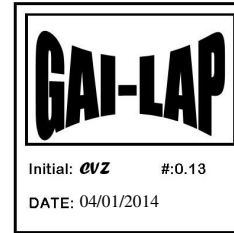




April 1, 2014

Allan Brantley  
**Brantley Engineering, LLC.**  
13933 Tree Loft Road  
Milton, GA 30004

**Re: FINAL LABORATORY TEST REPORT**

Dear Mr. Brantley:

Thank you for consulting TRI California for your material testing needs.

Enclosed is the **final** laboratory report for the conformance testing of three (3) TN270-2-8 Double-Sided Geocomposite samples.**PROJECT NAME:** Jed Cell 10**DATE REPORTED:** April 1, 2014**REFERENCE TRI JOB NO.:** G140211**DATE RECEIVED:** March 11, 2014**SAMPLES SENT BY:** SKAPS, GA**SAMPLE IDENTIFICATIONS:****SAMPLE ID TRI CONTROL NUMBER****1. R#57871010001**

Double-Sided Geocomposite 96806

NW Geotextile- Side A 96800

NW Geotextile- Side B 96801

**2. R#57871010090**

Double-Sided Geocomposite 96807

**SAMPLE ID TRI CONTROL NUMBER**

NW Geotextile- Side A 96802

NW Geotextile- Side B 96803

**3. R#57871010179**

Double-Sided Geocomposite 96808

NW Geotextile- Side A 96804

NW Geotextile- Side B 96805

**TESTS REQUIRED / PERFORMED:****TEST METHOD****Geotextile**

1. ASTM D5261

2. ASTM D4632

3. ASTM D4533

4. ASTM D4751

5. ASTM D4991

**DS Geocomposite**

6. ASTM D4716

7. ASTM D7005

**DESCRIPTION**

Mass per Unit Area

Grab Tensile

Trapezoidal Tear Resistance

Apparent Opening Size

Permittivity

Transmissivity

Ply Adhesion

**TEST RESULTS:** The test results are summarized in the attached Tables 1, 1A to 3, 3A.

Respectfully,

**TRI Environmental, Inc. - California**

Maria Espitia  
Quality Assurance

Carmelo V. Zantua  
Technical Director

Signatures are on file

It shall be noted that the samples tested are believed to be true representatives of the material produced under the designation herein stated. In addition, the attached laboratory tests results are considered indicative only of the quality of samples/specimens that were actually tested. The appropriate test methods hereby employed are based on the current and accepted industry practices. TRI neither accepts responsibility for nor makes claims to the intended final use and purpose of the material. The test data and all associated project information shall be held confidential and not to be reproduced and/or disclosed to other parties except in full and with prior written approval from pertinent entity duly authorized by the respective client or from the client itself. It is our policy to keep physical records of each job for two (2) years commencing from the date of receipt of the samples and keep its corresponding electronic file for seven (7) years. **Retained conformance samples are disposed of after one (1) month.** On the other hand, should you need us to keep them at a longer period, please advise us in writing.

14 Pages Total

**TABLE 1.**  
**MATERIAL PROPERTIES**  
**CLIENT: Brantley Engineering, LLC**  
**PROJECT: Jed Cell 10**

Date Received: **3/11/2014**  
Date Reported: **3/27/2014**  
Client Sample ID: **R#57871010001**  
Material Description: **TN270-2-8 Double-Sided Geocomposite**

