

GENERAL NOTES



Know what's below.
Call before you dig.

PRELIMINARY
NOT FOR
CONSTRUCTION

DRAWING REVISIONS

NO.	DESCRIPTION	DATE	BY	CHK.	APPROV'D

DRAWING APPROVALS

TYPE	DATE	BY
MECHANICAL		
ELECTRICAL		
PROJECT	5/2012	BRAD FLEMING
PIPELINE		
DRAFTING		

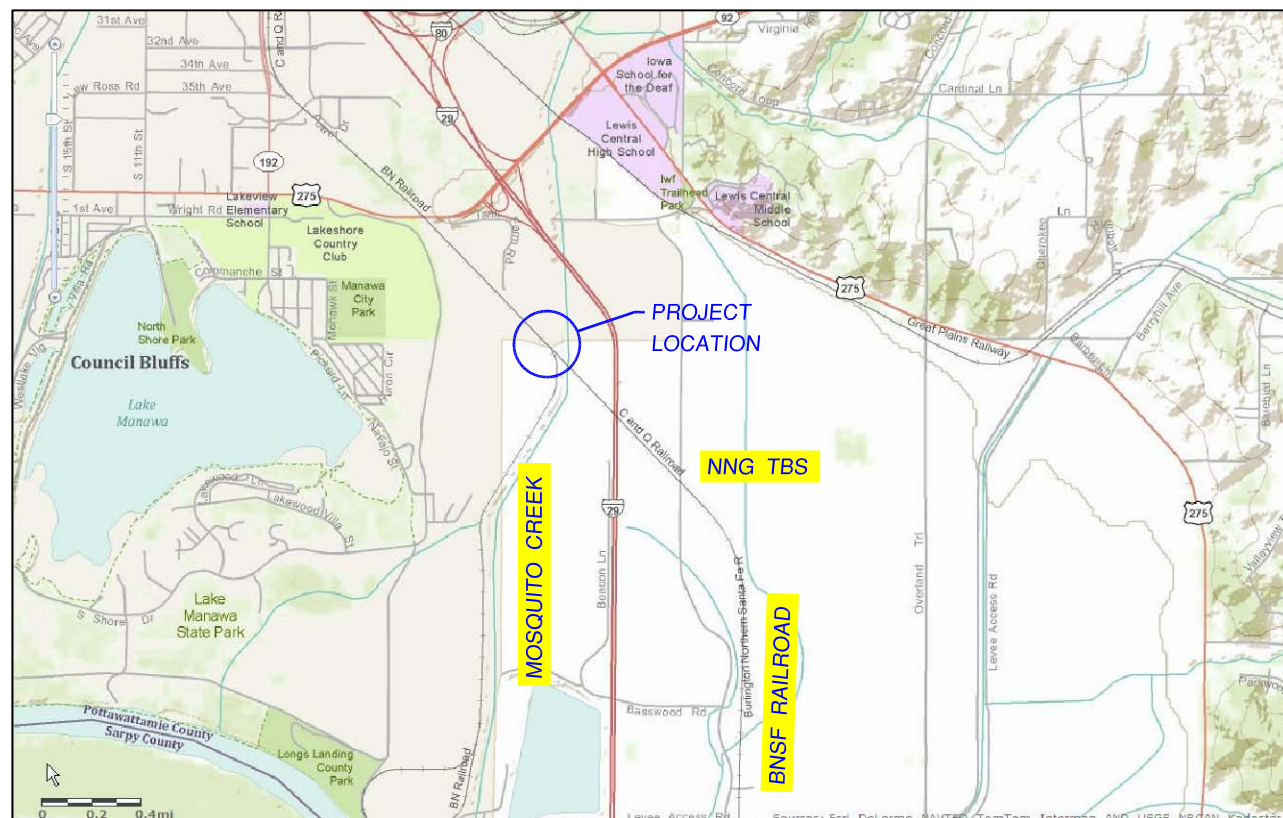
Natural Gas
Engineering Services
1815 Capitol Avenue
Omaha, NE 68102

COUNCIL BLUFFS, IOWA
POTTAWATTAMIE COUNTY
8", 12", & 16" MAIN REPLACEMENT
MOSQUITO CREEK AREA
JOB LOCATION

DRAWN BY M. ERICKSON	DATE 5/8/2012	2012 CONSTRUCTION
SCALE NOTE	CHECKED ZIPPO !	DWG. TYPE PRELIM. BID FINAL ✓
CADD FILE CBCREEKBORE1.DWG	DWG. NO. 11-472	SHEET NO. 1 OF 18

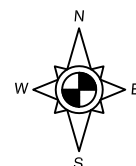
BHE DRAWING INDEX

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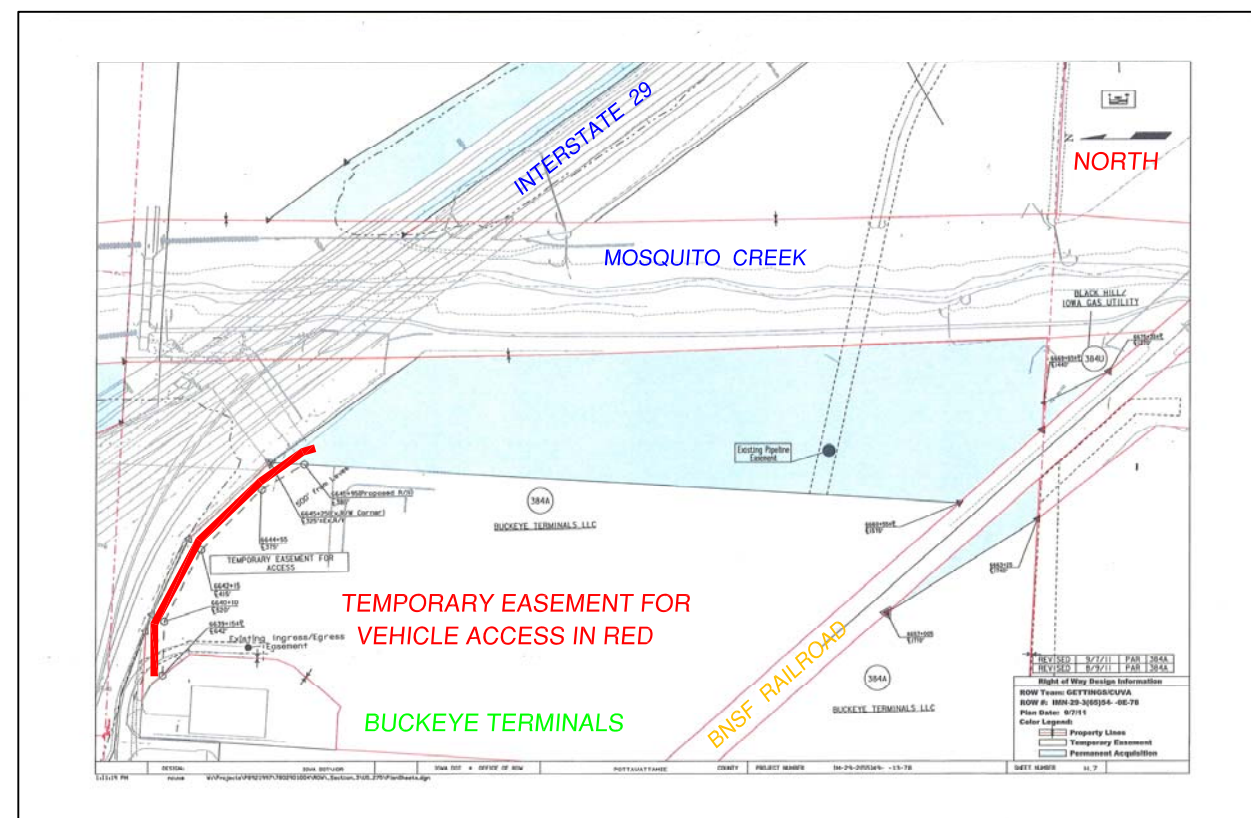


PROJECT LOCATION

SCALE IS NOTED



MOSQUITO CREEK 8", 12" & 16" GAS MAIN
REPLACEMENT PROJECT
1 MILE SOUTH OF COUNCIL BLUFFS, IOWA
POTTAWATTAMIE COUNTY
NE & SE 1/4 SEC 19 T 14 N R 43 W



PROJECT ACCESS

SCALE IS NOTED

Job Requirements for Mosuito Creek Project

1. Contractor REQUIRED to call IOWA ONE CALL, or National One Call and have all existing electric, gas, telephone, cable TV lines, water, waste water, storm sewer, traffic signal lines located before digging. Phone 1-800-292-8989 or 811
2. Note: before starting any work on project, contractor is to discuss their plan of action with BHE operations, CBEC, BNSF R.R., local land owner's, and Pottawattamie County.
 - a. Contractors welders are required to show proof of API 1104 Multiple Test certification or they will need to be tested prior to starting project. BHE certified weld inspector to visually inspect 100% of welds. Reference weld procedures # 3 (5PT), 7 (LOW HYDROGEN), 9 (WIRE), and 11 in Section 73.14 of BHE GAS O&M manual.
 - b. Check to see that all permits are obtained before starting any work. Follow requirements as stated on permits.
 - c. Obtain permission from landowners to access project site before starting work.
 - d. Obtain written permission before moving or cutting the out of service Megellan Liquids Line. Check with BHE engineering, enviromental department, operations, and Megellan for this ok.
 - e. Work with the city of Council Bluffs, if issues arise with the sanitary sewer line.
3. Pipeline contractor is required to do the following:
 - a. Complete new 10" and 20" direction bores as noted on drawings.
 - b. Remove dirt, trees and shrubs as needed, for new construction. Remove existing pipe, valves, and concrete as noted.
 - c. Furnish all equipment needed to perform pressure test.
 - d. Install Power Crete "J" kits and or "R65/F-1" kits on pipe joints on 10" and 20" directional bores.
 - e. To install guard rails as specified by BHE operations..
 - f. To make sure pipe depths under railroad and creek bed are met.
 - g. Contractor is responsible for unloading pipe and materials on site.
 - h. Work with railroad should flag men be needed on site.
 - i. Lower, remove and replace pipe and valve sets as shown on drawings.
 - j. Weld stopple fittings on existing gas lines. Stopple contractor is to drill and stop the existing gas lines.
 - k. To sand blast and paint new installed above grade facilities.
4. Install all pipe and materials as shown on drawings and materials list.
5. Newly installed pipe to have a minimum of 12" vertical clearance between it and any other type of piping. Such as water, sewer, etc.. The 16" gas line will have a 20 ft. clearance from both sides of the centerline of the sanitary sewer line.
6. All welds on (90 PSIG MAOP) 8", 10", 12" , and 20" piping to be visually inspected by weld inspector. Welds not passing inspection to be cut out or repaired.

7. All newly installed pipe to have a minimum of 5 feet of cover from grade elevation to top of new gas pipe. Certain area's as noted on drawings will required more than 5 feet of cover.
8. Tape all butt weld fittings and weld joints (except bore section) with Tapecoat H35 Gray tape. No primer is required for H35 Gray tape if temperature is above 40 degrees Fahrenheit. Apply tape with 1" - 3" overlap. Pipe coated with PowerCrete to have PowerCrete "J" kit or " R65/F-1 " kits installed on weld joints.
9. Jeep any existing pipe that is moved, plus all new pipe and repair any holidays with 3M epoxy stick.
10. Pipeline contractor will install required anodes, test stations, and pipeline markers required. Pipeline markers to be installed outside of railroad right of way lines. Install on both sides of railroad racks. Install line markers on both sides of creek bore.
11. Install Tuff-N-Nuff rock shield where required to protect 8", 10", 12", 16", and 20" steel pipe from rocks, rocky soil, concrete drain pipes, and or water lines. Tape rock shield in place with Tapecoat H35 gray tape.
12. Contractor WILL BE REQUIRED to install night caps or cover any open ends of pipeline (overnight) to prevent rock, sand, dirt, water, garbage, animals, people, and foreign debris from entering into new lines.
13. Contractor WILL BE required to pig and or wipe clean or swab any new sections of piping. Pipe to be clean of mud, rock, sand, dirt, water and weld slag.
14. All new line segments ARE REQUIRED to be pressure tested. Reference BHE Gas Operations and Maintenance Manual section 65.3.2.3 or 49 CFR part 192.505.
 - a. Contractor to provide air compressor. BHE will provide nitrogen, electronic pressure gage and infra-red thermometer. BHE will provide chart recorder for pressure test.
 - b. All new line segments will have a MAOP of 90 psig, this will require them to be tested at a minimum of 100 psig. Reference test requirements.
 - c. Pressure test on new line segment with nitrogen for a minimum of 8 hours (after temperature stabilization).
 - d. BHE inspector to keep and submit all pressure test records to BHE operations or engineering. Use BHE form 48-3701 (12/00).
15. BHE operations personnel to place newly constructed pipeline in service.
16. Contractor to provide compaction and grading to meet BHE, and land owners requirements. Seed area per county or IDOT specifications.
17. BHE inspector required to provide as-built drawings including all measurements that differ from standard construction drawings.
18. Contractor to clean up construction site upon completion and return any unused material to BHE Council Bluffs warehouse.

