.

PLANNING DIVISION: Erika Iverson; 661.255.4330

Entitlements:

PL1. Should the applicant choose to move forward with this project, the One Stop fee of $1,450 shall be applied toward the required entitlement fees upon formal submittal. The following entitlements are, or may be, required for the project:

Table 1: Land Use Entitlements	**Fee**
Architectural Design Review: An Architectural Design Review (ADR) is required for all new development. If buildings are submitted separately, each building shall require its own ADR. In addition to the ADR fee, the applicant shall be responsible for the outside cost for the City's architectural consultant.	$1,240*
Minor Use Permit: A Minor Use Permit (MUP) is required for certain land uses such as developments that provide less than the minimum floor area ratios and/or densities required by the MX-N zone.	$2,575

Conditional Use Permit: A Conditional Use Permit (CUP) is required for all development within the Planned Development Overlay. A CUP is also required for certain land uses, such as gating and a residential care facility. A CUP requires a public hearing and approval by the Planning Commission.	$7,225
Development Review Permit: A Development Review Permit is required for new development including buildings, parking lots, etc.	$5,509
Tentative Tract Map: A Tentative Tract Map (TTM) shall be required to create new lots on the subject property.	$21,525
Oak Tree Permit: Based on the proposed site plan, multiple oak trees would be removed or impacted. Therefore, an Oak Tree Permit shall be required. The fee is based on the size and quantity of impacted trees.	$2,585
Landscape Plan Review: A Landscape Plan Review (LPR) is required to ensure the City's landscaping standards are met. An LPR will not be required prior to project approval but will be required prior to the issuance of a grading permit.	$945*

*plus outside consultant fees

All fees listed above are current as of July 2, 2020. Entitlement fees typically adjust in September as directed by the City Council. The applicant shall pay the fee in place at the time of formal submittal and/or when the application is deemed complete. Prior to submittal, please contact the Planning Division or check the City's website to verify the current fee schedule. Upon project approval, the applicant shall also be responsible for any filing fees required by the Los Angeles County Clerk/Recorder.

PL2. Upon formal submittal, the applicant, is eligible for a credit of $1,450. This reflects the One Stop fee submitted for the project. The credit shall be given at the time of formal submittal.

PL3. The project site is traversed by the south fork of the Santa Clara River, a designated blue-line stream. Any modification to this resource shall require the approval of the Army Corps of Engineers and may require approval of the Regional Water Quality Control Board. The project site also contains plant communities, including riparian species, which would need to be analyzed. Upon formal submittal, please provide a jurisdictional delineation to clarify which agencies have jurisdiction on the impacted waterway.

PL4. The project will require an Initial Study, Environmental Impact Report (EIR), and potentially a Statement of Overriding Considerations (SOC). The Initial Study

would analyze several areas of concern including impacts to Prime Farmland as designated by the State of California, air quality, biology, traffic, and hazards. The Initial Study will likely require additional technical studies to support the EIR. The applicant is encouraged to address environmental issues early in the planning process and retain qualified consultants who can assist in the preparation of the required technical studies. Fees for the Initial Study and Environmental Impact Report are listed below:

Table 2: Environmental Entitlements	**Fee**
Initial Study: An Initial Study shall be required in accordance with the California Environmental Quality Act (CEQA). The Initial Study will determine which categories will need to be addressed in the project EIR.	$2,770
Environmental Impact Report: An EIR will be required due to the project's impact on the environment. At a minimum, the project could significantly impact agricultural resources. Other areas of concern include air quality, biology, hydrology, land use, public services, and traffic.	$44,910

The applicant is advised additional technical reports will be necessary. In lieu of the EIR fee listed above, the City may require an alternative calculation for the fee/deposit: 10% of the contract value if the contract exceeds $40,280; or, a $43,600 deposit with charges at the fully-allocated hourly rate for all personnel involved in the preparation of the EIR, as determined by staff.

PL5. Consultation with applicable Native American tribes is required. Upon formal submittal, the plans will be routed to Tribal authorities who will determine if consultation is necessary. The applicant is encouraged to engage with the applicable tribes early in the development process.

PL6. The project is located within 500' of the edge of the Interstate 5 (I-5) right-of-way (ROW). As such, a health risk assessment shall be required to determine air quality impacts on sensitive uses (UDC Section 17.57.020.I). The health risk assessment will be addressed as part of the project's environmental analysis and shall be completed prior to the circulation of the draft EIR. Upon formal submittal, the site plan shall be revised, or a separate exhibit provided, to show the 500' zone from the boundary of the I-5 ROW. The 500' zone shall be measured from the boundary of Caltrans ROW, not the edge of pavement for I-5.

General Plan Consistency/Land Use

PL7. The project is located in the Mixed Use Neighborhood (Planned Development Overlay) (MX-N(PD)) zone. The MX-N(PD) zone is intended for mixed use development. Mixed use developments may be horizontal or vertical. Nonresidential uses are consistent with those uses allowed in the Neighborhood Commercial (CN) zone or the Community Commercial (CC) zone.

PL8. A Conditional Use Permit (CUP) is required for all development within the Planned Development Overlay zone. A CUP is also required for gating, and for a residential healthcare facility (the proposed assisted living and memory care center).

PL9. The required residential density for projects in the MX-N(PD) designation is a minimum of 6 units per acre and a maximum of 18 units per acre. Based on a project area of 31 acres, the project could have 186-558 units. As proposed, the 375 market rate residential units and 87 independent senior apartments (462 residential units) would be consistent with the density for the MX-N(PD) zone.

The minimum Floor Area Ratio (FAR) for commercial uses for the MX-N(PD) zone is 0.2, and the maximum FAR is 0.5. Based on 31 acres and the standards for the MX-N(PD) zone, the project would need to contain between 270,072 and 675,180 square feet of commercial uses. The total floor area of the Assisted Living, Skilled Nursing, and commercial retail/office is 157,978 square feet, which does not meet the minimum floor area for commercial uses.

A Minor Use Permit (MUP) will be required for floor area ratios and densities that do not meet the minimum requirement. A formal application request seeking an MUP for commercial floor area below the minimum requirement shall include justifications to demonstrate why the requirement cannot be met.

Additional information is required in order to evaluate/consider the Assisted Living Facility and Skilled Nursing Facility as qualified to meet the commercial use component. Upon formal submittal, the applicant shall provide detailed staffing information for the proposed Assisted Living and Skilled Nursing Facility including number of employees, breakdown of employee shifts, and the types/titles of employment positions.

While the subject property is zoned MX-N(PD), the overall development potential is governed by limits set forth in the General Plan. General Plan limitations are discussed further in Comment # PL10.

PL10. The General Plan identifies an approximate 38-acre site bounded by Interstate 5, Calgrove Boulevard, and Wiley Canyon Road as the “Calgrove Corridor/Smiser Ranch” area. Overall development shall not exceed 830,000 square feet, inclusive of both commercial and residential uses. Based on a 31-acre project area identified in the application (81.6% of the total Calgrove Corridor/Smiser Ranch area), the project cannot exceed 677,280 square feet (830,000 x .816) including up to 572 units (702 x .816). Based on the submitted plans, the project appears to be consistent with the residential unit count (462) and the overall square footage contemplated by the General Plan of 677,280 square feet.

PL11. The General Plan includes the following standards for the subject property (General Plan, Pages L-62-63):

A) Development proposals require community outreach and public participation led by the applicant with the Calgrove Corridor Coalition, Calgrove corridor neighborhoods, and the Wiley Canyon Elementary School (Newhall School District) prior to submittal;

B) Development will preserve the character of the existing residential neighborhoods located along the Calgrove Corridor and provide adequate buffer and transition from any development on the subject properties;

C) Development will propose an economic engine with an appropriate amount of jobs, retail, office, restaurant and general commercial square-footage, combined with neighboring and integrated housing types;

D) Development will be internally and externally pedestrian-oriented;

E) Development will consist of 360-degree architecture design with pedestrian-scaled building massing and forms where adjacent to existing residences, with the use of landscaping to visually soften hard edges of buildings;

F) Development will have varied building heights and create east/west sight lines; building heights taller than 55' will require a Conditional Use Permit;

G) Development will include a site-specific and community-based recreational component;

H) Applicants will understand introducing a higher density development at this location will have traffic and pedestrian circulation impacts on the existing neighborhood. Therefore, to minimize those impacts, special attention to access points shall be considered as part of the project's design; and

I) Internal driveways and walkways, along with the locations of entrances and exits, shall be placed so not to disrupt the flow of traffic into or out of the existing residential neighborhoods, and to allow easy access to and from the project site from the Calgrove Boulevard interchange.

PL12. The maximum height for structures in the MX-N(PD) zone is 50 feet. Though building heights were not provided in the One Stop submittal, the application narrative provided with the submittal, indicates a desire for a maximum building height of 55 feet, which is not permitted for structures in the MX-N zone.

PL13. The applicant shall be aware of the General Plan's Economic Development Element's policy of creating two jobs for every new residential unit (page E-14, Section V). Upon formal submittal the applicant shall provide additional information on the operational aspects of the Assisted Living and Skilled Nursing facilities as indicated in Comment PL9 above to provide clear understanding of the jobs creation associated with the proposed use.

PL14. An application for a parcel map or tentative tract map will be necessary in order to subdivide the property.

Site Plan Comments

PL15. Upon formal submittal, the applicant shall provide ownership documentation for all parcels included in the application and development plans. APN 2825-012-007, and -011 have separate ownership from APN 2825-012-010. Upon formal submittal, the application shall provide signatures by all applicable ownership entities.

In addition, the application indicates inclusion of APN 2825-012-901 which is owned by the City of Santa Clarita, and APN 2825-012-902 which is owned by the Los Angeles County Flood Control District. Upon formal submittal, the plans shall clearly indicate any proposed improvements on property that is not under control of the applicant. Written approval shall be required for any grading activities and/or improvements on property that is under separate ownership.

PL16. The proposed development includes a roundabout at the project entry from Wiley Canyon Road. Proposed improvements shall be subject to review and approval of the City Traffic Engineer. It should also be noted, that the existing retaining wall along the east side of Wiley Canyon Road is maintained by the City's Landscape Maintenance District (LMD). Any improvements that would cause alteration of the wall will need to be reviewed and approved by the LMD.

PL17. It appears that the proposed development includes alteration to the exiting Old Wiley Canyon Road cul-de-sac. Proposed alterations shall be subject to review and approval of the City Traffic Engineer and L.A. County Fire Department.

PL18. The proposed site plan provides a secondary access on Hawkbryn Avenue. Access and any roadway improvements on Hawkbryn Avenue shall be subject to review and approval of the City Traffic Engineer and L.A. County Fire Department.

PL19. All commercial buildings, including the residential assisted care center, must be set back at least 25' from the residential property to the north (Mulberry Mobile Home Park).

PL20. Open Space Requirement: a minimum of 200 square feet of open space is required for each unit. The open space may be combined to create community amenities (17.55.020.C.1). The required recreation/open space shall not be located in unusable areas like retention basins or slope easements. Upon formal submittal, provide an exhibit demonstrating how the open space requirement is met.

PL21. The Applicant is encouraged to provide public spaces throughout the proposed development.

PL22. Pedestrian pathways shall be provided throughout the proposed development. We appreciate the incorporation of a trail into the proposed development, however, the trail appears to lack connectivity to other trails and/or to internal pedestrian paths within the proposed development. The trail shall provide connection Calgrove Boulevard (See Comment PR3).

Upon formal submittal the applicant shall provide a pedestrian plan identifying the trail, and onsite pedestrian circulation showing pedestrian connectivity between project components and adjacent uses. Enhanced pavement shall be utilized in the drive aisles at all pedestrian crossings.

PL23. The public plaza compliments the commercial retail component and provides opportunity for community activity. The applicant is encouraged to design the public plaza as an anchor to the pedestrian promenade between Planning Areas 2 and 3. Upon formal submittal the applicant shall provide a detailed plan for the

plaza area and should include details to highlight the connectivity of the plaza to network of pedestrian paths throughout the development.

PL24. Provide more detail on how the retention basins would be designed. Retention basins have the potential for recreational use during dry conditions.

PL25. Upon formal submittal, provide cross-sections and material details of all walls.

PL26. The applicant shall consider the proximity of the residential units to the I-5 Freeway and incorporate appropriate design features to provide visual and sound buffering from the freeway.

PL27. Upon formal submittal the Applicant shall identify employee break areas for the nonresidential components of the proposed project. Employee break areas may include facilities for shade, seating, eating and trash disposal.

PL28. The subject property includes land on the east side of Wiley Canyon Road, identified as Lot 6 on the Site Development Plan. Upon formal submittal the applicant shall clearly identify any development activities proposed for this portion of the property. Depending on the development proposed, a Ridgeline Alteration Permit may be required. The fee for a Ridgeline Alteration Permit is $9,707. The portion of the subject parcel on the east side of Wiley Canyon Road does not appear to be located within the Smiser Ranch/Calgrove Corridor planning area defined by the General Plan.

PL29. Upon formal submittal, the site plan shall show all easements, ultimate rights-of-way and roadway alignments, water courses, storm drain infrastructure, and any other encumbrances.

PL30. The subject property is located in a high fire hazard zone, a flood hazard zone, and a seismic zone. Any development shall be subject to the construction and design standards for these hazards.

PL31. Upon formal submittal, the site plan shall show and number all oak trees and the Oak Tree Report shall address the comments provided below, see Comments OAK1-OAK8.

PL32. The project site is subject to flooding during major storm events. Upon formal submittal, the applicant shall show all proposed on-site flood control measures along with any proposed off-site facilities. Flood mitigation facilities should be designed for both aesthetic value and functionality. Stark, massive walls will not be supported by City staff.

PL33. Lockable Storage Requirement: if a fully-locking garage is not provided for each unit, each unit should be provided 250 cubic feet of lockable storage. The lockable storage can be located off a balcony or patio, or in other areas approved by the Director of Community Development.

PL34. Upon formal submittal, the site plan shall show all required ground-mounted equipment (water valves, transformers, ventilation elements, etc.). Development standards for accessory structures (including equipment) can be found in UDC Section 17.57.040 (Accessory Structures).

Architecture

PL35. Upon formal submittal, the applicant shall provide detailed architectural elevations of each proposed building.

PL36. The subject property is located in the community of Newhall. The Santa Clarita Community Character and Design Guidelines (CCDGs) provide clear direction for site design and architectural standards. The guidelines can be found on the Planning website at www.santa-clarita.com/planning. Upon formal submittal, the applicant shall include a completed CCDG checklist in the application package.

PL37. All buildings and structures shall require architectural styling, including trash enclosures, utility structures, etc. Outdoor furniture should complement the buildings. Lighting should likewise complement the architectural style and be designed with "full cut-off" luminaires to focus light downward and to prevent glare and spillover onto adjacent properties.

PL38. Where multiple buildings are planned in a mixed use development, the structures should have varying heights to create visual interest from the street. The ground level façade for a multilevel structure should have a distinct look from the façade or the floor levels above (UDC 17.55.050.A.7).

PL39. For mixed use projects that are over two (2) stories in height, portions of the upper stories should be recessed from the front façade to reduce the overall massing of the building and to create varied building heights and sight lines (UDC 17.55.040.A.8).

PL40. Balconies and private outdoor spaces are encouraged. Balconies should be generously sized and useable. Consider a minimum balcony depth of at least 6'.

PL41. This project will require review by the City's design consultant. Currently, the estimated review fee is $2,500. Prior to formal submittal, please contact the City for the exact amount and other instructions regarding the payment of this fee. The applicant is responsible for all fees associated with architectural review. All fees shall be paid prior to scheduling a public hearing.

PL42. All required residential parking shall be covered, carports, garages, or other covered parking spots like "tuck under" spaces. Parking structures shall be designed in the same style as the main buildings and shall not have flat roofs.

Parking and Circulation

PL43. The applicant is advised the project will require substantial improvements to both Calgrove Boulevard and Wiley Canyon Road. Please refer to Comments TR4-TR6.

PL44. Upon formal submittal, a site plan shall be provided that shows the width of all drive aisles and the dimension of all parking stalls. The minimum drive aisle width is 26', and the minimum parking stall dimension is 9' x 18', free and clear. Stall width shall be 10' when a space is adjacent to a wall, column, or other obstruction. Garage spaces, which includes "tuck under" parking spaces, shall be

10’ x 20’. Carport spaces should also be 10’ x 20’, where possible. Additional drive aisle width may be required by the Los Angeles County Fire Department.

PL45. Mixed Use parking requirements can be found in UDC Section 17.55.050. Parking design requirements can be found in Section 17.51.060. Based on the submitted plans, the project’s parking requirement would be the following:

Table 3A: Residential Parking Requirement

Unit Type	Total Units	Parking Requirement	Total Required Covered	Guest Parking
Studio	32	1	32	16
1 Bedroom	123	1	123	61.5
2 Bedroom	191	2	382	95.5
3 Bedroom	29	2	58	14.5
Total Requirement:	375	--	595	188

Table 3B: Senior Independent Living Parking Requirement

Number of Units	Parking Requirement	Total Required	Guest Parking
87	.5	44	44

Table 3C: Assisted Living Parking Requirement

Number of Beds	Parking Requirement	Total Required	Guest Parking
100	.5	50	13

Table 3D: Skilled Nursing/Memory Care Parking Requirement

Number of Beds	Parking Requirement	Total Required

88	.5	44

Table 3E: Commercial Parking Requirement

Building Size	Parking Requirement	Total Required
10,000 Square Feet	1:200	50

Table 3D: Parking Summary (All Uses)

Required Residential Covered/Garaged Parking Spaces	595
Required Senior Independent Living Parking Spaces	44
Assisted Living Center Parking Spaces	50
Required Guest Parking Spaces	245
Required Skilled Nursing/Memory Care Parking Spaces	44
Required Commercial/Retail Parking Spaces	50
Total Required Parking Spaces	1,028

The parking summary was difficult to read and the total number of parking spaces provided is unclear. It is also unclear how many covered parking spaces are provided. The application narrative indicated that only one covered space per residential unit is provided for the 375 multi-family units, which will not be supported by staff. The required parking spaces for the Senior Independent Living units is not required to be covered.

Prior to formal submittal, the applicant shall revise the parking summary to present the parking information clearly. In addition to the parking spaces required by code, the applicant is encouraged to consider additional parking spaces for prospective tenants and other uses that may not have been contemplated by the Mixed Use parking standards. Any proposal for shared parking of guest stalls with the commercial component will need to be substantiated by a parking study.

The applicant is strongly encouraged to adhere to the City's multifamily parking standards for 375 multi-family residential units and provide two covered spaces and at least one-half guest parking space per residential unit. Multifamily parking

standards would require 750 covered/enclosed parking spaces for the 375 multi-family residential component, plus additional spaces for guests.

PL46. Required residential parking spaces shall be covered or enclosed.

PL47. On-Site Bicycle Parking Requirement: The number of bicycle parking stalls shall be determined based on the number of parking stalls provided, at a ratio of 1:25 (the retail/commercial standard) for the office building and the assisted living center. The residential ratio shall be one bicycle parking space for every five units. Please see comment BS16 and BS17 for additional information on bicycle parking.

PL48. Delivery Van Space Requirement: Based on a 79,356 and 68,622 square-foot building respectively, the assisted living center and the skilled nursing facility will require two delivery van spaces each. This ratio is based on the Office (medical and professional) category. The general commercial/retail will also require one delivery van space. The minimum dimension for a van space is 12' x 20' with at least 14' of overhead clearance (UDC Section 17.51.060.L).

PL49. As part of the project, electric vehicle charging stations shall be required. The number of charging stations shall be determined by building code regulations. Please refer to Comments BS19-BS21.

General Comments:

PL50. No grading totals were indicated on the plan. The applicant is advised that a Minor Use Permit or Conditional Use Permit may be necessary, depending on the amount of grading (import or export), is proposed.

PL51. The applicant is encouraged to explore affordability options. Offering affordable units would provide a community benefit and strengthen the reasons to justify and approve the project.

PL52. Community outreach is required. Prior to formal submittal, the applicant shall meet with homeowners in the surrounding community. The submitted project shall incorporate measures to address the concerns of neighboring home and business owners. City staff should be invited to attend all meetings.

PL53. All light sources shall be directed downward and shielded from streets and adjoining properties (UDC Section 17.57.020.M). Given the project site is a distinct development area, consider the use of decorate or specialty street/project lighting fixtures to bolster community identity.

PL54. No overhead utilities shall be permitted. Existing overhead utilities along the project frontage or within the project site shall be undergrounded (less than 34 KV). The applicant shall be aware that overhead utility easements exist on the property and that permission from the easement-holder will be required prior to construction. See Comment EN20.

PL55. The project site is located adjacent to Interstate 5, a Caltrans facility. The applicant is encouraged to contact Caltrans to see what, if any, permits are required from that agency.

LANDSCAPE: Erika Iverson; 661.255.4962

Specific Landscape Comments

LR1. Approval is required by the Los Angeles County Fire Department's Fuel Modification unit. Please see LACFD Comments in Appendix A.

LR2. Multi-family and mixed-use developments require a minimum of ten percent (10%) of the total site area to be landscaped. Any areas that are not to devoted to lot coverage and paving shall be landscaped. (UDC Section 17.51.030.7)

In addition, 5% of the parking lot area shall be landscaped and shall conform to UDC Section 17.51.030.C.10 (Figure 17.51-8).

Upon formal submittal provide a calculation on the landscape concept to demonstrate compliance with the overall site coverage and parking lot area coverage.

LR3. Project landscaping appears deficient in the parking areas. Finger planters are required every 15 stalls on average in a row. Where parking spaces meet head to head, a landscape planter strip a minimum of six (6) feet in width shall be installed. Refer to UDC Section 17.51.030.10 for parking lot landscaping standards (Figure 17.51-8).

LR4. Multi-family developments are required to install a minimum of 30 trees per overall gross acreage of the project site including a minimum of 15% of the trees to be 48-inch box size and a minimum of 20% of the trees to be 36-inch box size. Upon formal submittal provide a calculation on the landscape plan to demonstrate compliance with the tree requirement for the development footprint. (UDC Section 17.51.30.C.7)

LR5. Parking lot area trees are required at a ratio of 1 tree per every 4 surface parking spaces. These trees may be counted in the overall site tree count. Upon formal submittal provide a calculation on the landscape plan to demonstrate compliance with the tree requirement for the surface parking.

LR6. Landscaping along the I-5 freeway right of way shall be designed to provide for screening of the freeway from the residential uses and to the extent possible provide added sound buffering.

LR7. Explore ways to provide landscaping along the stark, long runs of tuck-under garages. The appearance of sterile, unfriendly expanses of garage doors or parking areas is to be avoided.

LR8. Use pavers, stamped or colored concrete, or other elements to guide pedestrians through the development. The project should contain logical connections between the major recreational areas, mailboxes, open space, etc.

General Landscape Comments

LR9. The applicant shall submit a preliminary landscape plan for review and approval from the Director of Community Development prior to receiving entitlement approval of the project. The checklist of items to be provided on the preliminary landscape plan are listed in Attachment 'A' (attached).

LR10. Prior to issuance of grading permit, the applicant shall provide final landscape, lighting and irrigation plans (Landscape Document Package) for Planning Division review and approval. The plan must be prepared by a California-registered landscape architect and shall be designed with the plant palette suitable for Santa Clarita (Sunset Western Garden Book Zone 18, minimum winter night temperatures typically 20º to 30º F; maximum summer high temperatures typically 105º F to 110º F). The landscape design plan shall meet the design criteria of the State Water Efficiency Landscape Ordinance as well as all other current Municipal Code/Unified Development Code requirements.

LR11. The applicant shall be aware that additional fees will be required to be paid by the applicant for the review of required landscape and irrigation plans by the City's landscape consultant based on an hourly rate. An invoice will be provided to the applicant at the completion of the review of the plans. The applicant will be required to pay all associated fees to the City of Santa Clarita prior to the release of the approved landscape and irrigation plans for the project.

LR12. The planting and irrigation plans shall be submitted to the City Arborist/Oak Tree Specialist for review and approval for compliance with the Oak Tree Preservation Ordinance (17.51.040).

LR13. Prior to occupancy, the applicant shall install all proposed irrigation and landscaping, including irrigation controllers, staking, mulching, etc., to the satisfaction of the Director of Community Development. The Director may impose inspection fees for more than one landscape installation inspection.

LR14. Prior to occupancy, the applicant shall submit to the Director of Community Development a letter from the project landscape architect certifying that all landscape materials and irrigation have been installed and function according to the approved landscape plans.

LR15. Final landscape plans shall contain all elements as listed in the checklist for preliminary landscape plans (Attachment 'A'), and shall conform to the Landscaping and Irrigation Standards (§17.51.030) in the Unified Development Code.

ENGINEERING SERVICES DIVISION: Balvinder Sandhu; 661.255.4954

The following comments MUST be addressed prior to planning approval:

EN1. Limited Engineering comments are issued due to insufficient information given on the Plan. Prior to Planning approval, the applicant shall revise the Plan to include the following information:

General

- Include assessor parcel number (APN) 2825-012-010 to the plan
- Name and address of owner and civil engineer preparing the plan
- Date of preparation. Date of revisions (if applicable)

- Property lines and dimensions – show APN 2825-012-010 on the plan
- All easements of record (indicate location, type, and width) within and abutting the project site
- Legal description that defines the boundary of the project
- All existing and proposed easements and the owners of each. (provide a preliminary title report)
- Existing buildings and other structures on-site and on adjacent properties. Identify those buildings to be removed and those to remain
- Type, location, widths, grades and dimensions of existing and proposed trails within and abutting the project site.

Maps

- Include the map number (to be obtained from LA County DPW)
- Indicate if the Map is for condominium Purposes or Subdivision Purposes
- All lots numbered sequentially
- Indicate number or lots or number and/or number of airspace units
- Dimensions (bearing and distance) of all proposed lots
- Net and gross size of proposed lots

Grading

- Grading quantities (excavation, fill, site balance, import, export)
- Location and maximum heights of retaining walls (provide a cross section)
- Pad elevations and finish floor elevation of proposed and existing buildings

Drainage

- Clarify the intent and purpose of the proposed Drainage Basin on Lot 4 (Open Space) – show drainage flow/pattern
- Address corrective measure to drainage altered by proposed 6-ft property wall along Caltrans Right-of-Way
- Identify and label all drainage easements and who owns each

Streets

- Show Hawkbryn Avenue alignment correctly up to the southwest corner of the property line. Revise the proposed secondary access alignment to site accordingly
- Proposed landscape medians on the typical street sections
- Identify all “private driveways” and “private driveways and fire lanes”
- Landing at roundabout intersection (100’ at 3%)
- Typical street section of roundabout

- Horizontal curve with radius and length of curve (MEET CRITERIA)
- Radius of all curb return and cul-de-sacs (MEET CRITERIA)
- Indicate that landings are provided at intersection/roundabout; minimum 100-foot length and maximum 3% slope.

Sanitary Sewer

- All existing and proposed sanitary sewer main lines and easements (indicate if public or private)

Storm Drains

- All existing and proposed storm drain lines (type, size, and location) and storm drain easements (indicate if public or private)

Subdivision Requirements

EN2. Prior to Planning approval, the applicant shall provide a tentative map based on the "Tentative Tract Map," requirements available at the Planning Counter.

EN3. Prior to Planning approval, the applicant shall submit a Tentative Tract. A map number may be obtained from the Los Angeles County Department of Public Works, Land Development Division, on-line at http://ladpw.org\ldd\dmr\forms.

Grading & Geology Requirements

EN4. Prior to Planning approval, the applicant shall provide an preliminary grading plan based on the comments listed under EN1.

EN5. Prior to Planning Approval, update the preliminary grading plan to show all proposed grading and all proposed earthwork quantities. If import is required, additional conditions may be included.

EN6. Prior to Planning approval, the applicant shall provide a preliminary geotechnical report determining the feasibility of fully developing the proposed subdivision, per the City of Santa Clarita Municipal Code, Section 16.25.040 B.

EN7. Prior to Planning approval, the applicant shall obtain a notarized Letter of Permission for grading outside of the property lines/tract boundary from the adjacent property owner(s), if applicable.

Drainage Requirements

EN8. Prior to Planning approval, the applicant shall obtain approval of a drainage concept/hydrology study for the proposed public storm drain system from the Los Angeles County Department of Public Works, Land Development Division.

EN9. Prior to Planning approval, the applicant shall indicate on the plan the maintenance responsibility of each debris basin/infiltration basin.

EN10. Prior to Planning approval, the applicant shall have approved by the City Engineer, a drainage study demonstrating that post-development flows from the

site will not be increased from pre-development flows, or mitigate for the increase.

EN11. Prior to Planning approval, the applicant shall acquire applicable permits from the Army Corps of Engineers, California Department of Fish and Wildlife, and the Regional Water Quality Control Board. A copy of the permits, or a response letter from each agency indicating a permit is not required, shall be submitted to the City prior to Planning approval.

FEMA Flood Zone Requirements

EN12. The project is located in FEMA Flood Zone (A, AO) in accordance with the Federal Flood Insurance Rate Maps (FIRMs).

A. For the proposed improvements within the Floodway, Prior to Planning approval, a floodplain study shall be prepared using HEC-RAS or other City-approved program, by a Civil Engineer licensed in the State of California, to analyze the 100-year storm event. The study shall be reviewed and approved by the City Engineer. The study shall analyze upstream and downstream of the proposed project to a point where the post-development flowrates and velocities equal the pre-development flowrates and velocities. Any change to the flowrates or velocities must be contained within the applicant's property or the applicant shall file with the County Recorder an Acceptance of Drainage Form signed by adjacent property owner(s). The design of the bank protection and/or levee shall meet the design requirements of CFR Title 44 Chapter 65.10, as applicable.

B. For the proposed improvements within the Floodway, the applicant is required to comply with FEMA requirements to revise the Flood Insurance Rate Map (FIRMs). Prior to Planning approval, the applicant shall complete a Conditional Letter of Map Revision (CLOMR).

EN13. Prior to Planning approval, the applicant shall adequately protect the embankments of the channel/creek to eliminate flooding impact to other properties.

Water Quality Requirements

EN14. Prior to Planning Approval, the applicant shall update the preliminary grading plan to show the proposed Best Management Practices (BMPs) to comply with the City's Low Impact Development (LID) ordinance prescribed in the City of Santa Clarita Municipal Code, Section 17.95.

Sewer Improvement Requirements

EN15. Prior to Planning Approval, the applicant shall provide a sewer area study in accordance with City policies for review and approval by the City Engineer.

Other Agencies

EN16. Prior to Planning approval, the applicant shall submit plans to Los Angeles County Department of Public Works for their comments and conditions regarding the proposed improvements over their property. Additionally, the applicant shall

coordinate with LA County to acquire their property, through City of Santa Clarita, for the proposed improvements.

EN17. Prior to Planning approval, the applicant shall submit plans to Caltrans for their comments regarding the proposed development adjacent to their right-of-way.

THE FOLLOWING CONDITIONS WILL BE APPLICABLE WHEN PLANNING APPROVAL IS RECEIVED. ADDITIONAL COMMENTS MAY BE ADDED WHILE THE PLAN IS BEING PROCESSED FOR ENTITLEMENT:

General Requirements

EN18. At issuance of permits or other grants of approval, the applicant agrees to develop the property in accordance with City codes and other appropriate ordinances such as the Building Code, Plumbing Code, Grading Code, Highway Permit Ordinance, Mechanical Code, Unified Development Code, Undergrounding of Utilities Ordinance, Sanitary Sewer and Industrial Waste Ordinance, Electrical Code, and Fire Code.

EN19. Prior to Tract Map approval, the applicant shall dedicate any necessary easements for public improvements.

EN20. Prior to building final, all new and existing power lines and overhead cables less than 34 KV within or fronting the project site shall be installed underground.

Subdivision Requirements

EN21. Prior to issuance of building permits, a Tract Map prepared by or under the direction of a person licensed to practice land surveying in the State of California shall be filed in the Office of the County Recorder, in compliance with applicable City of Santa Clarita, County of Los Angeles, and State of California Codes.

EN22. This tentative map approval is subject to the applicant's acceptance of the following conditions for acquisition of easements/right-of-way:

A. The applicant shall secure, at the applicant's expense, sufficient title, or interest in land to permit construction of any required off-site improvements.

B. If the applicant is unable to acquire sufficient title or interest to permit construction of the required off-site improvements, the applicant shall notify the City of this inability not less than six months prior to approval of the Tract/Parcel Map. In such case, the City may thereafter acquire sufficient interest in the land, which will permit construction of the off-site improvements by the applicant.

C. The applicant shall pay all of the City's costs of acquiring said off-site property interests pursuant to Government Code Section 66462.5. Applicant shall pay such costs irrespective of whether the Tract/Parcel Map is recorded or whether a reversion occurs. The cost of acquisition may include, but is not limited to, acquisition prices, damages, engineering services, expert fees, title examination, appraisal costs, acquisition services, relocation assistance

services and payments, legal services and fees, mapping services, document preparation, expenses, and/or damages as provided under Code of Civil Procedures Sections 1268.510-.620 and overhead.

D. The applicant agrees that the City will have satisfied the 120-day limitation of Government Code Section 66462.5 and the foregoing conditions relating thereto when it files its eminent domain action in superior court within said time.

E. At the time the applicant notifies the City as provided in "B" hereinabove, the applicant shall simultaneously submit to the City in a form acceptable to the City all appropriate appraisals, engineering specifications, legal land descriptions, plans, pleadings, and other documents deemed necessary by the City to commence its acquisition proceedings. Said documents must be submitted to the City for preliminary review and comment at least 30 days prior to the applicant's notice described hereinabove at "B"

F. The applicant agrees to deposit with the City, within five days of request by the City, such sums of money as the City estimates to be required for the costs of acquisition. The City may require additional deposits from time-to-time.

G. The applicant shall not sell any lot/parcel/unit shown on the Tract/Parcel Map until the City has acquired said sufficient land interest.

H. If the superior court thereafter rules in a final judgment that the City may not acquire said sufficient land interest, the applicant agrees that the City may initiate proceedings for reversion to acreage.

I. The applicant shall execute any agreements mutually agreeable prior to approval of the Tract/Parcel Map as may be necessary to assure compliance with the foregoing conditions.

J. Failure by the applicant to notify the City as required by "B" hereinabove, or simultaneously submit the required and approved documents specified in "E" hereinabove, or make the deposits specified in "F" hereinabove, shall constitute applicant's waiver of the requirements otherwise imposed upon the City to acquire necessary interests in land pursuant to Section 66462.5. In such event, subdivider shall meet all conditions for installing or constructing off-site improvements notwithstanding Section 66462.5.

EN23. Prior to the Tract Map being filed with the County Recorder, the applicant shall not grant or record easements within areas proposed to be granted, dedicated, or offered for dedication for public streets or highways, access rights, building restriction rights, or other easements; unless subordinated to the proposed grant or dedication. If easements are granted after the date of tentative map approval, subordination must be executed by the easement holder prior to the filing of the Tract Map.

EN24. Prior to Tract Map approval, the applicant shall label driveways as "Private Driveway and Fire Lane" on the map, as directed by the City Engineer.

EN25. Prior to Tract Map approval, the applicant shall remove existing structures.

EN26. Prior to Tract Map approval, the applicant shall show that portion not divided for the purpose of sale, lease, or financing as a "Designated Remainder" on the map.

EN27. At map check submittal, the applicant shall provide a preliminary subdivision report. A final subdivision guarantee is required prior to Tract Map approval.

EN28. Prior to Tract Map approval, the applicant shall provide a Will Serve Letter stating that Community Antenna Television service (CATV) will be provided to this project.

EN29. Prior to Tract Map approval, the applicant shall provide a Will Serve Letter from all necessary utilities, stating that service will be provided to this property.

EN30. Prior to Tract Map approval, the applicant shall dedicate to the City the right to prohibit the erection of building(s) and other structures within open space/common lots.

EN31. Prior to Tract Map approval, the applicant shall adjust, relocate, and/or eliminate lot lines, lots, streets, easements, grading, geotechnical protective devices, and/or physical improvements to comply with ordinances, policies, and standards in effect at the date the City determined the application to be complete, all, as directed by the City Engineer.

EN32. Prior to Tract Map approval, the applicant shall show on the map all Los Angeles County Flood Control District Easements. A permit will be required for any construction affecting the right-of-way or facilities.

Covenants, Conditions, and Restrictions Requirements

EN33. Prior to Tract Map approval, the applicant shall obtain approval from the City Engineer and the City Attorney for Covenants, Conditions, and Restrictions (CC&Rs) for this development. The applicant shall reimburse the City for the City Attorney’s review and approval fee. The CC&Rs shall include a disclosure to comply with the Geologist's recommendations in the Geology Report concerning restrictions on watering, irrigation, and recommend plant types. The CC&Rs shall grant the City the authority to review and approve/disapprove amendments (including dissolution) of the CC&Rs/association. The CC&Rs shall grant the City the right (though not the obligation) to enforce the CC&Rs (at a minimum those provisions related to City-required items).

EN34. Prior to first building permit, the applicant shall record the approved CC&Rs with the Los Angeles County Recorder’s office.

EN35. Prior to first certificate of occupancy, the applicant shall transfer ownership of open space lots to the POA/HOA. The grant deed shall be submitted to Engineering Services for review and approval by the City Engineer.

Access Requirements

EN36. Prior to issuance of building permits, the applicant shall record a covenant for easement of all shared driveways and drive isles, and common landscaping/slope maintenance areas, as directed by the City Engineer. This condition may be satisfied by incorporating the appropriate provisions into the CC&Rs.

Condominium/Lease Requirements (for residential only)

EN37. Prior to Tract Map approval, the applicant shall submit a notarized affidavit to the City Engineer, signed by all owners of record at the time of filing of the map with the City, stating that any proposed condominium building have not been constructed or that all buildings have not been occupied or rented and that said building will not be occupied or rented until after the filing of the map with the County Recorder.

Grading and Geology Requirements

EN38. Prior to issuance of grading permit, the applicant shall submit a grading plan consistent with the approved Plan, oak tree report, and conditions of approval. The grading plan shall be based on a detailed engineering geotechnical report specifically approved by the geologist and/or soils engineer that addresses all submitted recommendations, including seismic hazards associated with liquefaction.

EN39. Prior to issuance of building permits, the applicant shall construct all grading and drainage facilities within the project site, obtain rough grade certifications, and a compaction report approved by the City Engineer.

EN40. The Preliminary Grading Plan is not provided. Based on the conceptual site plan, import of over 1000 CY of dirt to the project is anticipated.

A. Prior to issuance of a grading permit for this project, the applicant shall submit a copy of the grading permit for the export/receiving site and an exhibit of the proposed haul route. The applicant is responsible to obtain approval from all applicable agencies for the dirt hauling operation.

B. The applicant shall comply with the following requirements for the dirt hauling operation:

1. Obtain an encroachment permit for the work.

2. The hours of operation shall be between 8:30 am to 3:30 pm.

3. Provide non-stop street sweeping service on all City streets along the haul route during all hours of work to the satisfaction of the City Engineer.

4. Provide traffic control and flagging personnel along the haul route to the satisfaction of the City Engineer.

C. Prior to issuance of grading permit, the applicant shall pay a Haul Route Pavement Repair Security Cash Deposit (Deposit) of $100,000, which may be increased or decreased based upon an estimated cost to complete the repairs of streets damaged during the dirt hauling operation. The limits and scope of the repairs shall be determined by the City Engineer. In order to receive a refund of the Deposit, the applicant or subsequent property owners shall complete the pavement repairs to the satisfaction of the City Engineer within one year from the completion of the dirt hauling operation. If the pavement repairs are not completed within one year, the City may use the Deposit to complete the repairs. Any funds remaining at the completion of the repairs will be refunded

to the applicant. If the Deposit is insufficient to complete the repairs, the City shall seek additional funds from the applicant.

D. Prior to issuance of first building permit, the applicant shall repair any pavement damaged by the dirt hauling operation to the satisfaction of the City Engineer. The limits of the road repairs shall be consistent with the approved haul route.

EN41. Prior to grading permit, the applicant shall obtain a notarized Letter of Permission for grading over all easements.

Drainage Requirements

EN42. Prior to the issuance of grading permit, the applicant shall obtain approval and connection permit from the Los Angeles County Department of Public Works, Land Development Division/Construction Division as appropriate to connect onsite drainage coarse to County maintained drainage channel.

EN43. Prior to concrete or soil-cement bank protection and retaining wall plan approval, applicant shall obtain approval from Los Angeles County Flood Control District (LACFCD) for the proposed improvement on their property.

EN44. Prior to first building final, a maintenance district shall be established if the channel is not maintained by the LACFCD.

EN45. All onsite storm drains that are not eligible for maintenance by LACFCD, shall be maintained by the Property Owner's Association.

EN46. Specific drainage requirements for the site will be established at building permit application. Prior to Building Permit, the applicant shall submit a precise grading plan.

FEMA Flood Zone Requirements

EN47. The project is located in FEMA Flood Zone (A, AO) in accordance with the Federal Flood Insurance Rate Maps (FIRMs).

For the proposed improvements within the Floodway, the applicant is required to comply with FEMA requirements to revise the Flood Insurance Rate Map (FIRMs). Prior to building final, the applicant shall complete a Letter of Map Revision (LOMR).

Water Quality Requirements

EN48. This project will disturb one acre or more of land. Therefore, the applicant must obtain coverage under a statewide General Construction Activities Stormwater Permit (General Permit). In accordance with the General Permit, the applicant shall file with the State a Notice of Intent (NOI) for the proposed project. Prior to issuance of grading permit by the City, the applicant shall have approved by the City Engineer a Stormwater Pollution Prevention Plan (SWPPP). The SWPPP shall include a copy of the NOI and shall reference the corresponding Waste Discharge Identification (WDID) number issued by the State upon receipt of the NOI.

EN49. This project is a development planning priority project under the City's NPDES Municipal Stormwater Permit as a development with equal to one acre or greater of disturbed area that adds more than 10,000 square feet of impervious surface area. Prior to issuance of grading permit, the applicant shall have approved by the City Engineer, an Urban Stormwater Mitigation Plan (USMP) that incorporates appropriate post construction Best Management Practices (BMPs), maximizes pervious surfaces, and includes infiltration into the design of the project. Refer to the Low Impact Development ordinance and the County of Los Angeles Low Impact Development manual for details.

EN50. Prior to recordation of the Tract Map, the applicant shall establish Property owner's Association (POA) to maintained all SUSMP devices/systems identified on the latest approved Drainage Concept/Storm drain plan. SUSMP devices/systems shall include but are not limited to catch basin inserts, debris excluders, biotreatment basins, vortex separation type systems, and other devices/systems for stormwater quality. The applicant shall be responsible for the maintenance of all SUSMP devices/systems until the POA has been established.

Street Light Requirements

EN51. Prior to street plan approval, the applicant shall submit a Street Light Plan to the Engineering Services Division for review and approval. Street-lighting systems shall be designed as City-owned and maintained on the LS-3 rate schedule, using LED fixtures approved by the City's Landscape Maintenance District Division.

EN52. Prior to Tract Map approval, the applicant shall dedicate street light easements, as directed by the City Engineer, for all existing and proposed street lights, located outside of the public right of way.

Street Improvement Requirements

EN53. Wiley Canyon Road widening shall be designed to public street standards in accordance with the City of Santa Clarita Municipal Code and street design criteria; construction shall be completed prior to building final. If the City Engineer determines that it is more beneficial for the City to construct the required improvements later, the applicant shall pay a cash in-lieu fee that is equivalent to the cost of the improvements.

EN54. Prior to any construction (including, but not limited to, drive approaches, sidewalks, sewer laterals, curb and gutter, etc.), trenching or grading within public street right-of-way, the applicant shall submit a street improvement plan consistent with the approved Plan, oak tree report, and conditions of approval; and obtain encroachment permits from the Engineering Services.

EN55. The property boundaries of the site abut the State of California, Department of Transportation (Caltrans) jurisdiction. Encroachments into Caltrans jurisdiction shall be permitted by Caltrans prior to issuance of any permits by the City.

EN56. Prior to street plan approval, the applicant shall submit a street tree location plan to the City's Urban Forestry Division for review and approval. The location of the street trees shall not conflict with sewer or storm drain infrastructure. The plan

shall include proposed sewer lateral locations and storm drain infrastructure for reference.

EN57. Prior to Tract Map approval, the applicant shall dedicate to the City the right-of-way required for off-site street improvements as identified in the Traffic Study, if applicable.

EN58. Prior to Tract Map approval, the applicant shall dedicate sidewalk easements sufficient to encompass ADA requirements for sidewalks installed with drive approaches per the current City standard APWA 110-2, Type C, or equivalent.

EN59. Prior to building final, the applicant shall construct the following street improvements within/along the frontage of the project site, as directed by the City Engineer:

Street Name	Inverted Shoulder	Curb & Gutter	Base & Paving	Street Lights	Street Trees	Sidewalk (5'min)	Landscaped Median
Wiley Canyon Road (including		x	x	x	x	x	x
Private driveways/Fire Lanes			x				

EN60. Prior to building final, the applicant shall construct wheelchair ramps at intersections, as directed by the City Engineer.

EN61. Prior to Tract Map approval, the applicant shall pay an in-lieu fee for landscaping and irrigation of the medians on Wiley Canyon Road along the frontage of the project site, at the discretion of the City Engineer. The in lieu fee shall be based on a cost estimate calculated by the applicant and approved by the City Engineer.

<u>Sewer Improvement Requirements</u>

EN62. Prior to Tract Map approval, the applicant shall dedicate all necessary sewer easements. The sewer plans shall be reviewed and approved by the Los Angeles County Department of Public Works (Sewer Maintenance Division), Los Angeles County Sanitation District, and the City Engineer.

EN63. Prior to Tract Map approval, the applicant shall send a print of the land division map to the County Sanitation District with the request for annexation in writing.

EN64. Prior to issuance of building permits, the applicant shall annex the property into the County Sanitation District. The applicant shall provide the City's Building & Safety Division with written confirmation from the Sanitation District that the property has been annexed.

EN65. The on-site sewer shall be a publicly maintained sewer. The public sewer plan shall be reviewed and approved by the Los Angeles County Department of Public Works (Sewer Maintenance Division), Los Angeles County Sanitation District, and the City Engineer; and all necessary easement for maintenance of the sewer shall be dedicated to the City of Santa Clarita.

EN66. Prior to issuance of building permits, the proposed building(s) lateral line (s) shall be connected to the existing sewer main in Wiley Canyon Road (per PC 7599) or as required per approved sewer area study. Prior to issuance of building permits, the applicant shall coordinate with the Building and Safety Division regarding payment of additional annexation fees, if required, to annex the property into the County Sanitation District.

EN67. Prior to issuance of building permits, the applicant shall pay sewer reimbursement charges as determined by the City Engineer or the County of Los Angeles.

EN68. Prior to building final, the applicant shall construct all sewer upgrades per the approved sewer area study, to the satisfaction of the City Engineer.

Bonds, Fees and Miscellaneous Requirements

EN69. Prior to issuance of encroachment permits for public improvements (Street, Sanitary Sewer, Storm Drain, & Street Lights), the applicant, by agreement with the City Engineer, shall guarantee installation of the improvements through faithful performance bonds, letters of credit or any other acceptable means. Building final shall be withheld if the improvements are not completed.

TRAFFIC ENGINEERING DIVISION: Ian Pari; 661.284.1402

TR1. This project will require a traffic impact study to assess the traffic-related impacts on the surrounding arterials and intersections. The scope of the traffic study shall be developed in coordination with City Traffic Division staff.

TR2. Prior to issuance of building permits, the applicant shall acquire and dedicate to the City the right-of-way required for all street improvements as identified in the traffic study, to the satisfaction of the City Engineer.

TR3. Prior to issuance of first building occupancy permit, the applicant shall construct all street improvements as identified in the traffic study required to adequately serve this development.

TR4. To the extent feasible, Wiley Canyon Road shall be designed and constructed to the City's design standards for a two-lane secondary arterial. This shall be shown on all applicable plans prior to issuance of first building permit.

TR5. The project access along Wiley Canyon Road shall be designed and constructed as a roundabout. This shall be shown on all applicable plans prior to issuance of first building permit.

TR6. The project shall construct a roundabout at the intersection of Wiley Canyon Road and Calgrove Boulevard. This shall be shown on all applicable plans prior to issuance of first building permit.

TR7. The applicant shall be responsible for installation of new conduit for the installation or the future installation of fiberoptic cable due to street improvements associated with the project. This shall be shown on all applicable plans and installed to the satisfaction of the City Engineer. This interconnect conduit and cable shall also be required along new frontage improvements. All improvement plans for the above interconnect shall be approved by the City

Traffic Engineer. The interconnect conduit and cable shall be installed at the time of the respective traffic signal and/or frontage improvements.

TR8. Sidewalks shall be provided on all internal roadways that are not alley-type driveways. This shall be shown on all appropriate cross sections.

TR9. Prior to issuance of the first building occupancy permit, the applicant shall obtain approval from the L.A. County Fire Department for any private driveway sections.

TR10. Prior to issuance of the first building occupancy permit for each phase, the applicant shall post "No Parking– Fire Lane" signs along all driveways with a curb-to-curb width of less than 34 feet. This shall be shown on all applicable plans prior to issuance of first building permit.

TR11. All dead-end driveways shall extend five feet beyond the last parking stall or garage to provide back-up area. This shall be shown on all applicable plans prior to issuance of first building permit.

TR12. Prior to issuance of building permits, the applicant shall pay the applicable Bridge and Thoroughfare (B&T) District Fee to implement the Circulation Element of the General Plan as a means of mitigating the traffic impact of this project. This project is located in the Via Princessa B&T District. The current rate for this District is $21,090. The B&T rate is subject to change and is based on the rate at the time of payment.

Standard B&T Fee Calculation:

Apartment = the number of units (375) x the district rate ($21,090) x 0.7 = $5,536,125

Senior Units = the number of units (241) x the district rate ($21,090) x 0.3 = $1,524,807

Commercial = the gross acres (TBD) x the district rate ($21,090) x 5.0

LA COUNTY FIRE DEPARTMENT: Wally Collins; 323.890.4243

The project has not been cleared by Los Angeles County Fire Department (LACFD) at this time. A copy of the comments/conditions are attached in ***Appendix A***.

BUILDING AND SAFETY DIVISION: Alan Wakefield; 661.255.4383

Plans and Permits

BS1. Construction drawings shall be prepared and submitted to the Building and Safety Division for plan review and building permit issuance. Supporting documents,

such as structural and energy calculations, and geotechnical reports shall be included with the plan submittal.

BS2. Construction drawings submitted for plan review shall show full compliance with all applicable local, county, state and federal requirements and codes. The project shall comply with the building codes in effect at time of building permit application. The current state building codes are: the 2019 California Building (CBC), Mechanical (CMC), Plumbing (CPC), and Electrical (CEC) Codes, the 2020 County of Los Angeles Fire Code, 2019 California Energy Code, and the 2019 California Green Building Standards Code (CalGreen).

BS3. Construction drawings submitted for plan review shall be complete. Submitted plans shall show all architectural, accessibility, structural, mechanical, plumbing, and electrical work that will be part of this project. Civil, landscape, interior design and other plans not related to the building code are not reviewed by the Building and Safety Division.

BS4. Construction drawings shall be prepared by qualified licensed design professionals (California licensed architects and engineers).

BS5. The City of Santa Clarita has amended some portions of the California Building Codes. A copy of these amendments is available at the Building and Safety public counter and on our website at: http://www.santa-clarita.com/Home/ShowDocument?id=17773

BS6. Construction drawings may be submitted electronically or by submitting paper plans. In either case an "eService Account" must be created to access our permitting system. Please log on to: www.santa-clarita.com/eservice and create an account by clicking "register for an Account."

BS7. Construction drawings submitted to building and safety shall include a complete building code analysis and floor area justification for each proposed building per chapter 5 and 6 of the California Building Code.

BS8. A Noise Study will be required to show how sound transmission is controlled from exterior sources (I-5 freeway). Details shall show how interior noise levels from exterior sources will not exceed 45 dB in any habitable room. CBC 1206

BS9. The submitted site plan shall show all parcel/lot lines, easements, fire separation distances, restricted use areas, etc. Any construction proposed in an easement shall obtain the easement holder's written permission or the easement shall be removed. Parcel lines that overlap any proposed buildings shall be removed (lot line adjustment) prior to building permit issuance.

BS10. For an estimate of the building permit fees and the estimated time for plan review, please contact the Building and Safety Division directly at 661-255-4935.

BS11. Prior to submitting plans to Building and Safety, please contact a Permit Specialist at (661) 255-4935, for project addressing.

Skilled Nursing facilities:

BS12. Skilled Nursing (including Intermediate Care) facilities, fall under the jurisdiction of the California Office of Statewide Health Planning and Development (OSHPD). OSHPD will be the enforcing agency for the plan review, permitting, inspections and certification for this facility. (CBC 1.10.2) The Building and Safety Division will not be performing these services.

BS13. OSHPD will enforce all applicable regulations of the California Building Codes including the architectural, structural, mechanical, plumbing, electrical, and fire and panic safety systems. OSHPD is also responsible for enforcing the regulations of the Division of the State Architect – Access Compliance and the regulations of the Office of the State Fire Marshal. (CBC 1.10.2)

Clean Air, Electric Vehicle and Bicycle Parking for commercial buildings:

BS14. Clean Air Vehicle parking spaces (including future EV Charging Stations) shall be provided and designated as "CLEAN AIR/VANPOOL/EV" for the new commercial portions of the project. The number of clean-air vehicle parking spaces and future EV charging stations shall be based on the CalGreen Code. CalGreen 106.5.2

BS15. Electric Vehicle Charging Space(s), including future EV Charging Stations, shall be provided for the new commercial portions and shall be equipped with the necessary infrastructure for the future installation of EV charging equipment. Future EV charging spaces with the charging equipment not installed with this project are considered Clean Air Vehicle parking spaces.

BS16. Short-Term Bicycle Parking shall be provided based on 5% of the total number of anticipated visitor (customer) parking spaces with a minimum of one two-bike rack. Projects with less than 10 visitor parking spaces are exempt from providing short-term bicycle parking. CalGreen 5.106.4.1.1

BS17. Long-term bicycle parking (lockable) shall be provided based on 5% of the total number of tenant-occupant parking spaces with a minimum of one bicycle parking facility. Projects with less than 10 tenant-occupant parking spaces are exempt from providing long-term bicycle parking. CalGreen 5.106.4.1.2

BS18. Projects with multiple buildings/facilities - the EV Charging Spaces shall be calculated separately based on the parking spaces provided for each facility. CBC 11B-228.3.2 When a shared parking agreement is used, the maximum number of parking spaces for each facility shall be used to determine the number of EV charging spaces.

Electric Vehicle Parking for the residential buildings:

BS19. Electric Vehicle Charging Spaces (including future EV Charging Stations) shall be provided within parking facilities for new residential multi-family buildings per the California Green Building Standards Code section 4.106.4. Ten (10) percent of the total number of parking spaces provided shall be EV charging spaces for future electric vehicle supply equipment (EVSE). At least one EV

space shall be located in each common use area and available for use by all residents.

BS20. All EV Charging Spaces (future EV Charging Stations) shall be provided with the necessary infrastructure for the future installation of EV charging equipment. Future EV charging spaces with the charging equipment not installed with this project may be considered Clean Air Vehicle parking spaces.

BS21. For any new one- and two-family dwellings and townhouses with attached private garages, each dwelling unit shall have a listed raceway to accommodate a dedicated 208/240-volt, 40-amp minimum branch circuit. Each end of the raceway shall be marked "EV CAPABLE." CalGreen 4.106.4.1]

Agency Clearances

BS22. Prior to issuance of building permits, clearances from the following agencies will be required:

- Santa Clarita Planning Division,
- Santa Clarita Engineering Services (soil report review and grading),
- Santa Clarita Environmental Services (Construction & Demolition Plan deposit),
- Los Angeles County Fire Prevention Bureau,
- Los Angeles County Environmental Programs (Industrial Waste),
- Los Angeles County Sanitation District,
- Santa Clarita Valley Water Agency,
- William S. Hart School District and appropriate elementary school district,
- Santa Clarita Urban Forestry Division (for construction near Oak Trees)

An agency referral list with contact information is available at the Building and Safety public counter. Please contact the agencies above to determine if there are any plan review requirements and/or fees to be paid. Clearances from additional agencies may be required and will be determined during the plan review process.

Accessibility

BS23. All applicable disabled access requirements of CBC Chapter 11B for the commercial portions, and CBC Chapter 11A for the multi-family residential portions of the project, including site accessibility details, shall be shown on the architectural plans versus civil plans.

BS24. The accessible parking spaces shall be calculated separately for each facility (residential and commercial), and shall be dispersed and located on the shortest accessible route to accessible entrances. Accessible parking spaces for the residential portion of the project shall be based on the following:

- Where assigned parking spaces are provided, accessible parking spaces shall be provided at the rate of 2% of all assigned parking.

- Where unassigned and visitor parking spaces are provided, accessible parking spaces shall be provided at the rate of 5% of all unassigned parking. Designated guest or visitor parking shall be provided with at least one accessible parking space.
- Accessible parking spaces shall be located and dispersed to be on the shortest possible accessible route to accessible building entrances.
- Accessible parking spaces shall be dispersed proportionately between the various types of parking amenities (surface, carport, and garages).

BS25. At least one EV Charging Station (or future EV Charging Space) shall be provided for each facility (commercial and residential) and shall be sized to be van accessible and located on an accessible route to the building entrance(s). The van accessible EV parking spaces shall be 12-foot wide with a 5-foot side aisle on the passenger side. When less than five EV spaces are provided at a facility, no disabled access signage is required. The side access aisle for any accessible EV parking space shall not overlap the side access aisles required for the regular accessible parking spaces. (CBC sections 11B-228.3 and 11B-812)

BS26. Buildings containing multi-family dwelling units shall also follow all applicable accessibility regulations including federal requirements that may be more restrictive.

Please refer to the following:

- Fair Housing Act (FHA) Design Manual (over 300 pages).
- Joint Statement of the Department of Housing and Urban Development (HUD) and the Department of Justice (DOJ) issued April 30, 2013 (www.hud.gov).
- Dwelling units constructed as senior citizen housing may also be subject to the Unruh Civil Rights Act. Refer to Division 1, Part 2 of the California Civil Code. For additional information regarding application, interpretation and enforcement, contact the California Department of Fair Employment and Housing.

FHA, HUD and DOJ regulations are not enforced by the local building and safety jurisdictions. However, they are the responsibility of the designer, architect, owner and developer.

<u>Soil Reports and Grading</u>

BS27. A complete soils and geology investigation report will be required. The report shall be formally submitted to the Engineering Division for review and approval. The recommendations of the report shall be followed and incorporated into the construction drawings. A copy of the report shall be submitted to Building & Safety at time of plan submittal.

BS28. All grading, compaction and building pad certification shall be completed prior to the issuance of building permits.

Hazard Zones

BS29. This project is located within the City's Fire Hazard Zone. New buildings shall comply with the California Building Code Chapter 7A: MATERIALS AND CONSTRUCTION METHODS FOR EXTERIOR WILDFIRE EXPOSURE. A summary of these requirements are available at the Building and Safety's public counter or visit: http://www.santa-clarita.com/home/showdocument?id=10685. The submitted plans to Building & Safety shall show all Fire Zone requirements.

BS30. This project is located within a Special Flood Hazard Zone. All construction within the floodplain shall comply with the City's Floodplain Ordinance (Chapter 10.06 of the Municipal Code), all Engineering Services Division requirements, all Federal Emergency Management Agency (FEMA) regulations, National Flood Insurance Program (NFIP) regulations, California Building Code, and ASCE 24-13. Plans submitted to Building & Safety shall show compliance with all applicable Flood Zone requirements.

BS31. Indicate in the project data of the plans that this project *IS LOCATED* in a Fire Hazard Zone and *IS LOCATED* in a Flood Hazard Zone.

Additional Information

BS32. After the project receives a final building inspection, a Certificate of Occupancy will be issued. Commercial shell portions of the project will receive separate Certificate of Occupancies after each tenant improvement is completed.

BS33. Each separate new detached building or structure, including trash enclosures, fences, retaining walls, shade structures, will require separate applications and building permits. These other structures need not be on separate plans, but may be part of the same plans of the main project.

BS34. These general comments are based on a review of conceptual plans submitted by the applicant. Additional comments and more detailed building code requirements will be listed during the plan review process when a building permit application and plans are submitted to Building and Safety.

ENVIRONMENTAL SERVICES DIVISION: Laura Jardine; 661.255.4376

ES1. **For the commercial portion of the project**: Provide sufficient trash enclosures to house at least two 3-yard bins. One of the bins should be reserved for recyclable materials only. In addition, space should be added for organics/food waste recycling bins per AB1826. Food generators will be required to provide food waste recycling bins, separate from trash and recycling.

For the multi-family portion of the project: Please provide sufficient trash enclosures to house at least seventy-six 3-yard bins. Thirty-eight of the bins should be reserved for recyclable materials only. In addition, space should be added for organics/food waste recycling bins per AB1826.

For the assisted living/independent living/skilled nursing portions of the project: Please provide sufficient trash enclosures to house at least thirty-four 3-

yard bins. Seventeen of the bins should be reserved for recyclable materials only. In addition, space should be added for organics/food waste recycling bins per AB1826.

Compactors may be used instead of 3-yard bins, which can reduce the number of bins required. Trash and recycling must still be separated and enclosed with a solid roof.

Enclosures should be shown on the site plan with dimensions, include a floor plan/layout, consistent with the surrounding architecture and shall be constructed with a solid roof. The enclosures shall be located to provide convenient pedestrian and collection vehicle access. (You may place the containers in the underground parking structure if a minimum of 20 feet overhead clearance is provided to allow collection vehicles the ability to enter the parking area and service the container(s).)

ES2. All demolition projects regardless of valuation, all commercial construction projects valued greater than $200,000 or over 1,000 square feet for new construction and additions, all new residential construction projects, and all residential additions and improvements that increase building area, volume, or size must comply with the City's Construction and Demolition Materials (C&D) Recycling Ordinance.

C&D Materials Recycling Ordinance:

- A Construction and Demolition Materials Management Plan (C&DMMP) must be prepared and approved by the Environmental Services Division prior to obtaining any grading or building permits.
- A minimum of 65% of the entire project's inert (dirt, rock, bricks, etc.) waste and 65% of the remaining C&D waste must be recycled or reused rather than disposing in a landfill.
- For renovation or tenant improvement projects and new construction projects, a deposit of 2% of the estimated total project cost or $15,000, whichever is less, is required. For demolition projects, a deposit of 10% of the estimated total project cost or $15,000, whichever is less, is required. The full deposit will be returned to the applicant upon proving that 65% of the inert and remaining C&D waste was recycled or reused.

ES3. Per the California Green Building Standards Code, 100 percent of trees, stumps, rocks and associated vegetation and soils resulting primarily from land clearing shall be reused or recycled. For a phased project, such material may be stockpiled on site until the storage site is developed.

ES4. All projects within the City not self-hauling their waste materials must use one of the City's franchised haulers for temporary and roll-off bin collection services. Please visit GreenSantaClarita.com for a list of approved haulers

PARKS AND RECREATION DIVISION: Jeff Morrison; 661.286.4041

PR1. Prior to the recordation of an applicable final tract/parcel map, the applicant shall pay the required Park Dedication Fee equal to the value of the amount of land established per the City's General Plan, "Parks and Recreation Element." An estimate is attached. The applicant may be required to provide a certified MAI real estate appraisal to establish the fair market value (FMV) of an acre of land within this project. The City Council currently has a temporary variance in place that allows the applicant to pay the fees prior to Building Permit. If the applicant can create a minimum five-acre flat parcel for a public park, design and construct the park, they would receive full PDF credit.

PR2. The City does not give Park Dedication Fee (PDF) credit for trails or open space. The multifamily development requires dedicated private active recreation for residents, any private park amenities above that threshold shall be eligible for up to 30% PDF credit, amenities are measured by acreage. There is no PDF charge for assisted living units.

PR3. The General Plan has a designated back-bone trail along South Fork/Wiley Creek. This should be designed as a 15 foot Class I trail located along the westerly boundary/buffer of the project. It shall connect from Wiley Canyon Road at the north end of property site along the western boundary south to Calgrove Boulevard, the trail shall consist of 12' trail tread, lodge pole fencing on both sides one foot clear of the tread, signage, and trail kiosk residents of nearby hiking, biking, and equestrian opportunities.

PR4. The trail shown on the application shall connect to the Class I at both ends and can be either DG, native, or paved surfacing. This trail will create a loop for the residents on the property.

PR5. The open space, as shown on the application, shall be owned and maintained by the property owners association.

SPECIAL DISTRICTS DIVISION: Kevin Tonoian; 661.290.2210

Landscape Maintenance District – Katie Knybel (661) 290-2204

SD1. These parcels are located within Landscape Maintenance District (LMD) Areawide Zone, which was established to fund the construction and maintenance of landscaped medians on major thoroughfares throughout the City of Santa Clarita. Applicant is required to financially contribute to the Areawide Zone in a manner reflective of this LMD zone's assessment methodology.

SD2. Prior to building permit submittal, the applicant will meet with Special Districts to discuss beautification of the proposed medians and roundabout on Wiley Canyon Road at project entrance. Staff will require coordination with the applicant/developer on design and construction of the landscape, irrigation and hardscape.

SD3. The applicant shall be required to install a separate water meter and/or electrical meter/panel for the irrigation for all plant material located within the public right of way to be maintained by the Landscape Maintenance District.

SD4. No on-site private property landscaping shall be maintained by the Landscape Maintenance District (LMD).

Streetlight Maintenance District – Katie Knybel (661) 290-2204

SD5. These parcels were originally annexed by County of Los Angeles into a Lighting District with a maximum assessment of $12.38 per EBU (Equivalent Benefit Unit) without a cost of living index/escalator. The applicant will be required to annex the parcel into the Santa Clarita Landscaping and Lighting District (SCLLD), Streetlighting Zone B. The District funds the operation and maintenance of various landscaping and lighting improvements throughout the City that provide special benefits to properties within the District.

The annexation will bring the EBU rate current (FY 20/2/ $86.86), and add the cost of living escalator (CPI). There is a one-time annexation fee of $500.00 + $100.00 per Equivalent Benefit Unit (EBU). Benefit Units are based on land use and vacant/unimproved parcels are not assessed. Additional information may be required from the applicant to calculate the fee.

1. Following the completed annexation there will be an annual assessment included on the property tax bill. The assessments are based on land use, see attached EBU rate sheet. The proposed assessment to be calculated by assessment engineer.
2. A minimum of 120 days is required to process the annexation, which must be completed prior to final map approval, grading or building permit issuance, whichever occurs first.
3. Developer will work with Special Districts and obtain approval on the LED light fixtures, if any, to be installed on public streets.
4. Ownership of all new streetlights installed on public streets will be transferred to City of Santa Clarita.
5. Developer will work with Special Districts to determine if the streetlights will be metered or unmetered.

Urban Forestry – Valerie Ferchaw (661) 294-2569

SD6. Applicant shall be required to preserve and protect all existing and landscape within the public right-of-way and the tree irrigation system throughout the construction of the project. If at any point during the process it is determined that a City tree will be encroached upon, it is the applicant's responsibility to contact the City's Urban Forestry Division to discuss protection and/or mitigation options prior to encroachment or removal. Applicants are encouraged to reference ANSI (American National Standards Institute) A300 Part 5: Tree, Shrub, and Other Woody Plant Maintenance- Standard Practices (Management of Trees and Shrubs During Site Planning, Site Development, and Site Construction) as well as the

companion publication Best Management Practices- Managing Trees During Construction.

SD7. If at any time, throughout the construction of the project, the irrigation to these trees is interrupted, the applicant shall provide water to the trees by any other means necessary.

SD8. At no time shall any materials or equipment be stored or placed near parkway trees, nor shall any liquids or waste be disposed in parkway tree wells or within their dripline.

SD9. No root pruning of parkway tree roots over 2 inches in diameter is permitted unless discussed with and approved by the City's Urban Forestry Division.

SD10. The applicant shall be required to show all existing parkway trees and landscape which fronts the project on Wiley Canyon Road on all future site plans.

SD11. All required future site plans shall include parkway tree and landscape preservation plan and / or notes indicating that parkway trees and shrubs are to be protected in place.

SD12. In the event that any trees are damaged or lost during the construction, applicant shall be responsible for replacing the trees with a tree of the same size or International Society of Arboriculture (ISA) value.

SD13. Applicant shall be required to install additional trees within the public right-of-way along Wiley Canyon Road where tree vacancies exist. Parkway trees shall be approved by the City of Santa Clarita Urban Forestry Division and must meet/exceed the minimum requirements of the California Department of Forestry and Fire Protections "Guideline Specifications Selecting, Planting, and Early Care of Young Trees".

SD14. Applicant shall be required to install and maintain irrigation to all trees planted within the public right of way. Irrigation to trees shall be bubbler type irrigation only and shall be installed as per City detail sheet.

SD15. All trees shall be planted according to the City of Santa Clarita tree planting and staking detail sheet and/or the American Public Works Association (APWA) standard plans for Public Works construction (Section 5,520-3).

SD16. Parkway trees shall be a minimum 24 inch box.

SD17. All trees shall be placed a minimum of 5 feet from any underground utilities and walkways, 10 feet from hydrants and driveways, 20 feet from utility poles (including but not limited to light poles, telephone poles, and traffic signals). Spacing of parkway trees shall be compliant with the latest edition of the APWA (American Public Works Association) Standard Plans for Public Works Construction. All tree species are to be determined by Urban Forestry staff.

SD18. All tree plantings shall require a pre-site and nursery stock inspection, and a post completion inspection. Trees selected for the public right-of-way shall not have been topped or headed from the nursery. Trees that are diseased, infested, or have girdled root systems will not be accepted and shall be returned to the nursery at no

cost to the City of Santa Clarita. All trees planted within the public right-of-way shall be inspected and approved by a member of the Urban Forestry Division prior to planting.

SD19. All trees planted within a landscaped parkway that consist of lawn shall have a minimum 36-inch round tree well installed at the base of each tree with 3-inches of natural bark or woodchips. Lineal root barriers shall be installed along the edge of both sidewalk and curb at a minimum distance of 10 lineal feet. Root barriers shall be a minimum height of 18-inches. Each tree planted shall have an 8-9 inch arbor guard placed at the base of each tree.

SD20. All trees planted within a concrete type tree well shall have root barriers installed at the edge of the concrete to eliminate the possibility of "girdling" the roots of the tree. Each root barrier in this installation shall be 24 inches in height and installed level with the top of the tree's root ball. All concrete tree wells shall be a minimum of 3 feet deep by 4 feet wide. Larger tree wells shall be installed where public right-of-ways allow without compromising ADA accessibility. Such tree wells shall be 4 feet deep by 5 feet wide.

SD21. Prior to issuance of grading permits the applicant shall have submitted a final landscape plan which identifies shall include a detailed planting legend identifying all proposed street trees, size, species and number of trees being planted.

SD22. Upon completion of the project and prior to issuance of final occupancy / sign-off, the applicant shall provide the City of Santa Clarita Urban Forestry Division with a GPS coordinates and a spread sheet which identifies all parkway trees planted within the public right of way. A detailed legend showing the species and number of trees planted and address shall be included on the GPS spread sheet.

TRANSIT DIVISION: Corie Zamora; 661.295.6306

TD1. There is fixed route bus service between the hours of 4:00 a.m. and 11:00 p.m. on Lyons Avenue daily. While there is currently no bus regular all-day fixed route bus service on Wiley Canyon, future service should be expected. Currently there is only supplemental school day bus service on Wiley Canyon.

TD2. The Transit Impact Fee does apply. Currently the rate is $200 per residential unit. This fee is currently under revision. Applicant shall pay the fee in place at the time of building permit issuance.

TD3. At this time the Transit Impact Fee does not apply to commercial/industrial developments. This fee is currently under revision. Applicant shall pay the fee in place at the time of building permit issuance.

TD4. Upon formal submittal, final bus stop locations will be determined. In reviewing the conceptual site plan, a bus stop will be required on the project's frontage just past the entrance. Additionally, a bus stop may be required opposite the project on Wiley Canyon Road. A pedestrian crossing may be required as well. At a minimum, bus stops may require ROW and street furniture; at most, a bus stop

may require ROW, stylized shelter, and turnout. The bus stop/s shall comply with all ADA regulations as specified in the most recent version of the California Disabled Accessibility Guidebook (CalDag). Proposed disabled access shall be drawn on all plans.

TD5. Prior to occupancy of the first building, the bus stop/s shall be installed to the satisfaction of city staff.

TD6. If the project will be gated, it should be noted that Dial-a-Ride and Access Services vehicles will be unable to enter the project and serve citizens residing within. Dial-a-Ride and Access provide curb to curb bus service for elderly and disabled patron. Policy prohibits vehicles from entering the project unless the gate is staffed by a person.

TD7. Due to the proposed assisted living, senior apartment and skilled nursing components of the project, the applicant shall provide a dedicated passenger loading and un-loading area on-site capable of accommodating a van with the approximate dimensions of: 9'h x 8'w x 23'l at each of these locations. In addition, there should be an 8' free and clear area for wheelchair access to the front door of the van. Please contact the Transit Division for additional information regarding this comment/condition.

TD8. These comments are preliminary and are based on the conceptual plans submitted with the One-Stop Review application. More specific comments may be made upon formal submittal. If you have any questions, please contact Corie Zamora at 661-295-6306.

OAK TREES: Robert Sartain; 661.290.2207

Comments from the Oak Tree Report dated April 2020 by ESA
Trees 450, 451, 452, 453, and 454 fall within the proposed project design area and Tree 452 will likely be removed from the proposed project grading. Trees 450, 451, 453, and 454 may be impacted from project construction if any tree requires cutting, pruning, or encroachment.

Installation of the proposed parking, berm and wall along the southeast parking lot would be considered major encroachment of Trees 450, 451, 453, and 454.

Oak Tree Comments

These comments are preliminary.

OAK1. All oak trees proposed for removal, and or encroachment, shall have an ISA Tree Value Assessment / Tree Appraisal, based on the "Installed Cost" per Square Inch of the replacement tree. This report does not have the Tree Appraisals for those trees.

a. All Tree Appraisals shall use the ISA Trunk Formula method and or ISA Tree Replacement Method, depending on size of the appraisal tree.

b. This is specific for Oak Tree 452 based on the proposed Removal as well as the other proposed encroachments.

OAK2. Also Oak Tree 452 which is being proposed for removal and according to the submitted pictures, the tree looks to be a good candidate for Transplanting.

a. The applicant shall perform a Transplant Study completed by a Qualified Tree moving Company. The study shall provide cost and evaluation of the possible success of moving the protected oak.

OAK3. Oak No. 459 looks to be a large oak that is severely one-sided and leans over the property line. This oak may need to be cut back.

OAK4. The Oak Tree Report shall provide a Summary Table or Spreadsheet that describes the Proposed Impacts, if any to the protected oaks.

a. <u>All Spreadsheet and Tables shall have a column that clearly identifies what oaks are of Heritage Size.</u>

b. The "Impact Column" shall state whether the tree will be removed or encroached along with preservation recommendations.

c. All encroachments should be rated, as minor, moderate or major.

d. There needs to be a table for impact assessments and recommendations and other pruning requirements.

<u>Mitigation</u>

OAK5. Remove the Section (e) from the Oak Tree Report as it is for Residential Oak Tree Mitigation and not for new development on undeveloped land.

OAK6. The Oak Tree Mitigation Plan shall be based on the ISA Tree Value of any proposed oak tree removals and or major encroachments.

a. The oak tree mitigation plan shall replant with new native oak trees within the project site equal to the monetary ISA Tree value of the removed or encroached oaks.

b. The applicant shall provide some conceptual idea for the Oak Tree Mitigation Plan. This shall be explained in a narrative and or in combination with a Mitigation Site Plan.

OAK7. The 2.5 acre parcel east of Wiley Canyon, needs to have the oaks evaluated for Preservation Recommendations. Many of the oaks on that slope have issues and need some care.

a. Within the last 1-2 years there was a Code Enforcement Case on this lot because of a dead and fallen Heritage oak that was a fire hazard.

OAK8. There was no Grading Plan submitted with the report.

These oak tree comments are preliminary and based on the information provided. Additional oak tree comments and or conditions may be provided after resubmittal of new information.

EBU Calculations Applied to Non-Residential Parcels

NON-RESIDENTIAL CLASSIFICATIONS			People Use		Security		Intensity		Total EBUs
GRP-A	**Group A**	Irrigated Farms, Dry Farms, Cemeteries, Dump Sites	1 EBU minimum charge per parcel						1.00 per parcel
GRP-B	**Group B**	Animal Kennels, Nurseries and greenhouses, Industrial parking lots, Churches, Private Schools, Petroleum and Gas, Utility	1.00	+	0.50	+	0.50	=	2.00 per parcel
GRP-C	**Group C**	Commercial Parking Lots	1.00	+	0.50	+	1.00	=	2.50 per parcel
GRP-D	**Group D**	Office & Professional building, Bank, Savings & Loan, Service Shop, Lumber Yard, Golf Course, Race track/stable, Camp, Home for the Aged	1.00	+	1.00	+	1.00	=	3.00 per parcel
GRP-E	**Group E**	Store, Store w/ office or residence, Service Station, Club & Lodge Hall	2.00	+	1.00	+	1.00	=	4.00 per parcel
GRP-F	**Group F**	Rooming House (same as 6 unit apartment)	1.00	+	3.00	+	0.25	=	4.25 per parcel
GRP-G	**Group G**	Restaurant, Theater	3.00	+	1.00	+	1.00	=	5.00 per parcel
GRP-H	**Group H**	Light Manufacturing, Food Processing Plant, Warehousing	2.00	+	2.00	+	1.00	=	5.00 per parcel
GRP-I	**Group I**	Auto, Recreational Equipment Sales & Service	2.00	+	2.00	+	2.00	=	6.00 per parcel
GRP-J	**Group J**	Market, Bowling Alley, Skating Rink, Department Store, Hotel/Motel, Mobile Home Park	4.00	+	2.00	+	2.00	=	8.00 per parcel
	Group K	All parcels in Group K are assessed a minimum of 3 EBU's							
GRP-K1	**Group K-1**		3.00	+	1.00	+	1.25	=	5.25
		Open Storage							0.014973 per 100 SqFt of lot
		Mineral Processing							0.005615 per 100 SqFt of lot
GRP-K2	**Group K-2**		4.00	+	1.00	+	1.25	=	6.25
		Private College/University							0.001736 per 100 SqFt of lot
		Wholesale and manufacturing outlets							0.059858 per 100 SqFt of lot
		Athletic and Amusement Facilities							0.027431 per 100 SqFt of lot
		Heavy Manufacturing							0.006382 per 100 SqFt of lot
		Hospitals							0.012886 per 100 SqFt of lot
GRP-K3	**Group K-3**		4.00	+	1.00	+	1.50	=	6.50
		Motion Picture, Radio, T.V.							0.010938 per 100 SqFt of lot
		Neighborhood Shopping Center							0.014449 per 100 SqFt of lot
		Regional Shopping Center							0.021812 per 100 SqFt of lot
	Vacant		0.00	+	0.00	+	0.00	=	0.00 per parcel

City of Santa Clarita
Park Dedication Fee Requirement

Estimate

Project Description: Smiser Ranch

Tract/MC#: 20-074

	Housing Units	Density / Dwelling	5 Acres Per 1000	**FMV	Sub Total	20% Off Site Improvements	In Lieu Fee
	462	3.000	0.005	$880,000	$6,098,400	$1,219,680	$7,318,080
Total Density		1386					
Total Acres due			6.93000				
30% Max. Park Credit			2.07900				
With Park Credit			4.85100		$4,268,880	$853,776	$5,122,656

TOTAL FEES DUE WITH 30% CREDIT= $5,122,656

TOTAL FEES DUE WITHOUT CREDIT= $7,318,080

Potential Private Park Credit	Total SQ. FT.	Total Acres	Max. Credit 30%
$2,195,424	90,561	2.07900	2.07900

Estimate Reviewed by: Terry Brice

Date: 6/30/2020

****The applicant will be required to provide a certified MAI real estate appraisal to establish the Fair Market Value (FMV) of an acre of land within this project.**

Method of calculation per the City of Santa Clarita General Plan - Parks and Recreation Element:

DU	X	Population per DU	X	5 acres per 1000 people	X	**FMV Buildable acre	=	Subtotal	X	1.2	=	In Lieu Fee

ATTACHMENT 'A'

H. **___ Preliminary Landscape Plan –** Fifteen (15) copies of a landscape plan drawn to scale (minimum plan size 24' x 36") indicating:

- ❑ Project name and location, vicinity map, north arrow and scale (scale to match site plan), property lines and dimensions; label all adjacent streets and provide dimensions to centerline
- ❑ Date of preparation; date(s) of revisions, if applicable
- ❑ Name and contact information of the project landscape architect or designer
- ❑ Existing and proposed land use and zoning
- ❑ Lot square footage or acreage, proposed lot area for landscaping in square feet, percentage of parking lot area proposed for landscaping,
- ❑ Location of buildings, parking areas, vehicular/pedestrian circulation, etc.
- ❑ Location and dimensions of doorways, windows and overhangs, where applicable
- ❑ Location and dimensions of retaining walls, including top-of-wall and base-of-wall spot elevations
- ❑ Spot elevations indicating pad elevations, hardscape footing elevations, pathway elevations, retaining walls, and all other places where grade change would affect design implementation
- ❑ Location and dimensions of doorways, windows and overhangs, where applicable
- ❑ Location and dimensions of all ground-mounted mechanical, electrical, or other equipment, if known (air conditioner condensers, Edison transformer boxes, cable TV boxes, backflow preventers, fire equipment/backflow preventers, gang mailboxes, water, sewer, telephone, etc.)
- ❑ Location of existing and proposed easements
- ❑ Location and graphic dimensions of all existing and proposed trees and shrubs
- ❑ Location of all proposed and existing oak trees
- ❑ Location of all exterior light standards
- ❑ A Tree Legend in table form indicating symbol or abbreviation, botanical name, common name, size, quantity, and water usage (low, medium, high)
- ❑ A Plant Legend in table form for all shrubs and ground cover, indicating: symbol or abbreviation, botanical name, common name, size, quantity, water usage (low, medium, high), height and canopy diameter for mature shrubs. Replace height and width with typical spacing for groundcover plantings.
- ❑ Location, dimensions, and gradient (if applicable) of any turf area
- ❑ Notes indicating design intent at key locations (e.g. screening, entry treatment, streetscape, property line treatment, etc.).
- ❑ Detail pedestrian plazas/site furniture and enhanced paving if not shown on the plans.
- ❑ The height and design of all fencing, walls, trash enclosures, and/or adjacent development, including retaining walls, slopes, fences, etc., that could influence on-site landscaping.
- ❑ Irrigation system point-of-connection

APPENDIX A
LOS ANGELES COUNTY FIRE DEPARTMENT COMMENTS

COUNTY OF LOS ANGELES FIRE DEPARTMENT
FIRE PREVENTION DIVISION
Land Development Unit
5823 Rickenbacker Road
Commerce, CA 90040
Telephone (323) 890-4243, Fax (323) 890-9783

MASTER CASE #: Santa Clarita MC 20-074 PLANNER: Erika Iverson

PROJECT #: One Stop (OS) 20-009 EPIC-LA #: FLDU2020003162

LOCATION: 24942 Hawkbryn (2825-012-007, -010, -011; 2825-012-901 & -902)

THE PROPOSED DRAFT FIRE DEPARTMENT-LAND DEVELOPMENT UNIT COMMENTS ARE "PRELIMNARY" AND, ARE "SUBJECT TO CHANGE" WITH THE SUBMITTAL OF PLANS. THE COMMENTS ARE BASED ON THE INFORMATION PROVIDED BY THE APPLICANT.

ADDITIONAL FIRE DEPARTMENT REQUIREMENTS MAY BE REQUIRED WITH THE SUBMITTAL OF PLANS.

THE PROPOSED PROJECT IS REQUIRED TO COMPLY WITH ALL APPLICABLE CODES, ORDINANCES & REGULATIONS.

THE FIRE DEPARTMENT WOULD RECOMMEND THAT THIS PROJECT NOT TO BE APPROVED AT THIS TIME AND NOT TO PROCEED WITH THE PUBLIC HEARING PROCESS AS PRESENTLY DESIGNED.

SUBMITTALS TO THE FIRE DEPARTMENT

1. The submittal of the tentative map (if necessary) & site plan shall be submitted online to the Land Development Unit for review. Please visit epicla.lacounty.gov to register online for an online and submittal account. The following information is required when submitting a set of plans:

   a. The city transmittal letter with the city planner contact information.

   b. The tentative map (if necessary) & site plan in a PDF format.

2. The tentative tract map (if necessary) & site plan shall clearly depict all on-site Fire Apparatus Access Roads (streets/ driveways), including the width.

3. The tentative tract map (if necessary) & site plan shall clearly depict off-site Fire Apparatus Access Roads adjacent to the site.

4. The Fire Department-Land Development Unit Plan Review Fees will be addressed with the submittal of plans.

ACCESS REQUIREMENTS:

1. Fire Apparatus Access Roads are required to be within 150 feet of all portions of the exterior walls of the first story of the building, as measured by an approved route around the exterior of the building. Fire Code 503.1.1 ***Building's 1 & 3 in Planning Area 2 do not meet this requirement.***

2. Clearly identify the firefighter walkway access routes leading from the Fire Department Access Road to all required openings in the building's exterior walls for firefighting and rescue purposes on the plan, and indicate the required width of 5 feet. Fire Code 504.1 ***Indicate for all proposed buildings***

Reviewed by: Wally Collins Date: June 4, 2020

COUNTY OF LOS ANGELES FIRE DEPARTMENT
FIRE PREVENTION DIVISION
Land Development Unit
5823 Rickenbacker Road
Commerce, CA 90040
Telephone (323) 890-4243, Fax (323) 890-9783

MASTER CASE #: Santa Clarita MC 20-074 PLANNER: Erika Iverson

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LOCATION: 24942 Hawkbryn (2825-012-007, -010, -011; 2825-012-901 & -902)

3. Label all on-site Fire Apparatus Access Roads as "Private Driveway and Fire Lane" on the plan along with the road widths clearly depicted. Fire Code 501.4

4. The Fire Apparatus Access Road shall provide a minimum unobstructed width of 28 feet, exclusive of shoulders and an unobstructed vertical clearance "clear to sky" due to the building height exceeding a distance of 30 feet between the fire apparatus access road and the highest roof surface. The Fire Apparatus Access Road shall be located between 10 feet and 30 feet from the building and shall be positioned parallel to one entire side of the building. Fire Code 503.2.1.2.2 & 503.2.1.2.2.1 ***Indicate correction for the building's in Planning Area 1, Building's 1, 2, 3 & 5 in Planning Area 2, and increase the driveway's to 28 feet as noted on the engineer site plan by the Fire Department.***

5. Provide a minimum 32-foot centerline turning radius for the Fire Apparatus Access Roads. Indicate the centerline, inside and outside turning radii for each change in direction on the plan. Fire Code 503.2.4 ***Indicate compliance on the revised plans.***

6. Provide a gate detail plan. Gates used to control vehicular access shall be in compliance set forth in Fire Code Section's 503.5 & 503.6. ***Indicate compliance on the revised plans.***

7. Provide a second means of access in compliance of Title 21 of the Los Angeles County Code. Fire Code 503.1.2 ***Indicate compliance on the revised plans***

8. Provide a detail plan for the proposed traffic circles. ***Indicate compliance on the revised plans***

WATER SYSTEM REQUIREMENTS

1. Indicate on the plan the location of all existing public fire hydrants within 200 feet of the lot frontage. Fire Code 507.5 & C105.1

2. The required fire flow from the public fire hydrants for this project is 4000 GPM at 20 psi residual pressure for 4 hours. Three (3) public fire hydrants flowing simultaneously may be used to achieve the required fire flow. Fire Sprinklers are required. Fire Code 507.3 & Appendix B105.1 ***The fire flow is subject to reduction.***

3. Provide the type of construction and total square footage for each proposed building to calculate the required fire flow. Include the type of automatic fire sprinkler system, which shall be in compliance with current LA County Fire and Building Codes, to receive any fire flow reductions. Fire Code 507.3 & Appendix B105.1 ***Indicate compliance on the revised plans***

4. The off-site and on-site fire hydrant locations will be determined with further review of the plans.

Reviewed by: Wally Collins Date: June 4, 2020

COUNTY OF LOS ANGELES FIRE DEPARTMENT
FIRE PREVENTION DIVISION
Land Development Unit
5823 Rickenbacker Road
Commerce, CA 90040
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LOCATION: 24942 Hawkbryn (2825-012-007, -010, -011; 2825-012-901 & -902)

FUEL MODIFICATION REQUIREMENT

1. This property is located within the area described by the Fire Department as a Fire Hazard Severity Zone. A "Fuel Modification Plan" shall be submitted to the Fuel Modification for review by the Fuel Modification Unit prior to public hearing. Please contact the Department's Fuel Modification Unit for details. The Fuel Modification Plan Review Unit is located at 605 North Angeleno Avenue in the City of Azusa CA 91702-2904. They may be reached at (626) 969-5205 or visit https://www.fire.lacounty.gov/forestry-division/forestry-fuel-modification/

For any questions regarding the report, please contact FPEA II Wally Collins at (323) 890-4243 or at Wally.Collins@fire.lacounty.gov.

Reviewed by: Wally Collins Date: June 4, 2020

ALLAN E. SEWARD
ENGINEERING GEOLOGY, INC.
Geological And Geotechnical Consultants

June 20, 2018 Job No. 18-2593-9

Sheridan Ebbert Development
13120 Telfair Avenue
Sylmar, California 91342

Attention: Mr. Scott Sheridan

Subject: **GEOTECHNICAL SUMMARY REPORT**
Due Diligence 3rd Party Review

Project: **Wiley Cyn LLC**
Smiser Parcel
Santa Clarita, California

Dear Mr. Sheridan:

This summary report has been prepared in accordance with our 6/4/18 proposal and presents the results of our 3rd party geotechnical review for due diligence purposes. Our scope of work included a desktop review of existing geotechnical reports and published geologic data covering the project site and preliminary assessment of potential geotechnical constraints to future site development.

Based on this study a moderate to significant potential for liquefaction and seismically-induced settlement of alluvial soils was identified. Options to mitigate the liquefaction potential and reduce calculated seismic settlements to acceptable limits, including use of conventional grading to achieve limited deep removals, are discussed herein. The project is considered feasible for development provided the recommendations for removal and recompaction to mitigate compressible soils and seismic settlements are implemented during development.

1.0 BACKGROUND

The subject property is located at 24924 Hawkbryn Drive (previously known as the Smiser Parcel) generally between Interstate 5 and Wiley Canyon Road in the Newhall area of Santa Clarita. The northeasterly portion of the parcel extends across Wiley Canyon Road and includes land on the east side of the road. The subject property was previously used as a mule ranch and remains mostly vacant with the exception of the northerly portion, which is roughly paved and occupied by miscellaneous storage/shed structures. A geotechnical investigation was previously performed by Lawson & Associates Geotechnical Consulting Inc. (LGC) at the subject site in 2004. LGC also performed a geotechnical investigation in 2005 for a 7.5-acre site adjacent to the southerly portion

of the Smiser Parcel (known as the Taylor Parcel). A supplemental geotechnical investigation covering the Smiser Parcel, the Taylor Parcel, and an additional 4.25-acre site located at the corner of Wiley Canyon Road and Calgrove Boulevard was performed by LGC Valley, Inc. (LGC) in 2007. The geotechnical findings, conclusions, opinions, and recommendations were presented in the following reports:

- Preliminary Geotechnical Investigation for the Proposed Development Located at 24923 Hawkbryn Drive, Santa Clarita, California, prepared by Lawson & Associates Geotechnical Consulting Inc., dated March 25, 2004.
- Preliminary Geotechnical Investigation for an 8.28 Acre Site (known as the Taylor Parcel) located West of Wiley Canyon Road, Santa Clarita, California, prepared by Lawson & Associates Geotechnical Consulting Inc., dated February 23, 2005.
- Supplemental Geotechnical Investigation Report for the Proposed Commons Development Located West of Wiley Canyon Road, Santa Clarita, California, prepared by LGC Valley Inc., dated February 23, 2007.

The investigations discussed above were performed to address a previously proposed conceptual development plans, including one that consisted of several 6 to 12 story buildings with two levels of subterranean parking. It is our understanding that the current conceptual development includes multi-family residential and retail structures up to 4 to 5 stories that would be constructed at grade.

2.0 SCOPE OF WORK

The following specific tasks were performed:

- Review of the above-referenced geotechnical reports.
- Review of published geologic maps and reports covering the project site.
- Review of historic high groundwater data from published maps for use in the liquefaction evaluation.
- Evaluation of potential ground accelerations that could be generated at the site during future earthquakes on nearby faults, in accordance with the current California Building Code (CBC).
- Evaluation of liquefaction hazard potential and calculation of associated seismically-induced ground settlements.
- Assessment of additional potential geotechnical constraints (in addition to liquefaction hazard), including soil compressibility and hydro-compression, slope instability, expansive and corrosive soils, and fault rupture hazard.

- Preparation of this report, which summarizes the results of our geotechnical evaluation of significant geologic and geotechnical constraints at the project site and our opinions on potential mitigation measures for due diligence purposes.

3.0 PREVIOUS FIELD EXPLORATION AND LABORATORTY TESTING

The following subsurface exploration was performed by LGC, as documented in the referenced reports that we reviewed:

- Advancement of 4 CPT soundings, CPT-01 LGC through CPT-04 LGC (2004), to depths ranging from 12.8 to 46.7 feet.
- Drilling of 5 hollow-stem auger borings, B-LGC-1 through B-LGC-5 (2004), to depths ranging from about 31 to 51.5 feet.
- Drilling of 3 hollow-stem auger borings, B-LGC-1 through B-LGC-3 (2005), to depths ranging from about 28.5 to 47.5 feet

  (*Note: boring B-LGC-2 was not included in the associated report and not reviewed*).
- Drilling of 9 hollow-stem auger borings, B-LGC-1 through B-LGC-9 (2007), to depths ranging from about 40.5 to 80.3 feet.

Samples collected from the borings included modified California drive (CD) ring samples, Standard Penetration Test (SPT) samples, and bulk samples. The CD and SPT samples were generally obtained at 2.5-ft intervals in the upper 10 feet and every 5 feet thereafter.

Subsequent laboratory testing was performed by LGC on samples collected from the borings and included in-situ moisture content and dry density, grain size distribution, laboratory maximum dry density (modified Proctor), consolidation, hydro-collapse, direct shear, expansion index, and corrosivity (sulfate content, pH and resistivity).

4.0 EARTHQUAKE FAULT ZONES AND SEISMIC HAZARD ZONES

Review of the Earthquake Fault Zones and Seismic Hazard Zones Map for the Oat Mountain 7.5-Minute Quadrangle (CDCCGS, 1998) indicates that an Alquist-Priolo Earthquake Fault Zone and Seismic Hazard Earthquake-Induced Landslide Zones of required investigation are not present on the subject site. However, the site is located in a Seismic Hazard Zone of required investigation for soil liquefaction.

5.0 SUBSURFACE CONDITIONS

5.1 Earth Materials

The subject site is underlain by undifferentiated quaternary alluvial and fluvial deposits. Based on the boring logs presented in the referenced reports these deposits consist predominantly of brown to yellowish brown, fine- to coarse-grained sands with some gravel and cobbles, with silty to clayey sand and sandy silt interbeds. Loose/soft soil layers were encountered in several borings within the upper 20 feet where the measured in-situ dry densities were as low as 92 pcf. Below a depth of 20 the dry density was predominantly above 110 pcf. In any case, the soil consistency based on sampler blow count data and in-situ dry density was generally variable to the depths explored. These loose sands and soft silts are considered susceptible to seismically-induced settlement.

Bedrock of the Saugus Formation (QTs) was encountered at 4 boring locations (B-LGC-2, B-LGC-4, B-LGC-8, and B-LGC-9, 2007) at depths ranging from 65 to 75 feet.

5.2 Ground Water

Ground water was encountered in 6 hollow-stem auger borings during LGC's subsurface exploration in 2007. The depth to groundwater ranged from about 58 to 66 feet below the ground surface at borings B-LGC-1, -2, -4 and -5, which are located within the central and northerly portions of the site. At borings B-LGC-8 and -9 located within the adjacent parcels to the south, groundwater was encountered from 35 to 42 feet below the ground surface.

Based on the historically highest ground water contours included in the Seismic Hazard Zone Report for the Oat Mountain 7.5-Minute Quadrangle, the interpolated historic high ground water elevation is approximately 30 feet beneath the elevation of the existing ground surface.

6.0 SOIL COMPRESSIBILITY

Review of boring data and results of laboratory testing indicate a significant potential for hydro-compression (3.5% to 5%) of existing alluvial soils in two of the borings at a depth of 11 feet. Laboratory test data on soil samples collected at and below a depth of 20 feet in other borings indicate a low potential for hydro-compression. In general, site soils shallower than a depth of 15 feet are anticipated to have a significant potential of hydro-compression. Based on the significant potential for hydro-compression, in addition to boring blow count data and measured dry densities in this depth range, it is recommended that the upper 15 feet of soils be removed and replaced as a compacted fill.

7.0 LIQUEFACTION ASSESSMENT

Review of the Seismic Hazard Zones Map for the Oat Mountain Quadrangle indicates that the subject site is located in a Seismic Hazard Zone of required investigation for soil liquefaction. Evaluation of liquefaction hazard was previously performed by LGC and in their prior reports they concluded that the potential for liquefaction to occur is very low to nil. However, updated analyses to evaluate the potential for soil liquefaction and associated seismic settlement was performed based on the following:

- The previous analyses used an estimated peak ground acceleration (PGA) of 0.65 g that correlates to the "Design Basis Earthquake Ground Motion" (i.e. 10 percent probability of exceedance in 50 years) in accordance with the building code standards at that time. The current California Building Code (CBC) requires use of a higher PGA consistent with "Maximum Considered Earthquake Ground Motions" (i.e. a 2 percent probability of exceedance in 50 years).
- The previous analyses were limited to evaluation of liquefaction potential in Borings B-LGC-1 (2004) and B-LGC-1 (2004) only. Subsequent analyses presented in the 2007 LGC report assumed 25-ft removals for planned subterranean structures and those results are not applicable to the current study.
- The previous analyses did not assess "dry sand" settlement above the liquefiable zone (i.e. seismic settlement of loose, dry soils above the groundwater elevation), which is required based on the County of Los Angeles Department of Public Works, Geotechnical and Materials Engineering Division (GMED) policy.
- The previous analyses did not incorporate a safety factor into the calculations. GMED requires potentially liquefiable layers with a safety factor of less than 1.30 be included in seismic settlement calculations.

Details regarding the updated analyses, regulatory requirements, results, and mitigation options are presented in the following sections.

7.1 Peak Ground Acceleration

The peak ground acceleration (PGA) consistent with maximum considered earthquake (MCE_G) ground motions was evaluated for "stiff soil" conditions (Site Class D) in accordance with the California Building Code and ASCE 7-10 (with March 2013 errata). Using the U.S. Seismic Design Maps web tool by the United States Geological Survey (USGS), the mapped MCE_G peak ground acceleration was determined and adjusted for Site Class effects (PGA_M). Based on our evaluation, a probabilistic PGA_M of about 1.17g would be produced by the maximum considered earthquake (i.e. earthquake with 2% probability of exceedance in 50 years).

7.2 Deaggregation of Fault Hazard

A probabilistic analysis evaluates a range of magnitudes from 5.0 to the maximum magnitude for each fault. However, the dominant magnitude which statistically generates the peak acceleration within a limited time period (e.g. 2,475 years) is typically less than the maximum magnitude for a given fault.

In order to evaluate what dominant magnitude-distance combination produces the PGA_M within a 2,475 year return period, the hazard was deaggregated using the USGS *Unified Hazard Tool* and an estimated average shear wave velocity ($V_{S,30}$) for the upper 100 feet (~30 meters) based on Site Class D soil conditions. Review of the magnitude-distance contributions to the hazard indicates that this acceleration would most likely be generated by a magnitude 6.69 earthquake on the Santa Susana fault located at a distance (Rrup) of about 3.6 miles from the project site. The peak ground acceleration weighted for a standardized earthquake magnitude of 7.5 is 0.87g.

7.3 Evaluation of Liquefaction Potential and Associated Seismic Settlements

Assessment of liquefaction potential and seismic settlement calculations (earthquake-induced liquefaction settlement and dry sand settlement) were performed using CPT and boring SPT data in general accordance with the requirements outlined in ASCE 7-10 (with March 2013 errata), CGS Special Publication 117A (Guidelines for Evaluating and Mitigating Seismic Hazards in California), the 2016 CBC, and the Manual for Preparation of Geotechnical Reports prepared by GMED). A historic high ground water depth (consistent with historically highest ground water contours included in the Seismic Hazard Zone Report for the Oat Mountain 7.5-Minute Quadrangle), weighted peak ground acceleration of 0.87g (corresponding to an "equivalent" magnitude 7.5 earthquake), mean MCE magnitude of 6.69, and 1.3 safety factor against liquefaction were used in the calculations. Assuming the proposed development will be at existing grade or above, the maximum depth analyzed was about 50 feet beneath the existing ground surface.

The following liquefaction assessment procedures and assumptions, which may potentially have significant impacts on the results, were implemented into the calculations based on the available data collected and provided in the referenced reports:

- SPT blow count data is recommended at 2.5 ft intervals to a depth of at least 50 feet. A 5-ft sampling interval was used by LGC at each boring location. In addition, a California drive (CD) sampler was used in conjunction with an SPT sampler at alternating depths. To perform the SPT-based assessment of liquefaction potential a correction factor equal to 0.55 was applied to the CD blow counts to obtain an approximate SPT blow count for input into the spreadsheet calculations.

- The fines content of soil samples (i.e. the amount of material finer than the No. 200 sieve size) is used as an input into the spreadsheet calculations to determine an equivalent "clean sand" N1(60) blow count at each sample interval. Laboratory testing to determine the fines content was only performed for a limited number of samples. The fines content for the remained of the samples was assumed based on boring log descriptions.
- Correction factors for short rod length (C_R), non-standardized sampler configuration (C_S), and hammer energy efficiency (C_E) were applied based on what was used in the prior analyses performed by LGC.
- Calculated seismic settlements at CPT and boring locations that are shallower than 50 feet are provided to show an indication of potential settlement within the analyzed depth range only and do not represent anticipated total seismic settlements at those locations.

7.4 Regulatory Requirements

The Los Angeles County Department of Public Works, Geotechnical and Materials Engineering Division (GMED) has developed criteria to determine when structural mitigation and ground improvement is required to mitigate seismically-induced settlement, which has been adopted by the City of Santa Clarita. Total seismic settlements up to 4 inches and differential seismic settlements up to 1 inch (over a horizontal distance of 30 feet) can be mitigated using structural methods, such as additional foundation reinforcement or alternate foundation types. Calculated settlements in excess of these values would warrant ground improvement, or a combination of ground improvement and structural methods.

7.5 Results

Calculated seismic settlements are summarized in **Table B1** and the graphical results of the analyses are presented on **Figures B1** through **B18** (see Appendix B). The principle findings are discussed below:

- Potential earthquake-induced settlement at the ground surface is estimated to range from about 1.0 to 6.5 inches prior to remedial removals. Potential earthquake-induced differential settlement of over 3 inches (taken as ½ of the total seismic settlement) could occur over a horizontal distance of 30 feet.
- Significant dry sand settlements (i.e. seismic settlement of soil above the historic high ground water depth of 30 feet) ranging from about 1.5 to 5.75 inches was calculated at several boring locations. This magnitude of dry sand settlement is not supported by the CPT-based analyses (which is limited to 2 locations of sufficient depth) where only 0.5 to 1.0 inches was calculated (see Correlation of Boring vs. CPT Interpretation, **Figure B19**).

- Implementation of the recommended minimum 15 ft remedial removals will remove loose/soft material that may be subject to potential "dry sand" settlements during seismic shaking. These removals will slightly reduce estimated total seismic settlements to approximately 5.25 inches, or less. Deeper removals of other remedial ground improvement will be required to reduce calculated seismic settlements to values that are in conformance with GMED criteria.

7.6 Mitigation Options

Total seismic settlements following 15 ft remedial removals range from about 2 to 5.25 inches at borings B-LGC-1 to -4 (2007) and B-LGC-6 (2007). Differential seismic settlement when taken as ½ of the total seismic settlement ranges from about 1 to 2.6 inches. These values exceed the settlement criteria established by GMED to avoid ground improvement.

Based on the current analyses, up to 20 to 30 feet of remedial removals would be required to reduce total seismic settlement to less than 2 inches and associated differential seismic settlement to less than 1 inch at many locations (generally within the central portion of the site). Deep removals and recompaction are likely the most cost-effective solution as groundwater is not anticipated to be a concern for removals up to 30 feet. However, deep removals may be a constraint along property lines and roadways depending on the layout of proposed structures.

If deep removals are considered unfeasible, other potentially effective methods to densify or improve subsurface soils to mitigate liquefaction hazard are tabulated below in Table 1. The design and construction of remedial ground improvements is typically performed by a geotechnical construction firm with extensive experience and expertise.

Table 1 – Optional Ground Improvement Techniques

IN-SITU DENSIFICATION	
VIBRATORY PROBE	• Vibratory hammer (vertical) used within open-ended steel pipe; • Effective for loose saturated sand • Reliable for densification of liquefiable soils at depth
VIBRO-COMPACTION	• Probe with internal horizontal vibrator penetrates and densifies soil under its own weight and by water or air jetting • Reliable for densification of liquefiable soils at depth
VIBRO-REPLACEMENT	• Gravel inserted from base of vibratory probe; probe gradually withdrawn from maximum depth, vibrating and densifying soil • Reliable for densification of liquefiable soils at depth
COMPACTION PILES	• Densification due to vibrations and shearing associated with installation of well-compacted sand piles • One of the more effective methods for silty soils • Typically more expensive than vibratory probe and vibro-compaction/replacement
COMPACTION GROUTING	• Pressurized grout injected into loose soils, which displaces/densifies surrounding soils • Difficult to achieve uniform treatment and difficult to verify improvement

GROUND TREATMENT	
CHEMICAL GROUTING	• Grout fluid injected under low pressure to fill in soil voids • Potentially expensive and difficult to verify improvement
JET GROUTING	• Column of grout or grout-treated soil using a high-pressure jet ejected from a rod that penetrates loose soil
DEEP SOIL MIXING	• Augers used to create column of soil-cement mixture installed in tightly spaced grid • More reliable than jet grouting

8.0 FINDINGS AND CONCLUSIONS

The development of the site is considered feasible from a geotechnical standpoint provided the recommendations for removal and recompaction to mitigate compressible soils and seismic settlements are implemented during development. For preliminary development cost estimates, a 15 ft removal and recompaction may be assumed for the proposed development area with one-third of the area requiring deeper removal and recompaction at an average depth of 25 ft. Groundwater is not anticipated to be a constraint relative to performing removals.

8.1 Liquefaction Hazard

Liquefaction potential and associated seismic settlements using the current California Building Code estimated peak ground acceleration has been identified as a significant geotechnical constraint to development based on the geotechnical data provided in the referenced reports. The change in the analyses results from the prior reports and our analysis is primarily due to the increase in estimated peak ground accelerations and incorporation of “dry sand” settlement calculations.

Remedial removals of at least 15 feet are anticipated to mitigate the potential liquefaction hazard at the project site with locally deeper removals of 20 to 30 feet. The attached Subsurface Location Map illustrates the locations of anticipated removal depths.

As previously noted, the magnitude of dry sand settlement in the borings is not supported by the CPT data. Therefore, it is our professional opinion that there is the potential to reduce calculated seismic settlements and reduce the areas of deeper removals utilizing additional boring and CPT data in conjunction with appropriate sampler type, sample interval, and laboratory testing.

8.2 Fault Rupture Hazard

Regional geology maps do not show any active or potentially active faults with a ground surface trace located on or trending towards the project site. The site does not lie within any of the California Alquist-Priolo Earthquake Fault Zones (Hart, 1999 revision). The San Gabriel Fault is located approximately 3.6 miles northeast of the site. The possibility of fault-related ground rupture at the site is believed to be low.

8.3 Soil Compressibility Considerations

Remedial removals of at least 15 feet are recommended to mitigate potential hydro-compression. The potential compressibility (under static loading conditions) of alluvial soils to remain in place is considered **low** following implementation of the recommended remedial removals.

8.4 Expansive Soils Considerations

Soil expansion has been found to be a significant consideration for design and construction of foundations and concrete slabs-on-grade. Based on results of Expansion Index testing performed by LGC and the predominantly granular nature of site soils, it is anticipated that compacted fill generated from these materials will have a very low to low expansion potential and should not adversely affect future development.

8.5 Soil Corrosivity Considerations

The Geotechnical and Materials Engineering Division (GMED) of the Los Angeles County Department of Public Works regards soil at a site to be corrosive to concrete and/or steel if the measured resistivity is 1,000 ohm-cm or less, and/or if the sulfate concentration is 2000 ppm (0.20%) or greater, and/or if the pH is 5.5 or less. Also, a soil with a chloride concentration greater than or equal to 500 ppm is considered deleterious to ferrous metals.

Based on the measured resistivity value (940 to 1500 ohm-cm), the tested material is potentially corrosive to concrete and buried metal based on criteria presented in the current GMED Manual for Preparation of Geotechnical Reports, revised July 2013. The measured sulfate contents classify as having a negligible to moderate exposure risk per ACI 318 (Table 4.3.1). The measured pH values do not meet criteria that indicate corrosive soil conditions.

The resistivity values are within the typical range measured for other developments in the Santa Clarita area and are not anticipated to result in unusual development costs.

9.0 LIMITATIONS

This report has been prepared by Allan E. Seward Engineering Geology, Inc. for the exclusive use of Sheridan Ebbert Development and their design consultants for the specific site and development discussed herein. This report should not be considered transferable. Prior to use by others, this firm must be notified, as additional work may be required to update this report.

Additional investigation will be required to prepare recommendations for subsequent phases of development. In the event that any modifications in the design or location of the proposed development are planned, a written review by this firm will be required.

The proposed development is located in southern California, a geologically and tectonically active region, where large magnitude, potentially destructive earthquakes are common. Therefore,

ground motions from moderate or large magnitude earthquakes could affect the project site during the design life of the proposed structure(s).

In performing these professional services, this firm has used the degree of care and skill ordinarily exercised under similar circumstances by reputable geologists and geotechnical engineers practicing in this or similar localities. The data presented in this report are based on results of preliminary field testing. It should be recognized that subsurface conditions can vary in time, and laterally, and with depth at a given site and that the conclusions and recommendations presented in this report are based on our observations and testing. Therefore, our **conclusions** and **recommendations** are **professional opinions** and are **not meant** to be a control of nature. We make no other **warranty** either **expressed** or **implied**.

This opportunity to be of service is appreciated. If you have any questions regarding this report, please contact us.

Respectfully submitted,

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Principal Engineering Geologist
Vice President

Kevin P. Callahan, MS, GE 2989
Principal Geotechnical Engineer

The following attachments and appendices complete this report.
References

APPENDIX A – Ground Motion

- References
- USGS Design Maps Detailed Report

APPENDIX B – Evaluation of Liquefaction Potential and Associated Phenomena

- References for Liquefaction Potential Assessment
- Summary of Liquefaction Potential and Seismically-Induced Settlement — Table B1
- Analysis of Liquefaction Potential from CPT Data — Figures B1 thru B18
- Correlation of N1(60) Blow Count and Percent Fines - Boring vs. CPT Interpretation — Figure B19

Subsurface Location Map — **Plate I**

Distribution:

Sheridan Ebbert Development (2 hardcopies and pdf copy via email)
Attn: Mr. Scott Sheridan

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Appendix A

APPENDIX A

GROUND MOTION AND RESPONSE SPECTRA REFERENCES

Abrahamson, N. A., and W. J. Silva (2008), Summary of the Abrahamson & Silva NGA Ground-Motion Relations, Earthquake Spectra, 24(1), 67-97.

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Campbell, K. W. and Y. Bozorgnia (2008), NGA ground motion model for the geometric mean horizontal component of PGA, PGV, PGD and 5% damped linear elastic response spectra for periods ranging from 0.01 to 10s, Earthquake Spectra, 24(1), 139-171.

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U.S. Geological Survey, United States Seismic Design Maps web application, http://earthquake.usgs.gov/designmaps/us/application.php

U.S. Geological Survey, Unified Hazard web application, https://earthquake.usgs.gov/hazards/interactive/

USGS Design Maps Detailed Report

ASCE 7-10 Standard (34.3684°N, 118.5572°W)

Site Class D – "Stiff Soil", Risk Category I/II/III

Section 11.4.1 — Mapped Acceleration Parameters

Note: Ground motion values provided below are for the direction of maximum horizontal spectral response acceleration. They have been converted from corresponding geometric mean ground motions computed by the USGS by applying factors of 1.1 (to obtain S_S) and 1.3 (to obtain S_1). Maps in the 2010 ASCE-7 Standard are provided for Site Class B. Adjustments for other Site Classes are made, as needed, in Section 11.4.3.

From Figure 22-1 [1] S_S = 3.109 g

From Figure 22-2 [2] S_1 = 0.988 g

Section 11.4.2 — Site Class

The authority having jurisdiction (not the USGS), site-specific geotechnical data, and/or the default has classified the site as Site Class D, based on the site soil properties in accordance with Chapter 20.

Table 20.3–1 Site Classification

Site Class	$\overline{v}_s$	$\overline{N}$ or $\overline{N}_{ch}$	$\overline{s}_u$
A. Hard Rock	>5,000 ft/s	N/A	N/A
B. Rock	2,500 to 5,000 ft/s	N/A	N/A
C. Very dense soil and soft rock	1,200 to 2,500 ft/s	>50	>2,000 psf
D. Stiff Soil	600 to 1,200 ft/s	15 to 50	1,000 to 2,000 psf
E. Soft clay soil	<600 ft/s	<15	<1,000 psf
	Any profile with more than 10 ft of soil having the characteristics: • Plasticity index PI > 20, • Moisture content w ≥ 40%, and • Undrained shear strength $\overline{s}_u$ < 500 psf		
F. Soils requiring site response analysis in accordance with Section 21.1	See Section 20.3.1		

For SI: 1ft/s = 0.3048 m/s 1lb/ft² = 0.0479 kN/m²

Section 11.4.3 — Site Coefficients and Risk–Targeted Maximum Considered Earthquake (MCE_R) Spectral Response Acceleration Parameters

Table 11.4–1: Site Coefficient F_a

Site Class	Mapped MCE_R Spectral Response Acceleration Parameter at Short Period				
	$S_S \le 0.25$	$S_S = 0.50$	$S_S = 0.75$	$S_S = 1.00$	$S_S \ge 1.25$
A	0.8	0.8	0.8	0.8	0.8
B	1.0	1.0	1.0	1.0	1.0
C	1.2	1.2	1.1	1.0	1.0
D	1.6	1.4	1.2	1.1	1.0
E	2.5	1.7	1.2	0.9	0.9
F	See Section 11.4.7 of ASCE 7				

Note: Use straight–line interpolation for intermediate values of S_S

For Site Class = D and S_S = 3.109 g, F_a = 1.000

Table 11.4–2: Site Coefficient F_v

Site Class	Mapped MCE_R Spectral Response Acceleration Parameter at 1–s Period				
	$S_1 \le 0.10$	$S_1 = 0.20$	$S_1 = 0.30$	$S_1 = 0.40$	$S_1 \ge 0.50$
A	0.8	0.8	0.8	0.8	0.8
B	1.0	1.0	1.0	1.0	1.0
C	1.7	1.6	1.5	1.4	1.3
D	2.4	2.0	1.8	1.6	1.5
E	3.5	3.2	2.8	2.4	2.4
F	See Section 11.4.7 of ASCE 7				

Note: Use straight–line interpolation for intermediate values of S_1

For Site Class = D and S_1 = 0.988 g, F_v = 1.500

Equation (11.4–1):	$S_{MS} = F_a S_S = 1.000 \times 3.109 = 3.109$ g
Equation (11.4–2):	$S_{M1} = F_v S_1 = 1.500 \times 0.988 = 1.483$ g

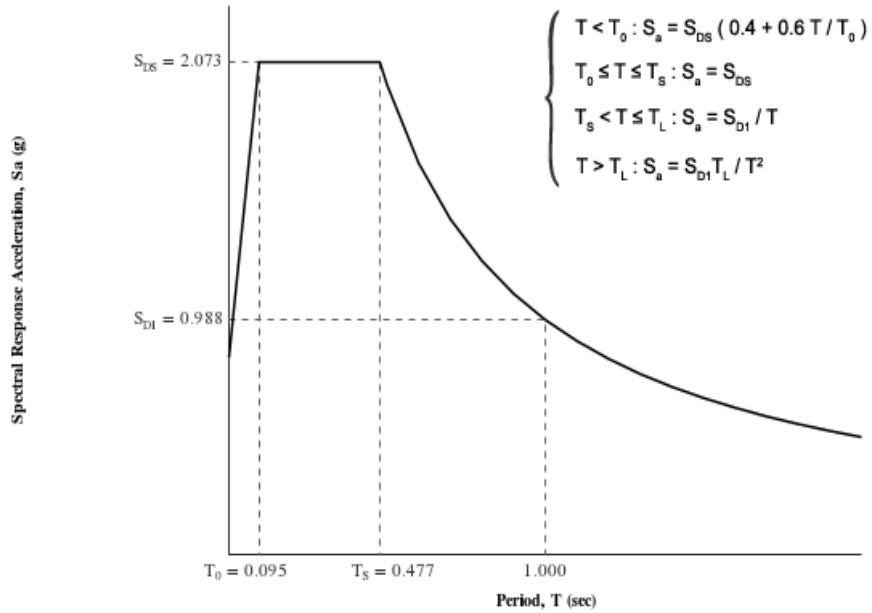
Section 11.4.4 — Design Spectral Acceleration Parameters

Equation (11.4–3):	$S_{DS} = \frac{2}{3} S_{MS} = \frac{2}{3} \times 3.109 = 2.073$ g
Equation (11.4–4):	$S_{D1} = \frac{2}{3} S_{M1} = \frac{2}{3} \times 1.483 = 0.988$ g

Section 11.4.5 — Design Response Spectrum

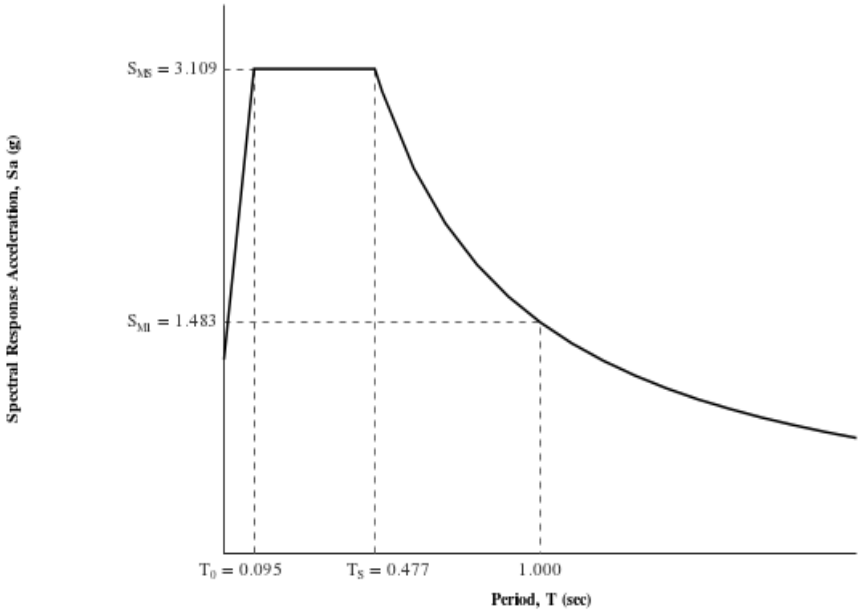
From Figure 22-12 [3]	$T_L = 8$ seconds

Figure 11.4–1: Design Response Spectrum



Section 11.4.6 — Risk-Targeted Maximum Considered Earthquake (MCE_R) Response Spectrum

The MCE_R Response Spectrum is determined by multiplying the design response spectrum above by 1.5.



Section 11.8.3 — Additional Geotechnical Investigation Report Requirements for Seismic Design Categories D through F

From Figure 22-7 [4] PGA = 1.170

Equation (11.8–1): $PGA_M = F_{PGA}PGA = 1.000 \times 1.170 = 1.17$ g

Table 11.8–1: Site Coefficient F_{PGA}

Site Class	Mapped MCE Geometric Mean Peak Ground Acceleration, PGA				
	PGA ≤ 0.10	PGA = 0.20	PGA = 0.30	PGA = 0.40	PGA ≥ 0.50
A	0.8	0.8	0.8	0.8	0.8
B	1.0	1.0	1.0	1.0	1.0
C	1.2	1.2	1.1	1.0	1.0
D	1.6	1.4	1.2	1.1	1.0
E	2.5	1.7	1.2	0.9	0.9
F	See Section 11.4.7 of ASCE 7				

Note: Use straight–line interpolation for intermediate values of PGA

For Site Class = D and PGA = 1.170 g, F_{PGA} = 1.000

Section 21.2.1.1 — Method 1 (from Chapter 21 – Site-Specific Ground Motion Procedures for Seismic Design)

From Figure 22-17 [5] C_{RS} = 0.927

From Figure 22-18 [6] C_{R1} = 0.950

Section 11.6 — Seismic Design Category

Table 11.6-1 Seismic Design Category Based on Short Period Response Acceleration Parameter

VALUE OF S_{DS}	RISK CATEGORY		
	I or II	III	IV
$S_{DS} < 0.167g$	A	A	A
$0.167g \le S_{DS} < 0.33g$	B	B	C
$0.33g \le S_{DS} < 0.50g$	C	C	D
$0.50g \le S_{DS}$	D	D	D

For Risk Category = I and S_{DS} = 2.073 g, Seismic Design Category = D

Table 11.6-2 Seismic Design Category Based on 1-S Period Response Acceleration Parameter

VALUE OF S_{D1}	RISK CATEGORY		
	I or II	III	IV
$S_{D1} < 0.067g$	A	A	A
$0.067g \le S_{D1} < 0.133g$	B	B	C
$0.133g \le S_{D1} < 0.20g$	C	C	D
$0.20g \le S_{D1}$	D	D	D

For Risk Category = I and S_{D1} = 0.988 g, Seismic Design Category = D

Note: When S_1 is greater than or equal to 0.75g, the Seismic Design Category is **E** for buildings in Risk Categories I, II, and III, and **F** for those in Risk Category IV, irrespective of the above.

Seismic Design Category ≡ "the more severe design category in accordance with Table 11.6-1 or 11.6-2" = E

Note: See Section 11.6 for alternative approaches to calculating Seismic Design Category.

References

1. *Figure 22-1*: https://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-1.pdf
2. *Figure 22-2*: https://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-2.pdf
3. *Figure 22-12*: https://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-12.pdf
4. *Figure 22-7*: https://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-7.pdf
5. *Figure 22-17*: https://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-17.pdf
6. *Figure 22-18*: https://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-18.pdf

Appendix B

APPENDIX B

REFERENCES FOR LIQUEFACTION POTENTIAL ASSESSMENT

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APPENDIX B

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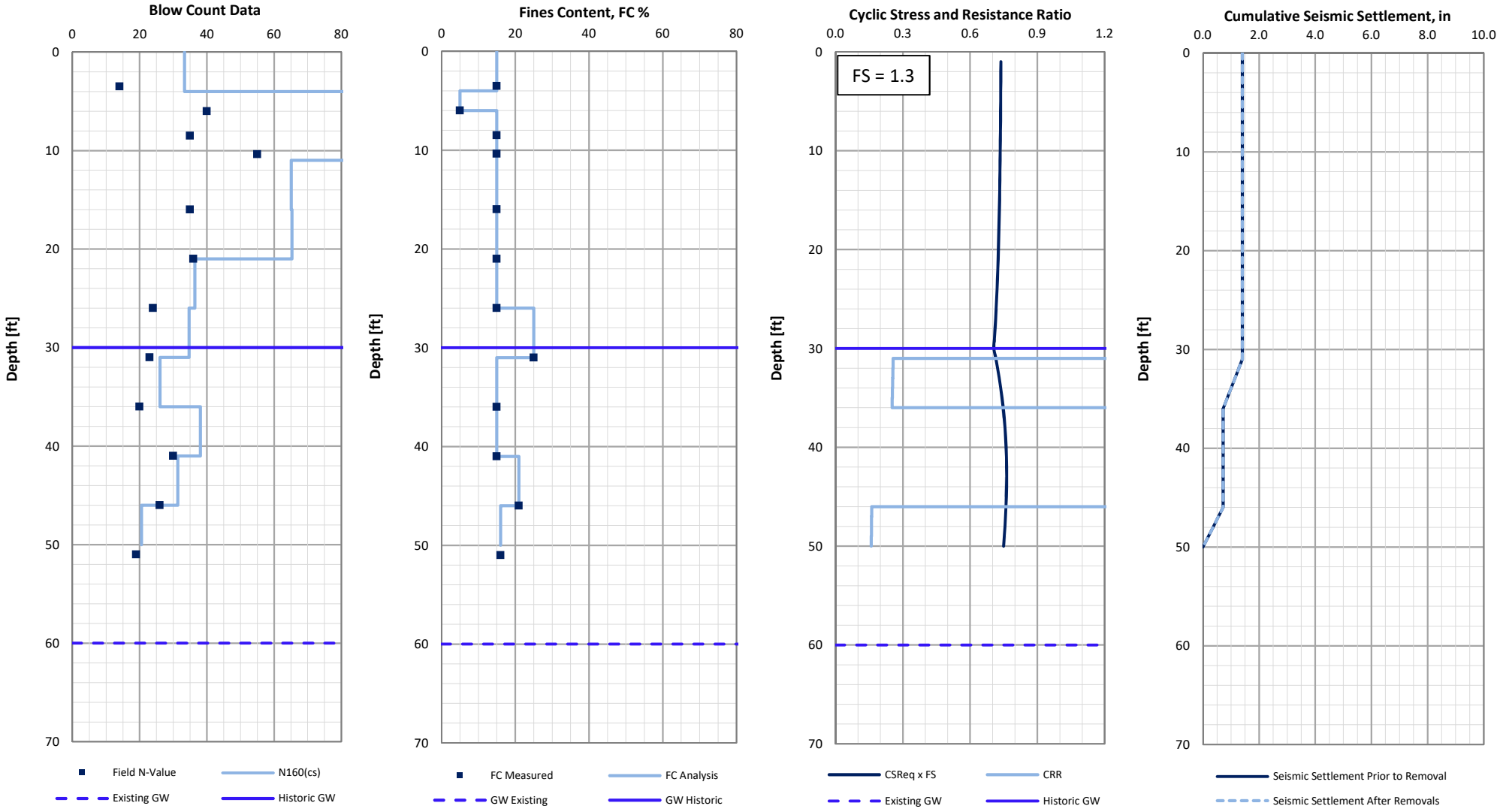
TABLE B1 – SUMMARY OF LIQUEFACTION POTENTIAL AND SEISMICALLY-INDUCED SETTLEMENT

Analyzed Location (Report Date)	Total Depth (feet)	Depth to Bedrock (feet)	Groundwater Depth (feet)		Liquefaction Settlements (inches)[1]	Dry Sand Settlements (inches)	Total Seismic Settlement Before Removals (inches)	Seismic Settlement *With 15 ft Removals*		Limit Total Seismic Settlement < 2.0 inch	
			Existing GWT	Historical GWT				Removal Depth (ft)	Total Seismic Settlement	Removal Depth (ft)	Total Seismic Settlement
B-LGC-1 (2004)	51.5	-	-	30	1.40	0.00	1.40	15	1.40		
B-LGC-2 (2004)	51.5	-	-	30	0.16	3.52	3.68	15	0.61		
B-LGC-3 (2004)	31.5	-	-	30	-*	4.92	-	15	1.30		
B-LGC-4 (2004)	31.5	-	-	30	-*	0.92	-	15	0.00		
B-LGC-1 (2005)	47.5	-	-	30	0.00	1.24	1.24	15	1.24		
B-LGC-3 (2005)	28.5	-	-	30	-*	0.27	-	15	0.00		
B-LGC-1 (2007)	75.5	-	60	30	0.82	5.73	6.55	15	3.94	24	1.47
B-LGC-2 (2007)	80.3	75	66	30	1.92	3.90	5.82	15	5.23	30	1.92
B-LGC-3 (2007)	50.5	-	-	30	1.33	1.45	2.78	15	2.63	19	1.86
B-LGC-4 (2007)	75.5	70	63.5	30	0.00	2.18	2.18	15	2.18	20	1.83
B-LGC-5 (2007)	75.5	-	57.8	30	0.00	3.48	3.48	15	0.76		
B-LGC-6 (2007)	40.5	-	-	30	0.70*	2.60	3.30	15	3.30	22	1.99
B-LGC-7 (2007)	41.5	-	-	30	1.15*	0.58	1.73	15	1.46		
B-LGC-8 (2007)	75.25	65	42	30	0.00	1.23	1.23	15	0.69		
B-LGC-9 (2007)	75.5	70	35	30	0.00	1.04	1.04	15	0.12		
CPT-01	46.7	-	38	30	1.53	0.46	1.99	15	1.69		
CPT-02	16.7	-	-	30	-*	0.03	-	15	0.00		
CPT-03	30.5	-	-	30	-*	1.01	-	15	0.41		

[1] -* indicates that the subsurface exploration is too shallow to evaluate liquefaction settlements.

SPT-Based Assessment of Seismic Soil Liquefaction Potential



References:

1. Cetin, et al., ASCE Journal of Geotechnical and Environmental Engineering,December 2004, pp. 1314 - 1340

2. Tokimatsu and Seed, ASCE Journal of Geotechnical Engineering,August, 1987

Location:	**B-LGC-1 (2004)**
Elevation (MSL):	
Removal Depth (ft):	15
Total Settlement (in)	
Prior to Removal:	1.40
After Removal:	1.40

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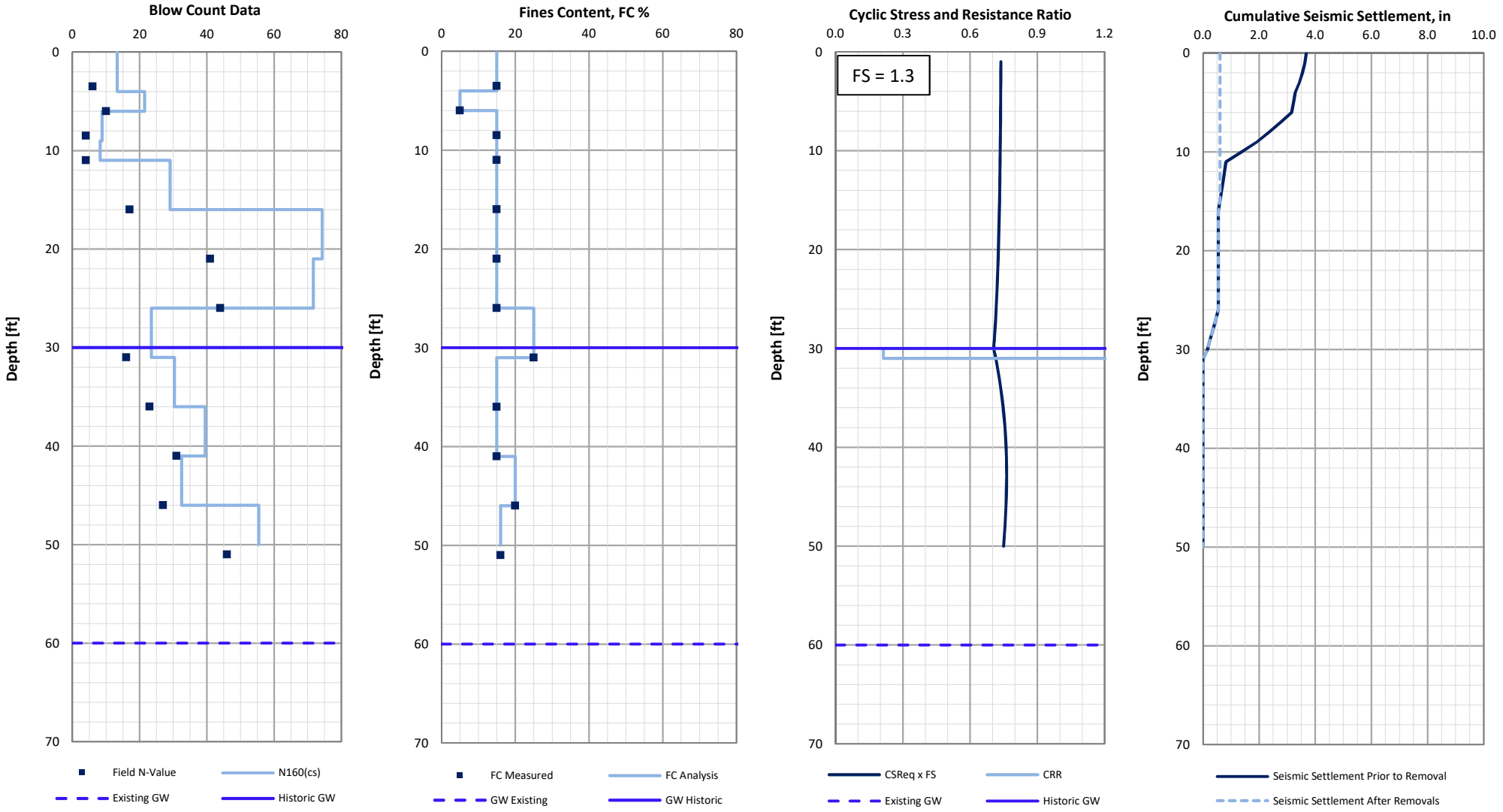
ALLAN E. SEWARD
ENGINEERING GEOLOGY, INC.
Geological and Geotechnical Consultants

Client:	Sheridan Ebbert Development	Magnitude, M_w	6.69
Project:	Wiley Cyn LLC	Acceleration, PGA (g)	1.17
	Smizer Parcel	Magnitude Weighted PGA (g)	0.87
Job No.:	18-2593-9	Existing GW Elev. (ft)	60
Date:	6/19/18	Historic GW Elev. (ft)	30

Figure: B1

SPT-Based Assessment of Seismic Soil Liquefaction Potential



References:

1. Cetin, et al., ASCE Journal of Geotechnical and Environmental Engineering,December 2004, pp. 1314 - 1340

2. Tokimatsu and Seed, ASCE Journal of Geotechnical Engineering,August, 1987

Location:	**B-LGC-2 (2004)**
Elevation (MSL):	1301
Removal Depth (ft):	15
Total Settlement (in)	
Prior to Removal:	3.68
After Removal:	0.61

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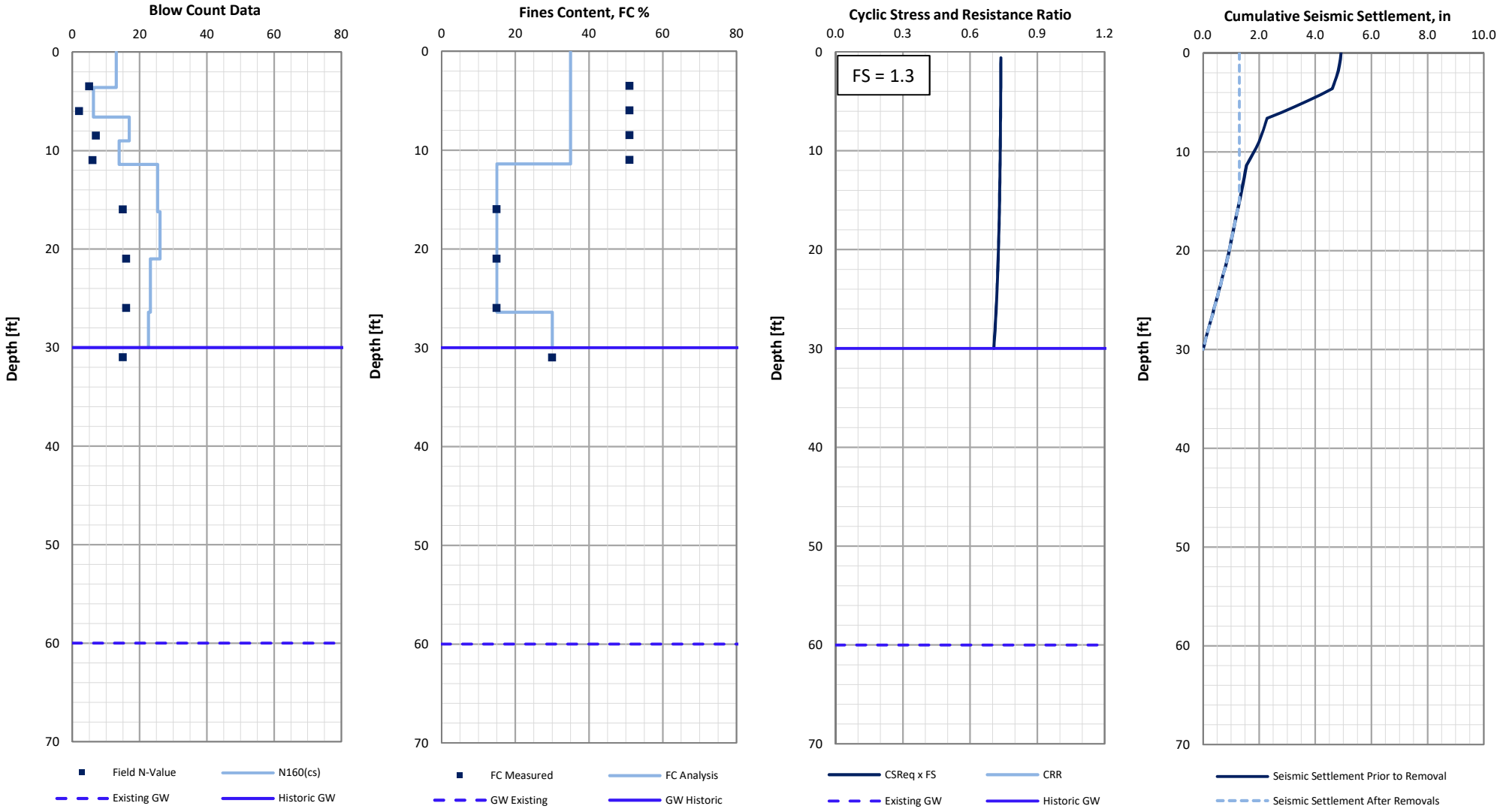
Client:	Sheridan Ebbert Development	Magnitude, M_w	6.69
Project:	Wiley Cyn LLC	Acceleration, PGA (g)	1.17
	Smizer Parcel	Magnitude Weighted PGA (g)	0.87
Job No.:	18-2593-9	Existing GW Elev. (ft)	60
Date:	6/19/18	Historic GW Elev. (ft)	30

Figure: B2

SPT-Based Assessment of Seismic Soil Liquefaction Potential



References:

1. Cetin, et al., ASCE Journal of Geotechnical and Environmental Engineering,December 2004, pp. 1314 - 1340

2. Tokimatsu and Seed, ASCE Journal of Geotechnical Engineering,August, 1987

Location:	**B-LGC-3 (2004)**
Elevation (MSL):	
Removal Depth (ft):	15
Total Settlement (in)	
Prior to Removal:	4.92
After Removal:	1.30

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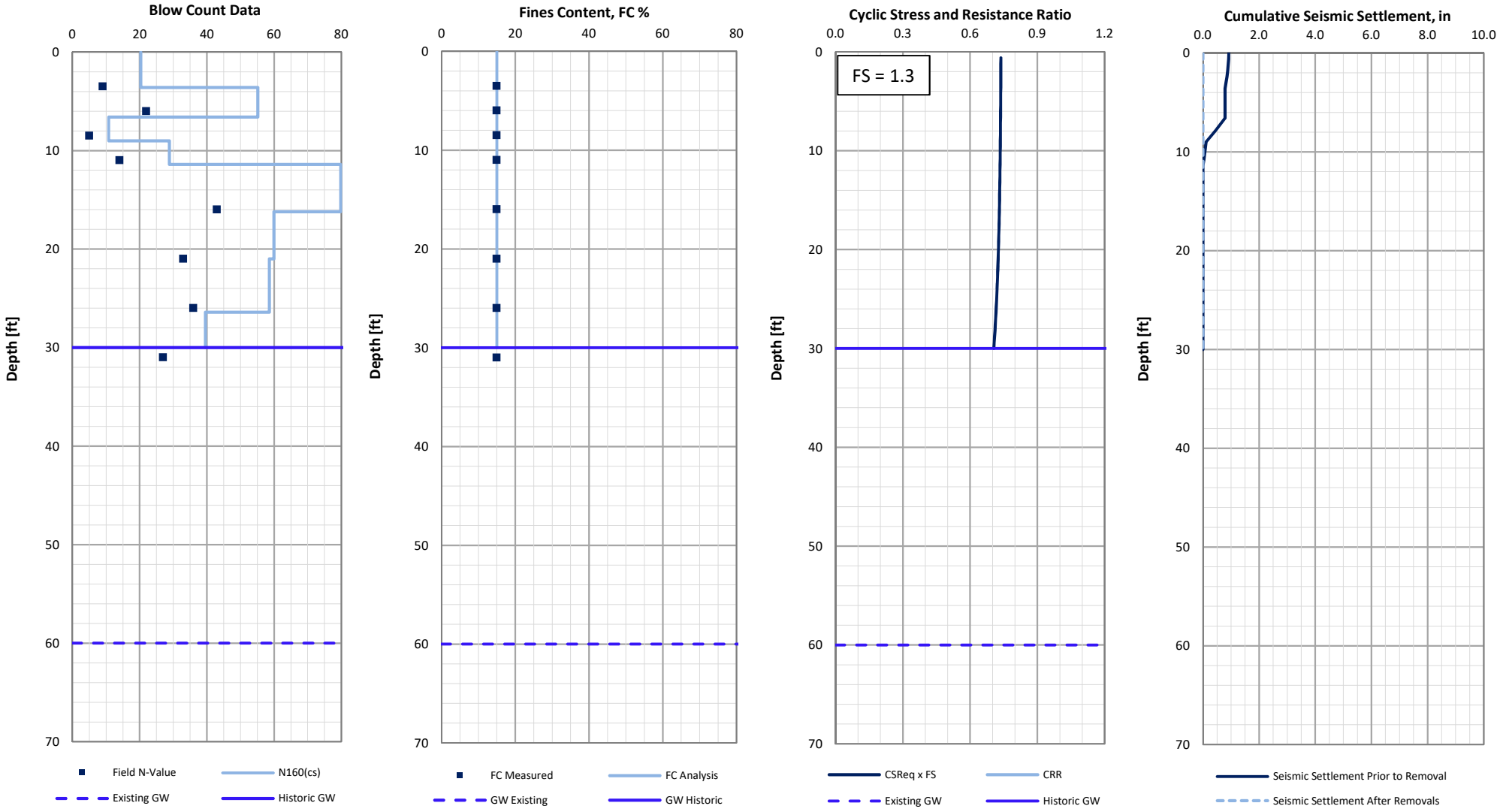
Client:	Sheridan Ebbert Development	Magnitude, M_w	6.69
Project:	Wiley Cyn LLC	Acceleration, PGA (g)	1.17
	Smizer Parcel	Magnitude Weighted PGA (g)	0.87
Job No.:	18-2593-9	Existing GW Elev. (ft)	60
Date:	6/19/18	Historic GW Elev. (ft)	30

Figure: B3

SPT-Based Assessment of Seismic Soil Liquefaction Potential



References:

1. Cetin, et al., ASCE Journal of Geotechnical and Environmental Engineering,December 2004, pp. 1314 - 1340

2. Tokimatsu and Seed, ASCE Journal of Geotechnical Engineering,August, 1987

Location:	**B-LGC-4 (2004)**
Elevation (MSL):	
Removal Depth (ft):	15
Total Settlement (in)	
Prior to Removal:	0.92
After Removal:	0.00

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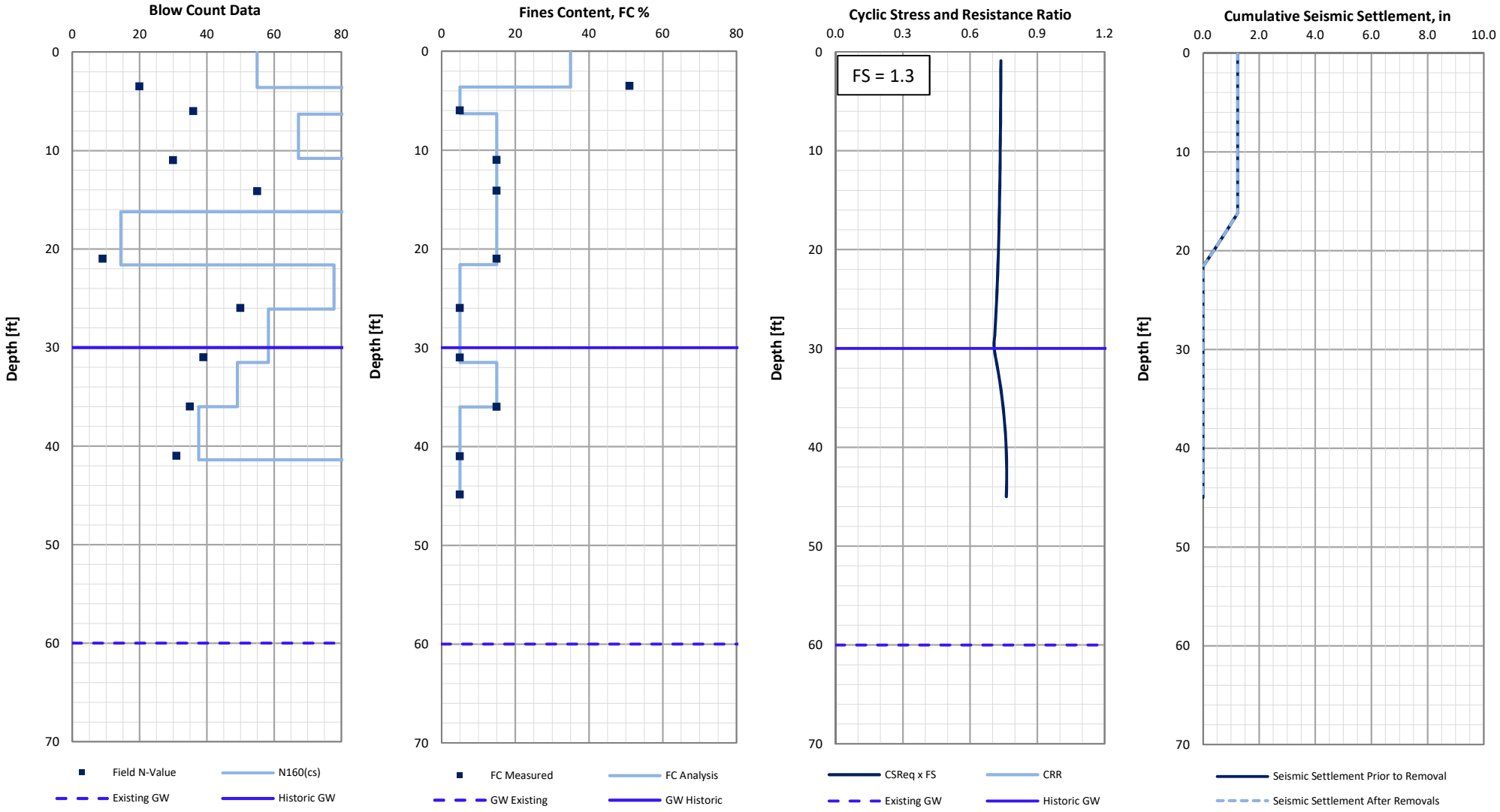
Client:	Sheridan Ebbert Development	Magnitude, M_w	6.69
Project:	Wiley Cyn LLC	Acceleration, PGA (g)	1.17
	Smizer Parcel	Magnitude Weighted PGA (g)	0.87
Job No.:	18-2593-9	Existing GW Elev. (ft)	60
Date:	6/19/18	Historic GW Elev. (ft)	30

Figure: B4

SPT-Based Assessment of Seismic Soil Liquefaction Potential



References:

1. Cetin, et al., ASCE Journal of Geotechnical and Environmental Engineering,December 2004, pp. 1314 - 1340

2. Tokimatsu and Seed, ASCE Journal of Geotechnical Engineering,August, 1987

Location:	**B-LGC-1 (2005)**
Elevation (MSL):	
Removal Depth (ft):	15
Total Settlement (in)	
Prior to Removal:	1.24
After Removal:	1.24

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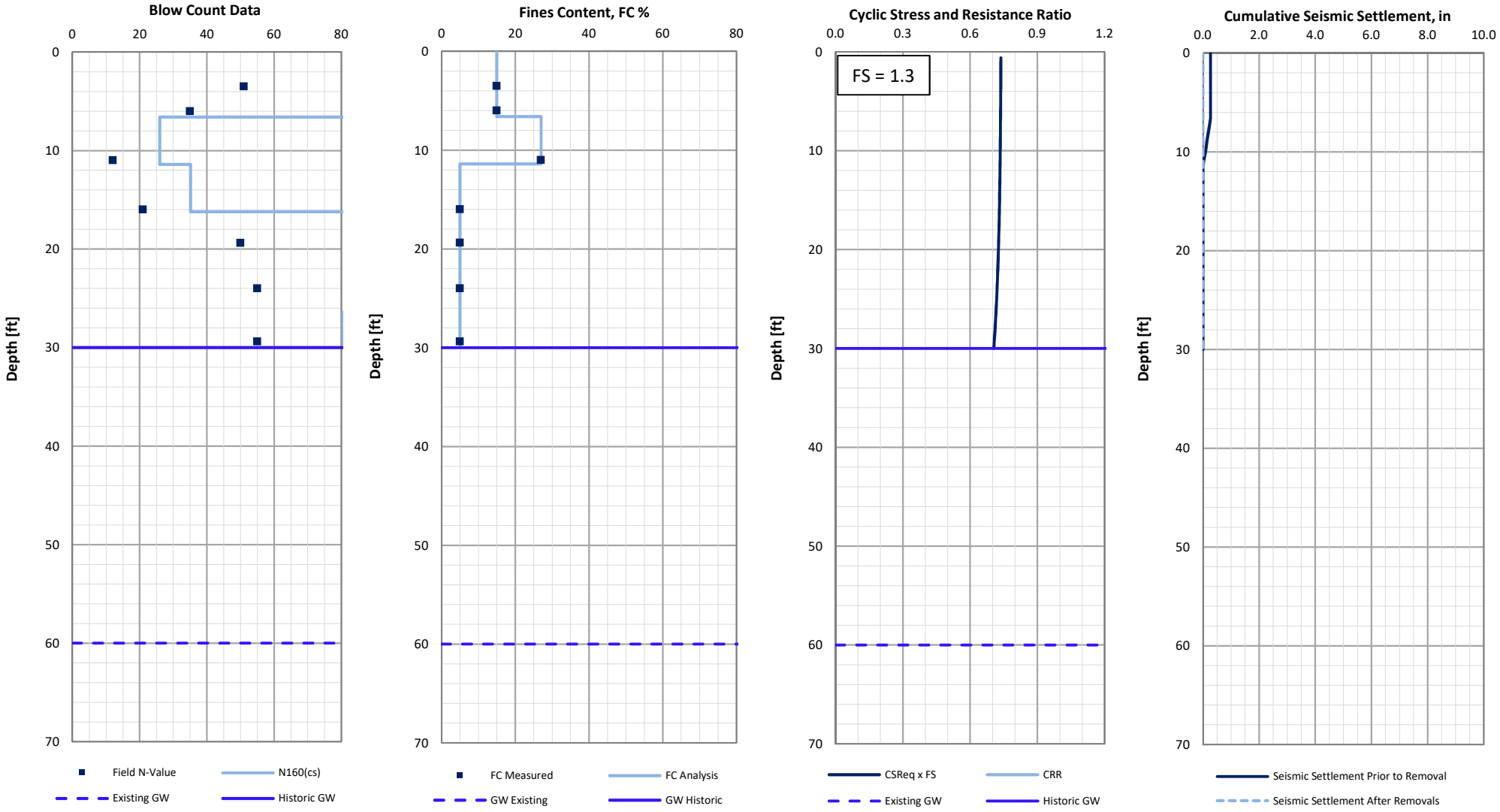
Client:	Sheridan Ebbert Development	Magnitude, M_w	6.69
Project:	Wiley Cyn LLC	Acceleration, PGA (g)	1.17
	Smizer Parcel	Magnitude Weighted PGA (g)	0.87
Job No.:	18-2593-9	Existing GW Elev. (ft)	60
Date:	6/19/18	Historic GW Elev. (ft)	30

Figure: B5

SPT-Based Assessment of Seismic Soil Liquefaction Potential



References:

1. Cetin, et al., ASCE Journal of Geotechnical and Environmental Engineering,December 2004, pp. 1314 - 1340

2. Tokimatsu and Seed, ASCE Journal of Geotechnical Engineering,August, 1987

Location:	**B-LGC-3 (2005)**
Elevation (MSL):	
Removal Depth (ft):	15
Total Settlement (in)	
Prior to Removal:	0.27
After Removal:	0.00

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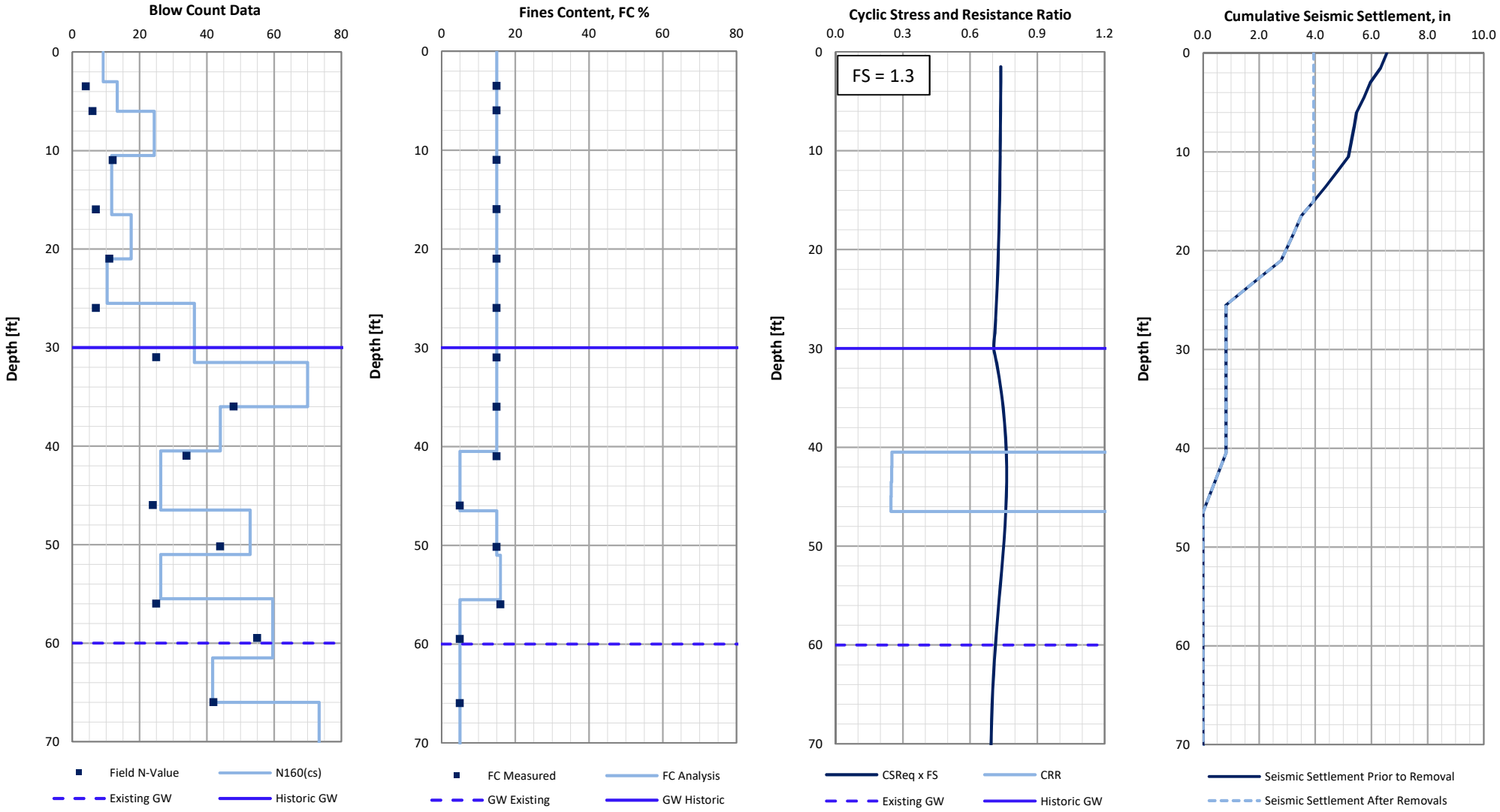
Client:	Sheridan Ebbert Development	Magnitude, M_w	6.69
Project:	Wiley Cyn LLC	Acceleration, PGA (g)	1.17
	Smizer Parcel	Magnitude Weighted PGA (g)	0.87
Job No.:	18-2593-9	Existing GW Elev. (ft)	60
Date:	6/19/18	Historic GW Elev. (ft)	30

Figure: B6

SPT-Based Assessment of Seismic Soil Liquefaction Potential



References:

1. Cetin, et al., ASCE Journal of Geotechnical and Environmental Engineering,December 2004, pp. 1314 - 1340

2. Tokimatsu and Seed, ASCE Journal of Geotechnical Engineering,August, 1987

Location:	**B-LGC-1 (2007)**
Elevation (MSL):	
Removal Depth (ft):	15
Total Settlement (in)	
Prior to Removal:	6.55
After Removal:	3.94

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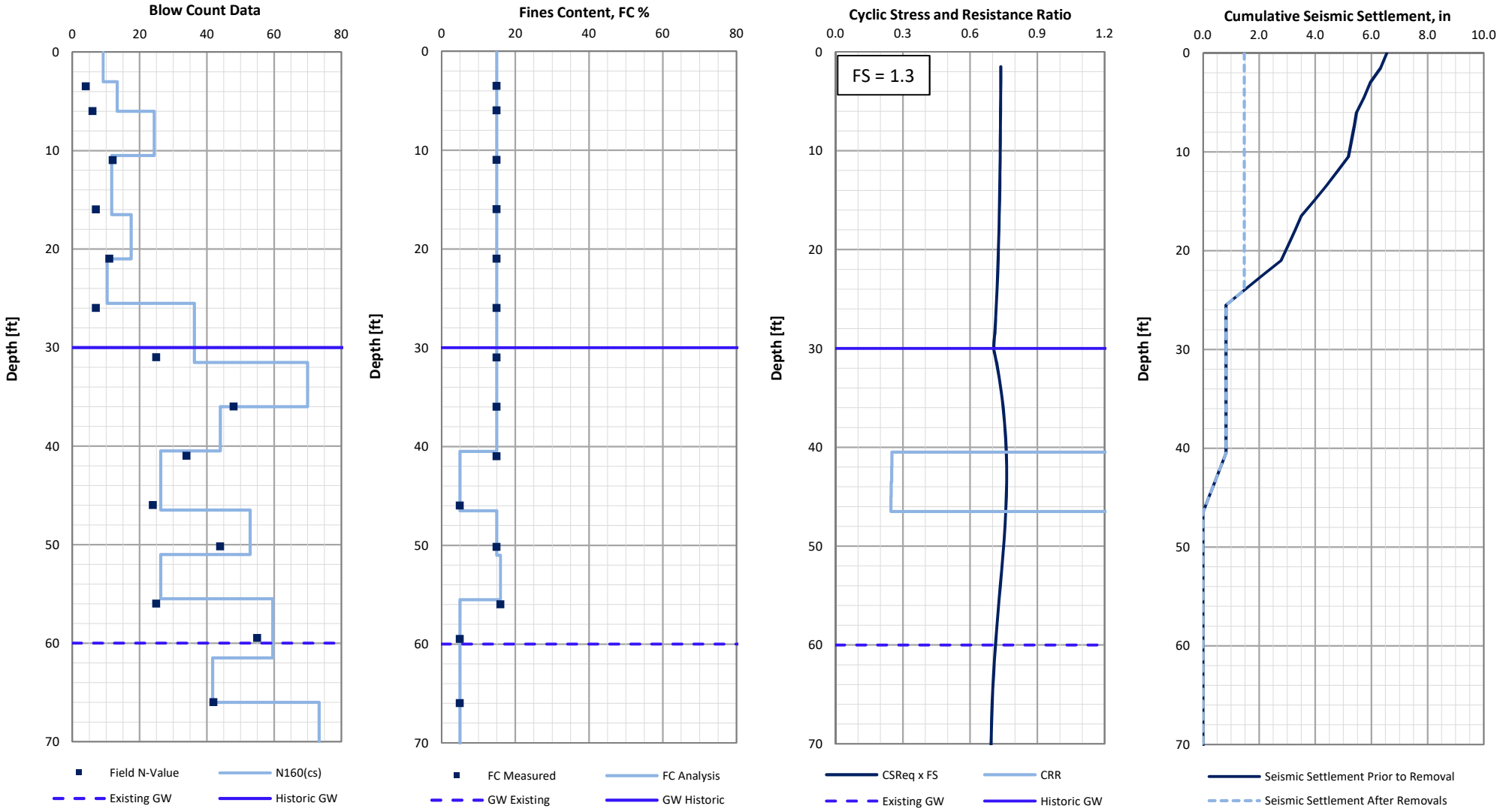
Client:	Sheridan Ebbert Development	Magnitude, M_w	6.69
Project:	Wiley Cyn LLC	Acceleration, PGA (g)	1.17
	Smizer Parcel	Magnitude Weighted PGA (g)	0.87
Job No.:	18-2593-9	Existing GW Elev. (ft)	60
Date:	6/19/18	Historic GW Elev. (ft)	30

Figure: B7

SPT-Based Assessment of Seismic Soil Liquefaction Potential



References:

1. Cetin, et al., ASCE Journal of Geotechnical and Environmental Engineering,December 2004, pp. 1314 - 1340

2. Tokimatsu and Seed, ASCE Journal of Geotechnical Engineering,August, 1987

Location:	**B-LGC-1 (2007)**
Elevation (MSL):	
Removal Depth (ft):	24
Total Settlement (in)	
Prior to Removal:	6.55
After Removal:	1.47

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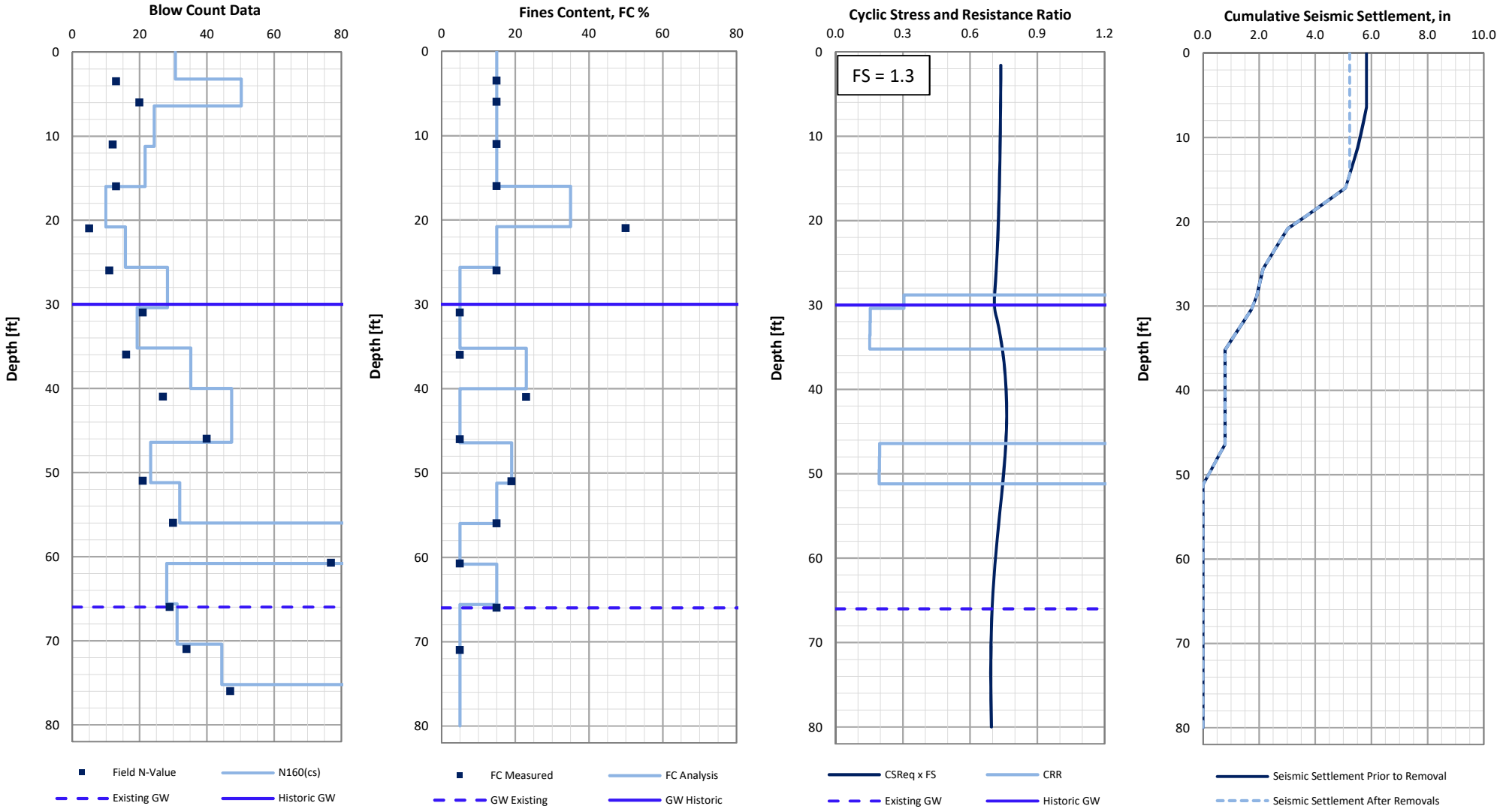
Client:	Sheridan Ebbert Development	Magnitude, M_w	6.69
Project:	Wiley Cyn LLC	Acceleration, PGA (g)	1.17
	Smizer Parcel	Magnitude Weighted PGA (g)	0.87
Job No.:	18-2593-9	Existing GW Elev. (ft)	60
Date:	6/19/18	Historic GW Elev. (ft)	30

Figure: B7-b

SPT-Based Assessment of Seismic Soil Liquefaction Potential



References:

1. Cetin, et al., ASCE Journal of Geotechnical and Environmental Engineering,December 2004, pp. 1314 - 1340

2. Tokimatsu and Seed, ASCE Journal of Geotechnical Engineering,August, 1987

Location:	**B-LGC-2 (2007)**
Elevation (MSL):	
Removal Depth (ft):	15
Total Settlement (in)	
Prior to Removal:	5.82
After Removal:	5.23

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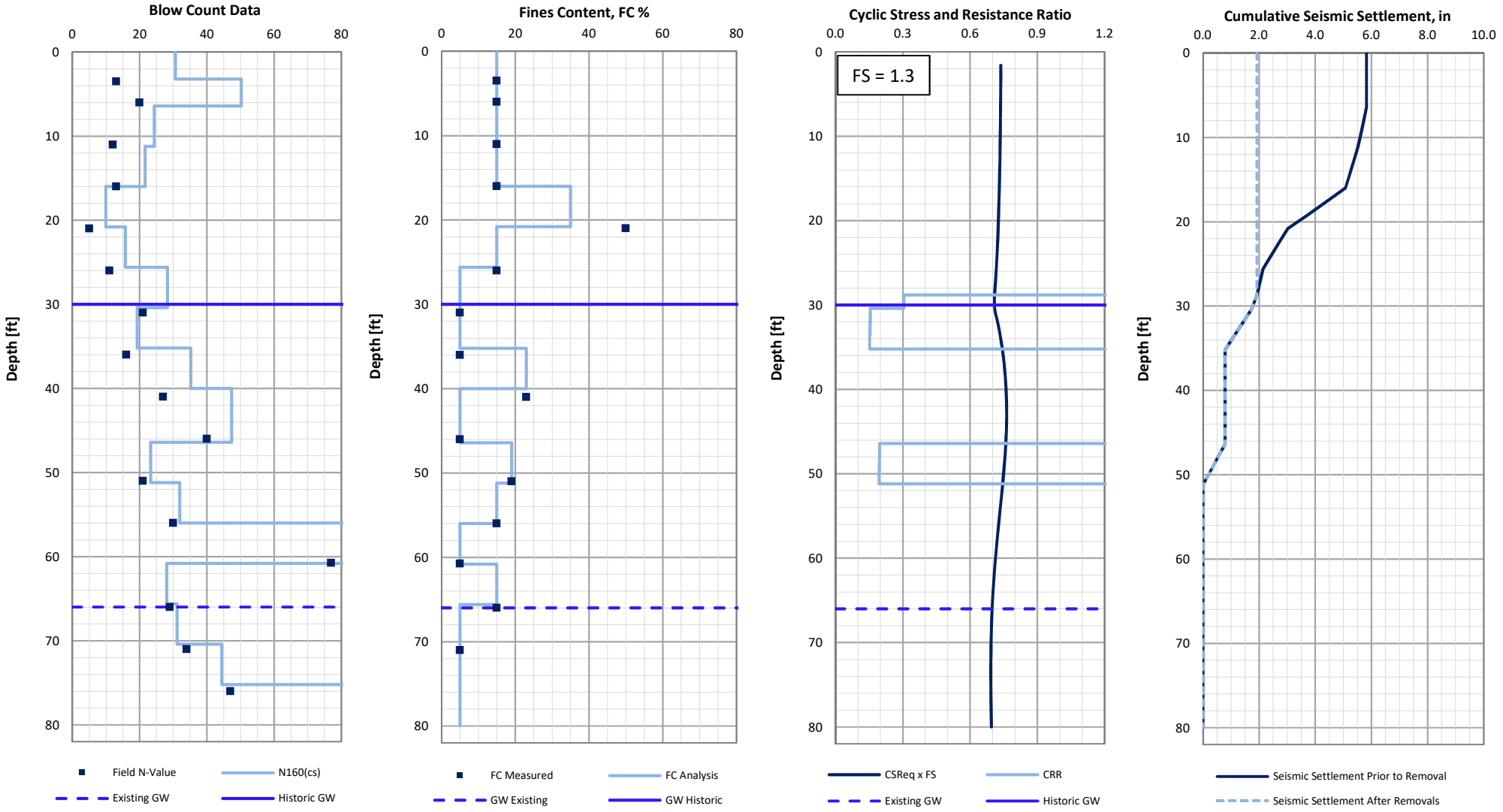
Client:	Sheridan Ebbert Development	Magnitude, M_w	6.69
Project:	Wiley Cyn LLC	Acceleration, PGA (g)	1.17
	Smizer Parcel	Magnitude Weighted PGA (g)	0.87
Job No.:	18-2593-9	Existing GW Elev. (ft)	66
Date:	6/19/18	Historic GW Elev. (ft)	30

Figure: B8

SPT-Based Assessment of Seismic Soil Liquefaction Potential



References:

1. Cetin, et al., ASCE Journal of Geotechnical and Environmental Engineering,December 2004, pp. 1314 - 1340

2. Tokimatsu and Seed, ASCE Journal of Geotechnical Engineering,August, 1987

Location:	**B-LGC-2 (2007)**
Elevation (MSL):	
Removal Depth (ft):	30
Total Settlement (in)	
Prior to Removal:	5.82
After Removal:	1.92

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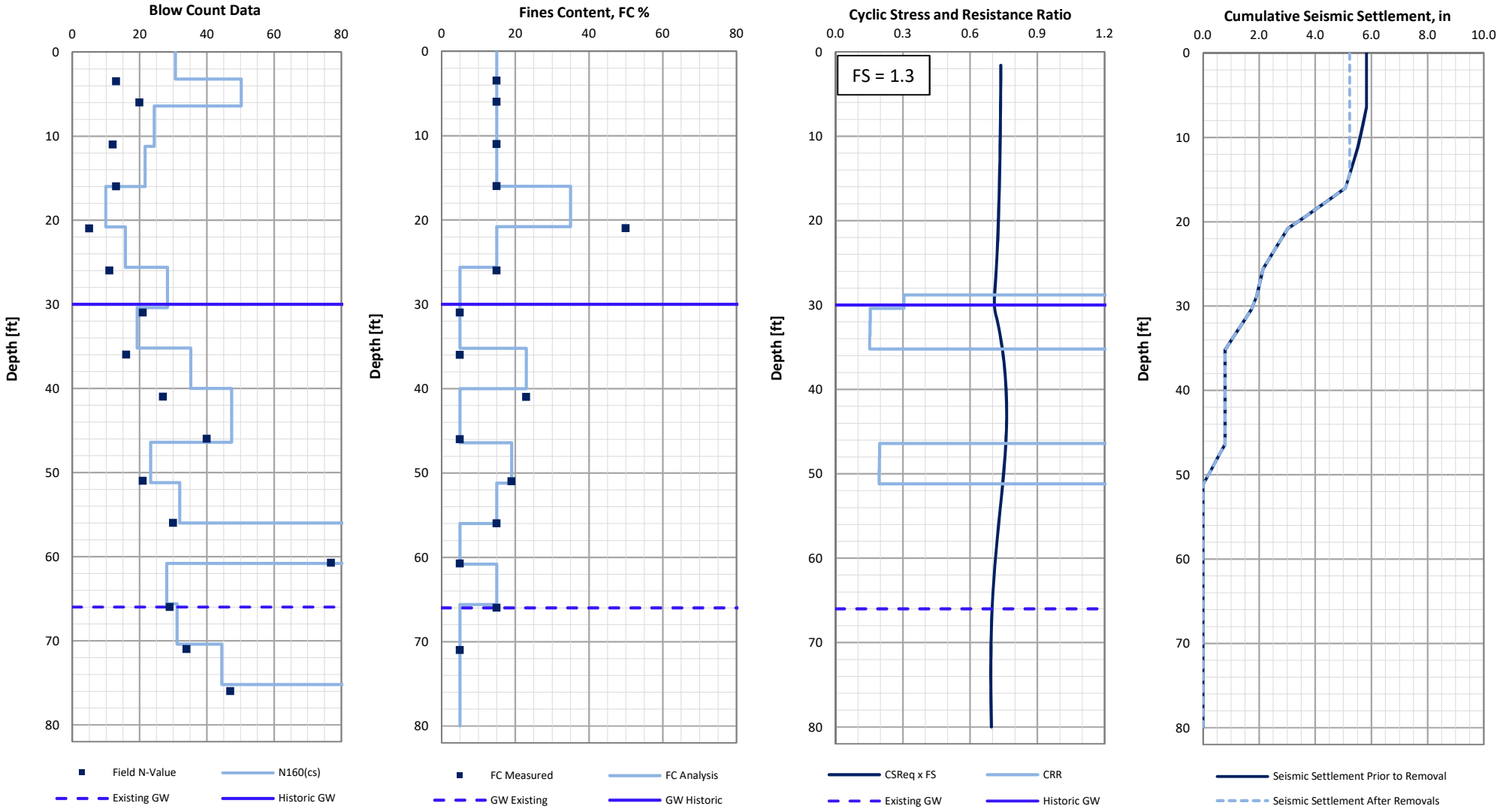
Client:	Sheridan Ebbert Development	Magnitude, M_w	6.69
Project:	Wiley Cyn LLC	Acceleration, PGA (g)	1.17
	Smizer Parcel	Magnitude Weighted PGA (g)	0.87
Job No.:	18-2593-9	Existing GW Elev. (ft)	66
Date:	6/19/18	Historic GW Elev. (ft)	30

Figure: B8-b

SPT-Based Assessment of Seismic Soil Liquefaction Potential



References:

1. Cetin, et al., ASCE Journal of Geotechnical and Environmental Engineering,December 2004, pp. 1314 - 1340

2. Tokimatsu and Seed, ASCE Journal of Geotechnical Engineering,August, 1987

Location:	**B-LGC-2 (2007)**
Elevation (MSL):	
Removal Depth (ft):	15
Total Settlement (in)	
Prior to Removal:	5.82
After Removal:	5.23

SPT Liq v1a; Feb 2017

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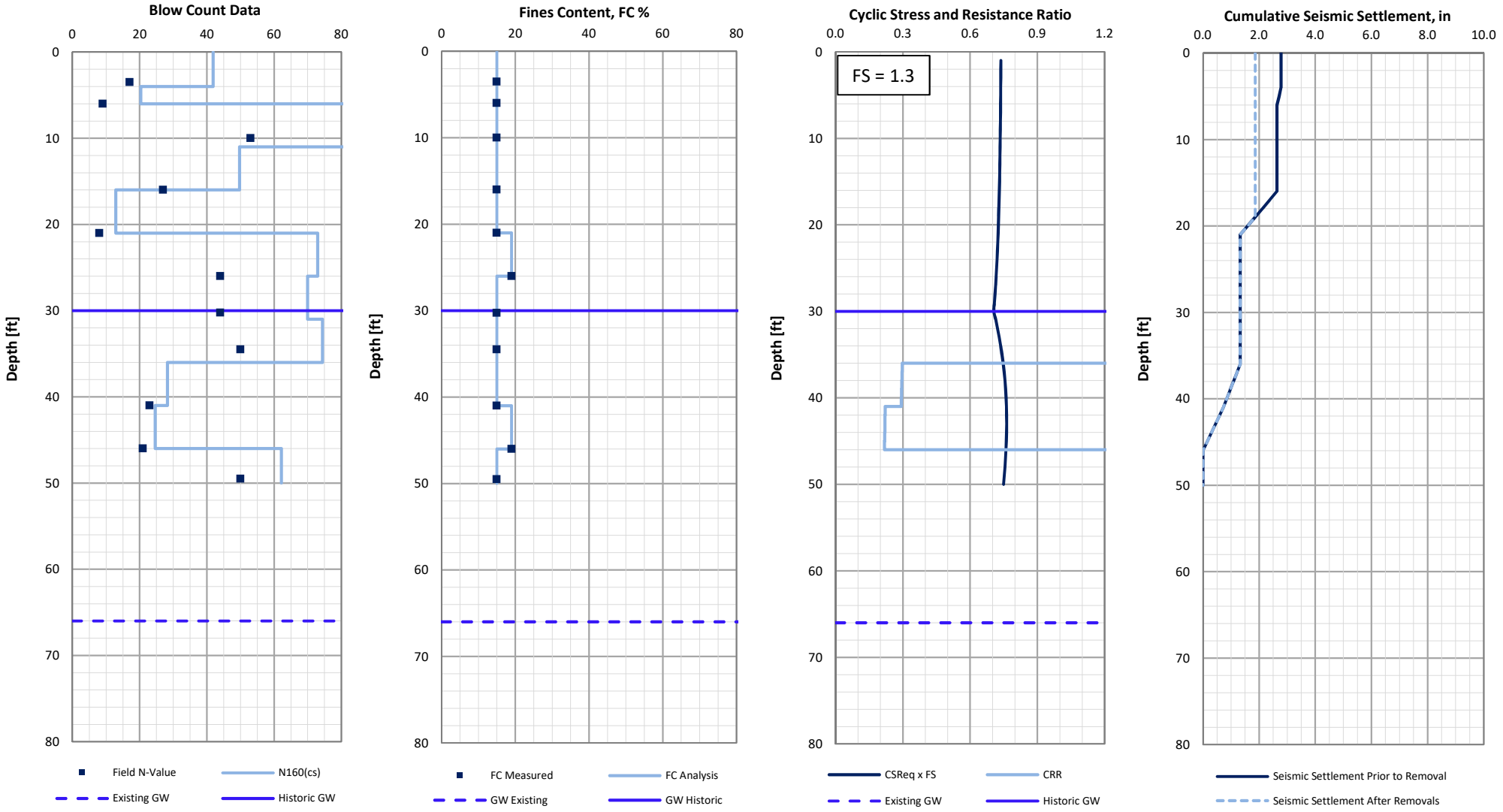
Geological and Geotechnical Consultants

Client:	Sheridan Ebbert Development	Magnitude, M_w	6.69
Project:	Wiley Cyn LLC	Acceleration, PGA (g)	1.17
	Smizer Parcel	Magnitude Weighted PGA (g)	0.87
Job No.:	18-2593-9	Existing GW Elev. (ft)	66
Date:	6/19/18	Historic GW Elev. (ft)	30

Figure: B9

SPT-Based Assessment of Seismic Soil Liquefaction Potential



References:

1. Cetin, et al., ASCE Journal of Geotechnical and Environmental Engineering,December 2004, pp. 1314 - 1340

2. Tokimatsu and Seed, ASCE Journal of Geotechnical Engineering,August, 1987

Location:	**B-LGC-3 (2007)**
Elevation (MSL):	
Removal Depth (ft):	19
Total Settlement (in)	
Prior to Removal:	2.78
After Removal:	1.86

SPT Liq v1a; Feb 2017

ALLAN E. SEWARD
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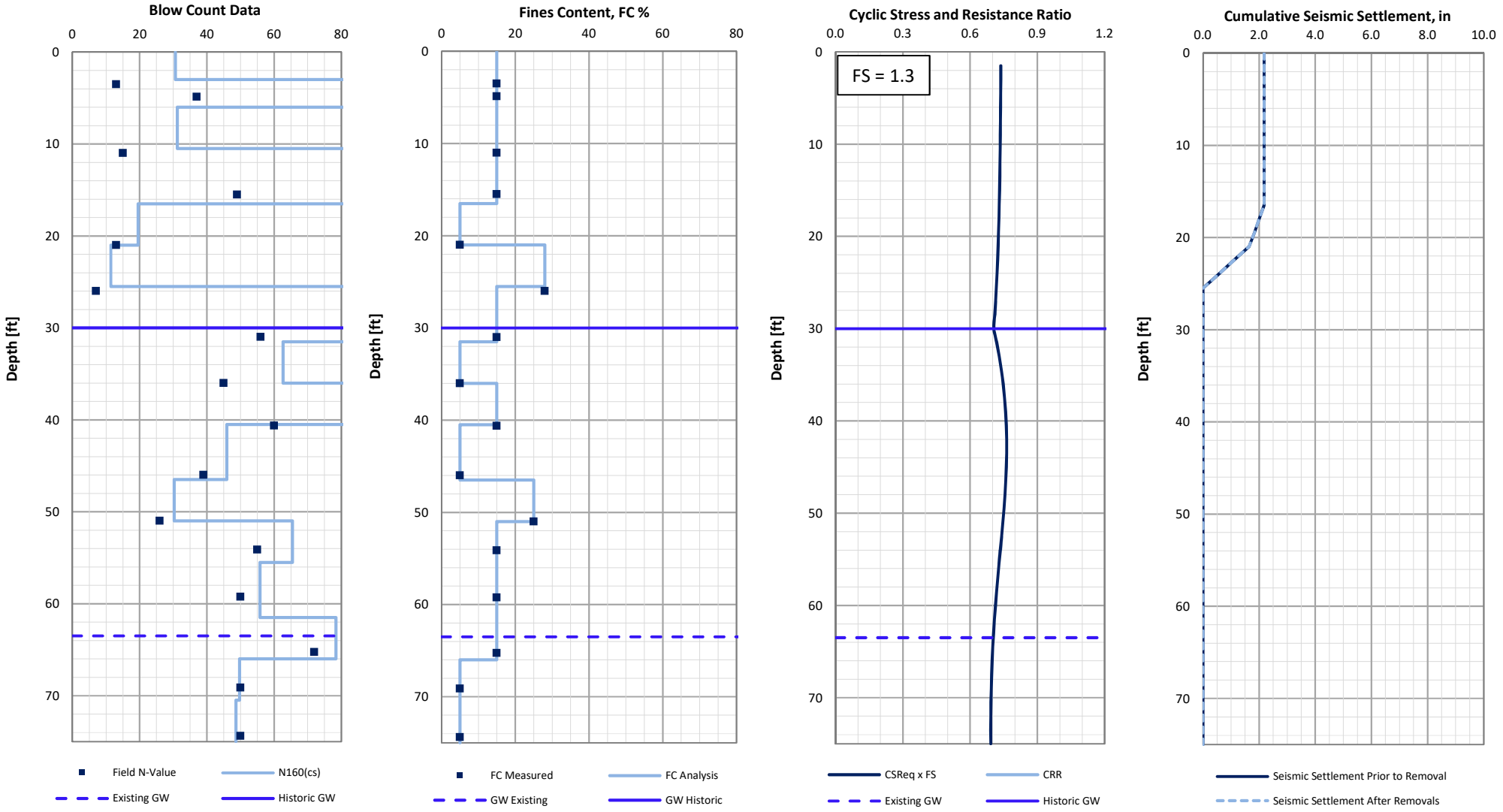
Geological and Geotechnical Consultants

Client:	Sheridan Ebbert Development	Magnitude, M_w	6.69
Project:	Wiley Cyn LLC	Acceleration, PGA (g)	1.17
	Smizer Parcel	Magnitude Weighted PGA (g)	0.87
Job No.:	18-2593-9	Existing GW Elev. (ft)	66
Date:	6/19/18	Historic GW Elev. (ft)	30

Figure: B9-b

SPT-Based Assessment of Seismic Soil Liquefaction Potential



References:

1. Cetin, et al., ASCE Journal of Geotechnical and Environmental Engineering,December 2004, pp. 1314 - 1340

2. Tokimatsu and Seed, ASCE Journal of Geotechnical Engineering,August, 1987

Location:	**B-LGC-4 (2007)**
Elevation (MSL):	1302
Removal Depth (ft):	15
Total Settlement (in)	
Prior to Removal:	2.18
After Removal:	2.18

SPT Liq v1a; Feb 2017

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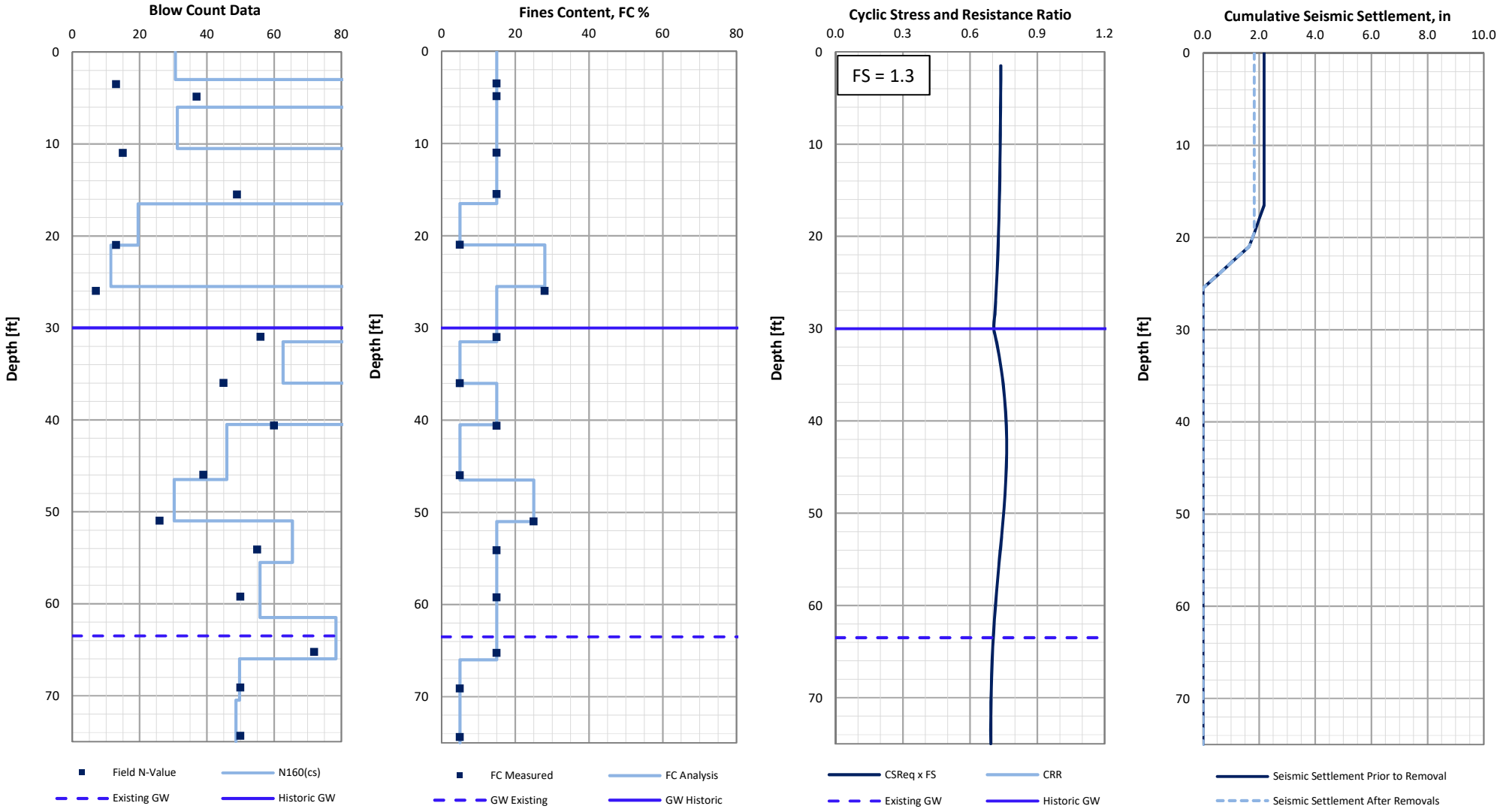
Geological and Geotechnical Consultants

Client:	Sheridan Ebbert Development	Magnitude, M_w	6.69
Project:	Wiley Cyn LLC	Acceleration, PGA (g)	1.17
	Smizer Parcel	Magnitude Weighted PGA (g)	0.87
Job No.:	18-2593-9	Existing GW Elev. (ft)	63.5
Date:	6/19/18	Historic GW Elev. (ft)	30

Figure: B10

SPT-Based Assessment of Seismic Soil Liquefaction Potential



References:

1. Cetin, et al., ASCE Journal of Geotechnical and Environmental Engineering,December 2004, pp. 1314 - 1340

2. Tokimatsu and Seed, ASCE Journal of Geotechnical Engineering,August, 1987

Location:	**B-LGC-4 (2007)**
Elevation (MSL):	1302
Removal Depth (ft):	20
Total Settlement (in)	
Prior to Removal:	2.18
After Removal:	1.83

SPT Liq v1a; Feb 2017

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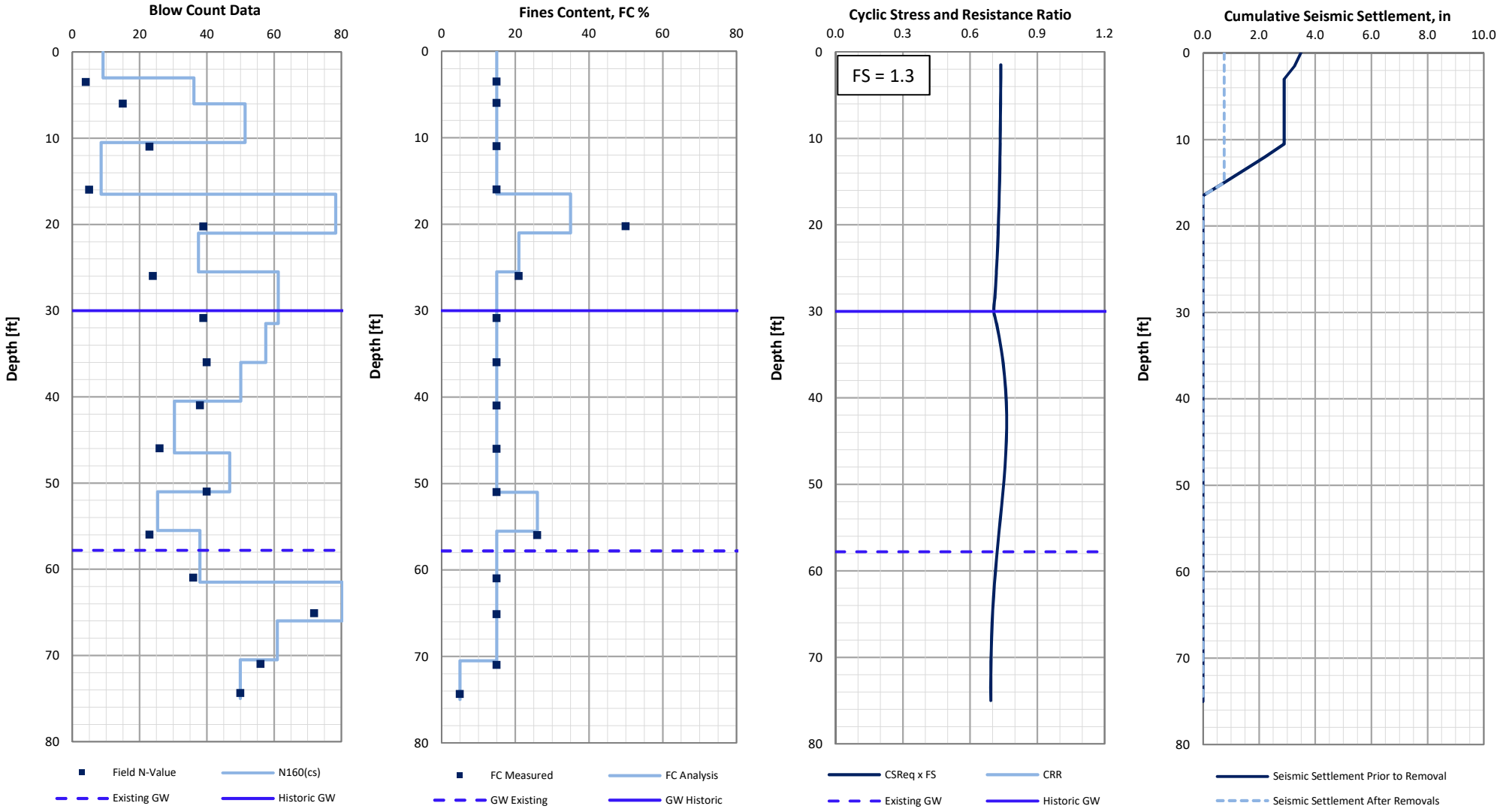
Client:	Sheridan Ebbert Development	Magnitude, M_w	6.69
Project:	Wiley Cyn LLC	Acceleration, PGA (g)	1.17
	Smizer Parcel	Magnitude Weighted PGA (g)	0.87
Job No.:	18-2593-9	Existing GW Elev. (ft)	63.5
Date:	6/19/18	Historic GW Elev. (ft)	30

Figure: **B10-b**

SPT-Based Assessment of Seismic Soil Liquefaction Potential



References:

1. Cetin, et al., ASCE Journal of Geotechnical and Environmental Engineering,December 2004, pp. 1314 - 1340

2. Tokimatsu and Seed, ASCE Journal of Geotechnical Engineering,August, 1987

Location:	**B-LGC-5 (2007)**
Elevation (MSL):	
Removal Depth (ft):	15
Total Settlement (in)	
Prior to Removal:	3.48
After Removal:	0.76

SPT Liq v1a; Feb 2017

ALLAN E. SEWARD
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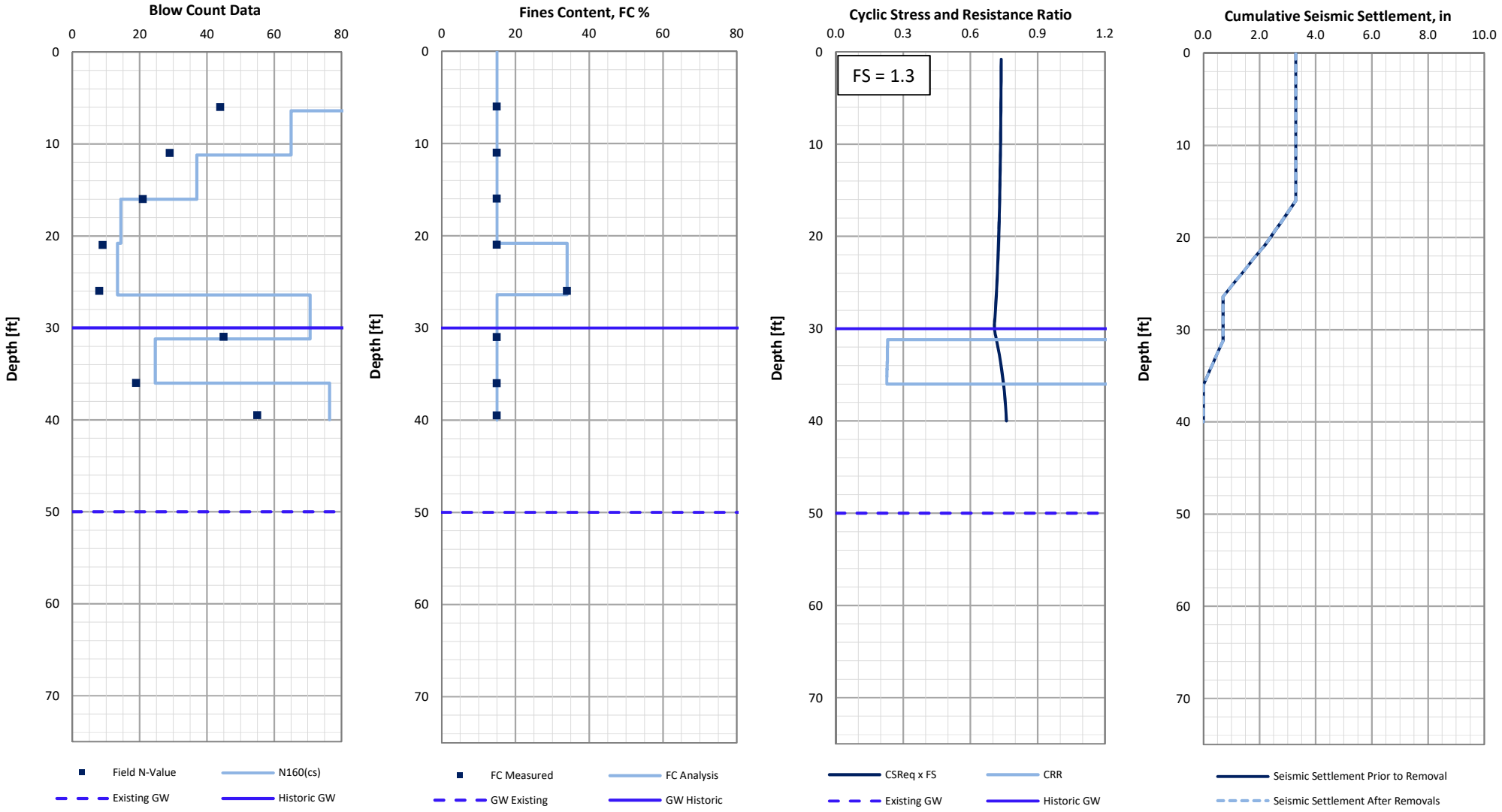
Geological and Geotechnical Consultants

Client:	Sheridan Ebbert Development	Magnitude, M_w	6.69
Project:	Wiley Cyn LLC	Acceleration, PGA (g)	1.17
	Smizer Parcel	Magnitude Weighted PGA (g)	0.87
Job No.:	18-2593-9	Existing GW Elev. (ft)	57.8
Date:	6/19/18	Historic GW Elev. (ft)	30

Figure: B11

SPT-Based Assessment of Seismic Soil Liquefaction Potential



References:

1. Cetin, et al., ASCE Journal of Geotechnical and Environmental Engineering,December 2004, pp. 1314 - 1340

2. Tokimatsu and Seed, ASCE Journal of Geotechnical Engineering,August, 1987

Location:	**B-LGC-6 (2007)**
Elevation (MSL):	
Removal Depth (ft):	15
Total Settlement (in)	
Prior to Removal:	3.29
After Removal:	3.29

SPT Liq v1a; Feb 2017

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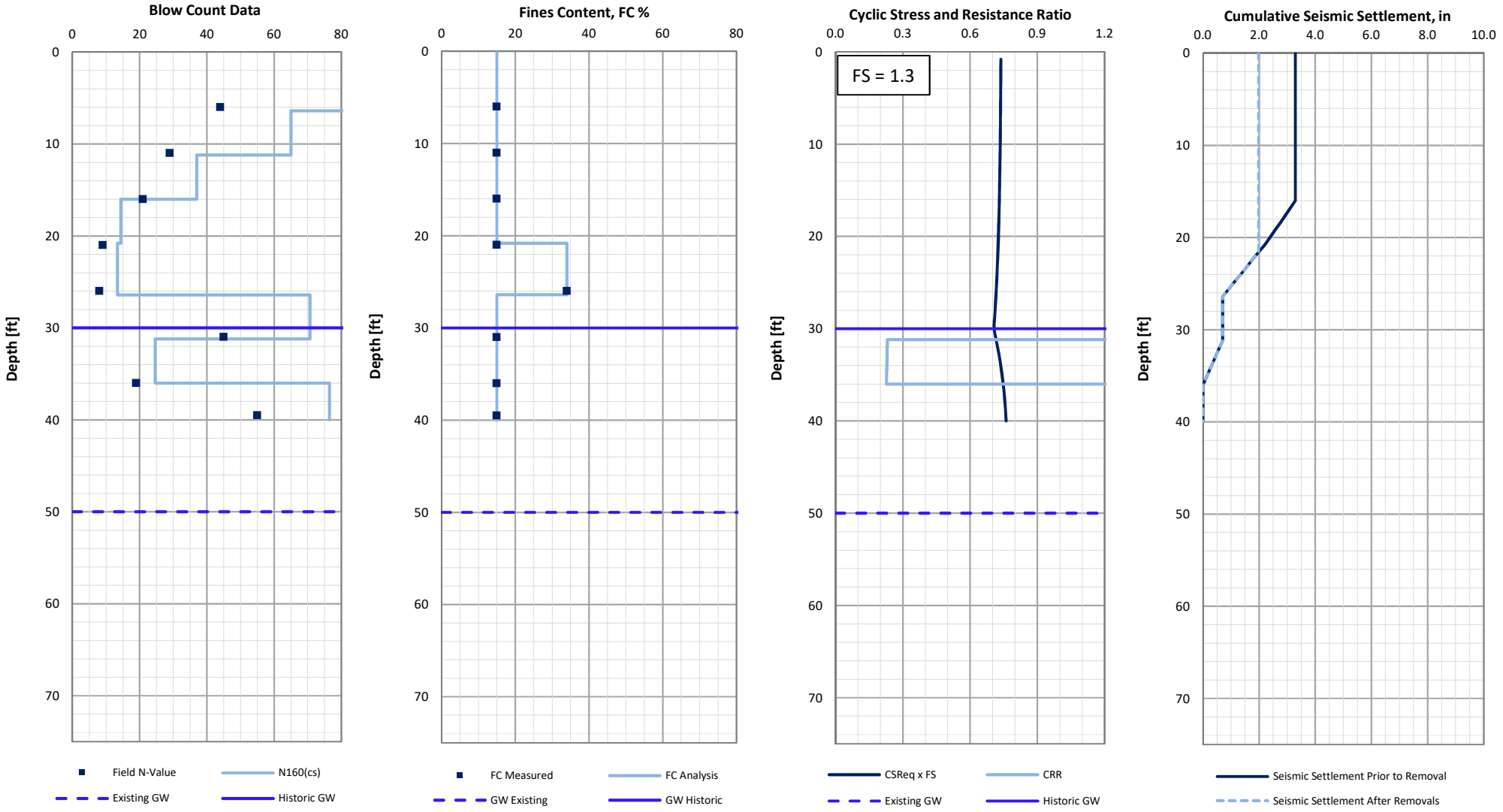
Client:	Sheridan Ebbert Development	Magnitude, M_w	6.69
Project:	Wiley Cyn LLC	Acceleration, PGA (g)	1.17
	Smizer Parcel	Magnitude Weighted PGA (g)	0.87
Job No.:	18-2593-9	Existing GW Elev. (ft)	50
Date:	6/19/18	Historic GW Elev. (ft)	30

Figure: B12

SPT-Based Assessment of Seismic Soil Liquefaction Potential



References:

1. Cetin, et al., ASCE Journal of Geotechnical and Environmental Engineering,December 2004, pp. 1314 - 1340

2. Tokimatsu and Seed, ASCE Journal of Geotechnical Engineering,August, 1987

Location:	**B-LGC-6 (2007)**
Elevation (MSL):	
Removal Depth (ft):	22
Total Settlement (in)	
Prior to Removal:	3.29
After Removal:	1.98

SPT Liq v1a; Feb 2017

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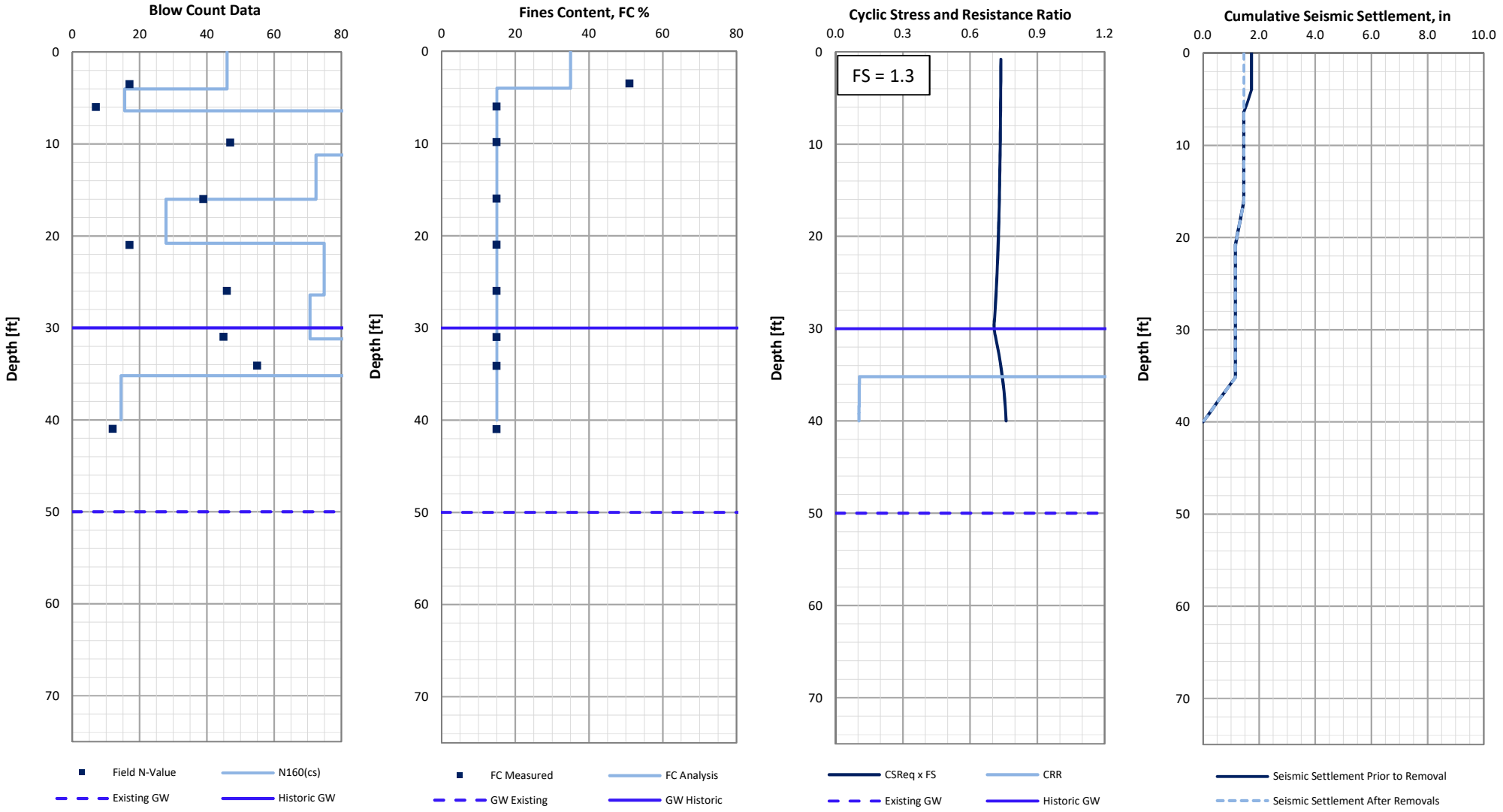
Client:	Sheridan Ebbert Development	Magnitude, M_w	6.69
Project:	Wiley Cyn LLC	Acceleration, PGA (g)	1.17
	Smizer Parcel	Magnitude Weighted PGA (g)	0.87
Job No.:	18-2593-9	Existing GW Elev. (ft)	50
Date:	6/19/18	Historic GW Elev. (ft)	30

Figure: **B12-b**

SPT-Based Assessment of Seismic Soil Liquefaction Potential



References:

1. Cetin, et al., ASCE Journal of Geotechnical and Environmental Engineering,December 2004, pp. 1314 - 1340

2. Tokimatsu and Seed, ASCE Journal of Geotechnical Engineering,August, 1987

Location:	**B-LGC-7 (2007)**
Elevation (MSL):	
Removal Depth (ft):	15
Total Settlement (in)	
Prior to Removal:	1.73
After Removal:	1.46

SPT Liq v1a; Feb 2017

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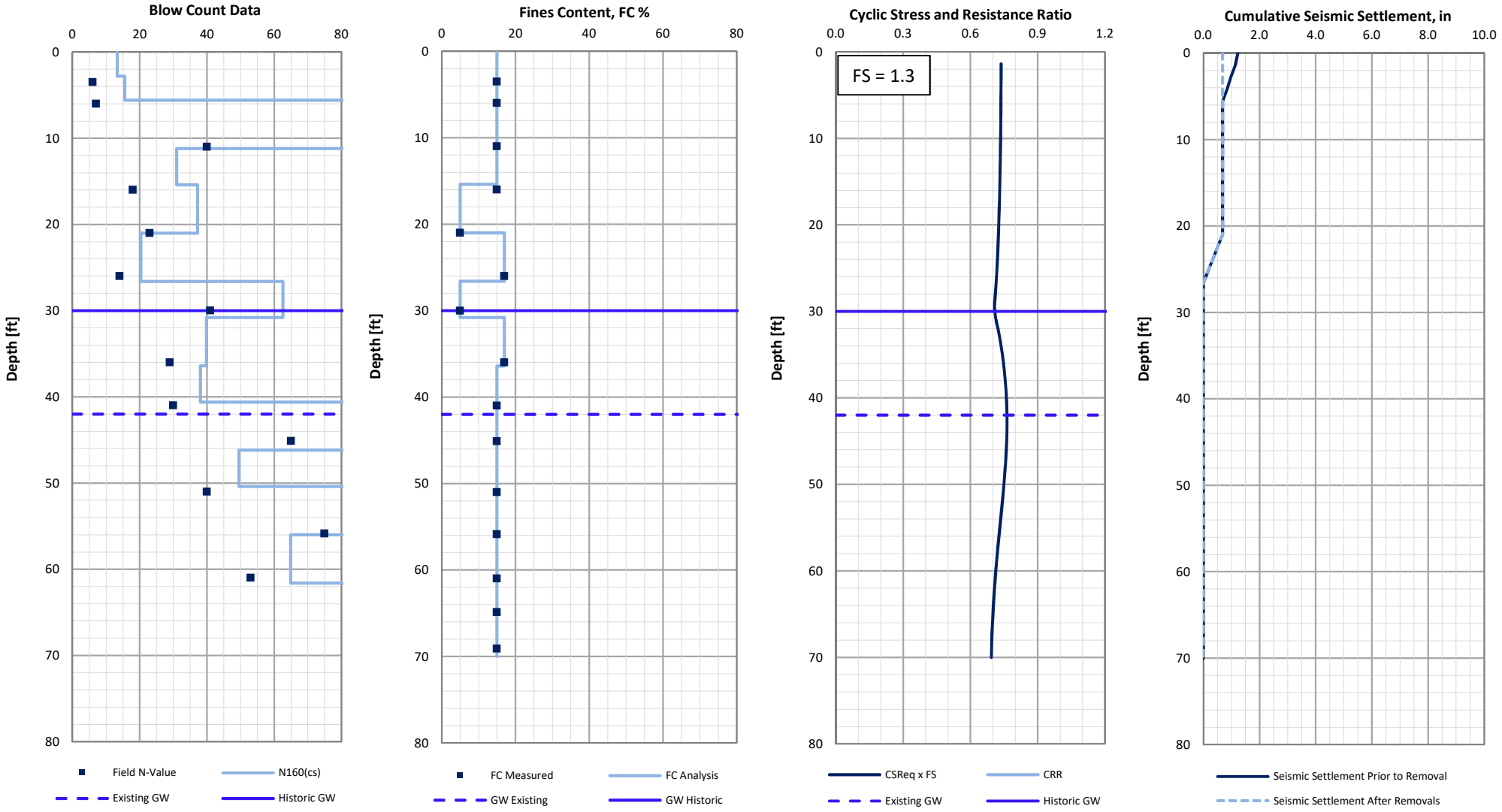
Geological and Geotechnical Consultants

