

THIS REPORT IS PROVIDED AS AN EXAMPLE ONLY. ALL PROJECT INFORMATION, NAMES, AND DATES ARE FICTITIOUS. THIS IS NOT INTENDED TO BE A FINAL REPRESENTATION OF THE WORK DONE OR RECOMMENDATIONS MADE BY CALTRANS FOR AN ACTUAL PROJECT.

Long Form - Storm Water Data Report



Dist-County-Route: 03-Sac-5
Post Mile Limits: 0.0/17.2
Project Type: Pavement Rehabilitation
Project ID (or EA): 03-XXXXXX
Program Identification: 201.120
Phase: PID
 PA/ED
 PS&E

Regional Water Quality Control Board(s): Central Valley (Region 5, South)

Is the Project required to consider 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 30 days prior to the projects RTL date. List RTL Date: _____

Total Disturbed Soil Area: 11.8 acres Risk Level: 2
Estimated: Construction Start Date: January 2011 Construction Completion Date: December 2013
Notification of Construction (NOC) Date to be submitted: December 2010

Erosivity Waiver Yes Date: _____ No
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 date upon which recommendations, conclusions, and decisions are based. Professional Engineer or Landscape Architect stamp required at PS&E.

Betsy Ross 08/26/10
[Betsy Ross], Registered Project Engineer/Landscape Architect Date

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

George Washington 08/26/10
[George Washington], Project Manager Date

Paul Revere 08/26/10
[Paul Revere], Designated Maintenance Representative Date

Horatio Gates 08/26/10
[Horatio Gates], Designated Landscape Architect Representative Date

[Stamp Required for PS&E only] Friedrich Wilhelm von Steuben 08/26/10
[Friedrich Wilhelm von Steuben], District/Regional Design SW Coordinator or Designee Date

STORM WATER DATA INFORMATION

1. Project Description

This proposed roadway rehabilitation project is along Interstate 5 (I-5) in Sacramento County from the San Joaquin County line (PM 0.0) to the Florin Road interchange (PM 17.2). The project would include slab replacement, median replacement and hot mix asphalt overlay. Two alternatives are under consideration: A no-build and a build alternative.

No-build alternative: The No-Build Alternative provides a basis of comparison with the Build Alternative in the future analysis year of 2030. This No-Build Alternative would include all currently planned and programmed projects in the I-5 corridor through the year 2030.

Build alternative: The build alternative project was divided into four segments based on the pavement rehabilitation strategy being utilized. Below is the outline of the proposed scope of work for each segment:

Segment 1 - PM 0.0 to PM 3.5

Pavement grinding, random slab replacement, dowel bar retrofit, and replacement of shoulders to remove edge drains.

Segment 2 - PM 3.5 to PM 13.0

Random slab replacements, crack and seat the existing Portland cement concrete (PCC) pavement and overlay with asphalt concrete, and replace shoulder.

Segment 3 - PM 13.0 to PM 15.7

Replace lane #2. Rehabilitate lanes #1 and 3 (grind, PCC slab replacement, overlay). Reconstruct and re-grade median and place concrete median barrier for traffic safety purposes.

Segment 4 - PM 15.7 to PM 17.2

Random slab replacements, crack and seat the existing PCC pavement and overlay with hot mix asphalt. Reconstruct paved median for traffic safety.

Because the no-build alternative would have no effect on existing water quality impacts, only the build alternative is discussed for the remainder of this report.

The total disturbed soil area (DSA) will be approximately 11.8 acres. The DSA includes the added impervious areas, areas of median that are being re-graded to eliminate the need for a median ditch and construction staging areas. This calculation does not include shoulder backing or slab replacement. This project adds approximately 0.8 acres of new impervious area, resulting mainly from traffic improvements in the median. The estimated existing

impervious area is 150 acres, and anticipated impervious area after the project is completed is 150.8 acres.

This project is entirely within the City and County of Sacramento Municipal Separate Storm Sewer System (MS4) permit area.

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

The Central Valley Regional Water Quality Control Board (CVRWQCB) has jurisdiction within the project limits.

Hydrologic Units

The project area is located in three hydrologic sub-areas: Hydrologic Unit Number 544.00 at the Sacramento/San Joaquin county line (start of project to PM 1.0), Hydrologic Unit Number 510.00 (PM 1.0 to PM 6.0 and PM 11.0 to end of project) and Hydrologic Unit Number 519.11 (PM 6.0 to 11.0).

Receiving Water Bodies

The direct receiving water bodies are Morrison Creek and the Mokelumne River at the northern and southern ends of the project. In between, project runoff is conveyed in a series of roadway drainage channels that eventually discharge to unnamed streams, most of which ultimately discharge to the eastern portion of the Sacramento-San Joaquin Rivers' Delta. A small portion of the flow is directed to the City of Sacramento's Sump 90, located west of I-5 and Morrison Creek, where it is pumped through the levee and into the Sacramento River. This stretch of the Sacramento River, however, is downstream of the I Street Bridge in downtown Sacramento, which is defined as being part of the Delta in the CVRWQCB's Basin Plan for Region 5.

Beneficial Uses

The Basin Plan for the CVRWQCB does not list any beneficial uses for Morrison Creek, but does provide beneficial uses for the Mokelumne River and the Delta:

- Municipal domestic supply (Delta Only)
- Agriculture irrigation and stock watering
- Industry process and service supply (Delta only)
- Contact recreation and other noncontact recreation
- Canoeing and rafting (Mokelumne only)

- Warm freshwater habitat
- Cold freshwater habitat (COLD)
- Warm and cold migration (MIGR)
- Warm spawning and Cold Spawning (SPWN)
- Wildlife habitat
- Navigation (Delta only)

[Proposed 2006 CWA Section 303\(d\) List](#)

Table 1 shows the project receiving water bodies on the 2006 Clean Water Act 303(d) List of Water Quality Limited Segments.

