L.H.VOSS MATERIALS, INC
2445 VISTA DEL MONTE CONCORD, CA 94520
PH # 925 676-7910 FAX 925 676- 7976

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 L 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

L.H.VOSS MATERIALS, INC
2445 VISTA DEL MONTE CONCORD, CA 94520
PH# (510) 676-7910 FAX (925) 676-7976
Sample # 7 Submittal Requirement

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 L 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

L.H.VOSS MATERIALS, INC
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Ph# (925) 676-7910 Fax# (925) 676-7976

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

Berlogar Stevens & Associates

ASTM Laboratory Tests Summary Sheets

Project Name:	**Lab Testing Voss**	**Project Number:**	**3273.800**
Client:	LH Voss	Date Reported:	02/08/16
Attention:	Butch Voss	Date Received:	02/04/16
Sample ID:	**C33 Sand**	Invoice Number:	**14620**
Material Description:	Olive Gray Sand	Reported By:	G Suckow

Sieve Analysis ASTM C136 CTM 202

Sieve Size US	Sieve Size mm	Percent Passing	Specifications
3"	75.0		
2-1/2"	63.5		
2"	50.0		
1-1/2"	37.5		
1"	25.0		
3/4"	19.0		
1/2"	12.5		
3/8"	9.5	**100**	**100**
1/4"	6.3		
#4	4.75	**99**	**90-100**
#8	2.36	**79**	**70-100**
#10	2.00		
#16	1.18	**57**	**40-95**
#30	0.600	**38**	**15-70**
#40	0.425	**29**	**5-55**
#50	0.300	**20**	
#100	0.150	**6**	**0-15**
#200	0.075	**2.5**	**0-5**

Dry Density Moisture Content Relationship

Test Method	Optimum Moisture Content, %:	Maximum Dry Density, Pcf:
D1557B		

Relative Compaction of Untreated Soils CTM 216

Moisture Content, %	Maximum Wet Density, g/cc:

Resistance Value (R-Value) ASTM D2844 CTM 301

	A	B	C	D
Exudation Pressure, psi:				
Corrected R-Value:				
Moisture Content at Test, %:				
Dry Density, pcf:				
Expansion Pressure, psf:				
R-Value at 300 psi:		**Specification:**		
Expansion Pressure at 300 psi:		psf		

Plasticity Index ASTM D4318

Liquid Limit:		Specification	
Plastic Limit:		Specification	
Plasticity Index:		Specification	
-40 Soil Classification:			

Coarse and Fine Aggregate Quality Tests

		Specifications
Cleanliness Value, CTM 227:		
Sand Equivalency, ASTM D2419:		
Coarse 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 D-4829 Expansion Index($EI_{50\%}$):		
Expansion Potential:		

Comments:

L.H.VOSS MATERIALS, INC
2445 Vista Del Monte Concord, Ca 94520
Ph# (925) 676-7910 Fax# (925) 676-7976

Compliance Sheets for the Bay Area Stormwater Management Agency Association

(BASMAA) of the 9 Bay Area Counties Updated.

Product: "Lennox Blend" Biotreatment Soil Mix Compost Quality Analysis (attached) using US Composting council STA Program per Appendix 2, Attachment L Item 2. D under submittals.

LABORTORY:	Soil Control Lab.
CONTACT PERSON:	Assaf Sadeh
Address:	42 Hanger Way Watsonville, Ca 95076
Phone Contacts: Fax	(831) 724-5422 (831) 724-3188
Email address:	www.compostlab.com

