Construction Site BMPs and MRP Requirements

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Outline of Presentation

Regulatory Basics

- Construction General Permit
- Municipal Regional Permit
- MRP Construction Site Control Program Requirements
- Best Management Practices
- Resources



Stormwater Regulations





Construction Site Regulations





Construction General Permit

- Applies to projects that disturb ≥1 acre of land in California
- RWB staff responsible for compliance inspections & enforcement
- Contains requirements for minimum BMPs, inspections, sampling, SWPPP, reporting (SMARTs), QSP/QSD certification



Construction General Permit

MRP requirement to:

- Verify owners of construction sites that disturb ≥ 1 acre have filed NOI for coverage by CGP
- Inspect construction sites that disturb ≥ 1 acre monthly during wet season for compliance with local ordinances





Construction General Permit

Tips for Municipalities

- Reviewing SWPPP, QSP inspection records, sampling results, etc. may help inform your MRP inspection
- Public projects ≥ 1 acre must file for coverage under the CGP
- Overall site compliance reflects on your inspection program



Municipal Regional Permit

- Regional permit regulating municipal stormwater systems
- Applies to 76 cities, counties, and districts in:
 - Santa Clara, Alameda, Contra Costa, and San Mateo Counties
 - Fairfield and Suisun City (Solano County)
 - Vallejo (Solano County)





Municipal Regional Permit

- First adopted by Regional Water Board: October 14, 2009
- Permit renewed every 5 years
- Reissued November 19, 2015
- Effective January 1, 2016

San Francisco Bay Region Municipal Regional Stormwater NPDES Permit

> Order No. R2-2015-0049 NPDES Permit No. CAS612008 November 19, 2015





MRP Permit Provisions

- C1 Compliance with Discharge Prohibitions
- C2 Municipal Maintenance
- C3 New Development and Redevelopment
- C4 Industrial and Commercial Discharge
- C5 Illicit Discharge Detection and Elimination
- C6 Construction Site Controls
- C7 Public Information and Outreach
- C8 Water Quality Monitoring
- C9 Pesticide Toxicity Control
- C10 Trash Reduction
- C11 Mercury Load Reduction
- C12 PCBs
- C13 Copper
- C14 PBDE and Legacy Pesticides
- C15 Exempted & Conditionally Exempted Discharges



Construction Site Control Program

- MRP Provision C.6
- Prevent discharges of pollutants and impacts on receiving waters
- Require appropriate BMPs in six categories
 - at ALL construction sites (private and public)
 - ALL year long





Construction Site Control Program

- Legal authority
- Plan approval process
- Require appropriate BMPs
 - site specific
 - phase appropriate
 - seasonally appropriate





Construction Site Control Program

Six BMP categories

- Erosion Control
- Sediment Control
- Good Site Management
- Non-Stormwater Management
- Run-on and Run-off Control
- Active Treatment Systems (ATS)



Minimum Inspection Requirements

- Pre-wet season letter by September 1st
- Monthly inspections during wet season
 - October 1st April 30th
- Applies to following sites (public & private)
 - disturbing <a>2 1 acre,
 - identified as "high priority" by municipality
 - hillside projects disturbing <a>> 5,000 sq ft (defined by municipality in 2016 Annual Report)



Inspection Recordkeeping and Reporting

- Complete inspection form for every required inspection
- Track inspection data in database/spreadsheet
 - Specific data required by MRP
 - Can be requested by RWB at any time
 - Inspection tables should match Annual Report summaries

			Masthar					Problems	Observed		
Site Name	Inspection Date	Inspector	During Inspection	Enforcement	Erosion Control	Run-on & Runoff	Sediment Control	Active Treatment	Good Site Management	Non-Stormwater Management	Illicit Discharge
Panoramic Views	9/30/2015	Kristin Kerr	Clear	Written Warning			x				
Panoramic Views	10/15/2015	Jill Bicknell	Clear	No Action							
Panoramic Views	11/15/2015	Jill Bicknell	Rain	Stop Work Order	x		x				x
Panoramic Views	11/15/2015	Jill Bicknell	Rain	No Action						1	5

Enforcement Response Plan

Each city has it's

own ERP

- Guidance for inspectors to take consistent actions to bring sites into compliance
- Identify enforcement tools
- Identify roles and responsibilities
 - **Enforcement procedures**
- Appropriate time periods for corrective actions