Table 1. Receiving Water Bodies on 303(d) List

Receiving Water Body	303(d) Listed Pollutant	Potential Source	TMDL Completion Date
Delta Waterways (eastern portion)	Chlorpyrifos	Agriculture, Urban Runoff/Storm Sewers	2006
	DDT	Agriculture	2011
	Diazinon	Agriculture, Urban Runoff/Storm Sewers	2006
	Exotic Species	Source Unknown	2019
	Group A Pesticides	Agriculture	2011
	Mercury	Resource Extraction	2006
	Unknown Toxicity	Source Unknown	2019
Morrison Creek	Chlorpyrifos	Source Unknown	2004
	Diazinon	Agriculture	2003
Mokelumne River	Copper	Resource Extraction	2020
	Zinc	Resource Extraction	2020

[Climate](#)

The climate is mild with temperatures ranging from lows in the upper 30s in January to highs in the low 90s in July. The rainy season has been defined by Caltrans as October 15 to April 15. The average monthly precipitation ranges from 0.04 inches in July to 3.74 inches in January. Rainfall intensities based on the Sacramento City Rain Gauge are 0.73 inches/hour for a 10-year return and 1.03 inches/hour for a 100-year return period.

Topography

Based on aerial and street view photos, the terrain is generally flat with small variations in elevation at bridges. The United States Geological Survey (USGS) topographic maps identify the elevations ranging from sea level to 10 feet with no hills or mountains within the project area.

Soil Characteristics

The Natural Resources Conservation Service (NRCS) identifies the soils in the project vicinity as mainly Hydrologic Soil Group (HSG) D with a few areas of HSG C. Preliminary geotechnical studies have determined that over 85 percent of the highway along this corridor is on either cut or fill soils. Fill slopes associated with the construction of this project that will be made as flat as possible, not exceeding 4:1 (H:V). Detailed soil characterization will be provided once geotechnical studies for the project have been completed.

Aerially Deposited Lead (ADL)

Because lead was used as an additive to gasoline prior to 1986, the surface soils along I-5 have the potential to be contaminated with aerially deposited lead (ADL) from the exhaust of cars burning lead gasoline. Further hazardous waste testing will be completed during the later phases of this project.

Groundwater Information

A review of historic Log of Test Borings for the Hood/Franklin Road overcrossing (O.C.), Elk Grove Boulevard O.C., Beach Lake Bridge, Route 51160 S.O.H., and Florin Road O.C. show the groundwater to be from 6.0 feet to 32.5 feet below original grade.

Erosion Potential

The NRCS Web Soil Survey was used to estimate the erodibility of the site. The erosion factor K within the project area ranges from 0.24 to 0.43, with a weighted average of 0.32.

Risk Assessment

The R factor was determined from the EPA's "Rainfall Erosivity Factor Calculator" to be 85.46; the K*LS factor was determined from the Caltrans Construction General Permit GIS map to be 0.23. More detailed calculations to determine the project specific LS will be completed once cross sections of the existing grade become available.

The product of these values is 19; because this value is between 15 and 75, the project is classified as having a medium sediment risk. See the Required Attachments for the sediment risk factor input values.

The receiving water risk is classified as high because the Mokelumne River and the Delta both have the beneficial uses of SPWN, COLD and MIGR. The Caltrans GIS map was used to verify the high receiving water risk, which is shown in the Required Attachments. Although the GIS map shows only portions of the project as having a high receiving water risk, Chris Allen, the District Storm Water Coordinator, was consulted via email concerning this discrepancy, and he advised the project team, on August 20, 2010, to treat the entire project as having a high receiving water risk.

The combined medium sediment risk and high receiving water risk results in this Project being classified as Risk Level 2.

Measures for Avoiding or Reducing Potential Storm Water Impacts

There are minimal slope stabilization concerns because most of the work proposed for this project will be contained within the existing roadway footprint, and the slopes are mild. All DSAs will consist of median re-grading areas, where both the proposed and existing surfaces will have slopes of less than 10 percent. All of these areas will ultimately be re-paved.

The project design allows for the ease of maintaining all best management practices (BMPs), and can be scheduled or phased to minimize soil-disturbing work during the rainy season.

Land Use

The land use for the project area was determined by examining aerial photos. Between PM 0.0 and 9.4, the existing land is primarily agricultural. From PM 9.4 to 15.0, land use remains primarily agricultural on the west side of I-5, with some residential development on the east side. Beyond PM 15.0, land use consists of a mix of residential and commercial development as I-5 enters the metropolitan Sacramento area.

Right-of-Way Requirements

Currently, all work and BMPs will be within Caltrans R/W. If additional R/W is determined to be required, then the project team will work with Caltrans R/W and Design to determine the amount and cost of additional R/W.

3. Regional Water Quality Control Board Agreements

An initial project meeting with Rose Lorenzo at the CVRWQCB was held on August 24, 2010 to discuss the project. Ms. Lorenzo informed the project team that at this phase there are no necessary negotiated understandings or agreements from the CVRWQCB pertaining to this project.

4. 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

The proposed improvements will increase the impervious area within the project limits. This increase should have a negligible impact on downstream flow due to the small addition of impervious area compared with the drainage areas of the receiving water bodies (0.8 acres compared with 138,559 acres for Morrison Creek and 289,458 acres for the Delta). Segments 1 and 2 will not change velocity or volume of downstream flows because the work in these areas involves only roadway rehabilitation and replacement of impervious area.

Segments 3 and 4 will not increase the velocity and volume of downstream flows, but will slightly modify the local drainage along the roadway. Currently, stormwater from the traveled way in these areas sheet flows to the outside shoulders and into roadside ditches. The median areas outside the traveled way drain to inlets along the median and discharge to the same roadside ditches. To allow for proper staging, the median areas for segments 3 and 4 will be overlaid or reconstructed to conform to the traveled way elevations and allow for stormwater from the median to sheet flow to the outside shoulders. While the direction of flow along the median will be modified, it does not change the overall drainage watershed because all flows from the roadway (traveled way and median) still combine at the roadside ditches.