Client:	Sheridan Ebbert Development	Magnitude, M_w	6.69
Project:	Wiley Cyn LLC	Acceleration, PGA (g)	1.17
	Smizer Parcel	Magnitude Weighted PGA (g)	0.87
Job No.:	18-2593-9	Existing GW Elev. (ft)	50
Date:	6/19/18	Historic GW Elev. (ft)	30

Figure: B13

SPT-Based Assessment of Seismic Soil Liquefaction Potential



References:

1. Cetin, et al., ASCE Journal of Geotechnical and Environmental Engineering,December 2004, pp. 1314 - 1340

2. Tokimatsu and Seed, ASCE Journal of Geotechnical Engineering,August, 1987

Location:	**B-LGC-8 (2007)**
Elevation (MSL):	
Removal Depth (ft):	15
Total Settlement (in)	
Prior to Removal:	1.23
After Removal:	0.69

SPT Liq v1a; Feb 2017

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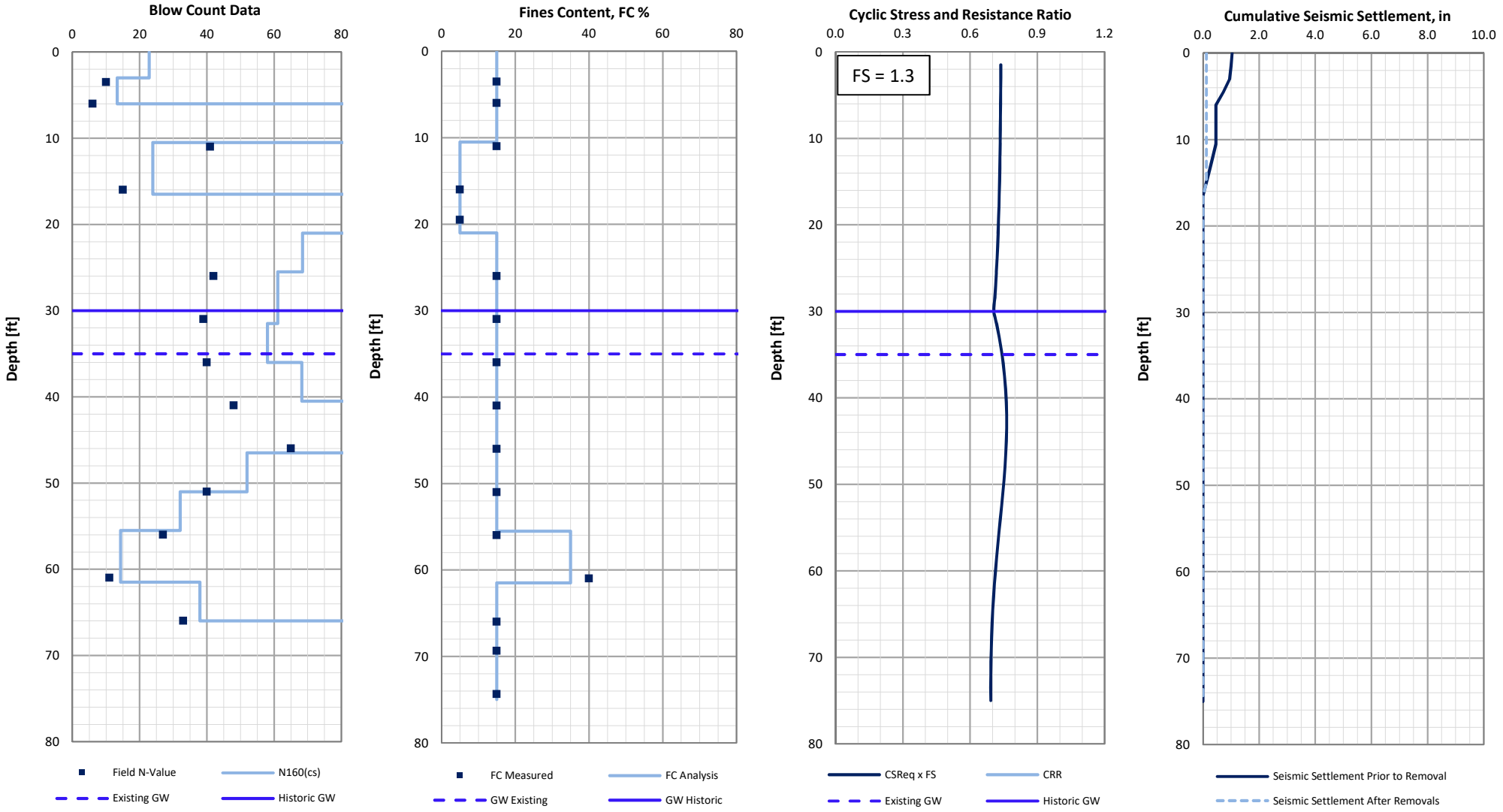
Client:	Sheridan Ebbert Development	Magnitude, M_w	6.69
Project:	Wiley Cyn LLC	Acceleration, PGA (g)	1.17
	Smizer Parcel	Magnitude Weighted PGA (g)	0.87
Job No.:	18-2593-9	Existing GW Elev. (ft)	42
Date:	6/19/18	Historic GW Elev. (ft)	30

Figure: B14

SPT-Based Assessment of Seismic Soil Liquefaction Potential



References:

1. Cetin, et al., ASCE Journal of Geotechnical and Environmental Engineering,December 2004, pp. 1314 - 1340

2. Tokimatsu and Seed, ASCE Journal of Geotechnical Engineering,August, 1987

Location:	**B-LGC-9 (2007)**
Elevation (MSL):	
Removal Depth (ft):	15
Total Settlement (in)	
Prior to Removal:	1.04
After Removal:	0.12

SPT Liq v1a; Feb 2017

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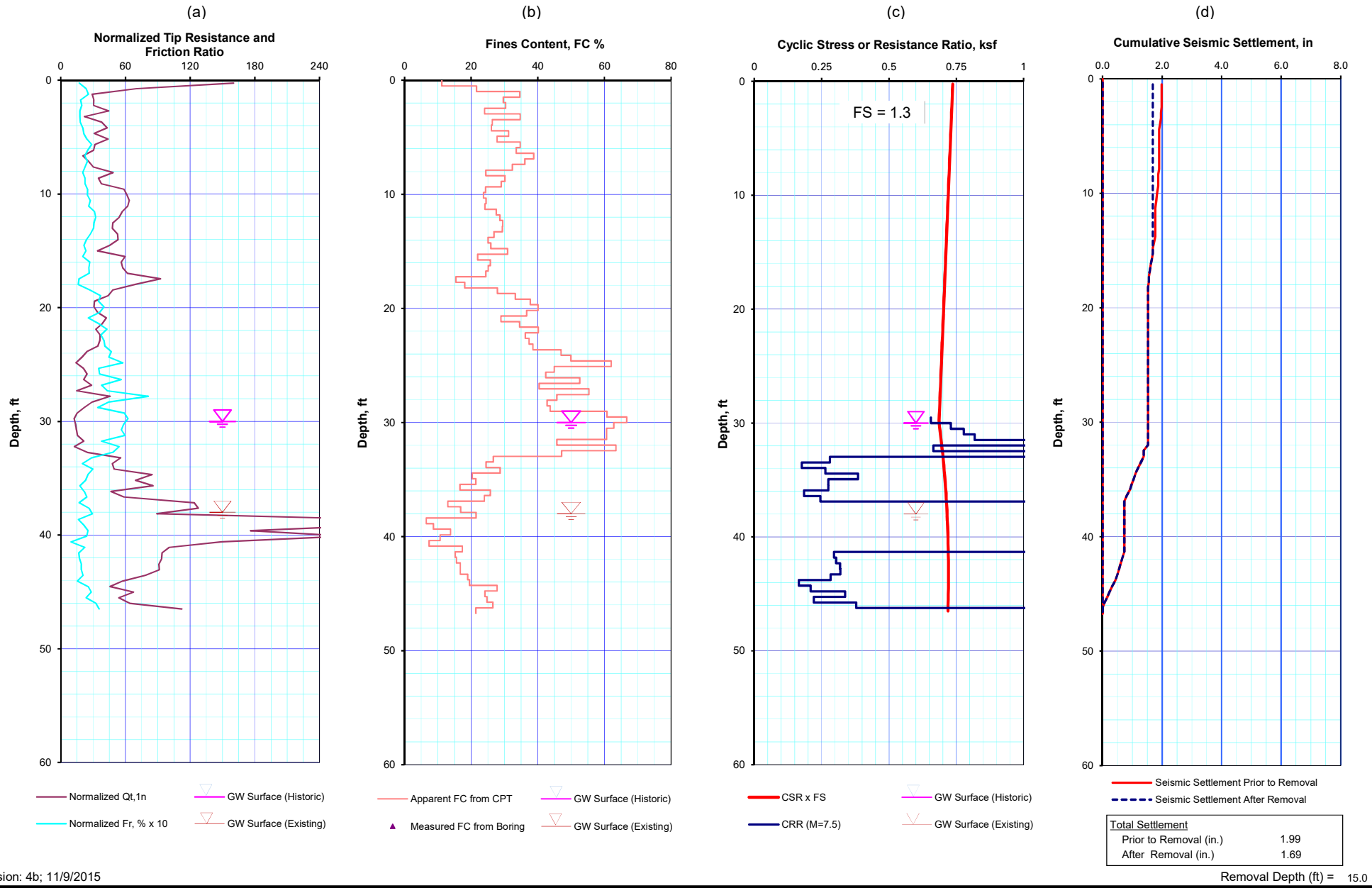
Client:	Sheridan Ebbert Development	Magnitude, M_w	6.69
Project:	Wiley Cyn LLC	Acceleration, PGA (g)	1.17
	Smizer Parcel	Magnitude Weighted PGA (g)	0.87
Job No.:	18-2593-9	Existing GW Elev. (ft)	35
Date:	6/19/18	Historic GW Elev. (ft)	30

Figure: B15

Location..... **CPT-01 (LGC)**
Elevation (MSL)..... 1000 ft



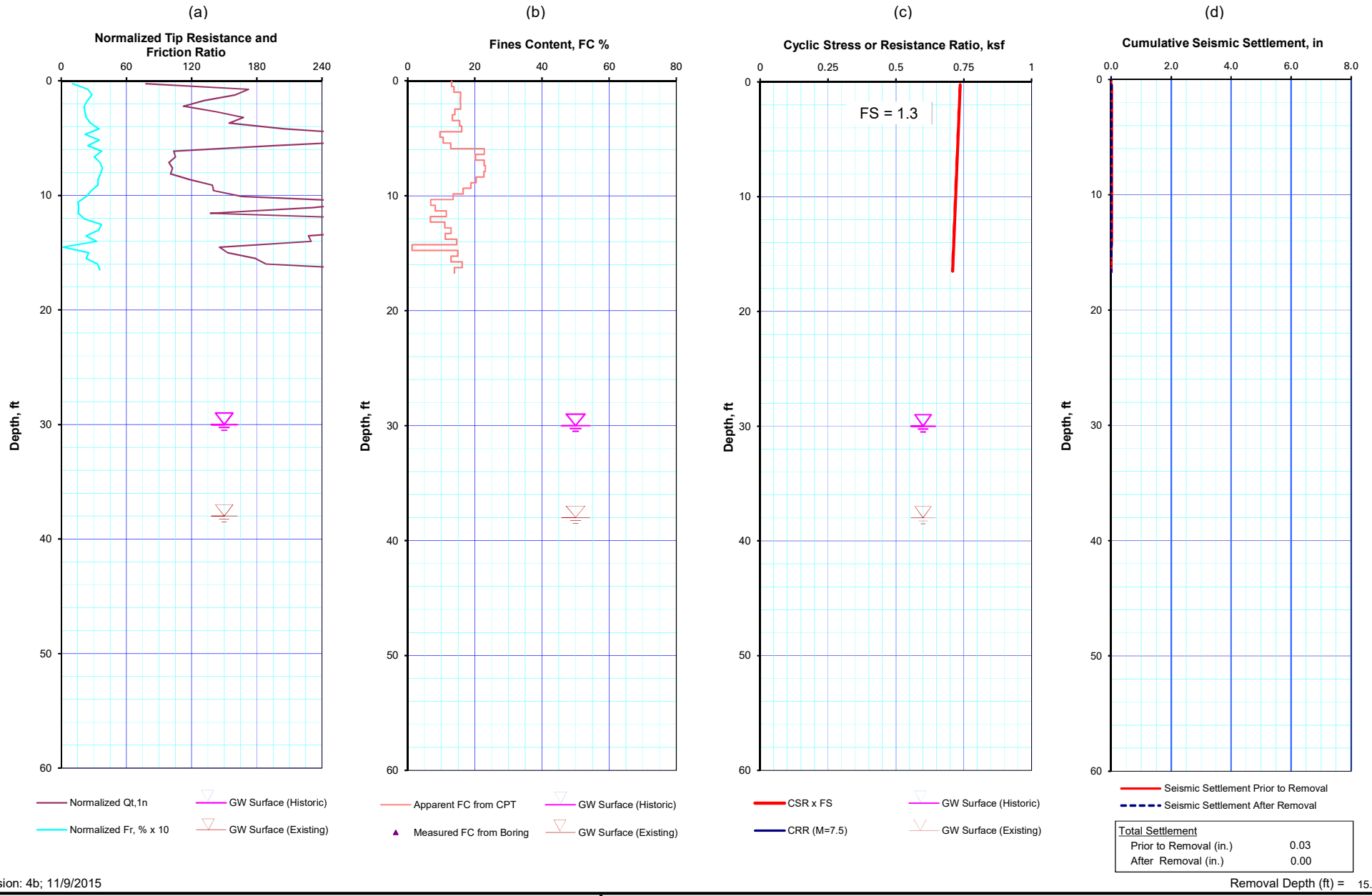
Version: 4b; 11/9/2015

ALLAN E. SEWARD ENGINEERING GEOLOGY, INC.
Geological and Geotechnical Consultants

Analysis of Liquefaction Potential Based on q_t and f_s from CPT Data

Smizer Parcel	Weighted PGA (M=7.5).....	0.87 g	Project No.	18-2593
Santa Clarita, California	Design PGA (M=6.69).....	1.17 g	Figure No.	B16
For: Sheridan Ebbert Development	Mag. Weighting Factor.....	0.75	Date	6-19-2018

Location..... **CPT-02 (LGC)**
Elevation (MSL)..... 1000 ft



Total Settlement	
Prior to Removal (in.)	0.03
After Removal (in.)	0.00

Version: 4b; 11/9/2015

Removal Depth (ft) = 15.0

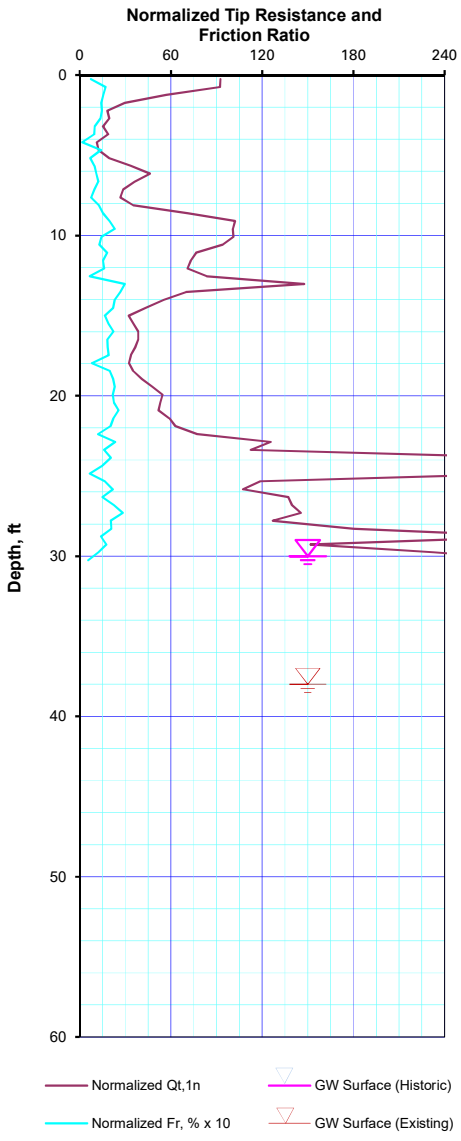
ALLAN E. SEWARD ENGINEERING GEOLOGY, INC.
Geological and Geotechnical Consultants

Analysis of Liquefaction Potential Based on q_t and f_s from CPT Data

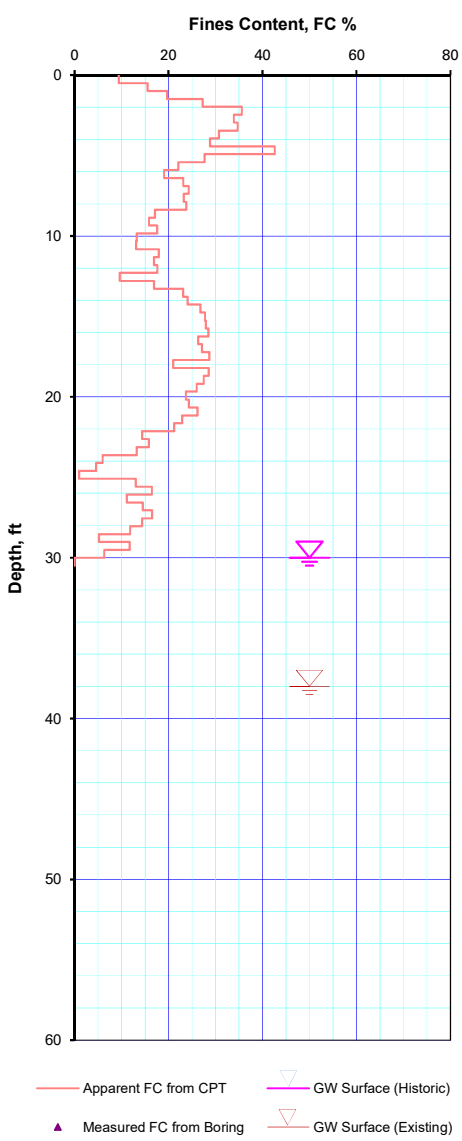
Smizer Parcel	Weighted PGA (M=7.5).....	0.87 g	Project No.	18-2593
Santa Clarita, California	Design PGA (M=6.69).....	1.17 g	Figure No.	B17
For: Sheridan Ebbert Development	Mag. Weighting Factor.....	0.75	Date	6-19-2018

Location..... **CPT-03 (LGC)**
Elevation (MSL)..... 1000 ft

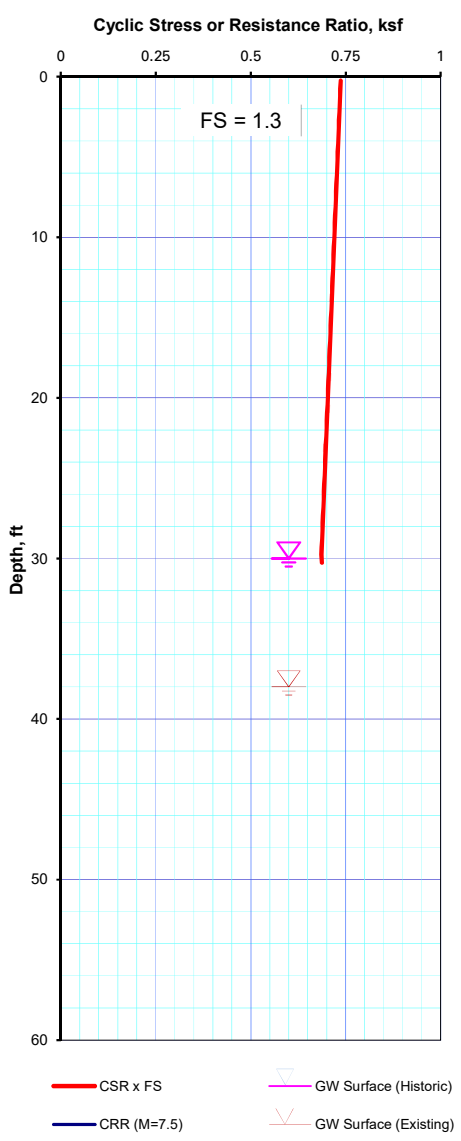
(a)



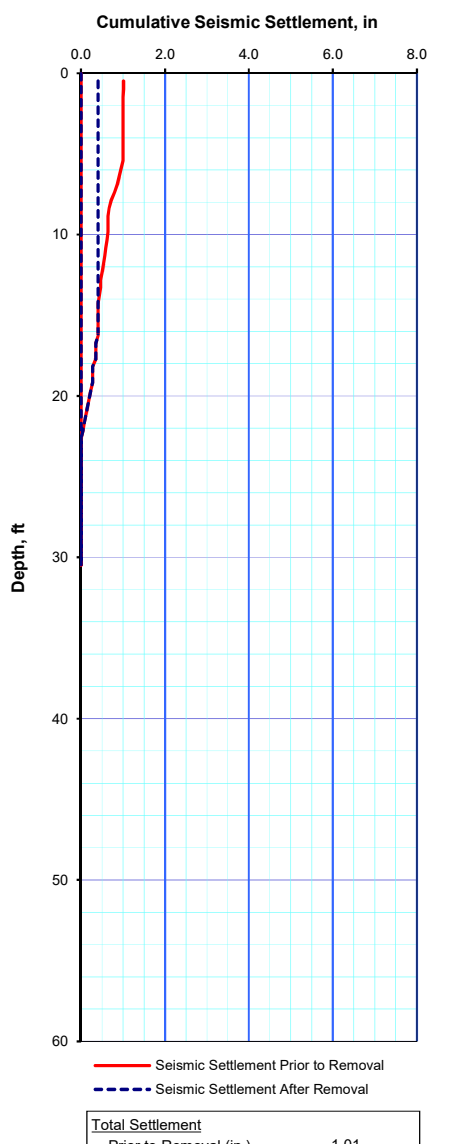
(b)



(c)



(d)



Total Settlement	
Prior to Removal (in.)	1.01
After Removal (in.)	0.41

Version: 4b; 11/9/2015

Removal Depth (ft) = 15.0

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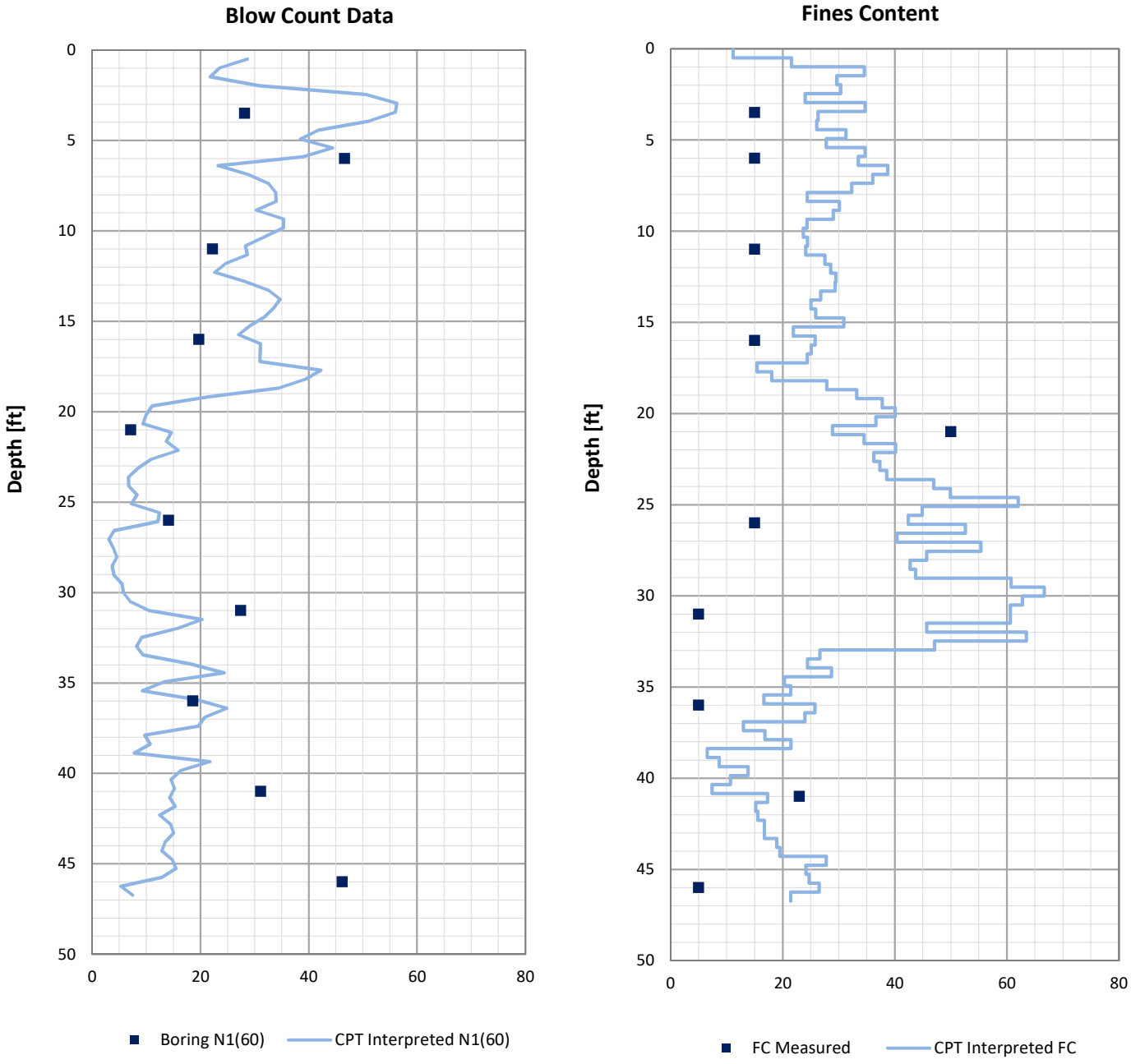
Analysis of Liquefaction Potential Based on q_t and f_s from CPT Data

Smizer Parcel	Weighted PGA (M=7.5).....	0.87 g	Project No.	18-2593
Santa Clarita, California	Design PGA (M=6.69).....	1.17 g	Figure No.	B18
For: Sheridan Ebbert Development	Mag. Weighting Factor.....	0.75	Date	6-19-2018

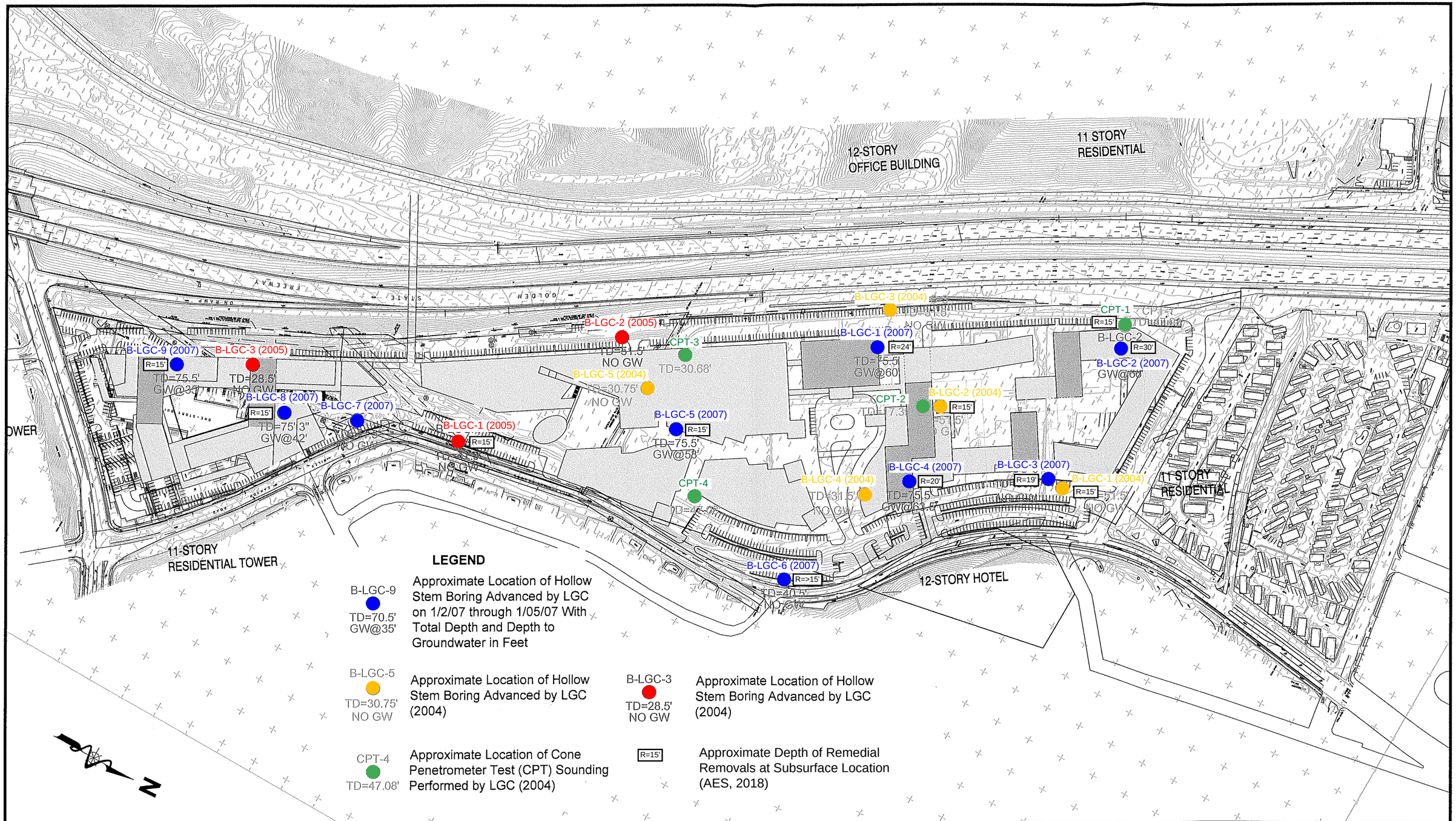
Location……. B-LGC-2 (2007)
CPT-01



Correlation of N1(60) Blow Count and Percent Fines - Boring vs. CPT Interpretation

ALLAN E. SEWARD
ENGINEERING GEOLOGY, INC.
Geological and Geotechnical Consultants

Client:	Sheridan Ebbert Development
Project:	Wiley Cyn LLC
	Smizer Parcel
Proj. No.:	18-2593-9
Date:	6/19/18
Figure:	B19



LGC

Figure 2
Exploration Location Map
Monteverde Development
Santa Clarita, California

Project Name	Monteverde Development
Project No.	033022-05
Eng. / Geol.	BIH/CAA
Scale	1" = 250'
Date	2/22/07

ALLAN E. SEWARD
ENGINEERING GEOLOGY, INC.
Geological And Geotechnical Consultants

September 21, 2020 Job No.: 20-2593-4

Wiley Canyon LLC
c/o Sheridan Ebbert Development
13120 Telfair Avenue
Sylmar, CA. 91342

Attention: Mr. Scott Sheridan

Subject: **GEOTECHNICAL LETTER**
Preliminary Evaluation of Infiltration Rates

Project: Wiley Canyon
USMP/LID Exhibit dated 8/18/20
Santa Clarita, California

References: at end of text

Dear Mr. Sheridan:

This letter presents the results of field testing performed to estimate preliminary infiltration rates of on-site alluvium and associated conclusions regarding potential stormwater infiltration locations at the project site. Based on the results of our evaluation, the use of Low Impact Development (LID) stormwater quality control measures with an infiltration component is not recommended.

1.0 INTRODUCTION

The Wiley Canyon USMP/LID Exhibit prepared by Alliance Land Planning & Engineering, dated 8/18/20, illustrates two drainage basins at the southerly end of the project site, and a water quality basin at the northerly end of the project site. It is our understanding that these locations were previously being considered for stormwater infiltration. In January 2020, field testing was conducted at the water quality basin at the northerly portion of the project and at the southerly basin (north of the creek) using boring percolation test procedures. Infiltration rates of alluvium were measured at proposed basin invert elevations, which ranged from 9 to 12 feet below the existing ground surface. The appended Geotechnical Map illustrates the percolation test boring locations. The 8/18/20 Wiley Canyon USMP/LID Exhibit was used as a base for the Geotechnical Map.

2.0 REGULATORY REQUIREMENTS

In accordance with City of Santa Clarita policy, siting of stormwater quality control measures that are designed for infiltration must be in conformance with the requirements of Administrative Manual GS200.2 – Guidelines for Geotechnical Investigation and Reporting Low Impact Development Stormwater Infiltration, dated 6/30/2017, prepared by the Los Angeles County Department of Public Works, Geotechnical and Materials Engineering Division (GMED). Based on the current grading concept, the following requirements addressed in this report are considered to be the most critical to feasibility of stormwater infiltration:

- Subsurface materials shall have a corrected infiltration rate equal to or greater than 0.3 inches per hour.
- The invert of the storm water infiltration shall be at least 10 feet above the groundwater elevation.

3.0 GENERAL SUBSURFACE CONDITIONS

The subject site is underlain by undifferentiated quaternary alluvial and fluvial deposits. Based on the boring logs presented in the referenced reports these deposits generally consist of brown to yellowish brown, fine- to coarse-grained sands with some gravel and cobbles, with common interbeds of silty to clayey sand and sandy silt. At the locations of the percolation test borings, the alluvial deposits encountered consist of fine-grained silty sand and sandy silts in the upper 20 feet. The measured fines content of soil samples collected approximately at the proposed infiltration invert elevations ranged from 52 to 54 percent.

Ground water was encountered in 6 hollow-stem auger borings during LGC's subsurface exploration in 2007 (see Ref 3). The depth to groundwater ranged from about 58 to 66 feet below the ground surface at borings B-LGC-1, -2, -4 and -5, which are located within the central and northerly portions of the site. At borings B-LGC-8 and -9 located within the adjacent parcels to the south, groundwater was encountered from 35 to 42 feet below the ground surface. Based on the historically highest ground water contours included in the Seismic Hazard Zone Report for the Oat Mountain 7.5-Minute Quadrangle, the interpolated historic high ground water elevation is approximately 30 feet beneath the elevation of the existing ground surface.

4.0 FIELD AND LABORATORY INVESTIGATION

4.1 Subsurface Exploration

Two (2) 8-inch diameter hollow-stem auger borings (PB-1 and PB-2) were drilled by Choice Drilling Inc. to a maximum depth of 25 feet and logged by the undersigned Geotechnical Engineer on 1/15/20. The locations of the borings are shown on the Geotechnical Map (**Plate I**). The borings were drilled to evaluate subsurface conditions at and below proposed infiltration inverts. California drive ring samples and bulk samples were collected for laboratory testing. Following completion of logging and sampling the borings were backfilled with the excavated soils in an uncompacted state. Logs of the hollow-stem auger borings are included in **Appendix A**.

4.2 Field Infiltration Testing

4.2.1 Test Procedure

Infiltration testing was performed adjacent to each of the two hollow-stem-auger boring locations using the "Boring Percolation" test procedure outlined in the GMED LID Guidelines. The infiltration testing was performed as described below:

- At each location an 8-inch diameter borehole was excavated to at least 12 inches below the proposed infiltration invert using the hollow-stem-auger drill rig.
- A water delivery pipe with end cap was installed in the borehole to introduce water during the test. The water delivery pipe consisted of 2-inch diameter Schedule 40 PVC pipe, with Schedule 40 PVC slotted well screen in the lower 2 feet.
- A separate pipe was installed to monitor the water level during the test. This pipe consisted of 2-inch diameter Schedule 40 PVC slotted well screen.
- Following installation of the pipes, the annular space was backfilled with filter pack material to at least 6 inches above the slotted section of the water delivery pipe.
- Clear water was introduced into the boreholes using flexible tubing connected to a 13,000 mL graduated cylinder. The boreholes were filled to a water level 3 feet above the bottom of the borehole. A ball valve on the flexible tubing was used to maintain a constant head of 3 feet above the bottom during the test period. A flow meter was connected at the hydrant to record the volume of water used.
- After the initial filling, a ball valve on the flexible tubing was used to maintain a constant head elevation of 3 feet above the borehole bottom during the test period. The volume of water required to maintain the constant head was recorded using the graduated cylinders at 10-minute intervals until the flow rate stabilized.

4.2.2 Test Results

Results of the infiltration test as elapsed time (minutes) versus the raw, incremental infiltration rate (inches/minute) are graphically illustrated on the attached Boring Percolation Test Reports, **Figures 1 and 2**. The measured raw infiltration rates at a stabilized flow rate ranged from approximately 2.2 inches/hour at PB-1 to 0.6 inches/hour at PB-2. The infiltration surface area used to calculate the infiltration rate is equal to the sum of the wetted bottom surface area and wetted sidewall surface area for a 3-ft water height in the borehole.

4.2.3 Reduction Factors

In accordance with County of Los Angeles GMED infiltration design requirements, the measured infiltration rate should be corrected using the reduction factors defined below in **Table 1** to determine a design value that will represent the long-term performance of the storm water infiltration device.

Table 1 – Reduction Factors

REDUCTION FACTOR	DEFINITION	VALUE
RF_T	Test-specific reduction factor to account for direction of flow during the test and reliability of the test.	2
RF_V	Site variability, number of tests, and thoroughness of subsurface investigation	1 to 3
RF_S	Long-term siltation, plugging, and maintenance	1 to 3
Total reduction factor, $RF = RF_T + RF_V + RF_S$		
Design infiltration rate = measured infiltration rate / RF		

The stabilized infiltration rates measured in the field using the Boring Percolation test procedure should be adjusted using a reduction factor $RF_T = 2$, as indicated in the GMED LID Guidelines[1].

A reduction of the measured infiltration rate due to number of tests and thoroughness of investigation is not considered applicable at this time and an infiltration reduction factor of $RF_V = 1$ has been assumed for best-case scenario.

It is assumed that the storm water will be pre-treated prior to infiltration and that the infiltration devices will be subject to an operation and maintenance plan for ongoing

[1] Per the County of Los Angeles Department of Public Works, Geotechnical and Materials Engineering Division (GMED) Administrative Manual GS200.2 (dated 6/30/17).

maintenance provisions. However, long-term performance due to siltation has been shown to reduce infiltration rates even with maintenance. Therefore, a reduction factor of $RF_S = 2$ is assumed.

A summary of the measured infiltration rates, applied reduction factors, and associated corrected infiltration rates are provided in **Table 2**.

Table 2 – Summary of Infiltration Test Results

Geologic Unit	Infiltration Test	Finer than No. 200 Sieve Size, %	Measured Infiltration Rate, inches/hour	Reduction Factors			Corrected Infiltration Rate, inches/hour
				RF_T	RF_V	RF_S	
Qal	PB-1	52	2.2	2	1	2	0.4
	PB-2	54	0.6	2	1	2	0.1

Results of on-site field testing indicate measured (i.e. uncorrected) infiltration rates ranging from of 0.6 to 2.2 in/hr, with an average corrected infiltration rate less than **0.3 in/hr**.

4.3 Laboratory Testing

Laboratory testing was performed on samples collected from the hollow-stem auger borings to evaluate the in-situ dry density and moisture content (ASTM D2216 and D7263) within the upper 10 feet of the alluvium. Additional testing was performed at samples recovered approximately at the infiltration test elevation to aid in classifying the soils in accordance with the Unified Soil Classification System (USCS), including Percent Finer than No. 200 Sieve Size (ASTM D1140). Based on the laboratory test results, the alluvial soils that would be exposed at the planned infiltration locations classify as sandy silt with fines contents ranging from 52 to 54 percent (see **Figure 3**).

5.0 GENERAL CONCLUSIONS AND RECOMMENDATIONS

- Soils encountered in the borings used for the percolation tests are generally representative of conditions across the project site. The soils to a depth of 20 feet are predominately fine-grained soils or interbedded fine-grained and coarse-grained soils. Coarse-grained sandy soils are more predominant at depths below 20 ft at the site.
- Ground water is not anticipated to be a constraint for stormwater infiltration for at grade basin bottoms.
- Groundwater is expected to be a constraint for infiltration into the sandy soils at depth (i.e., use of dry wells).

- The average corrected infiltration rates from the test locations is **less than 0.3 inch/hour**. This infiltration rate is based on an applied reduction factor of 5. The measured infiltration rates are considered representative of the upper 20 feet of alluvium at the test locations.
- The average corrected infiltration rate measured in fine-grained alluvial soils is not considered suitable for infiltration-based water quality control measures.

6.0 LIMITATIONS

This report has been prepared for the exclusive use of Wiley Canyon LLC and their design consultants for the specific site discussed herein. This report should not be considered transferable. Prior to use by others, we should be notified, as additional work may be required to update this report.

In the event that any modifications in the design or location of the proposed development, as discussed herein, are planned, the conclusions and recommendations contained in this report will require a written review by this firm with respect to the planned modifications.

In performing these professional services, this firm has used the degree of care and skill ordinarily exercised under similar circumstances by reputable geologists and geotechnical engineers practicing in this or similar localities. The data presented in this report are based on results of pertinent field and laboratory testing. It should be recognized that subsurface conditions can vary in time, and laterally, and with depth at a given site and that the conclusions and recommendations presented in this report are based on our observations and testing. Therefore, our **conclusions** and **recommendations** are **professional opinions** and are **not meant** to be a control of nature. We make no other **warranty,** either **expressed** or **implied**.

This opportunity to be of service is appreciated. If you have any questions concerning this report, please call us.

Respectfully submitted,

Eric J. Seward, CEG 2110
Certified Engineering Geologist
Vice President

Kevin P. Callahan, MS, GE 2989
Geotechnical Engineer

The following attachment and appendix complete this report.

References

APPENDIX A

- Percolation Borings PB-1 and PB-2 and Key to Boring Log Symbols
- Boring Percolation Test Reports — Figures 1 and 2
- Particle-Size Distribution Test Report — Figure 3

Geotechnical Map — **Plate I**

Distribution:

Sheridan Ebbert Development (PDF format)
Attn: Mr. Scott Sheridan

Alliance Land Planning & Engineering (PDF format)
Attn: Mr. Craig Whitteker

REFERENCES

Published

County of Los Angeles, Department of Public Works, 2014, Low Impact Development Standards Manual, February.

County of Los Angeles, Department of Public Works, Geotechnical and Materials Engineering Division, 2017, Administrative Manual GS 200.2, Guidelines for Geotechnical Investigation and Reporting Low Impact Development Stormwater Infiltration, June 30.

County of Los Angeles, Department of Public Works, Geotechnical and Materials Engineering Division, 2013, Manual for Preparation of Geotechnical Reports, July 1.

By: Lawson & Associates Geotechnical Consulting, Inc.

1. **Preliminary Geotechnical Investigation**
   Proposed Development
   Located at 24923 Hawkbryn Drive
   Santa Clarita, California
   Dated March 25, 2004 – Project No: 033022-01

2. **Preliminary Geotechnical Investigation**
   8.28-Acre Site (known as the Taylor Parcel)
   West of Wiley Canyon Road
   Santa Clarita, California
   Dated February 23, 2005 – Project No: 033022-03

By: LGC Valley, Inc.

3. **Supplemental Geotechnical Investigation Report**
   Proposed Commons Development
   West of Wiley Canyon Road
   Santa Clarita, California
   Dated February 23, 2007 – Project No: 033022-05

Appendix A

CLIENT: Wiley Canyon LLC		JOB NO.: 20-2593-9	**DRILL HOLE LOG**
PROJECT: Tentative Tract Map Wiley Canyon		DATE: 9/21/20	
		LOGGED BY: KPC / CHS	
DRILLING COMPANY: Choice Dilling Inc.		DRILLED: 11/14/19	
DRILLING METHOD: Hollow-stem Auger		HOLE DIA: 8"	**BORING NO.** PB-1
HAMMER TYPE: Automatic		AVERAGE DROP: 30	
DRIVING WEIGHTS: 140 lbs.		ELEVATION: 1301'	

DEPTH (feet)	SAMPLE TYPE	BLOWS / 12"	GRAPHIC LOG	USCS SYMBOL	DESCRIPTION	LABORATORY TESTS: Moisture Content (%)	Dry Density (pcf)	% Fines	Other Tests
0				ML	**<u>ALLUVIUM</u>; Qal (0 - 20')** @ 0 - 9' Sandy SILT; moist; dark brown to medium brown with depth				Surface logged @ 0 - 9' Infiltration test conducted in separate, adjacent hole with infiltration invert at 9' depth
10	■	29		ML	@ 9' - stiff; damp; yellowish brown	3.8	105	52	Sieve
	■	31				5.5	107		
15	■	24				4.5	111		
20	■	27				6.1	112		
					TOTAL DEPTH 20' (Elev. 1281') No Ground Water				
25									
30									
35									

CLIENT: Wiley Canyon LLC		JOB NO.: 20-2593-9	**DRILL HOLE LOG**
PROJECT: Tentative Tract Map Wiley Canyon		DATE: 9/21/20	
		LOGGED BY: KPC / CHS	
DRILLING COMPANY: Choice Dilling Inc.		DRILLED: 11/14/19	
DRILLING METHOD: Hollow-stem Auger		HOLE DIA: 8"	**BORING NO.** PB-2
HAMMER TYPE: Automatic		AVERAGE DROP: 30	
DRIVING WEIGHTS: 140 lbs.		ELEVATION: 1314'	

DEPTH (feet)	SAMPLE TYPE	BLOWS / 12"	GRAPHIC LOG	USCS SYMBOL	DESCRIPTION	LABORATORY TESTS: Moisture Content (%)	Dry Density (pcf)	% Fines	Other Tests
0				SM-ML	**<u>ALLUVIUM</u>; Qal (0 - 25')** @ 0 - 12' Silty, fine-grained SAND to sandy SILT; loose/soft; moist; dark brown				Surface logged @ 0 - 12' Infiltration test conducted in separate, adjacent hole with infiltration invert at 12' depth
10				ML	@ 12' Sandy SILT; very stiff; moist; dark brown	10.4	112	54	Sieve
15		32							
		33				7.8	117		
20		29		SM-ML	@ 20' Sandy SILT to silty, fine-grained SAND; very stiff/medium dense; medium brown; scattered gravel	7.8	110		
25		Ref/ 6"			@ 25' - slightly more gravel; no recovey on CD sample				Small Bulk @ 25' from the cuttings
					TOTAL DEPTH 25' (Elev. 1289') No Ground Water				
30									
35									

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS GRAPH	SYMBOLS LETTER	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS (MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE)	GRAVEL AND GRAVELLY SOILS (MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE SIZE)	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	Well-graded gravels, gravel-sand mixtures, little or no fines
				GP	Poorly-graded gravels, gravel-sand mixtures, little or no fines
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	Silty gravels, gravel-sand-silt mixtures
				GC	Clayey gravels, gravel-sand-clay mixtures
	SAND AND SANDY SOILS (MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE SIZE)	CLEAN SANDS (LITTLE OR NO FINES)		SW	Well-graded sands, gravelly sands, little or no fines
				SP	Poorly-graded sands, gravelly sands, little or no fines
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SM	Silty sands, sand-silt mixtures
				SC	Clayey sands, sand-clay mixtures
FINE GRAINED SOILS (MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE)	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	Inorganic silts and very fine sands, clayey silts with slight plasticity
				CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, lean clays
				OL	Organic silts and organic silty clays of low plasticity
	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	Inorganic silts, micaceous or diatomaceous fine, sandy or silty soils, elastic silts
				CH	Inorganic clays of high plasticity, fat clays
				OH	Organic clays of medium to high plasticity, organic silts
HIGHLY ORGANIC SOILS				PT	Peat and other highly organic soils

Notes:
(1) Dual USCS symbols, such as SP-SM, denote 5 to 12% of minor constituent.
(2) Dual USCS symbols, such as SM/ML, denote borderline soil classifications.
(3) Subsurface information from boring and test pit logs depict conditions only at the specific locations. and dates indicated. Soil conditions and water levels at other locations may differ from conditions at these locations. Also, the conditions at these locations may change with time.
(4) Blow counts on logs are the number of blows to drive the sampler with the weight and drop height indicated on each log.
(5) Split-barrel sampler driving record applies only to hollow-stem-auger and rotary-wash borings.
(6) These logs are subject to the limitations, conclusions, and recommendations in this report.

HS: Hollow-stem-auger boring
RW: Rotary-wash boring
B: Bucket-auger boring

SAMPLE TYPE

STANDARD PENETRATION TEST
Split barrel sampler in accordance with ASTM D-1586 Test Method

CALIFORNIA DRIVE
Split-barrel sampler in accordance with ASTM D-3550 Test Method

DISTURBED CALIFORNIA DRIVE

SHELBY TUBE
Thin-walled sampler in accordance with ASTM D-1587 Test Method

BULK SAMPLE

NO RECOVERY

GROUND WATER DATA

GROUND WATER WHILE DRILLING

GROUND WATER AFTER DRILLING

DENSITY OF GRANULAR SOILS	
DESCRIPTION	SPT BLOWS PER FOOT
Very Loose	< 4
Loose	4 - 10
Medium Dense	11 - 30
Dense	31 - 50
Very Dense	> 50

STRENGTH OF COHESIVE SOILS	
CONSISTENCY	SPT BLOWS PER FOOT
Very Soft	< 2
Soft	2 - 4
Firm	5 - 8
Stiff	9 - 15
Very Stiff	16 - 30
Hard	> 30

SPLIT-BARREL SAMPLER DRIVING RECORD	
BLOW COUNT	DESCRIPTION
25	25 blows drove the sampler 12 inches, after initial 6 inches of seating
50/7"	50 blows drove the sampler 7 inches, after initial 6 inches of seating
Ref/3"	50 blows drove the sampler 3 inches during initial 6-inch seating interval

LABORATORY TESTING ABBREVIATIONS

Plasticity Index	PI	Compaction Curve	Curve=A
Liquid Limit	LL	Consolidation / Collapse	Consol
Hydrometer	%-5 micron	Direct Shear / Reshear / Remold	Shear Test
Expansion Index	EI		
Corrosivity Analysis	Cor		

ALLAN E. SEWARD
ENGINEERING GEOLOGY, INC.
Geological and Geotechnical Consultants

USCS Soil Classification and Key to Boring Log Symbols

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ENGINEERING GEOLOGY, INC.
GEOLOGICAL AND GEOTECHNICAL CONSULTANTS

BORING PERCOLATION TEST REPORT
CONSTANT HEAD

Client:	Wiley Canyon LLC			Borehole Depth [ft]:	9
Project:	Tentative Tract Map Wiley Canyon			Borehole Diameter [in]:	8
				Seasonal High GW Elev.:	1271
Project No.:	20-2593-4			Test Invert Elevation:	1292
Test Date:	1/15/20	Test By:	K. Callahan	Soil Type at Invert:	Qal
Location:	PB-1			USCS Soil Type at Invert:	ML

Test Start Time:	2:00 PM	Stabilized flow rate [in^3/min]:	35.3
Standard Time Interval (min):	10	Total volume infiltrated [in^3]:	3587
Test Duration (min):	100	Total Reduction Factor:	5
Water Remaining after 24 hr?:	No	***Design Infiltration Rate (in/hr):***	**0.4**

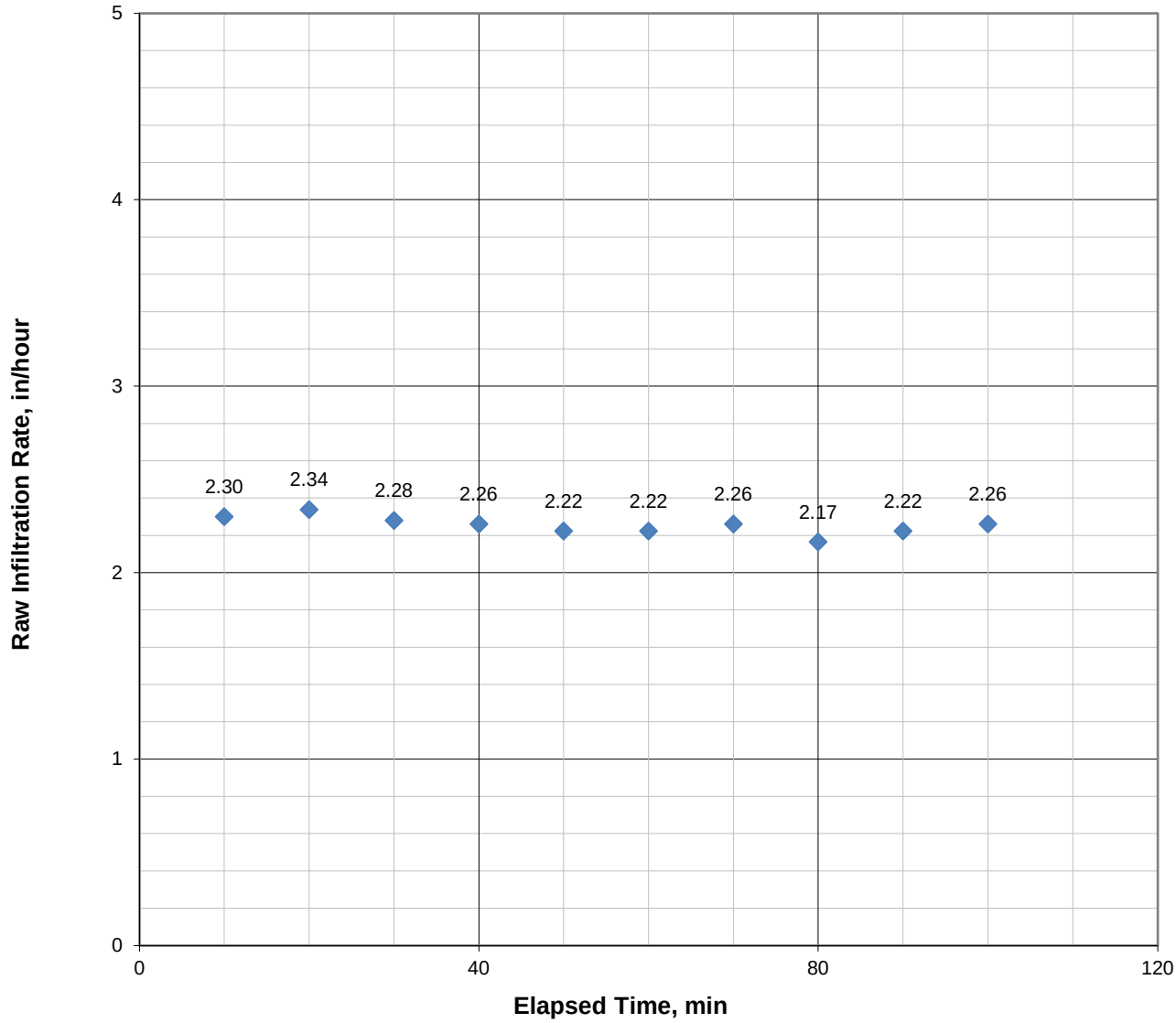

Figure 1

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ENGINEERING GEOLOGY, INC.
GEOLOGICAL AND GEOTECHNICAL CONSULTANTS

BORING PERCOLATION TEST REPORT
CONSTANT HEAD

Client:	Wiley Canyon LLC			Borehole Depth [ft]:	12
Project:	Tentative Tract Map Wiley Canyon			Borehole Diameter [in]:	8
				Seasonal High GW Elev.:	1284
Project No.:	20-2593-4			Test Invert Elevation:	1302
Test Date:	1/15/20	Test By:	K. Callahan	Soil Type at Invert:	Qal
Location:	PB-2			USCS Soil Type at Invert:	ML

Test Start Time:	2:00 PM	Stabilized flow rate [in^3/min]:	10.4
Standard Time Interval (min):	10	Total volume infiltrated [in^3]:	1147
Test Duration (min):	100	Total Reduction Factor:	5
Water Remaining after 24 hr?:	No	***Design Infiltration Rate (in/hr):***	**0.1**

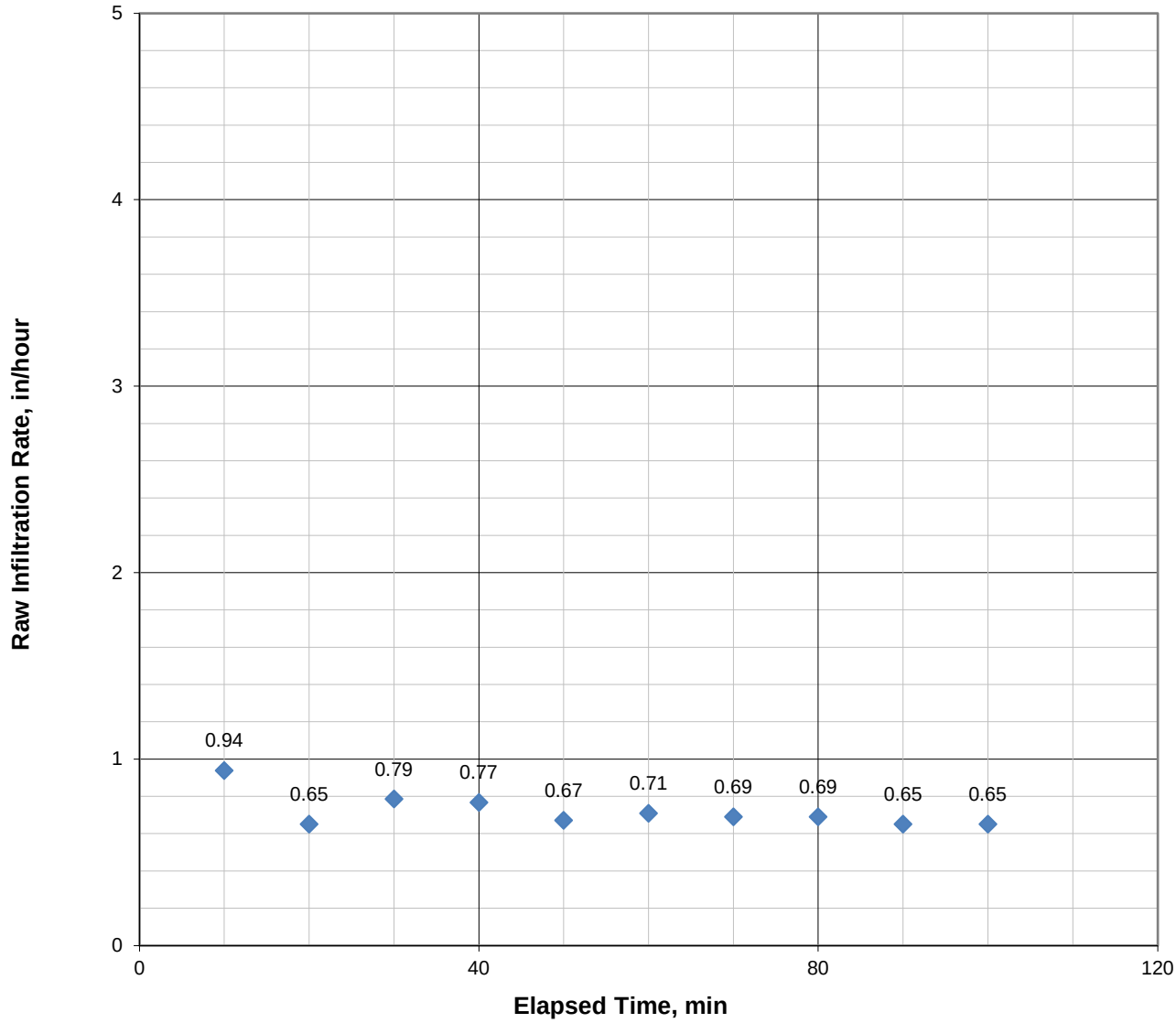
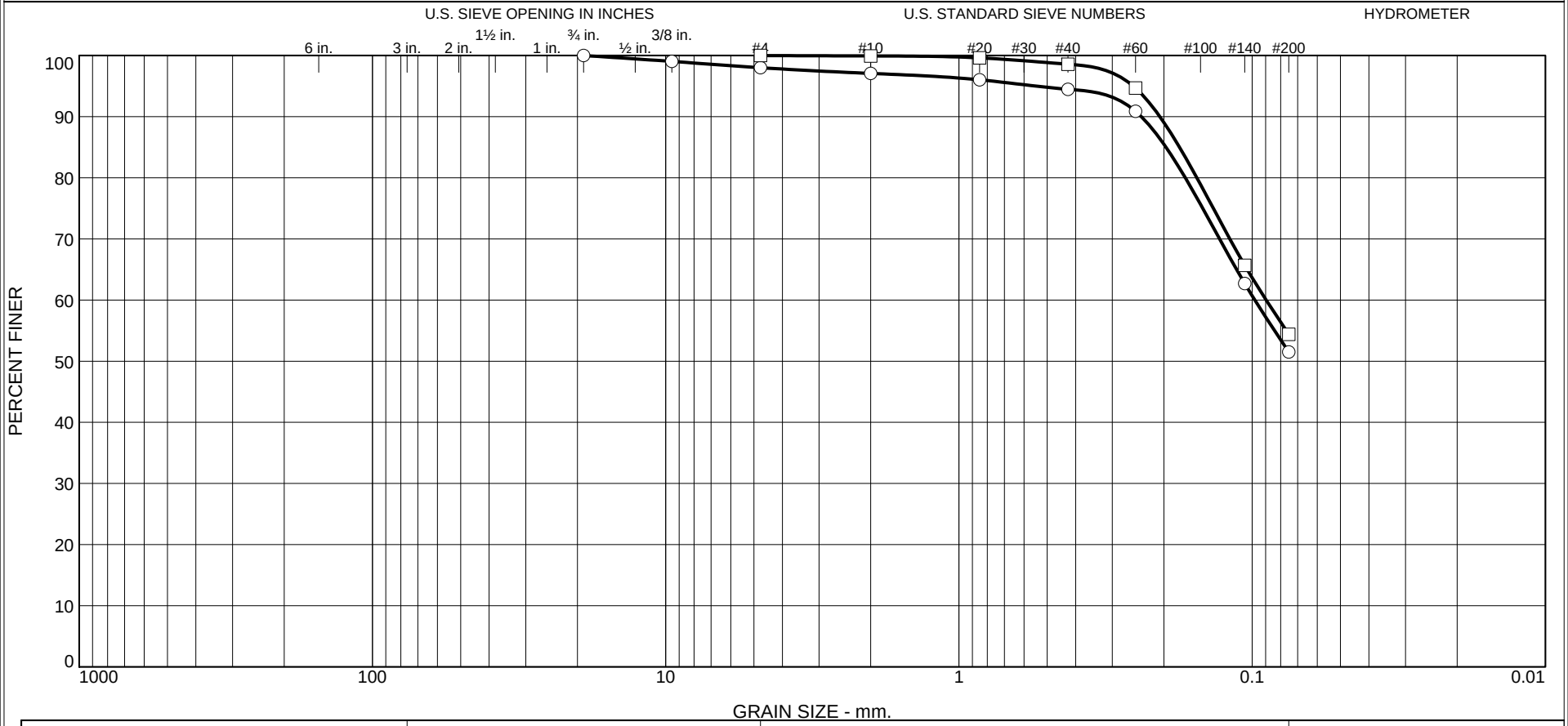


Figure 2

Particle Size Distribution Test Report



	% +3"	% Gravel		% Sand			% Fines
		Coarse	Fine	Coarse	Medium	Fine	Silt
○	0.0	0.0	2.0	0.9	2.6	43.0	51.5
□	0.0	0.0	0.0	0.1	1.3	44.2	54.4

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	PB-1		9'	11-14-19	ML	Yellowish-brown sandy SILT			
□	PB-2		12'	11-14-19	ML	Dark-brown, sandy SILT			

Client Wiley Canyon LLC

Project Tentative Tract Map

Wiley Canyon

Project No. 20-2593-9 Figure 3

ALLAN E. SEWARD

ENGINEERING GEOLOGY, INC.

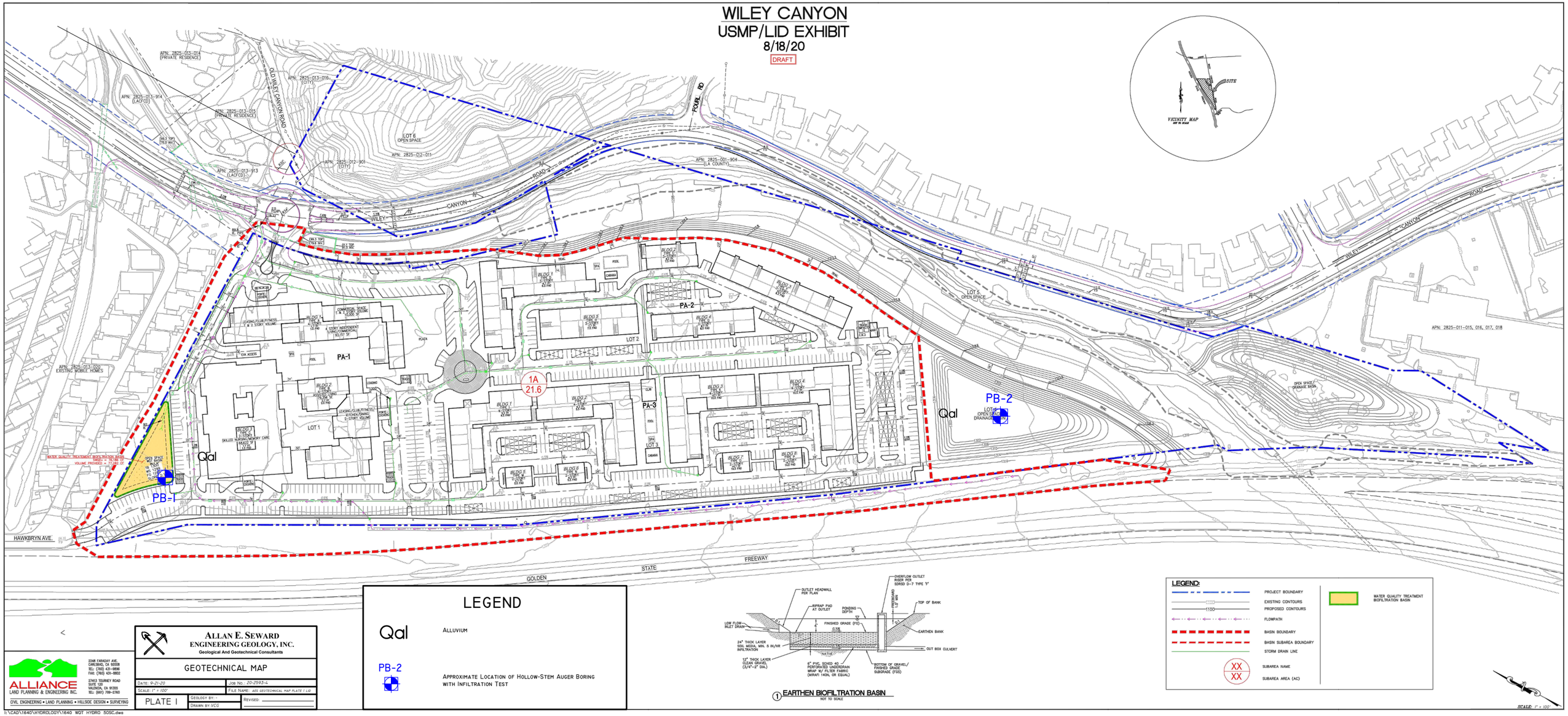
Valencia, California

○ Alluvium encountered in vicinity of proposed infiltration invert elevation

□ Alluvium encountered in vicinity of proposed infiltration invert elevation

WILEY CANYON
USMP/LID EXHIBIT
8/18/20

DRAFT



LEGEND

Qal	ALLUVIUM
PB-2	APPROXIMATE LOCATION OF HOLLOW-STEM AUGER BORING WITH INFILTRATION TEST

① EARTHEN BIOFILTRATION BASIN
NOT TO SCALE

LEGEND:

- PROJECT BOUNDARY
- EXISTING CONTOURS
- PROPOSED CONTOURS
- FLOWPATH
- BASIN BOUNDARY
- BASIN SUBAREA BOUNDARY
- STORM DRAIN LINE
- XX / XX — SUBAREA NAME / SUBAREA AREA (AC)
- WATER QUALITY TREATMENT BIOFILTRATION BASIN

SCALE: 1" = 100'

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Geological And Geotechnical Consultants

GEOTECHNICAL MAP

DATE: 9-21-20	JOB NO.: 20-2593-4
SCALE: 1" = 100'	FILE NAME: AES GEOTECHNICAL MAP PLATE I LID
PLATE I	GEOLOGY BY: -
	DRAWN BY: VCG
	REVISED:

I:\CAD\1640\HYDROLOGY\1640 WQT HYDRO SOSC.dwg

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MEMORANDUM

To:	Jay Rodgers Monteverde Companies	Date:	November 14, 2007
From:	David S. Shender, P.E. Francesca S. Bravo Linscott, Law & Greenspan, Engineers	LLG Ref:	1-063664-1
Subject:	Smiser Ranch Project –Traffic Assessment		

This memorandum has been prepared by Linscott, Law & Greenspan, Engineers (LLG Engineers) to summarize the initial traffic assessment completed for the Smiser Ranch Project located in the City of Santa Clarita. This memorandum has been prepared to summarize the analysis of the project's potential effect on the local roadway system.

Project Description

Existing Setting

The 37-acre project site is located on the north side of Calgrove Boulevard, west of Wiley Canyon Road. The project site is generally bounded by the Mulberry Mobile Home Park to the north, Calgrove Boulevard to the south, Wiley Canyon Road to the east, and the Interstate 5 Freeway to the west. Vehicular access to the project site is currently provided via seven driveways: four driveways on Calgrove Boulevard and three driveways on Wiley Canyon Road. The project site and general vicinity are shown in ***Figure 1***.

The project site is currently occupied by a 55,000 square-foot health club. The existing buildings and associated surface parking area will be removed to accommodate the proposed project.

Proposed Project

The proposed Smiser Ranch project consists of the development of a mixed-use project with 550 residential condominium units, 250 senior housing units, 770,085 square feet of office space, 581,417 square feet of retail space, and a hotel with 300 rooms. Vehicular access to the project site will be provided driveways on Calgrove Boulevard, Wiley Canyon Road, and Hawkbryn Avenue. The Smiser Ranch Project conceptual site plan is displayed in ***Figure 2***.

Existing Street System

Regional access to the project site is provided by the Interstate 5 (Golden State) Freeway via ramps at Calgrove Boulevard and Pico Canyon Road/Lyons Avenue. Northbound and southbound ramps are provided on the Interstate 5 Freeway at Calgrove Boulevard, which borders the project site to the south. A southbound on-ramp and northbound on and off-ramps are provided on the Interstate 5 Freeway at Lyons Avenue, located approximately one mile north of the project site. Southbound

ramps are provided on the Interstate 5 Freeway at Pico Canyon Road, located approximately one mile northwest of the project site

Immediate access to the project site is provided via Calgrove Boulevard, Wiley Canyon Road, and Hawkbryn Avenue. The following 10 study intersections were selected for analysis to determine potential impacts related to the proposed project (the City/jurisdiction in which each study intersection is located is identified in parentheses):

1. The Old Road/Pico Canyon Road (County of Los Angeles)
2. I-5 Freeway Southbound Ramps-Marriott Way/Pico Canyon Road (County of Los Angeles)
3. Chiquella Lane/Lyons Avenue (County of Los Angeles)
4. I-5 Freeway Northbound Ramps/Lyons Avenue (City of Santa Clarita)
5. The Old Road/Calgrove Boulevard (City of Santa Clarita)
6. I-5 Freeway Southbound Ramps/Calgrove Boulevard (City of Santa Clarita)
7. I-5 Freeway Northbound Ramps/Calgrove Boulevard (City of Santa Clarita)
8. Wiley Canyon Road/Lyons Avenue (City of Santa Clarita)
9. Wiley Canyon Road/Calgrove Boulevard (City of Santa Clarita)
10. Orchard Village Road-Valley Street/Lyons Avenue (City of Santa Clarita)

Seven of the 10 study intersections selected for analysis are presently controlled by traffic signals. The remaining three intersections -- I-5 Freeway Southbound Ramps/Calgrove Boulevard, I-5 Freeway Northbound Ramps/Calgrove Boulevard and Wiley Canyon Road/Calgrove Boulevard -- are currently controlled by stop signs. The existing lane configurations at the 10 study intersections are displayed in ***Figure 3***.

Existing Traffic Volumes

The existing traffic volumes for the 10 study intersections were obtained from the *Lyons Canyon Specific Plan Preliminary Draft Environment Impact Report*, RBF Consulting, April 2005 (the "Lyons Canyon traffic study"). The traffic counts for the Lyons Canyon traffic study were conducted in March and April 2004 during the weekday morning (AM) and afternoon (PM) commuter periods. For this traffic assessment, the traffic count data from the Lyons Canyon traffic study were increased at a rate of 3.0 percent (3.0%) per year to reflect year 2007 conditions based on consultation with City of Santa Clarita traffic engineering staff. The existing traffic volumes at the study intersections during the AM and PM peak hours are shown in ***Figures 4A and 4B***, respectively.

Future Conditions

The future traffic volumes for the 10 study intersections were obtained from the Lyons Canyon traffic study. The future traffic volumes provided in the Lyons Canyon traffic study were derived from the Santa Clarita Valley Consolidated Traffic Model (SCVCTM). The SCVTM forecasts future on-street traffic conditions in the year 2015 (i.e., the City of Santa Clarita's designated interim traffic year). The SCVTM considers all projects expected to be built and occupied by the year 2015, as well as future roadway improvement projects.

The future interim year 2015 without project traffic volumes at the study intersections during the AM and PM peak hours are displayed in ***Figures 5A and 5B***, respectively. It should be noted that the future interim year 2015 without project traffic volumes utilized in this analysis correspond to the future interim year 2015 with project traffic volumes obtained directly from the Lyons Canyon traffic study. Thus, in addition to all projects expected to be built and occupied by the year 2015, the future interim year 2015 without project traffic volumes include the Lyons Canyon Specific Plan project traffic.

Project Trip Generation and Assignment

Traffic volumes expected to be generated by the proposed project during both the AM and PM peak hours, as well as on a daily basis, were estimated using rates published in the Institute of Transportation Engineers' (ITE) *Trip Generation Manual*, 7th Edition, 2003. Traffic volumes expected to be generated by the commercial components of the proposed project were based upon rates per 1,000 square feet of gross building area. ITE Land Use Code 710 (General Office) trip generation equation rates were used to forecast the traffic volumes expected to be generated by the office component of the proposed project. ITE Land Use Code 820 (Shopping Center) trip generation equation rates were used to forecast the traffic volumes expected to be generated by the retail component of the proposed project.

Traffic volumes expected to be generated by the residential and hotel land use components of the proposed project were based upon rates per dwelling unit and room, respectively. ITE Land Use Code 230 (Condominium/Townhouses) trip generation average rates were used to forecast the traffic volumes expected to be generated by the residential condominium component of the proposed project. ITE Land Use Code 252 (Senior Housing Attached) trip generation average rates were used to forecast the traffic volumes expected to be generated by the senior housing component of the proposed project. ITE Land Use Code 310 (Hotel) trip generation average rates were used to forecast the traffic volumes expected to be generated by the hotel component of the proposed project.

Traffic volumes expected to be generated by the existing health club to be removed from the project site were also estimated using rates published in the ITE *Trip Generation Manual*. ITE Land Use Code 492 (Health/Fitness Club) trip generation average rates were used to forecast the traffic volumes expected to be generated by the health club currently located on the project site.

In addition to the trip generation forecast for the proposed project (which is essentially an estimate of vehicles that could be expected to enter and exit the site access points), a forecast was made of the likely internal capture and pass–by trips that could be anticipated at the site. The mixed-use nature of the project will likely result in a number of trips made internally between uses. For example, a tenant in the office use or a resident in the condominium complex may eat and shop in the on-site retail and restaurant facilities. Accordingly, the trip generation forecast includes an estimate of the portion of project-related trips that will be made internal to the site (i.e., vehicles will not use the local street system). The internal capture rates for the proposed project were estimated based on the methodology outlined in Chapter 7 – Multi-Use Development of the *Trip Generation Handbook*, published by ITE, June 2004. Based on data provided in the ITE *Trip Generation Handbook*, a 9% peak hour and 12% daily adjustment was made in the trip generation forecast to account for internal trips between the office, retail and residential components.

Pass-by trips are made as intermediate stops on the way from an origin to a primary destination without a route diversion. Pass-by trips are attracted from traffic passing the site on an adjacent street or roadway that offers direct access to the site. The pass-by traffic forecast is based on the methodology and equations contained in Chapter 5 – Pass-by, Primary and Diverted Linked Trips of the *ITE Trip Generation Handbook*. Based on the ITE guidelines, a 23% pass-by reduction adjustment was applied to the retail component of the proposed project.

As shown in ***Table 1***, the proposed project is expected to generate a net increase of 1,562 vehicle trips (1,096 inbound trips and 466 outbound trips) during the AM peak hour. During the PM peak hour, the proposed project is expected to generate a net increase of 2,535 vehicle trips (1,000 inbound trips and 1,535 outbound trips). Over a 24-hour period, the proposed project is forecast to generate a net increase of 24,676 daily trip ends during a typical weekday (12,338 inbound trips and 12,338 outbound trips).

Project generated traffic was assigned to the local roadway system utilizing a trip distribution pattern based on the proposed project land uses, the existing and proposed site access schemes, existing traffic patterns, characteristics of the surrounding roadway system, and nearby population and employment centers. The project traffic volume distribution percentages during AM and PM peak hours at the 10 study intersections are illustrated in ***Figure 6***. The forecast project traffic volumes at the study intersections for the AM and PM peak hours are displayed in ***Figures 7A and 7B***, respectively.

Traffic Analysis

The study intersections were evaluated using the Intersection Capacity Utilization (ICU) methodology. This method determines Volume-to-Capacity (*v/c*) ratio on a critical lane basis. The overall intersection *v/c* ratio is subsequently assigned a Level of Service (LOS) value to describe intersection operations. The LOS vary from LOS A (free flow) to LOS F (jammed condition). It should be noted that LOS D is typically recognized as the minimum acceptable level of service in urban areas. A description of the ICU method and corresponding Levels of Service is provided in ***Appendix A***.

Each study intersection was evaluated for potential traffic impacts using the City of Santa Clarita significant traffic impact thresholds. The significance of the potential project generated traffic impacts was identified using the traffic impact criteria set forth in the City of Santa Clarita's *Traffic Impact Report Guidelines*. According to the City's *Traffic Impact Report Guidelines* and discussions with City staff, a significant transportation impact is determined based on the sliding scale criteria in ***Table 2***.

Table 2
CITY OF SANTA CLARITA
INTERSECTION IMPACT THRESHOLD CRITERIA

Final *v/c*	Level of Service	Project Related Increase in *v/c*
> 0.80 - 0.89	D	equal to or greater than 0.02
> 0.90	E and F	equal to or greater than 0.01

Pursuant to the City's *Traffic Impact Report Guidelines*, the ICU calculations for the City study intersections utilize a lane capacity of 1,750 vph for left-turn, through, and right-turn lanes. Additionally, clearance factors of 0.05 for two phases, 0.07 for three/five phases and 0.10 for six phases or more are utilized in the calculations.

Summaries of the *v/c* ratios and LOS values for the study intersections during the AM and PM peak hours are shown in ***Table 3***. The ICU data worksheets for the analyzed intersections are contained in *Appendix A*.

Existing Conditions

As indicated in column [1] of *Table 3*, all of the study intersections are presently operating at LOS D or better during the AM and PM peak hours under existing conditions. As previously mentioned, the existing traffic volumes at the study intersections during the AM and PM peak hours are displayed in *Figures 4A and 4B*, respectively.

Future Pre-Project Conditions

As presented in column [2] of *Table 3*, 8 of the 10 study intersections are expected to continue operating at LOS D or better during the AM and PM peak hours with the addition of growth in ambient traffic and the traffic due to the related projects. The following two study intersections are expected to operate at LOS E during the PM peak hour with the addition of ambient traffic and the traffic due to the related projects:

- Int. No. 1: The Old Rd/Pico Canyon Rd PM Peak Hour: *v/c*=0.985, LOS E
- Int. No. 8: Wiley Canyon Rd/Lyons Ave PM Peak Hour: *v/c*=0.986, LOS E

As previously mentioned, the future pre-project (existing, ambient growth and related projects) traffic volumes at the study intersections during the AM and PM peak hours are presented in *Figures 7A and 7B,* respectively.

Future With Project Conditions

As presented in column [3] of *Table 3*, application of the City's threshold criteria to the "With Proposed Project" scenario indicates that the proposed project is expected to create significant impacts at nine of the ten study intersections. The proposed project is expected to create significant impacts at the following locations according to the City's impact criteria during the peak hour shown below with the addition of ambient growth, related projects traffic, and project-related traffic:

- Int. No. 1: The Old Road/Pico Canyon Road
  PM peak hour *v/c* ratio increase of 0.174 [0.985 (LOS E) to 1.159 (LOS F)]
- Int. No. 2: I-5 Southbound Ramps Freeway-Marriott Way/Pico Canyon Road
  PM peak hour *v/c* ratio increase of 0.080 [0.885 (LOS D) to 0.965 (LOS E)]
- Int. No. 3: Chiquella Lane/Lyons Avenue
  PM peak hour *v/c* ratio increase of 0.080 [0.859 (LOS D) to 0.939 (LOS E)]
- Int. No. 4: I-5 Northbound Ramps/Lyons Avenue
  PM peak hour *v/c* ratio increase of 0.080 [0.890 (LOS D) to 0.970 (LOS E)]
- Int. No. 5: The Old Road/Calgrove Boulevard
  PM peak hour *v/c* ratio increase of 0.089 [0.792 (LOS C) to 0.881 (LOS D)]
- Int. No. 6: I-5 Southbound Ramps/Calgrove Boulevard
  AM peak hour *v/c* ratio increase of 0.117 [0.881 (LOS D) to 0.998 (LOS E)]
  PM peak hour *v/c* ratio increase of 0.351 [0.818 (LOS D) to 1.169 (LOS F)]
- Int. No. 7: I-5 Northbound Ramps/Calgrove Boulevard
  AM peak hour *v/c* ratio increase of 0.245 [0.812 (LOS D) to 1.057 (LOS F)]
  PM peak hour *v/c* ratio increase of 0.541 [0.717 (LOS C) to 1.258 (LOS F)]

- Int. No. 8: Wiley Canyon Road/Lyons Avenue
  AM peak hour *v/c* ratio increase of 0.191 [0.634 (LOS B) to 0.825 (LOS D)]
  PM peak hour *v/c* ratio increase of 0.289 [0.986 (LOS E) to 1.275 (LOS F)]
- Int. No. 10:Orchard Village Road-Valley Street/Lyons Avenue
  PM peak hour *v/c* ratio increase of 0.038 [0.794 (LOS C) to 0.832 (LOS D)]

The future with project (existing, ambient growth, related projects and project) traffic volumes at the study intersections during the AM and PM peak hours are illustrated in ***Figures 8A and 8B***, respectively.

Transportation Mitigation Measures

As summarized previously, application of the City's threshold criteria to the "With Proposed Project" scenario indicates that the proposed project is anticipated to create significant impacts at nine of the ten study intersections. Physical mitigation measures typically consist of improvements such as roadway and/or intersection restriping, roadway widening to accommodate additional travel lanes, and/or traffic signal installations/modifications. In addition, the project applicant will be required to contribute funds to the Via Princessa Bridge and Major Thoroughfare Construction Fee District (B & T District). The B & T District anticipates provision of a range of specific local and regional street improvements in the Via Princessa area of the Santa Clarita Valley, as identified in the *Via Princessa Bridge and Major Thoroughfare Construction Fee District Update Report*, March 2002. Funds from the B & T District can be used to fund the following specific roadway improvement measures in response to the forecast project-related impacts. The proposed roadway improvement measures are displayed in ***Figure 9***.

- Int. No. 1: The Old Road/Pico Canyon Road
  Modify the existing traffic signal to provide a westbound right-turn overlapping phase on Pico Canyon Road that will be operated concurrently during the southbound left-turn phase on The Old Road. As shown in *Table 3*, this mitigation measure is anticipated to reduce the forecast project-related impact to less than significant levels. The improvement is expected to improve operations to 0.897 (LOS D) from 1.159 (LOS F) during the PM peak hour.
- Int. No. 2: I-5 Southbound Ramps Freeway-Marriott Way/Pico Canyon Road
  Provide an additional through lane at the eastbound approach of Pico Canyon Road. The resultant lane configurations at the eastbound approach will be two through lanes and one combination through/right-turn lane. In addition, convert the westbound right-turn only lane into a shared through/right-turn lane. The resultant lane configurations at the westbound approach will be one left-turn lane, two through lanes and one combination through/right-turn lane.

It is anticipated that the recommended improvements can be implemented within the existing right-of-way. As shown in *Table 3*, these improvements are anticipated to reduce the forecast project-related impact to less than significant levels. The improvement is expected to improve operations to 0.790 (LOS C) from 0.965 (LOS E) during the PM peak hour.

- Int. No. 3: Chiquella Lane/Lyons Avenue
  Provide an additional through lane at the eastbound approach of Lyons Avenue. The resultant lane configurations at the eastbound approach will be three through lanes and one combination through/right-turn lane. This improvement measure would require widening along the south side of Lyons Avenue east and west of Chiquella Lane. As shown in *Table 3*, this mitigation measure is anticipated to reduce the forecast project-related impact to less than significant levels. The improvement is expected to improve operations to 0.723 (LOS C) from 0.939 (LOS E) during the PM peak hour.

- Int. No. 4: I-5 Northbound Ramps/Lyons Avenue
  Provide an additional through lane at the eastbound approach of Lyons Avenue. The resultant lane configurations at the eastbound approach will be one-left-turn lane and three through lanes. This improvement measure would require removal of the northbound right-turn lane free-flow movement to provide additional width for the additional eastbound through movement. In addition, provide an additional right-turn only lane at the northbound approach of the I-5 Freeway Northbound Off-Ramp. The resultant lane configurations at the northbound approach will be one-left-turn lane, one combination left-turn/through lane, and two right-turn only lanes. This improvement measure would require removal of the existing channelization island and restriping at the northbound approach. As shown in *Table 3*, these improvements are anticipated to reduce the forecast project-related impact to less than significant levels. These improvements are expected to improve operations to 0.859 (LOS D) from 0.970 (LOS E) during the PM peak hour.

- Int. No. 5: The Old Road/Calgrove Boulevard
  Modify the existing traffic signal to provide a northbound right-turn overlapping phase on The Old Road that will be operated concurrently during the westbound left-turn phase on Calgrove Boulevard. As shown in *Table 3*, this mitigation measure is anticipated to reduce the forecast project-related impact to less than significant levels. The improvement is expected to improve operations to 0.788 (LOS C) from 0.881 (LOS D) during the PM peak hour.

  It should be noted that the future interim year 2015 traffic conditions assumes the implementation of the roadway improvements at this intersection associated with the Lyons Canyon Specific Plan, including the improvement of The Old Road and the realignment of Calgrove Boulevard to form a 4-way intersection with The Old Road.

- Int. No. 6: I-5 Southbound Ramps/Calgrove Boulevard
  Provide an additional through lane at the eastbound approach of Calgrove Boulevard and install a traffic signal. The resultant lane configurations at the eastbound approach will be one through lane and one combination through/right-turn lane. In addition, provide an additional left-turn lane at the westbound approach of Calgrove Boulevard. The resultant lane configurations at the westbound approach will be two left-turn lanes and one through lane. As shown in *Table 3*, these improvements are anticipated to reduce the forecast project-related impact to less than significant levels. These improvements are anticipated to improve operations to 0.622 (LOS B) from 0.998 (LOS E) during the AM peak hour and to 0.701 (LOS C) from 1.169 (LOS F) during the PM peak hour.

- Int. No. 7: I-5 Northbound Ramps/Calgrove Boulevard
  Provide one additional through lane at the eastbound approach and two additional through lanes at the westbound approach of Calgrove Boulevard. The resultant lane configurations at the eastbound approach will be one-left-turn lane and two through lanes. The resultant lane configurations at the westbound approach will be two through lanes and one right-turn only lane. In addition, convert the northbound combination left-turn/through lane into a combination left-turn/through/right-turn lane and install a traffic signal. The resultant lane configurations at the northbound approach will be a combination left-turn/through/right-turn lane and one right-turn only lane. As shown in *Table 3*, these improvements are anticipated to reduce the forecast project-related impact to less than significant levels. These improvements are expected to improve operations to 0.599 (LOS A) from 1.057 (LOS F) during the AM peak hour and to 0.752 (LOS C) from 1.258 (LOS F) during the PM peak hour.

- Int. No. 8: Wiley Canyon Road/Lyons Avenue
  Provide an additional left-turn lane at the northbound and southbound approaches of Wiley Canyon Road and the westbound approach of Lyons Avenue. The resultant lane configurations at the northbound and southbound approaches will be two left-turn lanes, two through lanes and one right-turn only lane. The resultant lane configurations at the westbound approach will be two left-turn lanes, two through lanes and one combination through/right-turn lane. In addition, convert the eastbound right-turn only lane into a shared through/right-turn lane. The resultant lane configurations at the eastbound approach will be two left-turn lanes, two through lanes and one combination through/right-turn lane. As shown in *Table 3*, these improvements are anticipated to reduce the forecast project-related impact to less than significant levels. These improvements are expected to improve operations to 0.657 (LOS B) from 0.825 (LOS D) during the AM peak hour and to 0.920 (LOS E) from 1.275 (LOS F) during the PM peak hour.

- Int. No.10:Orchard Village Road-Valley Street/Lyons Avenue
  Convert the eastbound right-turn only lane into a shared through/right-turn lane at the eastbound approach of Lyons Avenue. The resultant lane configurations at the eastbound approach will be two left-turn lanes, two through lanes, and one combination through/right-turn lane. As shown in *Table 3*, this mitigation measure is anticipated to reduce the forecast project-related impact to less than significant levels. The improvement is expected to improve operations to 0.716 (LOS C) from 0.832 (LOS D) during the PM peak hour.

It should be noted that based on the *Via Princessa Bridge and Major Thoroughfare Construction Fee District Update Report,* the installation of a traffic signal is proposed at the Wiley Canyon Road /Calgrove Boulevard intersection under future conditions. Although the proposed project is not anticipated to create a significant impact at this location, it is anticipated that the project applicant will construct the traffic signal at the Wiley Canyon Road/Calgrove Boulevard intersection to improve the overall safety and/or operation of the intersection if the traffic signal has not been installed at the time of completion of the proposed project.

Wiley Canyon Road General Plan Capacity Review

A review was also conducted of the potential project-related effects to the General Plan capacity of Wiley Canyon Road, which borders the project site to the east. Wiley Canyon Road is currently a 2-lane roadway adjacent to the project site and is anticipated to be improved to a 4-lane arterial roadway with the development of the proposed project. Per input provided by the City's traffic engineering staff, LOS D operations for a four-lane roadway would be provided based on a capacity of approximately 30,000 vehicles per day.

Based on the Lyons Canyon traffic study, Wiley Canyon Road is projected to carry approximately 10,000 vehicles per day in the Interim Year 2015 With Project conditions. As shown in *Table 1*, the proposed project is anticipated to generate a net increase of 24,676 daily trip ends during a typical weekday. Approximately 65 percent (65%) of the project daily traffic is projected to utilize on Wiley Canyon Road, which results in approximately 16,040 additional daily trips. Thus, with the addition of the proposed project, Wiley Canyon Road is projected to carry approximately 26,040 vehicles per day, which is below the LOS D threshold for the roadway.

Findings and Conclusions

- The proposed Smiser Ranch project consists of the development of a mixed-use project with 550 residential condominium units, 250 senior housing units, 770,085 square feet of office space, 581,417 square feet of retail space, and a hotel with 300 rooms.

LINSCOTT LAW & GREENSPAN engineers

- The proposed project is expected to generate a net increase of 1,562 vehicle trips (1,096 inbound trips and 466 outbound trips) during the AM peak hour. During the PM peak hour, the proposed project is expected to generate a net increase of 2,535 vehicle trips (1,000 inbound trips and 1,535 outbound trips). Over a 24-hour period, the proposed project is forecast to generate a net increase of 24,676 daily trip ends during a typical weekday (12,338 inbound trips and 12,338 outbound trips).

- Application of the City's threshold criteria to the "With Proposed Project" scenario indicates that the proposed project is expected to create significant impacts at nine out of the ten study intersections. Roadway improvement measures are recommended to reduce the forecast project-related impacts to less than significant levels at the affected study intersections. In addition, the project applicant will be required to contribute funds to the Via Princessa Bridge and Major Thoroughfare Construction Fee District (B & T District).

Please call if you have any questions regarding this traffic assessment.

Attachments

cc:

Table 1
PROJECT TRIP GENERATION FORECAST

LAND USE	SIZE	DAILY TRIP ENDS VOLUMES	AM PEAK HOUR VOLUMES			PM PEAK HOUR VOLUMES		
			IN	OUT	TOTAL	IN	OUT	TOTAL
Proposed								
Office [2]	770,085 GSF	6,424	845	115	960	160	781	941
Internal Capture [3]		(770)	(76)	(10)	(86)	(14)	(70)	(84)
Condominium [4]	550 DU	3,224	41	201	242	192	94	286
Internal Capture [3]		(386)	(4)	(18)	(22)	(17)	(8)	(25)
Shopping Center [5]	581,417 GLSF	21,324	275	175	450	960	1,041	2,001
Internal Capture [3]		(2,558)	(25)	(16)	(41)	(86)	(94)	(180)
Pass-By Reduction [6]		(4,316)	(58)	(37)	(95)	(201)	(218)	(419)
Hotel [7]	300 Occ. Rooms	2,676	117	84	201	103	107	210
Senior Housing [8]	250 Occ. DU	870	9	11	20	17	11	28
Subtotal Proposed		26,488	1,124	505	1,629	1,114	1,644	2,758
Existing								
Health Club [9]	(55,000) GSF	(1,812)	(28)	(39)	(67)	(114)	(109)	(223)
NET NEW TRIPS		**24,676**	**1,096**	**466**	**1,562**	**1,000**	**1,535**	**2,535**

[1] Source: ITE "Trip Generation", 7th Edition, 2003.
[2] ITE Land Use Code 710 (General Office Building) trip generation equation rates.
[3] Internal capture trip reduction adjustment factors were derived based on data provided in Chapter 7 of the ITE "Trip Generation Handbook", Second Edition, June 2004, ITE. The following daily and peak hour internal capture adjustment factors have been employed in the project trip generation forecasts for the office, condominium and shopping center components. Daily: 12%
Peak Hours: 9%
[4] ITE Land Use Code 230 (Condominiums-Townhomes) trip generation average rates.
[5] ITE Land Use Code 820 (Shopping Center) trip generation equation rates.
[6] Pass-By trip reduction adjustment factors were derived based on data provided in Chapter 5 of the ITE "Trip Generation Handbook", Second Edition, June 2004, ITE. Based on the ITE guidelines, a pass-by adjustment factor of 23% was applied to the retail land use component trip generation forecasts after the internal capture adjustments were applied.
[7] ITE Land Use Code 310 (Hotel) trip generation average rates.
[8] ITE Land Use Code 252 (Senior Housing - Attached) trip generation average rates.
[9] ITE Land Use Code 492 (Health/Fitness Club) trip generation average rates.

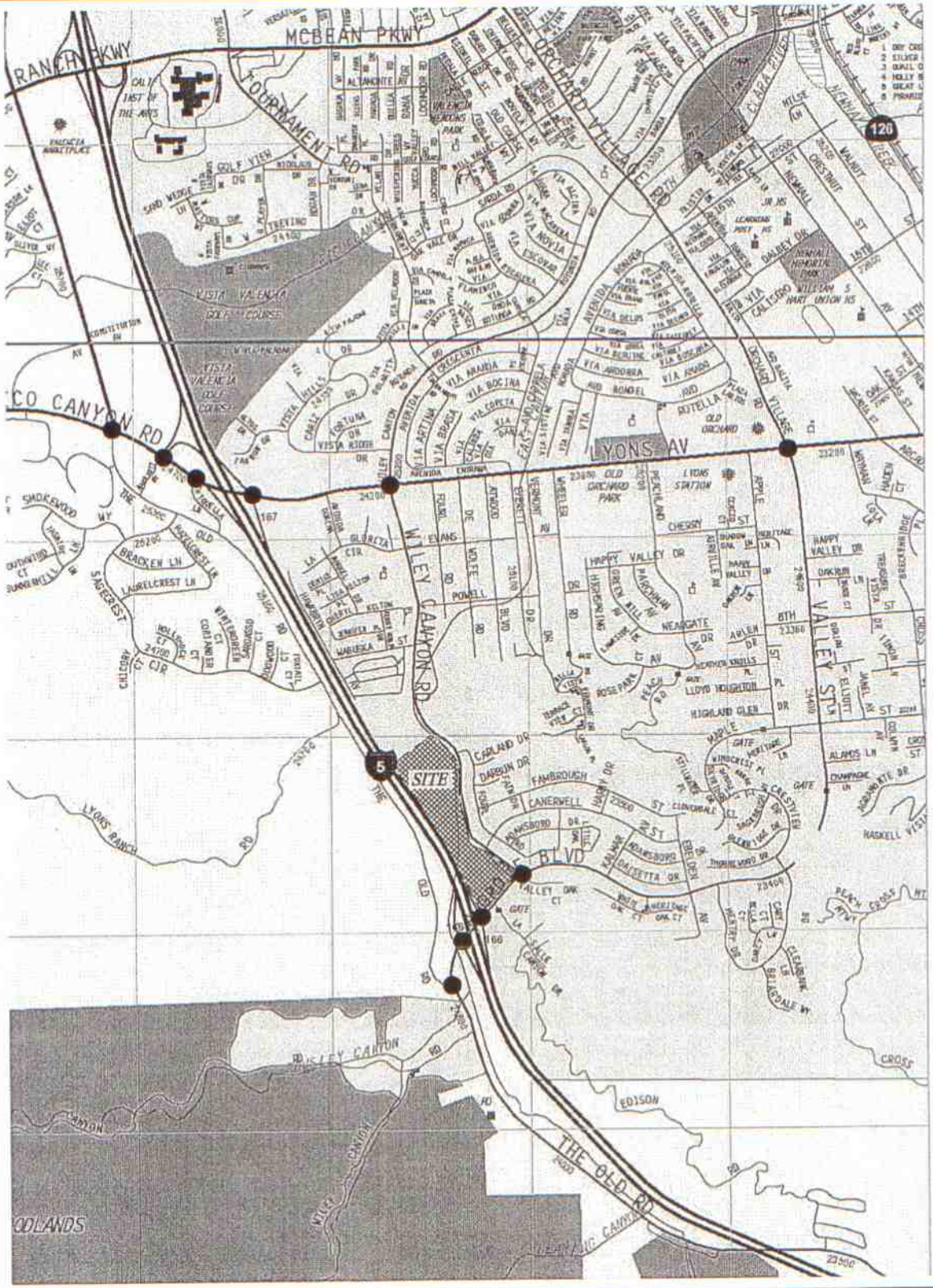
Table 3
SUMMARY OF VOLUME TO CAPACITY RATIOS
AND LEVELS OF SERVICE
AM AND PM PEAK HOURS

NO.	INTERSECTION	PEAK HOUR	[1] YEAR 2007 EXISTING V/C	LOS	[2] YEAR 2015 WITHOUT PROJECT [a] V/C	LOS	[3] YEAR 2015 W/ PROPOSED PROJECT V/C	LOS	CHANGE V/C [(4)-(3)]	SIGNIF. IMPACT [b]	[4] YEAR 2015 W/ PROJECT MITIGATION V/C	LOS	CHANGE V/C [(5)-(3)]	MITIGATED
1	The Old Road/ Pico Canyon Road	AM	0.549	A	0.643	B	0.706	C	0.063	NO	0.706	C	0.063	—
		PM	0.823	D	0.985	E	1.159	F	0.174	YES	0.897	D	-0.088	YES
2	I-5 Freeway SB Ramps-Marriott Way/ Pico Canyon Road	AM	0.572	A	0.709	C	0.781	C	0.072	NO	0.629	B	-0.080	—
		PM	0.658	B	0.885	D	0.965	E	0.080	YES	0.790	C	-0.095	YES
3	Chiquella Lane/ Lyons Avenue	AM	0.573	A	0.774	C	0.774	C	0.000	NO	0.774	C	0.000	—
		PM	0.548	A	0.859	D	0.939	E	0.080	YES	0.723	C	-0.136	YES
4	I-5 Freeway Northbound Ramps/ Lyons Avenue	AM	0.536	A	0.686	B	0.710	C	0.024	NO	0.710	C	0.024	—
		PM	0.701	C	0.890	D	0.970	E	0.080	YES	0.859	D	-0.031	YES
5	The Old Road/ Calgrove Boulevard	AM	0.451	A	0.548	A	0.603	B	0.055	NO	0.487	A	-0.061	—
		PM	0.591	A	0.792	C	0.881	D	0.089	YES	0.788	C	-0.004	YES
6	I-5 Freeway Southbound Ramps/ Calgrove Boulevard	AM	0.649	B	0.881	D	0.998	E	0.117	YES	0.622	B	-0.259	YES
		PM	0.714	C	0.818	D	1.169	F	0.351	YES	0.701	C	-0.117	YES
7	I-5 Freeway Northbound Ramps/ Calgrove Boulevard	AM	0.702	C	0.812	D	1.057	F	0.245	YES	0.599	A	-0.213	YES
		PM	0.624	B	0.717	C	1.258	F	0.541	YES	0.752	C	0.035	YES
8	Wiley Canyon Road/ Lyons Avenue	AM	0.574	A	0.634	B	0.825	D	0.191	YES	0.657	B	0.023	YES
		PM	0.824	D	0.986	E	1.275	F	0.289	YES	0.920	E	-0.066	YES
9	Wiley Canyon Road/ Calgrove Boulevard	AM	0.220	A	0.266	A	0.342	A	0.076	NO	0.342	A	0.076	—
		PM	0.542	A	0.563	A	0.630	B	0.067	NO	0.630	B	0.067	—
10	Orchard Village-Village Street/ Lyons Avenue	AM	0.489	A	0.545	A	0.589	A	0.044	NO	0.589	A	0.044	—
		PM	0.664	B	0.794	C	0.832	D	0.038	YES	0.716	C	-0.078	YES

[a] The Future Year 2015 Without Project traffic volumes reflect Interim Year 2015 with Project traffic volumes obtained from the Lyons Specific Plan Preliminary Draft EIR, Austin-Foust Associates, Inc., April 2005.

[b] According to City of Santa Clarita's "Traffic Impact Report Guidelines, " a transportation impact on an intersection shall be deemed significant in accordance with the following table:

Level of Service	Final V/C	Project-Related Increase in V/C
D	0.80 - 0.89	equal to or greater than 0.02
E/F	> 0.900	equal to or greater than 0.01



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MAP SOURCE: THOMAS BROS. GUIDE

● STUDY INTERSECTION

FIGURE 1
VICINITY MAP

LINSCOTT, LAW & GREENSPAN, engineers

SMISER RANCH PROJECT

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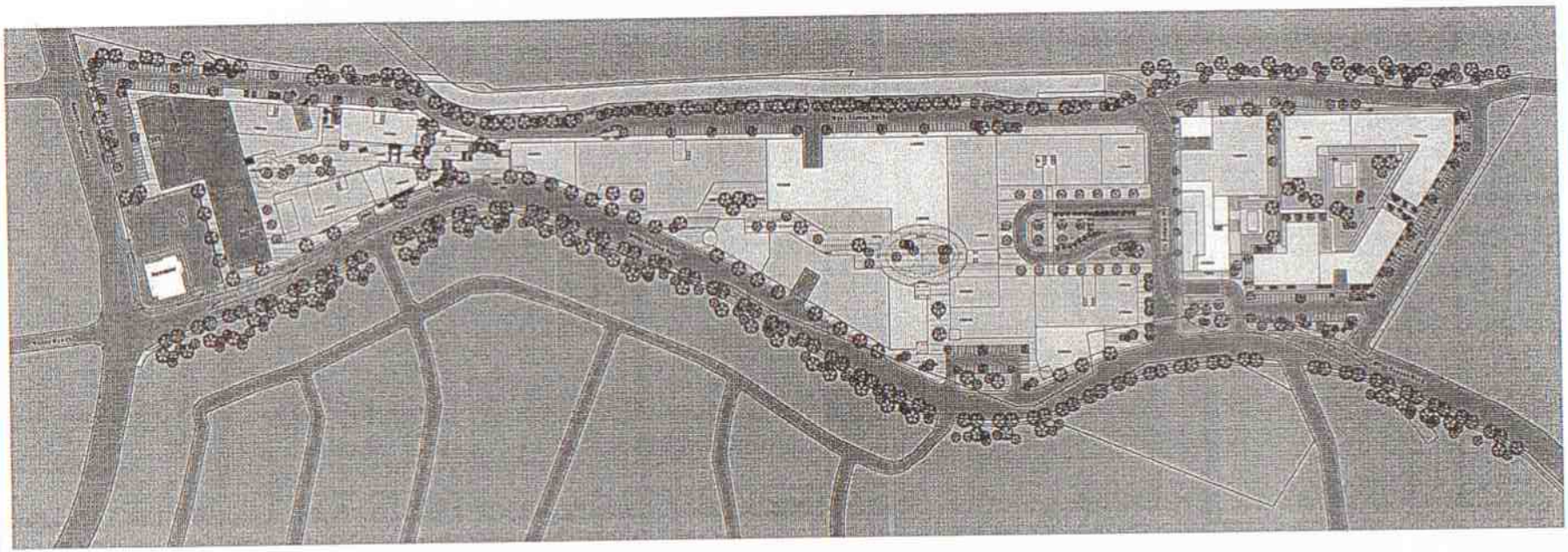

SOURCE: THE LANDAU PARTNERSHIP, INC. ARCHITECT

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FIGURE 2
PROJECT SITE PLAN

SMISER RANCH PROJECT

LINSCOTT, LAW & GREENSPAN, engineers

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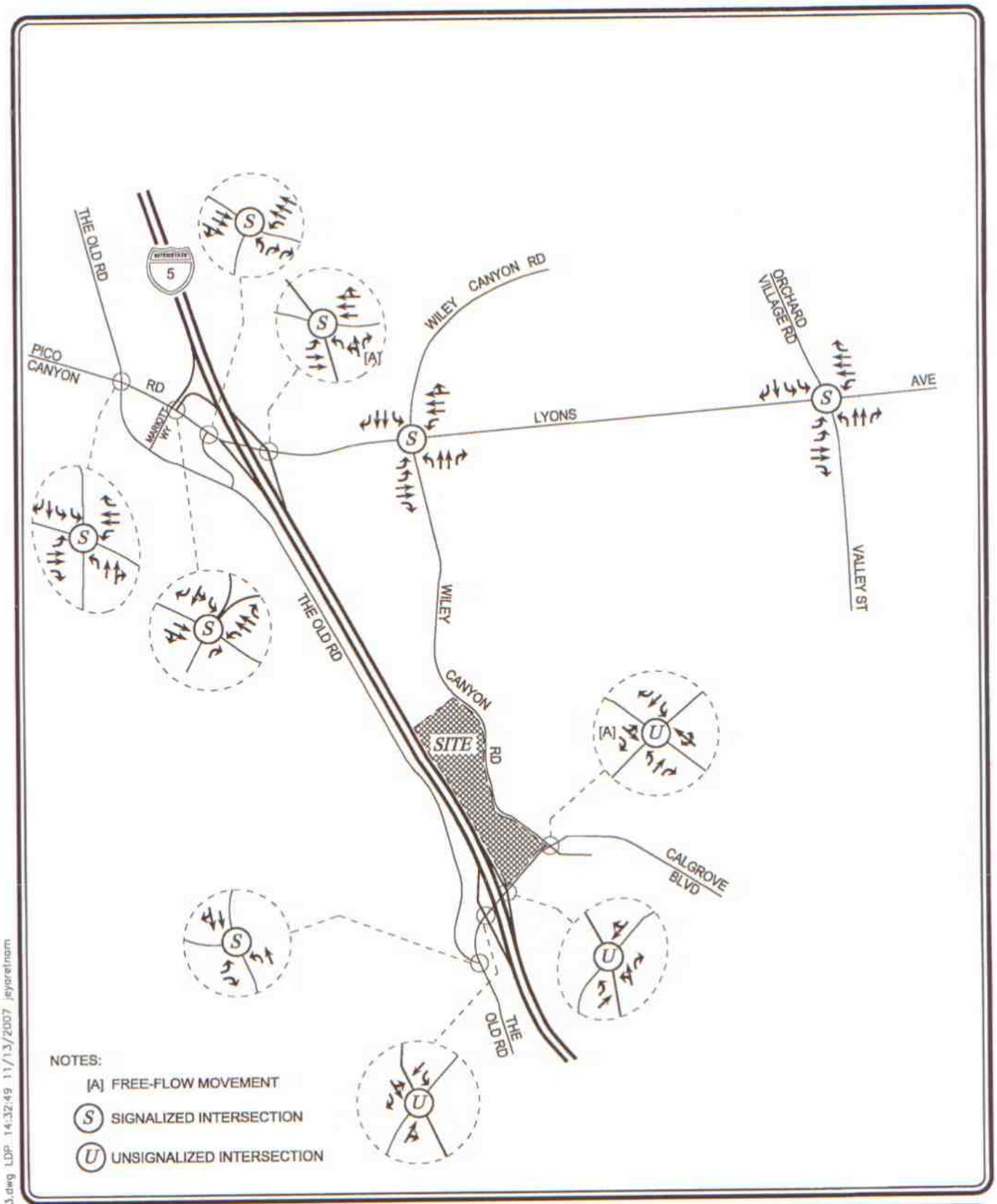

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FIGURE 3
EXISTING LANE CONFIGURATIONS

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SMISER RANCH PROJECT

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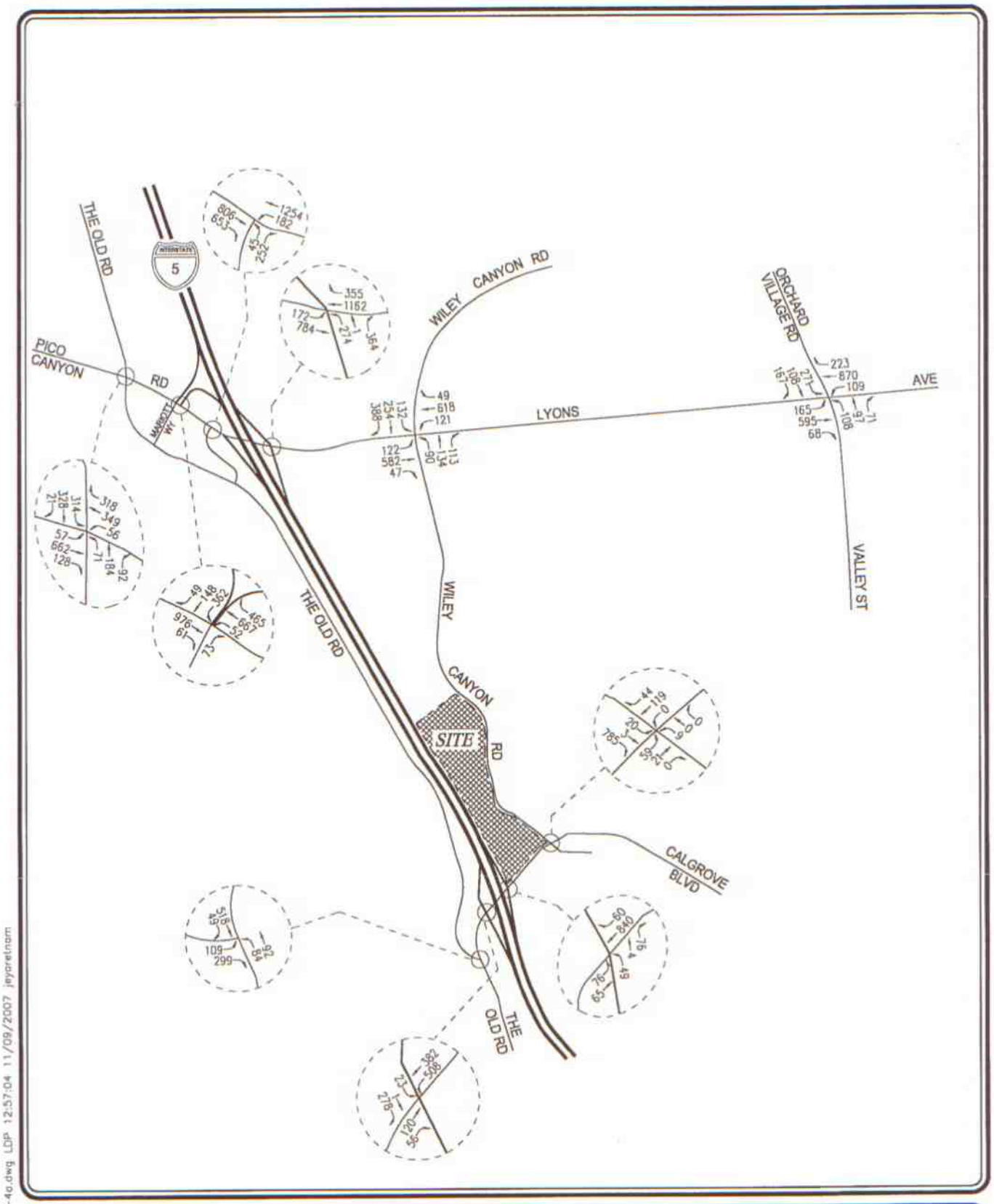

NOTE: EXISTING TRAFFIC VOLUMES REFLECT YEAR 2007 CONDITIONS

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FIGURE 4A
EXISTING TRAFFIC VOLUMES
AM PEAK HOUR

LINSCOTT, LAW & GREENSPAN, engineers

SMISER RANCH PROJECT

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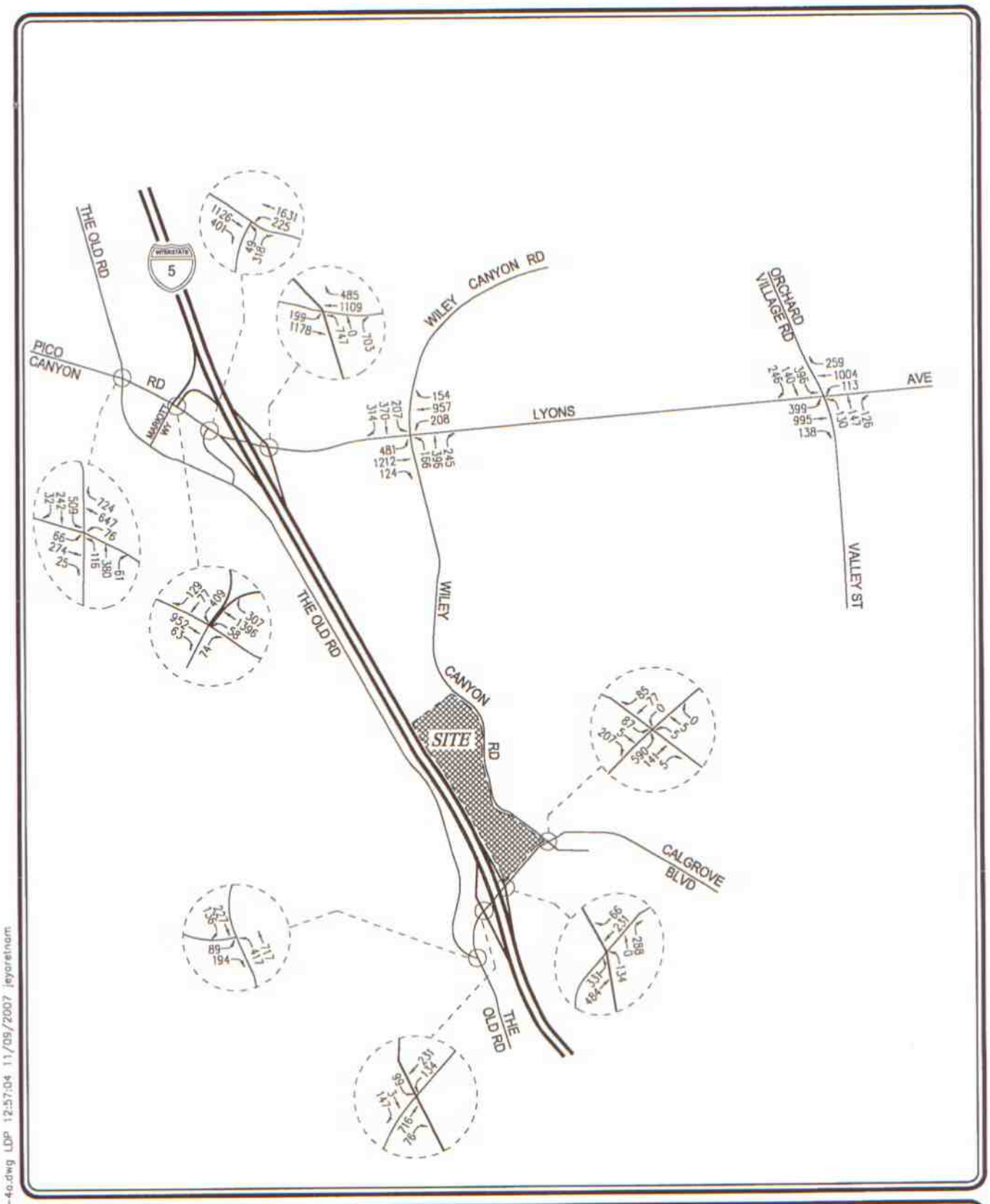

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NOTE: EXISTING TRAFFIC VOLUMES REFLECT YEAR 2007 CONDITIONS

FIGURE 4B
EXISTING TRAFFIC VOLUMES
PM PEAK HOUR

SMISER RANCH PROJECT

LINSCOTT, LAW & GREENSPAN, engineers

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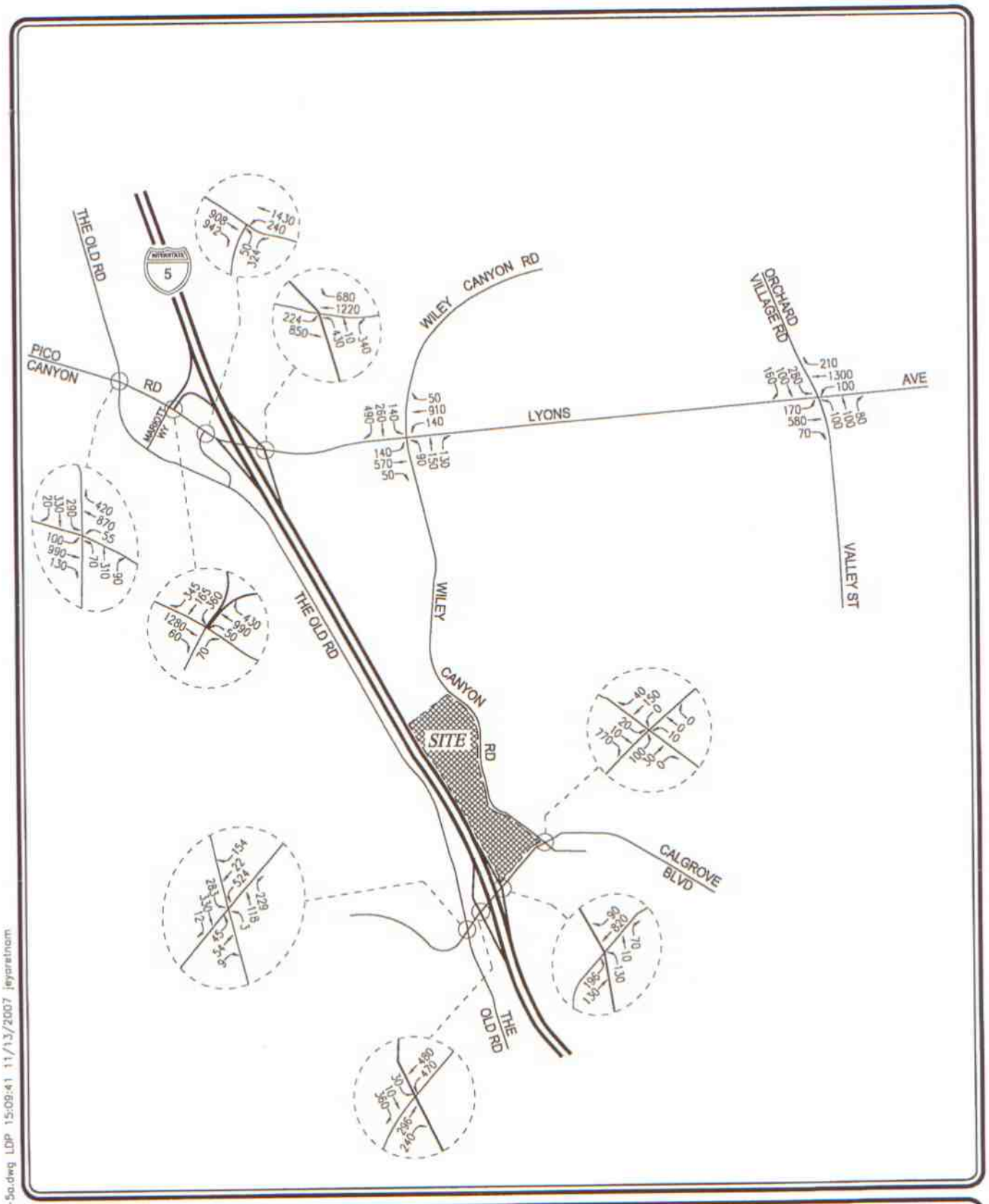

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FIGURE 5A
FUTURE WITHOUT PROJECT TRAFFIC VOLUMES
AM PEAK HOUR
SMISER RANCH PROJECT

LINSCOTT, LAW & GREENSPAN, engineers

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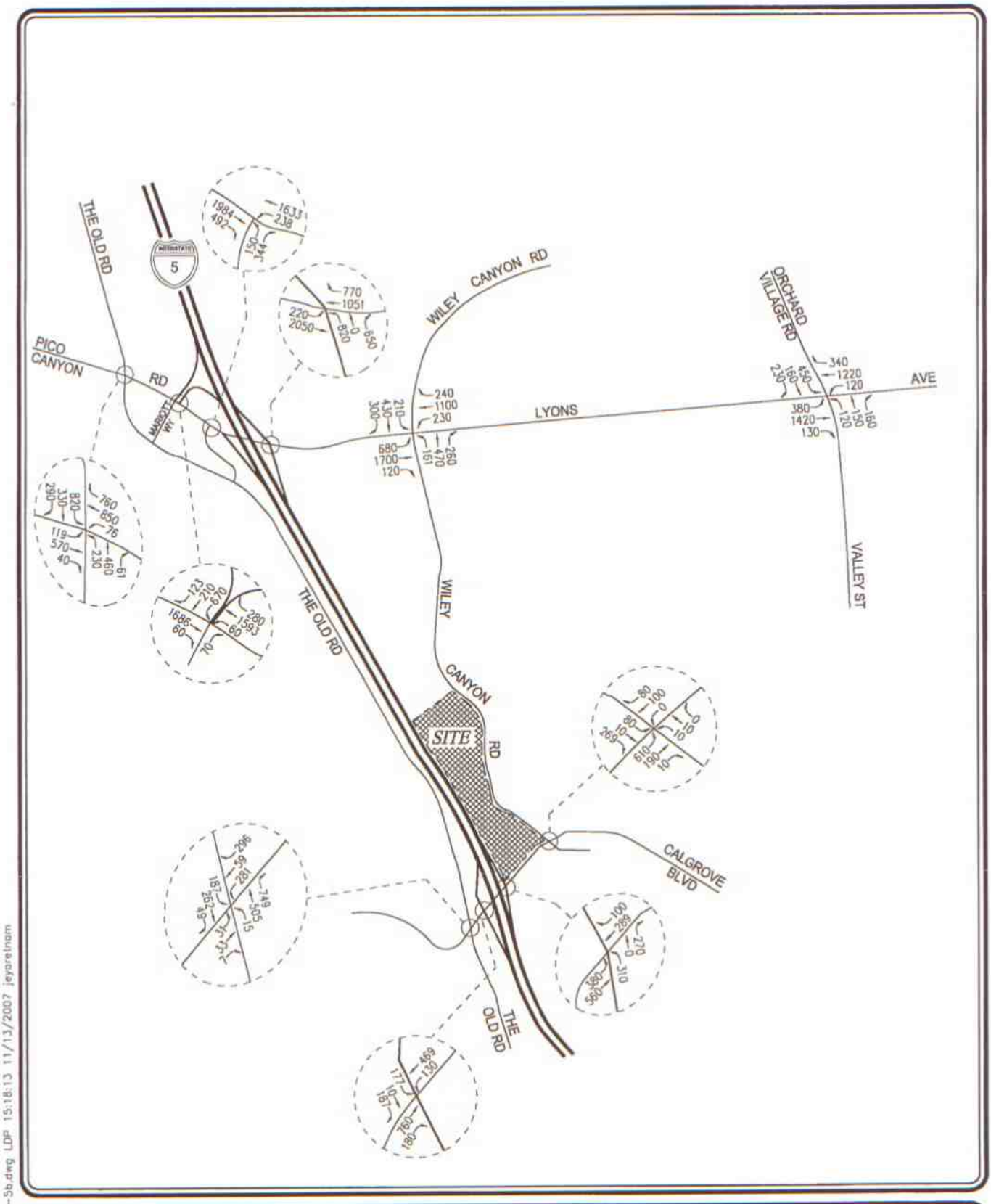

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FIGURE 5B
FUTURE WITHOUT PROJECT TRAFFIC VOLUMES
PM PEAK HOUR

LINSCOTT, LAW & GREENSPAN, engineers

SMISER RANCH PROJECT

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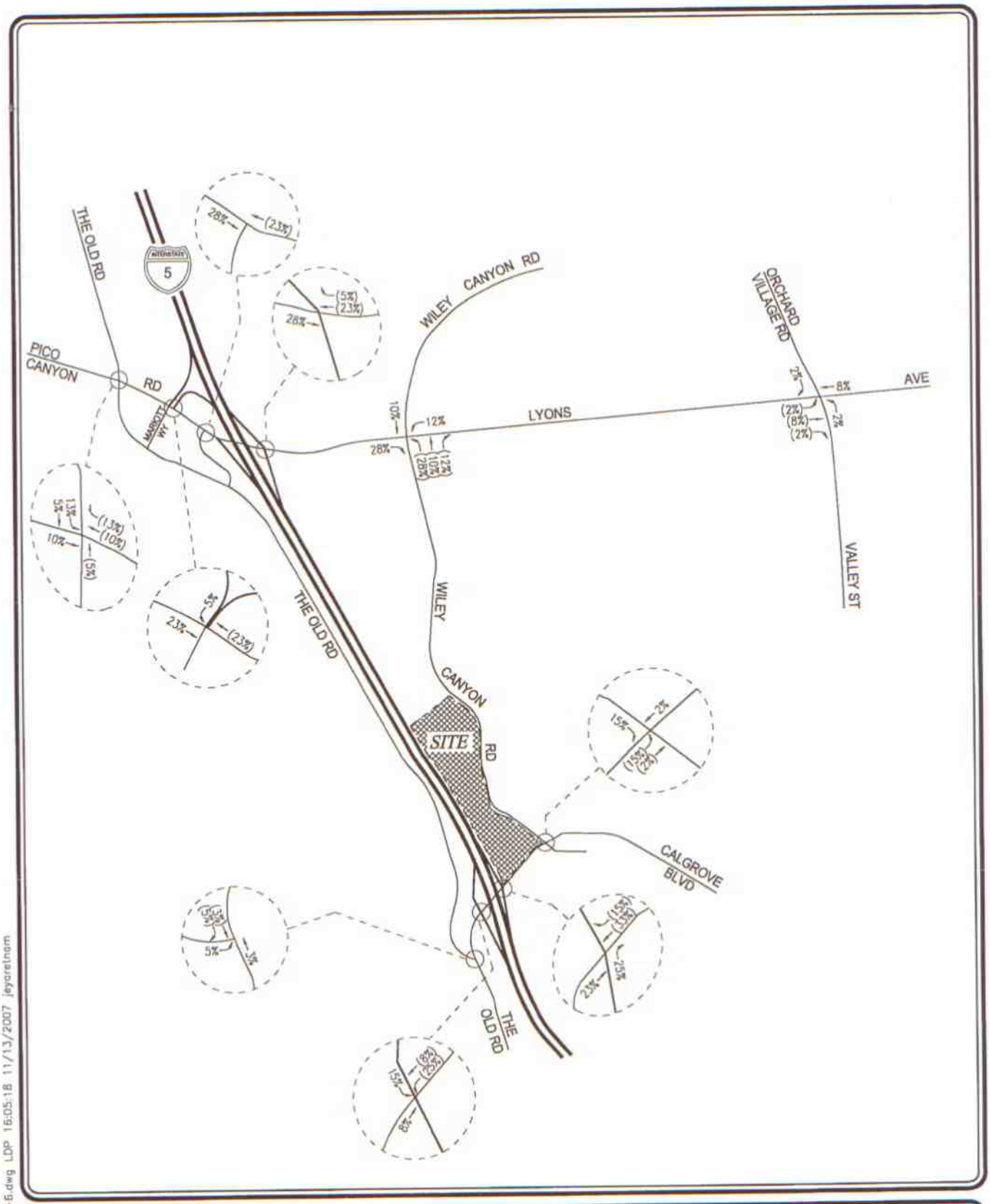

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XX = INBOUND PERCENTAGES
(XX) = OUTBOUND PERCENTAGES

FIGURE 6
PROJECT TRIP DISTRIBUTION

LINSCOTT, LAW & GREENSPAN, engineers

SMISER RANCH PROJECT

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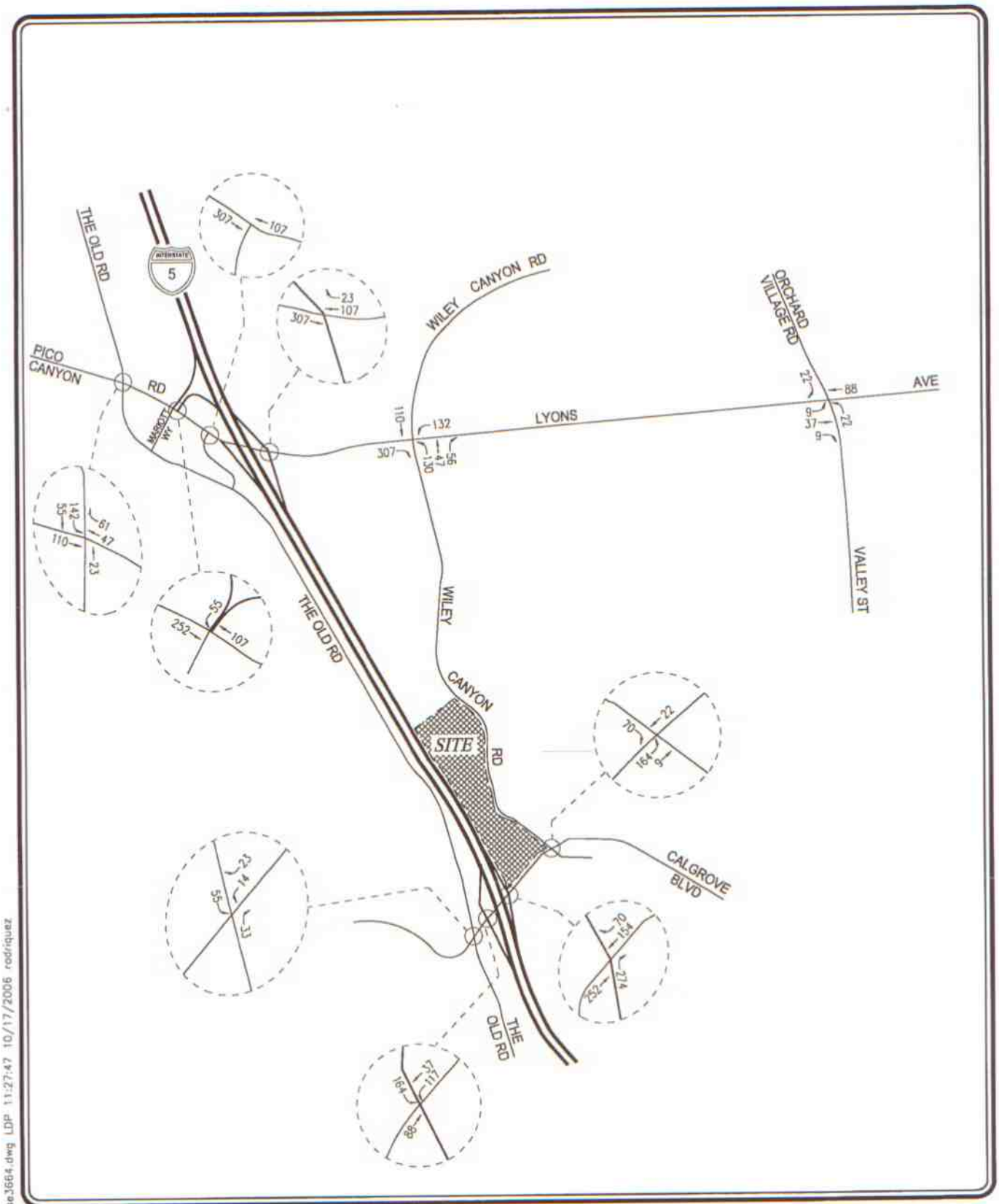

MAP SOURCE: THOMAS BROS. GUIDE

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FIGURE 7A
PROJECT TRAFFIC VOLUMES
AM PEAK HOUR

LINSCOTT, LAW & GREENSPAN, engineers

SMISER RANCH PROJECT

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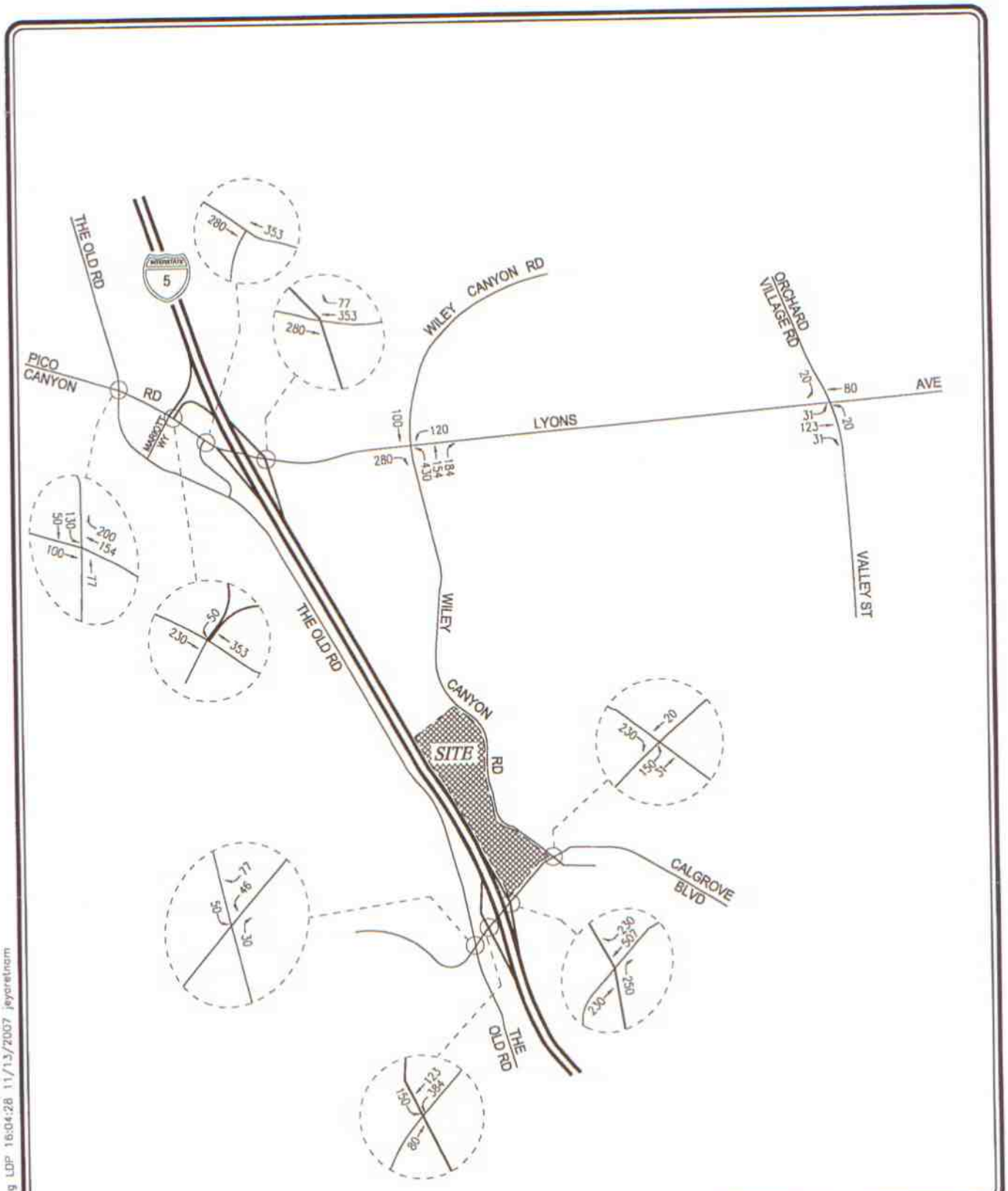

MAP SOURCE: THOMAS BROS. GUIDE

NOT TO SCALE

FIGURE 7B
PROJECT TRAFFIC VOLUMES
PM PEAK HOUR

SMISER RANCH PROJECT

LINSCOTT, LAW & GREENSPAN, engineers

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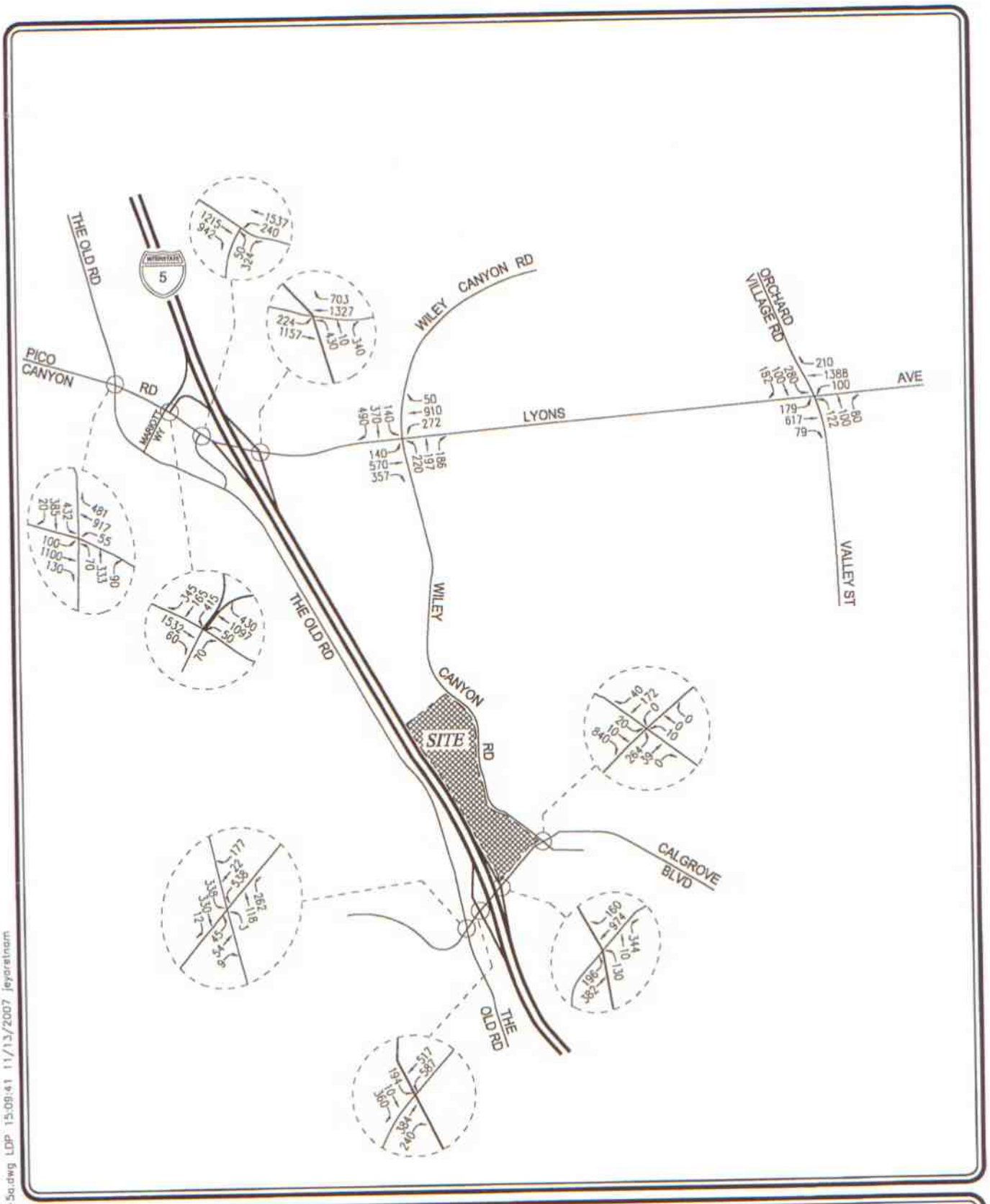

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FIGURE 8A
FUTURE WITH PROJECT TRAFFIC VOLUMES
AM PEAK HOUR

SMISER RANCH PROJECT

LINSCOTT, LAW & GREENSPAN, engineers

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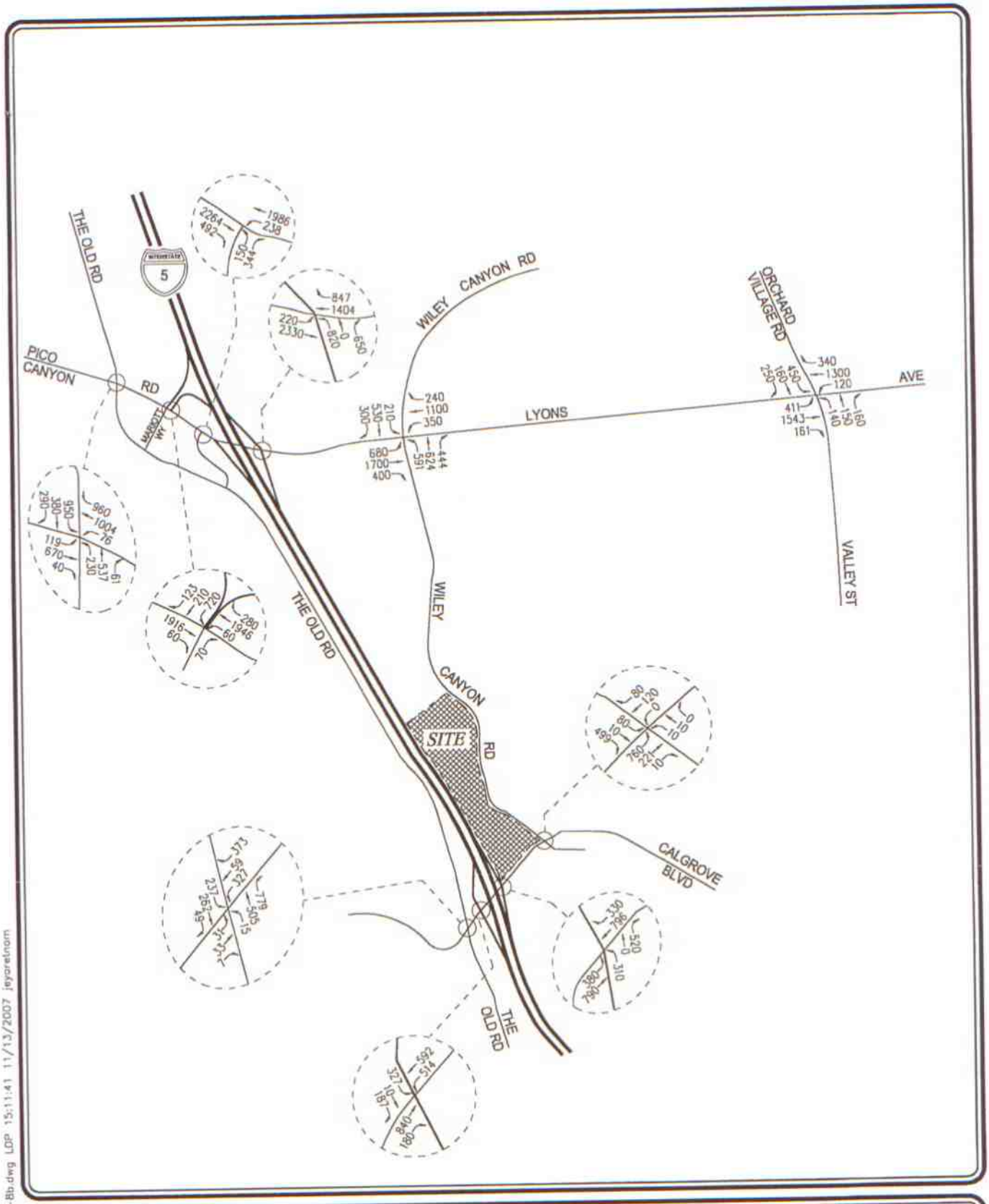

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FIGURE 8B
FUTURE WITH PROJECT TRAFFIC VOLUMES
PM PEAK HOUR

SMISER RANCH PROJECT

LINSCOTT, LAW & GREENSPAN, engineers

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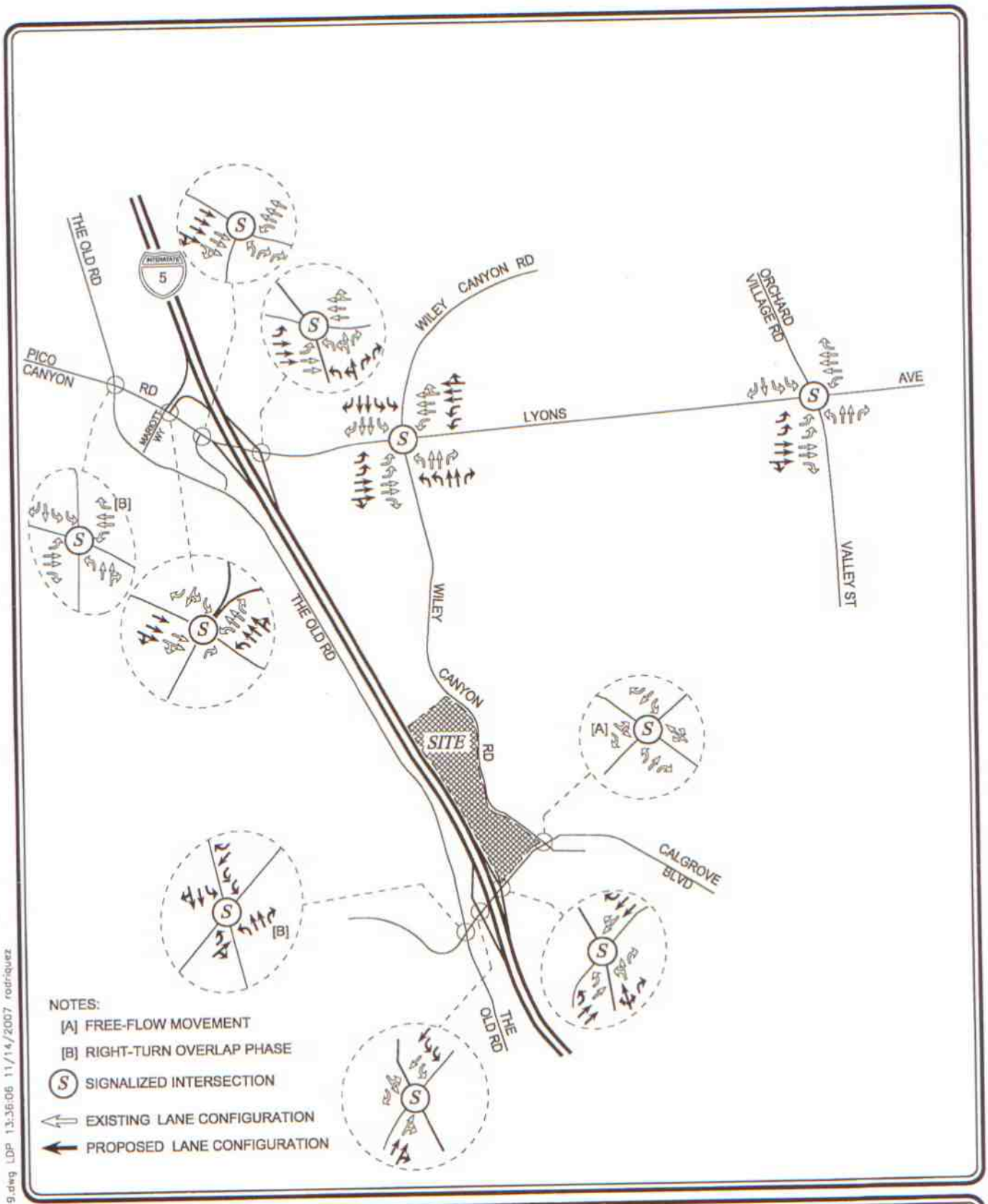

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NOT TO SCALE

FIGURE 9
PROPOSED LANE CONFIGURATIONS

LINSCOTT, LAW & GREENSPAN, engineers

SMISER RANCH PROJECT

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APPENDIX A

INTERSECTION LEVEL OF SERVICE CALCULATION WORKSHEETS AM & PM PEAK HOURS

LINSCOTT, LAW & GREENSPAN, ENGINEERS
234 E. Colorado Blvd., Ste 400, Pasadena 91101
(626) 796.2322 Fax (626) 792.0941

INTERSECTION CAPACITY UTILIZATION

The Old Road @ Pico Canyon Boulevard
Peak hr: AM
Annual Growth: 0.00%

N-S St: The Old Road
E-W St: Pico Canyon Boulevard
Project: Smiser Ranch Project/1-063664-1
File: ICU1

Date: 11/13/2007
Date of Count: 2007
Projection Year: 2015

	2007 EXIST. TRAFFIC			2015 W/AMBIENT GROWTH			2015 W/RELATED PROJECTS				2015 W/PROJECT SITE TRAFFIC				2015 W/PROJECT MITIGATION			
	1	2	V/C	Added	Total	V/C	Added	Total	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C
Movement	Volume	Capacity	Ratio	Volume	Volume	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio
Nb Left	71	1750	0.040 *	0	71	0.040 *	0	70	1750	0.040 *	0	70	1750	0.040 *	0	70	1750	0.040 *
Nb Thru	184	3500	0.079	0	184	0.079	0	310	3500	0.114	23	333	3500	0.121	0	333	3500	0.121
Nb Right	92	0	-	0	92	-	0	90	0	-	0	90	0	-	0	90	0	-
Sb Left	314	3500	0.090	0	314	0.090	0	290	3500	0.083	142	432	3500	0.123	0	432	3500	0.123
Sb Thru	328	1750	0.187 *	0	328	0.187 *	0	330	1750	0.189 *	55	385	1750	0.220 *	0	385	1750	0.220 *
Sb Right	21	1750	0.012	0	21	0.012	0	20	1750	0.011	0	20	1750	0.011	0	20	1750	0.011
Eb Left	57	1750	0.032	0	57	0.032	0	100	1750	0.057	0	100	1750	0.057	0	100	1750	0.057
Eb Thru	662	3500	0.189 *	0	662	0.189 *	0	990	3500	0.283 *	110	1100	3500	0.314 *	0	1100	3500	0.314 *
Eb Right	128	1750	0.073	0	128	0.073	0	130	1750	0.074	0	130	1750	0.074	0	130	1750	0.074
Wb Left	56	1750	0.032 *	0	56	0.032 *	0	55	1750	0.031 *	0	55	1750	0.031 *	0	55	1750	0.031 *
Wb Thru	349	3500	0.100	0	349	0.100	0	870	3500	0.249	47	917	3500	0.262	0	917	3500	0.262
Wb Right	318	1750	0.182	0	318	0.182	0	420	1750	0.240	61	481	1750	0.275	0	481	1750	0.151
Yellow Allowance:			0.100 *			0.100 *				0.100 *				0.100 *				0.100 *
ICU			0.549			0.549				0.643				0.706				0.706
LOS			A			A				B				C				C

11:59 AM

*Key conflicting movement as a part of ICU
1 Traffic count data obtained from Lyons Canyon Specific Plan Preliminary Draft EIR, RBF Consulting, April 2005 and was increased by 3% per year to reflect year 2007 conditions.
2 Capacity expressed in veh/hour of green
3 Mitigation consists of providing a westbound right-turn overlapping phase to be operated concurrently during the southbound left-turn phase.

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INTERSECTION CAPACITY UTILIZATION

The Old Road @ Pico Canyon Boulevard
Peak hr: PM
Annual Growth: 0.00%

N-S St: The Old Road
E-W St: Pico Canyon Boulevard
Project: Smiser Ranch Project/1-063664-1
File: ICU1

Date: 11/13/2007
Date of Count: 2007
Projection Year: 2015

	2007 EXIST. TRAFFIC			2015 W/AMBIENT GROWTH			2015 W/RELATED PROJECTS				2015 W/PROJECT SITE TRAFFIC				2015 W/PROJECT MITIGATION			
	1	2	V/C	Added	Total	V/C	Added	Total	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C
Movement	Volume	Capacity	Ratio	Volume	Volume	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio
Nb Left	116	1750	0.066	0	116	0.066	0	230	1750	0.131	0	230	1750	0.131	0	230	1750	0.131
Nb Thru	380	3500	0.126 *	0	380	0.126 *	0	460	3500	0.149 *	77	537	3500	0.171 *	0	537	3500	0.171 *
Nb Right	61	0	-	0	61	-	0	61	0	-	0	61	0	-	0	61	0	-
Sb Left	509	3500	0.145 *	0	509	0.145 *	0	820	3500	0.234 *	130	950	3500	0.271 *	0	950	3500	0.271 *
Sb Thru	242	1750	0.138	0	242	0.138	0	330	1750	0.189	50	380	1750	0.217	0	380	1750	0.217
Sb Right	32	1750	0.018	0	32	0.018	0	290	1750	0.166	0	290	1750	0.166	0	290	1750	0.166
Eb Left	66	1750	0.038 *	0	66	0.038 *	0	119	1750	0.068 *	0	119	1750	0.068 *	0	119	1750	0.068 *
Eb Thru	274	3500	0.078	0	274	0.078	0	570	3500	0.163	100	670	3500	0.191	0	670	3500	0.191
Eb Right	25	1750	0.014	0	25	0.014	0	40	1750	0.023	0	40	1750	0.023	0	40	1750	0.023
Wb Left	76	1750	0.044	0	76	0.044	0	76	1750	0.043	0	76	1750	0.043	0	76	1750	0.043
Wb Thru	647	3500	0.185	0	647	0.185	0	850	3500	0.243	154	1004	3500	0.287	0	1004	3500	0.287 *
Wb Right	724	1750	0.414 *	0	724	0.414 *	0	760	1750	0.434 *	200	960	1750	0.549 *	0	960	1750	0.277
Yellow Allowance:			0.100 *			0.100 *				0.100 *				0.100 *				0.100 *
ICU			0.823			0.823				0.985				1.159				0.897
LOS			D			D				E				F				D

11:59 AM

**Key conflicting movement as a part of ICU*

1 Traffic count data obtained from Lyons Canyon Specific Plan Preliminary Draft EIR, RBF Consulting, April 2005 and was increased by 3% per year to reflect year 2007 conditions.

2 Capacity expressed in veh/hour of green

3 Mitigation consists of providing a westbound right-turn overlapping phase to be operated concurrently during the southbound left-turn phase.

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INTERSECTION CAPACITY UTILIZATION

I-5 Freeway Southbound Ramps-Marriott Way @ Pico Canyon Boulevard

N-S St: I-5 Freeway Southbound Ramps-Marriott Way
E-W St: Pico Canyon Boulevard
Project: Smiser Ranch Project/1-063664-1
File: ICU2

Peak hr: AM
Annual Growth: 0.00%

Date: 11/13/2007
Date of Count: 2007
Projection Year: 2015

	2007 EXIST. TRAFFIC			2015 W/AMBIENT GROWTH			2015 W/RELATED PROJECTS				2015 W/PROJECT SITE TRAFFIC				2015 W/PROJECT MITIGATION			
	1	2	V/C	Added	Total	V/C	Added	Total	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C
Movement	Volume	Capacity	Ratio	Volume	Volume	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio
Nb Left	0	0	0.000 *	0	0	0.000 *	0	0	0	0.000 *	0	0	0	0.000 *	0	0	0	0.000 *
Nb Thru	0	0	0.000	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Nb Right	73	1750	0.042	0	73	0.042	0	70	1750	0.040	0	70	1750	0.040	0	70	1750	0.040
Sb Left	362	0	0.103	0	362	0.103	0	360	0	0.103	55	415	0	0.119	0	415	0	0.119
Sb Thru	148	3500	0.146 *	0	148	0.146 *	0	165	3500	0.150	0	165	3500	0.166	0	165	3500	0.166
Sb Right	49	1750	0.028	0	49	0.028	0	345	1750	0.197 *	0	345	1750	0.197 *	0	345	1750	0.197 *
Eb Left	0	0	0.000	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Eb Thru	976	3500	0.296 *	0	976	0.296 *	0	1280	3500	0.383 *	252	1532	3500	0.455 *	0	1532	5250	0.303 *
Eb Right	61	0	-	0	61	-	0	60	0	-	0	60	0	-	0	60	0	-
Wb Left	52	1750	0.030 *	0	52	0.030 *	0	50	1750	0.029 *	0	50	1750	0.029 *	0	50	1750	0.029 *
Wb Thru	667	3500	0.191	0	667	0.191	0	990	3500	0.283	107	1097	3500	0.313	0	1097	5250	0.291
Wb Right	465	1750	0.266	0	465	0.266	0	430	1750	0.246	0	430	1750	0.246	0	430	0	-
Yellow Allowance:			0.100 *			0.100 *				0.100 *				0.100 *				0.100 *
ICU			0.572			0.572				0.709				0.781				0.629
LOS			A			A				C				C				B

12:00 PM

*Key conflicting movement as a part of ICU
1 Traffic count data obtained from Lyons Canyon Specific Plan Preliminary Draft EIR, RBF Consulting, April 2005 and was increased by 3% per year to reflect year 2007 conditions.
2 Capacity expressed in veh/hour of green

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INTERSECTION CAPACITY UTILIZATION

I-5 Freeway Southbound Ramps-Marriott Way @ Pico Canyon Boulevard

N-S St:	I-5 Freeway Southbound Ramps-Marriott Way
E-W St:	Pico Canyon Boulevard
Project:	Smiser Ranch Project/1-063664-1
File:	ICU2
Peak hr:	PM
Annual Growth:	0.00%
Date:	11/13/2007
Date of Count:	2007
Projection Year:	2015

	2007 EXIST. TRAFFIC			2015 W/AMBIENT GROWTH			2015 W/RELATED PROJECTS				2015 W/PROJECT SITE TRAFFIC				2015 W/PROJECT MITIGATION			
	1	2	V/C	Added	Total	V/C	Added	Total	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C
Movement	Volume	Capacity	Ratio	Volume	Volume	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio
Nb Left	0	0	0.000	0	0	0.000	0	0	0	0.000 *	0	0	0	0.000 *	0	0	0	0.000 *
Nb Thru	0	0	0.000	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Nb Right	74	1750	0.042 *	0	74	0.042 *	0	70	1750	0.040	0	70	1750	0.040	0	70	1750	0.040
Sb Left	409	0	0.117 *	0	409	0.117 *	0	670	0	0.191	50	720	0	0.206	0	720	0	0.206
Sb Thru	77	3500	0.139	0	77	0.139	0	210	3500	0.251 *	0	210	3500	0.266 *	0	210	3500	0.266 *
Sb Right	129	1750	0.073	0	129	0.073	0	123	1750	0.070	0	123	1750	0.070	0	123	1750	0.070
Eb Left	0	0	0.000 *	0	0	0.000 *	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000 *
Eb Thru	952	3500	0.290	0	952	0.290	0	1686	3500	0.499 *	230	1916	3500	0.565 *	0	1916	5250	0.376
Eb Right	63	0	-	0	63	-	0	60	0	-	0	60	0	-	0	60	0	-
Wb Left	58	1750	0.033	0	58	0.033	0	60	1750	0.034 *	0	60	1750	0.034 *	0	60	1750	0.034
Wb Thru	1396	3500	0.399 *	0	1396	0.399 *	0	1593	3500	0.455	353	1946	3500	0.556	0	1946	5250	0.424 *
Wb Right	307	1750	0.176	0	307	0.176	0	280	1750	0.160	0	280	1750	0.160	0	280	0	-
Yellow Allowance:			0.100 *			0.100 *				0.100 *				0.100 *				0.100 *
ICU			0.658			0.658				0.885				0.965				0.790
LOS			B			B				D				E				C

12:00 PM

*Key conflicting movement as a part of ICU

1 Traffic count data obtained from Lyons Canyon Specific Plan Preliminary Draft EIR, RBF Consulting, April 2005 and was increased by 3% per year to reflect year 2007 conditions.

2 Capacity expressed in veh/hour of green

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INTERSECTION CAPACITY UTILIZATION

N-S St: Chiquella Lane
E-W St: Lyons Avenue
Project: Smiser Ranch Project/1-063664-1
File: ICU3

Chiquella Lane @ Lyons Avenue
Peak hr: AM
Annual Growth: 0.00%

Date: 11/13/2007
Date of Count: 2007
Projection Year: 2015

	2007 EXIST. TRAFFIC			2015 W/AMBIENT GROWTH			2015 W/RELATED PROJECTS				2015 W/PROJECT SITE TRAFFIC				2015 W/PROJECT MITIGATION			
	1	2	V/C	Added	Total	V/C	Added	Total	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C
Movement	Volume	Capacity	Ratio	Volume	Volume	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio
Nb Left	45	1750	0.026	0	45	0.026	0	50	1750	0.029	0	50	1750	0.029	0	50	1750	0.029
Nb Thru	0	0	0.000	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Nb Right [3]	252	3500	0.000	0	252	0.000	0	324	3500	0.000	0	324	3500	0.000	0	324	3500	0.000
Sb Left	0	0	0.000	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Sb Thru	0	0	0.000	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Sb Right	0	0	-	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-
Eb Left	0	0	0.000	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Eb Thru	806	3500	0.230	0	806	0.230	0	908	3500	0.259	307	1215	3500	0.347	0	1215	5250	0.231
Eb Right [4]	653	1750	0.373 *	0	653	0.373 *	0	942	1750	0.538 *	0	942	1750	0.538 *	0	942	1750	0.538 *
Wb Left	182	1750	0.104 *	0	182	0.104 *	0	240	1750	0.137 *	0	240	1750	0.137 *	0	240	1750	0.137 *
Wb Thru	1254	5250	0.239	0	1254	0.239	0	1430	5250	0.272	107	1537	5250	0.293	0	1537	5250	0.293
Wb Right	0	0	-	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-
Yellow Allowance:			0.070 *			0.070 *				0.070 *				0.070 *				0.070 *
ICU			0.573			0.573				0.774				0.774				0.774
LOS			A			A				C				C				C

12:00 PM

**Key conflicting movement as a part of ICU*

1 Traffic count data obtained from Lyons Canyon Specific Plan Preliminary Draft EIR, RBF Consulting, April 2005 and was increased by 3% per year to reflect year 2007 conditions.

2 Capacity expressed in veh/hour of green

3 The northbound right-turn lane has an overlapping phase with the westbound left-turn phase.

4 The eastbound right-turn lane volume includes the eastbound vehicles bound for the I-5 Freeway southbound on-ramp.

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INTERSECTION CAPACITY UTILIZATION

N-S St: Chiquella Lane
E-W St: Lyons Avenue
Project: Smiser Ranch Project/1-063664-1
File: ICU3

Chiquella Lane @ Lyons Avenue
Peak hr: PM
Annual Growth: 0.00%

Date: 11/13/2007
Date of Count: 2007
Projection Year: 2015

	2007 EXIST. TRAFFIC			2015 W/AMBIENT GROWTH			2015 W/RELATED PROJECTS				2015 W/PROJECT SITE TRAFFIC				2015 W/PROJECT MITIGATION			
	1	2	V/C	Added	Total	V/C	Added	Total	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C
Movement	Volume	Capacity	Ratio	Volume	Volume	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio
Nb Left	49	1750	0.028	0	49	0.028	0	150	1750	0.086	0	150	1750	0.086	0	150	1750	0.086
Nb Thru	0	0	0.000	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Nb Right [3]	318	3500	0.000	0	318	0.000	0	344	3500	0.000	0	344	3500	0.000	0	344	3500	0.000
Sb Left	0	0	0.000	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Sb Thru	0	0	0.000	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Sb Right	0	0	-	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-
Eb Left	0	0	0.000	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Eb Thru	1126	3500	0.322 *	0	1126	0.322 *	0	1984	3500	0.567 *	280	2264	3500	0.647 *	0	2264	5250	0.431 *
Eb Right [4]	401	1750	0.229	0	401	0.229	0	492	1750	0.281	0	492	1750	0.281	0	492	1750	0.281
Wb Left	225	1750	0.128 *	0	225	0.128 *	0	238	1750	0.136 *	0	238	1750	0.136 *	0	238	1750	0.136 *
Wb Thru	1631	5250	0.311	0	1631	0.311	0	1633	5250	0.311	353	1986	5250	0.378	0	1986	5250	0.378
Wb Right	0	0	-	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-
Yellow Allowance:			0.070 *			0.070 *				0.070 *				0.070 *				0.070 *
ICU			0.548			0.548				0.859				0.939				0.723
LOS			A			A				D				E				C

12:00 PM

**Key conflicting movement as a part of ICU*
1 Traffic count data obtained from Lyons Canyon Specific Plan Preliminary Draft EIR, RBF Consulting, April 2005 and was increased by 3% per year to reflect year 2007 conditions.
2 Capacity expressed in veh/hour of green
3 The northbound right-turn lane has an overlapping phase with the westbound left-turn phase.

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INTERSECTION CAPACITY UTILIZATION

I-5 Freeway Northbound Ramps @ Lyons Avenue
Peak hr: AM
Annual Growth: 0.00%

N-S St: I-5 Freeway Northbound Ramps
E-W St: Lyons Avenue
Project: Smiser Ranch Project/1-063664-1
File: ICU4

Date: 11/13/2007
Date of Count: 2007
Projection Year: 2015

	2007 EXIST. TRAFFIC			2015 W/AMBIENT GROWTH			2015 W/RELATED PROJECTS				2015 W/PROJECT SITE TRAFFIC				2015 W/PROJECT MITIGATION			
	1	2	V/C	Added	Total	V/C	Added	Total	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C
Movement	Volume	Capacity	Ratio	Volume	Volume	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio
Nb Left	274	0	0.078	0	274	0.078	0	430	0	0.123	0	430	0	0.123	0	430	0	0.123
Nb Thru	1	3500	0.078 *	0	1	0.078 *	0	10	3500	0.126 *	0	10	3500	0.126 *	0	10	3500	0.126 *
Nb Right [3]	364	17500	0.021	0	364	0.021	0	340	17500	0.019	0	340	17500	0.019	0	340	3500	0.097
Sb Left	0	0	0.000 *	0	0	0.000 *	0	0	0	0.000 *	0	0	0	0.000 *	0	0	0	0.000 *
Sb Thru	0	0	0.000	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Sb Right	0	0	-	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-
Eb Left	172	1750	0.098 *	0	172	0.098 *	0	224	1750	0.128 *	0	224	1750	0.128 *	0	224	1750	0.128 *
Eb Thru	784	3500	0.224	0	784	0.224	0	850	3500	0.243	307	1157	3500	0.331	0	1157	5250	0.220
Eb Right	0	0	-	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-
Wb Left	0	0	0.000	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Wb Thru	1162	5250	0.289 *	0	1162	0.289 *	0	1220	5250	0.362 *	107	1327	5250	0.387 *	0	1327	5250	0.387 *
Wb Right	355	0	-	0	355	-	0	680	0	-	23	703	0	-	0	703	0	-
Yellow Allowance:			0.070 *			0.070 *				0.070 *				0.070 *				0.070 *
ICU			0.536			0.536				0.686				0.710				0.710
LOS			A			A				B				C				C

12:00 PM

*Key conflicting movement as a part of ICU
1 Traffic count data obtained from Lyons Canyon Specific Plan Preliminary Draft EIR, RBF Consulting, April 2005 and was increased by 3% per year to reflect year 2007 conditions.
2 Capacity expressed in veh/hour of green
3 The northbound right-turn lane is a free-flow movement.

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INTERSECTION CAPACITY UTILIZATION

I-5 Freeway Northbound Ramps @ Lyons Avenue
Peak hr: PM
Annual Growth: 0.00%

N-S St: I-5 Freeway Northbound Ramps
E-W St: Lyons Avenue
Project: Smiser Ranch Project/1-063664-1
File: ICU4

Date: 11/13/2007
Date of Count: 2007
Projection Year: 2015

	2007 EXIST. TRAFFIC			2015 W/AMBIENT GROWTH			2015 W/RELATED PROJECTS				2015 W/PROJECT SITE TRAFFIC				2015 W/PROJECT MITIGATION			
	1	2	V/C	Added	Total	V/C	Added	Total	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C
Movement	Volume	Capacity	Ratio	Volume	Volume	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio
Nb Left	747	0	0.213	0	747	0.213	0	820	0	0.234	0	820	0	0.234	0	820	0	0.234
Nb Thru	0	3500	0.213	0	0	0.213	0	0	3500	0.234	0	0	3500	0.234	0	0	3500	0.234
Nb Right [3]	703	17500	0.040	0	703	0.040	0	650	17500	0.037	0	650	17500	0.037	0	650	3500	0.186
Sb Left	0	0	0.000	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Sb Thru	0	0	0.000	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Sb Right	0	0	-	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-
Eb Left	199	1750	0.114 *	0	199	0.114 *	0	220	1750	0.126	0	220	1750	0.126	0	220	1750	0.126 *
Eb Thru	1178	3500	0.337	0	1178	0.337	0	2050	3500	0.586 *	280	2330	3500	0.666 *	0	2330	5250	0.444
Eb Right	0	0	-	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-
Wb Left	0	0	0.000	0	0	0.000	0	0	0	0.000 *	0	0	0	0.000 *	0	0	0	0.000
Wb Thru	1109	5250	0.304 *	0	1109	0.304 *	0	1051	5250	0.347	353	1404	5250	0.429	0	1404	5250	0.429 *
Wb Right	485	0	-	0	485	-	0	770	0	-	77	847	0	-	0	847	0	-
Yellow Allowance:			0.070 *			0.070 *				0.070 *				0.070 *				0.070 *
ICU			0.701			0.701				0.890				0.970				0.859
LOS			C			C				D				E				D

12:00 PM

**Key conflicting movement as a part of ICU*
1 Traffic count data obtained from Lyons Canyon Specific Plan Preliminary Draft EIR, RBF Consulting, April 2005 and was increased by 3% per year to reflect year 2007 conditions.
2 Capacity expressed in veh/hour of green
3 The northbound right-turn lane is a free-flow movement.

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INTERSECTION CAPACITY UTILIZATION

The Old Road @ Calgrove Boulevard
Peak hr: AM
Annual Growth: 0.00%

N-S St: The Old Road
E-W St: Calgrove Boulevard
Project: Smiser Ranch Project/1-063664-1
File: ICU5

Date: 11/13/2007
Date of Count: 2007
Projection Year: 2015

	2007 EXIST. TRAFFIC			2015 W/AMBIENT GROWTH			2015 W/RELATED PROJECTS				2015 W/PROJECT SITE TRAFFIC				2015 W/PROJECT MITIGATION			
	1	2	V/C	Added	Total	V/C	Added	Total	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C
Movement	Volume	Capacity	Ratio	Volume	Volume	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio
Nb Left	0	0	0.000 *	0	0	0.000 *	0	3	1750	0.002	0	3	1750	0.002	0	3	1750	0.002
Nb Thru	0	0	0.000	0	0	0.000	0	118	3500	0.034	0	118	3500	0.034	0	118	3500	0.034 *
Nb Right	0	0	-	0	0	-	0	229	1750	0.131 *	33	262	1750	0.150 *	0	262	1750	0.000
Sb Left	109	1750	0.062	0	109	0.062	0	283	1750	0.162 *	55	338	1750	0.193 *	0	338	1750	0.193 *
Sb Thru	0	0	0.000	0	0	0.000	0	330	3500	0.098	0	330	3500	0.098	0	330	3500	0.098
Sb Right	299	1750	0.171 *	0	299	0.171 *	0	12	0	-	0	12	0	-	0	12	0	-
Eb Left	84	1750	0.048 *	0	84	0.048 *	0	45	1750	0.026	0	45	1750	0.026	0	45	1750	0.026
Eb Thru	92	1750	0.052	0	92	0.052	0	54	1750	0.036 *	0	54	1750	0.036 *	0	54	1750	0.036 *
Eb Right	0	0	-	0	0	-	0	9	0	-	0	9	0	-	0	9	0	-
Wb Left	0	0	0.000	0	0	0.000	0	524	3500	0.150 *	14	538	3500	0.154 *	0	538	3500	0.154 *
Wb Thru	518	3500	0.162 *	0	518	0.162 *	0	22	1750	0.013	0	22	1750	0.013	0	22	1750	0.013
Wb Right	49	0	-	0	49	-	0	154	1750	0.088	23	177	1750	0.101	0	177	1750	0.101
Yellow Allowance:			0.070 *			0.070 *				0.070 *				0.070 *				0.070 *
ICU			0.451			0.451				0.548				0.603				0.487
LOS			A			A				A				B				A

04:05 PM

**Key conflicting movement as a part of ICU*
1 Traffic count data obtained from Lyons Canyon Specific Plan Preliminary Draft EIR, RBF Consulting, April 2005 and was increased by 3% per year to reflect year 2007 conditions.
2 Capacity expressed in veh/hour of green

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INTERSECTION CAPACITY UTILIZATION

The Old Road @ Calgrove Boulevard
Peak hr: PM
Annual Growth: 0.00%

N-S St: The Old Road
E-W St: Calgrove Boulevard
Project: Smiser Ranch Project/1-063664-1
File: ICU5

Date: 11/13/2007
Date of Count: 2007
Projection Year: 2015

	2007 EXIST. TRAFFIC			2015 W/AMBIENT GROWTH			2015 W/RELATED PROJECTS				2015 W/PROJECT SITE TRAFFIC				2015 W/PROJECT MITIGATION			
	1	2	V/C	Added	Total	V/C	Added	Total	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C
Movement	Volume	Capacity	Ratio	Volume	Volume	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio
Nb Left	0	0	0.000 *	0	0	0.000 *	0	15	1750	0.009	0	15	1750	0.009	0	15	1750	0.009
Nb Thru	0	0	0.000	0	0	0.000	0	505	3500	0.144	0	505	3500	0.144	0	505	3500	0.144
Nb Right	0	0	-	0	0	-	0	749	1750	0.428 *	30	779	1750	0.445 *	0	779	1750	0.352 *
Sb Left	89	1750	0.051	0	89	0.051	0	187	1750	0.107 *	50	237	1750	0.135 *	0	237	1750	0.135 *
Sb Thru	0	0	0.000	0	0	0.000	0	262	3500	0.075	0	262	3500	0.075	0	262	3500	0.075
Sb Right	194	1750	0.111 *	0	194	0.111 *	0	49	1750	0.028	0	49	1750	0.028	0	49	1750	0.028
Eb Left	417	1750	0.239	0	417	0.239	0	31	1750	0.018 *	0	31	1750	0.018 *	0	31	1750	0.018 *
Eb Thru	717	1750	0.410 *	0	717	0.410 *	0	33	1750	0.023	0	33	1750	0.023	0	33	1750	0.023
Eb Right	0	0	-	0	0	-	0	7	0	-	0	7	0	-	0	7	0	-
Wb Left	0	0	0.000 *	0	0	0.000 *	0	281	3500	0.080	46	327	3500	0.093	0	327	3500	0.093
Wb Thru	227	3500	0.104	0	227	0.104	0	59	1750	0.034	0	59	1750	0.034	0	59	1750	0.034
Wb Right	136	0	-	0	136	-	0	296	1750	0.169 *	77	373	1750	0.213 *	0	373	1750	0.213 *
Yellow Allowance:			0.070 *			0.070 *				0.070 *				0.070 *				0.070 *
ICU			0.591			0.591				0.792				0.881				0.788
LOS			A			A				C				D				C

04:05 PM

** Key conflicting movement as a part of ICU*
1 Traffic count data obtained from Lyons Canyon Specific Plan Preliminary Draft EIR, RBF Consulting, April 2005 and was increased by 3% per year to reflect year 2007 conditions.
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INTERSECTION CAPACITY UTILIZATION

I-5 Freeway Southbound Ramps @ Calgrove Boulevard
Peak hr: AM
Annual Growth: 0.00%

Date: 11/13/2007
Date of Count: 2007
Projection Year: 2015

N-S St: I-5 Freeway Southbound Ramps
E-W St: Calgrove Boulevard
Project: Smiser Ranch Project/1-063664-1
File: ICU6

	2007 EXIST. TRAFFIC			2015 W/AMBIENT GROWTH			2015 W/RELATED PROJECTS				2015 W/PROJECT SITE TRAFFIC				2015 W/PROJECT MITIGATION			
	1	2	V/C	Added	Total	V/C	Added	Total	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C
Movement	Volume	Capacity	Ratio	Volume	Volume	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio
Nb Left	0	0	0.000 *	0	0	0.000 *	0	0	0	0.000 *	0	0	0	0.000 *	0	0	0	0.000 *
Nb Thru	0	0	0.000	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Nb Right	0	0	-	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-
Sb Left	23	0	0.013	0	23	0.013	0	30	0	0.017	164	194	0	0.111	0	194	0	0.111
Sb Thru	1	1750	0.014	0	1	0.014	0	10	1750	0.023	0	10	1750	0.117	0	10	1750	0.117
Sb Right	278	1750	0.159 *	0	278	0.159 *	0	360	1750	0.206 *	0	360	1750	0.206 *	0	360	1750	0.206 *
Eb Left	0	0	0.000	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Eb Thru	120	1750	0.100 *	0	120	0.100 *	0	296	1750	0.306 *	88	384	1750	0.357 *	0	384	3500	0.178 *
Eb Right	56	0	-	0	56	-	0	240	0	-	0	240	0	-	0	240	0	-
Wb Left	508	1750	0.290 *	0	508	0.290 *	0	470	1750	0.269 *	117	587	1750	0.335 *	0	587	3500	0.168 *
Wb Thru	382	1750	0.218	0	382	0.218	0	480	1750	0.274	37	517	1750	0.295	0	517	1750	0.295
Wb Right	0	0	-	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-
Yellow Allowance:			0.100 *			0.100 *				0.100 *				0.100 *				0.070 *
ICU			0.649			0.649				0.881				0.998				0.622
LOS			B			B				D				E				B

12:01 PM

**Key conflicting movement as a part of ICU*
1 Traffic count data obtained from Lyons Canyon Specific Plan Preliminary Draft EIR, RBF Consulting, April 2005 and was increased by 3% per year to reflect year 2007 conditions.
2 Capacity expressed in veh/hour of green

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INTERSECTION CAPACITY UTILIZATION

I-5 Freeway Southbound Ramps @ Calgrove Boulevard
Peak hr: PM
Annual Growth: 0.00%

Date: 11/13/2007
Date of Count: 2007
Projection Year: 2015

N-S St: I-5 Freeway Southbound Ramps
E-W St: Calgrove Boulevard
Project: Smiser Ranch Project/1-063664-1
File: ICU6

	2007 EXIST. TRAFFIC			2015 W/AMBIENT GROWTH			2015 W/RELATED PROJECTS				2015 W/PROJECT SITE TRAFFIC				2015 W/PROJECT MITIGATION			
	1	2	V/C	Added	Total	V/C	Added	Total	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C
Movement	Volume	Capacity	Ratio	Volume	Volume	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio
Nb Left	0	0	0.000 *	0	0	0.000 *	0	0	0	0.000	0	0	0	0.000 *	0	0	0	0.000 *
Nb Thru	0	0	0.000	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Nb Right	0	0	-	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-
Sb Left	99	0	0.057	0	99	0.057	0	177	0	0.101	150	327	0	0.187	0	327	0	0.187
Sb Thru	3	1750	0.059	0	3	0.059	0	10	1750	0.107	0	10	1750	0.193 *	0	10	1750	0.193 *
Sb Right	147	1750	0.084 *	0	147	0.084 *	0	187	1750	0.107	0	187	1750	0.107	0	187	1750	0.107
Eb Left	0	0	0.000	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Eb Thru	716	1750	0.453 *	0	716	0.453 *	0	760	1750	0.537 *	80	840	1750	0.583 *	0	840	3500	0.291 *
Eb Right	76	0	-	0	76	-	0	180	0	-	0	180	0	-	0	180	0	-
Wb Left	134	1750	0.077 *	0	134	0.077 *	0	130	1750	0.074 *	384	514	1750	0.294 *	0	514	3500	0.147 *
Wb Thru	231	1750	0.132	0	231	0.132	0	469	1750	0.268	123	592	1750	0.338	0	592	1750	0.338
Wb Right	0	0	-	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-
Yellow Allowance:			0.100 *			0.100 *				0.100 *				0.100 *				0.070 *
ICU			0.714			0.714				0.818				1.169				0.701
LOS			C			C				D				F				C

12:01 PM

*Key conflicting movement as a part of ICU
1 Traffic count data obtained from Lyons Canyon Specific Plan Preliminary Draft EIR, RBF Consulting, April 2005 and was increased by 3% per year to reflect year 2007 conditions.
2 Capacity expressed in veh/hour of green

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INTERSECTION CAPACITY UTILIZATION

I-5 Freeway Northbound Ramps @ Calgrove Boulevard
Peak hr: AM
Annual Growth: 0.00%

N-S St: I-5 Freeway Northbound Ramps
E-W St: Calgrove Boulevard
Project: Smiser Ranch Project/1-063664-1
File: ICU7

Date: 11/13/2007
Date of Count: 2007
Projection Year: 2015

	2007 EXIST. TRAFFIC			2015 W/AMBIENT GROWTH			2015 W/RELATED PROJECTS				2015 W/PROJECT SITE TRAFFIC				2015 W/PROJECT MITIGATION			
	1	2	V/C	Added	Total	V/C	Added	Total	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C
Movement	Volume	Capacity	Ratio	Volume	Volume	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio
Nb Left	49	0	0.028	0	49	0.028	0	130	0	0.074	0	130	0	0.074	0	130	0	0.037
Nb Thru	4	1750	0.031	0	4	0.031	0	10	1750	0.080 *	0	10	1750	0.080	0	10	3500	0.138 *
Nb Right	76	1750	0.044 *	0	76	0.044 *	0	70	1750	0.040	274	344	1750	0.197 *	0	344	0	-
Sb Left	0	0	0.000 *	0	0	0.000 *	0	0	0	0.000 *	0	0	0	0.000 *	0	0	0	0.000 *
Sb Thru	0	0	0.000	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Sb Right	0	0	-	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-
Eb Left	76	1750	0.044 *	0	76	0.044 *	0	196	1750	0.112 *	0	196	1750	0.112 *	0	196	1750	0.112 *
Eb Thru	65	1750	0.037	0	65	0.037	0	130	1750	0.074	252	382	1750	0.218	0	382	3500	0.109
Eb Right	0	0	-	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-
Wb Left	0	0	0.000	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Wb Thru	840	1750	0.514 *	0	840	0.514 *	0	820	1750	0.520 *	154	974	1750	0.648 *	0	974	3500	0.278 *
Wb Right	60	0	-	0	60	-	0	90	0	-	70	160	0	-	0	160	1750	0.091
Yellow Allowance:			0.100 *			0.100 *				0.100 *				0.100 *				0.070 *
ICU			0.702			0.702				0.812				1.057				0.599
LOS			C			C				D				F				A

12:01 PM

*Key conflicting movement as a part of ICU
1 Traffic count data obtained from Lyons Canyon Specific Plan Preliminary Draft EIR, RBF Consulting, April 2005 and was increased by 3% per year to reflect year 2007 conditions.
2 Capacity expressed in veh/hour of green

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INTERSECTION CAPACITY UTILIZATION

I-5 Freeway Northbound Ramps @ Calgrove Boulevard
Peak hr: PM
Annual Growth: 0.00%

N-S St: I-5 Freeway Northbound Ramps
E-W St: Calgrove Boulevard
Project: Smiser Ranch Project/1-063664-1
File: ICU7

Date: 11/13/2007
Date of Count: 2007
Projection Year: 2015

	2007 EXIST. TRAFFIC			2015 W/AMBIENT GROWTH			2015 W/RELATED PROJECTS				2015 W/PROJECT SITE TRAFFIC				2015 W/PROJECT MITIGATION			
	1	2	V/C	Added	Total	V/C	Added	Total	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C
Movement	Volume	Capacity	Ratio	Volume	Volume	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio
Nb Left	134	0	0.077	0	134	0.077	0	310	0	0.177	0	310	0	0.177	0	310	0	0.089
Nb Thru	0	1750	0.077	0	0	0.077	0	0	1750	0.177	0	0	1750	0.177	0	0	3500	0.237 *
Nb Right	288	1750	0.164 *	0	288	0.164 *	0	270	1750	0.154	250	520	1750	0.297 *	0	520	0	-
Sb Left	0	0	0.000 *	0	0	0.000 *	0	0	0	0.000	0	0	0	0.000 *	0	0	0	0.000 *
Sb Thru	0	0	0.000	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Sb Right	0	0	-	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-
Eb Left	331	1750	0.189 *	0	331	0.189 *	0	380	1750	0.217 *	0	380	1750	0.217 *	0	380	1750	0.217 *
Eb Thru	484	1750	0.277	0	484	0.277	0	560	1750	0.320	230	790	1750	0.451	0	790	3500	0.226
Eb Right	0	0	-	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-
Wb Left	0	0	0.000	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Wb Thru	231	1750	0.170 *	0	231	0.170 *	0	289	1750	0.222 *	507	796	1750	0.643 *	0	796	3500	0.227 *
Wb Right	66	0	-	0	66	-	0	100	0	-	230	330	0	-	0	330	1750	0.189
Yellow Allowance:			0.100 *			0.100 *				0.100 *				0.100 *				0.070 *
ICU			0.624			0.624				0.717				1.258				0.752
LOS			B			B				C				F				C

12:01 PM

*Key conflicting movement as a part of ICU
1 Traffic count data obtained from Lyons Canyon Specific Plan Preliminary Draft EIR, RBF Consulting, April 2005 and was increased by 3% per year to reflect year 2007 conditions.
2 Capacity expressed in veh/hour of green

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INTERSECTION CAPACITY UTILIZATION

Wiley Canyon Road @ Lyons Avenue
Peak hr: AM
Annual Growth: 0.00%

N-S St: Wiley Canyon Road
E-W St: Lyons Avenue
Project: Smiser Ranch Project/1-063664-1
File: ICU8

Date: 11/13/2007
Date of Count: 2007
Projection Year: 2015

	2007 EXIST. TRAFFIC			2015 W/AMBIENT GROWTH			2015 W/RELATED PROJECTS				2015 W/PROJECT SITE TRAFFIC				2015 W/PROJECT MITIGATION			
	1	2	V/C	Added	Total	V/C	Added	Total	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C
Movement	Volume	Capacity	Ratio	Volume	Volume	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio
Nb Left	90	1750	0.052 *	0	90	0.052	0	90	1750	0.051 *	130	220	1750	0.126 *	0	220	3500	0.063 *
Nb Thru	134	3500	0.038	0	134	0.038	0	150	3500	0.043	47	197	3500	0.056	0	197	3500	0.056
Nb Right	113	1750	0.065	0	113	0.065 *	0	130	1750	0.074	56	186	1750	0.106	0	186	1750	0.106
Sb Left	132	1750	0.075	0	132	0.075 *	0	140	1750	0.080	0	140	1750	0.080	0	140	3500	0.040
Sb Thru	254	3500	0.073	0	254	0.073	0	260	3500	0.074	110	370	3500	0.106	0	370	3500	0.106
Sb Right [3]	388	1750	0.187 *	0	388	0.000	0	490	1750	0.240 *	0	490	1750	0.240 *	0	490	1750	0.240 *
Eb Left	122	3500	0.035	0	122	0.035	0	140	3500	0.040	0	140	3500	0.040	0	140	3500	0.040
Eb Thru	582	3500	0.166 *	0	582	0.166 *	0	570	3500	0.163 *	0	570	3500	0.163	0	570	5250	0.177 *
Eb Right	47	1750	0.027	0	47	0.027	0	50	1750	0.029	307	357	1750	0.204 *	0	357	0	-
Wb Left	121	1750	0.069 *	0	121	0.069 *	0	140	1750	0.080 *	132	272	1750	0.155 *	0	272	3500	0.078 *
Wb Thru	618	5250	0.127	0	618	0.127	0	910	5250	0.183	0	910	5250	0.183	0	910	5250	0.183
Wb Right	49	0	-	0	49	-	0	50	0	-	0	50	0	-	0	50	0	-
Yellow Allowance:			0.100 *			0.100 *				0.100 *				0.100 *				0.100 *
ICU			0.574			0.476				0.634				0.825				0.657
LOS			A			A				B				D				B

12:01 PM

**Key conflicting movement as a part of ICU*
1 Traffic count data obtained from Lyons Canyon Specific Plan Preliminary Draft EIR, RBF Consulting, April 2005 and was increased by 3% per year to reflect year 2007 conditions.
2 Capacity expressed in veh/hour of green
3 The southbound right-turn lane has an overlapping phase with the eastbound left-turn phase.

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INTERSECTION CAPACITY UTILIZATION

N-S St: Wiley Canyon Road
E-W St: Lyons Avenue
Project: Smiser Ranch Project/1-063664-1
File: ICU8

Wiley Canyon Road @ Lyons Avenue
Peak hr: PM
Annual Growth: 0.00%

Date: 11/13/2007
Date of Count: 2007
Projection Year: 2015

	2007 EXIST. TRAFFIC			2015 W/AMBIENT GROWTH			2015 W/RELATED PROJECTS				2015 W/PROJECT SITE TRAFFIC				2015 W/PROJECT MITIGATION			
	1		2	V/C	Added	Total	V/C	Added	Total		2	V/C	Added	Total		2	V/C	Added	Total		2	V/C
Movement	Volume		Capacity	Ratio	Volume	Volume	Ratio	Volume	Volume		Capacity	Ratio	Volume	Volume		Capacity	Ratio	Volume	Volume		Capacity	Ratio
NB Left	166		1750	0.095	0	166	0.095	0	161		1750	0.092	430	591		1750	0.338 *	0	591		3500	0.169 *
NB Thru	396		3500	0.113	0	396	0.113	0	470		3500	0.134	154	624		3500	0.178	0	624		3500	0.178
NB Right	245		1750	0.140 *	0	245	0.140 *	0	260		1750	0.149 *	184	444		1750	0.254	0	444		1750	0.254
SB Left	207		1750	0.118 *	0	207	0.118 *	0	210		1750	0.120 *	0	210		1750	0.120	0	210		3500	0.060
SB Thru	370		3500	0.106	0	370	0.106	0	430		3500	0.123	100	530		3500	0.151 *	0	530		3500	0.151 *
SB Right [3]	314		1750	0.042	0	314	0.000	0	300		1750	0.000	0	300		1750	0.000	0	300		1750	0.000
EB Left	481		3500	0.137	0	481	0.137	0	680		3500	0.194	0	680		3500	0.194	0	680		3500	0.194
EB Thru	1212		3500	0.346 *	0	1212	0.346 *	0	1700		3500	0.486 *	0	1700		3500	0.486 *	0	1700		5250	0.400 *
EB Right	124		1750	0.071	0	124	0.071	0	120		1750	0.069	280	400		1750	0.229	0	400		0	-
WB Left	208		1750	0.119 *	0	208	0.119 *	0	230		1750	0.131 *	120	350		1750	0.200 *	0	350		3500	0.100 *
WB Thru	957		5250	0.212	0	957	0.212	0	1100		5250	0.255	0	1100		5250	0.255	0	1100		5250	0.255
WB Right	154		0	-	0	154	-	0	240		0	-	0	240		0	-	0	240		0	-
Yellow Allowance:				0.100 *			0.100 *					0.100 *					0.100 *					0.100 *
ICU				0.824			0.824					0.986					1.275					0.920
LOS				D			D					E					F					E

12:01 PM

*Key conflicting movement as a part of ICU
1 Traffic count data obtained from Lyons Canyon Specific Plan Preliminary Draft EIR, RBF Consulting, April 2005 and was increased by 3% per year to reflect year 2007 conditions.
2 Capacity expressed in veh/hour of green
3 The southbound right-turn lane has an overlapping phase with the eastbound left-turn phase.

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INTERSECTION CAPACITY UTILIZATION

N-S St: Wiley Canyon Road
E-W St: Calgrove Boulevard
Project: Smiser Ranch Project/1-063664-1
File: ICU9

Wiley Canyon Road @ Calgrove Boulevard
Peak hr: AM
Annual Growth: 0.00%

Date: 11/13/2007
Date of Count: 2007
Projection Year: 2015

	2007 EXIST. TRAFFIC			2015 W/AMBIENT GROWTH			2015 W/RELATED PROJECTS				2015 W/PROJECT SITE TRAFFIC				2015 W/PROJECT MITIGATION			
	1	2	V/C	Added	Total	V/C	Added	Total	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C
Movement	Volume	Capacity	Ratio	Volume	Volume	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio
Nb Left	9	0	0.005 *	0	9	0.005 *	0	10	0	0.006 *	0	10	0	0.006 *	0	10	0	0.006 *
Nb Thru	0	1750	0.005	0	0	0.005	0	0	1750	0.006	0	0	1750	0.006	0	0	1750	0.006
Nb Right	0	0	-	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-
Sb Left	20	0	0.011	0	20	0.011	0	20	0	0.011	0	20	0	0.011	0	20	0	0.011
Sb Thru	3	1750	0.013 *	0	3	0.013 *	0	10	1750	0.017 *	0	10	1750	0.017 *	0	10	1750	0.017 *
Sb Right [3]	785	175000	0.004	0	785	0.004	0	770	175000	0.004	70	840	175000	0.005	0	840	175000	0.005
Eb Left	59	1750	0.034 *	0	59	0.034 *	0	100	1750	0.057 *	164	264	1750	0.151 *	0	264	1750	0.151 *
Eb Thru	21	1750	0.012	0	21	0.012	0	30	1750	0.017	9	39	1750	0.022	0	39	1750	0.022
Eb Right	0	1750	0.000	0	0	0.000	0	0	1750	0.000	0	0	1750	0.000	0	0	1750	0.000
Wb Left	0	1750	0.000	0	0	0.000	0	0	1750	0.000	0	0	1750	0.000	0	0	1750	0.000
Wb Thru	119	1750	0.068 *	0	119	0.068 *	0	150	1750	0.086 *	22	172	1750	0.098 *	0	172	1750	0.098 *
Wb Right	44	1750	0.025	0	44	0.025	0	40	1750	0.023	0	40	1750	0.023	0	40	1750	0.023
Yellow Allowance:			0.100 *			0.100 *				0.100 *			[4]	0.070 *			[4]	0.070 *
ICU			0.220			0.220				0.266				0.342				0.342
LOS			A			A				A				A				A

05:13 PM

**Key conflicting movement as a part of ICU*
1 Traffic count data obtained from Lyons Canyon Specific Plan Preliminary Draft EIR, RBF Consulting, April 2005 and was increased by 3% per year to reflect year 2007 conditions.
2 Capacity expressed in veh/hour of green
3 The southbound right-turn lane is a free-flow movement.
4 Based on the Via Princessa Bridge and Major Thoroughfare Construction Fee District Update Report,March 2002, the installation of a traffic signal is proposed at this intersection.

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INTERSECTION CAPACITY UTILIZATION

N-S St: Wiley Canyon Road
E-W St: Calgrove Boulevard
Project: Smiser Ranch Project/1-063664-1
File: ICU9

Wiley Canyon Road @ Calgrove Boulevard
Peak hr: PM
Annual Growth: 0.00%

Date: 11/13/2007
Date of Count: 2007
Projection Year: 2015

	2007 EXIST. TRAFFIC			2015 W/AMBIENT GROWTH			2015 W/RELATED PROJECTS				2015 W/PROJECT SITE TRAFFIC				2015 W/PROJECT MITIGATION			
	1	2	V/C	Added	Total	V/C	Added	Total	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C
Movement	Volume	Capacity	Ratio	Volume	Volume	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio
Nb Left	5	0	0.003	0	5	0.003	0	10	0	0.006	0	10	0	0.006	0	10	0	0.006
Nb Thru	5	1750	0.006	0	5	0.006	0	10	1750	0.011 *	0	10	1750	0.011 *	0	10	1750	0.011 *
Nb Right	0	0	-	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-
Sb Left	87	0	0.050	0	87	0.050	0	80	0	0.046 *	0	80	0	0.046 *	0	80	0	0.046 *
Sb Thru	5	1750	0.053	0	5	0.053	0	10	1750	0.051	0	10	1750	0.051	0	10	1750	0.051
Sb Right [3]	207	175000	0.001	0	207	0.001	0	269	175000	0.002	230	499	175000	0.003	0	499	175000	0.003
Eb Left	590	1750	0.337 *	0	590	0.337 *	0	610	1750	0.349 *	150	760	1750	0.434 *	0	760	1750	0.434 *
Eb Thru	141	1750	0.080	0	141	0.080	0	190	1750	0.109	31	221	1750	0.126	0	221	1750	0.126
Eb Right	5	1750	0.003	0	5	0.003	0	10	1750	0.006	0	10	1750	0.006	0	10	1750	0.006
Wb Left	0	1750	0.000	0	0	0.000	0	0	1750	0.000	0	0	1750	0.000	0	0	1750	0.000
Wb Thru	77	1750	0.044	0	77	0.044	0	100	1750	0.057 *	20	120	1750	0.069 *	0	120	1750	0.069 *
Wb Right	85	1750	0.049 *	0	85	0.049 *	0	80	1750	0.046	0	80	1750	0.046	0	80	1750	0.046
Yellow Allowance:			0.100 *			0.100 *				0.100 *			[4]	0.070 *			[4]	0.070 *
ICU			0.542			0.542				0.563				0.630				0.630
LOS			A			A				A				B				B

05:13 PM

**Key conflicting movement as a part of ICU*
1 Traffic count data obtained from Lyons Canyon Specific Plan Preliminary Draft EIR, RBF Consulting, April 2005 and was increased by 3% per year to reflect year 2007 conditions.
2 Capacity expressed in veh/hour of green
3 The southbound right-turn lane is a free-flow movement.
4 Based on the Via Princessa Bridge and Major Thoroughfare Construction Fee District Update Report,March 2002, the installation of a traffic signal is proposed at this intersection.

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INTERSECTION CAPACITY UTILIZATION

N-S St: Orchard Village-Village Street
E-W St: Lyons Avenue
Project: Smiser Ranch Project/1-063664-1
File: ICU10

Orchard Village-Village Street @ Lyons Avenue
Peak hr: AM
Annual Growth: 0.00%

Date: 11/13/2007
Date of Count: 2007
Projection Year: 2015

	2007 EXIST. TRAFFIC			2015 W/AMBIENT GROWTH			2015 W/RELATED PROJECTS				2015 W/PROJECT SITE TRAFFIC				2015 W/PROJECT MITIGATION			
	1	2	V/C	Added	Total	V/C	Added	Total	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C
Movement	Volume	Capacity	Ratio	Volume	Volume	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio
Nb Left	108	1750	0.062 *	0	108	0.062 *	0	100	1750	0.057 *	22	122	1750	0.070 *	0	122	1750	0.070 *
Nb Thru	97	3500	0.028	0	97	0.028	0	100	3500	0.029	0	100	3500	0.029	0	100	3500	0.029
Nb Right	71	1750	0.040	0	71	0.040	0	80	1750	0.046	0	80	1750	0.046	0	80	1750	0.046
Sb Left	271	3500	0.078	0	271	0.078	0	280	3500	0.080	0	280	3500	0.080	0	280	3500	0.080
Sb Thru	108	1750	0.062	0	108	0.062	0	100	1750	0.057	0	100	1750	0.057	0	100	1750	0.057
Sb Right	167	1750	0.095 *	0	167	0.095 *	0	160	1750	0.091 *	22	182	1750	0.104 *	0	182	1750	0.104 *
Eb Left	165	3500	0.047	0	165	0.047	0	170	3500	0.049 *	9	179	3500	0.051 *	0	179	3500	0.051 *
Eb Thru	595	3500	0.170 *	0	595	0.170 *	0	580	3500	0.166	37	617	3500	0.176	0	617	5250	0.133
Eb Right	68	1750	0.039	0	68	0.039	0	70	1750	0.040	9	79	1750	0.045	0	79	0	-
Wb Left	109	1750	0.062 *	0	109	0.062 *	0	100	1750	0.057	0	100	1750	0.057	0	100	1750	0.057
Wb Thru	870	5250	0.166	0	870	0.166	0	1300	5250	0.248 *	88	1388	5250	0.264 *	0	1388	5250	0.264 *
Wb Right [3	223	1750	0.050	0	223	0.000	0	210	1750	0.040	0	210	1750	0.040	0	210	1750	0.040
Yellow Allowance:			0.100 *			0.100 *				0.100 *				0.100 *				0.100 *
ICU			0.489			0.489				0.545				0.589				0.589
LOS			A			A				A				A				A

11:59 AM

**Key conflicting movement as a part of ICU*

1 Traffic count data obtained from Lyons Canyon Specific Plan Preliminary Draft EIR, RBF Consulting, April 2005 and was increased by 3% per year to reflect year 2007 conditions.

2 Capacity expressed in veh/hour of green

3 The westbound right-turn lane has an overlapping phase with the southtbound left-turn phase.

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INTERSECTION CAPACITY UTILIZATION

N-S St: Orchard Village-Village Street
E-W St: Lyons Avenue
Project: Smiser Ranch Project/1-063664-1
File: ICU10

Orchard Village-Village Street @ Lyons Avenue
Peak hr: PM
Annual Growth: 0.00%

Date: 11/13/2007
Date of Count: 2007
Projection Year: 2015

	2007 EXIST. TRAFFIC			2015 W/AMBIENT GROWTH			2015 W/RELATED PROJECTS				2015 W/PROJECT SITE TRAFFIC				2015 W/PROJECT MITIGATION			
	1	2	V/C	Added	Total	V/C	Added	Total	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C
Movement	Volume	Capacity	Ratio	Volume	Volume	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio
Nb Left	130	1750	0.074 *	0	130	0.074 *	0	120	1750	0.069	20	140	1750	0.080 *	0	140	1750	0.080 *
Nb Thru	147	3500	0.042	0	147	0.042	0	150	3500	0.043	0	150	3500	0.043	0	150	3500	0.043
Nb Right	126	1750	0.072	0	126	0.072	0	160	1750	0.091 *	0	160	1750	0.091	0	160	1750	0.091
Sb Left	396	3500	0.113	0	396	0.113	0	450	3500	0.129 *	0	450	3500	0.129	0	450	3500	0.129
Sb Thru	140	1750	0.080	0	140	0.080	0	160	1750	0.091	0	160	1750	0.091	0	160	1750	0.091
Sb Right	246	1750	0.141 *	0	246	0.141 *	0	230	1750	0.131	20	250	1750	0.143 *	0	250	1750	0.143 *
Eb Left	399	3500	0.114	0	399	0.114	0	380	3500	0.109	31	411	3500	0.117	0	411	3500	0.117
Eb Thru	995	3500	0.284 *	0	995	0.284 *	0	1420	3500	0.406 *	123	1543	3500	0.441 *	0	1543	5250	0.325 *
Eb Right	138	1750	0.079	0	138	0.079	0	130	1750	0.074	31	161	1750	0.092	0	161	0	-
Wb Left	113	1750	0.065 *	0	113	0.065 *	0	120	1750	0.069 *	0	120	1750	0.069 *	0	120	1750	0.069 *
Wb Thru	1004	5250	0.191	0	1004	0.191	0	1220	5250	0.232	80	1300	5250	0.248	0	1300	5250	0.248
Wb Right [3	259	1750	0.035	0	259	0.000	0	340	1750	0.066	0	340	1750	0.066	0	340	1750	0.066
Yellow Allowance:			0.100 *			0.100 *				0.100 *				0.100 *				0.100 *
ICU			0.664			0.664				0.794				0.832				0.716
LOS			B			B				C				D				C

**Key conflicting movement as a part of ICU*
1 Traffic count data obtained from Lyons Canyon Specific Plan Preliminary Draft EIR, RBF Consulting, April 2005 and was increased by 3% per year to reflect year 2007 conditions.
2 Capacity expressed in veh/hour of green
3 The westbound right-turn lane has an overlapping phase with the southtbound left-turn phase.

11:59 AM

Draft

WILEY CANYON (SMISER RANCH) MIXED USE PROJECT

Aquatic Resources Delineation Report

Prepared for
Wiley Canyon, LLC
13120 Telfair Avenue
Sylmar. CA 91342

August 2020

ESA

Insert Photo

Draft

WILEY CANYON (SMISER RANCH) MIXED USE PROJECT

Aquatic Resources Delineation Report

Prepared for
Wiley Canyon, LLC
13120 Telfair Avenue
Sylmar. CA 91342

Attention: Mr. Scott Sheridan

August 2020

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EXECUTIVE SUMMARY

Based on the results of the aquatic resources delineation, two intermittent drainages were delineated within the Wiley Canyon (Smiser Ranch) Mixed Use Development Project (project) survey area. These features include potential waters of the U.S. and State that could be under the jurisdiction of the U.S. Army Corps of Engineers (USACE) and/or Regional Water Quality Control Board (RWQCB). Potential waters of the U.S. and State that may be subject to the Clean Water Act (CWA) within the survey area total 1.081 acres. Streams, drainages and riparian areas potentially subject to Section 1600 et seq. of the State Fish and Game Code (FGC) total 3.650 acres of the survey area.

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CHAPTER 1
Introduction

This aquatic resources delineation report was prepared in accordance with the U.S. Army Corps of Engineers' (USACE's) *1987 Wetland Delineation Manual* (Lichvar et al. 1987) *2008 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE 2008b), *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (Lichvar and McColley 2008) and Minimum Standards for Acceptance of Aquatic Resources Delineation Reports (USACE 2017).

This report describes the methods and results of an aquatic resources delineation conducted by an ESA qualified delineator on June 3, 2020. The purpose of this report is to identify and describe aquatic resources in the survey area.

1.1 Survey Location

The survey area is located at 24924 Hawkbryn Avenue in the City of Santa Clarita, Los Angeles County, California (**Figure 1-1**). It is located along Wiley Canyon Road to the east of Interstate 5 Freeway (**Figure 1-2**), approximately ½ mile northeast of the Santa Clarita Woodlands Park and approximately 5.5 miles south of the Castaic Junction.

The topography of the survey area is relatively flat. The elevation ranges between approximately 1,282 to 1,400 feet above mean sea level (AMSL), and the survey area is located within Township 3 North, Range 16W, Sections 4, 9, and 10 of the Oat Mountain U.S. Geological Survey (USGS) 7.5-minute quadrangle (**Figure 1-3**). The survey area consists of Assessor's Parcel Numbers (APNs) 2825-012-007; 2825-012-010; and 2825-012-011 under the ownership of the Wiley Canyon, LLC.

1.1.1 Directions to the Survey Area

Navigate to 34.370624, -118.557813 as follows: from Los Angeles, take the US-101 N to State Highway 170, which merges onto the Interstate 5 North and exit 166 for Calgrove Boulevard. Turn right onto Calgrove Boulevard, left onto Wiley Canyon Road. An access gate on the northeastern boundary of the property will be on the left.

1.2 Contact Information

1.2.1 Applicant and Property Owner

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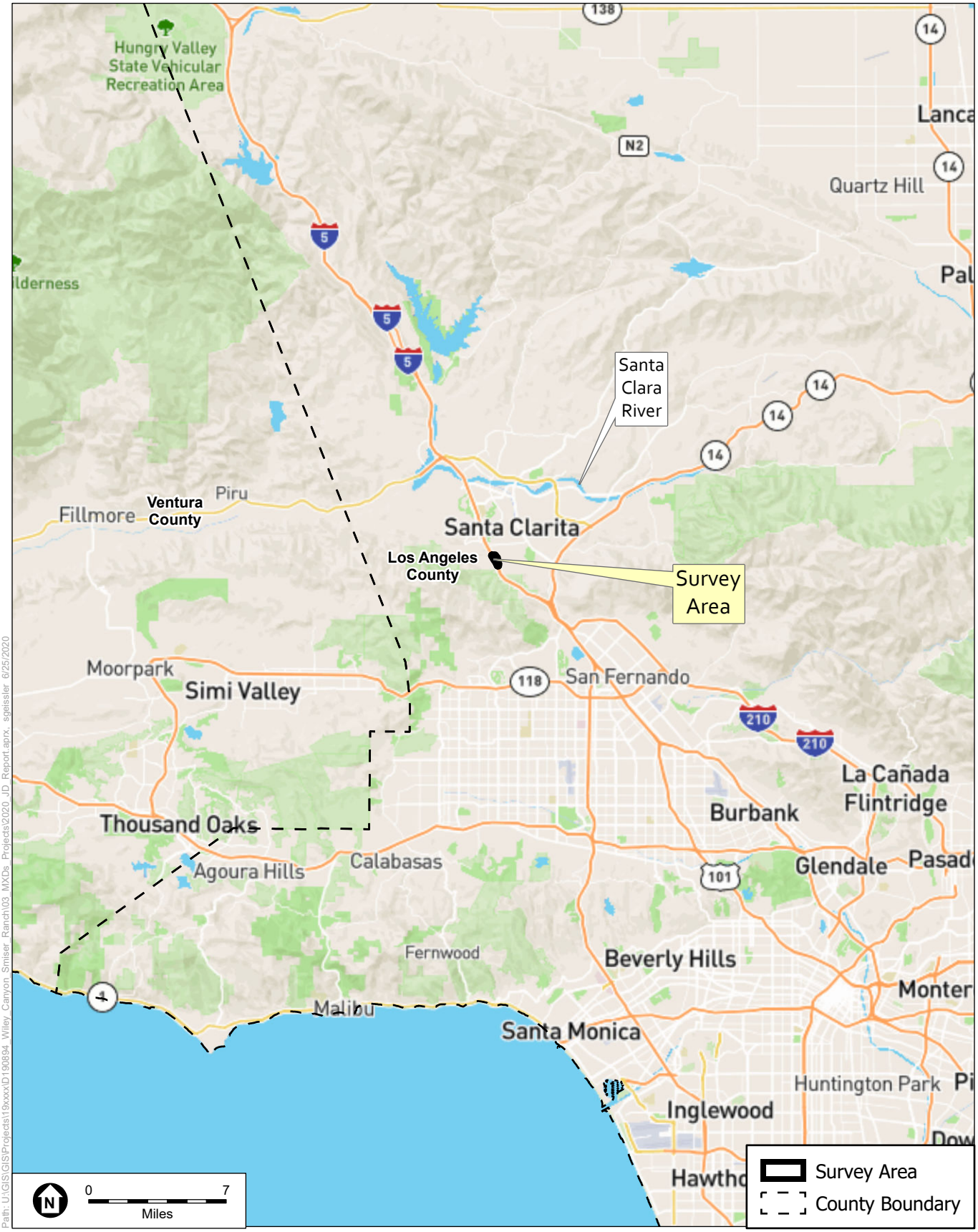
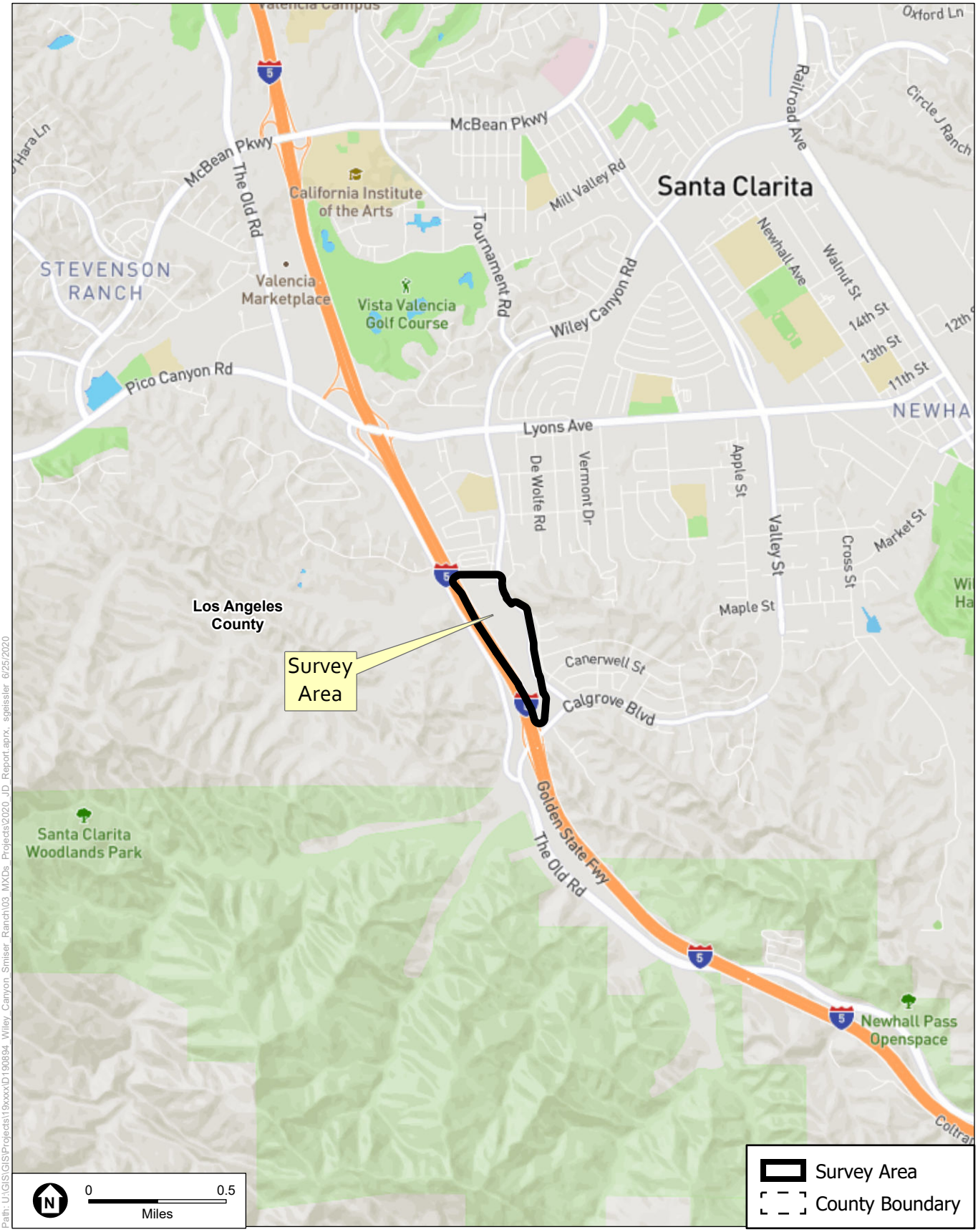


SOURCE: Open Street Map; ESA, 2019.