17	Enforcement/Follow-Up	Date problem first identified:_	Next follow-up inspection date:			
	Comments:					
	Enforcement: 🛛 None/In c	ompliance 🛛 Verbal Warning	□ Notice of Violation □ N	Notice to Comply 🛛 Stop Work	Administrative Fine	
18	Resolution: 🏼 Problem F	Fixed 🛛 🔲 Need More Time (incl	lude rationale in comments)) 🛛 Escalate Enforcement	Date resolved:	1 1
	Was there rain with runoff a	fter problem identified and before	e resolution? 🛛 Yes 🗖 I	No 🔲 Items corrected	d during inspection (see	comments)
	Comments:					16

Enforcement Response Plan

Corrective Actions

- Active discharge cease immediately
- Corrective actions w/in 10 business days or before next rain event (longer if rationale is documented)
- Verify corrective actions
 - Problem fixed by end of inspection
 - Site submits photographs
 - Follow-up inspection



Inspection Report

FAILURE TO CORRECT VIOLATION(S) within 10 business days (or as specified in this notice) may result in PENALTIES described on page 2!

Inspection Date:	<u> </u>	1a. Current weath	er conditions:			
Name of Project	; <u> </u>	2a. Project No./Permit No				
Project Address						
Permit Type:	Routine Building Permit	Grading Permit	 Other Site Development 	CIP Project		
Project disturb ≥ Project covered	, 1 acre?(Y/N - If Ye under statewide Constr.	s, inspect monthly durin uction General Permit?,	ng wet season .) (Y/N)	NOTRequired:(Y/N) SWPPP on site?(Y/	SWPPP dated/_/_/_ (N)	
High Priority Site Project Type:	 (significant threat to want the sidential Utility (water, sever) 	ter quality)?7.a Com PG&E)	Hillside Project? mercial/Industrial ng 🛛 Demolition	(Y/N - If Yes, inspect) Institutional Street Improvement	monthly during wet season.) Landscaping Cither	
Erosion Control M	easures:	(AINMIPINA)		Location on site/0	Comments	
Jule Netling/Fil	ber Blankels					
Mulch						
Hydroseed/Sci	l binden/Compost blanket					
Mark Areas to t	be Preserved					
Tree Protection	i Fencing					
🔲 Ripanan Area 8	Barrier					
Sediment Control I	Measures					
 Stabilized cons 	truction enfrance.		0			
Street Sweepin	lĝ.					
Dust Control						
U Wattles / Fiber	Rols / Compast Sacks	4				
Sit Fences / C	ompost Berms					
Sedimentation	Basin					
Check Dams						
Inlet Fillers (Gr	avel bacs)		6			
Earth Dikes / D	rainage Swales					
Run-on and Runof	f Control					
Eadh Dikos (D	rainago Swollog		1			



Best Management Practices

Prevent pollutants from leaving the site
 SEDIMENT

- Concrete washout
- Paint
- Oil and grease
- Litter
- Waste
- Construction materials

By preventing

- Contact with stormwater runoff
- Mobilization of pollutants
- Illicit discharge





Source: Michigan DEQ

Best Management Practices

- Inspectors don't select BMPs to use
- Ask questions
- Know appropriate use
- Recognize proper installation
- Observe if maintenance needed
- Note if additional controls needed



Erosion & Sediment Control

Erosion control

- First line of defense
- Prevent soil movement by wind and water

Sediment control

- Second line of defense
- Remove soil before it leaves the site

Temporary or Permanent Controls

Remove temporary BMPs at completion



9.	Erosion Control Measures:	(<u>A / NM / P / NA)*</u>	Location on site/Comments		
	Jute Netting/Fiber Blankets				
	Mulch				
	Hydroseed/Soil binder/Compost blanket				
	Mark Areas to be Preserved				
	Tree Protection Fencing				
	🗖 Riparian Area Barrier				



Most effective BMP - Vegetation

- Shields soil from impact of wind & water
- Increases permeability/infiltration
- Slows run-off to non-erosive velocities
- Filters sediment out of run-off
- Preserve existing vegetation
- Apply seed, compost & mulch as soon as possible (final cover)



Temporary protection of exposed soil

- Sprays such as straw or bonded fiber matrix (BFM)
- Mats such as jute, coir or other fiber
- Compost blankets











