



Summary of Changes to Caltrans Construction Site Best Management Practices Manual Between 2000 and 2003

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**California Department of Transportation
1120 N Street
Sacramento, California 95814**

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1.0 INTRODUCTION

This document summarizes revisions to the *Caltrans Construction Site Best Management Practices (BMPs) Manual* with the publication of the March 2003 edition. The comparison focuses on changes made to the November 2000 Manual that have the greatest potential impact to the Resident Engineer (RE) for ensuring that contractors comply with the revised Caltrans storm water requirements. The majority of changes made are based on “lesson-learned” from the Caltrans Construction Storm Water Action Team (SWAT) and requirements specified in the April 2002 Statewide Storm Water Management Plan (SWMP) and the April 2002 Statewide Storm Water Quality Practice Guidelines.

This document summarizes substantive changes in the following areas:

- Applicability
- Rainy Season and Rainfall Area Definitions
- Procedures for Rainfall Area 7
- BMP Placement on Slopes (Erosion Control Benches)
- Erosion and Sediment Control Requirements for Disturbed Soil Areas
- BMP Inspections
- New BMPs
- Selection of Temporary Soil Stabilization Controls
- BMP Working Details

2.0 APPLICABILITY

On March 10, 2003, the U.S. Environmental Protection Agency (EPA) and California State Water Resources Control Board (SWRCB) began regulating discharges from projects with soil disturbance of 0.4 hectare (1 acre) or more by amending the *NPDES General Permit, Waste Discharge Requirements (WDRs) for Discharges of Storm Water Runoff Associated with Construction Activity* (General Permit) and thus including coverage of projects with soil disturbance of 0.4 hectare (1 acre) or more. Accordingly, Caltrans requires contractors to prepare and implement a program to control water pollution effectively during the construction of all projects (see Standard Specification Section 7-1.01G Water Pollution). Caltrans Special Provisions require that for larger projects, defined as those resulting in 0.4 hectare (1 acre) or more of soil disturbance, Contractors prepare and submit a Storm Water Pollution Prevention Plan (SWPPP). When a SWPPP is required for a project, it will satisfy the requirements of Standard Specification Section 7-1.01G, in addition to meeting other permit requirements.



3.0 RAINY SEASON AND RAINFALL AREA DEFINITIONS

3.1 Rainy Season Dates

The designation of a project Rainy Season determines the required temporary erosion and sediment controls required for active and non-active DSAs. In the March 2003 *Construction Site Best Management Practices (BMP) Manual*, Figure 2-1 identifies the geographical boundaries for designated Rainy Season dates. Figure 1 is a comparison of the November 2000 and March 2003 rainy season boundaries and dates

3.2 Rainfall Area Designations

In the March 2003 *Construction Site Best Management Practices (BMPs) Manual*, Table 2-1 defines seven Rainfall Areas in the State, based on Regional Water Quality Control Board (RWQCB) jurisdiction, geographic location and elevation. The project's Rainfall Area designation determines the minimum combinations of erosion and sediment controls prescribed for DSAs, as described in Section 6.0.

4.0 PROCEDURES FOR RAINFALL AREA 7

For construction sites within Rainfall Area 7 (District 8 within the Colorado River Basin RWQCB jurisdictions, District 9 and District 11 within the Colorado River Basin RWQCB jurisdiction), the soil stabilization and control practices required for the construction site will be determined by the applicable RWQCB on a site-by-site basis. The following procedure shall be used to notify the applicable RWQCB for construction sites in Rainfall Area 7:

- Caltrans will notify the applicable RWQCB staff of construction sites in these areas at least 30 days prior to the start of construction.
- During the 30-day notification period, the RWQCB staff may request to review the SWPPP or meet with Caltrans to discuss the construction project.
- Within the 30-day notification period, the RWQCB may respond with specific soil stabilization and sediment control practices required for the site. If the RWQCB does not respond within the 30-day review period, then Caltrans can proceed with its construction activities as scheduled.
- Regardless of the RWQCB action, the RWQCB may inspect the site and take enforcement actions, if necessary, pending inspection findings.

For construction sites within Rainfall Area 7 (District 6, 7, and 8 within the Lahontan RWQCB jurisdiction) and within one mile of the Mojave or Amargosa River and their tributaries that are within one mile of these waterways, soil stabilization and sediment control measures must be implemented as specified for Area 4. All equipment must also be removed from waterways prior to any flash floods. All other projects located in the Lahontan RWQCB are not required to implement soil stabilization and sediment control measures.



5.0 BMP PLACEMENT ON SLOPES (EROSION CONTROL BENCHES)

The March 2003 *Construction Site Best Management Practices (BMPs) Manual* specifies that temporary soil stabilization and/or sediment barriers be applied to certain non-active disturbed soil areas (DSAs) so that slope lengths do not exceed the defined maximums. BMPs such as fiber rolls must be implemented to reduce slope length as follows:

- Slope inclination 1:4 (V:H) and flatter: BMPs shall be placed on slopes at intervals no greater than 6 m.
- Slope inclination between 1:4 (V:H) and 1:2 (V:H): BMPs shall be placed on slopes at intervals no greater than 4.5 m.
- Slope inclination 1:2 (V:H) or greater: BMPs shall be placed on slopes at intervals no greater than 3 m.

6.0 EROSION AND SEDIMENT CONTROL REQUIREMENTS FOR DSAs

In both the November 2000 and March 2003 *Construction Site Best Management Practices (BMP) Manuals*, Tables 2-2 and 2-3 define minimum effective combinations of erosion and sediment controls prescribed for non-active DSAs and active DSAs, respectively. Controls include soil stabilization, sediment barriers and desilting basins. Requirements are defined for the Rainy Season and the Non-Rainy Season.

Table 1 compares the minimum soil stabilization, temporary sediment controls and barriers for Non-Active DSAs as defined in the November 2000 and March 2003 *Construction Site Best Management Practices (BMP) Manuals*; Table 2 compares the minimum soil stabilization, temporary sediment controls and barriers for Non-Active DSAs

7.0 BMP INSPECTIONS

The BMP inspection frequency has increased from the requirements specified in the November 2000 *Construction Site Best Management Practices (BMP) Manual* by requiring inspections every two weeks during the non-rainy season, weekly during the rainy season, and as specified in the SWPPP. Following is a summary of the required inspections:

- Prior to a forecast storm.
- After a rain event that causes runoff from the construction site.
- At 24-hour intervals during extended rain events.
- As specified in the project Special Provisions and/or SWPPP.
- Every two weeks during the non-rainy season.
- Weekly during the rainy season.
- Or as directed by BMP Inspection Requirements or the Resident Engineer (RE).

