3.7 - Hydrology and Water Quality

This section describes the potential hydrology and water quality effects from project implementation on the project site and its surrounding area. Descriptions and analysis in this section are based on information contained in the November 2012 Annual Report on Water Conditions prepared by the SGPWA; the June 2006 Water Quality Control Plan for the Colorado River Basin and the February 2008 Water Quality Control Plan for the Santa Ana River Basin, both prepared by the State Water Resources Control Board; and the February 27, 2004 Bulletin 118: California's Groundwater prepared by the Department of Water Resources.

3.7.1 - Existing Conditions

Regional Hydrological Setting

Basin Regions

The greater San Gorgonio Pass area is located within the easternmost boundary of the Santa Ana Regional Water Quality Control Board (RWQCB) (Region 8) and the westernmost boundary of the Colorado River RWQCB (Region 7). The Santa Ana Region encompasses approximately 2,800 square miles in southern California, generally between the Los Angeles County to the north and San Diego County to the south. The Region is comprised of a group of connected inland basins and open coastal basins drained by surface streams flowing southwesterly towards to the Pacific Ocean.

The Colorado River Region covers approximately 20,000 square miles in southeastern California. The Colorado River Region includes all of Imperial County and portions of San Bernardino, Riverside, and San Diego Counties. Geographically, the Region represents only a small portion of the total Colorado River drainage area, which includes portions of Arizona, Nevada, Utah, Wyoming, Colorado, New Mexico, and Mexico.

Upper Santa Ana Valley Groundwater Basin, San Timoteo Subbasin

The portion of the Upper Santa Ana Valley Groundwater Basin located within the San Gorgonio Pass area, including the City of Beaumont and the unincorporated Cherry Valley area, is described as the San Timoteo Subbasin. The subbasin is generally bounded by the Banning Fault, the San Bernardino Mountains, the Crafton Hills, and the Yucaipa Hills to the north and northeast; a topographic drainage divide with the Colorado River Hydrologic Region to the east; the San Jacinto Fault to the south; and the San Jacinto Mountains to the west. Aboveground, the surface of the San Timoteo Subbasin is drained by the Little San Gorgonio Creek and the San Timoteo Canyon to the Santa Ana River. Average annual precipitation ranges from 12 to 14 inches in the western part of the Subbasin and 16 to 18 inches in the eastern part.

Groundwater in the San Timoteo Subbasin is encountered in both alluvium and San Timoteo Formation. Estimated specific yields in the Subbasin range from three percent for fine materials to 35 percent for coarser materials, with an average of 11 percent. Holocene age alluvium consisting of

unconsolidated clay, silt, sand, and gravel, is the primary water-bearing unit in the Subbasin. The alluvium, which is likely thickest near the City of Beaumont, thins toward the southwest and is not present in the central part of the Subbasin.

Pliocene-Pleistocene age San Timoteo Formation consisting of alluvial deposits that have been folded and eroded are widely distributed and principally composed of gravel, silt, and clay, with comparatively small amounts of calcite-cemented conglomerate. The clasts are chiefly granitic, with lesser amounts of volcanic and metamorphic pebbles and cobbles. The total thickness of the San Timoteo Formation is estimated to be between 1,500 and 2,000 feet, but historical records of deep wells near the central part of the Subbasin indicate water-bearing gravels to depths of 700 to 1,000 feet.

Groundwater in the Subbasin is replenished by subsurface inflow and percolation of precipitation, runoff, and imported water. Runoff and imported water are delivered to streambeds and spreading grounds for percolation.

Local Hydrological Setting

The Beaumont Basin is the largest and most productive of the principle groundwater basins in the general San Gorgonio Pass region, serving a large majority of the population in the region. Until the State Water Project's (SWP's) East Branch Extension (EBX) began importing SWP water into the region in 2003, the Basin was entirely reliant on groundwater extraction for its domestic water supply.

