
**Compliance Biology, Western Spadefoot Toad Habitat Enhancement and
Monitoring Plan, Vista Canyon Project Site, Los Angeles County,
California (May 2009)**

**Western Spadefoot Toad Habitat Enhancement
and Monitoring Plan
Vista Canyon Project Site,
County of Los Angeles, California**

Prepared for:

Impact Sciences
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Camarillo, CA 93012

Prepared by:



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June 2009

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Western Spadefoot Toad Habitat Enhancement and Monitoring Plan Vista Canyon Project Site, Los Angeles County

The following presents a western spadefoot toad (*Spea hammondi*) habitat enhancement and monitoring plan to be implemented on the Vista Canyon project site, located in unincorporated Los Angeles County adjacent to the City of Santa Clarita (City) (**Exhibit 1**). The project site is to be annexed into the City, and this plan is intended to provide information to the City, the project applicant, and the California Department of Fish and Game (CDFG) as to the design criteria and specific tasks needed to create a breeding pool and associated upland habitat for the species, and to develop a five-year monitoring plan for the habitat area.

PROJECT BACKGROUND

The project applicant, Vista Canyon Ranch, LLC, proposes to develop the approximately 185-acre project site with a mixed use, transit-oriented community consisting of the following:

- 1,011 attached, condominium units and 106 single-family dwelling units;
- 646,000 square-feet of office space, and 131,000 square-feet of general retail space;
- 10-screen multiplex movie theater and a 200-room hotel; and
- Five-acre neighborhood park (“Oak Park”), Town Green, Community Garden and various private recreational centers, as well as the associated infrastructure, trails, and other amenities.

Focused surveys for western spadefoot toad were initiated in March 2006. The initial focused survey resulted in the detection of a single adult spadefoot toad on site, near a depression in a dirt road regularly used for access to and from property adjacent to the project site. A letter report was prepared by Compliance Biology on July 26, 2006 that described the results of that initial survey. Subsequent surveys conducted on site by Forde Biological Consultants over the next two years resulted in additional sightings of spadefoot toad. On January 29, 2008, egg clusters and tadpoles of western spadefoot were observed within the same rainpool as the March 2006 observation.. None of the other four rainpools that form annually on site appear to support western spadefoot. Therefore, though evidently low in population, the subject property is considered to support a small breeding population of western spadefoot toad.

Other Spadefoot Records Within the Project Vicinity

Numerous sightings of western spadefoot toad have been documented in the Santa Clarita Valley over the past five years. A few individual adults were observed on a site approximately 1.4 miles to the east of the Vista Canyon site, just east of Oak Springs Canyon Road and at least eight adult western spadefoot toads were observed on a project site in the Plum Canyon area of the Santa Clarita Valley, approximately three miles from the Vista Canyon site.

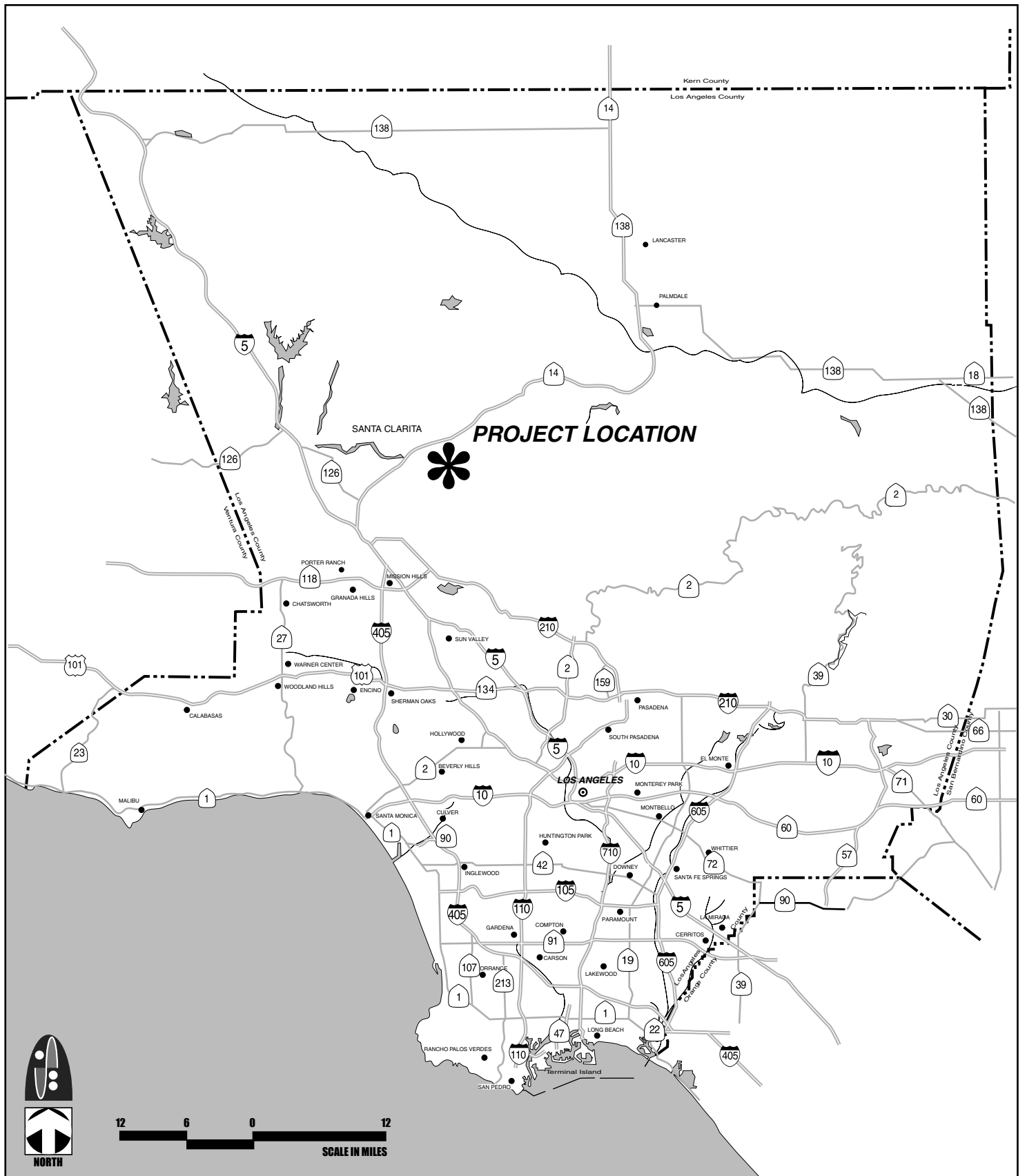


Exhibit 1
REGIONAL LOCATION

Three separate project sites supporting spadefoot have been identified on properties owned by Newhall Land in the Santa Clarita Valley. The closest Newhall Land site to the Vista Canyon project is the River Village project site; located approximately five and one half miles west of the Vista Canyon site on the north side of the Santa Clara River. Three separate breeding pools, along with numerous adults, egg masses and tadpoles were recorded on that site. Other Newhall Land sites include the West Creek project, located approximately eight and one half miles to the west and the Valencia Commerce Center project approximately 11 miles to the west. Habitat Enhancement and Monitoring Plans were implemented for each of these three projects as mitigation for potential impacts to spadefoot toad.

RELOCATION AS MITIGATION

Information regarding the potential success of habitat enhancement and relocation for western spadefoot toads is still somewhat limited, but has advanced in recent years due to successful restoration efforts in the Santa Clarita Valley. Based on the existing data, it is apparent that this species can and does successfully breed in man-made seasonal pools as evidenced by recent discoveries of breeding western spadefoot in the region. Nearly all of the occupied rainpools recently identified in the Santa Clarita Valley were a result of human activity, including retention basins and other areas excavated in association with construction or other land maintenance activities.

As indicated above, CDFG has approved mitigation plans for the relocation of spadefoot on several projects in the Santa Clarita Valley. CDFG also has approved mitigation plans for the relocation of spadefoot elsewhere in Southern California. For example, the City of Irvine certified a Final Environmental Impact Report (FEIR) for the Northern Sphere area in the City of Irvine, California. The FEIR identified habitat within the survey area that provided a high potential for western spadefoot toad to occur. As a result, CDFG provided comments requiring that focused surveys be conducted on the site and if western spadefoot toads were discovered, that a mitigation plan be prepared to lessen the impacts to the species. The FEIR outlined a mitigation plan that involved the creation of western spadefoot breeding pools in a development area on nearby National Community Conservation Plan (NCCP) Reserve lands to reduce impacts to western spadefoot toad. These same measures were recommended by CDFG and implemented by Newhall Land and others as mitigation to reduce impacts to spadefoot on the River Village, West Creek, and Valencia Commerce Center project sites. Annual monitoring at all three project sites have indicated successful spadefoot breeding (Attachment 2).

Specifically, on each of the three Newhall project sites (River Village, West Creek and Commerce Center) the first year of monitoring indicated successful breeding in one or both constructed breeding pools. (Note: these projects each required two breeding pools for mitigation as either multiple or much larger existing breeding pools, as compared to Vista Canyon, existed on the sites originally). The second year of monitoring did not result in the same success, as it was one of the driest years on record and the pools never received enough rainfall to hold surface water. This result likely occurred throughout the region in natural breeding pools as well since the first year results indicate the manufactured pools successfully held water. Further, although results have not yet been submitted for the third year of monitoring, anecdotal evidence (personal observation) indicate that successful breeding occurred at the River Village and Commerce Center sites, despite less than average rainfall levels.

WESTERN SPADEFOOT GENERAL BACKGROUND

CDFG has designated the western spadefoot as a special status species (Species of Special Concern); however, the species has not been identified as an endangered, threatened, or candidate species by either the CDFG or the US Fish and Wildlife Service; and, thus, is afforded no protection under federal or state Endangered Species Acts. Notwithstanding, project impacts to Species of Special Concern must be evaluated under the California Environmental Quality Act (CEQA).

Western spadefoot toad adults are essentially terrestrial, only entering aquatic habitats for breeding. This species prefers areas of open scrub and/or woodlands with limited ground cover, where the soil is sandy or gravelly. They occur in washes, floodplains of rivers, alluvial fans, and playas, but also range into the foothills and mountains (Stebbins 1985). They spend most of the year in a dormant to semi-dormant state burrowed in upland habitat adjacent to the rainpool sites, emerging only for periodic feeding. This species requires seasonal rainpools that last a minimum of four weeks as eggs take from 1 to 6 days to hatch and metamorphosis can be completed within 3 to 11 weeks (Jennings and Hayes 1994). Breeding habitat must be seasonal such that predators, including bullfrogs and predatory fish, do not become established. Breeding adults typically emerge during and/or immediately following relatively warm rains in late winter to early spring. Female western spadefoot toads deposit small clusters of 10 to 42 eggs to plant stems or other debris in the pool (Jennings and Hayes 1994).

HABITAT ENHANCEMENT PLAN

As western spadefoot toad requires both upland habitat and seasonal rainpools to complete their life cycle, this plan involves habitat enhancement that includes both improvement of existing upland habitat and creation of a seasonal rainpool. The primary goal of the plan is to provide a seasonal pool that provides suitable breeding habitat for western spadefoot toads. The secondary goal is to maintain suitable non-breeding season upland habitat that can sustain western spadefoot toads on the Vista Canyon project site.

The preferred location for implementing this plan on site is shown on Exhibit 2. In general, the preferred location is on the southeast end of the project site, south of the Santa Clara River. This site provides the greatest distance from development, due to a surrounding buffer area, increasing the likelihood of long-term success. The seasonal pool would be situated at the base of a slope and the upland habitat enhancement area would extend outward from that point. Because the proposed upland habitat enhancement area around the breeding pool is adjacent to a proposed park supporting native vegetation, additional area would be available to dispersing or 'over-wintering' toads.

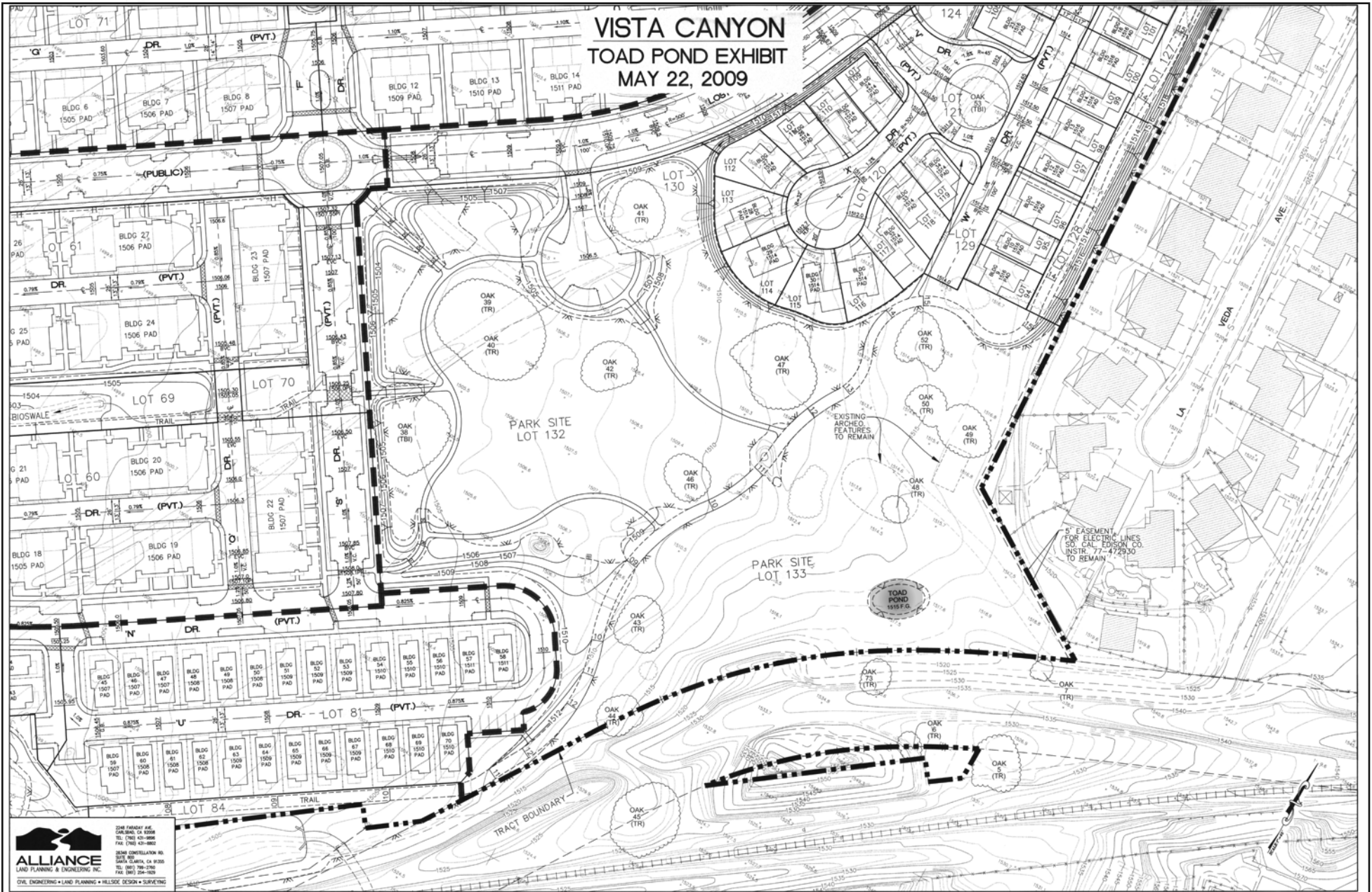
Construction of Breeding Pool

Exhibit 2 illustrates the project site location for the proposed construction of the seasonal rainpool and associated upland habitat for the western spadefoot. The proposed site is suited for the creation of western spadefoot habitat, primarily because of its location and similarity of soils and vegetation to the existing on-site area where the spadefoot were observed.

