



REVIEW NOTES

ROCHESTER ER BRF 0162(18) – BRIDGE NO. 19

TEMPORARY MSE WALL – TEMPORARY ABUTMENT #1

April 15, 2014

RE: Temporary MSE Wall for Temporary Abutment #1 Drawings received from Schultz Construction on 4/11/2014.

VHB Project No.: 57517.00

These notes accompany the review of the Temporary MSE Drawings reviewed by VHB on 4/15/2014.

General Notes

1. See comments on submittal.

SUBMITTAL REVIEW

Reviewed and approved but only for conformance to the Construction Contract Documents.

Revise and Resubmit

Corrections or comments made during this review do not relieve the Contractor or his Designer from compliance with professional requirements or for responsibility for the adequacy of the submittal information. This check is only for review of general conformance with industry standards and general compliance with the information given in the Contract Documents. VHB has not conducted a detailed review of the submittal and has not performed calculations or assessed the adequacy of loads, design criteria, quantities, dimensions, etc. Approval of the submittal does not constitute VHB's approval of any construction means, methods or techniques. These remain the responsibility of the Contractor.



Yanasse Hangen Brustlin, Inc.
7056 US Route 7 • Post Office Box 120
North Ferrisburgh, VT 05473
802.425.7788

Job Number: 57517.00 _____

Reviewed By: E.A. Fiala _____

Date: April 15, 2014 _____

This submittal review is for sheets 1-14, inclusive, of the “PLAN MSE Wall Rochester VTx” submittal dated 4/11/2014.

Vermont Agency of Transportation

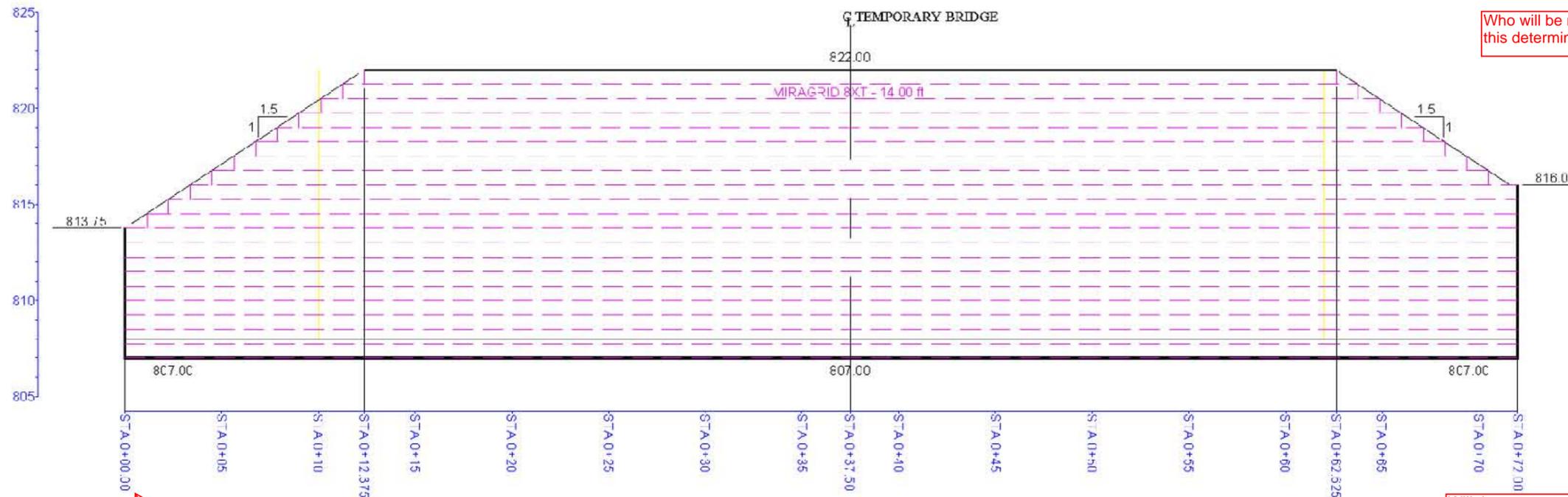
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ON: **April 11, 2014**

and Checked for

CONFORMANCE

BY: Jennifer Fitch DATE: 04/16/2014



ELEVATION - WALL 1

Who will be making this determination?

What do these stations correspond to? Show plan view with stationing.

