



City of Santa Clarita

New General Construction Permit

June 15, 2010



Hall & Foreman, Inc.

The New Statewide NPDES Permit

Associated with Construction and Land Disturbance Activities



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Background and Important Dates

- 1972 CWA and NPDES permit
- 1987 amendments for municipal and industrial storm water discharges
- Nov 16, 1990 USEPA, 5 acre limit for specified categories of industries
- Aug 19, 1999 order no. 99-08-DWQ
- Dec 8, 1999 threshold lowered to 1 acre
- 2005-2006 Blue Ribbon Panel, NEL
- Sep 2, 2009 order no. 2009-0009-DWQ
- June 15, 2010
- July 1, 2010 effective date



State Storm Water Permit Requirements in Both Current & New NPDES Permit National Pollution Discharge Elimination System Permit

The Objectives of the NPDES Permit is to Eliminate Discharges of Sediment & Pollutants from the Construction Site to Storm Drains and Water Bodies of the U.S.

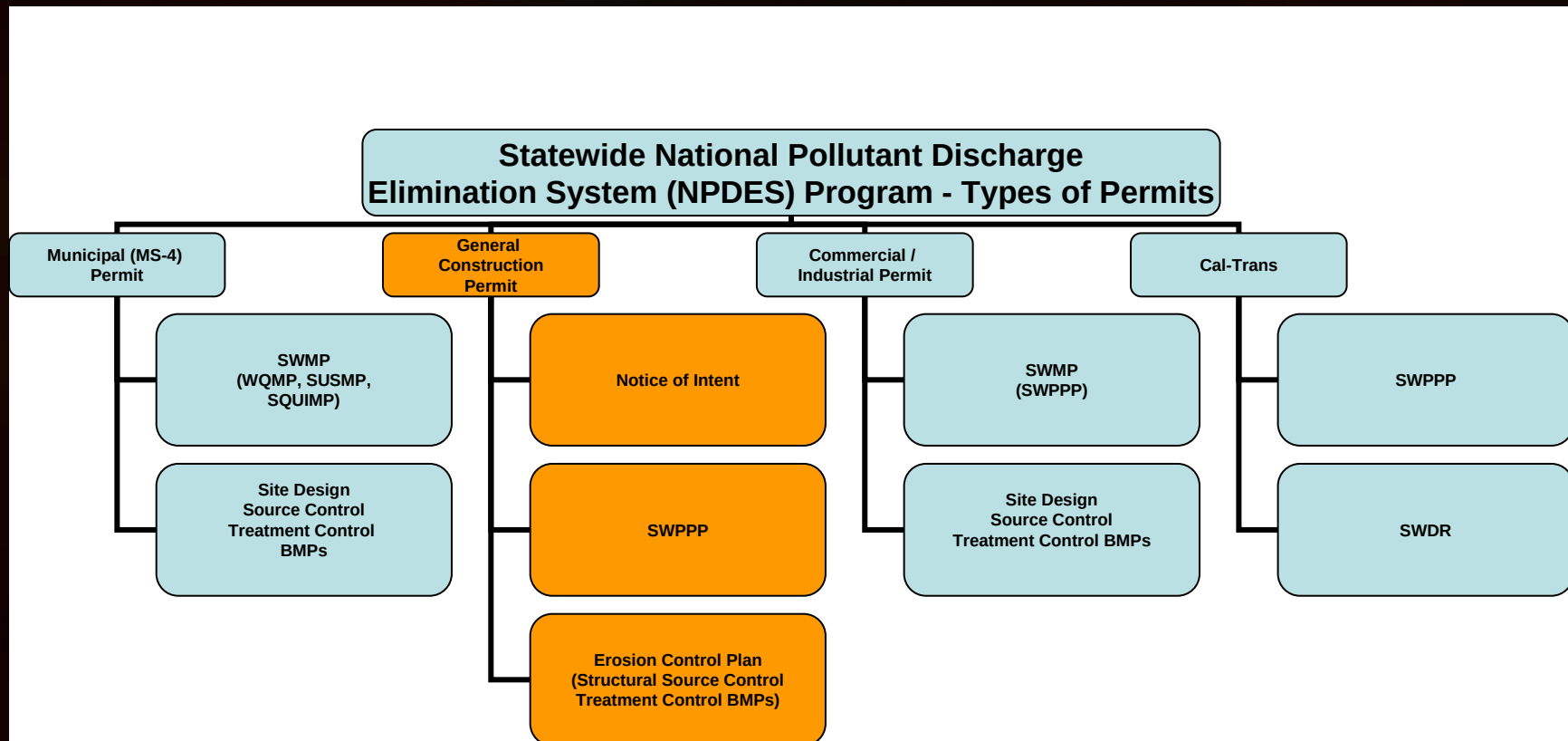
“Waters of the United States” means any water, surface or underground, including saline waters, within the boundaries of the United States.