The proposed site also was selected because of its proximity to naturally occurring resources suitable for western spadefoot. The pool would not be in the path of any direct drainage as such placement could result in too much water entering the pools and/or damage to the pools by flowing water. Naturally occurring occupied seasonal rainpools are typically located in open flat areas that are not fed by a stream or particular watershed. These natural pools are dependent upon sufficient rainfall to provide enough water in the pool.

Within the region of the proposed pool, the average annual seasonal rainfall is approximately 18 inches. This rainfall typically occurs during the Southern California historic wet season that is generally defined as mid-October through mid-April. Within this five-month time period, the majority of the average annual rainfall occurs from January through March and averages approximately 4-inches per month.

VISTA CANYON TOAD POND EXHIBIT MAY 22, 2009





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ALLIANCE
 LAND PLANNING & ENGINEERING, INC.
 CIVIL ENGINEERING • LAND PLANNING • HILLSIDE DESIGN • SURVEYING

1: P:\CAD\19560\EXHIBITS\19560-TOAD-POND-EXHIBIT.dwg



SOURCE: Alliance Land Planning and Engineering, Inc., 2009.

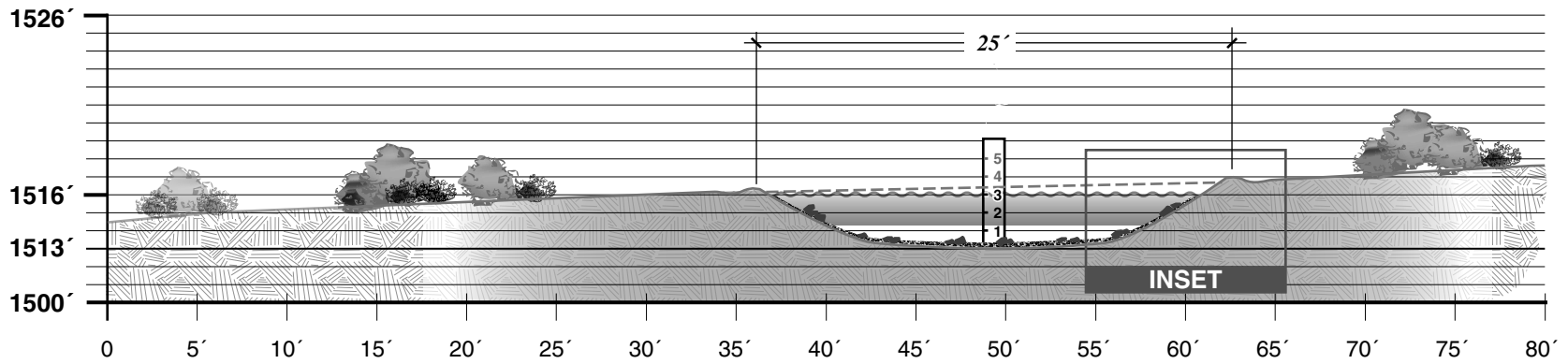
Based on the pool size and a conservative drainage catchment area, in an average month during the rainy season, the pool is expected to accumulate approximately .022 acre-feet of water or about 1.5 feet in depth. The pond's capacity would be approximately 0.034 acre-feet. Within this same time period, the average loss due to evapotranspiration is approximately 0.1 per month per acre. As such, the pond would lose about 0.002 acre-feet of water per month while receiving an inflow of 0.015 acre-feet. Since the average storm water inflow rates exceed the evapotranspiration losses during the three-month period of rainfall, any losses due to evapotranspiration during the months of January through March would be offset by rainfall during that same period. Therefore, the pond would contain its maximum volume of water toward the end of the rainy season. These numbers are based on an engineering study prepared by Alliance for the Vista Canyon project. (**Attachment A**).

The proposed pool design would utilize a liner material that will eliminate water losses through infiltration; and, thus, the only water losses would occur through direct surface evaporation and evapotranspiration. Depending upon rainfall levels each year, the proposed pool would be expected to retain water for three to six months.

The proposed pool would be approximately 40 feet in length, and 25 feet in width, and about 3 feet in depth, gradually and evenly sloping upward and outward from the center to the outer limits of the pool banks (**Exhibit 3**). The pool would be excavated to the required size and depth using a backhoe or similar equipment. Hand tools would be utilized to smooth out rough areas and perform final shaping.

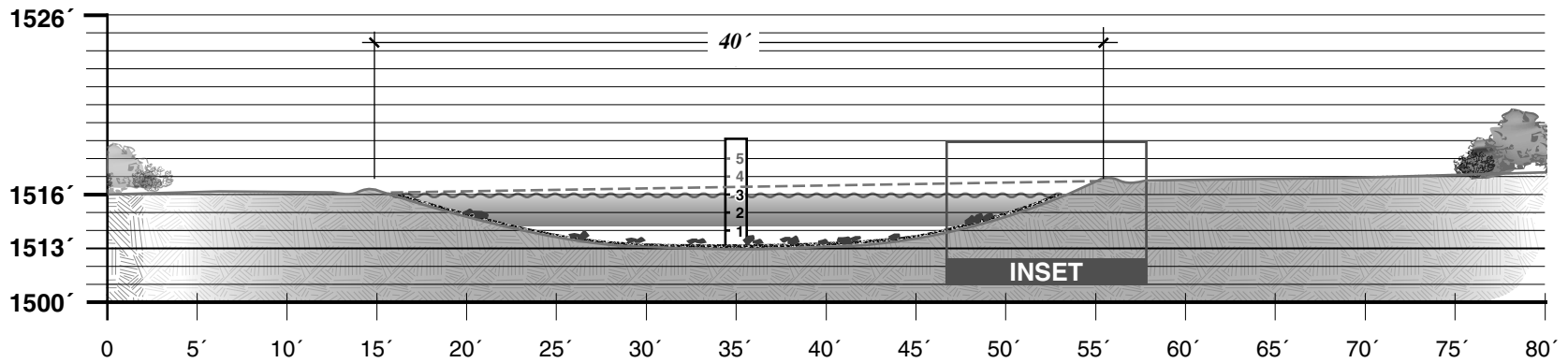
Upon completion of excavation, the pool would be lined with a 15mil polyester mat that protects the pond liner from puncture. A 60mil Firestone EPDM pond liner (or two 45mil) would then be placed over the polyester mat and extend approximately two feet beyond the limits of the pond bank. The excess material would be buried around the perimeter of the pool. Two one-way valves would be installed in the bottom of the pool to vent out any gasses that may accumulate beneath the pool that could otherwise cause damage to the liner.

Upon installation of the pond liner, a one to two inch layer of ¼-inch or less pea gravel, mixed with native soil, would be placed over the entire surface of the liner to prevent exposure of the liner to direct sunlight. Larger rock would be randomly placed throughout the pool and around the perimeter to serve as stabilizing points for the pea gravel to prevent it from sloughing down to the bottom. This rock also would provide additional surface area for algae that would serve as food for tadpoles. A few scattered twigs would be placed within the pool to serve as substrate for oviposition.



NORTH-SOUTH

scale v: 1" = 10' elevation
 h: 1" = 10' distance

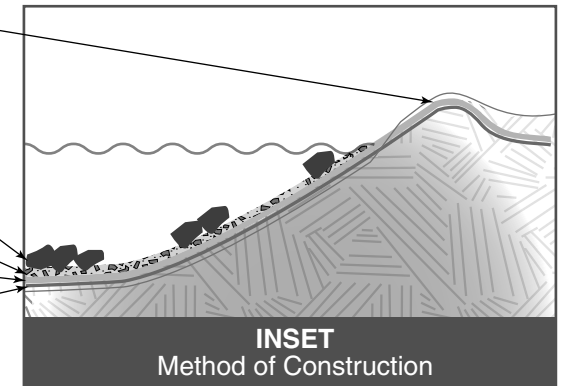


WEST-EAST

scale v: 1" = 10' elevation
 h: 1" = 10' distance

POLYESTER AND EPDM ANCHORED BY BURIAL

- STABILIZING ROCK LAYER
- PEA GRAVEL/SOIL LAYER
- EPDM POND LINER
- POLYESTER MAT



The proposed pond design would utilize a liner material that is guaranteed for at least 25 years with direct UV exposure. The planned design would cover the liner material with a gravel/soil mixture that protects the surface and minimizes UV exposure. In such cases, the liner is expected to last in excess of 50 years. In addition, sediment material is anticipated to be deposited in the ponds over time as a result of normal rainfall runoff and wind blown dust deposits. This sediment would serve to further protect the liner without significantly diminishing the pond storage capacity.

If portions of the liner were constantly exposed to UV light, potential failure might occur 25-30 years after installation. During this time frame, it is expected that the underlying soils will consolidate and minimize potential losses of water due to infiltration. Also, during this time period, the ponds would become “naturalized” through the natural deposition of soils and development of vegetation from seeds deposited in and adjacent to the ponds by animals and wind. This “naturalization” process would further assist in providing a base condition within the pond that would minimize the potential for infiltration losses.

Upland Habitat Enhancement

After construction of the pool is complete and all equipment and construction materials have been removed from the site, an area averaging 200 feet in diameter around the outer edge of the pool would be enhanced to serve as suitable upland habitat for western spadefoot toad.

Initial activities would include removal of all non-native vegetation to the greatest extent feasible. Invasive species (if present) including giant cane (*Arundo donax*), tamarisk (*Tamarix* sp.), and castor bean (*Ricinus communis*) shall be removed, including the root base, and transported off site to an appropriate disposal facility. Tamarisk and castor bean shall be fully bagged and tied at the base stem prior to removal to prevent the dropping of seed within the habitat enhancement area during removal. All other non-native vegetation would be uprooted by hand or with hand tools and removed from the site. All naturally occurring native plants would be left in place.

Following completion of non-native plant removal, native plants would be installed as appropriate, under the direct supervision of a qualified biologist, to create an area of relatively open, low-growth, native scrub habitat. Soils in open areas not currently supporting native vegetation would be turned with hand tools to make them more friable, resulting in conditions more suitable for burrowing by western spadefoot toad. If necessary, sand would be imported to the area and mixed with the soils to ensure suitable burrowing substrate exists throughout the upland habitat area. Supplemental plantings may include

California buckwheat, California broom, California sagebrush, and native bunch grasses such as foothill needlegrass (*Stipa lepida*), purple needlegrass (*S. pulchra*), and coast range melic (*Melica imperfecta*). In order to provide some shade to the seasonal pools, supplemental plantings of mule fat (*Baccharis salicifolia*) and/or coyote brush (*B. pilularis*) may be placed around the perimeter of the pool as necessary. Partial shading of the pool is expected to result in slower evaporation of water in the pool following seasonal rains.

MONITORING PLAN

In order to ensure success of the habitat enhancement, monitoring of the enhanced habitat area would take place for a period of five years with the first monitoring effort taking place one year from completion. The monitoring effort would involve two primary tasks: seasonal surveys for the presence/absence of western spadefoot toads and evaluation/maintenance of the created breeding pools and enhanced upland habitat adjacent to the pools.

Annual Presence/Absence Surveys

Depending upon seasonal weather conditions, but generally beginning in early February, a qualified biologist familiar with the identification of all life phases of western spadefoot toad would conduct at least three separate surveys of the enhanced habitat area during or immediately following the first relatively warm rainstorms that produce enough volume of rain to develop temporary rainpools. These surveys would begin the first breeding season following completion of this plan. The biologist would determine the presence (or absence) of breeding western spadefoot adults, egg masses, and/or tadpoles. Should any life stage be detected, at least one subsequent visit shall be made to ensure the constructed seasonal pools are maintaining water long enough to support complete metamorphosis. Such a determination would be made by direct observation of newly metamorphosed toadlets.

Success Criteria

The primary goal of this plan would be considered a success when successful breeding of western spadefoot toads occur in the created seasonal pool. In an effort to ensure this success, the annual monitoring would include detailed inspection of the manufactured seasonal pool. Inspection would include looking for any apparent damage to the liner, even displacement of the gravel/soil mixture to ensure coverage of the liner, and determination if the design of the pond has been successful in

maintaining water only long enough to support complete metamorphosis of western spadefoot toads, and not so long that it allows for local predatory aquatic organisms, such as bullfrogs or African clawed frogs, to become established.