Wiley Canyon (Smiser Ranch) Mixed Use Project

Figure 1-1
Regional Location Map

ESA

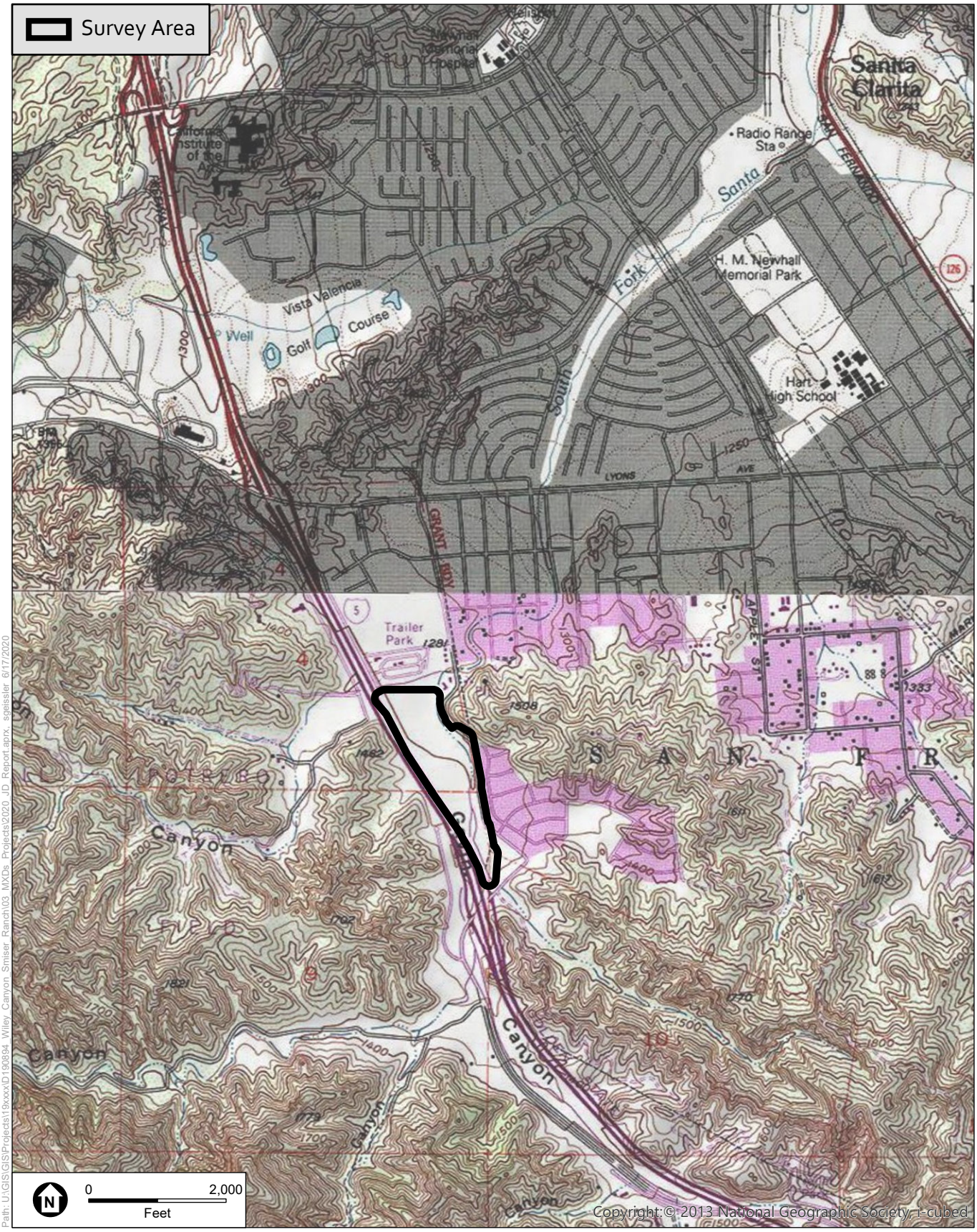


SOURCE: Open Street Map; ESA, 2019.

Wiley Canyon (Smiser Ranch) Mixed Use Project

Figure 1-2
Vicinity Map

ESA



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SOURCE: USGS Topographic Series (Newhall, Oak Mountain, CA).

Wiley Canyon (Smiser Ranch) Mixed Use Project

Figure 1-3
USGS Topographic Map

ESA

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CHAPTER 2
Existing Conditions

The approximately 45.3-acre survey area is located east of the Interstate 5 Freeway, west of Wiley Canyon Road, and north of Calgrove Boulevard, within the City of Santa Clarita. The survey area is generally surrounded to the north, northwest and southeast by developed land and the Interstate 5 Freeway to the west. Open lands exist to the east of Wiley Canyon Road and west of the Interstate 5 Freeway.

Plant communities typically found within the region include a mosaic of xeric communities such as coastal sage scrub and chaparral throughout lower elevations directly abutted by development and ruderal habitats.

2.1 Aquatic Resources Delineation Survey Area

The 45.3-acre survey area includes the project site and a 100-foot buffer of the project site. The property comprises former agricultural land with large expanses of heavily disturbed land surrounded by fencing, some former equestrian facilities, and various small accessory buildings.

2.2 Vegetation Communities and Land Cover Types

Vegetation community and land cover types were mapped in the field on June 3, 2020, and performed concurrently with the aquatic resources delineation. Plant communities were recorded in Collector for ArcGIS using a sub-meter accuracy Bad Elf GNSS surveyor GPS and a smart phone. Plant community names and descriptions follow *A Manual of California Vegetation; Second Edition* (Sawyer, Keeler-Wolf, & Evans, 2009). After completing the field mapping, the plant community polygons were digitized using Geographic Information System (GIS) technology to calculate acreages. Descriptions of each plant community or land cover type within the survey area are provided below. **Table 2-1** lists each of the plant communities and land cover types mapped and associated acreages within the survey area, and the extent of the vegetation mapping is shown in **Figure 2-1**. A floral compendium is provided in **Appendix A**.

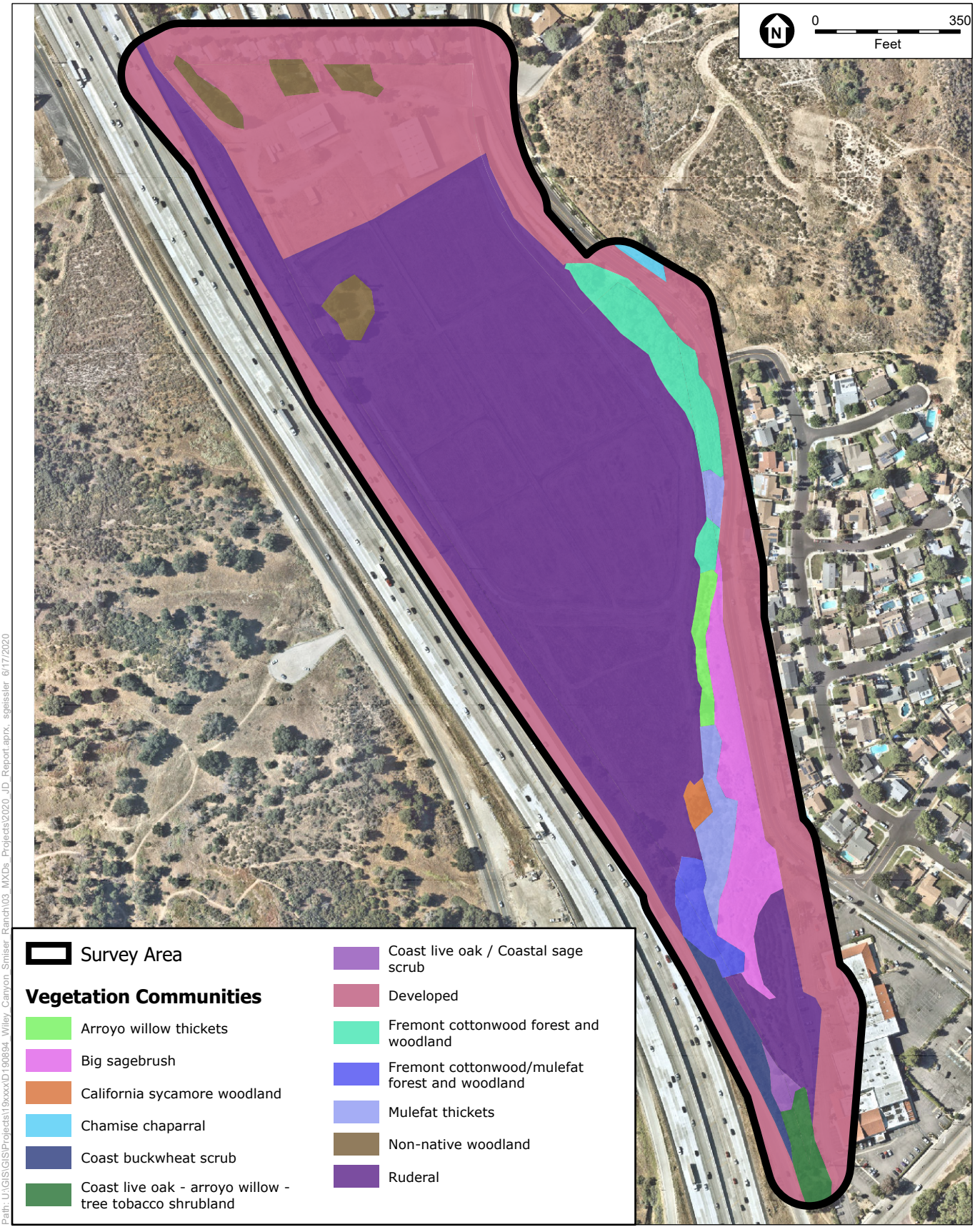
TABLE 2-1
VEGETATION COMMUNITIES AND LAND COVER TYPES WITHIN THE SURVEY AREA

Vegetation Community/Land Cover Type	Acreage
Open Water, Riparian, and Wetlands[a]	
Fremont cottonwood forest and woodland	1.310
Fremont cottonwood forest/mulefat forest and woodland	0.481
Mulefat thickets	0.700
Arroyo willow thickets	0.292
Coast live oak – arroyo willow – tree tobacco woodland	0.406
California sycamore woodlands	0.123
Uplands	
Coast live oak / Coastal sage scrub	0.128
Chamise chaparral	0.102
Big Sagebrush	1.565
California buckwheat scrub	0.480
Non-native Woodland	0.828
Developed/Disturbed Land Cover Types	
Ruderal	22.654
Developed	16.203
Total	**45.273**

NOTE:

[a] U.S. Fish and Wildlife Service definition of wetland

SOURCE: ESA 2020



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SOURCE: NearMap; ESA, 2020.

Wiley Canyon (Smiser Ranch) Mixed Use Project

Figure 2-1
Vegetation Communities and Land Cover Types

ESA

2.2.1 Riparian Vegetation

Fremont Cottonwood Forest and Woodland (*Populus fremontii* Forest Alliance)

Fremont cottonwood forest has Fremont cottonwood (*Populus fremontii* ssp. *fremontii*) as the dominant species, with a sparse understory. This community typically occurs along perennial and intermittent streams, within floodplains, springs and canyons. Within the survey area, this community occurs along a portion of the south fork of the Santa Clara River.

Fremont Cottonwood/Mulefat Forest (*Populus fremontii* Forest Alliance)

Fremont cottonwood / Mulefat forest has Fremont cottonwood as the dominant species, with mulefat (*Baccharis salicifolia* ssp. *salicifolia*) as the dominant scrub layer species. This community typically occurs along perennial and intermittent streams, within floodplains, springs and canyons. Within the survey area, this community occurs to the east of Interstate 5 Freeway where the Southern Fork of the Santa Clara River conveys flows beneath the freeway.

Mulefat Thickets (*Baccharis salicifolia* Shrubland Alliance)

Mulefat thickets has mulefat as the dominant species in the shrub canopy. This scrub typically occurs in canyon bottoms, floodplains, lake margins, and streambeds at low to moderate elevations. Within the survey area, this community occupies a portion of the South Fork of the Santa Clara River.

Arroyo Willow Thickets (*Salix lasiolepis* Shrubland Alliance)

Arroyo willow thickets has arroyo willow (*Salix lasiolepis*) as the dominant species in the tree or scrub layer, with subdominant species including mulefat, California sagebrush (*Artemisia californica*) and Fremont cottonwood. This scrub typically grows on seasonally or intermittently flooded sites. Within the survey area, this community occupies a portion of the South Fork of the Santa Clara River.

Coast live oak – arroyo willow – tree tobacco woodland (*Quercus agrifolia – Salix lasiolepis – Nicotiana glauca* Woodland Alliance)

Coast live oak – arroyo willow – tree tobacco woodland has coast live oak (*Quercus agrifolia*) as the dominant species in the tree layer, with arroyo willow, and tree tobacco (*Nicotiana glauca*) as dominants in the shrub layer. Within the survey area, this community occupies a small patch at the very southern boundary of the survey area.

California sycamore woodlands (*Platanus racemosa* Woodland Alliance)

California sycamore woodlands has California sycamore (*Platanus racemosa*) as the dominant species in the tree layer, with mulefat and tree tobacco in small quantities in the shrub layer. Within the survey area, this community occupies a small patch along the South Fork of the Santa Clara River.

2.2.2 Upland Vegetation

Coast Live Oak / Coastal Sage Scrub (*Quercus agrifolia* / Coastal Sage Scrub)

Coast live oak / Coastal Sage Scrub has an overstory of coast live oak as the dominant species and an understory of Coastal sage species including California sagebrush and California buckwheat (*Eriogonum fasciculatum*) can vary in habitats including upland savannahs and woodlands, to riparian forests and canyonlands. Within the survey area, this community comprises a small portion of the southern boundary.

Chamise Chaparral (*Adenostoma fasciculatum* Shrubland Alliance)

Chamise chaparral has chamise (*Adenostoma fasciculatum*) as the dominant species in the shrub layer, with California buckwheat, Whipple's yucca (*Hesperoyucca whipplei*) and nonnative grasses as common understory plants and typically occurs on dry, shallow colluvial soils on sun exposed slopes at low to moderate elevations. Within the survey area, this community occupies the upslope area northeast of Wiley Canyon Road.

Big Sagebrush (*Artemisia tridentata* Shrubland Alliance)

Big sagebrush has common sagebrush (*Artemisia tridentata*) as the dominant species in the scrub layer, lacking other dominant species This scrub typically grows on plains, alluvial fans, valley bottoms, and dry washes. Within the survey area, this community occupies a portion of the site east of the southern portion of the South Fork of the Santa Clara River.

California Buckwheat Scrub (*Eriogonum fasciculatum* Shrubland Alliance)

California buckwheat scrub has California buckwheat as the dominant species, with California sagebrush, and deer weed (*Acmispon glaber*) as sub dominants. Within the survey area, this community occupies small areas on the east-facing slopes along the boundary with Interstate 5 Freeway.

Non-native Woodland

This community is dominated by primarily non-native, landscape trees and occurs on various slopes and aspects. Within the survey area, this community consists of deodar cedar (*Cedrus deodara*) and Canary Island pine (*Pinus canariensis*) that were planted around a retention pond and in the vicinity of residences on the property.

2.2.3 Developed/Disturbed

Ruderal

The species assemblage and community characteristics of the ruderal habitat was largely disturbed by agricultural activity and the understory was primarily dominated by non-native forbs such as tocalote (*Centaurea melitensis*), and shortpod mustard (*Hirschfeldia incana*) and non-native grasses as a result of the previous intensive agricultural uses. Ruderal habitat comprises the majority of the survey area.

Developed

Within the survey area, developed areas included the paved right-of-way for the Interstate 5 Freeway, Wiley Canyon Road, and Calgrove Boulevard. It also included facilities and residences within the property, as well as residential developments directly to the east, and north.

2.3 Soils

According to the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service's (NRCS), soils within nearly the entire survey area consists of Yolo loam, fan piedmont, 0 to 9 percent slopes. A small area on the eastern boundary of the survey area comprises Saugus loam, 30 to 50 percent slopes (USDA 2020a) (**Figure 2-2**). Each soil map unit is described below, and more information can be found in the USDA custom soils report provided in **Appendix B**.

2.3.1 Yolo loam, fan piedmont, 0 to 9 percent slopes

This soil map unit is not mapped by NRCS as a hydric soil. Yolo loam soil associations, 0 to 9 percent slopes are typically found in alluvial fans. The typical profile consists of loam soils throughout the soil profile. This soil map unit is considered well drained with typical depth to water table of more than 80 inches. It is not rarely subject to flooding and not subject to ponding.

2.3.2 Saugus loam, 30 to 50 percent slopes

This soil map unit is not mapped by NRCS as a hydric soil. Saugus loam soils, 30 to 50 percent slopes are typically found on hillside slopes. The typical profile consists of loam 0 to 15 inches, sandy loam from 15 to 42 inches, and weathered bedrock from 15 to 42 inches. This soil map unit is considered well drained with typical depth to water table of more than 80 inches. It is not subject to flooding and nor ponding.

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SOURCE: NRCS, 2020; ESA, 2020.

Wiley Canyon (Smiser Ranch) Mixed Use Project

Figure 2-2
Soils Map

ESA

2.4 Hydrology

The survey area is located within the Santa Clara River watershed. Site hydrology generally drains in a northerly direction across the survey area. Flows from the South Fork Santa Clara River [Intermittent Stream (IS)-1] enter the southern portion of the survey area through concrete box culverts under Interstate 5 Freeway and continue north along the eastern boundary of the survey area. Flows from an unnamed intermittent drainage (IS-2) also enter the survey area at the southern portion of the survey area prior to converging with IS-1. Towards the northeastern portion of the survey area, IS-1 becomes a concrete-lined channel as it exits the survey area. Flows continue offsite for approximately 4.3 miles downstream until its confluence with the mainstem of the Santa Clara River.

As shown in Figure 1-2, both aquatic features are identified as blue-line intermittent streams on the 2013 Oat Mountain USGS topographic map. At the time of the aquatic resources delineation, surface water was present in portions of IS-1, but flows were not observed in IS-2.

2.5 Climate

The City of Santa Clarita is mild, and generally warm and temperate. Historic monthly average temperatures in June are a high of 88°F and low of 50°F.

The Agricultural Applied Climate Information System (AgACIS) Wetlands (WETS) climate table for Canyon Country, California is included below in Table 2-2 for the years January 2010 through May 2020. While there was no rainfall data in June 2020, when the aquatic resources delineation was conducted, the total 2020 annual rainfall from January through May 2020 was higher than normal for the season due to heavy rains in March and April (USDA 2020b).

TABLE 2-2
WETS TABLE: MONTHLY TOTAL PRECIPITATION FOR [CANYON COUNTRY 2.6E], CA

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
2010	M	3.03	0.5	1.23	0.02	0	T	0	0	1.28	0.65	6.14	M
2011	0.57	2.29	5.67	0.06	0.34	0.13	0	0	0.18	0.27	1.33	0.62	11.46
2012	0.31	0.6	2.31	2.16	T	0	T	0.02	0.01	0.5	0.33	0.82	7.06
2013	0.91	0.18	0.65	0.02	0.38	0	0.05	0	0	0.17	0.52	0.32	3.2
2014	0.02	1.28	2.53	0.21	0.07	0	T	0.27	0.01	0	0.41	4.45	9.25
2015	1.21	0.57	1.1	0.11	0.82	0.01	1.47	0	0.86	0.3	0.09	0.34	6.88
2016	2.63	1	1.88	0.34	0.11	0	0	0	0	0.24	0.92	2.57	9.69
2017	6.34	4.48	0.16	0.11	0.28	0	M	M	0.02	0	0	0	M
2018	2.05	0.19	3.67	T	0	0	0	0.01	0	0.51	1.21	2.34	9.98
2019	3.95	5.76	2.54	0.04	0.88	T	0	0	0	0	M	M	19.49
2020	0.13	0.03	5.13	3.91	0.07	M	M	M	M	M	M	M	M
Mean	1.81	1.76	2.38	0.74	0.27	0.01	0.17	0.03	0.11	0.33	0.61	1.96	9.63

NOTE:

[1] M = missing, and is used when more than one day of data is missing for a month.

SOURCE: USDA, 2020b.

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CHAPTER 3
Regulatory Framework

3.1 Waters of the U.S.

3.1.1 Clean Water Act

The CWA establishes the basic structure for regulating discharges of pollutants into the waters of the U.S. and regulating quality standards for surface waters. The basis of the CWA was enacted in 1948 and was called the Federal Water Pollution Control Act, but the Act was significantly reorganized and expanded in 1972. "Clean Water Act" became the Act's common name with amendments in 1972.

Wetlands (including swamps, bogs, seasonal wetlands, seeps, marshes, and similar areas) are considered waters of the U.S. (subject to the significant nexus test), and are defined by USACE as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR 328.3[b]; 40 CFR 230.3[t]). Indicators of three wetland parameters (i.e., hydric soils, hydrophytic vegetation, and wetlands hydrology), as determined by field investigation, must be present for a site to be classified as a wetland by USACE (Environmental Laboratory 1987).

Section 401 of the CWA gives the state authority to grant, deny, or waive certification of proposed federally licensed or permitted activities resulting in discharge to waters of the U.S. The State Water Resources Control Board (State Water Board) directly regulates multi-regional projects and supports the Section 401 certification and wetlands program statewide. The RWQCB regulates activities pursuant to Section 401(a)(1) of the federal CWA, which specifies that certification from the State is required for any applicant requesting a federal license or permit to conduct any activity including but not limited to the construction or operation of facilities that may result in any discharge into navigable waters. The certification shall originate from the State or appropriate interstate water pollution control agency in/where the discharge originates or will originate. Any such discharge will comply with the applicable provisions of Sections 301, 302, 303, 306, and 307 of the CWA.

On April 21, 2020, the U.S. Environmental Protection Agency (EPA) and the USACE published the Navigable Waters Protection Rule (NWPR) to redefine "waters of the United States" in the Federal Register. The final rule became effective in California on June 22, 2020.

The NWPR regulates traditional navigable waters and the core tributary systems that provide perennial or intermittent flow into them.

Under the NWPR, four clear categories of waters are federally regulated:

1. The territorial seas and traditional navigable waters,
2. Perennial and intermittent tributaries to those waters,
3. Certain lakes, ponds, and impoundments, and
4. Wetlands adjacent to jurisdictional waters.

The NWPR also details 12 categories of exclusions, features that are not "waters of the United States," such as features that only contain water in direct response to rainfall (e.g., ephemeral features); groundwater; many ditches; prior converted cropland; and waste treatment systems.

3.2 Waters of the State

Most projects involving water bodies or drainages are regulated by the RWQCB, the principal State agency overseeing water quality of the State at the local/regional level. The survey area is located within the jurisdiction of the Los Angeles RWQCB. Where waters of the State overlap with waters of the U.S., pending verification from the USACE, those waters would be regulated under Section 401 of the CWA which is described in the Regulatory Framework in Section 3.1.

In the absence of waters of the U.S., waters may be regulated under the Porter-Cologne Water Quality Control Act if project activities, discharges, or proposed activities or discharges could affect California's surface, coastal, or ground waters. The permit submitted by the applicant and issued by RWQCB is either a Water Quality Certification in the presence of waters of the U.S. or a Waste Discharge Requirement (WDR) in the absence of waters of the U.S.

The State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State (procedures), as prepared by the State Water Resources Control Board, was implemented on May 28, 2020. The procedures include a definition for wetland waters of the state that include 1) all wetland waters of the U.S.; and 2) aquatic resources that meet both the soils and hydrology criteria for wetland waters of the U.S. but lack vegetation.[1]

3.3 Rivers, Streams, and Lakes

Pursuant to Division 2, Chapter 6, Section 1600 et seq. of the FGC, California Department of Fish and Wildlife (CDFW) regulates all diversions, obstructions, or changes to the natural flow or bed, channel or bank of any river, stream, or lake which supports fish or wildlife. A notification of a Lake or Streambed Alteration Agreement must be submitted to CDFW for "any activity that may substantially change the bed, channel, or bank of any river, stream, or lake." In addition, CDFW has authority under FGC over wetland and riparian habitats associated with lakes and streams. The CDFW reviews proposed actions, and if necessary, submits to the applicant a proposal that includes measures to protect affected fish and wildlife resources. The final proposal

[1] Less than 5 percent areal coverage at the peak of the growing season.

that is mutually agreed upon by CDFW and the applicant is the Lake or Streambed Alteration Agreement (LSAA).

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CHAPTER 4
Methodology

4.1 Pre-Field Review

Prior to conducting the aquatic resources delineation, ESA conducted a review of available background information pertaining to the survey area to obtain information on the hydrology, including information on the local geography and topography.

The following resources were reviewed:

- *The National Wetland Plant List*: 2018 wetland ratings (USACE, 2018);
- Natural Resources Conservation Service's (NRCS) *Web Soil Survey*, queried to determine the soils that have been mapped within the survey area (USDA, 2020a);
- The National Wetlands Inventory (NWI) (USFWS, 2020) (**Figure 4-1**); and
- USGS topographic maps: Oat Mountain (USGS, 2013).

Aerial maps (Google Earth 2020) and the NWI were used to conduct a preliminary assessment of the limits of aquatic features in the survey area. The NWI mapped one riverine intermittent feature (IS-1) within the survey area. According to the NWI, IS-1 is a seasonally flooded channel that has been excavated.

4.2 Field Survey Methods

4.2.1 Waters of the U.S.

The aquatic resources delineation was conducted for the survey area by May Lau and Douglas Gordon-Blackwood on June 3, 2020. Aquatic features were delineated based on the methodology and guidance in the USACE's *1987 Wetland Delineation Manual* (Lichvar et al. 1987), *2008 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE 2008a), and *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (USACE 2008b). Datasheets used included: Wetland Determination Data Form – Arid West Region from the 2008 USACE Regional Supplement (USACE, 2008b) and *OHWM Delineation Cover Sheet*. The Cowardin classification (Cowardin et al., 1979) of each feature type was also reviewed. The delineation was based on field data collected using a tablet as well as the IOS Arrow 100 with sub-foot accuracy, and aerial imagery–based desktop mapping.

4.2.2 Waters of the State

Waters of the State, including all waters of the U.S., were delineated using the same methodology as waters of the U.S.

4.2.3 Rivers, Streams, and Lakes

CDFW jurisdiction under FGC Section 1600 et seq. was mapped to include riparian habitats associated with watercourses to the outer extent of the dripline of riparian vegetation. CDFW jurisdiction was also mapped to the top of the physical stream bank in areas lacking riparian vegetation.

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SOURCE: FWS NWI 2020; Open Street Map, 2020.

Wiley Canyon (Smiser Ranch) Mixed Use Project

Figure 4-1
National Wetlands Inventory

ESA

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CHAPTER 5
Results

5.1 Aquatic Resources

Aquatic resources delineated within the survey area include potential waters of the U.S. (**Figure 5-1**). **Table 5-1** summarizes the data collected for each feature. Data sheets are provided in **Appendix C** and representative photographs of each feature are included in **Appendix D**.

South Fork Santa Clara River (IS-1)

The South Fork Santa Clara River is an intermittent stream originating in the Santa Susana Mountains, just east of East Canyon. It generally parallels the Interstate 5 Freeway until it reaches the survey area. This stream is heavily modified and channelized (i.e., concrete-lined) as it flows through urbanized areas. Riparian or alluvial scrub vegetation is generally present in the earthen segments of the stream. Within the survey area, the stream segment (IS-1) is dominated by Fremont cottonwood forest/woodland and flows northeasterly across the site.

Unnamed Intermittent Stream (IS-2)

IS-2 is an intermittent stream originating in La Salle Canyon, south of the survey area and east of the Interstate 5 Freeway. IS-2 flows in a northerly direction down the canyon, and then enters a detention basin prior to an underground culvert that is connected to the southern portion of the survey area. Within the survey area, IS-2 is dominated by coast live oak and ruderal habitats.

TABLE 5-1
AQUATIC RESOURCES WITHIN THE SURVEY AREA

Aquatic Feature	Cowardin Type[1]	Dominant Vegetation/Land Cover Type	OHWM (feet) (range from within study area)	Linear Feet	Acres
Other Waters					
IS-1 (South Fork Santa Clara River) (Intermittent)	R4SBCx	Fremont cottonwood forest and woodland; mulefat thickets; arroyo willow thickets	8-52	2,484	0.939
IS-2 (Intermittent)	N/A	Ruderal; coast live oak-arroyo-willow-tree tobacco shrubland	4-11	725	0.142
Total Other Waters				3,209	1.081

Aquatic Feature	Cowardin Type[1]	Dominant Vegetation/Land Cover Type	OHWM (feet) (range from within study area)	Linear Feet	Acres
Total Aquatic Features:				**3,209**	**1.081**

NOTE:

[1] Cowardin Classifications

R4SBCx – Riverine, intermittent, streambed, seasonally flooded, excavated

Path: U:\GIS\GIS\Projects\19xxxx\D190894_Wiley_Canyon_Smiser_Ranch\03_MXDs_Projects\2020_JD_Report.aprx, sgeissler 7/10/2020

SOURCE: Nearmap; ESA, 2020.

Wiley Canyon (Smiser Ranch) Mixed Use Project

Coordinate System: US State Plane California Zone V
Projection: Lambert Conformal Conic
Datum: North American Datum 1983(2011)

Survey Area (45.3 ac.)
Test Pit
Photograph Location
Map Reference Point
Transects

Other Waters (1.08 acres)
Intermittent Stream (1.08 acres)

Figure 5-1
Aquatic Resources within the Survey Area
Delineated by: May Lau

Mapping by: Stephan Geissler

Created on: 6/25/2020

ESA

5.2 Waters of the U.S.

5.2.1 Clean Water Act Analysis

Based on the NWPR, IS-1 and IS-2 are likely considered waters of the U.S. since they are intermittent tributaries to the Pacific Ocean, a territorial sea.

5.2.2 Potential Wetland Waters of the U.S.

As described in Section 3.1, indicators of three wetland parameters (i.e., hydric soils, hydrophytic vegetation, and wetlands hydrology) must be present for an aquatic feature to be classified as a wetland water of the U.S. As shown in Figure 5-1, one test pit was taken within IS-1 to assess wetland parameters. This sample was taken on the west bank of IS-1 within the Fremont cottonwood forest community and met the hydrophytic vegetation wetland criteria. However, neither hydric soil nor wetland hydrology indicators were observed. Therefore, this sample did not meet the USACE's wetland criteria and is not considered a wetland. Further, based on the soil types mapped by NRCS, hydric soils are not known to occur in the survey area and are not expected onsite. Therefore, additional test pits were not deemed necessary.

5.2.3 Potential Other Waters of the U.S.

Other waters of the U.S. delineated during the field visit include two intermittent streams, IS-1 and IS-2, which are mapped in Figure 5-1. OHWM data sheets are included in **Appendix C** and photographs are provided in **Appendix D**.

Intermittent Streams

South Fork Santa Clara River (IS-1)

Based on seven transects taken along IS-1, the OHWM ranged between 8-52 feet wide within the survey area. OHWM indicators observed during the field delineation included wracking, shelving, and upper limit of sand-sized particles. The OHWM contained a low flow channel where surface water was flowing in some portions of the stream at the time of the survey.

Unnamed Intermittent Stream (IS-2)

Based on two transects taken along IS-2, the OHWM ranged between 4-11 feet wide within the survey area. OHWM indicators observed during the field delineation included wracking and shelving. The OHWM contained a low flow channel where surface water was absent at the time of the survey.

5.3 Waters of the State

Waters of the State delineated during the field visit include the same features delineated as waters of the U.S. and are shown in Figure 5-1. As such, waters of the State include IS-1 and IS-2. The lateral limits of each feature are based on the limits of the OHWM as determined in the field and reflected in **Table 5-1**. Due to the lack of wetland waters of the U.S., state wetlands are also considered absent from the survey area.

5.4 Rivers, Streams, and Lakes

Features potentially subject to regulation under FGC Section 1600 et seq. include IS-1 and IS-2, including riparian vegetation associated with these features (**Figure 5-2**). IS-1 supports riparian vegetation along its banks including arroyo willow thickets, California sycamore woodland, Fremont cottonwood forest and woodland, and mulefat thickets. IS-2 also supports ruderal and riparian vegetation dominated by coast live oak communities. **Table 5-2** summarizes the results of the field delineation below.

TABLE 5-2
FEATURES POTENTIALLY SUBJECT TO SECTION 1600 ET SEQ. OF THE FISH AND GAME CODE WITHIN THE SURVEY AREA

Aquatic Feature	Cowardin Type[1]	Vegetated Streambed/ Pond/Lake (Acre)	Unvegetated Streambed/ Pond/Lake (Acre)	Length (feet)	Range in Width (feet)	Vegetation/ Land Cover Type	GPS Coordinates (decimal degrees)
IS-1 (South Fork Santa Clara River) (Intermittent)	R4SBCx	2.952	N/A	2,484	13-125	Arroyo willow thickets; Big sagebrush; California sycamore woodland; Developed; Fremont cottonwood forest and woodland; Fremont cottonwood/ mulefat forest and woodland; Mulefat thickets; Ruderal	34.3676358°N; 118.5556868°W
IS-2 (Intermittent)	N/A	0.698	N/A	725	4-83	Coast live oak - arroyo willow - tree tobacco shrubland; Coast live oak / Coastal sage scrub; Developed; Ruderal	34.3640698°N; 118.5550863°W
Totals:		**3.650**		3,209			

NOTE:

[1] Cowardin Classifications

R4SBCx – Riverine, intermittent, streambed, seasonally flooded, excavated

SOURCE: ESA, 2020.

Wiley Canyon (Smiser Ranch) Mixed Use Project

Figure 5-2
Features Potentially Subject to Fish and Game Code Section 1600 et seq.

ESA

5.5 Conclusions

In summary, the two aquatic features mapped from the field delineation are considered to be waters of the U.S., waters of the State, and features subject to FGC Section 1600 et seq.

This report documents the aquatic resources boundary delineation and best professional judgment of ESA investigators. All aquatic resources and extent of jurisdictional boundaries identified in this report are considered preliminary pending verification from the appropriate regulatory agencies.

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CHAPTER 6
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Appendix A
Floral Compendium

Appendix A – Floral Compendium

FLORA

EUDICOTS

Scientific Name	Common Name	Wetland Indicator Status
Adoxaceae	**Muskroot Family**	
Sambucus nigra ssp. *caerulea*	blue elderberry	FACU
Anacardiaceae	**Sumac Family**	
Toxicodendron diversilobum	poison oak	FACU
Asteraceae	**Aster Family**	
Ambrosia acanthicarpa	annual bursage	NL
Artemisia californica	California sagebrush	NL
Artemisia douglasiana	mugwort	FAC
Baccharis salicifolia	mulefat	FAC
Bebbia juncea	sweetbush	NL
*Centaurea melitensis**	tocalote	NL
Encelia farinosa	brittlebush	NL
Erigeron canadensis	Canada horseweed	FACU
Helianthus annuus	annual sunflower	FACU
Heterotheca grandiflora	telegraph weed	NL
Heterotheca sessiliflora	golden aster	NL
Lepidospartum squamatum	scalebroom	FACU
Boragincaeae	**Borage Family**	
Eriodictyon crassifolium	thick leaved yerba santa	NL
Brassicaeae	**Mustard Family**	
*Hirschfeldia incana**	shortpod mustard	NL
Nasturtium officinale	watercress	OBL
Cactaceae	**Cactus Family**	
Opuntia sp.	prickly pear	NL
Chenopodiaceae	**Goosefoot Family**	
*Chenopodium album**	lambs quarters	FACU
*Salsola tragus**	Russian thistle	FACW/FACU/NL
Cucurbitaceae	**Gourd Family**	
Cucurbita foetidissima	coyote melon	NL
Euphorbiaceae	**Spurge Family**	
Croton californicus	desert croton	NL
Croton setiger	dove weed	NL
*Ricinus communis**	castor bean	FACU

Fabaceae	**Pea Family**	
Acmispon glaber	deerweed	NL
Fagaceae	**Oak Family**	
Quercus agrifolia	coast live oak	NL
Quercus berberidifolia	scrub oak	NL
Lamiaceae	**Mint Family**	
Salvia apiana	white sage	NL
Salvia columbariae	chia	NL
Myrtaceae	**Myrtle Family**	
*Eucalyptus camaldulensis**	Red River gum	FAC
Oleaceae		
*Olea europea**	olive	NL
Phrymaceaee	**Lopseed Family**	
Erythranthe cardinalis	cardinal monkey flower	NL
Erythranthe guttata	yellow monkey flower	NL
Platanaceae	**Plane-tree Family**	
Platanus racemosa	California sycamore	FAC
Poleminaceae	**Phlox Family**	
Eriastrum sapphirinum	sapphire eriastrum	NL
Polygonaceae	**Buckwheat Family**	
Eriogonum fasciculatum	California buckwheat	NL
Persicaria lapathifolia	common knotweed	FACW
Rhamnaceae	**Buckthorn Family**	
Ceanothus leucodermis	chaparral whitethorn	NL
Rosaceae	**Rose Family**	
Adenostema fasciculatum	chamise	NL
Salicaceae	**Willow Family**	
Populus fremontii	Fremont cottonwood	NL
Salix exigua	sandbar willow	FACW
Salix gooddingii	Gooding's black willow	FACW
Salix laevigata	red willow	FACW
Salix lasiolepis	arroyo willow	FACW
Solanaceae	**Tomato Family**	
Datura wrightii	jimson weed	UPL
*Nicotiana glauca**	tree tobacco	FAC
Tamaricaceae	**Tamarisk Family**	
Tamarix sp. *	tamarisk	FAC/NL

MONOCOTS

Agavaceae	**Century Plant Family**	
Hesperoyucca whipplei	chaparral yucca	NL

Arecaceae	**Palm Family**	
*Washingtonia robusta**	Mexican fan palm	FACW
Cyperaceae	**Sedge Family**	
Cyperus eragrostis	tall cyperus	FACW
Schoenoplectus acutus	hardstem bulrush	OBL
Poaceae	**Grass Family**	
*Arundo donax**	giant reed	FACW
Avena sp.*	wild oats	UPL/NL
Bromus rubens ssp. *madritensis**	red brome	NL
*Pennisetum setaceum**	fountain grass	NL
*Polypogon monspeliensis**	annual beard grass	FACW
Schismus sp.*	Meditteranean grass	NL
*Stipa miliacea**	smilo grass	NL
Typhaceae	**Cattail Family**	
Typha lattifolia	cattail	OBL

Legend

*Non-native Species

Wetland Indicator Status:

Obligate (OBL) – plants that always occur in standing water or in saturated soils

Facultative Wet (FACW) – plants that nearly always occur in areas in prolonged flooding or require standing water or saturated soils but may, on rare occasions, occur in non-wetlands

Facultative (FAC) – plants that occur in a variety of habitats, including wetland and mesic to xeric non-wetland habitats but commonly occur in standing water or saturated soils

Facultative Upland (FACU) – plants that typically occur in xeric or mesic non-wetland habitats but may frequently occur in standing water or saturated soils

Upland (UPL) – plants that almost never occur in water or saturated soils.

Not Listed (NL) – plants that are not listed; are considered UPL for wetland delineation purposes.

Appendix B
Soils Report

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Antelope Valley Area, California

Wiley Canyon (Smiser Ranch) Mixed Use Project

June 30, 2020

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map

Map Scale: 1:5,890 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 50 100 200 300

Feet
0 250 500 1000 1500

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Antelope Valley Area, California
Survey Area Data: Version 12, Sep 17, 2019

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Apr 20, 2018—May 4, 2018

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
ScF	Saugus loam, 30 to 50 percent slopes	1.8	3.2%
YoA	Yolo loam, fan piedmont, 0 to 9 percent slopes, MLRA 20	54.3	96.8%
Totals for Area of Interest		**56.0**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however,

onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Antelope Valley Area, California

ScF—Saugus loam, 30 to 50 percent slopes

Map Unit Setting

National map unit symbol: hch7
Elevation: 600 to 2,500 feet
Mean annual precipitation: 14 to 20 inches
Mean annual air temperature: 63 degrees F
Frost-free period: 275 to 300 days
Farmland classification: Not prime farmland

Map Unit Composition

Saugus and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Saugus

Setting

Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Weakly consoildated alluvium

Typical profile

H1 - 0 to 15 inches: loam
H2 - 15 to 42 inches: sandy loam, loam
H2 - 15 to 42 inches: weathered bedrock
H3 - 42 to 46 inches:

Properties and qualities

Slope: 30 to 50 percent
Depth to restrictive feature: 40 to 60 inches to paralithic bedrock
Natural drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: High (about 9.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: B
Ecological site: LOAMY 9-20" (R019XD064CA)
Hydric soil rating: No

Minor Components

Castaic

Percent of map unit: 5 percent
Hydric soil rating: No

Balcom

Percent of map unit: 5 percent
Hydric soil rating: No

Unnamed

Percent of map unit: 5 percent
Hydric soil rating: No

YoA—Yolo loam, fan piedmont, 0 to 9 percent slopes, MLRA 20

Map Unit Setting

National map unit symbol: 2w89s
Elevation: 860 to 2,180 feet
Mean annual precipitation: 15 to 20 inches
Mean annual air temperature: 63 to 64 degrees F
Frost-free period: 240 to 300 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Yolo and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Yolo

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from sedimentary rock

Typical profile

A - 0 to 6 inches: loam
A - 6 to 18 inches: loam
C1 - 18 to 36 inches: loam
C2 - 36 to 72 inches: loam

Properties and qualities

Slope: 0 to 9 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate, maximum in profile: 1 percent

Salinity, maximum in profile: Nonsaline (0.3 to 0.5 mmhos/cm)
Available water storage in profile: High (about 10.8 inches)

Interpretive groups

Land capability classification (irrigated): 1
Land capability classification (nonirrigated): 3c
Hydrologic Soil Group: B
Hydric soil rating: No

Minor Components

Sorrento

Percent of map unit: 5 percent
Hydric soil rating: No

Metz

Percent of map unit: 5 percent
Hydric soil rating: No

Unnamed

Percent of map unit: 4 percent
Hydric soil rating: No

Unnamed

Percent of map unit: 1 percent
Landform: Swales
Hydric soil rating: Yes

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Appendix C
Data Sheets

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Wiley Canyon (Smiser Ranch) Mixed Use Project City/County: Los Angeles Sampling Date: 6/3/2020
Applicant/Owner: Wiley Canyon, LLC State: CA Sampling Point: 1
Investigator(s): May Lau Section, Township, Range: T3N R16W Sec 4, 9, 10
Landform (hillslope, terrace, etc.): terrace/bar Local relief (concave, convex, none): convex Slope (%): 2
Subregion (LRR): C Lat: 34.36947 Long: -118.55669 Datum: NAD 83
Soil Map Unit Name: Yolo loam, 0-2% slopes NWI classification: Riverine
Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No ___ (If no, explain in Remarks.)
Are Vegetation ___ Soil ___ or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes **x** No ___
Are Vegetation ___ Soil ___ or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No		
Hydric Soil Present?	Yes	No X	**Is the Sampled Area**	
Wetland Hydrology Present?	Yes	No X	**within a Wetland?**	**Yes** **No X**

Remarks: West bank of IS-1 (South Fork Santa Clara River).

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' R)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus fremontii*	70	Y	FAC
2. *Sambucus nigra subsp. caerulea*	15	N	FACU
3.			
4.			
	85	= Total Cover	
Sapling/Shrub Stratum (Plot size: 30' R)			
1. *Phacelia cicutaria subsp. Hispida*	10	Y	UPL
2. *Artemisia douglasiana*	5	Y	FAC
3.			
4.			
5.			
	15	= Total Cover	
Herb Stratum (Plot size: 5' R)			
1. *Persicaria lapathifolia*	30	Y	FACW
2. *Stipa miliacea var. miliacea*	25	Y	UPL
3. *Polypogon viridis*	10	N	FACW
4. *Cynodon dactylon*	5	N	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	70	= Total Cover	
Woody Vine Stratum (Plot size: 30' R)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 30

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1=	
FACW species	40	x 2=	80
FAC species	75	x 3=	225
FACU species	20	x 4=	80
UPL species	35	x 5=	175
Column Totals:	170 (A)		560 (B)

Prevalence Index = B/A = 3.3

Hydrophytic Vegetation Indicators:

___ 1- Rapid Test For Hydrophytic Vegetation
X 2- Dominance Test is >50%
___ 3- Prevalence Index is ≤3.0[1]
___ 4- Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5- Wetland Non-Vascular Plants[1]
___ 6- Problematic Hydrophytic Vegetation[1](Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X** **No**

Remarks:

SOIL Sampling Point: 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1	N/A							decomposed organic matter
1-10	7.5YR3/3	100	N/A				loamy sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be presetn, unless disturbed or problematic

Restrictive Layer (if present):

Type: Rock

Depth (inches): 10

Hydric Soil Present? **Yes** ___ **No** **X**

Remarks: Yolo loam soils are not listed by USDA as hydric soils.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery(B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (Inches): ___

Water Table Present? Yes ___ No X Depth (Inches): ___

Saturation Present? Yes ___ No X Depth (Inches): ___

(includes capillary fringe)

Wetland Hydrology Present? **Yes** ___ **No** **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Surface water present in channel but not at test pit.

OHWM Delineation Cover Sheet

Project: Wiley Canyon Mixed Use Project **Date:** 6/3/20

Location: Santa Clarita, CA **Investigator(s):** May Lau and Doug Gordon-Blackwood

Project Description:

Mixed use development project.

Describe the river or stream's condition (disturbances, in-stream structures, etc.):

South fork Santa Clara River flows into the project site through a triple concrete box culvert under the I-5 at southern end of project and continues northerly into a concrete-lined channel. An unnamed tributary and several culverts also contribute runoff from surrounding development.

Off-site Information

Remotely sensed image(s) acquired? ☐ **Yes** ☑ **No** [If yes, attach image(s) to datasheet(s) and indicate approx. locations of transects, OHWM, and any other features of interest on the image(s); describe below] Description:

Hydrologic/hydraulic information acquired? ☐ **Yes** ☑ **No** [If yes, attach information to datasheet(s) and describe below.] Description:

List and describe any other supporting information received/acquired:

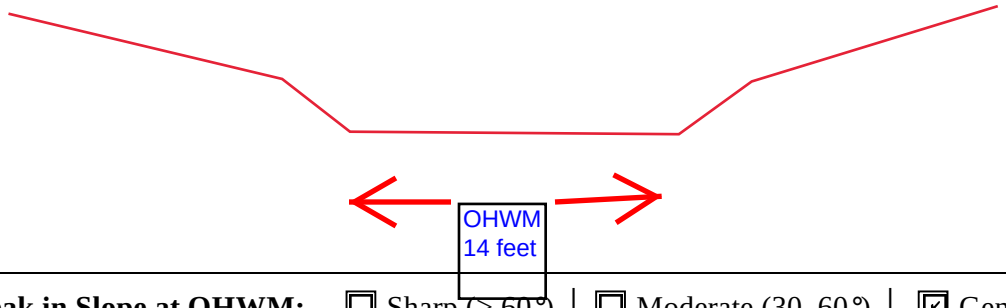
Google earth aerial imagery 2020.

National Wetlands Inventory 2020.

USGS topo map 2013.

Instructions: Complete one cover sheet and one or more datasheets for each project site. Each datasheet should capture the dominant characteristics of the OHWM along some length of a given stream. Complete enough datasheets to adequately document up- and/or downstream variability in OHWM indicators, stream conditions, etc. Transect locations can be marked on a recent aerial image or their GPS coordinates noted on the datasheet.

Transect (cross-section) drawing: (choose a location that is representative of the dominant stream characteristics over some distance; label the OHWM and other features of interest along the transect; include an estimate of transect length)



Break in Slope at OHWM: ☐ Sharp (> 60°) | ☐ Moderate (30–60°) | ☑ Gentle (< 30°) | ☐ None

Notes/Description:

OHWM indicators including shelving, change in vegetative cover, and fine sediment/silt above OHWM.

Sediment Texture: Estimate percentages to describe the general sediment texture above and below the OHWM

	Clay/Silt <0.05mm	Sand 0.05 – 2mm	Gravel 2mm – 1cm	Cobbles 1 – 10cm	Boulders >10cm	Developed Soil Horizons (Y/N)
Above OHWM	30	20	20	20	0	N/A
Below OHWM	5	20	10	60	5	N/A

Notes/Description:

Accumulated sediment/silt above OHWM.

Vegetation: Estimate absolute percent cover to describe general vegetation characteristics above and below the OHWM

	Tree (%)	Shrub (%)	Herb (%)	Bare (%)
Above OHWM		80	20	
Below OHWM			10	90

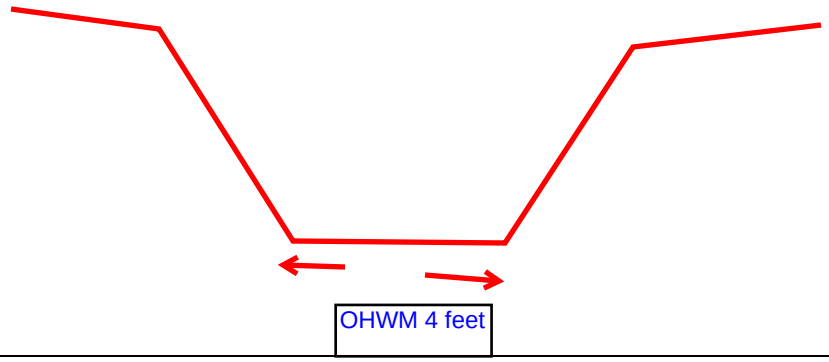
Notes/Description:

Above - mulefat, elderberry, black sage, non-native grasses
Below - primarily unvegetated; mulefat sprouting in channel

Other Evidence: List/describe any additional field evidence and/or lines of reasoning used to support your delineation

Algal mats within OHWM, no surface water observed.

Transect (cross-section) drawing: (choose a location that is representative of the dominant stream characteristics over some distance; label the OHWM and other features of interest along the transect; include an estimate of transect length)



Break in Slope at OHWM: ☑ Sharp (> 60°) | ☐ Moderate (30–60°) | ☐ Gentle (< 30°) | ☐ None

Notes/Description:

OHWM indicators include shelving and wracking.

Sediment Texture: Estimate percentages to describe the general sediment texture above and below the OHWM

	Clay/Silt <0.05mm	Sand 0.05 – 2mm	Gravel 2mm – 1cm	Cobbles 1 – 10cm	Boulders >10cm	Developed Soil Horizons (Y/N)
Above OHWM		70			30	N/A
Below OHWM	30	70				N/A

Notes/Description:

Sandy silt substrate in channel

Vegetation: Estimate absolute percent cover to describe general vegetation characteristics above and below the OHWM

	Tree (%)	Shrub (%)	Herb (%)	Bare (%)
Above OHWM		30	70	
Below OHWM		5	20	75

Notes/Description:

Above - Quercus agrifolia, elderberry, tree tobacco, non-native grasses
Below - primarily non-native grasses

Other Evidence: List/describe any additional field evidence and/or lines of reasoning used to support your delineation

Datasheet # _____ **OHWM Delineation Datasheet** Page ____ of ____

Transect (cross-section) drawing: (choose a location that is representative of the dominant stream characteristics over some distance; label the OHWM and other features of interest along the transect; include an estimate of transect length)

Break in Slope at OHWM: ☐ Sharp (> 60°) | ☐ Moderate (30–60°) | ☐ Gentle (< 30°) | ☐ None

Notes/Description:

Sediment Texture: Estimate percentages to describe the general sediment texture above and below the OHWM

	Clay/Silt <0.05mm	Sand 0.05 – 2mm	Gravel 2mm – 1cm	Cobbles 1 – 10cm	Boulders >10cm	Developed Soil Horizons (Y/N)
Above OHWM						
Below OHWM						

Notes/Description:

Vegetation: Estimate absolute percent cover to describe general vegetation characteristics above and below the OHWM

	Tree (%)	Shrub (%)	Herb (%)	Bare (%)
Above OHWM				
Below OHWM				

Notes/Description:

Other Evidence: List/describe any additional field evidence and/or lines of reasoning used to support your delineation

Datasheet # _____ **OHWM Delineation Datasheet** Page ____ of ____

Transect (cross-section) drawing: (choose a location that is representative of the dominant stream characteristics over some distance; label the OHWM and other features of interest along the transect; include an estimate of transect length)

Break in Slope at OHWM: ☐ Sharp (> 60°) | ☐ Moderate (30–60°) | ☐ Gentle (< 30°) | ☐ None

Notes/Description:

Sediment Texture: Estimate percentages to describe the general sediment texture above and below the OHWM

	Clay/Silt <0.05mm	Sand 0.05 – 2mm	Gravel 2mm – 1cm	Cobbles 1 – 10cm	Boulders >10cm	Developed Soil Horizons (Y/N)
Above OHWM						
Below OHWM						

Notes/Description:

Vegetation: Estimate absolute percent cover to describe general vegetation characteristics above and below the OHWM

	Tree (%)	Shrub (%)	Herb (%)	Bare (%)
Above OHWM				
Below OHWM				

Notes/Description:

Other Evidence: List/describe any additional field evidence and/or lines of reasoning used to support your delineation

Appendix D

Representative Site Photographs

Photo 1 –Culvert crossing of IS-1 under I-5, facing southwest (6/3/20).

Photo 2 – OHWM indicator (shelving) observed along IS-1(6/3/20).

Photo 3 –IS-1 at Transect 2 facing northeast (6/3/20).

Photo 4 – IS-1 at Transect 3 facing southwest (6/3/20).

Photo 5 –IS-1 at Transect 4 facing northeast (6/3/20).

Photo 6 –IS-1 at Transect 5 facing south (6/3/20).

Photo 7 – IS-1 at Transect 6 facing north (6/3/20).

Photo 8 –Test Pit 1 facing north where IS-1 turns into concrete lined channel (6/3/20).

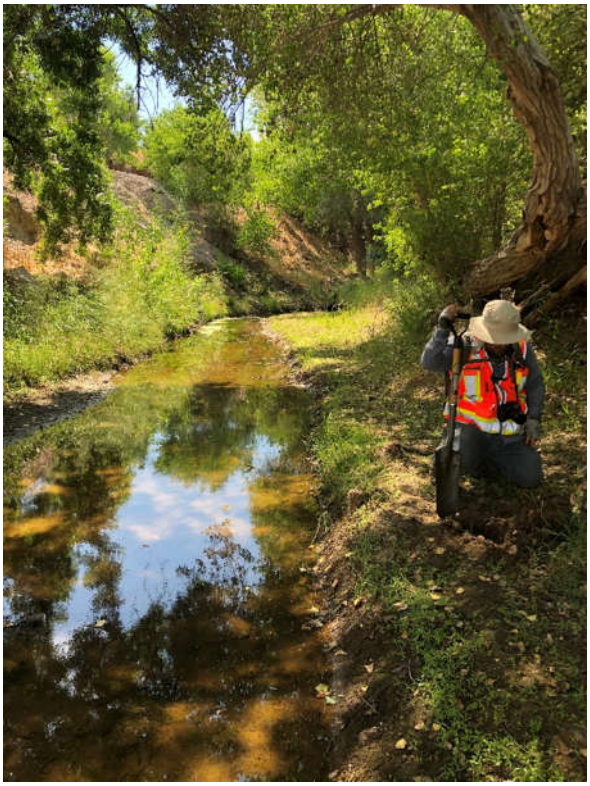


Photo 9 – Test Pit 1 facing south (6/3/20). This soil pit did not meet the USACE's wetland criteria.

Photo 10 – IS-2 at Transect 8 facing north (6/3/20).

Photo 11 – IS-2 at Transect 9 facing south (6/3/20).

Photo 12 –IS-2 at southern end of survey area facing north (6/3/20).

Stantec

Memo

To:	Scott Sheridan	From:	Sandhya Perumalla, and Daryl Zerfass
	Wiley Cyn, LLC		Stantec
File:	2042546500	Date:	December 21, 2018

Reference: Preliminary Traffic Assessment of Smiser Property

The following memorandum summarizes the results of a preliminary traffic assessment conducted for the proposed Smiser development (Project) located in the southwest portion of the City of Santa Clarita, California. For the purpose of this analysis the Project is assumed to consist of a 140-unit senior apartment project (or 140 bed assisted living facility), 220 apartment units, 90 attached townhomes, 125,000 square feet of professional office, and 25,000 square feet of retail commercial. This study is prepared to determine if the proposed Project would result in significant impacts to nearby roadways or infrastructure based on the City's traffic impact study guidelines.

The study area includes intersections where the proposed Project would generally add 50 or more trips during either the AM or PM peak hour. The following two signalized and one unsignalized study intersections in the vicinity of the Project site were selected based on the above-mentioned criteria. See attachment for an exhibit showing the Project site and intersection locations.

1. Wiley Canyon Road & Lyons Avenue (signal)
2. Wiley Canyon Road & La Glorita Circle/Evans Avenue (signal)
3. Wiley Canyon Road & Calgrove Boulevard (unsignalized)
4. Wiley Canyon Road & Project Access Road (unsignalized)

Access to the Project site is proposed to be provided at the approximate location of the site's existing driveway on Wiley Canyon Road, which would be improved as part of the site development. Regional access to the Project area will be via I-5 which is located west of the Project site. Access to I-5 is via an interchange with northbound and southbound ramps connecting to Lyons Avenue north of the Project. It can also be accessed via an interchange with northbound and southbound ramps connecting to Calgrove Boulevard south of the Project site.

This traffic study evaluates the proposed Project utilizing the established traffic analysis guidelines of the City of Santa Clarita. The scenarios analyzed are as follows:

1. Existing Conditions (2018)
2. Existing plus Project Conditions
3. Interim Year Cumulative Conditions without-Project
4. Interim Year Cumulative Conditions with-Project

PROJECT LEVEL OF SERVICE ANALYSIS

To evaluate potential impacts of traffic generated by the proposed Project on the surrounding circulation system, a level of service (LOS) analysis utilizing a defined performance criterion determines if a project would cause a deficiency at any of the study area intersections during the AM or PM peak hour.

For this analysis, the methodology outlined in the Highway Capacity Manual (HCM) 2010 is used, which produces estimates of average vehicle delay as a function of intersection capacity and the volume of traffic passing through the intersection. From this, a corresponding LOS is defined. Traffic LOS is designated "A" through "F" with LOS "A" representing free flow conditions and LOS "F" representing severe traffic congestion. Certain LOS values are deemed unacceptable by the City. These definitions and procedures are established by individual local jurisdictions, such as the City of Santa Clarita. The performance criteria and thresholds used in this analysis are summarized in Table A attached to this memorandum. LOS for arterial roadway intersections is determined based on operating conditions during the AM and PM peak hours and the geometric configuration of the intersection. Synchro software was used to calculate the intersection delay and LOS.

Existing Conditions

Traffic count data were collected for the three study intersection locations and roadway segments during the critical AM and PM peak hours in January and October 2018. The traffic count worksheets are provided in the attachment.

The results of the intersection LOS analysis under existing conditions are shown in Table 1 below. The study area intersections were analyzed using the HCM delay methodology. Detailed LOS calculation worksheets are provided in the attachment.

Table 1 Intersection LOS Summary – Existing Conditions

Int #	Intersection Name	Control Type	AM Peak Hour		PM Peak Hour	
			Delay	LOS	Delay	LOS
1	Wiley Canyon Road & Lyons Avenue	Signal	29.3	C	38.0	D
2	Wiley Canyon Road & La Glorita Circle/Evans Avenue	Signal	6.7	A	5.5	A
3	Wiley Canyon Road & Calgrove Boulevard	Stop[1]	16.0	C	251.2	F
[1]For stop control intersections, delay represents the movement with the highest individual delay						

The table shows that all the study intersections currently operate at an acceptable LOS D or better during AM and PM peak hour conditions except the stop-controlled intersection of Wiley Canyon Road and Calgrove Boulevard, which operates at an unacceptable LOS F during the PM peak hour.

Project Trip Generation

Table 2 summarizes the anticipated trip generation of the proposed Project. The trip generation estimates were prepared using standardized Institute of Transportation Engineers (ITE) 10th Edition trip generation rates. As shown in Table 2, the proposed Project is expected to generate a total of approximately 5,137 daily trips with 402 trips occurring during the AM peak hour and 456 trips occurring during the PM peak hour.

Table 2 Trip Generation Summary

Land Use	Amount	Units	AM Peak Hour			PM Peak Hour			ADT
			In	Out	Total	In	Out	Total	
Trip Rates									
Shopping Center (820)		TSF	AM: T = 0.50(X) + 151.78 PM: Ln(T) = 0.74 Ln(X) + 2.89 ADT: Ln(T) = 0.68 Ln(X) + 2.57 Where T = trips and X = Project size in TSF			62% IB; 38% OB 48% IB; 52% OB			
Senior Adult Housing - Attached (252)		DU	0.07	0.13	0.20	0.14	0.12	0.26	3.70
Multifamily Housing (mid-rise) (221)		DU	0.09	0.27	0.36	0.27	0.17	0.44	5.44
Multifamily Housing (low-rise) (220)		DU	0.11	0.35	0.46	0.35	0.21	0.56	7.32
General Office Building (710)		TSF	1.00	0.16	1.16	0.18	0.97	1.15	9.74
Trip Generation									
Shopping Center (820)	25	TSF	102	62	164	94	101	195	2,342
Retail Pass-by Trips[1]	34%		35	21	56	32	34	66	796
Net Shopping Center Trips			*67*	*41*	*108*	*62*	*67*	*129*	*1,546*
Senior Adult Housing - Attached (252)	140	DU	10	18	28	20	17	36	518
Multifamily Housing (mid-rise) (221)	220	DU	20	59	79	59	37	97	1,197
Multifamily Housing (low-rise) (220)	90	DU	10	32	41	32	19	50	659
General Office Building (710)	125	TSF	125	20	145	23	121	144	1,218
Total			**232**	**170**	**402**	**195**	**261**	**456**	**5,137**

Trip Rate Source: Institute of Transportation Engineers (ITE), 10th Edition, 2017, with ITE code in parentheses

[1]Pass-By Trips Source: ITE Trip Generation Handbook, 3rd Edition (2017)

ADT - Average Daily Trips

IB - Inbound
OB - Outbound

The ITE Trip Generation Handbook, 3rd Edition provides pass-by trip percentages for different land uses. For retail shopping center, the pass by trip percentages are provided for the PM peak hour only. It shows an average pass-by trip percentage of 34%, which for the purpose of this analysis is assumed for each of the time periods.

Project Trip Distribution

The geographic distribution of Project-generated trips was derived using the Santa Clarita Valley Consolidated Traffic Model (SCVCTM). The SCVCTM is a computerized travel demand model that utilizes a sophisticated trip distribution function to derive the distribution of vehicle trips, and which has previously been calibrated to the existing conditions of the Santa Clarita Valley. The SCVCTM is jointly maintained by City of Santa Clarita and County of Los Angeles staff, and is utilized for all major transportation planning efforts within the Santa Clarita Valley. Production and attraction trip data is generated by the model based on five separate trip purposes, and trip distribution patterns are then derived by the model. As a final step, the model assigns these trips to the roadway network based on the derived distribution patterns.

The Project's anticipated trip distribution percentages were determined by a SCVCTM select zone run. Overall, approximately 69 percent of the Project trips are oriented towards the north and approximately 31 percent of the Project trips are oriented towards the south via Wiley Canyon Road.

Existing Conditions With-Project

Peak hour delay values and LOS that correspond with the existing traffic and the existing-plus-Project traffic forecasts can be found in Table 3, which provides a comparison between the no-Project and the with-Project conditions. The evaluation of study intersections is based on HCM methodology using Synchro software.

Table 3 Intersection LOS Summary – Existing-Plus-Project Conditions

Int #	Intersection Name	Control Type	Existing				Existing-Plus-Project				Increase	
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour			
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	AM	PM
1	Wiley Canyon Road & Lyons Avenue	Signal	29.3	C	38.0	D	31.6	C	40.6	D	2.3	2.6
2	Wiley Canyon Road & La Glorita Circle/Evans Avenue	Signal	6.7	A	5.5	A	8.2	A	6.7	A	1.5	1.2
3	Wiley Canyon Road & Calgrove Boulevard	Stop[1]	16.0	C	251.2	F	20.4	C	**462.8**	**F**	4.4	**211.6**
4	Wiley Canyon Road & Project Access Road	Stop[1]	-	-	**-**	**-**	**144.6**	**F**	**272.7**	**F**	-	**-**

Note:
Bold denotes significant Impact
[1]For stop control intersections, delay represents the movement with the highest individual delay

As shown, each of the study intersections continue to operate at an acceptable LOS D or better during AM and PM peak hour conditions except the stop-controlled intersection of Wiley Canyon Road and Calgrove Boulevard where the unacceptable LOS F conditions are worsened by the Project during the PM peak hour.

The Project access road intersection would also operate at an unacceptable LOS F based on stop-control. Mitigation that addresses these impacts is provided in the following sections.

Interim Year Cumulative Conditions Analysis

Interim Year cumulative condition traffic volumes presented in this analysis are derived using the SCVCTM. A horizon year of 2028 is utilized to encompass the broad range of Related Projects within the study area. The Project's traffic impacts on study intersections for Interim Year without-Project traffic conditions and with-Project traffic conditions are compared in this section. Table 4, below, summarizes the delay and the peak hour intersection levels of service and provides a comparison between without-Project and the with-Project conditions.

Table 4 Intersection LOS Summary – Cumulative Conditions

Int #	Intersection Name	Control Type	Interim Year Cumulative Conditions without Project				Interim Year Cumulative Conditions with Project				Increase	
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour			
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	AM	PM
1	Wiley Canyon Road & Lyons Avenue	Signal	37.4	D	50.0	D	**42.0**	**D**	52.9	D	**4.6**	2.9
2	Wiley Canyon Road & La Glorita Circle/Evans Avenue	Signal	7.4	A	6.8	A	8.9	A	8.1	A	1.5	1.3
3	Wiley Canyon Road & Calgrove Boulevard	Stop[1]	18.3	C	589.7	F	24.0	C	**1,082.4**	**F**	5.7	**492.7**
4	Wiley Canyon Road & Project Access Road	Stop[1]	-	-	**-**	**-**	**2,228.8**	**F**	**2,855.5**	**F**	-	**-**

Note:
Bold denotes significant Impact
[1]For stop control intersections, delay represents the movement with the highest individual delay

The table indicates that under the Interim Year cumulative conditions, the study area intersections would operate at an acceptable LOS D or better during the AM and PM peak hour conditions except the stop-controlled intersection of Wiley Canyon Road and Calgrove Boulevard, which continues to operate at an unacceptable LOS F during the PM peak hour for conditions with and without the Project, resulting in a significant Project impact.

Also note that, although the intersection of Wiley Canyon Road and Lyons Avenue intersection would operate at an acceptable LOS D, the Project would increase the delay at the intersection by more than four seconds, which represents a significant impact. The specific increase is currently estimated as 4.6 seconds, which is slightly over the significance threshold.

The Project access road intersection would also operate at an unacceptable LOS F based on stop-control. Mitigation that addresses these impacts is provided in the following sections.

POTENTIAL MITIGATION FOR PROJECT IMPACTS

The following intersections are forecast to be significantly impacted by the proposed Project:

- **Wiley Canyon Road & Lyons Avenue:** The intersection is impacted under Interim Year cumulative conditions during the PM peak hour. As mentioned above, the impact is due to the background LOS D conditions together with an increase in delay that is slightly more than four seconds, which is the impact threshold criteria for the City of Santa Clarita.

- **Wiley Canyon Road & Calgrove Boulevard:** This stop-controlled intersection currently operates at LOS F under existing conditions during the PM peak hour and worsens with the addition of the Project.

- **Wiley Canyon Road & Project Access Road:** If configured as a stop-controlled intersection, the Project access road would operate at LOS F under both AM and PM peak hour conditions.

Wiley Canyon Road & Lyons Avenue Mitigation

To mitigate the potential impact at the Wiley Canyon Road and Lyons Avenue intersection, which occurs under cumulative conditions, a 2nd westbound left-turn lane could be provided. As shown in Table 5, with a 2nd left-turn lane the Project would reduce overall delay by 6.9 seconds and 3.9 seconds during the AM and PM peak hours, respectively.

Table 5 Intersection LOS Summary – Interim Year Cumulative Conditions with Project with Mitigation

Intersection Name	Control Type	Interim Year Cumulative Conditions with Project				Interim Year Cumulative Conditions with Project with Mitigation				Increase	
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour			
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	AM	PM
Wiley Canyon Road & Lyons Avenue	Signal	42.0	D	52.9	D	35.1	D	49.0	D	-6.9	-3.9

However, note that the addition of a 2nd westbound left-turn lane may require widening of the west-side of the south leg (Wiley Canyon Road) to provide sufficient width to accommodate the 2nd left-turn movement. Such widening would likely require right-of-way and would impact an existing parking lot.

As discussed above, this preliminary assessment has identified a Project impact at the Wiley Canyon Road and Lyons Avenue intersection of 4.6 seconds of additional delay and the City's threshold of significance is 4.0 seconds of additional delay. Since the Project is close to the threshold, it is possible that with changes to the Project description or future changes to cumulative traffic forecasts could results in a less than significant impact at this location.

Wiley Canyon Road & Calgrove Boulevard Mitigation

To mitigate the potential impact at the Wiley Canyon Road and Calgrove Boulevard intersection, replacement of the existing stop signs with another form of traffic control, such as a roundabout or a traffic signal, would mitigate the Project's significant impact. This impact occurs under existing-plus-Project conditions as well as under cumulative conditions, and therefore would be required when the Project is constructed.

A traffic signal would fully mitigate the Project's significant impact as shown in Table 6. With a traffic signal, the intersection would operate at LOS B under existing-plus-Project conditions as well as cumulative conditions with the Project. However, the traffic volumes may not meet the minimum criteria to install a traffic signal (see attached Signal Warrant diagrams); therefore, a roundabout may be preferred by the City as a mitigation measure.

Table 6 Intersection LOS Summary – Existing Plus Project Conditions with Traffic Signal

Intersection Name	Scenario	AM Peak Hour		PM Peak Hour	
		Delay	LOS	Delay	LOS
Wiley Canyon Road & Calgrove Boulevard	Existing-plus-Project	10.9	B	17.4	B
	Interim Year Cumulative	15.6	B	15.3	B

Project Access Mitigation

As discussed above, this preliminary assessment assumed the Project's access road would be controlled by a stop sign (side-street stop only). With that configuration, the intersection would operate at LOS F. To provide for acceptable LOS, the intersection could be configured as a roundabout or with a traffic signal. If controlled by a traffic signal, the necessary lane configuration for the Project's access road would consist of one eastbound (outbound) left-turn lane and one eastbound (outbound) right-turn lane, one southbound through lane, one southbound right-turn lane, one northbound left-turn lane and one northbound through lane.

Table 7 shows that with a traffic signal, the Project's access roadway would operate at LOS B or better under existing-plus-Project conditions, and at LOS C under cumulative conditions.

Table 7 Intersection LOS Summary – Project Access Road with Traffic Signal

Intersection Name	Scenario	AM Peak Hour		PM Peak Hour	
		Delay	LOS	Delay	LOS
Wiley Canyon & Project Driveway	Existing-plus-Project	11.3	B	9.9	A
	Interim Year Cumulative	30.1	C	23.1	C

WILEY CANYON ROAD

Wiley Canyon Road from Lyons Avenue to Calgrove Boulevard is classified as a 4-lane Secondary Highway in the Santa Clarita General Plan. Currently, it is a two-lane roadway. As mentioned above, for the Project access to operate at an acceptable LOS D or better, the intersection of the access roadway with Wiley Canyon Road will require a traffic signal and the addition of one new southbound right-turn lane on Wiley Canyon Road. Wiley Canyon Road itself can remain as a two-lane roadway under both existing-plus-Project and cumulative conditions with the Project.

SUMMARY

This traffic memo was prepared to evaluate Project impacts associated with the development of the proposed Smiser Project. The Project was evaluated under existing conditions as well as Interim Year cumulative conditions and the findings indicate that the Project would likely result in a significant impact at the Wiley Canyon Road & Calgrove Boulevard intersection, which could be mitigated by constructing a roundabout or installing a traffic signal. Since the traffic volumes do not meet the minimum signal warrant criteria, the City may consider a roundabout as the preferred mitigation.

The Project was also found to result in a slight significant impact (0.4 seconds of additional delay) at the Wiley Canyon Road and Lyons Avenue intersection under cumulative conditions. Since the Project is close to the threshold, it is possible that with changes to the Project description or future changes to cumulative traffic forecasts could results in a less than significant impact at this location. Potential mitigation would consist of providing a second westbound left-turn lane, which could result in right-of-way impacts to the south (receiving) leg of the intersection.

The Project's access road intersection with Wiley Canyon Road was found to require some type of traffic control, such as a roundabout or a traffic signal, in order to provide acceptable LOS for Project access. However, Wiley Canyon Road itself can remain as a two-lane roadway with the addition of the Project.

Reference: **Preliminary Traffic Assessment of Smiser Property**

Please feel free to contact Sandhya or Daryl if you have any questions or if you would like to discuss the above material.

Sincerely,

Stantec Consulting Services Inc.

Sandhya Perumalla
Senior Transportation Planner

Phone: (949) 923-6074
Fax: (949) 923-6121
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Daryl Zerfass PE, PTP
Principal, Transportation Planning & Traffic Engineering

Phone: (949) 923-6058
Fax: (949) 923-6121
Daryl.Zerfass@stantec.com

Attachments: Arterial Intersection Performance Criteria
Project Location and Study Intersections Exhibit
Traffic Count Worksheets
LOS Worksheets
Signal Warrant Exhibits

c. Glenn Adamick

Table A Arterial Intersection Performance Criteria

Delay Methodology

Calculation Methodology

Level of service based on "average vehicle delay" calculated as follows:

- Synchro/HCM delay-based intersection methodology for traffic signals
- HCM 2010 delay-based intersection methodology for stop sign control

Performance Standard

Level of Service D defined as follows:

- stopped delay to not exceed 55 seconds for signalized intersections
- stopped delay to not exceed 35 seconds for stop sign control

Significance Thresholds

Would the Project:

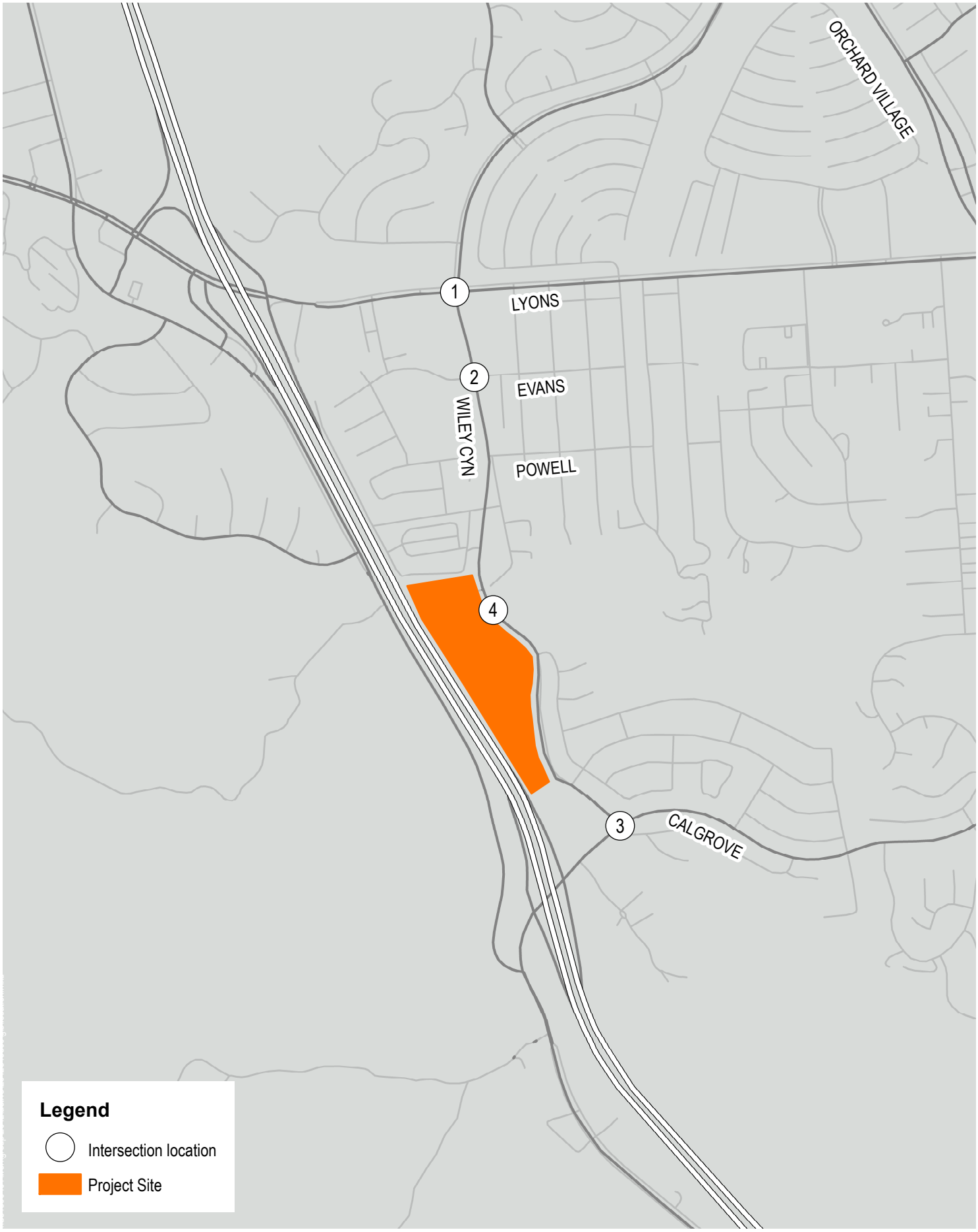
- Worsen an intersection maintained by the City of Santa Clarita from LOS D or better to LOS E or F
- Cause the following increase in delay at an intersection maintained by the City of Santa Clarita that operated (with the project) at LOS D or worse
  - LOS D with the project: more than 4-second increase in delay is significant
  - LOS E or F with the project: more than 2-second increase in delay is significant

Note: For intersections under joint jurisdiction of the City and Caltrans, the analysis utilizes the corresponding threshold of the local agency (City) as applicable.

Abbreviations:

V/C – Volume/Capacity Ratio

LOS – Level of Service



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Stantec

N

0 315 630 1,260 1,890 2,520

Feet

Figure 1

Project Site & Intersection Locations

Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: SANTA CLARITA
N-S Direction: WILEY CANYON ROAD
E-W Direction: LYONS AVENUE

File Name : H1801053
Site Code : 51
Start Date : 1/31/2018

Groups Printed- Turning Movements

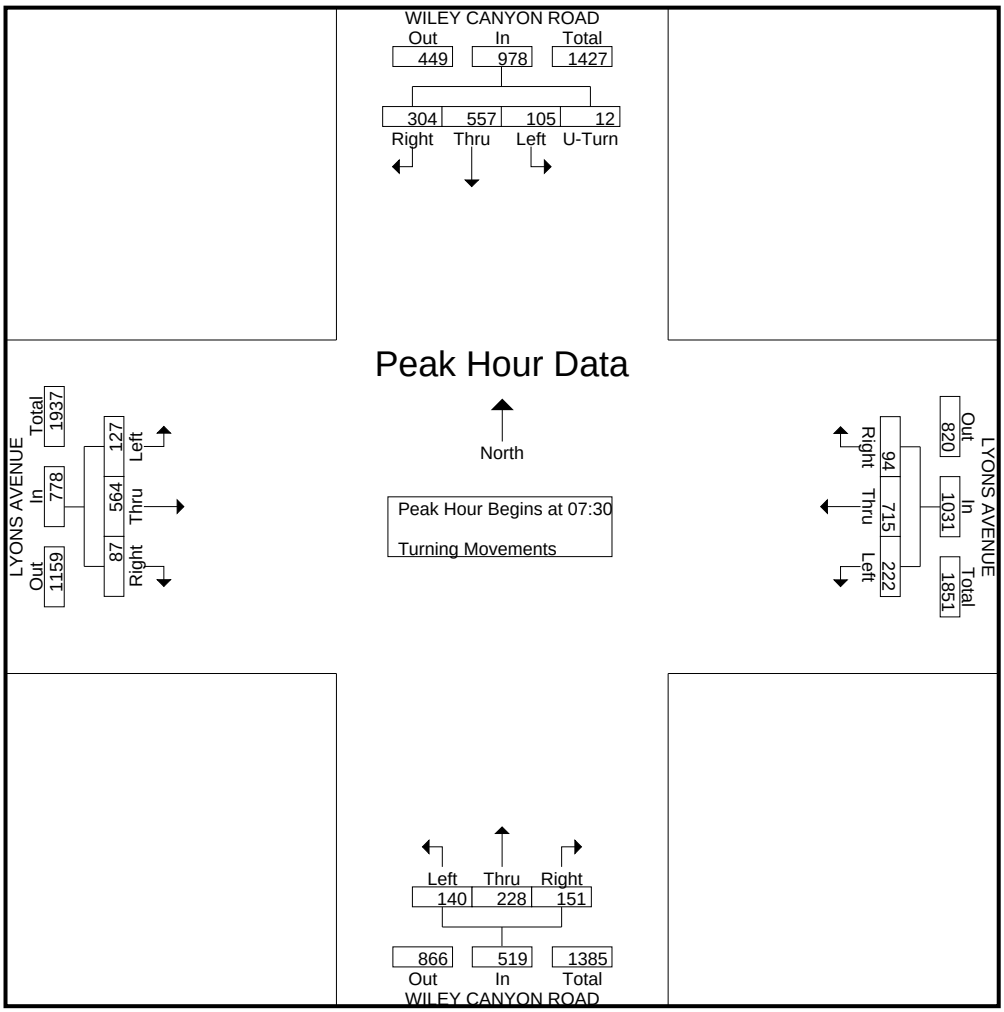
	WILEY CANYON ROAD Southbound				LYONS AVENUE Westbound				WILEY CANYON ROAD Northbound				LYONS AVENUE Eastbound				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
07:00	67	156	14	4	10	112	31	0	19	27	12	0	14	86	17	0	569
07:15	48	163	23	4	15	118	38	0	22	33	18	0	10	77	30	0	599
07:30	82	158	23	4	22	162	49	0	34	39	32	0	12	121	29	0	767
07:45	108	131	37	3	41	237	55	0	31	60	30	0	18	161	31	0	943
Total	305	608	97	15	88	629	173	0	106	159	92	0	54	445	107	0	2878
08:00	69	153	17	0	18	165	71	0	51	57	31	0	29	143	31	0	835
08:15	45	115	28	5	13	151	47	0	35	72	47	0	28	139	36	0	761
08:30	57	106	29	7	14	145	34	0	45	47	20	0	16	161	45	0	726
08:45	75	80	31	6	13	148	31	0	34	58	28	0	7	167	32	0	710
Total	246	454	105	18	58	609	183	0	165	234	126	0	80	610	144	0	3032
*** BREAK ***																	
16:00	48	36	37	7	31	169	37	1	53	73	28	0	21	236	54	0	831
16:15	50	72	29	2	26	180	46	1	51	85	24	0	22	229	61	0	878
16:30	54	71	32	1	28	163	46	1	55	103	26	0	25	219	72	0	896
16:45	61	64	39	3	26	175	34	0	57	98	43	0	15	250	73	0	938
Total	213	243	137	13	111	687	163	3	216	359	121	0	83	934	260	0	3543
17:00	57	81	39	7	26	152	45	0	71	112	47	0	25	262	81	0	1005
17:15	53	98	55	5	22	207	41	1	56	99	40	0	24	252	91	0	1044
17:30	56	79	39	1	30	174	35	0	44	92	33	0	27	247	92	0	949
17:45	61	82	50	3	32	205	39	0	64	120	38	0	23	237	77	0	1031
Total	227	340	183	16	110	738	160	1	235	423	158	0	99	998	341	0	4029
Grand Total	991	1645	522	62	367	2663	679	4	722	1175	497	0	316	2987	852	0	13482
Apprch %	30.8	51.1	16.2	1.9	9.9	71.7	18.3	0.1	30.2	49.1	20.8	0	7.6	71.9	20.5	0	
Total %	7.4	12.2	3.9	0.5	2.7	19.8	5	0	5.4	8.7	3.7	0	2.3	22.2	6.3	0	

Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: SANTA CLARITA
N-S Direction: WILEY CANYON ROAD
E-W Direction: LYONS AVENUE

File Name : H1801053
Site Code : 51
Start Date : 1/31/2018

	WILEY CANYON ROAD Southbound					LYONS AVENUE Westbound				WILEY CANYON ROAD Northbound				LYONS AVENUE Eastbound				
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																		
Peak Hour for Entire Intersection Begins at 07:30																		
07:30	82	**158**	23	4	267	22	162	49	233	34	39	32	105	12	121	29	162	767
07:45	**108**	131	**37**	3	**279**	**41**	**237**	55	**333**	31	60	30	121	18	**161**	31	**210**	**943**
08:00	69	153	17	0	239	18	165	**71**	254	**51**				**29**	143	31	203	835
08:15	45	115	28	**5**	193	13	151	47	211	35	**72**	**47**	**154**	28	139	**36**	203	761
Total Volume	304	557	105	12	978	94	715	222	1031	151	228	140	519	87	564	127	778	3306
% App. Total	31.1	57	10.7	1.2		9.1	69.4	21.5		29.1	43.9	27		11.2	72.5	16.3		
PHF	.704	.881	.709	.600	.876	.573	.754	.782	.774	.740	.792	.745	.843	.750	.876	.882	.926	.876



Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
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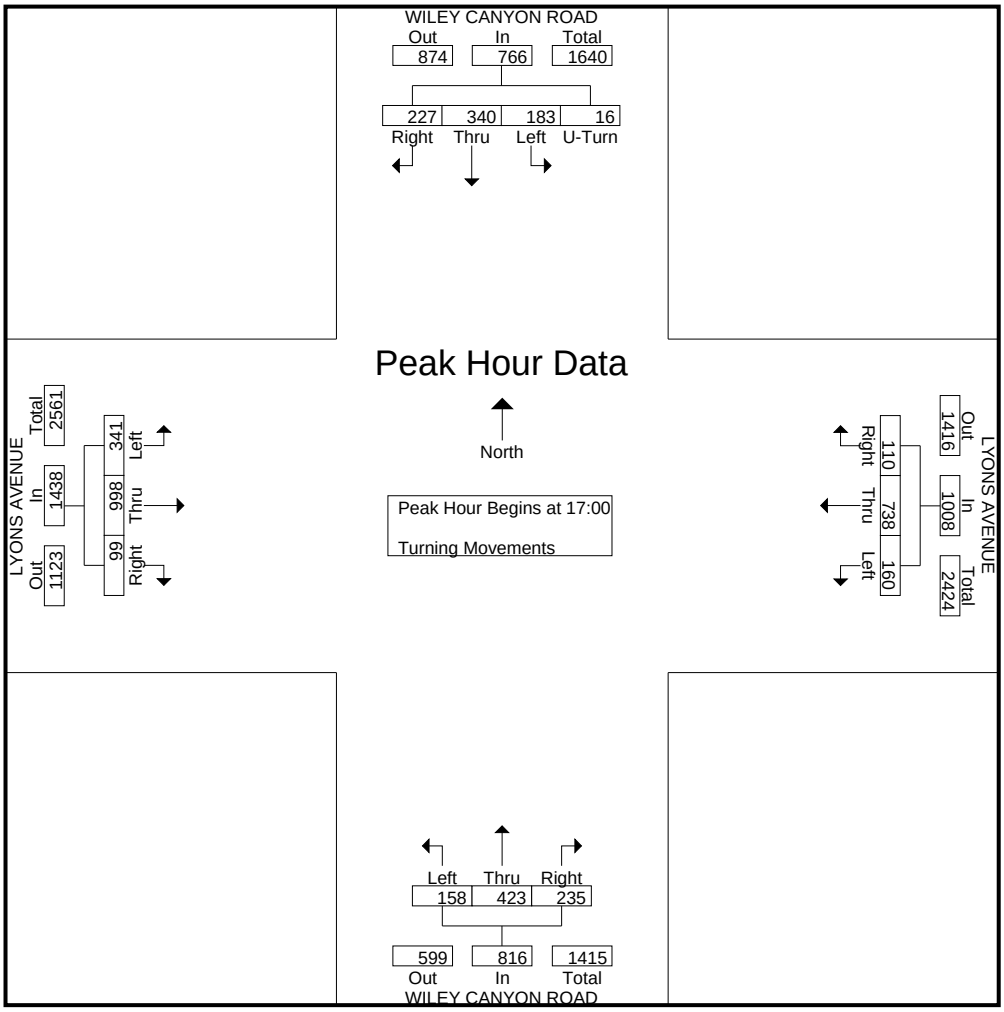
N-S Direction: WILEY CANYON ROAD
E-W Direction: LYONS AVENUE

File Name : H1801053
Site Code : 51
Start Date : 1/31/2018
Page No : 3

	WILEY CANYON ROAD Southbound					LYONS AVENUE Westbound				WILEY CANYON ROAD Northbound				LYONS AVENUE Eastbound				
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																		
Peak Hour for Entire Intersection Begins at 17:00																		
17:00	57	81	39	**7**	184	26	152	**45**	223	**71**		**47**	**230**	25	**262**	81	**368**	1005
17:15	53	**98**	**55**	5	**211**	22	**207**	41	270	56	99	40	195	24	252	91	367	**1043**
17:30	56	79	39	1	175	30	174	35	239	44	92	33	169	**27**	247	**92**	366	949
17:45	**61**	82	50	3	196	**32**	205	39	**276**	64	**120**	38	222	23	237	77	337	1031
Total Volume	227	340	183	16	766	110	738	160	1008	235	423	158	816	99	998	341	1438	4028
% App. Total	29.6	44.4	23.9	2.1		10.9	73.2	15.9		28.8	51.8	19.4		6.9	69.4	23.7		
PHF	.930	.867	.832	.571	.908	.859	.891	.889	.913	.827	.881	.840	.887	.917	.952	.927	.977	.965



INTERSECTION TURNING MOVEMENT COUNTS

T218

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE: Wed, Oct 17, 18

LOCATION: Santa Clarita
NORTH & SOUTH: Wiley Canyon
EAST & WEST: Evans

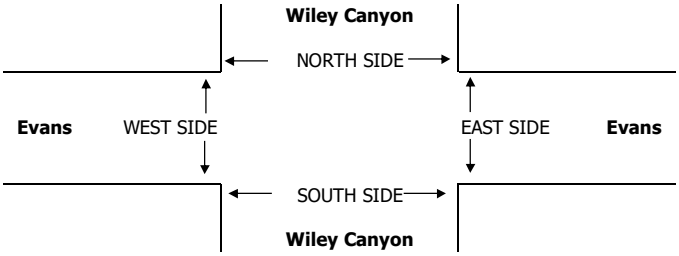
PROJECT #: SC1948
LOCATION #: 1
CONTROL: SIGNAL

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

☑ Add U-Turns to Left Turns

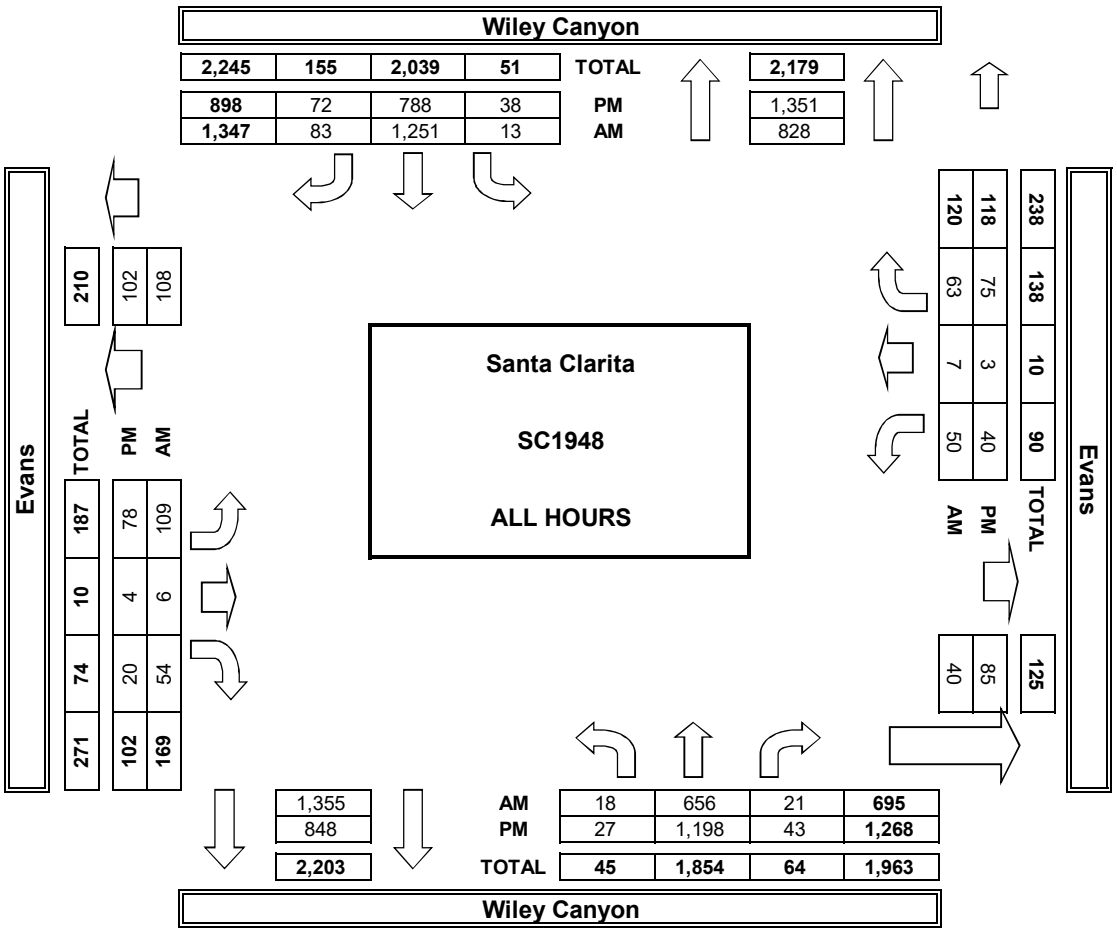
		NORTHBOUND Wiley Canyon			SOUTHBOUND Wiley Canyon			EASTBOUND Evans			WESTBOUND Evans				U-TURNS				
	LANES:	NL 1	NT 1	NR 0	SL 1	ST 1	SR 1	EL 1	ET 1	ER 0	WL 0	WT 1	WR 0	TOTAL	NB 0	SB 0	EB 0	WB 0	TTL
AM	7:00 AM	2	45	0	0	207	0	10	0	10	3	0	3	280	0	0	0	0	0
	7:15 AM	0	51	1	3	182	5	8	0	2	3	0	3	258	0	0	0	0	0
	7:30 AM	1	89	2	1	167	4	14	1	8	9	0	13	309	0	0	0	0	0
	7:45 AM	2	99	2	1	180	22	11	0	5	10	2	12	346	0	0	0	0	0
	8:00 AM	2	108	8	2	181	24	20	2	5	15	4	11	382	0	0	0	0	0
	8:15 AM	9	107	2	3	141	13	9	2	11	5	0	2	304	0	0	0	0	0
	8:30 AM	2	63	2	2	105	11	20	1	4	3	0	10	223	0	0	0	0	0
	8:45 AM	0	94	4	1	88	4	17	0	9	2	1	9	229	0	0	0	0	0
	VOLUMES	18	656	21	13	1,251	83	109	6	54	50	7	63	2,331	0	0	0	0	0
	APPROACH %	3%	94%	3%	1%	93%	6%	64%	4%	32%	42%	6%	53%						
	APP/DEPART	695	/	828	1,347	/	1,355	169	/	40	120	/	108	0					
	BEGIN PEAK HR		7:30 AM																
	VOLUMES	14	403	14	7	669	63	54	5	29	39	6	38	1,341					
	APPROACH %	3%	94%	3%	1%	91%	9%	61%	6%	33%	47%	7%	46%						
	PEAK HR FACTOR		0.913			0.893			0.815			0.692		0.878					
	APP/DEPART	431	/	495	739	/	737	88	/	26	83	/	83	0					
PM	4:00 PM	4	119	6	2	97	6	8	1	1	4	0	8	256	0	0	0	0	0
	4:15 PM	4	153	6	5	75	10	9	0	2	3	1	7	275	0	0	0	0	0
	4:30 PM	7	143	6	8	97	7	14	1	4	6	0	11	304	0	0	0	0	0
	4:45 PM	2	147	4	3	101	10	6	0	0	7	0	11	291	0	0	0	0	0
	5:00 PM	5	153	2	2	84	6	10	0	4	3	0	5	274	0	0	0	0	0
	5:15 PM	1	161	5	5	105	14	6	0	2	7	0	7	313	0	0	0	0	0
	5:30 PM	1	146	7	4	122	8	13	1	4	7	0	15	328	0	0	0	0	0
	5:45 PM	3	176	7	9	107	11	12	1	3	3	2	11	345	0	0	0	0	0
	VOLUMES	27	1,198	43	38	788	72	78	4	20	40	3	75	2,386	0	0	0	0	0
	APPROACH %	2%	94%	3%	4%	88%	8%	76%	4%	20%	34%	3%	64%						
	APP/DEPART	1,268	/	1,351	898	/	848	102	/	85	118	/	102	0					
	BEGIN PEAK HR		5:00 PM																
	VOLUMES	10	636	21	20	418	39	41	2	13	20	2	38	1,260					
	APPROACH %	1%	95%	3%	4%	88%	8%	73%	4%	23%	33%	3%	63%						
	PEAK HR FACTOR		0.897			0.890			0.778			0.682		0.913					
	APP/DEPART	667	/	715	477	/	451	56	/	43	60	/	51	0					

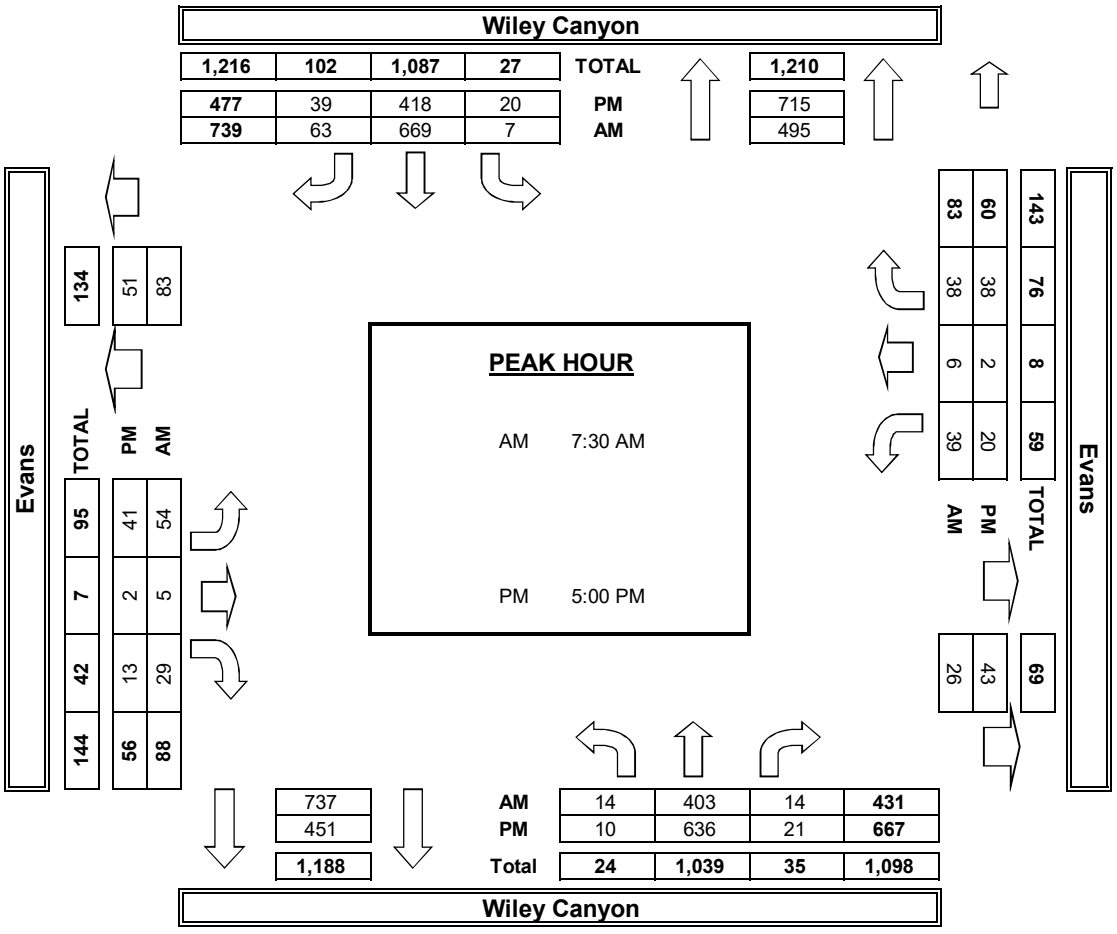


		PEDESTRIAN + BIKE CROSSINGS					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	1	2	3	0	6	1	1	1	0	3	0	1	2	0	3
	7:30 AM	0	3	2	1	6	0	3	2	1	6	0	0	0	0	0
	7:45 AM	2	14	2	8	26	2	14	2	8	26	0	0	0	0	0
	8:00 AM	1	33	11	10	55	1	33	11	10	55	0	0	0	0	0
	8:15 AM	5	37	14	5	61	5	37	14	5	61	0	0	0	0	0
	8:30 AM	4	14	6	6	30	4	13	6	6	29	0	1	0	0	1
	8:45 AM	0	0	0	2	2	0	0	0	0	0	0	0	0	2	2
	TOTAL	13	103	38	32	186	13	101	36	30	180	0	2	2	2	6
	AM BEGIN PEAK HR			7:30 AM			8	87	29	24	148					
PM	4:00 PM	1	3	1	0	5	1	3	1	0	5	0	0	0	0	0
	4:15 PM	1	0	3	0	4	1	0	3	0	4	0	0	0	0	0
	4:30 PM	0	0	0	1	1	0	0	0	1	1	0	0	0	0	0
	4:45 PM	1	1	1	2	5	0	1	1	1	3	1	0	0	1	2
	5:00 PM	0	1	1	2	4	0	1	1	1	3	0	0	0	1	1
	5:15 PM	3	1	3	0	7	3	1	3	0	7	0	0	0	0	0
	5:30 PM	5	1	1	1	8	5	1	1	1	8	0	0	0	0	0
	5:45 PM	6	0	0	1	7	6	0	0	0	6	0	0	0	1	1
	TOTAL	17	7	10	7	41	16	7	10	4	37	1	0	0	3	4
	PM BEGIN PEAK HR			5:00 PM			14	3	5	2	24					

AimTD LLC

TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

T218

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE: Wed, Oct 17, 18

LOCATION: Santa Clarita
NORTH & SOUTH: Wiley Canyon
EAST & WEST: Calgrove

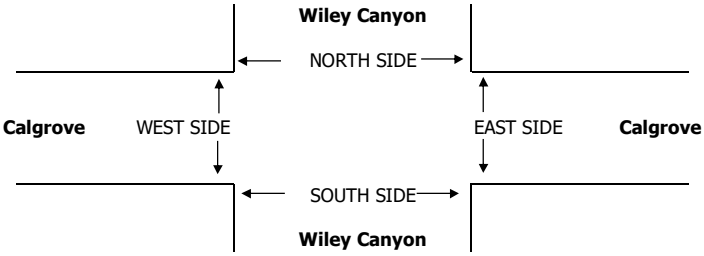
PROJECT #: SC1948
LOCATION #: 2
CONTROL: STOP N/S

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

☑ Add U-Turns to Left Turns

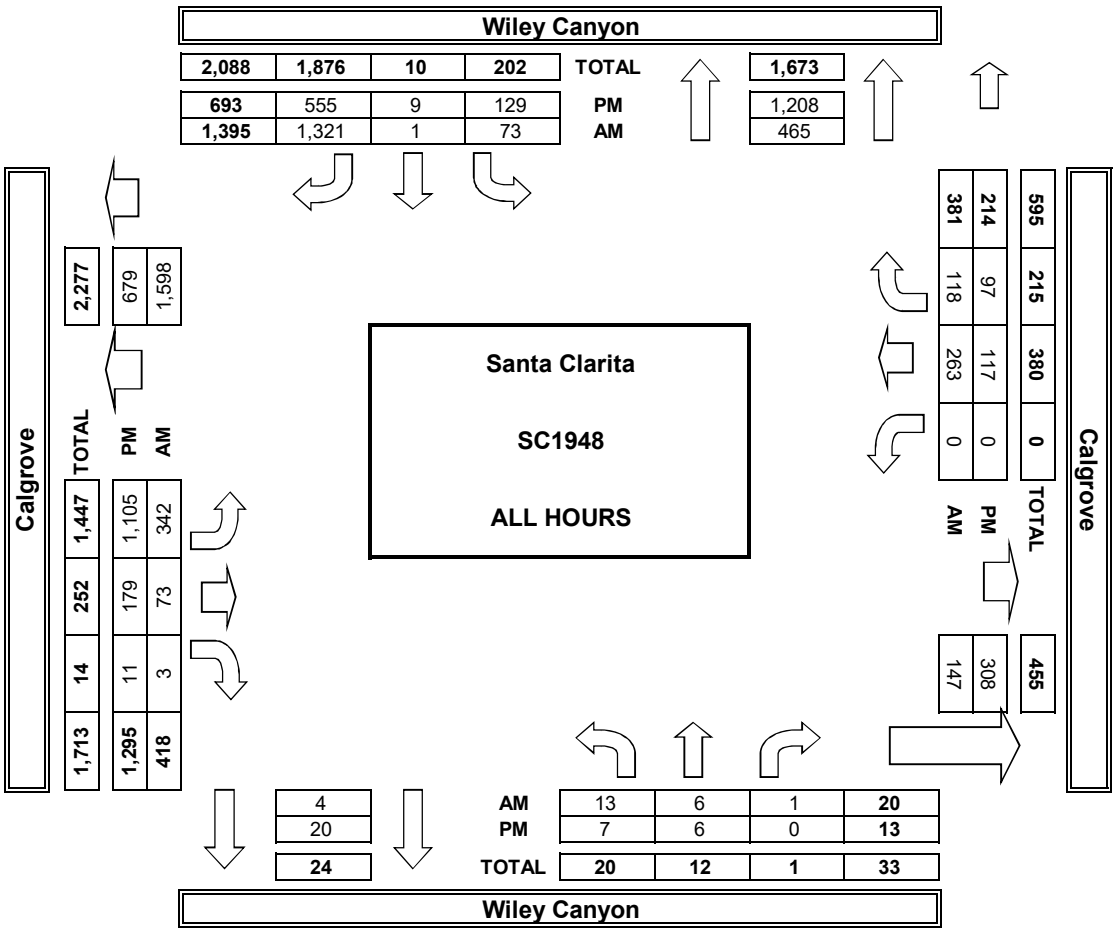
		NORTHBOUND Wiley Canyon			SOUTHBOUND Wiley Canyon			EASTBOUND Calgrove			WESTBOUND Calgrove				U-TURNS				
	LANES:	NL 0	NT 1	NR 0	SL 0.5	ST 0.5	SR 1	EL 1	ET 1	ER 1	WL 1	WT 1	WR 1	TOTAL	NB 0	SB 0	EB 0	WB 0	TTL
AM	7:00 AM	2	0	0	3	0	209	18	3	0	0	26	7	268	0	0	1	0	1
	7:15 AM	1	0	0	9	0	211	30	8	0	0	35	14	308	0	0	0	0	0
	7:30 AM	3	1	0	6	0	190	43	8	0	0	28	23	302	0	0	0	0	0
	7:45 AM	3	0	0	13	0	188	58	10	1	0	49	20	342	0	0	0	0	0
	8:00 AM	0	0	0	11	0	159	52	12	0	0	30	12	276	0	0	0	0	0
	8:15 AM	3	2	1	17	0	143	51	16	2	0	25	14	274	0	0	0	0	0
	8:30 AM	0	3	0	9	1	108	40	8	0	0	35	13	217	0	0	0	0	0
	8:45 AM	1	0	0	5	0	113	50	8	0	0	35	15	227	0	0	0	0	0
	VOLUMES	13	6	1	73	1	1,321	342	73	3	0	263	118	2,214	0	0	1	0	1
	APPROACH %	65%	30%	5%	5%	0%	95%	82%	17%	1%	0%	69%	31%						
	APP/DEPART	20	/	465	1,395	/	4	418	/	147	381	/	1,598	0					
	BEGIN PEAK HR		7:15 AM																
	VOLUMES	7	1	0	39	0	748	183	38	1	0	142	69	1,228					
	APPROACH %	88%	13%	0%	5%	0%	95%	82%	17%	0%	0%	67%	33%						
	PEAK HR FACTOR		0.500			0.894			0.804			0.764		0.898					
	APP/DEPART	8	/	253	787	/	1	222	/	77	211	/	897	0					
PM	4:00 PM	0	0	0	14	2	53	98	18	0	0	9	13	207	0	0	0	0	0
	4:15 PM	0	1	0	19	1	63	135	18	4	0	17	11	269	0	0	0	0	0
	4:30 PM	3	1	0	23	1	59	139	20	3	0	9	6	264	0	0	0	0	0
	4:45 PM	1	0	0	11	1	81	140	19	1	0	17	17	288	0	0	0	0	0
	5:00 PM	0	0	0	10	0	72	149	13	1	0	10	13	268	0	0	0	0	0
	5:15 PM	0	1	0	13	2	71	148	33	0	0	15	15	298	0	0	0	0	0
	5:30 PM	1	1	0	17	2	88	137	30	1	0	18	8	303	0	0	0	0	0
	5:45 PM	2	2	0	22	0	68	159	28	1	0	22	14	318	0	0	0	0	0
	VOLUMES	7	6	0	129	9	555	1,105	179	11	0	117	97	2,215	0	0	0	0	0
	APPROACH %	54%	46%	0%	19%	1%	80%	85%	14%	1%	0%	55%	45%						
	APP/DEPART	13	/	1,208	693	/	20	1,295	/	308	214	/	679	0					
	BEGIN PEAK HR		5:00 PM																
	VOLUMES	3	4	0	62	4	299	593	104	3	0	65	50	1,187					
	APPROACH %	43%	57%	0%	17%	1%	82%	85%	15%	0%	0%	57%	43%						
	PEAK HR FACTOR		0.438			0.853			0.931			0.799		0.933					
	APP/DEPART	7	/	647	365	/	7	700	/	166	115	/	367	0					

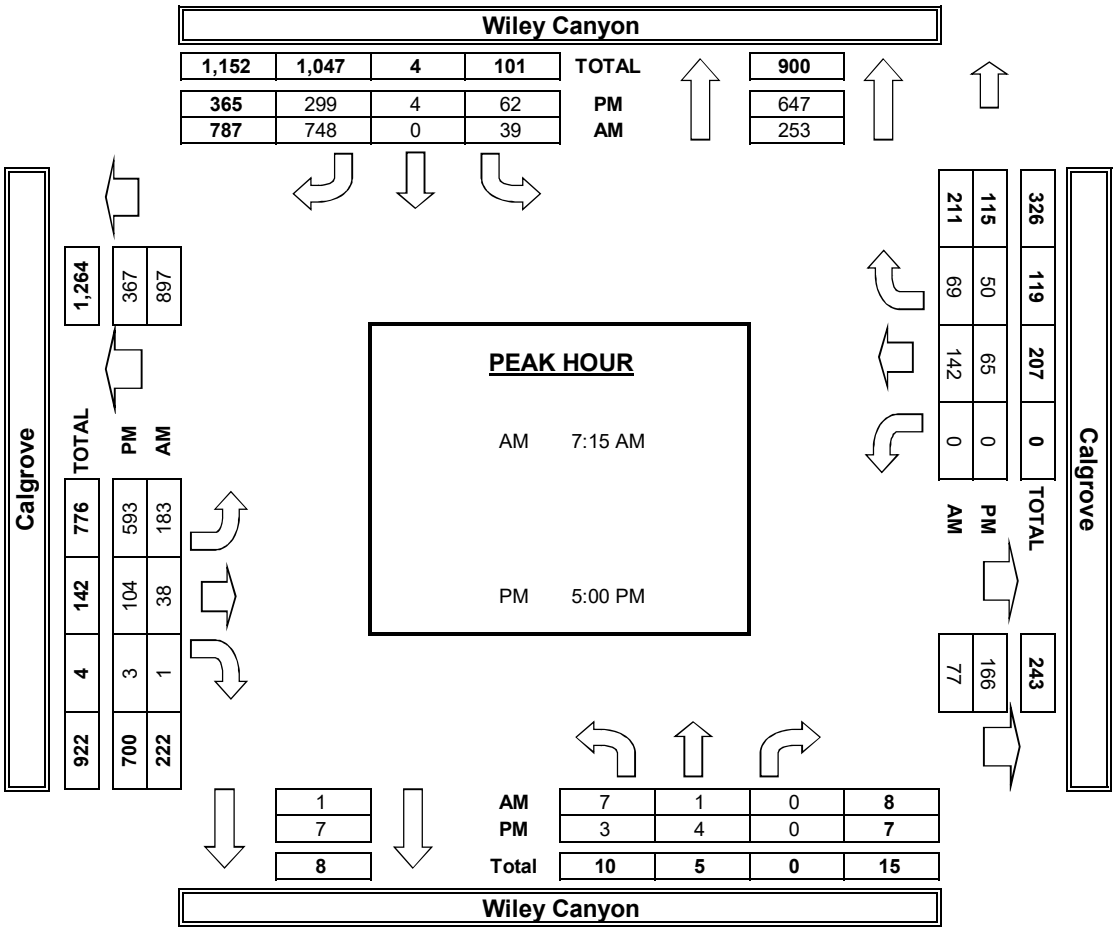


		PEDESTRIAN + BIKE CROSSINGS					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	2	2	0	2	6	0	2	0	0	2	2	0	0	2	4
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	0	3	0	0	3	0	3	0	0	3	0	0	0	0	0
	8:30 AM	0	0	0	1	1	0	0	0	1	1	0	0	0	0	0
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	2	5	0	3	10	0	5	0	1	6	2	0	0	2	4
	AM BEGIN PEAK HR			7:15 AM			0	2	0	0	2					
PM	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:30 PM	0	1	1	0	2	0	1	1	0	2	0	0	0	0	0
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:00 PM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:30 PM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1
	5:45 PM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1
	TOTAL	0	4	1	0	5	0	1	1	0	2	0	3	0	0	3
	PM BEGIN PEAK HR			5:00 PM			0	0	0	0	0					

AimTD LLC

TURNING MOVEMENT COUNTS

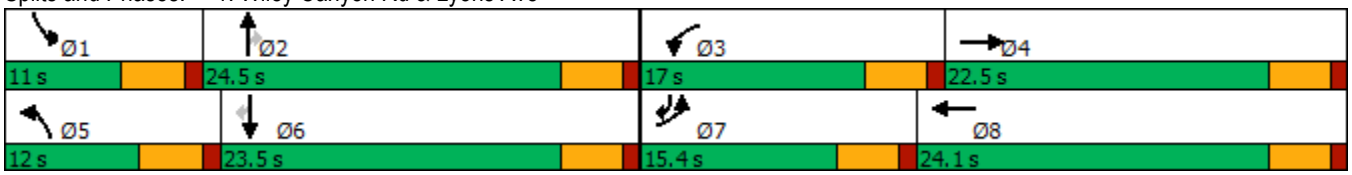




Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	127	564	87	222	715	94	140	228	151	117	557	304
Future Volume (vph)	127	564	87	222	715	94	140	228	151	117	557	304
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175		0	215		0	225		275	205		230
Storage Lanes	2		0	1		0	1		1	1		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	3433	4984	0	1770	4999	0	1770	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	4984	0	1770	4999	0	1770	3539	1583	1770	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		37			30				164			87
Link Speed (mph)		40			40			35			45	
Link Distance (ft)		404			362			473			442	
Travel Time (s)		6.9			6.2			9.2			6.7	
Lane Group Flow (vph)	138	708	0	241	879	0	152	248	164	127	605	330
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases									2			6
Total Split (s)	15.4	22.5		17.0	24.1		12.0	24.5	24.5	11.0	23.5	15.4
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Act Effct Green (s)	8.3	15.3		12.1	19.1		7.5	20.1	20.1	6.5	19.0	31.8
Actuated g/C Ratio	0.12	0.21		0.17	0.27		0.10	0.28	0.28	0.09	0.26	0.44
v/c Ratio	0.35	0.65		0.81	0.65		0.82	0.25	0.29	0.79	0.65	0.44
Control Delay	32.3	27.5		52.9	25.3		68.6	21.7	5.6	69.2	27.8	12.4
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.3	27.5		52.9	25.3		68.6	21.7	5.6	69.2	27.8	12.4
LOS	C	C		D	C		E	C	A	E	C	B
Approach Delay		28.2			31.3			29.6			28.0	
Approach LOS		C			C			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 72			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.82			
Intersection Signal Delay: 29.3		Intersection LOS: C	
Intersection Capacity Utilization 63.3%		ICU Level of Service B	
Analysis Period (min) 15			

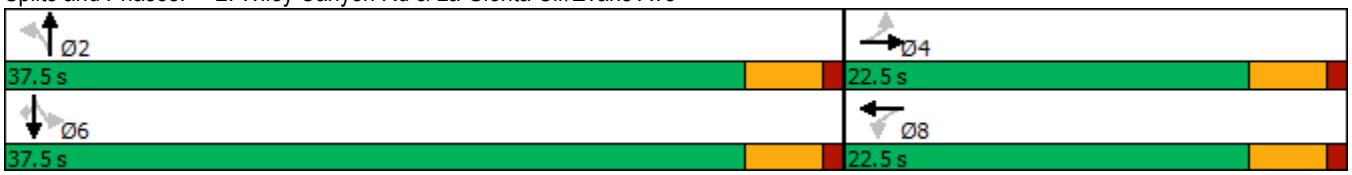
Splits and Phases: 1: Wiley Canyon Rd & Lyons Ave



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	54	5	29	39	6	38	14	403	14	7	669	63
Future Volume (vph)	54	5	29	39	6	38	14	403	14	7	669	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	0		0	115		0	115		0
Storage Lanes	1		0	0		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1770	1621	0	0	1707	0	1770	1853	0	1770	1863	1583
Flt Permitted	0.861				0.833		0.329			0.492		
Satd. Flow (perm)	1604	1621	0	0	1455	0	613	1853	0	916	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		32			41			5				68
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		868			456			2065			420	
Travel Time (s)		19.7			10.4			40.2			8.2	
Lane Group Flow (vph)	59	37	0	0	90	0	15	453	0	8	727	68
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Total Split (s)	22.5	22.5		22.5	22.5		37.5	37.5		37.5	37.5	37.5
Total Lost Time (s)	4.5	4.5			4.5		4.5	4.5		4.5	4.5	4.5
Act Effct Green (s)	7.7	7.7			7.7		39.6	39.6		39.6	39.6	39.6
Actuated g/C Ratio	0.14	0.14			0.14		0.74	0.74		0.74	0.74	0.74
v/c Ratio	0.26	0.14			0.37		0.03	0.33		0.01	0.53	0.06
Control Delay	21.8	9.9			16.6		3.6	4.4		3.4	6.2	1.3
Queue Delay	0.0	0.0			0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	21.8	9.9			16.6		3.6	4.4		3.4	6.2	1.3
LOS	C	A			B		A	A		A	A	A
Approach Delay		17.2			16.6			4.4			5.8	
Approach LOS		B			B			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 53.4			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.53			
Intersection Signal Delay: 6.7		Intersection LOS: A	
Intersection Capacity Utilization 54.2%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 2: Wiley Canyon Rd & La Glorita Cir/Evans Ave



Intersection	
Int Delay, s/veh	4.7

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	39	0	748	7	1	0	183	38	1	0	142	69
Future Vol, veh/h	39	0	748	7	1	0	183	38	1	0	142	69
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Free	-	-	None	-	-	None	-	-	None
Storage Length	-	-	80	-	-	-	165	-	110	300	-	300
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	42	0	813	8	1	0	199	41	1	0	154	75

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	594	594	-	631	668	41	229	0	0	42	0	0
Stage 1	154	154	-	439	439	-	-	-	-	-	-	-
Stage 2	440	440	-	192	229	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	-	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	-	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	417	418	0	394	379	1030	1339	-	-	1567	-	-
Stage 1	848	770	0	597	578	-	-	-	-	-	-	-
Stage 2	596	578	0	810	715	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	369	356	-	349	323	1030	1339	-	-	1567	-	-
Mov Cap-2 Maneuver	369	356	-	349	323	-	-	-	-	-	-	-
Stage 1	722	770	-	508	492	-	-	-	-	-	-	-
Stage 2	506	492	-	810	715	-	-	-	-	-	-	-

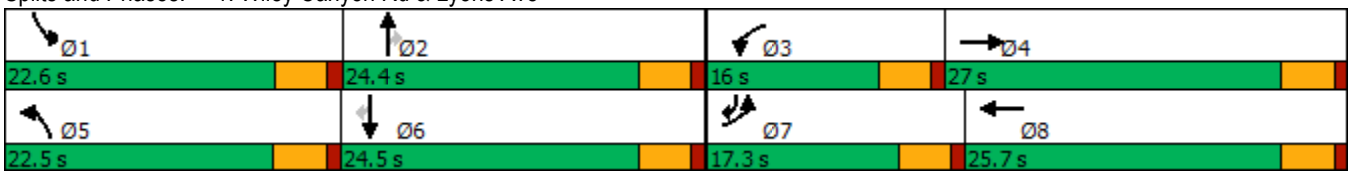
Approach	SE	NW	NE	SW
HCM Control Delay, s	16	15.7	6.7	0
HCM LOS	C	C		

Minor Lane/Major Mvmt	NEL	NET	NER	NWLn1	SELn1	SELn2	SWL	SWT	SWR
Capacity (veh/h)	1339	-	-	346	369	-	1567	-	-
HCM Lane V/C Ratio	0.149	-	-	0.025	0.115	-	-	-	-
HCM Control Delay (s)	8.2	-	-	15.7	16	0	0	-	-
HCM Lane LOS	A	-	-	C	C	A	A	-	-
HCM 95th %tile Q(veh)	0.5	-	-	0.1	0.4	-	0	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	341	998	99	160	738	110	158	423	235	199	340	227
Future Volume (vph)	341	998	99	160	738	110	158	423	235	199	340	227
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175		0	215		0	225		275	205		230
Storage Lanes	2		0	1		0	1		1	1		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	3433	5014	0	1770	4984	0	1770	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	5014	0	1770	4984	0	1770	3539	1583	1770	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18			29				255			170
Link Speed (mph)		40			40			35			45	
Link Distance (ft)		404			362			473			442	
Travel Time (s)		6.9			6.2			9.2			6.7	
Lane Group Flow (vph)	371	1193	0	174	922	0	172	460	255	216	370	247
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases									2			6
Total Split (s)	17.3	27.0		16.0	25.7		22.5	24.4	24.4	22.6	24.5	17.3
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Act Effct Green (s)	12.4	22.5		11.1	21.2		18.0	19.9	19.9	18.1	20.0	36.9
Actuated g/C Ratio	0.14	0.25		0.12	0.24		0.20	0.22	0.22	0.20	0.22	0.41
v/c Ratio	0.78	0.94		0.79	0.77		0.48	0.59	0.46	0.61	0.47	0.33
Control Delay	49.8	47.4		64.7	36.0		37.2	34.8	7.1	40.8	32.6	7.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.8	47.4		64.7	36.0		37.2	34.8	7.1	40.8	32.6	7.3
LOS	D	D		E	D		D	C	A	D	C	A
Approach Delay		48.0			40.6			27.3			27.2	
Approach LOS		D			D			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 89.6			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.94			
Intersection Signal Delay: 38.0		Intersection LOS: D	
Intersection Capacity Utilization 68.1%		ICU Level of Service C	
Analysis Period (min) 15			

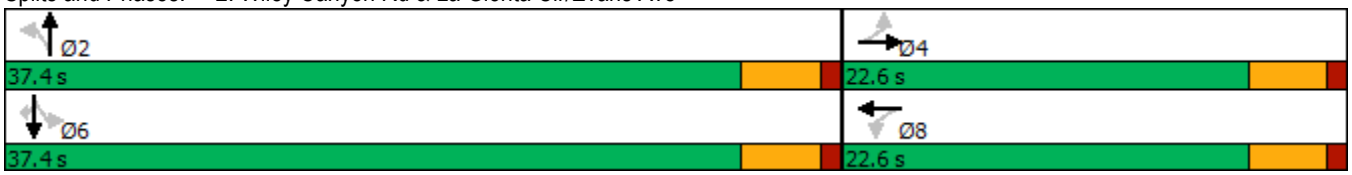
Splits and Phases: 1: Wiley Canyon Rd & Lyons Ave



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	2	13	20	2	38	10	636	21	20	418	39
Future Volume (vph)	41	2	13	20	2	38	10	636	21	20	418	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	0		0	115		0	115		0
Storage Lanes	1		0	0		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1770	1619	0	0	1675	0	1770	1853	0	1770	1863	1583
Flt Permitted	0.800				0.881		0.498			0.348		
Satd. Flow (perm)	1490	1619	0	0	1502	0	928	1853	0	648	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14			41			4				42
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		868			456			2065			420	
Travel Time (s)		19.7			10.4			40.2			8.2	
Lane Group Flow (vph)	45	16	0	0	65	0	11	714	0	22	454	42
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Total Split (s)	22.6	22.6		22.6	22.6		37.4	37.4		37.4	37.4	37.4
Total Lost Time (s)	4.5	4.5			4.5		4.5	4.5		4.5	4.5	4.5
Act Effct Green (s)	7.3	7.3			7.2		41.9	41.9		41.9	41.9	41.9
Actuated g/C Ratio	0.14	0.14			0.14		0.80	0.80		0.80	0.80	0.80
v/c Ratio	0.22	0.07			0.27		0.01	0.48		0.04	0.30	0.03
Control Delay	21.6	11.5			13.2		3.2	5.1		3.5	3.7	1.4
Queue Delay	0.0	0.0			0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	21.6	11.5			13.2		3.2	5.1		3.5	3.7	1.4
LOS	C	B			B		A	A		A	A	A
Approach Delay		18.9			13.2			5.1			3.5	
Approach LOS		B			B			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 52.3			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.48			
Intersection Signal Delay: 5.5		Intersection LOS: A	
Intersection Capacity Utilization 52.5%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 2: Wiley Canyon Rd & La Glorita Cir/Evans Ave



Intersection	
Int Delay, s/veh	25.5

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	62	4	299	3	4	0	593	104	3	0	65	50
Future Vol, veh/h	62	4	299	3	4	0	593	104	3	0	65	50
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Free	-	-	None	-	-	None	-	-	None
Storage Length	-	-	80	-	-	-	165	-	110	300	-	300
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	67	4	325	3	4	0	645	113	3	0	71	54

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1478	1477	-	1503	1528	113	125	0	0	116	0	0
Stage 1	71	71	-	1403	1403	-	-	-	-	-	-	-
Stage 2	1407	1406	-	100	125	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	-	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	-	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	104	126	0	100	117	940	1462	-	-	1473	-	-
Stage 1	939	836	0	173	206	-	-	-	-	-	-	-
Stage 2	172	206	0	906	792	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 65	70	-	63	65	940	1462	-	-	1473	-	-
Mov Cap-2 Maneuver	~ 65	70	-	63	65	-	-	-	-	-	-	-
Stage 1	525	836	-	97	115	-	-	-	-	-	-	-
Stage 2	92	115	-	901	792	-	-	-	-	-	-	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	251.2	68.7	8	0
HCM LOS	F	F		

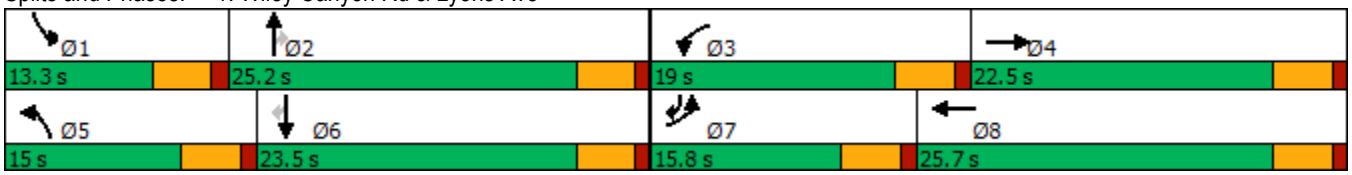
Minor Lane/Major Mvmt	NEL	NET	NER	NWLn1	SELn1	SELn2	SWL	SWT	SWR
Capacity (veh/h)	1462	-	-	64	65	-	1473	-	-
HCM Lane V/C Ratio	0.441	-	-	0.119	1.104	-	-	-	-
HCM Control Delay (s)	9.4	-	-	68.7	251.2	0	0	-	-
HCM Lane LOS	A	-	-	F	F	A	A	-	-
HCM 95th %tile Q(veh)	2.3	-	-	0.4	5.6	-	0	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	127	564	138	250	715	94	177	277	171	117	624	304
Future Volume (vph)	127	564	138	250	715	94	177	277	171	117	624	304
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175		0	215		0	225		275	205		230
Storage Lanes	2		0	1		0	1		1	1		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	3433	4938	0	1770	4999	0	1770	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	4938	0	1770	4999	0	1770	3539	1583	1770	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		68			28				186			82
Link Speed (mph)		40			40			35			45	
Link Distance (ft)		404			362			473			442	
Travel Time (s)		6.9			6.2			9.2			6.7	
Lane Group Flow (vph)	138	763	0	272	879	0	192	301	186	127	678	330
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases									2			6
Total Split (s)	15.8	22.5		19.0	25.7		15.0	25.2	25.2	13.3	23.5	15.8
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Act Effct Green (s)	8.5	16.2		14.0	21.7		10.3	21.0	21.0	8.4	19.0	32.0
Actuated g/C Ratio	0.11	0.21		0.18	0.28		0.13	0.27	0.27	0.11	0.24	0.41
v/c Ratio	0.37	0.70		0.86	0.62		0.82	0.31	0.33	0.66	0.78	0.47
Control Delay	35.2	29.8		57.6	25.9		61.8	24.5	5.8	52.4	35.5	15.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.2	29.8		57.6	25.9		61.8	24.5	5.8	52.4	35.5	15.0
LOS	D	C		E	C		E	C	A	D	D	B
Approach Delay		30.6			33.4			29.9			31.4	
Approach LOS		C			C			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 77.6			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.86			
Intersection Signal Delay: 31.6		Intersection LOS: C	
Intersection Capacity Utilization 69.9%		ICU Level of Service C	
Analysis Period (min) 15			

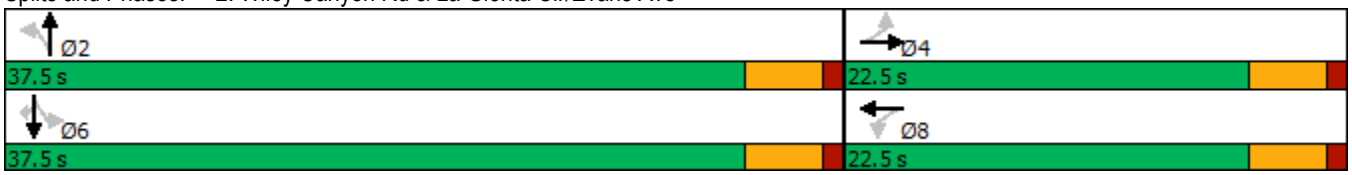
Splits and Phases: 1: Wiley Canyon Rd & Lyons Ave



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	54	5	34	48	6	38	17	510	21	7	815	63
Future Volume (vph)	54	5	34	48	6	38	17	510	21	7	815	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	0		0	115		0	115		0
Storage Lanes	1		0	0		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1770	1617	0	0	1716	0	1770	1852	0	1770	1863	1583
Flt Permitted	0.822				0.814		0.241			0.413		
Satd. Flow (perm)	1531	1617	0	0	1433	0	449	1852	0	769	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		37			41			6				68
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		868			456			2065			420	
Travel Time (s)		19.7			10.4			40.2			8.2	
Lane Group Flow (vph)	59	42	0	0	100	0	18	577	0	8	886	68
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Total Split (s)	22.5	22.5		22.5	22.5		37.5	37.5		37.5	37.5	37.5
Total Lost Time (s)	4.5	4.5			4.5		4.5	4.5		4.5	4.5	4.5
Act Effct Green (s)	7.9	7.9			7.9		39.0	39.0		39.0	39.0	39.0
Actuated g/C Ratio	0.15	0.15			0.15		0.74	0.74		0.74	0.74	0.74
v/c Ratio	0.26	0.15			0.40		0.05	0.42		0.01	0.65	0.06
Control Delay	21.7	9.5			17.8		4.1	5.2		3.6	8.6	1.4
Queue Delay	0.0	0.0			0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	21.7	9.5			17.8		4.1	5.2		3.6	8.6	1.4
LOS	C	A			B		A	A		A	A	A
Approach Delay		16.6			17.8			5.2			8.1	
Approach LOS		B			B			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 53			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.65			
Intersection Signal Delay: 8.2		Intersection LOS: A	
Intersection Capacity Utilization 62.4%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 2: Wiley Canyon Rd & La Glorita Cir/Evans Ave



Intersection	
Int Delay, s/veh	5.7

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	41	2	796	7	3	0	248	38	1	0	142	71
Future Vol, veh/h	41	2	796	7	3	0	248	38	1	0	142	71
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Free	-	-	None	-	-	None	-	-	None
Storage Length	-	-	80	-	-	-	165	-	110	300	-	300
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	45	2	865	8	3	0	270	41	1	0	154	77

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	737	736	-	775	812	41	231	0	0	42	0	0
Stage 1	154	154	-	581	581	-	-	-	-	-	-	-
Stage 2	583	582	-	194	231	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	-	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	-	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	334	346	0	315	313	1030	1337	-	-	1567	-	-
Stage 1	848	770	0	499	500	-	-	-	-	-	-	-
Stage 2	498	499	0	808	713	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	280	276	-	265	250	1030	1337	-	-	1567	-	-
Mov Cap-2 Maneuver	280	276	-	265	250	-	-	-	-	-	-	-
Stage 1	677	770	-	398	399	-	-	-	-	-	-	-
Stage 2	394	398	-	806	713	-	-	-	-	-	-	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	20.4	19.4	7.2	0
HCM LOS	C	C		

Minor Lane/Major Mvmt	NEL	NET	NER	NWLn1	SELn1	SELn2	SWL	SWT	SWR
Capacity (veh/h)	1337	-	-	260	280	-	1567	-	-
HCM Lane V/C Ratio	0.202	-	-	0.042	0.167	-	-	-	-
HCM Control Delay (s)	8.4	-	-	19.4	20.4	0	0	-	-
HCM Lane LOS	A	-	-	C	C	A	A	-	-
HCM 95th %tile Q(veh)	0.8	-	-	0.1	0.6	-	0	-	-

Intersection	
Int Delay, s/veh	17.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	117	53	72	269	773	160
Future Vol, veh/h	117	53	72	269	773	160
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	240	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	127	58	78	292	840	174

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1375	927	1014	0	-	0
Stage 1	927	-	-	-	-	-
Stage 2	448	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	160	325	684	-	-	-
Stage 1	385	-	-	-	-	-
Stage 2	644	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	142	325	684	-	-	-
Mov Cap-2 Maneuver	142	-	-	-	-	-
Stage 1	341	-	-	-	-	-
Stage 2	644	-	-	-	-	-

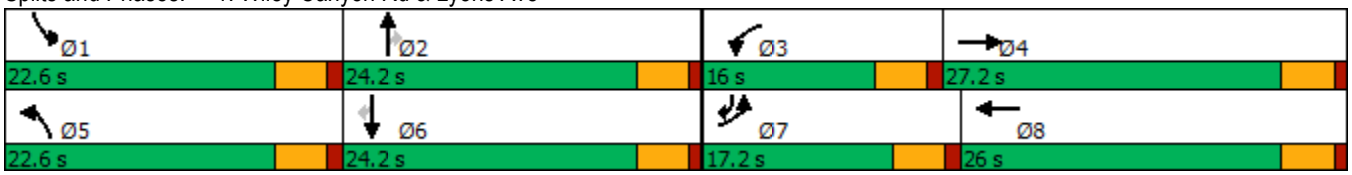
Approach	EB	NB	SB
HCM Control Delay, s	144.6	2.3	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	684	-	172	-	-
HCM Lane V/C Ratio	0.114	-	1.074	-	-
HCM Control Delay (s)	10.9	-	144.6	-	-
HCM Lane LOS	B	-	F	-	-
HCM 95th %tile Q(veh)	0.4	-	9.2	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	341	998	142	183	738	110	215	499	266	199	397	227
Future Volume (vph)	341	998	142	183	738	110	215	499	266	199	397	227
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175		0	215		0	225		275	205		230
Storage Lanes	2		0	1		0	1		1	1		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	3433	4989	0	1770	4984	0	1770	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	4989	0	1770	4984	0	1770	3539	1583	1770	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		27			29				289			115
Link Speed (mph)		40			40			35			45	
Link Distance (ft)		404			362			473			442	
Travel Time (s)		6.9			6.2			9.2			6.7	
Lane Group Flow (vph)	371	1239	0	199	922	0	234	542	289	216	432	247
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases									2			6
Total Split (s)	17.2	27.2		16.0	26.0		22.6	24.2	24.2	22.6	24.2	17.2
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Act Effct Green (s)	12.4	22.7		11.5	21.8		18.1	19.7	19.7	18.1	19.7	36.6
Actuated g/C Ratio	0.14	0.25		0.13	0.24		0.20	0.22	0.22	0.20	0.22	0.41
v/c Ratio	0.78	0.97		0.88	0.75		0.66	0.70	0.51	0.61	0.56	0.35
Control Delay	50.4	52.4		76.2	35.1		43.1	38.0	7.2	41.0	34.5	11.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.4	52.4		76.2	35.1		43.1	38.0	7.2	41.0	34.5	11.0
LOS	D	D		E	D		D	D	A	D	C	B
Approach Delay		52.0			42.4			30.8			29.6	
Approach LOS		D			D			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.97			
Intersection Signal Delay: 40.6		Intersection LOS: D	
Intersection Capacity Utilization 72.4%		ICU Level of Service C	
Analysis Period (min) 15			

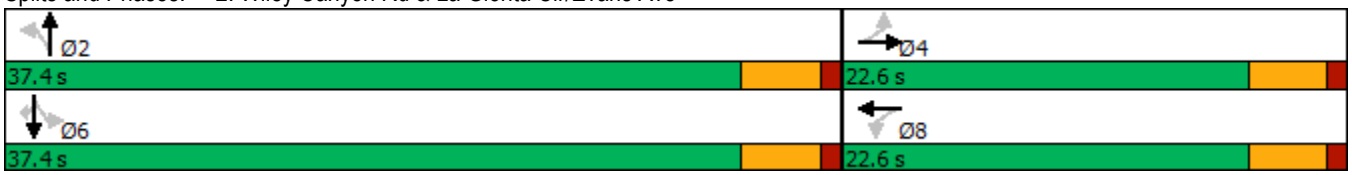
Splits and Phases: 1: Wiley Canyon Rd & Lyons Ave



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	2	17	28	2	38	15	800	31	20	541	39
Future Volume (vph)	41	2	17	28	2	38	15	800	31	20	541	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	0		0	115		0	115		0
Storage Lanes	1		0	0		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1770	1611	0	0	1687	0	1770	1852	0	1770	1863	1583
Flt Permitted	0.994				0.857		0.417			0.250		
Satd. Flow (perm)	1852	1611	0	0	1475	0	777	1852	0	466	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18			41			5				42
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		868			456			2065			420	
Travel Time (s)		19.7			10.4			40.2			8.2	
Lane Group Flow (vph)	45	20	0	0	73	0	16	904	0	22	588	42
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Total Split (s)	22.6	22.6		22.6	22.6		37.4	37.4		37.4	37.4	37.4
Total Lost Time (s)	4.5	4.5			4.5		4.5	4.5		4.5	4.5	4.5
Act Effct Green (s)	7.3	7.3			7.2		41.6	41.6		41.6	41.6	41.6
Actuated g/C Ratio	0.14	0.14			0.14		0.80	0.80		0.80	0.80	0.80
v/c Ratio	0.17	0.08			0.31		0.03	0.61		0.06	0.39	0.03
Control Delay	20.3	10.8			14.4		3.3	7.3		3.8	4.4	1.4
Queue Delay	0.0	0.0			0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	20.3	10.8			14.4		3.3	7.3		3.8	4.4	1.4
LOS	C	B			B		A	A		A	A	A
Approach Delay		17.4			14.4			7.2			4.1	
Approach LOS		B			B			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 52			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.61			
Intersection Signal Delay: 6.7		Intersection LOS: A	
Intersection Capacity Utilization 62.1%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 2: Wiley Canyon Rd & La Glorita Cir/Evans Ave



Intersection	
Int Delay, s/veh	42.5

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	65	7	372	3	6	0	648	104	3	0	65	52
Future Vol, veh/h	65	7	372	3	6	0	648	104	3	0	65	52
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Free	-	-	None	-	-	None	-	-	None
Storage Length	-	-	80	-	-	-	165	-	110	300	-	300
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	71	8	404	3	7	0	704	113	3	0	71	57

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1597	1595	-	1625	1649	113	128	0	0	116	0	0
Stage 1	71	71	-	1521	1521	-	-	-	-	-	-	-
Stage 2	1526	1524	-	104	128	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	-	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	-	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	86	107	0	82	99	940	1458	-	-	1473	-	-
Stage 1	939	836	0	148	181	-	-	-	-	-	-	-
Stage 2	147	180	0	902	790	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 49	55	-	46	51	940	1458	-	-	1473	-	-
Mov Cap-2 Maneuver	~ 49	55	-	46	51	-	-	-	-	-	-	-
Stage 1	485	836	-	77	94	-	-	-	-	-	-	-
Stage 2	71	93	-	894	790	-	-	-	-	-	-	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	$ 462.8	95.9	8.4	0
HCM LOS	F	F		

Minor Lane/Major Mvmt	NEL	NET	NER	NWLn1	SELn1	SELn2	SWL	SWT	SWR
Capacity (veh/h)	1458	-	-	49	50	-	1473	-	-
HCM Lane V/C Ratio	0.483	-	-	0.2	1.565	-	-	-	-
HCM Control Delay (s)	9.8	-	-	95.9	$ 462.8	0	0	-	-
HCM Lane LOS	A	-	-	F	F	A	A	-	-
HCM 95th %tile Q(veh)	2.7	-	-	0.7	7.5	-	0	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	47.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	180	81	60	656	410	135
Future Vol, veh/h	180	81	60	656	410	135
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	240	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	196	88	65	713	446	147

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1363	520	593	0	-	0
Stage 1	520	-	-	-	-	-
Stage 2	843	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	~ 163	556	983	-	-	-
Stage 1	597	-	-	-	-	-
Stage 2	422	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 152	556	983	-	-	-
Mov Cap-2 Maneuver	~ 152	-	-	-	-	-
Stage 1	558	-	-	-	-	-
Stage 2	422	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	272.7	0.7	0
HCM LOS	F		

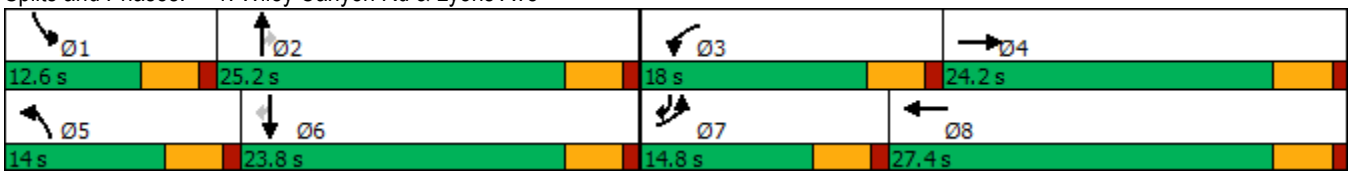
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	983	-	196	-	-
HCM Lane V/C Ratio	0.066	-	1.447	-	-
HCM Control Delay (s)	8.9	-	272.7	-	-
HCM Lane LOS	A	-	F	-	-
HCM 95th %tile Q(veh)	0.2	-	17.2	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	1010	90	250	730	180	160	240	160	140	570	410
Future Volume (vph)	130	1010	90	250	730	180	160	240	160	140	570	410
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175		0	215		0	225		275	205		230
Storage Lanes	2		0	1		0	1		1	1		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	3433	5024	0	1770	4933	0	1770	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	5024	0	1770	4933	0	1770	3539	1583	1770	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17			74				174			82
Link Speed (mph)		40			40			35			45	
Link Distance (ft)		404			362			473			442	
Travel Time (s)		6.9			6.2			9.2			6.7	
Lane Group Flow (vph)	141	1196	0	272	989	0	174	261	174	152	620	446
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases									2			6
Total Split (s)	14.8	24.2		18.0	27.4		14.0	25.2	25.2	12.6	23.8	14.8
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Act Effct Green (s)	8.5	19.7		13.5	24.7		9.5	20.7	20.7	8.1	19.3	32.3
Actuated g/C Ratio	0.11	0.25		0.17	0.31		0.12	0.26	0.26	0.10	0.24	0.40
v/c Ratio	0.39	0.96		0.91	0.63		0.83	0.29	0.32	0.85	0.73	0.65
Control Delay	36.1	47.7		69.3	24.2		67.3	24.8	5.9	75.2	33.6	20.4
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.1	47.7		69.3	24.2		67.3	24.8	5.9	75.2	33.6	20.4
LOS	D	D		E	C		E	C	A	E	C	C
Approach Delay		46.5			34.0			31.5			34.0	
Approach LOS		D			C			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 80			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.96			
Intersection Signal Delay: 37.4		Intersection LOS: D	
Intersection Capacity Utilization 75.0%		ICU Level of Service D	
Analysis Period (min) 15			

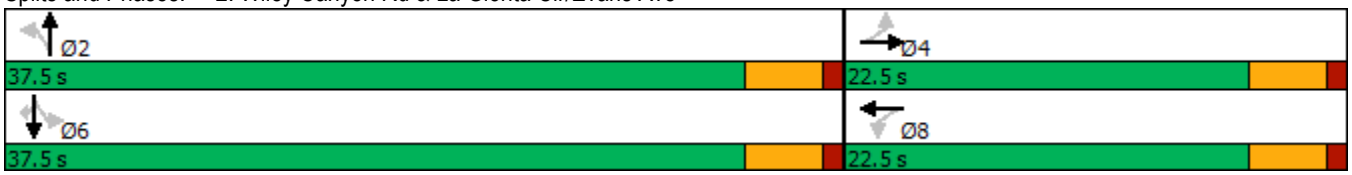
Splits and Phases: 1: Wiley Canyon Rd & Lyons Ave



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	10	60	40	10	50	20	440	20	10	680	80
Future Volume (vph)	70	10	60	40	10	50	20	440	20	10	680	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	0		0	115		0	115		0
Storage Lanes	1		0	0		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1770	1624	0	0	1701	0	1770	1850	0	1770	1863	1583
Flt Permitted	0.806				0.836		0.314			0.458		
Satd. Flow (perm)	1501	1624	0	0	1451	0	585	1850	0	853	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		65			54			6				87
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		868			456			2065			420	
Travel Time (s)		19.7			10.4			40.2			8.2	
Lane Group Flow (vph)	76	76	0	0	108	0	22	500	0	11	739	87
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Total Split (s)	22.5	22.5		22.5	22.5		37.5	37.5		37.5	37.5	37.5
Total Lost Time (s)	4.5	4.5			4.5		4.5	4.5		4.5	4.5	4.5
Act Effct Green (s)	8.2	8.2			8.2		37.6	37.6		37.6	37.6	37.6
Actuated g/C Ratio	0.16	0.16			0.16		0.72	0.72		0.72	0.72	0.72
v/c Ratio	0.32	0.24			0.39		0.05	0.37		0.02	0.55	0.07
Control Delay	22.3	9.2			15.4		4.1	5.1		3.7	7.0	1.3
Queue Delay	0.0	0.0			0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	22.3	9.2			15.4		4.1	5.1		3.7	7.0	1.3
LOS	C	A			B		A	A		A	A	A
Approach Delay		15.7			15.4			5.0			6.3	
Approach LOS		B			B			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 51.9			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.55			
Intersection Signal Delay: 7.4		Intersection LOS: A	
Intersection Capacity Utilization 55.8%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 2: Wiley Canyon Rd & La Glorita Cir/Evans Ave



Intersection	
Int Delay, s/veh	4.8

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	40	0	770	10	10	0	190	60	10	0	170	70
Future Vol, veh/h	40	0	770	10	10	0	190	60	10	0	170	70
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Free	-	-	None	-	-	None	-	-	None
Storage Length	-	-	80	-	-	-	165	-	110	300	-	300
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	43	0	837	11	11	0	207	65	11	0	185	76

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	675	675	-	702	740	65	261	0	0	76	0	0
Stage 1	185	185	-	479	479	-	-	-	-	-	-	-
Stage 2	490	490	-	223	261	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	-	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	-	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	368	376	0	353	345	999	1303	-	-	1523	-	-
Stage 1	817	747	0	568	555	-	-	-	-	-	-	-
Stage 2	560	549	0	780	692	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	314	316	-	310	290	999	1303	-	-	1523	-	-
Mov Cap-2 Maneuver	314	316	-	310	290	-	-	-	-	-	-	-
Stage 1	687	747	-	478	467	-	-	-	-	-	-	-
Stage 2	460	462	-	780	692	-	-	-	-	-	-	-

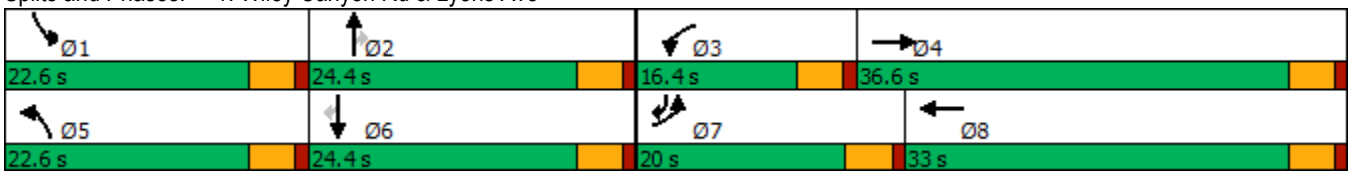
Approach	SE	NW	NE	SW
HCM Control Delay, s	18.3	17.9	6.1	0
HCM LOS	C	C		

Minor Lane/Major Mvmt	NEL	NET	NER	NWLn1	SELn1	SELn2	SWL	SWT	SWR
Capacity (veh/h)	1303	-	-	300	314	-	1523	-	-
HCM Lane V/C Ratio	0.158	-	-	0.072	0.138	-	-	-	-
HCM Control Delay (s)	8.3	-	-	17.9	18.3	0	0	-	-
HCM Lane LOS	A	-	-	C	C	A	A	-	-
HCM 95th %tile Q(veh)	0.6	-	-	0.2	0.5	-	0	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	470	1200	110	170	1250	120	170	440	250	210	350	280
Future Volume (vph)	470	1200	110	170	1250	120	170	440	250	210	350	280
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175		0	215		0	225		275	205		230
Storage Lanes	2		0	1		0	1		1	1		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	3433	5019	0	1770	5019	0	1770	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	5019	0	1770	5019	0	1770	3539	1583	1770	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16			16				272			113
Link Speed (mph)		40			40			35			45	
Link Distance (ft)		404			362			473			442	
Travel Time (s)		6.9			6.2			9.2			6.7	
Lane Group Flow (vph)	511	1424	0	185	1489	0	185	478	272	228	380	304
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases									2			6
Total Split (s)	20.0	36.6		16.4	33.0		22.6	24.4	24.4	22.6	24.4	20.0
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Act Effct Green (s)	15.5	32.1		11.9	28.5		18.1	19.9	19.9	18.1	19.9	39.9
Actuated g/C Ratio	0.16	0.32		0.12	0.28		0.18	0.20	0.20	0.18	0.20	0.40
v/c Ratio	0.96	0.88		0.88	1.03		0.58	0.68	0.51	0.71	0.54	0.43
Control Delay	73.4	39.3		82.3	68.2		45.6	42.7	8.1	52.2	39.2	15.5
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	73.4	39.3		82.3	68.2		45.6	42.7	8.1	52.2	39.2	15.5
LOS	E	D		F	E		D	D	A	D	D	B
Approach Delay		48.3			69.8			33.2			34.6	
Approach LOS		D			E			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.03			
Intersection Signal Delay: 50.0		Intersection LOS: D	
Intersection Capacity Utilization 79.0%		ICU Level of Service D	
Analysis Period (min) 15			

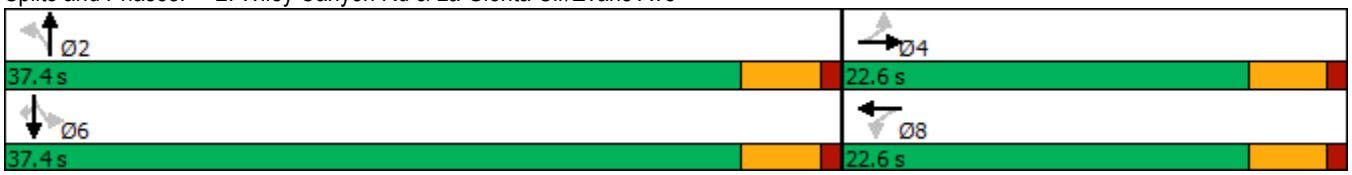
Splits and Phases: 1: Wiley Canyon Rd & Lyons Ave



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	10	20	30	10	50	10	650	30	30	480	40
Future Volume (vph)	50	10	20	30	10	50	10	650	30	30	480	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	0		0	115		0	115		0
Storage Lanes	1		0	0		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1770	1676	0	0	1696	0	1770	1850	0	1770	1863	1583
Flt Permitted	0.846				0.875		0.449			0.322		
Satd. Flow (perm)	1576	1676	0	0	1509	0	836	1850	0	600	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		22			54			6				43
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		868			456			2065			420	
Travel Time (s)		19.7			10.4			40.2			8.2	
Lane Group Flow (vph)	54	33	0	0	98	0	11	740	0	33	522	43
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Total Split (s)	22.6	22.6		22.6	22.6		37.4	37.4		37.4	37.4	37.4
Total Lost Time (s)	4.5	4.5			4.5		4.5	4.5		4.5	4.5	4.5
Act Effct Green (s)	7.6	7.6			7.6		39.4	39.4		39.4	39.4	39.4
Actuated g/C Ratio	0.14	0.14			0.14		0.74	0.74		0.74	0.74	0.74
v/c Ratio	0.24	0.13			0.38		0.02	0.54		0.07	0.38	0.04
Control Delay	21.6	11.9			14.8		3.4	6.3		3.8	4.7	1.4
Queue Delay	0.0	0.0			0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	21.6	11.9			14.8		3.4	6.3		3.8	4.7	1.4
LOS	C	B			B		A	A		A	A	A
Approach Delay		17.9			14.8			6.3			4.4	
Approach LOS		B			B			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 53.1			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.54			
Intersection Signal Delay: 6.8		Intersection LOS: A	
Intersection Capacity Utilization 55.4%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 2: Wiley Canyon Rd & La Glorita Cir/Evans Ave



Intersection	
Int Delay, s/veh	54.7

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	70	10	310	10	10	0	610	140	10	0	100	60
Future Vol, veh/h	70	10	310	10	10	0	610	140	10	0	100	60
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Free	-	-	None	-	-	None	-	-	None
Storage Length	-	-	80	-	-	-	165	-	110	300	-	300
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	76	11	337	11	11	0	663	152	11	0	109	65

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1598	1598	-	1625	1652	152	174	0	0	163	0	0
Stage 1	109	109	-	1478	1478	-	-	-	-	-	-	-
Stage 2	1489	1489	-	147	174	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	-	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	-	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	86	106	0	82	98	894	1403	-	-	1416	-	-
Stage 1	896	805	0	157	190	-	-	-	-	-	-	-
Stage 2	155	187	0	856	755	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 46	56	-	45	52	894	1403	-	-	1416	-	-
Mov Cap-2 Maneuver	~ 46	56	-	45	52	-	-	-	-	-	-	-
Stage 1	472	805	-	83	100	-	-	-	-	-	-	-
Stage 2	~ 73	99	-	844	755	-	-	-	-	-	-	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	$ 589.7	131.4	7.9	0
HCM LOS	F	F		

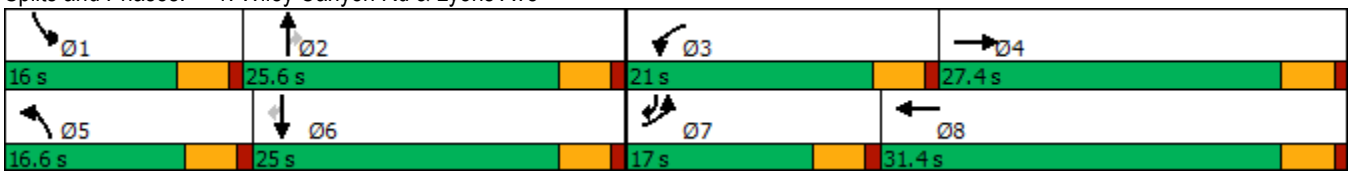
Minor Lane/Major Mvmt	NEL	NET	NER	NWLn1	SELn1	SELn2	SWL	SWT	SWR
Capacity (veh/h)	1403	-	-	48	47	-	1416	-	-
HCM Lane V/C Ratio	0.473	-	-	0.453	1.85	-	-	-	-
HCM Control Delay (s)	9.8	-	-	131.4	$ 589.7	0	0	-	-
HCM Lane LOS	A	-	-	F	F	A	A	-	-
HCM 95th %tile Q(veh)	2.6	-	-	1.7	8.7	-	0	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	1010	141	278	730	180	197	289	180	140	637	410
Future Volume (vph)	130	1010	141	278	730	180	197	289	180	140	637	410
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175		0	215		0	225		275	205		230
Storage Lanes	2		0	1		0	1		1	1		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	3433	4994	0	1770	4933	0	1770	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	4994	0	1770	4933	0	1770	3539	1583	1770	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		27			67				196			73
Link Speed (mph)		40			40			35			45	
Link Distance (ft)		404			362			473			442	
Travel Time (s)		6.9			6.2			9.2			6.7	
Lane Group Flow (vph)	141	1251	0	302	989	0	214	314	196	152	692	446
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases									2			6
Total Split (s)	17.0	27.4		21.0	31.4		16.6	25.6	25.6	16.0	25.0	17.0
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Act Effct Green (s)	9.4	22.9		16.5	30.0		12.1	21.8	21.8	10.8	20.5	34.4
Actuated g/C Ratio	0.10	0.25		0.18	0.33		0.13	0.24	0.24	0.12	0.23	0.38
v/c Ratio	0.39	0.97		0.93	0.58		0.90	0.37	0.37	0.72	0.86	0.69
Control Delay	40.4	52.3		73.6	25.1		78.5	30.1	6.6	57.6	45.6	25.2
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.4	52.3		73.6	25.1		78.5	30.1	6.6	57.6	45.6	25.2
LOS	D	D		E	C		E	C	A	E	D	C
Approach Delay		51.1			36.4			38.1			40.0	
Approach LOS		D			D			D			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.97			
Intersection Signal Delay: 42.0		Intersection LOS: D	
Intersection Capacity Utilization 81.6%		ICU Level of Service D	
Analysis Period (min) 15			

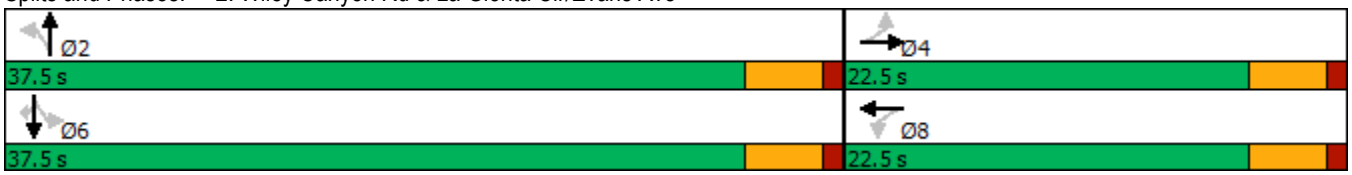
Splits and Phases: 1: Wiley Canyon Rd & Lyons Ave



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	10	65	49	10	50	23	547	27	10	826	80
Future Volume (vph)	70	10	65	49	10	50	23	547	27	10	826	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	0		0	115		0	115		0
Storage Lanes	1		0	0		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1770	1621	0	0	1709	0	1770	1850	0	1770	1863	1583
Flt Permitted	0.775				0.816		0.226			0.380		
Satd. Flow (perm)	1444	1621	0	0	1426	0	421	1850	0	708	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		71			54			6				87
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		868			456			2065			420	
Travel Time (s)		19.7			10.4			40.2			8.2	
Lane Group Flow (vph)	76	82	0	0	118	0	25	624	0	11	898	87
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Total Split (s)	22.5	22.5		22.5	22.5		37.5	37.5		37.5	37.5	37.5
Total Lost Time (s)	4.5	4.5			4.5		4.5	4.5		4.5	4.5	4.5
Act Effct Green (s)	8.3	8.3			8.3		37.3	37.3		37.3	37.3	37.3
Actuated g/C Ratio	0.16	0.16			0.16		0.72	0.72		0.72	0.72	0.72
v/c Ratio	0.33	0.26			0.43		0.08	0.47		0.02	0.67	0.07
Control Delay	22.5	9.0			16.7		4.7	6.0		3.9	9.7	1.4
Queue Delay	0.0	0.0			0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	22.5	9.0			16.7		4.7	6.0		3.9	9.7	1.4
LOS	C	A			B		A	A		A	A	A
Approach Delay		15.5			16.7			5.9			8.9	
Approach LOS		B			B			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 51.7			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.67			
Intersection Signal Delay: 8.9		Intersection LOS: A	
Intersection Capacity Utilization 63.9%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 2: Wiley Canyon Rd & La Glorita Cir/Evans Ave



Intersection	
Int Delay, s/veh	5.9

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	42	2	818	10	12	0	255	60	10	0	170	72
Future Vol, veh/h	42	2	818	10	12	0	255	60	10	0	170	72
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Free	-	-	None	-	-	None	-	-	None
Storage Length	-	-	80	-	-	-	165	-	110	300	-	300
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	46	2	889	11	13	0	277	65	11	0	185	78

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	816	815	-	844	882	65	263	0	0	76	0	0
Stage 1	185	185	-	619	619	-	-	-	-	-	-	-
Stage 2	631	630	-	225	263	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	-	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	-	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	296	312	0	283	285	999	1301	-	-	1523	-	-
Stage 1	817	747	0	476	480	-	-	-	-	-	-	-
Stage 2	469	475	0	778	691	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	237	246	-	235	224	999	1301	-	-	1523	-	-
Mov Cap-2 Maneuver	237	246	-	235	224	-	-	-	-	-	-	-
Stage 1	643	747	-	375	378	-	-	-	-	-	-	-
Stage 2	356	374	-	776	691	-	-	-	-	-	-	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	24	22.5	6.7	0
HCM LOS	C	C		

Minor Lane/Major Mvmt	NEL	NET	NER	NWLn1	SELn1	SELn2	SWL	SWT	SWR
Capacity (veh/h)	1301	-	-	229	237	-	1523	-	-
HCM Lane V/C Ratio	0.213	-	-	0.104	0.202	-	-	-	-
HCM Control Delay (s)	8.5	-	-	22.5	24	0	0	-	-
HCM Lane LOS	A	-	-	C	C	A	A	-	-
HCM 95th %tile Q(veh)	0.8	-	-	0.3	0.7	-	0	-	-

Intersection	
Int Delay, s/veh	151.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	117	53	72	730	1370	160
Future Vol, veh/h	117	53	72	730	1370	160
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	240	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	127	58	78	793	1489	174

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2525	1576	1663	0	-	0
Stage 1	1576	-	-	-	-	-
Stage 2	949	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	~ 31	135	387	-	-	-
Stage 1	187	-	-	-	-	-
Stage 2	376	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 25	135	387	-	-	-
Mov Cap-2 Maneuver	~ 25	-	-	-	-	-
Stage 1	149	-	-	-	-	-
Stage 2	376	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	$ 2228.8	1.5	0
HCM LOS	F		

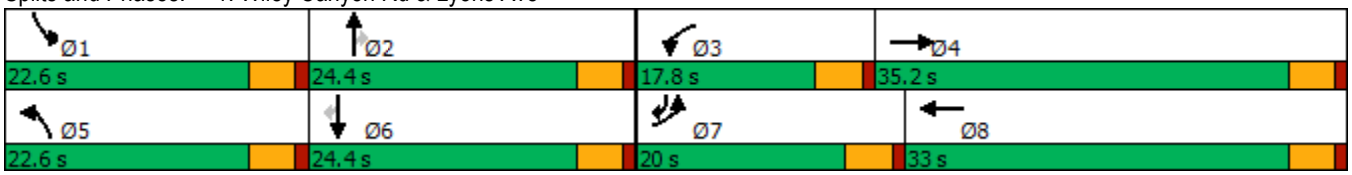
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	387	-	34	-	-
HCM Lane V/C Ratio	0.202	-	5.435	-	-
HCM Control Delay (s)	16.6	-	$ 2228.8	-	-
HCM Lane LOS	C	-	F	-	-
HCM 95th %tile Q(veh)	0.7	-	22	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	470	1200	153	193	1250	120	227	516	281	210	407	280
Future Volume (vph)	470	1200	153	193	1250	120	227	516	281	210	407	280
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175		0	215		0	225		275	205		230
Storage Lanes	2		0	1		0	1		1	1		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	3433	4999	0	1770	5019	0	1770	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	4999	0	1770	5019	0	1770	3539	1583	1770	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		23			16				305			71
Link Speed (mph)		40			40			35			45	
Link Distance (ft)		404			362			473			442	
Travel Time (s)		6.9			6.2			9.2			6.7	
Lane Group Flow (vph)	511	1470	0	210	1489	0	247	561	305	228	442	304
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases									2			6
Total Split (s)	20.0	35.2		17.8	33.0		22.6	24.4	24.4	22.6	24.4	20.0
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Act Effct Green (s)	15.5	30.7		13.3	28.5		18.1	19.9	19.9	18.1	19.9	39.9
Actuated g/C Ratio	0.16	0.31		0.13	0.28		0.18	0.20	0.20	0.18	0.20	0.40
v/c Ratio	0.96	0.95		0.89	1.03		0.77	0.80	0.55	0.71	0.63	0.45
Control Delay	73.4	47.3		81.0	68.2		56.5	47.8	8.2	52.2	41.2	19.1
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	73.4	47.3		81.0	68.2		56.5	47.8	8.2	52.2	41.2	19.1
LOS	E	D		F	E		E	D	A	D	D	B
Approach Delay		54.0			69.8			38.9			36.9	
Approach LOS		D			E			D			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.03			
Intersection Signal Delay: 52.9		Intersection LOS: D	
Intersection Capacity Utilization 81.1%		ICU Level of Service D	
Analysis Period (min) 15			

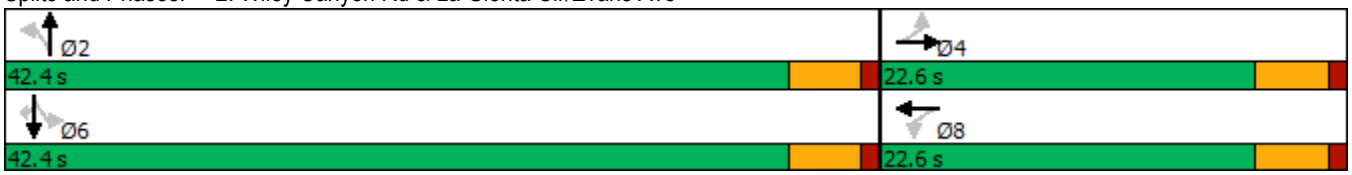
Splits and Phases: 1: Wiley Canyon Rd & Lyons Ave



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	10	24	38	10	50	15	814	40	30	603	40
Future Volume (vph)	50	10	24	38	10	50	15	814	40	30	603	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	0		0	115		0	115		0
Storage Lanes	1		0	0		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1770	1667	0	0	1701	0	1770	1850	0	1770	1863	1583
Flt Permitted	0.775				0.857		0.372			0.230		
Satd. Flow (perm)	1444	1667	0	0	1486	0	693	1850	0	428	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		26			54			6				43
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		868			456			2065			420	
Travel Time (s)		19.7			10.4			40.2			8.2	
Lane Group Flow (vph)	54	37	0	0	106	0	16	928	0	33	655	43
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Total Split (s)	22.6	22.6		22.6	22.6		42.4	42.4		42.4	42.4	42.4
Total Lost Time (s)	4.5	4.5			4.5		4.5	4.5		4.5	4.5	4.5
Act Effct Green (s)	7.9	7.9			7.9		43.9	43.9		43.9	43.9	43.9
Actuated g/C Ratio	0.14	0.14			0.14		0.76	0.76		0.76	0.76	0.76
v/c Ratio	0.27	0.15			0.43		0.03	0.66		0.10	0.46	0.04
Control Delay	24.8	12.6			17.9		3.4	8.4		4.3	5.3	1.4
Queue Delay	0.0	0.0			0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	24.8	12.6			17.9		3.4	8.4		4.3	5.3	1.4
LOS	C	B			B		A	A		A	A	A
Approach Delay		19.8			17.9			8.3			5.0	
Approach LOS		B			B			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 65			
Actuated Cycle Length: 57.9			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.66			
Intersection Signal Delay: 8.1		Intersection LOS: A	
Intersection Capacity Utilization 65.1%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 2: Wiley Canyon Rd & La Glorita Cir/Evans Ave



Intersection	
Int Delay, s/veh	96.7

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	73	13	383	10	12	0	665	140	10	0	100	62
Future Vol, veh/h	73	13	383	10	12	0	665	140	10	0	100	62
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Free	-	-	None	-	-	None	-	-	None
Storage Length	-	-	80	-	-	-	165	-	110	300	-	300
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	79	14	416	11	13	0	723	152	11	0	109	67

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1719	1718	-	1748	1774	152	176	0	0	163	0	0
Stage 1	109	109	-	1598	1598	-	-	-	-	-	-	-
Stage 2	1610	1609	-	150	176	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	-	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	-	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	~ 71	90	0	67	83	894	1400	-	-	1416	-	-
Stage 1	896	805	0	134	166	-	-	-	-	-	-	-
Stage 2	132	164	0	853	753	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 32	44	-	31	40	894	1400	-	-	1416	-	-
Mov Cap-2 Maneuver	~ 32	44	-	31	40	-	-	-	-	-	-	-
Stage 1	434	805	-	65	80	-	-	-	-	-	-	-
Stage 2	~ 53	79	-	838	753	-	-	-	-	-	-	-

Approach	SE	NW	NE	SW
HCM Control Delay, $	1082.4	228.2	8.4	0
HCM LOS	F	F		

Minor Lane/Major Mvmt	NEL	NET	NER	NWLn1	SELn1	SELn2	SWL	SWT	SWR
Capacity (veh/h)	1400	-	-	35	33	-	1416	-	-
HCM Lane V/C Ratio	0.516	-	-	0.683	2.833	-	-	-	-
HCM Control Delay (s)	10.3	-	-	228.2	1082.4	0	0	-	-
HCM Lane LOS	B	-	-	F	F	A	A	-	-
HCM 95th %tile Q(veh)	3.1	-	-	2.4	10.8	-	0	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	293

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	180	81	60	1190	900	135
Future Vol, veh/h	180	81	60	1190	900	135
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	240	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	196	88	65	1293	978	147

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2475	1052	1125	0	-	0
Stage 1	1052	-	-	-	-	-
Stage 2	1423	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	~ 33	275	621	-	-	-
Stage 1	336	-	-	-	-	-
Stage 2	222	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 30	275	621	-	-	-
Mov Cap-2 Maneuver	~ 30	-	-	-	-	-
Stage 1	301	-	-	-	-	-
Stage 2	222	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, $	2855.5	0.6	0
HCM LOS	F		

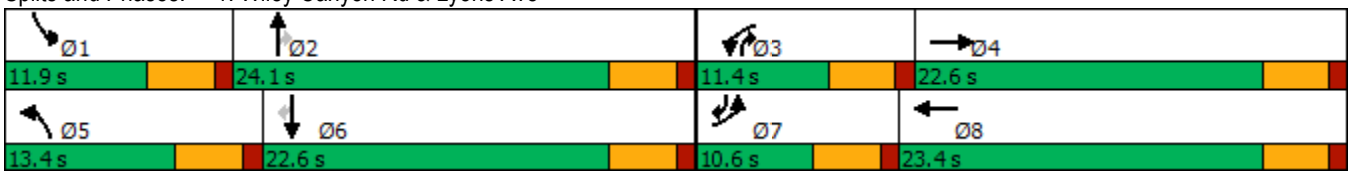
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	621	-	41	-	-
HCM Lane V/C Ratio	0.105	-	6.919	-	-
HCM Control Delay (s)	11.5	-	$ 2855.5	-	-
HCM Lane LOS	B	-	F	-	-
HCM 95th %tile Q(veh)	0.4	-	33.5	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	1010	141	278	730	180	197	289	180	140	637	410
Future Volume (vph)	130	1010	141	278	730	180	197	289	180	140	637	410
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175		0	215		0	225		275	205		230
Storage Lanes	2		0	2		0	1		1	1		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	3433	4994	0	3433	4933	0	1770	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	4994	0	3433	4933	0	1770	3539	1583	1770	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		35			83				94			94
Link Speed (mph)		40			40			35			45	
Link Distance (ft)		404			362			473			442	
Travel Time (s)		6.9			6.2			9.2			6.7	
Lane Group Flow (vph)	141	1251	0	302	989	0	214	314	196	152	692	446
Turn Type	Prot	NA		Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2	3	1	6	7
Permitted Phases									2			6
Total Split (s)	10.6	22.6		11.4	23.4		13.4	24.1	11.4	11.9	22.6	10.6
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Act Effct Green (s)	6.1	18.1		6.9	18.9		8.9	19.6	31.0	7.4	18.1	28.7
Actuated g/C Ratio	0.09	0.26		0.10	0.27		0.13	0.28	0.44	0.11	0.26	0.41
v/c Ratio	0.47	0.95		0.89	0.71		0.95	0.32	0.26	0.81	0.76	0.63
Control Delay	36.0	41.7		62.1	24.4		83.2	21.0	7.6	64.8	30.2	17.6
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.0	41.7		62.1	24.4		83.2	21.0	7.6	64.8	30.2	17.6
LOS	D	D		E	C		F	C	A	E	C	B
Approach Delay		41.1			33.2			35.8			30.0	
Approach LOS		D			C			D			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 70			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.95			
Intersection Signal Delay: 35.1		Intersection LOS: D	
Intersection Capacity Utilization 74.1%		ICU Level of Service D	
Analysis Period (min) 15			

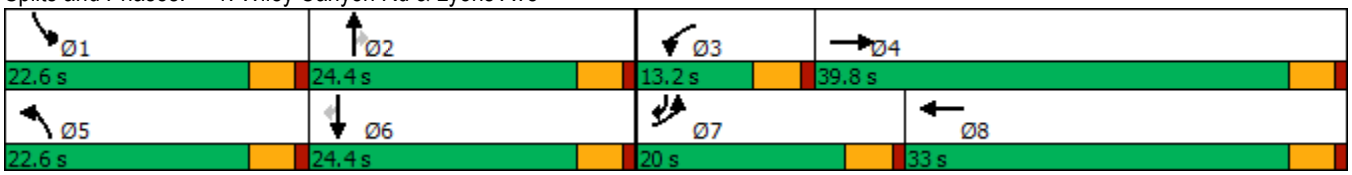
Splits and Phases: 1: Wiley Canyon Rd & Lyons Ave



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	470	1200	153	193	1250	120	227	516	281	210	407	280
Future Volume (vph)	470	1200	153	193	1250	120	227	516	281	210	407	280
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175		0	215		0	225		275	205		230
Storage Lanes	2		0	2		0	1		1	1		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	3433	4999	0	3433	5019	0	1770	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	4999	0	3433	5019	0	1770	3539	1583	1770	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		25			16				234			71
Link Speed (mph)		40			40			35			45	
Link Distance (ft)		404			362			473			442	
Travel Time (s)		6.9			6.2			9.2			6.7	
Lane Group Flow (vph)	511	1470	0	210	1489	0	247	561	305	228	442	304
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases									2			6
Total Split (s)	20.0	39.8		13.2	33.0		22.6	24.4	24.4	22.6	24.4	20.0
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Act Effct Green (s)	15.5	35.4		8.6	28.5		18.1	19.9	19.9	18.1	19.9	39.9
Actuated g/C Ratio	0.16	0.35		0.09	0.28		0.18	0.20	0.20	0.18	0.20	0.40
v/c Ratio	0.96	0.82		0.71	1.03		0.77	0.80	0.61	0.71	0.63	0.45
Control Delay	73.4	33.8		58.5	68.2		56.5	47.8	15.3	52.2	41.2	19.1
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	73.4	33.8		58.5	68.2		56.5	47.8	15.3	52.2	41.2	19.1
LOS	E	C		E	E		E	D	B	D	D	B
Approach Delay		44.0			67.0			40.8			36.9	
Approach LOS		D			E			D			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.03			
Intersection Signal Delay: 49.0		Intersection LOS: D	
Intersection Capacity Utilization 81.1%		ICU Level of Service D	
Analysis Period (min) 15			

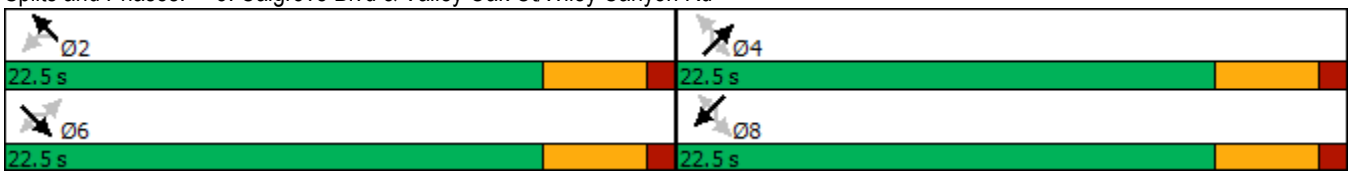
Splits and Phases: 1: Wiley Canyon Rd & Lyons Ave



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	41	2	796	7	3	0	248	38	1	0	142	71
Future Volume (vph)	41	2	796	7	3	0	248	38	1	0	142	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	80		80	0		0	165		110	300		300
Storage Lanes	0		1	0		0	1		1	1		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	1777	1583	0	1798	0	1770	1863	1583	1863	1863	1583
Flt Permitted		0.820			0.900		0.659					
Satd. Flow (perm)	0	1527	1583	0	1676	0	1228	1863	1583	1863	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			667						36			77
Link Speed (mph)		35			30			45			45	
Link Distance (ft)		827			121			543			816	
Travel Time (s)		16.1			2.8			8.2			12.4	
Lane Group Flow (vph)	0	47	865	0	11	0	270	41	1	0	154	77
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		6			2			4			8	
Permitted Phases	6		6	2			4		4	8		8
Total Split (s)	22.5	22.5	22.5	22.5	22.5		22.5	22.5	22.5	22.5	22.5	22.5
Total Lost Time (s)		4.5	4.5		4.5		4.5	4.5	4.5	4.5	4.5	4.5
Act Effct Green (s)		19.8	19.8		19.8		12.8	12.8	12.8		12.4	12.4
Actuated g/C Ratio		0.53	0.53		0.53		0.34	0.34	0.34		0.33	0.33
v/c Ratio		0.06	0.75		0.01		0.65	0.06	0.00		0.25	0.13
Control Delay		8.2	9.5		8.0		18.8	8.8	0.0		10.2	3.5
Queue Delay		0.0	0.0		0.0		0.0	0.0	0.0		0.0	0.0
Total Delay		8.2	9.5		8.0		18.8	8.8	0.0		10.2	3.5
LOS		A	A		A		B	A	A		B	A
Approach Delay		9.4			8.0			17.4			8.0	
Approach LOS		A			A			B			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 45			
Actuated Cycle Length: 37.6			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.75			
Intersection Signal Delay: 10.9		Intersection LOS: B	
Intersection Capacity Utilization 72.2%		ICU Level of Service C	
Analysis Period (min) 15			

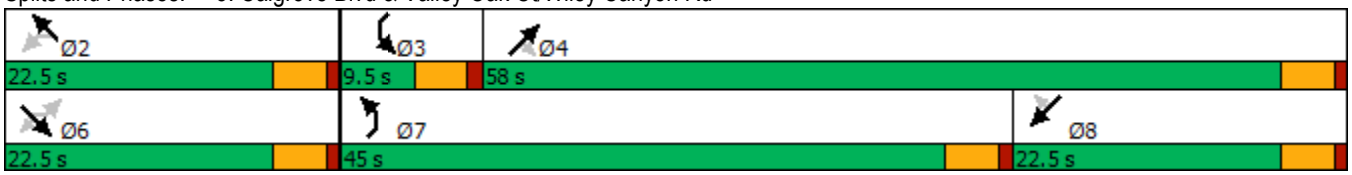
Splits and Phases: 3: Calgrove Blvd & Valley Oak Ct/Wiley Canyon Rd



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	65	7	372	3	6	0	648	104	3	0	65	52
Future Volume (vph)	65	7	372	3	6	0	648	104	3	0	65	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	80		80	0		0	165		110	300		300
Storage Lanes	0		1	0		0	1		1	1		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	1783	1583	0	1835	0	1770	1863	1583	1863	1863	1583
Flt Permitted		0.741			0.928		0.950					
Satd. Flow (perm)	0	1380	1583	0	1729	0	1770	1863	1583	1863	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			404						73			127
Link Speed (mph)		35			30			45			45	
Link Distance (ft)		827			121			543			816	
Travel Time (s)		16.1			2.8			8.2			12.4	
Lane Group Flow (vph)	0	79	404	0	10	0	704	113	3	0	71	57
Turn Type	Perm	NA	Perm	Perm	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases		6			2		7	4		3	8	
Permitted Phases	6		6	2					4			8
Total Split (s)	22.5	22.5	22.5	22.5	22.5		45.0	58.0	58.0	9.5	22.5	22.5
Total Lost Time (s)		4.5	4.5		4.5		4.5	4.5	4.5	4.5	4.5	4.5
Act Effct Green (s)		10.4	10.4		10.4		30.4	40.0	40.0		8.6	8.6
Actuated g/C Ratio		0.17	0.17		0.17		0.50	0.66	0.66		0.14	0.14
v/c Ratio		0.33	0.67		0.03		0.79	0.09	0.00		0.27	0.17
Control Delay		30.7	9.4		26.1		22.4	3.8	0.0		32.0	1.1
Queue Delay		0.0	0.0		0.0		0.0	0.0	0.0		0.0	0.0
Total Delay		30.7	9.4		26.1		22.4	3.8	0.0		32.0	1.1
LOS		C	A		C		C	A	A		C	A
Approach Delay		12.9			26.1			19.8			18.3	
Approach LOS		B			C			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 60.7			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.79			
Intersection Signal Delay: 17.4		Intersection LOS: B	
Intersection Capacity Utilization 59.3%		ICU Level of Service B	
Analysis Period (min) 15			

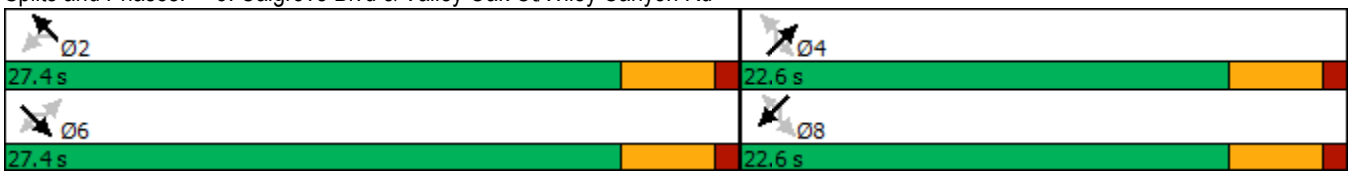
Splits and Phases: 3: Calgrove Blvd & Valley Oak Ct/Wiley Canyon Rd



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	42	2	818	10	12	0	255	60	10	0	170	72
Future Volume (vph)	42	2	818	10	12	0	255	60	10	0	170	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	80		80	0		0	165		110	300		300
Storage Lanes	0		1	0		0	1		1	1		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	1777	1583	0	1822	0	1770	1863	1583	1863	1863	1583
Flt Permitted		0.811			0.926		0.641					
Satd. Flow (perm)	0	1511	1583	0	1725	0	1194	1863	1583	1863	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			567						33			78
Link Speed (mph)		35			30			45			45	
Link Distance (ft)		827			121			543			816	
Travel Time (s)		16.1			2.8			8.2			12.4	
Lane Group Flow (vph)	0	48	889	0	24	0	277	65	11	0	185	78
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		6			2			4			8	
Permitted Phases	6		6	2			4		4	8		8
Total Split (s)	27.4	27.4	27.4	27.4	27.4		22.6	22.6	22.6	22.6	22.6	22.6
Total Lost Time (s)		4.5	4.5		4.5		4.5	4.5	4.5	4.5	4.5	4.5
Act Effct Green (s)		20.6	20.6		20.6		14.2	14.2	14.2		14.2	14.2
Actuated g/C Ratio		0.47	0.47		0.47		0.32	0.32	0.32		0.32	0.32
v/c Ratio		0.07	0.85		0.03		0.72	0.11	0.02		0.31	0.14
Control Delay		7.8	15.1		7.5		25.8	11.2	1.8		12.9	4.1
Queue Delay		0.0	0.0		0.0		0.0	0.0	0.0		0.0	0.0
Total Delay		7.8	15.1		7.5		25.8	11.2	1.8		12.9	4.1
LOS		A	B		A		C	B	A		B	A
Approach Delay		14.8			7.5			22.4			10.3	
Approach LOS		B			A			C			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 50			
Actuated Cycle Length: 44.1			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.85			
Intersection Signal Delay: 15.6		Intersection LOS: B	
Intersection Capacity Utilization 75.0%		ICU Level of Service D	
Analysis Period (min) 15			

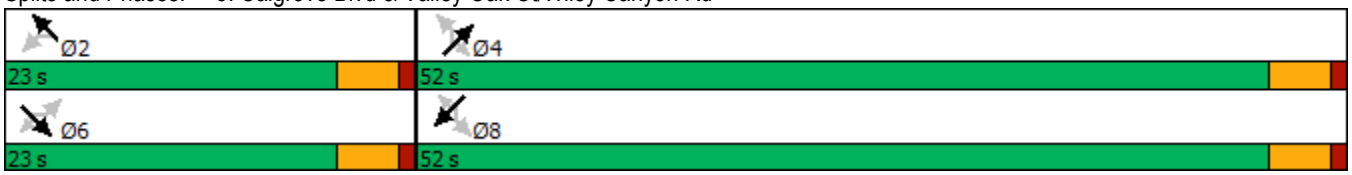
Splits and Phases: 3: Calgrove Blvd & Valley Oak Ct/Wiley Canyon Rd



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	73	13	383	10	12	0	665	140	10	0	100	62
Future Volume (vph)	73	13	383	10	12	0	665	140	10	0	100	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	80		80	0		0	165		110	300		300
Storage Lanes	0		1	0		0	1		1	1		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	1786	1583	0	1822	0	1770	1863	1583	1863	1863	1583
Flt Permitted		0.741			0.870		0.687					
Satd. Flow (perm)	0	1380	1583	0	1621	0	1280	1863	1583	1863	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			416						22			67
Link Speed (mph)		35			30			45			45	
Link Distance (ft)		827			121			543			816	
Travel Time (s)		16.1			2.8			8.2			12.4	
Lane Group Flow (vph)	0	93	416	0	24	0	723	152	11	0	109	67
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		6			2			4			8	
Permitted Phases	6		6	2			4		4	8		8
Total Split (s)	23.0	23.0	23.0	23.0	23.0		52.0	52.0	52.0	52.0	52.0	52.0
Total Lost Time (s)		4.5	4.5		4.5		4.5	4.5	4.5	4.5	4.5	4.5
Act Effct Green (s)		10.6	10.6		10.6		37.8	37.8	37.8		37.8	37.8
Actuated g/C Ratio		0.18	0.18		0.18		0.65	0.65	0.65		0.65	0.65
v/c Ratio		0.37	0.66		0.08		0.87	0.13	0.01		0.09	0.06
Control Delay		28.0	8.7		23.2		22.6	4.5	1.3		4.4	1.6
Queue Delay		0.0	0.0		0.0		0.0	0.0	0.0		0.0	0.0
Total Delay		28.0	8.7		23.2		22.6	4.5	1.3		4.4	1.6
LOS		C	A		C		C	A	A		A	A
Approach Delay		12.2			23.2			19.3			3.3	
Approach LOS		B			C			B			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 58.1			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.87			
Intersection Signal Delay: 15.3		Intersection LOS: B	
Intersection Capacity Utilization 59.2%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 3: Calgrove Blvd & Valley Oak Ct/Wiley Canyon Rd



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	117	53	72	269	773	160
Future Volume (vph)	117	53	72	269	773	160
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	240			0
Storage Lanes	1	1	1			0
Taper Length (ft)	25		25			
Satd. Flow (prot)	1770	1583	1770	1863	1820	0
Flt Permitted	0.950		0.174			
Satd. Flow (perm)	1770	1583	324	1863	1820	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		58			28	
Link Speed (mph)	30			35	35	
Link Distance (ft)	202			342	2065	
Travel Time (s)	4.6			6.7	40.2	
Lane Group Flow (vph)	127	58	78	292	1014	0
Turn Type	Perm	Perm	Perm	NA	NA	
Protected Phases				2	6	
Permitted Phases	4	4	2			
Total Split (s)	22.5	22.5	47.5	47.5	47.5	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	
Act Effct Green (s)	9.9	9.9	43.2	43.2	43.2	
Actuated g/C Ratio	0.17	0.17	0.75	0.75	0.75	
v/c Ratio	0.42	0.18	0.32	0.21	0.74	
Control Delay	28.0	8.5	9.2	4.2	11.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	28.0	8.5	9.2	4.2	11.7	
LOS	C	A	A	A	B	
Approach Delay	21.9			5.2	11.7	
Approach LOS	C			A	B	

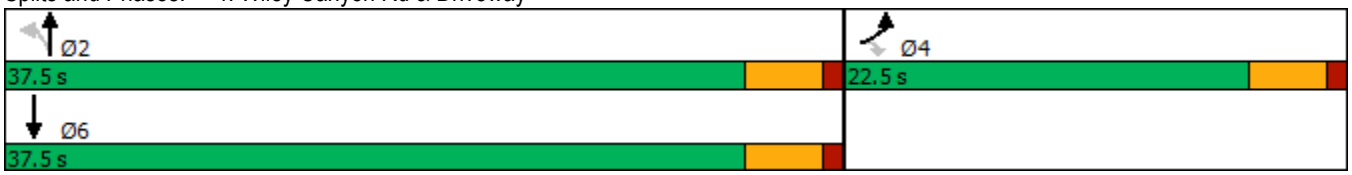
Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 57.7			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.74			
Intersection Signal Delay: 11.3		Intersection LOS: B	
Intersection Capacity Utilization 72.3%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 4: Wiley Canyon Rd & Driveway

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	180	81	60	656	410	135
Future Volume (vph)	180	81	60	656	410	135
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	240			0
Storage Lanes	1	1	1			0
Taper Length (ft)	25		25			
Satd. Flow (prot)	1770	1583	1770	1863	1801	0
Flt Permitted	0.950		0.370			
Satd. Flow (perm)	1770	1583	689	1863	1801	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		88			44	
Link Speed (mph)	30			35	35	
Link Distance (ft)	202			342	2065	
Travel Time (s)	4.6			6.7	40.2	
Lane Group Flow (vph)	196	88	65	713	593	0
Turn Type	Prot	Perm	Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4	2			
Total Split (s)	22.5	22.5	37.5	37.5	37.5	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	
Act Effct Green (s)	10.5	10.5	27.0	27.0	27.0	
Actuated g/C Ratio	0.25	0.25	0.64	0.64	0.64	
v/c Ratio	0.45	0.19	0.15	0.60	0.51	
Control Delay	18.8	5.8	6.6	9.9	8.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	18.8	5.8	6.6	9.9	8.0	
LOS	B	A	A	A	A	
Approach Delay	14.8			9.7	8.0	
Approach LOS	B			A	A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 42.4			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.60			
Intersection Signal Delay: 9.9		Intersection LOS: A	
Intersection Capacity Utilization 55.2%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 4: Wiley Canyon Rd & Driveway



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	117	53	72	730	1370	160
Future Volume (vph)	117	53	72	730	1370	160
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	240			0
Storage Lanes	1	1	1			1
Taper Length (ft)	25		25			
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.950		0.032			
Satd. Flow (perm)	1770	1583	60	1863	1863	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		58				171
Link Speed (mph)	30			35	35	
Link Distance (ft)	202			342	2065	
Travel Time (s)	4.6			6.7	40.2	
Lane Group Flow (vph)	127	58	78	793	1489	174
Turn Type	Prot	Perm	Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Total Split (s)	22.5	22.5	127.5	127.5	127.5	127.5
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Act Effct Green (s)	14.9	14.9	123.1	123.1	123.1	123.1
Actuated g/C Ratio	0.10	0.10	0.84	0.84	0.84	0.84
v/c Ratio	0.71	0.27	1.56	0.51	0.96	0.13
Control Delay	85.1	17.2	352.4	4.9	25.9	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	85.1	17.2	352.4	4.9	25.9	0.6
LOS	F	B	F	A	C	A
Approach Delay	63.8			36.1	23.3	
Approach LOS	E			D	C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 150			
Actuated Cycle Length: 147			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.56			
Intersection Signal Delay: 30.1		Intersection LOS: C	
Intersection Capacity Utilization 86.1%		ICU Level of Service E	
Analysis Period (min) 15			

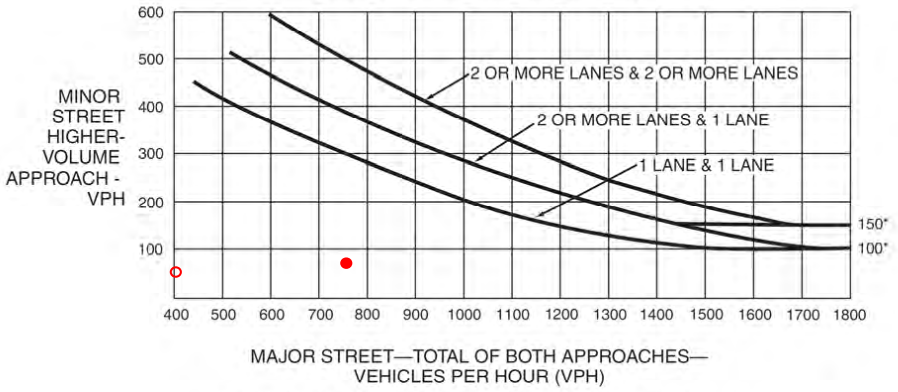
Splits and Phases: 4: Wiley Canyon Rd & Driveway

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	180	81	60	1190	900	135
Future Volume (vph)	180	81	60	1190	900	135
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	240			0
Storage Lanes	1	1	1			0
Taper Length (ft)	25		25			
Satd. Flow (prot)	1770	1583	1770	1863	1829	0
Flt Permitted	0.950		0.126			
Satd. Flow (perm)	1770	1583	235	1863	1829	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		88			20	
Link Speed (mph)	30			35	35	
Link Distance (ft)	202			342	2065	
Travel Time (s)	4.6			6.7	40.2	
Lane Group Flow (vph)	196	88	65	1293	1125	0
Turn Type	Prot	Perm	Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4	2			
Total Split (s)	22.5	22.5	67.5	67.5	67.5	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	
Act Effct Green (s)	14.5	14.5	65.6	65.6	65.6	
Actuated g/C Ratio	0.16	0.16	0.74	0.74	0.74	
v/c Ratio	0.68	0.27	0.38	0.94	0.83	
Control Delay	47.0	9.3	12.8	27.0	16.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	47.0	9.3	12.8	27.0	16.1	
LOS	D	A	B	C	B	
Approach Delay	35.3			26.3	16.1	
Approach LOS	D			C	B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 89.1			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.94			
Intersection Signal Delay: 23.1		Intersection LOS: C	
Intersection Capacity Utilization 80.1%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 13: Wiley Canyon Rd & Driveway

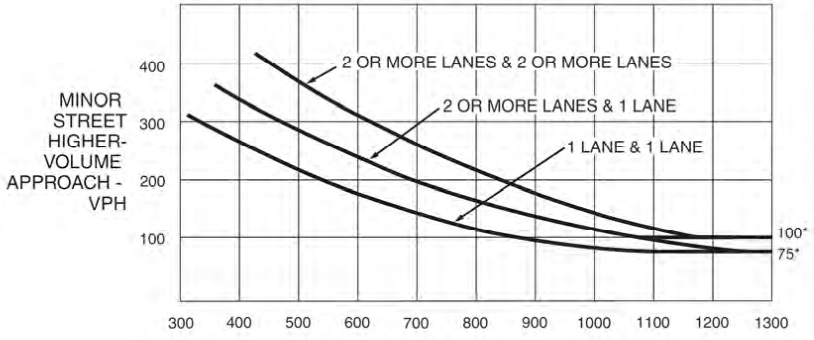
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

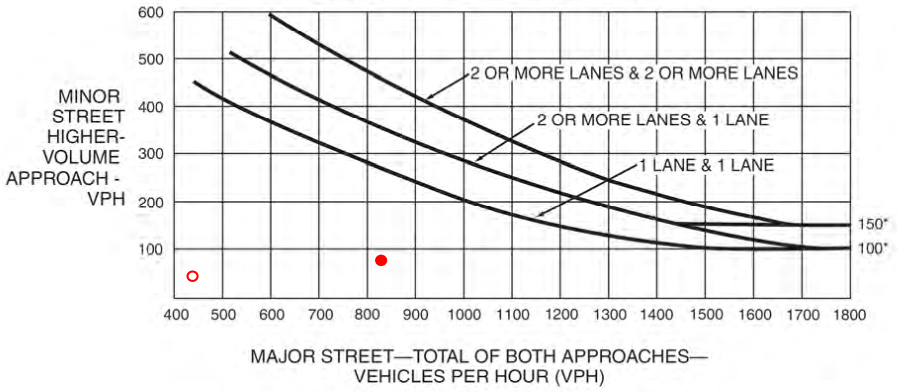
- AM Peak (Minor St - 39; Major - 364)
- PM Peak (Minor St - 66; Major - 765)

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-3. Warrant 3, Peak Hour

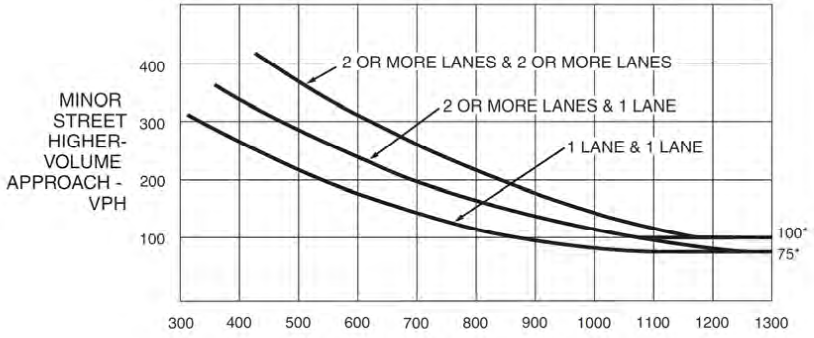


*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

- AM Peak (Minor St - 43; Major - 429)
- PM Peak (Minor St - 72; Major - 820)

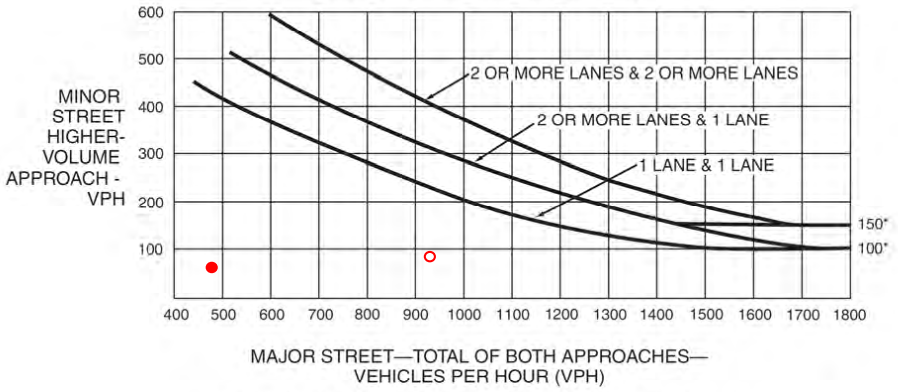
Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

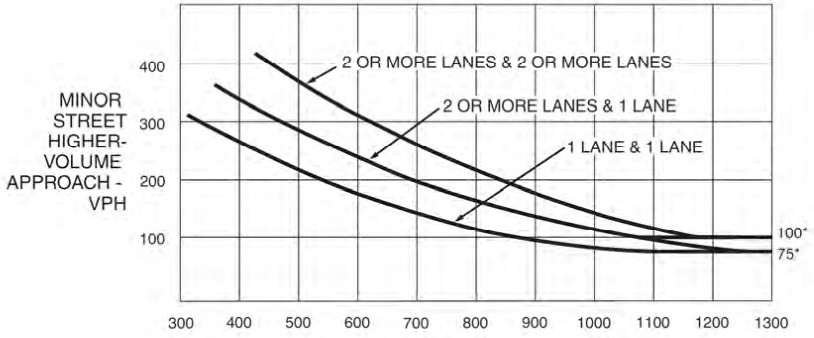
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

- AM Peak (Minor St - 44; Major - 495)
- PM Peak (Minor St - 86; Major - 915)

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

ALLAN E. SEWARD
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Geological And Geotechnical Consultants

GEOTECHNICAL REPORT

Review of Tentative Tract Map, dated 2/9/21

Tentative Tract Map No. 083295
Santa Clarita, California

Prepared for:

Wiley Canyon, LLC
c/o Sheridan Ebbert Development
13120 Telfair Avenue
Sylmar, CA. 91342

Job No.: 21-2593-4
Dated: February 11, 2021

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APPENDIX A – Subsurface Logs

APPENDIX B – Laboratory Test Results

APPENDIX C – Seismicity

APPENDIX D – Liquefaction Assessment

APPENDIX E – General Specifications, Details, Cross Sections & Maps

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ENGINEERING GEOLOGY, INC.
Geological And Geotechnical Consultants

February 11, 2021 Job No.: 21-2593-4

Wiley Canyon LLC
c/o Sheridan Ebbert Development
13120 Telfair Avenue
Sylmar, CA 91342

Attention: Mr. Scott Sheridan

Subject: **GEOTECHNICAL REPORT**
Review of Tentative Tract Map 083295 Dated 2/9/21

Project: Tentative Tract Map No. 083295
Santa Clarita, California

References: At end of text

Dear Mr. Sheridan:

This report presents our opinions regarding existing geotechnical conditions at the above-referenced site and their effects on the Tentative Tract Map (TTM) No. 083295 prepared by Alliance Land Planning & Engineering Inc., dated February 9, 2021.

The proposed development shown on the Tentative Tract Map is feasible from a geologic and geotechnical standpoint, provided that the recommendations provided in this report are followed and implemented during design and construction.

1.0 SCOPE OF REVIEW

This review included the following tasks:

1. Review of the Tentative Tract Map (Sheets 1 to 3 of 3) prepared by Alliance Land Planning & Engineering Inc., dated 2/9/21. This map was provided to our office in computerized format (AutoCAD). Map Sheet 1 was prepared at a scale of 1"=100' and illustrates site topography relative to proposed grading and street improvements; this map was used as the base for our 100-scale Geotechnical Map. Map Sheets 2 and 3 were prepared at a scale of 1"=50' and illustrate the proposed development including building locations and street improvements; these maps were used as the base for 50-scale Geotechnical Maps. We make no representations regarding the accuracy of the base maps.
2. Review of pertinent geotechnical reports addressing previously proposed development at

the project site (see References).

3. Review of the published geologic reports and maps referenced at the end of this report.
4. Review of the Seismic Hazard Zones Map and Report for the Oat Mountain Quadrangle.
5. Evaluation of ground water conditions and historic ground water levels based on Los Angeles County Flood Control District (LACFCD) water well data and published maps.
6. Review of the Department of Conversation, Division of Oil, Gas, and Geothermal Resources well finder web page.
7. Review of Alquist-Priolo Fault Rupture Hazard Zones in California (CDMG Special Publication 42).
8. Review of the following aerial photographs:

Date	Flight	Frame	Scale	Agency
12/31/27	C-300	E-154	1:18,000±	Fairchild
6/30/29	C-594	Z-26	1:9,600±	Fairchild
7/17/30	C-1001B	Z-176	1:16,800±	Fairchild
10/23/45	C-9800	12-1237	1:14,400±	Fairchild
11/4/52	AXJ	3K-23	1:20,000±	USDA
3/24/68	TG-2445	4-124	1:24,000±	LA County
1/31/76	TG-7600	19-14	1:24,000±	LA County
4/14/93	-	40008	1:200±	Mitchell Specialized Photographic Services
1994 – 2018	- Various Images	-	-	Google Earth Web Application

9. Coordination with the Supervising Civil Engineer, Alliance Land Planning & Engineering Inc.
10. Coordination with Underground Service Alert to obtain clearance from potentially impacted utilities prior to the subsurface exploration.
11. Excavation, sampling and logging of 3 hollow-stem-auger borings (HS-1 to HS-3) drilled to a maximum depth of 55 ft, and two percolation borings (PB-1 and PB-2) drilled to a maximum depth of 12 ft.
12. Field infiltration testing using the boring percolation method in borings PB-1 and PB-2.
13. Pushing of 17 cone penetration test (CPT) soundings (CPT-1 through CPT-17) to a maximum depth of 60 feet.
14. Laboratory testing of samples obtained during our subsurface investigation.
15. Geotechnical evaluation of in-situ soil density and moisture content, grain-size characteristics, shear strength, compressibility, corrosion potential, expansion potential,

and shrinkage and bulking factors based on current and prior subsurface investigations and laboratory testing.

16. Evaluation of feasibility of on-site stormwater infiltration.
17. Performed general earthquake ground motion characterization utilizing the latest seismic ground-motion provisions of the 2019 California Building Code (CBC), ASCE 7-16, and Special Publication 117A. Our evaluation included calculation of site-specific response spectrum parameters and potential ground accelerations that could be generated at the site during future earthquakes on nearby faults.
18. Assessment of potential ground rupture hazard at the site.
19. Geotechnical assessment of liquefaction potential of site alluvial soils and calculation of associated seismic settlements and lateral spread displacements based on subsurface data, existing and historic ground water levels, laboratory test results, and estimated earthquake ground motions.
20. Estimation of potential static settlements under future building loads based on SPT blow count data, CPT tip resistance, and laboratory test results.
21. Assessment of recommended grading removal depths based on subsurface conditions, calculated seismic settlements, and estimated static settlements under assumed future building loads.
22. Preparation of one cross section illustrating interpreted subsurface conditions and remedial removals across the length of the site, and 3 cross sections illustrating the proposed soil-cement bank protection configuration relative to temporary excavation slopes and existing/proposed grades.
23. Evaluation of stability of temporary excavation slopes.
24. Preparation of the enclosed Geotechnical Maps illustrating our geotechnical data and recommended mitigation measures in relation to the proposed tentative tract map design.
25. Preparation of figures and illustrations, including Location Map, Fault Location Map, drill hole logs, CPT logs, laboratory test reports, infiltration test reports, seismicity figures, liquefaction results and calculations, and pertinent construction details for inclusion in this report.
26. Preparation of this Geotechnical Report describing the completed scope of work, the geologic and geotechnical conditions at the site, the results of our analyses along with appropriate conclusions and recommendations for the Tentative Tract Map.

2.0 SITE DESCRIPTION

The subject site comprises approximately 32 acres and is located at 24924 Hawkbryn Drive (previously known as the Smiser Parcel) generally between Interstate 5 to the west and Wiley Canyon Road to the east in the Newhall area of Santa Clarita (see **Location Map** following page 4). The northeasterly portion of the parcel extends across Wiley Canyon Road and includes hillside area on the east side of the road. The site borders the developed Mulberry Mobile Home Park to the north, developed residential Tract 30340 to the east and a commercial development to the south. These developments were built in 1960 to 1964, 1966, and between 1978 and 1981, respectively. Access to the site is via a driveway approach off of Wiley Canyon Drive near the northerly portion of the site.