US COMPOSTING COUNCIL

Seal of Testing Assurance

Caltrans

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

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

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

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

Compost Parameters	*Test Results*	*Reported as (units of measure)*	*TMECC Test Method*
pH	7.68	Unitless	04.11-A 1:5 Slurry pH
Soluble Salts (electrical conductivity)	3.8	dS/m (mmhos/cm)	04.10-A 1:5 Slurry Method Mass Basis
Moisture content	46.3	%, wet weight basis	03.09-A - Total Solids and Moisture
Organic Matter Content	55.2	%, dry weight basis	05.07-A Loss-on-Ignition Organic Matter Method (LOI)
Maturity Indicator (bioassay) Percent Emergence Relative Seedling Vigor	 100.0 113.3	 average % of control average % of control	05.05-A Germination and vigor
Stability Indicator	2.9	mg CO2-C/g OM/day	05.08-B Carbon Dioxide Evoultion Rate
Particle Size	100.0	%, dry weight passing through 9.5 mm	02.02-B Sample Sieving for Aggregate Size Classification
Pathogens	Pass	PASS/FAIL: Per US EPA Class A standard, 40 CFR 503.32(a)	07.01-B Fecal coliforms
Pathogens	Pass	PASS/FAIL: Per US EPA Class A standard, 40 CFR 503.32(a)	07.02 Samonella
Physical Contaminants	None Detected	%, dry weight basis	02.02-C - Man-Made Inerts Total content
Physical Contaminants	None Detected	%, dry weight basis	02.02-C - Man-Made Inerts Sharps content
Heavy Metals Content	Pass	PASS/FAIL: Per US EPA Class A 40 CFR 503.13, tables 1 and 3.	04.06-Heavy Metals standard, and Hazardous Elements

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 web-site at 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 Assaf Sadeh www.compostlab.com

US COMPOSTING COUNCIL

Seal of Testing Assurance

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

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

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

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	0.83	1.5
Phosphorus	P_2O_5	0.34	0.61
Potassium	K_2O	0.53	0.99
Calcium	Ca	1.3	2.5
Magnesium	Mg	0.31	0.57
Moisture Content	%, wet weight basis	46.3	
Organic Matter Content	%, dry weight basis	55.2	
pH	units	7.68	
Soluble Salts *(electrical conductivity EC_5)*	dS/m (mmhos/cm)	3.8	
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	2.9	Stable
	mg CO_2-C/g TS/day	1.6	
Maturity Indicator (bioassay)			
Percent Emergence	average % of control	100.0	
Relative Seedling Vigor	average % of control	113.3	
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: Feb.16 A Laboratory Number: 6020009-1/1

Analyst: Assaf Sadeh

www.compostlab.com

US COMPOSTING COUNCIL

Seal of Testing Assurance

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

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

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

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	Not reported	Not reported
Moisture Content	%, wet weight basis	46.3	
Organic Matter Content	%, dry weight basis	55.2	
pH	units	7.68	
Soluble Salts *(electrical conductivity EC_5)*	dS/m (mmhos/cm)	3.8	
Particle Size or Sieve Size	maxium aggregate size, inches	0.25	
Stability Indicator *(respirometry)*			*Stability Rating:*
CO_2 Evolution	mg CO_2-C/g OM/day	2.9	Stable
	mg CO_2-C/g TS/day	1.6	
Maturity Indicator (bioassay)			
Percent Emergence	average % of control	100.0	
Relative Seedling Vigor	average % of control	113.3	
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: Feb.16 A Laboratory Number: 6020009-1/1

