

4.11 Water Quality/Hydrology

4.11.1 Existing Conditions

4.11.1.1 *Hydrologic Setting*

The Project Area is located within the San Diego Regional Water Quality Control Board (RWQCB) Basin. The Basin contains 11 major drainage basins which encompass most of San Diego County, parts of southwestern Riverside County and southwestern Orange County. The San Diego Hydrologic Region is over three million acres in size and generally drains westerly toward the Pacific Ocean. The Project Area is located in the Mission San Diego Hydrologic Subarea of the Lower San Diego Hydrologic Area, within the San Diego River Hydrologic Unit (HU). With a land area of approximately 440 square miles, the San Diego River HU is the second largest HU in San Diego County. It also has the highest population (~475,000) of the County's watersheds and contains portions of the cities of San Diego, El Cajon, La Mesa, Poway, and Santee and several unincorporated communities (Figure 4.11-1).

The Project Area generally drains to the west, toward the San Diego River, the primary hydrologic feature within the Project Area. The San Diego River bisects the northwestern portion of Subarea B and generally defines the western boundary of Subareas A and B of the Project Area as it flows from southwest through the western portion of the Navajo Community to Mission Valley. The San Diego River originated in the mountains northwest of the historic town of Julian and runs southwestward through an unincorporated, largely uninhabited area of San Diego County before entering El Capitan Reservoir. Downstream of El Capitan Reservoir, the river flows westward through the Cities of Santee and San Diego and past Famosa Slough to the San Diego River Estuary. The river discharges into the Pacific Ocean just south of the jettied entrance of Mission Bay in the community of Ocean Beach. Through most of the Project Area, the San Diego River is channelized. Primary tributaries to the San Diego River include Boulder Creek, Cedar Creek, Conejos Creek, Chocolate Creek, Los Coches Creek, San Vicente Creek, and Forester Creek.

Another significant drainage feature of the Project Area is Alvarado Canyon Creek, which begins at the outfall of Lake Murray. Alvarado Canyon Creek generally parallels Interstate 8 as it flows westward to its confluence with the San Diego River. Alvarado Canyon Creek traverses through the southern portion of Subarea A. Navajo Canyon also drains to Alvarado Canyon Creek. Navajo Canyon is southeast of Subarea C. Currently, the majority of Alvarado Canyon Creek is channelized and the confluence with Navajo Canyon is tenuous due to the highway infrastructure and urban development. Alvarado Canyon Creek drains into the San Diego River in the southwestern portion of Subarea A.

Hydrology within the San Diego River Watershed is currently monitored on a continuous basis through the long-term flow monitoring stations maintained by the United States Geologic Service (USGS), the ALERT system operated by the County Department of Public Works, and a group of other hydrologic and meteorological monitoring stations administered by various local and federal agencies (Baseline Assessment, San Diego River Watershed Management Plan, August 2004). Approximately 85 percent of the total surface water flow occurs from December to May, in response to winter storms that originate in the

Pacific Northwest. Annual rainfall within the San Diego River HU ranges from about 10 inches (25 cm) at the coast to approximately 40 inches (102 cm) in the Cuyamaca Mountains.

4.11.1.2 Flooding

Portions of the Project Area are subject to flooding as identified by the Federal Emergency Management Agency (FEMA) maps during rain events. This is attributable to the fact that portions of the Project Area are located within the floodplain, the growth within the San Diego River Watershed (SDRW) that has increased, and inadequate drainage/flooding infrastructure. As depicted on Figure 4.11-2, the southeastern portion of Subarea A is located within the 100-year floodplain of Alvarado Canyon Creek. Portions of the western side of Subarea A are within the 100-year floodplain and floodway of the San Diego River. The northwestern and northern portions of Subarea B are within the 100-year floodplain and floodway of the San Diego River.

The primary flood control measures serving the SDRW include El Capitan Reservoir, San Vicente Reservoir, and the channelized sections of the San Diego River at the estuary, Mission Valley, and Lakeside. The reservoirs have historically functioned effectively in reducing peak flood flows along the lower San Diego River. For example, during the 1980 flood, El Capitan Reservoir absorbed the entire peak flow, while San Vicente Reservoir reduced the peak flow by approximately 50 percent. However, the existing levels of protection afforded by the flood control channel sections may be inadequate in the intensively urbanized Mission Valley area under a 100-year flood. The flood-carrying capacity of the channel at this section may become even less adequate under burned conditions after wildfires such as the 2003 Cedar Fire (Baseline Assessment, San Diego River Watershed Management Plan, August 2004).

The Baseline Assessment, San Diego River Watershed Management Plan, provides the following recommendations to improve short-term flood protection:

- Restore, improve, and maintain drainage system capacities through vegetation clearing and sediment removal;
- Improve flood early warning systems;
- Install, restore, improve, and maintain erosion control and water retention structures, particularly in areas determined to be at high risk of flooding;
- Provide public information (e.g., signage and mailings) on flood hazards, particularly in areas determined to be at high risk to flooding; and
- Adopt guidelines to encourage the “daylighting” of underground culverts as well as the removal of concrete/riprap channel lining as appropriate to improve water quality while maintaining and/or improving the existing level of flood protection.

