



# **APPENDIX M**

## **Water Quality Technical Report**

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# **Mancara Residential Project**

## **Water Quality Assessment**

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## Executive Summary

The Mancara Residential Project (project) is a residential development of 99 single-family lots on 172 acres of land in a gated equestrian community, a city park, equestrian trails, and open space. The *City of Santa Clarita General Plan* has designated the site for Residential Low (RL) and Residential Very Low (RVL) land uses, and the proposed project is consistent with this designation. Existing land use surrounding the project includes rural residential and equestrian-related uses, the Angeles National Forest, the Santa Clara River, the Antelope Valley Freeway (State Route 14), and the Robinson Ranch Golf Club. The planned location of this project drains to the Santa Clara River, which is impaired according to the Los Angeles Regional Water Quality Control Board's 2008 303(d) list of water body impairments for Ammonia, Benthic-Macroinvertebrate Bioassessments, ChemA, Chloride, Chlorpyrifos, Coliform Bacteria, Copper, Diazinon, Iron, Nitrogen, Nitrate, Total Dissolved Solids, Toxaphene, and Toxicity. Total Maximum Daily Loads (TMDLs), or limits on the amounts of pollutants that can be discharged to the Santa Clara River, have been established for Ammonia and Chloride. During the construction phase of the project, temporary erosion control measures will be implemented to retain soil and sediment.

This report assesses the potential impacts that the project may have on the water quality of nearby receiving water bodies. It evaluates the development of the project and how it addresses water quality standards, how it complies with National Pollutant Discharge Elimination System (NPDES) permit compliance for new development in Los Angeles County, and how it complies with the Construction General Permit. The project area, as compared to the watershed size, is relatively insignificant. However, based on the data available, it cannot be determined whether or not the project will cause a hydromodification to downstream channels. It is recommended that additional studies and analysis are conducted to identify options to mitigate for the increase in flow.

# **1 Introduction**

This report evaluates the potential impacts of the Mancara at Robinson Ranch Residential Project (project) on adjacent water resources and their beneficial uses. It will examine the existing surface and ground water resources, assess the potential effects the project may have on them, and support the project's Environmental Impact Report. This technical report describes the detailed analysis to evaluate all physical and regulatory aspects of the project, including:

- Environmental setting;
- Regulatory setting; and
- Water quality assessment.

## **1.1 Project Description**

The Mancara at Robinson Ranch project site is located in the City of Santa Clarita in the County of Los Angeles, California. It is located at the southeast corner of the intersection of Oak Spring Canyon Road and Lost Canyon Road, and is roughly bounded by the Santa Clara River to the north, Oak Spring Canyon Road to the west, the Robinson Ranch Golf Club to the south, and the Angeles National Forest to the east. The project will include developing 99 single-family lots on 172 acres of land in a gated equestrian community, a City park, equestrian trails, and open space. On-site existing land use of the project site is currently vacant, has limited vegetation and relatively flat topography. The *City of Santa Clarita General Plan* has designated the site for Residential Low (RL) and Residential Very Low (RVL) land uses, and the proposed project is consistent with this designation. Existing land use surrounding the project includes rural residential and equestrian-related uses, the Angeles National Forest, the Santa Clara River, the Antelope Valley Freeway (State Route 14), and the Robinson Ranch Golf Club.

## **2 Environmental Setting**

Located in the City of Santa Clarita, the project is in a valley surrounded by the San Gabriel Mountains and the Santa Susana Mountains. Surface water from the area generally flows northwest toward the Santa Clara River and west toward the Oak Spring Canyon Wash. Typical climate for the area is characterized by long, dry summers, and brief, rainy winters. The seasonal normal for the County of Los Angeles is 15.65 inches, 7.83 inches in the desert regions and 27.50 inches in the San Gabriel Mountains. In the Santa Clara Watershed, the seasonal normal is 16.64 inches<sup>1</sup>.

### **2.1 Watershed**

The project will either drain to Reach 7 of the Santa Clara River, or the Oak Springs Canyon Wash, which confluences with the Santa Clara River just downstream of the project. Both water bodies are located within the Santa Clara River Watershed, which is the largest river system in southern California that remains in a relatively natural state. The northern slopes of the San Gabriel Mountains in Los Angeles County are the Santa Clara River's headwaters; it traverses through Ventura County, and then flows into the Pacific Ocean between the cities of San Buenaventura and Oxnard. The watershed drains an area of approximately 1,600 square miles. Portions of the Santa Clara River are listed on the Los Angeles Regional Water Quality Control Board's (Los Angeles RWQCB) 2008 303(d) impaired water body priority list of pollutants being addressed by a Total Maximum Daily Load, and are discussed in Section 4.2. Figure 2-1 shows the project and its location in the watershed.

