# APPENDIX I

**Soil Analysis**
**Soil and Plant Laboratory, Inc.**

**Soil and Plant Laboratory, Inc.**
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SANTA CLARA OFFICE
July 24, 2002
Lab No. 35500

MALCOLM CARPENTER & ASSOCIATES
1190 El Camino Real
Colma, CA 94019

Attn: Laura Dreja

RE: LEXINGTON QUARRY -- LOS GATOS

BACKGROUND

The five samples received 7/10 represent topsoils from areas at the quarry identified by sample descriptions noted on the right hand side of the attached data sheet. Samples will be referenced by sample number in the following discussion.

ANALYTICAL RESULTS

Characteristics which might limit successful revegetation include deficiencies of some of the major nutrients and poor expected structure of most that may interfere with the soils ability to absorb and retain water in an efficient manner. The only sample showing fairly good particle size data is the sandy loam sample 2. The infiltration rate of this is estimated at a favorable 0.37 inch per hour. Organic content here is very low as it is in all of the samples. All of the other soils contain excessive gravel and a broad range of coarse sands plus enough silt and clay to suggest a high degree of susceptibility toward consolidation and cementation. USDA classifications are as indicated on the data sheet. The infiltration rate for samples 1 and 5 is estimated at 0.22 inch per hour while 3 and 4 the rate is estimated at 0.15. Loosening these soils and incorporating some organic matter would improve these characteristics.

All reaction values fall in a slightly acidic to slightly alkaline range that is suitable for a wide variety of plants. No areas show undesirably high lime content. Salinity and boron are safely low and SAR values show sodium well balanced by calcium and magnesium.

Nutrient availability data show varying degrees of deficiency with respect to major nutrient levels. Nitrogen, phosphorus and potassium are potentially deficient in all areas. Magnesium is excessive in samples 1, 3 and 5 and significantly out of balance with potassium and calcium. Sulfate is low except for an adequate level in sample 2. Without improving calcium nutrition for sample 3 in particular, this could significantly impair healthy root development of many plants.

RECOMMENDATIONS

Loosening these soils is strongly suggested in order to improve porosity. If some organic matter is not incorporated, then it is very likely that these may return to a consolidated condition. The minimal

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amount of organic matter to consider would be 3 cubic yards per 1000 square feet for blending to a 6-inch depth. This would bring the level up to near normal for native topsoil with a moderate vegetative cover. For establishing plants aside from natives, increasing the rate of organic addition to double this amount would normally be suggested.

Nutrient additives are given in rates of pounds per 1000 square feet and should be blended into 6 inches of soil. Soils represented by samples 1 and 4 should be treated with treble superphosphate (0-48-0) and potassium sulfate (0-0-50) at a rate of 3 pounds each. Soils represented by samples 2, 3 and 5 should receive these same two materials but the rates should be increased to 5 pounds each. Soils represented by samples 1 and 5 should additionally receive 30 pounds agricultural gypsum and for soil represented by sample 3 the gypsum rate should be increased to 50 pounds. Gypsum is not required for soil types 2 or 4.

At the time of planting some form of nitrogen fertilization should occur. For revegetation with natives a modest nitrogen supply could be maintained by making a topdress application with Sulfur Coated Urea (32-0-0) at a rate of 5 pounds per 1000 square feet. This slow release product should sustain adequate nitrogen for about 3 months.

JIM WEST

Fax 4 pages and mail. / jr

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COMPREHENSIVE SOIL ANALYSIS
(AO5-1, AO5-2 or AO5-3)

Santa Clara Office
Lab No. 35500
LEXINGTON QUARRY

Samples Taken: Samples Rec'd: 7/10/02

| Sample # | Half Sat%/ TEC | pH/ Qual Lime | ECe | NO3 N | NH4 N | PO4 P | K | Ca | Mg | Cu | Zn | Mn | Fe | Organic % dry wt. | Sample Description & Log Number |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Parts Per Million Parts Dry Soil | | | | | | | | | | | |
| 1 | 12 | 6.3 | 0.5 | 10 | 8 | 6 | 90 | 920 | 630 | | | | | 0.3 | Creek |
| | 102 | | | 0.7 | | 0.4 | 1.0 | 0.7 | 3.8 | | | | | | 0.7602-A14520 23 4 |
| 2 | 16 | 7.6 | 0.6 | 4 | 10 | 5 | 60 | 1020 | 280 | | | | | 0.1 | Pond |
| | 78 | Low | | 0.4 | | 0.3 | 0.5 | 0.8 | 1.6 | | | | | | 1.0802-A14521 23 4 |
| 3 | 14 | 7.0 | 0.3 | 4 | 10 | 5 | 90 | 1180 | 1100 | | | | | 0.1 | Bench 2 |
| | 158 | None | | 0.5 | | 0.3 | 0.6 | 0.7 | 4.7 | | | | | | 0.6802-A14522 23 4 |
| 4 | 10 | 7.4 | 0.4 | 5 | 8 | 6 | 60 | 1680 | 148 | | | | | 0.2 | Bench 3 Eastside |
| | 98 | Med | | 0.7 | | 0.5 | 0.7 | 1.4 | 0.9 | | | | | | 0.7502-A14523 23 4 |

