

# The Monthly Dirt

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

## ON THE GRID

A NEW APPROACH TO PERMEABLE PAVEMENT

Have you ever wanted to incorporate some Low Impact Development designs into a project, only to discover there wasn't enough room? If this sounds familiar, don't despair! We at **The Monthly Dirt** recently came across a technology that allows designers to incorporate LID designs into projects that don't have enough space for a retention pond, bioswales, or even a rain garden.

When most people think about permeable pavement, probably the first image to spring to mind would be strips of lumpy concrete pavers. As most engineers and designers know, this unique concrete is a great BMP and certainly has its place. But what about those times when the design and engineering team wants to add an LID measure with some green

landscaping, but there isn't enough room on the project site for any traditional LID elements? Most sites have room for either permeable pavement or a grassy lawn, so why not combine the two areas into one? There is a promising technology that uses grass (or gravel) and a plastic reinforcement system to make a pavement surface even stronger than traditional permeable pavement.<sup>1</sup> Traditional permeable concrete is manufactured by combining large aggregates (like gravel) with a specific amount of cement to form a pasty mixture resembling gray crispy rice bars. Sand, which acts as a reinforcement material in normal concrete, is left out of the mixture. Without sand, the concrete dries with interconnecting void spaces between the gravel pieces, which gives the concrete its permeable quality. The lack of reinforcement from

sand means the permeable concrete can't handle high traffic volumes or extreme loads,<sup>2</sup> but with plastic-reinforced grass pavement, load-bearing capacity is not an issue: some manufacturers of grass pavement products claim their design can handle over 2,000,000 pounds per square foot,<sup>3</sup> which is strong enough for even the heaviest loads. The

grass pavement system is made up of a network of plastic cylinders that are linked together by plastic mesh. During installation, the plastic structure is laid down on the base material (which must be properly engineered and compacted), and is backfilled with sand or other media to completely cover the surface. This sand filling greatly contributes to

the strength of the surface without affecting its permeability.<sup>4</sup> The system is then vegetated by laying down sod or by hydroseeding. Reinforced grass pavement adds a nice green area to project sites that can double as a driveway or access road. For sites that need a Low Impact Development measure but don't want to add more concrete, this grass pavement option could be just the ticket – a surface strong enough to function as a driveway or emergency access lane, but with an added green touch.

It would seem that this grass pavement technology would be a great replacement for permeable concrete in areas that need high load-bearing capacity with the aesthetics of green landscape.

However, just because this grass pavement is a neat concept doesn't mean that it will work on every site. Before installing this or any other Low Impact Design measure, the specific needs of the site must be taken into account. What is the traffic frequency going to be? How often will people be using this area? If using reinforced grass pavement, check to see if the area is in full sun or is partially shaded.

(Continued on next page)



Close-up of reinforced grass pavement structure

(Continued from Page 1) Also, does the site even need this LID measure? That last question may seem a little strange, but it is a question that many designers forget to ask. If the area in question is never going to be used as a driveway, why not just install regular grass? It will probably save some money. In fact, this is a good question to ask before embarking on any LID project. Resist the urge to jump on the Low Impact Development bandwagon just because it is chic; rather, allow the size of the project and the available space determine the amount of Low Impact Development. A small strip of sidewalk does not need a 30-foot wide rain garden. Use Low Impact Development where you can, but use common sense and appropriately-sized LID designs for your project. **MD**

**References:**

<sup>1</sup>Based on the maximum loading capability of Grasspave2;

[http://www.invisiblestructures.com/grasspave2\\_tech\\_specs.html](http://www.invisiblestructures.com/grasspave2_tech_specs.html)

<sup>2</sup>See <http://water.epa.gov/polwaste/npdes/swbmp/Pervious-Concrete-Pavement.cfm>

<sup>3</sup>Maximum loading capacity of Grasspave2 when filled with sand [http://www.invisiblestructures.com/grasspave2\\_tech\\_specs.html](http://www.invisiblestructures.com/grasspave2_tech_specs.html)

<sup>4</sup>Ibid.

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## Success Story

The University of California Davis campus has lately been installing quite a few Low Impact Development (LID) measures at different locations throughout the campus grounds. On a recent redevelopment project, the engineering team was faced with some challenges in implementing LID techniques.



