

DRAFT CLEAN WATER ACT SECTION 404(b)(1) EVALUATION**APPLICANT:****NEWHALL LAND AND FARMING COMPANY****NEWHALL RANCH RESOURCE MANAGEMENT AND DEVELOPMENT PLAN****I. Introduction**

The following evaluation is prepared in accordance with Section 404(b)(1) of the Federal Water Pollution Control Act Amendments of 1972 (Public Law 92-500) as amended by the Clean Water Act of 1977 (Public Law 95-217). The intent of this document is to state and evaluate information regarding the effects of the discharge of dredged or fill material into waters of the United States. As a result, this analysis is not meant to stand-alone and relies heavily upon information provided in the Draft and Final Environmental Impact Statement/Environmental Impact Report for the Newhall Ranch Resource Management and Development Plan (RMDP) and Spineflower Conservation Plan (SCP) as well as the attached Draft Section 404(b)(1) Alternatives Analysis that was prepared by the applicant. The proposed project is to permanently discharge fill material into approximately 93.3 acres and temporarily impact 33.3 acres of waters of the United States for the construction and maintenance of flood control facilities, roads, utilities, infrastructure and other components associated with the proposed Newhall Ranch Resource Management and Development Plan near the city of Santa Clarita, Los Angeles County, California.

II. Project Description**A. Location**

The 12,000-acre site encompasses approximately 5.5 linear miles of the Santa Clara River and several side drainages near Santa Clarita, northwestern Los Angeles County, California (at: lat:34-24-5.0040 lon:118-37-46.9920).

B. General Description

The proposed RMDP component of the Newhall Ranch Specific Plan would facilitate a broad range of residential, mixed-use, commercial and industrial land uses, various public facilities, and public services and utilities, together with preservation of large tracts of open space. At build-out, the proposed project would result in approximately 2,550 acres of residential uses (9,081 single-family homes on 1,559 acres, and 11,804 multi-family homes on 991 acres), 5.5 million square feet of commercial uses on 258 acres; and the development of approximately 643 acres devoted to public facilities such as community parks, neighborhood parks, golf course, community lake, new elementary, junior high and high schools, library, electrical substation, fire stations, and a 6.8 million gallon per day water reclamation plant (WRP). Open space would be provided on approximately 8,683 acres on the project site, and an additional 1,517 acres of open space in the Salt Creek area adjacent to the project area (for a total of about 10,200 acres of open space within the project site including the Salt Creek preservation

area). The open space would also include land dedicated to the preservation of the San Fernando Valley spineflower (spineflower).

The proposed project and alternatives would include discharges of fill material to construct infrastructure and other components in the Santa Clara River and its tributary drainages. The proposed infrastructure and other elements would include debris and detention basins, water quality control facilities, bank stabilization, bridges, culverted road crossings, grade control structures, temporary haul routes, utilities, storm drains, habitat enhancement and geotechnical survey activities. In addition, the existing channels for some drainages would be realigned, recontoured, or converted to buried storm drain systems to accommodate the proposed development. Of the 660.1 acres of waters of the United States within the project area, the proposed project would permanently impact 93.3 acres, or approximately 14.1 percent of waters of the United States on site. Of the 660.1 acres of waters of the United States, approximately 276.9 acres are jurisdictional wetlands, with the proposed project permanently filling approximately 20.5 acres of wetlands (avoidance of permanent impacts to approximately 92% of the total wetland area). Temporary impacts would occur in jurisdictional areas where necessary to allow construction and maintenance of proposed project facilities. To minimize impacts to waters of the United States, the temporary impacts would occur outside the actual footprint of the facility once constructed, thereby allowing rehabilitation of channel substrate and riparian vegetation. For example, construction of bridges across the Santa Clara River would require disturbance of lands on either side of the proposed bridge location during construction, but these areas would not be occupied by the bridge once completed. Temporary impact zones would be restored to appropriate grade and revegetated, following completion of construction activities in the area. Although proposed maintenance areas would remain waters of the United States, these areas would exhibit a permanent reduction in functions and services, which would require compensatory mitigation. In total, the proposed project would result in temporary discharges of fill material in approximately 33.3 acres of waters of the United States in the Santa Clara River and its tributaries. With the proposed project, approximately 533.5 acres of waters of the United States would be completely avoided (approximately 80% of the jurisdictional areas) and approximately 566.8 acres of waters of the United States would not be affected by permanent discharges of fill material (approximately 86% of the jurisdictional areas). Aquatic resource areas that exhibit relatively high physical and biological functions that would be avoided by the proposed project design include the Middle Canyon Spring, the majority of the wetlands adjacent to the Santa Clara River and the entire Salt Creek subwatershed.

C. Overall and Basic Project Purpose

The "overall project purpose" is the development of a master planned community with interrelated villages in the vicinity of the Santa Clarita Valley in northwestern Los Angeles County that achieves the basic objectives of the Specific Plan by providing a broad range of land uses of approximately the same size and proportions as approved in the Specific Plan, including residential, mixed-use, commercial and industrial uses, public services (schools, parks, *etc.*), and a water reclamation plant. The "basic project purpose" is to provide housing and commercial/industrial/mixed-use development. The basic project purpose is not water dependent and therefore, the rebuttable

presumption in the 404(b)(1) Guidelines does apply to the proposed project. For detailed information concerning the development of the overall and basic project purpose, please reference the attached Draft Section 404(b)(1) Alternatives Analysis that was prepared by the applicant.

D. General Description of Dredged or Fill Material

The proposed infrastructure and other components include of debris and detention basins, bank stabilization, water quality control facilities, bridges, culverted road crossings, grade control structures, utilities, habitat enhancement, temporary haul routes, storm drains and geotechnical survey activities. In addition, the existing channels of some drainages would be realigned, recontoured, or converted to buried storm drain systems to accommodate the proposed development. The proposed project and alternatives would include placement of upland substrate from the project area in waters of the United States as well as standard construction materials for roads and flood control facilities such as compacted substrate, sheet pile, soil cement, rip rap and concrete.

E. Description of Proposed Discharge of Fill Location

The Santa Clara River is the largest watercourse within the project site, and all other drainages within the site are tributary drainages to this river. There are 21 jurisdictional drainages within the project site (including a five-mile reach of the Santa Clara River). The smallest, ephemeral drainages on site have been combined into a single group, and have jurisdictional area totaling 34.4 acres (approximately 5.2 percent of the total Corps jurisdiction on the project site). The proposed project is to permanently discharge fill material into approximately 93.3 acres and temporarily impact 33.3 acres of waters of the United States for the construction and maintenance of flood control facilities, roads, infrastructure and other components associated with the RMDP. For detailed information concerning the proposed locations for the discharge of fill material, please reference the attached Draft Section 404(b)(1) Alternatives Analysis that was prepared by the applicant.

F. Description of Fill Methods

The proposed project and alternatives propose to construct up to three bridges across the Santa Clara River mainstem to accommodate future traffic associated with development of the proposed project (Alternative 2) and the region. These include two proposed bridges, at Potrero Canyon Road and Long Canyon Road, and one previously permitted bridge at Commerce Center Drive. The bridges would consist of concrete roadway decks atop concrete, pier walls, columns and/or piers spaced approximately 100 feet apart. Each bridge would require an abutment on either bank of the river, and the bridge piers would be either poured in place or constructed by pile-driving, depending on circumstances. Where pile-driving technology is used, the piers would be constructed without the need to place fill material into waters of the United States. Instead, the piles would be driven sequentially, and equipment would be supported by one pile while driving the next. Where poured-in-place technology is employed, construction equipment would need to enter the riverbed, excavate to suitable depth, and construct forms for the piers, which would then be filled with concrete. This construction method could potentially require dewatering activities in the river channel,

if the proposed pier location is within the active channel or if subsurface flows are encountered during construction. The proposed project does not propose any bridges across tributary drainages; but many of the other alternatives evaluated in the Final EIS/EIR include them as a means for avoiding and minimizing impacts to waters of the United States that would be associated with the proposed culvert drainage crossings.

The design of proposed bridges crossing tributary drainages would be substantially similar to that proposed for bridges across the river mainstem, except that, in many cases, the tributary drainage channels are narrow enough that piers would not be required. In these cases, fill of waters of the United States would be limited to impacts along the banks caused by the bridge abutments. Where interior supports are needed, the same technologies proposed for the Santa Clara River bridges would be implemented (pile-driving, concrete poured in place). Because the proposed bridges crossing tributary channels would be smaller than those proposed across the river mainstem, the temporary construction zone would not be as large, and would only extend approximately 60 feet upstream and downstream of the bridge.

The proposed project and alternatives would utilize culvert road crossings to facilitate vehicle traffic over tributary drainages. These crossings would accomplish the same basic function as bridges across tributary drainages, discussed above, but would result in greater fill of waters of the United States. Under the proposed project, 15 new road crossing culverts would cross six of the larger on-site tributaries of the Santa Clara River (Chiquito, San Martinez Grande, Lion, Long, Potrero, and Ayers Canyons). Extension of Magic Mountain Parkway to the west, as envisioned with the proposed project, likewise would require culvert road crossings on an additional two unnamed drainages. Each road crossing would be constructed of earthen fill and pre-fabricated arched culverts, and would temporarily disturb a 60-foot wide (approximate) corridor on each side of the crossing, in addition to a permanent impact within the actual footprint of the crossing. Following construction, the temporary impact zone would be restored to pre-project contours and revegetated with native riparian and upland species as appropriate, minimizing impacts to waters of the United States.

The proposed bank protection would include buried soil cement, grouted and ungrouted rock riprap, turf reinforcement mats, and limited gunite slope lining around bridge abutments. These types of bank protection can be divided into two different categories, flexible and rigid revetments. UngROUTED rock riprap and turf reinforcement mats are flexible revetment systems that would be used as exposed bank protection in areas without earthen cover where stream velocities are low enough that the stabilization can resist erosive hydraulic forces in a Los Angeles County capital storm. Generally, this would be a maximum stream velocity of 12-14 feet per second (fps). Rigid revetments can resist much higher velocities (20+ fps) and erosive forces; however, they do not adjust or move like flexible systems. The bank stabilization would be installed over an approximate 20-year period to coincide with development of individual tracts within the project area, and in accordance with the development phasing program. All the proposed development areas would be raised above the FEMA flood hazard elevation to protect land uses from potential flooding.

Along the river mainstem, the majority of the proposed bank stabilization would be constructed of buried soil cement, with the use of gunite and rip-rap being limited to areas in the immediate vicinity of bridges and storm drain outlets. Installation of buried soil cement would involve placement of fill material in the footprint of the stabilization itself, as well as temporary impacts in the construction zone on the riverward side of the structure. Bank stabilization along the river would be installed under all of the alternatives considered, but the location and extent of the stabilization would vary. To minimize impacts, the bank stabilization would be constructed outside the lateral limits of waters of the United States under all alternatives, and fill of waters would be limited to temporary impacts during construction. By locating bank stabilization outside the active channel, hydrologic impacts of bank stabilization would be reduced under most alternatives. Along tributary drainages, buried bank stabilization would be installed in post-development channels to limit lateral channel migration and protect adjacent land uses. The construction methods would be identical to those employed along the river mainstem, but in many cases the stabilization would be constructed within waters of the United States. The alternatives considered in this analysis would generally reduce impacts from bank stabilization by featuring wider channels, with bank stabilization set back laterally from the active channel.

Under each of the alternatives, the five modified drainages described above (Chiquito, Lion, Long, Potrero, and San Martinez Grande) would contain bank and channel-bed protection designed to mimic natural features and use a combination of structural and vegetative methods to provide drainages that are stable, visually aesthetic, and support native vegetation following implementation of the proposed project. The grade stabilization structures are designed to contain the hydraulic "jump" that occurs when there is a substantial drop in streambed elevation, so that higher velocities are dissipated within the area; the proposed structures would help control erosion and changes to the configuration of the streambed channel. Such structures would be constructed of soil cement, sheet piles, or reinforced concrete.

The proposed project incorporated various treatments of tributary drainages to accommodate approved land uses within the project area. In order to optimize the location of development within portions of the project area, mass grading would occur in portions of the northern and southern tributary watersheds. Generally, there would be some higher areas that would be graded or "cut" and lower valley areas that would be elevated with fill material, balancing the distribution of cut and fill soil material throughout the project area. In many cases, the excavation of native material and placement of compacted fill material is necessary to achieve geotechnically-stable development pads. The wet-weather flows in these drainages meet the Los Angeles County flood criteria (less than 2,000 cfs) to be conveyed by storm drain. The proposed project does not propose to create new drainage channels to replace these impacted drainages. Rather, the wet-weather flows that currently occupy the drainages would be routed into the development's storm drain system, and would be discharged to the Santa Clara River via the proposed storm drain outlets.

The proposed project includes installation of 25 storm drain outlets along the Santa Clara River. Figure 2.0-36 in the Final EIS/EIR depicts the approximate locations of the

storm drain outlets. A typical storm drain outlet and associated schematic are shown on **Figure 2.0-37** in the Final EIS/EIR. Installation of storm drain outlets would generally requires a 20-foot wide excavation/construction zone. All of the storm drain outlets would drain to jurisdictional areas of the Corps and CDFG, although most are constructed outside of jurisdictional areas. In total, approximately 0.2 acres of jurisdictional area would be permanently impacted by construction of the storm drain outlets in the approximately 25 locations. Associated maintenance access ramps would impact up to an additional 0.2 acres at these locations. Maintenance of storm drain outlets would include clearing vegetation and removal of accumulated sediment. In situations where drain outlets are not draining sufficiently, pilot channels up to 75 feet long by 10 feet wide may be created to facilitate the conveyance of storm flows. See Appendix A of the RMDP for additional details on the proposed maintenance.

Pursuant to NPDES requirements, Best Management Practices (BMPs) would be implemented at the project site under all alternatives to avoid and minimize impacts to water quality. These BMPs include the following water quality control facilities: (1) water quality basins; (2) debris basins, located just upstream of the interface between developed and undeveloped areas, primarily to trap debris coming from the upper watersheds; (3) detention basins, which are typically sized to capture the predicted runoff volume and retain the water volume for a period of time (usually 24 to 48 hours); (4) catch basin inserts or screens/filters installed in existing or new storm drains to capture pollutants in the stormwater runoff; (5) bioretention, such as vegetated grassy swales, that provide water quality benefits and convey storm water runoff; and (6) solids separator units or in-line structures that reduce or manipulate runoff velocities such that particulate matter falls out of suspension and settles in a collection chamber. Many of these proposed facilities would be constructed outside waters of the United States or as components of storm drain systems or newly created channels. However, some of the proposed water quality facilities would require work in jurisdictional areas.

Due to the existing degraded conditions within portions of some drainages in the project site (Potrero Canyon, Long Canyon, and portions of Chiquito, San Martinez Grande, and Lion Canyons), stabilization of the existing drainages is not feasible as part of the proposed project. In order to meet Los Angeles County flood protection objectives, these drainages would be graded, and a new drainage would be constructed in the same or similar location. The new drainages would be designed to incorporate buried bank stabilization and grade stabilization, and would have sufficient hydrologic capacity to pass the Los Angeles County Capital Flood without the need for clearing vegetation from the channels. The new channel banks would be planted with riparian vegetation following construction. Some of the drainages within the project site, including many of the smaller, ephemeral drainages, would be graded and replaced with underground storm drains as part of the construction operations required to facilitate build-out of the proposed project. The wet-weather flows in these drainages meet the Los Angeles County flood criteria (less than 2,000 cfs) to be conveyed by storm drain. Where large-scale removal of drainages are not required to meet flood protection objectives, the alternatives would integrate the flood control and grade stabilizing measures described above, to maintain sediment equilibrium to avoid and minimize impacts to the channel bed and banks from hydromodification while providing adequate flood protection to

adjacent developed lands. In some instances, existing conditions within on-site drainages are such that if no modifications were implemented, excessive vertical scour or lateral channel migration would occur. In these locations, grade control measures are proposed regardless of any need to provide flood protection, as complete avoidance of such drainages would allow existing channel degradation to continue unabated. The proposed grade control measures would include installation of grade control structures, described above, and could also require recontouring of existing banks to restore stable channel morphology and minimize channel incision. These proposed channel stabilization activities would result in permanent and temporary fill of waters of the United States.

Primary electrical, sewer, water, gas, and communications lines would be installed south of SR-126 and across the Santa Clara River (two locations), Castaic Creek, Chiquito Canyon, and San Martinez Canyon to serve the proposed project. Other locally-serving utilities would be installed across other tributaries and drainages. On the river, utility lines would be installed in rights-of-way adjacent to bridges where access for installation and repair could be readily accommodated. Directional drilling techniques would be used to avoid the environmental impacts associated with trenching across the Santa Clara River. In the Chiquito Canyon and San Martinez Grande Canyon tributaries, where trenching would be used, installation of buried lines would require a 30- to 50-foot-wide construction zone. In other tributaries and drainages, trenching is likely to be used with similar construction zones. Buried lines across watercourses would be buried below scour depth and weighted or cemented in place, where appropriate, or co-located with bed stabilization features that provide scour protection. Following completion of construction activities, the temporary impact zone would be restored to channel grade and revegetated with native riparian and upland species as appropriate. Permanent access for maintenance of utilities would be located outside the jurisdictional limits of the streambed and associated habitats. Maintenance of the proposed utility crossings is discussed in Appendix A of the RMDP.

During construction, the proposed temporary haul routes would cross the Santa Clara River and be used to move excavated soil and provide general construction access to locations within the project area where fill material is required. The approximate locations of the proposed temporary haul routes are depicted on **Figure 2.0-33** in the Final EIS/EIR. The proposed crossings would be two-way with 60 feet of travel surface width. In locations where the riverbank is steep and ramping is required, fill would be placed in the river channel to facilitate a safe slope ratio for passage of heavy equipment. Extra width for the side slopes of such crossings would be also required. Passage of river flows would be maintained for all periods that the temporary haul routes are in use, and may include culverts or a simple span bridge crossing. Crossings may be removed as necessary to allow larger winter flows to pass. Upon on-site determination that the routes are no longer required to serve as temporary haul routes, the routes would either: (a) revert back to agricultural routes to continue to serve the needs of agricultural activities; (b) in the event that the routes are to be preserved for future haul route activities, the crossings would be gated during times of non-activity to prevent unauthorized access; or (c) if no longer needed for agricultural activities, the river crossings would be removed and restored to appropriate native habitats.

III. Physical/chemical characteristics and anticipated changes

- (X) **substrate:** With the proposed project (Alternative 2), of the 660.1 acres of waters of the United States within the project area, the proposed project would permanently impact 93.3 acres of channel substrate (approximately 14.1 percent of the waters of the United States in the project area). Temporary impacts to channel substrate would occur in approximately 33.3 acres of jurisdictional areas, to facilitate construction and maintenance of the proposed project facilities. To avoid and minimize impacts to channel substrate, the proposed temporary impacts would occur outside the actual footprint of the facility once constructed, thereby allowing rehabilitation of channel morphology and vegetation. For example, construction of bridges across the Santa Clara River would require disturbance of channel substrate upstream and downstream of the proposed bridge location during construction, but these areas would not be occupied by the bridge once completed. To avoid and minimize impacts, all temporary impact areas would be restored to pre-project contours and revegetated, following completion of construction activities in waters of the United States. Of the approximately 660.1 acres of waters of the United States within the project site, approximately 533.5 acres (approximately 80 percent of total acreage) would be completely avoided under the proposed project. Sensitive resource areas avoided under the proposed project would include the majority of the Santa Clara River mainstem, the Middle Canyon spring complex (a high-quality wetland), and the entire Salt Creek sub-watershed.

The proposed project (Alternative 2) and the various alternatives could disrupt the sediment equilibrium in the Santa Clara River mainstem or tributaries, thereby causing adverse geomorphic impacts on waters of the United States. In addition, the conversion of existing undeveloped lands to a non-erodible urban condition would slightly reduce the available sand supply reaching beaches in Ventura County. These indirect effects to channel substrate generally would be minor. In the mainstem of the Santa Clara River, the proposed project could increase sediment flows downstream during storm events, resulting in substantial erosion and deposition impacts downstream. Under the proposed project, the total floodplain area subject to potentially erosive velocities (four fps or greater) would decrease for all modeled storms with the exception of the 5-year return period, under which the area susceptible to erosion increases by 0.6 acre. However, this minor increase during the 5-year return interval is not considered significant relative to the substantial decrease in area subject to erosive velocities during 2-, 10-, 20-, 50-, 100-year, and capital flood events. In some areas, velocities greater than four fps would correspond with outlet structures, access ramps, or bridge abutments, which could result in localized erosion impacts. Where necessary to minimize erosion and structural damage, materials such as grouted riprap or reinforced concrete would be used according to the standards, criteria, and specifications developed by Los Angeles County. No changes in flow velocity would occur upstream or downstream of the proposed project area. For detailed information regarding the hydrologic

impacts and associated direct and indirect impacts to channel substrate, please reference revised Section 4.2 of the Final EIS/EIR.

The proposed project and alternatives would result in localized variations in scour and sedimentation due to the changes in flow velocity described above. The precise location and extent of material removal and deposition would shift with the installation of the various project components, similar to natural changes in channel morphology that occur with large storm events. Modeling results indicate that there would be no significant changes in local patterns of sediment deposition and erosion. In some areas, velocities greater than four fps would correspond with outlet structures, access ramps, or bridge abutments, which could result in a significant localized erosion impacts and minor changes in channel substrate. To minimize erosion and structural damage to such structures, erosion resistant materials such as concrete, soil cement or secured rip-rap would be used according to the standards, criteria, and specifications developed by the County to ensure long-term stability. For detailed information concerning changes to the sediment budget and associated direct and indirect impacts to channel substrate, please reference revised **Section 4.2** of the Final EIS/EIR for the proposed project.

Within the tributary drainages in the project area, certain drainages would not be graded and would remain undisturbed, while other drainage areas would be graded, reconstructed to a soft-bottom drainage channel with buried bank stabilization along each side of the drainage, or converted to buried storm drains. In channels where reconstructed drainages are proposed, the channel designs would integrate flood control and grade stabilizing measures (*i.e.*, a combination of drop structures/grade stabilizers and bank protection) to maintain sediment equilibrium and protect the channel substrate, bed and banks from hydromodification impacts. The proposed design methodology is intended to create stable drainage channels that would support the in-channel riparian vegetation following project implementation. For detailed information concerning the proposed channel structures and associated direct and indirect impacts to channel substrate, please reference revised **Section 4.2** of the Final EIS/EIR for the proposed project.

The proposed design focuses on developing channel width, depth, slope, and other parameters based on the predicted flow and sediment regime for each drainage. The intent is to develop and establish stable channel characteristics through an integrated analysis, and then use structures and other measures only in those drainage locations where erosional forces are shown to exceed the natural stability of the drainage channel. All such structures (*i.e.*, bank and channel bed protection) would be designed to mimic natural features and use a combination of structural and vegetative methods to provide drainage channels that are stable, aesthetic, and maintain native habitat (*e.g.*, riparian, wetland, and upland habitat) after implementing the proposed construction activities in waters of the United States. The proposed road crossing culverts and bridges would traverse various drainages to accommodate the proposed project circulation system. The exact channel configuration within each drainage would be

determined at the final design stage of project implementation, but would be submitted to the Corps for final verification and approval prior to construction activities in waters of the United States. Under the proposed project, the site's five largest tributary drainages (Chiquito, San Martinez Grande, Potrero, Long, and Lion Canyons) would be modified or reconstructed, but would not be entirely replaced by storm drain systems. The modified channels would be designed for geomorphic equilibrium in terms of channel stability, sediment transport, and flow conveyance under future conditions. The channels and floodplains would be designed to account for geomorphic stability, flood conveyance, ecological functions, hydromodification, and low maintenance. Although the final design details for the proposed modified and reconstructed drainages have not been determined, the criteria listed above would ensure that the channels would be free from geomorphic instabilities in the post-project condition. For detailed information concerning the proposed post-project hydrologic condition and associated direct and indirect impacts to channel substrate, please reference revised **Section 4.2** of the Final EIS/EIR for the proposed project.

The indirect effects of the proposed project components on beach replenishment are a function of the sediment load delivered through the project reach. The Santa Clara River watershed contributes approximately 60 percent of beach sand within Ventura County, with other streams and sand from upcoast providing the remaining 40 percent. In total, the Santa Clara River watershed yields approximately 4.08 million tons of sediment per year (1,170 tons per square mile) from its mouth into the Santa Barbara Channel. By reducing the erodible area within the project site, the proposed project could cause a reduction in suspended sediment and bedload during storm events, which could negatively affect beaches, as incrementally less sediment would be available for their replenishment. The proposed project would convert approximately 5,307 acres of currently undeveloped lands to a non-erodible, urban condition. This conversion would translate to an average loss of approximately 9,700 tons of sediment per year, or 0.24 percent of the river's total annual yield. Because this reduction is very slight, the proposed project would not substantially affect recruitment of sand onto Ventura County beaches. For detailed information concerning potential indirect impacts to beaches, please reference revised **Section 4.2** of the Final EIS/EIR for the proposed project.

Alternatives 3 through 7 would have similar direct and indirect impacts to channel substrate, but would be reduced when compared to the proposed project. With the project alternatives permanent impacts to waters of the United States would vary from approximately 73 acres to 13 acres, with similar temporary impacts to channel substrate for the construction and maintenance of bridges, bank stabilization and debris and detention basins (temporary impacts associated with the various alternatives would vary from 41.6 acres to 20.3 acres). The project alternatives would include similar avoidance and minimization measures to reduce impacts to channel substrate, including returning temporary impact areas to pre-project contours with revegetation as well as project design

features to eliminate or reduce indirect impacts to channel substrate. For detailed information concerning the direct and indirect impacts to channel substrate that would be associated with the various project alternatives, please refer to revised **Section 4.1** and revised **Section 4.2** of the Final EIS/EIR for the proposed project.

- (X) **currents, circulation or drainage patterns:** The proposed project (Alternative 2) and alternatives could directly and indirectly impact currents, circulation and/or drainage patterns, reducing the hydrologic function of waters of the United States in the project area. In general, hydrologic function is affected by the source of water, the duration and magnitude of flows (hydroperiod), whether flows reach the floodplain, the presence of flow restrictions, the duration of ponding on the floodplain, and the width of the floodplain. An increase in water depth in the Santa Clara River could result in significant impacts to currents and drainage patterns if the additional water depth causes greater "shear forces" (*i.e.*, friction caused by the weight of water) on the channel bottom, and thereby increasing scouring of the channel bed and removal of riparian vegetation. This effect could reduce the extent of aquatic, wetland, and riparian habitats in waters of the United States. **Table 4.2-12** in the Draft EIS/EIR provides the general hydrologic characteristics of the Santa Clara River channel for the two-, five-, 10-, 20-, 50-, and 100-year events, both with and without the proposed project. The results of the hydraulic analysis indicate that water depths and, correspondingly, total shear in the Santa Clara River would not increase significantly due to the proposed project. Based on PACE HEC-RAS and HEC-RMS modeling of the 100-year storm event, project-related infrastructure would result in 52 locations of increased water surface elevation exceeding one foot, and no decreased water surface elevation locations in the Santa Clara River. No impacts to water surface elevation would be realized upstream or downstream of the project site (PACE, 2007). The additional riparian vegetation area subject to inundation would not be changed during the two-year flood event, but would be reduced by approximately 0.3, 2.6, 80.2, 131.5, 137.1, and 225.1 acres as a result of the proposed project during the five-, 10-, 20-, 50-, 100-year, and capital flood (discharge resulting from a hypothetical four-day storm with a 50-year return period falling on a saturated watershed with debris from a wildfire) events, respectively (PACE, 2008A). **Figures 4.2-9** and **4.2-10** in the Draft EIS/EIR show the area of inundation and velocity distribution for the 10- and 100-year flow events for both existing conditions and the proposed project. As shown in these figures, the decrease in inundated area (by percentage and acreage) would primarily affect areas of currently disturbed, agricultural land. Accordingly, impacts to currents and drainage patterns would be limited such that water flow depths, velocities, and total shear for all return events would not be significantly different in the river channel between existing and proposed conditions in the project area. Since there would not be a significant change in flow depths or total shear in existing channel, the impacts to the amount and pattern of aquatic, wetland, and riparian habitats in the Santa Clara River would be less than significant.

The Hybrid Assessment of Riparian Condition (HARC) analysis indicates that, overall, the proposed project would result in substantial changes to the hydrologic function, including currents and drainage patterns, of the tributaries with net losses observed for the source water and hydroperiod and net gains observed for the floodplain connection, surface water persistence, and flood prone area metrics. In total, the proposed project would result in a net loss of 19.98 hydrology AW-score units but a net gain of 35.68 total HARC AW-score units within the tributaries. Absent mitigation, the decrease in HARC AW-score units within the tributaries may be the result of an increase in the frequency and magnitude of scouring of riparian vegetation which, absent mitigation, would be a significant impact. Accordingly, the impacts of the proposed project to the currents, drainage patterns and riparian habitat in the tributaries are considered significant prior to mitigation, but less than significant under Significance Criterion 4 through implementation of Mitigation Measures SW-2, SW-3, SW-5, BIO-1, BIO-6, and BIO-7.

The HARC hydrology score indicates the relative extent to which the assessment reaches on site perform the above functions. Lost hydrologic function due to the proposed discharges of fill material in waters of the United States was calculated by applying the HARC hydrology score as a weighting factor to the acreages filled. Fill from the proposed project would cause the permanent loss of 66.1 HARC hydrology-weighted acres, and the temporary loss of 27.7 HARC hydrology-weighted acres of waters of the United States. Losses of hydrologic function could include changes to the fluctuations in water level that occur within the on-site drainages during storm events. The storm hydrograph is dictated by a number of factors, including rainfall intensity, slope and permeability of the watershed, channel slope and width, and the presence of any manmade features that would detain or attenuate flows. Adverse changes to some of these parameters (*e.g.*, increased impervious surfaces in the project area, narrowed stream channels) could result in more severe fluctuations in water depth, while changes to others (*e.g.*, installation of detention basins) would make the fluctuations less severe. Because all of the waters within the project area are riverine, rather than impoundments or tidal waters, on-site surface flows are unidirectional. Therefore, the hydrologic functioning of these waters does not include large-scale water circulation. For detailed information concerning direct and indirect impacts to currents, circulation and drainage patterns, please reference revised **Section 4.1** and revised **Section 4.2** of the Final EIS/EIR for the proposed project.

Alternatives 3 through 7 would have similar direct and indirect impacts to currents, circulation and drainage patterns, but would be reduced when compared to the proposed project. With the project alternatives permanent impacts to waters of the United States would vary from approximately 73 acres to 13 acres, with similar temporary impacts for the construction and maintenance of bridges, bank stabilization and debris and detention basins (temporary impacts associated with the various alternatives would vary from 41.6 acres to 20.3 acres). The project alternatives would include similar avoidance and

minimization measures to reduce impacts to currents and drainage patterns, including returning temporary impact areas to pre-project contours with revegetation as well as project design features to eliminate or reduce indirect impacts to currents and drainage patterns. For detailed information concerning the direct and indirect impacts to currents, circulation and drainage patterns that would be associated with the various project alternatives, please reference revised Section 4.1 and revised Section 4.2 of the Final EIS/EIR for the proposed project.

- (X) **suspended particulates; turbidity:** The proposed project (Alternative 2) and alternatives would involve large-scale construction operations and would result in permanent changes to the channels and watersheds of most tributary drainages within the project site. During construction, concentrations of sediment (Total Suspended Solids (TSS) and turbidity), nutrients, heavy metals, and pesticides in tributary drainages could potentially be altered when vegetation removal, grading, and trenching activities expose soils to wind and water erosion. On a long-term basis, many of the on-site watersheds would be largely comprised of impervious surfaces following build out of the proposed development and natural drainage patterns would be replaced with engineered paths reaching the tributaries via storm drains and detention basins.

The potential water quality impacts from proposed construction activities, construction materials, and non-stormwater runoff during the construction phase relate primarily to sediment (TSS and turbidity) and non-sediment related pollutants, such as nutrients, heavy metals, and certain pesticides, including legacy pesticides. Construction-related sediment releases are most often caused by exposing soils to rain/runoff and wind. A number of pollutants not related to sediment also pose water quality problems during the construction phase. These include construction materials (e.g., paint), chemicals, liquid products, and petroleum products used in facility construction or the maintenance of heavy equipment; and concrete-related pollutants.

Construction impacts would be minimized through compliance with the NPDES permit for stormwater discharges from construction sites ([NPDES No. CAR000002] Water Quality Order 2009-0009-DWQ, State Water Resources Control Board [SWRCB] NPDES General Permit for Stormwater Discharges Associated with Construction Activity [Construction General Permit]). This 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.

All projects are required to prepare and implement a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP itself must include erosion and sediment control BMPs to reduce or eliminate the discharge of sediment and other potential construction-related pollutants. The SWPPP must also contain a Construction Site Monitoring Program that identifies monitoring and sampling requirements during construction. Preliminary analysis indicates that the proposed project would most likely be categorized as a Risk Level 2. BMPs and monitoring required by the Construction General Permit will be incorporated into the proposed project to comply with the Risk Level 2 requirements, as described in Attachment D of the Construction General Permit. If final design analysis indicates that the proposed project will fall under Risk Level 3, the additional Level 3 permit requirements will be implemented as necessary.

Construction of the in-stream elements within the proposed project area would require dewatering discharges as well as discharges not related to stormwater. For example, excavation depths needed for bank protection would be below the river bottom and, as a result, would frequently encounter groundwater that would have to be removed during the construction period. The dewatering activity would place shallow wells close to the excavation, drawing down the groundwater in the construction zone. Typically, soil composition within the dry streambed would allow the discharged dewatering flows to percolate quickly back into the ground. However, in some instances, the amount of discharged water may create sufficient flow during dewatering operations to form a continuous wetted channel from the work site to the Santa Clara River or a tributary.

In general, the Construction General Permit authorizes construction dewatering activities and other non-stormwater discharges related to construction not subject to a separate general permit adopted by a Regional Board, as long as: (1) they do not cause or contribute to violation of any water quality standards; (2) they do not violate any other provisions of the permit; (3) they are not prohibited by a Basin Plan provision; (4) the discharger has included and implemented specific BMPs required by the permit to prevent or reduce the contact of the non-stormwater discharge with construction materials or equipment; (5) the discharge does not contain toxic constituents in toxic amounts or (other) significant quantities of pollutants; (6) the discharge is monitored and meets the applicable numeric action levels (NALs) and numeric effluent limitations (NELs); and (7) the discharger reports the sampling information in the Annual Report.

BMPs would also be implemented to protect receiving waters from dewatering and construction related non-stormwater discharges. In the case of dewatering discharges, such BMPs would include source control and treatment control

BMPs in compliance with either: (a) the Los Angeles 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 (b) an individual WDR/NPDES permit specific to the proposed project dewatering activities. Typical BMPs for in-stream construction dewatering include infiltration of clean groundwater or on-site treatment using an engineered system, such as a weir tank, which is designed to remove suspended particulates from the water before it is discharged. To avoid significant impacts to receiving waters from dewatering activities, discharged water would be allowed to "sheet-flow" from energy dissipaters so that it soaks into the dry soils, or it would be routed through a sprinkler field and sprayed over a large upland area adjacent to the river/streambed with the intent to percolate the entire discharge.

Implementation of erosion and sedimentation source control BMPs during the construction of the proposed RMDP infrastructure and other components would prevent significant erosion and sediment transport from the project site during the construction phases for the proposed project. These same BMPs would also avoid and minimize direct and indirect impacts associated with the transport of other pollutants potentially entrained in the sediment. The BMPs would meet best available technology (BAT)/best conventional pollutant control technology (BCT) standards to ensure that discharges during construction would not cause or contribute to any exceedance of water quality standards in the receiving waters. During construction of the proposed project, the BMPs would be implemented in compliance with the Construction General Permit and the general waste discharge requirements in the Dewatering General WDRs, or in compliance with an individual WDR/NPDES permit specific to the project dewatering activities. All discharges from qualifying storm events would be sampled for turbidity and pH, and the results would be compared to NALs to ensure that BMPs are functioning as intended. If discharge sample results fall outside of these action levels, the existing site BMPs and potential causative agents would be reviewed. In addition, the existing BMPs would be maintained and/or repaired and/or additional BMPs would be provided to ensure that future discharges meet these criteria. For detailed information concerning the direct and indirect impacts to turbidity as well as the associated mitigation measures, please reference revised **Section 4.4** of the Final EIS/EIR for the proposed project.

Alternatives 3 through 7 would have similar direct and indirect impacts to turbidity levels, but would be reduced when compared to the proposed project. With the project alternatives permanent impacts to waters of the United States would vary from approximately 73 acres to 13 acres, with similar temporary impacts for the construction and maintenance of bridges, bank stabilization and debris and detention basins (temporary impacts associated with the various alternatives would vary from 41.6 acres to 20.3 acres). The project alternatives would include similar avoidance and minimization measures to reduce impacts to turbidity including all the above BMPs as well as project design features to

eliminate or reduce direct and indirect impacts to turbidity levels. For detailed information concerning the direct and indirect impacts to turbidity that would be associated with the various project alternatives, please refer to revised **Section 4.4** of the Final EIS/EIR for the proposed project.

- (X) **water quality (temperature, salinity patterns and other parameters):** The proposed project (Alternative 2) and alternatives would facilitate the development of up to 20,885 residential dwelling units and a maximum of approximately 5.5 msf of nonresidential uses on the project site. Runoff volume and all pollutant loads, with the exception of TSS and nitrate + nitrite-N, are predicted to increase with the proposed project when compared to existing conditions. Concentrations of all pollutants, with the exception of dissolved copper, are predicted to decrease under the proposed project when compared to existing conditions; dissolved copper concentrations are predicted to increase. All concentrations are predicted to be below benchmark criteria and within the range of observed concentrations in Santa Clara River Reach 5.

For the qualitatively assessed pollutants of concern, concentrations of hydrocarbons and MBAS are expected to increase once the proposed project is implemented. Concentrations of pathogens, pesticides, trash and debris, and cyanide also may increase under the proposed project when compared to existing conditions, resulting in a potentially significant impact to water quality. However, none of the pollutants of concern are expected to significantly impact receiving waters, as these pollutants would be effectively reduced by implementation of the comprehensive site design/low impact development, source control, and treatment control BMPs specified in the Newhall Ranch Specific Plan Sub-Regional Stormwater Mitigation Plan. The proposed plan, developed by the applicant consistent with local stormwater regulatory requirements, sets forth the urban runoff management program that would be implemented for the build-out of the proposed project.

Wastewater generated by the build-out of the proposed project would be treated in the proposed Newhall Ranch Water Reclamation Plant (WRP). Treatment at the WRP would consist of screening, activated sludge secondary treatment with membrane bioreactors, nitrification/denitrification, ultraviolet disinfection, and partial reverse osmosis. Treated effluent from the Newhall Ranch WRP would be used to supply distribution of recycled water throughout the proposed development area in the form of irrigation of landscaping and other approved uses. As required by the CWA, NPDES Permit and WDRs for the Newhall Ranch WRP (Order No. R4-2007-0046, effective October 27, 2007 (Los Angeles RWQCB, 2007)) include effluent limitations that are protective of surface receiving water quality and designated beneficial uses. For detailed information concerning the water quality impacts and associated mitigation measures, please reference revised **Section 4.4** of the Final EIS/EIR for the proposed project.

The proposed project and alternatives could result in a loss of biogeochemical function of waters of the United States on the project site. Biogeochemical function measures the ability of wetland and riparian areas to perform specific

processes such as maintenance of water quality, cycling of nutrients, retention of particulates, and export of organic carbon. The HARC biogeochemical score indicates the relative extent to which the assessment reaches on site perform this function. Lost biogeochemical function due to the proposed fill was calculated by applying the HARC biogeochemical score as a weighting factor to the acreages filled. The fill from implementation of the proposed RMDP would result in the permanent loss of 60.3 HARC biogeochemical-weighted acres and a temporary loss of 25.7 HARC biogeochemical-weighted acres of waters of the United States. For detailed information concerning the direct and indirect impacts to water quality, please reference revised **Section 4.4** of the Final EIS/EIR for the proposed project.

Alternatives 3 through 7 would have similar direct and indirect impacts to water quality, but would be reduced when compared to the proposed project. With the project alternatives permanent impacts to waters of the United States would vary from approximately 73 acres to 13 acres, with similar temporary impacts for the construction and maintenance of bridges, bank stabilization and debris and detention basins (temporary impacts associated with the various alternatives would vary from 41.6 acres to 20.3 acres). The project alternatives would include similar avoidance and minimization measures to reduce impacts to water quality including all the above BMPs as well as project design features to eliminate or reduce indirect impacts to water quality. For more information concerning the direct and indirect impacts to water quality that would be associated with the various project alternatives, please refer to revised **Section 4.4** of the Final EIS/EIR for the proposed project.

- (X) **flood control functions:** The proposed project and alternatives would authorize the construction and maintenance of flood control features, such as bank stabilization, grade control structures, storm drains, and debris and detention basins, throughout the project site to protect proposed development areas from flooding. All facilities would be constructed to Los Angeles County standards, which require that they be sized to convey flows from the Capital Flood, a worst-case situation combining a modeled 50-year storm with a bulking factor simulating a burned watershed. Because the Capital Flood substantially exceeds the 100-year flood in magnitude in all modeled watersheds within the project site, the proposed facilities would be adequate to protect the proposed development areas from 100-year storm events. The proposed project and all alternatives would provide for adequate flood conveyance. For detailed information concerning the direct and indirect impacts to flood control functions associated with the proposed project, please reference revised **Section 4.1** of the Final EIS/EIR for the proposed project.

Alternatives 3 through 7 would have similar direct and indirect impacts to flood control functions, but would be reduced when compared to the proposed project. With the project alternatives permanent impacts to waters of the United States would vary from approximately 73 acres to 13 acres, with similar temporary impacts for the construction and maintenance of bridges, bank stabilization and debris and detention basins (temporary impacts associated with the various

alternatives would vary from 41.6 acres to 20.3 acres). The project alternatives would include similar avoidance and minimization measures to reduce impacts to flood control functions, including project design features to eliminate or reduce direct and indirect impacts to flood control functions. For more information concerning the direct and indirect impacts to flood control functions that would be associated with the various project alternatives, please refer to revised **Section 4.1** of the Final EIS/EIR for the proposed project.

- () **storm, wave and erosion buffers:** Not applicable.
- (X) **erosion and accretion patterns:** The proposed project (Alternative 2) and alternatives could increase downstream sediment flows during storm events, resulting in substantial downstream erosion and deposition impacts. Under the proposed project, the total floodplain area subject to potentially erosive velocities (four fps or greater) would decrease for all modeled storms with the exception of the 5-year return period, under which the area susceptible to erosion increases by 0.6 acre. However, this minor increase during the 5-year return interval is not considered significant relative to the substantial decrease in area subject to erosive velocities during 2-, 10-, 20-, 50-, 100-year, and capital flood events. In some areas, velocities greater than four fps would correspond with outlet structures, access ramps, or bridge abutments, which could result in localized erosion impacts. Where necessary to minimize erosion and structural damage, materials such as grouted riprap or reinforced concrete would be used according to the standards, criteria, and specifications developed by Los Angeles County. No changes in flow velocity would be realized upstream or downstream of the proposed project area.

The proposed project and alternatives would result in localized variations in scour and sedimentation due to the changes in flow velocity described above. The precise location and extent of material removal and deposition would shift with the installation of the various project components, much as it does with natural storm events. Modeling results indicate that there would be no significant changes in local patterns of sediment deposition and erosion. In some areas, velocities greater than four fps would correspond with outlet structures, access ramps, or bridge abutments, which could result in a significant localized erosion impact. To minimize erosion and structural damage to such structures, erosion resistant materials such as concrete, soil cement or secured rip-rap would be used according to the standards, criteria, and specifications developed by Los Angeles County to ensure long-term stability. For detailed information concerning potential changes to erosion and accretion patterns, please reference revised **Section 4.2** of the Final EIS/EIR for the proposed project.

The indirect effects of the proposed project components on beach replenishment are a function of the sediment load delivered through the project area. The Santa Clara River watershed contributes approximately 60 percent of beach sand within Ventura County, with other streams and sand from upcoast providing the remaining 40 percent. In total, the Santa Clara River watershed yields approximately 4.08 million tons of sediment per year (1,170 tons per square mile)

from its mouth into the Santa Barbara Channel. By reducing the erodible area within the project site, the proposed project could cause a reduction in this floodwater sediment, which could negatively affect beaches, as incrementally less sediment would be available for their replenishment. For detailed information concerning the indirect impacts to erosion and accretion patterns in coastal areas, please reference revised **Section 4.2** of the Final EIS/EIR for the proposed project.

Alternatives 3 through 7 would have similar direct and indirect impacts to erosion and accretion patterns, but would be reduced when compared to the proposed project. With the project alternatives permanent impacts to waters of the United States would vary from approximately 73 acres to 13 acres, with similar temporary impacts for the construction and maintenance of bridges, bank stabilization and debris and detention basins (temporary impacts associated with the various alternatives would vary from 41.6 acres to 20.3 acres). The project alternatives would include similar avoidance and minimization measures to reduce impacts to erosion and accretion patterns including project design features to eliminate or reduce direct and indirect impacts. For more information concerning the direct and indirect impacts to erosion and accretion patterns that would be associated with the various project alternatives, please refer to revised **Section 4.2** of the Final EIS/EIR for the proposed project.

- (X) **aquifer recharge:** The proposed project (Alternative 2) and alternatives are not expected to result in any direct or indirect impact on groundwater supplies. The applicant has utilized a low of 5,971 acre-feet to a high of 14,303 acre-feet of groundwater from the Alluvial aquifer and the Saugus Formation from 1980 through 2008. This groundwater was used primarily for the applicant's agriculture, farming, and grazing operations. In contrast, the proposed project would require only approximately 3.3 to 8.1 afy of water to install the infrastructure (e.g., bridges, road-crossing culverts, bank stabilization). Construction water would either be trucked to the project area, or come from existing on-site wells, located within the project study area. This water demand is expected to be required during the approximately 20-year construction period for the required infrastructure to support the proposed project, and this demand would be met by the applicant's existing groundwater supply.

Supplying water to the proposed project or any of the alternatives would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge volume or levels. There are sufficient local groundwater supplies to support construction of the proposed project infrastructure, in addition to existing and future development in the Santa Clarita Valley. An evaluation of groundwater supplies in the 2005 UWMP, the 2005 Basin Yield Report, and the 2009 Basin Yield Update resulted in the following findings: (a) both the Alluvial aquifer and the Saugus Formation are reasonable and sustainable sources of local water supplies at the yields stated in the 2005 UWMP; (b) the yields are not overstated and will not deplete or "dry-up" the groundwater basin; and (c) there is no need to reduce the yields for purposes of planning, as shown in the 2005 UWMP, the 2005 Basin Yield Report, and the 2009

Basin Yield Update. In addition, these reports determined that neither the Alluvial aquifer nor the Saugus Formation is in an overdraft condition, or projected to become overdrafted. For detailed information concerning potential direct and indirect impacts to aquifer recharge, please reference revised **Section 4.3** of the Final EIS/EIR for the proposed project.

Alternatives 3 through 7 would have similar direct and indirect impacts to aquifer recharge, but would be reduced when compared to the proposed project. With the project alternatives permanent impacts to waters of the United States would vary from approximately 73 acres to 13 acres, with similar temporary impacts for the construction and maintenance of bridges, bank stabilization and debris and detention basins (temporary impacts associated with the various alternatives would vary from 41.6 acres to 20.3 acres). The project alternatives would include similar avoidance and minimization measures to reduce impacts to aquifer recharge including project design features to increase infiltration and recharge in the project area. For more information concerning the direct and indirect impacts to aquifer recharge that would be associated with the various project alternatives, please refer to revised **Section 4.3** of the Final EIS/EIR for the proposed project.

- (X) **baseflow:** The proposed project (Alternative 2) and alternatives are not expected to have significant direct or indirect impacts to baseflow. The Santa Clara River is perennial from the existing Valencia Water Reclamation Plant (WRP) to approximately 3.5 miles downstream of the Los Angeles County/Ventura County line near Rancho Camulos. Further downstream, the Santa Clara River flows through the Piru groundwater basin where surface water flow in the river is lost to groundwater. GSI Water Solutions, Inc. (2008) evaluated a series of historic air photos from 1927 to present, and assessed observed conditions in conjunction with known vegetation and geological information. GSI noted a fault control on the upstream end of the Piru basin, leading to a thick accumulation of alluvial sediments and a deep groundwater table. Taken together, these factors led to an ephemeral Santa Clara River in this zone during each year evaluated. Specifically, surface water flow in the Santa Clara River disappears completely and infiltrates into the Piru groundwater basin, forming an ephemeral "Dry Gap" reach for most of the year.

Two existing WRPs are located upstream of the proposed Newhall Ranch WRP. These two WRPs are the Valencia WRP and the Saugus WRP, which are operated by the County Sanitation Districts of Los Angeles County (CSD), the agency that would operate the Newhall Ranch WRP. Both upstream WRPs discharge water to the Santa Clara River. Discharges from the Saugus WRP began in 1966, and discharges from the Valencia WRP began in 1967. The Saugus WRP, located near the Bouquet Canyon Road bridge, has a permitted dry weather average design capacity of 6.5 mgd, and the Valencia WRP has a permitted dry weather average design capacity of 21.6 mgd. The combined average discharge of treated water from the Saugus and Valencia WRPs was approximately 20 mgd during the period January 2004 through June 2007. In 2006, the combined annual discharge volume from these two WRPs was 22,913 AF.

The timing and magnitude of future discharges from the Newhall Ranch WRP were originally identified from water demand projections for the proposed Newhall Ranch community. These projections were developed and presented in documents supporting the Newhall Ranch Specific Plan (FORMA, 2003) which was approved by Los Angeles County on May 27, 2003. As discussed in the Draft Additional Analysis for the Specific Plan (Impact Sciences, 2001), the Newhall Ranch WRP will be a near-zero discharge facility. Most of the treated water generated by the Newhall WRP would be recycled to meet non-potable (outdoor irrigation) demands of the proposed project. Based on a detailed water demand analysis presented, the inflows to the Newhall Ranch WRP would average 5,630 acre-feet per year (AF/yr), of which 5,344 AF/yr would be recycled. The remaining 286 AF would be discharged to the Santa Clara River during the wettest (winter) months, at a rate of between 0.6 and 2.0 mgd, which is equivalent to rates of 0.9 to 3.1 cubic feet per second (cfs). This discharge would occur primarily during December and January. Additionally, during wet years (when rainfall is significantly above average because of heavy winter storms), non-potable demands may be lower than average during the winter and early spring months, resulting in Newhall Ranch WRP discharge volumes greater than 286 AF. This discharge volume could amount to as much as 1,025 AF, based on a 5- to 6-month discharge period (beginning as early as October or November and potentially extending through March) and the discharge limit of 2 mgd that is specified in the permit for the Newhall Ranch WRP (Los Angeles RWQCB, 2007).

Compared with the 2006 annual discharge of 22,913 AF from the Valencia WRP and the Saugus WRP, the future Newhall Ranch WRP discharge of 286 AF is low (about 1.25%). Additionally, future discharges from the Saugus and Valencia WRPs would increase over time. Specifically, the annual discharges to the Santa Clara River from the Saugus and Valencia WRPs could increase to about 24,300 AF in the future, an increase of 1,400 AF/yr compared with annual discharge for 2006 (GSI Water Solutions, Inc., 2008). Accordingly, in the future, the volume of discharge from the Newhall Ranch WRP would likely represent a smaller fraction of the total discharges from WRPs to the Santa Clara River.

The proposed Newhall Ranch WRP discharge is also negligible compared with the total river flow volume, which consists of WRP discharges, groundwater discharges to the river, and storm flows. During a recent 5-year period of low rainfall (calendar years 1999 through 2003), total annual flow in the Santa Clara River, as measured at the Los Angeles County/Ventura County line, ranged from about 25,000 to 44,000 AF/yr, and the non-storm flow (groundwater discharge and WRP flows) ranged from about 23,000 to 30,000 AF/yr (GSI Water Solutions, Inc., 2008). For this period of dry conditions, the proposed Newhall Ranch WRP average discharge of 286 AF/yr would have represented between 0.6 and 1.1 percent of the total annual flow volume in the river. The Newhall Ranch WRP discharge would represent a much smaller percentage of the total annual flow volume in the River during wet years when the annual volume of river flow at the county line can exceed 100,000 AF/yr (and even 200,000 AF/yr

because of high rainfall runoff from the watershed). For example, historical streamflow measurements at the Los Angeles County/Ventura County line during the period 1977 through 2006 indicate that the 90th and 95th percentile values of November-March streamflow, which are indicative of significant rainfall years, are 385 and 692 cfs, respectively (GSI Water Solutions, Inc., 2008). These flows are substantially greater than the future discharges from the Newhall Ranch WRP. Specifically, the future average discharge from the Newhall Ranch WRP (0.6 mgd [0.9 cfs]) is 0.13 percent to 0.23 percent of these streamflows, while the future potential maximum discharge from the Newhall Ranch WRP (2.0 mgd [3.1 cfs]) is 0.45 percent to 0.81 percent of these streamflows. Additionally, the total non-storm flow during wet years can exceed 50,000 AF/yr, with the year-to-year variability reflecting the influence of groundwater discharges to the river (which vary according to rainfall-induced fluctuations in the water table elevation). In summary, the proposed Newhall Ranch WRP discharges would be very small compared with future river flows, comprising 1 percent or less of river flow during average and dry years, and only 0.1 percent to 0.8 percent of river flows during wet years, which would not substantially lengthen the duration of seasonal flows in the Dry Gap.

The potential indirect impacts of the proposed Newhall Ranch WRP to the Dry Gap are considered less than significant since they would not substantially lengthen the duration of seasonal flow in the Dry Gap. This significance finding is based on the fact that discharge from the Newhall Ranch WRP would occur in the winter and would be small relative to the overall flow in the Santa Clara River, and the existing data shows that increases in base flow due to discharges from the Valencia WRP and the Saugus WRP since the 1960s have not led to a substantial change in the duration of seasonal flow in the Dry Gap.

Alternatives 3 through 7 would have similar direct and indirect impacts to baseflow, but would be reduced when compared to the proposed project. With the project alternatives permanent impacts to waters of the United States would vary from approximately 73 acres to 13 acres, with similar temporary impacts for the construction and maintenance of bridges, bank stabilization and debris and detention basins (temporary impacts associated with the various alternatives would vary from 41.6 acres to 20.3 acres). The project alternatives would include similar avoidance and minimization measures to reduce impacts to baseflow including project design features to increase infiltration and recharge. For more information concerning the direct and indirect impacts to baseflow that would be associated with the various project alternatives, please reference to revised Sections 4.1, 4.2, and 4.4 of the Final EIS/EIR for the proposed project.

For projects involving the discharge of dredged material;

- (X) **mixing zone, in light of the depth of water at the disposal site; current velocity, direction and variability at the disposal site; degree of turbulence; water column stratification; discharge vessel speed and direction; rate of discharge; dredged material characteristics; number of discharges per unit of time; and**

any other relevant factors affecting rates and patterns of mixing: Not applicable – the proposed project would not include discharges of dredged material.

IV. Biological Characteristics

- (X) **special aquatic sites (wetlands, mudflats, coral reefs, pool and riffle areas, vegetated shallows, sanctuaries and refuges, as defined in 40 CFR 230.40-45):** For detailed information concerning direct and indirect impacts to waters of the United States, including wetlands, please reference revised Section 4.6 of the Final EIS/EIR for the proposed project. Of the various types of special aquatic sites, only wetlands occur in the project area.

Wetlands. The project site contains a total of approximately 276.9 acres of federal jurisdictional wetlands.¹ Because the site does not contain any other type of special aquatic site, the proposed project impact on wetlands would constitute the whole of the impact on special aquatic sites. Most of the site's wetlands are located adjacent to the active channel of the Santa Clara River, which exhibits perennial flows and supports extensive riparian vegetation in the project area. However, two of the site's larger tributary drainages, Salt Creek and Potrero Canyon, also support wetlands along perennial reaches. In addition, the project site also contains a spring complex, located near Middle Canyon, the entirety of which is also a wetland. The proposed project (Alternative 2) would permanently disturb 20.5 acres of wetlands, and would temporarily disturb an additional 11.2 acres. These impacts would occur primarily due to bridge construction along the Santa Clara River mainstem, but the proposed project would also affect two cismontane alkali marsh wetlands in lower and middle Potrero Canyon. The entire Salt Creek watershed and the Middle Canyon spring complex would be preserved under the proposed project, and no impacts to wetlands in those areas would occur. In total, the proposed project would avoid permanent impacts to approximately 92 percent of all wetlands on site. To minimize temporary impacts to 11.2 acres, the proposed project would restore all construction areas in wetlands to pre-project contours with revegetation with native wetland species. All restored wetland areas would be monitored for at least five years as described in the attached Draft Mitigation Plan. To compensate for permanent impacts to 20.5 acres of wetlands, the proposed project would include extensive compensatory mitigation measures both in the Santa Clara River and Salt Creek, similar to those described in the attached Draft Mitigation Plan.

Alternatives 3 through 7 would have similar impacts to wetlands, but would be reduced when compared to the proposed project. With the project alternatives permanent impacts to wetlands would vary from approximately 14.6 acres to 3.2

¹ Wetland acres are a subset of waters of the United States within the Santa Clara River mainstem and the tributary drainages.

acres, with similar temporary impacts for the construction and maintenance of bridges, bank stabilization and debris and detention basins (temporary impacts to wetlands would vary from 13.5 acres to 9.0 acres). The project alternatives would include similar avoidance and minimization measures to reduce impacts to wetlands including restoring temporary impact areas to pre-project contours and revegetating the areas with native wetland species. All restored wetland areas would be monitored for at least five years as described in the attached Draft Mitigation Plan. To compensate for permanent impacts to wetlands, the project alternatives would include extensive compensatory mitigation measures both in the Santa Clara River, Potrero Canyon and Salt Creek, similar to those described in the attached Draft Mitigation Plan. For detailed information concerning the direct and indirect impacts to wetlands that would be associated with the various project alternatives, please reference revised Section 4.6 of the Final EIS/EIR for the proposed project.

