

APPENDIX K

GEOTECHNICAL TESTING REPORTS



E. TETZ & SONS, INC.

130 CROTTY ROAD • MIDDLETOWN, NY 10941
(845) 892-4486 • FAX (845) 692-6838



September 12, 2012

Attention: Ben
Entact, LLC.
1010 Executive Court Suite 280
Westmart, IL 60559

Via Fax: 972-550-7464

To Whom It May Concern:

Please be advised that to the best of my knowledge all materials delivered to the R.S.R. site in the Town of Wallkill, Orange County, New York are of virgin origin and contain no contaminants and are clean and free of anything but natural material. Following is a list of our approved locations:

<u>Site</u>	<u>DEC Permit #</u>
Bloomingburg	3-4840-00033/00003
Summitville	3-4840-00082/00001
Slate Hill	3-3356-00015/00005
Chester	3-3322-00037/00004
Mongaup Valley	3-4846-00120/00013

Do not hesitate to contact me should you require any additional information (Cell 845-283-2380).

Thank you,

Bobby Kierhan
Sales Representative
E. Tetz & Sons, Inc.

142

K-

Advance Testing

3348 Route 208, Campbell Hall, NY 10916
Phone: 845-496-1000 Fax: 845-496-1398
25 Hathorn Road, Enfield, NH 03748
42 Day Farm Road, West Stockbridge, MA 01266

Client:	E. Tom and Sons	Project:	Quality Control
Material:	Item 4 Fine	Project Number:	090011
Source:	Chester Quarry	Lab Number:	09-0677B
Date Sampled:	8/19/2009	Sampled By:	Client
Date Tested:	8/21/2009	Tested By:	K. Harris

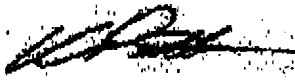
GRADATION (SIEVE ANALYSIS) OF SOIL OR AGGREGATE
Test Method(s): ASTM D423, C136, C117, AASHTO T8, T11

Lab Number	Sample Type	Sampling Location	Specification
09-0677B	Item 4 Fine	Stockpile	NYS DOT 554.01M-Backfill

Sieve Size		% Retained	% Passing	Spec. % Pass
mm	Inches			
100.0 mm	4"	0.0	100.0	100
75.0 mm	3"	0.0	100.0	
63.0 mm	2 1/2"	0.0	100.0	
50.0 mm	2"	0.0	100.0	
37.5 mm	1 1/2"	0.0	100.0	
25.0 mm	1"	0.9	99.1	
19.0 mm	3/4"	7.5	91.6	
15.0 mm	1/2"	14.2	77.4	
4.75 mm	1/4"	23.4	54.0	30-100
4.75 mm	#4	7.5	46.7	
2.00 mm	#10	17.6	29.1	
0.850 mm	#20	10.7	18.4	
0.600 mm	#30	2.8	15.6	
0.425 mm	#40	2.1	13.5	0-60
0.150 mm	#100	4.5	9.0	
0.075 mm	#200	2.0	7.0	0-15
Pass		7.0		

Comments: Test results comply with specification
Minus #100 by wash-sieve method.

Report Reviewed By:

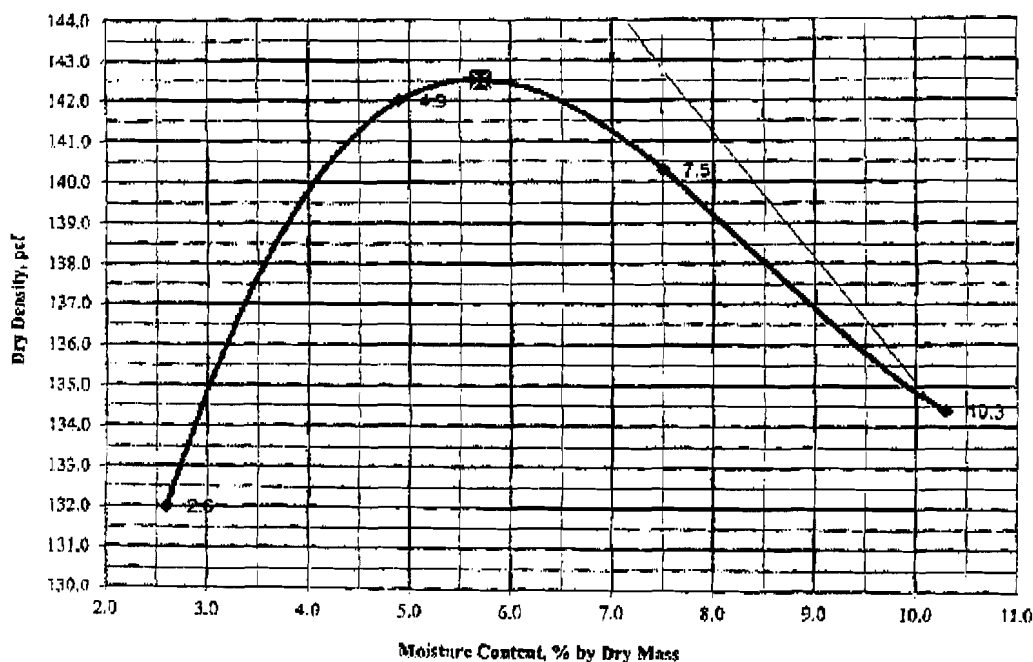




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 1813 State Route 7, Harpursville, NY 13787

CLIENT:	E. Tetz and Sons	PROJECT NO.:	90011
PROJECT:	Quality Control	LAB NUMBER:	12-0665
TEST METHOD:	ASTM D 1557 'Modified Proctor'	Method:	C
SOIL ID NUMBER:	16		
ITEM:	Item 4		
SOURCE:	E. Tetz and Sons		
SOIL DESCRIPTION:	Mod. Gray Crushed Shale: 69% Gravel; 23% Sand; 8% Silt		
DATE SAMPLED:	7/31/2012	SAMPLED BY:	Client
DATE TESTED:	7/31/2012	TESTED BY:	Justin Rademacher

REPORT OF MOISTURE DENSITY RELATIONSHIP



Individual Test Points	
Percent Moisture	Dry Density
2.6	132.0
4.9	142.0
7.5	140.3
10.3	134.4

Uncorrected Maximum Dry Density: 142.5 lb/cu. ft.
 Uncorrected Optimum Moisture Content: 5.7 %
 Percent Oversize Particles: 28.7 %
 Specific Gravity of Oversize: 2.76
 Specific Gravity Estimated

Corrected* Maximum Dry Density: 149.9 lb/cu. ft.
Corrected* Opt. Moisture Content: 4.4 %

*Corrected for oversize, when oversize particles exceed 5% of sample.

Emily J. Rodriguez

Report Reviewed By:

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Client:	E. Tetz and Sons	Project:	Quality Control
Material:	3/8" Stone	Project Number:	090011
Source:	E. Tetz, Bloomingburg	Lab Number:	10-0639F
Date Sampled:	7/30/2010	Sampled By:	Client
Date Tested:	8/2/2010	Tested By:	John Brinsfield

GRADATION (SIEVE ANALYSIS) OF SOIL OR AGGREGATE
 Test Method(s): ASTM D42, C136, C117, AASHTO T28, T27, T11

Lab Number	Sample Type	Sampling Location	Specification
10-0639F	3/8" Stone	Stockpile	

Sieve Size		% Retained	% Passing	Spec. % Pass
mm	Inches			
19.0 mm	3/4"	0.0	100.0	
12.5 mm	1/2"	3.4	96.6	
9.5 mm	3/8"	37.1	62.9	
6.3 mm	1/4"	30.7	69.3	
4.75 mm	#4	5.0	95.0	
2.5 mm	#60	2.3	97.7	
Pass		1.5		

Comments:

Emily J. Rodriguez

Report Reviewed By:

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Please be advised that to the best of my knowledge all materials delivered to the R.S.R. site in the Town of Wallkill, Orange County, New York are of virgin origin and contain no contaminants and are clean and free of anything but natural material. Following is a list of our approved locations:

<u>Site</u>	<u>DEC Permit #</u>
Bloomington	3-4840-00033/00003
Summitville	3-4840-00082/00001
Slate Hill	3-3356-00015/00005
Chester	3-3322-00037/00004
Mongaup Valley	3-4846-00120/00013

Do not hesitate to contact me should you require any additional information (Cell 845-283-2380).

Thank you,

Bobby Kierman
Sales Representative
E. Tetz & Sons, Inc.

Sep 27 12:11:19a

Tetz Asphalt

Advance Testing

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Client:	E. Tetz and Sons	Project:	Quality Control
Material:	Bedding Layer	Project Number:	090011
Source:	Bloomingsburg	Lab Number:	12-0830
Location:	Stockpile	Item Number:	Protective Layer Soil
Date Sampled:	9/21/2012	Sampled By:	Client
Date Tested:	9/26/2012	Tested By:	John Brinsfield

Report of Hydraulic Conductivity (Constant Head Permeability)
 Test Method: ASTM D2434, AASHTO T215

Permeability Test Conditions	
Laboratory Recompacted Density of Sample:	Moderate
Compaction, Percent of Maximum Dry Density (%):	N/A
Moisture Content During Recompaction (%):	5.0

Sample diameter (cm): 11.20 Area (cm²): 98.5 Piezometer Spacing, L (cm): 11.43

Tail Level	Head Level	Head (cm)	Volume (Q) mL	Time (t) sec	Q/At	h/L	°C	k=(Q/At)/(h/L)
19.8	26.2	6.4	500	60	8.46E-02	0.56	21.1	1.47E-01
20.4	28.0	7.6	530	60	8.97E-02	0.66	21.1	1.31E-01
20.5	28.6	8.1	535	60	9.06E-02	0.71	21.1	1.24E-01
20.7	29.5	8.8	545	60	9.23E-02	0.77	21.1	1.17E-01
21.0	30.4	9.4	565	60	9.56E-02	0.82	21.1	1.13E-01
21.3	31.0	9.7	580	60	9.82E-02	0.85	21.1	1.13E-01

Permeability Test Results

Coefficient of Permeability @ 20°C (68°F): $k_{20} = 1.24E-01$ cm/sec
 Project Specification: $1.00E-03$ cm/sec

- Notes:
1. Permeability values obtained under field conditions will be influenced by compaction density and moisture content, compaction equipment used, variations in material, preparation methods, subgrade conditions, weather, and other factors.
 2. Changes in head level between test increments may differ from the specified 0.5cm, in order to accurately assess the laminar flow regime.
 3. Test results are corrected to standard temperature (20°C / 68°F).

