CHAPTER 8.0
COMPLIANCE WITH SECTION 404(b)(1) GUIDELINES

8.1 SPECIFIC ACTIVITIES REQUIRING USACE SECTION 404 PERMITS

As described in Chapter 2.1, participants in the SAMP are identified as either "current" participants or "future" participants. Current participants have identified proposed projects within the SAMP Study Area and are eligible for Section 404 permitting by one or more of the proposed permitting procedures described in this EIS (i.e., the Regional General Permit or the proposed permitting procedures for authorized activities within the RMV Planning Area). This chapter evaluates the Applicants' Proposed Projects and any alternative carried forward from Chapter 6.0 that is potentially capable of meeting the Purpose and Need of the SAMP as defined in Chapter 3.0 in light of 40 CFR Part 230. The regulations set forth in 40 CFR Part 230 are guidelines issued by the Environmental Protection Agency which generally require the USACE, in order to determine whether to issue a Section 404 permit, to determine whether there are any practicable alternatives to the proposed discharge (i.e., Applicants' Proposed Projects) that would have less adverse impacts on the aquatic ecosystem as long as the alternative does not have other significant environmental consequences 40 CFR §230.10(a). The requirements of this section and other requirements of 40 CFR 230.10 – 230.75 are reviewed in this chapter.

8.1.1 APPLICANTS' PROPOSED PROJECTS

8.1.1.1 RMV Proposed Project

As described in subchapter 2.1.1, the Orange County Board of Supervisors approved a General Plan amendment and zone change for the RMV Planning Area on November 8, 2004, referred to as the B-10 Modified Alternative. Subsequent to this action by the Board of Supervisors, the B-12 Alternative was developed to further address the sub-basin-level Southern Planning Guidelines and the Watershed Planning Principles in addition to the overall goals and objectives of the NCCP/MSAA/HCP and SAMP Programs. This alternative is based on input from the USACE, CDFG, USFWS, the environmental community, and the general public. The following is a description of the B-12 Alternative, the "RMV Proposed Project" for which a current SAMP participant, Rancho Mission Viejo, is requesting Section 404 permits (Figure 5-13).

Proposed Types and Locations of Development

The RMV Proposed Project provides for 5,873 acres of development, inclusive of 14,000 dwelling units, and 16,942 acres of open space within the RMV Planning Area. The RVM Proposed Project would allow for development in six planning areas: Planning Areas 1, 2, 3, 4, 5, and 8; Planning Area 10 would be 16,942 acres of open space. Planning Area 9 was eliminated. The planning areas are as follows:

Planning Area 1 is located primarily in the Narrow Canyon Sub-basin. This planning area is also referred to as Ortega Gateway. Under the RMV Proposed Project, development in Planning Area 1 would consist of 566 gross acres.

Planning Area 2 is located primarily in the Chiquita Canyon Sub-basin; a small portion is in the Cañada Gobernadora Sub-basin. Under the RMV Proposed Project, development in Planning Area 2 would consist of 895 gross acres.

Planning Area 3 is located within the Cañada Gobernadora and Central San Juan Sub-basins. Under the RMV Proposed Project, development in Planning Area 3 would consist of 2,171 gross acres.

Planning Area 4 is located within the Verdugo and Central San Juan Sub-basins. Under the RMV Proposed Project, development in Planning Area 4 would consist of 550 gross acres.

Planning Area 5 is located within the Trampas and Central San Juan Sub-basins. Under the RMV Proposed Project, development in Planning Area 5 would consist of 1,191 gross acres.

Planning Area 8 is located within the Talega and Blind Canyon Sub-basins. Under the RMV Proposed Project, development within Planning Area 8 would consist of 500 gross acres.

Planning Area 10 is all remaining open space (16,942 acres) and includes portions of the Narrow, Chiquita, Gobernadora, Central San Juan, Verdugo, Trampas, Cristianitos, Gabino, La Paz, and Talega Sub-basins.

In addition to the above development, Rancho Mission Viejo is requesting the approval of the following additional facilities to the extent that these facilities impact aquatic resources under USACE jurisdiction.

- relocated Rancho Mission Viejo headquarters on an approximately 25-acre site
- relocated CR&R facility on an approximately 18.3-acre site[1]
- relocated employee housing on an approximately 14-acre site
- 50 acres of orchards

It should be noted that for the B-12 Alternative, an overstated impact analysis is discussed in this chapter for development proposed in Planning Areas 4 and 8 and for the orchards proposed in Planning Areas 6 and 7. The final footprint of future development/orchards within these planning areas is undefined at this time because the precise location of future development/ orchards is not known. In order to provide an analysis of possible impacts to vegetation communities and species, the impacts in Planning Area 4 are assumed to affect a larger "impact area" of approximately 1,127 acres and the impacts for Planning Area 8 are assumed to affect a larger "impact area" of approximately 1,349 acres. The impact areas in Planning Areas 6 and 7 are approximately 249 acres and 182 acres, respectively. Therefore, the total impact area for Alternative B-12 is approximately 7,788 acres (Figure 2-2). It should be emphasized that this impact analysis overstates the possible impacts to vegetation communities and species because, ultimately, Rancho Mission Viejo is limited to developing a maximum of 550 acres in Planning Area 4 and a 175-acre reservoir, 500 acres in Planning Area 8, and a total of 50 acres of orchards in either/or Planning Area 6 and 7 (as well as all necessary supporting infrastructure in areas outside of the individual development Planning Areas, in addition to the proposed development in the other planning areas as previously described above and in Chapter 5.0). It should be noted that the configuration of the 500 acres of development in Planning Area 8 is required to take into consideration the findings of five years of arroyo toad telemetry studies in conjunction with minimizing impacts, as required by the USACE Special Conditions.

[1] CR&R/Solag Disposal Company, 31641 Ortega Highway, is located on six acres in the sub-basin. The waste management facility site includes an office building, maintenance shop, fueling station, waste-processing unit, and storage units and yard use for refuse collection.

Infrastructure

Infrastructure facilities will be necessary to support the RMV Proposed Project. These facilities fall into four general categories; roads, bikeways/trails, sewer and water, and drainage facilities. The following describes the infrastructure facilities for the RMV Proposed Project.

Roads

The circulation system for the RMV Proposed Project would have the following components, as shown on Figure 8-1.

- ***Cow Camp Road.*** This is an addition to the County of Orange Master Plan of Arterial Highways (MPAH) of a new east-west arterial highway on the north side of San Juan Creek. Cow Camp Road would be constructed as a major arterial between Antonio Parkway and SR-241, and as a primary arterial between SR-241 and Ortega Highway in a "with SOCTIIP" scenario. In a "without SOCTIIP" scenario, Cow Camp Road would be constructed as a major arterial between Antonio Parkway and F Street and as a primary arterial between F Street and Ortega Highway.

- ***Cristianitos Road.*** The existing Cristianitos Road between Avenida Pico and the development area in Trampas Canyon would remain a private ranch road. From the proposed Trampas Canyon development area to the proposed development area in the Gobernadora Sub-basin, a new north-south primary arterial highway would cross San Juan Creek and Cow Camp Road, and connect to the proposed SR-241, in a "with SOCTIIP" and Oso Parkway in a "without SOCTIIP" scenario.

- ***Avenida Talega.*** An MPAH reclassification of the segment of roadway in unincorporated Orange County from a secondary arterial highway to a collector road (with and without SOCTIIP alternatives).

- ***La Pata Avenue/Antonio Parkway.*** Existing La Pata Avenue/Antonio Parkway would be widened from the northerly limit of the RMV Planning Area, north of Ortega Highway, to the southerly limit of the RMV Planning Area boundary. Also, the road would also be extended further to the south beyond the RMV Planning Area to Avenida Pico outside of the SAMP Study Area.

- ***Ortega Highway (SR-74).*** Existing Ortega Highway would be widened from east of the intersection with La Pata to the westerly RMV Planning Area boundary. Also, the widening would extend further west into the City of San Juan Capistrano.

In addition to arterial highway improvements, certain local circulation facilities would be necessary including, but not limited to:

- ***Gobernadora Road.*** The roadway would be improved to either a four-lane secondary or modified collector to provide internal circulation to development in Gobernadora Sub-basin.

- ***Center Gobernadora Road.*** The roadway would be improved to a two-lane collector road to provide internal circulation to development in Gobernadora Sub-basin.

- ***Trampas Canyon Road.*** The two-lane collector road with a right-of-way reserve would be improved to four lanes to provide internal circulation for development in Trampas Sub-basin.

Development in the Verdugo Sub-basin under the RMV Proposed Project would be accessed via collector roads internal to the development area from Cow Camp Road and Ortega Highway.

Bikeways and Trails

Bikeways and trails are shown on Figure 8-2 as follows:

- Class I Off-Road Bikeway along the north side of San Juan Creek
- San Juan Creek Riding and Hiking Trail along the south side of San Juan Creek
- Internal Community Trails that would also provide other community connections to Ladera Ranch, Coto de Caza, and Talega Ranch

Sewer and Water

Sewer and water facilities (i.e., domestic water, non-domestic water, and wastewater) are shown on Figures 8-3a, 8-3b, and 8-3c. Domestic and Non-Domestic Water Facilities needed to support the RMV Proposed Project are identified in Table 8-1. Wastewater needs for the RMV Proposed Project are identified in Table 8-2.

Drainage and Water Quality

Drainage facilities (i.e., culverts) are shown on Figure 8-4. Combined control facilities to address pollutants and conditions of concern of the type and extent described in the WQMP for the RMV Proposed Project would also be associated with each proposed planning area. The exact location of these facilities is undetermined; however, the Conceptual Water Quality Management Plan (Appendix D) identifies the necessary area, volume, and catchment location for these facilities. All combined control facilities would be located within the footprint of the development planning areas. In addition all detention facilities required for flood control purposes (above the combined control facilities) would also be located within the footprint of the development planning areas.

In addition to culverts, combined control facilities and flood detention facilities, Rancho Mission Viejo in cooperation with SMWD would construct the Gobernadora Multi-Purpose Basin (Figure 5-13). The Gobernadora Multi-Purpose Basin would consist of a storm detention basin that would be established as a wetland and riparian habitat, an infiltration gallery to capture and divert flows to the wetlands, a pump station, and pipeline. The Gobernadora Multi-Purpose Basin would be used to capture and naturally treat urban runoff and storm flows to (1) reduce downstream erosion and sedimentation, (2) address excessive surface and groundwater, and (3) improve the water quality in the Gobernadora Creek that flows downstream to the Gobernadora Ecological Restoration Area (GERA).

TABLE 8-1
DOMESTIC AND NON-DOMESTIC WATER FACILITIES

Location	Type of Facility	Facility Capacity
Planning Area 1	One (1) Zone 1 Domestic Water Reservoir No. 1[a.]	4.4 MG
	One (1) Zone A Non-Domestic Water Reservoir No. 1[a.]	4.3 MG
Planning Area 2	One (1) Zone 2 Domestic Water Reservoir No. 1[c.]	*1.1*MG
	One (1) Zone B Non-Domestic Water Reservoir No. 1[c.]	3.5 MG
	One (1) Zone A Non-Domestic Water Pump Station No. 1[a.]	2,440 gpm
	One (1) Zone B Non-Domestic Water Pump Station No. 1[a.]	4,320 gpm
Planning Area 3	One (1) Zone 1 Domestic Water Reservoir No. 2[a.]	5.3 MG
	One (1) Zone 2 Domestic Water Reservoir No. 2[a.]	5.4 MG
	One (1) Zone 3 Domestic Water Reservoir No. 1[c.]	1.4 MG
	One (1) Zone 3 Domestic Water Pump Station No. 1[a.]	500 gpm
	One (1) Zone A Non-Domestic Water Reservoir No. 2[a.]	2.3 MG
	One (1) Zone B Non-Domestic Water Reservoir No. 2[a.]	3.4 MG
	One (1) Zone B Non-Domestic Water Pump Station No. 2[a.]	2,370 gpm
Planning Area 4	One (1) Zone 2 Domestic Water Reservoir[b.]	Undetermined
	One (1) Zone 3 Domestic Water Reservoir[b.]	Undetermined
	One (1) Zone 3 Domestic Water Pump Station[b.]	Undetermined
	One (1) Zone 4 Domestic Water Reservoir[b.]	Undetermined
	One (1) Zone 4 Domestic Water Pump Station[b.]	Undetermined
	One (1) Zone B Non-Domestic Water Reservoir[b.]	Undetermined
Planning Area 5	One (1) Zone 2 Domestic Water Reservoir No. 3[a.]	2.9 MG
	One (1) Zone 3 Domestic Water Reservoir No. 2[c.]	1.5 MG
	One (1) Zone 4 Domestic Water Reservoir No. 1[c.]	1.1 MG
	One (1) Zone 3 Domestic Water Pump Station No. 2[a.]	1,000 gpm
	One (1) Zone 4 Domestic Water Pump Station No. 1[c.]	400 gpm
	One (1) Zone A Non-Domestic Water Reservoir No. 3[a.]	1.2 MG
	One (1) Zone B Non-Domestic Water Reservoir No. 3[a.]	2.3 MG
	One (1) Zone A Non-Domestic Water Pump Station No. 2[a.]	2,870 gpm
	One (1) Zone B Non-Domestic Water Pump Station No. 3[a.]	1,560 gpm
Planning Area 7/ New RMV Headquarters	One (1) Zone 2 Domestic Water Reservoir No. 4[b.]	Undetermined
	One (1) Zone B Non-Domestic Water Pump Station No. 5[b.]	Undetermined
Planning Area 8	One (1) Zone 2 Domestic Water Reservoir No. 5[b.]	3.9 MG
	One (1) Zone 3 Domestic Water Pump Station No. 4[b.]	320 gpm
	One (1) Domestic Water Pump Station[b.]	60 gpm
	One (1) Zone B Non-Domestic Water Reservoir No. 5[b.]	2.1 MG
	One (1) Zone C Non-Domestic Water Reservoir No. 1[b.]	0.7 MG
	One (1) Zone C Non-Domestic Water Pump Station No. 1[b.]	510 gpm

gpm: gallons per minute
MG: million gallons
a. facility to be located within the development Planning Area boundary.
b. facility to be located within impact analysis/potential orchard area boundary.
c. facility to be located in open space.

Sources: Rancho Mission Viejo, Huitt Zollars, and Tetra Tech, Inc., 2005

TABLE 8-2
WASTEWATER FACILITIES

Location	Type of Facility	Facility Capacity
Planning Area 2	One Small Wastewater Lift Station[a.]	260 gpm
Planning Area 3	One Small Wastewater Lift Station	350 gpm
	One Large Wastewater Lift Station	4,850 gpm
Planning Area 5	One Large Wastewater Station: ID No. 3	2,720 gpm
Planning Area 7/New RMV Headquarters	One Small Wastewater Lift Station	Undetermined
Planning Area 8	One Large Wastewater Lift Station	1,684 gpm
	Expansion to Talega Lift Station	Undetermined

gpm: gallons per minute
a. facility to be located within development Planning Area boundary.

Source: Tetra Tech, Inc., 2004

Existing RMV Planning Area Facilities

To service its ongoing ranch operations, Rancho Mission Viejo has existing water lines, wells, and stream crossing culverts that require periodic maintenance. These facilities are shown on Figure 8-5.

8.1.1.2 SMWD Proposed Project

The SMWD provides water, wastewater, and sewer service through a network of existing and future facilities as follows:

Existing Water Facilities

The SMWD provides water, and sewer service to approximately 52,000 households through a network of existing facilities comprised of 1,330 miles of water and sewer mains, 15 connections to other water districts, 30 domestic reservoirs (298 million gallons of storage), 4 non-domestic reservoirs (1.5 billion gallons of capacity), 21 water pump stations, 30 pressure reducing stations, 6 non-domestic water pump stations, 2 wells with chlorine injection, 21 sewer lift stations, and 3 sewage treatment plants. These existing facilities require ongoing operation and maintenance described as follows:

- Periodic grading and clearing of vegetation, periodic improvements and/or upgrades, patrols, and inspections of access roads and rights-of-way
- Maintenance and repair of plant and pipelines
- Replacement, rehabilitation, retrofitting, and upgrading of plant and pipelines
- Maintenance and repair of reservoirs, appurtenances, and communication facilities
- Flushing of blow-off values and pipelines
- Pumping of storm water from valve vaults

- Provision of lay down areas
- Weed and vector abatement
- Sediment removal and treatment of open reservoirs
- Other activities required by various laws and regulations

Future Facilities

In addition to existing facilities, SMWD has identified the need for several future facilities which may impact Waters of the U.S. in their initial construction. Subsequent to construction, these facilities would require ongoing maintenance and operation as previously addressed in this EIS. The future facilities for which SMWD is requesting permits include all those facilities described above under RMV Proposed Project Infrastructure (Rancho Mission Viejo and SMWD will jointly hold permits for these facilities) and future domestic and non-domestic storage reservoirs. As such, only the proposed Upper Chiquita domestic water storage reservoir is considered a part of the SMWD Proposed Project.

Storage Reservoirs

SMWD's long-term planning for the water district has identified the potential need for three storage facilities, two for domestic water and one for the seasonal storage of recycled non-domestic water. The facilities would be built in compliance with the requirements of the California Division of Safety of Dams design standards. The purpose of these facilities is to store domestic water for emergency use and to store recycled water supply during the winter months when more supply is available and demands are low, then use the water during summer months when the demands are in excess of supply. While only three storage facilities (two domestic and one non-domestic) would be constructed, SMWD has identified and evaluated multiple potential sites. The report, *Future Seasonal and Emergency Water Storage Needs* (Henry Miedema and Associates, July 2003), recommended further evaluation for four potential sites for each of the domestic and the non-domestic seasonal storage facilities.[2] SMWD subsequently refined these four sites to two each for the domestic and non-domestic storage: Upper Chiquita Site and San Juan Creek East 3 for domestic water storage, and San Juan Creek East 3 Site and Trampas Canyon Pit Site for non-domestic water storage.

Domestic Seasonal Storage Facility Alternatives

Upper Chiquita Site. Located in a side canyon on the west side of Chiquita Canyon, north of Oso Parkway, this site would include a conventional earthfill dam and reservoir. The reservoir would have a high water level of 820 feet and an estimated capacity of 860 acre-feet. This site is outside of the RMV Planning Area boundary.

San Juan Creek East 3 Site. This site is located in a tributary canyon on the south side of Verdugo Canyon east of Ortega Highway. The reservoir would be a conventional earthfill dam with a high water level of 600 feet and an estimated storage volume of 1,300 acre-feet. The site is within the impact area boundary of Planning Area 4.

[2] The *Future Seasonal and Emergency Water Storage Needs* study evaluated 20 different potential sites based on location, hydraulics, capacity potential, geographic dispersion, geotechnical constraints, land uses, and environmental sensitivity.

Recycled Non-Domestic Seasonal Storage Facility Alternatives

San Juan Creek East 3 Site. The site is located in a tributary canyon on the south side of Verdugo Canyon east of Ortega Highway. The reservoir would be a conventional earthfill dam with a high water level of 600 feet and an estimated storage volume of 4,600 acre-feet. The site is within the impact area boundary of Planning Area 4.

Trampas Canyon Pit Site. The site is located in a mined pit on the Oglebay-Norton sand plant in Trampas Canyon. The reservoir would have a high water level of 475 feet and an estimated storage volume of 2,020 acre-feet. This site is within Planning Area 5.

8.2 PROCESS FOR IDENTIFYING LEAST ENVIRONMENTALLY DAMAGING PRACTICABLE ALTERNATIVE (LEDPA)

8.2.1 FUTURE PARTICIPANTS PROJECTS OUTSIDE OF THE RMV PLANNING AREA

Most of this section focuses on Rancho Mission Viejo's and SMWD's (applicants) compliance with the Section 404(b)(1) Guidelines. Under the SAMP, future applicants may qualify for the use of either the Regional General Permit for maintenance activities or for the SAMP LOP for most other actions. For the most part, the LOP for future applicants outside the RMV Planning Area boundaries is a separate individual permit that would require a separate NEPA document that would analyze a future project's compliance with the Section 404(b)(1) Guidelines. Programmatic aspects of the LOP for such future permit applicants is discussed in this chapter in the context of anticipated future compliance with the Section 404(b)(1) Guidelines, but the analysis of potential environmental impacts will be provided in separate future NEPA documents. The bulk of the analysis for future participant's projects in this chapter will focus on the Regional General Permit. In the context of very limited impacts allowed by the Regional General Permit in relation to the existing Nationwide Permits, the review of potential environmental effects in this chapter would serve as the documentation showing compliance of the proposed Regional General Permits with the Section 404(b)(1) Guidelines.

8.2.2 SUMMARY OF CHAPTER 6.0 SCREENING CRITERIA FOR SELECTION OF ALTERNATIVES CARRIED FORWARD FOR COMPLIANCE WITH SECTION 404(b)(1) GUIDELINES

As described in Chapter 6.0, the following criteria were used to evaluate whether or not proposed alternatives would be carried forward for analysis in this chapter:

- Impacts to Biological Resources (including impacts to riparian and wetland habitats, impacts to listed and special status aquatic species, the USACE Engineer Research and Development Center (ERDC) functional assessment, consistency with the SAMP Tenets, Aquatic Species Considerations, impacts to upland vegetation communities and listed non-aquatic species, and indirect impacts)

- Impacts to Watershed-Scale Physical Processes and Conditions (including consistency with the Watershed Planning Principles and geology)

- Impacts to Sub-basin-Scale Physical Processes and Conditions (including consistency with the Sub-basin-scale Planning Recommendations)

Based on the analysis set forth in Chapter 6.0, the following alternatives are carried forward for analysis in accordance with Section 404(b)(1) Guidelines for the following reasons:

- ***Alternative A-4: No Permitting Procedures/No SAMP*.** This alternative could achieve substantial aquatic resource protection through incremental permitting. However, this alternative would not provide for comprehensive aquatic resource restoration and management. Alternative A-4 provides no assurances of meaningful protection of Waters of the U.S. There is no guarantee that the permitting outcome of each individual project would achieve the same outcome as the B-10 Modified Alternative. There may be some development areas within the RMV Planning Area that would have more impacts and some areas of open space that would not be preserved. Therefore, permit-by-permit processing is not environmentally beneficial. This alternative would not meet the Purpose and Need as set forth in Chapters 1.0 and 3.0. This alternative is reviewed in this chapter only as a no SAMP alternative for comparison purposes.

- ***Alternative A-5: No Impacts to Clean Water Act/State Jurisdictional Areas/No Take of Listed Species*.** This alternative would obviate the need to prepare a SAMP or NCCP/MSAA/HCP because no regulated Waters of the US or State or listed species would be affected. Alternative A-5 violates two SAMP tenets. One, is the lack of buffers, and two, is the lack of continuous corridors. Therefore, this alternative is not environmentally beneficial. This alternative would not meet the Purpose and Need as set forth in Chapters 1.0 and 3.0. However, Alternative A-5 is a required alternative and is reviewed in this chapter for comparison purposes.

- ***Alternative B-10 Modified: County Approved GPA/ZC Project*.** This alternative achieves substantial protection of wetlands/riparian vegetation communities (with the exception of the headwaters of Cristianitos Creek in Planning Area 6), aquatic resource dependent planning species, habitat blocks, and connectivity between these blocks (with the exception of two areas: San Juan Creek between Planning Areas 3 and 4 and Cristianitos Creek in Planning Area 6), species diversity, significant hydrologic and geomorphic processes, and water quality. Alternative B-10 Modified generally meets the SAMP Goals and Purposes and is therefore reviewed in this chapter.

- ***RMV Proposed Project (Alternative B-12)*.** This alternative achieves substantial protection of wetlands/riparian vegetation communities, aquatic resource dependent planning species, habitat blocks and connectivity between these blocks, species diversity, significant hydrologic and geomorphic processes, and water quality. This alternative addresses the issues raised by the B-10 Modified Alternative as follows:

  - No development is proposed in Planning Area 6, thereby avoiding development in the headwaters of Cristianitos Creek and resulting in a 5,000-foot-wide habitat/species movement linkage between the San Juan Creek and San Mateo Creek Watersheds; and

  - The width of the movement corridor between Planning Areas 3 and 4 is 1,312 feet (400 meters), creating a wildlife movement corridor adequate for all species.

  The RMV Proposed Project generally meets the SAMP Goals and Purposes and is therefore reviewed in this chapter.

8.2.3 REQUIREMENTS FOR DETERMINING COMPLIANCE WITH CODE OF FEDERAL REGULATIONS 230.10

The Section 404(b)(1) Guidelines are substantive criteria used to evaluate the discharge of dredged and/or fill materials into Waters of the U.S. under Section 404 of the Clean Water Act.

The Section 404(b)(1) Guidelines, which are binding regulations, were published by the Environmental Protection Agency at 40 CFR 230 on December 24, 1980. The fundamental precept of the Guidelines is that discharges of dredged or fill material into Waters of the U.S., including wetlands, should not occur unless it can be demonstrated that such discharges, either individually or cumulatively, will not result in unacceptable adverse effects on the aquatic ecosystem.

Compliance with the Guidelines is outlined in 40 CFR 230.12, which requires the specific determination that a project satisfies the Guidelines. Compliance with the Guidelines relies of appropriate restrictions of the discharge of dredged and/or fill material (40 CFR 230.10). First, the approved discharge of dredged and/or fill materials must demonstrate that there are no other practicable alternatives that would have less adverse effects on the aquatic ecosystem, so long as such alternative does not have other significant adverse environmental consequence (40 CFR 230.10[a]). Second, the approved discharge of dredged and/or fill materials must not be contrary to restrictions to protect the aquatic ecosystem (40 CFR 230.10[b] or [c]). Third, the approved discharge of dredged and/or fill materials must include all appropriate and practicable measures to minimize potential harm to the aquatic ecosystem (40 CFR 230.10[d]).

The focus of this chapter is on complying with the requirement for permitting the least environmentally damaging practicable alternative (40 CFR 230.10[a]), along with the other discharge requirements set forth in 40 CFR 230.10(b)-(d) referenced above. In so doing, the project must demonstrate that there are no other practicable alternatives to the proposed discharge which would have less adverse effects on the aquatic ecosystem. 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 the overall project purpose. The overall project purpose is defined in consideration of the perspective of the applicant(s), but determined solely by the USACE.

Where the activity associated with the discharge proposes to discharge into a special aquatic site such as a wetland and does not require access or proximity to or siting to water bodies, there are two rebuttable presumptions. First, practicable alternatives are presumed to be available, unless clearly demonstrated otherwise. Second, all practicable alternatives to the proposed discharge which do not involve a discharge into a special aquatic site are presumed to have less adverse impact on the aquatic ecosystem, unless clearly demonstrated otherwise.

The rebuttable presumptions apply to those activities whose fundamental, irreducible purpose (basic project purpose) does not depend on location within or near Waters of the U.S. In contrast to a marina, whose basic project purpose of “aquatic recreation” requires location within or near waters, the basic project purpose of most residential developments is “housing,” which does not require access to Waters of the U.S. Consequently, a residential development impacting wetlands must clearly demonstrate that practicable alternative sites that do not impact wetlands are not available or, if they are, that such an alternative would not have a less adverse impact to the aquatic ecosystem.

The restrictions of the discharge of dredged and/or fill materials into Waters of the U.S. must follow sequencing in accordance with the Section 404(b)(1) Guidelines Memorandum of Agreement dated February 6, 1990. In virtually all situations, the restrictions must focus on avoidance (40 CFR 230.10[a]), minimization (40 CFR 230.10[d]), and then compensatory mitigation, in that order. Compensatory mitigation may not be used to reduce environmental impacts in the determination of the least environmentally damaging practicable alternative that is required to be determined within 40 CFR 230.10(a). Therefore, any alternative must be evaluated on the merits of its own ability to avoid impacts to aquatic resources.

8.3 SUMMARY OF PROPOSED PERMITTING PROCEDURES

In response to developmental pressures within the San Juan Creek and San Mateo Creek Watersheds on the aquatic ecosystem including streams, wetlands, and riparian vegetation, the Regulatory Branch of the Los Angeles District USACE is developing this SAMP. The USACE has undertaken a long-term, joint process with local participating applicants, including private landowners and local public agencies, to develop a comprehensive, watershed-specific plan to address wetlands permitting, compensatory mitigation, and long-term management of aquatic resources. Through this process, the USACE proposes to establish permitting policies to protect aquatic resource ecosystem functions and values in the San Juan Creek and San Mateo Creek Watersheds while minimizing delays for those projects that may impact aquatic resources with lesser functions. This process allows for better balancing of aquatic resource protection and reasonable development not attainable by traditional project-by-project review, which is limited by its inability to have a true watershed-wide, landscape-based perspective.

As a result of comprehensive studies on the location and quality of aquatic resources within the San Juan Creek and San Mateo Creek Watersheds, this SAMP would provide a contextual framework to implement a more effective permitting system that provides additional protections to higher value resources while minimizing delays for projects impacting lower value resources. Through the comprehensive studies, the USACE has identified geographic areas with higher quality aquatic resources.

Several criteria were used to identify these areas with higher quality aquatic resources. First, the USACE used the USACE Engineer Research and Development Center landscape-level functional assessment to identify those aquatic areas with medium to high integrity with respect to hydrology, water quality, and habitat. The USACE Engineer Research and Development Center landscape-level functional assessment evaluates each riparian reach in the watershed using a suite of indicators to assess the hydrologic, water quality, and habitat integrity in relationship to historical baselines. For each of the three integrity indices, scores were scaled from 0 to 1.0, and riparian reaches were determined to have high integrity (≥70 percent of the maximum score), medium integrity (≥40 percent, and <70 percent of the maximum score), and low integrity (<40 percent of the maximum score). Any riparian reach with medium to high integrity (≥40 percent of the maximum score) for any of the three integrity indices were included for further consideration. These riparian reaches and other riparian areas and uplands draining into them were mapped.

Second, the USACE considered critical habitat designations for federally listed threatened and/or endangered species. For the SAMP Study Area, officially designated critical habitat exists for the California gnatcatcher, San Diego fairy shrimp, and southern steelhead. These critical habitats were added to the map of the higher quality aquatic resources and their contributing uplands.

Third, the USACE removed areas that have already been impacted by residential, commercial, and industrial development. Many of these areas do not provide important aquatic resource ecosystem functions and were excluded from the mapping effort.

In addition to these initial steps, areas within the RMV Planning Area were given additional review and consideration. Through the course of the SAMP process, various development alternatives within the RMV Planning Area were developed and evaluated using the SAMP Tenets and the Watershed Planning Principles. Important considerations included providing continuous riparian corridors, providing adequate buffers of protected riparian corridors, protecting threatened and/or endangered species habitat, protecting headwaters, and

maintaining sediment equilibrium. The ultimate configuration of open space and development as represented by the RMV Proposed Project (Alternative B-12) identifies important areas that contribute to long-term overall riparian integrity for hydrology, water quality, and habitat.

Based on the findings of the resource assessments and mapping, the USACE was able to identify different geographic areas that warrant different permitting considerations that reflect the quality of the aquatic resources in question. For higher quality resources, these areas warrant either complete protection of the aquatic resource through upfront preservation in accordance with the local land use authorities, or full review of projects proposing to impact these aquatic resources by the USACE to ensure all impacts have been avoided, minimized, and compensated through full engagement with the applicant and other regulatory resource agencies. Conversely, for lower quality aquatic resources, projects in these areas warrant a more abbreviated review to provide the regulatory public with certainty in permitting outcomes to allow for better long-term planning, while freeing the regulatory agencies to devote more time towards evaluating potential projects that may have more considerable impacts to the aquatic ecosystem. This new permitting process explicitly considers the quality of the aquatic resources on an aggregate level is an improvement compared to the existing permitting process, which cannot make strategic considerations in the context of the watershed landscape.

In order to implement the alternate permitting process that considers the condition of the aquatic resources being affected, the USACE proposes to revoke several Nationwide Permit (NWP) authorizations within the San Juan Creek and San Mateo Creek Watersheds consistent with 33 CFR 330.5(c). The revoked NWPs (Table 3-1), including NWP 03, NWP 07, NWP 12, NWP 13, NWP 14, NWP 16, NWP 17, NWP 18, NWP 19, NWP 25, NWP 27, NWP 31, NWP 33, NWP 39, NWP 40, NWP 41, NWP 42, NWP 43, and NWP 44.

In consideration of the SAMP watershed-wide assessment, these NWPs may provide an inappropriate level of protection to aquatic resources. For instance, in some situations, the NWPs may be insufficiently protective of the higher aquatic resource value areas in the context of watershed-level protection. In other situations, some of the NWPs may be overly restrictive for projects with minor impacts to the aquatic environment. In place of the revoked NWPs, the alternative permitting process would minimize delays for projects with minimal impacts on the aquatic environment and provide greater efficacy in protecting the aquatic environment by strengthening the review process through increased inter-agency review. The USACE believes these steps would strengthen aquatic resource protections in the watershed's higher value areas and provide regulatory flexibility for activities in lower value resource areas in situations where the impacts are not substantial.

In the place of some of the revoked NWPs, the USACE proposes a Regional General Permit for maintenance activities and Letters of Permission (LOPs) for all other activities. The applicability of a permit system depends on the location of the proposed activity with respect to the RMV Planning Area boundaries and with respect to the areas identified as ineligible for abbreviated permitting (see Figure 1-3, Letter of Permission and Regional General Permit Map). These permitting procedures are summarized below and fully described in subchapter 3.2.2 and in Appendix A.

- Proposed Long-Term Individual Permits/Letter of Permission (LOP) procedures for long-term activities proposed by Rancho Mission Viejo and the Santa Margarita Water District on the RMV Planning Area lands in reliance on the SAMP and in conjunction with the review, approval and implementation of an Aquatic Resources Conservation Program coordinated with the Southern Subregion NCCP/MSAA/HCP (Figure 1-3). The potential

impacts and compliance with USACE regulatory requirements of proposed long-term individual permits will be addressed through this SAMP EIS review process.

- The proposed use of LOP Procedures for other future qualifying permit applicants whose potential impacts on the Waters of the U.S. will be assessed through reliance on the SAMP at future points in time. The potential use of the SAMP as the guidance document for identifying avoidance areas within the SAMP Study Area will be addressed through the SAMP EIS process (Figure 1-3).

- Potential establishment of a Regional General Permit (RGP) for certain limited activities and the suspension of selected NWPs for small-scale activities and ongoing maintenance activities within the SAMP planning area but outside of the RMV Planning Area (Figure 1-3). The potential impacts and compliance with USACE regulatory requirements of the RGP program will be addressed through the SAMP EIS process.

8.4 SECTION 230.10(A) ALTERNATIVES ANALYSIS/LEDPA DETERMINATION

POTENTIAL ADVERSE IMPACTS ON THE AQUATIC ECOSYSTEM

Section 230.10 (a) of the Section 404(b)(1) Guidelines identifies requirements for identifying the least environmentally damaging practicable alternative. Specifically:

> *"Except as provided under section 404(b)(2), no discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem , so long as the alternative does not have other significant adverse environmental consequences."*

For purposes of addressing these requirements, the following subsections address avoidance of wetlands and riparian habitats comprising the aquatic ecosystem within the RMV Planning Area. Chapter 7.0 provides a review of other potentially significant adverse environmental consequences to address the "other significant environmental consequences" element of the above guidelines (minimization and mitigation measures are reviewed in Chapter 7.0 in relation to other environmental consequences so that impact reduction and mitigation can be taken into account in assessing overall comparative impacts for non-aquatic ecosystem impacts).

With regard to potential impacts on "special aquatic sites," it is assumed that alternatives that do not involve special aquatic sites are presumed to be available unless clearly demonstrated otherwise. Given the scale of the SAMP program and the large size of the area proposed to be subject to the proposed permitting procedures, Chapters 5.0 and 6.0 review alternative land use locations with respect to consistency with the SAMP Tenets, and related elements of the Southern Planning Guidelines and the Watershed Planning Principles. Some circulation system and infrastructure activities may affect an aquatic site to the extent that providing necessary services to particular development planning areas requires bridges and would require streamcourses to be traversed (i.e., San Juan Creek and lower Cristianitos Creek). Where creek crossings can be feasibly bridged (i.e., the mouth of Chiquita Creek and the mouth of Gobernadora Creek), proposed road crossings would span these creeks; where a stream crossing is too wide to be bridged (e.g., San Juan Creek), pilings to support the bridging would be required within the streamcourse. Additionally, some alternatives (such as Alternative B-12) do not require changes in existing crossings such as at lower Gabino Creek.

8.4.1 IMPACTS ON USACE JURISDICTION AREAS AND AVOIDANCE OF WETLAND AND RIPARIAN HABITATS

8.4.1.1 Potential Impacts on USACE Jurisdictional Areas

Activities Outside of the RMV Planning Area Authorized by the RGP or Potentially Authorized by LOPs

Under Alternative B-10 Modified and Alternative B-12, implementation of the proposed RGP and LOP procedures outside of the RMV Planning Area is expected to be the same for each alternative. The proposed RGP will not have any permanent impacts on USACE jurisdictional habitats. Eligible actions will have no more than 0.5 acre of temporary impact of which no more than 0.1 acre may be vegetated by native wetland vegetation. Because the proposed RGP would apply only to areas with low riparian integrity, little native vegetation is expected in such areas. Due to the temporary nature of the impact, the small extent, and low integrity of such areas, there would not be any permanent impact of the proposed RGP procedures on USACE jurisdictional areas.

Under Alternative B-10 Modified and Alternative B-12, the proposed LOPs would be subject to future NEPA review and evaluation under the Section 404(b)(1) Guidelines in order to determine the extent of impacts to riparian and wetland habitats. Given future NEPA and Section 404(b)(1) Guidelines review and the provision of the LOP procedures (including General Conditions and any future Special Conditions), future use of the LOPs would not likely have extensive impacts to higher quality aquatic resources proposed to be ineligible for abbreviated permitting, impacts would be limited to 0.1 acre of permanent impacts to USACE jurisdictional areas. Subject to NEPA review and the maximum allowable impact allowed under the proposed LOPs for these areas, large amounts of impacts to higher quality USACE jurisdictional habitats including streams, wetlands, and riparian areas are not expected under the future LOP procedures. Within areas proposed to be eligible for abbreviated permitting, there would be no limits on acreage of impacts. Impacts to native habitats within these areas proposed to be eligible for abbreviated permitting would be expected to be lower due to past degradation that had decreased the riparian integrity of such areas. In conjunction with future NEPA review, impacts would be expected to be minimized to the same degree as standard individual permits due to the requirement for upfront coordination with the agencies through the USACE, followed by the USACE formal notification to the other agencies for their comments.

Under Alternative A-4, project-by-project review would continue to occur outside of the RMV Planning Area under the current framework, resulting in the authorization of activities through mostly existing NWPs and standard Individual Permits. Temporary impacts that could be authorized by the proposed RGP would continue be authorized by existing NWPs. Due to the lower quality conditions of aquatic areas that are proposed to be covered by the RGP, authorization using NWPs for these activities is expected to result in similar outcomes. Activities that could be authorized by the proposed LOPs would continue to be authorized by existing NWPs or by standard Individual Permits. Compared to the proposed LOPs, existing NWPs would require less upfront coordination with the USACE and with other resource agencies, resulting in less likelihood of improved project design that would minimize impacts to USACE jurisdictional areas. Compared to the proposed LOPs, the standard individual permits would involve the same level of participation by the resource agencies, resulting in similar outcomes.