On the State level, the Department of Water Resources uses different basin names than local municipalities because they view the statewide geology and hydrology on a larger scale, aggregating smaller basins into larger ones. What is known by the State as the San Timoteo subbasin is essentially the Beaumont Basin, and what the State refers to as the San Gorgonio subbasin is essentially the Cabazon Basin. While these boundaries are not exact, they are similar.

Groundwater Extractions (Production)

From 2010 to 2011, groundwater production in the Beaumont Basin has increased from 13,469 acre-feet (af) to 13,908 af, equating to an approximate three-percent increase. Despite this increase, 2011 production represents a 28-percent reduction from 2007. Presumably, the large decrease can be contributed to the somewhat recent economic downturn, which has curtailed new construction, residential and commercial water usage. An evaluation of groundwater production data from the Basin demonstrates that economic conditions and annual precipitation play significant roles in determining water demand in any given year.

Groundwater Overdraft

Overdraft of a groundwater basin refers to the amount of water pumped from the basin beyond the safe yield. Safe yield is the average annual replenishment of a groundwater basin through natural sources such as rainfall, runoff, snowmelt, and underflows from other basins. Safe yield is difficult to

establish from year-to-year and represents only an average, as natural replenishment of a groundwater basin could be more or less than the average safe yield, depending on whether the year is a wet or dry one.

Overdraft of the Beaumont Basin has been monitored since at least 1988, when engineering investigation of the Basin indicated that historic pumping significantly exceeded the basin's probable safe yield. Previous evaluations have determined an estimated long-term average safe yield between 5,000 and 6,100 acre-feet per year (AFY) for the Basin. As a result, current and future pumping from the Basin can exceed the long-term average safe yield of the Basin.

In 2011, total production from the Beaumont Basin was 13,908 af. Thus, the Basin experienced an overdraft of 7,808 af, assuming an average safe yield of 6,100 AFY. This overdraft was offset by importing 10,730 af of supplemental water, essentially adding to the volume of the Basin by approximately 3,000 af. This represents the second time that this has occurred since importation of SWP water began in 2003, the first time being in 2010. The 3,000 af of excess SWP water that was used for recharged in 2011 is triple the amount from 2010.

Since 1997, when significant increases in groundwater production began in the region, the cumulative overdraft in the Beaumont Basin (assuming a safe yield of 6,100 af) is 129,523 af, averaging to approximately 8,600 AFY over the past 15 years, without importation of SWP water. Through 2011, the SGPWA has imported roughly 42,000 af of SWP water, offsetting the cumulative overdraft and reducing it to under 90,000 af over the same time.

Groundwater Levels

The SGPWA monitors groundwater levels through a large network of monitoring wells located throughout the Beaumont Basin. Currently, there are over 120 monitoring wells in the network, each of which measures groundwater elevation twice annually, typically in May and November. As of 2011, the SGPWA is part of the California State Groundwater Elevation Monitoring (CASGEM) system, a new statewide groundwater monitoring system. The SGPWA is a formal monitoring entity for both the San Timoteo subbasin (Beaumont Basin) and the San Gorgonio subbasin (Cabazon Basin), which generally correspond to the SGPWA's boundary.

The monitoring of production wells in the Beaumont Basin has garnered mixed results over the years. Wells located approximately 1,000 feet east of Beaumont Avenue and 50 feet south of Cherry Valley Boulevard in Cherry Valley have shown an increase in groundwater elevation over the past three years, presumably because of the ongoing recharge efforts at Little San Gorgonio Creek, and possibly also at Noble Creek. However, wells located on Calimesa Boulevard near the western periphery of the Basin have shown continually decreasing groundwater levels over the past decade, indicating that this portion of the Basin is not yet influenced by recharge efforts and reduced production in the area.

Two production wells in the Cabazon Basin show decrease in groundwater elevation over the past several years, dropping 15 feet and 35 feet over the past five and ten years, respectively. Even though these wells are located several miles from each other, and despite the decline in extractions from the Cabazon Basin over the past three years, the groundwater levels in this basin are decreasing and have been for a number of years.