This project will incorporate low impact development (LID) efforts to maintain or restore pre-project hydrology, as well as provide overall water quality improvement of discharges. These LID efforts will be incorporated in the development and placement of permanent best management practices (BMPs) during the design phase to the maximum extent practicable. Potential LID measures that will be considered for this project to improve water quality include:

- Minimizing impervious surface area and using pervious material for hardened surfaces outside of the roadway prism,
- Grading slopes to blend with the natural terrain and decrease the need for dikes, promoting sheet flow to vegetated areas that can provide water quality benefits and promote infiltration;
- Designing permanent drainage facilities that mimic the existing drainage pattern of the area through the use of permanent check dams for attenuation of flow and disconnected drainage facilities;
- Constructing permanent vegetated drainage ditches to decrease the velocity of discharge, plus decreasing the volume of discharge by promoting infiltration and allowing for pollutant removal; and
- Maintaining existing vegetated areas.



This project will only result in work within the existing roadway footprint and will not encroach, cross, realign, or cause other hydraulic changes to a stream that may affect downstream channel stability.

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

While the project will result in a soil disturbance of 11.8 acres, no significant slope disturbance is anticipated for this project. The soil disturbed for segments 3 and 4 is mainly a result of the reconstruction of median areas extending from the median edge of the traveled way to the concrete median barrier, and no slopes steeper than 5 percent will be added. The proposed shoulder backing slopes to accommodate the overlay thickness are 4:1 (H:V) or flatter, as are all existing slopes.

At this phase of the project, the cost of design pollution prevention measures is estimated based on the size and complexity of the project. Individual design pollution prevention measures, including slope stabilization measures, will be identified during the design phase. At this stage of the project, design pollution prevention items are anticipated to include hydroseed and move in/move out.

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

For segments 1 and 2, the drainage pattern will not be altered. Runoff along the traveled way will continue to sheet flow to the outside shoulders. The median area drainage will remain the same as the existing condition, with flow from median drain inlets periodically conveyed through culverts to the roadside drainage ditches and channels (PM 0.0 to PM 13.0, south of Morrison Creek). For segments 3 and 4, from north of Morrison Creek to the end of the project limits, the drainage pattern will be altered. The median will be reconstructed to allow for sheet flow along the traveled way to the edge of shoulder, and the median drainage inlets will be capped and abandoned.

This project will propose to cap and abandon existing drainage inlets. Existing cross drains that will no longer receive runoff will also be abandoned. There are currently no known existing areas of erosion or slope failures at existing culvert crossings, so additional installation of flared end sections, rock slope protection or other outlet protection/velocity dissipation devices may not be required for the project. However, because the runoff will be draining to existing or proposed roadway ditches, calculations to be conducted during the design phase should show that the increase in volume can be contained within the ditches and that the increase in flow and velocity will not result in erosion or scour if the ditches are only vegetated and not lined with rock or other hard material.

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

Existing vegetation will be preserved to the maximum extent practicable. ESA fencing will be installed where necessary and will be shown in the Contract Plans with consultation from the Environmental Coordinator. Access by the Contractor is prohibited for the preservation of existing vegetation or protection of biological habitat. The project will have minimum

clearing and grubbing because the majority of the project is currently paved. A 5 foot wide swath will be graded 4:1 (H:V) with shoulder backing material for newly placed asphalt concrete overlay.

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

This project is not required to consider treatment BMPs because the added impervious area is less than 1 acre; see the attached Evaluation Documentation Form.

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

As presented in Section 2 of this report, this project is classified as Risk Level 2. The BMP costs for this project are estimated based on the “Percent of Total Cost Method” presented in Appendix F.6.1 of the Caltrans *Project Planning and Design Guide*. Project specific BMP measures will be specified and quantified during the design phase. This section presents the temporary construction site BMP strategy to be considered for this project to meet both current Caltrans criteria and the requirements presented in the CGP.

Storm Water Pollution Prevention Plan

The project has a DSA of 11.8 acres. Because this project disturbs more than one acre of soil, a Storm Water Pollution Prevention Plan (SWPPP) must be submitted by the Contractor prior to the start of construction. The SWPPP shall include a Construction Site Monitoring Program (CSMP) that presents procedures and methods related to the visual monitoring and sampling and analysis plans for non-visible pollutants, sediment and turbidity, and pH.

Rain Event Action Plan

Risk Level 2 projects are required to prepare a Rain Event Action Plan (REAP). The quantities and costs for REAP will be determined during the design phase.

Construction Site BMP Strategy

The construction work for this project is scheduled to cover three years. Whenever possible, the scheduling of earth-disturbing construction activities should not be made during anticipated rain events. To mitigate any potential runoff or run-on within the project area, construction site BMPs should be installed prior to the start of construction or as early as feasibly possible during construction.

DSAs will be protected in accordance with the project’s pollution control measures. Measures that are to be considered for this project will be detailed during the design phase and are shown below. The construction site BMP strategy for this project shall consist of the following:

- Soil Stabilization Measures
- Sediment Control Measures
- Tracking Control

- Non-storm Water Management Measures
- General Construction Site Management
- Storm Water Sampling and Analysis

A meeting with the Caltrans Construction Storm Water Coordinator will be held during the later phases of the project to ensure proper BMP selection for the project.

Storm Water Sampling and Analysis

This project is required to perform stormwater sampling at all discharge locations. Numeric Action Levels are applicable to this project because the project is Risk Level 2. The required specifications will be prepared during the design phase.

7. Maintenance BMPs (Drain Inlet Stenciling)

Drain inlet stenciling is not required because pedestrian traffic is prohibited within the project limits. Other types of maintenance BMPs will be considered during the design phase and coordinated with the Caltrans Maintenance Area Manager.

Required Attachments

- Vicinity Map
- Evaluation Documentation Form (EDF)
- Risk Level Determination Documentation
- SWDR Tracking Form

Supplemental Attachments

Note: Supplemental 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.

