Jan – Dec 2016
Updated:

To whom it may concern,

Compliance sheet for the Bay Area Stormwater Management Agency Association (BASMAA) of the 9 Bay Area counties dated, Nov 2011 and Updated February 15th 2012

Enclosed are our submittals in accordance with the requirements of section 2. listed in Attachment I titled submittals. We feel our material sample; along with the attached required testing will cover A thru H under the submittal section 2.

If there is any further assistance you may need please contact,

Mrs. Nyoka Corley (510) 773-7063.
Mr. Rob Hawkins (510) 813-8241.
Mr. Butch Voss (510) 813-9100.

Thank you,

Butch Voss
President
Contra Costa C3 and Bay Area Stormwater Management Agency Association
BASMAA Clean Water Program

This Compliance Sheet will be furnished With Each Transfer Truck Load, per section 6-1.07, of the Standard Specification.

Product: “LENNOX BLEND” Biotreatment Soil Mix for Bioretention Facilities.

L.H. Voss Materials “Lennox Blend” Biotreatment Soil Mix meets and or exceeds the requirement of Contra Costa County Stormwater C3 Guidebook Appendix B, Dated November 28, 201, updated February 15th 2012 and the Bay Area Stormwater Agencies Association Appendix 2 Attachment I per Requirement (b).

This biotreatment soil mix is put together by Front End Loaders and mixed to a homogenous consistency. Per submittal Requirement f.

Contacts:

Nyoka Corley (510) 773-7063
Rob Hawkins (510) 813-8241
Butch Voss (510) 813-9100
Compliance Sheets for the Bay Area Stormwater Management Agency Association (BASMAA) OF THE 9 Bay Area Counties Updated Report Dated; Nov 28, 2011

Product: Sand for “Lennox Blend” Biotreatment Soil Mix (attached) in compliance.

With Appendix 2. Attachment L Submittal requirements Item 2. C

Lab: Berlogar Geotechnical Consultants

Contact Person: Greg Suckow

Address: 5587 Sunol Blvd, Pleasanton, Ca 94566

Phone Contacts: (925) 484-0220

E-Mail Contacts: fberlogar@berlogar.com
### Sieve Analysis ASTM C136 CTM 202

<table>
<thead>
<tr>
<th>Sieve Size (US)</th>
<th>Percent Passing</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>3&quot;</td>
<td>75.0</td>
<td></td>
</tr>
<tr>
<td>2-1/2&quot;</td>
<td>63.5</td>
<td></td>
</tr>
<tr>
<td>2&quot;</td>
<td>50.0</td>
<td></td>
</tr>
<tr>
<td>1-1/2&quot;</td>
<td>37.5</td>
<td></td>
</tr>
<tr>
<td>1&quot;</td>
<td>25.0</td>
<td></td>
</tr>
<tr>
<td>3/4&quot;</td>
<td>19.0</td>
<td></td>
</tr>
<tr>
<td>1/2&quot;</td>
<td>12.5</td>
<td></td>
</tr>
<tr>
<td>3/8&quot;</td>
<td>9.5</td>
<td>100</td>
</tr>
<tr>
<td>1/4&quot;</td>
<td>6.3</td>
<td>90-100</td>
</tr>
<tr>
<td>#4</td>
<td>4.75</td>
<td>99</td>
</tr>
<tr>
<td>#8</td>
<td>2.36</td>
<td>79</td>
</tr>
<tr>
<td>#10</td>
<td>2.00</td>
<td>70-100</td>
</tr>
<tr>
<td>#16</td>
<td>1.18</td>
<td>57</td>
</tr>
<tr>
<td>#30</td>
<td>0.600</td>
<td>40-95</td>
</tr>
<tr>
<td>#40</td>
<td>0.425</td>
<td>38</td>
</tr>
<tr>
<td>#50</td>
<td>0.300</td>
<td>15-70</td>
</tr>
<tr>
<td>#100</td>
<td>0.150</td>
<td>5-15</td>
</tr>
<tr>
<td>#200</td>
<td>0.075</td>
<td>0-5</td>
</tr>
</tbody>
</table>

### Resistance Value (R-Value) ASTM D2844 CTM 301

- Exudation Pressure, psi:
- Corrected R-Value:
- Moisture Content at Test, %:
- Dry Density, pcf:
- Expansion Pressure, psi:
- R-Value at 300 psi:
- Expansion Pressure at 300 psi, psf:
- Plasticity Index ASTM D4318
  - Liquid Limit:
  - Plastic Limit:
  - Plasticity Index:
- Soils Classification:
- Coarse and Fine Aggregate Quality Tests
  - Cleanliness Value, CTM 227:
  - Sand Equivalency, ASTM D2419:
  - Course Durability Index, ASTM3744:
  - Fine Durability Index, ASTM3744:
  - Sodium Soundness ASTM C88, % Loss:
  - LA Abrasion ASTM C131 500 Revs, % Loss:
  - LA Abrasion ASTM C131 100 Revs, % Loss:
  - LA Abrasion ASTM C131 Grading Used:
  - ASTM D4829 Expansion Index(El)3sp:

### Dry Density Moisture Content Relationship

- Test Method: D1557B
- Optimum Moisture Content, %:
- Maximum Dry Density, pcf:
- Maximum Wet Density, g/cc:

### Relative Compaction of Untreated Soils CTM 216

- Comments:
Compliance Sheets for the Bay Area Stormwater Management Agency Association (BASMAA) of the 9 Bay Area Counties Updated.