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<sup>1</sup> County of Los Angeles, Department of Public Works, Water Resources Division, 2006-2007 *Hydrologic Report*, posted at <http://ladpw.org/wrd/report/0607/> in November 2010.



## **2.2 Surrounding Land Uses**

The land surrounding the project discharges to the Santa Clara River and includes four types of land uses:

- Open Space – vacant land that does not contain man-made impervious surfaces;
- Residential Land – occupied land that includes, but is not limited to, single-family homes, condominiums, town homes, apartment complexes, and duplexes;
- Vacant Land – unoccupied land that may contain structures or other man-made impervious surfaces; and
- Commercial/Industrial Land – occupied land that includes, but is not limited to, business buildings, shopping centers and roads.



### 3 Regulatory Setting

The Environmental Protection Agency (EPA) and the State Water Resources Control Board (SWRCB), in accordance with the Clean Water Act (CWA) and its amendments, sets regional water quality standards. The Los Angeles RWQCB administers the regional and local implementation of the National Pollutant Discharge Elimination System (NPDES) program, which regulates the discharge of contaminants into waterways. The NPDES Phase I permit issued to the Los Angeles County Flood Control District, County of Los Angeles and 84 incorporated cities, extends permitting for point- and non-point source discharges to the City of Santa Clarita, where this project is located. Regarding stormwater runoff, the permit requires that new development projects implement specific pollutant control measures. In addition, the State's General Construction permit requires measures to protect water quality during construction activities for construction sites of an acre or more. Finally, the *Water Quality Control Plan, Los Angeles Region, Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties* (Basin Plan) includes water quality standards to protect beneficial uses including maintaining aquatic ecosystems and the resources those systems provide to society. The Basin Plan also requires projects that drain to the watershed address the requirements of Total Maximum Daily Load (TMDL) standards. The Santa Clara River Watershed currently has TMDLs developed for Ammonia and Chloride. It should be noted that the U.S. Army Corps of Engineers (USACE) also has specific regulatory responsibilities associated with water quality, under the Clean Water Act.

#### 3.1 Clean Water Act

The CWA, as amended by the Water Quality Act of 1987, is the federal legislation governing water quality, which was enacted "to restore and maintain the chemical, physical, and biological integrity of the nation's waters." Important sections of the CWA include:

- Sections 303 and 304 – provide for water quality standards, criteria, and guidelines;
- Section 401 – requires an applicant for any project that proposes an activity that may result in a discharge to waters of the United States to obtain certification from the state that the discharge will comply with other provisions of the act;
- Section 402 – establishes the NPDES system, a permitting system for the discharge of any pollutant (except for dredge or fill material) into waters of the United States. This permitting program is administered by the California State Water Resources Control Board and its Regional Boards; and
- Section 404 – establishes a permit program for the discharge of dredge or fill material into waters of the United States. This permit program is administered by the USCOE.

Coordination with the respective agencies is ongoing to obtain the necessary permits for the project. The project will be required to comply with permit conditions during all phases of the project.

#### 3.2 Porter-Cologne Water Quality Act

California's Porter-Cologne Water Quality Act is the basis for water quality regulation within the state. The act requires a "Report of Waste Discharge" for any discharge of waste (liquid, solid, or otherwise) to land or surface waters that may impair a beneficial use of the water body. The project does not require a waste discharge permit, because any potential construction waste

discharge that may impair a beneficial use of surface water will not be discharged to any land or surface waters. Stormwater discharges are expected to comply with and be regulated by the Los Angeles County Municipal Stormwater permit.

### **3.3 State Water Resources Control Board and Regional Water Quality Control Board**

The SWRCB administers water rights, water pollution control, and water quality functions throughout the state, while the RWQCBs conduct planning, permitting, and enforcement activities. The project area lies within the jurisdiction of the Los Angeles RWQCB (Region 4).