- (X) **habitat for fish and other aquatic organisms:** With the proposed project (Alternative 2), of the 660.1 acres of waters of the United States within the project area, the proposed project would permanently impact 93.3 acres of aquatic and riparian habitat, or approximately 14.1 percent of waters of the United States on site. Temporary impacts to channel substrate would occur in approximately 33.3 acres of jurisdictional areas, where necessary to allow construction and maintenance of the proposed project facilities. To avoid and minimize impacts to aquatic habitat, the proposed temporary impacts would occur outside the actual footprint of the facility once constructed, thereby allowing rehabilitation. For example, construction of bridges across the Santa Clara River would require disturbance of channel substrate upstream and downstream of the proposed bridge location during construction, but these areas would not be occupied by the bridge once completed. To avoid and minimize impacts, all temporary impact areas would be restored to pre-project contours and revegetated, following completion of construction activities in waters of the United States. There a total of approximately 660.1 acres of waters of the United States within the project site. Of these, approximately 533.5 acres (approximately 80 percent of total acreage), would be completely avoided under the proposed project. Sensitive aquatic resource areas avoided under the proposed project would include the majority of the Santa Clara River mainstem, the Middle Canyon spring complex (a high-quality wetland), and the entire Salt Creek sub-watershed.

The proposed project (Alternative 2) and alternatives could reduce habitat function of waters of the United States on the project site. Habitat function takes into account such factors as plant species diversity, percentage of native plant species, biological structure, and evidence of vegetation recruitment (*i.e.*, the presence of seedlings and/or saplings), and the width of the floodplain. The HARC habitat score indicates the relative extent to which the assessment reaches on site perform this function. Lost habitat function due to the proposed fill in waters of the United States was calculated by applying the HARC habitat score as a weighting factor to the acreages filled. The fill from implementation of the

proposed project would result in the permanent loss of 67.7 HARC habitat-weighted acres and the temporary loss of 25.9 HARC habitat-weighted acres of waters of the United States.

Each of the alternatives, including Alternative 2, could result in permanent physical changes to the Santa Clara River corridor and surrounding watershed, including changes to hydrology and fluvial processes, which could affect suitable fish habitat, as discussed in the stickleback analysis section (Section 4.5.5.3 of the Draft EIS/EIR). ENTRIX (2009) analyzed project-related hydrologic changes in the Santa Clara River and tributaries. While the placement of the proposed bridge footings would result in the loss of river channel, the large width and hydrology of the river would maintain the formation of natural channels to support fish species. Most of the tributaries do not support perennial flows; and none of the tributaries has surface water connectivity with the Santa Clara River, except for Middle and Potrero Canyons, which, although they contain perennial flow, have substantial blockages (bedrock headcuts or cascades) that are impassable to fish (ENTRIX 2009).

Direct and indirect impacts to crustaceans, mollusks, and other aquatic organisms in the food web would be minor as the diversity of invertebrates is generally low due to the substrate being dominated by sand and gravel. Impacts to these organisms would be caused by the changes in water quality, substrate and sediment dynamics, and hydrologic function as discussed in Section 4.5 of the Draft EIS/EIR. No significant water quality-related effects are anticipated as the proposed project would comply with all applicable water quality regulations. Hydrologically, the proposed project would reconfigure some in-channel habitat through alterations of the velocity distribution regime. The two most important effects of construction within the river channel are alteration of natural stream hydrology and loss of available fish habitat. The ENTRIX report indicates that the alteration of the stream hydrology would not result in significant impacts related to fish access to floodplain refugia during flood events, since the general morphology of the Santa Clara River, adjacent rearing habitat, and high-flow floodplain refugia would not be substantially altered. Therefore, there would not be large-scale changes in the distribution or abundance of aquatic organisms as a result of construction of the proposed project.

An increase in water depth in the Santa Clara River could result in significant direct and indirect impacts to riparian habitat if the additional water depth causes greater "shear forces" (*i.e.*, friction caused by the weight of water) on the channel bottom, and thereby increasing scouring of the channel bed and removal of riparian vegetation. This effect could reduce the extent of aquatic, wetland, and riparian habitats in waters of the United States. Table 4.2-12 in the Draft EIS/EIR provides the general hydrologic characteristics of the Santa Clara River channel for the two-, five-, 10-, 20-, 50-, and 100-year events, both with and without the proposed project. The results of the hydraulic analysis indicate that water depths and, correspondingly, total shear in the Santa Clara River would not increase significantly due to the proposed project. Based on PACE HEC-RAS and HEC-RMS modeling of the 100-year storm event, project-related

infrastructure would result in 52 locations of increased water surface elevation exceeding one foot, and no decreased water surface elevation locations in the Santa Clara River. No impacts to water surface elevation would be realized upstream or downstream of the project site (PACE, 2007). The additional riparian vegetation area subject to inundation would not be changed during the two-year flood event, but would be reduced by approximately 0.3, 2.6, 80.2, 131.5, 137.1, and 225.1 acres as a result of the proposed project during the five-, 10-, 20-, 50-, 100-year, and capital flood (discharge resulting from a hypothetical four-day storm with a 50-year return period falling on a saturated watershed with debris from a wildfire) events, respectively (PACE, 2008A). **Figures 4.2-9 and 4.2-10** in the Draft EIS/EIR show the area of inundation and velocity distribution for the 10- and 100-year flow events for both existing conditions and the proposed project. As shown in these figures, the decrease in inundated area (by percentage and acreage) would primarily affect areas of currently disturbed, agricultural land. Accordingly, impacts to riparian habitat would be limited such that water flow depths, velocities, and total shear for all return events would not be significantly different in riparian habitat between existing and proposed conditions in the project area. Since there will not be a significant change in flow depths or total shear in existing riparian habitat, the impacts to the amount and pattern of aquatic, wetland, and riparian habitats in the Santa Clara River would be less than significant. The HARC analysis indicates that, overall, the proposed project would result in substantial changes to the hydrologic function of the tributaries with net losses observed for the source water and hydroperiod and net gains observed for the floodplain connection, surface water persistence, and flood prone area metrics. In total, the proposed project would result in a net loss of 19.98 hydrology AW-score units but a net gain of 35.68 total HARC AW-score units within the tributaries. Absent mitigation, the decrease in HARC AW-score units may be the result of an increase in the frequency and magnitude of scouring of riparian vegetation which, absent mitigation, would be a significant impact. Accordingly, the impacts of the proposed project to the riparian habitat of the tributaries are considered significant prior to mitigation, but less than significant under Significance Criterion 4 through implementation of Mitigation Measures SW-2, SW-3, SW-5, BIO-1, BIO-2, BIO-6, and BIO-7.

Alternatives 3 through 7 would have similar direct and indirect impacts to aquatic habitat, but would be reduced when compared to the proposed project. With the project alternatives permanent impacts to waters of the United States would vary from approximately 73 acres to 13 acres, with similar temporary impacts for the construction and maintenance of bridges, bank stabilization and debris and detention basins (temporary impacts associated with the various alternatives would vary from 41.6 acres to 20.3 acres). The project alternatives would include similar avoidance and minimization measures to reduce impacts to aquatic habitat including project design features to reduce direct and indirect impacts. The proposed minimization measures would also include restoring temporary impact areas to pre-project contours and revegetating the areas with native species. All restored waters of the United States would be monitored for

at least five years as described in the attached Draft Mitigation Plan. To compensate for permanent impacts to waters of the United States, the proposed project would include extensive compensatory mitigation measures both in the Santa Clara River, Salt Creek and other tributaries, as described in the attached Draft Mitigation Plan. For detailed information concerning the direct and indirect impacts to waters of the United States that would be associated with the various project alternatives, please reference to revised **Section 4.6** of the Final EIS/EIR for the proposed project.

- (X) **wildlife habitat (breeding, cover, food, travel, general):** Because non-aquatic species typically do not occur within waters of the United States, impacts on such species would generally be limited to indirect effects associated with the construction of the proposed project. The proposed project (Alternative 2) and all alternatives would result in direct and indirect impacts to non-aquatic biological resources, including sensitive terrestrial plants and wildlife, sensitive upland vegetation communities, and wildlife movement corridors. The proposed project would also have impacts on habitat for sensitive non-aquatic plants and wildlife. For two species, the San Fernando Valley spineflower and San Emigdio blue butterfly, the Draft EIS/EIR determined that impacts under Alternative 2 would be significant and unavoidable. With respect to the spineflower, this determination was made because the proposed project under Alternative 2 would permanently affect a relatively large proportion of occupied habitat on the site (31.4 percent) for this highly endemic species. Impacts on San Emigdio blue butterfly were deemed significant and unavoidable because, under Alternative 2, the proposed infrastructure and flood control facilities in lower Potrero Canyon would fragment the butterfly population west of the Potrero Reserve Area, whereas the other project alternatives would avoid fragmenting this population.

Protocol surveys have not documented the coastal California gnatcatcher in the proposed project area, but the species has been observed twice in the project vicinity during the course of biological monitoring for other projects. Specifically, gnatcatchers were observed in October 2007 in the Valencia Commerce Center (VCC) planning area and in August 2008 at the Del Valle Training Center Road located south of the town of Val Verde. Due to the timing (late summer/fall) and limited number of sightings, the birds observed in both instances are believed to have been dispersing or transient individuals, perhaps from isolated populations of California gnatcatchers that have been periodically observed to the east of the project site.

The proposed project would permanently disturb 1,351 acres of suitable habitat for the coastal California gnatcatcher. There are 13.2 acres of suitable habitat identified within Corps' jurisdiction on the project site. Temporary impacts under Alternative 2 would be limited to two acres. Regarding impacts to individuals, California gnatcatcher is a relatively mobile species that is expected to occasionally occur on site during dispersal, so it is unlikely that project-related construction activities would result in the loss of individual adults. However, if the California gnatcatcher were to nest in the project area in the future, and if construction/grading activities took place during the nesting season,

implementation of the proposed development under any of the alternatives could adversely impact nests and/or young gnatcatchers. Potential indirect/secondary impacts to California gnatcatcher include short-term construction-related effects and long-term development-related effects. These potential impacts on dispersing or transient individuals would be relatively minor, but could be more substantial if the species were to establish territories and breed on site in the future. These potential indirect/secondary impacts are briefly identified here and are analyzed in detail in Subsection 4.5.5.3 of the Draft EIS/EIR. Short-term impacts could include exposure to construction-related dust, noise, ground vibration, and nighttime lighting. Potential long-term development-related secondary impacts include habitat fragmentation; habitat degradation from frequent wildfires; increased disturbance from human activity; nighttime lighting; harassment by humans and pet cats and dogs; harassment from stray and feral cats and dogs and other mesopredators; loss of food sources and secondary poisoning from pesticides; and predation of nestlings by Argentine ants along the open space-development interface.

Annual plant surveys conducted from 2002 through 2007 indicate that the number of individual San Fernando Valley spineflower plants in the project site (*i.e.*, Airport Mesa, Grapevine Mesa, Potrero, and San Martinez Grande) varies considerably from year to year (see Draft EIS/EIR, Table 4.5-57). Potential impacts to this species are, therefore, evaluated in terms of loss of cumulative area occupied by spineflower mapped between 2002 and 2007 rather than number of individuals. The cumulative spineflower occurrence data show 17.6 acres occupied by spineflower within the project area (*i.e.*, the maximum occupied polygon boundaries; see Draft EIS/EIR, Table 4.5-58). Under Alternative 2, implementation of the proposed project would result in the permanent loss of 6.4 acres (31.4 percent) of spineflower cumulative occurrence area. The Draft EIS/EIR determined that this impact was significant and unavoidable, as it could not feasibly be mitigated to a less-than-significant level. Indirect/secondary short-term construction-related impacts and long-term development-related impacts to spineflower could occur, and would be similar, under any of the alternatives, including Alternative 2. These include hydrologic alterations and water quality impacts; accidental clearing, trampling, and grading; runoff, sedimentation, erosion and chemical and toxic compound pollution; exposure to fugitive dust; the introduction of non-native, invasive plant and animal species; increased human activity and trampling and soil compaction; and increased risk of fire.

Surveys for San Emigdio blue butterfly were conducted in the project area in 2004 and 2005. In 2004 the butterfly was documented within the project area at the west-central edge of Potrero Canyon. During the 2005 survey, five adult San Emigdio blue butterflies were again observed at this location and one individual was also observed in the High Country SMA at the northwestern edge of Salt Creek. This butterfly usually is associated with its primary host plant, the four-wing saltbush (*Atriplex canescens*), but has also been observed in association with quail brush (*A. lentiformis*) in the project area. Vegetation clearing under the

proposed project would remove quail brush plants associated with the San Emigdio blue butterfly colony that occurs west of and outside the Potrero Preserve Area. In addition, this colony would be permanently bisected by the proposed facilities in lower Potrero Canyon. The proposed vegetation clearing and construction activities would result in the loss of San Emigdio blue butterfly adults, eggs, and/or larvae occurring on quail brush plants. Quail brush plants would also be removed from other portions of the project area, but these areas were not found to support the San Emigdio blue butterfly during the 2004 and 2005 surveys. Short-term construction-related and long-term development-related indirect/secondary impacts to the San Emigdio blue butterfly colony could result from implementation of the proposed project under any of the alternatives. Short-term construction-related indirect/secondary impacts include vegetation clearing, trampling, exposure to fugitive dust, contact with polluted runoff, and changes in hydrology. Long-term indirect/secondary impacts include intrusion by non-native species, human disturbance, increased fire frequency, isolation of the San Emigdio blue butterfly colony, and use of the proposed road in Potrero Canyon.

The Draft EIS/EIR for the project evaluated the direct and indirect effects of the proposed project and alternatives on wildlife movement at three different spatial scales: (1) wildlife landscape habitat linkages; (2) local wildlife corridors; and (3) location-specific wildlife crossings. As part of the analysis, wildlife species were assigned to different guilds based on their similar abilities to move across the landscape, with the assumption that different guilds would interact differently with the habitat linkages, corridors, and crossings. At the largest spatial scale, the Draft EIS/EIR concluded that impacts to wildlife landscape habitat linkages would be adverse but not significant under any of the alternatives. This conclusion is based on the fact that the three main wildlife landscape habitat linkages on site (the High Country SMA, River Corridor SMA, and Salt Creek area) would remain intact and functional following implementation of the proposed project. On an intermediate scale, the Draft EIS/EIR evaluated impacts on 17 local wildlife corridors within the project site, each of which is associated with one or more tributary drainage connecting the Santa Clara River to the adjacent uplands on site. The analysis concluded that under Alternative 2, four of the wildlife corridors in the project area would be completely eliminated, three would become dead-ends for wildlife, and six would be constrained by surrounding development, but would provide at least limited wildlife movement function. The remaining four corridors would remain fully functional after implementation of the proposed project.

At the smallest spatial scale, the Draft EIS/EIR evaluated whether the various proposed infrastructure components, such as specific bridges and culverts, might serve as wildlife crossings. Allowing north-south movement of wildlife across SR-126 was an objective, as this roadway represents the most substantial existing obstacle to wildlife movement on site. The Draft EIS/EIR concluded that the proposed bridges would not preclude use of the Santa Clara River corridor as a wildlife undercrossing, and that the proposed culverts beneath SR-126 would be

sufficiently open to allow wildlife use. For more information regarding the direct and indirect effects of Alternative 2 and all alternatives on wildlife movement, please refer to revised **Section 4.5** of the Final EIS/EIR for the proposed project.

Alternatives 3 through 7 would have similar direct and indirect impacts to wildlife habitat, but would be reduced when compared to the proposed project. With the project alternatives permanent impacts to waters of the United States would vary from approximately 73 acres to 13 acres, with similar temporary impacts for the construction and maintenance of bridges, bank stabilization and debris and detention basins (temporary impacts associated with the various alternatives would vary from 41.6 acres to 20.3 acres). The project alternatives would include similar avoidance and minimization measures to reduce impacts to wildlife habitat including project design features to reduce direct and indirect impacts. Extensive mitigation measures to avoid and minimize impacts to wildlife habitat are included in Section 4.5 of the Draft EIS/EIR for the proposed project. For detailed information concerning the direct and indirect impacts to wildlife habitat that would be associated with the various project alternatives, please reference revised **Section 4.5** of the Final EIS/EIR for the proposed project.

- (X) **endangered or threatened species:** The proposed project (Alternative 2) and alternatives could have potentially direct and indirect significant impacts to endangered or threatened species and their designated critical habitat. Several federally listed threatened or endangered species are known to be present in the project area. The unarmored threespine stickleback (*Gasterosteus aculeatus* ssp. *williamsoni*) occurs in portions of the Santa Clara River mainstem where suitable backwater refuge habitat (i.e., zero to two fps flow) is available. Based on the lack of suitable habitat and existing blockages, the unarmored threespine stickleback does not occur in tributaries to the Santa Clara River in the project area. The proposed project could result in permanent physical changes to the Santa Clara River corridor and surrounding watershed, including changes in hydrology and fluvial process. Such impacts could affect habitat suitable for unarmored threespine stickleback. Impacts to individuals and indirect impacts could also occur absent mitigation. These potential impacts are described in detail in **Subsection 4.5.5.3** of the Draft EIS/EIR. The ENTRIX report further indicates that the alteration of the stream hydrology would not result in significant impacts related to stickleback access to floodplain refugia during flood events, since the general morphology of the Santa Clara River, adjacent rearing habitat, and high-flow floodplain refugia would not be substantially altered. This is illustrated on the Draft EIS/EIR **Figures 4.5-61a** and **4.5-61b**, which indicate stream flow areas with less than two fps during the 20- and 100-year flood events, respectively (see entire set of graphics in ENTRIX 2009 report, **Appendix 4.5** to the Draft EIS/EIR). Most of the tributaries to the Santa Clara River do not support perennial flows, and none has surface water connectivity with the river, except for Middle and Potrero Canyons, which have substantial blockages (bedrock headcuts or cascades) that are impassable to fish (ENTRIX 2009). For

these reasons, stickleback are absent from the tributaries to the Santa Clara River, and would not be affected by the proposed modifications of those tributaries.

Within the Santa Clara River drainage, southern steelhead historically inhabited Piru Creek, Sespe Creek, Santa Paula Creek, Hopper Creek, and possibly Pole Creek (Titus *et al.* n.d.). Presently, southern steelhead (*Oncorhynchus mykiss*) occurs in the Santa Clara River watershed in Piru Creek between the confluence with the Santa Clara River and Santa Felicia Dam, in Sespe Creek, in Santa Paula Creek, and possibly Hopper and Pole Creeks (Stoeker and Kelly 2005). There is no historic record of steelhead use of the Santa Clara River or tributaries upstream of Piru Creek and the Dry Gap approximately five miles downstream of the project area. Based on information in revised Section 4.5 of the Final EIS/EIR, steelhead and designated critical habitat for this species is not present in the project area. Following build-out of the proposed project potential physical changes to the Santa Clara River include long-term hydrologic, geomorphic, or water quality alterations of the river. The Flood Hydraulics Impacts Assessment (PACE 2009) found that there would be minor changes to water flows, velocities, depth, sedimentation, or floodplain and channel conditions downstream of the project area over the long term as a result of the proposed project improvements. For example, under Alternative 2 build-out will not appreciably alter the existing sediment transport regime (less than a 0.25 percent decrease in average annual sediment supply/delivery to the Santa Clara River). Therefore channel morphology and substrate composition conditions downstream that support steelhead migration in Ventura County will not be affected. These hydraulic effects were also found to be insufficient to alter the amount, location, and nature of aquatic and riparian habitats within the project area and downstream into Ventura County. The PACE study determined that the Santa Clara River would still retain sufficient width to allow natural fluvial processes to continue. As a result, the mosaic of habitats in downstream portions of the river that support various special status fish species would be maintained. Because steelhead has not been recorded in the project area and the above hydrogeomorphic analysis shows that downstream designated critical habitat would exhibit minimal changes, the Corps determined that the proposed project would not affect the southern steelhead or downstream designated critical habitat for this species.

The least Bell's vireo (*Vireo bellii pusillus*), in the form of breeding pairs, territorial males, and/or nests, has been observed almost every year along the Santa Clara River within the project area and adjacent to riparian scrub habitat at Castaic Junction, but with yearly fluctuations in level of occupancy and breeding activity. Each of the alternatives, including Alternative 2, would have permanent and temporary impacts on suitable least Bell's vireo riparian nesting/foraging habitat, and on "foraging only" habitat adjacent to nesting habitat. Specifically, Alternative 2 would permanently disturb 28.1 acres of suitable habitat for least Bell's vireo within the Corps' jurisdiction. Of these, 25.6 acres would be nesting/foraging habitat and 2.6 acres would be adjacent foraging only habitat. Alternative 2 would also temporarily disturb 8.1 acres of vireo nesting/foraging

habitat and 0.1 acre of foraging only habitat within Corps jurisdiction. Potential indirect effects to least Bell's vireo include short-term construction-related impact and long-term post-development impacts. These potential indirect/secondary effects are briefly identified here and analyzed in detail in **Subsection 4.5.5.3**, of the Draft EIS/EIR for the project. All of the impacts indicated above occur within designated least Bell's vireo critical habitat containing primary constituent elements (PCEs). Therefore, 25.5 acres of nesting/foraging habitat would be permanently lost with the construction of the proposed project. To compensate for permanent loss of nesting/foraging habitat multiple mitigation measures would be implemented as documented in revised **Section 4.5** of the Final EIS/EIR.

Willow flycatchers have been observed in the project area during migration. The southwestern willow flycatcher subspecies (*Empidonax traillii extimus*) has not been known to nest in the project area. However, recent nesting in the Santa Clara River has been documented near Fillmore, downstream of the project site. Two breeding pairs were observed in 2006 by J. Gallo, with one nest producing two successful fledglings and the other failing (Root 2008). Therefore, impacts to potential southwestern willow flycatcher riparian nesting/ foraging habitat were analyzed. Suitable habitat for the southwestern willow flycatcher would be permanently impacted and temporarily impacted under all of the alternatives, including Alternative 2. Under Alternative 2, 28.1 acres of suitable habitat for southwestern willow flycatcher within Corps jurisdiction would be permanently impacted due to implementation of the proposed project, and an additional 8.1 acres would be temporarily impacted. The proposed project is not likely to cause the loss of individual adult Southwestern willow flycatchers, as the species is relatively mobile. However, if the southwestern willow flycatcher were to nest within the project site in the future, and if construction/grading activities were to take place during the nesting season, the proposed project could adversely impact nests and young birds. Potential indirect/secondary impacts to southwestern willow flycatcher include short-term construction-related effects and long-term effects. The nature of these impacts would be similar to those affecting the least Bell's vireo, described above.

Arroyo toad (*Bufo californicus*) adults and subadults have not been detected within the project site during protocol surveys. However, during surveys conducted in 2000, Aquatic Consulting Services found arroyo toad tadpoles in the Santa Clara River upstream and downstream of the proposed Commerce Center Drive Bridge site and near the Valencia Water Treatment Plant. This analysis assumes that arroyo toads could occur in suitable habitat within the Santa Clara River floodplain and adjacent upland areas. Suitable arroyo toad habitat was assigned to three categories. "Category 1" habitats are defined as habitats that are capable of supporting all life history phases. In the project area, Category 1 habitat falls primarily within the 100-year floodplain of the Santa Clara River. "Category 2" habitats may support some phases of the arroyo toad's life history, such as foraging and aestivation/hibernation, but do not generally support adequate hydrology for breeding. "Category 3" habitats are missing two

or more elements, especially where the hydrologic regime is absent, and thus would be limited to supporting aestivation/hibernation, dispersal, and foraging, but less frequently than Category 2 habitats. Category 3 habitat primarily includes upland areas, including agriculture, outside the Santa Clara River floodplain. For a more detailed discussion of these habitat suitability categories, please refer to **Subsection 4.5.5.3** of the Draft EIS/EIR for the proposed project. Each of the alternatives, including Alternative 2, would have permanent and temporary impacts on all three categories of arroyo toad habitat. Within Corps jurisdiction, Alternative 2 would permanently affect 14.3 acres of Category 1 habitat, 0.9 acres of Category 2 habitat, and 9.0 acres of Category 3 habitat, for a total of 24.2 acres. Alternative 2 would also result in temporary impacts to 17 acres of Category 1 habitat, 0.3 acres of Category 2 habitat, and 1.2 acres of Category 3 habitat, for a total of 18.4 acres. With respect to impacts on arroyo toad individuals, these effects are not expected to be significant under Alternative 2 or any other alternative, as the species is generally not present at the project site. Although the project area supports suitable habitat for the arroyo toad, only a few tadpoles and no adult or subadult arroyo toads have been observed during multiple surveys conducted over the last fifteen years. Potential indirect/secondary impacts to arroyo toad include short-term construction-related effects and long-term development-related effects. These potential indirect/secondary impacts are briefly identified here and are analyzed in detail in **Subsection 4.5.5.3** of the Draft EIS/EIR for the Project. Potential short-term construction-related impacts include ground vibration; dispersion of sediments and pollutants; chemical pollution; increased turbidity; excessive sedimentation; flow interruptions; changes in water temperature; fugitive dust; and trash. Long term effects could include invasion of the on-site habitat by exotic plants (e.g., giant reed, tamarisk, and pampas grass) and wildlife species (e.g., Argentine ants, bullfrogs, African clawed frogs, exotic fish, and crayfish). To compensate for direct and indirect impacts to arroyo toad multiple mitigation measures would be implemented as documented in revised **Section 4.5** of the Final EIS/EIR.

The California red-legged frog (*Rana aurora draytonii*) has not been observed in the project site, and conditions generally do not support suitable breeding habitat. While there are no records of California red-legged frog from the site in the numerous wildlife surveys conducted since 1992, the species is known in the area surrounding the project site from verified records upstream and downstream of the project area. The project site is within the potential distribution of the California red-legged frog along the Santa Clara River. Therefore, potential impacts on this species are evaluated in this alternatives analysis. Alternative 2 would permanently disturb 24.2 acres, and temporarily disturb 18.4 acres, of the 329.98 acres of suitable habitat for red-legged frog within Corps jurisdiction on the project site. The potential for impacts to individual red-legged frogs is considered very low, due to the lack of evidence that the species is present on site. But should California red-legged frog adults, subadults, tadpoles, or egg masses be present within the disturbance footprint, these activities could result in injury or mortality of California red-legged frog

individuals due to direct contact with construction equipment, entombment in burrows, and disturbances to aquatic breeding sites that could disturb egg masses and tadpoles. Potential indirect/secondary impacts to California red-legged frog, were it to occur in the project area, include short-term construction-related effects and long-term development-related effects. These potential indirect/secondary impacts would be similar to those affecting the arroyo toad, discussed above.

Protocol surveys have not documented the coastal California gnatcatcher (*Poliophtila californica californica*) in the project area, but the species has been observed twice in the project vicinity during the course of biological monitoring for other projects. Specifically, gnatcatchers were observed in October 2007 in the Valencia Commerce Center (VCC) planning area and in August 2008 at the Del Valle Training Center Road located south of the town of Val Verde. Due to the timing (late summer/fall) and limited number of sightings, the birds observed in both instances are believed to have been dispersing or transient individuals, perhaps from isolated populations of California gnatcatchers that have been periodically observed to the east of the Project site.

The proposed project would permanently disturb 1,351 acres of suitable habitat for the California gnatcatcher. There are 13.2 acres of suitable habitat identified within Corps jurisdiction on the Project site. Temporary impacts under Alternative 2 would be limited to two acres. Regarding impacts to individuals, coastal California gnatcatcher is a relatively mobile species that is expected to occasionally occur on site during dispersal, so it is unlikely that project-related construction activities would result in the loss of individual adults. However, if the coastal California gnatcatcher were to nest in the project area in the future, and if construction/grading activities took place during the nesting season, implementation of the proposed project and any of the alternatives could adversely impact nests and/or young gnatcatchers. Potential indirect/secondary impacts to California gnatcatcher include short-term construction-related effects and long-term development-related effects. These potential impacts on dispersing or transient individuals would be relatively minor, but could be more substantial if the species were to establish territories and breed on site in the future. These potential indirect/secondary impacts are briefly identified here and are analyzed in detail in Subsection 4.5.5.3 of the Draft EIS/EIR. Short-term impacts could include exposure to construction-related dust, noise, ground vibration, and nighttime lighting. Potential long-term development-related secondary impacts include habitat fragmentation; habitat degradation from frequent wildfires; increased disturbance from human activity; nighttime lighting; harassment by humans and pet cats and dogs; harassment from stray and feral cats and dogs and other mesopredators; loss of food sources and secondary poisoning from pesticides; and predation of nestlings by Argentine ants along the open space-development interface.

The proposed project could impact the California condor (*Gymnogyps californianus*) because two occupied critical habitat areas (Tejon Ranch and the Sespe-Piru Condor areas) are within several miles of the project site. As a result,

it is likely that the Condors may use the airspace above the project site for movement. In addition, this species is highly mobile and has been documented to use the project area for foraging, but not for nesting (based on information in the Final EIS the project area is not suitable for condor nesting due to the lack of necessary topographic elements). Because of the mobility of the species, it is very unlikely that any California condors would be killed or injured by equipment during the proposed construction activities. However, long-term indirect/secondary impacts associated with the proposed development would include presence of phone towers, power lines and utility poles, which could increase the potential for collisions and increased microtrash within residential and commercial areas, potentially causing sickness or mortality.

Alternatives 3 through 7 would have similar direct and indirect impacts to endangered and threatened species, but would be reduced when compared to the proposed project. With the project alternatives permanent impacts to waters of the United States would vary from approximately 73 acres to 13 acres, with similar temporary impacts for the construction and maintenance of bridges, bank stabilization and debris and detention basins (temporary impacts associated with the various alternatives would vary from 41.6 acres to 20.3 acres). The project alternatives would include similar avoidance and minimization measures to reduce impacts to aquatic habitat including restoring temporary impact areas to pre-project contours and revegetating the areas with native species. All restored waters of the United States would be monitored for at least five years as described in the attached Draft Mitigation Plan. To compensate for permanent impacts to waters of the United States, the proposed project would include extensive compensatory mitigation measures both in the Santa Clara River, Salt Creek and other tributaries, as described in the attached Draft Mitigation Plan. For detailed information concerning the direct and indirect impacts to endangered and threatened species, as well as the proposed mitigation measures, that would be associated with the various project alternatives, please reference revised Section 4.5 of the Final EIS/EIR for the proposed project.

The Corps has determined the project may affect several federally listed endangered species, including least Bell's vireo (*Vireo bellii pusillus*), unarmored threespine stickleback (*Gasterosteus aculeatus* ssp. *williamsoni*), arroyo toad (*Bufo californicus*), southwestern willow flycatcher (*Empidonax traillii extimus*), California red-legged frog (*Rana aurora draytonii*), California condor (*Gymnogyps californianus*), and coastal California gnatcatcher (*Polioptila californica californica*), known to utilize habitat in the vicinity of the proposed project. The Corps has also determined the proposed project may affect designated critical habitat for the above species. In addition, the Corps has determined the proposed project may affect vernal pool fairy shrimp (*Branchinecta lynchi*) and Riverside fairy shrimp (*Streptocephalus woottoni*), but is not likely to adversely affect these two species. To comply with the requirements of the Endangered Species Act, the Corps determined that formal consultation with the U.S. Fish and Wildlife Service was required for the proposed federal action. Based on the above determinations, on February 26, 2008 the Corps initiated formal consultation

under Section 7 of the Endangered Species Act with the U.S. Fish and Wildlife Service (USFWS). As part of the formal consultation package, the Corps provided the required biological assessment to describe impacts to the above endangered and threatened species as well as their designated critical habitat. In their letter dated November 12, 2008, the USFWS requested additional information for some of the above species and concurred with the Corps determination that the proposed project is not likely to adversely affect vernal pool fairy shrimp (*Branchinecta lynchi*) and Riverside fairy shrimp (*Streptocephalus woottoni*). In a letter dated July 24, 2009, the USFWS indicated that they had received sufficient information to prepare a biological opinion (Log Number 8-8-09-F-44).

(X) **biological availability of possible contaminants in dredged or fill material, considering hydrography in relation to known or anticipated sources of contaminants; results of previous testing of material from the vicinity of the project; known significant sources of persistent pesticides from land runoff or percolation; spill records for petroleum products or designated (Section 311 of the CWA) hazardous substances; other public records of significant introduction of contaminants from industries, municipalities or other sources:** The proposed project impacts related to hazards and hazardous materials were evaluated in revised Section 4.17 of the Final EIS/EIR based on existing and proposed land uses within the project area and the potential to expose sensitive receptors, including residents and construction workers, as well as the surrounding environment, to hazards or hazardous materials during construction activities and after development/redevelopment in this area. There are three oil and natural gas fields in the project area: the Newhall-Potrero Oil Field discovered in 1937, the Del Valle Oil Field discovered in 1979, and the Castaic Junction Oil Field discovered in 1950. The Newhall-Potrero Oil Field is currently operated by Vintage Production California LLC, a subsidiary of Occidental Petroleum Corp.; the Castaic Junction Oil Field, which already has been abandoned and remediated, was previously operated by Exxon Company, USA. The Del Valle Oil Field is also within the project site, and portions of this field are operated by LBTH and Vintage Production California LLC. In addition, pesticides were historically used and stored on the project site are listed in Table 4.17-3 of the Final EIS/EIR and some agricultural uses are likely to continue on the site as development takes place. As described in Subsection 4.17.4.2 of the Final EIS/EIR, multiple site assessment investigations have been conducted on the project site. Based on the results of those investigations, approximately 135 acres of development would occur under Alternative 2 within areas affected by past oil production activities. With the extensive testing and required remediation, the potential for the placement of contaminated material in waters of the United States would be very low. For all the alternatives, the direct and indirect impacts would be similar to Alternative 2, but slightly reduced. For detailed information concerning the direct and indirect impacts of the proposed project and all alternatives to hazards and hazardous materials, please reference revised Section 4.17 of the Final EIS/EIR for the proposed project.

(X) **Municipal And Private Water Supplies:** The proposed project and alternatives would not involve any activities that would render municipal or public water supplies unfit for consumption. The WRP associated with the proposed project would be designed to comply with applicable NPDES requirements, ensuring that downstream water quality would not be impaired. The quantity of water passing through the project site within the Santa Clara River and tributaries would not be affected by the proposed project. For detailed information concerning the direct and indirect impacts of the proposed project and all alternatives to water supplies, please reference revised **Section 4.3** of the Final EIS/EIR for the proposed project.

(X) **Recreational and Commercial Fisheries:** The proposed project and alternatives would not have any direct or indirect impacts upon recreational or commercial fisheries on the site as it is private land, where such use of the site is not authorized. Potential direct and indirect effects upon hydrologic function and water quality would be mitigated to comply with applicable standards such that build-out of the proposed project would not affect recreational or commercial fishing downstream of the project area.

(X) **Water-Related Recreation:** As stated in the previous section, the site is on private land, where recreational use of the site is not authorized. Further, the proposed project and alternatives would not cause off-site impacts to water quality or hydrologic function that would adversely affect water-related recreation upstream and downstream of the project area.

(X) **Aesthetics:** With the proposed project (Alternative 2), of the 660.1 acres of waters of the United States within the project area, the proposed project would permanently impact 93.3 acres of aquatic and riparian habitat, or approximately 14.1 percent of waters of the United States on site. Temporary impacts to channel substrate would occur in approximately 33.3 acres of jurisdictional areas, where necessary to allow construction and maintenance of the proposed project facilities. Build-out of the proposed project (Alternative 2) and all alternatives would permanently alter the visual character of the project area as a whole, primarily due to the construction of major development that would be visible to viewers traveling along I-5 and SR-126 (see **Section 4.15** of the Draft EIS/EIR). However, visual impacts of the activities proposed within Corps jurisdiction would largely be confined to bridges, grade control structures, storm drain outlets, and similar facilities. These proposed facilities would contrast with existing natural stream banks, but are not expected to result in significant adverse impacts to the aesthetic values of the jurisdictional areas overall. Proposed bank stabilization activities would cause a substantial change in the appearance of jurisdictional areas during construction, but because the stabilization would be buried and revegetated, these impacts would be temporary. In addition, the proposed project would include substantial on-site establishment and restoration of aquatic and riparian habitat, which will largely replace lost functions and services; and the activities would take place in the context of a master-planned community, which would be designed to integrate the resources with the community. Therefore, the proposed project would not

cause significant adverse impacts to aesthetic values of waters of the United States. For detailed information concerning the direct and indirect impacts of the proposed project and all alternatives to aesthetics, please reference revised **Section 4.15** of the Final EIS/EIR for the proposed project.

Alternatives 3 through 7 would have similar direct and indirect impacts to aesthetics, but would be reduced when compared to the proposed project. With the project alternatives permanent impacts to waters of the United States would vary from approximately 73 acres to 13 acres, with similar temporary impacts for the construction and maintenance of bridges, bank stabilization and debris and detention basins (temporary impacts associated with the various alternatives would vary from 41.6 acres to 20.3 acres). The project alternatives would include similar avoidance and minimization measures to reduce impacts to aesthetics including project design features that would reduce direct and indirect impacts. Extensive mitigation measures to avoid and minimize impacts to aesthetics are included in **Section 4.15** of the Draft EIS/EIR for the proposed project. For detailed information concerning the direct and indirect impacts to aesthetics that would be associated with the various project alternatives, please reference **Section 4.15** of the Draft EIS/EIR for the proposed project.

(X) Parks, National And Historical Monuments, National Seashores, Wilderness Areas, Research Sites, And Similar Preserves: The proposed project (Alternative 2) and alternatives would not impact parks, national and historical monuments, national seashores, wilderness areas, research sites, or similar preserves, as the project site is privately owned and does not contain any such designated features.

V. Summary of indirect and cumulative effects

Indirect/secondary impacts have been analyzed in the above sections. The following section is based on the detailed cumulative impact analysis presented in revised **Section 6.0** of the Final EIS/EIR for the proposed project and alternatives.

In the upper Santa Clara River watershed, the first Spanish ranches were established in the 1830's and included both sheep and cattle. Small farms and orchards began developing as early as the 1860's and included the production of wheat, corn, barley, oranges, apples, pears, walnuts and olives. Gold was discovered in Placerita Canyon in the late 1840's and oil was discovered in both Pico Canyon and Placerita Canyon in 1865. In 1876, the Southern Pacific Railroad (Lang Station) was completed, facilitating increased access to the upper Santa Clara River watershed. Population growth in the Santa Clarita area exhibits substantial increases, especially over the last fifty years. In 1940, the population in Santa Clarita was approximately 4,000 people, increasing to 6,950 in 1950, 12,350 in 1960, 46,800 in 1970, 66,700 in 1980, 110,600 in 1990 and approximately 153,000 in 2000. The estimated current population for the entire Santa Clarita area, including unincorporated county areas, is approximately 200,000. Much of the early residential development involved the conversion of existing agricultural areas to housing. In 1960, urban areas in Santa Clarita occupied 1,890 acres with 7,410 acres in agricultural production. By 1970, urban areas had increased to 3,830 acres while

agricultural land declined to approximately 5,610 acres. Based on the above information, scattered areas in the upper Santa Clara River watershed have been disturbed for over 100 years by ongoing oil production, mining, ranching and agricultural production, with urban development over the last fifty years being focused in the Santa Clarita area.

Between 1988 and 2006, the Corps issued an average of approximately 12.6 CWA section 404 permits per year within the Santa Clara River watershed. (See revised Figure 6.0-2 and Figure 6.0-3 and Appendix 6.0 of the Draft EIS/EIR.) In general, the acreages of waters of the United States affected by activities authorized under CWA section 404 permits in a given year were related to the number of permits authorized that year. The data for 1998 and 2005 (years in which major El Niño events occurred), showed peaks in the number of authorizations granted, and a corresponding trend with respect to acreages of jurisdictional areas impacted. This is likely due to the fact that substantial flood events necessitate the need for repairs and maintenance of existing facilities, and may also underscore the general need to construct additional flood and erosion facilities for protection against future disasters.

Of the 228 permits issued by the Corps under CWA section 404 in the Santa Clara River watershed between 1988 and 2006, more were associated with emergency repairs and maintenance than any other type of activity. Combined, the permits issued for emergency repairs and maintenance of existing facilities accounted for a combined 25 percent of the total permits issued (16 percent were emergency repairs, nine percent maintenance). Flood protection activities, including bank protection, riprap, rock groin, and culver/levee improvements, accounted for 25 percent of the total permits issued. Another 17 percent of the permits issued were associated with residential development. Unknown activities (largely from older permits with minimal available data) comprised 15 percent of the permits. The remaining 18 percent include bridges, channel alterations, sediment removal, storm drains, and other projects. (See Figure 6.0-4 in the Draft EIS/EIR). Table 6.0-7 in the Draft EIS/EIR summarizes federal biological opinions issued in the Santa Clara River watershed between 1993 and 2006 as they relate to the species that are the most likely to be reviewed by the USFWS as part of the species-related determinations and/or authorizations that are being sought as part of the proposed project approval process. A total of 25 USFWS biological opinions were reviewed. One of those opinions is not incorporated below because it did not affect any species of primary concern. Three opinions have been combined into one entry because they concern the same request.

In total, the Corps authorized approximately 149 acres of permanent impacts and 480 acres of temporary impacts to waters of the United States between 1988 and 2006.² This included 15 acres of permanent impacts to wetlands. The amount of permanent fill (including fill of wetlands and non-wetland waters of the United States) authorized per year (combining all permits) averaged 6.4 acres per year between 1988 and 1997, and 9.5

² Note that temporary impacts, due to their nature, do not result in a cumulative change in the acreage of waters, but this information is provided for context.

acres per year between 1998 and 2006. A graph showing acres of impact authorized per year, as well as mitigation acreage, is presented in **Figure 6.0-12** of the Draft EIS/EIR.³ A line expressing the cumulative "running total" effect on waters of the U.S. (defined as the acreage of waters created through mitigation minus the acreage of waters permanently impacted) for the period between 1988 and 2006 is also shown, and illustrates that the acreage of compensatory mitigation required of 404 permit applicants exceeded the acreage of waters impacted during that period. The distribution of permanent impacts authorized by the Corps over time can best be described as a punctuated equilibrium. During most years the permanent impact acreage was fairly low, although certain years (1998 and 2005, in particular) showed higher impact acreages authorized. This increase in impact acreages is likely due to the increase in activities following large storm events, which occurred in both 1998 and 2005.

Past and present land-use changes that have potentially impacted the fluvial geomorphology of the lower Santa Clara River include the introduction of ranching (and exotic grass species) and the growth in watershed population that has occurred since the 1940s. Much of the associated urban growth, which is estimated to cover over 59,000 acres, has occurred along the mainstem River Corridor. (See **Table 6.0-6** in the Draft EIS/EIR.) Based on current public lands ownership and currently zoned open space, approximately 733,526 acres (71 percent) of the Santa Clara River watershed is open space. (Dudek, 2008: Table 1 and Figure 3.) As shown in **Table 6.0-17** in the Draft EIS/EIR, seven of the cumulative projects or groups of projects would have significant or potentially significant impacts prior to mitigation, and all other impacts would be less than significant or the significance criteria were not analyzed in the corresponding environmental documents. Increase in the urban extent is frequently associated with a suite of changes to watershed hydrology and geomorphology, focused particularly in the increased frequency of moderate flood events. However, these impacts should be taken in context when considered within the lower Santa Clara River. First, geomorphic activity is concentrated into very large magnitude flood events (*i.e.*, "re-set" events). Specifically, due to the "flashy", flood event-dominated nature of the Santa Clara River watershed, geomorphologic response to human influences may not be progressive, but is more likely to be episodic, with channel morphology responding primarily to larger flood events. Further, detecting the relative effects of human impacts on natural flood events and morphological response may be difficult, since relatively infrequent large flood events appear to exert the greatest influence on morphological change in the Santa Clara River. For example, in humid watersheds, urbanization can affect channel morphology by increasing the occurrence of moderate flood events. This increase is due to the prevalence of impermeable ground surfaces in urban areas, which produce more runoff in a shorter amount of time in comparison to native land cover. In larger (*i.e.*, less frequent), flood events when natural ground surfaces are typically saturated and thus runoff rates would be very similar to impervious surfaces, the effect of the urban surfaces is substantially diminished. However, because the Santa Clara River watershed is large, and has a flood frequency dominated by large flood events, the effect of

³ Note: Permits issued are ascribed to the year of application.

moderate magnitude events on channel morphology is likely to be less significant (Stillwater Sciences, 2005). Therefore, it is unclear whether increasing the frequency of intermediate floods from the upper watershed will have a substantial influence on the downstream channel morphology. Second, past, present and reasonably foreseeable urban expansion is currently focused in the Santa Clarita region of the upper watershed and may have less impact in the lower watershed due to the influence of incoming creeks (*e.g.*, Piru Creek, Santa Paula Creek and Sespe Creek) on the morphology and riparian vegetation of the lower river channel (Stillwater Sciences, 2005).

Historic changes in the geomorphology of the Santa Clara River have been driven by large flood events, and the proposed project, in conjunction with past, present, and reasonably foreseeable future projects, do not substantially alter the magnitude of such large flood events. There are no significant cumulative erosion, downstream deposition, and geomorphic function impacts in the Santa Clara River mainstem, and therefore, the proposed project will not result in a cumulatively considerable contribution to significant cumulative impacts under Criteria 1-3 in the Draft EIS/EIR. Because most of the tributary drainages and associated watersheds within the project area are included within the site, off-site projects would not combine with the proposed project's geomorphic impacts within these tributaries; and, therefore, no cumulative effects would occur (Criteria 1-6 in the Draft EIS/EIR).

Although generally the environmental documents for the identified cumulative development projects have not analyzed geomorphic effects on the same scale as the analysis for the proposed project (see **Table 6.0-17** in the Draft EIS/EIR), based on a review of available information regarding these projects, the incremental effects of the proposed project on the geomorphology of the Santa Clara River (Criteria 1-3, 5-6 in the Draft EIS/EIR) and Newhall area tributaries (Criteria 1-6 in the Draft EIS/EIR) are not significant when viewed in connection with the effects of other past, present, and foreseeable future projects. The proposed project's contributions to impacts under Criteria 4 and 7 are reduced to less than cumulatively considerable with the proposed mitigation measures in revised **Sections 4.2, 4.5 and 4.6** of the Final EIS/EIR for the proposed project.

Development on the proposed project, Entrada, and VCC project sites would comply with applicable regulatory requirements for both construction and post-development surface runoff water quality, which ensures that project-related development would not result in significant water quality impacts. These regulatory requirements include PDFs; MS4 Permit and SUSMP requirements; Construction General Permit requirements; General Dewatering Permit requirements; and benchmark Basin Plan water quality objectives, CTR criteria, and TMDLs issued by the Los Angeles RWQCB and Los Angeles County. Any future urban development occurring in the Santa Clara River watershed must also comply with these requirements. Therefore, cumulative impacts on surface water quality of receiving waters from the proposed project and future urban development in the Santa Clara watershed would be addressed through compliance with the applicable regulatory requirements that are intended to be protective of beneficial uses of the receiving waters. In addition, WQ-1 sets a minimum BMP approach required for the SUSMP and WQ-2 sets a minimum required approach for a Landscape and Integrated Pest Management Plan. Based on compliance with these

regulatory mitigation requirements, cumulative water quality impacts related to stormwater and nonstormwater runoff would be less than significant, and the proposed project's contribution would be less than cumulatively considerable. Other cumulative projects will be required to comply with federal, state, and local water quality regulations, including implementation of BMPs and PDFs to minimize and mitigate each project's potential water quality impacts. In addition, the Newhall Ranch WRP, like the existing Saugus and Valencia WRPs, is required to comply with the terms of its NPDES permit and WDRs, which would ensure that the Newhall Ranch WRP's contribution to cumulative impacts is rendered less than cumulatively considerable. Because each cumulative project will be subject to this rigorous regulatory regime, cumulative water quality impacts are considered to be less than significant, following mitigation.

Impacts would be cumulatively considerable, absent mitigation, for a majority of other biological resources, including: vegetation communities other than coastal scrub; common wildlife as a whole; most of the federally- and state-listed threatened and endangered and all California Fully Protected species; wildlife habitat linkages, corridors, and crossings; most California Species of Special Concern; many California Special Animals, Watch List species, Specially Protected Mammals, and CDFG Trust Resources; and three special-status plants. The mitigation measures required by the Newhall Ranch Specific Plan Program EIR and mitigation measures recommended by the Draft EIS/EIR (revised **Subsection 4.5.6, Mitigation Measures**) would reduce the cumulative impacts of the proposed project to these resources to a level less than significant. To offset loss vegetation communities and habitat for species, these mitigation measures generally include the dedication and maintenance of existing natural lands in the Open Area, River Corridor SMA, High Country SMA, and Salt Creek area, totaling approximately 9,753 acres. For riparian resources, these measures include replacing the functions and services of riparian communities that may be lost through construction. For both wildlife and plant species, mitigation includes measures to control for long-term indirect/secondary effects, including controls on public access to dedicated open space areas; controls on pet, stray, and feral cats and dogs; termination of grazing activities (except for the purpose of resource management); controls on invasive plant and animal species (including Argentine ants, brown-headed cowbirds, bullfrogs, African clawed frogs, and crayfish); controls on pesticides (including rodenticides); controls on hydrological alterations and water quality; and controls on nighttime lighting; fencing and signage; homeowner education about sensitive resources; and design of aboveground utilities (phone and cell towers, power lines, and utility poles) in the High Country SMA and Salt Creek area to reduce collisions and electrocutions of raptors.

It was determined that the proposed project's contribution, in combination with past, present and reasonably foreseeable projects, to potential significant cumulative impacts at the watershed level would not be cumulatively considerable for most special-status biological resources, including southern steelhead and several special-status plants. In addition, it was determined that significant cumulative impacts to a majority of wildlife and plant species at the watershed level would not occur. Although the proposed project's contribution would not be cumulatively considerable in these cases, the mitigation measures described above would reduce on site impacts to these resources.

In summary, although the proposed project would include significant impacts to some biological resources absent mitigation, the mitigation measures required by the Newhall Ranch Specific Plan Program EIR and the recommended project specific mitigation measures proposed in revised **Section 4.5, Biological Resources** (see **Subsection 4.5.6, Mitigation Measures**), of the Final EIS/EIR would avoid, substantially lessen, or mitigate these impacts to below a level of significance. However, the proposed project, in combination with other past, present and reasonably foreseeable projects within the SCRW, would result in significant cumulative impacts to three biological resources. Despite project-specific mitigation, the proposed project would result in a cumulatively considerable contribution to significant impacts on the coastal scrub community, the San Emigdio butterfly, and the San Fernando spineflower that cannot be avoided, substantially lessen, or mitigated to below a level of significance under Alternative 2. Under all other alternatives, the significant cumulative impacts to the San Emigdio butterfly and the San Fernando spineflower would be less than significant, with mitigation.

Although the proposed project would include cumulative impacts to waters of the United States absent mitigation, the project-specific mitigation measures proposed in revised **Section 4.6, Jurisdictional Waters and Streams**, of the Final EIS/EIR would mitigate these impacts to a less-than-significant level. After incorporation of the project-specific mitigation measures identified in the Final EIS/EIR, the proposed project, in consideration of past, present and reasonably foreseeable actions, would not result in a cumulatively considerable contribution to any impact on jurisdictional waters, and cumulative impacts would be less than significant with the inclusion of the proposed mitigation measures.

VI. Findings

A. Evaluation of Compliance with 404(b)(1) guidelines (restrictions on discharge, 40 CFR 230.10). (A check in a block denoted by an asterisk indicates that the project does not comply with the guidelines.)

1) Alternatives Test

- | | | |
|---------------------------------|---|--|
| <input type="checkbox"/>
Yes | <input checked="" type="checkbox"/>
No | <p>a) Based on the Discussion IIB, above, are there available, practicable alternatives having less adverse impact on the aquatic ecosystem and without other significant adverse environmental consequences that do not involve discharges into "waters of the United States" or at other locations within these waters?</p> |
|---------------------------------|---|--|

Discussion: Initially a wide range of on-site and off-site alternatives was examined. However, based on comments received during the scoping process, from resource agencies at various meetings during the planning process, and in response to the Draft EIS/EIR, the Corps and CDFG developed the various project alternatives to avoid and minimize impacts to aquatic resources. Alternatives previously considered for analysis in the Draft EIS/EIR included the No Action alternative, Alternatives 3

through 7. The No Federal Action Alternative has also been included in the analysis as well as specific measures to avoid and minimize impacts to special aquatic sites in the project area, all of which are described below as well as in the attached applicant prepared Draft Section 404(b)(1) Alternatives Analysis.

Alternative 1: The No Action alternative would not include any new actions in the project area and, as a result, the existing agriculture and oil production would continue. The No Action Alternative would not meet any of the basic objectives of the Specific Plan and therefore, would not meet the overall project purpose. Therefore, the No Action alternative would not represent the least environmentally damaging practicable alternative (LEDPA).

Alternative 2: Alternative 2 is the proposed project and is described in detail in the above sections. Of the 660.1 acres of waters of the United States within the project area, the proposed project would permanently fill 93.3 acres, or approximately 14.1 percent of waters of the United States on site. Of the 660.1 acres of waters of the United States, approximately 276.9 acres are jurisdictional wetlands with the proposed project permanently filling approximately 20.5 acres of wetlands (the proposed project would avoid all impacts to approximately 88.6% of the total wetland area). In total, the proposed project would result in temporary discharges of fill material in approximately 33.3 acres of waters of the United States, including 11.2 acres of wetlands, in the Santa Clara River and its tributaries. With the proposed project, approximately 533.5 acres of waters of the United States would be completely avoided (approximately 80% of the jurisdictional areas).

In order to help determine what magnitude of costs would be reasonable for a project of this type, the applicant commissioned a comparison of similar development projects from Developers Research, an economic consultant (see the attached applicant prepared Draft Section 404(b)(1) Alternatives Analysis). The project type is a master-planned community. These communities are found throughout California and other parts of the country. As shown in the Comparison of Master Planned Communities (Developers Research 2010) ("Comparison Report"), the location, size and costs of these master planned communities varies substantially. Among eight comparable projects located in the southern California region (master-planned communities), the cost per net developable acre ranges from a low of \$493,889 to a high of \$928,504. The median cost per net developable acre is \$707,784 (unweighted). Weighted to reflect the relative size of the various projects (*i.e.*, larger projects are given more weight

than smaller projects in determining the average), the average cost per acre is \$673,114. Compared to the cost of comparable projects, the cost of the proposed project is \$1,038,000 per net developable acre.

This data reflects the fact that the proposed project is somewhat unique in that the size and complexity of the Specific Plan is at the upper end of the size and complexity mix of master-planned communities. As such there is no "standard" cost that can be identified as typical. Instead, costs for master-planned communities vary based on a wide range of factors. These include the size of the project, regulatory standards of the local land use authority (fees, building standards, and other requirements) the physical setting (the terrain affects grading and infrastructure costs), the availability of infrastructure (existing sewer, water, and roads), the kind of community being built (urban, suburban, or rural) and environmental considerations (presence of sensitive environmental features). What these California projects do have in common is a reliance on the land use and environmental standards that establish the basic elements of the given master-planned community. These, in turn, establish what costs the proposed community must bear to meet applicable state and local requirements, including satisfying needs for roads, parks and schools, water, sewer, and other utilities and design, and infrastructure requirements. As such, there are common cost elements to develop the various master-planned communities.

Given these factors and the intensive land use review that led to the Specific Plan, the attached Draft Section 404(b)(1) Alternatives Analysis prepared by the applicant uses the Specific Plan as the base case for evaluating costs. To put the application of increased cost per net developable acre into perspective for the Specific Plan, a twenty percent increase in cost per net developable acre over Alternative 2 is approximately \$207,000 per acre, a ten percent increase in cost per net developable acre over Alternative 2 is approximately \$103,500 per acre and a five percent increase in the cost per net developable acre over Alternative 2 is approximately \$51,750. If these increased costs are applied to the 2,957 acres of proposed development in Alternative 2, the cost increases would be \$612,000,000, \$306,000,000, and \$153,000,000, respectively. The substantial cost increases associated with some alternatives also must be viewed in light of the amount of additional avoidance of waters of the United States that they provide. A substantial cost increase may be reasonable if impacts also are reduced substantially, while a large increase in cost associated with a minimal reduction in

impacts may not be reasonable. Because the Specific Plan costs are already at the high end of the cost spectrum, a relatively small increase of five to ten percent in the cost per net developable acre over Alternative 2 could represent a substantial increase in cost and would not be practicable (a 5% increase would represent approximately the same cost as the highest-cost project in the above Comparison Report provided by the applicant). Based on the above information, the proposed project would clearly meet the overall project purpose and Alternative 2 would also be practicable in light of cost, logistics and technology.

Alternative 3: Under Alternative 3, the proposed project design would be modified in key respects. Like Alternative 2, this alternative calls for the construction of two bridges across the Santa Clara River with associated bank stabilization: (1) the Commerce Center Driver Bridge (already approved by the Corps and CDFG in 1999), and (2) the Long Canyon Road Bridge. The two alternatives differ, however, in that Alternative 3 eliminates the proposed bridge at Potrero Canyon Road. Under Alternative 3, major tributary drainages would be regraded and realigned; but the channels would be wider than those proposed under Alternative 2. Under Alternative 3, the cismontane alkali marsh in lower Potrero Canyon would be avoided and preserved. This alternative would facilitate similar urban development within the Specific Plan site, including 20,433 residential units and 5.48 msf of commercial/industrial/business park floor area. The proposed configuration of infrastructure facilities and land uses that would occur under Alternative 3 is presented graphically on Figure 8-2 of the attached Draft Section 404(b)(1) Alternatives Analysis prepared by the applicant. For a complete description of Alternative 3, including infrastructure proposed and urban development facilitated, please refer to revised Section 3.0 of the Final EIS/EIR for the proposed project.