“How”

Both EPA & State Program

Implement an Effective Combination of Best Management Practices (BMPs) based on Best Available Technology (BAT) and Best Available Controls (BACs)

SWRCB GCP Structure



This GCP Recognizes Four Phases

- Grading and Land Development
- Streets and Utilities
- Vertical Construction
- Final Landscaping and Site Stabilization



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What is not covered?

- Construction activity that disturbs less than 1 acre of land surface
- Custom Homes
- Routine maintenance within right-of-way
- Landfill subject to Industrial permit
- Storm and Sewer combined discharge



Significant changes in Implementation

Requires All Reporting Electronically

- Electronic Submittal via SMART State Platform
- Permit Registration Documents (PRDs)
 - Notice of Intent (NOI)
 - Risk Assessment (Exception for existing sites with current permit)
 - Site Map
 - SWPPP
 - Annual Fee
 - Signed Certification Checklist
- Inspections – Designated Individual

Summary of Significant Changes

- Risk-Based Permitting Approach
- Technology-Based NAL, 6.5 to 8.5 pH, 250 NTU turbidity
- Technology-Based NEL, 6 to 9 pH, 500 NTU for Risk 3
- Linear Underground/Overhead Projects
- Rain Event Action Plan, REAP, 48 hrs
- Certification/Training Requirements for Key Personnel
- Effluent Monitoring and Reporting



Summary of Significant Changes continued

- Rainfall Erosivity Waiver, $R < 5$, 1 to 5 acre sites
- Project Site Soil Characteristics Monitoring & Reporting
- Minimum Requirements Specified, more BMPs
- Receiving Water Monitoring and Reporting, Risk 3
- Post-Construction Storm Water Performance Standards (exception for LUP projects)
- **Annual Reporting**



More Impacts

Requires Rain Event Action Plan (REAP)

- Risk Levels 2 & 3

Annual Reporting Requirements

- Submit Electronically

Required Certification / Training

- SWPPP Preparers, Inspectors, SWPPP Manager

Advanced Treatment Systems (ATS)

- Detention Basins
- Flocculants
- Outsource Equipment (Baker Tank, etc.)

Inspections

- Weekly – Year Round
- Once each 24-hour period during extended storm events

Risk Determination

- Traditional Projects
- Linear Projects



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Traditional Projects

- **(1) Project sediment risk**
- **(2) Receiving water risk**
- Project Sediment Risk:
- $A = (R)(K)(LS)(C)(P)$
- Where: A = the rate of sheet and rill erosion R = rainfall-runoff erosivity factor, K = soil erodibility factor, LS = length-slope factor, C = cover factor (erosion controls), P = management operations and support practices (sediment controls)
- R factor for the project is calculated using the online calculator at <http://cfpub.epa.gov/npdes/stormwater/LEW/lewCalculator.cfm>.
- The product of K and LS are mapped
- To determine soil loss in tons per acre, the discharger multiplies the R factor times the value for K times LS from the map.



Sample "R" Factor Calculation

<http://cfpub.epa.gov/npdes/stormwater/LEW/lewCalculator.cfm>

EPA NPDES - Welcome to the Lower Erosivity Index Calculator Page 1 of 1

U.S. ENVIRONMENTAL PROTECTION AGENCY
National Pollutant Discharge Elimination System (NPDES)

NPDES Topics: Construction Stormwater | Construction | Stormwater

Welcome to the Rainfall Erosivity Factor Calculator!

This online calculator will assist you in estimating the rainfall erosivity factor (R factor) for your construction project.

NPDES Stormwater Phase II that states NPDES permitting authorities at least "the erosivity factor" for each construction site. The erosion factor is a measure of the erosive power of rainfall. It is calculated by multiplying the average annual rainfall (in inches) by the average annual rainfall intensity (in inches per hour) to the power of 1.485. The result is the erosivity factor. The erosivity factor is used to determine the R factor for a construction project. The R factor is used to determine the R factor for a construction project. The R factor is used to determine the R factor for a construction project.

Site information (required):

- Name of the project
- Start date of construction
- End date of construction
- Address of the project
- Latitude and longitude
- County
- State

If you are located in an area where the rainfall erosivity factor is not known, you may use the online calculator to estimate the R factor for your project. The online calculator will assist you in estimating the rainfall erosivity factor (R factor) for your construction project.

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For more information, visit the epa.gov/npdes/stormwater/LEW/lewCalculator.cfm website.

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<http://cfpub.epa.gov/npdes/stormwater/LEW/lewCalculator.cfm>

5/30/2010

Name of the project
Start date
End date
Address or
Latitude/Longitude
3-month duration
R=1.08
0.0 to 21.0 range !

