

B18 - LEIFERMAN  
SEC. 18, T112N, R 47W  
BROOKINGS COUNTY,  
SOUTH DAKOTA

NOTE:  
BEARINGS AND DISTANCES ARE BASED  
ON THE SOUTH DAKOTA STATE PLANE  
COORDINATE SYSTEM, NORTH ZONE -  
NAD83 (US SURVEY FEET)

LAND DIMENSION INFORMATION FOR THIS  
EXHIBIT WAS DERIVED FROM LAND  
SURVEY DATA.

ALL UNDERGROUND UTILITIES ARE SHOWN  
IN GENERAL LOCATION. CONTRACTOR TO  
FIELD VERIFY PRIOR TO CONSTRUCTION.

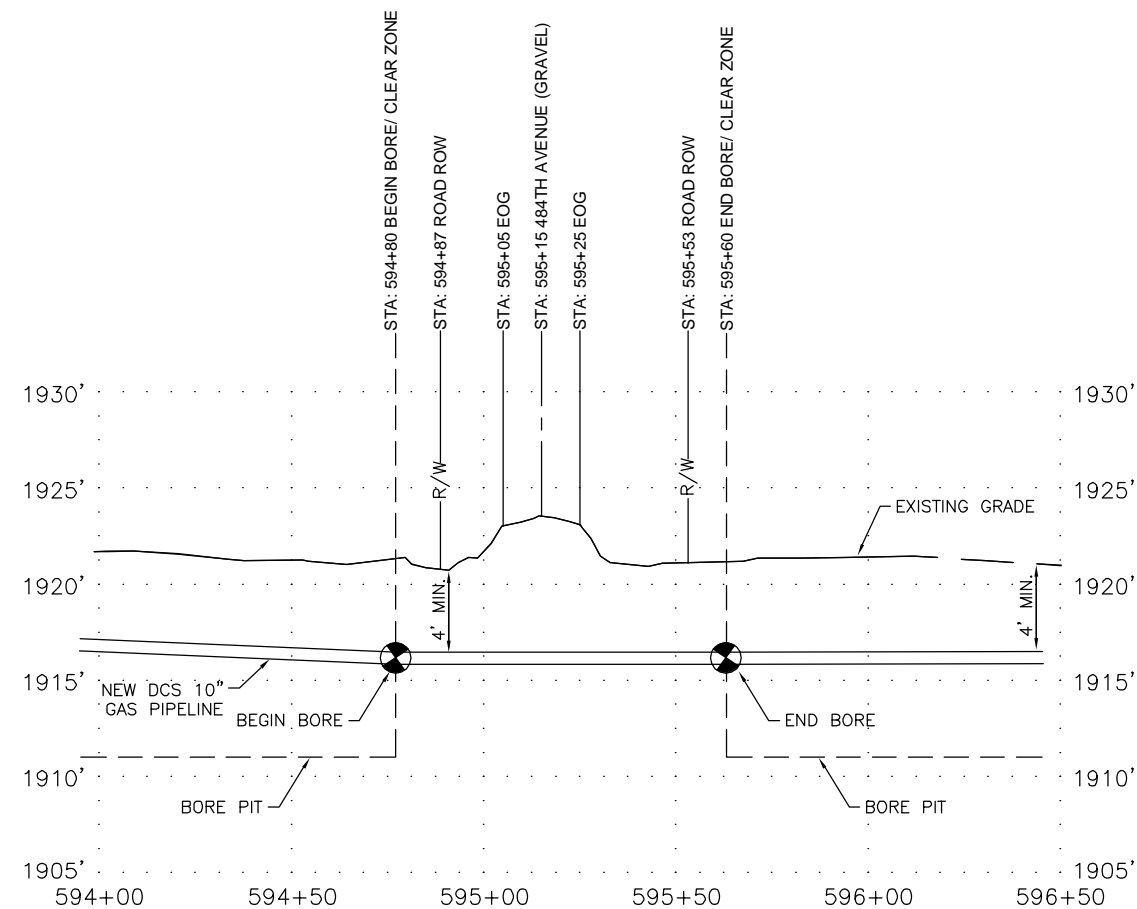
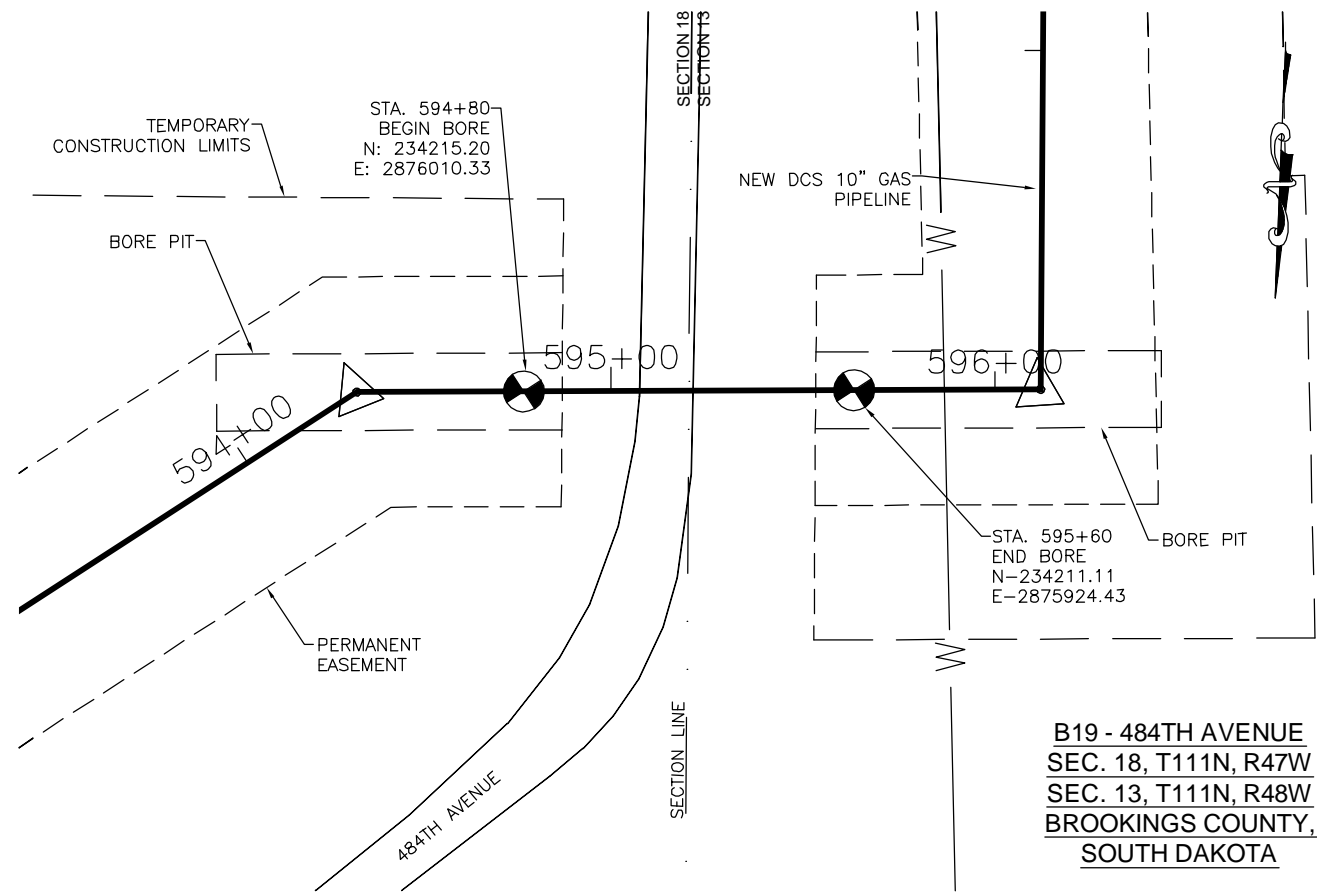
SEE PLAN AND PROFILE SHEETS FOR  
LEGEND.

REVISIONS				
No.	DATE	BY	CHKD.	

DEER CREEK STATION GAS PIPELINE  
DEUEL & BROOKINGS COUNTY, SOUTH DAKOTA

DCS-CD-ONG-0013

DRAWN BY: AME	CHECK BY: SDR	SCALE: 1" = 60'
SIGNED BY: DPY	ENGINEER	
DATE: JUNE 2010	GAS PIPELINE BORING B18 AT LEIFERMAN HILL	
DCS-B13		

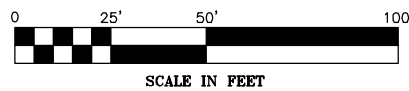


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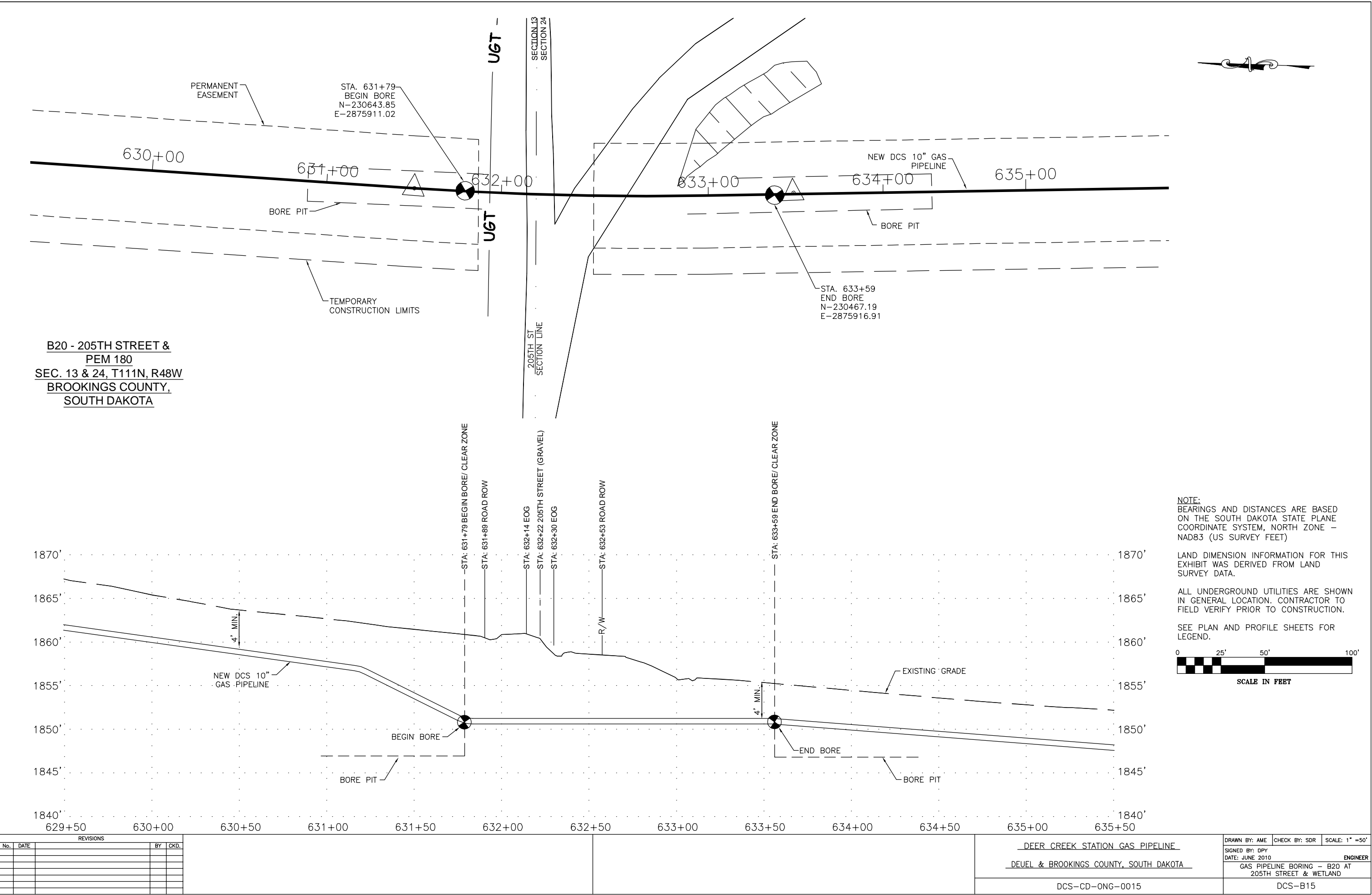


