



SAGE
ENVIRONMENTAL

March 21, 2013

Mr. Joseph Martella
RI Dept. of Environmental Management
Office of Waste Management
235 Promenade Street
Providence, Rhode Island 02903

**RE: *Geotextile Modification Request
Queen Anne Square
Newport, Rhode Island
SAGE Project No. S2244***

Dear Mr. Martella:

Please consider this as a request to modify the geotextile material originally proposed in SAGE Environmental, Inc.'s (SAGE's) October 2012 Remedial Action Work Plan for the referenced property.

This change request is necessary primarily due to a concern that the fabric-like material originally proposed will accumulate silt washed from top soil above during precipitation events. The silt will reduce the permeability of the geotextile fabric over time and not allow sufficient infiltration of stormwater and possibly allow flow of saturated top soil on steeper slopes.

Given this concern, a geogrid material with square openings is proposed as a substitute. The geogrid is made of polypropylene and has 1.3-inch square openings. The openings are such that the material still minimizes potential direct exposure concerns as the material cannot be easily damaged by hand excavation. In addition, the 1.3-inch square openings are small enough that a child's hand cannot fit through the opening, further minimizing potential direct exposure concerns as it would be difficult to displace appreciable quantities of underlying soil.

A copy of the manufacturer's product specification sheet is attached.

As you are aware, the site will be subject to an Environmental Land Use Restriction (ELUR) and a Post-Construction Soil Management Plan (SMP) that requires annual inspection of capped areas to insure the integrity of the soil cap is being maintained.

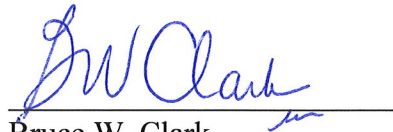
172 Armistice Blvd.
Pawtucket, Rhode Island 02860
401-723-9900
FAX 401-723-9973
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As discussed during recent telephone conversations, the construction schedule has been delayed due to weather as well as the unexpected soil conditions initially encountered to a point where any additional delays may create a significant economic hardship to the City of Newport and the State due to lost revenue should this project extend into the tourist season. As you know, the Site is situated in the center of Historic Newport which serves as a gateway to the many tourists that visit our state. The grand opening of the revitalized Queen Anne Square is scheduled for May 31st, and the opening ceremony includes the Honorable Governor Lincoln Chaffee along with various other state and local dignitaries making rescheduling ahead of the tourist season extremely improbable. Given the above, we respectfully request your prompt review and timely approval for installation of the geogrid material.

Should you require any additional information to facilitate the RIDEM approval process or should you have any questions or comment, please do not hesitate to contact me.

Thank you for your continued cooperation and past prompt consideration and responses to our many submittals, without which our current progress would not have been achieved.

Sincerely,
SAGE Environmental, Inc.



Bruce W. Clark
Principal

BWC:car

Attachment

c: Kelly Owens, RIDEM, OWM
Pieter Roos, Newport Restoration Foundation



Tensor International Corporation
 5883 Glenridge Drive, Suite 200
 Atlanta, Georgia 30328-5363
 Phone: 800-TENSAR-1
 www.tensor-international.com

Product Specification - Biaxial Geogrid BX4100

Tensor International Corporation reserves the right to change its product specifications at any time. It is the responsibility of the specifier and purchaser to ensure that product specifications used for design and procurement purposes are current and consistent with the products used in each instance.

Product Type: Integrally Formed Biaxial Geogrid
Polymer: Polypropylene
Load Transfer Mechanism: Positive Mechanical Interlock
Primary Applications: Spectra System (Base Reinforcement, Subgrade Improvement)

Product Properties

Index Properties	Units	MD Values ¹	XMD Values ¹
▪ Aperture Dimensions ²	mm (in)	33 (1.3)	33 (1.3)
▪ Minimum Rib Thickness ²	mm (in)	0.76 (0.03)	0.76 (0.03)
▪ Tensile Strength @ 2 % Strain ³	kN/m (lb/ft)	4.0 (270)	5.5 (380)
▪ Tensile Strength @ 5% Strain ³	kN/m (lb/ft)	8.0 (550)	10.5 (720)
▪ Ultimate Tensile Strength ³	kN/m (lb/ft)	12.8 (880)	13.5 (920)
Structural Integrity			
▪ Junction Efficiency ⁴	%	93	
▪ Flexural Stiffness ⁵	mg-cm	250,000	
▪ Aperture Stability ⁶	m-N/deg	0.28	
Durability			
▪ Resistance to Installation Damage ⁷	%SC / %SW / %GP	90 / 83 / 70	
▪ Resistance to Long Term Degradation ⁸	%	100	
▪ Resistance to UV Degradation ⁹	%	100	

Dimensions and Delivery

The biaxial geogrid shall be delivered to the jobsite in roll form with each roll individually identified and nominally measuring 3.0 meters (9.8 feet) or 4.0 meters (13.1 feet) in width and 75.0 meters (246 feet) in length. A typical truckload quantity is 185 to 250 rolls.

Notes

1. Unless indicated otherwise, values shown are minimum average roll values determined in accordance with ASTM D4759-02. Brief descriptions of test procedures are given in the following notes.
2. Nominal dimensions.
3. True resistance to elongation when initially subjected to a load determined in accordance with ASTM D6637-01 without deforming test materials under load before measuring such resistance or employing "secant" or "offset" tangent methods of measurement so as to overstate tensile properties.
4. Load transfer capability determined in accordance with GRI-GG2-05 and expressed as a percentage of ultimate tensile strength.
5. Resistance to bending force determined in accordance with ASTM D5732-01, using specimens of width two ribs wide, with transverse ribs cut flush with exterior edges of longitudinal ribs (as a "ladder"), and of length sufficiently long to enable measurement of the overhang dimension. The overall Flexural Stiffness is calculated as the square root of the product of MD and XMD Flexural Stiffness values.
6. Resistance to in-plane rotational movement measured by applying a 20 kg-cm (2 m-N) moment to the central junction of a 9 inch x 9 inch specimen restrained at its perimeter in accordance with U.S. Army Corps of Engineers Methodology for measurement of Torsional Rigidity.
7. Resistance to loss of load capacity or structural integrity when subjected to mechanical installation stress in clayey sand (SC), well graded sand (SW), and crushed stone classified as poorly graded gravel (GP). The geogrid shall be sampled in accordance with ASTM D5818-06 and load capacity shall be determined in accordance with ASTM D6637-01.
8. Resistance to loss of load capacity or structural integrity when subjected to chemically aggressive environments in accordance with EPA 9090 immersion testing.
9. Resistance to loss of load capacity or structural integrity when subjected to 500 hours of ultraviolet light and aggressive weathering in accordance with ASTM D4355-05.

Tensor International Corporation warrants that at the time of delivery the geogrid furnished hereunder shall conform to the specification stated herein. Any other warranty including merchantability and fitness for a particular purpose, are hereby excluded. If the geogrid does not meet the specifications on this page and Tensor is notified prior to installation, Tensor will replace the geogrid at no cost to the customer.

This product specification supersedes all prior specifications for the product described above and is not applicable to any products shipped prior to June 1, 2007