### 3877 Topsoil Material

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### 3877.1 SCOPE

Provide topsoil material for use as a medium to establish plant growth for water quality and permanent erosion protection. Provide manufactured soils for use as a medium for treating and filtering stormwater in rain gardens, horizontal filter berms, dikes, bioswales, and bioslopes.

### 3877.2 REQUIREMENTS

Provide loam to sandy loam topsoil from Type A and/or Type B horizon soils defined in the soil profile section of the Grading and Base Manual, from alluvial deposits, or blended from defined sand, compost, and loam to sandy loam topsoil sources. Manufactured topsoil’s in section E, F, G, and H are blended on a volume basis of materials. When the individual components have been verified to meet the appropriate specification, the blended material in the ratio indicated shall meet this specification. In addition to the requirements, any of the topsoil types may require soil conditioners, plant hormones, or root stimulators in accordance with 3896, “Soil and Root Additives.”

Aggregate material from sources other than gravel pits and quarries must also meet the minimum contaminants requirements in US EPA 503 or Minnesota Rule 7035.2846 Subp. 6, Sec. A.

A Common Topsoil Borrow

Provide Common topsoil borrow ranging from a silt loam, loam, clay loam, sandy clay loam, or sandy loam soils for general use as a turf growing medium and in accordance with Table 3877‑1. Common topsoil borrow material is a blend of Type A and/or Type B horizon soils defined in the soil profile section of the Grading and Base Manual, and is similar to topsoil found adjacent to the project.

| **Table 3877‑1 Common Topsoil Borrow Requirements** | | |
| --- | --- | --- |
| **Requirement** | **Range** | **Test Method** |
|  |  |  |
| Material passing No4 in | ≥ 85% | — |
| Clay | 5% – 35% | ASTM D 422 |
| Silt | 5% - 70% | ASTM D 422 |
| Sand | 10% - 75% | ASTM D 422 |
| Organic matter | 3% – 15% | ASTM D 2974 |
| pH | 6.1 – 7.8 | ASTM G 51 |
| Largest materials size dimension not to exceed 2.5 inches | | |

B Loam Topsoil Borrow

Provide topsoil borrow consisting mostly of loam ranging into sandy clay loam, sandy loam, silt loam, and clay loam soils as a plant growing medium for landscape and planting beds and in accordance with Table 3877‑2:

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| --- | --- | --- |
| **Table 3877‑2 Loam Topsoil Borrow Requirements** | | |
| **Requirement** | **Range** | **Test Method** |
| Material Passing the ¾ in | 100% | ASTM D 422 |
| Material passing No. 4 | ≥ 90% | - |
| Clay | 5% – 35% | ASTM D 422 |
| Silt | 10% – 60% | ASTM D 422 |
| Sand | 15% – 60% | ASTM D 422 |
| Organic matter | 3% – 15% | ASTM D 2974 |
| pH | 6.1 – 7.5 | ASTM G 51 |
| Soluble salts | ≤ 0.15 siemens/m | — |

C Sandy Clay Loam Topsoil Borrow

Provide topsoil borrow mostly consisting of a sandy clay loam and ranging into clay loam, sandy loam, and loam soils for use as a plant growing medium in critical areas, such as steep slopes and as a top dressing for Turf Reinforcement Mats, and in accordance with Table 3877‑3:

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| --- | --- | --- |
| **Table 3877‑3 Sandy Clay Loam Topsoil Borrow Requirements** | | |
| **Requirement** | **Range** | **Test Method** |
| Screened | — | — |
| Material passing the ¾ in | 100% | ASTM D 422 |
| Material passing No.4 | ≥ 95% | ASTM D 422 |
| Clay | 10% – 35% | ASTM D 422 |
| Silt | 0% – 40% | ASTM D 422 |
| Sand | 30% – 75% | ASTM D 422 |
| Organic matter | 3% – 15% | ASTM D 2974 |
| pH | 6.0 – 7.5 | ASTM G 51 |
| Soluble salts | ≤ 0.15 siemens/m | — |

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E Rooting Topsoil Borrow

Provide topsoil borrow consisting of three blended components of loam topsoil, sand, and compost for use as a well-drained course sand medium for vegetative plant restoration, plant preservation, or as a plant growing medium for rooting, water quality, and infiltration. The components consist of the following by volume.

(1) Sixty percent sand in accordance with 3149.2.J, “Fine Filter Aggregate;” or 3149.2K, “sand cover”

(2) Twenty percent Grade 2 compost in accordance with 3890, “Compost;” and

(3) Twenty percent topsoil meeting the requirements of Loam Topsoil Borrow.

Supplement with root additives to stimulate root establishment in water quality treatment facility.

F Boulevard Topsoil Borrow

Provide topsoil borrow containing three blended components consisting of loam topsoil, sand, and compost for use as structural soil for plant establishment in streetscape boulevards. The components consist of the following by volume:

(1) One-third topsoil meeting the requirements of Loam Topsoil Borrow;

(2) One-third sand accordance with 3149.2J, “Fine Filter Aggregate;” or 3149.2K, “sand cover” and

(3) One-third compost in accordance with 3890, “Grade 2 Compost.”

G Filter Topsoil Borrow

Provide topsoil borrow containing two blended components of sand and compost for water quality, plant growing medium, and filtration medium with an infiltration rate of at least 4 in/h. The components consist of the following by volume:

(1) 60%-80% sand meeting the gradation requirements of 3126, “Fine Aggregate for Portland Cement Concrete” and

(2) 20%-40% compost meeting requirements 3890 Grade 2 Compost.

H Organic Topsoil Borrow

Provide topsoil borrow containing two blended components of topsoil, and compost for a plant growing medium to enhance existing soils. The components by volume consist of:

1. 50% existing salvaged topsoil, and
2. 50% compost meeting requirement of 3890 “Grade 2 Compost.”

Provide Type 4 fertilizer in accordance with 3881, plant hormones in accordance with 3896.

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### 3877.3 SAMPLING AND ACCEPTANCE

Provide material from vendors that have been approved by Mn/DOT’s Erosion and Storm water Management Unit or submit a list of prospective sources for topsoil material to the Engineer at the preconstruction meeting to allow for inspecting, testing, and approving the sources. Submit preapproval test results to the Office of Environmental Stewardship, Erosion & Stormwater Management Unit. If federal or state chemical or biological requirements conflict, provide material meeting the most stringent requirement.

Test blended topsoil for each individual component before blending.

The contractor shall conduct fertility testing in accordance with the standard testing procedures of the University of Minnesota Soils Testing Laboratory, Soil Science Department.

The contractor shall perform infiltration testing in accordance with ASTM D3385 for filter topsoil borrow.

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