Comments: Test result complies with specification

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Client:	E. Tetz and Sons	Project:	Quality Control
Item:	Bedding Layer	Project Number:	090011
Source:	Bloomingburg	Lab Number:	12-0830
Date Sampled:	9/21/2012	Sampled By:	Client
Date Tested:	9/25/2012	Tested By:	John Brinsfield

GRADATION (SIEVE ANALYSIS) OF SOIL OR AGGREGATE
 Test Method(s): ASTM D42, C136, C117, AASHTO T88, T27, T11

Lab Number	Sample Type	Sampling Location	Specification
12-0830	ENTACT	Stockpile	

Sieve Size		% Retained	% Passing	Spec. % Pass
mm	Inches			
100.0 mm	4"	0.0	100.0	
75.0 mm	3"	0.0	100.0	
63.0 mm	2 1/2"	0.0	100.0	
50.0 mm	2"	0.0	100.0	
37.5 mm	1 1/2"	0.0	100.0	
25.0 mm	1"	0.0	100.0	
19.0 mm	3/4"	0.8	99.2	
12.5 mm	1/2"	1.3	97.9	
6.3 mm	1/4"	14.3	63.6	
4.75 mm	#4	7.7	55.9	
2.00 mm	#10	12.6	33.3	
0.850 mm	#20	10.6	22.7	
0.600 mm	#30	2.7	20.0	
0.425 mm	#40	2.5	17.5	
0.150 mm	#100	6.2	11.3	
0.075 mm	#200	2.7	8.6	
Pan		8.6		

Comments:

Minus #200 by wash-sieve method.

Report Reviewed By:

Emily J. Rodriguez

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Client:	E. Tetz and Sons	Project	Quality Control
Material:	Bedding Layer	Project Number:	090011
Source:	Bloomingsburg	Lab Number:	12-0830
Location:	Stockpile	Item Number:	RSR, Middletown NY
Date Sampled:	9/21/2012	Sampled By:	Client
Date Tested:	9/26/2012	Tested By:	Emily Rodriguez

Report for Unified Soil Classification	
Test Method: ASTM D2487	

USCS Group Symbol: SW-SM

USCS Group Name: Well graded sand with silt and gravel.

Specifications: SW-SM or SP-SM

Comments: Test result complies with specification

Emily J. Rodriguez

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Client:	E. Tetz and Sons	Project:	Quality Control
Material:	Bedding Layer	Project #:	090011
Source:	Bloomington	Lab No.:	12-0830
Location:	Stockpile	Item Number:	RSR, Middletown NY
Date Sampled:	9/21/2012	Sampled By:	Client
Date Tested:	9/25/12	Tested By:	John Brinsfield

REPORT OF ATTERBERG LIMITS TEST RESULTS
TEST METHOD: ASTM D4318: LL Method B

Lab Number:	12-0830	Specification
Liquid Limit:	N/A	
Plastic Limit:	N/A	
Plasticity Index:	Non-Plastic	

Notes:

The soil characteristics of this sample do not allow for the liquid limit or plastic limit to be determined. Therefore, the plasticity index for the sample is 'non-plastic.'
Sample was air-dried

Comments:

Emily J. Rodriguez

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 1813 State Route 7, Harpursville, NY 13787

Client:	Entact Inc.	Project:	RSR, Middletown, NY
Item:	Bedding Layer	Project Number:	120361
Source:	E. Tetz and Sons Bloomingburg	Lab Number:	12-0916
Date Sampled:	10/17/2012	Sampled By:	Client
Date Tested:	10/17/2012	Tested By:	John Brinsfield

GRADATION (SIEVE ANALYSIS) OF SOIL OR AGGREGATE

Test Method(s): ASTM D422, C136, C117; AASHTO T88, T27, T11

Lab Number	Sample Type	Sampling Location	Specification
12-0916	Bedding Layer	Stockpile	

Sieve Size		% Retained	% Passing	Spec. % Pass
mm	Inches			
100.0 mm	4"	0.0	100.0	
75.0 mm	3"	0.0	100.0	
63.0 mm	2 1/2"	0.0	100.0	
50.0 mm	2"	0.0	100.0	
37.5 mm	1 1/2"	0.0	100.0	
25.0 mm	1"	0.0	100.0	
19.0 mm	3/4"	0.0	100.0	100
12.5 mm	1/2"	0.2	99.8	
6.3 mm	1/4"	25.7	74.1	
4.75 mm	#4	6.4	67.7	
2.00 mm	#10	21.3	46.4	
0.850 mm	#20	13.5	32.9	
0.600 mm	#30	3.8	29.1	
0.425 mm	#40	4.6	24.5	
0.150 mm	#100	12.0	12.5	
0.075 mm	#200	4.2	8.3	
Pan		8.3		

Comments: **Test results comply with specification**
 Minus #200 by wash-sieve method.

Emily J. Rodriguez

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 25 Hathorn Road, Enfield, NH 03748
 42 Day Farm Road, West Stockbridge, MA 01266
 1813 State Route 7, Harpursville, NY 13787

Client:	Entact Inc.	Project:	RSR, Middletown, NY
Material:	Bedding Layer	Project #:	120361
Source:	E. Tetz and Sons Bloomingburg	Lab No.:	12-0916
Location:	Stockpile	Item Number:	Bedding Layer
Date Sampled:	10/17/2012	Sampled By:	Client
Date Tested:	10/19/12	Tested By:	John Brinsfield

REPORT OF ATTERBERG LIMITS TEST RESULTS
TEST METHOD: ASTM D4318; LL Method B

Lab Number:	12-0916	Specification
Liquid Limit:	Non-Plastic	
Plastic Limit:	24	
Plasticity Index:	Non-Plastic	

Notes: Values shown are percent moisture.
 Customary procedure is to round results to the nearest whole number.
 Sample was air-dried

Comments: Material was tested on the minus #200

Emily J. Rodriguez

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 1813 State Route 7, Harpursville, NY 13787

Client:	Entact Inc.	Project	RSR, Middletown, NY
Material:	Bedding Layer	Project Number:	120361
Source:	E. Tetz and Sons Bloomingburg	Lab Number:	12-0916
Location:	Stockpile	Item Number:	Bedding Layer
Date Sampled:	10/17/2012	Sampled By:	Client
Date Tested:	10/23/2012	Tested By:	Emily Rodriguez

Report for Unified Soil Classification
Test Method: ASTM D2487

USCS Group Symbol: **SW**

USCS Group Name: **Well Graded Sand**

Specifications: SW, SM, SC, ML, or CL

Comments: Test result complies with specification

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Client:	Entact Inc.	Project:	RSR, Middletown, NY
Item:	Protective Soil Layer	Project Number:	120361
Source:	E. Tetz, Bloomingburg, NY	Lab Number:	12-1027A
Date Sampled:	11/30/2012	Sampled By:	Client
Date Tested:	12/4/2012	Tested By:	Jared Vassell

GRADATION (SIEVE ANALYSIS) OF SOIL OR AGGREGATE
Test Method(s): ASTM D422, C136, C117; AASHTO T88, T27, T11

Lab Number	Sample Type	Sampling Location	Specification
12-1027A	Protective Soil Layer	Containment Cell	Protective Soil Layer
Client ID No.:	PSL-01		

Sieve Size		% Retained	% Passing	Spec. % Pass
mm	Inches			
100.0 mm	4"	0.0	100.0	
75.0 mm	3"	0.0	100.0	
63.0 mm	2 1/2"	0.0	100.0	
50.0 mm	2"	0.0	100.0	
37.5 mm	1 1/2"	0.0	100.0	
25.0 mm	1"	0.0	100.0	
19.0 mm	3/4"	0.0	100.0	
12.5 mm	1/2"	4.7	95.3	
6.3 mm	1/4"	30.3	65.0	
4.75 mm	#4	9.7	55.3	
2.00 mm	#10	19.4	35.9	
0.850 mm	#20	12.0	23.9	
0.600 mm	#30	3.0	20.9	
0.425 mm	#40	3.3	17.6	
0.150 mm	#100	8.0	9.6	
0.075 mm	#200	2.9	6.7	5-100
Pan		6.7		

Comments: **Test results comply with specification**
 Minus #200 by wash-sieve method.

Emily J. Rodriguez

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Client:	Entact Inc.	Project:	RSR, Middletown, NY
Item:	Protective Soil Layer	Project Number:	120361
Source:	E. Tetz, Bloomingburg, NY	Lab Number:	12-1027B
Date Sampled:	11/30/2012	Sampled By:	Client
Date Tested:	12/4/2012	Tested By:	Jared Vassell

GRADATION (SIEVE ANALYSIS) OF SOIL OR AGGREGATE
Test Method(s): ASTM D422, C136, C117; AASHTO T88, T27, T11

Lab Number	Sample Type	Sampling Location	Specification
12-1027B	Protective Soil Layer	Containment Cell	Protective Soil Layer
Client ID No.:	PSL-02		

Sieve Size		% Retained	% Passing	Spec. % Pass
mm	Inches			
100.0 mm	4"	0.0	100.0	
75.0 mm	3"	0.0	100.0	
63.0 mm	2 1/2"	0.0	100.0	
50.0 mm	2"	0.0	100.0	
37.5 mm	1 1/2"	0.0	100.0	
25.0 mm	1"	0.0	100.0	
19.0 mm	3/4"	0.0	100.0	
12.5 mm	1/2"	2.7	97.3	
6.3 mm	1/4"	22.6	74.7	
4.75 mm	#4	9.1	65.6	
2.00 mm	#10	26.1	39.5	
0.850 mm	#20	17.0	22.5	
0.600 mm	#30	3.3	19.2	
0.425 mm	#40	2.9	16.3	
0.150 mm	#100	6.8	9.5	
0.075 mm	#200	2.5	7.0	5-100
Pan		7.0		

Comments: **Test results comply with specification**
 Minus #200 by wash-sieve method.

Emily J. Rodriguez

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Client:	Entact Inc.	Project:	RSR, Middletown, NY
Material:	Protective Soil Layer (PSL-02)	Project Number:	120361
Source:	Metro Recycling and Crushing	Lab Number:	12-1027B
Location:	Containment Cell	Client ID No.	PSL-02
Date Sampled:	11/30/2012	Sampled By:	Client
Date Tested:	12/6/2012	Tested By:	John Brinsfield

Report of Hydraulic Conductivity (Constant Head Permeability)
 Test Method: ASTM D2434, AASHTO T215

Permeability Test Conditions	
Laboratory Recompacted Density of Sample (PCF):	123.7
Moisture Content During Recompaction (%):	4.8

Sample diameter (cm): 11.20 Area (cm²): 98.5 Piezometer Spacing, L (cm): 11.43

Tail Level	Head Level	Head (cm)	Volume (Q) mL	Time (t) sec	Q/At	h/L	°C	k=(Q/At)/(h/L)
9.8	28.0	18.2	170	60	2.88E-02	1.59	21.1	1.76E-02
10.0	29.0	19.0	180	60	3.05E-02	1.66	21.1	1.78E-02
10.1	30.1	20.0	190	60	3.22E-02	1.75	21.1	1.79E-02
10.2	32.0	21.8	210	60	3.56E-02	1.91	21.1	1.81E-02
10.4	33.2	22.8	220	60	3.72E-02	1.99	21.1	1.82E-02
1.2	31.0	29.8	200	60	3.39E-02	2.61	21.1	1.26E-02

Permeability Test Results

Coefficient of Permeability @ 20°C (68°F): **k₂₀ = 1.79E-02 cm/sec**

- Notes:
1. Permeability values obtained under field conditions will be influenced by compaction density and moisture content, compaction equipment used, variations in material, preparation methods, subgrade conditions, weather, and other factors.
 2. Changes in head level between test increments may differ from the specified 0.5cm, in order to accurately assess the laminar flow regime.
 3. Test results are corrected to standard temperature (20°C / 68°F).