Rainpool Contingency Actions

Should it be determined that the pond liner has been damaged, repairs would be made immediately to a degree that it meets the original design criteria (i.e., holds water effectively).

If inspection reveals that the gravel has sloughed down toward the middle of the pool, the inspector shall redistribute the gravel to result in even coverage of the liner. It also may be appropriate to add or relocate larger rocks to serve as additional stabilization points for the gravel.

If it becomes apparent after the first two annual evaluations that the constructed pool(s) does not maintain sufficient amounts of water for a long enough period of time, as compared to naturally occurring seasonal rainpools in the region, CDFG and the City would be consulted regarding the possible construction of new pools utilizing different design criteria (e.g. clay-lined bottom).

If it becomes apparent during any of the five annual surveys that the constructed pool is successfully holding water, but for too long after western spadefoot toad metamorphosis, a plan would be developed that would involve either a design modification or manually dewatering the pool after complete metamorphosis. This action would only be required if invasive aquatic predators, such as African clawed frogs, are becoming established in the pool.

Annual Upland Habitat Enhancement Area Evaluation

Five annual evaluations of the enhanced upland habitat areas would be timed to coincide with the annual presence/absence surveys described above. The monitoring biologist would evaluate the upland habitat to ensure the native plants present are thriving and that the non-native plants are not predominating. Additionally, photographs would be taken from established locations for inclusion in the annual reports to aid in the illustration of the progression of this plan.

Success Criteria

The secondary goal of this plan would be considered a success when the enhanced upland habitat surrounding the constructed seasonal rainpools are thriving and non-native vegetation represents less than 20 percent of the vegetation within the enhanced area. In an effort to ensure this success, the annual

monitoring would include evaluation of all the upland vegetation within the enhancement area. Inspection would include looking for non-native and invasive plant species and evaluation of the overall condition of the area (e.g., any apparent human disturbances that could be controlled).

Upland Contingency Actions

Should it be determined at the time of inspection that any invasive species have become re-established (i.e., *Arundo*, *Tamarix*, etc.), the monitor would contact the City, so the property owners can be directed to have these invasive species removed utilizing the appropriate techniques (hand tools, etc.) to minimize impacts to the enhancement area.

Should it be determined at the time of inspection that supplemental native plantings are not thriving, the monitor would contact the City, so the property owners can be directed to have any dead or dying plants replaced at 2:1 within the habitat enhancement area with new stock.

Should it be determined at the time of inspection that there are apparent anthropogenic disturbances that can be remedied, the biological monitor would contact the City, so the property owners can be directed to take remedial actions to prevent further disturbance to the habitat enhancement area.

Reporting

Within 45 days of completion of each annual survey, the biological monitor would prepare a letter report discussing the results of the monitoring effort. The report would include any information regarding the presence of western spadefoot toad, aquatic predators, and conditions of the habitat enhancement area. The report also would include description of any remedial actions taken and any suggestions that would further improve the potential success of the plan, and include photographs that illustrate the existing conditions of the enhancement area at the time of monitoring. A report would be delivered to the City, the property owners, and CDFG.

REFERENCES

- California Department of Fish and Game. 2009. "Special Animals (901 taxa)." March 2009 update. Prepared by the Biogeographic Data Branch. California Natural Diversity Database. State of California; The Resources Branch.
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- Stebbins, R. C. 1985. *Western Reptiles and Amphibians*, 2nd ed. Houghton-Mifflin Company. Boston, Massachusetts.

Attachment A
Alliance Memo Regarding Pond Design Calculations

MEMORANDUM

TO: Dave Crawford, Compliance Biology

FROM: Craig Whitteker, Alliance Land Planning & Engineering

DATE: May 29, 2009

SUBJECT: Vista Canyon – Spadefoot Toad Mitigation Pond

The Breeding Pool is located in the southeast corner of the project within a natural, relatively flat area. As discussed in other sections of this mitigation program, the Spadefoot Toad utilizes seasonal rain pools. Within the region of the proposed pond, the average annual seasonal rainfall is approximately 18 inches. This rainfall typically occurs over the Southern California historic wet season that is generally defined as mid October through mid April. Within this five-month time period, the majority of the average annual rainfall occurs during the three months from January through March and averages approximately 4 inches per month⁽¹⁾.

The amount of water that will accumulate in the pond on a monthly basis during the three months of rainfall is a function of the pond size and any associated drainage area uphill from the pond. The proposed pond is located within the generally flat areas of the upper terraces of the Santa Clara River. While there is no well defined tributary watershed area that will collect and convey storm runoff into the pond, some overland sheet flow runoff is anticipated to flow into the pond from adjacent area. For the purposes of this analysis, a conservative area of two times the pond area is considered to contribute storm water flow to the pond. The proposed pond design utilizes a liner material that will minimize water losses through infiltration, thus the only opportunities for water losses from the pond is through evapotranspiration.

Pond Size

The pond is 40 ft long and 25 ft wide. Based on this pond size and a conservative contributory drainage area that is approximately 2 times the pond area, the pond could accumulate about 0.022 acre-feet of water in an average month. With an average depth of 1.5 feet, the pond can hold up to 0.034 acre-feet of water.

For each month within this same three-month time period, the average loss due to evapotranspiration is approximately 0.1 acre-feet per month per acre⁽²⁾. Since there is a pond liner, no water will be lost due to infiltration. Based on this evapotranspiration rate, the pond would lose about 0.002 acre-feet of water per month while receiving an inflow of 0.015 acre-feet. Since the average storm water inflow rates exceed the evapotranspiration losses during the three-month period of rainfall, any losses due to evapotranspiration during the months of January through March would be offset by rainfall during that same period. Therefore, the pond would contain its maximum volume of water toward the end of the rainy season.

As the rainy season ends and the region moves into summer weather conditions, the average rainfall diminishes to almost 0-inches and the evapotranspiration increases significantly to about 0.6 acre-feet per month in July. **Table 1** – Pond Water Retention Evaluation shows the effect of evapotranspiration on water retention in the pond for the months of April, May and June. During an average rainfall year, the pond is expected to fully dry out within three months following the rainy season. Historically, rainfall conditions vary from year-to-year. While the pond can be expected to contain some water for up to a five to six-month period during an average rainfall year, dry year rainfall conditions may result in the pond drying up in three or four months.

As noted above, the proposed pond design utilizes a liner material that will minimize water losses through infiltration. Based on manufacturer specifications and testing, this liner material will last at least 45 years with UV exposure. The planned design of the pond will cover the liner material with a gravel layer that will protect the surface and minimize UV exposure. In addition, it is anticipated that a small amount of sediment material will be deposited in the pond as a result of normal rainfall runoff and wind blown dust. This sediment will serve to further protect the liner without significantly diminishing the pond storage capacity.

If portions of the liner were exposed to UV light, potential failure might occur 45-50 years after installation. During this time frame, the underlying soils will consolidate and minimize potential losses of water due to infiltration. Also during this time period, the pond will become “naturalized” through development of vegetation from seeds deposited in and adjacent to the pond by animals and nature. This “naturalization” process will further assist in providing a base condition within the pond that would minimize the potential for infiltration losses.

- (1) Newhall precipitation gauge (#046162) from 1969-2003.
- (2) Evapotranspiration based on Plan Factor = 0.5 from UC Cooperative Extension /DWR, Aug 2000, “Estimating Irrigation needs of Landscape Plantings in California”. Based on moderate water use plant species values of 0.4-0.6.

TABLE 1

Pond Water Retention Evaluation

Pond Data	1
Size (ft)	40 x 25
Area (sf)	1,000
Average depth (ft)	1.5.
Volume - Max. (ac. Ft.)	0.034

Average monthly rainfall Jan. - Mar. (in.)	4
Direct rainfall accumulation (ac-ft)	0.007
Tributary area runoff (ac-ft) (1)	0.015
Total Probable Inflow to Pond (ac-ft)	0.015
Evapotranspiration Rate, Jan. -Mar. (ac-ft per ac. per mo.)	0.100
Monthly evapotranspiration volume, Jan. - Mar. (ac-ft)	0.002
Net monthly accumulation (ac-ft)	0.013
Total Accumulation Over Three Months	0.039

For Evapotranspiration Analysis Use Max Pond Volumes

Month of April	
Evapotranspiration at rate of 0.36 ac-ft per acre	0.008
Pond volume remaining	0.026

Month of May	
Evapotranspiration at rate of 0.48 ac-ft	0.011
Pond volume remaining	0.015

Month of June	
Evapotranspiration at rate of 0.55 ac-ft	0.013
Pond volume remaining	0.002

(1) Tributary area assumed to be 2 times the pond area

Attachment B
Two Consecutive Annual Monitoring Reports for Three Newhall Land
Western Spadefoot Habitat Enhancement and Monitoring Plans

**First Annual Western Spadefoot Toad
Habitat Enhancement Monitoring Report
Riverpark Project Site,
City of Santa Clarita, California**

Prepared for:

The Newhall Land and Farming Company
23823 Valencia Boulevard
Valencia, California 91355

Prepared by:



Compliance Biology, Inc.
6770 San Onofre Drive
Camarillo, California 93012

July 2006

The following is the first annual monitoring report for a western spadefoot toad (*Spea hammondi*) habitat enhancement and monitoring plan implemented on the River Village (previously known as Riverpark) project site, located in the City of Santa Clarita, California (**Exhibit 1**). This report is intended to provide information to the City of Santa Clarita (City), The Newhall Land and Farming Company (Newhall Land), and the California Department of Fish and Game (CDFG) regarding status of breeding pools created as mitigation for impacts to western spadefoot toad associated with the River Village project.

PROJECT BACKGROUND

The project applicant, Newhall Land, has initiated development of the 695 acre project site with a mixed-use community consisting of 1,089 residential units, a 29-acre passive-active park, and a one-acre commercial parcel. An EIR was prepared for the project and approved.

Focused surveys were conducted on the site in 2003 and 2004. The 2004 focused survey resulted in the detection of the species on-site. A report was prepared on March 15, 2004 that described the results of those surveys (Compliance Biology). During site evaluations, three seasonal rainpools resulting from on-site human activities were discovered with actively breeding western spadefoot toads. Under the direction and with the assistance of CDFG, Compliance Biology, Inc. collected approximately 400 western spadefoot tadpoles from the stockpile area. These toads were released in areas outside of the development footprint along the the Santa Clara River corridor, primarily in upland terrace habitat on both the west and east side of the Los Angeles Department of Water and Power Aqueduct bisecting the site. A more detailed discussion of the survey results and findings is included in the Riverpark FEIR.

The “Western Spadefoot Toad Habitat Enhancement and Monitoring Plan” (Plan) was prepared by Compliance Biology, Inc. in February 2005 and was subsequently approved by the City of Santa Clarita and the California Department of Fish and Game. The pond construction element of the Plan was completed in December 2005.

Construction of Rainpools

Exhibit 2 illustrates locations on the River Village project site selected for construction of the two seasonal rainpools. These locations were selected based on the availability of open space and the proximity of naturally occurring resources suitable to support western spadefoot toads. These locations were approved by CDFG. The pools were not placed in the path of any direct drainage as such placement would result in too much water entering the pools and/or damage to the pools by flowing water.