LABORATORY: Soil Control Lab.
CONTACT PERSON: Assaf Sadeh
Address: 42 Hanger Way Watsonville, Ca 95076
Phone Contacts: (831) 724-5422
Fax (831) 724-3188
Email address: www.compostlab.com
# Compost Technical Data Sheet for Caltrans

**Laboratory:** Soil Control Lab, 42 Hangar Way, Watsonville, CA 95076  
Tel (831) 724-5422 Fax (831) 724-3188  
www.compostlab.com

**Product Identification:**  
Newby Island Super Humus Compost- January 2016 #2

**Date Sampled/Received:** 01 Feb. 16

## Compost Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Test Result</th>
<th>Reported as (units of measure)</th>
<th>TMECC Test Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>7.68</td>
<td>Unitless</td>
<td>04.11-A 1:5 Slurry pH</td>
</tr>
<tr>
<td>Soluble Salts (electrical conductivity)</td>
<td>3.8</td>
<td>dS/m (mmhos/cm)</td>
<td>04.10-A 1:5 Slurry Method Mass Basis</td>
</tr>
<tr>
<td>Moisture content</td>
<td>46.3</td>
<td>%, wet weight basis</td>
<td>03.09-A - Total Solids and Moisture</td>
</tr>
<tr>
<td>Organic Matter Content</td>
<td>55.2</td>
<td>%, dry weight basis</td>
<td>05.07-A Loss-on-Ignition Organic Matter Method (LOI)</td>
</tr>
<tr>
<td>Maturity Indicator (bioassay)</td>
<td>100.0</td>
<td>average % of control</td>
<td>05.05-A Germination and vigor</td>
</tr>
<tr>
<td>Percent Emergence</td>
<td>113.3</td>
<td>average % of control</td>
<td>05.08-B Carbon Dioxide Evolution Rate</td>
</tr>
<tr>
<td>Relative Seedling Vigor</td>
<td></td>
<td>mg CO₂-C/g OM/day</td>
<td>02.02-B Sample Sieving for Aggregate Size Classification</td>
</tr>
<tr>
<td>Stability Indicator</td>
<td>2.9</td>
<td>mg CO₂-C/g OM/day</td>
<td></td>
</tr>
<tr>
<td>Particle Size</td>
<td>100.0</td>
<td>%, dry weight passing through 9.5 mm</td>
<td>02.07-B Fecal coliforms</td>
</tr>
<tr>
<td>Pathogens</td>
<td>Pass</td>
<td>PASS/FAIL: Per US EPA Class A standard, 40 CFR 503.33(a)</td>
<td>07.02 Samonella</td>
</tr>
<tr>
<td>Physical Contaminants</td>
<td>None Detected</td>
<td>%, dry weight basis</td>
<td>02.02-C - Man-Made Inserts Total content</td>
</tr>
<tr>
<td>Physical Contaminants</td>
<td>None Detected</td>
<td>%, dry weight basis</td>
<td>02.02-C - Man-Made Inserts Sharps content</td>
</tr>
<tr>
<td>Heavy Metals Content</td>
<td>Pass</td>
<td>PASS/FAIL: Per US EPA Class A standard, 40 CFR 503.13, tables 1 and 3</td>
<td>04.06-Heavy Metals standard, and Hazardous Elements</td>
</tr>
</tbody>
</table>

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.

For additional information pertaining to compost use, the specific compost parameters tested for within the Seal of Testing assurance Program, or the program in general, log on to the US Composting Council’s TMECC website at [http://www.tmecc.org](http://www.tmecc.org).

This compost product has been sampled and tested as required by the Seal of Testing assurance Program on the United States Composting Council (USCC), using certain methods from the “Test Methods for the Examination of Compost and Composting” manual. Test results are available upon request by contacting the compost producer (address at top of page). The USCC makes no warranties regarding this product or its content, quality, or suitability for any particular use.

Laboratory Group: Feb.16 A  
Laboratory Number: 6020009-1/1  
Analyst: Assaf Sadeh  
www.compostlab.com
**COMPOST TECHNICAL DATA SHEET**