Alternative A-5 obviates the need for a SAMP and permits under Section 404 by avoiding regulated Waters of the U.S, including wetlands. Whether a proposed project is in an area eligible or ineligible for abbreviated permitting, the project would most likely build as close to the

USACOE jurisdictional feature as possible, resulting in isolation and encroachment of any buffers, resulting in an undeterminable amount of indirect impacts.

SMWD Proposed Project

Figure 2-3 in Chapter 2.0 identifies the locations of SMWD's existing facilities. This figure shows that a majority of the existing facilities are located within developed areas; a very limited number of these facilities which cross and/or parallel areas with aquatic resources with high integrity. The majority of such resources have been avoided by prior site planning by SWMD. Table 8-3 identifies the 3.34 acres of temporary impacts to wetlands and 14.54 acres of impacts to non-wetland waters that are anticipated to result from maintenance activities. It should be noted that this impact analysis reflects all impacts as if they were occurring concurrently. In reality, this would not be the case. Maintenance activities would be spread out over time; therefore, impacts to wetlands would also occur over time. As such, the actual impacts to any specific wetland habitat in any given year would be a small increment of the total presented in the table. Impacts resulting from maintenance of existing facilities are significant.

TABLE 8-3
SUMMARY OF TEMPORARY INFRASTRUCTURE IMPACTS ASSOCIATED WITH SMWD FACILITIES

Habitat Type	USACE Wetlands Impacts	USACE Non-Wetland Waters Impacts
Alkali Meadow (5.2)	0.00	0.00
Seasonal Pond (5.3)	0.00	0.00
Coastal Freshwater Marsh (6.4)	0.25	0.00
Riparian Herb (7.1)	0.24	0.00
Southern Willow Scrub (7.2)	0.48	3.27
Mulefat Scrub (7.3)	0.84	1.60
Sycamore Riparian Woodland (7.4)	0.00	0.28
Oak Riparian Woodland (7.5)	0.00	0.04
Arroyo Willow Forest (7.6)	1.53	1.72
Spreading Grounds/ Detention Basins (12.3)	0.00	0.00
Intermittent Rivers and Streams	0.00	1.19
Coast Live Oak Forest	0.00	0.00
Coast Live Oak Woodland	0.00	0.00
Mitigation	0.00	1.06
Open Water	0.00	0.21
Perennial Rivers and Streams	0.00	3.85
Unvegetated Streambed	0.00	1.32
Total	**3.34**	**14.54**
Note: There would be no permanent impacts to USACE wetlands and waters.		

B-10 Modified and B-12 Alternatives

This subchapter focuses on a quantified summary of potential impacts and conservation by alternative and vegetation type. Other avoidance considerations have been reviewed extensively in Chapters 5.0 and 6.0, with this subchapter focusing on the alternatives selected in Chapter 6 for further consideration. Chapters 5.0 and 6.0 are incorporated by reference into this subchapter and should be reviewed for a full understanding of avoidance alternatives.

Table 8-4 identifies potential impacts to wetland habitats and non-wetland waters associated with the B-10 Modified and B-12 Alternatives, including impacts related to development within the RMV Planning Area (RMV Planning Areas 1 through 8 under the B-10 Modified and B-12 Alternatives) and infrastructure outside of the individual development areas within the RMV Planning Area. Table 8-5 summarizes impacts to wetlands within proposed development areas by habitat type. Impacts resulting from infrastructure outside RMV Planning Areas 1 through 8 are summarized in Tables 8-6, 8-7, and 8-8 and are noted as either temporary (i.e., the area disturbed by construction or maintenance of an infrastructure facility) or permanent (i.e., the area within which the infrastructure facility is located). Infrastructure includes, but is not limited to the following types of facilities; roads, trails and bikeways, water and sewer lines, lift stations; pump stations, reservoirs, and drainage outfalls.

TABLE 8-4
SUMMARY OF DEVELOPMENT AND INFRASTRUCTURE IMPACTS TO USACE JURISDICTIONAL AREAS FOR ALTERNATIVES B-10 MODIFIED AND B-12

	Permanent Impacts							Temporary Impacts		
	Development			Infrastructure				Infrastructure		
Alternative	Wetland	Non-wetland Waters	Subtotal	Wetland	Non-wetland Waters	Subtotal	Total Permanent Impacts	Wetland	Non-wetland Waters	Subtotal
B-10 Modified	9.14	31.91	41.05	9.02	7.88	16.90	**57.95**	16.19	21.08	37.27
B-12[a.]	9.39	31.39	40.78	8.52	6.12	14.68	**55.46**	15.82	21.07	36.89

a. As previously discussed this represents an overstated impact analysis and ultimate impacts will be less due to the limitations on development in Planning Areas 4 and 8, and orchards in Planning Areas 6 and 7. The overstated footprint for Planning Area 4 impacts 2.34 acres of Waters of the U.S. (none of which are wetland), for Planning Area6 impacts 0.41 acre of Waters of the U.S. (of which 0.03 acre is wetland), for Planning Area 7 impacts (0.36 acres (of which 0.001 acre is wetland) and for Planning Area 8 impacts 8.19 acres (of which 1.10 acre is wetland).

TABLE 8-5
SUMMARY OF IMPACTS TO USACE JURISDICTIONAL WETLANDS IN DEVELOPMENT AREAS BY HABITAT TYPE FOR ALTERNATIVES B-10 MODIFIED AND B-12

Habitat Type	B-10 Modified	B-12 [a]
Alkali Meadow (5.2)	0.56	0.44
Seasonal Pond (5.3)	0.75	0.76
Coastal Freshwater Marsh (6.4)	1.18	1.18
Riparian Herb (7.1)	0.02	0.03
Southern Willow Scrub (7.2)	0.82	1.16
Mulefat Scrub (7.3)	0.33	0.34
Sycamore Riparian Woodland (7.4)	0.00	0.0
Arroyo Willow Forest (7.6)	5.48	5.48
Total	**9.14**	**9.39**

Note: As previously discussed this represents an overstated impact analysis and ultimate impacts will be less due to the limitations on development in Planning Areas 4 and 8, and orchards in Planning Areas 6 and 7.

TABLE 8-6
SUMMARY OF INFRASTRUCTURE IMPACTS TO USACE WETLANDS AND NON-WETLAND WATERS BY INFRASTRUCTURE TYPE FOR ALTERNATIVES B-10 MODIFIED AND B-12[a.]

USACE Jurisdictional Areas						
	Wetlands (acres)		Non-Wetland Waters of the U.S. (acres)		Total USACE (acres)	
Alternative	**Temp.**	**Permanent**	**Temp.**	**Permanent**	**Temp.**	**Permanent**
B-12 Alternative[b.]						
Trails	5.11	2.30	5.32	2.63	10.43	4.93
Drainage Facilities[c.]	0.65	2.03	0.20	0.42	0.85	2.45
Water-Sewer[d.]	0.57	1.19	0.20	0.92	0.77	2.11
Road/Bridge Construction [e]	4.02	3.01	6.36	2.15	10.38	5.16
Maintenance of Existing RMV Planning Area Facilities	5.47	0.00	8.99	0.00	14.46	0.00
Total	**15.82**	**8.53**	**21.07**	**6.12**	**36.89**	**14.65**
B-10 Modified Alternative						
Trails	3.71	1.94	4.65	2.72	8.36	4.66
Drainage Facilities[c.]	0.15	1.66	0.01	0.14	0.16	1.80
Water-Sewer[d.]	1.61	3.51	1.59	3.25	3.20	6.76
Road/Bridge Construction[e]	5.17	1.91	6.08	1.77	11.25	3.68
Maintenance of Existing RMV Planning Area Facilities	5.55	0.00	8.75	0.00	14.30	0.00
Total	**16.19**	**9.02**	**21.08**	**7.88**	**37.27**	**16.90**

a. Jurisdictional areas falling outside of the GLA study area boundary are estimated using ERDC data.
b. As previously discussed this represents an overstated impact analysis and ultimate impacts will be less due to the limitations on development in Planning Areas 4 and 8, and orchards in Planning Areas 6 and 7
c. Includes culvert outfalls and Gobernadora Water Quality Basin
d. Includes non-domestic water, domestic water, and sewer.
e. Due to the lack of final design details on the location of road/bridge construction, a contingency of 50 percent of additional impact is assumed for both alternatives.

TABLE 8-7
SUMMARY OF INFRASTRUCTURE IMPACTS TO USACE JURISDICTIONAL WETLANDS BY HABITAT TYPE FOR ALTERNATIVE B-10 MODIFIED

Habitat Type	Trails		Drainage Facilities		Sewer/Water		Roads/Bridges		Existing RMV Planning Area Maintenance		Total	
	Perm.	Temp.	Perm.	Temp.	Perm.	Temp.	Perm.	Temp.	Perm.	Temp.	Perm.	Temp
Alkali Meadow (5.2)	–	0.04	–	–	0.12	0.06	0.11	0.13	–	0.01	0.23	0.23
Seasonal Pond (5.3)	–	–	–	–	–	–	–	–	–	–	–	–
Coastal Freshwater Marsh (6.4)	0.07	0.28	0.07	–	0.62	0.31	0.11	0.26	–	1.96	0.87	2.81
Riparian Herb (7.1)	–	–	–	–	–	–	–	–	–	–	–	–
Southern Willow Scrub (7.2)	–	0.02	1.25	–	0.45	0.19	1.11	0.26	–	0.32	2.81	0.79
Mulefat Scrub (7.3)	1.65	2.92	0.34	0.15	1.73	0.74	0.39	1.07	–	2.82	4.11	7.70
Sycamore Riparian Woodland (7.4)	–	–	–	–	–	–	–	–	–	–	–	–
Arroyo Willow Forest (7.6)	0.22	0.45	–	–	0.59	0.31	0.19	3.44	–	0.44	1.00	4.64
Spreading Grounds/Detention Basins (12.3)	–	–	–	–	–	–	–	–	–	–	–	–
Intermittent Rivers and Streams	–	–	–	–	–	–	–	0.01	–	–	–	–
Total	**1.94**	**3.71**	**1.66**	**0.15**	**3.51**	**1.61**	**1.90**	**5.17**	**0.00**	**5.55**	**9.02**	**16.17**

TABLE 8-8
SUMMARY OF INFRASTRUCTURE IMPACTS TO USACE JURISDICTIONAL WETLANDS BY HABITAT TYPE FOR ALTERNATIVE B-12

Habitat Type	Trails		Drainage Facilities		Sewer-Water		Roads/Bridges		Existing RMV Planning Area Maintenance		Total	
	Perm.	Temp.	Perm.	Temp.	Perm.	Temp.	Perm.	Temp.	Perm.	Temp.	Perm.	Temp.
Alkali Meadow (5.2)	–	–	–	–	0.03	0.04	–	0.13	–	–	0.03	0.17
Seasonal Pond (5.3)	–	–	–	–	–	–	–	–	–	–	–	–
Coastal Freshwater Marsh (6.4)	0.08	0.31	0.09	0.04	0.14	0.14	1.22	1.06	–	1.96	1.53	3.51
Riparian Herb (7.1)	–	–	–	–	–	–	–	–	–	–	–	–
Southern Willow Scrub (7.2)	0.34	0.78	1.30	0.02	0.01	0.01	0.41	0.28	–	0.32	2.06	1.41
Mulefat Scrub (7.3)	1.78	3.71	0.49	0.39	0.96	0.31	0.71	0.40	–	2.75	3.94	7.56
Sycamore Riparian Woodland (7.4)	–	–	–	–	–	–	–	–	–	–	–	–
Arroyo Willow Forest (7.6)	0.10	0.31	0.08	0.04	0.05	0.07	0.43	2.14	–	0.44	0.66	3.00
Spreading Grounds/Detention Basins (12.3)	–	–	0.07	0.16	–	–	–	–	–	–	0.07	0.16
Intermittent Rivers and Streams	–	–	–	–	–	–	0.24	0.01	–	–	0.24	0.01
Total	**2.30**	**5.11**	**2.03**	**0.65**	**1.19**	**0.57**	**3.01**	**4.02**	**0.00**	**5.47**	**8.53**	**15.82**

As described in Chapters 4.0 and 6.0, a federal project-level jurisdictional delineation of areas under consideration for alteration in connection with RMV Proposed Project activities within the RMV Planning Area was prepared by GLA (2004) (Appendix E3). The delineation determined that the maximal extent of potential development areas contains 267.12 acres that are within the jurisdiction of the USACE, of which 158.92 acres are considered jurisdictional wetland.

Jurisdictional areas typically include all vegetation types listed in the table with the exception of isolated waters such as vernal pools and slope wetlands. Based on the USACE planning level Engineer Research and Development Center data for typical riparian vegetation communities, as noted in Chapter 4.0, existing setting for riparian and wetland resources, there are an estimated 9,287.6 acres of aquatic habitats in the SAMP Study Area of which there are an estimated 3,222.2 acres of probable USACE jurisdictional habitats. In the RMV Planning Area, there are 2,299.7 acres of aquatic habitats of which 857.1 acres are probable USACE jurisdictional habitats. Therefore, the delineated resources that may be affected by development represent a small portion of the resources within both the SAMP Study Area and the RMV Planning Area.

With regard to the B-12 Alternative, as reviewed in subchapter 8.1.1.1 the impacts analysis in this subchapter for several subareas assumes overall levels of impact considerably in excess of what is allowed under the proposed alternative. Within two of the B-12 planning areas, Planning Areas 4 and 8, the total combined acreage proposed for development (550 acres plus 500 acres plus 175 acres for the reservoir site, for a total of 1,225 acres) is substantially less than the size of the impact analysis area of 2,476 acres used for these planning areas. The siting of the development in these areas will require additional extensive geotechnical testing and other analyses that would be prepared prior to consideration of development in Planning Areas 4 and 8. Consequently, the impact analyses for Planning Areas 4 and 8 assume the complete disturbance of acres within both planning areas although the combined disturbance footprint cannot exceed 1,225 acres. With respect to Planning Areas 6 and 7, the impact analysis assumes impacts to approximately 249 acres and 182 acres, respectively, for a total EIS impact area of 431 acres, even though only a maximum 50 acres of orchards would be permitted.

Infrastructure impacts are addressed in two ways. All infrastructure located within planning areas is included in the “development” impacts for the particular planning area. However, of necessity, some infrastructure would be located within proposed open space and would cross Aquatic Resources Conservation Areas (Table 8-6). This latter type of infrastructure is identified separately (Tables 8-7 and 8-8).

Summary of Impacts to Jurisdictional Wetlands by Habitat Type

Chapter 6.0 contains a description of the jurisdictional wetland habitat type and impacts related to development for Alternatives B-10 Modified and B-12. The following is a summary of those development related impacts and those impacts related to infrastructure, as set forth in Tables 8–6, 8-7, and 8-8.

Development area impacts to USACE jurisdictional wetland alkali meadow are limited to 0.56 acre for the B-10 Modified and 0.44 acre for the B-12 Alternatives. Permanent infrastructure impacts to USACE jurisdictional wetland alkali meadow are 0.23 acre for the B-10 Modified Alternative and 0.03 acre for the B-12 Alternative.

Development area impacts to USACE jurisdictional seasonal pond are 0.75 acre and 0.76 acre for Alternatives B-10 Modified and B-12, respectively. There would be no infrastructure impacts

to USACE jurisdictional wetland seasonal pond habitat for either the B-10 Modified or B-12 Alternatives.

Development area impacts to USACE jurisdictional wetland freshwater marsh are 1.18 acres for both alternatives. Permanent infrastructure impacts to USACE jurisdictional wetland freshwater marsh are 0.87 acre for the B-10 Modified Alternative and 1.53 acres for the B-12 Alternative.

Development area impacts to USACE jurisdictional wetland riparian herb would be 0.03 acre for both alternatives. There would not be infrastructure impacts to USACE jurisdictional wetland riparian herb for the B-10 Modified and B-12 Alternatives.

Development area impacts to USACE jurisdictional wetland southern willow scrub would be 0.82 acre for Alternative B-10 Modified and 1.16 acres for Alternative B-12. Permanent infrastructure impacts to USACE jurisdictional southern willow scrub are 2.81 acres for the B-10 Modified Alternative and 2.06 acres for the B-12 Alternative.

Development area impacts to USACE jurisdictional mule fat scrub wetland total 0.33 acre for Alternative B-10 Modified and 0.34 acre for Alternative B-12. Permanent infrastructure impacts to USACE jurisdictional mule fat scrub are 4.1 acres for the B-10 Modified Alternative and 3.94 acres for the B-12 Alternative.

No development area or infrastructure impacts to USACE jurisdictional wetland sycamore riparian woodland would occur for both the B-10 Modified and B-12 Alternatives.

Development area impacts to USACE jurisdictional wetland arroyo willow riparian forest would be 5.48 acres for Alternative B-10 Modified and for Alternative B-12. Permanent infrastructure impacts to USACE jurisdictional arroyo willow forest are summarized in Tables 8-7 and 8-8 according type of infrastructure. Impacts would be 1.0 acre for the B-10 Modified Alternative and 0.66 acre for the B-12 Alternative.

In addition to the impacts noted above, the B-12 Alternative would also impact 0.24 acres of intermittent stream as a result of infrastructure.

Alternative A-4

As noted addressed, under the A-4 Alternative, Rancho Mission Viejo could request Section 404 permits on a planning area by planning area basis for the County-approved B-10 Modified Alternative. This alternative could achieve substantial aquatic resource protection through incremental permitting. However, this alternative would not provide for comprehensive aquatic resource restoration and management. Alternative A-4 provides no assurances of meaningful protection of Waters of the U.S. There is no guarantee that the permitting outcome of each individual project would achieve the same outcome as the B-10 Modified Alternative. There may be some development areas within the RMV Planning Area that would have more impacts and some areas of open space that would not be preserved. Therefore, permit-by-permit processing is not environmentally beneficial. This alternative would not meet the Purpose and Need as set forth in Chapters 1.0 and 3.0. This alternative is reviewed in this chapter only as a no SAMP alternative for comparison purposes. Therefore, the analysis set forth above for the B-10 Modified Alternative would apply to the A-4 Alternative.

Alternative A-5

As described in Chapter 5.0, the A-5 Alternative obviates the need for a SAMP and permits under Section 404 by avoiding regulated Waters of the U.S., including wetlands as required by Section 404 and NEPA. Alternative A-5 violates two SAMP tenets. One, is the lack of buffers, and two, is the lack of continuous wildlife corridors. Therefore, this alternative is not environmentally beneficial. This alternative would not meet the Purpose and Need as set forth in Chapters 1.0 and 3.0 of this EIS. Under this alternative, no impacts to regulated Waters would occur and, therefore, no further analysis is necessary.

8.4.1.2 Avoidance through Long-Term Protection of Wetlands and Riparian Habitats

This subsection reviews the proposed protection of wetlands/riparian habitats and associated aquatic species that comprise the aquatic ecosystem within the SAMP Study Area and within the RMV Planning Area. As a result of the proposed RGP outside of the RMV Planning Area under the B-10 Modified and B-12 Alternatives, there would be no permanent impacts. As a result of the proposed LOP procedures for future participants outside the RMV Planning Area under the B-10 Modified and B-12 Alternatives, the acreage of avoidance of permanent impacts from the proposed LOP process is not known in advance, but must be determined on a case-by-case basis. However, the proposed LOP process would provide protection through additional coordination and review, such that avoidance would be maximized.

Within the RMV Planning Area, the avoidance of impacts on aquatic resources reflected in the B-10 Modified and B-12 Alternatives reflects the comprehensive review of consistency with the SAMP Tenets and Watershed Planning Principles, as well as the Southern Planning Guidelines applicable to aquatic species, set forth in Chapter 6.0. Given the reliance of the ERDC planning-level delineation, the tables summarizing the proposed protection of aquatic resources combine jurisdictional wetlands and non-jurisdictional riparian habitat under “riparian” in order to provide an overview of avoidance of impacts on the aquatic ecosystem.

Under Alternative A-4, future projects would be authorized on a case-by-case basis through mostly existing NWPs and standard Individual Permits, preventing the advanced determination of avoidance. In addition, in situations where activities that would be reviewed under the proposed LOP procedures are authorized under the existing NWPs, there would be less upfront coordination and review and less assurance that all reasonable avoidance measures would occur.

Under Alternative A-5, no direct impacts to aquatic resources would be allowed. All wetland and riparian habitats would essentially be preserved. Whether a proposed project is in an area eligible or ineligible for abbreviated permitting, the project would most likely build as close to the USACOE jurisdictional feature as possible, resulting in isolation and encroachment of any buffers, resulting in an undeterminable amount of indirect impacts. However, protected wetland and riparian habitats would suffer from indirect effects caused by lack of ecologically meaningful buffers and from the lack of continuous corridors.

Summary of Protected Riparian Habitat

Using the USACE Engineer Research and Development Center database as the data source, Tables 8-9 and 8-10 set forth the protected riparian habitats within the SAMP Study Area and conserved riparian habitats in the RMV Planning Area, respectively, when permanent impacts related to development and infrastructure are considered. In contrast with the ARCA proposed to be “conserved” within the RMV Planning Area, riparian habitats in previously protected areas

are considered "protected" rather than "conserved" because these previously protected areas are not subject to management actions enforced through regulatory requirements.

TABLE 8-9
SUMMARY OF RIPARIAN AREAS PROTECTED[a.] IN SAMP STUDY AREA

Riparian Habitat	SAMP Study Area Total (Acres)	Protected by:	
		Alternative B-10 Modified	Alternative B-12
Bigcone Spruce-Canyon Live Oak Forest	477.7	477.7	477.7
Canyon Live Oak Forest	195.0	195.0	195.0
Canyon Live Oak Ravine Forest	243.9	243.9	243.9
Coast Live Oak Forest	239.5	163.3	168.7
Coast Live Oak Woodland	851.1	803.6	786.6
Coastal Freshwater Marsh	141.3	112.3	111.3
Intermittent Rivers and Streams	304.6	302.9	302.4
Mule fat Scrub	778.7	744.6	758.5
Open Water	345.0	306.4	307.5
Perennial Rivers and Streams	112.3	112.3	112.3
Riparian Herb	22.1	19.1	19.1
Salix exigua	1.9	1.9	1.9
Southern Arroyo Willow Forest	307.7	291.6	291.7
Southern Coast Live Oak Riparian Forest	3,018.6	2,761.2	2,778.8
Southern Coastal Salt Marsh	0.2	0.2	0.2
Southern Sycamore Riparian Woodland	619.9	608.0	605.1
Southern Willow Scrub	727.8	695.2	695.3
White Alder Riparian Forest	342.1	342.1	342.1
Total	**8,729.4**	**8,181.3**	**8,198.1**

Note: This is an understated analysis. The final protected acreage will increase because of limits on development (disturbance) in Planning Areas 4 and 8, and orchards in Planning Areas 6 and 7.

a. Protected habitat includes: (1) protected riparian vegetation in previously protected open space (e.g. County parks) and through alternative permitting mechanisms and (2) riparian vegetation that would be conserved within the RMV Planning Area under a particular alternative.

8.4.1.3 SAMP Tenets and Watershed Planning Principles Consistency Summary

Activities Outside of the RMV Planning Area Authorized by the RGP or Potentially Authorized by LOPs

Outside of the RMV Planning Area, only the SAMP Tenets apply. The Watershed Planning Principles were developed mainly for the RMV Planning Area and have little direct application outside the RMV Planning Area. Under Alternative B-10 Modified and Alternative B-12, implementation of the proposed RGP and LOP procedures outside of the RMV Planning Area is expected to be the same for each alternative. Future NEPA Section 404(b)(1) Guidelines review would be directed toward assuring consistency of future activities to be authorized outside the RMV Planning Area pursuant to the LOP procedures and SAMP Tenets.

TABLE 8-10
SUMMARY OF RIPARIAN AREAS CONSERVED IN RMV PLANNING AREA

Riparian Habitat	RMV Planning Area Total (Acres)	Conserved by:	
		Alternative B-10 Modified	Alternative B-12
Canyon Live Oak Ravine Forest	0.3	0.3	0.3
Coast Live Oak Forest	131.9	56.8	62.3
Coast Live Oak Woodland	160.3	113.1	96.1
Coastal Freshwater Marsh	104.2	75.2	74.2
Intermittent Rivers and Streams	92.0	90.3	89.8
Mule fat Scrub	410.4	376.8	390.2
Open Water	53.5	15.0	16.0
Perennial Rivers and Streams	0.8	0.8	0.8
Riparian Herb	8.0	5.0	5.0
Salix exigua	1.3	1.3	1.3
Southern Arroyo Willow Forest	144.8	128.6	128.7
Southern Coast Live Oak Riparian Forest	854.3	602.8	619.9
Southern Sycamore Riparian Woodland	125.8	114.0	110.9
Southern Willow Scrub	84.8	59.6	59.9
White Alder Riparian Forest	1.9	1.9	1.9
Total	**2174.3**	**1641.5**	**1657.3**

Note: This represents an understated analysis. The final conservation acreage will increase because of limits on development (disturbance) in Planning Areas 4 and 8, and orchards in Planning Areas 6 and 7.

Under Alternative B-10 Modified and Alternative B-12, the proposed RGP will not conflict with the SAMP Tenets. Eligible actions will have no more than 0.5 acre of temporary impact to USACE jurisdictional areas of which no more than 0.1 acre may be vegetated by native wetland vegetation. Because the proposed RGP would apply only to areas with low riparian integrity, little native vegetation is expected in such areas. Due to the temporary nature of the impact, the small extent, and low integrity of such areas, there would not be any conflict with the SAMP Tenets.

As noted above under Alternative B-10 Modified and Alternative B-12, the proposed LOPs would need to undergo future NEPA review and evaluation under the Section 404(b)(1) Guidelines to determine any likely conflicts with the SAMP Tenets. Within areas proposed to be ineligible for abbreviated permitting, impacts would be limited to 0.1 acre of permanent impacts to USACE jurisdictional areas. Subject to NEPA review and the maximum allowable impact allowed under the proposed LOPs for these areas, substantial conflicts with the SAMP Tenets would not be expected. Within areas proposed to be eligible for abbreviated permitting, there would be no limits on acreage of impacts. Impacts to native habitats within these areas proposed to be eligible for abbreviated permitting would be expected to be lower due to past degradation that had decreased the riparian integrity of such areas. In conjunction with future NEPA review, consistency with the SAMP Tenets is expected due to the requirement for upfront coordination with the agencies through the USACE, followed by the USACE formal notification to the other agencies for their comments.

Under Alternative A-4, project-by-project review would continue to occur outside of the RMV Planning Area under the current framework, resulting in the authorization of activities through mostly existing NWPs and standard Individual Permits. Temporary impacts that could be authorized by the proposed RGP would continue be authorized by existing NWPs. Due to the

lower quality conditions of aquatic areas that are proposed to be covered by the RGP, authorization using NWPs for these activities is not expected to conflict with the SAMP Tenets. Activities that could be authorized by the proposed LOPs would continue to be authorized by existing NWPs or by standard Individual Permits. Compared to the proposed LOPs, existing NWPs would require less upfront coordination with the USACE and with other resource agencies, resulting in more likelihood of conflicts with the SAMP Tenets. Compared to the proposed LOPs, the standard individual permits would involve the same level of participation by the resource agencies, resulting in similar outcomes.

Alternative A-5 obviates the need for a SAMP and permits under Section 404 by avoiding regulated Waters of the U.S, including wetlands. Whether a proposed project is in an area eligible or ineligible for abbreviated permitting, the project would most likely build as close to the USACOE jurisdictional feature as possible. SAMP Tenets maintaining adequate buffers and continuous riparian corridors would be violated on a regular basis.

Alternative B-10 Modified

The B-10 Modified Alternative is consistent with the SAMP Tenets and the Watershed Planning Principles, with the exception of the potential fragmentation caused by the two small development areas in Planning Area 6 (Cristianitos Meadows), the width of the San Juan Creek wildlife movement corridor, habitat linkage connectivity between the San Juan Creek Watershed and the San Mateo Creek Watershed (including both the presence of development in Planning Area 6 and the extent of development in Planning Area 4), and impacts to regulated wetlands and Waters of the U.S.

Although the B-10 Modified Alternative's proposed development areas in Planning Area 6 have been sited to allow wildlife movement areas between the two small development areas, the USACE raised questions on the GPA/ZC EIR 589 as to whether the width of these areas would functionally connect the San Juan Creek and San Mateo Creek Watersheds to allow for less mobile aquatic species such as the arroyo toad to interbreed among separated populations.

With regard to the San Juan Creek wildlife movement corridor, the USACE has stated a goal of achieving a minimum 1,312-foot-wide (400 meter) movement corridor for mountain lion movement between Planning Areas 3 and 4 located on the north and south side of San Juan Creek. Except for these two areas of concern, major tenet/guidelines/principles consistency would be achieved with respect to the protection of aquatic habitats planning species, wetlands/riparian vegetation communities, habitat blocks, connectivity, species diversity, significant hydrologic and geomorphic processes, and water quality.

Conclusion Regarding Potentially Significant Impacts of the B-10 Modified Alternative on the Aquatic Ecosystem

Alternative B-10 Modified generally meets the SAMP Goals and Purposes with regard to potentially significant impacts on the aquatic ecosystem. However, the analysis in this subchapter and in Chapter 6.0 notes areas of continuing aquatic ecosystem impacts concern raised by the USACE as noted below:

- adequacy of setbacks from San Juan Creek for protection large mammal movement, particularly where the San Juan Creek corridor is less than 1,312 feet in width (see discussion under SAMP Tenet 4)

- riparian/wildlife corridor in Cristianitos in proposed Planning Area 6 may not be sufficient to support the movement of less mobile aquatic species from the San Juan Creek watershed to the San Mateo Creek Watershed

- the small development proposed for Planning Area 6 also occurs within the headwaters of Cristianitos Creek and is in conflict with SAMP Tenet 3

The B-10 Modified Alternative's measures for avoiding impacts to the aquatic ecosystem are generally consistent with the SAMP Tenets, Southern Planning Guidelines, and the Watershed Planning Principles but with several significant exceptions noted immediately above. Taken together with already protected open space in the SAMP Study Area, the B-10 Modified Alternative's open space would protect a very large block of habitat containing sensitive aquatic species and would provide connectivity with large-scale protected habitat areas in close proximity to these lands both within the planning area and in adjoining areas such as the Cleveland National Forest, San Mateo Wilderness, and San Mateo Creek within MCB Camp Pendleton.

Alternative B-12

Alternative B-12's aquatic resources protection, restoration, and management features are consistent with the SAMP Tenets, as well as providing high levels of consistency with the watershed and sub-basin principles reviewed previously in this chapter. Major principles consistency is achieved with respect to the protection of aquatic resources, riparian corridors, listed and unlisted aquatic species, riparian ecosystem integrity, connectivity between watersheds, species diversity, significant hydrologic and geomorphic processes, and water quality. Impacts to regulated wetlands and Waters of the U.S. would occur with Alternative B-12, but would be less than when compared to the Alternatives B-10 Modified and A-4 (assuming planning area by planning area permitting of the B-10 Modified).

Conclusion Regarding Potentially Significant Impacts of the B-12 Alternative on the Aquatic Ecosystem

The key features of B-12 Alternative that address the aquatic ecosystem impacts issues raised by the USACE in reviewing the B-10 Modified Alternative are as follows:

- With the possible exception of up to 50 acres of new orchards (which would not be permitted in wetland areas), no development would occur in Planning Area 6 resulting in protection of the headwaters of Cristianitos Creek and protection of a 5,000-foot-wide movement corridor between the San Juan and San Mateo Watersheds (a smaller development envelope in Planning Area 4 under the B-12 Alternative compared with the B-10 Modified Alternative might further increase the dimension of this corridor);

- The width of the wildlife movement corridor along San Juan Creek would be a minimum of 1,312 feet between Planning Areas 3 and 4 (certain limited non-pervious uses would be allowed within the 1,312-foot-wide wildlife movement area); and

- No acquisition funding would be required under the B-12 Alternative, thereby assuring the long-term protection of Aquatic Resources Conservation Areas in the RMV Planning Area through a phased dedication program.

In addition to these considerations, this alternative would address concerns expressed by the environmental community and other members of the general public regarding development

within the RMV Planning Area, particularly those concerns related to the overall level of development within the San Mateo Watershed in Planning Areas 6, 7, and 8 potentially affecting aquatic ecosystems (including development adjacent or draining to Cristianitos Creek and the level of development within middle Chiquita Canyon draining to Chiquita Creek within the San Juan Creek Watershed). Alternative B-12 generally meets the SAMP Goals and Purposes with respect to aquatic resources through avoidance of impacts and assurances of long-term protection of aquatic ecosystems (Figure 5-13).

Alternative A-4

Although significant aquatic resource protection could be achieved on private lands through incremental USACE permitting (particularly if Rancho Mission Viejo were to request permits for the B-10 Modified Alternative on a planning area by planning area basis), the issues noted above for B-10 Modified would be applicable to the A-4 Alternative. In addition, permitting on an incremental planning area by planning area basis is unlikely to result in comprehensive aquatic resource restoration and protection. Some larger scale aquatic resource restoration could be undertaken in a phased fashion. However, some restoration actions involving a comprehensive watershed-wide approach to pre-existing conditions such as giant reed control in Arroyo Trabuco and in San Juan Creek would not have a mitigation nexus with incremental USACE Section 404 permits. The USACE could require project by project invasive species control as mitigation, as it has done in the past (e.g., Crown Valley Parkway Bridge widening and *Arundo* removal in Arroyo Trabuco). However, such efforts would be expected to have limited success because effective invasive species control generally requires comprehensive areawide efforts over a long time period in order to assure overall benefits to aquatic resources, in contrast with project-by-project invasive species control mitigation efforts that are often of small scale and very localized. Finally, long-term management commitments to comprehensive management and the funding for such commitments are generally lacking in incremental USACE Section 404 permits, including those subject to Section 7 consultations. Therefore, Alternative A-4 would not result in assurances of coordinated protection because the approach is incremental and does not address the entire watershed. As such, Alternative A-4 is included in this chapter for comparison purposes only.

Alternative A-5

Although Alternative A-5 may be economically feasible for Rancho Mission Viejo and potentially for landowners within the Foothill/Trabuco Specific Plan area, it does not meet the Purposes and goals identified in Chapters 1.0 and 3.0 of this EIS. Significant aquatic resource areas would be avoided. However, due to the absence of impacts creating a regulatory nexus justifying land and water areas dedications, open space areas outside of proposed development areas may not have permanent use restrictions. As a consequence, while these areas would be "avoided," they would not be protected because future land use entitlements could be requested by a private landowner. Given the low density of housing and the County's overall housing goals reflected in OCP 2004, such a scenario could occur. As previously noted, comprehensive aquatic resource restoration would not be undertaken. Additionally, two areas important to maintaining and restoring long-term hydrologic/terrains resources–the side canyons of middle Chiquita and the non-wetlands areas adjoining Gobernadora Creek–would not be protected under this alternative scenario. Finally, there would be no regulatory basis for establishing a comprehensive Aquatic Resources Adaptive Management Program (reviewed in Chapter 5.0). For these reasons, Alternative A-5 is included in this chapter only for comparison purposes.

8.4.1.4 Summary of Aquatic Species Impacts

Activities Outside of the RMV Planning Area Authorized by the RGP or Potentially Authorized by LOPs

Under Alternative B-10 Modified and Alternative B-12, implementation of the proposed RGP and LOP procedures outside of the RMV Planning Area is expected to be the same for each alternative. The proposed RGP would not be expected to have any impacts to sensitive aquatic species. Eligible actions will occur where there is low riparian integrity, with a small impact footprint in an area no greater than 0.5 acre of USACE jurisdictional areas with no more than 0.1 acre of native riparian vegetation, and will be temporary. Such areas are not expected to have sensitive aquatic species and there would not be a significant impact of the proposed RGP on sensitive aquatic species. The proposed RGP also has general conditions requiring applicable BMPs, avoidance of breeding season, and a Section 7 consultation if a threatened and/or endangered species is in the vicinity, which all help minimize impacts to sensitive aquatic species if they are in the vicinity.

Under Alternative B-10 Modified or Alternative B-12, the proposed LOP procedures would need to undergo future NEPA review and evaluation under the Section 404(b)(1) Guidelines to determine if there are extensive impacts to sensitive aquatic species. Within areas ineligible for abbreviated permitting, impacts are limited to 0.1 acre of permanent impacts to USACE jurisdictional areas with required coordination with the resource agencies. Consequently, large amount of impacts to sensitive aquatic species are not expected. Within areas eligible for abbreviated permitting, there would be no limits on acreage of impacts. Impacts to sensitive species are expected to be lower due to past degradation that had decreased the likelihood of the presence of sensitive aquatic species in the project area. In addition, impacts are expected to be minimized to the same degree as standard individual permits due to the requirement for upfront coordination with the agencies through the USACE, followed by the USACE formal notification to the other agencies for their comments. The proposed LOP also has general conditions requiring applicable BMPs, avoidance of breeding season, a Section 7 consultation if a threatened and/or endangered species is in the vicinity, and a requirement to make any culverts more amenable to fish passage.

Under Alternative A-4, project-by-project review would occur for those activities that are proposed to be processed as RGPs and LOPs outside of the RMV Planning Area. Temporary impacts that could be authorized by the proposed RGP would be authorized by NWPs. Due to the lower quality conditions of aquatic areas that are covered by the proposed RGP, authorization using NWPs for these types of activities are not expected to affect sensitive aquatic species. Activities that could be authorized by the LOPs would be authorized by NWPs or by standard individual permits. Compared to the proposed LOPs, the NWPs would require less upfront coordination with the USACE and with other resource agencies, resulting in less likelihood of improved project design that would minimize any impacts to sensitive species if they are in the project area. Compared to the proposed LOPs, the standard individual permits would involve the same level of participation by the resource agencies, resulting in similar outcomes.

Alternative A-5 obviates the need for a SAMP and permits under Section 404 by avoiding regulated Waters of the U.S, including wetlands. Whether a proposed project is in an area eligible or ineligible for abbreviated permitting, the project would most likely build as close to the USACOE jurisdictional feature as possible. Indirect impacts to sensitive aquatic species would occur through noise, encroachment by people and domestic animals, and emission of pollutants.

SMWD Proposed Project

Due to the lack of aquatic habitats present within the proposed Upper Chiquita Reservoir site, no impacts to listed aquatic species are anticipated. Similarly no impacts to listed aquatic species are anticipated as a result of SMWD maintenance of existing facilities.

Alternative B-10 Modified

Listed Aquatic Species

The sensitive aquatic species known or expected to occur within the SAMP Study Area are reviewed in Chapter 4.0 and include: (1) state- or federally-listed as Threatened or Endangered Aquatic Species and (2) special status aquatic species. Table 6-6 in Chapter 6.0 sets forth potential impacts to listed and special status aquatic (i.e., occupying wetland and/or riparian habitats) species associated with the B-10 Modified Alternative without consideration of impacts associated with infrastructure.