Of the 660.1 acres of waters of the United States on the project site, implementation of Alternative 3 would result in the permanent fill of 70 acres of waters of the United States (approximately 11% of the total site jurisdiction and 25 percent less acreage than Alternative 2), and would temporarily disturb an additional 37.6 acres (12.9 percent more acreage than the proposed project design). These temporary impacts would be associated with construction zones adjacent to proposed project facilities, which would be restored and revegetated following completion of construction. In some instances temporary impacts would also result from restoration activities, *i.e.*, when

such activities require earthwork to be conducted in jurisdictional areas (correction of existing incised channel banks, for example). The increase in temporary impacts to waters under this alternative is due to the implementation of modified channels (temporary impacts) in areas where the proposed project would feature storm drains (permanent impacts). Alternative 3 would avoid 552.4 acres of waters of the United States within the project site. Of the total 660.1 acres of waters of the United States that occur on the site, Alternative 3 would avoid all impacts to approximately 83 percent, compared to 80 percent avoidance for the proposed project. Implementation of Alternative 3 would permanently disturb 9.2 acres of wetlands (55 percent reduction in impact acreage compared to the proposed project), and would temporarily disturb 11.2 acres of wetlands (a similar impact compared to the proposed project). The cismontane alkali marsh wetland in lower Potrero Canyon, which would be disturbed under the proposed project, would be avoided and preserved under this alternative. In total, Alternative 3 would avoid approximately 93 percent of all wetlands on site, a 4 percent increase in wetland avoidance compared to the proposed project. Based on a detailed review of Alternative 3 and the attached applicant prepared Draft Section 404(b)(1) Alternatives Analysis, it would meet the overall project purpose and would be practicable in light of costs, logistics and technology. Because Alternative 3 would substantially reduce impacts to waters of the United States when compared to Alternative 2, this alternative could potentially represent the least environmentally damaging practicable alternative.

Alternative 4: Under this alternative, the proposed project design would be modified in key respects. Two bridges across the Santa Clara River and the associated bank stabilization would be constructed, including the Commerce Center Driver Bridge (already approved by the Corps and CDFG in 1999) and the Long Canyon Road Bridge. The proposed Potrero Canyon Road Bridge, however, would not be constructed under this alternative. Major tributary drainages would be regraded and realigned under this alternative. Under Alternative 4, the cismontane alkali marsh in lower Potrero Canyon would be avoided and preserved. This alternative would facilitate urban development within the project site, including 20,721 residential units and 5.48 msf of commercial/industrial/business park floor area. The proposed configuration of infrastructure facilities and land uses that would occur under Alternative 4 is presented graphically on **Figure 8-3** in the attached Draft Section 404(b)(1) Alternatives Analysis prepared by the applicant. For a complete description of Alternative 4, including infrastructure proposed

and urban development facilitated, please refer to revised **Section 3.0** of the Final EIS/EIR for the proposed project.

Implementation of Alternative 4 would facilitate urban development in the project site, and would result in the placement of fill within waters of the United States. In total, this alternative would permanently fill 73.3 acres of waters of the United States (21.4 percent reduction compared to the proposed project), and would temporarily disturb an additional 33.8 acres (approximate 1.5 percent increase compared to Alternative 2). Temporary impacts would be associated with construction zones adjacent to proposed project facilities. Waters temporarily affected by the proposed project would be restored and revegetated after completion of construction in the area. In some instances temporary impacts would also result from restoration activities, *i.e.*, when such activities require earthwork to be conducted in jurisdictional areas (correction of existing incised channel banks, for example). Alternative 4 would avoid 552.9 acres of waters of the United States within the project site. Of the total 660.1 acres of waters of the United States that occur on the site, Alternative 4 would avoid approximately 83 percent, compared to only 80 percent avoidance for the proposed project. Implementation of Alternative 4 would permanently disturb 9.4 acres of wetlands (55 percent reduction in acreage compared to the proposed project) and would temporarily disturb 11.7 acres of wetlands (similar impact to the proposed project). The cismontane alkali marsh wetland in lower Potrero Canyon, which would be disturbed under the proposed project, would be avoided and preserved under this alternative. In total, Alternative 4 would avoid approximately 93 percent of all wetlands on site, a 4 percent increase in avoidance compared to the proposed project. Based on a detailed review of Alternative 4 and the attached applicant prepared Draft Section 404(b)(1) Alternatives Analysis, this alternative would meet the overall project purpose and would be practicable in light of costs, logistics and technology. Because Alternative 4 would substantially reduce impacts to waters of the United States when compared to Alternative 2, it could potentially represent the least environmentally damaging practicable alternative.

Alternative 5: Under this alternative, the proposed project design would be modified in key respects. Three bridges across the Santa Clara River and the associated bank stabilization would be constructed, including the Commerce Center Driver Bridge (already approved by the Corps and CDFG in 1999) the Potrero Canyon Bridge, and the Long Canyon Road Bridge. Major tributary drainages would be regraded and realigned

under this alternative, but would result in impact reductions in the Chiquito Canyon, San Martinez Grande Canyon, and Potrero Canyon drainages compared to the proposed project (Alternative 2). This alternative would facilitate urban development within the project site, including 20,196 residential units and 5.42 msf of commercial/ industrial/business park floor area. The proposed configuration of infrastructure facilities and land uses that would occur under Alternative 5 is presented graphically on **Figure 8-4** in the attached Draft Section 404(b)(1) Alternatives Analysis prepared by the applicant. For a complete description of Alternative 5, including infrastructure proposed and urban development facilitated, please refer to revised **Section 3.0** of the Final EIS/EIR for the proposed project.

Alternative 5 would result in the placement of fill within waters of the United States. In total, this alternative would permanently fill 72.4 acres of waters of the United States (22.5 percent reduction in acreage compared to the proposed project), and would temporarily disturb an additional 41.6 acres (24.9 percent increase compared to the proposed project). Temporary impacts would be associated with construction zones adjacent to proposed project facilities. Waters temporarily affected by the proposed project would be restored and revegetated after completion of construction in the area. In some instances temporary impacts would also result from restoration activities, *i.e.*, when such activities require earthwork to be conducted in jurisdictional areas (correction of existing incised channel banks, for example). The increase in temporarily impacts to waters is due the implementation of modified channels (temporary impacts) in areas where the proposed project would feature storm drains (permanent impacts). Alternative 5 would avoid all impacts to 546 acres of waters of the United States within the project site (3 percent more acreage than the proposed project). Of the total 660.1 acres of waters of the United States that occur on the site, Alternative 5 would avoid approximately 83 percent, compared to only 80 percent avoidance for the proposed project. Implementation of Alternative 5 would permanently disturb 14.6 acres of wetlands (28.8 percent reduction in impact acreage compared to the proposed project), and would temporarily disturb 13.5 acres of wetlands (20.5 percent increase in impact acreage compared to the proposed project). The cismontane alkali marsh wetland in lower Potrero Canyon, which would be disturbed under the proposed project, would be avoided and preserved under this alternative. Alternative 5 would avoid approximately 90 percent of all wetlands on site, a one percent increase compared to the proposed project. Based on a detailed review of Alternative 5 and the attached applicant prepared

Draft Section 404(b)(1) Alternatives Analysis, it would meet the overall project purpose and would be practicable in light of costs, logistics and technology. Because Alternative 5 would substantially reduce impacts to waters of the United States when compared to Alternative 2, it could potentially represent the least environmentally damaging practicable alternative.

Alternative 6: Under this alternative, the proposed project design would be modified in key respects. Two bridges across the Santa Clara River and associated bank stabilization would be constructed. The proposed Potrero Canyon Road Bridge (extended span similar to Alternative 5) and the Long Canyon Road Bridge. The previously-approved Commerce Center Drive bridge would not be constructed under this alternative. Major tributary drainages would be regraded and realigned under this alternative, but the channels would be wider than under the proposed project (Alternative 2), and the majority of proposed road crossings along the channels would be bridges as opposed to culverts. This alternative would facilitate urban development within the project site, including 19,787 residential units and 5.33 msf of commercial and industrial/business park floor area. The proposed configuration of infrastructure facilities and land uses that would occur under Alternative 6 is presented graphically on **Figure 8-5** in the attached Draft Section 404(b)(1) Alternatives Analysis prepared by the applicant. For a complete description of Alternative 6, please refer to revised **Section 3.0** of the Final EIS/EIR for the proposed project.

Implementation of Alternative 6 would facilitate urban development in the project site, and would result in the placement of fill material within waters of the United States. In total, this alternative would permanently fill 60.7 acres of waters of the United States (35 percent reduction in acreage compared to the proposed project), and would temporarily disturb an additional 33.9 acres (similar impact acreage when compared to the proposed project). Temporary impacts would be associated with construction zones adjacent to proposed project facilities. Waters of the United States temporarily affected by the proposed project would be restored and revegetated after completion of construction in the area. In some instances temporary impacts would also result from restoration activities, *i.e.*, when such activities require earthwork to be conducted in jurisdictional areas (correction of existing incised channel banks, for example). Alternative 6 would avoid 565.4 acres of waters of the United States within the project site. Of the total 660.1 acres of waters of the United States that occur on the site, Alternative 6 would avoid all impacts to approximately 85 percent of the waters of

the United States in the project site (a 5 percent increase in avoidance acreage compared to the proposed project). Implementation of Alternative 6 would permanently disturb 9.5 acres of wetlands (53.5 percent reduction in impact acreage compared to the proposed project), and would temporarily disturb 12.0 acres of wetlands (7 percent increase in impact acreage when compared to the proposed project). These impacts would result primarily from bridge construction along the Santa Clara River mainstem, but this alternative would also affect the cismontane alkali marsh wetland in middle Potrero Canyon. Elimination of the planned bridge across the river at Commerce Center Drive would reduce impacts to adjacent wetlands along the Santa Clara River under this alternative. The cismontane alkali marsh wetland in lower Potrero Canyon, which would be disturbed under the proposed project, would be avoided and preserved under this alternative. In total, Alternative 6 would avoid approximately 92 percent of all wetlands on the site, a 4 percent increase in avoidance area compared to the proposed project. Alternative 6 would result in a substantial reduction in impacts to waters of the United States, but additional analysis is required to determine if it would meet the overall project purpose and would be practicable in light of cost logistics and technology (see additional analysis below).

Alternative 7: Under this alternative, the proposed project design would be modified in key respects. Only one bridge would be constructed across the Santa Clara River, including associated bank stabilization, which would be constructed for the proposed Long Canyon Road. With Alternative 7, the proposed Potrero Canyon Road Bridge and the previously approved Commerce Center Drive Bridge would not be constructed. Under this alternative, major tributary drainages would not be regraded or realigned. In addition, the Middle Canyon and Magic Mountain Canyon drainages, which are proposed for conversion to buried storm drains under the proposed project (Alternative 2), would be avoided and preserved. This alternative would facilitate urban development within the project site, including 16,471 residential units and 3.76 msf of commercial/industrial/business park floor area. The proposed configuration of infrastructure facilities and land uses that would occur under Alternative 7 is presented graphically on Figure 8-6 in the attached Draft Section 404(b)(1) Alternatives Analysis prepared by the applicant. For a complete description of Alternative 7, including infrastructure proposed and urban development facilitated, please refer to revised Section 3.0 of the Final EIS/EIR for the proposed project.

Implementation of Alternative 7 would facilitate urban development in the project site, and would result in the placement of fill material within waters of the United States. In total, this alternative would permanently fill 13.1 acres of waters of the United States (86 percent reduction in acreage compared to the proposed project), and would temporarily disturb 20.3 acres of waters of the United States (39 percent reduction in acreage compared to the proposed project). Temporary impacts would be associated with construction zones adjacent to proposed project facilities. Fill under this alternative would be greatly reduced compared to the proposed project, because Alternative 7 would avoid all mapped 100-year floodplains (Santa Clara River and several major tributaries) within the project site. Waters temporarily disturbed would be restored and revegetated after completion of construction in the area. In some instances temporary impacts would also result from restoration activities, *i.e.*, when such activities require earthwork to be conducted in jurisdictional areas (correction of existing incised channel banks, for example). Alternative 7 would avoid all impacts to 626.7 acres of waters of the United States within the project site. Of the total 660.1 acres of waters of the United States that occur on the site, Alternative 7 would avoid approximately 95 percent (15 percent increase in acreage avoided when compared to the proposed project). Under Alternative 7, the Potrero Canyon and Long Canyon tributaries, which would be filled and reconstructed under the proposed project, would be avoided except for bridge impacts. Further, the Middle Canyon and Magic Mountain Canyon tributaries, which would sustain substantial impacts under all other alternatives, would be avoided under Alternative 7. This alternative would also reduce impacts to the Santa Clara River mainstem by eliminating the planned bridges at Potrero Canyon Road and Commerce Center Drive. Implementation of Alternative 7 would avoid all mapped 100-year floodplains within the project site, except where proposed facilities would intercept floodplains to meet design requirements (bridges and grade control structures). This alternative would permanently disturb 3.2 acres of wetlands (84.4 percent reduction in acreage compared to the proposed project), and would temporarily disturb 9.0 acres of wetlands (20 percent reduction in acreage compared to the proposed project). These impacts would occur primarily due to construction of one bridge across the Santa Clara River mainstem, at Long Canyon Road. Impacts to wetlands under this alternative would be reduced through the elimination of the two planned bridges across the Santa Clara River at Commerce Center Drive and Potrero Canyon Road, and through avoidance of nearly all wetlands in Potrero Canyon. In

total, Alternative 7 would avoid approximately 96 percent of all wetlands on site, a seven percent increase in avoidance when compared to the proposed project. Alternative 7 would result in a substantial reduction in impacts to waters of the United States, but additional analysis is required to determine if it would meet the overall project purpose and would be practicable in light of cost logistics and technology (see additional analysis below).

Alternative 8 (Total Avoidance Alternative): Under Alternative 8, urban development within the project site would be substantially reduced compared to the Alternative 2. In addition, two of the proposed villages would be disproportionately impacted. As a result, Alternative 8 would not meet aspects of the overall project purpose, including several basic objectives of the Specific Plan, related to development potential and village viability. Implementation of Alternative 8 would facilitate a master-planned urban development within the project site, comprising 2,144.9 net developable acres of residential, commercial, and industrial uses and public facilities. Compared to the proposed project, the development facilitated under this alternative would be reduced by 28.5 percent. Due to this substantial reduction in net developable acres and associated development, Alternative 8 would not meet the overall project purpose with regard to net developable acreage. Implementation of Alternative 8 would facilitate urban development in the project site, but would do so in a manner that would avoid the need to place permanent or temporary fill within waters of the United States. Fill of waters would, therefore, be reduced by 100 percent compared to the proposed Project. All 660.1 acres of waters of the United States within the project site, including all 276.9 acres of jurisdictional wetlands, would be avoided and preserved under this alternative. Alternative 8 would result in a substantial reduction in impacts to waters of the United States, but additional analysis is required to determine if it would meet the overall project purpose and would be practicable in light of cost logistics and technology (see additional analysis below).

Modified Alternative 3: Based on their review of the various alternatives to determine compliance with state regulations, the California Department of Fish and Game (CDFG) suggested that the Corps consider three modifications to Alternative 3, to ensure compliance with section 1600 of the Fish and Game Code and the California Endangered Species Act (CESA), which would avoid other potential significant adverse effects under the 404(b)(1) Guidelines: (1) expanding the proposed spineflower preserves; (2) further avoiding and minimizing impacts to riparian

resources along the Santa Clara River; and (3) modifying tributary designs to incorporate additional riparian mitigation areas. CDFG also recommended changes to the Commerce Center Bridge design and road alignment that would reduce indirect/secondary impacts to the Middle Canyon Spring complex. In addition, CDFG confirmed that eliminating the Potrero Canyon Road bridge over the Santa Clara River under Alternative 3 is consistent with reducing riparian habitat and wildlife impacts in the vicinity of lower Potrero Canyon and the Santa Clara River. Furthermore the practicability of additional avoidance of aquatic resources in the project area that exhibit relatively high physical and biological functions was also evaluated. With the modified version of Alternative 3, the proposed 20,885 residential units would be reduced by 1,073 units to 19,812 units, and the approved 5.55 msf of commercial uses would be reduced by 140,000 square feet. In general, the design for the modified version of Alternative 3 is very similar to the Alternative 3 described in the Draft EIS/EIR, however, there would be increased avoidance along the Santa Clara River, reduced impacts to the Middle Canyon Spring complex, augmented spineflower preserve acreage and larger riparian corridors within the five major tributaries under the modified version of Alternative 3.

Under the Modified Alternative 3, two of the three bridges crossing the Santa Clara River and the associated bank stabilization would be constructed (Commerce Center Drive Bridge and the Long Canyon Road Bridge). However, the Potrero Canyon Road Bridge would not be constructed, further reducing impacts to jurisdictional waters and wetlands in the Santa Clara River and lower Potrero Canyon. Two major tributary drainages (Long and Potrero canyons) would be regraded and realigned under this alternative; however, the channels would be wider than those of the proposed project. In the three other major tributary drainages (Lion, San Martinez Grande, and Chiquito canyons), the modified version of Alternative 3 incorporates additional areas of preserved jurisdiction with limited channel grading to expand the drainage and adjacent riparian areas and realign their banks to accommodate adjoining infrastructure and development area. The Modified Alternative 3 includes additional spineflower preserve acreage in the Potrero, San Martinez Grande, Grapevine Mesa, and Airport Mesa preserves, however, the Spineflower Conservation Plan (SCP) and the related CESA incidental take permit decision is primarily within the jurisdiction of CDFG. The Modified Alternative 3 would increase the acreage within the preserves from 167 acres to 247 acres. In addition, the acreage of occupied spineflower habitat

protected would increase from 13.88 acres under the proposed project to 13.97 acres, while the area of impacted occupied habitat would be decreased from 6.36 acres to 5.87 acres. Therefore, the modified version of Alternative 3 incorporates a spineflower preserve design (based on previous input received from CDFG), but no final permitting decision has been made regarding spineflower, because the SCP is not under the direct jurisdiction of the Corps'. In addition, the modified version of Alternative 3 does not involve areas outside of the project site, which is exclusive to the SCP and CDFG's spineflower permitting actions, specifically in Entrada and the Valencia Commerce Center.

The Draft EIS/EIR evaluated a range of alternatives to the proposed project, including Alternative 3 (Elimination of Planned Potrero Bridge and Additional Spineflower Preserves), which considered the development of 20,433 dwelling units and 5.48 msf of commercial square feet on the project site. With these development characteristics, Alternative 3 is similar to the overall development characteristics of the Modified Alternative 3. The modified version of Alternative 3 would provide 621 fewer residential units than Alternative 3 and result in a 0.07 msf reduction in commercial square footage. Under the modified version of Alternative 3 the floodplain area for the 100-year return event would be increased by 12.8 acres, resulting in a 100-year floodplain area of 1,296.7 acres within the project area. This increase would constitute a one percent reduction in impact compared to the proposed project. Even with this reduction, impacts under the Modified Alternative 3 on surface water hydrology and flood control would be substantially similar to those of the proposed project (Alternative 2). The Modified Alternative 3 would preserve 131,769 lf of on-site drainages, which is 54 percent of the total 242,049 lf of jurisdictional drainages on the project site. In total, the modified version of Alternative 3 would modify 54,001 feet of on-site tributaries; convert 56,291 lf of tributary channel to buried storm drain; install 69,913 lf of bank stabilization; and provide three bridges and 13 culvert tributary road crossings and would result in substantially similar impacts to Alternative 3. Impacts to water quality resulting from development with implementation of the Modified Alternative 3 would be generally similar to the impacts identified for the proposed project and Alternative 3, and would be reduced to a less-than-significant level with implementation of identified project design features, regulatory requirements, and mitigation measures. In general, the direct and indirect impacts associated with the modified version of Alternative 3 would be substantially similar to Alternative 3, but slightly

reduced. For detailed information concerning the direct and indirect impacts of the modified version of Alternative 3, please reference revised **Section 5.0** of the Final EIS/EIR and the attached Draft Section 404(b)(1) Alternatives Analysis prepared by the applicant.

Implementation of the Modified Alternative 3 would result in the placement of fill material within waters of the United States. In total, this alternative would permanently fill approximately 66.3 acres of waters of the United States (29 percent reduction in acreage compared to the proposed project), and would temporarily disturb 32.2 acres (3 percent decrease in acreage compared to the proposed project). The modified version of Alternative 3 would avoid 561.5 acres of waters of the United States within the project site. Of the total 660.1 acres of waters of the United States that occur on the site, the modified version of Alternative 3 would avoid approximately 85 percent, compared to 80 percent avoidance for the proposed project. Implementation of the Modified Alternative 3 would permanently disturb 7.7 acres of wetlands (62 percent reduction in impact acreage compared to the proposed project), and would temporarily disturb 11.4 acres of wetlands (2 percent decrease in impact acreage compared to the proposed project). Under the modified version of Alternative 3, there would be 4.5 acres of permanent impact and 14.6 acres of temporary impact to waters of the United States in the main stem of the Santa Clara River. In all the tributaries in the project area, the modified version of Alternative 3 would result in 61.8 acres of permanent impact and 17.6 acres of temporary impact in waters of the United States. In addition, a 19-acre wetland mitigation area could be implemented in lower Potrero Canyon, contiguous with the lower mesic meadow (cismontane alkali marsh) wetland preservation area. In total, the Modified Alternative 3 would avoid approximately 93 percent of all wetlands on site, a 4 percent increase in wetland avoidance compared to the proposed project. Based on a detailed review of the Modified Alternative 3 and the attached applicant prepared Draft Section 404(b)(1) Alternatives Analysis, it would meet the overall project purpose and would be practicable in light of costs, logistics and technology. Because the Modified Alternative 3 would substantially reduce impacts to waters of the United States when compared to Alternative 2, this alternative could potentially represent the least environmentally damaging practicable alternative.

Conclusion: Evaluation of the proposed project and alternatives in light of practicability and the overall project purpose (development of a master planned community with interrelated

villages in the vicinity of the Santa Clarita Valley in northwestern Los Angeles County that achieves the basic objectives of the Specific Plan by providing a broad range of land uses of approximately the same size and proportions as approved in the Specific Plan, including residential, mixed-use, commercial and industrial uses, public services (schools, parks, *etc.*), and a water reclamation plant) has resulted in a preliminary conclusion that the Modified Alternative 3, meets the overall project purpose, would be practicable in light of cost, logistics and technology and would not result in other significant adverse effects.

The No Action alternative would not include any new actions in the project area and, as a result, the existing agriculture and oil production would continue. The No Action Alternative would not meet any of the basic objectives of the Specific Plan and therefore, would not meet the overall project purpose. Therefore, the No Federal Action alternative would not represent the least environmentally damaging practicable alternative (LEDPA).

Under Alternative 2, of the 660.1 acres of waters of the United States within the project area, the proposed project would permanently fill 93.3 acres, or approximately 14.1 percent of waters of the United States on site. Of the 660.1 acres of waters of the United States, approximately 276.9 acres are jurisdictional wetlands, with the proposed project permanently filling approximately 20.5 acres of wetlands (avoidance of impacts to approximately 89% of the total wetland area). In total, the proposed project would result in temporary discharges of fill material in approximately 33.3 acres of waters of the United States in the Santa Clara River and its tributaries. With the proposed project, approximately 533.5 acres of waters of the United States would be completely avoided (approximately 80% of the jurisdictional areas) and approximately 566.8 acres of waters of the United States would not be affected by permanent discharges of fill material (approximately 86% of the jurisdictional areas). Including residential, commercial and industrial development, Alternative 2 would result in approximately 2,957.7 acres of total development area (of the 2,957.7 acres approximately 2,550 acres would be residential development area). The proposed project would clearly meet the overall project purpose and Alternative 2 would also be practicable in light of cost, logistics and technology (total development cost of \$3,069,918,000, which yields an average cost of \$1,037,940 per net developable acre). Based on a detailed analysis of the project alternatives, the Corps has identified other practicable alternatives that would result in reduced impacts to waters of the United States and, as a result, Alternative 2 would

not represent the least environmentally damaging practicable alternative.

Of the 660.1 acres of waters of the United States on the project site, implementation of Alternative 3 would result in the permanent fill of 70 acres of waters of the United States (approximately 11% of the total site jurisdiction and 25 percent less acreage than Alternative 2), and would temporarily disturb an additional 37.6 acres (12.9 percent more acreage than the proposed project design). Including residential, commercial and industrial development, Alternative 3 would result in approximately 2,702.5 acres of total development area (of the 2,702.5 acres approximately 2,325.7 acres would be residential development area). Alternative 3 would increase the cost of the proposed project by approximately 3.0% and would be practicable in light of cost logistics and technology (total development cost of \$2,884,032,000, which yields an average development cost of \$1,067,172 per net developable acre). In addition, Alternative 3 would meet the basic objectives of the Specific Plan and, therefore, would also meet the overall project purpose. Alternative 3 has reduced permanent impacts to waters of the United States when compared to Alternatives 4 and 5 and, as a result is the least damaging practicable alternative in terms of waters of the United States, including wetlands. However, Alternative 3 would result in other significant adverse impacts to spineflower individuals and habitat and, therefore, would not represent the least environmentally damaging practicable alternative.

Implementation of Alternative 4 would facilitate urban development in the project site, and would result in the placement of fill within waters of the United States. In total, this alternative would permanently fill 73.3 acres of waters of the United States (21.4 percent reduction compared to the proposed project), and would temporarily disturb an additional 33.8 acres (approximate 1.5 percent increase compared to Alternative 2). Including residential, commercial and industrial development, Alternative 4 would result in approximately 2,712.1 acres of total development area (of the 2,712.1 acres approximately 2,329.6 acres would be residential development area). Alternative 4 would increase the cost of the proposed project by approximately 2.5% and would be practicable in light of cost logistics and technology (total development cost of \$2,878,781,000, which yields an average development cost of \$1,061,458 per net developable acre). In addition, Alternative 4 would meet the basic objectives of the Specific Plan and, therefore, would also meet the overall project purpose. However, Alternative 4 has

increased permanent impacts to waters of the United States when compared to Alternative 3 and, as a result this alternative would not represent the least environmentally damaging practicable alternative.

Alternative 5 would result in the placement of fill within waters of the United States. In total, this alternative would permanently fill 72.4 acres of waters of the United States (22.5 percent reduction in acreage compared to the proposed project), and would temporarily disturb an additional 41.6 acres (24.9 percent increase compared to the proposed project). Including residential, commercial and industrial development, Alternative 5 would result in approximately 2,621.9 acres of total development area (of the 2,621.9 acres approximately 2,232 acres would be residential development area). With a total of 2,621.9 net developable acres, Alternative 5 would result in a total development cost of \$2,894,539,000. This yields an average development cost of \$1,103,985 per net developable acre. Alternative 5 would increase the cost per net developable acre by approximately 6.0% and would be marginally practicable in light of cost logistics and technology. In addition, Alternative 5 would meet the basic objectives of the Specific Plan and, therefore, would also meet the overall project purpose. However, Alternative 5 would increase cost and permanent impacts to waters of the United States when compared to Alternative 3 and, as a result this alternative would not represent the least environmentally damaging practicable alternative.

Implementation of Alternative 6 would facilitate urban development in the project site, and would result in the placement of fill within waters of the United States. In total, this alternative would permanently fill 60.7 acres of waters of the United States (35 percent reduction in acreage compared to the proposed project), and would temporarily disturb an additional 33.9 acres (similar to impact acreage when compared to the proposed project). Alternative 6 would facilitate urban development within the project site, but less than the proposed project. However, because this alternative would not include the bridge across the Santa Clara River at Commerce Center Drive, a substantial portion of the development reduction would occur in the easternmost portion of the project site. The configuration of developable space under Alternative 6 would result in a substantial reduction in development in one section of the project area and, as a result, preclude the construction of a coherent village in the eastern section of the project area. Therefore, Alternative 6 would impede construction of a development composed of interrelated villages and, for this reason Alternative

6 would fail to meet the Specific Plan basic objective with regard to villages. As a result, the Corps has made a preliminary decision that Alternative 6 would not meet the overall project purpose. Including residential, commercial and industrial development, Alternative 6 would result in approximately 2,310.7 acres of total development area (of the 2,310.7 acres approximately 1,976.4 acres would be residential development area). Alternative 6 would yield a total of 2,310.7 net developable acres at a total development cost of \$2,757,365,000, which yields a substantial increase in the average development cost of \$1,193,303 per net developable acre (approximately a 15.0 percent increase compared to the proposed project). When compared to the modified version of Alternative 3, Alternative 6 would provide approximately 6 acres of additional avoidance of waters of the United States (66.3 acres compared to 60.7 acres). Based on the above comparison, avoidance of approximately 6 additional acres of waters of the United States under Alternative 6 would require a substantial increase in cost per net developable acre when compared to the modified version of Alternative 3. In consideration of the relatively high cost for the proposed project, a 15% increase in cost per net developable acre would not be practicable and, therefore, Alternative 6 would not represent the least environmentally damaging practicable alternative.

Implementation of Alternative 7 would facilitate urban development in the project site, and would result in the placement of fill within waters of the United States. In total, this alternative would permanently fill 13.1 acres of waters of the United States (86 percent reduction in acreage compared to the proposed project), and would temporarily disturb an additional 20.3 acres (39 percent reduction in acreage compared to the proposed project). Implementation of Alternative 7 would facilitate a master-planned urban development within the project site, comprising 1,596 net developable acres of residential, commercial, and industrial uses and public facilities. Compared to the proposed project, the development facilitated under this alternative would be reduced by 46 percent. In addition, Alternative 7 would facilitate the development of 1,352.4 acres of residential uses, a reduction of 47.0 percent when compared to the proposed project. Even after incorporating feasible increases in density, Alternative 7 would allow the construction of 16,471 dwelling units, a reduction of 21 percent compared to the proposed project. Because the number of dwelling units available under Alternative 7 would be reduced substantially (more than 20 percent compared to the number approved in the Specific Plan), Alternative 7 would fail to achieve the Specific Plan basic objectives for residential uses. Alternative 7 would facilitate the

development of 125.4 acres of commercial uses, a reduction of 51 percent compared to the proposed project. With feasible increases in density, such as vertical construction, this acreage would support only 3.76 msf of commercial floor space, a substantial reduction of 32 percent when compared to the proposed project. Because the commercial floor space available under Alternative 7 would substantially reduce (more than thirty percent) the floor space that would result from build out of the Specific Plan, Alternative 7 would fail to achieve the Specific Plan basic objectives for commercial uses. Alternative 7 would yield 1,596 net developable acres at a development cost of \$2,538,137,000, which yields a substantial increase in the average development cost of \$1,590,311 per net developable acre (53 percent increase compared to the proposed project). Based on the above information, Alternative 7 would not meet the overall project purpose and would not be practicable in light of the substantial increase in cost per net developable acre. As a result, Alternative 7 would not represent the least environmentally damaging practicable alternative.

Implementation of Alternative 8 (Avoidance of waters of the United States) would facilitate urban development in the project site, but would do so in a manner that would avoid permanent or temporary fill within waters of the United States. Fill of waters would, therefore, be reduced by 100 percent compared to the proposed project. All 660.1 acres of waters of the United States within the project site, including all 276.9 acres of jurisdictional wetlands, would be avoided under this alternative. Implementation of Alternative 8 would facilitate a master-planned urban development within the project site, comprising 2,144.9 net developable acres of residential, commercial, and industrial uses and public facilities. Compared to the proposed project, the development facilitated under this alternative would be reduced by 28.5 percent. Due to this substantial reduction, Alternative 8 would not meet the basic objective with regard to net developable acreage. Of the 2,144.9 acres of total development area, approximately 1,831.7 acres would be residential development area. Alternative 8 would facilitate urban development within the project site, but less than the proposed project (12 percent reduction in dwelling units as compared to the proposed project). This alternative would include one bridge across the Santa Clara River, but would not include bridges at Commerce Center Drive and Potrero Canyon Road. As a result, a substantial portion of the development reduction would occur in the easternmost portion of the project site. The configuration of developable space under Alternative 8 would preclude the construction of a coherent village in this

location. For this reason, Alternative 8 would fail to achieve the Specific Plan basic objectives for villages. Alternative 8 would yield a total of 2,144.9 net developable acres at a total development cost of \$2,890,933,000, which yields a substantial increase in the average development cost of \$1,347,817 per net developable acre (29.9 percent increase compared to the proposed project). These costs would be substantially greater than the proposed project and, as a result, would not be practicable for a project of this type. Based on the above information, Alternative 8 would not meet the overall project purpose and would not be practicable in light of the substantial increase in cost per net developable acre. As a result, Alternative 8 would not represent the least environmentally damaging practicable alternative.

Implementation of the Modified Alternative 3 would result in the placement of fill within waters of the United States. In total, this alternative would permanently fill approximately 66.3 acres of waters of the United States (29 percent reduction in acreage compared to the proposed project), and would temporarily disturb 32.2 acres (3 percent decrease in acreage compared to the proposed project). Implementation of the Modified Alternative 3 would permanently disturb 7.7 acres of wetlands (62 percent reduction in impact acreage compared to the proposed project), and would temporarily disturb 11.4 acres of wetlands (2 percent decrease in impact acreage compared to the proposed project). The Modified Alternative 3 would reduce total developable acreage by 13 percent compared to the proposed project. Specifically, the residential development acreage is reduced by 11 percent, and its corresponding unit count is reduced by 5 percent (1,073 units). Commercial acreage is reduced by 14 percent (35.6 acres), but commercial square footage is reduced by only 3 percent (140,000 square feet). Acreage for public facilities acreage is reduced by 4 percent (6 acres), while open space acreage increases by 372.2 acres compared to the proposed project. There are no disproportionate impacts that threaten the viability of any of the proposed villages. Therefore, the modified Alternative 3 would allow for development of the site consistent with the basic objectives of the Specific Plan. Including residential, commercial and industrial development, the modified version of Alternative 3 would result in approximately 2,587.0 acres of total development area (of the 2,587.0 acres approximately 2,221.2 acres would be residential development area). Total development costs for the Modified Alternative 3 would be \$2,813,955,840, compared to \$3,069,918,000 for the proposed project, resulting in a cost per net developable acre increase of 4.9 percent (\$1,091,402) when compared to the

proposed project. Based on the above information, the modified version of Alternative 3 would meet the overall project purpose and would be practicable in light of cost, logistics and technology. In addition, modified Alternative 3 would include additional spineflower preserve area when compared to Alternative 3. As a result, the modified version of Alternative 3 would not result in other significant adverse impacts to spineflower individuals or habitat and, therefore the Corps has made a preliminary determination that this alternative would represent the least environmentally damaging practicable alternative (Draft LEDPA).

- b) Based on II B, if the project is in a special aquatic site and is not water-dependent, has the applicant clearly demonstrated that there are no practicable alternative sites available?

☒ ☐
Yes No

Discussion: The Draft EIS/EIR for the proposed project initially identified 23 alternative sites within the region that were considered potentially available. These sites were evaluated using initial screening criteria to determine whether they might have the potential to accommodate the proposed project. Twenty of the sites were eliminated from further analysis at this stage, for one or more of the following reasons directly related to the overall project purpose and the basic objectives of the Specific Plan. The site was too small to accommodate the development proposed; site is not in the vicinity of Santa Clarita; and the site is in an isolated location that cannot be connected efficiently with existing infrastructure; Site is entitled for development and is actively being planned for development by the current owner or is already under construction. Based on the initial screening, the Draft EIS/EIR identified three off-site alternative sites that have the potential to meet most or all of the basic objectives for the Specific Plan, and carried them forward for further analysis: Temescal Ranch (Alternative Site A), the Newhall-Ventura Property (Alternative Site B), and Hathaway Ranch (Alternative Site C).

The Temescal Ranch site is approximately 7,580 acres in size and is located approximately two miles northwest of the project site in unincorporated Ventura County, northeast of the community of Piru. Lake Piru, formed within the Piru Creek watershed by the San Felicia Dam at the southern end of the Lake, extends through the northern third of the Temescal Ranch site. Lake Piru serves Ventura County and provides water conservation, flood control, seawater intrusion abatement, groundwater recharge, irrigation, and

municipal and industrial water supplies. The Piru recreational area, which provides lake access, is located on the western side of the lake, while the Santa Felicia Dam extends across the southern edge of the lake. Compared to the proposed project site, the Temescal Ranch site is more distant from existing job centers and transit corridors. In addition, Temescal Ranch is not served directly by SR-126 or any other major state highway, and is much farther away from I-5, one of the state's major north-south freeway corridors (Figure 7-1). Consequently, the amount of transportation infrastructure needed to reach Temescal Ranch would be substantially greater than that needed for the proposed project site. Travel distances between Temescal Ranch and the surrounding employment centers found in the Santa Clarita Valley would also be greater than at the proposed project site. Temescal Ranch is also further from existing sewer, water, and other existing utilities than the proposed project site, and would require that such utilities be extended substantially to serve development in accordance with the overall project purpose.

Costs associated with developing the Temescal Ranch site were not evaluated in detail. On-site development costs associated with the Temescal Ranch site are assumed to be comparable to those for the proposed project area, although fixed costs may be spread across a somewhat smaller development area under this alternative as compared to the proposed project. Off-site costs for the extension of infrastructure would be greater than for the project area because the Temescal Ranch site is located further from existing development and infrastructure. Due to the increased off-site costs, development of the site is considered to be substantially higher when compared to the proposed project. Development of Temescal Ranch would have the potential to reduce impacts to the aquatic ecosystem when compared to the development at the proposed project site, assuming that key aquatic resources such as Lake Piru and Piru Creek were largely avoided. Lake Piru encompasses the majority of the jurisdictional area within Temescal Ranch, approximately 995 acres. The largest stream within Temescal Ranch is Piru Creek, which is fed perennially by releases from Santa Felicia Dam at the downstream end of Lake Piru. The on-site jurisdictional area of Piru Creek is approximately 250 acres. In addition to Piru Creek and Lake Piru, Temescal Ranch contains approximately 11.7 miles of intermittent and ephemeral tributary drainages to these waters, constituting an additional 47 acres of jurisdiction. However, avoidance of

both Piru Creek and Lake would limit the ability of the site to provide sufficient development area to fulfill the overall project purpose. Additional development could occur if a portion of Lake Piru were filled, but this is not considered a practicable alternative given the existing aquatic resources as well as the importance of this facility for water supply, flood control, recreation and other purposes.

Development of the Temescal Ranch site consistent with the overall project purpose has the potential to reduce impacts to the aquatic ecosystem compared to the proposed project, assuming that Lake Piru and Piru Creek were largely avoided. Under this assumption, however, the site would not allow enough development to achieve the overall project purpose. In addition, large-scale development of the site would not be logistically feasible because it would be inconsistent with applicable Ventura County policies and ordinances regarding conversion of land from agricultural and open space uses, and because the site has no readily available source of potable water. Even if these obstacles could be overcome, the site would have substantially higher costs when compared to the proposed project, result in greater environmental impacts to non-aquatic resources such as traffic and air quality due to its more remote location, the need to extend infrastructure to the site, and the site's proximity to the Sespe Wilderness and Sespe Condor Sanctuary.

Based on a review of the Temescal Ranch alternative, the following basic objectives of the Specific Plan would not be achieved if the proposed project were to be developed on the Temescal Ranch site: Avoid leapfrog development and accommodate projected regional growth in a location that is adjacent to existing and planned infrastructure, urban services, transportation corridors, and major employment centers; and arrange land uses to reduce vehicle miles traveled and energy consumption. Based on the above information, the Temescal Ranch site would not meet the overall project purpose, would result in other significant adverse impacts and would substantially increase the costs associated with the proposed project. As a result, the Temescal Ranch site does not have the potential to be the least environmentally damaging practicable alternative (LEDPA).

The Newhall-Ventura property is an approximately 15,000-acre site located in unincorporated Ventura County adjacent to the western boundary of the proposed project site. The property is generally bounded by SR-126 on the north, the

Santa Susana Mountains on the south, Los Angeles County on the east, and extends approximately two miles west of the community of Piru. The northwest portion of the Newhall-Ventura property encompasses a portion of the Santa Clara River floodplain and extends north of SR-126. Like the proposed project site, the topography of the Newhall-Ventura property is highly variable, with elevations ranging from approximately 630 feet AMSL in the Santa Clara River valley to approximately 3,000 AMSL in the Santa Susana Mountains. Historic uses of the site include cattle grazing, agriculture and oil production. The site is heavily developed with agricultural uses (row crops, citrus, *etc.*) and also maintains a number of rural-type residences and structures. Vehicular access is available to this site from SR-126. The site is within both the UWCD and Castaic Lake Water Agency (CLWA) service areas; however, no wastewater lines serve the site.

Costs associated with developing the Newhall-Ventura property were not evaluated in detail. On-site costs associated with developing the Newhall-Ventura alternative site are assumed to be comparable to costs for the proposed project. Off-site costs for extension of infrastructure would be greater than for the proposed project area because the Newhall Ventura site is located further from existing development and infrastructure. Due to the increased off-site costs, the cost of developing the site is considered to be substantially higher than for the proposed project area.

The Santa Clara River runs through the Newhall-Ventura property, just as it does through the project site. In addition, several intermittent drainages drain to the Santa Clara River throughout the site. Because the Newhall-Ventura property and the proposed project site contain similar reaches of the Santa Clara River and tributary drainages, both sites, if developed to meet the overall project purpose, would yield comparable impacts to geomorphic and hydrologic functions in the Santa Clara River. The Newhall-Ventura property is located immediately adjacent to the west of the proposed project site and has similar aquatic features, habitat and topography. The Newhall-Ventura property contains approximately 946 acres of the Santa Clara River and 53.8 miles of intermittent and ephemeral drainages that ultimately convey flows to the Santa Clara River, for a total of approximately 990 acres of jurisdictional waters. It is assumed, based on its proximity to the project location, that the Newhall-Ventura property contains palustrine fringe

wetlands along the edges of the Santa Clara River. Depressional wetlands also may occur on site, but are likely limited in extent due to relatively steep topography and arid climate conditions.

At approximately 15,000 acres, the Newhall-Ventura site is larger than the proposed project site. Therefore, even though the quantity and quality of jurisdictional streams and wetlands on these two sites are similar, development on the Newhall-Ventura property could be designed to affect a smaller percentage of jurisdictional streams and wetlands. As a result, the Newhall-Ventura property site could potentially be developed with fewer direct impacts to jurisdictional streams and wetlands as compared to the proposed project site. The Newhall-Ventura site has the potential to reduce impacts to the aquatic ecosystem compared to the proposed project. However, development of the site would conflict with the overall project purpose elements of avoiding leapfrog development and reducing vehicle miles traveled (two basic objectives of the Specific Plan). In addition, development of the site consistent with the overall project purpose is not logistically feasible because it would be inconsistent with applicable Ventura County policies and ordinances and, therefore, is extremely unlikely to be approved and, even if these obstacles could be overcome, the site would have significantly higher cost due to off-site infrastructure costs. Finally, development of the site could have greater adverse effects than the proposed project in the form of traffic, air quality, and noise impacts due to its greater distance from existing urban centers. Based on the above information, the Newhall-Ventura site would not meet the overall project purpose, would result in a substantial increase in cost when compared to the proposed project and would result in other significant adverse effects. As a result, the Newhall-Ventura site does not have the potential to be the LEDPA.

The Hathaway Ranch site is approximately 6,195 acres in size, and is located approximately five miles north of the project site in unincorporated Los Angeles County, generally between the Ventura County line to the west, I-5 to the east, Hasley Canyon to the south, and the Angeles National Forest to the north. Topography on the Hathaway Ranch site is highly variable, with elevations ranging from approximately 1,100 feet AMSL to more than 2,500 AMSL; very little flat land exists on this site. According to a slope analysis performed by Hunsaker and Associates (Hunsaker Technical

Memorandum), both the project site and Hathaway Ranch have hilly terrain, the chief difference between them is that Hathaway Ranch has a higher percentage of land within the 25-50 percent slope range, while the proposed project site has a higher percentage of land in the 0-25 percent slope range and the >50 percent slope range.⁴ Historic uses of the Hathaway site include cattle grazing, oil and natural gas operations, and mineral resource mining. As Hathaway Ranch is undeveloped, no vehicular access is available via improved roadways, and no water or wastewater lines serve the site.

The *on-site* infrastructure necessary to serve the Hathaway Ranch site, including highways, drainage, sewer, water, and utility distribution systems, would be generally similar to that required to serve the project site, as both properties would support developments of similar size. The chief difference between the two properties relates to *off-site* infrastructure. Due to its remote location, Hathaway Ranch would require a significant amount of new off-site infrastructure improvements, the cost of which, in terms of additional environmental impact and additional financial burden, could be prohibitive. Costs described in this analysis cover off-site improvements only, and are in addition to the on-site development costs (which are assumed to be similar to the project site development costs). As such, the off-site costs represent costs unique to development of the Hathaway Ranch site (*i.e.*, costs that would not be incurred if the proposed project were developed on the project site). Unit prices for the cost items are based upon the proposed project cost estimates to maintain consistency. Costs for major improvements such as the freeway interchanges are also based upon Newhall Ranch Specific Plan improvements and are approximations only. The per-unit cost to acquire rights-of way is assumed to be similar for both sites, and does not account for any improvements on the properties to be acquired. Additional fees required for litigation and/or condemnation proceedings have not been included in this estimate. Acquisition of property outside of the road right-of-way (for slopes and grading) can be reduced by constructing retaining walls.

⁴ Hunsaker Technical Memorandum, dated February 9, 2010, at p.1. A copy of the Hunsaker Technical Memorandum, including exhibits, is attached as **Appendix 7.0** to this report.

Finally, as mentioned above, development of Hathaway Ranch, if consistent with the overall project purpose, would require off-site mitigation for habitat loss and open space, which is an additional cost of development. To determine this cost, this analysis assumes that the Applicant would have to acquire approximately 2,000 acres of open space for mitigation purposes. Based on this assumption, the cost of acquiring off-site mitigation land was estimated to be \$99,180,000. (Hunsaker Technical Memorandum, at p. 8.) When the additional development costs of the Hathaway Ranch site are totaled, they come to \$591,269,184 (plus an additional \$99,180,000 for off-site mitigation land).⁵ Again, these are costs over and above those the applicant would expect to incur if it developed the project on the proposed site.⁶

The Hathaway Ranch site is located in the mountains on the north side of the Santa Clara River Valley and does not contain any major rivers or impoundments. The site contains a total of approximately 25.5 linear miles of intermittent and ephemeral drainages on site, encompassing a total jurisdictional area of approximately 101 acres. Although available information was not sufficient to allow the mapping of wetlands on Hathaway Ranch, it is unlikely that palustrine wetlands exist on the site due to the lack of perennial water sources. Although depressional wetlands may occur on site, these are likely limited in extent due to the relatively steep topography and lack of perennial and intermittent streams. The Hathaway Ranch alternative site has the potential to substantially reduce impacts to the aquatic ecosystem. However, the site is not currently zoned for urban development, and amending the General Plan to allow high density development of the site would not be consistent with local and regional planning efforts and is not considered feasible. The site also would not meet several Specific Plan basic objectives, including avoiding leapfrog development, locating housing proximate to transit corridors and employment centers, and reducing vehicle miles traveled. In addition, because the site is located farther from existing utility and transportation infrastructure, it would require extension of infrastructure that would substantially increase the project cost. Moreover, the improvements to

infrastructure would increase adverse environmental impacts to upland resources. Finally, it may not be practicable to obtain sufficient water supply to serve the proposed project if constructed on the Hathaway Ranch site. Based on the above information, the Hathaway Ranch site would not meet the overall project purpose, would result in a substantial increase in cost when compared to the proposed project and would result in other significant adverse effects. Therefore, the site is not a practicable alternative and does not have the potential to be the LEDPA. Based on the above analysis of on-site and off-site alternatives, the Corps has made a preliminary determination that the presumption that there is a less damaging alternative that would not discharge fill in a special aquatic site has been rebutted. The Draft LEDPA would substantially reduce permanent impacts to special aquatic sites (approximately a 62% reduction when compared to Alternative 2), but would not eliminate all impacts to jurisdictional wetlands.

2) Special restrictions. Will the project:

- | | | |
|-------------------------------------|-------------------------------------|---|
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | a) violate state water quality standards? |
| <u>Yes</u> | <u>No</u> | |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | b) violate toxic effluent standards (under Section 307 of the Act) |
| <u>Yes</u> | <u>No</u> | |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | c) jeopardize endangered or threatened species or their critical habitat? |
| <u>Yes</u> | <u>No</u> | |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | d) violate standards set by the Department of Commerce to protect marine sanctuaries? |
| <u>Yes</u> | <u>No</u> | |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | e) evaluation of the information in II C and D above indicates that the proposed discharge material meets testing exclusions criteria for the following reason(s) |
| <u>Yes</u> | <u>No</u> | |
- (X) based on the above information, the material is not a carrier of contaminants
- () the levels of contamination are substantially similar at the extraction and disposal sites and the discharge is not likely to result in degradation of the disposal site and pollutants will not be transported to less contaminated areas

- () acceptable constraints are available and will be implemented to reduce contamination to acceptable levels within the disposal site and prevent contaminants from being transported beyond the boundaries of the disposal site.

3) **Other restrictions.** Will the discharge contribute to significant degradation of "waters of the U.S." through adverse impacts to:

- | | | |
|--------------------------|-------------------------------------|---|
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | a) human health or welfare, through pollution of municipal water supplies, fish, shellfish, wildlife and special aquatic sites? |
| <u>Yes</u> | <u>No</u> | |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | b) life states of aquatic life and other wildlife? |
| <u>Yes</u> | <u>No</u> | |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | c) diversity, productivity and stability of the aquatic ecosystem, such as the loss of fish or wildlife habitat, or loss of the capacity of wetland to assimilate nutrients, purify water or reduce wave energy |
| <u>Yes</u> | <u>No</u> | |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | d) recreational, aesthetic and economic values? |
| <u>Yes</u> | <u>No</u> | |

- | | | |
|-------------------------------------|--------------------------|--|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | 4) Actions to minimize potential adverse impacts (mitigation). Will all appropriate and practicable steps (40 CFR 23.70-77) be taken to minimize the potential adverse impacts of the discharge on the aquatic ecosystem? |
| <u>Yes</u> | <u>No</u> | |

Discussion: In order to avoid and minimize the potential adverse impacts of the discharge on the aquatic ecosystem during the proposed construction activities in waters of the United States, several measures have been incorporated into the modified version of Alternative 3 (Draft LEDPA), including: substantial avoidance and minimization of impacts to waters of the United States (approximately 90% waters of the United States in the project area would not be affected by permanent impacts), substantial biological mitigation measures, implementation of construction and water quality BMPs, and development of a comprehensive SWPPP.

The Draft LEDPA would permanently impact 66.3 acres, including 7.7 acres of wetlands, and temporarily impact 32.2 acres of waters of the United States, including 11.4 acres of jurisdictional wetlands. With the implementation of the Draft LEDPA, of the 660.1 acres of waters of the United States in the project area, 85 percent of waters of the United States would be completely avoided and approximately 90% of the waters of the United States would not be permanently affected by discharges of fill material. To avoid and minimize indirect/secondary

impacts, approximately 8,500 acres of uplands would be preserved in the project area, reducing direct and indirect impacts to drainage patterns, erosion/accretion, water quality, special aquatic sites, aquatic habitat, wildlife habitat, endangered species and aesthetics. Sensitive resource areas that would be avoided with the Draft LEDPA include the Middle Canyon spring, the entire Salt Creek watershed, the cismontane alkali marsh wetland in lower Potrero Canyon and the majority of the jurisdictional wetlands in the Santa Clara River.

To minimize impacts, the proposed bank stabilization would be constructed outside the lateral limits of waters of the United States under the Draft LEDPA, and fill of waters would be limited to temporary impacts during construction activities. By locating bank stabilization outside the active channel, hydrologic impacts of bank stabilization would be reduced under the Draft LEDPA. Along the tributary drainages, the proposed buried bank stabilization would be installed in post-development channels to limit lateral channel migration and protect adjacent land uses. The construction methods would be identical to those employed along the river mainstem, but in many cases the stabilization would be constructed within waters of the United States. The Draft LEDPA would preserve 131,769 lf of on-site drainages, which is 54 percent of the total 242,049 lf of jurisdictional drainages on the project site, reducing impacts when compared to Alternative 2. In total, the Draft LEDPA would alter 54,001 feet of on-site tributaries, convert 56,291 lf of tributary channel to buried storm drain and install 69,913 lf of bank stabilization. The Draft LEDPA would avoid and minimize impacts to aquatic resources from bank stabilization by featuring wider channels, with bank stabilization set back laterally from the active channel, allowing relatively natural channel morphology to develop in the drainages. The new drainages included in the Draft LEDPA would be designed to incorporate buried bank protection and grade stabilization, and would have sufficient hydrologic capacity to pass the Los Angeles County Capital Flood without the need for clearing native vegetation from the channels, allowing moderate to high physical and biological functions to persist in the project area.

To avoid and minimize water quality impacts during the proposed construction activities, the Draft LEDPA would include preparation and implementation of a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP itself would include erosion and sediment control BMPs to reduce or eliminate the discharge of sediment and other potential construction-related pollutants. The SWPPP must also contain a Construction Site Monitoring Program that identifies monitoring and sampling requirements during construction. Preliminary analysis indicates that the Draft LEDPA would most likely be categorized as a Risk Level 2. BMPs and monitoring required

by the Construction General Permit would be incorporated into the project design to comply with the Risk Level 2 requirements, as described in Attachment D of the Construction General Permit. If final design analysis indicates that the Draft LEDPA would fall under Risk Level 3, the additional Level 3 permit requirements would be implemented as necessary.

Pursuant to NPDES requirements, Best Management Practices (BMPs) would be implemented at the project site under the Draft LEDPA to avoid and minimize impacts to water quality. These BMPs include the following water quality control facilities: (1) water quality basins; (2) debris basins, located just upstream of the interface between developed and undeveloped areas, primarily to trap debris coming from the upper watersheds; (3) detention basins, which are typically sized to capture the predicted runoff volume and retain the water volume for a period of time (usually 24 to 48 hours); (4) catch basin inserts or screens/filters installed in existing or new storm drains to capture pollutants in the stormwater runoff; (5) bioretention, such as vegetated grassy swales, that provide water quality benefits and convey storm water runoff; and (6) solids separator units or in-line structures that reduce or manipulate runoff velocities such that particulate matter falls out of suspension and settles in a collection chamber. With the implementation of the above measures, impacts to water quality would be substantially reduced, avoiding and minimizing direct and indirect impacts to water quality in the project area.

To compensate for unavoidable permanent impacts to 66.3 acres and temporary impacts to 32.2 acres of waters of the United States, the Draft LEDPA would implement a variety of on-site compensatory mitigation measures. As a standard measure to minimize impacts to waters of the United States, the 32.2 acres of temporary impact areas would be restored to pre-project contours and revegetated as stipulated in Corps and CDFG approved mitigation and monitoring plans. As part of the required monitoring for the restored temporary impact areas, the applicant would be required to utilize the Hybrid Assessment of Riparian Condition (HARC) methodology to document adequate restoration of the physical and biological functions in the temporary impact areas. To compensate for permanent impacts to waters of the United States, large areas in the Santa Clara River floodplain that are currently agricultural areas would be restored to active floodplain, resulting in both an increase in the acreage of waters of the United States as well as augmented physical and biological functions. Establishment and restoration activities in the main-stem of Salt Creek watershed would also result in a net increase in the acreage of waters of the United States as well as augmented physical and biological functions. Lastly, major tributaries that would be filled as

part of the Draft LEDPA would be replaced by created channels that would be designed to be wide enough to accommodate riparian vegetation and would require minimal maintenance activities, providing additional compensation for permanent impacts to waters of the United States.

Because the Draft LEDPA would involve various phases over a 20 year period, the compensatory mitigation would also be implemented in phases. To avoid and minimize temporal losses, prior to any permanent impacts in waters of the United States, the applicant would initiate establishment and restoration activities in Salt Creek and Santa Clara River (Mayo Crossing area). In this initial phase, approximately 20.4 acres of compensatory mitigation would be implemented in Salt Creek and 15.9 acres in the Santa Clara River, for a total of 36.4 acres of available mitigation area. Concurrent with construction activities in waters of the United States associated with the various phases of the proposed development, additional compensatory mitigation capacity would be available including approximately 1.3 acres in Lion Canyon, 11.1 acres in Chiquito Canyon, 6.0 acres in San Martinez Grande, 22.5 acres in Long Canyon and 70.0 acres in Potrero Canyon, and 17.0 acre river bed expansion area along margins of the Santa Clara River (conversion of agricultural fields) could be suitable for Corps mitigation establishment, ensuring no net loss of physical and biological functions in the project area. In addition, a 19-acre wetland mitigation area could also be implemented in lower Potrero Canyon, contiguous with the lower mesic meadow (cismontane alkali marsh) wetland preservation area. Total available compensatory mitigation in the project area would be 183.3 acres. For more information regarding the proposed compensatory mitigation program, please reference the Draft Mitigation Plan in **Appendix F1.0** in the Final EIS/EIR.

Overall, the Draft LEDPA would include substantial avoidance and minimization of impacts to waters of the United States, including wetlands, with approximately 85 percent of the jurisdictional areas being completely avoided and avoiding permanent impacts in approximately 90 percent of the waters of the United States in the project area. Implementation of the Draft LEDPA would permanently disturb 7.7 acres of wetlands (62 percent reduction in impact acreage compared to the proposed project), and would temporarily disturb an additional 11.4 acres (4 percent decrease in impact acreage compared to the proposed project). The Draft LEDPA would avoid permanent impacts to approximately 97 percent of the jurisdictional wetlands in the project area. To avoid and minimize construction impacts to water quality, the Draft LEDPA would include numerous best management practices as well as substantial project design features to

facilitate on-site treatment of runoff to avoid and minimize downstream water quality impacts associated with the proposed residential development. As a standard measure to minimize impacts to waters of the United States, the 32.2 acres of temporary impact areas would be restored to pre-project contours and revegetated as stipulated in Corps and CDFG approved mitigation and monitoring plans. As part of the required monitoring for the restored temporary impact areas, the applicant would be required to utilize the Hybrid Assessment of Riparian Condition (HARC) methodology to document adequate restoration of the physical and biological functions in the temporary impact areas. Based on the above information, the Corps has made a preliminary determination that the Draft LEDPA would avoid and minimize impacts to aquatic resources to the maximum extent practicable and would represent the least environmentally damaging practicable alternative.

VII. References

See reference sections in the Final EIS/EIR and the attached applicant prepared Draft 404(b)(1) Alternatives Analysis.

NEWHALL LAND

June 1, 2010

Dr. Aaron O. Allen, North Coast Branch Chief
U.S. Army Corps of Engineers
2151 Alessandro Drive, Suite 110
Ventura, California 93001

**Re: Newhall Ranch Resource Management and Development Plan Section 404 Permit
Application (File No. 2003-01264-AOA) and Draft 404(b)(1) Alternatives Analysis Submittal**

Dear Dr. Allen:

The Newhall Land and Farming Company ("Newhall Land") submitted an application on December 15, 2003 for an individual Clean Water Act section 404 permit for the proposed Newhall Ranch Resource Management and Development Plan ("RMDP") (File No. 2003-01264-AOA). The Section 404(b)(1) Guidelines ("Guidelines") require the applicant for a section 404 permit to demonstrate that the proposed project is the least environmentally damaging practicable alternative ("LEDPA")—i.e., that there is no practicable alternative that would have less adverse impact on the aquatic ecosystem without having other significant adverse environmental consequences. In accordance with the Guidelines, Newhall Land has prepared the attached Draft Section 404(b)(1) Alternatives Analysis for the RMDP. The analysis evaluates a range of alternatives, including the RMDP as originally proposed by Newhall Land, a "No Fill" alternative, and a variety of alternatives featuring modified configurations of the proposed RMDP infrastructure and facilities.