**Laboratory:** Soil Control Lab; 42 Hangar Way; Watsonville, CA 95076  
**Tel:** 831.724.5422  
**Fax:** 831.724.3188

<table>
<thead>
<tr>
<th>Compost Parameters</th>
<th>Reported as (units of measure)</th>
<th>Test Results</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Plant Nutrients:</strong></td>
<td>%, weight basis</td>
<td>%, wet weight basis</td>
<td>%, dry weight basis</td>
</tr>
<tr>
<td>Nitrogen</td>
<td>Total N</td>
<td>0.83</td>
<td>1.5</td>
</tr>
<tr>
<td>Phosphorus</td>
<td>P₂O₅</td>
<td>0.34</td>
<td>0.61</td>
</tr>
<tr>
<td>Potassium</td>
<td>K₂O</td>
<td>0.53</td>
<td>0.99</td>
</tr>
<tr>
<td>Calcium</td>
<td>Ca</td>
<td>1.3</td>
<td>2.5</td>
</tr>
<tr>
<td>Magnesium</td>
<td>Mg</td>
<td>0.31</td>
<td>0.57</td>
</tr>
<tr>
<td><strong>Moisture Content</strong></td>
<td>%, wet weight basis</td>
<td>46.3</td>
<td></td>
</tr>
<tr>
<td><strong>Organic Matter Content</strong></td>
<td>%, dry weight basis</td>
<td>55.2</td>
<td></td>
</tr>
<tr>
<td><strong>pH</strong></td>
<td>units</td>
<td>7.68</td>
<td></td>
</tr>
<tr>
<td><strong>Soluble Salts</strong> (electrical conductivity ECₑ)</td>
<td>dS/m (mmhos/cm)</td>
<td>3.8</td>
<td></td>
</tr>
<tr>
<td><strong>Particle Size or Sieve Size</strong></td>
<td>% under 9.5 mm, dw basis</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

**Stability Indicator (respirometry):**

- **CO₂ Evolution**
  - mg CO₂-C/g OM/day: 2.9
  - mg CO₂-C/g TS/day: 1.6

**Stability Rating:** Stable

**Maturity Indicator (bioassay):**

- **Percent Emergence**
  - average % of control: 100.0
- **Relative Seedling Vigor**
  - average % of control: 113.3

**Select Pathogens**

- **PASS/FAIL:** US EPA Class A standard, 40 CFR § 503.32(a)
  - Pass: Fecal coliform
  - Pass: Salmonella

**Trace Metals**

- **PASS/FAIL:** US EPA Class A standard, 40 CFR § 503.13, Tables 1 and 3.
  - Pass: As, Cd, Cr, Cu, Pb, Hg
  - Pass: Mo, Ni, Se, Zn

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**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:** Feb.16 A  
**Laboratory Number:** 6020000-1/1

**Analyst:** Assaf Sadeh  
**www.compostlab.com**
# COMPOST TECHNICAL DATA SHEET

<table>
<thead>
<tr>
<th>Compost Parameters</th>
<th>Reported as (units of measure)</th>
<th>Test Results</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plant Nutrients:</td>
<td>% weight basis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moisture Content</td>
<td>% wet weight basis</td>
<td>46.3</td>
<td></td>
</tr>
<tr>
<td>Organic Matter Content</td>
<td>% dry weight basis</td>
<td>55.2</td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>units</td>
<td>7.68</td>
<td></td>
</tr>
<tr>
<td>Soluble Salts (electrical conductivity EC)</td>
<td>dS/m (mhmhos/cm)</td>
<td>3.8</td>
<td></td>
</tr>
<tr>
<td>Particle Size or Sieve Size</td>
<td>maximum aggregate size, inches</td>
<td>0.25</td>
<td></td>
</tr>
<tr>
<td>Stability Indicator (respirometry)</td>
<td>CO₂ Evolution</td>
<td>mg CO₂-C/g OM/day</td>
<td>2.9</td>
</tr>
<tr>
<td></td>
<td>mg CO₂-C/g TS/day</td>
<td>1.6</td>
<td></td>
</tr>
<tr>
<td>Maturity Indicator (bioassay)</td>
<td>Percent Emergence</td>
<td>average % of control</td>
<td>100.0</td>
</tr>
<tr>
<td></td>
<td>Relative Seedling Vigor</td>
<td>average % of control</td>
<td>113.3</td>
</tr>
<tr>
<td>Select Pathogens</td>
<td>PASS/FAIL: per US EPA Class A standard, 40 CFR § 503.32(a)</td>
<td>Pass</td>
<td>Fecal coliform</td>
</tr>
<tr>
<td>Trace Metals</td>
<td>PASS/FAIL: per US EPA Class A standard, 40 CFR § 503.11, Tables 1 and 3</td>
<td>Pass</td>
<td>As, Cd, Cr, Cu, Pb, Hg, Mo, Ni, Se, Zn</td>
</tr>
</tbody>
</table>

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:** Feb.16 A

**Laboratory Number:** 6020009-1/1

**Analyst:** Assaf Sadah
**Analytical Chemists and Bacteriologists Approved by State of California**

**SOIL CONTROL LAB**

BFI - The Recyclery @ Newby Island  
1801 Dixon Landing Rd - FL2  
Milpitas, CA 95035-8100  
Attr: Glenn Bohling

Date Received: 01 Feb. 16  
Sample Identification: Newby Island Super Humus Compost - January 2016 #2  
Sample ID #: 6020009 - 1/1