From the analysis in Chapter 6.0, the B-10 Modified Alternative was identified as having potentially significant indirect impacts (such as the generation of pollutants of concern) on the arroyo toad.

The following discussion focuses on how the B-10 Modified Alternative minimizes impacts to listed aquatic species through avoidance of Waters of the U.S. In addition, impacts attributable to infrastructure necessary to support implementation of the B-10 Modified Alternative are also discussed. Mitigation for impacts to listed species is discussed in subchapter 8.5.

San Diego and Riverside Fairy Shrimp. All vernal pool areas are located outside USACE jurisdiction. All the vernal pool complexes supporting San Diego fairy shrimp on Chiquita Ridge and along Radio Tower Road, including their contributing hydrological sources would be avoided per County GPA conditions. Infrastructure necessary to support implementation of the B-10 Modified Alternative would not result in additional impacts to the San Diego fairy shrimp.

Arroyo Toad. As described in Chapter 6.0, the B-10 Modified Alternative would retain all (100 percent) of the arroyo toad breeding sites along floodplains and creek bottoms, including major and important populations in key locations in San Juan Creek, lower Gabino Creek, lower Cristianitos Creek, and Talega Creek. In addition, the B-10 Modified Alternative protects upland habitats suitable for the toad through siting development based on guidelines contained in the critical habitat determination for the arroyo toad published by USFWS (Federal Register 70 19563). Within the SAMP Study Area, wetlands/riparian habitat is conserved in already protected open space within Arroyo Trabuco and Caspers Wilderness Park, the Donna O'Neill Land Conservancy, and the Upper Chiquita Land Conservancy. In comments on the GPA/ZC EIR 589 and as noted in Chapter 6.0, the USACE raised issues regarding the adequacy of development area setbacks from the center of the San Juan Creek relative to protection of the arroyo toad.

Implementation of infrastructure supporting the B-10 Modified Alternative may result in both temporary and small permanent impacts to suitable habitat for the toad. In particular, construction of the Avenida Pico bridges over Cristianitos Creek from the City of San Clemente, upgrade of Cristianitos Road through the Cristianitos Sub-basin, and the likely upgrade of the existing Gabino culvert crossing and Cristianitos Road over San Juan Creek, in addition to Cow Camp Road over San Juan Creek would result in temporary construction impacts and permanent impacts associated with the placement of bridge piers. In addition to the potential

direct impacts noted above, Chapter 6.0 noted that indirect impacts such as pollutants of concern, invasive species, and lighting may occur.

Least Bell's Vireo. All known breeding locations for the vireo are avoided by the B-10 Modified Alternative, including both key locations identified by the NCCP Southern Planning Guidelines in the Gobernadora Ecological Restoration Area and in the Arroyo Trabuco. In addition, as previously identified in Tables 8-9 and 8-10, this alternative would result in the protection of approximately 8,181.3 acres of riparian areas in the SAMP Study Area and 1,641.5 acres within the RMV Planning Area. Of the protected riparian areas, 1,002.4 acres in the SAMP Study Area and 470.2 acres in the RMV Planning Area are suitable willow scrub and riparian forest habitat for the least bell's vireo. Within the SAMP Study Area, wetlands/riparian habitat is conserved in already protected open space within Arroyo Trabuco and Caspers Wilderness Park, the Donna O'Neill Land Conservancy, and the Upper Chiquita Land Conservancy. Infrastructure to support the B-10 Modified Alternative would result in permanent impacts to one vireo location and temporary impacts to one location. This is a potentially significant impact.

Southern Steelhead. Chapter 6.0 identified that National Marine Fisheries Service determined that San Juan Creek within the RMV Planning Area is unoccupied by southern steelhead. Preservation of San Juan Creek and associated riparian habitat through the RMV Planning Area and beyond in Caspers Regional Park and the Cleveland National Forest within the larger SAMP Study Area would provide future opportunities for fish passage. Limited modifications to San Juan Creek in the form of bridge piers for four crossings would not impact occupied habitat or impede potential future fish passage.

Special Status Aquatic Species

***Western Spadefoot Toad*.** As noted in Chapter 6.0, the B-10 Modified Alternative would impact six of the 15 known locations of spadefoot toads on the RMV Planning Area. The impacted locations are within Planning Areas 1 (two locations), Planning Area (three locations) and Planning Area 4 (one location). Impacts to western spadefoot toad are considered significant.

***Southern Tarplant*.** As noted in Chapter 6.0, Alternative B-10 Modified would result in impacts to 11 locations and 23,726 individuals, impacts to southern tarplant are considered significant.

Arroyo Chub. Chapter 6.0 described that within the RMV Planning Area, San Juan Creek and Cañada Gobernadora would be subject to temporary alteration or diversion to accommodate grading and construction (temporary impacts) from the B-10 Modified Alternative's circulation system and indirect impacts associated with implementation of this alternative. However, suitable habitat for the arroyo chub in Cañada Gobernadora would not be affected by any such alterations or diversions; therefore, no significant impacts are anticipated. Additionally, the majority of high quality habitat in San Juan Creek is located upstream of the RMV Planning Area in Casper's Regional Park, extending into the Cleveland National Forest; therefore, no significant impacts are anticipated in this location either.

Salt Spring Checkerbloom. As noted in Chapter 6.0, Alternative B-10 Modified would impact all three locations on the RMV Planning Area and 532 individuals (one population would be partially impacted). Impacts to the single location in Gobernadora Canyon would be considered less than significant because of the limited number of individuals impacted. The B-10 Modified Alternative would result in significant impacts to this species.

Mud Nama. As noted in Chapter 6.0, two locations, containing a large number of this species (9,500 individuals) would be impacted by the B-10 Modified Alternative. This is considered a significant impact.

Common Aquatic Species

Mountain Lion. Although the mountain lion is not an aquatic species, it frequently uses riparian corridors for movement purposes and as a water source. As noted in Chapter 6.0, all important movement corridors for mountain lion identified in the SAMP Study Area (i.e., linkages C, D, G, H, I, J, L, M, O, P, and Q) as identified in the Southern Planning Guidelines and the Watershed Planning Principles would exceed standards recommended by Beier under the B-10 Modified Alternative, except for linkage J (San Juan Creek). The B-10 Modified Alternative includes a 300-foot-wide setback from the edge of the 100-year floodplain which provides a minimum 1,100-foot wide corridor for a distance of 5,150 linear feet. This corridor would not meet the standards recommended by Beier of a 1,312 feet corridor. This is a potentially significant impact.

Partially Armored Threespine Stickleback. Chapter 6.0 described that within the RMV Planning Area, San Juan Creek and Cañada Gobernadora would be subject to temporary alteration or diversion to accommodate grading and construction (temporary impacts) from the B-10 Modified Alternative's circulation system and indirect impacts associated with implementation of this alternative. Because substantial suitable habitat for the stickleback in Cañada Gobernadora would not be affected by any such alterations or diversions and the majority of high quality habitat in San Juan Creek is located upstream of the RMV Planning Area in Casper's Regional Park, extending into the Cleveland National Forest; therefore, no significant long-term impacts are anticipated.

Alternative B-1 Error! Bookmark not defined.**2**

Listed Aquatic Species

From the analysis in Chapter 6.0, the B-12 Alternative avoids impacts to the least Bell's vireo and southwestern willow flycatcher as a result of implementation of the developed proposed by this alternative. While the B-12 Alternative would avoid one vernal pool complex occupied by the San Diego fairy shrimp and two vernal pool complexes occupied by the Riverside fairy shrimp, based on the analysis in Chapter 6.0 (similar to B-10 Modified Alternative), the B-12 Alternative would have significant impacts on the San Diego fairy shrimp and Riverside fairy shrimp due to impacts to one San Diego and Riverside fairy shrimp occupied vernal pool. Alternative B-12 was identified as having potentially significant indirect impacts (such as the generation of pollutants of concern) on the arroyo toad.

The following discussion focuses on how the B-12 Alternative minimizes impacts to listed aquatic species through avoidance of Waters of the U.S and through other avoidance measures. In addition, impacts attributable to infrastructure necessary to support implementation of the B-12 Alternative are also discussed.

San Diego and Riverside Fairy Shrimp. All occupied vernal pools complexes located on Chiquita Ridge and Radio Tower Road and their supporting contributing hydrological sources would be avoided in accordance with the GPA/ZC EIR requirements. Infrastructure necessary to support implementation of the B-12 Alternative would not result in additional impacts to the San Diego fairy shrimp.

Arroyo Toad. As described in Chapter 6.0, the B-12 Alternative would retain all of the arroyo toad breeding sites along floodplains and creek bottoms, including major and important populations in key locations in San Juan Creek, lower Gabino Creek, lower Cristianitos Creek, and Talega Creek. Therefore, 100 percent of breeding sites would be protected. San Juan Creek breeding populations have been protected by a USACE required 400-meter setback between Planning Areas 3 and 4 in which no residential or commercial development can occur (certain limited infrastructure facilities are allowed). In the Talega Sub-basin, the impact analysis area for Planning Area 8 was established based on guidelines contained in the critical habitat determination for the arroyo toad published by USFWS (Federal Register 70 19563). Additionally, the B-12 Alternative requires five years of monitoring and telemetry studies of arroyo toad population, habitat, and home range which Rancho Mission Viejo is required to take into consideration in addressing the Special Condition requiring minimization of impacts on the arroyo toad in Planning Area 8 prior to a decision on siting and configuring the 500 acres of development allowed within the overall 1,349 acres of RMV Planning Area 8. Within the SAMP Study Area, wetlands/riparian habitat is conserved in already protected open space within Arroyo Trabuco and Caspers Wilderness Park, the Donna O'Neill Land Conservancy, and the Upper Chiquita Land Conservancy.

Implementation of infrastructure supporting the B-12 Alternative may result in both temporary and small permanent impacts to suitable habitat for the toad. In particular, construction of the bridges over Cristianitos Creek from San Clemente, Cristianitos Road, and Cow Camp Road over San Juan Creek would result in temporary construction impacts and permanent impacts associated with the placement of bridge piers. In addition to the potential direct impacts noted above, Chapter 6.0 noted that indirect impacts such as pollutants of concern, invasive species, and lighting may occur.

Least Bell's Vireo. All known breeding locations for the vireo are avoided by the B-12 Alternative including the key location identified by the NCCP Southern Planning Guidelines in the Gobernadora Ecological Restoration Area. In addition, this alternative, when including already protected open space, would result in the protection of approximately 8,198.1 acres of riparian areas in the SAMP Study Area and 1,657.3 acres within the RMV Planning Area (Tables 8-9 and 8-10). Of the protected riparian areas, 1,002.4 acres in the SAMP Study Area and 470.2 acres in the RMV Planning Area are suitable willow scrub and riparian forest habitat for the least bell's vireo. Within the SAMP Study Area, wetlands/riparian habitat is conserved in already protected open space within Arroyo Trabuco and Caspers Wilderness Park, the Donna O'Neill Land Conservancy, and the Upper Chiquita Land Conservancy. Infrastructure to support the B-12 Alternative would result in permanent impacts to one vireo location and temporary impacts to one vireo location. This is a potentially significant impact.

Southern Steelhead. Chapter 6.0 noted that National Marine Fisheries Service determined that San Juan Creek within the RMV Planning Area is unoccupied by southern steelhead. Preservation of San Juan Creek and associated riparian habitat through the RMV Planning Area and beyond in Caspers Regional Park and the Cleveland National Forest within the larger SAMP Study Area would provide future opportunities for fish passage. Limited modifications to San Juan Creek in the form of bridge piers for four crossings would not impact occupied habitat or impede potential future fish passage.

Special Status Aquatic Species

***Western Spadefoot Toad*.** As noted in Chapter 6.0, the B-12 Alternative would impact six of the 15 known locations of spadefoot toads on the RMV Planning Area. The impacted locations

are within Planning Areas 1 (two locations), Planning Area (three locations) and Planning Area 4 (one location). Impacts to western spadefoot toad are considered significant.

***Southern Tarplant*.** As noted in Chapter 6.0, Alternative B-12 would result in impacts to 11 locations and 2,311 individuals, impacts to southern tarplant are considered significant.

Arroyo Chub. Chapter 6.0 described that within the RMV Planning Area, San Juan Creek and Cañada Gobernadora would be subject to temporary alteration or diversion to accommodate grading and construction (temporary impacts) from the B-10 Modified Alternative's circulation system and indirect impacts associated with implementation of this alternative. However, suitable habitat for the arroyo chub in Cañada Gobernadora would not be affected by any such alterations or diversions; therefore, no significant impacts are anticipated. Further, the majority of high quality habitat in San Juan Creek is located upstream of the RMV Planning Area in Casper's Regional Park. Therefore, no significant impacts are anticipated in this location either.

Salt Spring Checkerbloom. As noted in Chapter 6.0, Alternative B-12 would impact all three locations on the RMV Planning Area and 532 individuals (one population would be partially impacted). Impacts to the single location in Gobernadora Canyon would be considered less than significant because of the limited number of individuals impacted. The B-12 Alternative would result in significant impacts to this species.

Mud Nama. As noted in Chapter 6.0, two locations containing a large number of this species (9,500 individuals) would be impacted by the B-12 Alternative. This is considered a significant impact.

Common Aquatic Species

Mountain Lion. Although the mountain lion is not an aquatic species, it frequently uses riparian corridors for movement purposes and as a water source. As noted in Chapter 6.0, all important movement corridors for mountain lion identified in the SAMP Study Area (i.e., linkages C, D, G, H, I, J, L, M, O, P, and Q), as identified in the Southern Planning Guidelines and the Watershed Planning Principles, would exceed the Beier standards under the B-12 Alternative. No significant impacts to mountain lions would occur under the B-12 Alternative.

Partially Armored Threespine Stickleback. Chapter 6.0 described that within the RMV Planning Area, San Juan Creek and Cañada Gobernadora would be subject to temporary alteration or diversion to accommodate grading and construction (temporary impacts) from the B-12 Alternative's circulation system and indirect impacts associated with implementation of this alternative. However, suitable habitat for the stickleback in Cañada Gobernadora would not be affected by any such alterations or diversions; therefore, no significant impacts are anticipated. Additionally, the majority of high quality habitat in San Juan Creek is located upstream of the RMV Planning Area in Casper's Regional Park; therefore, no significant impacts are anticipated in this location either.

Alternative A-4

As noted previously under the A-4 Alternative, for illustrative purposes, Rancho Mission Viejo could request Section 404 permits on a planning area by planning area basis for the County-approved B-10 Modified Alternative. Therefore, the analysis set forth above for the B-10 Modified Alternative would apply to the A-4 Alternative.

Alternative A-5

As described in Chapter 5.0, the A-5 Alternative obviates the need for a SAMP and permits under Section 404 by avoiding regulated Waters of the U.S., including wetlands as required by Section 404 and NEPA and all occupied habitat of listed species. Under this alternative, indirect impacts to species would occur from developments and roads because riparian corridors are not protected (SAMP Tenet 4) and buffers around avoided habitats are not maintained (SAMP Tenet 7).

8.5 FACTUAL DETERMINATIONS

In accordance with 40 CFR 230.11, the USACE must make factual determinations for several environmental endpoints related to the aquatic environment. These factual determinations are be used in determining compliance or non-compliance with the restrictions on discharge as described in 40 CFR 230.10. Factual determinations are made with respect to physical substrate; water circulation, fluctuation, and salinity; suspended particulates/turbidity; contaminants; aquatic ecosystem and organisms; and secondary effects on the aquatic ecosystem. Actions to minimize impacts (Subpart H) also need to be considered in the determination. A complete list of proposed actions to minimize impacts can be found in the special public notices located in Appendix A of this EIS.

8.5.1 PHYSICAL SUBSTRATE

As summarized in Chapter 4.0, there are about 3,222 acres of Waters of the U.S. in the SAMP Study Area, including 857 acres within the RMV Planning Area that are subject to Section 404 of the Clean Water Act. These Waters of the U.S. are for the most part intermittent and ephemeral streams, remaining dry for most parts of a typical year. The exceptions are certain portions of Arroyo Trabuco and San Juan Creek, which can have perennial flows through some years. According to the Balance Hydrologics Sediment Report, the physical substrate for the Chiquita and Gobernadora Sub-basins of the San Juan Creek Watershed is sandy with the upper portions of the San Juan Creek Watershed comprised primarily of crystalline terrains starting with the Verdugo and Bell Canyon Sub-basins. The physical substrate of western San Mateo Creek Watershed varies, ranging from clayey substrates within upper Gabino and Cristianitos subbasins to sandy substrates in portions of Talega and Blind Canyons to coarser crystalline substrates in middle Gabino, Talega, and La Paz Canyons.

8.5.1.1 Impacts

Outside the RMV Planning Area, the SAMP permitting procedures will have varying effects on substrate. The RGP will result in temporary impacts, such that no permanent loss of substrate would occur. The effect of individual LOP actions cannot be determined, due to the lack of individual project information. It is expected that the issuance of certain LOPs would result in permanent impacts to substrate. The LOPs, for the most part, would be confined to lower quality substrate areas that have been previously impacted.

Within the 857 acres of Waters of the U.S. within the RMV Planning Area, the SAMP Permitting procedures would result in permanent impacts to 55.46 acres of substrate and temporary impacts to 36.89 acres of substrate. Temporary impacts associated with SMWD infrastructure maintenance and other infrastructure maintenance would be restored on-site after activities have ceased.

8.5.1.2 Actions to Minimize Impacts

Outside the RMV Planning Area, program level safeguards for the RGP and the LOP process as well as general conditions for both the RGP and the LOP process would assist in minimizing impacts to substrate. These include geographic eligibility requirements, requirements for notification and coordination, and implementation of particular thresholds. The RGP and the LOP process would be used mostly for impacts in lower quality substrate areas. The use of these permit processes in pre-identified areas with lower ecological integrity allows for minimization of any potential impacts. After including general conditions for the RGP and the LOP process, actions would have further minimized impacts to substrate. Some of the general conditions to protect substrate include:

RGP GC6 When practicable, and if personnel would not be put into any additional potential hazard, heavy equipment working in or crossing wetlands must be placed on temporary construction mats (timber, steel, geotextile, rubber, etc.), or other measures must be taken to minimize soil disturbance such as using low pressure equipment. Temporary construction mats shall be removed promptly after construction.

RGP GC9 Any temporary fills must be removed in their entirety and the affected areas returned to their pre-existing conditions.

LOP GC4 Same as RGP GC6 for equipment soil disturbance

LOP GC7 Any temporary fills must be removed in their entirety and the affected areas returned to their pre-existing conditions, including any native riparian and/or wetland vegetation. If an area impacted by such temporary fill is considered likely to naturally reestablish native riparian and/or wetland vegetation within two years to a level similar to pre-project or pre-event conditions, the permittee will not be required to do restore the riparian and/or wetland vegetation.

Within the RMV Planning Area, substrate impacts are proposed to be confined to small area of impact, resulting in avoidance of most of the significant effects. In addition, the impacts have been confined to the smaller ephemeral streams throughout the RMV Planning Area. Except for limited impacts resulting from bridges required for circulation improvements, major streams such as San Juan Creek, Cristianitos Creek, and Gabino Creek will not be impacted. A comprehensive Water Quality Management Plan has been prepared with a broad range of measures directed toward managing post-development stormwater and urban runoff flows for purposes of protecting stream hydrology and geomorphology. Even with avoidance, additional special conditions for Rancho Mission Viejo (SC) and for the Santa Margarita Water District (SM SC) would be required to ensure proposed impacts are minimized to the maximum extent practicable, including complying with pre-identified impact limits (SC I.A.1 and SM SC I.1) and the restoration to compensate for lost substrate (SC III.2.a). The special conditions that protect substrate conditions include:

SC I.A1 The permittee shall confine development and supporting infrastructure to the footprint (including infrastructure alignments and facilities within designated open space) shown on Figures 8-1, 8-2, 8-3a, 8-3b, and 8-3c.

SC I.B.2 For any stream located outside the development footprint of Strahler 3rd order or greater receiving project discharges, the permittee shall undertake adaptive management measures to insure no change in channel geomorphology. Strahler

order may be determined from the Glenn Lukos Associates jurisdictional determination. The permittee shall provide a monitoring plan to the Corps explaining the protocol, standards constituting adverse impacts, and remedial measures should thresholds for adverse impacts be reached. The stream stabilization program required by Ranch Plan EIR Mitigation Measure 4.5-7 and the stream monitoring program required by Ranch Plan EIR Mitigation Measure 4.5-8 shall be submitted as part of the monitoring plan for review and approval.

SC I.B.3 The permittee shall not place water quality and/or water retention basins within the active channel of San Juan Creek, Chiquita Creek, Gobernadora Creek, Verdugo Creek, Cristianitos Creek, Gabino Creek, or Talega Creek.

SC II.4 The permittee shall place, heavy equipment working in or crossing wetlands on temporary construction mats (timber, steel, geotextile, rubber, etc.), or other measures must be taken to minimize soil disturbance such as using low pressure equipment, when practicable and if personnel would not be put into any additional potential hazard. Temporary construction mats shall be removed promptly after construction.

SC II.10 The permittee shall restore all temporarily impacted areas to pre-construction elevations within one month following completion of work. If wetlands or non-wetland waters of the U.S. vegetated with native wetland species were impacted, re-vegetation should commence within three months after restoration of pre-construction elevations and be completed within 1 growing season. If re-vegetation cannot start due to seasonal conflicts (e.g., impacts occurring in late fall/early winter should not be re-vegetated until seasonal conditions are conducive to re-vegetation), exposed earth surfaces should be stabilized immediately with jute-netting, straw matting, or other applicable best management practice to minimize any erosion from wind or water.

SC III.2.a The permittee shall compensate for all impacts to wetlands and non-wetland waters of the U.S. vegetated with native wetland plant species at a 1:1 ratio on an area basis. The permittee may use the 18 acres of credit already established at the Gobernadora Ecological Restoration Area to compensate for future impacts to any waters of the U.S. Compensatory mitigation for impacts to specified wetlands and non-wetland waters of the U.S. vegetated with native wetland plant species shall be initiated prior to impacts to the specified waters of the U.S. and achieve the success criteria prior to impacts to the specified waters of the U.S. The permittee shall provide the Corps, Department of Fish and Game, and the U.S. Fish and Wildlife Service with a habitat mitigation and monitoring plan consistent with the LAD Mitigation and Monitoring Guidelines for review and approval prior to implementation of the compensatory mitigation. The compensatory mitigation sites should be prioritized in consideration of the "San Juan Creek Watershed Riparian Ecosystem Restoration Plan: Site Selection and General Design Criteria" by Engineering Research and Development Center (ERDC) dated August 2004 and the Aquatic Resources Restoration Plan. Additional considerations include the proximity of impact site and mitigation site, impacts to other sensitive habits due to the potential mitigation site, site ownership, and other factors. Restoration design shall follow the principles of the ERDC restoration plan (Appendix F4 of the SAMP EIS).

SM SC I.1 The permittee shall confine infrastructure facilities to the footprint (including infrastructure alignments and facilities within designated open space) shown on Exhibits 8-3a, 8-3b, and 8-3c.

SM SC II.4 Same as SC II.4 for equipment soil disturbance.

SM SC II.9 Same as SC II.10 for temporary impact restoration.

8.5.2 WATER CIRCULATION, FLUCTUATION, AND SALINITY

Most of the hydrologic processes occur within the ephemeral, intermittent, and perennial streambeds within the SAMP Study Area. In water bodies such as the Arroyo Trabuco, San Juan Creek, and Cristianitos Creek, the water circulation and fluctuation is mostly unidirectional and gravity-driven, responding to precipitation events. Chapter 4.0 summarizes the hydrological data. Although there are a few non-riverine water bodies such as Lake Mission Viejo and several seep wetlands, most waterbodies within the SAMP Study Area are streams. Saline aquatic resources are also limited, confined to the mouth of San Juan Creek.

8.5.2.1 Impacts

Outside the RMV Planning Area, the SAMP permitting procedures will have varying effects on water circulation and fluctuation. The RGP would result in temporary impacts, such that no permanent to water circulation or fluctuation would occur. The effect of individual LOP actions cannot be determined, due to the lack of individual project information. It is expected that the issuance of certain LOPs would result in permanent impacts water circulation by either altering them or completely removing areas from receiving water circulation. In no event would any project affect salinity gradients within the SAMP due to the lack of impacts to salt water areas.

Within the RMV Planning Area, the SAMP permitting procedures have been designed to minimize impacts to water circulation and fluctuation. Within the RMV Planning Area, there are no salt water bodies whose salinity would be affected. Impacts have been directed to mostly ephemeral and some intermittent streams. These areas would have been completely impacted thereby preventing any hydrological processes from occurring. Areas downstream of the impact zone are not expected to have any substantial impacts due to requirements by the USACE and the County of Orange to minimize downstream changes in hydrology. For temporary impacts associated with infrastructure maintenance, there would be no permanent change in water circulation and fluctuation.

8.5.2.2 Actions to Minimize Impacts

Outside the RMV Planning Area, program-level safeguards for the RGP and the LOP process as well as general conditions for both the RGP and the LOP process would assist in minimizing impacts to water circulation and fluctuations. These include geographic eligibility requirements, requirements for notification and coordination, and implementation of particular thresholds. The RGP and the LOP process would be used mostly for impacts in lower quality areas. The use of these permit processes in pre-identified areas with lower ecological integrity allows for minimization of any potential impacts. After including general conditions for the RGP and the LOP process, actions would have further minimized impacts. Some of the general conditions to protect water circulation and fluctuations include:

RGP GC8 To the maximum extent practicable, the activity must be designed to maintain pre-project downstream flow conditions (e.g., location, capacity, and flow rates). Furthermore,

the activity must not permanently restrict or impede the passage of normal or expected high flows (unless the primary purpose of the fill is to impound waters) and the structure or discharge of dredged or fill materials must withstand expected high flows. The activity must, to the maximum extent practicable, provide for retaining excess flows from the site, provide for maintaining surface flow rates from the site similar to pre-project conditions, and provide for not increasing water flows from the project site, relocating water, or redirecting water flow beyond pre-project conditions.

LOP GC6 Same as RGP GC8 for in-stream water flow management

Within the RMV Planning Area, impacts to water circulation and fluctuation are proposed to be managed comprehensively through the WQMP, as reviewed in subchapter 8.6.1, resulting in avoidance, minimization, and mitigation of the significant effects. Major streams such as the San Juan Creek, Cristianitos Creek, and Gabino Creek would not be impacted. Even with avoidance/minimization through implementation of the WQMP, additional special conditions would be required to ensure proposed impacts are minimized to the maximum extent practicable. Most of this applies to controlling flood flows during more frequent events as part of the runoff management plan (SC I.B.1) that involves flow duration matching as described in subchapter 8.6.1. The special conditions that protect water circulation and fluctuation include:

SC I.A1 The permittee shall confine development and supporting infrastructure to the footprint (including infrastructure alignments and facilities within designated open space) shown on Figures 8-1, 9-2, 8-3a, 8-3b, 8-3c, and 8-4.

SC I.B.1 Outside the footprint shown in Figure 8-1, the permittee shall insure post-project surface water hydrology for any stream of Strahler 3rd order or greater shall not be substantially different from pre-project hydrology. Strahler order may be determined from the Glenn Lukos Association jurisdictional determination. For 24-hour precipitation events, flows in response to 100-year events shall not be substantially different between pre-project conditions and post-project conditions. The permittee shall use best management practices including and not limited to detention basins, retention basins, low-water irrigation, and increase in pervious surfaces to manage excessive storm runoff from developed areas. The runoff management plan required by Ranch Plan EIR Mitigation Measure 4.5-1(g) as amended by the Ranch Plan Development Agreement shall be submitted with each project application for review by the Corps. For 24-hour precipitation events, flows in response to 10-year events shall not different by more than 1% between pre-project conditions and post-project conditions. The permittee shall use best management practices including and not limited to detention basins, retention basins, low-water irrigation, and increase in pervious surfaces to manage excessive storm runoff from developed areas. The runoff management plan required by Ranch Plan EIR Mitigation Measure 4.5-1(g) as amended by the Ranch Plan Development Agreement shall be submitted with each project application for review by the Corps.

8.5.3 SUSPENDED PARTICULATES/TURBIDITY

Chapter 4.0 summarizes the current loadings of suspended particulates and turbidity in the RMV Planning Area. Some of these generalizations apply to the entire SAMP Study Area. For the most part, the bulk of the sediments are moved during a few extreme storms during the winter. Outside of those infrequent events, suspended particulates and turbidity are low.

Sensitive aquatic biota that could be affected by the suspended particulates/turbidity includes arroyo chub, the three-spined stickleback, the southern steelhead, and arroyo toad.

8.5.3.1 Impacts

Outside the RMV Planning Area, the SAMP permitting procedures would have varying effects on suspended particulates and turbidity. The RGP would result in temporary disturbance of sediments, resulting in short-term localized increases in turbidity. The effect of individual LOP actions cannot be determined, due to the lack of individual project information. It is expected that the issuance of certain LOPs would result in disturbance of sediments resulting in elevation of turbidity for short periods of time. If some of these increases in turbidity occur near sensitive endpoints, there can be adverse impacts.

Within the RMV Planning Area, the proposed projects would be designed to minimize impacts to post-construction turbidity through the implementation of the WQMP (Appendix D) as described in subchapter 8.6.1. Due to design features including infiltration basins and bioswales, post-project turbidity levels will not be substantially different from pre-project turbidity levels. During construction, there may be temporary disturbances that would increase turbidity in some areas after precipitation events. In the vicinity of sensitive aquatic receptors, there may be adverse impacts.

Within the RMV Planning Area, the RMV Proposed Project would be designed to minimize impacts to post-construction turbidity through the implementation of the WQMP (Appendix D) as described in subchapter 8.6.1. Due to design features including infiltration basins and bioswales and the avoidance of terrains that generate coarse sediments important to streamcourse geomorphological processes, post-project turbidity levels would not be substantially different from pre-project turbidity levels. During construction, there may be temporary disturbances that would increase turbidity in some areas after precipitation events. In the vicinity of sensitive aquatic receptors, there may be adverse impacts.

8.5.3.2 Actions to Minimize Impacts

Outside the RMV planning Area, program-level safeguards for the RGP and the LOP process would assist in minimizing suspended particulates and turbidity. These include geographic eligibility requirements, requirements for notification and coordination, and implementation of particular thresholds. The RGP and the LOP process will be used mostly for impacts in lower quality areas. The use of these permit processes in pre-identified areas with lower ecological integrity makes it less likely to have adverse effects on sensitive receptors. After including general conditions for the RGP and the LOP process, actions will have further minimized impacts. Some of the general conditions to minimize the release of suspended particulates and turbidity include:

RGP GC5 When feasible, erosion and siltation controls, such as siltation or turbidity curtains, sedimentation basins, and/or hay bales or other means designed to minimize exacerbating turbidity in the watercourse above background levels existing at the time of project implementation, shall be used and maintained in effective operating condition during project implementation unless conditions preclude their use, or if conditions are such that the proposed work would not increase turbidity levels above the background level existing at the time of the work. All exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be stabilized at the earliest practicable date to preclude additional damage to the project area through erosion or siltation and

no later than November of the year the work is conducted to avoid erosion from storm events.

RGP GC6 When practicable, and if personnel would not be put into any additional potential hazard, heavy equipment working in or crossing wetlands must be placed on temporary construction mats (timber, steel, geotextile, rubber, etc.), or other measures must be taken to minimize soil disturbance such as using low pressure equipment. Temporary construction mats shall be removed promptly after construction.

RGP GC9 Any temporary fills must be removed in their entirety and the affected areas returned to their pre-existing conditions.

RGP GC10 Measures must be adopted to prevent potential pollutants from entering the watercourse. Construction materials and debris, including fuels, oil, and other liquid substances, will not be stored in the project area in a manner as to prevent any runoff from entering jurisdictional areas.

RGP GC11 Staging, storage, fueling, and maintenance of equipment must be located outside of the waters in areas where potential spilled materials will not be able to enter any waterway or other body of water.

RGP GC16 An individual Section 401 water quality certification must be obtained unless a general Section 401 certification is issued or waived for this RGP (see 33 CFR 330.4(c)).

LOP GC3 Same as RGP GC5 for soil erosion and siltation controls

LOP GC4 Same as RGP GC6 for equipment soil disturbance

LOP GC7 Any temporary fills must be removed in their entirety and the affected areas returned to their pre-existing conditions, including any native riparian and/or wetland vegetation. If an area impacted by such temporary fill is considered likely to naturally reestablish native riparian and/or wetland vegetation within two years to a level similar to pre-project or pre-event conditions, the permittee will not be required to do restore the riparian and/or wetland vegetation.

LOP GC8 Same as RGP GC10 for implementation of pollution prevention

LOP GC9 Same as RGP GC11 for staging of equipment.

LOP GC16 Same as RGP GC16 for requirement for a Section 401 water quality certification.

Within the RMV Planning Area, impacts to suspended particulates and turbidity have been addressed, in part, by avoidance of terrains that generate coarse sediments project design features to control runoff as part of the WQMP (Appendix D). For more detailed discussion, see subchapter 8.6.1 below. During project construction, turbidity would be addressed through surveying nearby areas for the two resident species, the arroyo chub and the three-spined stickleback, and requiring the turbidity to not exceed background levels (SC II.9). The special conditions that reduce suspended particulates and turbidity include:

SC I.C.1 The permittee shall abide by all the terms and conditions of the applicable Section 401 certification.

SC I.C.2 The permittee shall develop and implement master area and sub-area water quality management plans for each Planning Area (Ranch Plan EIR Mitigation Measures 4.5-3 and 4.5-4). A copy of the plan shall be submitted to the Corps for review and approval for consistency with the Conceptual Water Quality Management Plan approved as part of the SAMP EIS. The Corps shall have 30-days to review and approve any submitted plan. If the Corps does not provide comments within 30 days, the submitted plan shall be deemed approved. In the event of a disagreement between the Corps requirements and those of the County of Orange, the permittee, Corps and County shall agree on a resolution of said disagreement within 15 days. Copies of the annual reports shall be provided to the Corps within 30 days of completion.

SC II.4 The permittee shall place, heavy equipment working in or crossing wetlands on temporary construction mats (timber, steel, geotextile, rubber, etc.), or other measures must be taken to minimize soil disturbance such as using low pressure equipment, when practicable and if personnel would not be put into any additional potential hazard. Temporary construction mats shall be removed promptly after construction.

SC II.8 The permittee shall implement best management practices to prevent the movement of sediment into Waters of U.S. Compliance with Ranch Plan EIR Standard Condition 4.5-11 (Erosion and Sediment Control Plan (ESCP) would satisfy this condition. The ESCP must be designed to minimize the mobilization of fine sediments into downstream waters. A copy of the current ESCP shall be provided to the Corps for each project application.

SC II.9 For each planning area within the San Juan Creek Watershed, the permittee shall survey streams 1000 feet downstream of each planning area for arroyo chub and three-spined stickleback prior to construction. If either species are found, downstream turbidity up to 300 feet from the planning area during construction shall not exceed more than 10 NTU over background when the background is less than 50 NTU or a 20 percent increase in turbidity when the background turbidity is more than 50 NTU. Background turbidity values can be obtained by measuring turbidity just upstream of the discharge point during construction. If the turbidity threshold is exceeded, the permittee shall implement additional turbidity control measures within 48 hours to reduce the turbidity to below threshold values.

SC II.10 The permittee shall restore all temporarily impacted areas to pre-construction elevations within one month following completion of work. If wetlands or non-wetland Waters of the U.S. vegetated with native wetland species were impacted, re-vegetation should commence within three months after restoration of pre-construction elevations and be completed within 1 growing season. If re-vegetation cannot start due to seasonal conflicts (e.g., impacts occurring in late fall/early winter should not be re-vegetated until seasonal conditions are conducive to re-vegetation), exposed earth surfaces should be stabilized immediately with jute-netting, straw matting, or other applicable best management practice to minimize any erosion from wind or water.

SM SC I.3 Same as SC I.C.1 for Section 401 certification.

SM SC II.4 Same as SC II.4 for equipment soil disturbance.

SM SC II.8. The permittee shall implement best management practices to prevent the movement of sediment into waters of U.S. The permittee shall develop a program-level plan to minimize the mobilization of fine sediments into downstream waters. A copy of the plan shall be provided to the Corps before issuance of the final permit.

SM SC II.9 Same as SC II.10 for temporary impact restoration.

8.5.4 CONTAMINANTS

The degree to which contaminants are introduced into the aquatic environment will depend on the material that is to be discharged, the receiving aquatic environment, and the availability of contaminants within the discharged materials. The SAMP Study Area is relatively free from human disturbances compared to other areas within southern California. Although the western portions of the SAMP Study Area are urbanized, vast portions to the east are still naturally vegetated or vegetated by grazing lands. An extensive analysis of avoidance and minimization measures for addressing "pollutants of concern" is set forth in the WQMP and summarized in subchapter 8.6.1. One notable potential source of contaminants in the eastern SAMP Study Area is the Northrop Grumman Space Technology TRW Capistrano Test Site within the Planning Area 8 boundaries, which has the potential to involve industrial solvents and other hazardous contaminants.

8.5.4.1 Impacts

Outside the RMV Planning Area, the SAMP permitting procedures would have varying effects on contaminants. The RGP would result in temporary impacts, such that no permanent discharge of fill materials and its associated contaminants would result. The effect of individual LOP actions cannot be determined, due to the lack of individual project information. It is expected that the issuance of certain LOPs would result in the release of contaminants into the aquatic environment. Only with further project review with each application can this issue be addressed more satisfactorily.

As reviewed extensively in the WQMP, within the RMV Planning Area, the RMV Proposed Project WQMP has addressed the release of contaminants into the aquatic ecosystem consistent with applicable water quality standards. The permanent impacts would result in the discharge of fill material from balanced cut and fill grading operations. Due to the history of the RMV Planning Area as a ranching and agricultural operation, most of the area is not expected to have any location with high levels of contaminants. Consequently, the discharge of fill materials through balanced cut and fill operations would not discharge contaminants into the aquatic ecosystem. The exception would be for Planning Area 8 with the TRW facility. Additional considerations need to be made for Planning Area 8.

8.5.4.2 Actions to Minimize Impacts

Outside the RMV planning Area, program level safeguards for the RGP and the LOP process as well as general conditions for both the RGP and the LOP process would assist in minimizing the release of contaminants. After including general conditions for the RGP and the LOP process,

actions would have further minimized impacts. Some of the general conditions to minimize the release of contaminants include:

RGP GC7 No discharge of dredged or fill materials may consist of unsuitable materials (e.g., trash, debris, car bodies, asphalt, etc.) and material discharged must be free from pollutants in toxic amounts (see Section 307 of the Clean Water Act).

RGP GC16 An individual Section 401 water quality certification must be obtained unless a general Section 401 certification is issued or waived for this RGP (see 33 CFR 330.4(c)).

