

# PUTTING DOWN ROOTS *in erosion control*

**Have you ever had a hydroseeding application not be successful? What happened?**

**TEAM EFFORT:** To be successful, hydroseeding requires a team effort. It takes one person to just add “**EC-4 Hydroseeding**” to a SWPPP. But it takes a whole team of people to make it work successfully. Sometimes we think it starts with QSDs specifying hydroseeding or even seed mixes in the SWPPP, but in reality it starts long before that. Seed developers grow and gather seeds and blend mixes that are location and climate-appropriate for the diverse regions in California. Contractors need to prepare the soil by track walking, smoothing, and making sure that the organic soil content is sufficient to support healthy vegetation. Hydroseeding companies help specify the right approach and application for the site. According to Chris, all of these work together as allies, navigating different site scenarios and questions to best control erosion.

Or maybe you are scratching your head wondering what seed mix to use. Should you add fertilizer? What about mycorrhizae—what is it anyway? In this month’s edition of the **Monthly Dirt**, we’re turning to some experts to help us put down roots when it comes to erosion control. Jody Miller of S&S Seeds and Chris Shay of SSEC, Inc. have spent much of their careers in hydroseeding. Jody has worked at her family’s seed business for 30 years and has a vast knowledge of how to choose, apply, and raise California natives; and Chris has worked in the erosion control field but most recently with SSEC Inc. As the general manager for 6 years, he has overseen erosion control installations and applications all over the State of California.

He encourages QSDs or QSPs, when they have questions about hydroseeding, to reach out and ask for advice—to ask questions of people who specialize in erosion control.

**RICH & DIVERSE:** The type of soil affects the germination rate and success of the seed. If fertile topsoil was removed and preserved throughout the duration of the project and then returned to be used in landscaped areas, the soil should still be nutrient rich. Historically, that has not always been the case. Topsoil tends to get mixed into the construction and grading activities and the unfertile soil beneath the fertile layer of topsoil gets moved to the surface where it becomes the base for future vegetation – *which if the word infertile didn’t give it away, is not a great scenario for trying to grow anything.* The new Construction General Permit will

contain requirements to preserve topsoil. It is also important to select the right seed mix for the location. For some projects, California native mixes are the only species allowed – and these native mixes can be notoriously finicky to grow. They get easily choked out by invasive and noxious weeds, especially when the hydroseed is applied with a fertilizer. *According to Jody, “natives tend not to respond to fertilizers, whereas weeds do. Applying fertilizer just promotes the competition.”* In speaking of seed types, diversity is extremely important. In a field training event, the USDA Natural Resource Conservation Service demonstrated, using an excavated trench in a vegetated area, how plant diversity provides greater stability of the soil. Plants with deep tap roots provide vertical stability while plants with shallow spreading roots provide horizontal control. Caltrans also advocates for diversity stating, *“in selecting plant material to control erosion, designers should try to maximize all potential environmental benefits of roadside planting. Because roadside planting is linear, adding pollinator friendly plants to the roadside can help restore transportation corridors for pollinators and other wildlife. For example, adding pollinator friendly plants to roadside erosion control mixes could increase the pollinator population in California by closing gaps in the corridors that connect butterfly breeding grounds*



California Native Wildflower Mix



Hydroseeded slope.

along the coast with their winter homes in Arizona, Nevada, Oregon and Washington. *A diverse seed mix that can address a variety of environmental problems (erosion control and pollinator propagation) is always preferable to a planting palette that only addresses a single environmental issue.*<sup>1</sup>