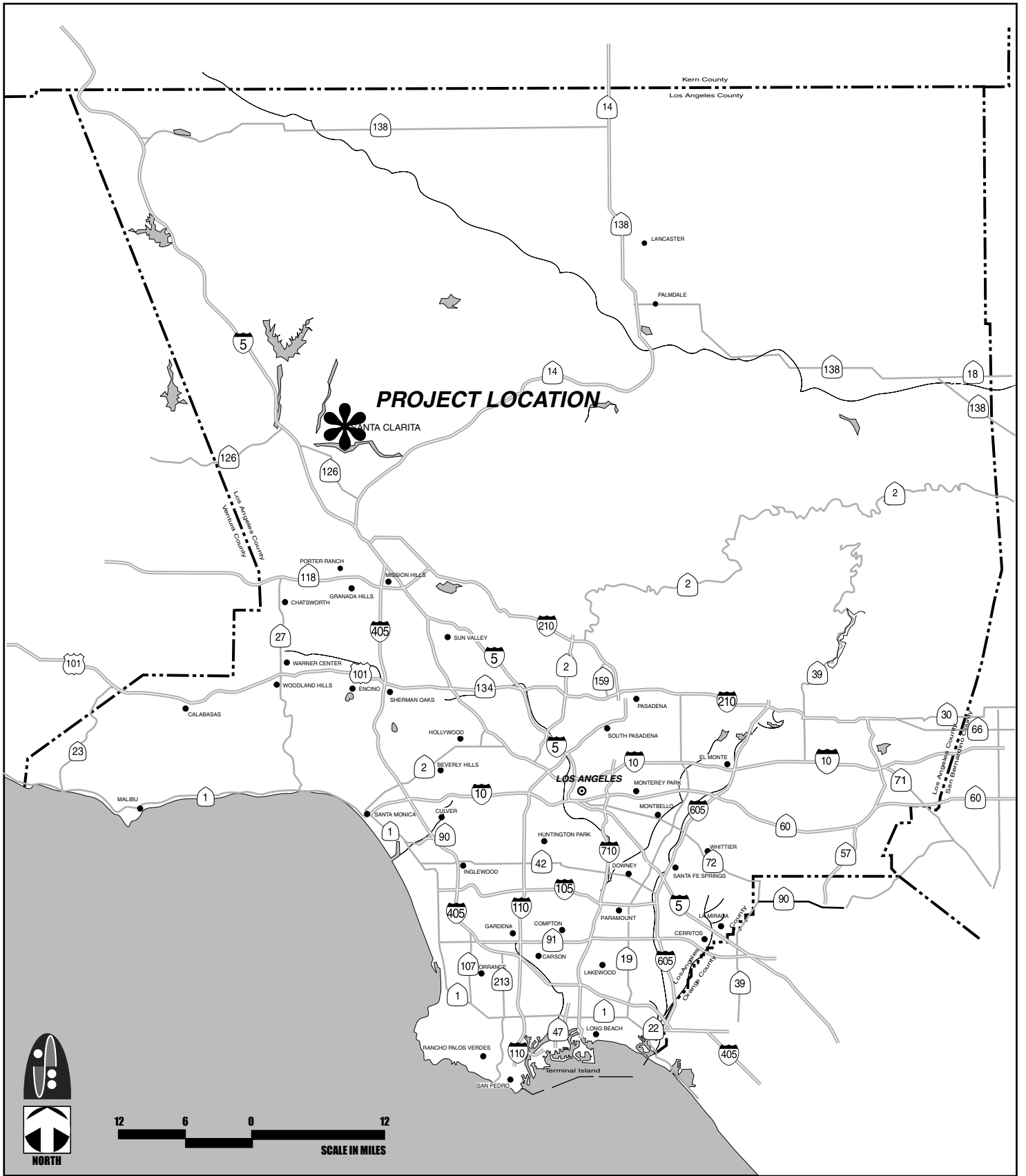
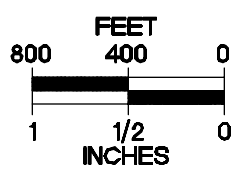
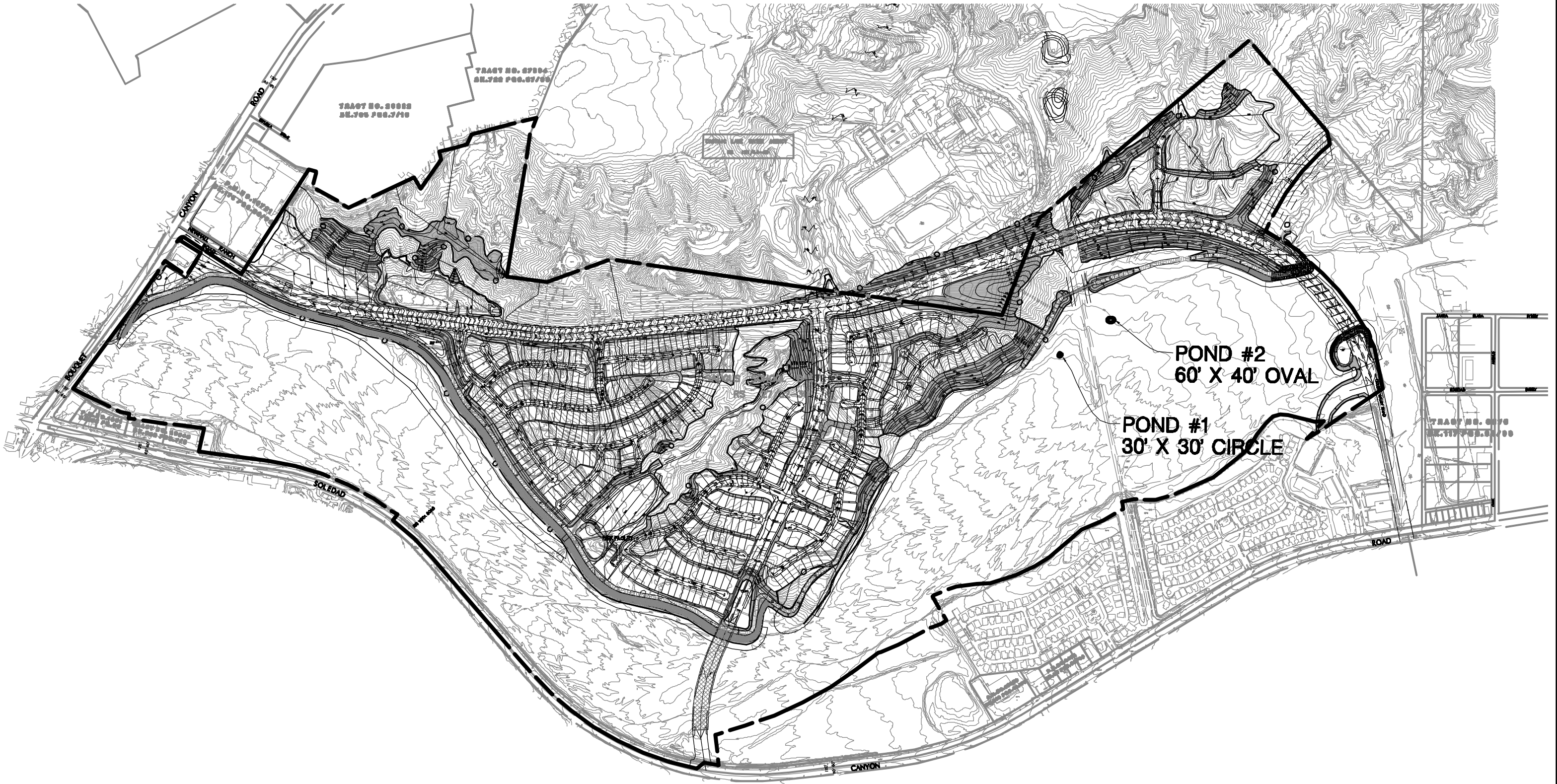


Exhibit 1
REGIONAL LOCATION



Note: For reduced size prints, original scale is in inches.

RIVER PARK
EXHIBIT 2
MITIGATION POND LOCATIONS

PSOMAS

DATE: 11/16/04 REVISED ON:
JOB No: 1VAL021504 SHEET NO. 1 OF 1

Pool 1 (**Exhibit 3a**) is an approximately 30-foot circle and Pool 2 (**Exhibit 3b**) turned out to be approximately 50 feet in length and 35 feet in width. Both pools are designed to be approximately 3 feet in depth, gradually and evenly sloping upward and outward from the center to the outer limits of the pool banks. The basic depth and shape of both pools were excavated using a backhoe or similar equipment. Hand tools were utilized to smooth out rough areas and perform final shaping.

Upon completion of excavation, each pool was lined with a 15mil polyester mat that protects the pond liner from puncture. A 45mil Firestone EPDM pond liner was then placed over the polyester mat and extend approximately two feet beyond the limits of the pond banks. The excess material was then buried around the perimeter of the pool.

Upon completion of installation of the pond liner, a one to two inch layer of ¼-inch pea gravel was placed over the entire surface of the liner in an attempt to prevent exposure of the liner to direct sunlight. Larger rock was randomly placed throughout the pool and around its perimeter to serve as stabilizing points for the pea gravel to prevent it from sloughing down to the bottom. A few scattered twigs were placed within the pools to serve as substrate for oviposition. A smaller amount of large rock was utilized in Pond 2 to see if the presence of large rock made any difference on the selection of the site by breeding spadefoot toads, or on the success of the survival of tadpoles and young toads. Attached photos 1 and 2 illustrate the completed ponds.

Upland Habitat Enhancement

The original Plan included planting of native vegetation to further enhance the habitat around the constructed pools. After construction of both pools is complete an area of approximately 200 feet in diameter around the outer edge of each pool was to be enhanced to serve as suitable upland habitat for western spadefoot toad as it was expected much of this area would be disturbed by pond construction. It turned out that only a minimal area of about 10-20 feet beyond the limits of the ponds was disturbed. Therefore, to date the upland enhancement efforts have been limited to removal of non-native invasive materials in the vicinity of each pond. Because spadefoot toad typically burrow in more open scrub habitat, it was determined that further planting would not improve the upland habitat adjacent to either pool

Exhibit 3a

MONITORING RESULTS

In order to ensure success of the habitat enhancement, monitoring of the enhanced habitat areas is to take place for a period of five years. The monitoring efforts included seasonal surveys for the presence/absence of western spadefoot toads and evaluation of the created breeding pools to determine if they needed any maintenance.

Beginning in early February 2006, Compliance Biology conducted the a series of surveys of the pools during and immediately following rain events. The first purpose of the intial surveys were conducted to ensure the pools held enough volume of rain to provide suitable breeding habitat for western spadefoot toad.

In mid-February, several spadefoot toad egg clusters were observed in Pond #1. The quantity of clusters suggested that three to four pairs bred in the pool. Subsequent visits in March resulted in the discovery of several additonal clusters, suggesting that at least three more pairs utlized the pond. Attached photos 3 and 4 are of clusters observed in Pond #1.

Additionally, in early March 2006 three clusters were observed in Pond #2 (Attached Photo 5). Each of the clusters only included between 10 and 20 eggs, which indicated a single pair likely produced them.

During surveys of wet and ponded locations on the construction site during winter 2006, any observed spadefoot egg clusters were collected and re-located to Pond #2.

In addition to the spadefoot eggs, numerous egg strands from the common western toad (*Bufo boreas*) were also observed in both ponds (Attached photo 6).

Several subsequent visits were conducted over the course of the next three months to observe the status of the eggs and resulting tadpoles. At one point, Pond #1 supported several hundred spadefoot tadpoles (Attached photos 7 and 8). The tadpoles were observed to frequently hide under the larger rock and it also appeared that the rock provided suitable substrate for the growth of algae that the tadpoles were often observed grazing on.

The ultimate goal of the Plan is to provide suitable breeding habitat for western spadefoot toads relocated on the River Village project site. The first year monitoring indicates both ponds have been successful. Monitoring will continue for the next four years to ensure continued success.

REFERENCES

- CDFG. 2003. Special Animals [species of special concern]. State of California, The Resources Agency, Department of Fish and Game, Natural Heritage Division, Natural Diversity Data Base, January 2003 update.
- Compliance Biology, Inc. 2004. *Results of Focused Western Spadefoot Toad Surveys on the Riverpark Project Site*. Final report submitted to Newhall Land and Farming Company. March 15, 2004
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- Stebbins, R. C. 1985. *Western Reptiles and Amphibians.*, 2nd ed. Houghton-Mifflin Company. Boston, Massachusetts.

Exhibit 3b



Photo 1 – Completed Pond #1



Photo 2 – Completed Pond #2



Photo 3 – Spadefoot egg clusters in Pond #1



Photo 4 – Spadefoot egg clusters in Pond #1



Photo 5 – Spadefoot egg clusters in Pond #2



Photo 6 – Western toad egg strands in Pond #1



Photo 7 – Spadefoot tadpoles in Pond #1



Photo 8 – Spadefoot tadpoles in Pond #1

**Second Annual Western Spadefoot Toad
Habitat Enhancement Monitoring Report
River Village Project Site,
City of Santa Clarita, California**

Prepared for:

The Newhall Land and Farming Company
23823 Valencia Boulevard
Valencia, California 91355

Prepared by:



compliance-biology

Compliance Biology, Inc.
6770 San Onofre Drive
Camarillo, California 93012

June 2007

The following is the second annual monitoring report for a western spadefoot toad (*Spea hammondi*) habitat enhancement and monitoring plan implemented on the River Village (previously known as Riverpark) project site, located in the City of Santa Clarita, California (**Exhibit 1**). This report is intended to provide information to the City of Santa Clarita (City), The Newhall Land and Farming Company (Newhall Land), and the California Department of Fish and Game (CDFG) regarding status of breeding pools created as mitigation for impacts to western spadefoot toad associated with the River Village project.

PROJECT BACKGROUND

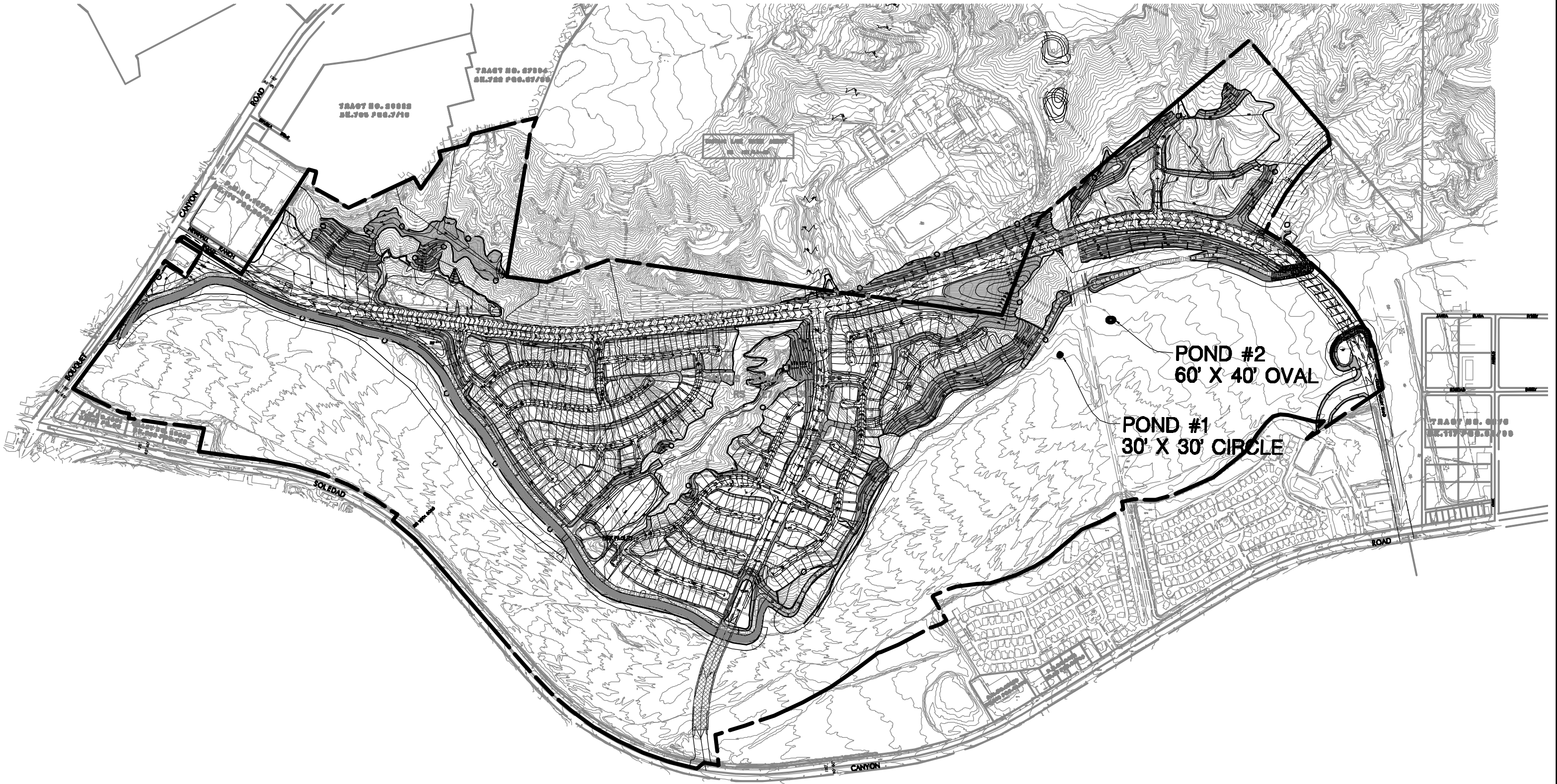
The project applicant, Newhall Land, has initiated development of the 695 acre project site with a mixed-use community consisting of 1,089 residential units, a 29-acre passive-active park, and a one-acre commercial parcel. An EIR was prepared for the project and approved.