QC'd By: *Maria Espitia*  
TRI Job No.: **G140211**  
TRI Control No.: **96806**

SPECIMENS										Avg.	Std. Dev.	Min	Max	Proj. Specs. MARV
METHOD	DESCRIPTION	1	2	3	4	5	6	7	8	9	10			
ASTM D4716	Transmissivity <i>Tested at Normal Pressure : 500 psf, Gradient: 0.02, Seating Time: 24 hrs</i> <i>Temperature of Test Water: 20° C Specimen Size: 12" x 14"</i> Transmissivity (m. <sup>2</sup> / sec.) <b>MD 1.88E-03</b>													6.1x10 <sup>-4</sup>
	Flow Rate (gal/min) <b>MD 0.18</b>													
	Transmissivity (gal/min/ft) <b>MD 9.07</b>													
ASTM D4716	Transmissivity <i>Tested at Normal Pressure : 15000 psf, Gradient: 0.02, Seating Time: 100 hrs</i> <i>Temperature of Test Water: 20.2° C Specimen Size: 12" x 14"</i> Transmissivity (m. <sup>2</sup> / sec.) <b>MD 5.32E-04</b>													1.0x10 <sup>-4</sup>
	Transmissivity (gal./ min./ ft.) <b>MD 2.57</b>													
	Flow Rate (gal./ min) <b>MD 0.05</b>													
	<i>Test Set-Up:</i> <i>Plate</i> _____ <i>HDPE Microspike</i> ooooooooo <i>Geocomposite</i> XXXXXX <i>HDPE Microspike</i> ===== <i>Plate</i> _____													
ASTM D7005	Ply Bond Adhesion (lbs/ in.- width) <i>Instron Tensile Testing Machine is set for 305mm(12 in./min.) constant rate of extension with initial gauge length of 50mm.</i> <i>Full scale force range used for testing: 100 lbs.</i> <b>Side A of Composite</b> <b>MD 3.5 5.8 6.3 5.5 6.0</b> <b>Side B of Composite</b> <b>MD 2.7 3.1 2.4 2.5 3.3</b>													

(End of Table 1)

(Sheet 1 of 1)

By accepting the data and results presented on this report, the Client agrees to limit the liability of TRI Environmental, Inc. from Client and all other parties for claims on issues, due to the use of this data, to the cost for the respective tests presented in this report; and the Client agrees to indemnify and hold harmless TRI Environmental, Inc. from and against all liabilities in excess of the aforementioned limit.

LEGENDS:  
MD - MACHINE DIRECTION  
TD - TRANSVERSE DIRECTION

**TABLE 1A.**  
**MATERIAL PROPERTIES**  
**CLIENT: Brantley Engineering, LLC**  
**PROJECT: Jed Cell 10**

Date Received: **3/11/2014**  
 Date Reported: **3/27/2014**  
 Client Sample ID: **R#57871010001**  
 Material Description: **8oz Non Woven Geotextile Component**

QC'd By: *Maria Espitia*  
 TRI Job No.: **G140211**  
 TRI Control No.: **96800**

**SPECIMENS**  
**Side A**

	1	2	3	4	5	6	7	8	9	10	Avg.	Std. Dev.	Min	Max	Proj. Specs. MARV
<b>METHOD DESCRIPTION</b>															
ASTM D5261 Mass per Unit Area (oz/ yd. <sup>2</sup> )															
Test Specimen Size: 4" x 8"															
	8.2	8.3	8.4	8.0	8.5						8.3	0.2	8.0	8.5	8.0
ASTM D4632 Grab Tensile															
Test was performed as directed in D4632, dry condition. Instron Tensile Testing Machine with hydraulic action grips and 1 in x 2 in rubber faces was used. Maximum load used for testing: 1500 lbs															
Grab Breaking Load (lbs)															
MD	219	226	233	221	250	252	220	222	194	239	228	17	194	252	200
TD	310	245	280	225	254	270	207	217	223	225	245	33	207	310	
Apparent Breaking Elongation (percent)															
MD	46	47	58	56	59	59	47	56	55	56	54	5	46	59	
TD	71	72	70	72	72	72	80	84	81	79	75	5	70	84	
ASTM D4533 Trapezoid Tear Strength (lbs)															
Specimens were tested as directed in Test Method D4533, dry condition.															
MD	123	109	109	99	122	102	104	122	136	108	113	12	99	136	75
TD	109	119	137	97	124	121	117	93	124	111	115	13	93	137	
ASTM D4491 Permittivity (sec. <sup>-1</sup> )															
Constant Head Four specimens were tested by holding the head constant at 50 mm. The corresponding water volume passing through the specimen was collected at the discharge side and the amount and time recorded. Five readings were taken for each specimen.															
BT Technology permittivity testing apparatus compliant to ASTM D4491 requirements was used.															
	1.73	1.37	1.44	1.59							1.53	0.16	1.37	1.73	0.5
Permeability (cm./ sec.)															
	0.44	0.41	0.40	0.43							0.42	0.02	0.40	0.44	
Flow Rate (gpm/ ft. <sup>2</sup> )															
	130	102	107	119							115	12	102	130	