<table>
<thead>
<tr>
<th>Nutrients</th>
<th>Dry wt.</th>
<th>As Rcvd.</th>
<th>units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Nitrogen:</td>
<td>1.5</td>
<td>0.83</td>
<td>%</td>
</tr>
<tr>
<td>Ammonia (NH₃-N):</td>
<td>130</td>
<td>69</td>
<td>mg/kg</td>
</tr>
<tr>
<td>Nitrate (NO₃-N):</td>
<td>3.0</td>
<td>1.8</td>
<td>mg/kg</td>
</tr>
<tr>
<td>Org. Nitrogen (Org.-N):</td>
<td>1.5</td>
<td>0.81</td>
<td>%</td>
</tr>
<tr>
<td>Phosphorus (as P₂O₅):</td>
<td>0.82</td>
<td>0.33</td>
<td>%</td>
</tr>
<tr>
<td>Phosphorus (P):</td>
<td>2700</td>
<td>1500</td>
<td>mg/kg</td>
</tr>
<tr>
<td>Potassium (as K₂O):</td>
<td>0.99</td>
<td>0.53</td>
<td>%</td>
</tr>
<tr>
<td>Potassium (K):</td>
<td>8200</td>
<td>4400</td>
<td>mg/kg</td>
</tr>
<tr>
<td>Calcium (Ca):</td>
<td>2.5</td>
<td>1.3</td>
<td>%</td>
</tr>
<tr>
<td>Magnesium (Mg):</td>
<td>0.57</td>
<td>0.31</td>
<td>%</td>
</tr>
<tr>
<td>Sulfate (SO₄-S):</td>
<td>220</td>
<td>120</td>
<td>mg/kg</td>
</tr>
<tr>
<td>Boron (Total B):</td>
<td>37</td>
<td>20</td>
<td>%</td>
</tr>
<tr>
<td>Moisture:</td>
<td>0</td>
<td>46.3</td>
<td>%</td>
</tr>
<tr>
<td>Sodium (Na):</td>
<td>0.21</td>
<td>0.11</td>
<td>%</td>
</tr>
<tr>
<td>Chloride (Cl):</td>
<td>0.34</td>
<td>0.18</td>
<td>%</td>
</tr>
<tr>
<td>pH Value:</td>
<td>NA</td>
<td>7.68</td>
<td>unit</td>
</tr>
<tr>
<td>Bulk Density (lb/cu ft):</td>
<td>18</td>
<td>34</td>
<td></td>
</tr>
<tr>
<td>Carbonates (CaCO₃):</td>
<td>8.7</td>
<td>4.7</td>
<td>lb/ton</td>
</tr>
<tr>
<td>Conductivity (EC5):</td>
<td>3.8</td>
<td>NA</td>
<td>mmhos/cm</td>
</tr>
<tr>
<td>Organic Matter:</td>
<td>55.2</td>
<td>29.6</td>
<td>%</td>
</tr>
<tr>
<td>Organic Carbon:</td>
<td>30.0</td>
<td>16.0</td>
<td>%</td>
</tr>
<tr>
<td>Ash:</td>
<td>44.9</td>
<td>24.1</td>
<td>%</td>
</tr>
<tr>
<td>C/N Ratio</td>
<td>19</td>
<td>19</td>
<td>ratio</td>
</tr>
<tr>
<td>AgIndex</td>
<td>6</td>
<td>6</td>
<td>ratio</td>
</tr>
</tbody>
</table>

| Stability Indicator:       | Biologically          |
| CO₂ Evolution:             | Respirometry       |
| mg CO₂-C/g OM/day          | 2.9                |
| mg CO₂-C/g TS/day          | 1.6                |

**Stability Rating:**  
stable moderately unstable

**Maturity Indicator: Cucumber Bioassay**  
Compost: Vermiculite (v:v) 1:2  
Emergence (%) 100  
Seedling Vigor (%) 113  
*Description of Plants* healthy

**Pathogens**  
Fecal Coliform < 7.5 MPN/g  
Salmonella < 3 MPN/4g  
*Date Tested:* 01 Feb. 16

**Inerts**  
Plastic < 0.5  
Glass < 0.5  
Metal < 0.5  
Sharps ND

**Size Distribution**  
MM % by weight  
> 50 0.0  
25 to 50 0.0  
16 to 25 0.0  
9.5 to 16 0.0  
6.3 to 9.5 0.0  
4.0 to 6.3 6.7  
2.0 to 4.0 10.4  
< 2.0 82.9