The site in question, a bus terminal in the middle of the campus, had a bunch of non-negotiable design features that the engineering team had to work around. There was no room to install a retention basin, and since the terminal area was dotted with established oak trees, there were restrictions on how much soil disturbance could take place near the tree root zones.

Traditional permeable pavement was out, because it wouldn't be able to withstand the heavy traffic. Even with all these restrictions, the engineering team came up with a way to incorporate Low Impact Development into the bus terminal project – installing reinforced grass pavement in the emergency access lane, using Grasspave2 from Invisible



Structures, Inc. Because of the unique design and load-bearing strength of the Grasspave2 system, the UC Davis team could simultaneously provide a Low Impact Development measure and an emergency access lane that met the load-bearing and strength requirements. **MD**

## Upcoming Training

Got SWPPP? Classes coming to Lodi:

- ✓ QSP/QSD Training, **April 28 – 30, 2015**

(For more information about these classes, go to [www.gotswppp.com](http://www.gotswppp.com).)

- ✓ PDU Week 2015 is coming up! If you are in need of any professional development units, mark out **May 18-22, 2015** in your calendar, and tune in for each of the five 1-hour workshops! In the meantime, you can watch the recordings from last year and print out certificates. Go to [www.pduweek.org](http://www.pduweek.org) to watch now, or to get more information on this year's event. Also see the flyer on page 3 of this newsletter.

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## Living Wall Podcast

A few months ago, WGR Southwest partnered with Filtrexx International, Zanker Recycling, Ewing Irrigation, and Vision Recycling to present a 3-hour workshop on designing with living walls. During the workshop at our Lodi office, we asked Mark Woolbright, manager of the Living Walls division of Filtrexx, to step into our SWPPP Radio studio and share his thoughts on Living Walls. Check it out:



<http://wgr-sw.com/podcasts/listen.php?ID=12>

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

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Technical Questions about Environmental Compliance?

Call ...

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## Need a SWPPP?

Call (209) 334-5363, ext. 110

# PDU WEEK

Are you a CPESC, CESSWI, CISEC, CPSWQ, or CMS4S? If so, you probably need professional development hours, or PDHs. PDU Week 2015 is a great opportunity to **earn PDH units – and all for free!** This year marks the third annual occurrence of this groundbreaking event. Once again, we are seeking to utilize technology to provide **high-quality training** to as many people as possible, without requiring them to travel to a class location. We will be live streaming five 1-hour workshops during the week of May 18-22, and will be offering these **interactive workshops** free of charge on our website, [www.pduweek.org](http://www.pduweek.org).

To ensure that all of these workshops provide you with the highest quality of continuing education, we are taking steps to make the presentations as interactive as possible, even including a time where participants can submit questions to the presenters using an online form, and listen as the workshop presenters offer their answers. We are doing our best to make sure that these classes meet the PDH unit requirements as much as possible - for each class, **we will offer a short exam** to demonstrate understanding of the topic and we will provide each participant with a personalized certificate of completion.

## May 18-22, 2015



[https://www.youtube.com/watch?v=K9JY2i\\_HpdI](https://www.youtube.com/watch?v=K9JY2i_HpdI)



<http://pduweek.org/2014/Wednesday.html>

# Erosion Control BMP Summit

Date: May 1<sup>st</sup> & 2<sup>nd</sup> 2015 Location: Shasta College, Redding, CA

Vendors will be on site with the latest in Erosion Control BMP practices beginning April 30<sup>th</sup>

A two-day workshop presented by Shasta College, Sacramento Watersheds Action Group (SWAG) and Western Chapter International Erosion Control Association. This workshop will be presented by highly acclaimed instructors, David Franklin and John McCullah.



## Shasta College



### WESTERN CHAPTER

INTERNATIONAL EROSION CONTROL ASSOCIATION

More than ever before your BMPs must be "effective. You will learn now, the SWPP developers, the implementer, the contractors, the regulators, and the inspectors must acquire education and training and then demonstrate that knowledge through certifications.



This workshop is intended to de-mystify the BMP selection process, the SWPPP, while learning about the importance of drainage, infiltration, rooting depth, grading for erosion control, and some steep slope applications.