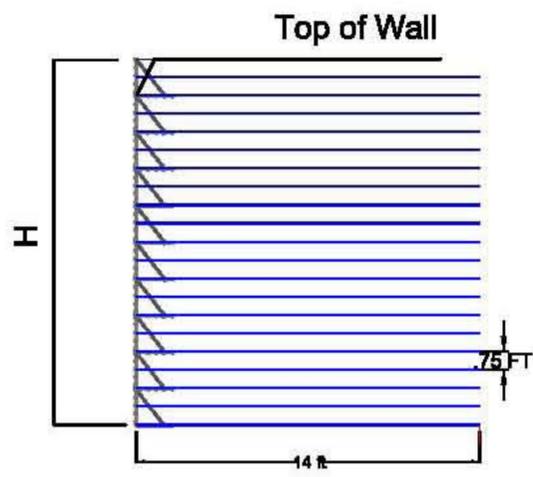
Will the contractor be doing QC testing during compaction operations to monitor this? How frequently?

- Subgrade:
- Design is based on an assumed soil bearing capacity of 8 tons per square foot. If bearing strength of the soil actually encountered is less than this assumed amount, a review and possible redesign of the structure will be required.
 - Excavation of bearing surfaces is to be performed with a smooth-edged bucket. If there is significant disturbance to the subgrade, the disturbed material is to be removed and replaced with compacted structural fill.
 - Any loose, softened or disturbed material due to construction traffic is to be removed prior to construction.
 - Structural fill shall be placed in uniform lifts not exceeding 12 inches in loose thickness and be compacted to a minimum 95% of the maximum dry density as determined by ASTM D 1557.

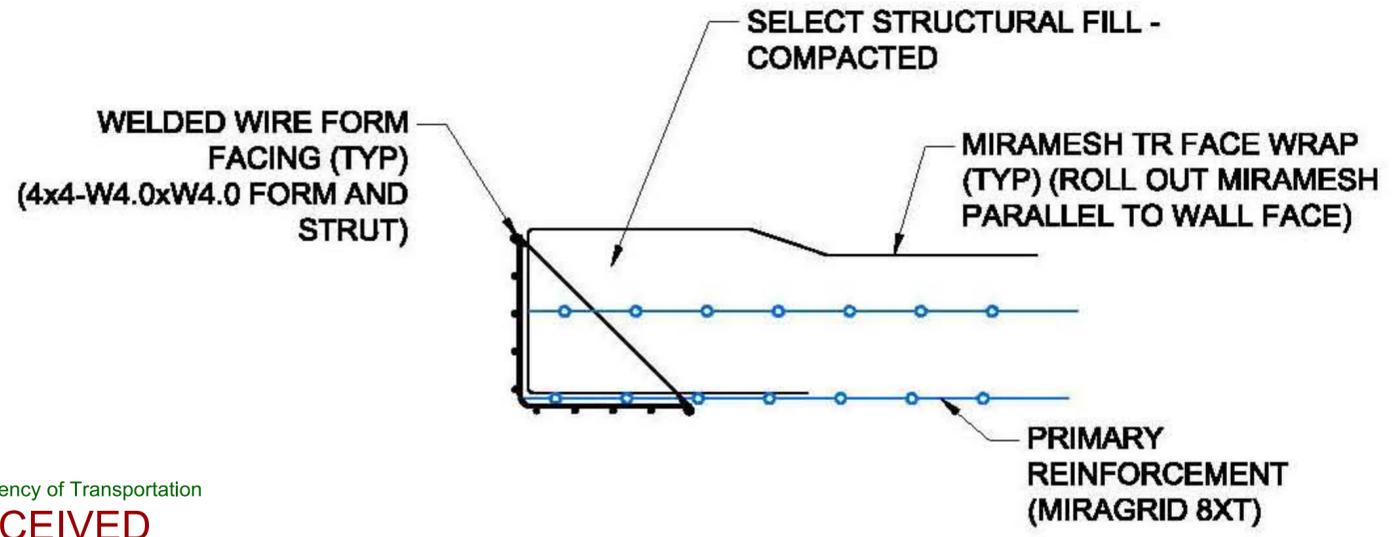
- Fill:
- Granular Fill shall consist of stones, rock fragments, and fine, hard durable particles resulting from the natural disintegration of rock.
 - The material shall be free from injurious amounts of organic matter.
 - Not more than 15% of the material passing the No. 4 sieve shall pass the No. 200 sieve and the material shall conform to the following gradations unless otherwise noted:

Sieve Size	% by Weight
3 inch	100
No. 4	70 - 100
 - Structural Fill shall consist of crushed gravel and shall meet the following specifications unless otherwise noted:

Sieve Size	% by Weight
3 inch	100
2 inch	95 - 100
1 inch	55 - 85
No. 4	27 - 52
No. 200	0 - 12 (based on the % passing the No.4)



CROSS SECTION



FACING DETAIL

Vermont Agency of Transportation
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 BY: Jennifer Fitch DATE: 04/16/2014



REVISION:	DESCRIPTION:	DATE:	BY:

DRAWING TITLE:
**TEMPORARY BRIDGE SUBSTRUCTURE
 ROCHESTER VERMONT**

TENCATE
 GEOSYNTHETICS
 365 South Holland Drive
 Pendergrass GA 30567
 Tel: 770 693-2228 Fax: 770 693-4400
 www.mirafi.com

DATE: April 2014	SHEET NO.: RS-1
SCALE: AS SHOWN	
DRAWN BY:	

AASHTO 2007-2010 (LRFD)

MSEW(3.0): Update # 14.92

PROJECT IDENTIFICATION

Title: Rochester VT
 Project Number:
 Client:
 Designer: xyz
 Station Number:

Description:

Company's information:

Name: TenCate Mirafi
 Street: 365 South Holland Drive

 Pendergrass, GA 30567
 Telephone #: 706 693-2226
 Fax #:
 E-Mail:

Original file path and name: C:\Users\m.bernardi.TENCATE\Documents\Projects\Hipszer\.....
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Original date and time of creating this file: Sun Apr 06 12:45:45 2014

PROGRAM MODE:

ANALYSIS
 of a SIMPLE STRUCTURE
 using GEOGRID as reinforcing material.

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Miramesh[®] TR

Miramesh[®] TR is composed of black high-tenacity polypropylene yarns that are woven together to produce an open mesh geotextile. Miramesh[®] TR is inert to biological degradation and resistant to naturally encountered chemicals, alkalis, and acids.

TenCate Geosynthetics Americas is accredited by [a2La](#) (The American Association for Laboratory Accreditation) and Geosynthetic Accreditation Institute – Laboratory Accreditation Program ([GAI-LAP](#)).

Mechanical Properties	Test Method	Unit	Minimum Average Roll Value	
			MD	CD
Tensile Strength (at ultimate)	ASTM D4595	lbs/ft (kN/m)	2100 (30.6)	2100 (30.6)
UV Resistance (at 500 hours)	ASTM D4355	% strength retained	90	

Physical Properties	Unit	Typical Value
Aperture Size (machine direction)	in (mm)	0.08 (2)
Aperture Size (cross machine direction)	in (mm)	0.12 (3)
Color	--	Black
Mass/Unit Area (ASTM D5261)	oz/yd ² (g/m ²)	5.9 (200)
Roll Dimensions (width x length)	ft (m)	8 x 150 (2.4 x 45.7)
Roll Area	yd ² (m ²)	133 (110)
Estimated Roll Weight	lbs (kg)	52 (24)

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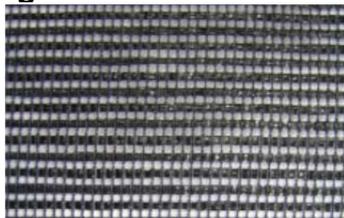

 365 South Holland Drive
 Pendergrass, GA 30567

 Tel 706 693 2226
 Tel 888 795 0808

 Fax 706 693 4400
www.tencate.com

 FGS000084
 ETQR6


Testing Lab 1291.01 & 1291.02

**Short Specification
Miramesh® TR Facing Geogrid Soil Reinforcement**

RECEIVED
ON: **April 11, 2014**
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CONFORMANCE
BY: **Jennifer Fitch** DATE: **04/16/2014**

Geosynthetic reinforcement shall consist of facing geogrid manufactured specifically for facing soil reinforcement applications to retain soil backfill for temporary conditions or to promote vegetation growth using virgin resin and one hundred percent made in America. Facing geogrid shall be weaved from high tenacity monofilament polypropylene yarns to produce an open mesh geogrid with aperture size of 0.08 inches in the machine direction and 0.12 inches in the cross machine direction. Facing geogrid shall be TenCate Miramesh® TR facing geogrid and meet the following:

Facing geogrid shall have life expectancy of 25 years exposed to sunlight. UV Resistance at 500 hours shall be 90 percent retained based on ASTM D4355. Facing geogrid shall have black color.

