California Regional Water Quality Control Board

Los Angeles Region

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California Department of Fish and Game
Newhall Ranch EIS/EIR Project Comments
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SENT VIA FASCIMILE: 858-467-4203

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COMMENTS ON NEWHALL RANCH RESOURCE MANAGEMENT AND DEVELOPMENT PLAN AND SPINEFLOWER CONSERVATION PLAN DRAFT EIS/EIR (SCH. NO. 2000011025)

Thank you for the opportunity to comment on the Newhall Ranch Resource Management and Development Plan Draft EIS/EIR (DEIS/EIR). The Regional Board appreciates the opportunity to provide input on this comprehensive plan which will be used for development of a new community of residential, mixed-use and non-residential land uses in a portion of the Santa Clara River watershed in Los Angeles County. For the past five years, we have worked with the lead California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA) agencies, the California Department of Fish and Game (CDFG) and the U.S. Army Corps of Engineers (ACOE) as they have developed this document, and we recognize that these agencies have extensively analyzed this project and developed a comprehensive plan. 1

The Regional Board's goal is to protect beneficial uses within the Los Angeles Region consistent with the Federal Clean Water Act (CWA) and the State of California's Porter-Cologne Water Quality Control Act, which require careful consideration of projects which may result in adverse impacts to water quality and beneficial uses of waters of the State including hydrogeomorphic changes. 2

In 2005, the Regional Board approved Resolution No. 2005-002, which outlines goals to address hydromodification of our region's water courses in order to prevent impacts to water quality. Hydromodification is considered the alteration away from a natural state of stream flows or the beds or banks of rivers, streams, or creeks, including ephemeral washes. The resolution sets 3
forth a process to achieve one of the Regional Board's highest priorities, which is to maintain and restore, wherever feasible, the physical and biological integrity of the Region's water courses. Maintaining the natural functions of water courses maximizes opportunities for stormwater conservation and groundwater recharge, which is especially important in the semi-arid Los Angeles region.

In consideration of the Regional Board's objectives, we have the following comments on the DEIS/EIR:

- **Alternatives and Hydromodification**
  The activities identified in the DEIS/EIR with which the Regional Board is most concerned are activities such as drainages converted to storm drains; drainages regraded and/or relocated; and drainages restored. **To minimize the negative effects of such** 4
  activities, the Regional Board recommends that the DEIS/EIR consider components of Alternatives 3, 4, 5 and 6 to be incorporated into the proposed project.

  The proposed project (Alternative 2) consists of 82.9 acres of permanent impact within waters (Santa Clara River and all other tributaries). From Alternative 3 to Alternative 6, there is a range of permanent impacts from 67.7 acres to 58.5 acres, respectively. The Regional Board suggests that by combining components from these separate alternatives, the proposed project would further preserve Potrero Creek, Salt Creek, San Martinez Grande and Chiquito Canyon Creeks. Accordingly, the proposed project should have 5
  acreage impacts within the ranges estimated for Alternatives 3 to 6. The components below have been specifically identified by Regional Board staff in consideration of the types of activities proposed and the value of the riparian habitats as demonstrated by the associated Hybrid Assessment of Riparian Communities (HARC) assessment scores for the major tributaries. The following components listed below are recommended to be included within the proposed project, in order to meet the Board's objectives for improved water quality and avoidance of hydromodification to the maximum extent feasible.

- Potrero Canyon
  - Potrero Canyon is a 3rd order tributary to the Santa Clara River which has
perennial flows during most years and includes a cismontane alkali marsh. The
Regional Board strongly encourages the avoidance of permanent impacts within
Potrero, which is of the highest value in terms of its functionality and HARC
score. The DEIS/EIR should consider including in the proposed project, the
Potrero Canyon component of Alternative 3 and the bridge component of 6
Alternative 4. Alternative 3 largely avoids permanent impacts in Potrero Canyon
and would not generate as much fill of related jurisdictional drainages as
Alternative 2, particularly in Potrero. In addition, in Alternative 3, the cismontane
alkali marsh would be preserved. Within Alternative 4, two bridges across Santa
Clara River would be constructed, and the impacts from a bridge construction on
Potrero Canyon would be avoided.

- San Martinez Grande
  - The DEIS/EIR should consider including in the proposed project, the
components of Alternative 5 for San Martinez Grande and related tributaries. In
this alternative, major tributary drainages would be regraded and realigned, but 7
there would be a smaller loss of waters than in the other alternatives due to the
associated channel widening.

- Chiquito Canyon
  - The DEIS/EIR should consider including, in the proposed project,
Alternatives 3 or 6 for Chiquito Canyon (Alternatives 3 and 6 are identical for
Chiquito Canyon). In these alternatives, major tributary drainages would be 8
regraded and realigned, but there would be a smaller loss of waters than in the
other alternatives due to the associated channel widening especially in the upper
reach of Chiquito Canyon Creek.
  - The DEIS/EIR should consider including, in the proposed project, another
component of Alternative 6, wherein the majority of proposed road crossings
along the channels would be bridges as opposed to culverts. While especially 9
valuable in Chiquito Canyon, this key component of Alternative 6 should be
considered not only for Chiquito Canyon, but other major tributaries as well.

- Salt Creek
  - Salt Creek has been identified as one of the two major tributaries within
the project area which supports perennial flows during most years. The proposed 10
project in the DEIS/EIR avoids all impacts to Salt Creek. The Regional Board
strongly supports the avoidance of all impacts to Salt Creek.

- **Low Impact Development (LID)**
  By means of infiltration, evapotranspiration, and reuse of rainwater, LID techniques manage water and water pollutants at the source and thereby prevent or reduce the impact of development on rivers, streams, lakes, coastal waters, and ground water. The Regional Board will consider the Applicant's implementation of Low Impact Development (LID) 11
  to help protect and restore water quality in the Waste Discharge Requirements (WDR) permitting process. General LID concepts are incorporated throughout the DEIS/EIR within stormwater sections. However, specific ideas for LID implementation have not been sufficiently developed or discussed.

  In addition, the concept of landform grading throughout the phased construction and/or buildout should be thoroughly analyzed. The potential benefits from landform grading 12
  are not sufficiently discussed in the DEIS/EIR.

- **Water Quality**
  Section 4.4.3.1 discusses the impaired waters included on the State's CWA Section 303(d) list and required TMDLs for the Santa Clara River. While the section includes a discussion of all the 303(d) listings for Reach 5 (where the proposed Newhall Ranch development occurs), for a complete description of the water quality issues in the Santa 13
  Clara River, the DEIS/EIR should include a discussion of all the impairments above Reach 5, also, that is, Reaches 6 and 7, since these listings reflect established water quality concerns in the river and may affect water quality in the proposed Newhall Ranch development area.

  Section 4.4.3 discusses the California Toxics Rule (CTR) and the Water Quality Control Plan Los Angeles Region (Basin Plan). In the CTR section (page 4.4-11), the DEIS/EIR states, *"Not all waters receiving flow from the Specific Plan area, such as the tributaries to the Santa Clara River, are specifically designated with human health or aquatic life uses..."* And in the Basin Plan Section (page 4.4-13), the DEIS/EIR states, *"The* 14
  tributaries to the Santa Clara River within the Project are not specifically designated with beneficial uses in the Basin Plan..." However, it is important to note that these waterbodies do have beneficial uses. The Basin Plan includes a provision known as the Tributary Rule. The Basin Plan states, *"Under federal law, all surface waters must have water quality standards designated in the Basin Plan. Most of the inland surface waters in the Region have beneficial uses specifically designated for them. Those waters not*

specifically listed (generally smaller tributaries) are designated with the same beneficial uses as the streams, lakes, or reservoirs to which they are tributary." 14

Under Section 4.4.4.3 Existing Surface Water Quality, the DEIS/EIR should include a map with the water quality stations referred to in the Section. In addition, for surface waters, the Tables 4.4-7,4.4-8 and 4.4-9 should include a column with the relevant water quality standard as the ground water data table does. In addition, the tables should include the number of times water quality standards were exceeded in these datasets. 15

Each discussion of "Long-Term Indirect Impacts to Surface Water Quality" in Section 4.4.6 should include during-development and post-development stormwater monitoring to be conducted by Newhall Land to ensure that the implemented stormwater BMPs are functioning as planned. 16

- **Bacterial Indicators and Pathogens:**

  As shown in Tables 4.4-7 and 4.4-8, the total coliform and fecal coliform levels in the wet weather tributary monitoring are much higher than would be expected from undeveloped areas. The DEIS/EIR should describe probable sources of coliform bacteria. 17

  For both the wet weather data (Tables 4.4-7 and 4.4-8) and the dry weather data (Table 4.4-9), the DEIS/EIR should show the geometric mean for coliform rather than the arithmetic average. The geometric mean is the appropriate statistic for a parameter like bacteria density and is consistent with the expression of the Basin Plan bacterial objectives. 18

  The bacteria standards referenced on pages 4.4-36 and 4.4-38 are incorrect. The bacteria standards were updated in 2001. Table 4.4-11 and Section 4.4.6.2.2. 'RMDP Newhall Ranch WRP Impact Assessment' of the DEIS/EIR have the correct bacterial standards. 19

  Section 4.4.6.2.2 'Indirect Impact to Water Quality' for Alternative 2 discusses *"Pathogens"* beginning on page 4.4-95. This Section includes statements such as *"Although such indicators [bacterial indicators] were considered reliable for sewage samples, indicator organisms are not necessarily reliable indicators of viable pathogenic viruses, bacteria or protozoa in stormwater..." "Paulsen and List... point out that scientific studies show no correlation between fecal coliform densities and gastrointestinal illness in swimmers, therefore, coliform may not indicate a significant potential for causing human illness..." "Thus, there is no explicit documentation of the health effects of stormwater based on epidemiological studies..."* 20

This discussion is inaccurate and inadequate to determine potential effects of the Newhall development on recreational beneficial uses (REC-1 and REC-2) in the Santa Clara River. While there is potential for improved indicators of human health risk due to fecal matter-related pathogens, the established indicators, fecal coliform and *E. coli*, are reliable and meaningful indicators of human health risk. Many national and local epidemiological studies have demonstrated the relationship between these indicators and human health effects and while some studies establishing the relationship were conducted in areas of known sewage inputs, many others were not or were conducted in areas of mixed inputs (Pruss, 1998; Haile et al., 1999). These indicator bacteria continue to be recommended by the USEPA as ambient water quality criteria under CWA Section 304(a) and are the prevailing water quality objectives adopted pursuant to CWA Section 303(c) in the Los Angeles Region (USEPA, 1986). It will be necessary for the DEIS/EIR to reconsider and expand this section to include a more accurate discussion of the bacterial indicators. The discussion should include additional reference to, at a minimum:

United States Environmental Protection Agency. 1986. Ambient water quality criteria for bacteria – 1986. EPA 440/5-84-002, Office of Water Regulations and Standards, Criteria and Standards Division, Washington, D.C.

Pruss, A. 1998. Review of epidemiological studies on health effects from exposure to recreational waters. International Journal of Epidemiology 27:1-9.

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Haile, R.W., Witte, J.S., Gold, M., Cressey, R., McGee, C., Millikan, R.C., Glasser, A.,Harawa, N., Ervin, C., Harmon, P., Harper, J., Dermond, J., Alamillo, J., Barret, K., Nides, M., Wang, G. 1999. The health effects of swimming in ocean water contaminated by storm drain runoff. Epidemiology 10(4):355-363.

In addition, the Southern California Coastal Water Research Project (SCCWRP) has recently conducted a indicator bacteria survey of reference streams in southern California which the DEIS/EIR should reference as an indication of bacterial levels in runoff from undeveloped areas:

Tiefenthaler, L.L., E.D. Stein, G.S. Lyon. 2009. Fecal indicator bacteria (FIB) levels during dry weather from southern California reference streams. Environmental Monitoring and Assessment 155:477-492.

Further, this section of the DEIS/EIR when discussing *"...exceedances of ambient water quality criteria due to natural sources of pollution"* refers to *"...changes to designated uses as the most appropriate way to address these situations..."* A change in a designated beneficial use requires a Use Attainability Analysis (UAA) to be developed with stakeholder input, approval by the Regional Board, State Board and USEPA. If the DEIS/EIR genuinely expects that a UAA (presumably a change from a REC-1 use to a 21
REC-2 use) is a viable method of addressing exceedances of bacterial standards, a thorough discussion of how such a UAA would be developed should be discussed, including the requisite public process and State and Federal approvals. In addition, other methods to account for natural levels of indicator bacteria are provided for in the Basin 22
Plan and may be appropriate. These include using a reference reach to establish allowable exceedances of bacterial standards or implementing a natural sources exclusion.

- **Beach Replenishment/Sediment Loading**
  In our review of Section 4.2.3.1.3 (4.2-22), we find that there are still questions on beach replenishment and/or sediment loading. The potential impacts on sediment maintenance and beach replenishment are not sufficiently discussed in the DEIR/EIS. According to the DEIR/EIS, *"sediment loading from tributaries is difficult to predict."* Erosion and maintenance of flood control structures such as debris basins and channel clearing will have effects on beach replenishment and this subject area needs further analysis. Historically, the Los Angeles County Department of Public Works has been responsible for flood control facility maintenance and the removal of sediment and/or debris. Often times, sufficient upland areas are lacking and placement of these materials has been 23
  difficult. Sediment placement sites and or strategies need to be in place prior to project implementation and should be identified in the DEIS/EIR.

  Specifically, the following questions and/or concerns still remain:
  - How will beach replenishment be quantified?
  - Is there a specific study to be developed to determine if sediment should be passed through the systems or placed at key sites for beneficial beach replenishment?
  - Where will sediment and/or debris removed from flood control structures be placed?
  - A Maintenance Plan will need to be developed for the purpose of scheduling and determining capacity requirements for debris basins, and flood control channels.

Should you have questions concerning this letter, please contact Valerie Carrillo, at (213) 576-6759 or vcarrillo@waterboards.ca.gov.