EPA NPDES - Welcome to the Lower Erosivity Index Calculator Page 1 of 1

U.S. ENVIRONMENTAL PROTECTION AGENCY
National Pollutant Discharge Elimination System (NPDES)

NPDES Topics: Construction Stormwater | Construction | Stormwater

Welcome to the Rainfall Erosivity Factor Calculator for Small Construction Sites

Facility Information

Facility Name: City of Santa Monica
Start Date: 06/01/09
End Date: 08/31/09
Latitude: 34.0139
Longitude: -118.4916

Erosivity Index Calculator Results

WEATHER INDEX VALUE OF 1.08 HAS BEEN DETERMINED FOR THE CONSTRUCTION PERIOD OF 06/01/09 - 08/31/09

Available erosivity factor of less than 1.0 has been calculated for your site and period of construction. Consider your permitting authority to determine if you are eligible for a waiver from NPDES permitting requirements. If you are eligible, you may use the online calculator to estimate the R factor for your project.

If your construction activity extends past the project completion date you specified above, you must recalculate the R factor using the original start date and a new project completion date. If the recalculated R factor is still less than 1.0, a new erosion certification form must be submitted to the permit authority. The use of the online calculator is optional. If the R factor is 1.0 or greater, the applicant must submit a letter of intent to the permit authority for the Construction General Permit before the project completion date.

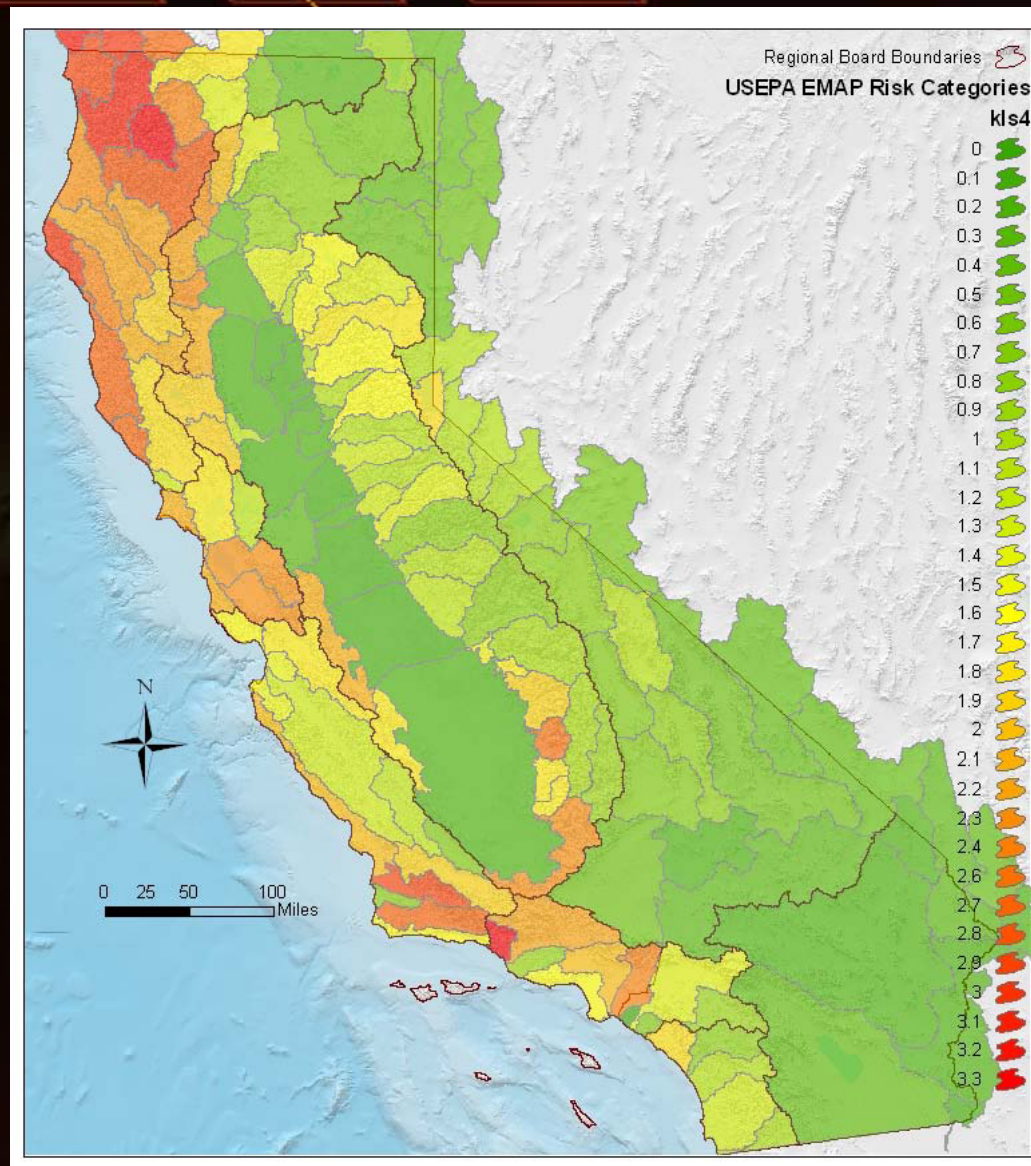
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http://cfpub.epa.gov/npdes/stormwater/LEW/errosivity_index_result.cfm