#### **3.3.1 Beneficial Uses and Water Quality Objectives**

The Los Angeles RWQCB is responsible for the protection of beneficial uses of water resources within its jurisdiction and uses planning, permitting, and enforcement authorities to meet this responsibility. Every water body within the jurisdiction of the Los Angeles RWQCB is designated a set of beneficial uses that are protected by appropriate water quality objectives. The Basin Plan identifies the inland surface water beneficial uses for the Santa Clara River as the following:

- **Municipal and Domestic Supply (MUN)** – Uses of water for community, military, or individual water supply systems including, but not limited to, drinking water supply.
- **Industrial Service Supply (IND)** – Uses of water for industrial activities that do not depend primarily on water quality, including, but not limited to, mining, cooling water supply, hydraulic conveyance, gravel washing, fire protection, or oil well re-pressurization.
- **Industrial Process Supply (PROC)** – Uses of water for industrial activities that depend primarily on water quality.
- **Agricultural Supply (AGR)** – Uses of water for farming, horticulture, or ranching, including, but not limited to, irrigation, stock watering, or support of vegetation for range grazing.
- **Groundwater Recharge (GWR)** – Uses of water for natural or artificial recharge of groundwater for purposes of future extraction, maintenance of water quality, or halting of saltwater intrusion into freshwater aquifers.
- **Freshwater Replenishment (FRSH)** – Uses of water for natural or artificial maintenance of surface water quantity or quality (e.g., salinity).
- **Water Contact Recreation (REC-1)** – Uses of water for recreational activities involving body contact with water where ingestion of water is reasonably possible. These uses may include, but are not limited to, swimming, wading, water-skiing, skin and scuba diving, surfing, whitewater activities, fishing, or use of natural hot springs.
- **Non-Contact Water Recreation (REC 2)** – Uses of water for recreational activities involving proximity to water, but not normally involving body contact with water where ingestion of water is reasonably possible. These uses may include, but are not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating, tide pool and marine life study, hunting, sightseeing, and aesthetic enjoyment in conjunction with the above activities.
- **Warm Freshwater Habitat (WARM)** – Uses of water that support warm water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.

- **Wildlife Habitat (WILD)** – Uses of water that support terrestrial ecosystems including, but not limited to, preservation and enhancement of terrestrial habitats, vegetation, wildlife (e.g., mammals, birds, reptiles, amphibians, invertebrates), or wildlife water and food sources.
- **Rare, Threatened, or Endangered Species (RARE)** – Uses of water that support habitats necessary, at least in part, for the survival and successful maintenance of plant or animal species established under state or federal law as rare, threatened, or endangered.
- **Wetland Habitat (WET)** – Uses of water that support wetland ecosystems, including, but not limited to, preservation or enhancement of wetland habitats, vegetation, fish, shellfish, or wildlife, and other unique wetland functions which enhance water quality, such as providing flood and erosion control, stream bank stabilization, and filtration and purification of naturally occurring contaminants.

### 3.3.2 NPDES Program

The project area is in the incorporated area of the City of Santa Clarita, and within an urban Municipal Separate Storm Sewer System (MS4) NPDES permitted area (NPDES Order 01-182). The City of Santa Clarita is a copermitee under NPDES Order 01-182, developed a Storm Water Quality Management Program (SQMP) that describes responsibilities, procedures, financial responsibilities, and practices the permittees use to protect water quality by reducing or eliminating pollutants discharged from storm drainage systems they own or operate, including the selection and implementation of Best Management Practices (BMPs). All guidelines and procedures outlined in the SQMP, including the post-development Standard Urban Stormwater Mitigation Plan (SUSMP) requirements, will be adhered to during all phases of the project. All parties working on the project, or in the project area, will be required to implement pollution prevention, treatment controls, and construction BMPs consistent with the requirements outlined in the SQMP.

### 3.3.3 Los Angeles County Standard Urban Storm Water Mitigation Plan

Los Angeles County has a Standard Urban Storm Water Mitigation Plan (SUSMP) that identifies BMP design guidelines and criteria. The SUSMP outlines recommended Best Management Practices (BMPs) which must be incorporated into design plans for a hillside-located single-family dwelling or ten or more unit home development. If a single-family development includes one acre or more of surface area, it is subject to the SUSMP numerical design criteria requirement. A ten or more unit home development includes single family homes, multifamily homes condominiums, and apartments. Specific BMPs for the project are listed in Section 5 of this report.

### 3.3.4 Construction Activity Permitting

The project will result in a disturbance of soil (approximately 200 acres) that will require compliance with the NPDES General Permit, *Waste Discharge Requirements for Discharges of Stormwater Runoff Associated with Construction Activities* (Order Number 2009-0009-DWQ, NPDES Number CAS000002). This Statewide Construction General Permit regulates discharges from construction sites that disturb one or more acres of soil. By law, all stormwater discharges associated with construction activity where clearing, grading, and excavation results in a soil disturbance of at least one acre of total land area must comply with the provisions of this NPDES

Permit, and develop and implement an effective Stormwater Pollution Prevention Plan (SWPPP). The permit requires:

- Electronic submittal of the Permit Registration Documents (PRD) to the SWRCB at least 30 days before the start of construction, which includes submittal of a Notice of Intent (NOI), risk assessment, site map, Stormwater Pollution Prevention Plan (SWPPP), annual fee, and a signed certification statement;
- Preparation and implementation of a SWPPP; and,
- Electronic submittal of a Notice of Termination (NOT) to the SWRCB upon completion of construction and stabilization of the site.

