

Long Form - Storm Water Data Report



Dist-County-Route: 05-SLO-101

Post Mile (Kilometer Post) Limits: 25.9 (41.7)

Project Type: Interchange Improvements

EA: 05-0H730K

RU:

Program Identification:

Phase: PID PA/ED PS&E

Regional Water Quality Control Board(s): Central Coast Region 3

Is the project required to consider incorporating Treatment BMPs? Yes No

If yes, can Treatment BMPs be incorporated into the project? Yes No

If No, a Technical Data Report must be submitted to the RWQCB

at least 60 days prior to PS&E Submittal. List submittal date: _____

Total Disturbed Soil Area: Alternative 3 DSA= 29.9 acre, Alternative 6 DSA= 30.7 acre

Estimated Construction Start Date: April 2010 Construction Completion Date: September 2011

Notification of Construction (NOC) Date to be submitted: March 2010

Notification of ADL reuse (if Yes, provide date) Yes Date: _____ No

Separate Dewatering Permit (if Yes, permit number) Yes Permit #: _____ No

This Report has been prepared under the direction of the following Licensed Person. The Licensed Person attests to the technical information contained herein and the data upon which recommendations, conclusions, and decisions are based. Professional Engineer or Landscape Architect stamp required at PS&E.

Matthew Griggs, Registered Project Engineer Date

I have reviewed the storm water quality design issues and find this report to be complete, current, and accurate:

Douglas J. Heumann, Project Manager Date

David Perez, Designated Maintenance Representative Date

Dennis Reeves, Designated Landscape Architect Representative Date

Marissa Nishikawa, Regional SW Coordinator or Designee Date



STORM WATER DATA INFORMATION

1. Project Description

The project is located in San Luis Obispo County on State Route 101 in San Luis Obispo at PM 25.9 (KP 41.7), see Attachment A for the Project Vicinity Map. The purpose of this project is to improve traffic operations and safety on Los Osos Valley Road (LOVR) and the LOVR/US-101 interchange. Improvements include:

1. Added capacity to the LOVR overcrossing:

Alternative 3

- Ø Addition of parallel structure for two new eastbound lanes
- Ø Conversion of the existing structure to two westbound lanes
- Ø Sidewalks, bike lanes and shoulders for eastbound and westbound traffic

Alternative 6

- Ø Replacement of the existing two lane structure with a four lane structure
- Ø Sidewalks, bike lanes and shoulders for eastbound and westbound traffic

2. Improvements to the LOVR/US-101 Interchange Ramps:

Alternative 3

- Ø Lengthening the southbound diagonal off-ramp left turn pocket for added storage
- Ø Utilizing the abandoned Calle Joaquin frontage to improve the southbound diagonal on-ramp geometrics
- Ø Widening the diagonal northbound off ramp to two lanes
- Ø Geometric modifications for the northbound loop on-ramp to improve the nonstandard ramp alignment

Alternative 6

- Ø Full reconstruction of the southbound on and off-ramps into hook ramps that will terminate at Calle Joaquin eliminating closely spaced intersections on LOVR west of the interchange
- Ø Widening the northbound off ramp to two lanes, with three lanes at the ramp termini
- Ø Geometric modifications for the northbound loop on-ramp to improve the nonstandard ramp alignment
- Ø Addition of a slip ramp from westbound LOVR to northbound US-101

3. Improvements to LOVR between South Higuera and Calle Joaquin:

Alternative 3 & 6

- Ø Addition of sidewalks, bike lanes and shoulders for eastbound and westbound traffic
- Ø Improved profile and superelevation rates to increase the design speed of LOVR to the standard 45 mph (existing = 35 mph)
- Ø Widening from an existing two lanes to a proposed 4 lanes
- Ø Additional street lighting
- Ø Pavement rehabilitation and reconstruction

4. Additional drainage capacity throughout the project area:

Alternative 3 & 6

- Ø Addition of two 7' culverts for the Prefumo Creek crossing of US-101 (existing culvert and fish ladder to remain in place for steelhead migration)
- Ø Widening of the San Luis Obispo Creek Bridge to accommodate the widening of LOVR.