4.11.1.3 Existing Water Quality

A. San Diego Regional Water Quality Control Board Basin Plan

Each of the nine regional boards in California is required to adopt a Basin Plan. Basin Plans designate the beneficial uses for all surface and groundwaters in the San Diego Region.

B. Beneficial Uses

Beneficial uses of groundwater and surface water have been established for each water body within the San Diego Basin. According to the RWQCB Basin Plan:

Beneficial uses are defined as the uses of water necessary for the survival or well being of man, plants and wildlife. The uses of water serve to promote the tangible and intangible economic, social and environmental goals of mankind.

Examples include the drinking, swimming, industrial, and agricultural water supply, and the support of fresh and saline aquatic habitats. According to the Basin Plan, beneficial uses have been designated for specific coastal water bodies, inland surface waters, and groundwater.

In 1972, the State Water Quality Control Board (SWQCB) adopted a uniform list and description of beneficial uses to be applied throughout all hydrological basins of the State. Water bodies that have beneficial uses that may be affected by activity in the Project Area are the San Diego River and Alvarado Canyon Creek. Designated beneficial uses for the San Diego River and Alvarado Canyon Creek, include:

- Agricultural supply (AGR);
- Industrial service supply (IND);
- Contact and non-contact water recreation (REC1 and REC2);
- Warm freshwater habitat (WARM);
- Cold freshwater habitat (COLD);
- Wildlife habitat (WILD); and
- Rare, threatened, or endangered species (RARE).

Alvarado Canyon Creek is not assigned the beneficial use of RARE. Designated beneficial uses for the mouth of the San Diego River include REC1, REC2, commercial and sport fishing (COMM), estuarine habitat (EST), WILD, RARE, marine habitat (MAR), and migration of aquatic organisms (MIGR).

The following are definitions of the applicable beneficial uses.

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.

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.

Industrial Process Supply (PROC) – Includes uses of water for industrial activities that depend primarily on water quality.

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.

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 springs.

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, tidepool and marine life study, hunting, sightseeing, or aesthetic enjoyment in conjunction with the above activities.

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, wildlife (e.g., mammals, birds, reptiles, amphibians, invertebrates), or wildlife water and food sources.

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.

Commercial and Sport Fishing (COMM) – Includes the uses of water for commercial or recreational collection of fish, shellfish, or other organisms including, but not limited to, uses involving organisms intended for human consumption or bait purposes.

Estuarine Habitat (EST) – Includes uses of water that support estuarine ecosystems including, but not limited to, preservation or enhancement of estuarine habitats, vegetation, fish, shellfish, or wildlife (e.g., estuarine mammals, waterfowl, shorebirds).

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.

Marine Habitat (MAR) – Includes uses of water that support marine ecosystems including, but not limited to, preservation or enhancement of marine habitats, vegetation such as kelp, fish, shellfish, or wildlife (e.g., marine mammals, shorebirds).

Migration of Aquatic Organisms (MIGR) – Includes uses of water that support habitats necessary for migration, acclimatization between fresh and salt water, or other temporary activities by aquatic organisms, such as anadromous fish.

Cold Freshwater Habitat (COLD) – Includes uses of water that support cold water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish or wildlife, including invertebrates.

C. Water Quality Objectives

Like the designation of beneficial uses, the designation of water quality objectives must satisfy all of the applicable requirements of the California Water Code, Division 7 (Porter-Cologne Act) and the Clean Water Act. California Water Code, Section 13241 provides that each Regional Water Quality Control Board shall establish water quality objectives for the waters of the state (i.e., ground and surface waters) which, in the Regional Board's judgment, are necessary for the reasonable protection of beneficial uses and for the prevention of nuisance. The Clean Water Act Section 303 requires that the State adopt water quality objectives (called water quality criteria) for surface waters. The Water Quality Control Plan for the San Diego Basin identifies a wide range of water quality objectives.

D. 303(d) List of Impaired Water Bodies

The RWQCBs identify water quality objectives in order to protect the designated beneficial uses of the water bodies. Section 303(d) of the federal Clean Water Act (CWA, 33 USC 1250, *et seq.*, at 1313(d)), requires States to identify waters that do not meet water quality standards after applying certain required technology-based effluent limits. Waters that do not meet the water quality standards are referred to as "impaired" water bodies. States are required to compile this information in a list and submit the list to the United States Environmental Protection Agency (USEPA) for review and approval. This list is known as the Section 303(d) list of impaired waters. As part of the listing process, states are required to prioritize water/watersheds for future development of total maximum daily load (TMDL). The TMDL establishes the allowable pollutant loadings or other quantifiable parameters for a water body and provides the basis for the State to establish water quality based controls. The purpose of TMDLs is to ensure that beneficial uses of the water body are restored and that the water quality objectives are achieved.