The Draft Section 404(b)(1) Alternatives Analysis identifies a practicable alternative that would have less adverse impact on the aquatic ecosystem than the RMDP, without causing other significant adverse environmental consequences. This alternative is termed the Draft LEDPA. Under the Draft LEDPA, the proposed bridge across the Santa Clara River at Potrero Canyon Road would not be constructed, the cismontane alkali marsh wetland in lower Potrero Canyon would be avoided, and proposed buried bank stabilization along the Santa Clara River and tributaries would be set back in many locations to lessen impacts to waters of the United States. Overall, of the 660.1 acres of waters of the United States within the RMDP site, implementation of the Draft LEDPA would result in the permanent fill of 66.3 acres of waters of the United States (which amounts to 10 percent of the total site jurisdiction and represents a 29 percent reduction compared to the proposed RMDP). The Draft LEDPA would temporarily disturb an additional 32.2 acres (three percent less than the proposed Project).

The Draft LEDPA is a hybrid alternative, which is similar to Draft EIS/EIR Alternative 3 but it incorporates various elements from the seven alternatives evaluated in the Draft EIS/EIR for the RMDP, which was circulated for public review and comment in April 2009. These elements include infrastructure configurations and drainage treatments for specific locations within the RMDP site. The Draft LEDPA also would incorporate revisions to the RMDP to ensure consistency with applicable federal and state statutes, including the Endangered Species Act, National Historic Preservation Act, California Endangered Species Act, and Section 1600 *et seq.* of the California Fish and Game Code. These modifications are described in detail in Section 9.0 of the attached Draft Section 404(b)(1)

NEWHALL LAND

Dr. Allen, Corps North Coast Branch Chief
Newhall Ranch RMDP 404 Permit Application
June 1, 2010
Page 2 of 2

Alternatives Analysis. Overall, impacts of the Draft LEDPA would be less than those of the proposed RMDP but greater than the impacts of some alternatives considered in the Draft EIS/EIR, such as Alternative 1 (the No Action/No Project alternative) and Alternative 7 (avoidance of all mapped 100-year floodplains). Thus the Draft LEDPA falls within the range of alternatives evaluated in the Draft EIS/EIR, in terms of both project configuration and environmental impacts.

The mitigation associated with the Draft LEDPA, described in draft Mitigation and Monitoring Plan in Appendix 11.0 of the Draft 404b1 Alternatives Analysis. Implementation of the plan would ensure no net loss of acreage or functions and values of waters of the United States. Taking the proposed mitigation into account, the proposed discharge would not result in significant degradation of waters of the United States; cause or contribute to violations of any applicable State water quality standard; violate any applicable toxic effluent standard or prohibition under Clean Water Act section 307; jeopardize the continued existence of any species listed under the ESA or result in destruction or adverse modification of critical habitat; or violate requirements imposed to protect any marine sanctuary. The Draft LEDPA also would not cause or contribute to significant degradation of the waters of the United States, and would not result in significant adverse effects on life stages of aquatic life and other wildlife dependent on aquatic ecosystems, aquatic ecosystem diversity, productivity, and stability, or recreational, aesthetic, and economic values of waters of the United States. Therefore, the Draft LEDPA would comply with the restrictions on discharge found in the Guidelines.

If the Corps finds that the Draft LEDPA complies with the Guidelines, Newhall Land respectfully requests that the Corps issue a Section 404 Permit authorizing the discharge of fill material into waters of the United States for the Draft LEDPA, rather than for the RMDP as originally proposed.

Should you have any questions regarding this submittal, please contact me at (661) 255-4259.

Sincerely,

THE NEWHALL LAND AND FARMING COMPANY



Matt Carpenter
Director, Environmental Resources

Attachment

Attachment A Draft Section 404(b)(1) Alternatives Analysis (Newhall Land, June 2010)

cc: M. Subbotin
 S. Rojas

SECTION 404(b)(1) ALTERNATIVES ANALYSIS

NEWHALL RANCH RESOURCE MANAGEMENT AND DEVELOPMENT PLAN

CORPS PERMIT APPLICATION NO. 2003-01264-AOA

Prepared for:



**U.S. Army Corps
of Engineers®**
Los Angeles District

Prepared by:

The Newhall Land and Farming Company
Valencia, California

With Assistance from:

Hunsaker & Associates

NEWHALL LAND

Dudek

June 2010

SECTION 404(b)(1) ALTERNATIVES ANALYSIS

NEWHALL RANCH RESOURCE MANAGEMENT AND DEVELOPMENT PLAN

CORPS PERMIT APPLICATION NO. 2003-01264-AOA

Prepared for:
U.S. Army Corps of Engineers
Ventura Field Office

Prepared by:
The Newhall Land and Farming Company
Valencia, California

With Assistance from:
Hunsaker & Associates
URS Corporation
DUDEK

June 2010

TABLE OF CONTENTS

Section	Page
TABLE OF CONTENTS.....	I
APPENDICES	XX
LIST OF TABLES	XXII
LIST OF FIGURES	XXIII
EXECUTIVE SUMMARY	ES-1
1.0 INTRODUCTION	ES-1
1.1 PROCESS EMPLOYED TO IDENTIFY DRAFT LEDPA	ES-1
1.2 DRAFT LEDPA	ES-3
1.3 STRUCTURE OF THE SECTION 404(b)(1) ANALYSIS	ES-3
1.4 COMPARING THE DRAFT LEDPA TO THE INITIAL LEDPA AND THE PROPOSED PROJECT (ALTERNATIVE 2)	ES-10
1.5 MITIGATION	ES-11
1.6 CONCLUSION	ES-11
1.0 INTRODUCTION.....	1-1
1.1 THE NEWHALL RANCH SPECIFIC PLAN	1-1
1.1.1 Specific Plan Land Uses And Villages	1-2
1.1.2 Specific Plan Setting.....	1-3
1.2 PROPOSED RESOURCE MANAGEMENT AND DEVELOPMENT PLAN INFRASTRUCTURE.....	1-3
1.2.1 Bridges.....	1-4
1.2.2 Road Crossing Culverts	1-4
1.2.3 Bank Stabilization	1-4
1.2.4 Drainage Facilities.....	1-4
1.2.5 Water Quality Control Facilities	1-4
1.2.6 Modified Tributary Drainages -- Existing Channels Stabilized	1-5
1.2.7 Modified Tributary Drainages -- Regraded Channels.....	1-5
1.2.8 Unmodified (Preserved) Tributary Drainages.....	1-5
1.2.9 Tributary Drainages Converted To Buried Storm Drain	1-6
1.2.10 Grade Stabilization Structures	1-6
1.2.11 Utility Corridor And Crossings	1-6
1.2.12 Temporary Haul Routes For Grading Equipment	1-6
1.2.13 WRP Outfall Construction Activities.....	1-7
1.2.14 Roadway Improvements To SR-126.....	1-7
1.2.15 Recreation Facilities.....	1-7
1.2.16 Maintenance, Habitat Restoration And Other Activities	1-7

2.0	REGULATORY FRAMEWORK OF THE SECTION 404(b)(1) ALTERNATIVES ANALYSIS	2-1
2.1	SECTION 404 OF THE CLEAN WATER ACT	2-1
2.2	THE 404(b)(1) GUIDELINES	2-1
3.0	PROJECT PURPOSE	3-1
3.1	LEGAL REQUIREMENTS FOR PROJECT PURPOSE	3-1
3.2	PLANNING BACKGROUND OF THE SPECIFIC PLAN AND RMDP	3-3
3.3	BASIC OBJECTIVES OF THE SPECIFIC PLAN	3-4
3.4	DEVELOPMENT OF APPLICANT'S OVERALL PROJECT PURPOSE UNDER THE 404(b)(1) GUIDELINES	3-6
3.4.1	Draft EIS/EIR Project Purpose	3-6
3.4.2	Consideration Of San Fernando Valley Spineflower Objective	3-6
3.4.3	The Role Of The RMDP	3-8
3.4.4	Compliance With Other Regulatory Requirements	3-8
3.4.5	Consideration Of Specific Plan Basic Objectives	3-9
3.4.6	Project Elements Related To Basic Objectives Of The Specific Plan	3-11
3.4.7	Size	3-12
3.4.8	Location	3-15
3.5	APPLICANT'S STATEMENT OF PROJECT PURPOSE	3-16
3.6	APPLICANT'S STATEMENT OF PROJECT NEED	3-16
4.0	JURISDICTIONAL WATERS OF THE UNITED STATES	4-1
4.1	THE SANTA CLARA RIVER	4-1
4.2	ASSOCIATED TRIBUTARY DRAINAGES	4-2
4.3	POTENTIAL DEGRADATION FROM EXISTING LAND USES	4-3
4.4	WATERS OF THE UNITED STATES WITHIN THE RMDP SITE	4-3
4.5	HARC EVALUATION	4-5
5.0	FILL OF WATERS OF THE UNITED STATES	5-1
5.1	INFRASTRUCTURE COMPONENTS WITHIN WATERS	5-1
5.1.1	Bridges And Road Crossings	5-1
5.1.1.1	Bridges Across The Santa Clara River Mainstem	5-1
5.1.1.2	Bridges Across Tributary Drainages	5-2
5.1.1.3	Culvert Road Crossings On Tributary Drainages	5-3
5.1.1.4	Widened Bridges And Culvert Extensions	5-3
5.1.2	Bank Stabilization	5-3

5.1.3	Grade Stabilizing Design Measures And Bank Protection	5-5
5.1.4	Water Quality Control Facilities	5-6
5.1.4.1	Water Quality Treatment/Detention Basins	5-6
5.1.4.2	Debris Basins	5-6
5.2	PROPOSED TRIBUTARY DRAINAGE TREATMENTS.....	5-7
5.2.1	Drainages To Be Relocated	5-7
5.2.2	Drainages Converted To Buried Storm Drains.....	5-8
5.2.3	Drainages To Be Reconstructed	5-8
5.2.4	Drainages To Be Geomorphically Corrected	5-8
6.0	OVERVIEW OF ALTERNATIVES ANALYSIS METHODOLOGY	6-1
6.1	ANALYSIS OF OFF-SITE ALTERNATIVES	6-1
6.2	SELECTION AND ANALYSIS OF ON-SITE ALTERNATIVES	6-1
6.2.1	Screening On-Site Alternatives And Determination Of Initial LEDPA	6-2
6.2.2	Addressing Regulatory Requirements And Determination Of Revised Initial LEDPA	6-2
6.2.3	Evaluation Of Sub-Alternatives And Determination Of Draft LEDPA	6-5
6.3	EVALUATION OF DRAFT LEDPA FOR COMPLIANCE WITH THE GUIDELINES.....	6-5
7.0	ANALYSIS OF ALTERNATIVE PROJECT LOCATIONS	7-1
7.1	INITIAL SCREENING OF POTENTIAL SITES.....	7-1
7.2	CRITERIA FOR DETAILED ANALYSIS OF ALTERNATIVE LOCATIONS.....	7-1
7.2.1	Availability	7-2
7.2.2	Project Purpose.....	7-2
7.2.2.1	Location.....	7-3
7.2.2.2	Size.....	7-3
7.2.2.3	Form.....	7-3
7.2.3	Logistics.....	7-3
7.2.4	Cost	7-4
7.2.5	Impacts To Aquatic Ecosystem	7-4
7.2.6	Other Environmental Impacts.....	7-4
7.3	ANALYSIS OF ALTERNATIVE A: TEMESCAL RANCH	7-4
7.3.1	Availability	7-5
7.3.2	Project Purpose.....	7-5
7.3.2.1	Location.....	7-5
7.3.2.2	Size.....	7-5
7.3.2.3	Form.....	7-6
7.3.3	Logistics.....	7-6
7.3.3.1	Entitlement	7-6

7.3.3.2	Infrastructure.....	7-7
7.3.3.3	Compatibility With Surrounding Land Uses	7-7
7.3.3.4	Water Supply.....	7-7
7.3.3.5	Public Safety	7-8
7.3.4	Costs.....	7-8
7.3.5	Impacts To The Aquatic Ecosystem	7-8
7.3.5.1	Water Quality	7-8
7.3.5.2	Jurisdictional Waters and Streams	7-9
7.3.5.3	Biological Impacts.....	7-9
7.3.6	Other Environmental Impacts.....	7-9
7.3.7	Overall	7-9
7.4	ANALYSIS OF ALTERNATIVE B: NEWHALL-VENTURA PROPERTY	7-10
7.4.1	Availability	7-10
7.4.2	Project Purpose.....	7-10
7.4.2.1	Location.....	7-10
7.4.2.2	Size.....	7-10
7.4.2.3	Form.....	7-11
7.4.3	Logistics.....	7-11
7.4.3.1	Entitlement	7-11
7.4.3.2	Infrastructure.....	7-11
7.4.3.3	Compatibility With Surrounding Land Uses	7-11
7.4.3.4	Water Supply.....	7-11
7.4.3.5	Public Safety	7-11
7.4.4	Costs.....	7-12
7.4.5	Impacts To The Aquatic Ecosystem	7-12
7.4.5.1	Water Quality	7-12
7.4.5.2	Jurisdictional Waters And Streams	7-12
7.4.5.3	Biological Impacts.....	7-13
7.4.6	Other Environmental Impacts.....	7-13
7.4.7	Overall	7-13
7.5	ANALYSIS OF OFF-SITE ALTERNATIVE C: HATHAWAY RANCH	7-13
7.5.1	Availability	7-14
7.5.2	Project Purpose.....	7-14
7.5.2.1	Location.....	7-14
7.5.2.2	Size.....	7-14
7.5.2.3	Form.....	7-15
7.5.3	Logistics.....	7-15
7.5.3.1	Entitlement	7-15
7.5.3.2	Infrastructure.....	7-15
7.5.3.2.1	Roads, Off-Site Access, And Interchange Improvements.....	7-16
7.5.3.2.2	Roadway Grading	7-17
7.5.3.2.3	Drainage.....	7-17

	7.5.3.2.4	Sewer.....	7-17	
	7.5.3.2.5	Water.....	7-18	
	7.5.3.2.6	Dry Utilities.....	7-18	
	7.5.3.3	Compatibility With Surrounding Land Uses.....	7-18	
	7.5.3.4	Water Supply.....	7-19	
	7.5.3.5	Public Safety.....	7-19	
7.5.4	Costs.....		7-19	
7.5.5	Impacts To The Aquatic Ecosystem.....		7-20	
	7.5.5.1	Water Quality.....	7-20	
	7.5.5.2	Jurisdictional Waters And Streams.....	7-20	
7.5.6	Other Environmental Impacts.....		7-21	
7.5.7	Overall.....		7-21	
7.6	CONCLUSIONS REGARDING ALTERNATIVE LOCATIONS.....		7-22	
8.0	ANALYSIS OF ON-SITE PROJECT ALTERNATIVES AND DETERMINATION OF INITIAL LEDPA.....		8-1	
8.1	SCREENING CRITERIA FOR ON-SITE ALTERNATIVES.....		8-1	
	8.1.1	Screening Criteria For Practicability.....	8-2	
		8.1.1.1	Criteria Related To Project Purpose.....8-2	
		8.1.1.2	Criteria Related To Costs.....8-2	
		8.1.1.3	Criteria Related To Technology.....8-7	
		8.1.1.4	Criteria Related To Logistics.....8-7	
	8.1.2	Screening Criteria For Impacts To The Aquatic Ecosystem.....	8-7	
		8.1.2.1	Effects On Chemical Characteristics Of The Aquatic Environment.....8-8	
			8.1.2.1.1	Water Quality Impacts.....8-8
			8.1.2.1.2	Loss Of Biogeochemical Function.....8-8
		8.1.2.2	Effects On Physical Characteristics Of The Aquatic Environment.....8-9	
			8.1.2.2.1	Permanent And Temporary Fill Of Waters Of The United States.....8-9
			8.1.2.2.2	Effects On Substrate And Sediment Dynamics (Geomorphic Effects).....8-10
			8.1.2.2.3	Loss Of Hydrologic Function.....8-11
		8.1.2.3	Effects On Biological Characteristics Of The Aquatic Ecosystem.....8-11	
			8.1.2.3.1	Effects On Sensitive Aquatic And Riparian Wildlife.....8-12
			8.1.2.3.2	Loss Of Habitat Function.....8-12
			8.1.2.3.3	Fish, Crustaceans, Mollusks, And Other Aquatic Organisms In The Food Web.....8-13
			8.1.2.3.4	Other Wildlife.....8-13
			8.1.2.3.5	Effects On Riparian Vegetation.....8-13
		8.1.2.4	Cumulative Effects On The Aquatic Ecosystem.....	8-14
		8.1.2.5	Human Use Characteristics.....	8-14

8.1.3	Screening Criteria For Other Significant Environmental Consequences	8-14
8.1.3.1	Non-Aquatic Biological Resources.....	8-15
8.1.3.1.1	Effects On Sensitive Upland Vegetation Communities.....	8-15
8.1.3.1.2	Effects On Special-Status Terrestrial/ Upland Plants And Wildlife	8-15
8.1.3.1.3	Effects On Wildlife Movement	8-15
8.1.3.2	Hazards, Hazardous Materials, And Public Safety	8-16
8.1.4	Overall	8-16
8.2	ANALYSIS OF ALTERNATIVE 2: PROPOSED RMDP	8-16
8.2.1	Project Purpose.....	8-17
8.2.1.1	Size.....	8-17
8.2.1.2	Residential Uses	8-17
8.2.1.3	Commercial Uses	8-17
8.2.1.4	Public Facilities	8-17
8.2.1.5	Open Space	8-17
8.2.1.6	Villages.....	8-17
8.2.1.7	Conclusion.....	8-17
8.2.2	Costs.....	8-17
8.2.2.1	Site Development Costs	8-18
8.2.3	Logistics.....	8-18
8.2.3.1	Site Circulation.....	8-18
8.2.3.2	Flood Protection.....	8-18
8.2.3.3	Water Treatment And Reclamation	8-18
8.2.3.4	Grading Balance.....	8-18
8.2.3.5	Conclusion.....	8-19
8.2.4	Impacts To The Aquatic Ecosystem	8-19
8.2.4.1	Effects On Chemical Characteristics Of The Aquatic Environment	8-19
8.2.4.1.1	Effects On Water Quality	8-19
8.2.4.1.2	Loss Of Biogeochemical Function	8-22
8.2.4.2	Effects On Physical Characteristics Of The Aquatic Environment.....	8-22
8.2.4.2.1	Permanent And Temporary Fill Of Waters Of The United States	8-22
8.2.4.2.2	Effects On Substrate And Sediment Dynamics	8-24
8.2.4.2.3	Loss Of Hydrologic Function	8-26
8.2.4.3	Effects On Biological Characteristics Of The Aquatic Ecosystem	8-26
8.2.4.3.1	Effects On Sensitive Aquatic And Riparian Plants And Wildlife.....	8-27
8.2.4.3.2	Loss Of Habitat Function	8-36

	8.2.4.3.3	Fish, Crustaceans, Mollusks, And Other Aquatic Organisms In The Food Web	8-36
	8.2.4.3.4	Other Wildlife	8-37
	8.2.4.3.5	Effects On Riparian Vegetation	8-37
8.2.4.4		Cumulative Effects On The Aquatic Ecosystem.....	8-37
8.2.4.5		Human Use Characteristics.....	8-37
	8.2.4.5.1	Municipal And Private Water Supplies	8-38
	8.2.4.5.2	Recreational And Commercial Fisheries.....	8-38
	8.2.4.5.3	Water-Related Recreation.....	8-38
	8.2.4.5.4	Aesthetics.....	8-38
	8.2.4.5.5	Parks, National And Historical Monuments, National Seashores, Wilderness Areas, Research Sites, And Similar Preserves	8-38
8.2.5		Other Significant Environmental Consequences.....	8-39
	8.2.5.1	Non-Aquatic Biological Resources.....	8-39
	8.2.5.1.1	Effects On Sensitive Upland Vegetation Communities.....	8-39
	8.2.5.1.2	Effects On Special-Status Terrestrial/ Upland Plants And Wildlife	8-39
	8.2.5.1.3	Effects On Wildlife Movement	8-41
	8.2.5.2	Hazards, Hazardous Materials, And Public Safety	8-42
8.2.6		Overall	8-42
8.3		ANALYSIS OF ALTERNATIVE 3: ELIMINATION OF PLANNED POTRERO BRIDGE.....	8-42
	8.3.1	Project Purpose.....	8-43
	8.3.1.1	Size.....	8-43
	8.3.1.2	Residential Uses	8-43
	8.3.1.3	Commercial Uses	8-43
	8.3.1.4	Public Facilities	8-43
	8.3.1.5	Open Space	8-43
	8.3.1.6	Village Viability	8-44
	8.3.1.7	Project Purpose Conclusion	8-44
	8.3.2	Costs.....	8-44
	8.3.2.1	Site Development Costs.....	8-44
	8.3.2.2	Costs Conclusion	8-44
	8.3.3	Logistics.....	8-44
	8.3.3.1	Site Circulation.....	8-44
	8.3.3.2	Flood Protection.....	8-45
	8.3.3.3	Water Treatment And Reclamation	8-45
	8.3.3.4	Grading Balance.....	8-45
	8.3.4	Impacts To The Aquatic Ecosystem	8-45
	8.3.4.1	Effects On Chemical Characteristics Of The Aquatic Environment.....	8-45
	8.3.4.1.1	Effects On Water Quality	8-46

	8.3.4.1.2	Loss Of Biogeochemical Function.....	8-46
8.3.4.2		Effects On Physical Characteristics Of The Aquatic Environment.....	8-47
	8.3.4.2.1	Permanent And Temporary Fill Of Waters Of The United States.....	8-47
	8.3.4.2.2	Effects On Substrate And Sediment Dynamics	8-48
	8.3.4.2.3	Loss Of Hydrologic Function	8-49
8.3.4.3		Effects On Biological Characteristics Of The Aquatic Ecosystem	8-49
	8.3.4.3.1	Effects On Sensitive Aquatic And Riparian Plants And Wildlife.....	8-49
	8.3.4.3.2	Loss Of Habitat Function	8-50
	8.3.4.3.3	Fish, Crustaceans, Mollusks, And Other Aquatic Organisms In The Food Web	8-50
	8.3.4.3.4	Other Wildlife	8-50
	8.3.4.3.5	Effects On Riparian Vegetation	8-50
8.3.4.4		Cumulative Effects On The Aquatic Ecosystem.....	8-51
8.3.4.5		Human Use Characteristics.....	8-51
	8.3.4.5.1	Municipal And Private Water Supplies	8-51
	8.3.4.5.2	Recreational And Commercial Fisheries.....	8-51
	8.3.4.5.3	Water-Related Recreation.....	8-51
	8.3.4.5.4	Aesthetics.....	8-51
	8.3.4.5.5	Parks, National And Historical Monuments, National Seashores, Wilderness Areas, Research Sites, And Similar Preserves	8-52
8.3.5		Other Significant Environmental Consequences.....	8-52
	8.3.5.1	Non-Aquatic Biological Resources.....	8-52
	8.3.5.1.1	Effects On Sensitive Upland Vegetation Communities.....	8-52
	8.3.5.1.2	Effects On Special-Status Terrestrial/ Upland Plants And Wildlife	8-52
	8.3.5.1.3	Effects On Wildlife Movement	8-53
	8.3.5.2	Hazards, Hazardous Materials, And Public Safety	8-53
	8.3.5.3	Conclusion	8-53
8.3.6		Overall	8-53
8.4		ANALYSIS OF ALTERNATIVE 4: ELIMINATION OF PLANNED POTRERO BRIDGE AND ADDITION OF VCC SPINEFLOWER PRESERVE	8-53
8.4.1		Project Purpose.....	8-54
	8.4.1.1	Size.....	8-54
	8.4.1.2	Residential Uses	8-54
	8.4.1.3	Commercial Uses	8-54
	8.4.1.4	Public Facilities	8-54
	8.4.1.5	Open Space	8-55
	8.4.1.6	Village Viability	8-55

8.4.1.7	Project Purpose Conclusion	8-55
8.4.2	Costs.....	8-55
8.4.2.1	Site Development Costs.....	8-55
8.4.2.2	Conclusion.....	8-55
8.4.3	Logistics.....	8-55
8.4.3.1	Site Circulation.....	8-55
8.4.3.2	Flood Protection.....	8-56
8.4.3.3	Water Treatment And Reclamation	8-56
8.4.3.4	Grading Balance.....	8-56
8.4.4	Impacts To The Aquatic Ecosystem	8-56
8.4.4.1	Effects On Chemical Characteristics Of The Aquatic Environment.....	8-56
8.4.4.1.1	Effects on Water Quality.	8-57
8.4.4.1.2	Loss Of Biogeochemical Function.....	8-57
8.4.4.2	Effects On Physical Characteristics Of The Aquatic Environment.....	8-58
8.4.4.2.1	Permanent And Temporary Fill Of Waters Of The United States.....	8-58
8.4.4.2.2	Effects On Substrate And Sediment Dynamics	8-59
8.4.4.2.3	Loss Of Hydrologic Function	8-60
8.4.4.3	Effects On Biological Characteristics Of The Aquatic Ecosystem	8-60
8.4.4.3.1	Effects On Sensitive Aquatic And Riparian Plants And Wildlife.....	8-60
8.4.4.3.2	Loss Of Habitat Function	8-61
8.4.4.3.3	Fish, Crustaceans, Mollusks, And Other Aquatic Organisms In The Food Web	8-61
8.4.4.3.4	Other Wildlife	8-61
8.4.4.3.5	Effects On Riparian Vegetation	8-61
8.4.4.4	Cumulative Effects On The Aquatic Ecosystem.....	8-62
8.4.4.5	Human Use Characteristics.....	8-62
8.4.4.5.1	Municipal And Private Water Supplies	8-62
8.4.4.5.2	Recreational And Commercial Fisheries.....	8-62
8.4.4.5.3	Water-Related Recreation.....	8-62
8.4.4.5.4	Aesthetics.....	8-62
8.4.4.5.5	Parks, National And Historical Monuments, National Seashores, Wilderness Areas, Research Sites, And Similar Preserves	8-63
8.4.5	Other Significant Environmental Consequences.....	8-63
8.4.5.1	Non-Aquatic Biological Resources.....	8-63
8.4.5.1.1	Effects On Sensitive Upland Vegetation Communities.....	8-63
8.4.5.1.2	Effects On Special-Status Terrestrial/ Upland Plants And Wildlife	8-63

	8.4.5.1.3	Effects On Wildlife Movement	8-63
	8.4.5.2	Hazards, Hazardous Materials, And Public Safety	8-64
	8.4.5.3	Conclusion	8-64
8.4.6	Overall		8-64
8.5	ANALYSIS OF ALTERNATIVE 5: WIDENED TRIBUTARY DRAINAGES		8-64
8.5.1	Project Purpose.....		8-65
	8.5.1.1	Size.....	8-65
	8.5.1.2	Residential Uses	8-65
	8.5.1.3	Commercial Uses	8-65
	8.5.1.4	Public Facilities	8-65
	8.5.1.5	Open Space	8-65
	8.5.1.6	Villages Viability.....	8-66
	8.5.1.7	Project Purpose Conclusion	8-66
8.5.2	Costs.....		8-66
	8.5.2.1	Site Development Costs	8-66
	8.5.2.2	Costs Conclusion	8-66
8.5.3	Logistics.....		8-66
	8.5.3.1	Site Circulation.....	8-66
	8.5.3.2	Flood Protection.....	8-67
	8.5.3.3	Water Treatment And Reclamation	8-67
	8.5.3.4	Grading Balance.....	8-67
8.5.4	Impacts To The Aquatic Ecosystem		8-67
	8.5.4.1	Effects On Chemical Characteristics Of The Aquatic Environment.....	8-67
		8.5.4.1.1 Effects On Water Quality	8-68
		8.5.4.1.2 Loss Of Biogeochemical Function.....	8-68
	8.5.4.2	Effects On Physical Characteristics Of The Aquatic Environment.....	8-69
		8.5.4.2.1 Permanent And Temporary Fill Of Waters Of The United States.....	8-69
		8.5.4.2.2 Effects On Substrate And Sediment Dynamics	8-70
		8.5.4.2.3 Loss Of Hydrologic Function	8-71
	8.5.4.3	Effects On Biological Characteristics Of The Aquatic Ecosystem	8-71
		8.5.4.3.1 Effects On Sensitive Aquatic And Riparian Plants And Wildlife.....	8-71
		8.5.4.3.2 Loss Of Habitat Function	8-72
		8.5.4.3.3 Fish, Crustaceans, Mollusks, And Other Aquatic Organisms In The Food Web	8-72
		8.5.4.3.4 Other Wildlife	8-72
		8.5.4.3.5 Effects On Riparian Vegetation	8-72
	8.5.4.4	Cumulative Effects On The Aquatic Ecosystem.....	8-73
	8.5.4.5	Human Use Characteristics.....	8-73

	8.5.4.5.1	Municipal And Private Water Supplies	8-73
	8.5.4.5.2	Recreational And Commercial Fisheries.....	8-73
	8.5.4.5.3	Water-Related Recreation.....	8-73
	8.5.4.5.4	Aesthetics.....	8-73
	8.5.4.5.5	Parks, National And Historical Monuments, National Seashores, Wilderness Areas, Research Sites, And Similar Preserves	8-74
8.5.5		Other Significant Environmental Consequences.....	8-74
	8.5.5.1	Non-Aquatic Biological Resources.....	8-74
	8.5.5.1.1	Effects On Sensitive Upland Vegetation Communities.....	8-74
	8.5.5.1.2	Effects On Special-Status Terrestrial/ Upland Plants And Wildlife	8-74
	8.5.5.1.3	Effects On Wildlife Movement	8-75
	8.5.5.2	Hazards, Hazardous Materials, And Public Safety	8-75
	8.5.5.3	Conclusion	8-75
8.5.6		Overall	8-75
8.6		ANALYSIS OF ALTERNATIVE 6: ELIMINATION OF PLANNED COMMERCE CENTER DRIVE BRIDGE.....	8-75
	8.6.1	Project Purpose.....	8-76
	8.6.1.1	Size	8-76
	8.6.1.2	Residential Uses	8-76
	8.6.1.3	Commercial Uses	8-76
	8.6.1.4	Public Facilities	8-76
	8.6.1.5	Open Space	8-77
	8.6.1.6	Village Viability	8-77
	8.6.1.7	Project Purpose Conclusion	8-77
	8.6.2	Costs.....	8-77
	8.6.2.1	Site Development Costs	8-77
	8.6.2.2	Conclusion	8-77
	8.6.3	Logistics.....	8-78
	8.6.3.1	Site Circulation.....	8-78
	8.6.3.2	Flood Protection.....	8-78
	8.6.3.3	Water Treatment And Reclamation	8-78
	8.6.3.4	Grading Balance.....	8-78
	8.6.4	Impacts To The Aquatic Ecosystem	8-78
	8.6.4.1	Effects On Chemical Characteristics Of The Aquatic Environment.....	8-79
	8.6.4.1.1	Effects On Water Quality	8-79
	8.6.4.1.2	Loss Of Biogeochemical Function.....	8-80
	8.6.4.2	Effects On Physical Characteristics Of The Aquatic Environment.....	8-80
	8.6.4.2.1	Permanent And Temporary Fill Of Waters Of The United States.....	8-80

	8.6.4.2.2	Effects On Substrate And Sediment Dynamics	8-81
	8.6.4.2.3	Loss Of Hydrologic Function	8-82
8.6.4.3		Effects On Biological Characteristics Of The Aquatic Ecosystem	8-82
	8.6.4.3.1	Effects On Sensitive Aquatic And Riparian Plants And Wildlife.....	8-83
	8.6.4.3.2	Loss Of Habitat Function	8-83
	8.6.4.3.3	Fish, Crustaceans, Mollusks, And Other Aquatic Organisms In The Food Web	8-83
	8.6.4.3.4	Other Wildlife	8-84
	8.6.4.3.5	Effects On Riparian Vegetation	8-84
8.6.4.4		Cumulative Effects On The Aquatic Ecosystem.....	8-84
8.6.4.5		Human Use Characteristics.....	8-84
	8.6.4.5.1	Municipal And Private Water Supplies	8-84
	8.6.4.5.2	Recreational And Commercial Fisheries.....	8-84
	8.6.4.5.3	Water-Related Recreation.....	8-85
	8.6.4.5.4	Aesthetics.....	8-85
	8.6.4.5.5	Parks, National And Historical Monuments, National Seashores, Wilderness Areas, Research Sites, And Similar Preserves	8-85
8.6.5		Other Significant Environmental Consequences.....	8-85
	8.6.5.1	Non-Aquatic Biological Resources.....	8-85
	8.6.5.1.1	Effects On Sensitive Upland Vegetation Communities.....	8-85
	8.6.5.1.2	Effects On Special-Status Terrestrial/ Upland Plants And Wildlife	8-86
	8.6.5.1.3	Effects on Wildlife Movement	8-86
	8.6.5.2	Hazards, Hazardous Materials, And Public Safety	8-86
8.6.6		Overall	8-86
8.7		ANALYSIS OF ALTERNATIVE 7: AVOIDANCE OF 100-YEAR FLOODPLAIN AND ELIMINATION OF TWO PLANNED BRIDGES	8-86
8.7.1		Project Purpose.....	8-87
	8.7.1.1	Size.....	8-87
	8.7.1.2	Residential Uses.....	8-87
	8.7.1.3	Commercial Uses	8-87
	8.7.1.4	Public Facilities	8-88
	8.7.1.5	Open Space	8-88
	8.7.1.6	Village Viability	8-88
	8.7.1.7	Project Purpose Conclusion	8-88
8.7.2		Costs.....	8-88
	8.7.2.1	Site Development Costs.....	8-88
	8.7.2.2	Costs Conclusion	8-89
8.7.3		Logistics.....	8-89
	8.7.3.1	Site Circulation.....	8-89

8.7.3.2	Flood Protection.....	8-89
8.7.3.3	Water Treatment And Reclamation	8-89
8.7.3.4	Grading Balance.....	8-89
8.7.4	Impacts To The Aquatic Ecosystem	8-90
8.7.4.1	Effects On Chemical Characteristics Of The Aquatic Environment.....	8-90
8.7.4.1.1	Effects On Water Quality	8-90
8.7.4.1.2	Loss Of Biogeochemical Function.....	8-91
8.7.4.2	Effects On Physical Characteristics Of The Aquatic Environment.....	8-91
8.7.4.2.1	Permanent And Temporary Fill Of Waters Of The United States.....	8-91
8.7.4.2.2	Effects On Substrate And Sediment Dynamics	8-93
8.7.4.2.3	Loss Of Hydrologic Function	8-94
8.7.4.3	Effects On Biological Characteristics Of The Aquatic Ecosystem	8-94
8.7.4.3.1	Effects On Sensitive Aquatic And Riparian Plants And Wildlife.....	8-94
8.7.4.3.2	Loss Of Habitat Function	8-94
8.7.4.3.3	Fish, Crustaceans, Mollusks, And Other Aquatic Organisms In The Food Web.....	8-95
8.7.4.3.4	Other Wildlife	8-95
8.7.4.3.5	Effects On Riparian Vegetation.....	8-95
8.7.4.4	Cumulative Effects On The Aquatic Ecosystem.....	8-95
8.7.4.5	Human Use Characteristics.....	8-96
8.7.4.5.1	Municipal And Private Water Supplies	8-96
8.7.4.5.2	Recreational And Commercial Fisheries.....	8-96
8.7.4.5.3	Water-Related Recreation.....	8-96
8.7.4.5.4	Aesthetics.....	8-96
8.7.4.5.5	Parks, National And Historical Monuments, National Seashores, Wilderness Areas, Research Sites, And Similar Preserves	8-97
8.7.5	Other Significant Environmental Consequences.....	8-97
8.7.5.1	Non-Aquatic Biological Resources.....	8-97
8.7.5.1.1	Effects On Sensitive Upland Vegetation Communities.....	8-97
8.7.5.1.2	Effects On Special-Status Terrestrial/ Upland Plants And Wildlife	8-97
8.7.5.1.3	Effects On Wildlife Movement	8-97
8.7.5.2	Hazards, Hazardous Materials, And Public Safety	8-97
8.7.5.3	Conclusion.....	8-98
8.7.6	Overall	8-98
8.8	ANALYSIS OF THE NO FILL ALTERNATIVE	8-98
8.8.1	Project Purpose.....	8-99

8.8.1.1	Size.....	8-99
8.8.1.2	Residential Uses.....	8-99
8.8.1.3	Commercial Uses.....	8-99
8.8.1.4	Public Facilities.....	8-99
8.8.1.5	Open Space.....	8-100
8.8.1.6	Villages Viability.....	8-100
8.8.1.7	Project Purpose Conclusion.....	8-100
8.8.2	Costs.....	8-100
8.8.2.1	Site Development Costs.....	8-100
8.8.2.2	Costs Conclusion.....	8-100
8.8.3	Logistics.....	8-101
8.8.3.1	Site Circulation.....	8-101
8.8.3.2	Flood Protection.....	8-101
8.8.3.3	Water Treatment And Reclamation.....	8-101
8.8.3.4	Grading Balance.....	8-101
8.8.4	Impacts To The Aquatic Ecosystem.....	8-102
8.8.4.1	Effects On Chemical Characteristics Of The Aquatic Environment.....	8-102
8.8.4.1.1	Effects On Water Quality.....	8-102
8.8.4.1.2	Loss Of Biogeochemical Function.....	8-103
8.8.4.2	Effects On Physical Characteristics Of The Aquatic Environment.....	8-103
8.8.4.2.1	Permanent And Temporary Fill Of Waters Of The United States.....	8-103
8.8.4.2.2	Effects On Substrate And Sediment Dynamics.....	8-103
8.8.4.2.3	Loss Of Hydrologic Function.....	8-104
8.8.4.3	Effects On Biological Characteristics Of The Aquatic Ecosystem.....	8-104
8.8.4.3.1	Effects On Sensitive Aquatic And Riparian Plants And Wildlife.....	8-104
8.8.4.3.2	Loss Of Habitat Function.....	8-104
8.8.4.3.3	Fish, Crustaceans, Mollusks, And Other Aquatic Organisms In The Food Web.....	8-105
8.8.4.3.4	Other Wildlife.....	8-105
8.8.4.3.5	Effects On Riparian Vegetation.....	8-105
8.8.4.4	Cumulative Effects On The Aquatic Ecosystem.....	8-105
8.8.4.5	Human Use Characteristics.....	8-105
8.8.4.5.1	Municipal And Private Water Supplies.....	8-106
8.8.4.5.2	Recreational And Commercial Fisheries.....	8-106
8.8.4.5.3	Water-Related Recreation.....	8-106
8.8.4.5.4	Aesthetics.....	8-106
8.8.4.5.5	Parks, National And Historical Monuments, National Seashores, Wilderness Areas, Research Sites, And Similar Preserves.....	8-106

8.8.5	Other Significant Environmental Consequences.....	8-106
8.8.5.1	Non-Aquatic Biological Resources.....	8-107
8.8.5.1.1	Effects On Sensitive Upland Vegetation Communities.....	8-107
8.8.5.1.2	Effects On Special-Status Terrestrial/ Upland Plants And Wildlife	8-107
8.8.5.1.3	Effects On Wildlife Movement	8-107
8.8.5.2	Hazards, Hazardous Materials, And Public Safety	8-107
8.8.5.3	Conclusion.....	8-108
8.8.6	Overall	8-108
8.9	IDENTIFICATION OF INITIAL LEDPA	8-108
9.0	MODIFICATIONS TO ADDRESS REGULATORY REQUIREMENTS	9-1
9.1	CHANGES INCORPORATED INTO REVISED INITIAL LEDPA	9-1
9.2	COMPLIANCE WITH STATE AND FEDERAL LAW.....	9-3
9.3	PRACTICABILITY AND IMPACTS OF REVISED INITIAL LEDPA.....	9-4
9.3.1	Project Purpose.....	9-4
9.3.2	Logistics.....	9-4
9.3.3	Cost	9-4
9.3.4	Practicability Conclusion	9-5
9.3.5	Permanent And Temporary Fill Of Waters Of The United States	9-5
10.0	STUDIES OF ADDITIONAL AVOIDANCE AND IDENTIFICATION OF LEDPA.....	10-1
10.1	METHODS.....	10-1
10.2	UTILITY CORRIDOR SPECIAL STUDY AREA	10-6
10.2.1	Conclusion	10-7
10.3	POTRERO CANYON SPECIAL STUDY AREA.....	10-7
10.3.1	Sub-Alternative PC-1: Revised Initial LEDPA.....	10-7
10.3.2	Sub-Alternative PC-2: Revised Initial LEDPA Plus Additional Avoidance	10-8
10.3.2.1	Project Purpose	10-8
10.3.2.2	Cost	10-8
10.3.2.3	Impacts To The Aquatic Environment	10-8
10.3.2.4	Other Significant Environmental Consequences	10-9
10.3.2.5	Conclusion.....	10-9
10.3.3	Sub-Alternative PC-3: Avoidance Plus Grade Stabilization	10-9
10.3.3.1	Project Purpose	10-9
10.3.3.2	Cost	10-9
10.3.3.3	Impacts To The Aquatic Environment	10-10
10.3.3.4	Other Significant Environmental Consequences	10-10
10.3.3.5	Conclusion.....	10-10

10.3.4	Sub-Alternative PC-4: No Fill.....	10-10
10.3.4.1	Project Purpose	10-10
10.3.4.2	Cost	10-10
10.3.4.3	Impacts To The Aquatic Environment	10-11
10.3.4.4	Other Significant Environmental Consequences	10-11
10.3.4.5	Conclusion	10-11
10.3.5	Potrero Canyon Special Study Conclusion	10-11
10.4	CHIQUEITO CANYON SPECIAL STUDY AREA	10-11
10.4.1	Sub-Alternative CH-1: Revised Initial LEDPA	10-12
10.4.2	Sub-Alternative CH-2: Revised Initial LEDPA Plus Additional Avoidance	10-12
10.4.2.1	Project Purpose	10-12
10.4.2.2	Cost	10-12
10.4.2.3	Impacts To The Aquatic Environment	10-13
10.4.2.4	Other Significant Environmental Consequences	10-13
10.4.2.5	Conclusion	10-13
10.4.3	Sub-Alternative CH-3: Avoidance Plus Grade Stabilization	10-13
10.4.3.1	Project Purpose	10-13
10.4.3.2	Cost	10-13
10.4.3.3	Impacts To The Aquatic Environment	10-14
10.4.3.4	Other Significant Environmental Consequences	10-14
10.4.3.5	Conclusion	10-14
10.4.4	Sub-Alternative CH-4: No Fill.....	10-14
10.4.4.1	Project Purpose	10-14
10.4.4.2	Cost	10-14
10.4.4.3	Impacts To The Aquatic Environment	10-15
10.4.4.4	Other Significant Environmental Consequences	10-15
10.4.4.5	Conclusion	10-15
10.4.5	Chiquito Canyon Special Study Conclusion	10-15
10.5	LONG CANYON SPECIAL STUDY AREA	10-15
10.5.1	Sub-Alternative LC-1: Revised Initial LEDPA.....	10-15
10.5.2	Sub-Alternative LC-2: Revised Initial LEDPA Plus Additional Avoidance	10-16
10.5.2.1	Project Purpose	10-16
10.5.2.2	Cost	10-16
10.5.2.3	Impacts To The Aquatic Environment	10-16
10.5.2.4	Other Significant Environmental Consequences	10-17
10.5.2.5	Conclusion	10-17
10.5.3	Sub-Alternative LC-3: Avoidance Plus Grade Stabilization	10-17
10.5.3.1	Project Purpose	10-17
10.5.3.2	Cost	10-17
10.5.3.3	Impacts To The Aquatic Environment	10-17

	10.5.3.4	Other Significant Environmental Consequences	10-18
	10.5.3.5	Conclusion	10-18
10.5.4		Sub-Alternative LC-4: No Fill.....	10-18
	10.5.4.1	Project Purpose	10-18
	10.5.4.2	Cost	10-18
	10.5.4.3	Impacts To The Aquatic Environment	10-19
	10.5.4.4	Other Significant Environmental Consequences	10-19
	10.5.4.5	Conclusion	10-19
10.5.5		Long Canyon Special Study Conclusion	10-19
10.6		SAN MARTINEZ GRANDE CANYON SPECIAL STUDY AREA	10-19
10.6.1		Sub-Alternative SMG-1: Revised Initial LEDPA	10-19
10.6.2		Sub-Alternative SMG-2: Revised Initial LEDPA Plus Additional Avoidance	10-20
	10.6.2.1	Project Purpose	10-20
	10.6.2.2	Cost	10-20
	10.6.2.3	Impacts To The Aquatic Environment	10-20
	10.6.2.4	Other Significant Environmental Consequences	10-21
	10.6.2.5	Conclusion	10-21
10.6.3		Sub-Alternative SMG-3: Avoidance Plus Grade Stabilization	10-21
	10.6.3.1	Project Purpose	10-21
	10.6.3.2	Cost	10-21
	10.6.3.3	Impacts To The Aquatic Environment	10-21
	10.6.3.4	Other Significant Environmental Consequences	10-22
	10.6.3.5	Conclusion	10-22
10.6.4		Sub-Alternative SMG-4: No Fill.....	10-22
	10.6.4.1	Project Purpose	10-22
	10.6.4.2	Cost	10-22
	10.6.4.3	Impacts To The Aquatic Environment	10-22
	10.6.4.4	Other Significant Environmental Consequences	10-23
	10.6.4.5	Conclusion	10-23
10.6.5		San Martinez Grande Canyon Special Study Conclusion.....	10-23
10.7		MIDDLE CANYON SPECIAL STUDY AREA.....	10-23
10.7.1		Sub-Alternative MC-1: Revised Initial LEDPA	10-23
10.7.2		Sub-Alternative MC-2: Avoidance Plus Grade Stabilization.....	10-24
	10.7.2.1	Project Purpose	10-24
	10.7.2.2	Cost	10-24
	10.7.2.3	Impacts To The Aquatic Environment	10-25
	10.7.2.4	Other Significant Environmental Consequences	10-25
	10.7.2.5	Conclusion	10-25
10.7.3		Sub-Alternative MC-3: No Fill	10-25
	10.7.3.1	Project Purpose	10-25
	10.7.3.2	Cost	10-25

10.7.3.3	Impacts To The Aquatic Environment	10-26
10.7.3.4	Other Significant Environmental Consequences	10-26
10.7.3.5	Conclusion	10-26
10.7.4	Middle Canyon Special Study Conclusion.....	10-26
10.8	IDENTIFICATION OF DRAFT LEDPA	10-26
11.0	ENVIRONMENTAL ANALYSIS OF LEDPA	11-1
11.1	OVERVIEW OF THE DRAFT LEDPA.....	11-1
11.2	DESCRIPTION OF REGULATED ACTIVITIES.....	11-1
11.2.1	RMDP Component Of The Draft LEDPA.....	11-1
11.2.2	SCP Component Of The Draft LEDPA	11-6
11.2.3	Summary Description of Development Facilitated by the Draft LEDPA.....	11-7
11.3	ENVIRONMENTAL ANALYSIS OF THE DRAFT LEDPA.....	11-8
11.3.1	Impacts To The Aquatic Ecosystem	11-8
11.3.1.1	Effects On Chemical Characteristics Of The Aquatic Environment – Overview.....	11-8
11.3.1.1.1	Effects On Water Quality	11-9
11.3.1.1.2	Loss Of Biogeochemical Function.....	11-10
11.3.1.2	Effects On Physical Characteristics Of The Aquatic Environment – Overview	11-10
11.3.1.2.1	Permanent And Temporary Fill Of Waters Of The United States.....	11-10
11.3.1.2.2	Effects On Substrate And Sediment Dynamics	11-11
11.3.1.2.3	Loss Of Hydrologic Function	11-12
11.3.1.3	Effects On Biological Characteristics Of The Aquatic Ecosystem	11-15
11.3.1.3.1	Effects On Sensitive Aquatic And Riparian Plants And Wildlife.....	11-15
11.3.1.3.2	Loss Of Habitat Function	11-15
11.3.1.3.3	Fish, Crustaceans, Mollusks, And Other Aquatic Organisms In The Food Web	11-15
11.3.1.3.4	Other Wildlife	11-19
11.3.1.3.5	Effects On Riparian Vegetation.....	11-19
11.3.1.4	Cumulative Effects On The Aquatic Ecosystem.....	11-19
11.3.1.5	Human Use Characteristics.....	11-19
11.3.1.5.1	Municipal And Private Water Supplies	11-19
11.3.1.5.2	Recreational And Commercial Fisheries.....	11-20
11.3.1.5.3	Water-Related Recreation.....	11-20
11.3.1.5.4	Aesthetics.....	11-20
11.3.1.5.5	Parks, National And Historical Monuments, National Seashores, Wilderness Areas, Research Sites, And Similar Preserves	11-20

11.3.2	Other Significant Adverse Environmental Consequences.....	11-20
11.3.2.1	Non-Aquatic Biological Resources.....	11-21
11.3.2.1.1	Effects On Sensitive Upland Vegetation Communities.....	11-21
11.3.2.1.2	Effects On Special-Status Terrestrial/ Upland Plants And Wildlife	11-21
11.3.2.1.3	Effects On Wildlife Movement	11-21
11.3.2.2	Hazards, Hazardous Materials, And Public Safety	11-21
11.3.2.3	Conclusion Regarding Significant Adverse Environmental Consequences	11-22
11.3.3	Mitigation	11-22
11.4	PRACTICABILITY AND IMPACTS OF THE DRAFT LEDPA.....	9-4
11.4.1	Project Purpose.....	9-4
11.4.2	Logistics.....	9-4
11.4.3	Cost	9-4
11.4.4	Practicability Conclusion	9-5
11.4.5	Permanent And Temporary Fill Of Waters Of The United States	9-5
12.0	DETERMINATION OF COMPLIANCE WITH REQUIREMENTS ON DISCHARGE.....	12-1
12.1	RESTRICTIONS ON DISCHARGE.....	12-1
12.2	ANALYSIS OF PROJECT COMPLIANCE	12-1

APPENDICES

Appendix 7.0

Hunsaker Technical Memorandum, dated February 9, 2010

Appendix 8.0

Newhall Ranch 404B1 Cost Analysis Procedure, June 2010, prepared by Hunsaker & Associates

Newhall Ranch -- Database Study of Lot Improvement Costs For Representative Master Planned Communities, May 6, 2010, prepared by Developers Research

Comparison of Onsite Alternatives: Project Purpose Detail

Comparison of Onsite Alternatives: Logistics Detail

Comparison of Onsite Alternatives: Cost Detail

Comparison of On-Site Alternatives - Impacts to the Aquatic Ecosystem

Comparison of On-Site Alternatives: Detail of Impacts from Alternatives on Waters of the United States

Comparison of On-Site Alternatives: Other Adverse Environmental Consequences

Appendix 9.0

Evaluation of Revised Initial LEDPA - Project Purpose Detail

Evaluation of Revised Initial LEDPA - Logistics

Evaluation of Revised Initial LEDPA - Cost

Evaluation of Revised Initial LEDPA - Practicability

Evaluation of Revised Initial LEDPA - Impacts to the Aquatic Ecosystem

Evaluation of Revised Initial LEDPA - Detail of Impacts from Alternatives on Waters of the United States

Appendix 10.0

Additional Study: Utility Corridor

Additional Study: Potrero

Additional Study: Long Canyon

Additional Study: Chiquito Canyon

Additional Study: San Martinez Grande Canyon

Additional Study: Middle Canyon

Lion Canyon Geomorphic Description by Reach with Design Recommendations

Appendix 11.0

Evaluation of Draft LEDPA - Project Purpose Detail

Evaluation of Draft LEDPA - Logistics

Evaluation of Draft LEDPA - Cost

Evaluation of Draft LEDPA - Practicability

Evaluation of Draft LEDPA - Impacts to the Aquatic Ecosystem

Evaluation of Draft LEDPA - Detail of Impacts from Alternatives on
Waters of the United States

Draft Mitigation and Monitoring Plan for Impacts to Waters of the United States for the
Newhall Ranch Resource Management and Development Plan Santa Clara River
and Tributaries, Unincorporated Los Angeles County, California, May 2010,
prepared by Dudek

LIST OF TABLES

Table 3-1	Approved Newhall Ranch Specific Plan Land Use Plan Statistics
Table 3-2	Santa Clarita Valley Regional Population Growth
Table 4-1	Areas of Waters of the United States, Including Wetlands, and CDFG Jurisdictional Streams Within the RMDP Site by Drainage (In Acres)
Table 4-2	HARC Summary
Table 8-1	Summary Comparison of On-Site Alternatives and Determination of Initial LEDPA
Table 9-1	Determination of the Revised Initial LEDPA
Table 10-1	Summary Of Areas Considered For Additional Avoidance
Table 10-2	Summary of Draft LEDPA Determinations by Sub-Alternative Study Area
Table 11-1	Draft LEDPA Santa Clara River Major RMDP Infrastructure
Table 11-2	Draft LEDPA Tributary Drainage RMDP Infrastructure
Table 11-3	Draft LEDPA Spineflower Preserve Summary
Table 11-4	Draft LEDPA Preserve Design
Table 11-5	Development Facilitated by the Draft LEDPA
Table 11-6	Draft LEDPA Santa Clara River Floodplain Scour (>4 fps) vs. Existing Conditions
Table 11-7	Draft LEDPA Santa Clara River Floodplain Scour (>4 fps) vs. Alternative 2
Table 11-8	Summary of Fish Refugia (< 2 fps) by Flood Event: Existing Conditions / Alternative 2 / Draft LEDPA
Table 11-9	Draft LEDPA Analysis of Change in Fish Refugia (<2 fps) by Flood Event

LIST OF FIGURES

Figure 1-1	Project Vicinity Map
Figure 1-2	Newhall Ranch Specific Plan Site
Figure 1-3	Newhall Ranch Specific Plan Approved Land Uses
Figure 4-1	Waters of the United States Within the RMDP Site
Figure 4-2	Existing HARC Scores
Figure 5-1	Location of Proposed RMDP Santa Clara River Major Features
Figure 5-2	Typical Mainstem Bridge Crossing
Figure 5-3	Typical Tributary Road Crossing
Figure 5-4	Conceptual Design/Soil Cement/Bank Stabilization
Figure 5-5	Example of Modified/Engineered Natural Channel
Figure 5-6	Typical Grade Stabilization Structure Design and Installation
Figure 5-7	Typical Water Quality Treatment/Detention Basins
Figure 5-8	Typical Debris Basin
Figure 7-1	Location of Potentially Viable Alternatives Selected for Analysis
Figure 8-1	Alternative 2 Infrastructure Facilities and Land Uses
Figure 8-2	Alternative 3 Infrastructure Facilities and Land Uses
Figure 8-3	Alternative 4 Infrastructure Facilities and Land Uses
Figure 8-4	Alternative 5 Infrastructure Facilities and Land Uses
Figure 8-5	Alternative 6 Infrastructure Facilities and Land Uses
Figure 8-6	Alternative 7 Infrastructure Facilities and Land Uses
Figure 8-7	No Fill Alternative Infrastructure Facilities and Land Uses
Figure 9-1	Revised Initial LEDPA
Figure 10-1	Special Study Area Locations
Figure 10-2	Revised Initial LEDPA
Figure 10-3	Utility Corridor Special Study Area Sub-Alternative UT-1 - Revised Initial LEDPA
Figure 10-4	Utility Corridor Special Study Area Sub-Alternative UT-2 - Revised Initial LEDPA With Additional Avoidance
Figure 10-5	Potrero Canyon Special Study Area Sub-Alternative PC-1 - Revised Initial LEDPA
Figure 10-6	Potrero Canyon Special Study Area Sub-Alternative PC-2 - Revised Initial LEDPA Additional Avoidance
Figure 10-7	Potrero Canyon Special Study Area Sub-alternative PC-3 - No Fill Except Grade Control
Figure 10-8	Potrero Canyon Special Study Area Sub-Alternative PC-4 - No Fill
Figure 10-9	Chiquito Canyon Special Study Sub-Alternative CH-1 - Revised Initial LEDPA
Figure 10-10	Chiquito Canyon Special Study Area Sub-Alternative CH-2 - Revised Initial LEDPA Additional Avoidance
Figure 10-11	Chiquito Canyon Special Study Area Sub-Alternative CH-3 - No Fill Except Grade Control
Figure 10-12	Chiquito Canyon Special Study Area Sub-Alternative CH-4 - No Fill

LIST OF FIGURES

(CONTINUED)

Figure 10-13	Long Canyon Special Study Area Sub-Alternative LC-1 - Revised Initial LEDPA
Figure 10-14	Special Study Area Long Canyon Revised Initial LEDPA Additional Avoid.
Figure 10-15	Long Canyon Special Study Area Sub-Alternative LC-3 - No Fill Except Grade Control
Figure 10-16	Long Canyon Special Study Area Sub-Alternative PC-4 - No Fill
Figure 10-17	San Martinez Grande Canyon Special Study Area Sub-Alternative SMG-1 - Revised Initial LEDPA
Figure 10-18	San Martinez Grande Canyon Special Study Area Sub-Alternative SMG-2 - Revised Initial LEDPA Additional Avoidance
Figure 10-19	San Martinez Grande Canyon Special Study Area Sub-Alternative SMG-3 - No Fill Except Grade Control
Figure 10-20	San Martinez Grande Canyon Special Study Area Sub-Alternative SMG-4 - No Fill
Figure 10-21	Middle Canyon Special Study Area Sub-Alternative MC-1 - Revised Initial LEDPA
Figure 10-22	Middle Canyon Special Study Area Sub-Alternative MC-2 - No Fill Except Grade Control
Figure 10-23	Middle Canyon Special Study Area Sub-Alternative MC-3 - No Fill
Figure 10-24	Draft LEDPA
Figure 11-1	Draft LEDPA Santa Clara River Major Features
Figure 11-2	Draft LEDPA Tributary Drainage Treatments
Figure 11-3	Draft LEDPA -- Chiquito Canyon Drainage
Figure 11-4	Draft LEDPA -- San Martinez Grande Canyon Drainage
Figure 11-5	Draft LEDPA -- Potrero Canyon Drainage
Figure 11-6	Draft LEDPA -- Long Canyon Drainage
Figure 11-7	Draft LEDPA -- Lion Canyon Drainage
Figure 11-8	Draft LEDPA -- Spineflower Preserves
Figure 11-9	Draft LEDPA -- Land Use

1.0 INTRODUCTION

This Section 404(b)(1) Alternatives Analysis is for the Newhall Ranch Resource Management and Development Plan ("RMDP" or "Project"), and is submitted pursuant to section 404(b)(1) of the federal Water Pollution Control Act of 1972 ("Clean Water Act" or "CWA"). The applicant for the CWA section 404 permit (Corps Permit Application No. 2003-01264-AOA) is The Newhall Land and Farming Company ("Newhall" or "Applicant"). The U.S. Army Corps of Engineers, Los Angeles District ("Corps"), is the agency responsible for issuance of the requested section 404 permit. This permit is a prerequisite to implementation of Newhall's proposed RMDP -- a comprehensive permitting, conservation, and mitigation plan for providing the flood control facilities and other infrastructure needed to facilitate build-out of the Newhall Ranch Specific Plan ("Specific Plan"). The Specific Plan, which was adopted by the County of Los Angeles on May 27, 2003, allows for a master-planned community with interrelated villages and a broad range of residential, mixed-used, commercial and industrial uses, public services (schools, parks, recreation facilities, *etc.*), and a water reclamation plant, together with the preservation and management of large tracts of open space. The Specific Plan site is located on approximately 12,000 acres of land owned by Newhall in the northwest portion of the Santa Clarita Valley in unincorporated Los Angeles County, California.