- Ø Removal of sediment below the San Luis Obispo Creek Bridge in the outside bays to 3 feet above the low flow elevation to prevent spreading flow. No sediment will be removed from the center bay where normal flow will be undisturbed. The purpose of sediment removal below the bridge is to restore hydraulic capacity for high flow storm events.

The project site is located within the San Luis Obispo Creek Watershed and falls within the City of San Luis Obispo’s Urban MS4 area. The portion of the project along Los Osos Valley Road between the intersection with the existing southbound ramps and the intersection with Calle Joaquin is within Caltrans right of way and outside of the City Limits and falls within the County MS4 area.

Los Osos Valley Road San Luis Obispo Creek originates approximately 9 miles upstream of the Project site and runs parallel to US-101. Prefumo Creek and Froom Creek are both tributaries to San Luis Obispo Creek and cross under US-101 390 ft north and 1,200 ft south of the LOVR overcrossing respectively (see Attachment D for the Project Layout Exhibits).

The proposed project will disturb 29.9 or 30.7 acres for alternative 3 or 6 respectively. Impervious area will be added to the existing interchange ramps and Los Osos Valley Road (see Tables 1 and 2). Alternative 3 will add 2.0 acres of impermeable area for an increase of 3% over the Total Project Area whereas Alternative 6 will add 3.4 acres of impermeable area for an increase of 5% over the Total Project Area.

Table 1: Project Areas

	Alternative 3		Alternative 6	
	(Acre)	% Change	(Acre)	% Change
Total Project Area ¹	62.6	---	62.6	---
Existing Pervious Area	37.1	---	37.1	---
Existing Impervious Area	25.5	---	25.5	---
<i>Off Roadway (parking lots, etc.)</i>	<i>2.1</i>	---	<i>2.1</i>	---
<i>Local Roads</i> ²	<i>12.2</i>	---	<i>12.2</i>	---
<i>Mainline US-101</i> ³	<i>8.6</i>	---	<i>8.6</i>	---
<i>Interchange Ramps</i>	<i>2.6</i>	---	<i>2.6</i>	---
Proposed Impervious Area	27.5	8%	28.9	13%
<i>Off Roadway (parking lots, etc.)</i>	<i>2.1</i>	<i>0%</i>	<i>2.1</i>	<i>0%</i>
<i>Local Roads</i> ²	<i>13.4</i>	<i>10%</i>	<i>13.4</i>	<i>10%</i>
<i>Mainline US-101</i> ³	<i>8.6</i>	<i>0%</i>	<i>8.6</i>	<i>0%</i>
<i>Interchange Ramps</i>	<i>3.4</i>	<i>31%</i>	<i>4.8</i>	<i>84%</i>
Change in Impervious Area	2.0	8%	3.4	13%
Disturbed Soil Area	29.9	---	30.7	---
<i>Contractor Staging Area</i>	<i>5.7</i>	---	<i>5.7</i>	---
Earthwork Borrow Area	Unknown at this time	---	Unknown at this time	---
Earthwork Disposal Area	Unknown at this time	---	Unknown at this time	---