Sincerely,

Tracy J. Egoscue
Executive Officer

cc: Eric Raffini, US Environmental Protection Agency

11. Letter from Tracy J. Egoscue, Los Angeles Regional Water Quality Control Board, dated August 25, 2009

Response 1

This comment is an introduction to comments that follow. Because the comment does not address the content of the Draft Environmental Impact Statement (EIS)/Environmental Impact Report (EIR), no additional response is provided. This comment will be included as part of the record and made available to decision makers prior to a final decision on the Project.

Response 2

This comment is a statement regarding the Regional Water Quality Board's (RWQCB) goal for the review of the Draft EIS/EIR. Because the comment does not address the content of the document, no additional response is provided. This comment will be included as part of the record and made available to decision makers prior to a final decision on the Project.

Response 3

This comment is a statement regarding the RWQCB's Resolution No. 2005-002 addressing hydromodification. This comment will be included as part of the record and made available to decision makers prior to a final decision on the Project.

Response 4

The comment identifies Project-related activities that are of most concern to the RWQCB, "such as drainages converted to storm drains; drainages regraded and/or relocated; and drainages restored." The comment also indicates that components of Alternatives 3, 4, 5, and 6 should be incorporated into the proposed Project. Additional details regarding the specified components of the individual alternatives are provided below in **Responses 6-9**.

Response 5

The comment indicates that components of Alternatives 3, 4, 5, and 6 should be incorporated into the proposed Project. Additional details regarding the specified components of the individual alternatives are provided below in **Responses 6-9**.

Response 6

This comment suggests that specified design features included in Alternatives 3 and 4 should be incorporated into the design of Resource Management and Development Plan (RMDP) infrastructure proposed for the Potrero Canyon area. The suggested design features include the overall design for the Potrero area included in Alternative 3, and the bridge design included in Alternative 4. The impacts of the specified design elements were evaluated in the Draft EIS/EIR. The U.S. Army Corps of Engineers (Corps) and California Department of Fish and Game (CDFG) appreciate the suggestion to include these design features in the proposed Project. This suggestion will be included as part of the record and made available to decision makers prior to a final decision on the proposed Project.

As required by the Clean Water Act section 404(b)(1) Guidelines, the Corps has prepared a draft 404(b)(1) alternatives analysis (Final EIS/EIR, **Appendix F1.0**) and identified the Draft Least Environmentally Damaging Practicable Alternative (Draft LEDPA). The Draft LEDPA incorporates practicable waters of the United States and wetland avoidance and minimization design features, including measures identified in the Draft EIS/EIR. The Santa Clara River bridge design elements of Alternatives 3 and 4 (elimination of Potrero Bridge) have been incorporated into the Draft LEDPA. This comment will be considered by the Corps in identifying the Final LEDPA and by CDFG prior to making a decision on the proposed Project.

Response 7

This comment suggests that specified design features included in Alternative 5 should be incorporated into the design of RMDP infrastructure proposed for the San Martinez Grande area. The suggested design features include a redesign of proposed major tributary configurations in this area. The impacts of the specified design elements were evaluated by the Draft EIS/EIR. The Corps and CDFG appreciate the suggestion to include these design features in the proposed Project. This suggestion will be included as part of the record and made available to decision makers prior to a final decision on the proposed Project.

As required by the Clean Water Act section 404(b)(1) Guidelines, the Corps has prepared a draft 404(b)(1) alternatives analysis (**Appendix F1.0**) and identified the Draft LEDPA. The Draft LEDPA incorporates practicable waters of the United States and wetland avoidance and minimization design features, including measures identified in the Draft EIS/EIR. This comment will be considered by the Corps in identifying the Final LEDPA and by CDFG prior to making a decision on the proposed Project.

Responses 8 and 9

This comment suggests that specified design features included in Alternatives 3 and 6 should be incorporated into the design of RMDP infrastructure proposed for Chiquito Canyon. The suggested design features include a redesign of proposed major tributary configurations in this area, and that bridges are provided for road crossings instead of using culverts. This comment also recommends that the use of bridges instead of culverts for road crossings should be considered in other major tributaries on the Project site. The impacts of the specified design elements were evaluated in the Draft EIS/EIR. The Corps and CDFG appreciate the suggestion to include these design features in the proposed Project. This suggestion will be included as part of the record and made available to decision makers prior to a final decision on the proposed Project.

As required by the Clean Water Act section 404(b)(1) Guidelines, the Corps has prepared a draft 404(b)(1) alternatives analysis (**Appendix F1.0**) and identified the Draft LEDPA. The Draft LEDPA incorporates practicable waters of the United States and wetland avoidance and minimization design features, including measures identified in the Draft EIS/EIR. This comment will be considered by the Corps in identifying the Final LEDPA and by CDFG prior to making a decision on the proposed Project.

Response 10

This comment indicates that the RWQCB supports the avoidance of impacts to Salt Creek. The Corps and CDFG appreciate the RWQCB's opinion on this matter. For responsive information, please see the Corps' draft 404(b)(1) alternatives analysis found in **Appendix F1.0** of the Final EIS/EIR. This comment will be included as part of the record and made available to decision makers prior to a final decision on the Project.

Response 11

This comment states that specific ideas for Low Impact Development (LID) implementation have not been sufficiently discussed in the Draft EIS/EIR. LID implementation for the build-out of the Specific Plan is specifically discussed in **Subsection 4.4.6.2.2**, pages 4.4-73 - 4.4-75, 4.4-104 of the Draft EIS/EIR, and in the Newhall Ranch Specific Plan Sub-Regional Stormwater Mitigation Plan (NRSP Sub-Regional SWMP) (Draft EIS/EIR, **Appendix 4.4** Section 5.2). **Table 4.4-13** of the Draft EIS/EIR lists specific LID Best Management Practices (BMPs) that will be implemented by the Specific Plan projects at various spatial scales. More specific implementation details will be provided at the Village, Land Use, and Lot/Parcel scale in future, project-specific stormwater plans, as outlined below. In addition, a technical memorandum has been developed and included in the Final EIS/EIR (**Appendix F4.4**) that evaluated the LID performance of the BMPs in the NRSP Sub-Regional SWMP. Page 4.4-104 of the Draft EIS/EIR has been revised to state the conclusions of this analysis as follows:

> ~~The treatment control PDFs will be sized to infiltrate, evapotranspire, and/or capture and detain the water quality design volume in compliance with the LID Ordinance and LID Standards Manual, the MS4 permit and the SUSMP requirements.~~ The low impact/site design BMPs and treatment control PDFs would be sized to infiltrate, evapotranspire, and/or capture and detain 80 percent of the average annual runoff volume, which is the performance standard established in the Sub-Regional Plan. This performance standard is equivalent to or exceeds the LID goals and volumetric runoff retention requirements of the DPW LID Manual when applied to the Project (Geosyntec, 2010).

(See Final EIS/EIR, revised **Section 4.4**, Water Quality, pp. 4.4-111.)

There are three levels of stormwater plan preparation that would occur for each of the proposed Specific Plan tract maps (Landmark Village, Mission Village, Homestead, and Potrero Valley). These levels include the NRSP Sub-Regional SWMP, which applies to the entire Newhall Ranch Specific Plan area (Tier 1); the project Water Quality Technical Report (WQTR), which will provide the project-level stormwater plan for each of the villages within the Specific Plan area (Tier 2); and the final project Standard Urban Stormwater Mitigation Plan (SUSMP), which will be prepared prior to the recordation of any final subdivision map (except those maps for financing or conveyance purposes only) or the issuance of any grading or building permit, whichever comes first (Tier 3). The NRSP Sub-Regional SWMP sets the framework for the second and third levels of stormwater plan preparation. The three tiers of stormwater plan preparation are summarized in Table 1 and further described below.

Table 1
Newhall Land Project Tiered Stormwater Plan Preparation

Tier	Stormwater Plan	Review/ Approval	Projects
1	Newhall Ranch Specific Plan Sub-Regional Stormwater Mitigation Plan	RWQCB	Newhall Ranch
2	Project EIR/Water Quality Technical Report	RWQCB and DPW (review via CEQA)	Landmark Village (tract map)
			Mission Village (tract map)
			Homestead (tract map)
			Potrero Valley (tract map)
	Drainage Concept Report	DPW	Each Village
3	Project SUSMP	DPW	Each Subdivision

The NRSP Sub-Regional SWMP is the first tier of the three levels of stormwater plan preparation. The NRSP Sub-Regional SWMP includes concept-level low impact/site design development criteria and source control, treatment control, and hydromodification control BMPs that will be incorporated into each development project within the subregion. The NRSP Sub-Regional SWMP was submitted by the Los Angeles County Department of Public Works (DPW) to the Los Angeles RWQCB for approval under the Development Planning Program, Regional Storm Water Mitigation Program provision (Part 4 Section D.9) of the Municipal Separate Storm Sewer (MS4) Permit. This provision of the MS4 Permit allows a Permittee to apply to the RWQCB for approval of a regional or sub-regional stormwater mitigation program to substitute in part or wholly the SUSMP requirements. The RWQCB, in a letter from Tracy Egoscue, Executive Officer, to Dean Efstathiou, DPW Acting Director, dated May 20, 2008, determined that the plans contained in the NRSP Sub-Regional SWMP adequately covered the requirements of the MS4 Permit.

The second tier of stormwater plan preparation is a project WQTR that will be prepared consistent with the terms and content of the NRSP Sub-Regional SWMP for each Specific Plan project (*i.e.*, Landmark Village, Mission Village, Homestead, and Potrero Valley). The project WQTR will provide more specific information and detail concerning how the provisions of the NRSP Sub-Regional SWMP will be implemented within the area covered by the project WQTR, based upon the actual proposed land uses from the tentative tract maps filed with the County of Los Angeles (this level of detail is usually at a scale of 1" = 100'). At a minimum, each project WQTR will provide supplemental and refined information concerning: (1) how LID, source control, treatment control, and hydromodification control BMPs will be implemented at the project level in compliance with the established performance standards for the area in question; (2) facility sizing and location within the subject project area; and (3) operation and maintenance responsibility for stormwater BMPs within the relevant project area. The project WQTR will be included as a technical appendix to each proposed Specific Plan project's Draft EIR, which will be reviewed and considered by the RWQCB through the California Environmental Quality Act (CEQA) process. Each project WQTR will provide more specific information regarding particular required stormwater mitigation measures that each proposed Specific Plan (tract map) project must implement pursuant to the project-specific EIR mitigation monitoring program.

Concurrently with the preparation of each project WQTR, a Drainage Concept Report will be prepared for DPW. The purpose of the Drainage Concept Report is to provide technical support and analysis of the hydrologic drainage requirements as a result of the proposed tentative tract maps. The Drainage Concept Report and project WQTR will be prepared in close collaboration such that the final reports describe the LID, treatment control, and hydromodification control BMPs for the project in complete agreement.

Tier 3 entails preparation of a final project SUSMP for each Specific Plan subdivision tract map t that will be consistent with the terms and content of the NRSP Sub-Regional SWMP, the Project WQTR, and the Drainage Concept Report. Each project SUSMP will be submitted to DPW for review prior to the recordation of any final subdivision map (except those maps for financing or conveyance purposes only) or the issuance of any grading or building permit (whichever comes first). Each project SUSMP will demonstrate that the project applicant is complying with all mitigation measures that the County of Los Angeles may adopt in connection with approval of each proposed Specific Plan (tract map) project. Each project SUSMP will identify specific implementation of: (1) LID BMPs; (2) source control BMPs; (3) treatment control BMPs; (4) hydromodification control BMPs; and (5) the mechanism(s) by which long-term operation and maintenance of all structural BMPs will be provided, at the project site level. This level of detail is usually at a scale of 1" = 40'.

Response 12

This comment states that the concept of landform grading and its potential benefits should be discussed and analyzed.

Conventional grading typically features uniform engineered 2:1 slopes, slope drainage devices placed in a rectilinear configuration in exposed positions, and landscaping applied in random or geometric patterns to produce "uniform coverage" (Schor and Gray, 1995). Landform grading is characterized by a continuous series of concave and convex forms interspersed with swales and berms that blend into the profiles, nonlinearity in plan view, varying slope gradients, and significant transition zones between man-made and natural slopes (Schor and Gray, 1995). Downslope drain devices either follow natural drop lines in the slope or are placed in swale/berm combinations to hide them. Landscaping plants are applied in patterns that occur in nature; trees and shrubs are concentrated in concave areas, and drier, concave portions are planted with herbaceous ground covers (Schor and Gray, 1995).

Schor claims that landform-graded slopes tend to be intrinsically more stable than conventionally-graded slopes based on a comparison with downslope evolution models (Schor and Gray, 1995). However, this is not necessarily the case (Day, 1996). As Day explains, complex convex and concave forms can inadvertently create over steepened portions of the slope, despite an overall slope of 2:1 or shallower, with consequent erosion concerns. Undulating slopes may also be more difficult to construct in a manner that controls zones of poor compaction related to equipment precision (Day 1996). Although design, surveying, and construction costs are slightly higher for landform grading, benefits listed in support of landform grading include aesthetics, quicker regulatory approval, decreased hillside maintenance and sediment removal costs, and increased marketability and public acceptance (Schor and Gray, 1995).

According to the State Water Resources Control Board (SWRCB), landform grading preserves and/or restores natural drainage features (SWRCB, 2009). Landform grading techniques create radial drainage patterns and concentrate flow in valleys, creating microclimates for the establishment of vegetation, often without the need for constant irrigation. The SWRCB's description of landform grading suggests that there is less grading and compaction with landform grading than conventional grading, and thus the graded slopes are more natural and revegetation is more successful. However, landform grading involves grading and compaction, and incorporates concrete downslope drains, just as conventional grading does. In addition, conventionally-graded slopes can be successfully stabilized and revegetated in pleasing, natural patterns. Thus, using landform grading rather than conventional grading does not result in any advantages related to reducing water quality impacts.

