

Section 02350

Rock Removal

PART 1 - GENERAL

1.01 SCOPE

- A. This section includes the trench excavation and disposal of all rock and boulders encountered to the lines and grades indicated on the drawings or as specified.
- B. The Contractor shall dispose of the excavated material and shall furnish select backfill material in place of the excavated rock.
- C. A preblast survey shall be conducted by a company specializing in preblast surveys with a minimum of five years documented experience.
- D. Adhere to all local ordinances regarding blasting.

1.02 ROCK AND BOULDER DEFINITION

- A. Rock excavation will be interpreted as meaning ledge rock and boulders measuring more than two cubic yards or any other material which in the opinion of the Engineer requires drilling and blasting, or drilling and wedging, to remove. No hardpan, no soft or disintegrated rock which can be removed with a pick; no loose, shaken or previously blasted rock or broken stones smaller than two cubic yards, or frozen earth will be measured or allowed as rock excavation.

PART 2 - PRODUCTS

2.01 EQUIPMENT

- A. Equipment shall be at Contractor's option.

PART 3 - EXECUTION

3.01 BLASTING

- A. Obtain approval of the District Inspector before blasting.
- B. Perform blasting in accordance with the following:
  - 1. "Manual of Accident Prevention in Construction" issued by Associated General Contractors of America, Inc.
  - 2. "Construction Safety Rules and Regulations" as adopted by the State Board of Construction Safety, Augusta, Maine
  - 3. Section 107.12 of the "Standard Specification", Maine Department of Transportation.
- C. Submit an accurate record, on an approved form, containing the following information on each blast to the Engineer on a daily basis:

1. Location of blast
  2. Depth and number of drill holes
  3. Type and quantity of explosive used
  4. Time of blast
  5. Seismographic record of each blast taken at nearest structure
- D. Preblast survey shall be done by SUBContractor hired by Contractor. Provide preblast survey prior to any blasting or blasting related operations. Survey to be performed by an independent business entity with a minimum of 5 years experience in similar type surveys.
1. Preblast survey to include but not be limited to:
    - a. Still photos taken at 50 foot maximum stationing. (4" x 6" color prints).
    - b. Video tape of entire construction area.
    - c. Video tape of each structure within construction area to show preblast conditions. Highlight existing defects in structures and pavements. Provide some means of establishing scale of existing defects, i.e.: include tape measure or folding ruler at defect during video taping.
    - d. Video taping must be done with commercial grade equipment to allow equipment still viewing without distortion of the viewed area.
    - e. Still photos and video tape shall be retained by the preblast surveyor and shall be available for viewing by the Owner and Engineer within 24 hours upon request.
    - f. Blasting shall be conducted with all possible care so as to avoid injury to persons and property. Rock shall be well covered with effective appliances and sufficient warning shall be given to all persons in vicinity of work before blasting. Care shall be taken to avoid damage to water pipes, sewers, drains, or other utilities and structures. Caps or other exploders shall not be kept in same place in which dynamite or other explosives are stored or where tools and supplies are stored.
    - g. Contractor shall observe all Federal and State laws and local ordinances relating to storage, transportation and handling of explosives and blasting, and shall obtain and pay for all permits.
    - h. No blasting shall be done after 3:00 P.M. on weekdays, or at any time on Saturdays, Sundays, or holidays in any area where there are existing utilities.
    - i. If any damage or injury is directly or indirectly caused to water pipes or other utilities by the Contractor's blasting operations, the Contractor shall do whatever is required by the Utility Company to repair the damage and shall assume all cost for the repair work, whether it be done by the Contractor or the Utility Company itself.
    - j. Should the Contractor's blasting work prove unsatisfactory to the Engineer or Owner, the Owner shall have the authority to terminate blasting until the Contractor shall satisfy the

Engineer that future damages will be minimized. The Contractor shall provide and pay for the services of a blasting expert if required by the Engineer, and the expert shall submit a written report on the recommended blasting procedures which the Contractor shall follow. The blasting expert shall be subject to the approval of the Engineer. Ordered termination of blasting shall not be cause for a delay of work claim.

### 3.02 EXCESSIVE ROCK EXCAVATION

- A. All rock that is excavated beyond the pay limits shall be backfilled with suitable backfill material at no additional cost to the Owner.

### 3.03 SHATTERED ROCK

- A. If the rock below normal depth is shattered due to drilling or blasting operations of the Contractor, and the Engineer considers such shattered rock to be unfit for foundations, the shattered rock shall be removed and the excavation shall be backfilled with suitable material. All such removal and backfilling shall be done by and at the expense of the Contractor.

### 3.04 PREPARATION OF ROCK SURFACES

- A. All rock to be satisfactorily uncovered by the Contractor and made ready for measurement by the Engineer before any blasting is done.

### 3.05 DISPOSAL OF EXCAVATED ROCK

- A. Excavated rock may be used in backfilling trenches subject to the following limitations.
  - 1. No pieces of rock larger than 8 inches in the greatest dimension shall be placed in the backfill.
  - 2. The quantity of rock used as backfill in any location shall not be so great as to result in the formation of voids.
  - 3. Rock backfill shall not be placed in the gravel base area or within 24" of the surface of the finish grade.
- B. Surplus excavated rock shall be disposed of in areas approved by Owner.
- C. Acceptable borrow, similar to existing material, shall be provided by the Contractor as necessary to supply any deficiencies in trench backfill.

-- END OF SECTION --