¹ Total Project Area = Area within the Environmental Study Limits

² Local Roads include: Los Osos Valley Road and Calle Joaquin

³ Mainline US-101 will not be modified with this project



Table 2: Project Areas by Right of Way Classification

	Alternative 3			Alternative 6		
	Area Within State Right of Way (acres)	Area Outside of State Right of Way (acres)	Total (Acre)	Area Within State Right of Way (acres)	Area Outside of State Right of Way (acres)	Total (acres)
Total Project Area ¹	31.6	31.0	62.6	31.5	31.0	62.6
Existing Pervious Area	17.9	19.2	37.1	17.9	19.2	37.1
Existing Impervious Area	13.8	11.7	25.5	13.8	11.7	25.5
<i>Off Roadway (parking lots, etc.)</i>	0	2.1	2.1	0	2.1	2.1
<i>Local Roads ²</i>	2.6	9.6	12.2	2.6	9.6	12.2
<i>Mainline US-101 ³</i>	8.6	0	8.6	8.6	0	8.6
<i>Interchange Ramps</i>	2.6	0	2.6	2.6	0	2.6
Proposed Impervious Area	14.6	12.9	27.5	16.3	12.6	28.9
<i>Off Roadway (parking lots, etc.)</i>	0	2.1	2.1	0	2.1	2.1
<i>Local Roads ²</i>	2.6	10.8	13.4	2.9	10.5	13.4
<i>Mainline US-101 ³</i>	8.6	0	8.6	8.6	0	8.6
<i>Interchange Ramps</i>	3.4	0	3.4	4.8	0	4.8
Change in Impervious Area	0.8	1.2	2.0	2.5	0.9	3.4
Disturbed Soil Area	16.0	13.9	29.9	18.2	13.9	30.7
<i>Contractor Staging Area</i>	0	5.7	5.7	0	5.7	5.7
Earthwork Borrow Area	Unknown at this time			Unknown at this time		
Earthwork Disposal Area	Unknown at this time			Unknown at this time		

¹ Total Project Area = Area within the Environmental Study Limits
² Local Roads include: Los Osos Valley Road and Calle Joaquin
³ Mainline US-101 will not be modified with this project

Table 3: Percent Change in Project Areas

	Alternative 3			Alternative 6		
		% of Total Project Area	% Change		% of Total Project Area	% Change
Total Project Area ¹	62.6	100 %	0 %	62.6	100 %	0 %
Existing Pervious Area	37.1	59 %	---	37.1	59 %	---
Existing Impervious Area	25.5	41 %	---	25.5	41 %	---
Proposed Impervious Area	27.5	44 %	8 %	28.9	46 %	13 %
Change in Impervious Area	2.0	3 %	---	3.4	5 %	---
Disturbed Soil Area	29.9	48 %	---	30.7	49 %	---



2. Define Site Data and Storm Water Quality Design Issues (refer to Checklists SW-1, SW-2, and SW-3)

- § The project site is located in the San Luis Obispo Valley within the Santa Lucia Mountain range. The coastal valley is located approximately 10 miles inland of the Pacific Ocean halfway between San Francisco and Los Angeles.
- § The site is relatively flat, and based on as-built plans, ground elevation in the area of the proposed project is about 100 feet. Within the project vicinity, the bottom of San Luis Obispo Creek appears to be at approximate elevation 86.5 feet.
- § The project site soils mainly consist of alluvial deposits overlaying consolidated sedimentary, igneous, and metamorphic Franciscan bedrock.
- § The site is covered by a 5 to 8 feet thick surface layer, consisting of firm silty clay and loose sandy silt/silty sand. The upper cohesive soils may be thicker moving toward north. Underneath this layer, dense to very dense sand and gravel is found to approximate Elevation 88 feet, underlain by weather shale. At the north side of the overcrossing structure, medium dense to dense sandy silt, silty sand, gravel and sand were encountered underneath the surface layer, to Elevation 50 feet.
- § Other native materials encountered in the study area are medium dense to very dense sandy silt/silty sand with gravel. Generally, short- and long-term settlement should not be a concern at the site.
- § Hydrologic soil groups are based on the rate of water infiltration with Group A having the highest rates and Group D having the slowest rates. Per the National Resources Conservation Service (NRCS) web site soil survey module, the project area contains three general soil types with Hydrologic soil groups ranging from C to D. The NRCS project area soil types are: Salinas silty clay loam (group C), Cropley clay (group D), and Los Osos Diablo Complex (group C). This preliminary data suggests infiltration devices will not be effective at this site. The Geotechnical report will sample and test for percolation at potential treatment BMP sites to confirm the site percolation rates. See Attachment H for the site specific NRCS classification layout.
- § The embankment fill shall be placed in accordance with the guidelines provided in the Caltrans Highway Design Manual. These guidelines require structural approach embankment material to be compacted to a 95% Relative Compaction. Compaction increases strength, reduces the potential for earthquake-induced settlement or slippage, and decreases the soil permeability.
- § Groundwater was encountered at an elevation ranging between 90 to 94 feet. Locally shallow groundwater or seepage may be encountered which can be mitigated by using Caltrans design and construction techniques. It should be noted that groundwater levels measured at the site may change with passage of time due to groundwater fluctuations from season to season, surface runoff, weather conditions, water level variation in the nearby creeks and other factors which may not be presented at Parikh's time of the investigation.
- § The proposed embankment slopes that are protected by paving are expected to be grossly stable at 1:0.5. Other embankment slopes exposed to weather are expected to be grossly stable at 1:2. Embankment slopes on soft silty clay/clayey silt may need to be flatter due to weak foundation material. This can be further confirmed during the design phase. Proper drainage and erosion control measures should be implemented to mitigate slope stability concerns.
- § The project area is classified under the Köppen system as "Csb," or Mediterranean, with warm dry summers and a strong maritime influence. There are pronounced seasonal changes in rainfall, but relatively modest seasonal transitions in temperature, especially from cool season to warm season. The average annual temperature based on all historical data is 59°F. Soil temperature at