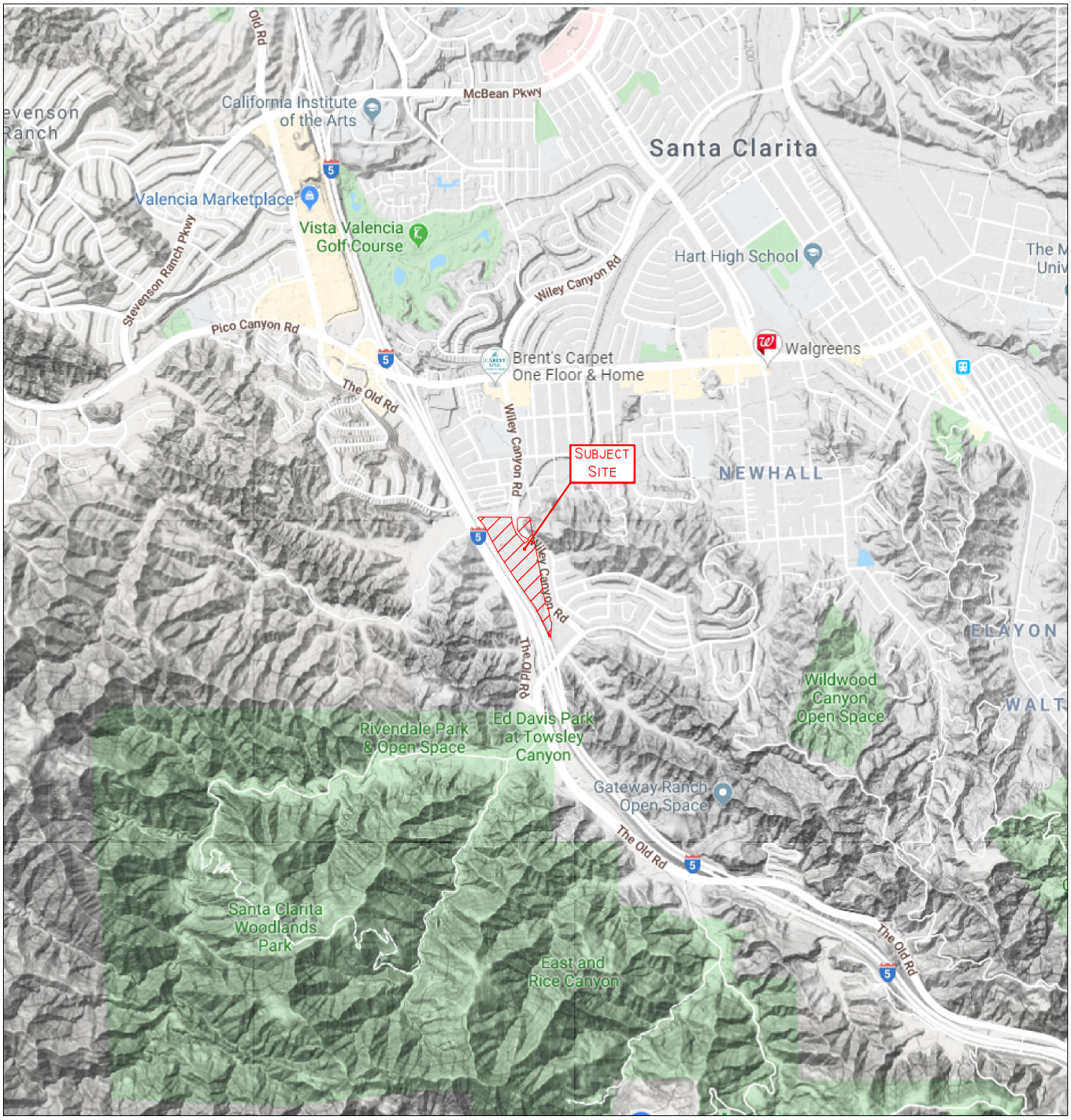
The subject property was previously used as a mule ranch and remains mostly vacant with the exception of the northerly portion, which is roughly paved and occupied by miscellaneous barn and storage structures and two mobile homes. A small, out of service (dry) water reservoir is present at the northwesterly portion of the site. The drainage for the South Fork of the Santa Clara River extends roughly north-south along the east side of the property, adjacent to the west side of Wiley Canyon Road. This narrow drainage ranges from 7 to 15 feet deep from the adjacent relatively level grades and consists of active alluvial deposits, large cobbles and boulders, and thick vegetation with numerous trees. The drainage transitions to a concrete-lined channel within the northern portion of the site. Shallow stream water is generally present within the drainage throughout most of the year.

With the exception of the elevated hillside area at the northeast portion of the site, east of Wiley Canyon Road, the site topography is relatively flat (low gradient) and generally drains by sheet flow to the northwest then to the northeast near the northern portion of the property. The elevations on the site range from a high point of 1402’ at the hillside area to a low point of 1290’ located within the drainage channel near where the channel bottom transitions to concrete liner. The elevations of the relatively flat field area of the site range from approximately 1321’ at the south to 1297’ near the site access driveway.

Details of the site topography are illustrated on the Geotechnical Maps included within this report. Vegetation on the site ranges from annual grasses to chaparral, with various scattered trees.

3.0 PROPOSED DEVELOPMENT

The currently proposed development consists of senior living/multi-family and commercial development on relatively flat building pad areas with associated infrastructure, retaining walls, drive aisles, parking areas, carports, trash enclosures, swimming pool and cabana areas,



Source: Open Topography Web Application (https://opentopography.org/)

Approximate Scale: 1"=2,000'

NOTE: THIS IS NOT A SURVEY OF THE PROPERTY

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LOCATION MAP

Job No.: 21-2593-4	Date: 2/11/21

and maintenance buildings. The residential and commercial building structures are proposed up to 4 stories. A recreational use area is proposed at the south end of the project.

The main access driveway is proposed off Wiley Canyon Road at the north portion of the project and a secondary access driveway is proposed attaching to Hawkbryn Avenue at the northwest corner of the project. The existing box culvert that conveys water from the existing drainage channel beneath Wiley Canyon Road will be extended to accommodate the main access driveway. Additional improvements to the drainage along the eastern margin of the development and western margin of the recreational use grass pad on open space Lot 5 include construction of soil-cement bank protection. Two water quality basins, one at the northwest corner and one at the east side of the development, and a drainage basin just south of the development are also proposed.

Proposed offsite improvements include the expansion of Wiley Canyon Road with the addition of two round-abouts, one at Wiley Canyon Road and Calgrove Boulevard intersection and one at the main entrance to the site and Wiley Canyon Road. Two retaining walls are proposed along the westerly side of Wiley Canyon Road, adjacent to the existing channel drainage to accommodate the expansion of the road.

Conventional cut and fill grading techniques will be utilized to construct the proposed development. Small cut and fill slopes are proposed at gradients of 2:1 (h:v) or flatter. Proposed grades for the building pads are relatively flat. Minor cuts and fills up to approximately 3 feet are proposed in order to achieve the proposed grades for the building pads. The tallest proposed slope is about 17 feet located just east of the proposed water quality basin adjacent to the drainage channel. The tallest proposed cut-slope is about 10 feet located along the east side of the recreational use grass pad. The maximum thickness of proposed fill (vertical) is approximately 10 feet within Lot 2. The maximum depth of proposed cut (vertical) is approximately 11 feet located within the channel improvements adjacent to the proposed water quality basin.

4.0 FIELD INVESTIGATION, SAMPLING AND LABORATORY TESTING

4.1 Surface Mapping

For this report, surface geologic mapping in conjunction with aerial photo interpretations was undertaken by personnel from Allan E. Seward Engineering Geology Inc. (AESEGI) using the Tentative Tract Map as the base map. We also reviewed existing geologic and geotechnical available data by AESEGI and others in the vicinity of the project.

4.2 Prior Field Investigations

Prior subsurface investigations were performed by Lawson & Associates Geotechnical Consulting Inc. (LGC) at the subject site (also referred to as the "Smiser Parcel") in 2004 (Reference 1). LGC also performed a geotechnical investigation in 2005 for a 7.5-acre site adjacent to the southerly portion of the Smiser Parcel, known as the Taylor Parcel (Reference 2). A supplemental geotechnical investigation covering the Smiser Parcel, the Taylor Parcel, and an additional 4.25-acre site located at the corner of Wiley Canyon Road and Calgrove Boulevard was performed by LGC Valley, Inc. (LGC) in 2007 (Reference 3).

The following subsurface exploration was performed by LGC, as documented in the referenced reports that we reviewed. The drill hole logs are included in **Appendix A**.

- Advancement of 4 CPT soundings, CPT-01 through CPT-04 (LGC, 2004), to depths ranging from 12.8 to 46.7 feet.
- Drilling of 5 hollow-stem auger borings, B-1 through B-5 (LGC, 2004), to depths ranging from about 31 to 51.5 feet.
- Drilling of 3 hollow-stem auger borings, B-1 through B-3 (LGC, 2005), to depths ranging from about 28.5 to 47.5 feet.
  (*Note: boring B-LGC-2 was not included in the associated report and not reviewed*).
- Drilling of 9 hollow-stem auger borings, B-1 through B-9 (LGC, 2007), to depths ranging from about 40.5 to 80.3 feet.

Samples collected from the borings included modified California drive (CD) ring samples, Standard Penetration Test (SPT) samples, and bulk samples. The CD and SPT samples were generally obtained at 2.5-ft intervals in the upper 10 feet and every 5 feet thereafter.

Subsequent laboratory testing was performed by LGC on samples collected from the borings and included in-situ moisture content and dry density, grain size distribution, laboratory maximum dry density (modified Proctor), consolidation, hydro-collapse, direct shear, expansion index, and corrosivity (sulfate content, pH and resistivity).

4.3 AESEGI Field Investigation

4.3.1 Subsurface Exploration

Subsurface exploration performed to supplement existing data included the drilling, sampling, and logging of three (3) 8-inch diameter hollow-stem auger borings (HS-1 thru HS-3) to a maximum depth of 55 feet. The borings were drilled by Choice Drilling Inc. on 11/14/19 and logged by a staff geologist with oversight by the undersigned Geotechnical Engineer. Following completion of logging, borings were backfilled with the excavated materials.

Additionally, 17 Cone Penetration Test (CPT) soundings (CPT-1 through CPT-17) were performed to a maximum depth of 60 feet. The CPT soundings were performed by Kehoe Testing and Engineering on 11/6/19 and 11/7/19. Following completion of the sounding, the holes were backfilled with bentonite chips.

The drill hole logs and CPT logs are included in **Appendix A**. The drill hole logs represent our interpretation of field data prepared for each boring by our geologic/engineering staff at the time of exploration, along with refinements based on observations and laboratory test results. Unit boundaries shown in the graphic log column of our hollow-stem-auger drill hole logs are approximate and may represent gradual transitions. The CPT logs include a graphic log column with soil descriptions based on soil behavior types interpreted from cone resistance and sleeve friction. The subsurface locations are shown on the attached Geotechnical Maps.

4.3.2 Field Infiltration Testing

Two (2) additional hollow-stem auger borings (PB-1 and PB-2) were excavated to a maximum depth of 12 feet adjacent to hollow-stem auger borings HS-2 and HS-3, respectively, to evaluate the use of Low Impact Development (LID) stormwater quality control measures with an infiltration component. Field infiltration testing was conducted using the "Boring Percolation" test procedure outlined in Administrative Manual GS200.2 (dated 6/30/17), *Guidelines for Investigation and Reporting, Low Impact Development Stormwater Infiltration*, prepared by the County of Los Angeles Department of Public Works, Geotechnical and Materials Engineering Division (referred to herein as GMED LID Guidelines). Test procedures and results of field infiltration testing were presented in our Geotechnical Letter – Preliminary Evaluation of Infiltration Rates (see Reference 4) and summarized in **Section 7.4** of this report.

4.3.3 Sampling Procedures

California drive (relatively undisturbed) ring and Standard Penetration Test (SPT) samples were obtained in the exploratory drill holes at various depths (see logs in **Appendix A**). The SPT samples and associated blow count data were collected in boring HS-1 at 2.5-ft intervals for assessment of liquefaction potential. The CD samples were collected in borings HS-2 and HS-3 at 3- to 5-ft intervals. Recovered soil samples were sealed in plastic containers and brought to our laboratory for further classification and testing.

Bulk (disturbed) samples of the near surface soils were obtained from cuttings developed during excavation of the exploratory drill holes. The bulk samples were collected for classification and testing purposes and represent a mixture of soils within the noted depths.

4.3.4 Laboratory Program

Soil samples were visually classified in the field. Thereafter, the samples were brought to our laboratory, the visual soil classifications were checked using visual-manual procedures (ASTM Standard Practice D2488), and the drill hole logs were reviewed in order to select soil samples for testing.

The laboratory testing on selected samples consisted of in-situ moisture content (ASTM D2216) and dry density (ASTM D7263), Amount of Material in Soil Finer than No. 200 Sieve (ASTM D1140), particle-size distribution of soils using sieve analysis (ASTM D6913), modified Proctor compaction (ASTM D1557), direct shear (ASTM D3080), hydro-collapse (ASTM D2435), expansion index (ASTM D4829) and corrosivity.

Results of the laboratory testing are provided in **Appendix B** of this report, presented on the subsurface logs, or within the following sections of this report.

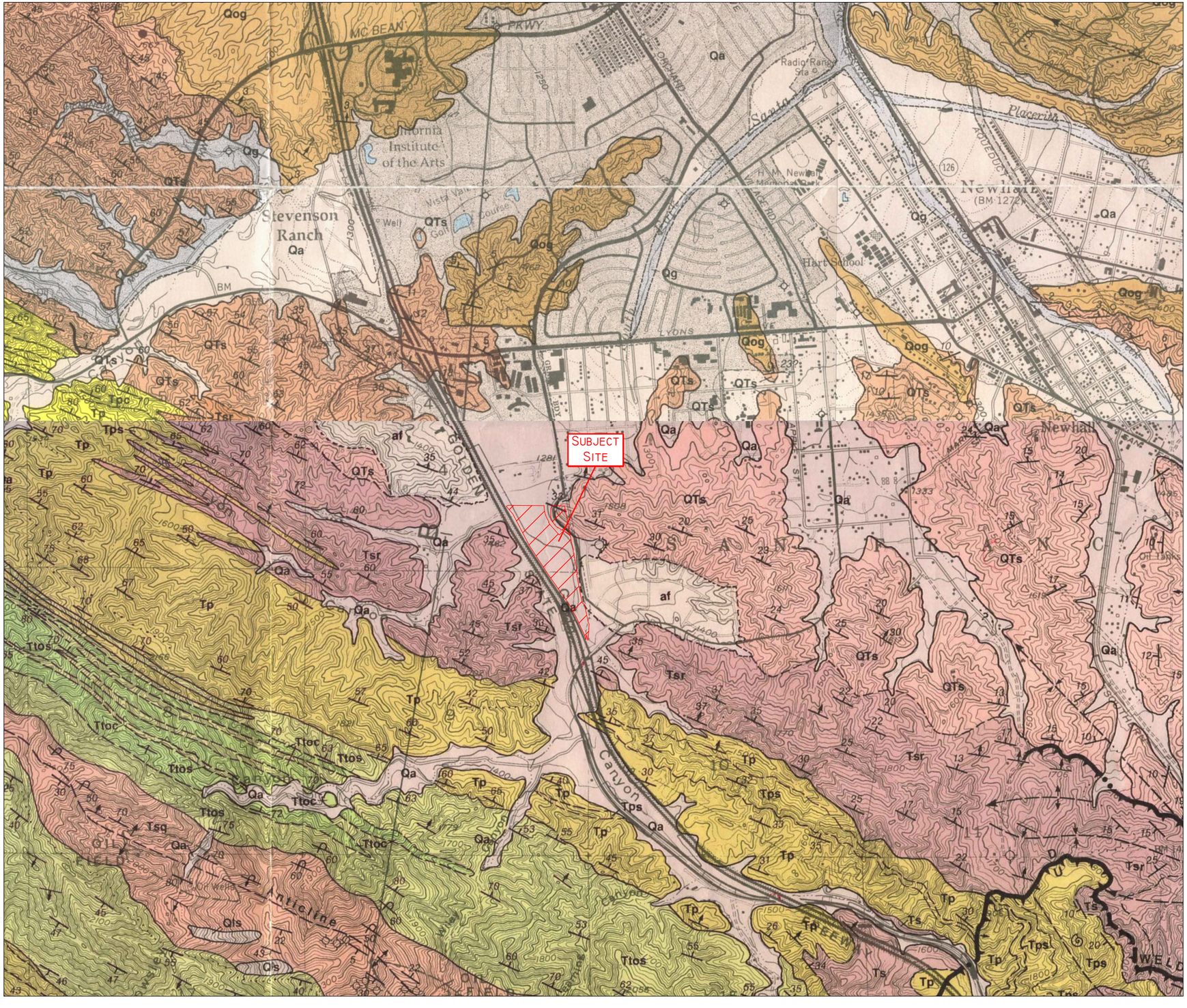
5.0 GENERALIZED GEOTECHNICAL CONDITIONS AND SOIL PROPERTIES

5.1 Regional Geology

The subject site is located in the Transverse Ranges geomorphic province of southern California in the eastern portion of the Ventura Basin. The Ventura Basin has been tectonically downwarped in the geologic past to produce a large-scale synclinal structure, which has developed a thick accumulation of Cenozoic sediments. The San Gabriel fault is located approximately 3.6 miles northeast of the site.

The area of proposed development is entirely covered with recent alluvium. Bedrock of the Plio-Pleistocene sediments of the Saugus Formation underlies the alluvium (Dibblee, 1992). The Saugus Formation is divided into two members, the lower Sunshine Ranch Member (Tsr) and the upper unnamed member, referred to herein as Saugus Formation (TQs). The ridge located at northeastern portion of the property, Open Space Lot 6, is mapped as the upper member of the Saugus Formation. The ridges located to the southeast of the property are mapped as the Sunshine Ranch Member of the Saugus Formation. Based on published Geologic Maps we judge that the contact between the two members is beneath the subject site. However, the contact location is uncertain owing to existing alluvial deposits. Geologic structure of bedding is relatively uniform with strikes 60 to 65° northwest and dips 30 to 45° to the northeast (see **Geologic Map by T.W. Dibblee, Jr.** following page 8).

The alluvial soils are noted on the State Seismic Hazards Zones Map for the Oat Mountain Quadrangle as having potential for liquefaction. No active (Holocene) faults are known to exist on the site per Alquist-Priolo criteria. The ridge on Lot 6 is noted on the State Seismic Hazards Zones Map for the Oat Mountain Quadrangle as having potential for earthquake-



LEGEND

af / Qg / Qa — Qls

SURFICIAL SEDIMENTS

af *artificial cut and fill* — **Qls** *landslide debris*

Qg *gravel and sand of major stream channels* — **Qa** *alluvial gravel, sand and clay of valley areas*

Qae / Qoa / Qog

OLDER DISSECTED SURFICIAL SEDIMENTS

Qae *similar to* **Qa**, *but slightly elevated and dissected*

Qoa *remnants of older, slightly consolidated, dissected alluvial gravel and sand*

Qog *high remnants of slightly consolidated, brown coarse alluvial gravel*

—UNCONFORMITY—

QTs / Ts / Tsr

SAUGUS FORMATION

terrestrial, weakly consolidated; Pliocene and Pleistocene age

QTs *light gray pebble-cobble conglomerate, sandstone and greenish to reddish claystone, interbedded; composed of locally derived granitic and gneissic detritus including some of anorthosite and gabbro-norite; deposited by streams; Pliocene and Pleistocene age*

Ts *(in Whitney Canyon area) same as* **QTs**, *but correlative in age (Pliocene) with units* **Tsr** *and* **Tps** *(in part lower member of Pico Formation of Oakeshott 1958)*

Tsr *Sunshine Ranch Member (of Oakeshott 1958; Winterer and Durham 1962, in part) in Van Norman Lake area; light reddish to greenish claystone and sandstone and interbedded pebble-cobble conglomerate similar to that of* **QTs**

Tps

PICO FORMATION

(of Oakeshott 1958; Winterer and Durham 1962)

shallow marine regressive; Pliocene (?) age

Tps *(at Los Angeles aqueduct) light gray, semi-friable, cross-bedded medium to coarse grained sandstone and some pebble-cobble conglomerate of granitic detritus*

Ttoc / Ttos / Ttog

TOWSLEY FORMATION

(of Winterer and Durham 1962; Pico Formation of Hill 1930; "Repetto" Formation, including Elsmere Member, of Oakeshott 1958)

terrestrial and shallow marine regressive; latest Miocene and/or early Pliocene age

Ttos *mostly light gray to tan sandstone; minor gray silty claystone and conglomerate*

Ttoc *gray silty claystone and siltstone, minor sandstone*

Ttog *gray to brown crudely bedded cobble conglomerate of mostly granitic and gneissic detritus and coarse grained sandstone; probably terrestrial, deposited by streams as a fan-delta*

—UNCONFORMITY—

in mountain area

Tsqs / Tsq

SISQUOC SHALE

(included in Modelo Formation by Kew 1924; Winterer and Durham 1958, 1962; Saul 1979; same lithologic unit as Sisquoc Formation in northern Ventura basin)

marine clastic; late Miocene age (Mohnian to "Delmontian" Stage)

Tsq *dark gray to brownish gray clay shale, bleaches to light gray; crumbly with spheroidal to sub-platy fracture, gypsiferous in fractures, some layers contain large tan dolomitic concretions; includes some thin interbedded semi-siliceous layers; about 1000 ft (300m) thick*

Tsqs *light gray coherent to semi-friable sandstone*

SYMBOLS

(not all symbols present on each map)

FORMATION CONTACT — *dashed where inferred or indefinite*

MEMBER CONTACT — *between units of a formation*

CONTACT BETWEEN SURFICIAL SEDIMENTS — *located only approximately in places*

FAULT: *Dashed where indefinite or inferred, dotted where concealed, queried where existence is doubtful. Parallel arrows indicate inferred relative lateral movement. Relative vertical movement is shown by U/D (U=upthrown side, D=downthrown side). Short arrow indicates dip of fault plane. Sawteeth on upper plate of low angle thrust fault.*

FOLDS: ANTICLINE — SYNCLINE

arrow on axial trace of fold indicates direction of plunge; dotted where concealed by surficial sediments

STRIKE AND DIP OF STRATIFIED ROCKS: inclined — inclined (approximate) — horizontal — overturned — vertical — inclined — approximate — vertical

metamorphic or igneous rock foliation or flow banding

FOSSIL LOCALITY — DIRECTION OF LANDSLIDE MOVEMENT — SANDSTONE MARKER BED — CONGLOMERATE MARKER BED — ABANDONED EXPLORATORY OIL (OR GAS) WELL — OIL WELLS (ON TOPOGRAPHIC BASE MAP)

0 — 2,000'

APPROXIMATE SCALE

SOURCE: GEOLOGIC MAP OF THE OAT MOUNTAIN AND CANOGA PARK (NORTH ½) QUADRANGLES, 1992, DF-33 AND GEOLOGIC MAP OF THE NEWHALL QUADRANGLE, 1996, DF -56

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GEOLOGIC MAP BY T.W.DIBBLEE, JR.

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induced landslides. The geologic structure is anti-dip to neutral to the slope gradients and a landslide has not been mapped on this proposed open space lot per the reviewed references listed. Landslides are not present within the proposed development.

5.2 Geologic Units

The project site consists of artificial fill (af), soil/plow pan, and recent alluvial deposits (Qal) that are underlain by Saugus Formation (TQs) bedrock. A general description of these geologic units is presented below and presented on our subsurface logs (**Appendix A**). Distribution of these units is shown on the Geotechnical Maps. In general, the artificial fill is considered to be thin (< 3 feet) and is undifferentiated from the alluvium.

5.2.1 Saugus Formation (TQs)

Bedrock of the Saugus Formation (TQs) was encountered at 4 boring locations (B-2, B-4, B-8, and B-9, LGC 2007) at depths ranging from 65 to 75 feet. This bedrock consisted light gray to pale yellowish-brown to grayish-green to dense to very dense siltstone and sandstone with trace gravel.

5.2.2 Alluvium (Qal)

The subject site is underlain by undifferentiated Quaternary alluvial and fluvial deposits. These deposits consist of brown to yellowish brown, fine silty sand and sandy silt with occasional thin interbeds of clay and silty clay in the upper 20 to 25 feet. Below this depth, the alluvium predominantly consists of fine- to coarse-grained sand and silty sand. Interbedded sands with cobbles and gravel are present within the range of depths explored.

Loose/soft soil layers were encountered in several borings and CPTs within the upper 20 feet where the measured in-situ dry densities were as low as 92 pcf. Below a depth of 20 the dry density was predominantly above 110 pcf. However, at several locations the CPTs encountered very dense layers and refusal at shallow depths. In any case, the soil consistency based on sampler blow count data, CPT tip resistance, and in-situ dry density was generally variable to the depths explored. The loose sands and soft silts are considered susceptible to potentially significant static and seismically-induced settlement.

5.2.3 Artificial Fill

Minor amounts of non-compacted artificial fill (af) are present at the site. These minor fills were generated during prior site development, grading of the minor access roads, and grading for Wiley Canyon Road. Review of historic aerial photographs listed under the scope of work indicate that an excavated reservoir was present at the central portion of the site and an old drainage swale was present at the northerly portion of the property. The reservoir and drainage channel have been backfilled. The approximate locations of the

reservoir and drainage swale are indicated on the Geotechnical Map. The artificial fill typically consists of locally derived alluvial material and dump fill within the recreational use grass pad area. In general, this material is not differentiated from the alluvium and is not shown on the Geotechnical Maps, except for the recreational use area at the south end of the project.

5.2.4 Soil/Plow Pan

Past ranching and brush clearing activities have disturbed the upper portion of the alluvium. The thickness of this material ranges from about 1 to 3 feet with significant, widespread rodent holes. This material is not differentiated from the alluvium on the subsurface logs and is not shown on the Geotechnical Maps.

5.3 Ground Water

No natural seeps, or springs or indicators of near surface ground water were observed during our field investigation; however, stream water was observed within the active drainage channel adjacent to Wiley Canyon Road.

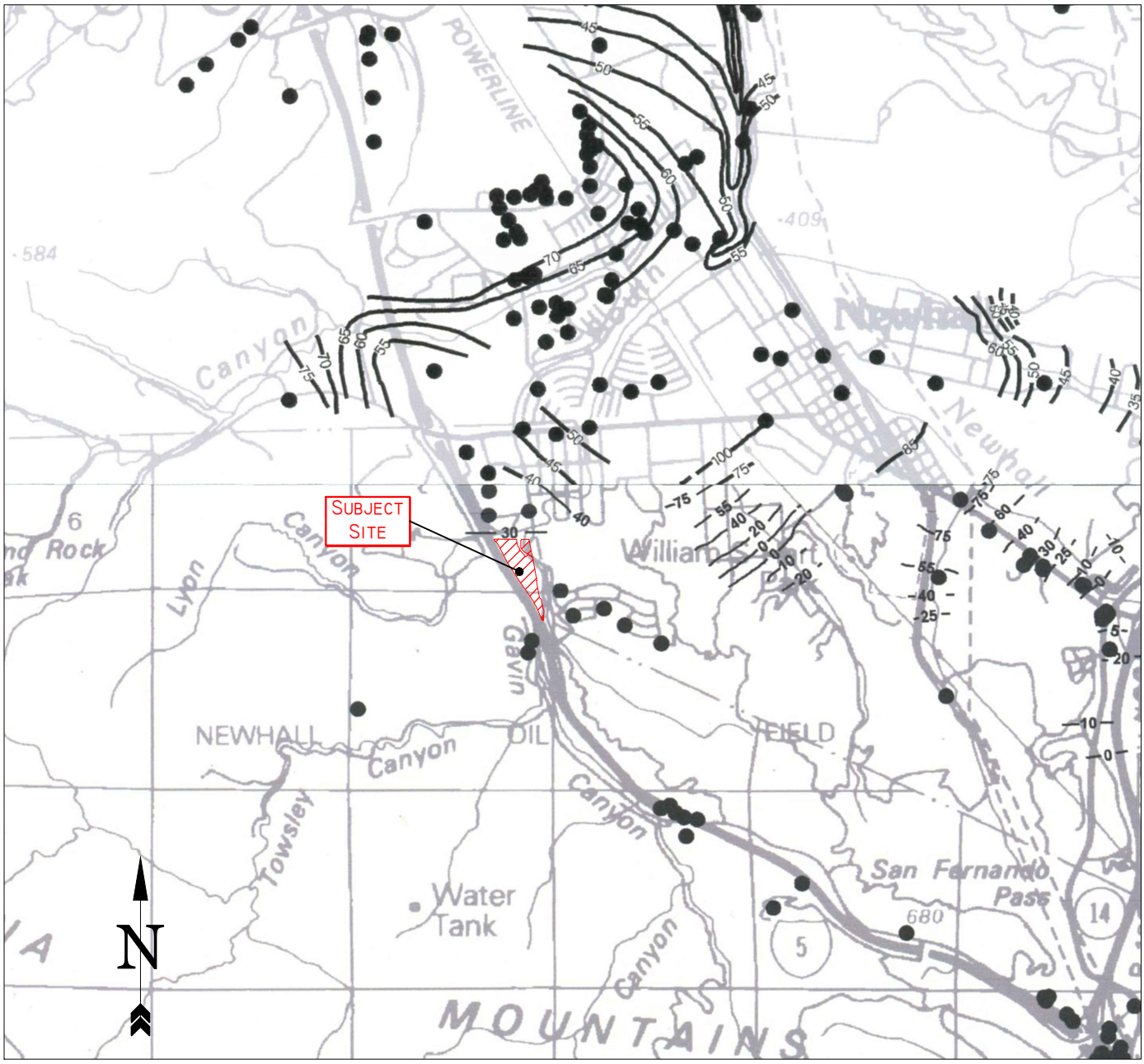
An inactive ground water well is present on the site per the County of Los Angeles Department of Public Works web application (https://dpw.lacounty.gov/general/wells/. This water well is designated as well 5843 and was first measured 10/7/31 and was last measured 11/17/47. The highest water surface was measured within this well on 5/11/32 at elevation 1235.8 (80 feet below the ground surface).

Ground water was encountered in 6 hollow-stem auger borings during LGC's subsurface exploration in 2007. The depth to groundwater ranged from about 58 to 66 feet below the ground surface at borings B-1, -2, -4 and -5, which are located within the central and northerly portions of the site. At borings B-8 and B-9 located within the adjacent parcels to the south, groundwater was encountered from 35 to 42 feet below the ground surface.

Based on the historically highest ground water contours included in the Seismic Hazard Zone Report for the Oat Mountain 7.5-Minute Quadrangle, the interpolated historic high ground water elevation is approximately 30 feet beneath the elevation of the existing ground surface (see **Historic High Ground Water** map following page 10).

5.4 Debris Flow Hazard

Following the completion of the proposed grading, no natural slopes will remain on, or immediately adjacent to the proposed development. The potential for debris flow hazard is therefore considered nonexistent.



PORTION OF PLATE 1.2 DEPTH TO HISTORICALLY HIGHEST GROUND WATER CONTOURS AND BOREHOLE LOG DATA LOCATIONS

SOURCE: CALIFORNIA DEPARTMENT OF CONSERVATION CALIFORNIA, GEOLOGIC SURVEY (CGS), SEISMIC HAZARD ZONE REPORT FOR THE OAT MOUNTAIN QUADRANGLE, 1997, UPDATED 1/13/06, AND SEISMIC HAZARD ZONE REPORT FOR THE NEWHALL QUADRANGLE, 1997, UPDATED 1/13/06, SHZR 04.

LEGEND

30 — DEPTH TO GROUND WATER, IN FEET

BOREHOLE SITE

ONE MILE

SCALE

NOTE: THIS IS NOT A SURVEY OF THE PROPERTY

ALLAN E. SEWARD
ENGINEERING GEOLOGY, INC.
Geological and Geotechnical Consulting

HISTORIC HIGH GROUND WATER

Job No.: 21-2593-4 | Date: 2/11/21

5.5 Soil Compressibility

SPT blow count data, CPT tip resistance, in-situ dry density and moisture content, and results of hydro-compression tests performed on soil samples from the borings were used to evaluate potential for in-situ alluvial soils to compress under future static loading conditions. Based on this evaluation, potentially compressible layers were identified in the upper 15 to 25 feet.

Test results of the samples of the alluvium show up to 5% settlement due to hydro-compression in the upper 10 to 15 feet, up to 1.5% between 15 and 20 feet, and less than 0.5% at depths greater than 20 feet (see **Appendix B** for lab test data). Potential for hydro-compression at depths greater than 30 feet was not considered since the historic high groundwater depth is 30 feet and future foundation loads are likely to have a negligible influence at that depth.

The recommended removal depths provided in the Earthwork and Grading Recommendations section of this report were planned to remove loose/soft soils that are subject to potential hydro-compression (based on laboratory test results) and considered potentially subject to static settlement under future building loads (based on SPT blow count data and CPT tip resistance). Total settlement due to hydro-compression and static building loads is estimated to be 1.5 inch, or less, following recommended remedial removals (see **Removals** section of this report).

Based upon this evaluation, **no significant compression effects** due to water incursion or future static loading are expected at the site after the recommended removals are completed. However, potential for soil compressibility should be re-evaluated at the grading plan stage once foundation loads and layouts are more finalized.

5.6 Soil Shear Strength

Direct shear testing was performed on remolded samples of alluvial soils to supplement existing shear data from the referenced LGC reports to select design shear strength parameters for compacted fill. Direct shear test results presented in the referenced LGC reports were used to select design shear strength parameters for the upper 30 ft of alluvium to evaluate stability of temporary excavations. Results of the testing are presented in **Appendix B**. The following design shear strength parameters were used in our analyses.

Summary of Shear Strength Parameters

Material	Moist Unit Weight, pcf	Residual Shear Strength	
		Phi, degrees	Cohesion, psf
Proposed Compacted Fill	135	29.5	150
Alluvium (Qal) – Upper 30 ft	125	32	120

5.7 Expansion Potential of Soils

Based on subsurface data, alluvial soils at the site generally consist of silty fine-grained sands and non-plastic silts. Results of Expansion Index testing (**Appendix B**) indicate that expansion potential of future fill materials derived from a mixture of alluvial soils will be very low to low (Expansion Index 50).

5.8 Potential Corrosivity of Soils

The Geotechnical and Materials Engineering Division (GMED) of the Los Angeles County Department of Public Works regards soil at a site to be corrosive to concrete and/or steel if the measured resistivity is 1,000 ohm-cm or less, and/or if the sulfate concentration is 2,000 ppm (0.20%) or greater, and/or if the pH is 5.5 or less. Also, a soil with a chloride concentration greater than or equal to 500 ppm is considered deleterious to ferrous metals.

Soil resistivity, chloride content, soluble sulfate content, and pH were measured on a mixture of alluvial soils collected from Boring HS-1 at a depth of 0 to 15 feet. Results of this testing was used in conjunction with previous testing presented in the referenced reports by LGC to assess the potential corrosive effects on concrete and metals. The test results are summarized in Table B1 (**Appendix B**) and are discussed below.

- The measured resistivity values ranged from 940 to 5,440 ohm-cm (which classifies as severely corrosive to corrosive to ferrous metals, per Los Angeles County Department of Public Works classification).
- Chloride content values ranged from 9 to 114 parts per million (ppm). Soils in this chloride content range have a negligible effect on concrete or ferrous metals.
- Sulfate content values ranged from 0.11 to less than 0.02 percent. Soils in this sulfate content range have a moderate to negligible effect on concrete per ACI 318 (Table 4.3.1).
- Based on the pH value measured in the soil samples (7.60 to 8.15), acidity of site soils is low and not anticipated to increase soil corrosivity.

5.9 Erosion Potential

The existing provisions in the Grading Ordinance for planting and irrigation of constructed slopes in conjunction with drainage recommendations provided in the section "Surface Drainage and Erosion Control," will be sufficient mitigation against potential erosion within the subject site.

6.0 SEISMIC CONSIDERATIONS

6.1 Introduction

The subject property is within the Transverse Ranges Geomorphic Province of southern California. The Transverse Ranges consist of a series of west-trending mountains and intervening valleys. These ranges largely resulted from north-south compression, ultimately causing east-west-trending folds and thrust faults. Faults in the vicinity of the site include the Santa Susana, Holser, Northridge blind thrust, San Gabriel, and Sierra Madre (San Fernando) reverse/thrust faults (see Quaternary Fault Location Map, **Figure C1**).

The southern California region is traversed by the San Andreas fault, which is a transform boundary between the Pacific Plate and the North American Plate. The San Andreas fault is part of a system of northwest-striking, right-lateral faults that are generally historically active, as evidenced by the June 28, 1992 Landers (M7.3) earthquake.

The southern California region is seismically active and commonly experiences strong ground shaking resulting from earthquakes along active faults. Earthquakes along these faults are part of a continuous, naturally occurring process, which has contributed to the characteristic landscape of the region. Common geologic hazards associated with earthquakes are discussed below and include **Ground Rupture**, **Ground Motion**, and **Ground Failure**.

6.2 Ground Rupture

Earthquake faults in southern California that are defined as active may present a hazard of fault rupture. The California Department of Conservation, California Geologic Survey (CGS), Special Publication 42 defines an active fault as one which has had surface displacement within Holocene time (about the last 11,000 years).

The potential for ground rupture on the site was evaluated utilizing published maps and references. Review of the Earthquake Zones of Required Investigation map for the Oat Mountain Quadrangle, provided digitally on the CGS EQZ web application, indicate that there are not any known active faults (i.e. Earthquake Fault Zones) within the project site, per Alquist-Priolo criteria (see **Figure C2**). However, the nearest Earthquake Fault Zone is delineated for the San Gabriel fault zone located approximately 3.7 miles northeast of the

project site. The active **San Andreas fault** is located about 22 miles northeast of the project site.

Numerous blind (buried) thrust faults are present in the region. The January 17, 1994 Northridge (M6.8) Earthquake occurred on a south-dipping blind thrust fault which uplifted the Santa Susana Mountains at least 40 cm. These faults are not exposed at the ground surface and are not considered to be a potential fault-related ground rupture hazard to the project site.

Based on our research, the possibility of fault-related ground rupture at the site is considered to be low over the design life of the proposed development.

6.3 Ground Motion

6.3.1 General

The project site is located in southern California, which is in a geologically and seismically active region where large magnitude, potentially destructive earthquakes are common. Therefore, it is reasonable to assume that moderate or large magnitude earthquakes along any of the numerous faults in the region are expected to produce strong ground shaking at the project site in the future.

The current standards for construction provided in the 2019 California Building Code are designed to safeguard against major failures and loss of life, but are not intended to limit damage, maintain functions or provide for easy repair. Per Structural Engineers Association of California (SEAOC), conformance to these recommendations does not constitute any kind of guarantee or assurance that significant structural damage will not occur in the event of a maximum level of earthquake ground motion. However, it is reasonable to expect that a well-planned and constructed structure will not collapse in a major earthquake and that protection of life is reasonably provided, but not with complete assurance.

Although research on earthquakes during the last fifty years has greatly enhanced the level of understanding of earthquake faulting in California, the record is much too short to constrain behavior of all faults in southern California and the attenuation characteristics of all areas relative to each future potential earthquake. Predicted accelerations should, therefore, be considered **rough estimates** rather than precise facts and ground motions from future earthquakes may exceed the predicted accelerations. Neither the **Time, Location, nor Magnitude** of an earthquake can be accurately predicted at this time.

6.3.2 Earthquake Magnitude

Earthquake **magnitude** is a quantitative measure of the strength of an earthquake or the strain energy released by it, as determined by seismographic or geologic observations. It does not vary with distance or the underlying earth material. This differs from **intensity**, which is a qualitative measure of the effects a given earthquake has on people, structures, loose objects, and the ground at a specific location. Intensity generally increases with increasing magnitude and in areas underlain by unconsolidated materials and decreases with distance from the epicenter. Approximate locations of historic earthquakes are shown on the appended Earthquake Epicenter Location Map (**Figure C3**).

The table below presents the distances to nearby significant faults located within about 20 miles of the project site. The site-to-source distances were obtained from the USGS fault parameters online database (based on 2008 National Seismic Hazards Map). The maximum earthquake magnitudes (M) were calculated using the Ellsworth-B magnitude-area scaling relationship presented in Appendix E of the Uniform California Earthquake Rupture Forecast, Version 3 (UCERF3).#

Summary of Major Known Faults Within 20 Miles

Distance (Miles)	Fault Name	Dip Direction	Dip Degrees	Slip Sense	Magnitude
0.44	Northridge	35	S	thrust	6.9
3.40	Holser, alt 1	58	S	reverse	6.9
3.59	Santa Susana, alt 1	55	N	reverse	6.9
3.69	San Gabriel	61	N	strike slip	7.3
6.38	Sierra Madre Connected	51		reverse	7.3
6.38	Sierra Madre (San Fernando)	45	N	thrust	6.7
9.14	Simi-Santa Rosa	60		strike slip	6.9
9.73	Oak Ridge (Onshore)	65	S	reverse	7.2
9.73	Oak Ridge Connected	53		reverse	7.4
10.72	Verdugo	55	NE	reverse	6.9
12.65	San Cayetano	42	N	thrust	7.2
16.53	Sierra Madre	53	N	reverse	7.2
21.87	S. San Andreas	85		strike slip	7.9

6.3.3 Peak Ground Acceleration

The peak ground acceleration consistent with maximum considered earthquake geometric mean (MCE_G) ground motions was evaluated at the site for stiff soil conditions (Site Class D). The mapped MCE_G peak ground acceleration (ASCE 7-16, Figure 22-9) adjusted for

Site Class effects (PGA_M) was determined using the OSHPD Seismic Design Maps web tool by the Structural Engineers Association of California (SEAOC). Based on this evaluation, a PGA_M of 1.17g would be produced by MCE_G ground motions. This mapped value incorporates a 2% probability of exceedance in 50 years (i.e. 2,475-year return period).

Site-specific ground motion procedures were also used to evaluate the MCE_G peak ground acceleration, PGA_M, in accordance with ASCE 7-16 Section 21.5. A probabilistic geometric mean PGA of 1.04g was determined using the uniform hazard ground motion (UHGM) with a 2% probability of exceedance in 50 years. The UHGM was calculated using the *USGS Risk-Targeted Ground Motion Calculator*. A deterministic geometric mean PGA of 1.00g was calculated as the largest 84th-percentile PGA for the characteristic earthquake. Based on UCERF3 fault data and a weighted average of the 2014 NGA West-2 ground motion prediction equations (GMPEs), the characteristic earthquake that will produce the largest 84th-percentile PGA at the site will occur on the Santa Susana fault. The site-specific PGA_M was taken as the lesser of the probabilistic and deterministic geometric mean peak ground accelerations, but no less than 80 percent of the mapped PGA_M.

Based on our evaluation, the MCE_G peak ground acceleration (PGA_M) used for geotechnical applications is 1.00g.

6.3.4 Deaggregation of Fault Hazard

A probabilistic analysis evaluates a range of magnitudes from 5.0 to the maximum magnitude for each fault. However, the dominant magnitude which statistically generates the peak acceleration within a limited time period (e.g. 2,475 years) is typically less than the maximum magnitude for a given fault. In order to evaluate what dominant magnitude-distance combination produces the site PGA, the hazard was deaggregated using the USGS *Beta – Unified Hazard Tool* and an average shear wave velocity ($V_{S,30}$) for the upper 100 feet (~30 meters) of 259 meters per second based on Site Class D conditions and CPT-1 shear wave velocity profile (**Figure C4**). Review of the magnitude-distance contributions to the hazard (**Table C1**) indicates that the site PGA would most likely be generated by a magnitude 6.69 earthquake within 5.5 km of the project site, as shown graphically in **Figure C5**. The dominant fault controlling maximum potential ground accelerations is the Santa Susana fault.

The peak ground acceleration used for evaluation of liquefaction potential and associated phenomena was corrected to account for an earthquake duration typical of an "average" magnitude 7.5 event. This was accomplished by applying a magnitude scaling factor

based on the empirical relationship by Youd and Idriss (1997). Based on a magnitude 6.69 earthquake, a corrected peak ground acceleration of 0.75g was used in our liquefaction analyses (see **Appendix D**).

6.4 Ground Failure

Ground Failure is a general term describing seismically induced secondary permanent ground deformation caused by strong ground motion. This includes liquefaction, lateral spreading, seismic settlement of poorly consolidated materials (dynamic densification), differential materials response, slope failures, sympathetic movement on weak bedding planes or non-causative faults, shattered ridge effects and ground lurching. Review of the Earthquake Zones of Required Investigation map for the Oat Mountain Quadrangle indicates that the subject site is located within an area of required investigation for liquefaction (see **Figure C1**).

Potential secondary seismic hazards to the building are described below. The potential for liquefaction and seismic settlement are evaluated in detail in **Appendix D**. The potential for adverse impacts to the proposed development from liquefaction and other secondary seismic effects is considered to be low to non-existent provided that our recommendations are incorporated into the future grading plan and implemented during construction.

6.4.1 Liquefaction Potential

Potential for liquefaction at the site and the magnitude of associated liquefaction-induced ground failure (i.e. seismic settlement, lateral spread displacements, and surface manifestation) were evaluated using data from our subsurface explorations, in compliance with the procedures and policies of the County of Los Angeles and the State of California. Ground motions estimated using USGS seismic design map web applications and mapped historic high ground water levels were used in this evaluation. The procedures and results of the evaluation are described in detail in **Appendix D**.

In summary, our evaluation indicates that potential for liquefaction is present beneath the site and that liquefaction-induced ground surface settlement ranging up to about 11 inches (prior to recommended removals) could occur if site soils were to liquefy. Remedial measures to reduce the hazard of liquefaction, associated liquefaction-induced ground failure, and dry sand settlement are described in **Appendix D**.

6.4.2 Potential for Other Modes of Ground Failure

Earthquake-induced slope failures include activation and reactivation of landslides, rock falls, debris flows and surficial failures. Based on generally level site conditions and distance from sloping terrain, the potential for earthquake-induced slope failures to

adversely impact the proposed development shown on the tentative tract map is non-existent.

7.0 GENERAL CONCLUSIONS AND RECOMMENDATIONS

7.1 Feasibility of Development

Tentative Tract Map 083295 dated February 9, 2021 is feasible for development from a geologic and geotechnical standpoint, provided that the recommendations presented in our reports are followed and implemented during design and construction.

7.2 Earthwork and Grading Recommendations

7.2.1 Removals

To mitigate potential static and seismic settlements and to provide a uniform bearing surface for at-grade foundation elements, remedial removals ranging from 15 to 25 feet in depth are recommended. The depth and lateral limits of structural removals for each proposed building is shown on the attached Geotechnical Map (Sheet 2). These removal depths assume that proposed buildings are of light, wood-frame or masonry construction supported on conventional footing foundations with column loads up to 100 kips and walls loads up to 10 klf. Revision to these remedial removal recommendations may be warranted based on final building layout and building loads.

The following additional removal of existing soils beneath existing or proposed soil subgrade, whichever is deeper, and replacement with compacted fill are recommended:

- Retaining walls (6 ft in height, or less) and maintenance buildings: 5 feet;
- Auxiliary structures, including swimming pools, cabanas, shade structures, detached carports, and trash enclosures: 3 feet;
- Vehicle pavements, curbs, and gutters: 3 feet;
- Sidewalks, flatwork, and hardscape elements: 2 feet.

The recommended removal bottoms should extend outside the foundation footprints at a 1:1 or flatter projection from the bottom of the foundation element down to the recommended removal depth.

Removal areas shall be observed by the Geotechnical Engineer, or his authorized representative, prior to placement of compacted fill, to verify the removal of all unsuitable materials. Soft soils identified during field observations should be evaluated and may warrant additional removals. The exact depth and extent of necessary removals will be

decided in the field during the grading operations, when observations and more location-specific evaluations can be performed.

7.2.2 Fill Materials

Onsite soils, except any debris or organic matter, may be used as sources for compacted fills. Rock or similar irreducible material with a maximum dimension greater than twelve (12) inches may not be placed in the fill. Rocks or hard fragments larger than four (4) inches shall not compose more than 25 percent of the fill and/or fill lift. Any large rock fragments over twelve (12) inches in size, may be incorporated into the fill as rockfill in windrows after being reduced to the specific maximum rock fill size (see **Appendix E, Rock Disposal**). Where fill depths are too shallow to allow large rock disposal, special handling or removal may be required.

7.2.3 Fill Compaction

All fill material should be placed in uniform lifts not exceeding 8 inches in thickness prior to compaction, water conditioned to at least optimum moisture content, thoroughly mixed to obtain a near uniform moisture condition and uniform blend of materials, and compacted to at least 90 percent of Maximum Dry Density (MDD), per ASTM Test Method D1557. For fills deeper than 40 feet, the portion of fill below a depth of 40 feet should be compacted to a relative compaction of at least 93 percent.

7.2.4 Proposed Fill Slopes

Fill slopes up to 17 feet in height are proposed at the site. Fill slope inclination should not be steeper than 2:1 (h:v). The fill material within approximately one equipment width (typically 12 feet) of the slope face should be constructed with cohesive material obtained from on-site soils. The finished fill-slope face shall be constructed by over-building the slope and cutting back to the compacted fill material.

Where fill slopes are constructed above natural ground with a gradient of 5:1 (h:v) or steeper, all topsoil, colluvium, and unsuitable material should be removed and a keyway should be constructed at the toe of the fill slope with a minimum width of 15 feet, and a minimum depth of 3 feet into firm undisturbed earth (see **Fill Slope Over Natural Slope** detail in **Appendix E**). Following completion of the keyway excavations, the project Engineering Geologist/Geotechnical Engineer or his representative shall observe and approve the keyway bottom prior to backfilling with compacted fill.

Where fill slopes toe out on relatively level natural ground, the removals should be performed to a minimum 1:1 projection from the toe of slope to the recommended removal depth, (see **Fill Slope Toeing Out on Flat Alluviated Canyon** detail in **Appendix E**).

7.2.5 Proposed Cut Slopes

Minor cut-slopes approximately 10 ft, or less, in height are locally proposed on the site which will expose alluvium or artificial fill. These materials should be removed and replaced with compacted fill; therefore, no cut-slopes will remain on the site following the completion of grading.

7.2.6 Shrinkage Factor

Based on measured in-situ density values within the range of the recommended removal depths and assuming that fill will be compacted to an average of about of 91 percent of maximum dry density (per ASTM D1557), it is anticipated that soil shrinkage (i.e., the reduction in initial soil volume caused by compaction of excavated soil divided by the initial soil volume prior to excavation) will range from 10 to 15 percent. However, actual shrinkage will depend on the degree of compaction achieved during earthwork operations. The supervising civil engineer should design pad grades with sufficient flexibility to accommodate a possible shrinkage of fill of up to 20 percent of the total grading volume.

7.2.7 Oversize Material

Oversized, irreducible rocks are likely present in the alluvium Cobbly layers may be encountered within the structural removals or over-excavation of pavement areas. Any large rock fragments over eight (8) inches in size may be incorporated into the fill as rockfill in windrows after being reduced to the specific maximum rock fill size (see **Rock Disposal** detail in **Appendix E**). Where fill depths are too shallow to allow large rock disposal, special handling or removal may be required (see **"Recommended Earthwork Specifications," Appendix E**).

7.2.8 Rippability

The project site is underlain by undocumented artificial fill and alluvial deposits that can be ripped using conventional grading equipment.

7.2.9 Import Fill

All imported fill shall be observed, tested and approved by this firm prior to use at the project site. Import soils to be used in the building pad areas should have an expansion index of less than 20 and corrosive characteristics that are equally or less detrimental than that of the existing onsite soils.

7.3 Bank Protection

7.3.1 General

Bank protection is proposed to protect the eastern margin of the development area and the western margin of the recreation use grass pad from future erosion and scour along the bank of the Santa Clara River South Fork drainage. The bank protection along the eastern margin of the development will consist of a buried soil-cement liner with the top being concealed beneath a 2:1 (h:v) fill berm. The liner will extend 1,500 lineal feet north from the east-facing berm slope adjacent to Interstate 5 at the southern tip of the property, to the southern terminus of the existing concrete-lined portion of the drainage. In general, the bank protection alignment is approximately 50 to 98 feet behind the existing channel bank until it merges and joins the existing concrete channel at the north end. Details of the bank protection for the western margin of the recreation use grass pad are in-progress and not reviewed for this report.

The proposed bank protection alignment is shown on the attached Geotechnical Maps. Details of the design of the proposed bank protection liner for the eastern margin of the development are shown on the Soil Cement Bank Plan and Profile prepared by PACE, dated 5/19/20. Geologic and geotechnical conditions at the site and their impact on the bank protection, including evaluation of on-site aggregate source material and soil-cement mix design, will be further addressed in a separate report.

7.3.2 Eastern Margin Liner Configuration

Proposed grades will generally be raised up to 3 feet behind the liner and lowered up to 6 feet within the open space lot in front of the liner. The top of the liner ranges from 4.5 to 9.5 feet above existing grade. The total liner height ranges from 25.7 to 29.5 feet, with a maximum depth of 23.5 feet beneath existing grade at Station 11+03.85. Cross Sections 2-2' through 4-4' illustrate the bank protection configuration relative to existing and proposed grades.

7.3.3 Temporary Excavations

Construction of the liner will require temporary excavations up to approximately 24 feet in depth. Preliminary evaluation of excavation slopes indicates that 1.5:1 (h:v) slope gradients will satisfy factor of safety requirements for temporary stability (i.e. greater or equal to 1.25).

Excavation slopes, particularly forecuts that extend beneath the active drainage channel, will likely encounter groundwater beneath channel grade. Pumping or dewatering to

redirect or draw the water down beneath toe grade will be necessary to complete portions of the excavation.

7.3.4 Removals

The upper 5 feet of existing soils behind the liner should be removed and replacement as a compacted fill. These removals should extend at least 10 feet beyond the top of the liner. Additionally, the alluvium should be over-excavated at least 3 feet prior to placement of overlying fill between the back of liner and development area.

7.3.5 Soil-Cement Aggregate

Gradation guidelines for the soil aggregate to be used in soil-cement mixtures are listed in the following table.

SIEVE NO.	% PASSING
3″	98 - 100
¾″	80 - 100
#4	60 - 90
#40	30 - 50
#200	5 - 20

Soils that do not meet the gradation guidelines for soil cement can still be used; however, they are not as desirable for use as an aggregate source because they generally would require a higher percentage of cement to produce soil-cement with sufficient durability. Based on our field exploration and laboratory classification testing, on-site granular alluvial soils are considered acceptable for use as soil-cement aggregate source material. The alluvium generally consists of silty, fine-grained sands and sandy silts in the upper 15 to 20 feet with fines contents between 40 and 60 percent. Below this depth, the alluvium generally consists of sand with silt and silty sands with estimated fines contents between 10 and 40 percent. The general profile of the alluvium is shown on Cross Section 1-1'.

Additional laboratory testing, including gradation of on-site soils and soil-cement mix designs, should be conducted at the Grading Plan stage to identify the soil-cement source material and percentage of cement by dry of soil for bank protection purposes.

7.4 Low Impact Development

The Wiley Canyon USMP/LID Exhibit prepared by Alliance Land Planning & Engineering, dated 8/18/20, illustrates two drainage basins at the southerly end of the project site, and a water quality basin at the northerly end of the project site. In January 2020, field infiltration testing was conducted at the water quality basin at the northerly portion of the project (PB-1) and at the southerly basin (PB-2) using boring percolation test procedures in accordance

with Administrative Manual GS200.2 (dated 6/30/17), *Guidelines for Geotechnical Investigation and Reporting, Low Impact Development Stormwater Infiltration*, prepared by the County of Los Angeles Department of Public Works, Geotechnical and Materials Engineering Division (GMED). Infiltration rates of alluvium were measured at proposed basin invert elevations, which ranged from 9 to 12 feet below the existing ground surface.

Test procedures and results of field infiltration testing are presented in our Geotechnical Letter – Preliminary Evaluation of Infiltration Rates (see Reference 4). In summary, soils encountered in the borings used for the percolation tests consist of interbedded fine sand to sandy silt and are considered representative of conditions in the upper 20 ft across the project site. Coarse-grained sandy soils are more predominant at depths below 20 ft. The average corrected infiltration rate from the test locations is **less than 0.3 inch/hour**. This infiltration rate is based on an applied reduction factor of 5. This average corrected infiltration rate was not considered suitable for infiltration-based water quality control measures.

7.5 Oil Wells and Water Wells

Review of the Department of Conversation, Division of Oil, Gas, and Geothermal Resources well finder web page (https://maps.conservation.ca.gov/doggr/wellfinder/#/) indicates that oil wells are not present within the Tentative Tract Map boundaries. The closest oil well is located approximately 550 ft north of the Tentative Tract Map boundary. This well is designated as Sorenson 76X-4 (API # 0403720828) and listed as being plugged and abandoned in September 1969. Review of the Dibblee Geologic Map for the Oat Mountain Quadrangle indicates that an oil/gas well, not noted on the well finder web page, is located approximately 450 ft easterly of the project site within the developed tract.

Review of the Los Angeles County Department of Public Works online well finder web application (https://dpw.lacounty.gov/general/wells/#) indicates that one inactive water well exists at the southern portion of the tract. This inactive water well was constructed around 1931 and is designated as 5843. The historic high ground water was measured in this well at elevation 1235.8 (80 ft below the reference point elevation) on 5/11/1932. This well was last measured on 11/17/1947. We have added the approximate location of this well on the Geotechnical Maps.

7.6 Sewage Disposal

It is our understanding that sewage disposal will be by public sanitary sewers.

7.7 Drainage Recommendations

Ground water and soil moisture conditions can vary seasonally or for other reasons. It must be recognized that we do not and cannot have complete knowledge of the subsurface

conditions at the site. It is possible that seepage could be encountered while stripping and excavating during site preparation at some areas (e.g. in drainages). Whenever seepage is observed, the condition must be evaluated by the Engineering Geologist and Geotechnical Engineer prior to covering with fill material.

The existing provisions in the Grading Ordinance for planting and irrigation of constructed slopes in conjunction with the following drainage recommendations will be sufficient mitigation against potential erosion within the site.

Water should never be allowed to stand or pond on Building Pads nor should it be allowed to run over constructed slopes, but should be conducted to paved areas or natural waterways via non-erodible drainage devices and should flow. In addition, it is recommended that all drainage devices be inspected periodically and be kept clear of all debris.

Modification of the existing pad grades after approval of Fine Grading by the Project Supervising Civil Engineer could adversely affect the drainage of the Pads. Future landscaping, construction of walkways, garden walls, etc. **must never** modify the lot drainage unless additional remedial measures to ensure satisfactory drainage (area drains, additional grading, etc.) are designed and constructed in compliance with current County of Los Angeles Codes.

Positive surface drainage should be maintained away from buildings. The recommended drainage patterns should be established at the time of fine grading. Roof drainage should be collected in gutters and downspouts, which terminate at approved discharge points.

It should be expected that, even with the construction of carefully planned and designed erosion control measures, some erosion may occur during the first few wet seasons after the project is completed. Site grading should be observed, particularly after heavy, prolonged rainfall, to identify erosion areas at an early stage. Maintenance work should be done as soon as practical to repair these areas and prevent their enlargement.

7.8 Landscaping

All final grades should be sloped away from the building foundations to allow rapid removal of surface water runoff. No ponding of water should be allowed adjacent to the foundations. Plants and other landscaped vegetation requiring excessive watering should be avoided adjacent to the building foundations. Should landscaping be constructed, an effective water-tight barrier should be provided to prevent water from affecting the building foundations.

7.9 Restricted Use Areas

No faults or landslides are known to exist on the site; therefore, no Restricted Use Areas are currently recommended.

7.10 Building Setbacks

The standard Los Angeles County Building Code setbacks from ascending and descending slopes should be followed, unless superseded by a specific geologic and/or soils engineering evaluation.

7.11 Foundation and Settlement Considerations

No specific building foundation designs have been provided at this time. The following general foundation criteria are provided for future design and planning consideration and assume that foundation support is within certified compacted fill following remedial removals as previously discussed. The structural design should include seismic geotechnical parameters in accordance with the latest California Building Code for Seismic Design Category D.

Shallow spread footings for support of lightly-loaded multi-use commercial and residential structures up to 4 stories in height can adequately be founded on engineered fill compacted as previously recommended. Support for heavier structures should be addressed at the Grading Plan stage. Tentatively, an allowable bearing capacity of **2,500 psf** can be used for preliminary design of shallow foundations. This tentative allowable bearing value is subject to revision based on future building loads and foundation layout. Additional foundation parameters will be provided at the Grading Plan stage.

7.12 Site Response

7.12.1 General

Based on site soil properties, the site is classified as Site Class D (stiff soils). The mapped risk-targeted MCE_R spectral acceleration parameter at a period of 1 second (S_1) is 0.794. Due to deficiencies in capturing site response for Site Class D soils using the general procedure, site-specific ground motion hazard analysis was performed as required by ASCE 7-16 Section 11.4.8 since S_1 is greater than or equal to 0.2.

7.12.2 MCE_R Ground Motion Hazard Analysis

Risk-targeted maximum considered earthquake (MCE_R) ground motion hazard analysis was completed using the procedures outlined in ASCE 7-16 Section 21.2.

Probabilistic spectral response accelerations were determined using the uniform hazard ground motion (UHGM) with a 2% probability of exceedance in 50 years and corresponding risk-targeted ground motion (RTGM) with a 1% probability of collapse in 50 years. The UHGM and RTGM were calculated using the *USGS Risk-Targeted Ground Motion Calculator*. Scale factors were applied to the RTGM to yield spectral response accelerations in the direction of maximum horizontal response at each spectral ordinate.

Deterministic spectral response accelerations were taken as the largest 84th-percentile 5% damped spectral response acceleration calculated at each period for characteristic earthquakes in the region. Fault parameters and maximum magnitude of characteristic earthquakes were determined based on fault data and magnitude-area relationships (Ellsworth-B) presented in UCERF3. Using this fault data, spectral response accelerations were calculated (Seyhan, 2015) based on a weighted average of the 2014 NGA West-2 ground motion prediction equations (GMPEs). Scale factors were applied to yield spectral response accelerations in the direction of maximum horizontal response at each spectral ordinate. A deterministic lower limit in conformance with Figure 21.2-1 was applied.

The site-specific MCE_R spectral response acceleration at each period was taken as the lesser of the spectral response accelerations from the probabilistic and deterministic ground motions.

7.12.3 Design Response Spectrum and Acceleration Parameters

The design response spectrum and design acceleration parameters were calculated in accordance with Sections 21.3 and 21.4, respectively, and are presented on **Figure C4** in Appendix C. The design spectral response accelerations were taken as 2/3 of the site-specific MCE_R spectral response accelerations at each period, but not less than 80% of code-based values from the general procedure utilizing parameter F_a and F_v.

7.13 Expansive Soils Considerations

Soil expansion has been found to be a significant consideration for design and construction of foundations and concrete slabs-on-grade. The recommendations presented in the attached **Table E1, Minimum Foundation and Slab Recommendations for Expansive Soils**, in **Appendix E**, have been found to minimize the effects of soil expansion potential in southern California when followed during project design and construction. It is anticipated that compacted fill from the onsite materials will generally have a low expansion potential. The expansion potential of the site soils exposed at rough grade should be tested again after site grading is complete and the final foundation design should be based on those expansion test results.

7.14 Soil Corrosivity Considerations

Based on resistivity test data, soils classify as being potentially corrosive to concrete and metal. However, sulfate concentrations were generally negligible to moderate, chloride concentrations were very low, and pH was neutral. Pending additional testing, Type II cement is anticipated for use in structural concrete. Mitigating recommendations against soil corrosivity should be based on additional confirmatory tests that should be performed at the completion of the grading. Final recommendations for concrete will be in accordance

with the latest CBC requirements, and a corrosion specialist should provide mitigation recommendations for potential corrosion of metals.

7.15 Soil Compressibility Considerations

Potential compressibility of alluvial soils to remain in place following the completion of rough grade is considered **low**. The earthwork recommendations provided herein should preclude the need to mitigate for short and long-term soil compression.

7.16 Retaining Walls and Pavement Design

Geotechnical recommendations for the design and construction of retaining walls and vehicle pavements will be provided at the Grading Plan stage.

8.0 GEOLOGIST/GEOTECHNICAL ENGINEER OF RECORD

This report has been prepared assuming that Allan E. Seward Engineering Geology, Inc. will refine all geology and geotechnically-related data for the Grading Plan stage of this project. If the recommendations contained in this report are to be utilized, and expansion of the geology/geotechnical work is performed by others, the party performing the work must review this report and assume full responsibility for recommendations contained herein. That party would then assume the title of responsibility as "Geologist/Geotechnical Engineer of Record" for the specific work.

9.0 LIMITATIONS

This report has been prepared for the exclusive use of Wiley Canyon LLC and its design consultants for the specific site discussed herein. This report should not be considered transferable. Prior to use by others, this firm should be notified, as additional work may be required to update this report.

In the event that any modifications in the design or location of the proposed development, as discussed herein, are planned, the conclusions and recommendations contained in this report will require a written review by this firm with respect to the planned modifications.

The proposed development is located in southern California, which is in a geologically and seismically active region where large magnitude, potentially destructive earthquakes are common. Therefore, it is reasonable to assume that ground motions from moderate or large magnitude earthquakes could affect the site during the life of a given structure.

Typically, faulting is confined to the area adjacent to a known fault. However, absolute assurance against future fault displacement is not possible in tectonically active regions because new faults can form over time as the orientation and magnitude of deformational forces

change in the earth's crust. Therefore, the location and magnitude of new ground surface ruptures during a seismic event cannot be anticipated.

In performing these professional services, this firm has used the degree of care and skill ordinarily exercised under similar circumstances by reputable geologists and geotechnical engineers practicing in this or similar localities. The data presented in this report are based on results of pertinent field and laboratory testing. It should be recognized that subsurface conditions can vary in time, and laterally, and with depth at a given site and that the conclusions and recommendations presented in this report are based on our observations and testing. Therefore, our **conclusions** and **recommendations** are **professional opinions** and are **not meant** to be a control of nature. We make no other **warranty**, either **expressed** or **implied**.

This opportunity to be of service is appreciated. If you have any questions regarding this report, please contact us.

Respectfully submitted,

Eric J. Seward, CEG 2110
Principal Engineering Geologist
Vice President

Kevin P. Callahan, MS, GE 2989
Principal Geotechnical Engineer

The following attachments and appendices complete this report.

Location Map following page 4
Geologic Map by T.W. Dibblee, Jr. following page 8
Historic High Ground Water following page 10
References

APPENDIX A – Subsurface Logs

AESEGI, 2019

- Exploratory Boring Logs (HS-1 thru HS-3) and Key to Boring Log Symbols
- Cone Penetration Test Logs (CPT-1 thru CPT-17)

LGC Valley Inc., 2007

- Exploratory Boring Logs (B-1 through B-9) and Key to Boring Logs

Lawson & Associates Geotechnical Consulting Inc., 2005

- Exploratory Boring Logs (B-1 and B-3) and Key to Boring Logs

Lawson & Associates Geotechnical Consulting Inc., 2004

- Exploratory Boring Logs (B-1 through B-5)
- Cone Penetration Test Logs and Interpretations (CPT-1 through CPT-4)

APPENDIX B – Laboratory Testing

- Summary of Expansion Index Test Results — Table B1
- Summary of Compaction Test Results — Table B2
- Summary of Corrosivity Test Results — Table B3
- Particle Size Distribution Test Report — Figure B1
- Compaction Test Report — Figure B2
- Direct Shear Test Report — Figure B3
- Consolidation Test Reports — Figures B4.1 thru B4.3
- Particle Size Curve (LGC, 2004) — 5 Sheets
- Particle Size Curve (LGC, 2007) — 5 Sheets
- Direct Shear Test (LGC, 2004) — 6 Sheets
- Direct Shear Test (LGC, 2007) — 13 Sheets
- Consolidation Test Results (LGC, 2004) — 3 Sheets
- Consolidation Test Results (LGC, 2007) — 5 Sheets

APPENDIX C – Seismicity

- Ground Motion and Response Spectra References
- Quaternary Fault Location Map — Figure C1
- Earthquake Zones of Required Investigation — Figure C2
- Earthquake Epicenter Location Map — Figure C3
- Shear Wave Velocity Profile (CPT-1) — Figure C4
- USGS Deaggregation Parameters and Output — Table C1
- Magnitude-Distance Contributions to Hazard — Figure C5
- Site-Specific Response Spectra and Seismic Design Parameters — Figure C6
- Ground Motion Hazard Analysis Calculations (4 pages)
- OSHPD Seismic Design Maps Output

APPENDIX D – Liquefaction Evaluation

- References - Assessment of Liquefaction Potential and Estimated Cyclic Settlements
- Summary of Estimated Cyclic Settlements and Lateral Displacements — Table D1
- Correlation of $N_{1(60)}$ Blow Count and Percent Fines - Boring vs. CPT Interpretation (HS-1 vs. CPT-17) — Figure D1
- CPT-Based Assessment of Seismic Soil Liquefaction Potential (CPT-1 to CPT-17) — Figures D2.1 thru D2.17
- SPT-Based Assessment of Seismic Soil Liquefaction Potential (HS-1) — Figure D2.18
- Typical Calculations for Liquefaction Triggering Analysis (based on CPT-17)
- Typical Calculations for Cyclic Settlement Analysis (based on CPT-17)

- Typical Calculations for Lateral Spread Displacements (based on CPT-17)

APPENDIX E – General Specifications, Details, Cross Sections & Maps

- Recommended Earthwork Specifications
- Minimum Foundation and Slab Recommendations for Expansive Soils **Table E1**
- Construction Details
  - Fill Slope over Natural Slope
  - Fill Slope Toeing Out on Flat Alluviated Canyon
  - Rock Disposal

Cross Sections 1-1' through 4-4'
Geotechnical Map (Sheets 1, 2 and 3)

Distribution:

Wiley Canyon LLC (electronic in PDF format)
Attn: Mr. Scott Sheridan

Alliance Land Planning and Engineering (via email in PDF format)
Attn: Mr. Craig Whittaker

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By: Lawson & Associates Geotechnical Consulting Inc.

1. **Preliminary Geotechnical Investigation**
   Proposed Development at 24924 Hawkbryn Dr.
   City of Santa Clarita, California
   Dated March 25, 2004 – Project No.: 033022-01

2. **Preliminary Geotechnical Investigation**
   8.28 Acre Site (Known as the Taylor Parcel)
   Located West of Wiley Canyon Road
   City of Santa Clarita, California
   Dated February 3, 2005 – Project No.: 033022-03

By: LGC Valley, Inc.

3. **Supplemental Geotechnical Investigation Report**
   Proposed Commons Development
   Located West of Wiley Canyon Road
   City of Santa Clarita, California
   Dated February 23, 2007 – Project No.: 033022-05

By: Allan E. Seward Engineering Geology, Inc.

4. **Geotechnical Letter**
   Preliminary Evaluation of Infiltration Rates
   Wiley Canyon
   USMP/LID Exhibit dated 8/18/20
   Santa Clarita, California
   Dated September 21, 2020 – JN: 20-2593-4

Appendix A

CLIENT: Wiley Canyon LLC	JOB NO.: 21-2593-4	**DRILL HOLE LOG**	
PROJECT: Tentative Tract Map 083295 Wiley Canyon	DATE: 2/11/2021		
	LOGGED BY: KPC / CHS		
DRILLING COMPANY: Choice Dilling Inc.	DRILLED: 11/14/19		
DRILLING METHOD: Hollow-stem Auger	HOLE DIA: 8"	**BORING NO.** HS-1	
HAMMER TYPE: Automatic	AVERAGE DROP: 30"		
DRIVING WEIGHTS: 140 lbs.	ELEVATION: 1301'		

DEPTH (feet)	SAMPLE TYPE	BLOWS / 12"	GRAPHIC LOG	USCS SYMBOL	DESCRIPTION	LABORATORY TESTS: Moisture Content (%)	Dry Density (pcf)	% Fines	Other Tests
0				SM	**<u>ALLUVIUM</u>; Qal (0 - 55')**			45	Bulk @ 0 - 15' Sieve Curve=A Shear Test
		1			@ 2.5' Silty, fine-grained SAND; very loose; damp; medium brown			39	
5		3						39	
		7			@ 7.5' - loose			38	
10		6			@ 10' - moist; dark yellowish brown; trace clay			42	
		7						41	
15		6						39	
		7			@ 17.5' - damp			33	
20		6			@ 20' - fine- to medium-grained			27	
		8			@ 22.5' - moist; with scattered gravel and trace clay			39	
25		18						39 15	
		24			@ 26' - fine- to coarse-grained; medium dense; damp; light brown @ 27.5' - with gravel; small recovery due to gravel/cobble in tip			17	
30		30			@ 30' - dense; scattered gravel			19	
		14		SP-SM	@ 32.5' Poorly graded SAND w/ silt; medium dense; damp; medium brown			11	
35		36		SM	@ 35' Silty, fine- to coarse-grained SAND; very dense; damp; dark brown; scattered gravel and balls of clay			16	
		37			@ 37.5' - trace clay			20	

CLIENT: Wiley Canyon LLC	JOB NO.: 21-2593-4	**DRILL HOLE LOG**	
PROJECT: Tentative Tract Map 083295 Wiley Canyon	DATE: 2/11/2021		
	LOGGED BY: KPC / CHS		
DRILLING COMPANY: Choice Dilling Inc.	DRILLED: 11/14/19		
DRILLING METHOD: Hollow-stem Auger	HOLE DIA: 8"	**BORING NO.** HS-1	
HAMMER TYPE: Automatic	AVERAGE DROP: 30"		
DRIVING WEIGHTS: 140 lbs.	ELEVATION: 1301'		

DEPTH (feet)	SAMPLE TYPE	BLOWS / 12"	GRAPHIC LOG	USCS SYMBOL	DESCRIPTION	LABORATORY TESTS: Moisture Content (%)	Dry Density (pcf)	% Fines	Other Tests
40		40						18	
		50/3"			@ 42.5' - no recovery				
45		25			@ 45' - dense; trace clay			20	Added water @ 45' to loosen up soil; hard drilling
		36			@ 47.5' Silty, clayey SAND; dense; damp; matrix of dark brown, tan, and iron staining with a yellowish-gray coating on sample chunks; scattered gravel			18	
50		32		SC	@ 50' Clayey, fine- to coarse-grained SAND and gravel; dense; damp; medium brown			22	
		43/6"		SM	@ 52.5' Silty, fine- to coarse-grained SAND; medium dense to dense; damp; medium brown; scattered gravel			20	
55		Ref/ 1"			@ 55' - fine- to medium-grained; dense; dark brown; scattered gravel				
					TOTAL DEPTH 55' (Elev. 1246') No Ground Water				
60									
65									
70									
75									

CLIENT: Wiley Canyon LLC	JOB NO.: 21-2593-4	**DRILL HOLE LOG**	
PROJECT: Tentative Tract Map 083295 Wiley Canyon	DATE: 2/11/2021		
	LOGGED BY: KPC / CHS		
DRILLING COMPANY: Choice Dilling Inc.	DRILLED: 11/14/19		
DRILLING METHOD: Hollow-stem Auger	HOLE DIA: 8"	**BORING NO.** HS-2	
HAMMER TYPE: Automatic	AVERAGE DROP: 30"		
DRIVING WEIGHTS: 140 lbs.	ELEVATION: 1301'		

DEPTH (feet)	SAMPLE TYPE	BLOWS / 12"	GRAPHIC LOG	USCS SYMBOL	DESCRIPTION	LABORATORY TESTS: Moisture Content (%)	Dry Density (pcf)	% Fines	Other Tests
0				ML	**<u>ALLUVIUM</u>; Qal (0 - 20')** @ 0 - 9' Sandy SILT; moist; dark brown to medium brown with depth				Surface logged @ 0 - 9' Infiltration test conducted in adjacent borehole PB-1 at depth of 9'
10		29		ML	@ 9' - stiff; damp; yellowish brown	3.8	105	52	Sieve
		31		ML		5.5	107	54	Swell/Consol
15		24		SM	@ 15' Silty, fine-grained SAND; medium dense; damp; yellowish brown	4.5	111	44	Swell/Consol
20		27				6.1	112		
					TOTAL DEPTH 20' (Elev. 1281') No Ground Water				
25									
30									
35									

CLIENT: Wiley Canyon LLC	JOB NO.: 21-2593-4	**DRILL HOLE LOG**	
PROJECT: Tentative Tract Map 083295 Wiley Canyon	DATE: 2/11/2021		
	LOGGED BY: KPC / CHS		
DRILLING COMPANY: Choice Dilling Inc.	DRILLED: 11/14/19		
DRILLING METHOD: Hollow-stem Auger	HOLE DIA: 8"	**BORING NO.** HS-3	
HAMMER TYPE: Automatic	AVERAGE DROP: 30"		
DRIVING WEIGHTS: 140 lbs.	ELEVATION: 1314'		

DEPTH (feet)	SAMPLE TYPE	BLOWS / 12"	GRAPHIC LOG	USCS SYMBOL	DESCRIPTION	LABORATORY TESTS: Moisture Content (%)	Dry Density (pcf)	% Fines	Other Tests
0				SM-ML	**<u>ALLUVIUM</u>; Qal (0 - 25')** @ 0 - 12' Silty, fine-grained SAND to sandy SILT; loose/soft; moist; dark brown				Surface logged @ 0 - 12' Infiltration test conducted in adjacent borehole at a depth of 12'
10		32		ML	@ 12' Sandy SILT; very stiff; moist; dark brown	10.4	112	54	Sieve
15		33				7.8	117		
20		29		SM	@ 20' Silty, fine-grained SAND; medium dense; damp; medium brown; scattered gravel	7.8	110	27	Swell/Consol
25		Ref/ 6"			@ 25' - slightly more gravel; no recovey on CD sample TOTAL DEPTH 25' (Elev. 1289') No Ground Water				Small Bulk @ 25' from the cuttings
30									
35									

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS GRAPH	SYMBOLS LETTER	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS (MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE)	GRAVEL AND GRAVELLY SOILS (MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE SIZE)	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	Well-graded gravels, gravel-sand mixtures, little or no fines
				GP	Poorly-graded gravels, gravel-sand mixtures, little or no fines
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	Silty gravels, gravel-sand-silt mixtures
				GC	Clayey gravels, gravel-sand-clay mixtures
	SAND AND SANDY SOILS (MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE SIZE)	CLEAN SANDS (LITTLE OR NO FINES)		SW	Well-graded sands, gravelly sands, little or no fines
				SP	Poorly-graded sands, gravelly sands, little or no fines
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SM	Silty sands, sand-silt mixtures
				SC	Clayey sands, sand-clay mixtures
FINE GRAINED SOILS (MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE)	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	Inorganic silts and very fine sands, clayey silts with slight plasticity
				CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, lean clays
				OL	Organic silts and organic silty clays of low plasticity
	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	Inorganic silts, micaceous or diatomaceous fine, sandy or silty soils, elastic silts
				CH	Inorganic clays of high plasticity, fat clays
				OH	Organic clays of medium to high plasticity, organic silts
HIGHLY ORGANIC SOILS				PT	Peat and other highly organic soils

Notes:
(1) Dual USCS symbols, such as SP-SM, denote 5 to 12% of minor constituent.
(2) Dual USCS symbols, such as SM/ML, denote borderline soil classifications.
(3) Subsurface information from boring and test pit logs depict conditions only at the specific locations. and dates indicated. Soil conditions and water levels at other locations may differ from conditions at these locations. Also, the conditions at these locations may change with time.
(4) Blow counts on logs are the number of blows to drive the sampler with the weight and drop height indicated on each log.
(5) Split-barrel sampler driving record applies only to hollow-stem-auger and rotary-wash borings.
(6) These logs are subject to the limitations, conclusions, and recommendations in this report.

HS: Hollow-stem-auger boring
RW: Rotary-wash boring
B: Bucket-auger boring

SAMPLE TYPE

STANDARD PENETRATION TEST
Split barrel sampler in accordance with ASTM D-1586 Test Method

CALIFORNIA DRIVE
Split-barrel sampler in accordance with ASTM D-3550 Test Method

DISTURBED CALIFORNIA DRIVE

SHELBY TUBE
Thin-walled sampler in accordance with ASTM D-1587 Test Method

BULK SAMPLE

NO RECOVERY

GROUND WATER DATA

GROUND WATER WHILE DRILLING

GROUND WATER AFTER DRILLING

DENSITY OF GRANULAR SOILS	
DESCRIPTION	SPT BLOWS PER FOOT
Very Loose	< 4
Loose	4 - 10
Medium Dense	11 - 30
Dense	31 - 50
Very Dense	> 50

STRENGTH OF COHESIVE SOILS	
CONSISTENCY	SPT BLOWS PER FOOT
Very Soft	< 2
Soft	2 - 4
Firm	5 - 8
Stiff	9 - 15
Very Stiff	16 - 30
Hard	> 30

SPLIT-BARREL SAMPLER DRIVING RECORD	
BLOW COUNT	DESCRIPTION
25	25 blows drove the sampler 12 inches, after initial 6 inches of seating
50/7"	50 blows drove the sampler 7 inches, after initial 6 inches of seating
Ref/3"	50 blows drove the sampler 3 inches during initial 6-inch seating interval

LABORATORY TESTING ABBREVIATIONS

Plasticity Index	PI	Compaction Curve	Curve=A
Liquid Limit	LL	Consolidation / Collapse	Consol
Hydrometer	%-5 micron	Direct Shear / Reshear / Remold	Shear Test
Expansion Index	EI		
Corrosivity Analysis	Cor		

ALLAN E. SEWARD
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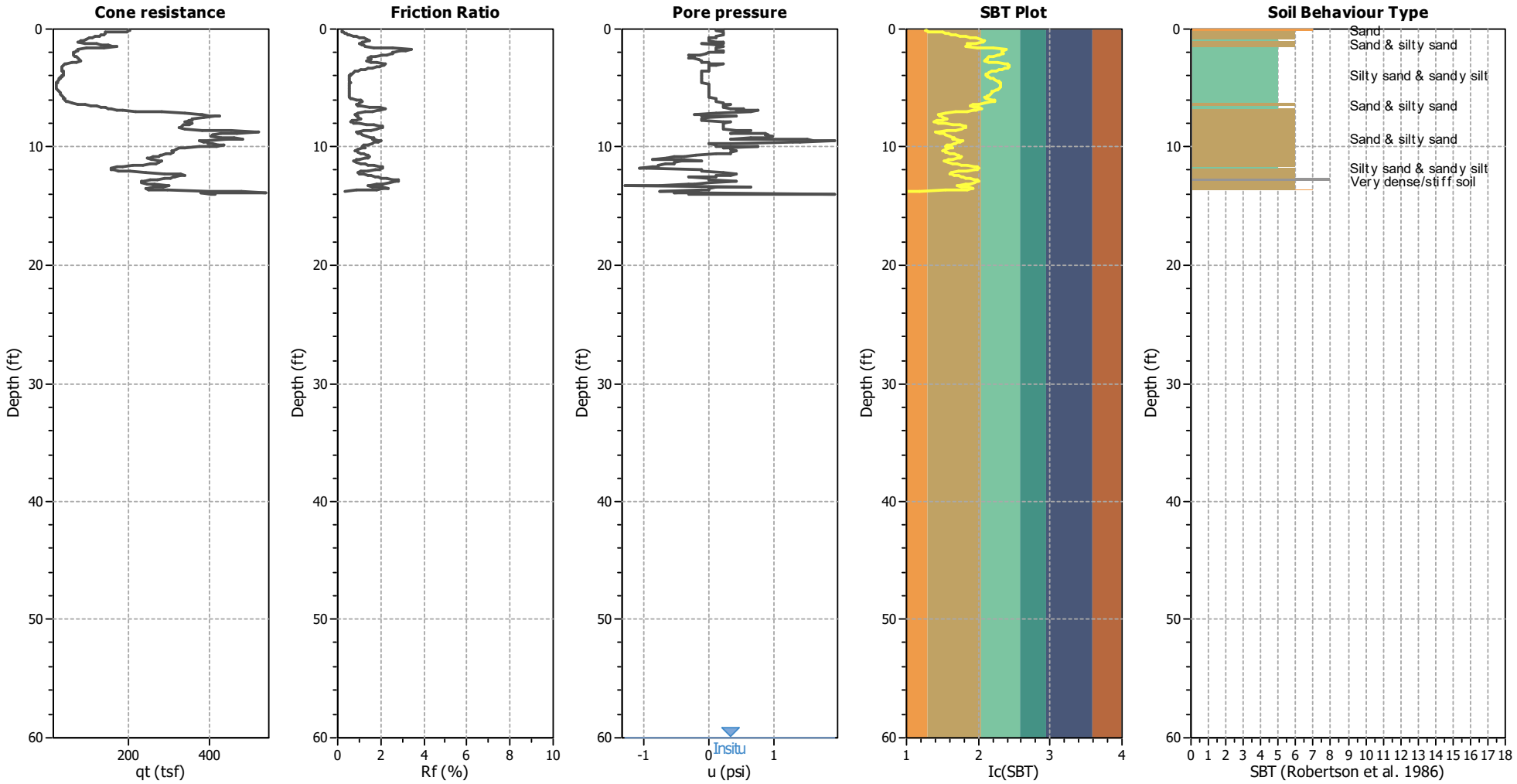
USCS Soil Classification and Key to Boring Log Symbols

CPT basic interpretation plots



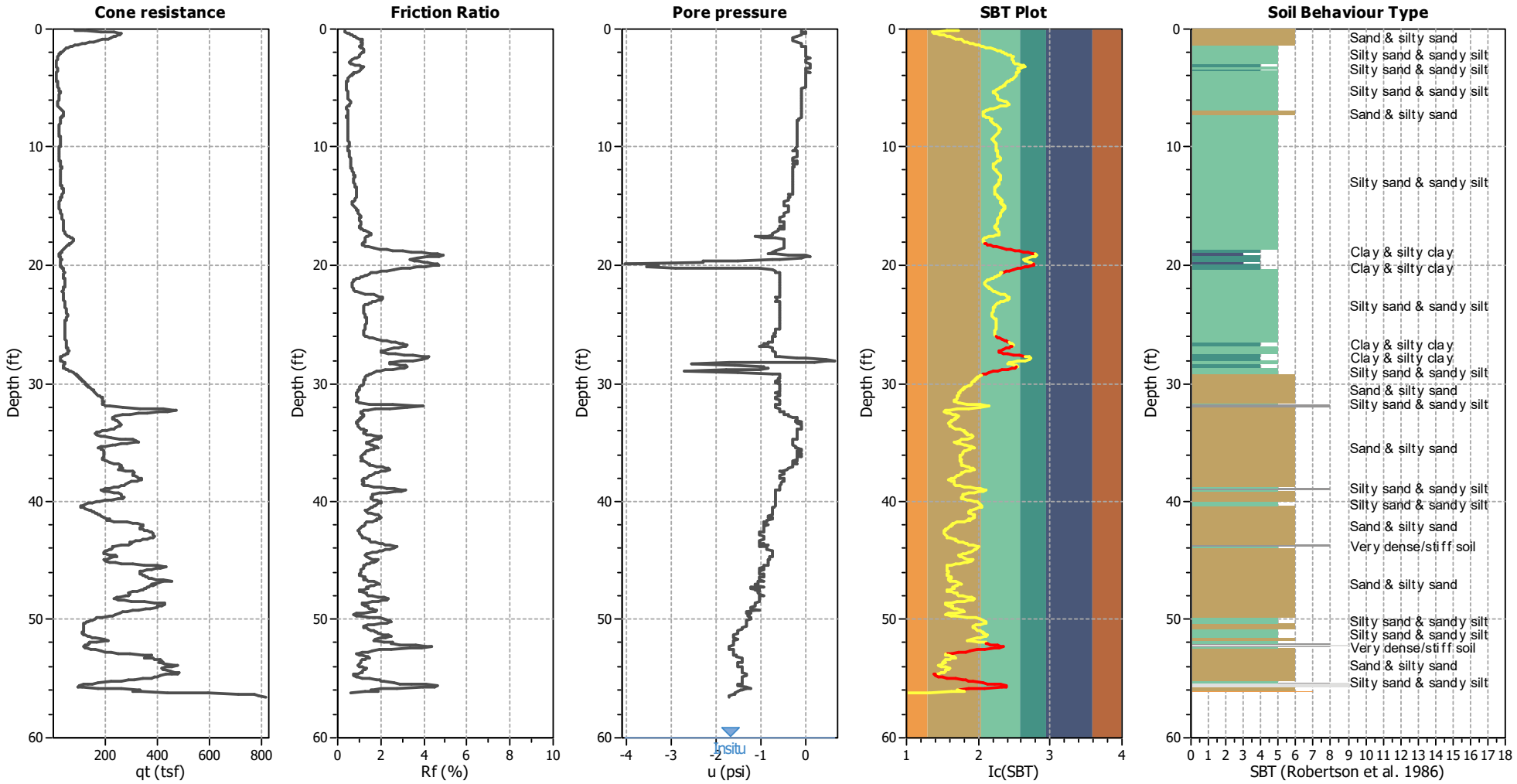
Input parameters and analysis data

Analysis method:	Moss et al. (2006)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	Moss et al. (2006)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	4.00	K_σ applied:	Yes
Earthquake magnitude M_w:	6.69	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	1.00	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	60.00 ft	Fill height:	N/A	Limit depth:	50.00 ft

SBT legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

CPT basic interpretation plots



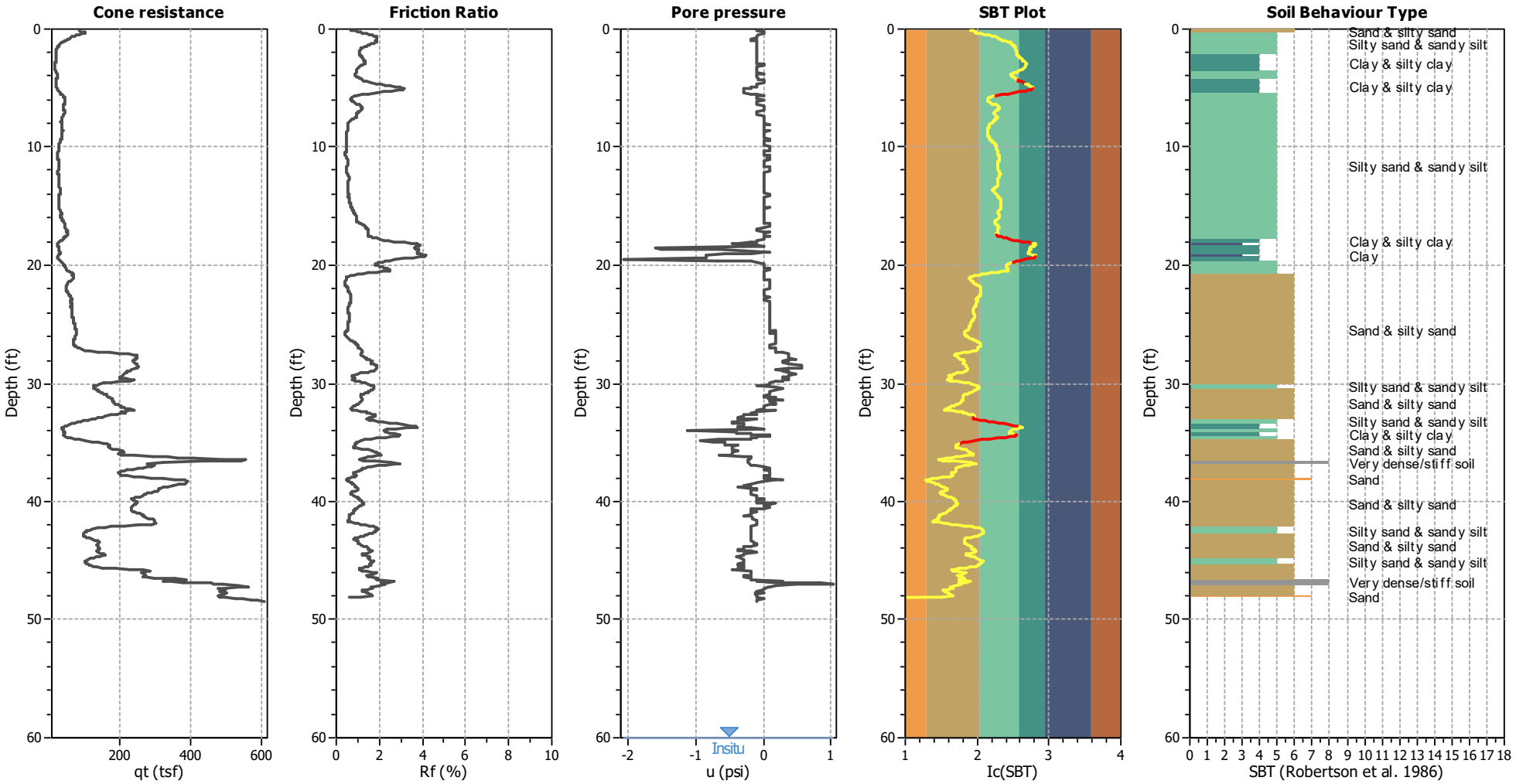
Input parameters and analysis data

Analysis method:	Moss et al. (2006)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	Moss et al. (2006)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	4.00	K_σ applied:	Yes
Earthquake magnitude M_w:	6.69	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	1.00	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	60.00 ft	Fill height:	N/A	Limit depth:	50.00 ft

SBT legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

CPT basic interpretation plots



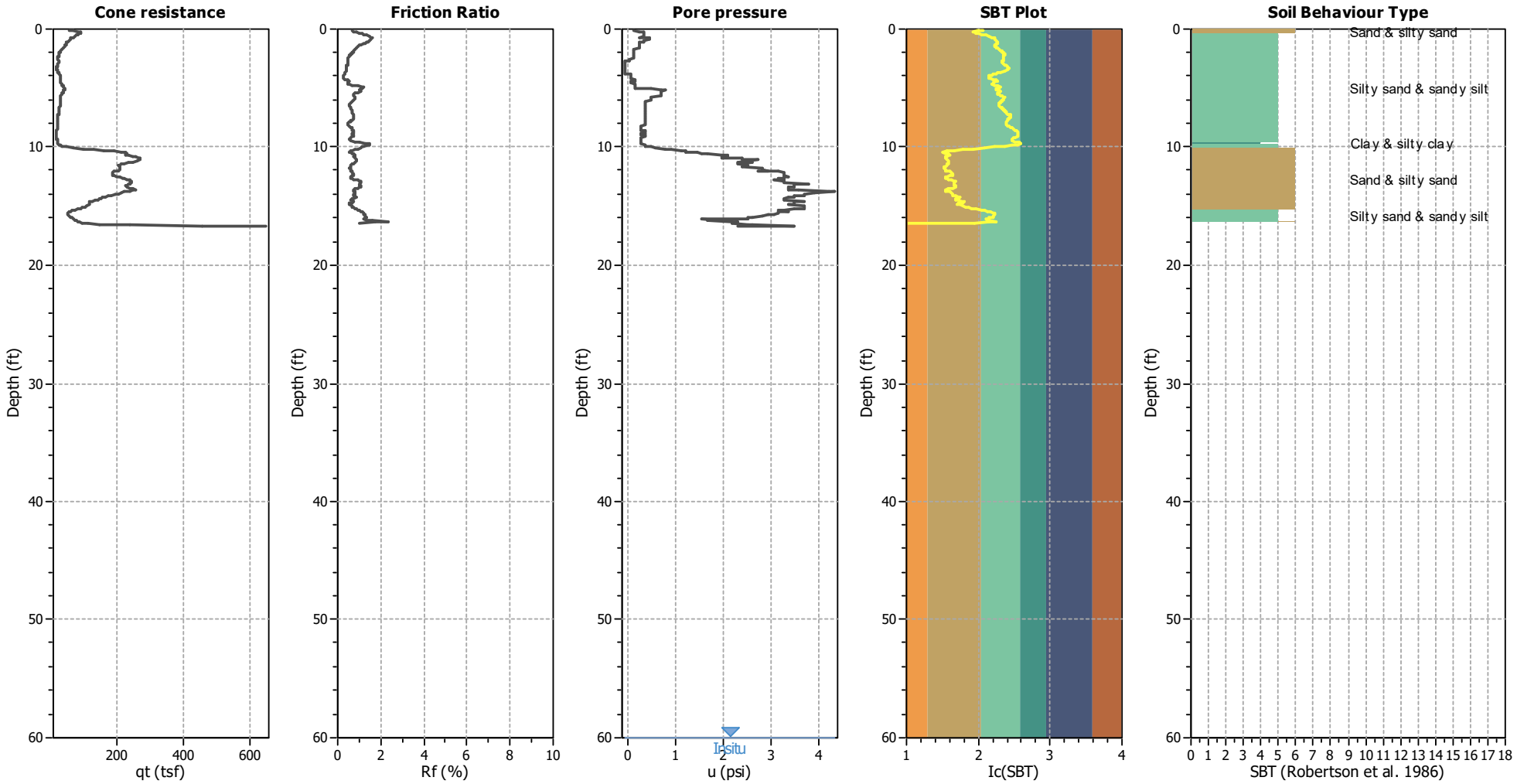
Input parameters and analysis data

Analysis method:	Moss et al. (2006)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	Moss et al. (2006)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	4.00	K_σ applied:	Yes
Earthquake magnitude M_w:	6.69	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	1.00	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	60.00 ft	Fill height:	N/A	Limit depth:	50.00 ft

SBT legend

1. Sensitive fine grained	4. Clayey silt to silty	7. Gravely sand to sand
2. Organic material	5. Silty sand to sandy silt	8. Very stiff sand to
3. Clay to silty clay	6. Clean sand to silty sand	9. Very stiff fine grained

CPT basic interpretation plots



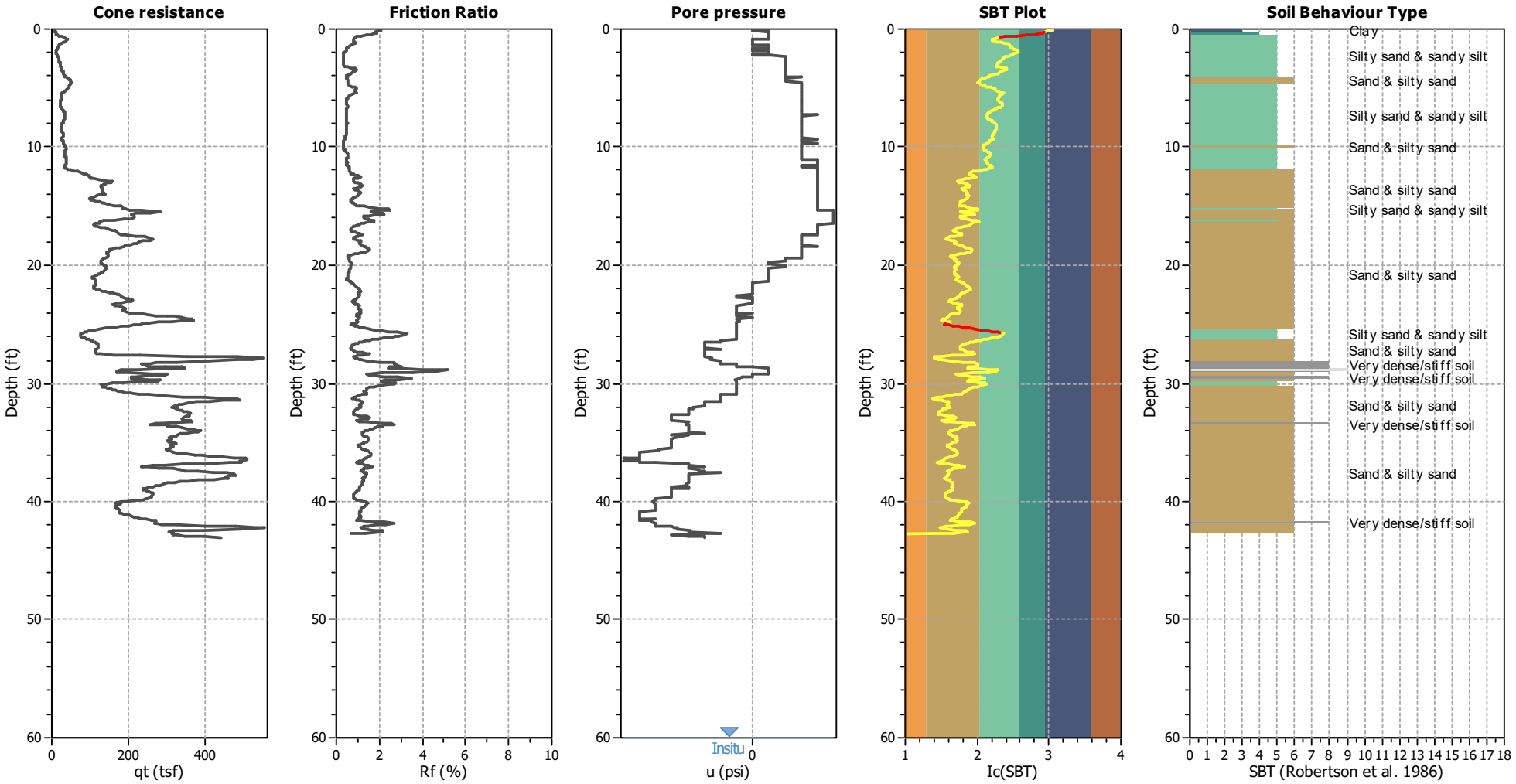
Input parameters and analysis data

Analysis method:	Moss et al. (2006)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	Moss et al. (2006)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	4.00	K_σ applied:	Yes
Earthquake magnitude M_w:	6.69	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	1.00	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	60.00 ft	Fill height:	N/A	Limit depth:	50.00 ft

SBT legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

CPT basic interpretation plots



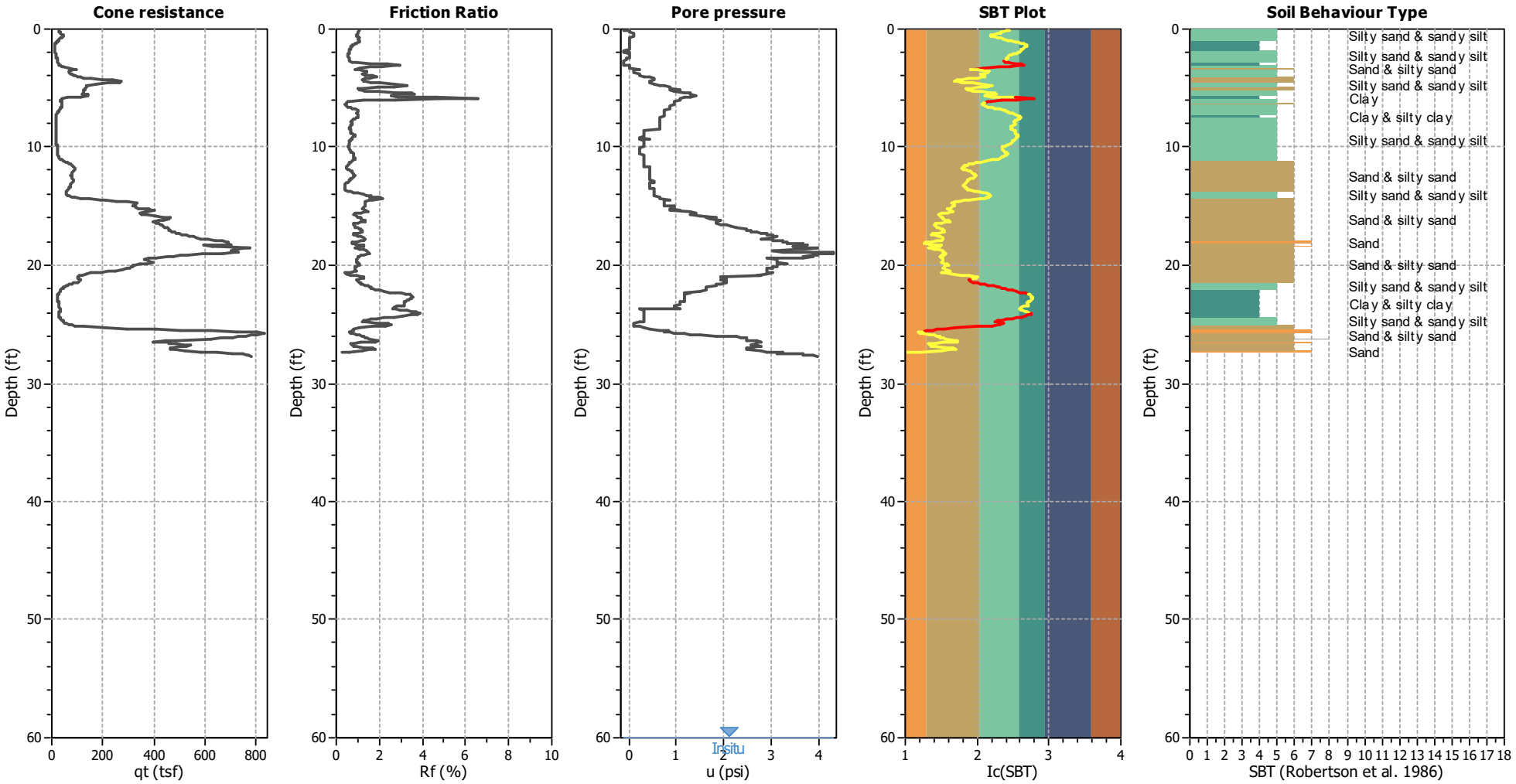
Input parameters and analysis data

Analysis method:	Moss et al. (2006)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	Moss et al. (2006)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	4.00	K_σ applied:	Yes
Earthquake magnitude M_w:	6.69	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	1.00	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	60.00 ft	Fill height:	N/A	Limit depth:	50.00 ft

SBT legend

1. Sensitive fine grained	4. Clayey silt to silty	7. Gravely sand to sand
2. Organic material	5. Silty sand to sandy silt	8. Very stiff sand to
3. Clay to silty clay	6. Clean sand to silty sand	9. Very stiff fine grained

CPT basic interpretation plots



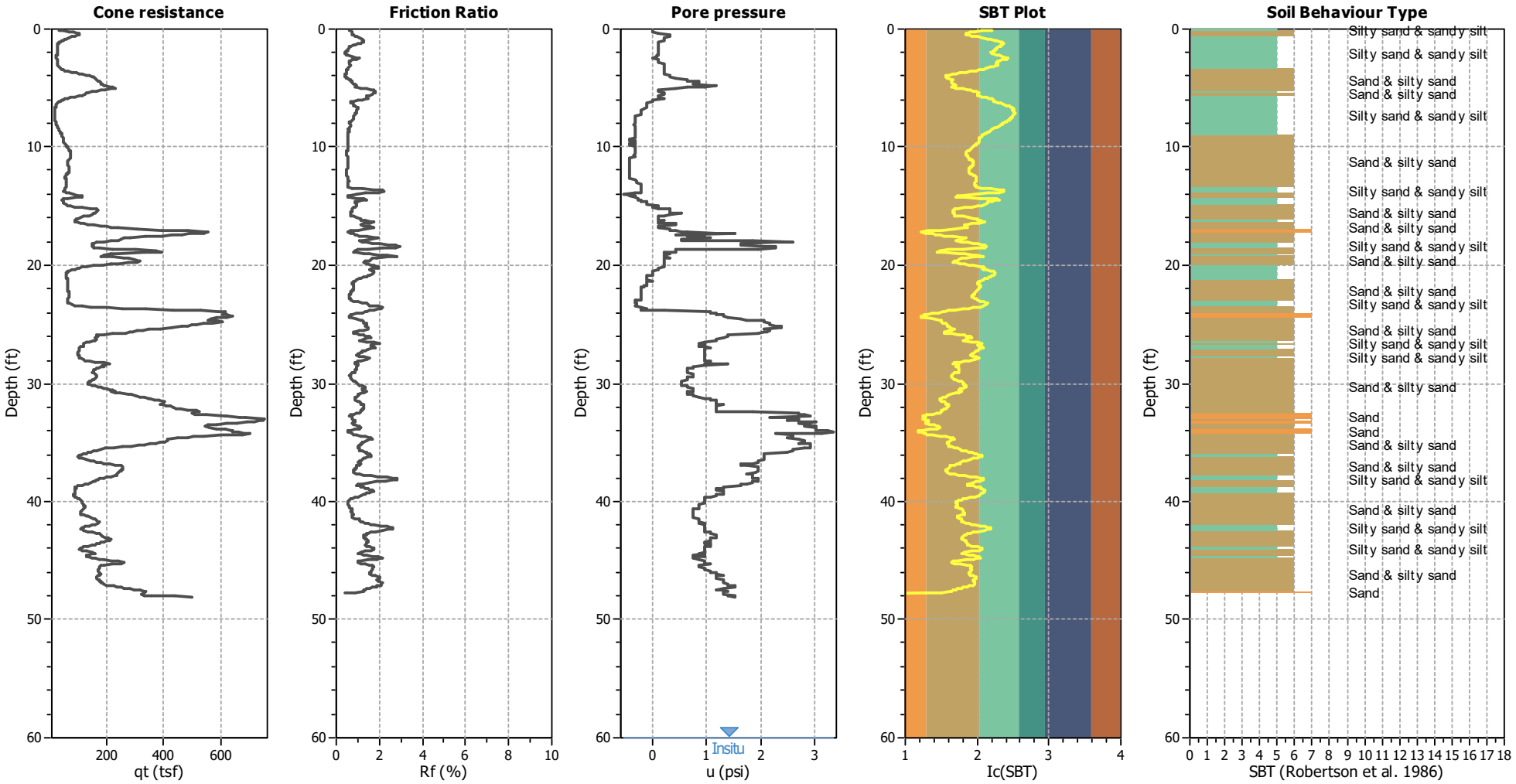
Input parameters and analysis data

Analysis method:	Moss et al. (2006)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	Moss et al. (2006)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	4.00	K_σ applied:	Yes
Earthquake magnitude M_w:	6.69	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	1.00	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	60.00 ft	Fill height:	N/A	Limit depth:	50.00 ft

SBT legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

CPT basic interpretation plots



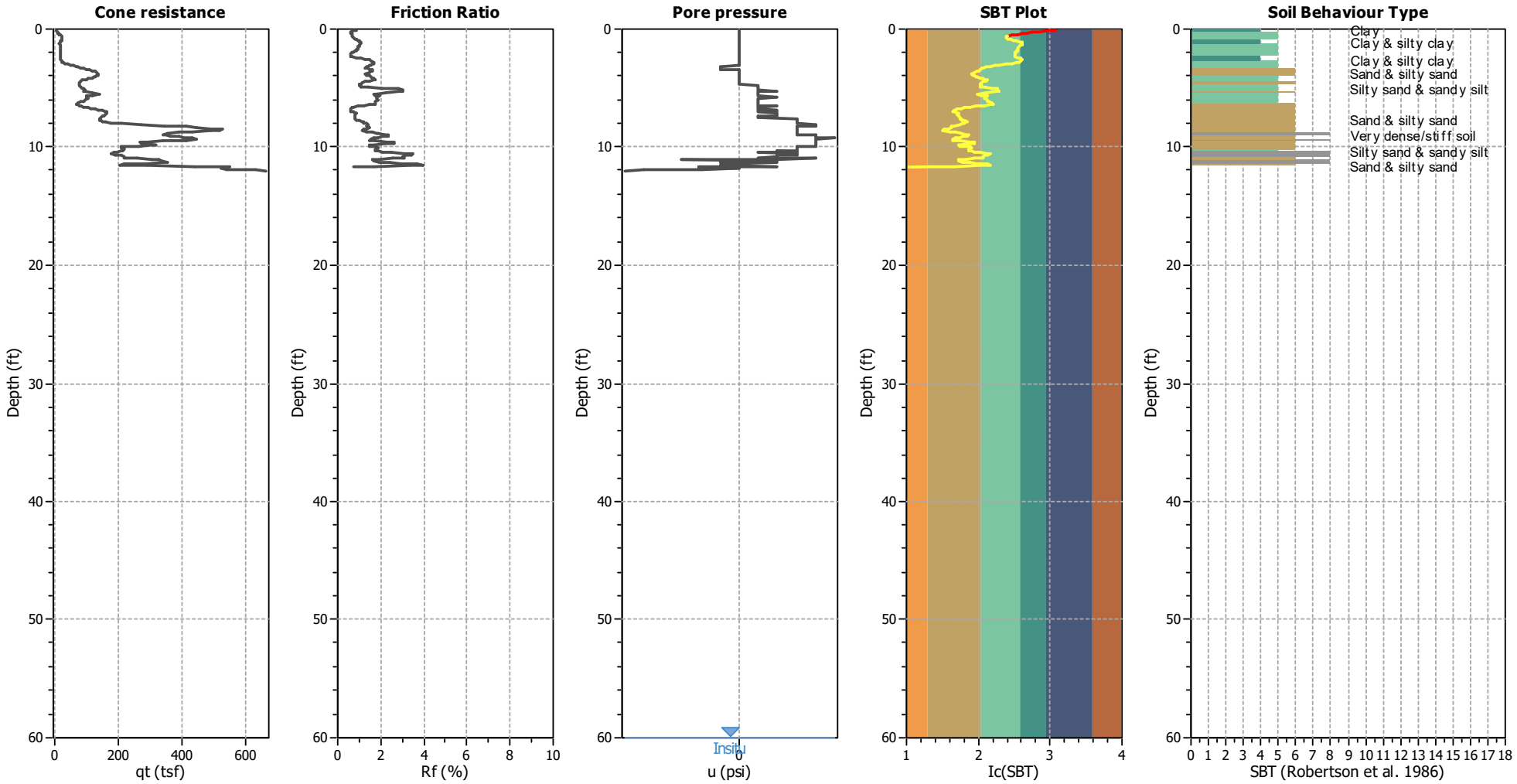
Input parameters and analysis data

Analysis method:	Moss et al. (2006)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	Moss et al. (2006)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	4.00	K_σ applied:	Yes
Earthquake magnitude M_w:	6.69	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	1.00	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	60.00 ft	Fill height:	N/A	Limit depth:	50.00 ft

SBT legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

CPT basic interpretation plots



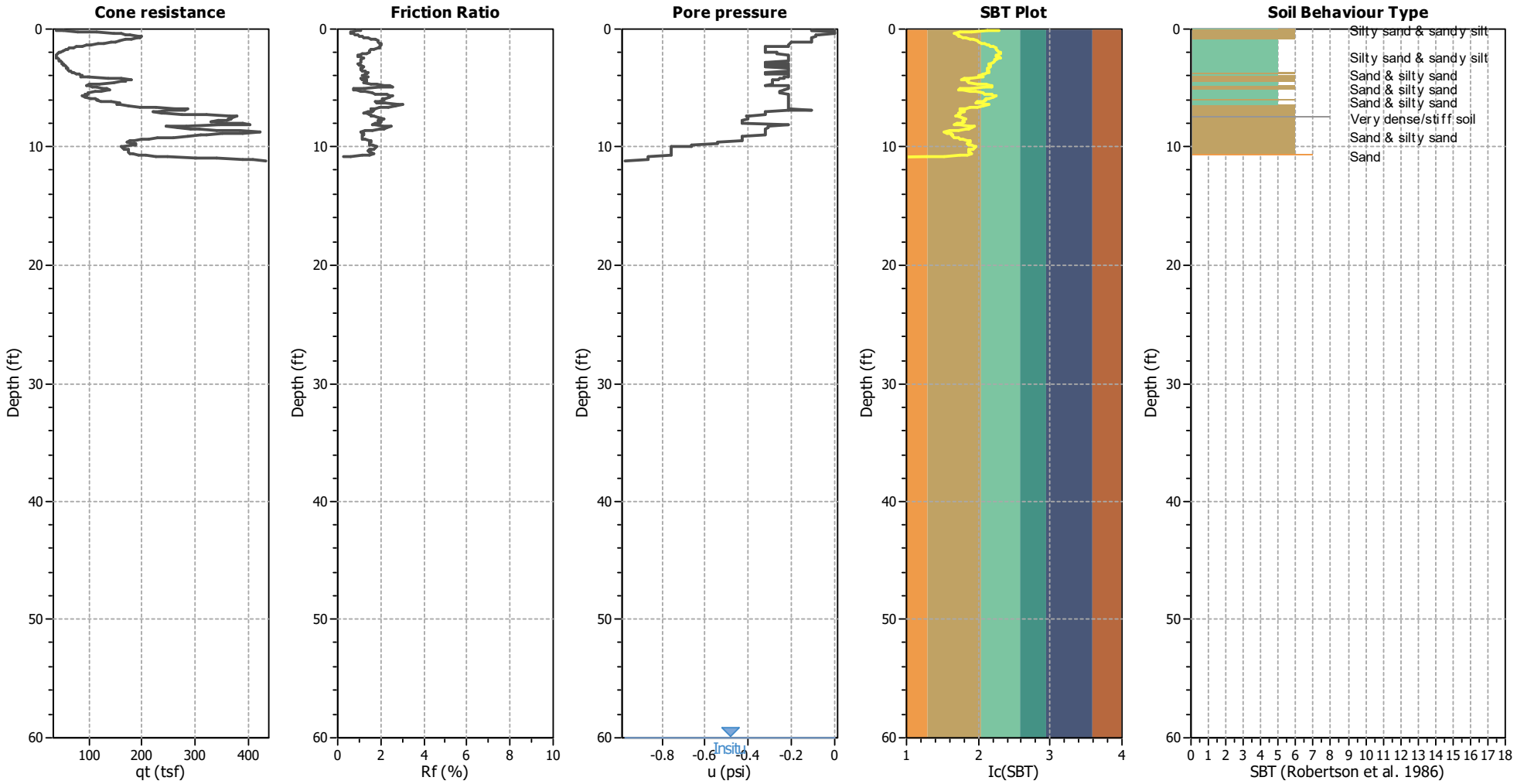
Input parameters and analysis data

Analysis method:	Moss et al. (2006)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	Moss et al. (2006)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	4.00	K_σ applied:	Yes
Earthquake magnitude M_w:	6.69	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	1.00	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	60.00 ft	Fill height:	N/A	Limit depth:	50.00 ft

SBT legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

CPT basic interpretation plots



Input parameters and analysis data

Analysis method:	Moss et al. (2006)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	Moss et al. (2006)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	4.00	K_σ applied:	Yes
Earthquake magnitude M_w:	6.69	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	1.00	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	60.00 ft	Fill height:	N/A	Limit depth:	50.00 ft

SBT legend

1. Sensitive fine grained
2. Organic material
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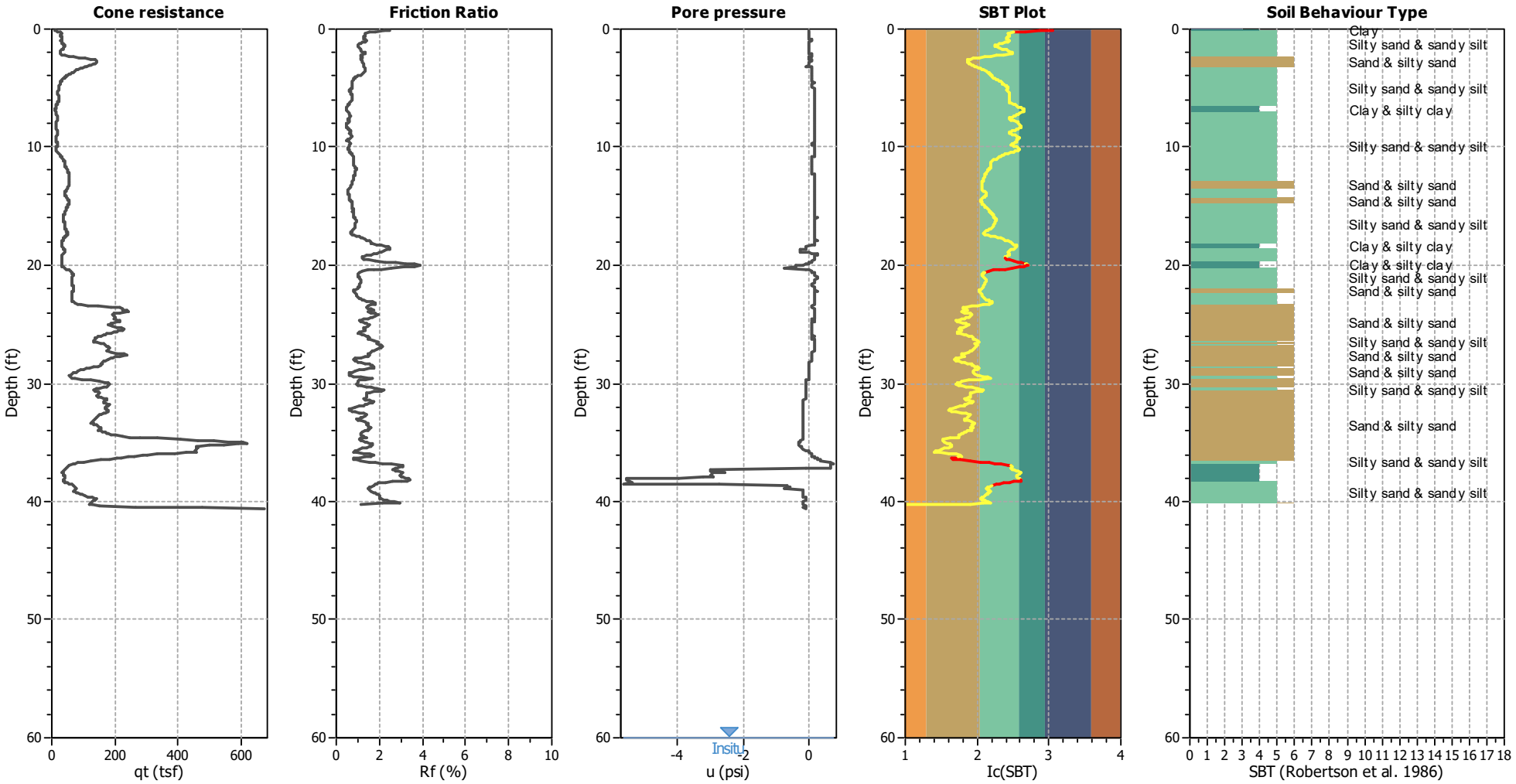
4. Clayey silt to silty
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

CPT basic interpretation plots



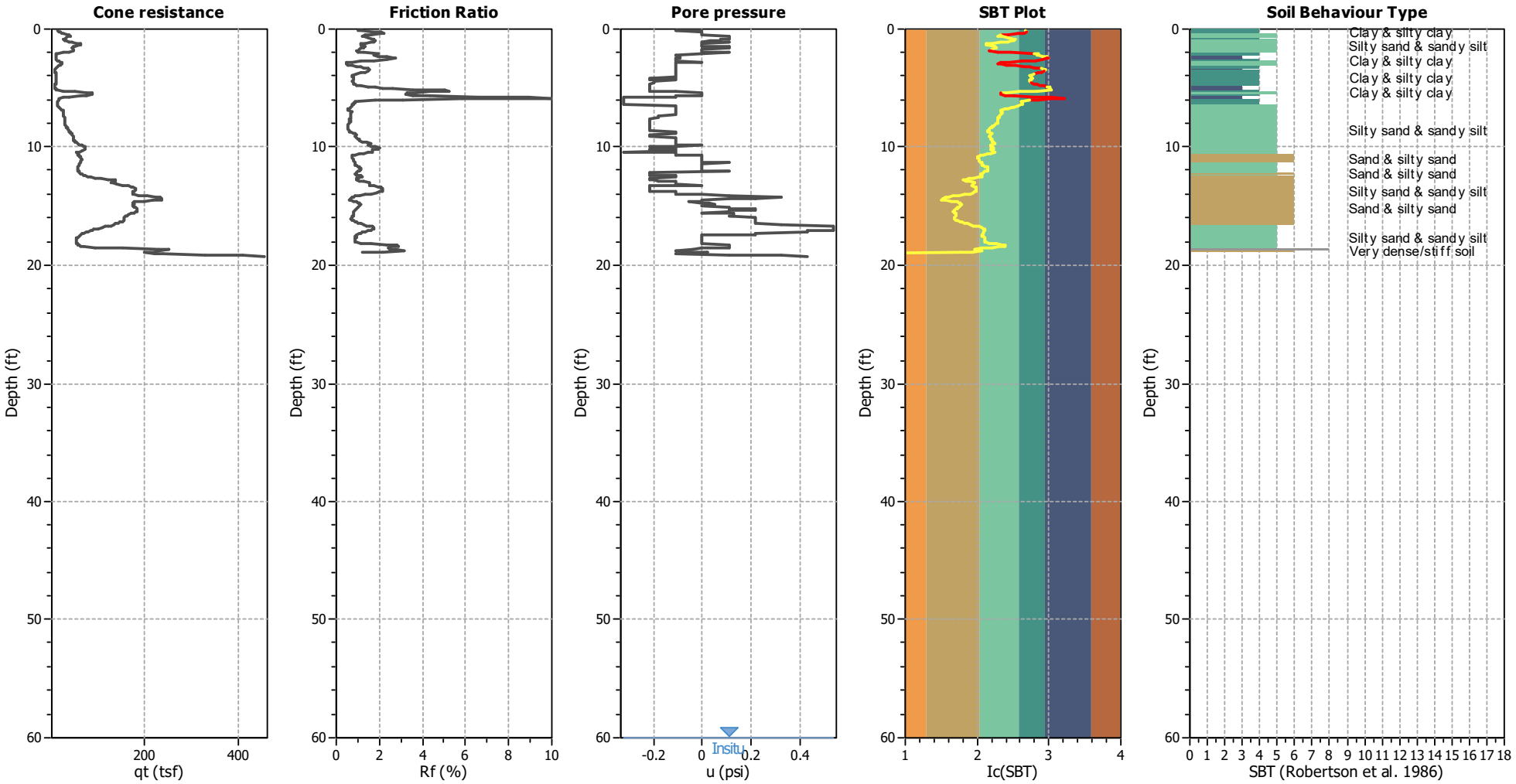
Input parameters and analysis data

Analysis method:	Moss et al. (2006)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	Moss et al. (2006)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	4.00	K_σ applied:	Yes
Earthquake magnitude M_w:	6.69	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	1.00	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	60.00 ft	Fill height:	N/A	Limit depth:	50.00 ft

SBT legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

CPT basic interpretation plots



Input parameters and analysis data

Analysis method:	Moss et al. (2006)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	Moss et al. (2006)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	4.00	K_σ applied:	Yes
Earthquake magnitude M_w:	6.69	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	1.00	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	60.00 ft	Fill height:	N/A	Limit depth:	50.00 ft

SBT legend

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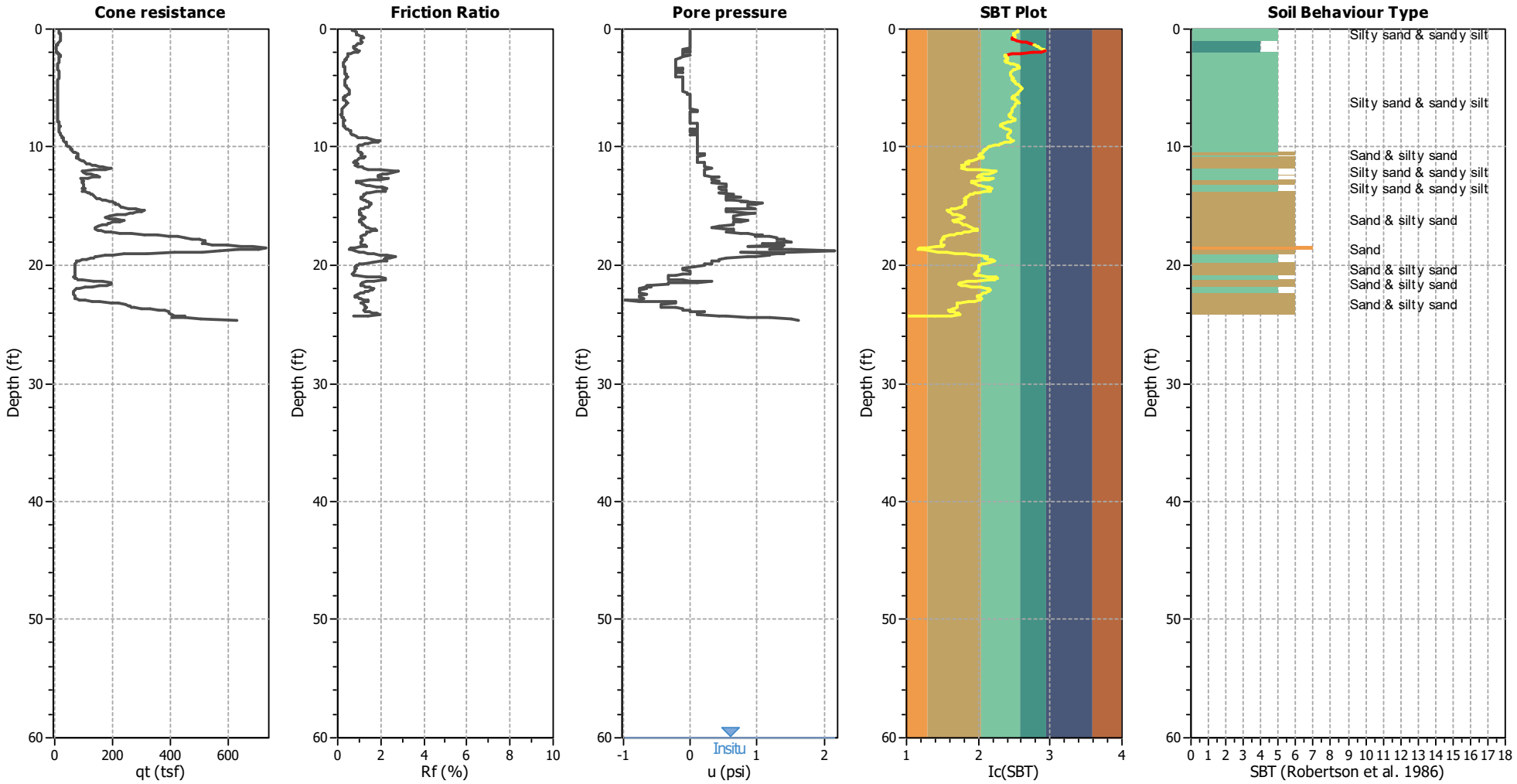
3. Clay to silty clay
4. Clayey silt to silty
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

CPT basic interpretation plots



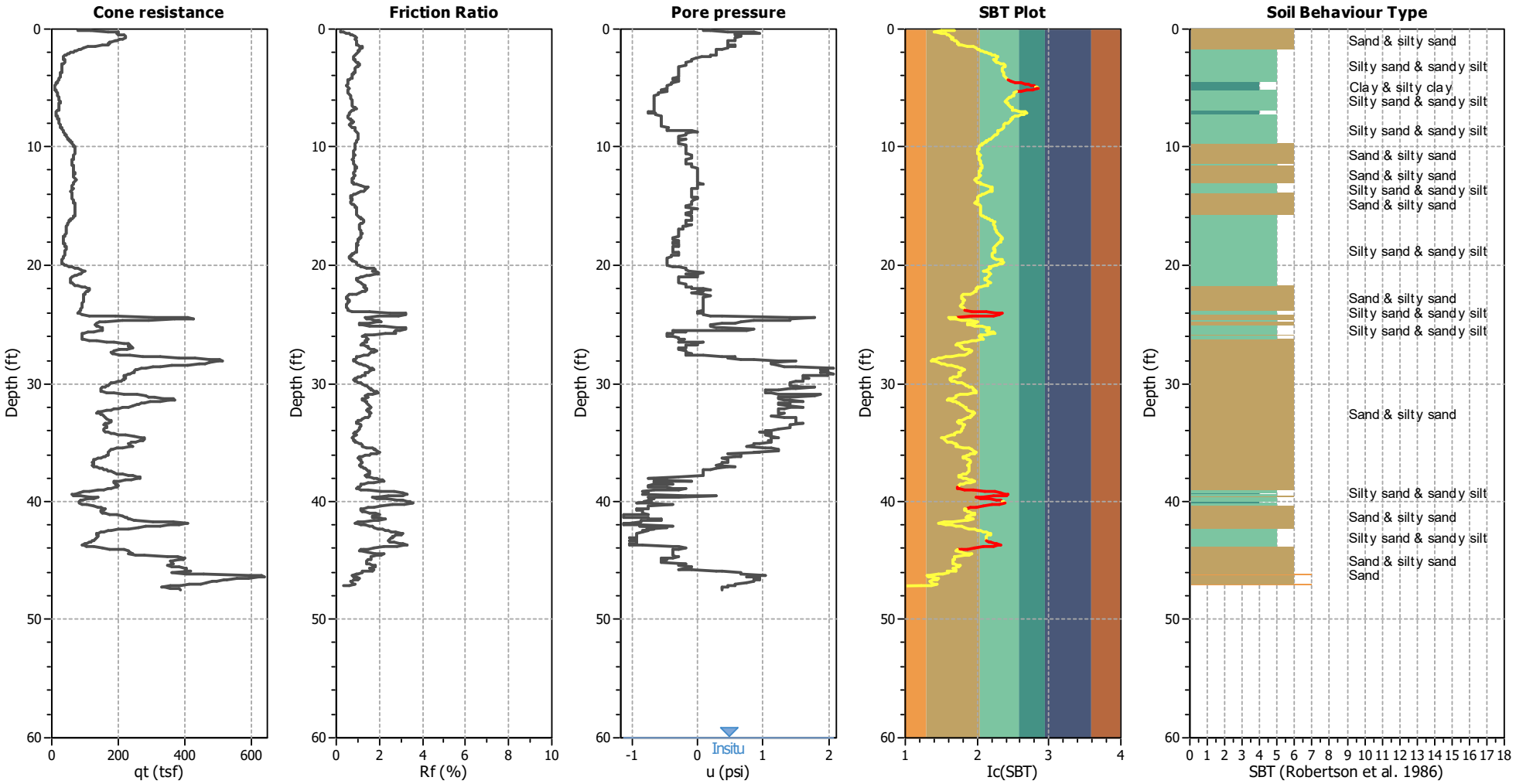
Input parameters and analysis data

Analysis method:	Moss et al. (2006)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	Moss et al. (2006)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	4.00	K_σ applied:	Yes
Earthquake magnitude M_w:	6.69	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	1.00	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	60.00 ft	Fill height:	N/A	Limit depth:	50.00 ft

SBT legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

CPT basic interpretation plots



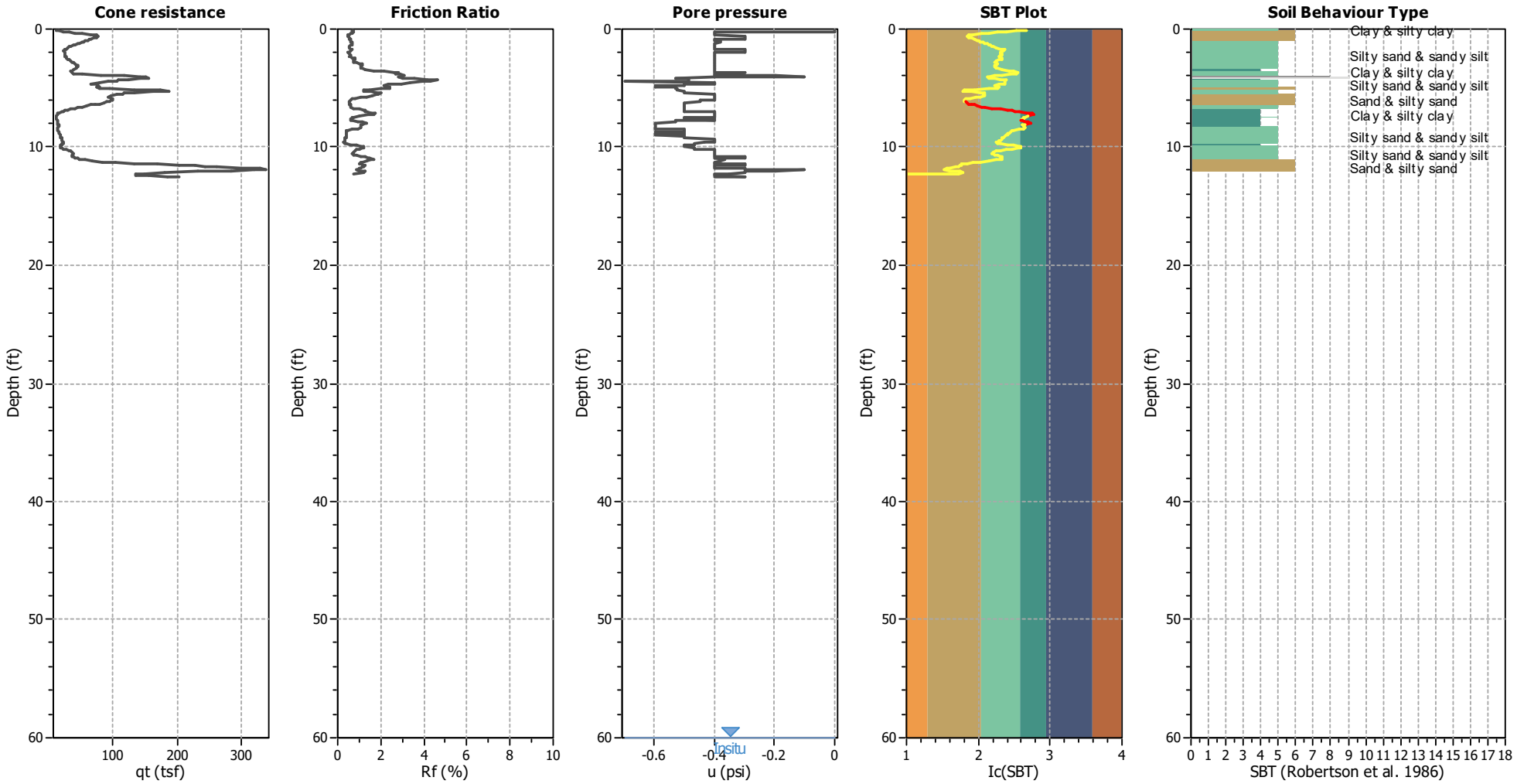
Input parameters and analysis data

Analysis method:	Moss et al. (2006)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	Moss et al. (2006)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	4.00	K_σ applied:	Yes
Earthquake magnitude M_w:	6.69	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	1.00	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	60.00 ft	Fill height:	N/A	Limit depth:	50.00 ft

SBT legend

1. Sensitive fine grained	4. Clayey silt to silty	7. Gravely sand to sand
2. Organic material	5. Silty sand to sandy silt	8. Very stiff sand to
3. Clay to silty clay	6. Clean sand to silty sand	9. Very stiff fine grained

CPT basic interpretation plots



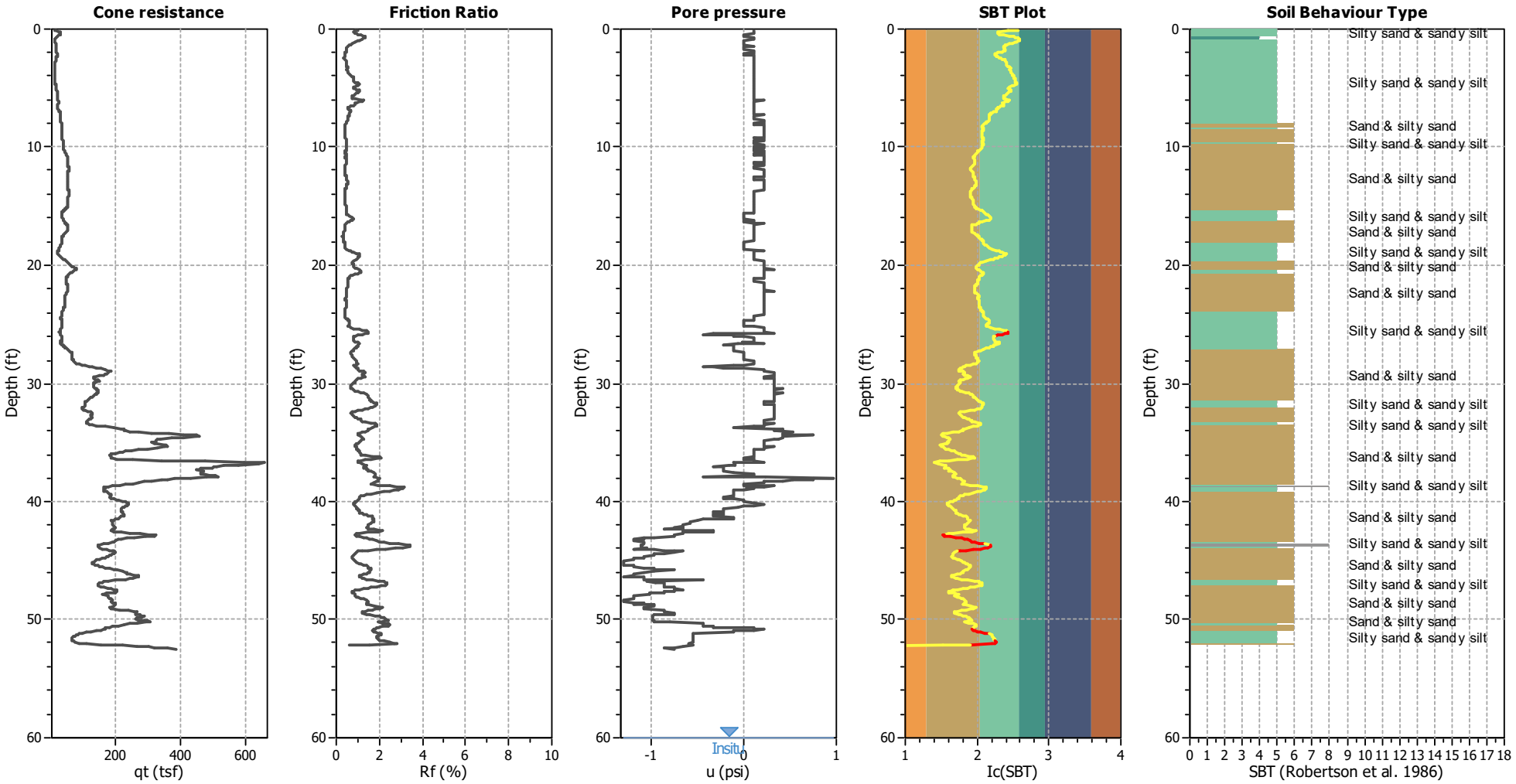
Input parameters and analysis data

Analysis method:	Moss et al. (2006)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	Moss et al. (2006)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	4.00	K_σ applied:	Yes
Earthquake magnitude M_w:	6.69	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	1.00	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	60.00 ft	Fill height:	N/A	Limit depth:	50.00 ft

SBT legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

CPT basic interpretation plots



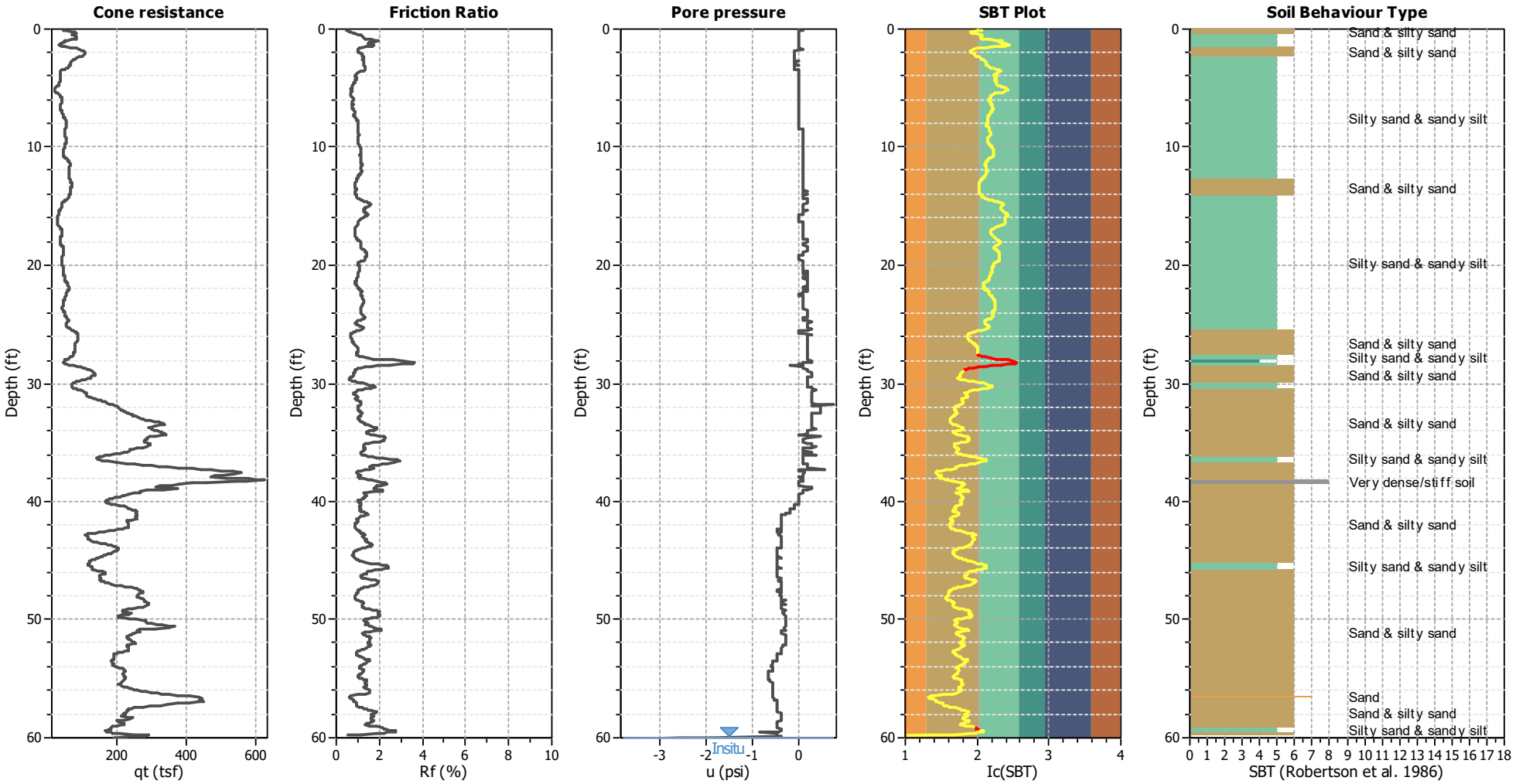
Input parameters and analysis data

Analysis method:	Moss et al. (2006)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	Moss et al. (2006)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	4.00	K_σ applied:	Yes
Earthquake magnitude M_w:	6.69	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	1.00	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	60.00 ft	Fill height:	N/A	Limit depth:	50.00 ft

SBT legend

1. Sensitive fine grained	4. Clayey silt to silty	7. Gravely sand to sand
2. Organic material	5. Silty sand to sandy silt	8. Very stiff sand to
3. Clay to silty clay	6. Clean sand to silty sand	9. Very stiff fine grained

CPT basic interpretation plots



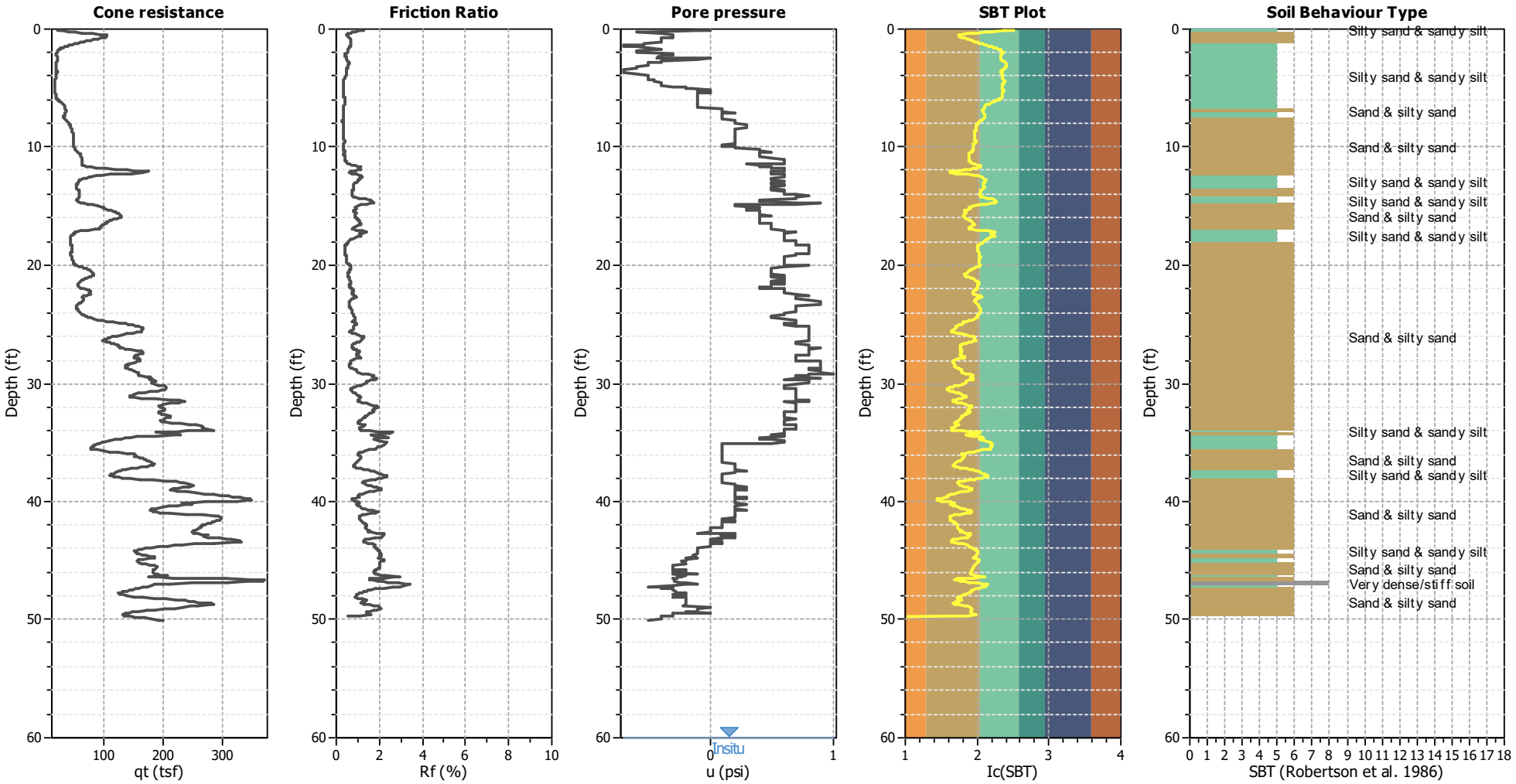
Input parameters and analysis data

Analysis method:	Moss et al. (2006)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	Moss et al. (2006)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	4.00	K_σ applied:	Yes
Earthquake magnitude M_w:	6.69	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	1.00	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	60.00 ft	Fill height:	N/A	Limit depth:	50.00 ft

SBT legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

CPT basic interpretation plots



Input parameters and analysis data

Analysis method:	Moss et al. (2006)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	Moss et al. (2006)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	4.00	K_σ applied:	Yes
Earthquake magnitude M_w:	6.69	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	1.00	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	60.00 ft	Fill height:	N/A	Limit depth:	50.00 ft

SBT legend

1. Sensitive fine grained	4. Clayey silt to silty	7. Gravely sand to sand
2. Organic material	5. Silty sand to sandy silt	8. Very stiff sand to
3. Clay to silty clay	6. Clean sand to silty sand	9. Very stiff fine grained

Geotechnical Boring Log B-LGC-1

Date: 1/02/07	Page: 1 of 3
Project Name: Monteverde Development	**Project Number: 033022-05**
Drilling Company: 2R Drilling	**Type of Rig: CME-75**
Drive Weight: 140 lbs.	**Drop: 30"** **Hole Dia: 8"**
Elevation of Top of Hole: 1303 feet	**Hole Location: See Map**

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION Logged By: SLV Sampled By: SLV	Type of Test
1303	0		BULK				SM	**Alluvium (Qal):** Silty SAND - moderate yellowish-brown, slightly moist	
			1	1 2 5				@ 2.5' Silty SAND: moderate yellowish-brown to dark yellowish-brown, slightly moist, loose; fine to medium grained	
1298	5		2	3 4 6	105.1	8.2		@ 5' Same as at 2.5'	
1293	10		3	6 9 12	109.0	9.3		@ 10' Same as at 2.5', moderate yellowish-brown, medium dense	
1288	15		4	4 3 4				@ 15' Silty SAND: moderate yellowish-brown, slightly moist, loose; fine grained	
1283	20		5	7 8 12	115.5	9.7		@ 20' Silty SAND: moderate yellowish-brown, slightly moist, medium dense; fine to medium grained	
1278	25		6	2 3 4				@ 25' Same as at 20', loose, trace gravel	
1273	30								

LGC

■ = Ring sample
☒ = SPT sample
BULK = Bulk sample

LGC VALLEY, INC.
THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF THE ACTUAL CONDITIONS ENCOUNTERED

Geotechnical Boring Log B-LGC-1

Date: 1/02/07	
Project Name: Monteverde Development	**Project Number: 033022-05**
Drilling Company: 2R Drilling	**Type of Rig: CME-75**
Drive Weight: 140 lbs.	**Drop: 30"** **Hole Dia: 8"**
Elevation of Top of Hole: 1303 feet	**Hole Location: See Map**

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION Logged By: SLV Sampled By: SLV	Type of Test
1273	30		7	19 21 25	109.2	6.2	SM	@ 30' Silty SAND: pale yellowish-brown to moderate yellowish-brown, slightly moist, medium dense; fine to coarse grained, trace gravel @ 33' Hard Drilling	CN
1268	35		8	10 27 21				@ 35' Same as at 30', dense	
1263	40		9	17 20 42	126.9	6.9		@ 40' Silty SAND: pale yellowish-brown to moderate yellowish-brown, moist, dense; fine to medium grained	DS
1258	45		10	7 11 13			SP	@ 45' SAND: moderate yellowish-brown to light reddish-brown, slightly moist, medium dense; fine to coarse grained, trace gravel	
1253	50		11	30 50/5.5	110.6	10.6	SM	@ 50' Silty SAND: pale yellowish-brown to moderate yellowish-brown, slightly moist, very dense; fine to coarse grained, trace gravel @ 53' Very Hard Drilling	DS
1248	55		12	14 10 15				@ 55' Silty SAND: moderate yellowish-brown to light reddish-brown, slightly moist, medium dense; fine to medium grained, trace gravel	SA
1243	60								

LGC

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⊠ = SPT sample
BULK = Bulk sample

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THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF THE ACTUAL CONDITIONS ENCOUNTERED

Geotechnical Boring Log B-LGC-1

Date: 1/02/07	Page: 3 of 3
Project Name: Monteverde Development	Project Number: 033022-05
Drilling Company: 2R Drilling	Type of Rig: CME-75
Drive Weight: 140 lbs.	Drop: 30" Hole Dia: 8"
Elevation of Top of Hole: 1303 feet	Hole Location: See Map

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION Logged By: SLV ▽ Sampled By: SLV	Type of Test
1243	60		13	50/6"	124.3	10.3	SP	@ 60' Groundwater Encountered SAND: light reddish-brown, wet, very dense; fine to coarse grained, some gravel	
1238	65		14	11 26 16				@ 65' SAND with Gravel: light reddish-brown, wet (saturated), dense; fine to coarse grained	
1233	70		15	11 24 47				@ 70' Same as at 65', dark yellowish-brown, very dense	
1228	75		16	50/6"				@ 75' SAND with Gravel: dark yellowish-brown, wet (saturated), very dense; fine to coarse grained	
1223	80							**Notes:** -Total Depth = 75.5' -Backfilled with Native Soil (Cuttings) -Groundwater Encountered at 60'	
1218	85								
1213	90								

LGC

■ = Ring sample
☒ = SPT sample
BULK = Bulk sample

LGC VALLEY, INC.
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Geotechnical Boring Log B-LGC-2

Date: 1/02/07	Page: 1 of 3
Project Name: Monteverde Development	**Project Number: 033022-05**
Drilling Company: 2R Drilling	**Type of Rig: CME-75**
Drive Weight: 140 lbs.	**Drop: 30"** **Hole Dia: 8"**
Elevation of Top of Hole: 1300 feet	**Hole Location: See Map**

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION Logged By: SLV Sampled By: SLV	Type of Test
1300	0		BULK				ML/CL	**Alluvium (Qal):** Clayey SILT to Silty Clay - moderate yellowish-brown, slightly moist	MAX RDS
			1	6 9 14	97.5	5.4	SM	@ 2.5' Silty SAND: pale to moderate yellowish-brown, slightly moist, medium dense; fine grained	
1295	5		2	7 15 22				@ 5' Same as at 2.5'	
1290	10		3	6 9 12				@ 10' Silty SAND: moderate yellowish-brown, slightly moist, medium dense; fine grained, trace pinhole pores	
1285	15		4	8 11 13	106.6	7.9		@ 15' Same as at 10', moderate yellowish-brown to light reddish-brown	
1280	20		5	3 3 2			ML	@ 20' Clayey SILT with Sand: moderate yellowish-brown, slightly moist, medium stiff; fine grained sand	
1275	25		6	6 9 11	111.1	11.4	SC-SM	@ 25' Clayey SAND to Silty Sand: light reddish-brown, slightly moist, medium dense; fine grained	CN
1270	30								

LGC

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Geotechnical Boring Log B-LGC-2

Date: 1/02/07	
Project Name: Monteverde Development	**Project Number: 033022-05**
Drilling Company: 2R Drilling	**Type of Rig: CME-75**
Drive Weight: 140 lbs.	**Drop: 30"** **Hole Dia: 8"**
Elevation of Top of Hole: 1300 feet	**Hole Location: See Map**

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION Logged By: SLV Sampled By: SLV	Type of Test
1270	30		7	6 9 12			SP	@30' SAND: light reddish-brown, slightly moist, medium dense; fine to coarse grained, trace gravel	
1265	35		NS	7 14 15				@ 35' SAND with Gravel: pale yellowish-brown to moderate yellowish-brown, slightly moist, medium dense; no sample - 3 rings only	
1260	40		8	18 10 17			SM	@ 40' Silty SAND: moderate yellowish-brown to light reddish-brown, slightly moist, medium dense; fine to coarse grained, some gravel	SA
1255	45		9	10 26 47	113.4	12.7	SM/CL	@ 45' Silty SAND to Sandy Clay: pale yellowish-brown to moderate yellowish-brown, slightly moist, dense; fine to coarse grained, trace silt and gravel	DS
1250	50		10	6 9 12			SM	@ 50' Silty SAND: moderate yellowish-brown to light reddish-brown, slightly moist, medium dense; fine to medium grained	SA
1245	55		11	25 25 30	104.9	13.9		@ 55' Same as at 50', dense, trace gravel, fine to coarse grained	
1240	60								

LGC

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Geotechnical Boring Log B-LGC-2

Date: 1/02/07	Page: 3 of 3
Project Name: Monteverde Development	**Project Number: 033022-05**
Drilling Company: 2R Drilling	**Type of Rig: CME-75**
Drive Weight: 140 lbs.	**Drop: 30"** **Hole Dia: 8"**
Elevation of Top of Hole: 1300 feet	**Hole Location: See Map**

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION Logged By: SLV Sampled By: SLV	Type of Test
1240	60		12	10 27 50/4"			SP	@ 60' SAND: moderate yellowish-brown to light reddish-brown, slightly moist, very dense; fine to coarse grained, some gravel @ 62' Very Hard Drilling	
1235	65		13	26 26 26	124.9	10.1	SC	▽ @ 65' Clayey SAND with Gravel: light reddish-brown, very moist, dense; fine to coarse grained @ 66' Groundwater Encountered	DS
1230	70		14	13 10 24			SP	@ 70' SAND with Gravel: light reddish-brown, wet (saturated), dense; fine to coarse grained, 3" thick layer of light gray to pale yellowish-brown siltstone with rust-colored staining	
1225	75		15	27 16 31				**Bedrock: Saugus Formation (QTs):** @ 75' Siltstone: light gray with moderate yellowish-brown and rust-colored layering, slightly moist, weathered	
1220	80		NR	50/4"				@ 80' No Recovery - material same as at 75' based on contents of shoe	
1215	85							**Notes:** -Total Depth = 80' 4" -Backfilled with Native Soil (Cuttings) -Groundwater Encountered at 66'	
1210	90								

LGC

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BULK = Bulk sample

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Geotechnical Boring Log B-LGC-3

Date: 1/03/07	Page: 1 of 2
Project Name: Monteverde Development	Project Number: 033022-05
Drilling Company: 2R Drilling	Type of Rig: CME-75
Drive Weight: 140 lbs.	Drop: 30" Hole Dia: 8"
Elevation of Top of Hole: 1298 feet	Hole Location: See Map

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION Logged By: CRK Sampled By: CRK	Type of Test
1298	0						SM	**Alluvium (Qal):** Silty SAND - moderate yellowish-brown, slightly moist	
			R-1	8 13 18				@ 2.5' Silty SAND: moderate yellowish-brown, slightly moist, medium dense; trace pea gravel	
1293	5		R-2	8 9 7	105.4	6.6		@ 5' Silty SAND: moderate yellowish-brown, slightly moist, loose; trace pea gravel @ 7' Hard Drilling, large gravel in cuttings	
1288	10		R-3	46 50/4"				@ 10' Silty SAND with Gravel: pale yellowish-brown to moderate yellowish-brown, slightly moist, very dense; fine to coarse grained, trace silt pockets	
1283	15		SPT-1	13 16 11				@ 15' Silty SAND: dark yellowish-brown, slightly moist, medium dense; fine to medium grained, trace gravel	
1278	20		R-4	4 7 8	108.0	11.5		@ 20' Silty SAND with Gravel: moderate yellowish-brown, slightly moist, loose; fine to medium grained, trace pea to 3/4" gravel	
1273	25		SPT-2	16 22 20				@ 25' Silty SAND with Gravel: dark yellowish-brown, slightly moist, dense; fine to coarse grained	SHA
1268	30								

LGC

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Geotechnical Boring Log B-LGC-3

Date: 1/03/07	
Project Name: Monteverde Development	**Project Number: 033022-05**
Drilling Company: 2R Drilling	**Type of Rig: CME-75**
Drive Weight: 140 lbs.	**Drop: 30"** **Hole Dia: 8"**
Elevation of Top of Hole: 1298 feet	**Hole Location: See Map**

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION Logged By: CRK Sampled By: CRK	Type of Test
1268	30		R-5	30 50/6"	114.3	9.3	SM	@30' Silty SAND with Gravel: dark yellowish-brown to moderate yellowish-brown, slightly moist, dense; fine to coarse grained	CN
1263	35		SPT-3	50/6'				@ 35' Silty SAND with Gravel: moderate yellowish-brown, slightly moist, very dense; fine to medium grained @ 37' Hard Drilling	
1258	40		R-6	19 20 21	112.2	6.7		@ 40' Silty SAND with Gravel: moderate yellowish-brown, slightly moist, medium dense; medium to coarse grained	DS
1253	45		SPT-4	17 11 10				@ 45' Silty SAND: moderate yellowish-brown, slightly moist, medium dense; medium to coarse grained, some silt	SA
1248	50		NR	50/6"				@ 50' No Recovery	
1243	55							**Notes:** -Total Depth = 50' 6" -Backfilled with Native Soil (Cuttings) -No Groundwater Encountered	
1238	60								

LGC

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Geotechnical Boring Log B-LGC-4

Date: 1/03/07	Page: 1 of 3
Project Name: Monteverde Development	**Project Number: 033022-05**
Drilling Company: 2R Drilling	**Type of Rig: CME-75**
Drive Weight: 140 lbs.	**Drop: 30"** **Hole Dia: 8"**
Elevation of Top of Hole: 1302 feet	**Hole Location: See Map**

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION Logged By: CRK Sampled By: CRK	Type of Test
1302	0		BULK				SM	**Alluvium (Qal):** Silty SAND - moderate yellowish-brown, dry	
			R-1	6 9 15				@ 2.5' Silty SAND with Gravel: moderate yellowish-brown, dry, medium dense; fine grained	
1297	5		NR	17 50/3"				@ 5' No Recovery	
1292	10		R-2	11 13 14	107.3	4.7		@ 10' Silty SAND with Gravel: moderate yellowish-brown, slightly moist, medium dense	
1287	15		R-3	10 39 50/2"				@ 15' Silty SAND with Gravel: moderate yellowish-brown, slightly moist, very dense; trace clay pockets, trace large gravel	
1282	20		R-4	12 15 9	103.9	6.5	SP	@ 20' SAND: pale yellowish-brown, slightly moist, medium dense; fine to coarse grained	
1277	25		SPT-1	2 3 4			SM	@ 25' Silty SAND: moderate yellowish-brown, slightly moist, loose; fine to medium grained, trace gravel	SA
1272	30								

LGC

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Geotechnical Boring Log B-LGC-4

Date: 1/03/07	
Project Name: Monteverde Development	**Project Number: 033022-05**
Drilling Company: 2R Drilling	**Type of Rig: CME-75**
Drive Weight: 140 lbs.	**Drop: 30"** **Hole Dia: 8"**
Elevation of Top of Hole: 1302 feet	**Hole Location: See Map**

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION Logged By: CRK Sampled By: CRK	Type of Test
1272	30		SPT-2	43 18 38			SM	@30' Silty SAND: moderate yellowish-brown, slightly moist, very dense; trace gravel	
1267	35		R-5	26 31 50	109.6	4.7	SP	@ 35' SAND with Gravel: moderate yellowish-brown, slightly moist, very dense; fine to coarse grained, trace gravel	
1262	40		SPT-3	7 10 50/3"			SM	@ 40' Silty SAND: moderate yellowish-brown, slightly moist, very dense; fine to coarse grained, trace gravel	
1257	45		R-6	23 26 44	112.7	6.9	SP-SM	@ 45' SAND to Silty Sand: moderate yellowish-brown, slightly moist, dense; fine to coarse grained, trace gravel	DS
1252	50		SPT-4	10 12 14			SM	@ 50' Silty SAND: moderate yellowish-brown to light reddish-brown, slightly moist, medium dense; fine to medium grained, some gravel @ 53' Hard Drilling, added ~3 gal water	SHA
1247	55		R-7	50/3"				@ 55' Silty SAND: moderate yellowish-brown, slightly moist to moist, dense; fine to coarse grained, some gravel	
1242	60								

LGC

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Geotechnical Boring Log B-LGC-4

Date: 1/03/07	
Project Name: Monteverde Development	**Project Number: 033022-05**
Drilling Company: 2R Drilling	**Type of Rig: CME-75**
Drive Weight: 140 lbs.	**Drop: 30"** **Hole Dia: 8"**
Elevation of Top of Hole: 1302 feet	**Hole Location: See Map**

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION Logged By: CRK Sampled By: CRK	Type of Test
1242	60		SPT-5	50/4"			SM	@ 60' Silty SAND: moderate yellowish-brown, slightly moist, very dense; fine to coarse grained, some gravel ▽ @ 63.5' Groundwater Encountered	
1237	65		SPT-6	22 50/6"				@ 65' Silty SAND: moderate yellowish-brown, moist, very dense; fine grained	
1232	70		SPT-7	50/3"				**Bedrock - Saugus Formation (QTs):** @ 70' Siltstone to Sandstone: pale yellowish-brown to moderate yellowish-brown, hard	
1227	75		SPT-8	50/5"				@ 75' Siltstone to Sandstone: pale yellowish-brown, hard	
1222	80							**Notes:** -Total Depth =75' 6" -Backfilled with Native Soil (Cuttings) -Groundwater Encountered at 63' 6"	
1217	85								
1212	90								

LGC

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Geotechnical Boring Log B-LGC-5

Date: 1/04/07	Page: 1 of 3
Project Name: Monteverde Development	**Project Number: 033022-05**
Drilling Company: 2R Drilling	**Type of Rig: CME-75**
Drive Weight: 140 lbs.	**Drop: 30"** **Hole Dia: 8"**
Elevation of Top of Hole: 1309 feet	**Hole Location: See Map**

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION Logged By: CRK Sampled By: CRK	Type of Test
1309	0		BULK				SM	**Alluvium (Qal):** Silty SAND - moderate yellowish-brown, dry	EI COR
			R-1	2 3 5	107.9	9.1		@ 2.5' Silty SAND: moderate yellowish-brown, slightly moist, loose	
1304	5		NR	30 14 13				@ 5' No Sample Recovery - rock in sampler	
1299	10		R-2	19 20 21	119.2	7.3		@ 10' Silty SAND with Gravel: moderate yellowish-brown, slightly moist, medium dense; gravel up to 3/4"	
1294	15		SPT-1	5 3 2			SP	@ 15' SAND: dark yellowish-orange, slightly moist, very loose; clean fine grained, trace gravel	
1289	20		R-3	21 50/6"				@ 20' SAND: dark yellowish-orange, slightly moist, dense; fine grained, some gravel 1mm to 1/2"	
1284	25		SPT-2	10 12 12			SM	@ 25' Silty SAND: moderate yellowish-brown, slightly moist, medium dense; fine to medium grained, trace gravel	SHA
1279	30								

LGC

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Geotechnical Boring Log B-LGC-5

Date: 1/04/07	
Project Name: Monteverde Development	**Project Number: 033022-05**
Drilling Company: 2R Drilling	**Type of Rig: CME-75**
Drive Weight: 140 lbs.	**Drop: 30"** **Hole Dia: 8"**
Elevation of Top of Hole: 1309 feet	**Hole Location: See Map**

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION Logged By: CRK Sampled By: CRK	Type of Test
1279	30		R-4	14 21 50/5"	115.8	9.4	SM	@30' Silty SAND with Gravel: moderate yellowish-brown, slightly moist, dense; fine to medium grained	
1274	35		SPT-3	13 18 22				@ 35' Silty SAND with Gravel: dark yellowish0orange to grayish orange, slightly moist, medium dense; fine grained, 3/4" gravel	
1269	40		R-5	19 29 40	117.8	7.8		@ 40' Silty SAND with Gravel: moderate yellowish-brown to pale yellowish-brown, slightly moist, dense; fine grained, some gravel	
1264	45		SPT-4	6 11 15				@ 45' Silty SAND: moderate yellowish-brown, slightly moist, medium dense; fine to coarse grained, trace gravel	
1259	50		R-6	39 35 37	118.8	8.7		@ 50' Silty SAND: moderate yellowish-brown to dark yellowish-orange, slightly moist, dense; fine grained, pea to 3/4" gravel, trace fossils	DS
1254	55		SPT-5	11 12 11				@ 55' Silty SAND with Gravel, moderate yellowish-brown, moist-wet, medium dense; fine to coarse, pea to 3/4" gravel ▽	SHA
1249	60								

LGC

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Geotechnical Boring Log B-LGC-5

Date: 1/04/07	
Project Name: Monteverde Development	**Project Number: 033022-05**
Drilling Company: 2R Drilling	**Type of Rig: CME-75**
Drive Weight: 140 lbs.	**Drop: 30"** **Hole Dia: 8"**
Elevation of Top of Hole: 1309 feet	**Hole Location: See Map**

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION Logged By: CRK Sampled By: CRK	Type of Test
1249	60		SPT-6	13 16 20			SM	@ 60' Silty SAND with Gravel: pale yellowish-brown to dark yellowish-orange, wet, dense; fine to medium grained, some gravel pea to 3/4", trace carbon chips	
1244	65		SPT-7	22 50/5"				@ 65' Silty SAND with Gravel: pale yellowish-brown, wet, dense; fine to coarse grained, pea to 1/2" gravel	
1239	70		SPT-8	23 24 32				@ 70' Silty SAND with Gravel: moderate yellowish-brown, wet, very dense; fine to coarse grained, pea to 3/4" gravel	
1234	75		SPT-9	50/5"			SP	@ 75' SAND: pale blue, wet, dense; medium to coarse grained, unoxidized	
1229	80							**Notes:** -Total Depth = 75' 6" -Backfilled with Native Soil (Cuttings) -Groundwater Encountered at 57' 10"	
1224	85								
1219	90								

LGC

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Geotechnical Boring Log B-LGC-6

Date: 1/04/07	Page: 1 of 2
Project Name: Monteverde Development	**Project Number: 033022-05**
Drilling Company: 2R Drilling	**Type of Rig: CME-75**
Drive Weight: 140 lbs.	**Drop: 30"** **Hole Dia: 8"**
Elevation of Top of Hole: 1307 feet	**Hole Location: See Map**

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION Logged By: CRK Sampled By: CRK	Type of Test
1307	0						SM	@ 0-9": 1" Afu, 2" Asphalt Concrete, 3" Sand, 3" Aggregate Base @ 9"-5.0': Silty SAND with Gravel, dry, first 5.0' hand augered	
1302	5		R-1	33 45 35	114.7	3.8		@ 5' Silty SAND: pale yellowish-brown, dry, dense; fine grained, abundant 3/4" or larger gravel	
1297	10		R-2	33 28 25	121.8	2.5		@ 10' Silty SAND: pale yellowish-brown, dry, dense; fine to coarse grained, abundant gravel and rock chips	DS
1292	15		SPT-1	10 14 7				@ 15' Silty SAND, moderate yellowish-brown, slightly moist, medium dense; fine to coarse grained, some 3/4" minus gravel	
1287	20		R-3	5 8 9	115.0	9.1		@ 20' Silty SAND: moderate yellowish-brown, slightly moist, medium dense; fine grained sand	
1282	25		SPT-2	3 4 4				@ 25' Silty SAND: moderate yellowish-brown, slightly moist, loose; fine grained	SHA
1277	30								

LGC

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Geotechnical Boring Log B-LGC-6

Date: 1/04/07	Page: 2 of 2
Project Name: Monteverde Development	**Project Number: 033022-05**
Drilling Company: 2R Drilling	**Type of Rig: CME-75**
Drive Weight: 140 lbs.	**Drop: 30"** **Hole Dia: 8"**
Elevation of Top of Hole: 1307 feet	**Hole Location: See Map**

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION Logged By: CRK Sampled By: CRK	Type of Test
1277	30		R-4	18 32 50/6"	119.6	5.0	SM	@30' Silty SAND: dark yellowish-orange, slightly moist, very dense; trace gravel pea to 3/4" @ 32' Hard Drilling	DS
1272	35		SPT-3	12 9 10				@ 35' Silty SAND: moderate yellowish-brown, slightly moist, medium dense; fine grained, trace 1/2" gravel	
1267	40		R-5	50/6'				@ 40' Silty SAND: moderate yellowish-brown, slightly moist, dense; fine to coarse grained	
1262	45							**Notes:** -Total Depth = 40' 6" -Backfilled with Native Soil (Cuttings) -No Groundwater Encountered	
1257	50								
1252	55								
1247	60								

LGC

■ = Ring sample
☒ = SPT sample
BULK = Bulk sample

LGC VALLEY, INC.
THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF THE ACTUAL CONDITIONS ENCOUNTERED

Geotechnical Boring Log B-LGC-7

Date: 1/04/07	Page: 1 of 2
Project Name: Monteverde Development	**Project Number: 033022-05**
Drilling Company: 2R Drilling	**Type of Rig: CME-75**
Drive Weight: 140 lbs.	**Drop: 30"** **Hole Dia: 8"**
Elevation of Top of Hole: 1322 feet	**Hole Location: See Map**

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION Logged By: CRK Sampled By: CRK	Type of Test
1322	0		BULK				ML	**Alluvium (Qal):** Sandy SILT - moderate yellowish-brown, dry	
			R-1	6 11 20	118.5	7.1		@ 2.5' Sandy SILT: moderate yellowish-brown, dry, very stiff	
1317	5		R-2	6 7 6	110.8	8.3	SC	@ 5' Clayey SAND: moderate yellowish-brown, dry, medium stiff; trace pea gravel	DS
1312	10		R-3	36 50/3"	103.0	5.3	SM	@ 10' Silty SAND: moderate yellowish-brown, slightly moist, very dense; some gravel to 3/4"	
1307	15		R-4	17 43 27	124.7	2.5		@ 15' Silty SAND: moderate yellowish-brown, slightly moist, dense; fine to coarse, some gravel to 3/4"	
1302	20		SPT-1	6 6 11				@ 20' Silty SAND: moderate yellowish-brown, slightly moist, medium dense; fine to coarse grained, some gravel pea to 3/4"	
1297	25		R-5	11 48 35	126.1	5.2		@ 25' Silty SAND: dark yellowish-orange, slightly moist, very dense; fine to coarse grained, some gravel pea to 3/4"	DS
1292	30								

LGC

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Geotechnical Boring Log B-LGC-7

Date: 1/04/07	Page: 2 of 2
Project Name: Monteverde Development	**Project Number: 033022-05**
Drilling Company: 2R Drilling	**Type of Rig: CME-75**
Drive Weight: 140 lbs.	**Drop: 30"** **Hole Dia: 8"**
Elevation of Top of Hole: 1322 feet	**Hole Location: See Map**

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION Logged By: CRK Sampled By: CRK	Type of Test
1292	30		SPT-2	41 21 24			SM	@ 30' Silty SAND: grayish-orange, slightly moist, dense; fine to coarse grained, abundant gravel pea to 3/4" @ 32' Hard Drilling	
1287	35		R-6	50/3"				@ 35' Silty SAND: dark yellowish-orange, slightly moist, very dense; fine to coarse, abundant gravel pea to 3/4"	
1282	40		SPT-3	5 6 6				@ 40' Silty SAND: dark yellowish-orange, slightly moist, medium dense; medium to coarse grained, trace gravel	
1277	45							**Notes:** -Total Depth = 41' 6" -Backfilled with Native Soil (Cuttings) -No Groundwater Encountered	
1272	50								
1267	55								
1262	60								

LGC

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Geotechnical Boring Log B-LGC-8

Date: 1/05/07	Page: 1 of 3
Project Name: Monteverde Development	**Project Number: 033022-05**
Drilling Company: 2R Drilling	**Type of Rig: CME-75**
Drive Weight: 140 lbs.	**Drop: 30"** **Hole Dia: 8"**
Elevation of Top of Hole: 1328 feet	**Hole Location: See Map**

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION Logged By: CRK Sampled By: CRK	Type of Test
1328	0		BULK				SC	2.5" Asphalt Concrete over 6" Aggregate Base over Clayey SAND	
			R-1	5 5 5				@ 2.5' Clayey SAND: moderate yellowish-brown, moist, loose	
1323	5		R-2	3 3 10	109.8	10.0		@ 5' Same as at 2.5'	
1318	10		R-3	18 40 33			SM	@ 10' Silty SAND: dusky yellowish-brown, slightly moist, dense; trace pea gravel	
1313	15		SPT-1	4 9 9				@ 15' Silty SAND: pale yellowish-brown to moderate yellowish-brown, slightly moist, medium dense; fine to coarse grained, some gravel	
1308	20		R-4	19 25 17	117.1	7.5	SP	@ 20' SAND with Gravel: moderate yellowish-brown, slightly moist, medium dense, fine to coarse grained	
1303	25		SPT-2	9 7 7			SM	@ 25' Silty SAND with Gravel: moderate yellowish-brown, slightly moist, medium dense; fine to coarse grained	SHA
1298	30								

LGC

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LGC VALLEY, INC.

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Geotechnical Boring Log B-LGC-8

Date: 1/05/07	
Project Name: Monteverde Development	**Project Number: 033022-05**
Drilling Company: 2R Drilling	**Type of Rig: CME-75**
Drive Weight: 140 lbs.	**Drop: 30"** **Hole Dia: 8"**
Elevation of Top of Hole: 1328 feet	**Hole Location: See Map**

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION Logged By: CRK Sampled By: CRK	Type of Test
1298	30		R-5	24 50/4"	113.4	7.1	SP	@ 30' SAND: moderate yellowish-brown, slightly moist, dense; medium to coarse grained, trace gravel @ 33.5' Hard Drilling	
1293	35		SPT-3	22 20 9			SM	@ 35' Silty SAND: moderate yellowish-brown, slightly moist, medium dense; medium to coarse grained, trace gravel	SA
1288	40		R-6	26 26 29	119.5	15.4	SC	@ 40' Clayey SAND with Gravel: moderate yellowish-brown to light brown, moist, dense; fine grained, some silt ▽ @ 42' Groundwater Encountered	CN
1283	45		SPT-4	15 50/5"			SM	@ 45' Silty SAND with Gravel: moderate yellowish-brown, wet, very dense; fine to coarse grained, some gravel	
1278	50		SPT-5	13 16 24				@ 50' Same as at 45', dense, rust-colored staining	
1273	55		SPT-6	11 25 50/5"				@ 55' Same as at 45', dark yellowish-brown	
1268	60								

LGC

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Geotechnical Boring Log B-LGC-8

Date: 1/05/07	Page: 3 of 3
Project Name: Monteverde Development	**Project Number: 033022-05**
Drilling Company: 2R Drilling	**Type of Rig: CME-75**
Drive Weight: 140 lbs.	**Drop: 30"** **Hole Dia: 8"**
Elevation of Top of Hole: 1328 feet	**Hole Location: See Map**

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION Logged By: CRK Sampled By: CRK	Type of Test
1268	60		SPT-7	10 14 39			SM	@ 60' Silty SAND with Gravel: olive gray, wet, very dense; fine to coarse grained, some gravel	
1263	65		SPT-8	36 50/3"				**Bedrock: Saugus Formation (QTs):** @ 65' Sandstone: grayish-green, very dense; medium grained, unoxidized	
1258	70		SPT-9	46 50/3"				@ 70' Sandstone: pale olive, very dense; unoxidized, some reddish-purple layers	
1253	75		SPT-10	50/3"				@ 75' Sandstone: pale olive, very dense; fine to coarse grained, unoxidized	
1248	80							**Notes:** -Total Depth =75.25' -Backfilled with Native Soil (Cuttings) and capped with Asphalt Cold Patch -Groundwater Encountered at 42'	
1243	85								
1238	90								

LGC

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Geotechnical Boring Log B-LGC-9

Date: 1/05/07	Page: 1 of 3
Project Name: Monteverde Development	**Project Number: 033022-05**
Drilling Company: 2R Drilling	**Type of Rig: CME-75**
Drive Weight: 140 lbs.	**Drop: 30"** **Hole Dia: 8"**
Elevation of Top of Hole: 1336 feet	**Hole Location: See Map**

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION Logged By: CRK Sampled By: CRK	Type of Test
1336	0		BULK				SM	3" Asphalt Concrete over Silty SAND	
			R-1	8 9 10				@ 2.5' Silty SAND: dark yellowish-brown, slightly moist, medium dense; trace gravel, fine grained	
1331	5		R-2	4 5 5	113.7	11.2	SC	@ 5' Clayey SAND: dark yellowish-brown, slightly moist, loose; trace gravel, fine grained, rootlets	
1326	10		R-3	28 40 34			SM	@ 10' Silty SAND: dark grayish-brown, slightly moist, dense; coarse grained, caliche blebs, trace gravel	
1321	15		R-4	9 16 12	114.1	3.3	SP	@ 15' SAND: pale yellowish-brown, slightly moist, medium dense; medium to coarse grained	
1316	20		SPT-1	50/6"				@ 20' SAND: pale yellowish-brown, slightly moist, very dense; fine to coarse grained, some gravel	
1311	25		R-5	20 35 42	122.5	4.5	SM	@ 25' Silty SAND: dark yellowish-brown to light reddish-brown, slightly moist, dense; rust-colored staining	CN
1306	30								

LGC

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Geotechnical Boring Log B-LGC-9

Date: 1/05/07	
Project Name: Monteverde Development	**Project Number: 033022-05**
Drilling Company: 2R Drilling	**Type of Rig: CME-75**
Drive Weight: 140 lbs.	**Drop: 30"** **Hole Dia: 8"**
Elevation of Top of Hole: 1336 feet	**Hole Location: See Map**

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION Logged By: CRK Sampled By: CRK	Type of Test
1306	30		SPT-2	14 19 20			SM	@30' Silty SAND: dark yellowish-brown to dark yellowish-orange, slightly moist, dense; fine to coarse grained	
1301	35		R-6	11 26 47	127.8	7.8	SC	▽ @ 35' Clayey SAND: dark yellowish-brown to dark yellowish-orange, wet, dense; some gravel, Groundwater Encountered	DS
1296	40		SPT-3	10 23 25			SM	@ 40' Silty SAND: dark yellowish-brown, wet, dense	
1291	45		SPT-4	15 15 50/6"				@ 45' Silty SAND: olive-gay to dusky red, wet, very dense	
1286	50		SPT-5	23 23 17				@ 50' Silty SAND: olive-gray, wet, dense, fine to coarse grained, some silt and gravel	
1281	55		SPT-6	9 13 14				@ 55' Silty SAND: moderate yellowish-brown, slightly moist to moist, dense; fine to coarse grained, some gravel	
1276	60								

LGC

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Geotechnical Boring Log B-LGC-9

Date: 1/05/07	Page: 3 of 3
Project Name: Monteverde Development	Project Number: 033022-05
Drilling Company: 2R Drilling	Type of Rig: CME-75
Drive Weight: 140 lbs.	Drop: 30" Hole Dia: 8"
Elevation of Top of Hole: 1336 feet	Hole Location: See Map

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION Logged By: CRK Sampled By: CRK	Type of Test
1276	60		SPT-7	3 4 7			SM	@ 60' Silty SAND: moderate yellowish-brown, slightly moist to moist, dense; fine grained, some gravel	SHA
1271	65		SPT-8	13 15 18				@ 65' Silty SAND: olive-gray, wet, dense; trace unoxidized pale blue sand	
1266	70		SPT-9	50/5"				**Bedrock: Saugus Formation (QTs):** @ 70' Sandstone: pale blue, very dense; unoxidized, fine to coarse grained, some gravel	
1261	75		SPT-10	50/5"				@ 75' Sandstone: dusky yellow-green, very dense; unoxidized, trace gravel, some grayish-purple sand layers	
1256	80							**Notes:** -Total Depth =75.5' -Backfilled with Native Soil (Cuttings) and capped with Asphalt Cold Patch -Groundwater Encountered at 35'	
1251	85								
1246	90								

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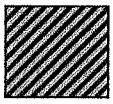
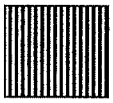
Key to Boring Logs

ASPHALT CONCRETE



CLAY



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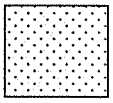
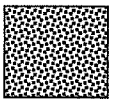


SAND



GRAVEL/COBBLES

APPROXIMATE GROUNDWATER LEVEL

Laboratory Test Symbols

Symbol	Laboratory Test
SA	Sieve Analysis
H	Hydrometer Analysis
SHA	Sieve & Hydrometer Analysis
-200	Percent Passing #200 Sieve
AL	Atterberg Limits
MAX	Maximum Density
DS	Undisturbed Direct Shear
RDS	Remolded Direct Shear
TRI	Triaxial Shear
EI	Expansion Index
P	Permeability
CN	Consolidation
COL	Collapse
UC	Unconfined Compression
S	Sulfate Content
pHR	pH & Resistivity
COR	Corrosion Suite (pH, Resistivity, Chloride, Sulfate)
RV	R-Value

Geotechnical Boring Log B-LGC-1

Date: 12/06/04	
Project Name: Monteverde - Phase II	Project Number: 033022-03
Drilling Company: Jet Drilling	Type of Rig: CME-75
Drive Weight: 140 lbs.	Drop: 30" Hole Dia: 8"
Elevation of Top of Hole: --	Hole Location: See Map

Logged By: SLV

Sampled By: SLV

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION	Type of Test
	0		BULK				ML	@ 0' Sandy SILT: dark yellowish-brown, slightly moist	
			1	37	102.0	15.0		@ 2.5' Sandy SILT with Gravel and Cobbles: dark yellowish-brown, slightly moist, dense; some red staining	
	5		2	66	111.6	6.7	SP	@ 5' SAND with Gravel and Cobbles: dark yellowish-brown, slightly moist, dense; some red staining	
	10		3	30			SM	@ 10' Silty SAND: moderate yellowish-brown, slightly moist, medium dense; some gravel and cobbles, sand is fine to coarse grained, 12" recovery	
	15		NR	50/3"				@ 14' Hard Drilling (Cobbles) @ 15' No Recovery - Cobbles	
	20		4	17				@ 20' Silty SAND: moderate yellowish-brown, slightly moist, medium dense; trace gravel	COL
	25		5	50			SP	@ 25' SAND with Gravel: moderate yellowish-brown, slightly moist, dense; sand is fine to coarse grained, some silt	
	30								

LGC

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GEOTECHNICAL CONSULTING INC.

Geotechnical Boring Log B-LGC-1

Date: 12/06/04	
Project Name: Monteverde - Phase II	Project Number: 033022-03
Drilling Company: Jet Drilling	Type of Rig: CME-75
Drive Weight: 140 lbs.	Drop: 30" Hole Dia: 8"
Elevation of Top of Hole: --	Hole Location: See Map

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION Logged By: SLV Sampled By: SLV	Type of Test
	30		6	70	118.3	6.2	SP	@ 30' SAND with Gravel and Cobbles: moderate yellowish-brown, slightly moist, dense; some silt, some orange-reddish staining, fine to coarse grained sand	
	35		7	35			SM	@ 35' Silty SAND with Gravel: moderate yellowish-brown, slightly moist, dense; some dark reddish-brown clay pockets, sand is fine to coarse grained, some silt, 13" recovery	
	40		8	31			SP	@ 40' SAND with Gravel: moderate yellowish-brown, slightly moist, medium dense to dense; some silt, fine to coarse grained sand, 13" recovery	
	45		9	34 50/3"				@ 44' Hard Drilling @ 45' Same as at 40', very dense, 8" recovery @ 47' Very Hard Drilling (Cobbles) @ 47.5' End of Boring (Refusal)	
	50							**Notes:** -Total Depth = 47.5' -Backfilled with Native Soil (Cuttings) -No Groundwater Encountered	
	55								
	60								

LGC

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GEOTECHNICAL CONSULTING INC.

Geotechnical Boring Log B-LGC-3

Date: 12/06/04	Page: 1 of 1
Project Name: Monteverde - Phase II	Project Number: 033022-03
Drilling Company: Jet Drilling	Type of Rig: CME-75
Drive Weight: 140 lbs.	Drop: 30" Hole Dia: 8"
Elevation of Top of Hole: --	Hole Location: See Map

Logged By: SLV

Sampled By: SLV

Elevation (ft)	Depth (ft)	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION	Type of Test
	0					ML	@ 0' Sandy SILT: dark yellowish-brown, slightly moist	
		1	92	125.3	8.1	SM	@ 2.5' Silty SAND with Gravel: dark yellowish-brown, slightly moist, very dense; fine to coarse grained sand, scattered orange-red staining	
	5	2	64	122.2	7.0		@ 5' Same as at 2.5', moderate yellowish-brown, dense	
	10	3	12				@ 10' Silty SAND: dark grayish-brown, slightly moist, medium dense; some gravel	SHA
	15	4	38	116.2	9.9	SP	@ 15' SAND with Gravel: moderate yellowish-brown, slightly moist, medium dense; fine to coarse grained sand	
							@ 18' Very Hard Drilling	
	20	NR	50/5"			GP	@ 20' No Recovery - Gravel and Cobbles	
							Notes: -Total Depth = 28.5' -Backfilled with Native Soil (Cuttings) -No Groundwater Encountered	
							@ 23' Hard Drilling	
	25	NR	50/2"				@ 25' No Recovery - Gravel and Cobbles	
		5	50/5"				@ 28' Gravel and Cobbles: sample bagged, @ 28.5' End of Boring (Refusal)	
	30							

LGC

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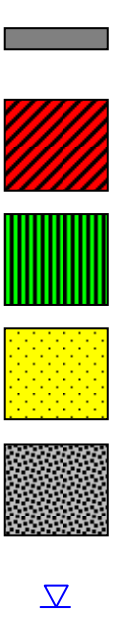
LAWSON & ASSOCIATES
GEOTECHNICAL CONSULTING INC.

Key to Boring Logs



ASPHALT CONCRETE

CLAY

SILT

SAND

GRAVEL/COBBLES

APPROXIMATE GROUNDWATER LEVEL

Laboratory Test Symbols

Symbol	Laboratory Test
SA	Sieve Analysis
H	Hydrometer Analysis
SHA	Sieve & Hydrometer Analysis
-200	Percent Passing #200 Sieve
AL	Atterberg Limits
MAX	Maximum Density
DS	Undisturbed Direct Shear
RDS	Remolded Direct Shear
TRI	Triaxial Shear
EI	Expansion Index
P	Permeability
CN	Consolidation
COL	Collapse
UC	Unconfined Compression
S	Sulfate Content
pHR	pH & Resistivity
COR	Corrosion Suite (pH, Resistivity, Chloride, Sulfate)
RV	R-Value

Geotechnical Boring Log B-LGC-1

Date: 2/03/04	Page: 1 of 2
Project Name: Monteverde/Hawkbryn Ave.	Project Number: 033022-01
Drilling Company: Prosonic	Type of Rig: CME-85
Drive Weight: 140 lbs.	Drop: 30" Hole Dia: 8"
Elevation of Top of Hole: 1298 ft	Hole Location: On Access Road - See Map

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION Logged By: SLV Sampled By: SLV	Type of Test
1298	0		BULK				SM	@ 0' Silty SAND with trace clay	
			1	25	99.6	6.0		@ 2.5' Silty SAND: moderate yellowish-brown, slightly moist, medium dense; trace clay and gravel	
1293	5		2	73				@ 5' More gravel	
			3	35				@ 7.5' Silty SAND: moderate yellowish-brown to dark yellowish-brown, slightly moist, dense; little gravel (crushed rock), no clay	
1288	10		4	5 17 50/1"	101.8	7.0	SP-SM	@ 10' SAND to Silty SAND: moderate yellowish-brown, slightly moist, dense; trace gravel	
1283	15		5	35		5.8		@ 15' SAND to Silty SAND with crushed rock: moderate yellowish-brown, slightly moist, dense; only 10" recovered, fine to medium grained	
1278	20		6	65		9.3	SM	@ 20' Silty SAND: moderate yellowish-brown, moist, dense; trace clay, some gravel and trace cobbles	
1273	25		NS	24				@ 25' No Sample - sampler empty, medium dense	
1268	30								

LGC

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GEOTECHNICAL CONSULTING INC.

Geotechnical Boring Log B-LGC-1

Date: 2/03/04	Page: 2 of 2
Project Name: Monteverde/Hawkbryn Ave.	Project Number: 033022-01
Drilling Company: Prosonic	Type of Rig: CME-85
Drive Weight: 140 lbs.	Drop: 30" Hole Dia: 8"
Elevation of Top of Hole: 1298 ft	Hole Location: On Access Road - See Map

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION Logged By: SLV Sampled By: SLV	Type of Test
1268	30		7	23		7.0	SM	@ 30' Silty SAND: moderate yellowish-brown, moist, medium dense; fine to course grained, little gravel	
1263	35		8	20			SM	@ 35' Silty SAND: moderate yellowish-brown to dark yellowish-brown, moist, medium dense; no gravel	
1258	40		9	54		8.3		@ 40' with gravel (crushed rock), dense	
1253	45		10	26			SM	@ 45' Silty SAND: moderate yellowish-brown, moist, medium dense; fine to course grained, trace gravel @ 48' Hard drilling	
1248	50		11	35		10.5		@ 50' Very moist, little gravel	
1243	55							**Notes:** -Total Depth = 51.5' -No Groundwater Encountered -Backfilled with Native (Cuttings)	
1238	60								

LGC

■ = Ring sample
☒ = SPT sample
BULK = Bulk sample

LAWSON & ASSOCIATES
GEOTECHNICAL CONSULTING INC.

Geotechnical Boring Log B-LGC-2

Date: 2/03/04	Page: 1 of 2
Project Name: Monteverde/Hawkbryn Ave.	Project Number: 033022-01
Drilling Company: Prosonic	Type of Rig: CME-85
Drive Weight: 140 lbs.	Drop: 30" Hole Dia: 8"
Elevation of Top of Hole: 1301 ft	Hole Location: In Field - See Map

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION Logged By: SLV Sampled By: SLV	Type of Test
1301	0		BULK					@ 0' Grass/organic material in silty SAND	
			1	11			SM	@ 2.5' Silty Fine SAND: moderate yellowish brown to pale yellowish-brown, slightly moist, loose; roots, trace gravel and silt	
1296	5		2	18	96.5	8.0	SP-SM	@ 5' SAND to Silty SAND: moderate yellowish-brown, slightly moist, medium dense; roots, little gravel	
			3	4			SM	@ 7.5' Silty Fine SAND: moderate yellowish-brown, slightly moist, very loose; no gravel	
1291	10		4	7				@ 10' Silty SAND: moderate yellowish-brown, slightly moist, loose; moderate yellowish-brown to pale yellowish-brown clay lenses in top 1' of sampler, trace organic material	
1286	15		5	17		4.9	SM	@ 15' Silty SAND: moderate yellowish-brown, slightly moist, medium dense; fine to medium grained, no gravel	
1281	20		6	74				@ 20' Silty SAND with Gravel: moderate yellowish-brown, slightly moist to moist, dense	
1276	25		7	44		6.8		@ 25' Slightly moist, crushed whitish-gray rock in bottom 4" of sampler, little gravel above	
1271	30								

LGC

■ = Ring sample
⊠ = SPT sample
BULK = Bulk sample

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Geotechnical Boring Log B-LGC-2

Date: 2/03/04	Page: 2 of 2
Project Name: Monteverde/Hawkbryn Ave.	Project Number: 033022-01
Drilling Company: Prosonic	Type of Rig: CME-85
Drive Weight: 140 lbs.	Drop: 30" Hole Dia: 8"
Elevation of Top of Hole: 1301 ft	Hole Location: In Field - See Map

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION Logged By: SLV Sampled By: SLV	Type of Test
1271	30		8	29			SM	@ 30' Silty SAND: moderate yellowish-brown, slightly moist, medium dense; trace gravel, fine to medium grained	
1266	35		9	23		8.0		@ 35' More gravel (crushed rock)	
1261	40		10	56				@ 40' Fine to course grained, large crushed rock (rock fragments) at 40.5', only 5 rings, dense	
1256	45		11	27				@ 45' Trace gravel, fine to medium grained	
1251	50		12	84				@ 50' Fine to course grained with more gravel, very dense	
1246	55							**Notes:** -Total Depth = 51.5' -No Groundwater Encountered -Backfilled with Native (Cuttings)	
1241	60								

LGC

■ = Ring sample
☒ = SPT sample
BULK = Bulk sample

LAWSON & ASSOCIATES
GEOTECHNICAL CONSULTING INC.

Geotechnical Boring Log B-LGC-3

Date: 2/03/04	Page: 1 of 2
Project Name: Monteverde/Hawkbryn Ave.	Project Number: 033022-01
Drilling Company: Prosonic	Type of Rig: CME-85
Drive Weight: 140 lbs.	Drop: 30" Hole Dia: 8"
Elevation of Top of Hole: 1303 ft	Hole Location: Side of Access Road - See Map

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION Logged By: SLV Sampled By: SLV	Type of Test
1303	0						ML	@ 0' Sandy SILT with grass/small plants	
			1	9				@ 2.5' Sandy SILT: moderate yellowish-brown, slightly moist, loose	
1298	5		2	3	93.3	8.0		@ 5' Trace gravel	
			3	7				@ 7.5' No gravel	
1293	10		4	11				@ 10' White stringers, trace clay	
1288	15		5	15		5.8	SM	@ 15' Silty SAND: moderate yellowish-brown, slightly moist, Medium dense; trace gravel	
1283	20		6	29				@ 20' medium dense	
1278	25		7	16		9.5			
1273	30								

LGC

■ = Ring sample
⊠ = SPT sample
BULK = Bulk sample

LAWSON & ASSOCIATES
GEOTECHNICAL CONSULTING INC.

Geotechnical Boring Log B-LGC-3

Date: 2/03/04	Page: 2 of 2
Project Name: Monteverde/Hawkbryn Ave.	Project Number: 033022-01
Drilling Company: Prosonic	Type of Rig: CME-85
Drive Weight: 140 lbs.	Drop: 30" Hole Dia: 8"
Elevation of Top of Hole: 1303 ft	Hole Location: Side of Access Road - See Map

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION Logged By: SLV Sampled By: SLV	Type of Test
1273	30		8	27			SM	@ 30' Silty SAND: pale yellowish-brown to moderate yellowish-brown, slightly moist, medium dense; fine-grained **Notes:** -Total Depth = 31.5' -No Groundwater Encountered -Backfilled with Native (Cuttings)	
1268	35								
1263	40								
1258	45								
1253	50								
1248	55								
1243	60								

LGC

■ = Ring sample
☒ = SPT sample
BULK = Bulk sample

LAWSON & ASSOCIATES
GEOTECHNICAL CONSULTING INC.

Geotechnical Boring Log B-LGC-4

Date: 2/03/04	Page: 1 of 2
Project Name: Monteverde/Hawkbryn Ave.	Project Number: 033022-01
Drilling Company: Prosonic	Type of Rig: CME-85
Drive Weight: 140 lbs.	Drop: 30" Hole Dia: 8"
Elevation of Top of Hole: 1303 ft	Hole Location: In Field - See Map

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION Logged By: SLV Sampled By: SLV	Type of Test
1303	0							@ 0' Grass/organic material in silty SAND	
			1	16			SM	@ 2.5' Silty SAND: moderate yellowish-brown to pale yellowish-brown, slightly moist, loose; roots, trace gravel, silt	
1298	5		2	40		4.8		@ 5' Silty SAND: moderate yellowish-brown, slightly moist, medium dense; trace roots, little gravel, sample in bag (disturbed)	
			3	5				@ 7.5' Loose, trace gravel, 12" recovered	
1293	10		4	26	109.2	4.0		@ 10' Moist, medium dense, fine to course grained	
1288	15		5	43				@ 15' With gravel (crushed rock), dense @ 17' Hard Drilling	
1283	20		6	60	92.2	8.0		@ 20' Silty SAND with Gravel: moderate yellowish-brown, slightly moist, dense, course grained	
1278	25		7	36		4.5		@ 25' Only trace gravel	
1273	30								

LGC

■ = Ring sample
☒ = SPT sample
BULK = Bulk sample

LAWSON & ASSOCIATES
GEOTECHNICAL CONSULTING INC.

Geotechnical Boring Log B-LGC-4

Date: 2/03/04	Page: 2 of 2
Project Name: Monteverde/Hawkbryn Ave.	Project Number: 033022-01
Drilling Company: Prosonic	Type of Rig: CME-85
Drive Weight: 140 lbs.	Drop: 30" Hole Dia: 8"
Elevation of Top of Hole: 1303 ft	Hole Location: In Field - See Map

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION	Type of Test
1273	30		8	49		4.6	SM	@ 30' Silty SAND: moderate yellowish-brown, slightly moist, dense; with white crushed rock and other gravels **Notes:** -Total Depth = 31.5' -No Groundwater Encountered -Backfilled with Native (Cuttings)	
1268	35								
1263	40								
1258	45								
1253	50								
1248	55								
1243	60								

Logged By: SLV

Sampled By: SLV

LGC

■ = Ring sample
☒ = SPT sample
BULK = Bulk sample

LAWSON & ASSOCIATES
GEOTECHNICAL CONSULTING INC.

Geotechnical Boring Log B-LGC-5

Date: 2/03/04	Page: 1 of 2
Project Name: Monteverde/Hawkbryn Ave.	Project Number: 033022-01
Drilling Company: Prosonic	Type of Rig: CME-85
Drive Weight: 140 lbs.	Drop: 30" Hole Dia: 8"
Elevation of Top of Hole: 1310 ft	Hole Location: Side of Access Road - See Map

Logged By: SLV

Sampled By: SLV

Elevation (ft)	Depth (ft)	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION	Type of Test
1310	0						@ 0' Sandy SILT and trace organic material	
		1	5			ML	@ 2.5' Sandy SILT: moderate yellowish-brown, slightly moist, soft	
1305	5	2	12	99.4	6.0	SM	@ 5' Silty SAND: moderate yellowish-brown, slightly moist, loose; little gravel (crushed rock)	
		3	5				@ 7.5' Only trace gravel	
		BULK						
1300	10	4	9				@ 10' Silty Fine SAND: moderate yellowish-brown, slightly moist, loose; no gravel	
1295	15	5	44		4.4	SM	@ 15' Silty SAND: moderate yellowish-brown to pale yellowish-brown, slightly moist, dense; little gravel (crushed rock)	
1290	20	6	26 50/3"				@ 20' Silty SAND: moderate yellowish-brown, slightly moist, very dense; fine grained @ 22' Hard Drilling	
1285	25	7	40		6.0		@ 25' Dense, little gravel (crushed rock), fine to medium grained	
1280	30							

LGC

■ = Ring sample
☒ = SPT sample
BULK = Bulk sample

LAWSON & ASSOCIATES
GEOTECHNICAL CONSULTING INC.

Geotechnical Boring Log B-LGC-5

Date: 2/03/04	Page: 2 of 2
Project Name: Monteverde/Hawkbryn Ave.	Project Number: 033022-01
Drilling Company: Prosonic	Type of Rig: CME-85
Drive Weight: 140 lbs.	Drop: 30" Hole Dia: 8"
Elevation of Top of Hole: 1310 ft	Hole Location: Side of Access Road - See Map

Elevation (ft)	Depth (ft)	Graphic Log	Sample Number	Blow Count	Dry Density (pcf)	Moisture (%)	USCS Symbol	DESCRIPTION Logged By: SLV Sampled By: SLV	Type of Test
1280	30		8	12 50/3"			SM	@ Silty SAND with Gravel: moderate yellowish-brown, slightly moist, very dense; fine to course grained, sample disturbed **Notes:** -Total Depth = 30' 9" -No Groundwater Encountered -Backfilled with Native (Cuttings)	
1275	35								
1270	40								
1265	45								
1260	50								
1255	55								
1250	60								

LGC

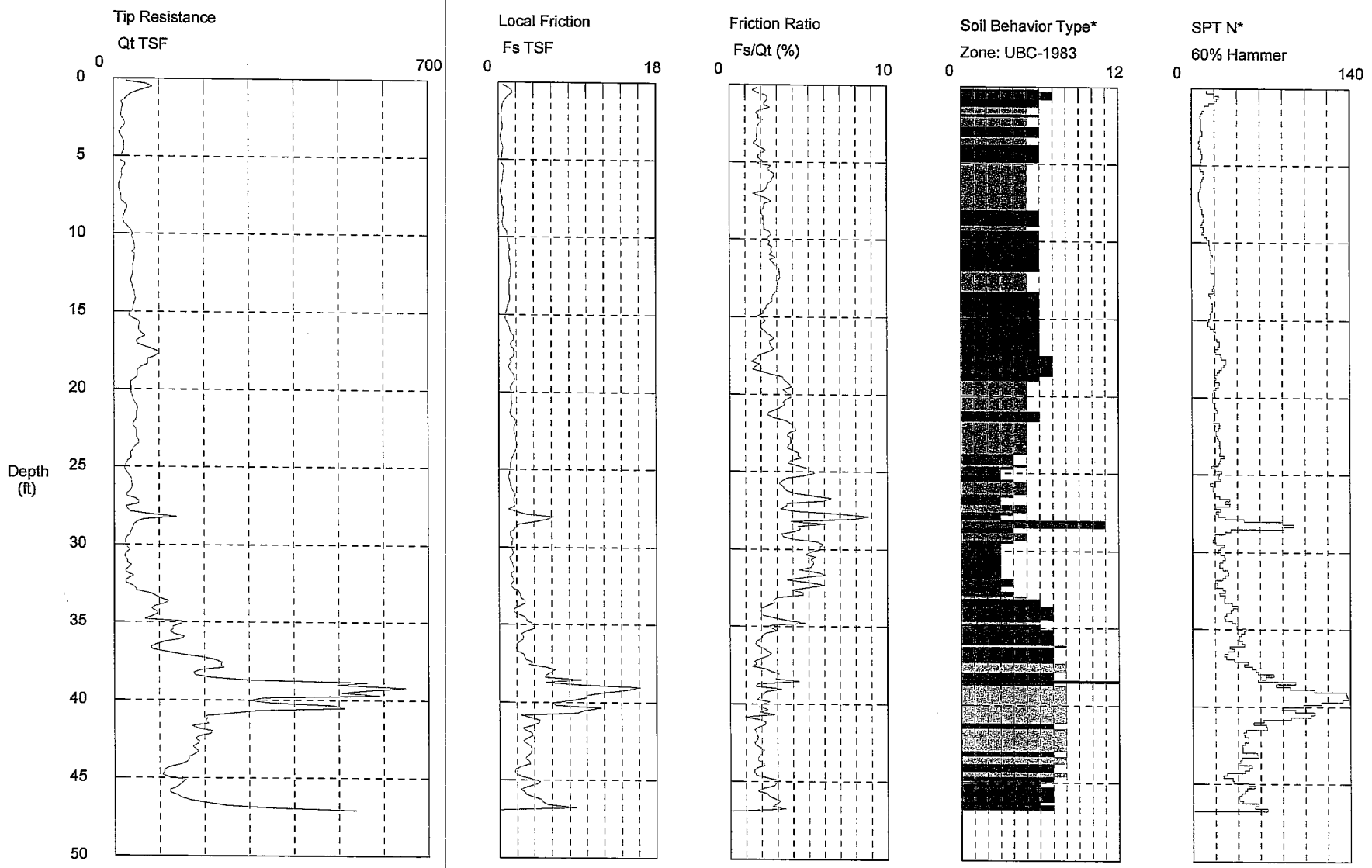
■ = Ring sample
☒ = SPT sample
BULK = Bulk sample

LAWSON & ASSOCIATES
GEOTECHNICAL CONSULTING INC.