Table 1

Comparison of Minimum Soil Stabilization, Temporary Sediment Controls, and Barriers for Non-Active DSAs

Table 2-2

RECOMMENDED COMBINATION OF TEMPORARY SOIL STABILIZATION AND TEMPORARY LINEAR SEDIMENT BARRIERS ⁽⁷⁾						
NON-ACTIVE DISTURBED SOIL AREAS						
SEASON	AREA DESIGNATION	TEMPORARY BMP	SLOPE (V:H) ⁽¹⁾			
			• 1:20	> 1:20 • 1:4	> 1:4 • 1:2	> 1:2
RAINY	AREAS 1 & 6	SOIL STABILIZATION ⁽⁵⁾	X	X	X	X
		LINEAR SEDIMENT BARRIER ^{(2) (5)}	X	X	X	X
		DESILTING BASIN ⁽³⁾		X	X	X
	AREAS 2, 3, 4 & 5	SOIL STABILIZATION ⁽⁵⁾	X	X	X	X
		LINEAR SEDIMENT BARRIER ⁽²⁾		X	X	X
		DESILTING BASIN				
	AREA 7	SOIL STABILIZATION				
		LINEAR SEDIMENT BARRIER ^{(2) (6)}	X	X	X	X
		DESILTING BASIN				
NON-RAINY	AREA 1	SOIL STABILIZATION ⁽⁵⁾	X ⁽⁴⁾	X ⁽⁴⁾	X	X
		LINEAR SEDIMENT BARRIER ⁽²⁾		X ⁽⁴⁾	X	X
		DESILTING BASIN				
	AREAS 2, 4 & 7	SOIL STABILIZATION				
		LINEAR SEDIMENT BARRIER				
		DESILTING BASIN				
	AREAS 3&5	SOIL STABILIZATION				
		LINEAR SEDIMENT BARRIER ⁽²⁾				X
		DESILTING BASIN				
	AREA 6	SOIL STABILIZATION ⁽⁵⁾	X ⁽⁴⁾	X ⁽⁴⁾	X	X
		LINEAR SEDIMENT BARRIER ⁽²⁾		X ⁽⁴⁾	X	X
		DESILTING BASIN ⁽³⁾				X



Table 2-2

REQUIRED COMBINATION OF TEMPORARY SOIL STABILIZATION AND TEMPORARY SEDIMENT CONTROLS AND BARRIERS ^{(6) (7)}							
NON-ACTIVE DISTURBED SOIL AREAS							
SEASON	AREA(S)	TEMPORARY BMP	SLOPE (V:H) ⁽¹⁾				
			1:20	> 1:20 1:4	> 1:4 1:2	> 1:2	
RAINY ⁽²⁾	1 & 6	SOIL STABILIZATION ⁽⁵⁾	X	X	X	X	
		SEDIMENT BARRIER ⁽⁵⁾	X	X	X	X	
		DESILTING BASIN ⁽³⁾		X	X	X	
	2, 3, 4 & 5	SOIL STABILIZATION ⁽⁵⁾	X	X	X	X	
		SEDIMENT BARRIER		X	X	X	
		DESILTING BASIN					
	7	SOIL STABILIZATION AND SEDIMENT CONTROL PRACTICES TO BE DETERMINED BY APPLICABLE RWQCB ⁽⁸⁾					
	NON-RAINY	1	SOIL STABILIZATION ⁽⁵⁾	X ⁽⁴⁾	X ⁽⁴⁾	X	X
			SEDIMENT BARRIER		X ⁽⁴⁾	X	X
DESILTING BASIN							
2 & 4		SOIL STABILIZATION					
		SEDIMENT BARRIER					
		DESILTING BASIN					
3 & 5		SOIL STABILIZATION					
		SEDIMENT BARRIER				X ⁽⁴⁾	
		DESILTING BASIN					
6		SOIL STABILIZATION ⁽⁵⁾	X ⁽⁴⁾	X ⁽⁴⁾	X	X	
		SEDIMENT BARRIER		X ⁽⁴⁾	X	X	
		DESILTING BASIN ⁽³⁾				X	
7		SOIL STABILIZATION AND SEDIMENT CONTROL PRACTICES TO BE DETERMINED BY APPLICABLE RWQCB ⁽⁸⁾					

- (1) Unless otherwise noted, the temporary BMP is required for the slope inclinations indicated on slope lengths greater than 3 meters. The maximum slope length is 30 meters for slope inclinations between 1:20 (V:H) and 1:2 (V:H) and 15 meters for steeper slopes.
- (2) Temporary desilting basin may be implemented in lieu of temporary linear sediment barrier if both are not specifically required by note 3.
- (3) Required in addition to the temporary linear sediment barrier, where feasible. Feasibility will depend on site-specific factors such as available right-of-way within the project limits, topography, soil type, disturbed soil area within watershed, and climate conditions.
- (4) Implementation of controls not required except directly prior to predicted rain.
- (5) The indicated temporary BMP required on all slope lengths.
- (6) For disturbed soil areas that are within 5 miles of the Salton Sea or the Colorado River and also within 150 meters of a permanent or intermittent stream as identified on an USGS quad map, the temporary BMPs indicated will be required.
- (7) Linear barrier systems are equivalent to what are sometimes referred to as perimeter systems. The intent is to provide a barrier to the transport of sediment at the downslope edge of soil disturbed areas.
- (8) Permanent erosion control seeding shall be applied during the defined seeding window to all non-active areas deemed substantially complete

- (1) Unless otherwise noted, the temporary BMP is required for the slope inclinations indicated on slope lengths greater than 3 meters.
- (2) The maximum slope length is 30 meters for slope inclinations between 1:20 (V:H) and 1:2 (V:H) and 15 meters for steeper slopes.
- (3) Required in addition to the temporary sediment barrier, where feasible. Feasibility will depend on site-specific factors such as available right-of-way within the project limits, topography, soil type, disturbed soil area within watershed, and climate conditions.
- (4) Implementation of controls not required except at least 24 hours prior to all predicted rain events.
- (5) The indicated temporary BMP is required on all slope lengths.
- (6) Sediment controls and barriers include all temporary sediment control construction BMPs identified in the Statewide Storm Water Quality Practice Guidelines associated with the SWMP and Section 4 of these guidelines. Linear barrier systems are equivalent to what are referred to in the General Construction Permit as perimeter controls. The intent is to prevent the transport of sediment at the downslope edge of disturbed soil areas.
- (7) Permanent erosion control seeding shall be applied to all non-active areas deemed substantially complete during the project's defined seeding window.
- (8) Refer to Section 2.2.6 for procedure.

