SECTION 02912

TOPSOIL

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Furnish and spread topsoil on prepared areas.

B. Strip topsoil from on-site locations and place in stockpile.

C. Spread stockpiled topsoil on prepared areas.

1.2 REFERENCES

A. AASHTO T 194: Determination of Organic Matter in Soils by Wet Combustion

B. Textural Triangle National Soils Handbook

1.3 SUBMITTALS

A. For Contractor-furnished topsoil: A minimum of 7 working days before delivery of soil, submit to the Engineer the laboratory test results from each topsoil source to be used.

PART 2 PRODUCTS

2.1 CONTRACTOR FURNISHED TOPSOIL

A. Determine PH, EC, and SAR with a saturated soil paste or 1:1 soil/water testing method. Meet the following:
   1. **PH**: 6.0 to 8.0
   2. **EC**: (Electrical Conductivity): less than 4 ds/m
   3. **SAR**: (Sodium Adsorption Ratio): less than 10.

B. Organic matter:
   1. 1 to 20 percent.
   2. Determined by the release upon combustion, Walkley-Black or modified Walkley-Black testing method. AASHTO T 194.

C. Textural classification:
   1. Loam, sandy loam, silt loam or sandy clay loam not exceeding the following percentiles. Refer to Textural Triangle National Soils Handbook, Part 603-5.

Soil component	**Percentile Range**
Sand	20 to 70
Silt	20 to 70
Clay	10 to 30

   2. Determine particle size analysis by the hydrometer testing method.

D. Topsoil free of:
   1. Subsoils (no B or C horizon soils)
   2. Coarse sand and gravel
   3. Stiff clay, hard clods or hard pan soils
   4. Rock larger than 3 inches in any dimension
   5. Trash, litter or refuse
   6. Noxious weeds and weed seeds.

E. Topsoil may contain a maximum of 5 percent rock smaller than 3 inches.

2.2 SOURCE QUALITY CONTROL - CONTRACTOR FURNISHED MATERIAL

A. Obtaining Soil Samples:
   1. Obtain soil samples while the Engineer is present. Provide no less than 0.5 lb per soil sample.
   2. Obtain samples from a thin slice of soil cut from the side of a freshly dug hole or by using a soil auger or sampling tube.
   3. Mix the several small samples taken from various places around the source together to produce a composite sample.
   4. More than one composite sample may be required if the topsoil horizon changes significantly across the source.
   5. Store samples in a clean container at room temperature and out of direct sunlight.
   6. Label the location and date on each sample container.
   7. Provide additional soil samples for verification if requested by the Engineer.

B. Soil testing: Engineer will submit soil samples to an approved independent soil testing laboratory capable of performing the tests listed in this section, article 2.1, Contractor Furnished Topsoil. A partial list of acceptable testing laboratories includes:

Brigham Young University
Soil and Plant Analysis Laboratory
255 WIDB
Provo, UT 84602
(801) 378-2760

USU Extension - Soil Lab
University Hill
Logan, Utah 84322-4820
(435) 797-2233

QA Consulting and Testing, LLC
PO Box 627
645 South 240 East
Salem, UT 84653
(801) 423-1116
(800) 743-1501
(801) 423-1813 (fax)

PART 3 EXECUTION

3.1 GENERAL REQUIREMENTS

A. Complete final grading, trench settling and surface preparation before placing topsoil.

B. On steep cut slopes steeper than 2:1 and higher than 16 feet that require the placement of topsoil, place and spread topsoil as the slope is being constructed. Finish according to this Section, article 3.3, Spread Stockpiled and Contractor-Furnished Topsoil, paragraph D.

C. On the remaining top soiled areas not covered under this article, paragraph B, Contractor is responsible for providing a suitable topsoil surface just before seeding. Suitable topsoil surface is:
   1. Non-compacted surface finished according to this Section, article 3.3, Spread Stockpiled and Contractor-Furnished Topsoil.
   2. Weed free.
   3. Finish grade provides a uniform surface with smooth transitions between grade changes and disturbed areas.

D. Do not strip or handle wet topsoil.

E. Establish finish grade at 1 inch below the top of all walks, curbs, mow strips and other hard surfaces for areas receiving seed or turf seed and 1-1/2 inch for areas receiving turf sod.

3.2 STRIP AND STOCKPILE TOPSOIL

A. Strip the topsoil
   1. Only from areas identified on the plans or approved by Engineer.
   2. To a depth approved by the Engineer.

B. Remove and dispose of any roots larger than 2 inches in diameter or 12 inches in length.

C. Stockpile stripped topsoil:
   1. At locations acceptable to the Engineer.
   2. So that placement or activity around the stockpile does not damage or impact any existing trees, shrubs or environmentally sensitive areas. Obtain appropriate clearances if such impacts are unavoidable.

D. Grade to minimize erosion on and around the stockpiles.

3.3 SPREAD STOCKPILED AND CONTRACTOR-FURNISHED TOPSOIL

A. Clear area to receive topsoil of all trash, debris, weeds, and rock 3 inches or larger, and dispose of objectionable material in an approved manner.

B. Place and spread the stockpiled topsoil over the prepared slopes to the plan depths.

C. On slopes 3:1 and flatter, disc or harrow the placed topsoil along the contour, or cat-track the slopes to create continuous cleat tracks that run parallel with the contours.

D. On slopes steeper than 3:1, cat-track the slopes to create continuous cleat tracks that run parallel with the contours.

END OF SECTION