Analyst: Assaf Sadeh

www.compostlab.com

ANALYTICAL CHEMISTS
and
BACTERIOLOGISTS
Approved by State of California

SOIL CONTROL LAB

42 HANGAR WAY
WATSONVILLE
CALIFORNIA
95076
USA

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

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

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

Nutrients	Dry wt.	As Rcvd.	units
Total Nitrogen:	1.5	0.83	%
Ammonia (NH_4-N):	130	69	mg/kg
Nitrate (NO_3-N):	3.0	1.6	mg/kg
Org. Nitrogen (Org.-N):	1.5	0.81	%
Phosphorus (as P_2O_5):	0.62	0.33	%
Phosphorus (P):	2700	1500	mg/kg
Potassium (as K_2O):	0.99	0.53	%
Potassium (K):	8200	4400	mg/kg
Calcium (Ca):	2.5	1.3	%
Magnesium (Mg):	0.57	0.31	%
Sulfate (SO_4-S):	220	120	mg/kg
Boron (Total B):	37	20	mg/kg
Moisture:	0	46.3	%
Sodium (Na):	0.21	0.11	%
Chloride (Cl):	0.34	0.18	%
pH Value:	NA	7.68	unit
Bulk Density :	18	34	lb/cu ft
Carbonates ($CaCO_3$):	8.7	4.7	lb/ton
Conductivity (EC5):	3.8	NA	mmhos/cm
Organic Matter:	55.2	29.6	%
Organic Carbon:	30.0	16.0	%
Ash:	44.9	24.1	%
C/N Ratio	19	19	ratio
AgIndex	6	6	ratio

Stability Indicator: CO2 Evolution	Respirometery	Biologically Available C
mg CO_2-C/g OM/day	2.9	5.4
mg CO_2-C/g TS/day	1.6	3.0
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	Results	Units	Rating
Fecal Coliform	< 7.5	MPN/g	*pass*
Salmonella	< 3	MPN/4g	*pass*

Date Tested: 01 Feb. 16

Inerts	% by weight
Plastic	< 0.5
Glass	< 0.5
Metal	< 0.5
Sharps	ND

Metals	Dry wt.	EPA Limit	units
Aluminum (Al):	6400	-	mg/kg
Arsenic (As):	5.5	41	mg/kg
Cadmium (Cd):	< 1.0	39	mg/kg
Chromium (Cr):	35	1200	mg/kg
Cobalt (Co)	5.8	-	mg/kg
Copper (Cu):	69	1500	mg/kg
Iron (Fe):	12000	-	mg/kg
Lead (Pb):	56	300	mg/kg
Manganese (Mn):	310	-	mg/kg
Mercury (Hg):	< 1.0	17	mg/kg
Molybdenum (Mo):	1.6	75	mg/kg
Nickel (Ni):	32	420	mg/kg
Selenium (Se):	< 1.0	36	mg/kg
Zinc (Zn):	270	2800	mg/kg

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

Analyst: Assaf Sadeh

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

Account No.:
6020009 - 1/1 - 479
Group: Feb.16 A No. 3

Date Received 01 Feb. 16
Sample i.d. Newby Island Super Humus Compost- January 2016 #2
Sample I.d. No. 1/1 6020009

INTERPRETATION:

Is Your Compost Stable?

Respiration Rate
2.9 mg CO2-C/ g OM/day

Biodegradation Rate of Your Pile

++++++++++
< Stable >|<Moderately Unstable>|< Unstable >|< High For Mulch

Biologically Available Carbon (BAC)
5.4 mg CO2-C/ g OM/day

Optimum Degradation Rate

++++++++++++++++++++
< Stable >|<Moderately Unstable>|< Unstable >|< High For Mulch

Is Your Compost Mature?

AmmoniaN/NitrateN ratio
43 Ratio

++
VeryMature>|< Mature >|< Immature

Ammonia N ppm
130 mg/kg dry wt.

++++++++++++++
VeryMature>|< Mature >|< Immature

Nitrate N ppm
3.0 mg/kg dry wt.

++
< Immature >|< Mature

pH value
7.68 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+P2O5+K2O)
3.1 Percent dry wt.

++++++++++++++++++++++++
<Low >|< Average >|< High Nutrient Content

AgIndex (Nutrients / Sodium and Chloride Salts) ((N+P2O5+K2O) / (Na + Cl))
6 Ratio

++++++++++++++++++++++++++++
Na & Cl >|< Nutrient and Sodium and Chloride Provider >|< Nutrient Provider

Plant Available Nitrogen (PAN) Estimated release for first season
5 lbs/ton wet wt.