Table 2

Comparison of Minimum Soil Stabilization, Temporary Sediment Controls, and Barriers for Active DSAs

Table 2-3

RECOMMENDED COMBINATION OF TEMPORARY SOIL STABILIZATION AND TEMPORARY LINEAR SEDIMENT BARRIERS ⁽¹⁾					
ACTIVE DISTURBED SOIL AREAS					
SEASON	AREA DESIGNATION	TEMPORARY BMP	SLOPE (V:H) ⁽¹⁾		
			1:20	> 1:20 1:2	> 1:2
RAINY	AREAS 1 & 6	SOIL STABILIZATION		X	X
		LINEAR SEDIMENT BARRIER ^{(2) (3)}	X	X	X
		DESILTING BASIN ⁽³⁾		X	X
	AREAS 2, 4 & 5	SOIL STABILIZATION			
		LINEAR SEDIMENT BARRIER ⁽³⁾		X	X
		DESILTING BASIN ⁽³⁾			X ⁽⁶⁾
	AREA 3	SOIL STABILIZATION			X ⁽⁶⁾
		LINEAR SEDIMENT BARRIER ⁽³⁾		X	X
		DESILTING BASIN ⁽³⁾			X ⁽⁶⁾
	AREA 7	SOIL STABILIZATION			
		LINEAR SEDIMENT BARRIER ^{(2) (7)}	X	X	X
		DESILTING BASIN			
NON-RAINY	AREA 1	SOIL STABILIZATION			
		LINEAR SEDIMENT BARRIER ⁽³⁾		X	X
		DESILTING BASIN			X ⁽⁶⁾
	AREAS 2, 3, 4, 5 & 7	SOIL STABILIZATION			
		LINEAR SEDIMENT BARRIER			
		DESILTING BASIN			
	AREA 6	SOIL STABILIZATION			
		LINEAR SEDIMENT BARRIER ⁽³⁾		X	X
		DESILTING BASIN ⁽³⁾			X

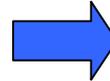


Table 2-3

REQUIRED COMBINATION OF TEMPORARY SOIL STABILIZATION AND TEMPORARY SEDIMENT CONTROLS AND BARRIERS ⁽¹⁾						
ACTIVE DISTURBED SOIL AREAS ⁽³⁾						
SEASON	AREA(S)	TEMPORARY BMP	SLOPE (V:H) ⁽¹⁾			
			1:20	> 1:20 1:2	> 1:2	
RAINY	1 & 6	SOIL STABILIZATION		X	X	
		SEDIMENT BARRIER ⁽⁴⁾	X	X	X	
		DESILTING BASIN ⁽³⁾		X	X	
	2, 4 & 5	SOIL STABILIZATION				
		SEDIMENT BARRIER		X	X	
		DESILTING BASIN ⁽³⁾			X	
	3	SOIL STABILIZATION			X ⁽⁶⁾	
		SEDIMENT BARRIER		X	X	
		DESILTING BASIN ⁽³⁾			X	
	7	SOIL STABILIZATION AND SEDIMENT CONTROL PRACTICES TO BE DETERMINED BY APPLICABLE RWQCB ⁽⁷⁾				
	NON-RAINY	1	SOIL STABILIZATION			
			SEDIMENT BARRIER		X	X
DESILTING BASIN ⁽³⁾					X	
2, 3, 4 & 5		SOIL STABILIZATION				
		SEDIMENT BARRIER				
		DESILTING BASIN				
6		SOIL STABILIZATION				
		SEDIMENT BARRIER		X	X	
		DESILTING BASIN ⁽³⁾			X	
7		SOIL STABILIZATION AND SEDIMENT CONTROL PRACTICES TO BE DETERMINED BY APPLICABLE RWQCB ⁽⁷⁾				

- (1) Unless otherwise noted, the BMP is required for the slope inclinations indicated on slope lengths greater than 3 meters.
- (2) Temporary desilting basin may be implemented in lieu of temporary linear sediment barrier if both are not specifically required by note 3.
- (3) Required in addition to the temporary linear sediment barrier, where feasible. Feasibility will depend on site-specific factors such as available right-of-way within the project limits, topography, soil type, disturbed soil area within watershed, and climate conditions.
- (4) Implementation of controls not required except directly prior to predicted rain.
- (5) The indicated temporary BMP required on all slope lengths.
- (6) The indicated temporary BMP required on slope lengths greater than 15 meters where feasible (see Note 3).
- (7) For disturbed soil areas that are within 5 miles of the Salton Sea or the Colorado River and also within 150 meters of a permanent or intermittent stream as identified on an USGS quad map, the temporary BMPs indicated will be required.
- (8) Linear barrier systems are equivalent to what are sometimes referred to as perimeter systems. The intent is to provide a barrier to the transport of sediment at the downslope edge of soil disturbed areas.

- (1) Unless otherwise noted, the BMP is required for the slope inclinations indicated on slope lengths greater than 3 meters.
- (2) Required in addition to the temporary sediment barrier, where feasible. Feasibility will depend on site-specific factors such as available right-of-way within the project limits, topography, soil type, disturbed soil area within watershed, and climate conditions.
- (3) Implementation of soil stabilization controls are not required except prior to predicted rain.
- (4) The indicated temporary BMP required on all slope lengths.
- (5) The indicated temporary BMP required on slope lengths greater than 15 meters.
- (6) Sediment controls and barriers include all temporary sediment control construction BMPs identified in the Statewide Storm Water Quality Practices Guidelines associated with the SWMP and Section 4 of these Guidelines. Linear barrier systems are equivalent to what are referred to in the General Construction Permit as perimeter controls. The intent is to provide a barrier to prevent the transport of sediment at the downslope edge of disturbed soil areas.
- (7) Refer to Section 2.2.6 for procedures.