Focused surveys were conducted on the site in 2003 and 2004. The 2004 focused survey resulted in the detection of the species on site. A report was prepared on March 15, 2004 that described the results of those surveys (Compliance Biology). During site evaluations, three seasonal rainpools resulting from on-site human activities were discovered with actively breeding western spadefoot toads. Under the direction and with the assistance of CDFG, Compliance Biology, Inc. collected approximately 400 western spadefoot tadpoles from the seasonal pond at the stockpile area. These toads were released in areas outside of the development footprint along the the Santa Clara River corridor, primarily in upland terrace habitat on both the west and east side of the Los Angeles Department of Water and Power Aqueduct bisecting the site. A more detailed discussion of the survey results and findings is included in the Riverpark FEIR.

The “Western Spadefoot Toad Habitat Enhancement and Monitoring Plan” (Plan) was prepared by Compliance Biology, Inc. in February 2005 and was subsequently approved by the City of Santa Clarita and the California Department of Fish and Game. The pond construction element of the Plan was completed in December 2005.

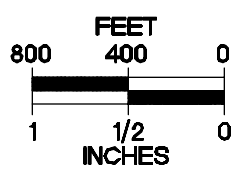
Construction of Rainpools

Exhibit 2 illustrates locations on the River Village project site selected for construction of the two seasonal rainpools. These locations were selected based on the availability of open space and the proximity of naturally occurring resources suitable to support western spadefoot toads. These locations were approved by CDFG. The pools were not placed in the path of any direct drainage as such placement would result in too much water entering the pools and/or damage to the pools by flowing water.



POND #2
60' X 40' OVAL

POND #1
30' X 30' CIRCLE



Note: For reduced size prints, original scale is in inches.

RIVER PARK
EXHIBIT 2
MITIGATION POND LOCATIONS

PSOMAS

DATE: 11/16/04 REVISED ON:
JOB No: 1VAL021504 SHEET NO. 1 OF 1

Pool 1 (**Exhibit 3a**) is an approximately 30-foot circle and Pool 2 (**Exhibit 3b**) turned out to be approximately 50 feet in length and 35 feet in width. Both pools are designed to be approximately 3 feet in depth, gradually and evenly sloping upward and outward from the center to the outer limits of the pool banks. The basic depth and shape of both pools were excavated using a backhoe or similar equipment. Hand tools were utilized to smooth out rough areas and perform final shaping.

Upon completion of excavation, each pool was lined with a 15mil polyester mat that protects the pond liner from puncture. A 45mil Firestone EPDM pond liner was then placed over the polyester mat and extend approximately two feet beyond the limits of the pond banks. The excess material was then buried around the perimeter of the pool.

Upon completion of installation of the pond liner, a one to two inch layer of ¼-inch pea gravel was placed over the entire surface of the liner in an attempt to prevent exposure of the liner to direct sunlight. Larger rock was randomly placed throughout the pool and around its perimeter to serve as stabilizing points for the pea gravel to prevent it from sloughing down to the bottom. A few scattered twigs were placed within the pools to serve as substrate for oviposition. A smaller amount of large rock was utilized in Pond 2 to see if the presence of large rock made any difference on the selection of the site by breeding spadefoot toads, or on the success of the survival of tadpoles and young toads. The attached photographs illustrate the completed ponds.

Upland Habitat Enhancement

The original Plan included planting of native vegetation to further enhance the habitat around the constructed pools. In the original restoration plan, an area of approximately 200 feet in diameter around the outer edge of each pool was to be enhanced with native vegetation to serve as suitable upland habitat for western spadefoot toad, as it was expected much of this area would be disturbed by pond construction. It turned out that only a minimal area of about 10-20 feet beyond the limits of the ponds was disturbed. Therefore, to date the upland enhancement efforts have been limited to removal of non-native invasive materials in the vicinity of each pond. Because spadefoot toads typically burrow in more open scrub habitat, it was determined that further planting would not improve the upland habitat adjacent to either pool.

MONITORING RESULTS

In order to ensure success of the habitat enhancement, monitoring of the enhanced habitat areas is to take place for a period of five years. The monitoring efforts included seasonal surveys for the presence/absence of western spadefoot toads and evaluation of the created breeding pools to determine if they needed any maintenance.

Exhibit 3a

Exhibit 3b



compliance-biology

The 2007 winter season resulted in the lowest rainfall in recorded history in the project area. As a result, there was not enough rainfall to provide any standing water in either pond. Thus, no breeding of spadefoot toads were recorded on site.

Monitoring results in 2006 revealed both ponds were utilized by breeding spadefoot toads and numerous young metamorph toads were observed around both ponds, indicating successful reproduction.

The ultimate goal of the Plan is to provide suitable breeding habitat for western spadefoot toads relocated on the River Village project site. The first year monitoring indicates both ponds have been successful. Although the second year did not result in suitable breeding conditions, it is expected that the Enhancement and Relocation Plan will continue to be a success in the following years, provided enough rainfall occurs to provide standing water in the ponds. Monitoring will continue for the next three years to ensure continued success.

REFERENCES

- CDFG. 2003. Special Animals [species of special concern]. State of California, The Resources Agency, Department of Fish and Game, Natural Heritage Division, Natural Diversity Data Base, January 2003 update.
- Compliance Biology, Inc. 2004. *Results of Focused Western Spadefoot Toad Surveys on the Riverpark Project Site*. Final report submitted to Newhall Land and Farming Company. March 15, 2004
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Photo 1 – Completed Pond #1



Photo 2 – Completed Pond #2

**First Annual Western Spadefoot Toad
Habitat Enhancement Monitoring Report
West Creek Project Site,
County of Los Angeles, California**

Prepared for:

The Newhall Land and Farming Company
23823 Valencia Boulevard
Valencia, California 91355

Prepared by:



Compliance Biology, Inc.
6770 San Onofre Drive
Camarillo, California 93012

December 2006

The following is the first annual monitoring report for a western spadefoot toad (*Spea hammondi*) habitat enhancement and monitoring plan implemented on the West Creek project site, located in the County of Los Angeles, California (**Exhibit 1**). This report is intended to provide information to the County of Los Angeles(City), The Newhall Land and Farming Company (Newhall Land), and the California Department of Fish and Game (CDFG) regarding status of breeding pools created as mitigation for impacts to western spadefoot toad associated with the West Creek project.

PROJECT BACKGROUND

In December 2000, the County's Board of Supervisors certified the West Creek Final EIR and approved the West Creek project. The EIR included an analysis of the potential impacts of the West Creek project on sensitive biological resources, including potential impacts to the western spadefoot toad. The western spadefoot was identified in the EIR as a species of concern at the federal and state level. The EIR indicated that there was a high potential for the western spadefoot to occur on the West Creek site. The EIR further found that the project would impact the western spadefoot, but that such impacts were not significant due to its listing status (i.e., not listed as threatened or endangered) and its abundance in other areas. The EIR also contained mitigation measures relating to impacts on special status wildlife species, including the western spadefoot.

CDFG and the U.S. Fish and Wildlife Service (Service) have designated the western spadefoot as a special status species; however, the species has not been identified as an endangered, threatened or candidate species by either the CDFG or the Service. As discussed below, while the West Creek project was undergoing additional environmental review, the County continued the West Creek matter in May 2004, due to the confirmed discovery of the western spadefoot toad on the project site.

On May 10, 2004, during a site evaluation, several small, newly metamorphosed western spadefoot toads were observed in two locations in the vicinity of temporary man-made retention basins on the West Creek site. The two retention basins are located outside of the County's San Francisquito Significant Ecological Area (SEA) boundaries. Under the direction and with the assistance of CDFG, Compliance Biology, Inc. collected approximately 100-150 juvenile western spadefoot toads from the northwest temporary retention basin. These toads were released in areas outside of the future development footprint along the San Francisquito Creek corridor, primarily in upland terrace habitat within and adjacent to West Creek Project Area D.

The "Western Spadefoot Toad Habitat Enhancement and Monitoring Plan" (Plan) was prepared by Compliance Biology, Inc. in August 2004 and was subsequently approved by the County and the California Department of Fish and Game. The pond construction element of the Plan was completed in January 2006.

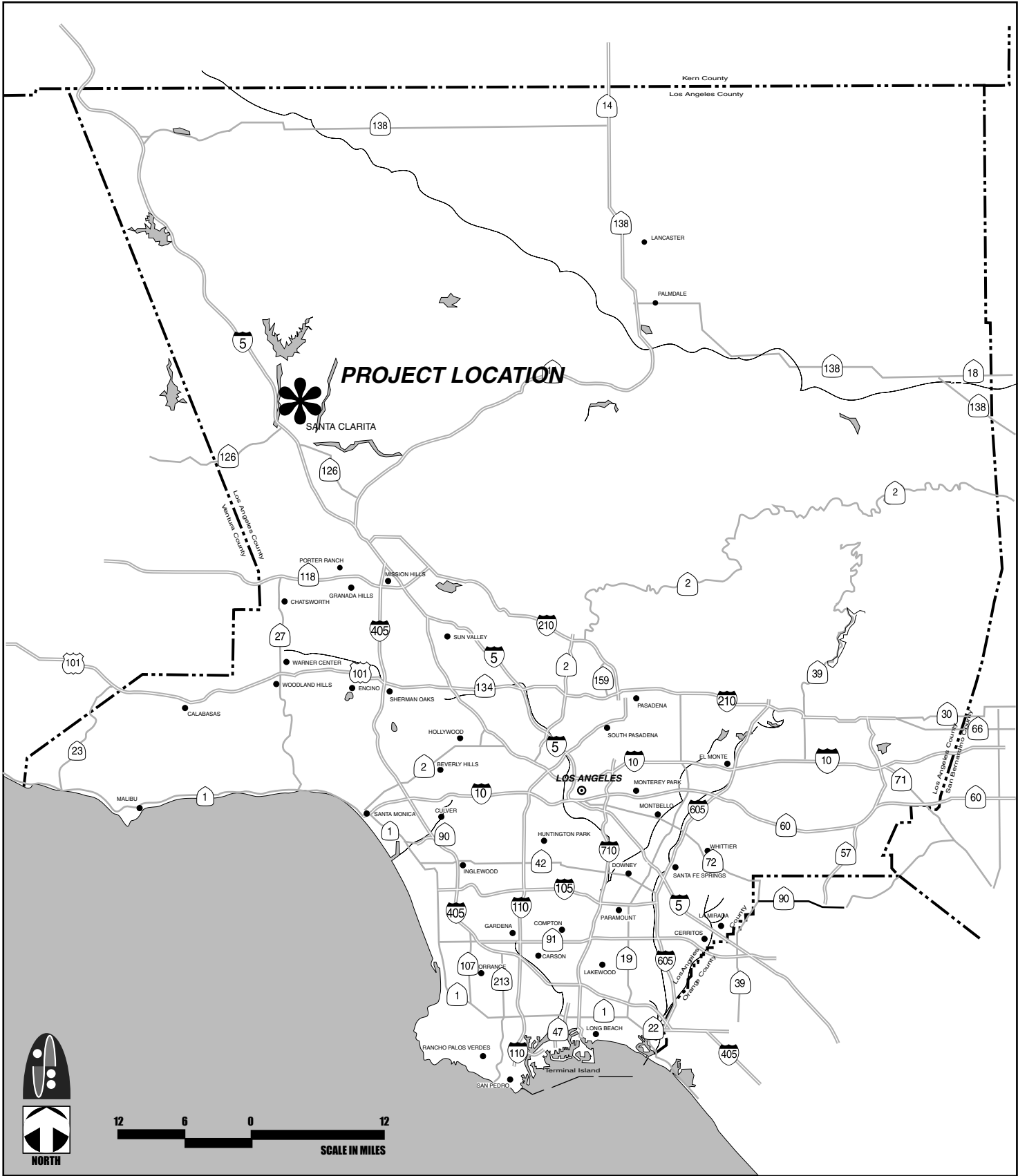


Exhibit 1
REGIONAL LOCATION

Construction of Rainpools

Exhibit 2 illustrates the seasonal rainpool locations on the West Creek project site. These locations were selected based on the availability of open space and the proximity of naturally occurring resources suitable to support western spadefoot toads. The selected locations were approved by CDFG and the County. The pools were not placed in the path of any direct drainage as such placement would result in too much water entering the pools and/or damage to the pools by flowing water. Prior to construction of the pools, an approximately 150 radius was scraped clear of all vegetation around each site. As the vegetation was predominantly non-native, it was removed from the site.

Pool 1 is approximately 50 feet by 50 feet with a small drainage overflow extending from its southeastern corner. Pool 2 is approximately 35 feet in diameter. Both pools are designed to be approximately 3 feet in depth, gradually and evenly sloping upward and outward from the center to the outer limits of the pool banks. The basic depth and shape of both pools were excavated using a backhoe or similar equipment. Hand tools were utilized to smooth out rough areas and perform final shaping.