++++++++++++++++++++
Low Nitrogen Provider>|< Average Nitrogen Provider >|<High Nitrogen Provider

C/N Ratio
19 Ratio

++++++++++++++++++++++++++++++++++++
< Nitrogen Release >|< N-Neutral >|< N-Demand>|< High Nitrogen Demand

Soluble Available Nutrients & Salts (EC5 w/w dw)
3.8 mmhos/cm dry wt.

++++++++++++++++++++
SloRelease>|< Average Nutrient Release Rate >|<High Available Nutrients

Lime Content (CaCO3)
8.7 Lbs/ton dry wt.

+++++++++++++++
< Low >|< Average >|< High Lime Content (as CaCO3)

What are the physical properties of your compost?

Percent Ash
44.9 Percent dry wt.

++++++++++++++++++++++++++++++++++
< High Organic Matter >|< Average >|< High Ash Content

Sieve Size % > 6.3 MM (0.25")
0.0 Percent dry wt.

+
All Uses >|< Size May Restrict Uses for Potting mix and Golf Courses

Account No.:
6020009 - 1/1 - 479
Group: Feb.16 A No. 3

Date Received 01 Feb. 16
Sample i.d. Newby Island Super Humus Compost- January 2016 #2
Sample I.d. No. 1/1 6020009

INTERPRETATION:

Is Your Compost Stable?

Respiration Rate

2.9 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

5.4 Moderate-selected use 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?

AmmoniaN:NitrateN ratio

43 immature

Ammonia N ppm

130 mature

Nitrate N ppm

3.0 immature

pH value

7.68 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 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.

Account No.:		Date Received	01 Feb. 16
6020009 - 1/1 - 479		Sample I.d.	Newby Island Super Humus Compost- January 2016 #2
Group:	Feb.16 A No. 3	Sample I.d. No.	1/1 6020009

INTERPRETATION:

AgIndex (Nutrients/Na+Cl)

6 Average 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 form 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)

5 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 he growing season to off-set 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 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 controlable.

Soluble Nutrients & Salts (EC5 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 thesodium 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)

8.7 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

Percent Ash

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")

0.0 Suitable for all uses 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 relevent 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:

Plant Available Nitrogen (PAN) calculations:
PAN = (X * (organic N)) + ((NH4-N) + (NO3-N))
X value = If BAC < 2 then X = 0.1
If BAC =2.1 to 5 then X = 0.2
If BAC =5.1 to 10 then X = 0.3
If BAC > 10 then X = 0.4
Note: If C/N ratio > 15 additional N should be applied.

Estimated available nutrients for use when calculating application rates

	lbs/ton (As Rcvd.)
Plant Available Nitrogen (PAN)	5.1
Ammonia (NH4-N)	0.14
Nitrate (NO3-N)	0.00
Available Phosphorus (P2O5*0.64)	4.4
Available Potassium (K2O)	10.6

ANALYTICAL CHEMISTS
and
BACTERIOLOGISTS
Approved by State of California

SOIL CONTROL LAB

42 HANGAR WAY
WATSONVILLE
CALIFORNIA
95076
USA

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

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

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

Inches	MM	% Passing (dry wt. basis)	% Passing Limits Minimum	Maximum
1"	25.4	100.0	99	100
1/2"	12.7	100.0	90	100
1/4"	6.3	100.0	40	90
No. 200	0.074	0.8	2	10

Analyst: Assaf Sadeh

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Sample ID #: 6020009 - 1/1

	Units	Wet wt. Basis	Dry wt. Basis	TMECC Method
Extractable* Boron (B):	mg/kg	7.0	13.0	4.05-B
Moisture:	%	46.3	0	3.09

*Extractable by de-ionized water

Analyst: Assaf Sadeh

Waypoint ANALYTICAL

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 (ECe) 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.

