V.L. WATER QUALITY

This section addresses potential impacts to hydrology and water quality resulting from implementation of the proposed project. The *Water Quality Assessment Report: Willow Road Extension/US 101 Interchange Project* (LSA 2005) was reviewed and incorporated into this analysis. This document is provided in Volume III, Appendix J.

1. Existing Conditions

Surface Water Hydrology. In the project area, slopes west of US 101 are generally 2 to 10 percent with some areas between 10 and 20 percent. This type of topography is characterized by localized depressions, but significant evidence of ponding water does not occur.[1]

Within the project area, surface runoff generally drains towards Nipomo Creek, which discharges to the Santa Maria River about four miles downstream. Nipomo Creek is an ephemeral drainage and secondary waterway[2] and runs from the northwest to southeast within the project area. Two culverts both convey runoff from US 101 to the fields east of US 101. These culverts drain into earthen ditches, which eventually disappear as the topography levels out. Recent grazing activities have heavily impacted the portion of Nipomo Creek within the project area.

The 100-year floodplain of Nipomo Creek in the project area varies between approximately 300 and 600 feet in width.[3] The remainder of the project area is not within the 100-year floodplain.[4]

Groundwater Hydrology. The project site is located in the Santa Maria River Valley Groundwater Basin, at the border of the Lower Nipomo Mesa Hydrologic Sub-Area (HSA) and the Nipomo Valley Subbasin. Groundwater is unconfined in most of the basin except in the coastal areas. The average thickness of the water-bearing materials is 1,000 feet, with a maximum thickness of 2,800 feet.[5] Groundwater flow in the Santa Maria River Valley Groundwater Basin is generally westward toward the Pacific Ocean. However, a large groundwater depression lies below the Nipomo Mesa (west of Pomeroy Road) and local groundwater flows towards this depression.[6] The inferred location of the Wilmar Avenue Fault, parallel to Nipomo Creek in the project area, may restrict groundwater movement.[7]

In the project area, groundwater levels are anticipated to be at an elevation of about 225 feet above mean sea level.[8] With elevation of the project area mapped at 360 feet above mean sea level,[9] groundwater is anticipated to be found at least 135 feet below ground surface.

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1 Westland Engineering Company. 1997. *Engineer's Report for Drainage, Erosion and Sedimentation*. September. (Prepared for the 1999 Final EIR.)
2 As defined in the County of San Luis Obispo *Standard Improvement Specifications and Drawings.*
3 Martin & Kane Consulting Engineers. 1997. *Preliminary Hydraulic Analysis for the Willow Interchange Project.* July 1.
4 *Flood Insurance Rate Map No. 0603040750C*, July 18, 1985.
5 California Department of Water Resources. 2004. *California's Groundwater*, *Bulletin 118 Update*. February 27.
6 Ibid.
7 California Department of Water Resources, Southern District, *Water Resources of the Arroyo Grande-Nipomo Mesa Area*, 2002.
8 Ibid.
9 USGS 7.5 Minute Quadrangle Map, *Nipomo.*

Water Quality. The Central Coast Regional Water Quality Control Board (CCRWQCB) conducts surface water quality testing as part of its Central Coast Ambient Monitoring Program (CCAMP) within its jurisdiction. CCRWQCB conducted testing at two locations along Nipomo Creek: Tefft Street and State Route 166 (about 1.5 and 4 miles downstream of the project site, respectively). Results of this testing for Nipomo Creek are provided in Table V.L-1. Table V.L-1 shows that the geomean (geometric average of both locations over several sampling dates) for total and fecal coliform, nitrate, total dissolved solids, chloride, sodium, and sulfate exceed the applicable criteria.

List of Impaired Waters. The 2002 303(d) impaired waters list for California shows 9.3 miles of Nipomo Creek listed for fecal coliform. This impairment is evident in the sampling data provided in Table V.L-1. Total Maximum Daily Loads (TMDLs) must be prepared by the CCRWQCB for impairments based on priority level. The preparation of a TMDL for this impairment is rated as a low priority.[1]

Regional Water Quality. Surface water impacts in the Santa Maria River Watershed are not well defined; the most evident surface water issue is the reduction in capacity at the Twitchell Reservoir due to sedimentation.[2]

The Santa Maria Valley Groundwater Basin, including the Nipomo Mesa, has a history of high nitrate and total dissolved solids concentrations, particularly in the vicinity of the Cities of Santa Maria and Guadalupe. From 1994 to 2000, the average concentration for total dissolved solids in public supply wells ranged from 139 to 1,200 mg/l with an average of 598 mg/l.[3] The CCRWQB attributes regional groundwater impairments to nonpoint source pollution from agriculture and urban activities.[4] A few wells, mostly in the northern part of the basin (not in the vicinity of the project site) show nitrate concentrations that exceed the Maximum Contaminant Level (MCL) for nitrate.[5] Groundwater quality worsens across the Valley in the direction of flow (westward).[6] Table V.L-2 shows the number of public supply wells that exceeded the MCL for a particular constituent during the sampling years of 1994 to 2000.