REFERENCE DRAWINGS / FILES

GENERAL NOTES



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PIPELINE		
DRAFTING		

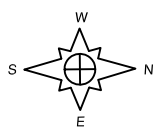
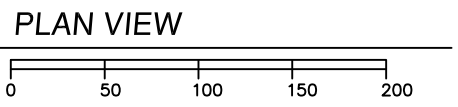
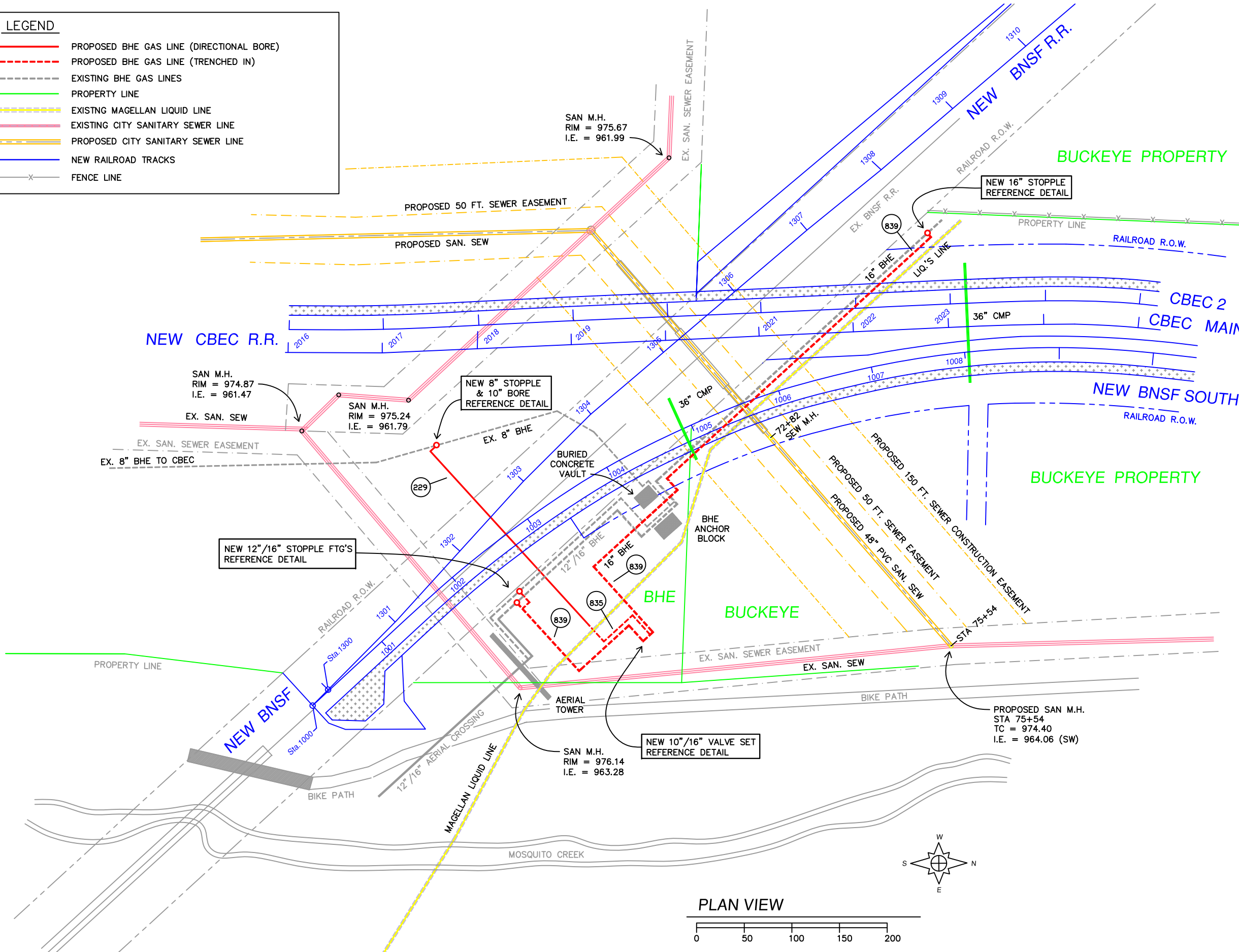


COUNCIL BLUFFS, IOWA
POTTAWATTAMIE COUNTY
8, 12", & 16" MAIN REPLACEMENT
MOSQUITO CREEK AREA
JOB REQUIREMENTS

DRAWN BY M. ERICKSON	DATE 5/8/2012	DWG. TYPE 2012 CONSTRUCTION
SCALE NOTE	CHECKED ZIPPO !	DWG. TYPE PRELIM. BID FINAL ✓
CADD FILE CBCREEKBORE1.DWG	DWG. NO. 11-472	
W.O.	P.N.	SHEET NO. 2 OF 18

LEGEND

- PROPOSED BHE GAS LINE (DIRECTIONAL BORE)
- - - PROPOSED BHE GAS LINE (TRENCHED IN)
- - - EXISTING BHE GAS LINES
- PROPERTY LINE
- EXISTING MAGELLAN LIQUID LINE
- EXISTING CITY SANITARY SEWER LINE
- PROPOSED CITY SANITARY SEWER LINE
- NEW RAILROAD TRACKS
- x x FENCE LINE



REFERENCE DRAWINGS / FILES

48" PVC SAN. SEW. @ 72+12
SEW. I.E. = 963.30

CMP - DRAINAGE PIPE @ 1304+50
BOTTOM OF PIPE ELEV. = 975.19

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IOWA
ONE
CALL

1-800-292-8989

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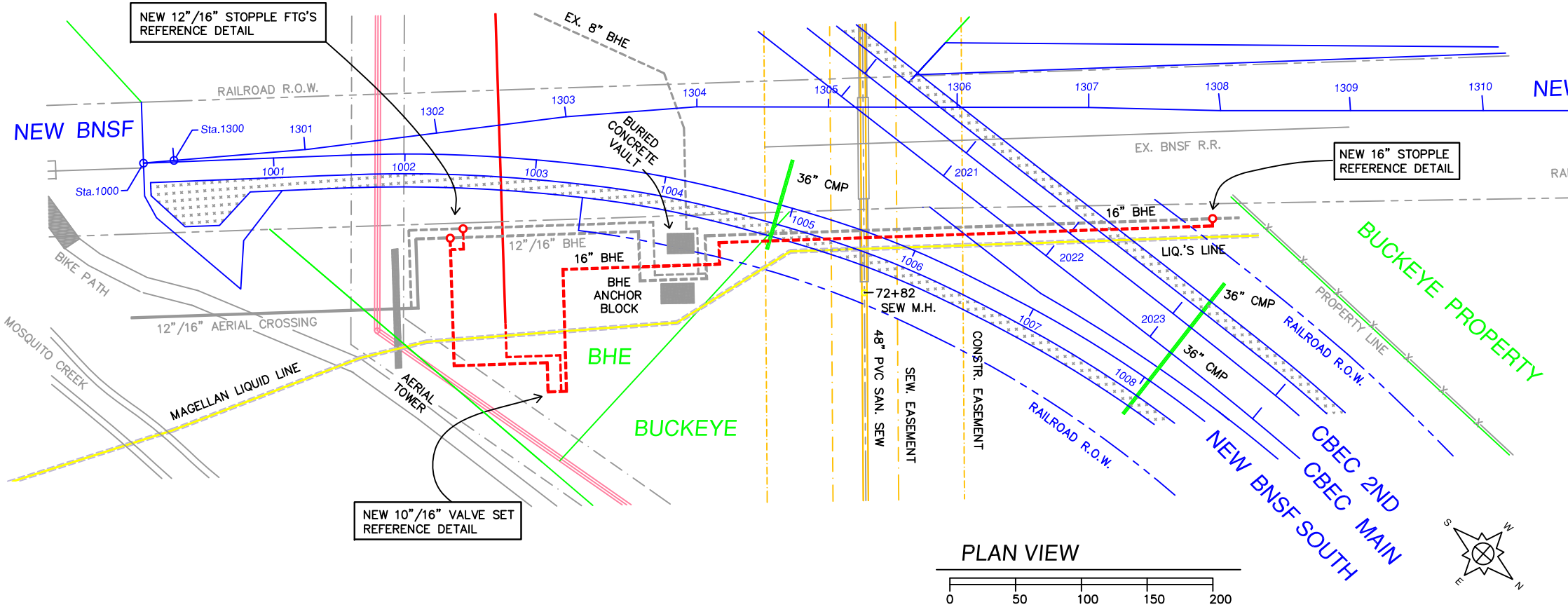
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PIPELINE		
DRAFTING		

Natural Gas
Engineering Services
1815 Capitol Avenue
Omaha, NE 68102

**COUNCIL BLUFFS, IOWA
POTTAWATTAMIE COUNTY
8", 12" & 16" MAIN REPLACEMENT
MOSQUITO CREEK AREA
PLAN VIEW**

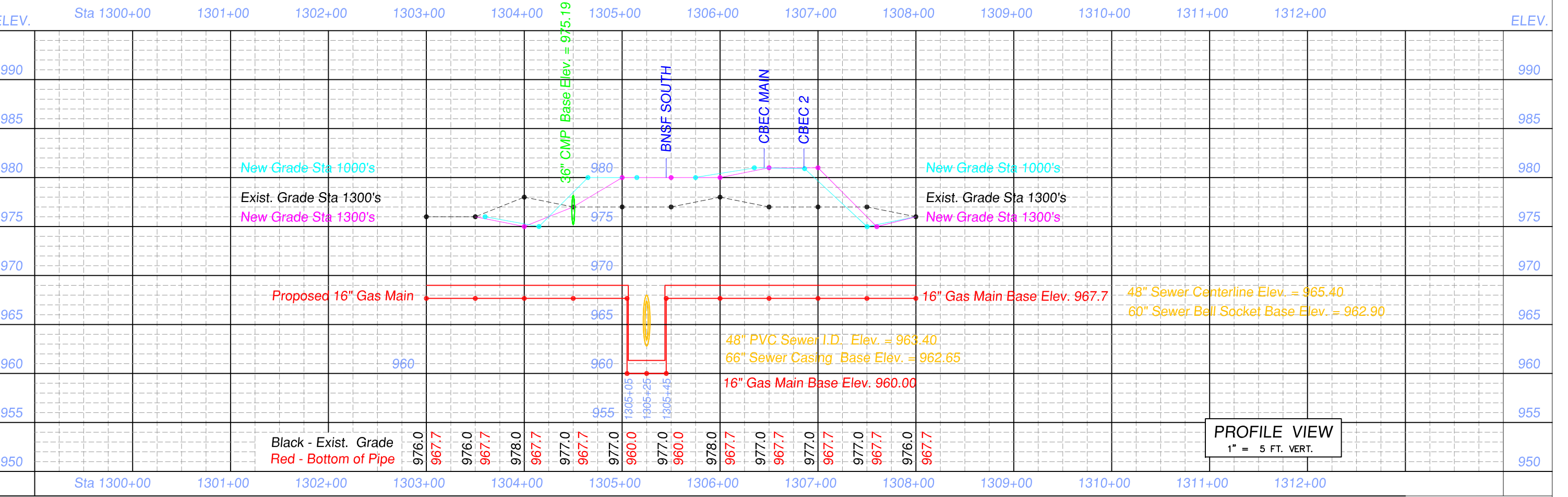
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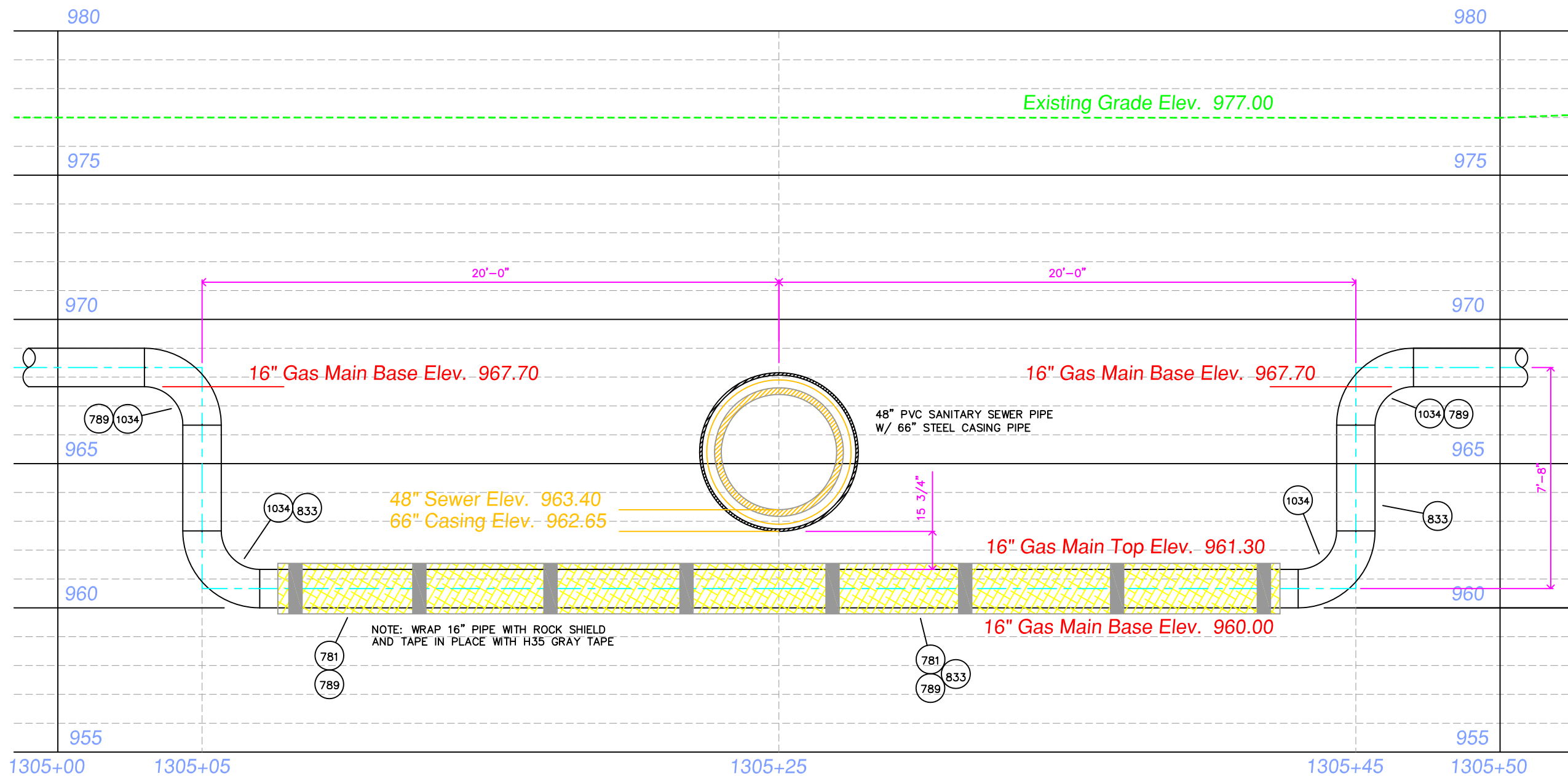
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LEGEND