6 inches depth averages 50°F in January and 73°F in July. Subfreezing temperatures are rare. Relative humidity averages about 75% annually. Relative humidity values tend to be somewhat higher in summer and lower in winter.

- § The receiving waters within the project area are San Luis Obispo Creek, Prefumo Creek, and Froom Creek. Both Prefumo and Froom Creeks discharge to San Luis Obispo Creek within the project limits. San Luis Obispo Creek discharges to the Pacific Ocean at Avila Beach, approximately 7 miles downstream of the project site.
- § San Luis Obispo Creek has a Total Maximum Daily Load (TMDL) for Pathogens and Nutrients.
- § San Luis Obispo Creek, below W Marsh Street, is on the 303(d) list. The Pollutants of Concern are Nitrate and Nutrients. Prefumo Creek is 303d listed for Nitrates.
- § Prefumo and San Luis Obispo Creeks are the water bodies that may be affected by the project life cycle (i.e. construction, maintenance and operation)
- § The properties at the interchange of US-101 and Los Osos Valley Road have changed significantly since 1955 to the present. Development has converted agricultural properties to primarily commercial facilities. On the west side of US 101 several gas stations and auto dealers have been developed over the past 30 years. Several documents cases of leaking underground tanks were revealed during our research. A Phase II site investigation will be conducted as a first order of work in the PS&E phase to determine if these UST cases are considered closed by the RWQCB. Based on Geosolutions, Inc. findings, there were three Recognized Environmental Conditions (RECs) found in connection with the area of investigation. The following is a description of the REC's found in connection with the site.
 - The ARCO Service Station located on Los Osos Valley Road was found to have leaking underground storage tanks during testing in June of 1986. Quarterly monitoring was conducted until the RWQCB closed the case in August of 1993. The ARCO gas station is currently in service. No further action or studies are recommended at this time.
 - In April of 1987, petroleum production was observed floating on ground water below the underground storage tanks at the Texaco Station located on Los Osos Valley Road. Further investigations revealed that the plumbing system for the tanks had failed and released significant amounts of contamination into the surrounding soil and groundwater. The affected soil was excavated and disposed of in an approved area off-site. This case continues to be monitored by a private consulting firm on a quarterly basis. This site should be reviewed and evaluated on an annual basis.
 - Chevron USA located on Calle Joaquin Road was found to have leaking USTs in January of 1993. Remediation of this site began with the removal of all tanks and the excavation of affected soil. Monitoring of groundwater continued for a short time. This case was closed with the RWQCB on November of 1996.
- § The following permits, approvals, and coordination efforts will be required prior to construction of the proposed improvements.
 - (1)Section 1601 Streambed Alteration Agreement: All alternatives will require a Section 1601 Agreement, since implementation will affect drainages under the jurisdiction of the California Department of Fish and Game.
 - Section 404 Permit: Depending on the area affected, project implementation may exceed the maximum limitations for Nationwide Permit use. If this occurs, an individual 404 Permit will be necessary.
 - NEPA/404 Integration Process: If an individual 404 Permit is needed and over 1.0 acre of jurisdictional wetlands would be impacted this process would be required.
 - Section 401 Water Quality Certification: This certification will be required for all alternatives and are issued by the Regional Water Quality Control Board (RWQCB).