On July 25, 2003 USEPA gave final approval to California's 2002 Section 303(d) List of Water Quality Limited Segments. The lower portion of the San Diego River (12 miles) is currently identified on the Section 303(d) list for fecal coliform (6 miles), low dissolved oxygen, phosphorus, and total dissolved solids. The RWQCB has determined that developing TMDLs for these contaminants is a lower priority for this watershed than in other watersheds.

E. City of San Diego Draft River Park Master Plan

Origins of the River Park Master Plan date back to 1975 and Kevin Lynch's *Temporary Paradise, A look at the Special Landscape of the San Diego Region*. More recently, The San Diego River Park Foundation was formed in 2001 to coordinate the efforts of the many community groups and other organizations dedicated to the San Diego River, and to working towards developing the River Park Master Plan. The next step was to develop the San Diego River Park Conceptual Plan, which outlines the broad goals and objectives for the San Diego River Park. The six organizations with the most involvement in the Plan are: San Diego River Park Foundation, San Diego River Coalition, San Diego River Park Alliance, San Diego River Conservancy, Select Committee on Parks and River Restoration, and the San Diego Watershed Workgroup.

Over the last fifty years, commercial, residential and industrial uses have expanded around the San Diego River. Mining operations and urban development have changed the character and physical course of the San Diego River. The Draft San Diego River Master Plan seeks to change this condition and enhance the relationship between the river and nearby land uses.

The Plan identifies the following seven principles as the vision and guiding ideas for future design and implementation of the Plan.

- Reclaim the valley as a Common
- Reorient development toward the river
- Improve hydrologic function
- Unify fragmented lands
- Emphasize a continuum of experience
- Reveal the valley history
- Balance people, water and wildlife

The following recommendations from the Plan are specific to hydrology and water quality.

- Augment flows to the river
- Remove/circumvent obstacles that impede flow
- Remove invasive vegetation species
- Encourage the growth of appropriate riparian vegetation
- Re-contour the channel to encourage meander and braiding
- Expand the floodplain
- Adopt programs to reduce/remove non-point source loads of pollutants

The Plan identifies segments of the San Diego River (i.e., Plateau, the Gorge, Upper Mission Valley, the Confluence, Lower Mission Valley, and the Estuary). The San Diego River traverses the two community planning areas (Navajo and Tierrasanta) that are included in the Project Area. In terms of the Plan, the segments of the San Diego River that fall within the Project Area are the Upper Mission Valley and the Confluence.

The Upper Mission Valley segment extends from the Friars Road Bridge to the west boundary of Mission Trails Regional Park. The Upper Mission Valley is characterized by three hydrologic conditions: 1) the gravel extraction mine bordering Mission Trails Regional Park has channelized the river and disrupted habitat continuity through and across the mine site; 2) the river corridor through the mine site is infested with exotic plant species; and, 3) the river channel is interrupted by a series of ponds that obstruct the natural

sediment transport processes of the stream. The Plan provides the following recommendations for the Upper Mission Valley:

- Establish a 500-foot minimum open space corridor through the Superior Mine redevelopment area.
- Acquire land for park and open space.
- Improve interface between Admiral Baker Golf Course and the river.
- Explore opportunities to improve water quality and river pattern.
- Create sites at waystations to interpret the history of the valley settlement and the Old Mission Dam flume.

The Confluence segment is the area between Interstate 15 and Friars Road Bridge. This segment is partially enclosed by the steep wall of the knob topped by Mission San Diego de Alcala. Encroaching development on the east and Interstate 8 on the south further emphasize the sense of enclosure. The river corridor is also constrained by a series of old gravel mine ponds below the Friars Road Bridge: these ponds impede the normal hydrologic activities of the river system. In this area, extensive exotic vegetation infestation is present both in the ponds and in the river. The Plan provides the following recommendations applicable to hydrology and water quality for the Confluence area:

- Create a connection with Alvarado Canyon and on to Collwood and Navajo Canyons.
- Acquire land or establish easements.
- Establish a minimum 300-foot wide-open space corridor.
- Separate stream channel from ponds, additional land is necessary.
- Coordination with the Grantville Redevelopment Study presents the potential opportunity for the San Diego River Park to positively influence redevelopment as well as to benefit from new activities along the river corridor.

F. Baseline Assessment, San Diego River Watershed Management Plan

The lower San Diego River Watershed, which encompasses the Project Area has generally poor surface water quality. Typical contaminants include elevated levels of biological indicators, total dissolved solids, pH, pesticides, metals, petroleum, and trash. These contaminants are often the result of:

- Increased impervious surfaces causing increased runoff and pollutant loading and poor natural pollutant assimilation.
- Alteration of river morphology and natural pollutant assimilation and buffering zones.
- Increased input of nutrients and pesticides from landscaped areas.
- Increased input of trash and other floatables.
- Local groundwater contamination from spills and leaks of hazardous materials.
- Accidental discharges of raw sewage.