5/31/2010

K*LS Map



Combined Risk Level Matrix			
<u>Receiving Water Risk</u>	<u>Sediment Risk</u>		
	Low	Medium	High
	Low	Level 1	Level 2
High	Level 2		Level 3

Project Sediment Risk: **Low**

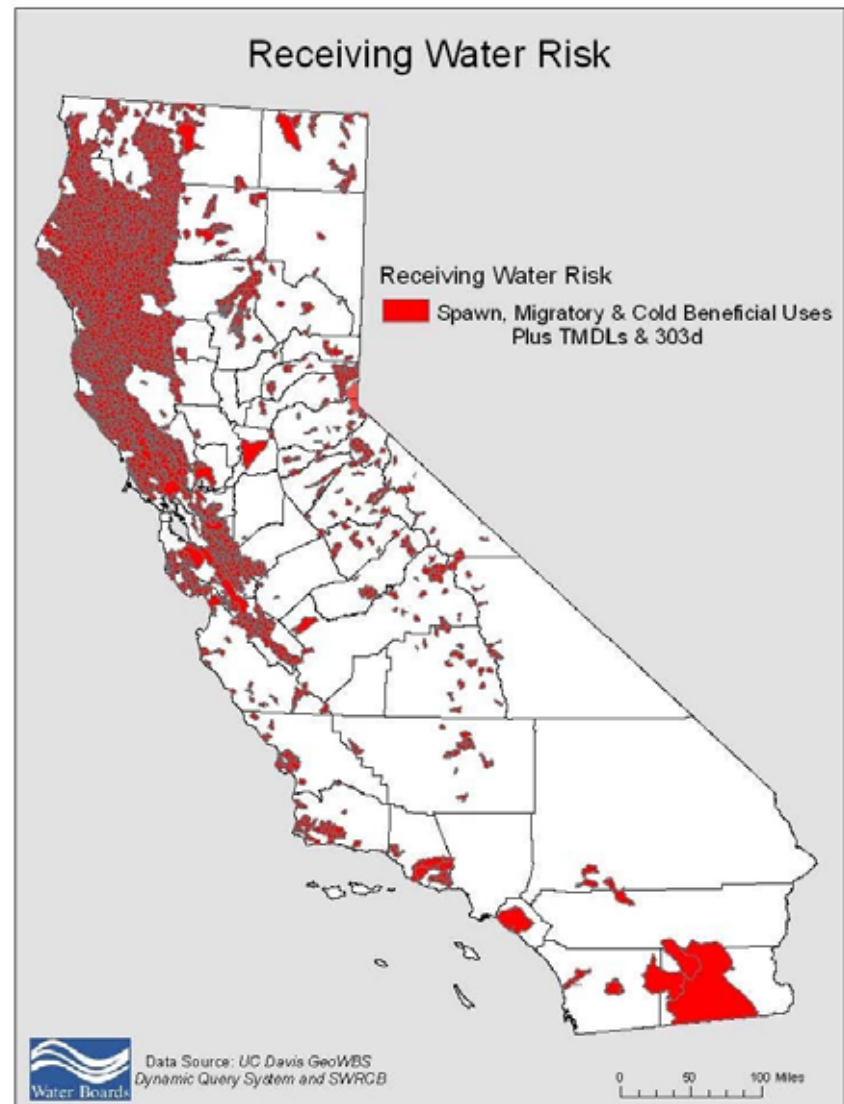
Project RW Risk: **High**

Project Combined Risk: **Level 2**



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Receiving Water Risk



Risk Level Requirements

- Risk level 1 projects are subject to minimum BMPs and visual monitoring requirements, requires Good Housekeeping, Visual Monitoring
- Risk level 2 projects are subject to NALs and some additional monitoring requirements, REAP, and Effluent monitoring
- Risk level 3 projects are subject to NELs, and more rigorous monitoring requirements such as receiving water monitoring and in some cases bioassessment



