

SECTION 312000 - EARTH MOVING

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Unauthorized excavation consists of excavation below subgrade elevations or beyond indicated lines and dimensions without direction by Architect. Unauthorized excavation, as well as remedial work directed by Architect, shall be without additional compensation.
- B. Do not interrupt existing utilities serving facilities occupied by Owner or others unless permitted in writing by Architect and then only after arranging to provide temporary utility services according to requirements indicated.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Satisfactory Soil: ASTM D 2487 Soil Classification Groups GW, GP, GM, SW, SP, and SM; free of rock or gravel larger than 2 inches in any dimension, debris, waste, frozen materials, vegetation, or other deleterious matter.
- B. Unsatisfactory Soil: ASTM D 2487 Soil Classification Groups GC, SC, ML, MH, CL, CH, OL, OH, and PT.
- C. Backfill and Fill: Satisfactory soil materials.
- D. Engineered Compacted Fill: Granular soil having a maximum size of 6" with less than 30% passing a No. 200 sieve. Material passing a No. 200 sieve shall have a plasticity index of less than 6.
- E. Base Course (Un-treated Base Course): Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand, Utah State Department of Transportation 1 inch gradation specification, with 100 percent passing a 1 inch sieve, 79 – 91 percent passing a ½" sieve, 49 – 61 percent passing a number 4 sieve, 27 – 35 percent passing a number 16 sieve, and 7 – 11 percent passing a number 200 sieve. Alternatively, ¼" washed chip under-slab fill material may be used if sides of fill are contained.
- F. Bedding Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; except with 100 percent passing a 1-inch sieve and not more than 8 percent passing a No. 200 sieve.
- G. Drainage Course: Narrowly graded mixture of washed crushed stone, or crushed or uncrushed gravel; ASTM D 448; coarse-aggregate grading Size 57; with 100 percent passing a 1-inch sieve and 0 to 5 percent passing a No. 200 sieve. Material passing a No. 200 sieve shall have a plasticity index of less than 6.

PART 3 - EXECUTION

3.1 EARTHWORK

- A. Protect and maintain erosion and sedimentation controls, which are specified in Division 31 Section "Site Clearing," during earthwork operations.
- B. Protect subgrades and foundation soils from softening and damage by water, freezing temperatures, or frost.
- C. Explosives: Do not use explosives.
- D. Excavate to subgrade elevations regardless of character of materials and obstructions encountered.
- E. Excavate for structures, building slabs, pavements, and walkways. Trim subgrades to required lines and grades.
- F. Utility Trenches: Excavate trenches to indicated slopes, lines, depths, and invert elevations. Maintain 12 inches of working clearance on each side of pipe or conduit.
 - 1. Place, compact, and shape bedding course to provide continuous support for pipes and conduits over rock and other unyielding bearing surfaces and to fill unauthorized excavations.
 - 2. Place and compact initial backfill of satisfactory soil material or base course material, free of particles larger than 1 inch, to a height of 12 inches over the utility pipe or conduit. Place and compact final backfill of satisfactory soil material to final subgrade.
- G. Plow strip or break up sloped surfaces steeper than 1 vertical to 4 horizontal to receive fill.
- H. When subgrade or existing ground surface to receive fill has a density less than that required for fill, break up ground surface, pulverize, moisture-condition or aerate soil, and recompact.
- I. Place backfill and engineered compacted fill in layers not more than 8 inches in loose depth at moisture content within 2% of optimum. Compact each layer under foundations and building slabs to 95% of maximum dry unit weight according to ASTM D 698; 92% under exterior slabs, walkways, curb, gutter and pavements; elsewhere to 90 percent.
- J. Grade areas to a smooth surface to cross sections, lines, and elevations indicated. Grade lawns, walkways, and unpaved subgrades to tolerances of plus or minus 1 inch and pavements and areas within building lines to plus or minus 1/2 inch.
- K. Under pavements and walkways, place base course material on prepared subgrades and compact at optimum moisture content to required grades, lines, cross sections, and thicknesses.
- L. Under interior slabs-on-grade, place drainage course on prepared subgrade and compact to required cross section and thickness by means of four passes with a smooth drum 5-ton vibratory roller or equivalent.
- M. Allow testing agency to inspect and test each subgrade and each fill or backfill layer and verify compliance with requirements.

- N. Remove surplus satisfactory soil and waste material, including unsatisfactory soil, trash, and debris, and legally dispose of it off Owner's property.

END OF SECTION 312000