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

**Analyst:** Assaf Sadeh
<table>
<thead>
<tr>
<th>Interpretation</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Is Your Compost Stable?</strong></td>
<td></td>
</tr>
<tr>
<td>Respiration Rate</td>
<td></td>
</tr>
<tr>
<td>2.9 mg CO2-C/ g OM/day</td>
<td>Stable &gt; &lt; Moderately Unstable &lt; Unstable &gt; &lt; High For Mulch</td>
</tr>
<tr>
<td>Biologically Available Carbon</td>
<td></td>
</tr>
<tr>
<td>5.4 mg CO2-C/ g OM/day</td>
<td>Stable &gt; &lt; Moderately Unstable &lt; Unstable &gt; &lt; High For Mulch</td>
</tr>
<tr>
<td><strong>Is Your Compost Mature?</strong></td>
<td></td>
</tr>
<tr>
<td>Ammonia/Nitrate N ratio</td>
<td></td>
</tr>
<tr>
<td>43 Ratio</td>
<td>VeryMature &gt; &lt; Mature &gt; &lt; Immature</td>
</tr>
<tr>
<td>Ammonia N ppm</td>
<td></td>
</tr>
<tr>
<td>130 mg/kg dry wt.</td>
<td>VeryMature &gt; &lt; Mature &gt; &lt; Immature</td>
</tr>
<tr>
<td>Nitrate N ppm</td>
<td></td>
</tr>
<tr>
<td>2.0 mg/kg dry wt.</td>
<td>Immature &gt; &lt; Mature &gt; &lt; Immature</td>
</tr>
<tr>
<td>pH value</td>
<td></td>
</tr>
<tr>
<td>7.68 units</td>
<td>Immature &gt; &lt; Mature &gt; &lt; Immature</td>
</tr>
<tr>
<td>Cucumber Emergence</td>
<td></td>
</tr>
<tr>
<td>100.0 percent</td>
<td></td>
</tr>
<tr>
<td><strong>Is Your Compost Safe Regarding Health?</strong></td>
<td></td>
</tr>
<tr>
<td>Facal Coliform</td>
<td></td>
</tr>
<tr>
<td>&lt; 1000 MPN/g dry wt.</td>
<td>Safe &gt; &lt; High Facal Coliform</td>
</tr>
<tr>
<td>Salmonella</td>
<td></td>
</tr>
<tr>
<td>Less than 3 /g dry wt.</td>
<td>Safe (none detected) &gt; &lt; High Salmonella Count &gt; 3 per 4 grams</td>
</tr>
<tr>
<td>Metals</td>
<td></td>
</tr>
<tr>
<td>US EPA 503 Pass</td>
<td></td>
</tr>
<tr>
<td>&lt; All Metals Pass</td>
<td></td>
</tr>
<tr>
<td><strong>Does Your Compost Provide Nutrients or Organic Matter?</strong></td>
<td></td>
</tr>
<tr>
<td>Nutrients (N+P2O5+K2O)</td>
<td></td>
</tr>
<tr>
<td>3.1 Percent dry wt.</td>
<td>Low Nitrogen Provider &gt; &lt; Average Nitrogen Provider &gt; &lt; High Nitrogen Provider</td>
</tr>
<tr>
<td>Agindex (Nutrients / Sodium / Chloride Ratios)</td>
<td></td>
</tr>
<tr>
<td>9 Ratio</td>
<td></td>
</tr>
<tr>
<td>Plant Available Nitrogen (PAN)</td>
<td></td>
</tr>
<tr>
<td>5 lb/mtn wet wt.</td>
<td></td>
</tr>
<tr>
<td>C/N Ratio</td>
<td></td>
</tr>
<tr>
<td>19 Ratio</td>
<td></td>
</tr>
<tr>
<td>Soluble Available Nutrients &amp; Salts (ECS w/w dry)</td>
<td></td>
</tr>
<tr>
<td>3.8 mmhos/cm dry wt.</td>
<td></td>
</tr>
<tr>
<td>Lime Content (CaCO3)</td>
<td></td>
</tr>
<tr>
<td>8.7 Labmton dry wt.</td>
<td></td>
</tr>
<tr>
<td><strong>What are the physical properties of your compost?</strong></td>
<td></td>
</tr>
<tr>
<td>Percent Ash</td>
<td></td>
</tr>
<tr>
<td>44.9 Percent dry wt.</td>
<td>Low &gt; &lt; Average &gt; &lt; High Organic Matter</td>
</tr>
<tr>
<td>Sieve Siza % &gt; 8.3 MM 0.25</td>
<td></td>
</tr>
<tr>
<td>0.0 Percent dry wt.</td>
<td>All Uses &gt; &lt; Siza May Restrict Uses for Potting mix and Golf Courses</td>
</tr>
</tbody>
</table>
INTERPRETATION:

Is Your Compost Stable?

Respiration Rate

2.9 Low: Good for all uses

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

5.4 Moderate-selected use

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?

AmmoniaN:NitrateN ratio

43 immature

Composting to stabilize carbon can occur at such a rapid rate that sometimes phytotoxins remain in the compost and must be neutralized before being used 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.

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

< 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)

3.1 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.
Composts with low AgIndex values have high concentrations of 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 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 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 (lb/ton)**

This is estimated from 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 19 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 have a C/N ratio higher than 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 (ECS w/w dw - mmhos/cm)**

- 3.8 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 sodium and/or chloride. Low salts indicates that the compost can be applied without raising salt toxicity, is likely good source of organic matter, and that nutrients will release slowly over time.