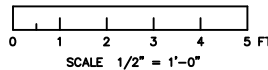
- PROPOSED BHE GAS LINE (DIRECTIONAL BORE)
- - - PROPOSED BHE GAS LINE (TRENCHED IN)
- - - EXISTING BHE GAS LINES
- PROPERTY LINE
- - - EXISTING MAGELLAN LIQUID LINE
- - - EXISTING CITY SANITARY SEWER LINE
- = = = PROPOSED CITY SANITARY SEWER LINE
- NEW RAILROAD TRACKS
- x x FENCE LINE





NOTE: EXACT SANITARY SEWER CENTERLINE
STATION POINT AND ELEVATIONS TO BE
MARKED OUT BY IDOT OR CITY SURVEYOR.
IF CENTERLINE STATION CHANGES ADJUST
20 FT. OFFSETS AS REQUIRED

SANITARY SEWER CROSSING DETAIL



Station Numbers match
new BNSF track to Co. Bluffs

REFERENCE DRAWINGS / FILES

80LB/FT³ 27FT³/YD³ = 2160LB

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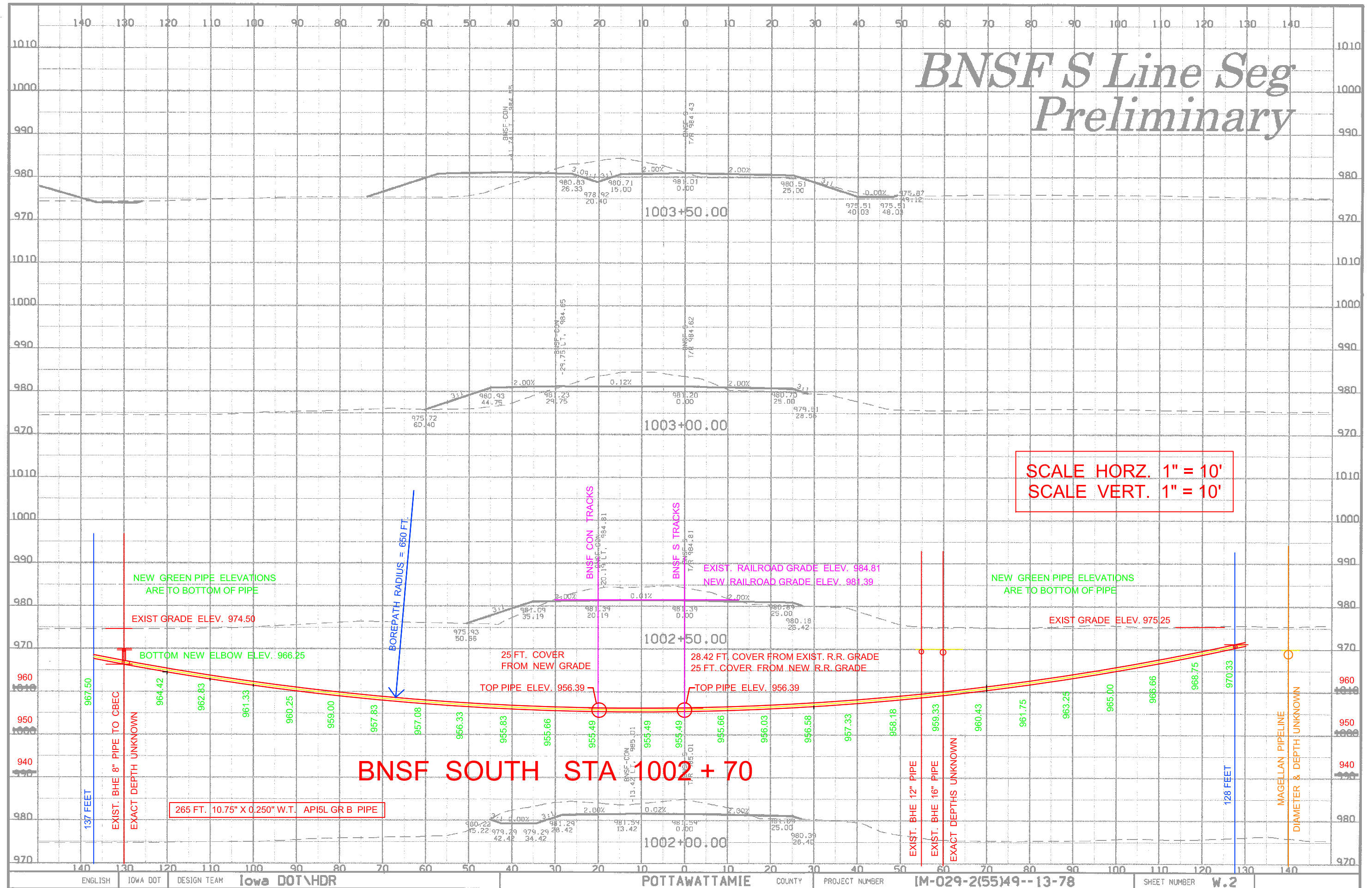
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PROJECT	5/2012	BRAD FLEMING
PIPELINE		
DRAFTING		

BH Natural Gas
Engineering Services
1815 Capitol Avenue
Omaha, NE 68102
Black Hills Energy

COUNCIL BLUFFS, IOWA
POTTAWATTAMIE COUNTY
8", 12", & 16" MAIN REPLACEMENT
MOSQUITO CREEK AREA
SAN. SEWER CROSSING DETAIL

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SCALE NOTE	CHECKED ZIPPO !	DWG. TYPE PRELIM. BID FINAL ✓
CADD FILE CBCREEKBORE1.DWG	DWG. NO. 11-472	SHEET 5 OF 18
W.O.	P.N.	