LOP GC5 Same as RGP GC7

LOP GC16 Same as RGP GC16

Within the RMV planning Area, special conditions related to the release of toxic contaminants would address this issue. The special conditions that will prevent the release of contaminants include:

SC I.C.1 The permittee shall abide by all the terms and conditions of the applicable Section 401 certification.

SC II.5 The permittee shall only discharge dredged or fill materials into waters of the U.S. that is free from pollutants in toxic amounts (see Section 307 of the Clean Water Act). The permittee not place within Waters of the U.S. unsuitable materials (e.g., trash, debris, car bodies, asphalt, etc.). This condition is satisfied through the use of using on-site materials from balanced cut-and-fill grading operations for every Planning Area except for Planning Area 8. For Planning Area 8, the permittee shall prepare an updated Phase I Environmental Site Assessment (GPA EIR Mitigation Measure 4.14-13), prepare a comprehensive closure plan (GPA EIS Mitigation Measure 4.14-15), prepare a Health and Safety Contingency Plan (GPA EIR Mitigation Measure 4.14.1), remove all underground storage tanks (GPA EIR Mitigation Measure 4.l4-6), and in the event that toxic materials are discovered during construction, an in the field assessment (GPA EIR Mitigation Measure 4.14-2). Such assessments shall be provided to the Corps. The permittee shall not discharge fill materials associated with Planning Area 8 containing toxic amounts of pollutants.

SM SC I.3 Same as SC I.C.1 for Section 401 certification.

SM SC II.5 The permittee shall only discharge dredged or fill materials into waters of the U.S. that is free from pollutants in toxic amounts (see Section 307 of the Clean Water Act). The permittee shall not place within waters of the U.S. unsuitable materials (e.g., trash, debris, car bodies, asphalt, etc.).

8.5.5 AQUATIC ECOSYSTEM AND ORGANISMS

As summarized in Chapter 4.0, there are numerous aquatic habitats and organisms, including several threatened and/or endangered species, within the SAMP Study Area. Some of the more notable aquatic habitats include arroyo willow forest, alkali meadow, and southern willow scrub. Some of the more notable aquatic organisms include the arroyo toad, least Bell's vireo, southern steelhead, and Riverside fairy shrimp. In addition, the riparian and wetland areas

support many species not typically thought of as aquatic species, including the mountain lion, Cooper's hawk, and yellow warbler, all of which depend heavily on riparian habitats for survival.

8.5.5.1 Impacts

Outside the RMV Planning Area, the SAMP permitting procedures would have varying effects on the aquatic ecosystem and biota. The RGP will result in temporary impacts, such that there will be no permanent impacts to wetlands or species. Given that areas eligible for the RGP have little ecosystem value, adverse impacts are not expected. The effect of individual LOP actions cannot be determined, due to the lack of individual project information. It is expected that the issuance of certain LOPs would result in some impacts to the aquatic environment and species, but this must be determined on a case-by-case basis. Only with further project review with each application can this issue be addressed more satisfactorily.

Within the RMV Planning Area, potential impacts have been summarized and addressed already in Sections 6.0 and 8.4.1.

8.5.5.2 Actions to Minimize Impacts

Outside of the RMV Planning Area, program level safeguards for the RGP and the LOP process as well as general conditions for both the RGP and the LOP process would assist in minimizing adverse impacts on the aquatic ecosystem and biota. These include geographic eligibility requirements, requirements for notification and coordination, and implementation of particular thresholds. The RGP and the LOP process will be used mostly for impacts in lower quality habitat areas. The use of these permit processes in pre-identified areas with lower ecological integrity allows for minimization of any potential impacts. After including general conditions for the RGP and the LOP process, actions will have further minimized impacts. The general conditions that would benefit the general aquatic environment and organisms are the same RGP and LOP general conditions that address threatened and endangered species in subchapter 8.6.3.5.

Within the RMV Planning Area, impacts to the aquatic ecosystem and organisms have been minimized due to specific project design features including avoidance of about 90 percent of all Waters of the U.S. (SC I.A.1), implementation of sufficient buffers to create functional corridors (SC I.D.2), and development of a long-term aquatic resources adaptive conservation program involving preservation (SC III.1), compensatory mitigation (SC III.2 and SC III.3), and long-term management (SC III.4 and SC III.5). The special conditions that protect the aquatic ecosystem and organisms are for the most part the same ones that address threatened and/or endangered species in subchapter 8.6.3.5. Special conditions that address the general aquatic ecosystem and organisms not addressed in subchapter 8.6.3.5 include:

SC I.B.3 The permittee shall not place water quality and/or water retention basins within the active channel of San Juan Creek, Chiquita Creek, Gobernadora Creek, Verdugo Creek, Cristianitos Creek, Gabino Creek, or Talega Creek.

SC I.B.4 For any Corps jurisdictional feature vegetated with coast live oaks located outside of the development footprint that receive discharges, the permittee shall monitor the health of the oaks for five years after the start of the discharges. Any oaks greater than 6 feet in height that die of excessive inundation, shall be mitigated at a ratio of 1 10-gallon coast live oak for loss of 1 inch diameter at breast height. The permittee shall provide a monitoring plan to the Corps

explaining the monitoring protocol and the standards constituting adverse impacts.

SC I.D.1 The permittee shall design new arterial roads or existing arterials upgraded to serve Ranch Mission Viejo projects along San Juan Creek, Chiquita Creek, and Gobernadora Creek in order to protect wildlife. The bridge crossings shall provide a minimum of 20 feet of clearance from the stream bottom. Chain link fencing or functionally similar barrier of 10 feet in height (or as revised/determined through adaptive management) shall be installed on both sides of the approaches to the bridge for a distance of 100 feet away (or as revised/determined through adaptive management) from the stream to deter wildlife from entering the roadway.

SC II.9 For each planning area within the San Juan Creek Watershed, the permittee shall survey streams 1000 feet downstream of each planning area for arroyo chub and three-spined stickleback prior to construction. If either species are found, downstream turbidity up to 300 feet from the planning area during construction shall not exceed more than 10 NTU over background when the background is less than 50 NTU or a 20 percent increase in turbidity when the background turbidity is more than 50 NTU. Background turbidity values can be obtained by measuring turbidity just upstream of the discharge point during construction. If the turbidity threshold is exceeded, the permittee shall implement additional turbidity control measures within 48 hours to reduce the turbidity to below threshold values.

8.5.6 SECONDARY EFFECTS ON THE AQUATIC ECOSYSTEM

Secondary effects on the aquatic ecosystem occur at a more distant location and time compared to the site where discharge of fill materials occur. These may be considered the same as indirect impacts. These effects occur downstream of a project site where the discharge of fill materials occur as well as areas adjacent to a project site. Examples of such effects include runoff and noise.

8.5.6.1 Impacts

Outside of the RMV Planning Area, the SAMP permitting procedures would have varying secondary effects on the aquatic ecosystem. The RGP would result in temporary impacts that are localized. Most of the secondary effects relate to downstream erosion and any disturbance of biota adjacent to a project site such as breeding birds. The effect of individual LOP actions cannot be determined, due to the lack of individual project information. It is expected that the issuance of certain LOPs would result in some impacts to the aquatic environment and species, but this must be determined on a case-by-case basis.

Within the RMV Planning Area, the proposed projects would result in secondary effects related to changes in runoff, changes in downstream pollutant loadings, effects due to lighting, effects due to noise and human encroachment, and effects related to proliferation of exotic species. These impacts are what would be expected from development of up 14,000 dwelling units, including associated infrastructure such as roads and utilities.

8.5.6.2 Actions to Minimize Impacts

Outside of the RMV Planning Area, program-level safeguards for the RGP and the LOP process as well as general conditions for both the RGP and the LOP process would assist in minimizing secondary impacts on the aquatic environment. These include geographic eligibility requirements, requirements for notification and coordination, and implementation of particular thresholds. The use of these permit processes in pre-identified areas with lower ecological integrity allows for minimization of any potential secondary impacts. After including general conditions for the RGP and the LOP process, actions would have further minimized secondary impacts. The general conditions that would minimize secondary impacts to the aquatic environment have been summarized in previous chapters of this EIS as they relate to changes in water circulation (RGP GC8 and LOP GC6), increase in suspended particulates (RGP GC5 and LOP GC3), and effects on breeding birds (RGP GC13 and LOP GC11).

Within the RMV Planning Area, secondary impacts to the aquatic ecosystem and organisms have been minimized by requirements to implement the WQMP and special conditions summarized in previous and later sections of this EIS. These include those that address changes in water circulation, suspended particulates, and the aquatic environment. Such special conditions include those related to managing downstream hydrology (SC I.B.1 and SC I.B.2), managing downstream water quality (SC I.C.2 and SC II.9), and controlling invasive exotic species (SC I.D.5, SC I.D.7, and SC III.2.b).

8.6 COMPLIANCE WITH DISCHARGE PROHIBITIONS–40 CFR 230.10(B)

Section 230.10(b) of the Section 404(b)(1) Guidelines sets forth several prohibitions regarding discharge of dredged or fill material. These requirements are set forth in this subchapter.

8.6.1 POTENTIAL VIOLATION OF ANY APPLICABLE STATE WATER QUALITY STANDARDS

The functional assessments conducted by the USACE Engineer Research and Development Center for the SAMP address a wide range of water quality and hydrology considerations that relate to avoidance, minimization, and mitigation of potential impacts that could result from the implementation of the proposed permitting procedures for the RMV Planning Area. Considerable effort has been made to address these considerations by comprehensively applying the SAMP Tenets and the Watershed Planning Principles in Chapter 6.0 consistency reviews. The foregoing consistency reviews reflect the measures and analyses presented in (1) the draft WQMP and (2) the Balance Hydrologics Sediment Report (referred to as the Balance Sediment Report, cited below).

This section presents a focused analysis of the Section 404(b)(1) water quality guidelines and the related USACE Engineer Research and Development Center Water Quality Integrity and Hydrologic Integrity avoidance, minimization, and mitigation considerations. Specific aspects of the WQMP and related sediment management planning (as reviewed in the Balance Sediment Report) are discussed in assessing avoidance minimization and mitigation for potential impacts on water quality and hydrologic conditions.

8.6.1.1 SAMP Analyses of Water Quality Integrity and Hydrologic Integrity Considerations

The USACE (Smith 2000) conducted an assessment of the riparian ecosystems of the San Juan/San Mateo Creek watersheds. The assessments addressed three ecosystem integrity

attributes with regard to: (1) Hydrologic Integrity, (2) Water Quality Integrity, and (3) Habitat Integrity. As noted above, this chapter addresses Hydrologic Integrity and Water Quality Integrity, while Habitat Integrity is addressed in Chapter 6.0 analyses of the "B" Alternatives and the Aquatic Resources Restoration Plan.

The USACE study (Smith 2000) addressed four indicators of Water Quality Integrity (nutrient increase, pesticide increase, hydrocarbon increase, and sediment increase). An additional five indicators were selected to reflect the condition of the stream that transports pollutants and three indicators were employed to reflect the condition of a riparian ecosystem's ability to physically capture and biogeochemically process pollutants. With regard to Hydrologic Integrity, several factors were identified as influencing the frequency, magnitude, and temporal distribution of stream discharge; a second set of factors was identified as influencing the hydrologic linkage between the stream channel and the active floodplain and adjacent terraces. Chapter 6.0 contains a summary of the USACE Engineer Research and Development Center analyses of the "B" Alternatives with regard to Water Quality Integrity, Hydrologic Integrity, and Habitat Integrity.

8.6.1.2 Policy Guidance Employed in Addressing SAMP Water Quality and Hydrologic Integrity Considerations

As previously addressed, in conjunction with the review and approval of the GPA/ZC, a WQMP was prepared. An updated WQMP was prepared to reflect the adoption of the B-10 Modified Alternative by the County of Orange. Because the RMV Proposed Project (B-12 Alternative) contains less development than the B-10 Modified Alternative and does not include any development areas not analyzed in the WQMP for the B-10 Modified (and for the B-9 Alternative addressed by the GPA/ZC WQMP), the updated WQMP provides a full set of analyses applicable to the RMV Proposed Project (including an overstated scenario impact analyses for Planning Areas 4 and 8 under the B-12 Alternative). A technical memorandum prepared by GeoSyntec Consultants confirms the applicability of the previous analysis of the B-4 and B-9 Alternatives in the GPA/ZC WQMP to the RMV Proposed Project (GeoSyntec, August 2005).

The WQMP was prepared to address water quality/stormwater flow requirements established by the San Diego RWQCB and the County of Orange Municipal Stormwater Permit (MS 4 Permit). In meeting Clean Water Act/State of California water quality requirements in furtherance of the coordinated planning process, the WQMP addresses the substantive considerations identified in the Section 404(b)(1) Guidelines and the water quality integrity and hydrologic integrity considerations presented in the cited USACE Engineer Research and Development Center report prepared for the SAMP, as well as the Watershed Planning Principles, as further analyzed in this chapter.

The draft WQMP is intended to address Water Quality Integrity and Hydrologic Integrity by managing post-development conditions in terms of the following three types of potential impacts:

- "Pollutants" generated by urban development with the potential to impact species and habitats;
- "Altered hydrology" due to urban development (including, in some cases, pre-existing conditions such as runoff from Coto de Caza); and
- "Altered geomorphic processes" with the potential to impact species and habitats

The SAMP Tenets set forth in Chapter 6.0 and in the Watershed Planning Principles provide the policy direction for addressing each of the above categories of potential development impacts. The SAMP Tenets policies include:

- Protect headwaters
- Maintain and/or restore floodplain connection
- Maintain and/or restore sediment sources and transport equilibrium

Similarly, the Watershed Planning Principles address the above three categories of potential impacts; Altered Hydrology is sub-divided into Changes in Surface Water Hydrology and Changes in Groundwater Hydrology.

8.6.1.3 The Role of the Water Quality Management Plan in Maintaining Water Quality Integrity and Hydrologic Integrity

The WQMP is set forth in Appendix D. Given the many elements of the WQMP, this chapter presents a summary of major aspects of the WQMP, with a more detailed consistency analysis provided in the appendix.

Clean Water Act Regulatory Requirements of the San Diego RWQCB and the County of Orange: "Pollutants of Concern" and "Hydrologic Conditions of Concern"

As noted above, the draft WQMP addresses the Water Quality Integrity and Hydrologic Integrity planning considerations identified in the USACE study (Smith 2000) and the SAMP Tenets and the Watershed Planning Principles guidance within the water quality management framework established by the County of Orange and the San Diego Regional Water Quality Control Board (San Diego RWQCB). The County and San Diego RWQCB require that potential development impacts are to be analyzed under two broad headings: (1) "Pollutants of Concern" and (2) "Hydrologic Conditions of Concern." These two broad categories for impact analysis and minimization/mitigation comprise the following:

- ***Pollutants of Concern*** addressed in the WQMP include:
  - Bacteria and viruses
  - Metals
  - Nutrients
  - Organic Compounds
  - Sediments (addressed functionally under Hydrologic Conditions of Concern)
  - Trash and Debris
  - Oxygen-Demanding Substances
  - Oil and Grease

  In conformance with the Orange County Drainage Area Management Plan (DAMP) and associated Orange County/San Diego RWQCB MS4 permit, the WQMP identifies

"pollutants of concern" that are anticipated or potentially could be generated in conjunction with the proposed permitting procedures (based on the proposed land uses and past land uses) and that have been identified by regulatory agencies as potentially impairing beneficial uses in the receiving water bodies or that could adversely affect receiving water quality or endangered species. These "pollutants of concern" are listed above. The WQMP reviews a combined control system that incorporates water quality elements required for each sub-basin where development is proposed. The WQMP discusses pre-and post-project pollutants loadings relative to the standards set forth in the San Diego Basin Plan and the California Toxics Rule, as applicable, or to provide effective performance standards (e.g., while not applicable to non-point stormwater flows, the California Toxics Rule standards are employed as a conservative performance standard for protecting aquatic species and habitats).

- ***Hydrologic Conditions of Concern*** include both hydrologic and geomorphic processes

  The WQMP analyses of Hydrologic Conditions of Concern specifically review hydrologic conditions with regard to: (1) potential increases in dry season streamflow and wet season baseflow between storms; (2) changes in the magnitude, frequency, and duration of annually expected flow events (1- and 2-year events); (3) changes in hydrologic response to major episodic storm events; (4) potential changes in sediment supply, with short-term increases related to construction and longer term reductions related to impervious/landscaped ground cover; and (5) potential changes in the infiltration of surface/soil water to groundwater.

  Potential changes in "Geomorphic Processes" affecting sediment generation and transport are addressed in the Balance Sediment Report (titled *Geomorphologic Factors Affecting Sediment Generation and Transport under Pre-and Post-Urbanization Conditions at Rancho Mission Viejo and in the San Juan and San Mateo Watersheds, Orange County, California* (Balance, June 2005)) reviewed in this chapter and in the Chapter 6.0 Watershed Planning Principles consistency review of the "B" Alternatives relating to Hydrologic Conditions of Concern (which includes sediment generation and sediment transport).

Impact Assessment and Management Measures for Addressing Water Quality Integrity and Hydrologic Integrity

WQMP Urban Runoff/Stormwater Management Strategies and Mitigation/Minimization Measures

With regard to stormwater discharges and the San Diego RWQCB's Stormwater Program, the Orange County MS/4 Permit/DAMP has incorporated the major provisions of the San Diego RWQCB's model SUSMP, including provisions for addressing "Pollutants of Concern" and "Hydrologic Conditions of Concern." In turn, the draft WQMP has framed its analysis around these requirements, along with addressing the Watershed Planning Principles. The draft WQMP presents and analyzes the elements of the draft WQMP that address these requirements with respect to RMV Proposed Project (through the Alternative B-10 Modified analyses above) and presents impact analyses of the RMV Proposed Project (through the Alternative B-10 Modified analyses discussed above) with respect to these requirements. Pollutants of Concern and Hydrologic Conditions of Concern considerations relating to aquatic habitats supporting sensitive species are specifically addressed in the draft WQMP, including findings of significance following the application of minimization and mitigation measures for direct and cumulative impacts, respectively.

The potential effects of development on modifying the hydrologic regime within the riparian corridors and the subsequent effect on sediment transport and habitat are "hydrologic conditions of concern." These potential effects were analyzed by comparing "pre" versus "post" development monthly "water balance" and "flow duration" management concepts as summarized below.

The ultimate goal of the WQMP is to manage the overall balance, termed "water balance," of all the hydrologic components of the water cycle. The water balance concept is a useful accounting tool for evaluating and controlling the effects of land use changes on hydrology. A water balance, like a checkbook balance, is intended to show the balance between the 'deposits,' which include precipitation and irrigation, and 'withdrawals' which include: (1) infiltration into the soils, (2) evapotranspiration, and (3) water which runs off the surface of the land. This latter withdrawal is called surface runoff and occurs during storm events or wet weather conditions. The water balance is a monthly accounting of how precipitation and irrigation water become distributed as: (a) surface runoff, (b) groundwater infiltration that contributes to baseflows in streams or deep groundwater recharge, and (c) evapotranspiration.

The impacts of urbanization on hydrology include increased runoff volumes, peak flow rates, and the duration of flows; especially modest flows less than the 10-year event. It is these more frequent, modest flows that can have the most effect on long-term channel morphology (Leopold 1997). The effect of changes in flow on stream geomorphology is a cumulative one. Therefore, the magnitude of flows (volume and flow rate), how often the flows occur (the frequency), and for how long (the duration) are all-important. Managing the frequency and duration of flows is referred to in the WQMP as 'flow duration matching" and refers to matching the post-development flow duration conditions with pre-development conditions. This matching is achieved through appropriate sizing of a flow duration basin and design of the outlet structure. In order to achieve flow duration matching, 'excess flows,' defined as the difference in runoff volume between the post-development "without controls" condition and the pre-development condition, must be captured and either infiltrated, stored, and recycled, or diverted to a less sensitive stream or stream reach. Within the RMV Planning Area, the flow duration analyses were conducted for the 53-year continuous rainfall record and the dry and wet cycles within that record.

As proposed in the WQMP, all developments would be designed to achieve flow duration matching, address the water balance, and provide for water quality treatment through a combined flow and water quality control system (termed "Combined Control System"). The proposed combined control system would include one or more of the following components as required for the particular drainage catchments served by the individual facilities, each of which provides an important function to the system:

- Flow Duration Control and Water Quality Treatment (FD/WQ) Basin
- Infiltration Basin
- Bioinfiltration Swale
- Storage Facility for Non-Potable Water Supply
- Diversion Conduit to Export Excess Flows out of the Sub-basin

All of the above facilities are proposed to be constructed within proposed development areas of the RMV Planning Area, not within Aquatic Resource Conservation Areas.

The flow duration control and water quality treatment basin provides the initial flow and water quality treatment control functions to the system. The remaining components address the "excess flows" (i.e., flows in excess of natural conditions), alone or in combination with each other, generated during wet weather. Additional water quality treatment control is also provided in the infiltration basin and bioinfiltration swale. The functions and management strategies for each of the components of the Combined Control System are detailed in the WQMP (Appendix D).

WQMP Measures for Addressing Geomorphic Processes

Potential changes in "Geomorphic Processes" are addressed in part through the Watershed Planning Principles consistency review of the RMV Proposed Project (B-12 Alternative; see Chapter 6.0) relating to Hydrologic Conditions of Concern (including sediment generation and sediment transport) and in part through specific restoration measures summarized in this subchapter and reviewed in the Aquatic Resources Adaptive Management Program (Appendix F3). To address inter-related considerations of terrains and hydrologic conditions of concern, the draft WQMP relies on and addresses information set forth in the Baseline Conditions Report (PCR et al. 2002) and the Watershed Planning Principles. The Geomorphology/Terrains; Hydrology; Sediment Sources, Storage and Transport; Groundwater Hydrology; and Water Quality principles from the Watershed Planning Principles have been used. Additionally, the sub-basin "Planning Considerations" and Planning Recommendations" have been addressed and employed in formulating flow control and water quality control strategies in response to the geographic-specific conditions found in each sub-basin. The sub-basin-specific elements include site assessment, planning considerations, and combined control system conceptual design, and are presented in the draft WQMP.

Within each sub-basin, the draft WQMP presents flow control strategies prepared both with respect to specific portions of the sub-basin using the "catchment" level of analysis and with respect to overall characteristics of the sub-basin (e.g., see the discussion of the proposed flow management planning for specific development areas). Sediment generation and sediment transport considerations are reviewed in *Geomorphology Factors Affecting Sediment Generation and Transport under Pre-and Post-Urbanization Conditions at Rancho Mission Viejo and in the San Juan And San Mateo Watersheds, Orange County California* (Balance Hydrologics 2004) (Appendix H); monitoring recommendations set forth in the Balance Sediment Report have been incorporated into the draft WQMP Adaptive Management Program.

The particular characteristics of each sub-basin's surface and sub-surface drainage systems have been taken into account in each strategy analysis and relate governing physical processes in the sub-basin, including terrains and groundwater, to channel form. For instance, the ground infiltration and surface flow management prescriptions for the Gobernadora Sub-basin differ considerably from those for the Chiquita Sub-basin even though the two sub-basins adjoin one another and both flow into San Juan Creek. Similarly, the management of "excess flows," takes into account the nature of San Juan Creek and overall goals of supplementing groundwater recharge in the San Juan Creek aquifers.

With regard to the contribution of enhancement and restoration to the management of geomorphic processes, habitat restoration and erosion control measures in clay soils would reduce the generation of fine sediments and improve stormwater infiltration/runoff, benefiting species and streamcourse processes. For the Gobernadora Creek Sub-basin, the sub-basin exhibiting existing conditions stressors due to prior upstream development in Coto de Caza, specific performance criteria for implementation of the Gobernadora Multipurpose Basin have been prepared to complement Gobernadora Sub-basin water management measures in the

draft WQMP and thereby increase habitat values and functions over existing conditions. The draft WQMP also provides opportunities to increase stormwater flows into San Juan Creek to further riparian enhancement and arroyo toad habitat enhancement resulting from control of *Arundo donax* reed to the extent considered desirable under the Aquatic Resources Adaptive Management Program. To the extent that restoration and management measures in the San Mateo Watershed reduce the generation of fine sediments, habitat conditions will be improved for the arroyo toad in the subregion and other aquatic species downstream in San Mateo Creek.

In these ways, the draft WQMP provides specific measures addressing three stressors–potential pollutants, changes in hydrologic processes, and changes in geomorphic processes–and, in so doing, helps assure that these three stressors do not significantly impact values and functions (basic development siting conditions also address potential changes in geomorphic processes; see Chapter 6.0, Watershed Planning Principles consistency review of the "B" Alternatives). Additionally, the draft WQMP, in conjunction with specific restoration/ enhancement measures reviewed in the Aquatic Resources Adaptive Management Program (e.g., Gobernadora multipurpose basin and San Juan Creek invasive species control measures) helps increase habitat values and functions in Gobernadora Creek and San Juan Creek.

San Diego Basin Plan Consistency Analysis

Pursuant to 40 CFR 230.10(b), no discharge of dredged or fill material shall be permitted if it "Causes or contributes, after consideration of disposal site dilution and dispersion, to violations of any applicable State water quality standard." The following section addresses potential impacts to "Beneficial Uses" as defined for all surface and ground waters in the San Diego Region. Beneficial uses form the cornerstone of water quality protection under the San Diego Basin Plan. Once beneficial uses are designated, appropriate water quality objectives can be established and programs that maintain or enhance water quality can be implemented to ensure the protection of beneficial uses. Page 2-1 of the San Diego Basin Plan states the following with respect to Beneficial Uses:

> *"Beneficial uses are defined as the uses of water necessary for the survival or well being of man, plants and wildlife. These uses of water serve to promote the tangible and intangible economic, social and environmental goals of mankind. Examples include drinking, swimming, industrial and agricultural water supply, and the support of fresh and saline aquatic habitats."*

The San Diego Basin Plan goes on to state:

> *"The Porter-Cologne Act establishes a comprehensive program for the protection of beneficial uses of the waters of the state. California Water Code Section 13050(f) describes the beneficial uses of surface and ground waters that may be designated by the State or Regional Board for protection as follows:*
>
> *"Beneficial uses of the waters of the state that may be protected against quality degradation include, but are not necessarily limited to, domestic, municipal, agricultural and industrial supply; power generation; recreation; aesthetic enjoyment; navigation; and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves."*

Significant considerations involved in the designation of beneficial uses are:

(1) Fish, plants, and other wildlife, as well as humans, use water beneficially. Designation of beneficial uses often includes subcategories of the above beneficial uses cited in California Water Code Section 13050(f).

(2) Water transport or waste assimilation in the state's surface and ground waters may not be designated as beneficial uses under the Porter-Cologne Act. The direction of the Porter-Cologne Act is to protect surface and ground waters against the adverse effects of waste constituents. (California Water Code §13000, §13241, and §13263). Surface or ground waters may be used for waste disposal or waste assimilation if designated beneficial uses are protected. In authorizing the discharge of waste, the Regional Board need not authorize utilization of the full waste assimilation capacities of the receiving waters [California Water Code §13263(d)]. All discharges of waste into waters of the state are privileges not rights [California Water Code §13263(g)].

(3) Designated beneficial uses may include potential beneficial uses if existing water quality would support the use or if the necessary level of water quality can reasonably be achieved. (Water Code §13241 [a] and [c]). Potential and existing uses are defined later in this chapter.

(4) An existing beneficial use ordinarily must be designated for protection unless another beneficial use requiring more stringent objectives is designated. The existing beneficial use designation is necessary to comply with the statutory policy in California Water Code Section 13000, which provides in part that *"…the quality of all waters in the state shall be protected for use and enjoyment by all the people of the state."*

(5) California Water Code Section 13000 provides in part that: *"The Legislature …finds and declares that activities and factors which may affect the quality of the waters of the state shall be regulated to attain the highest possible water quality that is reasonable, considering all demands being made and to be made on those waters and the total values involved, beneficial and detrimental, economic and social, tangible and intangible."* This policy establishes a general principal of no degradation, with flexibility to allow some change in water quality, which is in the best interests of the state. Changes in water quality are allowed only where beneficial uses are not unreasonably affected.

(6) The designation of beneficial uses must take into account the constitutional prohibition of waste and unreasonable waste of water. Designation of beneficial use for protection should not require a waste of water pursuant to the California Constitution, Article X, Section 2.

(7) The protection and enhancement of beneficial uses require that certain quality and quantity objectives be met for surface and ground waters.

Table 8-11 provides a summary of the Beneficial Uses associated with the San Juan Creek and San Mateo Creek Watersheds.

Impacts to Beneficial Uses

As previously addressed, the combination of watershed-scale water quality planning principles and the sub-basin/catchment area approach to project design ensures that degradation of Beneficial Uses as defined in the San Diego Basin Plan would not occur. Table 8-11 summarizes the Designated Beneficial Uses within the SAMP Study Area that are addressed in this subchapter.

TABLE 8-11
SAN DIEGO BASIN PLAN DESIGNATED BENEFICIAL USES

Description of Use	San Juan Creek Watershed	San Mateo Creek Watershed
Municipal and Domestic Supply (MUN) – Includes uses of water for community, military, or individual water supply systems including, but not limited to drinking water supply.	Exempted	Exempted
Agricultural Supply (AGR)—Includes uses of water for farming, horticulture, or ranching including, but not limited to, irrigation, stock watering, or support of vegetation for range grazing.	Yes	
Industrial Service Supply (IND)—Includes uses of water for industrial activities that do not depend primarily on water quality including, but not limited to, mining, cooling water supply, hydraulic conveyance, gravel washing, fire protection, or oil well re-pressurization.	Yes	
Contact Water Recreation (REC-1)—Includes uses of water for recreational activities involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, swimming, wading, water skiing, skin and SCUBA diving, surfing, white water activities, fishing, or use of natural hot springs.	Yes	
Non-Contact Water Recreation (REC-2)—Includes the uses of water for recreational activities involving proximity to water, but not normally involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating, tide pool and marine life study, hunting, sightseeing, or aesthetic enjoyment in conjunction with the above activities.	Yes	Yes
Warm Freshwater Habitat (WARM)—Includes uses of water that support warm water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish or wildlife, including invertebrates.	Yes	Yes
Cold Freshwater Habitat (COLD)—Includes uses of water that support cold water ecosystems including, but not limited to, preservation and enhancement of aquatic habitats, vegetation, fish or wildlife, including invertebrates.	Yes	
Wildlife Habitat (WILD)—Includes uses of water that support terrestrial ecosystems including, but not limited to, preservation and enhancement of terrestrial habitats, vegetation, wildlife (e.g., mammals, birds, reptiles, amphibians, invertebrates), or wildlife water and food sources.	Yes	Yes
Rare, Threatened, or Endangered Species (RARE)—Includes uses of water that support habitats necessary, at least in part, for the survival and successful maintenance of plant or animal species established under state or federal law as rare, threatened, or endangered.	a.	Yes

a. Although the San Juan Creek Watershed supports endangered species, such as the arroyo toad, the San Diego Water Board has not designated RARE as a beneficial use for this Watershed.

Source: San Diego Water Quality Control Board

Below is a summary of the potential adverse impacts to beneficial uses and measures identified in the WQMP, Aquatic Resources Adaptive Management Program, and Aquatic Resources Restoration Plan to ensure that degradation of Beneficial Uses associated with the Aquatic Resources Conservation Area is avoided or minimized in a manner consistent with state water quality standards.

Municipal and Domestic Supply (MUN). This Beneficial Use has been exempted for San Juan Creek and associated tributaries within the RMV Planning Area by the San Diego RWQCB from the municipal use designation under the terms and conditions of State Board Resolution No. 88-63 *Sources of Drinking Water* Policy.

Agricultural Supply (AGR). Rancho Mission Viejo uses water for citrus production and ranching operations. Essentially all of the water that is used for agricultural purposes is derived from groundwater wells. According to the WQMP, the proposed discharge would not adversely affect groundwater recharge rates or quality of groundwater. Therefore, there would be no potential degradation of agricultural supply associated with the proposed discharge of dredged or fill material.

Industrial Process Supply (IND). The Water Quality Management Plan did not identify any impacts to water quality that would adversely affect this Beneficial Use.

Contact Water Recreational (REC-1). According to the WQMP, pathogens represent a potential impact on REC-1 (body contact uses). The WQMP proposes to incorporate detention basins with associated wetland swales that would discharge into infiltration basins as major water quality treatment train features. In combination, these would be very effective in treating pathogens associated with dry weather flows, small storm flows, and the initial portion of large storm events. During large storm events, when large amounts of bacteria, viruses, and protozoans (some of which are pathogenic) are mobilized, flows would bypass the infiltration basin. During such periods, pathogen levels are not likely to meet the REC-1 standards for fecal coliform on a consistent basis.

The literature on the effectiveness of infiltration and filtration systems for treating pathogen indicators such as total and fecal coliform indicates that filtration as a treatment mechanism achieves removals in the range of 60 to 90 percent. This removal rate tends to be large relative to other stormwater treatment BMPs (e.g., extended detention basins) and therefore treatment trains which include a filtration component as provided for as a part of the RMV Proposed Project would provide effective removal of pathogen indicators. Since infiltration is an effective BMP up to the point of soil saturation, pathogens associated with dry weather flows, small storm flows and the initial portion of large storm events would be effectively treated in the combine control system. However, because there is no feasible method for infiltrating storm water flows from large storms due to saturated soils conditions and it is not economically feasible to construct storage and treatment facilities for the large volumes of stormwater generated by major storms, pathogen indicators cannot be removed to below a level of significance as defined by the REC-1 standard for such major storms. Through the use of source and treatment controls, the RMV Proposed Project would use BMPs that meet the “Maximum Extent Practicable (MEP) standard established by the State Water Resources Control Board and accordingly reduces impacts to the maximum extent practicable.

Non-Contact Water Recreational (REC-2). There would be no degradation of this Beneficial Use associated with the RMV Proposed Project. It should also be noted that the RMV Planning Area is in private ownership. The property is currently closed to the public, precluding the use of the area for such activities.

Warm Freshwater Habitat (WARM). As previously addressed, the WQMP evaluated Hydrologic Conditions of Concern (Increased Storm Runoff, Decreased Infiltration/Groundwater Recharge, and Changed Base Flows) and Pollutants of Concern (Sediments, Nutrients, and Trace Metals) by sub-basin on the RMV Planning Area. Each of these Hydrologic Conditions of Concern and Pollutants of Concern exhibits the potential for effects on warm freshwater habitat.

For example, changes in base flow could result in adverse impacts by creating habitat for invasive bullfrogs and crayfish that prey on native fish and amphibians while a decrease in base flow could decrease breeding opportunities for native amphibians such as the arroyo toad. Similarly, changed sediment regimes could affect breeding areas used by native amphibians such as the arroyo toad or western toad or native fish such as the arroyo chub. As addressed in Appendix F3, Aquatic Resources Conservation Areas would be adaptively managed over the long-term to maintain habitat functions, including implementation of an invasive species eradication program that targets bullfrogs and crayfish. Although the WQMP addresses areas located outside Aquatic Resources Conservation Areas, the WQMP would also be managed adaptively and will be coordinated with the management of Aquatic Resources Conservation Areas in order to assure that potential impacts involving Pollutants of Concern and Hydrologic Conditions of Concern are fully addressed through ongoing avoidance, minimization, and mitigation measures.

According to the WQMP, with implementation of the WQMP Project Design Features including detention basins, infiltration basins, bioswales, etc., there would be no significant impacts for any of the individual sub-basins associated with the Hydrologic Conditions of Concern or ***Pollutants of Concern.*** As reviewed previously, the WQMP proposes a comprehensive system for assuring that stormwater discharges do not substantially impact water circulation systems. Specifically, the Draft WQMP addresses the following elements:

a. ***Site-design BMPs.*** Site design BMPs have been selected to address the creation of a hydrologically functional project design that seeks to mimic the natural hydrologic regime.

b. ***Source Control BMPs.*** Source controls BMPs (routine non-structural BMPs, routine structural BMPs, and BMPs for individual categories/project features) have been selected, including a combined flow and water quality control system to address hydrologic water balance and water quality treatment.

c. ***Urban Runoff and Stormwater Control Elements.*** Water balance and flow duration analyses and conceptual combined flow and water quality control systems have been prepared for each sub-basin.

d. ***Stormwater BMP Operation and Maintenance Program.*** An operation and maintenance program has been developed to address the following elements: Maintenance Responsibility, General Operation and Maintenance Activities, Routine Operation and Maintenance Activities and Major Operation and Maintenance Activities.

e. ***Stormwater Monitoring Program.*** A stormwater monitoring program has been developed for the Water Quality BMPs.

For the Hydrologic Conditions of Concern, the WQMP notes that, in some instances (e.g., Cañada Chiquita Sub-basin), there is a slightly higher groundwater recharge and that an associated base flow in the Chiquita Sub-basin is expected to provide potential for enhancement of riparian habitat in Chiquita Canyon as well as enhanced habitat for the arroyo toad in San Juan Creek. Finally, as reviewed previously, it should also be noted that potential impacts associated with trace metals were evaluated using the California Toxics Rule and/or the National Ambient Water Quality Criteria and it was determined that there were no significant impacts associated with increased levels of trace metals. Implementation of the Ranch Plan would not result in degradation of this Beneficial Use.

Cold Freshwater Habitat (COLD). The WQMP evaluation of Hydrologic Conditions of Concern (Increased Storm Runoff, Decreased Infiltration/Groundwater Recharge, and Changed Base Flows) and Pollutants of Concern (Sediments, Nutrients, and Trace Metals) by sub-basin on the RMV Planning Area applies to potential for effects on cold freshwater habitat, as well as the potential Warm Freshwater Habitat impacts analyzed above. For example, as noted for warm freshwater habitat, changes in base flow could result in adverse impacts by creating habitat for invasive bullfrogs and crayfish that prey on native fish and amphibians while a decrease in base flow could decrease breeding opportunities for native amphibians such as the arroyo toad. Similarly, changed sediment regimes could affect breeding areas used by native amphibians such as the arroyo toad or western toad or native fish such as the arroyo chub. As noted for warm freshwater habitat above and reviewed in Appendix F3 with respect to the Aquatic Resources Adaptive Management Program, Aquatic Resources Conservation Areas would be adaptively managed over the long-term to maintain habitat functions, including implementation of an invasive species eradication program that targets bullfrogs and crayfish. As noted above for potential impacts on warm freshwater habitats, although the WQMP addresses areas located outside Aquatic Resources Conservation Areas, the WQMP would also be managed adaptively and coordinated with the management of Aquatic Resources Conservation Areas in order to assure that potential impacts involving Pollutants of Concern and Hydrologic Conditions of Concern are fully addressed through ongoing avoidance, minimization, and mitigation measures.

As reviewed under warm freshwater impacts, according to the WQMP, with implementation of the WQMP Project Design Features including detention basins, infiltration basins, bioswales, etc., there would be no significant impacts for any of the individual sub-basins associated with the Hydrologic Conditions of Concern or Pollutants of Concern. With regard to long-term management actions, the WQMP proposes a comprehensive system for assuring that stormwater discharges do not substantially impact water circulation systems. Finally, it should also be noted that potential impacts associated with trace metals were evaluated using the California Toxics Rule and/or the National Ambient Water Quality Criteria and it was determined that there were no significant impacts associated with increased levels of trace metals. Implementation of the Ranch Plan would not result in degradation of this Beneficial Use.