Flood Hazard Areas

The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM) applicable to the project are Community Panels 06065C0803G and 06065C0805G. The FIRMs indicate that the recharge facility site and the service connection site are located outside of a 100-year flood hazard area. An area designated as Zone A, which is a Special Flood Hazard Area (SFHA) subject to inundation by a 100-year flood, occurs immediately north of the recharge facility site and is generally bounded by Noble Creek's southern bank to the south and southeast and Mountain View Channel to the West. Both the pipeline alignment along Beaumont Avenue from Brookside Avenue to Vineland Street and the offsite triangular parcel are located within this 100-year flood hazard area.

3.7.2 - Regulatory Setting

Federal

Clean Water Act

The Clean Water Act (CWA) established a basic structure for regulating discharges of pollutants into Waters of the United States and regulating quality standards for surface waters. The basis of the CWA was enacted in 1948 and was called the Federal Water Pollution Control Act, but the Act was significantly reorganized and expanded in 1972. The "Clean Water Act" became the Act's common name with amendments in 1977.

Under the CWA, the Environmental Protection Agency (EPA) has implemented pollution control programs and established water quality standards for all contaminants in surface waters. The CWA made it unlawful to discharge any pollutant from a point source into navigable waters, unless a National Pollutant Discharge Elimination System (NPDES) permit was obtained. Point sources are discrete conveyances such as pipes or manmade ditches. While residential structures that are either connected to a municipal system or otherwise do not discharge into surface waters are not required to obtain a NPDES permit, industrial, municipal, and similar facilities must obtain permits to discharge directly into surface waters. In California, the NPDES program is administered through the nine Regional Water Quality Control Boards (RWQCB).

Non-point sources are similarly regulated through a General Construction Activity Stormwater NPDES permit. Construction activities subject to this permit include clearing, grading, excavating, and general disturbances to the ground. Stormwater Pollution Prevention Plans (SWPPPs) are required for the issuance of a General Construction Activity Stormwater NPDES permit and typically

include the implementation of structural and non-structural Best Management Practices (BMPs) to reduce impacts related to surface water quality.

National Pollutant Discharge Elimination System (NPDES) Permit

Section 402 of the CWA established the NPDES to control water pollution by regulating point sources that discharge pollutants into Waters of the United States. In the State of California, the EPA has authorized the State Water Resources Control Board (SWRCB) as the permitting authority to implement the NPDES program. The SWRCB issues two baseline general permits; one for industrial operations, the other for construction activities (General Construction Permit). Additionally, the NPDES program includes the regulation of stormwater discharges from cities, counties, and other municipalities under Order No. R8-2009-0030 (waste discharge requirements for stormwater).

Under the General Construction Permit, stormwater discharges from construction sites with a disturbed area of one or more acres are required to obtain either individual NPDES permits for stormwater discharges or be covered by the Construction General Permit. Coverage under the Construction General Permit is accomplished by completing and filing a Notice of Intent with the SWRCB. Each applicant under the Construction General Permit is required to prepare both a SWPPP prior to the commencement of grading activities and to ensure implementation of the SWPPP during construction activities. The primary objective of the SWPPP is to identify, construct, implement, and maintain BMPs to reduce or eliminate pollutants in stormwater discharges and authorized non-stormwater discharges from the construction site during construction activities. BMPs may include programs, technologies, processes, practices, and devices that control, prevent, remove, or reduce pollution. The SWPPP would also address BMPs developed specifically to reduce pollutants in stormwater discharges following the completion of construction activities.