Grading projects within Los Angeles County must comply with the County grading code (County of Los Angeles Building Code, Title 26, Appendix J). The grading code contains many provisions that dictate how slopes shall be constructed, including benching (Section J107.3), compaction (Section J107.5), drainage and terracing (Section J109), and slope planting and erosion control (Section J110). For example, Section J110 states:

> "The surface of all cut slopes more than 5 feet (1.5 m) in height and fill slopes more than 3 feet (9.1 m) in height shall be protected against damage from erosion by planting with grass or ground cover plants. Slopes exceeding 15 feet (4.6 m) in vertical height shall also be planted with shrubs, spaced at not to exceed 10 feet (3.0 m) on centers; or trees, spaced at not to exceed 20 feet (6.1 m) on centers; or a combination of shrubs and trees at an equivalent spacing, in addition to the grass or ground cover plants. The plants selected and planting methods used shall be suitable for the soil and climatic conditions of the site."

As stated on pages 4.4-67 and 4.4-68 of the Draft EIS/EIR, native and/or nonnative/noninvasive vegetation will be utilized within the development to revegetate slopes. Natural slopes and native vegetation on slopes adjacent to the Santa Clara River would be preserved and/or restored and enhanced. Native plants would be used in all plant palettes placed on restored slopes. The use of a native and/or nonnative/noninvasive plant palette to revegetate slopes is consistent with the revegetation aspect of the landform grading concept.

Grading on the Specific Plan site must also comply with the requirements of the adopted Newhall Ranch Specific Plan. Guidelines for on-site grading and hillside management are provided by Section 4.8 (Grading) of the Design Guidelines element of the Specific Plan. As specified by the adopted guidelines, grading on the Project site is encouraged to incorporate the following characteristics:

- Significant ridges, knolls, and rock outcroppings should be respected in the site design and incorporated as features where feasible.
- Contour grading should be employed where feasible to lessen the visual impact of large slopes and long major uniform slopes should be avoided.
- Grading should emphasize and accentuate scenic vistas and natural landforms.
- Special attention should be given to arrangement of landscape materials as means of creating a natural, hillside appearance.

Implementation of project grading as specified by the detailed project design features and in accordance with specified mitigation measures in the Newhall Ranch Specific Plan and County Grading Code will result in variations in slope configuration and appearance and will minimize visual impacts associated with views of manufactured slopes. Slopes will be revegetated to provide a more natural-looking appearance. As a result, manufactured slopes on the project site would implement the design objectives of the landform grading concept.

References

The following references were used or relied upon, are available for public review upon request to the Corps or CDFG, and are incorporated by reference:

Day, R.W., Discussion of 'Landform Grading and Slope Evolution.' Journal of Geotechnical Engineering, November 1996.

Schor, J.H. and Donald H. Gray, 1995. Landform Grading and Slope Evolution. Journal of Geotechnical Engineering, October 1995.

State Water Resource Control Board (SWRCB), 2009. Nonpoint Source (NPS) -- Encyclopedia, Section 3.2 Construction Practices (includes construction of transportation infrastructure). http://www.waterboards.ca.gov/water_issues/programs/nps/encyclopedia/3_2d_const_gradexcv.shtml.

Response 13

This comment states that the Draft EIS/EIR should include a discussion of Santa Clara River impairments upstream of Reach 5, in Reaches 6 and 7, since these listings reflect established water quality concerns in the river. While the listings specifically do not reflect water quality concerns in the reaches of the river influenced by potential discharges associated with the proposed Project, the information does reflect existing conditions.

Table 2, below, lists the water quality impairments for the Santa Clara River as reported in the 2006 CWA Section 303(d) List of Water Quality Limited Segments. Reach 7 of the Santa Clara River (Bouquet Canyon Road to above Lang Gaging Station) is listed for coliform bacteria. Reach 6 (West Pier Highway 99 to Bouquet Canyon Road) is listed for coliform bacteria, chlorpyrifos, diazinon, and toxicity; ammonia and chloride are listed as "being addressed" in the reach. Reach 5 (the proposed project location) is listed for coliform bacteria; chloride, ammonia, and nitrate and nitrite are "being addressed" in the reach. Downstream segments of the river, below the "Dry Gap" (*i.e.*, the area approximately 3.5 miles downstream of the Specific Plan boundary) in Reach 4, are listed for total dissolved solids (TDS), toxicity, coliform bacteria, chlorinated legacy pesticides, and Toxaphene. Reach 3 is also listed for ammonia and chloride as "being addressed."

Table 2
2006 CWA Section 303(d) List of Water Quality Limited Segments – Santa Clara River

SCR Reach	Geographic Description	Pollutants	TMDL Status/Proposed or USEPA Approved TMDL Completion Date	Potential Sources
7	Bouquet Canyon Rd to above Lang Gaging Station	1) Coliform Bacteria	1) Requires TMDL/2019	1) Nonpoint and Point Sources
6	West Pier Hwy 99 to Bouquet Cyn Rd	1) Coliform Bacteria 2) Chlorpyrifos 3) Diazinon 4) Toxicity 5) Ammonia 6) Chloride	1) Requires TMDL/2019 2) Requires TMDL/2019 3) Requires TMDL/2019 4) Requires TMDL/2019 5) Approved TMDL/2004 6) Approved TMDL/2005	1) Source Unknown 2) Nonpoint and Point Sources 3) Source Unknown 4) Source Unknown 5) Source Unknown 6) Nonpoint and Point Sources
5	Blue Cut Gaging Station to West Pier Hwy 99	1) Coliform Bacteria 2) Ammonia 3) Chloride 4) Nitrate and Nitrite	1) Requires TMDL/2019 2) Approved TMDL/2004 3) Approved TMDL/2005 4) Approved TMDL/2004	1) Nonpoint and Point Sources 2) Source Unknown 3) Nonpoint and Point Sources 4) Source Unknown
3	Freeman diversion dam to "A" street	1) Total Dissolved Solids 2) Ammonia 3) Chloride	1) Requires TMDL/2019 2) Approved TMDL/2004 3) Approved TMDL/2005	1) Nonpoint and Point Sources 2) Source Unknown 3) Nonpoint and Point Sources
1	Estuary to Highway 101 Bridge	1) Toxicity	1) Requires TMDL/2019	1) Source Unknown
--	Estuary	1) ChemA[1] 2) Coliform Bacteria 3) Toxaphene	1) Requires TMDL/2019 2) Requires TMDL/2019 3) Requires TMDL/2019	1) Source Unknown 2) Nonpoint Source 3) Nonpoint Source

[1] ChemA suite of chlorinated legacy pesticides include: Aldrin, chlordane, Dieldrin, Endosulfan I/II, Endrin, gamma-BHC, heptachlor, heptachlor epoxide, and Toxaphene.

The Los Angeles Region 2008 Integrated Report and updated 303(d) list was approved by the RWQCB in July, 2009. The Integrated Report, including the updated 303(d) list, will be submitted to the SWRCB for approval along with the other Region's reports. The full State Integrated Report will then be submitted to the U.S. Environmental Protection Agency (USEPA) for approval and will then be final. The Santa Clara River impairments in the draft 2008 303(d) list are summarized in Table 3, below. There are no changes in the listed impairments for Reach 1 and Reach 7. New impairments are listed for nitrate in the estuary, toxicity in the estuary and Reach 3, iron in Reach 5 and Reach 6, benthic-macroinvertebrate bioassessment in Reach 6, and copper in Reach 6. Ammonia, nitrate and nitrite are proposed for delisting in Reach 5 and ammonia is proposed for delisting in Reach 6.

This comment also states that the Santa Clara River impairments upstream of Reach 5, in Reaches 6 and 7, may affect water quality in Reach 5. Santa Clara River Reaches 5, 6, and 7 are impaired for coliform bacteria and chloride. Both Reach 5 and Reach 6 are proposed for listing as impaired for iron. The other existing and proposed impairments in Reach 6 (chlorpyrifos, diazinon, toxicity, benthic-macroinvertebrate bioassessments, and copper) do not affect water quality in Reach 5 according to the RWQCB's evaluation of water quality conditions in the region provided in the Los Angeles Region 2006 and 2008 Integrated Reports and 303(d) lists.

Table 3
Proposed 2008 CWA Section 303(d) List of Water Quality Limited Segments – Santa Clara River

SCR Reach	Geographic Description	Pollutants	TMDL Status/Proposed or USEPA Approved TMDL Completion Date	Potential Sources
7	Bouquet Canyon Rd to above Lang Gaging Station	1) Coliform Bacteria	1) Requires TMDL/2019	1) Nonpoint and Point Sources
6	West Pier Hwy 99 to Bouquet Cyn Rd	1) Benthic-Macroinvertebrate Bioassessments 2) Chloride 3) Chlorpyrifos 4) Coliform Bacteria 5) Copper 6) Diazinon 7) Iron 8) Toxicity	1) Requires TMDL/2021 2) Approved TMDL/2005 3) Requires TMDL/2019 4) Requires TMDL/2019 5) Requires TMDL/2021 6) Requires TMDL/2019 7) Requires TMDL/2021 8) Requires TMDL/2021	1) Nonpoint and Point Sources 2) Nonpoint and Point Sources 3) Nonpoint and Point Sources 4) Source Unknown 5) Source Unknown 6) Source Unknown 7) Source Unknown 8) Source Unknown
5	Blue Cut Gaging Station to West Pier Hwy 99	1) Coliform Bacteria 2) Chloride 3) Iron	1) Requires TMDL/2019 2) Approved TMDL/2005 3) Requires TMDL/2021	1) Nonpoint and Point Sources 2) Nonpoint and Point Sources 3) Source Unknown
3	Freeman diversion dam to "A" street	1) Total Dissolved Solids 2) Ammonia 3) Chloride 4) Toxicity	1) Requires TMDL/2023 2) Approved TMDL/2004 3) Approved TMDL/2005 4) Requires TMDL/2021	1) Nonpoint and Point Sources 2) Source Unknown 3) Nonpoint and Point Sources 4) Source Unknown
1	Estuary to Highway 101 Bridge	1) Toxicity	1) Requires TMDL/2019	1) Source Unknown
--	Estuary	1) ChemA[1] 2) Coliform Bacteria 3) Toxaphene 4) Nitrate 5) Toxicity	1) Requires TMDL/2019 2) Requires TMDL/2019 3) Requires TMDL/2019 4) Requires TMDL/2021 5) Requires TMDL/2021	1) Source Unknown 2) Nonpoint Source 3) Nonpoint Source 4) Source Unknown 5) Source Unknown

[1] ChemA suite of chlorinated legacy pesticides include: Aldrin, chlordane, Dieldrin, Endosulfan I/II, Endrin, gamma-BHC, heptachlor, heptachlor epoxide, and Toxaphene.

Response 14

This comment states that the tributaries to the Santa Clara River have beneficial uses and cites the Basin Plan's Tributary Rule, which states that those waters not specifically listed are designated with the same beneficial uses as the streams, lakes, or reservoirs to which they are tributary.

The Draft EIS/EIR stated that the tributaries to the Santa Clara River are not specifically listed in the Basin Plan, which is consistent with this comment. The impact analysis in **Section 4.4** of the Draft EIS/EIR assumed that the Santa Clara River Reach 5 beneficial uses apply to all of the proposed Project's receiving waters, per the Basin Plan's Tributary Rule. The Final EIS/EIR has been clarified to state that the impact analysis in revised **Section 4.4** assumes that the Santa Clara River Reach 5 beneficial uses apply to all of the proposed Project's receiving waters. The revision is shown below:

> "**California Toxics Rule.** The California Toxics Rule [CTR] (40 C.F.R. § 131.38) is a federal regulation issued by the USEPA that provides water quality criteria for toxic pollutants in waters with human health or aquatic life designated uses in California. Not all waters receiving flows from the Specific Plan area, such as the tributaries to the Santa Clara River, are specifically designated with human health or aquatic life uses. However, the Santa Clara River does have such designated uses, and the impact analysis in **Section 4.4** of the Draft EIS/EIR assumes that the Santa Clara River Reach 5 beneficial uses apply to all of the proposed project's receiving waters pursuant to the Basin Plan. Further explanation of designated uses is provided in the Basin Plan subsection below. Although CTR criteria do not apply directly to discharges of stormwater runoff, they can provide a useful benchmark to assess the potential impacts to the water quality of receiving waters from Specific Plan stormwater runoff discharges. Here, the freshwater aquatic life criteria are used as benchmarks to evaluate the potential impacts of stormwater runoff to the Project's receiving waters. The CTR also contains human health criteria which are derived for drinking water sources and for fish consumption only. Since the human health criteria are less stringent than the aquatic life criteria for the pollutants of concern for the proposed Project, the aquatic life criteria are used." (Final EIS/EIR, revised **Section 4.4**, p. 4.4-12.)

The statements on beneficial use designation in the Basin Plan paragraph have been revised in revised **Section 4.4** of the Final EIS/EIR as shown below:

> "**Basin Plan.** The Water Quality Control Plan for the Los Angeles Region (Basin Plan) (Los Angeles RWQCB, 1994, as amended) provides quantitative and narrative criteria for a range of water quality constituents applicable to certain receiving water bodies and groundwater basins within the Los Angeles region. Specific criteria are provided for the larger, designated water bodies within the region, as well as general criteria or guidelines for ocean waters, bays and estuaries, inland surface waters, and groundwater. Those waters not specifically listed (generally smaller tributaries) are assumed to have the same beneficial uses as the streams, lakes, or reservoirs to which they are tributary. In general, the narrative criteria require that degradation of water quality does not occur due to increases in pollutant loads that will adversely impact the designated beneficial uses of a water body. For example, the Basin Plan requires that "[i]nland surface waters shall not

> contain suspended or settleable solids in amounts which cause a nuisance or adversely affect beneficial uses as a result of controllable water quality factors." Water quality criteria apply within receiving waters as opposed to applying directly to runoff; therefore, water quality criteria from the Basin Plan are utilized as benchmarks to evaluate the potential ecological impacts of Project runoff on the receiving waters of the proposed Project.
>
> The Basin Plan lists beneficial uses of major water bodies within this region (**Table 4.4-5**). The tributaries to the Santa Clara River within the Project are not specifically ~~designated with beneficial uses~~ listed in the Basin Plan, but Santa Clara River Reach 5 is listed and has specific beneficial uses assigned to it. For purposes of this analysis, the tributaries to the Santa Clara River within the proposed Project are assumed to have the same beneficial uses as the Santa Clara Reach to which they are tributary pursuant to the Basin Plan. As identified in **Table 4.4-5**, the existing beneficial uses of Santa Clara River Reach 5 include the following: . . . " (Final EIS/EIR, revised **Section 4.4**, p. 4.4-14.)

