Do not use or rely upon this ATLAS Bore Planner for avoidance of underground utilities.

Utility locations and the planned bore path displayed in the ATLAS Bore Planner must be considered estimates until exact locations are determined by the user. When the actual boring operation approaches the estimated locations of underground utility installations, the exact locations must be determined by safe and acceptable means. OHSA CFR 29 1926.651.

East Coast Signals
Waterbury Vt
RTE 100N

Job: [newjob].

Machine: D33x44
Date: April 9, 2015
Minimum Cover: 0.0"

Longitude: 0° 0' 0.000000"
Latitude: 0° 0' 0.000000"
Bearing: 0°
Elevation: 0"

Entry Angle: -15.0%
Setup Distance: 6.81'
Setup Left/Right: 0.00'

Rod
Rod Length: 15.00'
Diameter: 2.4"
Bend: 108.20'
Quantity: 5
Entry Point Offset: 0.0"

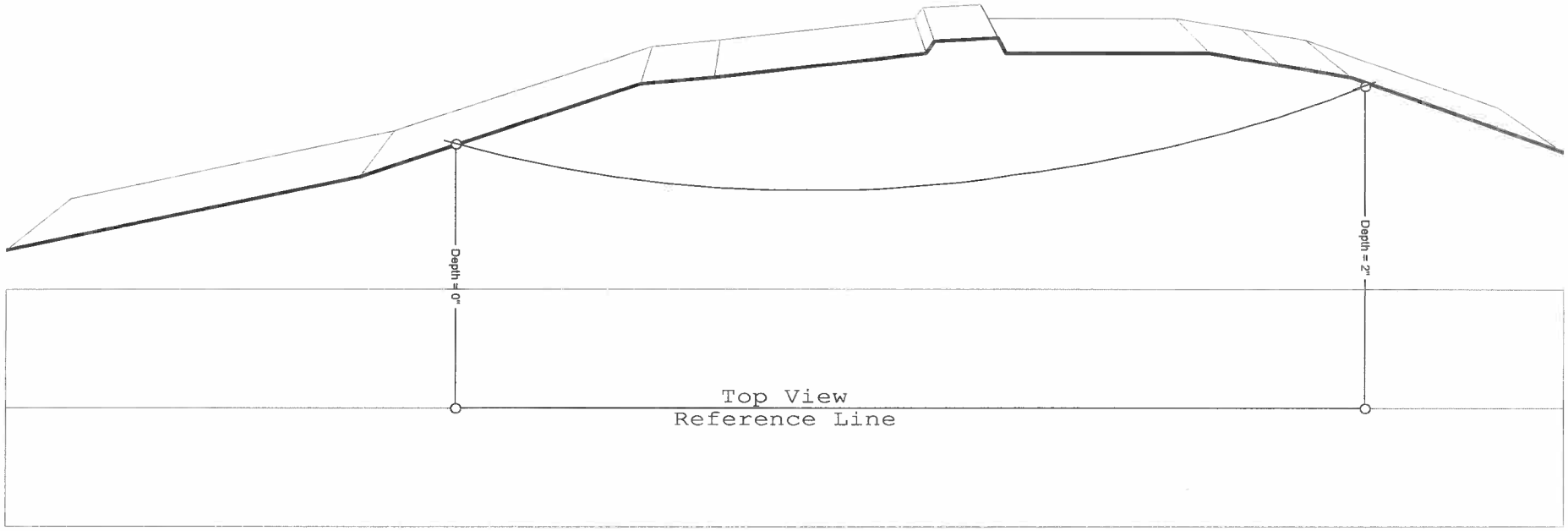
Pilot Bit: 6.0"
Reamer: 16.0"

Pilot Hole Volume: 95 gallons
Backreamed Hole Volume: 674 gallons

Pilot Hole Mud Volume: 189 gallons
Backreamer Mud Volume: 1347 gallons
Total Mud Volumes: 1537 gallons

Notes

Do not use or rely upon this ATLAS Bore Planner for avoidance of underground utilities.



Do not use or rely upon this ATLAS Bore Planner for avoidance of underground utilities.

Plan

Rod	Length ft	Dist. ft	Depth ft/in	L/R ft	Pitch %	Azimuth %	Act.Depth ft/in	Act.L/R ft	Act.Pitch %
1	15.00	21.72	4'1"	0.00	-6.0	0.0			
2	30.00	36.72	5'3"	0.00	3.0	0.0			
3	45.00	51.68	4'5"	0.00	10.1	0.0			
4	60.00	66.51	1'7"	0.00	19.2	0.0			
5	64.50	70.92	2"	0.00	22.0	0.0			

Topography

Distance:	-25.00	Height:	-5'
Distance:	0.00	Height:	-2'
Distance:	19.83	Height:	1'9"
Distance:	25.00	Height:	2'
Distance:	40.00	Height:	3'
Distance:	40.50	Height:	3'6"
Distance:	45.00	Height:	3'7"
Distance:	45.60	Height:	3'
Distance:	60.00	Height:	3'
Distance:	65.00	Height:	2'6"
Distance:	70.00	Height:	2'
Distance:	85.00	Height:	-1'

Targets

Distance '	Depth	Left/Right '	Pitch % Slope	Azimuth % Slope
6.81	0"	0.00	-15.0	[0.0]
70.92	2"	0.00	22.0	[0.0]

Harold Morse
Engineers Construction, Inc.
Project Manager

Certifications:
North American Society of for Trenchless Technology
McElroy Fusion Equipment, Butt-fusion and Electro-fusion
Roadway Worker Training
CSX On-Track Worker Safety Training
10 Hour OSHA Training
Training for Straight Line Rock Hammers

Acknowledgements:
Northeast Trenchless Association Secretary 2008
Consultant/Trainer for Straight Line Rock Hammers

Professional Affiliations:
Northeast Trenchless Association (NTA), Member
Associated General Contractors of Vermont (AGC-VT), Member
Northeast Gas Association (NGA), Member

General Background
Mr. Morse has over 14 years experience in the Trenchless Industry. Starting out in 1998 as a laborer and worked his way to an operator in a short amount of time became a Crew Forman.