1 www.swrcb.ca.gov
2 CCRWQCB *Watershed Management Initiative*, January 2002.
3 California Department of Water Resources. 2004. *California's Groundwater*, *Bulletin 118 Update*, February 27.
4 CCRWQCB *Watershed Management Initiative*, January 2002.
5 California Department of Water Resources. 2004. *California's Groundwater*, *Bulletin 118 Update*, February 27.
6 CCRWQCB *Watershed Management Initiative*, January 2002.

Table V.L-1: CCRWQCB Water Quality Monitoring in Nipomo Creek

Analyte	Max	Min	Mean	Geomean	No. of Samples	Hits	%	Sampling Period	Criteria	Reference
Ammonia as N, Total	1.4	0.008	0.098	0.049	26	0		01-2000 to 03-2001	2.4	California Ocean Plan Daily Maximum
Chloride	184	50	116	113	26	15	58	01-2000 to 03-2001	106	Basin Plan Increasing problems for agriculture
Coliform, Fecal	9,000	10	2394	987	25	20	80	01-2000 to 03-2001	200	Basin Plan REC-1 as (geomean)
Coliform, Total	80,000	790	11,158	6,359	26	24	92	01-2000 to 03-2001	1,000	Basin Plan REC-1 (as geomean)
Dissolved Solids, Total	1,538	506	844	817	26	26	100	01-2000 to 03-2001	750	Basin Plan Increasing problems for agriculture
Nitrate as N	6.3	0.043	3.061	2.769	26	12	46	01-2000 to 03-2001	2.25	CCAMP Screening Level
Nitrite as N	0.066	0.005	0.042	0.036	26	0		01-2000 to 03-2001	0.1	CCAMP Screening Level
Oxygen, Dissolved	15.6	5.3	9.4	9.1	31	4	13	01-2000 to 03-2001	7	Basin Plan COLD
pH	8.33	7.37	7.94	7.937	32	1	03	01-2000 to 03-2001	7	Basin Plan MUN
Sodium	164	60	100	98	26	23	88	01-2000 to 03-2001	69	Basin Plan Increasing problems for agriculture
Sulfate	260	120	181	179	14	14	100	08-2000 to 03-2001	100	CCAMP Screening Level (75th percentile)
Suspended Solids, Total	50	2.5	23.7	19.5	26	5	19	01-2000 to 03-2001	37	CCAMP Screening Level (75th percentile)
Turbidity (NTU)	65.2	0.4	13.6	9.5	28	16	57	01-2000 to 03-2001	10	CCAMP Screening Level –Dry Season

Source: www.ccamp.org.

Definitions

Max: The maximum value measured at the site or water body.
Min: The minimum value measured at the site or water body.
Mean: The mean average at the site or water body.
Geomean: The geometric mean average at the site or water body for samples taken on different dates.
Hits: The number of times the water quality criteria was exceeded at the site or water body.
Criteria: The water quality criteria value used for screening purposes.
Reference: The name of the water quality criteria being used for screening purposes.

Table V.L-2: Water Quality in Public Wells

Constituent	Number of Wells Sampled	Number of wells with a concentration above an MCL
Inorganics-Primary Standards	81	2
Radiological	79	1
Nitrates	81	15
Pesticides	79	0
Volatile and Semi-Volatile Organics	79	1

Source: California Department of Water Resources, *California's Groundwater*, *Bulletin 118 Update*, February 27, 2004.

Pollutants of Concern. Several pollutants are commonly associated with storm water runoff, including sediment, nutrients, organic compounds, trash and debris, oxygen-demanding substances, bacteria and viruses, oil and grease, pesticides, and heavy metals. These pollutants are described in more detail below.

Sediments. Natural sediment loads are important to downstream environments by providing habitat, substrate, and nutrition; however, increased sediment loads can result in several negative effects to downstream environments. Excessive sediment can be detrimental to aquatic life by interfering with photosynthesis, respiration, growth, and reproduction. In addition, pollutants that adhere to sediment, such as nutrients, trace metals, and hydrocarbons, can have other harmful effects on the aquatic environment when they occur in elevated levels.

Nutrients. Nutrients are typically composed of phosphorus and/or nitrogen. Elevated levels in surface waters cause algal blooms and excessive vegetative growth. As nutrients are absorbed, the vegetative growth decomposes; utilizing oxygen in the process and reducing dissolved oxygen levels. Dissolved oxygen is critical for support of aquatic life. The ammonium form of nitrogen (found in wastewater discharges) converts to nitrite and nitrate in the presence of oxygen, which further reduces the dissolved oxygen levels in water.

Organic Compounds. Organic compounds are carbon-based and are found in pesticides, solvents, and hydrocarbons. Elevated levels can indirectly or directly constitute a hazard to life or health. During cleaning activities, these compounds can be washed off into storm drains. Dirt, grease, and grime may adsorb concentrations that are harmful or hazardous to aquatic life.

Trash and Debris. Trash and debris can have a significant effect on the recreational value of a water body and aquatic habitat. It also can interfere with aquatic life respiration and can be harmful or hazardous to aquatic animals that mistakenly ingest floating debris.