Lawson & Associates

Operator: Victor & Mike
Sounding: CPT-01
Cone Used: DSA0408

CPT Date/Time: 2/3/2004 11:32:03 AM
Location: Jay Rodgers Comm. Development
Job Number: 033022-01



Maximum Depth = 47.08 feet

Depth Increment = 0.164 feet

1 sensitive fine grained
2 organic material
3 clay
SDF-01

4 silty clay to clay
5 clayey silt to silty clay
6 sandy silt to clayey silt

7 silty sand to sandy silt
8 sand to silty sand
9 sand

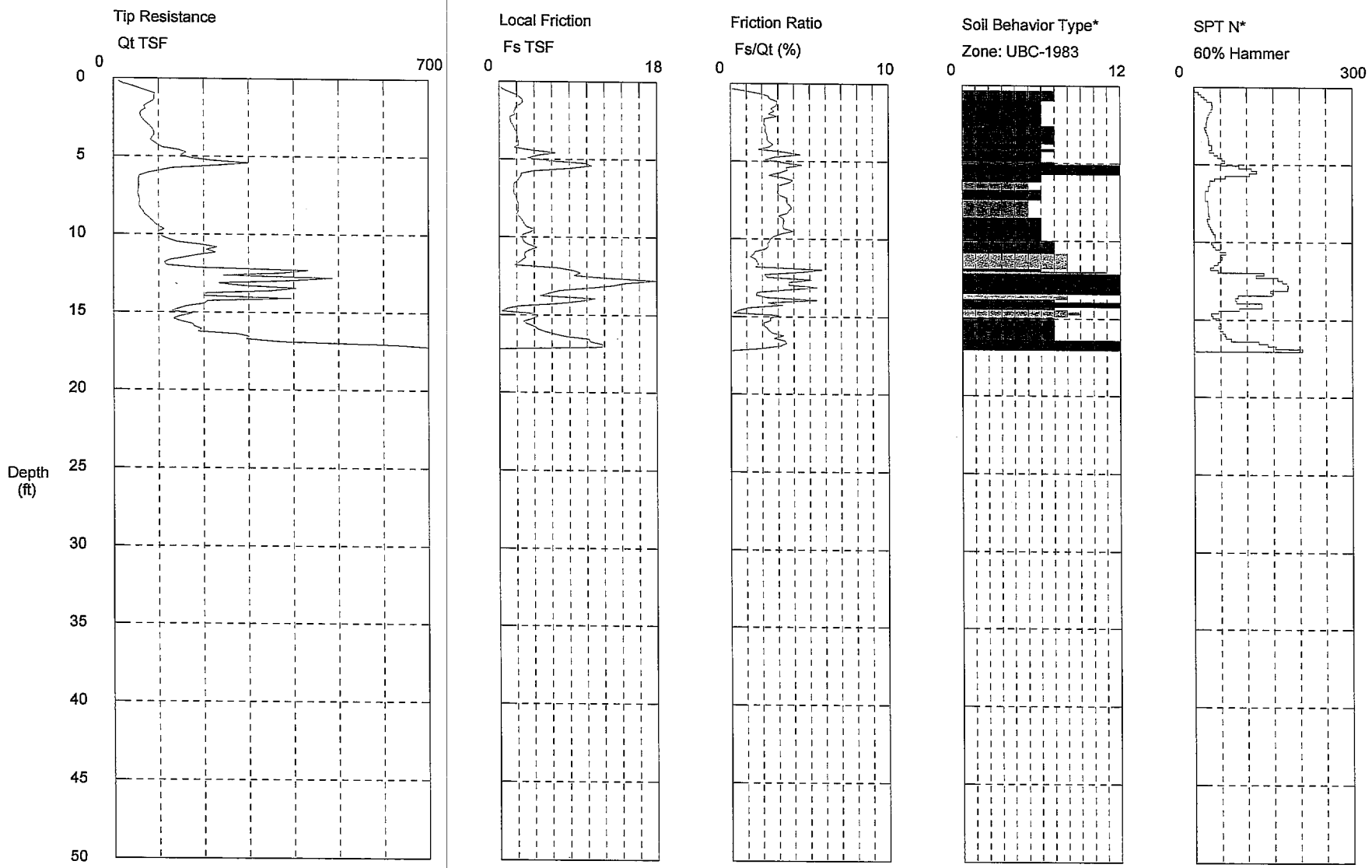
10 gravelly sand to sand
11 very stiff fine grained (*)
12 sand to clayey sand (*)

*Soil behavior type and SPT based on data from UBC-1983

Lawson & Associates

Operator: Victor & Mike
Sounding: CPT-02C
Cone Used: DSA0408

CPT Date/Time: 2/3/2004 3:51:24 PM
Location: Jay Rodgers Comm. Development
Job Number: 033022-01



Maximum Depth = 17.39 feet

Depth Increment = 0.164 feet

1 sensitive fine grained
2 organic material
3 clay
SDF-10

4 silty clay to clay
5 clayey silt to silty clay
6 sandy silt to clayey silt

7 silty sand to sandy silt
8 sand to silty sand
9 sand

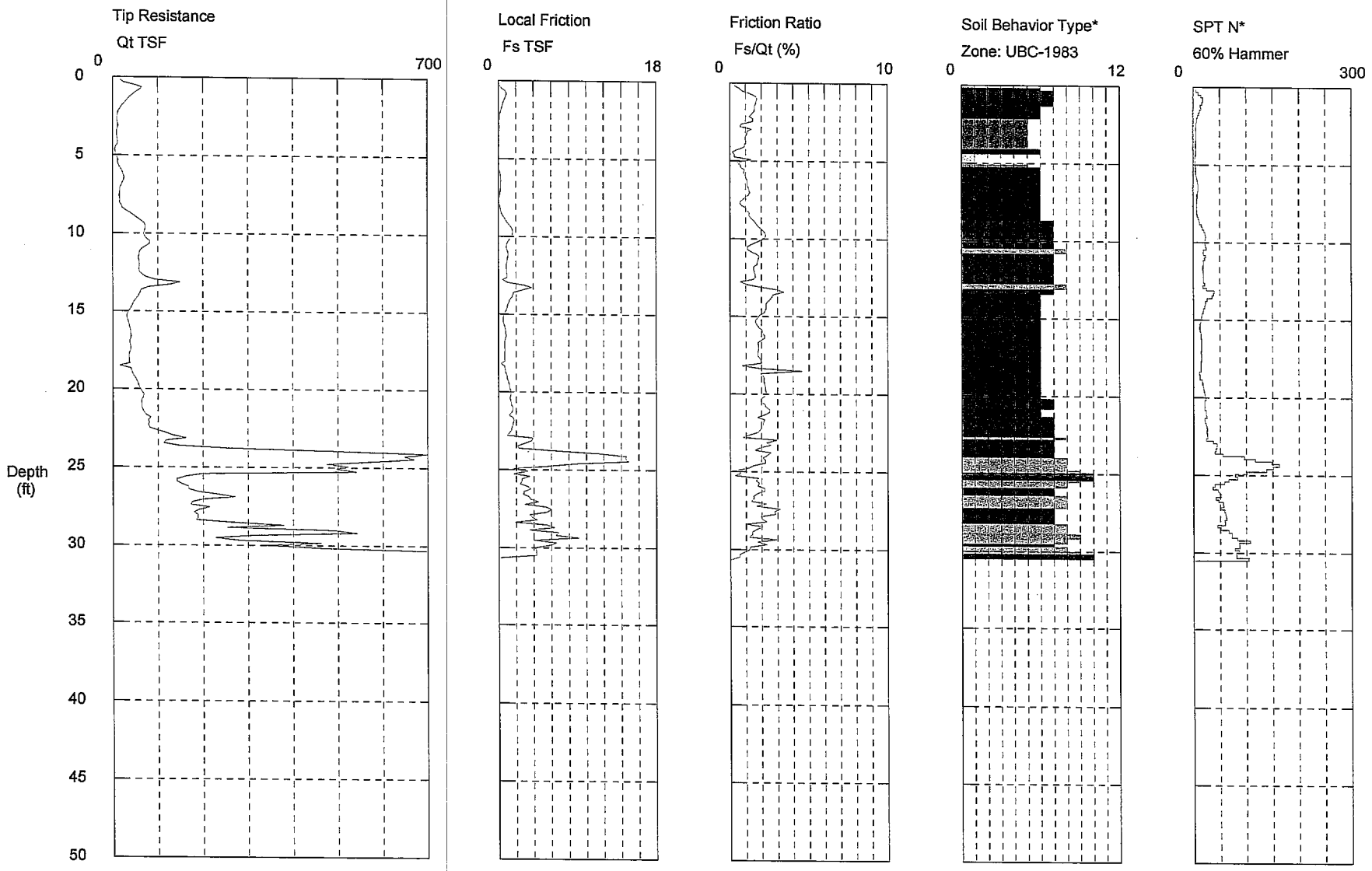
10 gravelly sand to sand
11 very stiff fine grained (*)
12 sand to clayey sand (*)

*Soil behavior type and SPT based on data from UBC-1983

Lawson & Associates

Operator: Victor & Mike
Sounding: CPT-03A
Cone Used: DSA0408

CPT Date/Time: 2/3/2004 1:07:01 PM
Location: Jay Rodgers Comm. Development
Job Number: 033022-01



Maximum Depth = 30.84 feet

Depth Increment = 0.164 feet

1 sensitive fine grained
2 organic material
3 clay
SDF-03

4 silty clay to clay
5 clayey silt to silty clay
6 sandy silt to clayey silt

7 silty sand to sandy silt
8 sand to silty sand
9 sand

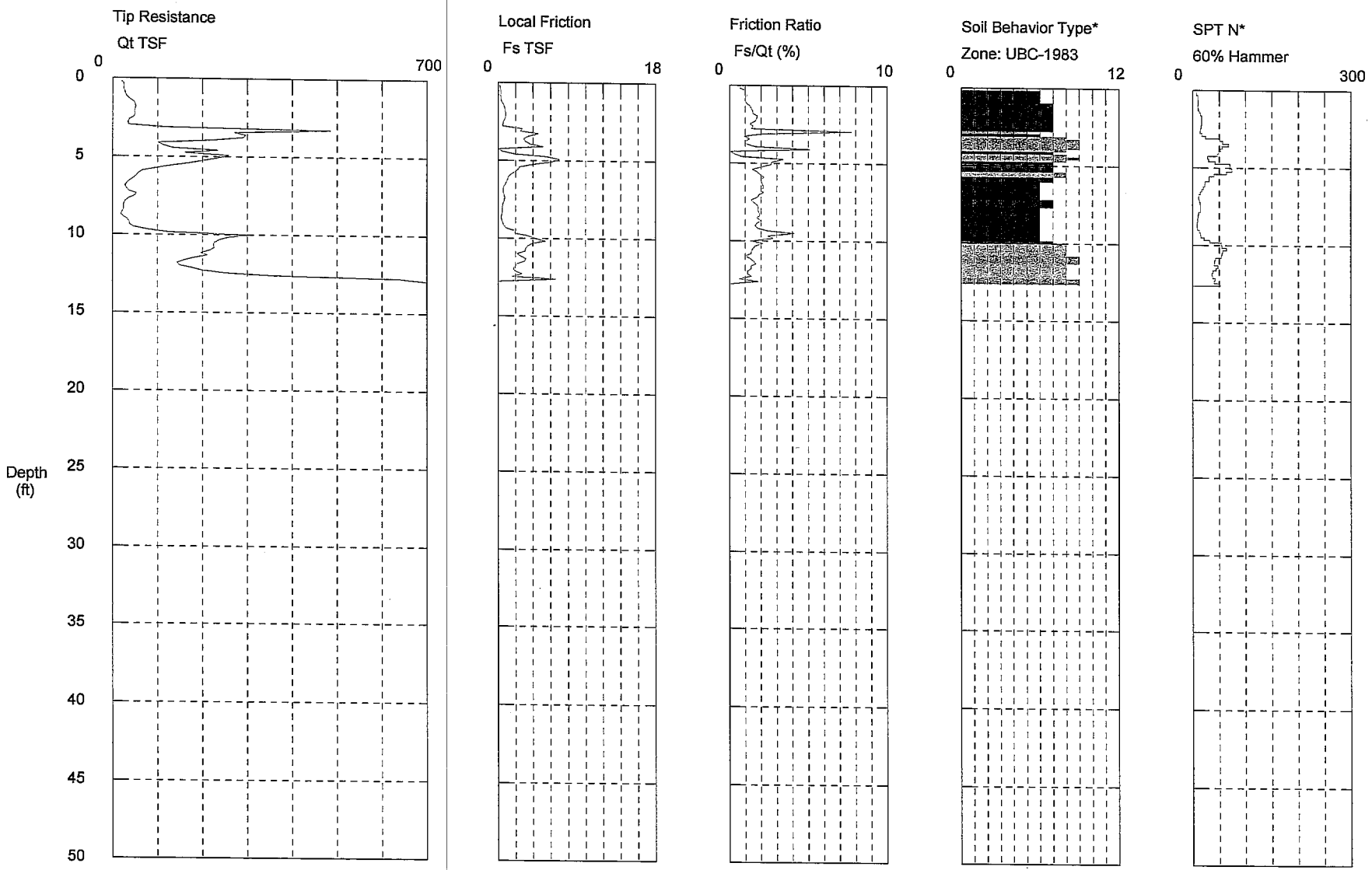
10 gravelly sand to sand
11 very stiff fine grained (*)
12 sand to clayey sand (*)

*Soil behavior type and SPT based on data from UBC-1983

Lawson & Associates

Operator: Victor & Mike
Sounding: CPT-04B
Cone Used: DSA0408

CPT Date/Time: 2/3/2004 2:25:16 PM
Location: Jay Rodgers Comm. Development
Job Number: 033022-01



Maximum Depth = 12.96 feet

Depth Increment = 0.164 feet

1 sensitive fine grained
2 organic material
3 clay
4 silty clay to clay
5 clayey silt to silty clay
6 sandy silt to clayey silt
7 silty sand to sandy silt
8 sand to silty sand
9 sand
10 gravelly sand to sand
11 very stiff fine grained (*)
12 sand to clayey sand (*)

SFD-06

*Soil behavior type and SPT based on data from UBC-1983

CPT INTERPRETATIONS

SOUNDING : SDF-01 CPT-01 PROJECT No.: 033022-01
PROJECT : Jay Rodgers Comm CONE/RIG : DSA0408
DATE/TIME: 2/3/2004 11:32:

DEPTH (m)	DEPTH (ft)	TIP RESISTANCE (tsf)	FRICTION RATIO (%)	SOIL BEHAVIOR TYPE	N(60)	N1(60)	Dr (%)	Su (tsf)	PHI (Degrees)
.150	.49	84.85	1.73	SILTY SAND to SANDY SILT	28	45	72		
.300	.98	37.14	2.35	SANDY SILT to CLAYEY SILT	15	24		2.5	
.450	1.48	15.52	2.56	CLAYEY SILT to SILTY CLAY	8	12		1.0	
.600	1.97	16.38	1.83	CLAYEY SILT to SILTY CLAY	8	13		1.3	
.750	2.46	16.29	1.92	CLAYEY SILT to SILTY CLAY	8	13		1.3	
.900	2.95	23.74	1.76	SANDY SILT to CLAYEY SILT	9	15		1.9	
1.050	3.44	11.83	1.75	CLAYEY SILT to SILTY CLAY	6	9		.9	
1.200	3.94	20.33	1.78	SANDY SILT to CLAYEY SILT	8	13		1.6	
1.350	4.43	22.95	2.02	SANDY SILT to CLAYEY SILT	9	15		1.8	
1.500	4.92	16.70	2.10	CLAYEY SILT to SILTY CLAY	8	13		1.3	
1.650	5.41	23.51	2.39	CLAYEY SILT to SILTY CLAY	12	19		1.5	
1.800	5.91	17.13	2.81	CLAYEY SILT to SILTY CLAY	9	14		1.1	
1.950	6.40	16.54	2.45	CLAYEY SILT to SILTY CLAY	8	13		1.1	
2,100	6.89	11.25	2.15	CLAYEY SILT to SILTY CLAY	6	9		.9	
2.250	7.38	14.08	2.39	CLAYEY SILT to SILTY CLAY	7	11		1.1	
2.400	7.87	16.45	2.19	CLAYEY SILT to SILTY CLAY	8	12		1.3	
2.550	8.37	28.86	2.01	SANDY SILT to CLAYEY SILT	12	17		2.3	
2.700	8.86	21.02	2.20	CLAYEY SILT to SILTY CLAY	11	15		1.6	
2.850	9.35	23.77	2.20	SANDY SILT to CLAYEY SILT	10	13		1.5	
3.000	9.84	39.37	2.46	SANDY SILT to CLAYEY SILT	16	21		2.6	
3.150	10.33	42.89	2.44	SANDY SILT to CLAYEY SILT	17	22		2.8	
3.300	10.83	45.86	2.70	SANDY SILT to CLAYEY SILT	18	23		3.0	
3.450	11.32	46.50	2.56	SANDY SILT to CLAYEY SILT	19	23		3.1	
3.600	11.81	43.50	3.09	CLAYEY SILT to SILTY CLAY	22	26		2.9	
3.750	12.30	42.58	3.18	CLAYEY SILT to SILTY CLAY	21	25		2.8	
3.900	12.80	39.27	3.03	CLAYEY SILT to SILTY CLAY	20	23		2.6	
4.050	13.29	40.31	2.98	CLAYEY SILT to SILTY CLAY	20	23		2.6	
4.200	13.78	45.78	2.69	SANDY SILT to CLAYEY SILT	18	21		3.0	
4.350	14.27	47.74	2.35	SANDY SILT to CLAYEY SILT	19	21		3.1	
4.500	14.76	42.03	2.11	SANDY SILT to CLAYEY SILT	17	18		2.7	
4.650	15.26	32.40	2.27	SANDY SILT to CLAYEY SILT	13	14		2.1	
4.800	15.75	58.09	2.01	SILTY SAND to SANDY SILT	19	20	53		38.0
4.950	16.24	55.84	2.65	SANDY SILT to CLAYEY SILT	22	23		3.7	
5.100	16.73	58.66	2.57	SANDY SILT to CLAYEY SILT	23	24		3.8	
5.250	17.22	64.31	2.60	SANDY SILT to CLAYEY SILT	26	26		4.2	
5.400	17.72	98.30	1.67	SILTY SAND to SANDY SILT	33	32	66		39.5
5.550	18.21	74.97	1.61	SILTY SAND to SANDY SILT	25	24	58		38.5
5.700	18.70	54.04	2.66	SANDY SILT to CLAYEY SILT	22	21		3.5	
5.850	19.19	50.72	3.61	CLAYEY SILT to SILTY CLAY	25	24		2.9	
6.000	19.69	37.34	3.39	CLAYEY SILT to SILTY CLAY	19	18		2.4	
6.150	20.18	37.70	3.88	CLAYEY SILT to SILTY CLAY	19	18		2.1	

*INDICATES OVERCONSOLIDATED OR CEMENTED MATERIAL
ASSUMED TOTAL UNIT WT = 115 pcf
ASSUMED DEPTH OF WATER TABLE = 38.0 ft
N(60) = EQUIVALENT SPT VALUE (60% Energy)
N1(60) = OVERBURDEN NORMALIZED EQUIVALENT SPT VALUE (60% Energy)
Dr = OVERBURDEN NORMALIZED EQUIVALENT RELATIVE DENSITY
Su = OVERBURDEN NORMALIZED UNDRAINED SHEAR STRENGTH
PHI = OVERBURDEN NORMALIZED EQUIVALENT FRICTION ANGLE

Interpretations based on: Robertson and Campanella, 1989.

SOUNDING : SDF-01 CPT-01

DEPTH (m)	DEPTH (ft)	TIP RESISTANCE (tsf)	FRICTION RATIO (%)	SOIL BEHAVIOR TYPE	N(60)	N1(60)	Dr (%)	Su (tsf)	PHI (Degrees)
6.300	20.67	42.68	3.49	CLAYEY SILT to SILTY CLAY	21	20		2.8	
6.450	21.16	53.01	2.50	SANDY SILT to CLAYEY SILT	21	19		3.5	
6.600	21.65	49.78	3.43	CLAYEY SILT to SILTY CLAY	25	22		2.9	
6.750	22.15	43.52	4.15	CLAYEY SILT to SILTY CLAY	22	19		2.5	
6.900	22.64	49.26	3.64	CLAYEY SILT to SILTY CLAY	25	22		2.8	
7.050	23.13	50.16	3.89	CLAYEY SILT to SILTY CLAY	25	22		2.9	
7.200	23.62	48.68	3.97	CLAYEY SILT to SILTY CLAY	24	21		2.8	
7.350	24.11	35.96	4.51	CLAY to SILTY CLAY	24	20		2.0	
7.500	24.61	30.49	4.26	CLAY to SILTY CLAY	20	17		1.7	
7.650	25.10	22.49	5.38	CLAY	22	19		1.2	
7.800	25.59	33.32	3.37	CLAYEY SILT to SILTY CLAY	17	14		2.1	
7.950	26.08	38.94	3.45	CLAYEY SILT to SILTY CLAY	19	16		2.5	
8.100	26.57	35.17	5.35	CLAY	35	28		2.0	
8.250	27.07	46.86	3.66	CLAYEY SILT to SILTY CLAY	23	19		2.7	
8.400	27.56	26.05	4.05	CLAY to SILTY CLAY	17	14		1.6	
8.550	28.05	77.83	7.95	*VERY STIFF FINE GRAINED	78	61			
8.700	28.54	50.57	4.32	CLAY to SILTY CLAY	34	26		2.9	
8.850	29.04	39.15	3.27	CLAYEY SILT to SILTY CLAY	20	15		2.5	
9.000	29.53	28.51	5.55	CLAY	29	22		1.6	
9.150	30.02	23.88	5.77	CLAY	24	18		1.3	
9.300	30.51	26.80	5.44	CLAY	27	20		1.5	
9.450	31.00	28.91	5.27	CLAY	29	22		1.6	
9.600	31.50	30.82	5.61	CLAY	31	23		1.7	
9.750	31.99	42.62	3.61	CLAYEY SILT to SILTY CLAY	21	16		2.4	
9.900	32.48	26.18	5.00	CLAY	26	19		1.4	
10.050	32.97	50.20	4.64	CLAY to SILTY CLAY	33	24		2.8	
10.200	33.46	103.54	2.81	SANDY SILT to CLAYEY SILT	41	30		6.0	
10.350	33.96	89.43	1.97	SILTY SAND to SANDY SILT	30	21	54		37.0
10.500	34.45	96.02	2.92	SANDY SILT to CLAYEY SILT	38	27		5.5	
10.650	34.94	156.24	2.49	SILTY SAND to SANDY SILT	52	37	70		39.0
10.800	35.43	130.98	2.26	SILTY SAND to SANDY SILT	44	31	64		38.0
10.950	35.93	156.88	1.75	SAND to SILTY SAND	39	27	69		38.5
11.100	36.42	93.51	2.14	SILTY SAND to SANDY SILT	31	22	54		37.0
11.250	36.91	117.32	2.37	SILTY SAND to SANDY SILT	39	27	61		38.0
11.400	37.40	225.96	1.69	SAND to SILTY SAND	56	39	79		40.5
11.550	37.89	244.11	2.61	SILTY SAND to SANDY SILT	81	55	81		41.0
11.700	38.39	180.11	2.90	SILTY SAND to SANDY SILT	60	41	73		39.0
11.850	38.88	563.75	1.63	SAND	100	76	100		
12.000	39.37	568.42	2.13	*SAND to CLAYEY SAND	100	100			
12.150	39.86	334.20	2.50	SILTY SAND to SANDY SILT	100	75	90		42.5
12.300	40.35	487.50	2.39	*SAND to CLAYEY SAND	100	100			
12.450	40.85	264.41	.94	SAND	53	35	83		41.0
12.600	41.34	202.14	2.21	SILTY SAND to SANDY SILT	67	45	75		39.5
12.750	41.83	185.87	1.65	SAND to SILTY SAND	46	31	73		39.0
12.900	42.32	187.06	1.71	SAND to SILTY SAND	47	31	73		39.0
13.050	42.81	185.04	1.89	SAND to SILTY SAND	46	30	73		39.0
13.200	43.31	186.50	1.89	SAND to SILTY SAND	47	31	73		39.0
13.350	43.80	165.15	2.03	SILTY SAND to SANDY SILT	55	36	69		38.5
13.500	44.29	122.61	1.50	SAND to SILTY SAND	31	20	61		37.5
13.650	44.78	105.87	2.48	SILTY SAND to SANDY SILT	35	23	56		37.0

*INDICATES OVERCONSOLIDATED OR CEMENTED MATERIAL
ASSUMED TOTAL UNIT WT = 115 pcf
ASSUMED DEPTH OF WATER TABLE = 38.0 ft
N(60) = EQUIVALENT SPT VALUE (60% Energy)
N1(60) = OVERBURDEN NORMALIZED EQUIVALENT SPT VALUE (60% Energy)
Dr = OVERBURDEN NORMALIZED EQUIVALENT RELATIVE DENSITY
Su = OVERBURDEN NORMALIZED UNDRAINED SHEAR STRENGTH
PHI = OVERBURDEN NORMALIZED EQUIVALENT FRICTION ANGLE

Interpretations based on: Robertson and Campanella, 1989.

SOUNDING : SDF-01 CPT-01

DEPTH (m)	DEPTH (ft)	TIP RESISTANCE (tsf)	FRICTION RATIO (%)	SOIL BEHAVIOR TYPE	N(60)	N1(60)	Dr (%)	Su (tsf)	PHI (Degrees)
13.800	45.28	151.26	2.78	SILTY SAND to SANDY SILT	50	33	66		38.0
13.950	45.77	122.52	2.30	SILTY SAND to SANDY SILT	41	26	60		37.5
14.100	46.26	147.82	3.19	SANDY SILT to CLAYEY SILT	59	38		8.5	
14.250	46.75	248.26	3.52	*SAND to CLAYEY SAND	100	80			

*INDICATES OVERCONSOLIDATED OR CEMENTED MATERIAL
ASSUMED TOTAL UNIT WT = 115 pcf
ASSUMED DEPTH OF WATER TABLE = 38.0 ft
N(60) = EQUIVALENT SPT VALUE (60% Energy)
N1(60) = OVERBURDEN NORMALIZED EQUIVALENT SPT VALUE (60% Energy)
Dr = OVERBURDEN NORMALIZED EQUIVALENT RELATIVE DENSITY
Su = OVERBURDEN NORMALIZED UNDRAINED SHEAR STRENGTH
PHI = OVERBURDEN NORMALIZED EQUIVALENT FRICTION ANGLE

Interpretations based on: Robertson and Campanella, 1989.

CPT INTERPRETATIONS

SOUNDING : SDF-10 CPT-02C
PROJECT : Jay Rodgers Comm
DATE/TIME: 2/3/2004 3:51:2
PROJECT No.: 033022-01
CONE/RIG : DSA0408

DEPTH (m)	DEPTH (ft)	TIP RESISTANCE (tsf)	FRICTION RATIO (%)	SOIL BEHAVIOR TYPE	N(60)	N1(60)	Dr (%)	Su (tsf)	PHI (Degrees)
.150	.49	41.29	1.04	SILTY SAND to SANDY SILT	14	22	51		
.300	.98	91.23	2.46	SILTY SAND to SANDY SILT	30	49	74		
.450	1.48	84.91	2.83	SANDY SILT to CLAYEY SILT	34	54		5.0	
.600	1.97	69.46	2.40	SANDY SILT to CLAYEY SILT	28	44		4.6	
.750	2.46	59.67	2.11	SANDY SILT to CLAYEY SILT	24	38		4.0	
.900	2.95	75.59	2.17	SILTY SAND to SANDY SILT	25	40	68		47.0
1.050	3.44	88.96	2.29	SILTY SAND to SANDY SILT	30	47	73		47.0
1.200	3.94	82.10	2.68	SANDY SILT to CLAYEY SILT	33	53		5.5	
1.350	4.43	108.55	3.47	SANDY SILT to CLAYEY SILT	43	69		6.4	
1.500	4.92	149.24	2.20	SILTY SAND to SANDY SILT	50	80	88		47.5
1.650	5.41	299.29	3.51	*SAND to CLAYEY SAND	100	100			
1.800	5.91	103.69	2.44	SILTY SAND to SANDY SILT	35	55	77		45.5
1.950	6.40	55.12	3.70	CLAYEY SILT to SILTY CLAY	28	44		3.2	
2.100	6.89	56.06	3.01	SANDY SILT to CLAYEY SILT	22	36		3.7	
2.250	7.38	53.64	3.55	CLAYEY SILT to SILTY CLAY	27	41		3.1	
2.400	7.87	58.07	3.76	CLAYEY SILT to SILTY CLAY	29	43		3.4	
2.550	8.37	59.95	3.58	CLAYEY SILT to SILTY CLAY	30	43		3.5	
2.700	8.86	74.54	3.37	SANDY SILT to CLAYEY SILT	30	42		4.4	
2.850	9.35	92.51	3.36	SANDY SILT to CLAYEY SILT	37	50		5.4	
3.000	9.84	98.34	2.74	SANDY SILT to CLAYEY SILT	39	52		5.8	
3.150	10.33	123.06	2.33	SILTY SAND to SANDY SILT	41	53	80		44.0
3.300	10.83	229.37	1.55	SAND to SILTY SAND	57	73	98		46.0
3.450	11.32	188.31	1.59	SAND to SILTY SAND	47	58	91		45.0
3.600	11.81	112.31	1.56	SILTY SAND to SANDY SILT	37	45	76		43.0
3.750	12.30	430.81	2.15	SAND to SILTY SAND	100	100	100		48.0
3.900	12.80	485.32	3.70	*SAND to CLAYEY SAND	100	100			
4.050	13.29	286.29	3.44	*SAND to CLAYEY SAND	100	100			
4.200	13.78	205.00	2.28	SILTY SAND to SANDY SILT	68	77	91		44.5
4.350	14.27	209.34	3.25	SANDY SILT to CLAYEY SILT	84	92		12.3	
4.500	14.76	142.88	.17	SAND	29	31	80		43.0
4.650	15.26	145.97	2.51	SILTY SAND to SANDY SILT	49	52	80		43.0
4.800	15.75	174.85	2.29	SILTY SAND to SANDY SILT	58	61	84		43.5
4.950	16.24	187.16	3.33	SANDY SILT to CLAYEY SILT	75	77		11.0	
5.100	16.73	294.22	3.53	*SAND to CLAYEY SAND	100	100			
5.250	17.22	764.35	*****		0	0			

*INDICATES OVERCONSOLIDATED OR CEMENTED MATERIAL
ASSUMED TOTAL UNIT WT = 115 pcf
ASSUMED DEPTH OF WATER TABLE = 38.0 ft
N(60) = EQUIVALENT SPT VALUE (60% Energy)
N1(60) = OVERBURDEN NORMALIZED EQUIVALENT SPT VALUE (60% Energy)
Dr = OVERBURDEN NORMALIZED EQUIVALENT RELATIVE DENSITY
Su = OVERBURDEN NORMALIZED UNDRAINED SHEAR STRENGTH
PHI = OVERBURDEN NORMALIZED EQUIVALENT FRICTION ANGLE

Interpretations based on: Robertson and Campanella, 1989.

CPT INTERPRETATIONS

SOUNDING : SDF-03 CPT-03A
PROJECT : Jay Rodgers Comm
DATE/TIME: 2/3/2004 1:07:0
PROJECT No.: 033022-01
CONE/RIG : DSA0408

DEPTH (m)	DEPTH (ft)	TIP RESISTANCE (tsf)	FRICTION RATIO (%)	SOIL BEHAVIOR TYPE	N(60)	N1(60)	Dr (%)	Su (tsf)	PHI (Degrees)
.150	.49	49.04	.74	SILTY SAND to SANDY SILT	16	26	56		
.300	.98	48.86	1.70	SILTY SAND to SANDY SILT	16	26	56		49.5
.450	1.48	30.20	1.55	SANDY SILT to CLAYEY SILT	12	19		2.4	
.600	1.97	15.85	1.40	SANDY SILT to CLAYEY SILT	6	10		1.3	
.750	2.46	9.83	1.44	CLAYEY SILT to SILTY CLAY	5	8		.8	
.900	2.95	10.43	1.35	CLAYEY SILT to SILTY CLAY	5	8		.8	
1.050	3.44	8.35	.97	SENSITIVE FINE GRAINED	4	7		.8	
1.200	3.94	10.16	.93	CLAYEY SILT to SILTY CLAY	5	8		1.0	
1.350	4.43	6.23	.16	SENSITIVE FINE GRAINED	3	5		.6	
1.500	4.92	6.86	1.34	SENSITIVE FINE GRAINED	3	5		.7	
1.650	5.41	10.52	.68	SANDY SILT to CLAYEY SILT	4	7		1.0	
1.800	5.91	18.10	.95	SANDY SILT to CLAYEY SILT	7	12		1.4	
1.950	6.40	24.80	1.08	SANDY SILT to CLAYEY SILT	10	16		2.0	
2.100	6.89	19.55	1.20	SANDY SILT to CLAYEY SILT	8	12		1.5	
2.250	7.38	15.57	.94	SANDY SILT to CLAYEY SILT	6	10		1.2	
2.400	7.87	15.47	.73	SANDY SILT to CLAYEY SILT	6	9		1.5	
2.550	8.37	21.18	1.24	SANDY SILT to CLAYEY SILT	8	12		1.7	
2.700	8.86	46.46	1.51	SILTY SAND to SANDY SILT	15	22	54		39.5
2.850	9.35	69.68	1.94	SILTY SAND to SANDY SILT	23	32	66		42.0
3.000	9.84	70.24	2.28	SANDY SILT to CLAYEY SILT	28	37		4.6	
3.150	10.33	75.29	1.42	SILTY SAND to SANDY SILT	25	33	66		42.0
3.300	10.83	72.28	1.29	SILTY SAND to SANDY SILT	24	31	64		41.0
3.450	11.32	58.91	1.79	SILTY SAND to SANDY SILT	20	24	58		39.5
3.600	11.81	58.40	1.52	SILTY SAND to SANDY SILT	19	24	57		39.0
3.750	12.30	58.04	1.59	SILTY SAND to SANDY SILT	19	23	56		39.0
3.900	12.80	72.83	.66	SAND to SILTY SAND	18	21	62		40.0
4.050	13.29	127.24	2.95	SANDY SILT to CLAYEY SILT	51	58		7.4	
4.200	13.78	61.08	2.64	SANDY SILT to CLAYEY SILT	24	27		4.0	
4.350	14.27	49.81	2.26	SANDY SILT to CLAYEY SILT	20	22		3.3	
4.500	14.76	40.19	2.16	SANDY SILT to CLAYEY SILT	16	17		2.6	
4.650	15.26	30.84	1.61	SANDY SILT to CLAYEY SILT	12	13		2.4	
4.800	15.75	34.58	1.85	SANDY SILT to CLAYEY SILT	14	15		2.7	
4.950	16.24	38.57	2.16	SANDY SILT to CLAYEY SILT	15	16		2.5	
5.100	16.73	39.66	1.78	SANDY SILT to CLAYEY SILT	16	16		3.1	
5.250	17.22	38.44	1.79	SANDY SILT to CLAYEY SILT	15	15		3.0	
5.400	17.72	36.50	1.86	SANDY SILT to CLAYEY SILT	15	14		2.8	
5.550	18.21	35.81	.77	SILTY SAND to SANDY SILT	12	12	37		36.0
5.700	18.70	39.78	1.93	SANDY SILT to CLAYEY SILT	16	15		2.6	
5.850	19.19	47.16	2.14	SANDY SILT to CLAYEY SILT	19	18		3.1	
6.000	19.69	55.76	2.25	SANDY SILT to CLAYEY SILT	22	21		3.6	
6.150	20.18	64.72	2.14	SILTY SAND to SANDY SILT	22	20	52		38.0

*INDICATES OVERCONSOLIDATED OR CEMENTED MATERIAL
ASSUMED TOTAL UNIT WT = 115 pcf
ASSUMED DEPTH OF WATER TABLE = 38.0 ft
N(60) = EQUIVALENT SPT VALUE (60% Energy)
N1(60) = OVERBURDEN NORMALIZED EQUIVALENT SPT VALUE (60% Energy)
Dr = OVERBURDEN NORMALIZED EQUIVALENT RELATIVE DENSITY
Su = OVERBURDEN NORMALIZED UNDRAINED SHEAR STRENGTH
PHI = OVERBURDEN NORMALIZED EQUIVALENT FRICTION ANGLE

Interpretations based on: Robertson and Campanella, 1989.

SOUNDING : SDF-03 CPT-03A

DEPTH (m)	DEPTH (ft)	TIP RESISTANCE (tsf)	FRICTION RATIO (%)	SOIL BEHAVIOR TYPE	N(60)	N1(60)	Dr (%)	Su (tsf)	PHI (Degrees)
6.300	20.67	64.27	2.20	SANDY SILT to CLAYEY SILT	26	24		4.2	
6.450	21.16	64.27	2.50	SANDY SILT to CLAYEY SILT	26	23		4.2	
6.600	21.65	74.07	2.18	SILTY SAND to SANDY SILT	25	22	55		38.0
6.750	22.15	80.10	2.00	SILTY SAND to SANDY SILT	27	24	57		38.0
6.900	22.64	97.91	1.20	SAND to SILTY SAND	24	21	63		38.5
7.050	23.13	161.57	2.32	SILTY SAND to SANDY SILT	54	47	77		41.5
7.200	23.62	145.73	1.58	SAND to SILTY SAND	36	31	73		40.5
7.350	24.11	708.49	2.05	*SAND to CLAYEY SAND	100	100			
7.500	24.61	580.12	1.50	SAND	100	98	100		
7.650	25.10	496.85	.66	GRAVELLY SAND to SAND	83	69	100		46.0
7.800	25.59	162.77	1.64	SAND to SILTY SAND	41	34	75		40.5
7.950	26.08	151.75	2.16	SILTY SAND to SANDY SILT	51	41	73		40.0
8.100	26.57	190.74	1.48	SAND to SILTY SAND	48	39	79		41.5
8.250	27.07	200.51	2.24	SILTY SAND to SANDY SILT	67	54	81		42.0
8.400	27.56	213.86	2.81	SILTY SAND to SANDY SILT	71	57	82		42.0
8.550	28.05	187.34	2.02	SILTY SAND to SANDY SILT	62	49	78		41.0
8.700	28.54	264.37	2.06	SAND to SILTY SAND	66	52	88		42.5
8.850	29.04	489.48	1.39	SAND	98	76	100		45.5
9.000	29.53	228.00	1.75	SAND to SILTY SAND	57	44	83		42.0
9.150	30.02	337.09	1.22	SAND	67	51	94		43.5
9.300	30.51	765.61	.56	GRAVELLY SAND to SAND	100	96	100		

*INDICATES OVERCONSOLIDATED OR CEMENTED MATERIAL
ASSUMED TOTAL UNIT WT = 115 pcf
ASSUMED DEPTH OF WATER TABLE = 38.0 ft
N(60) = EQUIVALENT SPT VALUE (60% Energy)
N1(60) = OVERBURDEN NORMALIZED EQUIVALENT SPT VALUE (60% Energy)
Dr = OVERBURDEN NORMALIZED EQUIVALENT RELATIVE DENSITY
Su = OVERBURDEN NORMALIZED UNDRAINED SHEAR STRENGTH
PHI = OVERBURDEN NORMALIZED EQUIVALENT FRICTION ANGLE

Interpretations based on: Robertson and Campanella, 1989.

CPT INTERPRETATIONS

SOUNDING : SDF-06 CPT-04B
PROJECT : Jay Rodgers Comm
DATE/TIME: 2/3/2004 2:25:1
PROJECT No.: 033022-01
CONE/RIG : DSA0408

DEPTH (m)	DEPTH (ft)	TIP RESISTANCE (tsf)	FRICTION RATIO (%)	SOIL BEHAVIOR TYPE	N(60)	N1(60)	Dr (%)	Su (tsf)	PHI (Degrees)
.150	.49	25.35	1.01	SANDY SILT to CLAYEY SILT	10	16		2.0	
.300	.98	28.25	.98	SILTY SAND to SANDY SILT	9	15	40		47.5
.450	1.48	46.15	1.36	SILTY SAND to SANDY SILT	15	25	54		47.5
.600	1.97	49.13	1.75	SILTY SAND to SANDY SILT	16	26	56		46.5
.750	2.46	46.45	1.30	SILTY SAND to SANDY SILT	15	25	54		46.0
.900	2.95	35.44	7.71	CLAY	35	57		2.1	
1.050	3.44	271.51	1.25	SAND	54	87	100		
1.200	3.94	221.60	1.64	SAND to SILTY SAND	55	89	99		
1.350	4.43	132.32	.36	SAND	26	42	84		47.5
1.500	4.92	258.53	2.71	SILTY SAND to SANDY SILT	86	100	100		
1.650	5.41	169.56	1.44	SAND to SILTY SAND	42	68	91		47.5
1.800	5.91	65.98	2.18	SILTY SAND to SANDY SILT	22	35	64		43.5
1.950	6.40	45.06	2.08	SANDY SILT to CLAYEY SILT	18	29		3.0	
2.100	6.89	26.88	2.15	SANDY SILT to CLAYEY SILT	11	17		1.8	
2.250	7.38	52.99	1.38	SILTY SAND to SANDY SILT	18	27	58		41.5
2.400	7.87	27.69	1.82	SANDY SILT to CLAYEY SILT	11	16		2.2	
2.550	8.37	23.82	1.92	SANDY SILT to CLAYEY SILT	10	14		1.9	
2.700	8.86	23.66	1.73	SANDY SILT to CLAYEY SILT	9	13		1.9	
2.850	9.35	37.60	2.41	SANDY SILT to CLAYEY SILT	15	21		2.5	
3.000	9.84	123.70	2.76	SILTY SAND to SANDY SILT	41	55	81		44.0
3.150	10.33	237.04	1.63	SAND to SILTY SAND	59	77	99		46.5
3.300	10.83	226.37	1.35	SAND to SILTY SAND	57	72	97		46.0
3.450	11.32	210.37	1.51	SAND to SILTY SAND	53	65	94		46.0
3.600	11.81	143.67	1.36	SAND to SILTY SAND	36	44	83		44.0
3.750	12.30	199.66	1.36	SAND to SILTY SAND	50	59	92		45.0
3.900	12.80	638.70	*****		0	0			40.0

*INDICATES OVERCONSOLIDATED OR CEMENTED MATERIAL
ASSUMED TOTAL UNIT WT = 115 pcf
ASSUMED DEPTH OF WATER TABLE = 38.0 ft
N(60) = EQUIVALENT SPT VALUE (60% Energy)
N1(60) = OVERBURDEN NORMALIZED EQUIVALENT SPT VALUE (60% Energy)
Dr = OVERBURDEN NORMALIZED EQUIVALENT RELATIVE DENSITY
Su = OVERBURDEN NORMALIZED UNDRAINED SHEAR STRENGTH
PHI = OVERBURDEN NORMALIZED EQUIVALENT FRICTION ANGLE

HOLGUIN, FAHAN & ASSOCIATES, INC.

Interpretations based on: Robertson and Campanella, 1989.

Appendix B

APPENDIX B

GEOTECHNICAL LABORATORY INVESTIGATION

1. General

   a. The laboratory investigation used current, accepted test procedures of the American Society of Testing and Materials (ASTM) and/or California Test Standards, wherever practical.

   b. Bulk samples, Standard Penetration Test (SPT) samples, and Modified California Drive ring samples were obtained during the field investigation. Laboratory sample identification is by project name and number, boring number, and depth.

2. Index Parameters Tests

   The following Index Parameters tests were performed by this firm on alluvial soils collected during the field investigation.

TEST TYPE	NUMBER OF TESTS	TESTING STANDARD
In-situ Moisture Content and Dry Density	7	ASTM D2216 and D7263
Percent-Finer Than #200 Sieve	28	ASTM D1140
Particle-Size Analysis of Soils	3	ASTM D6913
Expansion Index	1	ASTM D4829

   The purpose of each test is briefly described below:

   a. In-Situ Moisture Content (ASTM D2216) and Dry Density (ASTM D7263) testing of soils provide an indication of the strength and compressibility of in-situ soils. These data, in conjunction with sampler blow count data, aid in evaluation of soil consistency and in selection of samples for additional laboratory testing. Results of Moisture Content and Dry Density testing are recorded on the Drill Hole Logs within **Appendix A**.

   b. Percent Finer than #200 Sieve (ASTM D1140) testing was performed on soil samples and drainage aggregate to aid in classification of the samples in accordance with the Unified Soil Classification System (USCS). Results of Percent Finer than #200 Sieve testing are recorded on the Drill Hole Logs within **Appendix A** and on applicable laboratory test reports in this Appendix.

   c. Mechanical particle-size analyses of soil fractions larger than 75 microns (No. 200 sieve) were conducted to aid in classification of soils in accordance with the Unified Soil Classification System (USCS). Results of the particle size analyses are presented on **Figure B1** in this Appendix.

APPENDIX B

d. Expansion Index (ASTM D4829) testing was performed to obtain an index of swelling potential of soil when inundated with water by controlling variables that influence expansion behavior of soils. Results of this testing are presented in **Table B1**, which also includes results of prior testing by LGC.

3. Geotechnical Engineering Parameters Tests

The following Geotechnical Engineering Parameter tests were performed by this firm on bulk and ring samples of alluvial soils collected during the field investigation.

TEST TYPE	NUMBER OF TESTS	TESTING STANDARD
Modified Proctor	1	ASTM D1557
Direct Shear (remold)	1	ASTM D3080
Collapse of Soils	3	ASTM D2435

The Geotechnical Engineering Parameters testing is briefly described below.

a. A modified Proctor (ASTM D1557) test was performed on a mixture of alluvial soils collected from Boring HS-1 at 0-15 ft to assess the laboratory moisture content vs. dry density relationship of future compacted fill materials generated from on-site soils. Results of the testing are presented on **Figure B2** and summarized in **Table B2**, which also includes results of prior testing by LGC.

b. Direct Shear (ASTM D3080) testing was performed on a mixture of soil from Boring HS-1 at 0-15 ft (remolded to approximately 90 percent of maximum dry density) using a displacement-controlled Direct Shear machine. Prior to shearing, the samples were inundated and consolidated under normal pressures ranging from 1,000 psf to 4,000 psf. Thereafter, the samples were sheared horizontally at a controlled displacement rate until the horizontal shear force reduced to a stable value. For remolded specimens, material passing the No. 4 sieve was used. Results of the Direct Shear testing, including interpreted peak strength and residual shear strength parameters, are presented on **Figure B3** within this Appendix.

c. One-dimensional Collapse of Soils (ASTM D4546) testing was performed on California drive ring samples to assess the hydro-compression potential of alluvial soils when inundated with water under future loading conditions. The samples were incrementally loaded to normal pressures ranging from 200 to 9,600 psf in accordance with Procedure B. The "hydro-compression" was taken as the percent strain when inundated with water under an applied pressure approximately equal to the existing overburden pressure plus future applied foundation bearing pressure at that depth. Results of collapse testing are presented on **Figures B4.1** to **B4.3** in this Appendix.

APPENDIX B

4. Corrosivity Tests

The following corrosivity tests were performed on a mixture of soils collected from sample S-1 at a depth of 2 feet.

TEST TYPE	NUMBER OF TESTS	TESTING STANDARD
Sulfate-Content	1	California Test 417
Chloride-Content	1	California Test 422
Resistivity and pH	1	California Test 643

Soluble Sulfates Content, Chloride Content, Resistivity, and pH tests were performed to evaluate corrosivity of soils to concrete, ferrous metals, and non-ferrous metals. Results of the testing are presented in **Table B3**, which also includes results of prior testing by LGC.

The following attachments complete this Appendix.

- Summary of Expansion Index Test Results — Table B1
- Summary of Compaction Test Results — Table B2
- Summary of Corrosivity Test Results — Table B3
- Particle Size Distribution Test Report — Figure B1
- Compaction Test Report — Figure B2
- Direct Shear Test Report — Figure B3
- Consolidation Test Report — Figures B4.1 thru B4.3

- Particle Size Curve (LGC, 2004) — 5 Sheets
- Particle Size Curve (LGC, 2007) — 5 Sheets
- Direct Shear Test (LGC, 2004) — 6 Sheets
- Direct Shear Test (LGC, 2007) — 13 Sheets
- Consolidation Test Results (LGC, 2004) — 3 Sheets
- Consolidation Test Results (LGC, 2007) — 5 Sheets

APPENDIX B

Table B1 – Summary of Expansion Index Test Results

Source	Depth (ft)	Soil Description	USCS	% Fines	Expansion Index	Expansion Potential Classification
B-1 (LGC, 2004)	1-5	Silty Sand w/ trace clay	SM	--	20	Low
B-5 (LGC, 2004)	1-5	Silty Sand w/ trace clay	SM	--	22	Very Low
B-2 (LGC, 2005)	0-10	Silty Sand	SM	--	21	Low
B-5 (LGC, 2007)	0-5	Silty Sand	SM	--	13	Very Low
S-1	2	Silty Sand	SM		10	Very Low

Table B2 – Summary of Compaction (Modified Proctor) Test Results

Source	Depth (ft)	Soil Description	USCS	% Fines	Maximum Dry Density (pcf)	Optimum Moisture Content[1] (%)
B-2 (LGC, 2004)	1-5	Silty Sand with Clay	SC-SM	--	125.0	10.0
B-2 (LGC, 2007)	0-5	Clayey Silt to Silty Clay	CL-ML	--	123.5	11.0
HS-1 (Curve A)	0-15	Dark-brown Silty Sand	SM	44.5	125.1[1]	10.0

[1] Per ASTM Test Method D1557

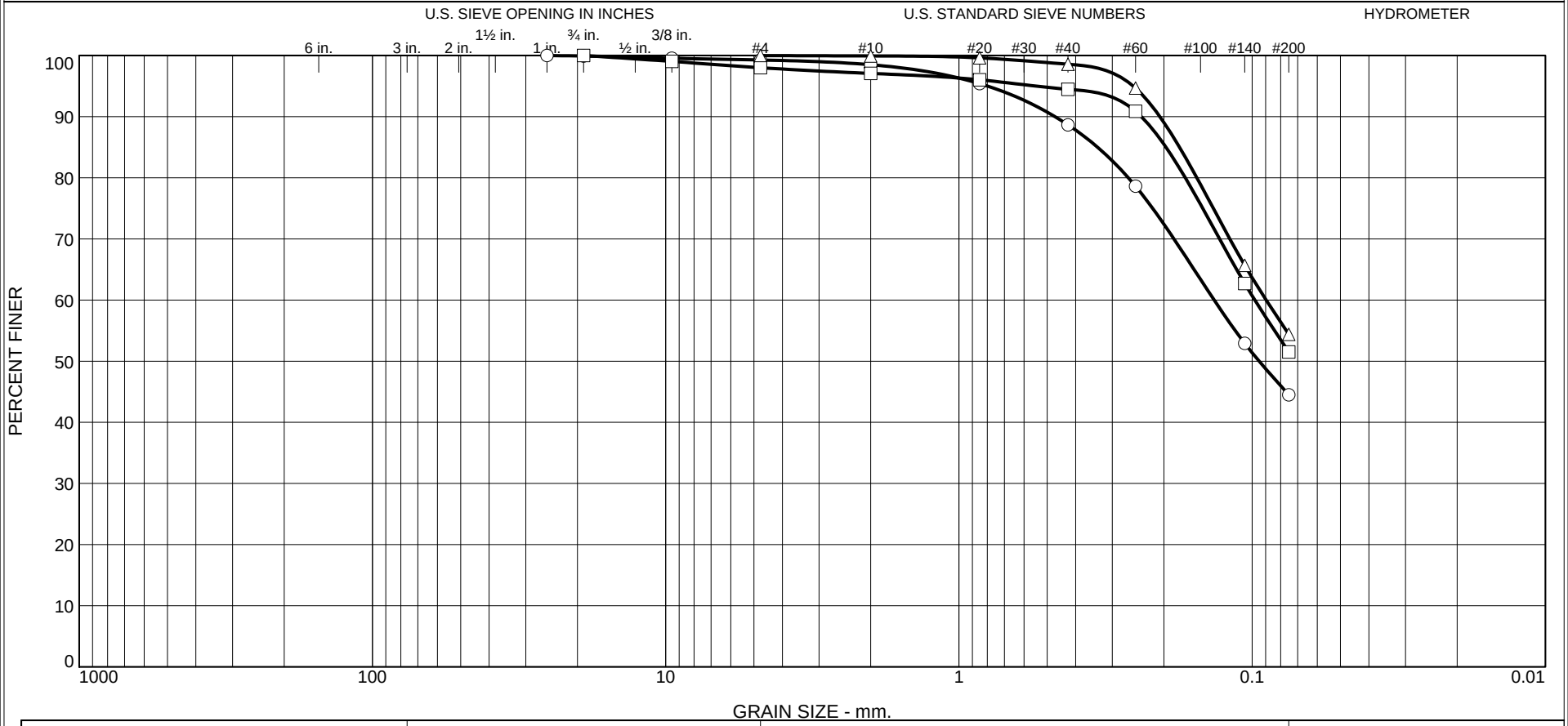
APPENDIX B

Table B3 – Summary of Corrosivity Test Results

Source	Depth (ft)	Soil Description	Resistivity		Chemical Analyses			
			Saturated (ohm-cm)	Corrosion Characteristics[2]	pH	Chloride Cl (ppm)	Sulfate SO_4 (%)	Concrete exposure to sulfate[3]
B-1 (2004)	1-5	Silty Sand w/ trace clay	940	Severely Corrosive	7.6	31	0.108	Moderate
B-5 (2004)	1-5	Silty Sand w/ trace clay	--	--	--	--	0.002	Negligible
B-2 (2005)	0-10	Silty Sand	--	--	--	--	0.005	Negligible
B-5 (2007)	0-5	Silty Sand	1,500	Corrosive	--	--	0.006	Negligible
SM	2	Silty Sand	5,440	Moderately Corrosive	8.15	108	0.0004	Negligible

[2] Per County of Los Angeles classification
[3] Per ACI 318 – Table 4.3.1

Particle Size Distribution Test Report



	% +3"	% Gravel		% Sand			% Fines
		Coarse	Fine	Coarse	Medium	Fine	Silt
○	0.0	0.1	0.6	0.8	9.8	44.2	44.5
□	0.0	0.0	2.0	0.9	2.6	43.0	51.5
△	0.0	0.0	0.0	0.1	1.3	44.2	54.4

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	HS-1		0-15'	11/14/19	SM	Dark-brown, fine-grained, silty SAND			
□	HS-2		9'	11-14-19	ML	Yellowish-brown sandy SILT			
△	HS-3		12'	11-14-19	ML	Dark-brown, sandy SILT			

Client Wiley Canyon LLC

Project Tentative Tract Map 083295

Wiley Canyon

Project No. 21-2593-4 Figure B1

ALLAN E. SEWARD

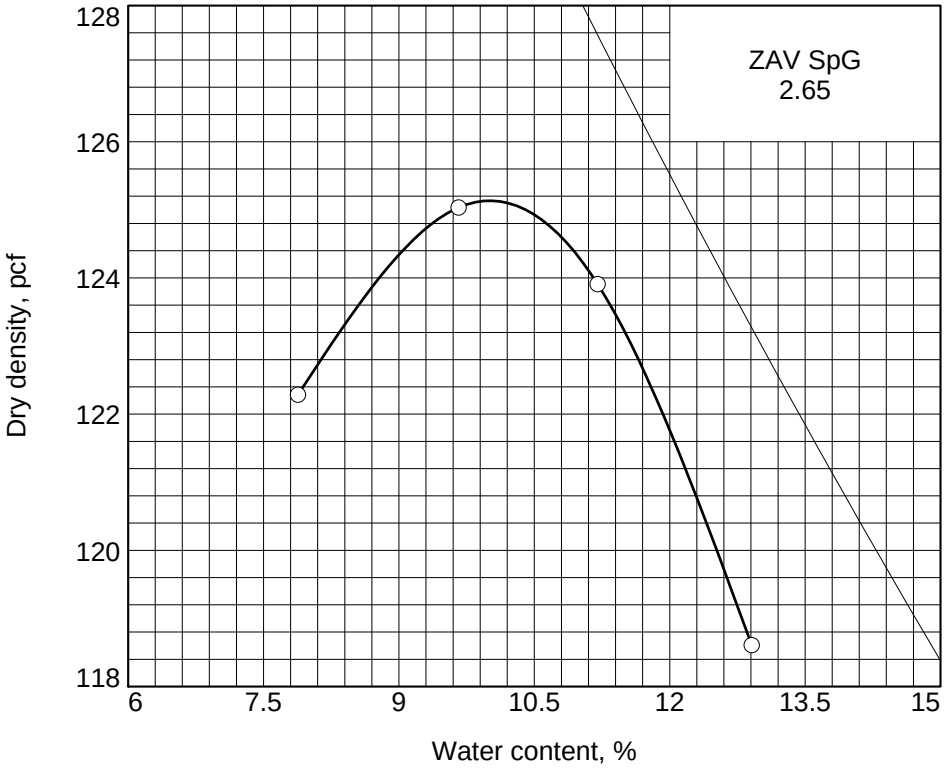
ENGINEERING GEOLOGY, INC.

Valencia, California

□ Alluvium encountered in vicinity of proposed infiltration invert elevation

△ Alluvium encountered in vicinity of proposed infiltration invert elevation

COMPACTION TEST REPORT



Curve No.
A

Test Specification:
ASTM D 1557-12 Method A Modified

Preparation Method Moist
Hammer Wt. 10 lb.
Hammer Drop 18 in.
Number of Layers five
Blows per Layer 25
Mold Size 0.03333 cu. ft.
Test Performed on Material Passing #4 **Sieve**

NM **LL** **PI**
Sp.G. (ASTM D 854) 2.65
%>#4 0.7 **%<No.200** 44.5
USCS SM **AASHTO**
Date Sampled 11/14/19
Date Tested 11/27/19
Tested By E. Parr

TESTING DATA

	1	2	3	4	5	6
WM + WS	8.77	8.94	8.96	8.83		
WM	4.37	4.37	4.37	4.37		
WW + T #1	952.2	985.7	940.3	948.8		
WD + T #1	885.9	901.7	850.0	845.4		
TARE #1	44.8	32.1	43.6	44.3		
WW + T #2						
WD + T #2						
TARE #2						
MOISTURE	7.9	9.7	11.2	12.9		
DRY DENSITY	122.3	125.0	123.9	118.6		

TEST RESULTS

Maximum dry density = 125.1 pcf

Optimum moisture = 10.0 %

Material Description

Dark-brown, fine-grained, silty SAND

Remarks:
Quaternary Alluvium (Qal)
Mixture of soils within the noted depth

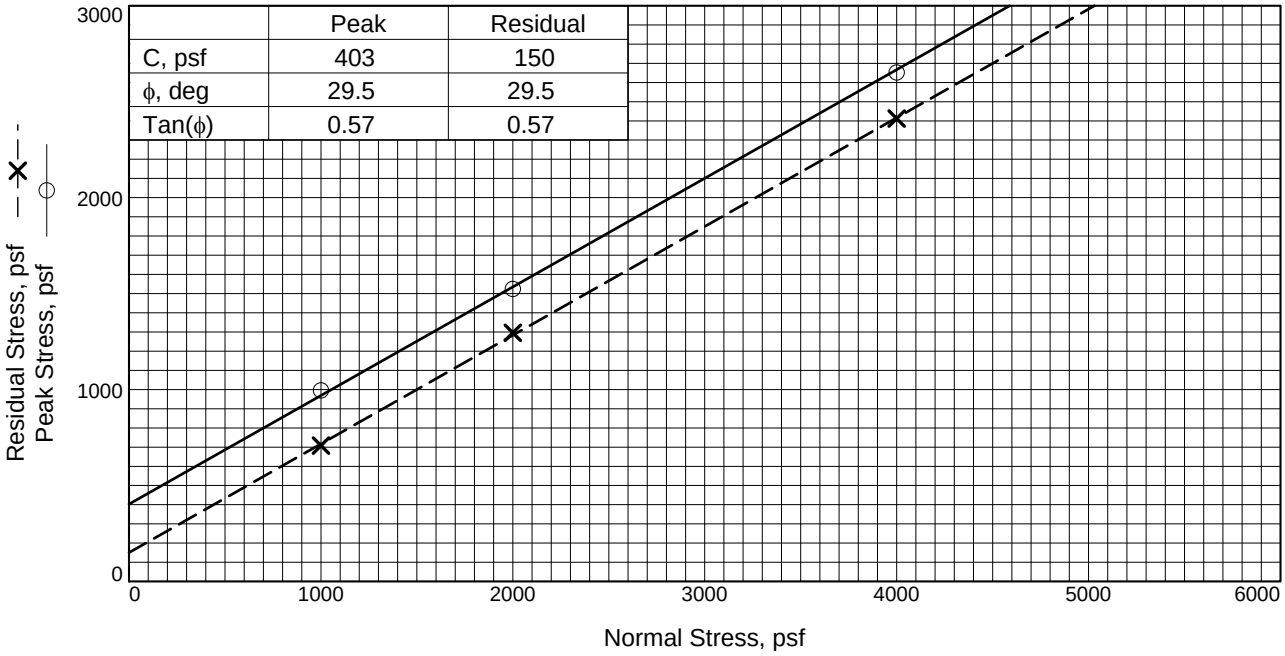
Project No. 21-2593-4 **Client:** Wiley Canyon LLC
Project: Tentative Tract Map 083295
Wiley Canyon
○ **Source of Sample:** HS-1 **Depth:** 0-15'

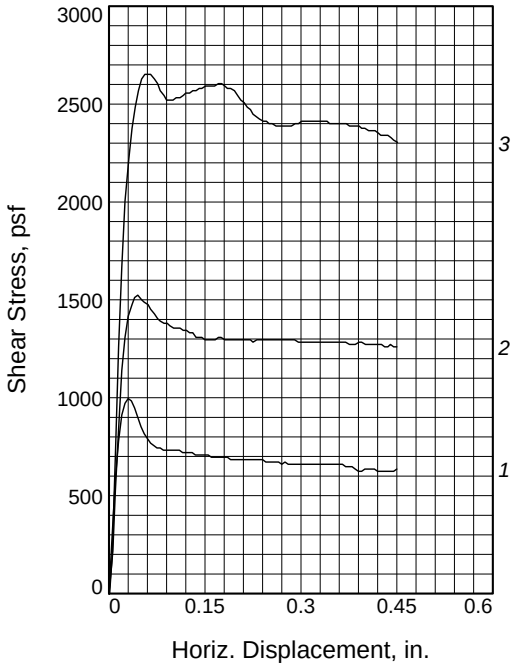
Checked by: K. Callahan
Title: Geotechnical Engineer

ALLAN E. SEWARD ENGINEERING GEOLOGY, INC.

Valencia, California

Figure B2





Sample No.		1	2	3
Initial	Water Content, %	9.9	9.9	9.9
	Dry Density, pcf	115.1	115.1	115.2
	Saturation, %	59.9	60.0	60.0
	Void Ratio	0.4367	0.4376	0.4364
	Diameter, in.	2.416	2.416	2.416
	Height, in.	1.000	1.000	1.000
At Test	Water Content, %	15.9	15.4	15.3
	Dry Density, pcf	116.4	117.5	117.7
	Saturation, %	100.0	100.0	100.0
	Void Ratio	0.4213	0.4081	0.4052
	Diameter, in.	2.416	2.416	2.416
	Height, in.	0.989	0.980	0.978
Normal Stress, psf		1000	2000	4000
Peak Stress, psf		996	1524	2652
Displacement, in.		0.030	0.045	0.056
Residual Stress, psf		708	1296	2412
Displacement, in.		0.150	0.150	0.301
Strain rate, %/min.		0.01	0.01	0.01

Sample Type: Remold
Description: Dark-brown, fine-grained, silty SAND

Assumed Specific Gravity= 2.65
Remarks: Proposed compacted fill
Remolded to about 90% of MDD
% Fines = 44.5

Figure B3

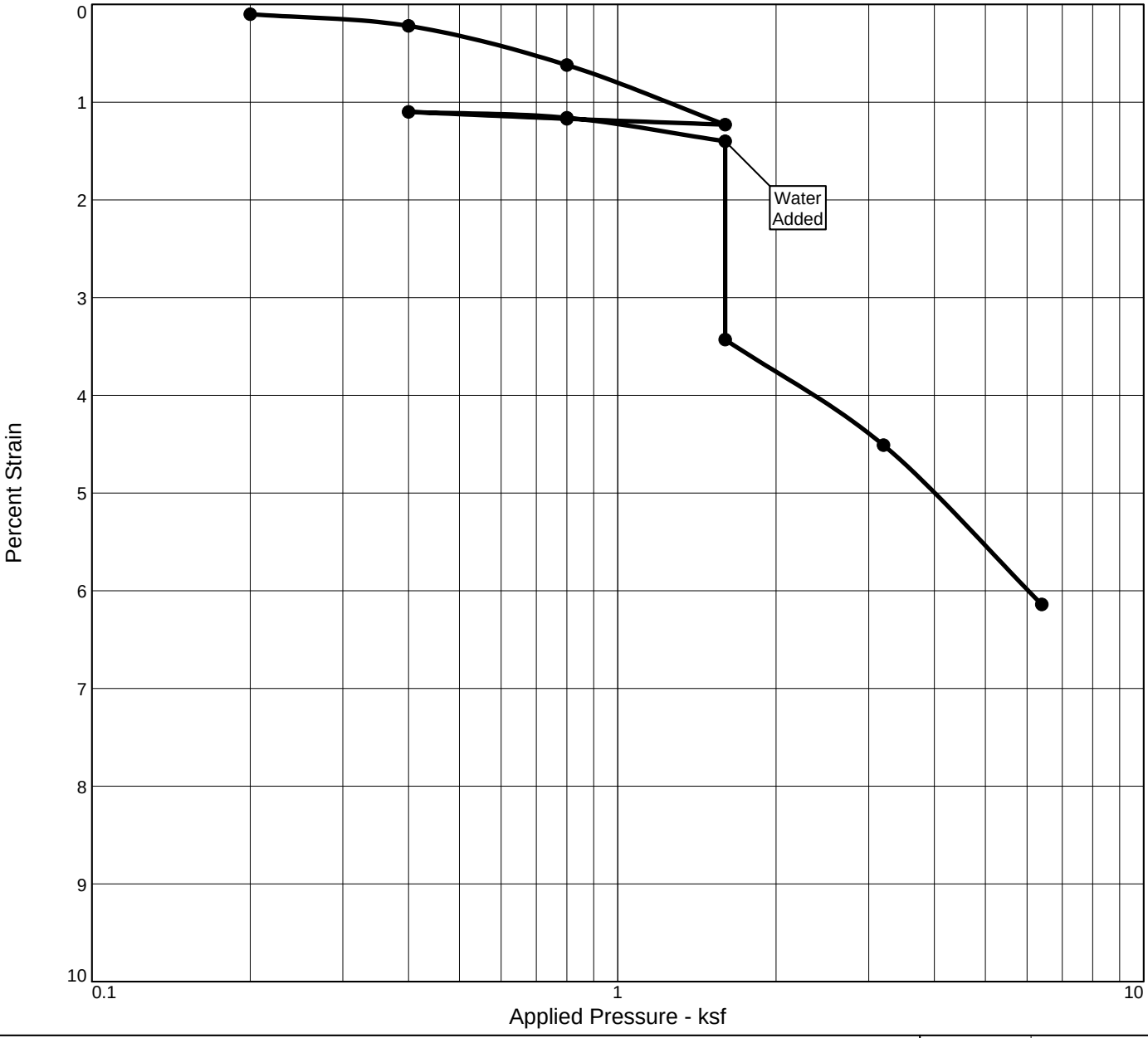
Client: Wiley Canyon LLC

Project: Tentative Tract Map 083295
Wiley Canyon
Source of Sample: HS-1 **Depth:** 0-15'

Proj. No.: 21-2593-4 **Date Sampled:** 11/14/19

DIRECT SHEAR TEST REPORT
ALLAN E. SEWARD ENGINEERING GEOLOGY, INC.
Valencia, California

SWELL/CONSOLIDATION TEST REPORT



MATERIAL DESCRIPTION	USCS	AASHTO
Sandy SILT	ML	

LL	PI	Sp. Gr.	Overburden (ksf)	Dry Dens. (pcf)		Moisture		Saturation		Void Ratio		P_c (ksf)	C_c
				Init.	Final	Init.	Final	Init.	Final	Init.	Final		
		2.65	1.5	105.2	112.1	4.3 %	18.6	19.9 %	100.0	0.573	0.476	3.3	0.09

Preparation Process: Tested directly in a ring from a ring lined sampler

Condition of Test: Inundated with distilled water at 1,600 psf

D2435 Method	C_s	Swell Press. (ksf)	Clpse. %
D4546	0.00		2.0

Project No. 21-2593-4 **Client:** Wiley Canyon LLC

Project: Tentative Tract Map 083295
Wiley Canyon

Source of Sample: HS-2 **Depth:** 12'

Remarks:
Alluvium (Qal)
% Fines = 54.1

Checked By: K. Callahan

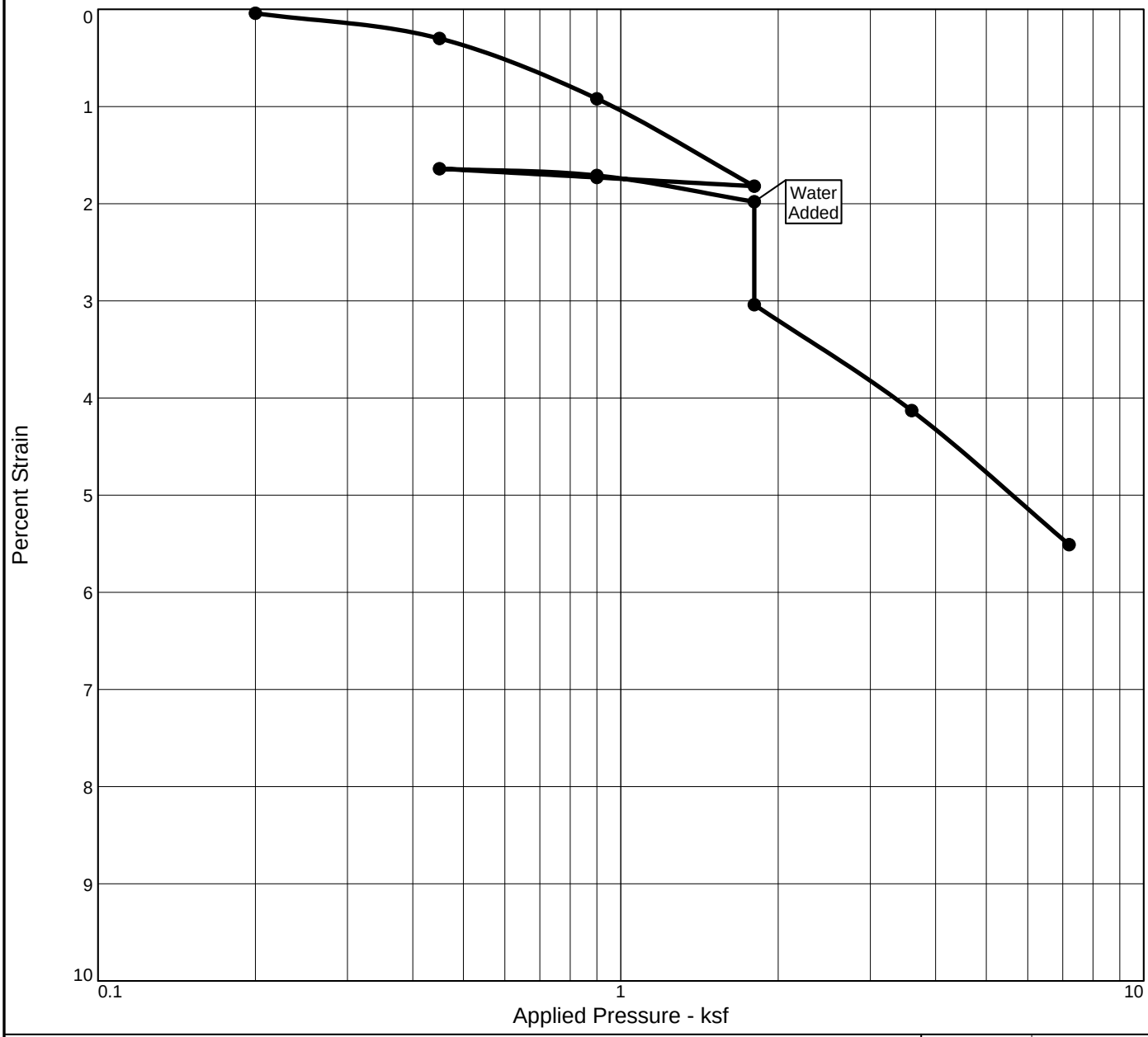
Title: Geotechnical Engineer

ALLAN E. SEWARD ENGINEERING GEOLOGY, INC.

Valencia, California

Figure B4.1

SWELL/CONSOLIDATION TEST REPORT



MATERIAL DESCRIPTION	USCS	AASHTO
Silty, fine-grained SAND	SM	

LL	PI	Sp. Gr.	Overburden (ksf)	Dry Dens. (pcf)		Moisture		Saturation		Void Ratio		P_c (ksf)	C_c
				Init.	Final	Init.	Final	Init.	Final	Init.	Final		
		2.65	1.8	106.7	112.9	6.3 %	17.6	30.4 %	100.0	0.551	0.465	3.7	0.07

Preparation Process: Tested directly in a ring from a ring lined sampler

Condition of Test: Inundated with distilled water at 1,800 psf

D2435 Method	C_s	Swell Press. (ksf)	Clpse. %
D4546	0.00		1.1

Project No. 21-2593-4 **Client:** Wiley Canyon LLC

Project: Tentative Tract Map 083295
Wiley Canyon

Source of Sample: HS-2 **Depth:** 15'

Remarks:
Alluvium (Qal)
% Fines = 43.7

Checked By: K. Callahan

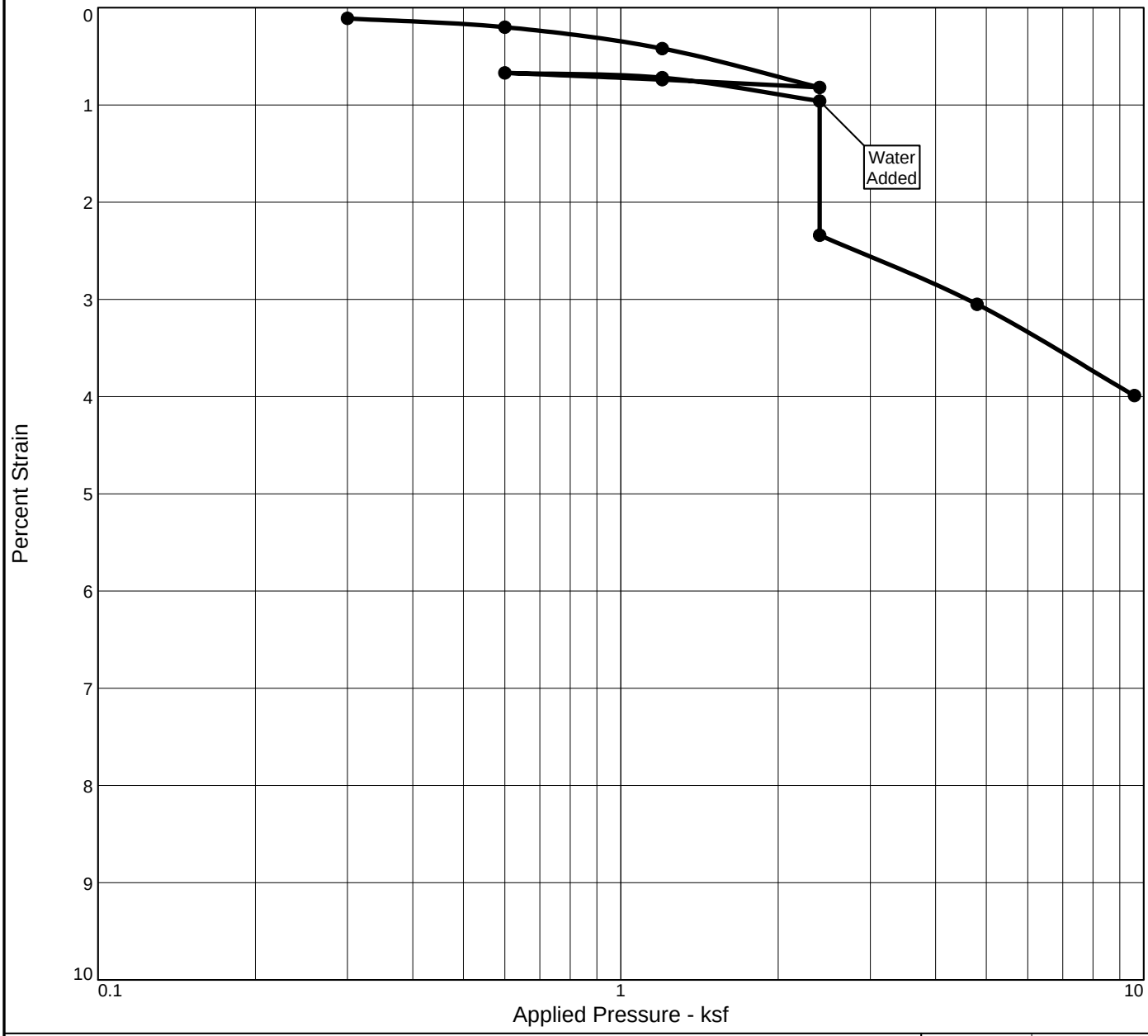
Title: Geotechnical Engineer

ALLAN E. SEWARD ENGINEERING GEOLOGY, INC.

Valencia, California

Figure B4.2

SWELL/CONSOLIDATION TEST REPORT



MATERIAL DESCRIPTION	USCS	AASHTO
Silty, fine-grained SAND	SM	

LL	PI	Sp. Gr.	Overburden (ksf)	Dry Dens. (pcf)		Moisture		Saturation		Void Ratio		P_c (ksf)	C_c
				Init.	Final	Init.	Final	Init.	Final	Init.	Final		
		2.65	2.4	106.6	111.0	5.0 %	18.5	23.8 %	100.0	0.551	0.490	4.9	0.05

Preparation Process: Tested directly in a ring from a ring lined sampler

Condition of Test: Inundated with distilled water at 2,400 psf

D2435 Method	C_s	Swell Press. (ksf)	Clpse. %
D4546	0.00		1.4

Project No. 21-2593-4 **Client:** Wiley Canyon LLC

Project: Tentative Tract Map 083295
Wiley Canyon

Source of Sample: HS-3 **Depth:** 20'

Remarks:
Alluvium (Qal)
% Fines = 27.4

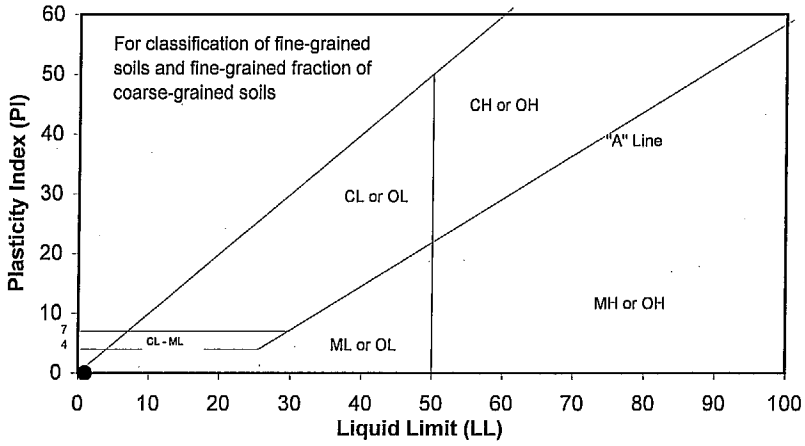
Checked By: K. Callahan

Title: Geotechnical Engineer

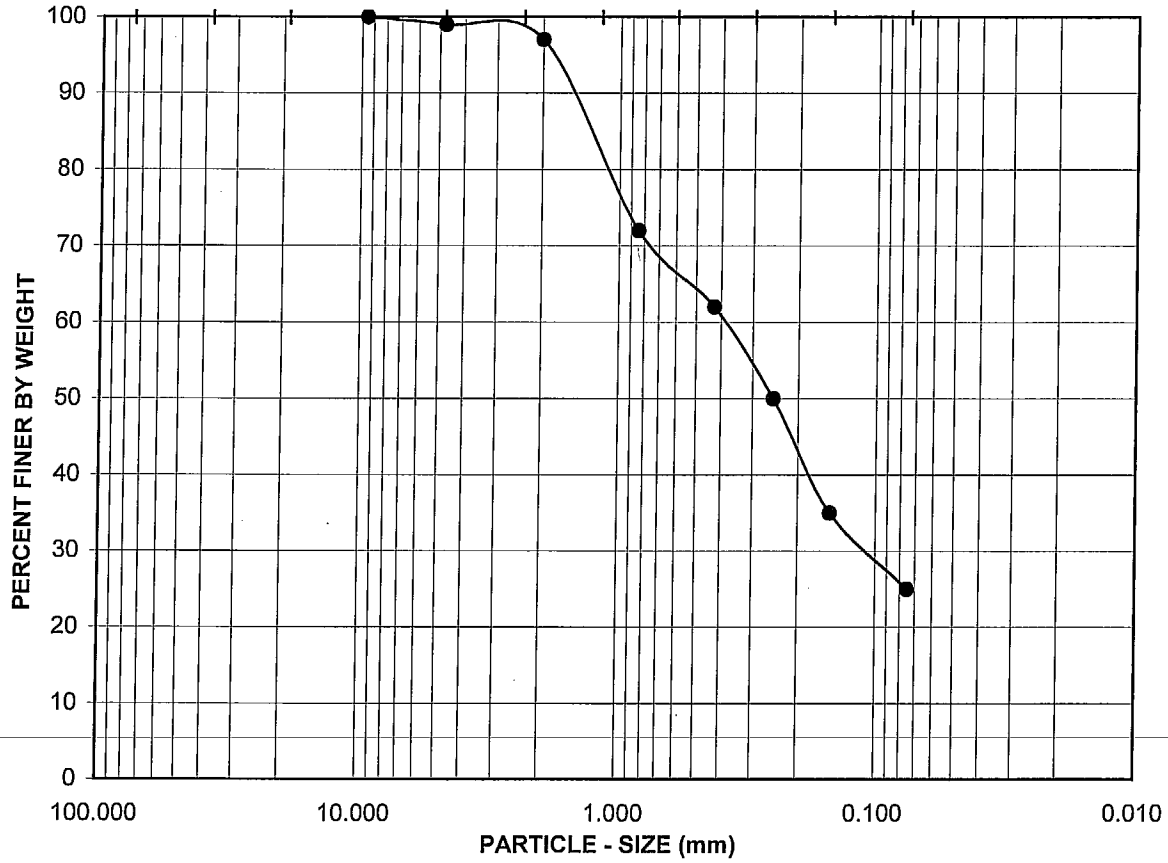
ALLAN E. SEWARD ENGINEERING GEOLOGY, INC.

Valencia, California

Figure B4.3



GRAVEL		SAND			FINES
COARSE	FINE	CRSE	MEDIUM	FINE	SILT
U.S. STANDARD SIEVE OPENING		U.S. STANDARD SIEVE NUMBER			HYDROMETER



Boring No.:	Sample No.:	Depth (ft.):	Soil Type	GR:SA:FI	LL,PL,PI
B-LGC-1	S-8	35	SM	1 : 74 : 25	N/A , N/A , N/A

Visual Sample Description:

Medium Brown Silty Sand

LGC

Project No.: 033022-01

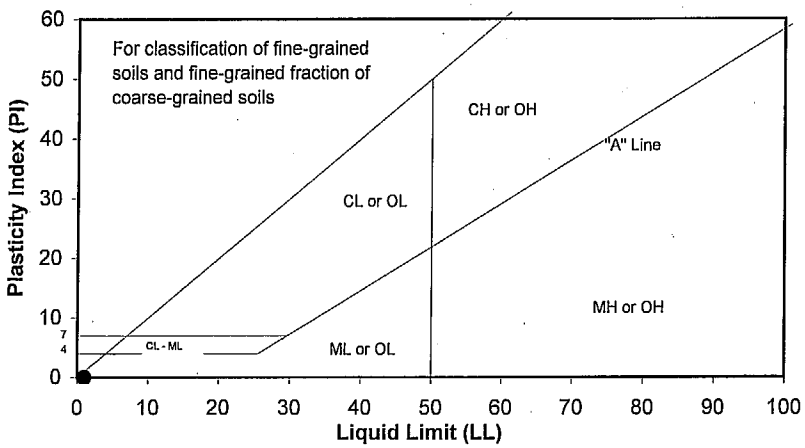
LGC/Monteverde

ATTERBERG LIMITS, PARTICLE - SIZE CURVE

ASTM D 4318, D 422

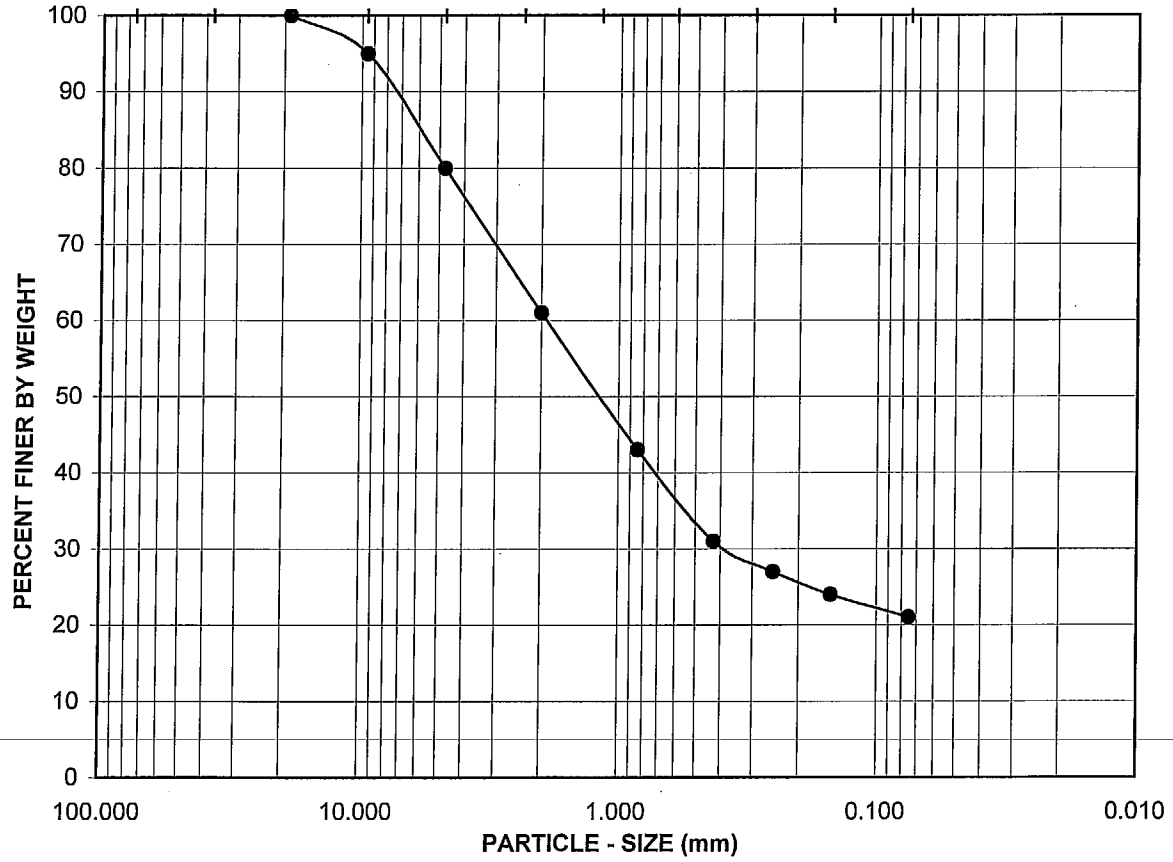
03-04

Sievemontblgc1s8



GRAVEL		SAND			FINES
COARSE	FINE	CRSE	MEDIUM	FINE	SILT

U.S. STANDARD SIEVE OPENING U.S. STANDARD SIEVE NUMBER HYDROMETER



Boring No.:	Sample No.:	Depth (ft.):	Soil Type	GR:SA:FI	LL,PL,PI
B-LGC-1	S-10	45	SM	20 : 59 : 21	N/A, N/A, N/A

Visual Sample Description:

Medium Brown Silty Sand

LGC

Project No.: 033022-01

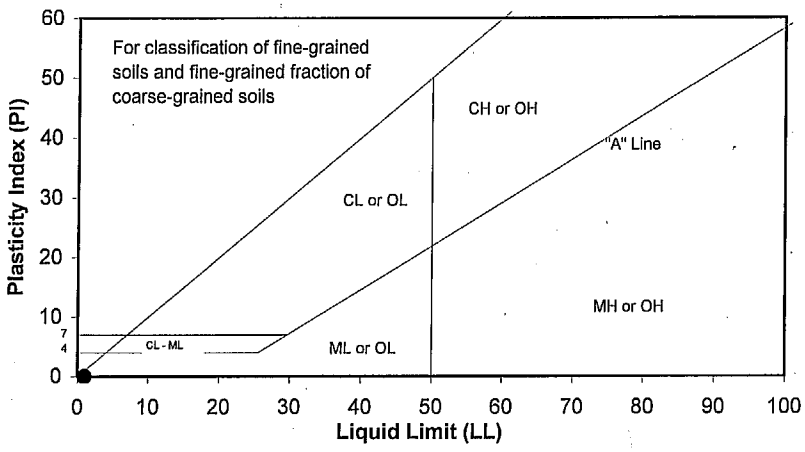
LGC/Monteverde

ATTERBERG LIMITS, PARTICLE - SIZE CURVE

ASTM D 4318, D 422

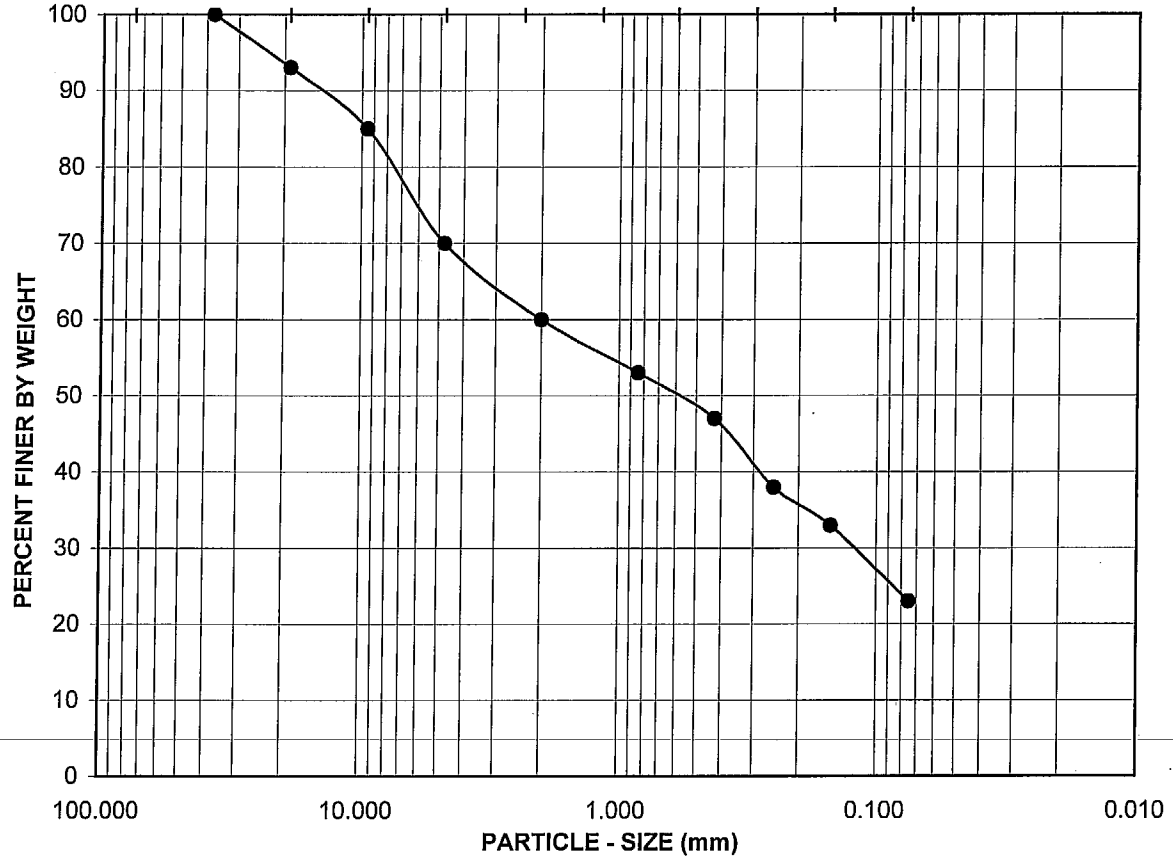
03-04

Sievemontblgc1s10



GRAVEL		SAND			FINES
COARSE	FINE	CRSE	MEDIUM	FINE	SILT

U.S. STANDARD SIEVE OPENING U.S. STANDARD SIEVE NUMBER HYDROMETER



Boring No.:	Sample No.:	Depth (ft.):	Soil Type	GR:SA:FI	LL,PL,PI
B-LGC-2	S-8	31	SM	30 : 47 : 23	N/A, N/A, N/A

Visual Sample Description:

Medium Brown Gravelley Silty Sand

LGC

Project No.: 033022-01

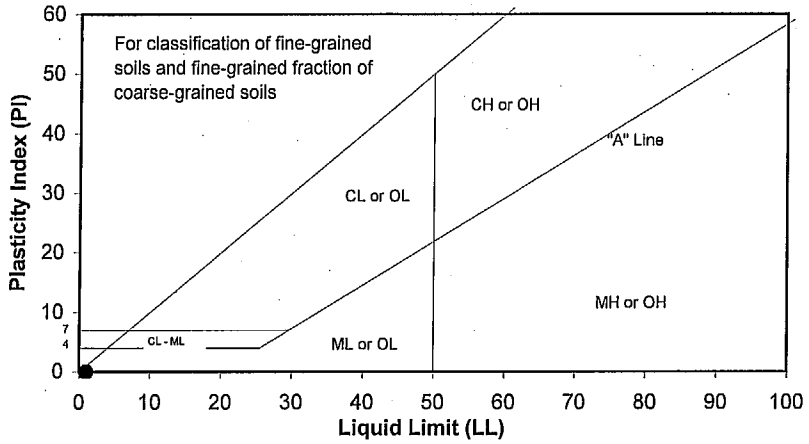
LGC/Monteverde

ATTERBERG LIMITS, PARTICLE - SIZE CURVE

ASTM D 4318, D 422

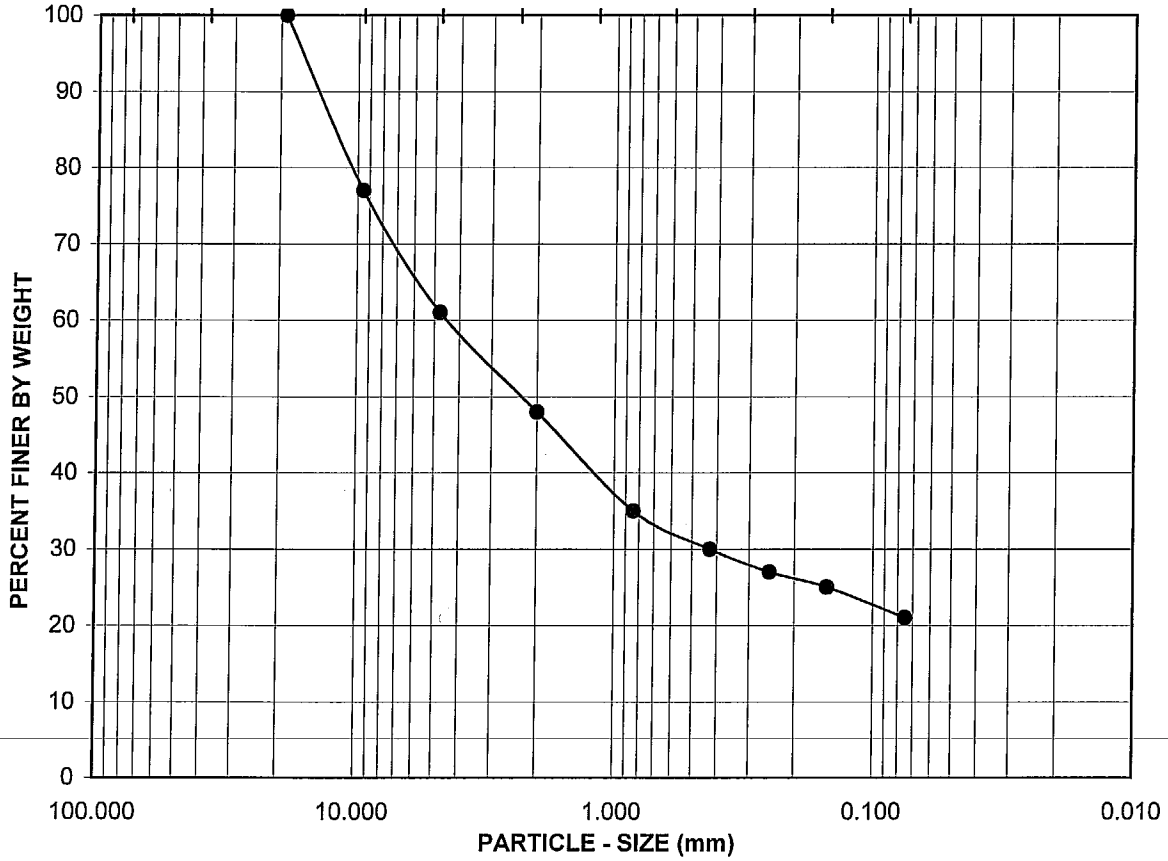
03-04

Sievemontblgc2s8



GRAVEL		SAND			FINES
COARSE	FINE	CRSE	MEDIUM	FINE	SILT

U.S. STANDARD SIEVE OPENING U.S. STANDARD SIEVE NUMBER HYDROMETER



Boring No.:	Sample No.:	Depth (ft.):	Soil Type	GR:SA:FI	LL,PL,PI
B-LGC-2	S-11	45	SM	39 : 40 : 21	N/A, N/A, N/A

Visual Sample Description:

Medium Brown Gravelley Sand with Silt

LGC

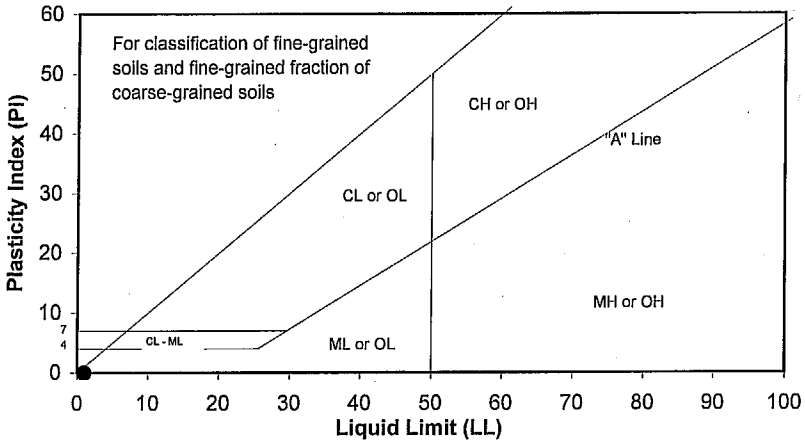
Project No.: 033022-01

LGC/Monteverde

ATTERBERG LIMITS, PARTICLE - SIZE CURVE

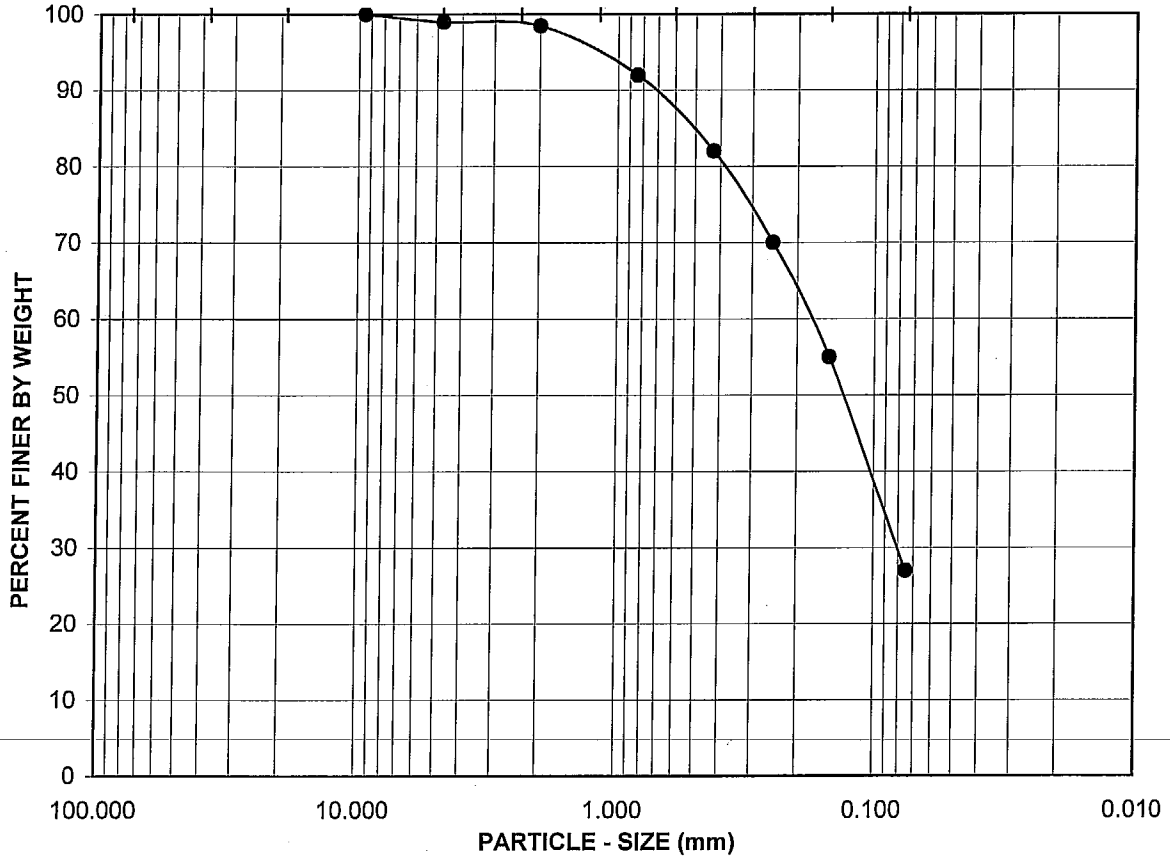
ASTM D 4318, D 422

03-04



GRAVEL		SAND			FINES
COARSE	FINE	CRSE	MEDIUM	FINE	SILT

U.S. STANDARD SIEVE OPENING U.S. STANDARD SIEVE NUMBER HYDROMETER



Boring No.:	Sample No.:	Depth (ft.):	Soil Type	GR:SA:FI	LL,PL,PI
B-LGC-3	S-8	31	SM	1 : 72 : 27	N/A, N/A, N/A

Visual Sample Description:

Medium Brown Silty Sand

LGC

Project No.: 033022-01

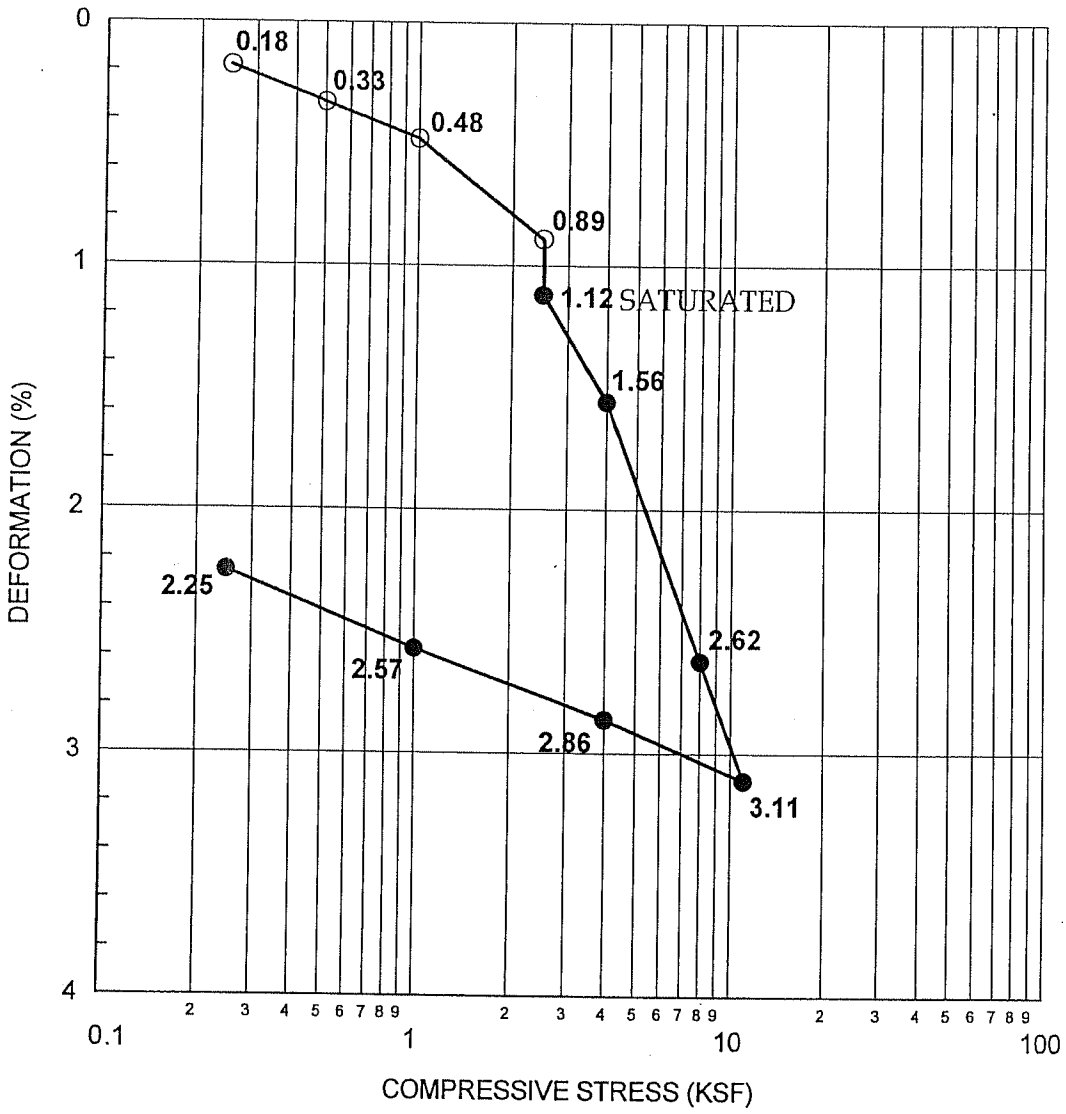
LGC/Monteverde

ATTERBERG LIMITS, PARTICLE - SIZE CURVE

ASTM D 4318, D 422

03-04

Sievemontblgc3s8



SYMBOL	BORING NO	SAMPLE NO	DEPTH (FT)	SOIL TYPE	INIT. MOISTURE CONTENT (%)	INIT. DRY DENSITY (PCF)	INIT. VOID RATIO
○	B-LGC-1	R-7	30	SM	6.2	106.8	0.578

ENVIRONMENTAL GEOTECHNOLOGY LABORATORY

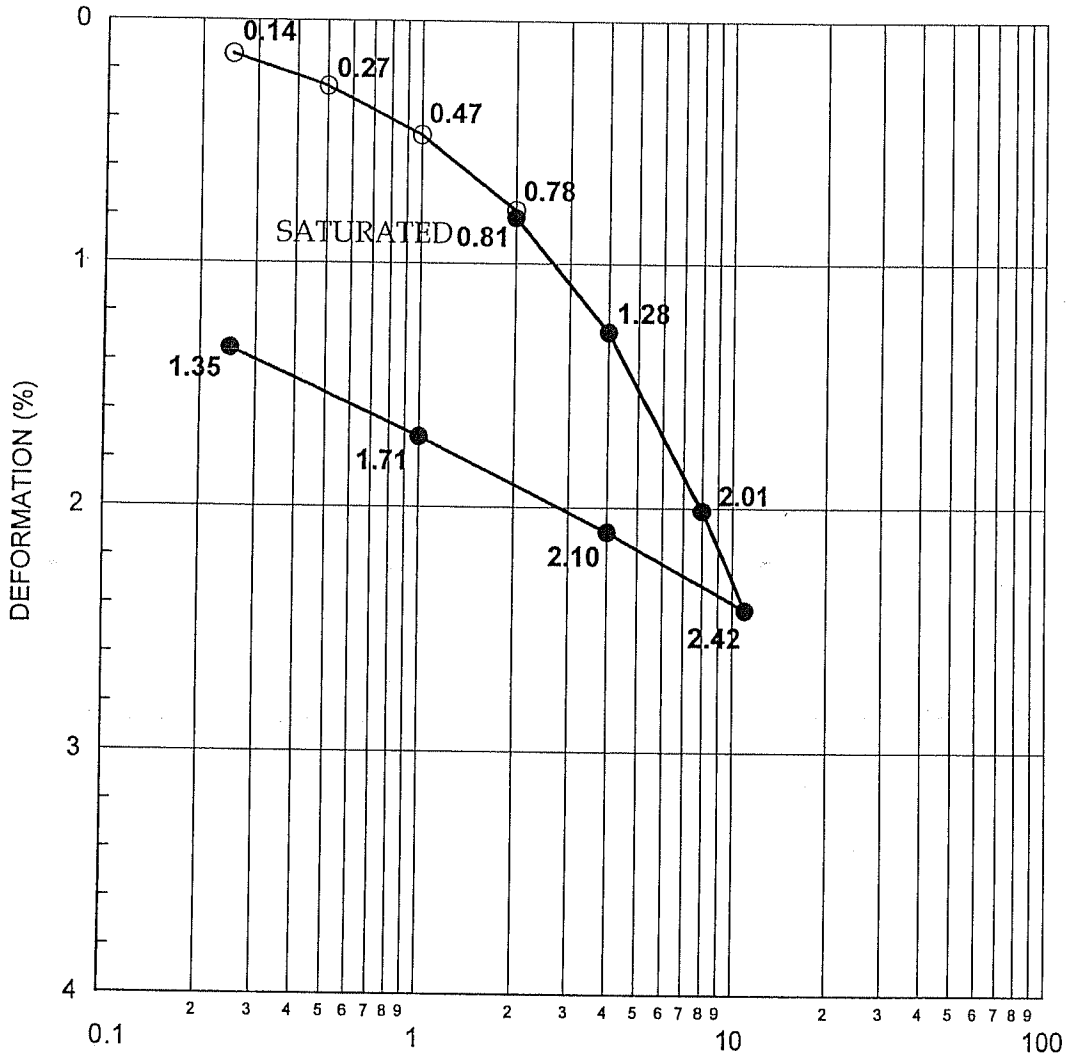
Project Name:
Monte Verde / Santa Clarita
Client: LGC
Job No.: 033022-04
EGL Project No.: 07-059-001

CONSOLIDATION

(ASTM D2435)

01/07

FIGURE



SYMBOL	BORING NO	SAMPLE NO	DEPTH (FT)	SOIL TYPE	INIT. MOISTURE CONTENT (%)	INIT. DRY DENSITY (PCF)	INIT. VOID RATIO
○	B-LGC-2	R-6	25	SC-SM	11.4	107.4	0.568

ENVIRONMENTAL GEOTECHNOLOGY LABORATORY

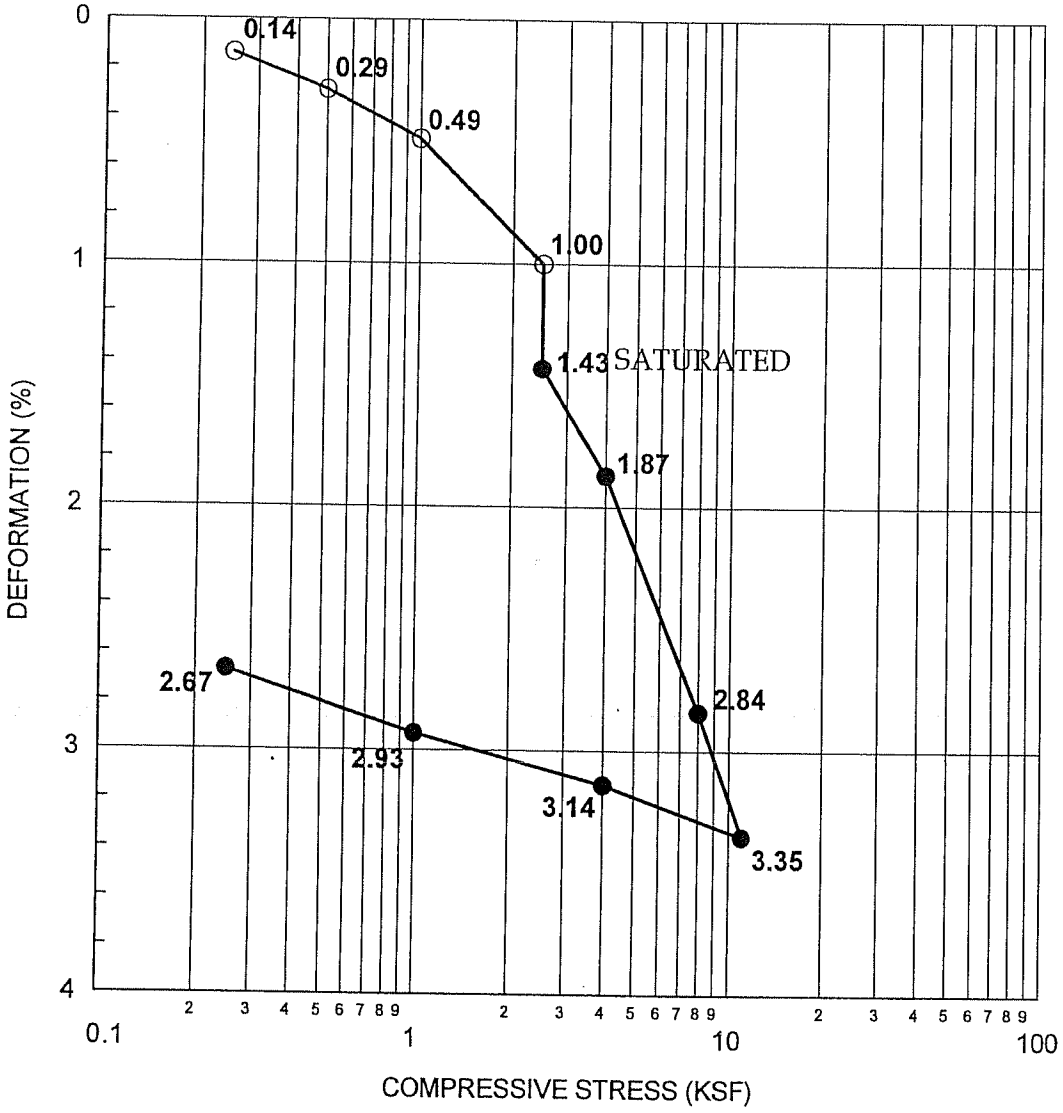
Project Name:
Monte Verde / Santa Clarita
Client: LGC
Job No.: 033022-04
EGL Project No.: 07-059-001

CONSOLIDATION

(ASTM D2435)

01/07

FIGURE



SYMBOL	BORING NO	SAMPLE NO	DEPTH (FT)	SOIL TYPE	INIT. MOISTURE CONTENT (%)	INIT. DRY DENSITY (PCF)	INIT. VOID RATIO
○	B-LGC-3	R-5	30	SM	9.3	114.2	0.475

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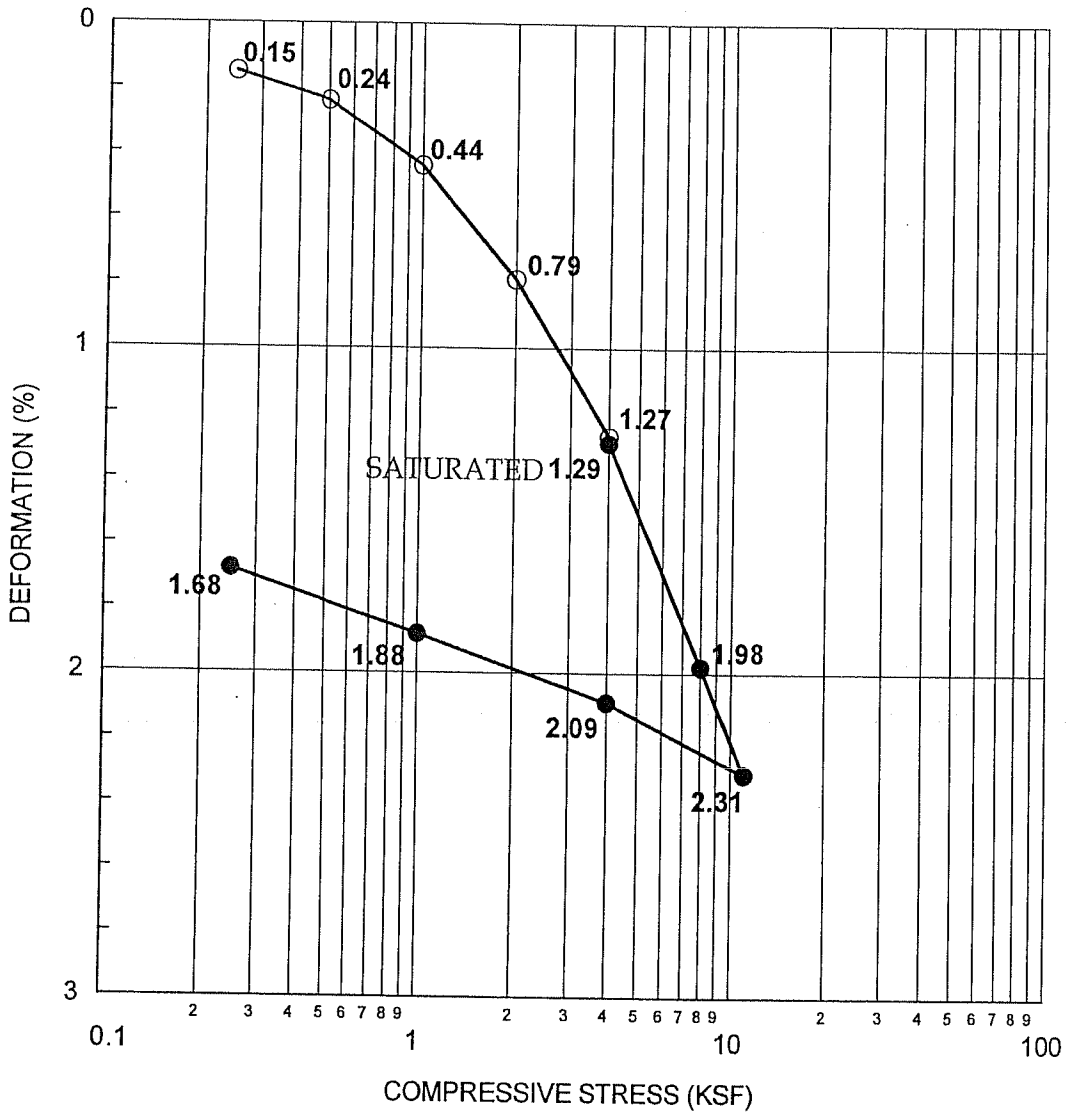
(ASTM D2435)

01/07

FIGURE



SYMBOL	BORING NO	SAMPLE NO	DEPTH (FT)	SOIL TYPE	INIT. MOISTURE CONTENT (%)	INIT. DRY DENSITY (PCF)	INIT. VOID RATIO
○	B-LGC-8	R-6	40	SC	15.4	119.4	0.410

ENVIRONMENTAL GEOTECHNOLOGY LABORATORY

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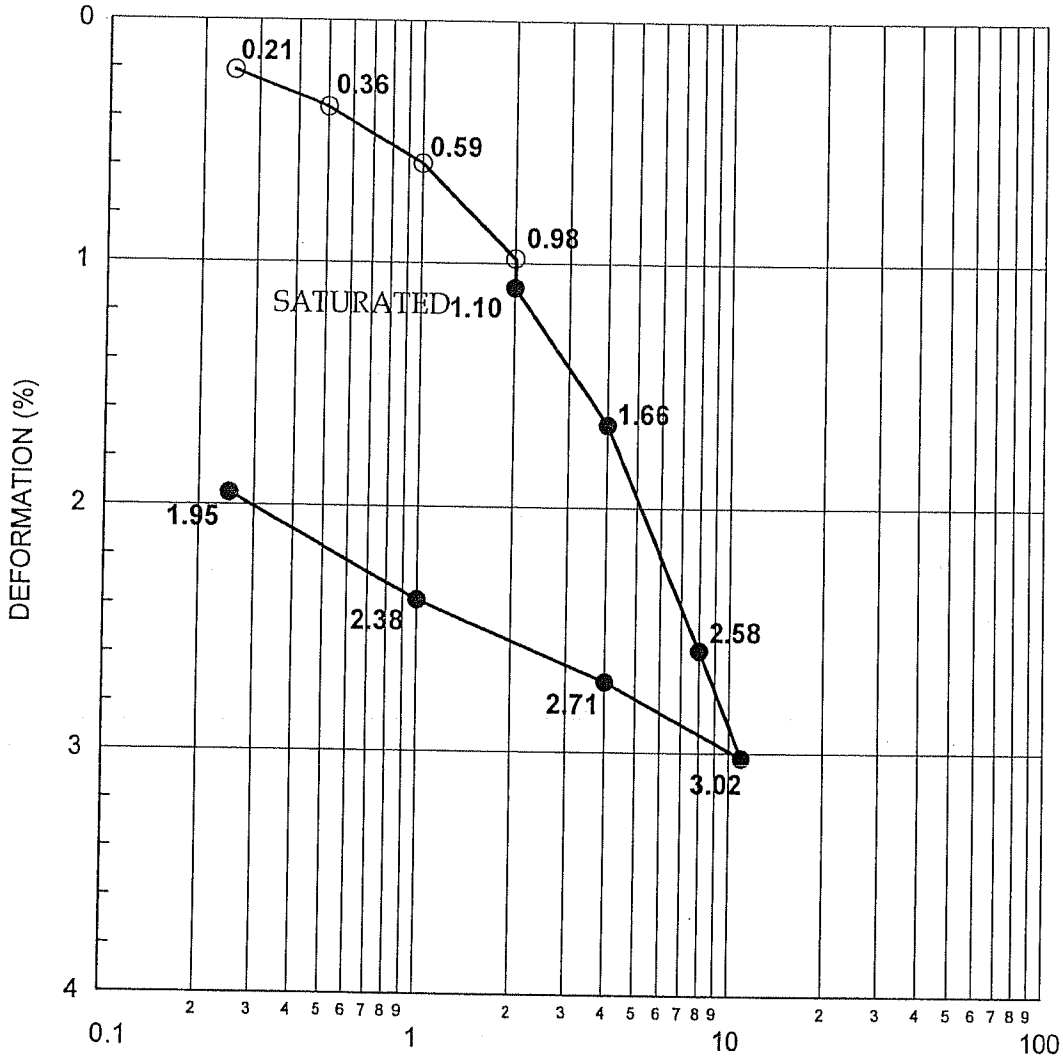
FIGURE



SYMBOL	BORING NO	SAMPLE NO	DEPTH (FT)	SOIL TYPE	INIT. MOISTURE CONTENT (%)	INIT. DRY DENSITY (PCF)	INIT. VOID RATIO
○	B-LGC-9	R-5	25	SM	4.5	121.4	0.388

ENVIRONMENTAL GEOTECHNOLOGY LABORATORY

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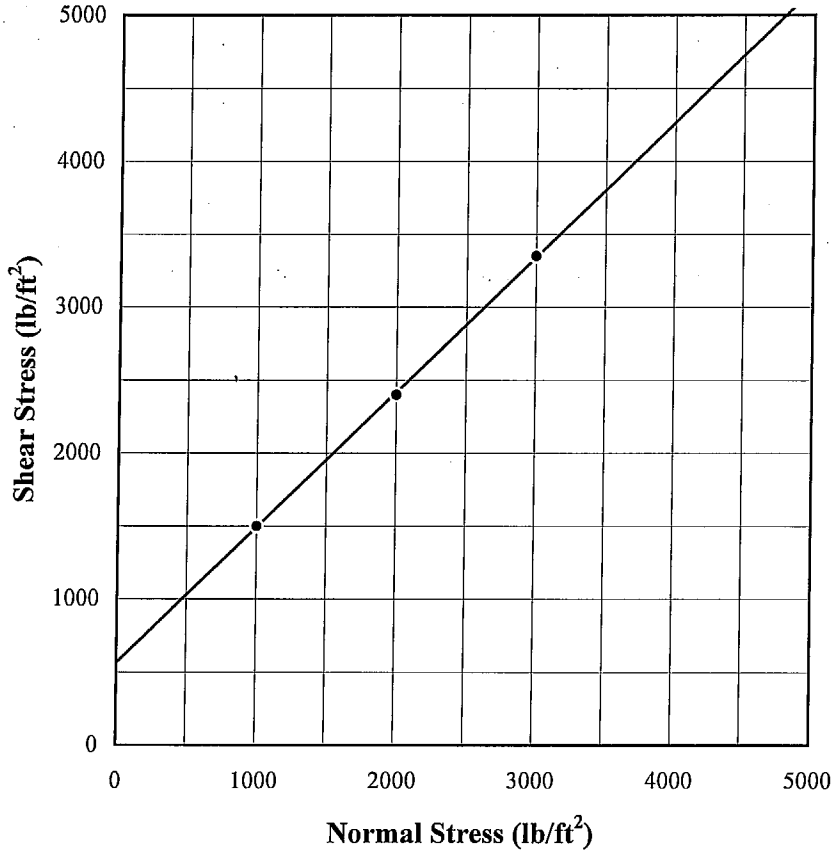
FIGURE



—— Least-Squares Best Fit Line (c =550 lb/ft2, phi =43 degrees)

• LGC 2004, B-LGC-1 @ 51', Silty Sand, Undisturbed Sample, 1st-Run Ultimate

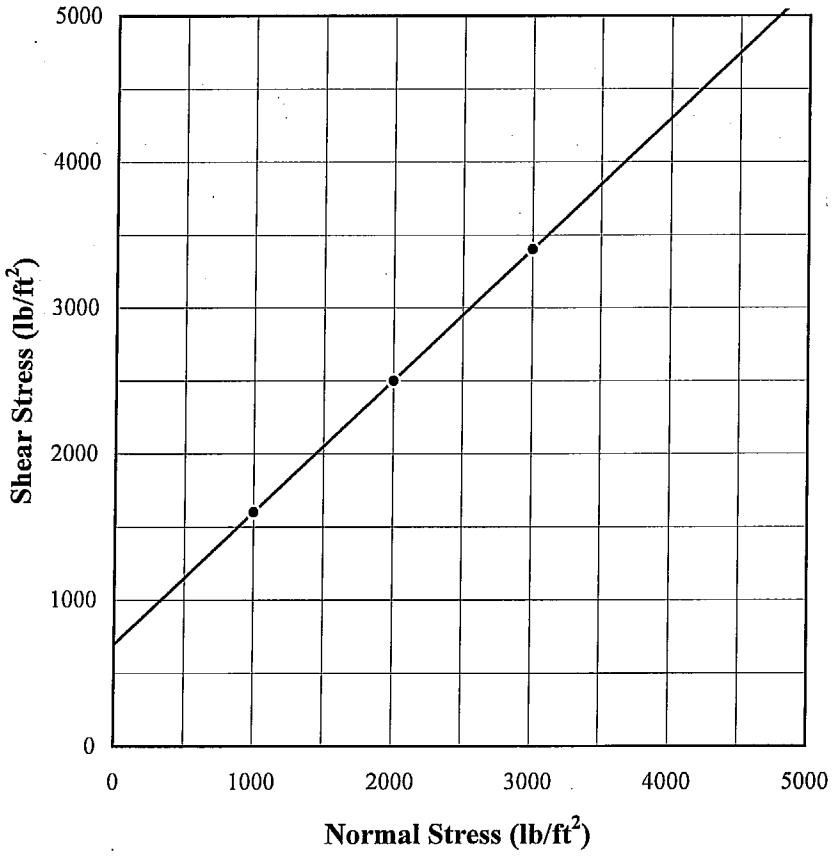
DIRECT SHEAR TEST

Hawkbryn, Santa Clarita

Project No: 033022-01
Drafted By: BIH
Date : 03/24/04

Figure No :

LGC



—— Least-Squares Best Fit Line (c =700 lb/ft2, phi =42 degrees)

• LGC 2004, B-LGC-1 @ 51', Silty Sand, Undisturbed Sample, 1st-Run Peak

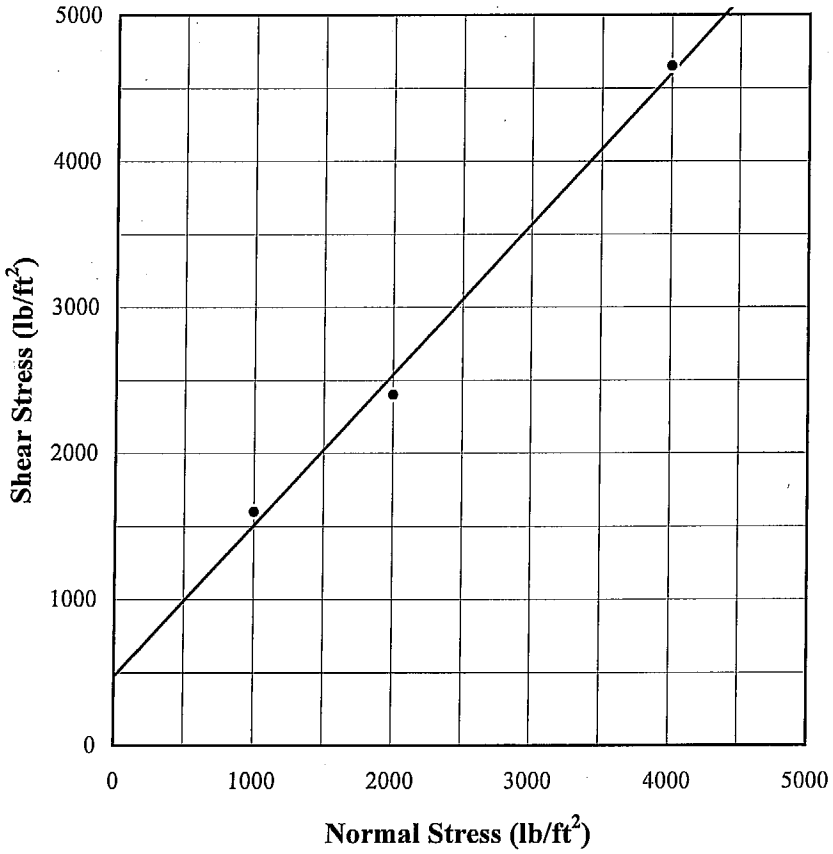
DIRECT SHEAR TEST

Hawkbryn, Santa Clarita

Project No: 033022-01
Drafted By: BIH
Date : 03/24/04

Figure No :

LGC



—— Least-Squares Best Fit Line (c =475 lb/ft2, phi =46 degrees)

• LGC 2004, B-LGC-2 @ 0-5', Silty Sand, Remolded Sample to 90%RC, 1st-Run Ultimate

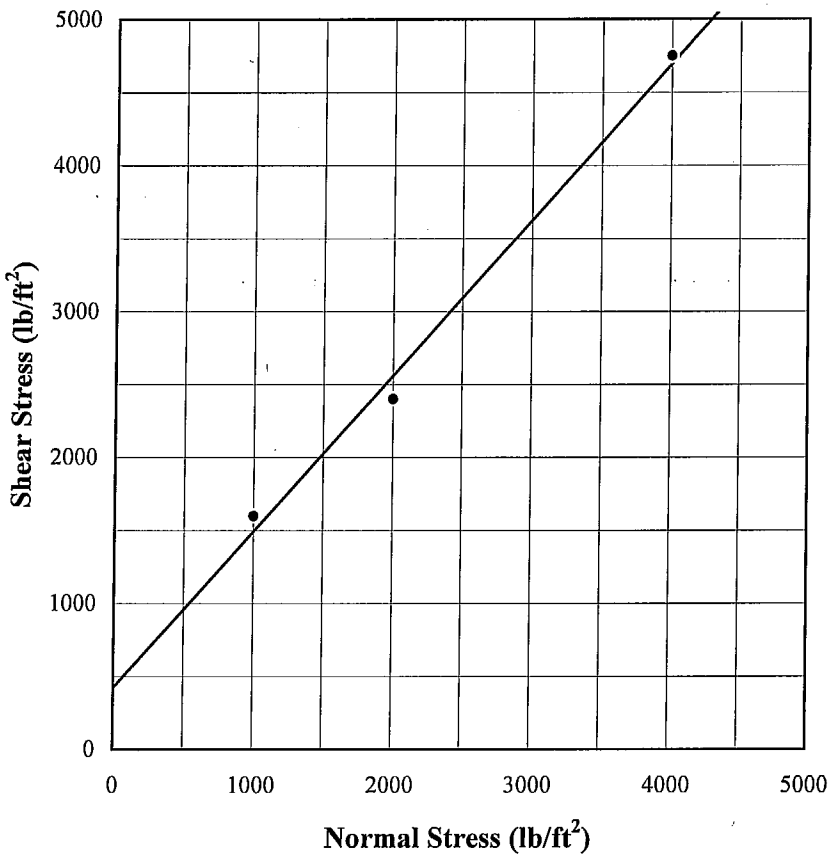
DIRECT SHEAR TEST

Hawkbryn, Santa Clarita

Project No: 033022-01
Drafted By: BIH
Date : 03/24/04

Figure No :

LGC



—— Least-Squares Best Fit Line (c =425 lb/ft2, phi =47 degrees)

• LGC 2004, B-LGC-2 @ 0-5', Silty Sand, Remolded Sample to 90%RC, 1st-Run Peak

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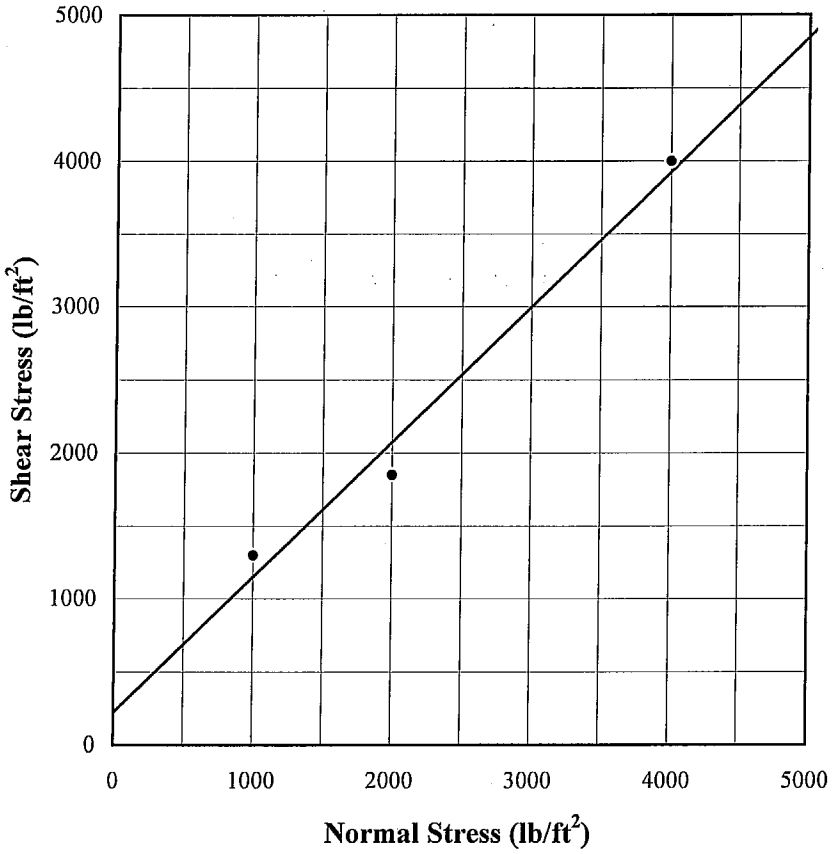
Hawkbryn, Santa Clarita

Project No: 033022-01
Drafted By: BIH
Date : 03/24/04

Figure No :

LGC



——— Least-Squares Best Fit Line (c =225 lb/ft2, phi =43 degrees)

• LGC 2004, B-LGC-3 @ 21', Silty Sand, Undisturbed Sample, 1st-Run Ultimate

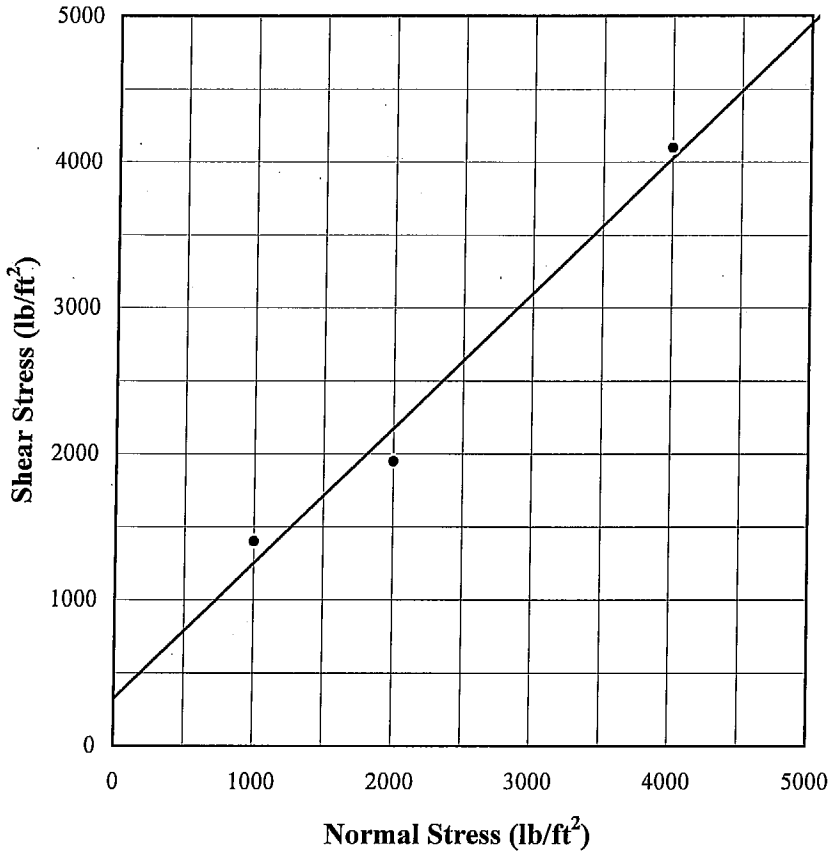
DIRECT SHEAR TEST

Hawkbryn, Santa Clarita

Project No: 033022-01
Drafted By: BIH
Date : 03/24/04

Figure No :

LGC



—— Least-Squares Best Fit Line (c =325 lb/ft2, phi =43 degrees)

• LGC 2004, B-LGC-3 @ 21', Silty Sand, Undisturbed Sample, 1st-Run Peak

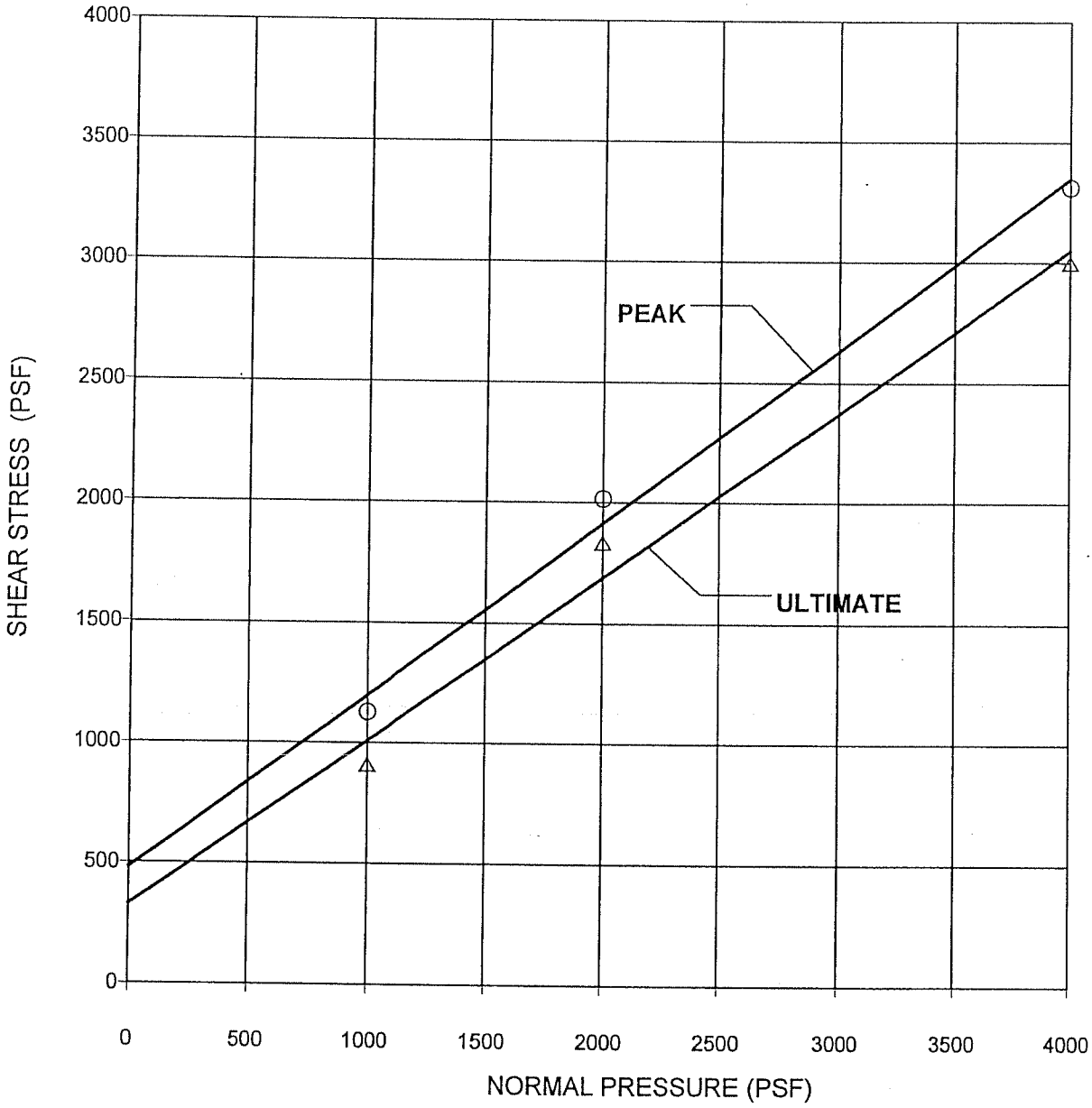
DIRECT SHEAR TEST

Hawkbryn, Santa Clarita

Project No: 033022-01
Drafted By: BIH
Date : 03/24/04

Figure No :

LGC



SYMBOL	BOREHOLE NUMBER	SAMPLE NUMBER	DEPTH (FT)	SAMPLE TYPE	SOIL TYPE	COHESION (PSF)	FRICTION ANGLE (DEG)
○ ULTIMATE	B-LGC-1	R-9	40	RING	SM	480	36
△ RESIDUAL						325	34

Vertical Loads (PSF)	Moisture Content Before Test (%)	Moisture Content After Test (%)
1000	6.9	16.6
2000	6.9	17.0
4000	6.9	15.7

Environmental Geotechnology Laboratory

Project Address:
Monte Verde / Santa Clarita
Client: LGC
Job No.: 033022-04
EGL Project No.: 07-059-001

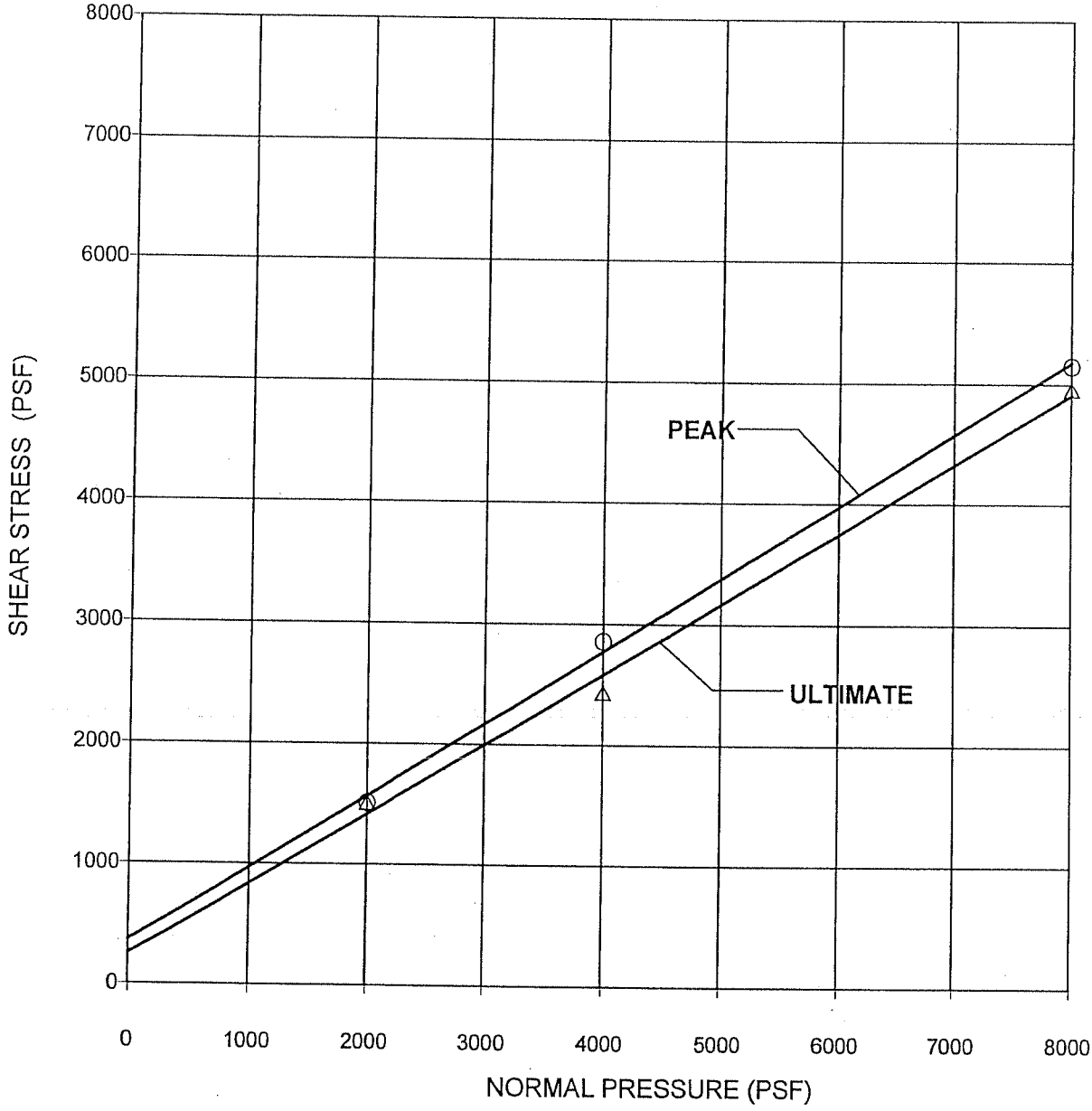
DIRECT SHEAR

(ASTM D3080)

01/07

FIGURE

11819 Goldring Road, Unit A, Arcadia, CA 91006. Tel: (626) 263-3588; Fax: (626) 263-3599



SYMBOL	BOREHOLE NUMBER	SAMPLE NUMBER	DEPTH (FT)	SAMPLE TYPE	SOIL TYPE	COHESION (PSF)	FRICTION ANGLE (DEG)
○ ULTIMATE	B-LGC-1	R-11	50	RING	SM	365	31
△ RESIDUAL						250	30

Vertical Loads (PSF)	Moisture Content Before Test (%)	Moisture Content After Test (%)
2000	10.6	19.3
4000	10.6	19.2
8000	10.6	17.1

Environmental Geotechnology Laboratory

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DIRECT SHEAR

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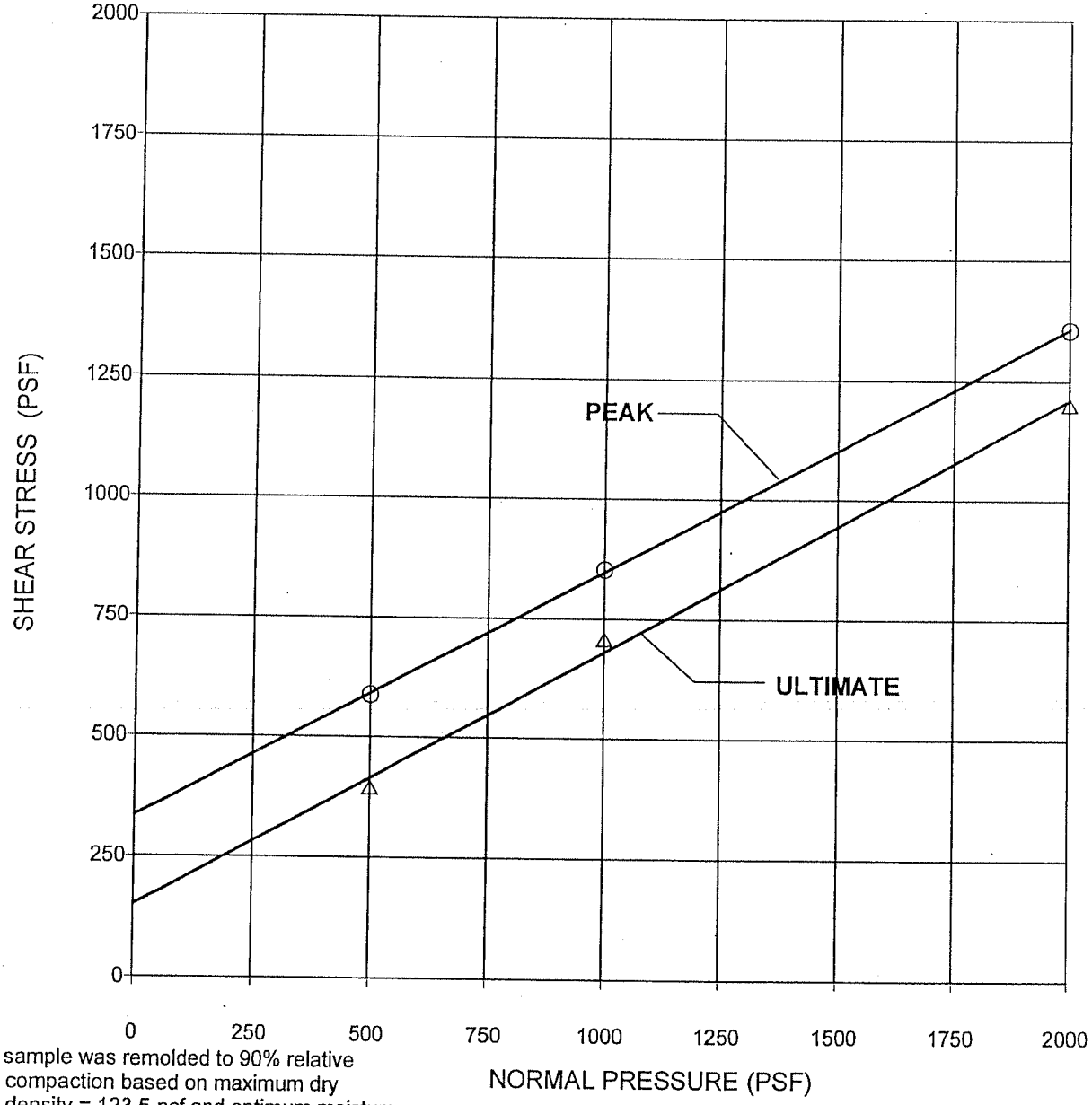

Note: sample was remolded to 90% relative compaction based on maximum dry density = 123.5 pcf and optimum moisture = 11.0%

SYMBOL	BOREHOLE NUMBER	SAMPLE NUMBER	DEPTH (FT)	SAMPLE TYPE	SOIL TYPE	COHESION (PSF)	FRICTION ANGLE (DEG)
○ ULTIMATE	B-LGC-2	BULK	0-5	REMOLD	ML/CL	335	27
△ RESIDUAL						150	28

Vertical Loads (PSF)	Moisture Content Before Test (%)	Moisture Content After Test (%)
500	11.0	20.6
1000	11.0	20.1
2000	11.0	19.0

Environmental Geotechnology Laboratory

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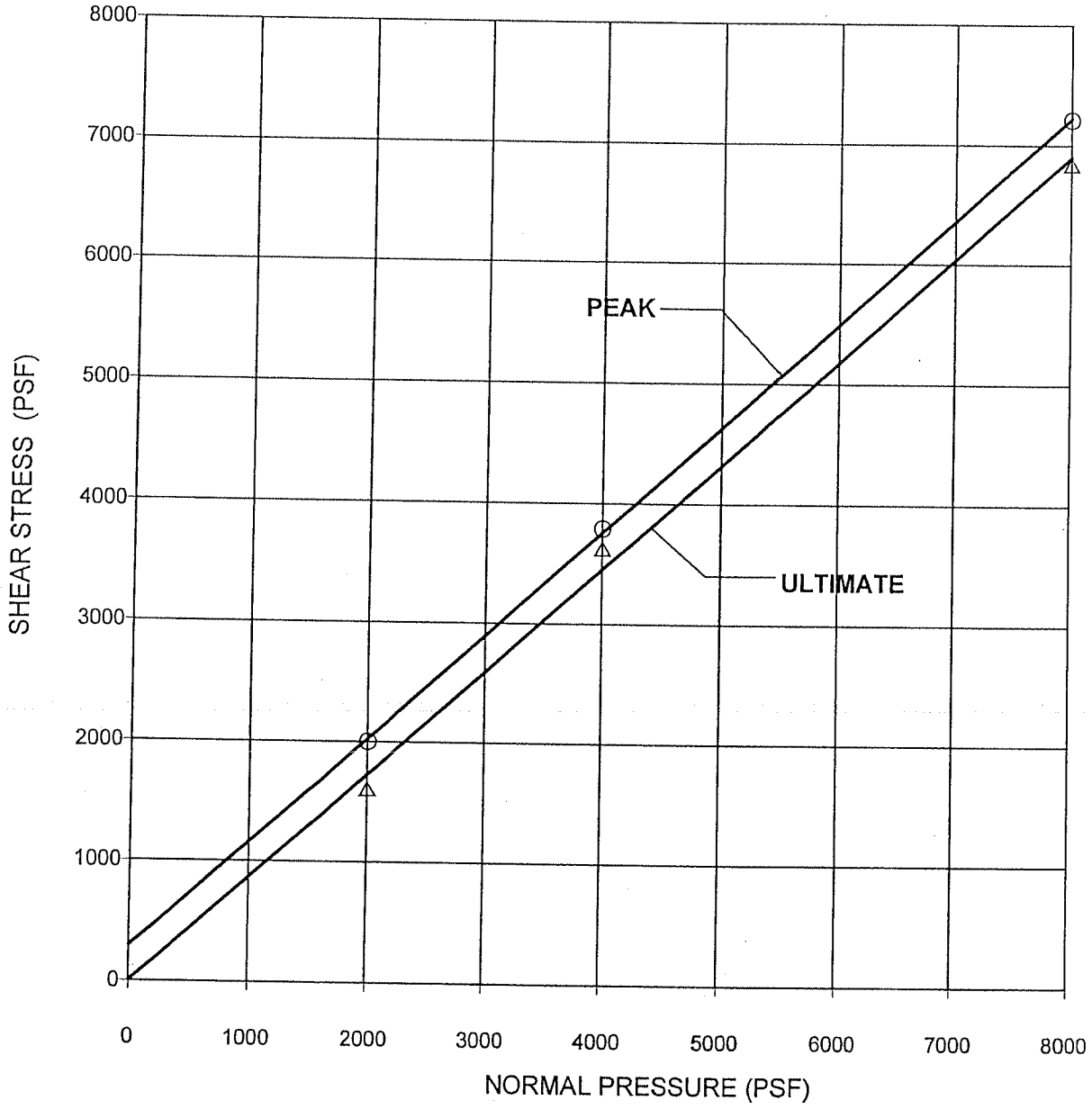

SYMBOL	BOREHOLE NUMBER	SAMPLE NUMBER	DEPTH (FT)	SAMPLE TYPE	SOIL TYPE	COHESION (PSF)	FRICTION ANGLE (DEG)
○ ULTIMATE	B-LGC-2	R-9	45	RING	SM/CL	295	41
△ RESIDUAL						5	41

Vertical Loads (PSF)	Moisture Content Before Test (%)	Moisture Content After Test (%)
2000	12.7	27.1
4000	12.7	20.8
8000	12.7	22.2

Environmental Geotechnology Laboratory

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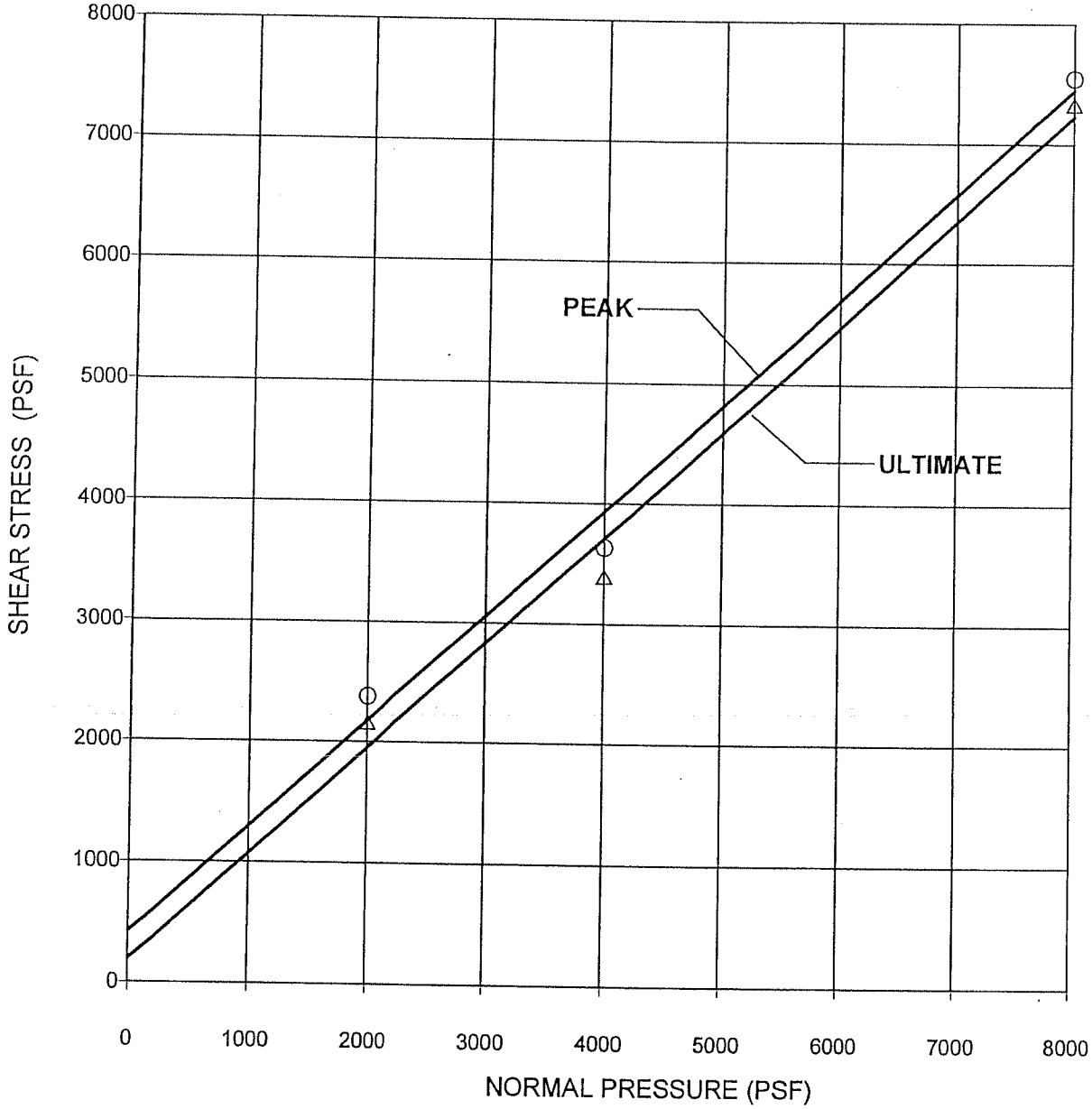

SYMBOL	BOREHOLE NUMBER	SAMPLE NUMBER	DEPTH (FT)	SAMPLE TYPE	SOIL TYPE	COHESION (PSF)	FRICTION ANGLE (DEG)
○ ULTIMATE	B-LGC-2	R-13	65	RING	SC	420	41
△ RESIDUAL						190	41

Vertical Loads (PSF)	Moisture Content Before Test (%)	Moisture Content After Test (%)
2000	10.1	17.1
4000	10.1	16.8
8000	10.1	14.9

Environmental Geotechnology Laboratory

Project Address:
Monte Verde / Santa Clarita
Client: LGC
Job No.: 033022-04
EGL Project No.: 07-059-001

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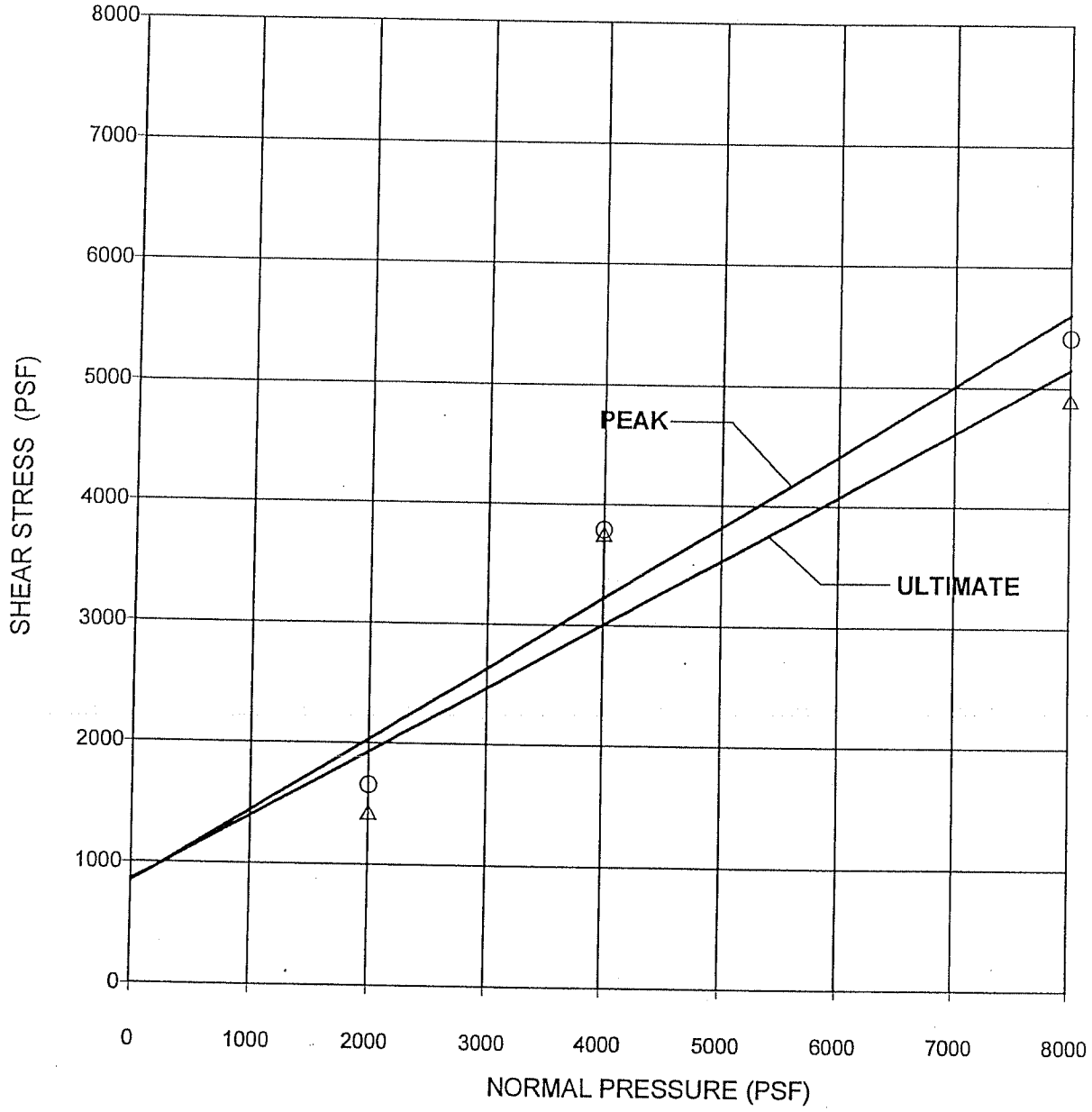

SYMBOL	BOREHOLE NUMBER	SAMPLE NUMBER	DEPTH (FT)	SAMPLE TYPE	SOIL TYPE	COHESION (PSF)	FRICTION ANGLE (DEG)
○ ULTIMATE	B-LGC-3	R-6	40	RING	SM	845	31
△ RESIDUAL						860	28

Vertical Loads (PSF)	Moisture Content Before Test (%)	Moisture Content After Test (%)
2000	6.7	19.6
4000	6.7	19.0
8000	6.7	19.6

Environmental Geotechnology Laboratory

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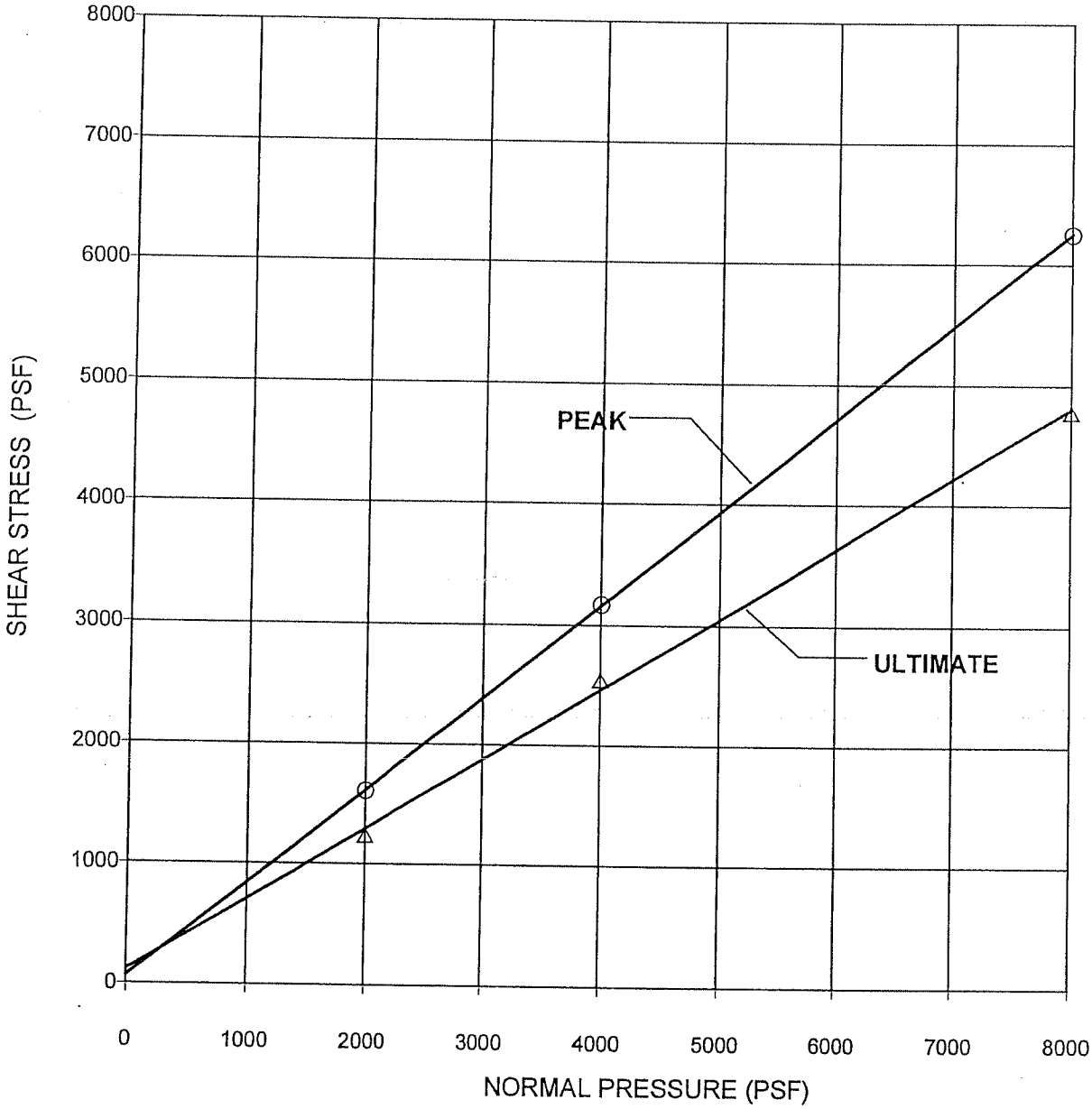

SYMBOL	BOREHOLE NUMBER	SAMPLE NUMBER	DEPTH (FT)	SAMPLE TYPE	SOIL TYPE	COHESION (PSF)	FRICTION ANGLE (DEG)
○ ULTIMATE	B-LGC-4	R-6	45	RING	SP-SM	65	38
△ RESIDUAL						120	30

Vertical Loads (PSF)	Moisture Content Before Test (%)	Moisture Content After Test (%)
2000	6.9	20.1
4000	6.9	18.6
8000	6.9	15.7

Environmental Geotechnology Laboratory

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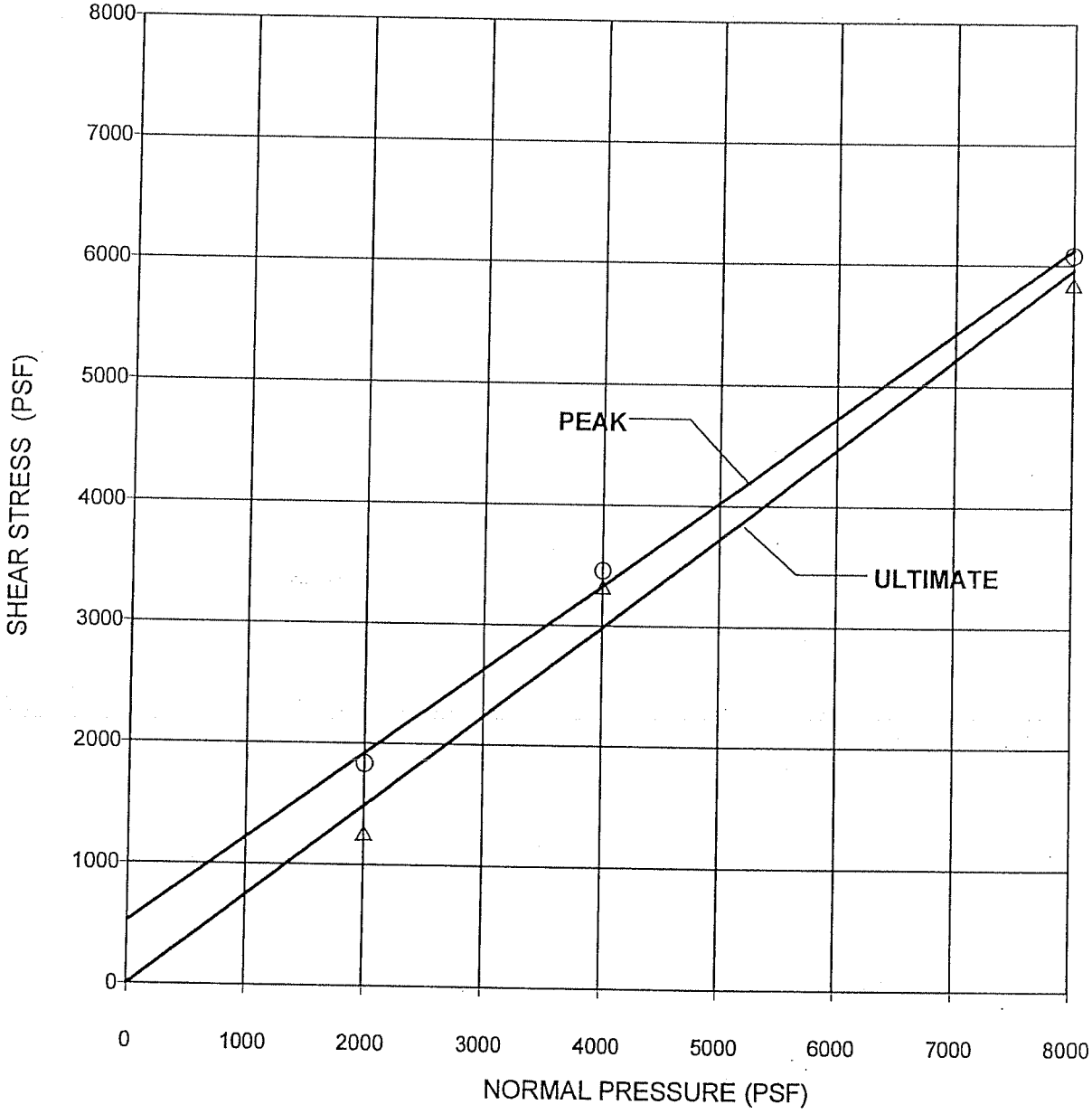

SYMBOL	BOREHOLE NUMBER	SAMPLE NUMBER	DEPTH (FT)	SAMPLE TYPE	SOIL TYPE	COHESION (PSF)	FRICTION ANGLE (DEG)
○ ULTIMATE	B-LGC-5	R-6	50	RING	SM	520	35
△ RESIDUAL						0	37

Vertical Loads (PSF)	Moisture Content Before Test (%)	Moisture Content After Test (%)
2000	8.7	18.0
4000	8.7	18.0
8000	8.7	15.3

Environmental Geotechnology Laboratory

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DIRECT SHEAR

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FIGURE

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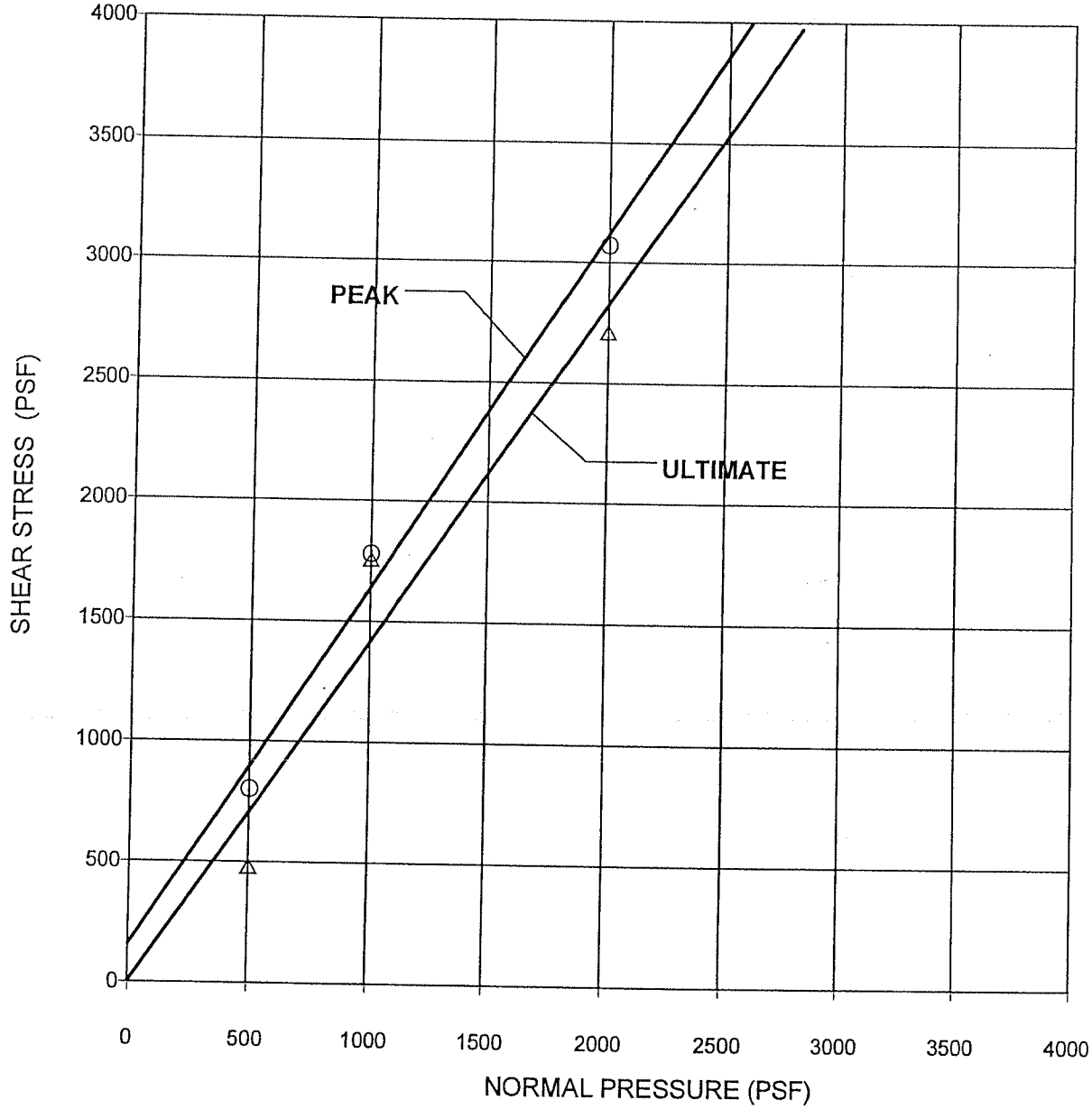

SYMBOL	BOREHOLE NUMBER	SAMPLE NUMBER	DEPTH (FT)	SAMPLE TYPE	SOIL TYPE	COHESION (PSF)	FRICTION ANGLE (DEG)
○ ULTIMATE	B-LGC-6	R-2	10	RING	SM	55	405
△ RESIDUAL						55	0

Vertical Loads (PSF)	Moisture Content Before Test (%)	Moisture Content After Test (%)
500	2.5	17.7
1000	2.5	17.9
2000	2.5	14.3

Environmental Geotechnology Laboratory

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DIRECT SHEAR

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01/07

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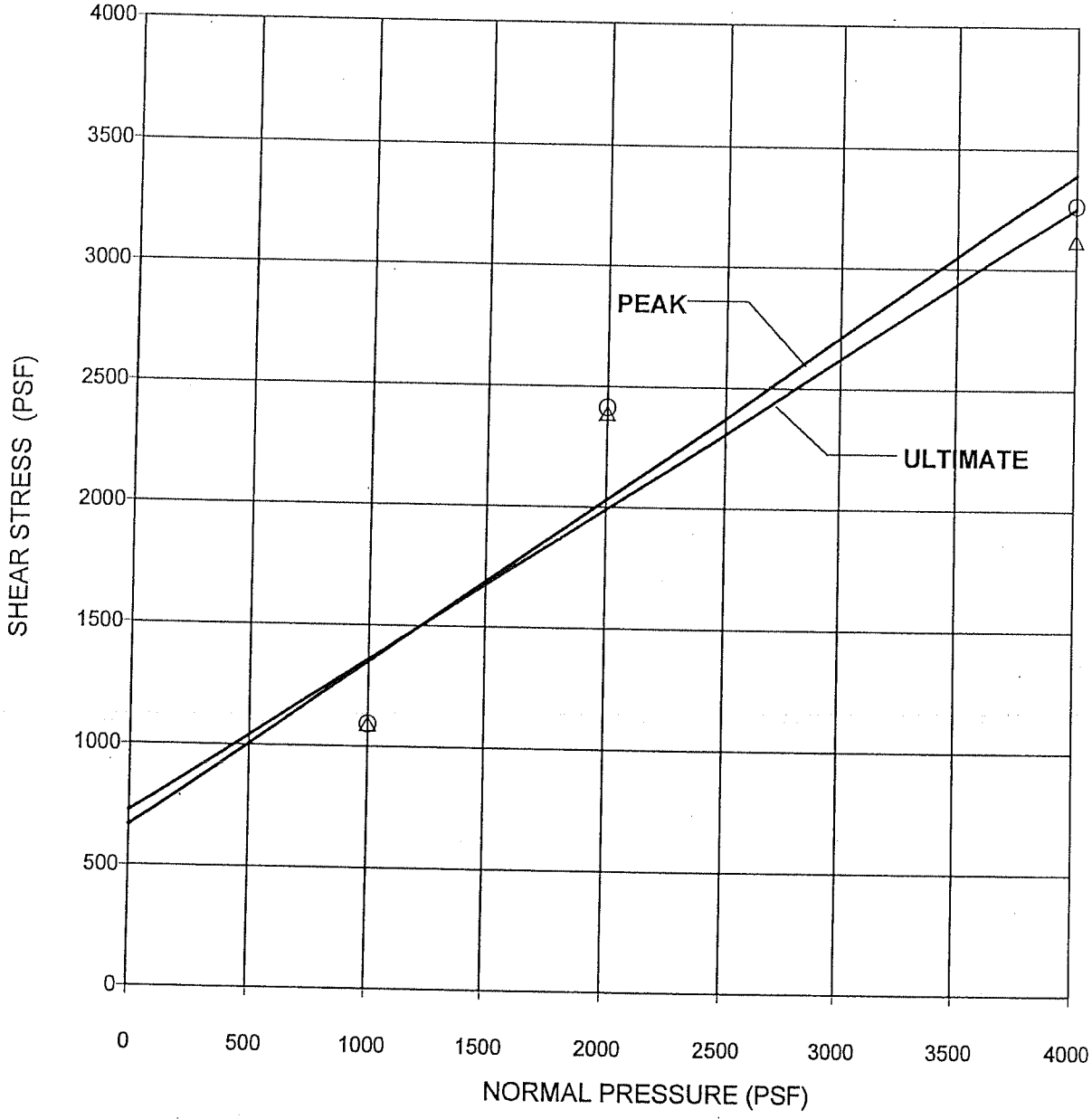

SYMBOL	BOREHOLE NUMBER	SAMPLE NUMBER	DEPTH (FT)	SAMPLE TYPE	SOIL TYPE	COHESION (PSF)	FRICTION ANGLE (DEG)
○ ULTIMATE	B-LGC-6	R-4	30	RING	SM	665	34
△ RESIDUAL						725	32

Vertical Loads (PSF)	Moisture Content Before Test (%)	Moisture Content After Test (%)
1000	5.0	18.6
2000	5.0	17.0
4000	5.0	15.7

Environmental Geotechnology Laboratory

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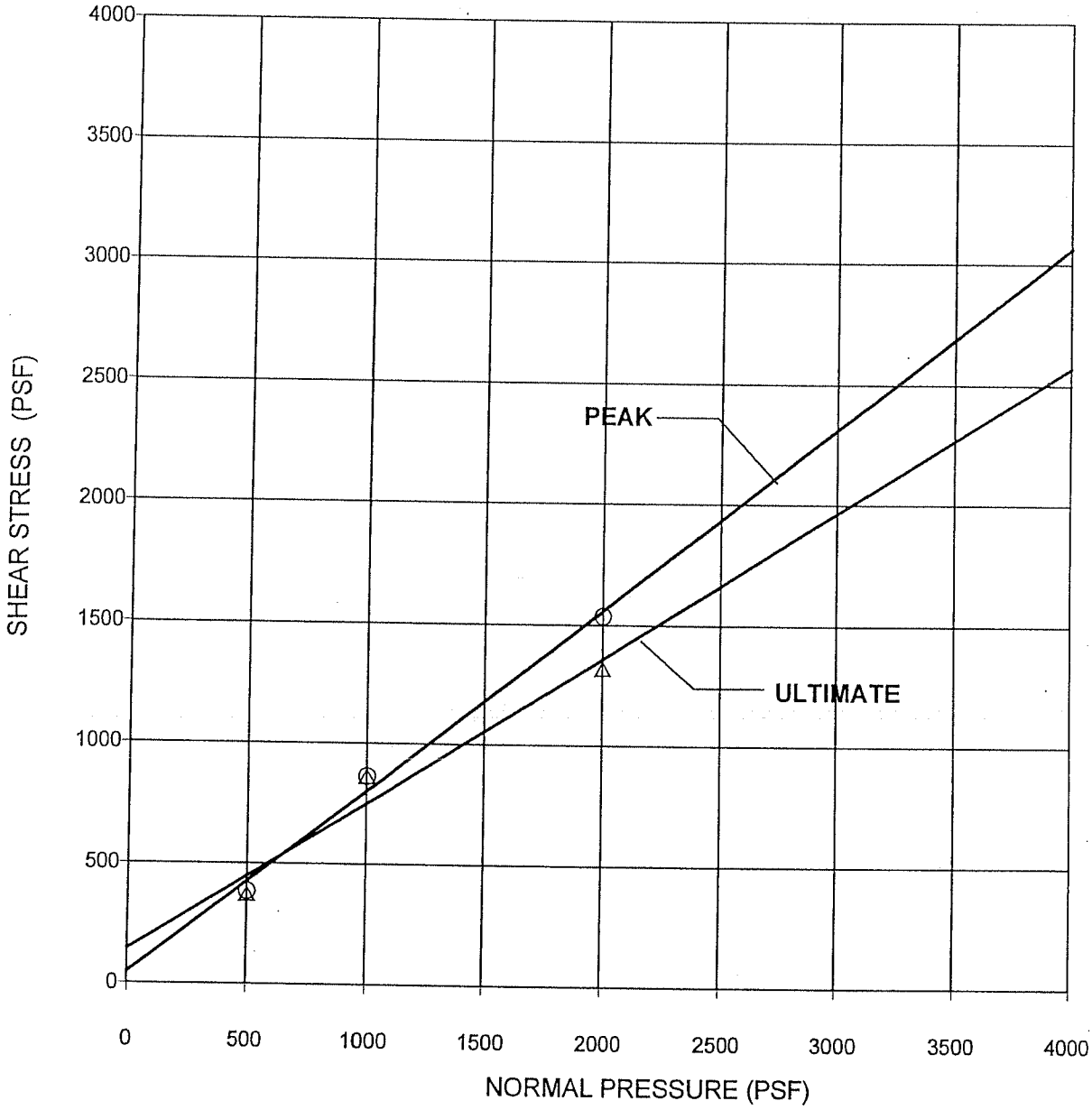

SYMBOL	BOREHOLE NUMBER	SAMPLE NUMBER	DEPTH (FT)	SAMPLE TYPE	SOIL TYPE	COHESION (PSF)	FRICTION ANGLE (DEG)
○ ULTIMATE	B-LGC-7	R-2	5	RING	SC	50	37
△ RESIDUAL						145	31

Vertical Loads (PSF)	Moisture Content Before Test (%)	Moisture Content After Test (%)
500	8.3	22.0
1000	8.3	21.4
2000	8.3	18.0

Environmental Geotechnology Laboratory

Project Address:
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FIGURE

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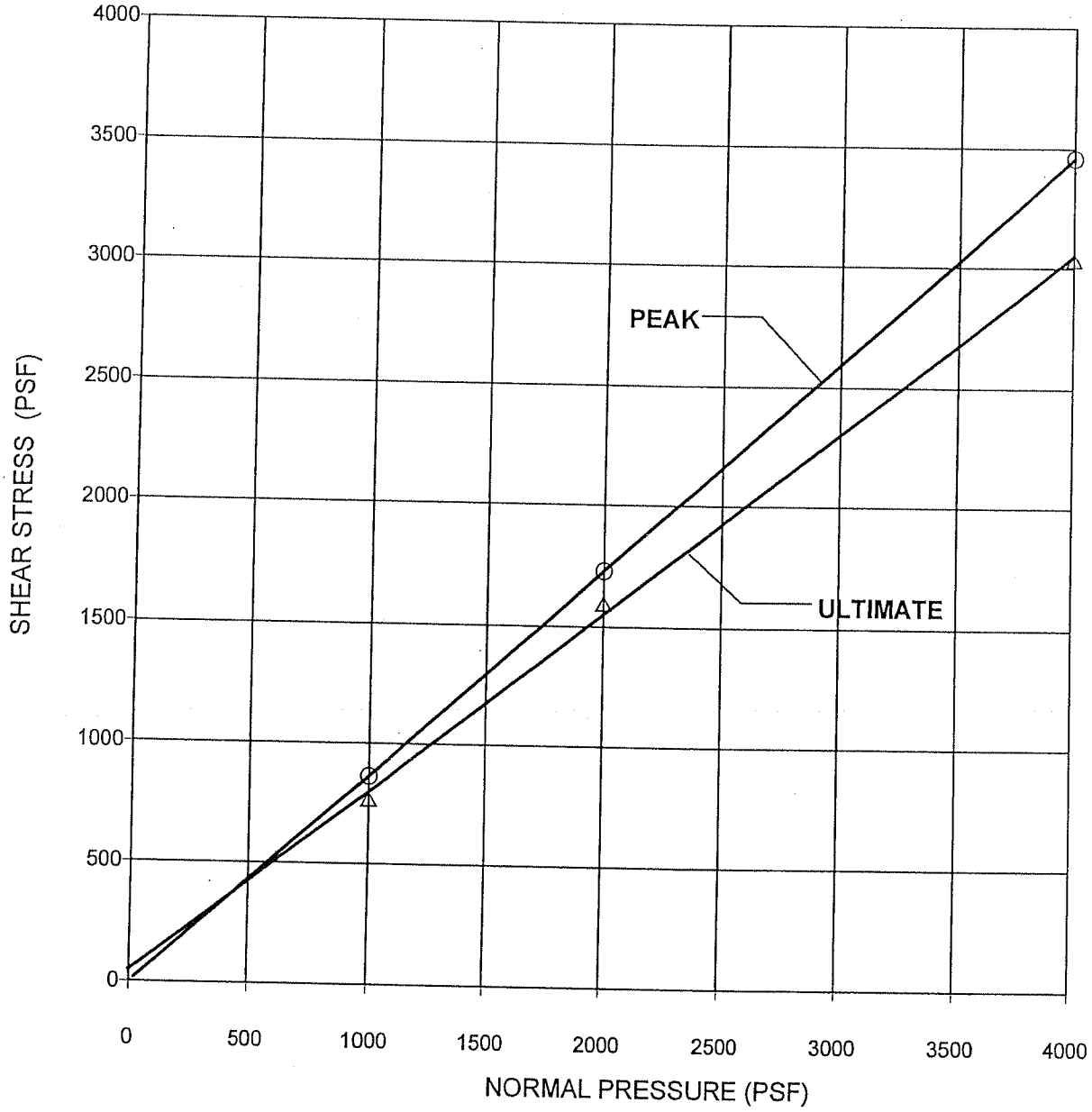

SYMBOL	BOREHOLE NUMBER	SAMPLE NUMBER	DEPTH (FT)	SAMPLE TYPE	SOIL TYPE	COHESION (PSF)	FRICTION ANGLE (DEG)
○ ULTIMATE	B-LGC-7	R-5	25	RING	SM	0	41
△ RESIDUAL						50	37

Vertical Loads (PSF)	Moisture Content Before Test (%)	Moisture Content After Test (%)
1000	5.2	17.6
2000	5.2	18.7
4000	5.2	15.3

Environmental Geotechnology Laboratory

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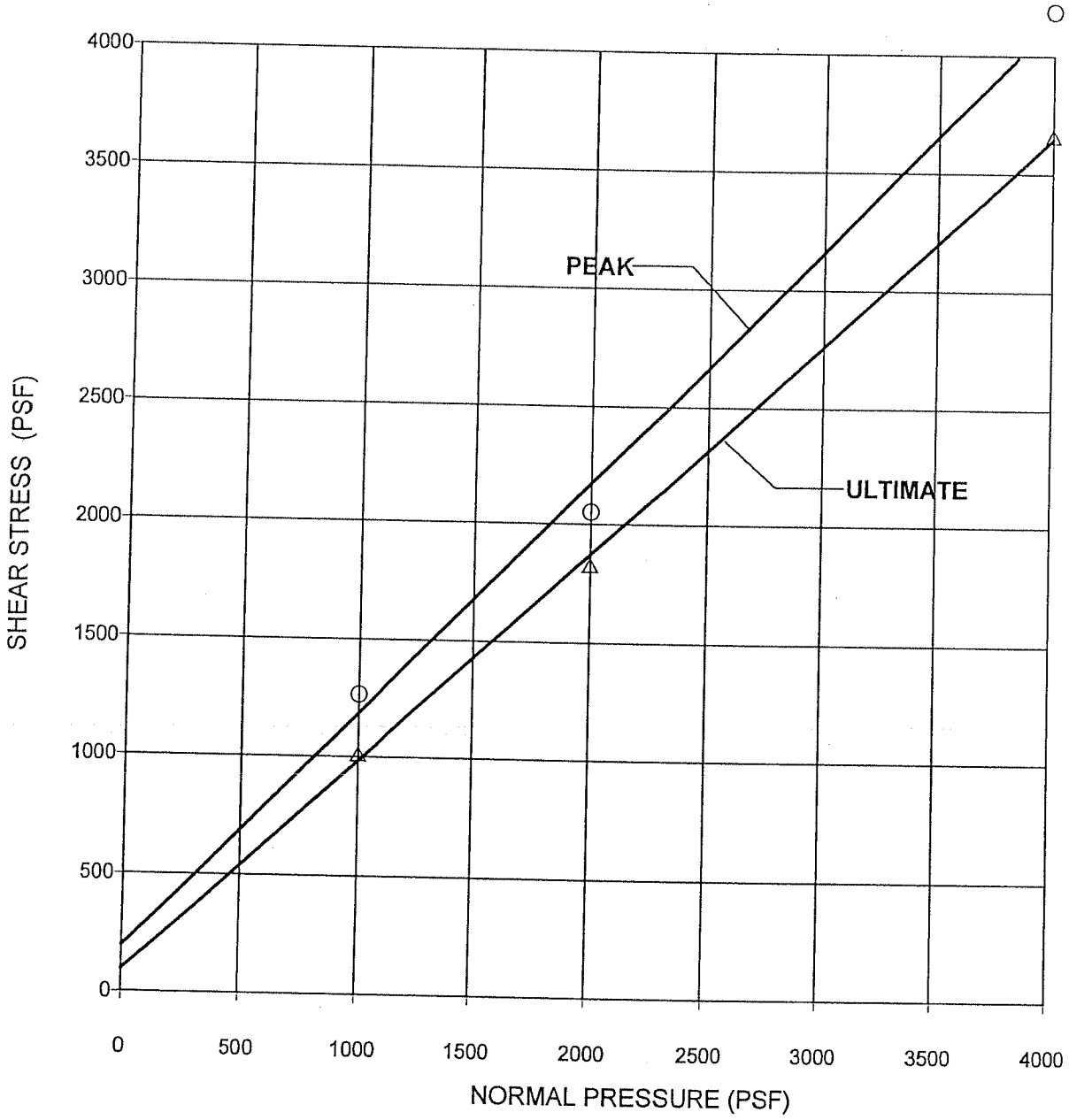
01/07

FIGURE



SYMBOL	BOREHOLE NUMBER	SAMPLE NUMBER	DEPTH (FT)	SAMPLE TYPE	SOIL TYPE	COHESION (PSF)	FRICTION ANGLE (DEG)
○ ULTIMATE	B-LGC-9	R-6	35	RING	SC	195	45
△ RESIDUAL						95	42

Vertical Loads (PSF)	Moisture Content Before Test (%)	Moisture Content After Test (%)
1000	7.8	21.7
2000	7.8	19.3
4000	7.8	15.4

Environmental Geotechnology Laboratory

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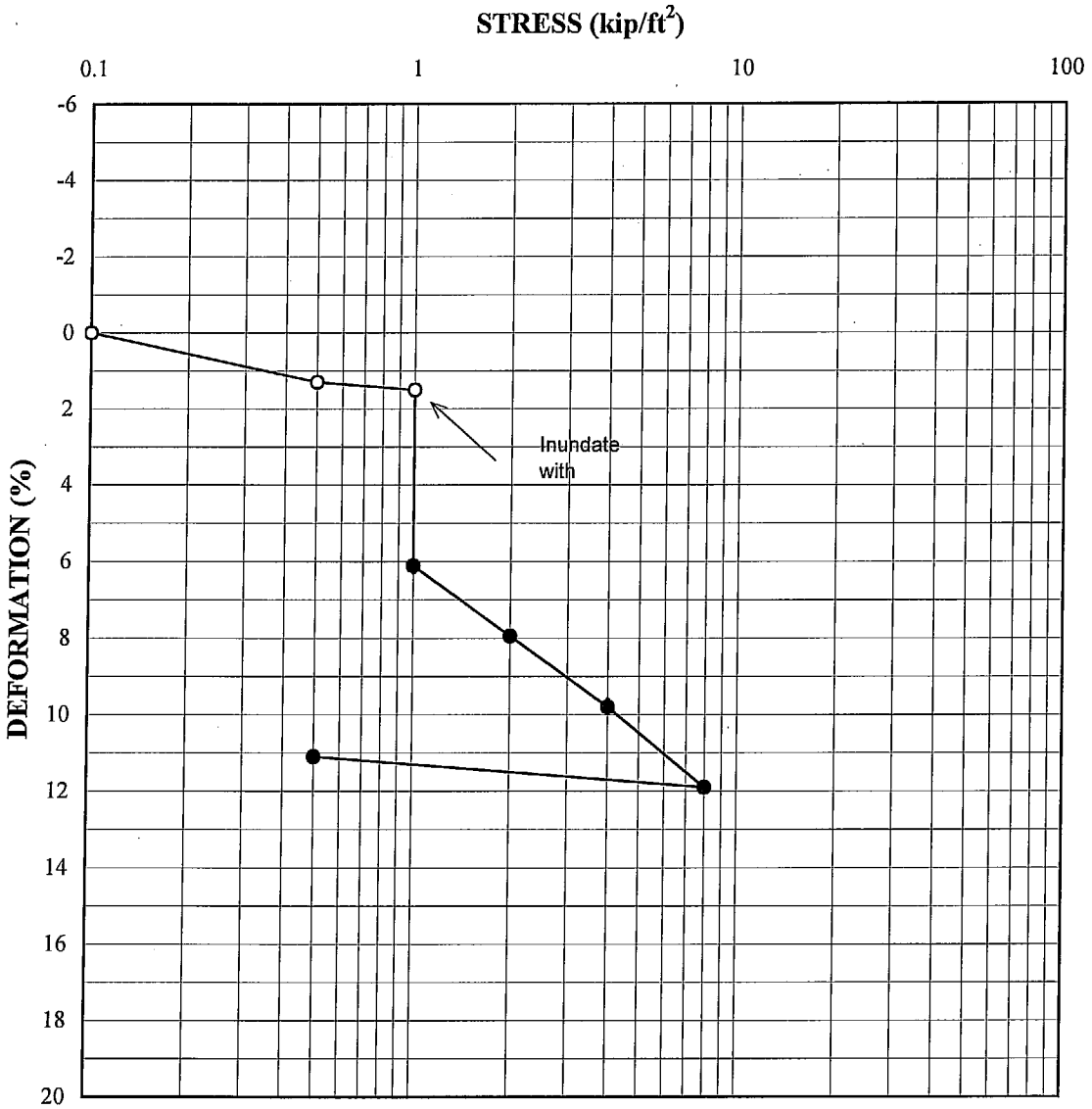


—O— LGC 2004, B-LGC-3 @ 11.0', S-4, Silty Sand with Clay

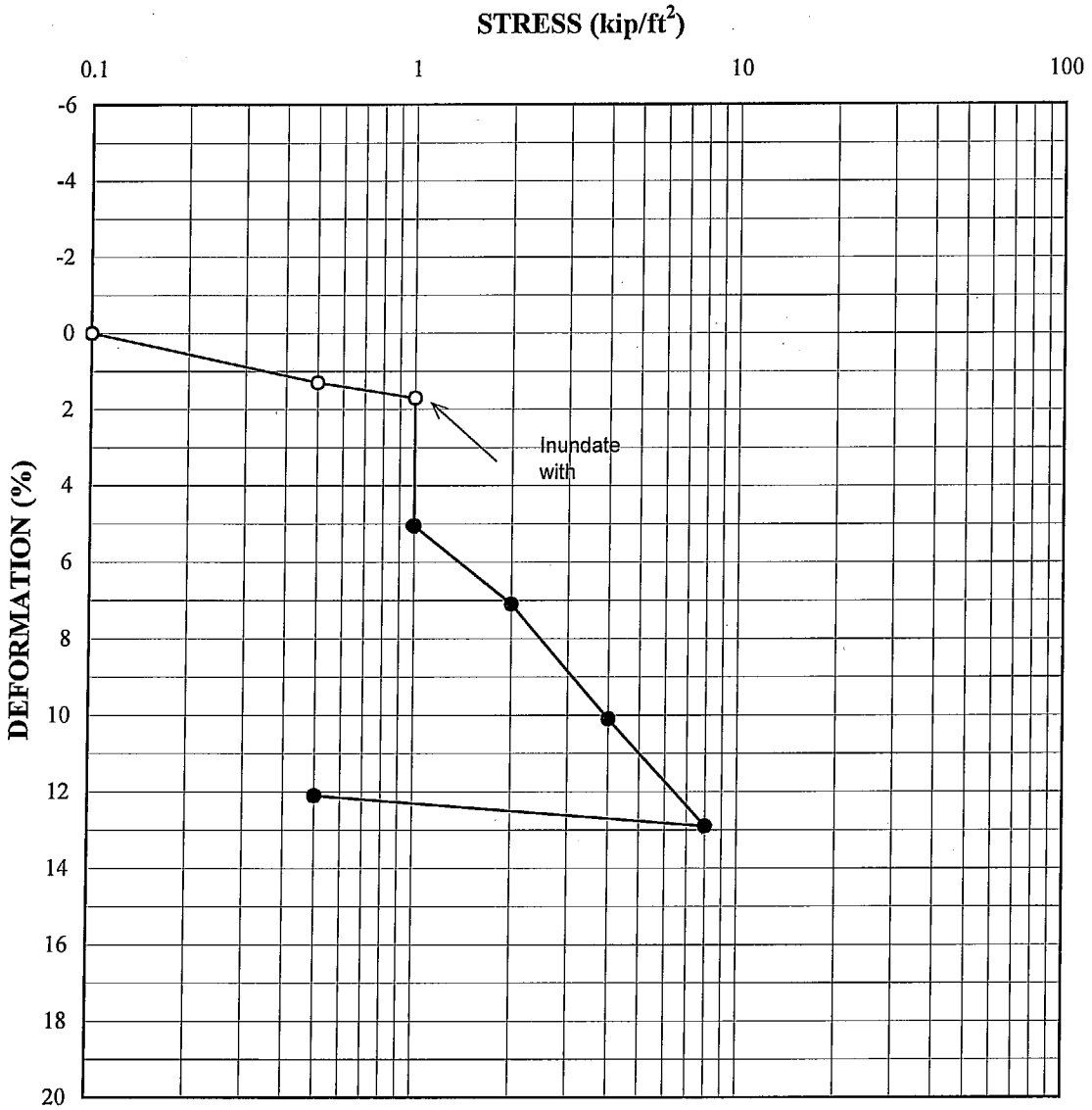
CONSOLIDATION TEST RESULTS

Hawkbryn, Santa Clarita

Project No: 033022-01
Drafted By: BIH
Date : 03/24/04

Figure No :

LGC



—○— LGC 2004, B-LGC-5 @ 11.0', S-4, Silty Sand with Clay

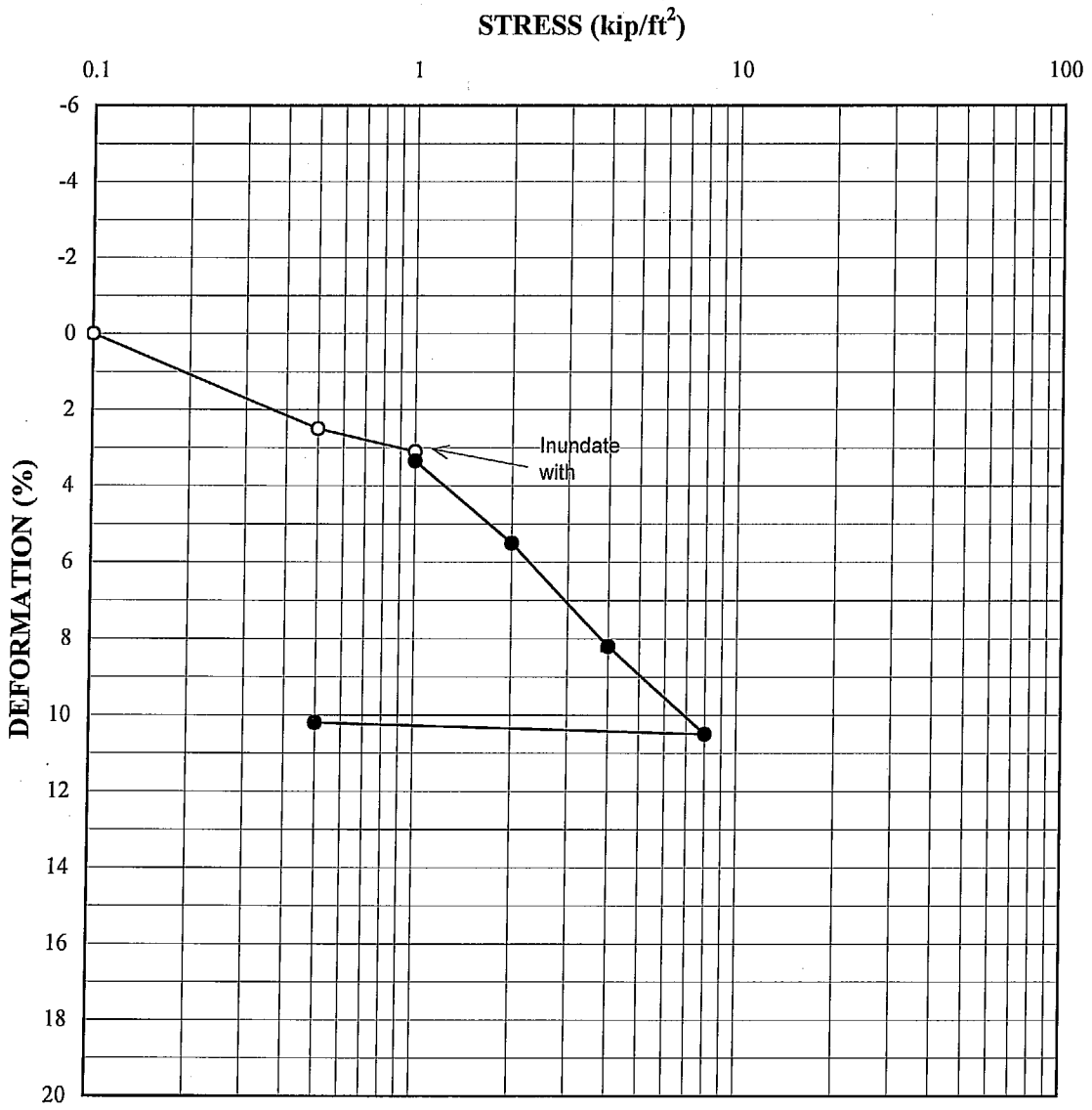
CONSOLIDATION TEST RESULTS

Hawkbryn, Santa Clarita

Project No: 033022-01
Drafted By: BIH
Date : 03/24/04

Figure No :

LGC



—○— LGC 2004, B-LGC-3 @ 21.0', S-6, Silty Sand with Clay

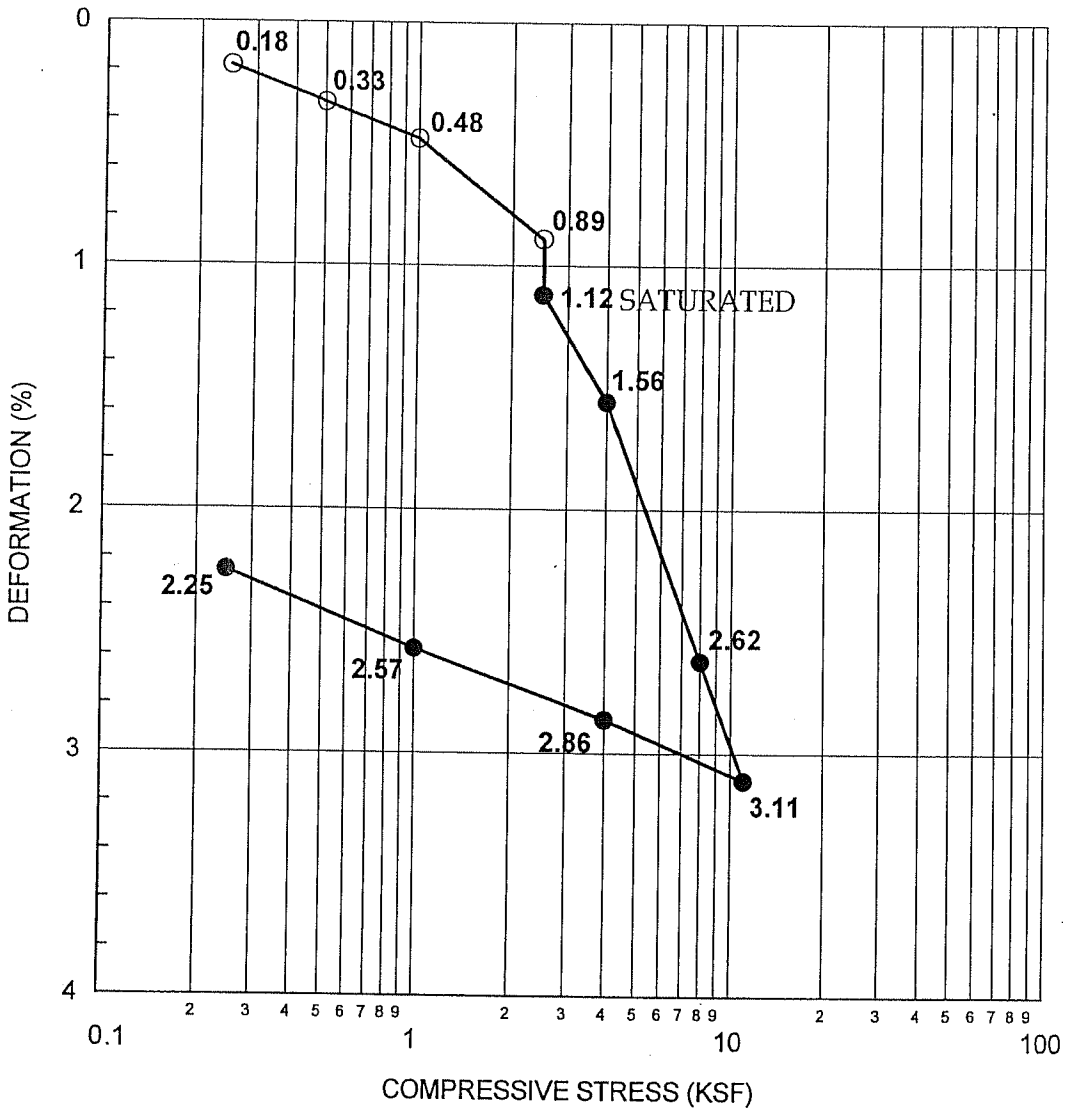
CONSOLIDATION TEST RESULTS

Hawkbryn, Santa Clarita

Project No: 033022-01
Drafted By: BIH
Date : 3/24/04

Figure No :

LGC



SYMBOL	BORING NO	SAMPLE NO	DEPTH (FT)	SOIL TYPE	INIT. MOISTURE CONTENT (%)	INIT. DRY DENSITY (PCF)	INIT. VOID RATIO
○	B-LGC-1	R-7	30	SM	6.2	106.8	0.578

ENVIRONMENTAL GEOTECHNOLOGY LABORATORY

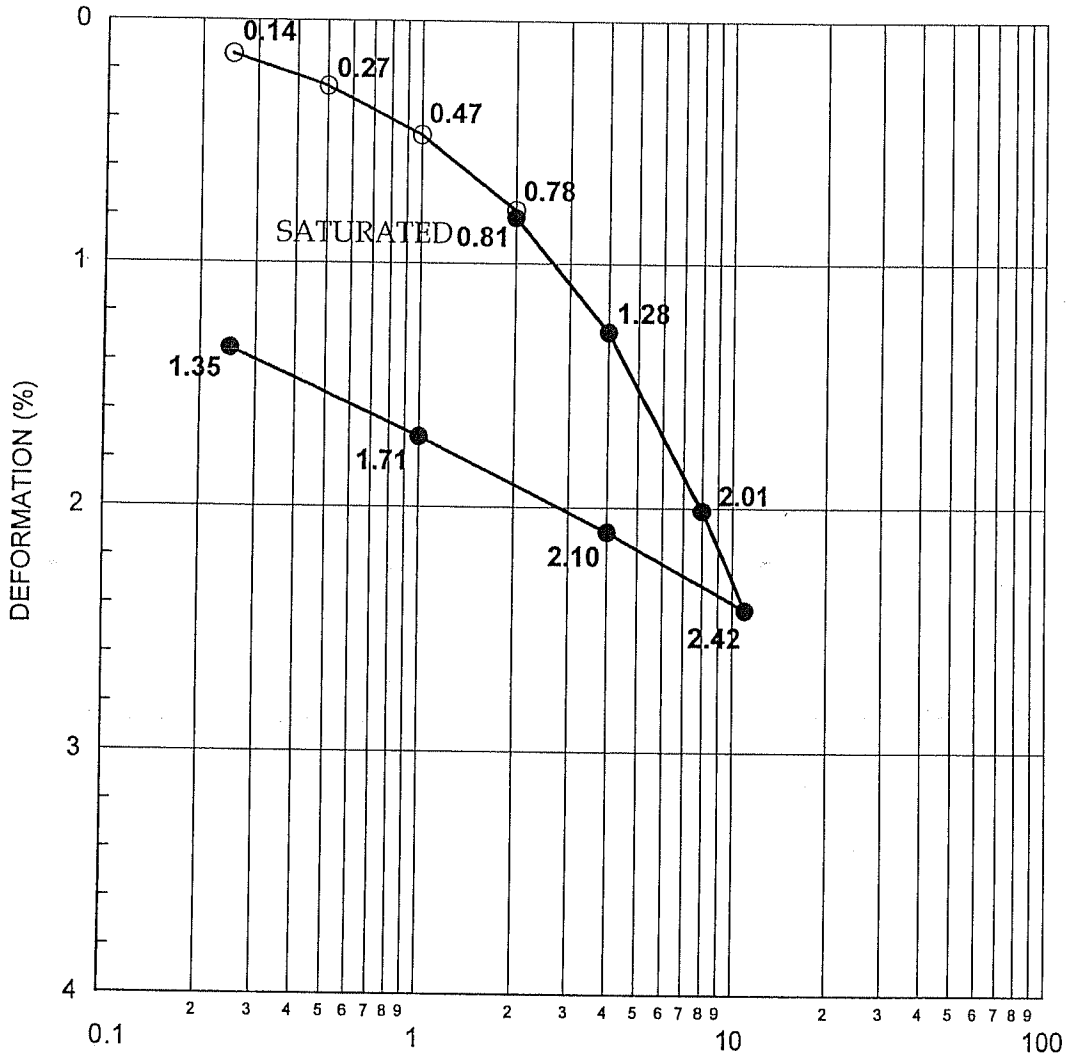
Project Name:
Monte Verde / Santa Clarita
Client: LGC
Job No.: 033022-04
EGL Project No.: 07-059-001

CONSOLIDATION

(ASTM D2435)

01/07

FIGURE



SYMBOL	BORING NO	SAMPLE NO	DEPTH (FT)	SOIL TYPE	INIT. MOISTURE CONTENT (%)	INIT. DRY DENSITY (PCF)	INIT. VOID RATIO
○	B-LGC-2	R-6	25	SC-SM	11.4	107.4	0.568

ENVIRONMENTAL GEOTECHNOLOGY LABORATORY

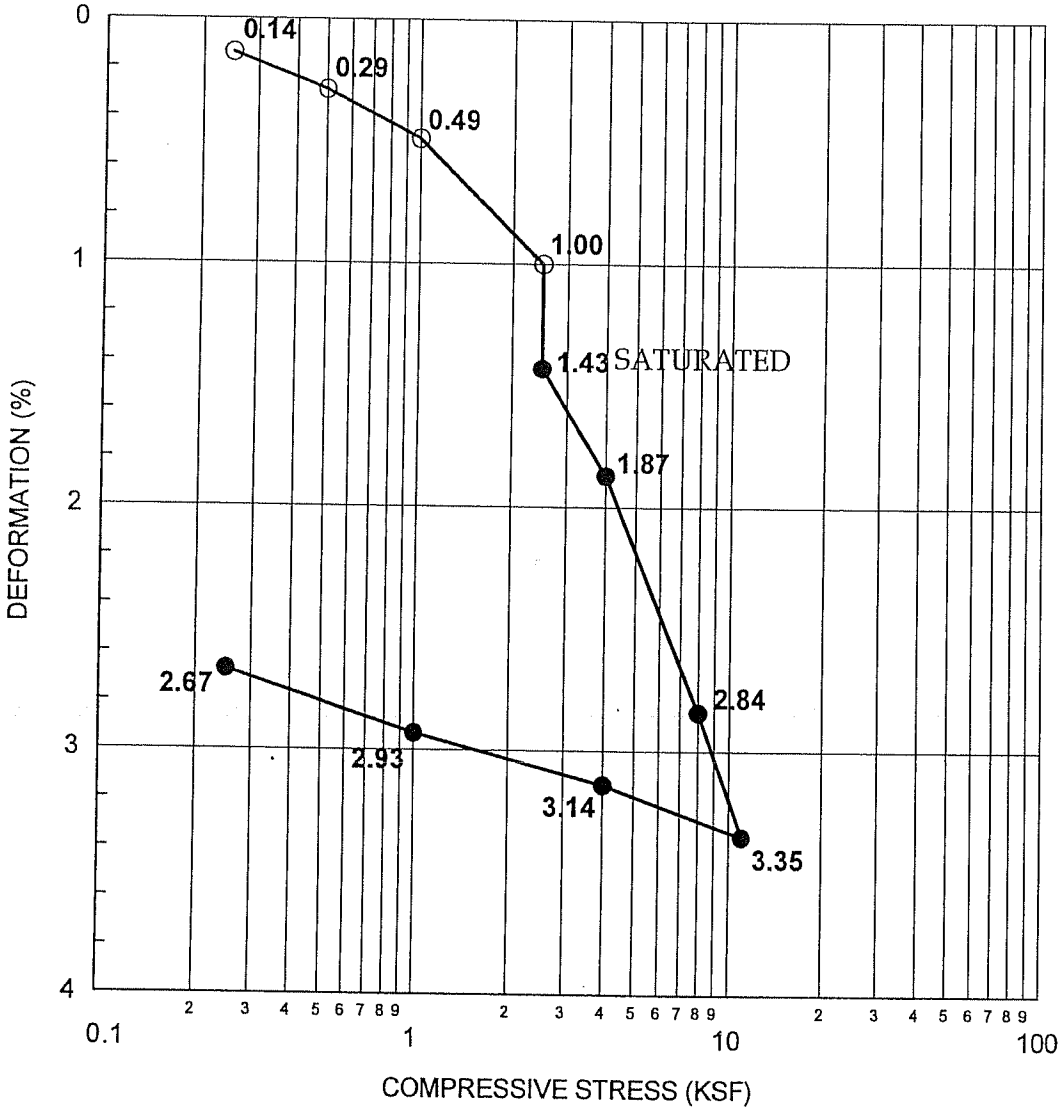
Project Name:
Monte Verde / Santa Clarita
Client: LGC
Job No.: 033022-04
EGL Project No.: 07-059-001

CONSOLIDATION

(ASTM D2435)

01/07

FIGURE



SYMBOL	BORING NO	SAMPLE NO	DEPTH (FT)	SOIL TYPE	INIT. MOISTURE CONTENT (%)	INIT. DRY DENSITY (PCF)	INIT. VOID RATIO
○	B-LGC-3	R-5	30	SM	9.3	114.2	0.475

ENVIRONMENTAL GEOTECHNOLOGY LABORATORY

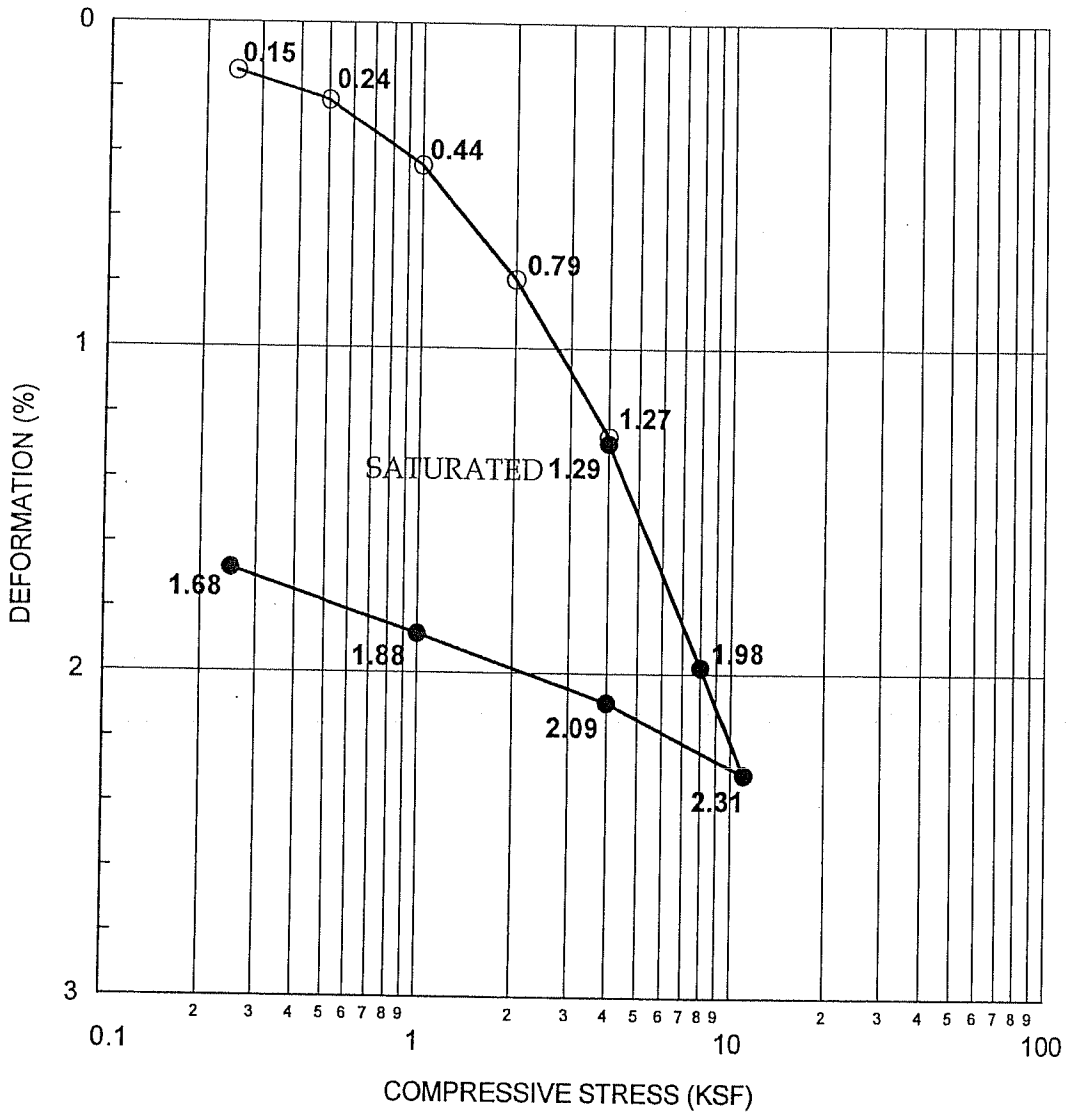
Project Name:
Monte Verde / Santa Clarita
Client: LGC
Job No.: 033022-04
EGL Project No.: 07-059-001

CONSOLIDATION

(ASTM D2435)

01/07

FIGURE



SYMBOL	BORING NO	SAMPLE NO	DEPTH (FT)	SOIL TYPE	INIT. MOISTURE CONTENT (%)	INIT. DRY DENSITY (PCF)	INIT. VOID RATIO
○	B-LGC-8	R-6	40	SC	15.4	119.4	0.410

ENVIRONMENTAL GEOTECHNOLOGY LABORATORY

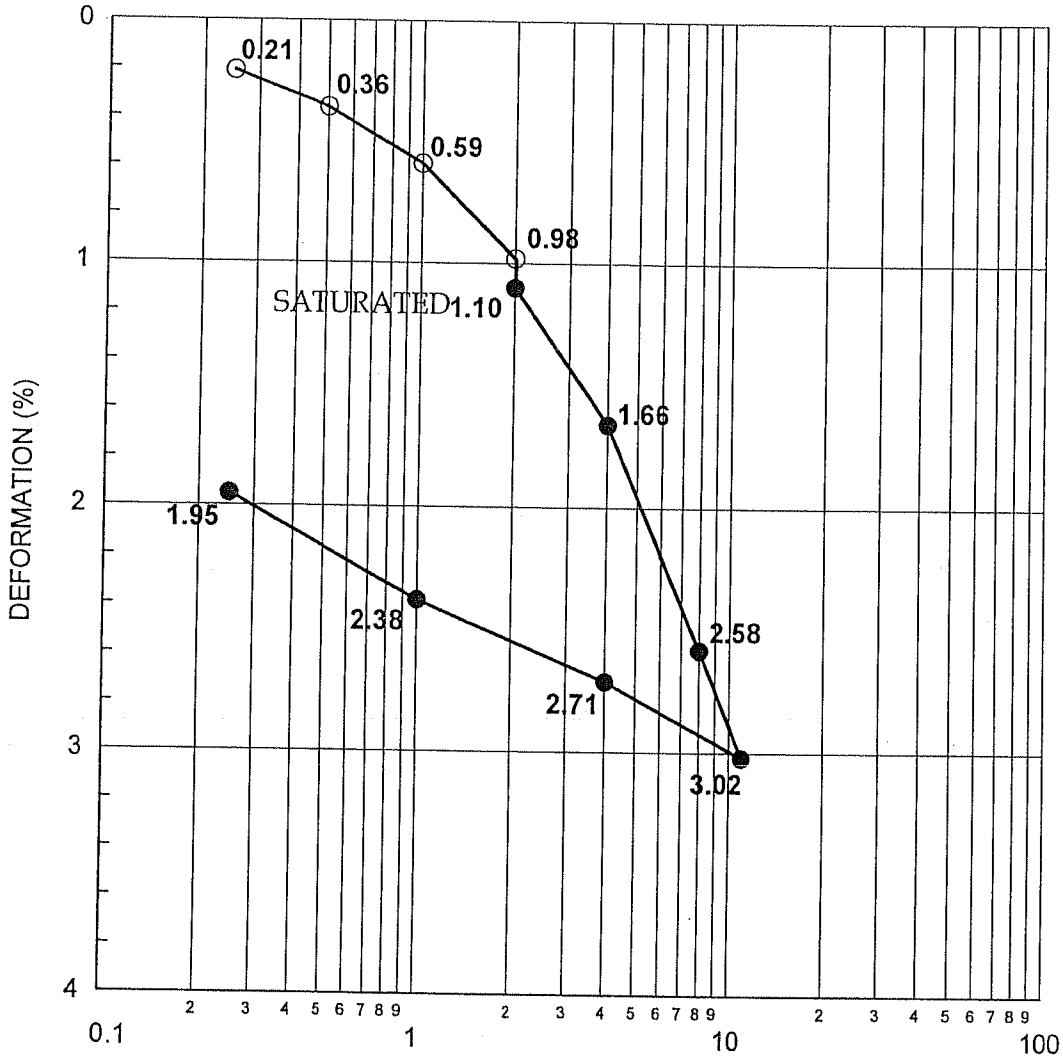
Project Name:
Monte Verde / Santa Clarita
Client: LGC
Job No.: 033022-04
EGL Project No.: 07-059-001

CONSOLIDATION

(ASTM D2435)

01/07

FIGURE



SYMBOL	BORING NO	SAMPLE NO	DEPTH (FT)	SOIL TYPE	INIT. MOISTURE CONTENT (%)	INIT. DRY DENSITY (PCF)	INIT. VOID RATIO
○	B-LGC-9	R-5	25	SM	4.5	121.4	0.388

ENVIRONMENTAL GEOTECHNOLOGY LABORATORY

Project Name:
Monte Verde / Santa Clarita
Client: LGC
Job No.: 033022-04
EGL Project No.: 07-059-001

CONSOLIDATION

(ASTM D2435)

01/07

FIGURE

Appendix C

APPENDIX C

GROUND MOTION AND RESPONSE SPECTRA REFERENCES

Abrahamson, N., Atkinson, G., Boore, D., Bozorgnia, Y., Campbell, K., Chiou, B., Idriss, I.M., Silva, W., Youngs, R., 2008, Comparisons of the NGA ground-motion relations: Earthquake Spectra, v. 24, no.1, p. 45–66.