REVISIONS				
No.	DATE	BY	CHKD.	

DEER CREEK STATION GAS PIPELINE  
DEUEL & BROOKINGS COUNTY, SOUTH DAKOTA

DCS-CD-ONG-0014

DRAWN BY: AME	CHECK BY: SDR	SCALE: 1" = 50'
SIGNED BY: DPY	ENGINEER	
DATE: JUNE 2010	GAS PIPELINE BORING B19 AT 484TH AVENUE	
DCS-B14		



B20 - 205TH STREET &  
PEM 180  
SEC. 13 & 24, T111N, R48W  
BROOKINGS COUNTY,  
SOUTH DAKOTA

REVISIONS				
No.	DATE		BY	CHKD.

DEER CREEK STATION GAS PIPELINE  
DEUEL & BROOKINGS COUNTY, SOUTH DAKOTA

DCS-CD-ONG-0015

DRAWN BY: AME	CHECK BY: SDR	SCALE: 1" = 50'
SIGNED BY: DPY	ENGINEER	
DATE: JUNE 2010	GAS PIPELINE BORING - B20 AT 205TH STREET & WETLAND	
DCS-B15		

# GENERAL NOTES DEER CREEK STATION

## A. PIPING NOTES

- CONTRACTOR TO VERIFY LOCATION AND ELEVATION OF EXISTING PIPES, ELECTRICAL CABLES AND FOREIGN UTILITIES IN AREA OF CONSTRUCTION PRIOR TO START OF CONSTRUCTION.
- ARC BURNS ARE NOT PERMITTED AND SHALL BE CUT OUT. OTHER WELDING DEFECTS SHALL MEET CRITERIA OF MDU GAS DISTRIBUTION STANDARDS.
- NON-DESTRUCTIVE TESTING SHALL BE IN ACCORDANCE WITH MDU GAS DISTRIBUTION STANDARDS.
- ALL VALVES  $\frac{1}{2}$ " AND LARGER SHALL HAVE LOCKING DEVICES INSTALLED.

## B. GOVERNING SPECIFICATIONS PIPELINE CONSTRUCTION

- CODE OF FEDERAL REGULATIONS (CFR) TITLE 49 PART 192 – TRANSPORTATION OF NATURAL AND OTHER GAS BY PIPELINE: MINIMUM FEDERAL STANDARDS.
- MDU GAS DISTRIBUTION STANDARDS.

## C. FIELD COLD BENDS

CONTRACTOR TO PROVIDE LABOR AND EQUIPMENT TO BEND AND INSTALL ALL SIDE, OVERBENDS, AND SAGS TO COMPLETE PIPELINE INSTALLATION AS SHOWN ON THE DRAWINGS. MDU WILL PROVIDE BENDS AND FITTINGS ONLY AS INDICATED ON THE DRAWINGS.

## D. STATION LANDSCAPING

- STATION SITES SHALL BE BROUGHT TO A LEVEL CONDITION AND COMPACTED AFTER COMPLETION OF PIPELINE. SITE VEGETATION SHALL BE REMOVED AND SPREAD EVENLY OVER ADJACENT PIPELINE ROUTE. SITES SHALL BE GRADED TO PROVIDE DRAINAGE OF MOISTURE.
- BLACK VEGETATION CONTROL FABRIC SHALL BE PLACED OVER ENTIRE SITE AND SECURED IN PLACE. OVERLAP VEGETATION CONTROL FABRIC BY A MINIMUM OF SIX INCHES (6") AND A MAXIMUM OF TWELVE INCHES (12").
- SIX INCHES (6") OF CRUSHED ROCK SHALL BE PLACED IN A SMOOTH LAYER OVER THE STATION SITES. MATERIAL SHALL CONSIST OF CRUSHED STONE OR CRUSHED GRAVEL CONFORMING TO THE FOLLOWING GRADATION:

SIEVE SIZE PERCENTAGE BY WEIGHT

1 INCH (SQ MESH) 100

3/4 INCH (SQ MESH) 50

3/8 INCH (SQ MESH) 5 TO 10

NO. 4 (SQ MESH) 4 TO 9

NO. 8 (SQ MESH) 0 TO 2
- ENTIRE SITE SHALL BE ENCLOSED BY 84" HIGH CHAIN LINK FENCE PER MDU SPECIFICATION. STATION FENCING TO BE INSTALLED BY BASIN ELECTRIC POWER COOPERATIVE CONTRACTOR. SEE GENERAL NOTES PAGE 2.

## E. HYDROSTATIC TEST NOTES

- HYDROSTATIC TEST AND PROCEDURES SHALL BE IN ACCORDANCE WITH MDU GAS DISTRIBUTION STANDARDS. MINIMUM AND MAXIMUM HYDROSTATIC TEST PRESSURES GIVEN BELOW ARE BASED ON MATERIALS SPECIFIED IN MATERIAL LIST AND ANY SUBSTITUTION OF LESSER STRENGTH MATERIALS IS NOT ALLOWED. TESTING THROUGH REGULATORS IS NOT ALLOWED. TESTING THROUGH EQUIPMENT MUST BE APPROVED BY MDU.
- BLIND FLANGES WILL BE INSTALLED:

a. BETWEEN THE 12" BARREL AND THE 4" BALL VALVE ON EACH LAUNCHER

b. BETWEEN THE FLANGE ON THE LAUNCHER AND THE 8" VALVE (AT INTERCONNECT) OR 6" VALVE (AT PLANT SITE)

c. AFTER 4" VALVE ON VERTICAL PIPING ON LAUNCHER AT PLANT SITE
- PRESSURE TEST GAUGE AND CERTIFIED PRESSURE RECORDER WILL BE INSTALLED AT THE INTERCONNECT.
- INSURE THAT ALL VALVES ON BOTH LAUNCHERS ARE IN THE OPEN POSITION.
- RUN POLY PIG THROUGH PIPELINE TO REMOVE LOOSE MATERIAL AND CONSTRUCTION DEBRIS. CONTINUE UNTIL NO MORE DEBRIS IS REMOVED.
- INSTALL CALIBRATED PRESSURE RECORDER ON LAUNCHER AT PLANT SITE.
- INSTALL 2" ANSI 600 PLUG VALVE IN PLACE OF THE 2" BALL VALVE ON THE BOTTOM OF THE PLANT SITE LAUNCHER.
- FILL PIPELINE THROUGH THE 2" VALVE ON THE BOTTOM OF THE LAUNCHER AT THE PLANT SITE WITH WATER FROM SUITABLE SOURCE, INSURING THAT ALL AIR IN THE PIPELINE IS REMOVED DURING FILLING. LEAVE FILL HOSE ATTACHED TO VALVE AFTER PIPELINE IS FILLED TO PRESSURE AS IT WILL BE USED TO DRAIN THE PIPELINE AFTER THE TEST IS COMPLETE.
- AIR WILL BE VENTED FROM PIPELINE DURING WATER FILL OPERATION THROUGH THE 4" VALVE ON THE VERTICAL PIPING ON THE LAUNCHER AT THE INTERCONNECT.
- ALLOW PRESSURE TO STABILIZE FOR 12 HOURS PRIOR TO START OF TEST.
- HYDROSTATIC TEST SPECIFICATIONS/PRESSURES:

a. TEST MEDIUM– WATER

b. STABILIZATION PERIOD– 12 HOURS

c. HOLD TIME– 8 HOURS

d. MINIMUM PRESSURE AT PLANT SITE TEST GUAGE– 1884 PSIG

e. MAXIMUM PRESSURE– 2200 PSIG

f. MATERIAL TEST LIMITS– 2400 PSIG

g. CLASS LOCATION– 2
- DURING THAT STABILIZATION PERIOD, INSPECT PIPELINE FOR WET LOCATIONS THAT WOULD INDICATE LEAK IN PIPELINE.
- DURING THE STABILIZATION PERIOD, CONSTRUCT STRAW BALE DE-WATERING STRUCTURE AT THE PLANT SITE. MDU WILL SUPPLY DISCHARGE PERMIT FROM SD DENR.

