

# Follow-up Q&A from the CE News Webcast Series: Green Design: New Approach for Sustainable Erosion Control

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Question	Response
Shall I assume that native vegetation should be the first priority?	In general, native vegetation species should be incorporated into the seed mix when possible. The downside to native seed mixes; they are generally expensive and hard to acquire. Native seeds can sometimes take much longer to germinate and mature. The site conditions might require immediate vegetation to stabilize the soil and you don't always have the time to wait for native grasses to establish. A mix of native grasses and a non-dominate nurse grass might be an alternative to consider. Check with your local seed supplier for specific seed options for your area.
Who do you normally hire to conduct your soils testing and analysis? What is a normal cost of this effort?	We normally hire out a national soil analysis lab, such as Harris Labs. The cost can vary depending on the type of test you wish to perform, but can be anywhere from \$10 to \$200. We offer free soil testing via <a href="http://www.profileps3.com">www.profileps3.com</a>
Can an agronomic soil test typically be performed by the project geotechnical engineer?	As long as the proper samples are taken from the site and the geotechnical engineer is aware of the proper tests for agronomic testing. We offer free soil testing via <a href="http://www.profileps3.com">www.profileps3.com</a>
Has Caltrans approved any of your products for use on the highway projects?	Yes. Enkamat 7003, 7010 and 7020 are approved. Various base hydraulic mulches are approved along with Terra-Matrix, EcoMatrix, Hydro-Blanket and EcoAegis.
Would roots growing in the cracks further expand the cracks and destabilize the site?	The slopes adjacent showed vegetation and roots in the cracks had a stabilizing effect. So using the reference site concept can provide clues to the proper treatment.

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<p>Can the flexterra method be used for drifting sand on flat sites?</p>	<p>It works well as a dust control product; however the preference is for soils that have some clay particles. Flexterra can be used for managing drifting sand but should not be applied to areas with foot traffic or other disturbances to the stabilized area. This would be a short-term solution (6 months to 1 year without vegetation). You could also consider using Hydro-Blanket BFM. It works like Flexterra but might have a little more bond strength holding the sand particles together. Please contact us if you would like to set up a potential demo.</p>
<p>Are the nails used just ordinary carpenter's nails, or a specialized product?</p>	<p>Yes, they were just hot-dipped galv. On the Bridge Bay project. On Opal Cliffs we used anchor pins (13" long manufactured for RECPs) and nail from Home Depot. Note, I prefer "bright" nails as when they rust they actually bond really well with the soil</p>
<p>What was the total project cost per sq. ft. on the two CA projects?</p>	<p>Approx \$6.00 / SF</p>
<p>What was the final pH of the Hwy 47 soil samples after modifications?</p>	<p>We were able to get the soils to 7.5. We suggested follow-up treatments to keep the soils around neutral but I believe that no other soil treatments have been applied. Soils, over time will revert back to past levels. The goal is to modify the soils at the time of seeding so new plants can get established. Mature plants acclimate better than immature plants to harsh soils. Consideration should also be taken with <u>plant species selection for pH tolerance levels.</u></p>
<p>What criteria could you recommend to use to conduct soil analysis along an erosive channel?</p>	<p>Collect representative soil samples for each different region of soil along the channel and analyze each one separately.</p>
<p>I have never considered site specific seeding as most DOT and Environmental Bureaus have specified seeding specs to go by. Did these projects need special review for approval?</p>	<p>Most of these projects utilized local seeding specs as the starting point and then added specific species as needed to accomplish the project goals.</p>
<p>What kind of shear stress and velocities can Flexterra typically sustain?</p>	<p>Under 2lb of shear. The product is not designed for higher flows. If you need a system to handle higher flows and still get significant vegetation then you should consider the GreenArmor System. It is a composite of both Flexterra and Enka mat and a green alternative to rip rap at a fraction of the cost. Flexterra is not designed to be used alone in a channel application. When used properly with Enkammat 7010 or 7020 to create the GreenArmor System, the system can withstand velocities greater than 15 ft/s and shear stresses as high as 17 psf.</p>

