

## SECTION 204 EXCAVATION AND EMBANKMENT

### 204.01 **DESCRIPTION** – Revised the paragraph of this subsection to read as follows:

This work consists of excavating material, including asphalt and concrete pavements, and constructing embankments. This includes furnishing, hauling, stockpiling, placing, and disposing, sloping, shaping, compacting, and finishing earthen and rocky material.

### 204.02 **DEFINITIONS-**

- (a) Excavation:
- (1) Roadway Excavation – The definition of this item is amended to include sub excavation of material below subgrade as shown on the plans. All excavated material suitable for embankment shall be reused.

## CONSTRUCTION REQUIREMENTS

### 204.06 **ROADWAY EXCAVATION** - The following is added to this Subsection:

The contractor has the option to dispose of or reuse excavated asphaltic concrete pavement for roadside embankment outside the roadway structural component provided it is broken into sizes not greater than 4 inches in largest dimension and blend with fill material by windrowing or other method approved by the CO. Excavated aggregate courses unsuitable to be incorporated in the proposed base but can be utilized as embankment material shall be conserved and later use.

Rock Cuts. Revise the text of this subsection to read as follows:

Blasting of rock shall not be permitted. Excavate rock cuts to 6 inches below subgrade within the roadbed limits. Backfill to subgrade with suitable coral aggregate material. Compact in accordance with Sub section SCR 204.11.

Earth Cuts. Revise the text of this subsection to read as follows:

After the stripping and required excavation are completed, in area to receive fill and in excavated area, the exposed surface should be scarified to a depth of approximately 6 to 8 inches, moisture conditioned as necessary, and compacted with a heavy vibratory roller at least 15 tons in weight, until it is dense and unyielding with at least 95 percent of its maximum dry density (per ASTM D1557 laboratory compaction test procedure) for sand/gravel soils or 90 percent maximum dry density for cohesive silt and clay soils. The compacted surface should be relatively uniform, dense, and none-yielding, including the edges.

Where the stripped or excavated ground surface is soft and/or yielding, and where soft or yielding spots are detected during the above recompaction and proof rolling, the soft, loose, or yielding soils should be excavated and replaced with limestone sand/gravel fill compacted to at least 95% of its maximum dry density in 8-inch loose layers.

**204.06A     CONTRACTOR'S RESPONSIBILITY INVOLVING ARCHAEOLOGICAL DISCOVERY**  
**(Added Subsection)**

Report to the Commonwealth Historical Preservation Office (HPO) for verification and determination any discovery encountered during execution of this contract bearing archaeological, cultural, or historical content.

**OPTIONAL**

In the event that items with archaeological value are discovered during excavation work involving cutting, filling, scarifying, utility relocation, bridge or drainage culvert work, etc., immediately notify the Commonwealth Historical Preservation Office or the CO for verification and determination of the discovery.

All excavation work shall immediately halt in the suspected archaeological site discovered until the archaeologist and the State Historic Preservation Office gives the approval for resuming construction. The Contractor further agrees to continue construction in the area outside the data recovery site using light to moderate equipment in excavation work subject to the approval of the Engineer and/or the Archaeologist. The Contractor shall fully cooperate with the archaeologist and coordinate all work thereafter during implementation of a Data Recovery Plan.

The Contractor shall take all precautionary measures as directed by the authorized Archaeologist for Department of Public Works to minimize any contamination of storm water runoff, silt, organic debris, fuels and other harmful materials that may disturb the strata or excavated portions that are being analyzed or recovered. The Contractor shall provide temporary measures to prevent spillage or direct entry into the pit or work area of the roadway necessary to accommodate public traffic at all times, and shall take every precaution against public injury or damage to the surrounding areas within the work site area.

The Contractor and/or Subcontractor shall not claim compensation for any delay of work as a result of any unforeseen archaeological site discovered during construction. Time extension may be granted to the Contractor for such delays resulting from discovery of historic resources in the project. No construction work shall resume or be continued in the Data Recovery Site until such time an approval has been issued by the Engineer or the Archaeologist.

**204.07     SUB-EXCAVATION - Revise the text of this subsection to read as follows:**

Any material to be excavated from below the roadway sub-grade elevation shall require first the approval of the Contracting Officer or his Authorized Technical Representative. With the approval of the Contracting officer or his Authorized Representative or His Authorized Technical Representative, where the stripped ground surface is badly disturbed, too soft or loose for recompaction, the soft, loose soils should be excavated for replacement with compacted limestone sand/gravel fill. The geotechnical engineer should inspect and determine the extent of the additional excavation that that will be required.