The Specific Plan site is largely undeveloped, and traversed by the Santa Clara River and various tributary drainages which, during storm events, are prone to flood. Therefore, the RMDP proposes to construct bridges and road crossing culverts, install flood and erosion control and bank stabilization, modify and/or stabilize existing tributary drainages, convert minor tributary drainages to buried storm drains, allow for the maintenance of such facilities, and permit habitat restoration, enhancement, and other associated activities. Without these facilities, implementation of the approved Specific Plan would be impracticable. Construction of these facilities, however, would discharge dredge or fill material in waters of the United States, including wetlands. Thus, implementation of the RMDP requires a section 404 permit.

Before the Corps may issue the requested section 404 permit, it must find that the proposed discharge complies with federal regulations established by the U.S. Environmental Protection Agency ("USEPA") under section 404(b)(1) of the Clean Water Act ("section 404(b)(1) Guidelines;" 40 C.F.R. Part 230). The section 404(b)(1) Guidelines include several restrictions on discharges. One of these restrictions prohibits any discharge if practicable alternatives exist that would have less adverse impact on the aquatic environment, while avoiding other significant adverse environmental consequences. In other words, the project resulting in the discharge must be the "least environmentally damaging practicable alternative" ("LEDPA"). This Section 404(b)(1) Alternatives Analysis is intended to assist the Corps in evaluating the alternatives to the proposed Project and in assessing the potential impacts of the Project in accordance with the section 404(b)(1) Guidelines.

1.1 PROCESS EMPLOYED TO IDENTIFY DRAFT LEDPA

The purpose of this analysis is two-fold: (1) to identify the LEDPA; and (2) to demonstrate that the LEDPA complies with the other discharge restrictions of the section 404(b)(1) Guidelines. The analysis relies in part on the joint Draft Environmental Impact Statement/Environmental

Impact Report ("EIS/EIR") prepared for the Project by the Corps and the California Department of Fish and Game ("CDFG"). This analysis includes additional discussions that address the specific requirements of the section 404(b)(1) Guidelines.

As explained in the body of this analysis, the proposed RMDP -- known as Alternative 2 in the Draft EIS/EIR -- was determined *not* to be the LEDPA, as it would create some impacts to waters of the United States, including wetlands, that could be practicably avoided or minimized by implementing one of the other alternatives considered. After the initial environmental screening of the alternatives analyzed in the Draft EIS/EIR, Alternative 3 was determined to be the Initial LEDPA. Alternative 3 would reduce the most significant water and wetland impacts of Alternative 2 while still meeting the Applicant's overall project purpose.

The Initial LEDPA was next evaluated to determine whether it would comply with the federal and state Endangered Species Acts and requirements of the California streambed alteration program. It was determined that the Initial LEDPA could be adjusted to accommodate: (1) expanded preserves for the state-listed San Fernando Valley spineflower; (2) additional avoidance of riparian resources along the Santa Clara River; and (3) modifications of tributary drainage designs to avoid additional waters of the United States while also allowing for wider stabilized channels and increased area available for riparian and wetlands mitigation. The Applicant-proposed modifications avoid fill and/or other impacts at Chiquito Canyon, San Martinez Grande Canyon, Long Canyon, and Potrero Canyon. The Applicant also agreed to alter the design of the Commerce Center Bridge and realign it to reduce secondary impacts on the Middle Canyon Spring complex (a special aquatic site), resulting in the identification of the "Revised Initial LEDPA." Ultimately, the modifications set forth in the Revised Initial LEDPA reduced permanent discharge of fill material into waters of the United States by 1.0 acres, and reduced temporary discharge of fill material into waters of the United States by 4.7 acres. In total, the Revised Initial LEDPA would permanently impact 69.0 acres of jurisdictional waters and temporarily impact 32.9 acres.

This determination, however, did not end the LEDPA inquiry. Because the analysis leading to the Revised Initial LEDPA was conducted on a site-wide scale, it did not examine the practicability of reducing impacts through small-scale changes and fine-tuning. To address this possibility, the analysis identified six key geographic areas within the RMDP site where additional avoidance/minimization might be achieved and then evaluated "sub-alternatives" for each area to determine whether additional avoidance/ minimization was practicable. The areas are: (1) Santa Clara River at the Utility Corridor Location; (2) Potrero Canyon; (3) Chiquito Canyon; (4) Long Canyon; (5) San Martinez Grande Canyon; and (6) Middle Canyon. This smaller-scale analysis indicated that Project-related impacts at most of the geographic areas studied could not practicably be reduced beyond the levels achieved in the Revised Initial LEDPA. However, the analysis determined that practicable modifications could be made to the Revised Initial LEDPA in Long Canyon. Those modifications were incorporated into the Revised Initial LEDPA, resulting in the Draft LEDPA presented herein.

1.2 DRAFT LEDPA

The Draft LEDPA, shown in Figure 10-24, is a modified version of Draft EIS/EIR Alternative 3 that includes additional avoidance of waters of the United States, increased spineflower preserve acreage in the Potrero, San Martinez Grande, Grapevine Mesa, and Airport Mesa areas, and larger riparian corridors within five major tributaries. As in Alternative 3, there will only be two bridges crossing the Santa Clara River (Commerce Center Drive Bridge and the Long Canyon Road Bridge). The Potrero Canyon Road Bridge would not be constructed, reducing impacts to jurisdictional waters and wetlands in the Santa Clara River and lower Potrero Canyon. In addition, a 19-acre wetland preservation area would be established in lower Potrero Canyon, contiguous with the existing lower mesic meadow (cismontane alkali marsh). In two major tributary drainages, Long and Potrero canyons, most of the existing drainages would be filled and reconstructed to reestablish areas of Corps jurisdiction. In the three other major tributary drainages -- Lion, San Martinez Grande, and Chiquito canyons -- the Draft LEDPA would incorporate limited channel grading to expand the drainages and adjacent riparian areas and realign their banks. The remainder of the jurisdictional areas in Lion, San Martinez Grande, and Chiquito Canyon would be avoided. Overall, of the 660.1 acres of waters of the United States on the RMDP site, implementation of the Draft LEDPA would result in the permanent fill of 66.3 acres of waters of the United States (which amounts to 10 percent of the total site jurisdiction and is a 29 percent reduction versus the proposed Project). The Draft LEDPA would temporarily disturb an additional 32.2 acres (three percent less than the proposed Project). The mitigation associated with the Draft LEDPA would ensure no net loss of acreage or functions and values of waters of the United States. In addition, the Draft LEDPA would reduce permanent impacts to CDFG streambed jurisdiction by 34.4 acres.

1.3 STRUCTURE OF THE SECTION 404(b)(1) ANALYSIS

This analysis is organized into twelve sections, each one critical to the ultimate identification of the Draft LEDPA. A short description of each is provided below.

Section 1: Introduction. This section describes the proposed RMDP and the role it plays in providing infrastructure support for the approved Specific Plan. This section also describes the components of the Specific Plan itself, including its design concept (interconnected villages), its residential and commercial uses, its public facilities, and its conservation and open space elements.

Section 2: Regulatory Framework of the Section 404(b)(1) Alternatives Analysis. This section explains the section 404(b)(1) Guidelines that govern the analysis of potential alternatives to the proposed RMDP. Under the section 404(b)(1) Guidelines, the Applicant must first determine whether the Project is water-dependent. If it is not, as is the case with the proposed RMDP, then the Guidelines include a rebuttable presumption that: (1) practicable alternatives to the project exist that do not involve discharges of fill into special aquatic sites; and (2) such alternatives, when compared to the Project, have fewer and/or less severe impacts on the aquatic ecosystem.

Section 3: Project Purpose. In this section, the analysis defines the "basic project purpose" and the "overall project purpose." This is a critical step in the process of identifying the LEDPA. The

basic project purpose determines whether a project is water-dependent, and thus whether the presumptions against discharge to special aquatic sites apply. The overall project purpose helps to determine which alternatives are practicable. This section also describes the legal rules that guide development of the overall project purpose. These rules are designed to ensure that the overall project purpose is specific enough to allow a meaningful analysis of each alternative's practicability, but not so narrow as to exclude alternatives unnecessarily.

The Applicant's basic project purpose is to provide housing and commercial/mixed-use/industrial development. The Applicant's overall project purpose is the development of a master-planned community with interrelated villages in the vicinity of the Santa Clarita Valley in northwestern Los Angeles County that achieves the basic objectives of the Specific Plan by providing a broad range of land uses of approximately the same size and proportions as approved in the Specific Plan, including residential, mixed-use, commercial and industrial uses, public services (schools, parks, *etc.*), a water reclamation plant, and large tracts of open space.

Section 4: Jurisdictional Waters of the United States. This section identifies the waters of the United States, including wetlands, located within the RMDP site. There are 21 aquatic resource areas within the Corps' jurisdiction (including a five-mile reach of the Santa Clara River). Refined mapping indicates that the RMDP site contains 660.1 acres of waters of the United States, including 276.9 acres of wetlands. Of the total jurisdictional waters on site, 471.2 acres (71 percent) are located in the Santa Clara River corridor. The remaining portion is located in various tributary drainages to the Santa Clara River. Section 4 also provides a Hybrid Assessment of Riparian Condition ("HARC") for each of the jurisdictional waters that might be affected by the Project. The HARC evaluates the relative *functional* qualities of the jurisdictional areas within the RMDP site so that direct and indirect impacts of the Project can be compared with those of the alternatives.

Section 5: Fill of Waters of the United States. A project may adversely affect Corps jurisdictional areas in various ways. However, the discharge of dredged and fill material into waters of the United States (considered the most serious impact to areas within the Corps' regulatory control) is the activity the Corps regulates. Section 5 describes the activities proposed under the RMDP and onsite alternatives that would result in the discharge of fill within waters of the United States. The RMDP components that likely will require discharge of fill in waters of the United States include: (1) bridges across the Santa Clara mainstem; (2) bridges across tributary drainages; (3) culvert road crossings of tributary drainages; (4) widened bridges and culvert extensions; (5) bank stabilization; (6) grade stabilization and bank protection; (7) water quality treatment/detention basins; and (8) debris basins.

Section 6: Overview of Alternatives Analysis Methodology. This section explains how the off-site and on-site alternatives were selected and then screened for both impact avoidance/minimization and practicability. The methodology employed in the alternatives analysis is graphically depicted in a flow-chart.

Section 7: Analysis of Alternative Project Locations. The section 404(b)(1) Guidelines require the Applicant to consider alternative site locations, provided they are available and suitable for the proposed Project. Section 7 provides a detailed analysis of three off-site alternatives:

Temescal Ranch (Alternative Site A), the Newhall-Ventura Property (Alternative Site B), and Hathaway Ranch (Alternative Site C). To determine whether these alternative locations might practicably achieve the overall project purpose while causing less impact to waters of the United States, the Applicant developed evaluative criteria covering seven key issues: location, size, form, logistics, cost, impacts to the aquatic ecosystem, and other environmental impacts.

Ultimately, the analysis concluded that Temescal Ranch and the Newhall-Ventura Property, both of which are located in Ventura County, were not logistically practicable because the Applicant could not reasonably expect to obtain the necessary land use entitlements for developing the properties consistent with the overall project purpose. The two sites would require general plan amendments and zone changes that the County of Ventura could not adopt without voter approval. In light of the highly restrictive growth ordinances that apply to rural lands in Ventura County, the analysis concluded that the electorate was unlikely to approve the plan and zone changes necessary to implement a project similar to that described in the Specific Plan.

The Hathaway Ranch site, although located in Los Angeles County, was rejected on grounds that it is more remote than the RMDP site and would require substantially more road and utility infrastructure, adding significantly to the cost and secondary impacts of the Project. In addition, Hathaway Ranch, unlike the RMDP site, has no access to potable water, making it impracticable from a development standpoint.

Section 8: Analysis of On-Site Project Alternatives and Determination of Initial LEDPA. Section 8 is the heart of the 404(b)(1) analysis. It compares seven on-site alternatives, testing each against screening criteria for practicability, impacts to the aquatic ecosystem, and other significant environmental consequences.

The **practicability** criteria address such issues as project purpose, cost, technology, and logistics.

The **aquatic impacts** criteria address effects on the *chemical* characteristics of the aquatic environment; effects on the *physical* characteristics of the aquatic environment; effects on *biological* functions of the aquatic environment; *cumulative* effects on the aquatic environment; and impacts on human use characteristics.

The **other significant environmental consequences** criteria address impacts on non-aquatic biological resources, hazards and hazardous waste, and public safety.

Each of these criteria was applied to the six on-site "build" alternatives considered in the Draft EIS/EIR and to a "no fill" alternative. The Draft EIS/EIR discussed the No Fill Alternative, **Subsection 3.3.3**, however, it was considered infeasible.

Alternative 2 -- The Proposed RMDP. This alternative, often referred to as the "proposed Project," would facilitate development of the Specific Plan. It contemplates the construction of 20,885 residential units, 5.55 million square feet

(msf) of commercial space, various public amenities, roads, and utilities. In addition, this alternative would dedicate 10,181.5 acres of undeveloped land as permanent open space. It includes spineflower preserves totaling 140.5 acres, as well as three large, interconnected habitat conservation areas. Key infrastructure components include bridges at Potrero Canyon Road, Commerce Center Drive, and the Long Canyon Bridge; bank stabilization and channel modifications; and conversion of smaller tributary drainages to buried storm drain systems. This alternative would permanently or temporarily disturb 126.6 of the 660.1 acres of jurisdictional waters on site, including 31.7 of the 276.9 acres of on-site wetlands. Approximately 93.3 acres of the impacts to jurisdictional waters would consist of permanent (i.e., discharge/fill) impacts, including 20.5 acres of permanent impacts to wetlands. The cost of this alternative is \$1,037,906 per net developable acre.

Alternative 3 – Elimination of the Planned Potrero Bridge. This alternative is similar to Alternative 2, except that it deletes the bridge at Potrero Canyon Road, thereby eliminating the aquatic habitat impacts associated with that infrastructure. This improves conditions significantly for a number of special-status species, including the unarmored three-spine stickleback, the southwestern pond turtle, and the San Emigdio blue butterfly. Alternative 3 would accommodate 20,433 residential units, 5.48 msf of commercial space, and provide public amenities similar to those of Alternative 2. In addition, this alternative would dedicate 10,437.8 acres of undeveloped land as permanent open space, including 219.9 acres of spineflower preserve. Like Alternative 2, it contemplates the construction of various flood control structures and the modification of some drainages. Ultimately, this alternative would permanently or temporarily disturb 107.6 of the 660.1 acres of jurisdictional waters on site, including 20.3 of the 276.9 acres of on-site wetlands. Of all impacts to jurisdictional waters, 70.0 acres would consist of discharge/fill impacts, including 9.2 acres of permanent discharge/fill impacts to wetlands. The cost of this alternative is \$1,067,172 per developable acre (2.8 percent greater than the cost of Alternative 2).

Alternative 4 – Elimination of Planned Potrero Bridge and Addition of VCC Spineflower Preserve. Like Alternative 3, this alternative would eliminate the planned bridge at Potrero Canyon Road. However, it differs from Alternative 3 (and Alternative 2), in that it includes a spineflower preserve on the Valencia Commercial Center (VCC) site. Alternative 4 would accommodate 20,721 residential units and 5.48 msf of commercial space and provide public amenities similar to those of Alternative 2. In addition, this alternative would dedicate 10,425.9 acres of undeveloped land as permanent open space, including 259.9 acres of spineflower preserve. Like Alternative 2, it contemplates the construction of various flood control structures and the modification of some drainages. Ultimately, this alternative would permanently or temporarily disturb 107.1 of the 660.1 acres of jurisdictional waters on site, including 21.0 of the 276.9 acres of on-site wetlands.

Of all impacts to jurisdictional waters, 73.3 acres would consist of permanent (i.e., discharge/fill) impacts, including 9.4 acres of permanent impacts to wetlands. The cost of this alternative is \$1,061,458 per net developable acre (2.3 percent greater than the cost of Alternative 2).

Alternative 5 – Widened Tributary Drainages. Under this alternative, the Applicant would build three bridges across the Santa Clara River – the Commerce Center Bridge, the Potrero Canyon Road Bridge, and the Long Canyon Bridge. Alternative 5 also calls for the widening, regrading, and realignment of major tributary drainages. This alternative would accommodate 20,196 residential units and 5.42 msf of commercial space and provide public amenities similar to those of Alternative 2. In addition, this alternative would dedicate 10,519.8 acres of undeveloped land as permanent open space, including 338.6 acres of spineflower preserve. Ultimately, this alternative would permanently or temporarily disturb 114.0 of the 660.1 acres of jurisdictional waters on site, including 28.1 of the 276.9 acres of on-site wetlands. Of all impacts to jurisdictional waters, 72.4 acres would consist of permanent (i.e., discharge/fill) impacts, including 14.6 acres of permanent impacts to wetlands. The cost of this alternative is \$1,103,985 per net developable acre (6.4 percent greater than the cost of Alternative 2).

Alternative 6 – Elimination of Planned Commerce Center Bridge. This alternative differs from Alternatives 2 through 5, in that it would eliminate the Commerce Center Bridge but retain the bridge at Potrero Canyon Road. This alternative would accommodate 19,787 residential units and 5.33 msf of commercial space and would provide public amenities similar to those of Alternative 2. In addition, this alternative would dedicate 10,863.4 acres of undeveloped land as permanent open space, including 891.2 acres of spineflower preserve. Ultimately, this alternative would permanently or temporarily disturb 94.6 of the 660.1 acres of jurisdictional waters on site, including 21.5 of the 276.9 acres of on-site wetlands. Of all impacts to jurisdictional waters, 60.7 acres would consist of permanent (i.e., discharge/fill) impacts, including 9.5 acres of permanent impacts to wetlands. The cost of this alternative is \$1,193,303 per net developable acre (15 percent greater than the cost of Alternative 2).

Alternative 7 – Avoidance of 100-Year Floodplain and Elimination of Two Planned Bridges. Under this alternative, only one bridge – located at Long Canyon – would be constructed across the Santa Clara River. The Potrero Canyon and Commerce Center bridges would not be built. In addition, development would be situated to avoid the 100-year floodplain of the Santa Clara River. This alternative would accommodate 16,471 residential units and 3.76 msf of commercial space and would provide considerably less public amenities than Alternative 2. In addition, this alternative would dedicate 11,686 acres of undeveloped land as permanent open space, including 660.6 acres of spineflower preserve. Ultimately, this alternative would avoid all permanent and temporary impacts to jurisdictional areas within the FEMA mapped 100-year floodplains on

site. The cost of this alternative is \$1,590,311 per net developable acre (53.2 percent greater than the cost of Alternative 2).

No Fill Alternative. Under this alternative, all bridges, bank stabilization, and RMDP infrastructure would be sited to avoid discharge of fill into waters of the United States, including wetlands. Flood protection would be accomplished by constructing buried bank stabilization between on-site drainages and adjacent development, but beyond the lateral limits of the Corps' jurisdiction. This alternative would accommodate 18,339 residential units and 4.76 msf of commercial space and would provide less public amenities than Alternative 2. In addition, this alternative would dedicate 11,086.9 acres of undeveloped land as permanent open space. This alternative would have no permanent or temporary impacts on the 660.1 acres of jurisdictional waters on site. The cost of this alternative is \$1,347,817 per net developable acre (29.9 percent greater than the cost of Alternative 2).

Each of the above alternatives, except the No Fill Alternative, would require the issuance of a section 404 permit to the Applicant to allow discharge of fill material into waters of the United States. Without the ability to discharge fill material into waters of the United States, the Applicant would not be able to develop the RMDP infrastructure and facilities.

Identification of the Initial LEDPA. Based on a comparative evaluation, this analysis determined that Alternative 3 is the least environmentally damaging practicable alternative among Alternatives 2 through 7, plus the No Fill Alternative. It avoids the most serious aquatic impacts of Alternative 2 by eliminating the bridge at Potrero Canyon Road, yet still satisfies the overall project purpose. Alternative 4, while practicable, has greater permanent impacts on waters of the United States than Alternative 3. Alternative 5 has greater permanent impacts on jurisdictional waters than Alternative 3, particularly in the Santa Clara River mainstem, and would be unreasonably costly. Alternatives 6, 7, and the No Fill Alternative would result in less severe impacts on jurisdictional areas but would not meet the overall project purpose, would be unreasonably costly, and/or have logistical shortcomings, such as inadequate emergency access to the site. For these reasons, the analysis identified Alternative 3 as the "Initial LEDPA."

Section 9: Modifications to Address Regulatory Requirements. Section 9 considers whether the Initial LEDPA (Alternative 3) needs to be modified to comply with state and federal regulatory requirements not directly associated with the section 404(b)(1) Guidelines. Those requirements include the federal and state Endangered Species Acts and the state regulatory program for streambed alteration administered by CDFG under section 1602 of the California Fish and Game Code. This analysis considered three modifications: (1) expanding the spineflower preserves to meet CDFG requirements; (2) further avoiding and minimizing impacts to riparian resources along the Santa Clara River; and (3) modifying tributary designs to incorporate additional riparian mitigation area. As a result of this analysis, the Applicant incorporated the following changes into the Initial LEDPA:

- *Chiquito Canyon:* Through additional channel avoidance, permanent impacts to jurisdictional waters were reduced by 0.33 acres.

- *San Martinez Grande Canyon*: Grade stabilization structures were modified to provide more area for riparian enhancement and mitigation.
- *Long Canyon*: Channel area was redesigned to provide more area for riparian enhancement.
- *Potrero Canyon*: By avoiding and/or reducing impacts to the lowermost portion of Potrero Canyon and the adjacent mesic meadow wetland feature, permanent impacts on jurisdictional areas were reduced by 0.25 acres. (In addition, a new 19.5-acre wetland mitigation site immediately upstream of the mesic meadow would be created.)
- *Santa Clara River*: By avoiding riparian habitat adjacent to the river and lower Castaic Creek, permanent impacts on jurisdictional areas were reduced by 0.26 acres.
- *Middle Canyon Spring*: The Commerce Center Drive Bridge was realigned to provide a larger buffer between development and the special aquatic site located near the bridge.
- *Spineflower Preserves*: The spineflower preserves at San Martinez Grande, Potrero, Grapevine Mesa, and Airport Mesa were enlarged, to provide an additional 71.1 acres of preserve area.

After these modifications, the "Revised Initial LEDPA" was reassessed and found to still be practicable.

Section 10: Studies of Additional Avoidance and Identification of LEDPA. Section 10 takes the focused analysis of Section 9 to an even greater level of refinement. It evaluates the Revised Initial LEDPA to determine whether small-scale changes or additional fine-tuning of the design would result in greater protection of the aquatic environment. Specifically, in Section 9, six study areas were established: (1) Santa Clara River Utility Corridor Study Area; (2) Potrero Canyon Study Area; (3) Chiquito Canyon Study Area; (4) Long Canyon Study Area; (5) San Martinez Grande Canyon Study Area; and (6) Middle Canyon Study Area. For each study area, a number of sub-alternatives were devised, each with a unique impact avoidance/minimization strategy. Ultimately, additional avoidance was deemed practicable only in Long Canyon (sub-alternative LC-2). This additional avoidance was incorporated into the Revised Initial LEDPA. With this additional avoidance, the Revised Initial LEDPA was designated as the "Draft LEDPA."

Section 11: Environmental Analysis of LEDPA. This section describes the Draft LEDPA and its environmental effects, which are summarized in Section 1.2 of this Executive Summary.

Section 12: Determination of Compliance with Requirements on Discharge. Section 12 assesses whether the Draft LEDPA would comply with the discharge restrictions found in the section 404(b)(1) Guidelines, which state that a project must not:

- Cause or contribute to violations of any applicable State water quality standard;
- Violate any applicable toxic effluent standard or prohibition under Clean Water Act section 307;

- Jeopardize the continued existence of any species listed under the ESA or result in destruction or adverse modification of critical habitat; or
- Violate requirements imposed to protect any marine sanctuary.

In addition, the Draft LEDPA may not cause or contribute to significant degradation of the waters of the United States, and may not result in significant adverse effects on:

- Life stages of aquatic life and other wildlife dependent on aquatic ecosystems;
- Aquatic ecosystem diversity, productivity, and stability; or
- Recreational, aesthetic, and economic values.

Section 12 concludes that the Draft LEDPA complies with these regulations.

1.4 COMPARING THE DRAFT LEDPA TO THE INITIAL LEDPA AND THE PROPOSED PROJECT (ALTERNATIVE 2)

For ease of reference, set forth below are the key statistics that distinguish the Draft LEDPA from the Initial LEDPA (Alternative 3) and the proposed Project (Alternative 2):

Total Impacts to Waters of the United States (Permanent impacts in parentheses):

- Proposed Project: 126.6 acres (93.3)
- Initial LEDPA: 107.6 acres (70.0)
- Draft LEDPA: 98.5 acres (66.3)

Total Impacts to Wetlands (Permanent impacts in parentheses):

- Proposed Project: 31.7 acres (20.5)
- Initial LEDPA: 20.3 acres (9.2)
- Draft LEDPA: 19.1 acres (7.7)

Spineflower Preserve Area:

- Proposed Project: 140.5 acres
- Initial LEDPA: 148.8 acres
- Draft LEDPA: 220.4 acres

Impacts on Special-Status Aquatic Wildlife:

- Proposed Project: Construction of Potrero Canyon Bridge may result in significant unavoidable impacts on southwestern pond turtle and San Emigdio blue butterfly.
- Initial LEDPA: Elimination of bridge at Potrero Canyon reduces Project impacts on southwestern pond turtle and San Emigdio blue butterfly to less-than-significant levels.

- Draft LEDPA: Elimination of bridge at Potrero Canyon reduces Project impacts on southwestern pond turtle and San Emigdio blue butterfly to less-than-significant levels.

1.5 MITIGATION

Under the section 404(b)(1) Guidelines, it is not appropriate for the Corps to consider compensatory mitigation in determining whether a project is the LEDPA. However, the Corps does consider mitigation in assessing the net effects of a project and determining whether to issue a section 404 permit. (*See, e.g.*, 33 C.F.R. § 332.1(c)-(d).) As detailed in the Draft Mitigation and Monitoring Plan for Impacts to Waters of the United States, (see Appendix 11.0), permanent impacts to Corps jurisdiction are proposed to be mitigated at a minimum ratio of 1:1 through initiation of mitigation prior to impacts. Therefore, a minimum of 66.3 acres of mitigation will be provided to ensure no net loss of jurisdictional acreage or functions and services. However, the Draft LEDPA would result in a net increase of 116.9 acres of waters of the United States on site and a net improvement in the functions and services of jurisdictional waters (as measured by HARC scores for the pre- and post-Project conditions). This would be accomplished by creating or restoring up to 183.2 acres of waters of the United States that are incorporated into the Project design in areas where drainages or river bed are proposed to be recreated (e.g., Santa Clara River, Potrero Canyon, Long Canyon, Salt Creek, Chiquito Canyon, San Martinez Grande, and Lion Canyon). Additional information regarding the proposed mitigation is provided in Appendix F1.0 of the Final EIS/EIR.

1.6 CONCLUSION

This analysis evaluates three off-site alternatives and seven on-site alternatives to identify the Initial LEDPA, which is Alternative 3. It next considers additional modifications to the Initial LEDPA to ensure compliance with regulatory programs other than the section 404(b)(1) Guidelines. These modifications result in the Revised Initial LEDPA. The analysis then evaluates the practicability of additional avoidance in key areas where the Project would have substantial effects on waters of the United States or would impact high-value aquatic resources. The incorporation of practicable additional avoidance in these areas results in the identification of the Draft LEDPA.

As a final step, the analysis evaluates the environmental effects of the Draft LEDPA and its compliance with the discharge restrictions found in the section 404(b)(1) Guidelines. Based on this analysis, the analysis concludes that the Draft LEDPA is the least environmentally damaging practicable alternative and that it complies with the section 404(b)(1) Guidelines.

1.0 INTRODUCTION

This Section 404(b)(1) Alternatives Analysis For the Newhall Ranch Resource Management And Development Plan, Army Corps Permit Application No. 2003-01264-AOA ("Alternatives Analysis") is submitted pursuant to the requirements of section 404(b)(1) of the Federal Water Pollution Control Act of 1972 ("Clean Water Act" or "CWA"). The Applicant is The Newhall Land and Farming Company ("Applicant" or "Newhall"). The Alternatives Analysis addresses the Applicant's Newhall Ranch Resource Management and Development Plan ("RMDP" or "Project").

The Applicant owns the Newhall Ranch Specific Plan site in northwestern Los Angeles County (see **Figure 1-1**, Project Vicinity Map, and **Figure 1-2**, Newhall Ranch Specific Plan Site), which was approved for master-planned urban development by the County on May 27, 2003. Newhall has prepared and submitted the proposed RMDP to facilitate federal permitting for construction of infrastructure necessary for the implementation of the approved Newhall Ranch Specific Plan ("Specific Plan"). Newhall requests that the Corps issue a permit under section 404 of the Clean Water Act for discharges of fill to waters of the United States in order to construct the infrastructure and facilities identified in the RMDP, as these elements would be needed to accommodate build-out of the Specific Plan.

The RMDP is evaluated in the joint Environmental Impact Statement/Environmental Impact Report ("EIS/EIR") prepared by the U.S. Army Corps of Engineers, Los Angeles District, Regulatory Division ("Corps").¹ The EIS/EIR analyzes the effects of implementing both the RMDP and the Specific Plan, which the RMDP serves and facilitates.²

1.1 THE NEWHALL RANCH SPECIFIC PLAN

The Specific Plan sets forth a comprehensive set of plans, development regulations, design guidelines, and implementation programs to develop the approximately 12,000-acre Specific Plan site in unincorporated Los Angeles County ("County"), consistent with the goals,

¹ The California Department of Fish and Game ("CDFG"), South Coast Region, as co-author, has prepared the EIR portion to comply with the California Environmental Quality Act ("CEQA") in connection with its proposed actions, including entering into a Master Streambed Alteration Agreement with the Applicant under California Fish and Game Code section 1600, *et seq.*, for activities associated with the Project that divert or obstruct natural flows or change or use material from any river, stream or lake, and issuing incidental take permits under the California Endangered Species Act ("CESA").

² The EIS/EIR also analyzes the effects of implementation of the Applicant's Spineflower Conservation Plan ("SCP"), which guides the preservation of the San Fernando Valley Spineflower ("spineflower") within the Specific Plan and the Entrada planning area. Implementation of the proposed SCP does not place dredge or fill material in waters of the United States; and, therefore, is not included as part of the Project analyzed herein. However, the SCP will be discussed in this analysis in the context of environmental screening criteria used to determine the least environmentally damaging practicable alternative. The spineflower is a listed endangered plant species under CESA and a candidate species under the federal Endangered Species Act. Any development in the RMDP site must comply with the requirements of CESA.

objectives, and policies of the Los Angeles County General Plan and Santa Clarita Valley Area Plan.³ The County, in cooperation with the Applicant, initiated the planning and public review process for the Specific Plan in 1996. The County initially approved the Specific Plan and related entitlements and environmental documentation in 1999. Following litigation, the County conducted further environmental review of the Specific Plan, and on May 27, 2003, it approved the Specific Plan, initial and additional environmental documentation, related general plan and zoning designations, and other project approvals.

1.1.1 Specific Plan Land Uses And Villages

The Specific Plan provides for a broad range of residential, mixed-use, commercial and industrial land uses, various public facilities, and public services and utilities, together with preservation of large tracts of open space. At build-out, the Specific Plan would result in approximately 2,550 acres of residential uses (9,081 single-family homes on 1,559 acres, and 11,804 multi-family homes on 991 acres), 5.5 million square feet of commercial uses on 258 acres; and the development of approximately 643 acres devoted to public facilities such as community parks, neighborhood parks, golf course, community lake, new elementary, junior high and high schools, library, electrical substation, fire stations, and a 6.8 million gallon per day water reclamation plant ("WRP"). Open space would be provided on approximately 8,683 acres on the Specific Plan site, and an additional 1,517 acres of open space in the Salt Creek area adjacent to the Specific Plan site (for a total of about 10,200 acres of open space within the Specific Plan/Salt Creek area). The open space would also include land dedicated to the preservation of the spineflower. The configuration of Specific Plan land uses approved for the site is depicted graphically on **Figure 1-3, Newhall Ranch Specific Plan Approved Land Uses**.

The central organizing principle of the Specific Plan is the division of the site into complementary Villages, which are defined by natural landmarks and topographical features. All the Villages will be linked by a comprehensive network of roads and trails, allowing the Villages to function as complementary parts of a cohesive larger community. As described in the EIS/EIR, the Villages are: Landmark Village, Mission Village, Homestead Village, and Potrero Canyon Village.

Within each Village, development will be concentrated around a Village Center, helping to preserve open space and providing residents with convenient access to commercial, recreational and public facilities. Because the Specific Plan area is so large, the creation of Villages as integrated developments, each with a full complement of facilities and amenities to serve residents and visitors, is crucial to providing a sense of community identity. The Village approach also helps to minimize vehicle trip lengths for residents and makes the development more friendly to pedestrians and bicyclists.

The Specific Plan is designed so that all subsequent development plans and subdivision maps that are consistent with the Specific Plan also would be consistent with both the Los Angeles County General Plan and the Santa Clarita Valley Area Plan. Individual projects, such as

³ As amended by General Plan Amendment No. 94-087-(5) (approved May 27, 2003).

residential, mixed-use, commercial, and non-residential developments, roadways, public facilities, and amenities, would be developed over time in accordance with the Specific Plan.

1.1.2 Specific Plan Setting

The Specific Plan area is topographically diverse, with slope gradients ranging from moderate to steep in the hillsides, to very gentle in the Santa Clara River floodplain and in major tributary canyons. Also, there are mesas adjacent to the Santa Clara River (e.g., Grapevine Mesa and Airport Mesa). Site elevations range from 825 feet above mean sea level (AMSL) in the Santa Clara River bottom at the Los Angeles County/Ventura County line, to approximately 3,200 feet AMSL on the ridgeline of the Santa Susana Mountains along the southern boundary of the Specific Plan. The primary ridges trend east, west, and northwest, with secondary ridges trending north and south.

Native and naturalized habitats within the Specific Plan area are representative of those found in this region. Upland habitats dominate the landscape within the Specific Plan area, both north and south of the Santa Clara River. The major upland plant communities include California sagebrush scrub, undifferentiated chaparral, coast live oak and valley oak woodlands, and California annual grassland. However, the Specific Plan site also contains valley oak/grass, mixed oak woodland, chamise chaparral, California walnut woodland, and big sagebrush scrub.

The Santa Clara River supports a variety of riparian plant communities, including southern cottonwood-willow riparian forest, southern willow scrub, southern coast live oak riparian forest, mulefat scrub, elderberry scrub, arrow weed scrub, giant reed, tamarisk scrub, herbaceous wetland, bulrush/cattail wetland, cismontane alkali marsh, and coastal and valley freshwater marsh and seeps. Intermittent and ephemeral drainages on site also provide habitat for alluvial scrubs.

The riparian habitat along the Santa Clara River has been designated as critical habitat by the United States Fish and Wildlife Service ("USFWS") for the state- and federally-listed endangered least Bell's vireo (*Vireo bellii pusillus*). The River also provides habitat for the state- and federally-listed endangered southwestern willow flycatcher (*Empidonax traillii extimus*). In addition, the River supports the unarmored three-spine stickleback (*Gasterosteus aculeatus williamsoni*), which is a state- and federally-listed endangered species, as well as a state fully-protected species.

There are two Significant Ecological Areas ("SEAs") within the boundary of the approved Specific Plan: (1) the High Country Special Management Area ("SMA")/SEA 20, which is comprised of diverse oak woodland habitats that function as a wildlife corridor/linkage between the San Gabriel and Santa Monica Mountains; and (2) the River Corridor SMA/SEA 23, which is comprised of aquatic habitat within the Santa Clara River Corridor that supports the endangered unarmored three-spine stickleback and other listed and sensitive species.

1.2 PROPOSED RESOURCE MANAGEMENT AND DEVELOPMENT PLAN INFRASTRUCTURE

The RMDP guides the construction of infrastructure necessary for implementation of the Specific Plan and provides the conservation, mitigation, and permitting plan for sensitive biological resources within the Specific Plan area. The development plan portion of the RMDP

consists of infrastructure and facilities in the Santa Clara River and its tributary drainages within the RMDP study area. For the purpose of this analysis, the "RMDP site" is defined as the Specific Plan area.

The proposed RMDP infrastructure and facilities are briefly summarized, as follows:

1.2.1 Bridges

Two proposed bridges, Potrero Canyon Bridge and Long Canyon Road Bridge, and one previously-approved bridge, Commerce Center Drive Bridge, would be located over the main stem of the Santa Clara River to serve the Specific Plan and to accommodate future traffic associated with development of the Specific Plan and the region. The Commerce Center Drive Bridge was previously analyzed in the Final EIS/EIR prepared and approved by the Corps and CDFG in 1998 in connection with a master streambed alteration agreement and section 404 permit for development activities under the Natural River Management Plan (SCH No. 1997061090, August 1998; "NRMP").

1.2.2 Road Crossing Culverts

Fifteen new road crossing culverts would cross six tributary drainages to the Santa Clara River (Chiquito, San Martinez Grande, Lion, Long, Potrero, and Ayers canyons). The road crossings would be constructed of earthen fill and pre-fabricated arched culverts.

1.2.3 Bank Stabilization

Bank stabilization/protection would be installed along portions of the Santa Clara River Corridor and its tributary drainages within the RMDP site. Bank protection would include buried soil cement, grouted and ungrouted rock riprap, turf reinforcement mats, and limited gunite slope lining in and around bridge abutments. In addition, all affected development areas would be raised above the Federal Emergency Management ("FEMA") flood hazard elevation to protect land uses from potential flooding.

1.2.4 Drainage Facilities

Drainage facilities would be installed as required to comply with the permit requirements of the County's Municipal Separate Storm Sewer System National Pollutant Discharge Elimination System ("NPDES").⁴ Such facilities include open and closed drainage systems, inlets, outlets, bank stabilization, and water quality basins. The proposed drainage facilities are intended to minimize the amount of debris entering the drainage system and to maintain the quality of water within the system.

1.2.5 Water Quality Control Facilities

Pursuant to NPDES requirements, best management practices ("BMPs") would be implemented to reduce water quality impacts associated with stormwater and other runoff within the RMDP site. Best management practices include installation of the following water quality control

⁴ NPDES Permit No. CAS004001, Los Angeles Regional Water Quality Control Board ("RWQCB") Order No. 01-182 (2001).

facilities: (1) water quality basins; (2) debris basins, located just upstream of the interface between developed and undeveloped areas, primarily to trap debris coming from the upper watersheds; (3) detention basins, which are typically sized to capture the predicted runoff volume and retain the water volume for a period of time (usually 24 to 48 hours); (4) catch basin inserts or screens/filters installed in storm drains to capture pollutants in the storm water runoff; (5) bioretention, such as vegetated grassy swales, that provide water quality benefits and convey storm water runoff; and (6) solids separator units or in-line structures that reduce or manipulate runoff velocities such that particulate matter falls out of suspension and settles in a collection chamber.

1.2.6 Modified Tributary Drainages – Existing Channels Stabilized

Due to existing degraded conditions, and in order to accommodate the Specific Plan development, portions of the existing major tributary drainages within the RMDP site (portions of Chiquito Canyon, San Martinez Grande Canyon, and Lion Canyon) would require stabilizing treatments to protect the channel and surrounding development from excessive vertical scour and lateral channel migration. The existing drainages would remain intact but would sustain permanent and temporary impacts from construction of stabilization elements, including buried bank stabilization and grade stabilization structures.

1.2.7 Modified Tributary Drainages – Regraded Channels

Due to the existing degraded conditions within portions of some drainages in the RMDP site (Potrero Canyon, Long Canyon, and portions of Chiquito, San Martinez Grande, and Lion canyons), stabilization of the existing drainages is not feasible. Therefore, to accommodate the Specific Plan development, and in order to meet the County's flood protection objectives, these drainages would be graded and a new drainage would be constructed in the same or similar location. The new drainages would be designed to incorporate buried bank stabilization and grade stabilization, and have sufficient hydrologic capacity to pass the Los Angeles County Capital Flood without the need for clearing vegetation from the channels. The new channel banks would be planted with riparian vegetation following construction.

1.2.8 Unmodified (Preserved) Tributary Drainages

Among the minor tributary drainages within the RMDP site, some are not in a degraded condition; others are located in areas where no impacts are proposed; and others are distant enough from surrounding development that bank stabilization is not required. These drainages would remain in their existing condition; the RMDP does not propose to enhance or otherwise affect these drainages. In most situations, unmodified drainages would be located within future open space areas and would maintain their current hydrologic functions, as well as providing linkages for wildlife movement to and from the Santa Clara River.

These unmodified drainages include: (1) an 1,810 foot agricultural ditch used for drainage of the Chiquita Landfill site; (2) the Ayers Canyon watershed; (3) the Dead Canyon watershed; (4) the Exxon Canyon watershed; (5) the Homestead Canyon watershed; (6) the Humble Canyon watershed; (7) the Middle Canyon watershed; (8) the Mid-Martinez Canyon watershed; (9) the Off-Haul Canyon watershed; (10) the Salt Creek Canyon watershed; (11) the Magic Mountain

Canyon watershed; (12) a 0.16 square mile "Unnamed Canyon 1" watershed used for existing development (golf course) drainage; (13) a 0.6 square mile "Unnamed Canyon 2" watershed used for existing development (golf course) drainage; (14) a 0.7 square mile "Unnamed Canyon A" watershed; (15) a 0.05 square mile "Unnamed Canyon B" watershed; (16) a 0.07 square mile "Unnamed Canyon C" watershed; and (17) a 0.04 square mile "Unnamed Canyon D" watershed.

1.2.9 Tributary Drainages Converted To Buried Storm Drain

Some of the drainages within the RMDP site, including many of the smaller drainages, would be graded as part of the grading operations. The wet-weather flows in these drainages are low enough to meet the County's flood criteria (less than 2,000 cubic feet per second ("cfs")) for conveyance by storm drain. The RMDP does not propose to create new drainage channels to replace these impacted drainages. Rather, the wet-weather flows that currently occupy the drainages would be routed into the development's storm drain system, and would be discharged to the Santa Clara River via the proposed storm drain outlets.

1.2.10 Grade Stabilization Structures

Grade stabilization structures would be installed on five existing tributary drainages to the main stem of the Santa Clara River: Chiquito Canyon, Long Canyon, Potrero Canyon, San Martinez Grande Canyon, and Lion Canyon. The grade stabilization structures are designed to contain the hydraulic "jump" that occurs when there is a significant drop in streambed elevation, so that higher velocities are dissipated within the area.⁵ The structures would help control erosion and changes to the configuration of the bed of the stream channel. The structures would be constructed of soil cement, sheet piles or reinforced concrete.

1.2.11 Utility Corridor And Crossings

Various electrical, sewer, water, gas and communications lines would be installed across Chiquito Canyon, San Martinez Canyon and Castaic Creek within an approximately 100-foot wide utility corridor. (See EIS/EIR **Figure 2.0-31**.) The utility corridor alignment would extend generally parallel to the south side of State Route 126 ("SR-126") north of the Santa Clara River. Utility lines would be installed in rights-of-way adjacent to bridges where access for installation and maintenance could be easily accommodated. Utilities also would be extended across the Santa Clara River and its tributary drainages to serve the Specific Plan.

1.2.12 Temporary Haul Routes For Grading Equipment

Temporary haul routes across the Santa Clara River would be used during construction to move equipment and excavated soil to locations in the RMDP site in accordance with the Specific Plan Conceptual Grading Plan.

⁵ Significant drops in streambed elevation may occur as a result of upstream dredge and/or fill activities. (See, EIS/EIR, **Section 4.2**.)

1.2.13 WRP Outfall Construction Activities

An effluent outfall pipeline would be constructed from the Newhall Ranch WRP through the bank stabilization to the bed of the Santa Clara River. An earthen channel and adjacent walkway also would be constructed to reach the actual flow path of the river.

1.2.14 Roadway Improvements To SR-126

Various roadway improvements, such as the widening of portions of SR-126 and a grade-separated crossing at Long Canyon Road/SR-126, would be needed within the vicinity of the RMDP site.

1.2.15 Recreation Facilities

In addition to the comprehensive system of bicycle, pedestrian, and equestrian trails that would be implemented by the adopted Specific Plan Master Trails Plan, five nature viewing platforms and associated walkways would be constructed in or adjacent to jurisdictional areas in the Santa Clara River.

1.2.16 Maintenance, Habitat Restoration And Other Activities

In addition to construction of the infrastructure and facilities described above, the RMDP proposes various activities that could occur within areas subject to Corps jurisdiction. The Los Angeles County Department of Public Works ("DPW") or another entity would conduct regular and ongoing maintenance of flood, drainage, and water quality protection facilities on the RMDP site. Such activities would include: (1) periodic inspection of structures; (2) monitoring of vegetation growth and sediment buildup to safeguard the integrity of the structures and ensure that planned conveyance capacity is present; (3) routine repairs and maintenance of bridges and bank protection; and (4) emergency maintenance. In addition, to accommodate Specific Plan development, geotechnical investigations and associated activities would be undertaken to ensure that the development would be safely constructed in accordance with applicable geotechnical reports, studies, and standards.

The RMDP also incorporates a variety of measures to restore and enhance native habitat, such as rehabilitating habitat areas that have been disturbed by past activities or invaded by non-native plant species. To the extent that these and other activities affect jurisdictional waters, they are addressed in this analysis and would be covered by a section 404 permit.

Construction of the RMDP infrastructure and facilities will require the placement of dredge and fill materials into the waters of the United States, which requires a permit from the Corps. Before such a permit can be issued, federal regulations require an analysis of alternatives to the proposed fill to ensure that the Project as proposed is the least environmentally damaging practicable alternative. This document is intended to assist in making that determination.

2.0 REGULATORY FRAMEWORK OF THE SECTION 404(b)(1) ALTERNATIVES ANALYSIS

2.1 SECTION 404 OF THE CLEAN WATER ACT

Under section 404(a) of the CWA, any person proposing to discharge dredge or fill material in waters of the United States must first obtain a permit from the Corps. 33 U.S.C. § 1344, subd. (a). Before making a section 404 permit decision, the Corps must make a finding that the proposed permit action complies with federal regulations established by the U.S. Environmental Protection Agency ("EPA") under section 404(b)(1) of the CWA. 40 C.F.R. Part 230.⁶ These guidelines are known as the section 404(b)(1) guidelines ("404(b)(1) Guidelines" or "Guidelines"). This Alternatives Analysis is intended to assist the Corps in complying with the Guidelines in connection with its decision whether to issue a section 404 permit for the Project.

2.2 THE 404(b)(1) GUIDELINES

The 404(b)(1) Guidelines prohibit discharge of dredge or fill materials to waters of the United States if there is a "practicable alternative to the proposed discharge that would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant environmental consequences." (40 C.F.R. § 230.10, subd. (a).) A project that meets this requirement is known as the "least environmentally damaging practicable alternative" ("LEDPA"). An alternative is practicable "if it is available and capable of being done after taking into consideration cost, existing technology, and logistics *in light of overall project purposes*." (40 C.F.R. § 230.10, subd. (a)(2), § 230.3, subd. (q); *italics added*.) Thus, to be the LEDPA, the chosen alternative must meet the overall project purpose for which an applicant requests fill authorization, as well as the cost, logistics, technology, and availability criteria found in the Guidelines. "If it is otherwise a practicable alternative, an area not presently owned by an applicant which could reasonably be obtained, utilized, expanded or managed in order to fulfill the basic purpose of the proposed activity may be considered." (40 C.F.R. § 230.10, subd. (a)(2).)

The Guidelines extend additional protection to certain sensitive aquatic habitats. These are termed "special aquatic sites" and include six categories: sanctuaries and refuges, wetlands, mudflats, vegetated shallows, coral reefs, and riffle/pool complexes. (40 C.F.R. §§ 230.40-230.45.) Of the six categories of special aquatic sites, only wetlands are at issue with respect to this proposed Project. For proposed activities involving discharges into special aquatic sites, the Guidelines require consideration of whether the activity is dependent on access or proximity to, or siting within, a special aquatic site in order to fulfill its basic project purpose -- *i.e.*, whether

⁶ Even if the Corps decides to issue a section 404 permit, the EPA has the authority to prohibit the discharge of dredged or fill material under section 404, subdivision (c) of the CWA, if EPA determines that the proposed fill would have unacceptable impacts on municipal water supplies, shellfish beds or fishery areas, wildlife or recreational areas. (33 U.S.C. § 1344, subd. (c).)

the activity is "water-dependent."⁷ If an activity is determined *not* to be water-dependent, the 404(b)(1) Guidelines establish the following two presumptions: (1) that practicable alternatives not involving discharges of fill material into special aquatic sites are available; and (2) that all practicable alternatives to the proposed discharge have less adverse impact on the aquatic ecosystem. (40 C.F.R. § 230.10, subd. (a)(3).) For non-water-dependent projects that propose to fill special aquatic sites, the applicant must rebut these presumptions in order to demonstrate compliance with the 404(b)(1) Guidelines.

In addition to requiring the identification of the LEDPA and protection of special aquatic sites, the Guidelines establish certain restrictions on discharge. A project may not violate any applicable toxic effluent standard or prohibition, 40 C.F.R. § 230.10, subdivision (b)(2); jeopardize the continued existence of any endangered or threatened species (or adversely modify critical habitat), 40 C.F.R. § 230.10, subdivision (b)(3); cause or contribute to violations of any applicable state water quality standard, 40 C.F.R. § 230.10, subdivision (b)(1); or cause or contribute to significant degradation of waters of the United States, 40 C.F.R. § 230.10, subdivision (c). Compliance with each of these provisions is mandatory. If the Corps cannot make these findings, it will not issue a section 404 permit even if a proposed action is the LEDPA.

⁷ An example of a water-dependent activity is the construction of a marina that must be located within a wetland or vegetated shallows in order to provide access to navigable waters. *Florida Clean Water Network v. Grosskruger*, 587 F.Supp.2d 1236, 1243 (M.D. Fla. 2008). See also *Friends of the Earth v. Hintz*, 800 F.2d 822, 831-832 (9th Cir. 1986).

3.0 PROJECT PURPOSE

3.1 LEGAL REQUIREMENTS FOR PROJECT PURPOSE

The definition of the project purpose involves two steps. First, the Corps must define the "basic project purpose," which is used to determine whether the project is water-dependent. (40 C.F.R. § 230.10, subd. (a)(3).) As explained above, if the project is not water-dependent and involves a proposed discharge to a special aquatic site, it is presumed that practicable alternatives not involving a discharge to a special aquatic site are available, unless the applicant clearly demonstrates otherwise. (*Id.*)

Next, the Corps must define the "overall project purpose," which is more specific to the applicant's project and should reflect the applicant's needs. (See Updated Standard Operating Procedures for the U.S. Army Corps of Engineers Regulatory Program, 15 (July 1, 2009).) The definition of the overall project purpose is a critical step in the alternatives analysis, because the overall project purpose is used to evaluate what alternatives are practicable. (See 40 C.F.R. § 230.10, subd. (a)(2) [defining practicability "in light of overall project purposes"].) The Corps has the final responsibility to define the overall project purpose, but in doing so the Corps should give some deference to the objectives of the applicant. A number of courts have explained that "it would be bizarre if the Corps were to ignore the purpose for which the applicant seeks a permit and to substitute a purpose it deems more suitable." (*Sylvester v. U.S. Army Corps of Engineers*, 882 F.2d 407, 409 (9th Cir. 1989) [quoting *Louisiana Wildlife Federation v. York*, 761 F.2d 1044, 1048 (5th Cir. 1985)].)

While the Corps needs to consider the applicant's project purpose, it also must ensure that the statement of overall project purpose is specific enough to allow meaningful analysis of the practicability of alternatives, but not so narrow as to exclude alternatives unnecessarily, "thus mak[ing] what is practicable appear impracticable." (*Sylvester, supra*, 882 F.2d at 409.) Therefore, elements included in the project purpose and used to evaluate alternatives must be "necessary" and "legitimate," not merely "incidental" to the basic project purpose.⁸ (*Id.*)

A number of cases involving the issuance of section 404 permits help to explain the distinction between "legitimate" and "incidental" elements of the project purpose. These cases demonstrate that a project purpose may legitimately include location-specific or even site-specific elements that foreclose some alternatives when, for example:

- The project is intended to serve a specific community. (E.g., *Great Rivers Habitat Alliance v. Army Corps of Engineers*, 437 F.Supp. 2d 1019 (E.D. Mo. 2006) [finding that project purpose properly limited alternatives to sites within city of St. Peters, Missouri, where project was intended to accommodate economic development of city]; *Butte Environmental Council v. U.S. Army Corps of Engineers*, 2009 WL 497575, No. 2-08-cv-1316 (E.D. Cal. 2009) [project purpose was to construct a medium to large sized regional

⁸ Put another way, the Corps may not allow components of a project that are merely incidental to the basic project purpose to "control the Corps' decision-making process." (*Florida Clean Water Network v. Grosskruger*, 587 F. Supp. 2d 1236, 1246 (M.D. Fla. 2008).)

business park with associated roads, utilities and infrastructure within the City of Redding's sphere of influence]; *Stewart v. Potts*, 996 F. Supp. 668 (S.D. Tex 1998) [project purpose was to provide an affordable, quality public golf course for the citizens of Lake Jackson]; USACOE Permit Elevation Decision, Old Cutler Bay Associates (Oct. 9, 1990) [acceptable project purpose was to construct a viable, upscale residential community with an associated regulation golf course in the South Dade County area].)

- The project is intended to complement a particular development in a specific location or to redevelop a specific site. (E.g., *Sylvester v. United States*, 882 F.2d 407 (9th Cir. 1989) [project purpose was to construct an 18-hole, links style, championship golf course and other recreational amenities in conjunction with the development of the proposed Resort at Squaw Creek]; *Friends of the Earth v. Hintz*, 800 F.2d 822, 833 (9th Cir. 1986) [project purpose was to develop an area adjacent to sawmill and dock as a "log storage and sorting area"]; *Nat'l Wildlife Federation v. Whistler*, 27 F.3d 1341 (8th Cir. 1994) [project purpose was to provide boat access to a particular residential development].)
- The project relies on resources or infrastructure found in a certain location. (E.g., *Northwest Environmental Defense Center v. Wood*, 947 F.Supp. 1371 (D. Or. 1996) [proximity of educated labor pool, transportation infrastructure, and other amenities justified limiting geographic scope of analysis to alternatives within the area of Eugene, Oregon].)

Likewise, a project purpose may legitimately include elements that constrain the size and configuration of a project when, for example:

- **The elements are required by concerns of safety, efficiency, or the commercial viability of the type of project contemplated.** (E.g., *Alliance for Legal Action v. U.S. Army Corps of Engineers*, 314 F.Supp. 2d 534 (M.D.N.C. 2004) [approving project purpose that dictated the minimum runway length, runway configuration, and location of support facilities necessary to support a viable overnight express air cargo hub]; *Florida Clean Water Network, Inc., v. Grosskruger*, 587 F.Supp. 2d 1236, 1244-1245 (M.D. Fla. 2008) [Corps' project purpose for airport relocation properly took into account federal airport safety and design standards, and applicant's need for a runway long enough to accommodate international flights].)
- **The elements are necessary for consistency with planning decisions made by the local or regional land use authority.** (E.g., *Florida Clean Water Network*, 587 F.Supp. 2d at 1244-1247 [Corps' project purpose for airport relocation project properly included consistency with comprehensive local and regional planning efforts].)

In contrast to these examples, elements that are merely incidental to a project purpose include:

- The exact number of residential units to be included in a development, or the identity of the designer of a golf course. (*USACOE Permit Elevation Decision, Old Cutler Bay Associates* (Oct. 9, 1990).)

- The development of a single source of water to supply both a city and an adjacent water district. (*Simmons v. U.S. Army Corps of Engineers*, 120 F.3d 664 (7th Cir. 1997) [finding that the Corps should have considered alternatives that involved the development of separate sources, because the use of a single source was not essential to the objective of supplying both users with water].)
- The exact view of a waterway from a particular parcel on which an applicant proposed to build a home. (*Schmidt v. U.S. Army Corps of Engineers*, 2009 WL 579412, No. 2-08-cv-0076 (W.D. Mich. 2009) [finding that the precise view offered by the proposed site was not essential to the project purpose of building a home].)

The Applicant has carefully considered the above authorities in arriving at its statement of overall project purpose.