- Increased erosion and siltation as a result of construction and other activities/practices.
- Increased TDS as a result of poor irrigation practices and imported water use.
- Stream modifications by aggregate mining with associated adverse changes in hydrology and habitat loss.

As contained in this Management Plan, the RWQCB recommended management measures include the following:

- Increased oversight of section 401 Water Quality applications by the RWQCB to minimize hydromodification of the streams that lead to decreased water quality and the loss of beneficial uses.
- Removal of existing hydromodifications where feasible.
- The RWQCB should encourage continued improved compliance with all stormwater permits.
- Development of alternative site use design and construction techniques.
- Increase the number of stationary, permanent monitoring stations in the San Diego Management Area.
- Pursue acquisition of technology that provides real-time data collection.

G. Ground Water Quality

Soils along the San Diego River are porous, and surface water moves freely between ground and surface water. As a result, the water surface of standing water within the San Diego River channel represents the groundwater table. The largest aquifer near the Project Area is in Mission Valley. The Mission Valley aquifer covers approximately 11 square miles along the San Diego River and storage capacity is estimated at 40,000 acre feet of water. Within the San Diego River Watershed, groundwater quality is good. Due to the porous nature of the aquifer, recharge through streamflow infiltration is rapid, and significant interchange between surface flows and groundwater flow occurs. Designated beneficial uses for ground waters within the SDRW include MUN, AGR, IND, and PROC. Within the Lower San Diego HA, groundwater beneficial uses do not apply west of the easterly boundary of the I-5 right-of-way.

4.11.1.4 Water Quality Regulations

A. City of San Diego Municipal Code

Within the City of San Diego, existing land uses, new development, and redevelopment are required to comply with the City of San Diego Municipal Code. Related to hydrology and water quality, the following codes are applicable:

Chapter 4, Article 3, Division 3 – Stormwater Management and Discharge Control. The purposes of this Division are to further ensure the health, safety and general welfare of the citizens of the City of San Diego by controlling Non-Storm Water Discharges to the Storm Water Conveyance System by

eliminating discharges to the Storm Water Conveyance System from spills, dumping, or disposal of materials other than Storm Water and by reducing Pollutants in urban Storm Water discharges to the maximum extent practicable.

Chapter 14, Article 2, Division 1 – Grading Regulations. The purpose of these regulations is to address slope stability, protection of property, erosion control, water quality, and landform preservation and to protect the public health, safety, and welfare of persons, property, and the environment.

Chapter 14, Article 2, Division 2 – Storm Water Runoff and Drainage Regulations. The purpose of this division is to regulate the development of, and impacts to, drainage facilities, to limit water quality impacts from development, to minimize hazards due to flooding while minimizing the need for construction of flood control facilities, to minimize the impacts to environmentally sensitive lands, to implement the provisions of federal and state regulations, and to protect the public health, safety, and welfare.

Chapter 14, Article 2, Division 4 – Landscape Regulations. The purpose of these regulations is to minimize the erosion of slopes and disturbed lands through revegetation; to conserve energy by the provision of shade trees over streets, sidewalks, parking areas, and other paving; to conserve water through low-water-using plantings and irrigation design; to reduce the risk of fire through site design and the management of flammable vegetation; and to improve the appearance of the built environment by increasing the quality and quantity of landscaping visible from public rights-of-way, private streets, and adjacent properties, with emphasis on landscaping as viewed from public rights-of-way.

Chapter 14, Article 3, Division 1 – Environmentally Sensitive Lands Regulations. The purpose of these regulations is to protect, preserve and, where damaged, restore the environmentally sensitive lands of San Diego and the viability of the species supported by those lands. These regulations are intended to assure that development, including, but not limited to coastal development in the Coastal Overlay Zone, occurs in a manner that protects the overall quality of the resources and the natural and topographic character of the area, encourages a sensitive form of development, retains biodiversity and interconnected habitats, maximizes physical and visual public access to and along the shoreline, and reduces hazards due to flooding in specific areas while minimizing the need for construction of flood control facilities.

B. Regulation/Legal Basis for Authority

The principal federal and state laws pertaining to the regulation of water quality are known respectively, as the 1972 Federal Water Pollution Control Act (also known as the Clean Water Act and Division 7 of the 1969 California Water Code (also known as the Porter-Cologne Water Quality Control Act). The laws are similar in many ways. The fundamental purpose of both laws is to protect the beneficial uses of water. An important distinction between the two is that the Porter-Cologne Water Quality Control addresses both ground and surface waters while the Clean Water Act addresses surface water only. The San Diego Regional Water Quality Control Board (RWQCB) has developed policies, rules, and procedures, and has been granted the authority to implement and enforce the laws and regulations requiring the control of water quality.