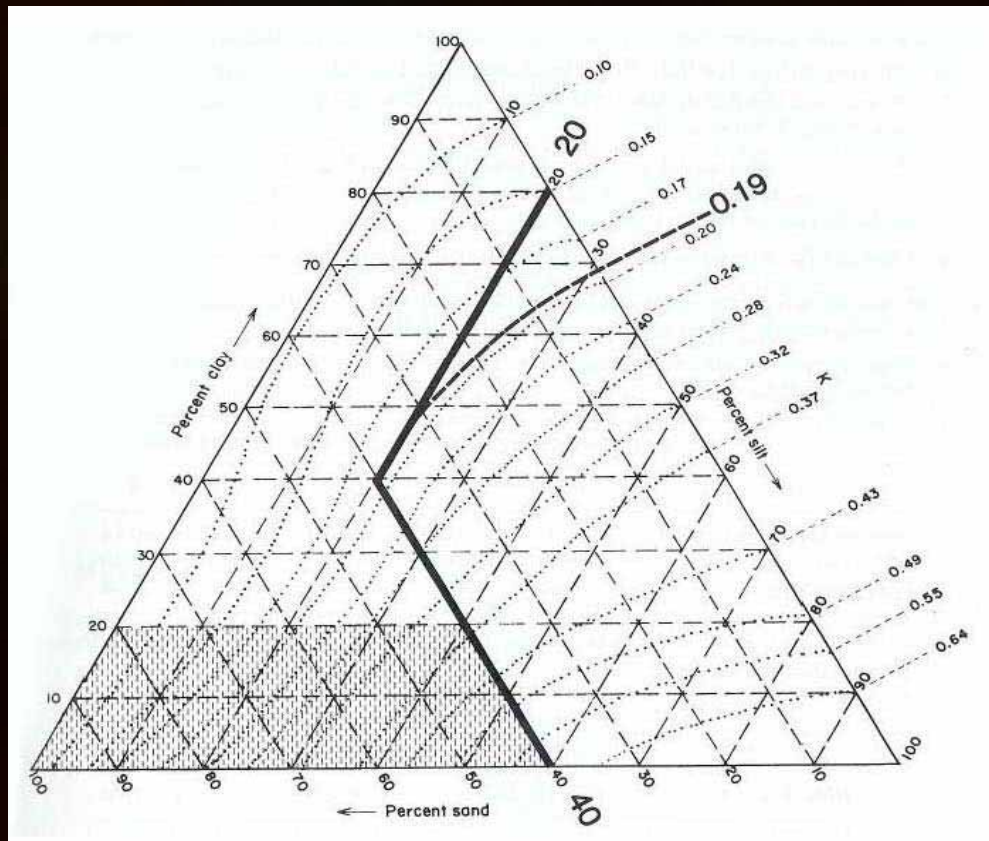
Risk Factor Entry Form

Sediment Risk Factor Worksheet		Entry
A) R Factor		
Analyses of data indicated that when factors other than rainfall are held constant, soil loss is directly proportional to a rainfall factor composed of total storm kinetic energy (E) times the maximum 30-min intensity (I30) (Wischmeier and Smith, 1958). The numerical value of R is the average annual sum of EI30 for storm events during a rainfall record of at least 22 years. "Isoerodent" maps were developed based on R values calculated for more than 1000 locations in the Western U.S. Refer to the link below to determine the R factor for the project site. http://cfpub.epa.gov/npdes/stormwater/LFWflowCalculator.cfm		
R Factor Value	0	
B) K Factor (weighted average, by area, for all site soils)		
The soil-erodibility factor K represents: (1) susceptibility of soil or surface material to erosion, (2) transportability of the sediment, and (3) the amount and rate of runoff given a particular rainfall input, as measured under a standard condition. Fine-textured soils that are high in clay have low K values (about 0.05 to 0.15) because the particles are resistant to detachment. Coarse-textured soils, such as sandy soils, also have low K values (about 0.05 to 0.2) because of high infiltration resulting in low runoff even though these particles are easily detached. Medium-textured soils, such as a silt loam, have moderate K values (about 0.25 to 0.45) because they are moderately susceptible to particle detachment and they produce runoff at moderate rates. Soils having a high silt content are especially susceptible to erosion and have high K values, which can exceed 0.45 and can be as large as 0.65. Silt-size particles are easily detached and tend to crust, producing high rates and large volumes of runoff. Use Site-specific data must be submitted. Site-specific K factor guidance		
K Factor Value	0	
C) LS Factor (weighted average, by area, for all slopes)		
The effect of topography on erosion is accounted for by the LS factor, which combines the effects of a hillslope-length factor, L, and a hillslope-gradient factor, S. Generally speaking, as hillslope length and/or hillslope gradient increase, soil loss increases. As hillslope length increases, total soil loss and soil loss per unit area increase due to the progressive accumulation of runoff in the downslope direction. As the hillslope gradient increases, the velocity and erosivity of runoff increases. Use the LS table located in separate tab of this spreadsheet to determine LS factors. Estimate the weighted LS for the site prior to construction. LS Table		
LS Factor Value	0	
Watershed Erosion Estimate (=R _x K _x LS) in tons/acre		0
Site Sediment Risk Factor Low Sediment Risk: < 15 tons/acre Medium Sediment Risk: >=15 and <75 tons/acre High Sediment Risk: >= 75 tons/acre		Low