Response 15

The comment states that the Draft EIS/EIR should include a map that shows the locations of relevant water quality stations. Figure 2-1 in the Newhall Ranch Specific Plan Sub-Regional Stormwater Mitigation Plan (**Appendix 4.4**), shows the location of all monitoring stations referenced in **Subsection 4.4.4.3**. Figure 2-1 of the Sub-Regional Stormwater Mitigation Plan is attached as part of this response for reference.

The comment also states that water quality standards and the number of exceedances for each monitoring station should be included in **Table 4.4-7**, **Table 4.4-8**, and **Table 4.4-9**. The water quality standards were discussed in the text following **Tables 4.4-7**, **Table 4.4-8**, and **Table 4.4-9** in **Section 4.4** of the Draft EIS/EIR. Monitoring data are provided in Tables 1 through 21 below, along with the water quality standards and the number of times standards were exceeded.

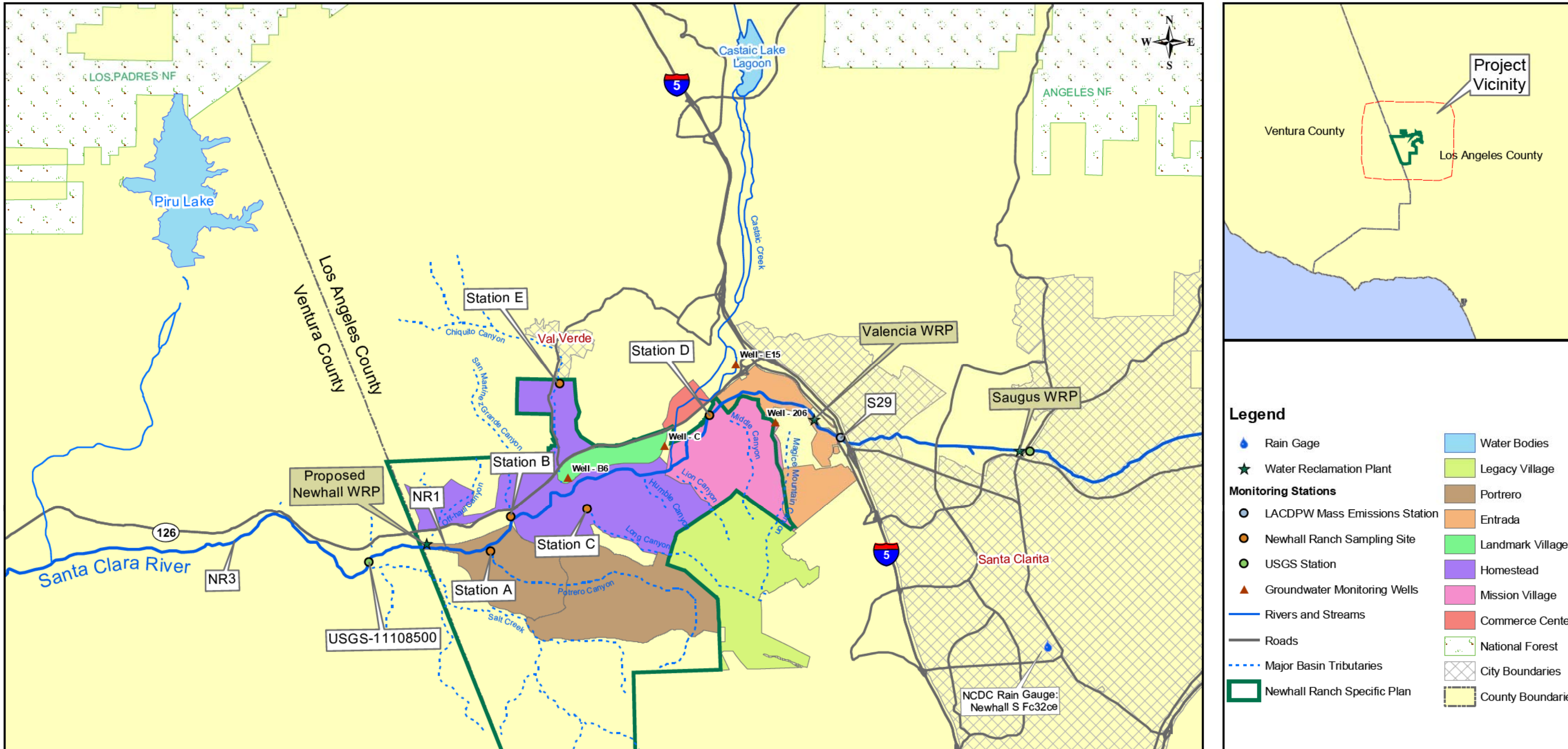

Figure 2-1
Newhall Ranch Specific Plan
Location Map

December 2007

Geosyntec consultants

P:\GIS\Projects\Newhall\Base GIS\Maps\Dec2007\Fig2-1_NRSP_LocationMap.mxd

Prepared By: A. Poresky

Wet Weather Monitoring Data

Table 1
Average Concentrations of General Constituents and Nutrients from Newhall Ranch Tributary Stormwater Monitoring, March 2001

Constituent	Water Quality Standard	Site A Mouth of Potrero		Site B Mouth of San Martinez Grande		Site C Long Canyon Upstream of Onion Field		Site D Mouth of Middle Canyon		Site E Middle of Chiquito	
		Avg	**No. of Exceed**	**Avg**	**No. of Exceed**	**Avg**	**No. of Exceed**	**Avg**	**No. of Exceed**	**Avg**	**No. of Exceed**
TSS (mg/L)	Narrative Standard[1]	835	-	41,100	-	36,000	-	5,650	-	6,645	-
TDS (mg/L)	1000[2]	7,380	2	2,825	2	190	0	160	0	205	0
Hardness (mg/L as $CaCO_3$)	NA	2,225	-	1,205	-	147	-	59	-	107	-
Chloride (mg/L)	100	870	2	125	2	3	0	3	0	11	0
Nitrate + Nitrite-N (mg/L)	5	17.5	2	3.0	0	1.6	0	15.3	2	2.8	0

[1] LA Basin Plan Water Quality Objective for TSS: Water shall not contain suspended or settleable material in concentrations that cause nuisance or adversely affect beneficial uses
[2] Los Angeles Basin Plan Water Quality Objective for SCR Reach 5
NA – not applicable

Table 2
Average Concentration of Metals from Newhall Ranch Tributary Stormwater Monitoring, March 2001

Constituent	Site A Mouth of Potrero			Site B Mouth of San Martinez Grande			Site C Long Canyon Upstream of Onion Field			Site D Mouth of Middle Canyon			Site E Middle of Chiquito Canyon		
	Avg	Water Quality Standard	No. of Exceed	Avg	Water Quality Standard	No. of Exceed	Avg	Water Quality Standard	No. of Exceed	Avg	Water Quality Standard	No. of Exceed	Avg	Water Quality Standard	No. of Exceed
Total Copper [1] (µg/L)	15	52	0	175	52	2	170	20	1	10	6	1	70	9	2
Total Lead[1] (µg/L)	6	480	0	54	480	0	95	133	0	8	29	0	37	44	1
Total Zinc[1] (µg/L)	40	390	0	330	390	0	330	166	1	30	60	0	225	79	2
Total Cadmium[1] (µg/L)	0.3	8.7	0	11.2	8.7	2	2	3.2	0	0.4	0.9	0	1.9	1.3	1

[1] Water Quality Standards are CTR acute criteria calculated with minimum measured hardness value for monitoring location.

Table 3
Concentrations for Fecal Indicator Bacteria from Newhall Ranch Tributary Stormwater Monitoring, 2001

Constituent	Water Quality Standard	Site A Mouth of Potrero		Site B Mouth of San Martinez Grande		Site C Long Canyon Upstream of Onion Field		Site D Mouth of Middle Canyon		Site E Middle of Chiquito	
		Geometric Mean	Number of Exceed.	Geometric Mean	Number of Exceed.	Geometric Mean	Number of Exceed.	Geometric Mean	Number of Exceed.	Geometric Mean	Number of Exceed.
Total coliform (MPN/100ml)	NA	38,700	-	>160,000	-	120,000	-	>89,400	-	>19,600	-
Fecal coliform (MPN/100ml)	400	3,300	2	590	1	4,200	2	>19,600	2	19,600	2

NA – not applicable
MPN – Most Probable Number

Table 4
Newhall Ranch WRP Startup Wet Weather Water Quality Data for General Constituents and Nutrients in the Santa Clara River, 2004 - 2006

Constituent	2-day Antecedent Rainfall (inches)	Sample Site	Water Quality Std	No. of Exceed.	Minimum (mg/L)	Maximum (mg/L)	Average (mg/L)
TSS	0.1 – < 1.0	NR1	Narrative Standard[1]	-	32	107	58
		NR3		-	32	235	112
	≥ 1.0	NR3		-	-	-	43,360
TDS	0.1 – < 1.0	NR1	10002	1	622	1,136	855
		NR3		2	698	2,020	1,076
	≥ 1.0	NR3		1	-	-	2,100
Hardness (mg/L as $CaCO_3$)	0.1 – < 1.0	NR1	NA	-	304	464	387
		NR3		-	352	670	475
	≥ 1.0	NR3		-	-	-	832
Chloride	0.1 – < 1.0	NR1	100	1	84	117	100
		NR3		1	89	121	105
	≥ 1.0	NR3		0	46	46	46
Total Phosphorus	0.1 – < 1.0	NR1	Narrative Standard[3]	-	0.4	0.5	0.4
		NR3		-	0.3	0.7	0.4
	≥ 1.0	NR3		-	13.4	13.4	13.4
Nitrate as N	0.1 – < 1.0	NR1	5 mg/L4	0	1.9	4.8	3.2
		NR3		0	2.3	3.7	3.0
	≥ 1.0	NR3		0	1.4	1.4	1.4
Nitrite as N	0.1 – < 1.0	NR1		0	<0.005	<0.005	-
		NR3		0	<0.005	<0.005	-
	≥ 1.0	NR3		0	<0.005	<0.005	-
Ammonia as N	0.1 – < 1.0	NR1	2.2 mg/L[5]	0	<0.005	0.3	0.2
		NR3		0	0.02	0.1	0.1
	≥ 1.0	NR3		0	0.5	0.5	0.5
TKN as N	0.1 – < 1.0	NR1	Narrative Standard[3]	-	<0.04	0.7	0.3
		NR3		-	<0.04	0.6	0.4
	≥ 1.0	NR3		-	46.0	46.0	46.0

[1] LA Basin Plan Water Quality Objective for TSS: Water shall not contain suspended or settleable material in concentrations that cause nuisance or adversely affect beneficial uses
[2] Los Angeles Basin Plan Water Quality Objective for SCR Reach 5
[3] LA Basin Plan Water Quality Objective: 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
[4] The LA Basin Plan Objective corresponds to the sum of Nitrate-N + Nitrite-N
[5] 4-day average, ELS present, 90th percentile pH and temperature pairing observed at USGS Monitoring Station 11108500.
- = no or insufficient data; NA – not applicable

Table 5
Newhall Ranch WRP Pre-Startup Wet Weather Water Quality Data for Metals and Pesticides in the Santa Clara River, 2004 - 2006

Constituent	2-day Antecedent Rainfall (inches)	Sample Site	Water Quality Std[1]	No. of Exceed.	Minimum (µg/L)	Maximum (µg/L)	Average (µg/L)
Dissolved Aluminum (µg/L)	0.1 – < 1.0	NR1	NA	-	27	27	27
		NR3	NA	-	19	19	19
Total Aluminum (µg/L)	0.1 – < 1.0	NR1	750	0	740	740	740
		NR3	750	1	770	770	770
Dissolved Copper (µg/L)	0.1 – < 1.0	NR1	38	0	4.6	4.6	4.6
		NR3	44	0	3.6	3.6	3.6
Total Copper (µg/L)	0.1 – < 1.0	NR1	40	0	4.6	5.2	4.9
		NR3	46	0	4.8	7.0	5.9
Dissolved Lead (µg/L)	0.1 – < 1.0	NR1	211	0	<0.07	<0.07	-
		NR3	246	0	<0.07	<0.07	-
Total Lead (µg/L)	0.1 – < 1.0	NR1	336	0	0.6	1.3	1.0
		NR3	405	0	0.6	0.9	0.8
Dissolved Zinc (µg/L)	0.1 – < 1.0	NR1	301	0	12	12	12
		NR3	340	0	8.7	8.7	8.7
Total Zinc (µg/L)	0.1 – < 1.0	NR1	307	0	13	22	18
		NR3	348	0	12	18	15
Diazinon	0.1 – < 1.0	NR1	NA	-	<0.01	<0.01	-
		NR3	NA	-	<0.01	<0.01	-
Chlorpyrifos	0.1 – < 1.0	NR1	NA	-	<0.6	<0.6	-
		NR3	NA	-	<0.6	<0.6	-

- = no or insufficient data; NA – not applicable
[1] Water Quality Standards are CTR acute criteria calculated with minimum measured hardness value for monitoring location.