The Clean Water Act (CWA) also established the National Pollutant Discharge Elimination System (NPDES), which requires permits for discharges of pollutants from certain point sources into waters of the United States. The CWA allows the EPA to delegate NPDES permitting authority to states with approved environmental regulatory programs. California is one of the delegated states. The NPDES permits relative to this project are the General Construction Stormwater Permit and the regional General Municipal Stormwater Permit.

C. General Municipal Stormwater Permit

The RWQCB has adopted an area-wide Municipal Stormwater Permit, Order No. 2001-01, NPDES No. CAS0108758, "Waste Discharge Requirements for Discharges of Urban Runoff from the Municipal Separate Stormwater Sewer Systems (MS4s) Draining the Watersheds of the County of San Diego, the Incorporated Cities of San Diego County and the San Diego Unified Port District." Under an area-wide Municipal Stormwater Permit, municipalities are ultimately held responsible for everything in their stormwater conveyance systems, including industrial and construction stormwater runoff. Order No. 2001-01 presents guideline requirements for the control of pollutants resulting from stormwater and urban runoff from all areas named in NPDES Permit No. CAS0108758. RWQCB specifically requires Co-permittees to:

Inventory existing stormwater pollution control programs, illicit discharge detection programs, monitoring programs and data, stormwater conveyance system maps, land use maps, and existing laws, ordinances, and codes giving the dischargers the authority to implement and enforce stormwater management programs in their areas of jurisdiction and where necessary, promulgate the authority to carry out all functions of the stormwater management programs.

The municipal stormwater permit requires Co-permittees to utilize planning procedures including a master plan to develop, implement, and enforce controls to reduce the discharge of pollutants from municipal separate storm sewers which receive discharges from areas of new development and significant redevelopment. This new permit addresses controls to reduce pollutants in discharges from municipal separate storm sewers after construction is completed. With respect to land use planning for new development and redevelopment, at a minimum, each Co-permittee shall assess its general plan, modify development project approval processes, revise environmental review processes, and conduct education efforts focused on new development and redevelopment to minimize the short and long-term impacts on receiving water quality.

D. General Construction Stormwater Permit

Pursuant to Section 402(p)(4), EPA promulgated regulations for NPDES permit applications for stormwater discharges. On November 16, 1990, the EPA published final regulations that establish stormwater to waters of the United States from construction projects that encompass one (1) or more acres of soil disturbance are effectively prohibited unless the discharge is in compliance with an NPDES Permit. State Water Resources Control Board (SWRCB) Order No. 99-08, NPDES General Permit No. CAS2000002, "General Permit for Stormwater Discharges Associated with Construction Activity", is the active General stormwater construction activity permit for the State of California and RWQCB.

This permit was modified and reissued on August 19, 1999 based on a court challenge the San Francisco, Santa Monica, San Diego, and Orange Coast BayKeepers groups. The Court issued a judgment and directed the SWRCB to modify the provisions of the General Permit to, among others, require permittees to implement specific sampling and analytical procedures to determine whether Best Management Practices (BMPs) implemented on the construction site are: 1) preventing further impairment by sediment in storm waters discharged directly into waters listed as impaired for sediment or silt; and 2) preventing other pollutants, that are known or should be known by permittees to occur on construction sites and that are not visually detectable in stormwater discharges, from causing or contributing to exceedences for water quality objectives. Based on the Court's direction, the two areas of the permit that were modified were the Stormwater Pollution Prevention Plan (SWPPP) and the Monitoring Program and Reporting Requirements portions of the permit.

Specific conditions of the NPDES permit that may directly affect the planning and design requirements of future redevelopment projects are:

- Development and implementation of stormwater and receiving water-monitoring programs to evaluate discharges of pollutants from stormwater conveyance systems to waters of the United States.
- Development and implementation of an illicit connection/illegal discharge detection program to identify and eliminate non-stormwater discharges to stormwater conveyance systems.
- To maximum extent practicable, develop and implement BMPs to control discharges of pollutants to Waters of the United States.
- Implementation of an annual analysis of the effectiveness of the overall stormwater pollution control management program.

In order to be in compliance with the Permit, all projects involving one acre or more of soil disturbance will require a General Construction Stormwater Permit, which must include the following:

- Notices of Intent (NOIs) – Certification to be signed by owner of the construction site.
- Stormwater Pollution Prevention Plans (SWPPPs). Required elements of SWPPP include: 1) Site description addressing the elements and characteristics specific to the site; 2) Description of BMPs for erosion and sediment controls; 3) BMPs for construction waste handling and disposal; 4) Implementation of approved local plans; 5) Proposed post-construction controls, including description of local post-construction erosion and sediment control requirements; 6) Non-storm water management; 7) Identify a sampling and analysis strategy and sampling schedule for discharges from construction activity which discharge into water bodies listed on the 303 (d) list of impaired water bodies; and 8) For all construction activity, identify a sampling and analysis strategy and sampling schedule for pollutants which are not visually detectable in stormwater discharges, which are known to occur on the construction site, and which could cause or contribute to an exceedance of water quality objectives in receiving waters.