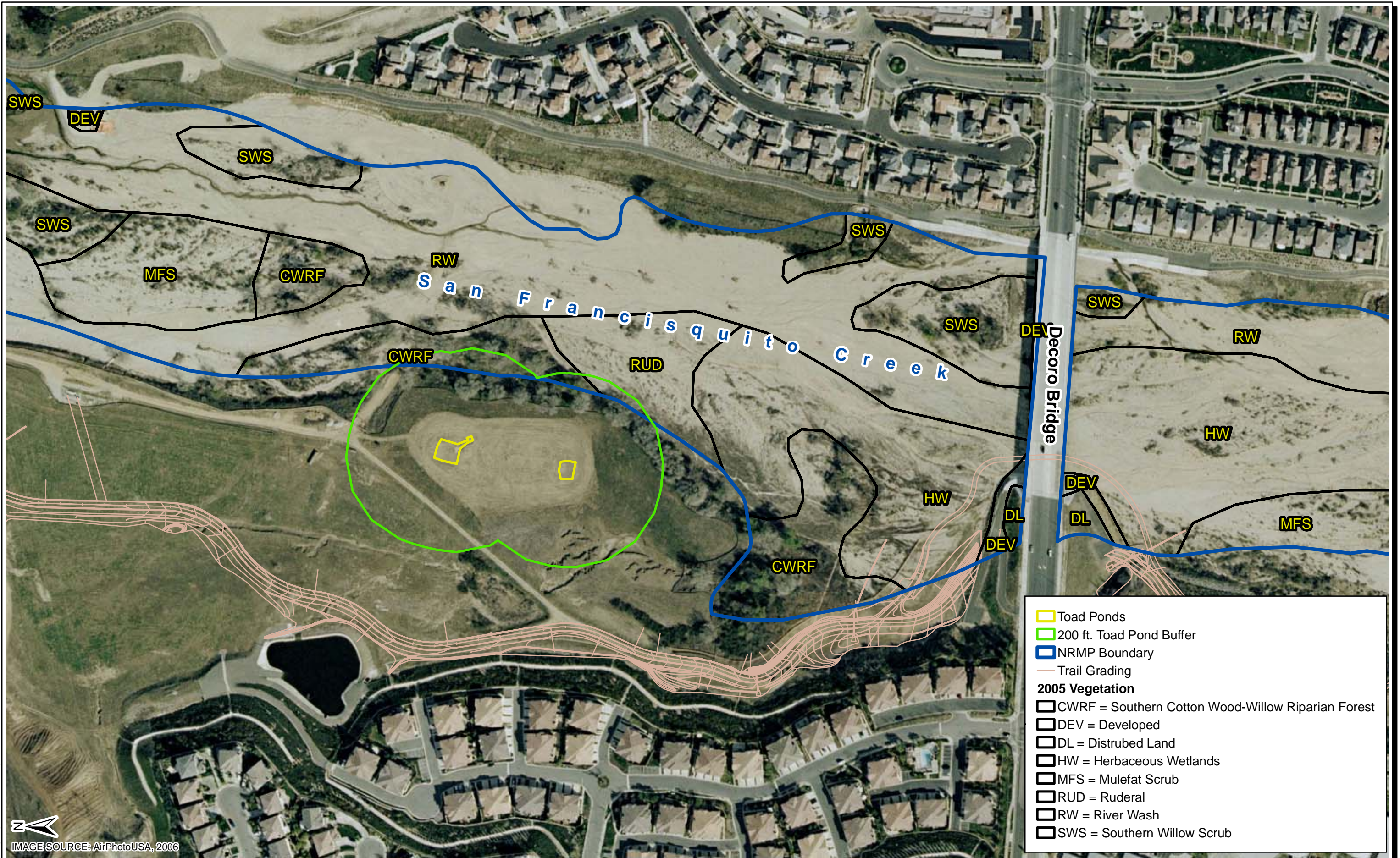
Upon completion of excavation, each pool was lined with a 15mil polyester mat that protects the pond liner from puncture. A 45mil Firestone EPDM pond liner was then placed over the polyester mat and extend approximately two feet beyond the limits of the pond banks. The excess material was then buried around the perimeter of the pool.

Upon completion of installation of the pond liner, a one to two inch layer of ¼-inch pea gravel was placed over the entire surface of the liner in an attempt to prevent exposure of the liner to direct sunlight. Larger rock was randomly placed in clusters and individually throughout both pools and around their perimeter to serve as stabilizing points for the pea gravel to prevent it from sloughing down to the bottom. A few scattered twigs were placed within the pools to serve as substrate for oviposition.

Additionally, because some of the substrate in the immediate vicinity around the pools was less than ideal for burrowing spadefoot toads, several skiploader buckets of sand were randomly deposited around each pool as supplemental burrowing habitat. Attachment 1 provides photographic illustration of the completed pools and the associated sand piles.

Upland Habitat Enhancement

The habitat enhancement plan includes supplemental planting of native vegetation to further enhance the habitat around the constructed pools. Existing vegetation at the time of construction was characterized as a dense stand of non-native mustard (*Hirschfeldia* and *Brassica* spp.). To date, the supplemental native plantings have not occurred.

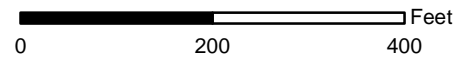


- Toad Ponds
- 200 ft. Toad Pond Buffer
- NRMP Boundary
- Trail Grading
- 2005 Vegetation**
- CWRP = Southern Cotton Wood-Willow Riparian Forest
- DEV = Developed
- DL = Disturbed Land
- HW = Herbaceous Wetlands
- MFS = Mulefat Scrub
- RUD = Ruderal
- RW = River Wash
- SWS = Southern Willow Scrub

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IMAGE SOURCE: AirPhotoUSA, 2006

DUDEK
 Santa Barbara GIS Division
 621 Chapala St
 Santa Barbara, Ca 93101
 (805)963-0651



West Creek Spadefoot Toad Mitigation Ponds #1 and #2
Second Annual Monitoring Report

MONITORING RESULTS

In order to ensure success of the habitat enhancement, monitoring of the enhanced habitat areas is to take place for a period of five years. The required monitoring efforts include seasonal surveys for the presence/absence of western spadefoot toads and evaluation of the created habitat and breeding pools to determine if any maintenance is required.

Beginning in early February 2006, Compliance Biology conducted a series of surveys of the pools during and immediately following rain events. Because the pools had only been in place for one month, the primary purpose of the initial surveys were conducted to ensure the pools held enough volume of rain to provide suitable breeding habitat for western spadefoot toad.

In mid-March, a single spadefoot toad egg cluster was observed in Pond 2. The single cluster suggested that only one pair bred in the pool. Subsequent visits in March resulted in the discovery of approximately 20 tadpoles. A follow-up survey in April revealed that no spadefoot tadpoles or juveniles were present, though numerous western toad (*Bufo boreas*) tadpoles were present. At this latter visit, a green heron and great egret were both observed foraging in the pond. It is very likely that most or all of the spadefoot tadpoles were predated.

Two subsequent visits were conducted over the course of the next three months to observe the status of the ponds. Numerous western toad tadpoles and newly metamorphosed young were observed, but there was no further indication of spadefoot presence.

The ultimate goal of the Plan is to provide suitable breeding habitat for western spadefoot toads relocated on the West Creek project site. The first year monitoring indicates one of ponds was successful in as much as successful breeding of spadefoot occurred. It was apparent that there was only one pair breeding last season, but the ponds were still relatively new and the upland habitat was not yet in place.

In order to increase the potential for further success of the enhancement areas, it is recommended that the proposed upland native vegetation be installed as soon as possible. Not only will this provide increased quantity and quality of required upland habitat, but it may provide some additional protection from predators for spadefoot that may manage to successfully metamorphose to juveniles. Monitoring will continue for the next four years to ensure continued success.

REFERENCES

- CDFG. 2003. Special Animals [species of special concern]. State of California, The Resources Agency, Department of Fish and Game, Natural Heritage Division, Natural Diversity Data Base, January 2003 update.
- Compliance Biology, Inc. 2004. *Western Spadefoot Toad Habitat Enhancement and Monitoring Plan. West Creek Project Site, Los Angeles County, California.* Final report submitted to Newhall Land and Farming Company. February, 2004
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Photo 1 – View of completed Pool 1 with San Francisquito Creek in background.



Photo 2 – View southeast of Pool 1 illustrating surrounding sand piles for burrowing substrate.



Photo 3 – View west of Pool 1 illustrating small overflow channel.



Photo 4 – View east of completed Pool 2



Photo 5- View west of Pool 2 illustrating surrounding habitat.



Photo 6 – Southeast view of Pool 2.

**Second Annual Western Spadefoot Toad
Habitat Enhancement Monitoring Report
West Creek Project Site,
County of Los Angeles, California**

Prepared for:

The Newhall Land and Farming Company
23823 Valencia Boulevard
Valencia, California 91355

Prepared by:



Compliance Biology, Inc.
6770 San Onofre Drive
Camarillo, California 93012

July 2007

The following is the second annual monitoring report for a western spadefoot toad (*Spea hammondi*) habitat enhancement and monitoring plan implemented on the West Creek project site, located in the County of Los Angeles, California (**Exhibit 1**). This report is intended to provide information to the County of Los Angeles(City), The Newhall Land and Farming Company (Newhall Land), and the California Department of Fish and Game (CDFG) regarding status of breeding pools created as mitigation for impacts to western spadefoot toad associated with the West Creek project.

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On May 10, 2004, during a site evaluation, several small, newly metamorphosed western spadefoot toads were observed in two locations in the vicinity of temporary man-made retention basins on the West Creek site. The two retention basins are located outside of the County's San Francisquito Significant Ecological Area (SEA) boundaries. Under the direction and with the assistance of CDFG, Compliance Biology, Inc. collected approximately 100-150 juvenile western spadefoot toads from the northwest temporary retention basin. These toads were released in areas outside of the future development footprint along the San Francisquito Creek corridor, primarily in upland terrace habitat within and adjacent to West Creek Project Area D.

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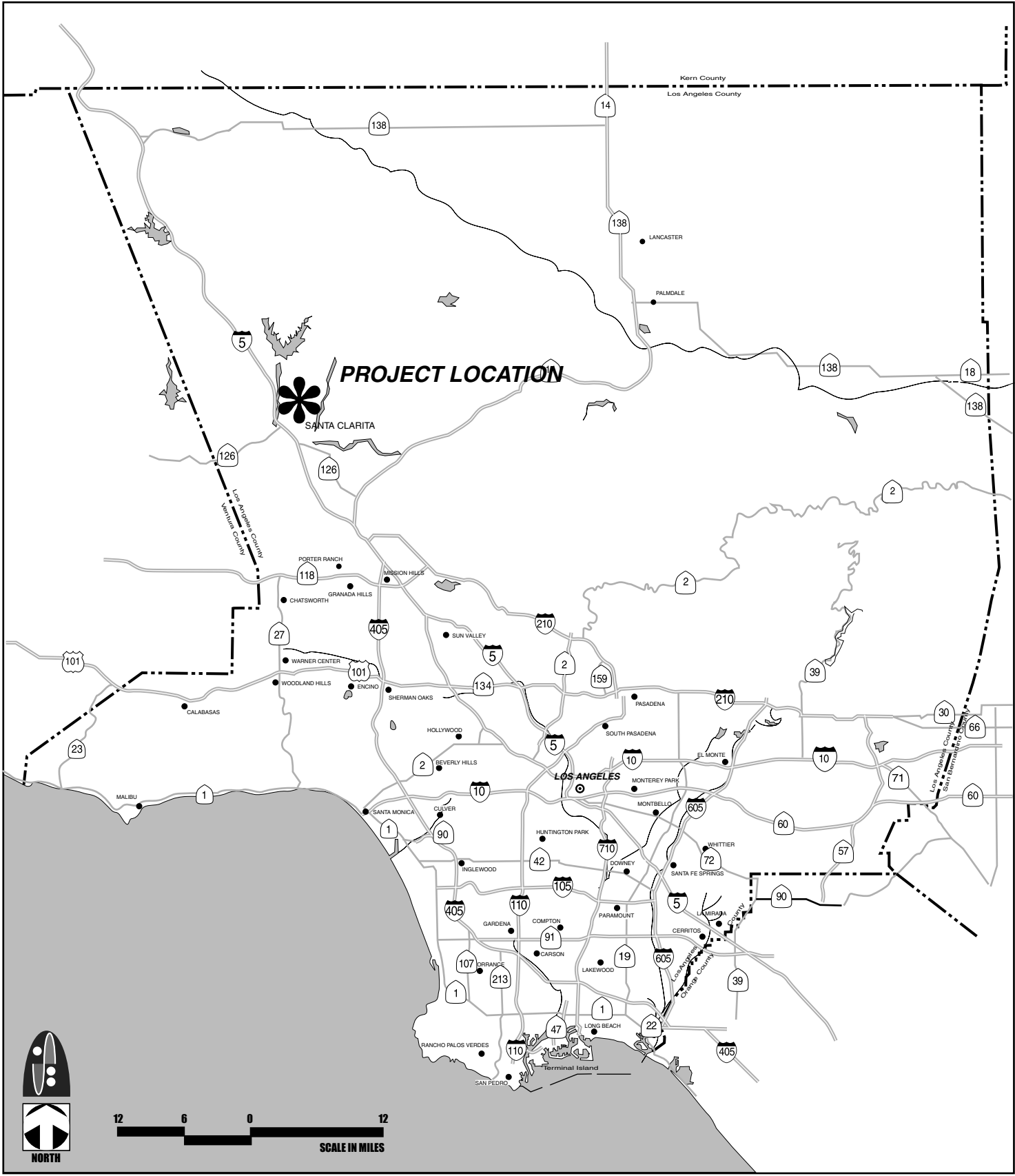


Exhibit 1
REGIONAL LOCATION

Construction of Rainpools

Exhibit 2 illustrates the seasonal rainpool locations on the West Creek project site. These locations were selected based on the availability of open space and the proximity of naturally occurring resources suitable to support western spadefoot toads. The selected locations were approved by CDFG and the County. The pools were not placed in the path of any direct drainage as such placement would result in too much water entering the pools and/or damage to the pools by flowing water. Prior to construction of the pools, an approximately 150 radius was scraped clear of all vegetation around each site. As the vegetation was predominantly non-native, it was removed from the site.