**RIGHT TIME:** Is there a time when you should not hydroseed? Yes! But it is probably not the time of year you are thinking it is. There are a lot of elements which go into determining when you should hydroseed – some of which are not completely predictable. But there is definitely a correct season to hydroseed. Both Chris and Jody commented how hydroseeding isn't just spraying seeds on a slope, waiting for them to grow, and calling it good. *The ideal scenario is to hydroseed before the seasonal rains begin in the fall (around the end of August – September) so the seeds can germinate while the weather is still warm and while there is moisture.* This allows the seedlings to establish and take root before becoming dormant for winter. After winter, when the weather warms and the spring rains arrive, the plants will usually spring back to life and develop seeds which will help with propagation of the vegetation during the next season. And although the spring season appears perfect for hydroseeding, doing it in March or April may be [too risky](#) for successful germination and sustainable vegetation rates. Because while germination may occur with the spring rains, especially in California, there isn't a guarantee of more rain in the forecast and the seedlings might sprout and get burned off by the warming temperatures and lack of water before they have a chance to establish and have a full life cycle. While temporary irrigation may help to somewhat sustain the growth, it may not be enough for complete establishment. Likewise, hydroseeding in the dead of winter can lead to less successful growth rates. Heavy rain might either wash seeds away or allow germination to begin prematurely. Most people would say that early summer is the worst time to hydroseed. But, that's not necessarily true. Seeds, especially natives, will lie dormant like they do in nature, until the right weather conditions occur. Yes, there is a chance of birds or mice eating the seeds, foot or vehicle traffic disbursing or

damaging them, or germination beginning and then abruptly ending, but most of the seeds will just wait for the right time to grow. According to Jody, if you have to hydroseed and establish some sort of vegetation in the dead of summer, you will need to select a warm season native or non-native – *there are several grasses and forbs and some wildflowers which grow well during warmer months.* However, summer native mixes tend to be more limited and you have to install temporary or even permanent irrigation to help these seeds germinate and establish. *If you go with native species, you have to pay attention to the calendar. They need a full season of cooler weather and rain to establish them. Otherwise, use non-natives.*

**RIGHT PLACE:** Where you hydroseed really does make a difference in the success rate of germination. Just like with gardening, if the soil is infertile or rocky, germination rates generally won't be the greatest (although there are some cases of hydroseeding working on rocky soil). Yet it is interesting to note that unlike gardening, the trickiest areas on a jobsite to get germination are flat pads. The compact and sometimes infertile soil makes it like trying to grow grass on a concrete slab. Not to mention the likelihood of standing pools of water which can drown seedlings during the wet season. *Slopes are actually some of the best areas for hydroseeding and tend to have the highest germination rates.* Track walking slopes helps with erosion control; it also helps seeds to find their spot to germinate. The texture from track walking helps lock moisture into the soil which in turn boosts germination rates.

Geographically, where you plan to hydroseed affects which type of seeds you select. California native species are location specific – what grows in San Diego won't necessarily grow in the Sierra foothills. Nor should it. Selecting a native mix appropriate for the application location is very important. And while some locations allow you to plant non-native species, there are some locations which must maintain a strict natives-only seed mix. Caltrans has an online resource that can be very helpful in finding native seed types for your area. [TransPLANT](#) is a tool to aid professionals in selecting regionally appropriate plant species for erosion control, revegetation, biofiltration, and other highway planting situations. It takes into consideration factors such as elevation, rainfall, soil type and regional plant communities.

**RIGHT METHOD:** Hydroseeding (*not to be confused with hydromulch – a mulch applied hydraulically which contains no seeds*) has many different application options. And while hydroseed application types vary, the

three most common applications include seed, fertilizer/mycorrhizae (*Mycorrhizae is a symbiotic fungus. The plant makes sugars by photosynthesis and supplies them to the fungus, and the fungus supplies nutrients to the plant*), and mulch. Sometimes after hydroseeding, a layer of straw mulch is applied to the area to protect the seed and lock moisture into the ground. The straw is spread over the seeded area and then tacked down with a slurry of tackifier and mulch to keep the straw from being blown away by the wind. Depending on the project and conditions of the soil, different combinations may be required. Soil testing and analysis is key to understanding which application types and nutrients are necessary for success rates. As Chris stated, *“successful growth rates need someone to pay attention to the soil.”* Along with healthy soil, successful vegetation rates are dependent on the amount of seed applied. Caltrans has a math formula for determining pounds per acre of seed – “A commonly used application range is 80–100 seeds/ft<sup>2</sup>. Adjust this number as required by the mature plant size.”<sup>2</sup> The equation is  $PLS/acre = Required\ seed\ density\ (lbs.\ of\ seeds/ft^2) \times 43,560\ ft^2/acre \times \%PLS$  With seed density being the weight of seeds per square foot that you want to apply based on plant type and mature size – which according to the general Caltrans guideline is roughly 100 seeds/ft<sup>2</sup>; and with PLS standing for Pure Live Seed which is the quantity of seeds that will actually germinate in any given lot. Seed mixes are typically labeled with the percent PLS per lot.<sup>3</sup>



For more information, [watch this helpful video](#) from John McCullah about determining seed density and seeds per square feet.