Based on the project's location and what water body it drains to, a risk level will be assigned to the project and indicate what level of monitoring will be required. Per the information available, this project will be a risk level 1 project, which is the lowest level and will require that minimum BMPs are installed and visual monitoring is conducted.

## 4 Water Quality Assessment

Part of the environmental review for the project is to assess the affect of the project on water quality. This section reports the findings of this review and identifies the beneficial uses and applicable water quality standards of the surface receiving water. It also compares these water quality standards to typical runoff from a residential development and identifies the pollutants of concern that might exceed the applicable water quality standards.

### 4.1 Receiving Surface Water Bodies

As previously mentioned, the project will directly drain into the Santa Clara River, a natural channel and one of the largest natural watersheds in southern California. Table 4-1 compares the size of the project to that of the watershed area.

Table 4-1: Project Area Comparison to Watershed Area

Estimated Existing Conditions Impervious Area	Estimated Project Conditions Impervious Area (Percentage of Total Project)	Total Project Area (Percentage of Total Watershed)	Estimated Total Watershed Area
0 acres	127 acres (75%)	170 acres (0.0002%)	1,037,000 acres

As summarized in Table 4-1, although the project will increase the impervious area by approximately 127 acres, the overall impact this represents to the Santa Clara River Watershed (approximately 1,037,174 acres) is insignificant.

### 4.2 Water Quality Objectives

The Porter-Cologne Water Quality Control Act defines water quality objectives as "...the limits or levels of water quality constituents or characteristics which are established for reasonable protection of beneficial uses of water or the prevention of nuisance within a specific area."

There are two forms of water quality objectives:

- **Narrative** objectives present a general description of water quality that must be attained through pollutant control measures and watershed management. They also serve as the basis for the development of detailed numerical objectives. Narrative objectives apply to all water bodies and they are listed in Appendix A.
- **Numerical** objectives typically describe pollutant concentrations, physical and chemical conditions of the water, and toxicity of the water to aquatic organisms. Places where numerical limits are specified represent the maximum levels that will allow the beneficial use to continue unimpaired. In other cases, an objective may prohibit the discharge of specific substances, tolerate natural or "background" levels of certain substances or

characteristics (but not increases over those values), or may express a limit, in terms of not impacting other beneficial uses. An adverse effect or impact on a beneficial use occurs where there is an actual or threatened loss or impairment of that beneficial use. No numerical objectives have been established for Oak Spring Canyon Wash.

Section 303(d) of the CWA and EPA water quality planning and management regulations, lists waters that do not meet, or are not expected to meet, water quality standards, even after technology-based or other required controls are in place. These water bodies are considered water quality-limited and are reported by states in their 303(d) List. The Santa Clara River is 303(d) listed for the pollutants in Table 4-2 and TMDLs have been established for the Santa Clara River reaches identified in Table 4-3.

**Table 4-2: Santa Clara River Impairments**

<b>Pollutant</b>	<b>303(d) Listed Water Body/Reach</b>
Ammonia	Reach 3 (Freeman Diversion to A Street)
Benthic-Macroinvertebrate Bioassessments	Reach 6 (West Pier Highway 99 to Bouquet Canyon Road)
ChemA*	Santa Clara River Estuary
Chloride	Reach 3 (Freeman Diversion to A Street) Reach 5 (Blue Cut Gaging Station to West Pier Highway 99 Bridge) Reach 6 (West Pier Highway 99 to Bouquet Canyon Road)
Chlorpyrifos	Reach 6 (West Pier Highway 99 to Bouquet Canyon Road)
Coliform Bacteria	Santa Clara River Estuary Reach 5 (Blue Cut Gaging Station to West Pier Highway 99 Bridge) Reach 6 (West Pier Hwy 99 to Bouquet Canyon Road) Reach 7 (Bouquet Canyon Road to above Lang Gaging Station)
Copper	Reach 6 (West Pier Highway 99 to Bouquet Canyon Road)
Diazinon	Reach 6 (West Pier Highway 99 to Bouquet Canyon Road)
Iron	Reach 5 (Blue Cut Gaging Station to West Pier Highway 99 Bridge)
Nitrogen, Nitrate	Santa Clara River Estuary
Total Dissolved Solids	Reach 3 (Freeman Diversion to A Street)
Toxaphene	Santa Clara River Estuary
Toxicity	Santa Clara River Estuary Reach 1 (Estuary to Highway 101 Bridge) Reach 3 (Freeman Diversion to A Street) Reach 6 (West Pier Highway 99 to Bouquet Canyon Road)

\*Note: ChemA refers to the sum of the pesticides aldrin, dieldrin, chlordane, endrin, heptachlor, heptachlor epoxide, hexachlorocyclohexane (including lindane), endosulfan, and toxaphene.