**Lime Content (lb, per ton)**

- 6.7 Average 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**

- 44.9 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")**

- 90.0 Suitable for all uses Large particles may restrict use for potting soils, golf course topdressing, 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:**

<table>
<thead>
<tr>
<th>Plant Available Nitrogen (PAN) calculations:</th>
<th>Estimated available nutrients for use when calculating application rates</th>
</tr>
</thead>
<tbody>
<tr>
<td>$PAN = (X^* \times (\text{organic-N}) + ((NH4-N) + (NO3-N)))$</td>
<td>lbs/ton (As Rovd.)</td>
</tr>
<tr>
<td>$X = \begin{cases} X = 1 &amp; \text{if } BAC &lt; 2 \text{ then } X = 0.1 \ X = 0.2 &amp; \text{if } BAC &gt; 2 \text{ to } 5 \text{ then } X = 0.2 \ X = 0.3 &amp; \text{if } BAC &gt; 5 \text{ to } 10 \text{ then } X = 0.3 \ X = 0.4 &amp; \text{if } BAC &gt; 10 \text{ then } X = 0.4 \end{cases}$</td>
<td>Plant Available Nitrogen (PAN)</td>
</tr>
<tr>
<td></td>
<td>Ammonia (NH4-N)</td>
</tr>
<tr>
<td></td>
<td>Nitrate (NO3-N)</td>
</tr>
<tr>
<td></td>
<td>Available Phosphorus (P2O5*0.64)</td>
</tr>
<tr>
<td></td>
<td>Available Potassium (K2O)</td>
</tr>
</tbody>
</table>

Note: If C/N ratio > 15 additional N should be applied.
SOIL CONTROL LAB

BFI - The Recyclery @ Newby Island
1601 Dixon Landing Rd - Fl.2
Milpitas, CA 95035-8100
Attn: Glenn Bohling

Date Received: 01 Feb. 16
Sample Identification: Newby Island Super Humus Compost - January 2016 #2
Sample ID #: 6020009 - 1/1

Size Distribution

<table>
<thead>
<tr>
<th>Inches</th>
<th>MM</th>
<th>% Passing (dry wt. basis)</th>
<th>% Passing Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1&quot;</td>
<td>25.4</td>
<td>100.0</td>
<td>Minimum: 99</td>
</tr>
<tr>
<td>1/2&quot;</td>
<td>12.7</td>
<td>100.0</td>
<td>Maximum: 100</td>
</tr>
<tr>
<td>1/4&quot;</td>
<td>6.3</td>
<td>100.0</td>
<td>Minimum: 40</td>
</tr>
<tr>
<td>No. 200</td>
<td>0.074</td>
<td>0.8</td>
<td>Maximum: 10</td>
</tr>
</tbody>
</table>

Analyst: Assaf Sadeh
SOIL CONTROL LAB

BFI - The Recycler @ Newby Island
1601 Dixon Landing Rd - Fl.2
Milpitas, CA 95035-8100
Attn: Glenn Bohling

Date Received: 01 Feb. 16
Sample Identification: Newby Island Super Humus Compost- January 2016 #2
Sample ID #: 6020009 - 1/1

<table>
<thead>
<tr>
<th></th>
<th>Units</th>
<th>Wet wt. Basis</th>
<th>Dry wt. Basis</th>
<th>TMECC Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extractable* Boron (B):</td>
<td>mg/kg</td>
<td>7.0</td>
<td>13.0</td>
<td>4.05-B</td>
</tr>
<tr>
<td>Moisture:</td>
<td>%</td>
<td>46.3</td>
<td>0</td>
<td>3.09</td>
</tr>
</tbody>
</table>

*Extractable by de-ionized water

Account #: 6020009-1/1-479
Group: Feb.16 A #3
Reporting Date: February 18, 2016

TEL: 831-724-5422
FAX: 831-724-3188
www.compostlab.com

Analyst: Assaf Sadeh
San Jose Office  
February 18, 2016  
Report 16-049-0200 for test 16-035-0110=16-035-0112

L.H. Voss  
2445 Vista Del Monte  
Concord, CA 94520

Attn: Butch Voss  
RE: Lennox Blend

Background

The sample received February 4, 2016 was identified as representing material for use in a biotreatment application. The sample was analyzed for horticultural suitability, fertility and physical characteristics. The results of the analyses were reported as test 16-035-0110, 16-035-0112.

Analytical Results and Comments

The reaction of the soil is slightly alkaline at a pH of 7.5 with qualitative lime favorably absent. This pH is within the range preferred by most plants. Salinity (ECa) is safely low. The sodium adsorption ratio (SAR) shows sodium adequately balanced by soluble calcium and magnesium.

Sodium and boron are both very slightly elevated, and a particularly thorough initial leaching irrigation should be sufficient to decrease the sodium and boron to a more favorable range.

According to the USDA Soil Classification, the less than 2mm fraction of the sample is sand. The organic matter content is abundant at 8.1% dry weight as determined by loss on ignition. The 45.3% gravel present classifies this soil as very gravelly. Lava rock was visually observed to be present and will also show up as gravel in the test but will have a positive effect on moisture retention and aeration.

In terms of soil fertility, all of the major and minor nutrients are sufficient for proper plant nutrition. Potassium, sulfate and manganese are particularly well supplied and indicate good reserve potential.

If we can be of any further assistance, please feel free to contact us.