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Boore, D.M., Stewart, J.P., Seyhan, E., and Atkinson, G.A., 2014, NGA-West2 equations for predicting PGA, PGV, and 5% damped PSA for shallow crustal earthquakes: Earthquake Spectra, v. 30, no. 3, p. 1057–1085.

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Chiou, B.S.-J., and Youngs, R.R., 2014, Update of the Chiou and Youngs NGA model for the average horizontal component of peak ground motion and response spectra: Earthquake Spectra, v. 30, no. 3, p. 1117–1153.

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Seyhan, E., (2015), Weighted Average of 2014 NGA West-2 GMPEs, Excel file: NGAW2_GMPE_Spreadsheets_v5.7_041515 (2015), Pacific Earthquake Engineering Research Center.

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U.S. Geological Survey, Quaternary Faults and Folds in the U.S., Google Earth .kmz file, https://www.usgs.gov/natural-hazards/earthquake-hazards/google-earth-kml-files

U.S. Geological Survey, Risk-Targeted Ground Motion Calculator, https://earthquake.usgs.gov/designmaps/rtgm/

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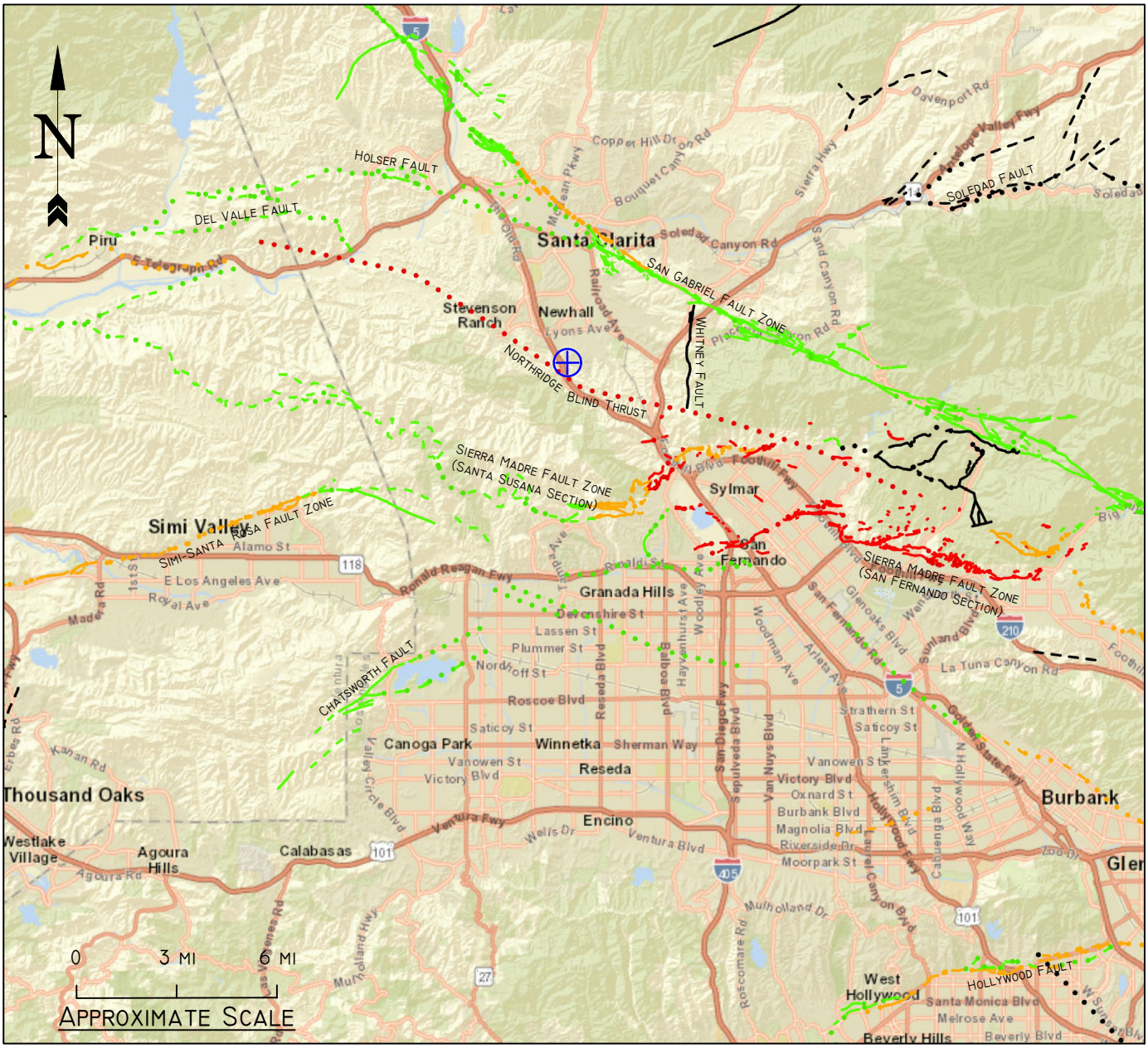

EXPLANATION

- Historic (< 150 years), well constrained location
- Historic (< 150 years), moderately constrained location
- Historic (< 150 years), inferred location
- Latest Quaternary (<15,000 years), well constrained location
- Latest Quaternary (<15,000 years), moderately constrained location
- Latest Quaternary (<15,000 years), inferred location
- Late Quaternary (< 130,000 years), well constrained location
- Late Quaternary (< 130,000 years), moderately contrained location
- Late Quaternary (< 130,000 years), inferred location

APPROXIMATE LOCATION OF SUBJECT SITE

SOURCE; U.S. GEOLOGICAL SURVEY INTERACTIVE FAULT MAP - QUATERNARY FAULTS

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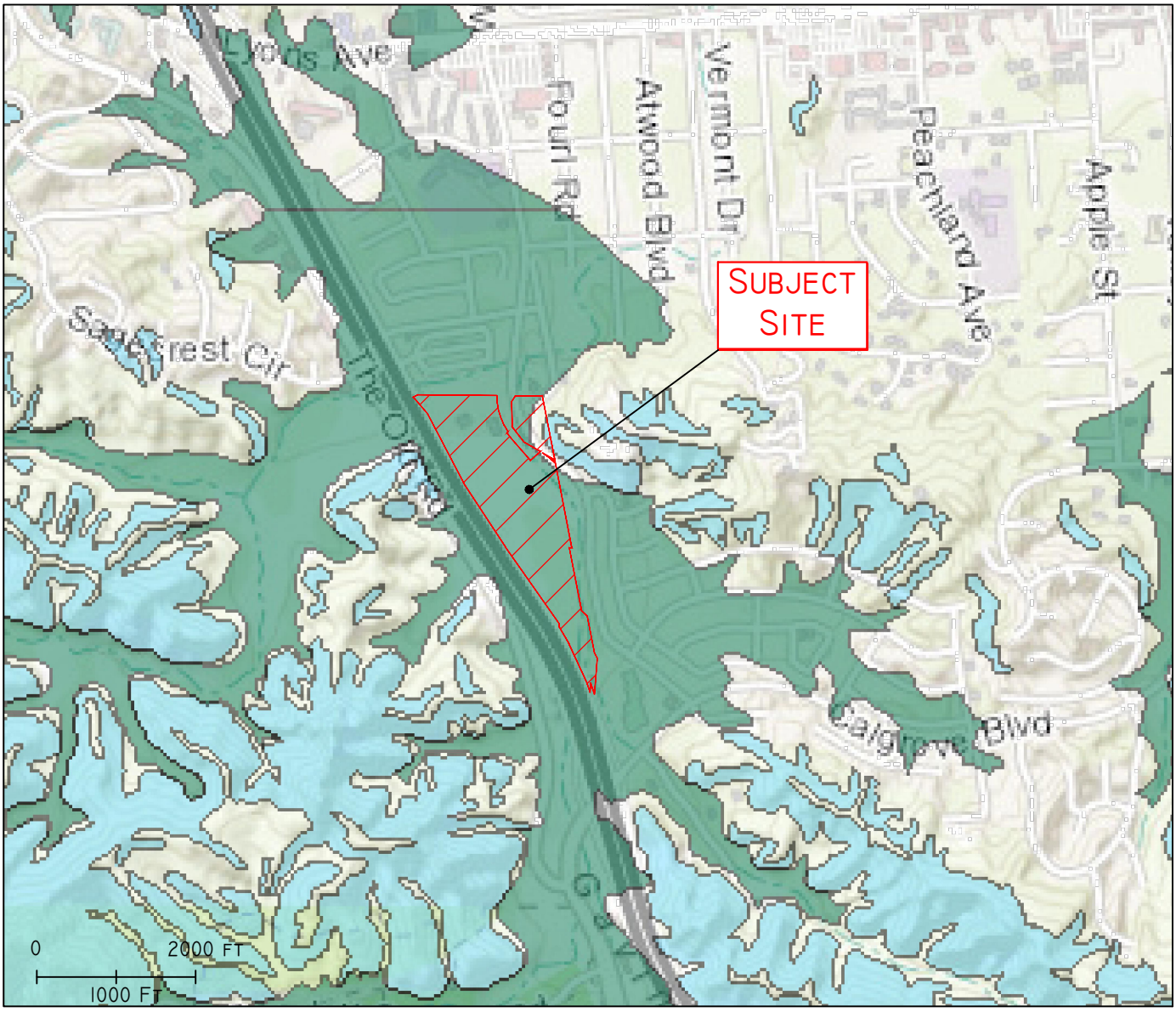
G□□l□□□al A□d G□□□□□□□al C□□□□la□□

QUATERNARY FAULT LOCATION MAP

JOB NO.: 21-2593-4

DATE: 2/11/21

FIGURE: C1



LEGEND

Fault Traces

- Accurately Located
- Approximately Located
- Approximately Located, Queried
- Inferred
- Inferred, Queried
- Concealed
- Concealed, Queried
- Aerial Photo Lineament

Fault Zone

Liquefaction Zone

Landslide Zone

APPROXIMATE LOCATION OF SUBJECT SITE

SOURCE; CALIFORNIA GEOLOGIC SURVEY
EARTHQUAKE ZONES WEB APPLICATION
HTTPS://MAPS.CONSERVATION.CA.GOV/CGS/EQZAPP/APP/

N

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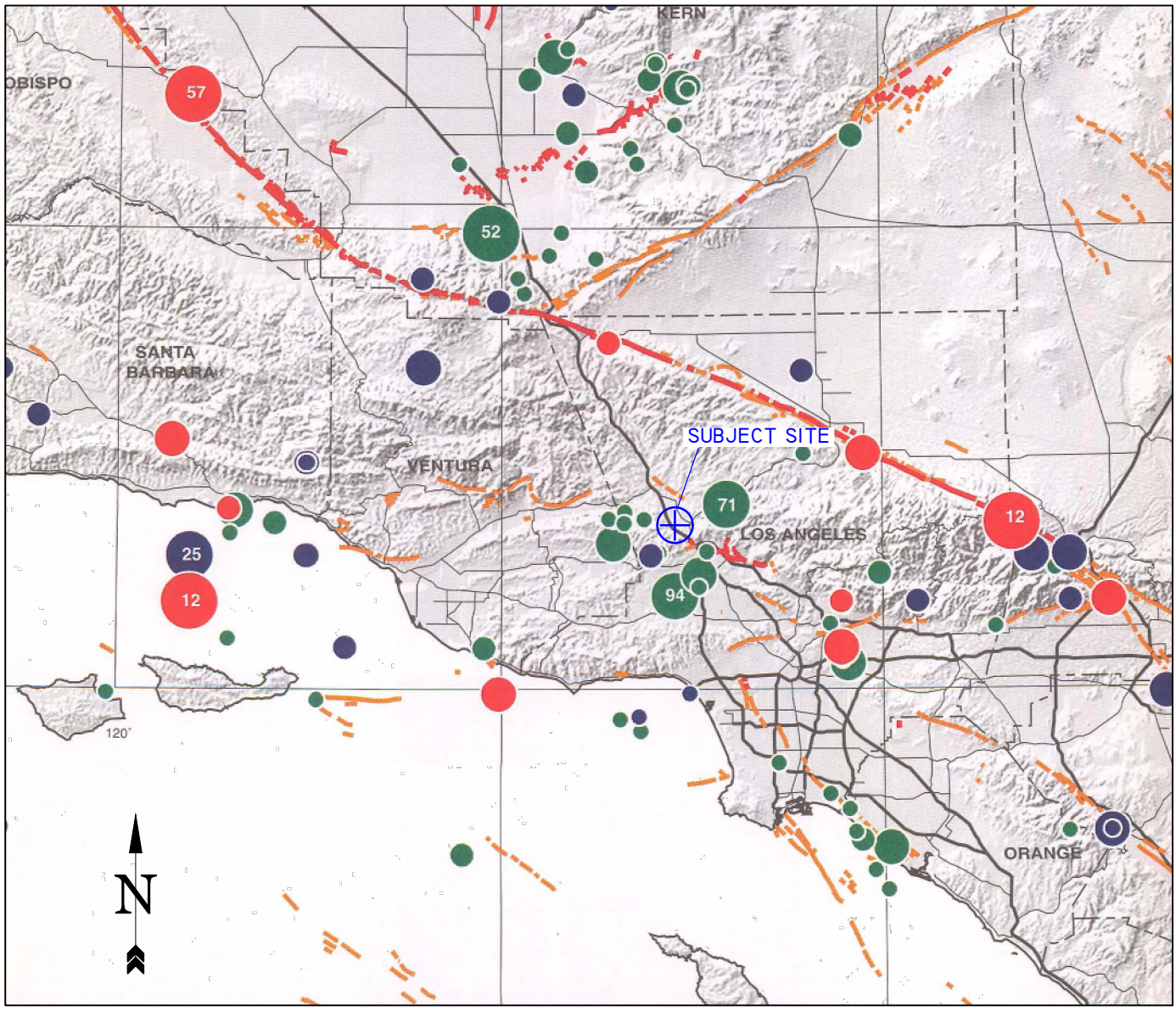
G□□l□□□al A□d G□□□□□□□□al C□□□la□□

EARTHQUAKE ZONES OF
REQUIRED INVESTIGATION

JOB NO.: 21-2593-4

DATE: 2/11/21

FIGURE: C2



EPICENTER MAP LEGEND

Period	1800 - 1868	1869 - 1931	1932 - 1999
≥ 7.0			
6.5 - 6.9			
6.0 - 6.4			
5.5 - 5.9			
5.0 - 5.4			

Magnitude (M)

Historical Faulting

Holocene Faulting

Highways (Major)

Highways (Minor)

Lakes

65 — Last two digits of M ≥ 6.5 earthquake year

0 — 15 MI — 30 MI

20 KM — 48 KM

APPROXIMATE SCALE

SOURCE; CALIFORNIA GEOLOGIC SURVEY, EPICENTERS AND AREAS DAMAGED BY M≥5 CALIFORNIA EARTHQUAKES, 1800-1999 BY T. TOPPOZADA, D. BRANUM, M. PETERSON, C. HALLSTROM, C. CRAMER, M. REICHLE, 2000

ALLAN E. SEWARD
ENGINEERING GEOLOGY, INC.
Geological And Geotechnical Consultants

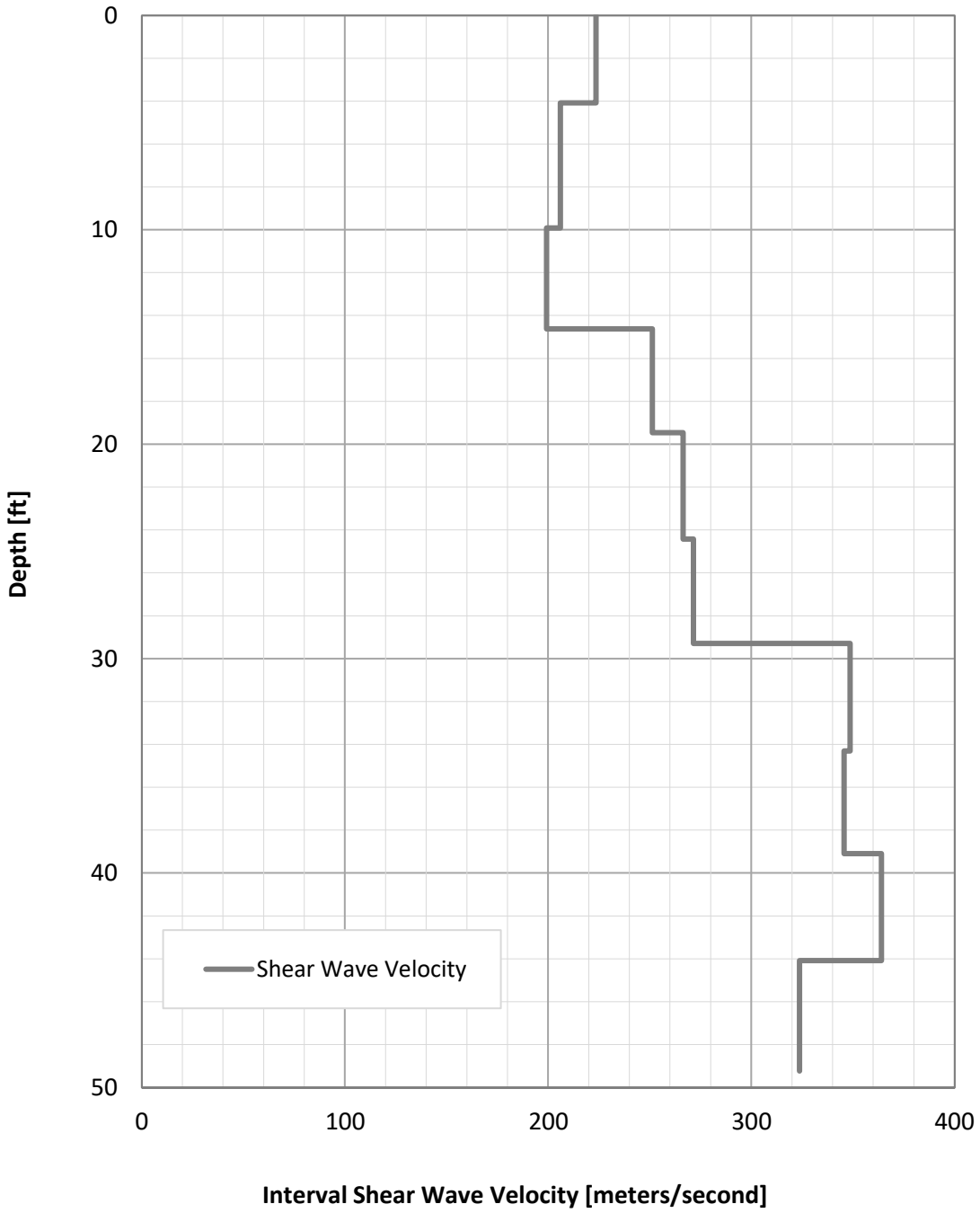
EQ EPICENTER LOCATION MAP

JOB NO.: 21-2593-4

DATE: 2/11/21

FIGURE: C3

Location……. **CPT-17**



Shear Wave Velocity Profile

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Geological and Geotechnical Consultants

Client:	Wiley Canyon LLC
Project:	Wiley Canyon TTM 083295
Proj. No.:	21-2593-4
Date:	2/11/20
Figure:	C4

APPENDIX C

Table C1 - USGS Deaggregation of Seismic Hazard

*** Deaggregation of Seismic Hazard at One Period of Spectral Acceleration ***
*** Data from Dynamic: Conterminous U.S. 2008 (v3.3.3) ****

PSHA Deaggregation. %contributions.
site: Wiley Canyon, TTM 083295
longitude: 118.557°W
latitude: 34.368°E
imt: Peak Ground Acceleration
vs30 = 259 m/s (Site class D)
return period: 2475 yrs.

This deaggregation corresponds to: Total

Summary statistics for PSHA PGA deaggregation, r=distance, ε=epsilon:

Deaggregation targets:
Return period: 2475 yrs
Exceedance rate: 0.0004040404 yr^{-1}
PGA ground motion: 1.0362719 g

Recovered targets:
Return period: 2760.618 yrs
Exceedance rate: 0.00036223772 yr^{-1}

Totals:
Binned: 100 %
Residual: 0 %
Trace: 0.01 %

Mean (over all sources):
m: 6.72
r: 5.8 km
ε_0: 1.31 σ

Mode (largest m-r bin):
m: 6.69
r: 5.5 km
ε_0: 1.25 σ
Contribution: 47.74 %

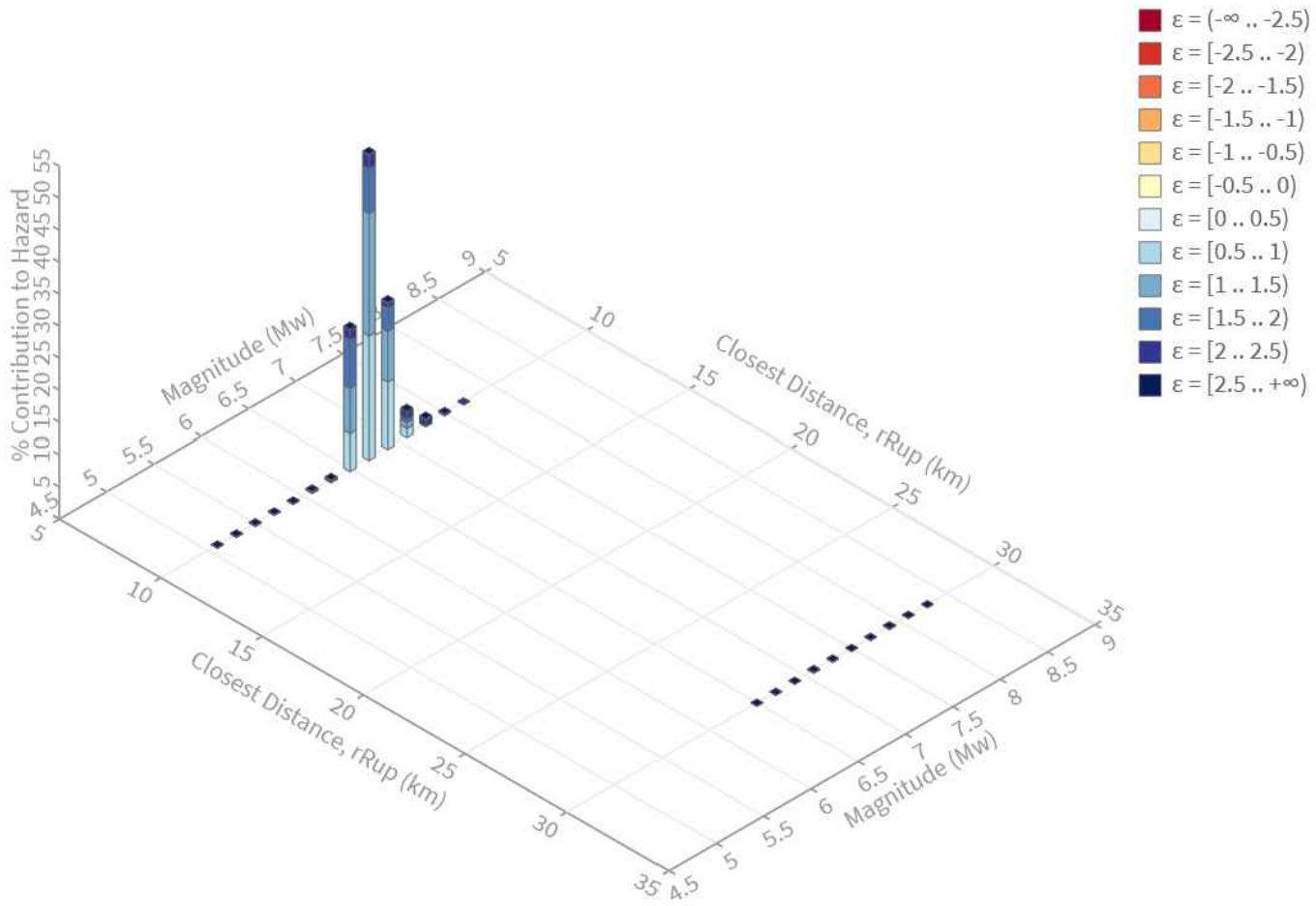
Mode (largest m-r-ε_0 bin):
m: 6.69
r: 4.88 km
ε_0: 0.84 σ
Contribution: 19.35 %

Discretization:
r: min = 0.0, max = 1000.0, Δ = 20.0 km
m: min = 4.4, max = 9.4, Δ = 0.2
ε: min = -3.0, max = 3.0, Δ = 0.5 σ

Deaggregation Contributors

Source Set ⍰ Source	Type	r	m	ε_0	lon	lat	az	%
bFault.ch	Fault							57.96
Santa Susana - alt 1		4.90	6.78	1.06	118.581°W	34.320°N	202.32	40.38
Northridge		7.44	6.78	1.59	118.545°W	34.354°N	144.84	10.91
Holser - alt 1		4.66	6.68	1.15	118.548°W	34.417°N	8.51	3.2
bFault.gr	Fault							36.65
Santa Susana - alt 1		4.93	6.64	1.22	118.581°W	34.320°N	202.32	28.56
Northridge		7.44	6.64	1.62	118.545°W	34.354°N	144.84	8.57
Holser - alt 1		4.98	6.60	1.39	118.548°W	34.417°N	8.51	1.61

HAZARD CONTRIBUTIONS



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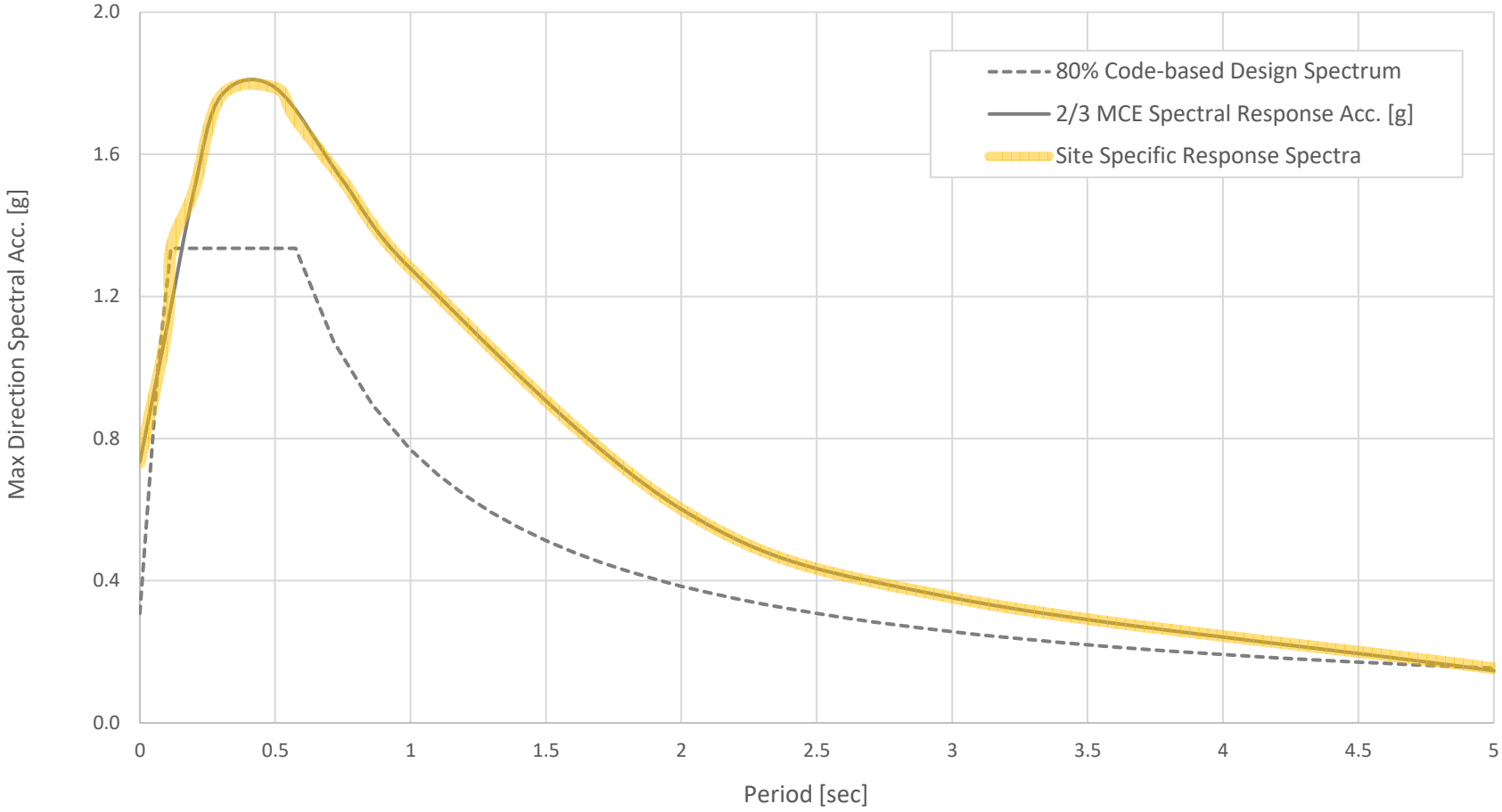
MAGNITUDE-DISTANCE CONTRIBUTIONS TO HAZARD

JOB NO.: 21-2593-4

DATE: 2/11/21 | FIGURE: C5



Site Coordinates		Site Class	Risk Category	SDC	S_{MS}	S_{M1}	S_{DS}	S_{D1}	PGA
Lat	Long								
34.3684	118.5572	D	I, II or III	D	2.413	1.918	1.609	1.278	0.73

Design Reference: 2019 CBC and ASCE 7-16

ALLAN E. SEWARD
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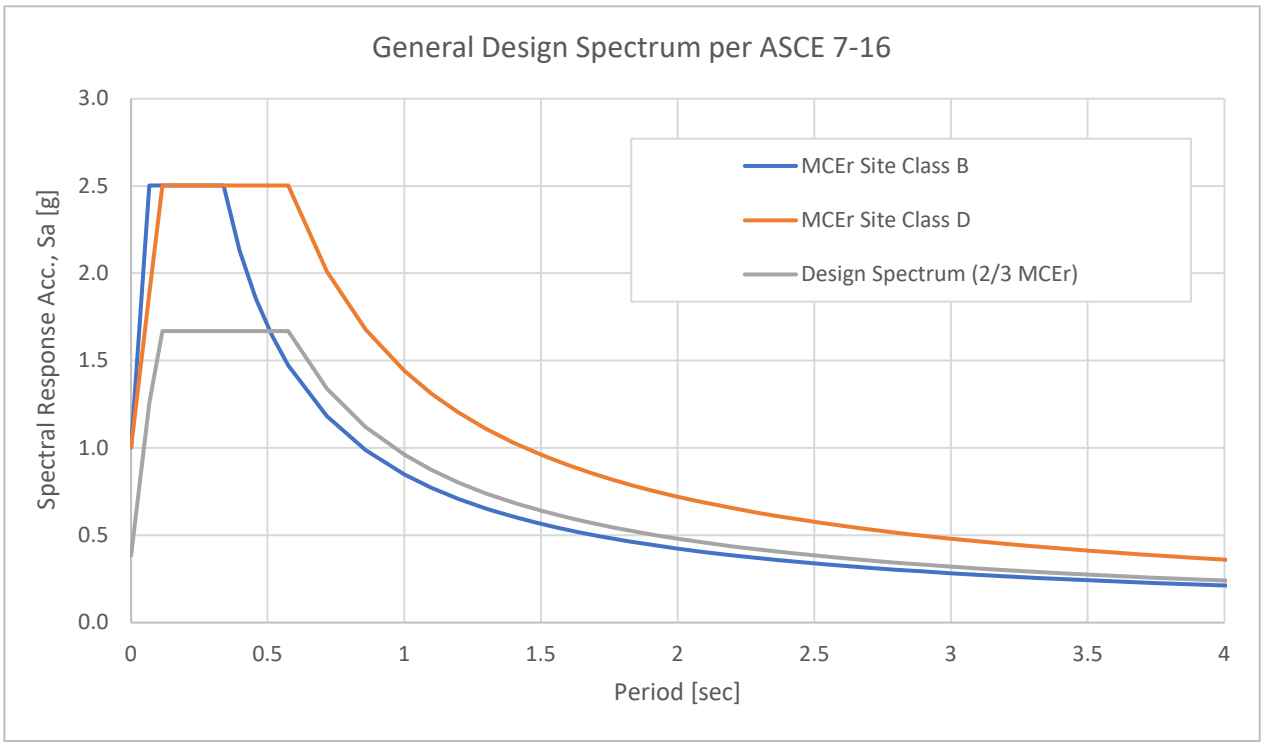
Geological and Geotechnical Consultants

Site-Specific Response Spectra and Seismic Design Parameters

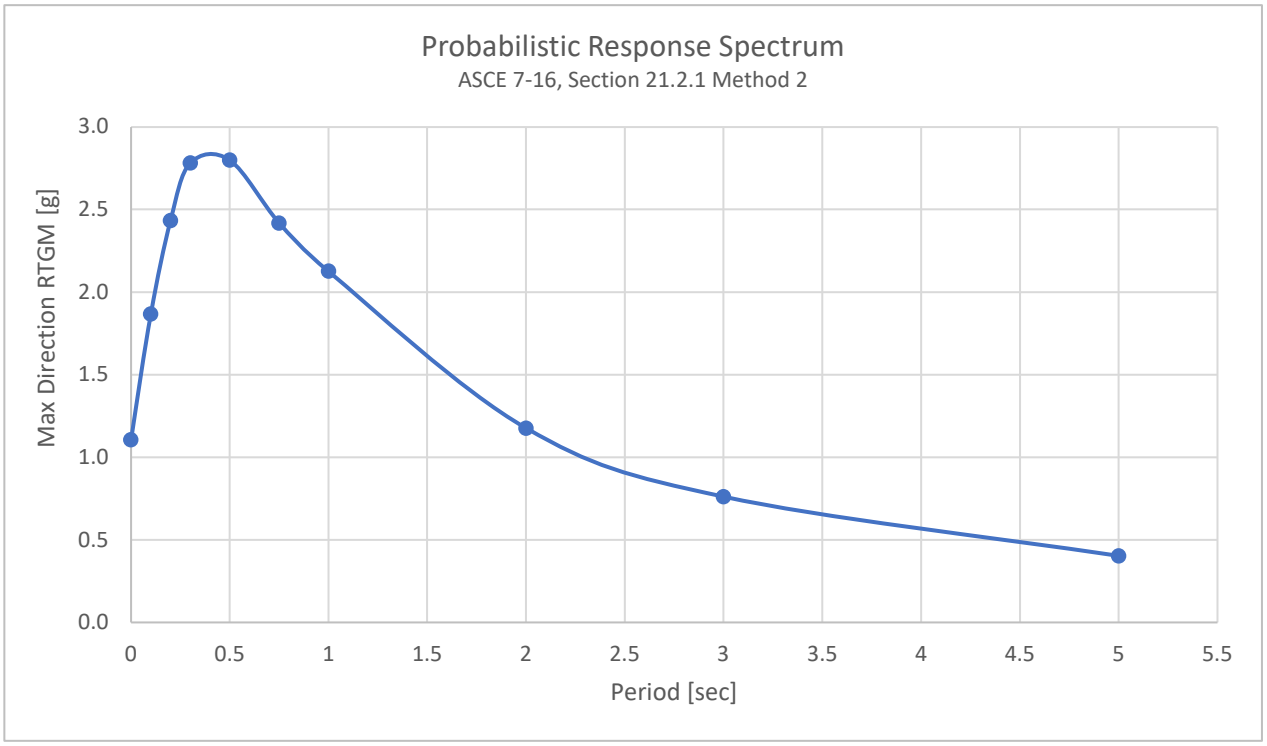
Client: Wiley Canyon LLC
Project: Wiley Canyon
Tentative Tract Map 083295

Job No.: 21-2593-4
Date: 2/11/21
Figure: C6

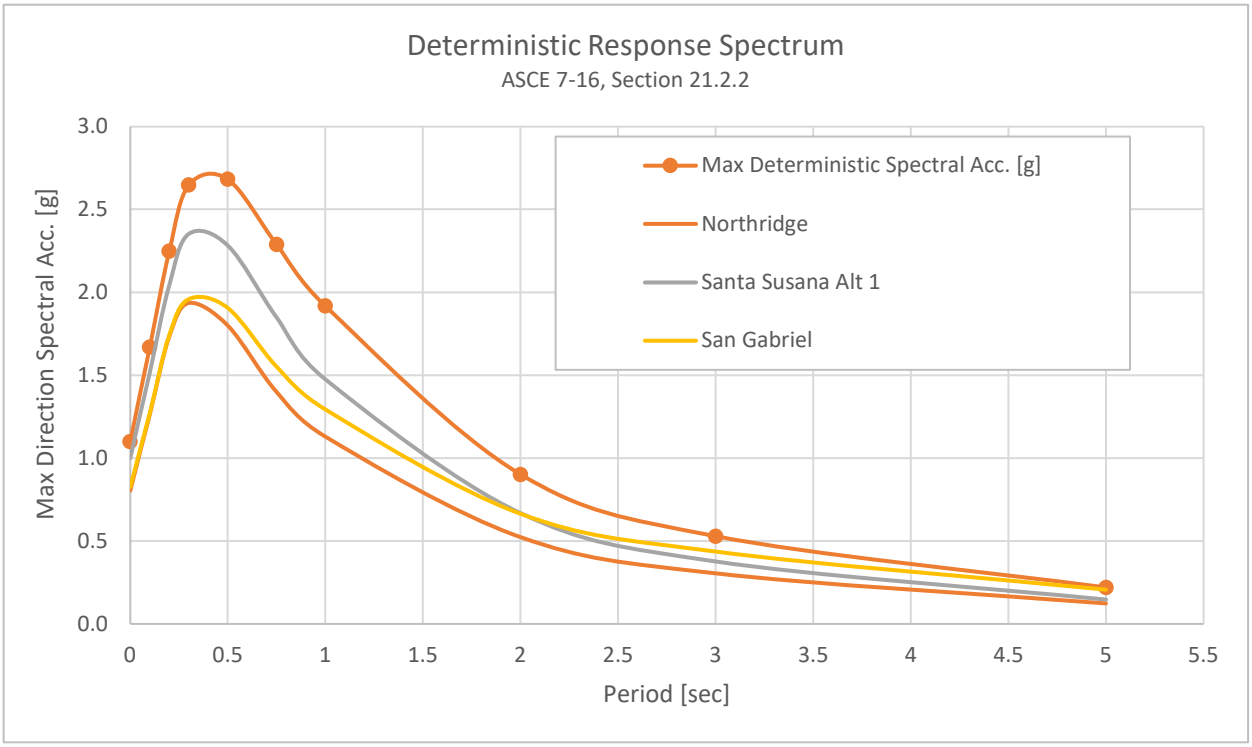
Parameter	Value	Description
S_S	2.504	MCE_R ground motion (0.2 sec)
S_1	0.848	MCE_R ground motion (1.0 sec)
F_a	1.0	Site amplification factor (0.2 sec)
F_v	1.7	Site amplification factor (1.0 sec)
S_{MS}	2.504	Site-modified spectral acc. (0.2 sec)
S_{M1}	1.442	Site-modified spectral acc. (1.0 sec)
S_{DS}	1.669	Design spectral acc. value (0.2 sec)
S_{D1}	0.961	Design spectral acc. value (1.0 sec)
PGA	1.066	MCE_G peak ground acceleration
F_{PGA}	1.1	Site amplification factor at PGA
PGA_M	1.17	Site-modified peak ground acc. (Eq. 11.8-1)



Period [sec]	UHGM [g]	RTGM [g]	Max Direction Scale Factor	Max Dir RTGM [g]
0	1.036	1.005	1.1	1.106
0.1	1.727	1.698	1.1	1.868
0.2	2.242	2.211	1.1	2.432
0.3	2.552	2.472	1.125	2.781
0.5	2.546	2.382	1.175	2.799
0.75	2.148	1.954	1.2375	2.418
1	1.802	1.636	1.3	2.127
2	0.979	0.871	1.35	1.176
3	0.610	0.544	1.4	0.762
5	0.303	0.269	1.5	0.404



Period [sec]	84th Percentile Spectral Acc. [g]	Max Direction Scale Factor	Max Deterministic Spectral Acc. [g]
0	1.000	1.1	1.100
0.1	1.518	1.1	1.670
0.2	2.044	1.1	2.248
0.3	2.353	1.125	2.647
0.5	2.282	1.175	2.681
0.75	1.850	1.2375	2.289
1	1.475	1.3	1.918
2	0.668	1.35	0.902
3	0.378	1.4	0.529
5	0.147	1.5	0.221

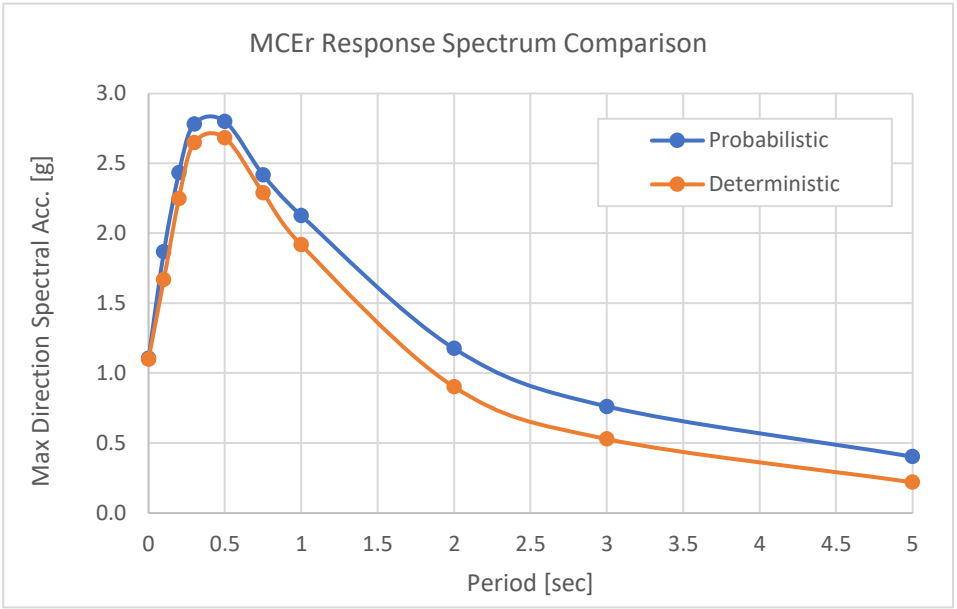


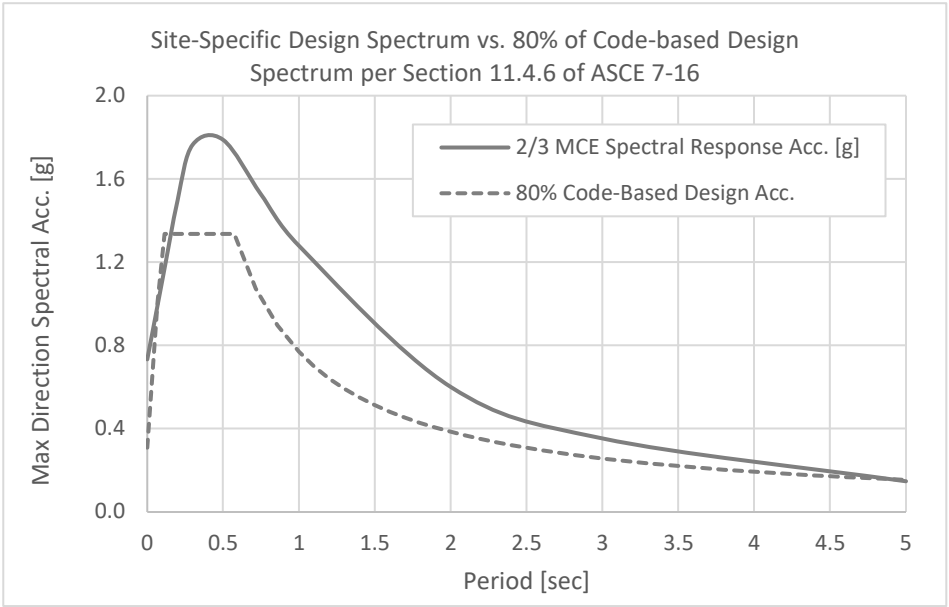
Period, T [sec]	Max Probabilistic Spectral Acc. [g]	Max Deterministic Spectral Acc. [g]	MCE Spectral Response Acc. [g] [a]	2/3 MCE Spectral Response Acc. [g]	80% Code-based Design Spectrum	Site-Specific Design Acc. [g] [b]
0	1.106	1.100	1.100	0.733	0.308	0.733
0.1	1.868	1.670	1.670	1.113	0.989	1.113
0.2	2.432	2.248	2.248	1.499	1.340	1.499
0.3	2.781	2.647	2.647	1.765	1.340	1.765
0.5	2.799	2.681	2.681	1.788	1.340	1.788
0.75	2.418	2.289	2.289	1.526	1.340	1.526
1	2.127	1.918	1.918	1.278	0.769	1.278
2	1.176	0.902	0.902	0.601	0.384	0.601
3	0.762	0.529	0.529	0.353	0.256	0.353
5	0.404	0.221	0.221	0.147	0.154	0.154
0.115				1.172	1.335	1.335
0.576				1.699	1.335	1.699

Design Parameters
SD_S
1.609
SD_1
1.278
SM_S
2.413
SM_1
1.918
PGA
0.73

[a] Equal to the lesser of the MCEr probabilistic and deterministic spectral acceleration at each ordinate

[b] Equal to 2/3 of the MCE Spectral Response Acceleration





TTM 083295, Wiley Canyon

Latitude, Longitude: 34.3684, -118.5572

Date	1/14/2021, 10:49:15 AM
Design Code Reference Document	ASCE7-16
Risk Category	II
Site Class	D - Default (See Section 11.4.3)

Type	Value	Description
S_S	2.504	MCE_R ground motion. (for 0.2 second period)
S_1	0.848	MCE_R ground motion. (for 1.0s period)
S_{MS}	3.005	Site-modified spectral acceleration value
S_{M1}	null -See Section 11.4.8	Site-modified spectral acceleration value
S_{DS}	2.003	Numeric seismic design value at 0.2 second SA
S_{D1}	null -See Section 11.4.8	Numeric seismic design value at 1.0 second SA

Type	Value	Description
SDC	null -See Section 11.4.8	Seismic design category
F_a	1.2	Site amplification factor at 0.2 second
F_v	null -See Section 11.4.8	Site amplification factor at 1.0 second
PGA	1.066	MCE_G peak ground acceleration
F_{PGA}	1.2	Site amplification factor at PGA
PGA_M	1.279	Site modified peak ground acceleration
T_L	8	Long-period transition period in seconds
SsRT	2.504	Probabilistic risk-targeted ground motion. (0.2 second)
SsUH	2.758	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration
SsD	2.712	Factored deterministic acceleration value. (0.2 second)
S1RT	0.895	Probabilistic risk-targeted ground motion. (1.0 second)
S1UH	1.002	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration.
S1D	0.848	Factored deterministic acceleration value. (1.0 second)
PGAd	1.091	Factored deterministic acceleration value. (Peak Ground Acceleration)
C_{RS}	0.908	Mapped value of the risk coefficient at short periods

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EVALUATION OF LIQUEFACTION POTENTIAL AND ASSOCIATED GROUND FAILURE

1. Introduction

Potential at the site for seismic soil liquefaction and associated ground failure (i.e., earthquake-induced settlement, lateral spread displacements, surface manifestations, and loss of bearing capacity) has been assessed by Allan E. Seward Engineering Geology, Inc. (AESEGI) using data from Cone Penetration Test (CPT) soundings. Soil Behavior Type (SBT) data, apparent fines content (FC), and cone tip resistance (q_c) interpreted from a representative CPT sounding (CPT-17) were correlated with visual soil classifications, measured fines content, and SPT blow count data in adjacent hollow-stem auger boring HS-1, as discussed herein. The calculation procedures described in the following references were used for assessment of liquefaction potential (and associated ground failure):

- *Cyclic Liquefaction and its Evaluation Based on the SPT and CPT*, by Robertson and Wride, 1997.
- *Liquefaction Resistance of Soils: Summary Report* (NCEER/NSF), by Youd, Idriss, et al., 2001.
- *Interpretation of Cone Penetration Tests – A Unified Approach*, by Robertson, 2009.
- *CPT-Based Probabilistic and Deterministic Assessment of In Situ Seismic Soil Liquefaction Potential*, by Moss, et. al., 2006.
- *SPT-Based Probabilistic Assessment of Seismic Soil Liquefaction Potential*, by Cetin, et. al., 2004.
- *Estimating Liquefaction-Induced Ground Settlements from CPT for Level Ground,* by Zhang, et. al., 2002.
- *Estimation of Seismic Compression in Dry Soils Using the CPT,* by Robertson and Shao, 2010.
- *Evaluation of Settlements in Sands Due to Earthquake Shaking,* Tokimatsu and Seed, ASCE, August, 1987.
- *Estimating Liquefaction-Induced Lateral Displacements using the Standard Penetration Test or Cone Penetration Test,* by Zhang et. al., 2004.

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Our analyses of liquefaction potential and associated phenomena at the site were performed in accordance with the guidelines and requirements contained in the following documents:

- *Review of Geotechnical Reports Addressing Liquefaction,* memorandum from Los Angeles County Department of Public Works (LACDPW), dated February 24, 2009.
- *Special Publication 117A: Guidelines for Evaluating and Mitigating Seismic Hazards in California*, revised and re-adopted by California State Mining and Geology Board, September 11, 2008.
- *Manual for Preparation of Geotechnical Reports*, LACDPW, July 2013.

2. Data and Assumptions

Factors that affect potential for liquefaction triggering at the site include estimated ground motion parameters, engineering characteristics of site soils, historic high ground water depth, and proposed grading (i.e., removals and/or raising of grade).

a. Estimated Ground Motion Parameters

Based on our seismic hazard analyses the Peak Ground Acceleration (PGA_M) at the site, consistent with maximum considered earthquake (MCE_R) ground motions and generated by a magnitude 6.69 earthquake, is 1.00g. This magnitude-acceleration pair is considered to be equivalent to a magnitude 7.5 earthquake (i.e., the "standard" magnitude used to evaluate liquefaction triggering) and a corresponding PGA of 0.75g. This magnitude-acceleration pair was used in our liquefaction potential analyses.

b. Engineering Characteristics of Site Soils

The appended CPT logs include raw cone tip resistance (q_c), sleeve friction (f_s), friction ratio (R_f), pore water pressure (u), and soil behavior type (SBT). Engineering characteristics of site soils were interpreted from these data and used herein for assessment of probabilistic seismic soil liquefaction potential and associated seismic settlements and lateral spread displacements. The interpreted soil characteristics used in include SBT Index (I_c), apparent fines content (FC), equivalent SPT $N_{1,60}$ values, relative density (D_r), and liquefied shear strength ($s_{u,liq}$). These interpreted data were calculated using the procedures in the referenced article by Youd and Idriss (2001) with updates by Zhang et. al. (2002) and Robertson (2009). The CPT logs are presented in **Appendix A**.

Per the guidelines of SP117A, the accuracy of the CPT interpretations used for assessment of liquefaction potential should be checked by comparison with data

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obtained from a correlation boring adjacent to a representative CPT sounding. The visual classifications of soils and results of laboratory testing (measured fines content) on select soil samples from hollow-stem auger boring HS-1 were used to check the SBT classification and apparent fines content (FC) interpreted from adjacent CPT-17. Additionally, boring $N_{1,60}$ values from SPT blow count data were used to check the equivalent SPT $N_{1,60}$ values interpreted from the CPT. The classifications of soils and blow count data obtained from boring HS-1 are generally consistent with data interpreted from adjacent CPT-17 (see **Figure D1**). However, the apparent fines content interpreted from the CPT is typically less (and more conservative) than the measured fines content from the boring. Therefore, it may be concluded that the data interpreted from the CPT soundings at the site are an accurate representation of soil conditions at the site and that data from the CPT soundings at the site are appropriate for use in interpretation of liquefaction potential.

c. Ground Water Depth

Based on measurements taken at the CPT sounding and boring locations at the site during the various phases of subsurface exploration, ground water was encountered as shallow as 35 feet. As discussed in the Ground Water section of the report, the historic high ground water depth at the site is shown as 30 feet on the seismic hazard map. The measured and historic high ground water depths at the location of each CPT sounding and boring analyzed are shown on the **Analysis of Liquefaction Potential** sheets at the end of this appendix (**Figures D2.1** through **D2.18**).

Effective vertical soil pressure based on measured ground water depths at the time of the exploration (if encountered) was used in our calculations to adjust CPT tip resistance and friction ratio data to the standard effective vertical soil pressure (i.e., 1.0 ton/ft^2), and ultimately for calculation of the soils cyclic resistance to earthquake shaking. Effective vertical soil pressure based on the historic high ground water depth was used to estimate cyclic shear stress that would be induced by earthquake shaking.

d. Proposed Grading

The liquefaction potential analyses do not assume remedial removals and replacement. Proposed remedial removals and associated seismic settlement are shown in **Table D1.**

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3. Methods of Analysis

a. Liquefaction Potential

Liquefaction is a phenomenon in which pore water pressure generated by earthquake shaking causes sudden, temporary reduction or loss of shear strength in saturated soils with negligible to low plasticity. Structures founded on liquefied soils may experience subsidence and/or lateral movement.

Analyses to evaluate liquefaction potential typically are performed by a method first proposed by Seed and Idriss (1970) and subsequently revised by Youd and Idriss (2001). In these methods, estimated earthquake-induced cyclic shear stress in the ground is compared with cyclic shear strength (i.e., soil resistance to liquefaction) derived empirically from earthquake case histories.

The Moss et al. (2006) methodology was used herein for a deterministic assessment of seismic soil liquefaction potential. This procedure estimates seismic demand represented by the equivalent uniform cyclic stress ratio (CSR or τ_{av}/σ'_v) and cyclic shear strength against liquefaction represented by the cyclic resistance ratio (CRR). For the deterministic procedure, the triggering curve is based on a 15% probability of liquefaction and is a function of CSR*, i.e., CSR corrected using a magnitude-correlated duration weighting factor (DWF_M), and fines-adjusted CPT tip resistance normalized to 1.0 ton/ft^2 vertical effective soil pressure ($q_{c1,mod}$) for magnitude M_w=7.5 event. Soil layers with CRR and $q_{c1,mod}$ values that plot above this curve are potentially liquefiable, and soil layers with CRR and $q_{c1,mod}$ values that plot below this curve generally are not liquefiable. In accordance with the guidelines of the County of Los Angeles Department of Public Works, a soil layer is considered to be potentially liquefiable if its factor of safety against liquefaction (i.e., CRR divided by CSR*) is less than 1.3.

The corrected cyclic stress ratio (CSR*) at each depth represents the CSR for a duration typical of an average of M_W=7.5 and is calculated using the following equations (Moss et al, 2006):

$$CSR^* = CSR/DWF_M = 0.65 \cdot (a_{max}/g) \cdot \sigma_o/\sigma'_v \cdot r_d / DWF_M$$

$$DWF_M = DWF_M = 17.84*M_W^{-1.43}$$

where: a_{max}/g = Peak ground acceleration (PGA_M) at the ground surface divided by the acceleration of gravity

σ_o = Total vertical soil pressure at the depth in question

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σ'_v = Effective vertical soil pressure at the depth in question

r_d = Nonlinear shear mass participation factor to account for soil deformability at the depth in question

DWF_M = Magnitude correlated duration weighting factor; $DWF_M=17.84*M_W^{-1.43}$

M_W = Moment magnitude

Normalized CPT cone tip resistance ($q_{c,1}$) is used to calculate the cyclic resistance ratio (CRR) for clean sandy soils subjected to a M_W=7.5 earthquake. Normalization of the tip resistance is performed using the following equations (Moss et al, 2006):

C_q = $(P_a/\sigma'_v)^c$, $C_q \leq 1.7$,

$q_{c,1}$ = $C_q \cdot q_c$

where: c = Normalization exponent

σ'_v = Effective vertical soil pressure [tsf]

P_a = Reference pressure [tsf]

q_c = CPT raw tip resistance [tsf]

The cyclic resistance ratio (CRR) for a 15% probability of liquefaction is calculated using the following equation (Moss et al, 2006). The term $q_{c,1}$ is corrected using a "fines" adjustment factor and taken as $q_{c,1,mod}$.

$$CRR = \exp\left\{\frac{[q_{c,1}^{1.045} + q_{c,1}(0.110 \cdot R_f) + (0.001 \cdot R_f) + c(1 + 0.850 \cdot R_f) - 0.848 \cdot \ln(M_w) - 0.002 \cdot \ln(\sigma'_v) - 20.923 + 1.632 \cdot \Phi^{-1}(P_L)]}{7.177}\right\}$$

$q_{c,1,\,mod} = q_{c,1} \cdot K_c$

where: K_c = Fines adjustment factor

R_f = Friction ratio [percent]

σ'_v = Effective vertical soil pressure [tsf]

c = Normalization exponent

M_W = Moment magnitude

P_L = Probability of liquefaction [percent]

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The normalized cone resistance with "fines" adjustment factor ($q_{c,1,mod}$), soil behavior type index (I_c), and CSR* and CRR values are shown graphically for each CPT at the end of this appendix, **Figures D2.1** through **D2.17**.

Values of the factor of safety against liquefaction for the soil profiles in each of the CPT logs are calculated at 2-inch intervals using the *CLiq* computer software. Typical calculations for CPT interpretation and liquefaction triggering are provided for CPT-17 in this appendix.

b. Earthquake-Induced Settlement of Soils

Saturated soils that liquefy as a result of earthquake shaking can compress as earthquake-induced excess pore water pressure in the soil dissipates. Likewise, earthquake shaking can densify predominantly granular, dry and partly saturated soils. The *Cliq* computer program was used for estimation of seismic compression of unsaturated soils that occurs in the absence of liquefaction (Robertson and Shao, 2010) and earthquake-induced ground settlement of soils that occurs as the result of liquefaction (Zhang et al, 2002).

One-dimensional volumetric strain of unsaturated sandy soils caused by earthquake shaking is estimated based on $N1_{60}$ values (interpreted from the CPT sounding data) and earthquake-induced cyclic shear strain (interpreted from CSR and CPT tip resistance and sleeve friction). This one-dimensional volumetric strain is doubled in order to account for the multi-directional nature of earthquake shaking. Settlement is calculated by multiplying the volumetric strain value by the thickness of the soil layer. This procedure for estimating earthquake-induced densification was developed based on data from clean to slightly silty sands, therefore the $N1_{60}$ values estimated based on the normalized CPT tip resistance of unsaturated soils were corrected for fines content ($Q_{tn,cs}$).

Post-liquefaction volumetric strain of saturated soils caused by earthquake shaking is estimated based on the normalized, fines-adjusted CPT tip resistance ($q_{c1N,mod}$) and calculated factor of safety (FS) against liquefaction. The CPT tip resistance ($q_{c1N,mod}$) is evaluated using the procedure by Robertson (2010) for compatibility with Zhang, et. al. (2002). Since the volumetric strain obtained from the analysis method for saturated sands includes the effect of multi-directional earthquake shaking, it is not necessary to double the volumetric strain calculated for saturated deposits. Settlement is calculated by multiplying the thickness of the saturated soil layer by the volumetric strain.

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The estimated post-earthquake ground surface settlement profile is shown graphically for each CPT at the end of this appendix, **Figures D2.1** through **D2.17**. **Table D1** summarizes total post-earthquake settlements before and after remedial removals. Typical calculations for post-earthquake settlement of dry sands and post-earthquake settlement due to liquefaction are provided for CPT-17 in this appendix.

c. Potential for Lateral Spreading

Regression equations for potential lateral spread displacement associated with liquefaction of soil beneath a gently sloping site are presented in the referenced article by Zhang, et al (2004). According to these equations, the magnitude of lateral spreading displacement depends on the factor of safety (FS) against liquefaction (evaluated using the CPT-based method described above), thickness of liquefied layers, maximum cyclic shear strains of saturated sands under seismic loading ($_{max}$), relative density (D_r), grain size characteristics and percent fines, and ground surface geometry. The effects of earthquake characteristics on lateral spread displacements, including magnitude, PGA, and site to fault distance, are assumed to be quantified by their effects on FS determined in the liquefaction analysis. The effect of fines content on lateral spreading is assumed to be similar as on liquefaction triggering. The equivalent clean sand normalized cone resistance, $(Q_{t,1N})_{cs}$ is used to account for fines content when estimating $_{max}$.

In summary, the $(Q_{t,1N})_{cs}$ and FS estimated from the CPT-based evaluation of liquefaction potential were subsequently used to estimate $_{max}$ from the regression equations for different values of relative density, Dr, where,

$$D_r = -85 + 76 \log (Q_{t,1N})_{cs} \qquad (Q_{t,1N})_{cs} \quad 200$$

Integrating $_{max}$ with depth yields a value defined as the Lateral Displacement Index (LDI) that quantifies potential for lateral displacement. Based on the analyzed case histories where lateral displacement was observed, empirical correlations were developed to estimate lateral displacement (LD) based on the calculated LDI, ground slope, and/or free face height and distance to free face.

The data base used to develop the lateral spread displacement regression equations is based on case histories in which the liquefiable layers extended laterally for substantial distances without being impeded by boundary effects. It may be inferred that significant lateral spreading has not been observed at narrow sites that are bounded by denser soils or bedrock, or at sites where liquefiable layers are laterally discontinuous. In addition, significant lateral spreading is expected only if a site is

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underlain by a **laterally continuous**, liquefiable layer of sufficient thickness that has a relative density that corresponds to an equivalent **$N1_{60}$ blow count 15**. Per the guidelines established by the County of Los Angeles Department of Public Works, soil layers with equivalent $N1_{60}$ blow counts < 15 should be evaluated for lateral spreading hazard. For the CPT-based analyses included herein, potentially liquefiable soil layers (i.e. safety factor against liquefaction 1.3) with a corrected CPT cone resistance of $(Q_{t,1N})_{cs}$ 84 (equivalent to an $N1_{60}$ blow count of 15 with correction for fines content) were included in the evaluation.

The estimated cumulative lateral displacements for gently sloping ground surface (e.g., 1 percent) is shown graphically for each CPT the end of this appendix, **Figures D2.1** through **D2.17**, and summarized in **Table D1**. Typical calculations for post-earthquake lateral displacements due to liquefaction are provided for CPT-17 in this appendix.

d. Surface Manifestations and Loss of Bearing Capacity

Surface manifestations of liquefaction, such as sand boils and fissures, do not occur provided there is a sufficient thickness of non-liquefiable soil over potentially liquefiable soil layers with low blow count (i.e. $N1_{60}$ 10). Although there is no analytical model available for evaluating the required thickness of this cover, an empirical model for estimation of the cover thickness needed to mitigate surface manifestations of liquefaction was developed by Professor Kenji Ishihara ("Stability Of Natural Deposits During Earthquakes", Proceedings of 11th ICSMFE, 1985) based on a limited number of case histories of vertically continuous liquefied sand deposits subjected to peak horizontal ground acceleration values up to about 0.5g.

4. Results of Analysis

a. Liquefaction Potential Assessment

Results of our liquefaction potential assessment at the site are graphically summarized herein on individual sheets for analyzed CPT soundings (CPT-Based Assessment of Seismic Soil Liquefaction Potential, **Figures D2.1** through **D2.17**) and boring location (SPT-Based Assessment of Seismic Soil Liquefaction Potential, **Figure D2.18**). The CPT plots present depth vs. normalized CPT cone resistance and friction ratio, cyclic shear stress induced by earthquake shaking, resistance to liquefaction, cumulative settlement that would be caused by earthquake shaking (before recommended removals), and cumulative lateral displacement that would be caused by liquefied soils. The SPT-based plots present depth vs. field blow count and $N1_{60,cs}$

blow count, laboratory fines content, cyclic shear stress and cyclic resistance, and cumulative settlement (before and after removals). The sheets also display ground water depths at the time of the CPT soundings and boring and estimated historic high ground water depths. Based on data from our CPT soundings, potentially liquefiable soil layers are present at depths ranging from 30 feet (historic high ground water level) to 50 feet (maximum depth analyzed).

b. Earthquake-Induced Settlement

The results of the analyses of potential earthquake-induced settlement are presented on **Figures D2.1** through **D2.18**. Based on these analyses, estimated potential earthquake-induced total settlement at the site ranges from less than 1 inch up to about 11 inches.

The Los Angeles County Department of Public Works, Geotechnical and Materials Engineering Division (GMED) has developed criteria to determine when structural mitigation and ground improvement is required to mitigate seismically-induced settlement. Total seismic settlements up to 4 inches and differential seismic settlements up to 2 inches (over a horizontal distance of 30 feet) can be mitigated using structural methods, such as additional foundation reinforcement or alternate foundation types. Calculated settlements in excess of these values would warrant ground improvement, or a combination of ground improvement and structural methods.

Remedial removals are proposed to generally reduce total seismic settlement to less than 2.0 inches and differential seismic settlement to less than 1.0 inch.

c. Lateral Spreading

The results of the analyses of potential liquefaction-induced lateral spread displacements are presented on **Figures D2.1** through **D2.17**. Based on these analyses, potential lateral displacements at the site range from less than 1 inch to about 7 inches.

As stated above, lateral displacements are expected only if a site is underlain by a laterally continuous liquefiable layer that a relative density that corresponds to a corrected CPT cone resistance of $(Q_{t,1N})_{cs}$ 84 or $N1_{60,cs}$ blow count less than 15. Additionally, GMED has developed criteria to determine when structural mitigation and ground improvement is required to mitigate liquefaction-induced lateral displacements. Total calculated lateral spread displacements up to 12 inches can be mitigated using structural methods. Calculated displacements in excess of this value

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would warrant ground improvement, or a combination of ground improvement and structural methods. Based on our evaluation of lateral spreading hazard, continuous, potentially liquefiable layers with substantial thicknesses of material with a relative density that corresponds to $N1_{60}$ 15 blows/ft were not identified.

d. Surface Manifestations

Based on the proposed grading, a cap of non-liquefiable material at least 30 ft in thickness will be present over potentially liquefiable soils within the tract boundaries where structures are proposed. The thickness of the non-liquefiable surface layer and the effective thickness of underlying liquefiable layers with interpreted $N1_{60}$ blow counts 10 following the recommended removals were reviewed at each analyzed CPT location. Based on this review, the effective thickness of potentially liquefiable layers with low interpreted blow counts is predominantly < 1 ft. Using the Ishihara model in conjunction with the thickness of potentially liquefiable soils with low blow counts that would remain following the removals, the thickness of the cap of non-liquefiable materials above the remaining potentially liquefiable materials will be sufficient to mitigate the hazard of surface manifestations of liquefaction.

e. Conclusions and Recommendations

The principal findings of our liquefaction analyses are as follows:

- Susceptibility of alluvial soils to earthquake-induced densification is potentially significant, particularly for the dry and partly saturated soils in the upper 15 to 20 ft. Total seismic settlement at the ground surface is estimated to exceed 4 inches at many CPT locations, up to a maximum of about 11 inches. Since this potential total settlement exceeds the maximum potential total settlement considered to be tolerable by Los Angeles County (i.e., 4 inches), removal of in-situ site soils and replacement with compacted fill are recommended as shown on the Geotechnical Map and on the Summary of Estimated Cyclic Settlements and Lateral Displacements (**Table D1**).

- Following the recommended removals and replacement, potential liquefaction and earthquake-induced densification of soils could cause total ground settlement over most of the site generally up to about 2 inches. The corresponding differential ground settlement (between locations of adjacent footing foundations or over a horizontal distance of 30 ft) would be up to 1.0 inch.

- Based on the depth of potentially liquefiable soils that may susceptible to lateral spreading (i.e., greater than 30 ft), in conjunction with the estimated magnitude

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of calculated displacements, the hazard for lateral spread displacements to adversely impact the proposed development is considered to be **low**.

- The cap of non-liquefiable soils (i.e. the upper 30 ft) will be thick enough to mitigate surface manifestations of potential liquefaction, such as sand boils, fissures, and loss of bearing capacity.

The following attachments complete this Appendix.

- References - Assessment of Liquefaction Potential and Estimated Cyclic Settlements
- Summary of Estimated Cyclic Settlements and Lateral Displacements — Table D1
- Correlation of $N_{1(60)}$ Blow Count and Percent Fines - Boring vs. CPT Interpretation (HS-1 vs. CPT-17) — Figure D1
- CPT-Based Assessment of Seismic Soil Liquefaction Potential (CPT-1 to CPT-17) — Figures D2.1 thru D2.17
- SPT-Based Assessment of Seismic Soil Liquefaction Potential (HS-1) — Figure D2.18
- Typical Calculations for Liquefaction Triggering Analysis (based on CPT-17) (6 sheets)
- Typical Calculations for Cyclic Settlement Analysis (based on CPT-17) (6 sheets)
- Typical Calculations for Lateral Spread Displacements (based on CPT-17) (6 sheets)

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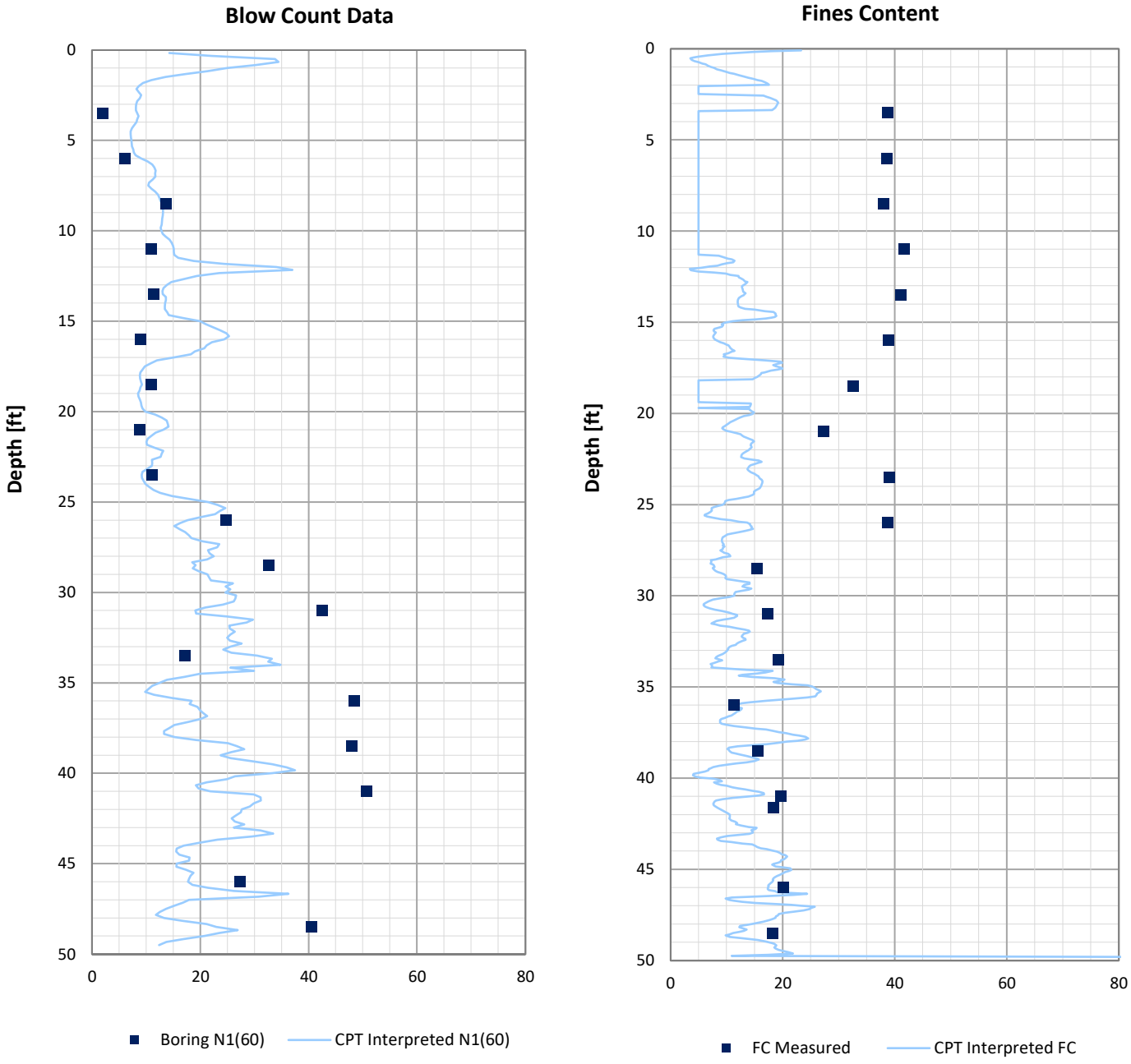
Table D1 - Summary of Estimated Cyclic Settlements and Lateral Displacements

Analyzed Location	Total Depth (feet)	Groundwater Depth		Liquefaction Settlements (inches)	Dry Sand Settlements (inches)	Total Seismic Settlement Before Removals (inches)	Removal Depth (ft) [1]	Total Seismic Settlement After Removals (inches)	Lateral Displacements (inches)
		Existing GWT	Historical GWT						
CPT-01A	14.0	--	30	--	1.1	1.1	14	0.0*	n/a
CPT-02	56.5	--	30	0.4	8.1	8.5	15	2.0	1.1
CPT-03	48.4	--	30	1.5	6.8	8.3	17	2.0	5.2
CPT-04A	16.7	--	30	--	4.2	4.2	15	0.0*	n/a
CPT-05	43.0	--	30	0.3	5.3	5.6	10	2.0	0.3
CPT-06	27.7	--	30	--	3.8	3.8	15	0.0*	n/a
CPT-07A	48.1	--	30	1.9	2.9	4.8	16	~ 2.0	6.8
CPT-08A	12.0	--	30	--	0.3	0.3	12	0.0*	n/a
CPT-09A	11.2	--	30	--	0.0	0.0	11	0.0*	n/a
CPT-10	40.6	--	30	1.4	5.7	7.1	16	2.0	6.2
CPT-11	19.2	--	30	--	2.4	2.4	15	< 0.25*	n/a
CPT-12	24.6	--	30	--	4.6	4.6	15	0.0*	n/a
CPT-13	47.5	--	30	0.7	3.8	4.5	10	2.0	2.1
CPT-14	12.5	--	30	--	1.8	1.8	13	0.0*	n/a
CPT-15	52.5	--	30	1.2	9.8	11.0	24	2.0	4.2
CPT-16	60.1	--	30	1.3	2.5	3.8	17	2.0	4.2
CPT-17	50.1	--	30	1.2	6.6	7.8	19	2.0	3.6
HS-1	55.0	--	30	0.6	5.2	5.8	17	≤ 2.0	--

[1] Removal depths with asterisks (*) apply to CPTs with shallow refusal; removal depth taken as the total depth of the CPT or the local removal depth at the CPT location, whichever is shallower.

Location……. **HS-1**
CPT-17



Correlation of N1(60) Blow Count and Percent Fines - Boring vs. CPT Interpretation

ALLAN E. SEWARD
ENGINEERING GEOLOGY, INC.
Geological and Geotechnical Consultants

Client:	Wiley Canyon LLC
Project:	Wiley Canyon
	TTM 083295
Proj. No.:	21-2593-4
Date:	2/11/21

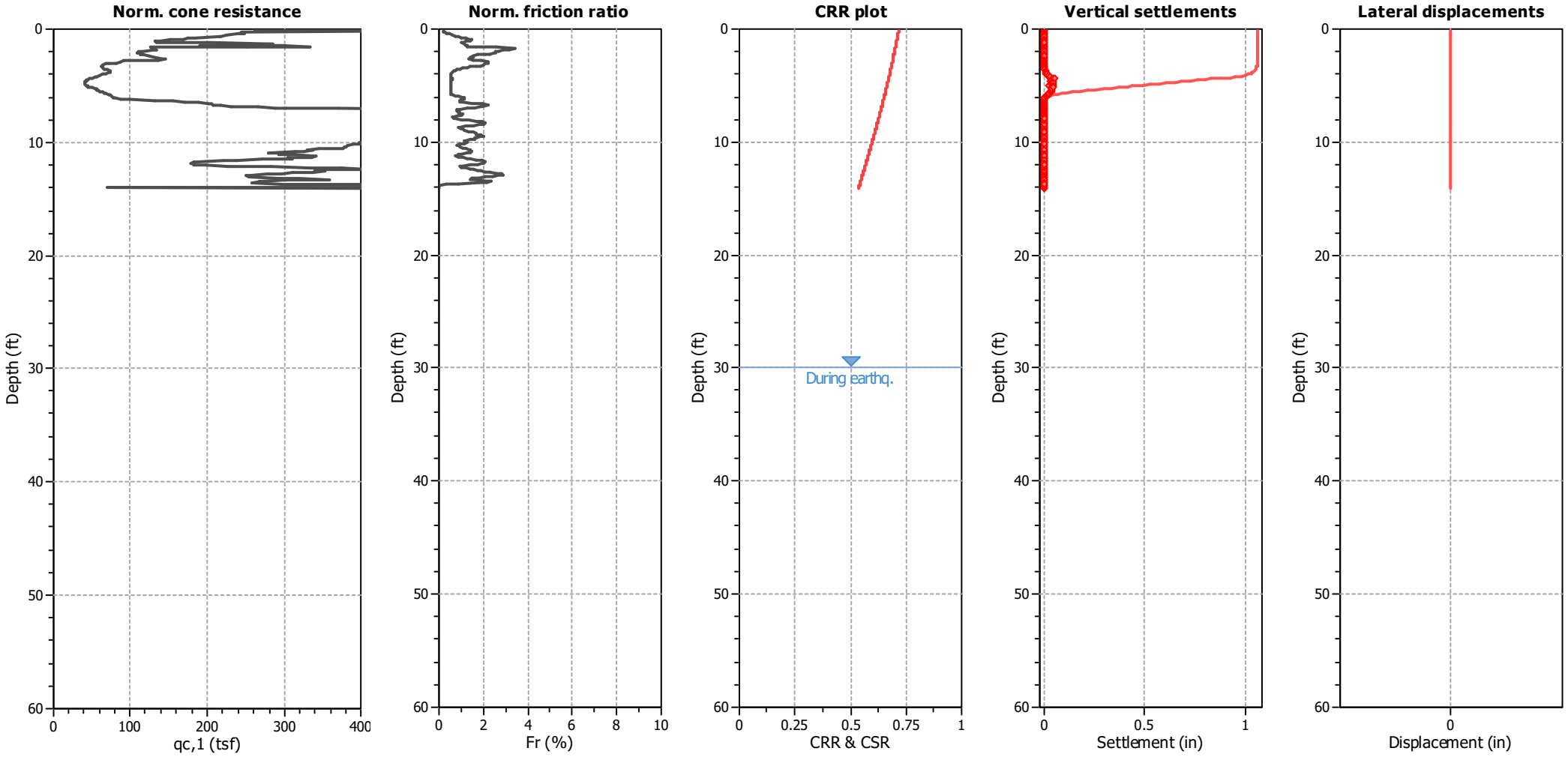
Figure: D1

Allan E. Seward Engineering Geology, Inc.
Geologic and Geotechnical Consultants

Project: **Wiley Canyon**
Location: **Santa Clarita, CA**

CPT-Based Assessment of Seismic Soil Liquefaction Potential

CPT: CPT-1A
Total depth: 14.05 ft



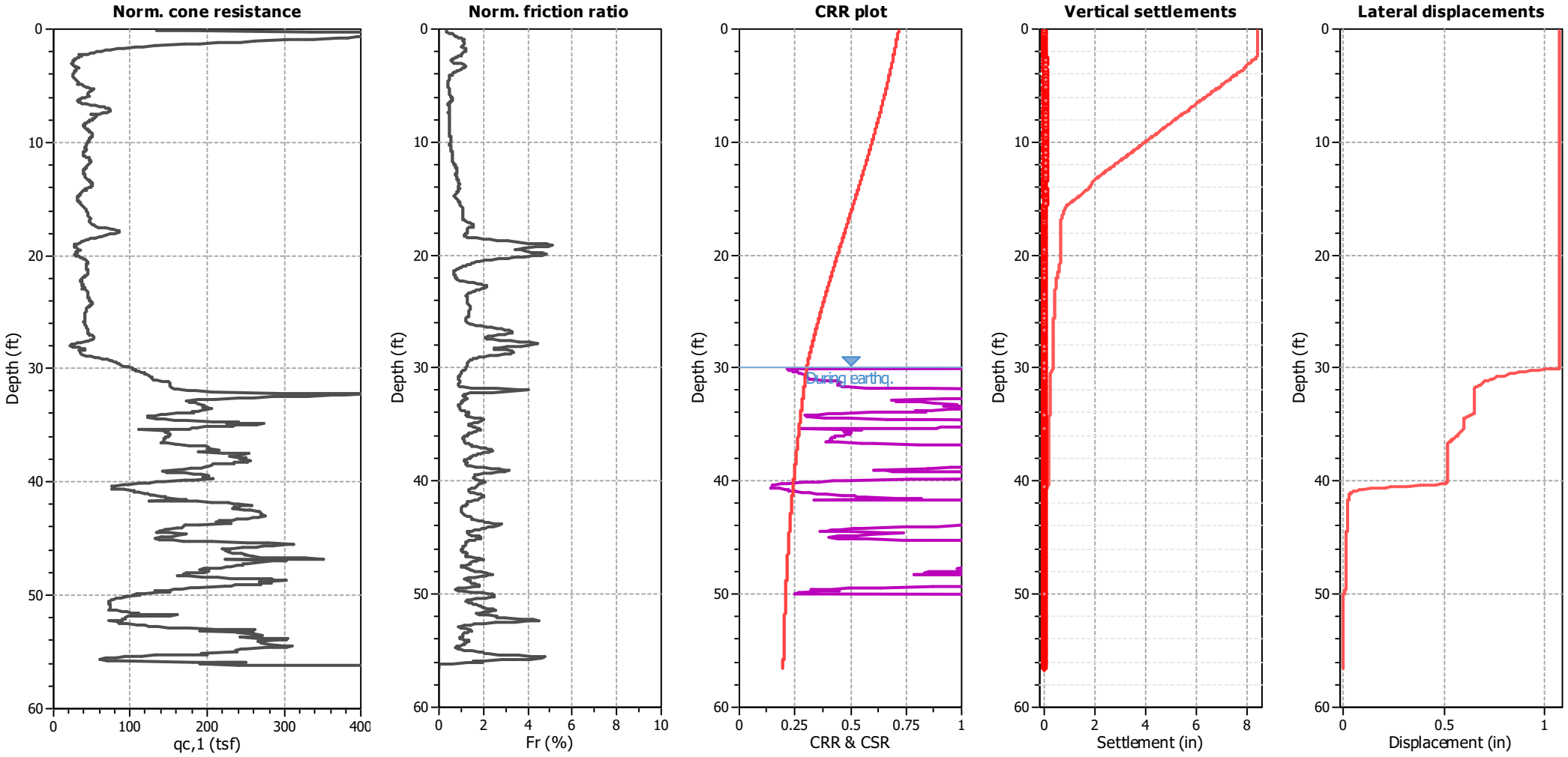
Analysis method:	Moss et al. (2006)	G.W.T. (in-situ):	60.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	Moss et al. (2006)	G.W.T. (earthq.):	30.00 ft	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	50.00 ft
Earthquake magnitude M_w:	6.69	Ic cut-off value:	4.00	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	1.00	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

Figure D2.1

Project: **Wiley Canyon**
Location: **Santa Clarita, CA**

CPT-Based Assessment of Seismic Soil Liquefaction Potential

CPT: CPT-2
Total depth: 56.52 ft



Analysis method:	Moss et al. (2006)	G.W.T. (in-situ):	60.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	Moss et al. (2006)	G.W.T. (earthq.):	30.00 ft	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	50.00 ft
Earthquake magnitude M_w:	6.69	Ic cut-off value:	4.00	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	1.00	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

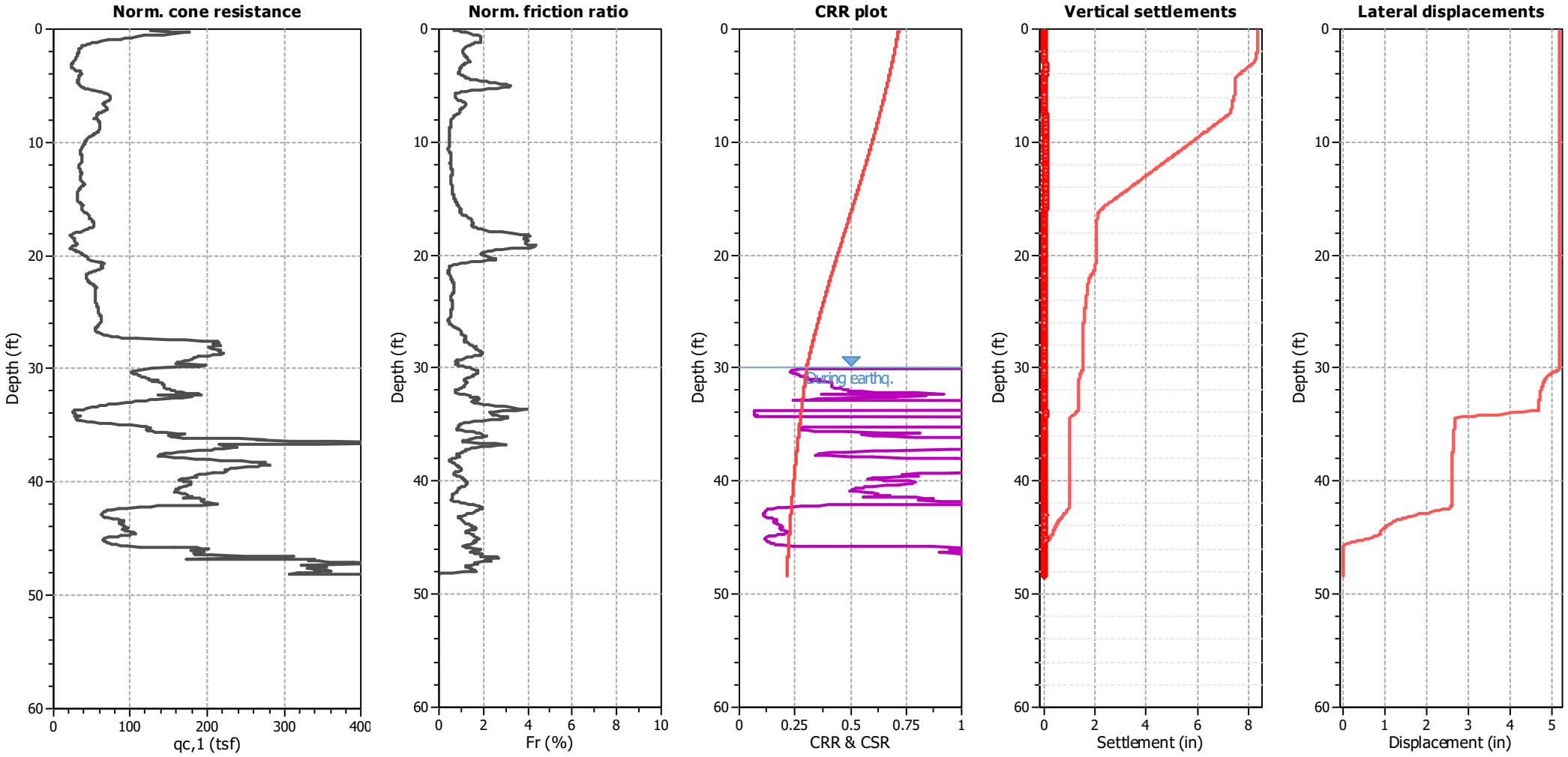
Figure D2.2

Allan E. Seward Engineering Geology, Inc.
Geologic and Geotechnical Consultants

Project: **Wiley Canyon**
Location: **Santa Clarita, CA**

CPT-Based Assessment of Seismic Soil Liquefaction Potential

CPT: CPT-3
Total depth: 48.43 ft

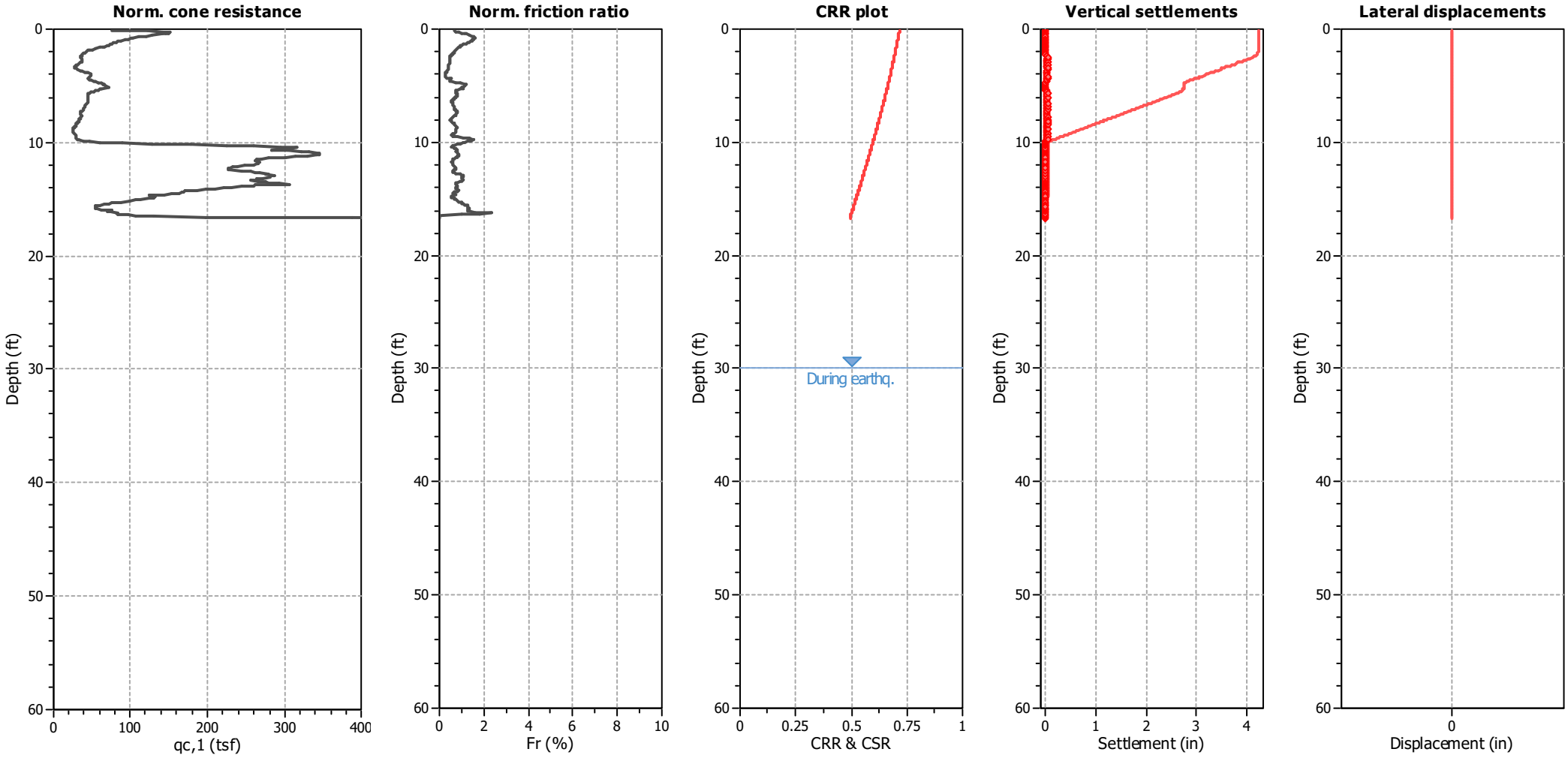


Analysis method:	Moss et al. (2006)	G.W.T. (in-situ):	60.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	Moss et al. (2006)	G.W.T. (earthq.):	30.00 ft	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	50.00 ft
Earthquake magnitude M_w:	6.69	Ic cut-off value:	4.00	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	1.00	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

Project: **Wiley Canyon**
Location: **Santa Clarita, CA**

CPT-Based Assessment of Seismic Soil Liquefaction Potential

CPT: CPT-4A
Total depth: 16.74 ft



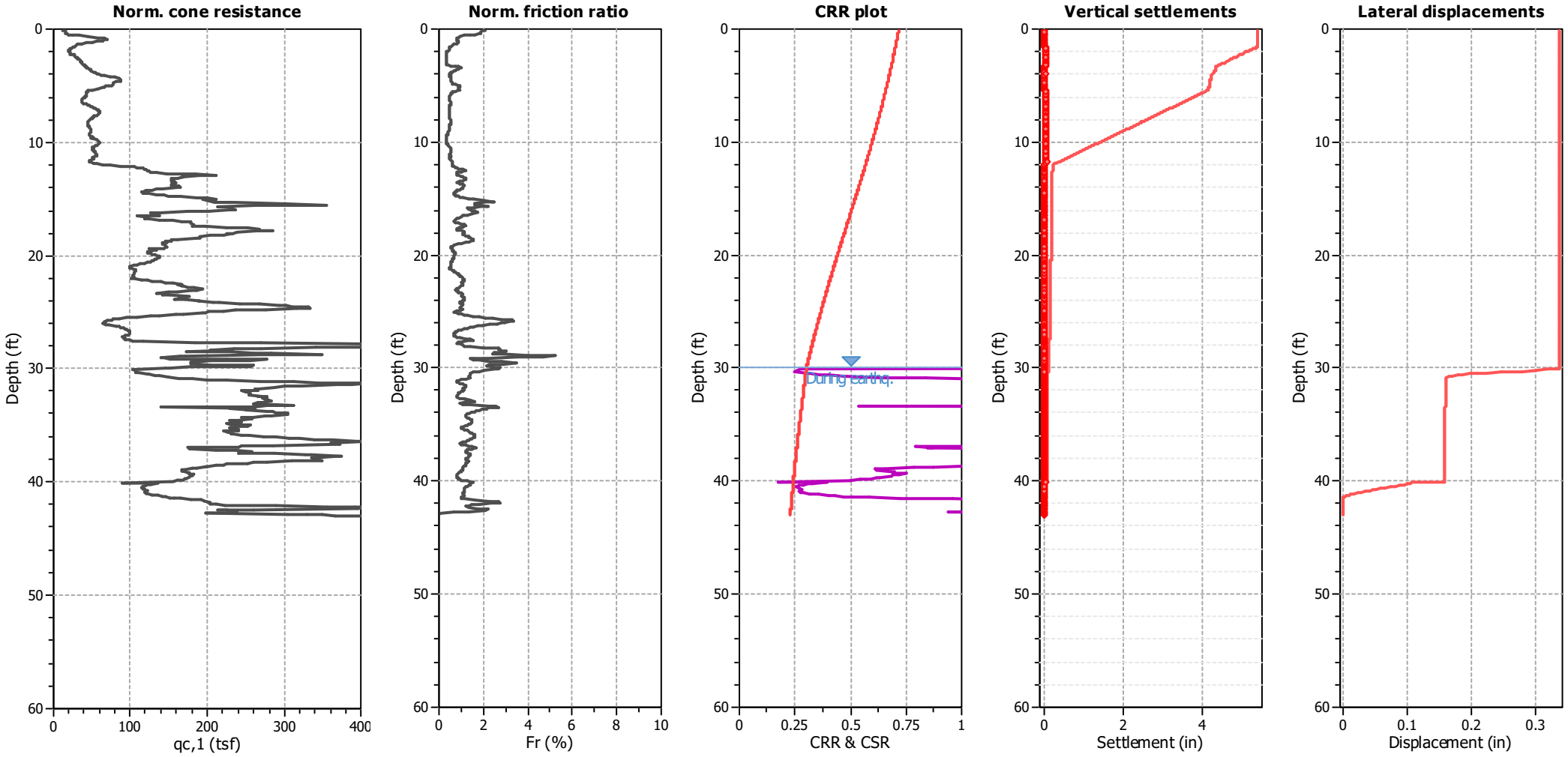
Analysis method:	Moss et al. (2006)	G.W.T. (in-situ):	60.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	Moss et al. (2006)	G.W.T. (earthq.):	30.00 ft	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	50.00 ft
Earthquake magnitude M_w:	6.69	Ic cut-off value:	4.00	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	1.00	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

Figure D2.4

Project: **Wiley Canyon**
Location: **Santa Clarita, CA**

CPT-Based Assessment of Seismic Soil Liquefaction Potential

CPT: CPT-5
Total depth: 43.05 ft

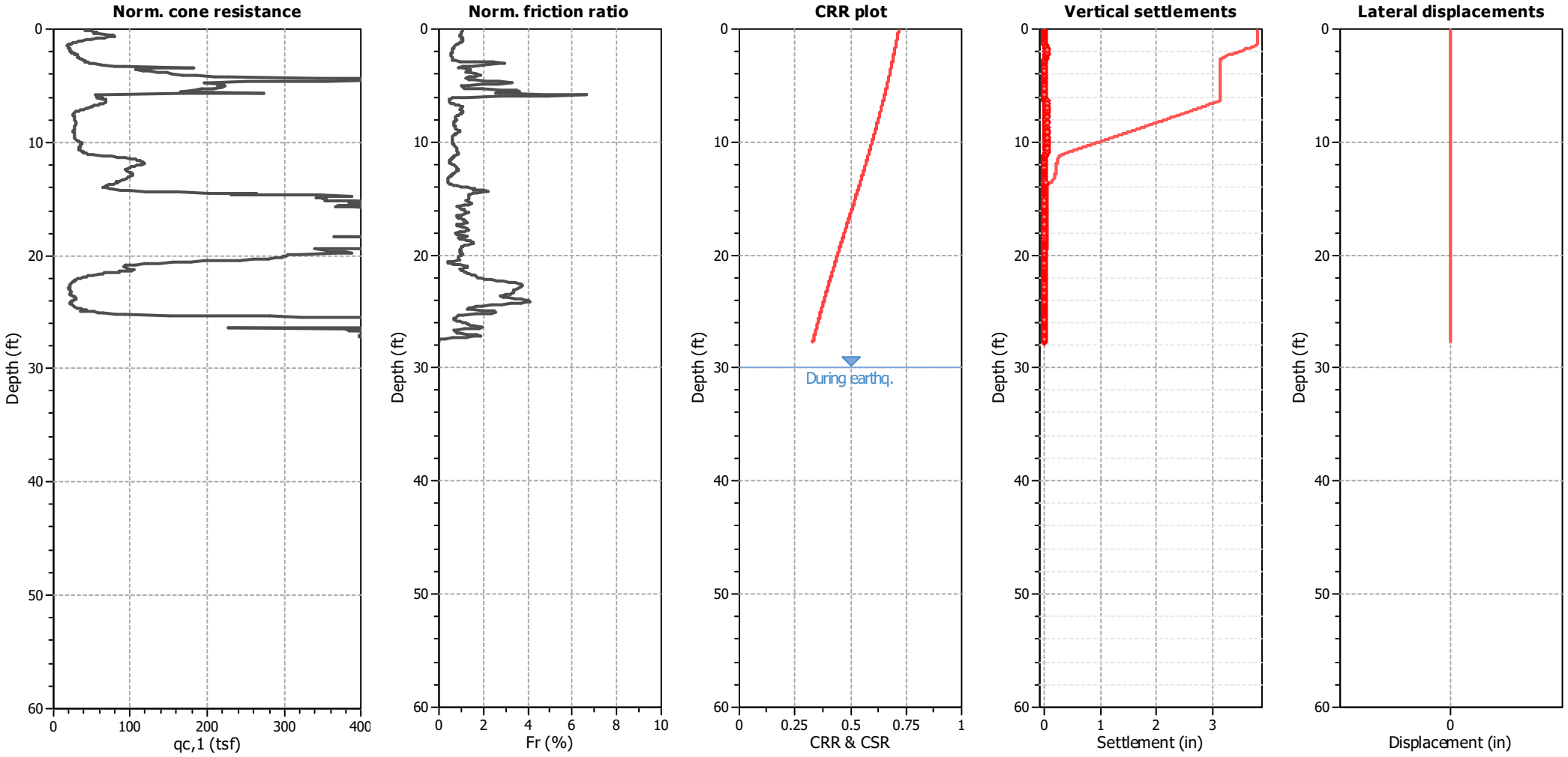


Analysis method:	Moss et al. (2006)	G.W.T. (in-situ):	60.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	Moss et al. (2006)	G.W.T. (earthq.):	30.00 ft	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	50.00 ft
Earthquake magnitude M_w:	6.69	Ic cut-off value:	4.00	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	1.00	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

Project: **Wiley Canyon**
Location: **Santa Clarita, CA**

CPT-Based Assessment of Seismic Soil Liquefaction Potential

CPT: CPT-6
Total depth: 27.69 ft



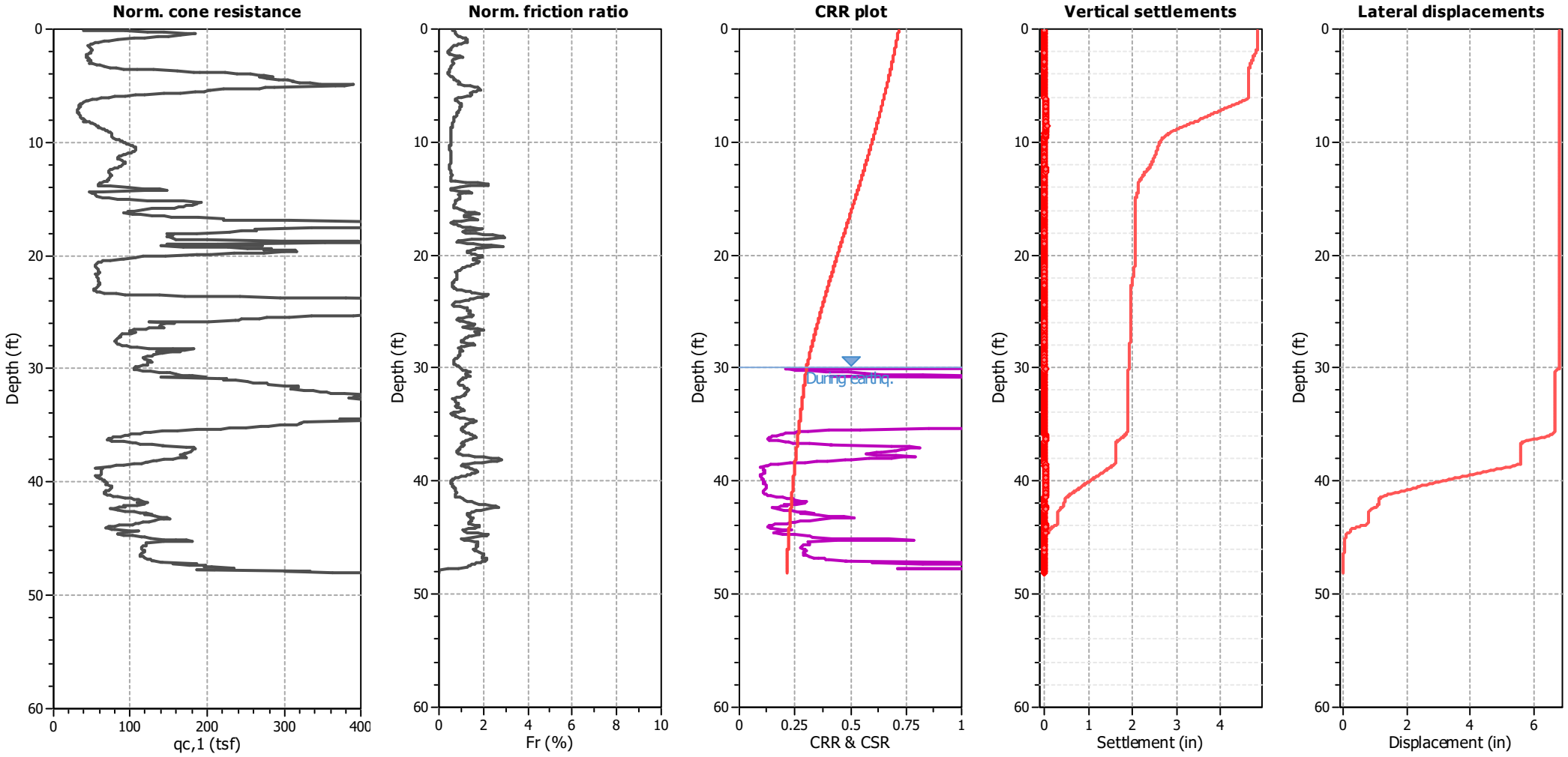
Analysis method:	Moss et al. (2006)	G.W.T. (in-situ):	60.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	Moss et al. (2006)	G.W.T. (earthq.):	30.00 ft	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	50.00 ft
Earthquake magnitude M_w:	6.69	Ic cut-off value:	4.00	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	1.00	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

Figure D2.6

Project: **Wiley Canyon**
Location: **Santa Clarita, CA**

CPT-Based Assessment of Seismic Soil Liquefaction Potential

CPT: CPT-7A
Total depth: 48.10 ft

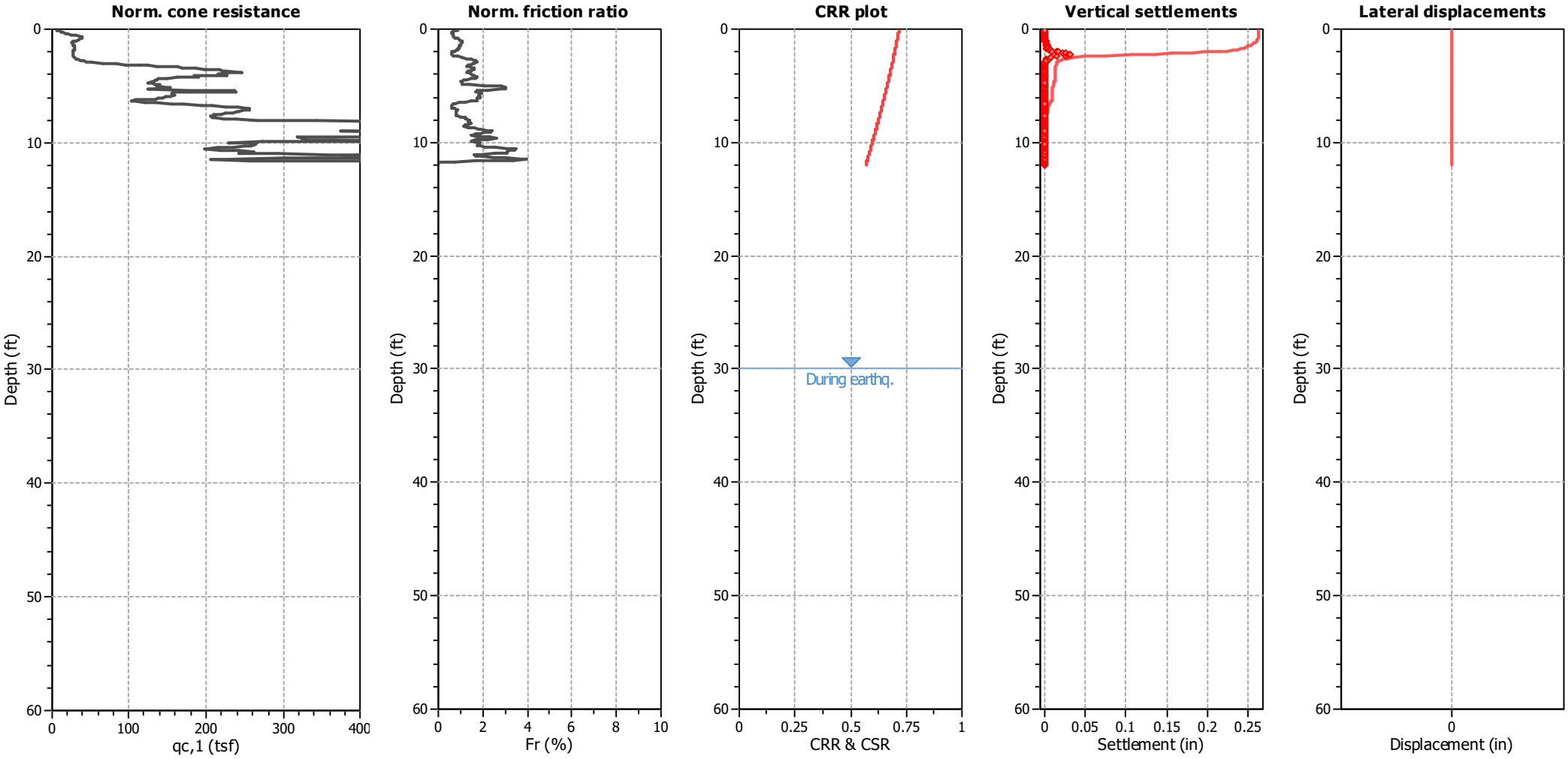


Analysis method:	Moss et al. (2006)	G.W.T. (in-situ):	60.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	Moss et al. (2006)	G.W.T. (earthq.):	30.00 ft	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	50.00 ft
Earthquake magnitude M_w:	6.69	Ic cut-off value:	4.00	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	1.00	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

Project: **Wiley Canyon**
Location: **Santa Clarita, CA**

CPT-Based Assessment of Seismic Soil Liquefaction Potential

CPT: CPT-8A
Total depth: 12.01 ft

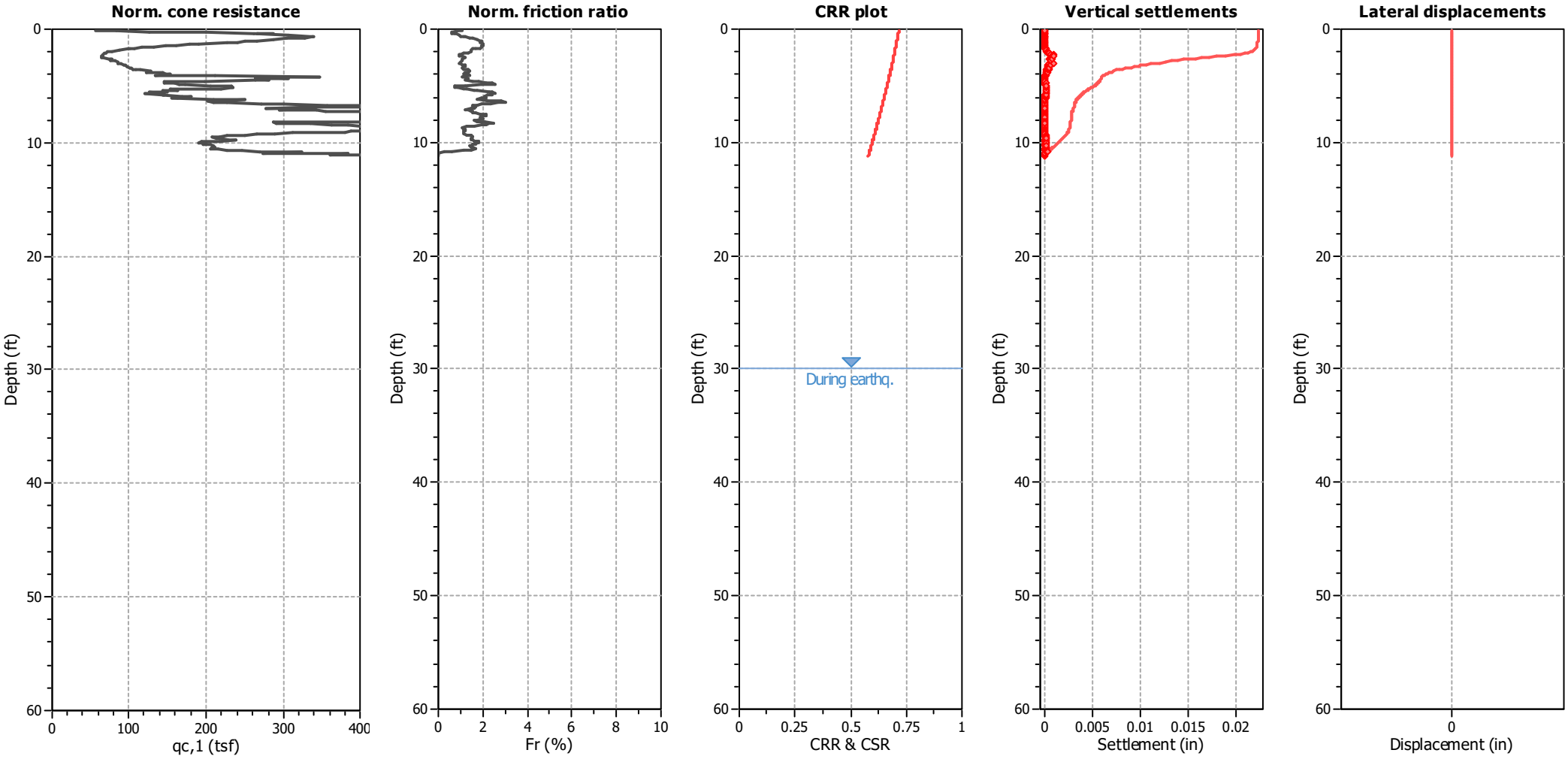


Analysis method:	Moss et al. (2006)	G.W.T. (in-situ):	60.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	Moss et al. (2006)	G.W.T. (earthq.):	30.00 ft	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	50.00 ft
Earthquake magnitude M_w:	6.69	Ic cut-off value:	4.00	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	1.00	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

Project: **Wiley Canyon**
Location: **Santa Clarita, CA**

CPT-Based Assessment of Seismic Soil Liquefaction Potential

CPT: CPT-9A
Total depth: 11.16 ft



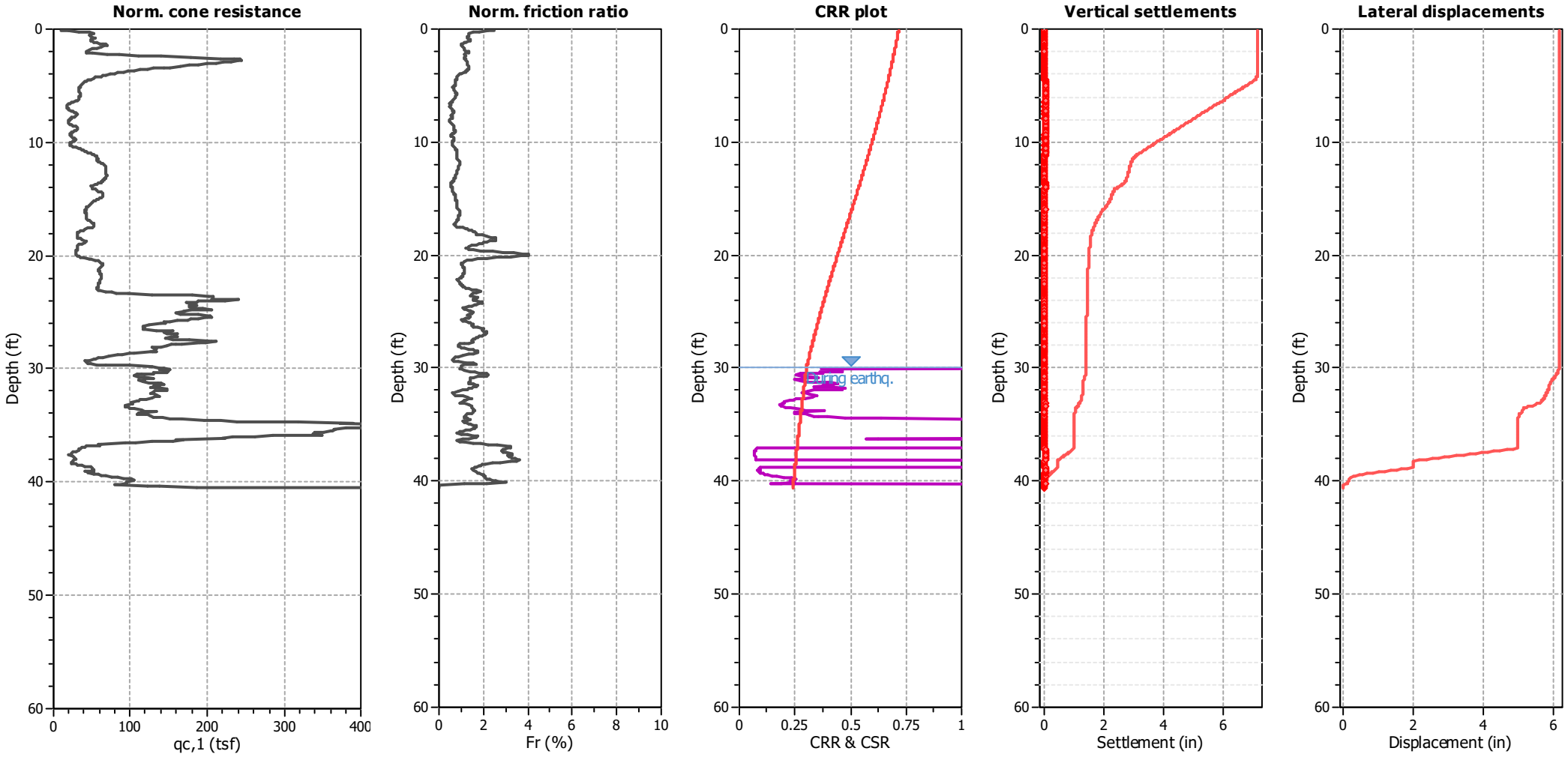
Analysis method:	Moss et al. (2006)	G.W.T. (in-situ):	60.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	Moss et al. (2006)	G.W.T. (earthq.):	30.00 ft	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	50.00 ft
Earthquake magnitude M_w:	6.69	Ic cut-off value:	4.00	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	1.00	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

Figure D2.9

Project: **Wiley Canyon**
Location: **Santa Clarita, CA**

CPT-Based Assessment of Seismic Soil Liquefaction Potential

CPT: CPT-10
Total depth: 40.57 ft



Analysis method:	Moss et al. (2006)	G.W.T. (in-situ):	60.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	Moss et al. (2006)	G.W.T. (earthq.):	30.00 ft	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	50.00 ft
Earthquake magnitude M_w:	6.69	Ic cut-off value:	4.00	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	1.00	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

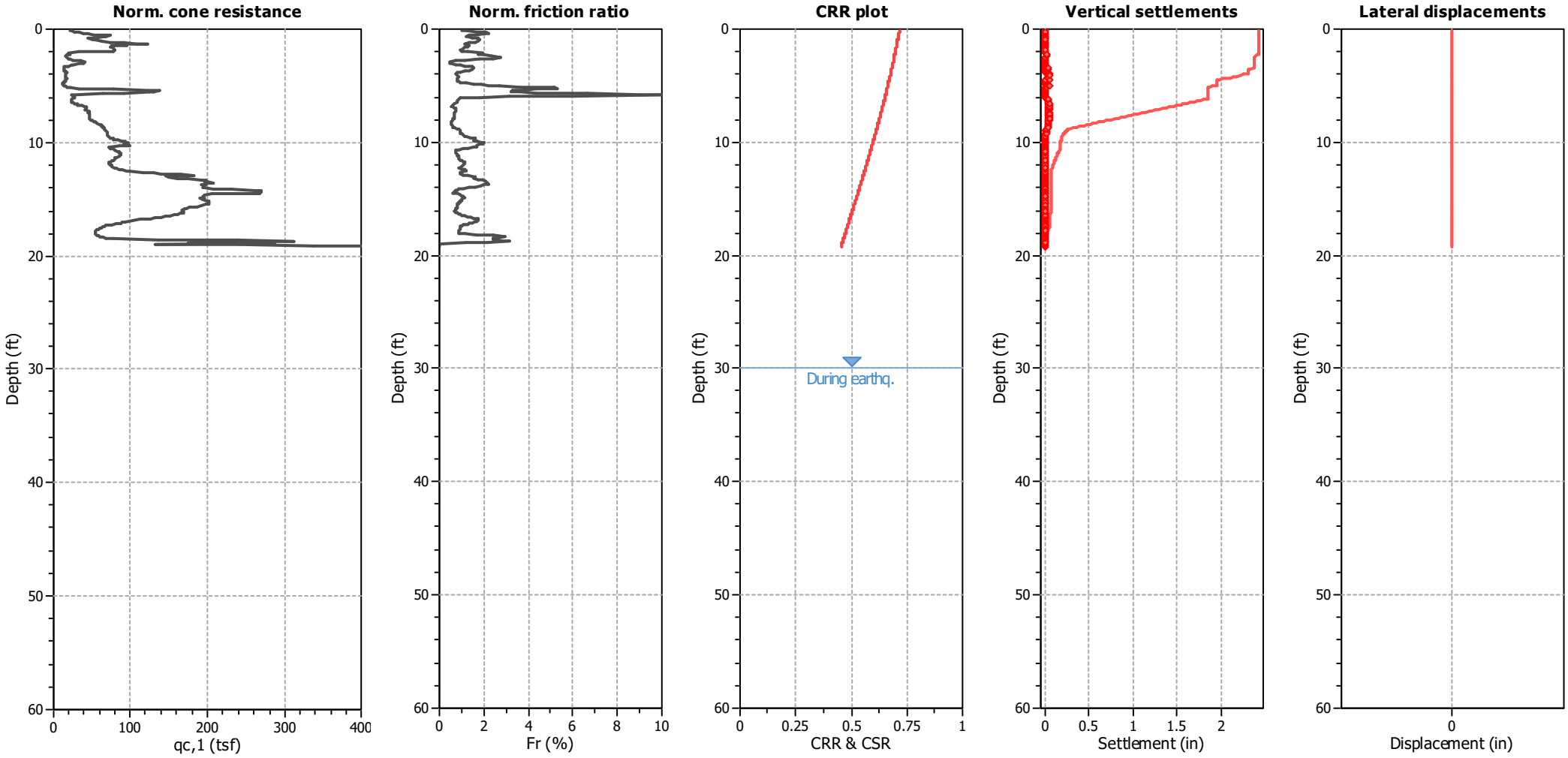
Figure D2.10

Allan E. Seward Engineering Geology, Inc.
Geologic and Geotechnical Consultants

Project: **Wiley Canyon**
Location: **Santa Clarita, CA**

CPT-Based Assessment of Seismic Soil Liquefaction Potential

CPT: CPT-11
Total depth: 19.23 ft



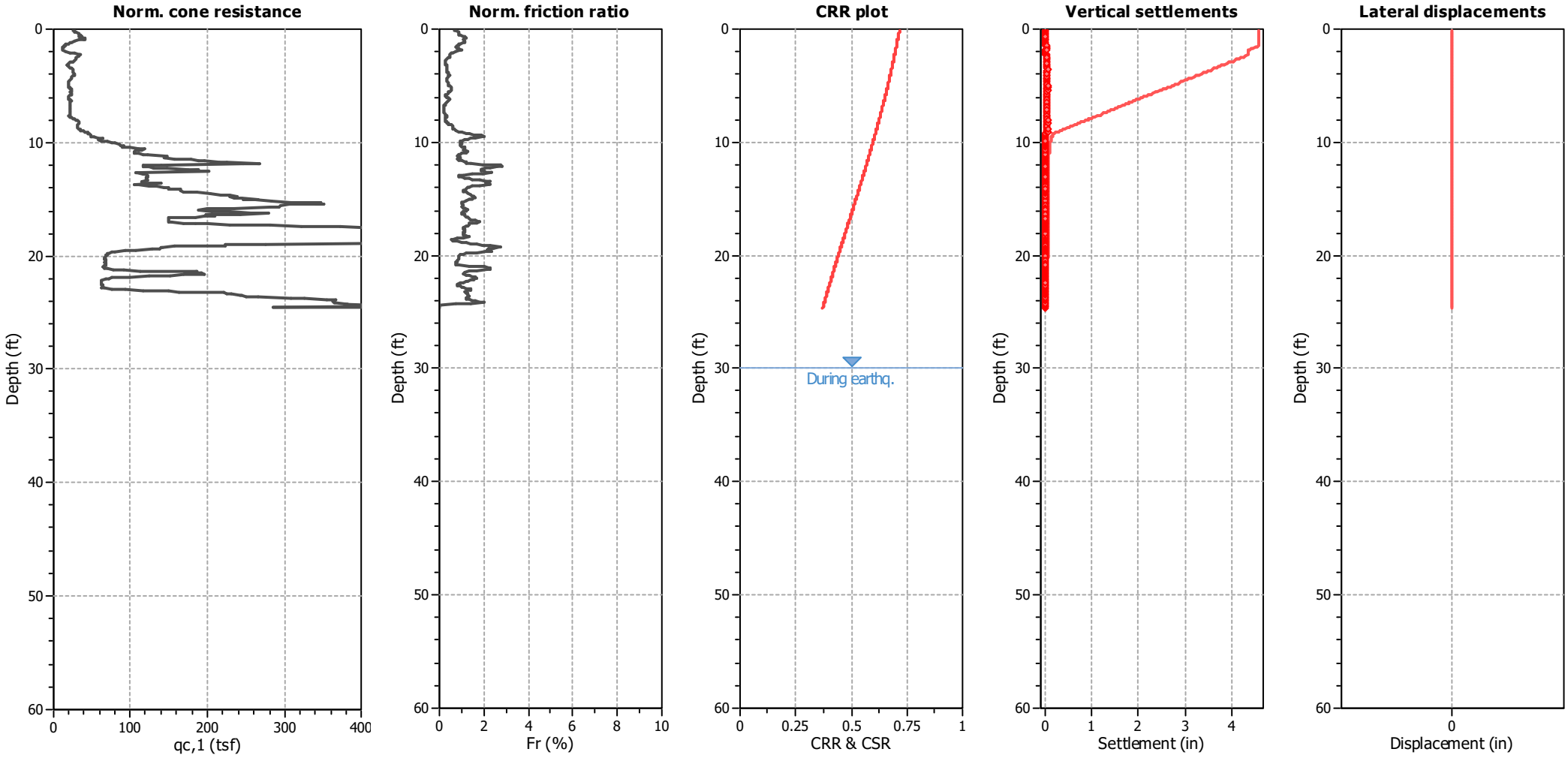
Analysis method:	Moss et al. (2006)	G.W.T. (in-situ):	60.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	Moss et al. (2006)	G.W.T. (earthq.):	30.00 ft	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	50.00 ft
Earthquake magnitude M_w:	6.69	Ic cut-off value:	4.00	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	1.00	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

Figure D2.11

Project: **Wiley Canyon**
Location: **Santa Clarita, CA**

CPT-Based Assessment of Seismic Soil Liquefaction Potential

CPT: CPT-12A
Total depth: 24.62 ft



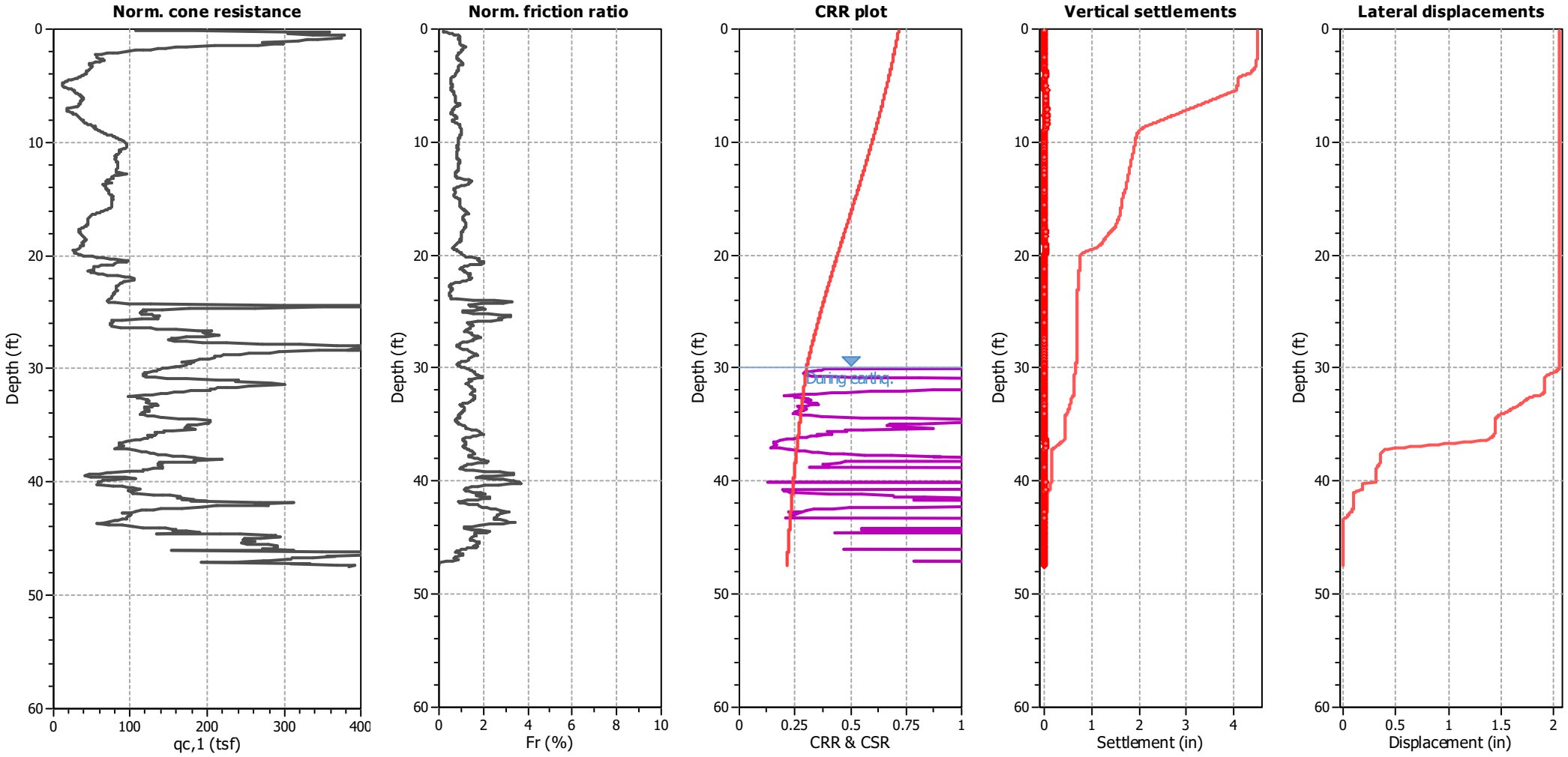
Analysis method:	Moss et al. (2006)	G.W.T. (in-situ):	60.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	Moss et al. (2006)	G.W.T. (earthq.):	30.00 ft	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	50.00 ft
Earthquake magnitude M_w:	6.69	Ic cut-off value:	4.00	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	1.00	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

Figure D2.12

Project: **Wiley Canyon**
Location: **Santa Clarita, CA**

CPT-Based Assessment of Seismic Soil Liquefaction Potential

CPT: CPT-13
Total depth: 47.45 ft



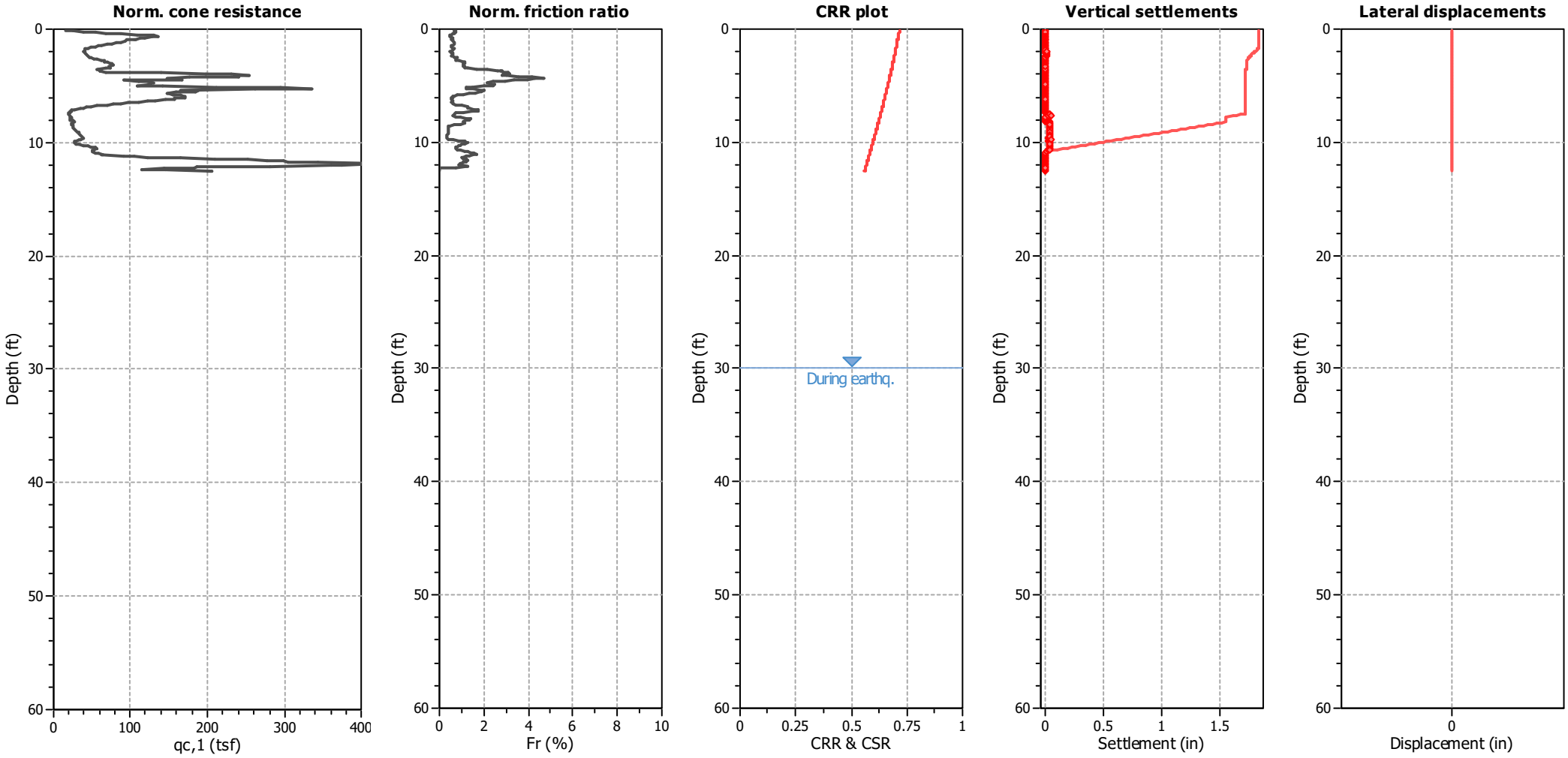
Analysis method:	Moss et al. (2006)	G.W.T. (in-situ):	60.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	Moss et al. (2006)	G.W.T. (earthq.):	30.00 ft	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	50.00 ft
Earthquake magnitude M_w:	6.69	Ic cut-off value:	4.00	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	1.00	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

Figure D2.13

Project: **Wiley Canyon**
Location: **Santa Clarita, CA**

CPT-Based Assessment of Seismic Soil Liquefaction Potential

CPT: CPT-14
Total depth: 12.54 ft



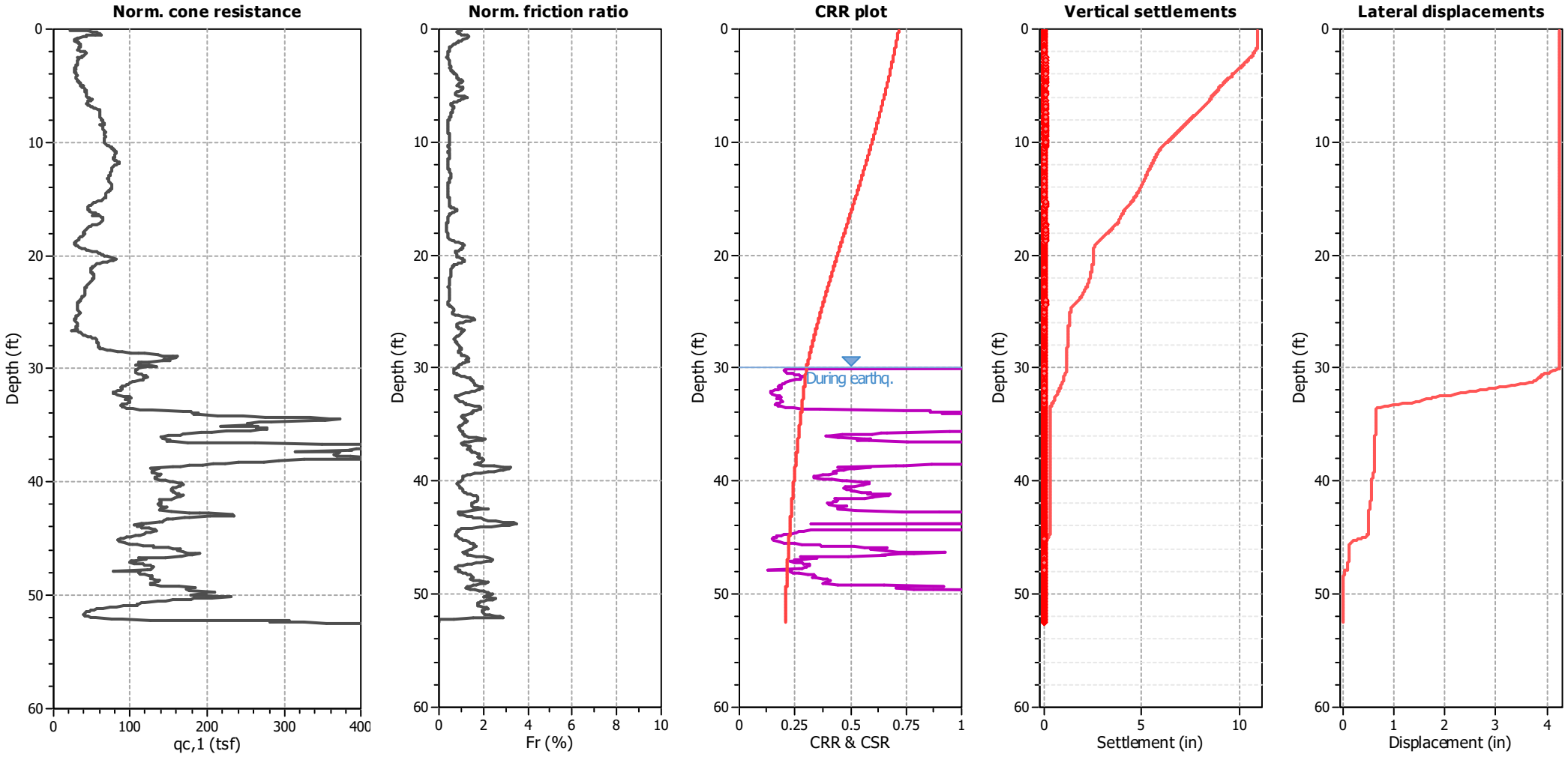
Analysis method:	Moss et al. (2006)	G.W.T. (in-situ):	60.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	Moss et al. (2006)	G.W.T. (earthq.):	30.00 ft	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	50.00 ft
Earthquake magnitude M_w:	6.69	Ic cut-off value:	4.00	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	1.00	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

Figure D2.14

Project: **Wiley Canyon**
Location: **Santa Clarita, CA**

CPT-Based Assessment of Seismic Soil Liquefaction Potential

CPT: CPT-15
Total depth: 52.50 ft



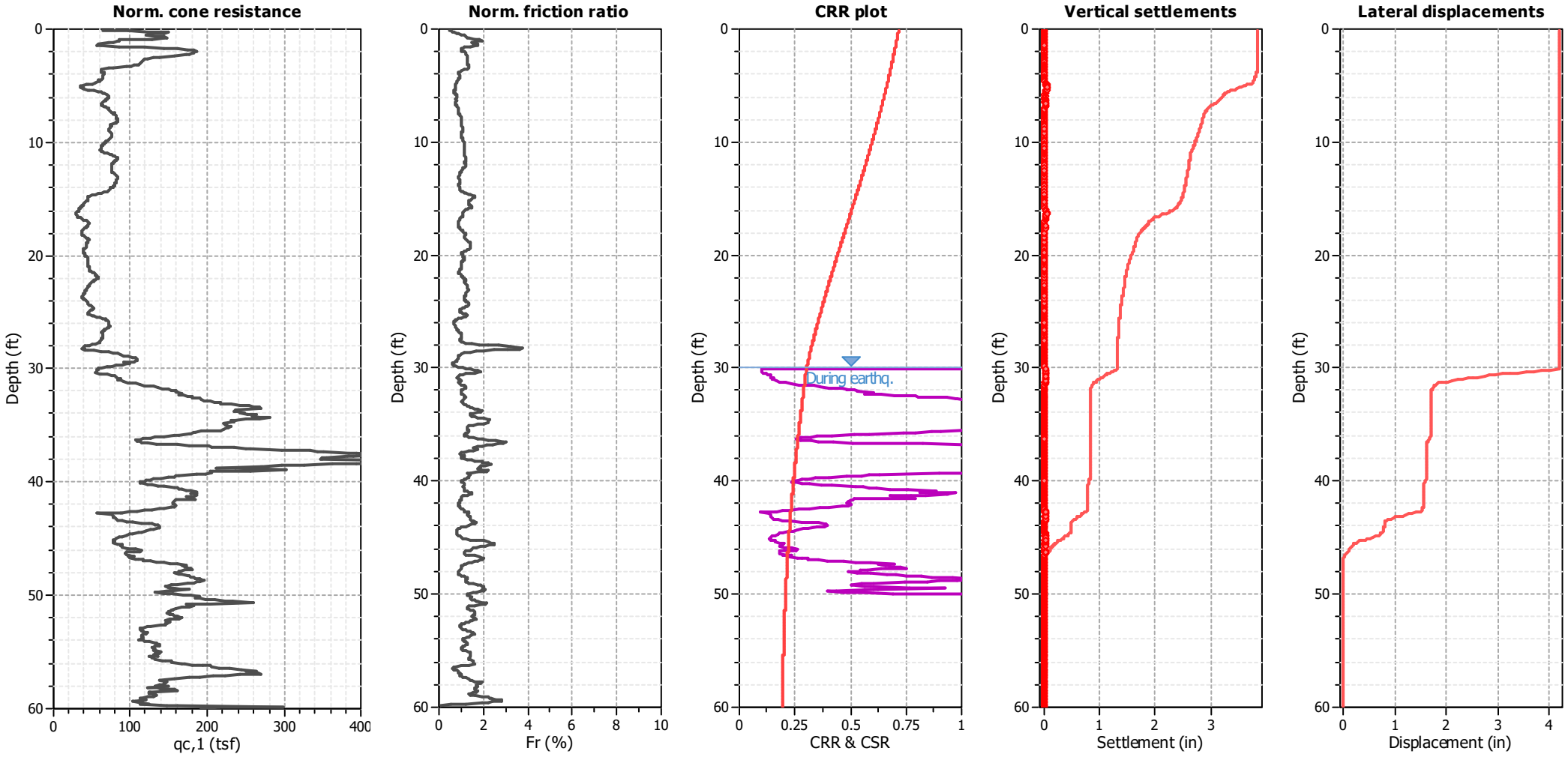
Analysis method:	Moss et al. (2006)	G.W.T. (in-situ):	60.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	Moss et al. (2006)	G.W.T. (earthq.):	30.00 ft	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	50.00 ft
Earthquake magnitude M_w:	6.69	Ic cut-off value:	4.00	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	1.00	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

Figure D2.15

Project: **Wiley Canyon**
Location: **Santa Clarita, CA**

CPT-Based Assessment of Seismic Soil Liquefaction Potential

CPT: CPT-16
Total depth: 60.12 ft



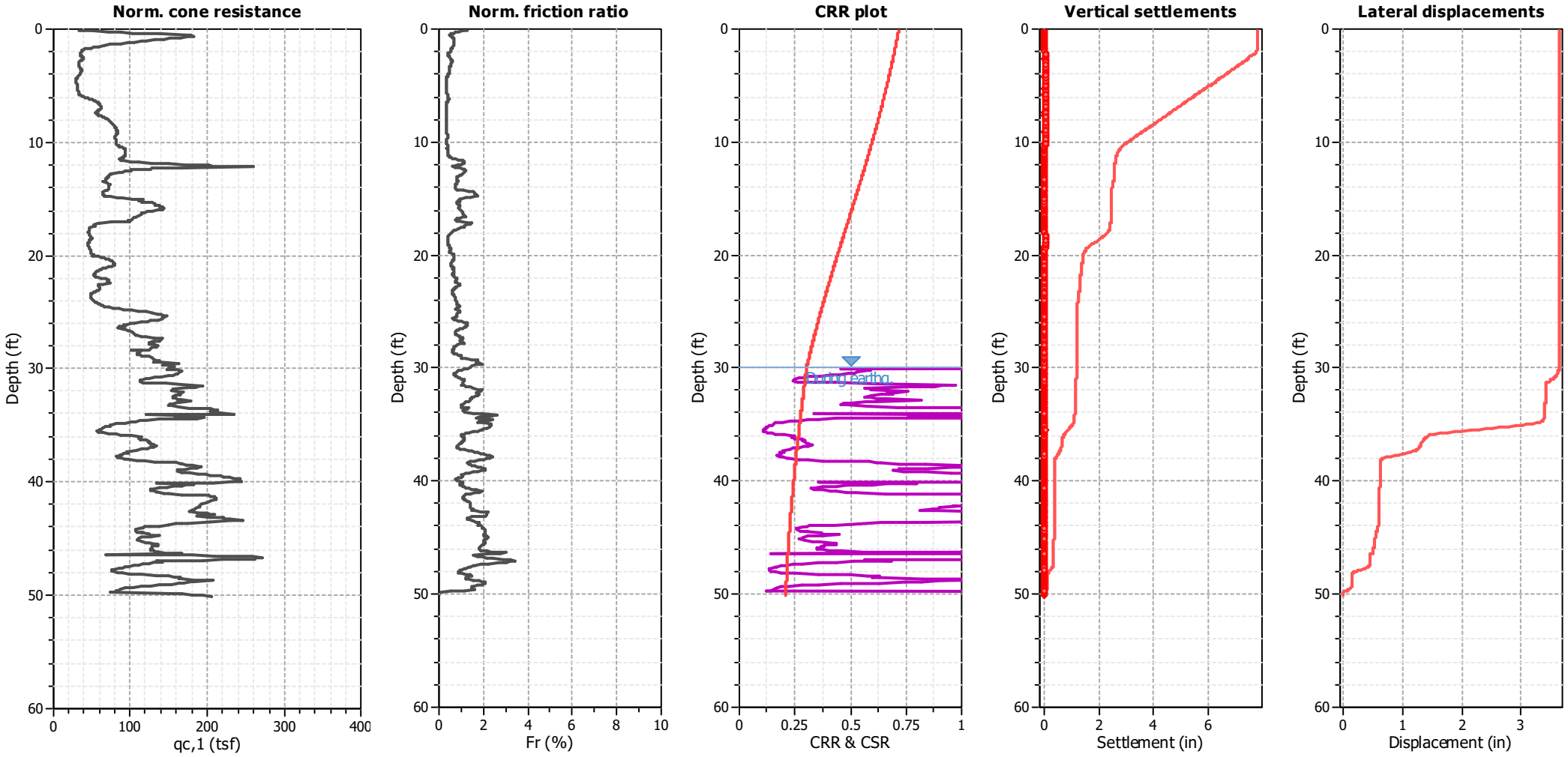
Analysis method:	Moss et al. (2006)	G.W.T. (in-situ):	60.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	Moss et al. (2006)	G.W.T. (earthq.):	30.00 ft	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	50.00 ft
Earthquake magnitude M_w:	6.69	Ic cut-off value:	4.00	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	1.00	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

Figure D2.16

Project: **Wiley Canyon**
Location: **Santa Clarita, CA**

CPT-Based Assessment of Seismic Soil Liquefaction Potential

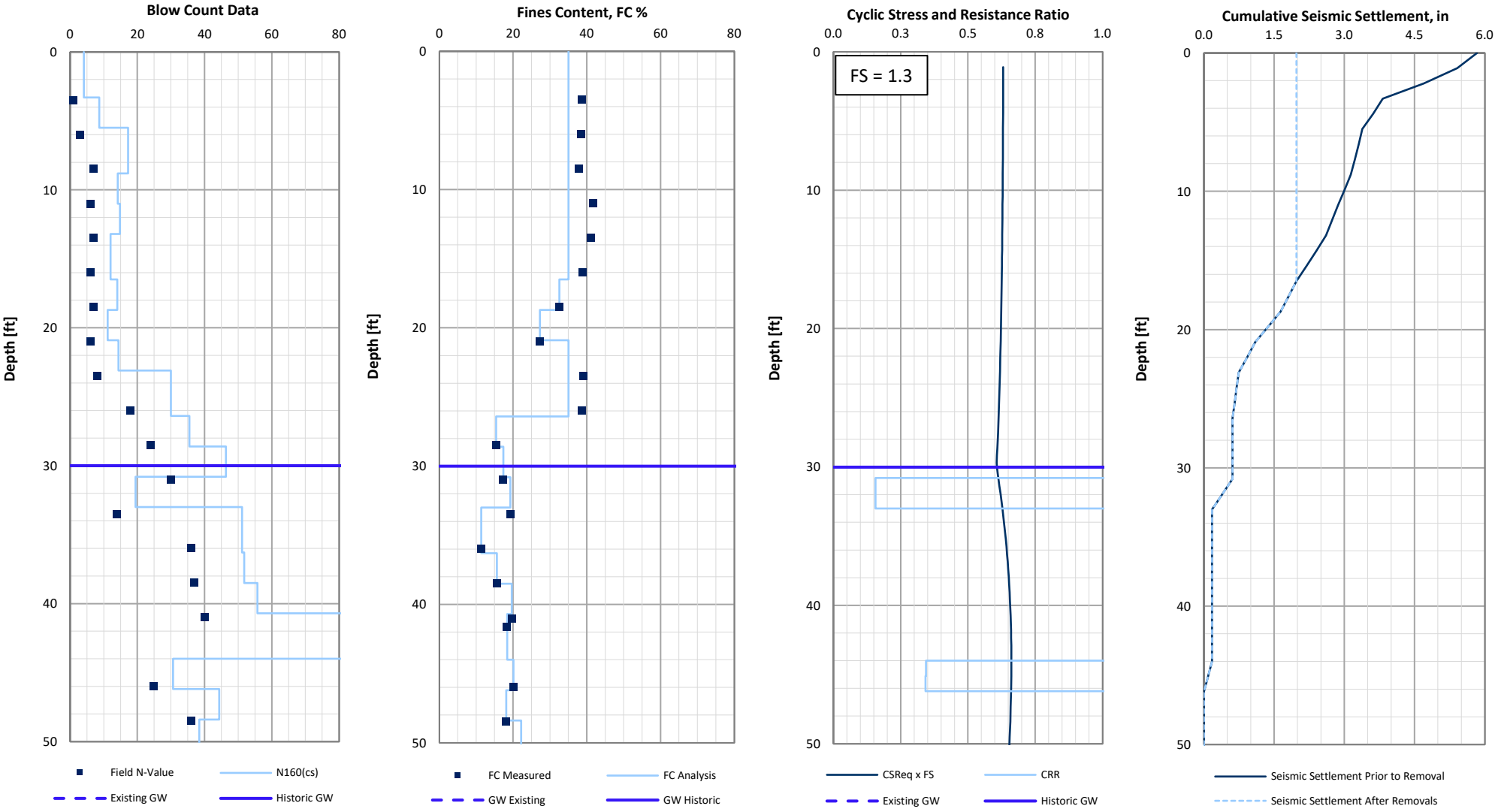
CPT: CPT-17
Total depth: 50.07 ft



Analysis method:	Moss et al. (2006)	G.W.T. (in-situ):	60.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	Moss et al. (2006)	G.W.T. (earthq.):	30.00 ft	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	50.00 ft
Earthquake magnitude M_w:	6.69	Ic cut-off value:	4.00	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	1.00	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

Figure D2.17

SPT-Based Assessment of Seismic Soil Liquefaction Potential



References:

1. Cetin, et al., ASCE Journal of Geotechnical and Environmental Engineering,December 2004, pp. 1314 - 1340

2. Tokimatsu and Seed, ASCE Journal of Geotechnical Engineering,August, 1987

Location:	**HS-1**
Elevation (MSL):	1301
Removal Depth (ft):	17
Total Settlement (in)	
Prior to Removal:	5.83
After Removal:	1.98

SPT Liq v1a; Feb 2017

Figure: D2.18

ALLAN E. SEWARD
ENGINEERING GEOLOGY, INC.
Geological and Geotechnical Consultants

Client:	Wiley Canyon LLC
Project:	Wiley Canyon
	TTM 083295
Job No.:	21-2593-4
Date:	2/11/21

Magnitude, M_w	6.69
Acceleration, PGA (g)	1
Magnitude Weighted PGA (g)	0.75
Existing GW Elev. (ft)	60
Historic GW Elev. (ft)	30

:: Field input data ::

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
1	0.08	19.50	0.29	0.00	23.31	109.03
2	0.14	30.07	0.32	-0.10	18.01	110.42
3	0.20	42.56	0.37	-0.50	13.48	112.00
4	0.26	51.40	0.41	-0.60	10.54	113.15
5	0.33	60.96	0.42	-0.40	7.87	114.18
6	0.41	81.10	0.45	-0.40	5.49	115.24
7	0.48	101.42	0.50	-0.30	4.09	116.16
8	0.53	104.89	0.52	-0.30	3.54	116.86
9	0.61	106.89	0.55	-0.30	3.77	117.34
10	0.68	102.43	0.60	-0.30	4.28	117.73
11	0.74	97.05	0.62	-0.40	5.03	117.83
12	0.81	89.49	0.62	-0.40	5.68	117.63
13	0.86	84.75	0.59	-0.40	6.27	117.07
14	0.94	77.55	0.53	-0.40	6.73	116.23
15	1.00	70.62	0.47	-0.40	7.20	115.35
16	1.05	66.89	0.45	-0.40	7.72	114.58
17	1.13	61.97	0.42	-0.40	8.28	113.95
18	1.19	57.32	0.39	-0.53	9.02	113.21
19	1.26	51.58	0.36	-0.53	9.84	112.33
20	1.33	46.47	0.32	-0.53	10.61	111.33
21	1.38	43.10	0.28	-0.70	11.35	110.16
22	1.45	38.27	0.25	-0.70	12.12	108.95
23	1.52	34.26	0.21	-0.60	13.05	107.66
24	1.59	30.98	0.19	-0.50	13.89	106.40
25	1.65	28.34	0.16	-0.50	14.72	105.23
26	1.72	25.79	0.15	-0.40	15.52	104.31
27	1.77	24.42	0.14	-0.40	16.27	103.59
28	1.84	23.15	0.13	-0.60	16.84	103.03
29	1.91	22.14	0.12	-0.50	17.28	102.50
30	1.98	21.51	0.12	-0.60	17.56	101.94
31	2.05	20.78	0.11	-0.30	5.00	101.10
32	2.11	20.59	0.09	-0.30	5.00	99.94
33	2.19	20.59	0.07	-0.30	5.00	99.20
34	2.25	20.87	0.08	-0.40	5.00	99.45
35	2.32	21.42	0.09	-0.40	5.00	100.21
36	2.39	22.24	0.10	-0.42	5.00	100.71
37	2.44	20.96	0.10	-0.43	5.00	101.10
38	2.49	22.78	0.11	0.00	5.00	101.48
39	2.57	22.51	0.11	-0.10	16.61	101.86
40	2.64	22.05	0.12	-0.40	17.19	101.99
41	2.71	21.23	0.12	-0.40	17.80	101.98
42	2.78	20.59	0.12	-0.40	18.37	101.92
43	2.83	20.23	0.12	-0.50	18.84	101.87
44	2.90	19.77	0.12	-0.50	19.10	101.75
45	2.96	19.59	0.11	-0.50	19.21	101.60

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
46	3.03	19.59	0.11	-0.50	19.10	101.40
47	3.09	19.59	0.11	-0.50	18.98	101.26
48	3.16	19.59	0.11	-0.60	18.86	101.11
49	3.23	19.59	0.10	-0.60	18.69	100.95
50	3.29	19.68	0.10	-0.60	18.46	100.76
51	3.36	19.77	0.10	-0.60	18.14	100.60
52	3.42	20.14	0.10	-0.70	5.00	100.51
53	3.49	20.41	0.10	-0.70	5.00	100.46
54	3.55	20.96	0.09	-0.70	5.00	100.41
55	3.62	21.42	0.09	-0.70	5.00	100.40
56	3.68	21.32	0.09	-0.70	5.00	100.42
57	3.74	21.14	0.09	-0.70	5.00	100.44
58	3.81	20.78	0.10	-0.60	5.00	100.41
59	3.87	20.50	0.09	-0.50	5.00	100.33
60	3.94	20.41	0.09	-0.50	5.00	100.09
61	4.00	20.23	0.09	-0.50	5.00	99.54
62	4.07	19.77	0.08	-0.50	5.00	98.95
63	4.15	19.41	0.07	-0.50	5.00	98.34
64	4.22	18.77	0.07	-0.50	5.00	98.01
65	4.27	18.50	0.07	-0.50	5.00	97.59
66	4.35	18.04	0.06	-0.45	5.00	97.30
67	4.41	17.50	0.06	-0.45	5.00	97.13
68	4.46	17.50	0.06	-0.45	5.00	97.00
69	4.53	17.50	0.06	-0.40	5.00	96.68
70	4.61	17.59	0.06	-0.40	5.00	96.29
71	4.69	17.59	0.05	-0.40	5.00	96.02
72	4.74	17.68	0.05	-0.40	5.00	95.97
73	4.82	17.77	0.05	-0.40	5.00	95.99
74	4.87	17.86	0.05	-0.30	5.00	96.05
75	4.95	17.95	0.06	-0.20	5.00	96.18
76	4.99	18.04	0.06	-0.20	5.00	96.36
77	5.07	18.23	0.06	-0.15	5.00	96.53
78	5.13	18.04	0.06	0.00	5.00	96.73
79	5.21	18.04	0.06	-0.10	5.00	96.87
80	5.27	18.04	0.06	0.00	5.00	96.98
81	5.32	18.04	0.06	-0.10	5.00	97.14
82	5.38	18.32	0.07	0.00	5.00	97.31
83	5.46	18.68	0.07	-0.10	5.00	97.47
84	5.53	18.95	0.07	-0.10	5.00	97.51
85	5.59	19.05	0.07	-0.10	5.00	97.53
86	5.67	19.14	0.07	-0.10	5.00	97.61
87	5.71	19.23	0.07	-0.10	5.00	97.95
88	5.81	19.59	0.07	-0.10	5.00	98.40
89	5.84	20.14	0.08	-0.10	5.00	99.00
90	5.91	21.14	0.08	-0.10	5.00	99.66

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
91	5.98	22.42	0.09	-0.10	5.00	100.41
92	6.04	23.60	0.10	-0.10	5.00	101.29
93	6.12	25.97	0.11	-0.10	5.00	102.11
94	6.19	27.79	0.12	-0.10	5.00	102.86
95	6.26	29.53	0.13	-0.10	5.00	103.29
96	6.32	30.98	0.13	-0.10	5.00	103.47
97	6.39	32.26	0.12	-0.10	5.00	103.52
98	6.44	32.90	0.12	-0.10	5.00	103.50
99	6.51	33.81	0.12	-0.10	5.00	103.49
100	6.57	34.63	0.12	-0.10	5.00	103.61
101	6.65	35.27	0.13	-0.10	5.00	103.83
102	6.70	35.45	0.13	0.10	5.00	103.95
103	6.77	35.63	0.13	0.10	5.00	103.77
104	6.83	36.00	0.12	0.10	5.00	103.66
105	6.90	36.54	0.12	0.10	5.00	103.72
106	6.97	36.45	0.13	0.10	5.00	103.89
107	7.04	36.18	0.13	0.10	5.00	103.90
108	7.10	35.90	0.13	0.20	5.00	103.78
109	7.17	34.63	0.12	0.10	5.00	103.45
110	7.24	34.08	0.11	0.10	5.00	102.91
111	7.31	33.17	0.10	0.10	5.00	102.37
112	7.35	32.81	0.10	0.10	5.00	102.09
113	7.43	32.44	0.10	0.10	5.00	102.10
114	7.50	32.71	0.10	0.10	5.00	102.27
115	7.57	33.72	0.11	0.10	5.00	102.49
116	7.61	34.63	0.11	0.10	5.00	102.71
117	7.68	36.00	0.11	0.20	5.00	102.88
118	7.76	37.73	0.11	0.20	5.00	103.16
119	7.83	39.28	0.12	0.20	5.00	103.57
120	7.88	40.19	0.13	0.20	5.00	104.07
121	7.95	41.28	0.13	0.20	5.00	104.56
122	8.03	42.19	0.14	0.20	5.00	104.85
123	8.08	42.74	0.14	0.30	5.00	104.96
124	8.14	43.38	0.14	0.30	5.00	105.01
125	8.21	43.92	0.14	0.30	5.00	105.10
126	8.29	44.56	0.14	0.30	5.00	105.33
127	8.34	44.83	0.15	0.30	5.00	105.60
128	8.40	45.47	0.16	0.30	5.00	105.88
129	8.47	46.06	0.16	0.20	5.00	106.08
130	8.54	46.29	0.16	0.20	5.00	106.14
131	8.60	46.66	0.16	0.20	5.00	106.19
132	8.67	47.20	0.16	0.20	5.00	106.24
133	8.74	47.75	0.16	0.20	5.00	106.34
134	8.80	47.93	0.16	0.20	5.00	106.43
135	8.86	48.30	0.16	0.20	5.00	106.55

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
136	8.93	48.39	0.17	0.20	5.00	106.66
137	9.01	48.57	0.17	0.20	5.00	106.79
138	9.09	48.66	0.17	0.20	5.00	106.88
139	9.13	48.57	0.17	0.20	5.00	106.93
140	9.20	48.57	0.18	0.20	5.00	107.01
141	9.28	48.39	0.18	0.20	5.00	107.04
142	9.35	48.39	0.18	0.20	5.00	107.08
143	9.40	48.39	0.18	0.20	5.00	107.20
144	9.46	48.39	0.19	0.20	5.00	107.36
145	9.53	48.48	0.19	0.20	5.00	107.45
146	9.60	48.66	0.19	0.20	5.00	107.42
147	9.65	48.84	0.18	0.20	5.00	107.20
148	9.73	49.21	0.17	0.20	5.00	106.76
149	9.79	49.21	0.15	0.10	5.00	106.40
150	9.85	49.48	0.16	0.20	5.00	106.30
151	9.92	49.85	0.16	0.10	5.00	106.47
152	9.99	50.30	0.16	0.20	5.00	106.62
153	10.05	50.76	0.17	0.20	5.00	106.87
154	10.13	50.76	0.18	0.40	5.00	107.20
155	10.18	51.76	0.19	0.40	5.00	107.62
156	10.25	52.85	0.20	0.40	5.00	108.01
157	10.32	54.31	0.20	0.40	5.00	108.34
158	10.38	55.41	0.21	0.50	5.00	108.60
159	10.45	57.32	0.21	0.40	5.00	108.82
160	10.52	59.32	0.22	0.40	5.00	109.00
161	10.57	60.14	0.22	0.40	5.00	109.16
162	10.64	61.06	0.22	0.40	5.00	109.34
163	10.71	61.51	0.23	0.40	5.00	109.60
164	10.78	62.06	0.24	0.40	5.00	109.84
165	10.83	62.51	0.24	0.40	5.00	110.03
166	10.90	62.88	0.25	0.50	5.00	110.20
167	10.96	63.24	0.25	0.50	5.00	110.38
168	11.03	63.61	0.26	0.60	5.00	110.51
169	11.10	63.79	0.26	0.60	5.00	110.63
170	11.16	63.79	0.27	0.60	5.00	110.81
171	11.22	63.61	0.28	0.60	5.00	111.18
172	11.29	63.42	0.30	0.60	5.00	111.63
173	11.36	63.42	0.32	0.60	8.64	112.29
174	11.43	61.15	0.37	0.30	9.37	113.49
175	11.51	64.61	0.48	0.40	10.19	114.91
176	11.55	66.43	0.56	0.40	10.97	116.79
177	11.63	70.35	0.76	0.40	11.42	118.49
178	11.71	77.91	0.90	0.50	11.22	119.83
179	11.76	85.84	0.94	0.50	10.20	120.92
180	11.83	101.15	1.05	0.60	9.14	122.26

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
181	11.90	119.19	1.32	0.60	8.39	124.01
182	11.95	136.14	1.62	0.60	6.98	124.90
183	12.02	160.29	1.35	0.60	5.48	124.54
184	12.08	161.66	0.98	0.50	3.45	123.73
185	12.15	204.31	1.05	0.50	3.62	122.97
186	12.22	131.04	1.07	0.50	4.95	122.81
187	12.28	101.15	1.05	0.60	7.83	122.04
188	12.34	102.25	0.99	0.60	9.87	121.58
189	12.41	81.38	1.04	0.60	10.68	121.20
190	12.47	82.01	0.96	0.60	12.13	120.73
191	12.54	74.82	0.91	0.60	12.20	120.06
192	12.60	72.26	0.82	0.50	12.56	119.34
193	12.67	69.17	0.75	0.50	12.98	118.26
194	12.76	58.41	0.63	0.50	13.32	117.38
195	12.80	60.14	0.61	0.50	13.73	116.59
196	12.88	57.77	0.59	0.60	13.43	116.12
197	12.95	57.50	0.52	0.50	13.14	115.42
198	13.01	57.14	0.47	0.50	12.78	114.82
199	13.07	56.32	0.47	0.50	12.75	114.47
200	13.13	55.22	0.46	0.50	12.86	114.24
201	13.19	54.40	0.43	0.60	12.85	114.04
202	13.27	55.09	0.43	0.60	12.92	113.93
203	13.33	54.04	0.44	0.50	12.96	114.01
204	13.41	54.95	0.44	0.50	13.42	114.02
205	13.45	51.40	0.44	0.50	13.27	114.11
206	13.52	56.32	0.45	0.50	13.09	114.20
207	13.60	57.59	0.45	0.60	12.49	114.35
208	13.66	58.60	0.45	0.50	12.23	114.38
209	13.74	59.51	0.45	0.60	12.08	114.38
210	13.80	59.51	0.45	0.60	11.98	114.32
211	13.85	59.42	0.44	0.60	11.98	114.26
212	13.93	59.23	0.44	0.60	11.99	114.20
213	13.99	59.32	0.44	0.60	12.04	114.19
214	14.04	59.05	0.44	0.70	12.04	114.16
215	14.13	59.14	0.44	0.80	12.13	114.18
216	14.19	58.96	0.44	0.70	12.52	114.47
217	14.26	57.87	0.49	0.70	13.30	115.09
218	14.31	57.14	0.56	0.70	15.03	116.44
219	14.39	55.22	0.76	0.70	16.84	117.83
220	14.44	55.41	0.88	0.40	18.40	118.90
221	14.52	55.13	0.92	0.40	18.76	119.24
222	14.59	55.95	0.87	0.40	18.76	119.40
223	14.65	57.14	0.93	0.50	18.90	119.83
224	14.71	58.41	1.07	0.70	18.60	120.58
225	14.78	65.79	1.12	0.90	17.34	121.04

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
226	14.84	72.81	1.04	0.70	15.17	120.94
227	14.90	78.73	0.93	0.20	12.67	120.56
228	14.97	90.95	0.86	0.20	10.51	120.39
229	15.04	102.61	0.87	0.40	9.49	120.47
230	15.11	98.14	0.90	0.30	9.14	120.73
231	15.16	102.15	0.92	0.30	9.42	120.99
232	15.24	101.70	0.97	0.30	9.20	121.30
233	15.29	108.08	0.98	0.30	8.71	121.32
234	15.36	112.91	0.90	0.40	7.88	121.16
235	15.43	117.74	0.87	0.40	7.69	121.47
236	15.51	118.83	1.07	0.40	7.79	122.10
237	15.56	123.02	1.12	0.40	8.12	122.79
238	15.64	123.66	1.15	0.40	7.92	122.97
239	15.69	127.85	1.13	0.40	7.77	123.08
240	15.77	129.86	1.16	0.50	7.61	123.16
241	15.82	130.04	1.17	0.40	7.63	123.25
242	15.89	129.49	1.17	0.40	7.75	123.27
243	15.95	127.67	1.17	0.40	7.96	123.24
244	16.02	124.39	1.17	0.40	8.45	123.18
245	16.09	116.46	1.17	0.40	8.92	122.94
246	16.15	112.18	1.11	0.40	9.52	122.82
247	16.22	109.44	1.17	0.40	9.97	122.69
248	16.27	105.53	1.15	0.40	10.37	122.71
249	16.34	105.07	1.14	0.40	10.55	122.65
250	16.41	105.34	1.15	0.40	10.66	122.63
251	16.50	103.70	1.15	0.50	11.02	122.69
252	16.57	100.06	1.19	0.50	11.44	122.68
253	16.60	98.33	1.17	0.50	11.01	121.76
254	16.70	96.05	0.76	0.50	10.32	120.65
255	16.76	95.23	0.76	0.50	9.52	119.42
256	16.82	94.41	0.77	0.50	9.69	119.23
257	16.89	90.58	0.72	0.50	9.47	118.75
258	16.95	92.68	0.63	0.50	10.46	118.14
259	17.01	70.44	0.66	0.60	12.80	117.91
260	17.09	56.68	0.75	0.60	16.90	118.13
261	17.16	54.59	0.83	0.60	19.64	118.15
262	17.22	50.30	0.75	0.70	19.91	117.52
263	17.28	50.03	0.59	0.60	19.13	116.38
264	17.35	50.94	0.53	0.60	18.32	115.46
265	17.41	48.84	0.53	0.60	18.75	115.04
266	17.48	44.47	0.52	0.60	19.64	114.85
267	17.54	44.47	0.51	0.60	19.99	114.43
268	17.60	44.29	0.46	0.60	19.14	113.61
269	17.66	44.20	0.36	0.60	17.89	112.31
270	17.75	43.92	0.30	0.60	16.78	111.04

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
271	17.78	43.83	0.29	0.60	16.23	110.23
272	17.87	43.10	0.27	0.60	16.06	109.87
273	17.93	43.29	0.26	0.70	15.81	109.49
274	18.00	43.47	0.25	0.70	15.45	109.19
275	18.06	44.01	0.23	0.70	15.06	108.88
276	18.13	44.47	0.22	0.70	14.69	108.63
277	18.19	44.83	0.22	0.70	5.00	108.31
278	18.25	45.47	0.20	0.70	5.00	107.93
279	18.32	46.20	0.19	0.80	5.00	107.60
280	18.38	47.11	0.19	0.80	5.00	107.50
281	18.44	47.75	0.19	0.80	5.00	107.71
282	18.51	48.12	0.20	0.80	5.00	107.85
283	18.57	47.66	0.20	0.80	5.00	107.91
284	18.64	46.11	0.20	0.80	5.00	107.76
285	18.73	46.47	0.19	0.80	5.00	107.60
286	18.80	46.20	0.19	0.80	5.00	107.47
287	18.86	45.65	0.19	0.80	5.00	107.41
288	18.92	44.83	0.19	0.80	5.00	107.34
289	18.99	44.38	0.19	0.80	5.00	107.24
290	19.05	44.20	0.18	0.70	5.00	107.19
291	19.12	44.56	0.19	0.70	5.00	107.33
292	19.18	45.20	0.20	0.70	5.00	107.77
293	19.23	45.84	0.22	0.60	5.00	108.25
294	19.29	46.29	0.22	0.60	5.00	108.62
295	19.38	46.75	0.23	0.60	5.00	108.82
296	19.45	47.20	0.23	0.60	14.36	109.04
297	19.51	48.02	0.24	0.60	14.34	109.21
298	19.57	48.12	0.24	0.60	14.26	109.30
299	19.64	48.48	0.24	0.60	14.17	109.24
300	19.70	48.57	0.23	0.60	5.00	109.14
301	19.76	49.03	0.23	0.60	14.05	109.37
302	19.82	49.66	0.26	0.60	14.22	109.94
303	19.89	50.85	0.29	0.60	14.51	110.88
304	19.95	52.94	0.33	0.60	14.89	111.72
305	20.04	52.49	0.36	0.80	14.61	112.53
306	20.09	59.05	0.38	0.60	14.08	113.22
307	20.15	62.97	0.41	0.60	13.06	113.88
308	20.22	67.80	0.44	0.50	12.48	114.45
309	20.28	70.44	0.46	0.50	12.03	114.94
310	20.34	73.08	0.48	0.50	11.69	115.27
311	20.41	75.36	0.48	0.50	11.20	115.46
312	20.48	79.01	0.48	0.50	10.69	115.44
313	20.57	80.01	0.46	0.50	10.30	115.36
314	20.63	80.47	0.46	0.50	10.03	115.26
315	20.69	82.01	0.45	0.50	9.69	115.14

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
316	20.75	84.20	0.43	0.50	9.35	114.96
317	20.81	84.20	0.42	0.60	9.21	114.80
318	20.87	82.65	0.42	0.50	9.40	114.61
319	20.96	79.28	0.41	0.60	9.96	114.57
320	21.02	75.73	0.43	0.50	10.85	114.65
321	21.08	71.26	0.46	0.60	11.81	114.67
322	21.15	67.53	0.44	0.60	12.49	114.45
323	21.21	65.98	0.41	0.60	12.79	114.03
324	21.27	64.43	0.40	0.60	13.07	113.77
325	21.33	62.51	0.40	0.50	13.56	113.67
326	21.40	60.42	0.40	0.60	14.12	113.56
327	21.46	58.41	0.40	0.50	14.62	113.49
328	21.53	57.77	0.40	0.60	14.92	113.42
329	21.59	57.41	0.40	0.60	14.69	113.00
330	21.66	57.36	0.33	0.50	14.41	112.60
331	21.75	57.36	0.34	0.50	14.31	112.43
332	21.81	57.32	0.37	0.50	14.46	112.82
333	21.87	59.32	0.39	0.40	14.48	113.29
334	21.93	60.96	0.41	0.40	14.20	114.18
335	22.01	67.34	0.50	0.60	13.95	115.47
336	22.07	73.63	0.60	0.60	13.65	116.79
337	22.13	77.37	0.66	0.60	13.31	117.29
338	22.20	76.91	0.60	0.60	12.95	117.23
339	22.25	77.46	0.57	0.60	12.76	116.87
340	22.31	75.91	0.57	0.60	12.65	116.79
341	22.40	77.55	0.58	0.70	12.60	116.92
342	22.47	80.01	0.60	0.70	13.16	116.99
343	22.53	70.17	0.60	0.80	14.33	116.93
344	22.59	64.06	0.60	0.70	15.76	116.72
345	22.65	64.06	0.59	0.70	16.25	116.52
346	22.72	64.06	0.57	0.70	15.63	116.05
347	22.78	65.52	0.48	0.70	14.91	115.52
348	22.84	66.07	0.47	0.70	14.29	115.11
349	22.90	66.61	0.48	0.80	14.05	114.91
350	23.00	66.25	0.44	0.80	13.85	114.53
351	23.06	65.07	0.40	0.90	13.71	113.95
352	23.10	63.15	0.39	0.90	13.81	113.42
353	23.17	60.87	0.36	0.90	14.09	112.91
354	23.24	58.60	0.34	0.90	14.38	112.40
355	23.30	56.77	0.33	0.90	14.94	112.11
356	23.39	54.04	0.34	0.70	15.37	112.03
357	23.45	54.77	0.34	0.70	15.72	112.08
358	23.51	54.59	0.34	0.70	15.78	112.19
359	23.58	54.49	0.35	0.70	16.00	112.39
360	23.64	54.68	0.37	0.70	16.25	112.73

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
361	23.71	55.31	0.39	0.70	16.41	113.10
362	23.77	56.13	0.40	0.70	16.43	113.42
363	23.83	57.14	0.41	0.70	16.36	113.65
364	23.89	57.77	0.42	0.70	16.25	113.87
365	23.98	58.87	0.43	0.70	16.18	114.12
366	24.03	59.96	0.45	0.60	16.09	114.49
367	24.10	61.69	0.48	0.60	15.92	114.90
368	24.16	63.88	0.50	0.60	15.61	115.30
369	24.22	66.34	0.51	0.60	15.23	115.64
370	24.29	68.44	0.53	0.50	14.93	115.99
371	24.34	70.35	0.56	0.50	14.89	116.58
372	24.41	72.72	0.63	0.50	14.89	117.30
373	24.48	76.09	0.69	0.50	14.62	118.18
374	24.56	83.02	0.76	0.60	13.94	118.86
375	24.62	88.94	0.78	0.70	12.95	119.49
376	24.69	97.14	0.82	0.70	11.72	119.79
377	24.75	105.53	0.79	0.70	10.42	120.01
378	24.81	114.46	0.78	0.70	9.79	121.06
379	24.89	127.03	1.11	0.70	9.70	122.65
380	24.96	137.42	1.35	0.60	9.57	123.96
381	25.02	145.07	1.32	0.70	9.18	124.33
382	25.08	145.44	1.25	0.60	8.41	124.19
383	25.13	155.10	1.22	0.70	7.77	124.05
384	25.20	160.57	1.21	0.80	7.37	124.28
385	25.27	163.85	1.32	0.80	7.34	124.74
386	25.33	168.49	1.43	0.80	7.40	124.97
387	25.39	165.12	1.32	0.80	7.17	124.64
388	25.48	163.30	1.14	0.80	6.69	123.86
389	25.55	164.85	1.04	0.80	6.13	123.11
390	25.60	165.94	0.98	0.80	6.07	122.82
391	25.66	158.56	1.03	0.80	6.55	122.73
392	25.73	146.62	1.04	0.80	7.73	123.25
393	25.80	141.61	1.26	0.80	8.97	123.59
394	25.86	132.59	1.25	0.80	10.77	124.28
395	25.95	119.83	1.48	0.80	12.29	124.52
396	25.99	116.37	1.49	0.80	13.67	124.56
397	26.08	108.99	1.37	0.80	14.20	124.21
398	26.14	105.25	1.34	0.80	14.27	123.79
399	26.21	108.17	1.29	0.80	14.49	123.42
400	26.27	99.78	1.21	0.80	14.44	123.01
401	26.34	99.60	1.15	0.80	14.70	122.55
402	26.39	97.41	1.11	0.80	14.06	122.36
403	26.45	106.07	1.10	0.70	13.27	122.23
404	26.52	109.63	1.06	0.70	12.07	122.04
405	26.58	114.09	0.97	0.70	11.10	121.66

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
406	26.64	117.19	0.91	0.70	10.16	121.36
407	26.74	122.93	0.91	0.80	9.63	121.27
408	26.80	124.02	0.91	0.80	9.34	121.33
409	26.87	124.84	0.91	0.80	9.23	121.33
410	26.93	125.76	0.90	0.80	9.16	121.44
411	26.99	128.12	0.94	0.80	9.18	121.76
412	27.05	130.59	1.02	0.90	9.25	122.35
413	27.12	136.24	1.11	0.80	9.38	123.25
414	27.18	143.98	1.30	0.80	9.51	124.51
415	27.24	155.65	1.58	0.80	9.30	125.54
416	27.30	167.04	1.61	0.80	9.63	126.68
417	27.36	165.21	1.98	0.80	9.36	126.77
418	27.45	166.13	1.61	0.80	9.33	126.61
419	27.51	164.12	1.51	0.80	8.92	125.81
420	27.58	156.10	1.48	0.80	9.25	125.52
421	27.64	149.54	1.48	0.70	9.60	125.51
422	27.70	154.73	1.54	0.70	10.30	125.92
423	27.77	148.72	1.76	0.70	10.57	126.34
424	27.83	153.37	1.75	0.70	10.70	126.48
425	27.89	155.65	1.64	0.70	9.31	125.65
426	28.01	164.30	1.16	0.70	8.12	124.65
427	28.05	163.03	1.14	0.70	7.21	123.58
428	28.11	157.47	1.10	0.80	7.29	123.33
429	28.16	155.83	1.06	0.90	7.28	123.01
430	28.23	155.83	1.02	0.90	7.17	122.68
431	28.29	153.55	0.96	0.90	7.65	121.98
432	28.35	126.12	0.85	0.90	7.77	121.54
433	28.42	143.53	0.88	0.90	7.89	121.13
434	28.48	142.34	0.84	0.90	7.53	121.19
435	28.57	137.33	0.84	0.90	7.75	121.13
436	28.64	136.69	0.87	0.90	8.07	121.25
437	28.70	136.51	0.90	0.90	8.45	121.82
438	28.76	139.33	1.05	0.80	9.06	122.81
439	28.82	142.34	1.26	0.90	9.50	123.81
440	28.88	147.54	1.34	0.80	9.86	124.74
441	28.94	151.91	1.50	0.90	9.92	125.37
442	29.03	156.65	1.59	0.90	9.80	125.73
443	29.09	159.84	1.51	0.90	10.02	126.14
444	29.15	156.83	1.75	1.00	11.32	127.49
445	29.21	159.38	2.57	0.80	12.84	128.94
446	29.28	162.94	2.78	0.80	14.13	129.93
447	29.34	155.10	2.78	0.70	14.11	130.16
448	29.41	166.85	2.78	0.70	13.17	130.42
449	29.49	192.92	2.91	0.70	12.86	130.92
450	29.55	179.07	3.25	0.90	13.48	131.47

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
451	29.61	169.04	3.47	0.70	14.43	131.72
452	29.67	177.70	3.33	0.60	13.95	131.53
453	29.73	185.35	2.96	0.80	12.63	131.05
454	29.80	188.00	2.74	0.80	11.64	130.55
455	29.86	189.09	2.67	0.80	11.44	130.23
456	29.93	181.07	2.63	0.80	11.41	130.04
457	29.99	182.89	2.55	0.80	11.40	129.69
458	30.07	178.97	2.36	0.70	10.49	129.33
459	30.12	196.74	2.20	0.60	9.21	128.78
460	30.19	205.77	1.95	0.60	7.93	128.26
461	30.25	207.95	1.82	0.60	7.18	127.62
462	30.33	204.31	1.67	0.60	6.70	127.00
463	30.40	205.04	1.51	0.60	6.29	126.37
464	30.46	204.85	1.41	0.70	5.94	125.88
465	30.52	204.03	1.38	0.70	5.91	125.61
466	30.59	198.02	1.37	0.70	6.11	125.43
467	30.65	191.00	1.34	0.70	6.62	125.28
468	30.73	179.43	1.35	0.70	7.35	125.15
469	30.78	167.77	1.37	0.70	8.31	125.14
470	30.84	159.38	1.42	0.70	9.23	125.11
471	30.91	151.91	1.41	0.70	10.20	125.22
472	30.99	145.17	1.51	0.70	11.07	125.39
473	31.05	142.80	1.57	0.70	11.85	125.71
474	31.11	142.16	1.65	0.70	11.88	125.83
475	31.20	147.63	1.58	0.70	11.33	126.07
476	31.26	161.39	1.66	0.70	10.39	126.77
477	31.31	184.17	1.98	0.70	9.45	128.00
478	31.38	210.78	2.29	0.70	8.23	129.17
479	31.46	243.95	2.38	0.80	7.62	129.71
480	31.52	230.01	2.33	0.80	7.29	129.99
481	31.57	236.93	2.47	0.60	8.02	130.44
482	31.64	230.46	2.88	0.70	8.86	130.94
483	31.69	216.06	2.93	0.70	10.43	131.26
484	31.79	191.55	3.03	0.70	11.85	131.55
485	31.85	196.11	3.42	0.70	13.21	132.07
486	31.91	195.20	3.73	0.70	14.03	132.54
487	31.97	186.45	3.74	0.70	14.14	132.80
488	32.03	202.48	3.77	0.70	13.79	132.82
489	32.09	206.13	3.70	0.70	13.07	132.71
490	32.18	203.12	3.47	0.70	12.79	132.41
491	32.23	200.30	3.34	0.70	12.68	132.21
492	32.30	202.30	3.44	0.70	12.93	132.19
493	32.36	195.56	3.49	0.70	13.34	132.25
494	32.42	191.28	3.47	0.60	13.41	132.07
495	32.48	194.69	3.24	0.60	12.84	131.55

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
496	32.56	193.83	2.80	0.60	12.19	131.22
497	32.63	198.66	3.01	0.60	11.79	131.07
498	32.69	201.67	3.02	0.60	11.65	131.34
499	32.75	207.86	3.06	0.60	10.90	131.38
500	32.81	224.45	2.93	0.60	10.53	131.18
501	32.90	207.31	2.75	0.60	10.25	130.81
502	32.94	204.13	2.64	0.60	10.30	130.31
503	33.02	204.85	2.47	0.70	10.09	129.85
504	33.09	198.57	2.31	0.60	9.79	129.29
505	33.15	195.29	2.13	0.60	9.57	128.77
506	33.21	195.10	2.03	0.60	9.23	128.47
507	33.27	200.57	2.04	0.60	8.71	128.46
508	33.36	213.42	2.05	0.60	8.20	128.85
509	33.43	228.27	2.25	0.60	8.00	129.79
510	33.48	244.59	2.76	0.60	8.62	131.52
511	33.54	258.35	3.75	0.70	9.22	132.97
512	33.60	267.00	3.98	0.70	8.57	132.93
513	33.69	272.93	2.59	0.70	7.75	132.23
514	33.75	264.54	2.78	0.70	7.14	131.50
515	33.81	264.00	3.11	0.70	7.41	131.91
516	33.88	279.12	3.05	0.60	7.44	132.24
517	33.93	279.21	3.14	0.60	7.31	132.73
518	34.00	295.80	3.62	0.60	10.64	133.25
519	34.06	153.19	4.35	0.60	13.61	134.13
520	34.12	215.06	4.96	0.60	18.26	134.65
521	34.20	194.74	5.35	0.60	16.98	135.22
522	34.26	204.58	5.09	0.60	15.45	134.96
523	34.33	245.77	4.19	0.50	12.86	134.05
524	34.38	236.02	3.37	0.60	12.18	132.76
525	34.45	174.78	3.21	0.50	14.54	132.04
526	34.52	152.91	3.68	0.60	18.57	131.72
527	34.60	141.16	3.56	0.40	20.35	131.39
528	34.65	136.51	3.03	0.40	19.58	129.98
529	34.73	130.77	2.03	0.40	18.39	128.30
530	34.78	121.84	1.91	0.50	19.08	127.29
531	34.85	105.98	2.30	0.60	21.60	127.29
532	34.91	99.33	2.22	0.60	24.50	127.61
533	34.97	96.78	2.38	0.60	25.25	127.42
534	35.04	95.87	2.20	0.50	25.69	127.03
535	35.12	89.40	1.94	0.10	25.98	126.43
536	35.18	85.48	1.95	0.10	26.54	125.92
537	35.25	84.11	1.87	0.10	26.83	125.62
538	35.30	83.20	1.76	0.10	26.48	125.07
539	35.37	81.10	1.58	0.10	26.11	124.35
540	35.43	77.73	1.41	0.10	26.06	123.81

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
541	35.52	77.09	1.46	0.10	25.84	123.55
542	35.58	79.83	1.43	0.10	24.49	123.54
543	35.64	88.21	1.35	0.10	21.97	123.51
544	35.70	98.78	1.33	0.10	18.96	123.60
545	35.77	112.63	1.32	0.10	16.63	123.84
546	35.83	121.56	1.33	0.10	14.48	124.30
547	35.89	140.06	1.43	0.10	12.79	124.90
548	35.97	156.01	1.51	0.10	11.83	125.52
549	36.04	156.65	1.59	0.10	11.77	125.90
550	36.12	150.82	1.63	0.10	12.24	126.19
551	36.16	152.64	1.71	0.10	12.73	126.53
552	36.23	154.55	1.84	0.10	12.64	126.97
553	36.31	163.94	1.90	0.10	12.30	127.24
554	36.35	168.04	1.86	0.10	11.87	127.29
555	36.44	166.58	1.83	0.10	11.52	127.20
556	36.49	170.77	1.80	0.10	11.27	127.13
557	36.57	172.69	1.79	0.10	10.88	127.03
558	36.62	174.69	1.73	0.10	10.37	126.86
559	36.70	180.07	1.64	0.10	9.72	126.62
560	36.76	184.99	1.58	0.20	9.10	126.37
561	36.81	186.90	1.54	0.20	8.87	126.25
562	36.89	183.99	1.55	0.20	8.83	126.00
563	36.96	179.79	1.45	0.20	8.86	125.59
564	37.01	174.42	1.32	0.20	9.13	125.13
565	37.08	163.94	1.35	0.20	10.00	125.08
566	37.15	154.28	1.49	0.20	11.41	125.53
567	37.22	150.45	1.65	0.20	13.39	126.08
568	37.29	133.96	1.80	0.20	15.29	126.57
569	37.34	129.67	1.93	0.20	17.07	127.01
570	37.41	130.40	2.08	0.30	18.25	127.31
571	37.48	122.29	2.10	0.20	19.34	127.60
572	37.54	120.38	2.24	0.20	20.65	127.85
573	37.62	118.19	2.38	0.10	21.90	128.07
574	37.67	111.18	2.38	0.10	22.95	128.10
575	37.74	108.81	2.35	0.10	24.11	128.36
576	37.82	110.45	2.69	0.10	24.56	128.87
577	37.88	116.10	2.87	0.10	24.07	129.38
578	37.95	124.30	2.79	0.10	22.68	129.54
579	38.00	130.59	2.72	0.10	20.76	129.66
580	38.07	144.80	2.81	0.10	19.10	130.03
581	38.14	158.47	2.98	0.10	17.11	130.48
582	38.20	177.88	2.96	0.10	14.35	130.86
583	38.26	215.88	2.85	0.10	11.97	130.89
584	38.33	224.54	2.69	0.10	10.47	130.92
585	38.40	227.91	2.77	0.10	10.17	131.10

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
586	38.45	234.02	2.99	0.10	10.39	131.74
587	38.52	242.58	3.38	0.20	10.55	132.50
588	38.60	254.34	3.65	0.20	10.93	133.30
589	38.65	254.43	4.03	0.20	11.59	133.90
590	38.72	245.32	4.33	0.30	12.56	134.27
591	38.79	236.11	4.37	0.20	13.64	134.42
592	38.87	225.36	4.47	0.30	14.72	134.39
593	38.94	211.78	4.49	0.20	15.50	134.33
594	38.98	211.96	4.42	0.30	15.75	134.15
595	39.06	212.14	4.24	0.20	15.01	133.89
596	39.13	222.35	3.96	0.20	13.60	133.52
597	39.20	238.94	3.63	0.20	11.77	133.12
598	39.26	256.16	3.38	0.20	10.01	132.73
599	39.33	272.02	3.16	0.20	8.72	132.45
600	39.39	282.59	3.07	0.20	7.63	132.29
601	39.48	302.54	3.00	0.20	7.03	132.34
602	39.50	308.28	3.10	0.20	6.83	132.77
603	39.57	316.67	3.49	0.20	6.79	133.16
604	39.64	326.69	3.44	0.30	6.12	133.02
605	39.71	343.73	2.79	0.30	5.02	132.19
606	39.77	346.01	2.37	0.20	4.13	131.42
607	39.84	350.84	2.52	0.20	4.00	131.34
608	39.91	350.57	2.69	0.20	4.46	131.73
609	39.97	332.07	2.83	0.20	5.34	131.81
610	40.03	290.97	2.77	0.20	7.70	131.40
611	40.10	192.73	2.71	0.20	8.79	130.82
612	40.18	257.34	2.44	0.20	9.19	130.18
613	40.23	249.42	2.25	0.30	7.76	129.86
614	40.30	240.12	2.25	0.30	8.25	129.50
615	40.38	222.08	2.22	0.20	9.05	129.32
616	40.42	210.96	2.20	0.20	10.07	129.10
617	40.50	196.84	2.20	0.20	11.04	128.94
618	40.57	186.08	2.20	0.20	12.08	128.85
619	40.62	178.97	2.25	0.20	13.35	129.29
620	40.70	177.52	2.69	0.30	14.56	130.05
621	40.75	180.52	3.01	0.20	15.80	131.07
622	40.82	181.80	3.42	0.20	16.63	131.90
623	40.89	185.44	3.74	0.20	16.68	132.38
624	40.96	195.20	3.61	0.20	15.74	132.44
625	41.01	206.40	3.35	0.20	13.76	132.29
626	41.08	232.10	3.25	0.20	11.14	132.35
627	41.15	281.86	3.26	0.20	9.32	132.55
628	41.22	288.14	3.26	0.20	8.16	132.73
629	41.28	295.62	3.25	0.20	7.89	132.75
630	41.36	297.44	3.23	0.20	7.71	132.75

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
631	41.41	298.81	3.23	0.20	7.63	132.74
632	41.49	299.26	3.21	0.10	7.72	132.78
633	41.54	295.44	3.29	0.20	7.98	132.84
634	41.61	288.42	3.35	0.10	8.33	132.92
635	41.67	286.32	3.37	0.20	8.72	133.00
636	41.75	280.58	3.46	0.10	9.07	133.16
637	41.81	280.22	3.61	0.10	9.46	133.36
638	41.87	278.94	3.70	0.10	9.89	133.50
639	41.94	268.55	3.72	0.10	10.27	133.53
640	42.01	265.36	3.72	0.10	10.57	133.49
641	42.06	265.36	3.71	0.10	10.61	133.46
642	42.15	265.82	3.68	0.10	10.58	133.37
643	42.20	263.36	3.59	0.10	10.48	133.27
644	42.26	264.73	3.55	0.00	10.62	133.20
645	42.32	257.53	3.62	0.00	10.87	133.19
646	42.40	253.70	3.62	0.00	11.59	133.49
647	42.46	250.87	4.06	0.00	11.92	133.53
648	42.53	247.68	3.74	0.00	11.67	133.19
649	42.59	248.50	3.14	0.00	12.54	134.01
650	42.68	256.34	5.33	-0.10	13.96	135.18
651	42.73	252.15	5.82	0.20	15.36	136.59
652	42.78	268.73	6.03	0.20	15.21	136.87
653	42.86	275.07	5.84	0.08	14.45	136.92
654	42.92	281.40	5.72	0.20	14.64	136.71
655	42.99	252.42	5.66	0.10	14.74	136.76
656	43.06	274.57	5.96	0.20	14.06	136.69
657	43.12	302.45	5.41	0.10	12.13	136.28
658	43.18	306.64	4.39	0.00	10.15	135.37
659	43.25	313.84	3.91	0.10	9.02	134.72
660	43.32	323.87	4.16	0.00	8.29	134.76
661	43.38	349.02	4.28	0.10	8.37	135.03
662	43.44	325.69	4.32	0.00	8.98	134.95
663	43.51	286.14	4.19	0.10	10.88	134.68
664	43.59	244.22	4.31	0.00	12.91	134.36
665	43.64	232.10	4.25	0.00	14.57	134.09
666	43.71	221.08	4.10	0.00	15.10	133.60
667	43.78	209.78	3.68	0.00	15.46	132.83
668	43.85	194.01	3.27	0.00	16.12	132.04
669	43.90	177.97	3.21	-0.10	17.18	131.48
670	43.98	168.59	3.16	-0.10	18.30	131.23
671	44.03	164.39	3.11	-0.10	18.93	131.05
672	44.10	161.48	3.09	-0.10	19.51	130.84
673	44.18	152.64	2.99	-0.10	19.90	130.60
674	44.23	151.82	2.90	-0.10	20.51	130.62
675	44.30	152.36	3.17	-0.10	20.80	130.86

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
676	44.37	154.73	3.29	-0.10	20.59	131.18
677	44.44	163.76	3.22	-0.10	20.30	131.28
678	44.50	160.02	3.25	-0.13	19.73	131.66
679	44.58	175.69	3.67	-0.13	19.67	132.10
680	44.64	177.88	3.75	-0.13	19.16	132.54
681	44.70	183.17	3.75	-0.12	18.44	132.62
682	44.75	193.37	3.68	-0.20	18.15	132.47
683	44.84	179.25	3.51	-0.10	18.75	132.21
684	44.90	163.03	3.49	-0.20	20.31	131.94
685	44.95	156.83	3.54	-0.20	21.40	131.78
686	45.03	156.56	3.44	-0.20	21.59	131.61
687	45.09	155.87	3.30	-0.23	21.17	131.27
688	45.15	154.92	3.09	-0.22	20.48	131.11
689	45.23	163.94	3.18	-0.22	19.91	131.31
690	45.30	171.23	3.45	-0.20	19.50	131.84
691	45.36	177.79	3.67	-0.30	19.05	132.38
692	45.43	188.91	3.80	-0.30	18.62	132.73
693	45.49	191.37	3.85	-0.30	18.38	132.90
694	45.56	188.72	3.86	-0.30	18.26	132.91
695	45.61	191.91	3.79	-0.30	18.32	132.72
696	45.69	184.35	3.61	-0.30	18.15	132.48
697	45.74	185.08	3.52	-0.30	17.98	132.12
698	45.82	184.17	3.30	-0.20	17.63	131.86
699	45.88	183.99	3.25	-0.20	17.46	131.61
700	45.94	181.53	3.22	-0.30	17.53	131.60
701	46.00	182.44	3.29	-0.30	17.39	131.62
702	46.09	187.90	3.25	-0.10	17.37	131.87
703	46.14	190.46	3.50	-0.30	17.59	132.35
704	46.20	193.19	3.90	-0.20	18.71	133.51
705	46.26	202.76	4.99	-0.20	19.02	134.70
706	46.35	225.72	5.40	-0.23	24.41	135.04
707	46.40	100.51	5.40	-0.27	21.93	135.16
708	46.46	251.51	4.78	-0.27	17.95	134.80
709	46.55	299.99	4.08	-0.30	10.97	135.51
710	46.60	367.43	5.15	-0.29	9.84	136.75
711	46.68	382.28	6.65	-0.29	10.45	137.28
712	46.74	363.42	7.18	-0.29	11.62	137.28
713	46.80	358.31	7.37	-0.29	13.37	137.28
714	46.85	301.45	7.43	-0.24	15.51	137.28
715	46.92	261.72	7.31	-0.20	19.84	137.28
716	46.99	184.26	6.78	-0.10	23.12	137.28
717	47.05	192.83	6.36	-0.20	25.77	136.49
718	47.12	179.98	5.79	-0.30	25.08	135.77
719	47.18	172.69	5.13	-0.50	24.82	134.76
720	47.26	165.49	4.38	-0.30	23.77	133.47