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Could you mention the cost for each of the case studies?	GreenArmor is generally installed from \$5 to \$10 a square yard including all materials, seed, fertilizer and labor. Flexterra installed should range from \$1.25 to \$2.00 a sq yd depending on project size, water availability and size of the Hydroseeder.
Can you give us an idea the price of some of these applications?	GreenArmor is generally installed from \$5 to \$10 a square yard including all materials, seed, fertilizer and labor. Flexterra installed should range from \$1.25 to \$2.00 a sq yd depending on project size, water availability and size of the Hydroseeder.
All examples were in area's with plenty of rainfall or plenty of water what would you do in a desert area?	We have a full product line that incorporates products with high water holding capacity and various functional longevities that can be used with native species to really assist in the establishment.
Do you have problems with invasive species? How do you control invasive species?	That can be an issue which might be best managed with a maintenance program. The best way to keep invasive species out is with <del>successful establishment of desired plant</del> material. Flexterra is a great medium for maximizing plant density.
What is the impact of the spray medium on surface water?	The spray medium is not intended to be applied directly to surface water.
What is the purpose of the nails at Bridge Bay project	The nails were used to help the slurry "grab" hold. We were putting the slurry on very thick and I wanted some roughness on the face to reduce slumping. The nails were an experiment that was visibly helpful.
What is the long-term maintenance required for the oceanside slope after vegetation grows in?	No maintenance is anticipated.
I live in coastal NC. Most of the area, is for all intents and purposes, flat. Developers in this area are like to hydroseed, but invariably meet with poor success. is poor methodology or is it due to the area being so "flat".	There are a lot of issues that can cause failure. Most of the time, contractors pick low-end mulch products at low rates which decreases success rates. Please contact me (Steve) directly at 704 840-6770 so we can discuss this in more detail.
Nailing in the bridge bay marina was really necessary; I saw a very low density.	I felt the nails helped hold the slurry, but there was a trade off - nailing certain granitic faces seemed to weaken them. So no, might be best to leave nails out if highly fractured or weak.
FYI: The pond question refers to the slide in Canada with the iron mining site.	Please contact me (Steve) at 704 840-6770 so I can better understand your question.
What is the most effective erosion control product for regions of high temperatures and low precipitation?	Depends on a lot of things. We need to discuss this further to come up with an appropriate answer.

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<p>what are the key considerations in determining the need for a 2 step approach versus a single step application</p>	<p>Time of year, available precipitation, functional longevity and site conditions. Sometimes a one step application is the only practical way to install the product because of site access. Should always use a two step method for better establishment if possible - good seed to soil contact is preferred.</p>
<p>do you apply the second coat of hydromulch before the first dries or after the first coat dries</p>	<p>As soon as possible but prior to any rain event.</p>
<p>Can you get the Enkamat 7010 and or 7020 in green and can you get the mat with paint marks depicting the location of the staples?</p>	<p>We can custom order it in different colors; I don't think we can get it with paint marks for staple locations.</p>
<p>is using non-native species a good idea as to using native or naturalized species?</p>	<p>In general, native vegetation species should be incorporated into the seed mix when possible. The downside to native seed mixes; they are generally expensive and hard to acquire. Native seeds can sometimes take much longer to germinate and mature. The site conditions might require immediate vegetation to stabilize the soil and you don't always have the time to wait for native grasses to establish. A mix of native grasses and a non dominate nurse grass might be an alternative to consider. Check with your local seed supplier for specific seed options for your area.</p>
<p>What is the difference between hydro-seed and hydro-mulch? Doesn't a hydro-mulch include seeding in the mixture? Is this is the case, what is the difference between this and the 1 step process discussed vs. the two step process?</p>	<p>Hydroseeding is a process. Hydro Mulch is a fiber material that can be made out of cellulose, wood or other fiber. The mixture of seed, fertilizer, hydro mulch and water is called the slurry. Each component of the slurry is added and mixed in the tank of a hydroseeder and then "shot" or applied to the soil. I would go to our web site for more information on specific mulch products and their function. You could also contact us directly for more information.</p>
<p>are these products suitable for coastal wetland uses or are they considered fill in wetlands?</p>	<p>I don't believe they, meaning the turf reinforcement mat and vegetation, would be considered "fill."</p>
<p>Can you provide a relative cost compared to ECRMs?</p>	<p>Rolled blankets installed can range from \$1.50 sq yard to \$12 installed depending on the type of blanket. Some blankets are short-term products made from straw and others are high strength blankets that can last for years. Picking the right material depends on site conditions and objectives. Flexterra can be installed from \$1.25 to \$2.00 a sq yard. GreenArmor ranges from \$5 to \$10 a square yard installed. I suggest you contact us directly to help match your needs with the right product solution.</p>

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<p>Why do you spray seed on top of the matting?</p>	<p>The Enkamat matting has over 90% open area and you are spraying the seed via the mulch into the matting to get seed/soil contact. The combination of Enkamat and Flexterra make this possible, whereas with other mattings, this doesn't work well.</p>
<p>What amount and type of tackifier do you use with flexterra at 4000lbs/acre</p>	<p>Flexterra has the tackifier premixed into the bag at the factory, so no need to use any additional tackifier. The tackifier quantity is 10% Guar Gum based and crossed-linked to maintain wet bond strength.</p>
<p>What's the appropriate soil control BMPs for channel restoration? It seems to me that normal BMPs are not applicable.</p>	<p>Depends on the channel hydraulics. Could be an temporary erosion control blanket or a permanent Turf Reinforcement Mat such as Enkamat or GreenArmor System.</p>