Table 6
Newhall Ranch WRP Startup Wet Weather Water Quality Data for Fecal Indicator Bacteria in the Santa Clara River, 2004 - 2006

Constituent	2-day Antecedent Rainfall (inches)	Sample Site	Water Quality Std	No. of Exceed.	Minimum	Maximum	Geometric Mean
Fecal coliform (MPN/100mL)	0.1 – < 1.0	NR1	400	1	<1	900	87
		NR3		3	<1	5,000	258
	≥ 1.0	NR3		1	≥1,600	≥1,600	≥1,600
Total coliform (MPN/100mL)	0.1 – < 1.0	NR1	NA	-	<1	1,600	284
		NR3		-	<1	13,000	549
	≥ 1.0	NR3		-	≥1,600	≥1,600	≥1,600

- = no or insufficient data; NA – not applicable
MPN = Most Probable Number

Table 7
DPW Wet Weather Monitoring for General Constituents and Nutrients at the SCR Mass Emission Station (S29), 2002 -2007

Constituent	2-day Antecedent Rainfall (in)	Water Quality Std	No. of Exceed.	Minimum (mg/L)	Maximum (mg/L)	Average (mg/L)
TSS	0.1 – < 1.0	Narrative Standard[1]	-	135	2,202	845
	≥ 1.0		-	53	6,591	1,635
TDS	0.1 – < 1.0	1000[2]	0	174	732	458
	≥ 1.0		0	28	364	216
Hardness	0.1 – < 1.0	NA	-	90	428	249
	≥ 1.0		-	15	170	108
Chloride	0.1 – < 1.0	100	2	17	118	68
	≥ 1.0		0	3	52	24
Dissolved Phosphorus	0.1 – < 1.0	Narrative Standard[3]	-	0.17	0.43	0.24
	≥ 1.0		-	0.10	0.45	0.26
Total Phosphorus	0.1 – < 1.0	Narrative Standard[3]	-	0.37	1.17	0.60
	≥ 1.0		-	0.18	0.84	0.42
Nitrate-N	0.1 – < 1.0	5 mg/L[4]	0	0.50	1.85	1.15
	≥ 1.0		0	0.50	1.36	0.80
Nitrite-N	0.1 – < 1.0		0	<0.03	1.00	0.17
	≥ 1.0		0	<0.03	0.87	0.18
Ammonia-N	0.1 – < 1.0	2.2 mg/L[5]	0	<0.08	0.26	0.14
	≥ 1.0		0	<0.08	1.09	0.29
TKN as N	0.1 – < 1.0	Narrative Standard[3]	-	0.80	8.70	2.54
	≥ 1.0		-	0.66	31.70	5.58

Table 7
DPW Wet Weather Monitoring for General Constituents and Nutrients at the SCR Mass Emission Station (S29), 2002 -2007

Constituent	2-day Antecedent Rainfall (in)	Water Quality Std	No. of Exceed.	Minimum (mg/L)	Maximum (mg/L)	Average (mg/L)

[1] LA Basin Plan Water Quality Objective for TSS: Water shall not contain suspended or settleable material in concentrations that cause nuisance or adversely affect beneficial uses
[2] Los Angeles Basin Plan Water Quality Objective for SCR Reach 5
[3] LA Basin Plan Water Quality Objective: 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
[4] The LA Basin Plan Objective corresponds to the sum of Nitrate-N + Nitrite-N
[5] 4-day average, ELS present, 90th percentile pH and temperature pairing observed at USGS Monitoring Station 11108500.
- = no or insufficient data; NA – not applicable

Table 8
DPW Wet Weather Monitoring for Metals, Pesticides, and Cyanide at the SCR Mass Emission Station (S29), 2002-2007

Constituent	2-day Antecedent Rainfall (inches)	Water Quality Std[1]	No. of Exceed.	Minimum (µg/L)	Maximum (µg/L)	Average (µg/L)
Dissolved Aluminum (µg/L)	0.1 – < 1.0	NA	-	<100	1390	894
	≥ 1.0	NA	-	<100	3680	1086
Total Aluminum (µg/L)	0.1 – < 1.0	750	8	450	18000	5040
	≥ 1.0	750	6	131	19650	5672
Dissolved Copper (µg/L)	0.1 – < 1.0	12	0	3.32	10.60	5.80
	≥ 1.0	2.2	8	3.75	22.60	9.92
Total Copper (µg/L)	0.1 – < 1.0	13	7	7.33	50.50	25.78
	≥ 1.0	2.3	8	9.43	53.30	25.28
Dissolved Lead (µg/L)	0.1 – < 1.0	58	0	0.52	5.00	4.44
	≥ 1.0	7.8	1	0.44	12.50	3.32
Total Lead (µg/L)	0.1 – < 1.0	71	0	1.41	17.40	5.91
	≥ 1.0	7.3	5	1.14	39.80	17.12
Dissolved Zinc (µg/L)	0.1 – < 1.0	107	0	3	27	12
	≥ 1.0	23	6	12	37	26
Total Zinc (µg/L)	0.1 – < 1.0	110	2	11	118	54
	≥ 1.0	24	8	42	353	110
Dissolved Cadmium (µg/L)	0.1 – < 1.0	3.8	0	1.00	1.00	1.00
	≥ 1.0	0.54	8[2]	0.74	1.00	0.94
Total Cadmium (µg/L)	0.1 – < 1.0	1.9	0	0.27	1.00	0.77
	≥ 1.0	0.31	6	0.25	1.27	0.78
Chlorpyrifos	0.1 – < 1.0	NA	-	<0.05	<0.05	-
	≥ 1.0	NA	-	<0.05	<0.05	-
Diazinon	0.1 – < 1.0	NA	-	<0.01	0.41	0.05

Table 8
DPW Wet Weather Monitoring for Metals, Pesticides, and Cyanide at the SCR Mass Emission Station (S29), 2002-2007

Constituent	2-day Antecedent Rainfall (inches)	Water Quality Std[1]	No. of Exceed.	Minimum (µg/L)	Maximum (µg/L)	Average (µg/L)
	≥ 1.0	NA	-	<0.01	0.43	0.10
Cyanide (µg/L)	0.1 – < 1.0	22	0	<10	10	10
	≥ 1.0	22	1	<10	590	200

[1] Water Quality Standards are CTR acute criteria calculated with minimum measured hardness value for monitoring location.
[2] Detection Limit is higher than WQ standard for storms ≥ 1.0 inch.
- = no or insufficient data; NA – not applicable

Table 9
DPW Wet Weather Monitoring for Fecal Indicator Bacteria at the SCR Mass Emission Station, 2002-2007

Constituent	2-day Antecedent Rainfall (inches)	Water Quality Std	No. of Exceed.	Minimum	Maximum	Geometric Mean
Total coliform (MPN/100mL)	0.1 – < 1.0	NA	-	17,000	1,600,000	115,600
	≥ 1.0		-	50,000	500,000	246,800
Fecal coliform (MPN/100mL)	0.1 – < 1.0	400	10	230	300,000	7,300
	≥ 1.0		8	9,000	300,000	65,300
Fecal Enterococci (MPN/100mL)	0.1 – < 1.0	NA	-	800	300,000	17,900
	≥ 1.0		-	17,000	500,000	90,200

MPN = Most Probable Number

Table 10
USGS Wet Weather Data for General Constituents and Nutrients in the Santa Clara River at the County Line, 1951 – 1995

Constituent	2-day Antecedent Rainfall (inches)	Water Quality Std	No. of Exceed.	Minimum	Maximum	Average
TSS (mg/L)	0.1 – < 1.0	Narrative Standard[1]	-	248	4,730	2,291
	≥ 1.0		-	107	51,200	10,711
Specific Conductance (uS/cm)	0.1 – < 1.0	NA	-	831	4,220	2,246
	≥ 1.0		-	637	3,240	1,309
Hardness (mg/L)	0.1 – < 1.0	NA	-	270	1,500	773
	≥ 1.0		-	250	1,200	546

Table 10
USGS Wet Weather Data for General Constituents and Nutrients in the Santa Clara River at the County Line, 1951 – 1995

Constituent	2-day Antecedent Rainfall (inches)	Water Quality Std	No. of Exceed.	Minimum	Maximum	Average
Chloride (mg/L)	0.1 – < 1.0	100	18	21	290	122
	≥ 1.0		6	14	192	61
Dissolved Phosphorus	0.1 – < 1.0	Narrative Standard[2]	-	0.35	0.66	0.46
	≥ 1.0		-	0.01	0.01	0.01
Total Phosphorus	0.1 – < 1.0	Narrative Standard[2]	-	0.81	1.8	1.28
	≥ 1.0		-	0.63	1.4	1.02
Ammonia as N	0.1 – < 1.0	2.2 mg/L[3]	0	0.03	0.39	0.16
	≥ 1.0		0	-	-	-
Nitrate + Nitrite as N	0.1 – < 1.0	5 mg/L[4]	0	0.87	4	2.1
	≥ 1.0		0	1.2	2	1.7
TKN as N	0.1 – < 1.0	Narrative Standard[2]	-	0.64	0.64	0.64
	≥ 1.0		-	0.69	0.69	0.69
Total Nitrogen	0.1 – < 1.0	Narrative Standard[2]	-	0.6	2.2	1.4
	≥ 1.0		-	3.5	4.4	4.0

[1] LA Basin Plan Water Quality Objective for TSS: Water shall not contain suspended or settleable material in concentrations that cause nuisance or adversely affect beneficial uses.
[2] LA Basin Plan Water Quality Objective: 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.
[3] 4-day average, ELS present, 90th percentile pH and temperature pairing observed at USGS Monitoring Station 11108500.
[4] The LA Basin Plan Objective corresponds to the sum of Nitrate-N + Nitrite-N
- = no or insufficient data; NA – not applicable

Table 11
USGS Wet Weather Data for Metals and Pesticides in the Santa Clara River at the County Line, 1951 to 1995

Constituent	2-day Antecedent Rainfall (inches)	Water Quality Std[1]	No. of Exceed.	Minimum (mg/L)	Maximum (mg/L)	Average (mg/L)
Dissolved Copper (µg/L)	0.1 – < 1.0	34	-	-	-	-
	≥ 1.0	32	-	-	-	-
Total Copper (µg/L)	0.1 – < 1.0	36	0	30	30	30
	≥ 1.0	33	-	-	-	-
Dissolved Lead (µg/L)	0.1 – < 1.0	187	0	1	23	7.8
	≥ 1.0	172	-	-	-	-
Total Lead (µg/L)	0.1 – < 1.0	289	-	-	-	-
	≥ 1.0	262	-	-	-	-
Dissolved Zinc (µg/L)	0.1 – < 1.0	272	0	10	10	10
	≥ 1.0	255	-	-	-	-
Total Zinc (µg/L)	0.1 – < 1.0	278	0	150	150	150
	≥ 1.0	260	-	-	-	-
Diazinon	0.1 – < 1.0	NA	-	0.02	0.02	0.02
	≥ 1.0	NA	-	-	-	-

- = no or insufficient data; NA – not applicable
[1] Water Quality Standards are CTR acute criteria calculated with minimum measured hardness value for monitoring location.

Table 12
USGS Wet Weather Data for Fecal Indicator Bacteria in the Santa Clara River at the County Line, 1951 - 1995

Constituent	2-day Antecedent Rainfall (inches)	Water Quality Std	No. of Exceed.	Minimum	Maximum	Geometric Mean
Fecal coliform (CFU/100mL)	0.1 – < 1.0	400	2	80	720	300
	≥ 1.0		1	2,700	2,700	2,700

- = no or insufficient data

Dry Weather Monitoring Data

Table 13
Newhall Ranch WRP Pre-Startup Dry Weather Monitoring for General Constituents and Nutrients in the SCR, 2004-2006

Constituent	Sample Site	Water Quality Std	No. of Exceed.	Minimum (mg/L)	Maximum (mg/L)	Average (mg/L)
TSS	NR1	Narrative Standard[1]	-	<1	342	66
	NR3		-	<1	676	128
Hardness	NR1	NA	-	258	568	388
	NR3		-	324	684	458
TDS (mg/L)	NR1	1000[2]	5	504	1160	845
	NR3		12	576	1396	936
Chloride (mg/L)	NR1	100	19	66	145	120
	NR3		19	50	157	124
Total phosphorus	NR1	Narrative Standard[3]	-	0.1	1.1	0.5
	NR3		-	<0.008	0.8	0.5
Nitrate-N	NR1	5 mg/L[4]	0	1.0	4.9	2.8
	NR3		1	1.1	5.1	2.9
Nitrite-N	NR1		0	<0.005	0.2	0.02
	NR3		0	<0.005	0.2	0.02
Ammonia-N	NR1	2.2 mg/L[5]	0	<0.005	0.4	0.1
	NR3		0	<0.005	0.4	0.1
TKN	NR1	Narrative Standard[3]	-	<0.04	1.0	0.4
	NR3		-	<0.04	1.3	0.5

[1] LA Basin Plan Water Quality Objective for TSS: Water shall not contain suspended or settleable material in concentrations that cause nuisance or adversely affect beneficial uses
[2] Los Angeles Basin Plan Water Quality Objective for SCR Reach 5
[3] LA Basin Plan Water Quality Objective: 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
[4] The LA Basin Plan Objective corresponds to the sum of Nitrate-N + Nitrite-N
[5] 4-day average, ELS present, 90th percentile pH and temperature pairing observed at USGS Monitoring Station 11108500.
- = no or insufficient data; NA – not applicable

Table 14
Newhall Ranch WRP Pre-Startup Dry Weather Monitoring for Metals and Pesticides in the SCR, 2004-2006

Constituent	Sample Site	Water Quality Std[1]	No. of Exceed.	Minimum	Maximum	Average
Dissolved copper (µg/L)	NR1	33	0	3.2	4.8	4
	NR3	41	0	3	5.2	4.2
Total copper (µg/L)	NR1	34	0	2.3	11	5
	NR3	42	0	2.6	15	6.5
Dissolved lead (µg/L)	NR1	178	0	<0.07	0.7	0.2
	NR3	226	0	<0.07	0.6	0.2
Total lead (µg/L)	NR1	273	0	<0.07	4.6	0.9
	NR3	365	0	<0.07	5.8	1.4
Dissolved zinc (µg/L)	NR1	262	0	7.8	14	11
	NR3	317	0	6.2	16	10.7
Total zinc (µg/L)	NR1	267	0	8.5	30	15.4
	NR3	324	0	7.8	51	19.5
Dissolved aluminum (µg/L)	NR1	-	-	21	290	170
	NR3	-	-	14	750	289
Total aluminum (µg/L)	NR1	750	2	240	2,100	1,018
	NR3	750	3	330	3,300	1,685
Diazinon (µg/L)	NR1	NA	-	<0.01	<0.01	-
	NR3	NA	-	<0.01	<0.01	-

- = no or insufficient data; NA – not applicable
[1] Water Quality Standards are CTR acute criteria calculated with minimum measured hardness value for monitoring location.