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Soil Erodibility Factor "K" nomograph



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Average Watershed Slope "LS"

Sheet Flow Length (ft)	Average Watershed Slope (%)																		
	0.2	0.5	1.0	2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	14.0	16.0	20.0	25.0	30.0	40.0	50.0	60.0
<3	0.05	0.07	0.09	0.13	0.17	0.20	0.23	0.26	0.32	0.35	0.36	0.38	0.39	0.41	0.45	0.48	0.53	0.58	0.63
6	0.05	0.07	0.09	0.13	0.17	0.20	0.23	0.26	0.32	0.37	0.41	0.45	0.49	0.56	0.64	0.72	0.85	0.97	1.07
9	0.05	0.07	0.09	0.13	0.17	0.20	0.23	0.26	0.32	0.38	0.45	0.51	0.56	0.67	0.80	0.91	1.13	1.31	1.47
12	0.05	0.07	0.09	0.13	0.17	0.20	0.23	0.26	0.32	0.39	0.47	0.55	0.62	0.76	0.93	1.08	1.37	1.62	1.84
15	0.05	0.07	0.09	0.13	0.17	0.20	0.23	0.26	0.32	0.40	0.49	0.58	0.67	0.84	1.04	1.24	1.59	1.91	2.19
25	0.05	0.07	0.10	0.16	0.21	0.26	0.31	0.36	0.45	0.57	0.71	0.85	0.98	1.24	1.56	1.86	2.41	2.91	3.36
50	0.05	0.08	0.13	0.21	0.30	0.38	0.46	0.54	0.70	0.91	1.15	1.40	1.64	2.10	2.67	3.22	4.24	5.16	5.97
75	0.05	0.08	0.14	0.25	0.36	0.47	0.58	0.69	0.91	1.20	1.54	1.87	2.21	2.86	3.67	4.44	5.89	7.20	8.37
100	0.05	0.09	0.15	0.28	0.41	0.55	0.68	0.82	1.10	1.46	1.88	2.31	2.73	3.57	4.59	5.58	7.44	9.13	10.63
150	0.05	0.09	0.17	0.33	0.50	0.68	0.86	1.05	1.43	1.92	2.51	3.09	3.68	4.85	6.30	7.70	10.35	12.75	14.89
200	0.06	0.10	0.18	0.37	0.57	0.79	1.02	1.25	1.72	2.34	3.07	3.81	4.56	6.04	7.88	9.67	13.07	16.16	18.92
250	0.06	0.10	0.19	0.40	0.64	0.89	1.16	1.43	1.99	2.72	3.60	4.48	5.37	7.16	9.38	11.55	15.67	19.42	22.78
300	0.06	0.10	0.20	0.43	0.69	0.98	1.28	1.60	2.24	3.09	4.09	5.11	6.15	8.23	10.81	13.35	18.17	22.57	26.51
400	0.06	0.11	0.22	0.48	0.80	1.14	1.51	1.90	2.70	3.75	5.01	6.30	7.60	10.24	13.53	16.77	22.95	28.60	33.67
600	0.06	0.12	0.24	0.56	0.96	1.42	1.91	2.43	3.52	4.95	6.67	8.45	10.26	13.94	18.57	23.14	31.89	39.95	47.18
800	0.06	0.12	0.26	0.63	1.10	1.65	2.25	2.89	4.24	6.03	8.17	10.40	12.69	17.35	23.24	29.07	40.29	50.63	59.93
1000	0.06	0.13	0.27	0.69	1.23	1.86	2.55	3.30	4.91	7.02	9.57	12.23	14.96	20.57	27.66	34.71	48.29	60.84	72.15

LS Factors for Construction Sites. Table from Renard et. al., 1997.

Monitoring Requirements

Table 5 - Storm Water Effluent Monitoring Requirements by Risk Level

	Frequency	Effluent Monitoring (Section E, below)
Risk Level 1	when applicable	non-visible pollutant parameters (if applicable)
Risk Level 2	Minimum of 3 samples per day during qualifying rain event characterizing discharges associated with construction activity from the entire project disturbed area.	pH, turbidity, and non-visible pollutant parameters (if applicable)
Risk Level 3	Minimum of 3 samples per day during qualifying rain event characterizing discharges associated with construction activity from the entire project disturbed area.	If NEL exceeded: pH, turbidity and suspended sediment concentration (SSC)., Plus non-visible pollutant parameters if applicable

Table 4 - Required Monitoring Elements for Risk Levels

	Visual	Non-visible Pollutant	Effluent	Receiving Water
Risk Level 1			where applicable	not required
Risk Level 2	three types required		pH, turbidity	not required
Risk Level 3	for all Risk Levels: non-storm water, pre-rain and post-rain	As needed for all Risk Levels (see below)	(if NEL exceeded) pH, turbidity and SSC	(if NEL exceeded) pH, turbidity and SSC. Bioassessment for sites 30 acres or larger.