**Table 4-3: TMDLs Established for Santa Clara River Impairments**

Pollutant	303(d) Listed Water Body/Reach
Ammonia	Reach 3 (Freeman Diversion to A Street)
Chloride	Reach 3 (Freeman Diversion to A Street) Reach 5 (Blue Cut Gaging Station to West Pier Highway 99 Bridge) Reach 6 (West Pier Highway 99 to Bouquet Canyon Road)

### 4.3 Hydromodification

The project drains to the Santa Clara River, and to one of its tributaries, the Oak Spring Canyon Wash. Currently the project area is pervious, and after the project is built, the impervious area will be approximately 127 acres. It encompasses an area that is 0.0002 percent of the Santa Clara River watershed. Peak discharge from this site is not anticipated to create a major change in the Santa Clara River peak discharge due to the hydrologic timing of the peak discharge from the tributary occurring much earlier than the timing of the peak discharge from the larger Santa Clara River watershed. The Santa Clara River and the Oak Spring Canyon Wash are soft bottom stream beds. Table 4-4 identifies the percent change in flow from the existing condition to the proposed project condition within the project site.

**Table 4-4: Flow Rate Comparison**

Drainage System (Storm Intensity)	Flow Rate in Existing Condition (cubic feet per second)	Flow Rate in Proposed Condition (cubic feet per second)	Percent Change
Line A (2 year storm)	90	102	+13%
Line B (2 year storm)	5	6	+20%
Line C (2 year storm)	7	5	-29%
Line A (50 year storm)	450	470	+4%

The project's hydromodification conditions were assessed based on the requirements of the Los Angeles County MS4 permit. Consistent with Los Angeles County's requirements, the project's analysis was evaluated for its potential to cause erosion to a downstream channel as a result of a hydrologic change that could impact the downstream Santa Clara River. Based on limited available information at the time of this report's release, the hydrologic analysis indicates that the project will result in a slight increase in peak runoff as a result of the increase in impervious area proposed within the project site. Although the project area is a small percentage of the Santa Clara River watershed (0.0002 percent) and is unlikely to have a regional hydromodification effect, additional studies, such as the local effects of hydromodification, and analysis of the project's design are necessary to ensure that the project will not cause erosion downstream of the project. Based on the data available, it cannot be determined whether or not the project will cause a hydromodification to downstream channels.

#### **4.4 Expected Pollutants**

When the project is ultimately developed, the residential and open space development will replace the existing vacant land and open space. Typical pollutants that are generated by project category are summarized in Table 4-5. This project is anticipated to generate the following pollutants:

- Bacteria
- Nutrients
- Pesticides
- Sediments
- Trash and Debris
- Oxygen Demanding Substances
- Oil and Grease



**Table 4-5: Anticipated and Potential Pollutants Generated by Land Use Type<sup>2</sup>**

Priority Project Categories	General Pollutant Categories								
	Pathogens	Heavy Metals	Nutrients	Pesticides	Organic Compounds	Sediments	Trash and Debris	Oxygen Demanding Substances	Oil & Grease
Detached Residential Development	X		X	X		X	X	X	X
Attached Residential Development	P		X	X		X	X	P <sup>(1)</sup>	P <sup>(2)</sup>
Commercial/Industrial Development >100,000 ft <sup>2</sup>	P <sup>(3)</sup>		P <sup>(1)</sup>	P <sup>(5)</sup>	P <sup>(2)</sup>	P <sup>(1)</sup>	X	P <sup>(5)</sup>	X
Automotive Repair Shops		X			X <sup>(4,5)</sup>		X		X
Restaurants	X						X	X	X
Hillside Development > 5,000 ft <sup>2</sup>			X	X		X	X	X	X
Parking Lots		X	P <sup>(1)</sup>	P <sup>(2)</sup>		P <sup>(1)</sup>	X	P <sup>(5)</sup>	X
Streets, Highways, and Freeways		X	P <sup>(1)</sup>		X <sup>(4)</sup>	X	X	P <sup>(5)</sup>	X

X = anticipated

P = potential

(1) A potential pollutant if landscaping or open area exist on-site.