Comments: The final trial shows a decrease in k value that indicates turbulent flow conditions; the consistent values determined in the previous trials indicate laminar flow conditions. The final trial result is not included in the average.

Specifications not available at time of testing.

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Client:	Entact Inc.	Project:	RSR, Middletown, NY
Item:	Protective Soil Layer (PSL-03)	Project Number:	120361
Source:	E. Tetz Bloomingburg, NY	Lab Number:	12-1043A
Date Sampled:	12/6/2012	Sampled By:	Client
Date Tested:	12/11/2012	Tested By:	John Brinsfield

GRADATION (SIEVE ANALYSIS) OF SOIL OR AGGREGATE

Test Method(s): ASTM D422, C136, C117; AASHTO T88, T27, T11

Lab Number	Sample Type	Sampling Location	Specification
12-1043A	Protective Soil Layer (PSL-03)	Stockpile	

Sieve Size		% Retained	% Passing	Spec. % Pass
mm	Inches			
100.0 mm	4"	0.0	100.0	
75.0 mm	3"	0.0	100.0	
63.0 mm	2 1/2"	0.0	100.0	
50.0 mm	2"	0.0	100.0	
37.5 mm	1 1/2"	0.0	100.0	
25.0 mm	1"	0.0	100.0	
19.0 mm	3/4"	0.0	100.0	
12.5 mm	1/2"	3.1	96.9	
6.3 mm	1/4"	22.3	74.6	
4.75 mm	#4	5.8	68.8	
2.00 mm	#10	21.2	47.6	
0.850 mm	#20	19.3	28.3	
0.600 mm	#30	5.9	22.4	
0.425 mm	#40	4.9	17.5	
0.150 mm	#100	8.2	9.3	
0.075 mm	#200	2.6	6.7	
Pan		6.7		

Comments:

Minus #200 by wash-sieve method.

Emily J. Rodriguez

Report Reviewed By:

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 42 Day Farm Road, West Stockbridge, MA 01266
 1813 State Route 7, Harpursville, NY 13787

Client:	Entact Inc.	Project:	RSR, Middletown, NY
Material:	Protective Soil Layer (PSL-05)	Project Number:	120361
Source:	E. Tetz Bloomingburg, NY	Lab Number:	12-1043C
Location:	Stockpile	Item Number:	PSL-03
Date Sampled:	12/8/2012	Sampled By:	Client
Date Tested:	12/12/2012	Tested By:	John Brinsfield

Report of Hydraulic Conductivity (Constant Head Permeability)
Test Method: ASTM D2434, AASHTO T215

Permeability Test Conditions	
Laboratory Recompacted Density of Sample (PCF):	135.0
Moisture Content During Recompaction (%):	3.7

Sample diameter (cm): 11.20 Area (cm²): 98.5 Piezometer Spacing, L (cm): 11.43

Tail Level	Head Level	Head (cm)	Volume (Q) mL	Time (t) sec	Q/At	h/L	°C	k=(Q/At)/(h/L)
11.7	32.4	20.7	790	60	1.34E-01	1.81	21.1	7.19E-02
11.7	33.0	21.3	200	60	3.39E-02	1.86	21.1	1.77E-02
11.8	34.0	22.2	210	60	3.56E-02	1.94	21.1	1.78E-02
11.8	35.2	23.4	215	60	3.64E-02	2.05	21.1	1.73E-02
11.9	36.0	24.1	220	60	3.72E-02	2.11	21.1	1.72E-02
12.0	37.2	25.2	225	60	3.81E-02	2.20	21.1	1.68E-02

Permeability Test Results

Coefficient of Permeability @ 20°C (68°F): **k₂₀ = 2.65E-02 cm/sec**

- Notes:
1. Permeability values obtained under field conditions will be influenced by compaction density and moisture content, compaction equipment used, variations in material, preparation methods, subgrade conditions, weather, and other factors.
 2. Changes in head level between test increments may differ from the specified 0.5cm, in order to accurately assess the laminar flow regime.
 3. Test results are corrected to standard temperature (20°C / 68°F).

Comments: **No Specifications available at time of testing.**

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Client:	Entact Inc.	Project:	RSR, Middletown, NY
Item:	Protective Soil Layer (PSL-04)	Project Number:	120361
Source:	E. Tetz Bloomingburg, NY	Lab Number:	12-1043B
Date Sampled:	12/8/2012	Sampled By:	Client
Date Tested:	12/11/2012	Tested By:	John Brinsfield

GRADATION (SIEVE ANALYSIS) OF SOIL OR AGGREGATE

Test Method(s): ASTM D422, C136, C117; AASHTO T88, T27, T11

Lab Number	Sample Type	Sampling Location	Specification
12-1043B	Protective Soil Layer (PSL-04)	Stockpile	

Sieve Size		% Retained	% Passing	Spec. % Pass
mm	Inches			
100.0 mm	4"	0.0	100.0	
75.0 mm	3"	0.0	100.0	
63.0 mm	2 1/2"	0.0	100.0	
50.0 mm	2"	0.0	100.0	
37.5 mm	1 1/2"	0.0	100.0	
25.0 mm	1"	0.0	100.0	
19.0 mm	3/4"	0.0	100.0	
12.5 mm	1/2"	4.4	95.6	
6.3 mm	1/4"	27.8	67.8	
4.75 mm	#4	5.9	61.9	
2.00 mm	#10	20.5	41.4	
0.850 mm	#20	17.7	23.7	
0.600 mm	#30	4.5	19.2	
0.425 mm	#40	3.7	15.5	
0.150 mm	#100	6.9	8.6	
0.075 mm	#200	2.2	6.4	
Pan		6.4		

Comments:

Minus #200 by wash-sieve method.

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 1813 State Route 7, Harpursville, NY 13787

Client:	Entact Inc.	Project:	RSR, Middletown, NY
Item:	Protective Soil Layer (PSL-05)	Project Number:	120361
Source:	E. Tetz Bloomingburg, NY	Lab Number:	12-1043C
Date Sampled:	12/8/2012	Sampled By:	Client
Date Tested:	12/11/2012	Tested By:	John Brinsfield

GRADATION (SIEVE ANALYSIS) OF SOIL OR AGGREGATE

Test Method(s): ASTM D422, C136, C117; AASHTO T88, T27, T11

Lab Number	Sample Type	Sampling Location	Specification
12-1043C	Protective Soil Layer (PSL-05)	Stockpile	

Sieve Size		% Retained	% Passing	Spec. % Pass
mm	Inches			
100.0 mm	4"	0.0	100.0	
75.0 mm	3"	0.0	100.0	
63.0 mm	2 1/2"	0.0	100.0	
50.0 mm	2"	0.0	100.0	
37.5 mm	1 1/2"	0.0	100.0	
25.0 mm	1"	0.0	100.0	
19.0 mm	3/4"	0.0	100.0	
12.5 mm	1/2"	2.7	97.3	
6.3 mm	1/4"	25.9	71.4	
4.75 mm	#4	3.6	67.8	
2.00 mm	#10	19.2	48.6	
0.850 mm	#20	20.1	28.5	
0.600 mm	#30	5.5	23.0	
0.425 mm	#40	4.7	18.3	
0.150 mm	#100	8.4	9.9	
0.075 mm	#200	2.6	7.3	
Pan		7.3		

Comments:

Minus #200 by wash-sieve method.

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Client:	Entact Inc.	Project:	RSR, Middletown, NY
Item:	Protective Soil Layer (PSL-06)	Project Number:	120361
Source:	E. Tetz Bloomingburg, NY	Lab Number:	12-1062A
Date Sampled:	12/11/2012	Sampled By:	Client
Date Tested:	12/18/2012	Tested By:	Jared Vassell

GRADATION (SIEVE ANALYSIS) OF SOIL OR AGGREGATE

Test Method(s): ASTM D422, C136, C117; AASHTO T88, T27, T11

Lab Number	Sample Type	Sampling Location	Specification
12-1062A	Protective Soil Layer (PSL-06)	Containment Cell	Protective Soil Layer

Sieve Size		% Retained	% Passing	Spec. % Pass
mm	Inches			
100.0 mm	4"	0.0	100.0	
75.0 mm	3"	0.0	100.0	
63.0 mm	2 1/2"	0.0	100.0	
50.0 mm	2"	0.0	100.0	
37.5 mm	1 1/2"	0.0	100.0	
25.0 mm	1"	0.0	100.0	
19.0 mm	3/4"	0.0	100.0	100
12.5 mm	1/2"	2.2	97.8	
6.3 mm	1/4"	19.3	78.5	
4.75 mm	#4	10.3	68.2	
2.00 mm	#10	25.8	42.4	
0.850 mm	#20	21.7	20.7	
0.600 mm	#30	4.3	16.4	
0.425 mm	#40	3.0	13.4	
0.150 mm	#100	4.9	8.5	
0.075 mm	#200	1.5	7.0	5-100
Pan		7.0		

Comments: **Test results comply with specification**
 Minus #200 by wash-sieve method.

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Client:	Entact Inc.	Project:	RSR, Middletown, NY
Item:	Protective Soil Layer (PSL-07)	Project Number:	120361
Source:	E. Tetz Bloomingburg, NY	Lab Number:	12-1062B
Date Sampled:	12/13/2012	Sampled By:	Client
Date Tested:	12/18/2012	Tested By:	Jared Vassell

GRADATION (SIEVE ANALYSIS) OF SOIL OR AGGREGATE

Test Method(s): ASTM D422, C136, C117; AASHTO T88, T27, T11

Lab Number	Sample Type	Sampling Location	Specification
12-1062B	Protective Soil Layer (PSL-07)	Containment Cell	Protetive Soil Layer

Sieve Size		% Retained	% Passing	Spec. % Pass
mm	Inches			
100.0 mm	4"	0.0	100.0	
75.0 mm	3"	0.0	100.0	
63.0 mm	2 1/2"	0.0	100.0	
50.0 mm	2"	0.0	100.0	
37.5 mm	1 1/2"	0.0	100.0	
25.0 mm	1"	0.0	100.0	
19.0 mm	3/4"	0.0	100.0	100
12.5 mm	1/2"	3.6	96.4	
6.3 mm	1/4"	19.4	77.0	
4.75 mm	#4	4.4	72.6	
2.00 mm	#10	22.2	50.4	
0.850 mm	#20	24.5	25.9	
0.600 mm	#30	5.5	20.4	
0.425 mm	#40	4.0	16.4	
0.150 mm	#100	6.4	10.0	
0.075 mm	#200	1.3	8.7	5-100
Pan		8.7		

Comments: **Test results comply with specification**
 Minus #200 by wash-sieve method.