Wildlife Habitat (Wild). For the reasons discussed above for WARM and COLD Beneficial Uses, there would be no degradation of this Beneficial Use associated development of the RMV Proposed Project. Implementation of the Aquatic Resources Adaptive Management Program and the Aquatic Resources Restoration Plan would result in enhanced habitat values for a full suite of wildlife species as summarized below.

Rare, Threatened, or Endangered Species (RARE). RARE has not been designated for the San Juan Creek or San Mateo Creek watershed areas on the RMV Planning Area even though state and federally listed species are documented as using the associated aquatic resources (e.g., arroyo toad and least Bell's vireo) (Table 6-12). In the San Diego Basin Plan, it is asserted that in the absence of such site-specific designations, the San Diego RWQCB would rely on objectives for WARM and COLD to implement the RARE designation. The San Diego RWQCB states:

> *The existing WARM and COLD beneficial use designations are believed to be stringent enough to protect threatened or endangered species. If these issues arise in the future, they will be decided on a case-by-case basis, considering the most recent scientific data, site-specific factors, and other beneficial uses.*

Because there would be no degradation of the WARM and COLD Beneficial Uses under the proposed Aquatic Resources Adaptive Management Program and with the WQMP serving as a "coordinated management plan" to protect and manage the aquatic resources on the RMV Planning Area on a long-term basis, there would be no degradation of the RARE Beneficial Use associated with the RMV Proposed Project. Implementation of the Aquatic Resources Adaptive Management Program and the Aquatic Resources Restoration Plan would result in protected and enhanced habitat values for a full suite of wildlife species.

Long-Term Adaptive Management of the WQMP

As reviewed in the Aquatic Resources Adaptive Management Program (Appendix F3), Aquatic Resources Conservation Areas would be adaptively managed over the long-term to maintain net habitat value and functions. Although the WQMP addresses areas located outside Aquatic Resources Conservation Areas, the WQMP would also be managed adaptively and coordinated with the management of Aquatic Resources Conservation Areas in order to assure that potential impacts involving Pollutants of Concern and Hydrologic Conditions of Concern are fully addressed through ongoing avoidance, minimization, and mitigation measures.

This subchapter presents a brief summary of the WQMP adaptive management approach that is proposed to evaluate whether the WQMP elements are functioning as intended and to implement corrective procedures when needed. The issues addressed by this adaptive management approach are management considerations relating to "pollutants of concern" and "hydrologic conditions of concern."

The WQMP adaptive management plan proposes the following elements:

- *BMP Inspection and Performance Monitoring*
- *Hydrologic Monitoring*
- *WQMP Review and Evaluation*. Annual review of the inspection and monitoring data would be conducted to determine if there is a need for corrective action, to evaluate impacts due to changes in watershed conditions on the hydrologic regime or BMP performance, and in general to evaluate if the WQMP is effective in meeting the planning objectives.
- *Corrective Measures*. Corrective measures would be undertaken for specific problems or conditions of concern identified in the review and evaluation. Depending on the nature of the problem, corrective measures could involve modification of the BMP design, operation, or maintenance, and/or implementation of additional BMPs. The effectiveness of the corrective measures would also be evaluated through continued inspection and monitoring. Therefore, the management approach is adaptive to specific problems or conditions as they arise and are identified through ongoing inspection, monitoring, documentation, and evaluation.
- *Documentation and Reporting*

8.6.2 POTENTIAL VIOLATION OF ANY APPLICABLE TOXIC EFFLUENT STANDARD OR PROHIBITION UNDER SECTION 307 OF THE ACT

For activities outside the RMV Planning Area proposed to be authorized by RGPs or LOPs, the general conditions will prevent the violation of any applicable toxic effluent standards. These general conditions include:

RGP GC7 No discharge of dredged or fill materials may consist of unsuitable materials (e.g., trash, debris, car bodies, asphalt, etc.) and material discharged must be free from pollutants in toxic amounts (see Section 307 of the Clean Water Act).

RGP GC16 An individual Section 401 water quality certification must be obtained unless a general Section 401 certification is issued or waived for this RGP (see 33 CFR 330.4(c)).

LOP GC5 Same as RGP GC7

LOP GC16 Same as RGP GC16

Within the RMV Planning Area, all fill materials discharged into Waters of the U.S. would be the result of balanced cut and fill. For most RMV Proposed Project development planning areas, the primary existing land uses at the cut and fill sites are ranching, agriculture, nurseries, and/or gravel mining. None of these land uses are expected to have resulted in contaminations that would result in violation of toxic effluent standards. Planning Area 8 consists of the Northrop Grumman Space Technology TRW Capistrano Test Site which may have been contaminated by past activities. In consideration of these factors, special conditions include:

SC I.C.1 The permittee shall abide by all the terms and conditions of the applicable Section 401 certification.

SC II.5 The permittee shall only discharge dredged or fill materials into waters of the U.S. that is free from pollutants in toxic amounts (see Section 307 of the Clean Water Act). The permittee not place within Waters of the U.S. unsuitable materials (e.g., trash, debris, car bodies, asphalt, etc.). This condition is satisfied through the use of using on-site materials from balanced cut-and-fill grading operations for every Planning Area except for Planning Area 8. For Planning Area 8, the permittee shall prepare an updated Phase I Environmental Site Assessment (GPA EIR Mitigation Measure 4.14-13), prepare a comprehensive closure plan (GPA EIS Mitigation Measure 4.14-15), prepare a Health and Safety Contingency Plan (GPA EIR Mitigation Measure 4.14.1), remove all underground storage tanks (GPA EIR Mitigation Measure 4.l4-6), and in the event that toxic materials are discovered during construction, an in the field assessment (GPA EIR Mitigation Measure 4.14-2). Such assessments shall be provided to the Corps. The permittee shall not discharge fill materials associated with Planning Area 8 containing toxic amounts of pollutants.

SM SC I.3 Same as SC I.C.1 for Section 401 certification.

SM SC II.5 The permittee shall only discharge dredged or fill materials into waters of the U.S. that is free from pollutants in toxic amounts (see Section 307 of the Clean Water Act). The permittee shall not place within waters of the U.S. unsuitable materials (e.g., trash, debris, car bodies, asphalt, etc.).

8.6.3 POTENTIAL IMPACTS THAT WOULD JEOPARDIZE THE CONTINUED EXISTENCE OF SPECIES LISTED AS THREATENED OR ENDANGERED OR RESULT IN THE LIKELIHOOD OF DESTRUCTION OR ADVERSE MODIFICATION OF CRITICAL HABITAT UNDER FESA

For all activities under the proposed RGP, the proposed LOP outside of the RMV Planning Area, and the LOP inside of the RMV Planning Area, the general conditions prohibit impacts to federally-listed threatened and/or endangered species or adverse modification to their critical habitat without a consultation with the USFWS or NOAA Fisheries, where appropriate, pursuant to Section 7 of the ESA. For the proposed LOP inside of the RMV Planning Area, actions proposed to ensure that all appropriate efforts are made to avoid, minimize, and mitigate potential significant impacts to threatened and/or endangered species are reviewed in subchapter 8.5.3.

8.6.3.1 Overview

Under the Section 404(b)(1) Guidelines, the discharge of dredged or fill material is not permitted if it:

> *"Jeopardizes the continued existence of species listed as endangered or threatened under the Endangered Species Act of 1973, as amended or results in likelihood of the destruction or adverse modification of a habitat which is determined by the Secretary of Commerce, as appropriate, to be a critical habitat under the Endangered Species Act of 1973, as amended." (40 CFR 231.10 (b)(3))*

SAMP Tenet 8 provides:

> *"Protect riparian areas and associated habitats of listed and sensitive species."*

This subchapter addresses 40 CFR 230.10(b)(3), as well as Subpart D of the Section 404(b)(1) Guidelines (Potential Impacts on Biological Characteristics of the Aquatic Ecosystem) relating to threatened and endangered species, fish, crustaceans, and other aquatic organisms in the food web and other wildlife associated with aquatic ecosystems. Mitigation for potential impacts on special aquatic sites (subpart E of the Section 404[b][1] Guidelines) is addressed in the Aquatic Resources Restoration Program summarized in Chapter 5.0 and subchapter 8.8 of this EIS and provided in Appendix F2. Because of the extent of non-wetlands waters identified in uplands habitats, all listed species are addressed in this chapter.

Through the Coordinated Planning Process, all federally listed species have been addressed as "planning species" in analyzing avoidance, minimization, and mitigation under the different "B" Alternatives previously reviewed in Chapter 6.0 of this EIS. In particular, the NCCP Southern Planning Guidelines set forth criteria for maintaining "net habitat value" of habitat supporting planning species by identifying resource protection areas capable of sustaining Planning Species, both with respect to protecting *major populations* in *key locations* of occupied habitat and with respect to providing for "connectivity" through both occupied and unoccupied habitat, on a long-term basis (see Chapter 6.0 analyses of consistency with the watershed-scale and sub-basin-scale Southern Planning Guidelines and the Watershed Planning Principles). Although through the Coordinated Planning Process informal consultation with the USFWS through Section 7 of the ESA has led to some preliminary avoidance, minimization and mitigation determinations regarding consistency with the Southern Planning Guidelines addressing listed species and FESA Section 3/7 reviewed in this subchapter, formal satisfaction of all jeopardy and critical habitat standards would be obtained through the formal consultation

process pursuant to Section 7 of the FESA. For the SAMP Study Area outside of the RMV Planning Area, project-level determinations for consistency cannot be determined.

8.6.3.2 Jeopardy Standards under FESA Sections 7 and 10 for Listed Species Potentially Impacted under the Proposed Permitting Procedures

The NCCP Southern Planning Guidelines were formulated to address "jeopardy" standards for potential impacts to listed species under Sections 7 and 10 of FESA and for critical habitat determinations under Section 7 of FESA (see subchapter 8.6.3.3 below). The NCCP Southern Planning Guidelines identify *key locations* for all listed planning species" and most of the other "planning species. *Key locations* are defined as those locations that are deemed necessary for the conservation of the species in the subregion and, as a result, encompass all occupied habitat "essential to the conservation" of any such species (i.e., species for which *key location* determinations have been set forth in the Guidelines). These *key location* determinations, as well as specific connectivity, management, and restoration recommendations, are provided in the NCCP Southern Planning Guidelines and the Watershed Planning Principles for sub-basins located on the RMV Planning Area, as well as for the overall SAMP Study Area. The courts have held that the FESA Section 7 "jeopardy" standards under the Section 404(b)(1) Guidelines are substantively identical with the FESA Section 10(a)(1)(B) standard that "take" of listed species may not appreciably reduce the likelihood of survival and recovery of such species. Therefore, the above-referenced Southern Planning Guidelines and the Watershed Planning Principles applicable to listed species address "jeopardy" considerations under FESA, including listed plants as well as fish and wildlife species.

8.6.3.3 Critical Habitat Standards− FESA Section 3(5)(A)(i) and (ii) Substantive Criteria

Because the SAMP and NCCP/MSAA/HCP planning efforts focus on natural community reserve design, connectivity, and long-term management considerations in relation to listed species (as well as other species) found in the respective planning areas, it is appropriate to identify both occupied and unoccupied habitat essential to the conservation of listed species and any special management considerations or protection for such species. Likewise, the emphasis in the SAMP Tenets and NCCP Southern Planning Guidelines on long-term restoration and management would encompass any special management considerations for assuring long-term conservation of listed species. The SAMP and the NCCP/MSAA/HCP components of the "coordinated planning process" address protection and management considerations for listed species in terms of both survival and recovery of each listed species that inhabits the planning areas. Factors for identifying critical habitat, as set forth in FESA Section 3(5)(A) and 50 CFR 424.12 (b)-(12) and for making "adverse modification" determinations for proposed and final critical habitat pursuant to FESA Section 7, are specifically addressed below.

Identification, Management and Protection of Occupied Habitat Essential to the Conservation of the Species

FESA Section 3(5)(A)(i) contains three elements relating to the occupied habitat of listed species: (1) occupied habitat essential to the conservation of the species must be identified; (2) any special management considerations must be identified; and (3) any special protection must be identified.

Identify Habitat Essential to the Conservation of the Species

Regarding the first element of FESA Section 3(5)(A)(i), as noted above, the NCCP Southern Planning Guidelines identify *key locations* for all listed planning species" and most of the other

"planning species. *Key locations* are defined as those locations that are deemed necessary for the conservation of the species in the subregion and, as a result, encompass all occupied habitat "essential to the conservation" of any such species (i.e., species for which *key location* determinations have been set forth in Chapter 4.0). These *key location* determinations, as well as specific connectivity, management, and restoration recommendations, are provided for each planning area sub-basin, as well as for the overall SAMP and NCCP/MSAA/HCP planning areas.

Identify and Provide for the Implementation of Special Management Considerations

Regarding the second element of FESA Section 3(5)(A)(i), "special management considerations," including restoration recommendations, are included in the Southern Planning Guidelines and the Watershed Planning Principles sub-basin planning considerations and recommendations. Appendix F2 presents the Aquatic Resources Adaptive Management Program, including an adaptive management program, intended to be applied at a large-scale within the RMV Planning Area subject to the proposed permitting procedures. Additionally, the Water Quality Management Plan (Appendix D) has been prepared in support of the proposed permitting procedures and associated Aquatic Resources Adaptive Management Program. The Aquatic Resources Adaptive Management Program would be carried out at the landscape level, major vegetation community level and species-specific habitat levels, all of which constitute special management considerations supporting the survival and recovery of presently listed species or any unlisted species that may be listed in the future (e.g., invasive species control would remove a major threat to arroyo toad habitat, eliminate existing degradation, and allow for natural regeneration of arroyo toad habitat conditions). The contributions of the Aquatic Resources Adaptive Management Program to recovery of the listed species found on the RMV Planning Area are summarized below. Finally, until such time as the NCCP/MSAA/HCP is approved, Rancho Mission Viejo is required to implement an adaptive management program (GPA/ZC EIR 589 Adaptive Management Plan) addressing both uplands and aquatic species and habitats pursuant to requirements established in the GPA/ZC. If and when the NCCP/MSAA/HCP is approved, its Adaptive Management Plan would replace the GPA/ZC-approved Adaptive Management Plan as part of the coordination/consolidation of approvals for the RMV Planning Area discussed in Chapter 2.0.

Provide Special Protection for Species

Regarding the third element of FESA Section 3(5)(A)(i), "special…protection," the Aquatic Resources Conservation Areas on the RMV Planning Area, in addition to other lands to be dedicated to open space protection pursuant to the approved GPA/ZC project, would provide for "special protection" in the form of a "hard-line reserve" protection system encompassing all habitats constituting *key locations* for all listed species potentially impacted under the proposed permitting procedures.

Unoccupied Areas "Essential to the Conservation of the Species"

FESA Section 3(5)(A)(ii) requires the protection of unoccupied habitat essential to the conservation of listed species but does not identify what criteria are to be applied in determining which unoccupied habitat is "essential" to the conservation of the species. However, consistent with USFWS critical habitat regulations and the Southern Planning Guidelines and the Watershed Planning Principles, the protection of habitat essential for species dispersal and genetic interchange, as well as movement for foraging and other essential behavioral characteristics, and the enhancement and restoration of unoccupied habitat would appear to be central to identifying unoccupied areas essential to the conservation of species.

The Southern Planning Guidelines and the Watershed Planning Principles address unoccupied areas "essential to the conservation of the species" in terms of the concept of "*connectivity*" and in the context of identifying areas for *enhancement and restoration* (e.g., riparian habitat that could be rehabilitated through the control of giant reed) that are either presently unoccupied or that have impaired habitat functions. Habitat connectivity considerations and enhancement/ restoration features that are relevant to the unoccupied habitat criteria of FESA Section 3 are summarized below:

Habitat Connectivity

SAMP Tenet 4 provides:

> *"Maintain/protect/restore riparian corridors."*

SAMP Tenet 7 provides:

> *"Maintain adequate buffer for the protection of riparian corridors."*

Tenet 5 of the SRP Conservation Guidelines states:

> *"Link reserves with corridors: Interconnected blocks of habitat serve conservation purposes better than do isolated blocks of habitat. Corridors or linkages function better when the habitat within them resembles habitat that is preferred by target species."*

A discussion of the role of linkages and wildlife corridors is set forth in subchapter 2.3.4 of this EIS, including a review of the concept of "connectivity" both in terms of wildlife and habitat connectivity and analytic criteria for defining "habitat linkages" and "wildlife corridors." Further, subchapter 2.3.4 also provides a map and accompanying description of important linkages/corridors identified for the RMV Planning Area procedures area.

Habitat Enhancement/Restoration

The Aquatic Resources Adaptive Management Program, including the Aquatic Resources Restoration Plan, and the GPA/ZC Adaptive Management Program (Appendix F3) set forth overall and area-specific priorities for the enhancement and restoration of uplands and aquatics habitats. Benefits to individual listed species resulting from the enhancement/restoration plans and programs are reviewed in subchapter 8.5.3.4, below.

8.6.3.4 Consistency Review for Listed Species Found in the RMV Planning Area−FESA Section 7/10 Jeopardy Standards and FESA Section 3(5)(a)(i) and (ii) Critical Habitat Standards

As reviewed previously, the "jeopardy" standard under Section 7/10 of FESA requires a finding that impacts to listed species will "not appreciably reduce the likelihood of survival and recovery of the species in the wild." Because the critical habitat designation standards are broader than the "jeopardy" standards (Gifford Pinchot) and because the key location criteria under the NCCP Southern Planning Guidelines address "conservation," protection, and management measures that address the FESA Section 3(5)(a)(i) and (ii) criteria, the NCCP Southern Planning Guidelines subsume and fully address the "jeopardy" standards. For these reasons, the listed species analyses in this chapter focus on the FESA critical habitat designation criteria.

The following listed species has a critical habitat designations that are in effect over portions of the RMV Planning Area. The in-effect designation is depicted on Figure 8-6.

- California gnatcatcher

Two listed species found within the RMV Planning Area have final critical habitat designations that do not include the RMV Planning Area. They are:

- Arroyo toad
- Least Bell's vireo
- Riverside fairy shrimp
- Southwestern willow flycatcher

New and revised critical habitat designations are proposed for the following species over portions of the RMV Planning Area. They are:

- California gnatcatcher
- Thread-leaved brodiaea
- San Diego fairy shrimp

Although the RMV Planning Area was included in the proposed critical habitat designation for the arroyo toad, Riverside fairy shrimp, and Southern steelhead, these lands were excluded from the final designations. However, in order to fully address Section 7 consultation standards and Habitat Integrity considerations, all federally listed species are analyzed below under the FESA Section 3 critical habitat standards.

Consistency Review for the California Gnatcatcher

On October 24, 2000, the USFWS published a final rule designating 513,650 acres as critical habitat for the California gnatcatcher (USFWS October 24, 2000) in Los Angeles, Orange, Riverside, San Bernardino, and San Diego counties in California (USFWS October 24, 2000). The USFWS subsequently published a revised proposed critical habitat designation on April 23, 2003. As of this date, this proposed rule has not been finalized and therefore the October 24, 2000 Final Rule remains in effect. The RMV Planning Area is within the in-effect designation and the proposed designation of critical habitat for the gnatcatcher.

Identify Occupied Habitat with Physical or Biological Attributes Essential to the Conservation of the Species

The Southern Planning Guidelines and the Watershed Planning Principles identify *key locations* that are by definition deemed necessary for the conservation of the species in the subregion and, as a result, encompass all occupied habitat "essential to the conservation" of any such species (Figure 8-6). All *key locations* in the RMV Planning Area are protected. Together with areas already protected on County of Orange park lands and existing conservancies, the protection of gnatcatcher habitat on the RMV Planning Area meets the 80 percent protection requirement of the gnatcatcher guidelines for the Chiquita Canyon/Chiquadora *major population* (sites were considered protected if a territory of five acres is protected and the site is connected

with other contiguous or proximate habitat). Subject to the priorities for management and restoration measures recommended by the Science Advisory Panel and acted upon by the Rancho Mission Viejo Land Conservancy, as coastal sage scrub restoration sites identified in the Southern Planning Guidelines for Chiquita Canyon and Sulphur Canyon are restored over the lifetime of the GPA/ZC Adaptive Management Plan or the NCCP/MSAA/HCP Adaptive Management Plan whichever Is applicable, total protected/restored habitat for the Chiquita/Chiquadora *major population* would result in no net loss of occupied habitat within this *key location*.

With respect to "connectivity" considerations, the proposed protection areas on the RMV Planning Area encompass two major gnatcatcher movement corridors linking populations in the southern portion of the SAMP Study Area and MCB Camp Pendleton to populations in the eastern portion of the Southern Subregion (Bell Canyon, Lucas Canyon, Coto de Caza) and to the *major population* in Chiquita Canyon/Chiquadora Ridge. The *major population* is further connected with the Arroyo Trabuco population through the combination of prior Las Flores and Ladera open space dedication areas.

Special Management Considerations and Protections

The following is a summary of Rancho Mission Viejo actions that will contribute, over the lifetime of the GPA/ZC Adaptive Management Plan or the NCCP/MSAA/HCP Adaptive Management Plan, whichever is applicable, to the survival and recovery in the SAMP Study Area and contribute to recovery of the gnatcatcher on a range wide basis:

- Protection of gnatcatcher *key location* through the GPA/ZC Development Agreement open space phased dedication program for the RMV Planning Area;

- Protection of subregional connectivity and connectivity with adjoining subregions carried out through existing protection on County/conservancies lands and through the phased dedication program for the RMV Planning Area;

- GPA/ZC Adaptive Management Plan monitoring/adaptive management of "stressors" with the potential to impact habitat values over time;

- Subject to the priorities for management and restoration measures recommended by the Science Advisory Panel and acted upon by the Rancho Mission Viejo Land Conservancy, enhance/restore coastal sage scrub habitat and coastal sage scrub/native grassland areas in accordance with the restoration recommendations of the GPA/ZC Adaptive Management Plan or the NCCP/MSAA/HCP Adaptive Management Plan whichever is applicable. Enhancement/restoration of coastal sage scrub habitat in Chiquita Canyon and in Sulphur Canyon is proposed in areas that benefit the major Chiquita/Chiquadora population, resulting in likely occupied habitat comparable to existing conditions in this *key location*;

- Long-term fire management through the GPA/ZC Adaptive Management Plan or the NCCP/MSAA/HCP Adaptive Management Plan whichever is applicable to significantly reduce the likelihood of type conversion to annual grassland in contrast with existing conditions;

- Comparative analysis of fire regimes and grazing regimes over time within the sub region, and in relation to areas within the Central/Coastal Subregion, in order to better

understand the roles of fire and grazing in maintaining and enhancing occupied coastal sage scrub habitat; and

- Long-term control of invasive species through the GPA/ZC Adaptive Management Plan or the NCCP/MSAA/HCP Adaptive Management Plan, whichever is applicable, to help reduce the likelihood of type conversion to annual grassland and loss of habitat to species such as pampas grass, in contrast with existing conditions lacking an Adaptive Management Plan to assure the implementation of invasive species control measures.

Identify Specific Unoccupied Areas Found Essential for the Conservation of the Species

The gnatcatcher is already at recovery levels within the SAMP Study Area and the species goal is to maintain net habitat value for the species both through ongoing management of stressors and through habitat enhancement/restoration within unoccupied habitat. Unoccupied habitat essential for the conservation of the gnatcatcher is identified in the Uplands Habitat Restoration Plan component of the GPA/ZC Adaptive Management Plan. These lands comprise areas identified for coastal sage scrub restoration or valley grasslands/coastal sage scrub restoration subject to the management and restoration priorities recommended by the Science Advisory Panel and acted upon by the Rancho Mission Viejo Land Conservancy. All coastal sage scrub restoration sites and valley grasslands/coastal sage scrub restoration areas are protected on the RMV Planning Area. The restoration of 375 acres of coastal sage scrub within the Chiquita Canyon/Chiquadora Ridge *major population* will provide for likely occupied habitat equivalent to currently occupied habitat within the San Juan Creek Watershed, thereby furthering recovery goals. Valley grasslands/coastal sage scrub restoration within the San Mateo Watershed should help increase gnatcatcher populations.

Conclusion Regarding the Protection and Management of Areas Essential to the Conservation of the California Gnatcatcher

Measures to be undertaken in conjunction with the proposed permitting procedures for the RMV Planning Area would contribute significantly to the survival and recovery of the gnatcatcher through the following: (1) identification of *key locations* that are by definition deemed necessary for the conservation of the species; (2) provisions for special management recommendations including restoration recommendations; (3) commitment of the RMV Planning Area dedication lands to provide “special protection” dedications encompassing habitats on the RMV Planning Area consistent with the NCCP Southern Planning Guidelines *key locations* recommendations; and (4) identification of unoccupied habitat for protection, restoration, and management within the RMV Planning Area protection areas pursuant to the GPA/ZC Adaptive Management Plan and the proposed Aquatic Resources Adaptive Management Program.

When combined with previously protected California gnatcatcher sites and the demonstrated ability of gnatcatchers to persist in proximity to developed areas such as Coto de Caza and the smaller Section 4(d) permit conservation easement areas (Dudek 2004), the proposed RMV Planning Area protection and management program is expected to provide for the survival and recovery of the coastal California gnatcatcher within the SAMP and NCCP planning areas.

Consistency Review for the Arroyo Toad

A new critical habitat designation was finalized on April 13, 2005 (the RMV Planning Area was excluded in accordance with FESA 4[b][2] findings). On August 23, 2005, the Center for Biological Diversity filed a Complaint in federal court challenging the final designation. For this reason and because the critical habitat standards fully encompass the Section 7/10 jeopardy

standard, the following analysis is applied as if there were no exclusion of the RMV Planning Area in effect.

Identify Occupied Habitat with Physical or Biological Attributes Essential to the Conservation of the Species

All documented arroyo toad breeding sites and associated streamcourse habitat areas on the RMV Planning Area are identified as *key locations* (Figure 8-9). In the case of the Talega Creek population, approximately half of the creek is within the boundaries of MCB Camp Pendleton and therefore is within the control of the United States Department of Defense. In conjunction with protection of San Juan Creek provided through County of Orange and Forest Service ownership upstream of the RMV Planning Area, all streamcourse movement areas between *important* and *major populations* would be protected. With regard to San Mateo Creek, connectivity between populations on the RMV Planning Area and downstream populations is dependent on MCB Camp Pendleton and San Onofre State park measures.

Lateral setbacks from arroyo toad breeding areas have been identified on the basis of either: (1) the 80-foot contour line standard used in the court-vacated arroyo toad critical habitat designation and analyses of soils types on slopes adjoining arroyo toad breeding habitat, or (2) in the case of the Gobernadora Planning Area (Planning Area 3) and East Ortega Planning Area (Planning Area 4), a 1,312 foot total (200 meter from centerline) setback of pervious surface development from San Juan Creek per USACE requirements. The criteria included in the arroyo toad critical habitat designation have been used because the designation addressed the most recent studies of arroyo toad movement along streamcourses and lateral movement from streamcourses into adjacent alluvial terraces and foraging/estivation areas. According to the prior critical habitat designation for the arroyo toad (incorporated by reference into the new designation):

> *"The width of the upland component of critical habitat varies based on topography. The habitat widens in broad alluvial valleys and narrows in places where streams run through constricted canyons or between surrounding hills." (USFWS February 7, 2001)*
>
> *Although the upland habitat use patterns of this species are poorly understood, activity probably is concentrated in the alluvial flats (areas created when sediments from the stream are deposited) and sandy terraces found in valley bottoms of currently active drainages (USFWS 1999, Griffin et al. 1999, Sweet in litt., 1999, Ramirez 2000, Holland and Sisk 2000)." (USFWS February 7, 2001) (Ib. 9415)*

On the same page in the prior arroyo toad critical habitat designation, the USFWS examined the Holland and Sisk (2000) study of toad upland habitats and noted that 35 of the 466 toad captures were in upland habitats (7.5 percent) at distances ranging from 49 to 3,855 feet (15 to 1,175 meters) from the upland/riparian ecotone boundary. The USFWS concluded the following regarding the use of the 80-foot-wide (25 meter) upland limit standard employed in designating the upland extent of critical habitat:

> *"For the two areas sampled in this study, our modeled critical habitat boundaries encompassed 88 percent of the pitfall trapping stations where arroyo toads were detected." (Ib, p. 9420)*

Accordingly, the use of the 80 foot (25 meter) contour used in the vacated arroyo toad critical habitat designation is considered appropriate as a general standard in addressing the arroyo toad and sub-basin Protection Recommendation to "Protect breeding and foraging habitat and

movement opportunities within the streamcourse and adjacent alluvial terraces" because this criterion protects 88 percent of upland movements of the arroyo toad.

In terms of lateral setbacks beyond adjacent alluvial terraces, the 80 foot contour standard has also been supplemented with information on soils types in slopes adjacent to arroyo toad streamcourse habitats. According to the vacated critical habitat designation, arroyo toads "tend to utilize upland habitats that have sandy, friable (readily crumbled) soils." (Ib, p. 9,415) In the case of the RMV Proposed Project's Planning Area 8 impact analysis area, with respect to proximity to arroyo toad *key locations*, the terrains map indicates that underlying soils types on the slopes are primarily clays, which are not considered friable soils and thus not likely estivation habitat. Additionally, the B-12 Alternative requires five years of monitoring and telemetry studies of arroyo toad population, habitat, and home range which Rancho Mission Viejo is required to take into consideration in addressing the USACE Special Condition requiring minimization of impacts on the arroyo toad in Planning Area 8 prior to a decision on siting and configuring the 500 acres of development allowed within the overall 1,349 acres of RMV Planning Area 8. Similarly, the soils on the lower slopes of the Gobernadora development bubble in proximity to the arroyo toad *key location* south of the Bell Canyon/San Juan Creek confluence are also predominantly clay soils. Telemetry studies conducted for arroyo toad movement within San Juan Creek indicate very limited upland movement and overall impacts within the 80 foot contour in Planning Areas 3 and 4 are limited to approximately 400 acres (37 percent), with primary movement areas protected by the 400 meter movement corridor requirement.

Potential impacts of busy paved roads, noted in the final critical habitat designation for the arroyo toad, were considered a limiting factor impacting potential upland arroyo toad movement on the south side of San Juan Creek.

Provide for Special Management Considerations and Protections

Long-term management action elements of the GPA/ZC Adaptive Management Plan, including specific Adaptive Management Plan measures directed toward arroyo toad habitat, in conjunction with the protection of key locations, would contribute to the survival and recovery of the arroyo toad within the subregion. The following is a summary of actions that will provide for the survival and recovery of the arroyo toad in the planning area:

- ***Key Location* Protection.** The protection of the *key locations* of the arroyo toad in accordance with the recommendations of the Species Account.

- **San Juan Creek Restoration Actions.** The arroyo toad population downstream of the *key location* in San Juan Creek has been impacted by a major infestation of giant reed, bullfrog predation, and decreased water supplies cause by both giant reed water demands and groundwater pumping. Specific enhancement/restoration actions proposed by the GPA/ZC Adaptive Management Plan, the GP/ZC Water Quality Management Plan (WQMP), and the Aquatic Resources Adaptive Management Program intended to enhance and restore arroyo toad breeding habitat areas are: (1) control of giant reed to provide more area for riparian habitat and breeding pools and increase water supplies to help sustain such habitat; (2) control of bullfrog populations that presently have significant impacts on arroyo toad populations; (3) increased flows in San Juan Creek resulting from development stormwater flows that would be managed pursuant to the WQMP reviewed in subchapter 8.6); (4) the protection of upstream sources of coarse sediments and maintenance of episodic flood events are expected to help maintain natural succession for riparian habitat and the overall hydrologic/

geomorphic conditions identified in the *Geomorphic and Hydrologic Needs of Aquatic and Riparian Endangered Species* report; and (5) grazing management to protect arroyo toad habitat (following dedication) during the breeding season in accordance with the GPA/ZC Grazing Management Plan (source: GPA/ZC EIR 589 Appendix J-4).

- **San Mateo Watershed Protection and Enhancement Program.** The following management and enhancement/restoration actions are intended to help maintain and increase net habitat value for arroyo toad populations both within the RMV Planning Area and arroyo toad and other significant aquatic species in areas downstream: (1) protection of existing sources of coarse sediments; (2) reduction in the generation of fine sediments from areas with clay soils that will be achieved through remediation of the existing clay pits; (3) control of bullfrogs in ponds adjacent and proximate to arroyo toad populations in lower Gabino Creek; (4) control of invasive plants, particularly tamarisk and pampas grass; and (5) grazing management to protect arroyo toad breeding pools.

- Terrains and hydrology/geomorphology habitat protection and management considerations for the arroyo toad have been central planning precepts for the proposed RMV Planning Area procedures. Natural processes considered important to maintaining suitable habitat conditions for arroyo toads were reviewed in the report "Geomorphic and Hydrologic Needs of Aquatic and Riparian Endangered Species." These processes have been addressed and provided for in the Aquatic Resources Conservation Area design (see the Watershed Planning Principles Consistency Analysis in Chapter 6.0 and the WQMP/Sediment Report Summary [Appendix D]). Sources of coarse sediments and cobbles important for arroyo toad breeding and life cycle needs such as the creation of breeding pools and sediment sources for sandy benches have been protected (Verdugo Canyon, middle Gabino Canyon, and La Paz Canyon). The proposed WQMP includes provisions for assuring that flow duration under rainfall conditions and episodic events under post-development conditions mimic, to the extent feasible, pre-development conditions and that water quality protection for toad habitat is assured.

Identify Specific Unoccupied Areas Found Essential for the Conservation of the Species

By requiring a 1,312-foot-wide (400 meter) movement corridor within San Juan Creek, arroyo toad movement from occupied toad habitat to currently unoccupied habitat subject to recovery actions reviewed above would be assured. Further, by eliminating development proposed by the B-10 Modified in Planning Areas 6 and 7, the B-12 Alternative provides for a 5,000-foot-wide movement corridor for aquatic species movement, including the arroyo toad, between the San Juan Creek and San Mateo Creek watersheds. Additionally, the proposed routing of traffic from existing Ortega Highway to the new Cow Camp Road may reduce existing and future traffic levels on Ortega Highway, thereby reducing vehicle impacts on species lateral movement from San Juan Creek to uplands areas within the 5,000 foot wide movement corridor.

As summarized above, a comprehensive Invasive Species Control Plan is included as part of the Aquatic Resources Adaptive Management Program and would, in combination with ongoing County giant reed eradication efforts upstream of the RMV Planning Area in San Juan Creek, help enhance/restore arroyo toad breeding habitat in portions of San Juan Creek that are presently unoccupied or have limited breeding areas. With respect to arroyo toad water supply considerations in San Juan Creek, the eradication of large areas of giant reed and contributions of developed areas to baseflow in San Juan Creek would improve water supplies to the portions of San Juan Creek where arroyo toad breeding appears to be limited, in part, by a lack of breeding pool water supply.

With respect to arroyo toad populations both within the San Mateo Creek Watershed portion of the SAMP Study Area and downstream of the SAMP Study Area, a similar effort would be undertaken in the San Mateo Creek Watershed, with particular emphasis on invasive plant species in lower Cristianitos Creek and on tamarisk and pampas grass removal in uplands areas. Bullfrog and crayfish control in areas potentially affecting arroyo toad populations would also be undertaken both to enhance existing breeding sites and to further the restoration of breeding opportunities in presently unoccupied areas.

Conclusion Regarding the Protection and Management of Areas Essential to the Conservation of the Arroyo Toad

The proposed permitting procedures protection and management measures would contribute significantly to the survival and recovery of the arroyo toad through the following: (1) identification of *key locations* that are by definition deemed necessary for the conservation of the species in the RMV Planning Area and, as a result, encompass all occupied habitat "essential to the conservation" of the species; (2) commitment of RMV Planning Area dedication lands as Aquatic Resources Conservation Areas in order to provide "special protection" by means of a specific phased dedication program encompassing all habitats constituting *key locations* for the arroyo toad on the RMV Planning Area; (3) provisions for special management recommendations including restoration recommendations; and (4) identification of unoccupied habitat for inclusion within the Aquatic Resources Conservation Area for purposes of restoration and management within the Aquatic Resources Conservation Area areas on the RMV Planning Area.

Consistency Review for the Least Bell's Vireo

Identify Occupied Habitat with Physical or Biological Attributes Essential to the Conservation of the Species

According to the NCCP Southern Planning Guidelines Species Account for the least Bell's vireo, there are two *key locations* that must be protected to provide for conservation of the species within the subregion. As depicted on Figure 8-7, both areas are already protected pursuant to conservation easements.

Provide for Special Management Considerations and Protections

As noted, the two *key locations* for the least Bell's vireo are protected under existing conservation easements. However, both of the *key locations* for the least Bell's vireo are currently subject to significant stressors impacts. The Arroyo Trabuco population is being impacted by giant reed infestation while the Gobernadora Creek population is being impacted by erosion/sediment impacts resulting from excessive surface and subsurface flows emanating from upstream urban development. Smaller vireo populations in San Juan Creek and lower Cristianitos Creek also are being impacted by invasive plant species. Another population near the Prima Deshecha Landfill could be impacted by a future expansion of landfill operations. Specific habitat protection and GPA/ZC Adaptive Management Plan/Aquatic Resources Adaptive Management Program actions are intended to help increase habitat values and functions for the least Bell's vireo over time in the following ways:

- ***Conservation Easements.*** Habitat areas supporting the *key locations* of least Bell's vireo *important populations have* been protected through prior conservation easements in Arroyo Trabuco and GERA.

- ***Arroyo Trabuco Enhancement/Restoration.*** Invasive species control and natural restoration for the *key location* in Arroyo Trabuco would enhance and restore riparian habitat (see Aquatic Resources Adaptive Management Program Invasive Species Control Plan).

- ***Gobernadora Restoration Actions.*** (1) management of excessive surface and subsurface water flows from Coto de Caza through the construction of a multipurpose basin (see subchapter 8.1) that would help protect existing vireo habitat and potential new habitat upstream of the knickpoint; (2) management of GERA and implementation of additional restoration per the Aquatic Resources Restoration Plan would provide additional breeding habitat and sediment/streamflow management; and (3) invasive species control would remove an existing threat.

- ***San Juan Creek Restoration Actions*.** (1) control of giant reed would provide more area for riparian habitat and increase water supplies to help sustain such habitat (natural restoration of willow habitat is expected to occur in an area that presently supports a small population of vireo); (2) increased baseflow through WQMP stormwater control measures to help sustain existing and new riparian habitat; and (3) the protection of upstream sources of coarse sediments and maintenance of episodic flood events are expected to help maintain natural succession for willow habitat.

- ***Lower Cristianitos Creek.*** Invasive species control in lower Cristianitos Creek would protect habitat supporting existing populations and the reduction in fine sediments due to coastal sage scrub/valley grasslands restoration and landform restoration would correspondingly reduce adverse sediment impacts.