Oxygen-Demanding Substances. Oxygen-demanding substances include plant debris (such as leaves and lawn clippings), animal wastes, and other organic matter. Microorganisms utilize dissolved oxygen during consumption of these substances, which reduces a water body's capacity to support aquatic life.

Bacteria and Viruses. Bacterial levels in urban runoff can exceed public health standards for water contact recreation, creating a harmful environment. The source is animal or human fecal

wastes. Bacteria and viruses thrive under certain conditions and can alter the aquatic habitat and create a harmful environment for aquatic life.

Oil and Grease. Primary sources of oil and grease are petroleum hydrocarbon products, motor products from leaking vehicles, fats, and waxes. Elevated oil and grease concentrations can affect the aesthetic value of the water body and can create a harmful environment for aquatic life.

Heavy Metals. Bioavailable forms of trace metals are toxic to aquatic life. The most common metals found in urban runoff are lead, zinc, and copper. Sources of heavy metals in surface waters include emissions and deposits from automobiles, industrial wastewater, and common household chemicals. At high concentrations, metals are toxic to aquatic life. Humans can be impacted from contaminated groundwater resources and from bioaccumulation of metals in fish and shellfish.

2. Thresholds of Significance

Discharges into waters of the United States are subject to the regulatory authority of the U.S. Army Corps of Engineers (Corps) under Section 404 of the federal Clean Water Act (CWA); the State Water Resources Control Board (SWRCB) and the CCRWQCB under Sections 401, 402, and 303(d) of the CWA and the California Porter-Cologne Water Quality Acts, and by the California Department of Fish and Game (CDFG) under Section 1602 of the California Fish and Game Code. According to the County of San Luis Obispo Initial Study Checklist, a project would have a significant impact if it results in the following effects:

- The project violates any water quality standards;
- The project discharges into surface waters or otherwise alters surface water quality;
- The project changes the quality of groundwater;
- The project changes the quantity or movement of available surface or groundwater;
- The project adversely affects community water service provider.

Federal Requirements of the Clean Water Act

Section 404. The Corps regulates discharges or fills into waters of the United States under Section 404 of the CWA via the Nationwide Permit (NWP) or Individual Permit program. There are several categories of NWPs, and these can be utilized for projects that fall under specific categories. A Preconstruction Notification (PCN) to the Corps district engineer is required for most activities that result in the loss of greater than 1/10 acre of waters of the U.S. The Corps reviews the PCN on a case-by-case basis to determine if the adverse effects (on the aquatic environment) of proposed work are minimal. The Corps will also determine if a particular drainage is considered to be waters of the U.S. and if it is subject to regulation under Section 404.

Section 402. Direct discharges of pollutants into waters of the U.S. are not allowed, except in accordance with the National Pollutant Discharge Elimination System (NPDES) program established in Section 402 of the CWA. The major purpose of the NPDES program is to protect human health and the environment. Pursuant to the NPDES program, permits that apply to storm water discharges from municipal storm drain systems, specific industrial activities, and

construction activities (one acre or more) have been issued. NPDES permits establish enforceable effluent limitations on discharges, require monitoring of discharges, designate reporting requirements, and require the permittee to perform best management practices (BMPs). Industrial (point source) storm water permits are required to meet effluent limitations; municipal permits are governed by the maximum extent practicable (MEP) or Best Available Technology (BAT)/Best Control Technology (BCT) application of BMPs.

On July 15, 1999, the SWRCB issued a statewide general NPDES Permit (Order No. 99-06-DWQ) to Caltrans, which regulates storm water discharges from Caltrans properties, facilities, and (maintenance) activities and requires that Caltrans construction program complies with the requirements of the State General Construction Activity Storm Water Permit (Order No. 99-08-DWQ). Caltrans Statewide Storm Water Management Plan (SWMP) describes the methods for complying with the Department's NPDES Permit.

General Construction Activity NPDES Permit. In accordance with NPDES regulations, the State of California requires that any construction activity disturbing one acre or more of soil comply with the State General Construction Activity Storm Water Permit (Water Quality Order 99-08-DWQ). To obtain authorization for proposed storm water discharges pursuant to this permit, the landowner (discharger) is required to submit a Notice of Intent to the SWRCB, prepare a Storm Water Pollution Prevention Plan (SWPPP), and implement BMPs detailed in the SWPPP during construction activities. Dischargers are required to implement Best Available Technology Economically Achievable (BAT) and Best Conventional Pollutant Control Technology (BCT) to reduce or eliminate storm water pollution. The purpose of the SWPPP is to prevent all construction pollutants from contacting storm water and to keep all products of erosion from moving off site into receiving waters. Certain discharges of nonstorm water, such as irrigation, pipe flushing and testing, and dewatering, are permitted as long as they do not cause or contribute to a violation of any water quality standard; violate any provision of the General Permit; require a nonstorm water permit (such as that issued by RWQCB); or violate provisions of the Basin Plan. A general description of typical construction BMPs is provided in Table V.L-3.