In June 2010 he joined Engineers Construction, Inc. Since joining ECI as a Project Manager has been involved in many projects. He is very skilled in the installation of Trenchless Crossings and understanding the complete scope of the project. Mr. Morse is a very hands solution based Project Manager.

Project Duties at ECI
As Trenchless Project Manager of Engineers Construction, Mr. Morse has numerous duties for projects, including:

- Working with the Foreman on Site Specific Safety measures as relates to each project.
- Verifying the quality of ECI's work and conformance to contract specifications, details of the project as bid and administrative.
- Technical support to the crew.
- Procurement of materials.
- Consulting on the acquisition of equipment to meet crew needs.

Experience:

Sprint/CSX/ Verizon Fiber Optic Relocation – Massachusetts - Phase I: ECI was contracted by Sprint and Verizon to install 6-2inch conduits to relocate their fiber optic conduit along the CSX Railroad in two locations, Armory Street and Berkshire Avenue in Springfield, MA. Each location consisted of relocating 3,000 linear feet tof existing conduit to a lower depth, drilling 1500 east and west of the existing overpasses. This allowed the tracks to be lowered for the double stacked UPS Freight cars.
Phase II: ECI was contracted by Arcadis to relocate 2650 linear feet of conduit at the 270 Franklin Street, Worcester, Ma CSX Terminal. This was accomplished by doing a continuous Horizontal Directional Drill from the beginning of the unloading area to the end, approximately 2560 linear feet of 3-2 inch diameter conduits.

Completion of Whipline Gas Bore

Westfield, MA

ECI and Kudlic Bros. Gather Around as the Pipe Shows Itself

ECI completed the Whipline Gas Bore in Westfield, MA over this past weekend. As you may recall from a previous email, the bore consists of a 1,200-ft-long by 12-in-dia steel gas main. The pipeline was installed along an abandoned railroad ROW. The bore was done for a section where the line passes below the Little River, an upstream tributary of the Connecticut River. The bore exended to a depth of about 80 feet below the elevation of the railroad embankment and bridge over the river. The pipe pulled back rather easily through the oversized 26-in reamed hole which was selected to assure that the drag on the coated pipe was minimized to prevent damage to the coating.

Centennial Field Lighting Improvements
Burlington, VT

ECI drives a casing for a new light pole base

ECI was recently hired for the Centennial Field Lighting Upgrade Project at the UVM Centennial Field. Our client is Musco which designs and installs sport complex lighting systems for major league sports around the world.

ECI's Scope of Work Includes:

- Removal of 8 existing 100 foot light towers
- Installation of eight new light tower foundations. Each foundation is 20 feet deep consisting of 42- and 30-in-dia steel casings driven with pneumatic pipe ramming equipment. These "cans" are cleaned out and installed with a precast core which is grouted into the can.
- Installation and erection of the eight new light towers (four at 110 ft and four at 100 ft)
- New underground vault and transformer
- Conduit System:
    - 275-ft pair 4-in-dia concrete encased conduits for 3 phase primary power feed
    - 2,880 feet of 2-inch-dia conduit for secondary power (individual feeds to each new light tower)

Equipment:

- TT 14" Koloss Pneumatic Hammer and Compressor
- TCC450 Telescopic Crawler Crane
- Ditch Witch R100 Vibratory plow
- Ditch Witch RT115 Quad Trencher
- Ditch Witch JT920 and JT3020 Directional drills
- Track excavators and tractor backhoes
- 120-ft man lift (rental)

Horizontal directional drilling (HDD) at Centennial Field.

Vermont Gas - Various Projects

ECI is one of the Vermont Gas contractors installing new gas pipelines on multiple projects throughout the Burlington area. Several of our workers have been specialty trained and certified in fusion and OQ (Operator Qualifications) for the USDOT Pipeline and Hazrdous Material Safety Administration.

Winooski River Crossing - Richmond

This project consisted of an 800 ft bore of 6-inch-dia HDPE under the Winooski River from Milton Cat over towards the Conant Farm on Route 2.

Dana Morse drilling under the Winooski River

West Canal Street - Winooski

ECI installed a new 2-inch-dia HDPE gas main on West Canal Street as part of the street reconstruction being done by the City of Winooski. Our work included several bores to install over 1,600 LF of the main and we are in the process of installing 13 services. The scope of work has been increased on this project to include an additional 500 LF of main and several additional services are expected.

Lyndonville Water System Improvements
Lyndonville, VT

ECI is contracted with Knotts Excavating of White River Junction to install trenchless items for this waterline improvement project:

- About 1,500 LF of 8-in-dia fusable PVC (fused by ECI).
- Multiple 2-inch-dia HDPE sleeves for services
- Multiple 4-inch-dia HDPE sleeves for services
- About 200 LF of 18-in-dia steel casing by auger bore method

The drilling portion is essentially complete. The auger bore will be starting soon.

Hanover Street Sewer
West Lebanon, NH

ECI is working on the final casing for the Hanover Street Sewer Project. The casing is a 42-inch-diameter by 125-ft-long steel sleeve for a proposed gravity sewer line under the northbound lanes of I-89 in West Lebanon. ECI completed the South Bound sleeve and the Route 120 sleeve late last year.

I-89 NB Casing - Next 20-ft casing section being welded on.

The casing is advanced with our 24-inch pneumatic hammer and cleaned out with our American Augers 42-600 auger machine.