Annmarie Lucchesi
alucchesi@waypointanalytical.com

Emailed 2 Pages: vossman54@yahoo.com

Waypoint ANALYTICAL

2/15/2016

Client Name	L.H. Voss Materials, Inc.
Report Number	16-035-0112
Lab Number	69976
Sample I.D.	Lennox Blend
Cylinder Area in cm2	21.4
Height of Soil Column in cm	11
Hydraulic Head in cm	14
Time Collected in min	21
Volume Collected in ml	294.66
K sat in/hr @ temp	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) 05.07A, "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 Soils.

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

AASHTO R18

STATE OF CALIFORNIA-CalSTA
Edmund G. Brown Jr., Governor

DEPARTMENT OF TRANSPORTATION
ENGINEERING SERVICES–METS
LOCAL AGENCY INDEPENDENT ASSURANCE
District 4 and Central Region
952 Goodwin Drive
Ripon, CA 95366
Office: (209) 599-4122
Fax:(209) 599-4471

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

TL-0111 (REV.06/00)

CALIFORNIA DEPARTMENT OF TRANSPORTATION

Presents this

CERTIFICATE OF PROFICIENCY

to

Greg Suckow

Berlogar Stevens & Assoc.

who is qualified to perform the following tests:

CTM 105	NO EXPIRATION	CTM 217/226	EXP 06-25-17
CTM 106	NO EXPIRATION	CTM 229	EXP 06-25-17
CTM 201	NO EXPIRATION	CTM 235	EXP 06-25-17
CTM 202	EXP 06-25-17	CTM 301	EXP 10-14-16
CTM 204	EXP 06-25-17	CTM 304	EXP 10-14-16
CTM 205	EXP 06-25-17	CTM 308	EXP 10-14-16
CTM 211	EXP 06-25-17	CTM 309	EXP 10-14-16
CTM 214	EXP 06-25-17	CTM 366	EXP 10-14-16

Test method & expiration date

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: Berlogar Geotechnical Consultants
Address: 5587 Sunol Blvd.
City: Pleasanton State: California Zip: 94566
Lab QC Mgr.: Greg Suckow e-mail: gsuckow@berlogar.com
Telephone: 925-484-0220 Fax #.: 925-846-9645

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.

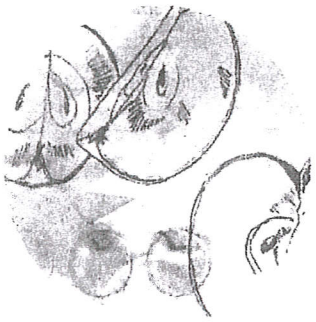
CT-105/106	CT-204/205	CT-301/304	CT-504	CT-540
CT-125 Gen/AC/Agg	CT-211/214	CT-308	CT-518	CT-543
CT-201/202	CT-217/226	CT-309	CT-521	CT-556
CT-204/205	CT-235	CT-366	CT-539	CT-557

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 (Date) 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

1601 Dixon Landing Road
Milpitas, CA 95035

Status	Category	Issue date
Allowed	NOP: Compost – other (plant and animal materials)	15-Apr-2010

Product number	Class	Expiration date
bni-1893	Crop Fertilizers and Soil Amendments	01-Jun-2016

Restrictions
Not applicable.

Peggy Miars
Executive Director

Product review is conducted according to the policies in the current *OMRI Policy Manual* and based on the standards in the current *OMRI Standards Manual*. To verify the current status of this or any OMRI Listed product, view the most current version of the *OMRI Products List*® at OMRI.org. OMRI listing is not equivalent to organic certification and is not a product endorsement. It cannot be construed as such. Final decisions on the acceptability of a product for use in a certified organic system are the responsibility of a USDA accredited certification agent. It is the operator's responsibility to properly use the product, including following any restrictions.

OMRI LISTED
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

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2925 Driggs 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 95
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Composting Council Research and Education Foundation (CCREF)
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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