SWRCB Resolution 2001-046 modified the General Construction Permit to require preparation of a sampling plan for sampling runoff and conducting laboratory analysis of the runoff under certain conditions. That is, sampling is required where runoff from a construction site discharges *directly* into impaired waters due to sediment/siltation or turbidity, if there is exposure of a pollutant source to storm water that enters a storm drain or surface water (i.e., BMP failure), or where a previous corrective action has been issued. Although Nipomo Creek is not a waterway that is impaired due to sediment/siltation or turbidity, because construction activities could result in construction site discharge directly into Nipomo Creek, sampling may be required.

The County of San Luis Obispo is subject to the requirements of the *State Water Resources Control Board (SWRCB) Water Quality Order No. 2003-0005-DWQ, National Pollutant Discharge Elimination System (NPDES) General Permit No. CAS000004, Waste Discharge Requirements (WDRs) for Storm Water Discharges from Small Municipal Separate Storm Sewer Systems (General Permit)* (April 30, 2003). The region within the County subject to these requirements must at least include all urbanized areas. The General Permit requires permittees to develop and implement a Storm Water Management Program (SWMP) that describes BMPs, measurable goals, and timetables for implementation in the following six program areas:

Table V.L-3: Typical Construction BMPs

Construction BMPs for incorporation, where applicable, into the SWPPP	Sediment	Nutrients	Pathogens	Pesticides	Metals	Other
Soil and slope stabilization utilizing the appropriate combination of natural and synthetic mattings, geotextiles, mulches, and temporary and permanent seeding.	X	X			X	
Temporary desilting basins constructed where necessary and consisting of ponds with outflow pipes designed to retain or detain runoff sufficiently to allow sediment to settle.	X	X			X	
Storm drain inlet protection utilizing an appropriate combination of barrier devices such as sandbags, straw rolls, hay bales, fiber rolls, gravel, silt fencing, screens, and temporary drain signs (raising awareness and limiting construction wastes from entering the storm drain system).	X	X			X	Trash
Energy dissipation devices installed where necessary and consisting of physical devices such as rock, riprap, and concrete rubble intended to prevent scour of downstream areas.	X	X			X	
On-site dust control and street sweeping employed when and where necessary, paying close attention to paved areas and areas susceptible to wind erosion (such as soil stockpiles).	X	X			X	Trash
Stabilized construction entrance consisting of pads of aggregate and located where traffic enters public rights-of-way; when and where necessary, wash racks or tire rinsing may be employed (tire rinse waters being directed through on-site sediment control devices).	X				X	
Diversion Structures consisting of devices such as silt fencing, temporary or permanent channels, V ditches, earthen dikes, downdrains, straw bales, and sandbag check dams should be utilized where necessary to divert storm water flows from disturbed areas.	X				X	Trash
Adherence to Groundwater Extraction Permit conducting required testing, monitoring, and discharge provisions for activities, including dewatering and foundation dewatering.	X				X	
Construction housekeeping practices consisting of practices such as barricading catch basins and manholes during paving activities; utilizing plastic sheeting, secondary containment, or bermed areas for construction materials when necessary; removing construction debris in a timely fashion; designating and lining concrete wash out areas; and berming or locating sanitary facilities away from paved areas.	X		X		X	Trash
Fertilizer, pesticide, and soil amendment management, including not over-applying such materials.		X		X		

Source: California Stormwater BMP Handbooks (2003).

- Public Education;
- Public Participation;
- Illicit Discharge Detection and Elimination;
- Construction Site Storm Water Runoff Control;
- Post-construction Storm Water Management; and
- Pollution Prevention/Good Housekeeping for Municipal Operations.

In particular, the County must develop and implement strategies, which include a combination of appropriate structural and/or nonstructural BMPs to be incorporated into new development and redevelopment projects. Source Control BMPs are pollution prevention practices that are designed to reduce pollutants in runoff from a project site (e.g., street sweeping, drainage system maintenance). Treatment BMPs are structural devices that physically remove pollutants in runoff (e.g., infiltration basins, vegetated swales).

Section 401. Section 401 of the CWA specifies that any applicant for a federal license or permit to conduct any activity, including, but not limited to, the construction or operation of facilities that may result in any discharge into navigable waters, shall provide the federal licensing or permitting agency a certification from the State in which the discharge originates or will originate from the State agency with jurisdiction over those waters (CCRWQCB) that the project will comply with water quality standards, including beneficial uses, water quality objectives, and the State antidegradation policy.

Section 303. Section 303(d) of the CWA requires that the State adopt water quality objectives for surface waters. The Basin Plan contains water quality objectives that are considered necessary to protect the specific beneficial uses it identifies. Section 303(d) specifically requires the State to develop a list of impaired water bodies and subsequent numeric Total Maximum Daily Load (TMDLs)[1] or whichever constituents impair a particular water body. These constituents include inorganic and organic chemical compounds, metals, sediment, and biological agents.

State Requirements. The CDFG, through provisions of the California Fish and Game Code (Section 1602), is empowered to issue agreements for any alteration of a river, stream, or lake where fish or wildlife resources may be adversely affected. Streams and rivers are defined by the presence of a channel bed and banks, and at least an intermittent flow of water. The CDFG typically extends the limits of their jurisdiction laterally beyond the channel banks for streams that support riparian vegetation. In these situations, the outer edge of the riparian vegetation is generally used as the lateral extent of the stream and CDFG jurisdiction.