- Storm Water BMP Cost Summary
- Checklist SW-1, Site Data Sources
- Checklist SW-2, Storm Water Quality Issues Summary
- Checklist SW-3, Measures for Avoiding or Reducing Potential Storm Water BMPs
- Checklists DPP-1, Parts 1–5 (Design Pollution Prevention BMPs)

EXAMPLE ONLY

Evaluation Documentation Form

DATE: August 2010

Project ID (or EA): 03-XXXXXX

NO.	CRITERIA	YES ✓	NO ✓	SUPPLEMENTAL INFORMATION FOR EVALUATION
1.	Begin Project Evaluation regarding requirement for consideration of Treatment BMPs	✓		See Figure 4-1, Project Evaluation Process for Consideration of Permanent Treatment BMPs. Go to 2
2.	Is this an emergency project?		✓	If Yes, go to 10. If No, continue to 3.
3.	Have TMDLs or other Pollution Control Requirements been established for surface waters within the project limits? Information provided in the water quality assessment or equivalent document.	✓		If Yes, contact the District/Regional NPDES Coordinator to discuss the Department's obligations under the TMDL (if Applicable) or Pollution Control Requirements, go to 9 or 4. <i>FWS</i> (Dist./Reg. SW Coordinator initials) If No, continue to 4.
4.	Is the project located within an area of a local MS4 Permittee?	✓		If Yes. (<i>Sacramento County</i>), go to 5. If No, document in SWDR go to 5.
5.	Is the project directly or indirectly discharging to surface waters?	✓		If Yes, continue to 6. If No, go to 10.
6.	Is it a new facility or major reconstruction?		✓	If Yes, continue to 8. If No, go to 7.
7.	Will there be a change in line/grade or hydraulic capacity?	✓		If Yes, continue to 8. If No, go to 10.
8.	Does the project result in a <u>net increase of one acre or more of new impervious surface</u> ?		✓	If Yes, continue to 9. If No, go to 10. <i>0.8 acres (Net Increase New Impervious Surface)</i>
9.	Project is required to consider approved Treatment BMPs.			See Sections 2.4 and either Section 5.5 or 6.5 for BMP Evaluation and Selection Process. Complete Checklist T-1 in this Appendix E.
10.	Project is not required to consider Treatment BMPs. <i>FWS</i> (Dist./Reg. Design SW Coord. Initials) <i>BE</i> (Project Engineer Initials) <i>08/26/10</i> (Date)	✓		Document for Project Files by completing this form, and attaching it to the SWDR.

See Figure 4-1, Project Evaluation Process for Consideration of Permanent Treatment BMPs

Risk Level Determination Documentation

Figure 1 . R Factor (Value=85.46)

Rainfall Erosivity Factor Calculator for Small Construction Sites

Facility Information

Facility Name: I-5 Rehabilitation (PM 0.0/17.2)
Start Date: 01/01/2011
End Date: 12/31/2013
Latitude: 38.3754
Longitude: -121.4756

Erosivity Index Calculator Results

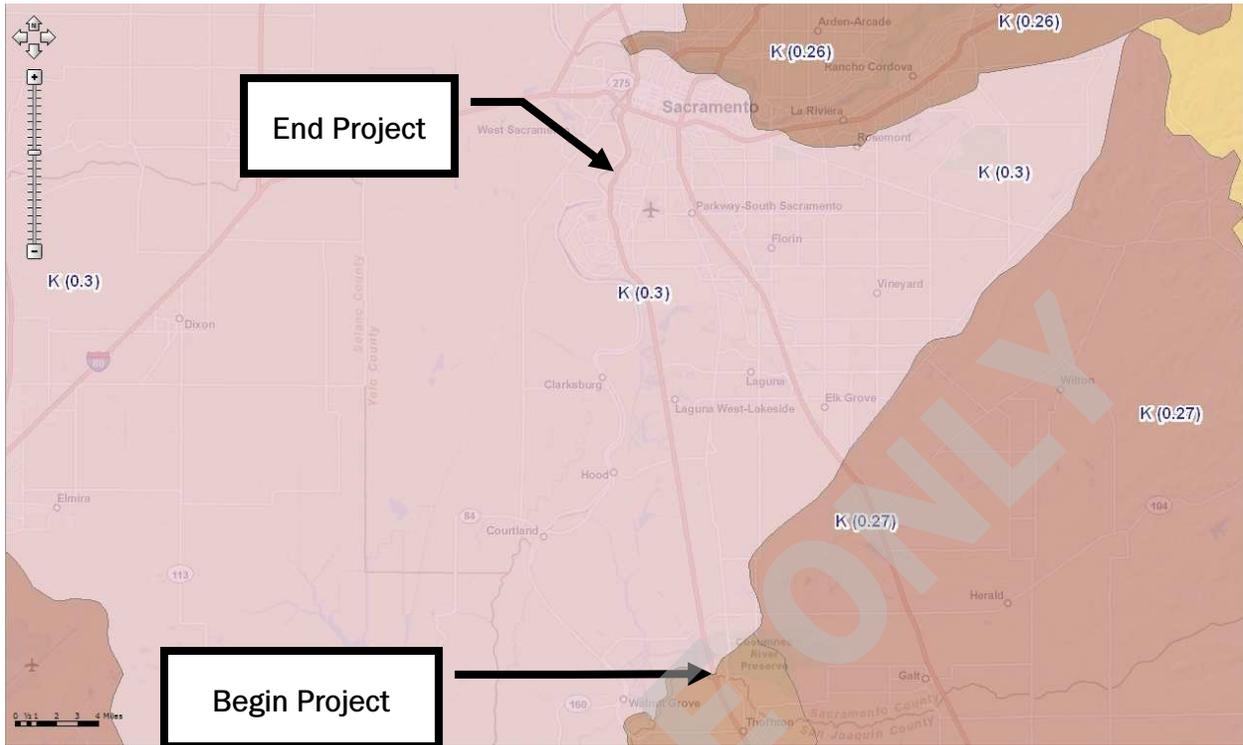
AN EROSION INDEX VALUE OF **85.46** HAS BEEN DETERMINED FOR THE CONSTRUCTION PERIOD OF **01/01/2011 - 12/31/2013**.