- § These permits may include seasonal construction restrictions. The rainy season has been defined as October 15 through April 15.
- § Prior to construction, the City must obtain an Encroachment Permit from Caltrans for construction within State highway right-of-way.
- § Prior to construction, local construction approvals will be necessary from the City and County, including the issuance of construction permits, grading permits, and other engineering related approvals.
- § The wet season begins in late October and lasts through April. Over 73% of the annual rainfall occurs during the four-month period of December through March. The hundred-year average annual rainfall ending in 1969 was computed at 22 inches, the 30-year average ending in 1990 was 23.5 inches.
- § For all alternatives, there will be areas outside of the Caltrans right-of-way that will be included in the project. All alternatives will include part-take acquisitions. The right-of-way and excess lands required for the project are some agriculture with hotels/motels and service stations. All permanent treatment BMP's can be accommodated within the existing right of way.
- § The reuse of soil containing Aerially Deposited Lead (ADL) will not occur with this project.
- § Existing permanent BMP's within and adjacent to this project include biofiltration swales along the shoulder of US -101 between the northbound on ramp from Los Osos Valley Road and the northbound off ramp to Prado Road.

- § Per the San Luis Obispo Waterway Management Plan
 - Natural sediment deposition occurs near the Cities Wastewater Treatment Plant (due to previous downstream channel widening), and upstream of the Los Osos Valley Road Bridge. In developed areas, sediment deposition affects flood control capacities, especially where modified channels were not designed to be self maintaining. Sediment is deposited as the stream attempts to recreate a meandering low flow within the modified and constrained channel. Mechanical removal of sediment deposited within a stream is needed to restore the flood capacity of existing streams and to restore habitat values.
 - Project SLO I-1: *Channel and Bridge/Culvert Replacement Work at Los Osos Valley Road (LOVR)* The preferred project would construct a new 1300 ft flood bypass channel for San Luis Obispo Creek east of existing channel which would require a new bridge on Los Osos Valley Road and vegetation management at the confluence of Prefumo and San Luis Obispo Creek. Additionally the project would replace the Prefumo Creek Culverts under mainline US 101 and the southbound off ramp. This project is preliminarily estimated at \$5 million dollars, and is the priority project for San Luis Obispo Creek.

3. Regional Water Quality Control Board Agreements

SWRCB Order No. 99-06-DWQ serves as the National Pollution Discharge Elimination System (NPDES) Permit pursuant to section 402 of the Federal Clean Water Act (CWA). This permit authorizes storm water and authorized non-storm water discharges from Caltrans construction properties, facilities and activities.



4. Describe Proposed Design Pollution Prevention BMPs to be used on the Project.

Downstream Effects Related to Potentially Increased Flow, Checklist DPP-1, Parts 1 and 2

One of the objectives of this project to improve the hydraulics of San Luis Obispo and Prefumo Creeks through the project limits. Due to the poor capacity of the Prefumo Creek RCB and the general downstream tail water effects from SLO Creek, the project will not be able to address all of these deficiencies. However, the goals of the project team are as follows:

- SLO Creek – Pass the 100-year storm without overtopping
- Prefumo Creek – Pass the 25-year storm through the system under US-101 and the US-101 southbound off-ramp.

The proposed options for improvements include:

- Sediment removal below the San Luis Obispo Creek Bridge
- Installation of two 7 ft. diameter culverts at the US-101 crossing with Prefumo Creek
- Cleanup of accumulated debris at the US-101 off-ramp crossing with Prefumo Creek

These improvements are consistent with the San Luis Obispo Creek Waterway Management Plan and will complete a significant portion of *Project SLO I-1: Channel and Bridge/Culvert Replacement Work at Los Osos Valley Road (LOVR)* outlined in the Waterway Management Plan.