[1] The TMDL is the total amount of a constituent that can be discharged while meeting water quality objectives and protecting beneficial uses. It is the sum of the individual load allocations for point source inputs (e.g., an industrial plant), load allocations for nonpoint source inputs (e.g., runoff from urban areas), and natural background, with a margin of safety.

CDFG regulates wetland areas only to the extent that those wetlands are a part of a river, stream, or lake as defined by CDFG. While seasonal ponds are within the CDFG definition of wetlands, they are not part of a river, stream, or lake and may, or may not, be subject to the jurisdiction of CDFG under Section 1602 of the Fish and Game Code.

Regional and Local Requirements. As part of standard County of San Luis Obispo practices, an Erosion Control and Sedimentation Plan for each development and roadway project is prepared that identifies the proposed methods for controlling runoff, erosion, and sediment movement for review and approval by the appropriate director for projects within its jurisdiction (Section 22.05.020 of the County Land Use Ordinance). In addition, Section 22.52.100 of the County Land Use Ordinance requires groundwater recharge elements to be included in the project design except under specific conditions: existing high groundwater, no impervious area is created with the development, recharge would create geologic instability, no additional runoff will occur with development, or federal or State regulations prohibit recharge.

Water Quality Objectives. As required by the Porter-Cologne Act, the CCRWQCB has developed water quality objectives for waters within its jurisdiction to protect the beneficial uses of those waters and has published them in the Basin Plan. The Basin Plan also establishes implementation programs to achieve these water quality objectives and requires monitoring to evaluate the effectiveness of these programs. Water quality objectives must comply with the State antidegradation policy (State Board Resolution No. 68-16), which is designed to maintain high-quality waters while allowing some flexibility if beneficial uses are not unreasonably affected.

Surface Water Quality Objectives. There are no specific water quality objectives listed for Nipomo Creek in the Basin Plan. Surface water quality objectives for all inland waters are listed in Table V.L-4. Maximum concentrations applicable to Nipomo Creek are listed in Table V.L-5.

Groundwater Quality Objectives. General groundwater quality objectives for the Central Basin and specific objectives for Lower Nipomo Mesa are provided in Table V.L-6 below.

3. Project Impacts

Potential Construction Impacts to Water Quality. Pollutants of concern during construction include sediments, trash, petroleum products, and chemicals. Each of these pollutants on its own or in combination with other pollutants can have a detrimental effect on water quality and aquatic habitats. Both the proposed road construction and the proposed bridge construction over Nipomo Creek have the potential to introduce pollutants into Nipomo Creek. Because the bridge will be constructed within and above the river, there is a greater potential for pollutants (e.g. sediments, organic compounds, or pathogens) to enter the creek from bridge construction than from road construction. Bridge construction may therefore necessitate innovative BMPs, more frequent inspections, and more deliberate work processes, etc., with respect to water quality protection. However, because road construction could also cause sediments and other pollutants to enter Nipomo Creek, BMPs shall focus on protecting water quality during road construction in addition to protecting water quality during bridge construction. Under the applicable NPDES permits, the County and Caltrans are required to implement BMPs using BAT/BCT. If Construction BMPs are properly designed, implemented, and maintained as prescribed in Mitigation Measures L-1 and L-2, significant adverse water quality impacts would be reduced to less than significant.

Table V.L-4: Surface Water Quality Objectives for Inland Waters

Constituent	Concentration
Color	Shall not cause nuisance or adversely affect beneficial uses.
Tastes and Odors	Shall not cause nuisance or adversely affect beneficial uses or cause undesirable tastes or odors to edible organisms.
Floating Material	Shall not cause nuisance or adversely affect beneficial uses.
Suspended Material	Shall not cause nuisance or adversely affect beneficial uses.
Settleable Material	Shall not cause nuisance or adversely affect beneficial uses.
Oil and Grease	Shall not cause nuisance or adversely affect beneficial uses or visible film on water surface.
Biostimulatory Substances	Shall not cause nuisance or adversely affect beneficial uses.
Sediment	Shall not cause nuisance or adversely affect beneficial uses.
Turbidity	Where natural turbidity is between 50 and 100 JTU, increases shall not exceed 10 JTU. Where natural turbidity is greater than 100 JTU, increases shall not exceed 10 percent.
Dissolved Oxygen	Shall not be less than 5.0 mg/l (milligrams per liter).
Toxicity	Shall be free of toxic substances in concentrations that are toxic to or that produce detrimental physiological responses in life forms.
Pesticides	Shall not reach concentrations that adversely affect beneficial uses. Shall not increase concentrations in bottom sediments or aquatic life.
Bacteria (fecal coliform)	Five samples for any 30-day period shall not exceed a log mean of 2000/100 ml, nor shall ten percent of samples during any 30-day period shall not exceed 4000/ml.
pH	Shall not be depressed below 6.5 nor raised above 8.3.
Radioactivity	Shall not be present in concentrations that are deleterious to life forms.
	Not to be exceeded levels
Methylene Blue Activated Substances	0.2 mg/l
Phenols	0.1 mg/l
PCBs	0.3 μg/l (micrograms per liter)
Phthalate Esters	0.002 μg/l