A rainfall erosion factor of 5.0 or greater has been calculated for your site and period of construction. **You do not qualify for a waiver from NPDES permitting requirements.**

Source: EPA < <http://cfpub.epa.gov/npdes/stormwater/lew/lewcalculator.cfm>>

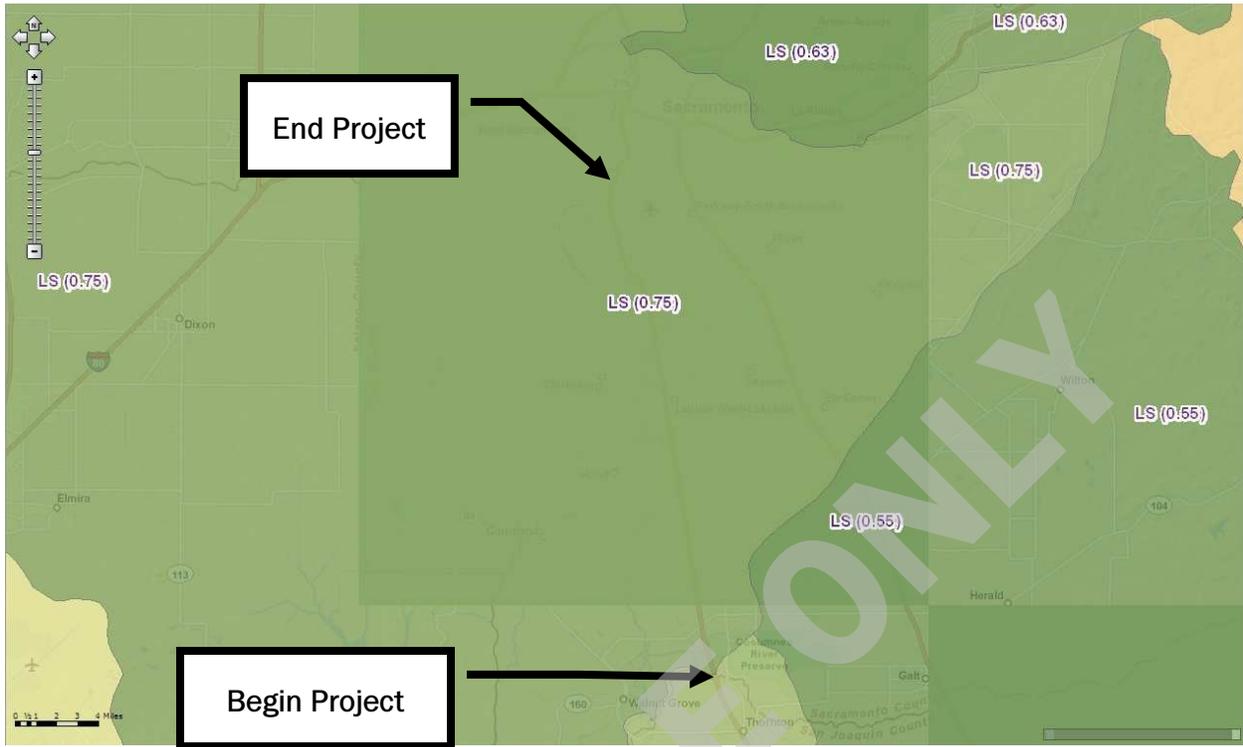


Figure 2 . K Factor from GIS Map (Value=0.30)



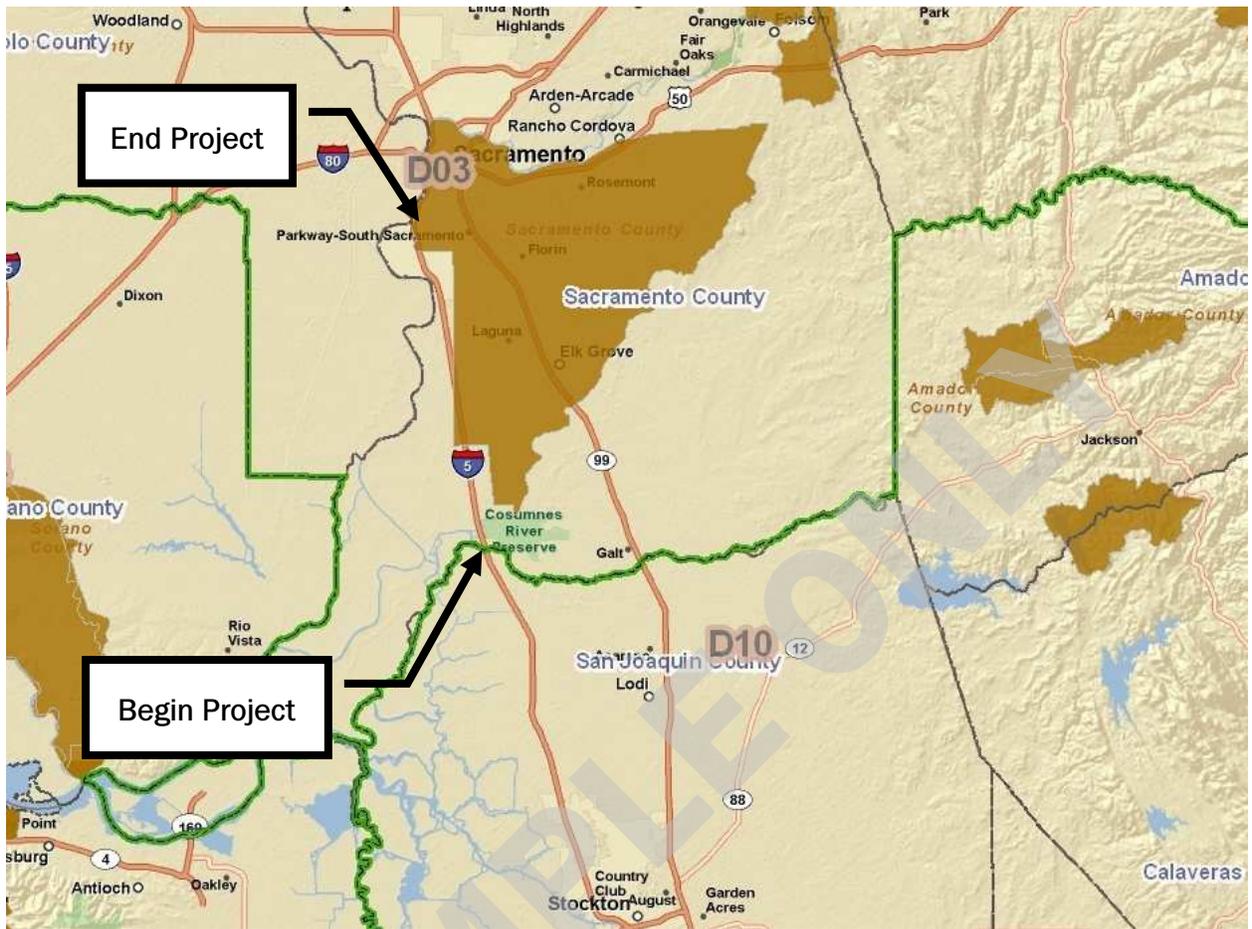
Source: Caltrans

Figure 3 . LS Factor from GIS Map (Value=0.75)