The existing San Luis Obispo Creek channel is unlined, vegetated, and an active steelhead migration route. To restore hydraulic capacity to the San Luis Obispo Creek Bridge, accumulated sediment will be removed from the outer two bays of the three bay structure to 3 ft. above the low flow creek bottom. Sediment carried by flowing water bodies will fall out of suspension at slow points along the route. The San Luis Obispo creek bridge combined with the variable topography caused by the confluence of Prefumo and San Luis Obispo Creeks compound to create a natural slow point on San Luis Obispo Creek. Although the project will not be able to prevent future sediment build up, permanent and temporary BMP's will be utilized to prevent sediment from discharging to Prefumo Creek or San Luis Obispo Creek.

Prefumo Creek joins San Luis Obispo Creek at a confluence in the northeast quadrant of the project site. Currently Prefumo Creek is a partially lined channel with a natural bottom. The creek slopes are armored with smooth concrete to prevent slope erosion at creek bends and in areas were 2:1 slopes are necessary due to right of way constraints. Vegetation growing from the natural creek bottom has significantly lowered the hydraulic capacity of the creek and is proposed to be removed by the project within the project limits. Removal of existing vegetation is a routine maintenance task and will need to be repeated as vegetation reestablishes.

Slope/Surface Protection Systems, Checklist DPP-1, Parts 1 and 3

Of the project 62.6 acres an estimated 29.9 acres will be disturbed with alternative 3, and 30.7 acres with alternative 6. Of these disturbed soil areas 16.0 acres will be disturbed within the State right of way for alternative 3 and 18.2 acres within the State right of way for alternative 6. Disturbed soil areas that are not converted to impermeable hardscape will be landscaped with either high intensity landscaping for aesthetic enhancement, or low intensity landscaping for the purpose of erosion control.

In general 4:1 cut and fill slopes will be used through out the project area, however in two locations 2:1 cut and fill slopes will be used to minimize creek impacts. These slopes are along the southbound and northbound off ramps and are minimized with the use of retaining walls. Where



ever non-standard slopes are utilized the slopes will be protected with rock slope protection or hardscape.

Proposed hardscape along Prefumo Creek would consist of smooth concrete slope paving to match the existing channel hardscape. San Luis Obispo Creek would utilize a more natural form of slope reinforcement such as terraced rock slope protection that would allow for natural plantings, or a combination of rock slope protection and mechanically stabilized earth that would accommodate natural plantings as well.

Concentrated Flow Conveyance Systems, Checklist DPP-1, Parts 1 and 4

A Drainage Report and drainage plans will be prepared in the PS&E phase of this project. Several drainage issues have been identified and discussed in the Location Hydraulic Study Report. The project cost estimate includes \$1.6 or \$ 1.5 million dollars for Alternatives 3 or 6 respectively for drainage work. See Attachment E for the Project Cost Estimates.

The concentrated conveyance system will include:

- § Caltrans or City Standard curb and gutter throughout the project to maximize collection of storm water runoff
- § Caltrans or City Standard drain inlets (with inlet stenciling) and manholes
- § Reinforced concrete pipes for storm water collection
- § Caltrans or City Standard flared end sections with rock slope protection backing to either Prefumo, Froom, or San Luis Obispo Creek
- § Two 7 ft diameter reinforced concrete culverts under US-101 per Caltrans standards
- § Extension of existing culverts and bridges to accommodate widening of the southbound off-ramp and Los Osos Valley Road

Preservation of Existing Vegetation, Checklist DPP-1, Parts 1 and 5

Several vegetation preservation areas discussed in the environmental document will be fenced with ESA fencing during construction. See the supplemental Attachment D Project Exhibits, for layouts of ESA fencing. To the maximum extent possible existing riparian vegetation within the creek channels will be preserved. In addition to the creek channel vegetation preservation, a small wetland area west of LOVR between Calle Joaquin and the existing southbound on-ramp will be protected during construction. Non-native Eucalyptus trees will be removed where impacts to existing vegetation are necessary for construction activities.