- CONDUCT HYDROSTATIC PRESSURE TEST.
- AT END OF TEST, WATER WILL BE DRAINED FROM THE PIPELINE BY OPENING THE 2" PLUG VALVE ON THE PLANT SITE LAUNCHER THAT WAS USED TO FILL THE PIPELINE.
- AFTER ALL OF THE "FREE DRAINING WATER" IS DRAINED FROM THE PIPELINE, DE-WATERING PIGS WILL BE LAUNCHED FROM THE INTERCONNECT LAUNCHER TO FORCE THE REMAINING WATER OUT OF THE PIPELINE.
- WHEN THE POINT IS REACHED THAT THE DE-WATERING PIGS ARE NO LONGER REMOVING WATER, BRUSH AND LOW DENSITY FOAM PIGS WILL BE BLOWN THROUGH THE PIPELINE UTILIZING HEATED AIR UNTIL DUST CONTAMINATION HAS CHANGED TO A LIGHT GRAY IN COLOR, DUST CONTAMINATION IS MINIMAL AND A DESIRED PENETRATION LEVEL OF  $\frac{1}{4}$ " ON THE FOAM PIG IS ACHIEVED AND A DEWPOINT READING OF -40° F IS REACHED.
- REMOVE PRESSURE TEST GAUGE AND PRESSURE RECORDER.
- RE-INSTALL 2" VALVE ON BOTTOM OF PLANT SITE LAUNCHER AND INSURE IT IS CLOSED.
- ONCE THE NITROGEN TESTS ARE COMPLETED ON THE REGULATOR STATIONS PIPING, REMOVE BLIND FLANGES FROM BETWEEN LAUNCHERS AND VALVES AND RECONNECT FLANGES.
- INSURE THAT 4" VALVES IN VERTICAL PIPING ON LAUNCHERS ARE CLOSED.
- INSURE THAT THE REGULATOR STATION OUTLET VALVE AT THE PLANT SITE IS CLOSED.
- INTRODUCE NATURAL GAS TO THE PIPELINE AND PURGE THE PIPELINE OF AIR.
- LEAK CHECK ALL FLANGE CONNECTIONS TO INSURE NO LEAKS ARE PRESENT.

## F. NITROGEN TEST NOTES

- NITROGEN TEST AND PROCEDURES SHALL BE IN ACCORDANCE WITH MDU GAS DISTRIBUTION STANDARDS. MINIMUM AND MAXIMUM NITROGEN TEST PRESSURES GIVEN BELOW ARE BASED ON MATERIALS SPECIFIED IN MATERIAL LIST AND ANY SUBSTITUTION OF LESSER STRENGTH MATERIALS IS NOT ALLOWED. TESTING THROUGH EQUIPMENT MUST BE APPROVED BY MDU.
- BLIND FLANGES WILL BE INSTALLED:

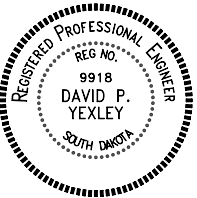
a. BETWEEN THE 12" BARREL AND THE 4" BALL VALVE ON THE LAUCHER

b. BETWEEN THE FLANGE ON THE LAUCHER AND THE 8" VALVE (AT INTERCONNECT) OR 6" VALVE (AT PLANT SITE)

c. BETWEEN THE 8" INLET AND 6" OUTLET FLANGES ON THE FILTER/SEPARATOR AT THE PLANT SITE

d. ON THE INLET FLANGE AT THE INTERCONNECT

e. ON THE OUTLET FLANGE OF THE 6" OUTLET VALVE AT THE PLANT SITE



- PRESSURE TEST GAUGE AND CERTIFIED PRESSURE RECORDER WILL BE INSTALLED ON THE REGULATOR RUN.
- REMOVE THE REGULATORS AND INSTALL SPOOL PIECES IN PLACE OF REGULATORS.
- REMOVE THE TWO INCH (2") RELIEF VALVE ON THE OUTLET OF THE REGULATOR RUN AT THE PLANT AND INSTALL 2" BLIND FLANGE.
- INSURE THAT ALL 4" AND 6" VALVES ARE IN THE OPEN POSITION.
- INSURE THAT ALL  $\frac{1}{2}$ ",  $\frac{3}{4}$ " AND 1" VALVES (EXCEPT THE NITROGEN FILL VALVE) ARE CLOSED.
- NITROGEN WILL BE INTRODUCED INTO THE PIPELINE THROUGH THE 1" BALL VALVE LOCATED ADJACENT TO THE 8" INLET VALVE (INTERCONNECT) OR 1" BALL VALVE LOCATED ADJACENT TO THE 6" INLET VALVE (PLANT SITE).
- NITROGEN TEST SPECIFICATIONS/PRESSURES:

a. TEST MEDIUM– NITROGEN

b. HOLD TIME– 8 HOURS

c. MINIMUM PRESSURE– 2160 PSIG

d. MAXIMUM PRESSURE– 2400 PSIG

e. MATERIAL TEST LIMITS– 2400 PSIG

f. CLASS LOCATION– 3
- ONCE NITROGEN TEST IS COMPLETED ON REGULATOR STATION:

a. RELIEVE PRESSURE

b. REMOVE BLIND FLANGES FROM BETWEEN LAUNCHERS AND VALVES




c. RECONNECT FLANGES

d. REMOVE SPOOL PIECES

e. RE-INSTALL REGULATORS

f. RE-INSTALL 2" RELIEF VALVE

g. REMOVE PRESSURE RECORDER AND TEST GAUGE
- INSURE THAT THE VALVE LOCATED BETWEEN THE REGULATOR STATION AND THE CONNECTION TO THE PLANT PIPING AT THE PLANT SITE IS CLOSED.
- INTRODUCE NATURAL GAS TO THE PIPELINE AND PURGE THE PIPELINE OF AIR.
- ONCE PIPELINE IS PURGED AND FILLED WITH NATURAL GAS, CLOSE BOTH BY-PASS VALVES ON REGULATOR STATIONS AT INTERCONNECT AND PLANT SITE.

NO.	DATE	BY	REVISION
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<div><b>BASIN ELECTRIC POWER COOPERATIVE</b> A Touchstone Energy® Cooperative </div> <div><b>MONTANA-DAKOTA UTILITIES CO.</b> A Division of MDU Resources Group, Inc.</div>			
GENERAL NOTES SHEET 1 OF 2 DEER CREEK STATION			
SCALE	DATE	DRAWN BY	APPROVED BY
NONE	6/2/10	CASSIE PETER	DAVE YEXLEY
DCS-GI-ONG-0002			

NOTE:

FENCES QUOTED MUST MEET THE FOLLOWING STANDARD. REFERENCE USED IN THE DEVELOPMENT OF THIS STANDARD IS "1989 ANNUAL BOOK OF ASTM STANDARDS VOLUME 01.06 COATED STEEL PRODUCTS."

GENERAL SPECIFICATION:

THE CHAIN LINK FENCE SHALL STAND 8'4" ABOVE GRADE, INCLUDING 3 STRANDS OF BARBED WIRE ON THE OUTWARD EXTENSION BRACKETS WITH THE DIMENSIONS AND GATE(S) LOCATED PER THE ATTACHED DRAWING. THIS FENCE IS TO BE QUOTED AS

- \_\_\_\_MATERIALS ONLY FOR ERECTION BY OTHERS
- \_\_\_\_INSTALLED IN PLACE INCLUDING MATERIALS AND LABOR
- \_\_\_\_MATERIALS ONLY WITH INSTALLED IN PLACE AS AN ALTERNATE

THE MATERIALS SUPPLIED FOR THIS FENCE AND THE INSTALLATION (WHERE APPLICABLE) SHALL BE IN ACCORDANCE WITH THE FOLLOWING:

CHAIN LINK FABRIC:

THE CHAIN LINK FABRIC SHALL BE 84" HIGH 9 GAUGE AND HAVE A 2" MESH, KNUCKLED AT ONE SELVAGE AND TWISTED AT THE OTHER AND HAVE CLASS 2 ZINC COATING OF NOT LESS THAN 2 OUNCES PER SQUARE FOOT OF UNCOATED WIRE SURFACE ALL IN ACCORDANCE WITH ASTM A-392.

LINE POSTS:

LINE POSTS SHALL BE 2" NPS (2.375" OD) SCHEDULE 40 (5.79 LBS/FT) WITH A ZINC COATING OF NOT LESS THAN 1.8 OUNCES PER SQUARE FOOT IN ACCORDANCE WITH ASTM F-1083 AND SHALL BE SPACED NOT MORE THAN 10' APART. POST LENGTH SHALL ALLOW FOR 36" EMBEDMENT IN CONCRETE.

END, CORNER AND PULL POSTS:

END, CORNER AND PULL POSTS SHALL BE 2½" NPS (2.875" OD) SCHEDULE 40 (5.79 LBS/FT) WITH A ZINC COATING OF NOT LESS THAN 1.8 OUNCES PER SQUARE FOOT. IN ACCORDANCE WITH ASTM F-1083. POST LENGTH SHALL ALLOW FOR 36" EMBEDMENT IN CONCRETE.

GATE POSTS:

POSTS FOR SWING GATES SHALL BE SIZED PER THE FOLLOWING TABLE AND SHALL BE NPS SCHEDULE 40 WITH A ZINC COATING OF NOT LESS THAN 1.8 OUNCES PER SQUARE FOOT IN ACCORDANCE WITH ASTM F-1083. POST LENGTH SHALL ALLOW FOR 36" EMBEDMENT IN CONCRETE.

INDIVIDUAL GATE LEAF WIDTH	NPS	OUTSIDE DIAMETER	LBS PER LINEAL FOOT
UP TO 6'	2½	2.875"	5.79 #/FT
OVER 6' TO 13'	3½	4.000"	9.11 #/FT

TOP RAIL:

THE TOP RAIL SHALL BE 1½" NPS (1.660" OD) SCHEDULE 40 (2.27 LBS/FT) WITH A ZINC COATING OF NOT LESS THAN 1.8 OUNCES PER SQUARE FOOT IN ACCORDANCE WITH ASTM F-1083 AND SHALL BE SUPPLIED IN LENGTHS OF NOT LESS THAN 18'. THE TOP RAIL SHALL PASS THROUGH AND BE SUPPORTED AT EACH POST SO THAT A CONTINUOUS BRACE FROM END TO END OF EACH STRETCH OF FENCE IS FORMED AND SHALL BE SECURELY FASTENED TO THE TERMINAL POSTS. ALSO, THE TOP RAIL SHALL BE JOINED WITH SLEEVES OR COUPLINGS TO ALLOW FOR EXPANSION AND CONTRACTION.

BARBED WIRE:

THE ZINC-COATED STEEL BARBED WIRE SHALL BE CHAIN LINK FENCE GRADE CONSISTING OF TWO 12-1/2 GAUGE STRANDED LINE WIRES AND 14 GAUGE BARBS IN A 4 POINT PATTERN ON 5" CENTERS WITH A CLASS 3 COATING ALL IN ACCORDANCE WITH ASTM A-121.

TENSION WIRE:

TENSION WIRE TO BE USED IN LIEU OF BOTTOM RAIL SHALL NOT BE LESS THAN NO. 7 USING GALVANIZED STEEL WIRE.