- Monitoring Program and Reporting Requirements – Including inspection of prevention measures record keeping and annual certification of compliance, due July 1, 1993, and each July 1st thereafter. Dischargers of stormwater associated with construction activity that directly enters a water body listed on the 303 (d) list of impaired water bodies shall conduct a sampling and analysis program for the pollutants (sedimentation/siltation or turbidity) causing the impairment. Discharges that flow through tributaries that are not listed on the 303(d) list of impaired water bodies or that flow into Municipal Separate Storm Sewer Systems (MS4) are not subject to these sampling and analysis requirements.

Industrial land uses are required to comply with the General Industrial Stormwater Permit. The permit lists the general descriptions of industrial facilities that would need to obtain a permit. The permit also identifies three categories of dischargers that would not need a permit if the facility type meets certain criteria identified in the permit. For example, facilities that fall into "category 10" (light industrial uses) are not subject to the general industrial permit if the facility can meet certain minimum conditions.

Stormwater dischargers associated with industrial activity must comply with Sections 301 and 402 CWA. The U.S. EPA published (November 16, 1990) final regulations that establish application requirements for stormwater permits. The regulation requires that stormwater associated with industrial activity that discharges either directly to surface waters or indirectly through municipal stormwater sewers must be regulated by an NPDES permit. The regulations authorize States to issue general permits or individual permits to regulate stormwater discharges. The SWRCB issued a statewide General Industrial Stormwater permit, Water Quality Order No. 97-03-DWQ, NPDES, General Permit No. CAS000001 "Waste Discharge Requirements for Discharges Associated with Industrial Activities Excluding Construction Activities", on November 19, 1991. The monitoring requirements of the permit were amended September 17, 1992. Generally, the permit requires facility operators to:

- Eliminate unauthorized non-stormwater discharges;
- Develop and implement a stormwater pollution prevention plan (SWPPP); and,
- Perform monitoring of stormwater discharges and authorize non-stormwater discharges.

4.11.2 Impact Threshold

For the purposes of this EIR, a significant impact would occur if the proposed project would:

- *Cause a substantial increase in impervious surfaces and associated increased runoff;*
- *Cause a substantial alteration to on- and off-site drainage patterns due to changes in runoff flow rates or volumes;*
- *Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map;*
- *Place within a 100-year flood hazard area structures which would impede or redirect flood flows.*
- *Conflict with the City of San Diego's Stormwater Standards;*

4.11.3 Impact

4.11.3.1 Hydrology/Drainage

Redevelopment activities will occur over a 20-30 year period, and will be consistent with the land uses allowed in the Navajo and Tierrasanta Community Plans. Redevelopment within the Project Area has the potential to increase the rate or amount of surface runoff. There are many factors that can affect whether development of a project would result in a significant impact to hydrology/drainage including the location of a specific activity, the type of use proposed, and whether or not the proposed uses would result in changes to existing drainage patterns and conditions.

On a broad perspective, redevelopment activities are not expected to significantly alter the existing drainage pattern of the Project Area or surrounding area. This is because most of the Project Area is developed, and projects are not anticipated to require extraordinary amounts of grading or alternation of topography that could affect the hydrologic function of the San Diego River and Alvarado Canyon Creek. The Project Area will drain in essentially the same manner as it currently drains (i.e., east to west via the San Diego River and Alvarado Canyon Creek and then to San Diego Bay). In some cases, redevelopment activities are expected to improve deficient or adverse drainage conditions associated with the San Diego River and Alvarado Canyon Creek, as guided by the San Diego River Park Master Plan and San Diego River Watershed Management Plan.

However, on a more localized basis, there is the potential that specific redevelopment activities may require grading or alteration of the topography that could affect the hydrologic function of the parcel in which the project is located, altering localized drainage patterns and runoff. This issue is considered a significant impact. Mitigation Measure HD1 will reduce this impact to a level less than significant. Mitigation Measure HD1 requires that prior to approval of a specific development plan within the Project Area, a detailed hydrology study shall be prepared for each specific development that addresses the onsite and offsite hydrological and drainage characteristics of each proposed development project. For development projects located within or adjacent to the 100-year floodplain, additional consideration shall be given to the design of the project. An appropriate drainage control plan that controls runoff and drainage in a manner acceptable to City Engineering Standards for the specific project shall be implemented. The drainage control plan shall be implemented in accordance with the recommendations of the hydrology study and shall address on-site and off-site drainage requirements to ensure on-site runoff will not adversely affect off-site areas or alter the existing drainage pattern of the site or off-site areas. The drainage study shall incorporate the recommendations of the San Diego River Park Master Plan and the San Diego River Watershed Management Plan relative to hydrology/drainage to the maximum extent practicable.

4.11.3.2 Flooding

As identified on Figure 4.11-2, portions of Subareas A and B are located within the 100-year floodplain and floodway as identified by the Federal Emergency Management Agency (FEMA) maps. Redevelopment activity in these areas has the potential to impede or redirect flood flows and each redevelopment project

will need to be evaluated to ensure they do not adversely impact flooding. This issue is considered a significant impact. Implementation of Mitigation Measure HD1 will reduce this significant impact to a level less than significant.

