

SECTION 02480 - LANDSCAPE SOIL PREPARATION

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SECTION 02480 - LANDSCAPE SOIL PREPARATION

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. Landscape soil preparation shall include topsoil placement and the preparation for the spreading, densification, cultivation, and raking of the topsoil, including fertilization and conditioning.
- B. Planting holes and backfill shall be accomplished in accordance with Section 02483, "*Planting*," of these specifications.
- C. Preliminary rough grading and related work to prepare areas for landscaping work to 0.1 foot of finish grade, shall be completed in accordance with Section 02210, "*Site Grading*," of these specifications.

1.02 RELATED REQUIREMENTS

- A. Section 02210, "*Site Grading*"
- B. Section 02483, "*Planting*"
- C. Section 02486, "*Irrigation*"

1.03 REFERENCE STANDARDS

Not Used

1.04 QUALITY ASSURANCE

- A. Reviews
 - 1. Contractor shall specifically request the following reviews at least two (2) working days in advance prior to progressing with the work:
 - a. Rough grading
 - b. Verification of roto-tilling depths, and
 - c. Finish grade
- B. Certification
 - 1. Written certificates stating quantity, type and composition, weight and origin for all amendments, chemicals, and any import topsoil shall be delivered to the Engineer before the material is used on the site.

C. Soil Testing

1. Native soil and in-place topsoil shall be tested for amendment determination by *Soil and Plant Laboratory, Inc.* or a laboratory approved by the Engineer. Contractor shall submit sample and provide the Engineer with eight (8) copies of all reports and recommendations for amendments.
2. Soils shall be tested on a basis equal to *SOIL AND PLANT LABORATORY, INC., 325 Mathew St., Santa Clara, CA 95050, 408-727-5125: Test AO5-2.* Components of the test shall include all major nutrients, pH, salinity, boron, sodium, micronutrients copper, zinc, manganese and iron, adsorption rate, organic content and texture.
3. All soil installed on the project shall be screened accordingly, consistent and uniform.
4. CHEMISTRY – SUITABLE CONSIDERATIONS
 - a. SALINITY: Saturation Extract Conductivity (ECe)
Less than 3.0 ds/m/cm @ 25° C
 - b. SODIUM: Sodium Adsorption Ratio (SAR)
Less than 6.0
 - c. BORON: Saturation Extract Concentration
Less than 1.0 ppm
 - d. REACTION: pH of Saturated Paste: 5.5 – 7.5
Without high line content.

FERTILITY CONSIDERATIONS

Soil to contain sufficient quantities of available nitrogen, phosphorus, potassium, calcium and magnesium to support normal plant growth. In the event of nutrient inadequacies, provisions shall be made to add required materials prior to planting.

5. Testing costs for City-funded projects shall be paid for by the City. The Contractor shall pay for projects not funded by the City.

D. Amendment Testing

1. Contractor shall provide a one-quart sample of each proposed amendment, together with the in place soil sample, to *Soil and Plant Laboratory of Santa Clara, (408) 727-0330*, or a laboratory approved by the City, for their testing and recommendations.
2. No material shall be delivered to the site until the Engineer reviews and approves the material.

3. Testing costs for the initial samples on City-funded projects shall be paid for by the City. Costs for soil and soil amendment testing on projects not funded by the City or recurrent samples necessary due to non-compliance shall be paid for by the Contractor.

1.05 MEASUREMENT AND PAYMENT

- A. Landscape soil preparation shall be measured and paid for at lump sum price, or paid for as individual items at the contract prices per ton or cubic yard, whichever is indicated in the Bid Schedule. The above prices and payments shall include full compensation for furnishing all labor, materials, tools, equipment, and other incidentals, complete in place, for doing all landscape soil preparation as shown on the Plans and as specified herein, and as directed by the Engineer.