GENERAL NOTES DEER CREEK STATION

EXTENSION ARMS

THE EXTENSION ARMS SHALL EXTEND UPWARD AND OUTWARD FROM THE FENCE AT AN ANGLE OF 45 DEGREES. THERE SHALL BE PROVISIONS FOR THREE EQUALLY SPACED LINES OF BARBED WIRE ON THE EXTENDED ARMS. THE UPPERMOST WIRE SHALL BE APPROXIMATELY 1 FOOT VERTICALLY ABOVE THE FABRIC. THE EXTENSION ARM SHALL BE MADE OF PRESSED STEEL OR MALLEABLE IRON AND SHOULD BE DESIGNED FOR A 250-LB MINIMUM PULL-DOWN LOAD BEING APPLIED AT ARM'S TIP AND SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153, CLASS B1.

STRETCHER BAR

STRETCHER BARS SHALL BE GALVANIZED STEEL BARS NOT LESS THAN ¼" X ¾". THEY SHALL BE APPROXIMATELY 1" LESS THAN THE FABRIC HEIGHT. THE STRETCHER BAR SHALL BE USED FOR SECURING THE FABRIC TO ALL TERMINAL POSTS. ONE BAR IS REQUIRED FOR EACH GATE AND END POST, AND TWO ARE REQUIRED FOR EACH CORNER AND PULL POST.

POST BRACES

POST BRACES ARE REQUIRED AT EACH GATE, CORNER, PULL, AND END POST. THEY SHALL CONSIST OF A STRUT, WHICH SHALL NOT BE LESS IN SIZE THAN THE TOP RAIL, AND A TENSION ROD WITH TURNBUCKLE. THE ROD SHALL BE STEEL AND HAVE A MINIMUM DIAMETER OF ⅜". THE STRUT SHALL BE SECURED TO THE ADJACENT LINE POST AT APPROXIMATELY MID-HEIGHT OF THE FABRIC. THE TENSION ROD IS ALSO SECURED NEAR THIS AREA ON THE LINE POLE AND IS ANCHORED NEAR THE BASE OF THE CORNER, GATE, PULL, OR END POST. BRACING MEMBERS SHALL ALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM 153.

FENCE FITTINGS:

ALL FENCE FITTINGS INCLUDING BUT NOT LIMITED TO POST AND LINE CAPS, RAIL AND BRACE ENDS, TOP RAIL SLEEVES, TIE WIRES AND CLIPS, TENSION AND BRACE BANDS, TENSION BARS, TRUSS RODS AND BARB ARMS SHALL BE IN ACCORDANCE WITH ASTM F-626.

GATES:

GATES SHALL BE SWING TYPE, COMPLETE WITH LATCHES, STOPS, KEEPERS AND HINGES. GATE FRAMES SHALL BE CONSTRUCTED OF ROUND TUBULAR MEMBERS, WELDED AT ALL JOINTS. WELDS SHALL BE PAINTED WITH ZINC BASED PAINT. GATES SHALL HAVE TRUSS RODS OF ⅝" OR GREATER NOMINAL DIAMETER TO PREVENT SAG AND TWIST. GATE FRAME MEMBERS SHALL BE ROUND TUBULAR STEEL 1.90" O.D., 2.28 LBS/FT WITH A ZINC COATING OF 1.8 OUNCES PER SQUARE FOOT. THE END MEMBERS OF THE GATE FRAME SHALL BE EXTENDED IN HEIGHT TO ACCOMMODATE THREE STRANDS OF BARBED WIRE UNIFORMLY SPACED AND POSITIONED SO THAT THE TOP STRAND IS APPROXIMATELY 1' ABOVE THE TOP HORIZONTAL MEMBER OF THE GATE FRAME. BARBED WIRE SHALL BE ATTACHED BY SUITABLE MEANS TO PREVENT WIRE FROM MOVING OUT OF POSITION AND SHALL BE SUPPORTED BY A GATE FRAME MEMBER ON EACH END OF EACH GATE LEAF. GATE FILLER FABRIC SHALL BE THE SAME FABRIC AS SPECIFIED FOR THE FENCE AND SHALL BE SECURELY FASTENED AT INTERVALS OF NO MORE THAN 15". WALK THROUGH GATES SHALL HAVE AN OPENING OF NOT LESS THAN 3'-0" NO MORE THAN 3'-6". DRIVE THROUGH GATES SHALL BE 12'-0". GATES SHALL BE LOCATED AS SHOWN ON THE INTERCONNECT AND PLANT SITE PLOT PLANS.

HARDWARE:

HINGES SHALL BE HEAVY DUTY AND STRUCTURALLY CAPABLE OF SUPPORTING THE GATE LEAF AND ALLOW THE GATE TO OPEN AND CLOSE WITHOUT BINDING, TWISTING OR TURNING. THE GATES SHALL BE CAPABLE OF BEING OPENED AND CLOSED EASILY BY ONE PERSON. SINGLE LEAF GATE LATCHES SHALL BE CAPABLE OF RETAINING THE GATE IN A CLOSED POSITION AND SHALL HAVE PROVISION FOR A PADLOCK. DOUBLE LEAF GATE LATCHES SHALL BE A DROP ROD OR PLUNGER BAR ARRANGED TO ENGAGE THE GATE STOP. LOCKING DEVICES SHALL BE CONSTRUCTED SO THAT THE CENTER DROP ROD OR PLUNGER CANNOT BE RAISED WHEN THE GATE IS LOCKED. THE LATCHING DEVICE SHALL HAVE PROVISION FOR A PADLOCK. GATE STOPS SHALL BE PROVIDED FOR ALL DOUBLE LEAF GATES AND SHALL BE SUITABLE FOR SETTING IN CONCRETE FOR THE CENTER DROP ROD OR PLUNGER. KEEPERS SHALL BE PROVIDED FOR EACH GATE LEAF OVER 5' WIDE. GATE KEEPERS SHALL CONSIST OF A MECHANICAL DEVICE FOR SECURING THE FREE END OF THE GATE WHEN IN FULL OPEN POSITION AND SHALL BE SUITABLE FOR SETTING IN CONCRETE.

WHEN FENCE INSTALLATION IS INCLUDED, THE FOLLOWING SHALL APPLY:

INSTALLATION:

ALL MATERIALS SHALL BE IN ACCORDANCE WITH THE ABOVE AND WORKMANSHIP SHALL BE OF FIRST CLASS IN EVERY RESPECT AND SHALL BE DONE IN A NEAT AND WORKMANLIKE MANNER.

POST SPACING:

LINE POSTS SHALL BE SPACED EQUIDISTANT AT INTERVALS NOT EXCEEDING 10' FROM CENTER TO CENTER OF THE POSTS.

POST SETTING:

ALL LINE POSTS SHALL BE SET IN 10" MINIMUM DIAMETER HOLES OF 36" POST EMBEDMENT IN THE CONCRETE. ALL TERMINAL AND GATE POSTS SHALL BE SET IN 20" MINIMUM DIAMETER HOLES OF 36" DEPTH WITH 36" POST EMBEDMENTS IN THE CONCRETE. AFTER THE POSTS HAVE BEEN SET AND PLUMBED, THE HOLES SHALL BE BACKFILLED WITH 2500 PSI CONCRETE WITH A CROWN EXTENDING 2" ABOVE GRADE.

GATE KEEPER & STOP SETTING:

ALL GATE KEEPERS AND STOP SHALL BE SET IN 10" MINIMUM DIAMETER HOLES OF 18" DEPTH BACKFILLED WITH 2500 PSI CONCRETE CROWNED TO PREVENT STANDING WATER.




CHAIN LINK FABRIC:

THE CHAIN LINK FABRIC SHALL BE PLACED ON THE OUTSIDE OF THE LINE POSTS WITH THE TWISTED END PLACED DOWN. THE FABRIC SHALL BE STRETCHED TAUT APPROXIMATELY 4" ABOVE THE GROUND AND SECURELY FASTENED. THE FABRIC SHALL BE CUT AND EACH SPAN SHALL BE ATTACHED INDEPENDENTLY AT ALL TERMINAL POSTS. FASTENING TO TERMINAL POSTS SHALL BE WITH STRETCHER BARS AND TENSION BANDS SPACED AT MAXIMUM 15" INTERVALS. FASTENING TO LINE POSTS SHALL BE WITH TIE WIRE AT INTERVALS NOT EXCEEDING 15". THE TOP OF THE FABRIC SHALL BE FASTENED TO THE TOP RAIL WITH TIE WIRES AT INTERVALS NOT EXCEEDING 24". ROLLS OF WIRE FABRIC SHALL BE JOINED BY WEAVING A SINGLE PICKET INTO THE ENDS OF THE ROLLS TO FORM A CONTINUOUS MESH.

GROUNDING

FENCE SHALL BE GROUNDED PER DETAILS BY OTHERS.





NO.	DATE	BY	REVISION
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<div><b>BASIN ELECTRIC POWER COOPERATIVE</b> A Touchstone Energy® Cooperative</div> <div><b>MONTANA-DAKOTA UTILITIES CO.</b> <i>A Division of MDU Resources Group, Inc.</i></div>			
GENERAL NOTES SHEET 2 OF 2 DEER CREEK STATION			
SCALE	DATE	DRAWN BY	APPROVED BY
NONE	6/2/10	CASSIE PETER	DAVE YEXLEY
DCS-GI-ONG-0003			