<sup>1&2</sup> [Caltrans Hydroseeding Guidance](#)

<sup>3</sup> EC-4 & SS-04

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

## The Monthly Dirt

Newsletter Editor:

**John Teravskis**, QSP/QSD, CPESC, WPCM, T or R  
[jteravskis@wgr-sw.com](mailto:jteravskis@wgr-sw.com)

(209) 334-5363 ext. 110 or (209) 649-0877

**Technical Questions about Environmental Compliance?** Call ...

**Mike Lewis**, QSP, CESSWI, WPCM

(Northern California) [mlewis@wgr-sw.com](mailto:mlewis@wgr-sw.com),

(209) 334-5363 ext. 116

**Gray Martz**, QSP/QSD, PG (Southern California)  
[jgmartz@wgr-sw.com](mailto:jgmartz@wgr-sw.com), (562) 799-8510 ext. 1002

The background of the entire page is a repeating pattern of stylized green leaves. Each leaf is outlined with multiple parallel lines, creating a sense of depth and texture. The leaves are arranged in a dense, overlapping manner, filling the entire frame.

BMP OUTLET

---

**IN A  
PINCH?**

**TRY SILTSOXX.  
(THEY'RE GREEN!)**

---

BMPOUTLET.COM  
SALES@BMPOUTLET.COM  
(209) 334-5363 X119



# S&S SEEDS

**Seeds For Erosion Control, Revegetation  
& Landscape Projects**

**Prompt Customer Service**

**Extensive Inventory Of High Quality Seeds**

**California Native Grasses, Shrubs & Wildflowers**

**Custom Seed Designs & Mixes**

**Site-Specific Custom Seed Collection & Increase**

**Erosion Control Solutions & Products**

**Mycorrhiza, Humates & Organic Fertilizers**

**California Native Sod Varietals**



**SSEC** Est. 1968  
SUSTAINABILITY AT WORK



**THE INDUSTRY LEADER IN FULL SCOPE SWPPP IMPLEMENTATION & MANAGEMENT SOLUTIONS SINCE 1968.**



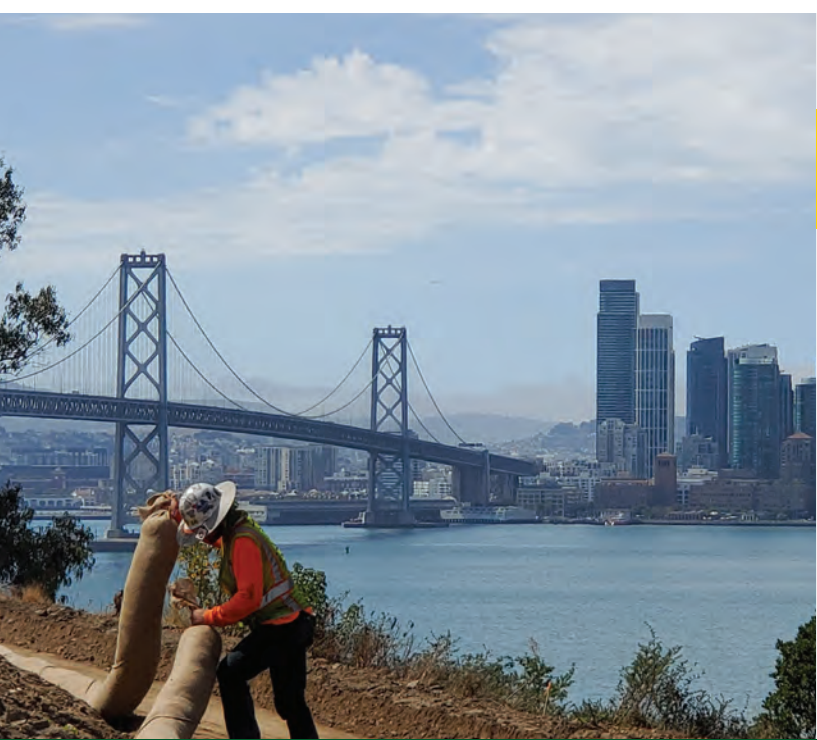
Erosion Control



Wildlife & Environmental Protection



Sediment Control



## SSEC DIFFERENCE

**WE DON'T JUST LEAD THE ENVIRONMENTAL SERVICE INDUSTRY WE HELPED CREATE IT.**

- Largest fleet in the industry
- Fast response time
- Professional, certified team
- High quality products
- Excellent MOD rate
- Customer protection at every phase
- Responsible pricing based on decades of experience

**LEARN MORE AT:**

SelbySoil.com | 800-578-2354



# DIRT TIME



**“The practice of BMP selection, implementation and management is not brain surgery – it’s much more complicated!”**

**Details: \$460**

**April 12 @ 8:00 am - April 13 @ 5:00 pm**

**MORE THAN EVER BEFORE YOUR BMPs MUST BE EFFECTIVE. WHY?** According to the CGP (CA General Permit) the efficacy of the BMPs outlined in your SWPPP will be evaluated by inspections before, during, and after EVERY storm event. **HAS THIS EVER HAPPENED TO YOU? • Redoing your BMP over and over again • (NOV) Notice of Violation • Stop Work order • Receiving Fines *Make your BMP's WORK.***

The industry doesn't have a class like BMP 101. That's why experiential learning with hands-on participation will be the most successful in gaining intimate knowledge of the BMP.

