



Georgia's Forestry Water Quality Program

Using Geoweb and Geotextiles For Stream Crossings.

March 2013



Harold West
Forester Specialist
Forest Water Quality

Office
US Forest Service
Oconee District
1199 Madison Road
Eatonton, GA 31024



What Is Geoweb and Geotextiles?

Geoweb is a dense plastic (Polyethylene) cellular confinement system that comes folded up for easy transport expanding into cells which can be filled with soil, sand or gravel depending on application. For stream crossings, gravel is used.





What Is Geoweb and Geotextiles?



Geotextile is a densely woven fabric that is extremely puncture resistant and can be used alone or under the Geoweb. Water can pass through it; however, soil will not. When used under Geoweb, it will keep the gravel and the Geoweb from sinking deeper in the ground.



Using Geoweb as a Load Support System produces a stiff base with high flexural strength. Acting like a semi-rigid slab, loads are distributed latterly reducing subgrade contact pressures.





Getting Started—Grading The Crossing

The crossing should be graded down 2in. lower than the Geoweb you are planning on using.

Example, if you are using 8in. Geoweb, you would grade down 10in. ←

There will be 8in. of gravel within the Geoweb and 2in. of gravel over the top = 10in. of gravel.



When completed, the entire crossing will be level with the surrounding grade, which is where the installation crew is standing. →

At this phase, careful measuring along the entire cut is important to maintain uniformity. Too wide or deep will increase your cost for gravel needed to fill excess space.



Getting Started—Grading The Crossing



The stream bed has to be graded down also to keep from being above grade and impeding any water flow.



Both Geoweb and Geotextile are flexible and will fit the contour of the stream bed that has been graded down.





Getting Started—Grading The Crossing

While it's best to construct the crossing when the stream is dry or at a trickle, you can install the crossing during normal flow. Plan on grading the stream bed last, just before laying out the Geotextile fabric.





Laying Out The Geotextile Fabric

Rolling out the Geotextile on dry ground is simple enough; however, in a flowing stream, someone will have to stand on it to keep it from being carried down stream.





Expanding The Geoweb and Staking Down

Expand the Geoweb to its fullest extent without deforming the cells. Stake the Geoweb down using a stake with a notch or bend to hold the Geoweb in place. It's recommended to use the fiberglass stakes with the correct heads which match up with the pre-cut slots in the Geoweb.





Connecting the Panels Together

Geoweb panels are designed to be connected together when using 2 or more panels. The tabs insert into pre-cut slots and attach the panels together as if they were one.





Connecting the Panels Together

The pre-cut slots in the panels allow for tabs to be quickly inserted and with a half turn, the panels are strongly and firmly clamped together.





Connecting the Panels Together

By using these tabs, only the perimeter of the Geoweb panels will need to be staked in place. If installing in a flowing stream, it can be assembled on dry ground and carried as one piece and set in place.





Preparing For The Gravel

Before filling the cells with gravel, ensure both ends of the Geoweb is securely staked in place, otherwise, the gravel will lift the Geoweb spilling the gravel outside of the cells. →



← Using #4 gravel, have the trucks start 8 to 10 feet in front of the Geoweb and spread backward onto the Geoweb.



Preparing For The Gravel



Securely staking down the end of the Geoweb.



Spreading Gravel Over The Geoweb



Once the cells are filled with gravel, the trucks and tractors can spread gravel over the Geoweb without collapsing the cells.



Spreading Gravel Over The Geoweb





Spreading Gravel Over The Geoweb





Spreading Gravel Over The Geoweb



As gravel is spread in the middle of the Geoweb, some raking and shoveling will be needed to fill the cells on the edge.



Spreading Gravel Over The Geoweb



Once all the cells are filled with gravel, heavy equipment can operate over all of the Geoweb cells without damaging or collapsing them.



Completed Geoweb Crossing



Finish up the crossing by dressing the sides and approaches with gravel or small surge stone. Gravel within the cells will settle over time and from being driven over. If the Geoweb starts showing, spread a thin top layer of gravel over the top. Usually, with Geoweb placed in the stream channel, fine sediment will fill all the voids between the gravel and very little settling takes place.



In Service Geoweb Stream Crossings





In Service Geoweb Stream Crossings





In Service Geoweb Stream Crossings





In Service Geoweb Stream Crossings





Contact Information

For more information on Geoweb and Geotextiles: <http://www.prestogeo.com/>

WATER QUALITY PROGRAM

GEORGIA FORESTRY
COMMISSION



Harold West—Forester Specialist, North East Region
Office

US Forest Service
1199 Madison Road
Eatonton, GA 31024
Office 706-485-7110
Cell 770-530-4901

hwest@gfc.state.ga.us

John Colberg—Forest Water Quality Program Coordinator
3005 Atlanta Hwy
Gainesville, GA 30507
706-993-0434

jcolberg@gfc.state.ga