Pool 1 is approximately 50 feet by 50 feet with a small drainage overflow extending from its southeastern corner. Pool 2 is approximately 35 feet in diameter. Both pools are designed to be approximately 3 feet in depth, gradually and evenly sloping upward and outward from the center to the outer limits of the pool banks. The basic depth and shape of both pools were excavated using a backhoe or similar equipment. Hand tools were utilized to smooth out rough areas and perform final shaping.

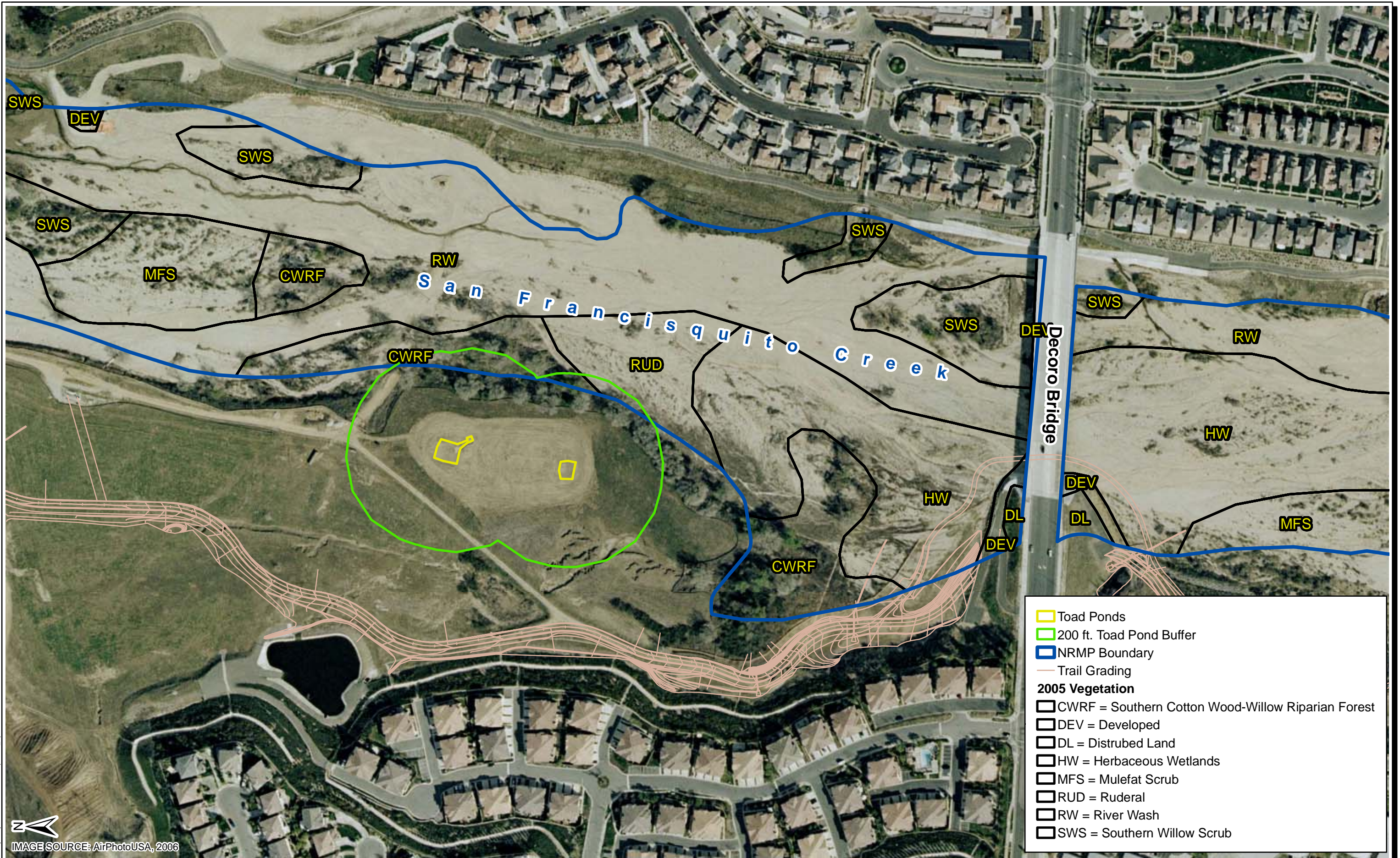
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Additionally, because some of the substrate in the immediate vicinity around the pools was less than ideal for burrowing spadefoot toads, several skiploader buckets of sand were randomly deposited around each pool as supplemental burrowing habitat.

Upland Habitat Enhancement

The habitat enhancement plan includes supplemental planting of native vegetation to further enhance the habitat around the constructed pools. Existing vegetation at the time of construction was characterized as a dense stand of non-native mustard (*Hirschfeldia* and *Brassica* spp.). To date, the supplemental native plantings have not occurred.

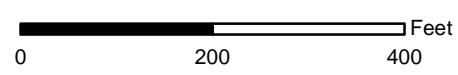


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- DEV = Developed
- DL = Disturbed Land
- HW = Herbaceous Wetlands
- MFS = Mulefat Scrub
- RUD = Ruderal
- RW = River Wash
- SWS = Southern Willow Scrub

Z:\Projects\373801\NRMP\Map\Toad_Rpt.mxd 7/26/2007

IMAGE SOURCE: AirPhotoUSA, 2006

DUDEK
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West Creek Spadefoot Toad Mitigation Ponds #1 and #2
Second Annual Monitoring Report

MONITORING RESULTS

In order to ensure success of the habitat enhancement, monitoring of the enhanced habitat areas is to take place for a period of five years. The required monitoring efforts include seasonal surveys for the presence/absence of western spadefoot toads and evaluation of the created habitat and breeding pools to determine if any maintenance is required.

Last year, in mid-March 2006, a single spadefoot toad egg cluster was observed in Pond 2. The single cluster suggested that only one pair bred in the pool. Subsequent visits in March resulted in the discovery of approximately 20 tadpoles. A follow-up survey in April revealed that no spadefoot tadpoles or juveniles were present, though numerous western toad (*Bufo boreas*) tadpoles were present. At this latter visit, a green heron and great egret were both observed foraging in the pond. It is very likely that most or all of the spadefoot tadpoles were predated.

The 2007 rainy season has been the driest in recorded history. As a result, there was not enough rain this year to form any standing water in either pond. Because of the drought conditions, none of the documented western spadefoot breeding pools in the region are known to have provided breeding conditions for the species this year. However, in late March 2007, a few small egg clusters and newly hatched tadpoles were observed in a small pool formed by nuisance runoff on the West Creek site. Because that area required maintenance and disturbance, it was determined that the eggs and tadpoles should be relocated.

To facilitate relocation, both ponds were filled approximately half full with well water. The water was left to stand for approximately 10 days to allow for algal growth and invertebrate development so relocated tadpoles would have a food base. In early April, approximately 30 eggs and 50 tadpoles were distributed to the two mitigation ponds. A follow up visit approximately one week later revealed that nearly all of the tadpoles were gone and numerous wading bird tracks covered the bottom of both. A final visit was made approximately two weeks later, when only a few individual chorus frog (*Hyla* sp.) tadpoles were present.

DISCUSSION

The ultimate goal of the Plan is to provide suitable breeding habitat for western spadefoot toads relocated on the West Creek project site. The first year monitoring indicates one of ponds was successful in as much as successful breeding of spadefoot occurred. It was apparent that there was only one pair breeding last season, but the ponds were still relatively new and the upland habitat was not yet in place.

The second year produced a record low level of rainfall, thus significantly affecting the reproduction of any spadefoot potentially present in the area, though at least one pair managed in a pool of nuisance water elsewhere on site.

In both cases, it was apparent that wading birds in the area are feeding on the tadpoles occurring in the relocation ponds. In order to increase the potential for the overall success of the enhancement areas, it is recommended that the proposed upland native vegetation be installed as soon as possible. Not only will this provide increased quantity and quality of required upland habitat, but it may provide some additional protection from predators for spadefoot that may manage to successfully metamorphose to juveniles. It is our understanding that the required vegetation has been ordered and will be planted this year prior to the next breeding season. Monitoring will continue for the next three years to ensure continued success.

REFERENCES

- CDFG. 2003. Special Animals [Species of Special Concern]. State of California, The Resources Agency, Department of Fish and Game, Natural Heritage Division, Natural Diversity Data Base, January 2003 update.
- Compliance Biology, Inc. 2006. *First Annual Western Spadefoot Toad Habitat Enhancement Monitoring Report West Creek Project Site*. Unpublished report submitted to Newhall Land and Farming Company. December, 2006.
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**First Annual Western Spadefoot Toad
Habitat Enhancement Monitoring Report
Commerce Center Project Site,
County of Los Angeles, California**

Prepared for:

The Newhall Land and Farming Company
23823 Valencia Boulevard
Valencia, California 91355

Prepared by:



Compliance Biology, Inc.
6770 San Onofre Drive
Camarillo, California 93012

December 2006

The following is the first annual monitoring report for a western spadefoot toad (*Spea hammondi*) habitat enhancement and monitoring plan implemented on the Commerce Center project site, located in the County of Los Angeles, California (**Exhibit 1**). This report is intended to provide information to the County of Los Angeles, The Newhall Land and Farming Company (Newhall Land), and the California Department of Fish and Game (CDFG) regarding status of breeding pools created as mitigation for impacts to western spadefoot toad associated with the Commerce Center project.

BACKGROUND

Following notification of the presence of seasonal rainpools on site by Newhall Land personnel, Compliance Biology surveyed the area situated between Industry Drive and Hasley Creek on April 2, 2004. During site evaluations, four pools were discovered. Two of the pools were the result of on-site grading adjacent to Industry Drive, and two others appeared to be the results of natural drainage and edaphic factors. One of the two more natural pools supported several hundred western spadefoot toad tadpoles. Under the direction of CDFG, Compliance Biology, Inc. collected approximately 200 western spadefoot tadpoles from the occupied seasonal pool. These toads were maintained in captivity until metamorphosis was complete. Approximately 8 weeks later, the juvenile spadefoot toads were released in on the south side of Hasley Creek, outside of proposed grading limits for a current streambed realignment project, in open scrub areas at the base of hillsides where the relocation breeding pools that were to be incorporated into a mitigation plan for riparian and adjacent upland habitat impacts resulting from the Hasley Creek realignment project.

The “Western Spadefoot Toad Habitat Enhancement and Monitoring Plan” (Plan) was prepared by Compliance Biology, Inc. in November 2004 and was subsequently approved by the County and the California Department of Fish and Game. The pond construction element of the Plan was initially completed in April 2005. Vandalism of the ponds, including the removal of gravel from the bottom and cutting of the liner was discovered in October 2005 and was subsequently repaired in November.

Construction of Rainpools

Exhibit 2 illustrates the manufactured seasonal pond locations on the Commerce Center project site. These locations were selected based on the availability of open space, topography and the proximity of naturally occurring resources suitable to support western spadefoot toads. Additionally, this restoration and enhancement plan has been tied in to the Hasley Creek Restoration plan, in as much as the restorative planting for both projects will be incorporated together. The selected locations were approved by CDFG and the County. The pools were not placed in the path of any direct drainage as such placement would result in too much water entering the pools and/or damage to the pools by