**On Thursday - EnviroTech NPDES Services w/David Franklin will also be offering a Class on Industrial General Permit and Sampling Techniques.**



Register at:  
[www.watershedrestoration.org](http://www.watershedrestoration.org)  
or call 530-247-1600

Shasta College is an equal opportunity educator and employer.

**Just a walk away is the Shasta College Erosion Control Training Facility. This is where we will spend the second day – actually watching and participating in BMP implementation.**

The two-day workshop is \$400.00. Group Rates will be offered for 2 or more registrants, this will include coffee, beverage, snacks and lunch for two days. You will be receiving a certificate of attendance for continuing education.

**COME SEE OUR SHOWROOM!**

**11780 N. HWY 99,  
Lodi CA 95220**

## PRODUCT SPOTLIGHT

**Silt Sifter®** is the ultimate solution! With our patented dual component, bag-within-a-bag design, the **Silt Sifter®** bag was the first cushioned sediment control device to incorporate materials specifically chosen for both **filtration** and **high-flow** performance. The **Silt Sifter®** Bag is square on one end for a tighter fit with the curb, and comes either empty or pre-filled with 30 pounds of 1" natural rock. The heavy-duty 2" Velcro enclosure makes it a snap to fill and provides a solid barrier to prevent any rock from escaping, making for a cleaner and tidier job site. **Filled bags are only available for local pickup.**

### Product Specifications:

High-Density polyethylene  
UV Rating 85%; 364 flammability  
30" L x 16" W x 6" H

### Flow Test Results:

Water (no debris) - 30 gallons/minute  
Sand - 29 GPM  
Topsoil - 28 GPM  
Clay - 24 GPM

Only \$26.40  
(pre-filled)

\$22.00  
(empty)



BMP Outlet is a supply house for affordable erosion control products, drain inlet protection, sorbents, spill containment, and field instruments.

We have a large inventory of many different types of product, and can usually order whatever you need for your project.

## Hornet's Nest Drain Inlet Filter

A unique, under-grate storm drain filter. The oversized base allows the filter to be used with many different sizes and shapes of drain inlets. Simply insert the filter, replace the grate, and if desired, 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 allowing for quick and easy removal of the filter and grate. The sediment collection cone has four overflow portals to ease congestion during heavy storm events.

### Product Specifications:

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

Only \$49.50  
(bag only)  
\$66.00  
(with oil pillow)



**Check out our website!**

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# ACRONYM REFERENCE CHART

a quick reference sheet for some common acronyms in the storm water industry

CONSTRUCTION GENERAL PERMIT ←

→ INDUSTRIAL GENERAL PERMIT

<b>CGP</b> Construction General Permit <small>CGP</small>	<b>MS4</b> Municipal Separate Storm Sewer System <small>IGP/CGP</small>	<b>CWA</b> Clean Water Act <small>IGP/CGP</small>	<b>NPDES</b> National Pollutant Discharge Elimination System <small>IGP/CGP</small>	<b>EPA</b> Environmental Protection Agency <small>IGP/CGP</small>	<b>SMARTS</b> Storm Water Multiple Application and Report Tracking System <small>IGP/CGP</small>	<b>IGP</b> Industrial General Permit <small>IGP</small>
<b>LID</b> Low Impact Development <small>CGP</small>	<b>ATS</b> Active Treatment System <small>CGP</small>	<b>BAT</b> Best Available Technology <small>IGP/CGP</small>	<b>BMP</b> Best Management Practices <small>IGP/CGP</small>	<b>BCT</b> Best Conventional Technology <small>IGP/CGP</small>	<b>NONA</b> Notice of Non Applicability <small>IGP</small>	<b>NEC</b> No Exposure Certification <small>IGP</small>
<b>LUP</b> Linear Underground (or Overhead) Projects <small>CGP</small>	<b>LRP</b> Legally Responsible Person <small>IGP/CGP</small>	<b>NOI</b> Notice of Intent <small>IGP/CGP</small>	<b>PRD</b> Permit Registration Documents <small>IGP/CGP</small>	<b>NOT</b> Notice of Termination <small>IGP/CGP</small>	<b>SWPPP</b> Storm Water Pollution Prevention Plan <small>IGP/CGP</small>	<b>SIC</b> Standard Industrial Classification <small>IGP</small>
<b>REAP</b> Rain Event Action Plan <small>CGP</small>	<b>TSS</b> Total Suspended Solids <small>IGP/CGP</small>	<b>BOD</b> Biochemical Oxygen Demand <small>IGP/CGP</small>	<b>COC</b> Chain of Custody Form <small>IGP/CGP</small>	<b>COD</b> Chemical Oxygen Demand <small>IGP/CGP</small>	<b>QA/QC</b> Quality Assurance/Quality Control <small>IGP/CGP</small>	<b>ERA</b> Exceedance Response Action <small>IGP</small>
<b>ROWD</b> Report of Waste Discharge <small>CGP</small>	<b>TMDL</b> Total Maximum Daily Loads <small>IGP/CGP</small>	<b>NEL</b> Numeric Effluent Limitation <small>IGP/CGP</small>	<b>WDID</b> Waste Discharge Identification Number <small>IGP/CGP</small>	<b>NAL</b> Numeric Action Levels <small>IGP/CGP</small>	<b>ELG</b> Effluent Limitations Guidelines <small>IGP</small>	<b>NSWD</b> Non Storm Water Discharge <small>IGP</small>