Video-based instruction is another effective way to gain BMP knowledge. The “BEST of Erosion Control BMP SUMMIT” course offers both hands-on and video-based teaching to help you effectively learn how to SELECT, INSTALL, and INSPECT BMPs at Shasta College.

We've got various exhibitors on-site with EC equipment, products, and suppliers. This is the only learning environment where you get to rub shoulders with the exhibitors and handle the products while kicking the dirt. Just a walk away is the Shasta College Erosion Control Training Facility where we will spend the second day watching and participating in BMP implementation.

Upon completion of this training, you will leave with the confidence of knowing how to successfully implement BMP's on your site. Leave the days of redoing BMP's over and over again behind. Register today! Check out this BMP video: <https://tinyurl.com/yckw3dsp>

**Cost of Registration for 2** – Full Day training will be **\$460 per Student**, which includes 1.) \* BMP Manual – Best of the BMPs Guidance Manual, 2.) breakfast and lunch for both days, 3.) Refreshments (coffee, tea, and water)  
**Lodging:** The Red Lion Hotel on Hilltop Dr, Redding has offered a discounted group rate (\$96/night) for you! Simply tell them you're here for the Erosion Control Summit to redeem your discount. Plus, an Erosion Control Social will be happening Tuesday night at the hotel.  
\*Only available 04/11/22 till 04/13/22 checkout.

**Discounts:**  
**4-Pack:** \$25\* discount for each registrant for groups of 4 or more.  
**Early Bird:** \$25\* discount for registering before March 13, 2020.  
**10% COMBO:** 10%\* (\$46) discount for registrants that qualify for Early Bird and 4-Pack. (Only one registration discount may apply – this discount is NOT in addition to Early Bird and 4-Pack.)

**REGISTER AT [WWW.DIRTTIME.TV](http://WWW.DIRTTIME.TV) or email: [john@salixaec.com](mailto:john@salixaec.com) FOR QUESTIONS**

**Shasta College is an equal opportunity educator and employer**



NEW

# CALTRANS WPCM 8 HOUR TRAINING CLASS



On January 21 2020, Caltrans issued a Revised Standard Specification (RSS) 13-1.01D, detailing the requirements for Water Pollution Control Managers (WPCM) to complete required training prior to working on Caltrans projects. All projects awarded after July 5, 2020 include this RSS.