| Sample # | Saturation Extract Values: Ca me/l | Mg me/l | Na me/l | K me/l | B ppm | SO4 me/l | SAR | Percent of Sample Passing 2 mm Screen: Gravel: Coarse 5-12 | Gravel: Fine 2-5 | Sand: Very Coarse 1-2 | Sand: Coarse 0.5-1 | Sand: Med. to V. Fine 0.05-.5 | Silt .002-.05 | Clay 0-.002 | USDA Soil Classification |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1.3 | 1.4 | 1.9 | 0.1 | 0.17 | 0.6 | 1.6 | 14.7 | 18.4 | 13.4 | 15.6 | 35.7 | 17.0 | 18.3 | Gravelly Sandy Loam |
| 2 | 1.3 | 0.9 | 3.1 | 0.1 | 0.05 | 2.2 | 3.0 | 0.0 | 0.2 | 0.1 | 0.9 | 58.7 | 34.0 | 6.3 | Sandy Loam |
| 3 | 0.5 | 0.3 | 1.5 | 0.1 | 0.01 | 0.3 | 2.4 | 19.2 | 16.9 | 18.0 | 14.8 | 26.6 | 19.1 | 21.5 | Very GravSandy Clay Loam |
| 4 | 2.1 | 0.6 | 0.8 | 0.1 | 0.05 | 0.6 | 0.7 | 17.8 | 25.5 | 25.8 | 17.3 | 29.6 | 14.5 | 12.8 | Very GSandyLoam |

7/16/02

Sufficiency factor (1.0=sufficient for average crop) below each nutrient element. N factor based on 200 ppm constant feed. Half Saturation %-approx field moisture capacity. Salinity ECe (dS/m at 25 deg.C.) by sat ext method. Major elements by sodium chloride extraction (phosphorus by sodium bicarbonate extraction). Cu, Zn, Mn & Fe by DTPA extraction. SAR-Sodium adsorption ratio. Na-Sodium (meq/l). TEC (listed below Half Sat.)-Estimated Total Exchangeable Cations (meq/kg) Gravel fraction expressed as percent by weight of oven-dried sample passing a 12mm (1/2 inch) sieve. Particle sizes in millimeters.

J-3

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LEXINGTON QUARRY

Samples Taken: Samples Rec'd: 7/10/02

| Sample # | Half Sat%/ TEC | pH/ Qual Lime | ECe | ----------Parts Per Million Parts Dry Soil---------- NO3 N | NH4 N | PO4 P | K | Ca | Mg | Cu | Zn | Mn | Fe | Organic % dry wt. | Sample Description & Log Number |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S | 12 | 6.5 | 0.6 | 6 | 9 | 3 | 90 | 1060 | 618 | | | | | 0.2 | Ranch 4 |
| | 109 | | | 0.6 | | 0.2 | 0.9 | 0.8 | 3.5 | | | | | | 0.702-A14524 23 4 |

| Sample # | Saturation Extract Values: Ca me/l | Mg me/l | Na me/l | K me/l | B ppm | SO4 me/l | SAR | Percent of Sample Passing 2 mm Screen: Gravel Coarse 5-12 | Gravel Fine 2-5 | Sand Very Coarse 1-2 | Sand Coarse 0.5-1 | Sand Med. to V. Fine 0.05-.5 | Silt .002-.05 | Clay 0-.002 | USDA Soil Classification |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S | 1.7 | 1.6 | 2.4 | 0.1 | 0.05 | 1.4 | 1.9 | 22.9 | 15.0 | 11.7 | 12.2 | 37.8 | 19.5 | 18.8 | Very GravSandy Loam |

7/16/02

Sufficiency factor (1.0=sufficient for average crop) below each nutrient element. N factor based on 200 ppm constant feed. Half Saturation %=approx field moisture capacity. Salinity ECe (dS/m at 25 deg.C.) by sat ext method. Major elements by sodium chloride extraction (phosphorus by sodium bicarbonate extraction). Cu, Zn, Mn & Fe by DTPA extraction. SAR=Sodium adsorption ratio. Na=Sodium (meq/l). TEC (listed below Half Sat.)=Estimated Total Exchangeable Cations (meq/kg) Gravel fraction expressed as percent by weight of oven-dried sample passing a 12mm (1/2 inch) sieve. Particle sizes in millimeters.