Safe Drinking Water Act (Federal)

The Safe Drinking Water Act (SDWA) was established to protect the quality of drinking water in the United States. This SDWA focuses on all waters either designed or potentially designed for drinking water use, whether from surface water or groundwater sources. The SDWA and subsequent amendments authorized the EPA to establish health-based standards, or maximum contaminant levels (MCLs), for drinking water to protect public health against both natural and anthropogenic contaminants. All owners or operators of public water systems are required to comply with these primary (health-related) standards. State governments, which can be approved to implement these primary standards for the EPA, also encourage attainment of secondary (nuisance-related) standards. At the federal level, the EPA administers the SDWA and establishes MCLs for bacteriological, organic, inorganic, and radiological constituents (United States Code Title 42, and Code of Federal Regulations Title 40). At the state level, California has adopted its own SDWA, which incorporates the federal SDWA standards with some other requirements specific only to California (California Health and Safety Code, Section 116350 et seq.).

The 1996 SDWA amendments established source water assessment programs pertaining to untreated water from rivers, lakes, streams, and groundwater aquifers used for drinking water supply. According to these amendments, the EPA must consider a detailed risk and cost assessment, as well as best available peer-reviewed science, when developing standards for drinking water. These programs are the foundation of protecting drinking water resources from contamination and avoiding costly treatment to remove pollutants. In California, the Drinking Water Source Assessment and Protection (DWSAP) program fulfills these federal mandates. The California Department of Public Health is the primary agency for developing and implementing the DWSAP program, and is responsible for performing the assessments of existing groundwater sources.

State

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act of 1969, which became Division 7 of the California Water Code, authorized the SWRCB to provide comprehensive protection for California's waters through water allocation and water quality protection. The SWRCB implements the requirement of the CWA Section 303, which states that water quality standards must be established for certain waters through the adoption of water quality control plans under the Porter-Cologne Act. The Porter-Cologne Act established the responsibilities and authorities of the nine RWQCBs, which include preparing water quality plans within the regions, identifying water quality objectives, and instituting waste discharge requirements. Water quality objectives are defined as limits or levels of water quality constituents and characteristics established for reasonable protection of beneficial uses or prevention of nuisance. Beneficial uses consist of all the various ways that water can be used for the benefit of people and wildlife. The Porter-Cologne Act was later amended to provide the authority delegated from the EPA to issue NPDES permits regulating discharges to Waters of the United States.

Local

As discussed previously in Section 1 of this Draft EIR, the SGPWA is exempt from local land use policies and ordinances in accordance with California Government Code Sections 53091(d) and 53091(e). Although exempt for the proposed project, SGPWA has chosen to provide a discussion of the local land use policies and ordinances.

City of Beaumont General Plan

The City of Beaumont General Plan contains the following goals and policies that address hydrology and water quality.

Resource Management Element

Goal 2. The City of Beaumont will promote the maintenance and management of water resources.

Policy 4. The City of Beaumont will promote the maintenance of water quality in the City.

Policy 6. The City of Beaumont will strive to promote development practices that will mitigate potential flooding.

Safety Element

Goal 2. The City of Beaumont will cooperate in those efforts that are directed towards flood control and safety.

Policy 6. The City of Beaumont will continue to promote flood safety through comprehensive land use planning.

Policy 10. The City of Beaumont will require all new developments to mitigate potential flooding that may result from the development.

County of Riverside General Plan

The County of Riverside General Plan contains the following policies that address hydrology and water quality.

Multipurpose Open Space Element

Policy OS 4.1. Support efforts to create additional water storage where needed, in cooperation with federal, state, and local water authorities. Additionally, support and/or engage in water banking in conjunction with these agencies where appropriate, as needed.

Policy OS 4.2. Participate in the development, implementation, and maintenance of a program to recharge the aquifers underlying the County. The program shall make use of flood and other waters to offset existing and future groundwater pumping, except where:

a. groundwater quality would be reduced;

b. available groundwater aquifers are full; or

c. rising water tables threaten the stability of existing structures.

Policy OS 4.3. Ensure that adequate aquifer water recharge areas are preserved and protected.

Policy OS 5.1. Substantially alter floodways or implement other channelization only as a "last resort," and limit the alteration to:

a. that necessary for the protection of public health and safety only after all other options are exhausted;

b. essential public service projects where no other feasible construction method or alternative project location exists; or

c. projects where the primary function is improvement of fish and wildlife habitat.

