

Seaside Rehabilitation and Healthcare Center
Portland, Maine

SECTION 02229 - ROCK EXCAVATION

PART 1 - GENERAL

1.01 GENERAL PROVISIONS:

- A. Documents affecting Work of this Section include, but are not necessarily limited to, The CONDITIONS OF THE CONTRACT General Conditions, Supplementary Conditions, Addenda and all Sections of Division 1, which are hereby made a part of this Section.
- B. Coordinate Work with that of other trades affecting or affected by Work of this Section. Cooperate with such trades to assure the steady progress of the Work.
- C. The "Standard Specifications" referred to herein is the book entitled "*Standard Specifications, Highways and Bridges*" published by the State of Maine Department of Transportation (latest date), and Supplemental Specifications in Force, excluding the following portions thereof:

DIVISION 100, Sections 102 through 109; NUMERICAL INDEX OF PAYMENT ITEMS INCLUDED IN EACH SECTION.

Those Sections of the aforementioned Standard Specifications which are cited herein are applicable to the Work of this Contract as they may be modified, amplified, or added to by this Section.

- D. Reference is made to the latest Erosion Control Report and Drawings prepared for this project. Strict adherence to this Plan must be followed in order to prevent adverse downstream impacts from erosion and sedimentation, originating from on site construction activity.
- E. Reference is made Section 02010-Subsurface Investigation regarding information and reports available on subsurface conditions. This information is available for bidder's information only. The information contained therein, including any rock excavation quantity estimate that may be derived therefrom, is not guaranteed. Refer also to Section 02000-Site Special Conditions. A boring Location Plan has not been prepared by Stantec Consulting Services, Inc.
- F. Reference is made to the City of Portland Blasting Ordinance and requirements and U.S. Department of Interior "Blasting Guidance Manual"; U. S. Bureau of Mines document "BUMINES RI 8507"; N.F.P.A. 495-"Code for Explosive Materials"; Maine State "Rules for Manufacture, Transportation, Storage and Use of Explosives" (MRSA Title 25, Section 2441); and Maine DOT "Safety Specifications", Section 107.12, "Use of Explosives."

1.02 DESCRIPTION OF WORK:

- A. Provide all labor, material, equipment and services required to complete all rock excavation as indicated on the Drawings, and/or as required to complete the Work, including both trench rock and open rock.
- B. Provide all necessary shielding and covering, and undertake all measures necessary to protect the Work and assure the safety of Workers, adjacent property, utilities, and the public.

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- C. Conform with all requirements of the City of Portland blasting Ordinance and regulations, including pre-blast surveys, notifications, hours of operation, blasting procedures, record keeping and violations.

PART 2 - PRODUCTS

2.01 MATERIALS:

- A. Explosives: As recommended by Blasting Contractor based on seismic survey, and as permitted by NFPA 495 and the Maine State Fire Marshall.
- B. Delay Device: As recommended by blasting Contractor, and as permitted by NFPA 495 and the Maine State Fire Marshall.
- C. Blast Mat Materials: As recommended by blasting Contractor.

PART 3 - EXECUTION

3.01 PREPARATION:

- A. Verify site conditions under provisions of Section 02000- Site Special Conditions.
- B. Verify site subsurface conditions and note any subsurface irregularities affecting Work of this Section. Refer to Section 02010 – Subsurface Investigation.
- C. Identify required lines, levels, contours, and datum. Refer to Drawings and Section 02030 - Layout of Work.
- D. Notify "Dig-Safe" (811 or 1-888-DIG-SAFE) at least 3 days prior to beginning any excavation or blasting Work.
- E. Accurately locate any existing utilities before beginning drilling or blasting; contact local utility companies.
- F. Check for conflict with underground utilities and existing structures. The Blasting Contractor shall notify the General Contractor and the Owner of any and all possible conflicts or potentially hazardous conditions before proceeding with the Work.

3.02 ROCK EXCAVATION (Blasting Method):

Considerable rock excavation will be required at this site. Rock excavation shall be defined as: All rock, ledge, or boulders in undisturbed soil that cannot be removed by a mechanical scarifier and power shovel of 1.0 cubic yards capacity, and/or D-8 Bulldozer with ripper, without use of line drilling or explosives. Boulders 2 cubic yards or smaller shall be considered to be unclassified material regardless of location. Concrete and cut stone encountered in excavations in excess of 2 cubic yards will be considered as "rock" as herein defined.

- A. Uncovering of Rock:

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When, during the process of excavation, rock is encountered, the Contractor shall notify the Architect/Engineer before proceeding further. The Contractor shall not proceed with the excavation of material claimed as rock until such material has been classified by the Architect/Engineer. Failure on the part of the Contractor to notify the Architect/Engineer for the purpose of taking Cross-Sections, etc., will forfeit the Contractor's right-of-claim to any credits or allowance for rock excavation.

B. Cross-Sections:

If required, the Contractor shall employ and pay for a Professional Civil Engineer or Professional Land Surveyor, acceptable to the Architect/Engineer, to take cross-Sections of rock and to provide computations of quantities within the limit of excavation lines. No material claimed as rock shall be drilled, blasted or removed until the following procedures have been performed:

1. The Contractor shall, by independent party as described above, quantify all rock excavation based on the design grades shown on the Drawings, and the pay limits for rock excavation specified herein (SS 3.02 F), and shall provide the Architect/Engineer with quantities, Sections and/or profiles for review prior to excavation.
2. The Architect/Engineer shall review cross sections and/or profiles, and shall approve or propose revisions to footings, trenches, layout and general grading, to minimize rock excavation if possible or necessary.
3. The Contractor shall confirm any proposed revisions and resultant rock quantity changes.
4. The Architect/Engineer shall provide to the Contractor a letter of authorization to proceed with excavation of material claimed as rock, which shall indicate the agreed upon quantity and price for the entire process of blasting, excavation, hauling and disposal.