3.2 PLANNING BACKGROUND OF THE SPECIFIC PLAN AND RMDP

Los Angeles County is the most populated county in the United States. (U.S. Census Bureau, Population Division, Resident Population Estimates for the 100 Largest U.S. Counties (March 19, 2009).) Northern Los Angeles County has experienced and will continue to experience significant growth, resulting in a high demand for housing and jobs and a corresponding need for large-scale residential and commercial development to accommodate approved and planned growth in the region. This need will continue despite the current short-term decline in demand due to the recession. The County, in partnership with other local, state and federal agencies, has engaged in years of study and planning to facilitate the orderly accommodation of the high demand for housing and jobs. As the culmination of that process, the Los Angeles County Board of Supervisors approved the Specific Plan on May 27, 2003. The Specific Plan is incorporated by reference into the Alternatives Analysis, and key elements of the Specific Plan are discussed below.

The Specific Plan site is located immediately west of developed and currently developing portions of unincorporated Santa Clarita Valley and the City of Santa Clarita. The site is in a census tract designated for development to urban uses by the Growth Management Plan of the Southern California Association of Governments ("SCAG"). The site is within a few miles of major existing and planned regional employment centers that will provide approximately 73,000 jobs when completed. These include Valencia Industrial Center, currently the third largest business park in Los Angeles County, and Valencia Commerce Center ("VCC"). Together these two centers will contain approximately 54,000 jobs at completion. Six Flags Magic Mountain Amusement Park, Valencia Town Center, Valencia Marketplace, Valencia Corporate Center and Valencia Auto Center, collectively, will provide approximately 19,000 jobs at completion. (See Newhall Ranch Specific Plan, Volume II (May 2003), p. 7.2-2.) By virtue of its location in proximity to Valencia, the Specific Plan site has excellent access to the Santa Clarita Valley's major hospital, Henry Mayo Newhall Memorial Hospital and Medical Office Complex. Also available are higher education facilities such as the College of the Canyons Community College, California Institute of the Arts, and the Master's College. A complete range of shopping opportunities, including neighborhood shopping centers, auto sales, regional shopping and value merchandise, are available near the site as well.

The Specific Plan was prepared pursuant to the provisions of the California Government Code, which allows preparation, review, and adoption of Specific Plans as may be required for the systematic execution of a General Plan. The Code authorizes jurisdictions to adopt specific plans as policy documents by resolution, or as regulatory documents by ordinance. (Cal. Gov. Code §§ 65450-65457.) In addition, the Los Angeles County Planning and Zoning Code provides procedures for the processing of Specific Plans in Los Angeles County. (Los Angeles County Planning and Zoning Code Title 22, Chapter 22.46.) Pursuant to those procedures, the Los Angeles County Regional Planning Commission recommended certification of the EIR and approval of the Specific Plan, and the Los Angeles County Board of Supervisors certified the EIR and adopted the Specific Plan on May 27, 2003.

3.3 BASIC OBJECTIVES OF THE SPECIFIC PLAN

The Specific Plan implements the goals and policies of the Los Angeles County General Plan and the Santa Clarita Valley Area Plan within the Specific Plan Area. The Specific Plan includes a total of thirty-six objectives, which provide the foundation for the Specific Plan development program. These include Land Use, Economic, Mobility, Resource Conservation, and Parks, Recreation and Open Area objectives. (See Specific Plan § 2.1.) For the purposes of this Alternatives Analysis, the applicant has identified the Land Use and Economic objectives listed below as the "Basic Objectives" of the Specific Plan that help to define the essential elements of the proposed Project. The Mobility, Resource Conservation, and Parks, Recreation and Open Area objectives are important considerations for the Specific Plan as a whole, but they do not relate directly to the activities for which the applicant seeks a section 404 permit. Accordingly, it is not necessary to include them in the overall project purpose. Likewise, some of the Land Use and Economic objectives in the Specific Plan are not considered Basic Objectives for purposes of this Alternatives Analysis because they relate to factors that are not properly considered under the 404(b)(1) Guidelines.

Land Use Basic Objectives:

1. Create a major new community with interrelated Villages that allows for residential, commercial and industrial development, while preserving significant natural resources, important landforms and open areas.
2. Avoid leapfrog development and accommodate projected regional growth in a location which is adjacent to existing and planned infrastructure, urban services, transportation corridors, and major employment centers.
3. Cluster development within the site to preserve regionally significant natural resource areas, sensitive habitat, and major landforms.
4. Provide development and transitional land use patterns which do not conflict with surrounding communities and land uses.
5. Arrange land uses to reduce vehicle miles traveled and energy consumption.

6. Provide a complementary and supportive array of land uses which will enable development of a community with homes, shopping, employment, schools, recreation, cultural and worship facilities, public services, and open areas.
7. Organize development into Villages to create a unique identity and sense of community for each.
8. Design Villages where a variety of higher intensity residential and nonresidential land uses are located in proximity to each other and to major road corridors and transit stops.
9. Establish land uses and development regulations that permit a wide range of housing densities, types, styles, prices, and tenancy (for sale and rental).
10. Designate sites for needed public facilities such as schools, fire stations, libraries, water reclamation plant and parks.
11. Allow for the development of community services and amenities by the public and private sectors, such as medical facilities, child care, colleges, worship facilities, cultural facilities, and commercial recreation.
12. Create a physically safe environment by avoiding building on fault lines and avoiding or correcting other geologically unstable landforms; by constructing flood control infrastructure to protect urban areas; and by implementing a fuel modification program to protect against wildfire.

Economic Basic Objectives:

1. Adopt development regulations which provide flexibility to respond to changing economic and market conditions over the life of Newhall Ranch.
2. Provide a tax base to support public services.
3. Adopt development regulations and guidelines which allow site, parking, and facility sharing and other innovations which reduce the costs of providing public services.

(Specific Plan § 2.1.)

Consistent with these Basic Objectives, the Specific Plan, as approved by the County, would provide 20,885 homes, including affordable housing. The County has further determined that the Specific Plan would provide a tax base to support public services and would provide approximately 20,000 jobs to the Santa Clarita Valley. In addition, the County has required the Applicant to set aside significant open space areas for the benefit of its residents and the region. These areas are located in and adjacent to the Specific Plan area, and include the River Corridor SMA/SEA 23, High Country SMA/SEA 20, Salt Creek area, designated Open Areas, spineflower preserve areas, and oak resources. The County has determined that implementation of the Specific Plan, by providing residential, commercial, mixed-use and nonresidential uses, and by setting aside significant open space acreage, will facilitate a balanced development in northern Los Angeles County where residents may both live and work and where sensitive biological resources are conserved, managed, and protected in perpetuity.

3.4 DEVELOPMENT OF APPLICANT'S OVERALL PROJECT PURPOSE UNDER THE 404(b)(1) GUIDELINES

The evaluation of overall project purpose will consider a variety of issues related to the Project. In this section, the analysis will discuss the project purpose as described in the Draft EIS/EIR; the treatment of the Spineflower Conservation Plan and RMDP; regulatory requirements other than those of the section 404 program; the role of the Specific Plan; the Project elements; the size of the Project; and the location of the Project.

3.4.1 Draft EIS/EIR Project Purpose.

In Section 2.0 of the EIS/EIR, the Corps identified the overall project purpose as follows:

To practicably and feasibly achieve the basic objectives of the Specific Plan, thereby helping to meet the regional demand for housing and jobs. Specifically, the RMDP component of the proposed Project would address the long-term management of sensitive biological resources in conjunction with the construction and maintenance of RMDP infrastructure needed to implement the approved Specific Plan in a manner that complies with federal and state environmental protection requirements. (Draft EIS/EIR, p. 2.0-8.)

Section 2.0 states that a second project purpose is:

To develop and implement a practicable and feasible SCP that would permanently protect and manage a system of preserves designed to maximize the long-term persistence of the spineflower within the applicant's land holdings containing known spineflower populations, and to authorize the take of spineflower in areas located outside of designated preserves.

The 404(b)(1) Guidelines explain that, when an action is subject to NEPA and the Corps is the permitting agency, the analysis of alternatives prepared for NEPA will in most cases provide the information needed for analysis under the Guidelines. The Guidelines also state that, in some cases, the NEPA document may have addressed "a broader range of alternatives than required to be considered under [the Guidelines] or may not have considered alternatives in sufficient detail to respond to the details of these Guidelines. In the latter case, it may be necessary to supplement these NEPA documents with this additional information." (40 C.F.R. 230.10, subd. (a)(4).) In light of this statement in the Guidelines, and because the project purpose statement under NEPA and the Guidelines are not necessarily identical, the applicant, in consultation with the Corps, has reviewed and refined the project purpose found in the Draft EIS/EIR to ensure it meets the standards of the 404(b)(1) Guidelines.

3.4.2 Consideration Of San Fernando Valley Spineflower Objective

In revising the project purpose found in the EIS/EIR, the first issue to be addressed is the development of spineflower preserves. The spineflower is a federal candidate plant species under the federal Endangered Species Act ("ESA") and is a state-listed endangered species under CESA. The spineflower has been observed in four general areas within the Specific Plan area: Airport Mesa, Grapevine Mesa, Potrero Canyon, and San Martinez Grande Canyon. This

species has also been observed on the Entrada and VCC planning areas, which are not part of the RMDP site.

Because the spineflower is a listed species under CESA, any development that results in take of spineflower must obtain authorization to do so under CESA and must fully mitigate its impacts to spineflower. The CESA mitigation requirements are an important element of the proposed Project, as the Project cannot proceed without them. They may affect the configuration and practicability of the Project, because areas set aside for spineflower are not available for Project infrastructure and facilities. However, for purposes of the 404(b)(1) Alternatives Analysis, it is not appropriate to include these spineflower mitigation measures in the overall project purpose, as they have no direct effect on waters of the United States or related habitat. They are more properly viewed as requirements imposed on the Project by regulatory programs -- similar to other regulatory requirements that the Project is obligated to meet. For example, because the Project site may provide habitat for wildlife species listed as endangered or threatened under the federal ESA, the Corps will consult with USFWS regarding potential impacts to such species or their habitat that may occur on the Project site. The USFWS will issue a biological opinion that will contain terms and conditions for the Project that are needed to avoid jeopardizing the survival and recovery of any listed species or causing adverse modification to designated critical habitat. (16 U.S.C. § 1536.) These measures will be included in whatever project alternative is chosen as the LEDPA.

Excluding the spineflower conservation measures from the project purpose does not mean that this Alternatives Analysis will fail to account for impacts to spineflower. Although the spineflower is an upland species, is not part of the aquatic ecosystem, and is not normally found within areas subject to Corps jurisdiction, the 404(b)(1) Guidelines provide a process to consider impacts to sensitive species that are not part of the aquatic ecosystem. The Guidelines require the Corps to consider "other significant adverse environmental consequences" as part of the process of identifying the LEDPA. Consideration of these non-aquatic environmental impacts allows the Corps to balance the goal of preserving aquatic resources against the possible effects that pursuing such a goal may have on non-aquatic resources.⁹

We note that the alternatives in the Draft EIS/EIR provide for a broad range of approaches to spineflower conservation, in terms of avoiding existing spineflower populations and establishing the size and location of spineflower preserves. This approach ensures that the EIS/EIR provides a full analysis of alternatives that could reduce impacts to spineflower, consistent with CEQA. In the context of this Alternatives Analysis, these alternatives will allow the Corps to fully consider the interplay between avoidance of aquatic resources and "other environmental impacts" in determining the LEDPA.

⁹ For example, in some development scenarios, complete avoidance of aquatic resources may push development into upland areas that contain sensitive non-aquatic resources. In determining the LEDPA, it is appropriate for the Corps to consider whether in some cases it might be preferable to, *e.g.*, allow the fill of low-value aquatic resources in order to preserve high-value upland resources.

In summary, the overall project purpose for the 404(b)(1) Alternatives Analysis does not expressly include the element of establishing a spineflower preserve. Instead, the Alternatives Analysis treats the requirement of complying with CESA the same as it does the requirements for protecting federally-listed species and other impacts to the non-aquatic environment. Potential impacts and mitigation measures related to spineflower will be considered under the rubric of "other significant environmental consequences."

3.4.3 The Role Of The RMDP

Achieving the Basic Objectives of the Specific Plan necessarily requires development-related infrastructure, including roads, bridges and road crossing culverts, bank stabilization/protection, drainage facilities, water quality control facilities, and trails. The infrastructure is described in the RMDP, which is intended to facilitate implementation of the Specific Plan. In addition, the RMDP describes the conservation and mitigation measures that are intended to ensure that the proposed Project complies with state and federal environmental protection requirements.

However, it is unnecessary to include the RMDP as an element of the overall project purpose for this Alternatives Analysis. To the extent the infrastructure described in the RMDP is necessary to achieve the Basic Objectives of the Specific Plan, the need for that infrastructure is adequately captured by including the Specific Plan Basic Objectives in the project purpose. An alternative that does not allow for development of sufficient infrastructure to achieve the Basic Objectives of the Specific Plan would not be considered practicable. On the other hand, an alternative that achieves the Basic Objectives of the Specific Plan should be explored, and may be considered practicable under the Guidelines (depending on consistency with other criteria), even if it relies on infrastructure/facilities that differ somewhat from those described in the RMDP. Including consistency with the RMDP as an element of the project purpose for this Alternatives Analysis could unnecessarily curtail analysis of such alternatives.

For the same reasons, requiring compliance with the precise conservation and mitigation measures described in the RMDP would define the overall project purpose too narrowly for this Alternatives Analysis. First, to the extent the RMDP addresses aquatic resources, the Corps nonetheless must exercise its independent judgment regarding the level of avoidance and mitigation of impacts that is necessary to comply with the Guidelines. Second, to the extent that the RMDP conservation and mitigation measures pertain to non-aquatic resources, strict adherence to the RMDP could unnecessarily constrain consideration of alternatives that otherwise have the potential to achieve the Basic Objectives of the Specific Plan. Therefore, consistency with the RMDP will not be included as an element of the overall project purpose in this Alternatives Analysis. The conservation goals of the RMDP that address non-aquatic resources will be considered under the rubric of "other significant adverse environmental consequences" similar to the treatment of the proposed spineflower preserve discussed above.

3.4.4 Compliance With Other Regulatory Requirements

As noted above, some of the measures included in the RMDP are intended to comply with the requirements of regulatory programs other than the Corps' section 404 permitting program.

Likewise, the spineflower conservation measures found in the SCP are intended to comply with CESA. In addition, permitting agencies that have jurisdiction over the Project may require further conservation measures. These may include, for example, the conditions of the section 1603 streambed alteration agreement required by CDFG, and any additional conditions imposed by the USFWS to protect endangered or threatened wildlife species.

As with the spineflower conservation and mitigation measures required by CESA, any project modifications required by these agencies would properly be considered as requirements imposed by regulatory programs, rather than as essential elements of the proposed Project itself. Therefore, these measures will not be included in the Applicant's statement of project purpose. Instead, the required measures will be incorporated into whatever alternative is found to be the LEDPA. The conservation goals of these additional regulatory requirements will be analyzed under the category of "other environmental impacts."

3.4.5 Consideration Of Specific Plan Basic Objectives

The County's extensive study and planning that produced the Specific Plan are significant in defining the project purpose under the 404(b)(1) Guidelines. California counties exercise their police powers to regulate the development of land under Article XI, section 7 of the California Constitution. Their authority is broad and inclusive. The California Supreme Court has noted that "[u]nder the police powers granted by the [California] Constitution, counties and cities have plenary authority to govern, subject only to the limitation that they exercise this power within their territorial limits and subordinate to state law." (*Candid Enters., Inc. v. Grossmont Union High Sch. Dist.*, 39 Cal. 3d 878, 885 (1985).)

State law further establishes a comprehensive framework which, among other things, establishes local planning agencies, commissions and departments (Cal. Gov. Code § 65100 *et seq.*); sets standards for preparing general plans and specific plans (Cal. Gov. Code § 65300 *et seq.*); sets standards for zoning (Cal. Gov. Code § 65800 *et seq.*); governs development of subdivisions (Cal. Gov. Code § 66410 *et seq.*); and establishes rules for development agreements (Cal. Gov. Code § 65864 *et seq.*) In addition, each local jurisdiction separately adopts planning and zoning laws and policies. Each city and county regulates every aspect of the scale, intensity, timing and scope of development, including all direct, indirect and cumulative impacts. All development must be done in a manner that is consistent with these requirements and the provisions in a general plan. Other applicable laws include, among others, the Porter Cologne Act (Cal. Water Code § 13000 *et seq.*), which regulates water rights and water quality; and California Fish and Game Code sections, which regulate activities that alter lakes, rivers and streams or that affect threatened and endangered plants and wildlife.

Every detail of a proposed development and its environmental consequences is examined under these and other laws, including CEQA (Cal. Pub. Resources Code § 21000 *et seq.*). CEQA provides comprehensive review of environmental impacts. CEQA requires a lead agency to consider significant environmental impacts, alternatives to the proposed project, and feasible mitigation measures. (Cal. Pub. Resources Code §§ 21001, 21002, 21002.1, 21081.) Mitigation measures must be accompanied by a monitoring program that ensures their implementation. (Cal. Pub. Resources Code § 21081.6.)

Given the extent of local government authority, it is reasonable for the Corps to take into account the years of planning and study that produced the Specific Plan when defining the project purpose. (*Friends of the Earth v. Hintz*, 800 F.2d at 833; *Louisiana Wildlife Federation v. York*, 761 F.2d at 1048.) Specifically, because the Specific Plan represents the fruit of the County's planning efforts and identifies the County's goals for the Specific Plan, it is appropriate for this analysis to include attainment of the Specific Plan Basic Objectives as an element of the overall project purpose under the 404(b)(1) Guidelines.

Taking the Specific Plan into account is consistent with the Corps' regulations, which state that state and local governments have primary responsibility for land use decisions and that the Corps normally accepts those decisions. (33 C.F.R. § 320.4, subd. (j)(2).) Case law also shows that it is proper for the Corps, in defining the project purpose, to take into account the objectives of local land use and planning authorities.

For example, in *Great Rivers Habitat Alliance*, 437 F.Supp. 2d 1019, the Corps issued a section 404 permit to the City of St. Peters, Missouri, to fill wetlands in connection with a mixed use business park project, which also included construction of a levee. The Corps defined the project purpose as, "[T]o construct a new levee providing flood protection to a proposed development area known as Lakeside Business Park . . . for the creation of a new mixed-use development area that would include office/warehouse, manufacturing, office, dining/entertainment, hotel/conference, cultural and recreational uses." (*Id.*, 437 F. Supp. 2d at 1025.) The Corps also determined that the following criteria were necessary elements of the project: "(1) located in the City [of St. Peters]; (2) a total area of approximately 1,200 to 1,400 acres; (3) not . . . adjacent to substantial residential areas; (4) a "usable" area of approximately 500 to 800 acres, excluding rights-of-ways, open space, environmentally unavailable areas, drainage areas, and utilities; and (5) located on an interstate highway or major thoroughfare close to a major intersection with good connections to existing highway arteries." *Id.*

The Corps' project purpose in *Great Rivers* was based primarily on the alternatives analysis commissioned by the City, which explained that "after years of study," the City had determined that the proposed project was the best means of providing a suitable site to accommodate projected future economic growth. (*Id.* at 1025-1026, 1026 n. 11.) The City's determination, in turn, was informed by a number of studies (included in the administrative record) that addressed the ideal size, location and composition of the project. (*Id.* at 1025-1026.)

Plaintiffs challenged the permit, alleging that the Corps had defined the project purpose too narrowly, in order to exclude alternative sites. The court rejected this claim, finding that the Corps properly took into account the City's objectives in defining the project purpose. (*Id.* at 1025-1027.)

Similarly, in *Florida Clean Water Network, Inc., v. Grosskruger*, 587 F.Supp. 2d 1236, the Corps issued a section 404 permit for an airport relocation project. The Corps' project purpose included three objectives, one of which was compatibility with comprehensive planning efforts for the region. (*Id.* at 1244-1245.) The plaintiffs alleged that this element of the project purpose was unduly narrow, because it restricted the sites that could be considered practicable alternatives. The court, however, found that a large infrastructure project such as the proposed

relocation, "[b]y its very nature . . . depends upon forecasted growth . . . and the sheer size of such an undertaking essentially requires that it be commercially viable and consistent with local and regional planning efforts." (*Id.* at 1247.) It was appropriate, therefore, for the Corps to consider compatibility with regional planning efforts in defining the range of possible locations and project configurations that could be deemed to meet the project purpose. (See *id.*)

Like the projects in *Great Rivers* and *Florida Clean Water Network*, the proposed Project is a major investment in infrastructure and development that is intended to accommodate anticipated population growth and economic development based on local and regional land-use planning decisions. The comprehensive nature of land use regulation in California, the complexity of developing a project of this scale, and the interrelated effects on transportation, jobs, housing, recreation, public finance, and open space underscore the importance of the decisions made by the County in approving the Specific Plan. Although the details of the Project may be modified by the section 404 process, the applicant is constrained by the need to maintain consistency with the County's decisions. Consequently, achieving the Basic Objectives of the Specific Plan is a necessary and not incidental component of the project purpose.

The statement of project purpose and need found in the draft EIS/EIR is consistent with this approach. The EIS/EIR states that the project purpose is to "practicably and feasibly achieve the Basic Objectives of the Specific Plan, thereby helping to meet the regional demand for housing and jobs." (EIS/EIR Section 2.0.) This description takes into account the County's planning efforts but allows deviation from the details of the Specific Plan where that deviation does not prevent the accomplishment of the Specific Plan Basic Objectives.

The Applicant, therefore, proposes an overall project purpose for the Alternatives Analysis that incorporates the element of achieving the Basic Objectives of the Specific Plan.

3.4.6 Project Elements Related To Basic Objectives Of The Specific Plan

As permitted by law, the major elements of the proposed Project form part of the overall project purpose. These elements are found in the Specific Plan, which provides for a master planned community with a broad range of residential, mixed-use, commercial and industrial uses, public services (including schools, parks, recreational facilities, fire stations, libraries and worship facilities), and a water reclamation plant, together with preservation of large tracts of open space. (See Specific Plan pp. 1-6.) In addition, the Specific Plan provides for these land uses to be organized into distinct but complementary Villages, each with a balance of land uses and public facilities to serve Village residents and visitors. (Specific Plan pp. 2-18-2-23.)

Each of these elements is a necessary and legitimate part of the Project and is essential to achieving the Specific Plan Basic Objectives; none is incidental to the Project. These elements are contemplated by the Specific Plan and are found in comparable communities. Adding these elements to the goal of achieving the Specific Plan Basic Objectives produces the following statement of the overall project purpose:

A master planned community with interrelated Villages that achieves the Basic Objectives of the Specific Plan with a broad range of residential, mixed-use,

commercial and industrial uses, public services (schools, parks, *etc.*) and a water reclamation plant, together with preservation of large tracts of open spaces.

3.4.7 Size

Whether stated explicitly or implicitly, the size of a project often is an important element of the project purpose and can be critical in evaluating alternatives. For example, a housing development that is too small will not meet the identified market need. A reservoir or hydroelectric power plant that is undersized will not supply its users with adequate water or electricity. A golf course with fairways only 100 yards long will not satisfy the demand for a regulation golf course. (See *USACOE Permit Elevation Decision, Old Cutler Bay Associates* (Oct. 9, 1990).) A runway of insufficient length will not satisfy the demand for an international airport. (*Fla. Clean Water Network v. Grosskruger*, 587 F. Supp. 2d 534.)

At the same time, Corps guidance shows that the size of the project should not be defined more narrowly than is necessary to ensure that the overall project purpose can be achieved. For example, the attainment of a residential development project's basic objectives does not require that the project contain an exact number of housing units. (See *USACOE Permit Elevation Decision, Old Cutler Bay Associates* (Oct. 9, 1990) [rejecting a project purpose which specified the exact number of housing units to be constructed].) Likewise, a reservoir need not contain a *precise* number of gallons of water to accomplish its purpose; a hydroelectric power plant need not generate an *exact* number of megawatts of electricity; and a golf course need not have fairways of *precisely* the length envisioned by the course designer. Thus, although the Specific Plan contains land use statistics that are precise in terms of the acreage and unit count of the anticipated land uses, as shown in Table 3-1, Approved Newhall Ranch Specific Plan Land Use Plan Statistics, below, it would not be consistent with the Guidelines or with Corps guidance to require that an alternative match those figures without deviation.

It is easy to identify the extremes in this discussion -- changes in size that are so large as to be clearly significant, or so small as to be obviously trivial. It is much more difficult to define those points in the middle ground where a change in size just begins to become significant -- *i.e.*, where it begins to interfere with the accomplishment of the project purpose or to turn the project that was proposed into a different project altogether. The Corps must exercise independent judgment in reviewing and approving the project purpose, but "the Corps is not a business consulting firm" and is not in a position to evaluate the needs of an applicant and determine the characteristics of the project that is capable of meeting those needs; it is entitled to give substantial weight to an applicant's analysis of those questions. (*Friends of the Earth v. Hintz*, 800 F.2d 822, 835 [citing *River Road Alliance, Inc. v. Army Corps of Engineers*, 764 F.2d 445, 453 (7th Cir. 1985), *cert. denied*, 475 U.S. 1055 (1986)].)

Table 3-1
Approved Newhall Ranch Specific Plan Land Use Plan Statistics

Land Uses	Gross Acres	Dwelling Units	Second Units ¹	Land Use Overlays	Approximate Acre Allocation
Residential				10 Neighborhood Parks	50 acres
Estate ¹	1,324.0	423	423	5 Elementary Schools	35 acres
Low ¹	744.4	671	0	1 Junior High School	25 acres
Low Medium	1,781.7	6,000	0	1 High School	45 acres
Medium	841.0	7,371	0	1 Golf Course	180 acres
High	121.8	2,319	0	2 Fire Stations	2 acres
Subtotal	4,812.9	16,784	423	1 Library	2 acres
Mixed Use and Nonresidential				1 WRP	15 acres
Mixed Use ²	628.7	4,101	0	1 Lake	15 acres
Commercial	67.2	0	0	3 Community Parks	186 acres
Business Park	248.6	0	0	1 Electrical Substation	2 acres
Visitor Serving	36.7	0	0	Arterial Roads	331 acres
Subtotal	981.2	4,101	0		
Major Open Areas					
High County SMA	4,184.6	0	0		
River Corridor SMA	974.8	0	0		
Open Area	1,010.4	0	0		
Subtotal	6,169.8	0	0		
Total	11,963.9	20,885	423		

Notes:

¹ Within both the Estate and Low Residential land use designation lot, one (1) Second Unit is eligible to be constructed with the approval of a Conditional Use Permit (CUP). This may increase the total number of permitted dwelling units by 423, to a maximum total of 21,308.¹⁰

² Mixed-Use includes commercial and residential uses.

Source: Draft EIS/EIR, Section 4.14, Land Use (April 2009)

¹⁰ The Specific Plan allows up to 423 second units in the Estate Residential land use designation, subject to regulations, including the following: (a) second units are only permitted on issuance of a CUP; and (b) second units must be on the same lot as the primary residence, cannot be subdivided or sold, and must meet other applicable requirements for the Estate Residential land use designation. The Specific Plan's stated purpose for second units is to provide affordable housing opportunities for seniors and extended family members. (Specific Plan, Section 3.9.) The vehicular trips from the 423 second units are already accounted for in the 20,885 total number of allowed dwelling units within the Specific Plan; and, for that reason, the EIS/EIR references the Specific Plan's permitted dwelling unit count of 20,885. In addition, the development footprint would remain the same even if one or more of the 423 second units were allowed under a CUP, because the Specific Plan's regulations require the second units to be on the same lot as the primary residence.

In this case, the size of the proposed Project inherently reflects the project's relation to local and regional needs, land use policies and other planned infrastructure¹¹ and development. (See *Fla. Clean Water Network*, 587 F. Supp. 2d at 1245-1247 [emphasizing the importance of comprehensive regional planning efforts]; *Great Rivers Habitat Alliance v. U.S. Army Corps of Eng'rs*, 437 F. Supp. 2d 1019 [approving a project purpose that required a total area of 1,200 to 1,400 acres, and a developable area of 500 to 800 acres, based on evidence in the record that included City's economic, transportation and demographic studies].) The County has thoroughly evaluated the needs of the region and determined that there is a need for additional housing in the Santa Clarita Valley area of northwestern Los Angeles County, and in particular for housing and complementary uses¹² adjacent to existing transit corridors and proximate to existing regional job centers. The Specific Plan embodies the County's judgment that a large, mixed use project of the approximate size reflected in the Specific Plan offers the best way of meeting that need and achieving the County's Basic Objectives for growth in the region. (See *Great Rivers Habitat*, 437 F. Supp. 2d at 1026-1027, 1027 n.13 [finding that the Corps' project purpose, which reflected the City's judgment that a single large business park was the best means of accommodating economic development, was not arbitrary and capricious, despite plaintiffs' arguments that sufficient growth could be achieved through smaller, scattered developments].)

Given the nature of the planning process that has produced the Specific Plan and the proposed Project, the approved project must be of "approximately the same size" as the development described in the Specific Plan¹³ to accomplish its overall purpose. The term "approximately the same" describes a range of values without precisely defined limits, but some general guidelines will be helpful in assessing whether an alternative is of sufficient size to be capable of meeting the project purpose.

In this analysis, an alternative will be presumed capable of meeting the project purpose (at least with regard to size) if it is within ten percent of the size parameters found in the Specific Plan. Conversely, an alternative will be presumed incapable of meeting the project purpose if it is more than ten percent smaller than the parameters found in the Specific Plan. A ten percent reduction for a project of this size corresponds to a loss of more than 300 net developable acres.

¹¹ An example of planned infrastructure is the planned improvements to Interstate 5 ("I-5") in the vicinity of the proposed Project, including the addition of high-occupancy vehicle ("HOV") and truck lanes, which are intended in part to handle the additional traffic generated by growth in the Santa Clarita Valley, including the Specific Plan area.

¹² Some of the complementary uses provide essential public services to the planned residential community, while others, such as commercial development, allow for the provision of goods, services, and employment opportunities on site, which in turn help achieve the County's goals of reducing traffic generation and trip lengths.

¹³ The proposed Project, Alternative 2, reflects the development parameters described in the Specific Plan, including developable acreage, unit counts, *etc.* Each of the other alternatives considered in this Alternatives Analysis provides less development potential than the proposed Project, in order to allow for greater avoidance of aquatic resources and other sensitive site features.

(Compare *Great Rivers*, *supra*, 437 F. Supp. 2d at 1025 [approving a project purpose that specified a total acreage of 1,200 to 1,400 acres and a developable acreage of 500 to 800 acres].) Regardless of which presumption applies, each alternative will undergo thorough analysis to determine whether it is actually capable of meeting the project purpose.

The concept of "size" as used in the Specific Plan encompasses both the overall land area devoted to each land use (*e.g.*, net developable acreage) and the construction that can occur on that land (*e.g.*, numbers of residential units, square feet of commercial floor space). This dual meaning of "size" reflects the fact that different segments of the real estate industry focus on different aspects of a project. A land developer may focus on net developable acres, as will the developer of a school or other facility that typically requires a minimum acreage. A homebuilder, on the other hand, may focus on the number of residential units that can be constructed.

The use of dual metrics for size also allows for maximum flexibility in considering alternatives. An alternative will not be considered incapable of achieving the project purpose unless it fails to provide either approximately the same developable acreage or approximately the same unit counts as found in the Specific Plan. For example, an alternative that provides 12 percent less developable acreage than described in the Specific Plan, but is within four percent of the Specific Plan unit counts due to increased density, would be presumed to be capable of achieving the project purpose (at least with regard to size).

3.4.8 Location

The final consideration relating to project purpose is whether alternative locations will meet the project purpose. The 404(b)(1) Guidelines make it clear that an alternative location can be a practicable alternative even if the land is not owned by the Applicant. However, any examination of alternative locations must assume certain geographic limits. The issue of geographic scope has been frequently litigated, and the cases discussed above provide useful guidance in defining the geographic scope of potentially practicable alternative sites. (See, *e.g.*, *Great Rivers Habitat Alliance v. Army Corps of Engineers*, 437 F.Supp. 2d 1019 [finding that project purpose properly limited alternatives to sites within city of St. Peters, Missouri, where project was intended to accommodate economic development of city]; *Butte Environmental Council v. U.S. Army Corps of Engineers*, 2009 WL 497575, No. 2-08-cv-1316 [project purpose was to construct a medium to large sized regional business park with associated roads, utilities and infrastructure within the City of Redding's sphere of influence]; *Stewart v. Potts*, 996 F. Supp. 668 [project purpose was to provide an affordable, quality public golf course for the citizens of Lake Jackson]; *USACOE Permit Elevation Decision, Old Cutler Bay Associates* (Oct. 9, 1990) [acceptable project purpose was to construct a viable, upscale residential community with an associated regulation golf course in the South Dade County area].)

The Specific Plan was adopted, after years of study and planning, in order to meet the identified needs of Los Angeles County for housing and related land uses. In light of those needs, and in the context of California's extensive land-use planning framework and the holdings of the cases cited above, alternative sites, to meet the overall project purpose, should be located in the same part of Los Angeles County as the proposed Project. Sites located in other counties or in distant

parts of Los Angeles County do not meet the Basic Objectives of the Specific Plan.¹⁴ For these reasons, alternatives sites must be located in the area generally described as the vicinity of the Santa Clarita Valley in northwestern Los Angeles County.

3.5 APPLICANT'S STATEMENT OF PROJECT PURPOSE

The "basic project purpose" is to provide housing and commercial/industrial/mixed-use development. The basic project purpose is not water dependent.

The "overall project purpose" is the development of a master planned community with interrelated Villages in the vicinity of the Santa Clarita Valley in northwestern Los Angeles County that achieves the Basic Objectives of the Specific Plan by providing a broad range of land uses of approximately the same size and proportions as approved in the Specific Plan, including residential, mixed-use, commercial and industrial uses, public services (schools, parks, *etc.*), a water reclamation plant, and large tracts of open space.

3.6 APPLICANT'S STATEMENT OF PROJECT NEED

The residential and commercial uses approved under the Specific Plan are intended to provide housing and employment to meet anticipated regional population growth. Table 3-1, shown above, provides the statistical breakdown for the Specific Plan. As of January 1996, the State Department of Finance estimated that the population of Los Angeles County had reached 9.37 million. SCAG projections adopted in 1994 forecast that the County would grow to 11.9 million people by 2015. State Department of Finance projections forecast a County population of 12.1 million by 2015 and 12.9 million by 2020.

The addition of Newhall Ranch Specific Plan to all known past and future cumulative development would result in less population and fewer housing units than are projected for the Santa Clarita Valley by SCAG for 2015, but would result in a greater amount of employment, as shown in Table 3-2, Santa Clarita Valley Regional Population Growth, below. Therefore, the Specific Plan is consistent with the Growth Management Element of the SCAG Regional Comprehensive Plan.

The addition of the Specific Plan land uses to the General Plan would result in a jobs/housing balance of approximately 1.30 jobs per housing unit when all General Plan land uses and the Newhall Ranch Specific Plan are built out.

¹⁴ The EIS/EIR screens all potential alternative sites in the vicinity of the proposed Project without regard for whether they are located in Los Angeles County. Indeed, two of the three potentially viable alternative sites analyzed in detail in the EIS/EIR are located in eastern Ventura County. Although this fact alone would prevent the two sites from meeting the project purpose for this Alternatives Analysis, the sites are nonetheless analyzed in detail below and are found to be impracticable for other reasons as well.

Table 3-2
Santa Clarita Valley Regional Population Growth

	Population	Housing Units	Employment
1990 Census	151,052	48,883	51,594
County General Plan Plus Build-out	230,719	82,038	131,398
Specific Plan for Newhall Ranch	59,707	22,038	19,226
SCAG 2015 Projections	552,796	170,657	123,903

Source: Resolution of the Board of Supervisors of the County of Los Angeles Adopting General Plan Amendment and Area Plan Amendment for Newhall Ranch Specific Plan (May 2003).

4.0 JURISDICTIONAL WATERS OF THE UNITED STATES

This section describes the location and extent of waters of the United States within the RMDP site that would be subject to the Corps' jurisdiction under the CWA section 404 regulatory program, including the results of the Hybrid Assessment of Riparian Condition ("HARC") that was conducted in the RMDP site, in order to characterize and evaluate the condition of wetland and riparian habitats within the RMDP site. Delineation of Corps jurisdictional areas is discussed in **Section 4.4**, and the HARC is discussed in **Section 4.5**, below.

4.1 THE SANTA CLARA RIVER

The Santa Clara River is the largest watercourse within the RMDP site, and all other drainages within the site are tributary drainages to this river (see **Figure 4-1**). The river originates in the San Gabriel Mountains in Los Angeles County and flows west through Los Angeles and Ventura counties before discharging into the Pacific Ocean. The river extends approximately 5.5 miles east to west across the RMDP site (Draft EIS/EIR, **Figure 2.0-3**). Major tributary drainages in the Santa Clara River watershed include Castaic and San Francisquito Creeks in Los Angeles County and Sespe, Piru and Santa Paula Creeks in Ventura County. Approximately 40 percent of the Santa Clara River watershed is located in Los Angeles County and 60 percent is in Ventura County. Much of the watershed is in mountainous terrain within either the Angeles National Forest or the Los Padres National Forest.

The river exhibits some perennial flow in its eastern-most stretches within the Angeles National Forest then flows intermittently westward within Los Angeles County. The principal tributary drainages of the upper river watershed in Los Angeles County are Castaic Creek, Bouquet Canyon Creek, San Francisquito Creek, and the South Fork of the Santa Clara River. Placerita Creek is a large tributary draining the western-most end of the San Gabriel Mountains; it joins the South Fork, which flows directly into the Santa Clara River. Castaic Creek is a south-trending creek that confluent with the Santa Clara River downstream of the City of Santa Clarita. Castaic Lake is a Department of Water Resources ("DWR")-owned reservoir located on Castaic Creek. San Francisquito Canyon Creek is an intermittent stream in the watershed adjacent to Bouquet Canyon to the southeast.

The braided Santa Clara River mainstem consists of sandy and gravelly soils and is highly permeable over much of its length, which results in surface water infiltration into the groundwater basin.

The principal sources of water contributing to the base flow of the Santa Clara River are: (1) groundwater from the Alluvial aquifer basin in Los Angeles County, which seeps into the riverbed near, and downstream of, Round Mountain (located just below the mouth of San Francisquito Creek); (2) tertiary treated water discharged to the Santa Clara River from two existing Los Angeles County Sanitation District WRPs, the Saugus WRP, located near Bouquet Canyon Road bridge, which creates surface flows from the WRP outfall near I-5, and the Valencia WRP, located immediately downstream of I-5, which creates surface flows extending through the RMDP site; and (3) in some years, DWR-released flood flows from Castaic Lake into Castaic Creek during winter and spring months. Five additional wastewater treatment

facilities in the lower reaches of the river in Ventura County also discharge secondary- and tertiary-treated water to the river. (RWQCB, 2006.)

Due to the effluent discharges and other water sources, the braided river main stem of the Santa Clara River through the RMDP site flows perennially until upstream of the confluence with Piru Creek, where it generally becomes dry as water seeps through the highly-permeable soils and enters the ground water below the river bed surface. Perennial above-ground flows generally return downstream of the confluence with Hopper Canyon Creek in Ventura County and continue through Piru, Sespe, and Santa Paula Creeks, and into the Oxnard Plain in Ventura County.

The braided, active river main stem channel is largely barren of riparian vegetation due to scouring by seasonal storm flows. However, vegetation types on the adjacent terraces, which vary based on elevation relative to the active channel bottom and flood frequency, consist of emergent herbaceous, woody shrubs, and trees. Within the RMDP site, the Santa Clara River Corridor supports three general categories of habitat: (1) aquatic habitats, consisting of flowing or ponded water; (2) wetland habitats, consisting of emergent herbs rooted in ponded water or saturated soils along the margins of the active channel; and (3) riparian habitat, consisting of woody vegetation along the margins of the active channel and on the floodplain. Both year-round and seasonal aquatic habitats are provided and are subject to periodic disturbances from winter storm flows. These flows inundate areas that are dry most of the year. They also carry and deposit sediment, seeds, and organic debris; form new sandbars and destroy old ones; and erode stands of vegetation. New stands of vegetation are created where vegetation becomes established by seeds or buried stems. Thus, the aquatic habitats of the river are in a constant state of creation, development, disturbance, destruction, and re-creation.

4.2 ASSOCIATED TRIBUTARY DRAINAGES

There are 21 jurisdictional drainages within the RMDP site (including a five-mile reach of the Santa Clara River). The tributary drainages are located within an area that is generally delineated by SR-126 and the lower portions of Chiquito Canyon, San Martinez Grande Canyon, and Homestead Canyon to the north, the Six Flags Magic Mountain Amusement Park to the east, the crest of the Santa Susana Mountains to the south, and the Los Angeles County/Ventura County jurisdictional line to the west.

All of the tributary drainages within the RMDP site are unimproved, with the exception of five drainage crossings under SR-126 constructed as part of the SR-126 roadway widening project completed by the California Department of Transportation ("Caltrans").

Several of the on-site drainages have been mapped as blue-line streams by the U.S. Geological Survey ("USGS"). While it is the intent of USGS to indicate that blue-line streams are flowing perennial streams, in arid states such as California, and particularly in southern California, this is not always the case. For example, the designated USGS blue-line stream in upper Potrero Canyon contains water only during the rainy periods; during non-rainy periods (which is the majority of the time in southern California), flows in this drainage are ephemeral (*i.e.*, flows only in response to storm events). Aside from the lower portions of Salt and Potrero Canyons,

each of the tributary drainages within the RMDP boundary is classified as intermittent¹⁵ or ephemeral.

Similar to drainages in other arid west regions of the United States, the tributary drainages within the RMDP boundary do not occupy a significant percentage of the overall land surface of the RMDP area. (See, e.g., *Save Our Sonoran, Inc. v. Flowers*, 408 F.3d 1113, 1119-23 (9th Cir. 2005) [discussing drainages that ran through entire 608-acre housing development site in Arizona, but occupied only five percent of the surface of the site].)

The majority of the tributary drainages are characterized by both rugged and steeply developed foothills that have numerous smaller tributary canyons that dissect the watershed, connecting to the narrow alluvial valley associated with the main stem drainage. Generally, the soils in the watersheds consist of silty clay loams from both the Castaic and Saugus formations. Also, the soils within the watersheds can be predominately classified as being in hydrologic soil group C (higher runoff potential) with the exception of areas adjacent to the main stem drainages that are group A (lowest runoff potential) and group B (lower runoff potential) in the lower reaches.¹⁶

4.3 POTENTIAL DEGRADATION FROM EXISTING LAND USES

The Applicant leases out portions of the RMDP site for oil and natural gas production, as well as for cattle grazing, ranching, and agricultural operations. Grazing activities and oil and natural gas production, occurring for decades, have disturbed much of the natural habitat on site, including the aquatic features. Scrub habitats have been displaced by annual grasslands as a result of grazing and land clearing for agriculture and other historic land uses. In addition, the RMDP site has been fragmented by dirt and asphalt roads, graded oil well pads and pipelines, and pumping, storage, and transmission facilities.

4.4 WATERS OF THE UNITED STATES WITHIN THE RMDP SITE

The initial URS jurisdictional delineation of the RMDP site identified 492.9 acres of waters of the United States within the RMDP site (see Draft EIS/EIR **Appendix 4.6** for correspondence and documentation relating to the initial URS jurisdictional delineation for the RMDP site that was exchanged between the Applicant and the Corps in 2004). This delineation mapped areas within the Ordinary High Water Mark, but did not include adjacent wetlands. Subsequent modifications, including more refined, higher accuracy mapping of the Ordinary High Water Mark along the Santa Clara River in spring 2004 and a delineation of wetlands in 2007 (see Draft EIS/EIR **Appendix 4.6** for URS' 2009 composite wetlands delineation), yielded an adjusted total of 636 acres of waters of the United States, including 251 acres of Corps wetlands.

¹⁵ Intermittent drainages carry flows due to seasonal high groundwater in addition to storm flows.

¹⁶ Soils are classified by the U.S. Department of Agriculture, Natural Resource Conservation Service, into four Hydrologic Soil Groups based on the soil's runoff potential. The four Hydrologic Soils Groups are A, B, C and D. Soil Group A is generally the lowest runoff potential and Soil Group D the highest runoff potential.

Subsequent to release of the Draft EIS/EIR in April 2009, the Corps and CDFG received comments from the public regarding the boundary of a riparian area along the Santa Clara River mainstem to the north of the proposed bridge site at Potrero Canyon Road. The area in question had been identified in the 2004 delineation as a part of the CDFG's jurisdictional river bank due to the presence of riparian vegetation, but was not included within the delineated waters of the United States as the area is well beyond the ordinary high water mark in a relic channel that is only inundated by storm events with approximately a 20-year return interval. In addition, the area in question is also adjacent to existing roads and agricultural facilities that augment the natural hydrology in the channel. The 2009 composite wetland delineation did not include this area within the mapped wetland boundary, but had based this determination on interpretation of aerial photography rather than on field mapping techniques that would account for modified hydrologic regime. Because the area in question would sustain some level of impact under all alternatives considered, including substantial impacts under Alternative 2, the Corps requested that additional field work be conducted to ascertain the wetland boundary. Staff from URS undertook this effort in December 2009, and produced a revised, field-mapped wetland boundary. As an extension of this effort, the wetland maps for the entire site was reviewed and compared to the overall Corps and CDFG jurisdictional boundaries. Minor areas of mapping discrepancies within the GIS database were corrected to ensure that all wetlands were also included in the overall Corps and as an extension, CDFG jurisdiction boundaries. The updated boundaries yielded an additional 24.11 acres of waters of the U.S., including wetlands. Some areas of non-wetland waters of the U.S. were reclassified as wetlands during this review, which resulted in the total wetlands on site being increased by 25.9 acres.

These changes result in a site-wide total of 660.1 acres of waters of the United States, of which 276.9 acres are wetlands. Of the total Corps jurisdictional waters on the site, 471.2 acres (71 percent) comprise the Santa Clara River Corridor, and the remaining portion represents tributary drainages to the Santa Clara River. Corps jurisdictional acreages within the RMDP site are shown in Table 4-1, below. The smallest, ephemeral drainages on site have been combined into a single heading, and have jurisdictional area totaling 34.4 acres (five percent of total Corps jurisdiction on the RMDP site). These delineations have been compiled and submitted to the Corps in a preliminary jurisdictional determination for the RMDP site. (See Draft EIS/EIR, **Appendix 4.6**, for URS' 2009 preliminary jurisdictional determination for the RMDP site and Entrada planning area.) (See also Final EIS/EIR, **Appendix F4.6**, for the revised jurisdictional determination.).

Table 4-1
Areas of Waters of the United States, Including Wetlands, and CDFG Jurisdictional Streams
Within the RMDP Site by Drainage (In Acres)

Drainage	Non-Wetland Waters of the United States	Corps Wetlands	Total Waters of the United States	CDFG Jurisdictional Streams
RMDP Site				
Santa Clara River	212.5	258.8	471.2	760.3

Salt Creek	79.7	8.7	88.5	94.1
Potrero Canyon	31.4	7.3	38.7	43.0
San Martinez Grande Canyon	2.6	0.0	2.6	2.6
Chiquito Canyon	12.2	0.0	12.2	18.3
Long Canyon	5.7	0.0	5.7	5.7
Lion Canyon	6.9	0.0	6.9	6.9
Other Drainages Within RMDP Site	32.3	2.1	34.4	35.0
<i>Total RMDP Site</i>	383.2	276.9	660.1	965.7

Source: URS (RMDP Waters/Streams-2004, RMDP Wetlands-2009); Glenn Lukos Associates (as revised September 15, 2008); see Draft EIS/EIR, **Appendix 4.6**.

4.5 HARC EVALUATION

The Corps required the preparation of a HARC that would supplement the EIS/EIR impact analysis for the proposed Project and alternatives. The purpose of this assessment is to evaluate the relative functional quality of the jurisdictional areas within the RMDP site, so that direct and indirect impacts of the proposed Project and alternatives on the functional capacity of these waters can be determined and compared. Although this assessment was requested by the Corps, the HARC included all Corps and CDFG jurisdictional areas within the RMDP site. The limits of CDFG jurisdiction were used as the boundaries for the area assessed by the HARC because these areas support riparian vegetation, and are a reasonable approximation of the flood-prone area surrounding the drainages on the RMDP site. Functional assessments are often required to supplement CWA section 404 permit applications when any of the following apply:

- A project site is large;
- The aquatic resources present on site are perceived to be of high value; or
- The Corps believes it is necessary to supplement the traditional alternatives analysis with a function-based assessment.

Because no established functional assessment method exists that fits the Corps' needs in evaluating the aquatic resources on the RMDP site, a hybrid method was developed to suit the needs of the RMDP site. Development of the HARC method included combining and adapting components of three established methods (the Santa Margarita River Hydrogeomorphic ("HGM") approach, the California Rapid Assessment Method ("CRAM"), and the Landscape-Level Functional Equivalent ("LLFA") method) to derive a Project-specific method in coordination with the Corps. For a detailed description of the way these three established methods were blended to create the HARC method, please refer to the HARC report prepared by URS, located in **Appendix 4.6** of the Draft EIS/EIR. The Regulatory Division of the Corps (Los Angeles District) requested that the HARC take into account the following criteria:

- The method must be able to account for differences between the Santa Clara River mainstem and the tributaries;

- The method must be able to assess mitigation and avoidance sites, as well as potential impact areas, and the method must result in scores that rate assessment areas both pre- and post-Project; and
- The method must be based on hydrogeomorphic method principles and other established methods.

Like the hydrogeomorphic method, the HARC evaluates the extent to which wetland or riparian reaches perform various physical, chemical, and biological attributes. The HGM method assesses functions based on mathematically complex models derived through substantial testing. Developing such complex models for the current project would have been beyond the scope of analysis required by NEPA. Attributes assessed in the HARC included general hydrology, biogeochemical, and habitat quality evaluators, as well as an overall total score that incorporates all three of these elements.

A total of 15 field parameters, termed "metrics," were evaluated within each assessment reach and were scored on a scale from zero (completely degraded condition) to one (pristine condition, unaffected by human activities). A total of five hydrological, 10 biogeochemical, and seven habitat metrics were used, although some metrics fall into more than one of these categories. All metrics were assessed at all study sites, but only a relevant subset of the metrics was used for the scoring of each attribute. For a detailed discussion of the criteria used to score each metric, along with the scores assigned to each assessment reach within the Project area, please refer to the HARC report, located in **Appendix 4.6** of the Draft EIS/EIR.

In addition to the attributes and metrics used in the HARC, the HARC also included a total score attribute designed to generate a general, all-encompassing numerical score for each assessment reach. The HARC total score was calculated by computing the arithmetic mean of the 15 metric scores for each reach. The RMDP site was divided into a total of 57 reaches: seven along the Santa Clara River, 15 within the tributaries on the north side of the River, and 35 within the southern tributaries. For a detailed discussion of the assessment reaches and methods, please refer to the HARC report, located in **Appendix 4.6** of the Draft EIS/EIR.

HARC total scores for all reaches are shown geographically on **Figure 4-2**, Existing HARC Scores. All attribute and metric scores were evaluated on a scale of zero to 1.0, and HARC total scores ranged from 0.10 to 1.00. **Table 4-2**, below, shows the number of HARC Area Wide ("AW") scores present in each drainage.

Table 4-2 HARC Summary			
Drainage	Corps Jurisdiction Total Acreage	HARC AW-Total	Avg. HARC Score
Santa Clara River Mainstem			
Santa Clara River	471.2	364.82	0.77
Tributaries			
Lion Canyon	6.9	5.41	0.79
Long Canyon	5.7	3.55	0.62

Chiquito Canyon	12.2	8.2	0.79
Potrero Canyon	38.7	31.6	0.62
Salt Creek Canyon	88.5	71.9	0.67
San Martinez Grande Canyon	2.6	2.1	0.82
Agricultural Ditch	1.6	0.2	0.10
Ayers Canyon	2.6	2.2	0.85
Dead-End Canyon	1.3	0.8	0.60
Exxon Canyon	1.2	1.0	0.82
Homestead Canyon	0.2	0.1	0.59
Humble Canyon	1.9	1.7	0.90
Magic Mountain Canyon	6.4	4.4	0.68
Middle Canyon	5.7	3.2	0.56
Middle Canyon Spring Complex	2.1	2.1	1.00
Mid-Martinez Canyon	2.0	0.9	0.47
Off Haul Canyon	5.8	2.7	0.47
Unnamed Canyon 1	0.3	0.1	0.42
Unnamed Canyon 2	0.3	0.1	0.39
Unnamed Canyon A	0.8	0.5	0.60
Unnamed Canyon B	0.7	0.6	0.85
Unnamed Canyon C	0.7	0.6	0.85
Unnamed Canyon D	0.8	0.7	0.82
Tributary Totals	188.9	144.6	0.77
RMDP Project Area Total	660.1	509.4	0.77

Source: Draft EIS/EIR (April 2009) Appendix 4.6.

The number of HARC AW-score units present is influenced by size as well as quality; for example, Salt and Potrero are two of the largest tributary drainages, and the HARC scores are high. Due to its large size and relatively high quality, the vast majority of the attribute value within the RMDP site is located in the Santa Clara River reaches (Figure 4-2). The presence of very high and low scores suggests that the HARC, in fact, captured the range of riparian conditions present in the RMDP site and was sensitive enough to detect variability among reaches.

For the hydrology, biogeochemical, and habitat attributes, the southern tributaries generally outscored the northern drainages. In general, the scores for these three attributes showed similar geographic trends, and high quality sites were rated as such within each functional category. This correlation between the hydrology, biogeochemical, and habitat attributes is partially because many of the HARC metrics were used in the calculation of more than one attribute score. In addition, the metrics used were detailed enough that impacts to an assessment reach rarely affected only one metric. For example, a reach that has been constrained

by the presence of a road along one bank, such as reach PO-6 (**Figure 4-2**), received reduced scores for the buffer condition, buffer width, floodplain connection, flood prone area, riparian vegetation condition, and riparian corridor continuity metrics. As these metrics are used in the calculations for the HARC hydrology, biogeochemical, and habitat scores, an impact such as this would affect all attribute scores. For a more detailed discussion of the existing hydrology, biogeochemical, and habitat attribute scores, please see the HARC report, included in **Appendix 4.6** of the Draft EIS/EIR.

The HARC identified three distinct wetland types within the Project area: riverine, seep, and slope wetlands. These wetland types are regionally rare, and the latter two types are supported by groundwater discharge. This hydrological situation results in the formation of hydric soils supporting wetland plant communities adapted to alkaline conditions, which often display a high proportion of native plant species. These wetland communities would be difficult to re-create or mitigate elsewhere if impacted by development activities. The six reaches within which these wetlands occur were among the highest scoring reaches across the RMDP site, and included SA-3, SA-4, PO-4, PO-7, MI-5, and MI-6 (**Figure 4-2**). These wetlands also are sensitive to indirect impacts, such as changes in upstream hydrology that may cause a "type conversion" of vegetation (*e.g.*, a *Typha* sp. invasion into an alkali marsh after freshwater flow augmentation), a reduction in flow from expansion of impermeable surfaces, and increased runoff in their respective watersheds.

5.0 FILL OF WATERS OF THE UNITED STATES

This section describes the activities proposed under the RMDP and alternatives that would result in placement of fill material within waters of the United States. These activities would typically be related to installation of roads and infrastructure, including flood conveyance and water quality control facilities, required for the build-out of the Specific Plan. For a detailed description of these facilities, please refer to **Subsection 2.6** of the Draft EIS/EIR.

5.1 INFRASTRUCTURE COMPONENTS WITHIN WATERS

The RMDP and alternatives propose to construct infrastructure in the Santa Clara River and its tributary drainages within the RMDP study area. The major infrastructure consists of debris and detention basins, bank stabilization, bridges, and road crossings. In addition, the existing channels of some drainages would be realigned, recontoured, or converted to buried storm drain systems to accommodate development.

5.1.1 Bridges And Road Crossings

The proposed bridges and roadway crossings are essential to the Specific Plan development, as these facilities would allow vehicle traffic to traverse the site's drainages and circulate within the development area. Proposed bridges across the Santa Clara River also would be necessary from a public safety perspective, as these crossings would serve as points of egress from the site in the event of an emergency. Bridges and road crossings are proposed in all of the alternatives considered in this analysis, but the number, type, and locations of these facilities vary among the alternatives. Generally speaking, bridges would result in lesser impacts to the aquatic environment than culvert-type road crossings, but would have greater costs. The types of bridges and road crossings considered in this analysis are described below. For more information, please refer to **Section 2.0** of the Draft EIS/EIR.

5.1.1.1 Bridges Across The Santa Clara River Mainstem

The proposed RMDP and alternatives propose to construct up to three bridges across the Santa Clara River mainstem to accommodate future traffic associated with development of the Specific Plan and the region. These include two proposed bridges, at Potrero Canyon Road and Long Canyon Road, and one previously-approved bridge at Commerce Center Drive.¹⁷ The Potrero Canyon Road Bridge would serve the most westerly segment of the Specific Plan site, while the Long Canyon Road Bridge would serve the central portion of the site. The Commerce Center Drive Bridge, which was approved by the Corps and CDFG as a component of the previously adopted Natural River Management Plan, or NRMP, would serve the easternmost portion of the Specific Plan site. The locations of the three proposed bridges are shown on **Figure 5-1, Location of Proposed RMDP Santa Clara River Major Features**, and a typical mainstem bridge crossing is depicted on **Figure 5-2, Typical Mainstem Bridge Crossing**.

¹⁷ The Commerce Center Drive Bridge was previously analyzed in the Final EIS/EIR prepared and approved in 1998 by the Corps and CDFG in connection with the previously adopted NRMP (SCH No. 1997061090, August 1998).

The proposed bridges would consist of concrete roadway decks atop concrete, pier walls, columns and/or piers spaced approximately 100 feet apart. Each bridge would require an abutment on either bank of the river, and the bridge piers would be either poured in place or constructed by pile-driving, depending on circumstances. Where pile-driving technology is used, the piers would be constructed without the need to place fill material into waters of the United States. Instead, the piles would be driven sequentially, and equipment would be supported by one pile while driving the next. Where poured-in-place technology is employed, construction equipment would need to enter the riverbed, excavate to suitable depth, and construct forms for the piers, which would then be filled with concrete. This construction method could potentially require dewatering of the channel, if the proposed pier location is within the active channel or if subsurface flows are encountered. Bridge construction using poured-in-place technology would require a work zone of approximately 100 feet on either side of the proposed bridge alignment.