(2) A potential pollutant if the project includes uncovered parking areas.

(3) A potential pollutant if land use involves food or animal waste products.

(4) Including petroleum hydrocarbons.

(5) Including solvents.

<sup>2</sup> California Stormwater Quality Association, California Stormwater BMP Handbook, New Development and Redevelopment, Table 2-1, Anticipated and Potential Pollutants Generated by Land Use Type, September 2004.

## **5 Best Management Practices**

The City of Santa Clarita requires that development projects incorporate Best Management Practices (BMPs) into their design to address anticipated pollutants. Selection, design, and implementation of BMPs will be based on the California Stormwater Quality Association (CASQA) statewide BMP handbook guidance. BMPs may be either procedures, such as Source Control BMPs, or devices, such as Structural BMPs, that prevent pollution. For this project, the following BMPs will be considered for implementation during the design phase of the project:

### Source Control BMPs

- Site Design and Landscape Planning
- Roof Runoff Controls
- Efficient Irrigation
- Storm Drain Signage
- Pervious Pavements
- Alternative Building Materials
- Fueling Areas
- Maintenance Bays and Docks
- Trash Storage Areas
- Vehicle Washing Areas
- Outdoor Material Storage Areas
- Outdoor Work Areas
- Outdoor Processing Areas

### Structural BMPs

- Infiltration Trench
- Infiltration Basin
- Retention/Irrigation
- Wet Ponds
- Constructed Wetlands
- Extended Detention Basin
- Vegetated Swale
- Vegetated Buffer Strip
- Bioretention
- Media Filter
- Water Quality Inlet
- Multiple System Fact Sheet
- Wetland
- Media Filter
- Wet Vault
- Vortex Separator
- Drain Inlet

To determine what BMPs to select, the project type, the anticipated project activities, and the anticipated pollutants are considered. In addition, the pollutants that a water body is listed for on the Los Angeles RWQCB's 303(d) priority list, or if a Total Maximum Daily Load plan is developed, are also considered. A single family residential project is anticipated to generate pollutants such as:

- Trash and debris;
- Nutrients;
- Pesticides;
- Oil and grease;
- Sediment; and
- Oxygen demanding substances.

The structural BMPs being considered for this project are the following:

- Infiltration Basin;
- Wet Pond;
- Media Filter;
- Bioretention Device;
- Vegetated Swale; and
- Hydrodynamic Separator.

The BMP type, location, and sizing will be determined during the design phase of the project.

## 6 References

California Stormwater Quality Association, California Stormwater BMP Handbook, New Development and Redevelopment, *Table 2-1, Anticipated and Potential Pollutants Generated by Land Use Type*, September 2004.

California Regional Water Quality Control Board, Los Angeles Region, *2008 CWA Section 303(d) List of Water Quality Limited Sections*, approved July 16, 2009.

California Regional Water Quality Control Board, Los Angeles Region, National Pollutant Discharge Elimination System (NPDES) Order No. 01-182, Permit No. CAS004001, *Waste Discharge Requirements for Municipal Storm Water and Urban Runoff Discharges within the County of Los Angeles, and the Incorporated Cities Therein, Except the City of Long Beach*, December 13, 2001.

California Regional Water Quality Control Board, Los Angeles Region, *Water Quality Control Plan for the Los Angeles Region, Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties*, adopted June 13, 1994.

City of Santa Clarita, City of Santa Clarita General Plan, Adopted June 26, 1991, accessed at <http://www.santa-clarita.com/Index.aspx?page=695> on November 5, 2010.

County of Los Angeles, Department of Public Works, Water Resources Division, *2006-2007 Hydrologic Report*, posted at <http://ladpw.org/wrd/report/0607/> in November 2010.

State Water Resources Control Board, National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order Number 2009-0009-DWQ, NPDES Number CAS0000002), September 5, 2009.

## **Appendix A: Water Quality Objectives for Inland Surface Waters<sup>3</sup>**

### **Ammonia**

In order to protect aquatic life, ammonia concentrations in receiving waters shall not exceed the values listed for the corresponding instream conditions in Tables 3-1 to 3-4 [in the Basin Plan]. Timing of compliance with this objective will be determined on a case-by-case basis. Discharges will have up to 8 years following the adoption of this plan by the Regional Board to (i) make the necessary adjustments/improvements to meet these objectives or (ii) to conduct studies leading to an approved site-specific objective for ammonia. If it is determined that there is an immediate threat or impairment of beneficial uses due to ammonia, the objectives in Tables 3-1 to 3-4 [in the Basin Plan] shall apply. In order to protect underlying groundwater basins, ammonia shall not be present at levels that when oxidized to nitrate, pose a threat to groundwater.