**To become a WPC manager, alternate WPC manager, or assistant WPC manager for Caltrans construction projects, you must submit a certificate of completion of an 8-hour Water Pollution Control Manager training course.**

▶ **SIGN UP TODAY** ◀  
**@ [www.veruxinc.com](http://www.veruxinc.com)**

Click on "Book Training Class" to sign up.

Please call or email Bob Shults for additional details or to request a class in your facility or area.

 [info@veruxinc.com](mailto:info@veruxinc.com)

 916.850.5758

Even with current COVID protocols, safe in-person training is available at the Verux training facility. Alternatively, please contact Bob Shults about traveling to your location.

“

Best storm water class I have attended. Bob knows Caltrans and kept us engaged for eight hours, which is tough to do!

—Dave Cox, Estimator/Project Manager  
George Reed, Inc.

Bob's WPCM training course is exceptional! Bob is very engaging and his extensive experience in construction storm water management resonates with our engineers.

—Candice Longnecker  
Valley Region Environmental Manager, Granite Construction

”

Bob Shults integrates 20+ years of construction management and storm water consulting experience into this training. Hands on exercises and real world examples add value to the class throughout.

Bob Shults, PE,  
QSD, CGP ToR, Caltrans WPCM Trainer



 **VERUX** P 916.930.6000 | F 888.840.5935  
[www.veruxinc.com](http://www.veruxinc.com) | [info@veruxinc.com](mailto:info@veruxinc.com)



# QSP SERVICES

*Providing QSP services & oversight for southern, central, and northern California.*

---

*contact us for a quote.*

FOR NEW CLIENTS, WE'RE OFFERING FREE ACCESS TO OUR INSPECTION APP (VALUED AT \$500).

[jteravskis@wgr-sw.com](mailto:jteravskis@wgr-sw.com) | 209.334.5363 x110 | [wgr-sw.com](http://wgr-sw.com)





# Biological Monitoring

## BIOLOGIST SERVICES

Helping you to protect natural habitat and resources on your project.

Need a biological monitor or technician to provide support, monitoring, and analysis for your project that must comply with State Water Board, Department of Fish & Wildlife, or US Army Corps of Engineers requirements? We may have the solution you need for these monitoring requirements.

Monitoring	Compliance	Training & Support
 <ul style="list-style-type: none"><li>• Environmental &amp; Site Inspections</li><li>• Installation Monitoring</li><li>• Post-Installation Monitoring and Reporting</li><li>• Mitigation Monitoring &amp; Reporting</li><li>• Dredging Monitoring</li></ul>	 <ul style="list-style-type: none"><li>• Environmental Regulation Compliance</li><li>• Clean Water Act Permitting and Compliance</li><li>• California Department of Fish and Wildlife Streambed Alteration Agreements</li><li>• 401, 404, and Section 1600 Permit Compliance</li><li>• Federal Endangered Species Act Compliance</li></ul>	 <ul style="list-style-type: none"><li>• Geographic Information Systems &amp; Digital Mapping</li><li>• Biological Resource Support</li><li>• Environmental Awareness Programs</li><li>• Environmental Project Management</li></ul>

### MEET THE BIOLOGIST:

Danielle Teravskis, Biological Monitor

*Danielle has had experience as a biological technician providing monitoring for several notable organizations including U.S. Fish and Wildlife. She specializes in monitoring construction activities and the impact on wildlife, conducting field investigations for habitat analysis, and monitoring for protected species.*

# QSP / QSD *Online* TRAINING

APRIL 26-28, 2022  
Our online QSP/QSD training class features experienced instructors, interesting video segments, breakout sessions, examples from actual construction sites, and other interactive learning opportunities.



IN-PERSON TRAINING

JUNE 9, 2022

# BMP ROUNDUP

A WESTERN THEMED HANDS-ON BMP LEARNING EXPERIENCE

*\$250/person*



FORGE

**TRAINING FOR CONTRACTORS AND QSPS**  
FEATURING SIX HOURS OF TRAINING ON HOW TO INSTALL BMPs. LOCATED AT THE WGR LODI CONSTRUCTION SANDBOX. QUALIFIES FOR 5 PDHS AND INCLUDES A BBQ LUNCH. VISIT [WGR-SW.COM/TRAINING](http://WGR-SW.COM/TRAINING) TO REGISTER.