(Continued on Next Page)

(Sheet 1 of 2)

LEGENDS:  
 MD - MACHINE DIRECTION  
 TD - TRANSVERSE DIRECTION

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**TABLE 1A.**  
**MATERIAL PROPERTIES**  
**CLIENT: Brantley Engineering, LLC**  
**PROJECT: Jed Cell 10**

Date Received: **3/11/2014**  
 Date Reported: **3/27/2014**  
 Client Sample ID: **R#57871010001**  
 Material Description: **8oz Non Woven Geotextile Component**

QC'd By: Maria Espitia  
 TRI Job No.: **G140211**  
 TRI Control No.: **96800**

**SPECIMENS**

	1	2	3	4	5	6	7	8	9	10	Avg.	Std. Dev.	Min	Max	Proj. Specs. MARV
<b>METHOD DESCRIPTION</b>															
ASTM D4751 Apparent Opening Size (U.S. standard sieve size)															
<i>Specimens were tested as directed in Test Method D4751. Type of sieve shaker used is W.S. Tyler Rotap.</i>															
	<b>100-140</b>	<b>100-140</b>	<b>100-140</b>	<b>100-140</b>	<b>100-140</b>						<b>100-140</b>	N/A	N/A	N/A	
ASTM D4751 Apparent Opening Size (mm)															
<i>Specimens were tested as directed in Test Method D4751. Type of sieve shaker used is W.S. Tyler Rotap.</i>															
	<b>0.147</b>	<b>0.146</b>	<b>0.148</b>	<b>0.146</b>	<b>0.146</b>						<b>0.147</b>	<b>0.001</b>	<b>0.146</b>	<b>0.148</b>	<b>≤ 0.21</b>

(End of Table 1A)

(Sheet 2 of 2)

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LEGENDS:  
 MD - MACHINE DIRECTION  
 TD - TRANSVERSE DIRECTION

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**Precision Geosynthetic Laboratories International dba TRI Environmental, Inc.**

**TABLE 1B.**  
**MATERIAL PROPERTIES**  
 CLIENT: Brantley Engineering, LLC  
 PROJECT: Jed Cell 10

Date Received: 3/11/2014  
 Date Reported: 3/27/2014  
 Client Sample ID: R#57871010001  
 Material Description: 8oz Non Woven Geotextile Component Side B

QC'd By: *Maria Espitia*  
 TRI Job No.: G140211  
 TRI Control No.: 96801

**SPECIMENS**

	1	2	3	4	5	6	7	8	9	10	Avg.	Std. Dev.	Min	Max	Proj. Specs. MARV
<b>METHOD DESCRIPTION</b>															
ASTM D5261 Mass per Unit Area (oz/ yd. <sup>2</sup> )															
Test Specimen Size: 4" x 8"															
	8.6	10.5	8.3	8.4	9.1						9.0	0.9	8.3	10.5	8.0
ASTM D4632 Grab Tensile															
Test was performed as directed in D4632, dry condition. Instron Tensile Testing Machine with hydraulic action grips and 1 in x 2 in rubber faces was used. Maximum load used for testing: 1500 lbs															
Grab Breaking Load (lbs)															
MD	207	184	192	230	275	307	209	185	234	224	225	40	184	307	200
TD	251	250	206	221	209	170	259	231	218	222	224	26	170	259	
Apparent Breaking Elongation (percent)															
MD	72	86	57	76	76	68	58	92	78	73	74	11	57	92	
TD	50	56	56	57	62	63	45	58	63	58	57	5	45	63	
ASTM D4533 Trapezoid Tear Strength (lbs)															
Specimens were tested as directed in Test Method D4533, dry condition.															
MD	116	98	99	113	99	134	104	96	99	103	106	12	96	134	75
TD	108	99	105	97	125	156	108	104	98	111	111	18	97	156	
ASTM D4491 Permittivity (sec. <sup>-1</sup> )															
Constant Head Four specimens were tested by holding the head constant at 50 mm. The corresponding water volume passing through the specimen was collected at the discharge side and the amount and time recorded. Five readings were taken for each specimen.															
BT Technology permittivity testing apparatus compliant to ASTM D4491 requirements was used.															
	1.34	1.32	1.57	1.45							1.42	0.11	1.32	1.57	0.5
Permeability (cm./ sec.)															
	0.41	0.39	0.42	0.43							0.41	0.02	0.39	0.43	
Flow Rate (gpm/ ft. <sup>2</sup> )															
	101	98	117	108							106	9	98	117	

