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SANTA CLARA OFFICE

February 24, 2009

Report 09-050-0036

L.H. VOSS

2445 Vista Del Monte  
Concord, CA 94520

Attn: Butch Voss

RE: BIOSWALE SOIL

**Background**

The sample received 2/19 represents Bioswale Soil in need of evaluation regarding its suitability to support landscape plants.

**Analytical Results**

The pH at 6.7 is slightly acidic and in the range preferred by most plants. Natural lime is suitably absent. Potentially problematic salinity and sodium are safely low and the SAR value indicates calcium and magnesium adequately balance soluble sodium. Boron is slightly elevated but would not be troublesome for most plants.

Organic content at 5.7% on a dry weight basis is in good range for new plantings.

Available nutrient levels show low nitrogen and potassium. Phosphorus, manganese and iron are fair. Sulfate is ample to provide some reserve with all other major and minor nutrients sufficient.

**Comments**

Analyses reveal a slight excess of boron that would not be troublesome for most plants. Only very sensitive species might experience some burn on the oldest foliage. Given the very sandy, coarse soil composition observed it is quite possible that some boron will wash out of the root zone with rainfall or routine irrigation.

Organic content is in the desired range for new plantings to help retain moisture and nutrients in the root zone. You might consider applying a complete slow release fertilizer per the label rate at the time of planting to supplement nitrogen, phosphorus and potassium to support healthy plant establishment. An organic fertilizer with a 5-5-5 analysis might be applied at a rate of 15 pounds per 1000 square with refertilization scheduled at 2-3 month intervals.

HEIDI FISHER Email 2 pages.





# Soil & Plant Laboratory, Inc.

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## SOIL ANALYSIS

Send To : L.H. Voss Materials, Inc. 2445 Del Vista Monte Concord CA 94520	Project : Bioswale Soil	Report No : <b>09-050-0036</b> Cust No : 00420 Date Printed : 02/24/2009 Date Received : 02/19/2009 Page : 1 of 1 Lab Number : 32847
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Sample Id : **Bioswale Soil**

### SATURATION EXTRACT - PLANT SUITABILITY

Test	Result	Effect on Plant Growth				
		Negligible	Sensitive Crops Restricted	Many Crops Restricted	Only Tolerant Crops Satisfactory	Few Crops Survive
Salinity (ECe)	3.0 dS/m					
Sodium Adsorption Ratio (SAR) *	0.92					
Boron (B)	1.30 ppm					
Sodium (Na)	4.0 meq/L					
Chloride (Cl)						
Carbonate (CO3)						
Bicarbonate (HCO3)						
Fluoride (F)						

\* Structure and water infiltration of mineral soils potentially adversely affected at SAR values higher than 6.

Test	Result	Strongly Acidic	Moderately Acidic	Slightly Acidic	Neutral	Slightly Alkaline	Moderately Alkaline	Strongly Alkaline	Qualitative Lime	
pH	6.7 s.u.									None

### EXTRACTABLE NUTRIENTS

Test	Result	Sufficiency Factor	SOIL TEST RATINGS					NO3-N
			Very Low	Low	Medium	Optimum	Very High	
Available-N	29 ppm	0.5						14 ppm
Phosphorus (P) - Olsen	26 ppm	0.7						NH4-N
Potassium (K)	114 ppm	0.6						15 ppm
Potassium - sat. ext.	2.4 meq/L							Total Exchangeable Cations(TEC)
Calcium (Ca)	1941 ppm	1.3						91 meq/kg
Calcium - sat. ext.	29.2 meq/L							
Magnesium (Mg)	172 ppm	0.8						
Magnesium - sat. ext.	7.7 meq/L							
Copper (Cu)	2.1 ppm	1.8						
Zinc (Zn)	11 ppm	2.3						
Manganese (Mn)	7 ppm	0.7						
Iron (Fe)	28 ppm	0.6						
Boron (B) - sat. ext.	1.30 ppm	4.3						
Sulfate - sat. ext.	33.4 meq/L	11.1						
Exch Aluminum								

Cu, Zn, Mn and Fe were analyzed by DTPA extract.

### PARTICLE SIZE ANALYSIS

Half Sat	Organic Matter	Weight Percent of Sample Passing 2mm Screen							USDA Soil Classification
		Gravel		Sand			Silt	Clay	
		Coarse 5-12	Fine 2-5	Very Coarse 1-2	Coarse 0.5-1	Med. to Very Fine 0.05-0.5	.002-.05	0-.002	
31 %	5.7 %								

Graphical interpretation is a general guide. Optimum levels will vary by crop and objectives.