BNSF S Line Seg Preliminary



ENGLISH	IOWA DOT	DESIGN TEAM	IOWA DOT\HDR	POTTAWATTAMIE COUNTY	PROJECT NUMBER	IM-029-2(55)49--13-78	SHEET NUMBER	W.2
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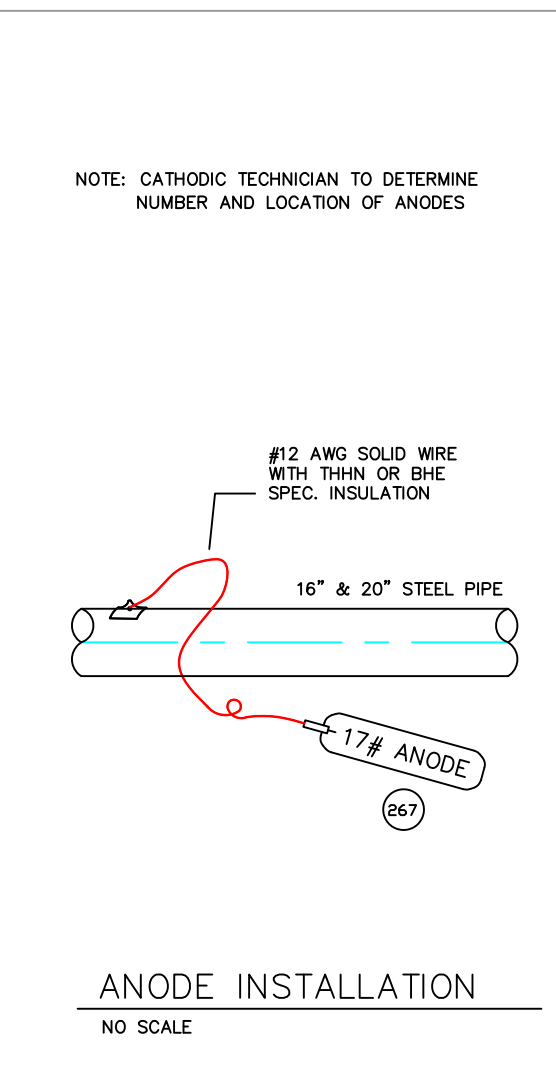
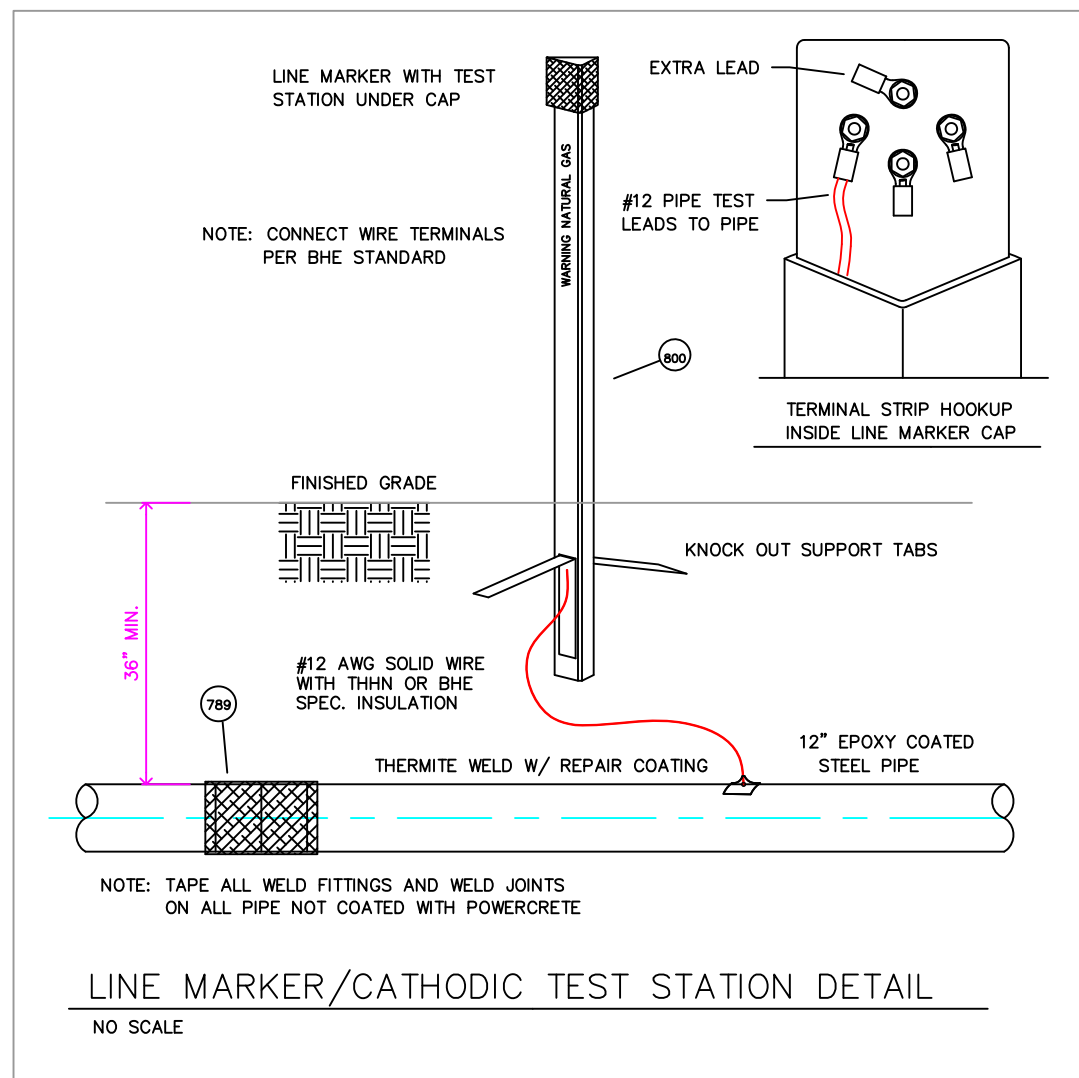
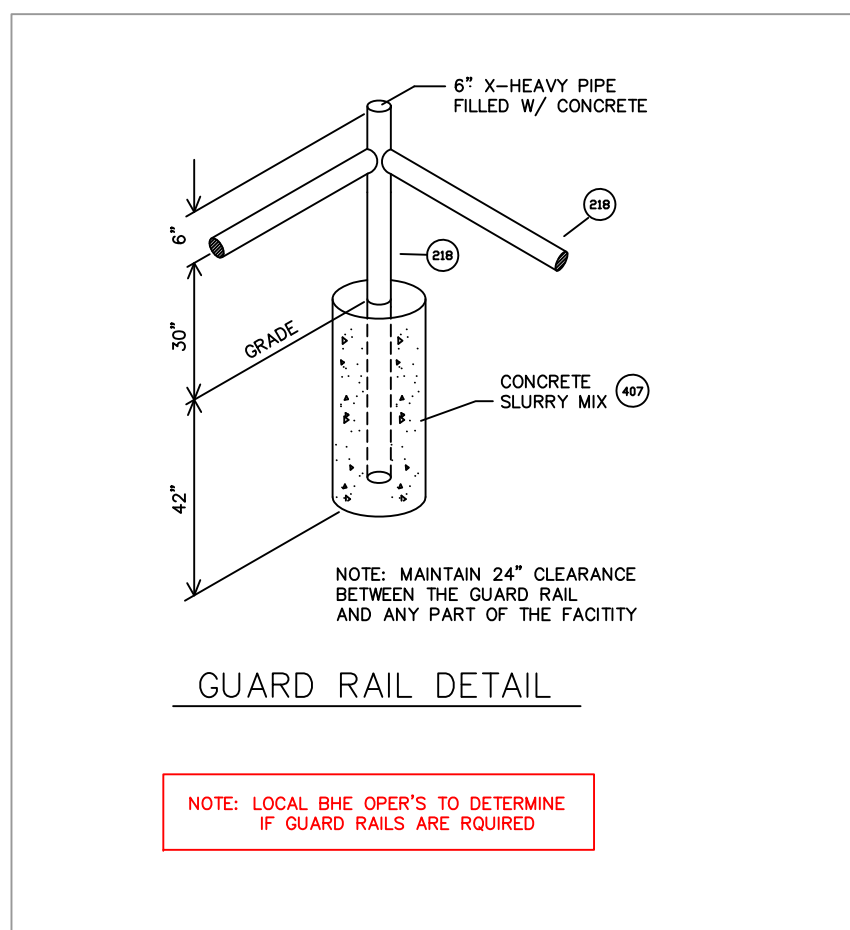
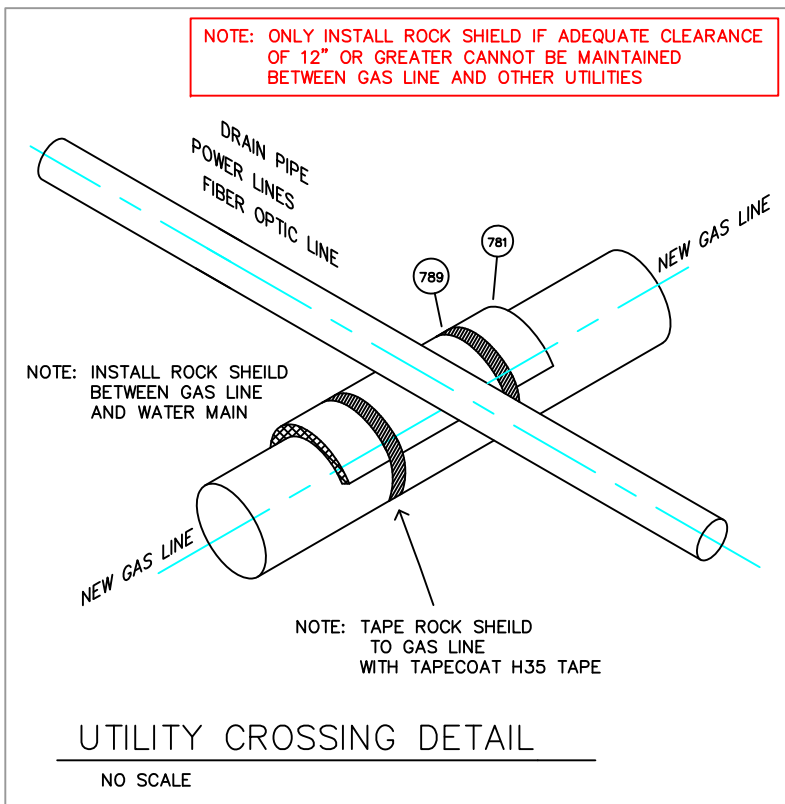
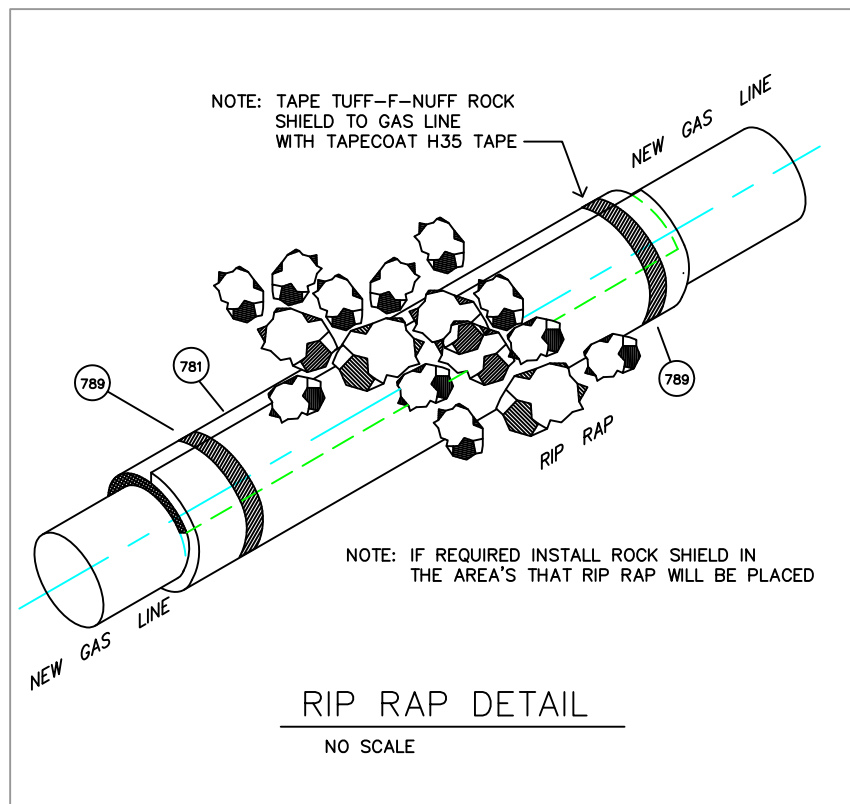
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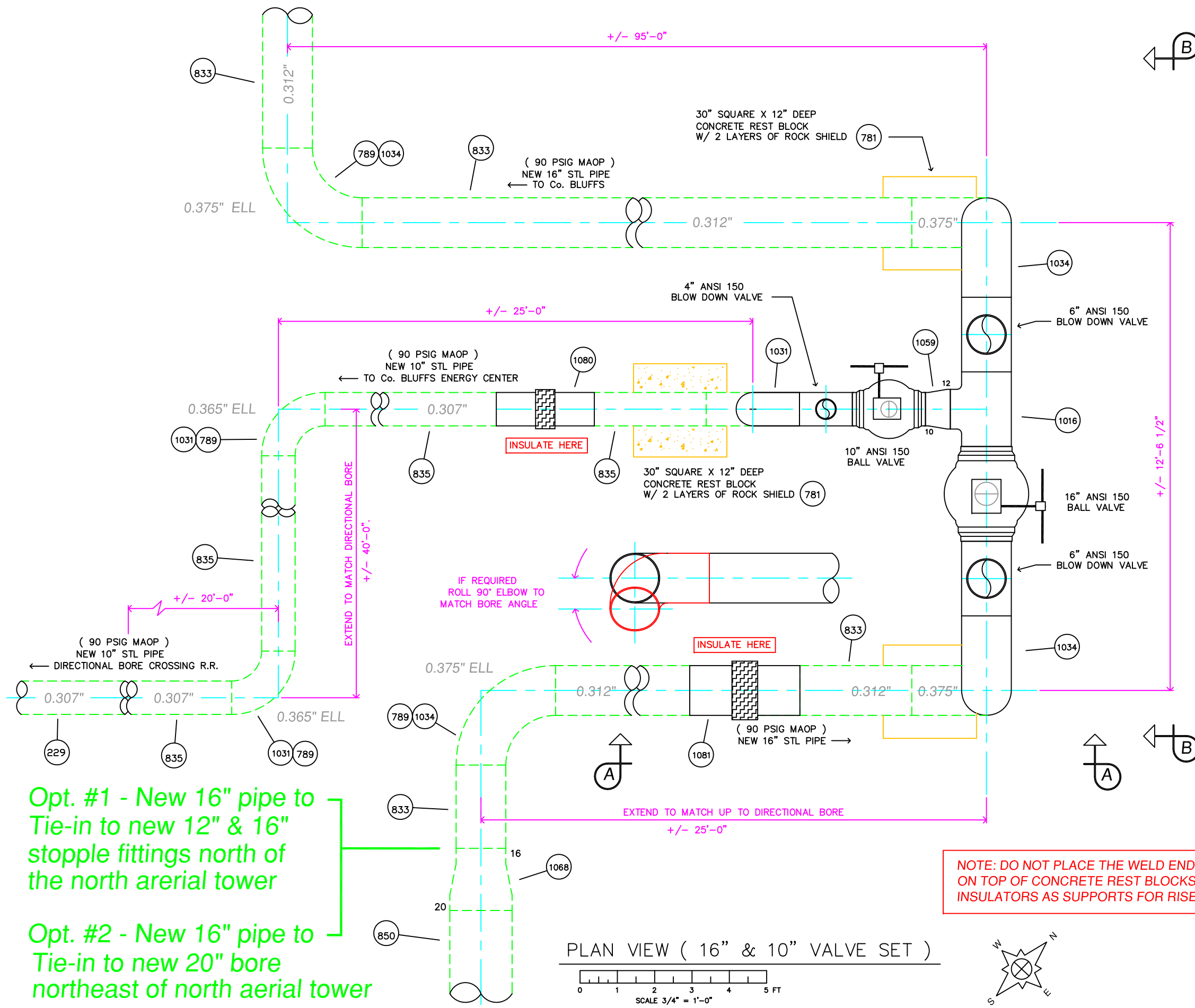


COUNCIL BLUFFS, IOWA
POTTAWATTAMIE COUNTY
8", 12", & 16" MAIN REPLACEMENT
MOSQUITO CREEK AREA
PIPING DETAILS

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CADD FILE CBCREEKBORE1.DWG	DWG. NO. 11-472	SHEET NO. 7 OF 18



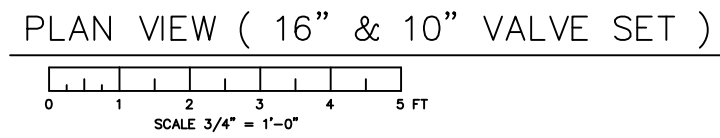
NOTE: CATHODIC TECHNICIAN TO DETERMINE NUMBER AND LOCATION OF ANODES



Opt. #1 - New 16" pipe to Tie-in to new 12" & 16" stopple fittings north of the north aerial tower

Opt. #2 - New 16" pipe to Tie-in to new 20" bore northeast of north aerial tower

NOTE: DO NOT PLACE THE WELD END INSULATORS ON TOP OF CONCRETE REST BLOCKS AND DO NOT USE INSULATORS AS SUPPORTS FOR RISERS ON VALVE SET



REFERENCE DRAWINGS / FILES

0.375 > 0.063
0.312 > 0.062
0.250 > 0.062

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DRAFTING		

COUNCIL BLUFFS, IOWA
POTTAWATTAMIE COUNTY
8", 12", & 16" MAIN REPLACEMENT
MOSQUITO CREEK AREA
PLAN VIEW VALVE SET

DRAWN BY M. ERICKSON	DATE 5/8/2012	2012 CONSTRUCTION
SCALE NOTE	CHECKED ZIPPO !	DWG. TYPE PRELIM. BID FINAL ✓
CADD FILE CBCREEKBORE1.DWG	DWG. NO. 11-472	SHEET NO. 8 OF 18
W.O.	P.N.	