Annamarie Lucchesi
alucchesi@waypointanalytical.com

Emailed 2 Pages: vossman54@yahoo.com
Waypoint
ANALYTICAL

Client Name
Report Number
Lab Number
Sample I.D.
Cylinder Area in cm²
Height of Soil Column in cm
Hydraulic Head in cm
Time Collected in min
Volume Collected in ml
K sat in/hr @ temp

L.H. Voss Materials, Inc.
16-035-0112
69976
Lennox Blend
21.4
11
14
21
294.66
12.2
ATTACHMENT L
Provision C.3.c.i.(1)(b)(vi)

Specification of soils for Biotreatment or Bioretention Facilities

Soils for biotreatment or bioretention areas shall meet two objectives:

- Be sufficiently permeable to infiltrate runoff at a minimum rate of 5" per hour during the life of the facility, and
- Have sufficient moisture retention to support healthy vegetation.

Achieving both objectives with an engineered soil mix requires careful specification of soil gradations and a substantial component of organic material (typically compost).

Local soil products suppliers have expressed interest in developing ‘brand-name’ mixes that meet these specifications. At their sole discretion, municipal construction inspectors may choose to accept test results and certification for a ‘brand-name’ mix from a soil supplier.

Tests must be conducted within 120 days prior to the delivery date of the bioretention soil to the project site.

Batch-specific test results and certification shall be required for projects installing more than 100 cubic yards of bioretention soil.

SOIL SPECIFICATIONS

Bioretention soils shall meet the following criteria. “Applicant” refers to the entity proposing the soil mixture for approval by a Permittee.

1. General Requirements – Bioretention soil shall:
   a. Achieve a long-term, in-place infiltration rate of at least 5 inches per hour.
   b. Support vigorous plant growth.
   c. Consist of the following mixture of fine sand and compost, measured on a volume basis:
      60%-70% Sand
      30%-40% Compost

2. Submittal Requirements – The applicant shall submit to the Permittee for approval:
   a. A sample of mixed bioretention soil.
   b. Certification from the soil supplier or an accredited laboratory that the Bioretention Soil meets the requirements of this guideline specification.
   c. Grain size analysis results of the fine sand component performed in accordance with ASTM D 422, Standard Test Method for Particle Size Analysis of Soils.
   d. Quality analysis results for compost performed in accordance with Seal of Testing Assurance (STA) standards, as specified in 4.
e. Organic content test results of mixed Bioretention Soil. Organic content test shall be
performed in accordance with by Testing Methods for the Examination of Compost and
Composting (TMECC) 03.07A, "Loss-On-Ignition Organic Matter Method".

f. Grain size analysis results of compost component performed in accordance with ASTM
D 422, Standard Test Method for Particle Size Analysis of Solids.

g. A description of the equipment and methods used to mix the sand and compost to
produce Bioretention Soil.

h. Provide the name of the testing laboratory(s) and the following information:
   (1) Contact person(s)
   (2) Address(s)
   (3) Phone contact(s)
   (4) E-mail address(s)
   (5) Qualifications of laboratory(s), and personnel including date of current certification
       by STA, ASTM, or approved equal.
American Association of State Highway and Transportation Officials
AASHTO Accreditation Program - Certificate of Accreditation

This is to signify that

Berlogar Stevens & Associates
Pleasanton, California

has demonstrated proficiency for the testing of construction materials
and has met the minimum requirements in AASHTO R18
set forth by the AASHTO Highway Subcommittee on Materials.

The scope of accreditation can be obtained by viewing
the AAP Directories of Accredited Laboratories (www.amrl.net)
or by contacting AMRL.

______________________________________________
Executive Director

______________________________________________
Chair, AASHTO Highway
Subcommittee on Materials
CERTIFICATE OF ACCREDITATION
for a TESTING LABORATORY

Berlogar Geotechnical Consultants
5587 Sunol Blvd.
Pleasanton, CA 94566
Greg Sukow, Lab Manager

The testing laboratory named above has been inspected by Certified Independent Assurance personnel and has met the requirements outlined in the Caltrans Independent Assurance Manual.

This certificate is valid for a period of one (1) year from the approval date shown below. Accreditation applies only to Caltrans construction projects and/or local federal-aid projects using California Test Methods.

David R. Small, P.E. IA# 094
Local Agency Independent Assurance

Approval date: November 5, 2014

For:

Cathrina Barros, P.E.
Coordinator, Independent Assurance / RSP
CALIFORNIA DEPARTMENT OF TRANSPORTATION

Presents this
CERTIFICATE OF PROFICIENCY

to

Greg Suckow

Berlogar Stevens & Assoc.

who is qualified to perform the following tests:

