
PART 1 GENERAL**1.1 SCOPE:**

- A. This work consists of excavation and grading for streets, sidewalks, planting areas, cuts, embankments, slopes, ditches, driveways, and all other earth moving work required in construction of the project, including disposal of surplus material.
- B. Excavation and grading specified as incidental to work items in other sections of these specifications will not be included in this section.

1.2 DEFINITIONS:

- A. **UNCLASSIFIED EXCAVATION** - Unclassified excavation is defined as all excavation regardless of the type, nature, or condition of the materials encountered.
- B. **RELATIVE COMPACTION**: The ratio, in percent, of the as-compacted field dry density to the laboratory maximum dry density as determined by ASTM D 1557 ASSHTO T-180 directed by the engineer.
- C. **OPTIMUM MOISTURE CONTENT**: Determined by the ASTM D 2216 standard specification to determine the maximum dry density for relative compaction.
- D. **PERMITTED LANDFILL** - A permitted landfill is defined as any solid waste landfill which has been approved and granted a permit for receiving the type(s) of material being deposited, from the Agency having jurisdiction.
- E. **CONTROLLED DENSITY FILL (CDF)**: A rippable, cementuous, mineral and water mixture placed in an open excavation in lieu of aggregate or soil backfill, and as specified.

1.3 SITE CONDITIONS:

- A. Submission of a Proposal shall be conclusive evidence that the Bidder has investigated the site and is satisfied as to the conditions to be encountered, the character, quality and quantity of work to be performed to complete the construction as specified.

PART 2 PRODUCTS**2.1 BORROW AND EMBANKMENT MATERIALS:**

- A. The Contractor shall provide embankment and borrow materials of approved earth, sand, gravel or rock, or combination thereof, free of peat, humus, muck, vegetative matter, organic matter or other materials detrimental to the construction of firm, dense, and sound embankment.

2.2 CONTROLLED DENSITY FILL (CDF):

- A. Controlled density fill (CDF) shall be as specified in Section 2050 CEMENTIOUS PATCHING & GROUTING MATERIALS.

2.3 AGGREGATE FILL:

- A. Imported aggregate fill shall be of the class, type, and designated gradation specified on the plans and shall otherwise conform to Section 2300 AGGREGATES.

PART 3 EXECUTION**3.1 PRESERVATION OF EXISTING IMPROVEMENTS:**

- A. The Contractor shall conduct operations in a manner that will protect any and all existing facilities in accordance with Article E(8) of the General Conditions and as directed by the Engineer.

3.2 EXCAVATION OF EXISTING FACILITIES:

- A. The Contractor shall remove remaining ends of abandoned pipes or portions of other items partially removed under this work, which would be left, exposed on side slopes or at subgrade, to a minimum of 1-foot beyond or below the finished slope or subgrade. Abandoned pipes shall be capped or plugged watertight.

3.3 OVER EXCAVATION:

- A. The Contractor shall remove unsuitable subgrade material as directed. Excavation below subgrade shall be of the same classification as that above subgrade provided it is removed in the same operation as the excavation above subgrade. When the street excavation has been completed and it is required to move equipment in to excavate unsuitable material, or where special equipment is required, the work shall be performed as directed and will be paid for as over excavation.
- B. Excavation made below grade without authorization shall be restored to grade by the Contractor, as directed, at no expense to the Owner.
- C. The Contractor shall remove any material which is excavated, displaced, or loosened outside and beyond the required slopes, lines, or grades, regardless of whether the over break is due to blasting, to the inherent character of any formation encountered, or to any other cause. Removal and disposal of over break, and replacement with approved materials, shall be by the Contractor at no expense to the Owner except in cases where the Engineer determines that such over break was unavoidable.

3.4 USE OF EXPLOSIVES:

- A. Blasting is prohibited unless approved in writing from the Engineer.

3.5 EMBANKMENT CONSTRUCTION:

- A. Embankment construction shall include preparation of the areas upon which embankments are placed, construction of dikes, and the placement and compaction of approved embankment

material for replacement of unsuitable material and filling of holes, pits, and other depressions within the street area.

- B. The Contractor shall place embankments and fills in horizontal layers of 8-inches maximum depth and compact each layer to the density specified.
- C. In the immediate vicinity of curbs, walks, driveways, inlets, manholes and similar structures, in holes, and where the normal compacting equipment cannot reach embankment and fill materials, the Contractor shall compact to specified density by approved methods.
- D. When the excavated material is predominately of rock too large to be placed in the thickness prescribed, the material may be placed in thickness up to the average rock dimension not to exceed 3-feet. Each layer will be leveled and smoothed by distribution of spalls and finer fragments or earth.
- E. Where end dumping is employed, direct end dumping on the previously constructed layer of embankment will not be permitted. Rock shall be dumped on the layer of embankment being constructed and dozed ahead into place. The large rock shall not be placed where it will project above an elevation 2-feet below the finished grade.
- F. When a rock fill is placed over any structure, the structure will be covered and compacted with a minimum of 2-feet of earth or other approved material before the rock is placed.
- G. Embankments shall not be constructed when the embankment material or the foundation on which the embankment would be placed is frozen.

3.6 LINE AND GRADE:

- A. Finished line and grade shall be compacted, smooth and free of irregularities and within plus or minus 0.05-feet of that shown on the plans for soil and aggregate grading.

3.7 COMPACTION:

- A. The density of compacted materials in place will be 95-percent of AASHTO T-180 or as specified on the Plans or in the Special Provisions.
- B. The Contractor shall water the materials to provide optimum moisture for compaction of embankments and backfills. Embankment or backfill materials shall not be placed in final position until moisture in excess of optimum moisture has been removed. Field moisture content shall be tested in accordance with ASTM D 3017.
- C. If approved materials meeting the specifications cannot be compacted to the required density regardless of compactive effort or method, the Engineer may reduce the required density or direct that alternate materials be used. In no case shall earthwork operations proceed until the Contractor is able to compact the material to the satisfaction of the Engineer.

3.8 DISPOSAL OF EXCAVATED MATERIAL:

- A. Excavated material in excess of that needed to complete the work shall be disposed of at no expense to the Owner.
- B. All waste material shall be deposited in an approved and/or "Permitted" landfill as defined herein.

3.9 DEWATERING:

- A. Dewatering shall conform to the requirements as outlined in Article H.6 of the General Conditions of the City of Woodburn, OR.

3.10 SHORING:

- A. Shoring, sheeting and bracing of trenches and pits shall conform to Article H.5 of the General Conditions of the City of Woodburn, OR.

3.11 MEASUREMENT AND PAYMENT:

- A. Items will be paid based upon the unit price in the Bid and as measured in the field. If no Bid Item exists for this type of work it is considered incidental to the work.

PART 4 TESTING**4.1 EMBANKMENT AND BORROW MATERIAL:**

- A. At the direction of the Engineer a sample of the material shall be taken and tested by a qualified testing laboratory for gradation.
- B. The Engineer may test material for density and moisture content of in place material.
- C. Line and grade shall be checked by the Engineer prior to approval of any completed lift of embankment material before the next or differing material can be placed.

4.2 CONTROLLED DENSITY FILL (CDF):

- A. CDF shall be tested in conformance with ASTM D4832, latest revision.

END OF SECTION