8.0 NEW BMPs

Several new BMPs have been added to the March 2003 *Construction Site Best Management Practices (BMP) Manual*. The BMPs focus on specific activities that require attention and careful selection and implementation of other BMPs described in the Manual. Following is a summary of the newly added BMPs:

BMP Section	Description
SS-12 Streambank Stabilization	Drainage systems including the stream channel, streambank, and associated riparian areas, are dynamic and sensitive ecosystems that respond to changes in land use activity. Streambank and channel disturbance resulting from construction activities can increase the stream's sediment load, which can cause channel erosion or sedimentation and have adverse affects on the biotic system. Best Management Practices can reduce the discharge of sediment and other pollutants and minimize the impact of construction activities on watercourses. Streams included on the 303(d) list by the State Water Resources Control Board (SWRCB) may require careful evaluation to prevent any increases in sedimentation, siltation and/or turbidity to the stream.
NS-11 Pile Driving Operations	The construction and retrofit of bridges and retaining walls often include driving piles for foundation support and shoring operations. Driven piles are typically constructed of concrete, steel, or timber. Driven sheet piles are used for shoring and cofferdam construction. Proper control and use of equipment, materials, and waste products from pile driving operations will reduce the discharge of potential pollutants to the storm drain system or watercourses.
NS-12 Concrete Curing	Concrete curing is used in the construction of structures such as bridges, retaining walls, and pump houses. Concrete curing includes the use of both chemical and water methods. Proper procedures minimize pollution of runoff during concrete curing.
NS-13 Material and Equipment Use Over Water	Procedures for the proper use, storage, and disposal of materials and equipment on barges, boats, temporary construction pads, or similar locations that minimize or eliminate the discharge of potential pollutants to a watercourse
NS-14 Concrete Finishing	Concrete finishing methods are used for bridge deck rehabilitation, paint removal, curing compound removal, and final surface finish appearances. Methods include sand blasting, shot blasting, grinding, or high pressure water blasting. Proper procedures minimize the impact that concrete finishing methods may have on runoff.
NS-15 Structure Demolition/Removal Over or Adjacent to Water	Procedures to protect water bodies from debris and wastes associated with structure demolition or removal over or adjacent to watercourses.

9.0 SELECTION OF TEMPORARY SOIL STABILIZATION CONTROLS

To provide additional guidance on the selection of temporary soil stabilization controls, Appendix B was added to the March 2003 *Construction Site Best Management Practices (BMP) Manual*. A group of criteria was developed to allow for comparison and differentiation among the many available soil stabilization BMPs. These criteria include installed cost, erosion control effectiveness, drying time, and others. For some criteria, values have been assigned by characteristics: an example would be mode of application (e.g., hydraulic seeder, water truck, and hand labor). For other criteria, actual numeric values should be considered based on available data, such as drying time in hours. Table 3 summarizes selection criteria information and ratings for temporary soil stabilization BMPs.

10.0 BMP WORKING DETAILS

This section describes changes made to the working details of the individual BMPs contained in the November 2000 *Construction Site Best Management Practices (BMP) Manual*. The changes are summarized in Table 5 and are grouped in the following BMP categories:

- Temporary Soil Stabilization BMPs
- Temporary Sediment Control BMPs
- Wind Erosion Control BMPs
- Tracking Control BMPs
- Non-Storm Water Management BMPs
- Waste Management and Materials Pollution Control BMPs

**Table 3
Temporary Soil Stabilization Criteria Matrix**

CLASS	TYPE	Antecedent Moisture	Availability	Ease of Clean-Up	Installed Cost Per Ha	EC Effectiveness (%)	Degradability	Length of Drying Time (hrs)	Time to Effectiveness (days)	Longevity	Mode of Application	Residual Impact	Native	Runoff Effect
Straw Mulch	Wheat Straw	D	S	H	\$5,200	90-95	B	0	1	M	L/M	M		+
	Rice Straw	D	S	H	\$5,200	90-95	B	0	1	M	L/M	M		+
Wood Fiber Mulch	Wood Fiber	D	S	H	\$2,200	50-60	B	0-4	1	M	H	L		+
Recycled Paper Mulch	Cellulose Fiber	D	S	H	\$2,100	50-60	B	0-4	1	S	H	L		+
Bonded Fiber Matrix	Biodegradable	D	S	H	\$13,600	90-95	B	12-18	1	M	H	M		+
Biodegradable	Jute Mesh	D	S	H	\$16,000	65-70	B		1	M	L	M		+
	Curled Wood Fiber	D	S	H	\$26,000	85-90	P/B		1	M	L	M		+
	Straw	D	S	H	\$22,000	85-90	P/B		1	M	L	M		+
	Wood Fiber	D	S	H	\$22,000	85-90	P/B		1	M	L	M		+
	Coconut Fiber	D	S	H	\$32,000	90-95	P/B		1	L	L	M		+
	Coconut Fiber Mesh	D	S	H	\$77,000	85-90	B		1	L	L	M		+
	Straw Coconut Fiber	D	S	H	\$27,000	90-95	P/B		1	L	L	M		+
Non-Biodegradable	Plastic Netting	D	M	H	\$5,000	<50	P		1	L	L	H		+
	Plastic Mesh	D	M	H	\$8,000	75-80	P		1	L	L	H		+
	Synthetic Fiber with Netting	D	M	H	\$86,000	90-95	P		1	L	L	H		+
	Bonded Synthetic Fibers	D	M	H	\$121,000	90-95	P		1	L	L	H		+
	Combination with Biodegradable	D	M	H	\$79,000	85-90	P		1	L	L	H		+
High-Density	Ornamentals		S-M	H	\$1000 - \$4000	50-60			28	M-L	H	L-M	N/E	+
	Turf species		S	H	\$900	50-60			28	L	H	M-H	N/E	+
	Bunch grasses		S-M	H	\$750 - \$3200	50-60			28	L	H	L-M	N	+
Fast-Growing	Annual		S	H	\$900 - \$1,600	50-60			28	L	H	L-H	N/E	+
	Perennial		S	H	\$800 - \$2000	50-60			28	L	H	M	N/E	+
Non-Competing	Native		S-M	H	\$700 - \$4000	50-60			28	L	H	L-M	N	+
	Non-Native		S-M	H	\$1000 - \$1200	50-60			28	L	H	L-H	E	+
Sterile	Cereal Grain		S	H	\$1,200	50-60			28	L	H	L	E	+
Plastic	Rolled Plastic Sheeting		S		\$17,000	100	P		1	M	L	H		-
	Geotextile (Woven)		S		\$14,800	90-95	P		1	M	L	H		-
(PBS) Plant Material Based- Short Lived	Guar	D	S	H	\$1,000	80-85	B	12-18	Same as Length of Drying Time.	S	B	L		0/+
	Psyllium	P	S	H	\$1,000	25-35	B	12-18		M	B	L		0
	Starches	D	S	H	\$1,000	25-30	B	9-12		S	H	L		0
(PBL) Plant Material Based- Long Lived	Pitch/ Rosin Emulsion	D	S	M	\$3,000	60-75	B	19-24		M	B	M		-
(PEB) Polymeric Emulsion Blends	Acrylic polymers and copolymers	D	S	M	\$3,000	35-70	P/C	19-24		L	B	M		+/-
	Methacrylates and acrylates	D	M	M	\$1,000	35-40	P/C	12-18		S	W	L		0/+
	Sodium acrylates and acrylamides	D	M	M	\$1,000	20-70	P/C	12-18		S	H	L		+/-
	Polyacrylamide	D	M	M	\$1,000	55-65	P/C	4-8		M	H	L		0/+
	Hydro-colloid polymers	D	M	H	\$1,000	25-40	P/C	0-4		M	H	L		0/+
(PRB) Petroleum/ Resin-Based Emulsions	Emulsified Petroleum Resin	D	M	L	\$3,000	10-50	P/C	0-4	M	B	M		0/-	
(CBB) Cementitious Based Binders	Gypsum	D	S	M	\$2,000	75-85	P/C	4-8	M	H	L		-	