(Continued on Next Page)

(Sheet 1 of 2)

LEGENDS:  
 MD - MACHINE DIRECTION  
 TD - TRANSVERSE DIRECTION

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**TABLE 1B.**  
**MATERIAL PROPERTIES**  
**CLIENT: Brantley Engineering, LLC**  
**PROJECT: Jed Cell 10**

Date Received: **3/11/2014**  
 Date Reported: **3/27/2014**  
 Client Sample ID: **R#57871010001**  
 Material Description: **8oz Non Woven Geotextile Component**

QC'd By: Maria Epetia  
 TRI Job No.: **G140211**  
 TRI Control No.: **96801**

**SPECIMENS**

	1	2	3	4	5	6	7	8	9	10	Avg.	Std. Dev.	Min	Max	Proj. Specs. MARV
<b>METHOD DESCRIPTION</b>															
ASTM D4751 Apparent Opening Size (U.S. standard sieve size)															
<i>Specimens were tested as directed in Test Method D4751. Type of sieve shaker used is W.S. Tyler Rotap.</i>															
	100-140	100-140	100-140	100-140	100-140						100-140	N/A	N/A	N/A	
ASTM D4751 Apparent Opening Size (mm)															
<i>Specimens were tested as directed in Test Method D4751. Type of sieve shaker used is W.S. Tyler Rotap.</i>															
	0.147	0.147	0.147	0.147	0.147						0.147	0.000	0.147	0.147	≤ 0.21

(End of Table 1A)

(Sheet 2 of 2)

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LEGENDS:  
 MD - MACHINE DIRECTION  
 TD - TRANSVERSE DIRECTION

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**TABLE 2.**  
**MATERIAL PROPERTIES**  
**CLIENT: Brantley Engineering, LLC**  
**PROJECT: Jed Cell 10**

Date Received: **3/11/2014**  
Date Reported: **3/27/2014**  
Client Sample ID: **R#57871010090**  
Material Description: **TN270-2-8 Double-Sided Geocomposite**

QC'd By: *Maria Espitia*  
TRI Job No.: **G140211**  
TRI Control No.: **96807**

SPECIMENS															Proj.	
1	2	3	4	5	6	7	8	9	10	Avg.	Std. Dev.	Min	Max	Specs.		
METHOD	DESCRIPTION														MARV	
ASTM D4716	Transmissivity	Tested at Normal Pressure : <u>500</u> psf, Gradient: <u>0.02</u> , Seating Time: <u>24</u> hrs Temperature of Test Water: <u>20.3</u> <sup>0</sup> C Specimen Size: 12" x 14"														
	Transmissivity	(m. <sup>2</sup> / sec.)														
	MD	9.20E-04										9.20E-04	N/A	N/A	N/A	6.1x10 <sup>-4</sup>
	Flow Rate	(gal/min)														
	MD	0.09										0.09	N/A	N/A	N/A	
	Transmissivity	(gal/min/ft)														
	MD	4.44										4.44	N/A	N/A	N/A	
ASTM D4716	Transmissivity	Tested at Normal Pressure : <u>15000</u> psf, Gradient: <u>0.02</u> , Seating Time: <u>100</u> hrs Temperature of Test Water: <u>20.2</u> <sup>0</sup> C Specimen Size: 12" x 14"														
	Transmissivity	(m. <sup>2</sup> / sec.)														
	MD	7.63E-04										7.63E-04	N/A	N/A	N/A	1.0x10 <sup>-4</sup>
	Transmissivity	(gal./ min./ ft.)														
	MD	3.68										3.68	N/A	N/A	N/A	
	Flow Rate	(gal./ min)														
	MD	0.07										0.07	N/A	N/A	N/A	
	Test Set-Up:															
	Plate	_____														
	HDPE Microspike	oooooooo														
	Geocomposite	XXXXXX														
	HDPE Microspike	=====														
	Plate	_____														
ASTM D7005	Ply Bond Adhesion	(lbs/ in.- width)														
	Instron Tensile Testing Machine is set for 305mm(12 in./min.) constant rate of extension with initial gauge length of 50mm.															
	Full scale force range used for testing: <u>100</u> lbs.															
	Side A of Composite															
	MD	3.1	3.9	5.3	4.7	4.0				4.2	0.9	3.1	5.3	1.0		
	Side B of Composite															
	MD	2.5	2.4	3.1	3.4	2.8				2.8	0.4	2.4	3.4	1.0		