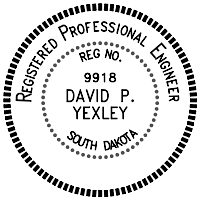


BILL OF MATERIALS		
QTY	SIZE	DESCRIPTION
2	10"	GROVE, B5, TRIM D0101, 600#, FP, WE(SCH 40) BALL VALVE W/ OPERATOR
3	8"	BALON 8F-T63-RF, 600#, RF, FP TRUNNION BALL VALVE
4	6"	6x4 TEXSTREAM 600# RF, PLUG VALVE
14	6"	BALON 6F-T63-RF, 600#, RF, FP TRUNNION BALL VALVE
4	4"	FISHER, MODEL FL-SR PILOT OP. REG, SET @ 435-475 PSIG
2	4"	FISHER, MODEL FL-SR PILOT OP. REG, SET @ 800-850 PSIG
2	4"	4x3 TEXSTREAM 9D-L4006R40C, 600#, RF, PLUG VALVE
4	4"	BALON 4F-T63-RF, 600#, RF, FP TRUNNION BALL VALVE
1	2"	BALON, 2F-F63-RF, 600#, RF, FP, FLOATING BALL VALVE
1	2"	FISHER, MODEL EZR TOKEN RELIEF W/ 6358 EBH PILOT, SET @ 500 PSIG
4	1"	BALL VALVE, BALON SERIES LS, 3000#
10	3/4"	BALL VALVE, BALON SERIES LS, 3000#
34	1/2"	BALL VALVE, BALON SERIES LS, 3000#
2	6"	MTD T-STRAINER, ANSI 600
5	8"	FLANGE, WN, 600, STD, RF, FS, A860 MSS-SP-75 WPHY 52
39	6"	FLANGE, WN, 600, STD, RF, FS, A860 MSS-SP-75 WPHY 52
26	4"	FLANGE, WN, 600, STD, RF, FS, A860 MSS-SP-75 WPHY 52
4	2"	FLANGE, WN, 600, STD, RF, FS, A860 MSS-SP-75 WPHY 52
1	8"	FLANGE, BLIND, 600, STD, RF, FS, A860 MSS-SP-75 WPHY 53
1	6"	FLANGE, BLIND, 600, STD, RF, FS, A860 MSS-SP-75 WPHY 53
2	4"	FLANGE, BLIND, 600, STD, RF, FS, A860 MSS-SP-75 WPHY 53
5	8"	GASKET, KAMMPRO, LP3 600 5/32 316L-APX2 316-L OR NS
30	6"	GASKET, KAMMPRO, LP3 600 5/32 316L-APX2 316-L OR NS
27	4"	GASKET, KAMMPRO, LP3 600 5/32 316L-APX2 316-L OR NS
4	2"	GASKET, KAMMPRO, LP3 600 5/32 316L-APX2 316-L OR NS
2	8"	GASKET, 600, INS, PIKOTEK PGE W/ G10 SLEEVE W/ HCS WASHERS
11	6"	GASKET, 600, INS, PIKOTEK PGE W/ G10 SLEEVE W/ HCS WASHERS
84	1.125"x8.5"	BOLTS, STUD, /A 193 GR.B7, W/ 2-HVY HEX NUTS, /A 194 2H
492	1"x7 3/4"	BOLTS, STUD, /A 193 GR.B7, W/ 2-HVY HEX NUTS, /A 194 2H
208	7/8"x6 3/4"	BOLTS, STUD, /A 193 GR.B7, W/ 2-HVY HEX NUTS, /A 194 2H
32	5/8"x5 1/4"	BOLTS, STUD, /A 193 GR.B7, W/ 2-HVY HEX NUTS, /A 194 2H
20		32# HIGH POTENTIAL MAGNESIUM ANODE
10		20# HIGH POTENTIAL MAGNESIUM ANODE
24		TOTAL CORROSION SOLUTIONS CATHODIC PROTECTION TEST STATION
	4400'	GREEN #12 THHN WIRE (CORROSION COUPON)
	2200'	BLACK #12 THHN WIRE (ANODE)
	4400'	YELLOW #12 THHN WIRE (TEST STATION)

BILL OF MATERIALS		
QTY	SIZE	DESCRIPTION
4	8"	ELBOW, 90, STD, A860 MSS-SP-75 WPHY 52
28	6"	ELBOW, 90, STD, A860 MSS-SP-75 WPHY 52
2	4"	ELBOW, 90, STD, A860 MSS-SP-75 WPHY 52
4	12"x4"	TEE, STD, A860 MSS-SP-75 WPHY 52
1	10"x8"	TEE, STD, A860 MSS-SP-75 WPHY 52
1	10"x6"	TEE, STD, A860 MSS-SP-75 WPHY 52
1	8"x4"	TEE, STD, A860 MSS-SP-75 WPHY 52
1	6"x4"	TEE, STD, A860 MSS-SP-75 WPHY 52
5	6"x2"	TEE, STD, A860 MSS-SP-75 WPHY 52
10	6"	TEE, STD, A860 MSS-SP-75 WPHY 52
1	8"	CROSS, STD, A860 MSS-SP-75 WPHY 52
2	12"x10"	REDUCER, CONC, STD, A860 MSS-SP-75 WPHY 52
2	8"x6"	REDUCER, CONC, STD, A860 MSS-SP-75 WPHY 52
8	6"x4"	REDUCER, CONC, STD, A860 MSS-SP-75 WPHY 52
2	12"	CLOSURE, 600, HUBER-YALE, FIG. 500
4	2"	CAP, STD, A860 MSS-SP-75 WPHY 52
1	2"	WEATHERCAP, SCIENTIFIC LININGS & COATINGS, WCL-2
4	1"	THREADOLET, 3000#, CARBON STEEL
10	3/4"	THREADOLET, 3000#, CARBON STEEL
34	1/2"	THREADOLET, 3000#, CARBON STEEL
4	1"	PLUG, SQUARE HEAD, 316 SS, 3000#
10	3/4"	PLUG, SQUARE HEAD, 316 SS, 3000#
34	1/2"	PLUG, SQUARE HEAD, 316 SS, 3000#
4	1"	INDUSTRIAL PIPE NIPPLE, SHORT HEX, 316 SS, 3000#
10	3/4"	INDUSTRIAL PIPE NIPPLE, SHORT HEX, 316 SS, 3000#
34	1/2"	INDUSTRIAL PIPE NIPPLE, SHORT HEX, 316 SS, 3000#
2	N/A	CATADYNE DUAL PASS INSTRUMENT GAS PREHEATER
2	N/A	CATADYNE SINGLE PASS INSTRUMENT GAS PREHEATER
1	N/A	3L GAS FILTER/ SEPARATOR, MODEL GF5H2472C1440
2	N/A	ROSEMOUNT 2051TG4F2B21AS5B4E5M5 INLINE PRESSURE TRANSMITTER
2	N/A	ROSEMOUNT 0306RT22BA11 INTEGRAL MANIFOLD
1	N/A	ROSEMOUNT 644HFE5XAM5J6 SMART TEMP TRANSMITTER
1	N/A	ROSEMOUNT 0068N21C30A030T26E5XA THIN-FILM PLATINUM RTD SENSOR
2	3/4"	WEKSLER S3G4 T304 SS THERMOWELL X 4" LONG
1	3/4"	WEKSLER 3A04 3" DIAL X 2 1/2" INSERTION BI-METAL THERMOMETER 30-130° F, 1'
		PIPELINE MARKERS, RHINO, 66" TRIVIEW POST, YELLOW W/ BLACK CAP
		DENSO, PROTAL 7200
		TAPECOAT 20 HOT APPLIED WRAP
		TAPECOAT OMNIPRIME
		ROCK SHIELD, TUFF-N-NUFF, 3/8"
		XWRAP
		3M SKOTCHKOTE HOT MELT PATCH COMPOUND 226P, GREEN

BILL OF MATERIALS		
QTY	SIZE	DESCRIPTION
16'	12"	PIPE, API5L, PSL2 GR. B, .375" W.T. X52
45'	10"	PIPE, API5L, PSL2 GR. B, .365" W.T. X52
24'	8"	PIPE, API5L, PSL2 GR. B, .322" W.T. X52
212'	6"	PIPE, API5L, PSL2 GR. B, .280" W.T. X52
40'	4"	PIPE, API5L, PSL2 GR. B, .237" W.T. X52
23'	2"	PIPE, API5L, PSL2 GR. B, .154" W.T. X52
27'	8"	PIPE, API5L, PSL2 GR B .322WT, X52 14-18 MILS FBE COATED
166'	6"	PIPE, API5L, PSL2 GR B ERW .280WT, X52 16-18 MILS FBE
10000'	10"	PIPE, 0.279WT, ERW, API5L, PSL2, X52, 16-18 MIL FBE W/ ARO COATING OF 30 MILS
63960'	10"	PIPE, 0.250WT, ERW, API5L, PSL2, X52, 16-18 MIL FBE
400'	10"	PIPE, 0.279WT, ERW, API5L, PSL2, X52 BARE
2	10"	SWEEP, 45', 96" RADIUS, API5L, PLS2, 0.365"WT, X52
2	10"	SWEEP, 90', 96" RADIUS, API5L, PLS2, .365"WT, X52
1	10"	SWEEP, 6', 96" RADIUS, API5L, PLS2, 0.279"WT, X52, 16-20 MIL FBE(STA 487 + 37.45)
2	10"	SWEEP, 10', 96" RADIUS, API5L, PLS2, 0.279"WT, X52, 16-20 MIL FBE
2	10"	SWEEP, 15', 96" RADIUS, API5L, PLS2, 0.279"WT, X52, 16-20 MIL FBE
2	10"	SWEEP, 20', 96" RADIUS, API5L, PLS2, 0.279"WT, X52, 16-20 MIL FBE
1	10"	SWEEP, 30', 96" RADIUS, API5L, PLS2, 0.279"WT, X52, 16-20 MIL FBE(STA 84 + 43.97)
1	10"	SWEEP, 33', 96" RADIUS, API5L, PLS2, 0.279"WT, X52, 16-20 MIL FBE(STA 594 +33.85)
1	10"	SWEEP, 55', 96" RADIUS, API5L, PLS2, 0.279"WT, X52, 16-20 MIL FBE(STA 543 + 14.7)
1	10"	SWEEP, 61', 96" RADIUS, API5L, PLS2, 0.279"WT, X52, 16-20 MIL FBE(STA 146 +86.41)
1	10"	SWEEP, 76', 96" RADIUS, API5L, PLS2, 0.279"WT, X52, 16-20 MIL FBE(STA 312 +42.73)
1	10"	SWEEP, 82', 96" RADIUS, API5L, PLS2, 0.279"WT, X52, 16-20 MIL FBE(STA 434 +67.91)
1	10"	SWEEP, 86', 96" RADIUS, API5L, PLS2, 0.279"WT, X52, 16-20 MIL FBE(STA 160 +56.31)
1	10"	SWEEP, 87', 96" RADIUS, API5L, PLS2, 0.279"WT, X52, 16-20 MIL FBE(STA 436 +64.27)
1	10"	SWEEP, 90', 96" RADIUS, API5L, PLS2, 0.279"WT, X52, 16-20 MIL FBE(STA 310 +95.39)
2	10"	SWEEP, 91', 96" RADIUS, API5L, PLS2, 0.279"WT, X52, 16-20 MIL FBE(STA 179+86.66 & STA 596+11.82)
1	10"	SWEEP, 92', 96" RADIUS, API5L, PLS2, 0.279"WT, X52, 16-20 MIL FBE(STA 178 +26.59)
2	12"	PIPE SUPPORT, EZ LINE, MODEL 1218-E CRADLE "BASE PL W/ HIS", 12", D=3'6"
1	10"	PIPE SUPPORT, EZ LINE, MODEL 510-E CRADLE "BASE PL W/ HIS", 10", D=3'6"
8	6"	PIPE SUPPORT, EZ LINE, MODEL 510-E CRADLE "BASE PL W/ HIS", 6", D=3'6"
2	4"	PIPE SUPPORT, EZ LINE, MODEL 204-E CRADLE "BASE PL W/ HIS", 4", D=3'6"
1	8"	VALVE SUPPORT, EZ LINE, MODEL 510-E-VS "BASE PL W/ HIS", 8" D=3'6 ROUND HEAD
1	6"	VALVE SUPPORT, EZ LINE, MODEL 510-E-VS "BASE PL W/ HIS", 6" D=3'6 ROUND HEAD