Additional management actions include control of Argentine ants and cowbird trapping, where needed, in accordance with the Invasive Species Control Plan. Implementation of the proposed WQMP would allow for further management of groundwater and surface flows in support of Gobernadora Creek restoration actions.

Identify Specific Unoccupied Areas Found Essential for the Conservation of the Species

The coordinated San Juan Creek Invasive Species Control Plan would result in the removal of giant reed, thereby increasing the area of San Juan Creek available for natural riparian habitat restoration and increasing water flows and groundwater for sustaining such habitat in areas presently unoccupied by the species (two vireo sites are in nearby portions of San Juan Creek). Because this area is proximate to the *key location* in GERA in the Gobernadora Sub-basin, the creation of new habitat would likely allow for an expansion of the GERA population.

Conclusion Regarding the Protection and Management of Areas Essential to the Conservation of the Least Bell's Vireo

Proposed protection and management actions would substantially contribute to the region-wide recovery of the least Bell's vireo. The Draft Recovery Plan for the least Bell's vireo (USFWS 1998b) establishes criteria for down listing the species to threatened and for delisting the species. The down listing criterion is stable or increasing least Bell's vireo populations/ metapopulations for a period of five consecutive years in the following areas: Tijuana River, Dulzura Creek/Jamul Creek/Otay River, Sweetwater River, San Diego River, San Luis Rey River, MCB Camp Pendleton/Santa Margarita River, Santa Ana River, an Orange County/Los Angeles County metapopulation, Santa Clara River, Santa Ynez River, and an Anza Borrego

Desert metapopulation. Two additional criteria must be met for five consecutive years to consider delisting of the species:

1. *Stable or increasing least Bell's vireo populations/metapopulations, each consisting of several hundred or more breeding pairs, have become established and are protected and managed at the following sites: Salinas River, a San Joaquin Valley metapopulation, and a Sacramento Valley metapopulation.*

2. *Threats are reduced or eliminated so that least Bell's vireo populations/metapopulations listed above are capable of persisting without significant human intervention, or perpetual endowments are secured for cowbird trapping and exotic plant control in riparian habitat occupied by least Bell's vireo.* (USFWS 1998b, p. iv-v)

With regard to the criterion of protection of the Orange County/Los Angeles County metapopulation, the USFWS states:

> *Management planning should address the need to maintain the remaining patches of suitable, important least Bell's vireo habitat throughout the lower and middle elevations of both counties, and particularly, the closely spaced habitat patches that are likely important "stepping stones" to the continuing (northward) expansion and full recovery of the species.* (USFWS 1998b, p. 70-71)

Although the RMV Planning Area does not support a large breeding population of the least Bell's vireo (54 documented nest locations), implementation of the Aquatic Resources Adaptive Management Program would contribute to recovery of the species. Protection and management of the two *important populations* in *key locations* in the Arroyo Trabuco and in GERA in lower Gobernadora Creek, respectively, would contribute to the protection of the Orange County/Los Angeles County metapopulation. Furthermore, proposed permitting procedures measures would help meet the criterion for delisting the species of reducing or eliminating threats to the species (e.g., provide for cowbird trapping where needed and exotic plant species controls in Arroyo Trabuco and San Juan Creek, thus increasing the least Bell's vireo productivity in these areas).

Therefore, the proposed permitting procedures measures would contribute significantly to the survival and recovery of the least Bell's vireo through the following: (1) identification and protection of *key locations* that are by definition deemed necessary for the conservation of the species in the subregion and, as a result, encompass all occupied habitat "essential to the conservation" of the species; (2) provisions for special management recommendations, including restoration recommendations; and (3) identification of unoccupied habitat for protection, restoration, and management.

For the above reasons, the Aquatic Resources Conservation Program would further the survival and recovery of the species within the SAMP Study Area and contribute significantly to the recovery of the species on a subregional and regional basis.

Consistency Review for the Southwestern Willow Flycatcher

Identify Occupied Habitat with Physical or Biological Attributes Essential to the Conservation of the Species

According to the Species Account for the southwestern willow flycatcher, there is one *key location* that must be protected to provide for conservation of the species within the RMV Planning Area as shown on Figure 8-8.

Provide for Special Management Considerations and Protections

The *key location* for the southwestern willow flycatcher is protected by conservation easements associated with GERA. Further protection is provided by the inclusion of this habitat area within the proposed Aquatic Resources Conservation Area on the RMV Planning Area.

The *key location* in the Gobernadora Sub-basin is currently subject to significant stressors impacts. The *key location* is being impacted by erosion/sediment impacts resulting from excessive surface and subsurface flows emanating from upstream urban development. These pre-existing, ongoing impacts would be addressed through the following element of the proposed Aquatic Resources Adaptive Management Program and the GPA/ZC Adaptive Management Plan:

- ***Gobernadora Restoration Actions*.** (1) management of excessive surface and subsurface water flows from Coto de Caza would help protect existing vireo habitat and potential new habitat upstream of the knickpoint; (2) restoration of the historic meander through the operation of the multipurpose basin and associated habitat above the knickpoint would provide additional breeding habitat; (3) management of GERA and implementation of additional restoration per the Aquatic Resources Restoration Plan would provide additional breeding habitat and sediment/streamflow management; and (4) invasive species control would remove an existing threat.

Additional management actions include control of Argentine ants and cowbird trapping where needed through implementation of the Aquatic Resources Adaptive Management Program Invasive Species Control Plan. Implementation of the proposed WQMP would allow for further management of groundwater and surface flows in support of the Gobernadora Creek Restoration Plan.

Identify Specific Unoccupied Areas Found Essential for the Conservation of the Species

The proposed critical habitat designation for the southwestern willow flycatcher identifies potential future population expansion areas in lower Cristianitos Creek because it is located within 18 miles of a population outside the SAMP Study Area in downstream San Mateo Creek. Although habitat conditions in this area are unlikely to support the southwestern willow flycatcher, the following GPA/ZC Adaptive Management Plan/Aquatic Resources Adaptive Management Program measures would enhance habitat conditions in this presently unoccupied riparian area (i.e., lower Cristianitos Creek):

- ***Lower Cristianitos Creek***. Invasive species control in lower Cristianitos Creek would protect potential willow flycatcher habitat. Additionally, the reduction in fine sediments due to clay mine remediation would correspondingly reduce adverse sediment impacts on riparian habitat with the potential for supporting the willow flycatcher.

Conclusion Regarding the Protection and Management of Areas Essential to the Conservation of the Southwestern Willow Flycatcher

A recovery plan has not been completed by the USFWS for the southwestern willow flycatcher. However, the proposed protection/management measures would contribute to the future region-wide recovery of the southwestern willow flycatcher in combination with the other conservation planning efforts completed or underway in southern California. Within California, there are an estimated 121 breeding territories (Finch and Stoleson 2000), which appear to be scattered around southern California (recent estimates indicate 1,153 territories scattered throughout the southwestern states and California). The population size in the Santa Margarita River from MCB Camp Pendleton to the City of Fallbrook is an estimated 15 to 16 territories (San Diego Museum of Natural History 1995). Within western Riverside County, there are 15 to 20 estimated territories, including 3 to 5 territories in the Prado Basin, 3 to 5 territories in the Santa Ana River, 2 to 4 territories at Vail Lake, and 3 territories in Temecula Creek (Dudek 2002). The MCB Camp Pendleton population is on federal land and is addressed in the Biological Opinion (1-6-95-F-02) for Programmatic Activities and Conservation Plans in Riparian and Estuarine/Beach Ecosystems on MCB Camp Pendleton. The southwestern willow flycatcher is a Covered Species under the San Diego MSCP, a proposed Covered Species under the San Diego MHCP, and a proposed "Covered Species Adequately Conserved" under the Western Riverside County MSHCP.

The proposed permitting procedures protection and management measures would contribute significantly to the survival and recovery of the southwestern willow flycatcher through the following: (1) identification and protection of a *key location* that is by definition deemed necessary for the conservation of the species in the subregion and, as a result, encompasses all occupied habitat "essential to the conservation" of the species; (2) provisions for special management recommendations, including restoration recommendations; and (3) identification of unoccupied habitat preliminarily identified as a potential population expansion area (in the proposed critical habitat designation) for inclusion within the RMV Planning Area Aquatic Resources Conservation Area, including Aquatic Resources Adaptive Management Program management measures.

With an estimated 121 territories in California, the two general nesting areas in the RMV Planning Area in GERA and in the Talega development open space account for only a minor part of the population. However, protection and management of the GERA site where nesting by the willow flycatcher has consistently occurred in recent years would contribute to recovery of the species.

Consistency Review for the Riverside Fairy Shrimp

Identify Occupied Habitat with Physical or Biological Attributes Essential to the Conservation of the Species

The three vernal pools supporting the Riverside fairy shrimp and their contributing hydrological resources on Chiquita Ridge and on Radio Tower mesa are identified as *key locations* in accordance with the Southern Planning Guidelines recommendations set forth in the Riverside fairy shrimp Species Accounts and are avoided through inclusion in the RMV Planning Area's open space (and as provided for as a part of the RMV Proposed Project).

Provide for Special Management Considerations and Protections

With regard to special protections, the vernal pool on Chiquita Ridge is already protected by a conservation easement as part of the Ladera Open Space. This vernal pool along with the two occupied vernal pools that together constitute the *key locations* for the Riverside fairy shrimp are avoided through inclusion in the RMV Planning Area's open space (and as provided as a part of the RMV Proposed Project).

Provisions for special management considerations include the following:

- Management of vernal pools located along Radio Tower Road primarily through implementation of timed grazing for exotic species control during the vernal pool dry period, and seasonal exclusion of grazing during the vernal pool wet period (following dedication of the vernal pool areas). Experimental prescribed burns may also be used as an exotics control technique.

- Management of vernal pools located on Chiquita Ridge in the Ladera Open Space primarily by implementation of exotics control through mowing and/or selective weeding (cattle are excluded from the Ladera Open Space and prescribed burns seem unlikely due to the proximity of developed areas).

The GPA/ZC Adaptive Management Plan would also include monitoring of the Radio Tower Road mesa and Chiquita Ride Vernal pools and San Diego fairy shrimp populations, managing hydrologic regimes by maintaining the existing local contributing hydrological sources, managing water quality to emulate baseline conditions (through and in coordination with the WQMP) and controlling public access (particularly during the rainy season).

Identify Specific Unoccupied Areas Found Essential for the Conservation of the Species

AMP monitoring would include monitoring of the two small-protected vernal pools on Chiquita Ridge and the one pool on Radio Tower Road mesa lacking documented Riverside fairy shrimp. If the species is subsequently found present in any of these presently unoccupied vernal pools, the Adaptive Management Plan measures would be applied to any such vernal pool as specified above.

Conclusion Regarding the Protection and Management of Areas Essential to the Conservation of the Riverside Fairy Shrimp

GPA/ZC actions would contribute significantly to the survival and recovery of the Riverside fairy shrimp through the following: (1) identification of *key locations* that are by definition deemed necessary for the conservation of the species in the SAMP Study Area and, as a result, encompasses all occupied habitat "essential to the conservation" of the species; (2) provisions for special management recommendations including restoration recommendations; (3) an existing conservation easement covering one *key location* that provides "special protections," which is further augmented by including all of the remaining *key locations* within the GPA/ZC conservation easement phased dedication program; and (4) identification of unoccupied habitat in the Adaptive Management Plan monitoring program for potential future inclusion of unoccupied vernal pools for restoration and management.

Consistency Review for the San Diego Fairy Shrimp

Identify Occupied Habitat with Physical or Biological Attributes Essential to the Conservation of the Species

All four vernal pools supporting the San Diego fairy shrimp and their contributing hydrological resources on Chiquita Ridge and on Radio Tower mesa are identified as *key locations* in accordance with the recommendations of the Southern Planning Guidelines San Diego fairy shrimp Species Accounts and are avoided through inclusion in the RMV Planning Area's open space (and as provided for as a part of the RMV Proposed Project).

Provide for Special Management Considerations and Protections

With regard to special protections, the vernal pool on Chiquita Ridge is already protected by a conservation easement as part of the Ladera Open Space. This vernal pool along with the three occupied vernal pools on Radio Tower mesa that together constitute the *key locations* for the San Diego fairy shrimp are included within the proposed Habitat Reserve.

Provisions for special management considerations include the following:

- Management of vernal pools located along Radio Tower Road primarily through implementation of timed grazing for exotic species control during the vernal pool dry period, and seasonal exclusion of grazing during the vernal pool wet period (following dedication of a conservation easement). Experimental prescribed burns may also be used as an exotics control technique.

- Management of vernal pools located on Chiquita Ridge within the Ladera Open Space primarily through implementation of exotics control through mowing and/or selective weeding (cattle are excluded from the Ladera Open Space and prescribed burns seem unlikely due to the proximity of developed areas).

The GPA/ZC Adaptive Management Plan would also include monitoring of the Radio Tower Road mesa and Chiquita Ridge Vernal pools and San Diego fairy shrimp populations, managing hydrologic regimes by maintaining the existing local contributing hydrological sources, managing water quality to emulate baseline conditions (through and in coordination with the WQMP), and controlling public access (particularly during the rainy season).

Identify Specific Unoccupied Areas Found Essential for the Conservation of the Species

AMP monitoring would include monitoring of the two small-protected vernal pools on Chiquita Ridge lacking documented San Diego fairy shrimp. If the species is subsequently found present in any of these presently unoccupied vernal pools, the Adaptive Management Plan measures would be applied to any such vernal pool as specified above.

Conclusion Regarding the Protection and Management of Areas Essential to the Conservation of the San Diego Fairy Shrimp

GPA/ZC actions would contribute significantly to the survival and recovery of the San Diego fairy shrimp through the following: (1) identification of *key locations* that are by definition deemed necessary for the conservation of the species in the subregion and, as a result, encompass all occupied habitat "essential to the conservation" of the species; (2) provisions for special management considerations including restoration recommendations; (3) an existing

conservation easement covering one *key location* that provides "special protections," which is further augmented by including all of the *key locations* within the conservation easement phased dedication program encompassing all habitats constituting *key locations* for all listed species; and (4) identification of unoccupied habitat in the Adaptive Management Plan monitoring program for potential future restoration and management.

Consistency Review for the Thread-Leaved Brodiaea

Identify Occupied Habitat with Physical or Biological Attributes Essential to the Conservation of the Species

The Species Account identifies a *major population* in a *key location* on Chiquadora Ridge and the second identified *major population* in a *key location* located on the hill outcrop adjacent to and within the clay mine pits in the southern portion of Cristianitos Canyon/lower Gabino Canyon.

Provide for Special Management Considerations and Protections

With regard to special protections, the two *key locations* included in the RMV Proposed Project's open space dedication program would be avoided and would be, with the Aliso/Wood Canyon population, the only major populations protected in place within the two Orange County NCCP subregions (tripling the size of the protected populations). Therefore, the proposed protection measures would contribute significantly to the survival and recovery of this plant species on a range-wide basis. Additionally, the *important populations* in Trampas Canyon and Arroyo Trabuco would be protected. Although distances between existing populations may exceed the apparent dispersal capability of the documented likely pollinators, habitat connectivity and contiguity allowing for potential genetic exchange between populations via pollinators and other localities would be maintained among the Arroyo Trabuco, Chiquadora Ridge, and Trampas Canyon populations. Protection of the *key locations* of the thread-leaved brodiaea in accordance with the recommendations of the NCCP Species Accounts is in contrast with other major populations in the subregion where translocation has been permitted.

With regard to special management considerations, several proposed actions of the GPA/ZC Adaptive Management Plan would help further the recovery of this species within the SAMP Study Area. The following is a summary of Adaptive Management Plan actions that, together with open space protections, would provide for recovery of the thread-leaved brodiaea in the SAMP Study Area:

- Control of the main stressors, primarily non-native invasive species such as artichoke thistle, ryegrass, bromes, wild oats, and mustards; and restoration of native grasslands.

- The use of timed grazing in dedication areas in conjunction with fire management for exotics control, especially where non-native grasses are widespread and for which site-specific, selective manual treatments are not very effective.

- Fire management to reduce the likelihood of frequent fire that may exacerbate invasions of exotic plants.

- Translocation of smaller populations to areas with clay soils and without competing plants.

The Management Recommendations involving the control of non-native invasive species and the use of timed grazing are incorporated into the GPA/ZC Adaptive Management Plan and the Grazing Management Program for the RMV Planning Area. Management Recommendations for the protection of brodiaea populations from human disturbance (particularly potential edge effects from residential and golf course development) and data collection on pollinators would also be part of the GPA/ZC Adaptive Management Plan. Efforts to salvage and translocate the smaller populations located within development areas would enhance public understanding of the potential for translocation in other areas of the range of this species and thus further the recovery of the species.

Identify Specific Unoccupied Areas Found Essential for the Conservation of the Species

Under the RMV Proposed Project development scenario, substantial areas with clay soils would be protected within close proximity to protected occupied sites and, with greater understanding of management and translocation/propagation over time, may allow for an expansion of existing populations into presently unoccupied areas.

Conclusion Regarding the Protection and Management of Areas Essential to the Conservation of the Thread-Leaved Brodiaea

The proposed open space protection and management program included in the RMV GPA/ZC amendment, and as reflected in the RMV Proposed Project, would contribute significantly to the survival and recovery of the thread-leaved brodiaea through the following: (1) identification of *key locations* that are by definition deemed necessary for the conservation of the species in the subregion and, as a result, encompass all occupied habitat "essential to the conservation" of the species; (2) provisions for special management recommendations, including experimental translocation recommendations; (3) commitment to the phased dedication of conservation easements over lands within the RMV Open Space to provide "special protection" encompassing all habitats constituting *key locations* for all listed species, and (4) identification of unoccupied habitat for inclusion within the GPA/ZC Adaptive Management Plan restoration and management program.

A recovery plan has not been completed for the thread-leaved brodiaea. GPA/ZC Adaptive Management Plan measures, in conjunction with RMV Proposed Project's open space protection, would substantially contribute to the future region-wide recovery of the thread-leaved brodiaea in combination with the other conservation planning efforts completed or underway in southern California. The planning area supports about 10,000+ counted flowering stalks, or about 2 to 4 percent of the estimated individuals region-wide. The thread-leaved brodiaea is addressed in the San Diego MSCP and MHCP as a "narrow endemic" that requires surveys for proposed projects. The MHCP area in particular, which includes the vast majority of thread-leaved brodiaea in San Diego County, has a conservation goal of 90 percent conservation of known locations and major populations and assumes that "critical locations" in the cities of Carlsbad and San Marcos would be 100 percent conserved. Similarly, the Western Riverside County MSHCP includes the brodiaea on the "Additional Survey Needs and Procedures" list and requires surveys within the "Criteria Area" where suitable habitat is present. Overall, under the MSCHP, approximately 83 percent of suitable habitat for the thread-leaved brodiaea in the plan area would be in the proposed Conservation Area, including 12 known occurrences along the San Jacinto River in Nuevo, Perris, and the San Jacinto Wildlife Area; on Salt Creek; on the Santa Rosa Plateau, and west of the Santa Rosa Plateau. The approximately 5,000 individuals on MCB Camp Pendleton and San Onofre State Park are provided federal and state protections. Outside of the Southern Subregion in Orange County, approximately 2,000 to 3,000 individuals occur in Aliso and Woods Canyon Regional Park.

The protection and management of approximately 9,600 individuals (96 percent) of the thread-leaved brodiaea on the RMV Planning Area, including the two *major populations in key locations* and *important populations* in middle and upper Cristianitos Canyon, the Talega Sub-basin, and Arroyo Trabuco area would substantially contribute to the recovery of the species.

Consistency Review for the Southern Steelhead

The potential presence of southern steelhead has been documented in the Arroyo Trabuco, outside the RMV Planning area, a tributary to San Juan Creek, south of the I-5 underpass, which is approximately 31,680 feet (six miles) from the SAMP Study Area boundary (CDFG, November 25, 2003, letter to the National Oceanic and Atmospheric Administration). The CDFG letter acknowledges the barrier of the I-5 underpass as a "complete barrier to upstream migration of steelhead" at this location. The USACE understands that genetic studies are currently underway to confirm the initial identification of steelhead in the Arroyo Trabuco; however, the results of these studies are not available. Steelhead have not been documented in San Juan Creek within the SAMP Study Area limits during decades of various biological surveys along San Juan Creek, including surveys specifically designed to detect fish species. In addition, there is no anecdotal information from fishing records within San Juan Creek in the RMV Planning Area for the steelhead.

On September 5, 2005, the National Oceanic and Atmospheric Administration published a final rule for the designation of critical habitat for seven Evolutionary Significant Units (ESUs) of Pacific Salmon and Steelhead in California (Federal Register 70 170). According to the final rule, several watershed units (490121, 490122, 490125, 490126, and 490128) including Trabuco, Upper Trabuco, Middle Trabuco, Upper San Juan, Mid upper San Juan and Middle San Juan "were determined to be unoccupied" (Federal Register 70 179) and as a result of this determination several miles of Trabuco and San Juan Creeks were removed from the proposed critical habitat designation. Therefore, no critical habitat for the steelhead is designated within the RMV Planning Area. However, critical habitat is designated in the SAMP Study Area on lower San Juan and lower Arroyo Trabuco.

The RMV Proposed project would not hinder the species survival and recovery in the southern portion of the ESUs range for steelhead and, as reviewed above under the arroyo toad consistency review, would provide streamcourse protection and management actions supportive of long-term steelhead recovery within the SAMP Study Area. The RMV Proposed Project proposes a circulation system that would result in bridge structures across San Juan Creek in three new locations. Limited modifications to San Juan Creek in the form of bridge piers for these crossings would occur; however, these modifications involve limited permanent impacts for bridge supports and, given the width of the streamcourse, are not anticipated to impede potential fish passage through the RMV Planning Area to the upper watershed where conditions for breeding habitat are found (National Marine Fisheries Service personal communication, August 16, 2005).

Fish passage downstream of the RMV Planning Area is questionable because, as noted above, CDFG regards the barrier of the I-5 underpass as a "complete barrier to upstream migration of steelhead." Therefore, this barrier (the I-5 underpass) would require modification to provide for potential fish passage. The USACE understands that Trout Unlimited has applied for a state grant to examine the feasibility of a fish ladder at the I-5 underpass.

The remaining potential issue with regard to fish passage is the existing RMV Planning Area earthen/pipe crossing of San Juan Creek (known as "Cow Camp Crossing"), which CDFG and the National Marine Fisheries Service (John O'Brien, CDFG and Stan Glowacki, National

Marine Fisheries Service, pers. comm.) have noted may pose difficulties for potential fish passage. A special condition is proposed for the proposed permitting procedures to address this potential Issue.

Potential benefits to steelhead, which would result from the Aquatic Resources Conservation Program, include proposed restoration/management actions in San Juan Creek identified above for the arroyo toad such as invasives species control including giant reed removal and bullfrog control. As reviewed in the Hydrologic and Geomorphic Needs of Listed Aquatic Species report, streamcourses within the San Mateo Watershed portion of the RMV Planning Area do not contain suitable steelhead breeding habitat. Potential downstream cumulative effects in both the San Juan Creek and San Mateo Creek Watersheds are reviewed in subchapter 8.7 of this EIS.

8.6.3.5 SAMP Program Level Conditions to Protect and Conserve Threathened or Endangered Species

In consideration of the analysis under subchapter 8.5.3.4, the SAMP permitting processes include general and special conditions to promote the protection and conservation of listed threatened and endangered species. Upon completion of consultation with the USFWS pursuant to Section 7 of the FESA, additional conditions may be added to enhance the protection and conservation of these species.

The RGP would, for the most part, not affect endangered species. Most of these areas that are eligible for the RGP are already degraded, and threatened and/or endangered species are not expected to occur within these areas. In the event that they occur within a proposed permit project area, the USACE would need to complete consultation with the USFWS, pursuant to Section 7 of the ESA, to address any potential take of the listed threatened and/or endangered species before issuing any authorization. The two general conditions that would address some of these issues up-front include:

RGP GC13 All work in waters must occur between September 15 and March 15. Work in waters may occur between March 15 and September 15 if bird surveys indicate the absence of any nesting birds within a 50-foot radius of the site. (Promotes conservation of least Bell's vireo and southern willow flycatcher)

RGP GC18 No activity is authorized which is likely to jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act or which is likely to destroy or adversely modify the critical habitat of such species. Non-federal permittee shall not begin work on the activity until notified by the Corps that the requirements of the Endangered Species Act have been satisfied and that the activity is authorized. Authorization of an activity under an LOP does not authorize the take of a threatened or endangered species as defined under the federal Endangered Species Act. In the absence of a separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with an incidental take provision, etc.) from the USFWS or NOAA Fisheries, both lethal and non-lethal "takes" of protected species are in violation of the Endangered Species Act. Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the office of the U.S. Fish and Wildlife Service or their internet site at http://carslbad.usfws.gov or from NOAA Fisheries or their internet site at http://www.noaa.gov. (Promotes conservation of least Bell's vireo, southern steelhead, and southern willow flycatcher.)

For the LOP process outside of the RMV Planning Area, effects to listed threatened and/or endangered species will be addressed case-by-case. If listed threatened and/or endangered species are present, the USACE would complete consultation with the USFWS pursuant to Section 7 of the FESA before issuing an authorization. In the higher value aquatic areas, eligibility for the LOP is limited to small projects impacting less than 0.1 acre. Due to the small size of the impact, such a project is more likely to avoid all impacts to any threatened and/or endangered species that may be present after consultation with the USFWS. In the lower value aquatic areas, resident threatened and/or endangered species are not likely to be present. These lower value aquatic areas purposely excluded any critical habitat designated, which was mainly for the California gnatcatcher and the southern steelhead. Any listed threatened and/or endangered species would most likely be transient migratory birds such as the least Bell's vireo or southwestern willow flycatcher or the southern steelhead. In any event, general conditions will address some of the issues up-front. These general conditions include:

LOP GC1 The permit must comply with the SAMP compensatory mitigation framework established in conjunction with the proposed permitting procedures (see Appendix A). (Promotes conservation of least Bell's vireo, southern steelhead, and southern willow flycatcher)

LOP GC10 Prior to initiation of the project, the boundaries of the project's impact area must be delimited by the placement of temporary construction fencing, staking and/or signage. Any additional acreage impacted outside of the approved project footprint shall be mitigated at a 5:1 ratio. In the event that additional mitigation is required, the type of mitigation shall be determined by the Corps and may include wetland enhancement, restoration, creation, or preservation. (Promotes conservation of least Bell's vireo, southern steelhead, and southern willow flycatcher.)

LOP GC11 Initial vegetation clearing in waters of the U.S. must occur between September 15 and March 15. Work in waters may occur between March 15 and September 15 if bird surveys indicate the absence of any nesting birds within a 50-foot radius. (Promotes conservation of least Bell's vireo and southern willow flycatcher.)

LOP GC12 All giant reed (Arundo donax), salt cedar (Tamarix spp.), and castor bean (Ricinus communis) must be removed from the project site and ensure that the site remains free from these non-native species for a period of five years from completion of the project. (Promotes conservation of least Bell's vireo and southern willow flycatcher.)

LOP GC18 Same as RGP GC18.

LOP GC19 For projects resulting in construction or replacement of stream crossings in Arroyo Trabuco or San Juan Creek, the resulting structure must comply with NOAA-Fisheries and CDFG requirements for fish passage. (Promotes conservation of southern steelhead.)

For the RMV Proposed Project's long-term individual permit, the USACE has designed numerous special conditions to address impacts to listed threatened and/or endangered species. Additional consultation with the USFWS, pursuant to Section 7 of the FESA, would allow the development of additional conservation measure to protect these species. The special conditions are:

SC I.A.1 The permittee shall confine development and supporting infrastructure to the footprint (including infrastructure alignments and facilities within designated open space) shown on Figures 8-1, 8-2, 8-3a, 8-3b, 8-3c, and 8-4. (Promotes conservation of arroyo toad, California gnatcatcher, least Bell's vireo, Riverside fairy shrimp, San Diego fairy shrimp, southern steelhead, southern willow flycatcher, and thread-leaved brodiaea.)

SC I.A.2 For the impact analysis areas, the permittee shall limit the size of the projects to 550 acres of development for Planning Area 4, 175 acres of reservoir for Planning Area 4, 500 acres of development for Planning Area 8, and 50 acres of orchards in Planning Areas 6 or 7. (Promotes conservation of arroyo toad, California gnatcatcher, least Bell's vireo, Riverside fairy shrimp, San Diego fairy shrimp, southern steelhead, southern willow flycatcher, and thread-leaved brodiaea.)

SC I.A.3 The permittee shall avoid all impacts to the thread-leaved brodiaea (a threatened facultative wetland plant) in a major population in a key location (as described in Southern NCCP Planning Guidelines) on Chiquadora Ridge as part of construction for Planning Area 2. (Promotes conservation of thread-leaved brodiaea.)

SC I.D.2 The permittee shall provide wildlife movement corridors along San Juan Creek, Canada Chiquita, Canada Gobernadora, Cristianitos, Gabino, and Talega Creeks. Uses within these corridors shall provide a 400-meter wide corridor (200-meter setback off the centerline) except for the narrowing due to infrastructure facilities; exclude residential or commercial structures shall not be constructed within the 400-meter corridor; allow for limited fuel modification zones, trails, and related recreational facilities (i.e., interpretative signage, staging areas, picnic areas); and allow for infrastructure facilities including natural treatment systems for water quality treatment and related drainage facilities, outfalls that are located outside of the ordinary high water mark, approved bridge crossings, and water, sewer, and power facilities as set forth in Figures 8-3a, 8-3b, and 8-bc. (Promotes conservation of arroyo toad, California gnatcatcher, least Bell's vireo, southern steelhead, and southern willow flycatcher.)

SC I.D.3 The permittee shall retrofit the existing Cow Camp culvert crossing across San Juan Creek upon receiving authorization to discharge fill materials associated with Planning Area 3 to allow for fish passage. Alternatively, the crossing may be relocated to accomplish the same functional objectives as above and the current crossing may be removed and the disturbed area restored to provide a smooth, continuous longitudinal channel profile. The culverts shall comply with these following guidelines: the culvert shall be a minimum of 6 feet in width; the bottoms of the culverted crossings shall not be less than 25 percent of the culvert height; and retrofitted culverts shall be at grade. (Promotes conservation of arroyo toad and southern steelhead.)

SC I.D.4 The permittee shall use best management practices, including and not limited to detention basins, retention basins, low-water irrigation, increase in pervious surfaces, and/or diversion of runoff to a collection system for re-use for irrigation purposes to prevent dry season runoff from entering San Juan Creek (upstream of Trampas Canyon), Gabino Creek, and Talega Creek from September to mid-October. (Promotes conservation of arroyo toad.)

SC I.D.5 The permittee shall eradicate bullfrogs from any water quality treatment basin within 0.5 km of streams known to have arroyo toads. The eradication shall occur at the very least from September to mid-October to interrupt the annual breeding cycle. Permittee may use a variety of approaches to ensure compliance with this condition. Eradication efforts shall be monitored annually as part of the Aquatic Resources Adaptive Management Plan. If eradication efforts are not successful, the permittee shall cause the water quality treatment basin to be dry from September to mid-October by diverting dry season runoff to a collection system for re-use for irrigation purposes. (Promotes conservation of arroyo toad.)

SC I.D.6 The permittee shall minimize light-spillover associated with the development to minimize indirect impacts to wildlife. Lighting shall be directed away from habitat areas through the use of low-sodium or similar intensity lights, light shields, native shrubs, berms, placement low near the ground, or other shielding methods. (Promotes conservation of arroyo toad, California gnatcatcher, least Bell's vireo, southern steelhead, and southern willow flycatcher.)

SC I.D.7 The permittee shall refrain from using invasive exotic vegetation within fuel modification zones. Invasive exotic vegetation are those rated as medium or high by the California Invasive Plant Council in terms of their invasiveness. (Promotes conservation of arroyo toad, California gnatcatcher, least Bell's vireo, southern steelhead, and southern willow flycatcher.)

SC I.D.8 The permittee shall undertake telemetry monitoring studies for arroyo toad near Planning Area 8 for five years and submit the results to the Corps before submittal of an application for Planning Area 8. The results shall be used in designing appropriate measures to minimize impacts to the arroyo toad in Planning Area 8. (Promotes conservation of arroyo toad.)

SC I.D.9 Any additional conditions required by the U.S. Fish and Wildlife Service Biological Opinion.

SC II.1 The permittee shall implement a contractor education program to provide an overview and understanding of the project construction special conditions. A copy of the Special Conditions must be included in all bid packages for the project and be available at the work site at all times during periods of work and must be presented upon request by any Corps or other agency personnel with a reasonable reason for making such a request. (Promotes conservation of arroyo toad, California gnatcatcher, least Bell's vireo, Riverside fairy shrimp, San Diego fairy shrimp, southern steelhead, southern willow flycatcher, and thread-leaved brodiaea.)

SC II.2 The permittee shall perform initial vegetation clearing in waters of the U.S. between September 15 and March 15. Work in waters may occur between March 15 and September 15 if breeding bird surveys indicate the absence of any nesting birds within a 50-foot radius. (Promotes conservation of California gnatcatcher, least Bell's vireo, and southern willow flycatcher.)

SC II.3 With each project LOP application, the permittee shall provide plans to the Corps showing the limits of grading, upland haul routes, fueling and storage areas for vehicles outside of Waters of the U.S., temporary impact areas, dewatering areas, and temporary access roads within Waters of the U.S. The permittee shall

conform the grading plans to pre-identified impacts. (Promotes conservation of arroyo toad, California gnatcatcher, least Bell's vireo, Riverside fairy shrimp, San Diego fairy shrimp, southern steelhead, southern willow flycatcher, and thread-leaved brodiaea)

SC II.6 The permittee shall identify the limits of impacts in the field with brightly-colored flags, tape, or other marking to prevent unauthorized grading outside approved footprints. (Promotes conservation of arroyo toad, California gnatcatcher, least Bell's vireo, Riverside fairy shrimp, San Diego fairy shrimp, southern steelhead, southern willow flycatcher, and thread-leaved brodiaea.)

SC II.7 The permittee shall install toad exclusion fencing for any work within 300 feet of a known population of the arroyo toad adjacent to San Juan Creek, Verdugo Creek, Gabino Creek, Cristianitos Creek, and Talega Creek for activities occurring outside of the estivation period. (Promotes conservation of arroyo toad.)

SC II.8 The permittee shall implement best management practices to prevent the movement of sediment into Waters of U.S. Compliance with Ranch Plan EIR Standard Condition 4.5-11 (Erosion and Sediment Control Plan (ESCP)) would satisfy this condition. The ESCP must be designed to minimize the mobilization of fine sediments into downstream waters. A copy of the current ESCP shall be provided to the Corps for each project application. (Promotes conservation of arroyo toad and southern steelhead.)

SC II.10 The permittee shall restore all temporarily impacted areas to pre-construction elevations within one month following completion of work. If wetlands or non-wetland Waters of the U.S. vegetated with native wetland species were impacted, re-vegetation should commence within three months after restoration of pre-construction elevations and be completed within 1 growing season. If re-vegetation cannot start due to seasonal conflicts (e.g., impacts occurring in late fall/early winter should not be re-vegetated until seasonal conditions are conducive to re-vegetation), exposed earth surfaces should be stabilized immediately with jute-netting, straw matting, or other applicable best management practice to minimize any erosion from wind or water. (Promotes conservation of arroyo toad, California gnatcatcher, least Bell's vireo, southern willow flycatcher, and thread-leaved brodiaea.)

SC II.12 During construction of each Planning Area or associated infrastructure, the permittee shall provide weekly construction reports via e-mail, fax, and/or mail demonstrating status of compliance with all project construction special conditions. Appropriate photos shall be submitted to show establishment of project construction minimization features. (Promotes conservation of arroyo toad, California gnatcatcher, least Bell's vireo, Riverside fairy shrimp, San Diego fairy shrimp, southern steelhead, southern willow flycatcher, and thread-leaved brodiaea.)

SC II.13 The permittee shall allow the Corps to inspect the site at any time during and immediately after project implementation provided a 24-hour advance notice is given to the permittee. (Promotes conservation of arroyo toad, California gnatcatcher, least Bell's vireo, Riverside fairy shrimp, San Diego fairy shrimp, southern steelhead, southern willow flycatcher, and thread-leaved brodiaea.)

SC II.14 Any additional conditions required by the U.S. Fish and Wildlife Service Biological Opinion.

SC III.1 The permittee shall protect avoided aquatic resources that are appropriately buffered (where feasible), by recording conservation easements. The conservation easements shall be recorded in phases in substantial conformance with the RMV Open Space and Phasing Plan shown as Exhibit B in the RMV Open Space Agreement, entered into by the permittee and County of Orange pursuant to the Ranch Plan Program EIR No. 589. The Corps acknowledges that the conservation easements will allow for passive recreation, agricultural uses by the O'Neill family and its successors in interest, if any, and for certain specified infrastructure facilities as illustrated in Figures 8-3a, 8-3b, 8-3c, and 8-4 of the EIS. The conservation easement template or form shall be approved by the Corps before recordation. Following the recordation of each conservation easement, the permittee shall provide to the Corps a copy of the conservation easement. (Promotes conservation of arroyo toad, California gnatcatcher, least Bell's vireo, Riverside fairy shrimp, San Diego fairy shrimp, southern steelhead, southern willow flycatcher, and thread-leaved brodiaea.)

SC III.2.a The permittee shall compensate for all impacts to wetlands and non-wetland Waters of the U.S. vegetated with native wetland plant species at a 1:1 ratio on an area basis. The permittee may use the 18 acres of credit already established at the Gobernadora Ecological Restoration Area to compensate for future impacts to any Waters of the U.S. Compensatory mitigation for impacts to specified wetlands and non-wetland Waters of the U.S. vegetated with native wetland plant species shall be initiated prior to impacts to the specified Waters of the U.S. and achieve the success criteria prior to impacts to the specified Waters of the U.S. The permittee shall provide the Corps, Department of Fish and Game, and the U.S. Fish and Wildlife Service with a habitat mitigation and monitoring plan consistent with the LAD Mitigation and Monitoring Guidelines for review and approval prior to implementation of the compensatory mitigation. The compensatory mitigation sites should be prioritized in consideration of the "San Juan Creek Watershed Riparian Ecosystem Restoration Plan: Site Selection and General Design Criteria" by Engineering Research and Development Center (ERDC) dated August 2004 and the Aquatic Resources Restoration Plan. Additional considerations include the proximity of impact site and mitigation site, impacts to other sensitive habits due to the potential mitigation site, site ownership, and other factors. Restoration design shall follow the principles of the ERDC restoration plan (Appendix F4 of the SAMP EIS). (Promotes conservation of arroyo toad, California gnatcatcher, least Bell's vireo, Riverside fairy shrimp, San Diego fairy shrimp, southern steelhead, and southern willow flycatcher.)