Compost Berm, Blanket, Irrigation and Plants vs. BFM & Fiber Rolls

Sites should consider

- Equipment needed
- Product flexibility (condition of slope)
- Used to establish vegetation
- Installation timing (e.g., sprays need time to dry before rain)
- Length of time
- Irrigation availability
- End use of site for vegetation or building? Compost-based BMPs can be used to enhance soil



Bonded Fiber Matrix (BFM)

- Spreading rate and weight
 - Seeds included?
- Synthetic fertilizers in mix?
- Combined with Fiber Rolls or other BMP?
- Spray from two directions: uphill and downhill





Mats

Anchors

- Mats trenched in on top of slope
- Staple/anchor down center & staggered with anchors along edges
- Number anchors per sq yd depends on slope
- Should be flush with the ground
- No Visible Soil
 - Overlap mats vertically









Mats

Contact with soil

- Soil preparation
 - -Groomed (e.g. large rocks/boulders removed)
- No stretching

-matting will conform if not stretched




Compost Blankets

- Best contact with soil
- Seeds can be added, if desired
- Holds soil moisture
- Can be pneumatically applied (sprayed)
- Can be combined with netting especially in windy dry environments to prevent blowing







Sediment Control

Trap sediment before it leaves the site

- Intercept flow
- Perimeter controls
 - -site perimeter
 - -storm drains
- Filter sediment out of flow
- Slow flow to allow sediment to settle out



10. 5	Sediment Control Measures	
	Stabilized construction entrance	
	Street Sweeping	
	Dust Control	
	Wattles / Fiber Rolls / Compost Socks	
	Silt Fences / Compost Berms	
	Sedimentation Basin	
	Check Dams	
	Inlet Filters (Gravel bags)	
	Earth Dikes / Drainage Swales	
8 B		





Fiber Rolls

- Erosion control on slope slow flow
- Sediment control around perimeter, inlet protection or check dam - filter sediment out of flow and trap flow to allow sediment to settle out
- Don't use monofilament wattles (dangerous to wildlife)





- Contact with ground
 - Staked in
 - Trenched on slope
- Overlap rolls
- Along contours of hillside
- Spacing depends on slope





- Turn ends up slope height of roll to capture runoff
- Not for high traffic areas



Maintain

- Backfill rills, gullies, etc.
- Remove captured sediment
- Replace damaged rolls





Perimeter control

- Contact with ground
- Not effective on imperious surfaces
- Stake in
- Trench in
- Overlap ends
- Replace damaged rolls









Compost Socks

Features:

- Similar to fiber rolls
- Contact with ground
- No need to trench in

• Used for:

- Inlet protection
- Perimeter control
- Check dams
- Slope interruption















Staking required on "downhill side" of slope only

Check dams

- filter sediment out of flow and/or trap flow to allow sediment to settle out
- gravel bags, fiber rolls
- Compost socks







Silt Fence

- Perimeter control
- Sheet flow



- Not for concentrated flow
- Continuous contact with ground
- No daylight underneath trenched in
- Ends overlap
- Remove accumulated sediment



Silt Fence









Inlet protection should not:

- cause flooding (where does overflow go?)
- cause sediment discharge (i.e. broken sand bags/gravel bags)
- Inlet protection should be:
 - maintained regularly
 - removed at end of job

Inlet protection may be off site



Inlet Protection

Gravel bags

 Located around inlet based on direction of flow





TYPICAL PROTECTION FOR INLET ON GRADE









Poor Inlet Protection



Construction Site Entrance

Entrance/Exit Stabilization- look for:

- Sediment in gravel/rumble plates
- Signs of other exits
- Track out in streets










WHAT'S INSIDE?

E: weed-free rice straw : weed seed free rice straw XX: 2" minus compost <u>ER TUBES:</u> excelsior & rock <u>ER BAGS</u>: excelsior & rock <u>IBES</u>: wood- and man-made fibers <u>AGS</u>: 34" rock : bio-matrix (peat moss) **R**: trifluralin





Construction Site Entrance

- Additional BMPs may be needed
 - Street sweeping
 - Wheel wash







13.	Good Site Management		
		Soil Stockpiles	
		Waste Systems Management	
		ConstructionMaterials (wood,cement,)	
		Hazardous Materials (paint, solvents)	
		Petroleum Products (oil, fuel)	
		Vehicle Servicing	
	_		



- a.k.a. Good housekeeping
- Materials that have potential to be pollutants in stormwater
 - Material storage/use
 - Waste storage
 - Stockpiles
 - Porta potties
 - Waste disposal





- Keep stormwater from coming into contact with materials that can mobilize
- Keep materials from being exposed
- Keep materials from leaking
- Keep potential discharges from leaving the site (e.g., placement)





Check for

- Designated concrete washout areas
- Covered and contained stockpiles
- Covered and elevated material storage
- Placement of portable toilets (or 2° containment).