C. Blasting:

1. The Blasting Contractor shall conduct a Pre-Blast Survey, including photographs, of all structures within the Blasting Area, and shall provide the Architect/Engineer with a written report of the Survey. A Pre-Blast Survey shall be performed for all structures within a minimum distance of 500 feet of any blast site, or as required by local ordinances. The Pre-Blast Survey shall encompass and reflect the U.S. Department of Interior, "Rules for Pre-Blast Surveys", cited in the Site Location of Development Law of the State of Maine.
2. All drilling equipment will be equipped with suitable dust control apparatus, which must be kept in operation and used during all drilling operations.
3. All blasting operations, including the transport, handling, and storage of explosives, shall be conducted in full compliance with all Federal and State laws and regulations and all local ordinances, and with all possible care so as to avoid injury to persons and property. Contractor shall limit ground vibrations to within the "safe limits" recommended in BUMINES RI 8507, and shall limit peak air over pressures (in decibels) within the range of 100-142 dB measured at the location of the nearest occupied structure. Contractor shall provide protection against flying rock; the rock shall be well covered, and sufficient

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warning shall be given to the Owner or his on-site representative, and to all persons in the vicinity of the Work before blasting. Care shall be taken to avoid injury to all utilities, above and below ground, to other buildings (including foundations) and structures, and to private property. The Contractor, in addition to observing all state and municipal ordinances relating to the storage and handling of explosives, shall also conform to any further regulations which the Owner or Architect/Engineer shall deem necessary. Responsibility for all damages to persons or property shall rest with the Contractor. Only personnel qualified in the use of explosives shall be employed for blasting.

4. Blasting shall be performed only after approval has been given by the Owner for such operation. The Geotechnical Engineer will be present to monitor all blasting; the Contractor shall provide sufficient notice to the Architect/Engineer to allow for proper monitoring.
5. All blasting and handling of explosives shall be performed in accordance with M.R.S.A. Title 25, Section 2442, and all pertinent provisions of: The "Manual of Accident Prevention in Construction", issued by the Associated General Contractors of America, Inc.; the "Construction Safety Rules and Regulations", as adopted by the State Board of Construction Safety, Augusta, Maine; the Maine Department of Transportation "Safety Specifications", Section 107.12, "Use of Explosives"; the U.S. Dept. of Interior "Blasting Guidance Manual"; and the U. S. Bureau of Mines "BUMINES RI 8507".
6. Any site where electric blasting caps are located, or where explosive charges are being placed or have been placed, shall be designated as a "Blasting Area."
7. Bring explosives to the Work site only as needed and in small quantities. Observe all applicable regulations governing transportation and handling of explosives, as outlined above.
8. A "Blasting Area" within three hundred (300) feet of any traveled way shall be marked in both directions by approved signs with information similar to the following:

"BLASTING AREA. TURN OFF TRANSMITTERS"

and on the reverse side:

"END OF BLASTING AREA"
9. Notify the Owner or his on-site representative at the existing Seaside facilities, and each public utility company having structures in proximity to the site of the Work, of each impending use of explosives, and give such notice sufficiently in advance to enable the Seaside facilities and the utility companies to take such steps as they may deem necessary to protect all persons and property from injury. Such notice shall not relieve the Contractor of responsibility for any damage resulting from his blasting operations.
10. The Contractor shall be liable for all damages to persons or property caused by blasting or explosions, or arising from neglect to properly guard and protect the excavations and all portions of the Work, and the Contractor shall wholly indemnify the Owner against claims on such account.

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11. No compensation will be allowed the Contractor in any event, or under any circumstances, for loss incurred by the Contractor or arising from the Contractor's neglect to fully comply with these or other applicable requirements.
12. Provide the Architect/Engineer with a Blasting Log for the Work, containing the following information:
 - a) Location
 - b) Time and date
 - c) Number of Holes
 - d) Amount and type of explosives used per hole
 - e) Measurement of peak particle velocity and frequency, at nearest structure
 - f) Air-blast monitoring results
 - g) The names of persons, companies, corporations, or public utilities Contracting, owning, leasing or occupying property or structures in proximity to the site of the blasting Work
13. Copies of blasting records, together with an explanatory narrative of the blasting, shall be submitted to the Architect/Engineer, as required.

D. Excavation:

1. All disturbed, broken or shattered rock fragments shall be excavated and removed from the final subgrade prior to placement of structural fill or foundations. Under footings, foundation bases, or retaining walls, fill over-excavated areas by extending indicated bottom elevation of footing or base to clean excavation bottom. When acceptable to the Architect/Engineer, concrete fill may be used to bring elevations to proper position.
2. Use of Excavated materials: Excavated rock suitable for use as embankment fill, rip-rap, or other use, as shown on the Drawings or as directed by the Architect/Engineer, shall be immediately utilized for such use where possible. Where excess quantities or scheduling conflicts make such immediate use impossible, the materials shall be removed from the area and properly disposed of off-site, or stored for later use at a location as directed by the Architect/Engineer. (See also Section 02220, SS 2.01 A.3).
3. Unsuitable Excavated materials: All non-salvageable rock, unsuitable subsurface material, refuse, and debris which accumulates as a result of Work under this Section shall become the property of the Contractor and shall be removed from the site. No refuse or debris of any nature shall be allowed to accumulate to the detriment of the Work or to the good appearance of the site. All such materials shall be gathered and disposed of at frequent, regular intervals in a legal manner.

E. Basis of Payment:

Payment shall be Lump Sum, Fixed Price.

END OF SECTION