## LIST OF ACRONYMS (ARRANGED IN ALPHABETICAL ORDER)

<b>ATS</b> <small>CGP</small> Active Treatment System	<b>IGP</b> <small>IGP</small> Industrial General Permit	<b>NSWD</b> <small>IGP</small> Non Storm Water Discharge
<b>BAT</b> <small>IGP/CGP</small> Best Available Technology	<b>LID</b> <small>CGP</small> Low Impact Development	<b>PRD</b> <small>IGP/CGP</small> Permit Registration Documents
<b>BCT</b> <small>IGP/CGP</small> Best Conventional Technology	<b>LRP</b> <small>IGP/CGP</small> Legally Responsible Person	<b>QA/QC</b> <small>IGP/CGP</small> Quality Assurance/Quality Control
<b>BMP</b> <small>IGP/CGP</small> Best Management Practices	<b>LUP</b> <small>CGP</small> Linear Underground/Overhead Projects	<b>REAP</b> <small>CGP</small> Rain Event Action Plan
<b>BOD</b> <small>IGP/CGP</small> Biochemical Oxygen Demand	<b>MS4</b> <small>IGP/CGP</small> Municipal Separate Storm Sewer System	<b>ROWD</b> <small>CGP</small> Report of Waste Discharge
<b>CGP</b> <small>CGP</small> Construction General Permit	<b>NAL</b> <small>IGP/CGP</small> Numeric Action Levels	<b>SIC</b> <small>CGP</small> Standard Industrial Classification
<b>COC</b> <small>IGP/CGP</small> Chain of Custody	<b>NEC</b> <small>IGP</small> No Exposure Certification	<b>SMARTS</b> <small>IGP/CGP</small> Storm Water Multiple Application and Report Tracking System
<b>COD</b> <small>IGP/CGP</small> Chemical Oxygen Demand	<b>NEL</b> <small>IGP/CGP</small> Numeric Effluent Limitation	<b>SWPPP</b> <small>IGP/CGP</small> Storm Water Pollution Prevention Plan
<b>CWA</b> <small>IGP/CGP</small> Clean Water Act	<b>NOI</b> <small>IGP/CGP</small> Notice of Intent	<b>TMDL</b> <small>IGP/CGP</small> Total Maximum Daily Load
<b>ELG</b> <small>IGP</small> Effluent Limitations Guidelines	<b>NONA</b> <small>IGP/CGP</small> Notice of Non Applicability	<b>TSS</b> <small>IGP/CGP</small> Total Suspended Solids
<b>EPA</b> <small>IGP/CGP</small> Environmental Protection Agency	<b>NOT</b> <small>IGP/CGP</small> Notice of Termination	<b>WDID</b> <small>IGP/CGP</small> Waste Discharge Identification Number
<b>ERA</b> <small>IGP</small> Exceedance Response Action	<b>NPDES</b> <small>IGP/CGP</small> National Pollutant Discharge Elimination System	

NOTE: THIS IS NOT A COMPLETE LIST OF ACRONYMS. SEE APPENDIX 6 OF THE CGP AND ATTACHMENT B OF THE IGP FOR A COMPLETE LIST.