Report Reviewed By:

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Client:	Entact Inc.	Project:	RSR, Middletown, NY
Material:	Protective Soil Layer (PSL-07)	Project Number:	120361
Source:	E. Tetz Bloomingburg, NY	Lab Number:	12-1062B
Location:	Containment Cell	Item Number:	Protective Soil Layer
Date Sampled:	12/13/2012	Sampled By:	Client
Date Tested:	12/19/2012	Tested By:	John Brinsfield

Report of Hydraulic Conductivity (Constant Head Permeability)
Test Method: ASTM D2434, AASHTO T215

Permeability Test Conditions	
Laboratory Recompacted Density of Sample (PCF):	102.0
Moisture Content During Recompaction (%):	3.4

Sample diameter (cm): 11.20 Area (cm²): 98.4 Piezometer Spacing, L (cm): 11.43

Tail Level	Head Level	Head (cm)	Volume (Q) mL	Time (t) sec	Q/At	h/L	°C	k=(Q/At)/(h/L)
13.6	25.9	12.3	210	60	3.56E-02	1.08	21.1	3.22E-02
14.0	26.9	12.9	226	60	3.83E-02	1.13	21.1	3.30E-02
14.1	27.5	13.4	230	60	3.90E-02	1.17	21.1	3.24E-02
14.2	28.0	13.8	230	60	3.90E-02	1.21	21.1	3.14E-02
14.5	28.5	14.0	236	60	4.00E-02	1.22	21.1	3.18E-02
14.5	29.5	15.0	242	60	4.10E-02	1.31	21.1	3.04E-02

Permeability Test Results

Coefficient of Permeability @ 20°C (68°F): k₂₀ = 3.19E-02 cm/sec
Project Specification: 1.00E-03 cm/sec

- Notes:
1. Permeability values obtained under field conditions will be influenced by compaction density and moisture content, compaction equipment used, variations in material, preparation methods, subgrade conditions, weather, and other factors.
 2. Changes in head level between test increments may differ from the specified 0.5cm, in order to accurately assess the laminar flow regime.
 3. Test results are corrected to standard temperature (20°C / 68°F).

Comments:

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Client:	Entact Inc.	Project:	RSR, Middletown, NY
Item:	Protective Soil Layer (PSL-08)	Project Number:	120361
Source:	E. Tetz Bloomingburg, NY	Lab Number:	12-1062C
Date Sampled:	12/15/2012	Sampled By:	Client
Date Tested:	12/18/2012	Tested By:	Jared Vassell

GRADATION (SIEVE ANALYSIS) OF SOIL OR AGGREGATE

Test Method(s): ASTM D422, C136, C117; AASHTO T88, T27, T11

Lab Number	Sample Type	Sampling Location	Specification
12-1062C	Protective Soil Layer (PSL-08)	Containment Cell	Protective Soil Layer

Sieve Size		% Retained	% Passing	Spec. % Pass
mm	Inches			
100.0 mm	4"	0.0	100.0	
75.0 mm	3"	0.0	100.0	
63.0 mm	2 1/2"	0.0	100.0	
50.0 mm	2"	0.0	100.0	
37.5 mm	1 1/2"	0.0	100.0	
25.0 mm	1"	0.0	100.0	
19.0 mm	3/4"	0.0	100.0	100
12.5 mm	1/2"	2.8	97.2	
6.3 mm	1/4"	19.4	77.8	
4.75 mm	#4	7.6	70.2	
2.00 mm	#10	24.3	45.9	
0.850 mm	#20	20.5	25.4	
0.600 mm	#30	4.6	20.8	
0.425 mm	#40	3.8	17.0	
0.150 mm	#100	7.1	9.9	
0.075 mm	#200	2.3	7.6	5-100
Pan		7.6		

Comments: **Test results comply with specification**
 Minus #200 by wash-sieve method.

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Client:	Entact Inc.	Project:	RSR E7976, Middletown, NY
Item:	Subgrade	Project Number:	140125
Source:	ORI	Lab Number:	14-0333A
Date Sampled:	5/8/2014	Sampled By:	Client
Date Tested:	5/19/2014	Tested By:	Brian Kolodziejczyk

GRADATION (SIEVE ANALYSIS) OF SOIL OR AGGREGATE
Test Method(s): ASTM D422, C136, C117; AASHTO T88, T27, T11

Lab Number	Sample Type	Sampling Location	Specification
14-0333A	Subgrade	Stockpile	

Sieve Size		% Retained	% Passing	Spec. % Pass
mm	Inches			
100.0 mm	4"	0.0	100.0	
75.0 mm	3"	0.0	100.0	
63.0 mm	2 1/2"	0.0	100.0	
50.0 mm	2"	0.0	100.0	
37.5 mm	1 1/2"	0.0	100.0	
25.0 mm	1"	0.0	100.0	
19.0 mm	3/4"	0.0	100.0	
12.5 mm	1/2"	0.5	99.5	
6.3 mm	1/4"	0.5	99.0	
4.75 mm	#4	0.6	98.4	
2.00 mm	#10	3.5	94.9	
0.850 mm	#20	6.4	88.5	
0.600 mm	#30	3.6	84.9	
0.425 mm	#40	3.0	81.9	
0.150 mm	#100	7.7	74.2	
0.075 mm	#200	5.6	68.6	
Pan		68.6		

Comments:

Minus #200 by wash-sieve method.

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 42 Day Farm Road, West Stockbridge, MA 01266
 1813 State Route 7, Harpursville, NY 13787

Client:	Entact Inc.	Project:	RSR E7976, Middletown, NY
Material:	Subgrade	Project Number:	140125
Source:	ORI	Lab Number:	14-0333A
Location:	Stockpile	Item Number:	No Specification Available
Date Sampled:	5/8/2014	Sampled By:	Client
Date Tested:	5/16/2014	Tested By:	John Brinsfield

Report of Organic Content of Soils by Loss on Ignition
Test Method: AASHTO T267

Inorganic Content: 77.7 % (Sand, silt, clay, etc.)
Organic Content: 22.3 %

Specification: _____

Comments:

No specifications available at time of testing.

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 42 Day Farm Road, West Stockbridge, MA 01266
 1813 State Route 7, Harpursville, NY 13787

Client:	Entact Inc.	Project:	RSR E7976, Middletown, NY
Material:	Habitat Sub-grade	Project Number:	140125
Source:	On Site Topsoil	Lab Number:	14-0758C
Location:	Stockpile	Item Number:	No Specification Available
Date Sampled:	8/19/2014	Sampled By:	Client
Date Tested:	8/20/2014	Tested By:	Donald Leisure

Report of pH of Soil
Test Method: ASTM D4972 Method A

pH Test Result: 7.5 (in Distilled Water)

N/A (In Calcium Chloride Solution)

Specification

Comments:

No specifications available at time of testing.

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**US COMPOSTING
COUNCIL**

*Seal of Testing
Assurance*

Organic Recycling Inc. (Tappan)

Jessie Te
117A Route 303
Tappan
NY 10983

Date Sampled/Received: 04 Jun. 13 / 06 Jun. 13

<i>Product Identification</i> <u>Compost</u>
ORI- Compost

COMPOST TECHNICAL DATA SHEET

LABORATORY: Soil Control Lab; 42 Hangar Way; Watsonville, CA 95076 tel: 831.724.5422 fax: 831.724.3188			
<i>Compost Parameters</i>	<i>Reported as (units of measure)</i>	<i>Test Results</i>	<i>Test Results</i>
Plant Nutrients:	%, weight basis	Not reported	Not reported
Moisture Content	%, wet weight basis	51.7	
Organic Matter Content	%, dry weight basis	44.6	
pH	units	8.07	
Soluble Salts <i>(electrical conductivity EC₁)</i>	dS/m (mmhos/cm)	1.7	
Particle Size or Sieve Size	maxium aggregate size, inches	0.38	
<i>Stability Indicator (respirometry)</i>		<i>Stability Rating:</i>	
CO ₂ Evolution	mg CO ₂ -C/g OM/day	2.1	Stable
	mg CO ₂ -C/g TS/day	0.96	
Maturity Indicator (bioassay)			
Percent Emergence	average % of control	100.0	
Relative Seedling Vigor	average % of control	100.0	
Select Pathogens	PASS/FAIL: per US EPA Class A standard, 40 CFR § 503.32(a)	Pass	<i>Fecal coliform</i>
		Pass	<i>Salmonella</i>
Trace Metals	PASS/FAIL: per US EPA Class A standard, 40 CFR § 503.13, Tables 1 and 3.	Pass	<i>As,Cd,Cr,Cu,Pb,Hg</i>
			<i>Mo,Ni,Se,Zn</i>

Participants in the US Composting Council's Seal of Testing Assurance Program have shown the commitment to test their compost products on a prescribed basis and provide this data, along with compost end use instructions, as a means to better serve the needs of their compost customers.

Laboratory Group: Jun.13 A Laboratory Number: 3060226-1/1

Analyst: Assaf Sadeh		www.compostlab.com
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US COMPOSTING COUNCIL

Seal of Testing Assurance

Organic Recycling Inc. (Tappan)

Jessie Te
117A Route 303
Tappan
NY 10983

Date Sampled/Received: 04 Jun. 13 / 06 Jun. 13

Product Identification	Compost
ORI- Compost	

COMPOST TECHNICAL DATA SHEET

LABORATORY: Soil Control Lab; 42 Hangar Way; Watsonville, CA 95076 tel: 831.724.5422 fax: 831.724.3188			
Compost Parameters	Reported as (units of measure)	Test Results	Test Results
Plant Nutrients:	%, weight basis	%, wet weight basis	%, dry weight basis
Nitrogen	Total N	0.76	1.6
Phosphorus	P ₂ O ₅	0.23	0.48
Potassium	K ₂ O	0.31	0.66
Calcium	Ca	1.2	2.6
Magnesium	Mg	0.33	0.68
Moisture Content	%, wet weight basis	51.7	
Organic Matter Content	%, dry weight basis	44.6	
pH	units	8.07	
Soluble Salts (electrical conductivity EC _s)	dS/m (mmhos/cm)	1.7	
Particle Size or Sieve Size	% under 9.5 mm, dw basis	100.0	
Stability Indicator (respirometry)		Stability Rating:	
CO ₂ Evolution	mg CO ₂ -C/g OM/day	2.1	Stable
	mg CO ₂ -C/g TS/day	0.96	
Maturity Indicator (bioassay)			
Percent Emergence	average % of control	100.0	
Relative Seedling Vigor	average % of control	100.0	
Select Pathogens	PASS/FAIL: per US EPA Class A standard, 40 CFR § 503.32(a)	Pass	Fecal coliform
		Pass	Salmonella
Trace Metals	PASS/FAIL: per US EPA Class A standard, 40 CFR § 503.13, Tables 1 and 3.	Pass	As,Cd,Cr,Cu,Pb,Hg Mo,Ni,Se,Zn

Participants in the US Composting Council's Seal of Testing Assurance Program have shown the commitment to test their compost products on a prescribed basis and provide this data, along with compost end use instructions, as a means to better serve the needs of their compost customers.