Source: Caltrans

Figure 4: Receiving Water Risk GIS Map



Source: Caltrans

Figure 5 . Risk Level Determination (Value=Risk Level 2)

		Sediment Risk		
		Low	Medium	High
Receiving Water Risk	Low	Level 1	Level 2	
	High	Level 2		Level 3

Project Sediment Risk: **Medium**
 Project RW Risk: **High**
 Project Combined Risk: **Level 2**

Source: State Water Resources Control Board

EXAMPLE ONLY

Report Date	Dist EA	District	EA	County	Route	Beg_PM	End_PM	Descrip	Phase	LongSWDR	PhaseRptDate	Exempt	TBMP	Pollution Program	Land Disturbance Acreage	AddImpArea	PercentTreated	MS4Area	MS4C/Co	Water Bodies Affected	Criteria	BioStrip	BioSwale	Detention	Infiltration	InfilTrench	GSRD	TST	DryWeath	MedFilter	MCTI	WetBasin	Const_Start	Const_Comp	SWComment
8/26/2010	03-XXXX	3	XXXXXX	Sac	5	0	17.2	Paveme	PID	TRUE	8/26/2010	FALSE	FALSE	SWPPP	11.8	0.8	0	TRUE	Sacramen	Morrison Creek, Mokelu	N/A	0	0	0	0	0	0	0	0	0	0	0	1/1/2011	12/31/2013	

EXAMPLE ONLY

EXAMPLE ONLY

Storm Water BMP Cost Summary - PID Phase Only
 THIS INFORMATION IS FOR CALTRANS INTERNAL USE ONLY

Project Name:	Interstate 5 Roadway Rehabilitation
District:	03
County:	Sacramento
Route:	5
Postmile Limits:	0.0/17.2
Project ID (or EA):	03-XXXXXX

1.0 DPP BMPs

BMP Quantity	Unit Cost		
1	\$120,000	SUBTOTAL \$	120,000

2.0 Prepare SWPPP

Total Construction Cost	Cost per Table F-6		
\$12,000,000	\$26,300	SUBTOTAL \$	26,300

RQM Value: \$20,300

3.0 Construction Site BMPs

Total Construction Cost	x.x% per Table F-3		
\$12,000,000	1.50%	SUBTOTAL \$	180,000

4.0 Stormwater Monitoring

Project Risk Level	SWM Cost (PPDG Appen F)		
2	\$149,200	SUBTOTAL \$	149,200

TOTAL COST FOR STORM WATER BMPs	\$ 475,500
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Checklist SW-1, Site Data Sources

Prepared by: B.Ross Date: August 2010 District-Co-Route: 03-Sac-5
 PM : 0.0/17.2 Project ID (or EA): 03-XXXXXX RWQCB: Central Valley (5S)

Information for the following data categories should be obtained, reviewed and referenced as necessary throughout the project planning phase. Collect any available documents pertaining to the category and list them and reference your data source. For specific examples of documents within these categories, refer to Section 5.5 of this document. Example categories have been listed below; add additional categories, as needed. Summarize pertinent information in Section 2 of the SWDR.

DATA CATEGORY/SOURCES	Date
Topographic	
<ul style="list-style-type: none"> Florin, CA Map, Contour Interval 5 ft, Elevation Data USGS 1 arc-second NED, 1 meter vertical precision. 	Version 1978, Current as of 1980
Hydraulic	
<ul style="list-style-type: none"> California State University, Sacramento. <i>Water Quality Planning Tool</i>. <http://stormwater.water-programs.com/> 	Accessed August 2010
Soils	
<ul style="list-style-type: none"> US Dept. of Agriculture (USDA), Natural Resources Conservation Service (NRCS). Web Soil Survey. http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx Caltrans. <i>Draft Geotechnical and Material Memorandum</i>. 	Accessed October 2009 August 2010
Climatic	
<ul style="list-style-type: none"> California Department of Transportation. <i>Statewide Storm Water Management Plan</i>. CTSW-RT-02-008 	May 2003
Water Quality	
<ul style="list-style-type: none"> State Water Resources Control Board. <i>2006 State Water Resources Control Board 303(d) List for Water Quality Limited Segments</i>. California Department of Transportation. <i>Storm Water Management Program District 3 Work Plan, Fiscal Year 2010-2011</i>. CTSW-RT-10-182-42.1 California State Water Resources Control Board (SWRCB). <i>National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities</i>. NPDES Number CAS000002. 	USEPA Approval Date June 28, 2007 April 1, 2010 September 2, 2009
Other Data Categories	
<ul style="list-style-type: none"> California Department of Transportation. <i>Storm Water Quality Handbooks—Construction Site Best Management Practices (BMPs) Manual</i>. Project Planning Design Guide, Storm Water Quality Handbooks. Caltrans State of California, Department of Transportation. 	March 2003 July 2010

Checklist SW-2, Storm Water Quality Issues Summary

Prepared by: B. Ross Date: August 2010 District-Co-Route: 03-Sac-5

PM : 0.0/17.2 Project ID (or EA): 03-XXXXXX RWQCB: Central Valley (5S)

The following questions provide a guide to collecting critical information relevant to project stormwater quality issues. Complete responses to applicable questions, consulting other Caltrans functional units (Environmental, Landscape Architecture, Maintenance, etc.) and the District/Regional Storm Water Coordinator as necessary. Summarize pertinent responses in Section 2 of the SWDR.

