

SECTION 02229

BLASTING

PART 1 GENERAL

1.01 SUMMARY

A Work Included

1 Removal of rock during excavation for structures and roads

2 Removal of rock during excavation for utility trenches

1.02 REFERENCES

A. NFPA 495 - Code for the Manufacture, Transportation, Storage, and Use of Explosive Materials.

1.03 QUALITY ASSURANCE

A CONTRACTOR shall employ a seismic survey firm if explosives are to be used. Seismic survey firm shall be a company specializing in seismic surveys with five years documented experience.

B If explosives are to be used, CONTRACTOR shall have five years experience or shall employ a firm with five years experience with use of explosives.

C Blaster shall hold necessary licenses for the type of work performed.

1.04 REGULATORY REQUIREMENTS

A. CONTRACTOR shall conform to applicable federal, state, and local codes for explosive disintegration of rock.

B. CONTRACTOR shall obtain permits from authorities having jurisdiction before explosives are brought to site or drilling is started.

C. No explosives shall be used without written permission from OWNER.

1.05 PROJECT CONDITIONS

A CONTRACTOR shall conduct survey and document conditions of buildings near locations of rock removal, both prior to and after blasting, in the presence of adjacent property owners and shall advise owners of adjacent buildings or structures in writing, prior to executing seismographic survey.

B CONTRACTOR shall obtain a seismic survey prior to rock excavation to determine maximum charges that can be used at different locations in area of excavation without damaging adjacent properties or other work.

- 1.06 SUBMITTALS:
- A. Submit a copy of the Blasting Activity Permit issued by the Commonwealth Of Pennsylvania in accordance with the provisions of the Administrative Code of 1929 (Section 1917-A) and 25 PA Code Chapter 211.
 - B. Submit two (2) copies of blaster's license to the engineer.
 - B. Submit a copy of the blasting plan submitted to the Department of Environmental Protection. Indicate all safety measures to be in effect during blasting operations.
 - C. Provide daily blasting reports to the Engineer.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Explosives: Type recommended by explosives firm following seismic survey and required by authorities having jurisdiction.
- B. Delay Devices: Type recommended by explosives firm.
- C. Blasting Mat Materials: Type recommended by explosives firm.

2.02 BLAST DESIGN

- A. Blasts shall be designed and conducted in a manner to achieve either a minimum scaled distance of 90 or meet the maximum allowable peak particle velocity indicated by Figure 1 of PA Code Chapter 211.151 (c) at the closest building not owned or leased by the Owner. Blasts shall be designed and conducted to control air blast so that it does not exceed the noise levels specified in Table 1 of PA Code Chapter 211.151 (d) at the closest building not owned or leased by the Owner or any other structure designated by the Department of Environmental Protection.

PART 3 EXECUTION

3.01 BEFORE BLASTING

- A. Pre-Blast Survey
 - 1. A pre-blast survey shall be done prior to blasting. The survey is conducted by a company or individual independent of the blasting company. The surveyor shall document both exterior and interior conditions. The surveyor shall record the condition of the structure before blasting and any other physical factors that blasting could affect. The surveyor shall also record the quality of private water supplies. Copies of the survey are sent to the homeowner, the Owner, and any other Authority having before approval of a blasting plan for that operation.

B. Public Notice

1. The public must be informed before blasting can take place at the site. The Owner will require the Contractor to publish a blasting schedule in a newspaper of general circulation. A blasting schedule contains the following information:
 - a. Days and times when blasting will occur.
 - b. Areas where blasting will take place.
 - c. Descriptions of audible warning and "all clear" signals which will be sounded before and after blasting.
2. Advise owners of adjacent buildings or structures in writing prior to setting up seismographs. Describe blasting and seismic operations.

3.02 DURING BLASTING

A. Seismographs

1. The Owner will require seismic data collection. An independent company conducts the analysis of seismic data. This company must be unrelated to both the blaster and the Contractor.

B. Blasting Safety Measures

1. Blasters must meet all state requirements during blasting. They include, but are not limited to the following:
 - a. While using explosives, the blaster must secure the blast area and put up signs indicating that explosives are being used.
 - b. Roads adjacent to a blast site are blocked before firing a blast.
 - c. Blasters must inspect the blasting area before and after a blast.
 - d. Blasting may occur only between sunrise and sunset.

3.03 AFTER BLASTING

A. Blast Report

1. Blasters shall file a detailed blast report every time they blast. The blast report includes the name of the operator, blaster, and seismograph operator if one was needed. The report also states the type of material blasted, types of explosives used, and the total amount of explosives used. The report includes the distances and direction to the nearest building neither owned nor leased by the person conducting the blasting.

B. Damages Claimed

1. Any damages claimed shall be investigated by the Owner and the Department of Environmental Protection. Blast reports and seismic data are reviewed for completeness, accuracy, and regulatory compliance. The Department and the Owner has no authority to require compensation if damage occurs. Compensation for damage is strictly a civil matter between the Contractor and the landowner. Where a potential for damage may exist the Department may require modification of the blast plan to reduce vibration levels. If the blast plan has been violated, enforcement action will be taken.

END OF SECTION