█ = not applicable for category, class or type
 UNK = unknown

Source: *Guidance Document – Soil Stabilization for Temporary Slopes*, URS Greiner Woodward Clyde, November 1999.



Table 3 (Continued)
Temporary Soil Stabilization Criteria Matrix

Antecedent Moisture	D	Soil should be relatively dry before application
	P	Soil should be pre-wetted before application
Availability	S	A short turn-around time between order and delivery, usually 3-5 days
	M	A moderate turnaround time, between 1-2 weeks
Ease of Clean-Up	L	Require pressure washing, a strong alkali solution, or solvent to clean up
	M	Requires cleanup with water while wet; more difficult to clean up once dry
	H	May be easily removed from equipment and overspray areas by a strong stream of water
Installed Cost		Dollars per hectare
Erosion Control Effectiveness		Percent reduction in soil loss over bare soil condition.
Degradability	C	Chemically degradable
	P	Photodegradable
	B	Biodegradable
Length of Drying Time		Estimated hours
Time to Effectiveness		Estimated days
Longevity	S	1 - 3 months
	M	3 - 12 months
	L	> than 12 months
Application Mode	L	Applied by hand labor
	W	Applied by water truck
	H	Applied by hydraulic mulcher
	B	Applied by either water truck or hydraulic mulcher
	M	Applied by a mechanical method other than those listed above (e.g., straw blower)
Residual Impact	L	Projected to have a low impact on future construction activities
	M	Projected to have a moderate impact on future construction activities
	H	Projected to have a significant impact on future construction activities
Native	N	Plant or plant material native to the State of California
	E	Exotic plant not native to the State of California
Runoff Effect	+	Runoff is decreased over baseline (bare soil)
	0	No change in runoff from baseline
	-	Runoff is increased over baseline

Table 4
Summary of Temporary BMP Changes

Temporary Soil Stabilization Best Management Practices	
BMP Section	Description of Change
SS-1 Scheduling	<ul style="list-style-type: none"> • Added implementation of BMP during the non-rainy season. • Stabilizing non-active areas is specified as “within 14 days from the cessation of soil-disturbing activities or one day prior to the onset of precipitation, whichever occurs first.”
SS-2 Preservation of Existing Vegetation	<ul style="list-style-type: none"> • Earlier document referenced several treatment procedures related to damaged trees. These have been replaced with the comment, “Serious tree injuries shall be attended to by an arborist.”
SS-3 Hydraulic Mulch	<ul style="list-style-type: none"> • Added language of being applied by hydroseeding equipment. • Added limitation that paper mulches are not permitted. • Added application rates and a reference to specifications for wood fiber mulch, which can be found in Standard Specifications Sections 20-2.07 and 2.08. • Added specification for Bonded Fiber Matrix including composition, application rate, and drying time.
SS-4 Hydroseeding	<ul style="list-style-type: none"> • Reference to “paper” fibers removed. • Added limitation for use of hydroseeding as erosion control when adequate time is available for growth. • Specific pretreatment of “Rolling with a crimping or punching type roller or track walking” is specified as compared to a more general statement.

Table 4
Summary of Temporary BMP Changes

Temporary Soil Stabilization Best Management Practices	
BMP Section	Description of Change
SS-5 Soil Binders	<ul style="list-style-type: none"> • Added application for use on stockpiles to prevent water and wind erosion. • Added statement for possible reapplication after a storm event. • Added reference to requirement that storm water sampling maybe required. Binders that don't require sampling were identified. • Added prior to application, roughen embankment and fill areas by rolling with a crimping or punching type rollers or track walking. • References for use of soil binders for dust control are removed. • Added specifications for Plant-Material Based (Short Lived) with details for guar, psyllium, and starch. • Added specifications for Plant-Material Based (Long Lived) with details for Pitch and Rosin Emulsion and applications for clayey and sandy soils. • Added specifications for –Polymeric Emulsion Blends including details for: Acrylic Copolymers and Polymers; Liquid Polymers of Methacrylates and Acrylates; Copolymers of Sodium Acrylates and Acrylamides; Poly-Acrylamide and Copolymer of Acrylamide; and Hydro-Colloid Polymers. • Added specifications for cementitious-based binders with details for gypsum use. • Properties table edited to reflect properties of: Plant-Material Based (Short Lived); Plant-Material Based (Long Lived); Polymeric Emulsion Blends; and Cementitious-Based Binders. • Changed use of a “tackifier” for anchoring to use of “stabilizing emulsion.” • Added specifications on soil preparation for use of anchoring with stabilizing emulsions.
SS-6 Straw Mulch	<ul style="list-style-type: none"> • Added specification if stabilizing emulsion anchor is used, embankment roughing with a crimping or punching-type roller or tracking walking is necessary before placing straw mulch.