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MASTER BILL OF MATERIALS DEER CREEK STATION			
SCALE	DATE	DRAWN BY	APPROVED BY
NONE	6/2/10	CASSIE PETER	DAVE YEXLEY
DCS-MG-ONG-0003			



NOTES FOR THREADED CONNECTIONS:

- THREADS USED ON ALL CONNECTIONS
- USE SMOOTH-JAWED WRENCHES AND VISES ON SENSITIVE COMPONENTS SUCH AS VALVES; PIPE WRENCHES AND VISES ON PIPE FITTINGS
- SECURE ONE END OF JOINING ITEMS TO AVOID ROTATION DURING TIGHTENING
- APPLY LUBRICANT TO MALE THREADS, LUBRICANT BASED ON OPERATING CONDITIONS AND MANUFACTURER’S STANDARDS, TEFLON TAPE SHOULD BE STARTED PAST THE SECOND THREAD IF USED
- ALIGN, ENGAGE AND TIGHTEN THREADS, OBJECTIVE IS TO ACHIEVE A LEAK-FREE JOINT
- FOLLOW CRITERIA IN TABLE 1
- THREAD ENGAGEMENT CAN BE CHECKED BY COUNTING THREADS SHOWING AFTER TIGHTENING
- SEAL WELDING MAY BE EMPLOYED WHERE LEAKAGE CANNOT BE TOLERATED OR WOULD BE DIFFICULT TO DETECT

NOTES FOR BOLTED FLANGE JOINTS:

1. USE CLEAN, PROPERLY SIZED GASKETS, FOLLOWING MANUFACTURER’S STANDARDS, ENSURING GASKET IS CENTERED
2. THREADS SHOULD BE OF QUALITY THAT NUTS CAN BE FINGER TIGHTENED, CHECK FOR EVIDENCE OF BURRS AND CRACKS
3. RESULT OF UNDER-TORQUING IS LEAKING, OVER-TORQUING IS DAMAGE TO FLANGE OR BOLTING, OR FAILURE OF JOINT
4. THOROUGHLY LUBRICATE THREADS AND SEATING SURFACES OF ALL BOLTS AND NUTS WITH PETROLEUM BASED LUBRICANT UNLESS OTHERWISE SPECIFIED
5. TABLE 1 (PIKOTEK INSULATING GASKETS) INDICATES THE TORQUE REQUIRED TO OBTAIN A TIGHT SEAL ON INSULATING GASKETS BASED ON FLANGE SIZE AND THREAD LUBRICANT USED, TABLE 3 (LAMONS KAMMPRO GASKETS) INDICATES TORQUE REQUIRED ON STANDARD GASKETS TO OBTAIN A TIGHT SEAL BASED ON FLANGE SIZE
6. ASSEMBLE FLANGED JOINT WITH GASKET CENTERED IN PLACE AND ALL BOLTS AND NUTS LUBRICATED, INSTALLED AND FINGER TIGHTENED, WITH ALL THREADS COMPLETELY ENGAGED UPON COMPLETION OF FLANGE CONNECTION
7. WHEN INSTALLING FLANGE INSULATION KIT, TIGHTEN NUTS OPPOSITE THE INSULATING SLEEVES AND WASHERS TO MINIMIZE POTENTIAL FOR DAMAGING OR SHORTING THE SLEEVES
8. TIGHTEN THE BOLTS EVENLY IN A CRISSCROSS PATTERN IN 25% INCREMENTS OF THE REQUIRED TORQUE
9. NUMBER THE BOLTS INORDER AS SHOWN IN FIGURE 1
10. TIGHTEN THE BOLTS TO 25% OF REQUIRED TORQUE IN THE ORDER INDICATED IN FIGURE 1 BASED ON NUMBER OF BOLTS (8, 12 USED)
11. CONTINUE TIGHTENING IN THIS CRISSCROSS PATTERN IN 25% INCREMENTS UNTIL REACHING 100%
12. A FINAL CLOCKWISE TIGHTENING, BOLT-TO-BOLT SEQUENCE SHOULD BE PERFORMED (NOT CRISSCROSSING PATTERN AS BEFORE) TO ENSURE ALL BOLTS ARE EVENLY STRESSED

FIGURE 1: TORQUING PATTERN

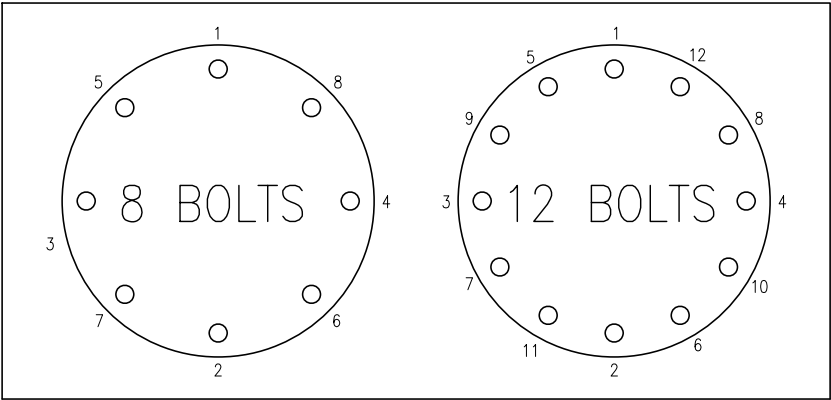





TABLE 1: PIKOTEK INSULATING GASKETS

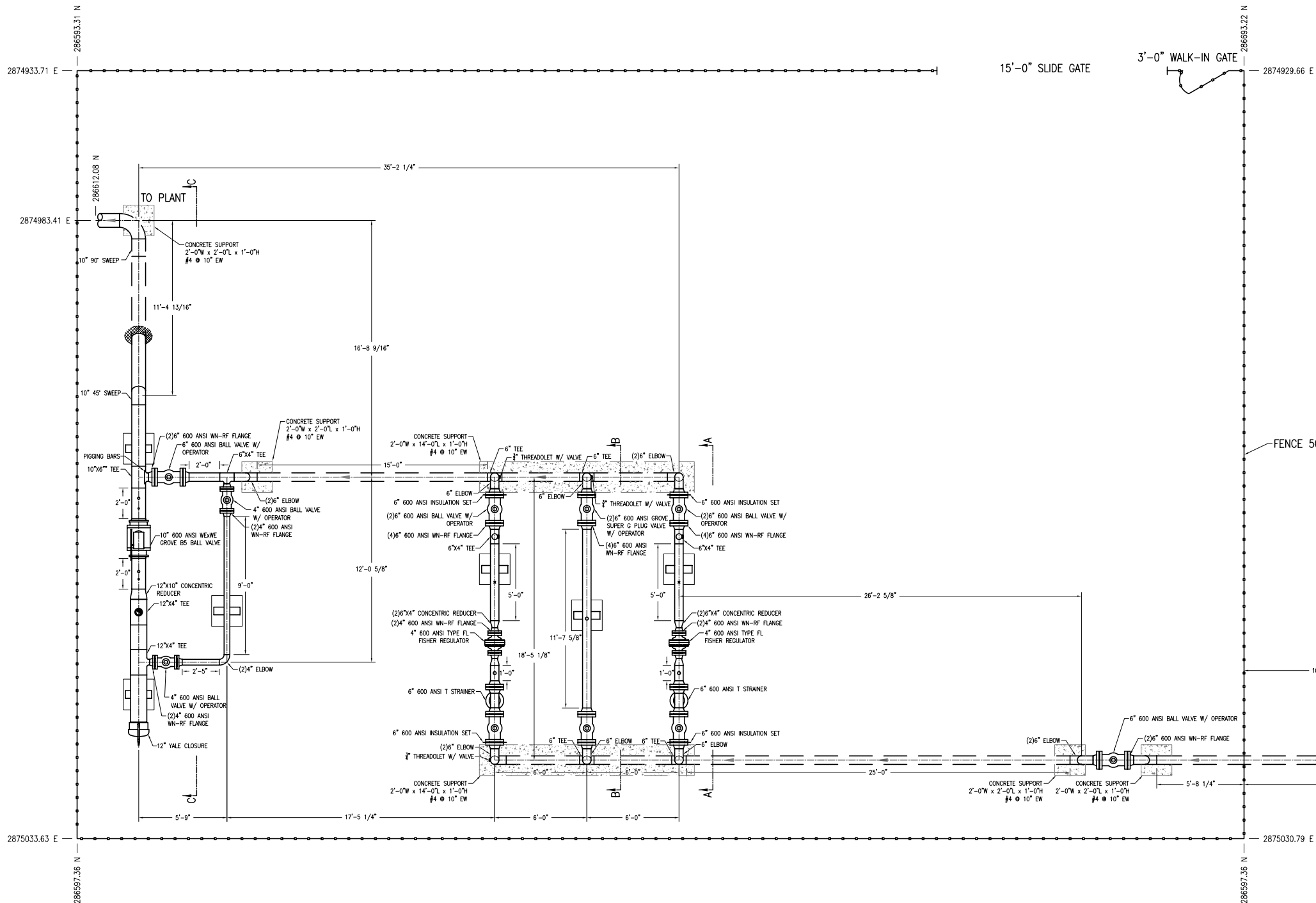
ANSI 600	6”	8”	TORQUE VALUE
NO LUBE	330	520	FT-LBS
LT. LUBE	270	425	FT-LBS
ANTI-SEIZE	230	350	FT-LBS

TABLE 2: LAMONS KAMMPRO GASKETS

ANSI 600	TORQUE VALUE
2”	60 FT-LBS
4”	160 FT-LBS
6”	245 FT-LBS
8”	355 FT-LBS



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 <b>MONTANA-DAKOTA UTILITIES CO.</b> A Division of MDU Resources Group, Inc.			
GAS PIPELINE TORQUE & THREAD STANDARDS DEER CREEK STATION			
SCALE	DATE	DRAWN BY	APPROVED BY
NONE	6/2/10	CASSIE PETER	DAVE YEXLEY
DCS-MG-ONG-0004			