(End of Table 2)

(Sheet 1 of 1)

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LEGENDS:  
MD - MACHINE DIRECTION  
TD - TRANSVERSE DIRECTION

**TABLE 2A.**  
**MATERIAL PROPERTIES**  
 CLIENT: Brantley Engineering, LLC  
 PROJECT: Jed Cell 10

Date Received: **3/11/2014**  
 Date Reported: **3/27/2014**  
 Client Sample ID: **R#57871010090**  
 Material Description: **8oz Non Woven Geotextile Component** **Side A**

QC'd By: *Maria Espitia*  
 TRI Job No.: **G140211**  
 TRI Control No.: **96802**

**SPECIMENS**

	1	2	3	4	5	6	7	8	9	10	Avg.	Std. Dev.	Min	Max	Proj. Specs. MARV
<b>METHOD DESCRIPTION</b>															
ASTM D5261 Mass per Unit Area (oz/ yd. <sup>2</sup> )															
Test Specimen Size: 4" x 8"															
	8.2	9.0	10.1	8.8	8.7						9.0	0.7	8.2	10.1	8.0
ASTM D4632 Grab Tensile															
Test was performed as directed in D4632, dry condition. Instron Tensile Testing Machine with hydraulic action grips and 1 in x 2 in rubber faces was used. Maximum load used for testing: 1500 lbs															
Grab Breaking Load (lbs)															
MD	200	223	284	209	248	222	237	255	213	238	233	25	200	284	200
TD	263	284	289	251	238	242	281	305	255	244	265	23	238	305	
Apparent Breaking Elongation (percent)															
MD	60	57	68	62	58	58	60	62	56	64	61	4	56	68	
TD	73	81	76	77	75	78	79	81	77	71	77	3	71	81	
ASTM D4533 Trapezoid Tear Strength (lbs)															
Specimens were tested as directed in Test Method D4533, dry condition.															
MD	108	105	115	91	93	108	128	98	90	116	105	12	90	128	75
TD	123	120	120	157	142	138	145	129	126	114	131	14	114	157	

(End of Table 1A)

(Sheet 1 of 1)

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 MD - MACHINE DIRECTION  
 TD - TRANSVERSE DIRECTION

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**TABLE 2B.**  
**MATERIAL PROPERTIES**  
 CLIENT: Brantley Engineering, LLC  
 PROJECT: Jed Cell 10

Date Received: 3/11/2014  
 Date Reported: 3/27/2014  
 Client Sample ID: R#57871010090  
 Material Description: 8oz Non Woven Geotextile Component