PART 2 - PRODUCTS

2.01 CLASS A TOPSOIL

- A. Shall be imported from a source outside the limits of the project selected by the Contractor in compliance with the requirements specified herein.
- B. Import topsoil shall be a homogeneous mineral soil of sandy loam or loamy sand. Import topsoil shall be free of harmful insects, chemicals, all weed growth, clods over four (4) cubic inches that will not pulverize during operations, and free of rocks over two (2) cubic inches. Particle size data shall be based upon standard USDA methodology. The material shall be in the 0.05 to 5.0 millimeters range with 15% in the 0.5 to 2.0 millimeters coarse sand range. Gravel content (greater than 2.0 mm) shall be less than fifteen percent (15%). Import topsoil shall not contain more silt and clay than on site native soil.
- C. The sum of silt plus clay shall be less than twenty-five percent (25%), the soil shall be non-saline as determined on the saturation extract. Salinity shall not exceed three (3.0) mmhos/cm, boron shall not exceed one part per million (1.0 ppm) and the sodium adsorption shall not exceed six (6.0). Soil reaction as determined on a saturated paste shall fall between five and one half (5.5) and seven and one half (7.5). The soil shall be free of organic herbicides or other growth restricting chemicals.
- D. Topsoil shall be suitable to sustain the growth of the plants specified.

2.02 CLASS B TOPSOIL

- A. Class B topsoil is defined as material which is obtained from sources and in quantities designated on the Plans or in the Special Provisions, and which require transport to the designated landscape areas. The cost of stripping, processing, and transporting shall be included in the price for hauling and placing.

2.03 CLASS C TOPSOIL

- A. Class C topsoil is defined as soil found in place in the designated landscape area, including soil compacted in place as part of the earthwork specified for the project.

2.04 FERTILIZERS

A. Manure

- 1. Manure shall be the product of yard-fed cattle, free of weed seed, straw or other inert material, and aged at least three (3) months. Manure shall have been processed by grinding and screening. Source shall be approved in advance by the Engineer.

B. Commercial Fertilizer

- 1. Commercial fertilizer shall be pelletized or granular product having a chemical analysis as specified on the Plans or in the Special Provisions. Fertilizer shall be free-flowing material and delivered in unopened sacks.

C. Organic Soil Amendment

Organic soil amendment shall be Type 1, processed wood product derived from redwood or fir and shall comply with the following requirements:

Gradation	Percent Passing (Min.)
1/4"	95%
No. 8	80%
No. 35	30%
Nitrogen Content	Percent Dry Weight
Redwood	0.4 - 0.6%
Fir	0.56 - 0.84%
Cedar	0.56 - 0.84%
Fir Bark	0.8 - 1.2%
Pine Bark	0.8 - 1.2%

- 2. Salinity - Maximum saturation extract conductivity shall be two and one half (2.5) milliohms/centimeter at 25°C.
- 3. Wettability - When one teaspoon of tap water is applied to four (4) cubic inches of air-dry product, the material shall become completely damp in a period not exceeding two (2) minutes. Wetting agent shall be guaranteed non-phyto-toxic at the rate used.

PART 3 - EXECUTION

3.01 GENERAL

- A. Soil shall not be worked when it is so wet or so dry as to cause excessive compaction or the forming of hard clods or dust.
- B. Existing soil below subgrade for Class A topsoil shall be scarified to a depth of six inches (6") prior to spreading topsoil.
- C. Class B or C topsoil shall be scarified and cultivated to a finely divided condition to a depth of eight inches (8") below finish grade.

3.02 FERTILIZING AND CONDITIONING

- A. Planting area shall be brought to finish grade before spreading the fertilizers or conditioning materials.
- B. Fertilizer and conditioning materials shall be mechanically spread at a uniform rate. The quantities of materials necessary for the planting area shall be at the site and shall be verified by delivery tickets before spreading.
- C. After spreading, fertilizing and conditioning materials shall be uniformly cultivated into the upper six inches (6") of soil by a suitable equipment operated at least two (2) directions approximately at right angles.

3.03 FINISH GRADING

- A. Finished grade shall be smooth, uniform, and free of abrupt grade changes and depressions to ensure surface drainage.
- B. Finished grade adjacent to paving, curbs, or headers shall be one inch (1") below in lawn area shrub or ground cover areas.
- C. After fertilizing and conditioning, the soil shall be watered and allowed to settle to provide a stable surface, not overly densified to the extent that it will prevent aeration and water infiltration. After the soil had dried out to a workable condition, the planting areas shall be regraded, raked, and smoothed to the required grades and contours. Finish surfaces shall be clean and suitable for planting.
- D. No rocks or materials other than specified for backfill shall be allowed in the top six inches (6") of any seedbed.

End of Section