



MOYLE
CONSTRUCTION

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June 4, 2010

Traverse Engineering Services, P.C.
100 Quincy Street
PO Box 655
Hancock, MI

Attn: Mr. Richard Supina

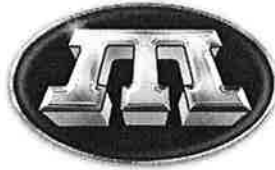
It is Moyle's intention to begin blasting operations within the next two weeks for the Eagle Harbor Water project. Our drilling and blasting contractor will be Mid-West drilling and blasting, Inc. out of Neshkoro, Wi. They will also be our Vibration Measurement Consultant for this project and we will be sending you a submittal on their experience. Enclosed you will find Moyle Constructions rock blasting plan with a copy of our blast report form. The areas that we feel will be affected are as follows:

- 1 Pine Street from 4th Street heading East until the end of the project
- 2 North Street (M-26) & East North Street
- 3 Cliff Street
- 4 Pine Ridge Road/ Light House CT
- 5 Light House Road
- 6 7th Street
- 7 3rd Street from North Street to Cliff Street
- 8 2nd Street from North Street to Cliff Street

If you have any comments or concerns please call me at 906-483-7946

Very truly yours,

Phil Baranowski
Project Manager



Eagle Harbor Water Project
Rock Removal
Blasting Plan

1. Moyle needs to provide a letter of notice to Engineer of record 72 hours before proposed blasting activities are scheduled to start. Letter must describe where and when explosives are going to be used.
2. Moyle will provide submittals showing evidence of Vibration Measurement Consultant's experience.
 - a. Personal experience of individual performing the Vibration Measurements
 - b. List of projects similar in scope to specified work
 - c. Other information as may be requested by the Engineer of Record.
3. Moyle will provide and pay for the services of a qualified Vibration Measurement Consultant. This Consultant will must be approved by the Engineer of record and the Owner of the project.
 - a. The approved Vibration Measurement Consultant along with the Engineer of Record, Project Owner and Building/Structure Owner will conduct a pre blast inspection of **ALL** buildings, structures and facilities located entirely or partially within 500 feet of any proposed blasting operation. A detailed report will be prepared for each property located within a proposed blast zone documented by photos, videos, drawings and or taped voice conversations describing the condition of each building, structures and facilities including wells and septic systems within a 48 hour window of any blast in a designated "blast zone". This report will identify, locate and define the amount and extent of any existing damage. This will include any cracks in walls, partitions, floors, ceilings, and foundations. Inspection to include septic sewage disposal systems within 100 feet of blasting operations.
 - b. Compile all information from the pre blast survey into sets identifying and witness all drawings, photographs, videos and all other pertinent information. This information will then be stored for safekeeping until requested by the Engineer of Record.

4. Blasting contractor will prepare a record of each blast detonated, including but not limited to the following. Contractor will keep a copy on Project and make available to Engineer of Record at all times.
 - a. Blast location
 - b. Shot number
 - c. Date and exact time of firing blast
 - d. Number of blast holes with diameter, depth and spacing
 - e. Total weight of explosive, delays used, maximum holes per delay and maximum pounds per delay.
 - f. Weather.
 - g. Name and signature of blaster.
 - h. Comments of blaster in charge, regarding any misfires, unusual results or effects.

5. Vibration Measurement Consultant will furnish portable seismographs for monitoring each blast and capable of producing readings which state or can be converted to a statement of peak particle velocity in three mutually perpendicular planes of motions. A detailed report will be prepared following each blast showing areas of influence and amount of influence of each blast. Peak Particle Velocity during blasting operations should not exceed a peak
 - a. Identification of recording instrument used.
 - b. Name and signature of witness
 - c. Name and signature of interpreter
 - d. Exact location of seismograph
 - e. Distance and direction of recording station from area of detonation. Maximum particle velocity for all components measured.
 - f. Frequency of ground motion in cycles per second, if applicable.
 - g. Print of seismograph film recording, obtained from the original.
 - h. Magnetic tape recording, showing peak velocity for all components measured.
 - i. Interpretation of seismograph report.

6. Vibration Measurement Consultant will instruct certain personnel employed by the contractor in the operation of the seismograph.

7. Rock removal will be paid per cubic yard. In order to receive additional payment for rock removal from owner contractor must, upon discovery of rock at an elevation which requires removal in order to lay water main in accordance with plans and/or specifications, contact in writing the Engineer of record before blasting. The notification must allow ample time for Engineer to profile the rock surface at five foot (5'-0") intervals along the proposed centerline of proposed ditch. After blasting and ditch material removal the Engineer will profile the trench bottom at five foot (5'-0") intervals and measure the trench width. The trench width and trench depth used in the volume calculations shall be the average depth and width for each five foot (5'-0") section. In no case shall the average trench width used for volume calculations be greater than three feet(3'-0"), nor shall the average trench depth be greater than as measured from the top of the rock to one foot (1'-0") below the bottom of the proposed pipe.