Side B

QC'd By: *Maria Espitia*  
 TRI Job No.: G140211  
 TRI Control No.: 96803

**SPECIMENS**

	1	2	3	4	5	6	7	8	9	10	Avg.	Std. Dev.	Min	Max	Proj. Specs. MARV
<b>METHOD DESCRIPTION</b>															
ASTM D5261 Mass per Unit Area (oz/ yd. <sup>2</sup> )															
Test Specimen Size: 4" x 8"															
	10.0	8.2	8.4	9.5	9.1						9.0	0.7	8.2	10.0	8.0
ASTM D4632 Grab Tensile															
Test was performed as directed in D4632, dry condition. Instron Tensile Testing Machine with hydraulic action grips and 1 in x 2 in rubber faces was used. Maximum load used for testing: 1500 lbs															
Grab Breaking Load (lbs)															
MD	250	266	216	252	251	246	238	220	245	209	239	18	209	266	200
TD	245	218	238	252	276	253	258	275	222	269	251	20	218	276	
Apparent Breaking Elongation (percent)															
MD	59	47	50	61	59	57	59	49	55	56	55	5	47	61	
TD	67	96	94	78	79	80	78	75	79	82	80	8	67	96	
ASTM D4533 Trapezoid Tear Strength (lbs)															
Specimens were tested as directed in Test Method D4533, dry condition.															
MD	127	104	127	111	98	95	110	104	116	98	109	11	95	127	75
TD	134	105	101	127	121	101	123	127	105	122	117	12	101	134	

(End of Table 1A)

(Sheet 1 of 1)

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**Precision Geosynthetic Laboratories International dba TRI Environmental, Inc.**

**TABLE 3.**  
**MATERIAL PROPERTIES**  
**CLIENT: Brantley Engineering, LLC**  
**PROJECT: Jed Cell 10**

Date Received: 3/11/2014  
 Date Reported: 4/1/2014  
 Client Sample ID: R#57871010179  
 Material Description: **TN270-2-8 Double-Sided Geocomposite**

QC'd By: *Maria Epetia*  
 TRI Job No.: **G140211**  
 TRI Control No.: **96808**

SPECIMENS											Proj. Specs. MARV				
	1	2	3	4	5	6	7	8	9	10	Avg.	Std. Dev.	Min	Max	
METHOD	DESCRIPTION														
ASTM D4716	Transmissivity Tested at Normal Pressure : 500 psf, Gradient: 0.02 , Seating Time: 24 hrs Temperature of Test Water: 20 <sup>0</sup> C Specimen Size: 12" x 14"														
	Transmissivity (m. <sup>2</sup> / sec.)														
	MD 1.15E-03										1.15E-03	N/A	N/A	N/A	6.1x10 <sup>-4</sup>
	Flow Rate (gal/min)														
	MD 0.11										0.11	N/A	N/A	N/A	
	Transmissivity (gal/min/ft)														
	MD 5.58										5.58	N/A	N/A	N/A	
ASTM D4716	Transmissivity Tested at Normal Pressure : 15000 psf, Gradient: 0.02 , Seating Time: 100 hrs Temperature of Test Water: 20.2 <sup>0</sup> C Specimen Size: 12" x 14"														
	Transmissivity (m. <sup>2</sup> / sec.)														
	MD 2.31E-04										2.31E-04	N/A	N/A	N/A	1.0x10 <sup>-4</sup>
	Transmissivity (gal./ min./ ft.)														
	MD 1.12										1.12	N/A	N/A	N/A	
	Flow Rate (gal./ min)														
	MD 0.02										0.02	N/A	N/A	N/A	
	Test Set-Up:														
	Plate _____														
	HDPE Microspike oooooooooo														
	Geocomposite XXXXXX														
	HDPE Microspike =====														
	Plate _____														
ASTM D7005	Ply Bond Adhesion (lbs/ in.- width)														
	Instron Tensile Testing Machine is set for 305mm(12 in./min.) constant rate of extension with initial gauge length of 50mm.														
	Full scale force range used for testing: 100 lbs.														
	Side A of Composite														
	MD 4.2 5.6 5.0 6.1 6.2										5.4	0.8	4.2	6.2	1.0
	Side B of Composite														
	MD 4.2 3.1 4.1 3.7 3.5										3.7	0.5	3.1	4.2	1.0

(End of Table 3)

(Sheet 1 of 1)

