

# The Monthly Dirt

A Monthly Newsletter on the California Construction General Permit  
By WGR Southwest, Inc.

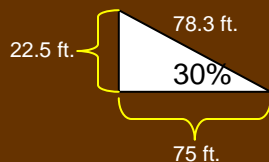
## Put some MUSCLE into it!



For some jobs there is no easy way about it ... it just takes muscle power. That is especially true when it comes to maintaining BMPs. All the SWPPP training classes, certifications, and knowledge about erosion theory will not help clean out sediment from behind a fiber roll or out of a sediment trap. At the end of the day (or storm event), someone will have to put some muscle into it to remove the buildup of sediment. But, how much sediment will need to be removed? Well, that too requires MUSCLE ... not biceps and abs ... but the **Modified Universal Soil Loss Equation**. Do you remember it from your CPESC or QSD training? It is the equation that can be used to calculate sediment yield **for a specific storm event**. Suppose you have a sediment trap at the base of a finished slope that has been covered with 2 tons/acre of straw mulch. The toe of the slope is 600 linear feet long. The slope base width is 75 feet and the average slope percentage is 30%. The project's soil type is "Clear Lake Clay" having a K value of 0.24 and a HSG rating of "D". Yesterday, you received a total of 1.25 inches of rain with the maximum rainfall intensity of 0.5 inches/hour. How much sediment needs to be cleaned out of the sediment trap? How big of a job is it? Will a couple of laborers be able to take care of it or do you need a backhoe? Here is how to use your MUSCLE:

### Step 1 – Find the Peak Flow of the Storm Event:

- ✓ Peak flow ( $Q_p$ ) = CIA where C is the runoff coefficient, I is the peak rainfall intensity (inches/hour), and A is the area in acres.
  - C = 0.35 (for most undeveloped construction sites)
  - I = 0.5 inches/hr (given in the above section)
  - A = 600 ft. x 78.3 ft.  
= 46,981 sq. ft.  
= 1.08 acres
  - $Q_p = 0.189$  cfs

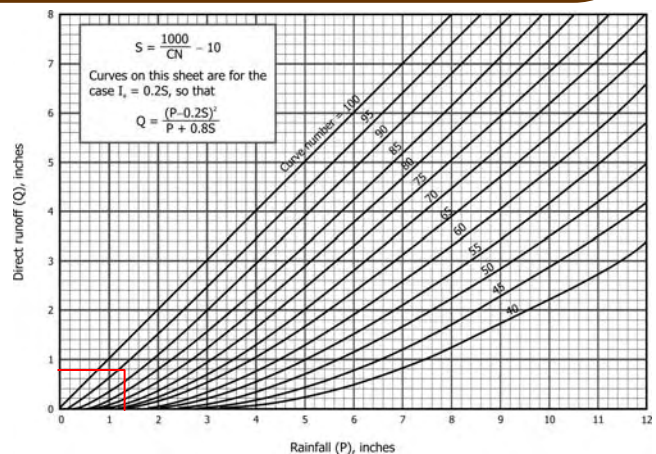


Rational runoff coefficients (ASCE, 1975; Viessman, et al., 1996; and Malcom, 1999)

Description of Surface	Rational Runoff Coefficients, C
Unimproved Areas	0.35
Asphalt	0.95
Concrete	0.95
Brick	0.85
Roofs, inclined	1.00
Roofs, flat	0.90
Lawns, sandy soil, flat (<2%)	0.10
Lawns, sandy soil, average (2-7%)	0.15
Lawns, sandy soil, steep (>7%)	0.20
Lawns, heavy soil, flat (<2%)	0.15
Lawns, heavy soil, average (2-5%)	0.20
Lawns, heavy soil, steep (>7%)	0.30
Wooded areas	0.15

### Step 2 – Calculate the runoff of the storm event in acre-feet:

- ✓ According to the USDA, newly graded areas on HSG "D" soils, have a runoff curve number (RCN) of 94.
- ✓ Amount of rainfall was 1.25 inches, which with an RCN of 94 equates to runoff volume of 0.8 inches, or
- ✓  $(V) = (0.8 \text{ inches} / 12 \text{ in./ft.}) \times (\text{acres}) = (0.8 \text{ in./} 12 \text{ in./ft}) \times (1.08 \text{ acres}) = 0.072 \text{ acre-feet}$



### Step 3 – Determine your RUSLE factors:

- ✓ Specifically, find K, LS, C, and P. These are the same factors used in the RUSLE equation.
- ✓ K was provided for the specified soil type. K = 0.24
- ✓ LS can be determined by using the information provided about the slope and the following table. LS = 4.44