NO.	DATE	BY	REVISION
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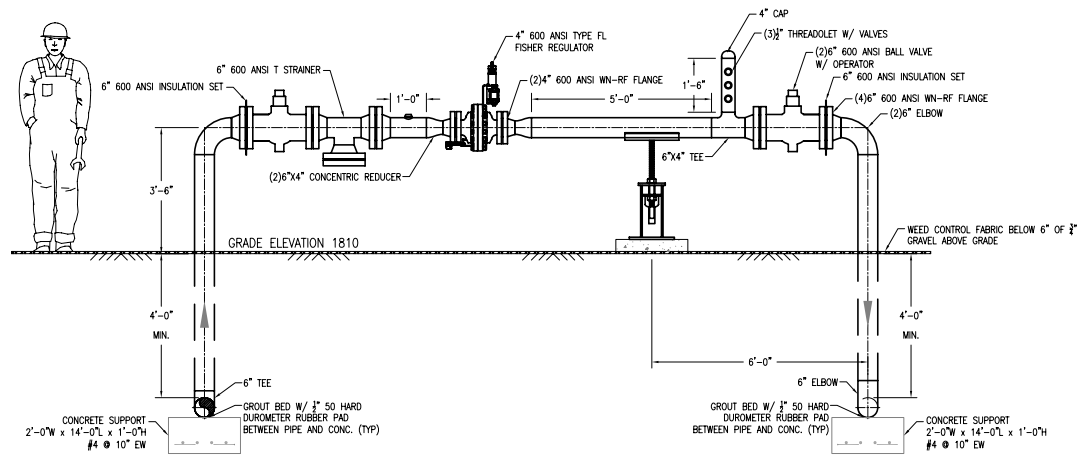
**MONTANA-DAKOTA  
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GAS PIPELINE INTERCONNECT PLAN  
DEER CREEK STATION

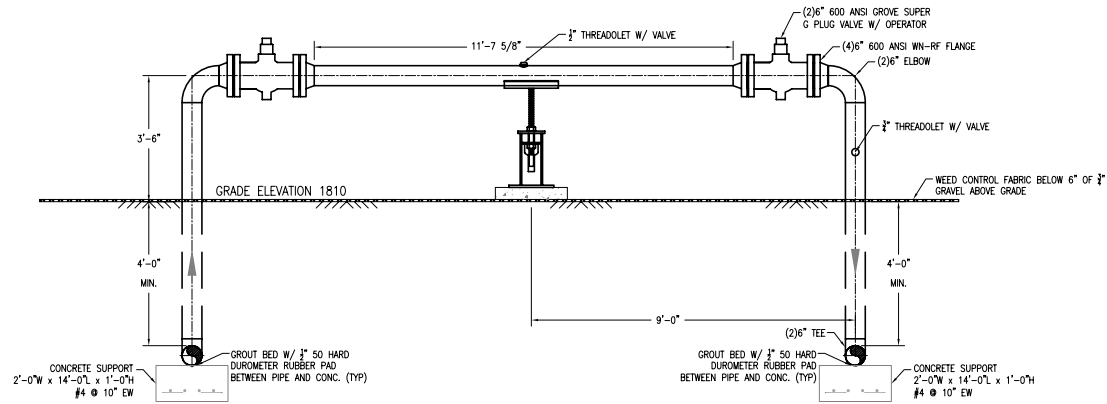
SCALE	DATE	DRAWN BY	APPROVED BY
1/4"=1'	6/2/10	CASSIE PETER	DAVE YEXLEY

DCS-MP-ONG-0001

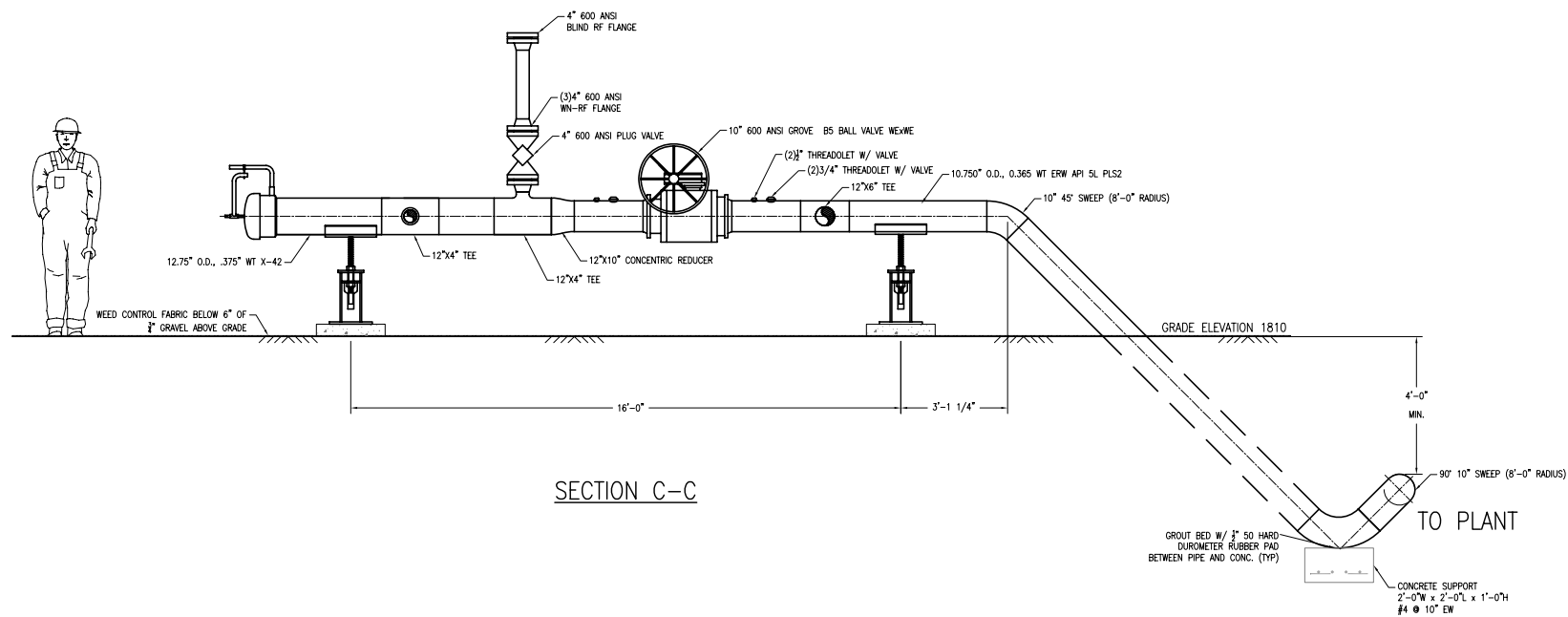




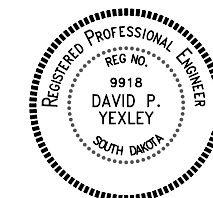
SECTION A-A




SECTION B-B




SECTION C-C



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GAS PIPELINE INTERCONNECT SECTIONS  
DEER CREEK STATION

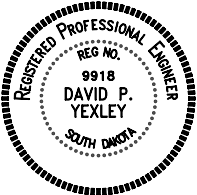
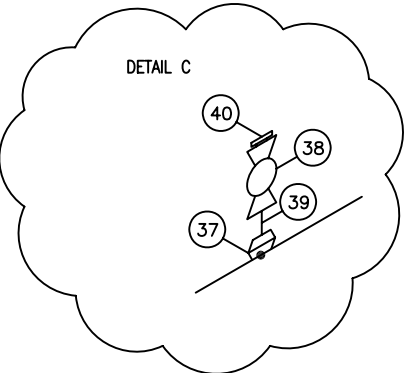
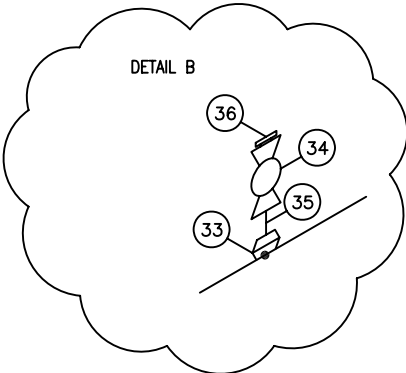
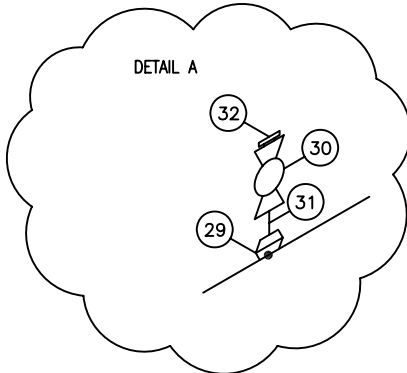
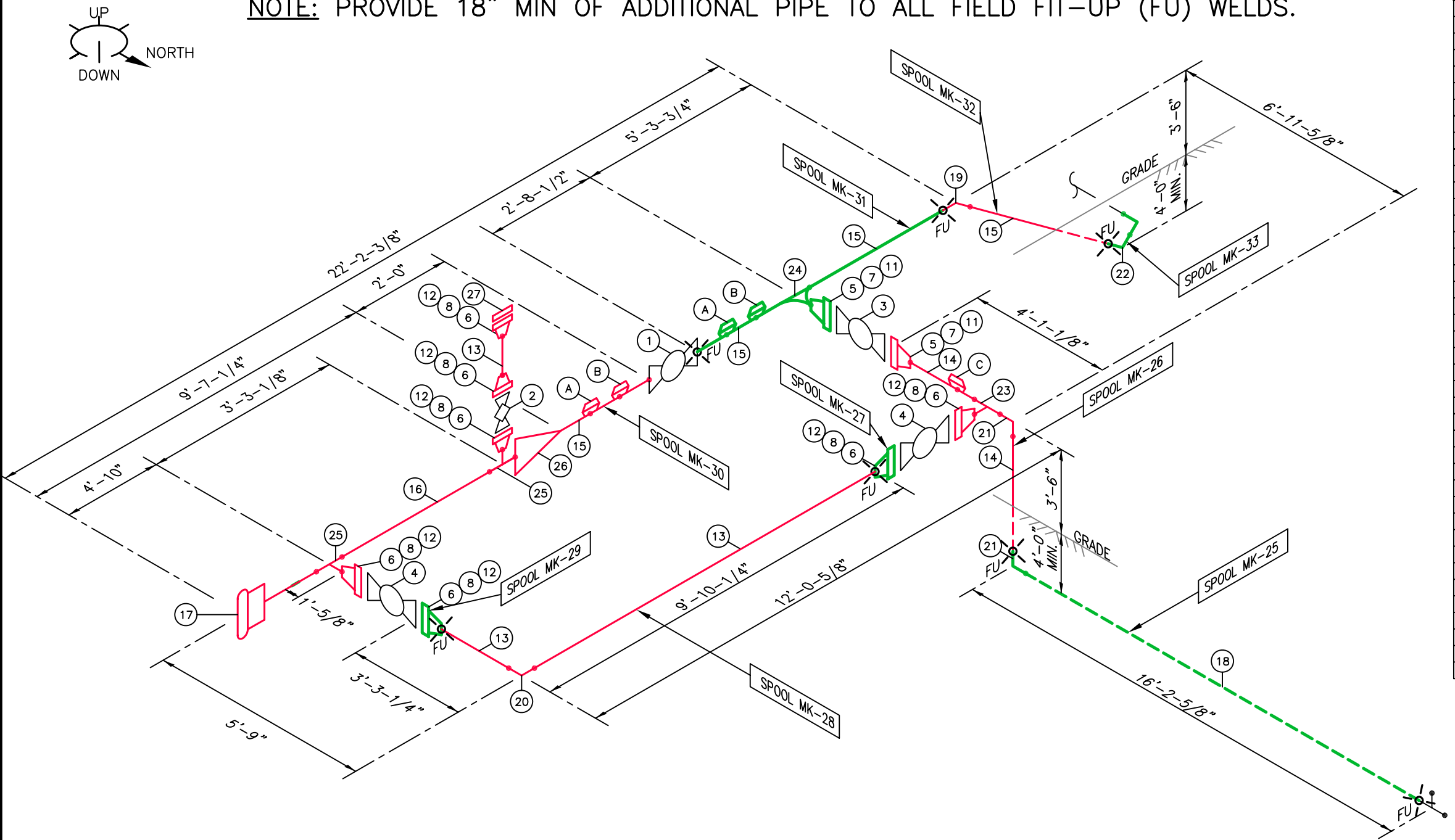
SCALE	DATE	DRAWN BY	APPROVED BY
3/8"=1'	6/2/10	CASSIE PETER	DAVE YEXLEY