### **Bacteria, Coliform**

In waters designated for water contact recreation (REC-1), the fecal coliform concentration shall not exceed a log mean of 200/100 mL (based on a minimum of not less than four samples for any 30-day period), nor shall more than 10 percent of total samples taken during any 30-day period exceed 400/100 mL.

In waters designated for non-water contact recreation (REC-2) and not designated for water contact recreation (REC-1), the fecal coliform concentration shall not exceed a log mean of 2000/100 mL (based on a minimum of not less than four samples for any 30-day period), nor shall more than 10 percent of samples collected during any 30-day period exceed 4000/100 mL.

### **Bioaccumulation**

Toxic pollutants shall not be present at levels that will bioaccumulate in aquatic life to levels which are harmful to aquatic life or human health.

### **Biochemical Oxygen Demand (BOD)**

Waters shall be free of substances that result in increases in the BOD which adversely affect beneficial uses.

### **Biostimulatory Substances**

Waters shall not contain biostimulatory substances in concentrations that promote aquatic growth to the extent that such growth causes nuisance or adversely affects beneficial uses.

### **Chemical Constituents**

Surface waters shall not contain concentrations of chemical constituents in amounts that adversely affect any designated beneficial use.

Water designated for use as Domestic or Municipal Supply (MUN) shall not contain concentrations of chemical constituents in excess of the limits specified in the following provisions of Title 22 of the California Code of Regulations which are incorporated by reference

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<sup>3</sup> *Water Quality Control Plan, Los Angeles Region, Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties*, California Regional Water Quality Control Board Los Angeles Region, June 13, 1994.

into this plan: Table 64431-A of Section 64431 (Inorganic Chemicals), Table 64431-6 of Section 64431 (Fluoride), and Table 64444-A of Section 64444 (Organic Chemicals). This incorporation by reference is prospective including future changes to the incorporated provisions as the changes take effect. (See Tables 3-5, 3-6, and 3-7 [in the Basin Plan].)

### **Chlorine, Total Residual**

Chlorine residual shall not be present in surface water discharges at concentrations that exceed 0.1 mg/L and shall not persist in receiving waters at any concentration that causes impairment of beneficial uses.

### **Color**

Waters shall be free of coloration that causes nuisance or adversely affects beneficial uses.

### **Exotic Vegetation**

Exotic vegetation shall not be introduced around stream courses to the extent that such growth causes nuisance or adversely affects beneficial uses.

### **Floating Material**

Waters shall not contain floating materials, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses.

### **Methylene Blue Activated Substances (MBAS)**

Waters shall not have MBAS concentrations greater than 0.5 mg/L in waters designated MUN.

### **Mineral Quality**

Numerical mineral quality objectives for individual inland surface waters are contained in Table 3-8 [in the Basin Plan].

### **Nitrogen (Nitrate, Nitrite)**

Waters shall not exceed 10 mg/L nitrogen as nitrate-nitrogen plus nitrite-nitrogen ( $\text{NO}_3\text{-N} + \text{NO}_2\text{-N}$ ), 45 mg/L as nitrate ( $\text{NO}_3$ ), 10 mg/L as nitrate-nitrogen ( $\text{NO}_3\text{-N}$ ), or 1 mg/L as nitrite-nitrogen ( $\text{NO}_2\text{-N}$ ) or as otherwise designated in Table 3-8 [in the Basin Plan].

### **Oil and Grease**

Waters shall not contain oils, greases, waxes or other materials in concentrations that result in a visible film or coating on the surface of the wafer or on objects in the water, that cause nuisance, or that otherwise adversely affect beneficial uses.

### **Oxygen, Dissolved (DO)**

At a minimum (see specifics below), the mean annual dissolved oxygen concentration of all waters shall be greater than 7 mg/L, and no single determination shall be less than 5.0 mg/L, except when natural conditions cause lesser concentrations.

The dissolved oxygen content of all surface waters designated as WARM shall not be depressed below 5 mg/L as a result of waste discharges.

The dissolved oxygen content of all surface waters designated as COLD shall not be depressed below 6 mg/L as a result of waste discharges.

The dissolved oxygen content of all surface waters designated as both COLD and SPWN shall not be depressed below 7 mg/L as a result of waste discharges.

For that area known as the Outer Harbor area of Los Angeles-Long Beach Harbors, the mean annual dissolved oxygen concentrations shall be 6.0 mg/L or greater, provided that no single determination shall be less than 5.0 mg/L.