Following completion of the proposed bridges, the structures would be maintenance free under normal circumstances. However, the supports or decks of the proposed bridges may require occasional structural repairs, which might require that work be conducted from within the riverbed. When practical, repairs or maintenance to bridges would be made from the bridge deck; when this is not practical, encroachment upstream and/or downstream of the bridge would be necessary. The work area for structural repairs would be no larger than necessary to complete the work, generally 30 feet on either side of the bridge and under the bridge itself. Access ramps, as necessary, would be placed as close to the repair site as feasible, with preference given to locations with minimal mature vegetation, lacking flowing water, and requiring minimal bank disturbance to create access ramps. Utilities mounted to the exterior of bridge structures may require similar access for maintenance purposes. Where utilities are located within the bridge superstructure, access to utilities will likely be from the bridge deck surface.

After major storms, accumulated debris could present risks to bridge supports. Removing this hazard may necessitate the use of heavy equipment within the channel, depending on the type and quantity of debris at issue.

5.1.1.2 Bridges Across Tributary Drainages

The RMDP (Alternative 2) does not propose any bridges across tributary drainages; but many of the other alternatives include them as a means for reducing the fill impacts associated with culvert drainage crossings (see **Section 5.1.1.3**, below). The design of bridges crossing tributary drainages would be substantially similar to that proposed for bridges across the river mainstem, except that, in many cases, the tributary drainage channels are narrow enough that piers would not be needed. In these cases, fill of waters of the United States would be limited to impacts along the banks caused by the bridge abutments. Where interior supports are needed, the same technologies proposed for the Santa Clara River bridges would be considered (pile-driving, concrete poured in place). Because the bridges crossing tributary channels would be smaller than those proposed across the river mainstem, the construction zone would not be as large, and would extend approximately 60 feet on either side of the bridge. Impacts associated with

maintaining tributary bridges would be similar to bridge maintenance impacts along the river mainstem.

5.1.1.3 Culvert Road Crossings On Tributary Drainages

The proposed RMDP and alternatives would utilize culvert road crossings as an economical and efficient means of allowing vehicle traffic to traverse tributary drainages. These crossings would accomplish the same basic function as bridges across tributary drainages, discussed above, but would result in greater fill of waters. Under the proposed RMDP, 15 new road crossing culverts would cross six of the larger on-site tributaries of the Santa Clara River (Chiquito, San Martinez Grande, Lion, Long, Potrero, and Ayers Canyons). Extension of Magic Mountain Parkway to the west, as envisioned in the approved Specific Plan, likewise would require culvert road crossings on an additional two unnamed drainages. Each road crossing would be constructed of earthen fill and pre-fabricated arched culverts, and would temporarily disturb a 60-foot wide (approximate) corridor on each side of the crossing, in addition to a permanent impact within the actual footprint of the crossing. Following construction, the temporary impact zone would be restored to channel grade and revegetated with native riparian and upland species as appropriate. A typical culvert road crossing is depicted graphically on Figure 5-3, Typical Tributary Road Crossing. Note that under Alternatives 7 and 8, which are more protective of aquatic resources, culvert road crossings are not proposed, and all crossings of tributary drainages would be accomplished using bridges.

5.1.1.4 Widened Bridges And Culvert Extensions

In addition to the new bridges and road crossings described above, the proposed RMDP and alternatives would also widen two existing bridges along SR-126 to accommodate projected future traffic. The first is at the Castaic Creek drainage (six existing lanes would be expanded to eight), and the second is at San Martinez Grande Canyon (four lanes would be expanded to six). One culvert extension is also proposed where the Chiquito Canyon drainage passes beneath SR-126 via a box culvert (four existing lanes would be expanded to six by lengthening the culvert). These widened bridges and culvert extension are components of a Caltrans project to accommodate increased traffic flow along SR-126.

A previously-approved project processed by the Applicant allowed for expansion of the SR-126/Castaic Creek bridge from four to six lanes, which widened the bridge by an additional 50 feet. The proposed RMDP would widen this previously-approved bridge from six to eight lanes. An additional 50 feet of width, plus a separate ten-foot wide pedestrian/bike lane would be located on the south side of the bridge, with utility crossings located on both the north and south sides of the bridge in a 100-foot wide disturbance zone.

5.1.2 Bank Stabilization

Los Angeles County prohibits urban development in areas subject to inundation under the Capital Flood, a hypothetical worst-case storm event the County uses as a design criterion to

ensure adequate flood protection.¹⁸ To meet this requirement and ensure that Specific Plan development is not at risk of loss due to flooding, the RMDP includes bank protection along portions of the Santa Clara River mainstem and the major on-site tributary drainages. The approved Specific Plan contemplates installation of buried bank stabilization along portions of the Santa Clara River to protect development from flood hazards while preserving the river as a natural resource.¹⁹

The proposed bank protection would include buried soil cement, grouted and ungrouted rock riprap, turf reinforcement mats, and limited gunite slope lining around bridge abutments. These types of bank protection can be divided into two different categories, flexible and rigid revetments. UngROUTED rock riprap and turf reinforcement mats are flexible revetment systems that would be used as exposed bank protection in areas without earthen cover where stream velocities are low enough that the stabilization can resist erosive hydraulic forces in a Los Angeles County capital storm. Generally, this would be a maximum stream velocity of 12-14 feet per second ("fps"). Rigid revetments can resist much higher velocities (20+ fps) and erosive forces; however, they do not adjust or move like flexible systems. The bank stabilization improvements would be installed over an approximate 20-year period to coincide with development of individual tracts within the Specific Plan, and in accordance with the Specific Plan's phasing program. All Specific Plan development areas would be raised above the FEMA flood hazard elevation to protect land uses from potential flooding. A typical cross-section of installed buried soil cement bank stabilization is presented on Figure 5-4, Conceptual Design/Soil Cement/Bank Stabilization.

Along the river mainstem, the vast majority of the bank stabilization proposed would be constructed of buried soil cement, although gunite and rip-rap would be used in the immediate vicinity of bridges and storm drain outlets. Installation of buried soil cement would involve placement of fill material in the footprint of the stabilization itself, as well as temporary impacts in the construction zone on the riverward side of the structure. Bank stabilization along the river would be installed under all of the alternatives considered, but the location and extent of the stabilization would vary. However, the bank stabilization would be constructed outside the lateral limits of waters of the United States under all alternatives, and fill of waters would be limited to temporary impacts during construction. By locating bank stabilization outside the active channel, hydrologic impacts of bank stabilization would be reduced under some alternatives. Alternative 7 would avoid placement of bank stabilization within the river's 100-year floodplain.

Along tributary drainages, buried bank stabilization would be installed in post-development channels to limit lateral channel migration and protect adjacent land uses. The construction methods would be identical to those employed along the river mainstem, but the stabilization

¹⁸ The "Capital Flood" is defined as a 50-year storm having greatest rainfall on the fourth day, with a bulking factor to simulate a newly burned watershed.

¹⁹ The approved Specific Plan contains criteria for such drainage and flood control improvements to be followed by projects implementing the Specific Plan. (Specific Plan, May 2003, Chapter 2, pp. 2-71 - 2-75.)

would be constructed within waters of the United States in many cases. The alternatives considered in this analysis would generally reduce impacts from bank stabilization by featuring wider channels, with bank stabilization set back laterally from the active channel. Alternative 7 would avoid construction of bank stabilization within any FEMA-mapped 100-year tributary floodplain (Potrero, Long, Chiquito, and Middle canyons).

For a more detailed description of the bank stabilization proposed, please refer to **Subsection 2.6** of the Draft EIS/EIR for the Project. The configuration of bank stabilization proposed under each alternative, as well as the associated level of impact, is described in **Section 8.0** of this report.

5.1.3 Grade Stabilizing Design Measures And Bank Protection

Due to their existing degraded conditions, portions of the existing major tributary drainages within the RMDP site (portions of Chiquito Canyon, Lion, Long, Potrero, and San Martinez Grande Canyon) would require stabilizing treatments to protect the channel and surrounding development from excessive vertical scour and lateral channel migration. The existing drainages would remain intact, but would sustain permanent and temporary impacts from construction of stabilization elements.

Under each of the alternatives, the five modified drainages described above (Chiquito, Lion, Long, Potrero, and San Martinez Grande) would contain bank and channel-bed protection designed to mimic natural features and use a combination of structural and vegetative methods to provide drainages that are stable, visually aesthetic, and support the desired habitat following Project implementation. The applicant's drainage design objectives include accommodating runoff flows from existing and future development, stabilizing the channel-bed and banks so they do not degrade, protecting proposed adjacent development, implementing improvements compatible with the environment, and allowing access for limited maintenance activities after modifying the tributary drainages. **Figures 5-5, Example of Modified/Engineered Natural Channel**, and **Figure 5-6, Typical Grade Stabilization Structure Design and Installation**, provide examples of modified/engineered drainage channels after stabilizing and revegetating the area. Because grade stabilizing structures would minimize drainage bed lowering, reduce velocities and shear stresses, and improve hydraulic stability, the potential for bank erosion and undercutting would be minimized, thereby reducing the level of bank protection required in the five modified drainages. Various bank protection options are available for the five modified drainages based on specified application criteria.

Drop structures/grade stabilizers and bank protection would be used in the design of the improved drainages within the RMDP boundary. Such improvements are required to accommodate drops in drainage elevation related to development. Construction of such features would likely include large boulders, soil cement or concrete, and generally would mimic natural features in appearance and hydraulic function.

The grade stabilization structures are designed to contain the hydraulic "jump" that occurs when there is a significant drop in streambed elevation, so that higher velocities are dissipated within the area; the structures would help control erosion and changes to the configuration of

the streambed channel. Such structures would be constructed of soil cement, sheet piles, or reinforced concrete.

For a more detailed description of the channel stabilization features proposed, please refer to **Subsection 2.6** of the Draft EIS/EIR for the Project. The configuration of channel stabilization features proposed under each alternative, as well as the associated level of impact, is described in **Section 8.0** of this report.

5.1.4 Water Quality Control Facilities

Pursuant to NPDES requirements, BMPs would be implemented at the RMDP site under all alternatives. These BMPs include the following water quality control facilities: (1) water quality basins; (2) debris basins, located just upstream of the interface between developed and undeveloped areas, primarily to trap debris coming from the upper watersheds; (3) detention basins, which are typically sized to capture the predicted runoff volume and retain the water volume for a period of time (usually 24 to 48 hours); (4) catch basin inserts or screens/filters installed in existing or new storm drains to capture pollutants in the stormwater runoff; (5) bioretention, such as vegetated grassy swales, that provide water quality benefits and convey storm water runoff; and (6) solids separator units or in-line structures that reduce or manipulate runoff velocities such that particulate matter falls out of suspension and settles in a collection chamber. Many of these facilities would be constructed outside waters of the United States or as components of storm drain systems or newly created channels. However, some of the proposed water quality facilities would require work in jurisdictional areas, as described below.

5.1.4.1 Water Quality Treatment/Detention Basins

The RMDP and alternatives propose NPDES water quality treatment/detention basins throughout the RMDP site, although the exact locations vary depending on the configurations of stream channels and development under each alternative. **Figure 5-7, Typical Water Quality Treatment/Detention Basins**, illustrates typical water quality treatment/ detention basins that would be used within the RMDP site. Typically, water quality treatment/detention basins are sized to capture the predicted runoff (first flush) volume and retain the design volume for a period between 24 and 48 hours. Detention basins can be designed with multiple stages to provide both flood control and water quality benefits. The upper stage is designed to store a large volume of runoff to reduce flood peaks. The lower, smaller volume stage provides slower drainage times (longer detention) to promote water quality through the settling of particulates and removal of nutrients, heavy metals, and other pollutants that might be present in the sediment. In most cases, detention basins would be excavated in uplands and located in off-line locations. However, due to the number of basins required and the need to maintain an appropriate gradient between upstream development and the detention basins, construction of detention basins would result in impacts to waters of the United States at some locations.

5.1.4.2 Debris Basins

Post-development, the RMDP site would consist of numerous open drainage channels, buried storm drains, and natural drainage areas fed by the overall watershed. To ensure the proper function of the engineered portions of the storm drainage system, debris basins are proposed in

certain areas where development interfaces with undeveloped areas upstream. The primary function of a debris basin is to trap debris coming from the upper watersheds. Debris basins are proposed in various natural slope and tributary locales in the RMDP area. The precise locations of the basins, including access thereto, would be defined by subsequent tract maps that implement the Specific Plan. However, these facilities would be required under all alternatives considered, and would necessitate construction within waters of the United States. **Figure 5-8, Typical Debris Basin**, illustrates a typical debris basin that would be used within the RMDP study area.

Debris control structures would be constructed downstream of natural watersheds to protect developed area drainage systems from debris flows. The design capacity for such structures would take into account the classifications stated in the debris production maps provided in Appendix A of the DPW 1991 Hydrology Manual. Debris control structure capacity and transportation rates would be based on the specification stated in the DPW Sedimentation Manual. Maintenance of the basins would include the periodic removal of accumulated sediment and other debris.

For a more detailed description of the water quality features proposed, please refer to **Subsection 2.6** of the Draft EIS/EIR. The configuration of water quality features proposed under each alternative, as well as the associated level of impact, is described in **Section 8.0** of this report.

5.2 PROPOSED TRIBUTARY DRAINAGE TREATMENTS

The proposed Project and alternatives incorporate various treatments of tributary drainages to accommodate approved land uses within the RMDP site. In order to optimize the location of development within portions of the RMDP site, mass grading would occur in portions of the northern and southern tributary watersheds. Generally, some higher areas would be graded or "cut" and some lower valley areas would be elevated or "filled," balancing the distribution of cut and fill soil throughout the RMDP site. In many cases, the excavation of native material and placement of compacted fill is necessary to achieve geotechnically-stable development pads. Tributaries requiring grading treatment or other modification have been studied extensively to ensure that the channel designs provide adequate hydrologic and ecological functions and services.

Within the tributary drainages in the RMDP study area, certain drainages would remain undisturbed, while other drainage areas would be graded, reconstructed to a soft-bottom drainage channel with buried bank stabilization along each side of the drainage, or converted to buried storm drain. These conceptual drainage treatments are described below.

5.2.1 Drainages To Be Relocated

Due to the existing degraded conditions within portions of some drainages in the RMDP site (Potrero Canyon, Long Canyon, and portions of Chiquito, San Martinez Grande, and Lion canyons), stabilization of the existing drainages is not feasible. In order to meet the County's flood protection objectives, these drainages would be graded, and a new drainage would be constructed in the same or similar location. The new drainages would be designed to

incorporate buried bank stabilization and grade stabilization, and would have sufficient hydrologic capacity to pass the Los Angeles County Capital Flood without the need for clearing vegetation from the channels. The new channel banks would be planted with riparian vegetation following construction. For a more detailed description of drainages to be relocated, please refer to **Subsection 2.6** of the Draft EIS/EIR. The configuration of drainages proposed for relocation under each alternative, as well as the associated level of impact, is described in **Section 8.0** of this report.

5.2.2 Drainages Converted To Buried Storm Drains

Some of the drainages within the RMDP site, including many of the smaller, ephemeral drainages, would be graded as part of the construction operations required to facilitate build-out of the Specific Plan. The wet-weather flows in these drainages meet the Los Angeles County flood criteria (less than 2,000 cfs) to be conveyed by storm drain. The RMDP does not propose to replace these affected drainages with new drainage channels. Instead, the wet-weather flows that currently occupy the drainages would be routed into the development's storm drain system, and would be discharged to the Santa Clara River via the proposed storm drain outlets. The location of drainages proposed for conversion to buried storm drain under each alternative, as well as the associated level of impact, is described in **Section 8.0** of this report.

5.2.3 Drainages To Be Reconstructed

Where large-scale removal of drainages are not required, the alternatives would integrate the flood control and grade stabilizing measures described in **Section 5.1**, above, to maintain sediment equilibrium and protect the channel bed and banks from hydromodification while providing flood protection to adjacent developed lands. This design methodology is intended to create stable drainage channels that will support the in-channel habitat following project implementation. The approach focuses on developing channel width, depth, slope, and other parameters based on the future flow and sediment regime of each drainage. The intent is to predict stable characteristics, and then use structures and other measures only in those drainage locations where erosional forces would exceed the natural stability of the drainage channel. All such structures (bank and channel bed protection) are designed to mimic natural features and use a combination of structural and vegetative methods to provide drainage channels that are stable, visually aesthetic, and maintain the desired habitat (*i.e.*, riparian, wetland, upland) after project implementation. Road crossing culverts and bridges would cross various drainages, but only where necessary to accommodate the approved Specific Plan circulation system. For a more detailed description of drainages to be reconstructed, please refer to **Subsection 2.6** of the Draft EIS/EIR. The location of drainages proposed for reconstruction under each alternative, as well as the associated level of impact, is described in **Section 8.0** of this report.

5.2.4 Drainages To Be Geomorphically Corrected

In some instances, existing conditions within on-site drainages are such that if no modifications were implemented, excessive vertical scour or lateral channel migration would occur. In these locations, grade control measures are proposed regardless of any need to provide flood protection, as complete avoidance of such drainages would allow existing degradation to

worsen. The grade control measures proposed would include installation of grade control structures, described in **Section 5.1**, above, and could also require recontouring of existing banks to restore stable channel morphology and prevent channel incision. These activities would result in permanent and temporary fill of waters of the United States. For a more detailed description of the drainages to be geomorphically corrected, please refer to **Subsection 2.6** of the Draft EIS/EIR. The location of drainages proposed for correction under each alternative, as well as the associated level of impact, is described in **Section 8.0** of this report.

6.0 OVERVIEW OF ALTERNATIVES ANALYSIS METHODOLOGY

In accordance with the Guidelines, this Alternatives Analysis involves several distinct steps. First, the Corps must analyze off-site and on-site alternatives to determine whether the RMDP is the LEDPA. Once the LEDPA is established, the Corps still must evaluate the RMDP for compliance with the other restrictions on discharge and requirements found in the Guidelines. Consistent with the Guidelines, this Alternatives Analysis employs the following methodology.

6.1 ANALYSIS OF OFF-SITE ALTERNATIVES

The analysis of off-site alternatives began with an evaluation of whether any alternative locations were available that would be able to meet the overall project purpose, as determined by the Corps in consideration of the Applicant's stated project purpose. After potential alternative sites were identified, each site was screened to determine the practicability of constructing a development that would meet the overall project purpose, and to determine whether such construction would result in a less adverse impact on the aquatic environment than construction on the proposed RMDP site. A preferred location (either the proposed RMDP site or a less damaging alternative site) was selected based on the results of this analysis, and was carried forward for analysis of on-site alternatives. The evaluation of off-site alternatives is presented in Section 7.0 of this report.

6.2 SELECTION AND ANALYSIS OF ON-SITE ALTERNATIVES

In accordance with the Guidelines, after a preferred Project location was identified, a range of reasonable²⁰ on-site project alternatives that varied the amount of aquatic resource avoidance were considered. These alternatives were screened against a series of criteria for practicability and environmental impacts, to determine which alternative would result in the least impact on the aquatic ecosystem and avoid significant adverse environmental effects to other resources, while still being practicable. This alternative was identified as the Draft LEDPA, but was derived through a multi-step process described below.

The analysis began with the range of alternatives evaluated in the Corps' Draft EIS/EIR for the Project, but went into greater detail to ensure that the range of alternatives considered was adequate to accurately identify the LEDPA, and that the analysis of alternatives addressed all the factors required by the Guidelines.

Although a thorough alternatives analysis is required, the analysis must remain manageable.²¹ This presented a special challenge for the RMDP, in part, because the proposed Project would have impacts both to jurisdictional waters and to sensitive upland resources such as the protected San Fernando Valley spineflower. Because of this, avoidance of jurisdictional waters would have the potential to shift development into upland areas that might otherwise be used for spineflower mitigation (*i.e.*, spineflower preserves). Given this tension, and the size and

²⁰ The Section 404(b)(1) Guidelines do not "require consideration of the extreme or truly absurd, but only those alternatives that are truly practicable." 44 Fed. Reg. 54224 (1979).

²¹ "It is axiomatic that the Corps need not examine every conceivable alternative." *Simmons v. U.S. Army Corps of Engineers*, 120 F.3d 664, 669 (7th Cir. 1997).

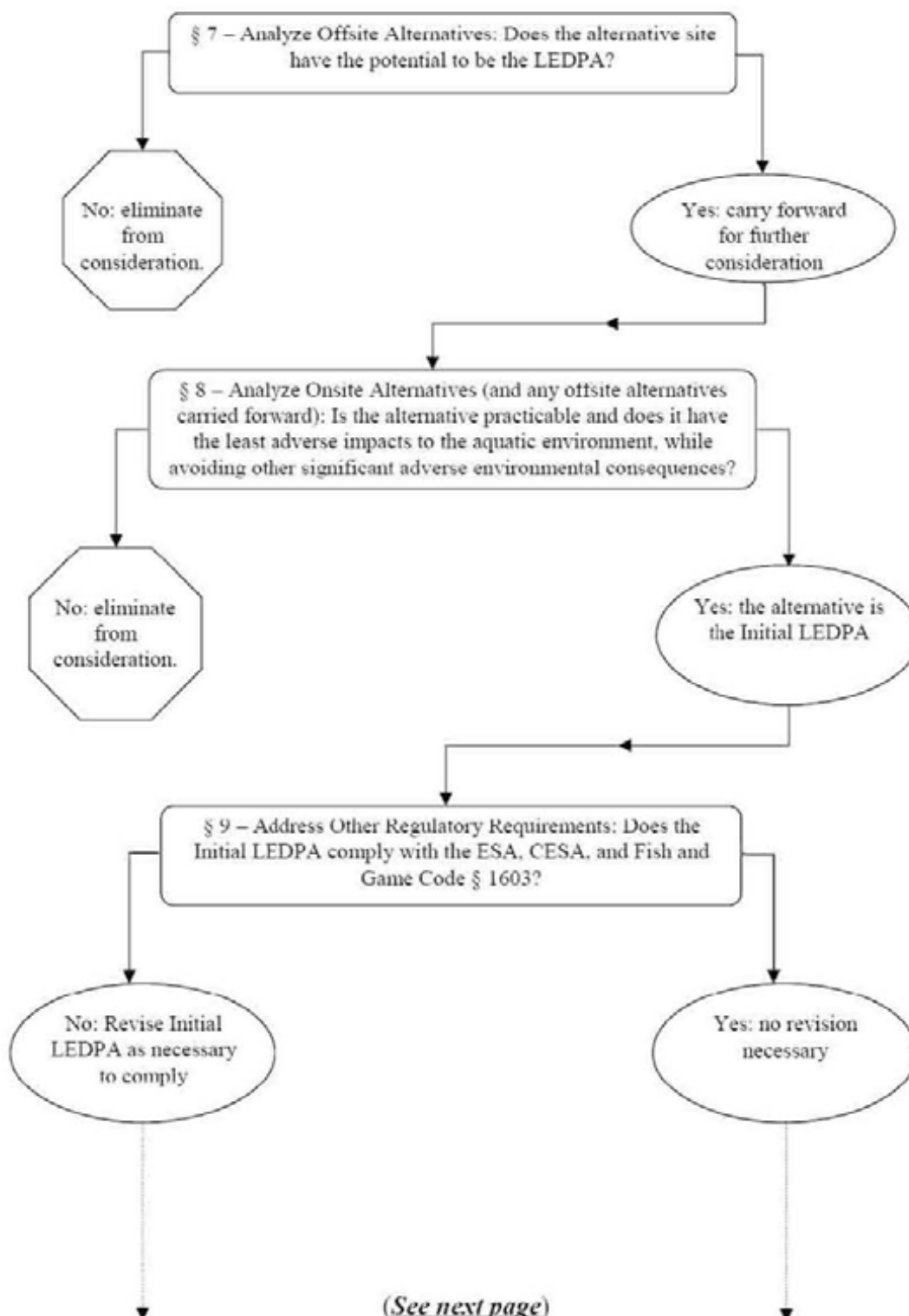
complexity of the RMDP, the number of theoretically possible on-site alternatives is nearly limitless. To balance these demands, the following methods were employed for this Project for analyzing on-site alternatives. A flow chart depicting the process is presented below.

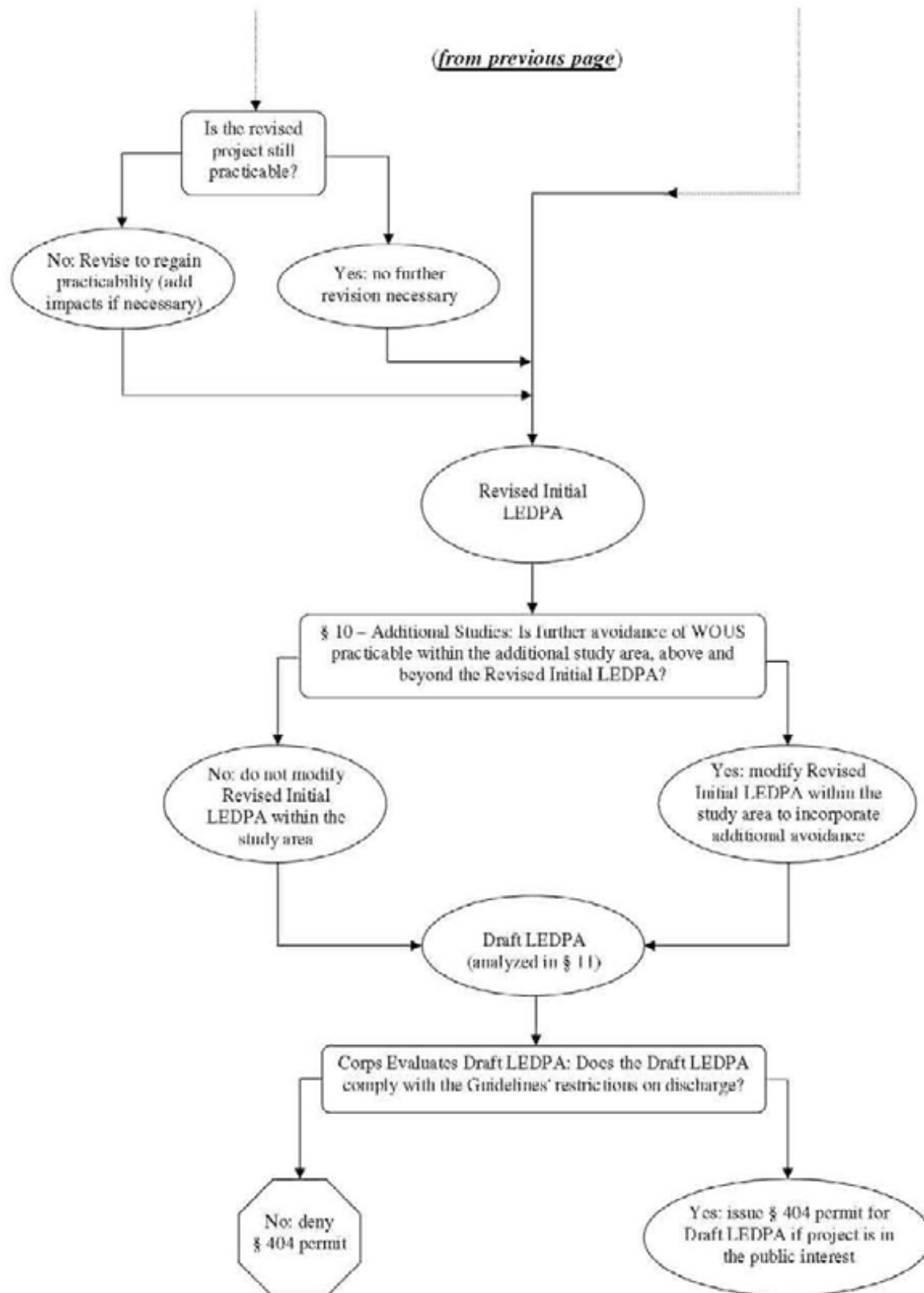
6.2.1 Screening On-Site Alternatives And Determination Of Initial LEDPA

The Corps' Draft EIS/EIR previously selected and analyzed a number of on-site alternatives as required by NEPA , and this range of alternatives was used as the starting point for the analysis of on-site alternatives. A "no fill" alternative, evaluating the possibility of constructing the Project in a manner that would avoid discharges of fill material into waters of the United States was also included. Each of these seven alternatives (six from the Draft EIS/EIR plus the "no fill" alternative) was screened to determine whether the alternative would achieve the overall project purpose, was practicable, and would be less environmentally damaging than the proposed Project. Because the Corps' Draft EIS/EIR contained a comprehensive analysis of most of the alternatives, the Draft EIS/EIR was referenced to avoid redundancy as allowed by NEPA and the CWA. Of those practicable alternatives that would meet the overall project purpose, the alternative with the lowest level of environmental impact was selected. This alternative was termed the "Initial LEDPA." Evaluation of on-site alternatives and identification of the Initial LEDPA is described in **Section 8.0** of this report.

6.2.2 Addressing Regulatory Requirements And Determination Of Revised Initial LEDPA

Although the Initial LEDPA represented the least environmentally damaging practicable alternative among those included in the Draft EIS/EIR, revisions to this alternative were necessary due to the complex and overlapping regulatory framework governing the resources within the RMDP site. The proposed Project would be subject to the requirements of regulatory programs other than the section 404 program, including the CESA requirement to fully mitigate for impacts to state-listed species, including the San Fernando Valley spineflower; CDFG requirements associated with the project's section 1605 Master Streambed Alteration Agreement; conditions imposed by the USFWS to protect wildlife listed as threatened or endangered under the federal ESA; and any other applicable requirements. The Initial LEDPA was modified to address these requirements, and was again screened to ensure that the alternative remained practicable. The resulting configuration was termed the Revised Initial LEDPA. The revisions incorporated into the Initial LEDPA to derive the Revised Initial LEDPA are described in **Section 9.0** of this report.

Methodology for Newhall Ranch 404(b)(1) Alternatives Analysis*(See next page)*



6.2.3 Evaluation Of Sub-Alternatives And Determination Of Draft LEDPA

The final step in determining the Draft LEDPA was to consider small-scale changes to the site plan that could reduce impacts in key areas. Locations such as Potrero Canyon, which contains a substantial acreage of wetlands, were evaluated in greater detail so that fine-tuning of the Project design in those areas to practicably minimize impacts could be evaluated. A total of seven areas warranting this sort of additional analysis were identified, and were termed "Special Study Areas." Within each Special Study Area, a range of location-specific alternatives was considered, including an avoidance alternative, an alternative featuring avoidance except as required for channel stability, and one or more alternatives featuring varying degrees of impact to the aquatic resource. The additional studies focused on the following:

- The practicability of avoiding each of the special aquatic sites located within the RMDP site (Santa Clara River, Potrero Canyon, Salt Creek, Middle Canyon spring complex).
- The practicability of alternative configurations for tributary drainages that would further reduce or completely eliminate fill of waters of the United States (Potrero Canyon, Chiquito Canyon, Long Canyon, San Martinez Grande Canyon, Lion Canyon, Middle Canyon).
- The practicability of further avoidance and minimization of fill of waters of the United States in connection with bridge protection and tributary confluences.
- The practicability of any further avoidance or minimization measures suggested by the Corps.

Where the additional studies revealed that further avoidance was practicable, the Revised Initial LEDPA was modified to accommodate these additional avoidance measures. The configuration resulting from these modifications was identified as the Draft LEDPA. The additional avoidance studies performed and determination of the Draft LEDPA are presented in **Section 10.0** of this report.

6.3 EVALUATION OF DRAFT LEDPA FOR COMPLIANCE WITH THE GUIDELINES

Once the Draft LEDPA was established, the analysis evaluated whether the LEDPA complies with the other restrictions on discharge found in the Guidelines at 40 C.F.R. § 230.10. This process is presented in **Section 11.0** of this report.

7.0 ANALYSIS OF ALTERNATIVE PROJECT LOCATIONS

7.1 INITIAL SCREENING OF POTENTIAL SITES

The Guidelines require the consideration of alternative sites that may be available and suitable for a proposed project, even if not owned by an applicant. "If otherwise a practicable alternative, an area not presently owned by the applicant which could reasonably be obtained, utilized, expanded or managed in order to fulfill the basic purpose of the proposed activity may be considered." (40 C.F.R. § 230.10, subd. (a)(2).)

The Draft EIS/EIR initially identified 23 alternative sites within the region that were considered potentially available. These sites were evaluated using initial screening criteria to determine whether they might have the potential to accommodate the proposed Project. Twenty of the sites were eliminated from further analysis at this stage, for one or more of the following reasons.

- Site is too small to meet the basic objectives of the Specific Plan and accommodate the development approved by the Specific Plan;
- Site is located outside the Santa Clarita Valley market/planning area, which is the area in which the Specific Plan is situated;
- Site is in an isolated location that cannot be connected efficiently with existing infrastructure, which is contrary to the Specific Plan objectives of avoiding leapfrog development and accommodating projected regional growth in a location adjacent to existing and planned infrastructure, urban services, transportation corridors, and major employment centers;
- Site is entitled for development and is actively being planned for development by the current owner or is already under construction.

(See Draft EIS/EIR, pp. 3.0-2 – 3.0-7, **Table 3.0-2**, for a summary of sites considered and reasons for elimination.)

7.2 CRITERIA FOR DETAILED ANALYSIS OF ALTERNATIVE LOCATIONS

Based on the initial screening, the EIS/EIR identified three potential alternative sites that have the potential to meet most or all of the basic objectives of the Specific Plan, consistent with the overall project purpose, and carried them forward for further analysis: Temescal Ranch (Alternative Site A), the Newhall-Ventura Property (Alternative Site B), and Hathaway Ranch (Alternative Site C). This section will evaluate the same three sites using criteria that reflect the requirements of the 404(b)(1) Guidelines. The following criteria have been established to determine whether the alternative locations are available and capable of being used after taking into consideration cost, existing technology, and logistics in light of the overall project purpose, and whether they have the potential to reduce impacts to the aquatic ecosystem without causing other significant adverse environmental consequences.

As will be discussed in more detail below, the Temescal Ranch site and the Newhall-Ventura property are located in Ventura County; and, therefore, are subject to Ventura County's strict

rural lands preservation ordinances. Under these ordinances, the conversion of open space and agricultural land to urban uses is prohibited without voter approval. The Hathaway Ranch site, by contrast, is located in Los Angeles County and is not subject to these same constraints.

7.2.1 Availability

In order for development on a particular site to be practicable, the subject property must be under the Applicant's control or ownership, or reasonably available for acquisition. The Corps' general practice is to assess the availability of alternative sites as of the date of the application for a Corps permit. The application for the Newhall Ranch Specific Plan was filed on September 24, 2003. Therefore, the availability of the alternative sites for acquisition is evaluated as of that date.

A few courts in other circuits have applied a "market entry theory" of availability, under which the availability of alternative sites is evaluated as of the date when an applicant "entered the market" for a site on which to build the proposed project. (See *Bersani v. Robichaud*, 850 F.2d 36 (2nd Cir 1988); *Choate v. U.S. Army Corps of Engineers*, 2008 WL 4833113 (E.D. Ark. 2008).) However, the Ninth Circuit has not accepted the market entry theory, nor have other circuits adopted the theory widely. One problem with the theory is that the date of market entry is difficult to determine in cases where an applicant has owned property for many years prior to proposing development of the site. In these cases, using the date of property acquisition as the date of market entry would lead to absurd results, because it would require an applicant to evaluate the availability of alternative sites as of a date when the applicant may have had no intention of developing the proposed project. The Applicant's ownership of the RMDP site is one such situation.

The Applicant's ownership of the 46,000-acre Rancho San Francisco property, which includes the proposed RMDP site, dates to the late 1800s. During its ownership, the Applicant has conducted extensive agricultural and oil and gas resource development activities on various portions of the property. Because of the Applicant's long ownership and history of different uses, it would be impractical and unreasonable to evaluate the availability of alternative sites for the proposed Project as of the date that the Applicant acquired the Newhall Ranch property. Instead, this analysis uses the date of application for a Corps permit, which approximates the date on which the Applicant reasonably could have considered alternative site locations.

7.2.2 Project Purpose

For an off-site alternative to meet the overall project purpose, the site must: (1) allow the development of a master planned community with interrelated villages, and (2) achieve the Basic Objectives of the Specific Plan by providing a broad range of land uses of approximately the same size and proportions as approved in the Specific Plan, including residential, mixed-use, commercial and industrial uses, public services (schools, parks, etc.), a water reclamation

plant and large tracts of open space.²² Specific criteria used to determine whether off-site locations meet this standard are presented below.

7.2.2.1 Location

- *Is the alternative site located in the vicinity of the Santa Clarita Valley in northwestern Los Angeles County?*
- *Would the alternative site avoid leapfrog development and accommodate projected regional growth in a location that is adjacent to existing and planned urban services, transportation corridors, and major employment centers?*
- *Is the alternative site reasonably proximate to existing or proposed transportation, sewer, water and other utility infrastructure, and capable of being served by that infrastructure?*

7.2.2.2 Size

- *Would the alternative site allow approximately the same net developable acreage as approved in the Specific Plan, along with large tracts of open space?*
- *Would the alternative site allow approximately the same number of units and amount of commercial space (i.e., within 10 percent) as approved in the Specific Plan?*

7.2.2.3 Form

- *Would the alternative site allow the creation of a major new community with interrelated villages that allows for residential, mixed-use, commercial and industrial development, while preserving significant natural resources, important landforms and open areas on the site?*
- *Does the alternative site contain developable parcels sufficiently contiguous to be linked by an efficient and safe circulation design?*

7.2.3 Logistics

Specific criteria used to determine whether development of the Project at an off-site location would be logistically practicable include:

- *Is the alternative site available for development consistent with the Basic Objectives of the Specific Plan, based on such factors as zoning, general plan designations, and other potential obstacles to development?*
- *Would it be feasible to construct the infrastructure necessary for development of the alternative location consistent with the Basic Objectives of the Specific Plan?*
- *Does the alternative site possess adequate water rights or access to water supplies to serve a project that otherwise meets the project purpose? If not, can adequate water supplies be obtained for the site?*

²² Note that only the objectives of the Specific Plan that are most relevant to a comparison of alternative locations have been included in this screening for the overall project purpose criterion. Other objectives more relevant to a comparison of on-site alternatives are not addressed here.

- *Would the alternative site allow for development and transitional land use patterns that would not conflict with surrounding communities and land uses?*
- *Would the alternative location allow the creation of a physically safe environment by avoiding building on fault lines and avoiding or correcting other geologically unstable landforms; by avoiding areas subject to flooding or by constructing flood control facilities to protect urban areas; and by avoiding areas prone to wildfire or implementing appropriate measures to protect against wildfire risk?*

7.2.4 Cost

Specific criteria used to determine whether development of the Project at an off-site location would be practicable in terms of costs include:

- *Would development of the alternative site consistent with the Basic Objectives of the Specific Plan be economically practicable, taking into account acquisition costs, development costs, and construction costs?*
- *Would construction of any required extensions of infrastructure to the site, including roadways, power, and water and wastewater lines, be economically practicable?*

7.2.5 Impacts To Aquatic Ecosystem

Specific criteria used to determine whether development of the Project at an off-site location would result in less impact to the aquatic ecosystem include:

- *Would development of the alternative location result in significantly less impact to the aquatic ecosystem than development on the proposed RMDP site?*

7.2.6 Other Environmental Impacts

Specific criteria used to determine whether development of the Project at an off-site location would result in other significant adverse environmental consequences include:

- *Would development of the alternative location have other significant adverse environmental consequences that would exclude it from consideration, such as impacts to endangered species and/or their habitat?*

7.3 ANALYSIS OF ALTERNATIVE A: TEMESCAL RANCH

The Temescal Ranch site is approximately 7,580 acres in size and is located approximately two miles northwest of the RMDP site in unincorporated Ventura County, northeast of the community of Piru (see **Figure 7-1**, below). Lake Piru, formed within the Piru Creek watershed by the San Felicia Dam at the southern end of the Lake, extends through the northern third of the Temescal Ranch site. Lake Piru serves Ventura County and provides water conservation, flood control, seawater intrusion abatement, groundwater recharge, irrigation, and municipal and industrial water supplies. The Piru recreational area, which provides lake access, is located on the western side of the lake, while the Santa Felicia Dam extends across the southern edge of the lake.

Piru Canyon and Piru Creek traverse the central portion of the site, extending from the dam to the property's southern boundary. The topography of the Temescal Ranch site is highly variable, with elevations ranging from approximately 780 feet AMSL to approximately 3,000 AMSL, with high peaks and valley flood plain area surrounding Piru Creek. Lands along the eastern side of Piru Canyon consist of steep, hilly terrain, while the western side offers gentler slopes and features plateaus overlooking the canyon. Historic uses of the site include cattle grazing, agriculture, and oil production. Other than Lake Piru, the site is undeveloped. Vehicular access is available to the Temescal Ranch site from SR-126, via Piru Canyon Road, but no water or wastewater lines serve the site. A portion of the Temescal Ranch site is within the United Water Conservation District ("UWCD") service area.

7.3.1 Availability

In 2003, the Temescal Ranch site was not listed for sale. The applicant has no other information regarding availability. In the absence of definitive information regarding availability, this analysis assumes that the site may have been available. If other screening factors show that Temescal Ranch is a practicable alternative, further inquiry will be made.

7.3.2 Project Purpose

7.3.2.1 Location

The Temescal Ranch site is located in the general vicinity of the Santa Clarita Valley, but not within Los Angeles County. Instead, it is located in unincorporated Ventura County. As a result, the site would not meet the need for additional housing, employment, and related land uses within Los Angeles County.

Compared to the RMDP site, the Temescal Ranch site is more distant from existing job centers and transit corridors. In addition, Temescal Ranch is not served directly by SR-126 or any other major state highway, and is much farther away from I-5, one of the state's major north-south freeway corridors (**Figure 7-1**). Consequently, the amount of transportation infrastructure needed to reach Temescal Ranch would be substantially greater than that needed for the proposed RMDP site. Travel distances between Temescal Ranch and the surrounding employment centers found in the Santa Clarita Valley would also be greater than at the proposed RMDP site.

Temescal Ranch is also further from existing sewer, water, and other existing utilities than the proposed RMDP site, and would require that such utilities be extended significantly to serve development in accordance with the Applicant's project purpose.

7.3.2.2 Size

The total area of the Temescal Ranch site is 7,580 acres, which is smaller than the 11,999-acre Specific Plan/RMDP site (**Figure 7-1**). Site development constraints also exist on the Temescal Ranch site, including Lake Piru and Piru Creek, which would further limit the area available for new urban development. Because of the need to avoid these features, as well as the topography of the site, the Applicant estimates that only about one-third of the site would be suitable for development. This makes it unlikely that the site would be able to provide approximately the

same amount of development as approved in the Specific Plan. In addition, the smaller size of the site could require the Applicant to acquire off-site property to compensate for impacts to on-site habitat and provide open space comparable to the proposed Project, adding to the cost of development.

7.3.2.3 Form

Assuming that the Applicant could obtain land use approvals for urban development on the Temescal Ranch site, the site would provide developable parcels sufficiently contiguous to support a coherent residential community capable of being linked by efficient and safe circulation design.

7.3.3 Logistics

7.3.3.1 Entitlement

The entire Temescal Ranch is designated as Open Space (80-acre minimum lot size) under the Ventura County General Plan. Because this designation would not allow development comparable to the density/urban uses contemplated by the Specific Plan, a General Plan amendment would have to be obtained to facilitate development consistent with the 'project purpose. In addition, given the configuration of the Temescal Ranch site (with Lake Piru dominating the land in the northern third of the area), existing agricultural areas on site would have to be converted to urban uses.

There are, however, more significant obstacles to entitling any urban development on Temescal Ranch. On November 3, 1998, the Ventura County voters approved the Ventura County Save Open Space and Agricultural Resources ("SOAR") initiative, which limits future development of land in Ventura County. The SOAR initiative requires that land designated as Agricultural, Open Space, or Rural in the County General Plan remain so designated unless redesignated by vote of the people. Although there are some exceptions to the SOAR requirements, they are very limited and none would cover the scope of development contemplated here. The initiative remains in effect through December 31, 2020.

In addition, on October 10, 2000, the County of Ventura and the City of Fillmore jointly adopted by ordinance the Fillmore/Piru Greenbelt ("Greenbelt Ordinance"), the purpose of which is to promote the agricultural and open space land conservation goals and policies contained in the General Plans of the City of Fillmore and the County of Ventura. The Greenbelt designation covers land located between the City of Fillmore and the Ventura County/Los Angeles County boundary, including Temescal Ranch.

As indicated above, development of the Temescal Ranch site would require a general plan amendment, which would have to be approved by the Ventura County electorate. Development proposals requiring a SOAR vote in other nearby Ventura County communities have largely failed at the ballot box, demonstrating that County residents continue to disfavor converting agricultural or open space lands to urban uses. Here, the area to be developed would be a significant distance from the nearest City (Fillmore). This fact makes a Temescal Ranch project even less likely to be approved than past proposals (largely rejected by the voters) that sought merely to expand the development footprint of an existing City. Further, the conversion of

agricultural lands to urban uses is inconsistent with the Greenbelt Ordinance, which promotes preservation of open space and agricultural uses within the Fillmore/Piru Greenbelt. In light of these considerations, it would be extremely unlikely that the County and voters would grant the necessary approvals for development on Temescal Ranch consistent with the project purpose. For this reason, development of the site consistent with the project Purpose is not logistically feasible.

7.3.3.2 Infrastructure

Infrastructure needs associated with developing the Temescal Ranch site were not evaluated in detail. However, infrastructure needed to facilitate development of the Temescal Ranch site would likely be similar to that required for the proposed Project, although proportionately reduced in scale to reflect the somewhat smaller amount of development that would be possible on this site. Construction of this infrastructure would be logistically feasible.

7.3.3.3 Compatibility With Surrounding Land Uses

The Temescal Ranch property is close to the Sespe Condor Sanctuary. Therefore, development of the Temescal Ranch site would have the potential to affect recovery efforts for the California condor that are ongoing at the Sespe Condor Sanctuary. Biological surveys of the Temescal Ranch site were not conducted, but due to the proximity of the site to the Sespe Condor Sanctuary, it is likely that California condors use the site for foraging habitat. As discussed in the Draft EIS/EIR, some aspects of urban development, such as power lines and microtrash, are potentially detrimental to condors within their foraging range. (See Draft EIS/EIR, pp. 4.5-706-4.5-707.) Development of Temescal Ranch would likely reduce condor foraging habitat and cause other hazards to the species. Given that Temescal Ranch is closer than the RMDP site to the Sespe Condor Sanctuary, it would result in greater potential impacts to the California condor and would not be compatible with adjacent land uses.

7.3.3.4 Water Supply

Assuming Temescal Ranch could obtain land use approvals for urban development consistent with the overall project purpose, the potable water demands of Temescal Ranch generally would be the same as the proposed RMDP site. However, Temescal Ranch currently does not have access to water to support development consistent with the overall project purpose. Temescal Ranch is only partially within the service area boundary of UWCD, and is not served by a water retailer. Also, groundwater supplies are likely not of sufficient quantity to serve the development facilitated by the proposed RMDP. Consequently, Temescal Ranch would need to be annexed into the UWCD service area, and would have to either annex to the nearest water retailer service area (in the community of Piru) or create a new water retail agency. Currently, it is UWCD's policy to allow annexation into its service area only if enough water is concurrently brought into the district to serve the development proposed on the annexed land. Given its limited on-site water resources, Temescal Ranch likely would not be eligible for annexation into UWCD, which means that any project on the Temescal Ranch site would likely have to import water. By contrast, the Specific Plan site, which would be facilitated by the RMDP, receives its potable water supplies primarily from the local groundwater basin. Based on the above,

development of the Temescal Ranch site is not logistically practicable given the identified water supply constraints.

7.3.3.5 Public Safety

Past and present uses of the Temescal Ranch site (namely, recreation, oil production, grazing, and some agriculture) are similar in nature to the uses within the Project area. Given its location, Temescal Ranch likely does not contain the number of natural gas and electric transmission lines as exist on the Project area. For this reason, Temescal Ranch has a slightly lower fire risk as compared to the RMDP site. However, a portion of Temescal Ranch is within the potential inundation zone of Santa Felicia Dam, which presents a potential public safety hazard in the unlikely event of catastrophic dam failure. Despite these differences, the Temescal Ranch and the proposed RMDP site are considered similar from a public safety standpoint.

7.3.4 Costs

Costs associated with developing the Temescal Ranch site were not evaluated in detail. On-site development costs associated with the Temescal Ranch site are assumed to be comparable to those for the RMDP area, although fixed costs may be spread across a somewhat smaller development area under this alternative as compared to the proposed Project. Off-site costs for extension of infrastructure would be greater than for the RMDP area because the Temescal Ranch site is located further from existing development and infrastructure. Due to the increased off-site costs, development of the site is considered to be significantly higher. .

7.3.5 Impacts To The Aquatic Ecosystem

Development of Temescal Ranch would have the potential to reduce impacts to the aquatic ecosystem compared to development of the proposed RMDP site, assuming that key aquatic resources such as Lake Piru and Piru Creek were largely avoided. Note, however, that this assumption limits the ability of the site to provide sufficient development area to fulfill the overall project purpose. Additional development could occur if a portion of Lake Piru were filled, but this is not considered a practicable alternative given the importance of this feature for water supply, flood control and other purposes.

7.3.5.1 Water Quality

Both Temescal Ranch and the RMDP site are located within the greater Santa Clara River watershed. Flows from Temescal Ranch reach the Santa Clara River via Piru Creek, while flows from the proposed RMDP site reach the River either directly or through immediate tributary drainages. Temescal Ranch, if developed consistent with the overall project purpose, would likely require its own water reclamation plant similar to the WRP. Further, it is assumed that Temescal Ranch would use reclaimed water on site, and would implement similar BMPs to minimize impacts to water quality and hydromodification. Based these assumptions, water quality impacts associates with development of the Temescal Ranch site would be similar to those associated with development of the proposed RMDP site.

7.3.5.2 Jurisdictional Waters and Streams

Lake Piru encompasses the majority of the jurisdictional area within Temescal Ranch, approximately 995 acres. The largest stream within Temescal Ranch is Piru Creek, which is fed perennially by releases from Santa Felicia Dam at the downstream end of Lake Piru. The on-site jurisdictional area of Piru Creek is approximately 250 acres. In addition to Piru Creek and Lake Piru, Temescal Ranch contains approximately 11.7 miles of intermittent and ephemeral tributary drainages to these waters, constituting an additional 47 acres of jurisdiction.. Development of Temescal Ranch would likely disturb all or most of these additional jurisdictional areas. Assuming, however, that Lake Piru and Piru Creek were largely avoided, development of the site has the potential to reduce impacts to jurisdictional waters compared to the proposed Project, which would permanently affect 93.3 acres of the approximately 660.1 acres of jurisdictional waters of the United States of the United States, and permanently affect 122.3 acres of the total combined CDFG and Corps jurisdictional area of 965.7 acres within the RMDP area.

7.3.5.3 Biological Impacts

The California Natural Diversity Database ("CNDDB") contained one record of the Santa Ana sucker, a federally-listed threatened species, occurring on Temescal Ranch. Development of the site could affect individuals of the species, if present, and could affect habitat for the species. Therefore, the potential for biological effects on the aquatic ecosystem would be similar to that of the proposed Project.

7.3.6 Other Environmental Impacts

Due to its relatively remote location, development within the Temescal Ranch site would likely result in adverse impacts related to traffic, air quality, greenhouse gas emissions, noise stemming from construction traffic and long-term commuter traffic that would exceed those of the proposed RMDP. In addition, the need to extend infrastructure to the site would result in potential adverse impacts to biological, aesthetic, visual, and other resources. The magnitude of these impacts would be significantly greater than those anticipated on the proposed RMDP site. As discussed above, development of Temescal Ranch also would have greater impacts on the California condor than the proposed Project, due to the site's proximity to the Sespe Wilderness and Sespe Condor Sanctuary.

7.3.7 Overall

Development of the Temescal Ranch site consistent with the overall project purpose has the potential to reduce impacts to the aquatic ecosystem compared to the proposed Project, assuming that Lake Piru and Piru Creek were largely avoided. Under this assumption, however, the site would not allow enough development to achieve the overall project purpose. In addition, large-scale development of the site would not be logistically feasible because it would be inconsistent with applicable Ventura County policies and ordinances regarding conversion of land from agricultural and open space uses, and because the site has no readily available source of potable water. Even if these obstacles could be overcome, the site would have significantly higher costs, result in greater environmental impacts to non-aquatic resources

due to its more remote location, the need to extend infrastructure to the site, and the site's proximity to the Sespe Wilderness and Sespe Condor Sanctuary. Therefore, the Temescal Ranch site does not have the potential to be the LEDPA because this site would not meet several basic objectives of the Specific Plan, would not be practicable in light of the substantial increase in infrastructure costs, and would result in other significant adverse environmental consequences in upland areas..

7.4 ANALYSIS OF ALTERNATIVE B: NEWHALL-VENTURA PROPERTY

The Newhall-Ventura property is an approximately 15,000-acre site located in unincorporated Ventura County adjacent to the western boundary of the proposed Project site (See **Figure 7-1**). It is generally bounded by SR-126 on the north, the Santa Susana Mountains on the south, Los Angeles County on the east, and extends approximately two miles west of the community of Piru. The northwest portion of the Newhall-Ventura property encompasses a portion of the Santa Clara River floodplain and extends north of SR-126. Like the proposed RMDP site, the topography of the Newhall-Ventura property is highly variable, with elevations ranging from approximately 630 feet AMSL in the Santa Clara River valley to approximately 3,000 AMSL in the Santa Susana Mountains. Historic uses of the site include cattle grazing, agriculture and oil production. The site is heavily developed with agricultural uses (row crops, citrus, *etc.*) and also maintains a number of rural-type residences and structures. Vehicular access is available to this site from SR-126. The site is within both the UWCD and Castaic Lake Water Agency ("CLWA") service areas; however, no wastewater lines serve the site.

7.4.1 Availability

The Applicant owns the Newhall-Ventura site; and, therefore, the site is available to the Applicant as an alternative site.

7.4.2 Project Purpose

7.4.2.1 Location

The Newhall-Ventura property is more distant from existing job centers and transit corridors than the proposed RMDP site, and is further removed from I-5, one of the state's major north-south freeway corridors. Travel distances between the Newhall-Ventura property and the surrounding employment centers found in the Santa Clarita Valley would be greater than at the proposed RMDP site. In addition, development of the Newhall-Ventura property, consistent with the overall project purpose, would likely necessitate road widening and street infrastructure along SR-126, both adjacent to the Newhall-Ventura property and extending east through the proposed RMDP site.

The Newhall-Ventura property is also further from existing sewer, water, and other utilities than the proposed RMDP site, and would require incrementally greater infrastructure construction to adequately serve development.

7.4.2.2 Size

The total size of the Newhall-Ventura property site is approximately 15,000 acres, which would accommodate the development facilitated by the RMDP.

7.4.2.3 Form

Assuming the Applicant could obtain land use approvals for urban development on the Newhall-Ventura property, the site provides sufficient area to develop parcels into a coherent residential community linked by efficient and safe circulation design.

7.4.3 Logistics

7.4.3.1 Entitlement

The Newhall-Ventura property is currently designated Agriculture (40-acre minimum lot size) and Open Space (80-acre minimum lot size) in the Ventura County General Plan. Ventura County goals and policies, including the Greenbelt Ordinance, restrict conversion of land from agricultural production to urban land uses. A General Plan Amendment to change these designations to urban land use would also require voter approval under the requirements of the Ventura County SOAR initiative, discussed above. As with the Temescal Ranch site, County and voter approval for large-scale urbanization of the Newhall-Ventura site is considered extremely unlikely. Therefore, it is not considered feasible to entitle the site for development consistent with the overall project purpose.

7.4.3.2 Infrastructure

Infrastructure needs associated with developing the Newhall-Ventura property were not evaluated in detail. On-site infrastructure needed to facilitate development of the Newhall-Ventura site would be similar to that required for the Proposed Project, given the similarities in site location, topography, and jurisdictional features. Construction of this infrastructure is considered logistically feasible.

7.4.3.3 Compatibility With Surrounding Land Uses

The Newhall-Ventura property is surrounded by agricultural lands and open space, and is not adjacent to any urban land uses. Compared to the RMDP site, which is adjacent to a large urban area to the east, the potential for conflict with surrounding land uses would be incrementally greater for the Newhall-Ventura property.

7.4.3.4 Water Supply

The Newhall-Ventura property is expected to have the same potable water availability as the proposed RMDP site, given that both properties lie within similar water provider jurisdictions.

Assuming the Applicant could obtain land use approvals for urban development on the Newhall-Ventura property, potable water demands at the site would generally be the same as water demands for the proposed RMDP location. Because the Newhall-Ventura property is adjacent to the proposed RMDP site, and because the Applicant owns both properties and has similar access to groundwater, water availability would be similar in both cases. Overall, the Newhall-Ventura property meets this logistics criterion.

7.4.3.5 Public Safety

Past and present uses of the Newhall-Ventura property (namely oil and natural gas operations, grazing and some agriculture) are similar in nature to those on the RMDP site. The Newhall-

Ventura site has some of the same natural gas and electrical transmission lines traversing it as are found on the RMDP site and both sites are within the inundation area of Castaic Dam. Consequently, potential public safety impacts relating to these uses would be similar on both sites. Given the above, development of the Newhall-Ventura alternative site would be logistically feasible from a public safety standpoint.

7.4.4 Costs

Costs associated with developing the Temescal Ranch site were not evaluated in detail. On-site costs associated with developing the Newhall-Ventura alternative site are assumed to be comparable to costs for the proposed Project. Off-site costs for extension of infrastructure would be greater than for the RMDP area because the Newhall Ventura site is located further from existing development and infrastructure. Due to the increased off-site costs, the cost of developing the site is considered to be significantly higher than for the RMDP area.

7.4.5 Impacts To The Aquatic Ecosystem

7.4.5.1 Water Quality

The majority of the Newhall-Ventura property drains to the Santa Clara River. Intermittent drainages on the site include those in Tapo Canyon, Eureka Canyon, Smith Canyon, the mouth of Salt Creek, and the headwaters of Tripas Canyon. The Newhall-Ventura property would have to be improved with water reclamation, water quality and reclaimed water distribution systems similar to those contemplated under the proposed Project. Based on these assumptions, development of the Newhall-Ventura property would result in water quality impacts similar to those expected from development of the RMDP site.

7.4.5.2 Jurisdictional Waters And Streams

The Santa Clara River runs through the Newhall-Ventura property, just as it does through the RMDP site. In addition, several intermittent drainages drain to the River throughout the site. Because the Newhall-Ventura property and the proposed RMDP site contain similar reaches of the Santa Clara River and tributary drainages, both sites, if developed to meet the overall project purpose, would yield comparable impacts to river geomorphic and hydrologic changes.