Tult, Ultimate Tensile Strength in accordance with ASTM D6637 based on minimum average roll values (MARV). Tult shall be 2100 lbs/ft minimum in both directions.

Facing geogrid manufacturer shall meet all the following quality control measures:

Manufacturing quality control testing by a laboratory in the production facility accredited by ISO 9001, GAI-LAP and A2LA for facing geogrid. Ultimate Tensile Tests at frequency meeting ASTM D4354. Current certificates shall be submitted with facing geogrid certification data sheet.

Facing geogrid installation shall be in accordance with the construction drawings and geogrid manufacturer's installation guidelines.

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Vermont Agency of Transportation
Route 44, 1000 State Street, Montpelier, VT 05602

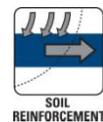
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BY: Jennifer Fitch DATE: 04/16/2014



Miragrid[®] 8XT

Miragrid[®] 8XT is composed of high molecular weight, high tenacity polyester multifilament yarns which are woven in tension and finished with a PVC coating. Miragrid[®] 8XT is inert to biological degradation and resistant to naturally encountered chemicals, alkalis, and acids.

Mechanical Properties	Test Method	Unit	Minimum Average Roll Value
			Machine Direction
Tensile Strength (at ultimate)	ASTM D6637	kN/m (lbs/ft)	108.0 (7400)
Tensile Strength (at 5% strain)	ASTM D6637	kN/m (lbs/ft)	36.8 (2520)
Creep Reduced Strength	ASTM D5262	kN/m (lbs/ft)	68.3 (4684)
Long Term Allowable Design Load ¹	GRI GG-4(b)	kN/m (lbs/ft)	59.2 (4055)

¹NOTE: Long Term Allowable Design values are for sand, silt and clay

Physical Properties	Test Method	Unit	Typical Value
Grid Aperture Size (machine direction)	--	mm (in)	33.0 (1.3)
Grid Aperture Size (cross machine direction)	--	mm (in)	21.8 (0.9)
Mass/Unit Area	ASTM D5261	g/m ² (oz/yd ²)	366 (10.8)
Roll Dimensions (length x width)	--	m (ft)	3.6 (12) x 61 (200)
Roll Area	--	m ² (yd ²)	220 (267)
Estimated Roll Weight	---	kg (lbs)	98 (217)

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Short Specification
Miragrid® 8XT Geogrid Soil Reinforcement

Vermont Agency of Transportation

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and Checked for

CONFORMANCEBY: **Jennifer Fitch** DATE: **04/16/2014**

Geosynthetic reinforcement to consist of geogrids that are manufactured specifically for soil reinforcement applications using virgin resin and one hundred percent made in America. Geogrid shall be woven from high tenacity polyester filament yarn with molecular weight exceeding 25,000 g/m and a carboxyl end group value less than 30 to meet durability requirements. Geogrid to be coated and impregnated with PVC coating that resists peeling and cracking. Geogrid shall be TenCate Miragrid® 8XT geogrid and meet the following:

Ta, Long Term Allowable Tensile Design Strength of the geogrid shall be as determined as follows and a minimum of 4000 lbs/ft:

$$T_a = T_{ult} / (R_{Fcr} \times R_{Fd} \times R_{Fid})$$

Ta shall be evaluated based on 100-yr design life.

Tult, Ultimate Tensile Strength in accordance with ASTM D6637 based on minimum average roll values (MARV).

RFcr, Reduction Factor for Long Term Tension Creep in accordance with ASTM D5262 based on 10,000-hr creep testing as published in FHWA NTPEP report. RFcr shall be 1.45 for Miragrid.

RFd, Reduction Factor for Durability shall be determined by FHWA durability testing covering the range of expected soil environments. RFd = 1.10 minimum for geogrid in typical soil backfill.

RFid, Reduction Factor for Installation Damage shall be 1.05 minimum for geogrid in silt, sand and clay backfill. Geogrid specific construction damage testing performed in accordance with ASTM D5818 shall be provided for more severe soil type.

Geogrid manufacturer shall meet all the following quality control measures:

1. Manufacturing quality control testing by a laboratory in the production facility accredited by ISO 9001, GAI-LAP and A2LA for geogrid. Ultimate Tensile Tests at frequency meeting ASTM D4354. Current certificates shall be submitted with geogrid certification data sheet.
2. Geogrid shall have geogrid type and tensile strength direction permanently marked on each individual roll along the roll length at a minimum of twenty foot intervals.

Geogrid installation shall be in accordance with the construction drawings and geogrid manufacturer's installation guidelines.