Policy OS 5.2. If substantial modification to a floodway is proposed, design it to reduce adverse environmental effects to the maximum extent feasible, considering the following factors:

a. stream scour;

b. erosion protection and sedimentation;

c. wildlife habitat and linkages;

d. groundwater recharge capability;

e. adjacent property; and

f. design (a natural effect, examples could include soft riparian bottoms and gentle bank slopes, wide and shallow floodways, minimization of visible use of concrete, and landscaping with native plants to the maximum extent possible).

A site specific hydrologic study may be required.

Policy OS 5.3. Based upon site, specific study, all development shall be set back from the floodway boundary a distance adequate to address the following issues:

a. public safety;

b. erosion;

c. riparian or wetland buffer;

d. wildlife movement corridor or linkage; and

e. slopes.

Policy OS 5.4. Consider designating floodway setbacks for greenways, trails, and recreation opportunities on a case-by-case basis.

3.7.3 - Thresholds of Significance

According to the CEQA Guidelines' Appendix G Environmental Checklist, to determine whether hydrology and water quality impacts are significant environmental effects, the following questions are analyzed and evaluated. Would the project:

a) Violate any water quality standards or waste discharge requirements? (See Section 6.9.1, Water Quality Standards and Requirements)

b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted? (See Section 6.9.2, Groundwater Supplies and Recharge)

c) Substantially alter the existing drainage pattern of area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site? (See Section 6.9.3, Drainage Pattern: Siltation and Erosion)

d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site? (See Section 6.9.4, Drainage Pattern: Flooding)

e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff? (See Section 6.9.5, Runoff Water and Drainage Systems)

f) Otherwise substantially degrade water quality? (See Section 6.9.6, Water Quality)

g) 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? (See Section 6.9.7, Housing Placement: Flood Hazard Area)

h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows? (See Structures: Flood Hazard Area Impact HYD-1.)

i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam? (See Flooding Impact HYD-2.)

j) Inundation by seiche, tsunami, or mudflow? (See Section 6.9.8, Seiche, Tsunami, or Mudflow)

3.7.4 - Project Impact Analysis and Mitigation Measures

This section discusses potential impacts associated with the proposed project and provides mitigation measures where necessary.

Structures: Flood Hazard Area

Impact HYD-1	**The project would not place within a 100-year flood hazard area structures which would impede or redirect flood flows.**

Impact Analysis

As identified previously, a portion of the proposed pipeline and the offsite triangular parcel are located in Zone A as designated by the FEMA FIRM maps. According to the FIRM maps, Zone A is an area subject to inundation by a 100-year flood. The portion of the proposed pipeline that is located in the 100-year flood area is along Beaumont Avenue from Brookside Avenue to Vineland Street. The entire offsite triangular parcel is located within the 100-year flood area.

The proposed pipeline includes a structure; however, the pipeline structure would be located underground. Although the 100-year flood zone overlays the pipeline alignment along Beaumont Avenue, the subsurface location of the proposed pipeline would prevent any impacts related to impeding flood flows. Therefore, the proposed pipeline would result in no impacts to impeding or redirecting flood flows.

The offsite triangular parcel that could potentially be used for a staging area and/or for depositing excess excavated soil. The storage of construction equipment, vehicles, and materials on the offsite triangular parcel during project construction would be temporary and would cease upon the completion of construction activities. No permanent structures or other improvements would be placed on the parcel as a result of using this location as a staging area. If the parcel is used for depositing soils, the estimated maximum soil deposit is approximately 28,000 cubic feet which if distributed evenly throughout the four acres (174,240 square feet [sq ft]) that are available for soil deposit would alter the existing topography by approximately 0.16 feet (2 inches) (174, 240 sq ft/28,000 cubic feet = 0.16 feet). The alteration of the offsite triangular parcel by approximately 2 inches would not substantially impede or redirect flood flows. As a result, the activities associated with the offsite triangular parcel would result in less than significant flooding impacts from impeding or redirecting flood flows.