The Newhall-Ventura property is located immediately adjacent to the west of the proposed RMDP site and has similar aquatic features, habitat and topography. The Newhall-Ventura property contains approximately 946 acres of the Santa Clara River and 53.8 miles of intermittent and ephemeral drainages that ultimately convey flows to the Santa Clara River, for a total of approximately 990 acres of jurisdictional waters. It is assumed, based on its proximity to the RMDP location, that the Newhall-Ventura property contains palustrine fringe wetlands along the edges of the Santa Clara River. Depressional wetlands also may occur on site, but are likely limited in extent due to relatively steep topography and arid climate conditions.

At approximately 15,000 acres, the Newhall-Ventura site is larger than the proposed RMDP site. Therefore, even though the quantity and quality of jurisdictional streams and wetlands on these two sites are similar, development on the Newhall-Ventura property could be designed to affect a smaller percentage of jurisdictional streams and wetlands. As a result, the Newhall-

Ventura property site could potentially be developed with fewer impacts to jurisdictional streams and wetlands as compared to the proposed RMDP site.

7.4.5.3 Biological Impacts

The CNDDDB indicates that least Bell's vireo, Western yellow-billed cuckoo, and the Santa Ana sucker, among others, have been observed on the Newhall-Ventura property. In addition, the site contains sensitive habitats, including Southern Coast Live Oak Riparian Forest, Valley Oak Woodland, and California Walnut Woodland. Like the RMDP area, the Newhall-Ventura site is within the critical habitat of the endangered least Bell's vireo and contains habitat suitable for the unarmored three-spine stickleback and other riparian species. Given that the proposed RMDP site and the Newhall-Ventura property support similar types and amounts of sensitive habitats and species, the biological impacts to the aquatic ecosystem associated with development of the two sites would be substantially similar.

7.4.6 Other Environmental Impacts

Because the Newhall-Ventura property is slightly larger than the RMDP site and contains similar resource values, on-site impacts of development on this site would be similar to those of the proposed Project. However, because the site is further removed from existing urban services, impacts associated with long-term traffic, including air quality and noise impacts, would be greater under this alternative.

7.4.7 Overall

The Newhall-Ventura site has the potential to reduce impacts to the aquatic ecosystem compared to the proposed Project. However, development of the site would conflict with at least two basic objectives of the Specific Plan, avoiding leapfrog development and reducing vehicle miles traveled, which are components of the overall project purpose. In addition, development of the site consistent with the overall project purpose is not logistically feasible because it would be inconsistent with applicable Ventura County policies and ordinances and, therefore, is extremely unlikely to be approved and, even if these obstacles could be overcome, the site would have significantly higher cost due to off-site costs. Finally, development of the site could have greater adverse effects than the proposed Project in the form of traffic, air quality, and noise impacts due to its greater distance from existing urban centers. The Newhall-Ventura site, therefore, does not have the potential to be the LEDPA because the site would not meet several basic objectives of the Specific Plan and would not be practicable in light of the substantial increase in infrastructure costs. .

7.5 ANALYSIS OF OFF-SITE ALTERNATIVE C: HATHAWAY RANCH

The Hathaway Ranch site is approximately 6,195 acres in size, and is located approximately five miles north of the RMDP site in unincorporated Los Angeles County, generally between the Ventura County line to the west, I-5 to the east, Hasley Canyon to the south, and the Angeles National Forest to the north (see **Figure 7-1**). Topography on the Hathaway Ranch site is highly variable, with elevations ranging from approximately 1,100 feet AMSL to more than 2,500 AMSL; very little flat land exists on this site. According to a slope analysis performed by Hunsaker and Associates ("Hunsaker Technical Memorandum"), both the RMDP site and

Hathaway Ranch have hilly terrain, the chief difference between them is that Hathaway Ranch has a higher percentage of land within the 25-50 percent slope range, while the RMDP site has a higher percentage of land in the 0-25 percent slope range and the >50 percent slope range.²³ Historic uses of the Hathaway site include cattle grazing, oil and natural gas operations, and mineral resource mining. As Hathaway Ranch is undeveloped, no vehicular access is available via improved roadways, and no water or wastewater lines serve the site.

7.5.1 Availability

In 2003, the Hathaway Ranch site was not listed for sale. The applicant has no other information regarding availability. In the absence of definitive information regarding availability, this analysis assumes that the site may have been available. If other screening factors show that Temescal Ranch is a practicable alternative, further inquiry will be made.

7.5.2 Project Purpose

7.5.2.1 Location

Hathaway Ranch lies five miles north of the proposed Project site and is located in the vicinity of the Santa Clarita Valley in northwestern Los Angeles County (**Figure 7-1**). However, Hathaway Ranch is more distant from existing employment centers and transit corridors than the proposed RMDP site. In addition, Hathaway Ranch is not served directly by a major state highway (e.g., SR-126, which serves the proposed Project site) and is further removed from the major north-south freeway corridor in the region, I-5. In fact, no vehicular access to Hathaway Ranch is available via improved roadways. Therefore, the amount of transportation infrastructure needed to reach Hathaway Ranch would be substantially greater than that needed for the proposed RMDP site. Moreover, development of this site would be expected to generate more traffic and vehicle miles traveled than would development on the proposed RMDP site, given its additional distance from job centers.

Hathaway Ranch also is further from existing sewer, water, and other utilities than the proposed RMDP site. Therefore, it would require significantly greater infrastructure construction to extend utilities to the location in order to serve development in accordance with the project purpose.

7.5.2.2 Size

The total area of the Hathaway Ranch site is approximately 6,000 acres, which is approximately one-half the size of the 11,999-acre Newhall Ranch Specific Plan site. For this reason, it would not be possible for the site to provide sufficient development area to meet the development objectives of the Specific Plan while also providing substantial open space and mitigation for habitat impacts. In order to allow sufficient development on site, the Applicant would need to purchase additional property off-site to provide open space and compensate for on-site habitat impacts.

²³ Hunsaker Technical Memorandum, dated February 9, 2010, at p.1. A copy of the Hunsaker Technical Memorandum, including exhibits, is attached as **Appendix 7.0** to this report.

7.5.2.3 Form

Assuming the Applicant could obtain the necessary approvals to develop Hathaway Ranch consistent with the project purpose, the site could accommodate developable parcels sufficiently contiguous to support a coherent residential community capable of being linked by efficient and safe circulation design.

7.5.3 Logistics

7.5.3.1 Entitlement

The Hathaway Ranch property is currently zoned A-2, Heavy Agriculture, by Los Angeles County, with a general plan designation of HM, Hillside Management. Because these designations would not allow development comparable to the density/urban uses contemplated by the project purpose, this Alternative would require General Plan amendments (or a Specific Plan) and rezoning.²⁴ Los Angeles County and the City of Santa Clarita are currently undergoing a multi-phase effort called "One Valley One Vision" or "OVOV" to create a General Plan document to govern build-out of the entire Santa Clarita Valley. (see <http://www.santa-clarita.com/vgp/index.asp>.) As part of that effort, the land use designation for the Hathaway Ranch property is proposed to be changed to NU1/RR1 (Non-Urban/ Rural Residential), which would allow only one dwelling unit per 20 acres. (OVOV Preliminary Land Use Policy Map, Jan. 2010, <http://www.santa-clarita.com/vgp/pdf/OVOV11x17.pdf>.) Both the existing and proposed designations on the Hathaway Ranch site show that the County has envisioned only low density development for this site as part of its regional planning strategy. Thus, the County would not likely approve a General Plan amendment or Specific Plan to allow development consistent with the project purpose on the Hathaway Ranch site.

7.5.3.2 Infrastructure

The *on-site* infrastructure necessary to serve the Hathaway Ranch site, including highways, drainage, sewer, water, and utility distribution systems, would be generally similar to that required to serve the RMDP site, as both properties would support developments of similar size.

The chief difference between the two properties relates to *off-site* infrastructure. Due to its remote location, Hathaway Ranch would require a significant amount of new off-site infrastructure improvements, the cost of which, in terms of additional environmental impact and additional financial burden, is prohibitive.

The following sections discuss in more detail the off-site infrastructure required for development of Hathaway Ranch. All proposed infrastructure for this analysis was assumed to be included in the proposed highway grading footprint, as this is the most cost effective method for providing services to the site. Any services (such as electrical) installed outside of the highway grading would have a greater cost.

²⁴ By way of comparison, the proposed development of the Specific Plan site is consistent with the Los Angeles County General Plan and the Santa Clarita Valley Area Plan.

7.5.3.2.1 Roads, Off-Site Access, And Interchange Improvements

The RMDP site is located adjacent to the freeway system and existing major highways. Therefore, no additional major off-site improvements would be required to connect the site to existing transportation infrastructure, and the only major highway construction associated with the proposed Project would be located within the RMDP site itself.

By contrast, Hathaway Ranch is in a remote location, and off-site improvements would be required to provide access to the site. Austin Foust, traffic engineers, reviewed the site concept and determined that four points of access would be required to service the Hathaway Ranch site. The four access points must be major or secondary highways.²⁵

Connecting the site to these highways would require extensive off-site roadway construction, with substantial costs, including right of way acquisition, and significant environmental impacts, as well as impacts to existing developed properties located between the site and existing roadways. As shown on Exhibit 1 to the Hunsaker Technical Memorandum, the four access roads would total 16.2 miles in length and require 5.8 miles of widening to existing roads (approximate cost \$149 million). Approximately 236 acres of right of way would have to be acquired to construct the roads, and an additional 595 acres of land would be affected as a result of necessary grading.

Road construction would require 87 million cubic yards of cut and 6 million cubic yards of fill, at a cost of approximately \$130 million, resulting in potentially significant traffic and air quality impacts associated with fill disposal. These impacts would be in addition to those associated with road construction generally. Moreover, construction would require the alteration of major ridge lines, thereby resulting in potentially significant visual and grading impacts.

Once constructed, the access routes would traverse primarily undeveloped lands, resulting in potentially significant impacts on aesthetics and visual quality, sensitive biological resources, and archaeological/paleontological resources, as well as impacts to jurisdictional waters at San Martinez Grande, Hasley Creek, and other drainage crossings. Further, three of the access routes (Hillcrest, Sloan Canyon, and Hasley Canyon) would traverse existing development, thereby increasing vehicle traffic through these established neighborhoods and resulting in potentially significant traffic, noise, and air quality impacts.

In addition, improvements to existing highways would be required, as well as improvements to or replacement of two interchanges located on I-5 -- Sloan Canyon (Hughes Road) and Hasley Canyon Road. These interchange improvements represent substantial costs (approximately \$25 million) that would not be incurred in developing the RMDP site.

For purposes of this analysis, all access is assumed to be provided from the south. Additional scenarios in which access would be provided from north and/or west of Hathaway Ranch were studied but eliminated from consideration for the reasons stated below.

²⁵ The roadway improvements necessary to any development on Hathaway Ranch are shown graphically on Exhibit 1 to the Hunsaker Technical Memorandum (see Appendix A).

Hathaway Ranch abuts Angeles National Forest and any northerly access would run through the National Forest, which would not be feasible.

Access to the west through Lake Piru faces practical and political obstacles. The access to Lake Piru would require improvements to existing local/rural roads from Lake Piru to the SR-126 located in Piru, resulting in environmental effects. Such access also creates a jurisdictional anomaly, in that all of the access routes and impacts necessary to serve a project located in *Los Angeles County* would be located within *Ventura County*. Ventura County would not be expected to approve such a proposal, especially in light of its local SOAR and Greenbelt Ordinances, discussed above.

Finally, development of the Hathaway Ranch site would result in longer vehicle trips for residents. According to Austin-Faust, most traffic from the site will move toward I-5 to gain access to the primary employment centers. (Hunsaker Technical Memorandum, at p. 6.) This will require that drivers make a westerly detour of 6.9 miles to SR-126. (*Id.*) From SR-126 to I-5 it is an additional 12.1 miles, resulting in a total detour of 19.0 miles, of which 13.3 miles would be located in Ventura County. (*Id.*)

7.5.3.2.2 Roadway Grading

Grading for the roads accessing the Hathaway Ranch site would include a 120-foot wide roadway width with 2:1 cut and fill slopes to daylight. Remedial grading was assumed to be a uniform 15 feet of removals and/or mitigation over the grading footprint.

7.5.3.2.3 Drainage

As determined in the Hunsaker Technical Memorandum, significant road drainage infrastructure would have to be installed at the Hathaway Ranch site if it were to be developed consistent with the project purpose. Aside from the typical storm drain systems required to collect runoff from the roads, additional costs would be incurred at all crossings with blue line streams. The Hunsaker Technical Memorandum assumed box culverts would be utilized at the crossings. For comparative purposes, an average double 6-foot wide x 6-foot high reinforced concrete box culvert would be used for each crossing. Drainage within the road right-of-way was also included in the road costs.²⁶

Based on these assumptions, Hunsaker determined that the cost of road-related drainage facilities at the Hathaway Ranch site would be \$6,405,000. (Hunsaker Technical Memorandum, at p.10.) Such costs would not be incurred if the proposed project were developed on the RMDP site.

7.5.3.2.4 Sewer

Development on Hathaway Ranch would require sewer improvements consisting of local main lines, pump stations, and a treatment facility. Development on the RMDP site would require

²⁶ While the roads are adjacent to drainage courses, detailed studies have not been prepared, and the roads are assumed to be located outside of the floodplains, and no bank lining is included in the estimates.

similar sewer facilities, so the costs are considered equivalent. However, the Hathaway Ranch site will require the construction of a main line to discharge any treated but unrecycled waste water to the river or other receiving waters. For purposes of estimating costs, Hunsaker assumed that a 24-inch discharge line would be installed, with all appurtenant structures included in the unit price. With these assumptions in place, Hunsaker determined that the added cost to construct sewer infrastructure capable of serving urban development at Hathaway Ranch would be \$6,336,000. Such costs would not be incurred if the proposed Project were developed on the RMDP site. Note also that a new discharge permit would be required for any discharge from the Hathaway site into receiving waters.

7.5.3.2.5 Water

Like the RMDP site, Hathaway Ranch would have to be improved with on-site reservoirs and distribution lines if it is to serve a development consistent with the project purpose. The two sites differ, however, in that Hathaway Ranch would also require new off-site transmission mains to provide potable water to the site. Currently, the site is not located within any provider's service area. However, it does abut two service providers -- Los Angeles County Water District and Newhall County Water District -- and it is assumed that the site could be served by one or both of these districts. To accomplish this and provide redundancy, two 24-inch diameter transmission mains would have to be installed, along with two turnouts and four booster stations. The estimated cost of these water utility improvements is \$18,807,200. (Hunsaker Technical Memorandum, at p. 10.) These costs would not be incurred if the proposed Project were developed on the RMDP site.

7.5.3.2.6 Dry Utilities

All dry utilities necessary to serve development on Hathaway Ranch would have to be brought to the site. Typically, the utility provider will construct and pay for the improvements of the transmission facilities. The cost of the conduit would be a part of the road costs.

Improvements likely to be required include an electrical substation and transmission lines to get the power on site and into the local distribution lines. Similar improvements are anticipated for gas, telephone, and other utilities. Since the costs are the responsibility of the utility provider, costs are not included in this analysis, but it is important to note that the provider will incur additional costs in providing service(s) to Hathaway Ranch.

7.5.3.3 Compatibility With Surrounding Land Uses

As discussed above, in light of its regional planning strategy, Los Angeles County is unlikely to grant the General Plan amendments and zone changes necessary to develop Hathaway Ranch with uses consistent with the project purpose. If such a project were approved, however, it would likely result in significant conflicts with surrounding land uses. The site is directly south of lands within the Angeles National Forest, and north/northwest of lands proposed for low density residential development. (See, *e.g.*, OVOV Preliminary Land Use Policy Map, Jan. 2010, <http://www.santa-clarita.com/vgp/pdf/OVOV11x17.pdf>.) Thus, development of Hathaway Ranch with uses consistent with the project purpose, would be incompatible with adjacent low density and National Forest uses. Conflicts with adjacent uses would include increased light

impacts in the area, increased noise and traffic, and changes in the rural/open space character of the vicinity. Therefore, when compared to the proposed development on the RMDP site, development on Hathaway Ranch would result in greater potential for conflict with surrounding land uses.

7.5.3.4 Water Supply

Assuming Hathaway Ranch could obtain land use approvals for urban development consistent with the project purpose, the potable water demands of Hathaway Ranch generally would be the same as the proposed RMDP site. However, Hathaway Ranch currently does not have access to water to support development consistent with the project purpose. Hathaway Ranch is not within the service area of a retail water purveyor. Also, groundwater supplies are likely not to be of sufficient quantity to serve the development facilitated by the proposed RMDP. Therefore, future annexation actions would be required. By contrast, the Specific Plan site, which would be facilitated by the RMDP, receives potable water supplies primarily from the local groundwater basin. Based on the above, development on the Hathaway Ranch site is not logistically feasible given the identified water supply constraints.

7.5.3.5 Public Safety

Past and present uses of the Hathaway Ranch alternative site (oil production, grazing, and agriculture) are similar in nature to those within the RMDP site. Consequently, potential public safety impacts relating to these uses would be similar as between the two sites. However, given its more remote location, Hathaway Ranch site would not be as affected by natural gas lines and electrical transmission lines; nor is it within the inundation area of the Castaic Dam. For these reasons, public safety impacts would be potentially less on the Hathaway Ranch site than on the RMDP site.

7.5.4 Costs

Costs described in this analysis cover off-site improvements only, and are in addition to the on-site development costs (which are assumed to be similar to the RMDP site development costs). As such, the off-site costs represent costs unique to development of the Hathaway Ranch site (*i.e.*, costs that would not be incurred if the proposed project were developed on the RMDP site). Unit prices for the cost items are based upon the Newhall Ranch cost estimates to maintain consistency. Costs for major improvements such as the freeway interchanges are also based upon Newhall Ranch Specific Plan improvements and are approximations only..

The per-unit cost to acquire rights-of way is assumed to be similar for both sites, and does not account for any improvements on the properties to be acquired. Additional fees required for litigation and/or condemnation proceedings have not been included in this estimate. Acquisition of property outside of the road right-of-way (for slopes and grading) can be reduced by constructing retaining walls.

Finally, as mentioned above, development of Hathaway Ranch, if consistent with the project purpose, would require off-site mitigation for habitat loss and open space, which is an additional cost of development. To determine this cost, this analysis assumes that the Applicant would have to acquire approximately 2,000 acres of open space for mitigation purposes. Based

on this assumption, the cost of acquiring off-site mitigation land was estimated to be \$99,180,000. (Hunsaker Technical Memorandum, at p. 8.)

When the additional development costs of the Hathaway Ranch site are totaled, they come to \$591,269,184 (plus an additional \$99,180,000 for off-site mitigation land).²⁷ Again, these are costs over and above those the Applicant would expect to incur if it developed the proposed project on the RMDP site.²⁸

7.5.5 Impacts To The Aquatic Ecosystem

7.5.5.1 Water Quality

The Hathaway Ranch site includes several tributary drainages to Lake Piru, an important water resource for the region, and development of the site would have the potential to cause water quality impacts to the lake from waste water discharges and sedimentation. To provide a comparison of potential water quality impacts, it is assumed that development of Hathaway Ranch would require its own water reclamation plant, similar to the WRP planned for the proposed RMDP site.²⁹ It is also assumed that, similar to the proposed RMDP site, Hathaway Ranch would create a reclaimed water system where reclaimed water would be used on site, and would implement similar best management practices to minimize water quality and hydromodification impacts. Based on these assumptions, waste water discharges associated with development of the Hathaway Ranch site would be comparable to those associated with the proposed RMDP site. Therefore, water quality impacts associated with development of Hathaway Ranch would be similar to those associated with development of the proposed RMDP site.

7.5.5.2 Jurisdictional Waters And Streams

The Hathaway Ranch site is located in the mountains on the north side of the Santa Clara River Valley and does not contain any major rivers or impoundments. The site contains a total of approximately 25.5 linear miles of intermittent and ephemeral drainages on site, encompassing a total jurisdictional area of approximately 101 acres. Although available information was not sufficient to allow the mapping of wetlands on Hathaway Ranch, it is unlikely that palustrine

²⁷ This figure includes costs associated with the following improvements and tasks: (1) new roadway lengthening; (2) widening of existing roads; (3) right-of-way acquisition; (4) grading slope easement acquisition; (5) mass excavation cut; (6) remedial grading; (7) interchange improvements; (8) drainage improvements; (9) sewer improvements; (10) dry utility installation within roads; (11) record map (design, plan check, and permit fees); (12) construction "soft" costs (soils, geology, and construction staking); and (13) contingency. (Hunsaker Technical Memorandum, at pp. 10-11.)

²⁸ All off-site improvements required for development of Hathaway Ranch are described in Table 2 of the Hunsaker Technical Memorandum (**Appendix A**). The costs associated with these off-site improvements are set forth in Table 3 of the Hunsaker Technical Memorandum.

²⁹ Without this assumption, alternative locations would necessarily appear to have greater impacts than the proposed RMDP site due to storm and waste water discharges that the WRP is intended to prevent.

wetlands exist on the site due to the lack of perennial water sources. Although depressional wetlands may occur on site, these are likely limited in extent due to the relatively steep topography and arid conditions.

The total size of the Hathaway Ranch site is approximately 6,000 acres, and build out of a development facilitated by the proposed Project would require virtually all of the site. This constraint would make avoidance of sensitive aquatic resources difficult, and would likely lead to a high percentage of impacted waters if the site were developed. However, development of Hathaway Ranch would likely disturb fewer total acres of jurisdictional waters than would development of the RMDP site, which contains approximately 660.1 acres of jurisdictional waters of the United States of the United States, and a total combined CDFG and Corps jurisdictional area of 965.7 acres within the RMDP area. The RMDP would result in permanent impacts of 93.3 acres to jurisdictional waters of the United States of the United States, and permanently affect 122.3 acres of the total combined CDFG and Corps jurisdictional, and temporary impacts to 33.3 acres of waters of the United States, and 75.2 acres to the combined CDFG and Corps jurisdictional area.

7.5.6 Other Environmental Impacts

The CNDDB database does not contain any records of sensitive plants or animals on the Hathaway Ranch site, although it indicated that limited patches of a sensitive habitat, Southern Coast Live Oak Riparian Forest, are present. No on-site biological surveys were conducted because the applicant does not control the site; thus, sensitive species may exist within the site that have not been detected. However, because Hathaway Ranch is not located within a County-designated SEA, does not contain known occurrences of listed species, is not within the critical habitat of the endangered least Bell's vireo, and does not have habitat suitable for the unarmored three-spine stickleback or other sensitive aquatic species, development of the Hathaway Ranch site would likely have fewer impacts on biological resources than would development on the proposed RMDP site.

An exception to this general conclusion relates to impacts on the California condor. Due to the proximity of Hathaway Ranch to the Sespe Condor Sanctuary, development of the site could affect ongoing recovery efforts for the California condor. Biological surveys of Hathaway Ranch were not conducted, but it is likely that California condors use the site for foraging habitat. As discussed in the Draft EIS/EIR, some aspects of urban development, such as power lines and microtrash, are potentially detrimental to condors within their foraging range. (See Draft EIS/EIR, pp. 4.5-706-4.5-707.) Therefore, development of the Hathaway Ranch site, if consistent with the project purpose, would likely result in impacts to the California condor due to reduction in foraging habitat and other urban-related hazards. These impacts would be greater at the Hathaway Ranch site than at the RMDP site.

7.5.7 Overall

The Hathaway Ranch alternative site has the potential to reduce impacts to the aquatic ecosystem. However, the site is not currently zoned for urban development, and amending the General Plan to allow high density development of the site would not be consistent with local

and regional planning efforts and is not considered feasible. The site also would not meet the Specific Plan Basic Objectives of avoiding leapfrog development, locating housing proximate to transit corridors and employment centers, and reducing vehicle miles traveled. In addition, because the site is located farther from existing utility and transportation infrastructure, it would require extension of infrastructure that could render the project cost prohibitive. Moreover, these infrastructural improvements would increase adverse environmental impacts. Finally, it may not be practicable to obtain sufficient water supply to serve the proposed project if constructed on the Hathaway Ranch site. Therefore, the site is not a practicable alternative and does not have the potential to be the LEDPA because it would not meet the overall project purpose and would not be practicable in light of the substantial increase in infrastructure costs.

7.6 CONCLUSIONS REGARDING ALTERNATIVE LOCATIONS

The Temescal, Hathaway Ranch and Newhall-Ventura alternatives have the potential to reduce impacts on the aquatic ecosystem compared to the proposed RMDP site. However, none of the sites has the potential to be the LEDPA. Neither the Temescal Ranch site nor the Newhall-Ventura site meets the overall project purpose, as both are located in Ventura County and do not meet the need for development within Los Angeles County. The Hathaway Ranch site conflicts with the overall project purpose of avoiding leapfrog development, reducing vehicle miles traveled and avoiding conflict with surrounding land uses.

In addition, none of the alternative sites meets the logistics criteria. None of the sites is available for development within the timeframe identified, mainly due to restrictions on conversion from agricultural or open space land use designations to urban development, and to potential conflict with the Santa Clarita Valley OVOV plan. Furthermore, the Hathaway Ranch and Temescal Ranch alternatives cannot provide sufficient access to potable water to support a development that meets the overall project purpose, because both would have to rely on speculative water supplies. The Hathaway Ranch and Temescal Ranch alternatives are also much further from existing utilities infrastructure, and would require significant new infrastructure to support development in accordance with the overall project purpose. Likewise, the Hathaway Ranch and Temescal Ranch alternatives are not proximate to existing transportation facilities and, if developed to meet the project purpose, would require the construction of significant additional infrastructure. The Newhall-Ventura site would require at least incrementally additional transportation infrastructure.

Finally, each of the alternative sites would incur additional costs that would render development economically impracticable. Thus, none of the alternative locations merits further consideration as the potential LEDPA.

8.0 ANALYSIS OF ON-SITE PROJECT ALTERNATIVES AND DETERMINATION OF INITIAL LEDPA

This section compares seven on-site alternatives. These include the proposed RMDP (Alternative 2); the five other "build" alternatives evaluated in the Draft EIS/EIR for the Project (Alternatives 3 through 7); and a "total avoidance" alternative (No Fill Alternative), under which a project would be constructed without depositing fill material into waters of the United States. For convenience, the names and numbers of the on-site alternatives evaluated in this analysis are identical to those used in the Draft EIS/EIR for Alternatives 2 through 7. (Because the No Action/No Project alternative, identified as Alternative 1 in the Draft EIS/EIR, is not included in this analysis, numbering of the alternatives herein commences with Alternative 2). Land use plans for the seven alternatives are provided graphically with the discussion of each alternative. At the conclusion of this section, the analysis will identify an Initial LEDPA from among the alternatives considered.

Alternative 2 (the proposed RMDP) would implement the RMDP as proposed by the Applicant and would facilitate development consistent with the approved Specific Plan. The six additional alternatives (Alternatives 3 through 8) address a broad range of different configurations for the major RMDP infrastructure in or adjacent to waters of the United States (Santa Clara River and tributary drainages). The No Fill Alternative addresses the possibility of constructing the RMDP infrastructure and associated development without filling waters of the United States. These alternatives also include different configurations for the spineflower preserves, which, in turn, affect the configuration of infrastructure and development.

Alternatives 3 through 8 focus on avoiding or minimizing impacts to jurisdictional waters. These impacts are primarily associated with construction of major RMDP infrastructure, including bridges, bank stabilization, the grading and realigning of tributary drainages, and the conversion of minor tributary drainages to buried storm drains. Therefore, different configurations for the major RMDP infrastructure are reflected in each alternative. Alternatives 3 through 8 generally reduce the extent of proposed infrastructure compared to Alternative 2, resulting in reduced development and reduced impacts to waters of the United States.

8.1 SCREENING CRITERIA FOR ON-SITE ALTERNATIVES

The 404(b)(1) Guidelines prohibit discharge of dredge or fill materials to waters of the United States if there is a "practicable alternative to the proposed discharge that would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant environmental consequences." (40 C.F.R. § 230.10, subd. (a).) The Applicant has developed screening criteria, described in this section, to determine whether the on-site alternatives described above would be practicable, have less adverse impact on the aquatic ecosystem, or have other significant environmental consequences. The criteria generally are presented in the form of yes/no questions and call for quantitative comparisons unless impracticable.

8.1.1 Screening Criteria For Practicability

The term "practicable," as defined in the 404(b)(1) Guidelines, means "available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes." (40 C.F.R. § 230.10, subd. (a)(2).) Reflecting this definition, this Alternatives Analysis uses four categories of screening criteria to determine whether an alternative is practicable: (1) those related to overall project purposes; (2) those related to costs; (3) those related to existing technology; and (4) those related to logistics.

8.1.1.1 Criteria Related To Project Purpose

To achieve the overall project purpose defined in **Section 3.0** of this Alternatives Analysis, an alternative must be able to achieve the Basic Objectives of the Specific Plan. This requires that the alternative accommodate interrelated villages that provide a range of residential, commercial and industrial uses, schools, parks and recreational facilities, a water reclamation plant and other public services and utilities. It must also preserve large tracts of open space. Screening criteria related to achieving the overall project purpose include:

- **Size** – *Would the alternative provide approximately the same (within 10 percent) net developable acreage as approved in the Specific Plan, or otherwise meet the approximate development targets of the Specific Plan - e.g., through increased density?*

The size criterion takes into account the alternative's potential to provide each of the land uses that is essential to achieving the Basic Objectives of the Specific Plan, including residential uses (acreage and units), commercial uses (acreage and floor space), public facilities (acreage), and open space (acreage).

- **Village Viability** – *Would the alternative allow for the development of interrelated villages, each providing a balanced complement of land uses, services and facilities for residents and visitors?*

The Village Viability criterion takes into account any disproportionate effects on development within a particular village that would render the village incapable of providing a viable mix of land uses and necessary facilities.

8.1.1.2 Criteria Related To Costs

In defining "practicable," the Guidelines do not explain how the Corps is to take cost into account. (See 40 C.F.R. § 230.10, subd. (a)(2).) But the 1980 preamble to the Guidelines clarifies the treatment of cost, stating that alternatives that are "unreasonably expensive to the applicant" or "unreasonably costly" are not practicable. (45 Fed. Reg. 85335, 85343 (Dec. 24, 1980).) The preamble adds, "Our intent is to consider those alternatives which are reasonable in terms of the overall scope/cost of the proposed project." (45 Fed. Reg. 85339.)

The preamble to the Guidelines further indicates that, in assessing cost, the Corps should not consider the particular financial circumstances of the applicant. It is for this reason that the Guidelines use the term "cost" rather than "economic": "[T]he term economic might be construed to include consideration of the applicant's financial standing, or investment, or market share, a cumbersome inquiry which is not necessarily material to the objectives of the Guidelines." (45

Fed. Reg. 85339.) Likewise, Corps permit elevation decisions show that the consideration of cost does not include the particular applicant's ability to earn a profit on a project. See, e.g., *Permit Elevation Decision, Twisted Oaks Joint Venture* (rejecting a project purpose that included "allow[ing] the applicant to realize a profit on [their] investment"); *Permit Elevation Decision, Hartz Mountain Development Corporation* (reversing a permit decision that relied on the applicant's profitability information to screen off-site alternatives); *Permit Elevation Decision, Old Cutler Bay* (stating that what is a "reasonable" cost to bear should be determined by reference to a hypothetical "typical" applicant); *Permit Elevation Decision, Klatt Bog* (reversing a permit decision that evaluated the cost of alternatives in terms of the applicant's ability to realize a "reasonable profit").

The alternatives analysis should use cost metrics that are appropriate to the type of project proposed. For example, in *Friends of the Earth v. Hintz*, 800 F.2d 822 (9th Cir. 1986), the Corps used the cost per unit of materials handled (logs) to evaluate alternatives for a proposed log export sorting yard. In *Sierra Club v. Flowers*, 423 F.Supp. 2d 1273, 1333, 1358 (S.D. Fla. 2006), the court faulted the Corps for *not* using the standard industry metric of "rock yield per acre" to evaluate the cost of alternatives to a proposed rock mining operation.

For a master-planned development project, it is appropriate to use standard industry metrics such as cost per developable acre, that capture the relationship of cost to development potential. Like the cost metrics endorsed by the courts in *Friends of the Earth* and *Sierra Club v. Flowers*, cost per developable acre is an objective measure that is not tied to any subjective or unique characteristic of the applicant. It is thus unlike the cost measures rejected in permit elevation decisions such as *Old Cutler Bay* and *Twisted Oaks*, which relied on profitability. Cost per net developable acre is based on verifiable information that is neither proprietary nor applicant-specific. In addition, it allows a direct and meaningful comparison of the relative costs associated with alternatives of different sizes or different amounts of development potential, in a way that total project cost does not. Therefore, it is well-suited to evaluating whether the costs associated with additional avoidance are reasonable, compared either to the typical costs for that type of project or to the applicant's proposed project.

The total cost per net developable acre for the proposed Project and alternatives includes the following costs:

- (1) Site Development Costs:
 - (a) Record Map Costs:
 - (i) Construction drawing preparation
 - (ii) Grading
 - (iii) Street
 - (iv) Storm drain
 - (v) Sewer
 - (vi) Water

- (vii) Reclaimed water
 - (viii) Dry utilities
 - (ix) Plan check fees
 - (x) Permit Fees
 - (b) Land Development Costs:
 - (i) Site development costs to get to blue top improvements
 - (ii) Grading
 - (iii) Streets
 - (iv) Storm Drain
 - (v) Sewer
 - (vi) Water
 - (viii) Reclaimed water
 - (viii) Dry utilities
 - (ix) Engineering certification costs
 - (c) Landscape Costs
 - (i) Landscape and irrigation of disturbed areas.
 - (ii) Landscape and irrigation of street medians and parkways
 - (iii) Landscape and irrigation of parks
- (2) Infrastructure costs
- (a) Costs for design and construction of major and secondary roadways within the project boundary
 - (b) Utilities within right-of-way.
 - (c) Bridges included where appropriate.
 - (d) Costs for design and construction of Newhall Ranch WRP
 - (e) Design and construction of utility corridor between Newhall Ranch WRP and existing WRP #32
 - (f) Potable and reclaimed water tanks
 - (g) Freeway improvements SR 126 and I-5

Further detail regarding the basis of analysis for the Newhall Ranch RMDP project alternatives is provided in Appendix 8.0, "Newhall Ranch 404B1 Cost Analysis Procedure", June 2010, prepared by Hunsaker & Associates.

In light of these considerations, screening criteria related to project costs include:

- **Cost** – *Would the costs associated with the alternative be reasonable for a project of this type?*

In order to help determine what magnitude of costs would be reasonable for a project of this type, the Applicant commissioned a comparison of development costs for master-planned communities from Developers Research, an economic consultant. Developers Research prepared a report that provides cost data for eight master-planned communities located in Southern California that are representative of lot improvement costs for this region. (Newhall Ranch - Database Study of Lot Improvement Costs For Representative Master Planned Communities May 6, 2010 ("Comparison Report"), attached as Appendix 8.0 to the Alternatives Analysis.) For these purposes, a master-planned community is one that, in addition to residential uses, includes other land use components such as commercial, retail or office. The Comparison Report also includes cost data for seven additional projects for which only information on residential components is available.

As shown in the Comparison Report, the size and costs of these representative projects vary widely, both for master planned communities and for residential-only communities.

- a. Among the eight representative master-planned communities located in the Southern California region, the cost per net developable acre ranges from a low of \$493,889 to a high of \$928,504.
- b. The average (mean) cost per net developable acre among the eight master-planned communities is \$707,784 (unweighted). Weighted to reflect the relative size of the various projects (*i.e.*, larger projects are given more weight than smaller projects in determining the average), the average cost per acre is \$673,114.
- c. Among the seven representative residential projects located in the Southern California region, the cost per net developable acre ranges from a low of \$388,335 to a high of \$1,097,298.
- d. The average (mean) cost per net developable acre among the seven residential projects is \$724,152 (unweighted). Weighted to reflect the relative size of the various projects (*i.e.*, larger projects are given more weight than smaller projects in determining the average), the average cost per acre is \$573,843.
- e. For comparison, the cost of the proposed Project is \$1,038,000 per net developable acre. Overall, the size, complexity and cost per net developable acre of the Newhall Ranch Project are at the upper end of both master-planned communities and residential communities for those criteria.

These data show that development costs for master-planned communities vary widely. Although each master-planned community must establish certain basic elements such as roads, parks, schools and homes, the cost to provide these elements depends on a wide range of factors, including the size of the project, the regulatory standards of the local land use authority, the physical setting (*e.g.*, topography), the availability of infrastructure (*i.e.*, existing utilities and roads), the kind of community being built (urban, suburban or rural) and environmental

considerations (e.g., presence of sensitive environmental features). Given the wide variance in these factors, there is no "typical" cost for a master planned community. Instead, what is a "reasonable" cost for developing a given master-planned community will depend on the unique needs of that community given its physical and regulatory environment.

Given the site-specific nature of development costs and the fact that the cost of the proposed Project is already outside the typical range for master-planned communities in this region, it is appropriate to consider the costs associated with the proposed Project (Alternative 2) as a baseline for evaluating the reasonableness of costs associated with alternatives. The proposed Project reflects the Specific Plan, which is the product of intensive planning and study by local, state and federal agencies. It complies with all applicable land use regulations and incorporates extensive measures to avoid, minimize and mitigate adverse environmental effects, including effects on aquatic resources. The Draft EIS/EIR found that it would have no significant adverse impacts on water quality. As such, the proposed Project represents a reasonable basis for evaluating the additional costs associated with further avoidance and minimization of effects on aquatic resources.

Accordingly, the Alternatives Analysis uses the proposed Project as the base case for evaluating the reasonableness of development costs. Alternatives that have a substantially higher overall cost per net developable acre will be eliminated. In addition, the Alternatives Analysis will examine sub-areas within the Specific Plan (the Additional Studies found in **Section 10.0**) to evaluate whether additional avoidance is practicable with regard to those features. The Additional Studies look at increased costs within each sub-area, taking into account the degree of additional avoidance that is attainable and the need to go beyond standard engineering practices in order to achieve it.

To put into perspective the effect of increasing cost per net developable acre relative to the proposed Project, a 20 percent increase in cost per net developable acre compared to the proposed Project is approximately \$207,000 per acre. An increase of 10 percent is approximately \$103,500 per acre, and an increase of five percent is approximately \$51,750 per acre. If these increased *per-acre* costs are applied to the 2,957 acres of development in the proposed Project, the total increases in development cost are \$612,000,000, \$306,000,000, and \$153,000,000, respectively. These increases in total overall costs must be viewed in light of the amount of additional avoidance of waters of the United States that they make possible. A significant cost increase may be reasonable if impacts also are reduced significantly, while a large increase in cost associated with a minimal reduction in impacts may not be reasonable.

Based on all of the above considerations, we have selected an increase in cost per net developable acre of five percent, compared to the proposed Project, as the threshold for screening alternatives. This approximates the same cost per acre as the highest-cost project in the Comparison Report and represents an increase of approximately \$153,000,000 in total development costs. Costs beyond this threshold are not reasonable for a project of this type.

8.1.1.3 Criteria Related To Technology

All of the alternatives evaluated in this analysis are capable of being accomplished using existing technology, without the need for prerequisite technological advancements. The limits of existing technology are, therefore, not useful discriminating factors for distinguishing among the alternatives, and no screening criteria related to technology are assessed.

8.1.1.4 Criteria Related To Logistics

The planning of large, master-planned urban developments that include residential and commercial uses, public facilities and necessary services is a complex process. Proper consideration of logistics is essential for the eventual success, safety, and desirability of the new community. Logistical failures could result in safety hazards or lack of critical services (e.g., unsafe circulation networks, insufficient water supplies, poor emergency response times, and insufficient flood protection), and in many cases would be noncompliant with County development standards. Screening criteria related to logistics include:

- **On-site Traffic Circulation** – *Would the alternative provide for safe, efficient internal circulation and adequate access to existing adjacent road networks?*
- **Flood Protection** – *Would the alternative provide adequate flood conveyance and detention for flood events up to and including the 100-year event?*
- **Water Treatment and Reclamation** – *Would the alternative provide adequate capacity for water treatment and reclamation?*
- **Grading Balance** – *Would the alternative avoid major exports of grading spoils from the RMDP area that would result in other adverse impacts to the environment?*

Note: Given the scale of the proposed Project, major exports of grading spoils from the RMDP area would result in "other environmental impacts" that would render the alternative unacceptable under the Guidelines. Such impacts include traffic and air quality effects (from haul truck emissions). In addition, major exports have the potential to render an alternative impracticable due to cost considerations. For these reasons, all on-site alternatives have been designed to avoid major exports of grading spoils from the RMDP area.

8.1.2 Screening Criteria For Impacts To The Aquatic Ecosystem

The aquatic ecosystem comprises the chemical, physical, and biological components that sustain life within bodies of water. Plant and animal communities are dependent on these components and may be disrupted by chemical, physical, or biological perturbations. For example, physical changes in water temperature or substrate condition may cause an aquatic area to become unsuitable for a particular species; and chemical changes, such as the introduction of pollutants, could prove deleterious to aquatic life. Biological changes, such as increases or decreases in the distribution or abundance of species, can have profound effects on the overall composition of a site through predation, competition, and other interspecies interactions.

In accordance with the 404(b)(1) Guidelines, this document analyzes both direct impacts and secondary effects on the aquatic ecosystem. Direct impacts include those effects that result from

the actual placement of dredged or fill material into waters of the United States. Secondary effects are those effects that are associated with a discharge of dredged or fill materials but do not result from the actual placement of the fill material, such as surface runoff from development that occurs on fill. (40 C.F.R. § 230.11, subd. (h).) However, the Corps considers indirect/secondary impacts as interchangeable and the impacts are not generally considered by the Corps to be separate and distinct.

Implementation of the proposed Project and alternatives would involve placing varying quantities of fill material into waters of the United States on site, including the Santa Clara River mainstem and tributaries. These activities could affect the physical structure of the watercourses and the functions provided by those waters.

8.1.2.1 Effects On Chemical Characteristics Of The Aquatic Environment

The proposed Project and alternatives would involve large-scale construction operations and would result in permanent changes to the channels and watersheds of most tributary drainages within the RMDP site. During construction, concentrations of sediment (Total Suspended Solids ("TSS") and turbidity), nutrients, heavy metals, and pesticides in tributary drainages could potentially be altered when vegetation removal, grading, and trenching activities expose soils to wind and water erosion. On a long-term basis, many of the on-site watersheds would be largely comprised of impervious surfaces following build out of the Specific Plan, and natural drainage patterns would be replaced with engineered paths reaching the tributaries via storm drains and detention basins. Screening criteria related to chemical components of the aquatic environment address water quality impacts and loss of biogeochemical function.

8.1.2.1.1 Water Quality Impacts

The proposed Project and alternatives would change most of the RMDP drainages. These changes could contribute to increased runoff volumes and velocities, increased levels of pollutants in runoff, and other factors, which in turn have the potential to affect water quality characteristics, such as circulation, suspended particulates, and turbidity. Water quality characteristics are sometimes referred to as chemical characteristics of waters of the United States. Screening criteria related to water quality include:

- **Water Quality** – *Would the alternative's impacts on the quality of the waters of the United States be significantly less than those of the proposed Project, taking into account water circulation, suspended particulates and turbidity, and other changes that might result from the project?*

8.1.2.1.2 Loss Of Biogeochemical Function

Due to the size and complexity of the proposed Project, and due to the high value of the site's aquatic resources, a customized functional assessment was prepared to supplement the evaluation of fill acreages. This assessment – termed the HARC (see **Appendix 4.6** to the Draft EIS/EIR) -- was specifically designed to suit the Corps' needs in evaluating the proposed RMDP, and was used to evaluate the existing functional condition of all waters of the United States within the site. The HARC method is based on three established and accepted functional

assessment methods: (1) the hydrogeomorphic method traditionally used by the Corps; (2) the California Rapid Assessment Method employed by the CDFG; and (3) the Landscape Level Functional Assessment method employed on SMAs in Southern California. The HARC assessment measured a suite of physical, chemical, and biological indicators to yield a total "HARC score" for each reach, thus indicating the overall quality of each jurisdictional area within the RMDP site. These scores were assessed on a scale ranging from zero (theoretical completely degraded condition) to 1.0 (theoretical completely pristine condition).

Because each jurisdictional area on site was evaluated and assigned a HARC score, and because these scores are numerical in nature, it is possible to use the HARC scores as a "weighting factor" to distinguish impacts on high-quality resources from impacts on low-quality resources.

For example, if a project were to result in five acres of impact on each of two theoretical waters of the United States on site, an evaluation based purely on acreage would indicate that the impacts to the two sites would be equal (each site sustaining the same five acres of impact). However, if the two sites were of different quality and had differing HARC scores, say, 0.33 and 0.66, respectively, then an analysis using the HARC scores as a weighting factor would indicate a greater impact at the higher quality site. (Five acres at 0.33 would total 1.65 HARC-weighted acres affected, whereas five acres at 0.66 would total 3.3 HARC-weighted acres affected).

To discern losses of biogeochemical function, the HARC biogeochemical score was used as a weighting factor applied to the acreage of waters of the United States impacted by the Project. Screening criteria related to biogeochemical function include:

- **Biogeochemical Function** -- *Would the alternative's impacts on biogeochemical function of waters of the United States be significantly less than those of the proposed Project, as measured by the HARC assessment?*

8.1.2.2 Effects On Physical Characteristics Of The Aquatic Environment

Implementation of the proposed Project and alternatives would involve placing varying quantities of fill material within waters of the United States on site, including the Santa Clara River mainstem and tributaries, and would facilitate urban development in surrounding uplands. These activities would have the potential to affect the physical structure of the tributaries, both through immediate re-shaping during construction and by altering the flow regimes that shape the stream channels over time. In addition, the range of activities proposed would affect the functional condition of on-site waters through alterations of the streams and surrounding sub-watersheds. Screening criteria related to physical components of the aquatic environment have been divided in to three categories: (1) those related to acreages permanently or temporarily filled; (2) those related to long-term geomorphic effects on substrate and sediment dynamics; and (3) those related to effects on hydromorphic functions and services.

8.1.2.2.1 Permanent And Temporary Fill Of Waters Of The United States

Under the proposed Project and alternatives, permanent impacts to waters of the United States would occur in areas where permanent facilities, such as bridges and bank stabilization, are proposed for installation, or where grading or filling would occur within waters of the United

States. Temporary impacts generally would occur adjacent to permanent impact areas due to construction disturbance. These temporary impact areas would be restored and revegetated after completion of construction activities. In other cases, temporary impacts would occur as a result of beneficial activities, such as corrective recontouring of incised channels and other restoration practices. For a more complete description of the types of fill activities proposed and the associated levels of impact, please refer to **Section 5.0** of this report.

The evaluation of permanent and temporary fill effects focused on the location and extent of waters of the United States that would be eliminated by the proposed fill. The HARC scores for the impacted waters of the United States were also considered, to provide an assessment of the overall functions and services lost due to fill activities. Special aquatic sites received additional consideration in this analysis because of their important role in the aquatic ecosystem and the special presumption that applies to these sites under the Guidelines. Screening criteria related to permanent and temporary fill within waters of the United States include:³⁰

- **Permanent and Temporary Fill** -- *Would the alternative's permanent and temporary fill of waters of the United States be significantly less than that of the proposed Project?*
- **Avoidance** -- *Would the alternative's avoidance of waters of the United States site-wide be significantly greater than that of the proposed Project?*
- **Fill in the Santa Clara River** -- *Would the alternative's permanent and temporary fill of waters of the United States in the Santa Clara River mainstem be significantly less than that of the proposed Project?*
- **Fill in On-site Tributary Drainages** -- *Would the alternative's permanent and temporary fill of waters of the United States in on-site tributary drainages be significantly less than that of the proposed Project?*
- **Fill in Special Aquatic Sites** -- *Would the alternative's permanent and temporary fill of waters of the United States in special aquatic sites (wetlands) be significantly less than that of the proposed Project?*

8.1.2.2.2 Effects On Substrate And Sediment Dynamics (Geomorphic Effects)

Changes (natural or otherwise) to the watershed and within the floodplain of a drainage can cause a variety of adverse or beneficial outcomes, including altered sediment production, storage, and transport through the stream corridor. In watercourses with natural beds and banks, physical characteristics such as channel shape and size are driven by interrelated erosional and depositional sediment processes. Because the proposed Project and alternatives would substantially affect many of the on-site drainages and surrounding watersheds, these alternatives may alter the sediment dynamics in the affected streams. In the long term, changes in the supply of sediment reaching the bed and banks of a drainage may alter the width and depth of the drainage, as well as the bank morphology. For example, an increase in hydraulics might change the course of a drainage, cause the drainage to become deeper or wider, increase

³⁰ Under all of these criteria, HARC scores were used to determine loss of stream function.

scour, or cause stream banks to fail. On a larger scale, decreases in sediment production from stream and river systems can result in inadequate recruitment of sand onto ocean beaches, thus exacerbating losses of beach sand due to tidal erosion. Criteria related to substrate and sediment dynamics include:

- **Effects on the Substrate and Sediment Dynamics of the Santa Clara River** – *Would the alternative's impacts on the geomorphology of waters of the United States in the Santa Clara River be significantly less than those of the proposed Project?*
- **Effects on the Substrate and Sediment Dynamics of Tributary Drainages** – *Would the alternative's impacts on the geomorphology of waters of the United States in on-site tributary drainages be significantly less than those of the proposed Project?*
- **Effects on Beach Replenishment** – *Would the alternative's impacts related to the recruitment of sand on beaches in Ventura County be significantly less than those of the proposed Project?*

8.1.2.2.3 Loss Of Hydrologic Function

Hydrologic functioning of on-site drainages is affected by many factors, including the source of water; the duration and magnitude of flows (hydroperiod); whether flows reach the floodplain; the presence of flow restrictions, the duration of ponding within the creek or on the floodplain; and the width of the floodplain. Circulation and fluctuation of water are also considered components of hydrologic function. The HARC hydrology score (see **Appendix 4.6** to the Draft EIS/EIR) is an indicator of the relative extent to which the assessment reaches on site perform this function. Lost hydrologic function due to the proposed fill was calculated by applying the HARC hydrology score as a weighting factor to the acreages filled. Screening criteria related to hydrologic function include:

- **Hydrologic Function** – *Would the alternative's impacts to the hydrologic function (using HARC hydrology function scores) of waters of the United States be significantly less than those of the proposed Project?*

8.1.2.3 Effects On Biological Characteristics Of The Aquatic Ecosystem

Waters of the United States within the RMDP area, consisting of the Santa Clara River mainstem and several tributaries, support a wide range of aquatic and riparian plants and wildlife species, including sensitive vegetation communities and federally-protected species. In addition, a portion of the site generally adjacent to the river mainstem has been designated as critical habitat for the least Bell's vireo (*Vireo bellii pusillus*; 59 FR 4845). By filling or altering waters of the United States on site, the proposed Project and alternatives could induce changes affecting the recolonization and existence of indigenous aquatic organisms or communities. Due to the broad range of potential impacts that the proposed Project and alternatives could have on biological components of the aquatic ecosystem, groups of screening criteria have been crafted to assess effects on riparian vegetation, effects on : sensitive aquatic and riparian wildlife, loss of habitat function, fish, crustaceans and other aquatic organisms, other wildlife, and riparian vegetation. Note that biological resources inhabiting mostly uplands are not considered part of

the aquatic ecosystem; screening criteria related to these resources are presented in **Section 8.1.3.1** of this report.

8.1.2.3.1 Effects On Sensitive Aquatic And Riparian Wildlife

Waters of the United States within the RMDP site, particularly the perennially-flowing Santa Clara River mainstem, provide habitat for a broad diversity of aquatic, semi-aquatic, and riparian fishes, amphibians, reptiles, and birds. Some of the species present on site have been formally listed as endangered or threatened under the federal ESA and/or CESA, and are protected from unauthorized take by these statutes. Also, a substantial portion of the Santa Clara River corridor within the RMDP site has been designated by the USFWS as critical habitat for the federally-listed endangered least Bell's vireo. Section 7 of the ESA prohibits agency actions, including the Corps' issuance of a section 404 permit, that would jeopardize the continued existence of any listed species or result in destruction or adverse modification of designated critical habitat.

Based on the analysis provided in the Draft EIS/EIR, the proposed Project is not expected to result in jeopardy or adverse modification. However, the Project could adversely affect listed wildlife species that utilize the river and tributaries on site. Impacts include mortality of individual fishes or wildlife during construction, as well as long-term loss or alteration of suitable habitat. Screening criteria related to sensitive aquatic and riparian wildlife include:

Special-status aquatic and riparian species – *Would the alternative result in significant adverse impacts to the following plant and animal species?*

- Unarmored Threespine Stickleback (ESA-endangered, CESA-endangered, fully protected)
- Least Bell's Vireo (ESA-endangered, CESA-endangered, critical habitat present on site)
- Southwestern Willow Flycatcher (ESA-endangered, CESA-endangered)
- Arroyo Toad (ESA-endangered)
- California red-Legged frog (ESA-threatened)
- Undescribed Sunflower Species (no ESA or CESA status)
- Undescribed spring snail (no ESA or CESA status)
- Southwestern pond turtle (no ESA or CESA status)
- Western yellow billed cuckoo (ESA-candidate, CESA-endangered)
- Tricolored blackbird (no ESA or CESA status)

8.1.2.3.2 Loss Of Habitat Function

Habitat suitability for particular species can vary depending on specific requirements. However, there are several basic elements, such as the overall vegetation condition, continuity, structural diversity, and absence of invasive species, that are generally indicative of habitat quality. The HARC habitat score (see **Appendix 4.6** to the Draft EIS/EIR) is an indicator of the

relative extent to which the affected reaches on site perform this function. Lost habitat function due to proposed fill was calculated by applying the HARC habitat score as a weighting factor to the acreages filled. Screening criteria related to habitat function include:

- **Habitat Function** -- *Would the alternative's impacts to the habitat function (based on HARC habitat function scores) of waters of the United States be significantly less than those of the proposed Project?*

8.1.2.3.3 Fish, Crustaceans, Mollusks, And Other Aquatic Organisms In The Food Web

Perennial aquatic habitats can support a diversity of fishes, some of which depend on a prey base of insects, crustaceans, mollusks, and other benthic invertebrates. Modifications to waters of the United States could potentially alter the composition of the benthic macroinvertebrate community, ultimately disrupting the food web. Screening criteria related to the aquatic food web include:

- **Aquatic Organisms** -- *Would the alternative's impact on fish, crustaceans, mollusks and other aquatic organisms in the food web be significantly less than that of the proposed Project?*

8.1.2.3.4 Other Wildlife

In addition to the special-status species that are addressed individually in this Alternatives Analysis, the RMDP site also supports a variety of other species lacking federal sensitivity designations. Screening criteria related to these species include:

- **Other Wildlife** -- *Would the alternative's impact on non-sensitive wildlife species be less than that of the proposed Project?*

8.1.2.3.5 Effects On Riparian Vegetation

The Santa Clara River and its tributaries within the RMDP area contain substantial quantities of early to late successional riparian communities, ranging from sand and gravel bars dominated by sandbar willow saplings and cattails to mature galleries of Fremont cottonwood with complex understories of woody and herbaceous vegetation. Riparian communities in the proposed Project area are of high sensitivity and biological value, and were treated as sensitive plant communities in the Draft EIS/EIR for the proposed Project. In total, the RMDP site contains approximately 367.2 acres of riparian vegetation within Corps jurisdiction and 758 acres of riparian vegetation within the RMDP site, the majority of which is located within and adjacent to the Santa Clara River mainstem and tributaries. The proposed Project and alternatives would remove varying quantities of riparian vegetation to accommodate construction of RMDP infrastructure and development. In areas where Project components are proposed, vegetation removal would be permanent. However, where riparian areas would be disturbed during construction merely because they are adjacent to proposed Project components, vegetation removal would be temporary, and these areas would be revegetated following completion of construction in the area. Screening criteria related to effects on riparian vegetation include:

- **Removal of Riparian Vegetation in the Santa Clara River** -- *Would the alternative's permanent removal of riparian vegetation in the Santa Clara River Corridor be significantly less than that of the proposed Project?*
- **Removal of Riparian Vegetation in On-site Tributary Drainages** -- *Would the alternative's permanent removal of riparian vegetation in on-site tributary drainages be significantly less than that of the proposed Project?*
- **Temporary Removal of Riparian Vegetation** -- *Would the alternative's temporary removal of riparian vegetation be significantly less than that of the proposed Project?*

8.1.2.4 Cumulative Effects On The Aquatic Ecosystem

Aside from effects caused by the RMDP alone, the proposed Project and alternatives could also contribute to cumulative adverse environmental effects on the aquatic ecosystem. Screening criteria related to cumulative effects include:

- **Cumulative Effects** -- *Would the alternative's cumulative effects on the aquatic ecosystem be significantly less than those of the proposed Project?*

8.1.2.5 Human Use Characteristics

As required by the section 404(b)(1) Guidelines (40 C.F.R. §§ 230.50 through 230.54), this analysis considers the proposed Project's effects on human use characteristics of the aquatic environment, including municipal and private water supplies, recreational and commercial fisheries, water-related recreation, aesthetics, and preserve areas. Screening criteria related to these human uses include:

- **Water Supplies** -- *Would the alternative's demand on municipal and private water supplies be significantly less than that of the proposed Project?*
- **Recreational and Commercial Fisheries** -- *Would the alternative's impact on recreational and commercial fisheries be significantly less than that of the proposed Project?*
- **Water-related Recreation** -- *Would the alternative's impact on water-related recreation be significantly less than that of the proposed Project?*
- **Aesthetics** -- *Would the alternative result in significant adverse aesthetic impacts due to visual incompatibility between the proposed uses on site and the surrounding lands?*
- **Parks and Preserves** -- *Would the alternative's impact on parks, national and historical monuments, national seashores, wilderness areas, research sites, and similar preserves be significantly less than that of the proposed Project?*

8.1.3 Screening Criteria For Other Significant Environmental Consequences

The Guidelines provide that an alternative cannot be the LEDPA if it has "other significant adverse environmental consequences," even if it has less impact on aquatic resources than other alternatives. The following criteria have been developed to determine whether the alternatives considered would pass this threshold test and remain eligible to be the potential LEDPA.