As identified in Mitigation Measure HD1, for development projects located within or adjacent to the 100-year floodplain, additional consideration in the hydrology study and site specific drainage plan shall be given to the design of the project so as not to place structures within the 100-year floodplain that may redirect flood flows. In addition, the hydrology and drainage studies shall incorporate the recommendations of the San Diego River Park Master Plan and the San Diego River Watershed Management Plan relative to flooding to the maximum extent practicable.

4.11.3.3 *Water Quality – Short-Term*

The proposed project will result in the redevelopment of existing land uses over a 20 to 30 year period. Redevelopment would be required to comply with current (and/or future) water quality regulations regarding on-site construction related runoff.

Grading requirements of future projects could potentially alter existing drainage patterns, causing erosion or siltation on a particular site or in the area on a short-term basis during construction. This issue is magnified for development projects located near the San Diego River and Alvarado Canyon Creek. As such, future redevelopment activities have the potential to result in a violation of water quality standards through sedimentation/siltation or emissions from construction related activities of the local surface waters and groundwaters. This issue is considered a significant impact. Implementation of Mitigation Measure WQ1 will reduce this impact to a level less than significant. Mitigation Measure WQ1 requires that erosion, siltation, and emission of construction related pollutants shall be controlled through compliance with the City of San Diego Municipal Code, General Construction Stormwater Permit (Order No. 99-08, NPDES CAS000002) and the General Municipal Stormwater Permit (Order No. 2001-01, NPDES CAS0108758). Under the General Construction Stormwater Permit, the following components are required, a Notice of Intent (NOI), Stormwater Pollution Prevention Plan (SWPPP), and a Monitoring Program and Reporting Requirements. Required elements of SWPPP include:

- Site description addressing the elements and characteristics specific to the site;
- Description of Best Management Practices (BMPs) for erosion and sediment controls;
- BMPs for construction waste handling and disposal;
- Implementation of approved local plans;
- Proposed post-construction controls, including description of local post-construction erosion and sediment control requirements;
- Non-storm water management;
- Identify a sampling and analysis strategy and sampling schedule for discharges from construction activity which discharges into water bodies listed on the 303 (d) list of impaired water bodies; and

- For all construction activity, identify a sampling and analysis strategy and sampling schedule for pollutants which are not visually detectable in stormwater discharges, which are known to occur on the construction site, and which could cause or contribute to an exceedance of water quality objectives in receiving waters.

Some of the BMPs that shall be used during construction for compliance with the City of San Diego Municipal Code, General Construction Stormwater Permit, and General Municipal Stormwater Permit include, but are not limited to:

- Silt fence, fiber rolls, or gravel bag berms
- Street Sweeping
- Storm drain inlet protection
- Stabilized construction entrance/exit
- Vehicle and equipment maintenance, cleaning, and fueling
- Hydroseed, soil binders, or straw mulch

4.11.3.4 *Water Quality – Long Term Impacts*

The majority of existing land uses within the Project Area were developed prior to the current surface and groundwater quality regulations and non-compliance with the current regulations may have contributed to the San Diego River's listing on the 303(d) list of impaired waters.

Future point and non-point source runoff associated with redevelopment activity will be controlled through compliance with the City of San Diego Municipal Code, General Municipal Stormwater Permit (Order No. 2001-01, NPDES NO. CAS0108858), and the General Industrial Stormwater Permit (Order No. 97-03-DWQ, NPDES NO. CAS000001). Redevelopment activity compliance with the NPDES permits and City of San Diego Municipal Code requirements are anticipated to reduce the level of fecal coliform, low dissolved oxygen, phosphorus, and total dissolved solids in the River. In addition, implementation of the recommendations contained in the San Diego River Park Master Plan and San Diego River Watershed Management Plan will serve to reduce the level of pollutants in the San Diego River. Also, per federal, state and local regulations, future development activity will be required to remove/clean-up existing hazards/hazardous materials (e.g., underground storage tanks) prior to development. Removing/cleaning-up hazards/hazardous materials from the Project Area will also reduce the amount of pollutant runoff that enters the San Diego River Watershed.

Over the next 20 to 30 years, future redevelopment activity (including new infrastructure such as roadways) will replace existing land uses that do not comply with water quality control requirements with land uses that should include all water quality measures identified in current and future applicable water quality control programs. However, given the current status of the San Diego River on the 303(d) list of impaired waters and the potential for future non-compliance with the water quality regulations, this issue is considered a significant impact. Implementation of Mitigation Measure WQ2 will reduce this impact to a

level less than significant. Mitigation Measure WQ2 requires all future redevelopment projects to obtain compliance approval with the City of San Diego Municipal Code, General Municipal Stormwater Permit (Order No. 2001-01, NPDES NO. CAS0108858), and the General Industrial Stormwater Permit (Order No. 97-03-DWQ, NPDES NO. CAS000001). Future redevelopment projects should also take into consideration to the maximum extent practicable the recommendations contained in the San Diego River Park Master Plan and the San Diego River Watershed Management Plan. Components of future redevelopment project design that will help achieve compliance with these long-term water quality regulations shall include, but are not limited to:

- Infiltrations basins
- Retention/detention basins
- Biofilters
- Structural controls

4.11.4 Significance Of Impact

4.11.4.1 *Hydrology/Drainage*

Redevelopment activities in the Project Area may require grading or alteration of the topography that could affect the hydrologic function of these drainages, altering localized drainage patterns and runoff. This issue is considered a significant impact.