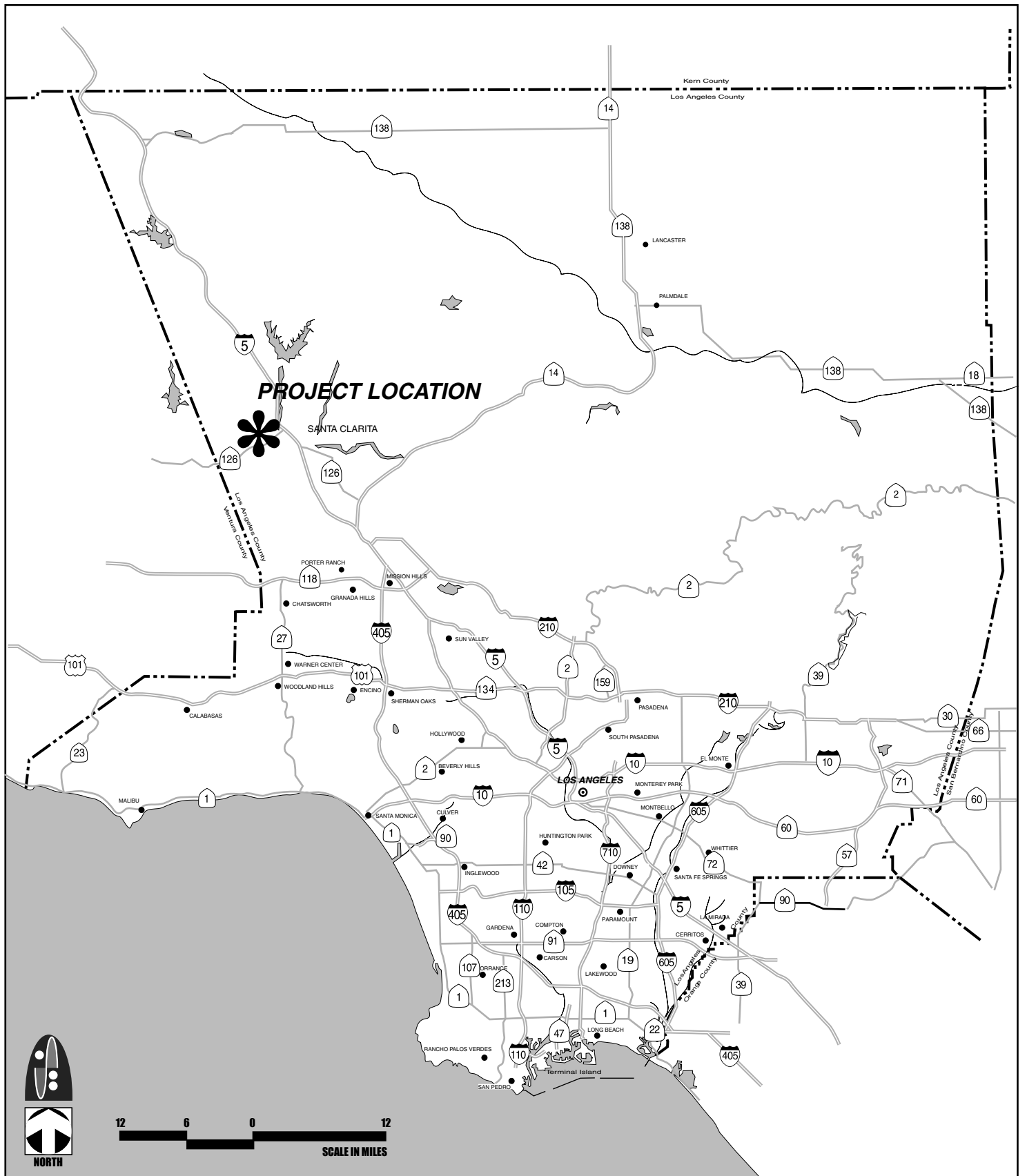
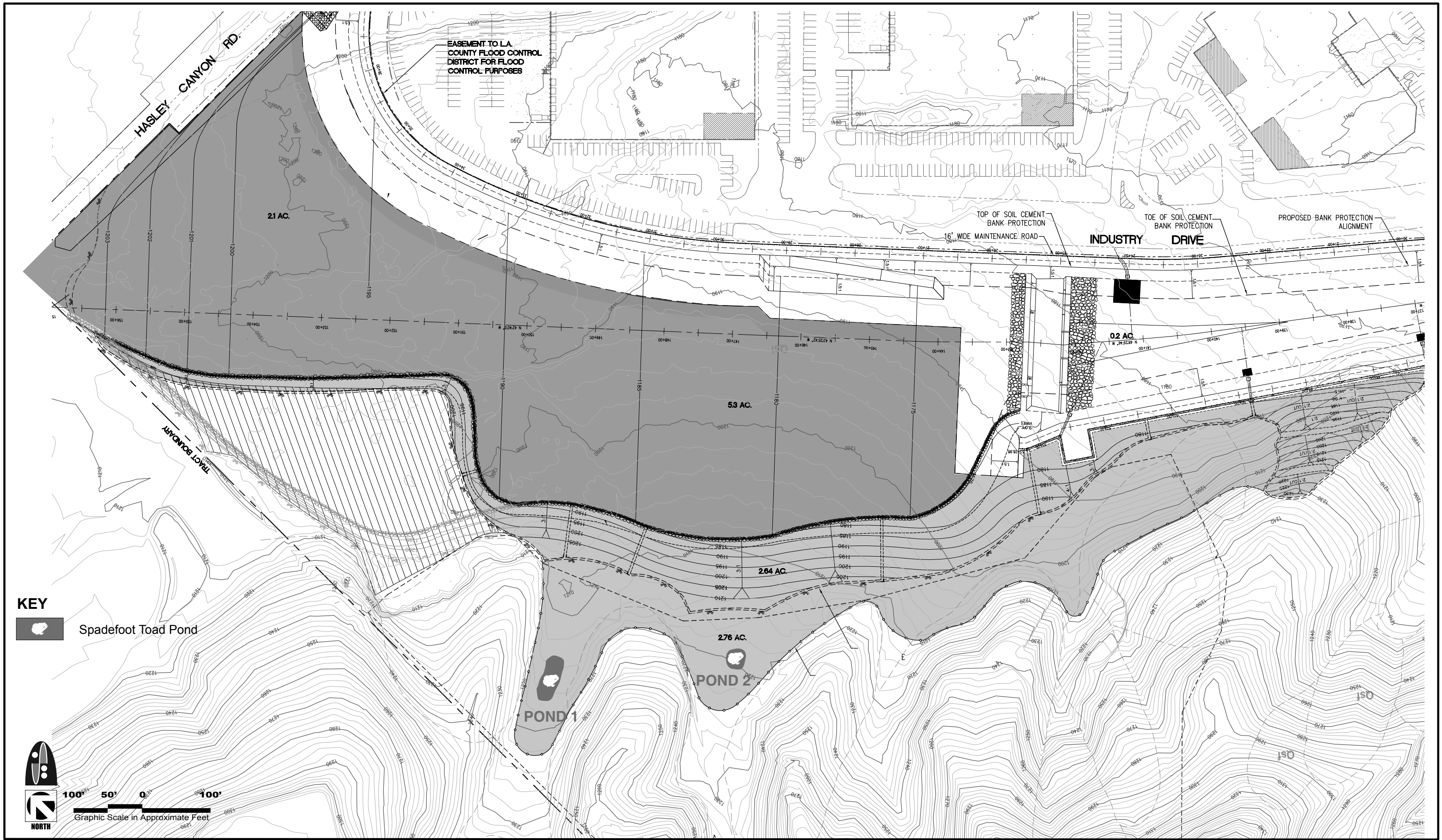


exhibit 1
REGIONAL LOCATION



SOURCE: Base Topography, PACE Pacific Advanced Civil Engineering, Inc., March 2004.

flowing water. Prior to construction of the pools, an approximately 100-foot radius was scraped clear of all vegetation around each site. Non-native vegetation cut was removed from the site and native scrub removed was mulched and stored on site for future use.

Pool 1 is approximately 60 feet by 30 feet with a small drainage overflow extending to the north, toward Hasley Creek. Pool 2 is approximately 35 feet in diameter. Both pools are designed to be approximately 3 feet in depth, gradually and evenly sloping upward and outward from the center to the outer limits of the pool banks. The smaller Pool 2 was designed with slightly steeper banks at the south end such that some data could be recorded regarding the effectiveness of pool design for future reference. The basic depth and shape of both pools were excavated using a backhoe or similar equipment. Hand tools were utilized to smooth out rough areas and perform final shaping.

Upon completion of excavation, each pool was lined with a 15mil polyester mat that protects the pond liner from puncture. A 45mil Firestone EPDM pond liner was then placed over the polyester mat and extended approximately two feet beyond the limits of the pond banks. The excess material was then buried around the perimeter of the pool.

Upon completion of installation of the pond liner, a one to two inch layer of ¼-inch pea gravel was placed over the entire surface of the liner in an attempt to prevent exposure of the liner to direct sunlight. Larger rock was randomly placed in clusters and individually throughout both pools and around their perimeter to serve as stabilizing points for the pea gravel to prevent it from sloughing down to the bottom. A few scattered twigs were placed within the pools to serve as substrate for oviposition.

Upland Habitat Enhancement

The habitat enhancement plan includes supplemental planting of native vegetation to further enhance the habitat around the constructed pools. Existing vegetation at the time of construction was characterized as a mix of non-native weedy annuals with some native sage scrub species in the outlying areas. To date, the supplemental native plantings have not occurred.

MONITORING RESULTS

In order to ensure success of the habitat enhancement, monitoring of the enhanced habitat areas is to take place for a period of five years. The required monitoring efforts include seasonal surveys for the presence/absence of western spadefoot toads and evaluation of the created habitat and breeding pools to determine if any maintenance is required.

Beginning in early February 2006, Compliance Biology conducted a series of surveys of the pools during and immediately following rain events. In mid-March, approximately five spadefoot toad egg clusters

were observed in Pond 2. The number of clusters suggest that at least two pairs likely bred in the pool.

Subsequent visits in March resulted in the discovery of approximately 100 tadpoles. A follow-up survey in April revealed that several; spadefoot tadpoles were still present, as were numerous western toad (*Bufo boreas*) egg strands and tadpoles. At this latter visit, only one juvenile spadefoot was observed, but there was no indication of anything to suggest that several others did not metamorphose and disperse into surrounding upland habitat.

Two subsequent visits were conducted over the course of the next three months to observe the status of the ponds. As the water in the ponds evaporated, numerous western toad tadpoles and newly metamorphosed young were observed, but there was no further indication of spadefoot presence.

The ultimate goal of the Plan is to provide suitable breeding habitat for western spadefoot toads relocated on the subject project site. The first year monitoring indicates one of ponds was successful as successful breeding of spadefoot occurred. It was apparent that there may have only been two breeding pairs this season, but the ponds are still relatively new since the vandalism repairs and the upland habitat is not yet in place.

In order to increase the potential for further success of the enhancement areas, it is recommended that the proposed upland native vegetation be installed as soon as possible. Not only will this provide increased quantity and quality of required upland habitat, but it may provide some additional protection from predators of spadefoot that may manage to successfully metamorphose to juveniles. Monitoring will continue for the next four years to ensure continued success.

REFERENCES

- CDFG. 2003. Special Animals [species of special concern]. State of California, The Resources Agency, Department of Fish and Game, Natural Heritage Division, Natural Diversity Data Base, January 2003 update.
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September 2007

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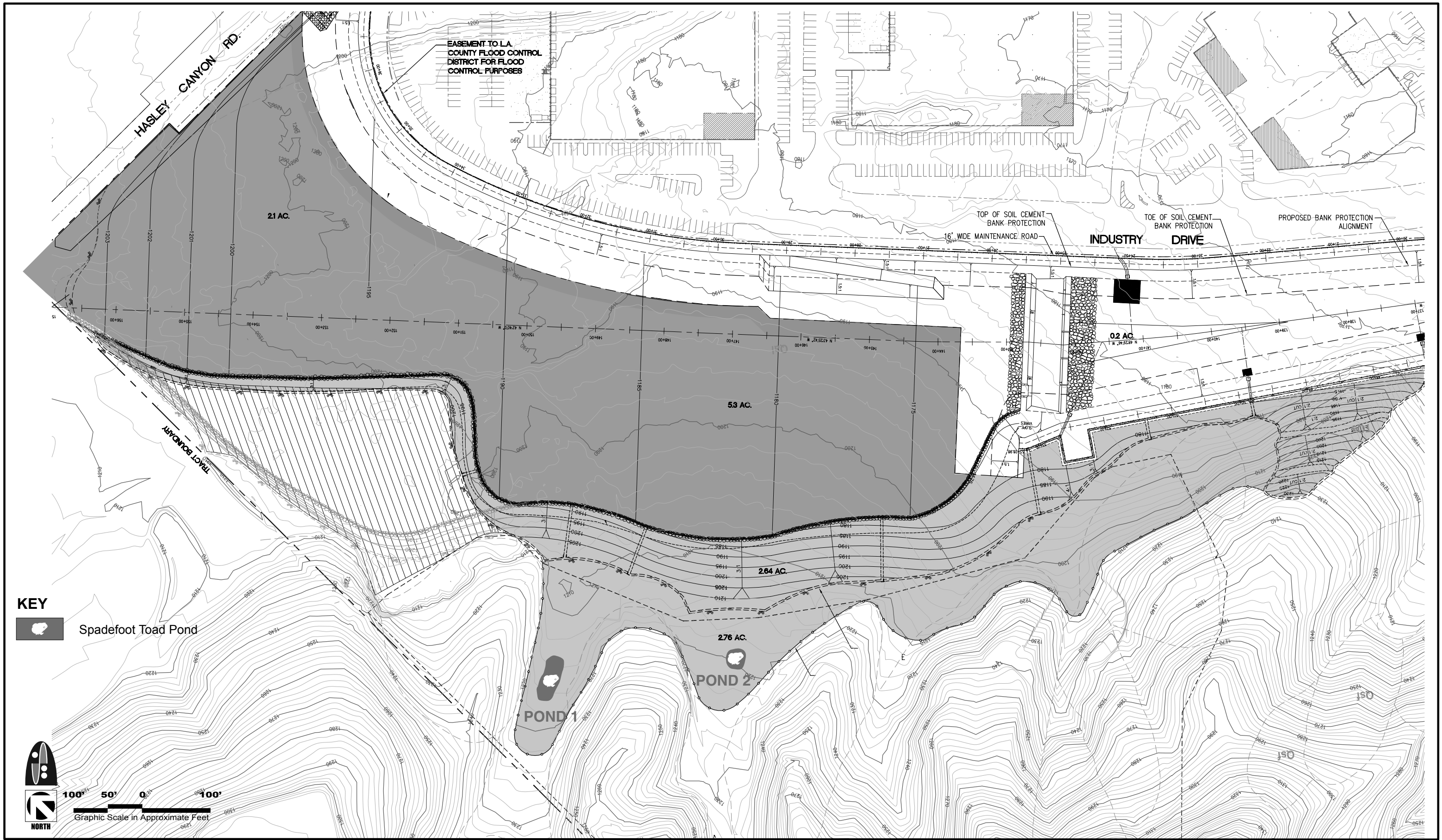
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DISCUSSION

The ultimate goal of the Plan is to provide suitable breeding habitat for western spadefoot toads relocated on the Commerce Center project site. The first year monitoring indicated one of ponds was successful in as much as successful breeding of spadefoot occurred. It was apparent that there were at least two pairs breeding the first season, but the ponds were still relatively new and the upland habitat was not yet in place.

The second year produced a record low level of rainfall, thus significantly affecting the reproduction of any spadefoot potentially present in the area.

In order to increase the potential for the overall long-term success of the enhancement areas, it is recommended that the proposed upland native vegetation be installed as soon as possible. Not only will this provide increased quantity and quality of required upland habitat, but it may provide some additional protection from predators for spadefoot that may manage to successfully metamorphose to juveniles. It is our understanding that the required vegetation has been ordered and will be planted this year prior to the next breeding season. Monitoring will continue for the next three years to ensure continued success.

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