



## SECTION 32 91 13

### TOPSOIL AND WETLAND TOPSOIL

#### PART 1 GENERAL

##### 1.01 SECTION INCLUDES

- A. This work consists of placing of topsoil or wetland topsoil upon constructed cut and fill slopes or in designated areas after grading operations are complete.

##### 1.02 RELATED SECTIONS

- A. The following is a list of SPECIFICATIONS which may be related to this section:
  1. Section 01 57 19, Temporary Environmental Controls
  2. Section 02 41 13 Selective Site Demolition
  3. Section 31 41 13 Topsoil and Wetland Topsoil Stripping and Stockpiling
  4. Section 31 23 00 Excavation and Fill
  5. Section 31 25 00 Erosion and Sedimentation Controls
  6. Section 32 93 00 Landscape Planting
  7. Section 32 92 19 Seeding

##### 1.03 REFERENCES

- A. The following is a list of standards which may be referenced in this section:
  - a. ASTM International (ASTM):
    - b. D2974, Standard Test Methods for Moisture, Ash, and Organic Matter of Peat and Other Organic Soils.
    - c. D5268, Standard Specification for Topsoil Used for Landscaping Purposes.

##### 1.04 SUBMITTALS

- A. Informational Submittals:
  1. Certified Topsoil Analysis Reports:
    - a. Indicate quantities of materials required to bring onsite
    - b. Provide certification of topsoil compliance with gradation requirements.
    - c. Provide certification of topsoil compliance with Chemical attribute requirements.



- d. Provide certification of topsoil compliance with minimum ammonium bicarbonate DPTA (chelate) extractable nutrient requirements.

1.05 SEQUENCING AND SCHEDULING

A. TOPSOIL

B. WETLAND TOPSOIL

- 1. CONTRACTOR shall prepare the wetland relocation site to elevations specified in the DRAWINGS or as approved by ENGINEER prior to excavating the wetland topsoil. If ENGINEER determines that this is not possible, then CONTRACTOR shall stockpile wetland topsoil material in an approved area, to remain undisturbed until the relocation site has been prepared.
- 2. Wetland topsoil shall be placed within twenty four (24) hours in the wetland relocation site.

**PART 2 PRODUCTS**

2.01 MATERIALS

A. TOPSOIL

- 1. Topsoil shall consist of natural, friable, sandy loam, native upland topsoil with characteristics as defined in Section 2.01 sub-section 3. Topsoil shall be obtained from pre-approved on-site collection areas or pre-approved imported materials from off site.
- 2. Topsoil shall have the following characteristics; resulting from a current agronomic and full textural class analysis of a topsoil sample collected from the actual soil proposed to be used. The results of the tests shall be submitted to the ENGINEER and must include sample date and reference the collection location.
- 3. Composition shall be in general accordance with ASTM D5268 subject to the following:
  - a. Gradation

Texture Class	% of Total Weight	Average %
Sand (0.05-2.0 mm dia. range)	25 - 75	50
Silt (0.002-0.05mm dia. range)	15 - 40	27.5
Clay (< 0.002 mm dia. range)	15 - 30	22.5



b. Chemical Attributes

Chemical Attribute	Range
pH	6.8 - 7.5
Organic Matter	1% - 3%
Salinity	EC<2 mmhos/cm

c. Topsoil shall contain the following minimum ammonium bicarbonate DPTA (chelate) extractable nutrients.

Nutrient	Concentration
Nitrogen	5 ppm air dried basis
Phosphorous	5 ppm
Potassium	30 ppm
Iron (Fe)	5 ppm

B. WETLAND TOPSOIL

1. Wetland topsoil shall meet the requirements of Section 2.01 A above.
2. Topsoil collected from wetland sites shall be used only in wetland areas.
3. Wetland Topsoil salvaged from the site shall not be used as topsoil outside of areas designated on the DRAWINGS.

C. Source: Stockpile material onsite, in accordance with Section 31 14 13 Topsoil Stripping and Stockpiling. Import topsoil if onsite material is insufficient in quantity, or quality.

2.02 SOURCE QUALITY CONTROL

A. Topsoil Analysis/Testing: Performed by county or state soil testing service or approved certified independent testing laboratory.

**PART 3 EXECUTION**

3.01 TOPSOIL PLACEMENT

- A. Do not place topsoil when subsoil or topsoil is frozen, excessively wet, or otherwise detrimental to the WORK.
- B. Topsoil shall be placed directly upon completed cut and fill slopes whenever conditions and progress of construction permit.
- C. Approved topsoil shall be placed at locations and to the thickness as designated in the CONTRACT DOCUMENTS. Prior to final placement of topsoil, any areas compacted by construction activities shall be decompacted to at least 85 Proctor by repeated ripping in rows twelve inches (12”) or less, apart, to a depth of twelve inches (12”). All subsoil areas, including any graded areas or cut slopes should be



roughened with furrows four to six inches (4"-6") deep to key the topsoil into the subsoil.

- D. Water shall be applied to the topsoil in a fine spray by nozzles or spray bars so the topsoil areas will not be washed or eroded.
- E. Uniformly distribute topsoil to within 1/2 inch of final grades. Fine grade topsoil eliminating rough or low areas and maintaining levels, profiles, and contours of subgrade.
- F. Material shall be free from objects larger than 1-1/2 inches maximum dimension including hard clods of heavy clay, shale, decomposed shale or other subsoil, noxious weed parts (roots, seeds, or shoots), grass, refuse, stumps, roots, brush, other foreign matter, hazardous or toxic substances, and deleterious material that may be harmful to plant growth or may hinder grading, planting, or maintenance.
- G. Placed topsoil shall be stabilized immediately by:
  - 1. Preparing and seeding with the approved seed mixture and mulch,
  - 2. Installing perimeter silt fence and/or straw wattles,
  - 3. Roughening and application of 2500 pounds per acre hydromulch with 150 pounds per acre approved tackifier and later seeding and mulching, per the plans.

### 3.02 WETLAND TOPSOIL PLACEMENT

- A. All subsoil areas, including any graded areas or cut slopes should be roughened with furrows four to six inches (4"-6") deep to key the topsoil into the subsoil.
- B. Wetland topsoil salvaged from the site shall be placed in locations specified on the DRAWINGS to a depth of eighteen inches (18") or as otherwise designated.
- C. Wetland topsoil in an unworkable condition due to excessive moisture, frost or other conditions shall not be placed until it is suitable for spreading.
- D. Water shall be applied to the topsoil in a fine spray by nozzles or spray bars so the topsoil areas will not be washed or eroded.
- E. After the wetland topsoil is spread all large stiff clods, rocks, roots and other foreign matter shall be cleared and disposed of by the CONTRACTOR.

**END OF SECTION**