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LEGENDS:  
 MD - MACHINE DIRECTION  
 TD - TRANSVERSE DIRECTION

**TABLE 3A.**  
**MATERIAL PROPERTIES**  
 CLIENT: Brantley Engineering, LLC  
 PROJECT: Jed Cell 10

Date Received: 3/11/2014  
 Date Reported: 3/27/2014  
 Client Sample ID: R#57871010179  
 Material Description: 8oz Non Woven Geotextile Component

QC'd By: *Maria Espitia*  
 TRI Job No.: G140211  
 TRI Control No.: 96804

**SPECIMENS**

	1	2	3	4	5	6	7	8	9	10	Avg.	Std. Dev.	Min	Max	Proj. Specs. MARV
<b>METHOD DESCRIPTION</b>															
ASTM D5261 Mass per Unit Area (oz/ yd. <sup>2</sup> )															
Test Specimen Size: 4" x 8"															
	8.9	9.5	10.2	7.3	7.4						8.7	1.3	7.3	10.2	8.0
ASTM D4632 Grab Tensile															
Test was performed as directed in D4632, dry condition. Instron Tensile Testing Machine with hydraulic action grips and 1 in x 2 in rubber faces was used. Maximum load used for testing: 1500 lbs															
Grab Breaking Load (lbs)															
MD	242	231	271	211	196	236	194	219	210	224	223	23	194	271	200
TD	331	257	210	237	197	192	245	213	226	263	237	41	192	331	
Apparent Breaking Elongation (percent)															
MD	62	58	67	65	56	60	54	59	58	56	59	4	54	67	
TD	79	77	72	74	73	77	71	77	74	74	75	2	71	79	
ASTM D4533 Trapezoid Tear Strength (lbs)															
Specimens were tested as directed in Test Method D4533, dry condition.															
MD	93	91	115	111	130	124	105	93	105	102	107	13	91	130	75
TD	138	125	117	191	150	156	129	120	98	99	132	28	98	191	
ASTM D4491 Permittivity (sec. <sup>-1</sup> )															
Constant Head Four specimens were tested by holding the head constant at 50 mm. The corresponding water volume passing through the specimen was collected at the discharge side and the amount and time recorded. Five readings were taken for each specimen.															
BT Technology permittivity testing apparatus compliant to ASTM D4491 requirements was used.															
	1.56	1.46	1.39	1.49							1.48	0.07	1.39	1.56	0.5
Permeability (cm./ sec.)															
	0.43	0.43	0.40	0.41							0.42	0.01	0.40	0.43	
Flow Rate (gpm/ ft. <sup>2</sup> )															
	117	109	104	112							110	5	104	117	

(Continued on Next Page)

(Sheet 1 of 2)

LEGENDS:  
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**TABLE 3A.**  
**MATERIAL PROPERTIES**  
**CLIENT: Brantley Engineering, LLC**  
**PROJECT: Jed Cell 10**

Date Received: **3/11/2014**  
 Date Reported: **3/27/2014**  
 Client Sample ID: **R#57871010179**  
 Material Description: **8oz Non Woven Geotextile Component**

QC'd By: Maria Espitia  
 TRI Job No.: **G140211**  
 TRI Control No.: **96804**

**SPECIMENS**

	1	2	3	4	5	6	7	8	9	10	Avg.	Std. Dev.	Min	Max	Proj. Specs. MARV
<b>METHOD DESCRIPTION</b>															
ASTM D4751 Apparent Opening Size (U.S. standard sieve size)															
<i>Specimens were tested as directed in Test Method D4751. Type of sieve shaker used is W.S. Tyler Rotap.</i>															
	<b>100-140</b>	<b>100-140</b>	<b>100-140</b>	<b>100-140</b>	<b>100-140</b>						<b>100-140</b>	N/A	N/A	N/A	
ASTM D4751 Apparent Opening Size (mm)															
<i>Specimens were tested as directed in Test Method D4751. Type of sieve shaker used is W.S. Tyler Rotap.</i>															
	<b>0.145</b>	<b>0.144</b>	<b>0.139</b>	<b>0.144</b>	<b>0.146</b>						<b>0.144</b>	<b>0.003</b>	0.139	0.146	≤ 0.21

(End of Table 1A)

(Sheet 2 of 2)

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LEGENDS:  
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**Precision Geosynthetic Laboratories International dba TRI Environmental, Inc.**