SC III.2.b The permittee shall compensate for all impacts to non-wetland waters that are vegetated by upland species or unvegetated through the eradication of all arundo on the RMV Planning Area (about 90 acres) consistent with the Invasive Species Control Plan. (Promotes conservation of arroyo toad, California gnatcatcher, least Bell's vireo, and southern steelhead, southern willow flycatcher.)

SC III.2.c Temporary impacts to wetlands or naturally vegetated non-wetland waters of the U.S. will be compensated through the existing habitat values and functions provided by 18 acres of already existing created/restored wetlands within GERA that is already providing temporal gain and the habitat value and functional

enhancement provided through implementation of the ARAMP, including invasive species control such as the eradication of about 90 acres of giant reed on the RMV Planning Area. Temporary impacts to Waters of the U.S. unvegetated or vegetated by upland species does not require compensatory mitigation. (Promotes conservation of arroyo toad, California gnatcatcher, least Bell's vireo, Riverside fairy shrimp, San Diego fairy shrimp, southern steelhead, southern willow flycatcher, and thread-leaved brodiaea.)

SC III.4 The permittee shall finalize the Adaptive Resources Management Plan for in perpetuity preservation of aquatic resource functions and values within one year of issuance of the long-term individual permit. (Promotes conservation of arroyo toad, California gnatcatcher, least Bell's vireo, Riverside fairy shrimp, San Diego fairy shrimp, southern steelhead, southern willow flycatcher, and thread-leaved brodiaea.)

SC III.5 The permittee shall conduct an exotic aquatic animal removal program to remove cowbirds, bullfrogs, non-native fishes, etc., as set forth in the Invasive Species Control Plan (Appendix F4 to the SAMP EIS). (Promotes conservation of arroyo toad, California gnatcatcher, least Bell's vireo, Riverside fairy shrimp, San Diego fairy shrimp, southern steelhead, southern willow flycatcher, and thread-leaved brodiaea.)

SM SC I.1 The permittee shall confine infrastructure facilities to the footprint (including infrastructure alignments and facilities within designated open space) shown on Exhibits 8-3a, 8-3b, and 8-3c. (Promotes conservation of arroyo toad, California gnatcatcher, least Bell's vireo, Riverside fairy shrimp, San Diego fairy shrimp, southern steelhead, southern willow flycatcher, and thread-leaved brodiaea.)

SM SC II.2 Same as SC II.2 for breeding bird restrictions.

SM SC II.3 Same as SC II.3 for grading plans.

SM SC II.6 Same as SC II.6 for limits of grading.

SM SC II.7 Same as SC II.7 for arroyo toad exclusion fencing.

SM SC II.8 The permittee shall implement best management practices to prevent the movement of sediment into waters of U.S. The permittee shall develop a program-level plan to minimize the mobilization of fine sediments into downstream waters. A copy of the plan shall be provided to the Corps before issuance of the final permit. (Promotes conservation of arroyo toad and southern steelhead.)

SM SC II.9 Same as SC II.10 for temporary impact restoration.

SM SC II.13 Any additional condition required by the U.S. Fish and Wildlife Service Biological Opinion.

SM SC III.1 The permittee shall compensate for all permanent and temporary impacts by contributing $700,000 to the Adaptive Resources Management Plan. No further compensatory mitigation will be required for any impact as long as a proposed activity complies with the pre-identified impact footprint.

8.6.4 POTENTIAL TO VIOLATE MARINE SANCTUARIES DESIGNATED UNDER TITLE II OF THE MARINE PROTECTION, RESEARCH, AND SANCTUARIES ACT OF 1972

This requirement is not applicable to the proposed Regional General Permit and to the RMV proposed permitting procedures and associated activities.

8.7 PROHIBITIONS ON DISCHARGES CAUSING OR CONTRIBUTING TO SIGNIFICANT DEGRADATION−40 CFR 230.10(c)

According to Section 230.10 (c) of the Section 404(b)(1) Guidelines:

> *"Except as provided under section 404(b)(2), no discharge of dredged or fill material shall be permitted which will cause or contribute to significant degradation of the waters of the United States. Findings of significant degradation related to the proposed discharge shall be based upon appropriate factual determinations, evaluations and test required by Subparts B and G, after consideration of Subparts C through F, with special emphasis on the persistence and permanence of the effects outlined in those subparts. Under these Guidelines, effects contributing to significant degradation considered individually or collectively, include:*
>
> *(1) Significantly adverse effects of the discharge of pollutants…including fish, shellfish, wildlife and special aquatic sites.*
>
> *(2) Significantly adverse effects of the discharge of pollutants on life stages of aquatic life and other wildlife dependent on aquatic ecosystems…*
>
> *(3) Significantly adverse effects of the discharge of pollutants on aquatic ecosystem diversity, productivity and stability…or*
>
> *(4) Significantly adverse effects of the discharge of pollutants on recreational, aesthetic and economic values.*

Upon implementation of all appropriate avoidance, minimization, and compensation measures as described in subchapter 8.5, there would not be any significant degradation to the aquatic environment as it relates to wildlife and special aquatic sites, aquatic life, ecosystem productivity, and other values.

8.8 CUMULATIVE EFFECTS ON THE AQUATIC ECOSYSTEM

Cumulative effects on the aquatic ecosystem are analyzed in this subchapter from two perspectives: (1) cumulative effects within the SAMP Study Area where the SAMP Study Area encompasses an entire watershed (i.e., the San Juan Creek watershed) and (2) cumulative effects on aquatic resources located downstream of the SAMP Study Area where the SAMP Study Area is only a portion of the watershed (i.e., the San Mateo Creek Watershed). In the first instance, the San Juan Creek Watershed, the SAMP Study Area is used as the basis for the analysis of cumulative effects on aquatic resources because this would encompass the entire area that would be affected by the proposed permitting procedures. Because the SAMP Study Area covers the entire San Juan Creek Watershed, the proposed permitting procedures and Aquatic Resources Conservation Program, would not alter the method by which aquatic resources located in other watersheds outside the SAMP Study Area are protected, restored, managed, or impacted. Since there would be no change in how these resources were treated

and there are other existing regulatory provisions (i.e., Section 404 of the Clean Water Act) that are in place to address aquatic resources in other watersheds, the SAMP regulatory framework would not contribute to cumulative impacts beyond the SAMP Study Area. In the second instance, the San Mateo Creek Watershed, the proposed permitting procedures through the projects that are permitted by the proposed permitting procedures have the potential to effect downstream aquatic resources; these potential effects in combination with potential affects from other actions within the San Mateo Creek Watershed are analyzed in this subchapter.

8.8.1 CUMULATIVE PROJECTS WITHIN THE SAMP STUDY AREA

The projects that have been considered for potential cumulative impacts on aquatic resources include those projects that are currently being evaluated or have recently been approved by local jurisdictions that are within the SAMP Study Area, that may have an impact on aquatic resources, and do not have USACE permits. It was determined that if a project already had Section 404 permits that appropriate actions had been incorporated to avoid, minimize or mitigate the impacts to aquatic resources. The Clean Water Act requires that there be no net loss to wetlands; therefore, if a Section 404 permit has been issued it can be assumed that the project would not result in a loss to wetlands.

The following provides a brief summary of the projects that have been identified as having a potential cumulative effect on aquatic resources. Chapter 9 provides an evaluation of cumulative impacts on other environmental effects. Figure 9-1 identifies the location for each of the projects discussed below. A summary of the projects identifies impacts that are known or are anticipated to occur with implementation of each project listed. This information is based on completed environmental documents or based on discussions with the applicable lead agency. In addition, the functional assessment and planning-level delineation discussed in subchapter 4.2.2 provide a general understanding of the potential quality of the aquatic values associated with each project site. Although each project would be required to document the actual extent, functions, and values of aquatic resources located on-site and subsequently, as applicable, to avoid, minimize, and mitigate the impacts associated with project implementation, a general understanding of the functional assessment indices and likely presence/absence of jurisdictional resources provides insight into the value of the site as it pertains to the overall aquatic value within the SAMP framework.

8.8.1.1 Foothill/Trabuco Specific Plan

The Foothill/Trabuco Specific Plan addresses approximately 6,500 acres in an area generally bounded by the Silverado/Modjeska Specific Plan area and the Cleveland National Forest to the north, the City of Rancho Santa Margarita to the south, the City of Lake Forest to the west, and the City of Rancho Santa Margarita and the Cleveland National Forest to the east. Three planning districts were formed based on proximity and availability of infrastructure and differing development opportunities and constraints.

The Foothill/Trabuco Specific Plan provides for a mix of residential, commercial recreation, community commercial, public/quasi-public facilities, and open space. For residential uses, the gross densities within the Foothill/Trabuco Specific Plan range from less than one acre per unit to 20 acres per dwelling unit. Clustering is allowed with minimum lot sizes as small as 4,000 square feet in certain areas. The Specific Plan has a range of goals and objectives that address the preservation of streams, creeks, wildlife movement corridors, and other sensitive biotic resources. A maximum of 2,775 dwelling units are allowed within the Specific Plan area. A majority of the developable land within the Foothill/Trabuco Specific Plan area is within the SAMP Study Area. The County General Plan Housing Element (May 8, 2001; technical

amendment updates April 2004) notes that for the Foothill/Trabuco Specific Plan area, there are 1,783.8 vacant developable acres.

Program EIR 531 was prepared in 1991 by the County of Orange to address the potential impacts associated with the development within the Foothill/Trabuco Specific Plan area. The evaluation focused on area-wide impacts and general site development standards. The Program EIR was not intended to evaluate project-specific impacts of development within the Specific Plan boundaries. The Final Program EIR identified significant, unavoidable impacts to water quality as a result of an increase in urban pollutants associated with future development with the Foothill/Trabuco Specific Plan area. Additionally, the implementation of the Specific Plan would result in the loss of habitat, including riparian habitat, and impacts to wildlife. These impacts could not be accurately quantified because specific development proposals are not known. The Specific Plan incorporates measures to avoid and minimize impacts, though development in the area would still result in impacts. The Final EIR found these impacts to be less than significant on a regional and area-wide scale, but significant on a local level.

Using the USACE Engineer Research and Development Center (ERDC) Integrity Indices, the Foothill/Trabuco Specific Plan area is generally ranked as high quality for water quality and hydrology. The habitat integrity indices rank this area slightly lower. Based on the Planning Level Delineation, USACE jurisdictional resources do occur within areas identified for potential development. As indicated above, the Foothill/Trabuco Specific Plan does not identify specific development projects, but provides a framework for implementing future projects in the Foothill/Trabuco Specific Plan area. Thus the exact nature of potential future impacts to hydrologic, habitat, and water quality integrity and specific quantifiable impacts to USACE jurisdiction are not determinable. However, the Final Program EIR for the Foothill Trabuco Specific Plan did identify potential impacts to aquatic resources as a result of increased pollutants and loss of habitat value. Based on the goals and objectives of the Specific Plan, there is an emphasis on the preservation of streams, creeks, wildlife movement corridors, and other sensitive biotic resources. Therefore, some level of protection, restoration, and management of aquatic resources would likely occur through the application of avoidance, minimization, and mitigation measures. However, prior to review of specific development plans, these impacts were identified as significant and unavoidable. Because the Program EIR was prepared in 1991, subsequent environmental regulatory requirements presently in place were not anticipated and thus not analyzed. Absent compliance with current state and federal water quality laws (e.g., the County of Orange DAMP pursuant to the MS-4 stormwater permit and Basin Plan requirements) and state and federal habitat protection laws (e.g., Fish and Game Code Section 1600, et seq., CESA/FESA compliance including the 4[d] permit program, and FESA Section 7 consultation requirements and USACE Section 404 permit requirements), development of the area within the Foothill/Trabuco Specific Plan would potentially contribute to cumulative impacts.

8.8.1.2 Caltrans Projects

Ortega Highway Interchange

This highway improvement project would modify the I-5/Ortega Highway interchange ramp configuration. Studies are in progress; however, there is no City Capital Improvement Project (CIP) funding and no Caltrans State Transportation Improvement Program (STIP) funding approved for construction of the improvements. Funding is committed for the design phase. Conceptual alternatives for interchange improvements have been identified. Alternatives range from the No-Project Alternative, constructing a round-about, or realigning the interchange and Del Obispo Avenue.

At present time, only a Preliminary Environmental Analysis Report (PEAR), not full NEPA/CEQA documentation, has been prepared. The PEAR identifies feasible alternatives, anticipated type of impacts associated with a proposed project, and order of magnitude of those impacts. It also recommends the type of environmental documentation required for the project. Based on an early assessment of the project a potential impact to riparian habitat and possibly jurisdictional areas was identified because of a small drainage north of the interchange. It is anticipated that the type of document ultimately prepared would be dependent on which alternatives advance to the next level of analysis.

The USACE Engineer Research and Development Center Functional Assessment Integrity Indices provide a ranking of the resources by reach. This results in a score for a larger area, whereas a project such as the Ortega Highway Interchange is located in a focused area. The USACE Engineer Research and Development Center Functional Assessment ranks the reach containing Ortega Highway relatively low for water quality and habitat and moderate for hydrology. The interchange improvements would not have any direct impacts on San Juan Creek. However, there is a drainage located to the northwest of the I-5/Ortega Highway interchange. It is concrete-lined in the vicinity of the interchange, but further north it has earthen banks and bottom.

Ortega Highway Widening

This project would widen Ortega Highway to four lanes from Antonio Parkway to the future SR-241. It is not possible to estimate the extent of the impacts without concept design plans for Ortega Highway and a selected alignment for the SR-241. However, given the proximity of the roadway to San Juan Creek, there is the potential for wetland impacts associated with this project. The roadway would traverse areas that the USACE Engineer Research and Development Center Functional Assessment ranked as moderate to moderate-high for habitat integrity and moderate to high for water quality and hydrology integrity. This project would traverse a portion of the area that would be affected by Alternative B-12, increasing the potential for cumulative impacts. However, the improvements would occur in area adjacent to the current roadway.

SR-241 SOCTIIP

In May 2004, the Transportation Corridor Agencies, Caltrans, and FHWA released for public review a Draft EIS/SEIR for the South Orange County Transportation Infrastructure Improvement Program (SOCTIIP). The purpose of SOCTIIP is to evaluate regional circulation needs in South Orange County. The potential extension of SR-241 south to I-5 and the County border is one component of the SOCTIIP. The extension of SR-241 would traverse the SAMP Study Area. The SOCTIPP EIS/EIR evaluates six corridor alternatives for SR-241, each of which would consist of four mixed-flow lanes initially and six mixed-flow plus two HOV lanes ultimately. In addition, SOCTIIP includes one alternative to improve existing and master planned arterial highways, and one alternative to widen I-5 from the County border north to the I-405 interchange. The alternatives being evaluated in the SOCTIIP are described in Chapter 2.0 (Figure 2-5). Based on information from the EIS/EIR, the impacts to wetlands for each alternative are shown in Table 8-12. In addition, the SOCTIIP alternatives, with the exception of the No Build Alternative, would have the potential of causing water quality impacts associated with pollutants in runoff from the roadway. However, current regulations state and federal water quality regulations, including the USACE Section 404(b)(1) Guidelines, require that the water be treated prior to release into downstream waters; therefore, potentially significant short-term adverse impacts to water quality would be mitigated to below a level of significance.

TABLE 8-12
PLANT COMMUNITY IMPACTS BY SOCTIIP ALTERNATIVE (ULTIMATE)[a.]

Community	Far East Corridor (FEC) Alignment		Central Corridor (CC) Alignment		Alignment 7 Corridor (A7C)		Arterial Improve-ments Only[b.]	I-5[b.]
	FEC-Modified	FEC-West	CC	CC-Avenida La Pata Variation	A7C-Avenida La Pata Variation	A7C-Far East Crossover-Modified		
Vernal Pools, Seeps, & Wet Meadows (5.0)	2.17 (0.88)	1.98 (0.80)	8.71 (3.52)	8.71 (3.52)	4.62 (1.87)	0.09 (0.04)	0.19 (0.08)	0.14 (0.06)
Marsh Communities (6.0)	5.20 (2.10)	4.61 (1.87)	11.51 (4.66)	9.59 (3.88)	10.00 (4.05)	4.38 (1.77)	0.00 0.00	0.44 (0.18)
Riparian Herb and Mule Fat Scrub (7.1, 7.3)	2.98 (1.21)	6.50 (2.63)	14.47 (5.86)	13.46 (5.45)	4.69 (1.90)	0.71 (0.29)	5.88 (2.38)	3.50 (1.42)
Other Riparian Communities (7.2, 7.4, 7.5, 7.6, 7.7, 7.8)	21.87 (8.85)	21.45 (8.68)	23.16 (9.37)	23.16 (9.37)	14.67 (5.94)	33.91 (13.72)	4.91 (1.99)	12.38 (5.01)
Lakes, Reservoirs, & Basins (12.0)	1.69 (0.68)	1.30 (0.53)	0.34 (0.14)	0.34 (0.14)	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00
Water Courses (13.0)	7.07 (2.86)	1.25 (0.51)	19.23 (7.78)	17.73 (7.18)	3.00 (1.21)	1.83 (0.74)	1.51 (0.61)	9.48 (3.84)
Total	**40.98** **(16.58)**	**37.09** **(15.02)**	**77.42** **(31.33)**	**72.99** **(29.54)**	**36.98** **(14.97)**	**40.92** **(16.56)**	**12.49** **(5.06)**	**25.94** **(10.51)**

a. Data represent amount of plant community that will be impacted by each alternative. Units of measure are acres (hectares).
b. Data are the same for the initial and ultimate corridor for "Arterial Improvements Only" and "I-5."

The Functional Assessment ranking for the area traversed by the various alignments is very low to moderate for all three indices for the I-5 area. However, the easterly alignments traverse an area ranked relatively high for all three indices. The alternatives with the SR-241 extension would all extend through Alternative B-12. The SR-241 project is required to comply with all applicable state and federal regulations directed toward protecting aquatic resource habitats, as well as uplands habitats.

SR-241 Widening (Bake Parkway and Santa Margarita Parkway)

This highway improvement would widen the southbound SR-241 between Bake Parkway and Santa Margarita Parkway to provide four general-purpose lanes. Approximately one-half of the length of this project is within the SAMP Study Area. The project is consistent with the ultimate cross-section evaluated as part of the EIR completed in 1990 for SR-241. When the initial phase of SR-241 was constructed, the ultimate right-of-way was graded and mitigation implemented in the Gobernadora Ecological Restoration Area (GERA) in accordance with the Section 404 permit issued to the Transportation Corridor Agency.

SR-241 Widening (Oso Parkway to Santa Margarita Parkway)

This highway improvement would widen SR-241 between Oso Parkway and Santa Margarita Parkway to provide three general-purpose lanes in each direction to improve the circulation system. The project would be consistent with the ultimate cross-section evaluated as part of the EIR for SR-241. When the initial phase of SR-241 was constructed, the ultimate right-of-way

was graded and mitigation implemented in the GERA in accordance with the Section 404 permit issued to the Transportation Corridor Agency.

8.8.1.3 County of Orange Projects

La Pata Avenue Gap Closure and Del Rio Extension

An EIR is under preparation for this roadway project which includes the widening of La Pata Avenue from two lanes to four lanes from Ortega Highway to the Prima Deshecha Landfill and the extension of La Pata Avenue through the landfill to the existing terminus of Avenida La Pata at Calle Saluda in the City of San Clemente as a four-lane facility. The project also includes the extension of Del Rio as a four-lane facility from its existing terminus in the Forster Ranch community in the City of San Clemente to the proposed La Pata Avenue. The portion of the extension of La Pata Avenue within the SAMP Study Area is addressed as a component of the infrastructure supporting the B-12 Alternative, and impacts to potential USACE jurisdiction resulting from this portion of the project are discussed in subchapter 8.4.

Ortega Rock

This existing facility is located within the SAMP Study Area outside the RMV Planning Area. As noted previously, this facility has produced aggregate resources under a County of Orange Sand and Gravel Site Permit**.** Current production is deferred pending site maintenance and production studies, but is capable of resuming and increasing as development within the RMV Planning Area occurs. Subsequent EIR 539 prepared and certified by the County of Orange identified anticipated impacts to USACE jurisdiction as approximately four acres, of which less than one acre would be wetlands for the footprint of peak production.

8.8.1.4 City of San Juan Capistrano

San Juan Meadows

The project would construct 275 single-family detached dwellings and 165 senior housing units, and set aside a public use site and 72 acres of open area. EIR 92-02, San Juan Meadows (July 1992) identified a number of significant impacts. As a result of minor changes to the project, a Mitigated Negative Declaration was approved for the project on November 12, 1996. A Development Agreement, which would extend the time period for the tentative tract map, was being considered in August 2005.

The project would result in significant impacts to plant communities as a result of grading. All impacts would be reduced to less than significant levels via adherence to mitigation measures requiring the submission of grading and erosion control plans, a coastal sage scrub mitigation plan, a wetland mitigation plan, and a landscape plan.

The USACE Engineer Research and Development Center Functional Assessment categorized the reach that would contain this project as having moderate water quality and hydrology integrity indices and moderately-low habitat integrity indices.

La Novia Bridge

The project proposes to demolish, in phases, the existing two-lane bridge across San Juan Creek and replace it with a four-lane bridge. The three-span bridge would be approximately 260 feet long and 84 feet wide. In addition to the four lanes for vehicular traffic, the bridge would

provide equestrian and pedestrian lanes. The City of San Juan Capistrano is in the process of preparing an EIR for the project. Based on the NOP, the project has the potential to impact aquatic resources and sensitive species that exist or expected to existing within those habitats. Construction activities would have the potential to have short-term impacts to wildlife movement within the creek. Construction activities may require the diversion of flows in San Juan Creek and necessitate the placement of equipment in the streambed. The demolition and construction activities could result in additional pollutants being discharged into the Creek. Long-term the project would not be expected to affect the flows or water quality within the creek.

The USACE Engineer Research and Development Center Functional Assessment ranked the water quality and habitat integrity indices for the reach containing the La Novia Bridge as moderate and the hydrologic integrity indices as moderately low

8.8.1.5 Cleveland National Forest

Cleveland National Forest Land Management Plan

In September 2005, the Pacific Southwest Region of the U.S. Forest Service published for public review and comment, the draft revised Land Management Plans for the southern California National Forests (Angeles, Cleveland, Los Padres, and San Bernardino) and an accompanying Draft EIS. According to the U.S. Forest Service; the land management plans for each of the four forests are independent. The draft revised land management plans are based on the preferred alternative identified for each of the forests. Of relevance to the cumulative impact analysis for the SAMP, is the Cleveland National Forest revised draft Land Management Plan. The purpose of the revised land management plans for all four of the southern California National Forests is to:

1. guide all natural resource management activities on the forests,

2. address changed conditions and direction that have occurred since the original plans were adopted, and

3. meet the objectives of federal law, regulation, and policy.

The Preferred Alternative for addressing these purposes in the Cleveland National Forest is Alternative 2. According to the Draft EIS, Alternative 2 was originally developed as the "Proposed Action" for land management revisions and was available for public comment in 2001. Alternative 2 has been modified from earlier versions to provide additional protection for species-at-risk through species management strategies and land management plans design criteria (standards). The primary theme of the Preferred Alternative for the Cleveland National Forest is maintaining biological diversity and ecological integrity while providing a gradual increase in recreation opportunities. Compared to other alternatives, there is a higher level of investment in:

- Reconstruction of existing degraded facilities and the construction of new facilities to accommodate projected recreation demand in an environmentally sustainable way. More intensive user controls are employed that are designed to minimize conflicts with users and with sensitive environmental resources. Investment increase in mitigation that allows use levels to continue. The effective use of conservation education occurs, and Forest Staff would enlist the support of local communities, partners, and volunteers to promote a stewardship ethic and enhance visitor services.

- Avoiding and minimizing effects to species-at-risk with little focus on restoration of habitats. A conservation strategy is employed that focuses on using an adaptive management approach to meet conservation objectives in species-at-risk habitat.

The USACE Engineer Research and Development Center Functional Assessment ranked the majority of the Cleveland National Forest as having high integrity for all three indices.

This project includes acquisition of National Forest System lands through exchange, donation, or purchase. Generally, there are no effects from lands acquired, although lands acquired are occasionally in need of restoration, which could have a long-term beneficial effect on species, and may have short-term negative effects from resulting restoration work (i.e., erosion during restoration work, use of herbicides to control undesirable, non-native invasive species, or noxious weeds, use of equipment-direct mortality of animals or plants, noise). Lands acquired can increase the net habitat for species.

Regarding Invasive Species, the Draft EIS notes that: "Under alternatives 2 through 6, revised forest plan direction would provide a province-wide strategy for invasive species that includes objectives for education, prevention, control, restoration, and research. Revised forest plan standards would decrease the risk that invasive nonnative plants and animals become established on the National Forests of southern California. There would be less risk that seeds, mulches, or animal feed used on National Forest System land would be contaminated by weed seeds. There would be less risk that vehicles and machines authorized to travel off-road (such as fire engines) would introduce invasive nonnative plants. There would be less risk that special-use permittees would use or dispose of invasive nonnative plants and animals."

About 60 miles of stream would be treated annually for invasive nonnative species such as Arundo and tamarisk, and about 300 acres of uplands would be treated for a variety of invasive nonnative plants. The County of Orange, wildlife agencies, and local stakeholders have initiated discussions with the Cleveland National Forest regarding potential coordination of Arundo removal in San Juan Creek extending through Cleveland National Forest lands, County lands, and RMV Planning Area to the southern boundary of the RMV Planning Area.

In alternatives 2 through 6, invasive nonnative species would continue to persist at many current locations and may also increase in range and abundance. This is due to the current presence of numerous populations of invasive nonnative plants and animals on the forests, the presence of numerous vectors such as people and vehicles, and the continued disturbance of many acres of land. This would occur despite revised forest plan direction, concurrent efforts to control invasive nonnative plants and animals, and increased opportunities to implement control measures.

8.8.2 CUMULATIVE IMPACT ANALYSIS

8.8.2.1 Cumulative Impacts on Aquatic Resources in the San Juan Creek Watershed

Potential Cumulative Impacts Resulting from Activities Proposed to be Authorized Pursuant to the RMV Permitting Procedures

Prior to implementation of avoidance, minimization, and mitigation measures, Alternative B-12 and the SMWD Proposed Project would have potentially significant or significant impacts on riparian and wetland habitat. With implementation of the Aquatic Resources Conservation Program which includes three components (preservation, restoration and management described below), aquatic resources would be protected, restored and enhanced such that pre-

discharge/fill values and functions would be maintained, including "no net loss" of wetlands acreage.

- ***Preservation.*** Alternative B-12 would result in the preservation of a minimum of 1,693.7 acres of riparian areas out of 2,174.3 acres existing within the RMV Planning Area and a minimum of 755.6 acres of probable Waters of the U.S. out of 857.1 acres existing within the RMV Planning Area. As noted previously, the aquatic resources impact analyses for the B-12 Alternative address an overstated scenario for development impacts in Planning Areas 4 and 8 because actual development areas within those planning areas, although considerably smaller than the planning areas, have not been sited. Because only 1,225 acres of development (inclusive of the 175-acre reservoir site) are allowed within the overall 2,506 acres analyzed for Planning Areas 4 and 8, conservation of riparian areas is likely to increase based on the limited development that would be allowed to occur within these planning areas, and limited orchards (50 acres) that would be allowed to occur within Planning Areas 6 and/or 7. All significant sources of coarse sediments on RMV Planning Area land important to aquatic resources habitats would be protected.

- ***Restoration.*** The Aquatic Resources Restoration Plan identifies the location of potential restoration areas, methods of restoration, and performance standards to mitigate impacts to wetlands in keeping with the federal "no net loss" policy.

- ***Management.*** The Aquatic Resources Adaptive Management Program sets forth the conceptual models, goals, focal species, stressors, and objectives for the management of wetlands and riparian habitats.

The only impact that would remain a potentially significant unavoidable impact on riparian and wetland habitats is the impact to two slope wetlands located in the Chiquita Sub-basin which would not be replaced as slope wetlands. However, in keeping with the federal policy of "no net loss" of functions and values, impacts would be compensated for through the creation of wetlands providing functions and values comparable to the two slope wetlands.

Impacts to wetlands associated with the cumulative projects would not contribute to the cumulative loss of habitat throughout the SAMP Study Area as the "no net loss" policy applies to all projects subject to Section 404 of the Clean Water Act. Therefore, all impacts to jurisdictional wetlands and non-wetland waters are anticipated to be mitigated such that there would be no loss of wetlands' values, functions, and acreage. Additionally, the Aquatic Resources Conservation Program encompasses significant riparian habitat areas outside USACE jurisdiction and provides long-term management for these areas as well as portions of third order and above streams that would not be addressed under a USACE Section 404 permit-by-permit approach.

Future LOPs

Foothill/Trabuco Specific Plan Area

The proposed permitting procedures for future participants in the Foothill/Trabuco Specific Plan Area state that such participants would be required to undertake a permit application with the USACE and comply with the Section 404(b)(1) Guidelines. As a consequence, potential impacts to aquatic habitats under USACE jurisdiction identified in the 1991 Program EIR would have to be addressed through USACE regulatory requirements, as well as CESA/FESA and California

Fish and Game Code Section 1600 et seq. requirements. Potential water quality impacts are identified below in the section titled "Water Quality Impacts on Aquatic Ecosystems."

Ortega Rock

The proposed permitting procedures for future participants outside the RMV Planning state that such participants would be required to undertake a permit application with the USACE and comply with the Section 404(b)(1) Guidelines. As a consequence, potential impacts to aquatic habitats under USACE jurisdiction identified in the 1991 Program EIR would have to be addressed through USACE regulatory requirements, as well as CESA/FESA and California Fish and Game Code Section 1600 et seq. requirements. Furthermore, any potential water quality impacts would be mitigated by compliance with the Orange County DAMP.

SR-241: SOCTIIP

The proposed SR-241 southerly extension is currently under review by the USACE, USFWS, CDFG, and other agencies. It is expected that compliance with applicable state and federal environmental laws would reduce potential direct impacts to aquatic resources to below a level of significance.

8.8.2.2 Cumulative Water Quality Impacts on Aquatic Ecosystems in the San Juan Watershed

The County of Orange has adopted permitting procedures (2004 Drainage Area Management Plan) following the issuance of municipal NPDES Stormwater Permits from the Santa Ana and San Diego Regional Water Quality Control Boards. Section 402(p) of the Clean Water Act, as amended by the Water Quality Act of 1987 require that municipal NPDES permits include:

- A requirement to effectively prohibit non-storm water discharges into the storm sewer; and

- Controls to reduce the pollutants in storm water discharges to the maximum extent practicable

The objective of the DAMP is to satisfy the above requirements. In keeping with this objective, the DAMP includes requirements applicable to new development/significant redevelopment, and construction. Any new development or significant redevelopment project in the County of Orange must comply with the requirements set forth in the DAMP. Per the DAMP, new development projects and significant redevelopment projects are required to prepare a Water Quality Management Plan (WQMP) that includes Best Management Practices (BMPs). These may include site design BMPS, source control BMPs, project-based Treatment Control BMPs, or participation in an approved regional or watershed management program. To comply with these requirements, Rancho Mission Viejo has prepared a Water Quality Management Plan that identifies site design BMPs, source control BMPs, and treatment control BMPs (Appendix D) that was approved as part of the certification of the GPA/ZC EIR 589 for the B-10 Modified Alternative that would also apply to Alternative B-12 (Appendix D). Therefore, water quality impacts associated with the B-12 Alternative would be mitigated to a level of less than significant, with the exception of pathogens which is discussed further below. The cumulative projects noted above that would need discretionary approvals from the County of Orange would need to comply with the DAMP and meet the requirements of prohibiting non-storm waters discharges and reducing pollutants in stormwater discharges to the maximum extent practicable. Caltrans has its own NPDES permit. Therefore, the projects noted above would be

subject to this NPDES permit which has similar requirements regarding the control of discharges. All Caltrans projects, including SOCTIIP, would be subject to the requirements of the Caltrans NPDES Storm Water Permit (NPDES No. CAS000003) for the off-site impact areas within the state right-of-way.

It is expected that all future projects within the watersheds would implement BMPs that would reduce potential water quality impacts on aquatic resources to the maximum extent practicable.

As described Chapter 6.0, subchapter 8.6, and in the WQMP (Appendix D), potential pollutants impacts that could occur as a result of activities that would be authorized pursuant to the proposed permitting procedures have been reduced to below a level of significance in a manner fully in compliance with applicable water quality standards with the exception of pathogens. Pathogens would have no significant effects on aquatic species or habitats.

A TMDL for pathogens has been identified for the mouth of San Juan Creek; no such TMDL has been identified for the San Mateo Watershed. With regard to pathogens, the RMV Proposed Project may increase pathogens depending on the adequacy of source control BMPs. However, neither existing nor post-development levels are likely to meet REC-1 standards for fecal coliform consistently, other than for flows that are infiltrated (see WQMP). According to the WQMP, pathogens represent a potential impact on REC-1 (body contact uses). The WQMP proposes to incorporate detention basins with associated wetland swales that would discharge into infiltration basins as major water quality treatment train features. In combination, these would be very effective in treating pathogens associated with dry weather flows, small storm flows, and the initial portion of large storm events. During large storm events, when large amounts of bacteria, viruses, and protozoans (some of which are pathogenic) are mobilized, flows will bypass the infiltration basin. During such periods, pathogen levels are not likely to meet the REC-1 standards for fecal coliform on a consistent basis.

The literature on the effectiveness of infiltration and filtration systems for treating pathogen indicators such as total and fecal coliform indicates that filtration as a treatment mechanism achieves removals in the range of 60 to 90 percent. This removal rate tends to be large relative to other stormwater treatment BMPs (e.g., extended detention basins) and therefore treatment trains which include a filtration component as provided for in the B-12 Alternative would provide effective removal of pathogen indicators. Since infiltration is an effective BMP up to the point of soil saturation, pathogens associated with dry weather flows, small storm flows and the initial portion of large storm events would be effectively treated in the combined control system. However, because there is no feasible method for infiltrating storm water flows from large storms due to saturated soils conditions and it is not economically feasible to construct storage and treatment facilities for the large volumes of stormwater generated by major storms, pathogen indicators cannot be removed to below a level of significance as defined by the REC-1 standard for such major storms. Through the use of source and treatment controls, the B-10 Modified Alternative does employ BMPs meeting the “Maximum Extent Practicable (MEP) standard established by the State Water Resources Control Board and accordingly reduces impacts to the maximum extent practicable.

Due to the amount of development proposed within the San Juan Watershed, REC-1 standards are more likely to not be met in this watershed than in the San Mateo Watershed.

8.8.2.3 Cumulative Impacts on Aquatic Resources in the San Mateo Creek Watershed

Potential Cumulative Impacts Resulting from Activities Proposed to be Authorized Pursuant to the RMV Permitting Procedures

As described in previous chapters, proposed development in the portion of the San Mateo Watershed located in the SAMP Study Area is limited to 500 acres located in the Talega Sub-basin, the 25-acre Rancho Mission Viejo headquarters site, and an additional 50 acres of orchards. The 500-acre development area is focused on an area that has already been substantially altered by an existing industrial use. Total open space proposed to be protected within the San Mateo Creek Watershed portion of the SAMP Study Area is 8,694 acres, comprising 13 percent of this portion of the SAMP Study Area. Minimal wetlands would be impacted due to bridge pilings and would be fully mitigated; 100 percent of non-USACE jurisdiction riparian habitats in upper Cristianitos Creek, Gabino Creek, La Paz Creek, and the Rancho Mission Viejo's ownership in Talega Creek would be protected and included within the proposed Aquatic Resources Conservation Area. All arroyo toad breeding habitats would be protected. As noted previously, due to the worst-case analysis approach for analyzing impacts in Planning Area 8, additional riparian habitat may be protected when the future 500-acre development envelope is finalized.

The analysis of water quality requirements presented in the prior sub-section for the San Juan Creek Watershed is equally applicable to the portion of the SAMP Study Area located in the San Mateo Creek Watershed. With regard to the San Mateo Watershed, any increase in surface water flows would help offset the impacts of groundwater pumping in MCB Camp Pendleton identified by CDFG as a major impact on aquatic resources (see "Geomorphic and Hydrologic Needs" report at page 99). At present, there is no pathogen TMDL proposed for San Mateo Creek and no indication that pathogens are an issue for aquatic species. Development of seven percent of the portion of the SAMP Study Area within the San Mateo Creek Watershed is not likely to generate significant direct or cumulative pathogen impacts on aquatic resources.

As in the case of the invasive species control plan for the San Juan Creek Watershed, the invasive species control plan for the San Mateo Watershed within the SAMP Study Area would address tamarisk and other invasive species that would otherwise migrate downstream with potentially significant adverse impacts on aquatic/riparian habitat systems.

The Balance Sediment report cited in Chapter 8.0 reviews the manner in which the B-12 Alternative's open space/development configuration protects sources of coarse sands which, in combination with the protection of upstream sources of coarse sands under government ownership, would protect the types of sediments important to maintaining aquatic/riparian habitats downstream of the SAMP Study Area (see Balance Sediment report) and offshore marine life supported by sand supplies to the littoral cell.

8.8.2.4 Potential Cumulative Impacts from Proposed Projects on Areas Downstream from the SAMP Study Area

MCB Camp Pendleton

Potential impacts of groundwater pumping on the part of MCB Camp Pendleton and agricultural lessees on aquatic species such as steelhead and arroyo toad have been reviewed in reports prepared by various wildlife agencies. As noted above, because the activities authorized by the proposed permitting procedures would not cause a reduction in stormwater runoff due to the high percentage of protected open space and likely increases from future urbanized areas

within Planning Area 8, no cumulative adverse impacts would result on water flows within San Mateo Creek downstream of the SAMP Study Area.

SR-241: SOCTIIP

As noted above under the analysis of the proposed permitting procedures, no net unmitigated impacts would occur on aquatic resources, sources of coarse sediments would be protected, and existing stormwater volumes would be maintained and potentially increased (to the benefit of downstream aquatic habitats). As a consequence, any impacts caused by the proposed SR-241 southerly extension would not constitute cumulative impacts in relation to the proposed permitting procedures and would instead simply be direct impacts of the SR-241 to be addressed by the appropriate regulatory agencies.

8.9 APPROPRIATE AND PRACTICABLE STEPS TO MINIMIZE POTENTIAL ADVERSE EFFECTS OF PROPOSED DISCHARGES ON THE AQUATIC ECOSYSTEM–40 CFR 230.10(d) AND SUBPART H OF THE SECTION 404(b)(1) GUIDELINES

8.9.1 REGULATORY OVERVIEW

Section 230.10(d) of the Section 404(b)(1) Guidelines requires the following:

> "…*no discharge of dredged or fill material shall be permitted unless appropriate and practicable steps have been taken which will minimize potential adverse impacts of the discharge on the aquatic ecosystem. Subpart H identifies such possible steps."*

This subchapter addresses actions taken to avoid and minimize impacts on the aquatic ecosystem, including compensatory mitigation actions involving wetlands restoration and long-term management of the aquatic ecosystem pursuant to elements of the Aquatic Resources Conservation Program to be implemented on the RMV Planning Area under the RMV Proposed Project and proposed permitting procedures.