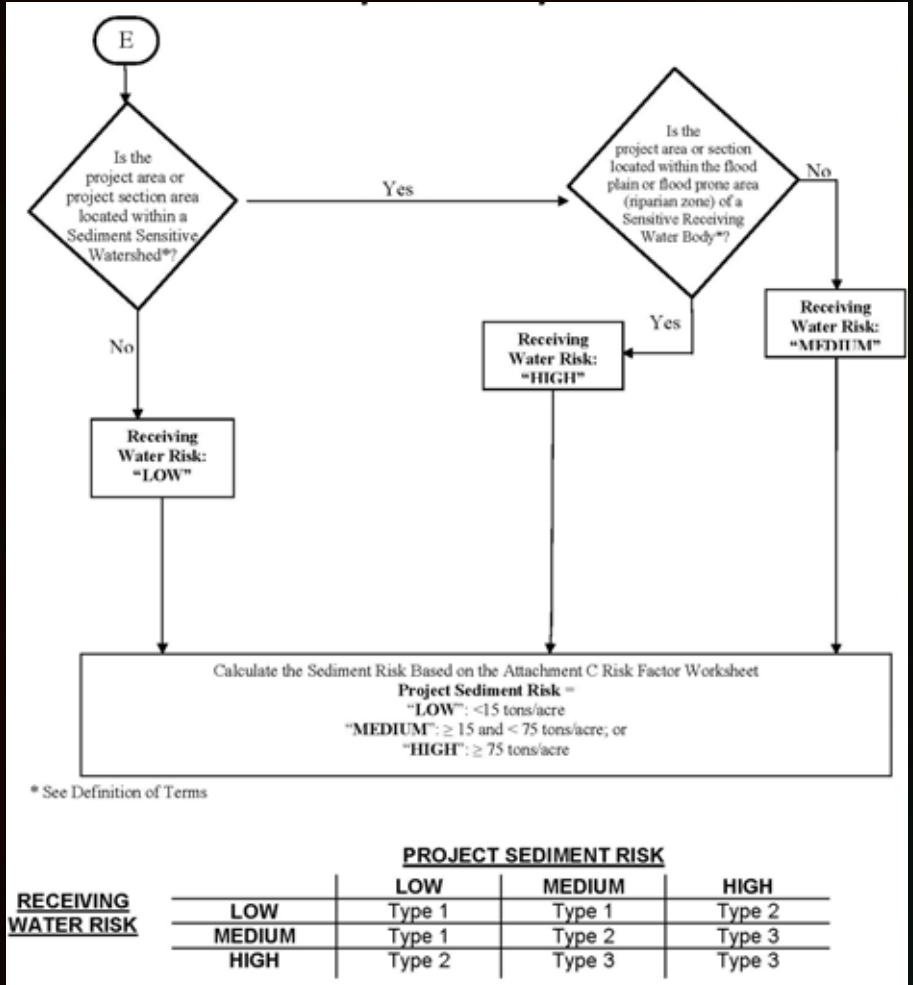
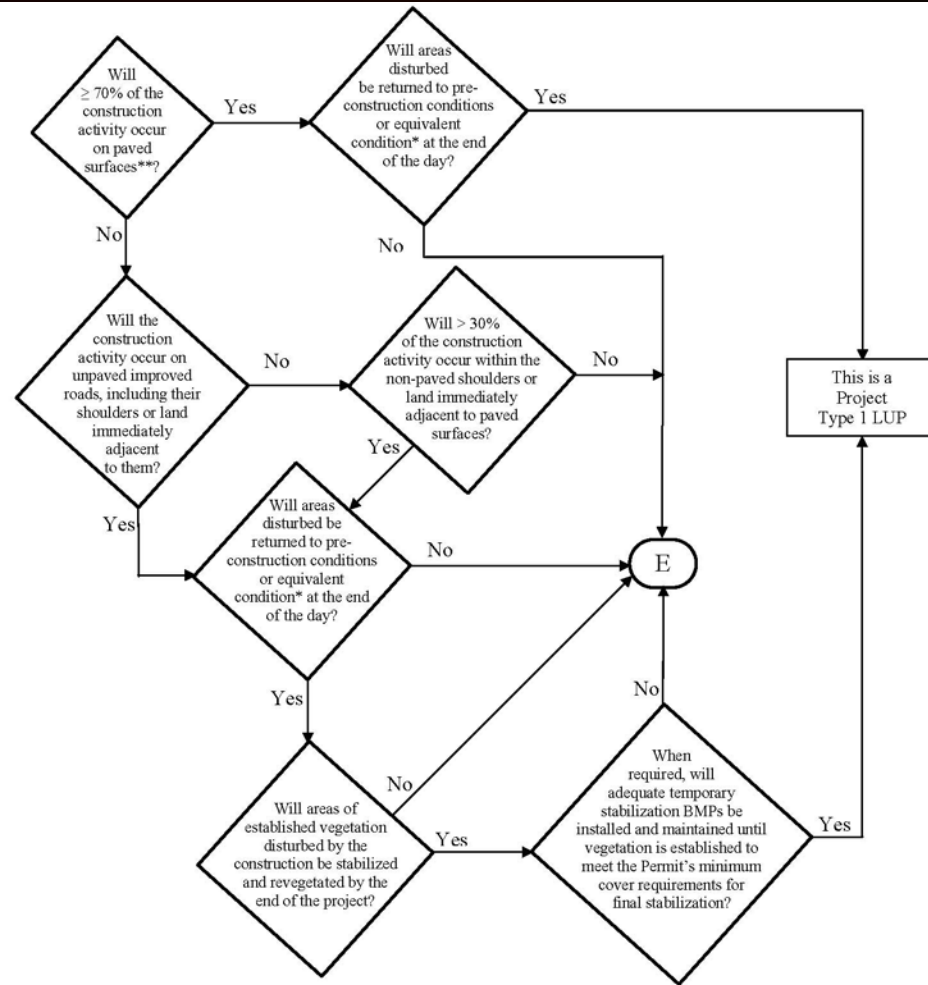