- | | | |
|--|--|--|
| 1. Determine the receiving waters that may be affected by the project throughout the project life cycle (i.e., construction, maintenance and operation). | <input checked="" type="checkbox"/> Complete | <input type="checkbox"/> NA |
| 2. For the project limits, list the 303(d) impaired receiving water bodies and their constituents of concern. | <input checked="" type="checkbox"/> Complete | <input type="checkbox"/> NA |
| 3. Determine if there are any municipal or domestic water supply reservoirs or groundwater percolation facilities within the project limits. Consider appropriate spill contamination and spill prevention control measures for these new areas. | <input type="checkbox"/> Complete | <input checked="" type="checkbox"/> NA |
| 4. Determine the RWQCB special requirements, including TMDLs, effluent limits, etc. | <input checked="" type="checkbox"/> Complete | <input type="checkbox"/> NA |
| 5. Determine regulatory agencies seasonal construction and construction exclusion dates or restrictions required by federal, state, or local agencies. | <input type="checkbox"/> Complete | <input checked="" type="checkbox"/> NA |
| 6. Determine if a 401 certification will be required. | <input type="checkbox"/> Complete | <input checked="" type="checkbox"/> NA |
| 7. List rainy season dates. | <input checked="" type="checkbox"/> Complete | <input type="checkbox"/> NA |
| 8. Determine the general climate of the project area. Identify annual rainfall and rainfall intensity curves. | <input checked="" type="checkbox"/> Complete | <input type="checkbox"/> NA |
| 9. If considering Treatment BMPs, determine the soil classification, permeability, erodibility, and depth to groundwater. | <input type="checkbox"/> Complete | <input checked="" type="checkbox"/> NA |
| 10. Determine contaminated soils within the project area. | <input checked="" type="checkbox"/> Complete | <input type="checkbox"/> NA |
| 11. Determine the total disturbed soil area of the project. | <input checked="" type="checkbox"/> Complete | <input type="checkbox"/> NA |
| 12. Describe the topography of the project site. | <input checked="" type="checkbox"/> Complete | <input type="checkbox"/> NA |
| 13. List any areas outside of the Caltrans right-of-way that will be included in the project (e.g. contractor's staging yard, work from barges, easements for staging, etc.). | <input type="checkbox"/> Complete | <input checked="" type="checkbox"/> NA |
| 14. Determine if additional right-of-way acquisition or easements and right-of-entry will be required for design, construction and maintenance of BMPs. If so, how much? | <input type="checkbox"/> Complete | <input checked="" type="checkbox"/> NA |
| 15. Determine if a right-of-way certification is required. | <input type="checkbox"/> Complete | <input checked="" type="checkbox"/> NA |
| 16. Determine the estimated unit costs for right-of-way should it be needed for Treatment BMPs, stabilized conveyance systems, lay-back slopes, or interception ditches. | <input type="checkbox"/> Complete | <input checked="" type="checkbox"/> NA |
| 17. Determine if project area has any slope stabilization concerns. | <input checked="" type="checkbox"/> Complete | <input type="checkbox"/> NA |
| 18. Describe the local land use within the project area and adjacent areas. | <input checked="" type="checkbox"/> Complete | <input type="checkbox"/> NA |
| 19. Evaluate the presence of dry weather flow. | <input type="checkbox"/> Complete | <input checked="" type="checkbox"/> NA |

Checklist SW-3, Measures for Avoiding or Reducing Potential Storm Water Impacts

Prepared by: B. Ross Date: August 2010 District-Co-Route: 03-Sac-5

PM : 0.0/17.2 Project ID (or EA): 03-XXXXXX RWQCB: Central Valley (5S)

The PE must confer with other functional units, such as Landscape Architecture, Hydraulics, Environmental, Materials, Construction and Maintenance, as needed to assess these issues. Summarize pertinent responses in Section 2 of the SWDR.

Options for avoiding or reducing potential impacts during project planning include the following:

1. Can the project be relocated or realigned to avoid/reduce impacts to receiving waters or to increase the preservation of critical (or problematic) areas such as floodplains, steep slopes, wetlands, and areas with erosive or unstable soil conditions? Yes No NA
2. Can structures and bridges be designed or located to reduce work in live streams and minimize construction impacts? Yes No NA
3. Can any of the following methods be utilized to minimize erosion from slopes:
 - a. Disturbing existing slopes only when necessary? Yes No NA
 - b. Minimizing cut and fill areas to reduce slope lengths? Yes No NA
 - c. Incorporating retaining walls to reduce steepness of slopes or to shorten slopes? Yes No NA
 - d. Acquiring right-of-way easements (such as grading easements) to reduce steepness of slopes? Yes No NA
 - e. Avoiding soils or formations that will be particularly difficult to re-stabilize? Yes No NA
 - f. Providing cut and fill slopes flat enough to allow re-vegetation and limit erosion to pre-construction rates? Yes No NA
 - g. Providing benches or terraces on high cut and fill slopes to reduce concentration of flows? Yes No NA
 - h. Rounding and shaping slopes to reduce concentrated flow? Yes No NA
 - i. Collecting concentrated flows in stabilized drains and channels? Yes No NA
4. Does the project design allow for the ease of maintaining all BMPs? Yes No
5. Can the project be scheduled or phased to minimize soil-disturbing work during the rainy season? Yes No
6. Can permanent storm water pollution controls such as paved slopes, vegetated slopes, basins, and conveyance systems be installed early in the construction process to provide additional protection and to possibly utilize them in addressing construction storm water impacts? Yes No NA



Design Pollution Prevention BMPs

Checklist DPP-1, Part 1

Prepared by: B. Ross Date: August 2010 District-Co-Route: 03-Sac-5
 PM : 0.0/17.2 Project ID (or EA): 03-XXXXXX RWQCB: Central Valley (5S)

Consideration of Design Pollution Prevention BMPs

Consideration of Downstream Effects Related to Potentially Increased Flow [to streams or channels]

- Will project increase velocity or volume of downstream flow? Yes No NA
- Will the project discharge to unlined channels? Yes No NA
- Will project increase potential sediment load of downstream flow? Yes No NA
- Will project encroach, cross, realign, or cause other hydraulic changes to a stream that may affect downstream channel stability? Yes No NA

If Yes was answered to any of the above questions, consider **Downstream Effects Related to Potentially Increased Flow**, complete the DPP-1, Part 2 checklist.