<table>
<thead>
<tr>
<th>Test Method</th>
<th>Expiration Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTM 105</td>
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</tr>
<tr>
<td>CTM 106</td>
<td>NO EXPIRATION</td>
</tr>
<tr>
<td>CTM 201</td>
<td>NO EXPIRATION</td>
</tr>
<tr>
<td>CTM 202</td>
<td>EXP 06-25-17</td>
</tr>
<tr>
<td>CTM 204</td>
<td>EXP 06-25-17</td>
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<tr>
<td>CTM 205</td>
<td>EXP 06-25-17</td>
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<tr>
<td>CTM 211</td>
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</tr>
<tr>
<td>CTM 214</td>
<td>EXP 06-25-17</td>
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<tr>
<td>CTM 217/226</td>
<td>EXP 06-25-17</td>
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<tr>
<td>CTM 229</td>
<td>EXP 06-25-17</td>
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<td>CTM 235</td>
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<tr>
<td>CTM 366</td>
<td>EXP 10-14-16</td>
</tr>
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Test method & expiration date

David R. Small #94  
Certified Independent Assurance (IA)

Date Issued: 06-25-15

Note: This certificate is valid as long as the Tester complies with applicable requirements in Caltrans' Independent Assurance Program Manual.
State of California Department of Transportation

QUALIFYING LABORATORIES

Form TL-0113

Expiration date: 11/05/15
Inspected by: David Small
IA No.: 094
Phone: 916-247-7923
File: Materials Category 500

Laboratory: Berloge Geotechnical Consultants
Address: 5587 Sunol Blvd.
City: Pleasanton  State: California  Zip: 94566
Lab QC Mgr.: Greg Suckow  e-mail: gsuckow@berloge.com
Telephone: 925-484-0220  Fax #: 925-846-9845

A certified Independent Assurance (IA) visited this laboratory on (date) 11/05/14
Only the equipment to be used on Caltrans construction projects and/or local construction projects using California Test Methods was checked for qualification.

At the time of qualification, this laboratory had all necessary equipment to perform the California Tests (CT) indicated below. Sampling/Testing personnel shall possess current Caltrans Form TL-0111, "Certificate of Proficiency," prior to performing any sampling or testing.

<table>
<thead>
<tr>
<th>CT-105/106</th>
<th>CT-204/205</th>
<th>CT-301/304</th>
<th>CT-504</th>
<th>CT-540</th>
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<td>CT-308</td>
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<td>CT-235</td>
<td>CT-386</td>
<td>CT-539</td>
<td>CT-557</td>
</tr>
</tbody>
</table>

A visual check was performed and documents provided as necessary for the following items:

- X A written in-house Safety Program
- X A written in -house Quality Control Program
- X Copies of current (applicable) test procedures
- X Verification that the laboratory participates in Caltrans RSP correlation program
- X Test equipment summary for calibration/service of equipment
- X Calibration stickers affixed to test equipment (dated within the 12 months)
- X Personnel certifications/qualifications
- X Work experience summaries
- X Nuclear gage license

On 11/05/2014 this laboratory was qualified by David R. Small #094
(Printed name of IA person)
(Signature of IA person)
OMRI Listed®

The following product is OMRI Listed. It may be used in certified organic production or food processing and handling according to the USDA National Organic Program Rule.

Product
Newby Island Super-Humus Compost

Company
Browning Ferris Industries of California, BFI Newby Island Recyclery
Glenn Bohling
1801 Dixon Landing Road
Milpitas, CA 95035

Status
Allowed

Category
NOP: Compost – other (plant and animal materials)

Issue date
15-Apr-2010

Product number
bni-1893

Class
Crop Fertilizers and Soil Amendments

Expiration date
01-Jun-2016

Restrictions
Not applicable.

Peggy Miers
Executive Director

For Organic Use

Organic Materials Review Institute
P.O. Box 11558, Eugene, OR 97440-3758, USA
541.343.7600 • fax 541.343.8971 • info@omri.org • www.omri.org
Soil Test Farm Consultants
2926 Ortega Dr.
Moses Lake, WA 98837
www.soiltestlab.com
Texas Plant & Soil Lab
5115 W. Monte Cristo Rd.
Edinburg, Texas 78541
www.TexasPlantAndSoilLab.com
Western Labs — Temporarily Inactive
211 W. Hwy 96
Perris, ID 83660

Woodes End Lab
250 Belgrade Road
Mt. Vernon, ME 04352
www.woodesend.org

Brent Thyssen
T 509.765.1622
brent@soiltestlab.com

Noel Garcia
T (562) 593-0792
P (562) 993-0792
ngarcia@tpsl.biz
John Taborsky
T 203.722.2654
F 203.722.6660
westernl@westernlaboratories.com
Chris Allen
T 207-293-2447
lab@woodesend.org
Interim

CALIFORNIA STATE

ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM

CERTIFICATE OF ENVIRONMENTAL ACCREDITATION

Is hereby granted to

Soil Control Laboratory

42 Hangar Way
Watsonville, CA 95076

Scope of the certificate is limited to the
"Fields of Testing"
which accompany this Certificate.

Continued accredited status depends on successful completion of on-site inspection,
proficiency testing studies, and payment of applicable fees.

This Certificate is granted in accordance with provisions of
Section 100825, et seq. of the Health and Safety Code.

Certificate No.: 1494
Expiration Date: 4/30/2016
Effective Date: 5/1/2015

Sacramento, California
subject to forfeiture or revocation

Christine Sotelo, Chief
Environmental Laboratory Accreditation Program