Where the on-site silty soil is exposed within the roadway and shoulder, should be excavated to a depth of one more foot below the bottom of the new pavement subbase course layer elevations, excavate the clay silt material to the limits designated by the

Contracting Officer or his Authorized Technical Representative, for the replacement with non-expansive, limestone sand/gravel fill of subbase quality or essentially one more foot thick of subbase course to be total of 2 feet thick of subbase course below the base course layer.

The aggregate subbase soil should meet the requirements recommended on Section 301.02A of this Special Provisions.

Any disturbed soils including dislodged limestone cobbles and boulders and additional tree roots that are found during the above process should also be removed entirely for replacement with compacted new backfill.

**204.09      PREPARING FOUNDATION FOR EMBANKMENT CONSTRUCTION**

(d) Revise the subject heading of this subsection to read as follows:

Embankment on existing slope steeper than 5H: 1V (5 units horizontal to 1 unit vertical), provide keyway and benches. Depth and width of Keyway will depend on the size of the new fill and existing slope, typically minimum 3 feet deep or to rock and one dozer or loader bucket width. Actual dimensions may be modified in the field as directed by the Soil Engineer.

**204.10      EMBANKMENT CONSTRUCTION - Revise the first paragraph of this subsection to read as follows:**

Incorporate only suitable coral aggregate material obtained from the roadway excavation, processed screened, and tested to meet the requirement of aggregate sub-base in accordance with sub-section 301.02(A) and approved by the Contracting Officer or his Authorized Technical Representative, into roadway embankment. When the supply of the suitable and approved coral aggregate sub-base material is exhausted, borrow fill as defined in sub-section 204.02(a.3) Borrow Excavation, to complete the embankment.

(b) Embankment within the roadway prism: Place the approved and suitable material in horizontal layers not exceeding 10 inches in loose layer measurement, moisture condition as necessary. Compact each layer according to subsection 204.11 before placing the next layer.

**204.11      COMPACTION**

(b) Earth Embankment: Add the following paragraph:

Approved fill and backfill soils should be placed in 10-inch maximum loose layers, moisture conditioned as necessary, and compacted to at least 95% of its maximum dry density for limestone sand/gravel soil fill and 90 percent maximum dry density for cohesive silt or clay soils.

Also add the following:

Compact the suitable and approved earth material with a heavy vibratory roller of at least 15 tons in weight.

**204.13      SLOPING, SHAPING AND FINISHING**

**(a)    Sloping:** Add the following:

The final cut and fill slopes, including cut slopes for earth/grass swales and ponding basins, shall expose a uniform, dense compacted surface. After the final grading is completed, the slopes shall be covered with rolled erosion control products and planted with approve ground cover to reduce soil erosion at the direction of the Contracting officer or his Authorized Technical Representative.

**204.14      DISPOSAL OF UNSUITABLE OR EXCESS MATERIAL** – Revise this subsection to read as:

Dispose of unsuitable or excess material according to Subsection 203.05 of this Special Provision.

**204.15      ACCEPTANCE** - Revise the frequency of testing for in-place density and moisture content of Table 204-1.

**1. Sampling and Testing**, to read as follows:

<u>Material or Product</u>	<u>Frequency</u>
Earth Embankment (Roadway Excavated Material, backfill material, and Unclassified borrow)	1 for each 350 square yards but not less than 1 for each layer.
Select Borrow, Select Topping, and Topping	1 for each 100 cubic yards but not less than 1 for each layer.

**204.16      MEASUREMENT** - The following are changes on particular items to read as follows:

**(a)    Roadway Excavation:**

The excavation as a result of removing existing pavement, subbase and base course shall be included in the measurement to be paid under this section.

The excavation and backfill required for rigid pavement will be measured under Section 204 and Section 301.

**(b)    Embankment Construction:**

Measurement for embankment construction shall be by the cubic yard in final position and shall also include processing, screening, testing, placing and compaction of the approved and suitable embankment material.

**(g)    Waste.** Delete the text of this sub-section and substitute the following:

Waste and its disposal will not be measured separately for payment. It is considered a subsidiary obligation of the Contractor in the performance of the work.

**204.17      PAYMENT** - This Subsection is supplemented as follows:

All existing base course and bituminous surface materials reused for embankment outside the roadway structural component will not be paid separately. No direct payment will be made in placing and compacting but will be considered under roadway excavation.

Payment will be made under:

Pay Item No.	Pay Item	Pay Unit
20401	Roadway Excavation (Cut)	Cubic Yard
20403	Roadway Embankment Construction (Fill)	Cubic Yard
20404(A)	Ponding Basin, (PB1 & PB2 including all appurtenances) complete-in-place	Lump Sum
20404(B)	Ponding Basin, (PB3 & PB4 including 12-inch-thick manufactured sand, 18-inch dia. HDPE pipe, riprap and all appurtenances) complete-in-place	Lump Sum

**END OF SECTION 204**