Stockpiles

- Cover when not being used
- Protect all year long
- Placement (e.g. not in gutter)
- Berm around stockpile or upstream side





Concrete Washout

- Large enough for volume expected
- Lined prevent contact with or leaching into soils
- pH issue
- Dispose of hardened concrete







Non-Stormwater Management BMPs

14.	Non-Stormwater Management	
	Concrete/Stucco washout area	
	Architectural copper rinsewater	
	Other:	



Non-Stormwater Management

Activities that have potential to discharge

- Potable water use
- Paving/grinding operations
- Vehicle/equipment use, cleaning, fueling and maintenance
- Concrete work





Non-Stormwater Management





- Place drip pans, tarp, or containers under leaky vehicles/ equipment
- Fix leaks promptly
- Fuel, repair and wash equipment/vehicles off site



Other BMP Categories

Run-on Controls

• Keep water from off-site, upstream property from flowing through construction site

-May bring off-site pollutants

- -May increase stormwater runoff flows
 - causing erosion or
 - overwhelming BMPs

Runoff Controls

• Manage stormwater flow to prevent erosion or flooding at downstream location



Other BMP Categories

Active Treatment Systems

- Adds chemicals for coagulation, flocculation and/or filtration
- Not common expensive
- State General Permit requires
 - ATS Plan: O&M manual, monitoring, sampling, spill prevention plan,
 - Designated operator and training
 - Data recording system
 - Numeric effluent limits for discharge



Resources

SMCWPPP Website: www.flowstobay.org

- BMP Plan Sheet
- BMP brochures
- Workshop Powerpoint presentations
- CASQA Construction BMP Handbook
 Portal www.casqa.org
 - contact your agency SW coordinator for information on how to access web subscription



CASQA Online Handbook



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CASQA BMP Fact Sheets

Stockpile Management

WM-3



Cat	Categories		
EC	Erosion Control		
SE	Sediment Control	X	
TC	Tracking Control		
WE	Wind Erosion Control		
NS	Non-Stormwater Management Control	X	
WM	Waste Management and Materials Pollution Control		
Leg	end:	9 - S	
	Primary Category		
X	Secondary Category		

Description and Purpose

Stockpile management procedures and practices are designed to reduce or eliminate air and stormwater pollution from stockpiles of soil, soil amendments, sand, paving materials such as portland cement concrete (PCC) rubble, asphalt concrete (AC), asphalt concrete rubble, aggregate base, aggregate sub base or pre-mixed aggregate, asphalt minder (so called "cold mix" asphalt), and pressure treated wood.

Suitable Applications

Implement in all projects that stockpile soil and other loose materials.

Limitations

- Plastic sheeting as a stockpile protection is temporary and hard to manage in windy conditions. Where plastic is used, consider use of plastic tarps with nylon reinforcement which may be more durable than standard sheeting.
- Plastic sheeting can increase runoff volume due to lack of infiltration and potentially cause perimeter control failure.
- Plastic sheeting breaks down faster in sunlight.
- The use of Plastic materials and photodegradable plastics should be avoided.

Implementation

Protection of stockpiles is a year-round requirement. To properly manage stockpiles:

Sediment	
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Targeted Constituents

Potential Alternatives

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SAN HATES COUNTYWIDE Water Pollution Prevention Program

July 2012

California Stormwater BMP Handbook Construction www.casqa.org

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CASQA Interactive Map

Construction BMP Online Handbook

Browse Filter Map

Select a construction site element from the map, and scroll down to view the documents that contain best management practices information for those elements.



Stockpile Management

BMP Code: WE-1 BMP Name: Wind Erosion Control Fact Sheet: We-1.pdf (107.21 KB)

BMP Code: WM-3 BMP Name: Stockpile Management



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