Table 4
Summary of Temporary BMP Changes

Temporary Soil Stabilization Best Management Practices	
BMP Section	Description of Change
<p align="center">SS-7</p> <p align="center">Geotextiles, Plastic Covers, & and Erosion Control Blankets/Mats</p>	<ul style="list-style-type: none"> • Added limitation for maximum flow rate limitations. • General language for material selection is replaced with specific language for material types and requirements. • Revised specification for woven polypropylene fabric from a minimum thickness of 15mm to 1.5mm. • Staples for geotextiles should be “Staples...made of 3.05-mm steel wire and...U-shaped with 200-mm legs and 50-mm crown.” • Added biodegradable rolled erosion control products (RECPs) specifications for: Jute, Excelsior, straw blanket, wood fiber blanket, coconut fiber blanket, coconut fiber mesh, and straw coconut fiber blanket. • Added non-biodegradable RECPs specifications for: plastic netting, plastic mesh, synthetic fiber with netting, bonded synthetic fibers, combination synthetic and biodegradable RECPs. • Added that the temporary soil stabilizer may be left in place with RE approval.
<p align="center">SS-8</p> <p align="center">Wood Mulching</p>	<ul style="list-style-type: none"> • No substantive changes made.
<p align="center">SS-9</p> <p align="center">Earth Dikes/Drainage Swales & Lined Ditches</p>	<ul style="list-style-type: none"> • No substantive changes made.
<p align="center">SS-10</p> <p align="center">Outlet Protection/Velocity Dissipation Devices</p>	<ul style="list-style-type: none"> • No substantive changes made.
<p align="center">SS-11</p> <p align="center">Slope Drains</p>	<ul style="list-style-type: none"> • No substantive changes made.

Table 4
Summary of Temporary BMP Changes

Temporary Soil Stabilization Best Management Practices	
BMP Section	Description of Change
SS-12 Stream Stabilization	<ul style="list-style-type: none"> Newly added BMP that addresses drainage systems including the stream channel, streambank, and associated riparian areas, are dynamic and sensitive ecosystems that respond to changes in land use activity. Streambank and channel disturbance resulting from construction activities can increase the stream's sediment load, which can cause channel erosion or sedimentation and have adverse affects on the biotic system. Best Management Practices can reduce the discharge of sediment and other pollutants and minimize the impact of construction activities on watercourses. Streams included on the 303(d) list by the State Water Resources Control Board (SWRCB) may require careful evaluation to prevent any increases in sedimentation, siltation and/or turbidity to the stream.

Table 4
Summary of Temporary BMP Changes

Temporary Sediment Control Best Management Practices	
BMP Section	Description of Change
SC-1 Silt Fence	<ul style="list-style-type: none"> • Added limitation of not implementing on slopes subject to creeping, slumping, and landslides. • Added limitation for not implementing in areas of concentrated flow (e.g., inlets). • Added limitation to not use silt fences for diverting flow. • Added specification for silt fence to meet Standard Specifications Section 6-1.07. • Installation using bar reinforcement is added as an option and specifies number 4 bars with end protection. • Added installation specification to key in silt fence a minimum 300 mm.

Table 4
Summary of Temporary BMP Changes

Temporary Sediment Control Best Management Practices	
BMP Section	Description of Change
<p align="center">SC-2</p> <p>Sediment/Desilting Basin</p>	<ul style="list-style-type: none"> • Sediment Basin is added to Desilting Basins in the title and subsequent descriptions. • Sediment Basins are to be designed in accordance with Section A of the State of California NPDES General Permit for Storm Water Discharges Associated with Construction Activities (General Permit). • Desilting Basin is specified for use when area is not available for Sediment Basins. • Four options, consistent with the General Permit are added as specifications for designing Sediment/Desilting Basins. • Removed particle size restrictions on Desilting Basin option. • Added minimum desiltation volume for Sediment/Desilting Basins of 102 cubic meters per 0.4 hectare. • Emergency and spillway requirements added. • Added specification on maximizing inlet and outlet distance and protecting inlet from erosive action. • Added specifications for materials used to construct outlets and for addition of trash screening devices. • Added option of using rock walls or gabions as screening devices. • Specifications for a 24-hour and a 72-hour drawdown time are added. • New design calculations provided for sizing a single outlet orifice or multi-orifice riser. • Added requirement to remove standing water from the basin within 72 hours after accumulation. • Add disposal of sediment to maintenance specification.

Table 4
Summary of Temporary BMP Changes

Temporary Sediment Control Best Management Practices	
BMP Section	Description of Change
SC-3 Sediment Trap	<ul style="list-style-type: none"> • Added definition of “containment area that allows sediment in collected storm water to settle out during infiltration or before the runoff is discharged through a stabilized spillway.” • Removed definitions for dewatering if necessary after 72 hours. • 3:1 (L:W) ratio removed. • Maximizing path to inlet removed. • 72 hours for infiltration and necessary dewatering moved to maintenance section.
SC-4 Check Dam	<ul style="list-style-type: none"> • Gravel bags, fiber rolls and other proprietary products are added as construction material. • Fiber rolls can be used with RE or NPDES Coordinator approval. • Gravel bags may be used with several specifications listed below: <ul style="list-style-type: none"> ○ Gravel diameter only listed as between 10-20 mm. ○ Bag size and bag material both added and consistent with Gravel Bag discussions. ○ Installation specification for stacking gravel bags is added.

Table 4
Summary of Temporary BMP Changes

Temporary Sediment Control Best Management Practices	
BMP Section	Description of Change
SC-5 Fiber Rolls	<ul style="list-style-type: none"> • Fiber roll materials change from “straw, flax , or other materials “ to “wood excelsior, rice or wheat straw, or coconut fibers.” • Specification that rolls be placed at the grade breaks, toe and face of slopes. • Specifies that fiber rolls can be used for drain inlet protection if they can be properly anchored and require approval by the Resident Engineer or District Construction Storm Water Coordinator. • Specifies fiber rolls can be used as check dams specifically in unlined ditches and require approval by the Resident Engineer or District Construction Storm Water Coordinator. • Larger size fiber rolls may be needed at toe of slopes. • Restricts use on slopes subject to creep slumping or landslides. • Installation on slopes 1:2 or greater changed from intervals of no greater than 7.5 m for slopes no greater than 15m to an interval of 3.0m regardless of slope length. • Placement intervals of 6.0 m and 4.5m apart for slopes of 1:4 or flatter and 1:4 to 1:2, respectively; changed from an interval of 15 m and 7.5m for slopes of 1:20 to 1:2 and 1:2 or greater, respectively. • Fiber rolls shall be overlapped and not abutted. • Maintenance features associated with sediment build-up height and removal are added. Build-up of up to ¾ the height of the roll is specified. • New installation details provided showing overlapping fiber rolls, 2 different sling style roping tie downs and notched stakes.