Source: *Water Quality Control Plan, Central Coast Region.*

Table V.L-5: Maximum Concentrations Applicable to Nipomo Creek

Constituent	Applicable Beneficial Use	Concentration
pH	All	Shall not be depressed below 7.0 or raised above 8.3.
Radioactivity	MUN[1]	Not in excess of limits in 22 CCR 15 §64441 and 64443, Table 4
Endrin	MUN	0.0002 mg/l
Lindane	MUN	0.004 mg/l
Methoxyclor	MUN	0.1 mg/l
Toxaphene	MUN	0.005 mg/l
2,4-D Chlrophenoxys	MUN	0.1 mg/l
2,4,5-TP Silvex	MUN	0.01 mg/l
Atrazine	MUN	0.003 mg/l
Bentazon	MUN	0.018 mg/l
Benzene	MUN	0.001 mg/l
Carbon Tetrachloride	MUN	0.0005 mg/l
Carbofuran	MUN	0.018 mg/l
Chlordane	MUN	0.0001 mg/l
1,2-Dibromo-3-chloropropane	MUN	0.0002 mg/l
1,4-Dichlorobenzene	MUN	0.005 mg/l
1,1-Dichloroethane	MUN	0.005 mg/l
1,2-Dichloroethane	MUN	0.0005 mg/l
cis-1,2-Dichloethylene	MUN	0.006 mg/l
trans-1,2-Dichloroethylene	MUN	0.01 mg/l
1,1-Dichloroethylene	MUN	0.006 mg/l
1,2-Dichloropropane	MUN	0.005 mg/l
1,3-Dichloropropene	MUN	0.0005 mg/l
Di(2-ethylhexyl) phthalate	MUN	0.004 mg/l
Ethylbenzene	MUN	0.680 mg/l
Ethylene Dibromide	MUN	0.00002 mg/l
Glyphosate	MUN	0.7 mg/l
Heptachlor	MUN	0.00001 mg/l
Heptachlor epoxide	MUN	0.00001 mg/l
Molinate	MUN	0.02 mg/l
Monochlorobenzene	MUN	0.030 mg/l
Simazine	MUN	0.010 mg/l
1,1,2,2-Tetrachloroethane	MUN	0.001 mg/l
Tetrachloroethylene	MUN	0.005 mg/l
Thiobencarb	MUN	0.07 mg/l
1,1,1-Trichloroethane	MUN	0.200 mg/l
1,1,2-Trichloroethane	MUN	0.032 mg/l
Trichloroethylene	MUN	0.005 mg/l
Trichlorofluoromethane	MUN	0.15 mg/l
1,1,2-Trichloro-1,2,2-Trifluoroethane	MUN	1.2 mg/l
Vinyl Chloride	MUN	0.0005 mg/l
Xylenes	MUN	1.750 mg/l
Aluminum	MUN	1 mg/l
Arsenic	MUN	0.05 mg/l
Selenium	MUN	0.01 mg/l
Silver	MUN	0.05 mg/l
Barium	MUN	1 mg/l
Cadmium	MUN	0.010 mg/l
Chromium	MUN	0.05 mg/l
Copper	AGR	0.2 mg/l
Lead	MUN	0.05 mg/l
Mercury	MUN	0.002 mg/l
Nickel	AGR	0.2 mg/l
Vanadium	AGR	0.1 mg/l
Zinc	AGR	2.0 mg/l

Source: *Water Quality Control Plan, Central Coast Region (September 8, 1994).*

[1] MUN = Municipal and domestic supply
AGR = Agricultural supply

Table V.L-6: Groundwater Quality Objectives for the Lower Nipomo Mesa

Constituent	Concentration
Tastes and Odors	Shall not contain taste or odor producing substances in concentrations that adversely affect beneficial uses.
Radioactivity	Shall not be in excess of limits specified in 22 CCR, Chap. 15, Section 64443, Table 4.
	Median groundwater objectives, mg/l
Total Dissolved Solids	710
Chlorine	95
Sulfate	250
Boron	0.15
Sodium	90
Nitrates as Nitrogen	5.7

Source: *Water Quality Control Plan, Central Coast Region.*

Potential Postconstruction/Operational Impacts to Water Quality. Pollutants of concern during operation of a transportation facility include sediments, trash, petroleum products, metals, and chemicals.[1] An increase in impervious area will increase the volume of runoff during a storm, which will more effectively transport pollutants to receiving waters and may lead to downstream erosion. In addition, an increase in impervious surface will alter the character of the runoff (from agricultural runoff to road/vehicular runoff) thereby increasing the amount of pollutants and impacting surface water and groundwater quality. Overall, the increase in impervious area has the potential to significantly impact water quality. Source Control BMPs and Treatment BMPs are required for the project.