Table 15
Newhall Ranch WRP Pre-Startup Dry Weather Monitoring for Indicator Bacteria in the SCR, 2004 - 2006

Constituent	Sample Site	Water Quality Std	No. of Exceed.	Minimum	Maximum	Geometric Mean
Total coliform (MPN/100mL)	NR1	NA	-	23	24,000	961
	NR3		-	23	24,000	1,207
Fecal coliform (CFU/100mL)	NR1	400	16	23	2,300	209
	NR3		14	23	3,000	213

= no or insufficient data; NA – not applicable
MPN = Most Probable Number

Table 16
DPW Dry Weather Monitoring of General Constituents and Nutrients at the SCR Mass Emission Station (S29), 2002-2007

Constituent	Water Quality Std	No. of Exceed.	Minimum (mg/L)	Maximum (mg/L)	Average (mg/L)
TSS	Narrative Standard[1]	-	2	1,320	200
Hardness	NA	-	330	510	420
TDS	1000[2]	0	696	942	812
Chloride (mg/L)	100	9	47	140	115
Dissolved phosphorus	Narrative Standard[3]	-	0.05	0.30	0.18
Total phosphorus	Narrative Standard[3]	-	0.10	0.67	0.26
Nitrate-N	5 mg/L[4]	0	<0.50	1.7	1.2
Nitrite-N		0	<0.03	0.6	0.1
Ammonia-N	2.2 mg/L[5]	0	<0.10	0.8	0.1
TKN	Narrative Standard[3]	-	0.3	1.3	0.6

[1] LA Basin Plan Water Quality Objective for TSS: Water shall not contain suspended or settleable material in concentrations that cause nuisance or adversely affect beneficial uses
[2] Los Angeles Basin Plan Water Quality Objective for SCR Reach 5
[3] LA Basin Plan Water Quality Objective: 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
[4] The LA Basin Plan Objective corresponds to the sum of Nitrate-N + Nitrite-N
[5] 4-day average, ELS present, 90th percentile pH and temperature pairing observed at USGS Monitoring Station 11108500.
- = no or insufficient data; NA – not applicable

Table 17
DPW Dry Weather Monitoring for Metals, Pesticides, and Cyanide at the SCR Mass Emission Station (S29), 2002-2007

Constituent	Water Quality Std[1]	No. of Exceed.	Minimum (µg/L)	Maximum (µg/L)	Average (µg/L)
Dissolved copper (µg/L)	41	0	1.9	3.8	2.9
Total copper (µg/L)	43	0	6.0	33.5	15.2
Dissolved lead (µg/L)	230	0	<5.00	<5.00	-
Total lead (µg/L)	373	0	0.6	8.2	1.8

Table 17
DPW Dry Weather Monitoring for Metals, Pesticides, and Cyanide at the SCR Mass Emission Station (S29), 2002-2007

Constituent	Water Quality Std[1]	No. of Exceed.	Minimum (µg/L)	Maximum (µg/L)	Average (µg/L)
Dissolved zinc (µg/L)	322	0	<1.00	26.0	6.4
Total zinc (µg/L)	329	0	<5.00	52.2	20.7
Dissolved cadmium (µg/L)	7.2	2	<1.00	41.0	5.3
Total cadmium (µg/L)	16	1	0.29	72.0	8.3
Dissolved aluminum (µg/L)	-	-	<100	<100	-
Total aluminum (µg/L)	750	1	<100	7,500	845
Chlorpyrifos	NA	-	<0.05	<0.05	-
Diazinon	NA	-	<0.05	0.02	0.01
Cyanide (µg/L)	22	0	<10	<10	-

- = no or insufficient data; NA – not applicable
[1] Water Quality Standards are CTR acute criteria calculated with minimum measured hardness value for monitoring location.

Table 18
DPW Dry Weather Monitoring at the SCR Mass Emission Station (S29), 2002-2007

Constituent	Water Quality Std	No. of Exceed.	Minimum	Maximum	Geometric Mean
Total coliform (MPN/100mL)	NA	-	130	50,000	3,600
Fecal coliform (MPN/100mL)	400	3	20	5,000	170
Enterococci (MPN/100mL)	NA	-	<20	1,300	220

= no or insufficient data; NA – not applicable
MPN = Most Probable Number

Table 19
USGS Dry Weather Water Quality Monitoring Data for Selected General Constituents and Nutrients in the SCR at the County Line, 1951-1995

Constituent	Water Quality Std	No. of Exceed.	Minimum	Maximum	Average
TSS (mg/L)	Narrative Standard[1]	-	7	5,980	349
Hardness (mg/L)	NA	-	42	2,400	881
Specific Conductance (uS/cm)	NA	-	925	7,620	2,408
Chloride (mg/L)	100	173	30	585	140
Dissolved phosphorus	Narrative Standard[2]	-	0.12	2.4	1
Total phosphorus	Narrative Standard[2]	-	0.23	5.9	1.13
Ammonia as N	2.2 mg/L[3]	0	0.01	0.62	0.18
Nitrate + Nitrite as N	5 mg/L[4]	4	1.8	7.5	4
TKN as N	Narrative Standard[2]	-	0.08	1.3	0.83
Total Nitrogen	Narrative Standard[2]	-	0.5	15	3.7

[1] LA Basin Plan Water Quality Objective for TSS: Water shall not contain suspended or settleable material in concentrations that cause nuisance or adversely affect beneficial uses
[2] LA Basin Plan Water Quality Objective: 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
[3] 4-day average, ELS present, 90th percentile pH and temperature pairing observed at USGS Monitoring Station 11108500.
[4] The LA Basin Plan Objective corresponds to the sum of Nitrate-N + Nitrite-N
\- = no or insufficient data; NA – not applicable

Table 20
USGS Dry Weather Water Quality Monitoring Data for Metals and Pesticides in the Santa Clara River at the County Line, 1951-1995

Constituent	Water Quality Std	No. of Exceed.	Minimum (µg/L)	Maximum (µg/L)	Average (µg/L)
Dissolved copper (ug/L)	50	0	1	5	1.8
Total copper (ug/L)	52	0	10	40	20
Dissolved lead (ug/L)	280	0	1	23	7.8
Total lead (ug/L)	480	-	-	-	-
Dissolved Zinc (ug/L)	380	0	5	50	15.8
Total zinc (ug/L)	390	0	20	110	45
Diazinon (ug/L)	NA	-	0.01	0.05	0.03

\- = no or insufficient data; NA – not applicable
[1] Water Quality Standards are CTR acute criteria calculated with minimum measured hardness value for monitoring location.

Table 21
USGS Dry Weather Water Quality Monitoring Data for Indicator Bacteria in the Santa Clara River at the County Line, 1951-1995

Constituent	Water Quality Std	No. of Exceed.	Minimum	Maximum	Geometric Mean
Fecal coliform (CFU/100mL)	400	5	13	980	100

Response 16

This comment states that the "Long-Term Indirect Impacts to Surface Water Quality" discussions should include monitoring conducted by Newhall Land during development and post-development to ensure BMPs are functioning properly.

Construction-phase impacts are addressed in the "Short-Term Direct" (*i.e.*, impacts from the construction of proposed RMDP infrastructure) and "Short-Term Indirect" (*i.e.*, impacts from the construction of urban development facilitated by the installation of RMDP infrastructure) discussions in **Subsection 4.4.6** of the Draft EIS/EIR. As stated in these sections, monitoring will be conducted during the construction phase in compliance with the requirements of the Construction General Permit and the RWQCB's general waste discharge requirements (WDRs) (under Order No. R4-2003-0111; NPDES No. CAG994004) governing construction-related dewatering discharges within the Project area or an individual WDR/National Pollutant Discharge Elimination System (NPDES) permit specific to the Project dewatering activities.

The SWRCB has issued a revised statewide General NPDES Permit for stormwater discharges from construction sites [(NPDES No. CAS000002) Water Quality Order 2009-0009-DWQ, SWRCB NPDES General Permit for Stormwater Discharges Associated with Construction Activity (adopted by the SWRCB on September 2, 2009)]. The RMDP infrastructure and subsequent development facilitated by the proposed Project would comply with the provisions of this permit. Applicants for coverage under the Construction General Permit must complete a construction site risk assessment to determine appropriate coverage level; prepare a Stormwater Pollution Prevention Plan (SWPPP), including site maps, a Construction Site Monitoring Program (CSMP), and sediment basin design calculations; complete a post-construction water-balance calculation (the proposed Project is exempt from this requirement as it is within a Phase I jurisdiction); and complete a Notice of Intent. The primary objective of the SWPPP is to identify and apply proper construction, implementation, and maintenance of BMPs to reduce or eliminate sediment and other pollutants in stormwater discharges and authorized non-stormwater discharges from the construction site during construction. The individual tract map SWPPP must include erosion and sediment control BMPs that will meet or exceed measures required by determined risk level, as well as BMPs that control the other potential construction-related pollutants.

The Construction General Permit imposes specific, tiered requirements depending on which of three risk levels are assigned to the project's discharges, by watershed, based on prescribed formulas. These formulas determine sediment and receiving water risk during periods of soil exposure, using calculation tools provided in Appendix 1 of the permit. Receiving water risk is categorized as either "high" or "low," and sediment risk is categorized as "low," "medium" or "high." Under the Construction General Permit, Risk Level 1 applies if both sediment risk and receiving water risk are deemed to be "low; " such sites have minimum BMP requirements but require no effluent monitoring (except for non-visible pollutants, if identified as potentially present). Risk Level 2 applies at all other sites unless both sediment risk and receiving water risk are determined to be "high." Risk Level 2 sites are subject to numeric action levels for turbidity and pH, and effluent monitoring requirements. If both receiving water and sediment risk are calculated to be "high," then the project is assigned Risk Level 3, and the site is subject to turbidity and pH numeric effluent limits and more rigorous monitoring requirements.

Preliminary analysis indicates that the Project will most likely be categorized as a Level 2 risk. Permit-required BMPs will be incorporated and described assuming this level of risk; if final design analysis indicates that the project will fall under Risk Level 3, the additional Level 3 permit requirements will be implemented as required. The SWPPP will also describe the monitoring and sampling program required for the construction site to verify compliance with discharge Numeric Action Levels (NALs) set by the General Permit.

Long-term monitoring is discussed in **Appendix 4.4**, page 108 of the Draft EIS/EIR. A Memorandum of Understanding (MOU) and Water Resource Monitoring Program have been entered into between Newhall Land, the United Water Conservation District, and the Upper Basin Water Purveyors. This monitoring program will result in a database addressing water usage in the Saugus Formation and Alluvial aquifer over various representative water cycles. The parties to the MOU intend to utilize this database to further identify surface water and groundwater impacts on the Santa Clara River Valley. Newhall Land, in coordination with RWQCB staff, will select a representative location upstream and downstream of the Newhall Ranch Specific Plan and sample surface and groundwater quality. Sampling from these two locations would begin upon approval of the first subdivision map and be provided annually to the RWQCB and Los Angeles County for the purpose of monitoring water quality impacts of the Specific Plan over time. If the sampling data results in the identification of significant new or additional water quality impacts resulting from the Specific Plan which were not previously known or identified, additional mitigation shall be required at the subdivision map level. A to-be-formed district (GHAD, Drainage Benefit Assessment (DBA), or other special district), formed prior to the first home sale, will conduct monitoring within the Newhall Land subregion and will report to DPW.

The approved Newhall Ranch Water Reclamation Plant (WRP) NPDES Permit (Order No. R4-2007-0046) requires that a watershed-wide monitoring program be developed for the Santa Clara River watershed under the leadership of the RWQCB and the stakeholder groups developing salt and nutrient Total Maximum Daily Loads (TMDLs). The goals of the watershed-wide monitoring program include evaluating or assessing compliance with receiving water objectives, trends in surface water quality, impacts to beneficial uses, the health of the biological community, data needs for modeling contaminants of concern, and attaining the goals of the TMDLs under implementation in the Santa Clara River watershed. Until the watershed-wide monitoring program is developed, Newhall Land will continue to monitor water quality in the Santa Clara River per the requirements of the Newhall Ranch WRP NPDES Permit. The Newhall Ranch WRP NPDES permit monitoring program, which includes three Santa Clara River sampling locations, requires semi-annual sampling until the Newhall Ranch WRP begins discharge; once discharge from the WRP commences, more frequent sampling is required. The Newhall Ranch WRP receiving water monitoring program includes chemical, toxicity, and bioassessment monitoring in the Santa Clara River.

In addition, the County of Los Angeles, as required by the Los Angeles County MS4 Permit, conducts monitoring to assess compliance with the permit. In-stream water quality monitoring is conducted on the mainstem of the Santa Clara River at a mass emission station located at The Old Road, at the upstream boundary of the Project area.

Response 17

This comment states that the total and fecal coliform levels in the wet weather tributary monitoring are much higher than would be expected from undeveloped areas and that the probable sources of coliform bacteria should be described.

The existing land uses within the tributary watersheds consists of open space, agriculture (including livestock grazing), and oil and gas extraction (with associated access roads). As discussed on page 4.4-96 of the Draft EIS/EIR, there are numerous sources of pathogen indicators, including birds and other wildlife, as well as domesticated animals, soils, and plant matter. Elevated fecal indicator bacteria densities observed in the tributaries to the Santa Clara River monitored at Stations A through E should be attributed to livestock grazing and natural sources, specifically wildlife, birds, and soil erosion. Fecal indicator bacteria densities are often further elevated due to instream growth facilitated by the presence of organic matter and warm water temperatures (SCCWRP, 2007). Septic systems associated with development in the Val Verde area may also lead to increased fecal indicator bacteria densities in Chiquito Canyon (Station E).