Laboratory Group:	Jun.13 A	Laboratory Number:	3060226-1/1
Analyst: Assaf Sadeh		www.compostlab.com	

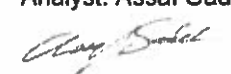
SOIL CONTROL LAB

42 HANGAR WAY
WATSONVILLE
CALIFORNIA
95076
USA

Account #: 3060226-1/1-7581
Group: Jun.13 A #37
Reporting Date: June 17, 2013

Organic Recycling Inc. (Tappan)
117A Route 303
Tappan, NY 10983
Attn: Jessie Te

Date Received: 06 Jun. 13
Sample Identification: ORI- Compost
Sample ID #: 3060226 - 1/1

Nutrients	Dry wt.	As Rcvd.	units	Stability Indicator:	Biologically
Total Nitrogen:	1.6	0.76	%	CO2 Evolution	Available C
Ammonia (NH ₄ -N):	310	150	mg/kg	mg CO ₂ -C/g OM/day	2.1
Nitrate (NO ₃ -N):	3.0	1.4	mg/kg	mg CO ₂ -C/g TS/day	0.96
Org. Nitrogen (Org.-N):	1.6	0.77	%	Stability Rating	stable
Phosphorus (as P ₂ O ₅):	0.47	0.23	%		unstable
Phosphorus (P):	2100	1000	mg/kg		
Potassium (as K ₂ O):	0.66	0.32	%	Maturity Indicator: Cucumber Bioassay	
Potassium (K):	5500	2600	mg/kg	Compost:Vermiculite(v:v)	1:1
Calcium (Ca):	2.6	1.2	%	Emergence (%)	100
Magnesium (Mg):	0.68	0.33	%	Seedling Vigor (%)	100
Sulfate (SO ₄ -S):	31	15	mg/kg	Description of Plants	healthy
Boron (Total B):	30	14	mg/kg		healthy
Moisture:	0	51.7	%	Pathogens	
Sodium (Na):	0.046	0.022	%	Results	Units
Chloride (Cl):	0.11	0.053	%	Fecal Coliform	< 2.0
pH Value:	NA	8.07	unit	Salmonella	< 3
Bulk Density :	22	46	lb/cu ft	Date Tested: 06 Jun. 13	
Carbonates (CaCO ₃):	30	15	lb/ton		
Conductivity (EC5):	1.7	NA	mmhos/cm	Inerts	% by weight
Organic Matter:	44.6	21.6	%	Plastic	< 0.5
Organic Carbon:	26.0	13.0	%	Glass	< 0.5
Ash:	55.4	26.8	%	Metal	< 0.5
C/N Ratio	17	17	ratio	Sharps	ND
AgIndex	> 10	> 10	ratio		
Metals	Dry wt.	EPA Limit	units	Size & Volume Distribution	
Aluminum (Al)	6400	-	mg/kg	MM	% by weight % by volume BD g/cc
Arsenic (As):	4.4	41	mg/kg	> 50	0.0 0.0 0.00
Cadmium (Cd):	< 1.0	39	mg/kg	25 to 50	0.0 0.0 0.00
Chromium (Cr):	16	1200	mg/kg	16 to 25	0.0 0.0 0.00
Cobalt (Co)	4.8	-	mg/kg	9.5 to 16	0.0 0.0 0.00
Copper (Cu):	45	1500	mg/kg	6.3 to 9.5	3.5 3.2 0.66
Iron (Fe):	12000	-	mg/kg	4.0 to 6.3	8.4 9.4 0.54
Lead (Pb):	61	300	mg/kg	2.0 to 4.0	18.1 20.9 0.51
Manganese (Mn):	630	-	mg/kg	< 2.0	69.9 66.5 0.63
Mercury (Hg):	< 1.0	17	mg/kg	Bulk Density Description:<.35 Light Materials,	
Molybdenum (Mo):	2.1	75	mg/kg	.35-.60 medium weight materials, >.60 Heavy Materials	
Nickel (Ni):	12	420	mg/kg	Analyst: Assaf Sadeh	
Selenium (Se):	< 1.0	36	mg/kg		
Zinc (Zn):	130	2800	mg/kg		

*Sample was received and handled in accordance with TMECC procedures.

Account No.:
3060226 - 1/1 - 7581
Group: Jun.13 A No. 37

Date Received
Sample i.d.
Sample I.d. No.

06 Jun. 13
ORI- Compost
1/1 3060226

INTERPRETATION:

Is Your Compost Stable?

Respiration Rate 2.1 mg CO ₂ -C/ g OM/day	Biodegradation Rate of Your Pile +++++++ < Stable > < Moderately Unstable > < Unstable > < High For Mulch
Biologically Available Carbon (BAC) 19 mg CO ₂ -C/ g OM/day	Optimum Degradation Rate +++++++ < Stable > < Moderately Unstable > < Unstable > < High For Mulch

Is Your Compost Mature?

AmmoniaN/NitrateN ratio 100 Ratio	+++++++ Very Mature < Mature > Immature
Ammonia N ppm 310 mg/kg dry wt.	+++++++ Very Mature < Mature > Immature
Nitrate N ppm 3.0 mg/kg dry wt.	++ < Immature > Mature
pH value 8.07 units	+++++++ < Immature > Mature > Immature
Cucumber Emergence 100.0 percent	+++++++ < Immature > Mature

Is Your Compost Safe Regarding Health?

Fecal Coliform < 1000 MPN/g dry wt.	+++++++ < Safe > High Fecal Coliform
Salmonella Less than 3 /4g dry wt.	+++++++ < Safe (none detected) > High Salmonella Count (> 3 per 4 grams)
Metals US EPA 503 Pass dry wt.	+++++++ < All Metals Pass > One or more Metals Fail

Does Your Compost Provide Nutrients or Organic Matter?

Nutrients (N+P ₂ O ₅ +K ₂ O) 2.7 Percent dry wt.	+++++++ < Low > Average > High Nutrient Content
AgIndex (Nutrients / Sodium and Chloride Salts) 15 Ratio	((N+P ₂ O ₅ +K ₂ O) / (Na + Cl)) +++++++ Na & Cl > Nutrient and Sodium and Chloride Provider > Nutrient Provider
Plant Available Nitrogen (PAN) 6 lbs/ton wet wt.	Estimated release for first season +++++++ Low Nitrogen Provider < Average Nitrogen Provider > High Nitrogen Provider
C/N Ratio 17 Ratio	+++++++ < Nitrogen Release > N-Neutral > N-Demand < High Nitrogen Demand
Soluble Available Nutrients & Salts (EC5 w/w dw) 1.7 mmhos/cm dry wt.	+++++++ Slow Release < Average Nutrient Release Rate > High Available Nutrients
Lime Content (CaCO ₃) 30 Lbs/ton dry wt.	+++++++ < Low > Average > High Lime Content (as CaCO ₃)

What are the physical properties of your compost?

Percent Ash 55.4 Percent dry wt.	+++++++ < High Organic Matter > Average > High Ash Content
Sieve Size % > 6.3 MM (0.25") 3.5 Percent dry wt.	+++++++ All Uses > Size May Restrict Uses for Potting mix and Golf Courses

Account No.:
3060226 - 1/1 - 7581
Group: Jun.13 A No. 37

Date Received 06 Jun. 13
Sample i.d. ORI- Compost
Sample I.d. No. 1/1 3060226

INTERPRETATION:

Is Your Compost Stable?

Page two of three

Respiration Rate

2.1 Low: Good for all uses mg CO₂-C/g OM/day

The respiration rate is a measurement of the biodegradation rate of the organic matter in the sample (as received). The respiration rate is determined by measuring the rate at which CO₂ is released under optimized moisture and temperature conditions.

Biologically Available Carbon

19 High-for mulch mg CO₂-C/g OM/day

Biologically Available Carbon (BAC) is a measurement of the rate at which CO₂ is released under optimized moisture, temperature, porosity, nutrients, pH and microbial conditions. If both the RR and the BAC test values are close to the same value, the pile is optimized for composting. If both values are high the compost pile just needs more time. If both values are low the compost has stabilized and should be moved to curing. BAC test values that are higher than RR indicate that the compost pile has stalled. This could be due to anaerobic conditions, lack of available nitrogen due to excessive air converting ammonia to the unavailable nitrate form, lack of nitrogen or other nutrients due to poor choice of feedstock, pH value out of range, or microbes rendered non-active.

Is Your Compost Mature?

Ammonia:NitrateN ratio

100 immature

Ammonia N ppm

310 mature

Nitrate N ppm

3.0 immature

pH value

8.07 mature

Composting to stabilize carbon can occur at such a rapid rate that sometimes phytotoxins remain in the compost and must be neutralized before using in high concentrations or in high-end uses. This step is called curing. Typically ammonia is in excess with the break-down of organic materials resulting in an increase in pH. This combination results in a loss of volatile ammonia (it smells). Once this toxic ammonia has been reduced and the pH drops, the microbes convert the ammonia to nitrates. A low ammonia + high nitrate score is indicative of a mature compost, however there are many exceptions. For example, a compost with a low pH (<7) will retain ammonia, while a compost with high lime content can lose ammonia before the organic fraction becomes stable. Composts must first be stable before curing indicators apply.

Cucumber Bioassay

100.0 Percent

Cucumbers are chosen for this test because they are salt tolerant and very sensitive to ammonia and organic acid toxicity. Therefore, we can germinate seeds in high concentrations of compost to measure phytotoxic effects without soluble salts being the limiting factor. Values above 80% for both percent emergence and vigor are indicative of a well-cured compost. Exceptions include very high salts that affect the cucumbers, excessive concentrations of nitrates and other nutrients that will be in range when formulated to make a growing media. In addition to testing a 1:1 compost: vermiculite blend, we also test a diluted 1:3 blend to indicate a more sensitive toxicity level.

Is Your Compost Safe Regarding Health?

Fecal Coliform

< 1000 / g dry wt.

Fecal coliforms can survive in both aerobic and anaerobic conditions and is common in all initial compost piles. Most human pathogens occur from fecal matter and all fecal matter is loaded in fecal coliforms. Therefore fecal coliforms are used as an indicator to determine if the chosen method for pathogen reduction (heat for compost) has met the requirements of sufficient temperature, time and mixing. If the fecal coliforms are reduced to below 1000 per gram dry wt. it is assumed all others pathogens are eliminated. Potential problems are that fecal coliform can regrow during the curing phase or during shipping. This is because the conditions are now more favorable for growth than during the composting process.

Salmonella Bacteria

Less than 3 / 4g dry wt. Salmonella is not only another indicator organism but also a toxic microbe. It has been used in the case of biosolids industry to determine adequate pathogen reduction.