In order to be consistent with Caltrans guidelines, the County will install and maintain vegetated strips/swales. The proposed infiltration basins will be designed to capture the calculated Water Quality Volume (WQV) that must be treated as determined by County and Caltrans requirements and infiltrate it directly into the soil instead of discharging to receiving waters. Therefore, some pollutants in runoff from the proposed project would be trapped in vegetated strips/swales and the remainder would be captured in the infiltration basins and filtered through the soil. (Refer to Tables V.L-8 and V.L-9. under Section 5, Mitigation Measures.) The County and Caltrans shall monitor and maintain the Treatment BMPs within their respective rights-of-way. Adherence to County and Caltrans requirements as presented in Mitigation Measure L-3 will reduce potential adverse impacts to water quality after construction to less than significant.

4. Cumulative Impacts

Construction of transportation facilities and other development projects have the potential to impact water quality due to the increase in impervious area, erosion during construction, and introduction of additional pollutants. As a result, Caltrans and municipalities have been issued NPDES permits with requirements that are designed to protect receiving waters in the State. Each new project involving an acre or more of disturbance, must comply with these requirements as applicable in order to prevent further degradation of water quality in the water body that receives the project's runoff. At the same

[1] Caltrans *Storm Water Quality Handbooks, Project Planning and Design Guide,* September 2002.

time, the State's antidegradation policy allows for flexibility in determining whether additional discharges of pollutants in runoff will affect the beneficial uses of a receiving water. In order to control and offset potential impacts, the proposed project, along with other projects in the area, is required to comply with applicable ordinances and regional and State water quality programs, enforced through review of storm water management plans and SWPPPs. Through compliance with these programs and in combination with the BMPs that will be implemented as part of the project, project and cumulative impacts on water quality would be addressed and effectively controlled.

The Nipomo Mesa HSA, which is the cumulative impact study area for purposes of this analysis, consists of relatively low-density land uses such as residences and shops within the community of Nipomo, open space, agricultural and rural residential properties on the mesa and in the foothills, and urban uses near the coast. Suburban residential development is increasing on the Nipomo Mesa.[1] Development projects that increase storm water flows and impervious area, thereby increasing storm water pollutant loads, are required to be reviewed carefully for water quality compliance.

Although most of the Nipomo mesa drainage is handled by undrained depressions which result in little or no surface water flow, creation of impervious areas due to development increases storm flows by providing a smooth surface for runoff and by preventing infiltration into the soil. Pollutant build-up on impervious area is more easily transported into storm drains and receiving waters. In addition, impervious area due to development is often associated with new pollutant sources (vehicles, household chemicals, pet waste, etc.) and/or increased pollutant concentrations (higher density developments). Increases in impervious area have the potential to impair surface water quality and groundwater quality (especially high groundwater). In addition, impervious area prevents precipitation from percolating through the soil. This can be detrimental in groundwater recharge areas because it prevents recharge of aquifers used for water supply.

The proposed project will not adversely impact water quality with implementation of a series of BMPs in accordance with NPDES requirements for pollutants of concern. That is, the increase in pollutant loading resulting from the proposed interchange and roadway extension would be offset by the Construction BMPs and Treatment BMPs proposed as part of the project. Likewise, other projects in the Nipomo Mesa HSA are required to be reviewed by local, regional, and State jurisdictions and would be evaluated against requirements similar to those for the proposed project. Should similar procedures be followed for future projects within the watershed area, such as the County requirement for groundwater recharge subject to certain conditions, appropriate Construction BMPs, and Treatment BMPs, the cumulative projects would not substantially impact surface water or groundwater quality. Therefore, the proposed project will not, either by itself or in combination with other reasonably foreseeable projects, cause significant cumulative impacts to water quality.

5. Mitigation Measures

Standard Procedures and Practices. In order to prevent degradation of water quality with construction of roadway improvements within a relatively undeveloped area, the County and Caltrans will implement standard procedures and BMPs. These procedures and BMPs will be consistent with the County municipal code as well as the County SWMP and the Model Urban Runoff Program for

[1] San Luis Obispo Council of Governments. 2001. *Regional Transportation Plan*.

small municipalities (developed by various local jurisdictions and the CCRWQCB[1]). Procedures and BMPs will also be consistent with the Caltrans SWMP as applicable. The SWRCB lists the California Stormwater BMP Handbooks as providing guidance on selecting BMPs for reducing pollutants in stormwater discharges.[2] Routine Nonstructural and Structural Source Control BMPs applicable to the project are provided in Table V.L-7. Pollutants of concern and applicable Caltrans-approved Treatment BMPs are provided in Table V.L-8.

Structural Treatment BMPs that will be incorporated as part of the project include two infiltration basins and vegetated swales or vegetated buffer strips. The vegetated swales/buffer strips would be located along the roadway perimeter.

The California Stormwater BMP Handbooks have published removal efficiencies for Treatment BMPs as high, medium, or low. These removal efficiencies for the proposed Treatment BMPs are listed in Table V.L-9.