Slope/Surface Protection Systems

- Will project create new slopes or modify existing slopes? Yes No NA

If Yes was answered to the above question, consider **Slope/Surface Protection Systems**, complete the DPP-1, Part 3 checklist.

Concentrated Flow Conveyance Systems

- Will the project create or modify ditches, dikes, berms, or swales? Yes No NA
- Will project create new slopes or modify existing slopes? Yes No NA
- Will it be necessary to direct or intercept surface runoff? Yes No NA
- Will cross drains be modified? Yes No NA

If Yes was answered to any of the above questions, consider **Concentrated Flow Conveyance Systems**; complete the DPP-1, Part 4 checklist.

Preservation of Existing Vegetation

It is the goal of the Storm Water Program to maximize the protection of desirable existing vegetation to provide erosion and sediment control benefits on all projects. Complete

Consider **Preservation of Existing Vegetation**, complete the DPP-1, Part 5 checklist.

Design Pollution Prevention BMPs

Checklist DPP-1, Part 2

Prepared by: B. Ross Date: August 2010 District-Co-Route: 03-Sac-5
PM : 0.0/17.2 Project ID (or EA): 03-XXXXXX RWQCB: Central Valley (5S)

Downstream Effects Related to Potentially Increased Flow

1. Review total paved area and reduce to the maximum extent practicable. Complete
2. Review channel lining materials and design for stream bank erosion control. Complete
 - (a) See Chapters 860 and 870 of the HDM. Complete
 - (b) Consider channel erosion control measures within the project limits as well as downstream. Consider scour velocity. Complete
3. Include, where appropriate, energy dissipation devices at culvert outlets. Complete
4. Ensure all transitions between culvert outlets/headwalls/wingwalls and channels are smooth to reduce turbulence and scour. Complete
5. Include, if appropriate, peak flow attenuation basins or devices to reduce peak discharges. Complete

Design Pollution Prevention BMPs

Checklist DPP-1, Part 3

Prepared by: B. Ross Date: August 2010 District-Co-Route: 03-Sac-5
 PM : 0.0/17.2 Project ID (or EA): 03-XXXXXX RWQCB: Central Valley (5S)

Slope / Surface Protection Systems

1. What are the proposed areas of cut and fill? (attach plan or map) Complete
2. Were benches or terraces provided on high cut and fill slopes to reduce concentration of flows? Yes No
3. Were slopes rounded and/or shaped to reduce concentrated flow? Yes No
4. Were concentrated flows collected in stabilized drains or channels? Yes No
5. Are new or disturbed slopes > 4:1 horizontal:vertical (h:v)? Yes No
 If Yes, District Landscape Architect must prepare or approve an erosion control plan, at the District's discretion.
6. Are new or disturbed slopes > 2:1 (h:v)? Yes No
 If Yes, Geotechnical Services must prepare a Geotechnical Design Report, and the District Landscape Architect should prepare or approve an erosion control plan. Concurrence must be obtained from the District Maintenance Storm Water Coordinator for slopes steeper than 2:1 (h:v).
7. Estimate the net new impervious area that will result from this project. 0.8 acres Complete

VEGETATED SURFACES

1. Identify existing vegetation. Complete
2. Evaluate site to determine soil types, appropriate vegetation and planting strategies. Complete
3. How long will it take for permanent vegetation to establish? Complete
4. Minimize overland and concentrated flow depths and velocities. Complete

HARD SURFACES

1. Are hard surfaces required? Yes No
 If Yes, document purpose (safety, maintenance, soil stabilization, etc.), types, and general locations of the installations. Complete

Review appropriate SSPs for Vegetated Surface and Hard Surface Protection Systems. Complete

Design Pollution Prevention BMPs

Checklist DPP-1, Part 4

Prepared by: B. Ross Date: August 2010 District-Co-Route: 03-Sac-5
 PM : 0.0/17.2 Project ID (or EA): 03-XXXXXX RWQCB: Central Valley (5S)

Concentrated Flow Conveyance Systems

Ditches, Berms, Dikes and Swales

- 1. Consider Ditches, Berms, Dikes, and Swales as per Topics 813, 834.3, and 835, and Chapter 860 of the HDM. Complete
- 2. Evaluate risks due to erosion, overtopping, flow backups or washout. Complete
- 3. Consider outlet protection where localized scour is anticipated. Complete
- 4. Examine the site for run-on from off-site sources. Complete
- 5. Consider channel lining when velocities exceed scour velocity for soil. Complete

Overside Drains

- 1. Consider downdrains, as per Index 834.4 of the HDM. Complete
- 2. Consider paved spillways for side slopes flatter than 4:1 h:v. Complete

Flared Culvert End Sections

- 1. Consider flared end sections on culvert inlets and outlets as per Chapter 827 of the HDM. Complete

Outlet Protection/Velocity Dissipation Devices

- 1. Consider outlet protection/velocity dissipation devices at outlets, including cross drains, as per Chapters 827 and 870 of the HDM. Complete

Review appropriate SSPs for Concentrated Flow Conveyance Systems. Complete

Design Pollution Prevention BMPs

Checklist DPP-1, Part 5

Prepared by: B. Ross Date: August 2010 District-Co-Route: 03-Sac-5

PM : 0.0/17.2 Project ID (or EA): 03-XXXXXX RWQCB: Central Valley (5S)

Preservation of Existing Vegetation

1. Review Preservation of Property, Standard Specifications 16.1.01 and 16-1.02 (Clearing and Grubbing) to reduce clearing and grubbing and maximize preservation of existing vegetation. Complete

2. Has all vegetation to be retained been coordinated with Environmental, and identified and defined in the contract plans? Yes No

3. Have steps been taken to minimize disturbed areas, such as locating temporary roadways to avoid stands of trees and shrubs and to follow existing contours to reduce cutting and filling? Complete

4. Have impacts to preserved vegetation been considered while work is occurring in disturbed areas? Yes No

5. Are all areas to be preserved delineated on the plans? Yes No

EXAMPLE ONLY



EXAMPLE ONLY