Metals

Pass

The ten heavy metals listed in the EPA 503 regulations are chosen to determine if compost can be applied to ag land and handled without toxic effects. Most high concentrations of heavy metals are derived from woodwaste feedstock such as chrome-arsenic treated or lead painted demolition wood. Biosolids are rarely a problem.

Does Your Compost Provide Nutrients or Organic Matter?

Nutrients (N+P2O5+K2O)

2.7 Average nutrient content

This value is the sum of the primary nutrients Nitrogen, Phosphorus and Potassium. Reported units are consistent with those found on fertilizer formulations. A sum greater than 5 is indicative of a compost with high nutrient content, and best used to supply nutrients to a receiving soil. A sum below 2 indicates low nutrient content, and is best-used to improve soil structure via the addition of organic matter. Most compost falls between 2 and 5.

Account No.:
3060226 - 1/1 - 7581
Group: Jun.13 A No. 37

Date Received: 06 Jun. 13
Sample I.d.: ORI- Compost
Sample I.d. No.: 1/1 3060226

INTERPRETATION:

Page three of three

AgIndex (Nutrients/Na+Cl)

15 High nutrient ratio Composts with low AgIndex values have high concentrations of sodium and/or chloride compared to nutrients. Repeated use of a compost with a low AgIndex (< 2) may result in sodium and/or chloride acting as the limiting factor compared to nutrients, governing application rates. These composts may be used on well-draining soils and/or with salt-tolerant plants. Additional nutrients from another source may be needed if the application rate is limited by sodium or chloride. If the AgIndex is above 10, nutrients optimal for plant growth will be available without concern of sodium and/or chloride toxicity. Composts with an AgIndex of above 10 are good for increasing nutrient levels for all soils. Most composts score between 2 and 10. Concentrations of nutrients, sodium, and chloride in the receiving soil should be considered when determining compost application rates. The AgIndex is a product of feedstock quality. Feedstock from dairy manure, marine waste, industrial wastes, and halophytic plants are likely to produce a finished compost with a low AgIndex.

Plant Available Nitrogen (lbs/ton)

6 Average N Provider Plant Available Nitrogen (PAN) is calculated by estimating the release rate of Nitrogen from the organic fraction of the compost. This estimate is based on information gathered from the BAC test and measured ammonia and nitrate values. Despite the PAN value of the compost, additional sources of Nitrogen may be needed during the growing season to offset the Nitrogen demand of the microbes present in the compost. With ample nutrients these microbes can further breakdown organic matter in the compost and release bound Nitrogen. Nitrogen demand based on a high C/N ratio is not considered in the PAN calculation because additional Nitrogen should always be supplemented to the receiving soil when composts with a high C/N ratio are applied.

C/N Ratio

17 Indicates immaturity As a guiding principal, a C/N ratio below 14 indicates maturity and above 14 indicates immaturity, however, there are many exceptions. Large woodchips (>6.3mm), bark, and redwood are slow to breakdown and therefore can result in a relatively stable product while the C/N ratio value is high. Additionally, some composts with chicken manure and/or green grass feedstocks can start with a C/N ratio below 15 and are very unstable. A C/N ratio below 10 supplies Nitrogen, while a ratio above 20 can deplete Nitrogen from the soil. The rate at which Nitrogen will be released or used by the microbes is indicated by the respiration rate (BAC). If the respiration rate is too high the transfer of Nitrogen will not be controllable.

Soluble Nutrients & Salts (EC5 w/w dw - mmhos/cm)

1.7 Average salts This value refers to all soluble ions including nutrients, sodium, chloride and some soluble organic compounds. The concentration of salts will change due to the release of salts from the organic matter as it degrades, volatilization of ammonia, decomposition of soluble organics, and conversion of molecular structure. High salts + high AgIndex is indicative of a compost high in readily available nutrients. The application rate of these composts should be limited by the optimum nutrient value based on soil analysis of the receiving soil. High Salts + low AgIndex is indicative of a compost low in nutrients with high concentrations of sodium and/or chloride. Limit the application rate according to the toxicity level of the sodium and/or chloride. Low salts indicates that the compost can be applied without risking salt toxicity, is likely a good source of organic matter, and that nutrients will release slowly over time.

Lime Content (lbs. per ton)

30 High lime content Compost high in lime or carbonates are often those produced from chicken manure (layers) ash materials, and lime products. These are excellent products to use on a receiving soil where lime has been recommended by soil analysis to raise the pH. Composts with a high lime content should be closely considered for pH requirements when formulating potting mixes.

Physical Properties

Percent Ash

55.4 Average ash content Ash is the non-organic fraction of a compost. Most composts contain approximately 50% ash (dry weight basis). Compost can be high in ash content for many reasons including: excess mineralization (old compost), contamination with soil base material during turning, poor quality feedstock, and soil or mineral products added. Finding the source and reducing high ash content is often the fastest means to increasing nutrient quality of a compost.

Particle Size % > 6.3 MM (0.25")

3.5 May restrict use Large particles may restrict use for potting soils, golf course topdressings, seed-starter mixes, and where a fine size distribution is required. Composts with large particles can still be used as excellent additions to field soils, shrub mixes and mulches.

Particle Size Distribution

Each size fraction is measured by weight, volume and bulk density. These results are particularly relevant with decisions to screen or not, and if screening, which size screen to use. The bulk density indicates if the fraction screened is made of light weight organic material or heavy mineral material. Removing large mineral material can greatly improve compost quality by increasing nutrient and organic concentrations.

Appendix:	Estimated available nutrients for use when calculating application rates lbs/ton (As Rcvd.)
Plant Available Nitrogen (PAN) calculations: PAN = (X * (organic N)) + ((NH4-N) + (NO3-N))	
X value =	
If BAC < 2 then X = 0.1	Plant Available Nitrogen (PAN) 6.3
If BAC = 2.1 to 5 then X = 0.2	Ammonia (NH4-N) 0.30
If BAC = 5.1 to 10 then X = 0.3	Nitrate (NO3-N) 0.00
If BAC > 10 then X = 0.4	Available Phosphorus (P2O5*0.64) 2.9
Note: If C/N ratio > 15 additional N should be applied.	Available Potassium (K2O) 6.3



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Client:	Entact Inc.	Project:	RSR E7976, Middletown, NY
Item:	Compost #1	Project Number:	140125
Source:	ORI	Lab Number:	14-0553B
Date Sampled:	6/30/2014	Sampled By:	Client
Date Tested:	7/1/2014	Tested By:	Michael Trim

GRADATION (SIEVE ANALYSIS) OF SOIL OR AGGREGATE
Test Method(s): ASTM D422, C136, C117; AASHTO T88, T27, T11

Lab Number	Sample Type	Sampling Location	Specification
14-0553B	Compost #1	Stockpile	

Sieve Size		% Retained	% Passing	Spec. % Pass
mm	Inches			
100.0 mm	4"	0.0	100.0	
75.0 mm	3"	0.0	100.0	
50.0 mm	2"	0.0	100.0	
37.5 mm	1 1/2"	0.0	100.0	
25.0 mm	1"	0.0	100.0	
19.0 mm	3/4"	0.0	100.0	
12.5 mm	1/2"	0.0	100.0	100
6.3 mm	1/4"	7.2	92.8	
4.75 mm	#4	6.6	86.2	
2.36 mm	#8	8.7	77.5	
1.18 mm	#16	13.2	64.3	85-100
0.600 mm	#30	15.4	48.9	
0.425 mm	#40	7.8	41.1	
0.300 mm	#50	7.1	34.0	
0.150 mm	#100	8.8	25.2	
0.075 mm	#200	4.8	20.4	
Pan		20.4		

Comments: Test results do not comply with specification
 Minus #200 by wash-sieve method.

Report Reviewed By: *Emily J. Rodriguez*

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 1813 State Route 7, Harpursville, NY 13787

Client:	Entact Inc.	Project:	RSR E7976, Middletown, NY
Material:	Compost #1	Project Number:	140125
Source:	ORI	Lab Number:	14-0553B
Location:	Stockpile	Item Number:	Compost
Date Sampled:	6/30/2014	Sampled By:	Client
Date Tested:	7/1/2014	Tested By:	John Brinsfield

Report of Organic Content of Soils by Loss on Ignition
Test Method: AASHTO T267

Inorganic Content: 46.1 % (Sand, silt, clay, etc.)
 Organic Content: 53.9 %

Specification: 25-100

Comments:

Test results comply with specifications.

Emily J. Rodriguez

Report Reviewed By: _____

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Client:	Entact Inc.	Project:	RSR E7976, Middletown, NY
Item:	Compost #2	Project Number:	140125
Source:	ORI	Lab Number:	14-0553C
Date Sampled:	6/30/2014	Sampled By:	Client
Date Tested:	7/1/2014	Tested By:	Michael Trim

GRADATION (SIEVE ANALYSIS) OF SOIL OR AGGREGATE
Test Method(s): ASTM D422, C136, C117; AASHTO T88, T27, T11

Lab Number	Sample Type	Sampling Location	Specification
14-0553C	Compost #2	Stockpile	

Sieve Size		% Retained	% Passing	Spec. % Pass
mm	Inches			
100.0 mm	4"	0.0	100.0	
75.0 mm	3"	0.0	100.0	
50.0 mm	2"	0.0	100.0	
37.5 mm	1 1/2"	0.0	100.0	
25.0 mm	1"	0.0	100.0	
19.0 mm	3/4"	0.0	100.0	
12.5 mm	1/2"	0.0	100.0	100
6.3 mm	1/4"	15.2	84.8	
4.75 mm	#4	4.0	80.8	
2.36 mm	#8	12.7	68.1	
1.18 mm	#16	12.4	55.7	85-100
0.600 mm	#30	14.4	41.3	
0.425 mm	#40	6.3	35.0	
0.300 mm	#50	5.7	29.3	
0.150 mm	#100	7.4	21.9	
0.075 mm	#200	3.6	18.3	
Pan		18.3		

Comments: **Test results do not comply with specification**
 Minus #200 by wash-sieve method.

Emily J. Rodriguez

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Client:	Entact Inc.	Project:	RSR E7976, Middletown, NY
Material:	Compost #2	Project Number:	140125
Source:	ORI	Lab Number:	14-0553C
Location:	Stockpile	Item Number:	Compost
Date Sampled:	6/30/2014	Sampled By:	Client
Date Tested:	7/1/2014	Tested By:	John Brinsfield

Report of Organic Content of Soils by Loss on Ignition
Test Method: AASHTO T267

Inorganic Content: 51.3 % (Sand, silt, clay, etc.)
 Organic Content: 48.7 %

Specification: 25-100

Comments:

Test results comply with specifications.