Provisions of Subpart H of the Section 404(b)(1) Guidelines addressed in this subchapter are the following:

- 230-70: Actions concerning the location of the discharge
- 230.71, 230.72, 230.73, and 230.74: Actions concerning the material to be discharged and controlling the material after discharge and method of dispersion, including equipment and road/bridge construction minimization measures
- 230.75: Actions affecting plant and animal populations
  - actions to avoid changes in water circulation patterns potentially interfering with movement of animals;
  - managing development sites to avoid creating invasive species presence;
  - avoiding sites having unique habitat or other value, including habitat of threatened or endangered species; and

- using planning and construction practices to institute habitat development and restoration to produce a new or modified environmental state of higher ecological value–compensatory mitigation.

Factual determinations regarding "Aquatic ecosystem and organism determinations" pursuant to Section 230.11(e) and "Determination of secondary effects on the aquatic ecosystem" pursuant to Section 230.11(h) are made in conjunction with the review of Subpart H provisions.

8.9.2 SUBPART H ANALYSIS

8.9.2.1 230-70: "Actions Concerning the Location of the Discharge"–Consistency Analyses for the SAMP Tenets and Watershed Planning Principles

Adverse impacts of discharges can be minimized through actions involving the location of the discharge. For the entire SAMP Study Area, the SAMP builds upon the USACE Engineer Research and Development Center (ERDC) analysis of hydrologic integrity, water quality integrity, and habitat integrity, to identify those areas that are of relatively poorer condition and more likely to be suitable for the discharge of fill materials. Impacts to areas of high ecosystem integrity would most likely be minimized through the implementation of the SAMP permitting procedures, which would require pre-application coordination, interagency coordination, and full review through the standard individual permit process for any direct impacts greater than 0.1 acre.

For the RMV Planning Area, additional studies have guided the siting of projects. The Baseline Conditions Report, the report addressing the hydrologic and geomorphic needs of listed aquatic species, and the Watershed Planning Principles constitute policy directions for locational decisions regarding discharges with potential effects on the aquatic ecosystem. Chapter 6.0 contains an extensive analysis of the consistency of the RMV Proposed Project with the SAMP Tenets and the Watershed Planning Principles and concludes that the RMV Proposed Project achieves a high degree of consistency with these conservation planning tenets directed toward protecting the aquatic ecosystem and associated organisms. Likewise, the WQMP applies the Watershed Planning Principles, including protection recommendations, in formulating strategies addressing hydrologic and water quality considerations in order to avoid secondary impacts on the aquatic ecosystem (see subchapter 8.6); the WQMP includes area-specific measures and a "combined control system" approach to assure that the impacts of future runoff from development areas into the aquatic ecosystem avoids and minimizes impacts to the maximum extent practicable.

8.9.2.2 230.71, 230.72, 230.73 And 230.74–Actions Concerning the Material to be Discharged and Controlling the Material After Discharge and Method of Dispersion, Including Equipment and Road/Bridge Construction Minimization Measures

The proposed SAMP permitting procedures have general conditions that would most likely minimize the discharge and control of materials after discharge for actions within the SAMP Study Area. These general conditions are summarized in Section 8.6.4 and shown in their full language in Appendix A. Such conditions include using appropriate erosion and siltation controls, implementation of pollution prevention measures, removal of temporary fills, and others.

Within the RMV Planning Area, additional special conditions for the proposed LOPs set forth specific measures to minimize the potential impacts of material to be discharged and for

controlling material after discharge and method of dispersion. See subchapter 8.5.2 for a further discussion on the types of fill material anticipated to be discharged. Additionally, the WQMP presents measures for addressing Clean Water Act Stormwater Pollution Prevention Permit requirements established by the SWRCB; the Combined Control System strategy tailored to specific catchments, and associated aquatic resources minimizes impacts resulting from the method of dispersion in accordance with the minimization criteria set forth in 40 CFR 230.73 (a) through (g). Further, as a part of the GPA/ZC project, the County of Orange required that a Biological Resources Construction Plan be developed to detail specific measures for avoiding and minimizing impacts in conjunction with construction of the circulation system and other infrastructure facilities proposed to be authorized pursuant to the RMV Planning Area procedures (GPA/ZC EIR 589 Mitigation Measure 4.9-30). Based on the foregoing measures and requirements, appropriate and practicable actions have been taken to avoid and minimize the potential impacts of material to be discharged and for controlling the material after discharge and the method of dispersion.

8.9.2.3 230.75–Actions Affecting Plant and Animal Populations

Actions to Avoid Changes in Water Circulation Patterns Potentially Interfering With Movement of Animals

For the entire SAMP Study Area, actions to avoid changes in water circulation patterns involve both locational decisions and general conditions of the proposed SAMP permitting systems. For aquatic resources that are of higher value where impacts to water circulation patterns are more likely to result in adverse impacts, full permit review will be required for any direct impacts greater than 0.1 acre of USACE jurisdiction. In addition, the proposed general conditions include the requirement to manage instream flows similar to pre-project levels and making any culvert within Arroyo Trabuco and San Juan Creek more passable to fish.

Within the RMV Planning Area, actions to avoid changes in water circulation patterns involve both locational decisions, general conditions and additional general conditions, and long-term management actions. Locational decisions involve actions taken to avoid sources of coarse sediments that are important to sustaining long-term water circulation patterns beneficial to the aquatic ecosystem. Locational decisions also involve actions taken to minimize the generation of fine sediments that cause turbidity by locating development in such areas or carrying out vegetation restoration. Locational decisions are reviewed in the Chapter 6.0 consistency review of the RMV Proposed Project in relation to the policies and principles set forth in the SAMP Tenets and in the Watershed Planning Principles.

General and special conditions for the proposed LOP process within the RMV Planning Area further minimize impacts to circulation. Special conditions include the requirement to upgrade or remove Cow Camp crossing, requirement of future road crossings to be either span crossings or large culvert crossings, and the prohibition of detention basins within the active channel of the major streams.

With regard to long-term management actions, the WQMP proposes a comprehensive system for assuring that stormwater discharges do not substantially impact water circulation systems. As proposed in the WQMP, all developments would be designed to achieve flow duration matching, address the water balance, and provide for water quality treatment through a combined flow and water quality control system (termed “Combined Control System”). The proposed combined control system would include one or more of the following components as required for the particular drainage catchments served by the individual facilities, each of which provides an important function to the system:

- Flow Duration Control and Water Quality Treatment (FD/WQ) Basin
- Infiltration Basin
- Bioinfiltration Swale
- Storage Facility for Non-Potable Water Supply
- Diversion Conduit to Export Excess Flows out of the Sub-basin

All of the above facilities would be constructed within the proposed development areas of the RMV Planning Area, not in Aquatic Resource Conservation Areas. The flow duration control and water quality treatment basin would provide the initial flow and water quality treatment control functions to the system. The remaining components address the "excess flows" (i.e., flows in excess of natural conditions), alone or in combination with each other, generated during wet weather.

As reviewed in the Aquatic Resources Adaptive Management Program (Appendix F3), Aquatic Resources Conservation Areas would be adaptively managed over the long-term to maintain habitat value and functions. Although the WQMP addresses areas located outside Aquatic Resources Conservation Areas, the WQMP would also be managed adaptively and coordinated with the management of Aquatic Resources Conservation Areas in order to assure that potential impacts involving Pollutants of Concern and Hydrologic Conditions of Concern are fully addressed through ongoing avoidance, minimization, and mitigation measures. Section 8.7 presents a summary of the WQMP Chapter 6.0 adaptive management approach that would be used to evaluate whether the WQMP elements are functioning as intended and to implement corrective procedures when needed.

For the above reasons, appropriate and practicable actions would be taken to avoid substantial changes to water circulation patterns.

Managing Development Sites to Avoid Creating Invasive Species Presence

For the entire SAMP Study Area, actions to avoid creating invasive species presence involve conditioning of the proposed permitting systems. The proposed RGP is not expected to result in any invasive species introductions. The proposed LOP requires the removal of invasive species on the project site.

For the RMV Planning Area, the Special Permit Conditions for the proposed RMV Planning Area procedures contain specific measures directed toward minimizing "edge effects" where development areas are in close proximity to Aquatic Resources Conservation Area lands, including measures addressing potentially invasive plant species, Argentine ants, etc. The County of Orange has also included a mitigation measure in its action to approve the GPA/ZC that prohibits the use of invasive species within development landscape areas (GPA/ZC EIR 589 Mitigation Measure 4.9-27). Additionally, the Aquatic Resources Adaptive Management Program provides for the implementation of ongoing invasive species control through the Invasive Species Control Plan (Appendix F4) that will address invasive species regardless of the origin of such species.

Avoiding Sites Having Unique Habitat or Other Value, Including Habitat of Threatened or Endangered Species

For the entire SAMP Study Area, riparian and wetland sites with higher habitat values have been identified. These include riparian areas with higher ecosystem integrity and aquatic areas that have been deemed critical habitat for threatened and/or endangered species, including the steelhead. Within these areas, abbreviated permitting will not be used and actions impacting greater than 0.1 acre of USACE jurisdiction will undergo full permit review. In the event that a listed and/or endangered species or their critical habitat may be affected within these higher value aquatic resources or outside, the proposed RGP and/or LOPs require consultation with the USFWS or NOAA Fisheries pursuant to Section 7 of the ESA. With regard to LOPs for the RMV Planning Area, a Section 7 consultation will be undertaken in conjunction with the proposed issuance of the individual long-term permit for activities that may affect listed species (see subchapter 8.5.3).

For the RMV Planning Area, as previously addressed in Chapters 1.0 and 6.0 and as depicted in Figure 8-10, Aquatic Resources Conservation Areas are areas designated by the Aquatic Resources Conservation Program based on the distribution of the wetland/riparian vegetation communities found within the RMV Planning Area that are set aside for preservation and long-term adaptive management. Aquatic Resource Conservation Areas are larger than the USACE jurisdictional area because they include some riparian habitat areas that are within the jurisdiction of the CDFG proximate to USACE jurisdictional wetlands but are not subject to USACE jurisdiction. Because of this more inclusive (i.e., inclusion of some non-jurisdiction areas), the Aquatic Resources Conservation Areas include some non-wetland/riparian lands that would serve to contribute to wildland movement and buffer the jurisdictional area. Wetland/riparian vegetation communities that support both listed and unlisted sensitive aquatic species (see Chapter 6 and Section 8.5.3) and that would be included within the Aquatic Resources Conservation Areas include:

- Wetland/riparian vegetation communities within open space previously protected through recorded conservation easements such as the Ladera Ranch Open Space, the Upper Chiquita Canyon Conservation Easement area, and Donna O'Neill Land Conservancy; and

- Wetland/riparian vegetation communities within the RMV Planning Area open space that would be dedicated by Rancho Mission Viejo in accordance with the proposed SAMP Phased Dedication Program.

First and second order tributaries and contributing uplands are included in the Aquatic Resources Conservation Area, but are protected through open space dedications associated with the County of Orange approvals.

Vegetation communities capable of supporting endangered and threatened species proposed to be protected under the B-12 Alternative are described in Section 8.5.3 and would be protected through phased dedications of conservation easements for the ARCA within the RMV Planning Area and the phased dedication of other open space as defined in the B-12 Alternative. Impacts to Special Status Aquatic Species including the western spadefoot toad, southern tarplant, salt spring checkerbloom (and associated non-jurisdictional slope wetlands) and mud nama would be addressed through (1) preservation of aquatic habitats through the ARCA, particularly San Juan Creek, wetlands in Cristianitos Creek and Jerome's Lake in Gabino Canyon for the spadefoot toad, (2) implementation of the ARAMP including invasive species control,

(3) implementation of the ARRP, and (4) implementation of GPA/ZC EIR 589 mitigation measures related to the Plant Translocation Plan.

Using Planning and Construction Practices to Institute Habitat Development and Restoration to Produce a New or Modified Environmental State of Higher Ecological Value–Compensatory Mitigation

For the entire SAMP Study Area, the proposed SAMP permitting procedures include elements that promote appropriate compensatory mitigation policies. Through the use of the report titled "San Juan Creek Watershed Riparian Ecosystem Restoration Plan: Site Selection and General Design Criteria" by Engineering Research and Development Center (ERDC), more effective compensatory mitigation sites can be identified and designed. In addition, the use of functional assessment methodologies allow for better determination of appropriate compensatory mitigation ratios. Lastly, for most activities excluding those covered by the proposed RGP, compensatory mitigation must comply with the SAMP compensatory mitigation framework.

For the RMV Planning Area, compensatory mitigation relies on the Aquatic Resources Restoration Plan to be implemented pursuant to the Aquatic Resources Adaptive Management Plan, as well as the habitat value and function benefits resulting from application of the Adaptive Management Program, discussed below.

Overview of Compensatory Mitigation Elements

Compensatory mitigation for the impacts of activities authorized pursuant to the proposed RMV Planning Area procedures has been formulated within the broad Aquatic Resources Conservation Program aquatic resource planning context provided by the SAMP. The Aquatic Resources Adaptive Management Program element of the Aquatic Resources Conservation Program (Appendix F3) provides for: a) mitigation of impacts on USACE jurisdictional wetlands and vegetated via wetland on a 1:1 acreage basis (including functions and values) through long-term implementation the Aquatic Resources Restoration Plan component of the Aquatic Resources Adaptive Management Program; and b) mitigation of impacts on non-wetlands waters through invasive species control within and adjacent to streamcourses) and long-term adaptive management and monitoring of aquatic vegetation communities and related species that are contained within the Aquatic Resources Conservation Area.

As explained in the Aquatic Resources Adaptive Management Program (Appendix F3), contemporary adaptive management science relies on monitoring and management of the species and associated habitats that are found within the vegetation communities that are being preserved and managed over the long-term in order to maintain and enhance habitat values and functions. Recognizing that the SAMP Tenets address habitats outside USACE jurisdiction and that the SAMP is part of a coordinated planning and regulatory process for southern Orange County, the Aquatic Resources Adaptive Management Program addresses riparian habitats found adjacent to wetlands found within the Aquatic Resources Conservation Area areas in the RMV Planning Area rather than solely areas within those portions the Aquatic Resources Conservation Areas subject to USACE jurisdiction.

Compensatory mitigation would be provided to address both impacts to jurisdictional wetlands and to non-wetland Waters of the U.S, as outlined below and as summarized in the following subsections:

Mitigation for Unavoidable Impacts to USACE Jurisdictional Wetlands and Non-Wetland Waters of the U.S. Vegetated with Aquatic Plant Species

- Mitigation for temporary impacts through:
  - Habitat values and functions provided by 18 acres of existing created/restored wetlands within GERA that is already providing temporal gain
  - Habitat value and functional enhancement provided through implementation of the ARAMP, including invasive species control such as the eradication of about 90 acres of giant reed on the RMV Planning Area
- Mitigation for permanent impacts through:
  - 1:1 restored wetlands acreage provided by 18 acres of existing created/restored within GERA
  - Additional wetlands and vegetated waters acreage, if required, through the successful creation/restoration of wetlands at a 1:1 ratio pursuant to the Aquatic Resources Restoration Plan (described in the following subsection) before impacts occur
  - Assurances of funding for the ARAMP and implementation of the ARAMP (as further described below) help assure that values and functions will be maintained and thereby support the use of a 1:1 ratio

Mitigation for Impacts to Unvegetated Non-Wetland Waters of the U.S. and to Non-Wetland Waters Vegetated by Upland Species

- Mitigation for temporary impacts:
  - Not required for impacts to Waters of the U.S. that are unvegetated, minimally vegetated by wetland species, or vegetated by upland species
- Mitigation for permanent impacts through:
  - Control of invasive species, including eradication of about 90 acres of giant reed on the RMV Planning Area
  - Implementation of the ARAMP (as further described below) help assure that values and functions will be maintained

Thus, the protection of existing habitat through long-term protection of the ARCA on RMV Planning Area and the enhancement of existing habitat and creation of new habitat helps maintain and enhance aquatic ecosystem values over the long-term. Aquatic Resources Adaptive Management Program management actions focusing on addressing stressors, including invasive species that would adversely impact the values and functions of the Aquatic Resources Conservation Area aquatic ecosystem and habitat restoration directed toward increasing aquatic species abundance and diversity, are central to the compensatory mitigation program described above. Given their importance to the overall compensatory mitigation program, the Aquatic Resources Restoration Plan and the Aquatic Resources Adaptive Management Program are described in the following two subsections.

Assurance of No Net Loss of Wetlands Values and Functions through Implementation of the Aquatic Resources Restoration Plan (ARRP)

The Aquatic Resources Restoration Plan provides for no net loss of wetlands acreage, functions, and values through a comprehensive compensatory mitigation program that considers multiple elements including restoration, arundo removal, long-term management, and minimization of indirect losses through BMPs. The Aquatic Resources Restoration Plan provides the restoration template for wetland and riparian resources within the Aquatic Resources Conservation Area consistent with the *Riparian Ecosystem Restoration Plan for San Juan and Western San Mateo Creek Watersheds: General Design Criteria and Site Selection*[3]. The Aquatic Resources Restoration Plan would be implemented as a component of the Aquatic Resources Adaptive Management Program and is discussed in Chapter 5.0 and Appendix F3 of this EIS.

As discussed above, the USACE and U.S. EPA regulations at 33 CFR 320-330 and 40 CFR 230 authorize the USACE to require compensatory mitigation for unavoidable impacts to Waters of the U.S., including wetlands. The Aquatic Resources Restoration Plan describes the compensatory mitigation plan for the creation, restoration, and/or enhancement of wetlands and non-wetland riparian habitats, as well as restoration of selected streams, in the proposed Aquatic Resources Conservation Areas on the RMV Planning Area intended to mitigate impacts on resources subject to USACE jurisdiction. The purpose of the Aquatic Resources Restoration Plan is to identify the potential restoration sites and potential aquatic functions, the approximate acreage that could be restored at each site, the types of habitat that could be incorporated into each site, the monitoring and maintenance procedures to be implemented, and the performance standards that would be used to determine success. It is expected that, to the extent feasible, restoration would be implemented in advance of impacts. However, an exact timetable has not yet been developed (e.g., 18 acres of highly functioning habitat marsh and riparian habitat have already been established in GERA and are presently available to offset RMV Proposed Project impacts). With regard to temporal impacts and permanent wetlands impacts, the Aquatic Resources Restoration Plan provides for low intensity monitoring and maintenance (as necessary) for approximately 18 acres of existing created alkali marsh, alkali meadow, and southern riparian scrub in the GERA. These 18 acres of existing wetland habitat were created in 1998 and 1999 as part of the Ladera Ranch wetland restoration program that, according to conditions in the Section 404 and Section 1603 Authorizations from the USACE and CDFG, included a sliding scale whereby excess creation areas (i.e., not specifically needed to offset impacts associated with Ladera Ranch) could be used for future projects within the RMV Planning Area. The 18 acres have achieved the five-year performance standards and would be subject to ongoing monitoring until such time as they are used to offset future impacts associated with LOP authorizations and future MSAA authorizations in conjunction with the NCCP/MSAA/HCP.

The term “restoration” is inclusive in the Aquatic Resources Restoration Plan as it addresses the spectrum of possible restoration activities within the Aquatic Resources Conservation Area. This ranges from creation of new habitats that in some instances may require substantial grading to the enhancement of existing degraded habitats that could include limited grading and other measures such as minor re-contouring, removal of invasive species, and/or some replanting that rely extensively on natural processes to enhance and restore aquatic values. The Aquatic Resources Restoration Plan is based upon substantial data collected on the aquatic ecosystems in support of the SAMP. These data, along with data collected during monitoring of

[3] Smith, Daniel, and C.V. Climas. 2003. *Riparian Ecosystem Restoration Plan for San Juan and Western San Mateo Creek Watersheds: General Design Criteria and Site Selection*. Prepared for the U.S. Army USACE of Engineers, Los Angeles District, Regulatory Branch, October 2003 Draft.

approximately 125 acres of created and restored wetland and riparian areas within the RMV Planning Area, provide an extensive data set that can be used to inform and guide the proposed restoration projects. Additionally, because of the importance of invasive species control in enhancing and restoring aquatic resources values and functions, the Aquatic Resources Restoration Plan includes a summary of the invasive exotic control program for San Juan and Trabuco creeks as set forth in greater detail in the Invasive Species Control Plan (Appendix F4).

Because the SAMP is a planning area-wide comprehensive program, the Aquatic Resources Restoration Plan summarizes the restoration program for several sub-basins and explains how these actions, as part of the Aquatic Resources Adaptive Management Program, could contribute to enhancement and restoration of values and functions of wetlands/riparian habitats. The restoration plan has been developed to ensure no-net-loss of either acreage or function associated with Waters of the U.S. subject to the jurisdiction of the USACE pursuant to Section 404 of the Clean Water Act and Waters of the State subject to the jurisdiction of the CDFG pursuant to Section 1600 of the Fish and Game Code. The approach taken in the Aquatic Resources Restoration Plan is intended to be consistent with recent Regulatory Guidance Letter No. 02-2, dated December 24, 2002, issued by the USACE regarding mitigation, which emphasizes watershed-wide and function-based programs where feasible. The Aquatic Resources Restoration Plan is also intended to be consistent with the Los Angeles District's Special Public Notice *Final Mitigation Guidelines and Monitoring Requirements* issued on April 19, 2004.[4] Finally, selection of restoration sites is consistent with the *Riparian Ecosystem Restoration Plan for San Juan and Western San Mateo Creek Watersheds: General Design Criteria and Site Selection,*[5] which was developed by the USACE to assist Rancho Mission Viejo in establishing priorities relative to potential mitigation/restoration sites.

The Aquatic Resources Restoration Plan addresses mitigation for impacts associated with activities that would be authorized pursuant to the proposed permitting procedures, including restoration site selection, site design, site preparation and site construction. Proposed plant palettes, short-term and long-term monitoring and maintenance measures to be implemented in accordance with the program are also included.

Under the proposed permitting procedures, at the time an LOP application is made for a particular development increment, the USACE would apply the appropriate area-specific mitigation requirements based on a number of factors including:

- The stage of development and level of function of the habitat proposed to offset impacts;
- Other mitigation measures, such as upland coastal sage scrub, or native grassland restoration that enhance the functions of adjacent wetland and/or riparian restoration sites;
- Other mitigation measures implemented to eliminate or minimize invasive species at the landscape level; and
- Implementation of water quality minimization and mitigation measures pursuant to the approved WQMP.

[4] U.S. Army Corps of Engineers. 2002. *Regulatory Guidance Letter No. 02-02: Guidance on Compensatory Mitigation Projects for Aquatic Resource Impacts Under the Corps Regulatory Program Pursuant to Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act of 1899*. December 24, 2002, 16 pp.

[5] Smith, Daniel, and C.V. Climas. 2003. *Riparian Ecosystem Restoration Plan for San Juan and Western San Mateo Creek Watersheds: General Design Criteria and Site Selection*. Prepared for the U.S. Army USACE of Engineers, Los Angeles District, Regulatory Branch, October 2003 Draft.

Protection of Habitat Values and Functions Over the Long-Term through Adaptive Management Actions Focusing on Addressing Stressors that Would Adversely Impact the Values and Functions of the Aquatic Resources Conservation Area Aquatic Ecosystem

Summary of the Adaptive Management Program. The prior subchapter has analyzed how the Aquatic Resources Restoration Plan is intended to mitigate for direct impacts to USACE wetlands and non-wetlands jurisdictional areas within the RMV Planning Area. The ARAMP is the program for both implementing the Aquatic Resources Restoration Program summarized above (including both wetlands and vegetated non-wetlands waters mitigation and invasive species controls for mitigating impacts to unvegetated non-wetlands waters), and for addressing stressors in support of the 1:1 mitigation ratio for impacts to Waters of the U.S. With regard to SMWD impacts, SMWD would mitigate temporary impacts to on-site wetlands to the extent feasible. Mitigation for impacts to non-wetland Waters would be addressed by the SWMD contribution to the ARAMP.

Aquatic Resources Conservation Area lands for third order and above streams would be monitored and managed in accordance with the Aquatic Resources Adaptive Management Program as an element of the mitigation program for impacts of authorized activities on USACE jurisdictional areas. The funding and implementation of long-term adaptive management pursuant to the Aquatic Resources Adaptive Management Program is a significant benefit of the SAMP mitigation program that, due to its scale and comprehensive approach, is not generally associated with individual permits.

Mitigation of impacts to non-wetland Waters of the U.S. pursuant to the Aquatic Resources Adaptive Management Program derives both from maintaining and enhancing habitat values and functions within the Aquatic Resources Conservation Area lands subject to the Aquatic Resources Adaptive Management Program by responding to stressors that have the potential to diminish habitat values and functions. For example, in the absence of an Adaptive Management Plan, anthropogenic influences such as the presence and expansion of invasive plant and animal species could severely impact habitat values (as evidenced by presently existing giant reed habitat impacts within San Juan Creek). In many cases, such stressors pre-exist future development proposed to be allowed pursuant to the proposed permitting procedures and would cause impacts to habitat values that otherwise could be addressed only with public funds. Invasive species control programs such as giant reed eradication efforts not only remove species that displace riparian plant species and use water flows otherwise needed by aquatic plant and animal species but also provide opportunities for natural succession of riparian species such as willows.

The Adaptive Management Plan provides an institutional mechanism, funded in accordance with the Special Terms and Conditions for the RMV Planning Area procedures, for responding to such stressors thereby helping mitigate the impacts of authorized activities, including the SMWD Proposed Project. In this context, the broad scale, long-term adaptive management program of the Aquatic Resources Adaptive Management Program helps maintain both: a) the values and functions of Aquatic Resources Restoration Plan mitigation actions described above that would create new habitat; and b) the values and functions of existing aquatic resources to be protected and enhanced as part of the Aquatic Resources Conservation Areas on the RMV Planning Area.

Environmental stressors may be natural or human-caused, and some may be both. For example, ignitions of wildfires can be both natural (lighting strikes) and human-caused (arson and accidental human-caused ignitions). Natural and human-caused stressors that significantly

affect vegetation communities and species in the SAMP Study Area include habitat loss and fragmentation, wildfires, exotic plants and animals, altered hydrology, altered geomorphic processes, human uses and recreation, and precipitation cycles.

The Aquatic Resources Adaptive Management Program would be implemented based on the assumption that practical management and monitoring should focus on the issues most relevant to maintaining the values and functions of resources protected within the managed system. The "environmental stressor" approach to monitoring and managing natural resources is receiving more attention in recent years because it provides a conceptual method more amenable to an enhanced understanding of causal relationships that can be addressed through management actions. Laying the foundation for the environmental stressor approach, Noon (2003a) states:

> *"To be most meaningful, a monitoring program should provide insights into cause-and-effect relations between environmental stressors or between specific management practices and anticipated ecosystem responses. Prior knowledge of the factors likely to stress an ecological system or the expected outcomes from management should be incorporated into the selection of variables to measure and the sampling design. Indicators should be chosen based on a conceptual model that clearly indicates stressors (e.g., pollutants, management practices) and indicators with pathways that lead to effects on the structure and function of the ecological system (NRC 1995, 2000). This process enables the monitoring program to investigate relations between anticipated stressors, or between management practices and environmental consequences, and provides the opportunity to develop predictive models."* (p. 34)

The emphasis on environmental stressors outlined above has increasingly become the central focus of adaptive management in large-scale ecosystem programs such as the Northwest Forest Plan.

It is important to understand that the vegetation communities and associated species in the Aquatic Resources Conservation Area are basically in good general health, but that certain known and potential stressors operate and can be identified (e.g., giant reed invasion of San Juan Creek). For this reason, the stressor approach is particularly appropriate and the basic management needs are to: (1) address existing stressors so that net habitat value can be increased; and (2) identify future stressors that could reduce or adversely alter long-term net habitat value.

The Aquatic Resources Adaptive Management Program Invasive Species Control Program as an Example of a Stressor-Focused Management Program. Perhaps the most significant stressor affecting natural vegetation communities in southern California is the presence of invasive species, both plant and animal species. Aquatic Resources Adaptive Management Program provisions for addressing invasive species are summarized to provide an example of how stressors would be addressed pursuant to the Aquatic Resources Adaptive Management Program.

An Invasive Species Control Plan has been prepared to address the existing and foreseeable impacts of invasive plant and animal species on the Aquatic Resources Conservation Area and would be implemented as a component of the Aquatic Resources Adaptive Management Program (Appendix F4). This Invasive Species Control Plan provides the long-term management guidelines for the control of invasive species on the RMV Planning Area. The objectives of the Invasive Species Control Plan are to:

- Census and map invasive plants and introduced vertebrate predators on Aquatic Resources Conservation Area lands.

- Review the ecology and habitat requirements of invasive species targeted control.

- Provide an overview of species-specific and density-dependent control methods.

- Analyze the impacts and benefits of the Invasive Species Control Plan on focal species and habitats.

The Invasive Species Control Plan is comprised of three main components: invasive plants, invasive invertebrates, and invasive vertebrates.

***Invasive Plant Species*.** The invasive plant species currently targeted for specific controls include several riparian species. The riparian invasive plants along with their priority rankings are:

Riparian Species

- giant reed (*Arundo donax*)–Priority 1

- pampas grass (*Cortaderia selloana*)–Priority 2

- castor bean (*Ricinus communis*)–Priority 2

- tamarisk (*Tamarix ramosissima*)–Priority 3

- tree tobacco (*Nicotiana glauca*)–Priority 3

- Spanish sunflower (*Pulicaria paludosa*)–Priority 3

The Invasive Species Control Plan would, as are all aspects of the Aquatic Resources Adaptive Management Program, be a "living plan" that would be flexible and subject to revision over time to respond to new invasives and control methods. An important task of the Aquatic Resources Conservation Area Manager and Science Panel would be to keep informed on new developments in weed management and revise the Invasive Species Control Plan accordingly.

Invasive Invertebrate Species. Two invasive invertebrate species are targeted for control: Argentine ant (*Linepithema humile*) and red imported fire ant (*Solenopsis invicta*). Both species pose direct and indirect threats to native species, including direct predation of native vertebrates and competition/displacement of important invertebrate prey of native species.

The Invasive Species Control Plan acknowledges that eradication of either Argentine or red imported fire ants is not feasible or practical because of their ubiquity in southern California and their ability to colonize new areas. The goal of the program would be to control their populations and prevent their spread into new areas of the Aquatic Resources Conservation Area. Control methods are reviewed in the Aquatic Resources Adaptive Management Program.

Invasive Vertebrate Species. The vertebrate control component of the Invasive Species Control Plan targets four invasive species:

- bullfrog (*Rana catesbeiana*)

- crayfish (*Procambrus* spp.)
- brown-headed cowbird (*Molothrus ater*)
- European starling (*Sturnus vulgaris*)

As with plant invasive species, the Invasive Species Control Plan would need to be flexible in addressing new sources of vertebrate pests. For example, the non-native African clawed frog *Xenopus laevis*) may prey on native aquatic species and/or compete for resources and has been found throughout southern California.[6] While it does not appear to currently be a threat in the subregion, if the clawed frog appears in the future and becomes a threat to Covered Species such as the arroyo toad, control measures would be implemented. Suggested control methods for each of the above invasive vertebrate species are reviewed in the Invasive Species Control Plan (Appendix F4).

Conclusion Regarding Compensatory Mitigation in the RMV Planning Area

Compensatory mitigation for impacts of activities that would be authorized pursuant to the proposed RMV Planning Area procedures has been formulated within the framework of the SAMP Aquatic Resources Conservation Program. Given the extensive geographic and programmatic scale of the ARCP on RMV lands, compensatory mitigation elements can be implemented in ways that maintain and enhance aquatic ecosystem values and functions over the long-term in ways that cannot be undertaken on a project-by-project basis.

8.10 FINDINGS OF COMPLIANCE OR NON-COMPLIANCE WITH THE RESTRICTIONS ON DISCHARGE–40 CFR 230.12

Section 230.12 requires findings of compliance with restrictions on discharge on the basis of Subparts C through G of the Section 404(b)(1) Guidelines. The findings involve a determination as to whether disposal sites for the discharge of dredged or fill material must be:

"(1) Specified as complying with the requirements of these Guidelines; or

(2) Specified as complying with the requirements of these Guidelines with the inclusion of appropriate and practicable discharge conditions (see Subpart H) to minimize pollution or adverse effects to the affected aquatic ecosystems; or

(3) Specified as failing to comply with the requirements of these Guidelines."

For the reasons set forth below, the USACE determines that the activities which would be authorized pursuant to the proposed permitting procedures (including the LOP procedures constituting actual discharge and fill authorization) are specified as complying with the requirements of these guidelines with the inclusion of appropriate and practicable discharge conditions to minimize pollution or adverse effects to the affected aquatic ecosystems.

8.10.1 LEAST ENVIRONMENTALLY DAMAGING PRACTICABLE ALTERNATIVE

In subchapter 8.4, the USACE has stated its reasoning, including factual findings, regarding its selection of the RMV Proposed Project (B-12 Alternative) as the "least environmentally

[6] Fisher, R.N. http://www.werc.usgs.gov/pubbriefs/fisherpbapr2005.pdf. Interestingly the clawed frog has apparently become a "novel" prey item for a sensitive snake – two-striped garter snake. Sometimes non-native species exert unexpected effects and even their control can have potentially undesirable consequences on native species.

damaging alternative." The USACE is proposing Alternative B-12 as the agency preferred alternative.

8.10.2 INCLUSION OF APPROPRIATE AND PRACTICABLE DISCHARGE CONDITIONS (SUBPART H)

In subchapter 8.8, the USACE has stated its reasoning, including factual findings, regarding requirements for appropriate and reasonable discharge conditions to minimize pollution or adverse effects to the affected aquatic ecosystems in accordance with Subpart H of these guidelines.

8.11 CONSISTENCY WITH FEDERAL AND STATE LAWS AND REGULATIONS

8.11.1 SECTION 401 OF THE CLEAN WATER ACT

The State Water Resources Control Board (SWRCB) has authority over wetlands through Section 401 of the Clean Water Act, as well as the Porter-Cologne Act, California Code of Regulations Section 3831, and California Wetlands Conservation Policy.

The Clean Water Act requires that an applicant for a Section 404 permit (to discharge dredged or fill material into Waters of the U.S.) first obtain a certificate from the appropriate state agency stating that the fill is consistent with the state's water quality standards and criteria. In California, the authority to either grant certification or waver is submitted to the regional board at the same time that an application is filled with the USACE. The SWRCB has 60 days to review the application and act on it. Because no USACE permit is valid under the Clean Water Act unless "certified" by the state, these boards may effectively veto or add conditions to any USACE permit.

With regard to Section 401, the USACE is submitting all relevant documents to and coordinating with the San Diego San Diego RWQCB with respect to the development of the SAMP. Prior to permit authorization for individual projects, Section 401 of the Clean Water Act requires that any applicant requesting a Regional General Permit or LOP under Section 404 provide proof of water quality certifications to the USACE. After the USACE receives proof of a particular project, the USACE would be able to issue a permit decision. For the Regional General Permit, the USACE is applying to the San Diego RWQCB for Section 401 certification of the Regional General Permit.

Consistency Determination

This EIS contains some pre-certification conditions to provide thorough coordination between the USACE, CDFG, and the San Diego RWQCB. Subsequent projects will have to demonstrate compliance with Section 401 in order to qualify for the proposed SAMP permitting program.

The USACE is submitting all relevant documents to and coordinating with the San Diego RWQCB with respect to the development of the SAMP. Prior to permit authorizations for individual projects, Section 401 of the Clean Water Act requires that any applicant requesting a Regional General Permit or LOP under Section 404 provide proof of water quality certification to the USACE. After the USACE receives proof of water quality certification of a particular project, the agency would be able to issue a permit decision. For the Regional General Permit, the USACE is applying to the San Diego RWQCB for Section 401 certification of the Regional General Permit.

Required as a part of the Section 404(b)(1) Guidelines, the General Conditions for the proposed RMV permitting procedures contain provisions for further compliance with Section 401. These include provisions requiring that future activities authorized through the proposed permitting procedures, including future LOP authorizations, not violate any state water quality standards. No Section 404 authorization is valid without a Section 401 Certification, which demonstrates compliance with this section of the Clean Water Act.

Impaired Waters and TMDLs

The total maximum daily load (TMDL) program is required under Clean Water Act Section 303(d). Clean Water Act Section 303(d) addresses these waters by requiring states to identify waters (i.e., the "303[d] list") and develop TMDLs for them. A TMDL is a quantitative assessment of water quality problems, contributing sources, and load reductions or control actions needed to restore and protect bodies of water. The TMDL approach does not replace existing water pollution control programs. It provides a framework for evaluating pollution control efforts and for coordination between federal, state, and local efforts to meet water quality standards. The water quality analysis in this EIS reviews the one impairment cited for San Juan Creek, pathogens, and discusses measures for addressing future discharges (the final TMDL has not yet been adopted).

8.11.2 ENDANGERED SPECIES ACT

The Federal Endangered Species Act (FESA) of the 1973 (16 USC 1531 et seq.) is administered by the USFWS and by the National Marine Fisheries Service in areas where marine habitat exist. Upon request, the USFWS would provide a 'species list' for a particular area including species that are listed, proposed, or are candidates for listing under FESA. Through the coordinated planning process, the USACE has been informally consulting with the USFWS and has discussed fish passage issues with National Marine Fisheries Service.

Section 7 of the ESA requires federal agencies to use their authorities to conserve threatened and endangered species. It also directs federal agencies to consult with USFWS or National Marine Fisheries Service if any action they authorize, fund, or carry out "may affect" in either a beneficial or adverse manner, any species that is listed or proposed for listing, or any designated or proposed critical habitat. For example, if it is determined that the issuance of a Clean Water Act Section 404 permit by the USACE for a private development project may affect a listed species, the USACE must consult with USFWS on the effects of the issuance of that permit. Species that are proposed for listing by the USFWS may also be addressed during federal interagency coordination. The USACE will initiate formal consultation with the USFWS pursuant to Section 7 of the FESA for the SAMP permitting procedures, including the RMV Planning Area long-term individual permit process.

Section 9 of FESA prohibits "take" (i.e., harassment, harm, pursuit, hunting, shooting, wounding, killing, trapping, capture, or collecting, or the attempt to engage in any such conduct) of threatened and endangered fish and wildlife species. "Harm" is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering. Section 9 also defines prohibitions related to listed plants.

Under Section 10 of FESA, non-federal entities can apply for a permit excepting them from the "take" prohibition for scientific purposes to aid the species recovery, or for "incidental take."

Consistency Determination

Subchapter 2.1.4 describes the "coordinated planning process" established in Southern Orange County for the purpose of coordinating land use, USACE Section 404, FESA, CESA, and California Fish and Game Code Section 1600 et seq. actions, a major purpose of which is to coordinate conservation planning involving state and federal listed species. Chapter 8.0 contains an extensive analysis of measures directed toward compliance with FESA requirements. The SAMP proposed individual permit conditions provide for a programmatic Section 7 consultation with USFWS in order to ensure compliance with FESA.