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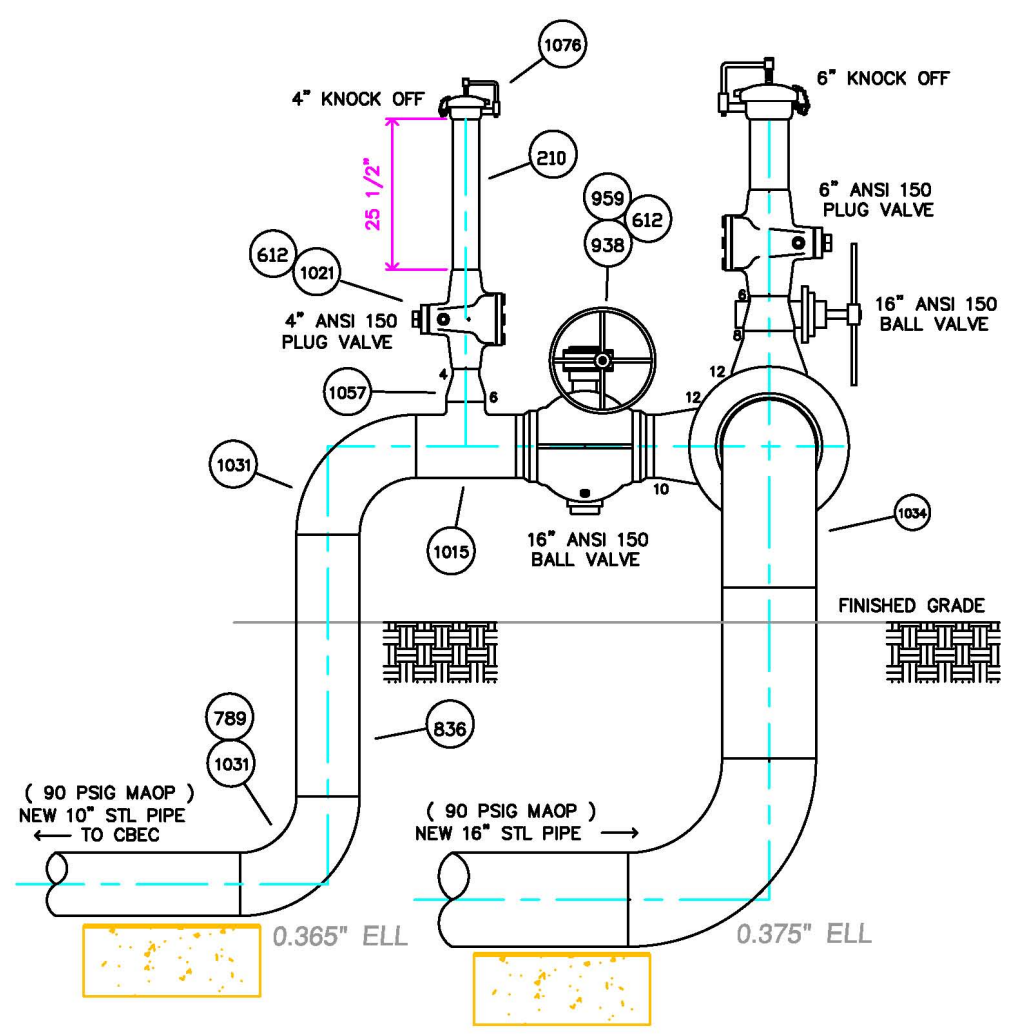
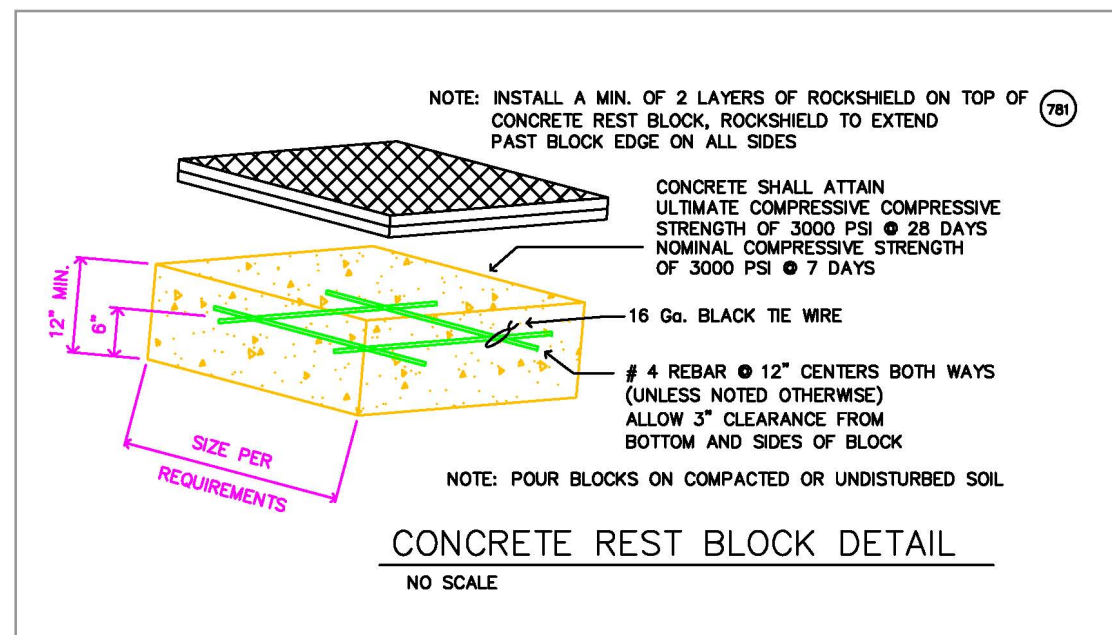
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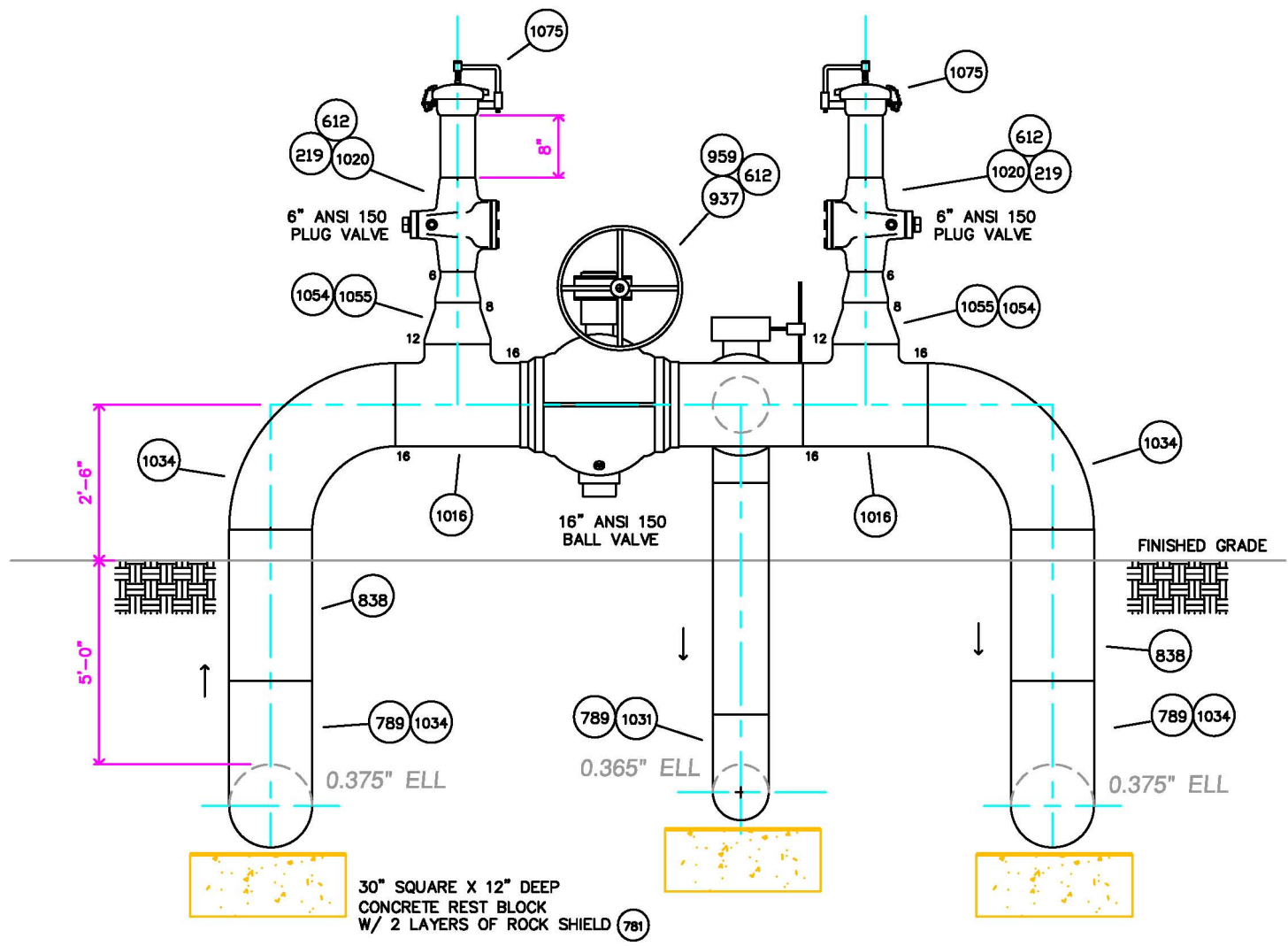
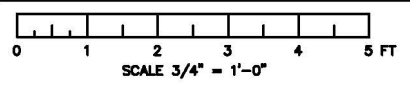


COUNCIL BLUFFS, IOWA
POTTAWATTAMIE COUNTY
8", 12", & 16" MAIN REPLACEMENT
MOSQUITO CREEK AREA
16" & 8" VALVE SET

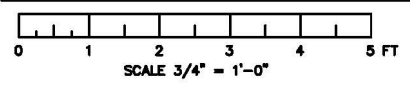
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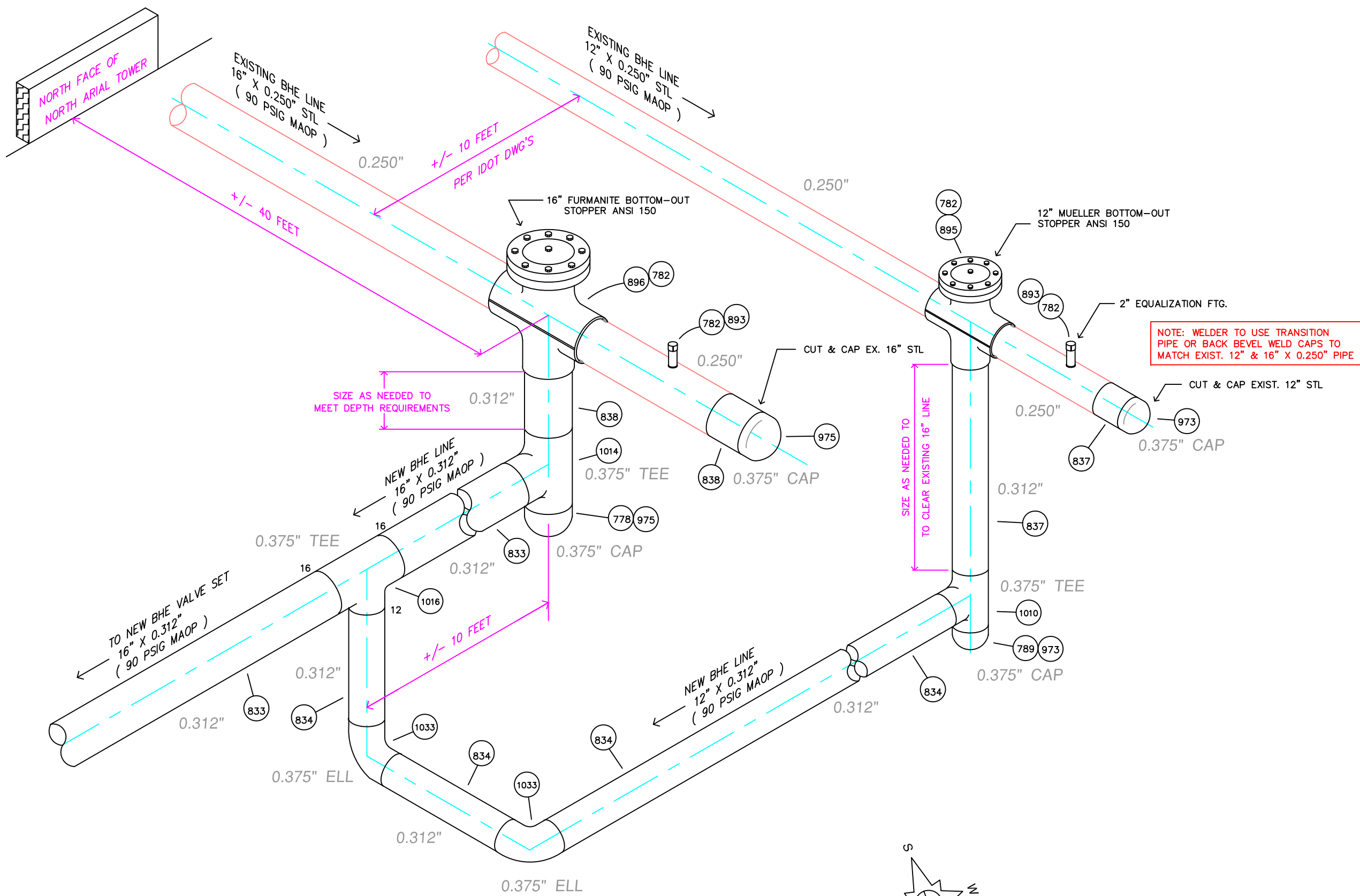


SECTION VIEW A-A (10" VALVE)



