

SECTION 31 00 00**EARTHWORK****PART 1 - DESIGN DIRECTIVES****1.1 PROJECT INCLUDES**

- A. Excavation, filling, compaction, and grading for buildings, site improvements, and utilities.
- B. Materials for subbase, drainage fill, and backfill for slabs, pavements, and improvements.
- C. Rock excavation without blasting unless authorized.
- D. Supply of additional materials from offsite if required.
- E. Removal and legal disposal of excavated materials.

1.2 QUALITY ASSURANCE

- A. Compaction:
 - 1. Under structures, building slabs, steps, pavements, and walkways, 95 percent maximum density, ASTM D 1557.
 - 2. Under lawns or unpaved areas, 90 percent maximum density, ASTM D 1557.
- B. Grading Tolerances Outside Building Lines:
 - 1. Lawns, unpaved areas, and walks, plus or minus 1 inch.
 - 2. Pavements, plus or minus 1/2 inch.
 - 3. All grading must be water tested prior to payment for the work to assure storm water flow into catch basins and storm drain inlets.
- C. Grading Tolerance for Fill Under Building Slabs: Plus or minus 1/2 inch measured with 10 foot straightedge.

1.3 EXISTING CONDITIONS

- A. Comply with the Dig Safe Laws for the state of New Hampshire and Dartmouth College. See attachment at the end of Section 02 41 19. There is a Dartmouth College Dig Safe application form available from Facilities Operation and Management (tel no 646-1178)

1.4 DESIGN CRITERIA

- A. The following are the Hanover Fire Department Vehicle Weights (2/8/99) and should be taken into consideration when designing for roads and parking areas.
 - 1. Engine 1 – 45,740 pounds
 - 2. Engine 3 – 34,040 pounds
 - 3. Engine 4 – 35,000 pounds
 - 4. Engine 5 – 25,000 pounds

5. Ladder Tower – 54,000 pounds – turning radius is available from Hanover Fire Department
 6. Tanker 1 – 31,000 pounds
 7. Ambulance 150 – 11,000 pounds
 8. Ambulance 151 – 22,000 pounds
- B. Dartmouth College Equipment
1. Cherry Picker:
 - a. Minimum overhead clearance required – 11' 6"
 - b. Overall length in road position – 36' 10"
 - c. Shipping weight – Front Axle – 10810 lbs
 - d. Shipping weight – Rear Axle – 16570 lbs
 - e. Total shipping weight – 27380 lbs
 - f. Wheelbase (WB) – 224"
 - g. Rear of cab to rear axle centerline (CA) – 166"
 - h. Maximum height from platform to ground – 71' 11"
 - i. Maximum horizontal reach – 58' 2"
 - j. Minimum horizontal reach – 25' 2"
 - k. Overall width - 8'-6'
- C. Reference DOT Standards H20 loading

PART 2 - PRODUCTS

- 2.1 MATERIALS:** The architect must confirm that the material and compaction requirements of the civil and structural design agree.

PART 3 - EXECUTION

- 3.1 COMPACTION:** The architect must confirm that the civil and structural design requirements for compaction agree.

3.2 ROCK EXCAVATION

- A. Comply with NHDOT "Standard Specifications", Section 203.

3.3 IMPORT OF SOIL MATERIALS

- A. Specified soil materials brought onto the site for Dartmouth College projects shall have the source identified along with any environmental testing that has occurred at the source site. Dartmouth may choose to have samples of the material tested for presence of hazardous materials. Dartmouth project manager to coordinate with Dartmouth Environmental Health and Safety on whether tests should be done and what specific tests should be done. All earthwork activities shall be in compliance with the Dartmouth EHS soil management plan requirements.

3.4 REMOVAL AND LEGAL DISPOSAL OF EXCAVATED MATERIALS

- A. Bulk excavation of soils from a Dartmouth College site should be tested for hazardous materials prior to excavation. Records should be kept identifying location of legal disposal. Dartmouth

project manager to coordinate with Dartmouth Environmental Health and Safety on whether tests should be done and what specific tests should be done. All earthwork activities shall be in compliance with the Dartmouth EHS soil management plan requirements.

END OF SECTION 31 00 00