The proposed recharge facility includes above ground structures; however, since this facility is located outside of the 100-year flood zone, the proposed facilities would not impede or redirect flood flows. The northwestern and northern slopes of the proposed recharge facility are proposed to be located near the southern bank of Noble Creek; however, there is a buffer area between the slopes of the proposed recharge basin and the area designated as a 100-year flood zone (i.e., Noble Creek). If the southern banks of Noble Creek in the area of the proposed recharge basin erode due to scouring during high water storm events within Noble Creek, there could be a possibility, although speculative, that erosion could impact up to four of the individual basins within the recharge facility. The closest distance from the southern bank of Noble Creek to the access road proposed around the perimeter of the recharge basins is as follows: 145 feet to the access road adjacent to Basin 1, 73 feet to the access road adjacent to Basin 2, 49 feet to the access road adjacent to Basin 3, and 29 feet to the access road

adjacent to Basin 4. Based on these distances, there is a low probability that erosion from a single storm event would result in significant impacts to the proposed recharge facility. Under long-term conditions, erosion from multiple storm events could result in impacts, although speculative, to the proposed recharge facility and result in water from one or more of the basins to flow into Noble Creek. However, it would be unlikely that SGPWA would not continue maintenance of the recharge facility that would include insuring that the recharge basins are not affected due to scouring and erosion. The activities associated with the proposed recharge facility are not expected to cause significant flooding impacts from impeding or redirecting flood flows.

In addition, there was a review of the elevations of the recharge basin floors in comparison with the current elevations that are west of the recharge facility site which is an area planned, approved, but not yet constructed for future residential development. The elevations of the basin floors will be lower than the adjacent property and the potential for recharged water to travel horizontally and vertically to the adjacent site is not considered probable because there are no clay layers that were found on the recharge facility site that would allow recharge water to travel horizontally. Therefore, it is unlikely that the proposed recharge facility would cause flooding of the property to the west.

Flooding impacts associated with the proposed recharge facility are considered less than significant.

The service connection site is located outside of the 100-year flood hazard area, and as a result, the service connection facility would not impede or redirect flood flows in the event of a 100-year flood. Therefore, the structure proposed at the service connection site would not cause flooding impacts related to impeding or redirecting flood flows.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation measures are required.

Level of Significance After Mitigation

Less than significant impact.

Flooding

Impact HYD-2	**The project would not expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam.**

Impact Analysis

As addressed in Impact HYD-1, structures and others aboveground improvements are proposed for both the recharge facility site and the service connection site. The pipeline would be located underground, and although the 100-year flood zone overlays the pipeline alignment along Beaumont Avenue, the subsurface location of this improvement would prevent any flooding impacts to the

pipeline resulting from a failure or a levee or dam. The service connection site is located outside of the 100-year flood hazard area, and as a result, the service connection facility would not be exposed to flooding impacts resulting from a failure of a levee or dam upstream.

As described above in Impact HYD-1, the proposed recharge facility includes above ground structures; however, since this facility is located outside of the 100-year flood zone, the proposed facilities would not impede or redirect flood flows. Furthermore, if there was a levee or dam failure upstream, the areas identified within the 100-year flood zone would be affected prior to areas that are outside of the 100-year flood zone. As a result, it is unlikely that the proposed recharge facility would be significantly affected due to a levee or dam failure upstream.

The offsite triangular parcel that could potentially be used for a staging area and/or for depositing excess excavated soil. The storage of construction equipment, vehicles, and materials on the offsite triangular parcel during project construction would be temporary and would cease upon the completion of construction activities. No permanent structures or other improvements would be placed on the parcel as a result of using this location as a staging area. Therefore, the use of this offsite triangular parcel would not expose people or structures to long-term significant flooding impacts due to a failure of a levee or dam.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation measures are required.

Level of Significance After Mitigation

Less than significant impact.