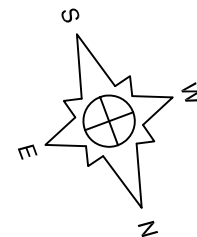
SECTION VIEW B-B (16" VALVE)





12" & 16" STOPPLE DETAIL (CENTER OF PROJECT)

NO SCALE



REFERENCE DRAWINGS / FILES

0.375 } 0.063
 0.312 } 0.062
 0.250 }

GENERAL NOTES



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NOTE: WELDER TO USE TRANSITION PIPE OR BACK BEVEL WELD CAPS TO MATCH EXIST. 12" & 16" X 0.250" PIPE

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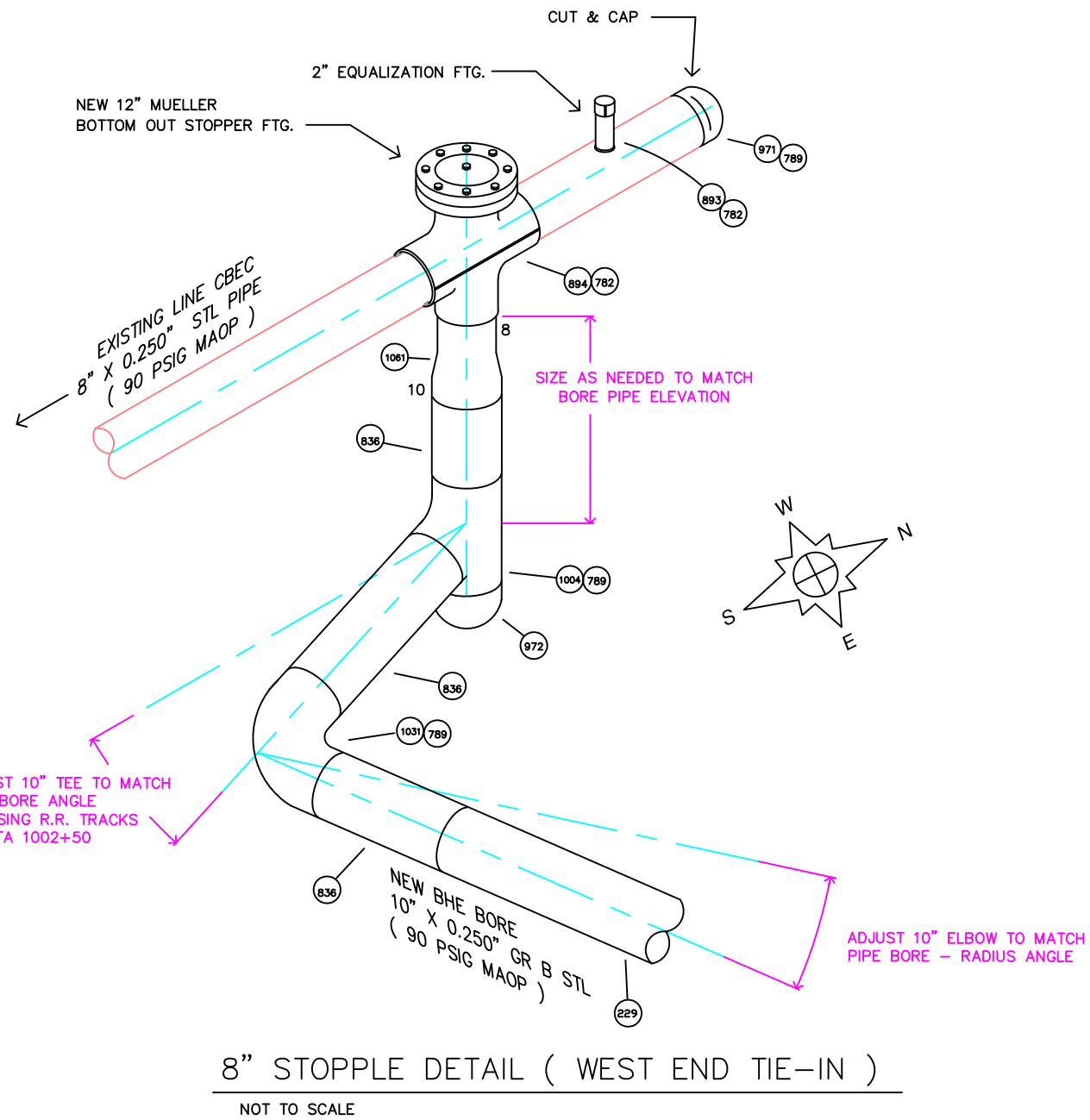
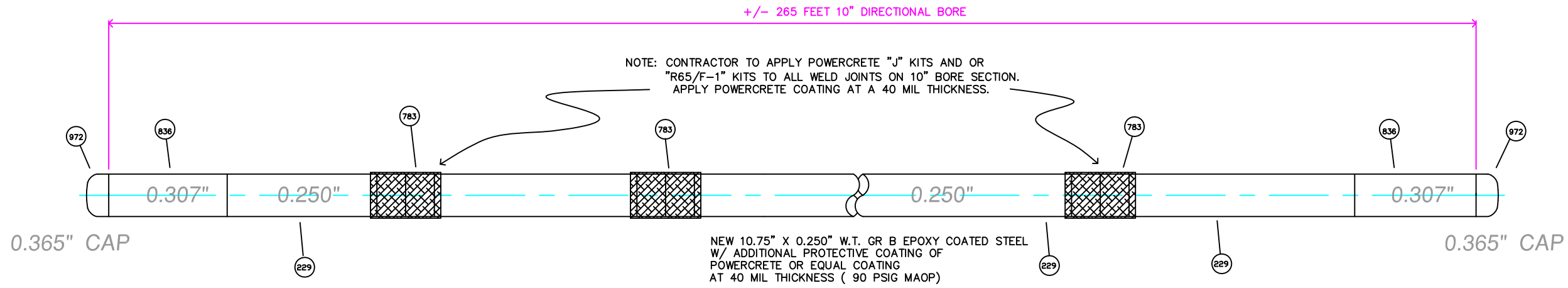
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Black Hills Energy

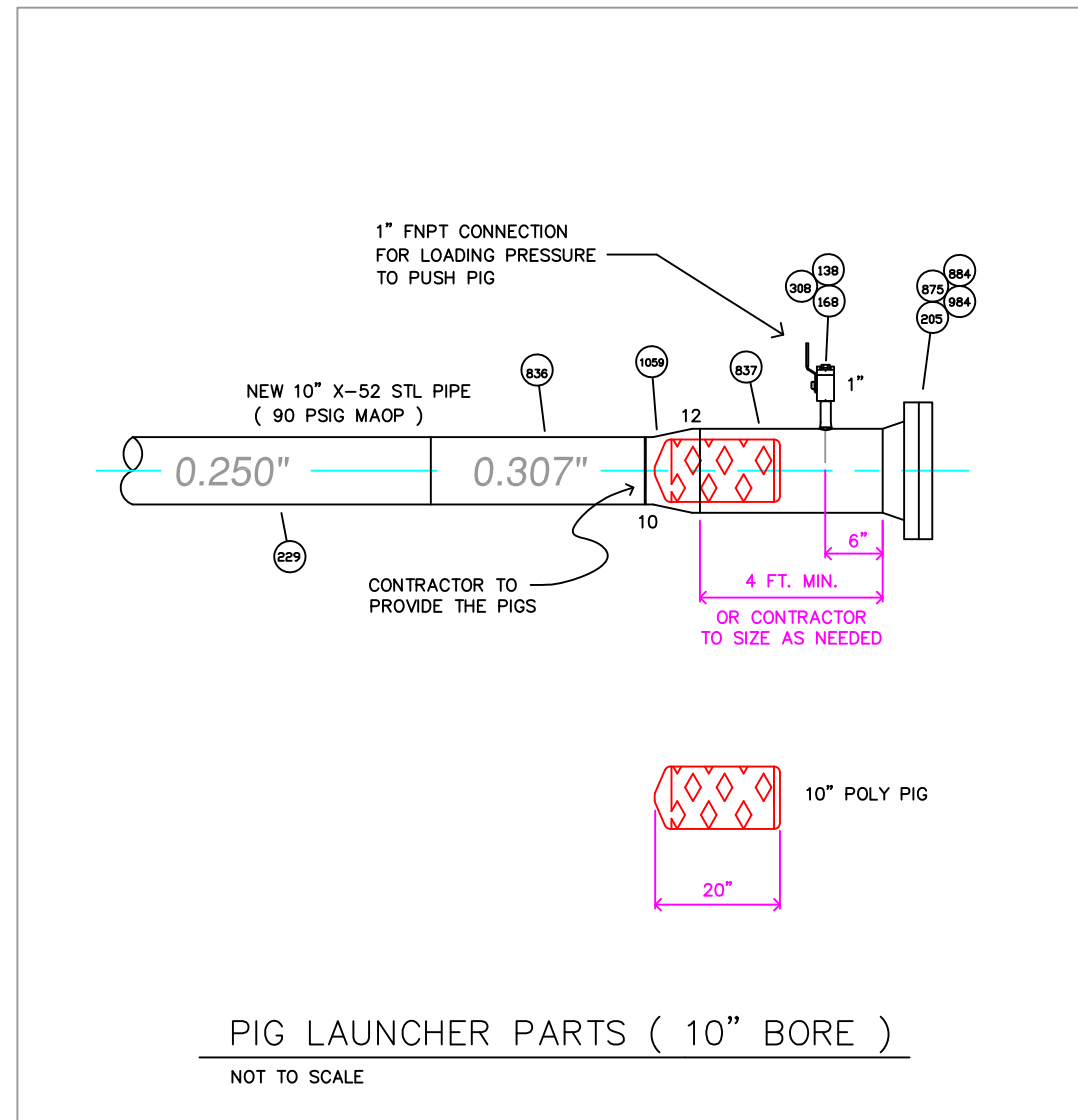
COUNCIL BLUFFS, IOWA
 POTTAWATTAMIE COUNTY
 8", 12", & 16" MAIN REPLACEMENT
 MOSQUITO CREEK AREA
 12" & 16" STOPPLING DETAILS

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CADD FILE CBCREEKBOR1.DWG	DWG. NO. 11-472	SHEET NO. 10 OF 18
W.O.	P.N.	