BLAST REPORT

Permitee: _____
 Permit No: _____
 Blast Location: _____
 Shot Number: _____
 Type of Material: _____
 No. of Holes & Spacing: _____
 Diameter Min. ____ (in) Max. ____ (in)
 Depth Min. ____ (ft) Max. ____ (ft)
 Subdrilling ____ (ft)
 No. Decks/Hole _____
 Deck Separation Min. ____ (ft) Max. ____ (ft)
 Wt./Deck Min. ____ (lbs) Max. ____ (lbs)

Blasting Contractor: _____
 Date of Blast: _____
 Time: _____ AM _____ PM
 Stemming Min. ____ (ft) Max. ____ (ft)
 Type Stem _____
 No. of Rows: _____
 Burden Min. ____ (ft) Max. ____ (ft)
 Spacing Min. ____ (ft) Max. ____ (ft)
 Maximum no. of Holes Per Delay _____
 Max. lbs/delay of 8 ms. or greater _____
 Powder Factor _____ (lbs/vol)

Explosives	Amount (lbs)	Detonators/Delay MS	Amount (qty)
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
	Total		Total

Were Mats Used? Yes No
 Type _____
 Weather _____ Temp _____
 Wind Direction _____ Velocity _____
 Type of initiation Electric Non-electric
 Other Explain: _____
 Type of Machine/Circuit _____

Scaled Distance
 Distance to Closest Building _____
 Description of Closest Building _____
 Scaled Distance _____ $D_s = D/\sqrt{W}$
 Seismograph Monitoring _____
 Seismograph Operator _____
 Operator Signature _____

Comments of Blaster in Charge: _____

Number of individuals in blasting crew: _____ Blaster-in-charge: _____
 Blaster-in-charge Signature: _____
 License #: _____



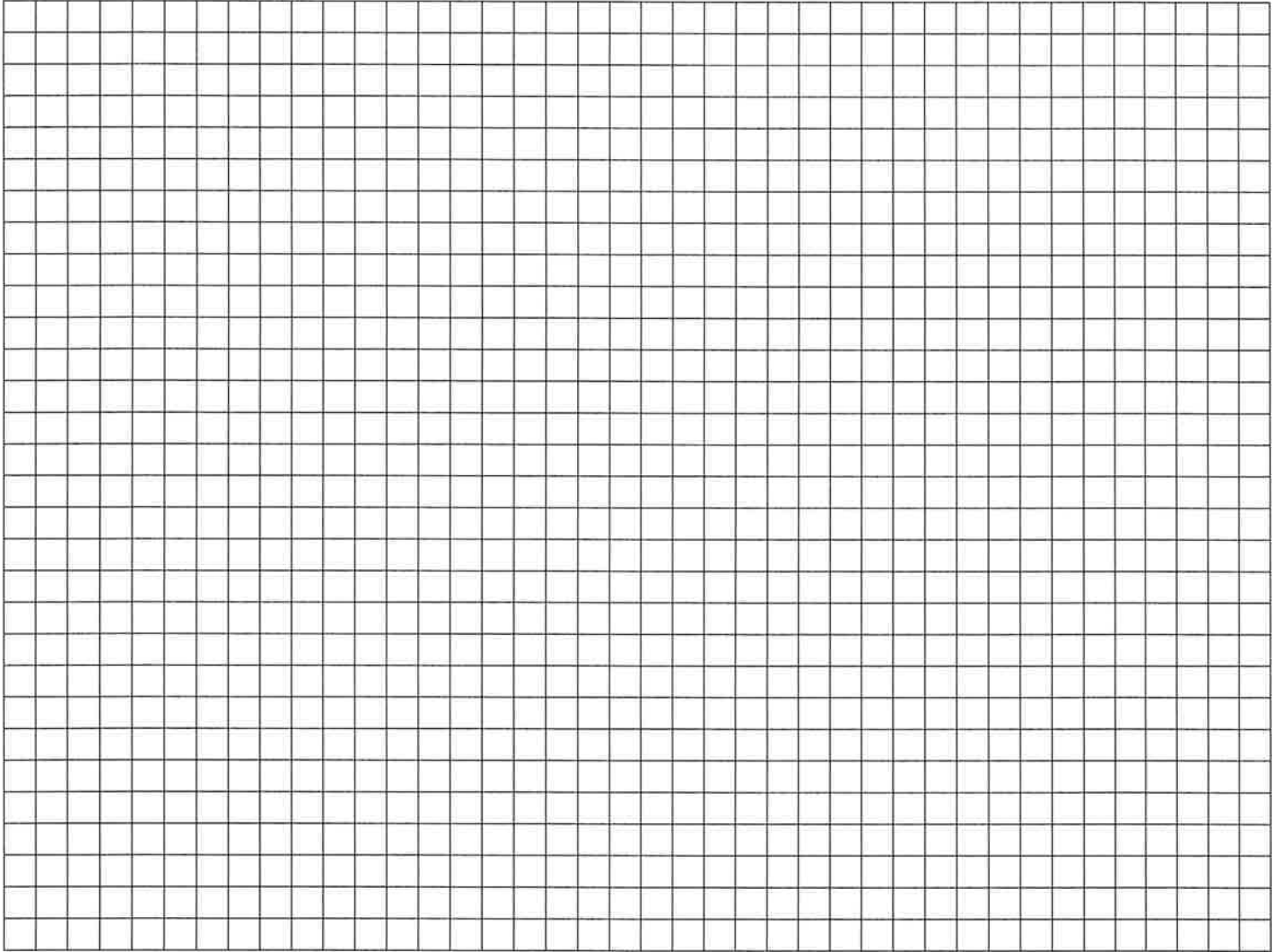
BLAST REPORT



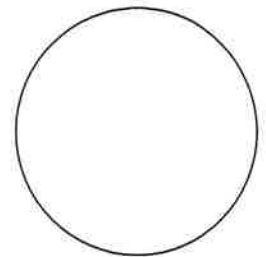
BLAST REPORT

Permitee: _____ Permit Number: _____

Time: _____ AM _____ PM Location: _____ Date: _____



Typical Borehole



Indicate North