

## SECTION 02210

### GRADING AND EXCAVATING

#### PART 1 GENERAL

##### 1.01 WORK INCLUDED

- A. Excavating and grading of:
  - 1. Roadways (including the removal of slides)
  - 2. Borrow pits
  - 3. Waterways and ditches (including structure inlet and outlet ditches, channels, waterways, etc., even though they extend beyond the highway limits)
  - 4. Intersections
  - 5. Approaches
  - 6. Benches under side-hill embankments
- B. Excavating of unsuitable material from roadbed and beneath embankment areas.
- C. Excavating selected material found in the roadway, which is required for specific use in the construction.
- D. Construction and removal of detours.
- E. Section 02200: Erosion Control
- F. Tree Protection

##### 1.02 RELATED WORK

- A. Section 02050: Demolition
- B. Section 02110: Clearing and Grubbing

##### 1.03 CLASSIFICATION OF EXCAVATION MATERIALS

- A. Road and Drainage Excavation (unclassified): all excavation regardless of the nature of the excavated material except borrow, channel, undercutting and solid rock excavation provided for in the Bid Form.
- B. Borrow excavation: material required for construction and obtained from approved sources outside the rights-of-way limits or other designated areas. Flattening of approved cut slopes graded under previous contracts is permitted for use as borrow provided the material is satisfactory. Borrow material other than solid rock shall be AASHTO A-6 or no worse than the predominant soil type in the roadway excavation, based on AASHTO classification if A-6 is not reasonably available. Removal and placement of borrow is classified as:

1. Borrow Excavation (solid rock): non-degradable rock, which cannot be economically excavated by the proper use of a power shovel or explosives.
  2. Borrow Excavation (unclassified): all approved material including Borrow Excavation (solid rock).
  3. Borrow Excavation (select material): designated material.
- C. Channel Excavation (unclassified): removal and disposal of all material excavated from existing or new channels with a bottom width of more than fourteen feet as shown on the drawings.
- D. Road and Drainage Excavation (unclassified): Channel excavation with a bottom width fourteen feet or less, as shown on the drawings.
- E. Solid Rock Excavation: An excavation classification only when it is provided for in the Bid Form and defined as follows:
1. Excavation of rock, which cannot be economically excavated without the use of explosives;
  2. Any rock, boulder, fragment of rock or concrete having a volume of at least one-half (1/2) cubic yard or a fragment excavated from a formation having a volume greater than one-half (1/2) cubic yards.

#### 1.04 REFERENE STANDARDS

- A. Determine maximum density and optimum moisture in accordance with the "Standard Method of Test for Moisture Density Relationship of Soils Using a 5.5 Pound Rammer and a 12-inch Drop", AASHTO Designation T99, Method A. or other methods as approved by Town Engineer.
- B. Compact all designated materials to 95% of maximum density unless otherwise specified.
- C. Rock borings or soundings, if provided, are:
1. For information purposes only.
  2. No guarantee of existing conditions.
  3. No substitute for investigations deemed necessary by Contractor.

## **PART 2 PRODUCTS** (NOT APPLIABLE)

## **PART 3 EXECUTION**

### 3.01 PREPARATION

- A. Prior to beginning excavation, grading and embankment operations in any areas, perform all necessary clearing, grubbing and demolition in accordance with Sections 02110 and 02050.

### 3.02 EMBANKMENT

- A. Construct embankments by placing and compacting approved embankment materials:
  - 1. In reasonably close conformity with the lines, grades and typical cross-sections shown on the drawings or established by the Engineer.
  - 2. Use Road and Drainage, Channel and Borrow Excavation materials only.
  - 3. Compact the top 6" of the roadbed in both cut and fill sections prior to filling unless otherwise specified.
  - 4. Place roadway embankment materials consisting predominantly of soil in horizontal layers not to exceed eight inches in depth and compact each layer.
- B. Provide adequate surface drainage for embankments at all times.

### 3.03 EXCAVATION UNDER GRADE (UNDERCUTTING)

- A. Remove and dispose of unsatisfactory materials.
  - 1. Below grade in cut sections.
  - 2. Areas where embankments are to be placed.
  - 3. Below the foundation elevation of pipe and box culverts.
- B. Stripping, stockpiling and placing of topsoil and step-benching for hillside embankments is not classified as undercutting.

### 3.04 CLEAN-UP AND DISPOSAL OF DEBRIS

- A. Dress for final inspection all excavated and graded areas to within reasonably close conformity to the lines, grades and cross-section shown on the drawings:
  - 1. Producing a uniform, satisfactory finish.
  - 2. Scale rock cuts of all loose fragments and leave in a neat, safe and workmanlike condition.
  - 3. Clean the entire rights-of-way of all vegetation unless otherwise specified on the drawings.
  - 4. Clear and clean all structures of all objectionable materials and obstructions.
  - 5. Perform final dressing prior to sodding and seeding operations when these items are in the Contract.
- B. Dress spoil banks, waste areas, etc. in a satisfactory manner.
- C. Dispose of excess material created by trimming slopes, resloping, and shaping outside the rights-of-way.
- D. Promptly remove cleared debris from site.

- E. Obtain permission from applicable regulatory authority for disposal of debris to waste disposal site.

END OF SECTION