Emily J. Rodriguez

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Client:	Entact Inc.	Project:	RSR E7976, Middletown, NY
Item:	Compost #3	Project Number:	140125
Source:	ORI	Lab Number:	14-0589B
Date Sampled:	7/9/2014	Sampled By:	Client
Date Tested:	7/11/2014	Tested By:	Liam Foody

GRADATION (SIEVE ANALYSIS) OF SOIL OR AGGREGATE
Test Method(s): ASTM D422, C136, C117; AASHTO T88, T27, T11

Lab Number	Sample Type	Sampling Location	Specification
14-0589B	Compost #3	Stockpile	

Sieve Size		% Retained	% Passing	Spec. % Pass
mm	Inches			
75.0 mm	3"	0.0	100.0	
63.0 mm	2 1/2"	0.0	100.0	
50.0 mm	2"	0.0	100.0	
37.5 mm	1 1/2"	0.0	100.0	
25.0 mm	1"	0.0	100.0	
19.0 mm	3/4"	0.0	100.0	
12.5 mm	1/2"	0.0	100.0	100
4.75 mm	#4 c	0.5	99.5	
2.00 mm	#10	0.3	99.2	
1.18 mm	#16	1.5	97.7	85-100
0.600 mm	#30	17.3	80.4	
0.425 mm	#40	15.7	64.7	
0.250 mm	#60	19.7	45.0	
0.150 mm	#100	17.6	27.4	
0.075 mm	#200	8.7	18.7	
Pan		18.7		

Comments: Test results comply with specification
 Minus #200 by wash-sieve method.

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Client:	Entact Inc.	Project:	RSR E7976, Middletown, NY
Material:	Compost #3	Project Number:	140125
Source:	ORI	Lab Number:	14-0589B
Location:	Stockpile	Item Number:	
Date Sampled:	7/9/2014	Sampled By:	Client
Date Tested:	7/11/2014	Tested By:	John Brinsfield

Report of Organic Content of Soils by Loss on Ignition
Test Method: AASHTO T267

Inorganic Content: 41.3 % (Sand, silt, clay, etc.)
 Organic Content: 58.7 %

Specification: 25-100

Comments:

Test results comply with specifications.

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Client:	Entact Inc.	Project:	RSR E7976, Middletown, NY
Item:	Upland Topsoil	Project Number:	140125
Source:	ORI	Lab Number:	14-0553A
Date Sampled:	6/30/2014	Sampled By:	Client
Date Tested:	7/1/2014	Tested By:	Michael Trim

GRADATION (SIEVE ANALYSIS) OF SOIL OR AGGREGATE
Test Method(s): ASTM D422, C136, C117; AASHTO T88, T27, T11

Lab Number	Sample Type	Sampling Location	Specification
14-0553A	Upland Topsoil	Stockpile	

Sieve Size		% Retained	% Passing	Spec. % Pass
mm	Inches			
100.0 mm	4"	0.0	100.0	
75.0 mm	3"	0.0	100.0	
63.0 mm	2 1/2"	0.0	100.0	
50.0 mm	2"	0.0	100.0	100
37.5 mm	1 1/2"	0.0	100.0	
25.0 mm	1"	0.0	100.0	85-100
19.0 mm	3/4"	0.0	100.0	
12.5 mm	1/2"	0.0	100.0	
6.3 mm	1/4"	5.1	94.9	65-100
4.75 mm	#4	3.8	91.1	
2.00 mm	#10	4.2	86.9	
0.850 mm	#20	5.7	81.2	
0.600 mm	#30	3.4	77.8	
0.425 mm	#40	4.7	73.1	
0.150 mm	#100	19.7	53.4	
0.075 mm	#200	10.7	42.7	20-40
Pan		42.7		

Comments: Test results do not comply with specification
 Minus #200 by wash-sieve method.

Report Reviewed By: *Emily J. Rodriguez*

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Client:	Entact Inc.	Project:	RSR E7976, Middletown, NY
Material:	Upland Topsoil	Project Number:	140125
Source:	ORI	Lab Number:	14-0553A
Location:	Stockpile	Item Number:	NYSDOT 713-01
Date Sampled:	6/30/2014	Sampled By:	Client
Date Tested:	7/1/2014	Tested By:	John Brinsfield

Report of Organic Content of Soils by Loss on Ignition

Test Method: AASHTO T267

Inorganic Content: 91.6 % (Sand, silt, clay, etc.)
Organic Content: 8.4 %

Specification: 10% Minimum

Comments: Test result does not comply with specification

Emily J. Rodriguez

Report Reviewed By: _____

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Client:	Entact Inc.	Project:	RSR E7976, Middletown, NY
Item:	Upland Topsoil #2	Project Number:	140125
Source:	ORI	Lab Number:	14-0589A
Date Sampled:	7/9/2014	Sampled By:	Client
Date Tested:	7/11/2014	Tested By:	Liam Foody

GRADATION (SIEVE ANALYSIS) OF SOIL OR AGGREGATE

Test Method(s): ASTM D422, C136, C117; AASHTO T88, T27, T11

Lab Number	Sample Type	Sampling Location	Specification
14-0589A	Upland Topsoil #2	Stockpile	NYS DOT 713-01

Sieve Size		% Retained	% Passing	Spec. % Pass
mm	Inches			
100.0 mm	4"	0.0	100.0	
75.0 mm	3"	0.0	100.0	
63.0 mm	2 1/2"	0.0	100.0	
50.0 mm	2"	0.0	100.0	100
37.5 mm	1 1/2"	0.0	100.0	
25.0 mm	1"	0.0	100.0	85-100
19.0 mm	3/4"	0.0	100.0	
12.5 mm	1/2"	0.0	100.0	
6.3 mm	1/4"	3.3	96.7	65-100
4.75 mm	#4	2.9	93.8	
2.00 mm	#10	10.3	83.5	
0.850 mm	#20	15.7	67.8	
0.600 mm	#30	7.2	60.6	
0.425 mm	#40	7.4	53.2	
0.150 mm	#100	20.3	32.9	
0.075 mm	#200	9.4	23.5	20-40
Pan		23.5		

Comments: Test results comply with specification
 Minus #200 by wash-sieve method.

Report Reviewed By:

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Client:	Entact Inc.	Project:	RSR E7976, Middletown, NY
Material:	Upland Topsoil #2	Project Number:	140125
Source:	ORI	Lab Number:	14-0589A
Location:	Stockpile	Item Number:	NYS DOT 713-01
Date Sampled:	7/9/2014	Sampled By:	Client
Date Tested:	7/11/2014	Tested By:	John Brinsfield

Report of Organic Content of Soils by Loss on Ignition
Test Method: AASHTO T267

Inorganic Content: 80.2 % (Sand, silt, clay, etc.)
 Organic Content: 19.8 %

Specification: 10% Minimum

Comments:

Test results comply with specifications.

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Client:	Entact Inc.	Project:	RSR E7976, Middletown, NY
Material:	Upland Topsoil	Project Number:	140125
Source:	On Site Topsoil	Lab Number:	14-0758B
Location:	Stockpile	Item Number:	No Specification Available
Date Sampled:	8/19/2014	Sampled By:	Client
Date Tested:	8/20/2014	Tested By:	Donald Leisure

Report of pH of Soil
Test Method: ASTM D4972 Method A

pH Test Result: 7.0 (in Distilled Water)

N/A (In Calcium Chloride Solution)

Specification

Comments:

No specifications available at time of testing.

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Client:	5 L Enterprises	Project:	RSR Middletown, NY
Item:	Upland Topsoil	Project Number:	140475
Source:	5L Enterprises	Lab Number:	14-0706-7
Date Sampled:	8/4/2014	Sampled By:	Client
Date Tested:	8/8/2014	Tested By:	Liam Foody

GRADATION (SIEVE ANALYSIS) OF SOIL OR AGGREGATE

Test Method(s): ASTM D422, C136, C117; AASHTO T88, T27, T11

Lab Number	Sample Type	Sampling Location	Specification
14-0706-7	Upland Topsoil	Stockpile	

Sieve Size		% Retained	% Passing	Spec. % Pass
mm	Inches			
100.0 mm	4"	0.0	100.0	
75.0 mm	3"	0.0	100.0	
63.0 mm	2 1/2"	0.0	100.0	
50.0 mm	2"	0.0	100.0	
37.5 mm	1 1/2"	0.0	100.0	
25.0 mm	1"	0.0	100.0	
19.0 mm	3/4"	0.0	100.0	
12.5 mm	1/2"	2.8	97.2	
6.3 mm	1/4"	13.3	83.9	
4.75 mm	#4	2.4	81.5	
2.00 mm	#10	9.9	71.6	
0.850 mm	#20	10.2	61.4	
0.600 mm	#30	4.0	57.4	
0.425 mm	#40	4.6	52.8	
0.150 mm	#100	15.9	36.9	
0.075 mm	#200	6.5	30.4	
Pan		30.4		

Comments:

Minus #200 by wash-sieve method.

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Client:	5 L Enterprises	Project:	RSR Middletown, NY
Material:	Topsoil (3:1)	Project Number:	140475
Source:	5L Enterprises	Lab Number:	14-0706-2
Location:	Stockpile	Item Number:	No Specificaitons Available
Date Sampled:	8/4/2014	Sampled By:	Client
Date Tested:	8/5/2014	Tested By:	John Brinsfield

Report of Organic Content of Soils by Loss on Ignition
Test Method: AASHTO T267

Inorganic Content: 90 % (Sand, silt, clay, etc.)
 Organic Content: 10 %

Specification: _____

Comments:

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Client:	5 L Enterprises	Project:	RSR Middletown, NY
Material:	Topsoil 3:1	Project Number:	140475
Source:	5L Enterprises	Lab Number:	14-0706-7
Location:	Stockpile	Item Number:	No Specificaitons Available
Date Sampled:	8/4/2014	Sampled By:	Client
Date Tested:	8/7/2014	Tested By:	John Brinsfield

Report of pH of Soil
Test Method: ASTM D4972 Method A

pH Test Result: 7.2 (in Distilled Water)
N/A (In Calcium Chloride Solution)

Specification

Comments:

No specifications available at time of testing.

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Client:	Entact Inc.	Project:	RSR E7976, Middletown, NY
Item:	Granular Material	Project Number:	140125
Source:	ORI	Lab Number:	14-0553D
Date Sampled:	6/30/2014	Sampled By:	Client
Date Tested:	7/1/2014	Tested By:	Michael Trim

GRADATION (SIEVE ANALYSIS) OF SOIL OR AGGREGATE

Test Method(s): ASTM D422, C136, C117; AASHTO T88, T27, T11

Lab Number	Sample Type	Sampling Location	Specification
14-0553D	Granular Material	Stockpile	

Sieve Size		% Retained	% Passing	Spec. % Pass
mm	Inches			
75.0 mm	3"	0.0	100.0	
63.0 mm	2 1/2"	0.0	100.0	
50.0 mm	2"	0.0	100.0	
37.5 mm	1 1/2"	0.0	100.0	
25.0 mm	1"	0.0	100.0	
19.0 mm	3/4"	0.0	100.0	
12.5 mm	1/2"	0.1	99.9	
4.75 mm	#4 c	5.8	94.1	
2.00 mm	#10	14.7	79.4	
1.18 mm	#16	6.9	72.5	100
0.600 mm	#30	13.3	59.2	
0.425 mm	#40	9.5	49.7	85-100
0.250 mm	#60	16.5	33.2	40-100
0.150 mm	#100	13.9	19.3	
0.075 mm	#200	12.5	6.8	5-10
Pan		6.8		

Comments: Test results do not comply with specification
 Minus #200 by wash-sieve method.