References

The following references were used or relied upon, are available for public review upon request to the Corps or CDFG, and are incorporated by reference:

Southern California Coastal Water Research Project (SCCWRP), 2007. Assessment of Water Quality Concentrations and Loads from Natural Landscapes. Technical Report 500.

Response 18

The comment states that the Draft EIS/EIR should show the geometric mean for coliform rather than the arithmetic average for wet weather data (**Tables 4.4-7**, **4.4-8**, and **4.4-9**). These data are provided in Table 18 in **Response 15**, above.

Response 19

The comment states that bacteria standards are incorrectly referenced on pages 4.4-36 and 4.4-38 of the Draft EIS/EIR and correctly in **Table 4.4-11** and **Subsection 4.4.6.2.2**. Resolution No. 01-018, Amendment to the Water Quality Control Plan for the Los Angeles Region to Update the Bacteria Objectives for Water Bodies Designated for Water Contact Recreation, was adopted by the Los Angeles Regional Board on October 25, 2001. As shown in **Table 4.4-11** of the Draft EIS/EIR, the amended Basin Plan bacteria objectives are as follows:

Geometric mean limits:

E. coli density shall not exceed 126/100ml.

Fecal coliform density shall not exceed 200/100 ml.

Single Sample Limits

E. coli density shall not exceed 235/100 ml.

Fecal coliform density shall not exceed 400/100 ml.

Pages 4.4-38 and 4.4-40 of the Draft EIS/EIR contain incorrect references to the bacteria standards. Both of these references have been corrected in revised **Section 4.4** of the Final EIS/EIR as follows:

> ". . . the Basin Plan objective for fecal coliform in fresh water is: Fecal coliform density shall not exceed 200/100 ml (geometric mean) or 400/100 ml (single sample). ~~a log mean of 200/100 mL (based on a minimum of not less than 10 percent of total samples during any 30-day period), nor shall more than 10 percent of the total number of samples during any 30-day period exceed 400/100 mL.~~" (Final EIS/EIR, revised **Section 4.4**, pp. 4.4-39 and 4.4-41.)

Response 20

The comment relates to the discussion on "Pathogens" beginning on page 4.4-95 and specifically calls out statements in the discussion on the reliability of bacterial indicators (*i.e.*, fecal coliform) for stormwater. The comment states that the discussion on pathogens in Section 4.4.6.2.2 is inaccurate and inadequate to determine the potential effects of the Newhall development on beneficial uses (REC-1 and REC-2) in the Santa Clara River.

Although the impact analysis for pathogens (Draft EIS/EIR **Section 4.4**, pages 4.4-96 - 4.4-98) includes a discussion on the adequacy of the established pathogen indicators, the conclusion of significance for pathogen indicators on page 4.4-98 uses the existing REC-1 pathogen indicator water quality standards as the threshold of significance. The analysis presented adequately addresses whether the proposed Project's stormwater runoff would violate the water quality standards or waste discharge requirements, create or contribute runoff that would provide substantial additional sources of polluted runoff, or otherwise substantially degrade water quality. This pathogen discussion has been clarified in the Final EIS/EIR as set forth later in this response. The analysis in both the Draft EIS/EIR and the Final EIS/EIR concludes that although stormwater discharges from the proposed Project could potentially exceed the adopted REC-1 Basin Plan standards for fecal indicator bacteria (FIB) (such as E. coli and fecal coliform), Project build-out would not result in substantial changes in pathogen levels, would not cause a violation of waste discharge requirements, would not create runoff that would provide substantial additional sources of bacteria, or otherwise substantially degrade water quality in the receiving waters. As indicated in Draft EIS/EIR **Section 4.4**, Water Quality, water quality impacts related to pathogens, as assessed using the REC-1 Basin Plan objective as the threshold of significance, would be reduced to less-than-significant under Significance Criteria 1 through 3 with the implementation of proposed treatment BMPs and Mitigation Measures SP-4.2-7 (subsequent tract map development projects must comply with applicable County requirements, such as NPDES, Urban Storm Water Mitigation Plan, and a Storm Water Pollution Prevention Plan) and WQ-1 (subsequent tract map development projects must implement best management practices and project design features identified in a Standard Urban Stormwater Mitigation Plan). The REC-2 objectives are less stringent than REC-1, therefore, REC-2 objectives would also be met by the proposed Project with the implementation of the identified mitigation measures.

The comment also states that while there is potential for improved indicators of human health risk due to fecal matter-related pathogens, the established indicators, fecal coliform and *E. Coli*, are reliable and meaningful indicators of human risk; they continue to be recommended by USEPA as ambient water quality objectives; and are the prevailing water quality objectives in the Los Angeles Region. The comment requests that the pathogens discussion include additional reference to, at a minimum: 1) USEPA, 1986, 2) Pruss, 1998, and 3) Haile et al, 1999. These references are discussed below. In addition, the comment requested that reference should be added to the Southern California Coastal Water Research Project (SCCWRP) indicator bacteria survey of reference streams in Southern California (Tiefenthaler, Stein, and Lyon, 2009). The SCCWRP study surveyed fecal indicator bacteria level in dry weather flows from southern California reference streams and does not pertain to indicator bacteria levels in stormwater flows from undeveloped watersheds, which are the types of flows pertinent to the impacts analysis. Planned treatment controls must be sufficient to preclude discharge of dry weather flows to natural receiving water bodies pursuant to the requirements of the EIR/EIS and NRSP Sub-Regional SWMP.

USEPA, 1986

The Ambient Water Quality Criteria for Bacteria-1986 (USEPA, 1986) established bacteriological water quality criteria for marine and fresh recreational waters based on a non-regulatory, scientific assessment of ecological and public health effects conducted by USEPA. The document discusses epidemiological studies conducted by the United States Public Health Service (USPHS) in 1948, 1949, and 1950, which found an "epidemiologically detectable health effect" at levels of 2300 total coliform per 100 mL at bathing beaches on Lake Michigan (at Chicago) and in the Ohio River. Further studies conducted in the mid-1960s showed that approximately 18% of the total coliforms present at the Ohio location belonged to the fecal coliform subgroup. The total coliform water quality index was then translated into a fecal coliform index by using the ratio of fecal coliforms to total coliforms measured at the location on the Ohio River. To reduce the acceptable risk, the bacteriological health effect level was reduced by one-half. Thus, the criterion recommended in the mid-1960's was:

> "Fecal coliforms should be used as the indicator organism for evaluating the microbiological suitability of recreation waters. As determined by multiple-tube fermentation or membrane filter procedures and based on a minimum of not less than five samples taken over not more than a 30-day period, the fecal coliform content of primary contact recreation waters shall not exceed a log mean of 200/100 mL, nor shall more than 10 percent of total samples during any 30-day period exceed 400/100 mL."

Several studies summarized in USEPA (1986) questioned this criterion and recommended the use of alternatives. As early as 1972, a Committee formed by the National Academy of Science-National Academy of Engineers noted the deficiencies in the study design and data used to establish the recreational fecal coliform criterion, and stated that it could not recommend a recreational water criterion because of a paucity of valid epidemiological data (USEPA, 1972).

In response to these concerns, USEPA initiated studies at marine and freshwater bathing beaches that were designed to correct the deficiencies in the earlier studies and analyses. These studies were conducted at sites contaminated either with pollution from multiple point sources (usually treated wastewater effluents that had been disinfected) or by effluents discharged from single point sources. The studies examined three bacterial indicators of fecal pollution (*E. coli*, enterococci, and fecal coliforms) and found that fecal coliform densities showed "little or no correlation" to gastrointestinal illness rates in swimmers. In contrast, a good correlation was found between swimming-associated gastrointestinal symptoms and either *E. coli* or enterococci in swimming waters. The report states that the etiological agent for the acute gastroenteritis is probably viral from human fecal wastes, and that *E. coli* is the most fecal specific of the coliform indicators. Based on these studies, USEPA in 1986 proposed section 304(a) criteria for full body contact recreation based upon *E. coli* and/or enterococci and strongly recommended that states begin the transition process to the new indicators.

Pruss, 1998

Pruss reviewed epidemiological studies on the health effects from exposure to recreational water (Pruss, 1998). Out of the 37 studies identified, 22 were reviewed because they addressed associations of interest and fulfilled the validity criteria. The 22 studies were conducted in the U.S. and internationally (U.K., New Zealand, Hong Kong, South Africa, Australia, Israel, Spain, France, Canada, and Egypt), from 1953 through 1996. Most of the studies reported a dose-related increase of health risk in swimmers with an increase in the indicator-bacteria count in recreational waters. Relative risk values for swimming in "polluted water" versus "clean water" were often significant. The source of pollution was not clearly identified in the review summary, but the contamination was from fecal matter or contamination by other bathers. The use of indicator microorganisms for assessing water quality of exposure was stated to be one of the major sources of bias in the studies, because temporal and spatial indicator variation is substantial and difficult to relate to individual bathers unless the study design is experimental. The indicator microorganisms that were found to correlate best with health outcomes were enterococci/fecal streptococci for both marine and freshwater, and *E. coli* for freshwater.

Haile et al, 1999

Haile et al (1999) demonstrated a relationship between illness and swimming in Santa Monica Bay near storm drain outlets during dry weather. The study interviewed thousands of subjects who swam at three beaches on the same day as indicator bacteria and enteric virus samples were taken in the Bay at ankle depth within a certain distance of the storm drain outlet. The study found that the risk of a number of symptoms indicative of illness increased for people who swam at a storm drain outlet when compared to people who swam up to 400 yards away from the outlet. Additionally, the study found some correlation between higher sample concentrations of fecal indicator bacteria (including total coliforms, fecal coliforms, *E. coli*, and enterococci) and higher rates of symptoms in the swimmers. These results indicated that dry weather urban runoff has the potential to carry pathogens capable of causing illness in humans. The study states that pathogenic indicators are proxy measures of true pathogenic agents, and thus may underestimate the effects of pathogens in dry weather urban runoff.

These additional references support the statements contained in the Draft EIS/EIR that there is debate over the use of fecal coliform as an indicator of gastrointestinal illness in swimmers and that most researchers who have correlated human illness to fecal indicator bacteria levels have conducted epidemiological studies in waters receiving point inputs of treated or raw sewage (or dry weather urban flows in the case of Haile et. al. (1999)). Few epidemiological studies have tested the health effects of exposure to water receiving direct and recent stormwater runoff.

Although *E. coli* and/or enterococci continue to be recommended by USEPA as ambient water quality objectives and were used as significance thresholds in the pathogen indicator impact analysis in the Draft EIS/EIR, the USEPA will publish new or revised recreational water quality criteria by October 2012 in accordance with a Consent Decree and Settlement Agreement between the USEPA and the Natural Resources Defense Council, the National Association of Clean Water Agencies and the Los Angeles County Flood Control District (plaintiffs). (*Natural Resources Defense Council et al. v. USEPA* (C.D. Cal., 2008, No. CV06-4843 PSG.) This Consent Decree and Settlement Agreement, entered by the court on September 4, 2008, was the result of plaintiffs' lawsuit against USEPA regarding the requirements to meet statutory deadlines in the Clean Water Act, as amended by the Beaches Environmental Assessment and Coastal Health Act of 2000, to conduct studies on pathogens and pathogen indicators in coastal recreational waters and publish water quality criteria recommendations based on those studies.

Under the Decree, the new or revised criteria recommendations would replace the criteria recommendations issued in USEPA (1986). Prior to the conclusion of the lawsuit, USEPA prepared a Critical Path Science Plan (USEPA, 2007a) and a Criteria Development Plan (USEPA, 2007b). The Critical Path Science Plan describes the high priority research and science that USEPA intends to conduct to establish the scientific foundation for the development of new or revised recreational water quality criteria. The companion document, the Criteria Development Plan, describes the process and timeline USEPA intends to follow to develop and publish new or revised water quality criteria for pathogens and pathogen indicators.

To clarify the intent of the Pathogens discussion, and in response to this comment, the Pathogens discussion (pages 4.4-96 though 4.4-98 of the Draft EIS/EIR) has been replaced with the following text in the Final EIS/EIR:

> "Pathogens are viruses, bacteria, and protozoa that can cause gastrointestinal and other illnesses in humans through body contact exposure. Identifying pathogens in water is difficult as the number of pathogens is fairly small, requiring sampling and filtering large volumes of water to obtain a reliable result. Traditionally regulators have used fecal indicator bacteria (FIB), such as total and fecal coliform, enterococci, and *E. coli*, as indirect measures of the presence of pathogens, and by association, human illness risk. Early epidemiological studies (i.e., studies that investigate human illness occurrence versus environmental factors such as water quality) that linked swimming-associated gastrointestinal symptoms to *E. coli* or enterococci in swimming waters for sewage-dominated receiving waters led to the development of the current recreational water quality criteria (USEPA, 1986). In contrast to receiving waters subject to sanitary discharges, only a few epidemiological studies have evaluated the health effects of exposure to water bodies subject to discharges from storm drains and these studies focused on the effects of dry weather urban flows on recreational exposure (e.g., Haile et al, 1999 and Colford et al, 2005).
>
> <u>Factors That Affect FIB Concentrations</u>
>
> There are various confounding factors that affect the reliability of FIB as pathogen indicators. One primary factor is that there are numerous natural or non-anthropogenic (or "zoonotic") sources of FIB in developed watersheds and their receiving water bodies,

including birds and other wildlife, soils, and plant matter. Anthropogenic sources may include domesticated animals and pets, poorly functioning septic systems, sewer system overflows or spills, cross-connections between sewer and storm drains, and the utilization of outdoor areas or storm drains for human waste disposal by people without access to indoor sanitary facilities. All of these sources can contribute to the concentrations of FIB, but not all the sources may pose a comparable human health risk (USEPA, 2009).