		Average Watershed Slope (%)									
Sheet Flow Length (ft)		0.2	0.5	5.0	10.0	20.0	30.0	40.0	50.0	60.0	
<3	0.05	0.07	0.23	0.35	0.41	0.48	0.53	0.58	0.63	0.63	
6	0.05	0.07	0.23	0.37	0.56	0.72	0.85	0.97	1.07	1.07	
9	0.05	0.07	0.23	0.38	0.67	0.91	1.13	1.31	1.47	1.47	
12	0.05	0.07	0.23	0.39	0.76	1.08	1.37	1.62	1.84	1.84	
15	0.05	0.07	0.23	0.40	0.84	1.24	1.59	1.91	2.19	2.19	
25	0.05	0.07	0.31	0.57	1.24	1.86	2.41	2.91	3.36	3.36	
50	0.05	0.08	0.46	0.91	2.10	3.22	4.24	5.16	5.97	5.97	
75	0.05	0.08	0.58	1.20	2.86	4.44	5.89	7.20	8.37	8.37	
100	0.05	0.09	0.68	1.46	3.57	5.58	7.44	9.13	10.63	10.63	
150	0.05	0.09	0.86	1.92	4.85	7.70	10.35	12.75	14.89	14.89	
200	0.06	0.10	1.02	2.34	6.04	9.67	13.07	16.16	18.92	18.92	
250	0.06	0.10	1.16	2.72	7.16	11.55	15.67	19.42	22.78	22.78	
300	0.06	0.10	1.28	3.09	8.23	13.35	18.17	22.57	26.51	26.51	
400	0.06	0.11	1.51	3.75	10.24	16.77	22.95	28.60	33.67	33.67	
600	0.06	0.12	1.91	4.95	13.94	23.14	31.89	39.95	47.18	47.18	
800	0.06	0.12	2.25	6.03	17.35	29.07	40.29	50.63	59.93	59.93	
1000	0.06	0.13	2.55	7.02	20.57	34.71	48.29	60.84	72.15	72.15	

- ✓ C for 2-tons of straw mulch is 0.02

Mulch:	
Hay rate of application tons per acre:	
1/2	0.25
1	0.13
1-1/2	0.07
2	0.02

- ✓ Other than the sediment trap there are no other sediment control practices, so P = 1

### Step 4 – Now apply MUSLE to it:

- ✓ The MUSLE equation is:

$$T = 95(V*Q_p)^{0.56} * K * LS * C * P$$

where T = tons of sediment for a specific storm event

- ✓ We have already calculated or were given the following:
  - V = 0.072 acre-feet
  - Q<sub>p</sub> = 0.189 cfs
  - K = 0.24
  - LS = 4.44
  - C = 0.02
  - P = 1
- ✓ Plugging it all into the above equation, we get T = 0.18 tons or 365 pounds of sediment. Therefore, a couple of laborers can easily clean out the sediment trap. Note that if you didn't have the straw, you would have needed a backhoe to remove the 9.1 tons of sediment.

### Upcoming Training ...

- Got SWPPP? Classes:
  - ✓ July 17-19 – QSD/QSP (Santa Cruz)
  - ✓ Aug. 14-16 – QSD/QSP (Pleasanton)
  - ✓ Aug. 16 – CESSWI Review (Lodi)
  - ✓ Aug. 17 – CESSWI Exam (Lodi)
  - ✓ Sep. 27 – CESSWI Review (Lodi)
  - ✓ Sep. 28 – CESSWI Exam (Lodi)
  - ✓ Oct. 2-4 – QSD/QSP (Lodi)
- Storm Water Awareness Week Sep. 24 – 27  
Check out the attached flyer! Join us as a participant or volunteer to give a presentation.

For more information or to register for a class go to [www.gotswppp.com](http://www.gotswppp.com).

### A Learning Opportunity for CPESCs!

#### CPESC Regional Summit:

*Advancing the profession ...  
a meeting and social gathering of erosion control professionals*

**Santa Cruz, Aug. 29 – 31, 2012**

This event is open to existing or interested CPESC registrants and other related industry professionals. The 3-day event will be held at the Seacliff Inn and will include:

- ✓ Educational seminars
- ✓ Field trips
- ✓ Vender product demonstrations
- ✓ Networking opportunities

Participation in the event may be counted towards PDU credits needed for maintaining the CPESC certification. For more information or to register for the event, contact David Franklin of EnviroTech Services at (916) 849-2028 or email him at [david@envirotechservices.biz](mailto:david@envirotechservices.biz).