10" DIRECTIONAL BORE DRAG SECTION DETAIL

NOT TO SCALE



REFERENCE DRAWINGS / FILES

0.365 > 0.058
0.307

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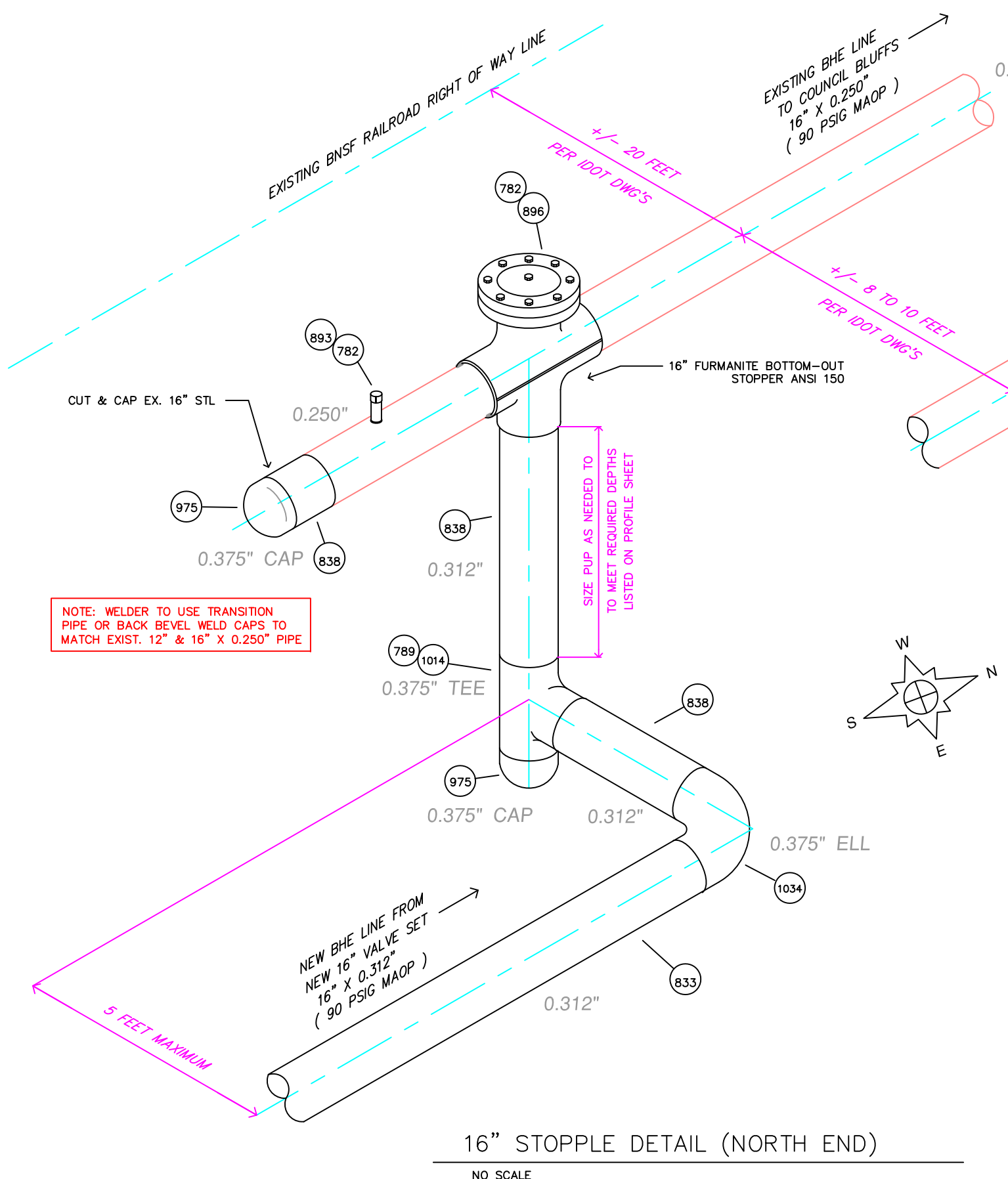
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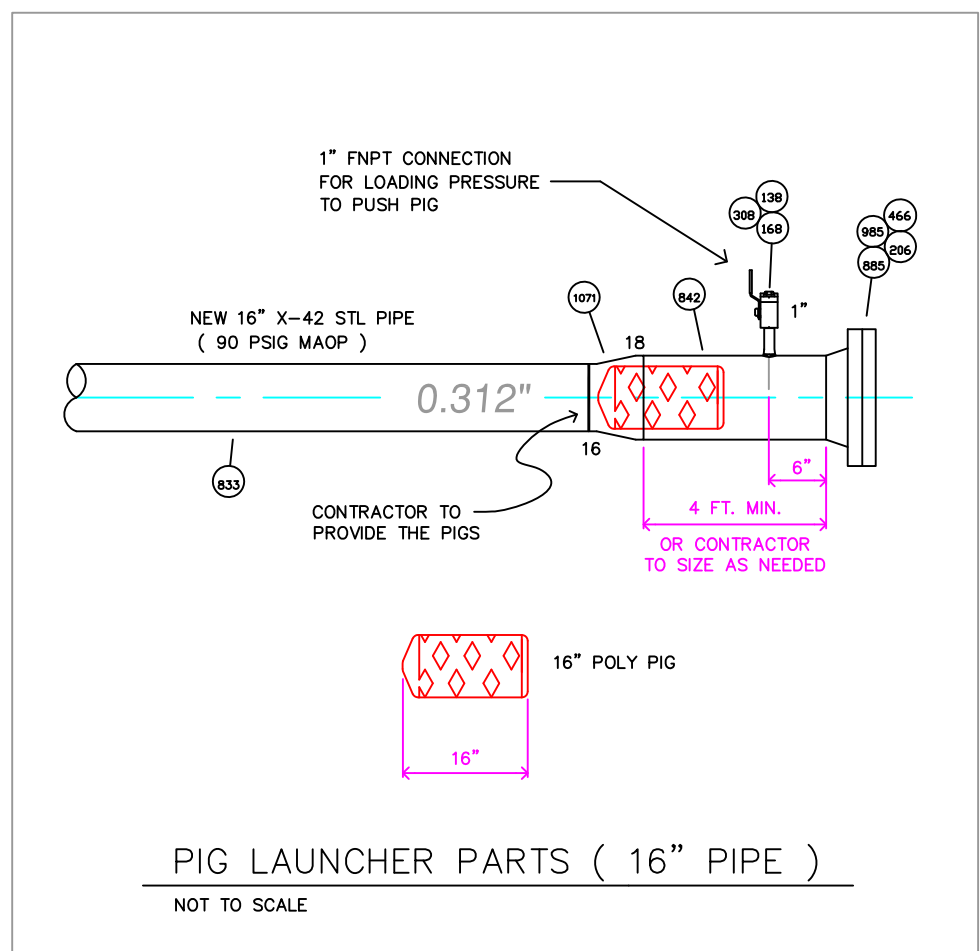
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POTTAWATTAMIE COUNTY
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MOSQUITO CREEK AREA
10" BORE SECTION DETAILS

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NOTE: CONTRACTOR TO NOTIFY ONE-CALL AND CONTACT MAGELLAN PIPELINE L.P. BEFORE STARTING WORK IN THIS AREA

NOTE: WELDER TO USE TRANSITION PIPE OR BACK BEVEL WELD CAPS TO MATCH EXIST. 12" & 16" X 0.250" PIPE



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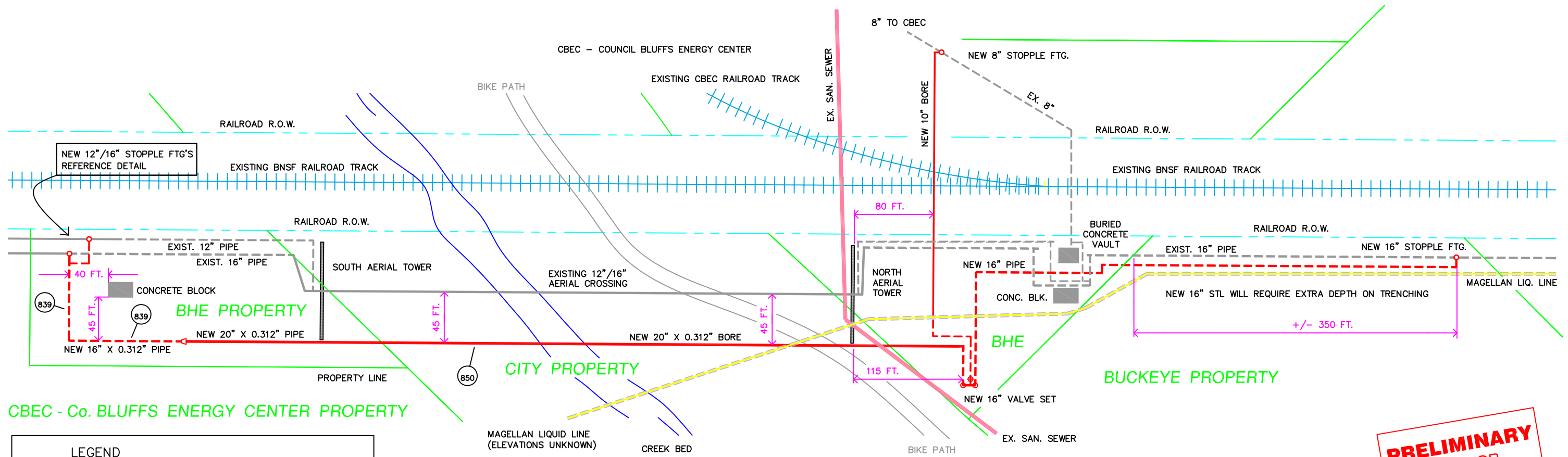
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DRAFTING		



COUNCIL BLUFFS, IOWA
 POTTAWATTAMIE COUNTY
 8", 12", & 16" MAIN REPLACEMENT
 MOSQUITO CREEK AREA
 16" STOPPLING DETAILS

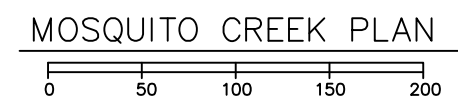
DRAWN BY M. ERICKSON	DATE 5/8/2012	2012 CONSTRUCTION
SCALE NOTE	CHECKED ZIPPO !	DWG. TYPE PRELIM. BID FINAL ✓
CADD FILE CBCREEKBORE1.DWG	DWG. NO. 11-472	SHEET NO. 12 OF 18



CBEC - Co. BLUFFS ENERGY CENTER PROPERTY

LEGEND

- PROPOSED BHE GAS LINE (DIRECTIONAL BORE)
- - - PROPOSED BHE GAS LINES (TRENCHED IN)
- - - EXISTING BHE GAS LINES
- EXISTING PROPERTY LINES
- - - EXISTING MAGELLAN LIQUID LINE
- EXISTING CITY SANITARY SEWER LINE

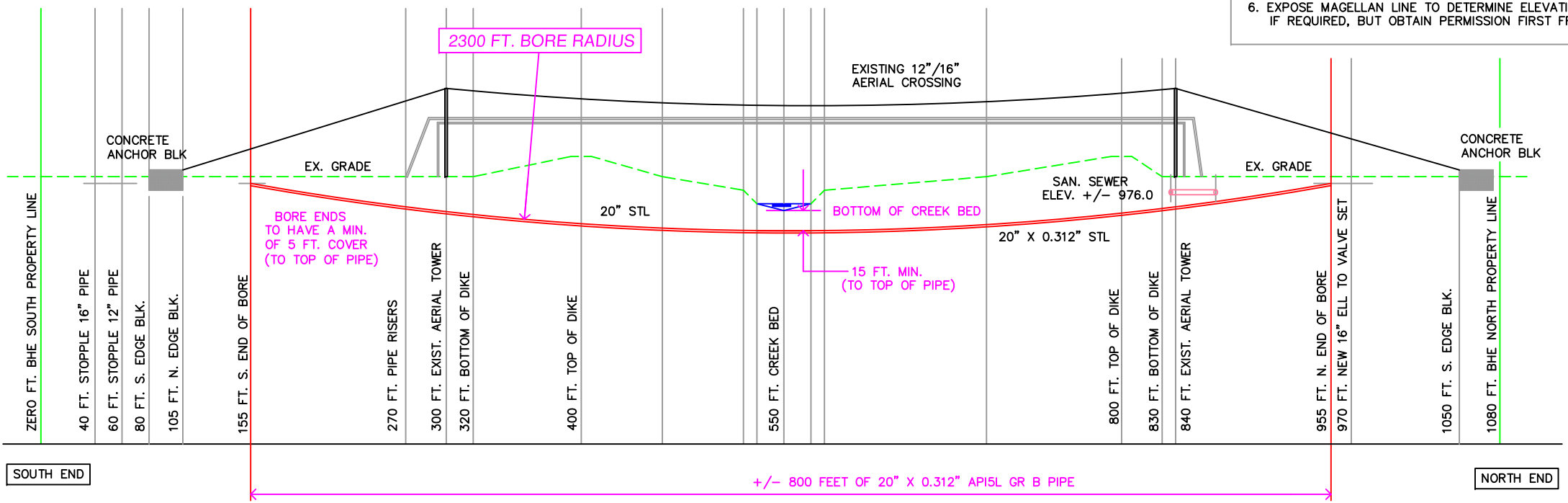


- 20" BORE NOTES:**
1. CONTACTOR WILL NEED TO EXPOSE EXISTING CITY SANITARY SEWER PIPE IN ORDER TO OBTAIN A CORRECT PIPE ELEVATION. WORK WITH CITY OF COUNCIL BLUFFS ON THIS. DO NOT BREAK OR MOVE THE EXISTING SAN. SEWER PIPE. IF REQUIRED ADJUST BORE DEPTH TO CLEAR THE EXISTING SANITARY SEWER PIPE.
 2. THE ENDS OF THE 20" DIRECTIONAL BORE TO HAVE A MINIMUM OF 5 FEET OF COVER TO TOP OF PIPE.
 3. INSTALL POWERCRETE "J" KITS ON ALL GRITH WELD JOINTS ON DIRECTIONAL BORES.
 4. BORE PIPE TO CLEAR CREEK BED BY 15 FEET MINIMUM. MEASUREMENT IS TO TOP OF 20" STEEL PIPE.
 5. BORE PIPE TO CLEAR BOTTOM EDGE OF DIKE BY A MINIMUM OF 10 FEET.
 6. EXPOSE MAGELLAN LINE TO DETERMINE ELEVATION. CUT AND REMOVE LINE ONLY IF REQUIRED, BUT OBTAIN PERMISSION FIRST FROM MAGELLAN AND BHE ENGINEER.

**PRELIMINARY
NOT FOR
CONSTRUCTION**



Know what's below.
Call before you dig.



MOSQUITO CREEK PROFILE
SCALE: 1" = 50' ON HORIZ.
NO SCALE ON VERT.