To preserve the existing biofiltration swale/strip on the northbound shoulder of US-101 north of the LOVR interchange ESA fencing will be placed at the boundary of the swale and discussion will be added to the project specifications to preserve the existing treatment BMP.

5. Describe Proposed Permanent Treatment BMPs to be used on the Project

Treatment BMP Strategy, Checklist T-1

As the project area storm water discharges directly into the three creeks running through the project, treatment BMPs will be utilized to minimize the discharge of sediments, pathogens, and manmade contaminants into the creek system. Basin Sizer version 1.46 was used to determine the project Water Quality Volume (WQV) of $1.38 \times 10^5 \text{ ft}^3$ and Water Quality Flow (WQF) of $11.9 \times 10^3 \text{ ft}^3/\text{hr}$. (see Attachment H for WQV and WQF calculations). 18 % of



the WQV will be treated with existing and proposed permanent treatment BMP's to minimize the pollution discharge into San Luis Obispo Creek. See Attachment H for Water Quality Calculations. The Targeted Design Constituent (TDC) for this project is Nitrogen. The treatment BMP's will not require additional right of way, see Attachment D for the project layout exhibits which shows the available areas for treatment BMP's. The Draft Project Report Engineers Estimate includes; \$70,000 for permanent treatment BMPs, \$140,000 for Storm Water Pollution Control and \$70,000 for Erosion Control/Slope Protection. These cost estimates are preliminary and will be modified as the details of the permanent BMP's are developed and finalized. See Attachment E for the Project Cost Estimate.

Biofiltration Swales/Strips, Checklist T-1, Parts 1 and 2

Biofiltration is an excellent low cost, low maintenance method of treating roadway storm water runoff. However, as nitrogen is the TDC, bioswales are not recommended as a primary treatment BMP. There is an existing biofiltration strip along the shoulder of US -101 between the northbound on ramp from Los Osos Valley Road and the northbound off ramp to Prado Road. This existing bioswale will be preserved during construction, and modifications to the Prefumo Creek culvert outlet will be made such that they accommodate the bioswale terminus into Prefumo Creek.

Dry Weather Diversion, Checklist T-1, Parts 1 and 3

No dry weather diversion BMPs will be incorporated in this project. The San Luis Obispo Creek Waterway Management Plan identifies a diversion channel project for San Luis Obispo Creek adjacent to project site. This interchange project will not preclude the future construction of the possible channel project.

Infiltration Devices – Checklist T-1, Parts 1 and 4

The northbound loop on ramp creates a basin that could possibly be used for an infiltration basin. The geotechnical report has not been completed at this time, however according to the National Resources Conservation Service (NRCS) the project site soils generally fall into Groups C and D. NRCS groups C and D have slow to very slow infiltration rates with a high potential for substantial storm water run off. This generalized geotechnical information combined with observed standing water several days after storm water events suggest that an infiltration basin will not be feasible at this site. This conclusion will be verified upon completion of the Geotechnical report.

Detention Devices, Checklist T-1, Parts 1 and 5

As mentioned above, the northbound loop on ramp creates a basin that could possibly be used for a detention basin. The loop ramp does not currently contain a detention basin, however it is connected via a culvert to the area bounded by the northbound loop on ramp, the northbound diagonal off ramp and mainline US 101. This 0.6 acre area is currently graded into a shallow basin and performs as a detention pond retaining standing water several days after a storm event. Ultimately the basin drains into San Luis Obispo Creek. Both of these basins bounded by the northbound ramps will be improved as a permanent treatment BMPs. Due to a high water table, as is evident by the natural wetland to the west, and the confluence of creeks to the east, the basins may need to be lined. This conclusion will be verified upon completion of the Geotechnical report.



There are currently no trees in the southerly basin, so there will be no aesthetic impacts of a detention BMP in this location. However there are several small trees within the loop on ramp. The project landscaping will be coordinated with the storm water management plans.

