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**PART 1 GENERAL**

**1.1 RELATED REQUIREMENTS**

- .1 31 23 33.01 - Excavating, Trenching and Backfilling
- .2 31 32 00 - Erosion and Sediment Control

**1.2 REFERENCE STANDARDS**

- .1 .1 Canada Green Building Council (CaGBC)

**1.3 DEFINITIONS**

- .1 Rock: any solid material in excess of 0.05 m<sup>3</sup> and which cannot be removed by means of heavy duty mechanical excavating equipment. Frozen material not classified as rock.
- .2 PPV: peak particle velocity.

**1.4 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Submit submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .3 Blasting Submittals: submit for approval, written proposal of operations for removal of rock by blasting to Departmental Representative and [local authorities having jurisdiction].
  - .1 Indicate [proposed method of carrying out work] [types and quantities of explosives to be used, loading charts and drill hole patterns, type of caps, blasting techniques, blast protection measures for items such as flying rock, vibration, dust and noise control]. Include details on protective measures, time of blasting and other pertinent details.
  - .2 Submit records to Departmental Representative at end of each shift. Maintain complete and accurate record of drilling and blasting operations.
- .4 Sustainable Standards Certification:
  - .1 Construction Waste Management: submit copy of Waste Management Plan for project highlighting recycling and salvage requirements
  - .2 Erosion and Sedimentation Control: submit copy of Erosion and Sedimentation Control Plan for project highlighting implementation measures.
- .5 Qualification Statements:
  - .1 Retain licensed explosives expert to program and supervise blasting work, to interpret recommendations of pre-blasting report, and to determine precautions, preparation and operations techniques.
  - .2 Submit documentation verifying explosives expert's qualifications.

**1.5 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.
- .2 Packaging Waste Management: remove for reuse, or disposal at an approved location, of pallets,

crates, padding, and packaging materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal Qualifications.

## **1.6 QUALITY ASSURANCE**

- .1 lasting operations shall be conducted in accordance with the requirements of the Canadian Construction Safety Code, Canadian Blasting Association Standards, the Newfoundland and Labrador Regulation 5/12 Occupational Health and Safety Regulation.
- .2 Blasting shall only be performed by experienced power-man licenced in the Province of Newfoundland and Labrador to use explosives.
- .3 Prevent damage to persons and property by flying rocks, by covering the site of the blasting with blasting mats or other suitable devices. Post guards, sound warnings and display signs when blasting is to take place.
- .4 Carry out trial blasting at the commencement of the blasting work in order to determine the amount of charge required to keep vibrations within safe limits, to the satisfaction of the Departmental Representative. Take seismographic recordings during such trial blasting and at any other time while blasting is continued, as considered necessary by the Contractor for his own protection, or as may be directed by the Departmental Representative. Maximum acceleration during blasting must not exceed 50 mm/s<sup>2</sup>.
- .5 No increase in charges will be permitted without further trial blasting and seismograph recordings, as described above.
- .6 Repair any damage caused by blasting. Blasting may not be permitted or may be limited to such an extent as to ensure the safety of structures, is considered necessary by the Departmental Representative. For his own protection, the Contractor is advised to engage a qualified inspection company to carry out pre-blasting survey of buildings in the vicinity of his blasting operation in order to record pre-blasting conditions.

## **PART 2 PRODUCTS**

### **2.1 MATERIALS**

Not used.

## **PART 3 EXECUTION**

### **3.1 ROCK REMOVAL**

- .1 Perform excavation in accordance with Erosion and Sedimentation Control Plan.
- .2 Co-ordinate this Section with Section 01 35 29.06 - Health and Safety Requirements.
- .3 Remove rock to alignments, profiles, and cross sections as indicated.
- .4 Do blasting operations in accordance the requirements of the Canadian Construction Safety Code,

Canadian Blasting Association Standards, and the Newfoundland and Labrador Regulation 5/12, Occupational Health and Safety Regulation.

- .5 Use rock removal procedures to produce uniform and stable excavation surfaces. Minimize overbreak, and to avoid damage to adjacent structures.
- .6 Prepare rock surfaces which are to bond to concrete, by scaling, pressure washing and broom cleaning surfaces.
- .7 Excavate trenches to lines and grades to minimum of 150 mm below pipe invert indicated. Provide recesses for bell and spigot pipe to ensure bearing will occur uniformly along barrel of pipe.
- .8 Cut trenches to widths as indicated.
- .9 Remove boulders and fragments which may slide or roll into excavated areas.
- .10 Correct unauthorized rock removal at no extra cost, in accordance with Section 31 23 33.01 - Excavating, Trenching and Backfilling.

### **3.2 CLEANING**

- .1 Clean in accordance with Section 01 74 11 - Cleaning.
- .2 Rock Disposal:
  - .1 Dispose of surplus removed rock off site in accordance with [Section 01 74 21 - Construction/demolition Waste Management and Disposal.
  - .2 Do not dispose removed rock into landfill. Send material to appropriate [quarry] [location] as approved by Departmental Representative.

### **3.3 PROTECTION**

- .1 Prevent damage to surroundings and injury to persons in accordance with Section 01 56 00 - Temporary Barriers and Enclosures. Erect fencing, post guards, sound warnings and display signs when blasting to take place.

**END OF SECTION**