A second confounding factor is that FIB can multiply in the field if the substrate, temperature, moisture, and nutrient conditions are suitable (MEC, 2004). This is one potential reason that FIB concentrations do not always correlate with pathogens. For example, in a field study conducted by Schroeder *et al.* (2002), pathogens (in the form of viruses, bacteria, or protozoa) were found to occur in 12 of 97 soil samples, but the samples that contained pathogens did not correlate with the samples containing concentrations of FIB. Numerous other researchers have reported that bacteria presence and even regrowth was observed in various substrates such as beach sands, wrack line (accumulation of kelp in the inter-tidal area of beaches), inter/sub-tidal sediments, and material deposited in storm drains (MEC, 2004). FIB monitoring in the Santa Ana River indicate that the ubiquity of sources and potential regrowth far exceed the human sources of fecal bacteria generated by the entire population in the watershed (Surbeck et al, 2008). Regrowth of bacteria downstream of a package treatment plant utilizing ultraviolet (UV) radiation to disinfect dry weather flows in Aliso Creek was considered a prime factor in the rapid rebound of FIB concentrations downstream of the plant (Andersen, 2005).

A third confounding factor is that the persistence of FIB may differ from those of various pathogenic viruses, bacteria, protozoa. Viruses, for instance, are small, low in number, and difficult to inactivate, while protozoa may form protective cysts that are resistant to destruction and render them dormant but capable of reactivating in the future. Therefore, while some indicator bacteria may die off in the water column due to ultraviolet disinfection or other unfavorable environmental conditions (including predation and antagonism), pathogens occasionally may persist longer (Haile et. al., 1999). So while the previously two described factors may result in indicator bacteria resulting in false positive indications of public health risk, there may also be instances when indicator bacteria result in false negative indications.

<u>Current Research Efforts to Improve Recreational Water Quality Criteria</u>

Given the concern about the adequacy of the current recreational water quality criteria, the USEPA is undergoing a comprehensive evaluation and revision of their current FIB-based recreational water quality criteria, with completion scheduled for 2012. To help initiate this effort, USEPA gathered 43 experts to identify research priorities needed to refine the existing criteria and transition to new methods (USEPA, 2007). The experts identified seven topics for research, including "scientifically defensible for applications in a wide variety of geographical locations and water types" and "protective of individuals exposed to recreational waters impacted by all sorts of pathogen sources including animal feces, stormwater, and sewage" (Boehm et al, 2009).

In a similar effort focused on inland waters, the Water Environment Research Federation (WERF) convened an expert panel to recommend a research program that would also support USEPA's intended revision of the water quality criteria (WERF, 2009).

Epidemiological Studies

Until recently, few epidemiological studies have tested the health effects of exposure to the receiving waters of direct and recent stormwater runoff, and these studies have found it difficult to link illness with stormwater sources. For instance, the Mission Bay epidemiological study (Colford *et al.*, 2005) found that "only skin rash and diarrhea were consistently elevated in swimmers versus non swimmers, the risk of illness was uncorrelated with levels of traditional water quality indicators, and State water quality thresholds were not predictive of swimming-related illnesses." Various other researchers, as part of USEPA's pathogen research program, are now conducting epidemiological studies nationwide at fresh and salt water beaches that receive wastewater and/or stormwater discharges. In southern California, the Southern California Coastal Water Research Project (SCCWRP) has been conducting a multi-year study of public health risks at marine beaches, with a final report that is scheduled for late 2010. Until these various studies are completed, however, there is no reliable documentation of the health effects caused by exposure to stormwater based on epidemiological studies.

Effects of Land Use and Runoff on FIB Concentrations

Dry weather, non-storm stream flows from undeveloped watersheds tend to have lower concentrations of FIB than dry weather urban flows, although water quality standard exceedances still occur. For instance, a recent study by SCCWRP, which monitored 15 unimpaired natural southern California streams weekly during dry weather for a year, showed that about 18% of the samples exceeded daily and monthly bacterial indicator thresholds although concentrations from these unimpaired streams were one to two orders of magnitude lower than levels found in developed watersheds (Tiefenthaler, *et al.*, 2009). The study reported an average of the geometric means for *E. coli* in dry weather flows in each stream of 41 MPN/100 mL. In comparison, the Los Angeles REC-1 Basin Plan objective for *E. coli* density is 126 MPN/100 mL (geometric mean).

During wet weather, stormwater runoff can mobilize indicator bacteria from a number of watershed and instream sources, and therefore, indicator bacteria concentrations tend to increase. For example, median stormwater runoff monitoring results for the open space land use category, as summarized by Stein et. al. (2007), include *E. Coli* concentrations of about 5,400 MPN/100 mL from the 2001-2005 Los Angeles River Watershed Wet Weather Study, and 7,200 MPN/100 mL from the National Stormwater Quality Database (Pitt *et al.*, 2003). Similarly, median open space land use stormwater runoff monitoring results include *E. coli* concentrations of 5,400 MPN/100 mL from the Stein *et al.* (2007)

study based on two flow-weighted average results, and 500 MPN/100 mL for fecal coliform from a 1994-2000 Los Angeles County (2000) study based on 21 grab samples. The monitoring data collected in the tributaries of the Santa Clara River showed a range of fecal coliform concentrations from 953 MPN/100 mL to greater than 81,200 MPN/100 mL (see Table 4.4-7).

Land use type and condition also affect runoff concentrations, and most studies show higher FIB concentrations in urban runoff than in open space runoff. Runoff from residential land uses from the Los Angeles River Watershed Wet Weather Study had a median *E. coli* concentration of about 6,300 MPN/100 mL and about 8,300 from the National Stormwater Quality Database (Table 5-2, Stein et. al, 2007). The median value of four flow-weighted average results from the Stein et. al. (2007) study was about 6,100 MPN/100mL for *E. coli* for the low density residential land use site. These data represent urban areas that in general do not have source and treatment controls, and therefore are not indicative of runoff from the proposed Project build-out.

Runoff from agricultural watersheds involving horticulture and row cropping is known to similarly contain relatively high concentrations of FIB. Data from a stormwater drain serving an agricultural watershed with predominantly row crops in Ventura County showed median fecal coliform levels (approximately 7,000 MPN/100 mL) similar to that found for general urban runoff (Ventura County, 2005). Geometric mean concentrations of fecal and total coliform bacteria observed in wet weather flows at all tributary monitoring stations and in Santa Clara River Reach 5 ranged from 87 MPN/100 mL to 143,000 MPN/100 mL and 284 MPN/100 mL to 323,000 MPN/100 mL, respectively (Table 4.4-8). Agricultural land and open space areas likely share some of the same wildlife sources, but livestock may be present as well. These data indicate that wildlife, livestock, plants and/or soils can be a very important source of pathogens and/or FIB.

<u>Project Design Features that Address Pathogen Indicators</u>

The primary sources of pathogen indicators from the Project development would likely be sediment, pet wastes, wildlife, and regrowth in the storm drain itself. Other sources of pathogens and pathogen indicators, such as cross connections between sanitary and storm sewers, are unlikely given modern sanitary sewer installation methods and inspection and maintenance practices.

The levels of bacteria in runoff from the Project would be reduced by source controls and treatment controls. The most effective means of controlling specific bacteria sources, such as pet and other animal wastes, is through source control, specifically education of pet owners, education regarding feeding (and therefore attracting) of waterfowl near waterbodies, and providing products and disposal containers that encourage and facilitate cleaning up after pets. These BMPs are specified as project source controls described in **Table 4.4-12**.

Although there are limited data on the effectiveness of different types of stormwater treatment to manage pathogen indicators, treatment processes that help reduce pathogen indicators include sunlight (ultraviolet light) degradation, sedimentation, and filtration.

Bioretention facilities that incorporate an amended soil media for filtration is an example of a type of stormwater treatment effective in addressing FIB. The City of Austin, Texas conducted a number of studies on the effectiveness of sedimentation/filtration treatment systems for treating stormwater runoff (City of Austin, 1990; CWP, 1996). Most of the structures were designed to treat one-half inch of runoff. Data from four sand filters indicated a range of removals from 37 percent to 83 percent for fecal coliform, and 25 percent to 81 percent for fecal streptococci. Research on the use of filtration to remove bacteria also has been conducted in Florida by the Southwest Florida Water Management District (Kurz, 1999). Significant reductions in total and fecal coliform bacteria and the other indicators were observed between inflow and outflow samples for sand filtration. Percent reductions were measured using flow-weighted sampling techniques. Total coliform bacteria removals were less than 70 percent, and fecal coliform bacteria reduction varied from 65 percent to 100 percent.

Similarly, where soil conditions are conducive to infiltration, LID practices and stormwater treatment facilities that allow for infiltration can reduce runoff volume and treat FIB by infiltration, which in turn reduces FIB loads. In a literature summary, USEPA reported typical pathogen removal for infiltration facilities as 65 to 100 percent (USEPA, 1993). These types of BMPs are specified in **Table 4.4-13** for incorporation into the project as determined appropriate in the Project WQTR to meet the treatment control design standards specified in the NRSP Subregional SWMP, which are based on achieving equivalent pollutant control and hydrologic control as specified the LID Ordinance and in the MS4 Permit/ SUSMP Manual requirements for treatment of volume or flow of stormwater.

In summary, stormwater discharges from the Project could potentially exceed the REC-1 Basin Plan standard for FIB and therefore impacts from FIB may be significant prior to mitigation. However, the FIB concentrations in runoff from the Project would be reduced through the implementation of source and treatment control PDFs. The Project build-out will incorporate a number of source controls specific to managing FIB, including education of pet owners, education regarding feeding (and therefore attracting) of waterfowl near waterbodies, and providing products and disposal containers that encourage and facilitate cleaning up after pets. The Project will not include septic systems and the sewer system will be designed to current standards which minimizes the potential for leaks. The Project development, consistent with the MS4 permit requirements, includes a comprehensive set of source and treatment control PDFs, including treatment BMPs (i.e., extended detention basins, bioretention, and media filtration), selected to manage pollutants of concern, including pathogen indicators. With these PDFs, Project build-out would not result in substantial changes in pathogen levels, would not cause a violation of waste discharge requirements, would not create runoff that would provide substantial additional sources of bacteria, or otherwise substantially degrade water quality in the receiving waters. Water quality impacts related to pathogens would be reduced to less-than-significant under Significance Criteria 1 through 3 with the implementation of proposed treatment BMPs and Mitigation Measures SP-4.2-7 (subsequent tract map development projects must comply with applicable County requirements, such as NPDES, Urban Storm Water Mitigation Plan, and a Storm Water Pollution Prevention Plan) and WQ-1 (subsequent tract map development projects must implement best management practices and project design features identified in a Standard Urban Stormwater Mitigation Plan)." (See Final EIS/EIR, revised **Section 4.4**, pp. 4.4-98 - 4.4-102.)

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Response 21

The comment excerpts a portion of text from the Draft EIS/EIR. The complete text in the Draft EIS/EIR (page 4.4-96) is as follows: "The USEPA has recognized that routine exceedances of ambient water quality criteria due to natural sources of pollution occur. In response, the USEPA has recommended changes to designated uses as the most appropriate way to address these situations."

The discussion of Pathogens on page 4.4-96 was not intended to imply that the designated uses of the Santa Clara River should be changed. This statement has been removed in the Final EIS/EIR, revised **Section 4.4**, Water Quality. See **Response 20**, above, for the revised text.

Response 22

The commentor indicates that there are other methods, such as the utilization of a reference reach, to establish allowable exceedances of bacterial standards or implementing a natural sources exclusion. As explained in **Responses 20** and **21**, above, the Final EIS/EIR, revised **Section 4.4**, Water Quality, has been revised to clarify that no change in designated uses is intended. Therefore, it is not necessary to discuss the requirements for a Use Attainability Analysis (UAA) or the methods suggested in this comment, and no additional response is provided.

Response 23

This comment addresses the issue of beach replenishment and/or sediment loading as a result of the proposed Project. As detailed in **Section 4.2** of the Draft EIS/EIR, the Santa Clara River exports an estimated CDFG; 4.08 million tons of sediment per year from its mouth into the Santa Barbara Channel. In total, the RMDP and SCP would result in the net reduction of 9,966 tons of sediment per year (originating from the Project area tributaries and Project reach of the Santa Clara River), or approximately 0.25 percent of the total estimated sediment discharge to the Santa Barbara Channel, which would be a less-than-significant impact to local beaches. Although the impact is considered less than significant, the Draft EIS/EIR identified Mitigation Measure GRR-6, which specified that sediment from upland sources, such as debris basins and other sediment retention activities, would be redistributed in permitted upland and/or riparian locations, if available, along the Santa Clara River to reintroduce sediment for beach replenishment purposes. Implementation of Mitigation Measure GRR-6, should appropriate options be available, would further minimize any adverse effect of debris and sediment reduction on downstream beach erosion.

Sediment from upland sources, such as debris basins and other sediment retention activities, would be managed by the DPW. Potential management options for the sediment include delivery to a permitted waste disposal facility for use as cover material, placement in permitted upland or riparian locations along the Santa Clara River and/or tributaries, and/or transport and placement at designated beach sites for beach replenishment purposes. In regards to waste disposal facilities, Chiquito Landfill, a facility located within the Santa Clara River watershed, has indicated a need for large quantities of cover material and would have the capacity to receive the majority of the captured sediment.

Although no significant impact to local beaches were identified in the Draft EIS/EIR, sediment from upland sources, such as debris basins and other sediment retention activities, would be redistributed in DPW-designated and permitted upland or riparian locations along the Santa Clara River and/or tributaries to reintroduce sediment for beach replenishment purposes pursuant to Mitigation Measure GRR-6. Specifically, if deemed appropriate, the sediment could possibly be delivered to local beaches as part of an approved beach replenishment program in accordance with applicable regulations and permit requirements. The Beach Erosion Authority for Clean Oceans and Nourishment (BEACON) has developed a Coastal Regional Sediment Management Plan, Central Coast from Point Conception to Point Mugu (BEACON, 2009). The quantity, timing, and placement of Project-derived material would be conducted in accordance with the guidelines provided in the Coastal Regional Sediment Management Plan. Environmental review of specific projects recommended in the regional management plan would assess impacts associated with use of the material for the purpose of beach replenishment.

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The following references were used or relied upon, are available for public review upon request to the Corps or CDFG, and are incorporated by reference:

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