*Please contact us if you have any questions ...*

#### The Monthly Dirt

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Technical Questions about Environmental Compliance?  
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# STORM WATER AWARENESS WEEK 2012

September 24 – 28, 2012

Coming to  
Northern California

Join other storm water professionals for a week of educational workshops, field BMP demonstrations, and learning opportunities scheduled at locations throughout Northern California. Various one-hour workshops will be presented by industry experts and will include topics relevant to construction, municipal, and industrial storm water permittees. The majority of the workshops will be in the field where you can “kick the BMPs” and talk to the guys who installed them. Look on our website for workshops happening near your location. Whether you attend all of the workshops or just one, the event is free and open to anyone interested in furthering their knowledge about storm water management and pollution prevention.

Workshops currently include the following, with more to be scheduled soon:

- ✓ Track out control
- ✓ Stock pile management
- ✓ Hydroseeding
- ✓ Stabilization with native plants
- ✓ Drain inlet protection
- ✓ Use and calibration of pH and turbidity field instruments
- ✓ Field inspector training
- ✓ Retention basin design
- ✓ Management options for concrete, paint and other liquid wastes

Registration for the workshops will begin on **August 1, 2012** at

[www.stormwaterawareness.org](http://www.stormwaterawareness.org)

*If you or your company would be interested in hosting a one-hour workshop in the field or at a location of your choice, please contact John Teravskis at (209) 334-5363 ext. 110. There is no charge to host or attend a workshop; we want this event to be 100% about education and affordable to everyone. We will post information about your workshop on the website listed below.*



[www.stormwaterawareness.org](http://www.stormwaterawareness.org)



## July Special

### Hornet's Nest Drain Inlet Filter



### \$40 (Bag Only) or \$50 (w/ Oil Pillow)

A unique, under-grate storm drain filter. The oversized base allows the filter to be used with a variety of size and shape drain inlets. Simply insert the filter, place the grate into place and trim the excess material for a custom fit and clean appearance. The yellow webbing secures the filter to the grate and doubles as lifting straps to quickly and easily remove the filter, grate and all, for simple cleaning. The sediment collection cone has 4 overflow portals to ease congestion during heavy storm events.

- Material - 8 ounce non-woven geotextile
- Strapping - Weather resistant 2" polypropylene webbing
- Flow Rate - 90 gpm/ft
- Dimensions - 48" x 36"

## Silt Sifter Tube (Empty) \$35.00

Like the Silt Sifter® Bag, the patented Silt Sifter® Tube is a dual component sediment control device that is also designed for 'filtration' and 'high-flow' but is more flexible allowing for customized protection such as around grated drain inlets. The applications are unlimited. **\*\*\*\*This product is shipped empty without rock.\*\*\*\*\***

### Product Specifications

- Outer Material High density polyethylene – Poly thread (4) lock stitching
- Filtering Media Pine Wood Excelsior\*
- Rock Bag High density polyethylene - Poly thread (4) lock stitching
- UV Rating 85% with 364° flammability point
- Dimensions 60"L x 9" Diameter
- Weight (Dry) Approximately 30 lbs. (filled)
- Durability 500 lb. burst strength
- Maintenance Clean with power wash or strong hose

\*Pine wood excelsior acts as a filter for capturing silt, sediment and soils. Also a cushioning agent to substantially reduce product damage under normal conditions.

### Flow Test Results

- Free Flow Water (no debris) 30 GPM (gallons per minute)
- Sand 29 GPM
- Top Soil 28 GPM
- Clay 24 GPM

\* Note: Two Silt Sifter Bags are being used in the picture shown.



## BMP OUTLET'S Product Spotlight



Universal Spill Bucket is a convenient, all in one bucket spill kit. The bucket is a UN rated screw top pail. The screw top allows not only easy access, but also provides you the confidence that the bucket is completely close and sealed. The contents of the spill bucket include approximately 2.5 gallons of granular absorbent, 6 universal spill pads, 1 universal absorbent soc, and two 2.5 mil, 18 gallon waste bags. One of the features of BMP Outlet's Universal Spill Bucket that sets it apart from other spill kits is that Personal Protective Equipment (PPE) is included with each spill bucket. Pair of clear safety glasses and nitrile gloves is included. For easy access in the event of spill the glasses and gloves are sitting on the top of the bucket when opened.

- Absorbs up to 5 gallons;
- UN Container 1H2/Y25/S;
- Screw top lid;
- Contents identified on easy to read label;

**Contents include:**  
Approximately 2.5 gallons of granular absorbent, 6 Universal Spill Pads, 1 Universal Soc, Safety Glasses, Nitrile Gloves (Powder-free) and 2 Disposal Bags

\*\* Price includes \$8.50 special UPS/FedEx handling charge. This item can be picked up in Lodi, CA to avoid shipping costs. Email Sales@bmpoutlet.com to arrange pick up.

Visit us at [www.bmpoutlet.com](http://www.bmpoutlet.com)