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
721	47.33	159.20	3.50	-0.40	21.99	131.82
722	47.38	155.65	2.63	-0.30	20.44	130.19
723	47.45	147.99	2.38	-0.30	19.30	128.82
724	47.52	143.98	2.12	-0.30	19.20	128.00
725	47.58	138.42	1.96	-0.28	18.78	127.11
726	47.66	134.91	1.70	-0.28	18.74	126.20
727	47.71	125.85	1.52	-0.28	18.34	125.20
728	47.77	124.66	1.35	-0.20	17.82	124.36
729	47.85	126.67	1.24	-0.20	16.87	123.86
730	47.91	130.86	1.23	-0.30	15.98	123.83
731	47.97	138.15	1.29	-0.20	14.96	124.12
732	48.04	149.90	1.32	-0.30	13.67	124.58
733	48.11	165.21	1.38	-0.20	12.44	125.43
734	48.18	184.99	1.63	-0.20	12.27	127.36
735	48.25	205.95	2.43	-0.20	13.03	129.94
736	48.31	225.45	3.42	-0.20	13.60	131.85
737	48.38	236.38	3.60	-0.20	13.08	132.49
738	48.44	247.23	3.09	-0.20	12.23	132.37
739	48.50	248.87	3.14	-0.20	11.19	131.96
740	48.58	256.61	2.98	-0.20	10.44	132.00
741	48.63	277.76	3.02	-0.20	9.83	132.79
742	48.71	311.11	3.94	-0.20	10.58	133.71
743	48.76	269.65	4.26	-0.20	12.18	134.65
744	48.82	258.62	4.64	-0.22	14.43	134.94
745	48.89	244.86	4.84	-0.22	15.88	135.17
746	48.96	235.20	4.91	0.00	16.94	135.02
747	49.02	222.35	4.58	-0.10	17.82	134.46
748	49.08	200.30	4.07	-0.10	18.50	133.54
749	49.17	185.81	3.62	-0.10	18.88	132.25
750	49.23	172.14	2.91	-0.10	18.77	130.80
751	49.29	159.47	2.39	-0.10	18.52	129.21
752	49.35	147.72	2.07	-0.20	18.76	128.03
753	49.42	139.24	1.95	0.00	19.28	127.44
754	49.48	138.24	1.99	-0.30	20.01	127.16
755	49.55	131.22	1.92	-0.30	21.06	127.34
756	49.62	128.58	2.15	-0.30	21.84	127.59
757	49.69	133.23	2.22	-0.30	17.46	124.98
758	49.75	140.79	0.00	-0.40	10.91	120.18
759	49.82	155.65	0.00	-0.40	100.00	87.36
760	49.87	167.22	0.00	-0.40	100.00	87.36
761	49.94	180.80	0.00	-0.40	100.00	87.36
762	50.00	193.55	0.00	-0.50	100.00	87.36
763	50.07	205.49	0.00	-0.50	100.00	87.36

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)

Abbreviations

Depth:	Depth from free surface, at which CPT was performed (ft)
q_c:	Measured cone resistance (tsf)
f_s:	Sleeve friction resistance (tsf)
u:	Pore pressure (tsf)
Fines content:	Percentage of fines in soil (%)
Unit weight:	Bulk soil unit weight (pcf)

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data ::

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
1	0.08	0.00	0.00	0.00	1.00	0.649	1.18	0.551	1.00	1.30	2.000	No
2	0.14	0.01	0.00	0.01	1.00	0.649	1.18	0.551	1.00	1.30	2.000	No
3	0.20	0.01	0.00	0.01	1.00	0.648	1.18	0.550	1.00	1.30	2.000	No
4	0.26	0.01	0.00	0.01	1.00	0.648	1.18	0.550	1.00	1.30	2.000	No
5	0.33	0.02	0.00	0.02	1.00	0.647	1.18	0.550	1.00	1.30	2.000	No
6	0.41	0.02	0.00	0.02	0.99	0.647	1.18	0.549	1.00	1.30	2.000	No
7	0.48	0.03	0.00	0.03	0.99	0.646	1.18	0.548	1.00	1.30	2.000	No
8	0.53	0.03	0.00	0.03	0.99	0.645	1.18	0.548	1.00	1.30	2.000	No
9	0.61	0.03	0.00	0.03	0.99	0.645	1.18	0.547	1.00	1.30	2.000	No
10	0.68	0.04	0.00	0.04	0.99	0.644	1.18	0.547	1.00	1.30	2.000	No
11	0.74	0.04	0.00	0.04	0.99	0.644	1.18	0.547	1.00	1.30	2.000	No
12	0.81	0.05	0.00	0.05	0.99	0.643	1.18	0.546	1.00	1.30	2.000	No
13	0.86	0.05	0.00	0.05	0.99	0.643	1.18	0.546	1.00	1.30	2.000	No
14	0.94	0.05	0.00	0.05	0.99	0.642	1.18	0.545	1.00	1.30	2.000	No
15	1.00	0.06	0.00	0.06	0.99	0.641	1.18	0.545	1.00	1.30	2.000	No
16	1.05	0.06	0.00	0.06	0.99	0.641	1.18	0.544	1.00	1.30	2.000	No
17	1.13	0.06	0.00	0.06	0.98	0.640	1.18	0.544	1.00	1.30	2.000	No
18	1.19	0.07	0.00	0.07	0.98	0.640	1.18	0.543	1.00	1.30	2.000	No
19	1.26	0.07	0.00	0.07	0.98	0.639	1.18	0.543	1.00	1.30	2.000	No
20	1.33	0.08	0.00	0.08	0.98	0.638	1.18	0.542	1.00	1.30	2.000	No
21	1.38	0.08	0.00	0.08	0.98	0.638	1.18	0.542	1.00	1.30	2.000	No
22	1.45	0.08	0.00	0.08	0.98	0.637	1.18	0.541	1.00	1.30	2.000	No
23	1.52	0.09	0.00	0.09	0.98	0.637	1.18	0.541	1.00	1.30	2.000	No
24	1.59	0.09	0.00	0.09	0.98	0.636	1.18	0.540	1.00	1.30	2.000	No
25	1.65	0.09	0.00	0.09	0.98	0.635	1.18	0.539	1.00	1.30	2.000	No
26	1.72	0.10	0.00	0.10	0.98	0.635	1.18	0.539	1.00	1.30	2.000	No
27	1.77	0.10	0.00	0.10	0.98	0.634	1.18	0.539	1.00	1.30	2.000	No
28	1.84	0.10	0.00	0.10	0.97	0.634	1.18	0.538	1.00	1.30	2.000	No
29	1.91	0.11	0.00	0.11	0.97	0.633	1.18	0.537	1.00	1.30	2.000	No
30	1.98	0.11	0.00	0.11	0.97	0.632	1.18	0.537	1.00	1.30	2.000	No
31	2.05	0.11	0.00	0.11	0.97	0.632	1.18	0.536	1.00	1.30	2.000	No
32	2.11	0.12	0.00	0.12	0.97	0.631	1.18	0.536	1.00	1.30	2.000	No
33	2.19	0.12	0.00	0.12	0.97	0.630	1.18	0.535	1.00	1.30	2.000	No
34	2.25	0.12	0.00	0.12	0.97	0.630	1.18	0.535	1.00	1.30	2.000	No
35	2.32	0.13	0.00	0.13	0.97	0.629	1.18	0.534	1.00	1.30	2.000	No
36	2.39	0.13	0.00	0.13	0.97	0.628	1.18	0.534	1.00	1.30	2.000	No
37	2.44	0.13	0.00	0.13	0.97	0.628	1.18	0.533	1.00	1.30	2.000	No
38	2.49	0.14	0.00	0.14	0.97	0.627	1.18	0.533	1.00	1.30	2.000	No
39	2.57	0.14	0.00	0.14	0.96	0.627	1.18	0.532	1.00	1.30	2.000	No
40	2.64	0.14	0.00	0.14	0.96	0.626	1.18	0.531	1.00	1.30	2.000	No
41	2.71	0.15	0.00	0.15	0.96	0.625	1.18	0.531	1.00	1.30	2.000	No
42	2.78	0.15	0.00	0.15	0.96	0.625	1.18	0.530	1.00	1.30	2.000	No
43	2.83	0.15	0.00	0.15	0.96	0.624	1.18	0.530	1.00	1.30	2.000	No
44	2.90	0.16	0.00	0.16	0.96	0.623	1.18	0.529	1.00	1.30	2.000	No
45	2.96	0.16	0.00	0.16	0.96	0.623	1.18	0.529	1.00	1.30	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
46	3.03	0.16	0.00	0.16	0.96	0.622	1.18	0.528	1.00	1.30	2.000	No
47	3.09	0.17	0.00	0.17	0.96	0.621	1.18	0.528	1.00	1.30	2.000	No
48	3.16	0.17	0.00	0.17	0.95	0.621	1.18	0.527	1.00	1.30	2.000	No
49	3.23	0.17	0.00	0.17	0.95	0.620	1.18	0.527	1.00	1.30	2.000	No
50	3.29	0.18	0.00	0.18	0.95	0.619	1.18	0.526	1.00	1.30	2.000	No
51	3.36	0.18	0.00	0.18	0.95	0.619	1.18	0.525	1.00	1.30	2.000	No
52	3.42	0.18	0.00	0.18	0.95	0.618	1.18	0.525	1.00	1.30	2.000	No
53	3.49	0.19	0.00	0.19	0.95	0.617	1.18	0.524	1.00	1.30	2.000	No
54	3.55	0.19	0.00	0.19	0.95	0.617	1.18	0.524	1.00	1.30	2.000	No
55	3.62	0.19	0.00	0.19	0.95	0.616	1.18	0.523	1.00	1.30	2.000	No
56	3.68	0.20	0.00	0.20	0.95	0.616	1.18	0.523	1.00	1.30	2.000	No
57	3.74	0.20	0.00	0.20	0.95	0.615	1.18	0.522	1.00	1.30	2.000	No
58	3.81	0.20	0.00	0.20	0.94	0.614	1.18	0.521	1.00	1.30	2.000	No
59	3.87	0.21	0.00	0.21	0.94	0.613	1.18	0.521	1.00	1.30	2.000	No
60	3.94	0.21	0.00	0.21	0.94	0.613	1.18	0.520	1.00	1.30	2.000	No
61	4.00	0.21	0.00	0.21	0.94	0.612	1.18	0.520	1.00	1.30	2.000	No
62	4.07	0.22	0.00	0.22	0.94	0.611	1.18	0.519	1.00	1.30	2.000	No
63	4.15	0.22	0.00	0.22	0.94	0.611	1.18	0.518	1.00	1.30	2.000	No
64	4.22	0.22	0.00	0.22	0.94	0.610	1.18	0.518	1.00	1.30	2.000	No
65	4.27	0.23	0.00	0.23	0.94	0.609	1.18	0.517	1.00	1.30	2.000	No
66	4.35	0.23	0.00	0.23	0.94	0.609	1.18	0.517	1.00	1.30	2.000	No
67	4.41	0.23	0.00	0.23	0.94	0.608	1.18	0.516	1.00	1.30	2.000	No
68	4.46	0.23	0.00	0.23	0.93	0.607	1.18	0.516	1.00	1.30	2.000	No
69	4.53	0.24	0.00	0.24	0.93	0.607	1.18	0.515	1.00	1.30	2.000	No
70	4.61	0.24	0.00	0.24	0.93	0.606	1.18	0.514	1.00	1.30	2.000	No
71	4.69	0.25	0.00	0.25	0.93	0.605	1.18	0.514	1.00	1.30	2.000	No
72	4.74	0.25	0.00	0.25	0.93	0.604	1.18	0.513	1.00	1.30	2.000	No
73	4.82	0.25	0.00	0.25	0.93	0.603	1.18	0.512	1.00	1.30	2.000	No
74	4.87	0.25	0.00	0.25	0.93	0.603	1.18	0.512	1.00	1.30	2.000	No
75	4.95	0.26	0.00	0.26	0.93	0.602	1.18	0.511	1.00	1.30	2.000	No
76	4.99	0.26	0.00	0.26	0.93	0.602	1.18	0.511	1.00	1.30	2.000	No
77	5.07	0.26	0.00	0.26	0.92	0.601	1.18	0.510	1.00	1.30	2.000	No
78	5.13	0.27	0.00	0.27	0.92	0.600	1.18	0.510	1.00	1.30	2.000	No
79	5.21	0.27	0.00	0.27	0.92	0.599	1.18	0.509	1.00	1.30	2.000	No
80	5.27	0.27	0.00	0.27	0.92	0.598	1.18	0.508	1.00	1.30	2.000	No
81	5.32	0.28	0.00	0.28	0.92	0.598	1.18	0.508	1.00	1.30	2.000	No
82	5.38	0.28	0.00	0.28	0.92	0.597	1.18	0.507	1.00	1.30	2.000	No
83	5.46	0.28	0.00	0.28	0.92	0.596	1.18	0.506	1.00	1.30	2.000	No
84	5.53	0.29	0.00	0.29	0.92	0.596	1.18	0.506	1.00	1.30	2.000	No
85	5.59	0.29	0.00	0.29	0.92	0.595	1.18	0.505	1.00	1.30	2.000	No
86	5.67	0.29	0.00	0.29	0.91	0.594	1.18	0.504	1.00	1.30	2.000	No
87	5.71	0.30	0.00	0.30	0.91	0.594	1.18	0.504	1.00	1.30	2.000	No
88	5.81	0.30	0.00	0.30	0.91	0.593	1.18	0.503	1.00	1.30	2.000	No
89	5.84	0.30	0.00	0.30	0.91	0.592	1.18	0.503	1.00	1.30	2.000	No
90	5.91	0.31	0.00	0.31	0.91	0.591	1.18	0.502	1.00	1.30	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
91	5.98	0.31	0.00	0.31	0.91	0.591	1.18	0.501	1.00	1.30	2.000	No
92	6.04	0.31	0.00	0.31	0.91	0.590	1.18	0.501	1.00	1.30	2.000	No
93	6.12	0.32	0.00	0.32	0.91	0.589	1.18	0.500	1.00	1.30	2.000	No
94	6.19	0.32	0.00	0.32	0.90	0.588	1.18	0.499	1.00	1.30	2.000	No
95	6.26	0.32	0.00	0.32	0.90	0.587	1.18	0.499	1.00	1.30	2.000	No
96	6.32	0.33	0.00	0.33	0.90	0.587	1.18	0.498	1.00	1.30	2.000	No
97	6.39	0.33	0.00	0.33	0.90	0.586	1.18	0.497	1.00	1.30	2.000	No
98	6.44	0.33	0.00	0.33	0.90	0.585	1.18	0.497	1.00	1.30	2.000	No
99	6.51	0.34	0.00	0.34	0.90	0.584	1.18	0.496	1.00	1.30	2.000	No
100	6.57	0.34	0.00	0.34	0.90	0.584	1.18	0.496	1.00	1.30	2.000	No
101	6.65	0.34	0.00	0.34	0.90	0.583	1.18	0.495	1.00	1.30	2.000	No
102	6.70	0.35	0.00	0.35	0.90	0.582	1.18	0.494	1.00	1.30	2.000	No
103	6.77	0.35	0.00	0.35	0.89	0.581	1.18	0.494	1.00	1.30	2.000	No
104	6.83	0.35	0.00	0.35	0.89	0.581	1.18	0.493	1.00	1.30	2.000	No
105	6.90	0.36	0.00	0.36	0.89	0.580	1.18	0.492	1.00	1.30	2.000	No
106	6.97	0.36	0.00	0.36	0.89	0.579	1.18	0.492	1.00	1.30	2.000	No
107	7.04	0.36	0.00	0.36	0.89	0.578	1.18	0.491	1.00	1.30	2.000	No
108	7.10	0.37	0.00	0.37	0.89	0.578	1.18	0.490	1.00	1.30	2.000	No
109	7.17	0.37	0.00	0.37	0.89	0.577	1.18	0.490	1.00	1.30	2.000	No
110	7.24	0.37	0.00	0.37	0.89	0.576	1.18	0.489	1.00	1.30	2.000	No
111	7.31	0.38	0.00	0.38	0.88	0.575	1.18	0.488	1.00	1.30	2.000	No
112	7.35	0.38	0.00	0.38	0.88	0.574	1.18	0.488	1.00	1.30	2.000	No
113	7.43	0.38	0.00	0.38	0.88	0.574	1.18	0.487	1.00	1.30	2.000	No
114	7.50	0.39	0.00	0.39	0.88	0.573	1.18	0.486	1.00	1.30	2.000	No
115	7.57	0.39	0.00	0.39	0.88	0.572	1.18	0.486	1.00	1.30	2.000	No
116	7.61	0.39	0.00	0.39	0.88	0.571	1.18	0.485	1.00	1.30	2.000	No
117	7.68	0.40	0.00	0.40	0.88	0.570	1.18	0.484	1.00	1.30	2.000	No
118	7.76	0.40	0.00	0.40	0.88	0.570	1.18	0.484	1.00	1.30	2.000	No
119	7.83	0.40	0.00	0.40	0.87	0.569	1.18	0.483	1.00	1.30	2.000	No
120	7.88	0.41	0.00	0.41	0.87	0.568	1.18	0.482	1.00	1.30	2.000	No
121	7.95	0.41	0.00	0.41	0.87	0.567	1.18	0.482	1.00	1.30	2.000	No
122	8.03	0.41	0.00	0.41	0.87	0.566	1.18	0.481	1.00	1.30	2.000	No
123	8.08	0.42	0.00	0.42	0.87	0.566	1.18	0.480	1.00	1.30	2.000	No
124	8.14	0.42	0.00	0.42	0.87	0.565	1.18	0.480	1.00	1.30	2.000	No
125	8.21	0.42	0.00	0.42	0.87	0.564	1.18	0.479	1.00	1.30	2.000	No
126	8.29	0.43	0.00	0.43	0.87	0.563	1.18	0.478	1.00	1.30	2.000	No
127	8.34	0.43	0.00	0.43	0.87	0.562	1.18	0.478	1.00	1.30	2.000	No
128	8.40	0.43	0.00	0.43	0.86	0.562	1.18	0.477	1.00	1.30	2.000	No
129	8.47	0.44	0.00	0.44	0.86	0.561	1.18	0.476	1.00	1.30	2.000	No
130	8.54	0.44	0.00	0.44	0.86	0.560	1.18	0.475	1.00	1.30	2.000	No
131	8.60	0.44	0.00	0.44	0.86	0.559	1.18	0.475	1.00	1.30	2.000	No
132	8.67	0.45	0.00	0.45	0.86	0.558	1.18	0.474	1.00	1.30	2.000	No
133	8.74	0.45	0.00	0.45	0.86	0.557	1.18	0.473	1.00	1.30	2.000	No
134	8.80	0.45	0.00	0.45	0.86	0.557	1.18	0.473	1.00	1.30	2.000	No
135	8.86	0.46	0.00	0.46	0.86	0.556	1.18	0.472	1.00	1.30	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
136	8.93	0.46	0.00	0.46	0.85	0.555	1.18	0.471	1.00	1.30	2.000	No
137	9.01	0.47	0.00	0.47	0.85	0.554	1.18	0.470	1.00	1.30	2.000	No
138	9.09	0.47	0.00	0.47	0.85	0.553	1.18	0.470	1.00	1.30	2.000	No
139	9.13	0.47	0.00	0.47	0.85	0.552	1.18	0.469	1.00	1.30	2.000	No
140	9.20	0.48	0.00	0.48	0.85	0.552	1.18	0.468	1.00	1.30	2.000	No
141	9.28	0.48	0.00	0.48	0.85	0.551	1.18	0.467	1.00	1.30	2.000	No
142	9.35	0.48	0.00	0.48	0.85	0.550	1.18	0.467	1.00	1.30	2.000	No
143	9.40	0.49	0.00	0.49	0.84	0.549	1.18	0.466	1.00	1.30	2.000	No
144	9.46	0.49	0.00	0.49	0.84	0.548	1.18	0.465	1.00	1.30	2.000	No
145	9.53	0.49	0.00	0.49	0.84	0.547	1.18	0.465	1.00	1.30	2.000	No
146	9.60	0.50	0.00	0.50	0.84	0.546	1.18	0.464	1.00	1.30	2.000	No
147	9.65	0.50	0.00	0.50	0.84	0.546	1.18	0.463	1.00	1.30	2.000	No
148	9.73	0.50	0.00	0.50	0.84	0.545	1.18	0.463	1.00	1.30	2.000	No
149	9.79	0.51	0.00	0.51	0.84	0.544	1.18	0.462	1.00	1.30	2.000	No
150	9.85	0.51	0.00	0.51	0.84	0.543	1.18	0.461	1.00	1.30	2.000	No
151	9.92	0.52	0.00	0.52	0.83	0.542	1.18	0.460	1.00	1.30	2.000	No
152	9.99	0.52	0.00	0.52	0.83	0.541	1.18	0.460	1.00	1.30	2.000	No
153	10.05	0.52	0.00	0.52	0.83	0.541	1.18	0.459	1.00	1.30	2.000	No
154	10.13	0.53	0.00	0.53	0.83	0.540	1.18	0.458	1.00	1.30	2.000	No
155	10.18	0.53	0.00	0.53	0.83	0.539	1.18	0.458	1.00	1.30	2.000	No
156	10.25	0.53	0.00	0.53	0.83	0.538	1.18	0.457	1.00	1.30	2.000	No
157	10.32	0.54	0.00	0.54	0.83	0.537	1.18	0.456	1.00	1.30	2.000	No
158	10.38	0.54	0.00	0.54	0.83	0.536	1.18	0.455	1.00	1.30	2.000	No
159	10.45	0.54	0.00	0.54	0.82	0.535	1.18	0.455	1.00	1.30	2.000	No
160	10.52	0.55	0.00	0.55	0.82	0.534	1.18	0.454	1.00	1.30	2.000	No
161	10.57	0.55	0.00	0.55	0.82	0.534	1.18	0.453	1.00	1.30	2.000	No
162	10.64	0.55	0.00	0.55	0.82	0.533	1.18	0.452	1.00	1.30	2.000	No
163	10.71	0.56	0.00	0.56	0.82	0.532	1.18	0.452	1.00	1.30	2.000	No
164	10.78	0.56	0.00	0.56	0.82	0.531	1.18	0.451	1.00	1.30	2.000	No
165	10.83	0.56	0.00	0.56	0.82	0.530	1.18	0.450	1.00	1.30	2.000	No
166	10.90	0.57	0.00	0.57	0.81	0.529	1.18	0.449	1.00	1.30	2.000	No
167	10.96	0.57	0.00	0.57	0.81	0.528	1.18	0.449	1.00	1.30	2.000	No
168	11.03	0.58	0.00	0.58	0.81	0.528	1.18	0.448	1.00	1.30	2.000	No
169	11.10	0.58	0.00	0.58	0.81	0.527	1.18	0.447	1.00	1.30	2.000	No
170	11.16	0.58	0.00	0.58	0.81	0.526	1.18	0.447	1.00	1.30	2.000	No
171	11.22	0.59	0.00	0.59	0.81	0.525	1.18	0.446	1.00	1.30	2.000	No
172	11.29	0.59	0.00	0.59	0.81	0.524	1.18	0.445	1.00	1.30	2.000	No
173	11.36	0.59	0.00	0.59	0.80	0.523	1.18	0.444	1.00	1.30	2.000	No
174	11.43	0.60	0.00	0.60	0.80	0.522	1.18	0.443	1.00	1.30	2.000	No
175	11.51	0.60	0.00	0.60	0.80	0.521	1.18	0.442	1.00	1.30	2.000	No
176	11.55	0.60	0.00	0.60	0.80	0.521	1.18	0.442	1.00	1.30	2.000	No
177	11.63	0.61	0.00	0.61	0.80	0.519	1.18	0.441	1.00	1.30	2.000	No
178	11.71	0.61	0.00	0.61	0.80	0.518	1.18	0.440	1.00	1.30	2.000	No
179	11.76	0.62	0.00	0.62	0.80	0.518	1.18	0.440	1.00	1.30	2.000	No
180	11.83	0.62	0.00	0.62	0.79	0.517	1.18	0.439	1.00	1.30	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
181	11.90	0.63	0.00	0.63	0.79	0.516	1.18	0.438	1.00	1.30	2.000	No
182	11.95	0.63	0.00	0.63	0.79	0.515	1.18	0.437	1.00	1.30	2.000	No
183	12.02	0.63	0.00	0.63	0.79	0.514	1.18	0.436	1.00	1.30	2.000	No
184	12.08	0.64	0.00	0.64	0.79	0.513	1.18	0.436	1.00	1.30	2.000	No
185	12.15	0.64	0.00	0.64	0.79	0.512	1.18	0.435	1.00	1.30	2.000	No
186	12.22	0.65	0.00	0.65	0.79	0.511	1.18	0.434	1.00	1.30	2.000	No
187	12.28	0.65	0.00	0.65	0.79	0.511	1.18	0.434	1.00	1.30	2.000	No
188	12.34	0.65	0.00	0.65	0.78	0.510	1.18	0.433	1.00	1.30	2.000	No
189	12.41	0.66	0.00	0.66	0.78	0.509	1.18	0.432	1.00	1.30	2.000	No
190	12.47	0.66	0.00	0.66	0.78	0.508	1.18	0.431	1.00	1.30	2.000	No
191	12.54	0.67	0.00	0.67	0.78	0.507	1.18	0.430	1.00	1.30	2.000	No
192	12.60	0.67	0.00	0.67	0.78	0.506	1.18	0.430	1.00	1.30	2.000	No
193	12.67	0.67	0.00	0.67	0.78	0.505	1.18	0.429	1.00	1.30	2.000	No
194	12.76	0.68	0.00	0.68	0.78	0.504	1.18	0.428	1.00	1.30	2.000	No
195	12.80	0.68	0.00	0.68	0.77	0.503	1.18	0.427	1.00	1.30	2.000	No
196	12.88	0.68	0.00	0.68	0.77	0.502	1.18	0.426	1.00	1.30	2.000	No
197	12.95	0.69	0.00	0.69	0.77	0.501	1.18	0.426	1.00	1.30	2.000	No
198	13.01	0.69	0.00	0.69	0.77	0.500	1.18	0.425	1.00	1.30	2.000	No
199	13.07	0.70	0.00	0.70	0.77	0.500	1.18	0.424	1.00	1.30	2.000	No
200	13.13	0.70	0.00	0.70	0.77	0.499	1.18	0.423	1.00	1.30	2.000	No
201	13.19	0.70	0.00	0.70	0.77	0.498	1.18	0.423	1.00	1.30	2.000	No
202	13.27	0.71	0.00	0.71	0.76	0.497	1.18	0.422	1.00	1.30	2.000	No
203	13.33	0.71	0.00	0.71	0.76	0.496	1.18	0.421	1.00	1.30	2.000	No
204	13.41	0.72	0.00	0.72	0.76	0.495	1.18	0.420	1.00	1.30	2.000	No
205	13.45	0.72	0.00	0.72	0.76	0.494	1.18	0.420	1.00	1.30	2.000	No
206	13.52	0.72	0.00	0.72	0.76	0.493	1.18	0.419	1.00	1.30	2.000	No
207	13.60	0.73	0.00	0.73	0.76	0.492	1.18	0.418	1.00	1.30	2.000	No
208	13.66	0.73	0.00	0.73	0.76	0.491	1.18	0.417	1.00	1.30	2.000	No
209	13.74	0.73	0.00	0.73	0.75	0.490	1.18	0.416	1.00	1.30	2.000	No
210	13.80	0.74	0.00	0.74	0.75	0.489	1.18	0.415	1.00	1.30	2.000	No
211	13.85	0.74	0.00	0.74	0.75	0.489	1.18	0.415	1.00	1.30	2.000	No
212	13.93	0.75	0.00	0.75	0.75	0.487	1.18	0.414	1.00	1.30	2.000	No
213	13.99	0.75	0.00	0.75	0.75	0.487	1.18	0.413	1.00	1.30	2.000	No
214	14.04	0.75	0.00	0.75	0.75	0.486	1.18	0.413	1.00	1.30	2.000	No
215	14.13	0.76	0.00	0.76	0.75	0.485	1.18	0.412	1.00	1.30	2.000	No
216	14.19	0.76	0.00	0.76	0.74	0.484	1.18	0.411	1.00	1.30	2.000	No
217	14.26	0.76	0.00	0.76	0.74	0.483	1.18	0.410	1.00	1.30	2.000	No
218	14.31	0.77	0.00	0.77	0.74	0.482	1.18	0.409	1.00	1.30	2.000	No
219	14.39	0.77	0.00	0.77	0.74	0.481	1.18	0.408	1.00	1.30	2.000	No
220	14.44	0.77	0.00	0.77	0.74	0.480	1.18	0.408	1.00	1.30	2.000	No
221	14.52	0.78	0.00	0.78	0.74	0.479	1.18	0.407	1.00	1.30	2.000	No
222	14.59	0.78	0.00	0.78	0.74	0.478	1.18	0.406	1.00	1.30	2.000	No
223	14.65	0.79	0.00	0.79	0.73	0.477	1.18	0.405	1.00	1.30	2.000	No
224	14.71	0.79	0.00	0.79	0.73	0.476	1.18	0.405	1.00	1.30	2.000	No
225	14.78	0.79	0.00	0.79	0.73	0.475	1.18	0.404	1.00	1.30	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
226	14.84	0.80	0.00	0.80	0.73	0.475	1.18	0.403	1.00	1.30	2.000	No
227	14.90	0.80	0.00	0.80	0.73	0.474	1.18	0.402	1.00	1.30	2.000	No
228	14.97	0.81	0.00	0.81	0.73	0.473	1.18	0.401	1.00	1.30	2.000	No
229	15.04	0.81	0.00	0.81	0.73	0.472	1.18	0.400	1.00	1.30	2.000	No
230	15.11	0.81	0.00	0.81	0.72	0.471	1.18	0.400	1.00	1.30	2.000	No
231	15.16	0.82	0.00	0.82	0.72	0.470	1.18	0.399	1.00	1.30	2.000	No
232	15.24	0.82	0.00	0.82	0.72	0.469	1.18	0.398	1.00	1.30	2.000	No
233	15.29	0.83	0.00	0.83	0.72	0.468	1.18	0.397	1.00	1.30	2.000	No
234	15.36	0.83	0.00	0.83	0.72	0.467	1.18	0.397	1.00	1.30	2.000	No
235	15.43	0.83	0.00	0.83	0.72	0.466	1.18	0.396	1.00	1.30	2.000	No
236	15.51	0.84	0.00	0.84	0.72	0.465	1.18	0.395	1.00	1.30	2.000	No
237	15.56	0.84	0.00	0.84	0.71	0.464	1.18	0.394	1.00	1.30	2.000	No
238	15.64	0.85	0.00	0.85	0.71	0.463	1.18	0.393	1.00	1.30	2.000	No
239	15.69	0.85	0.00	0.85	0.71	0.462	1.18	0.393	1.00	1.30	2.000	No
240	15.77	0.85	0.00	0.85	0.71	0.461	1.18	0.392	1.00	1.30	2.000	No
241	15.82	0.86	0.00	0.86	0.71	0.460	1.18	0.391	1.00	1.30	2.000	No
242	15.89	0.86	0.00	0.86	0.71	0.459	1.18	0.390	1.00	1.30	2.000	No
243	15.95	0.87	0.00	0.87	0.71	0.459	1.18	0.389	1.00	1.30	2.000	No
244	16.02	0.87	0.00	0.87	0.70	0.458	1.18	0.389	1.00	1.30	2.000	No
245	16.09	0.87	0.00	0.87	0.70	0.457	1.18	0.388	1.00	1.30	2.000	No
246	16.15	0.88	0.00	0.88	0.70	0.456	1.18	0.387	1.00	1.30	2.000	No
247	16.22	0.88	0.00	0.88	0.70	0.455	1.18	0.386	1.00	1.30	2.000	No
248	16.27	0.89	0.00	0.89	0.70	0.454	1.18	0.385	1.00	1.30	2.000	No
249	16.34	0.89	0.00	0.89	0.70	0.453	1.18	0.385	1.00	1.30	2.000	No
250	16.41	0.89	0.00	0.89	0.70	0.452	1.18	0.384	1.00	1.30	2.000	No
251	16.50	0.90	0.00	0.90	0.69	0.451	1.18	0.383	1.00	1.30	2.000	No
252	16.57	0.90	0.00	0.90	0.69	0.450	1.18	0.382	1.00	1.30	2.000	No
253	16.60	0.91	0.00	0.91	0.69	0.449	1.18	0.381	1.00	1.30	2.000	No
254	16.70	0.91	0.00	0.91	0.69	0.448	1.18	0.380	1.00	1.30	2.000	No
255	16.76	0.92	0.00	0.92	0.69	0.447	1.18	0.379	1.00	1.30	2.000	No
256	16.82	0.92	0.00	0.92	0.69	0.446	1.18	0.379	1.00	1.30	2.000	No
257	16.89	0.92	0.00	0.92	0.68	0.445	1.18	0.378	1.00	1.30	2.000	No
258	16.95	0.93	0.00	0.93	0.68	0.444	1.18	0.377	1.00	1.30	2.000	No
259	17.01	0.93	0.00	0.93	0.68	0.443	1.18	0.376	1.00	1.30	2.000	No
260	17.09	0.94	0.00	0.94	0.68	0.442	1.18	0.375	1.00	1.30	2.000	No
261	17.16	0.94	0.00	0.94	0.68	0.441	1.18	0.375	1.00	1.30	2.000	No
262	17.22	0.94	0.00	0.94	0.68	0.440	1.18	0.374	1.00	1.30	2.000	No
263	17.28	0.95	0.00	0.95	0.68	0.439	1.18	0.373	1.00	1.30	2.000	No
264	17.35	0.95	0.00	0.95	0.67	0.438	1.18	0.372	1.00	1.30	2.000	No
265	17.41	0.95	0.00	0.95	0.67	0.438	1.18	0.372	1.00	1.30	2.000	No
266	17.48	0.96	0.00	0.96	0.67	0.437	1.18	0.371	1.00	1.30	2.000	No
267	17.54	0.96	0.00	0.96	0.67	0.436	1.18	0.370	1.00	1.30	2.000	No
268	17.60	0.96	0.00	0.96	0.67	0.435	1.18	0.369	1.00	1.30	2.000	No
269	17.66	0.97	0.00	0.97	0.67	0.434	1.18	0.368	1.00	1.30	2.000	No
270	17.75	0.97	0.00	0.97	0.67	0.433	1.18	0.367	1.00	1.30	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
271	17.78	0.98	0.00	0.98	0.66	0.432	1.18	0.367	1.00	1.30	2.000	No
272	17.87	0.98	0.00	0.98	0.66	0.431	1.18	0.366	1.00	1.30	2.000	No
273	17.93	0.98	0.00	0.98	0.66	0.430	1.18	0.365	1.00	1.30	2.000	No
274	18.00	0.99	0.00	0.99	0.66	0.429	1.18	0.364	1.00	1.30	2.000	No
275	18.06	0.99	0.00	0.99	0.66	0.428	1.18	0.364	1.00	1.30	2.000	No
276	18.13	0.99	0.00	0.99	0.66	0.427	1.18	0.363	1.00	1.30	2.000	No
277	18.19	1.00	0.00	1.00	0.66	0.426	1.18	0.362	1.00	1.30	2.000	No
278	18.25	1.00	0.00	1.00	0.65	0.425	1.18	0.361	1.00	1.30	2.000	No
279	18.32	1.00	0.00	1.00	0.65	0.424	1.18	0.360	1.00	1.30	2.000	No
280	18.38	1.01	0.00	1.01	0.65	0.423	1.18	0.360	1.00	1.30	2.000	No
281	18.44	1.01	0.00	1.01	0.65	0.423	1.18	0.359	1.00	1.30	2.000	No
282	18.51	1.01	0.00	1.01	0.65	0.422	1.18	0.358	1.00	1.30	2.000	No
283	18.57	1.02	0.00	1.02	0.65	0.421	1.18	0.357	1.00	1.30	2.000	No
284	18.64	1.02	0.00	1.02	0.65	0.420	1.18	0.356	1.00	1.30	2.000	No
285	18.73	1.03	0.00	1.03	0.64	0.418	1.18	0.355	1.00	1.30	2.000	No
286	18.80	1.03	0.00	1.03	0.64	0.418	1.18	0.355	1.00	1.30	2.000	No
287	18.86	1.03	0.00	1.03	0.64	0.417	1.18	0.354	1.00	1.30	2.000	No
288	18.92	1.04	0.00	1.04	0.64	0.416	1.18	0.353	1.00	1.30	2.000	No
289	18.99	1.04	0.00	1.04	0.64	0.415	1.18	0.352	1.00	1.30	2.000	No
290	19.05	1.04	0.00	1.04	0.64	0.414	1.18	0.351	1.00	1.30	2.000	No
291	19.12	1.05	0.00	1.05	0.64	0.413	1.18	0.351	1.00	1.30	2.000	No
292	19.18	1.05	0.00	1.05	0.63	0.412	1.18	0.350	1.00	1.30	2.000	No
293	19.23	1.05	0.00	1.05	0.63	0.411	1.18	0.349	1.00	1.30	2.000	No
294	19.29	1.06	0.00	1.06	0.63	0.410	1.18	0.348	1.00	1.30	2.000	No
295	19.38	1.06	0.00	1.06	0.63	0.409	1.18	0.347	1.00	1.30	2.000	No
296	19.45	1.06	0.00	1.06	0.63	0.408	1.18	0.347	1.00	1.30	2.000	No
297	19.51	1.07	0.00	1.07	0.63	0.407	1.18	0.346	1.00	1.30	2.000	No
298	19.57	1.07	0.00	1.07	0.63	0.406	1.18	0.345	1.00	1.30	2.000	No
299	19.64	1.08	0.00	1.08	0.62	0.406	1.18	0.344	1.00	1.30	2.000	No
300	19.70	1.08	0.00	1.08	0.62	0.405	1.18	0.344	1.00	1.30	2.000	No
301	19.76	1.08	0.00	1.08	0.62	0.404	1.18	0.343	1.00	1.30	2.000	No
302	19.82	1.09	0.00	1.09	0.62	0.403	1.18	0.342	1.00	1.30	2.000	No
303	19.89	1.09	0.00	1.09	0.62	0.402	1.18	0.341	1.00	1.30	2.000	No
304	19.95	1.09	0.00	1.09	0.62	0.401	1.18	0.341	1.00	1.30	2.000	No
305	20.04	1.10	0.00	1.10	0.62	0.400	1.18	0.339	1.00	1.30	2.000	No
306	20.09	1.10	0.00	1.10	0.61	0.399	1.18	0.339	1.00	1.30	2.000	No
307	20.15	1.10	0.00	1.10	0.61	0.398	1.18	0.338	1.00	1.30	2.000	No
308	20.22	1.11	0.00	1.11	0.61	0.397	1.18	0.337	1.00	1.30	2.000	No
309	20.28	1.11	0.00	1.11	0.61	0.396	1.18	0.337	1.00	1.30	2.000	No
310	20.34	1.11	0.00	1.11	0.61	0.395	1.18	0.336	1.00	1.30	2.000	No
311	20.41	1.12	0.00	1.12	0.61	0.395	1.18	0.335	1.00	1.30	2.000	No
312	20.48	1.12	0.00	1.12	0.61	0.394	1.18	0.334	1.00	1.30	2.000	No
313	20.57	1.13	0.00	1.13	0.60	0.392	1.18	0.333	1.00	1.30	2.000	No
314	20.63	1.13	0.00	1.13	0.60	0.391	1.18	0.332	1.00	1.30	2.000	No
315	20.69	1.13	0.00	1.13	0.60	0.391	1.18	0.332	1.00	1.30	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
316	20.75	1.14	0.00	1.14	0.60	0.390	1.18	0.331	1.00	1.30	2.000	No
317	20.81	1.14	0.00	1.14	0.60	0.389	1.18	0.330	1.00	1.30	2.000	No
318	20.87	1.15	0.00	1.15	0.60	0.388	1.18	0.329	1.00	1.30	2.000	No
319	20.96	1.15	0.00	1.15	0.59	0.387	1.18	0.328	1.00	1.30	2.000	No
320	21.02	1.15	0.00	1.15	0.59	0.386	1.18	0.328	1.00	1.30	2.000	No
321	21.08	1.16	0.00	1.16	0.59	0.385	1.18	0.327	1.00	1.30	2.000	No
322	21.15	1.16	0.00	1.16	0.59	0.384	1.18	0.326	1.00	1.30	2.000	No
323	21.21	1.16	0.00	1.16	0.59	0.383	1.18	0.325	1.00	1.30	2.000	No
324	21.27	1.17	0.00	1.17	0.59	0.382	1.18	0.325	1.00	1.30	2.000	No
325	21.33	1.17	0.00	1.17	0.59	0.382	1.18	0.324	1.00	1.30	2.000	No
326	21.40	1.18	0.00	1.18	0.59	0.381	1.18	0.323	1.00	1.30	2.000	No
327	21.46	1.18	0.00	1.18	0.58	0.380	1.18	0.322	1.00	1.30	2.000	No
328	21.53	1.18	0.00	1.18	0.58	0.379	1.18	0.322	1.00	1.30	2.000	No
329	21.59	1.19	0.00	1.19	0.58	0.378	1.18	0.321	1.00	1.30	2.000	No
330	21.66	1.19	0.00	1.19	0.58	0.377	1.18	0.320	1.00	1.30	2.000	No
331	21.75	1.20	0.00	1.20	0.58	0.376	1.18	0.319	1.00	1.30	2.000	No
332	21.81	1.20	0.00	1.20	0.58	0.375	1.18	0.318	1.00	1.30	2.000	No
333	21.87	1.20	0.00	1.20	0.58	0.374	1.18	0.318	1.00	1.30	2.000	No
334	21.93	1.21	0.00	1.21	0.57	0.373	1.18	0.317	1.00	1.30	2.000	No
335	22.01	1.21	0.00	1.21	0.57	0.372	1.18	0.316	1.00	1.30	2.000	No
336	22.07	1.21	0.00	1.21	0.57	0.371	1.18	0.315	1.00	1.30	2.000	No
337	22.13	1.22	0.00	1.22	0.57	0.370	1.18	0.315	1.00	1.30	2.000	No
338	22.20	1.22	0.00	1.22	0.57	0.370	1.18	0.314	1.00	1.30	2.000	No
339	22.25	1.22	0.00	1.22	0.57	0.369	1.18	0.313	1.00	1.30	2.000	No
340	22.31	1.23	0.00	1.23	0.57	0.368	1.18	0.312	1.00	1.30	2.000	No
341	22.40	1.23	0.00	1.23	0.56	0.367	1.18	0.311	1.00	1.30	2.000	No
342	22.47	1.24	0.00	1.24	0.56	0.366	1.18	0.311	1.00	1.30	2.000	No
343	22.53	1.24	0.00	1.24	0.56	0.365	1.18	0.310	1.00	1.30	2.000	No
344	22.59	1.24	0.00	1.24	0.56	0.364	1.18	0.309	1.00	1.30	2.000	No
345	22.65	1.25	0.00	1.25	0.56	0.363	1.18	0.309	1.00	1.30	2.000	No
346	22.72	1.25	0.00	1.25	0.56	0.362	1.18	0.308	1.00	1.30	2.000	No
347	22.78	1.26	0.00	1.26	0.56	0.362	1.18	0.307	1.00	1.30	2.000	No
348	22.84	1.26	0.00	1.26	0.56	0.361	1.18	0.306	1.00	1.30	2.000	No
349	22.90	1.26	0.00	1.26	0.55	0.360	1.18	0.306	1.00	1.30	2.000	No
350	23.00	1.27	0.00	1.27	0.55	0.359	1.18	0.305	1.00	1.30	2.000	No
351	23.06	1.27	0.00	1.27	0.55	0.358	1.18	0.304	1.00	1.30	2.000	No
352	23.10	1.27	0.00	1.27	0.55	0.357	1.18	0.303	1.00	1.30	2.000	No
353	23.17	1.28	0.00	1.28	0.55	0.356	1.18	0.303	1.00	1.30	2.000	No
354	23.24	1.28	0.00	1.28	0.55	0.355	1.18	0.302	1.00	1.30	2.000	No
355	23.30	1.28	0.00	1.28	0.55	0.355	1.18	0.301	1.00	1.30	2.000	No
356	23.39	1.29	0.00	1.29	0.54	0.353	1.18	0.300	1.00	1.30	2.000	No
357	23.45	1.29	0.00	1.29	0.54	0.353	1.18	0.299	1.00	1.30	2.000	No
358	23.51	1.30	0.00	1.30	0.54	0.352	1.18	0.299	1.00	1.30	2.000	No
359	23.58	1.30	0.00	1.30	0.54	0.351	1.18	0.298	1.00	1.30	2.000	No
360	23.64	1.30	0.00	1.30	0.54	0.350	1.18	0.297	1.00	1.30	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
361	23.71	1.31	0.00	1.31	0.54	0.349	1.18	0.296	1.00	1.30	2.000	No
362	23.77	1.31	0.00	1.31	0.54	0.348	1.18	0.296	1.00	1.30	2.000	No
363	23.83	1.31	0.00	1.31	0.53	0.347	1.18	0.295	1.00	1.30	2.000	No
364	23.89	1.32	0.00	1.32	0.53	0.347	1.18	0.294	1.00	1.30	2.000	No
365	23.98	1.32	0.00	1.32	0.53	0.346	1.18	0.293	1.00	1.30	2.000	No
366	24.03	1.33	0.00	1.33	0.53	0.345	1.18	0.293	1.00	1.30	2.000	No
367	24.10	1.33	0.00	1.33	0.53	0.344	1.18	0.292	1.00	1.30	2.000	No
368	24.16	1.33	0.00	1.33	0.53	0.343	1.18	0.291	1.00	1.30	2.000	No
369	24.22	1.34	0.00	1.34	0.53	0.342	1.18	0.291	1.00	1.30	2.000	No
370	24.29	1.34	0.00	1.34	0.53	0.342	1.18	0.290	1.00	1.30	2.000	No
371	24.34	1.34	0.00	1.34	0.52	0.341	1.18	0.289	1.00	1.30	2.000	No
372	24.41	1.35	0.00	1.35	0.52	0.340	1.18	0.289	1.00	1.30	2.000	No
373	24.48	1.35	0.00	1.35	0.52	0.339	1.18	0.288	1.00	1.30	2.000	No
374	24.56	1.36	0.00	1.36	0.52	0.338	1.18	0.287	1.00	1.30	2.000	No
375	24.62	1.36	0.00	1.36	0.52	0.337	1.18	0.286	1.00	1.30	2.000	No
376	24.69	1.36	0.00	1.36	0.52	0.336	1.18	0.286	1.00	1.30	2.000	No
377	24.75	1.37	0.00	1.37	0.52	0.336	1.18	0.285	1.00	1.30	2.000	No
378	24.81	1.37	0.00	1.37	0.52	0.335	1.18	0.284	1.00	1.30	2.000	No
379	24.89	1.38	0.00	1.38	0.51	0.334	1.18	0.283	1.00	1.30	2.000	No
380	24.96	1.38	0.00	1.38	0.51	0.333	1.18	0.283	1.00	1.30	2.000	No
381	25.02	1.39	0.00	1.39	0.51	0.332	1.18	0.282	1.00	1.30	2.000	No
382	25.08	1.39	0.00	1.39	0.51	0.331	1.18	0.281	1.00	1.30	2.000	No
383	25.13	1.39	0.00	1.39	0.51	0.331	1.18	0.281	1.00	1.30	2.000	No
384	25.20	1.40	0.00	1.40	0.51	0.330	1.18	0.280	1.00	1.30	2.000	No
385	25.27	1.40	0.00	1.40	0.51	0.329	1.18	0.279	1.00	1.30	2.000	No
386	25.33	1.40	0.00	1.40	0.50	0.328	1.18	0.279	1.00	1.30	2.000	No
387	25.39	1.41	0.00	1.41	0.50	0.327	1.18	0.278	1.00	1.30	2.000	No
388	25.48	1.41	0.00	1.41	0.50	0.326	1.18	0.277	1.00	1.30	2.000	No
389	25.55	1.42	0.00	1.42	0.50	0.325	1.18	0.276	1.00	1.30	2.000	No
390	25.60	1.42	0.00	1.42	0.50	0.325	1.18	0.276	1.00	1.30	2.000	No
391	25.66	1.42	0.00	1.42	0.50	0.324	1.18	0.275	1.00	1.30	2.000	No
392	25.73	1.43	0.00	1.43	0.50	0.323	1.18	0.274	1.00	1.30	2.000	No
393	25.80	1.43	0.00	1.43	0.50	0.322	1.18	0.274	1.00	1.30	2.000	No
394	25.86	1.44	0.00	1.44	0.49	0.321	1.18	0.273	1.00	1.30	2.000	No
395	25.95	1.44	0.00	1.44	0.49	0.320	1.18	0.272	1.00	1.30	2.000	No
396	25.99	1.44	0.00	1.44	0.49	0.320	1.18	0.272	1.00	1.30	2.000	No
397	26.08	1.45	0.00	1.45	0.49	0.319	1.18	0.271	1.00	1.30	2.000	No
398	26.14	1.45	0.00	1.45	0.49	0.318	1.18	0.270	1.00	1.30	2.000	No
399	26.21	1.46	0.00	1.46	0.49	0.317	1.18	0.269	1.00	1.30	2.000	No
400	26.27	1.46	0.00	1.46	0.49	0.316	1.18	0.269	1.00	1.30	2.000	No
401	26.34	1.47	0.00	1.47	0.49	0.316	1.18	0.268	1.00	1.30	2.000	No
402	26.39	1.47	0.00	1.47	0.48	0.315	1.18	0.267	1.00	1.30	2.000	No
403	26.45	1.47	0.00	1.47	0.48	0.314	1.18	0.267	1.00	1.30	2.000	No
404	26.52	1.48	0.00	1.48	0.48	0.313	1.18	0.266	1.00	1.30	2.000	No
405	26.58	1.48	0.00	1.48	0.48	0.313	1.18	0.265	1.00	1.30	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
406	26.64	1.48	0.00	1.48	0.48	0.312	1.18	0.265	1.00	1.30	2.000	No
407	26.74	1.49	0.00	1.49	0.48	0.311	1.18	0.264	1.00	1.30	2.000	No
408	26.80	1.49	0.00	1.49	0.48	0.310	1.18	0.263	1.00	1.30	2.000	No
409	26.87	1.50	0.00	1.50	0.48	0.309	1.18	0.262	1.00	1.30	2.000	No
410	26.93	1.50	0.00	1.50	0.47	0.308	1.18	0.262	1.00	1.30	2.000	No
411	26.99	1.51	0.00	1.51	0.47	0.308	1.18	0.261	1.00	1.30	2.000	No
412	27.05	1.51	0.00	1.51	0.47	0.307	1.18	0.261	1.00	1.30	2.000	No
413	27.12	1.51	0.00	1.51	0.47	0.306	1.18	0.260	1.00	1.30	2.000	No
414	27.18	1.52	0.00	1.52	0.47	0.305	1.18	0.259	1.00	1.30	2.000	No
415	27.24	1.52	0.00	1.52	0.47	0.305	1.18	0.259	1.00	1.30	2.000	No
416	27.30	1.53	0.00	1.53	0.47	0.304	1.18	0.258	1.00	1.30	2.000	No
417	27.36	1.53	0.00	1.53	0.47	0.303	1.18	0.257	1.00	1.30	2.000	No
418	27.45	1.54	0.00	1.54	0.46	0.302	1.18	0.256	1.00	1.30	2.000	No
419	27.51	1.54	0.00	1.54	0.46	0.301	1.18	0.256	1.00	1.30	2.000	No
420	27.58	1.54	0.00	1.54	0.46	0.301	1.18	0.255	1.00	1.30	2.000	No
421	27.64	1.55	0.00	1.55	0.46	0.300	1.18	0.255	1.00	1.30	2.000	No
422	27.70	1.55	0.00	1.55	0.46	0.299	1.18	0.254	1.00	1.30	2.000	No
423	27.77	1.55	0.00	1.55	0.46	0.298	1.18	0.253	1.00	1.30	2.000	No
424	27.83	1.56	0.00	1.56	0.46	0.298	1.18	0.253	1.00	1.30	2.000	No
425	27.89	1.56	0.00	1.56	0.46	0.297	1.18	0.252	1.00	1.30	2.000	No
426	28.01	1.57	0.00	1.57	0.45	0.296	1.18	0.251	1.00	1.30	2.000	No
427	28.05	1.57	0.00	1.57	0.45	0.295	1.18	0.251	1.00	1.30	2.000	No
428	28.11	1.58	0.00	1.58	0.45	0.294	1.18	0.250	1.00	1.30	2.000	No
429	28.16	1.58	0.00	1.58	0.45	0.294	1.18	0.250	1.00	1.30	2.000	No
430	28.23	1.58	0.00	1.58	0.45	0.293	1.18	0.249	1.00	1.30	2.000	No
431	28.29	1.59	0.00	1.59	0.45	0.292	1.18	0.248	1.00	1.30	2.000	No
432	28.35	1.59	0.00	1.59	0.45	0.292	1.18	0.248	1.00	1.30	2.000	No
433	28.42	1.59	0.00	1.59	0.45	0.291	1.18	0.247	1.00	1.30	2.000	No
434	28.48	1.60	0.00	1.60	0.45	0.290	1.18	0.246	1.00	1.30	2.000	No
435	28.57	1.60	0.00	1.60	0.44	0.289	1.18	0.246	1.00	1.30	2.000	No
436	28.64	1.61	0.00	1.61	0.44	0.288	1.18	0.245	1.00	1.30	2.000	No
437	28.70	1.61	0.00	1.61	0.44	0.288	1.18	0.244	1.00	1.30	2.000	No
438	28.76	1.62	0.00	1.62	0.44	0.287	1.18	0.244	1.00	1.30	2.000	No
439	28.82	1.62	0.00	1.62	0.44	0.286	1.18	0.243	1.00	1.30	2.000	No
440	28.88	1.62	0.00	1.62	0.44	0.286	1.18	0.243	1.00	1.30	2.000	No
441	28.94	1.63	0.00	1.63	0.44	0.285	1.18	0.242	1.00	1.30	2.000	No
442	29.03	1.63	0.00	1.63	0.44	0.284	1.18	0.241	1.00	1.30	2.000	No
443	29.09	1.64	0.00	1.64	0.44	0.283	1.18	0.241	1.00	1.30	2.000	No
444	29.15	1.64	0.00	1.64	0.43	0.283	1.18	0.240	1.00	1.30	2.000	No
445	29.21	1.64	0.00	1.64	0.43	0.282	1.18	0.239	1.00	1.30	2.000	No
446	29.28	1.65	0.00	1.65	0.43	0.281	1.18	0.239	1.00	1.30	2.000	No
447	29.34	1.65	0.00	1.65	0.43	0.281	1.18	0.238	1.00	1.30	2.000	No
448	29.41	1.66	0.00	1.66	0.43	0.280	1.18	0.238	1.00	1.30	2.000	No
449	29.49	1.66	0.00	1.66	0.43	0.279	1.18	0.237	1.00	1.30	2.000	No
450	29.55	1.67	0.00	1.67	0.43	0.278	1.18	0.236	1.00	1.30	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
451	29.61	1.67	0.00	1.67	0.43	0.278	1.18	0.236	1.00	1.30	2.000	No
452	29.67	1.67	0.00	1.67	0.43	0.277	1.18	0.235	1.00	1.30	2.000	No
453	29.73	1.68	0.00	1.68	0.43	0.276	1.18	0.235	1.00	1.30	2.000	No
454	29.80	1.68	0.00	1.68	0.42	0.276	1.18	0.234	1.00	1.30	2.000	No
455	29.86	1.69	0.00	1.69	0.42	0.275	1.18	0.234	1.00	1.30	2.000	No
456	29.93	1.69	0.00	1.69	0.42	0.274	1.18	0.233	1.00	1.30	2.000	No
457	29.99	1.70	0.00	1.70	0.42	0.274	1.18	0.232	1.00	1.30	2.000	No
458	30.07	1.70	0.00	1.70	0.42	0.273	1.18	0.232	1.00	1.30	0.302	No
459	30.12	1.70	0.00	1.70	0.42	0.273	1.18	0.232	1.00	1.30	0.301	No
460	30.19	1.71	0.01	1.70	0.42	0.272	1.18	0.231	1.00	1.30	0.301	No
461	30.25	1.71	0.01	1.70	0.42	0.272	1.18	0.231	1.00	1.30	0.300	No
462	30.33	1.72	0.01	1.71	0.42	0.272	1.18	0.231	1.00	1.30	0.300	No
463	30.40	1.72	0.01	1.71	0.41	0.271	1.18	0.230	1.00	1.30	0.300	No
464	30.46	1.73	0.01	1.71	0.41	0.271	1.18	0.230	1.00	1.30	0.299	No
465	30.52	1.73	0.02	1.71	0.41	0.271	1.18	0.230	1.00	1.30	0.299	No
466	30.59	1.73	0.02	1.71	0.41	0.270	1.18	0.229	1.00	1.30	0.298	No
467	30.65	1.74	0.02	1.72	0.41	0.270	1.18	0.229	1.00	1.30	0.298	No
468	30.73	1.74	0.02	1.72	0.41	0.270	1.18	0.229	1.00	1.30	0.297	No
469	30.78	1.75	0.02	1.72	0.41	0.269	1.18	0.229	1.00	1.30	0.297	No
470	30.84	1.75	0.03	1.72	0.41	0.269	1.18	0.228	1.00	1.30	0.297	No
471	30.91	1.75	0.03	1.72	0.41	0.268	1.18	0.228	1.00	1.30	0.296	No
472	30.99	1.76	0.03	1.73	0.41	0.268	1.18	0.228	1.00	1.30	0.296	No
473	31.05	1.76	0.03	1.73	0.40	0.268	1.18	0.227	1.00	1.30	0.295	No
474	31.11	1.77	0.03	1.73	0.40	0.267	1.18	0.227	1.00	1.30	0.295	No
475	31.20	1.77	0.04	1.73	0.40	0.267	1.18	0.227	1.00	1.30	0.295	No
476	31.26	1.78	0.04	1.74	0.40	0.267	1.18	0.226	1.00	1.30	0.294	No
477	31.31	1.78	0.04	1.74	0.40	0.266	1.18	0.226	1.00	1.30	0.294	No
478	31.38	1.78	0.04	1.74	0.40	0.266	1.18	0.226	1.00	1.30	0.293	No
479	31.46	1.79	0.05	1.74	0.40	0.265	1.18	0.225	1.00	1.30	0.293	No
480	31.52	1.79	0.05	1.74	0.40	0.265	1.18	0.225	1.00	1.30	0.293	No
481	31.57	1.80	0.05	1.75	0.40	0.265	1.18	0.225	1.00	1.30	0.292	No
482	31.64	1.80	0.05	1.75	0.40	0.264	1.18	0.224	1.00	1.30	0.292	No
483	31.69	1.80	0.05	1.75	0.39	0.264	1.18	0.224	1.00	1.30	0.291	No
484	31.79	1.81	0.06	1.75	0.39	0.264	1.18	0.224	1.00	1.30	0.291	No
485	31.85	1.81	0.06	1.76	0.39	0.263	1.18	0.223	1.00	1.30	0.291	No
486	31.91	1.82	0.06	1.76	0.39	0.263	1.18	0.223	1.00	1.30	0.290	No
487	31.97	1.82	0.06	1.76	0.39	0.263	1.18	0.223	1.00	1.30	0.290	No
488	32.03	1.83	0.06	1.76	0.39	0.262	1.18	0.223	1.00	1.30	0.289	No
489	32.09	1.83	0.07	1.76	0.39	0.262	1.18	0.222	1.00	1.30	0.289	No
490	32.18	1.84	0.07	1.77	0.39	0.261	1.18	0.222	1.00	1.30	0.288	No
491	32.23	1.84	0.07	1.77	0.39	0.261	1.18	0.222	1.00	1.30	0.288	No
492	32.30	1.84	0.07	1.77	0.39	0.261	1.18	0.221	1.00	1.30	0.288	No
493	32.36	1.85	0.07	1.77	0.38	0.260	1.18	0.221	1.00	1.30	0.287	No
494	32.42	1.85	0.08	1.78	0.38	0.260	1.18	0.221	1.00	1.30	0.287	No
495	32.48	1.86	0.08	1.78	0.38	0.260	1.18	0.220	1.00	1.30	0.287	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
496	32.56	1.86	0.08	1.78	0.38	0.259	1.18	0.220	1.00	1.30	0.286	No
497	32.63	1.87	0.08	1.78	0.38	0.259	1.18	0.220	1.00	1.30	0.286	No
498	32.69	1.87	0.08	1.79	0.38	0.258	1.18	0.219	1.00	1.30	0.285	No
499	32.75	1.87	0.09	1.79	0.38	0.258	1.18	0.219	1.00	1.30	0.285	No
500	32.81	1.88	0.09	1.79	0.38	0.258	1.18	0.219	1.00	1.30	0.285	No
501	32.90	1.88	0.09	1.79	0.38	0.257	1.18	0.218	1.00	1.30	0.284	No
502	32.94	1.89	0.09	1.79	0.38	0.257	1.18	0.218	1.00	1.30	0.284	No
503	33.02	1.89	0.09	1.80	0.38	0.257	1.18	0.218	1.00	1.30	0.283	No
504	33.09	1.90	0.10	1.80	0.37	0.256	1.18	0.218	1.00	1.30	0.283	No
505	33.15	1.90	0.10	1.80	0.37	0.256	1.18	0.217	1.00	1.30	0.282	No
506	33.21	1.90	0.10	1.80	0.37	0.256	1.18	0.217	1.00	1.30	0.282	No
507	33.27	1.91	0.10	1.80	0.37	0.255	1.18	0.217	1.00	1.30	0.282	No
508	33.36	1.91	0.10	1.81	0.37	0.255	1.18	0.216	1.00	1.30	0.281	No
509	33.43	1.92	0.11	1.81	0.37	0.254	1.18	0.216	1.00	1.30	0.281	No
510	33.48	1.92	0.11	1.81	0.37	0.254	1.18	0.216	1.00	1.30	0.280	No
511	33.54	1.92	0.11	1.81	0.37	0.254	1.18	0.215	1.00	1.30	0.280	No
512	33.60	1.93	0.11	1.82	0.37	0.253	1.18	0.215	1.00	1.30	0.280	No
513	33.69	1.93	0.11	1.82	0.37	0.253	1.18	0.215	1.00	1.30	0.279	No
514	33.75	1.94	0.12	1.82	0.37	0.253	1.18	0.214	1.00	1.30	0.279	No
515	33.81	1.94	0.12	1.82	0.36	0.252	1.18	0.214	1.00	1.30	0.278	No
516	33.88	1.95	0.12	1.83	0.36	0.252	1.18	0.214	1.00	1.30	0.278	No
517	33.93	1.95	0.12	1.83	0.36	0.252	1.18	0.214	1.00	1.30	0.278	No
518	34.00	1.95	0.12	1.83	0.36	0.251	1.18	0.213	1.00	1.30	0.277	No
519	34.06	1.96	0.13	1.83	0.36	0.251	1.18	0.213	1.00	1.30	0.277	No
520	34.12	1.96	0.13	1.83	0.36	0.251	1.18	0.213	1.00	1.30	0.277	No
521	34.20	1.97	0.13	1.84	0.36	0.250	1.18	0.212	1.00	1.30	0.276	No
522	34.26	1.97	0.13	1.84	0.36	0.250	1.18	0.212	1.00	1.30	0.276	No
523	34.33	1.98	0.13	1.84	0.36	0.249	1.18	0.212	1.00	1.30	0.275	No
524	34.38	1.98	0.14	1.84	0.36	0.249	1.18	0.211	1.00	1.30	0.275	No
525	34.45	1.99	0.14	1.85	0.36	0.249	1.18	0.211	1.00	1.30	0.275	No
526	34.52	1.99	0.14	1.85	0.36	0.248	1.18	0.211	1.00	1.30	0.274	No
527	34.60	1.99	0.14	1.85	0.35	0.248	1.18	0.210	1.00	1.30	0.274	No
528	34.65	2.00	0.15	1.85	0.35	0.248	1.18	0.210	1.00	1.30	0.273	No
529	34.73	2.00	0.15	1.86	0.35	0.247	1.18	0.210	1.00	1.30	0.273	No
530	34.78	2.01	0.15	1.86	0.35	0.247	1.18	0.210	1.00	1.30	0.273	No
531	34.85	2.01	0.15	1.86	0.35	0.247	1.18	0.209	1.00	1.30	0.272	No
532	34.91	2.01	0.15	1.86	0.35	0.246	1.18	0.209	1.00	1.30	0.272	No
533	34.97	2.02	0.16	1.86	0.35	0.246	1.18	0.209	1.00	1.30	0.271	No
534	35.04	2.02	0.16	1.87	0.35	0.245	1.18	0.208	1.00	1.30	0.271	No
535	35.12	2.03	0.16	1.87	0.35	0.245	1.18	0.208	1.00	1.30	0.271	No
536	35.18	2.03	0.16	1.87	0.35	0.245	1.18	0.208	1.00	1.30	0.270	No
537	35.25	2.04	0.16	1.87	0.35	0.244	1.18	0.208	1.00	1.30	0.270	No
538	35.30	2.04	0.17	1.87	0.35	0.244	1.18	0.207	1.00	1.30	0.269	No
539	35.37	2.04	0.17	1.88	0.34	0.244	1.18	0.207	1.00	1.30	0.269	No
540	35.43	2.05	0.17	1.88	0.34	0.243	1.18	0.207	1.00	1.30	0.269	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
541	35.52	2.05	0.17	1.88	0.34	0.243	1.18	0.206	1.00	1.30	0.268	No
542	35.58	2.06	0.17	1.88	0.34	0.243	1.18	0.206	1.00	1.30	0.268	No
543	35.64	2.06	0.18	1.88	0.34	0.242	1.18	0.206	1.00	1.30	0.268	No
544	35.70	2.06	0.18	1.89	0.34	0.242	1.18	0.205	1.00	1.30	0.267	No
545	35.77	2.07	0.18	1.89	0.34	0.242	1.18	0.205	1.00	1.30	0.267	No
546	35.83	2.07	0.18	1.89	0.34	0.241	1.18	0.205	1.00	1.30	0.266	No
547	35.89	2.08	0.18	1.89	0.34	0.241	1.18	0.205	1.00	1.30	0.266	No
548	35.97	2.08	0.19	1.89	0.34	0.241	1.18	0.204	1.00	1.30	0.266	No
549	36.04	2.09	0.19	1.90	0.34	0.240	1.18	0.204	1.00	1.30	0.265	No
550	36.12	2.09	0.19	1.90	0.34	0.240	1.18	0.204	1.00	1.30	0.265	No
551	36.16	2.09	0.19	1.90	0.33	0.240	1.18	0.203	1.00	1.30	0.265	No
552	36.23	2.10	0.19	1.90	0.33	0.239	1.18	0.203	1.00	1.30	0.264	No
553	36.31	2.10	0.20	1.91	0.33	0.239	1.18	0.203	1.00	1.30	0.264	No
554	36.35	2.11	0.20	1.91	0.33	0.239	1.18	0.203	1.00	1.30	0.263	No
555	36.44	2.11	0.20	1.91	0.33	0.238	1.18	0.202	1.00	1.30	0.263	No
556	36.49	2.11	0.20	1.91	0.33	0.238	1.18	0.202	1.00	1.30	0.263	No
557	36.57	2.12	0.21	1.91	0.33	0.238	1.18	0.202	1.00	1.30	0.262	No
558	36.62	2.12	0.21	1.92	0.33	0.237	1.18	0.201	1.00	1.30	0.262	No
559	36.70	2.13	0.21	1.92	0.33	0.237	1.18	0.201	1.00	1.30	0.261	No
560	36.76	2.13	0.21	1.92	0.33	0.237	1.18	0.201	1.00	1.30	0.261	No
561	36.81	2.13	0.21	1.92	0.33	0.236	1.18	0.201	1.00	1.30	0.261	No
562	36.89	2.14	0.21	1.92	0.33	0.236	1.18	0.200	1.00	1.30	0.260	No
563	36.96	2.14	0.22	1.93	0.33	0.236	1.18	0.200	1.00	1.30	0.260	No
564	37.01	2.15	0.22	1.93	0.33	0.235	1.18	0.200	1.00	1.30	0.260	No
565	37.08	2.15	0.22	1.93	0.32	0.235	1.18	0.200	1.00	1.30	0.259	No
566	37.15	2.16	0.22	1.93	0.32	0.235	1.18	0.199	1.00	1.30	0.259	No
567	37.22	2.16	0.23	1.93	0.32	0.234	1.18	0.199	1.00	1.30	0.259	No
568	37.29	2.16	0.23	1.94	0.32	0.234	1.18	0.199	1.00	1.30	0.258	No
569	37.34	2.17	0.23	1.94	0.32	0.234	1.18	0.198	1.00	1.30	0.258	No
570	37.41	2.17	0.23	1.94	0.32	0.233	1.18	0.198	1.00	1.30	0.258	No
571	37.48	2.18	0.23	1.94	0.32	0.233	1.18	0.198	1.00	1.30	0.257	No
572	37.54	2.18	0.24	1.95	0.32	0.233	1.18	0.198	1.00	1.30	0.257	No
573	37.62	2.19	0.24	1.95	0.32	0.232	1.18	0.197	1.00	1.30	0.256	No
574	37.67	2.19	0.24	1.95	0.32	0.232	1.18	0.197	1.00	1.30	0.256	No
575	37.74	2.19	0.24	1.95	0.32	0.232	1.18	0.197	1.00	1.30	0.256	No
576	37.82	2.20	0.24	1.95	0.32	0.231	1.18	0.196	1.00	1.30	0.255	No
577	37.88	2.20	0.25	1.96	0.32	0.231	1.18	0.196	1.00	1.30	0.255	No
578	37.95	2.21	0.25	1.96	0.32	0.231	1.18	0.196	1.00	1.30	0.255	No
579	38.00	2.21	0.25	1.96	0.31	0.230	1.18	0.196	1.00	1.30	0.254	No
580	38.07	2.21	0.25	1.96	0.31	0.230	1.18	0.195	1.00	1.30	0.254	No
581	38.14	2.22	0.25	1.97	0.31	0.230	1.18	0.195	1.00	1.30	0.254	No
582	38.20	2.22	0.26	1.97	0.31	0.230	1.18	0.195	1.00	1.30	0.253	No
583	38.26	2.23	0.26	1.97	0.31	0.229	1.18	0.195	1.00	1.30	0.253	No
584	38.33	2.23	0.26	1.97	0.31	0.229	1.18	0.194	1.00	1.30	0.253	No
585	38.40	2.24	0.26	1.97	0.31	0.229	1.18	0.194	1.00	1.30	0.252	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
586	38.45	2.24	0.26	1.98	0.31	0.228	1.18	0.194	1.00	1.30	0.252	No
587	38.52	2.24	0.27	1.98	0.31	0.228	1.18	0.194	1.00	1.30	0.252	No
588	38.60	2.25	0.27	1.98	0.31	0.228	1.18	0.193	1.00	1.30	0.251	No
589	38.65	2.25	0.27	1.98	0.31	0.227	1.18	0.193	1.00	1.30	0.251	No
590	38.72	2.26	0.27	1.99	0.31	0.227	1.18	0.193	1.00	1.30	0.251	No
591	38.79	2.26	0.27	1.99	0.31	0.227	1.18	0.193	1.00	1.30	0.250	No
592	38.87	2.27	0.28	1.99	0.31	0.226	1.18	0.192	1.00	1.30	0.250	No
593	38.94	2.27	0.28	1.99	0.31	0.226	1.18	0.192	1.00	1.30	0.250	No
594	38.98	2.27	0.28	1.99	0.30	0.226	1.18	0.192	1.00	1.30	0.249	No
595	39.06	2.28	0.28	2.00	0.30	0.226	1.18	0.191	1.00	1.30	0.249	No
596	39.13	2.28	0.28	2.00	0.30	0.225	1.18	0.191	1.00	1.30	0.249	No
597	39.20	2.29	0.29	2.00	0.30	0.225	1.18	0.191	1.00	1.30	0.248	No
598	39.26	2.29	0.29	2.00	0.30	0.225	1.18	0.191	1.00	1.30	0.248	No
599	39.33	2.30	0.29	2.01	0.30	0.224	1.18	0.190	1.00	1.30	0.248	No
600	39.39	2.30	0.29	2.01	0.30	0.224	1.18	0.190	1.00	1.30	0.247	No
601	39.48	2.31	0.30	2.01	0.30	0.224	1.18	0.190	1.00	1.30	0.247	No
602	39.50	2.31	0.30	2.01	0.30	0.223	1.18	0.190	1.00	1.30	0.247	No
603	39.57	2.31	0.30	2.02	0.30	0.223	1.18	0.189	1.00	1.30	0.246	No
604	39.64	2.32	0.30	2.02	0.30	0.223	1.18	0.189	1.00	1.30	0.246	No
605	39.71	2.32	0.30	2.02	0.30	0.223	1.18	0.189	1.00	1.30	0.246	No
606	39.77	2.33	0.30	2.02	0.30	0.222	1.18	0.189	1.00	1.30	0.245	No
607	39.84	2.33	0.31	2.02	0.30	0.222	1.18	0.188	1.00	1.30	0.245	No
608	39.91	2.34	0.31	2.03	0.30	0.222	1.18	0.188	1.00	1.30	0.245	No
609	39.97	2.34	0.31	2.03	0.30	0.221	1.18	0.188	1.00	1.30	0.244	No
610	40.03	2.34	0.31	2.03	0.29	0.221	1.18	0.188	1.00	1.30	0.244	No
611	40.10	2.35	0.32	2.03	0.29	0.221	1.18	0.188	1.00	1.30	0.244	No
612	40.18	2.35	0.32	2.04	0.29	0.220	1.18	0.187	1.00	1.30	0.243	No
613	40.23	2.36	0.32	2.04	0.29	0.220	1.18	0.187	1.00	1.30	0.243	No
614	40.30	2.36	0.32	2.04	0.29	0.220	1.18	0.187	1.00	1.30	0.243	No
615	40.38	2.37	0.32	2.04	0.29	0.220	1.18	0.186	1.00	1.30	0.242	No
616	40.42	2.37	0.33	2.04	0.29	0.219	1.18	0.186	1.00	1.30	0.242	No
617	40.50	2.38	0.33	2.05	0.29	0.219	1.18	0.186	1.00	1.30	0.242	No
618	40.57	2.38	0.33	2.05	0.29	0.219	1.18	0.186	1.00	1.30	0.242	No
619	40.62	2.38	0.33	2.05	0.29	0.219	1.18	0.186	1.00	1.30	0.241	No
620	40.70	2.39	0.33	2.05	0.29	0.218	1.18	0.185	1.00	1.30	0.241	No
621	40.75	2.39	0.34	2.06	0.29	0.218	1.18	0.185	1.00	1.30	0.241	No
622	40.82	2.40	0.34	2.06	0.29	0.218	1.18	0.185	1.00	1.30	0.240	No
623	40.89	2.40	0.34	2.06	0.29	0.217	1.18	0.185	1.00	1.30	0.240	No
624	40.96	2.40	0.34	2.06	0.29	0.217	1.18	0.184	1.00	1.30	0.240	No
625	41.01	2.41	0.34	2.07	0.29	0.217	1.18	0.184	1.00	1.30	0.239	No
626	41.08	2.41	0.35	2.07	0.29	0.217	1.18	0.184	1.00	1.30	0.239	No
627	41.15	2.42	0.35	2.07	0.29	0.216	1.18	0.184	1.00	1.30	0.239	No
628	41.22	2.42	0.35	2.07	0.28	0.216	1.18	0.184	1.00	1.30	0.239	No
629	41.28	2.43	0.35	2.07	0.28	0.216	1.18	0.183	1.00	1.30	0.238	No
630	41.36	2.43	0.35	2.08	0.28	0.216	1.18	0.183	1.00	1.30	0.238	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
631	41.41	2.44	0.36	2.08	0.28	0.215	1.18	0.183	1.00	1.30	0.238	No
632	41.49	2.44	0.36	2.08	0.28	0.215	1.18	0.183	1.00	1.30	0.237	No
633	41.54	2.44	0.36	2.08	0.28	0.215	1.18	0.182	1.00	1.30	0.237	No
634	41.61	2.45	0.36	2.09	0.28	0.215	1.18	0.182	1.00	1.30	0.237	No
635	41.67	2.45	0.36	2.09	0.28	0.214	1.18	0.182	1.00	1.30	0.237	No
636	41.75	2.46	0.37	2.09	0.28	0.214	1.18	0.182	1.00	1.30	0.236	No
637	41.81	2.46	0.37	2.09	0.28	0.214	1.18	0.181	1.00	1.30	0.236	No
638	41.87	2.47	0.37	2.10	0.28	0.213	1.18	0.181	1.00	1.30	0.236	No
639	41.94	2.47	0.37	2.10	0.28	0.213	1.18	0.181	1.00	1.30	0.235	No
640	42.01	2.47	0.37	2.10	0.28	0.213	1.18	0.181	1.00	1.30	0.235	No
641	42.06	2.48	0.38	2.10	0.28	0.213	1.18	0.181	1.00	1.30	0.235	No
642	42.15	2.48	0.38	2.11	0.28	0.212	1.18	0.180	1.00	1.30	0.234	No
643	42.20	2.49	0.38	2.11	0.28	0.212	1.18	0.180	1.00	1.30	0.234	No
644	42.26	2.49	0.38	2.11	0.28	0.212	1.18	0.180	1.00	1.30	0.234	No
645	42.32	2.50	0.38	2.11	0.28	0.212	1.18	0.180	1.00	1.30	0.234	No
646	42.40	2.50	0.39	2.11	0.27	0.211	1.18	0.180	1.00	1.30	0.233	No
647	42.46	2.50	0.39	2.12	0.27	0.211	1.18	0.179	1.00	1.30	0.233	No
648	42.53	2.51	0.39	2.12	0.27	0.211	1.18	0.179	1.00	1.30	0.233	No
649	42.59	2.51	0.39	2.12	0.27	0.211	1.18	0.179	1.00	1.30	0.233	No
650	42.68	2.52	0.40	2.12	0.27	0.210	1.18	0.179	1.00	1.30	0.232	No
651	42.73	2.52	0.40	2.13	0.27	0.210	1.18	0.178	1.00	1.30	0.232	No
652	42.78	2.53	0.40	2.13	0.27	0.210	1.18	0.178	1.00	1.30	0.232	No
653	42.86	2.53	0.40	2.13	0.27	0.210	1.18	0.178	1.00	1.30	0.231	No
654	42.92	2.54	0.40	2.13	0.27	0.209	1.18	0.178	1.00	1.30	0.231	No
655	42.99	2.54	0.41	2.14	0.27	0.209	1.18	0.178	1.00	1.30	0.231	No
656	43.06	2.55	0.41	2.14	0.27	0.209	1.18	0.177	1.00	1.30	0.231	No
657	43.12	2.55	0.41	2.14	0.27	0.209	1.18	0.177	1.00	1.30	0.230	No
658	43.18	2.55	0.41	2.14	0.27	0.209	1.18	0.177	1.00	1.30	0.230	No
659	43.25	2.56	0.41	2.15	0.27	0.208	1.18	0.177	1.00	1.30	0.230	No
660	43.32	2.56	0.42	2.15	0.27	0.208	1.18	0.177	1.00	1.30	0.230	No
661	43.38	2.57	0.42	2.15	0.27	0.208	1.18	0.176	1.00	1.30	0.229	No
662	43.44	2.57	0.42	2.15	0.27	0.208	1.18	0.176	1.00	1.30	0.229	No
663	43.51	2.58	0.42	2.15	0.27	0.207	1.18	0.176	1.00	1.30	0.229	No
664	43.59	2.58	0.42	2.16	0.27	0.207	1.18	0.176	1.00	1.30	0.229	No
665	43.64	2.59	0.43	2.16	0.27	0.207	1.18	0.176	1.00	1.30	0.228	No
666	43.71	2.59	0.43	2.16	0.27	0.207	1.18	0.175	1.00	1.30	0.228	No
667	43.78	2.59	0.43	2.16	0.26	0.206	1.18	0.175	1.00	1.30	0.228	No
668	43.85	2.60	0.43	2.17	0.26	0.206	1.18	0.175	1.00	1.30	0.228	No
669	43.90	2.60	0.43	2.17	0.26	0.206	1.18	0.175	1.00	1.30	0.227	No
670	43.98	2.61	0.44	2.17	0.26	0.206	1.18	0.175	1.00	1.30	0.227	No
671	44.03	2.61	0.44	2.17	0.26	0.205	1.18	0.174	1.00	1.30	0.227	No
672	44.10	2.61	0.44	2.18	0.26	0.205	1.18	0.174	1.00	1.30	0.227	No
673	44.18	2.62	0.44	2.18	0.26	0.205	1.18	0.174	1.00	1.30	0.226	No
674	44.23	2.62	0.44	2.18	0.26	0.205	1.18	0.174	1.00	1.30	0.226	No
675	44.30	2.63	0.45	2.18	0.26	0.205	1.18	0.174	1.00	1.30	0.226	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
676	44.37	2.63	0.45	2.18	0.26	0.204	1.18	0.174	1.00	1.30	0.226	No
677	44.44	2.64	0.45	2.19	0.26	0.204	1.18	0.173	1.00	1.30	0.225	No
678	44.50	2.64	0.45	2.19	0.26	0.204	1.18	0.173	1.00	1.30	0.225	No
679	44.58	2.65	0.45	2.19	0.26	0.204	1.18	0.173	1.00	1.30	0.225	No
680	44.64	2.65	0.46	2.19	0.26	0.203	1.18	0.173	1.00	1.30	0.225	No
681	44.70	2.65	0.46	2.20	0.26	0.203	1.18	0.173	1.00	1.30	0.224	No
682	44.75	2.66	0.46	2.20	0.26	0.203	1.18	0.172	1.00	1.30	0.224	No
683	44.84	2.66	0.46	2.20	0.26	0.203	1.18	0.172	1.00	1.30	0.224	No
684	44.90	2.67	0.46	2.20	0.26	0.203	1.18	0.172	1.00	1.30	0.224	No
685	44.95	2.67	0.47	2.20	0.26	0.202	1.18	0.172	1.00	1.30	0.223	No
686	45.03	2.68	0.47	2.21	0.26	0.202	1.18	0.172	1.00	1.30	0.223	No
687	45.09	2.68	0.47	2.21	0.26	0.202	1.18	0.172	1.00	1.30	0.223	No
688	45.15	2.68	0.47	2.21	0.26	0.202	1.18	0.171	1.00	1.30	0.223	No
689	45.23	2.69	0.48	2.21	0.26	0.202	1.18	0.171	1.00	1.30	0.222	No
690	45.30	2.69	0.48	2.22	0.25	0.201	1.18	0.171	1.00	1.30	0.222	No
691	45.36	2.70	0.48	2.22	0.25	0.201	1.18	0.171	1.00	1.30	0.222	No
692	45.43	2.70	0.48	2.22	0.25	0.201	1.18	0.171	1.00	1.30	0.222	No
693	45.49	2.71	0.48	2.22	0.25	0.201	1.18	0.170	1.00	1.30	0.222	No
694	45.56	2.71	0.49	2.23	0.25	0.201	1.18	0.170	1.00	1.30	0.221	No
695	45.61	2.71	0.49	2.23	0.25	0.200	1.18	0.170	1.00	1.30	0.221	No
696	45.69	2.72	0.49	2.23	0.25	0.200	1.18	0.170	1.00	1.30	0.221	No
697	45.74	2.72	0.49	2.23	0.25	0.200	1.18	0.170	1.00	1.30	0.221	No
698	45.82	2.73	0.49	2.23	0.25	0.200	1.18	0.170	1.00	1.30	0.220	No
699	45.88	2.73	0.50	2.24	0.25	0.200	1.18	0.169	1.00	1.30	0.220	No
700	45.94	2.74	0.50	2.24	0.25	0.199	1.18	0.169	1.00	1.30	0.220	No
701	46.00	2.74	0.50	2.24	0.25	0.199	1.18	0.169	1.00	1.30	0.220	No
702	46.09	2.75	0.50	2.24	0.25	0.199	1.18	0.169	1.00	1.30	0.220	No
703	46.14	2.75	0.50	2.25	0.25	0.199	1.18	0.169	1.00	1.30	0.219	No
704	46.20	2.75	0.51	2.25	0.25	0.199	1.18	0.169	1.00	1.30	0.219	No
705	46.26	2.76	0.51	2.25	0.25	0.198	1.18	0.168	1.00	1.30	0.219	No
706	46.35	2.76	0.51	2.25	0.25	0.198	1.18	0.168	1.00	1.30	0.219	No
707	46.40	2.77	0.51	2.26	0.25	0.198	1.18	0.168	1.00	1.30	0.219	No
708	46.46	2.77	0.51	2.26	0.25	0.198	1.18	0.168	1.00	1.30	0.218	No
709	46.55	2.78	0.52	2.26	0.25	0.198	1.18	0.168	1.00	1.30	0.218	No
710	46.60	2.78	0.52	2.26	0.25	0.197	1.18	0.168	1.00	1.30	0.218	No
711	46.68	2.79	0.52	2.27	0.25	0.197	1.18	0.167	1.00	1.30	0.218	No
712	46.74	2.79	0.52	2.27	0.25	0.197	1.18	0.167	1.00	1.30	0.217	No
713	46.80	2.79	0.52	2.27	0.25	0.197	1.18	0.167	1.00	1.30	0.217	No
714	46.85	2.80	0.53	2.27	0.25	0.197	1.18	0.167	1.00	1.30	0.217	No
715	46.92	2.80	0.53	2.27	0.25	0.197	1.18	0.167	1.00	1.30	0.217	No
716	46.99	2.81	0.53	2.28	0.25	0.196	1.18	0.167	1.00	1.30	0.217	No
717	47.05	2.81	0.53	2.28	0.24	0.196	1.18	0.167	1.00	1.30	0.217	No
718	47.12	2.82	0.53	2.28	0.24	0.196	1.18	0.166	1.00	1.30	0.216	No
719	47.18	2.82	0.54	2.28	0.24	0.196	1.18	0.166	1.00	1.30	0.216	No
720	47.26	2.83	0.54	2.29	0.24	0.196	1.18	0.166	1.00	1.30	0.216	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
721	47.33	2.83	0.54	2.29	0.24	0.195	1.18	0.166	1.00	1.30	0.216	No
722	47.38	2.83	0.54	2.29	0.24	0.195	1.18	0.166	1.00	1.30	0.216	No
723	47.45	2.84	0.54	2.29	0.24	0.195	1.18	0.166	1.00	1.30	0.215	No
724	47.52	2.84	0.55	2.30	0.24	0.195	1.18	0.165	1.00	1.30	0.215	No
725	47.58	2.85	0.55	2.30	0.24	0.195	1.18	0.165	1.00	1.30	0.215	No
726	47.66	2.85	0.55	2.30	0.24	0.195	1.18	0.165	1.00	1.30	0.215	No
727	47.71	2.85	0.55	2.30	0.24	0.194	1.18	0.165	1.00	1.30	0.215	No
728	47.77	2.86	0.55	2.30	0.24	0.194	1.18	0.165	1.00	1.30	0.214	No
729	47.85	2.86	0.56	2.31	0.24	0.194	1.18	0.165	1.00	1.30	0.214	No
730	47.91	2.87	0.56	2.31	0.24	0.194	1.18	0.165	1.00	1.30	0.214	No
731	47.97	2.87	0.56	2.31	0.24	0.194	1.18	0.165	1.00	1.30	0.214	No
732	48.04	2.87	0.56	2.31	0.24	0.194	1.18	0.164	1.00	1.30	0.214	No
733	48.11	2.88	0.57	2.31	0.24	0.193	1.18	0.164	1.00	1.30	0.214	No
734	48.18	2.88	0.57	2.32	0.24	0.193	1.18	0.164	1.00	1.30	0.213	No
735	48.25	2.89	0.57	2.32	0.24	0.193	1.18	0.164	1.00	1.30	0.213	No
736	48.31	2.89	0.57	2.32	0.24	0.193	1.18	0.164	1.00	1.30	0.213	No
737	48.38	2.90	0.57	2.32	0.24	0.193	1.18	0.164	1.00	1.30	0.213	No
738	48.44	2.90	0.58	2.33	0.24	0.193	1.18	0.164	1.00	1.30	0.213	No
739	48.50	2.90	0.58	2.33	0.24	0.192	1.18	0.163	1.00	1.30	0.212	No
740	48.58	2.91	0.58	2.33	0.24	0.192	1.18	0.163	1.00	1.30	0.212	No
741	48.63	2.91	0.58	2.33	0.24	0.192	1.18	0.163	1.00	1.30	0.212	No
742	48.71	2.92	0.58	2.34	0.24	0.192	1.18	0.163	1.00	1.30	0.212	No
743	48.76	2.92	0.59	2.34	0.24	0.192	1.18	0.163	1.00	1.30	0.212	No
744	48.82	2.93	0.59	2.34	0.24	0.192	1.18	0.163	1.00	1.30	0.212	No
745	48.89	2.93	0.59	2.34	0.24	0.192	1.18	0.163	1.00	1.30	0.211	No
746	48.96	2.94	0.59	2.34	0.24	0.191	1.18	0.162	1.00	1.30	0.211	No
747	49.02	2.94	0.59	2.35	0.23	0.191	1.18	0.162	1.00	1.30	0.211	No
748	49.08	2.94	0.60	2.35	0.23	0.191	1.18	0.162	1.00	1.30	0.211	No
749	49.17	2.95	0.60	2.35	0.23	0.191	1.18	0.162	1.00	1.30	0.211	No
750	49.23	2.95	0.60	2.35	0.23	0.191	1.18	0.162	1.00	1.30	0.211	No
751	49.29	2.96	0.60	2.36	0.23	0.191	1.18	0.162	1.00	1.30	0.210	No
752	49.35	2.96	0.60	2.36	0.23	0.190	1.18	0.162	1.00	1.30	0.210	No
753	49.42	2.97	0.61	2.36	0.23	0.190	1.18	0.162	1.00	1.30	0.210	No
754	49.48	2.97	0.61	2.36	0.23	0.190	1.18	0.161	1.00	1.30	0.210	No
755	49.55	2.97	0.61	2.36	0.23	0.190	1.18	0.161	1.00	1.30	0.210	No
756	49.62	2.98	0.61	2.37	0.23	0.190	1.18	0.161	1.00	1.30	0.210	No
757	49.69	2.98	0.61	2.37	0.23	0.190	1.18	0.161	1.00	1.30	0.209	No
758	49.75	2.99	0.62	2.37	0.23	0.190	1.18	0.161	1.00	1.30	0.209	No
759	49.82	2.99	0.62	2.37	0.23	0.189	1.18	0.161	1.00	1.30	0.209	No
760	49.87	2.99	0.62	2.37	0.23	0.189	1.18	0.161	1.00	1.30	0.209	No
761	49.94	3.00	0.62	2.37	0.23	0.189	1.18	0.161	1.00	1.30	0.209	No
762	50.00	3.00	0.62	2.37	0.23	0.189	1.18	0.161	1.00	1.30	2.000	No
763	50.07	3.00	0.63	2.37	0.23	0.189	1.18	0.160	1.00	1.30	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition

Abbreviations

Depth: Depth from free surface, at which CPT was performed (ft)
σ_v: Total overburden pressure at test point (tsf)
u_0: Water pressure at test point (tsf)
σ_v': Effective overburden pressure based on GWT during earthquake (tsf)
r_d: Nonlinear shear mass factor
CSR: Cyclic Stress Ratio
MSF: Magnitude Scaling Factor
CSR_{eq}: CSR adjusted for M=7.5
K_σ: Effective overburden stress factor
CSR^*: CSR fully adjusted

:: Cyclic Resistance Ratio (CRR) calculation data ::

Point ID	Depth (ft)	q_t (tsf)	σ_v' (tsf)	c	C_q	$q_{c,1}$ (tsf)	Δq_c	$q_{c,1,mod}$ (tsf)	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
1	0.08	23.02	0.00	0.58	1.70	33.15	10.68	43.83	4.000	No	No	2.00
2	0.14	30.71	0.01	0.55	1.70	51.12	7.59	58.71	4.000	No	No	2.00
3	0.20	41.34	0.01	0.53	1.70	72.35	5.22	77.57	4.000	No	No	2.00
4	0.26	51.63	0.01	0.53	1.70	87.38	3.67	91.05	4.000	No	No	2.00
5	0.33	64.48	0.02	0.54	1.70	103.63	2.16	105.79	4.000	No	No	2.00
6	0.41	81.15	0.02	0.54	1.70	137.87	0.83	138.70	4.000	No	No	2.00
7	0.48	95.80	0.03	0.54	1.70	172.41	0.14	172.55	4.000	No	No	2.00
8	0.53	104.40	0.03	0.55	1.70	178.31	0.01	178.32	4.000	No	No	2.00
9	0.61	104.73	0.03	0.53	1.70	181.71	0.44	182.15	4.000	No	No	2.00
10	0.68	102.12	0.04	0.52	1.70	174.13	1.09	175.22	4.000	No	No	2.00
11	0.74	96.32	0.04	0.51	1.70	164.99	1.84	166.83	4.000	No	No	2.00
12	0.81	90.42	0.05	0.51	1.70	152.13	2.34	154.48	4.000	No	No	2.00
13	0.86	83.92	0.05	0.51	1.70	144.07	2.55	146.62	4.000	No	No	2.00
14	0.94	77.63	0.05	0.52	1.70	131.84	2.45	134.29	4.000	No	No	2.00
15	1.00	71.68	0.06	0.53	1.70	120.05	2.32	122.37	4.000	No	No	2.00
16	1.05	66.49	0.06	0.53	1.70	113.71	2.28	115.99	4.000	No	No	2.00
17	1.13	62.05	0.06	0.54	1.70	105.35	2.34	107.69	4.000	No	No	2.00
18	1.19	56.95	0.07	0.54	1.70	97.44	2.46	99.90	4.000	No	No	2.00
19	1.26	51.78	0.07	0.55	1.70	87.69	2.51	90.20	4.000	No	No	2.00
20	1.33	47.04	0.08	0.56	1.70	79.00	2.43	81.42	4.000	No	No	2.00
21	1.38	42.60	0.08	0.57	1.70	73.27	2.18	75.45	4.000	No	No	2.00
22	1.45	38.53	0.08	0.59	1.70	65.06	1.90	66.96	4.000	No	No	2.00
23	1.52	34.49	0.09	0.61	1.70	58.24	1.65	59.90	4.000	No	No	2.00
24	1.59	31.19	0.09	0.63	1.70	52.67	1.35	54.02	4.000	No	No	2.00
25	1.65	28.36	0.09	0.65	1.70	48.18	1.08	49.26	4.000	No	No	2.00
26	1.72	26.18	0.10	0.66	1.70	43.84	0.94	44.78	4.000	No	No	2.00
27	1.77	24.45	0.10	0.67	1.70	41.51	0.88	42.39	4.000	No	No	2.00
28	1.84	23.23	0.10	0.68	1.70	39.36	0.82	40.17	4.000	No	No	2.00
29	1.91	22.26	0.11	0.69	1.70	37.64	0.70	38.34	4.000	No	No	2.00
30	1.98	21.47	0.11	0.70	1.70	36.57	0.50	37.06	4.000	No	No	2.00
31	2.05	20.95	0.11	0.72	1.70	35.33	0.00	35.33	4.000	No	No	2.00
32	2.11	20.65	0.12	0.74	1.70	35.00	0.00	35.00	4.000	No	No	2.00
33	2.19	20.68	0.12	0.76	1.70	35.00	0.00	35.00	4.000	No	No	2.00
34	2.25	20.95	0.12	0.76	1.70	35.48	0.00	35.48	4.000	No	No	2.00
35	2.32	21.50	0.13	0.74	1.70	36.41	0.00	36.41	4.000	No	No	2.00
36	2.39	21.53	0.13	0.72	1.70	37.81	0.00	37.81	4.000	No	No	2.00
37	2.44	21.99	0.13	0.73	1.70	35.63	0.00	35.63	4.000	No	No	2.00
38	2.49	22.08	0.14	0.71	1.70	38.73	0.00	38.73	4.000	No	No	2.00
39	2.57	22.44	0.14	0.70	1.70	38.27	0.01	38.28	4.000	No	No	2.00
40	2.64	21.93	0.14	0.70	1.70	37.49	0.34	37.82	4.000	No	No	2.00
41	2.71	21.28	0.15	0.70	1.70	36.09	0.61	36.71	4.000	No	No	2.00
42	2.78	20.68	0.15	0.70	1.70	35.00	0.84	35.85	4.000	No	No	2.00
43	2.83	20.19	0.15	0.70	1.70	34.39	1.03	35.42	4.000	No	No	2.00
44	2.90	19.86	0.16	0.70	1.70	33.61	1.07	34.68	4.000	No	No	2.00
45	2.96	19.64	0.16	0.70	1.70	33.30	1.03	34.33	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	σ_v' (tsf)	c	C_q	$q_{c,1}$ (tsf)	Δq_c	$q_{c,1,mod}$ (tsf)	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
46	3.03	19.58	0.16	0.70	1.70	33.30	0.85	34.16	4.000	No	No	2.00
47	3.09	19.58	0.17	0.71	1.70	33.30	0.70	34.00	4.000	No	No	2.00
48	3.16	19.58	0.17	0.71	1.70	33.30	0.56	33.86	4.000	No	No	2.00
49	3.23	19.61	0.17	0.71	1.70	33.30	0.38	33.69	4.000	No	No	2.00
50	3.29	19.67	0.18	0.72	1.70	33.46	0.17	33.63	4.000	No	No	2.00
51	3.36	19.85	0.18	0.72	1.70	33.61	0.00	33.61	4.000	No	No	2.00
52	3.42	20.10	0.18	0.73	1.70	34.24	0.00	34.24	4.000	No	No	2.00
53	3.49	20.49	0.19	0.73	1.70	34.70	0.00	34.70	4.000	No	No	2.00
54	3.55	20.92	0.19	0.73	1.70	35.63	0.00	35.63	4.000	No	No	2.00
55	3.62	21.22	0.19	0.73	1.70	36.41	0.00	36.41	4.000	No	No	2.00
56	3.68	21.28	0.20	0.73	1.70	36.24	0.00	36.24	4.000	No	No	2.00
57	3.74	21.07	0.20	0.73	1.70	35.94	0.00	35.94	4.000	No	No	2.00
58	3.81	20.80	0.20	0.73	1.70	35.33	0.00	35.33	4.000	No	No	2.00
59	3.87	20.56	0.21	0.73	1.70	34.85	0.00	34.85	4.000	No	No	2.00
60	3.94	20.37	0.21	0.74	1.70	34.70	0.00	34.70	4.000	No	No	2.00
61	4.00	20.13	0.21	0.75	1.70	34.39	0.00	34.39	4.000	No	No	2.00
62	4.07	19.80	0.22	0.76	1.70	33.61	0.00	33.61	4.000	No	No	2.00
63	4.15	19.31	0.22	0.78	1.70	33.00	0.00	33.00	4.000	No	No	2.00
64	4.22	18.89	0.22	0.78	1.70	31.91	0.00	31.91	4.000	No	No	2.00
65	4.27	18.43	0.23	0.79	1.70	31.45	0.00	31.45	4.000	No	No	2.00
66	4.35	18.01	0.23	0.80	1.70	30.67	0.00	30.67	4.000	No	No	2.00
67	4.41	17.67	0.23	0.80	1.70	29.75	0.00	29.75	4.000	No	No	2.00
68	4.46	17.49	0.23	0.80	1.70	29.75	0.00	29.75	4.000	No	No	2.00
69	4.53	17.52	0.24	0.81	1.70	29.75	0.00	29.75	4.000	No	No	2.00
70	4.61	17.55	0.24	0.82	1.70	29.90	0.00	29.90	4.000	No	No	2.00
71	4.69	17.61	0.25	0.83	1.70	29.90	0.00	29.90	4.000	No	No	2.00
72	4.74	17.67	0.25	0.83	1.70	30.06	0.00	30.06	4.000	No	No	2.00
73	4.82	17.76	0.25	0.83	1.70	30.21	0.00	30.21	4.000	No	No	2.00
74	4.87	17.86	0.25	0.83	1.70	30.36	0.00	30.36	4.000	No	No	2.00
75	4.95	17.95	0.26	0.82	1.70	30.52	0.00	30.52	4.000	No	No	2.00
76	4.99	18.07	0.26	0.82	1.70	30.67	0.00	30.67	4.000	No	No	2.00
77	5.07	18.10	0.26	0.81	1.70	30.99	0.00	30.99	4.000	No	No	2.00
78	5.13	18.10	0.27	0.81	1.70	30.67	0.00	30.67	4.000	No	No	2.00
79	5.21	18.04	0.27	0.81	1.70	30.67	0.00	30.67	4.000	No	No	2.00
80	5.27	18.04	0.27	0.80	1.70	30.67	0.00	30.67	4.000	No	No	2.00
81	5.32	18.13	0.28	0.80	1.70	30.67	0.00	30.67	4.000	No	No	2.00
82	5.38	18.35	0.28	0.80	1.70	31.14	0.00	31.14	4.000	No	No	2.00
83	5.46	18.65	0.28	0.79	1.70	31.76	0.00	31.76	4.000	No	No	2.00
84	5.53	18.89	0.29	0.79	1.70	32.22	0.00	32.22	4.000	No	No	2.00
85	5.59	19.05	0.29	0.80	1.70	32.39	0.00	32.39	4.000	No	No	2.00
86	5.67	19.14	0.29	0.79	1.70	32.54	0.00	32.54	4.000	No	No	2.00
87	5.71	19.32	0.30	0.79	1.70	32.69	0.00	32.69	4.000	No	No	2.00
88	5.81	19.65	0.30	0.78	1.70	33.30	0.00	33.30	4.000	No	No	2.00
89	5.84	20.29	0.30	0.76	1.70	34.24	0.00	34.24	4.000	No	No	2.00
90	5.91	21.23	0.31	0.75	1.70	35.94	0.00	35.94	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	σ_v' (tsf)	c	C_q	$q_{c,1}$ (tsf)	Δq_c	$q_{c,1,mod}$ (tsf)	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
91	5.98	22.39	0.31	0.74	1.70	38.11	0.00	38.11	4.000	No	No	2.00
92	6.04	24.00	0.31	0.73	1.70	40.12	0.00	40.12	4.000	No	No	2.00
93	6.12	25.79	0.32	0.71	1.70	44.15	0.00	44.15	4.000	No	No	2.00
94	6.19	27.76	0.32	0.70	1.70	47.24	0.00	47.24	4.000	No	No	2.00
95	6.26	29.43	0.32	0.69	1.70	50.20	0.00	50.20	4.000	No	No	2.00
96	6.32	30.92	0.33	0.70	1.70	52.67	0.00	52.67	4.000	No	No	2.00
97	6.39	32.05	0.33	0.70	1.70	54.84	0.00	54.84	4.000	No	No	2.00
98	6.44	32.99	0.33	0.70	1.70	55.93	0.00	55.93	4.000	No	No	2.00
99	6.51	33.78	0.34	0.71	1.70	57.48	0.00	57.48	4.000	No	No	2.00
100	6.57	34.57	0.34	0.71	1.70	58.87	0.00	58.87	4.000	No	No	2.00
101	6.65	35.12	0.34	0.70	1.70	59.96	0.00	59.96	4.000	No	No	2.00
102	6.70	35.45	0.35	0.70	1.70	60.27	0.00	60.27	4.000	No	No	2.00
103	6.77	35.69	0.35	0.71	1.70	60.57	0.00	60.57	4.000	No	No	2.00
104	6.83	36.06	0.35	0.71	1.70	61.20	0.00	61.20	4.000	No	No	2.00
105	6.90	36.33	0.36	0.71	1.70	62.12	0.00	62.12	4.000	No	No	2.00
106	6.97	36.39	0.36	0.70	1.70	61.97	0.00	61.97	4.000	No	No	2.00
107	7.04	36.18	0.36	0.70	1.70	61.51	0.00	61.51	4.000	No	No	2.00
108	7.10	35.57	0.37	0.70	1.70	61.03	0.00	61.03	4.000	No	No	2.00
109	7.17	34.87	0.37	0.71	1.70	58.87	0.00	58.87	4.000	No	No	2.00
110	7.24	33.96	0.37	0.72	1.70	57.94	0.00	57.94	4.000	No	No	2.00
111	7.31	33.35	0.38	0.73	1.70	56.39	0.00	56.39	4.000	No	No	2.00
112	7.35	32.81	0.38	0.74	1.70	55.78	0.00	55.78	4.000	No	No	2.00
113	7.43	32.65	0.38	0.74	1.70	55.15	0.00	55.15	4.000	No	No	2.00
114	7.50	32.96	0.39	0.74	1.70	55.61	0.00	55.61	4.000	No	No	2.00
115	7.57	33.69	0.39	0.73	1.70	57.32	0.00	57.32	4.000	No	No	2.00
116	7.61	34.79	0.39	0.73	1.70	58.87	0.00	58.87	4.000	No	No	2.00
117	7.68	36.12	0.40	0.73	1.70	61.20	0.00	61.20	4.000	No	No	2.00
118	7.76	37.67	0.40	0.73	1.70	64.14	0.00	64.14	4.000	No	No	2.00
119	7.83	39.07	0.40	0.72	1.70	66.78	0.00	66.78	4.000	No	No	2.00
120	7.88	40.25	0.41	0.72	1.70	68.32	0.00	68.32	4.000	No	No	2.00
121	7.95	41.22	0.41	0.71	1.70	70.18	0.00	70.18	4.000	No	No	2.00
122	8.03	42.07	0.41	0.70	1.70	71.72	0.00	71.72	4.000	No	No	2.00
123	8.08	42.77	0.42	0.70	1.70	72.66	0.00	72.66	4.000	No	No	2.00
124	8.14	43.35	0.42	0.70	1.70	73.75	0.00	73.75	4.000	No	No	2.00
125	8.21	43.96	0.42	0.70	1.70	74.66	0.00	74.66	4.000	No	No	2.00
126	8.29	44.44	0.43	0.70	1.70	75.75	0.00	75.75	4.000	No	No	2.00
127	8.34	44.96	0.43	0.69	1.70	76.21	0.00	76.21	4.000	No	No	2.00
128	8.40	45.46	0.43	0.69	1.70	77.30	0.00	77.30	4.000	No	No	2.00
129	8.47	45.94	0.44	0.68	1.70	78.30	0.00	78.30	4.000	No	No	2.00
130	8.54	46.34	0.44	0.68	1.70	78.69	0.00	78.69	4.000	No	No	2.00
131	8.60	46.72	0.44	0.68	1.70	79.32	0.00	79.32	4.000	No	No	2.00
132	8.67	47.21	0.45	0.68	1.70	80.24	0.00	80.24	4.000	No	No	2.00
133	8.74	47.63	0.45	0.68	1.70	81.18	0.00	81.18	4.000	No	No	2.00
134	8.80	48.00	0.45	0.68	1.70	81.48	0.00	81.48	4.000	No	No	2.00
135	8.86	48.21	0.46	0.68	1.70	82.11	0.00	82.11	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	σ_v' (tsf)	c	C_q	$q_{c,1}$ (tsf)	Δq_c	$q_{c,1,mod}$ (tsf)	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
136	8.93	48.42	0.46	0.68	1.70	82.26	0.00	82.26	4.000	No	No	2.00
137	9.01	48.54	0.47	0.67	1.70	82.57	0.00	82.57	4.000	No	No	2.00
138	9.09	48.60	0.47	0.67	1.70	82.72	0.00	82.72	4.000	No	No	2.00
139	9.13	48.60	0.47	0.67	1.70	82.57	0.00	82.57	4.000	No	No	2.00
140	9.20	48.51	0.48	0.67	1.70	82.57	0.00	82.57	4.000	No	No	2.00
141	9.28	48.45	0.48	0.67	1.69	81.82	0.00	81.82	4.000	No	No	2.00
142	9.35	48.39	0.48	0.67	1.68	81.37	0.00	81.37	4.000	No	No	2.00
143	9.40	48.39	0.49	0.66	1.67	80.90	0.00	80.90	4.000	No	No	2.00
144	9.46	48.42	0.49	0.66	1.66	80.33	0.00	80.33	4.000	No	No	2.00
145	9.53	48.51	0.49	0.66	1.65	79.98	0.00	79.98	4.000	No	No	2.00
146	9.60	48.66	0.50	0.66	1.64	80.00	0.00	80.00	4.000	No	No	2.00
147	9.65	48.91	0.50	0.67	1.65	80.39	0.00	80.39	4.000	No	No	2.00
148	9.73	49.09	0.50	0.68	1.65	81.24	0.00	81.24	4.000	No	No	2.00
149	9.79	49.30	0.51	0.69	1.66	81.46	0.00	81.46	4.000	No	No	2.00
150	9.85	49.52	0.51	0.69	1.65	81.76	0.00	81.76	4.000	No	No	2.00
151	9.92	49.88	0.52	0.69	1.64	81.81	0.00	81.81	4.000	No	No	2.00
152	9.99	50.31	0.52	0.69	1.63	82.04	0.00	82.04	4.000	No	No	2.00
153	10.05	50.61	0.52	0.68	1.62	82.14	0.00	82.14	4.000	No	No	2.00
154	10.13	51.10	0.53	0.68	1.60	81.38	0.00	81.38	4.000	No	No	2.00
155	10.18	51.80	0.53	0.67	1.59	82.22	0.00	82.22	4.000	No	No	2.00
156	10.25	52.98	0.53	0.66	1.57	83.22	0.00	83.22	4.000	No	No	2.00
157	10.32	54.20	0.54	0.66	1.56	84.85	0.00	84.85	4.000	No	No	2.00
158	10.38	55.69	0.54	0.66	1.56	86.17	0.00	86.17	4.000	No	No	2.00
159	10.45	57.36	0.54	0.65	1.55	88.66	0.00	88.66	4.000	No	No	2.00
160	10.52	58.93	0.55	0.65	1.54	91.29	0.00	91.29	4.000	No	No	2.00
161	10.57	60.18	0.55	0.65	1.53	92.24	0.00	92.24	4.000	No	No	2.00
162	10.64	60.91	0.55	0.65	1.52	93.08	0.00	93.08	4.000	No	No	2.00
163	10.71	61.55	0.56	0.65	1.51	93.13	0.00	93.13	4.000	No	No	2.00
164	10.78	62.03	0.56	0.64	1.50	93.27	0.00	93.27	4.000	No	No	2.00
165	10.83	62.49	0.56	0.64	1.49	93.45	0.00	93.45	4.000	No	No	2.00
166	10.90	62.88	0.57	0.64	1.49	93.48	0.00	93.48	4.000	No	No	2.00
167	10.96	63.25	0.57	0.63	1.48	93.45	0.00	93.45	4.000	No	No	2.00
168	11.03	63.55	0.58	0.63	1.47	93.51	0.00	93.51	4.000	No	No	2.00
169	11.10	63.74	0.58	0.63	1.46	93.27	0.00	93.27	4.000	No	No	2.00
170	11.16	63.74	0.58	0.63	1.45	92.72	0.00	92.72	4.000	No	No	2.00
171	11.22	63.62	0.59	0.62	1.44	91.64	0.00	91.64	4.000	No	No	2.00
172	11.29	63.49	0.59	0.61	1.43	90.45	0.00	90.45	4.000	No	No	2.00
173	11.36	62.67	0.59	0.59	1.41	89.19	0.38	89.56	4.000	No	No	2.00
174	11.43	63.07	0.60	0.57	1.38	84.66	1.51	86.16	4.000	No	No	2.00
175	11.51	64.07	0.60	0.54	1.36	87.56	2.98	90.54	4.000	No	No	2.00
176	11.55	67.14	0.60	0.51	1.33	88.33	4.98	93.31	4.000	No	No	2.00
177	11.63	71.57	0.61	0.48	1.31	91.92	6.76	98.68	4.000	No	No	2.00
178	11.71	78.04	0.61	0.47	1.29	100.49	7.69	108.17	4.000	No	No	2.00
179	11.76	88.31	0.62	0.46	1.28	110.14	7.45	117.58	4.000	No	No	2.00
180	11.83	102.07	0.62	0.45	1.27	128.60	7.32	135.92	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	σ_v' (tsf)	c	C_q	$q_{c,1}$ (tsf)	Δq_c	$q_{c,1,mod}$ (tsf)	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
181	11.90	118.84	0.63	0.44	1.26	149.81	7.81	157.62	4.000	No	No	2.00
182	11.95	138.55	0.63	0.44	1.26	170.92	6.69	177.61	4.000	No	No	2.00
183	12.02	152.70	0.63	0.45	1.26	202.15	4.56	206.71	4.000	No	No	2.00
184	12.08	175.43	0.64	0.50	1.29	207.90	1.77	209.68	4.000	No	No	2.00
185	12.15	165.68	0.64	0.49	1.28	260.70	1.55	262.25	4.000	No	No	2.00
186	12.22	145.51	0.65	0.49	1.27	166.92	2.83	169.74	4.000	No	No	2.00
187	12.28	111.49	0.65	0.47	1.26	127.40	5.41	132.81	4.000	No	No	2.00
188	12.34	94.94	0.65	0.45	1.24	127.17	7.32	134.49	4.000	No	No	2.00
189	12.41	88.56	0.66	0.46	1.25	101.50	7.88	109.39	4.000	No	No	2.00
190	12.47	79.41	0.66	0.45	1.24	101.51	9.08	110.59	4.000	No	No	2.00
191	12.54	76.37	0.67	0.47	1.24	92.90	8.48	101.38	4.000	No	No	2.00
192	12.60	72.09	0.67	0.47	1.24	89.75	8.16	97.91	4.000	No	No	2.00
193	12.67	66.62	0.67	0.48	1.24	86.03	7.57	93.60	4.000	No	No	2.00
194	12.76	62.58	0.68	0.50	1.25	73.07	7.06	80.13	4.000	No	No	2.00
195	12.80	58.78	0.68	0.50	1.25	75.14	6.73	81.87	4.000	No	No	2.00
196	12.88	58.48	0.68	0.52	1.25	72.31	6.00	78.31	4.000	No	No	2.00
197	12.95	57.48	0.69	0.53	1.25	72.07	5.14	77.21	4.000	No	No	2.00
198	13.01	56.99	0.69	0.54	1.26	71.77	4.35	76.12	4.000	No	No	2.00
199	13.07	56.23	0.70	0.54	1.26	70.72	4.05	74.78	4.000	No	No	2.00
200	13.13	55.32	0.70	0.55	1.25	69.27	3.95	73.22	4.000	No	No	2.00
201	13.19	54.91	0.70	0.55	1.25	68.18	3.76	71.95	4.000	No	No	2.00
202	13.27	54.52	0.71	0.55	1.25	68.79	3.70	72.49	4.000	No	No	2.00
203	13.33	54.70	0.71	0.55	1.25	67.34	3.78	71.11	4.000	No	No	2.00
204	13.41	53.47	0.72	0.55	1.24	68.08	4.09	72.18	4.000	No	No	2.00
205	13.45	54.23	0.72	0.56	1.24	63.76	4.03	67.79	4.000	No	No	2.00
206	13.52	55.11	0.72	0.55	1.23	69.44	3.93	73.37	4.000	No	No	2.00
207	13.60	57.51	0.73	0.55	1.23	70.85	3.56	74.41	4.000	No	No	2.00
208	13.66	58.57	0.73	0.55	1.23	71.95	3.37	75.32	4.000	No	No	2.00
209	13.74	59.21	0.73	0.55	1.22	72.83	3.22	76.05	4.000	No	No	2.00
210	13.80	59.49	0.74	0.56	1.22	72.71	3.09	75.80	4.000	No	No	2.00
211	13.85	59.40	0.74	0.56	1.22	72.47	3.03	75.50	4.000	No	No	2.00
212	13.93	59.33	0.75	0.56	1.22	72.03	2.97	75.00	4.000	No	No	2.00
213	13.99	59.21	0.75	0.56	1.21	71.95	2.97	74.93	4.000	No	No	2.00
214	14.04	59.18	0.75	0.56	1.21	71.50	2.95	74.45	4.000	No	No	2.00
215	14.13	59.06	0.76	0.56	1.21	71.35	2.99	74.34	4.000	No	No	2.00
216	14.19	58.67	0.76	0.55	1.20	70.78	3.45	74.22	4.000	No	No	2.00
217	14.26	58.00	0.76	0.54	1.19	68.99	4.46	73.45	4.000	No	No	2.00
218	14.31	56.75	0.77	0.51	1.18	67.38	6.99	74.37	4.000	No	No	2.00
219	14.39	55.93	0.77	0.49	1.17	64.44	10.03	74.47	4.000	No	No	2.00
220	14.44	55.26	0.77	0.47	1.16	64.12	12.90	77.03	4.000	No	No	2.00
221	14.52	55.50	0.78	0.46	1.15	63.53	13.66	77.19	4.000	No	No	2.00
222	14.59	56.08	0.78	0.46	1.15	64.28	13.81	78.09	4.000	No	No	2.00
223	14.65	57.17	0.79	0.46	1.14	65.39	14.49	79.87	4.000	No	No	2.00
224	14.71	60.46	0.79	0.45	1.14	66.59	15.07	81.66	4.000	No	No	2.00
225	14.78	65.68	0.79	0.44	1.14	74.70	14.06	88.76	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	σ_v' (tsf)	c	C_q	$q_{c,1}$ (tsf)	Δq_c	$q_{c,1,mod}$ (tsf)	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
226	14.84	72.45	0.80	0.45	1.14	82.70	11.35	94.04	4.000	No	No	2.00
227	14.90	80.84	0.80	0.47	1.14	89.68	8.20	97.88	4.000	No	No	2.00
228	14.97	90.77	0.81	0.48	1.14	103.66	5.86	109.52	4.000	No	No	2.00
229	15.04	97.24	0.81	0.48	1.14	116.72	4.93	121.65	4.000	No	No	2.00
230	15.11	100.97	0.81	0.49	1.14	111.54	4.76	116.30	4.000	No	No	2.00
231	15.16	100.67	0.82	0.48	1.13	115.63	5.19	120.82	4.000	No	No	2.00
232	15.24	103.98	0.82	0.48	1.13	114.79	5.17	119.97	4.000	No	No	2.00
233	15.29	107.57	0.83	0.48	1.13	121.82	4.70	126.52	4.000	No	No	2.00
234	15.36	112.92	0.83	0.49	1.13	127.25	3.80	131.06	4.000	No	No	2.00
235	15.43	116.50	0.83	0.49	1.12	132.28	3.81	136.09	4.000	No	No	2.00
236	15.51	119.87	0.84	0.48	1.12	132.89	4.30	137.19	4.000	No	No	2.00
237	15.56	121.84	0.84	0.47	1.11	136.94	5.08	142.02	4.000	No	No	2.00
238	15.64	124.85	0.85	0.47	1.11	137.30	4.98	142.28	4.000	No	No	2.00
239	15.69	127.13	0.85	0.47	1.11	141.69	4.88	146.58	4.000	No	No	2.00
240	15.77	129.26	0.85	0.47	1.11	143.54	4.75	148.30	4.000	No	No	2.00
241	15.82	129.80	0.86	0.47	1.10	143.46	4.82	148.28	4.000	No	No	2.00
242	15.89	129.07	0.86	0.47	1.10	142.47	4.93	147.40	4.000	No	No	2.00
243	15.95	127.19	0.87	0.47	1.10	140.17	5.11	145.28	4.000	No	No	2.00
244	16.02	122.85	0.87	0.46	1.09	136.17	5.53	141.70	4.000	No	No	2.00
245	16.09	117.68	0.87	0.47	1.09	127.25	5.81	133.06	4.000	No	No	2.00
246	16.15	112.70	0.88	0.46	1.09	122.27	6.31	128.58	4.000	No	No	2.00
247	16.22	109.06	0.88	0.46	1.09	118.98	6.64	125.63	4.000	No	No	2.00
248	16.27	106.69	0.89	0.46	1.08	114.49	7.05	121.54	4.000	No	No	2.00
249	16.34	105.32	0.89	0.46	1.08	113.74	7.15	120.89	4.000	No	No	2.00
250	16.41	104.71	0.89	0.46	1.08	113.78	7.23	121.01	4.000	No	No	2.00
251	16.50	103.04	0.90	0.46	1.08	111.63	7.62	119.25	4.000	No	No	2.00
252	16.57	100.70	0.90	0.46	1.07	107.47	8.02	115.49	4.000	No	No	2.00
253	16.60	98.15	0.91	0.47	1.08	105.74	6.78	112.52	4.000	No	No	2.00
254	16.70	96.54	0.91	0.49	1.08	103.29	5.21	108.50	4.000	No	No	2.00
255	16.76	95.24	0.92	0.51	1.08	102.54	3.65	106.19	4.000	No	No	2.00
256	16.82	93.41	0.92	0.51	1.07	101.45	3.64	105.09	4.000	No	No	2.00
257	16.89	92.56	0.92	0.52	1.07	97.28	3.14	100.42	4.000	No	No	2.00
258	16.95	84.57	0.93	0.52	1.07	99.24	3.48	102.72	4.000	No	No	2.00
259	17.01	73.27	0.93	0.52	1.07	75.30	5.13	80.42	4.000	No	No	2.00
260	17.09	60.58	0.94	0.50	1.06	60.32	8.78	69.10	4.000	No	No	2.00
261	17.16	53.87	0.94	0.49	1.06	57.86	11.30	69.16	4.000	No	No	2.00
262	17.22	51.65	0.94	0.50	1.06	53.30	10.80	64.10	4.000	No	No	2.00
263	17.28	50.43	0.95	0.52	1.06	53.01	8.84	61.84	4.000	No	No	2.00
264	17.35	49.95	0.95	0.53	1.06	53.93	7.23	61.17	4.000	No	No	2.00
265	17.41	48.09	0.95	0.54	1.06	51.65	7.15	58.79	4.000	No	No	2.00
266	17.48	45.94	0.96	0.55	1.06	46.96	7.61	54.57	4.000	No	No	2.00
267	17.54	44.42	0.96	0.55	1.05	46.87	7.43	54.31	4.000	No	No	2.00
268	17.60	44.33	0.96	0.56	1.05	46.66	6.05	52.71	4.000	No	No	2.00
269	17.66	44.15	0.97	0.59	1.05	46.58	4.13	50.71	4.000	No	No	2.00
270	17.75	43.99	0.97	0.62	1.05	46.24	2.57	48.81	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	σ_v' (tsf)	c	C_q	$q_{c,1}$ (tsf)	Δq_c	$q_{c,1,mod}$ (tsf)	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
271	17.78	43.63	0.98	0.63	1.05	46.16	1.76	47.92	4.000	No	No	2.00
272	17.87	43.42	0.98	0.64	1.05	45.28	1.43	46.71	4.000	No	No	2.00
273	17.93	43.30	0.98	0.65	1.05	45.41	1.09	46.50	4.000	No	No	2.00
274	18.00	43.60	0.99	0.66	1.05	45.51	0.74	46.25	4.000	No	No	2.00
275	18.06	43.99	0.99	0.67	1.05	46.00	0.39	46.38	4.000	No	No	2.00
276	18.13	44.45	0.99	0.67	1.04	46.39	0.09	46.48	4.000	No	No	2.00
277	18.19	44.93	1.00	0.68	1.04	46.68	0.00	46.68	4.000	No	No	2.00
278	18.25	45.51	1.00	0.69	1.04	47.27	0.00	47.27	4.000	No	No	2.00
279	18.32	46.27	1.00	0.70	1.04	47.93	0.00	47.93	4.000	No	No	2.00
280	18.38	47.03	1.01	0.71	1.04	48.77	0.00	48.77	4.000	No	No	2.00
281	18.44	47.67	1.01	0.70	1.03	49.31	0.00	49.31	4.000	No	No	2.00
282	18.51	47.85	1.01	0.70	1.03	49.57	0.00	49.57	4.000	No	No	2.00
283	18.57	47.31	1.02	0.70	1.03	48.97	0.00	48.97	4.000	No	No	2.00
284	18.64	46.76	1.02	0.70	1.03	47.27	0.00	47.27	4.000	No	No	2.00
285	18.73	46.27	1.03	0.70	1.02	47.47	0.00	47.47	4.000	No	No	2.00
286	18.80	46.12	1.03	0.71	1.02	47.09	0.00	47.09	4.000	No	No	2.00
287	18.86	45.57	1.03	0.71	1.02	46.42	0.00	46.42	4.000	No	No	2.00
288	18.92	44.96	1.04	0.71	1.01	45.49	0.00	45.49	4.000	No	No	2.00
289	18.99	44.48	1.04	0.71	1.01	44.92	0.00	44.92	4.000	No	No	2.00
290	19.05	44.39	1.04	0.71	1.01	44.64	0.00	44.64	4.000	No	No	2.00
291	19.12	44.66	1.05	0.71	1.01	44.89	0.00	44.89	4.000	No	No	2.00
292	19.18	45.21	1.05	0.70	1.01	45.44	0.00	45.44	4.000	No	No	2.00
293	19.23	45.79	1.05	0.69	1.00	45.98	0.00	45.98	4.000	No	No	2.00
294	19.29	46.30	1.06	0.68	1.00	46.34	0.00	46.34	4.000	No	No	2.00
295	19.38	46.76	1.06	0.68	1.00	46.65	0.00	46.65	4.000	No	No	2.00
296	19.45	47.33	1.06	0.68	1.00	46.99	0.00	46.99	4.000	No	No	2.00
297	19.51	47.79	1.07	0.67	0.99	47.71	0.00	47.71	4.000	No	No	2.00
298	19.57	48.22	1.07	0.67	0.99	47.71	0.00	47.71	4.000	No	No	2.00
299	19.64	48.40	1.08	0.67	0.99	47.96	0.00	47.96	4.000	No	No	2.00
300	19.70	48.70	1.08	0.68	0.99	47.94	0.00	47.94	4.000	No	No	2.00
301	19.76	49.10	1.08	0.67	0.98	48.29	0.00	48.29	4.000	No	No	2.00
302	19.82	49.86	1.09	0.66	0.98	48.83	0.24	49.07	4.000	No	No	2.00
303	19.89	51.16	1.09	0.64	0.98	49.92	0.84	50.75	4.000	No	No	2.00
304	19.95	52.10	1.09	0.62	0.98	51.89	1.47	53.36	4.000	No	No	2.00
305	20.04	54.84	1.10	0.62	0.98	51.31	1.78	53.10	4.000	No	No	2.00
306	20.09	58.18	1.10	0.60	0.98	57.68	1.90	59.58	4.000	No	No	2.00
307	20.15	63.28	1.10	0.60	0.98	61.40	1.73	63.13	4.000	No	No	2.00
308	20.22	67.08	1.11	0.59	0.97	66.00	1.73	67.72	4.000	No	No	2.00
309	20.28	70.45	1.11	0.58	0.97	68.45	1.74	70.19	4.000	No	No	2.00
310	20.34	72.97	1.11	0.58	0.97	70.89	1.72	72.61	4.000	No	No	2.00
311	20.41	75.82	1.12	0.58	0.97	72.96	1.54	74.50	4.000	No	No	2.00
312	20.48	78.13	1.12	0.58	0.97	76.33	1.23	77.56	4.000	No	No	2.00
313	20.57	79.84	1.13	0.59	0.96	77.05	0.96	78.01	4.000	No	No	2.00
314	20.63	80.84	1.13	0.59	0.96	77.33	0.75	78.09	4.000	No	No	2.00
315	20.69	82.23	1.13	0.60	0.96	78.64	0.51	79.15	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	σ_v' (tsf)	c	C_q	$q_{c,1}$ (tsf)	Δq_c	$q_{c,1,mod}$ (tsf)	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
316	20.75	83.48	1.14	0.60	0.96	80.55	0.24	80.79	4.000	No	No	2.00
317	20.81	83.69	1.14	0.61	0.95	80.39	0.09	80.47	4.000	No	No	2.00
318	20.87	82.05	1.15	0.61	0.95	78.74	0.08	78.82	4.000	No	No	2.00
319	20.96	79.23	1.15	0.61	0.95	75.34	0.33	75.66	4.000	No	No	2.00
320	21.02	75.43	1.15	0.60	0.95	71.89	0.82	72.70	4.000	No	No	2.00
321	21.08	71.51	1.16	0.59	0.95	67.55	1.32	68.87	4.000	No	No	2.00
322	21.15	68.27	1.16	0.60	0.95	63.89	1.54	65.43	4.000	No	No	2.00
323	21.21	65.99	1.16	0.60	0.94	62.28	1.46	63.74	4.000	No	No	2.00
324	21.27	64.31	1.17	0.60	0.94	60.68	1.44	62.12	4.000	No	No	2.00
325	21.33	62.46	1.17	0.60	0.94	58.77	1.62	60.39	4.000	No	No	2.00
326	21.40	60.45	1.18	0.60	0.94	56.70	1.83	58.53	4.000	No	No	2.00
327	21.46	58.87	1.18	0.60	0.94	54.71	2.03	56.74	4.000	No	No	2.00
328	21.53	57.87	1.18	0.60	0.93	54.01	2.13	56.15	4.000	No	No	2.00
329	21.59	57.52	1.19	0.61	0.93	53.53	1.75	55.28	4.000	No	No	2.00
330	21.66	57.38	1.19	0.62	0.93	53.32	1.38	54.70	4.000	No	No	2.00
331	21.75	57.35	1.20	0.63	0.93	53.15	1.22	54.37	4.000	No	No	2.00
332	21.81	58.01	1.20	0.62	0.93	53.05	1.49	54.54	4.000	No	No	2.00
333	21.87	59.21	1.20	0.61	0.93	54.89	1.76	56.65	4.000	No	No	2.00
334	21.93	62.55	1.21	0.60	0.92	56.38	2.12	58.51	4.000	No	No	2.00
335	22.01	67.32	1.21	0.57	0.93	62.35	2.76	65.11	4.000	No	No	2.00
336	22.07	72.79	1.21	0.55	0.93	68.27	3.41	71.68	4.000	No	No	2.00
337	22.13	75.98	1.22	0.54	0.93	71.68	3.52	75.20	4.000	No	No	2.00
338	22.20	77.26	1.22	0.55	0.92	71.08	3.24	74.32	4.000	No	No	2.00
339	22.25	76.77	1.22	0.56	0.92	71.42	2.88	74.30	4.000	No	No	2.00
340	22.31	76.98	1.23	0.56	0.92	69.83	2.75	72.58	4.000	No	No	2.00
341	22.40	77.83	1.23	0.56	0.92	71.19	2.78	73.97	4.000	No	No	2.00
342	22.47	75.92	1.24	0.55	0.92	73.44	3.15	76.59	4.000	No	No	2.00
343	22.53	71.42	1.24	0.55	0.92	64.27	3.80	68.07	4.000	No	No	2.00
344	22.59	66.11	1.24	0.55	0.91	58.58	4.53	63.11	4.000	No	No	2.00
345	22.65	64.07	1.25	0.55	0.91	58.51	4.67	63.18	4.000	No	No	2.00
346	22.72	64.56	1.25	0.56	0.91	58.29	3.93	62.23	4.000	No	No	2.00
347	22.78	65.23	1.26	0.57	0.91	59.42	3.14	62.56	4.000	No	No	2.00
348	22.84	66.08	1.26	0.58	0.90	59.71	2.52	62.24	4.000	No	No	2.00
349	22.90	66.32	1.26	0.59	0.90	60.06	2.26	62.32	4.000	No	No	2.00
350	23.00	65.99	1.27	0.60	0.90	59.50	1.91	61.41	4.000	No	No	2.00
351	23.06	64.84	1.27	0.61	0.89	58.22	1.51	59.73	4.000	No	No	2.00
352	23.10	63.04	1.27	0.62	0.89	56.33	1.26	57.58	4.000	No	No	2.00
353	23.17	60.89	1.28	0.63	0.89	54.10	1.11	55.21	4.000	No	No	2.00
354	23.24	58.76	1.28	0.63	0.89	51.91	0.96	52.86	4.000	No	No	2.00
355	23.30	56.48	1.28	0.64	0.88	50.17	1.04	51.21	4.000	No	No	2.00
356	23.39	55.20	1.29	0.64	0.88	47.61	1.17	48.78	4.000	No	No	2.00
357	23.45	54.48	1.29	0.63	0.88	48.22	1.34	49.56	4.000	No	No	2.00
358	23.51	54.63	1.30	0.63	0.88	47.99	1.41	49.40	4.000	No	No	2.00
359	23.58	54.60	1.30	0.63	0.88	47.86	1.61	49.47	4.000	No	No	2.00
360	23.64	54.84	1.30	0.62	0.88	48.01	1.90	49.92	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	σ_v' (tsf)	c	C_q	$q_{c,1}$ (tsf)	Δq_c	$q_{c,1,mod}$ (tsf)	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
361	23.71	55.38	1.31	0.61	0.88	48.56	2.18	50.74	4.000	No	No	2.00
362	23.77	56.20	1.31	0.61	0.88	49.26	2.37	51.63	4.000	No	No	2.00
363	23.83	57.02	1.31	0.60	0.88	50.11	2.47	52.57	4.000	No	No	2.00
364	23.89	57.94	1.32	0.60	0.88	50.61	2.54	53.15	4.000	No	No	2.00
365	23.98	58.88	1.32	0.60	0.87	51.51	2.64	54.15	4.000	No	No	2.00
366	24.03	60.18	1.33	0.59	0.87	52.45	2.81	55.26	4.000	No	No	2.00
367	24.10	61.85	1.33	0.59	0.87	53.95	2.96	56.92	4.000	No	No	2.00
368	24.16	63.98	1.33	0.58	0.87	55.87	3.04	58.91	4.000	No	No	2.00
369	24.22	66.23	1.34	0.58	0.87	57.99	3.04	61.03	4.000	No	No	2.00
370	24.29	68.38	1.34	0.57	0.87	59.79	3.09	62.88	4.000	No	No	2.00
371	24.34	70.51	1.34	0.56	0.87	61.50	3.44	64.94	4.000	No	No	2.00
372	24.41	73.06	1.35	0.55	0.88	63.65	3.90	67.55	4.000	No	No	2.00
373	24.48	77.28	1.35	0.54	0.88	66.69	4.34	71.03	4.000	No	No	2.00
374	24.56	82.69	1.36	0.53	0.88	72.79	4.35	77.14	4.000	No	No	2.00
375	24.62	89.71	1.36	0.52	0.88	77.96	4.13	82.09	4.000	No	No	2.00
376	24.69	97.21	1.36	0.53	0.87	84.98	3.52	88.50	4.000	No	No	2.00
377	24.75	105.72	1.37	0.53	0.87	92.09	2.80	94.89	4.000	No	No	2.00
378	24.81	115.68	1.37	0.52	0.87	100.03	3.00	103.03	4.000	No	No	2.00
379	24.89	126.31	1.38	0.50	0.88	111.49	3.88	115.37	4.000	No	No	2.00
380	24.96	136.52	1.38	0.48	0.88	121.00	4.61	125.61	4.000	No	No	2.00
381	25.02	142.65	1.39	0.47	0.88	127.66	4.53	132.19	4.000	No	No	2.00
382	25.08	148.55	1.39	0.49	0.88	127.45	3.82	131.28	4.000	No	No	2.00
383	25.13	153.71	1.39	0.49	0.87	135.59	3.24	138.83	4.000	No	No	2.00
384	25.20	159.85	1.40	0.49	0.87	140.13	3.05	143.18	4.000	No	No	2.00
385	25.27	164.31	1.40	0.49	0.87	143.01	3.28	146.28	4.000	No	No	2.00
386	25.33	165.83	1.40	0.48	0.87	147.05	3.45	150.50	4.000	No	No	2.00
387	25.39	165.65	1.41	0.49	0.87	143.59	3.07	146.65	4.000	No	No	2.00
388	25.48	164.43	1.41	0.50	0.86	141.08	2.28	143.36	4.000	No	No	2.00
389	25.55	164.71	1.42	0.52	0.86	141.53	1.51	143.04	4.000	No	No	2.00
390	25.60	163.13	1.42	0.52	0.86	142.14	1.33	143.47	4.000	No	No	2.00
391	25.66	157.05	1.42	0.52	0.86	135.74	1.59	137.33	4.000	No	No	2.00
392	25.73	148.94	1.43	0.51	0.86	125.94	2.65	128.59	4.000	No	No	2.00
393	25.80	140.28	1.43	0.49	0.86	122.07	3.72	125.79	4.000	No	No	2.00
394	25.86	131.35	1.44	0.47	0.87	114.89	5.54	120.43	4.000	No	No	2.00
395	25.95	122.94	1.44	0.46	0.87	103.91	6.94	110.85	4.000	No	No	2.00
396	25.99	115.07	1.44	0.45	0.87	101.15	8.15	109.30	4.000	No	No	2.00
397	26.08	110.21	1.45	0.45	0.87	94.42	8.26	102.68	4.000	No	No	2.00
398	26.14	107.48	1.45	0.46	0.86	90.88	7.93	98.81	4.000	No	No	2.00
399	26.21	104.41	1.46	0.46	0.86	93.31	7.76	101.07	4.000	No	No	2.00
400	26.27	102.53	1.46	0.47	0.86	85.63	7.35	92.98	4.000	No	No	2.00
401	26.34	98.94	1.47	0.47	0.86	85.30	7.15	92.45	4.000	No	No	2.00
402	26.39	101.04	1.47	0.48	0.85	83.07	6.49	89.55	4.000	No	No	2.00
403	26.45	104.38	1.47	0.49	0.85	90.32	5.78	96.11	4.000	No	No	2.00
404	26.52	109.94	1.48	0.50	0.85	92.89	4.77	97.66	4.000	No	No	2.00
405	26.58	113.65	1.48	0.51	0.84	96.20	3.84	100.03	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	σ_v' (tsf)	c	C_q	$q_{c,1}$ (tsf)	Δq_c	$q_{c,1,mod}$ (tsf)	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
406	26.64	118.08	1.48	0.52	0.84	98.30	3.04	101.34	4.000	No	No	2.00
407	26.74	121.39	1.49	0.52	0.84	102.77	2.63	105.40	4.000	No	No	2.00
408	26.80	123.94	1.49	0.52	0.83	103.47	2.48	105.95	4.000	No	No	2.00
409	26.87	124.88	1.50	0.53	0.83	103.95	2.39	106.35	4.000	No	No	2.00
410	26.93	126.25	1.50	0.53	0.83	104.62	2.40	107.02	4.000	No	No	2.00
411	26.99	128.17	1.51	0.52	0.83	106.64	2.58	109.22	4.000	No	No	2.00
412	27.05	131.66	1.51	0.51	0.83	108.88	2.94	111.82	4.000	No	No	2.00
413	27.12	136.95	1.51	0.50	0.84	114.01	3.53	117.54	4.000	No	No	2.00
414	27.18	145.30	1.52	0.48	0.84	121.15	4.39	125.54	4.000	No	No	2.00
415	27.24	155.57	1.52	0.47	0.84	131.44	4.88	136.32	4.000	No	No	2.00
416	27.30	162.64	1.53	0.45	0.85	141.87	5.90	147.77	4.000	No	No	2.00
417	27.36	166.14	1.53	0.45	0.85	139.98	5.71	145.70	4.000	No	No	2.00
418	27.45	165.16	1.54	0.45	0.85	140.45	5.56	146.01	4.000	No	No	2.00
419	27.51	162.13	1.54	0.46	0.84	137.93	4.68	142.61	4.000	No	No	2.00
420	27.58	156.60	1.54	0.47	0.84	130.86	4.74	135.60	4.000	No	No	2.00
421	27.64	153.47	1.55	0.47	0.84	125.24	5.00	130.24	4.000	No	No	2.00
422	27.70	151.01	1.55	0.45	0.84	130.10	5.81	135.91	4.000	No	No	2.00
423	27.77	152.28	1.55	0.45	0.84	125.06	6.33	131.39	4.000	No	No	2.00
424	27.83	152.59	1.56	0.45	0.84	129.06	6.52	135.57	4.000	No	No	2.00
425	27.89	157.78	1.56	0.47	0.83	129.75	4.79	134.54	4.000	No	No	2.00
426	28.01	161.00	1.57	0.49	0.83	135.56	3.28	138.84	4.000	No	No	2.00
427	28.05	161.61	1.57	0.51	0.82	133.14	2.09	135.23	4.000	No	No	2.00
428	28.11	158.79	1.58	0.52	0.81	128.19	2.00	130.20	4.000	No	No	2.00
429	28.16	156.39	1.58	0.52	0.81	126.50	1.84	128.33	4.000	No	No	2.00
430	28.23	155.08	1.58	0.53	0.81	126.02	1.60	127.62	4.000	No	No	2.00
431	28.29	145.18	1.59	0.53	0.81	123.91	1.55	125.46	4.000	No	No	2.00
432	28.35	141.08	1.59	0.55	0.80	100.79	1.40	102.19	4.000	No	No	2.00
433	28.42	137.34	1.59	0.54	0.80	114.93	1.27	116.20	4.000	No	No	2.00
434	28.48	141.08	1.60	0.55	0.80	113.57	1.09	114.66	4.000	No	No	2.00
435	28.57	138.80	1.60	0.55	0.80	109.31	1.17	110.49	4.000	No	No	2.00
436	28.64	136.86	1.61	0.54	0.80	108.91	1.40	110.31	4.000	No	No	2.00
437	28.70	137.52	1.61	0.53	0.80	109.15	1.88	111.03	4.000	No	No	2.00
438	28.76	139.41	1.62	0.51	0.81	112.23	2.75	114.98	4.000	No	No	2.00
439	28.82	143.08	1.62	0.49	0.81	115.37	3.60	118.97	4.000	No	No	2.00
440	28.88	147.28	1.62	0.48	0.82	120.28	4.40	124.68	4.000	No	No	2.00
441	28.94	152.05	1.63	0.47	0.82	124.17	4.83	129.00	4.000	No	No	2.00
442	29.03	156.15	1.63	0.46	0.82	128.07	4.95	133.03	4.000	No	No	2.00
443	29.09	157.79	1.64	0.46	0.82	130.97	5.38	136.35	4.000	No	No	2.00
444	29.15	158.70	1.64	0.43	0.83	129.67	7.42	137.09	4.000	No	No	2.00
445	29.21	159.73	1.64	0.41	0.84	133.16	10.03	143.19	4.000	No	No	2.00
446	29.28	159.15	1.65	0.39	0.84	137.14	12.28	149.42	4.000	No	No	2.00
447	29.34	161.64	1.65	0.39	0.84	130.27	12.46	142.72	4.000	No	No	2.00
448	29.41	171.63	1.66	0.39	0.84	139.99	11.67	151.66	4.000	No	No	2.00
449	29.49	179.62	1.66	0.38	0.84	162.45	11.80	174.25	4.000	No	No	2.00
450	29.55	180.35	1.67	0.38	0.84	150.88	13.01	163.88	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	σ_v' (tsf)	c	C_q	$q_{c,1}$ (tsf)	Δq_c	$q_{c,1,mod}$ (tsf)	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
451	29.61	175.28	1.67	0.37	0.84	142.58	14.34	156.92	4.000	No	No	2.00
452	29.67	177.37	1.67	0.37	0.84	149.67	13.55	163.23	4.000	No	No	2.00
453	29.73	183.69	1.68	0.38	0.84	155.20	11.56	166.76	4.000	No	No	2.00
454	29.80	187.49	1.68	0.40	0.83	156.45	10.02	166.47	4.000	No	No	2.00
455	29.86	186.06	1.69	0.40	0.83	156.93	9.53	166.45	4.000	No	No	2.00
456	29.93	184.36	1.69	0.40	0.83	149.76	9.30	159.06	4.000	No	No	2.00
457	29.99	180.99	1.70	0.41	0.83	150.97	8.98	159.94	4.000	No	No	2.00
458	30.07	186.21	1.70	0.42	0.82	146.63	7.80	154.43	0.453	No	No	1.50
459	30.12	193.84	1.70	0.43	0.81	160.22	6.24	166.47	0.553	No	No	1.84
460	30.19	203.50	1.71	0.45	0.81	166.11	4.81	170.92	0.590	No	No	1.96
461	30.25	206.02	1.71	0.46	0.80	166.52	3.83	170.35	0.579	No	No	1.93
462	30.33	205.78	1.72	0.48	0.79	162.31	3.13	165.43	0.530	No	No	1.77
463	30.40	204.74	1.72	0.49	0.79	161.74	2.50	164.24	0.517	No	No	1.73
464	30.46	204.65	1.73	0.50	0.78	160.56	2.02	162.58	0.501	No	No	1.67
465	30.52	202.31	1.73	0.50	0.78	159.45	1.86	161.32	0.490	No	No	1.64
466	30.59	197.69	1.73	0.50	0.78	154.48	1.91	156.38	0.451	No	No	1.51
467	30.65	189.49	1.74	0.50	0.78	149.07	2.16	151.23	0.415	No	No	1.39
468	30.73	179.41	1.74	0.50	0.78	140.12	2.56	142.69	0.361	No	No	1.21
469	30.78	168.87	1.75	0.49	0.78	131.34	3.19	134.53	0.316	No	No	1.06
470	30.84	159.70	1.75	0.48	0.78	125.05	3.78	128.83	0.288	No	No	0.97
471	30.91	152.16	1.75	0.47	0.79	119.54	4.51	124.05	0.266	No	No	0.90
472	30.99	146.64	1.76	0.47	0.79	114.46	5.22	119.68	0.248	No	No	0.84
473	31.05	143.39	1.76	0.46	0.79	113.01	6.00	119.02	0.245	No	No	0.83
474	31.11	144.21	1.77	0.46	0.79	112.44	6.10	118.54	0.243	No	No	0.82
475	31.20	150.40	1.77	0.46	0.79	116.58	5.83	122.41	0.260	No	No	0.88
476	31.26	164.41	1.78	0.45	0.79	127.56	5.58	133.14	0.311	No	No	1.06
477	31.31	185.46	1.78	0.44	0.79	146.27	5.66	151.93	0.429	No	No	1.46
478	31.38	212.98	1.78	0.44	0.80	167.74	5.40	173.14	0.617	No	No	2.00
479	31.46	228.26	1.79	0.43	0.80	194.58	5.21	199.79	0.976	No	No	2.00
480	31.52	236.97	1.79	0.44	0.79	182.76	5.08	187.84	0.792	No	No	2.00
481	31.57	232.48	1.80	0.42	0.80	189.48	5.99	195.47	0.914	No	No	2.00
482	31.64	227.83	1.80	0.41	0.80	185.24	7.09	192.33	0.877	No	No	2.00
483	31.69	212.70	1.80	0.40	0.81	174.77	8.83	183.59	0.766	No	No	2.00
484	31.79	201.25	1.81	0.39	0.81	155.27	10.49	165.76	0.565	No	No	1.94
485	31.85	194.30	1.81	0.38	0.82	160.19	12.41	172.60	0.649	No	No	2.00
486	31.91	192.60	1.82	0.37	0.82	160.07	13.78	173.85	0.671	No	No	2.00
487	31.97	194.72	1.82	0.37	0.82	152.72	14.16	166.88	0.592	No	No	2.00
488	32.03	198.36	1.83	0.36	0.82	165.97	13.75	179.73	0.748	No	No	2.00
489	32.09	203.92	1.83	0.37	0.82	168.36	12.79	181.15	0.761	No	No	2.00
490	32.18	203.19	1.84	0.37	0.81	165.23	12.16	177.39	0.707	No	No	2.00
491	32.23	201.92	1.84	0.38	0.81	162.51	11.82	174.34	0.667	No	No	2.00
492	32.30	199.40	1.84	0.38	0.81	164.20	12.06	176.26	0.692	No	No	2.00
493	32.36	196.39	1.85	0.37	0.81	158.70	12.53	171.23	0.634	No	No	2.00
494	32.42	193.85	1.85	0.38	0.81	154.89	12.41	167.30	0.590	No	No	2.00
495	32.48	193.28	1.86	0.38	0.81	156.90	11.28	168.18	0.595	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	σ_v' (tsf)	c	C_q	$q_{c,1}$ (tsf)	Δq_c	$q_{c,1,mod}$ (tsf)	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
496	32.56	195.74	1.86	0.39	0.80	155.34	10.30	165.63	0.564	No	No	1.97
497	32.63	198.06	1.87	0.40	0.80	158.80	9.75	168.55	0.592	No	No	2.00
498	32.69	202.74	1.87	0.39	0.80	161.21	9.82	171.03	0.619	No	No	2.00
499	32.75	211.34	1.87	0.40	0.80	165.59	9.09	174.68	0.657	No	No	2.00
500	32.81	213.22	1.88	0.40	0.80	178.64	8.55	187.19	0.816	No	No	2.00
501	32.90	211.97	1.88	0.41	0.79	163.76	7.98	171.74	0.618	No	No	2.00
502	32.94	205.44	1.89	0.41	0.79	160.73	7.65	168.38	0.581	No	No	2.00
503	33.02	202.53	1.89	0.42	0.78	160.59	7.10	167.69	0.571	No	No	2.00
504	33.09	199.58	1.90	0.43	0.78	154.61	6.43	161.04	0.506	No	No	1.79
505	33.15	196.33	1.90	0.44	0.77	151.20	5.88	157.08	0.471	No	No	1.67
506	33.21	197.00	1.90	0.44	0.77	150.35	5.40	155.75	0.459	No	No	1.63
507	33.27	203.04	1.91	0.45	0.77	154.05	4.97	159.02	0.483	No	No	1.72
508	33.36	214.10	1.91	0.45	0.77	163.86	4.80	168.66	0.569	No	No	2.00
509	33.43	228.77	1.92	0.44	0.77	176.16	5.20	181.36	0.711	No	No	2.00
510	33.48	243.75	1.92	0.41	0.78	191.49	6.86	198.34	0.975	No	No	2.00
511	33.54	256.66	1.92	0.39	0.79	204.53	8.46	212.99	1.292	No	No	2.00
512	33.60	266.10	1.93	0.40	0.79	210.59	7.77	218.36	1.407	No	No	2.00
513	33.69	268.17	1.93	0.41	0.78	213.34	6.49	219.82	1.415	No	No	2.00
514	33.75	267.17	1.94	0.42	0.77	204.73	5.45	210.19	1.177	No	No	2.00
515	33.81	269.23	1.94	0.42	0.78	204.89	5.93	210.82	1.198	No	No	2.00
516	33.88	274.12	1.95	0.41	0.78	217.25	6.17	223.42	1.500	No	No	2.00
517	33.93	284.72	1.95	0.41	0.78	217.44	6.34	223.78	1.514	No	No	2.00
518	34.00	242.74	1.95	0.37	0.80	235.87	10.02	245.89	2.405	No	No	2.00
519	34.06	221.36	1.96	0.38	0.79	121.06	14.13	135.19	0.333	No	No	1.20
520	34.12	187.67	1.96	0.33	0.82	175.80	20.51	196.31	1.095	No	No	2.00
521	34.20	204.80	1.97	0.34	0.81	158.04	19.55	177.58	0.756	No	No	2.00
522	34.26	215.04	1.97	0.34	0.81	165.10	17.22	182.31	0.814	No	No	2.00
523	34.33	228.80	1.98	0.36	0.80	196.63	13.07	209.70	1.301	No	No	2.00
524	34.38	218.86	1.98	0.37	0.79	186.76	11.09	197.85	1.021	No	No	2.00
525	34.45	187.91	1.99	0.38	0.79	137.53	12.83	150.36	0.437	No	No	1.59
526	34.52	156.29	1.99	0.37	0.79	121.29	16.80	138.09	0.354	No	No	1.29
527	34.60	143.53	1.99	0.37	0.79	111.96	18.31	130.27	0.307	No	No	1.12
528	34.65	136.15	2.00	0.38	0.78	107.05	15.63	122.68	0.266	No	No	0.97
529	34.73	129.71	2.00	0.41	0.77	100.90	12.52	113.42	0.225	No	No	0.82
530	34.78	119.54	2.01	0.42	0.77	93.34	12.01	105.34	0.195	No	No	0.72
531	34.85	109.06	2.01	0.41	0.77	81.21	14.19	95.41	0.163	No	No	0.60
532	34.91	100.71	2.01	0.40	0.77	76.63	17.27	93.90	0.157	No	No	0.58
533	34.97	97.33	2.02	0.40	0.77	74.58	17.69	92.27	0.152	No	No	0.56
534	35.04	94.02	2.02	0.41	0.77	73.72	17.52	91.24	0.150	No	No	0.55
535	35.12	90.25	2.03	0.42	0.76	68.19	16.90	85.09	0.135	No	No	0.50
536	35.18	86.33	2.03	0.42	0.76	64.87	16.65	81.51	0.126	No	No	0.47
537	35.25	84.26	2.04	0.43	0.76	63.65	16.46	80.11	0.123	No	No	0.46
538	35.30	82.80	2.04	0.43	0.75	62.60	15.39	77.99	0.120	No	No	0.44
539	35.37	80.68	2.04	0.44	0.75	60.51	14.11	74.62	0.113	No	No	0.42
540	35.43	78.64	2.05	0.46	0.74	57.55	13.39	70.93	0.107	No	No	0.40

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	σ_v' (tsf)	c	C_q	$q_{c,1}$ (tsf)	Δq_c	$q_{c,1,mod}$ (tsf)	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
541	35.52	78.22	2.05	0.46	0.74	56.81	12.86	69.67	0.105	No	No	0.39
542	35.58	81.71	2.06	0.46	0.73	58.65	11.83	70.48	0.107	No	No	0.40
543	35.64	88.94	2.06	0.47	0.73	64.59	9.98	74.57	0.115	No	No	0.43
544	35.70	99.87	2.06	0.47	0.73	71.94	8.03	79.97	0.127	No	No	0.48
545	35.77	110.99	2.07	0.48	0.73	81.86	6.70	88.56	0.147	No	No	0.55
546	35.83	124.75	2.07	0.48	0.72	87.95	5.68	93.63	0.161	No	No	0.60
547	35.89	139.21	2.08	0.48	0.72	101.50	5.02	106.52	0.199	No	No	0.75
548	35.97	150.91	2.08	0.47	0.73	113.42	4.80	118.22	0.242	No	No	0.91
549	36.04	154.49	2.09	0.47	0.73	114.02	5.00	119.01	0.246	No	No	0.93
550	36.12	153.37	2.09	0.46	0.73	109.94	5.48	115.42	0.232	No	No	0.87
551	36.16	152.67	2.09	0.46	0.73	111.85	6.05	117.90	0.242	No	No	0.91
552	36.23	157.04	2.10	0.45	0.73	113.46	6.28	119.73	0.250	No	No	0.95
553	36.31	162.18	2.10	0.45	0.74	120.55	6.21	126.77	0.281	No	No	1.07
554	36.35	166.19	2.11	0.45	0.73	123.36	5.94	129.30	0.294	No	No	1.11
555	36.44	168.46	2.11	0.45	0.73	121.70	5.61	127.31	0.283	No	No	1.08
556	36.49	170.01	2.11	0.46	0.73	124.58	5.38	129.96	0.296	No	No	1.13
557	36.57	172.72	2.12	0.46	0.73	125.47	5.03	130.50	0.299	No	No	1.14
558	36.62	175.82	2.12	0.47	0.72	126.30	4.57	130.87	0.300	No	No	1.14
559	36.70	179.92	2.13	0.47	0.72	129.40	4.00	133.39	0.312	No	No	1.19
560	36.76	183.99	2.13	0.48	0.71	132.12	3.46	135.57	0.323	No	No	1.24
561	36.81	185.30	2.13	0.48	0.71	133.07	3.24	136.31	0.326	No	No	1.25
562	36.89	183.56	2.14	0.49	0.71	130.44	3.07	133.52	0.311	No	No	1.20
563	36.96	179.40	2.14	0.49	0.71	126.79	2.87	129.66	0.292	No	No	1.12
564	37.01	172.72	2.15	0.50	0.70	122.54	2.78	125.32	0.271	No	No	1.04
565	37.08	164.22	2.15	0.49	0.70	115.40	3.25	118.64	0.243	No	No	0.94
566	37.15	156.23	2.16	0.48	0.71	109.60	4.33	113.93	0.225	No	No	0.87
567	37.22	146.23	2.16	0.46	0.72	108.44	5.94	114.38	0.228	No	No	0.88
568	37.29	138.03	2.16	0.45	0.73	97.13	7.59	104.73	0.194	No	No	0.75
569	37.34	131.35	2.17	0.43	0.73	94.92	9.25	104.17	0.192	No	No	0.75
570	37.41	127.46	2.17	0.42	0.74	96.14	10.41	106.55	0.200	No	No	0.78
571	37.48	124.36	2.18	0.42	0.74	90.30	11.56	101.85	0.184	No	No	0.72
572	37.54	120.29	2.18	0.41	0.74	89.36	12.88	102.24	0.186	No	No	0.72
573	37.62	116.59	2.19	0.40	0.75	88.10	14.17	102.27	0.185	No	No	0.72
574	37.67	112.73	2.19	0.40	0.74	82.83	15.11	97.94	0.171	No	No	0.67
575	37.74	110.15	2.19	0.40	0.75	81.34	16.47	97.81	0.170	No	No	0.67
576	37.82	111.79	2.20	0.39	0.75	82.94	17.55	100.49	0.178	No	No	0.70
577	37.88	116.95	2.20	0.39	0.75	87.50	17.74	105.24	0.195	No	No	0.76
578	37.95	123.66	2.21	0.39	0.75	93.60	16.58	110.18	0.213	No	No	0.84
579	38.00	133.23	2.21	0.39	0.75	97.89	14.89	112.78	0.224	No	No	0.88
580	38.07	144.62	2.21	0.39	0.75	108.59	13.75	122.34	0.266	No	No	1.05
581	38.14	160.38	2.22	0.39	0.75	118.57	12.40	130.97	0.310	No	No	1.22
582	38.20	184.08	2.22	0.40	0.74	132.25	10.27	142.52	0.378	No	No	1.49
583	38.26	206.10	2.23	0.40	0.74	159.78	8.23	168.02	0.586	No	No	2.00
584	38.33	222.78	2.23	0.42	0.73	164.73	7.00	171.73	0.618	No	No	2.00
585	38.40	228.82	2.24	0.42	0.73	167.00	6.87	173.87	0.640	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	σ_v' (tsf)	c	C_q	$q_{c,1}$ (tsf)	Δq_c	$q_{c,1,mod}$ (tsf)	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
586	38.45	234.84	2.24	0.41	0.74	172.49	7.49	179.97	0.718	No	No	2.00
587	38.52	243.65	2.24	0.40	0.74	179.94	8.17	188.11	0.836	No	No	2.00
588	38.60	250.45	2.25	0.39	0.75	190.25	9.12	199.37	1.035	No	No	2.00
589	38.65	251.37	2.25	0.38	0.75	191.60	10.24	201.84	1.100	No	No	2.00
590	38.72	245.29	2.26	0.37	0.76	185.71	11.52	197.22	1.029	No	No	2.00
591	38.79	235.60	2.26	0.36	0.76	179.47	12.75	192.23	0.953	No	No	2.00
592	38.87	224.42	2.27	0.36	0.76	171.71	13.85	185.56	0.853	No	No	2.00
593	38.94	216.37	2.27	0.36	0.76	161.32	14.59	175.91	0.718	No	No	2.00
594	38.98	211.96	2.27	0.36	0.76	161.44	14.65	176.09	0.721	No	No	2.00
595	39.06	215.49	2.28	0.36	0.76	160.61	13.56	174.17	0.689	No	No	2.00
596	39.13	224.48	2.28	0.37	0.75	166.98	11.73	178.71	0.736	No	No	2.00
597	39.20	239.15	2.29	0.38	0.74	177.56	9.60	187.16	0.838	No	No	2.00
598	39.26	255.71	2.29	0.40	0.73	188.15	7.70	195.84	0.954	No	No	2.00
599	39.33	270.26	2.30	0.41	0.73	197.89	6.38	204.28	1.087	No	No	2.00
600	39.39	285.72	2.30	0.42	0.72	203.70	5.37	209.07	1.163	No	No	2.00
601	39.48	297.81	2.31	0.42	0.72	217.38	4.90	222.28	1.452	No	No	2.00
602	39.50	309.17	2.31	0.42	0.72	221.83	4.97	226.80	1.573	No	No	2.00
603	39.57	317.22	2.31	0.42	0.72	228.42	5.16	233.57	1.778	No	No	2.00
604	39.64	329.03	2.32	0.43	0.72	234.00	4.51	238.51	1.912	No	No	2.00
605	39.71	338.81	2.32	0.44	0.70	242.27	3.22	245.49	2.099	No	No	2.00
606	39.77	346.86	2.33	0.47	0.69	239.71	2.21	241.92	1.930	No	No	2.00
607	39.84	349.14	2.33	0.47	0.69	242.39	2.08	244.46	2.010	No	No	2.00
608	39.91	344.50	2.34	0.46	0.70	244.13	2.57	246.71	2.113	No	No	2.00
609	39.97	324.54	2.34	0.45	0.70	233.04	3.25	236.30	1.793	No	No	2.00
610	40.03	271.93	2.34	0.43	0.71	207.05	4.80	211.85	1.210	No	No	2.00
611	40.10	247.02	2.35	0.45	0.70	134.73	5.27	140.00	0.353	No	No	1.45
612	40.18	233.17	2.35	0.43	0.71	182.44	5.16	187.61	0.799	No	No	2.00
613	40.23	248.96	2.36	0.45	0.70	173.76	3.96	177.72	0.664	No	No	2.00
614	40.30	237.21	2.36	0.45	0.70	167.08	4.09	171.18	0.595	No	No	2.00
615	40.38	224.39	2.37	0.45	0.70	154.60	4.53	159.13	0.486	No	No	2.00
616	40.42	209.96	2.37	0.44	0.70	147.35	5.08	152.44	0.436	No	No	1.80
617	40.50	197.96	2.38	0.44	0.70	137.65	5.63	143.29	0.374	No	No	1.55
618	40.57	187.30	2.38	0.44	0.70	130.49	6.29	136.78	0.336	No	No	1.39
619	40.62	180.86	2.38	0.43	0.71	126.62	7.51	134.13	0.323	No	No	1.34
620	40.70	179.01	2.39	0.41	0.72	127.03	9.02	136.05	0.337	No	No	1.40
621	40.75	179.95	2.39	0.39	0.73	131.04	10.94	141.98	0.378	No	No	1.57
622	40.82	182.59	2.40	0.38	0.73	133.19	12.47	145.66	0.407	No	No	1.70
623	40.89	187.48	2.40	0.38	0.74	136.33	12.99	149.33	0.437	No	No	1.82
624	40.96	195.68	2.40	0.38	0.73	143.14	12.15	155.28	0.485	No	No	2.00
625	41.01	211.24	2.41	0.39	0.73	149.85	10.21	160.06	0.520	No	No	2.00
626	41.08	240.12	2.41	0.40	0.72	166.60	7.98	174.58	0.660	No	No	2.00
627	41.15	267.37	2.42	0.41	0.72	201.64	6.60	208.23	1.173	No	No	2.00
628	41.22	288.54	2.42	0.41	0.71	204.39	5.76	210.15	1.196	No	No	2.00
629	41.28	293.74	2.43	0.42	0.71	209.31	5.54	214.85	1.294	No	No	2.00
630	41.36	297.29	2.43	0.42	0.71	210.07	5.39	215.46	1.304	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	σ_v' (tsf)	c	C_q	$q_{c,1}$ (tsf)	Δq_c	$q_{c,1,mod}$ (tsf)	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
631	41.41	298.51	2.44	0.42	0.71	210.78	5.31	216.10	1.317	No	No	2.00
632	41.49	297.84	2.44	0.42	0.71	211.14	5.40	216.53	1.330	No	No	2.00
633	41.54	294.38	2.44	0.41	0.71	208.77	5.63	214.40	1.286	No	No	2.00
634	41.61	290.06	2.45	0.41	0.71	204.10	5.94	210.04	1.198	No	No	2.00
635	41.67	285.11	2.45	0.41	0.71	203.18	6.30	209.48	1.194	No	No	2.00
636	41.75	282.38	2.46	0.40	0.71	199.50	6.68	206.18	1.134	No	No	2.00
637	41.81	279.91	2.46	0.40	0.71	199.99	7.13	207.12	1.162	No	No	2.00
638	41.87	275.90	2.47	0.39	0.72	199.76	7.58	207.34	1.175	No	No	2.00
639	41.94	270.95	2.47	0.39	0.72	192.38	7.92	200.30	1.042	No	No	2.00
640	42.01	266.42	2.47	0.39	0.72	190.20	8.14	198.34	1.010	No	No	2.00
641	42.06	265.51	2.48	0.39	0.72	190.09	8.14	198.23	1.008	No	No	2.00
642	42.15	264.85	2.48	0.39	0.72	190.09	8.03	198.11	1.005	No	No	2.00
643	42.20	264.64	2.49	0.40	0.71	187.83	7.85	195.68	0.960	No	No	2.00
644	42.26	261.87	2.49	0.39	0.71	188.84	7.91	196.75	0.979	No	No	2.00
645	42.32	258.65	2.50	0.39	0.71	183.62	8.10	191.72	0.898	No	No	2.00
646	42.40	254.03	2.50	0.39	0.72	181.88	8.93	190.82	0.894	No	No	2.00
647	42.46	250.75	2.50	0.38	0.72	180.08	9.24	189.32	0.874	No	No	2.00
648	42.53	249.02	2.51	0.39	0.71	176.82	8.74	185.56	0.812	No	No	2.00
649	42.59	250.84	2.51	0.38	0.72	179.32	10.17	189.49	0.888	No	No	2.00
650	42.68	252.33	2.52	0.36	0.73	188.11	12.57	200.67	1.126	No	No	2.00
651	42.73	259.07	2.52	0.34	0.74	187.74	15.49	203.23	1.231	No	No	2.00
652	42.78	265.32	2.53	0.34	0.75	200.74	15.60	216.34	1.583	No	No	2.00
653	42.86	275.07	2.53	0.34	0.74	204.73	14.77	219.51	1.660	No	No	2.00
654	42.92	269.63	2.54	0.34	0.74	209.53	14.74	224.27	1.816	No	No	2.00
655	42.99	269.47	2.54	0.34	0.74	186.92	14.88	201.80	1.189	No	No	2.00
656	43.06	276.48	2.55	0.34	0.74	203.19	14.04	217.22	1.572	No	No	2.00
657	43.12	294.55	2.55	0.35	0.73	221.54	11.60	233.13	2.025	No	No	2.00
658	43.18	307.64	2.55	0.38	0.72	220.23	8.90	229.13	1.785	No	No	2.00
659	43.25	314.78	2.56	0.39	0.71	222.46	7.39	229.86	1.755	No	No	2.00
660	43.32	328.91	2.56	0.39	0.71	228.35	6.77	235.12	1.903	No	No	2.00
661	43.38	332.86	2.57	0.39	0.71	247.42	7.00	254.42	2.699	No	No	2.00
662	43.44	320.28	2.57	0.39	0.71	231.05	7.48	238.53	2.054	No	No	2.00
663	43.51	285.35	2.58	0.38	0.71	204.22	8.97	213.19	1.341	No	No	2.00
664	43.59	254.15	2.58	0.37	0.72	174.80	10.54	185.34	0.829	No	No	2.00
665	43.64	232.47	2.59	0.37	0.72	167.03	11.82	178.85	0.748	No	No	2.00
666	43.71	220.99	2.59	0.37	0.72	158.53	11.81	170.34	0.640	No	No	2.00
667	43.78	208.29	2.59	0.38	0.71	149.40	11.39	160.79	0.536	No	No	2.00
668	43.85	193.92	2.60	0.39	0.71	137.19	11.19	148.38	0.428	No	No	1.88
669	43.90	180.19	2.60	0.39	0.70	125.34	11.52	136.86	0.348	No	No	1.53
670	43.98	170.32	2.61	0.39	0.70	118.72	12.18	130.89	0.314	No	No	1.38
671	44.03	164.82	2.61	0.39	0.70	115.73	12.50	128.23	0.299	No	No	1.32
672	44.10	159.50	2.61	0.39	0.70	113.64	12.74	126.38	0.290	No	No	1.28
673	44.18	155.31	2.62	0.39	0.70	106.89	12.78	119.67	0.257	No	No	1.13
674	44.23	152.27	2.62	0.39	0.70	106.57	13.28	119.85	0.258	No	No	1.14
675	44.30	152.97	2.63	0.39	0.70	107.24	13.78	121.01	0.264	No	No	1.17

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	σ_v' (tsf)	c	C_q	$q_{c,1}$ (tsf)	Δq_c	$q_{c,1,mod}$ (tsf)	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
676	44.37	156.95	2.63	0.38	0.70	109.05	13.93	122.98	0.273	No	No	1.21
677	44.44	159.50	2.64	0.38	0.71	115.73	13.77	129.49	0.308	No	No	1.37
678	44.50	166.49	2.64	0.38	0.70	112.76	13.68	126.44	0.291	No	No	1.29
679	44.58	171.19	2.65	0.37	0.71	124.87	14.09	138.95	0.367	No	No	1.63
680	44.64	178.91	2.65	0.37	0.71	126.47	14.11	140.58	0.378	No	No	1.68
681	44.70	184.80	2.65	0.37	0.71	129.98	13.53	143.50	0.398	No	No	1.77
682	44.75	185.26	2.66	0.37	0.71	137.29	13.09	150.38	0.450	No	No	2.00
683	44.84	178.55	2.66	0.38	0.71	126.67	13.31	139.98	0.373	No	No	1.66
684	44.90	166.37	2.67	0.38	0.71	115.07	14.36	129.43	0.308	No	No	1.38
685	44.95	158.80	2.67	0.38	0.71	110.81	15.12	125.93	0.290	No	No	1.30
686	45.03	156.42	2.68	0.38	0.71	110.48	15.06	125.54	0.288	No	No	1.29
687	45.09	155.78	2.68	0.38	0.70	109.40	14.28	123.68	0.278	No	No	1.24
688	45.15	158.24	2.68	0.39	0.70	108.09	13.49	121.58	0.267	No	No	1.20
689	45.23	163.36	2.69	0.38	0.70	114.58	13.20	127.78	0.298	No	No	1.34
690	45.30	170.98	2.69	0.38	0.70	120.14	13.40	133.54	0.332	No	No	1.49
691	45.36	179.31	2.70	0.37	0.70	125.17	13.58	138.76	0.365	No	No	1.64
692	45.43	186.02	2.70	0.37	0.71	133.47	13.56	147.03	0.425	No	No	1.92
693	45.49	189.66	2.71	0.37	0.71	135.21	13.51	148.71	0.439	No	No	1.98
694	45.56	190.66	2.71	0.37	0.70	133.03	13.39	146.42	0.420	No	No	1.90
695	45.61	188.32	2.71	0.37	0.70	135.23	13.22	148.46	0.436	No	No	1.97
696	45.69	187.11	2.72	0.38	0.70	129.08	12.81	141.89	0.385	No	No	1.74
697	45.74	184.53	2.72	0.38	0.70	129.09	12.26	141.36	0.381	No	No	1.72
698	45.82	184.41	2.73	0.39	0.69	127.79	11.69	139.48	0.367	No	No	1.66
699	45.88	183.23	2.73	0.39	0.69	127.20	11.29	138.49	0.359	No	No	1.63
700	45.94	182.65	2.74	0.39	0.69	125.33	11.32	136.64	0.348	No	No	1.58
701	46.00	183.95	2.74	0.39	0.69	125.83	11.21	137.04	0.350	No	No	1.59
702	46.09	186.93	2.75	0.39	0.69	129.96	11.41	141.37	0.379	No	No	1.73
703	46.14	190.51	2.75	0.38	0.70	132.43	12.05	144.48	0.403	No	No	1.83
704	46.20	195.47	2.75	0.36	0.71	136.34	14.24	150.58	0.457	No	No	2.00
705	46.26	207.22	2.76	0.35	0.71	144.84	15.87	160.71	0.559	No	No	2.00
706	46.35	176.33	2.76	0.32	0.74	166.73	21.92	188.64	1.016	No	No	2.00
707	46.40	192.58	2.77	0.39	0.68	68.75	19.38	88.13	0.144	No	No	0.66
708	46.46	217.33	2.77	0.34	0.72	180.82	14.87	195.70	1.072	No	No	2.00
709	46.55	306.31	2.78	0.38	0.70	208.79	9.03	217.81	1.469	No	No	2.00
710	46.60	349.90	2.78	0.37	0.70	258.18	8.92	267.09	3.593	No	No	2.00
711	46.68	371.04	2.79	0.35	0.71	272.81	10.61	283.41	4.000	No	No	2.00
712	46.74	368.00	2.79	0.34	0.72	262.08	12.50	274.58	4.000	No	No	2.00
713	46.80	341.06	2.79	0.33	0.73	261.29	14.49	275.78	4.000	No	No	2.00
714	46.85	307.16	2.80	0.32	0.73	220.39	16.69	237.08	2.448	No	No	2.00
715	46.92	249.14	2.80	0.31	0.74	193.37	20.90	214.27	1.679	No	No	2.00
716	46.99	212.93	2.81	0.32	0.73	134.57	23.73	158.30	0.562	No	No	2.00
717	47.05	185.69	2.81	0.31	0.74	142.05	25.46	167.50	0.684	No	No	2.00
718	47.12	181.83	2.82	0.32	0.73	130.96	23.43	154.38	0.519	No	No	2.00
719	47.18	172.71	2.82	0.34	0.72	124.29	21.52	145.81	0.435	No	No	2.00
720	47.26	165.79	2.83	0.35	0.71	117.09	18.55	135.64	0.353	No	No	1.64

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	σ_v' (tsf)	c	C_q	$q_{c,1}$ (tsf)	Δq_c	$q_{c,1,mod}$ (tsf)	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
721	47.33	160.11	2.83	0.38	0.69	109.95	14.80	124.75	0.285	No	No	1.32
722	47.38	154.28	2.83	0.40	0.67	105.00	11.74	116.74	0.244	No	No	1.13
723	47.45	149.20	2.84	0.42	0.66	97.50	9.58	107.08	0.205	No	No	0.95
724	47.52	143.46	2.84	0.43	0.65	93.79	8.77	102.56	0.189	No	No	0.88
725	47.58	139.10	2.85	0.45	0.64	88.79	7.75	96.54	0.171	No	No	0.79
726	47.66	133.06	2.85	0.46	0.63	85.45	6.99	92.44	0.159	No	No	0.74
727	47.71	128.47	2.85	0.48	0.62	78.05	6.01	84.05	0.138	No	No	0.64
728	47.77	125.72	2.86	0.50	0.61	76.17	5.15	81.32	0.132	No	No	0.62
729	47.85	127.39	2.86	0.51	0.60	76.45	4.36	80.81	0.131	No	No	0.61
730	47.91	131.89	2.87	0.51	0.60	78.57	3.93	82.51	0.135	No	No	0.63
731	47.97	139.63	2.87	0.51	0.60	82.91	3.64	86.55	0.144	No	No	0.67
732	48.04	151.08	2.87	0.51	0.60	90.06	3.31	93.36	0.161	No	No	0.75
733	48.11	166.70	2.88	0.50	0.60	99.86	3.18	103.05	0.189	No	No	0.88
734	48.18	185.38	2.88	0.47	0.62	115.08	4.16	119.24	0.248	No	No	1.16
735	48.25	205.46	2.89	0.43	0.65	133.36	6.22	139.58	0.355	No	No	1.67
736	48.31	222.59	2.89	0.40	0.67	150.03	7.97	158.01	0.498	No	No	2.00
737	48.38	236.35	2.90	0.40	0.67	157.92	8.07	165.99	0.574	No	No	2.00
738	48.44	244.16	2.90	0.41	0.66	164.24	7.34	171.58	0.628	No	No	2.00
739	48.50	250.90	2.90	0.42	0.66	163.22	6.31	169.53	0.598	No	No	2.00
740	48.58	261.08	2.91	0.42	0.65	167.38	5.81	173.19	0.634	No	No	2.00
741	48.63	281.82	2.91	0.42	0.66	182.22	5.87	188.10	0.823	No	No	2.00
742	48.71	286.17	2.92	0.39	0.67	208.44	7.01	215.45	1.360	No	No	2.00
743	48.76	279.79	2.92	0.38	0.68	182.74	8.94	191.69	0.919	No	No	2.00
744	48.82	257.71	2.93	0.37	0.69	178.08	11.09	189.17	0.907	No	No	2.00
745	48.89	246.22	2.93	0.36	0.69	169.79	12.57	182.36	0.816	No	No	2.00
746	48.96	234.14	2.94	0.36	0.70	163.48	13.37	176.85	0.744	No	No	2.00
747	49.02	219.28	2.94	0.36	0.69	154.07	13.55	167.62	0.628	No	No	2.00
748	49.08	202.82	2.94	0.37	0.69	137.30	13.16	150.47	0.455	No	No	2.00
749	49.17	186.08	2.95	0.38	0.68	125.58	12.13	137.71	0.358	No	No	1.70
750	49.23	172.47	2.95	0.40	0.66	114.07	10.60	124.67	0.281	No	No	1.34
751	49.29	159.77	2.96	0.42	0.65	103.28	8.98	112.26	0.225	No	No	1.07
752	49.35	148.81	2.96	0.44	0.64	94.00	8.11	102.11	0.188	No	No	0.89
753	49.42	141.73	2.97	0.45	0.63	87.82	7.91	95.73	0.168	No	No	0.80
754	49.48	136.23	2.97	0.45	0.63	87.26	8.10	95.35	0.167	No	No	0.80
755	49.55	132.68	2.97	0.44	0.63	83.01	8.85	91.87	0.158	No	No	0.75
756	49.62	131.01	2.98	0.44	0.64	81.70	9.53	91.23	0.156	No	No	0.74
757	49.69	134.20	2.98	0.49	0.60	80.11	5.07	85.18	0.141	No	No	0.67
758	49.75	143.22	2.99	0.61	0.53	74.56	0.15	74.71	0.120	No	No	0.57
759	49.82	154.55	2.99	0.00	1.00	155.65	0.00	155.65	4.000	No	Yes	2.00
760	49.87	167.88	2.99	0.00	1.00	167.22	0.00	167.22	4.000	No	Yes	2.00
761	49.94	180.52	3.00	0.00	1.00	180.80	0.00	180.80	4.000	No	Yes	2.00
762	50.00	193.27	3.00	0.00	1.00	193.55	0.00	193.55	4.000	No	Yes	2.00
763	50.07	201.50	3.00	0.00	1.00	205.49	0.00	205.49	4.000	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	σ_v' (tsf)	c	C_q	$q_{c,1}$ (tsf)	Δq_c	$q_{c,1,mod}$ (tsf)	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS

Abbreviations

Depth: Depth from free surface, at which CPT was performed (ft)
q_t: Total cone resistance
I_c: Soil behavior type index
Fr: Normalized friction ratio (%)
n: Stress exponent
Q_{tn}: Normalized cone resistance
K_c: Cone resistance correction factor due to fines
$Q_{tn,cs}$: Normalized and adjusted cone resistance
$CRR_{7.5}$: Cydic resistance ratio for M_w=7.5
FS: Factor of safety against soil liquefaction

:: Post-earthquake settlement of dry sands ::

Depth (ft)	Ic	$q_{c,1,mod}$ (tsf)	$q_{c,1N,mod}$	$N_{1,60}$ (blows)	Vs (ft/s)	G_{max} (tsf)	CSR	Shear, γ (%)	$S_{vol,15}$ (%)	N_c	e_v (%)	Settle. (in)
0.08	2.32	36.98	74.64	18	0.0	392	0.72	0.001	0.00	8.56	0.00	0.000
0.14	2.17	49.32	78.75	18	0.0	431	0.72	0.001	0.00	8.56	0.00	0.000
0.20	2.02	66.40	88.06	18	0.0	480	0.72	0.002	0.00	8.56	0.00	0.000
0.26	1.91	82.93	99.06	20	0.0	519	0.72	0.003	0.00	8.56	0.00	0.000
0.33	1.79	103.57	113.71	22	0.0	558	0.71	0.003	0.00	8.56	0.00	0.000
0.41	1.67	130.35	132.25	24	0.0	602	0.71	0.003	0.00	8.56	0.00	0.000
0.48	1.58	153.87	153.87	28	0.0	640	0.71	0.004	0.00	8.56	0.00	0.000
0.53	1.55	167.68	167.68	30	0.0	667	0.71	0.004	0.00	8.56	0.00	0.000
0.61	1.56	168.21	168.21	30	0.0	682	0.71	0.005	0.00	8.56	0.00	0.000
0.68	1.59	164.01	164.01	30	0.0	692	0.71	0.005	0.00	8.56	0.00	0.000
0.74	1.64	154.68	154.68	28	0.0	691	0.71	0.006	0.00	8.56	0.00	0.000
0.81	1.68	145.20	148.37	27	0.0	680	0.71	0.007	0.00	8.56	0.00	0.000
0.86	1.71	134.76	140.58	26	0.0	656	0.71	0.008	0.01	8.56	0.00	0.000
0.94	1.73	124.64	132.05	25	0.0	626	0.71	0.010	0.01	8.56	0.01	0.000
1.00	1.76	115.07	123.77	24	0.0	596	0.71	0.012	0.01	8.56	0.01	0.000
1.05	1.78	106.72	116.66	22	0.0	570	0.71	0.015	0.01	8.56	0.01	0.000
1.13	1.81	99.59	110.74	21	0.0	550	0.71	0.018	0.02	8.56	0.01	0.000
1.19	1.84	91.39	103.99	20	0.0	527	0.71	0.022	0.02	8.56	0.02	0.000
1.26	1.88	83.08	97.01	19	0.0	501	0.71	0.028	0.03	8.56	0.02	0.000
1.33	1.91	75.46	90.36	18	0.0	474	0.70	0.037	0.04	8.56	0.03	0.000
1.38	1.94	68.32	83.89	17	0.0	446	0.70	0.049	0.06	8.56	0.05	0.000
1.45	1.97	61.78	77.92	16	0.0	419	0.70	0.070	0.09	8.56	0.07	0.001
1.52	2.00	55.28	72.14	15	0.0	392	0.70	0.103	0.14	8.56	0.11	0.001
1.59	2.03	49.96	67.30	14	0.0	368	0.70	0.153	0.23	8.56	0.18	0.001
1.65	2.06	45.42	63.21	13	0.0	347	0.70	0.228	0.37	8.56	0.28	0.002
1.72	2.09	41.90	60.23	13	0.0	331	0.70	0.326	0.55	8.56	0.43	0.003
1.77	2.12	39.12	58.01	13	0.0	319	0.70	0.438	0.76	8.56	0.59	0.004
1.84	2.13	37.16	56.44	12	0.0	310	0.70	0.577	1.03	8.56	0.80	0.007
1.91	2.15	35.59	55.07	12	0.0	302	0.70	0.748	1.36	8.56	1.06	0.008
1.98	2.16	34.32	53.74	12	0.0	295	0.70	0.979	1.83	8.56	1.42	0.012
2.05	2.15	33.48	33.48	7	0.0	286	0.70	1.343	4.43	8.56	3.44	0.028
2.11	2.13	32.99	32.99	7	0.0	275	0.70	1.964	6.66	8.56	5.00	0.041
2.19	2.11	33.03	33.03	7	0.0	269	0.70	2.572	8.78	8.56	5.00	0.046
2.25	2.11	33.47	33.47	7	0.0	271	0.70	2.583	8.69	8.56	5.00	0.035
2.32	2.11	34.34	34.34	7	0.0	279	0.69	2.313	7.54	8.56	5.00	0.044
2.39	2.12	34.39	34.39	8	0.0	283	0.69	2.241	7.25	8.56	5.00	0.039
2.44	2.12	35.11	35.11	8	0.0	288	0.69	2.110	6.67	8.56	5.00	0.029
2.49	2.13	35.26	35.26	8	0.0	292	0.69	2.057	6.45	8.56	5.00	0.034
2.57	2.13	35.83	53.90	12	0.0	296	0.69	2.019	3.81	8.56	2.96	0.028
2.64	2.14	35.00	53.94	12	0.0	296	0.69	2.194	4.10	8.56	3.18	0.026
2.71	2.16	33.96	53.74	12	0.0	295	0.69	2.489	4.62	8.56	3.59	0.031
2.78	2.18	32.98	53.49	12	0.0	293	0.69	2.834	5.25	8.56	4.08	0.033
2.83	2.20	32.19	53.29	12	0.0	291	0.69	3.145	5.81	8.56	4.51	0.028
2.90	2.20	31.65	53.00	12	0.0	289	0.69	3.567	6.61	8.56	5.00	0.039
2.96	2.21	31.30	52.67	12	0.0	287	0.69	4.042	7.53	8.56	5.00	0.039
3.03	2.20	31.20	52.25	12	0.0	285	0.69	4.576	8.62	8.56	5.00	0.038
3.09	2.20	31.19	51.95	12	0.0	283	0.69	5.089	9.67	8.56	5.00	0.038
3.16	2.20	31.19	51.67	12	0.0	282	0.69	5.711	10.94	8.56	5.00	0.044

:: Post-earthquake settlement of dry sands :: (continued)

Depth (ft)	Ic	$q_{c,1,mod}$ (tsf)	$q_{c,1N,mod}$	$N_{1,60}$ (blows)	Vs (ft/s)	G_{max} (tsf)	CSR	Shear, γ (%)	$S_{vol,15}$ (%)	N_c	e_v (%)	Settle. (in)
3.23	2.19	31.23	51.35	12	0.0	280	0.68	6.381	12.35	8.56	5.00	0.041
3.29	2.18	31.32	51.01	11	0.0	279	0.68	7.113	13.93	8.56	5.00	0.037
3.36	2.17	31.61	50.76	11	0.0	278	0.68	7.783	15.40	8.56	5.00	0.038
3.42	2.16	31.99	31.99	7	0.0	278	0.68	8.342	28.87	8.56	5.00	0.040
3.49	2.15	32.63	32.63	7	0.0	278	0.68	8.716	29.66	8.56	5.00	0.040
3.55	2.14	33.31	33.31	7	0.0	279	0.68	9.046	30.24	8.56	5.00	0.038
3.62	2.13	33.79	33.79	7	0.0	280	0.68	9.413	31.07	8.56	5.00	0.040
3.68	2.13	33.88	33.88	7	0.0	280	0.68	9.854	32.44	8.56	5.00	0.037
3.74	2.13	33.53	33.53	7	0.0	280	0.68	10.572	35.12	8.56	5.00	0.038
3.81	2.14	33.09	33.09	7	0.0	279	0.68	11.551	38.84	8.56	5.00	0.039
3.87	2.15	32.69	32.69	7	0.0	277	0.68	12.743	43.35	8.56	5.00	0.039
3.94	2.15	32.40	32.40	7	0.0	275	0.68	14.658	50.42	8.56	5.00	0.041
4.00	2.14	32.00	32.00	7	0.0	270	0.68	18.365	64.28	8.56	5.00	0.038
4.07	2.14	31.46	31.46	7	0.0	264	0.67	23.540	84.22	8.56	5.00	0.040
4.15	2.14	30.67	30.67	7	0.0	258	0.67	31.191	114.93	8.56	5.00	0.048
4.22	2.15	29.98	29.98	7	0.0	254	0.67	37.878	142.94	8.56	5.00	0.043
4.27	2.15	29.25	29.25	6	0.0	250	0.67	46.497	180.24	8.56	5.00	0.027
4.35	2.16	28.56	28.56	6	0.0	247	0.67	56.630	224.95	8.56	5.00	0.048
4.41	2.17	28.02	28.02	6	0.0	245	0.67	65.008	263.16	8.56	5.00	0.035
4.46	2.17	27.73	27.73	6	0.0	243	0.67	72.395	296.26	8.56	5.00	0.035
4.53	2.16	27.77	27.77	6	0.0	241	0.67	83.118	340.79	8.56	5.00	0.041
4.61	2.16	27.81	27.81	6	0.0	239	0.67	97.821	402.08	8.56	5.00	0.047
4.69	2.15	27.91	27.91	6	0.0	237	0.67	110.922	455.83	8.56	5.00	0.046
4.74	2.15	28.00	28.00	6	0.0	237	0.67	115.957	475.31	8.56	5.00	0.032
4.82	2.14	28.14	28.14	6	0.0	238	0.67	120.784	492.81	8.56	5.00	0.045
4.87	2.14	28.28	28.28	6	0.0	238	0.67	122.250	496.21	8.56	5.00	0.034
4.95	2.14	28.42	28.42	6	0.0	239	0.66	123.137	496.94	8.56	5.00	0.045
4.99	2.14	28.61	28.61	6	0.0	241	0.66	119.370	477.93	8.56	5.00	0.028
5.07	2.14	28.66	28.66	6	0.0	242	0.66	120.139	479.55	8.56	5.00	0.047
5.13	2.15	28.65	28.65	6	0.0	243	0.66	118.430	471.85	8.56	5.00	0.034
5.21	2.15	28.55	28.55	6	0.0	244	0.66	120.894	482.58	8.56	5.00	0.045
5.27	2.15	28.54	28.54	6	0.0	245	0.66	122.766	489.61	8.56	5.00	0.040
5.32	2.15	28.69	28.69	6	0.0	246	0.66	119.547	473.80	8.56	5.00	0.027
5.38	2.15	29.03	29.03	6	0.0	248	0.66	115.818	453.42	8.56	5.00	0.040
5.46	2.14	29.51	29.51	7	0.0	250	0.66	111.527	429.45	8.56	5.00	0.045
5.53	2.14	29.89	29.89	7	0.0	251	0.66	111.904	425.76	8.56	5.00	0.040
5.59	2.13	30.13	30.13	7	0.0	251	0.66	113.900	430.14	8.56	5.00	0.040
5.67	2.13	30.28	30.28	7	0.0	252	0.66	115.005	432.07	8.56	5.00	0.044
5.71	2.13	30.56	30.56	7	0.0	255	0.66	105.199	390.51	8.56	5.00	0.029
5.81	2.13	31.09	31.09	7	0.0	259	0.65	93.752	341.04	8.56	5.00	0.055
5.84	2.13	32.11	32.11	7	0.0	265	0.65	75.024	263.38	8.56	5.00	0.023
5.91	2.11	33.62	33.62	7	0.0	273	0.65	58.490	195.59	8.56	5.00	0.042
5.98	2.10	35.47	35.47	8	0.0	282	0.65	43.888	138.71	8.56	5.00	0.038
6.04	2.07	38.05	38.05	8	0.0	294	0.65	30.786	90.42	8.56	5.00	0.037
6.12	2.05	40.92	40.92	9	0.0	306	0.65	22.310	60.79	8.56	5.00	0.050
6.19	2.02	44.09	44.09	9	0.0	318	0.65	16.461	41.57	8.56	5.00	0.040
6.26	1.99	46.77	46.77	10	0.0	326	0.65	13.737	32.72	8.56	5.00	0.043
6.32	1.96	49.16	49.16	10	0.0	331	0.65	12.420	28.22	8.56	5.00	0.039

:: Post-earthquake settlement of dry sands :: (continued)

Depth (ft)	Ic	$q_{c,1,mod}$ (tsf)	$q_{c,1N,mod}$	$N_{1,60}$ (blows)	Vs (ft/s)	G_{max} (tsf)	CSR	Shear, γ (%)	$S_{vol,15}$ (%)	N_c	e_v (%)	Settle. (in)
6.39	1.94	50.96	50.96	10	0.0	334	0.65	11.952	26.27	8.56	5.00	0.040
6.44	1.92	52.47	52.47	11	0.0	336	0.65	11.682	25.00	8.56	5.00	0.028
6.51	1.91	53.73	53.73	11	0.0	337	0.65	11.668	24.44	8.56	5.00	0.044
6.57	1.90	54.99	54.99	11	0.0	340	0.64	11.193	22.91	8.56	5.00	0.039
6.65	1.89	55.87	55.87	11	0.0	343	0.64	10.646	21.43	8.56	5.00	0.045
6.70	1.89	56.40	56.40	11	0.0	345	0.64	10.412	20.75	8.56	5.00	0.031
6.77	1.88	56.79	56.79	11	0.0	344	0.64	11.125	22.08	8.56	5.00	0.044
6.83	1.87	57.37	57.37	11	0.0	343	0.64	11.504	22.64	8.56	5.00	0.031
6.90	1.87	57.80	57.80	11	0.0	345	0.64	11.560	22.58	8.56	5.00	0.047
6.97	1.87	57.89	57.89	11	0.0	347	0.64	11.353	22.10	8.56	5.00	0.043
7.04	1.87	57.54	57.54	11	0.0	346	0.64	11.785	23.07	8.56	5.00	0.041
7.10	1.88	56.56	56.56	11	0.0	344	0.64	12.768	25.43	8.56	5.00	0.031
7.17	1.89	55.43	55.43	11	0.0	339	0.64	14.802	30.14	8.56	5.00	0.042
7.24	1.89	53.96	53.96	11	0.0	332	0.64	18.358	38.53	8.56	5.00	0.044
7.31	1.89	52.98	52.98	11	0.0	325	0.63	22.472	48.24	8.56	5.00	0.044
7.35	1.89	52.10	52.10	10	0.0	321	0.63	25.369	55.47	8.56	5.00	0.026
7.43	1.90	51.85	51.85	10	0.0	321	0.63	26.276	57.70	8.56	5.00	0.047
7.50	1.90	52.33	52.33	10	0.0	323	0.63	25.415	55.24	8.56	5.00	0.043
7.57	1.89	53.50	53.50	11	0.0	327	0.63	23.619	50.19	8.56	5.00	0.040
7.61	1.87	55.26	55.26	11	0.0	331	0.63	21.321	43.87	8.56	5.00	0.025
7.68	1.85	57.40	57.40	11	0.0	336	0.63	19.531	38.73	8.56	5.00	0.041
7.76	1.83	59.88	59.88	12	0.0	341	0.63	17.286	32.86	8.56	5.00	0.047
7.83	1.82	62.12	62.12	12	0.0	348	0.63	14.970	27.39	8.56	5.00	0.040
7.88	1.81	64.02	64.02	12	0.0	355	0.63	12.788	22.64	8.56	5.00	0.032
7.95	1.81	65.47	65.47	13	0.0	363	0.63	11.060	19.09	8.56	5.00	0.043
8.03	1.81	66.41	66.41	13	0.0	369	0.63	9.946	16.90	8.56	5.00	0.046
8.08	1.80	67.15	67.15	13	0.0	372	0.62	9.363	15.73	8.56	5.00	0.031
8.14	1.79	67.66	67.66	13	0.0	375	0.62	9.017	15.05	8.56	5.00	0.038
8.21	1.79	68.20	68.20	13	0.0	378	0.62	8.615	14.27	8.56	5.00	0.042
8.29	1.79	68.61	68.61	13	0.0	383	0.62	8.041	13.22	8.56	5.00	0.047
8.34	1.79	69.22	69.22	13	0.0	387	0.62	7.408	12.05	8.56	5.00	0.028
8.40	1.79	69.73	69.73	13	0.0	392	0.62	6.831	11.00	8.56	5.00	0.040
8.47	1.79	70.16	70.16	14	0.0	396	0.62	6.432	10.28	8.56	5.00	0.040
8.54	1.79	70.40	70.40	14	0.0	399	0.62	6.251	9.96	8.56	5.00	0.044
8.60	1.79	70.66	70.66	14	0.0	401	0.62	6.103	9.69	8.56	5.00	0.036
8.67	1.79	71.02	71.02	14	0.0	403	0.62	5.932	9.38	8.56	5.00	0.040
8.74	1.78	71.24	71.24	14	0.0	407	0.62	5.698	8.98	8.56	5.00	0.041
8.80	1.78	71.51	71.51	14	0.0	409	0.61	5.518	8.66	8.56	5.00	0.034
8.86	1.78	71.57	71.57	14	0.0	412	0.61	5.352	8.38	8.56	5.00	0.040
8.93	1.79	71.62	71.62	14	0.0	414	0.61	5.196	8.13	8.56	5.00	0.040
9.01	1.79	71.50	71.50	14	0.0	417	0.61	5.052	7.91	8.56	5.00	0.050
9.09	1.79	71.31	71.31	14	0.0	419	0.61	4.966	7.79	8.56	5.00	0.046
9.13	1.79	71.18	71.18	14	0.0	420	0.61	4.914	7.72	8.56	5.00	0.024
9.20	1.80	70.84	70.84	14	0.0	422	0.61	4.871	7.68	8.56	5.00	0.041
9.28	1.80	70.47	70.47	14	0.0	423	0.61	4.864	7.70	8.56	5.00	0.049
9.35	1.81	70.17	70.17	14	0.0	424	0.61	4.844	7.70	8.56	5.00	0.040
9.40	1.81	70.01	70.01	14	0.0	426	0.61	4.737	7.54	8.56	5.00	0.033
9.46	1.81	69.88	69.88	14	0.0	429	0.61	4.580	7.29	8.56	5.00	0.038

:: Post-earthquake settlement of dry sands :: (continued)

Depth (ft)	Ic	$q_{c,1,mod}$ (tsf)	$q_{c,1N,mod}$	$N_{1,60}$ (blows)	Vs (ft/s)	G_{max} (tsf)	CSR	Shear, γ (%)	$S_{vol,15}$ (%)	N_c	e_v (%)	Settle. (in)
9.53	1.82	69.77	69.77	14	0.0	431	0.60	4.479	7.14	8.56	5.00	0.042
9.60	1.82	69.68	69.68	14	0.0	432	0.60	4.494	7.18	8.56	5.00	0.040
9.65	1.81	69.68	69.68	14	0.0	430	0.60	4.675	7.49	8.56	5.00	0.030
9.73	1.80	69.42	69.42	13	0.0	426	0.60	5.112	8.26	8.56	5.00	0.046
9.79	1.79	69.28	69.28	13	0.0	423	0.60	5.466	8.89	8.56	5.00	0.040
9.85	1.79	69.28	69.28	13	0.0	423	0.60	5.533	9.01	8.56	5.00	0.035
9.92	1.79	69.54	69.54	13	0.0	426	0.60	5.272	8.54	8.56	5.00	0.041
9.99	1.79	69.87	69.87	13	0.0	430	0.60	5.027	8.10	8.56	5.00	0.040
10.05	1.79	70.12	70.12	13	0.0	434	0.60	4.727	7.58	8.56	5.00	0.037
10.13	1.79	70.56	70.56	14	0.0	441	0.60	4.331	6.88	8.56	5.00	0.047
10.18	1.80	71.39	71.39	14	0.0	448	0.59	3.867	6.05	8.56	4.70	0.027
10.25	1.79	72.68	72.68	14	0.0	457	0.59	3.427	5.25	8.56	4.08	0.037
10.32	1.79	73.99	73.99	14	0.0	465	0.59	3.073	4.62	8.56	3.59	0.030
10.38	1.78	75.66	75.66	15	0.0	473	0.59	2.775	4.08	8.56	3.17	0.020
10.45	1.77	77.42	77.42	15	0.0	480	0.59	2.527	3.63	8.56	2.82	0.025
10.52	1.76	79.06	79.06	15	0.0	487	0.59	2.327	3.27	8.56	2.54	0.021
10.57	1.75	80.36	80.36	15	0.0	493	0.59	2.181	3.02	8.56	2.34	0.015
10.64	1.75	81.02	81.02	15	0.0	498	0.59	2.063	2.83	8.56	2.20	0.018
10.71	1.75	81.62	81.62	16	0.0	504	0.59	1.928	2.62	8.56	2.03	0.016
10.78	1.75	82.00	82.00	16	0.0	510	0.59	1.817	2.45	8.56	1.90	0.017
10.83	1.75	82.41	82.41	16	0.0	514	0.59	1.730	2.32	8.56	1.80	0.011
10.90	1.76	82.69	82.69	16	0.0	519	0.58	1.660	2.21	8.56	1.72	0.013
10.96	1.76	82.95	82.95	16	0.0	523	0.58	1.586	2.10	8.56	1.64	0.013
11.03	1.76	83.11	83.11	16	0.0	527	0.58	1.536	2.03	8.56	1.58	0.012
11.10	1.76	83.09	83.09	16	0.0	530	0.58	1.496	1.98	8.56	1.54	0.013
11.16	1.77	82.95	82.95	16	0.0	534	0.58	1.443	1.91	8.56	1.48	0.010
11.22	1.78	82.73	82.73	16	0.0	541	0.58	1.344	1.77	8.56	1.38	0.011
11.29	1.80	82.53	82.53	16	0.0	550	0.58	1.229	1.62	8.56	1.26	0.011
11.36	1.82	81.66	91.82	18	0.0	563	0.58	1.089	1.24	8.56	0.97	0.008
11.43	1.86	82.45	94.84	19	0.0	590	0.58	0.841	0.91	8.56	0.71	0.006
11.51	1.89	84.06	99.26	20	0.0	627	0.58	0.616	0.62	8.56	0.48	0.004
11.55	1.92	88.51	107.27	22	0.0	684	0.57	0.401	0.36	8.56	0.28	0.001
11.63	1.94	94.32	116.08	24	0.0	747	0.57	0.274	0.22	8.56	0.17	0.002
11.71	1.93	102.31	125.06	25	0.0	807	0.57	0.202	0.15	8.56	0.12	0.001
11.76	1.89	114.54	135.30	27	0.0	866	0.57	0.155	0.11	8.56	0.08	0.001
11.83	1.85	130.74	149.33	29	0.0	946	0.57	0.116	0.07	8.56	0.06	0.000
11.90	1.81	150.71	168.15	33	0.0	1056	0.57	0.084	0.05	8.56	0.04	0.000
11.95	1.74	172.96	184.70	35	0.0	1130	0.57	0.070	0.04	8.56	0.03	0.000
12.02	1.67	187.10	189.76	35	0.0	1128	0.57	0.071	0.04	8.56	0.03	0.000
12.08	1.54	209.44	209.44	37	0.0	1108	0.57	0.075	0.04	8.56	0.03	0.000
12.15	1.55	197.51	197.51	35	0.0	1062	0.57	0.085	0.04	8.56	0.03	0.000
12.22	1.63	175.53	175.53	32	0.0	1034	0.56	0.092	0.05	8.56	0.04	0.000
12.28	1.79	137.76	151.08	29	0.0	958	0.56	0.117	0.07	8.56	0.06	0.000
12.34	1.88	118.84	138.92	28	0.0	915	0.56	0.137	0.09	8.56	0.07	0.000
12.41	1.91	111.03	133.28	27	0.0	891	0.56	0.151	0.11	8.56	0.08	0.001
12.47	1.97	100.17	126.39	26	0.0	858	0.56	0.174	0.13	8.56	0.10	0.001
12.54	1.97	95.97	121.40	25	0.0	828	0.56	0.201	0.15	8.56	0.12	0.001
12.60	1.99	90.45	115.90	24	0.0	794	0.56	0.237	0.19	8.56	0.15	0.001

:: Post-earthquake settlement of dry sands :: (continued)

Depth (ft)	Ic	$q_{c,1,mod}$ (tsf)	$q_{c,1N,mod}$	$N_{1,60}$ (blows)	Vs (ft/s)	G_{max} (tsf)	CSR	Shear, γ (%)	$S_{vol,15}$ (%)	N_c	e_v (%)	Settle. (in)
12.67	2.00	83.42	108.57	23	0.0	748	0.56	0.306	0.26	8.56	0.21	0.002
12.76	2.01	78.09	102.93	22	0.0	713	0.56	0.382	0.35	8.56	0.27	0.003
12.80	2.03	73.34	98.21	21	0.0	682	0.56	0.472	0.45	8.56	0.35	0.002
12.88	2.02	72.49	95.95	20	0.0	669	0.55	0.522	0.52	8.56	0.40	0.004
12.95	2.01	70.83	92.72	19	0.0	649	0.55	0.613	0.64	8.56	0.50	0.004
13.01	1.99	69.85	90.24	19	0.0	633	0.55	0.702	0.76	8.56	0.59	0.004
13.07	1.99	68.68	88.62	18	0.0	623	0.55	0.764	0.85	8.56	0.66	0.005
13.13	2.00	67.39	87.34	18	0.0	616	0.55	0.815	0.92	8.56	0.71	0.005
13.19	2.00	66.67	86.36	18	0.0	611	0.55	0.856	0.97	8.56	0.76	0.005
13.27	2.00	65.93	85.62	18	0.0	609	0.55	0.881	1.01	8.56	0.79	0.008
13.33	2.00	65.97	85.81	18	0.0	612	0.55	0.860	0.98	8.56	0.77	0.005
13.41	2.02	64.37	85.17	18	0.0	611	0.55	0.875	1.00	8.56	0.78	0.007
13.45	2.01	65.09	85.63	18	0.0	615	0.55	0.844	0.96	8.56	0.75	0.004
13.52	2.01	65.87	86.08	18	0.0	620	0.54	0.813	0.93	8.56	0.72	0.006
13.60	1.98	68.27	87.28	18	0.0	630	0.54	0.755	0.85	8.56	0.66	0.006
13.66	1.97	69.26	87.71	18	0.0	633	0.54	0.735	0.83	8.56	0.65	0.004
13.74	1.97	69.68	87.75	18	0.0	635	0.54	0.727	0.82	8.56	0.64	0.006
13.80	1.96	69.77	87.57	18	0.0	635	0.54	0.730	0.83	8.56	0.64	0.004
13.85	1.96	69.48	87.19	18	0.0	634	0.54	0.739	0.84	8.56	0.66	0.004
13.93	1.96	69.13	86.78	18	0.0	634	0.54	0.746	0.86	8.56	0.67	0.007
13.99	1.97	68.80	86.52	18	0.0	634	0.54	0.748	0.86	8.56	0.67	0.005
14.04	1.97	68.61	86.30	18	0.0	634	0.54	0.751	0.87	8.56	0.67	0.004
14.13	1.97	68.23	86.08	18	0.0	635	0.54	0.747	0.86	8.56	0.67	0.007
14.19	1.98	67.67	86.59	18	0.0	643	0.53	0.705	0.80	8.56	0.63	0.005
14.26	2.01	66.91	88.13	18	0.0	659	0.53	0.624	0.69	8.56	0.53	0.004
14.31	2.07	65.79	92.70	20	0.0	696	0.53	0.479	0.48	8.56	0.38	0.002
14.39	2.13	65.03	98.78	22	0.0	740	0.53	0.364	0.33	8.56	0.26	0.002
14.44	2.18	64.43	104.65	23	0.0	777	0.53	0.296	0.24	8.56	0.19	0.001
14.52	2.19	64.50	106.41	24	0.0	792	0.53	0.276	0.22	8.56	0.17	0.002
14.59	2.19	64.94	107.14	24	0.0	800	0.53	0.265	0.21	8.56	0.16	0.001
14.65	2.20	66.03	109.60	25	0.0	820	0.53	0.241	0.19	8.56	0.15	0.001
14.71	2.19	69.57	113.96	26	0.0	858	0.53	0.204	0.15	8.56	0.12	0.001
14.78	2.15	75.05	116.43	26	0.0	888	0.52	0.180	0.13	8.56	0.10	0.001
14.84	2.08	82.01	116.24	25	0.0	897	0.52	0.175	0.13	8.56	0.10	0.001
14.90	1.99	90.45	116.41	24	0.0	895	0.52	0.177	0.14	8.56	0.11	0.001
14.97	1.90	100.43	119.87	24	0.0	904	0.52	0.171	0.14	8.56	0.11	0.001
15.04	1.86	106.86	123.41	24	0.0	917	0.52	0.163	0.13	8.56	0.10	0.001
15.11	1.85	110.50	126.20	25	0.0	934	0.52	0.154	0.12	8.56	0.09	0.001
15.16	1.86	110.05	126.80	25	0.0	946	0.52	0.148	0.11	8.56	0.09	0.001
15.24	1.85	113.17	129.49	25	0.0	965	0.52	0.139	0.10	8.56	0.08	0.001
15.29	1.83	116.61	131.41	26	0.0	971	0.52	0.137	0.10	8.56	0.08	0.000
15.36	1.79	121.68	133.67	26	0.0	972	0.52	0.137	0.10	8.56	0.08	0.001
15.43	1.78	125.11	136.63	26	0.0	991	0.51	0.129	0.09	8.56	0.07	0.001
15.51	1.78	128.39	140.64	27	0.0	1026	0.51	0.116	0.08	8.56	0.06	0.001
15.56	1.80	130.43	144.31	28	0.0	1064	0.51	0.105	0.07	8.56	0.05	0.000
15.64	1.79	133.10	146.41	28	0.0	1078	0.51	0.102	0.07	8.56	0.05	0.001
15.69	1.78	135.21	147.99	28	0.0	1087	0.51	0.099	0.07	8.56	0.05	0.000
15.77	1.78	136.94	149.16	29	0.0	1095	0.51	0.098	0.06	8.56	0.05	0.000

:: Post-earthquake settlement of dry sands :: (continued)

Depth (ft)	Ic	$q_{c,1,mod}$ (tsf)	$q_{c,1N,mod}$	$N_{1,60}$ (blows)	Vs (ft/s)	G_{max} (tsf)	CSR	Shear, γ (%)	$S_{vol,15}$ (%)	N_c	e_v (%)	Settle. (in)
15.82	1.78	137.24	149.60	29	0.0	1101	0.51	0.096	0.06	8.56	0.05	0.000
15.89	1.78	136.12	148.93	29	0.0	1103	0.51	0.096	0.06	8.56	0.05	0.000
15.95	1.79	133.91	147.47	28	0.0	1100	0.51	0.097	0.06	8.56	0.05	0.000
16.02	1.82	129.16	144.38	28	0.0	1093	0.51	0.099	0.07	8.56	0.05	0.000
16.09	1.84	123.55	140.15	27	0.0	1076	0.50	0.104	0.07	8.56	0.06	0.000
16.15	1.86	118.20	136.63	27	0.0	1065	0.50	0.107	0.07	8.56	0.06	0.000
16.22	1.88	114.17	133.86	27	0.0	1055	0.50	0.110	0.08	8.56	0.06	0.000
16.27	1.90	111.53	132.48	27	0.0	1055	0.50	0.111	0.08	8.56	0.06	0.000
16.34	1.91	109.82	131.23	26	0.0	1051	0.50	0.112	0.08	8.56	0.06	0.001
16.41	1.91	108.91	130.60	26	0.0	1050	0.50	0.113	0.08	8.56	0.06	0.000
16.50	1.93	106.82	129.68	26	0.0	1053	0.50	0.112	0.08	8.56	0.06	0.001
16.57	1.94	104.18	128.30	26	0.0	1051	0.50	0.113	0.08	8.56	0.06	0.001
16.60	1.93	101.28	122.92	25	0.0	1002	0.50	0.131	0.10	8.56	0.08	0.000
16.70	1.90	99.04	117.45	24	0.0	951	0.49	0.155	0.13	8.56	0.10	0.001
16.76	1.86	97.27	112.42	22	0.0	898	0.49	0.189	0.17	8.56	0.13	0.001
16.82	1.87	95.18	110.62	22	0.0	889	0.49	0.196	0.18	8.56	0.14	0.001
16.89	1.86	94.02	108.50	21	0.0	870	0.49	0.212	0.19	8.56	0.15	0.001
16.95	1.90	85.80	102.22	21	0.0	838	0.49	0.245	0.24	8.56	0.18	0.001
17.01	1.99	74.35	96.12	20	0.0	814	0.49	0.274	0.27	8.56	0.21	0.002
17.09	2.14	61.52	93.68	21	0.0	802	0.49	0.291	0.28	8.56	0.22	0.002
17.16	2.22	54.63	93.68	21	0.0	791	0.49	0.307	0.29	8.56	0.22	0.002
17.22	2.23	52.21	90.60	21	0.0	766	0.49	0.353	0.34	8.56	0.26	0.002
17.28	2.20	50.75	85.10	19	0.0	726	0.48	0.445	0.47	8.56	0.36	0.003
17.35	2.18	50.05	81.01	18	0.0	697	0.48	0.537	0.60	8.56	0.47	0.004
17.41	2.19	48.06	79.26	18	0.0	682	0.48	0.597	0.69	8.56	0.53	0.004
17.48	2.22	45.76	78.49	18	0.0	673	0.48	0.637	0.73	8.56	0.57	0.005
17.54	2.23	44.12	76.81	18	0.0	658	0.48	0.709	0.83	8.56	0.65	0.005
17.60	2.20	43.87	73.60	17	0.0	636	0.48	0.840	1.05	8.56	0.81	0.006
17.66	2.17	43.50	69.10	15	0.0	604	0.48	1.108	1.52	8.56	1.18	0.009
17.75	2.13	43.14	65.35	14	0.0	576	0.48	1.445	2.16	8.56	1.68	0.018
17.78	2.11	42.69	63.20	14	0.0	558	0.48	1.729	2.71	8.56	2.10	0.008
17.87	2.11	42.32	62.19	14	0.0	551	0.48	1.856	2.97	8.56	2.31	0.025
17.93	2.10	42.10	61.25	13	0.0	544	0.47	2.005	3.28	8.56	2.55	0.017
18.00	2.09	42.27	60.60	13	0.0	540	0.47	2.100	3.50	8.56	2.72	0.023
18.06	2.07	42.54	60.01	13	0.0	535	0.47	2.201	3.74	8.56	2.90	0.022
18.13	2.06	42.87	59.59	13	0.0	533	0.47	2.272	3.92	8.56	3.04	0.024
18.19	2.05	43.23	43.23	9	0.0	529	0.47	2.374	6.06	8.56	4.70	0.035
18.25	2.03	43.68	43.68	9	0.0	524	0.47	2.504	6.36	8.56	4.94	0.037
18.32	2.01	44.30	44.30	9	0.0	521	0.47	2.591	6.52	8.56	5.00	0.040
18.38	2.00	44.93	44.93	9	0.0	521	0.47	2.567	6.39	8.56	4.97	0.039
18.44	2.00	45.45	45.45	9	0.0	527	0.47	2.401	5.90	8.56	4.59	0.033
18.51	2.00	45.53	45.53	9	0.0	530	0.47	2.303	5.64	8.56	4.39	0.033
18.57	2.01	44.90	44.90	9	0.0	531	0.46	2.287	5.67	8.56	4.41	0.034
18.64	2.01	44.26	44.26	9	0.0	527	0.46	2.367	5.96	8.56	4.63	0.038
18.73	2.02	43.64	43.64	9	0.0	524	0.46	2.443	6.25	8.56	4.85	0.055
18.80	2.02	43.39	43.39	9	0.0	523	0.46	2.490	6.41	8.56	4.98	0.038
18.86	2.03	42.77	42.77	9	0.0	521	0.46	2.534	6.62	8.56	5.00	0.039
18.92	2.03	42.10	42.10	9	0.0	519	0.46	2.593	6.87	8.56	5.00	0.034