Table 4
Summary of Temporary BMP Changes

Temporary Sediment Control Best Management Practices	
BMP Section	Description of Change
<p align="center">SC-6 Gravel Bag Berm</p>	<ul style="list-style-type: none"> • Added language for application where flows are moderately concentrated. • Applications added for specific activities or drainage characteristics for example at the toe of slope, in channels, run-on control, perimeter barrier, managing flows and around stockpiles. • Revised specifications provided for fill material (10mm to 20mm in diameter). • Burlap bags are no longer allowed. • Added installation requirements for linear sediment control, concentrated flows, and at the toe of slopes. • Added requirement for meeting Certificate of Compliance per Standard Specifications 6-1.07.
<p align="center">SC-7 Street Sweeping and Vacuuming</p>	<ul style="list-style-type: none"> • No substantive changes made.
<p align="center">SC-8 Sandbag Barrier</p>	<ul style="list-style-type: none"> • Installation category of “linear sediment removal” changed to “linear sediment control.” • Burlap bags are no longer allowed.

Table 4
Summary of Temporary BMP Changes

Temporary Sediment Control Best Management Practices	
BMP Section	Description of Change
SC-9 Straw Bale Barrier	<ul style="list-style-type: none"> • Added limitation that bales can be an attractive animal food source. • Added limitation that bales can invite undesirable non-native plant species. • Added option to allow use of #4 steel bars to secure bales.
SC-10 Storm Drain Inlet Protection	<ul style="list-style-type: none"> • Sandbags are no longer allowed for inlet protection. • Gravel bags are allowed for inlet protection. • Added option of using fiber rolls and foam barriers if they can be properly anchored and are approved of by the Resident Engineer or District Construction Storm Water Coordinator. • Use of a filter fabric fence method has an added specification when grade is established and erosion control seeding has been applied or is pending. • Type – 2 excavated drop inlets are specified in areas of exposed soils. • Gravel bag barriers are specified for sites with AC or paved surfaces. • Foam and fiber roll application requires approval and use with areas of exposed soils. • Added specification on removing built-up sediment from foam barriers and silt fence.

Table 4
Summary of Temporary BMP Changes

Wind Erosion Control Best Management Practices	
BMP Section	Description of Change
WE-1 Wind Erosion Control	<ul style="list-style-type: none"> Reference to Section 10 of the Caltrans Standard Specifications as appropriate was removed.

Tracking Control Best Management Practices	
BMP Section	Description of Change
TC-1 Stabilized Construction Entrance/Exit	<ul style="list-style-type: none"> Added implementation for Street Sweeping and Vacuuming as needed. All exit locations intended to be used continuously and for a period of time shall have stabilized construction entrance/exit BMPs. Clarified construction details.
TC-2 Stabilized Construction Roadways	<ul style="list-style-type: none"> Added application where there are steep grades and added traction is needed.
TC-3 Entrance/Outlet Tire Wash	<ul style="list-style-type: none"> Added specification of a geotextile fabric placed below the aggregate. Added specification for street sweeping and vacuuming as needed, and use of constructed or prefabricated steel plate with ribs for entrance/exit access. Clarified construction detail.

**Table 4
Summary of Temporary BMP Changes**

Non-Storm Water Management Best Management Practices	
BMP Section	Description of Change
NS-1 Water Conservation Practices	<ul style="list-style-type: none"> • Added specification to stabilize water truck filling area. • Added specification to not use water to clean pavement. • Added report discharges to RE immediately.
NS-2 Dewatering Operations	<ul style="list-style-type: none"> • Dewatering shall be conducted in accordance with the Field Guide to Construction Site Dewatering, October 2001, CTSW-RT01-010. • Added language that dewatering plans are required as part of the SWPPP • Added specifications on RWQCB requirements for permitting dewatering and discharge rates etc. • Provided a flow chart that identifies permitting and monitoring requirements associated with dewatering operations. • Provided descriptions of a variety of methods to treat water during dewatering operations.
NS-3 Paving and Grinding Operations	<ul style="list-style-type: none"> • “Plastic Material” is required instead of “drip pans or adsorbent materials” for placing under AC equipment. • Silt fences are specified until chip sealing and related sweeping activities are complete. • Added specification for chip seal application and preventing the release to the storm drain. • Residue from PCC grinding operations shall be handled consistent with BMP WM-8, “Concrete Waste Management” and Standard Specifications Section 42-2 instead of Section 15-3.02.

Table 4
Summary of Temporary BMP Changes

Non-Storm Water Management Best Management Practices	
BMP Section	Description of Change
NS-4 Temporary Stream Crossing	<ul style="list-style-type: none"> • The term “without entering the water” is removed from the definition. • Added installation of temporary sediment control BMPs in accordance with sediment control BMPs presented in Section 4 to minimize erosion of embankment into flow lines. • Added use of cellular confinement system (CCS). • Added allowance for fords (even with CCSs) to be used in low flow perennial streams. • Added specifications for CCS construction including depth and type of rock. • Revised details adding soil stabilization and sediment control measures adjacent to temporary stream crossings.

**Table 4
Summary of Temporary BMP Changes**

Non-Storm Water Management Best Management Practices	
BMP Section	Description of Change
NS-5 Clear Water Diversion	<ul style="list-style-type: none"> • Many more structural materials are added to the definition including gravel bags, rock, sheet piles, cofferdams, filter fabric, turbidity curtains, pipes, flumes, and aqua barriers. • Added specific applications for clear water diversions and pump diversions. • Added application statement that “Diversion or isolation activities should not completely dam stream flow.” • Added reference to implement guidelines in BMP NS-17, “Streambank Stabilization.” • Added requirement that clear water diversion operations shall be conducted in accordance with Field Guide to Construction Site Dewatering, October 2001, CTSW-RT-01-010. • Added specification that equipment shall not be parked below high water mark. • Language for use of sand bags is removed. • Detailed specifications are added for type of isolation techniques including: Filter fabric; Turbidity Curtain; K-Rail River Isolation; and Stream Diversions. • Added specification of Instream Construction Sediment Control. • Added techniques for reducing TSS including padding and use of clean washed gravel. • Added specifications for washing fines. • Added numerous drawings reflecting the added types of diversion techniques.
NS-6 Illicit Connection/Illegal Discharge Detection and Reporting	<ul style="list-style-type: none"> • No substantive changes made.
NS-7 Potable Water/Irrigation	<ul style="list-style-type: none"> • Added specifications for inspecting for excess watering and erosion. • Added RE approval prior to any washing activities that could cause a discharge to a storm drain.