4.11.4.2 *Flooding*

Redevelopment activity in these areas has the potential to impede or redirect flood flows and each redevelopment project will need to be evaluated to ensure they do not adversely impact flooding. This issue is considered a significant impact.

4.11.4.3 *Water Quality – Short-Term*

Future redevelopment activities have the potential to result in a violation of water quality standards through sedimentation/siltation or emissions from construction related activities of the local surface waters and groundwaters. This issue is considered a significant impact.

4.11.4.4 *Water Quality – Long-Term*

Given the current status of the San Diego River on the 303(d) list of impaired waters and the potential for future non-compliance with the water quality regulations, this issue is considered a significant impact.

4.11.5 Mitigation Measures

4.11.5.1 *Hydrology/Drainage/Flooding*

HD1 A detailed hydrology study shall be prepared for each specific development that addresses the onsite and offsite hydrological and drainage characteristics of each proposed development

project. For development projects located within or adjacent to the 100-year floodplain, additional consideration shall be given to the design of the project. An appropriate drainage control plan that controls runoff and drainage in a manner acceptable to City Engineering Standards for the specific project shall be implemented. The drainage control plan shall be implemented in accordance with the recommendations of the hydrology study and shall address on-site and off-site drainage requirements to ensure on-site runoff will not adversely affect off-site areas or alter the existing drainage pattern of the site or off-site areas. The drainage study shall incorporate the recommendations of the San Diego River Park Master Plan the San Diego River Watershed Management Plan relative to hydrology/drainage and flooding to the maximum extent practicable.

4.11.5.2 *Water Quality*

WQ1 Prior to commencement of construction activities for future redevelopment activities, in compliance approval documentation with the City of San Diego Municipal Code, General Construction Stormwater Permit (Order No. 99-08, NPDES CAS000002) and the General Municipal Stormwater Permit (Order No. 2001-01, NPDES CAS0108758) shall be obtained. Under the General Construction Stormwater Permit, the following components are required, a Notice of Intent (NOI), Stormwater Pollution Prevention Plan (SWPPP), and a Monitoring Program and Reporting Requirements. Required elements of SWPPP include:

- Site description addressing the elements and characteristics specific to the site;
- Description of Best Management Practices (BMPs) for erosion and sediment controls;
- BMPs for construction waste handling and disposal;
- Implementation of approved local plans;
- Proposed post-construction controls, including description of local post-construction erosion and sediment control requirements;
- Non-storm water management;
- Identify a sampling and analysis strategy and sampling schedule for discharges from construction activity which discharge into water bodies listed on the 303 (d) list of impaired water bodies; and,
- For all construction activity, identify a sampling and analysis strategy and sampling schedule for pollutants which are not visually detectable in stormwater discharges, which are known to occur on the construction site, and which could cause or contribute to an exceedance of water quality objectives in receiving waters.

Some of the BMPs that shall be used during construction for compliance with the City of San Diego Municipal Code, General Construction Stormwater Permit, and General Municipal Stormwater Permit include, but are not limited to:

- Silt fence, fiber rolls, or gravel bag berms
- Street Sweeping
- Storm drain inlet protection
- Stabilized construction entrance/exit
- Vehicle and equipment maintenance, cleaning, and fueling
- Hydroseed, soil binders, or straw mulch

WQ2 All future redevelopment projects shall obtain compliance approval with the City of San Diego Municipal Code, General Municipal Stormwater Permit (Order No. 2001-01, NPDES NO. CAS0108858), and the General Industrial Stormwater Permit (Order No. 97-03-DWQ, NPDES NO. CAS000001). Future redevelopment project design shall also take into consideration to the maximum extent practicable the recommendations contained in the San Diego River Park Master Plan and the San Diego River Watershed Management Plan. Components of future redevelopment project design that will help achieve compliance with these long-term water quality regulations include, but are not limited to:

- Infiltrations basins
- Retention/detention basins
- Biofilters
- Structural controls

4.11.6 Conclusion

Implementation of Mitigation Measure HD1 will reduce the hydrology/drainage and flooding impacts to a level less than significant. Implementation of Mitigation Measure WQ1 will reduce the short-term water quality impact to a level less than significant. Implementation of Mitigation Measure WQ2 will reduce the long-term water quality impact to a level less than significant.