Gross Solids Removal Devices (GSRDs), Checklist T-1, Parts 1 and 6

Gross Solids Removal Devices are not incorporated into the project as the receiving waters are not on a 303(d) list for trash.

Traction Sand Traps, Checklist T-1, Parts 1 and 7

Traction Sand Traps are not incorporated into the project at this time as sand is not applied at this location.

Media Filters, Checklist T-1, Parts 1 and 8

Media filters, Austin Sand Traps and Delaware Filters, are not incorporated into the project at this time due to a high groundwater level and the lack of a year round water source. This conclusion will be verified upon completion of the Geotechnical report.

Multi-Chambered Treatment Trains (MCTTs), Checklist T-1, Parts 1 and 9

Multi-Chambered Treatment Trains are not incorporated into the project at this time as the MCTT will not serve a "critical source area" (i.e. vehicle service facility, parking area, paved storage area, or fueling station).

Wet Basins, Checklist T-1, Parts 1 and 10

Wet Basins are not incorporated into the project at this time due to insufficient year round stormwater flow.

6. Describe Proposed Temporary Construction Site BMPs to be used on Project

Temporary construction site BMP's will be deployed under a contractor prepared SWPPP. Temporary concrete washouts, stabilized construction entrances/exits, and fiber rolls have been identified as potential contract bid line items. Addition items will be identified during the project design phase. All remaining water pollution control items will be included in the BEES Construction Site Management and Additional Water Pollution Control lump sum bid item. Construction site BMP cost has been estimated at 1.75% using Method 1, *Percent of Total Cost* shown in Appendix F of the PPDG,

7. Maintenance BMPs (Drain Inlet Stenciling)

Drain Inlet Stenciling will be required on all drain inlets. Specific stencil types and names of contacts that recommended stencil types or locations will be included in the project specifications.



REQUIRED ATTACHMENTS

- ⇒ **Attachment A: Vicinity Map**
- ⇒ **Attachment B: Evaluation Documentation Form (EDF)**
- ⇒ **Construction Site BMP Consideration Form (required at PS&E only)**
- ⇒ **Attachment C: Treatment BMP Summary Spreadsheets (required, if Treatment BMPs are incorporated into project)**
- ⇒ **Quantities for Construction Site BMPs (required at PS&E only)**

SUPPLEMENTAL ATTACHMENTS

Note: Supplement Attachments are to be supplied during the SWDR approval process; where noted, some of these items may only be required on a project-specific basis.

- ⇒ **Attachment D: Project Exhibits**
- ⇒ Storm Water BMP Cost Summary
- ⇒ **Attachment E: Project Cost Estimate (PPCE) during PID and PA/ED project phases; Engineer's Cost Estimate for PS&E project phase**
- ⇒ Plans showing BMP Deployment (i.e. Layout Sheets, Water Pollution Control Sheets, etc)
- ⇒ Pertinent Correspondence with RWQCB (if requested or recommended by District/Regional NPDES Storm Water Coordinator or Designated Reviewer)
- ⇒ **Attachment F: Checklist SW-1, Site Data Sources**
- ⇒ **Attachment F: Checklist SW-2, Storm Water Quality Issues Summary**
- ⇒ **Attachment F: Checklist SW-3, Measures for Avoiding or Reducing Potential Storm Water BMPs**
- ⇒ **Attachment G: Checklists DPP-1, Parts 1–5 (Design Pollution Prevention BMPs) [only those parts that are applicable]**
- ⇒ Checklists T-1, Parts 1–10 (Treatment BMPs) [only those Parts that are applicable]
- ⇒ Checklists CS-1, Parts 1–6 (Construction Site BMPs) [only those Parts that are applicable]
- ⇒ **Attachment H: Calculations** and cross sections related to BMPs (if requested by District/Regional Storm Water Coordinator)
- ⇒ 07-340 or 07-345 (if requested or recommended by District/Regional Storm Water Coordinator)
- ⇒ Conceptual Drainage Map or Drainage Plans, if available (if requested by District/Regional Storm Water Coordinator for review)