### **Pesticides**

Waters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of pesticides in excess of the limiting concentrations specified in Table 64444-A of Section 64444 (Organic Chemicals) of Title 22 of the California Code of Regulations which is incorporated by reference into this plan. This incorporation by reference is prospective including future changes to the incorporated provisions as the changes take effect. (See Table 3-7 [in the Basin Plan].)

### **pH**

The pH of inland surface waters shall not be depressed below 6.5 or raised above 8.5 as a result of waste discharges. Ambient pH levels shall not be changed more than 0.5 units from natural conditions as a result of waste discharge.

The pH of bays or estuaries shall not be depressed below 6.5 or raised above 8.5 as a result of waste discharges. Ambient pH levels shall not be changed more than 0.2 units from natural conditions as a result of waste discharge.

### **Polychlorinated Biphenyls (PCBs)**

The purposeful discharge of PCBs (the sum of chlorinated biphenyls whose analytical characteristics resemble those of Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, and Aroclor-1260) to waters of the Region, or at locations where the waste can subsequently reach waters of the Region, is prohibited.

Pass-through or uncontrollable discharges to waters of the Region, or at locations where the waste can subsequently reach water of the Region, are limited to 70 pg/L (30 day average) for protection of human health and 14 ng/L and 30 ng/L (daily average) to protect aquatic life in inland fresh waters and estuarine waters respectively.

### **Radioactive Substances**

Radionuclides shall not be present in concentrations that are deleterious to human, plant, animal, or aquatic life or that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal, or aquatic life.

Waters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of radionuclides in excess of the limits specified in Table 4 of Section 64443

(Radioactivity) of Title 22 of the California Code of Regulations which is incorporated by reference into this plan. This incorporation by reference is prospective including future changes to the incorporated provisions as the changes take effect. (See Table 3-9 [in the Basin Plan].)

### **Solid, Suspended, or Settleable Materials**

Waters shall not contain suspended or settleable material in concentrations that cause nuisance or adversely affect beneficial uses.

### **Taste and Odor**

Waters shall not contain taste or odor-producing substances in concentrations that impart undesirable tastes or odors to fish flesh or other edible aquatic resources, cause nuisance, or adversely affect beneficial uses.

### **Temperature**

The natural receiving water temperature of all regional waters shall not be altered unless it can be demonstrated to the satisfaction of the Regional Board that such alteration in temperature does not adversely affect beneficial uses. Alterations that are allowed must meet the requirements below.

For waters designated WARM, water temperature shall not be altered by more than 5°F above the natural temperature. At no time shall these WARM designated waters be raised above 80°F as a result of waste discharges.

For waters designated COLD, water temperature shall not be altered by more than 5°F above the natural temperature.

Temperature objectives for enclosed bays and estuaries are specified in the "Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays of California" (Thermal Plan), including any revisions thereto. See Chapter 5 [of the Basin Plan] for a description of the Thermal Plan.

### **Toxicity**

All waters shall be maintained free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in, human, plant, animal, or aquatic life. Compliance with this objective will be determined by use of indicator organisms, analyses of species diversity, population density, growth anomalies, bioassays of appropriate duration or other appropriate methods as specified by the State or Regional Board.

The survival of aquatic life in surface waters, subjected to a waste discharge or other controllable water quality factors, shall not be less than that for the same waterbody in areas unaffected by the waste discharge or, when necessary, other control water.

There shall be no acute toxicity in ambient waters, including mixing zones. The acute toxicity objective for discharges dictates that the average survival in undiluted effluent for any three consecutive 96-hour static or continuous flow bioassay tests shall be at least 90%, with no single test having less than 70% survival when using an established USEPA, State Board, or other protocol authorized by the Regional Board.

There shall be no chronic toxicity in ambient waters outside mixing zones. To determine compliance with this objective, critical life stage tests for at least three species with approved



testing protocols shall be used to screen for the most sensitive species. The test species used for screening shall include a vertebrate, an invertebrate, and an aquatic plant. The most sensitive species shall then be used for routine monitoring. Typical endpoints for chronic toxicity tests include hatchability, gross morphological abnormalities, survival, growth, and reproduction.

Effluent limits for specific toxicants can be established by the Regional Board to control toxicity identified under Toxicity Identification Evaluations (TIEs).

### **Turbidity**

Waters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses. Increases in natural turbidity attributable to controllable water quality factors shall not exceed the following limits:

- Where natural turbidity is between 0 and 50 NTU, increases shall not exceed 20%.
- Where natural turbidity is greater than 50 NTU, increases shall not exceed 10%.

Allowable zones of dilution within which higher concentrations may be tolerated may be defined for each discharge in specific Waste Discharge Requirements.