

## **11.0 Earthwork**

### **11.1 Construction Requirements**

#### **11.1.1 Removal of Structures**

The Contractor shall raze, remove, and dispose of all structures and obstructions which are identified on the Project, except utilities and structures and obstructions removed under other contractual agreements, and salvable material designated to remain the property of the Department.

Substructures of existing structures, regardless of location, shall be removed a minimum of one (1) foot below the existing natural ground surface or the proposed ground surface, whichever is at a lower elevation, and a minimum of five (5) feet horizontally from proposed underground structures if a conflict exists.

#### **11.1.2 Clearing and Grubbing**

The trees, logs, limbs, stumps, brush, trash, and other unsuitable materials cleared and grubbed from the Project shall be removed from the Site to an off-Site location by the Contractor.

The Contractor shall conduct a landscape walkthrough prior to the start of any construction activities according to requirements of Book 2, Section 17 – Landscaping.

#### **11.1.3 Excavations and Embankments**

New embankment shall be benched into the existing slopes, where required, in accordance with Section 203.06 of the Standard Specifications.

#### **11.1.4 Material Requirements**

Except as required below, all embankment material shall have a minimum resistance value (R-value) of 40 when tested by the Hveem Stabilometer and shall consist of A-1 or A-2 material when classified in accordance with AASHTO M 145. This material will be required for both the portion of the roadway embankment defined as the “roadway prism” (See section 101.65 of the 2011 Standard Specifications) and for all other embankment material that is placed outside of the “roadway prism”.

#### **11.1.5 I-25 Mainline, New Auxiliary Lanes, Ramps and City Streets**

The top two feet of subgrade immediately under the proposed Pavement Structure on all newly constructed composite pavements shall have a minimum resistance value (R-value) of 60 when tested by the Hveem Stabilometer and shall consist of A-1 or A-2 material when classified in accordance with AASHTO M 145. The minimum horizontal limits for this material shall be the outer limits of the Pavement Structure, including shoulders and curb and gutter, plus two feet on each side.

The Contractor shall utilize the soils information included in Book 5 - Reference Documents and conduct a supplemental soil survey to confirm/ascertain whether the existing roadway soil satisfies the above conditions if it is desired to re-use the on-site materials in the “roadway prism”. If the on-site materials are re-used, the material will be tested as stated in the 2014 CDOT Field Materials Manual during construction. This supplemental soil survey shall conform to the requirements as stated in the 2014 CDOT Field Materials Manual. Test holes are required

---

at least every 1,000 feet. The Contractor shall provide any additional mitigation required as a result of the supplemental soil survey.

Where Roadway embankment is retained by structurally designed walls (retaining walls), the retained embankment material properties must be compatible with the soil parameters used in design of the walls. This applies to both externally stabilized and internally stabilized wall systems.

The results of the supplemental soil survey, along with any additional mitigation measures required, shall be submitted to CDOT for Approval before any embankment, aggregate base course, pavement and pavement related Work commences. The above information shall be submitted in a report format that clearly and concisely describes the existing soil conditions, delineates areas needing additional mitigation, and defines the required mitigation measures. The report shall include a soil profile, boring log, and the test results and shall be signed and sealed by a Professional Engineer.

All Work shall be conducted per the 2014 CDOT Pavement Design Manual and the 2014 CDOT Field Materials Manual.

Alternative subgrade treatment shall be submitted to CDOT for Approval before any embankment, aggregate base course, pavement, and pavement related Work commences.

#### **11.1.6 Bikeways/Multi-Use Trails**

Bikeways/Multi-use trails shall be underlain by 6 inches of Aggregate Base Course (ABC) (Class 6) material. Soil 1 foot beneath the ABC (Class 6) material shall be treated per the Contract Documents. The ABC (Class 6) material, and the subgrade moisture treatment/recompaction shall extend to the outer limits of the pavement, plus two feet on each side.

#### **11.1.7 Compaction Requirements**

Depth of moisture-density control for this Project shall be as follows:

1. Full depth of all embankments
2. Six (6) inches for bases of cuts and fills unless otherwise specified
3. Twelve (12) inches underneath the proposed pavement section (pavement/base course/soil)

#### **11.1.8 Reuse of Materials**

The Contractor is allowed to use broken concrete that is less than 6 inches in maximum dimension or broken asphalt that is less than 6 inches in maximum dimension for embankment material provided it is placed in accordance with Section 203.06 of the Standard Specifications. Broken concrete or asphalt less than 6 inches in maximum dimension will not be allowed to be used within the top 5 feet of embankment material immediately below the proposed Pavement Structure or as ABC within the Pavement Structure

Asphalt millings are allowed to be used for embankment material and shall be placed in accordance with the Standard Specifications. Asphalt millings will not be allowed to be used within the top 2 feet of embankment material immediately below the proposed Pavement Structure or as ABC within the Pavement Structure.

The Contractor shall not dispose of broken concrete greater than 6 inches in maximum

dimension or asphalt greater than 6 inches in maximum dimension within the Project limits. With Approval of CDOT, the existing subgrade may remain in place if it meets all other requirements herein, before any embankment, aggregate base course, pavement and pavement related Work commences.

**11.1.9 Available Potential Source of Material**

Potential sources of material have not been identified for this Project.

**11.1.10 Geotextiles**

Geotextiles shall meet the requirements for Geotextile Class I (Per AASHTO M 288) and be approved for stabilization and separation applications. The geotextile shall be selected from the New York State Department of Transportation list of approved products available at: <https://www.nysdot.gov/divisions/engineering/technical-services/technical-services-repository/alme/pages/470-1a.html>.

Locations requiring geotextile installation shall be as Approved by CDOT before any embankment, aggregate base course, pavement and pavement related Work commences. Where geotextile installation is required, in-situ soil shall be scarified to a depth of at least 12 inches and then compacted, following requirements of the Standard Specifications.

The geotextile shall be installed per manufacturer's recommendations.

**11.2 Deliverables**

At a minimum, the Contractor shall submit the following to CDOT for review, Approval and/or Acceptance:

<b>Deliverable</b>	<b>review, Acceptance or Approval</b>	<b>Schedule</b>
Results of the supplemental soil survey along with any proposed mitigation measures	Approval	Before any embankment, aggregate base course, pavement and pavement related Work commences
Alternative subgrade treatment	Approval	Before any embankment, aggregate base course, pavement and pavement related Work commences
The existing subgrade will be allowed to remain in-place	Approval	Before any embankment, aggregate base course, pavement and pavement related Work commences
Locations requiring geotextile installation	Approval	Before any embankment, aggregate base course, pavement and pavement related Work commences

All deliverables shall also conform to the requirements of Section 3 – Quality Management.