Linear Projects, "LUP"

- Confirm that the project qualifies as an LUP. See the flow chart.
- Identify which Risk type (1, 2, or 3) is applicable to the project, based on project sediment and receiving water risk.



LUP Project Type Determination Flowchart



LUP Combined Risk Level Matrix

		<u>PROJECT SEDIMENT RISK</u>		
<u>RECEIVING WATER RISK</u>		LOW	MEDIUM	HIGH
	LOW	Type 1	Type 1	Type 2
	MEDIUM	Type 1	Type 2	Type 3
	HIGH	Type 2	Type 3	Type 3



LUP Monitoring Requirements

Table 3. LUP Summary of Monitoring Requirements

LUP Type	Visual Inspections				Sample Collection		
	Daily Site BMP	Pre-storm Event	Daily Storm BMP	Post Storm	Storm Water Discharge	Receiving Water	Non-Visible (when applicable)
		Baseline					
1	X						x
2	X	X	X	X	X		x
3	X	X	X	X	X	X	x

Table 4. LUP Type 2 & 3 Effluent Monitoring Requirements

LUP Type	Frequency	Effluent Monitoring
2	Minimum of 3 samples per day characterizing discharges associated with construction activity from the project active areas of construction.	Turbidity, pH, and non-visible pollutant parameters (if applicable)
3	Minimum of 3 samples per day characterizing discharges associated with construction activity from the project active areas of construction.	turbidity, pH, suspended sediment concentrations (SSC) ¹³ (only if turbidity NEL exceeded), plus non-visible pollutant parameters (if applicable)



NEL and NAL for Risk Level 2 and 3

Parameter	Test Method	Discharge Type	Min. Detection Limit	Units	Numeric Action Level	Numeric Effluent Limitation
pH	Field test with calibrated portable instrument	Risk Level 2	0.2	pH units	lower NAL = 6.5 upper NAL = 8.5	N/A
		Risk Level 3			lower NAL = 6.5 upper NAL = 8.5	lower NEL = 6.0 upper NEL = 9.0
Turbidity	EPA 0180.1 and/or field test with calibrated portable instrument	Risk Level 2	1	NTU	250 NTU	N/A
		Risk Level 3			250 NTU	500 NTU



Reference Websites

- State Water Resource Control Board
<http://www.waterboard.ca.gov/stormwtr/construction.html>
- Caltrans Construction Sites Runoff Characterization Study, dated September 2002
<http://www.dot.ca.gov/hq/env/stormwater/pdf/CTSW-RT-02-055.pdf>
- Natural Resources Conservation Service Soil Survey
<http://www.soils.usda.gov/>
- National Weather Service Forecast Office <http://www.srh.noaa.gov/forecast>
- Erosivity Index <http://ei.tamu.edu>
- CASQA BMP Handbook www.cabmphandbooks.com

Go Lakers !



QUESTIONS & THANK YOU

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