:: Post-earthquake settlement of dry sands :: (continued)

Depth (ft)	Ic	$q_{c,1,mod}$ (tsf)	$q_{c,1N,mod}$	$N_{1,60}$ (blows)	Vs (ft/s)	G_{max} (tsf)	CSR	Shear, γ (%)	$S_{vol,15}$ (%)	N_c	e_v (%)	Settle. (in)
18.99	2.04	41.53	41.53	9	0.0	517	0.46	2.647	7.11	8.56	5.00	0.043
19.05	2.04	41.36	41.36	9	0.0	516	0.46	2.657	7.17	8.56	5.00	0.037
19.12	2.04	41.52	41.52	9	0.0	520	0.46	2.541	6.83	8.56	5.00	0.040
19.18	2.04	41.95	41.95	9	0.0	529	0.45	2.273	6.02	8.56	4.68	0.033
19.23	2.05	42.41	42.41	9	0.0	539	0.45	2.024	5.28	8.56	4.10	0.029
19.29	2.05	42.81	42.81	9	0.0	547	0.45	1.840	4.74	8.56	3.68	0.026
19.38	2.05	43.09	43.09	9	0.0	553	0.45	1.731	4.42	8.56	3.44	0.037
19.45	2.05	43.54	59.74	13	0.0	559	0.45	1.620	2.80	8.56	2.17	0.017
19.51	2.05	43.87	60.14	13	0.0	564	0.45	1.537	2.64	8.56	2.05	0.015
19.57	2.05	44.17	60.38	13	0.0	567	0.45	1.484	2.54	8.56	1.97	0.015
19.64	2.04	44.24	60.24	13	0.0	567	0.45	1.485	2.55	8.56	1.98	0.015
19.70	2.04	44.43	44.43	9	0.0	566	0.45	1.490	3.69	8.56	2.87	0.022
19.76	2.04	44.69	60.58	13	0.0	572	0.45	1.402	2.39	8.56	1.86	0.014
19.82	2.05	45.30	61.82	13	0.0	586	0.44	1.228	2.04	8.56	1.59	0.011
19.89	2.06	46.40	64.03	14	0.0	609	0.44	0.995	1.58	8.56	1.23	0.009
19.95	2.07	47.15	66.07	14	0.0	631	0.44	0.828	1.26	8.56	0.98	0.008
20.04	2.06	49.53	68.64	15	0.0	656	0.44	0.677	0.99	8.56	0.77	0.008
20.09	2.04	52.53	71.29	15	0.0	681	0.44	0.569	0.80	8.56	0.62	0.003
20.15	2.00	57.13	74.59	16	0.0	708	0.44	0.475	0.64	8.56	0.50	0.004
20.22	1.98	60.50	77.32	16	0.0	731	0.44	0.413	0.54	8.56	0.42	0.003
20.28	1.97	63.47	79.80	16	0.0	752	0.44	0.367	0.47	8.56	0.36	0.003
20.34	1.95	65.65	81.56	17	0.0	766	0.44	0.339	0.42	8.56	0.33	0.003
20.41	1.93	68.13	83.22	17	0.0	777	0.44	0.319	0.39	8.56	0.30	0.002
20.48	1.91	70.11	84.18	17	0.0	781	0.43	0.313	0.38	8.56	0.30	0.002
20.57	1.90	71.47	84.71	17	0.0	782	0.43	0.311	0.38	8.56	0.29	0.003
20.63	1.88	72.26	84.91	17	0.0	781	0.43	0.313	0.38	8.56	0.30	0.002
20.69	1.87	73.41	85.32	17	0.0	780	0.43	0.313	0.38	8.56	0.30	0.002
20.75	1.86	74.41	85.54	17	0.0	777	0.43	0.318	0.39	8.56	0.30	0.002
20.81	1.85	74.48	85.26	17	0.0	773	0.43	0.324	0.40	8.56	0.31	0.002
20.87	1.86	72.84	83.88	17	0.0	766	0.43	0.336	0.42	8.56	0.33	0.003
20.96	1.88	70.04	82.10	16	0.0	761	0.43	0.342	0.44	8.56	0.34	0.004
21.02	1.92	66.44	80.19	16	0.0	759	0.43	0.346	0.45	8.56	0.35	0.002
21.08	1.96	62.72	78.25	16	0.0	755	0.43	0.353	0.46	8.56	0.36	0.003
21.15	1.98	59.65	76.23	16	0.0	744	0.42	0.375	0.50	8.56	0.39	0.003
21.21	1.99	57.48	74.29	15	0.0	729	0.42	0.407	0.56	8.56	0.43	0.003
21.27	2.00	55.85	72.94	15	0.0	719	0.42	0.429	0.60	8.56	0.46	0.004
21.33	2.02	54.06	71.93	15	0.0	714	0.42	0.441	0.62	8.56	0.48	0.004
21.40	2.04	52.14	70.88	15	0.0	709	0.42	0.456	0.64	8.56	0.50	0.004
21.46	2.06	50.60	70.13	15	0.0	705	0.42	0.466	0.66	8.56	0.51	0.004
21.53	2.07	49.59	69.58	15	0.0	702	0.42	0.473	0.67	8.56	0.52	0.004
21.59	2.06	49.19	68.40	15	0.0	691	0.42	0.507	0.74	8.56	0.58	0.004
21.66	2.05	48.98	67.35	14	0.0	680	0.42	0.540	0.81	8.56	0.63	0.005
21.75	2.05	48.82	66.85	14	0.0	677	0.41	0.551	0.83	8.56	0.65	0.007
21.81	2.05	49.26	67.84	14	0.0	689	0.41	0.507	0.75	8.56	0.58	0.005
21.87	2.05	50.21	69.22	15	0.0	704	0.41	0.459	0.66	8.56	0.52	0.003
21.93	2.05	53.01	72.29	15	0.0	736	0.41	0.381	0.53	8.56	0.41	0.003
22.01	2.04	57.01	76.98	16	0.0	784	0.41	0.295	0.38	8.56	0.29	0.003
22.07	2.03	61.64	82.27	17	0.0	837	0.41	0.231	0.28	8.56	0.21	0.002

:: Post-earthquake settlement of dry sands :: (continued)

Depth (ft)	Ic	$q_{c,1,mod}$ (tsf)	$q_{c,1N,mod}$	$N_{1,60}$ (blows)	Vs (ft/s)	G_{max} (tsf)	CSR	Shear, γ (%)	$S_{vol,15}$ (%)	N_c	e_v (%)	Settle. (in)
22.13	2.01	64.28	84.70	18	0.0	861	0.41	0.209	0.24	8.56	0.19	0.001
22.20	2.00	65.29	84.88	18	0.0	861	0.41	0.209	0.24	8.56	0.19	0.001
22.25	1.99	64.77	83.61	17	0.0	848	0.41	0.220	0.26	8.56	0.20	0.001
22.31	1.99	64.84	83.37	17	0.0	846	0.41	0.221	0.26	8.56	0.21	0.002
22.40	1.99	65.38	83.90	17	0.0	853	0.40	0.215	0.25	8.56	0.20	0.002
22.47	2.01	63.53	83.24	17	0.0	854	0.40	0.213	0.25	8.56	0.20	0.002
22.53	2.05	59.44	81.45	17	0.0	847	0.40	0.220	0.26	8.56	0.20	0.001
22.59	2.10	54.65	79.35	17	0.0	832	0.40	0.233	0.28	8.56	0.22	0.002
22.65	2.11	52.77	78.19	17	0.0	823	0.40	0.242	0.29	8.56	0.23	0.002
22.72	2.09	53.13	76.73	17	0.0	808	0.40	0.258	0.32	8.56	0.25	0.002
22.78	2.07	53.66	75.27	16	0.0	792	0.40	0.278	0.36	8.56	0.28	0.002
22.84	2.05	54.34	74.36	16	0.0	780	0.40	0.292	0.39	8.56	0.30	0.002
22.90	2.04	54.47	73.84	16	0.0	775	0.40	0.299	0.40	8.56	0.31	0.002
23.00	2.03	54.05	72.70	15	0.0	764	0.40	0.315	0.43	8.56	0.34	0.004
23.06	2.03	53.01	70.91	15	0.0	746	0.40	0.346	0.49	8.56	0.38	0.003
23.10	2.03	51.42	69.06	15	0.0	728	0.39	0.380	0.56	8.56	0.43	0.002
23.17	2.04	49.48	67.18	14	0.0	711	0.39	0.417	0.63	8.56	0.49	0.004
23.24	2.05	47.59	65.34	14	0.0	695	0.39	0.459	0.71	8.56	0.55	0.004
23.30	2.07	45.54	63.95	14	0.0	684	0.39	0.490	0.77	8.56	0.60	0.005
23.39	2.09	44.32	63.32	14	0.0	681	0.39	0.498	0.79	8.56	0.61	0.006
23.45	2.10	43.59	63.18	14	0.0	681	0.39	0.494	0.78	8.56	0.61	0.005
23.51	2.10	43.62	63.37	14	0.0	685	0.39	0.481	0.76	8.56	0.59	0.004
23.58	2.11	43.47	63.75	14	0.0	691	0.39	0.462	0.72	8.56	0.56	0.004
23.64	2.11	43.55	64.53	14	0.0	701	0.39	0.432	0.66	8.56	0.51	0.004
23.71	2.12	43.89	65.45	14	0.0	713	0.39	0.402	0.60	8.56	0.47	0.004
23.77	2.12	44.46	66.36	14	0.0	724	0.38	0.376	0.55	8.56	0.43	0.003
23.83	2.12	45.04	67.04	15	0.0	733	0.38	0.357	0.52	8.56	0.40	0.003
23.89	2.11	45.70	67.72	15	0.0	741	0.38	0.340	0.49	8.56	0.38	0.003
23.98	2.11	46.34	68.45	15	0.0	751	0.38	0.322	0.46	8.56	0.36	0.004
24.03	2.11	47.32	69.63	15	0.0	766	0.38	0.299	0.42	8.56	0.32	0.002
24.10	2.10	48.58	70.99	15	0.0	782	0.38	0.276	0.38	8.56	0.29	0.002
24.16	2.09	50.24	72.49	16	0.0	799	0.38	0.254	0.34	8.56	0.27	0.002
24.22	2.08	51.99	73.88	16	0.0	814	0.38	0.237	0.31	8.56	0.24	0.002
24.29	2.07	53.66	75.31	16	0.0	830	0.38	0.221	0.29	8.56	0.22	0.002
24.34	2.07	55.26	77.43	17	0.0	855	0.38	0.200	0.25	8.56	0.19	0.001
24.41	2.07	57.17	80.12	17	0.0	887	0.38	0.178	0.21	8.56	0.17	0.001
24.48	2.06	60.47	83.84	18	0.0	928	0.37	0.154	0.18	8.56	0.14	0.001
24.56	2.04	64.75	87.39	18	0.0	964	0.37	0.137	0.15	8.56	0.12	0.001
24.62	2.00	70.45	91.59	19	0.0	1001	0.37	0.124	0.13	8.56	0.10	0.001
24.69	1.95	76.61	95.29	19	0.0	1024	0.37	0.116	0.12	8.56	0.09	0.001
24.75	1.90	83.70	99.59	20	0.0	1043	0.37	0.111	0.11	8.56	0.09	0.001
24.81	1.87	91.76	106.98	21	0.0	1105	0.37	0.096	0.09	8.56	0.07	0.001
24.89	1.87	100.08	116.33	23	0.0	1202	0.37	0.078	0.07	8.56	0.05	0.001
24.96	1.86	108.10	125.14	25	0.0	1290	0.37	0.067	0.05	8.56	0.04	0.000
25.02	1.85	112.99	129.21	25	0.0	1320	0.37	0.064	0.05	8.56	0.04	0.000
25.08	1.81	117.93	131.67	26	0.0	1316	0.37	0.065	0.05	8.56	0.04	0.000
25.13	1.78	122.28	133.86	26	0.0	1312	0.36	0.065	0.05	8.56	0.04	0.000
25.20	1.76	127.23	137.55	26	0.0	1331	0.36	0.063	0.05	8.56	0.04	0.000

:: Post-earthquake settlement of dry sands :: (continued)

Depth (ft)	Ic	$q_{c,1,mod}$ (tsf)	$q_{c,1N,mod}$	$N_{1,60}$ (blows)	Vs (ft/s)	G_{max} (tsf)	CSR	Shear, γ (%)	$S_{vol,15}$ (%)	N_c	e_v (%)	Settle. (in)
25.27	1.76	130.60	141.06	27	0.0	1366	0.36	0.060	0.04	8.56	0.03	0.000
25.33	1.77	131.53	142.36	27	0.0	1384	0.36	0.058	0.04	8.56	0.03	0.000
25.39	1.75	131.33	141.09	27	0.0	1362	0.36	0.060	0.04	8.56	0.03	0.000
25.48	1.73	130.40	137.95	26	0.0	1311	0.36	0.065	0.05	8.56	0.04	0.000
25.55	1.70	130.80	135.83	25	0.0	1266	0.36	0.069	0.05	8.56	0.04	0.000
25.60	1.70	129.41	134.10	25	0.0	1249	0.36	0.072	0.05	8.56	0.04	0.000
25.66	1.72	124.01	130.58	25	0.0	1241	0.36	0.072	0.06	8.56	0.04	0.000
25.73	1.78	116.55	127.43	24	0.0	1267	0.36	0.069	0.05	8.56	0.04	0.000
25.80	1.84	108.79	123.61	24	0.0	1283	0.36	0.067	0.05	8.56	0.04	0.000
25.86	1.92	100.72	121.23	24	0.0	1322	0.35	0.063	0.05	8.56	0.04	0.000
25.95	1.98	93.28	118.36	24	0.0	1334	0.35	0.062	0.05	8.56	0.04	0.000
25.99	2.03	86.61	115.72	24	0.0	1331	0.35	0.062	0.05	8.56	0.04	0.000
26.08	2.05	82.48	112.47	24	0.0	1305	0.35	0.065	0.05	8.56	0.04	0.000
26.14	2.05	80.22	109.70	23	0.0	1276	0.35	0.068	0.06	8.56	0.04	0.000
26.21	2.06	77.68	107.13	23	0.0	1251	0.35	0.071	0.06	8.56	0.05	0.000
26.27	2.05	76.12	104.77	22	0.0	1225	0.35	0.074	0.06	8.56	0.05	0.000
26.34	2.06	73.19	101.79	22	0.0	1195	0.35	0.078	0.07	8.56	0.05	0.000
26.39	2.04	74.86	101.51	21	0.0	1187	0.35	0.079	0.07	8.56	0.06	0.000
26.45	2.01	77.50	101.96	21	0.0	1183	0.35	0.079	0.07	8.56	0.06	0.000
26.52	1.97	81.99	103.23	21	0.0	1178	0.35	0.080	0.07	8.56	0.06	0.000
26.58	1.93	85.05	103.51	21	0.0	1161	0.35	0.082	0.08	8.56	0.06	0.000
26.64	1.89	88.70	104.65	21	0.0	1149	0.34	0.084	0.08	8.56	0.06	0.000
26.74	1.87	91.24	105.82	21	0.0	1149	0.34	0.084	0.08	8.56	0.06	0.001
26.80	1.86	93.17	107.10	21	0.0	1155	0.34	0.083	0.08	8.56	0.06	0.000
26.87	1.85	93.78	107.41	21	0.0	1156	0.34	0.083	0.08	8.56	0.06	0.000
26.93	1.85	94.72	108.23	21	0.0	1164	0.34	0.081	0.08	8.56	0.06	0.000
26.99	1.85	96.00	109.79	22	0.0	1184	0.34	0.078	0.07	8.56	0.06	0.000
27.05	1.85	98.44	112.81	22	0.0	1221	0.34	0.073	0.06	8.56	0.05	0.000
27.12	1.86	102.18	117.57	23	0.0	1280	0.34	0.066	0.06	8.56	0.04	0.000
27.18	1.86	108.22	125.05	25	0.0	1369	0.34	0.058	0.05	8.56	0.04	0.000
27.24	1.85	115.89	133.05	26	0.0	1450	0.34	0.052	0.04	8.56	0.03	0.000
27.30	1.87	120.77	140.08	28	0.0	1544	0.34	0.047	0.03	8.56	0.02	0.000
27.36	1.86	123.37	141.88	28	0.0	1554	0.33	0.046	0.03	8.56	0.02	0.000
27.45	1.85	122.36	140.60	28	0.0	1542	0.33	0.047	0.03	8.56	0.02	0.000
27.51	1.84	120.22	136.36	27	0.0	1479	0.33	0.050	0.04	8.56	0.03	0.000
27.58	1.85	115.61	132.50	26	0.0	1455	0.33	0.052	0.04	8.56	0.03	0.000
27.64	1.87	112.85	130.78	26	0.0	1453	0.33	0.052	0.04	8.56	0.03	0.000
27.70	1.90	110.35	130.77	26	0.0	1484	0.33	0.050	0.04	8.56	0.03	0.000
27.77	1.91	110.91	132.65	27	0.0	1519	0.33	0.048	0.03	8.56	0.03	0.000
27.83	1.91	110.86	133.13	27	0.0	1531	0.33	0.047	0.03	8.56	0.03	0.000
27.89	1.85	115.49	132.60	26	0.0	1470	0.33	0.051	0.04	8.56	0.03	0.000
28.01	1.80	118.44	131.06	25	0.0	1402	0.33	0.055	0.04	8.56	0.03	0.000
28.05	1.76	119.58	128.62	24	0.0	1331	0.33	0.061	0.05	8.56	0.04	0.000
28.11	1.76	117.21	126.39	24	0.0	1314	0.33	0.062	0.05	8.56	0.04	0.000
28.16	1.76	115.29	124.29	24	0.0	1293	0.32	0.064	0.05	8.56	0.04	0.000
28.23	1.75	114.20	122.69	23	0.0	1273	0.32	0.066	0.05	8.56	0.04	0.000
28.29	1.78	106.30	115.93	22	0.0	1227	0.32	0.071	0.06	8.56	0.05	0.000
28.35	1.78	103.01	112.75	22	0.0	1201	0.32	0.074	0.07	8.56	0.05	0.000

:: Post-earthquake settlement of dry sands :: (continued)

Depth (ft)	Ic	$q_{c,1,mod}$ (tsf)	$q_{c,1N,mod}$	$N_{1,60}$ (blows)	Vs (ft/s)	G_{max} (tsf)	CSR	Shear, γ (%)	$S_{vol,15}$ (%)	N_c	e_v (%)	Settle. (in)
28.42	1.79	100.01	109.87	21	0.0	1177	0.32	0.077	0.07	8.56	0.06	0.000
28.48	1.77	102.88	111.78	21	0.0	1183	0.32	0.076	0.07	8.56	0.05	0.000
28.57	1.78	100.79	110.27	21	0.0	1180	0.32	0.076	0.07	8.56	0.06	0.001
28.64	1.80	98.97	109.37	21	0.0	1186	0.32	0.075	0.07	8.56	0.05	0.000
28.70	1.82	99.03	110.71	22	0.0	1218	0.32	0.071	0.07	8.56	0.05	0.000
28.76	1.84	99.80	113.70	22	0.0	1279	0.32	0.065	0.06	8.56	0.04	0.000
28.82	1.86	101.98	117.82	23	0.0	1346	0.32	0.059	0.05	8.56	0.04	0.000
28.88	1.88	104.58	122.22	24	0.0	1413	0.32	0.054	0.04	8.56	0.03	0.000
28.94	1.88	107.79	126.18	25	0.0	1464	0.31	0.050	0.04	8.56	0.03	0.000
29.03	1.88	110.56	128.95	26	0.0	1494	0.31	0.049	0.04	8.56	0.03	0.000
29.09	1.88	111.38	130.84	26	0.0	1528	0.31	0.047	0.03	8.56	0.03	0.000
29.15	1.94	110.86	135.96	28	0.0	1644	0.31	0.041	0.03	8.56	0.02	0.000
29.21	2.00	110.31	142.81	30	0.0	1781	0.31	0.037	0.02	8.56	0.02	0.000
29.28	2.04	108.84	148.02	31	0.0	1883	0.31	0.034	0.02	8.56	0.02	0.000
29.34	2.04	110.35	149.93	32	0.0	1911	0.31	0.033	0.02	8.56	0.01	0.000
29.41	2.01	117.70	154.29	32	0.0	1945	0.31	0.032	0.02	8.56	0.01	0.000
29.49	2.00	123.18	159.64	33	0.0	2008	0.31	0.031	0.02	8.56	0.01	0.000
29.55	2.02	122.98	163.10	34	0.0	2075	0.31	0.029	0.02	8.56	0.01	0.000
29.61	2.05	118.57	163.14	35	0.0	2103	0.31	0.029	0.01	8.56	0.01	0.000
29.67	2.04	120.17	162.25	34	0.0	2083	0.31	0.029	0.02	8.56	0.01	0.000
29.73	1.99	125.32	160.99	33	0.0	2031	0.31	0.030	0.02	8.56	0.01	0.000
29.80	1.95	128.53	159.39	33	0.0	1976	0.30	0.031	0.02	8.56	0.01	0.000
29.86	1.94	127.50	157.05	32	0.0	1942	0.30	0.032	0.02	8.56	0.01	0.000
29.93	1.94	126.11	155.17	32	0.0	1921	0.30	0.033	0.02	8.56	0.01	0.000
29.99	1.94	123.59	151.99	31	0.0	1884	0.30	0.033	0.02	8.56	0.02	0.000

Total estimated settlement: 6.60

:: Post-earthquake settlement due to soil liquefaction ::

Depth (ft)	$q_{c,1,mod}$ (tsf)	$q_{c,1N,mod}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$q_{c,1,mod}$ (tsf)	$q_{c,1N,mod}$	FS	e_v (%)	DF	Settlement (in)
30.07	154.43	145.95	1.50	0.00	1.00	0.00	30.12	166.47	157.33	1.84	0.00	1.00	0.00
30.19	170.92	161.53	1.96	0.00	1.00	0.00	30.25	170.35	161.00	1.93	0.00	1.00	0.00
30.33	165.43	156.35	1.77	0.00	1.00	0.00	30.40	164.24	155.22	1.73	0.00	1.00	0.00
30.46	162.58	153.65	1.67	0.00	1.00	0.00	30.52	161.32	152.46	1.64	0.00	1.00	0.00
30.59	156.38	147.79	1.51	0.00	1.00	0.00	30.65	151.23	142.92	1.39	0.00	1.00	0.00
30.73	142.69	134.85	1.21	0.32	1.00	0.00	30.78	134.53	127.14	1.06	0.45	1.00	0.00
30.84	128.83	121.75	0.97	0.70	1.00	0.01	30.91	124.05	117.24	0.90	1.14	1.00	0.01
30.99	119.68	113.11	0.84	1.56	1.00	0.02	31.05	119.02	112.48	0.83	1.58	1.00	0.01
31.11	118.54	112.03	0.82	1.59	1.00	0.01	31.20	122.41	115.69	0.88	1.16	1.00	0.01
31.26	133.14	125.83	1.06	0.46	1.00	0.00	31.31	151.93	143.58	1.46	0.00	1.00	0.00
31.38	173.14	163.63	2.00	0.00	1.00	0.00	31.46	199.79	188.81	2.00	0.00	1.00	0.00
31.52	187.84	177.52	2.00	0.00	1.00	0.00	31.57	195.47	184.74	2.00	0.00	1.00	0.00
31.64	192.33	181.77	2.00	0.00	1.00	0.00	31.69	183.59	173.51	2.00	0.00	1.00	0.00
31.79	165.76	156.66	1.94	0.00	1.00	0.00	31.85	172.60	163.12	2.00	0.00	1.00	0.00
31.91	173.85	164.31	2.00	0.00	1.00	0.00	31.97	166.88	157.71	2.00	0.00	1.00	0.00
32.03	179.73	169.86	2.00	0.00	1.00	0.00	32.09	181.15	171.20	2.00	0.00	1.00	0.00
32.18	177.39	167.64	2.00	0.00	1.00	0.00	32.23	174.34	164.76	2.00	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$q_{c,1,mod}$ (tsf)	$q_{c,1N,mod}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$q_{c,1,mod}$ (tsf)	$q_{c,1N,mod}$	FS	e_v (%)	DF	Settlement (in)
32.30	176.26	166.58	2.00	0.00	1.00	0.00	32.36	171.23	161.83	2.00	0.00	1.00	0.00
32.42	167.30	158.11	2.00	0.00	1.00	0.00	32.48	168.18	158.95	2.00	0.00	1.00	0.00
32.56	165.63	156.54	1.97	0.00	1.00	0.00	32.63	168.55	159.29	2.00	0.00	1.00	0.00
32.69	171.03	161.64	2.00	0.00	1.00	0.00	32.75	174.68	165.09	2.00	0.00	1.00	0.00
32.81	187.19	176.91	2.00	0.00	1.00	0.00	32.90	171.74	162.31	2.00	0.00	1.00	0.00
32.94	168.38	159.13	2.00	0.00	1.00	0.00	33.02	167.69	158.48	2.00	0.00	1.00	0.00
33.09	161.04	152.19	1.79	0.00	1.00	0.00	33.15	157.08	148.46	1.67	0.00	1.00	0.00
33.21	155.75	147.20	1.63	0.00	1.00	0.00	33.27	159.02	150.29	1.72	0.00	1.00	0.00
33.36	168.66	159.40	2.00	0.00	1.00	0.00	33.43	181.36	171.40	2.00	0.00	1.00	0.00
33.48	198.34	187.45	2.00	0.00	1.00	0.00	33.54	212.99	201.29	2.00	0.00	1.00	0.00
33.60	218.36	206.37	2.00	0.00	1.00	0.00	33.69	219.82	207.75	2.00	0.00	1.00	0.00
33.75	210.19	198.65	2.00	0.00	1.00	0.00	33.81	210.82	199.24	2.00	0.00	1.00	0.00
33.88	223.42	211.15	2.00	0.00	1.00	0.00	33.93	223.78	211.49	2.00	0.00	1.00	0.00
34.00	245.89	232.39	2.00	0.00	1.00	0.00	34.06	135.19	127.76	1.20	0.33	1.00	0.00
34.12	196.31	185.53	2.00	0.00	1.00	0.00	34.20	177.58	167.83	2.00	0.00	1.00	0.00
34.26	182.31	172.30	2.00	0.00	1.00	0.00	34.33	209.70	198.18	2.00	0.00	1.00	0.00
34.38	197.85	186.98	2.00	0.00	1.00	0.00	34.45	150.36	142.10	1.59	0.00	1.00	0.00
34.52	138.09	130.51	1.29	0.23	1.00	0.00	34.60	130.27	123.12	1.12	0.46	1.00	0.00
34.65	122.68	115.94	0.97	0.73	1.00	0.00	34.73	113.42	107.20	0.82	1.69	1.00	0.02
34.78	105.34	99.56	0.72	2.24	1.00	0.01	34.85	95.41	90.17	0.60	2.43	1.00	0.02
34.91	93.90	88.74	0.58	2.46	1.00	0.02	34.97	92.27	87.20	0.56	2.50	1.00	0.02
35.04	91.24	86.23	0.55	2.52	1.00	0.02	35.12	85.09	80.42	0.50	2.67	1.00	0.02
35.18	81.51	77.04	0.47	2.76	1.00	0.02	35.25	80.11	75.71	0.46	2.80	1.00	0.02
35.30	77.99	73.70	0.44	2.87	1.00	0.02	35.37	74.62	70.52	0.42	2.97	1.00	0.02
35.43	70.93	67.04	0.40	3.10	1.00	0.02	35.52	69.67	65.84	0.39	3.14	1.00	0.03
35.58	70.48	66.61	0.40	3.11	1.00	0.02	35.64	74.57	70.48	0.43	2.97	1.00	0.02
35.70	79.97	75.58	0.48	2.81	1.00	0.02	35.77	88.56	83.70	0.55	2.58	1.00	0.02
35.83	93.63	88.49	0.60	2.47	1.00	0.02	35.89	106.52	100.67	0.75	2.22	1.00	0.02
35.97	118.22	111.73	0.91	1.22	1.00	0.01	36.04	119.01	112.48	0.93	1.21	1.00	0.01
36.12	115.42	109.08	0.87	1.27	1.00	0.01	36.16	117.90	111.42	0.91	1.23	1.00	0.01
36.23	119.73	113.16	0.95	1.20	1.00	0.01	36.31	126.77	119.80	1.07	0.47	1.00	0.00
36.35	129.30	122.20	1.11	0.47	1.00	0.00	36.44	127.31	120.32	1.08	0.47	1.00	0.01
36.49	129.96	122.82	1.13	0.46	1.00	0.00	36.57	130.50	123.34	1.14	0.46	1.00	0.00
36.62	130.87	123.69	1.14	0.46	1.00	0.00	36.70	133.39	126.07	1.19	0.33	1.00	0.00
36.76	135.57	128.13	1.24	0.33	1.00	0.00	36.81	136.31	128.83	1.25	0.23	1.00	0.00
36.89	133.52	126.19	1.20	0.33	1.00	0.00	36.96	129.66	122.54	1.12	0.47	1.00	0.00
37.01	125.32	118.43	1.04	0.72	1.00	0.00	37.08	118.64	112.13	0.94	1.22	1.00	0.01
37.15	113.93	107.67	0.87	1.29	1.00	0.01	37.22	114.38	108.10	0.88	1.29	1.00	0.01
37.29	104.73	98.98	0.75	1.90	1.00	0.02	37.34	104.17	98.45	0.75	2.26	1.00	0.01
37.41	106.55	100.70	0.78	1.85	1.00	0.01	37.48	101.85	96.26	0.72	2.30	1.00	0.02
37.54	102.24	96.63	0.72	2.29	1.00	0.02	37.62	102.27	96.65	0.72	2.29	1.00	0.02
37.67	97.94	92.56	0.67	2.38	1.00	0.01	37.74	97.81	92.44	0.67	2.38	1.00	0.02
37.82	100.49	94.97	0.70	2.33	1.00	0.02	37.88	105.24	99.46	0.76	1.89	1.00	0.01
37.95	110.18	104.13	0.84	1.76	1.00	0.02	38.00	112.78	106.59	0.88	1.31	1.00	0.01
38.07	122.34	115.62	1.05	0.73	1.00	0.01	38.14	130.97	123.78	1.22	0.34	1.00	0.00
38.20	142.52	134.69	1.49	0.00	1.00	0.00	38.26	168.02	158.79	2.00	0.00	1.00	0.00
38.33	171.73	162.30	2.00	0.00	1.00	0.00	38.40	173.87	164.32	2.00	0.00	1.00	0.00
38.45	179.97	170.09	2.00	0.00	1.00	0.00	38.52	188.11	177.78	2.00	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$q_{c,1,mod}$ (tsf)	$q_{c,1N,mod}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$q_{c,1,mod}$ (tsf)	$q_{c,1N,mod}$	FS	e_v (%)	DF	Settlement (in)
38.60	199.37	188.42	2.00	0.00	1.00	0.00	38.65	201.84	190.76	2.00	0.00	1.00	0.00
38.72	197.22	186.39	2.00	0.00	1.00	0.00	38.79	192.23	181.67	2.00	0.00	1.00	0.00
38.87	185.56	175.37	2.00	0.00	1.00	0.00	38.94	175.91	166.25	2.00	0.00	1.00	0.00
38.98	176.09	166.42	2.00	0.00	1.00	0.00	39.06	174.17	164.60	2.00	0.00	1.00	0.00
39.13	178.71	168.89	2.00	0.00	1.00	0.00	39.20	187.16	176.88	2.00	0.00	1.00	0.00
39.26	195.84	185.09	2.00	0.00	1.00	0.00	39.33	204.28	193.06	2.00	0.00	1.00	0.00
39.39	209.07	197.58	2.00	0.00	1.00	0.00	39.48	222.28	210.07	2.00	0.00	1.00	0.00
39.50	226.80	214.35	2.00	0.00	1.00	0.00	39.57	233.57	220.75	2.00	0.00	1.00	0.00
39.64	238.51	225.41	2.00	0.00	1.00	0.00	39.71	245.49	232.01	2.00	0.00	1.00	0.00
39.77	241.92	228.63	2.00	0.00	1.00	0.00	39.84	244.46	231.04	2.00	0.00	1.00	0.00
39.91	246.71	233.16	2.00	0.00	1.00	0.00	39.97	236.30	223.32	2.00	0.00	1.00	0.00
40.03	211.85	200.22	2.00	0.00	1.00	0.00	40.10	140.00	132.31	1.45	0.00	1.00	0.00
40.18	187.61	177.30	2.00	0.00	1.00	0.00	40.23	177.72	167.96	2.00	0.00	1.00	0.00
40.30	171.18	161.78	2.00	0.00	1.00	0.00	40.38	159.13	150.39	2.00	0.00	1.00	0.00
40.42	152.44	144.07	1.80	0.00	1.00	0.00	40.50	143.29	135.42	1.55	0.00	1.00	0.00
40.57	136.78	129.27	1.39	0.00	1.00	0.00	40.62	134.13	126.76	1.34	0.23	1.00	0.00
40.70	136.05	128.58	1.40	0.00	1.00	0.00	40.75	141.98	134.18	1.57	0.00	1.00	0.00
40.82	145.66	137.66	1.70	0.00	1.00	0.00	40.89	149.33	141.13	1.82	0.00	1.00	0.00
40.96	155.28	146.76	2.00	0.00	1.00	0.00	41.01	160.06	151.27	2.00	0.00	1.00	0.00
41.08	174.58	164.99	2.00	0.00	1.00	0.00	41.15	208.23	196.80	2.00	0.00	1.00	0.00
41.22	210.15	198.61	2.00	0.00	1.00	0.00	41.28	214.85	203.05	2.00	0.00	1.00	0.00
41.36	215.46	203.63	2.00	0.00	1.00	0.00	41.41	216.10	204.23	2.00	0.00	1.00	0.00
41.49	216.53	204.64	2.00	0.00	1.00	0.00	41.54	214.40	202.62	2.00	0.00	1.00	0.00
41.61	210.04	198.51	2.00	0.00	1.00	0.00	41.67	209.48	197.97	2.00	0.00	1.00	0.00
41.75	206.18	194.86	2.00	0.00	1.00	0.00	41.81	207.12	195.75	2.00	0.00	1.00	0.00
41.87	207.34	195.95	2.00	0.00	1.00	0.00	41.94	200.30	189.30	2.00	0.00	1.00	0.00
42.01	198.34	187.45	2.00	0.00	1.00	0.00	42.06	198.23	187.34	2.00	0.00	1.00	0.00
42.15	198.11	187.23	2.00	0.00	1.00	0.00	42.20	195.68	184.93	2.00	0.00	1.00	0.00
42.26	196.75	185.95	2.00	0.00	1.00	0.00	42.32	191.72	181.19	2.00	0.00	1.00	0.00
42.40	190.82	180.34	2.00	0.00	1.00	0.00	42.46	189.32	178.93	2.00	0.00	1.00	0.00
42.53	185.56	175.37	2.00	0.00	1.00	0.00	42.59	189.49	179.08	2.00	0.00	1.00	0.00
42.68	200.67	189.65	2.00	0.00	1.00	0.00	42.73	203.23	192.07	2.00	0.00	1.00	0.00
42.78	216.34	204.46	2.00	0.00	1.00	0.00	42.86	219.51	207.45	2.00	0.00	1.00	0.00
42.92	224.27	211.96	2.00	0.00	1.00	0.00	42.99	201.80	190.71	2.00	0.00	1.00	0.00
43.06	217.22	205.29	2.00	0.00	1.00	0.00	43.12	233.13	220.33	2.00	0.00	1.00	0.00
43.18	229.13	216.55	2.00	0.00	1.00	0.00	43.25	229.86	217.23	2.00	0.00	1.00	0.00
43.32	235.12	222.21	2.00	0.00	1.00	0.00	43.38	254.42	240.45	2.00	0.00	1.00	0.00
43.44	238.53	225.43	2.00	0.00	1.00	0.00	43.51	213.19	201.49	2.00	0.00	1.00	0.00
43.59	185.34	175.16	2.00	0.00	1.00	0.00	43.64	178.85	169.03	2.00	0.00	1.00	0.00
43.71	170.34	160.99	2.00	0.00	1.00	0.00	43.78	160.79	151.96	2.00	0.00	1.00	0.00
43.85	148.38	140.23	1.88	0.00	1.00	0.00	43.90	136.86	129.35	1.53	0.00	1.00	0.00
43.98	130.89	123.70	1.38	0.00	1.00	0.00	44.03	128.23	121.19	1.32	0.24	1.00	0.00
44.10	126.38	119.44	1.28	0.24	1.00	0.00	44.18	119.67	113.09	1.13	0.49	1.00	0.01
44.23	119.85	113.27	1.14	0.49	1.00	0.00	44.30	121.01	114.37	1.17	0.35	1.00	0.00
44.37	122.98	116.22	1.21	0.35	1.00	0.00	44.44	129.49	122.38	1.37	0.00	1.00	0.00
44.50	126.44	119.50	1.29	0.24	1.00	0.00	44.58	138.95	131.32	1.63	0.00	1.00	0.00
44.64	140.58	132.86	1.68	0.00	1.00	0.00	44.70	143.50	135.62	1.77	0.00	1.00	0.00
44.75	150.38	142.12	2.00	0.00	1.00	0.00	44.84	139.98	132.29	1.66	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$q_{c,1,mod}$ (tsf)	$q_{c,1N,mod}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$q_{c,1,mod}$ (tsf)	$q_{c,1N,mod}$	FS	e_v (%)	DF	Settlement (in)
44.90	129.43	122.32	1.38	0.00	1.00	0.00	44.95	125.93	119.02	1.30	0.25	1.00	0.00
45.03	125.54	118.64	1.29	0.25	1.00	0.00	45.09	123.68	116.88	1.24	0.35	1.00	0.00
45.15	121.58	114.90	1.20	0.35	1.00	0.00	45.23	127.78	120.76	1.34	0.24	1.00	0.00
45.30	133.54	126.20	1.49	0.00	1.00	0.00	45.36	138.76	131.14	1.64	0.00	1.00	0.00
45.43	147.03	138.96	1.92	0.00	1.00	0.00	45.49	148.71	140.55	1.98	0.00	1.00	0.00
45.56	146.42	138.38	1.90	0.00	1.00	0.00	45.61	148.46	140.30	1.97	0.00	1.00	0.00
45.69	141.89	134.10	1.74	0.00	1.00	0.00	45.74	141.36	133.59	1.72	0.00	1.00	0.00
45.82	139.48	131.82	1.66	0.00	1.00	0.00	45.88	138.49	130.89	1.63	0.00	1.00	0.00
45.94	136.64	129.14	1.58	0.00	1.00	0.00	46.00	137.04	129.51	1.59	0.00	1.00	0.00
46.09	141.37	133.61	1.73	0.00	1.00	0.00	46.14	144.48	136.54	1.83	0.00	1.00	0.00
46.20	150.58	142.31	2.00	0.00	1.00	0.00	46.26	160.71	151.88	2.00	0.00	1.00	0.00
46.35	188.64	178.28	2.00	0.00	1.00	0.00	46.40	88.13	83.29	0.66	2.59	1.00	0.02
46.46	195.70	184.95	2.00	0.00	1.00	0.00	46.55	217.81	205.85	2.00	0.00	1.00	0.00
46.60	267.09	252.43	2.00	0.00	1.00	0.00	46.68	283.41	267.85	2.00	0.00	1.00	0.00
46.74	274.58	259.50	2.00	0.00	1.00	0.00	46.80	275.78	260.64	2.00	0.00	1.00	0.00
46.85	237.08	224.06	2.00	0.00	1.00	0.00	46.92	214.27	202.51	2.00	0.00	1.00	0.00
46.99	158.30	149.60	2.00	0.00	1.00	0.00	47.05	167.50	158.30	2.00	0.00	1.00	0.00
47.12	154.38	145.90	2.00	0.00	1.00	0.00	47.18	145.81	137.80	2.00	0.00	1.00	0.00
47.26	135.64	128.19	1.64	0.00	1.00	0.00	47.33	124.75	117.90	1.32	0.25	1.00	0.00
47.38	116.74	110.33	1.13	0.50	1.00	0.00	47.45	107.08	101.20	0.95	0.83	1.00	0.01
47.52	102.56	96.93	0.88	1.51	1.00	0.01	47.58	96.54	91.24	0.79	2.14	1.00	0.01
47.66	92.44	87.36	0.74	2.49	1.00	0.02	47.71	84.05	79.44	0.64	2.69	1.00	0.02
47.77	81.32	76.85	0.62	2.77	1.00	0.02	47.85	80.81	76.37	0.61	2.78	1.00	0.03
47.91	82.51	77.97	0.63	2.74	1.00	0.02	47.97	86.55	81.79	0.67	2.63	1.00	0.02
48.04	93.36	88.24	0.75	2.25	1.00	0.02	48.11	103.05	97.39	0.88	1.50	1.00	0.01
48.18	119.24	112.70	1.16	0.36	1.00	0.00	48.25	139.58	131.91	1.67	0.00	1.00	0.00
48.31	158.01	149.33	2.00	0.00	1.00	0.00	48.38	165.99	156.87	2.00	0.00	1.00	0.00
48.44	171.58	162.16	2.00	0.00	1.00	0.00	48.50	169.53	160.22	2.00	0.00	1.00	0.00
48.58	173.19	163.68	2.00	0.00	1.00	0.00	48.63	188.10	177.77	2.00	0.00	1.00	0.00
48.71	215.45	203.62	2.00	0.00	1.00	0.00	48.76	191.69	181.16	2.00	0.00	1.00	0.00
48.82	189.17	178.78	2.00	0.00	1.00	0.00	48.89	182.36	172.35	2.00	0.00	1.00	0.00
48.96	176.85	167.14	2.00	0.00	1.00	0.00	49.02	167.62	158.42	2.00	0.00	1.00	0.00
49.08	150.47	142.20	2.00	0.00	1.00	0.00	49.17	137.71	130.14	1.70	0.00	1.00	0.00
49.23	124.67	117.83	1.34	0.25	1.00	0.00	49.29	112.26	106.09	1.07	0.51	1.00	0.00
49.35	102.11	96.50	0.89	1.52	1.00	0.01	49.42	95.73	90.47	0.80	2.17	1.00	0.02
49.48	95.35	90.12	0.80	2.18	1.00	0.02	49.55	91.87	86.82	0.75	2.30	1.00	0.02
49.62	91.23	86.22	0.74	2.52	1.00	0.02	49.69	85.18	80.50	0.67	2.67	1.00	0.02
49.75	74.71	70.61	0.57	2.97	1.00	0.02	49.82	155.65	147.10	2.00	0.00	1.00	0.00
49.87	167.22	158.04	2.00	0.00	1.00	0.00	49.94	180.80	170.87	2.00	0.00	1.00	0.00
50.00	193.55	182.92	2.00	0.00	1.00	0.00	50.07	205.49	194.21	2.00	0.00	1.00	0.00

Total estimated settlement: 1.19

Abbreviations

$q_{c,1,mod}$:	Equivalent dean sand cone resistance
$q_{c,1N,mod}$:	Equivalent clean sand normalized cone resistance
FS:	Factor of safety against liquefaction
e_v (%):	Post-liquefaction volumentric strain
DF:	e_v depth weighting factor
Settlement:	Calculated settlement

:: Lateral displacement index calculation ::

Depth (ft)	q_t (tsf)	$q_{c,1N}$	FS	D_r	$Gamma_{max}$ (%)	Lat. disp. (in)
30.07	186.21	138.58	1.50	77.77	1.38	0.01
30.12	193.84	151.42	1.84	80.69	0.91	0.00
30.19	203.50	156.98	1.96	81.89	0.79	0.00
30.25	206.02	157.38	1.93	81.97	0.82	0.00
30.33	205.78	153.40	1.77	81.12	0.99	0.01
30.40	204.74	152.85	1.73	81.01	1.04	0.01
30.46	204.65	151.75	1.67	80.77	1.10	0.00
30.52	202.31	150.70	1.64	80.54	1.15	0.00
30.59	197.69	145.99	1.51	79.49	1.36	0.01
30.65	189.49	140.88	1.39	78.31	1.62	0.01
30.73	179.41	132.43	1.21	76.27	2.16	0.01
30.78	168.87	124.13	1.06	74.13	2.69	0.01
30.84	159.70	118.18	0.97	72.51	3.50	0.01
30.91	152.16	112.97	0.90	71.03	4.37	0.02
30.99	146.64	108.17	0.84	69.59	5.35	0.03
31.05	143.39	106.81	0.83	69.17	5.49	0.02
31.11	144.21	106.26	0.82	69.01	5.59	0.02
31.20	150.40	110.17	0.88	70.20	4.61	0.03
31.26	164.41	120.56	1.06	73.17	2.72	0.01
31.31	185.46	138.24	1.46	77.69	1.46	0.01
31.38	212.98	158.53	2.00	82.21	0.00	0.00
31.46	228.26	183.89	2.00	87.11	0.00	0.00
31.52	236.97	172.72	2.00	85.04	0.00	0.00
31.57	232.48	179.08	2.00	86.23	0.00	0.00
31.64	227.83	175.06	2.00	85.48	0.00	0.00
31.69	212.70	165.17	2.00	83.56	0.00	0.00
31.79	201.25	146.74	1.94	79.66	0.81	0.00
31.85	194.30	151.39	2.00	80.69	0.00	0.00
31.91	192.60	151.28	2.00	80.66	0.00	0.00
31.97	194.72	144.33	2.00	79.11	0.00	0.00
32.03	198.36	156.86	2.00	81.86	0.00	0.00
32.09	203.92	159.11	2.00	82.33	0.00	0.00
32.18	203.19	156.15	2.00	81.71	0.00	0.00
32.23	201.92	153.59	2.00	81.16	0.00	0.00
32.30	199.40	155.18	2.00	81.50	0.00	0.00
32.36	196.39	149.98	2.00	80.38	0.00	0.00
32.42	193.85	146.38	2.00	79.58	0.00	0.00
32.48	193.28	148.28	2.00	80.00	0.00	0.00
32.56	195.74	146.81	1.97	79.67	0.78	0.00
32.63	198.06	150.07	2.00	80.40	0.00	0.00
32.69	202.74	152.36	2.00	80.90	0.00	0.00
32.75	211.34	156.50	2.00	81.78	0.00	0.00
32.81	213.22	168.83	2.00	84.29	0.00	0.00
32.90	211.97	154.77	2.00	81.42	0.00	0.00
32.94	205.44	151.91	2.00	80.80	0.00	0.00
33.02	202.53	151.77	2.00	80.77	0.00	0.00
33.09	199.58	146.12	1.79	79.52	0.96	0.00
33.15	196.33	142.90	1.67	78.78	1.11	0.00

:: Estimation of post-earthquake lateral Displacements :: (continued)

Depth (ft)	q_t (tsf)	$q_{c,1N}$	FS	D_r	$Gamma_{max}$ (%)	Lat. disp. (in)
33.21	197.00	142.09	1.63	78.59	1.17	0.00
33.27	203.04	145.59	1.72	79.40	1.05	0.00
33.36	214.10	154.86	2.00	81.44	0.00	0.00
33.43	228.77	166.48	2.00	83.82	0.00	0.00
33.48	243.75	180.97	2.00	86.58	0.00	0.00
33.54	256.66	193.30	2.00	88.75	0.00	0.00
33.60	266.10	199.02	2.00	89.72	0.00	0.00
33.69	268.17	201.62	2.00	90.15	0.00	0.00
33.75	267.17	193.49	2.00	88.79	0.00	0.00
33.81	269.23	193.64	2.00	88.81	0.00	0.00
33.88	274.12	205.32	2.00	90.75	0.00	0.00
33.93	284.72	205.50	2.00	90.77	0.00	0.00
34.00	242.74	222.92	2.00	93.46	0.00	0.00
34.06	221.36	114.41	1.20	71.44	1.87	0.01
34.12	187.67	166.14	2.00	83.76	0.00	0.00
34.20	204.80	149.36	2.00	80.24	0.00	0.00
34.26	215.04	156.03	2.00	81.68	0.00	0.00
34.33	228.80	185.83	2.00	87.45	0.00	0.00
34.38	218.86	176.50	2.00	85.75	0.00	0.00
34.45	187.91	129.98	1.59	75.65	1.22	0.01
34.52	156.29	114.63	1.29	71.51	1.53	0.01
34.60	143.53	105.81	1.12	68.86	2.30	0.01
34.65	136.15	101.17	0.97	67.38	3.46	0.01
34.73	129.71	95.36	0.82	65.43	5.58	0.03
34.78	119.54	88.21	0.72	62.86	15.66	0.05
34.85	109.06	76.75	0.60	58.27	22.70	0.09
34.91	100.71	72.42	0.58	56.35	22.70	0.09
34.97	97.33	70.48	0.56	55.45	22.70	0.08
35.04	94.02	69.67	0.55	55.07	22.70	0.09
35.12	90.25	64.45	0.50	52.50	34.10	0.15
35.18	86.33	61.30	0.47	50.85	34.10	0.13
35.25	84.26	60.15	0.46	50.22	34.10	0.13
35.30	82.80	59.16	0.44	49.67	34.10	0.10
35.37	80.68	57.18	0.42	48.55	34.10	0.13
35.43	78.64	54.39	0.40	46.90	34.10	0.13
35.52	78.22	53.69	0.39	46.47	34.10	0.17
35.58	81.71	55.43	0.40	47.52	34.10	0.10
35.64	88.94	61.04	0.43	50.71	34.10	0.13
35.70	99.87	67.99	0.48	54.26	34.10	0.12
35.77	110.99	77.37	0.55	58.53	22.70	0.09
35.83	124.75	83.12	0.60	60.90	22.70	0.07
35.89	139.21	95.93	0.75	65.63	7.38	0.03
35.97	150.91	107.19	0.91	69.29	4.17	0.02
36.04	154.49	107.76	0.93	69.47	3.99	0.02
36.12	153.37	103.90	0.87	68.26	4.71	0.02
36.16	152.67	105.71	0.91	68.83	4.15	0.01
36.23	157.04	107.23	0.95	69.30	3.77	0.01
36.31	162.18	113.93	1.07	71.31	2.65	0.01

:: Estimation of post-earthquake lateral Displacements :: (continued)

Depth (ft)	q_t (tsf)	$q_{t,1N}$	FS	D_r	$Gamma_{max}$ (%)	Lat. disp. (in)
36.35	166.19	116.59	1.11	72.07	2.34	0.01
36.44	168.46	115.02	1.08	71.62	2.57	0.01
36.49	170.01	117.74	1.13	72.39	2.26	0.01
36.57	172.72	118.58	1.14	72.62	2.20	0.01
36.62	175.82	119.36	1.14	72.84	2.16	0.01
36.70	179.92	122.29	1.19	73.64	1.92	0.01
36.76	183.99	124.86	1.24	74.33	1.73	0.01
36.81	185.30	125.77	1.25	74.57	1.67	0.00
36.89	183.56	123.28	1.20	73.91	1.91	0.01
36.96	179.40	119.83	1.12	72.97	2.30	0.01
37.01	172.72	115.81	1.04	71.84	2.82	0.01
37.08	164.22	109.06	0.94	69.86	3.85	0.01
37.15	156.23	103.58	0.87	68.16	4.78	0.02
37.22	146.23	102.48	0.88	67.81	4.60	0.02
37.29	138.03	91.80	0.75	64.18	12.68	0.05
37.34	131.35	89.71	0.75	63.42	13.14	0.03
37.41	127.46	90.86	0.78	63.84	10.87	0.04
37.48	124.36	85.34	0.72	61.77	15.55	0.06
37.54	120.29	84.46	0.72	61.42	15.07	0.05
37.62	116.59	83.26	0.72	60.95	15.02	0.07
37.67	112.73	78.28	0.67	58.92	21.23	0.05
37.74	110.15	76.88	0.67	58.32	21.61	0.08
37.82	111.79	78.39	0.70	58.96	17.49	0.07
37.88	116.95	82.69	0.76	60.73	11.85	0.04
37.95	123.66	88.46	0.84	62.95	7.81	0.03
38.00	133.23	92.51	0.88	64.43	6.27	0.02
38.07	144.62	102.63	1.05	67.86	2.79	0.01
38.14	160.38	112.06	1.22	70.76	1.79	0.01
38.20	184.08	124.99	1.49	74.36	1.00	0.00
38.26	206.10	151.01	2.00	80.60	0.00	0.00
38.33	222.78	155.68	2.00	81.61	0.00	0.00
38.40	228.82	157.83	2.00	82.06	0.00	0.00
38.45	234.84	163.01	2.00	83.13	0.00	0.00
38.52	243.65	170.06	2.00	84.53	0.00	0.00
38.60	250.45	179.80	2.00	86.36	0.00	0.00
38.65	251.37	181.08	2.00	86.60	0.00	0.00
38.72	245.29	175.51	2.00	85.57	0.00	0.00
38.79	235.60	169.62	2.00	84.44	0.00	0.00
38.87	224.42	162.28	2.00	82.98	0.00	0.00
38.94	216.37	152.46	2.00	80.92	0.00	0.00
38.98	211.96	152.57	2.00	80.94	0.00	0.00
39.06	215.49	151.79	2.00	80.77	0.00	0.00
39.13	224.48	157.81	2.00	82.06	0.00	0.00
39.20	239.15	167.81	2.00	84.09	0.00	0.00
39.26	255.71	177.82	2.00	86.00	0.00	0.00
39.33	270.26	187.02	2.00	87.66	0.00	0.00
39.39	285.72	192.51	2.00	88.62	0.00	0.00
39.48	297.81	205.44	2.00	90.76	0.00	0.00

:: Estimation of post-earthquake lateral Displacements :: (continued)

Depth (ft)	q_t (tsf)	$q_{c,1N}$	FS	D_r	$Gamma_{max}$ (%)	Lat. disp. (in)
39.50	309.17	209.64	2.00	91.43	0.00	0.00
39.57	317.22	215.87	2.00	92.40	0.00	0.00
39.64	329.03	221.15	2.00	93.20	0.00	0.00
39.71	338.81	228.96	2.00	94.34	0.00	0.00
39.77	346.86	226.54	2.00	93.99	0.00	0.00
39.84	349.14	229.08	2.00	94.36	0.00	0.00
39.91	344.50	230.73	2.00	94.60	0.00	0.00
39.97	324.54	220.24	2.00	93.06	0.00	0.00
40.03	271.93	195.68	2.00	89.16	0.00	0.00
40.10	247.02	127.33	1.45	74.97	1.10	0.00
40.18	233.17	172.43	2.00	84.98	0.00	0.00
40.23	248.96	164.22	2.00	83.37	0.00	0.00
40.30	237.21	157.91	2.00	82.08	0.00	0.00
40.38	224.39	146.11	2.00	79.52	0.00	0.00
40.42	209.96	139.26	1.80	77.93	0.95	0.00
40.50	197.96	130.09	1.55	75.68	1.30	0.00
40.57	187.30	123.32	1.39	73.92	1.23	0.00
40.62	180.86	119.67	1.34	72.93	1.38	0.00
40.70	179.01	120.06	1.40	73.03	1.22	0.00
40.75	179.95	123.84	1.57	74.06	0.87	0.00
40.82	182.59	125.87	1.70	74.60	0.70	0.00
40.89	187.48	128.84	1.82	75.37	0.93	0.00
40.96	195.68	135.28	2.00	76.97	0.00	0.00
41.01	211.24	141.63	2.00	78.49	0.00	0.00
41.08	240.12	157.45	2.00	81.98	0.00	0.00
41.15	267.37	190.56	2.00	88.28	0.00	0.00
41.22	288.54	193.17	2.00	88.73	0.00	0.00
41.28	293.74	197.82	2.00	89.52	0.00	0.00
41.36	297.29	198.54	2.00	89.64	0.00	0.00
41.41	298.51	199.21	2.00	89.75	0.00	0.00
41.49	297.84	199.54	2.00	89.80	0.00	0.00
41.54	294.38	197.30	2.00	89.43	0.00	0.00
41.61	290.06	192.89	2.00	88.68	0.00	0.00
41.67	285.11	192.02	2.00	88.53	0.00	0.00
41.75	282.38	188.55	2.00	87.93	0.00	0.00
41.81	279.91	189.01	2.00	88.01	0.00	0.00
41.87	275.90	188.79	2.00	87.97	0.00	0.00
41.94	270.95	181.81	2.00	86.73	0.00	0.00
42.01	266.42	179.76	2.00	86.36	0.00	0.00
42.06	265.51	179.65	2.00	86.34	0.00	0.00
42.15	264.85	179.65	2.00	86.34	0.00	0.00
42.20	264.64	177.51	2.00	85.94	0.00	0.00
42.26	261.87	178.47	2.00	86.12	0.00	0.00
42.32	258.65	173.54	2.00	85.19	0.00	0.00
42.40	254.03	171.90	2.00	84.88	0.00	0.00
42.46	250.75	170.19	2.00	84.55	0.00	0.00
42.53	249.02	167.11	2.00	83.95	0.00	0.00
42.59	250.84	169.47	2.00	84.41	0.00	0.00

:: Estimation of post-earthquake lateral Displacements :: (continued)

Depth (ft)	q_t (tsf)	$q_{c,1N}$	FS	D_r	$Gamma_{max}$ (%)	Lat. disp. (in)
42.68	252.33	177.78	2.00	85.99	0.00	0.00
42.73	259.07	177.43	2.00	85.93	0.00	0.00
42.78	265.32	189.71	2.00	88.14	0.00	0.00
42.86	275.07	193.49	2.00	88.79	0.00	0.00
42.92	269.63	198.03	2.00	89.55	0.00	0.00
42.99	269.47	176.65	2.00	85.78	0.00	0.00
43.06	276.48	192.03	2.00	88.54	0.00	0.00
43.12	294.55	209.37	2.00	91.39	0.00	0.00
43.18	307.64	208.14	2.00	91.19	0.00	0.00
43.25	314.78	210.25	2.00	91.53	0.00	0.00
43.32	328.91	215.81	2.00	92.39	0.00	0.00
43.38	332.86	233.83	2.00	95.04	0.00	0.00
43.44	320.28	218.36	2.00	92.78	0.00	0.00
43.51	285.35	193.01	2.00	88.70	0.00	0.00
43.59	254.15	165.20	2.00	83.57	0.00	0.00
43.64	232.47	157.86	2.00	82.07	0.00	0.00
43.71	220.99	149.82	2.00	80.34	0.00	0.00
43.78	208.29	141.20	2.00	78.39	0.00	0.00
43.85	193.92	129.66	1.88	75.57	0.87	0.00
43.90	180.19	118.46	1.53	72.59	0.93	0.00
43.98	170.32	112.20	1.38	70.80	1.26	0.00
44.03	164.82	109.38	1.32	69.96	1.44	0.00
44.10	159.50	107.40	1.28	69.36	1.57	0.00
44.18	155.31	101.02	1.13	67.34	2.22	0.01
44.23	152.27	100.72	1.14	67.24	2.19	0.00
44.30	152.97	101.35	1.17	67.44	2.05	0.00
44.37	156.95	103.06	1.21	68.00	1.84	0.01
44.44	159.50	109.37	1.37	69.96	1.30	0.00
44.50	166.49	106.57	1.29	69.10	1.52	0.00
44.58	171.19	118.01	1.63	72.47	0.78	0.00
44.64	178.91	119.53	1.68	72.89	0.71	0.00
44.70	184.80	122.84	1.77	73.79	0.61	0.00
44.75	185.26	129.75	2.00	75.60	0.00	0.00
44.84	178.55	119.71	1.66	72.94	0.73	0.00
44.90	166.37	108.75	1.38	69.77	1.26	0.00
44.95	158.80	104.72	1.30	68.52	1.51	0.00
45.03	156.42	104.41	1.29	68.43	1.54	0.00
45.09	155.78	103.39	1.24	68.10	1.70	0.00
45.15	158.24	102.15	1.20	67.70	1.90	0.00
45.23	163.36	108.29	1.34	69.63	1.37	0.00
45.30	170.98	113.54	1.49	71.19	1.01	0.00
45.36	179.31	118.30	1.64	72.55	0.76	0.00
45.43	186.02	126.14	1.92	74.67	0.49	0.00
45.49	189.66	127.78	1.98	75.09	0.78	0.00
45.56	190.66	125.72	1.90	74.56	0.50	0.00
45.61	188.32	127.81	1.97	75.10	0.79	0.00
45.69	187.11	121.99	1.74	73.56	0.64	0.00
45.74	184.53	122.00	1.72	73.56	0.66	0.00

:: Estimation of post-earthquake lateral Displacements :: (continued)

Depth (ft)	q_t (tsf)	$q_{c,1N}$	FS	D_r	$Gamma_{max}$ (%)	Lat. disp. (in)
45.82	184.41	120.77	1.66	73.23	0.74	0.00
45.88	183.23	120.22	1.63	73.08	0.78	0.00
45.94	182.65	118.45	1.58	72.59	0.85	0.00
46.00	183.95	118.92	1.59	72.72	0.83	0.00
46.09	186.93	122.83	1.73	73.79	0.66	0.00
46.14	190.51	125.15	1.83	74.41	0.55	0.00
46.20	195.47	128.85	2.00	75.37	0.00	0.00
46.26	207.22	136.88	2.00	77.36	0.00	0.00
46.35	176.33	157.57	2.00	82.01	0.00	0.00
46.40	192.58	64.98	0.66	52.77	34.10	0.05
46.46	217.33	170.89	2.00	84.69	0.00	0.00
46.55	306.31	197.32	2.00	89.43	0.00	0.00
46.60	349.90	244.00	2.00	96.44	0.00	0.00
46.68	371.04	257.83	2.00	98.26	0.00	0.00
46.74	368.00	247.69	2.00	96.94	0.00	0.00
46.80	341.06	246.94	2.00	96.84	0.00	0.00
46.85	307.16	208.28	2.00	91.22	0.00	0.00
46.92	249.14	182.75	2.00	86.90	0.00	0.00
46.99	212.93	127.18	2.00	74.94	0.00	0.00
47.05	185.69	134.24	2.00	76.72	0.00	0.00
47.12	181.83	123.76	2.00	74.04	0.00	0.00
47.18	172.71	117.46	2.00	72.31	0.00	0.00
47.26	165.79	110.66	1.64	70.34	0.77	0.00
47.33	160.11	103.91	1.32	68.27	1.43	0.00
47.38	154.28	99.23	1.13	66.75	2.23	0.00
47.45	149.20	92.14	0.95	64.30	4.45	0.01
47.52	143.46	88.64	0.88	63.02	6.30	0.01
47.58	139.10	83.91	0.79	61.21	9.97	0.02
47.66	133.06	80.76	0.74	59.95	13.52	0.03
47.71	128.47	73.76	0.64	56.95	22.70	0.03
47.77	125.72	71.99	0.62	56.15	22.70	0.04
47.85	127.39	72.25	0.61	56.27	22.70	0.05
47.91	131.89	74.26	0.63	57.18	22.70	0.04
47.97	139.63	78.36	0.67	58.95	20.54	0.03
48.04	151.08	85.11	0.75	61.68	12.50	0.02
48.11	166.70	94.38	0.88	65.09	4.56	0.01
48.18	185.38	108.76	1.16	69.77	2.07	0.00
48.25	205.46	126.04	1.67	74.64	0.73	0.00
48.31	222.59	141.79	2.00	78.53	0.00	0.00
48.38	236.35	149.24	2.00	80.22	0.00	0.00
48.44	244.16	155.22	2.00	81.51	0.00	0.00
48.50	250.90	154.25	2.00	81.31	0.00	0.00
48.58	261.08	158.19	2.00	82.14	0.00	0.00
48.63	281.82	172.21	2.00	84.94	0.00	0.00
48.71	286.17	196.99	2.00	89.38	0.00	0.00
48.76	279.79	172.71	2.00	85.04	0.00	0.00
48.82	257.71	168.30	2.00	84.18	0.00	0.00
48.89	246.22	160.47	2.00	82.61	0.00	0.00

:: Estimation of post-earthquake lateral Displacements :: (continued)

Depth (ft)	q_t (tsf)	$q_{c,1N}$	FS	D_r	$Gamma_{max}$ (%)	Lat. disp. (in)
48.96	234.14	154.50	2.00	81.36	0.00	0.00
49.02	219.28	145.61	2.00	79.40	0.00	0.00
49.08	202.82	129.76	2.00	75.60	0.00	0.00
49.17	186.08	118.68	1.70	72.65	0.69	0.00
49.23	172.47	107.81	1.34	69.48	1.39	0.00
49.29	159.77	97.61	1.07	66.20	2.65	0.00
49.35	148.81	88.84	0.89	63.10	5.87	0.01
49.42	141.73	82.99	0.80	60.85	9.50	0.02
49.48	136.23	82.46	0.80	60.64	9.74	0.01
49.55	132.68	78.46	0.75	58.99	12.62	0.02
49.62	131.01	77.21	0.74	58.46	13.21	0.02
49.69	134.20	75.71	0.67	57.81	20.61	0.03
49.75	143.22	70.47	0.57	55.45	22.70	0.03
49.82	154.55	147.10	2.00	79.74	0.00	0.00
49.87	167.88	158.04	2.00	82.11	0.00	0.00
49.94	180.52	170.87	2.00	84.68	0.00	0.00
50.00	193.27	182.92	2.00	86.93	0.00	0.00
50.07	201.50	194.21	2.00	88.91	0.00	0.00

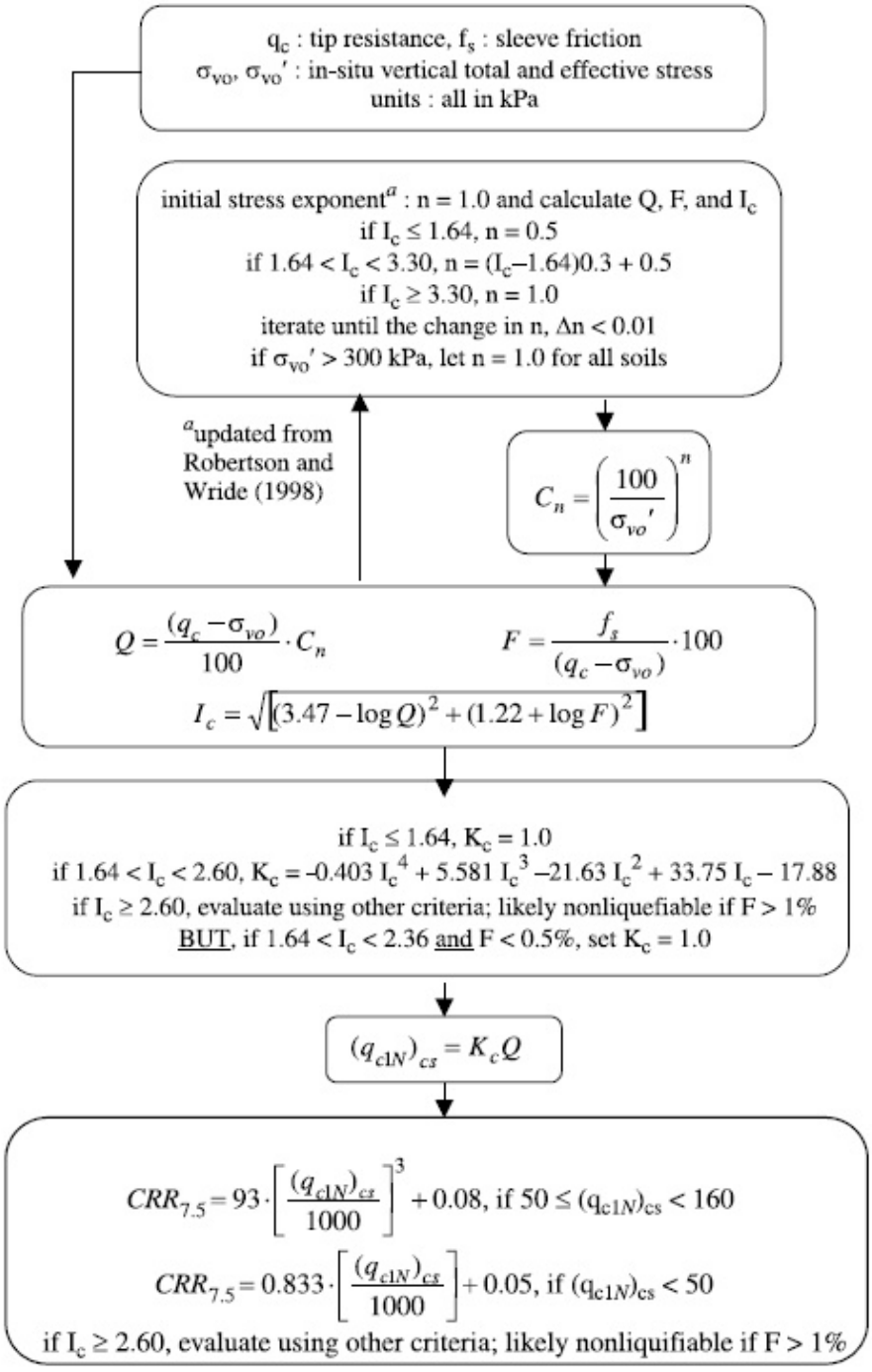
Total estimated displacement: 3.64

Abbreviations

q_t: Total cone resistance
$q_{c,1N}$: Adjusted cone resistance to an effective overburden stress of 1 atm
FS: Calculated factor of safety against liquefaction
D_r: Calculated relative density
$Gamma_{max}$: Calculated maximum cyclic shear strain
Lat. disp.: Lateral displacement

Procedure for the evaluation of soil liquefaction resistance, NCEER (1998)

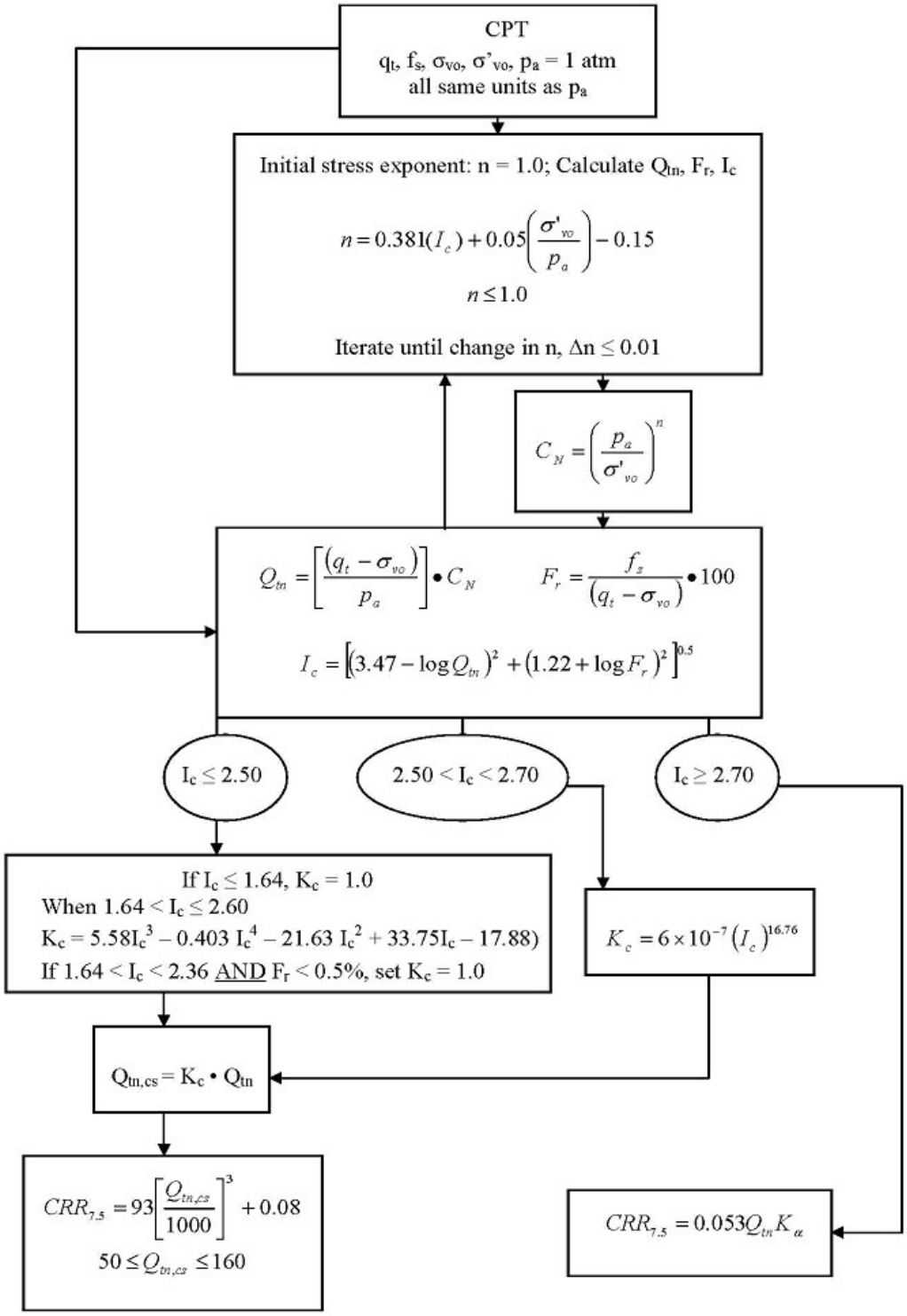
Calculation of soil resistance against liquefaction is performed according to the Robertson & Wride (1998) procedure. The procedure used in the software, slightly differs from the one originally published in NCEER-97-0022 (Proceedings of the NCEER Workshop on Evaluation of Liquefaction Resistance of Soils). The revised procedure is presented below in the form of a flowchart[1]:



[1] "Estimating liquefaction-induced ground settlements from CPT for level ground", G. Zhang, P.K. Robertson, and R.W.I. Brachman

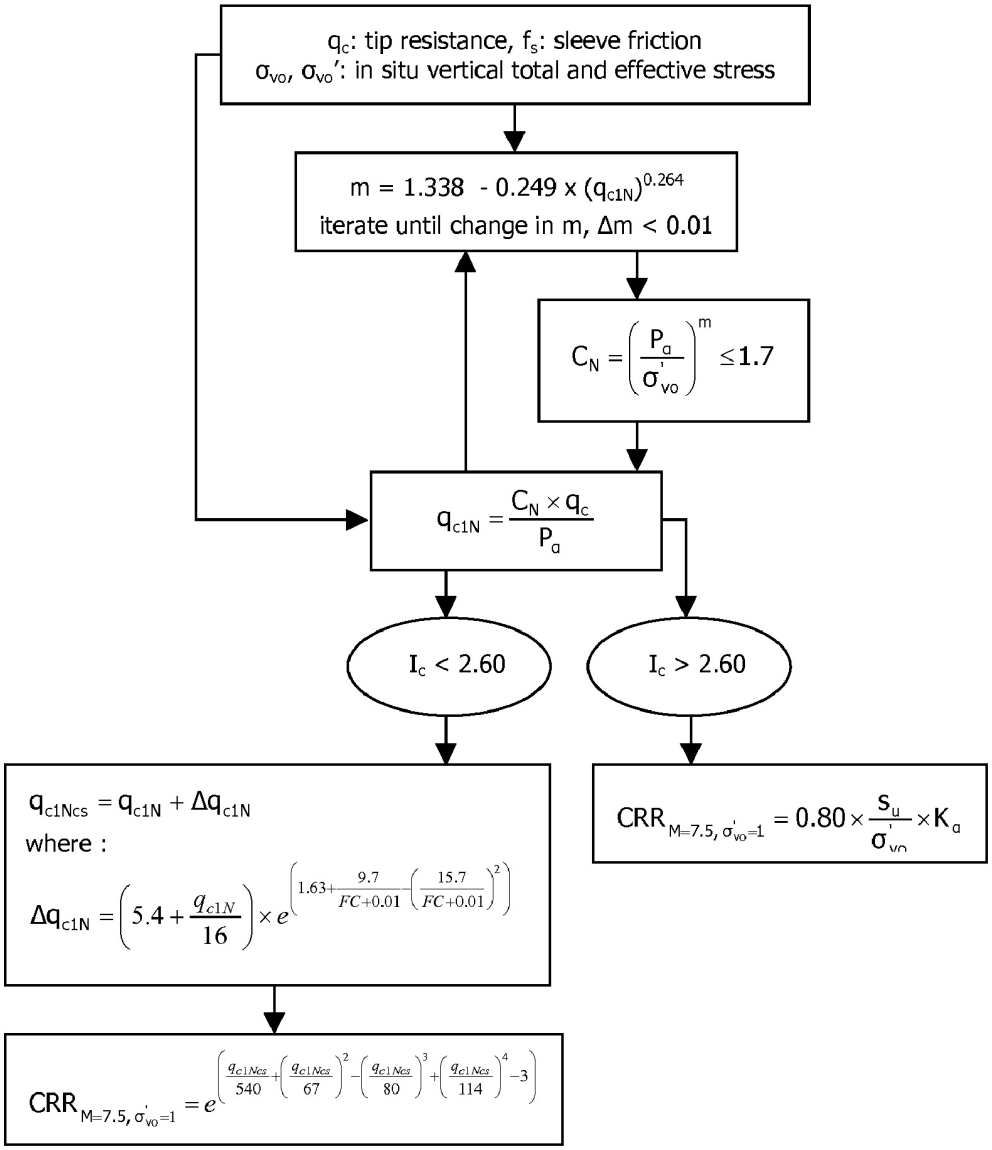
Procedure for the evaluation of soil liquefaction resistance (all soils), Robertson (2010)

Calculation of soil resistance against liquefaction is performed according to the Robertson & Wride (1998) procedure. This procedure used in the software, slightly differs from the one originally published in NCEER-97-0022 (Proceedings of the NCEER Workshop on Evaluation of Liquefaction Resistance of Soils). The revised procedure is presented below in the form of a flowchart[1]:

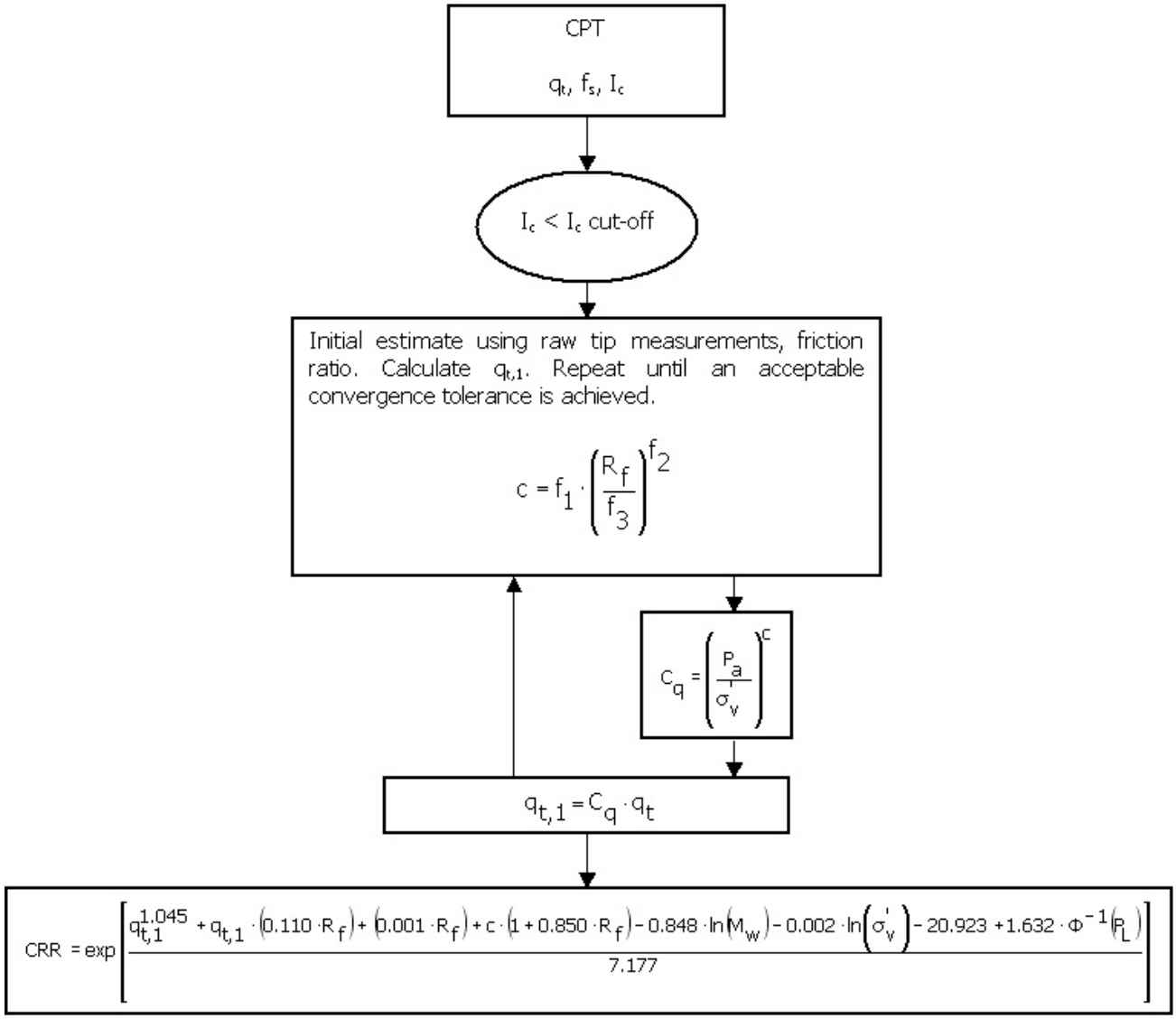


[1] P.K. Robertson, 2009. "Performance based earthquake design using the CPT", Keynote Lecture, International Conference on Performance-based Design in Earthquake Geotechnical Engineering – from case history to practice, IS-Tokyo, June 2009

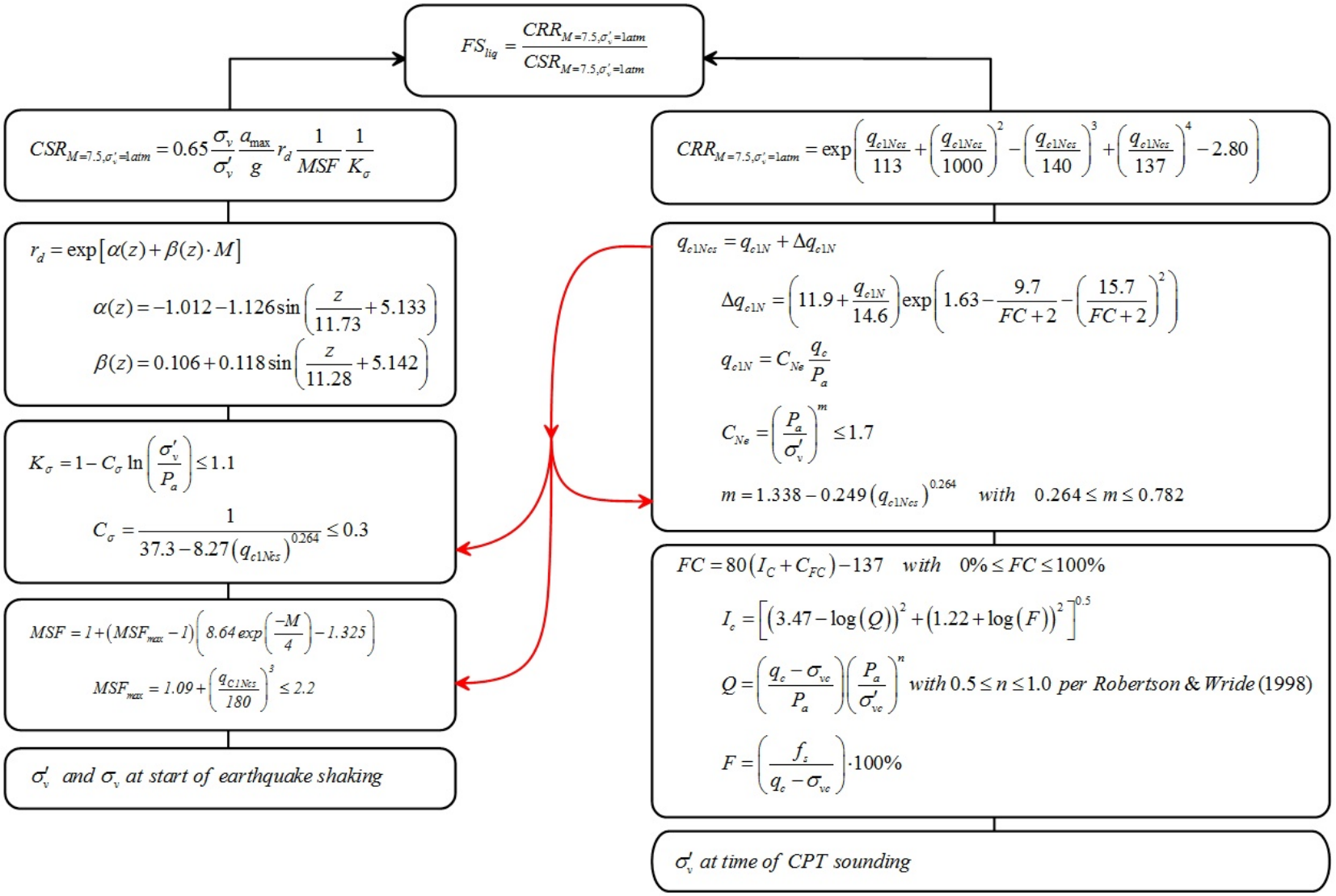
Procedure for the evaluation of soil liquefaction resistance, Idriss & Boulanger (2008)



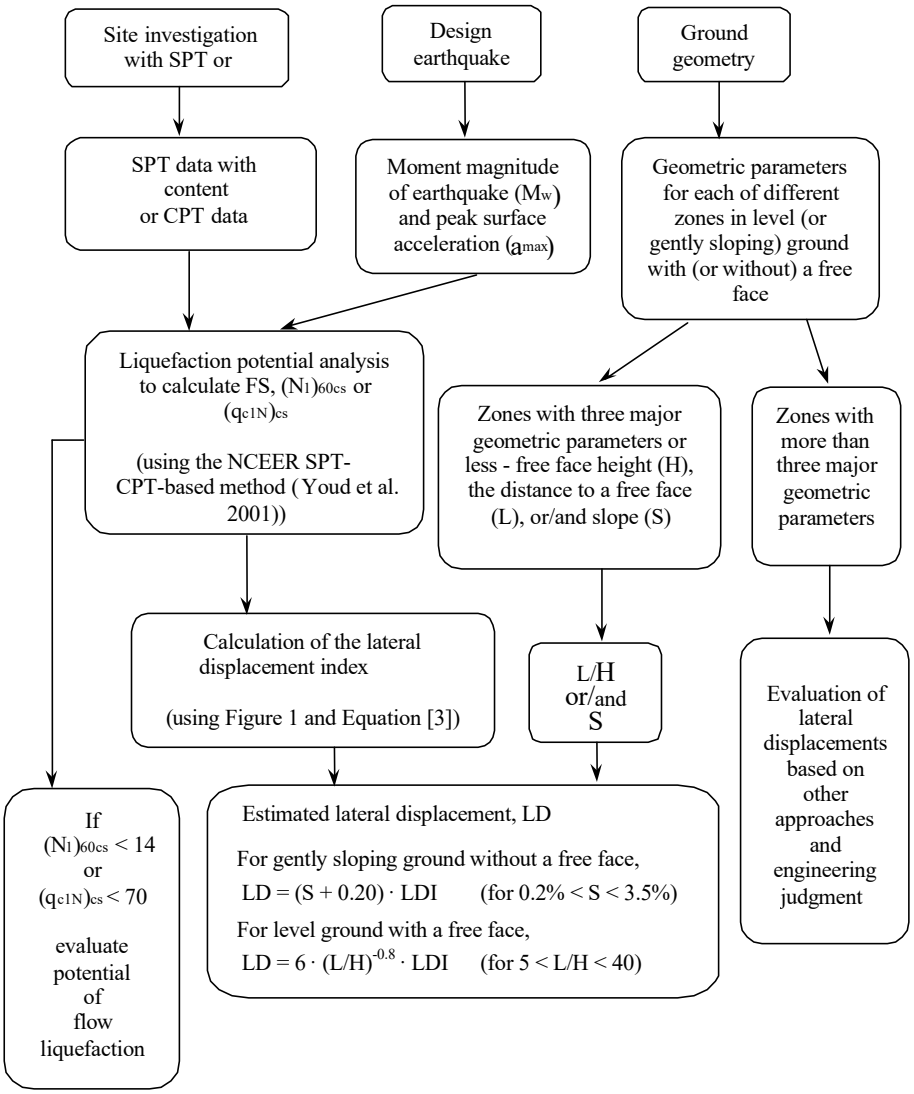
Procedure for the evaluation of soil liquefaction resistance (sandy soils), Moss et al. (2006)



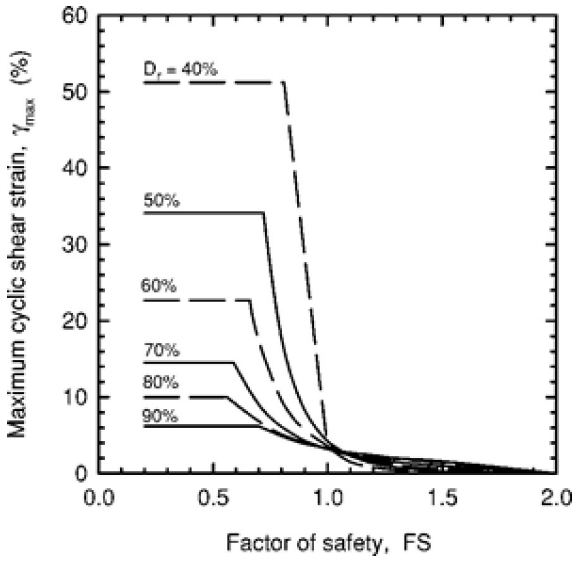
Procedure for the evaluation of soil liquefaction resistance, Boulanger & Idriss(2014)



Procedure for the evaluation of liquefaction-induced lateral spreading displacements



[1] Flow chart illustrating major steps in estimating liquefaction-induced lateral spreading displacements using the proposed approach



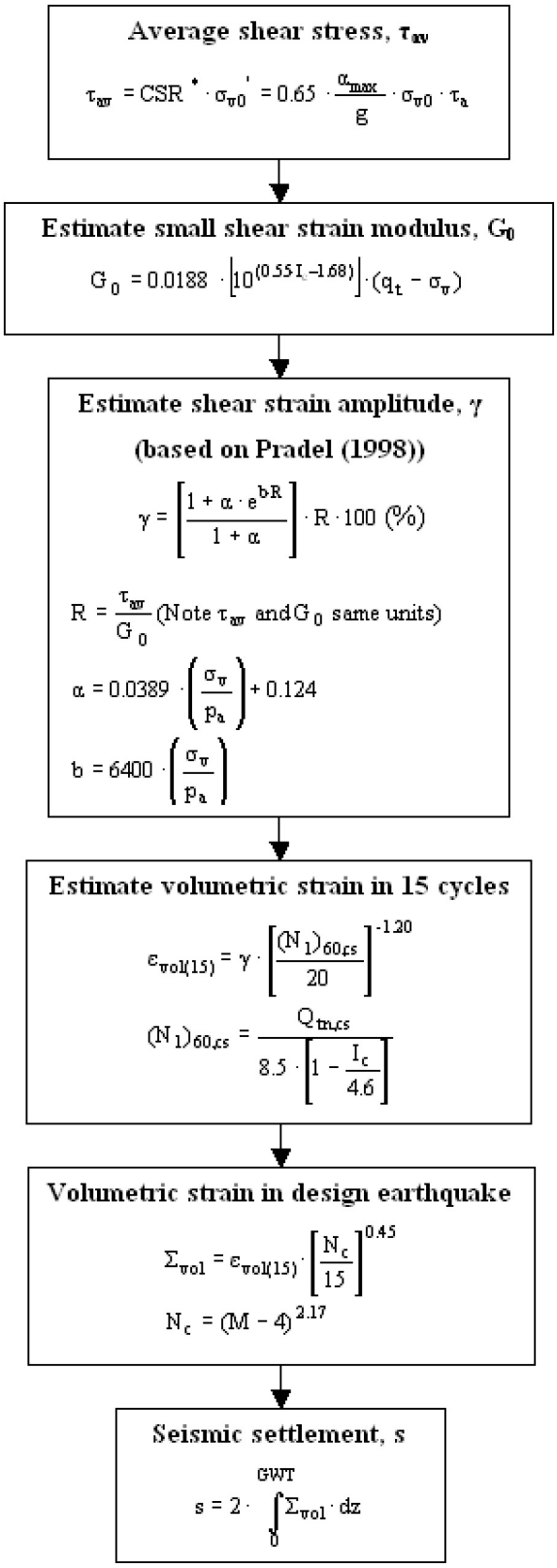
[1] **Figure 1**

$$LDI = \int_0^{z_{max}} \gamma_{max} dz$$

[1] **Equation [3]**

[1] "Estimating liquefaction-induced ground settlements from CPT for level ground", G. Zhang, P.K. Robertson, and R.W.I. Brachman

Procedure for the estimation of seismic induced settlements in dry sands



Robertson, P.K. and Lisheng, S., 2010, "Estimation of seismic compression in dry soils using the CPT" FIFTH INTERNATIONAL CONFERENCE ON RECENT ADVANCES IN GEOTECHNICAL EARTHQUAKE ENGINEERING AND SOIL DYNAMICS, Symposium in honor of professor I. M. Idriss, San Diego, CA

Liquefaction Potential Index (LPI) calculation procedure

Calculation of the Liquefaction Potential Index (LPI) is used to interpret the liquefaction assessment calculations in terms of severity over depth. The calculation procedure is based on the methology developed by Iwasaki (1982) and is adopted by AFPS.

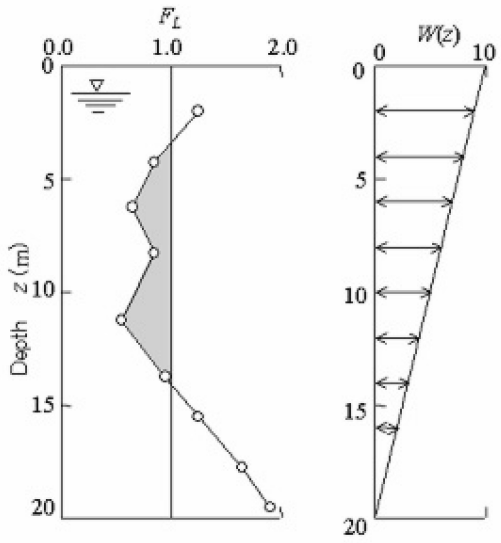
To estimate the severity of liquefaction extent at a given site, LPI is calculated based on the following equation:

$$\mathbf{LPI} = \int_0^{20} (10 - 0{,}5z) \times F_L \times dz$$

where:
F_L = 1 - F.S. when F.S. less than 1
F_L = 0 when F.S. greater than 1
z depth of measurment in meters

Values of LPI range between zero (0) when no test point is characterized as liquefiable and 100 when all points are characterized as susceptible to liquefaction. Iwasaki proposed four (4) discrete categories based on the numeric value of LPI:

- LPI = 0 : Liquefaction risk is very low
- 0 < LPI <= 5 : Liquefaction risk is low
- 5 < LPI <= 15 : Liquefaction risk is high
- LPI > 15 : Liquefaction risk is very high



Graphical presentation of the LPI calculation procedure

Shear-Induced Building Settlement (Ds) calculation procedure

The shear-induced building settlement (Ds) due to liquefaction below the building can be estimated using the relationship developed by Bray and Macedo (2017):

$$Ln(Ds) = c1 + c2 * LBS + 0.58 * Ln\left(Tanh\left(\frac{HL}{6}\right)\right) + 4.59 * Ln(Q) - 0.42 * Ln(Q)^2 - 0.02 * B + 0.84 * Ln(CAVdp) + 0.41 * Ln(Sa1) + \varepsilon$$

where Ds is in the units of mm, c1= -8.35 and c2= 0.072 for LBS ≤ 16, and c1= -7.48 and c2= 0.014 otherwise. Q is the building contact pressure in units of kPa, HL is the cumulative thickness of the liquefiable layers in the units of m, B is the building width in the units of m, CAVdp is a standardized version of the cumulative absolute velocity in the units of g-s, Sa1 is 5%-damped pseudo-acceleration response spectral value at a period of 1 s in the units of g, and ε is a normal random variable with zero mean and 0.50 standard deviation in Ln units. The liquefaction-induced building settlement index (LBS) is:

$$LBS = \sum W * \frac{\varepsilon_{shear}}{z} dz$$

where z (m) is the depth measured from the ground surface > 0, W is a foundation-weighting factor wherein W = 0.0 for z less than Df, which is the embedment depth of the foundation, and W = 1.0 otherwise. The shear strain parameter (ε_shear) is the liquefaction-induced free-field shear strain (in %) estimated using Zhang et al. (2004). It is calculated based on the estimated Dr of the liquefied soil layer and the calculated safety factor against liquefaction triggering (FSL).

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Appendix E

APPENDIX E

RECOMMENDED EARTHWORK SPECIFICATIONS

The following specifications are recommended to provide a basis for quality control during the placement of compacted fill or backfill, as applicable.

1. Areas on which compacted fill will be placed shall be observed by Allan E. Seward Engineering Geology, Inc. (AESEGI) prior to the placement of fill.
2. All drainage devices shall be properly installed and observed by AESEGI and/or the owner's representative(s) prior to placement of backfill.
3. Fill soils shall consist of imported soils or on-site soils which are free of organics, cobbles, and deleterious material, provided that each material is approved by AESEGI. AESEGI shall evaluate and/or test the import material for its conformance with the report recommendations prior to its delivery to the site. The contractor shall notify AESEGI at least 72 hours prior to importing material to the site
4. The thickness of the controlled lifts in which Fill is placed shall be compatible with the type of compaction equipment used. The fill materials shall be brought to Optimum Moisture Content or above, thoroughly mixed during spreading to obtain a near uniform water content and a uniform blend of materials, and then placed in lifts with a pre-compaction thickness not exceeding 8 inches. Each lift shall be compacted to the specified percentage of Maximum Dry Density determined in accordance with ASTM Test Method D1557. Density testing shall be performed by AESEGI to verify relative compaction. The contractor shall provide proper access and level areas for testing.
5. Rocks or rock fragments less than eight (8) inches in the largest dimension may be utilized in the fill, provided they are not placed in concentrated pockets. However, rocks larger than four (4) inches in dimension shall not be placed within three (3) ft of finish grade.
6. Rocks greater than eight (8) inches in largest dimension shall be taken offsite, or placed in areas designated by the Geotechnical Engineer to be suitable for rock disposal.
7. Where space limitations do not allow for conventional fill compaction operations, special backfill materials and procedures may be required. Pea gravel or other select fill can be used in areas of limited space. A sand and Portland Cement slurry (2 sacks per cubic-yard of slurry mix) shall be used in limited space areas for shallow backfill near final pad grade, and pea gravel shall be placed in deeper backfill near drainage systems.
8. AESEGI shall observe the placement of fill and conduct in-place field density tests on the compacted fill in order to check adequacy of in-situ water content and relative compaction. Where measured in-situ density of compacted fill soil is lower than the required relative compaction, the soil shall be water-conditioned and recompacted until adequate relative

APPENDIX E

compaction is achieved.

9. The Contractor shall achieve with the specified relative compaction out to the finish slope face of fill slopes, buttresses, and stabilization fills, as set forth in the specifications for compacted fill. This may be achieved either by overbuilding the slope and cutting back as necessary, by direct compaction of the slope face with suitable equipment, or by other procedures which produce the required result.

10. Any abandoned underground structures such as cesspools, cisterns, mining shafts, tunnels, septic tanks, wells, pipelines, or others not discovered prior to grading are to be removed or treated to the satisfaction of the Geotechnical Engineer and/or the controlling agency for the project.

11. The Contractor shall have suitable and sufficient equipment during a particular operation to handle the volume of fill being placed. When necessary, fill placement equipment shall be shut down temporarily in order to permit proper compaction of fill, correction of deficient areas, or to facilitate required field testing.

12. The Contractor shall be responsible for the satisfactory completion of all earthwork in accordance with the project plans and specifications.

13. Final reports shall be submitted after completion of earthwork and after the Geotechnical Engineer and Engineering Geologist have finished their observations of the work. No additional excavation or filling shall be performed without prior notification to the Geotechnical Engineer and/or Engineering Geologist.

14. Whenever the words “supervision”, “inspection”, or “control” are used, they shall mean observation of the work and/or testing of the compacted fill by AESEGI to assess whether substantial compliance with plans, specifications and design concepts has been achieved. However, these words do not refer to direction by AESEGI of the actual work of the Contractor or the Contractor’s workers.

APPENDIX E

Minimum Foundation and Slab Recommendations for Expansive Soils

Minimum Design Parameters for Footing Foundations

Expansion potential Classification	Expansion Index (UBC)	Footing Embedment (inches)				Reinforcement Of Continuous Footings
		One-story and Two-Story structures		Three-Story structures		
		Perimeter locations	Interior locations	Perimeter locations	Interior locations	
Very Low	0 to 20	18	12	24	18	Per structural requirements
Low	21 to 50	18	12	24	18	Two # 4 Rebars, top and bottom
Medium	51 to 90	24	18	30	24	
High	91 to 130	30	18	36	30	

- Width of continuous footings shall be at least 12 inches (one-story structures); 15 inches (two-story structures); 18 inches (three-story structures). Width of isolated footings that support individual columns shall be at least 24 inches.
- Isolated footings that support exterior structural columns shall be structurally connected to the main foundation system in at least two orthogonal horizontal directions.
- The sides of footings that support interior columns should be connected to the closest adjacent (isolated spread footing and/or continuous footing) foundations using reinforced concrete tie beams. The tie beams should be at least 12 inches wide and should be embedded at least 12 inches beneath pad grade. Reinforcement of the tie beams should be at least $_{min}$ $(200/f_y)$.
- Foundation excavations should be observed by a representative of this firm to verify that the excavations are embedded to the recommended depth into the recommended material, prior to placement of forms, reinforcement, or concrete in the excavations. The excavations should be moisture-conditioned and free of all loose or sloughed material prior to casting of concrete.
- Footing foundations to be underlain by soils with an Expansion Index higher than 130 should be individually designed by the Structural Engineer, based on consultation with the Geotechnical Engineer. Proposed buildings that will be underlain by soils with an Expansion Index higher than 130 may also be supported on post-tensioned slabs or on structural mats, to be designed on a case-by-case basis by a structural engineer in consultation with the geotechnical engineer. General recommendations for design of post-tensioned slabs and structural mats for soil subgrades with an Expansion Index higher than 130 are provided after the following table.

APPENDIX E

Minimum Foundation and Slab Recommendations for Expansive Soils

Minimum Design Parameters for Slab on Grade Floors

Expansion Potential Classification (ASTM D4829)	Expansion Index	Moisture Conditioning of Slab subgrade	Slab Reinforcement	Minimum Slab Thickness	Thickness of Compacted Granular Material over subgrade and beneath slab
Very Low	0 to 20	None	#3 Rebar at 24", each way	4 inches	2 inches of sand[5] plus 2 inches of sand over vapor retarder
Low	21 to 50	120 percent of Optimum Moisture Content[6] to 18 inches depth	#3 Rebar at 18", each way		
Medium	51 to 90	130 percent of Optimum Moisture Content to 24 inches depth	#4 Rebar at 16", each way	5 inches	4 inches of aggregate base plus 2 inches of sand over vapor retarder
High	91 to 130	140 percent of Optimum Moisture Content to 36 inches depth	#4 Rebar at 14", each way	6 inches	6 inches of aggregate base plus 2 inches of sand over vapor retarder

- Slabs should be constructed using low-slump concrete and with crack control joints spaced 8 ft apart, or closer, in both horizontal directions. In any case, concrete used in slabs-on-grade should satisfy the requirements of Chapter 19 of the California Building Code.
- Interior floor slabs should be structurally tied to continuous footing foundations as directed by the Structural Engineer. As a minimum, slabs constructed over subgrades with medium or high expansion potential should be structurally tied to continuous footing foundations using No. 3 rebars on 36-inch horizontal spacings and to interior column footing foundations by bending No. 3 rebars into the slab on alternating 24-inch and 36-inch horizontal spacings.
- Welded wire mesh should not be substituted for the steel rebar reinforcement recommended in the preceding table because sagging of welded wire mesh between support points during casting of floor slabs typically results in insufficient concrete cover beneath the mesh, even if extra measures are used to keep the mesh at slab mid-height.
- If buildup of water vapor beneath interior floor slabs is acceptable, the floor slabs may be cast directly on the recommended surficial lift of compacted granular material. Otherwise, a membrane vapor retarder with a thickness of at least 10 mils should be placed over the lift of compacted granular material, a 2-inch thick protective cushion of compacted well-

[5] Sand "base" should have a Sand Equivalent of at least 30 (e.g., washed concrete sand).

[6] Optimum Moisture Content of subgrade soils, per ASTM D1557.

APPENDIX E

Minimum Foundation and Slab Recommendations for Expansive Soils

graded clean sand should be placed over the membrane, and the floor slab should be cast on the sand cushion. The membrane should be lapped and/or sealed, and sealed around all plumbing structures and other openings. Care should be taken to avoid puncturing the membrane during placement/compaction of the sand cushion and during casting of the slab. Suitability of materials that will be placed directly above and below the membrane should be evaluated in our geotechnical laboratory prior to transporting them to the project site.

- In order to minimize entry of water beneath interior slab-on-grade floors, utility trenches that cross perimeter footing foundations should be backfilled with lean concrete or with concrete slurry. The slurry plug should extend under the full width of the footing and along the trench for at least 24 inches in the direction of the slab.
- Materials from foundation and/or utility trench excavations should not be spread on areas where concrete slabs will be cast unless the materials are compacted and tested.
- Floor slabs underlain by soils with an Expansion Index greater than 130 should be individually designed by the Structural Engineer based on consultation with the Geotechnical Engineer.

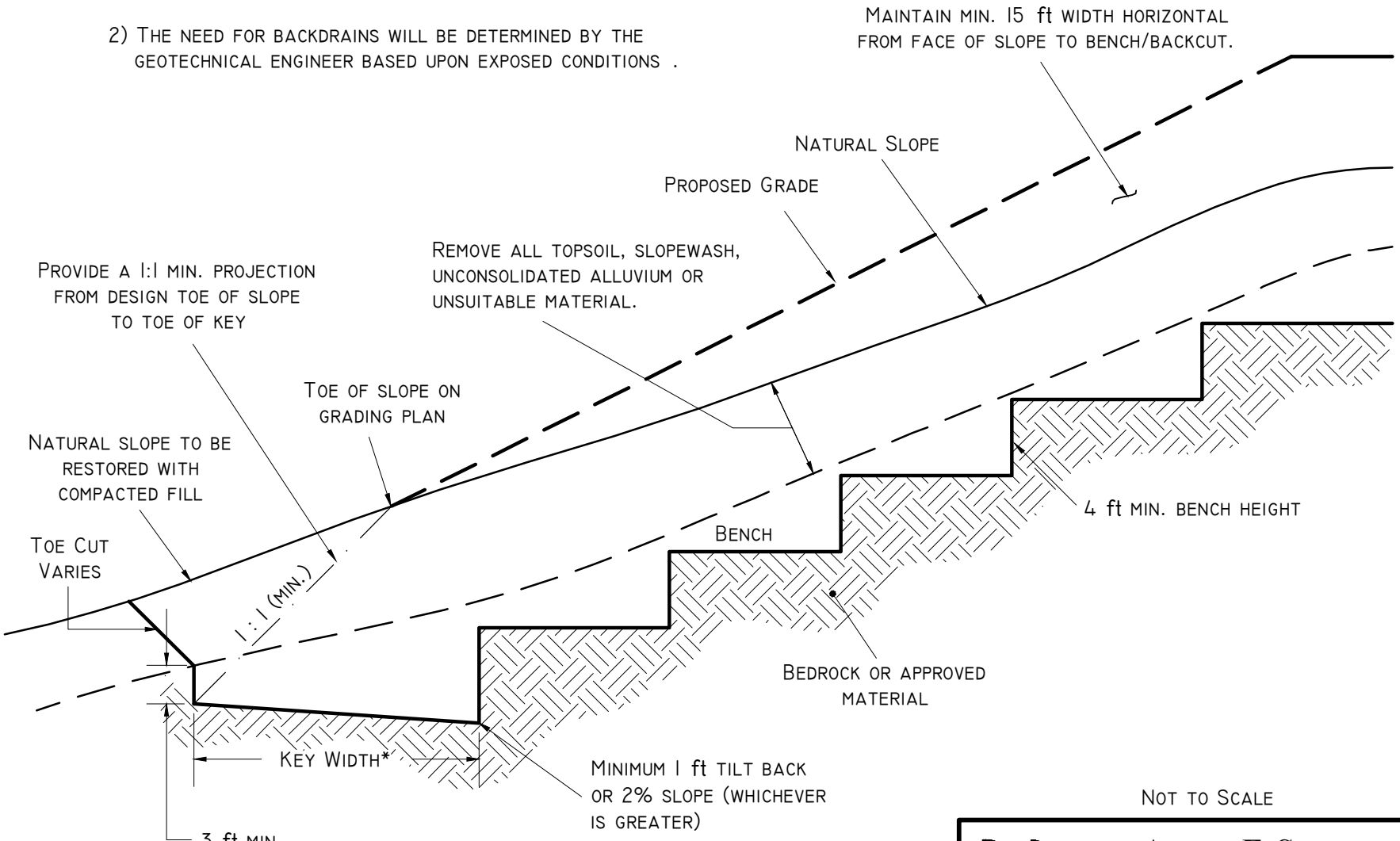
Post-Tensioned Slabs

The following general geotechnical recommendations may be used for design of post-tensioned floors slabs that will be constructed over subgrades with VERY HIGH expansion potential (i.e., Expansion Index higher than 130).

- The upper 3 ft of the subgrade beneath post-tensioned slabs should be water conditioned to at least 130 percent of Optimum Moisture Content and compacted to between 90 and 93 of Maximum Dry Density, per ASTM D1557.
- A vapor barrier between two 2-inch thick layers of compacted sand should be placed on the subgrade of post-tensioned slabs.
- Post-tensioned slabs should be designed to accommodate a vertical deflection as great as 1.0 inch (up or down) over a horizontal distance of 30 feet, as a result of potential swelling/shrinking of the underlying subgrade.

NOTE: 1) WHERE THE NATURAL SLOPE APPROACHES OR EXCEEDS THE DESIGN SLOPE RATIO, SPECIAL RECOMMENDATIONS WILL BE PROVIDED BY THE GEOTECHNICAL ENGINEER.

2) THE NEED FOR BACKDRAINS WILL BE DETERMINED BY THE GEOTECHNICAL ENGINEER BASED UPON EXPOSED CONDITIONS .



*KEYWAY WIDTH IN COMPETENT MATERIAL MINIMUM OF 15 ft OR AS RECOMMENDED BY THE GEOTECHNICAL ENGINEER.

NOT TO SCALE

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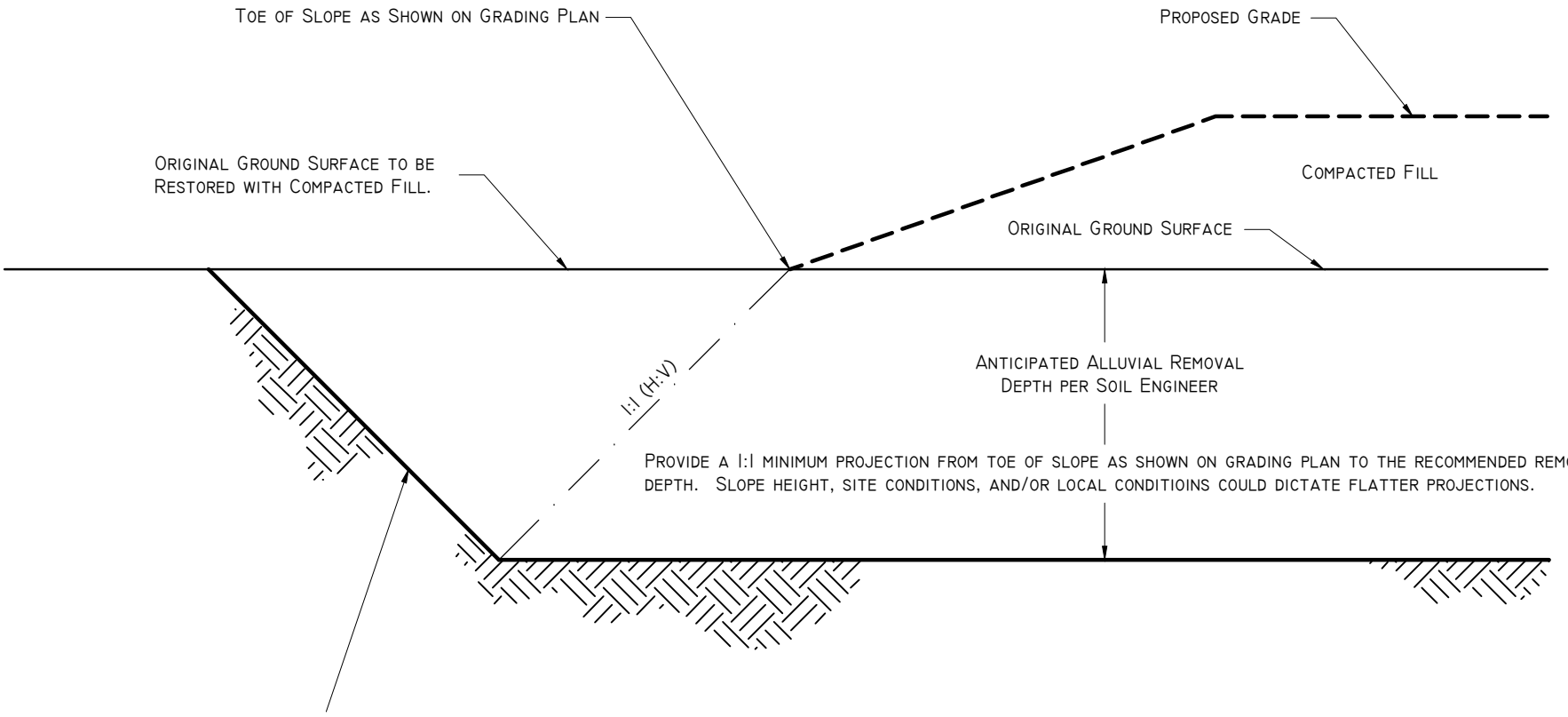
FILL SLOPE OVER NATURAL SLOPE
5:1 OR STEEPER



BACKCUT VARIES. BACKCUT SHOULD BE EXCAVATED AS APPROPRIATE TO PROVIDE SAFE CONDITIONS PER CAL OSHA. ALTERNATIVELY, THE SLOT-CUT METHOD CAN BE USED (SEE TEXT), OR TEMPORARY SHORING CAN BE UTILIZED.

NOT TO SCALE

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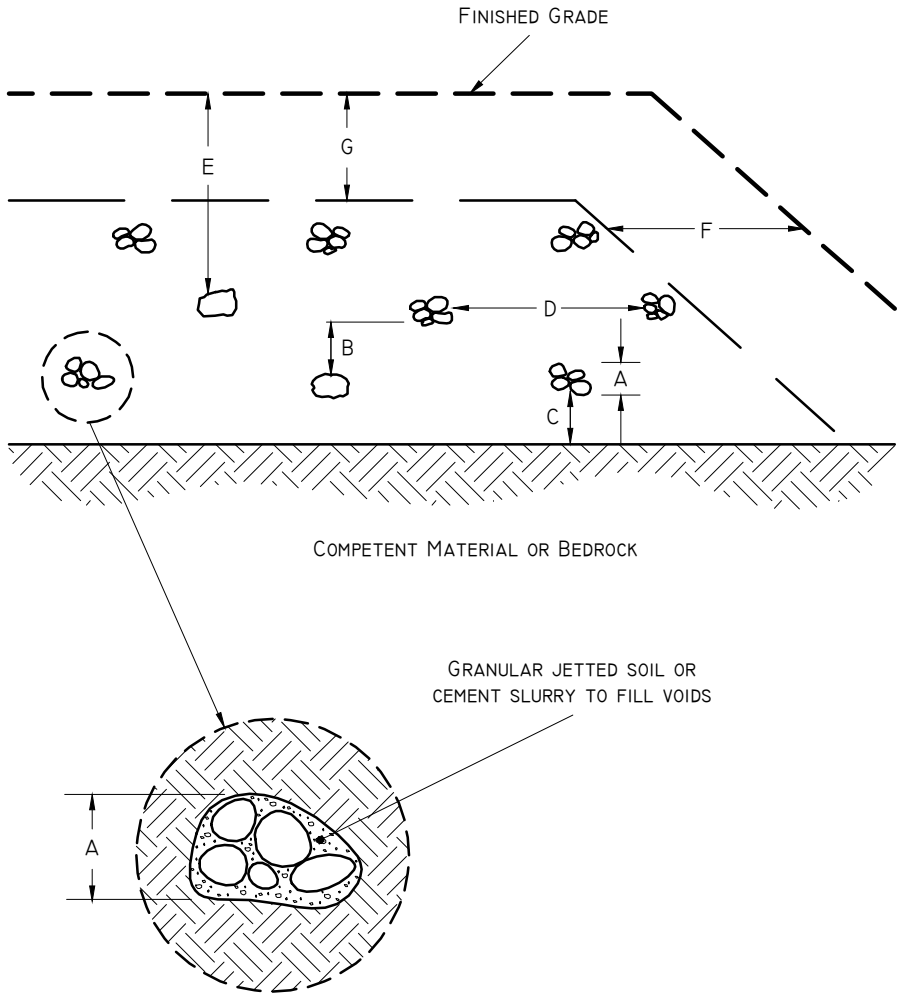
FILL SLOPE TOEING OUT ON FLAT ALLUVIATED CANYON



EXPLANATION

A) ± 4 FT, HEIGHT AND WIDTH MAY VARY DEPENDING ON ROCK SIZE

B) MINIMUM OF 4 FT FROM STAGGER WINDROW

C) MINIMUM OF 5 FT FROM FIRST SET OF WINDROW TO COMPETENT MATERIAL OR BEDROCK

D) MINIMUM OF 15 FT BETWEEN WINDROWS

E) MINIMUM OF 23 FT FROM OVERSIZED ROCKS (LARGEST DIMENSION ≥ 4 FT) TO FINISHED SUBGRADE. ALL OVERSIZED ROCKS MUST BE INDIVIDUALLY PLACED.

F) MINIMUM OF 25 FT FROM PROJECTED WINDROW AREA TO FINISHED SLOPE SURFACE.

G) MINIMUM OF 15 FT BENEATH FINISHED GRADE TO PROVIDE CLEARANCE FOR FOUNDATIONS AND POOLS, OR 5 FT BELOW THE DEEPEST ADJACENT UTILITY TRENCH, WHICHEVER IS DEEPEST.

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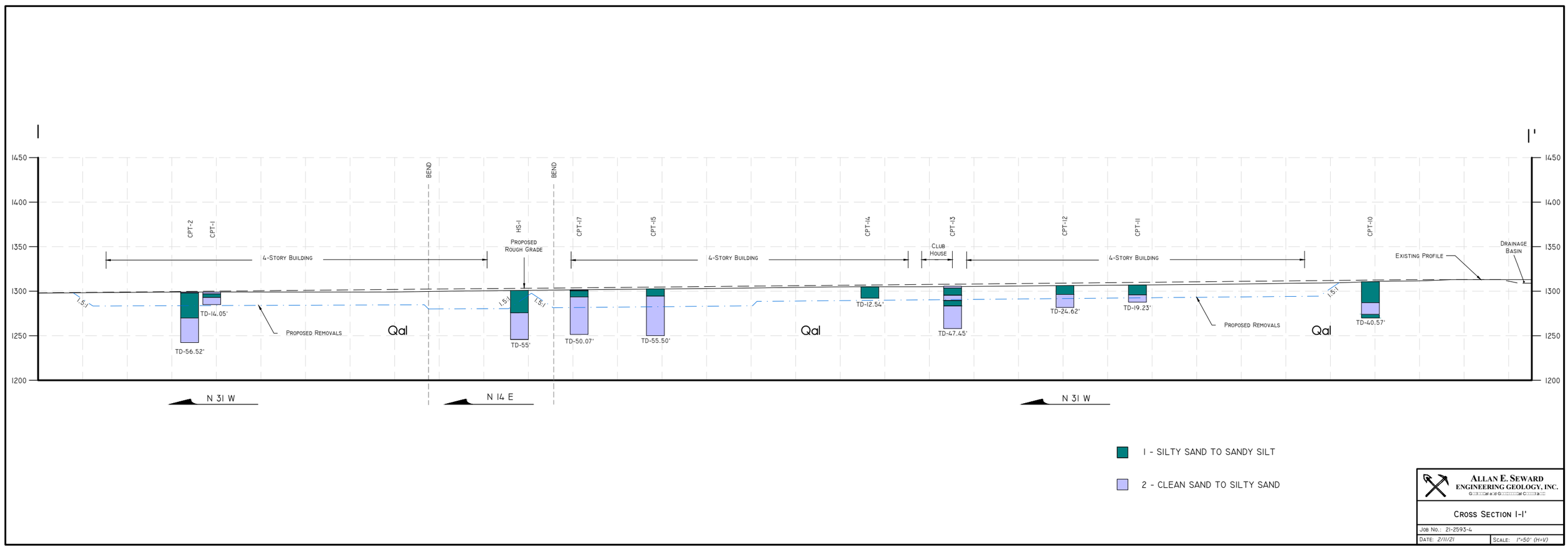
ROCK DISPOSAL (WINDROWS)



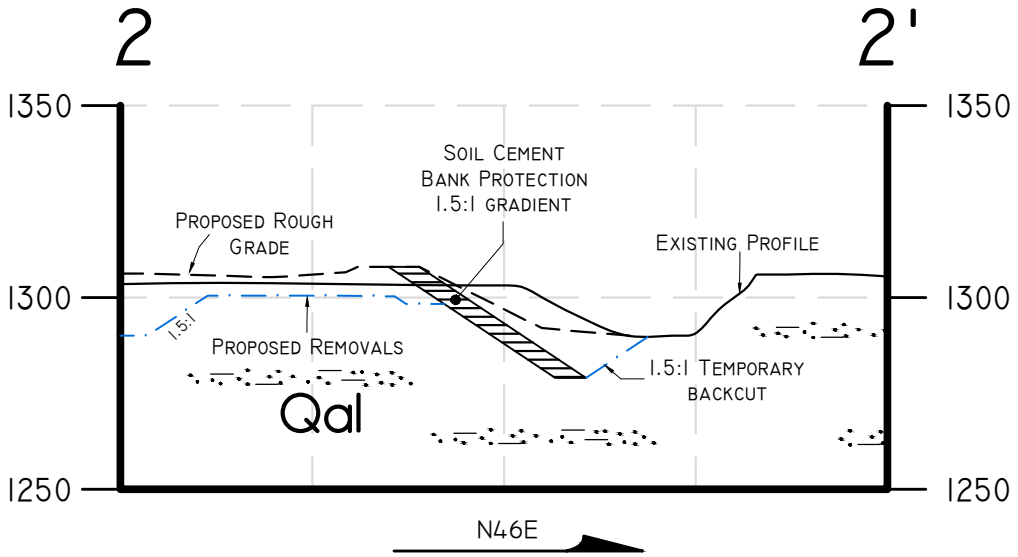
Allan E. Seward Engineering Geology, Inc.
Geotechnical and Geological Consultants

Cross Section I-I'

Job No.: 21-2593-4

Date: 2/11/21

Scale: 1"=50' (H=V)



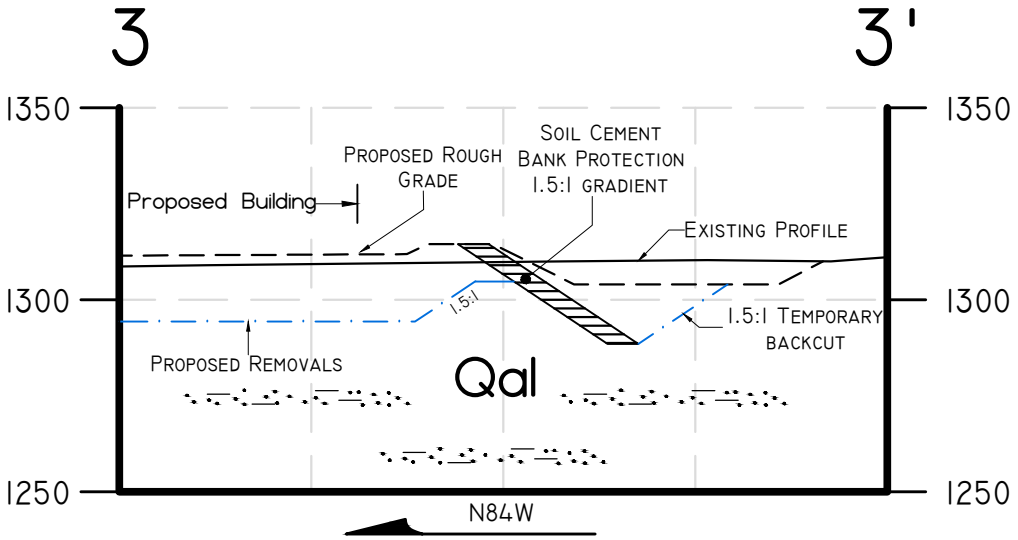
ALLAN E. SEWARD
ENGINEERING GEOLOGY, INC.
Geological and Geotechnical Consulting

CROSS SECTION 2-2'

JOB NO.: *21-2593-4*

DATE: *2/11/21*

SCALE: *1"=50'*



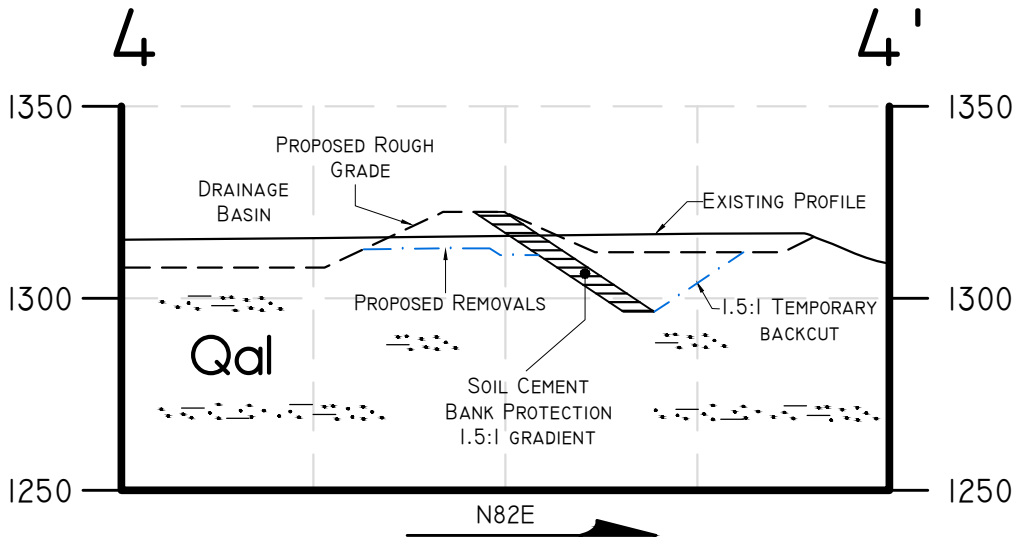
Allan E. Seward
Engineering Geology, Inc.
Geological and Geotechnical Consulting

Cross Section 3-3'

Job No.: 21-2593-4

Date: 2/11/21

Scale: 1"=50'



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Engineering Geology, Inc.
Geological and Geotechnical Consulting

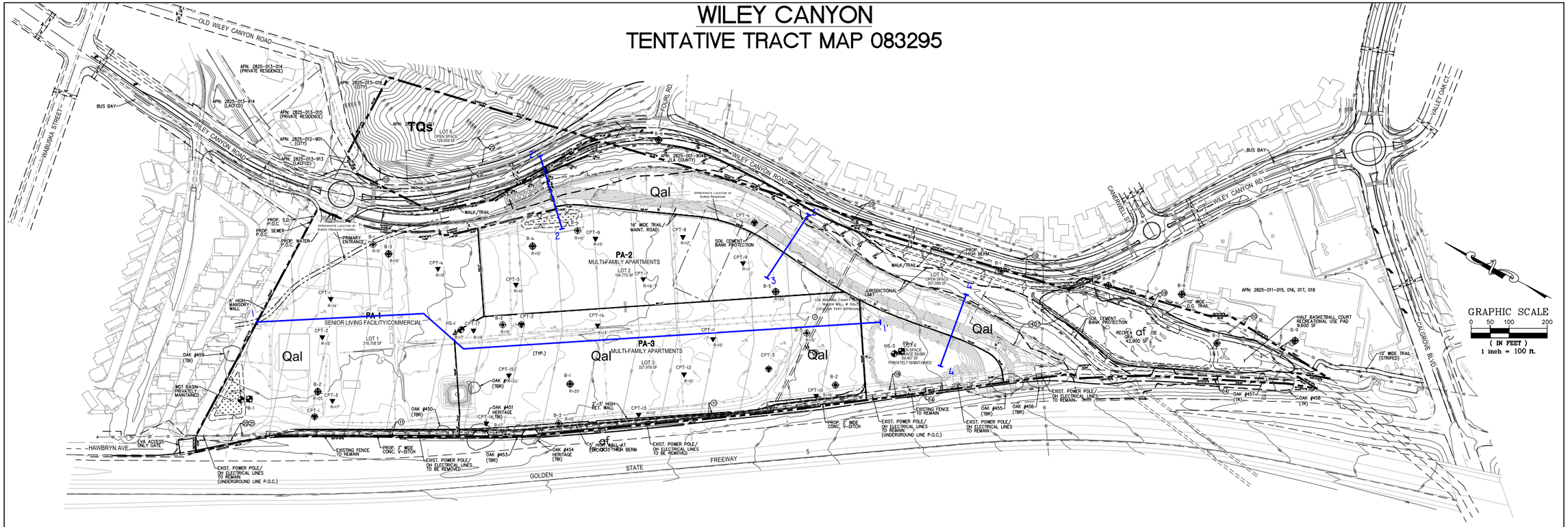
Cross Section 4-4'

Job No.: 21-2593-4

Date: 2/11/21

Scale: 1"=50'

WILEY CANYON
TENTATIVE TRACT MAP 083295



LEGAL DESCRIPTION:

PARCEL A:
PARCEL 1:

ALL THAT CERTAIN PARCEL OF LAND ACQUIRED BY THE STATE OF CALIFORNIA BY PARCEL 4 OF DEED 63, RECORDED MARCH 22, 1951 AS INSTRUMENT NO. 3206 IN BOOK 35868 PAGE 28, OF OFFICIAL RECORDS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY AND THAT CERTAIN PARCEL OF LAND ACQUIRED BY THE STATE OF CALIFORNIA BY DEED 31, RECORDED IN BOOK 8172 PAGE 187, OF SAID OFFICIAL RECORDS, BOUNDED NORTHWESTERLY BY THAT CERTAIN COURSE HAVING A BEARING AND DISTANCE OF NORTH 62°16'58" EAST 50.27 FEET IN PARCEL 2 OF STATE HIGHWAY RELINQUISHMENT NUMBER 602, RECORDED IN BOOK R6678 PAGE 858 OF SAID OFFICIAL RECORDS, AND BOUNDED SOUTHWESTERLY BY THE FOLLOWING DESCRIBED LINE:

BEGINNING AT THE SOUTHWESTERLY CORNER OF SAID PARCEL 4; THENCE NORTHWESTERLY IN A DIRECT LINE TO THE SOUTHWESTERLY TERMINUS OF SAID COURSE, HAVING A BEARING OF NORTH 62°16'58" EAST, TOGETHER WITH ALL THE RIGHTS OF ACCESS AS ACQUIRED BY THE STATE OF CALIFORNIA BY SAID PARCEL 4.

EXCEPT THEREFROM ALL OIL, GAS, MINERALS, AND OTHER HYDROCARBON SUBSTANCES LYING BELOW THE SURFACE OF SAID LAND, BUT WITH NO RIGHT OF SURFACE ENTRY AS PROVIDED IN DEEDS OF RECORDS.

ALSO EXCEPT THEREFROM, ALL OIL, MINERALS, NATURAL GAS AND OTHER HYDROCARBONS BY WHATSOEVER NAME KNOWN THAT MAY BE WITHIN OR UNDER THE HEREIN CONVEYED PARCEL OF LAND, AND THE RIGHTS THERETO, TOGETHER WITH CERTAIN OTHER CONDITIONS, AS ACCEPTED AND RESERVED IN SAID DEED 63.

ALL THAT CERTAIN PARCEL OF LAND AS DESCRIBED IN AND CONVEYED BY THAT CERTAIN DIRECTOR'S DEED AS RECORDED ON APRIL 14, 1971 AS INSTRUMENT NO. 1770 OF THE OFFICIAL RECORDS IN THE OFFICE OF THE COUNTY RECORDER OF THE COUNTY OF LOS ANGELES, STATE OF CALIFORNIA.

PARCEL 2:

THAT PORTION OF LOT 7 AND OF THE SOUTHWEST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 4, TOWNSHIP 3 NORTH, RANGE 16 WEST, SAN BERNARDINO BASE AND MERIDIAN, IN THE CITY OF SANTA CLARITA, IN THE COUNTY OF LOS ANGELES, STATE OF CALIFORNIA, ACCORDING TO THE OFFICIAL PLAT MAP THEREOF, DESCRIBED AS FOLLOWS:

BEGINNING AT THE SOUTHEAST CORNER OF SAID SECTION 4; THENCE NORTHERLY ALONG THE EASTERLY LINE OF SAID SECTION TO THE NORTHEAST CORNER OF SAID LOT 7; THENCE WESTERLY ALONG THE NORTHERLY LINE OF SAID LOT 7 TO THE EASTERLY LINE OF THE WESTERLY 380 FEET OF SAID LOT 7; THENCE SOUTHERLY ALONG SAID LAST MENTIONED EASTERLY LINE TO THE SOUTHERLY LINE OF THE NORTHERLY 270 FEET OF SAID LOT 7; THENCE WESTERLY ALONG SAID SOUTHERLY LINE AND ITS WESTERLY PROLONGATION TO THE NORTHEASTERLY LINE OF THE LAND DESCRIBED IN THE DEED TO THE STATE OF CALIFORNIA, RECORDED ON JUNE 28, 1929 AS INSTRUMENT NO. 1085, IN BOOK 8172 PAGE 187, OFFICIAL RECORDS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY; THENCE SOUTHEASTERLY ALONG SAID NORTHEASTERLY LINE, TO AND ALONG THE NORTHEASTERLY LINE TO THE LAND DESCRIBED IN PARCEL 2-A (AMENDED) OF THE FINAL ORDER OF CONDEMNATION ENTERED IN CASE NO. 860012, SUPERIOR COURT OF THE STATE OF CALIFORNIA FOR THE COUNTY OF LOS ANGELES, A CERTIFIED COPY OF WHICH BEING RECORDED ON MAY 13, 1960 AS INSTRUMENT NO. 3063 IN BOOK D3304 PAGE 451, OFFICIAL RECORDS, OF SAID COUNTY TO THE SOUTHERLY LINE OF SAID SECTION; THENCE EASTERLY ALONG SAID SOUTHERLY LINE TO THE POINT OF BEGINNING.

EXCEPT THEREFROM THAT PORTION OF SAID LAND DESCRIBED AS PARCEL NO. 117A IN THE FINAL ORDER OF CONDEMNATION, ENTERED IN CASE NO. C 546819, SUPERIOR COURT OF LOS ANGELES, RECORDED MAY 22, 1990 AS INSTRUMENT NO. 90-925383, OCTOBER 1, 1990 AS INSTRUMENT NO. 90-1674166, AND FEBRUARY 4, 1991 AS INSTRUMENT NO. 91-166097, ALL OF OFFICIAL RECORDS.

ALSO EXCEPT THEREFROM THAT PORTION OF SAID LAND DESCRIBED IN EXHIBIT "A" AND DEPICTED IN EXHIBIT "B" IN THE DEED TO THE CITY OF SANTA CLARITA, RECORDED SEPTEMBER 28, 1998 AS INSTRUMENT NO. 98-1754090, OFFICIAL RECORDS.

PARCEL 3:

THAT PORTION OF LOT 7 AND OF THE SOUTHWEST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 4, TOWNSHIP 3 NORTH, RANGE 16 WEST, SAN BERNARDINO BASE AND MERIDIAN, IN THE CITY OF SANTA CLARITA, COUNTY OF LOS ANGELES, STATE OF CALIFORNIA, ACCORDING TO THE OFFICIAL PLAT MAP THEREOF, DESCRIBED AS FOLLOWS:

BEGINNING AT THE INTERSECTION OF THE NORTHERLY LINE OF SAID LOT 7 WITH THE EASTERLY LINE OF THE WESTERLY 380 FEET OF SAID LOT 7; THENCE SOUTHERLY ALONG SAID EASTERLY LINE TO THE SOUTHERLY LINE OF THE NORTHERLY 270 FEET OF LOT 7; THENCE WESTERLY ALONG SAID SOUTHERLY LINE AND ITS WESTERLY PROLONGATION TO THE NORTHEASTERLY LINE OF THE LAND DESCRIBED IN THE DEED TO THE STATE OF CALIFORNIA, RECORDED ON JUNE 28, 1929 AS INSTRUMENT NO. 1085, IN BOOK 8172 PAGE 187, OFFICIAL RECORDS, IN SAID OFFICE OF THE COUNTY RECORDER; THENCE NORTHWESTERLY ALONG SAID NORTHEASTERLY LINE TO THE NORTHERLY LINE OF SAID SOUTHWEST QUARTER THENCE EASTERLY ALONG SAID NORTHERLY LINE AND SAID NORTHERLY LINE OF LOT 7 TO THE POINT OF BEGINNING.

EXCEPT THAT PORTION WITHIN THE LINES OF THE LAND DESCRIBED IN PARCEL 4 OF THE DEED TO THE STATE OF CALIFORNIA, RECORDED MARCH 22, 1951 AS INSTRUMENT NO. 3206, IN BOOK 35868 PAGE 28, OF SAID OFFICIAL RECORDS.

PARCEL B:
PARCEL 1:

THAT PORTION OF THE NORTHEAST QUARTER OF FRACTIONAL SECTION 9, TOWNSHIP 3 NORTH, RANGE 16 WEST, SAN BERNARDINO MERIDIAN, IN THE CITY OF SANTA CLARITA, IN THE COUNTY OF LOS ANGELES, STATE OF CALIFORNIA, ACCORDING TO THE OFFICIAL PLAT OF SAID LAND FILED IN THE DISTRICT LAND OFFICE ON JUNE 29, 1897, DESCRIBED AS FOLLOWS:

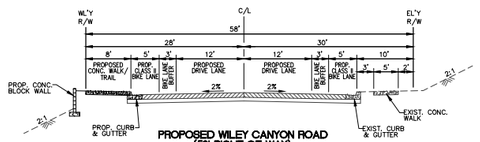
BEGINNING AT THE SOUTHEAST CORNER OF THE NORTHEAST QUARTER OF SAID SECTION 9; THENCE ALONG THE EAST LINE OF SAID QUARTER SECTION, NORTH 0° 12' EAST 1980.50 FEET TO THE TRUE POINT OF BEGINNING; THENCE SOUTH 4° 25' WEST 200.90 FEET; THENCE SOUTH 12° 35' WEST 356.04 FEET; THENCE SOUTH 32° 25' WEST TO THE EASTERLY
TERMINUS OF THAT CERTAIN COURSE DESCRIBED IN THE DEED TO THE STATE OF CALIFORNIA, RECORDED APRIL 6, 1951 AS INSTRUMENT NO. 3492, IN BOOK 35992 PAGE 102, OFFICIAL RECORDS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, AS HAVING A BEARING AND LENGTH OF "NORTH 75° 26' 10" EAST 251.75 FEET"; THENCE WESTERLY
ALONG SAID CERTAIN COURSE TO THE WESTERLY LINE OF WILEY CANYON ROAD, 40 FEET WIDE, AS SHOWN ON COUNTY SURVEYOR'S MAP NO. 6664 ON FILE IN THE OFFICE OF THE COUNTY ENGINEER OF SAID COUNTY, SAID WESTERLY LINE BEING ALSO THE EASTERLY LINE OF THE LAND DESCRIBED IN PARCEL 1 OF THE DEED TO THE STATE OF CALIFORNIA,
RECORDED ON JUNE 21, 1965 AS INSTRUMENT NO. 940, IN BOOK D-2947 PAGE 229, OFFICIAL RECORDS OF SAID COUNTY; THENCE NORTHERLY AND NORTHWESTERLY ALONG THE EASTERLY AND NORTHEASTERLY LINES OF SAID PARCEL 1 TO THE NORTHERLY LINE OF SAID SECTION; THENCE EASTERLY AND SOUTHERLY ALONG THE NORTHERLY AND EASTERLY LINES OF SAID SECTION TO THE POINT OF BEGINNING.

EXCEPT ANY PORTION LYING EASTERLY OF THE WESTERLY LINE OF WILEY CANYON ROAD, 40 FEET WIDE, AS DESCRIBED IN BOOK 761 PAGE 303 OF DEEDS.

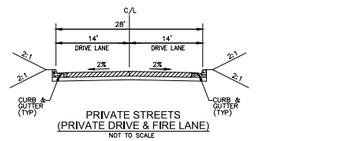
PARCEL 2:

THAT PORTION OF WILEY CANYON ROAD, 40 FEET WIDE, IN THE COUNTY OF LOS ANGELES, STATE OF CALIFORNIA, AS SHOWN ON MAP OF TRACT NO. 30340, FILED IN BOOK 741 PAGES 62 TO 68 INCLUSIVE OF MAPS, IN THE OFFICE OF THE RECORDER OF SAID COUNTY, WHICH EXTENDS FROM THE NORTHERLY PROLONGATION OF THAT CERTAIN COURSE OF NORTH 18° 50' 39" WEST 260.94 FEET IN THE WESTERLY BOUNDARY OF LOT 135 OF SAID TRACT, NORTHERLY TO THE NORTHWESTERLY CONTINUATION OF THAT CERTAIN 1240 FOOT RADIUS CURVE IN THE NORTHEASTERLY BOUNDARY OF SAID LOT.

APN: 2825-012-007 (Affects: Parcel 1 of Parcel A)
2825-012-011 (Affects: Parcels 2 and 3 of Parcel A)
and 2825-012-010 (Affects: Parcel B)



PROPOSED WILEY CANYON ROAD (58' RIGHT OF WAY)
NOT TO SCALE



PRIVATE STREETS
(PRIVATE DRIVE & FIRE LANE)
NOT TO SCALE

EASEMENTS BASED ON FIRST AMERICAN TITLE INSURANCE COMPANY
PRELIMINARY TITLE REPORT ORDER NO.:NCS-1.0325-D.LA2 DATED OCTOBER 3, 2020

TITLE REPORT ITEM NO.	OWNER	PURPOSE	REFERENCE	FUTURE DISPOSITION	ADDITIONAL COMMENTS	TENTATIVE MAP SHEET NO.
10	COUNTY OF LOS ANGELES	ROAD	DATE UNKNOWN COUNTY SURVEYOR'S MAP NO. 6664	TO BE QUITCLAIMED	COVERS PORTIONS OF WILEY CANYON ROAD ALONG EAST PROPERTY LINE.	1
11	STATE OF CALIFORNIA	PUBLIC UTILITY	MAY 13, 1960 INST. NO. 3063 IN BOOK D3304 PAGE 451	TO QUITCLAIMED & RELOCATED	LOCATED ALONG CHAIN LINK FENCE ADJACENT TO GOLDEN STATE FREEWAY 5 WITHIN LOTS 1 & 3	1
14	STATE OF CALIFORNIA	DRAINAGE, PIPE, COMM. & POWER LINES	JUNE 21, 1965 INST. NO. 940 IN BOOK D2947 PAGE 229	PORTIONS TO QUITCLAIMED & RELOCATED	LOCATED ALONG CHAIN LINK FENCE ADJACENT TO GOLDEN STATE FREEWAY 5 WITHIN LOTS 3, 4 & 5	1
15	THE PACIFIC TELEPHONE & TELEGRAPH COMPANY	PUBLIC UTILITIES	OCTOBER 17, 1973 INST. NO. 1770 OF OFFICIAL RECORDS	TO QUITCLAIMED & RELOCATED	LOCATED ALONG CHAIN LINK FENCE ADJACENT TO GOLDEN STATE FREEWAY 5 WITHIN LOTS 3 & 4	1
19	COUNTY OF LOS ANGELES	ROAD	MAY 24, 1974 INST. NO. 4414 OF OFFICIAL RECORDS	TO BE VACATED	LOCATED ALONG SOUTHER PROPERTY LINE WITHIN LOT 5	1
20	SOUTHERN CALIFORNIA EDISON COMPANY	PUBLIC UTILITIES	MARCH 20, 1975 BOOK D388 OF OFFICIAL RECORDS	TO QUITCLAIMED & RELOCATED	LOCATED ALONG NORTHWEST CORNER OF PROPERTY LINE WITHIN LOT 1	1
21	THE PACIFIC TELEPHONE & TELEGRAPH COMPANY	UNDERGROUND CABLES, WIRES & CONDUITS	APRIL 10, 1975 INST. NO. 1597 OF OFFICIAL RECORDS	TO QUITCLAIMED & RELOCATED	LOCATED ALONG NORTHWEST CORNER OF PROPERTY LINE WITHIN LOT 1	1
24	PACIFIC BELL	PUBLIC UTILITIES	JULY 22, 1985 INST. NO. 85-839958 OF OFFICIAL RECORDS	TO QUITCLAIMED & RELOCATED	LOCATED WITHIN LOTS 3, 4 & 5	1
25	CITY OF SANTA CLARITA	SLOPE	SEPTEMBER 28, 1998 INST. NO. 98-1754090 OFFICIAL RECORDS	TO BE QUITCLAIMED	LOCATED EAST SIDE OF WILEY CANYON ROAD, NORTHEAST CORNER OF PROPERTY LINE WITHIN LOT 6	1
27	STATE OF CALIFORNIA	DRAINAGE	DATE UNKNOWN BOOK 2585, PAGE 012 OF ASSESSOR'S MAPS	TO BE QUITCLAIMED	LOCATED WITHIN LOT 5	1

PROJECT SUMMARY:

GROSS AREA:	31.8 AC
TOTAL LOTS:	6
EXISTING ZONING:	MX-N
MULTI-FAMILY APARTMENTS:	379 UNITS
SENIOR LIVING FACILITY:	258,104 SF
ASSISTED LIVING:	60 UNITS
INDEPENDENT LIVING:	130 UNITS
MEMORY CARE:	26 BEDS
COMMERCIAL:	10,886 SF

NOTES:

1. PARKING STALLS ARE 9' LONG X 18' WIDE.
2. MAXIMUM BLDG. HEIGHT IS 50'.
3. ALL ON-SITE STORM DRAIN SYSTEMS ARE PRIVATELY MAINTAINED.

EARTHWORK SUMARY

CUT: 65,000 cy
FILL: 77,000 cy
OVEREX: 500,000 cy
10% SHRINKAGE: 50,000 cy
IMPORT: 62,000 cy

OWNER:

WILEY CANYON, LLC
SHERIDAN-EBBERT DEVELOPMENT/
ROYAL CLARK DEVELOPMENT COMPANY
13120 TELFAIR AVENUE
SYLMAR, CA 91342
PHONE: (818) 364-7505
ATTN: SCOTT SHERIDAN

PUBLIC UTILITIES:

CABLE TV — TIME WARNER, 550 NORTH CONTINENTAL BLVD., EL SEGUNDO, CA 90245, (818) 407-4404

ELECTRIC — SOUTHERN CALIFORNIA EDISION CO., 3589 FOOTHILL DRIVE, THOUSAND OAKS, CA 91361, (661) 607-0512

GAS — SOUTHERN CA. GAS COMPANY, 9400 OAKDALE AVENUE, CHATSWORTH, CA. 91313, (818) 701-7567

SEWER — LOS ANGELES COUNTY SEWER MAINTENANCE DEPARTMENT, 45712 NORTH DIVISION, LANCASTER, CA. 93535, (626) 300-3370

TELEPHONE — AT&T, 26971 N. FURNIVALL AVENUE, SANTA CLARITA, CA 91351, (661) 251-8799

WATER — SANTA CLARITA VALLEY WATER AGENCY, 26521 SUMMIT CIRCLE, SANTA CLARITA, CA 91350, (661) 259-2737

GENERAL NOTES:

1. LOT LINES CAN BE ADJUSTED, ADDITIONAL RESIDENTIAL OR COMMERCIAL LOTS MAY BE CREATED TO THE SATISFACTION OF THE CITY PLANNING DEPARTMENT.
2. ALIGNMENT AND GEOMETRICS OF STREETS ARE APPROXIMATE. ADJUSTMENTS TO STREETS CAN BE MADE WITH APPROVAL BY THE CITY OF SANTA CLARITA PLANNING DEPARTMENT AND THE ENGINEERING DEPARTMENTS.
3. GRADES SHOWN ON THIS TENTATIVE MAP ARE APPROXIMATE. GRADES MAY DEVIATE UP TO TEN FEET WITH APPROVAL OF CITY PLANNING AND ENGINEERING DEPARTMENTS.
4. PERMISSION IS REQUESTED TO CREATE ADDITIONAL LANDSCAPE/OPEN SPACE OR PUBLIC USE LOTS TO THE SATISFACTION OF THE CITY PLANNING DEPARTMENT.
5. PERMISSION IS REQUESTED TO RECORD ADDITIONAL UTILITY LOTS AND PROVIDE MAINTENANCE EASEMENTS TO THE SATISFACTION OF THE CITY OF SANTA CLARITA PLANNING AND ENGINEERING DEPARTMENTS.
6. THE LOCATIONS OF APPURTENANT STRUCTURES (E.G., PASEOS, TRANSIT SHELTERS, WATER QUALITY BASINS, ETC.) MAY BE RELOCATED TO THE SATISFACTION OF THE CITY OF SANTA CLARITA PLANNING AND ENGINEERING DEPARTMENTS.
7. PERMISSION IS REQUESTED TO MASS GRADE.
8. LOTS DESIGNATED FOR MULTI-FAMILY HOUSING MAY BE FURTHER SUBDIVIDED FOR CONDOMINIUM PURPOSES.

CONDOMINIUM NOTE:

ALL RESIDENTIAL, COMMERCIAL AND OFFICE LOTS WITHIN THIS TENTATIVE MAP MAY BE FURTHER AIRSPACE SUBDIVIDED FOR CONDOMINIUM PURPOSES.

FLOOD ZONE:

FLOOD INSURANCE RATE MAP COMMUNITY PANEL NO. 06037C1031F, ZONE A AND AO

TOPOGRAPHY:

CONTOURS ARE BASED ON AN AERIAL PHOTOGRAMETRIC SURVEY PERFORMED BY VERTEX SURVEY, INC. AND McELHANNEY CONSULTING SERVICES LTD. FLOWN ON APRIL 2018.

BENCHMARK:

BENCHMARK: L-4528 DATUM: 1995 ELEVATION: 1285.578

ESTABLISHED BY THE NEWHALL QUAD

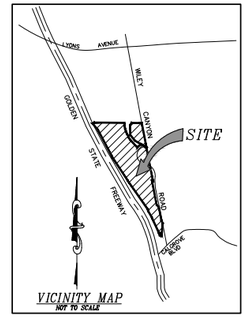
DESCRIPTION: BEING AN FC DISC IN CONCRETE FOOTING S/W LEG OF EDISON TOWER #3/7 35M S & 6.4M W/O C/L INTERSECTION WILEY CANYON ROAD & WABUSKA STREET MARKED (BM 128-05980).

BASIS OF BEARINGS:

THE BEARING SHOWN HEREON ARE BASED ON THE BEARING NORTH 10°55'20" WEST OF THE WESTERLY LINE OF THE RANCHO SAN FRANCISCO AS SHOWN ON RECORD OF SURVEY FILED IN BOOK 258 PAGES 31 THROUGH 38, INCLUSIVE, OF RECORD SURVEY, IN THE OFFICE OF THE COUNTY RECORDER OF LOS ANGELES COUNTY, AND SHOWN AS NORTH 10°55'18" WEST ON THIS MAP.

ASSESSOR PARCEL NUMBER:

2825-012-007, 2825-012-011, 2825-012-901,
2825-012-902 (CITY)



VICINITY MAP
NOT TO SCALE

ABBREVIATIONS:

AC	ACRES
APWA	AMERICAN PUBLIC WORKS ASSOCIATION
BVC	BEGINNING VERTICAL CURB
EVC	END VERTICAL CURB
EX	EXISTING
FF	FINISH FLOOR
FM	FORCE MAIN
FS	FINISHED SURFACE
FW	FIRE WATER
GB	GRADE BREAK
HP	HIGH POINT
L	LENGTH
MIN	MINIMUM
P.C.C.	PORTLAND CEMENT CONCRETE
PI	POINT OF INTERSECTION
PROP	PROPOSED
R	RADIUS
R/W	RIGHT OF WAY
SF	SQUARE FOOT
SD	STORM DRAIN
SS	SANITARY SEWER
STD	STANDARD
TBI	TO BE IMPACTED
TBR	TO BE REMOVED
TR	TO REMAIN
W	WATER

LEGEND:

- PROJECT BOUNDARY
- PROPOSED LOT LINE
- 1300 EXISTING CONTOUR
- 1300 PROPOSED CONTOUR
- PROPOSED TOP/TOE OF SLOPE
- PROPOSED DAYLIGHT
- EXISTING RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- EXISTING CURB
- PROPOSED CURB
- SD PROPOSED STORM DRAIN
- W PROPOSED WATER
- S PROPOSED SEWER
- E ELECTRICAL CONDUIT
- ELECTRICAL TRANSFORMER
- 1300 SPOT ELEVATION
- FLOW DIRECTION
- CARPORT
- OAK XXX (TR) OAK TREE (TR)= TO REMAIN (TBI)= TO BE IMPACTED (TBR)= TO BE REMOVED

SEE SHEET 2 FOR LEGEND

ALLAN E. SEWARD
ENGINEERING GEOLOGY, INC.
Geological And Geotechnical Consultants

GEOTECHNICAL MAP

DATE: 2/11/21 | JOB NO.: 21-2593-4
SCALE: 1" = 100' | FILE NAME: AES TTM 2.09.21_1640-TENTATIVE PLAN
SHEET 1 | GEOLOGY BY: VCG | DRAWN BY: CHS/VCG | REVISED: ____

ALLIANCE
LAND PLANNING & ENGINEERING INC.
2248 FARADAY AVE.
CARLSBAD, CA 92008
TEL: (760) 431-9896
FAX: (760) 431-8802
27413 TOURNEY ROAD
SUITE 120
VALENCIA, CA 91355
TEL: (661) 799-2760
CIVIL ENGINEERING • LAND PLANNING • HILLSIDE DESIGN • SURVEYING

PLAN PREPARED FOR:
WILEY CANYON, LLC
SHERIDAN-EBBERT DEVELOPMENT/
ROYAL CLARK DEVELOPMENT COMPANY
13120 TELFAIR AVENUE
SYLMAR, CA 91342
TEL: (818) 364-7505

PLANS PREPARED BY:
ALLIANCE LAND PLANNING & ENGINEERING INC.
2248 FARADAY AVE.
CARLSBAD, CA 92008
(760) 431-9896
PLANS PREPARED UNDER THE DIRECTION OF:
CRAIG M. WHITTEKER R.C.E. 51929 — 2/9/21 DATE

REGISTERED PROFESSIONAL ENGINEER — CRAIG M. WHITTEKER — NO. 51929 — EXP. 6-30-22 — CIVIL — STATE OF CALIFORNIA

NO.	DATE	REVISIONS	BY	APPR

SHEET 1 OF | CITY OF SANTA CLARITA | 3 SHEETS

WILEY CANYON
TENTATIVE TRACT MAP 083295
FOR CONDOMINIUM PURPOSES

G:\2593 acad\In Progress\AES TTM 2.09.21_1640_TENTATIVE_PLAN.dwg

ALLAN E. SEWARD
ENGINEERING GEOLOGY, INC.
Geological And Geotechnical Consultants

GEOTECHNICAL MAP

DATE: 2/11/21 | JOB NO.: 21-2593-G
SCALE: 1" = 50' | FILE NAME: AES TTM 2.09.21_WILD-TENTATIVE PLAN
SHEET 2 | GEOLOGY BY: VCG | DRAWN BY: CHS/VCG | REVISED:

LEGEND

af	Artificial Fill
Qal	Quaternary Alluvium
TQs	Saugus Formation
~~?~~~	Geologic Contact; Dotted where concealed; Queried where inferred
4 4'	Cross Section
- - -	Limits of Removal Bottom
R= 25'	Recommended Removal Depth Beneath Structures
R=	Location Specific Removal Depth
HS-3	Hollow-Stem Auger Boring
PB-2	Percolation Boring Test
CPT-17	Cone Penetrometer Test (CPT)
B-9	Hollow-Stem Boring (LGC, 2007)
B-3	Hollow-Stem Boring (LGC, 2005)
B-5	Hollow-Stem Boring (LGC, 2004)
CPT-4	Cone Penetrometer Test (CPT) (LGC, 2004)
W	Los Angeles County Inactive Water Well; very approximate location

SEE SHEET 9 HEREON

TQs
LOT 6
OPEN SPACE

Qal

af
(Road Fill)

APPROXIMATE LOCATION OF BURIED DRAINAGE CHANNEL

APPROXIMATE LOCATION OF BURIED RESERVOIR

PA-1
SENIOR LIVING FACILITY/COMMERCIAL
4-STORY
258,104 SF

PA-2
MULTI-FAMILY APARTMENTS

PA-3
MULTI-FAMILY APARTMENTS

LOT 1
LOT 2
LOT 3
LOT 5
OPEN SPACE

LOS ANGELES COUNTY INACTIVE WATER WELL # 5843
LOCATION VERY APPROXIMATE

WILEY CANYON ROAD
FOUR LANE MAJOR
FOUR LANE MAJOR
HAWKBRYN AVENUE
STATE FREEWAY 5
GOLDEN STATE FREEWAY

APN: 2825-013-014 (PRIVATE RESIDENCE)
APN: 2825-013-016 (CITY)
APN: 2825-013-914 (LACFCD)
APN: 2825-013-015 (PRIVATE RESIDENCE)
APN: 2825-012-011
APN: 2825-012-901 (CITY)
APN: 2825-013-913 (LACFCD)
APN: 2825-001-904 (LA COUNTY)

PLANNING AREA 1 SUMMARY:

SENIOR LIVING BUILDING AREA:

1ST FLOOR	81,356 SF
2ND FLOOR	65,080 SF
3RD FLOOR	55,834 SF
4TH FLOOR	55,834 SF
TOTAL=	258,104 SF
COMMERCIAL AREA: 1ST FLOOR	10,886 SF
GROSS BUILDING AREA=	268,990 SF
INDEPENDENT LIVING:	130 UNITS
ASSISTED LIVING:	60 UNITS
MEMORY CARE:	26 BEDS

PLANNING AREA 2 SUMMARY:

MULTI-FAMILY APARTMENTS:

BLDG NO.	1ST FLOOR	2ND FLOOR	3RD FLOOR	TOTAL AREA (SF)
1	11,935	18,419	18,419	48,773
2	2,478	5,100	5,100	12,678
3	6,694	13,824	13,824	34,342
4	4,633	9,610	9,610	23,853
5	6,148	10,898	10,898	27,944
TOTAL=	31,888	57,851	57,851	147,590 (138,154 WITHOUT BALCONIES)

AMENITY AREAS:
CABANA & POOL EQUIPMENT 834 SF

PLANNING AREA 3 SUMMARY:

MULTI-FAMILY APARTMENTS:

BLDG NO.	1ST FLOOR	2ND FLOOR	3RD FLOOR	4TH FLOOR	TOTAL AREA (SF)
1	11,094	15,460	15,460	15,460	57,474
2	13,276	18,374	18,374	18,374	68,398
3	12,592	17,310	17,310	17,310	64,522
4	12,974	17,429	17,429	17,429	65,261
5	161	2,257			9,672
6	161	2,257			9,672
7	161	2,257			9,672
8	161	2,257			9,672
TOTAL=	50,097	70,830	68,573	68,573	265,327 (250,531 WITHOUT BALCONIES)

AMENITY AREAS:

CABANA & POOL EQUIPMENT	834 SF
CLUBHOUSE	1,708 SF
TOTAL=	2,672 SF

SENIOR LIVING PARKING SUMMARY:

PARKING REQUIRED:

ASSISTED LIVING= 60 UNITS x 0.5/UNIT PLUS	30 STALLS
INDEPENDENT LIVING= 130 UNITS x 0.5/UNIT PLUS (1 STALL/8 GUESTS)	82 STALLS
MEMORY CARE= 26 BEDS x 0.5/BED PLUS	13 STALLS
COMMERCIAL= 10,886 SF x 1/250 SF	44 STALLS
TOTAL=	169 STALLS

PARKING PROVIDED:

ASSISTED LIVING=	30 STALLS
INDEPENDENT LIVING=	82 STALLS
MEMORY CARE=	13 STALLS
COMMERCIAL=	44 STALLS
VISITOR=	61 STALLS
TOTAL=	230 STALLS

APARTMENTS PARKING SUMMARY:

PARKING REQUIRED:

	PA2	PA3	TOTAL
RESIDENT=	234	368	602 STALLS (602 COVERED)
GUEST=	76	114	190 STALLS
TOTAL=	310	482	792 STALLS

PARKING PROVIDED:

GARAGES=		199 STALLS
CARPORTS=		404 STALLS
GUESTS=		108 STALLS
TOTAL=		711 STALLS (603 COVERED)

*SHARED PARKING ANALYSIS IS BEING PERFORMED AND WILL BE PROVIDED AT A LATER DATE.

BERM/WALL DETAIL SECTION G-G
NOT TO SCALE

BERM/WALL DETAIL SECTION F-F
NOT TO SCALE

SECTION H-H
NOT TO SCALE

GRAPHIC SCALE
0 25 50 100
(IN FEET)
1 inch = 50 ft.

ALLIANCE
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CIVIL ENGINEERING • LAND PLANNING • HILLSIDE DESIGN • SURVEYING
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27413 TOURNEY ROAD
SUITE 120
VALENCIA, CA 91355
TEL: (661) 799-2760

PLAN PREPARED FOR:
WILEY CANYON, LLC
SHERIDAN-EBBERT DEVELOPMENT/
ROYAL CLARK DEVELOPMENT COMPANY
13120 TELFAIR AVENUE
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TEL: (818) 364-7505

PLANS PREPARED BY:
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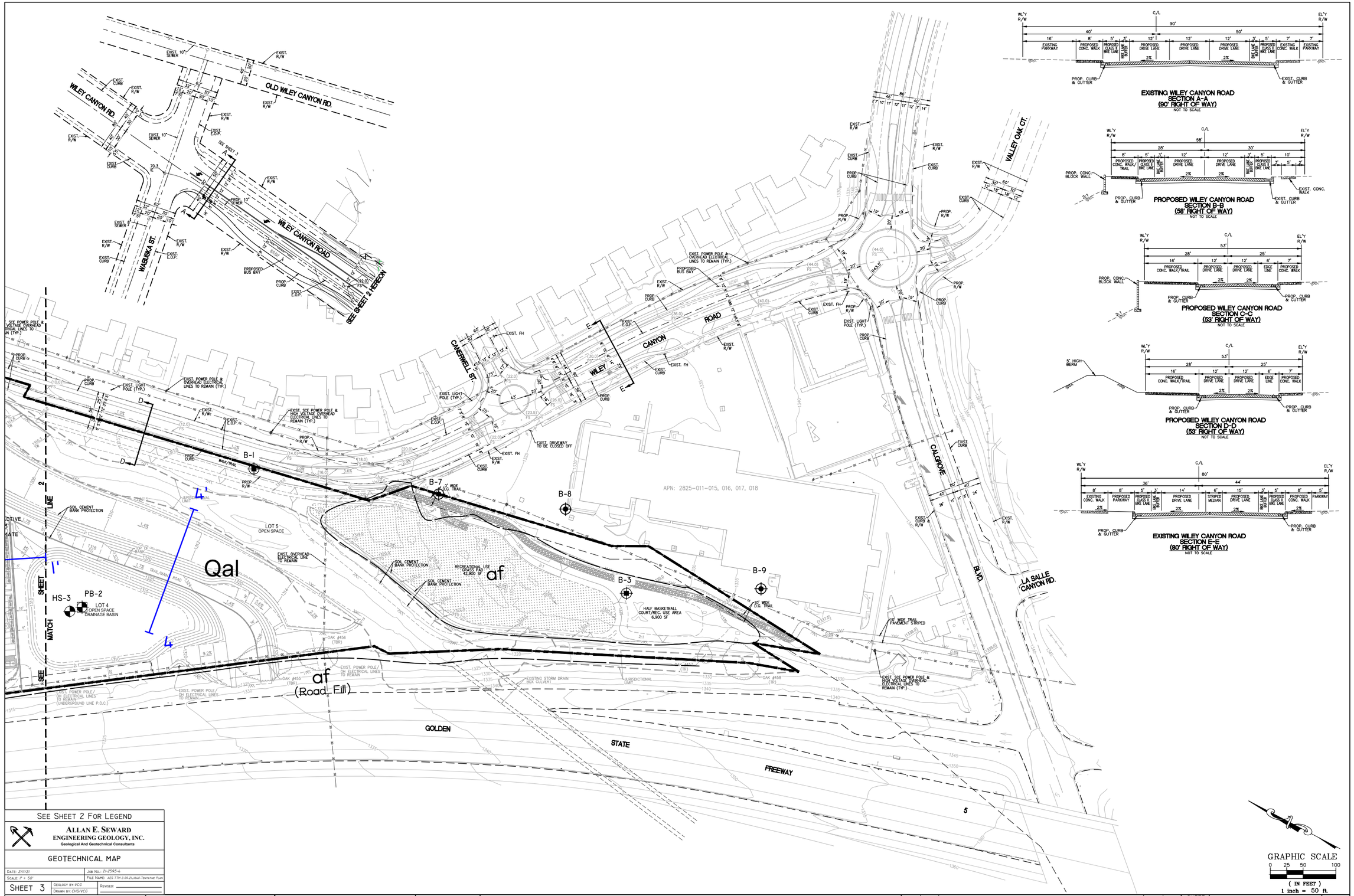
(760) 431-9896
PLANS PREPARED UNDER THE DIRECTION OF:
CRAIG M. WHITTEKER R.C.E. 51929 2/9/21
REGISTERED PROFESSIONAL ENGINEER CRAIG M. WHITTEKER NO. 51929 EXP 6-30-22 CIVIL STATE OF CALIFORNIA

NO.	DATE	REVISIONS	BY	APPR

SHEET 2 OF CITY OF SANTA CLARITA 3 SHEETS

WILEY CANYON
TENTATIVE TRACT MAP 083295
FOR CONDOMINIUM PURPOSES

G:\2593 acad\In Progress\AES TTM 2.09.21_1640_TENTATIVE_PLAN.dwg



EXISTING WILEY CANYON ROAD
SECTION A-A
(90' RIGHT OF WAY)
NOT TO SCALE

PROPOSED WILEY CANYON ROAD
SECTION B-B
(58' RIGHT OF WAY)
NOT TO SCALE

PROPOSED WILEY CANYON ROAD
SECTION C-C
(53' RIGHT OF WAY)
NOT TO SCALE

PROPOSED WILEY CANYON ROAD
SECTION D-D
(53' RIGHT OF WAY)
NOT TO SCALE

EXISTING WILEY CANYON ROAD
SECTION E-E
(80' RIGHT OF WAY)
NOT TO SCALE

GRAPHIC SCALE
0 25 50 100
(IN FEET)
1 inch = 50 ft.

SEE SHEET 2 FOR LEGEND

ALLAN E. SEWARD
ENGINEERING GEOLOGY, INC.
Geological And Geotechnical Consultants

GEOTECHNICAL MAP

DATE: 2/11/21 | JOB NO.: 21-2593-4
SCALE: 1" = 50' | FILE NAME: AES TTM 2.09.21_1640-Tentative Plan
SHEET 3 | GEOLOGY BY: VCG | DRAWN BY: CHS/VCG | REVISED: ———

ALLIANCE
LAND PLANNING & ENGINEERING INC.
2248 FARADAY AVE.
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PLANS PREPARED UNDER THE DIRECTION OF:
CRAIG M. WHITTEKER R.C.E. 51929 — DATE 2/9/21

REGISTERED PROFESSIONAL ENGINEER — CRAIG M. WHITTEKER — NO. 51929 — EXP 6-30-22 — CIVIL — STATE OF CALIFORNIA

NO.	DATE	REVISIONS	BY	APPR

SHEET 3 OF 3 SHEETS
CITY OF SANTA CLARITA

WILEY CANYON
TENTATIVE TRACT MAP 083295
FOR CONDOMINIUM PURPOSES

G:\2593 acad\In Progress\AES TTM 2.09.21_1640_TENTATIVE_PLAN.dwg

APPENDIX VIII

ADDITIONAL DOCUMENTATION

2825 12

SCALE 1" = 400'

7404
740732
741010
741011
741015
771027
860626
860812
880321
880427
9007/902006001-.
9312200701000 1-B1
950314
960506
19990129020060001-B1
20051026100030 01-B1

HAWKBRYN AVE.

POR. SW. 1/4, SE. 1/4, SEC. 4 (FRAC.)

WILEY CANYON RD.

CITY 15,640± □'

GOLDEN STATE

7 0.18±Ac

See Detail "B"

50.27

38,040± □'

902 L.A. Co. F.C.D.

R=332.21

140.42

R=4.88

181.03

R=332.76

N.55°18'40"E.

R=560

67.82

244.56

N.41°35'12"W.

123.38

S.45°24'48"W.

Varies

658.90

N.27°50'10"W.

N.33°28'07"W. 651.15

11

7 Por. 23,76± Ac.
0.51 " " St. Ease
23.25± Ac.

BK. 2826

219 — 224

F.M. 12401-1

800 Pl.

N.35°00'35"W.

10

7.86± Ac.
1.87 " " (Or Ease)
5.99 ± Ac.

Por.

Drainage Easel

1

NOYO CANYON

4 (Frac.)

9 (Frac.)

WILEY

C.S. 6664

W'ly In. lot 46, Tr. No. 2703

S.1°08'10"E. 230.25

N.24°43'11"W. 378.93

20

See detail "A"

11

FRWY.

S.17°56'46"E. 70.57

224 — 223

DETAIL "B"
NO SCALE

7 0.18±Ac.

50.27

N.40° 19'34"W. 164.74

S.83°57'55"W. 53.85

N.27°50'10"W. 20

53.85 N.40°21'45"E.

60

N.27°50'10"W. 658.90

GOLDEN STATE FRWY.

224 — 223

S'ly In. Lot 46 Tr. No. 2703

S.7°15'18"E. 332.97 ft. from the most N'ly Cor. Lot 135, Tr. No. 30340

N.64°51'53"W., 4.09

N.27°59'56"W., 32.51

E. line Sec. 9 Lot 1

SW. line Sec 10 Lot 1

33.34

20

N.3°56'14"E.

W. In. lot 135, Tr. No. 30340

20

S. line Lot 1

POR. SE. 1/4, NE. 1/4, SEC. 9

DETAIL "A"
NO SCALE

CODE
219
223
224

T.3N., R.16W.

FOR PREV. ASSM'T SEE
2825 - 5 & 7

ASSESSOR'S MAP
COUNTY OF LOS ANGELES, CALIF.

Summary

AIN: 2825-012-007 7

Situs Address:

Use Type: Vacant Land
Parcel Type: Regular Fee Parcel
Tax Rate Area: 00219

Parcel Status: **ACTIVE**
Create Date:
Delete Date:
Tax Status: **DELINQUENT**
Year Defaulted: 2020
Exemption: None

Building & Land Overview
Use Code: 330V
Design Type:
Quality Class:

# of Units:
Beds/Baths: /
Building SqFt: 0

Year Built:
Effective Year:
Land SqFt: 7,736

(https://maps.assessor.lacounty.gov/GeoCortex/Essentials/PAIS/REST/sites/PAIS/VirtualDirectory/AssessorMaps/ViewMap.html?val=2825-012)

Parcel Map (https://maps.assessor.lacounty.gov/GeoCortex/Essentials/PAIS/REST/sites/PAIS/VirtualDirectory/AssessorMaps/ViewMap.html?val=2825-012) / Map Index (https://maps.assessor.lacounty.gov/GeoCortex/Essentials/PAIS/REST/sites/PAIS/VirtualDirectory/AssessorMaps/ViewMap.html?val=2825-NDX)

	2022 Roll Preparation		2021 Current Roll	RC	Year		2020 Base Value
$	72,139	$	70,725	T	2020	$	70,000
$	0	$	0	T	2020	$	0
$	72,139	$	70,725			$	70,000

Assessor's Responsible Division
District: North District Office
Region: 24
Cluster: 24818 SANTA CLARITA

North District Office (https://maps.google.com/?q=13800+Balboa+Blvd.+Sylmar%2C+CA+91342)
13800 Balboa Blvd.
Sylmar, CA 91342

Phone: (818) 833-6000
Toll Free: 1 (888) 807-2111
M-F 7:30 am to 5:00 pm

403 ERROR

The request could not be satisfied.

The Amazon CloudFront distribution is configured to block access from your country. We can't connect to the server for this app or website at this time. There might be too much traffic or a configuration error. Try again later, or contact the app or website owner.
If you provide content to customers through CloudFront, you can find steps to troubleshoot and help prevent this error by reviewing the CloudFront documentation.

```
Generated by cloudfront (CloudFront)
Request ID: qreWJRdSgHqCjGkT3pX--VdmuvfnMULeru1ZBHSAABmdbWZtnHuv_Q==
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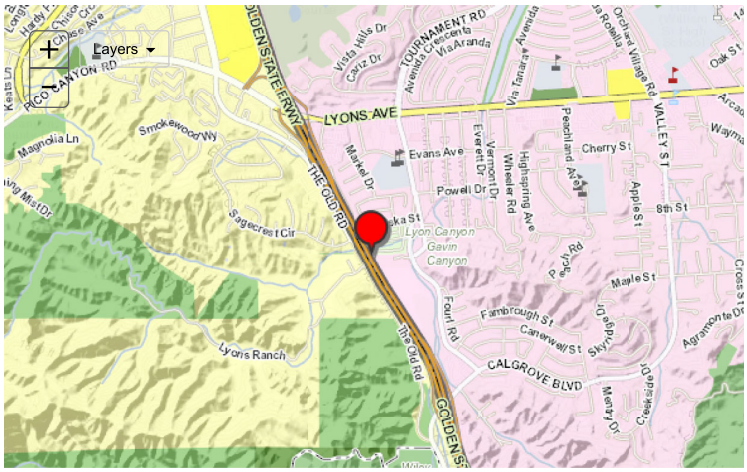

Building and Land Characteristics

Land Information

Use Code = 330V (Vacant Land)

Total SqFt (GIS):	7,736
Total SqFt (PDB):	
Usable SqFt:	7,841
Acres:	
Land W' x D':	0 x 0
Sewers:	No
Flight Path:	No
X-Traffic:	No
Freeway:	No
Corner Lot:	No
Golf Front:	No
Horse Lot:	No
View:	None
Zoning:	(Refer Issuing Agency)
Code Split:	No
Impairment:	None

Situs Address:

Legal Description *(for assessment purposes)*:
*LAND DESC IN DOC 0001770, 71-4-14*POR OF SW 1/4 OF SE 1/4 OF SEC 4 T 3N R 16W

Use Code: 330V (Vacant Land)
3 = Industrial
3 = Warehousing, Distribution, Storage
0 = Warehousing, Distribution, Under 10,000 SF
V = Vacant Land

Building Information

SUBPART:
Design Type:
Quality Class:

# of Units:
Beds/Baths: /
Building SqFt: 0

Year Built:
Effective Year:
Depreciation: / /

RCN Other: $ 0
RCN Other Trended: $ 0
Year Change:

Design Type:
=
=
=
=

SUMMARY: ***Total***

# of Units: 0
Beds/Baths: 0/0
Building SqFt: 0
Avg SqFt/Unit:

Events History

Ownership () Parcel Change ()

Show Re-Assessable Only: ☐

Recording Date	Seq. #	Re-Assessed	# Parcels	%	Ver. Code	DTT Sale Price	Assessed Value
01/08/2020	50	Yes	3	00%-0	B	$ 8,000,080	$ 70,000
06/26/2015	50	Yes	2+	00%-0	M	$ 0	$ 90,000
10/13/2004	50	Yes	1	00%-0	A	$ 0	$ 160,200
04/15/2004	75	Yes	2+	00%-0		$ 17,000,000	$ 157,000
04/15/2004	25	Yes	2	00%-0		$ 8,450,000	$ 3,302
02/21/2001	50	No		00%-0		$ 0	$ 3,179
05/24/2000	50	No		00%-0		$ 0	$ 3,117
07/20/1998	50	No		00%-0		$ 0	$ 2,997
06/04/1998	50	No		00%-0		$ 0	$ 0
10/14/1992	50	No		00%-0		$ 0	$ 2,713
06/21/1977	50	Yes		00%-0		$ 0	$ 0

Assessment History

Show All: ☐ **Hide Inactive Rolls:** ☐ Showing 1 to 10 of 60 entries.

Bill Number	Bill Type	Bill Status	Date to Auditor	Recording Date	Total Value	Land Value	Improvement Value
222-PSEG				01/08/2020	$ 72,139	$ 72,139	$
2210000	R	A	07/06/2021	01/08/2020	$ 70,725	$ 70,725	$ 0
2200100	T	A	11/01/2020	01/08/2020	$ 70,000	$ 70,000	$ 0
2200000	R	A	07/06/2020	06/26/2015	$ 98,902	$ 98,902	$ 0
2190101	U	A	06/06/2021	01/08/2020	$ 70,000	$ 70,000	$ 0

Bill Number	Bill Type	Bill Status	Date to Auditor	Recording Date	Total Value	Land Value	Improvement Value
2190100	T	I	11/01/2020	01/08/2020	$ 70,000	$ 70,000	$ 0
2190001	C	A	06/06/2021	06/26/2015	$ 60,000	$ 60,000	$ 0
2190000	R	I	07/01/2019	06/26/2015	$ 96,963	$ 96,963	$ 0
2180000	R	A	07/19/2018	06/26/2015	$ 95,062	$ 95,062	$ 0
2170001	C	A	06/06/2021	06/26/2015	$ 55,000	$ 55,000	$ 0

« 1 2 3 4 5 … »

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Summary

AIN: 2825-012-011 1

Situs Address:
24924 HAWKBRYN AVE
SANTA CLARITA CA 91321-2368

Use Type:	Industrial
Parcel Type:	Regular Fee Parcel
Tax Rate Area:	00219
Parcel Status:	**ACTIVE**
Create Date:	09/28/1998
Delete Date:	
Tax Status:	**DELINQUENT**
Year Defaulted:	2020
Exemption:	None

Building (0102) & Land Overview

Use Code:	3300
Design Type:	3300
Quality Class:	DX
# of Units:	0
Beds/Baths:	0/0
Building SqFt:	6,750
Year Built:	1978
Effective Year:	1978
Land SqFt:	1,027,947

(https://maps.assessor.lacounty.gov/GeoCortex/Essentials/PAIS/REST/sites/PAIS/VirtualDirectory/AssessorMaps/ViewMap.html?val=2825-012)

Parcel Map (https://maps.assessor.lacounty.gov/GeoCortex/Essentials/PAIS/REST/sites/PAIS/VirtualDirectory/AssessorMaps/ViewMap.html?val=2825-012) / Map Index (https://maps.assessor.lacounty.gov/GeoCortex/Essentials/PAIS/REST/sites/PAIS/VirtualDirectory/AssessorMaps/ViewMap.html?val=2825-NDX)

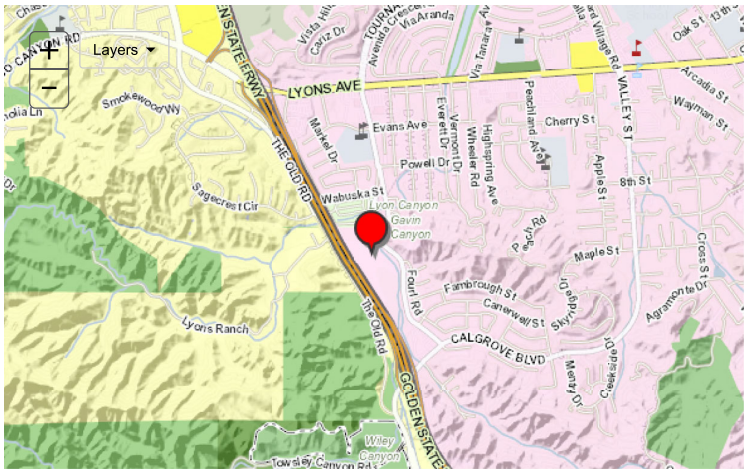
	2022 Roll Preparation		2021 Current Roll	RC	Year		2020 Base Value
$	6,667,769	$	6,537,029	T	2020	$	6,470,000
$	30,916	$	30,310	T	2020	$	30,000
$	6,698,685	$	6,567,339			$	6,500,000

Assessor's Responsible Division

District:	North District Office
Region:	24
Cluster:	24818 SANTA CLARITA

North District Office (https://maps.google.com/?q=13800+Balboa+Blvd.+Sylmar%2C+CA+91342)
13800 Balboa Blvd.
Sylmar, CA 91342

Phone: (818) 833-6000
Toll Free: 1 (888) 807-2111
M-F 7:30 am to 5:00 pm



Building and Land Characteristics

Land Information

Use Code = 3300 (Industrial)

Total SqFt (GIS):	1,027,947
Total SqFt (PDB):	
Usable SqFt:	0
Acres:	24
Land W' x D':	0 x 0
Sewers:	Yes
Flight Path:	No
X-Traffic:	No
Freeway:	Yes
Corner Lot:	No
Golf Front:	No
Horse Lot:	No
View:	None
Zoning:	(Refer Issuing Agency)
Code Split:	Yes
Impairment:	None

Situs Address:
24924 HAWKBRYN AVE SANTA CLARITA CA 91321-2368

Legal Description *(for assessment purposes)*:
FOR DESC SEE ASSESSO'R MAPS POR OF SE 1/4 AND POR OF LOT 7 IN SEC 4 T3N R16W

Use Code: 3300 (Industrial)
3 = Industrial
3 = Warehousing, Distribution, Storage
0 = Warehousing, Distribution, Under 10,000 SF
0 = One Story

Building Information

SUBPART: ***0102***
Design Type: 3300
Quality Class: DX

# of Units: 0
Beds/Baths: 0/0
Building SqFt: 6,750

Year Built: 1978
Effective Year: 1978
Depreciation: MC50 / / 0

RCN Other: $ 14,650
RCN Other Trended: $ 63,082
Year Change: 1979

Design Type: 3300
3 = Industrial
3 = Warehousing, Distribution, Storage
0 = Unused or Unknown Code (No Meaning)
0 = Unused or Unknown Code (No Meaning)

SUBPART: ***0202***
Design Type: 3300
Quality Class: DX

# of Units: 0
Beds/Baths: 0/0
Building SqFt: 9,380

Year Built: 1980
Effective Year: 1980
Depreciation: MC50 / / 0

RCN Other: $ 1,820
RCN Other Trended: $ 5,636
Year Change: 1981

Design Type: 3300
3 = Industrial
3 = Warehousing, Distribution, Storage
0 = Unused or Unknown Code (No Meaning)
0 = Unused or Unknown Code (No Meaning)

SUMMARY: ***Total***

# of Units: 0
Beds/Baths: 0/0
Building SqFt: 16,130
Avg SqFt/Unit:

Events History

Ownership () Parcel Change ()

Show Re-Assessable Only: ☐

Recording Date	Seq. #	Re-Assessed	# Parcels	%	Ver. Code	DTT Sale Price	Assessed Value
01/08/2020	50	Yes	3	00%-0	B	$ 8,000,080	$ 6,500,000
06/26/2015	50	Yes	2+	00%-0	M	$ 0	$ 9,360,000
10/13/2004	50	Yes	2+	00%-0	B	$ 0	$ 16,669,860
04/15/2004	75	Yes	2+	00%-0		$ 17,000,000	$ 16,343,000
04/15/2004	25	Yes	2	00%-0		$ 8,450,000	$ 675,187

Recording Date	Seq. #	Re-Assessed	# Parcels	%	Ver. Code	DTT Sale Price	Assessed Value
02/21/2001	50	No		00%-0		$ 0	$ 649,818
05/24/2000	50	No		00%-0		$ 0	$ 637,077
07/20/1998	50	No		00%-0		$ 0	$ 612,341

Assessment History

Show All: ☐ **Hide Inactive Rolls:** ☐

Showing 1 to 10 of 47 entries.

Bill Number	Bill Type	Bill Status	Date to Auditor	Recording Date	Total Value	Land Value	Improvement Value
222-PSEG				01/08/2020	$ 6,698,685	$ 6,667,769	$ 30,916
2210000	R	A	07/06/2021	01/08/2020	$ 6,567,339	$ 6,537,029	$ 30,310
2200100	T	A	11/01/2020	01/08/2020	$ 6,500,000	$ 6,470,000	$ 30,000
2200000	R	A	07/06/2020	06/26/2015	$ 10,286,067	$ 10,275,079	$ 10,988
2190101	U	A	06/06/2021	01/08/2020	$ 6,500,000	$ 6,470,000	$ 30,000
2190100	T	I	11/01/2020	01/08/2020	$ 6,500,000	$ 6,470,000	$ 30,000
2190001	C	A	06/06/2021	06/26/2015	$ 6,425,000	$ 6,415,000	$ 10,000
2190000	R	I	07/01/2019	06/26/2015	$ 10,084,380	$ 10,073,607	$ 10,773
2180000	R	A	07/19/2018	06/26/2015	$ 9,886,648	$ 9,876,086	$ 10,562
2170001	C	A	06/06/2021	06/26/2015	$ 5,655,000	$ 5,645,000	$ 10,000

« 1 2 3 4 5 »

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PDB Effective Date: 01/25/2022

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Summary

AIN: 2825-012-010 2

Situs Address:

Use Type:	Vacant Land
Parcel Type:	Regular Fee Parcel
Tax Rate Area:	00224
Parcel Status:	**ACTIVE**
Create Date:	03/02/1993
Delete Date:	
Tax Status:	**DELINQUENT**
Year Defaulted:	2020
Exemption:	None

Building & Land Overview

Use Code:	100V
Design Type:	
Quality Class:	
# of Units:	
Beds/Baths:	/
Building SqFt:	0
Year Built:	
Effective Year:	
Land SqFt:	329,869

(https://maps.assessor.lacounty.gov/GeoCortex/Essentials/PAIS/REST/sites/PAIS/VirtualDirectory/AssessorMaps/ViewMap.html?val=2825-012)

Parcel Map (https://maps.assessor.lacounty.gov/GeoCortex/Essentials/PAIS/REST/sites/PAIS/VirtualDirectory/AssessorMaps/ViewMap.html?val=2825-012) / Map Index (https://maps.assessor.lacounty.gov/GeoCortex/Essentials/PAIS/REST/sites/PAIS/VirtualDirectory/AssessorMaps/ViewMap.html?val=2825-NDX)

	2022 Roll Preparation		2021 Current Roll	RC	Year		2020 Base Value
$	1,473,710	$	1,444,814	T	2020	$	1,430,000
$	0	$	0	T	2020	$	0
$	1,473,710	$	1,444,814			$	1,430,000

Assessor's Responsible Division

District:	North District Office
Region:	24
Cluster:	24627 SANTA CLARITA

North District Office (https://maps.google.com/?q=13800+Balboa+Blvd.+Sylmar%2C+CA+91342)
13800 Balboa Blvd.
Sylmar, CA 91342

Phone: (818) 833-6000
Toll Free: 1 (888) 807-2111
M-F 7:30 am to 5:00 pm

403 ERROR

The request could not be satisfied.

The Amazon CloudFront distribution is configured to block access from your country. We can't connect to the server for this app or website at this time. There might be too much traffic or a configuration error. Try again later, or contact the app or website owner.
If you provide content to customers through CloudFront, you can find steps to troubleshoot and help prevent this error by reviewing the CloudFront documentation.

```
Generated by cloudfront (CloudFront)
Request ID: ZMtpDPKYqlmeKfHAOCRCSahc89SsK6i5ISOlPVjifINT7WDmV94p9A==
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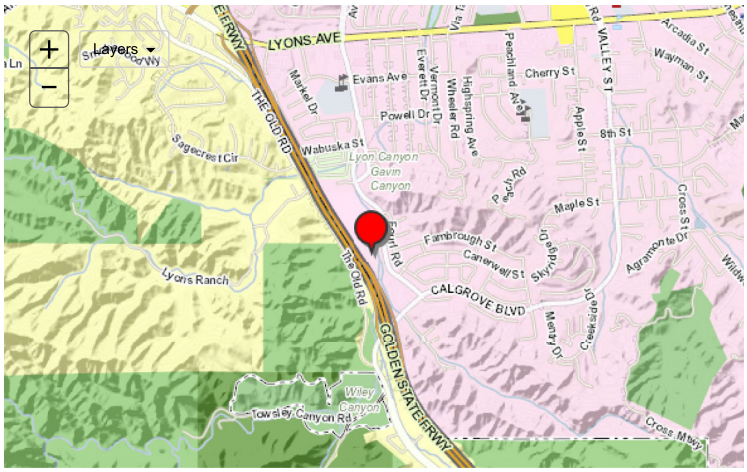

Building and Land Characteristics

Land Information

Use Code = 100V (Vacant Land)

Total SqFt (GIS):	329,869
Total SqFt (PDB):	342,930
Usable SqFt:	243,500
Acres:	
Land W' x D':	483 x 710
Sewers:	No
Flight Path:	No
X-Traffic:	No
Freeway:	Yes
Corner Lot:	No
Golf Front:	No
Horse Lot:	No
View:	None
Zoning:	(Refer Issuing Agency)
Code Split:	No
Impairment:	None

Situs Address:

Legal Description *(for assessment purposes)*:
POR LOT 1 IN SE 1/4 OF NE 1/4 SEC 9 T3N R16W,POR LOT 1 NW 1/4 SEC 10 T3N R16W

Use Code: 100V (Vacant Land)
1 = Commercial
0 = Commercial
0 = Unused or Unknown Code (No Meaning)
V = Vacant Land

Building Information

SUBPART:
Design Type:
Quality Class:

# of Units:
Beds/Baths: /
Building SqFt: 0

Year Built:
Effective Year:
Depreciation: / /

RCN Other: $ 0
RCN Other Trended: $ 0
Year Change:

Design Type:
=
=
=
=

SUMMARY: ***Total***

# of Units: 0
Beds/Baths: 0/0
Building SqFt: 0
Avg SqFt/Unit:

Events History

Ownership () Parcel Change ()

Show Re-Assessable Only: ☐

Recording Date	Seq. #	Re-Assessed	# Parcels	%	Ver. Code	DTT Sale Price	Assessed Value
01/08/2020	50	Yes	3	00%-0	B	$ 8,000,080	$ 1,430,000
06/26/2015	50	Yes	2+	00%-0	M	$ 0	$ 1,995,000
05/17/2006	50	Yes	1	00%-0	A	$ 4,300,043	$ 4,300,000
03/15/2005	50	Yes	1	00%-0		$ 1,700,017	$ 1,700,000
03/26/1998	50	No		00%-0		$ 0	$ 46,621
10/03/1995	50	No		00%-0		$ 0	$ 43,997
02/24/1994	50	Yes	8	06%-2		$ 15,000	$ 43,003
04/05/1991	50	No		00%-0		$ 0	$ 17,731

Assessment History

Show All: ☐ **Hide Inactive Rolls:** ☐ Showing 1 to 10 of 53 entries.

Bill Number	Bill Type	Bill Status	Date to Auditor	Recording Date	Total Value	Land Value	Improvement Value
222-PSEG				01/08/2020	$ 1,473,710	$ 1,473,710	$
2210000	R	A	07/06/2021	01/08/2020	$ 1,444,814	$ 1,444,814	$ 0
2200100	T	A	11/01/2020	01/08/2020	$ 1,430,000	$ 1,430,000	$ 0
2200000	R	A	07/06/2020	06/26/2015	$ 2,192,380	$ 2,192,380	$ 0
2190101	U	A	05/16/2021	01/08/2020	$ 1,430,000	$ 1,430,000	$ 0
2190100	T	I	11/01/2020	01/08/2020	$ 1,430,000	$ 1,430,000	$ 0
2190001	C	A	05/16/2021	06/26/2015	$ 1,370,000	$ 1,370,000	$ 0
2190000	R	I	07/01/2019	06/26/2015	$ 2,149,393	$ 2,149,393	$ 0
2180000	R	A	07/19/2018	06/26/2015	$ 2,107,249	$ 2,107,249	$ 0

Bill Number	Bill Type	Bill Status	Date to Auditor	Recording Date	Total Value	Land Value	Improvement Value
2170001	C	A	05/16/2021	06/26/2015	$ 1,210,000	$ 1,210,000	$ 0

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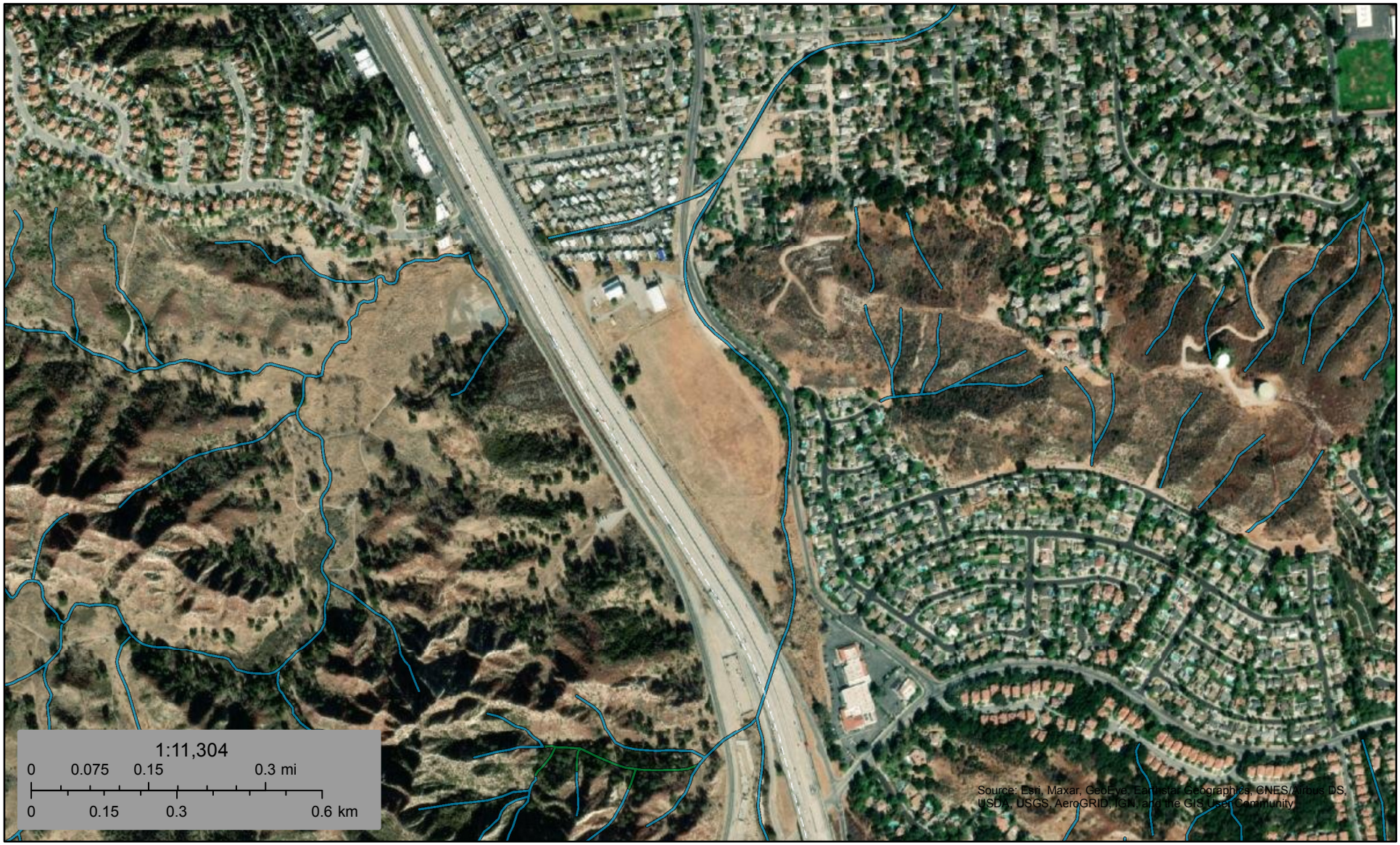
U.S. Fish and Wildlife Service

National Wetlands Inventory

Wetlands



February 10, 2022

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

Public Works
LOS ANGELES COUNTY

Solid Waste Information Management System

Find out if your property is within 1,000 feet of a methane producing site or 300 feet of an oil or gas well.

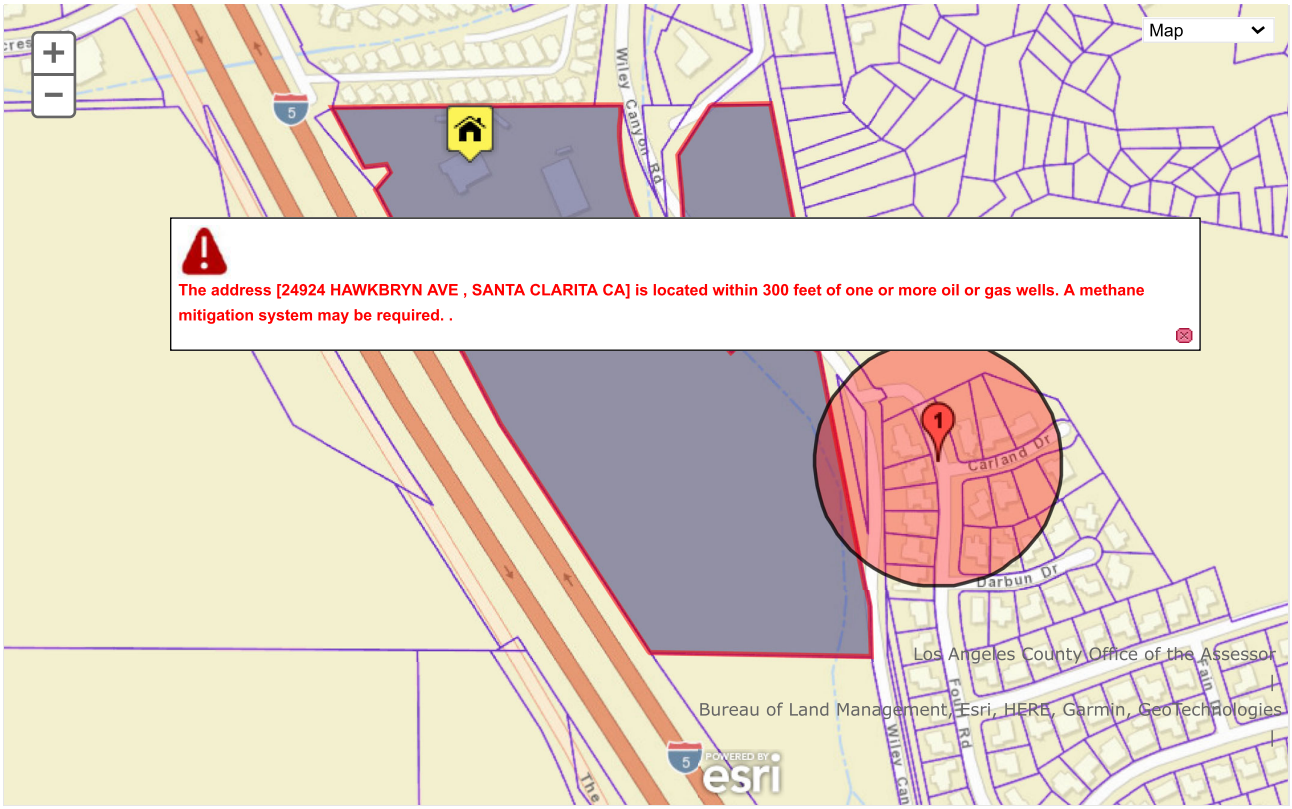
Search by:

Address or Intersection

24924 Hawkbryn Avenue, Newhall, CA 91321

Search

Measure Tool Report a Problem



Public Works
LOS ANGELES COUNTY

Home | Residents | Businesses | Projects | Online Services | About Us | Contact Us | Select Language | search our site..

Search By: Address/Intersection | 24924 hawkbryn ave newhall ca | Search | Buffer: None | Active Wells | Inactive Wells

Satellite

Well Number: **5843**
Well Status: Inactive
Well Measurement Data
Last Measure Date: **11/17/1947**
Last Measurement: **95**
State Well ID:
(Locations are approximate.)

by Wyndham Santa...
Mulberry Mobile Home Park
Peachland Elementary School
NEWHALL
Santa Clarita Athletic Club
Newhall-Hidden Valley HOA
Canyon Rd

APPENDIX IX

RESUMES

Diana Arellano | Phase I Project Manager

5261 W. Imperial Highway, Los Angeles, CA 90012 *Office: 310.854.6300 Mobile: 310.800.0817*
Diana.Arellano@efiglobal.com

Professional Summary:

Ms. Arellano is a project manager in EFI's Los Angeles, CA location, and has been in the environmental industry since 2017. Her primary responsibilities are to work directly with clients and regulatory bodies to investigate historical and current site uses of properties, assess environmental conditions, and assist in the development plans by which to resolve such conditions. Ms. Arellano's experience includes management of all stages of environmental projects, including Phase I Environmental Site Assessments, Transaction Screen Assessments, and Database Reviews.

Areas of Expertise:

- Project Management; Coordination and oversight
- Phase I Environmental Site Assessments, Transaction Screen Assessments, and Database Reviews, Nationwide

Licenses and Certifications:

OSHA 8-Hour Hazardous Waste Operations Certified Refresher (annual), Safety Unlimited, California, Certification No. 2004165209066

OSHA 40-Hour Hazardous Waste Operations Certified, Safety Unlimited, California, Certification No. 1709111209066

Project Experience:

Department of Toxic Substances Control (DTSC), Los Angeles, CA
EXIDE Battery Plant

Ms. Arellano assisted in the report preparation for more than 2,000 homes that were sampled to determine the presence of lead contamination through air dispersion. This project was in a heavily populated section of East Los Angeles.

Phase I Environmental Site Assessment at El Cajon, California

Served as the Project Manager of a Phase I Environmental Site Assessment for a six-acre property with historical chlorinated solvent usage, several former underground storage tanks, solid waste management units (SWMUs), and areas of concerns (AOCs) as determined by the DTSC. EFI global was able to identify closure for all SWMUSs and AOCs onsite and as well recommend additional investigation of a few underground storage tanks that were not properly abandoned under regulatory oversight.

Phase I / II Environmental Site Assessment at North Hollywood, California

Served as the Project Manager of a Phase I Environmental Site Assessment which was completed concurrently with a Phase II Environmental Site Assessment. The site was assessed due to former onsite die casting operations and chlorinated solvent usage by multiple tenants. After review of historical and regulatory resources, and results of a soil and soil vapor assessment, it was determined that the former operations and associated hazardous material usage did not represent an unacceptable risk to human health for continued industrial use.

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Dry-Cleaning Projects, Throughout California

Served as the Project Manager for several Phase I Environmental Site Assessments of properties with former and active dry-cleaning operations. Specific challenges included obtaining and reviewing environmental sampling, remediation, and closure proceedings. EFI Global was able to determine if additional investigations were warranted for each site.

Gasoline Service Station Projects, Throughout California

Served as the Project Manager for several Phase I Environmental Site Assessments of gasoline service station properties throughout the state. Specific challenges included obtaining and reviewing UST integrity documentation, and reviewing environmental sampling, remediation, and closure proceedings for prior UST removals and/or unauthorized releases.

Professional Experience:

EFI Global, Inc., Project Manager, Los Angeles, CA, 2019-present
EFI Global, Inc., Environmental Specialist, Los Angeles, CA 2017-2018

Education:

BA, Environmental Studies, University of California, Santa Barbara, Santa Barbara, CA, 2016

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efi global

Christopher Rude | Senior Project Manager, CSFT

5261 West Imperial Highway, Los Angeles, CA 90045 *310-854-6300*
christopher.rude@efiglobal.com

Professional Summary:

Mr. Christopher Rude is an Environmental Professional with approximately twenty-nine years of experience in preparing and managing Phase I and Phase II Environmental Site Assessments of various types of large and small commercial, heavy industrial, oil production, and manufacturing properties. Mr. Rude has worked directly with clients and regulatory agencies to determine and assess environmental impacts, develop plans by which mitigate such conditions, and carry out the planned approach for closure. Mr. Rude's experience includes all aspects of environmental projects including Phase I Environmental Site Assessments, soil, soil vapor and groundwater sampling - Phase II Subsurface Site Assessments, vapor intrusion risk assessments, site characterization, removal of Underground Storage Tanks (USTs), and multi-stage clarifiers, and remedial cleanups of properties impacted by arsenic, organochlorine pesticides, chlorinated solvents, and fuel hydrocarbons. Mr. Rude has completed numerous Phase II Environmental Site Assessments of dry cleaners, auto repair and gasoline service stations, Brownfield sites, oil field properties, plating facilities, and site related to the semiconductor industry. Mr. Rude has successfully obtained closure for numerous Brownfield sites on behalf of clients from DTSC, Los Angeles Regional Water Quality Control Board, Los Angeles County, Los Angeles City, and Ventura County Environmental Health. Mr. Rude has completed and conducted senior reviews of numerous wildfire soot, ash and char assessments of residential properties for major insurance carriers. Mr. Rude oversees and mentors Project Managers on all aspects of environmental site assessments, writing and communications with clients and agencies, and aids in the preparation of the staff to be promoted to the Phase II Environmental Site Assessment and Environmental Health and Safety Departments.

Areas of Expertise:

- Environmental Consulting
- Environmental Compliance
- Environmental Due Diligence (Phase I / II Environmental Site Assessments)
- Third Party Document Review
- Wildfire Soot, Ash and Char Sampling and Report Reviews

Licenses and Certifications:

- American Council for Accredited Certification, Council-Certified Fire & Smoke Damage Technician, No. 2009002
- Environmental Professional, per the CFR Title 40, Chapter I, Subchapter J, Part 312, Subpart C, Section 312.21
- OSHA 40-Hour Hazardous Waste Operations and Emergency Response Certified
- OSHA 8-Hour Hazardous Waste Operations and Emergency Response Certified

Project Experience:

Mr. Rude's current responsibilities as Senior Project Manager include the preparation of Phase I and Phase II Environmental Site Assessments throughout California and several western states. Additional responsibilities include managing, mentoring and training Project Managers in all

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aspects of Phase I and Phase II Environmental Site Assessments, Health and Safety Plans, marketing, and client relations, business development, and project management. Additionally, Mr. Rude is responsible for the completion and senior report review of Wildfire Soot, Ash and Char reports.

Sunflower Valley Farms LLC, Multiple Locations in Kings and Kerns Counties, CA
Phase I Environmental Site Assessment
Mr. Rude completed a Phase I Environmental Site Assessment for a 12,685 acre ranch developed with agricultural land, 120 active or abandoned oil wells, active oil sumps, hazardous materials, pesticide storage areas, and aboveground storage tanks. Phase II recommendations were made for active oil wells and oil sumps.

Primestor Development, Inc.
Phase I Environmental Site Assessment
Mr. Rude as the Senior Project Manager of a Phase I ESA and Asbestos/Lead Based Paint Survey of a 31-acre retail-commercial mall developed with twelve retail structures and medical clinic totaling approximately 383,000 square feet. The retail mall had undergone numerous subsurface assessments and remedial cleanup associated with a Leaking Underground Storage Tank (LUST) and Spills, Leaks, Investigations, and Cleanups (SLIC) cases associated with a former gasoline service station and former dry cleaning facilities. Case closure was issued by the overseeing regulatory agency for the LUST case. Review of available documentation indicated that the SLIC case was to be issued case closure for soil and groundwater.

Phase I Environmental Site Assessments
Mr. Rude as the Senior Project Manager of several Phase I Environmental Site Assessment reports which were completed on commercial, heavy industrial, manufacturing, oil production, and semi-conductor facilities throughout the United States. The sites were assessed due to the former underground storage tanks and long-term auto repair use of the property by multiple tenants. Several required Phase II Environmental Site Assessment. Results of the soil, soil vapor, and/or groundwater sampling indicated that the former or current uses did not represent an unacceptable risk to human health or the environment for commercial land use.

Major Insurance Institutions, Wildfire Soot, Ash and Char Assessments, Southern California
Mr. Rude has managed and conducted wildfire soot, ash and char assessments of residential properties with Southern California for several major insurance carriers in Southern California. Additionally, Mr. Rude is one of the lead senior reviewers of the assessment reports.

Phase II Environmental Site Assessments/Vapor Intrusion Risk Assessments
Mr. Rude has performed and provided project management on numerous Phase II Environmental Site Assessments on properties impacted by chlorinated solvents, fuel hydrocarbons, and heavy metals. Assessment activities also included oversight of geophysical surveys, sampling of soil, soil vapor, and groundwater using Geoprobe, hollow stem augers, or dual percussion air rotary rigs. Assessments also included monitoring for vapor intrusion and fixed gases. Conducted and prepared quarterly groundwater monitoring reports.

Professional Experience:

EFI Global Inc., Los Angeles, CA, Senior Project Manager, 2012 - Present
California Environmental, Agoura Hills, CA, Environmental Scientist, 1997 – 2012
MSE Environmental, Camarillo, CA, Environmental Specialist, 1992 – 1996

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Specialized Education:

Assessment of LNAPL Volume, Mobility, and Recoverability for Recovery Systems; Design and Risk-Based Corrective Action (RBCA), National Groundwater Association, Houston Texas – November 2007

Seminar on National Pollutant Discharge Elimination Systems (NPDES), Riverside, California, Law Offices of Burke Williams & Sorensen LLP, 2004

Education:

Bachelor of Art, Environmental Studies and Planning, with an emphasis in hazardous materials management and toxicology, Sonoma State University, Rohnert Park, California, 1992

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