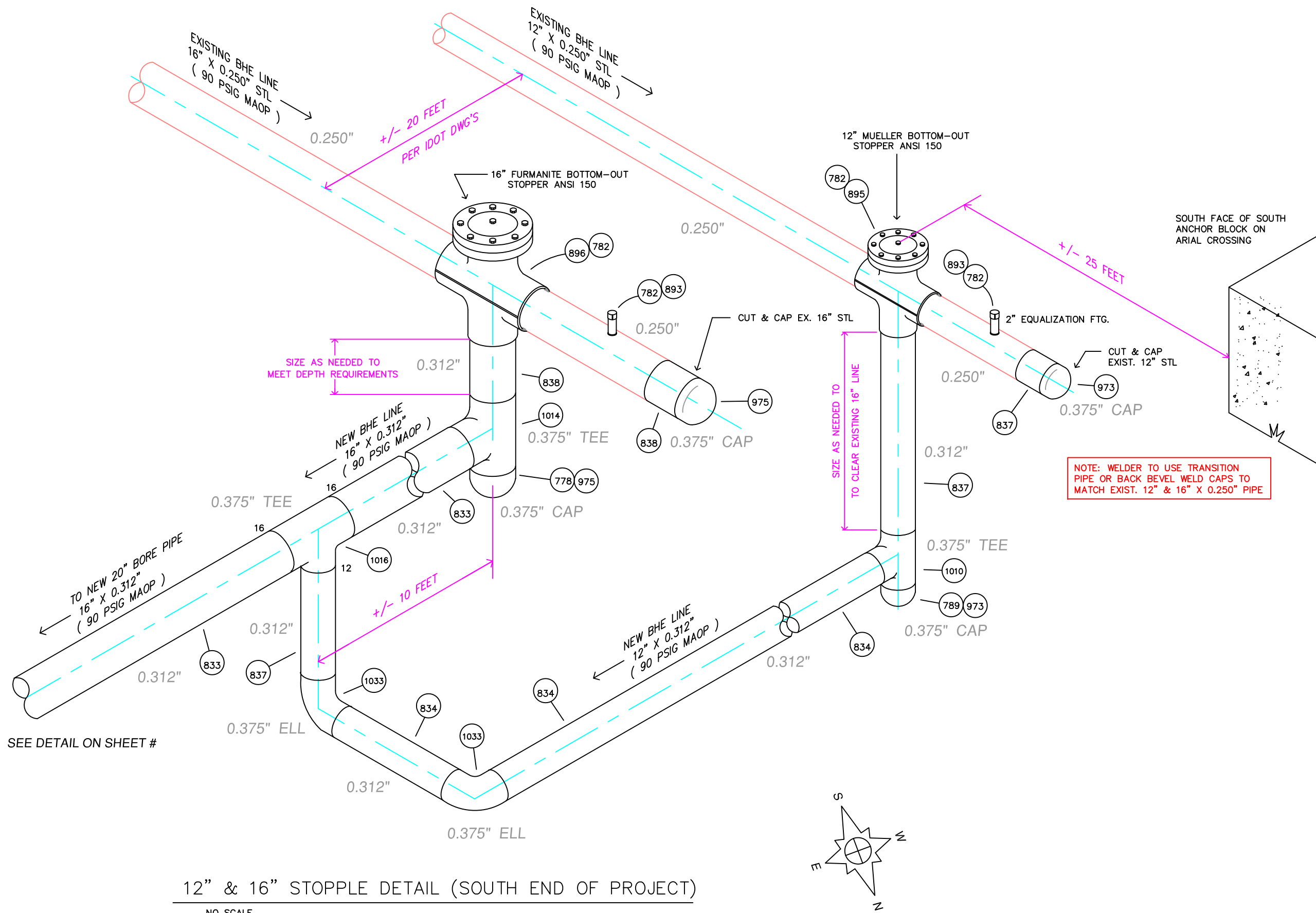
DRAWING APPROVALS

TYPE	DATE	BY
MECHANICAL		
ELECTRICAL		
PROJECT	5/2012	BRAD FLEMING
PIPELINE		
DRAFTING		

BH Black Hills Energy Natural Gas Engineering Services
1815 Capitol Avenue
Omaha, NE 68102

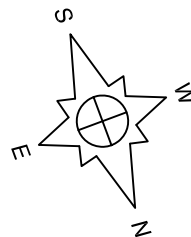
COUNCIL BLUFFS, IOWA
POTTAWATTAMIE COUNTY
8", 12", & 16" MAIN REPLACEMENT
MOSQUITO CREEK AREA
20" BORE PLAN & PROFILE

DRAWN BY M. ERICKSON	DATE 5/8/2012	2012 CONSTRUCTION
SCALE NOTE	CHECKED ZIPPO !	DWG. TYPE PRELIM. <input type="checkbox"/> BID <input type="checkbox"/> FINAL <input checked="" type="checkbox"/>
CADD FILE CBCREEKBORE1.DWG	DWG. NO. 11-472	SHEET NO. 13 OF 18



12" & 16" STOPPLE DETAIL (SOUTH END OF PROJECT)

NO SCALE



REFERENCE DRAWINGS / FILES

0.375 } 0.063
 0.312 } 0.062
 0.250 }

GENERAL NOTES



Know what's below.
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 CONSTRUCTION

NOTE: WELDER TO USE TRANSITION PIPE OR BACK BEVEL WELD CAPS TO MATCH EXIST. 12" & 16" X 0.250" PIPE

DRAWING REVISIONS

NO.	DESCRIPTION	DATE	BY	CHK.	APPROV'D

DRAWING APPROVALS

TYPE	DATE	BY
MECHANICAL		
ELECTRICAL		
PROJECT	5/2012	BRAD FLEMING
PIPELINE		
DRAFTING		

BH Natural Gas Engineering Services
 1815 Capitol Avenue
 Omaha, NE 68102
Black Hills Energy

COUNCIL BLUFFS, IOWA
 POTTAWATTAMIE COUNTY
 8", 12", & 16" MAIN REPLACEMENT
 MOSQUITO CREEK AREA
 12" & 16" STOPPLING DETAILS

DRAWN BY	M. ERICKSON	DATE	5/8/2012	2012 CONSTRUCTION
SCALE	NOTE	CHECKED	ZIPPO !	DWG. TYPE PRELIM. BID FINAL ✓
CADD FILE	CBCREEKBORE1.DWG	DWG. NO.	11-472	
W.O.		P.N.		SHEET NO. 14 OF 18

0.375 } 0.063
 0.312 } 0.062
 0.250 }

GENERAL NOTES



Know what's below.
 Call before you dig.

PRELIMINARY
 NOT FOR
 CONSTRUCTION

DRAWING REVISIONS

NO.	DESCRIPTION	DATE	BY	CHK.	APPROV'D

DRAWING APPROVALS

TYPE	DATE	BY
MECHANICAL		
ELECTRICAL		
PROJECT	5/2012	BRAD FLEMING
PIPELINE		
DRAFTING		



COUNCIL BLUFFS, IOWA
 POTTAWATTAMIE COUNTY
 8", 12", & 16" MAIN REPLACEMENT
 MOSQUITO CREEK AREA
 SOUTH END 20" BORE TIE-IN

DRAWN BY M. ERICKSON	DATE 5/8/2012	2012 CONSTRUCTION
SCALE NOTE	CHECKED ZIPPO !	DWG. TYPE PRELIM. BID FINAL ✓
CADD FILE CBCREEKBORE1.DWG	DWG. NO. 11-472	SHEET NO. 15 OF 18

SEE DETAIL ON SHEET #

0.375" TEE

NEW BHE LINE
 16" X 0.312"
 (90 PSIG MAOP)

NEW BHE LINE
 12" X 0.312"
 (90 PSIG MAOP)

0.375" ELL

0.312"

+/- 115 FEET

+/- 80 FEET

16" STL

0.375"

0.312"

16" 3R 45° ELL
 TRIM TO FIT BORE
 RADIUS ANGLE

TIE-IN DETAIL

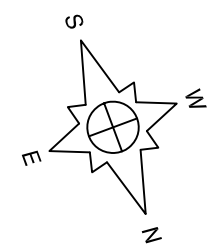
NO SCALE

SEE TIE-IN DETAIL

NEW BHE 20" BORE
 TO VALVE SET
 (90 PSIG MAOP)

20" BORE TIE-IN (SOUTH END OF PROJECT)

NO SCALE



GENERAL NOTES



Know what's below.
Call before you dig.

PRELIMINARY
NOT FOR
CONSTRUCTION

DRAWING REVISIONS

NO.	DESCRIPTION	DATE	BY	CHK.	APPROV'D

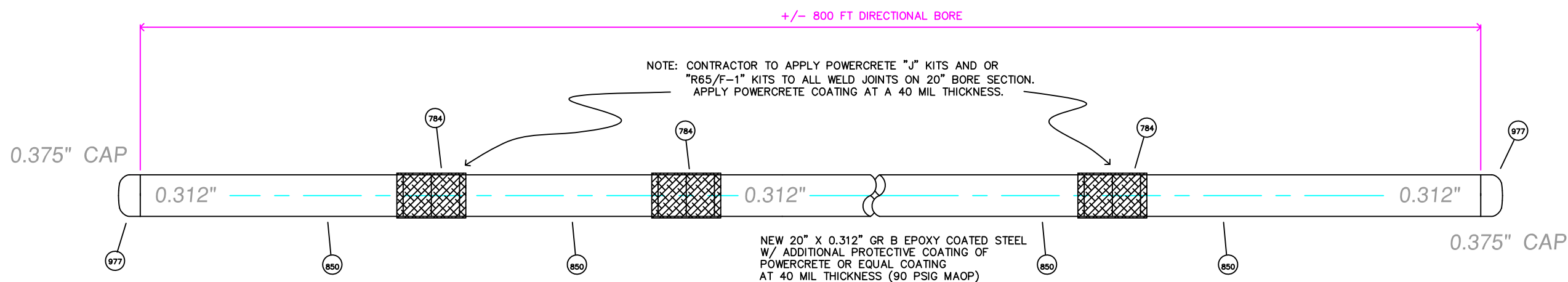
DRAWING APPROVALS

TYPE	DATE	BY
MECHANICAL		
ELECTRICAL		
PROJECT		
PIPELINE	5/2012	BRAD FLEMING
DRAFTING		



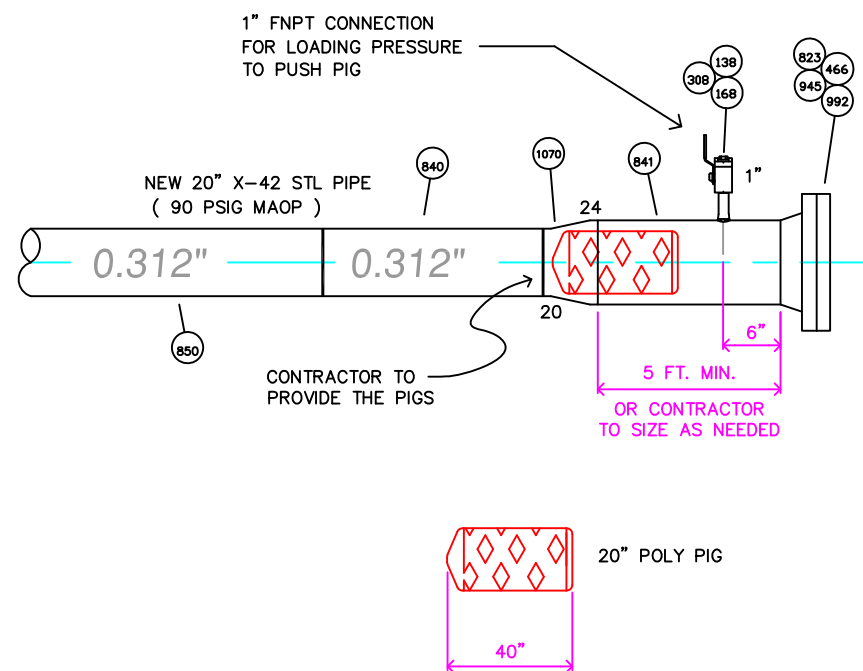
COUNCIL BLUFFS, IOWA
POTTAWATTAMIE COUNTY
8", 12", & 16" MAIN REPLACEMENT
MOSQUITO CREEK AREA
20" BORE SECTION DETAILS

DRAWN BY M. ERICKSON	DATE 5/8/2012	2012 CONSTRUCTION
SCALE NOTE	CHECKED ZIPPO !	DWG. TYPE PRELIM. BID FINAL ✓
CADD FILE CBCREEKBORE1.DWG	DWG. NO. 11-472	SHEET NO. 16 OF 18



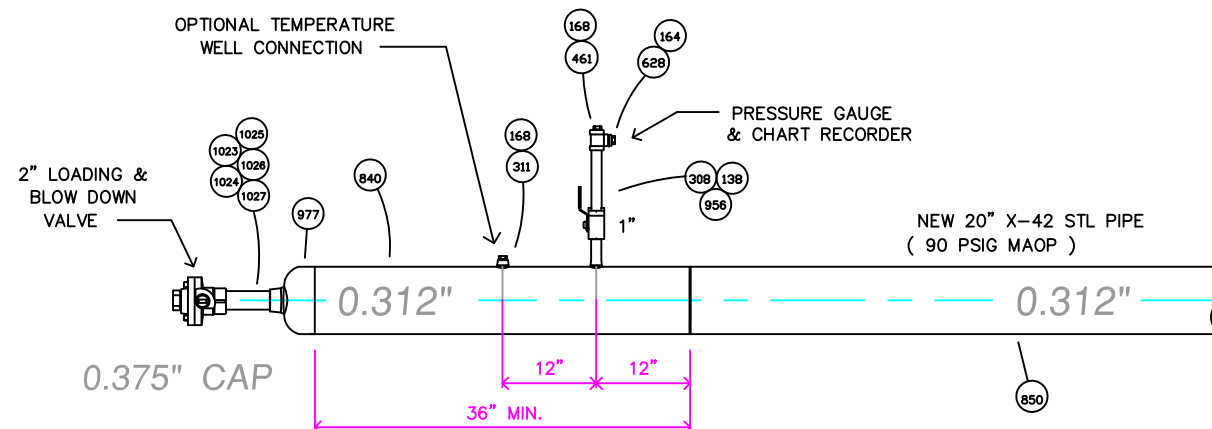
20" DIRECTIONAL BORE DRAG SECTION DETAIL

NOT TO SCALE



PIG LAUNCHER PARTS (20" BORE)

NOT TO SCALE



NOTE: WELDER TO FABRICATE TEST HEADER AND WELD IT TO ONE END OF 20" PIPE SEGMENT DURING PRESSURE TEST.

PRESSURE TEST MANIFOLD (20" BORE SECTION)

NOT TO SCALE