**TABLE 3B.**  
**MATERIAL PROPERTIES**  
 CLIENT: Brantley Engineering, LLC  
 PROJECT: Jed Cell 10

Date Received: 3/11/2014  
 Date Reported: 3/27/2014  
 Client Sample ID: R#57871010179  
 Material Description: 8oz Non Woven Geotextile Component Side B

QC'd By: *Maria Espitia*  
 TRI Job No.: G140211  
 TRI Control No.: 96805

SPECIMENS																Proj. Specs. MARV
		1	2	3	4	5	6	7	8	9	10	Avg.	Std. Dev.	Min	Max	
METHOD	DESCRIPTION															
ASTM D5261	Mass per Unit Area (oz/ yd. <sup>2</sup> ) <i>Test Specimen Size: 4" x 8"</i>															
		7.4	8.3	8.7	9.2	8.3					8.4	0.7	7.4	9.2	8.0	
ASTM D4632	Grab Tensile <i>Test was performed as directed in D4632, dry condition. Instron Tensile Testing Machine with hydraulic action grips and 1 in x 2 in rubber faces was used. Maximum load used for testing: 1500 lbs</i>															
	Grab Breaking Load (lbs)															
	MD	197	236	217	252	196	203	210	227	189	230	216	20	189	252	200
	TD	260	229	225	255	238	251	268	277	243	232	248	17	225	277	
	Apparent Breaking Elongation (percent)															
	MD	63	70	57	61	55	57	41	56	56	60	58	7	41	70	
	TD	80	74	76	74	74	63	74	74	68	76	73	5	63	80	
ASTM D4533	Trapezoid Tear Strength (lbs) <i>Specimens were tested as directed in Test Method D4533, dry condition.</i>															
	MD	118	122	116	129	113	129	119	109	108	114	118	7	108	129	75
	TD	111	117	117	112	101	120	113	105	127	130	115	9	101	130	
ASTM D4491	Permittivity (sec. <sup>-1</sup> )															
Constant Head	<i>Four specimens were tested by holding the head constant at 50 mm. The corresponding water volume passing through the specimen was collected at the discharge side and the amount and time recorded. Five readings were taken for each specimen.</i>															
	<i>BT Technology permittivity testing apparatus compliant to ASTM D4491 requirements was used.</i>															
		1.44	1.54	1.62	1.49					1.52	0.08	1.44	1.62	0.5		
	Permeability (cm./ sec.)															
		0.41	0.42	0.44	0.42					0.42	0.01	0.41	0.44			
	Flow Rate (gpm/ ft. <sup>2</sup> )															
		108	115	121	112					114	6	108	121			

(Continued on Next Page)

(Sheet 1 of 2)

LEGENDS:  
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**TABLE 3B.**  
**MATERIAL PROPERTIES**  
**CLIENT: Brantley Engineering, LLC**  
**PROJECT: Jed Cell 10**

Date Received: **3/11/2014**  
 Date Reported: **3/27/2014**  
 Client Sample ID: **R#57871010179**  
 Material Description: **8oz Non Woven Geotextile Component**

QC'd By: Maria Espitia  
 TRI Job No.: **G140211**  
 TRI Control No.: **96805**

SPECIMENS											Avg.	Std. Dev.	Min	Max	Proj. Specs. MARV
1	2	3	4	5	6	7	8	9	10						
METHOD	DESCRIPTION														
ASTM D4751	Apparent Opening Size (U.S. standard sieve size) <i>Specimens were tested as directed in Test Method D4751. Type of sieve shaker used is W.S. Tyler Rotap.</i>														
	100-140	100-140	100-140	100-140	100-140						100-140	N/A	N/A	N/A	
ASTM D4751	Apparent Opening Size (mm) <i>Specimens were tested as directed in Test Method D4751. Type of sieve shaker used is W.S. Tyler Rotap.</i>														
	0.148	0.146	0.146	0.146	0.147						0.147	0.001	0.146	0.148	
															≤ 0.21

(End of Table 1A)

(Sheet 2 of 2)

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LEGENDS:  
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