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Client:	Entact Inc.	Project:	RSR E7976, Middletown, NY
Item:	Granular Material #2	Project Number:	140125
Source:	ORI	Lab Number:	14-0589C
Date Sampled:	7/9/2014	Sampled By:	Client
Date Tested:	7/11/2014	Tested By:	Liam Foody

GRADATION (SIEVE ANALYSIS) OF SOIL OR AGGREGATE

Test Method(s): ASTM D422, C136, C117; AASHTO T88, T27, T11

Lab Number	Sample Type	Sampling Location	Specification
14-0589C	Granular Material #2	Stockpile	

Sieve Size		% Retained	% Passing	Spec. % Pass
mm	Inches			
75.0 mm	3"	0.0	100.0	
63.0 mm	2 1/2"	0.0	100.0	
50.0 mm	2"	0.0	100.0	
37.5 mm	1 1/2"	0.0	100.0	
25.0 mm	1"	0.0	100.0	
19.0 mm	3/4"	0.0	100.0	
12.5 mm	1/2"	0.0	100.0	
4.75 mm	#4 c	0.0	100.0	
2.00 mm	#10	0.1	99.9	
1.18 mm	#16	3.0	96.9	100
0.600 mm	#30	14.8	82.1	
0.425 mm	#40	11.6	70.5	40-100
0.250 mm	#60	18.8	51.7	
0.150 mm	#100	17.3	34.4	
0.075 mm	#200	13.5	20.9	5-10
Pan		20.9		

Comments: **Test results do not comply with specification**
 Minus #200 by wash-sieve method.

Report Reviewed By:

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Client:	Entact Inc.	Project:	RSR E7976, Middletown, NY
Material:	Granular Material #2	Project Number:	140125
Source:	ORI	Lab Number:	14-0589C
Location:	Stockpile	Item Number:	NYSDOT 713-01
Date Sampled:	7/9/2014	Sampled By:	Client
Date Tested:	7/11/2014	Tested By:	John Brinsfield

Report of Organic Content of Soils by Loss on Ignition
Test Method: AASHTO T267

Inorganic Content: 99.1 % (Sand, silt, clay, etc.)
 Organic Content: 0.9 %

Specification: _____

Comments:

No specifications available at time of testing.

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Client:	Entact Inc.	Project:	RSR E7976, Middletown, NY
Material:	Wetland Topsoil	Project Number:	140125
Source:	ORI	Lab Number:	14-0333B
Location:	Stockpile	Item Number:	No Specification Available
Date Sampled:	5/8/2014	Sampled By:	Client
Date Tested:	5/16/2014	Tested By:	John Brinsfield

Report of Organic Content of Soils by Loss on Ignition
Test Method: AASHTO T267

Inorganic Content: 83.3 % (Sand, silt, clay, etc.)
Organic Content: 16.7 %

Specification: _____

Comments:

No specifications available at time of testing.

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Client:	Entact Inc.	Project:	RSR E7976, Middletown, NY
Material:	Wetland Topsoil	Project Number:	140125
Source:	On Site Topsoil	Lab Number:	14-0758A
Location:	Stockpile	Item Number:	No Specification Available
Date Sampled:	8/19/2014	Sampled By:	Client
Date Tested:	8/20/2014	Tested By:	Donald Leisure

Report of pH of Soil
Test Method: ASTM D4972 Method A

pH Test Result: 6.6 (in Distilled Water)

 N/A (In Calcium Chloride Solution)

Specification

Comments:

No specifications available at time of testing.

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Client:	5 L Enterprises	Project:	RSR Middletown, NY
Item:	Wetland Topsoil	Project Number:	140475
Source:	5L Enterprises	Lab Number:	14-0706-6
Date Sampled:	8/4/2014	Sampled By:	Client
Date Tested:	8/8/2014	Tested By:	Liam Foody

GRADATION (SIEVE ANALYSIS) OF SOIL OR AGGREGATE

Test Method(s): ASTM D422, C136, C117; AASHTO T88, T27, T11

Lab Number	Sample Type	Sampling Location	Specification
14-0706-6	Wetland Topsoil	Stockpile	

Sieve Size		% Retained	% Passing	Spec. % Pass
mm	Inches			
100.0 mm	4"	0.0	100.0	
75.0 mm	3"	0.0	100.0	
63.0 mm	2 1/2"	0.0	100.0	
50.0 mm	2"	0.0	100.0	
37.5 mm	1 1/2"	0.0	100.0	
25.0 mm	1"	0.0	100.0	
19.0 mm	3/4"	0.0	100.0	
12.5 mm	1/2"	16.8	83.2	
6.3 mm	1/4"	13.0	70.2	
4.75 mm	#4	1.4	68.8	
2.00 mm	#10	7.4	61.4	
0.850 mm	#20	8.5	52.9	
0.600 mm	#30	2.8	50.1	
0.425 mm	#40	3.4	46.7	
0.150 mm	#100	10.2	36.5	
0.075 mm	#200	6.0	30.5	
Pan		30.5		

Comments:

Minus #200 by wash-sieve method.

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Client:	5 L Enterprises	Project:	RSR Middletown, NY
Material:	Topsoil 3:2	Project Number:	140475
Source:	5L Enterprises	Lab Number:	14-0706-6
Location:	Stockpile	Item Number:	No Specificaitons Available
Date Sampled:	8/4/2014	Sampled By:	Client
Date Tested:	8/7/2014	Tested By:	John Brinsfield

Report of Organic Content of Soils by Loss on Ignition
Test Method: AASHTO T267

Inorganic Content: 86 % (Sand, silt, clay, etc.)
 Organic Content: 15 %

Specification: _____

Comments:

Report Reviewed By: _____

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Client:	5 L Enterprises	Project:	RSR Middletown, NY
Material:	Topsoil 3:2	Project Number:	140475
Source:	5L Enterprises	Lab Number:	14-0706-6
Location:	Stockpile	Item Number:	No Specificaitons Available
Date Sampled:	8/4/2014	Sampled By:	Client
Date Tested:	8/7/2014	Tested By:	John Brinsfield

Report of pH of Soil
Test Method: ASTM D4972 Method A

pH Test Result: 7.4 (in Distilled Water)
N/A (In Calcium Chloride Solution)

Specification

Comments:

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Client:	Entact Inc.	Project:	RSR E7976, Middletown, NY
Item:	Common Fill	Project Number:	140125
Source:	E. Tetz	Lab Number:	14-0689
Date Sampled:	7/30/2014	Sampled By:	Client
Date Tested:	7/31/2014	Tested By:	Michael Trim

GRADATION (SIEVE ANALYSIS) OF SOIL OR AGGREGATE
Test Method(s): ASTM D422, C136, C117; AASHTO T88, T27, T11

Lab Number	Sample Type	Sampling Location	Specification
14-0689	Common Fill	Stockpile	

Sieve Size		% Retained	% Passing	Spec. % Pass
mm	Inches			
100.0 mm	4"	0.0	100.0	
75.0 mm	3"	0.0	100.0	
63.0 mm	2 1/2"	0.0	100.0	
50.0 mm	2"	0.0	100.0	
37.5 mm	1 1/2"	0.0	100.0	
25.0 mm	1"	1.0	99.0	
19.0 mm	3/4"	0.0	99.0	
12.5 mm	1/2"	0.5	98.5	
6.3 mm	1/4"	1.9	96.6	
4.75 mm	#4	0.6	96.0	90-100
2.00 mm	#10	1.5	94.5	
0.850 mm	#20	1.4	93.1	
0.600 mm	#30	0.6	92.5	
0.425 mm	#40	0.9	91.6	55-80
0.150 mm	#100	3.3	88.3	
0.075 mm	#200	8.1	80.2	60-80
Pan		80.2		

Comments: Test results do not comply with specification
 Minus #200 by wash-sieve method.

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Client:	Entact Inc.	Project:	RSR E7976, Middletown, NY
Item:	Common Fill	Project Number:	140125
Source:	5L Enterprise	Lab Number:	15-1171
Date Sampled:	10/15/2015	Sampled By:	Client
Date Tested:	10/21/15	Tested By:	Aaron Taddeo

GRADATION (SIEVE ANALYSIS) OF SOIL OR AGGREGATE

Test Method(s): ASTM D422, C136, C117; AASHTO T88, T27, T11

Lab Number	Sample Type	Sampling Location	Specification
15-1171	Common Fill	Stockpile	

Sieve Size		% Retained	% Passing	Spec. % Pass
mm	Inches			
100.0 mm	4"	0.0	100.0	
75.0 mm	3"	0.0	100.0	
63.0 mm	2 1/2"	0.0	100.0	
50.0 mm	2"	0.0	100.0	
37.5 mm	1 1/2"	0.0	100.0	
25.0 mm	1"	3.2	96.8	
19.0 mm	3/4"	1.8	95.0	
12.5 mm	1/2"	4.0	91.0	
6.3 mm	1/4"	7.1	83.9	
4.75 mm	#4	2.8	81.1	
2.00 mm	#10	7.0	74.1	
0.850 mm	#20	6.9	67.2	
0.600 mm	#30	3.2	64.0	
0.425 mm	#40	4.1	59.9	
0.150 mm	#100	14.3	45.6	
0.075 mm	#200	7.3	38.3	
Pan		38.3		

Comments:

Minus #200 by wash-sieve method.

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Client:	Entact Inc.	Project	RSR E7976, Middletown, NY
Material:	Common Fill	Project Number:	140125
Source:	5L Enterprise	Lab Number:	15-1171
Location:	Stockpile	Item Number:	No specifications available.
Date Sampled:	10/15/2015	Sampled By:	Client
Date Tested:	10/22/2015	Tested By:	Emily Rodriguez

Report for Unified Soil Classification
Test Method: ASTM D2487

USCS Group Symbol: SC

USCS Group Name: Clayey Sand with Gravel

Specifications:

Comments:

Report Reviewed By: _____

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Client:	Entact Inc.	Project:	RSR E7976, Middletown, NY
Material:	Common Fill	Project #:	140125
Source:	5L Enterprise	Lab No.:	15-1171
Location:	Stockpile	Item Number:	No specifications available.
Date Sampled:	10/15/2015	Sampled By:	Client
Date Tested:	10/20/15	Tested By:	Jonathan Valle

REPORT OF ATTERBERG LIMITS TEST RESULTS
TEST METHOD: ASTM D4318; LL Method B

Lab Number:	15-1171	Specification
Liquid Limit:	23	
Plastic Limit:	16	
Plasticity Index:	7	

Notes: Values shown are percent moisture.
 Customary procedure is to round results to the nearest whole number.

Comments:

Emily J. Rodriguez

Report Reviewed By: _____

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