Table V.L-7: Routine Nonstructural and Structural Source Control BMPs

Identifier	Name	Type	
		Nonstructural	Structural
SC-10	Non-Storm Water Discharges[3]	√	
SC-11	Spill Prevention, Control, and Cleanup	√	
SC-34	Waste Handling and Disposal	√	
SC-35	Safer Alternative Products	√	
SC-60	Housekeeping Practices	√	
SC-70	Road and Street Maintenance	√	
SC-73	Landscape Maintenance	√	
SC-74	Drainage System Maintenance	√	
Provide storm drain system stenciling and signage			√
Use efficient irrigation systems and landscape design, water conservation, smart controllers, and source control			√
Protect slopes and channels and provide energy dissipation			√

Source: California Stormwater BMP Handbooks (2003).
SC = Source Control

1 City of Monterey et al. 2002. *Model Urban Runoff Program, A How-To Guide for Developing Urban Runoff Programs for Small Municipalities*. February.
2 www.swrcb.org
3 Fact sheets for these BMPs are provided in Appendix B and in the California Stormwater Quality Association Storm Water Best Management Practice Handbooks: New Development and Redevelopment, Construction, Industrial and Commercial, and Municipal.

Table V.L-8: Pollutants of Concern and Applicable Treatment BMPs

	Biofiltration Systems	Infiltration Basin	Detention Devices	Dry Weather Flow Diversions	Gross Solids Removal Devices	Traction Sand Traps
Total Suspended Solids	√	√	√	√		√
Nutrients		√		√		
Pesticides		√		√		
Particulate Metals	√	√	√	√		
Dissolved Metals		√		√		
Pathogens		√		√		
Litter	√	√	√	√	√	
Biochemical Oxygen Demand		√		√		
Total Dissolved Solids		√		√		

Source: *Storm Water Quality Handbooks, Project Planning and Design Guide*, September 2002.

Table V.L-9: Treatment BMPs and Removal Efficiency

Pollutant of Concern	Treatment BMP Categories		
	Vegetated Buffer Strip	Vegetated Swale	Infiltration Basin
Sediment (roads and highways)	H	M	H
Nutrients (landscaping)	L	L	H
Organic Compounds (roads and highways)	M	M	H
Trash (roads and highways)	M	L	H
Bacteria (impairment of Nipomo Creek)	L	L	H
Oil & Grease (roads and highways)	H	M	H
Metals (roads and highways)	H	M	H

Source: California Stormwater BMP Handbooks (2003).

L: Low removal efficiency
M: Medium removal efficiency
H: High removal efficiency

Treatment BMPs will be incorporated into the final design of Willow Road extension and interchange at US 101. The project design includes construction of two infiltration basins for treatment of the WQV. To help trap some pollutants in runoff, such as sediments, metals, oil and grease, the project design also includes the installation of vegetated strips/swales. These strips/swales, running the entire length of Willow Road, will be vegetated with native grasses. The infiltration basins and vegetated

strips and swales are considered BMPs and shall be implemented so as to meet or exceed the requirements of the County and Caltrans NPDES permits. Therefore, compliance with the standard requirements for potential construction and postconstruction impacts (listed below in Mitigation Measures L-1, L-2, and L-3) will result in less than significant impacts to water quality with implementation of the project.

L-1, NPDES Permit (County Compliance). Prior to the issuance of grading permits, the County shall ensure that the project complies with the State General Construction Activity NPDES Permit. The construction contractor shall demonstrate to the County that coverage has been obtained under the State General Construction Activity NPDES Permit by providing a copy of the Notice of Intent (NOI) submitted to the State Water Resources Control Board (SWRCB) and a copy of the subsequent notification of the issuance of a Waste Discharge Identification (WDID) number or other proof of filing. In accordance with the permit, a Storm Water Pollution Prevention Plan (SWPPP) shall be prepared for the project. Implementation of the SWPPP shall reduce the discharge of pollutants to the maximum extent practical using management practices, control techniques and systems, design and engineering methods, and such other provisions as are appropriate. A copy of the SWPPP shall be kept at the project site and shall be available to the County upon request.

L-2, NPDES Permit (Caltrans Compliance). Prior to the issuance of grading permits, Caltrans shall comply with the provisions of the *National Pollutant Discharge Elimination System (NPDES) Permit Statewide Storm Water Permit and Waste Discharge Requirements (WDRs) for the State of California, Department of Transportation* Order No. 99-06-DWQ NPDES No. CAS000003, as they relate to construction activities for the portion of the project within their jurisdiction. This shall include a *Notification of Construction* to the Central Coast Regional Water Quality Control Board at least 30 days prior to the start of construction, preparation and implementation of a Storm Water Pollution Prevention Plan, and a *Notice of Completion* to the CCRWQCB upon completion of construction and stabilization of the site.

L-3, Best Management Practices. Prior to construction, the County and Caltrans shall follow the procedures outlined in the *Storm Water Quality Handbooks, Project Planning and Design Guide* and other applicable County guidelines for implementing treatment best management practices (BMPs) for the project. This shall include coordination with the Central Coast Regional Water Quality Control Board (CCRWQCB) with respect to feasibility, maintenance, and monitoring of Treatment BMPs as set forth in the County's Storm Water Management Program and Caltrans *Statewide Storm Water Management Plan*.

6. Residual Impacts

Implementation of Construction and Treatment BMPs, along with Mitigation Measures L-1, L-2, and L-3 will prevent adverse impacts to water quality. Therefore, the project will not cause any residual construction, postconstruction, or cumulative water quality impacts.