**Table 4
Summary of Temporary BMP Changes**

Non-Storm Water Management Best Management Practices	
BMP Section	Description of Change
<p align="center">NS-8</p> <p align="center">Vehicle and Equipment Cleaning</p>	<ul style="list-style-type: none"> • Added washing fluids shall be handled according to WM-10 and WM-6. • Added prohibition for use of diesel fuel for cleaning. • Added specification that facility wash racks will not discharge to storm water drainage system or waterbody.
<p align="center">NS-9</p> <p align="center">Vehicle and Equipment Fueling</p>	<ul style="list-style-type: none"> • No substantive changes made..
<p align="center">NS-10</p> <p align="center">Vehicle and Equipment Maintenance</p>	<ul style="list-style-type: none"> • No substantive changes made.
<p align="center">NS-11</p> <p align="center">Pile Driving Operations</p>	<ul style="list-style-type: none"> • Newly added BMP that addresses the construction and retrofit of bridges and retaining walls include driving piles for foundation support and shoring operations. Driven piles are typically constructed of concrete, steel, or timber. Driven sheet piles are used for shoring and cofferdam construction. Proper control and use of equipment, materials, and waste products from pile driving operations will reduce the discharge of potential pollutants to the storm drain system or watercourses.
<p align="center">NS-12</p> <p align="center">Concrete Curing</p>	<ul style="list-style-type: none"> • Newly added BMP that addresses concrete curing used for the construction of structures such as bridges, retaining walls, and pump houses. Concrete curing includes the use of both chemical and water methods. Proper procedures minimize pollution of runoff during concrete curing.
<p align="center">NS-13</p> <p align="center">Material and Equipment Use Over Water</p>	<ul style="list-style-type: none"> • Newly added BMP that includes procedures for the proper use, storage, and disposal of materials and equipment on barges, boats, temporary construction pads, or similar locations that minimize or eliminate the discharge of potential pollutants to a watercourse

Table 4
Summary of Temporary BMP Changes

Non-Storm Water Management Best Management Practices	
BMP Section	Description of Change
NS-14 Concrete Finishing	<ul style="list-style-type: none"> Newly added BMP that addresses concrete finishing methods used for bridge deck rehabilitation, paint removal, curing compound removal, and final surface finish appearances. Methods include sand blasting, shot blasting, grinding, or high pressure water blasting. Proper procedures minimize the impact that concrete finishing methods may have on runoff.
NS-15 Structure Demolition/Removal Over or Adjacent to Water	<ul style="list-style-type: none"> Newly added BMP that includes procedures to protect water bodies from debris and wastes associated with structure demolition or removal over or adjacent to watercourses.

**Table 4
Summary of Temporary BMP Changes**

Waste Management and Materials Pollution Control Best Management Practices	
BMP Section	Description of Change
<p align="center">WM-1</p> <p>Material Delivery and Storage</p>	<ul style="list-style-type: none"> • Added application for storing soil stabilizers and binders, and pesticides. • Added specifications for spill containment storage volume. • Added specification for temporary containment facilities to have permanent cover and side wind protection during the rainy season. • Revised spill containment volume to require 110% of all the containers or the largest container and volume of rain from a 24-hour, 25-year storm event versus 1.5 times volume of all containers. • Added language for collecting spills and rain water. • Added specification to require sufficient separation between stored containers.
<p align="center">WM-2</p> <p>Material Use</p>	<ul style="list-style-type: none"> • Added listing for soil stabilizers and binders.
<p align="center">WM-3</p> <p>Stockpile Management</p>	<ul style="list-style-type: none"> • Added to definition to reduce air pollution. • Added specification to locate stockpiles 15 meters from concentrated flows, etc. • Revised soil stockpile specification for the non-rainy season to require covers and sediment barriers prior to rain. • Added designation and specification for stockpiles of pressure treated wood treated with copper, chromium, and arsenic or ammonical, copper, zinc, and arsenate. • Added inspection and removal requirements for sediment.
<p align="center">WM-4</p> <p>Spill Prevention and Control</p>	<ul style="list-style-type: none"> • Added specification requiring dumpsters and proper servicing. • Added specification that construction debris shall be removed every 2 weeks or as directed by RE.
<p align="center">WM-5</p> <p>Solid Waste Management</p>	<ul style="list-style-type: none"> • Sawdust added to construction waste list. • Added recommendation for waste and debris removal every 2 weeks.

Table 4
Summary of Temporary BMP Changes

Waste Management and Materials Pollution Control Best Management Practices	
BMP Section	Description of Change
<p align="center">WM-6</p> <p>Hazardous Waste Management</p>	<ul style="list-style-type: none"> • Palliatives and septic wastes are removed as being sources. • Revised spill containment volume to require 110% of all the containers or the largest container and volume of rain from a 24-hour, 25-year storm event versus 1.5 times volume of all containers. • Added specification for temporary containment facilities to have permanent cover and side wind protection during the rainy season. • Added specification for containers of dry waste being stored on pallets. • Added specifications related to Material Storage (WM-1) • Added requirement to provide copy of hazardous waste manifests to RE.
<p align="center">WM-7</p> <p>Contaminated Soil Management</p>	<ul style="list-style-type: none"> • Added reference for complying with Title 22, CCR, Sections 6626.250 to 66265.260. • Added specification for dewatering consistent with Dewatering Operations (NS-2).

**Table 4
Summary of Temporary BMP Changes**

Waste Management and Materials Pollution Control Best Management Practices	
BMP Section	Description of Change
<p align="center">WM-8</p> <p>Concrete Waste Management</p>	<ul style="list-style-type: none"> • Added a specification for a foreman to monitor onsite concrete working tasks. • Added reference to Paving and Grinding Operations (NS-2); and BMP Liquid Waste Management (WM-10). • Removed specification of use of temporary berms, straw bales, gravel dams or sandbags around coring or saw-cutting to capture or contain slurry runoff from entering storm drains. Slurry shall not be allowed to flow across pavement or left on pavement surface. • Added specification that washout may be collected in an impermeable bag for disposal. • Added specifications for disposing concrete washout from concrete pumper bins. • Added specifications for a 10-mil polyethylene liner and soil base for a below grade temporary concrete washout. • Changed aboveground temporary concrete washout liner specification from 60-mil to 10-mil polyethylene liner. • Added specification that disposal of PCC slurries or liquid wastes from washouts shall be outside of the highway right-of-way. • Added inspection as directed by RE. • Added inspection of washout liner and replacement as necessary. • Revised standard details for above grade and below grade washouts. Added a wooden framed above grade washout.
<p align="center">WM-9</p> <p>Sanitary/Septic Waste Management</p>	<ul style="list-style-type: none"> • No substantive changes made.
<p align="center">WM-10</p> <p>Liquid Waste Management</p>	<ul style="list-style-type: none"> • No substantive changes made.