DCS-MP-ONG-0002


BILL OF MATERIALS


ITEM	QTY	SIZE	DESCRIPTION
1	1	10"	GROVE, BS, TRIM D0101, 600#, FP,WE(SCH 40) BALL VALVE W/ OPERATOR
2	1	4"	4x3 TEXTSTREAM 9D-L4006R40C, 600# RF, PLUG VALVE
3	1	6"	BALON 6F-T63-RF, 600#, RF, FP TRUNNION BALL VALVE
4	2	4"	BALON 4F-T63-RF, 600#, RF, FP TRUNNION BALL VALVE
5	2	6"	FLANGE, WN, 600, STD, RF, FS, A860 MSS-SP-75 WPHY 52
6	7	4"	FLANGE, WN, 600, STD, RF, FS, A860 MSS-SP-75 WPHY 52
7	2	6"	GASKET, KAMMPRO, LP3 600 5/32 316L-APX2 316-L OR NS
8	7	4"	GASKET, KAMMPRO, LP3 600 5/32 316L-APX2 316-L OR NS
11	24	1"x7 3/4"	BOLTS, STUD, /A 193 GR.B7, W/ 2-HVY HEX NUTS, /A 194 2H
12	56	7/8"x6 3/4"	BOLTS, STUD, /A 193 GR.B7, W/ 2-HVY HEX NUTS, /A 194 2H
13	15'	4"	PIPE, API5L, PSL2, GR. B, .237" W.T. X52
14	12'	6"	PIPE, API5L, PSL2, GR. B, .280" W.T. X52
15	20'	10"	PIPE, API5L, PSL2, GR. B, .365" W.T. X52
16	8'	12"	PIPE, API5L, PSL2, GR. B, .375" W.T. X52
17	1	12"	CLOSURE, 600, HUBER-YALE, FIG. 500
18	20'	6"	PIPE, 0.280 WT, ERW, API5L, PSL2, X52, 16-18 MIL FBE
19	1	10"	SWEEP, 45°, API5L, PLS2, 0.365"WT, X52
20	1	4"	ELBOW, 90, STD, A860 MSS-SP-75 WPHY 52
21	2	6"	ELBOW, 90, STD, A860 MSS-SP-75 WPHY 52
22	1	10"	SWEEP, 90°, API5L, PLS2, 0.365"WT, X52, 16-20 MIL FBE
23	1	6"x4"	TEE, STD, A860 MSS-SP-75 WPHY 52
24	1	10"x6"	TEE, STD, A860 MSS-SP-75 WPHY 52
25	2	12"x4"	TEE, STD, A860 MSS-SP-75 WPHY 52
26	1	12"x10"	REDUCER, CONC, STD, A860 MSS-SP-75 WPHY 52
27	1	4"	FLANGE, BLIND, 600, STD, RF, FS, A860 MSS-SP-75 WPHY 52
DETAIL A: 1/2" THREADOLET DETAIL			
29	2	1/2"	THREADOLET, 3000#, CARBON STEEL
30	2	1/2"	BALL VALVE, BALON SERIES LS, 3000#
31	2	1/2"	INDUSTRIAL PIPE NIPPLE, SHORT HEX, 316 SS, 3000#
32	2	1/2"	PLUG, SQUARE HEAD, 316 SS, 3000#
DETAIL B: 3/4" THREADOLET DETAIL			
33	2	3/4"	THREADOLET, 3000#, CARBON STEEL
34	2	3/4"	BALL VALVE, BALON SERIES LS. 3000#
35	2	3/4"	INDUSTRIAL PIPE NIPPLE, SHORT HEX, 316 SS, 3000#
36	2	3/4"	PLUG, SQUARE HEAD, 316 SS, 3000#
DETAIL C: 1" THREADOLET DETAIL			
37	2	1"	THREADOLET, 3000#, CARBON STEEL
38	2	1"	BALL VALVE, BALON SERIES LS. 3000#
39	2	1"	INDUSTRIAL PIPE NIPPLE, SHORT HEX, 316 SS, 3000#
40	2	1"	PLUG, SQUARE HEAD, 316 SS, 3000#

NOTE: PROVIDE 18" MIN OF ADDITIONAL PIPE TO ALL FIELD FIT-UP (FU) WELDS.



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GAS PIPELINE INTERCONNECT ISOMETRIC  
SHEET 2 OF 2  
DEER CREEK STATION

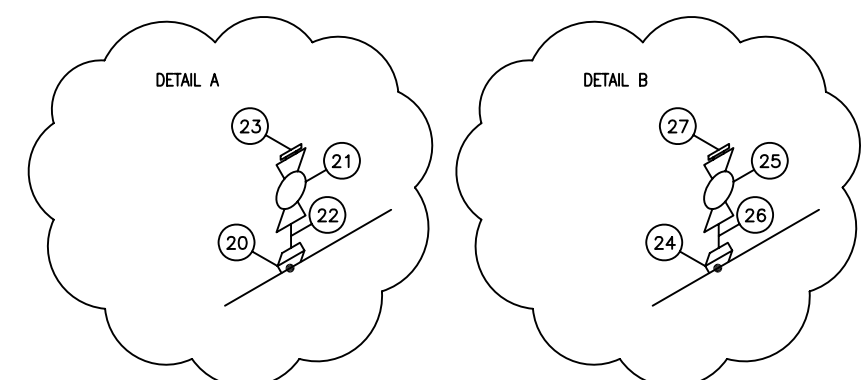
SCALE	DATE	DRAWN BY	APPROVED BY
NONE	6/2/10	CASSIE PETER	DAVE YEXLEY

DCS-MP-ONG-0004


PWHT: NO	SEAL WELD: NO	PIPE STRESS ANALYZED: NO
X-RAY: 100%	PIPING SPEC API5L, PSL2, GR.B X52	
DESIGN PSIG: 1440 @ 100 °F		


BILL OF MATERIALS

ITEM	QTY	SIZE	DESCRIPTION
1	2	6"	6x4 TEXSTREAM 600#, RF, PLUG VALVE
2	15	6"	FLANGE, WN, 600, STD, RF, FS, A860 MSS-SP-75 WPHY 52
3	4	4"	FLANGE, WN, 600, STD, RF, FS, A860 MSS-SP-75 WPHY 52
4	13	6"	GASKET, KAMMPRO, LP3 600 5/32 316L-APX2 316-L OR NS
5	4	4"	GASKET, KAMMPRO, LP3 600 5/32 316L-APX2 316-L OR NS
6	5	6"	GASKET, 600, INS, PIKOTEK PGE W/ G10 SLEEVE W/ HCS WASHERS
7	204	1"x7 3/4"	BOLTS, STUD, /A 193 GR.B7, W/ 2-HVY HEX NUTS, /A 194 2H
8	32	7/8"x6 3/4"	BOLTS, STUD, /A 193 GR.B7, W/ 2-HVY HEX NUTS, /A 194 2H
9	80'	6"	PIPE, API5L, PSL2 GR. B, .280" W.T. X52
10	60'	6"	PIPE, 0.280 WT, ERW, API5L, PSL2, X52, 16-18 MIL FBE
11	14	6"	ELBOW, 90, STD, A860 MSS-SP-75 WPHY 52
12	4	6"	TEE, STD, A860 MSS-SP-75 WPHY 52
13	4	6"x4"	REDUCER, CONC, STD, A860 MSS-SP-75 WPHY 52
14	2	6"	MTD T-STRAINER, ANSI 600
15	2	4"	FISHER, MODEL FL-SR PILOT OP. REG, SET @ 800-850 PSIG
16	5	6"	BALON 6F-T63-RF, 600#, RF, FP TRUNNION BALL VALVE
17	2	4"	CAP, STD, A860 MSS-SP-75 WPHY 52
18	2	6"x2"	TEE, REDUCER, STD, A860 MSS-SP-75 WPHY 52
19	3'	4"	PIPE, API5L, PSL2, GR. B, .237" W.T. X52
DETAIL A: 1/2" THREADOLET DETAIL			
20	11	1/2"	THREADOLET, 3000#, CARBON STEEL
21	11	1/2"	BALL VALVE, BALON SERIES LS, 3000#
22	11	1/2"	INDUSTRIAL PIPE NIPPLE, SHORT HEX, 316 SS, 3000#
23	11	1/2"	PLUG, SQUARE HEAD, 316 SS, 3000#
DETAIL B: 3/4" THREADOLET DETAIL			
24	3	3/4"	THREADOLET, 3000#, CARBON STEEL
25	3	3/4"	BALL VALVE, BALON SERIES LS, 3000#
26	3	3/4"	INDUSTRIAL PIPE NIPPLE, SHORT HEX, 316 SS, 3000#
27	3	3/4"	PLUG, SQUARE HEAD, 316 SS, 3000#



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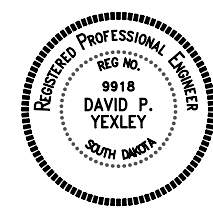
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**MONTANA-DAKOTA  
UTILITIES CO.**  
A Division of MDU Resources Group, Inc.

GAS PIPELINE INTERCONNECT ISOMETRIC  
SHEET 1 OF 2  
DEER CREEK STATION

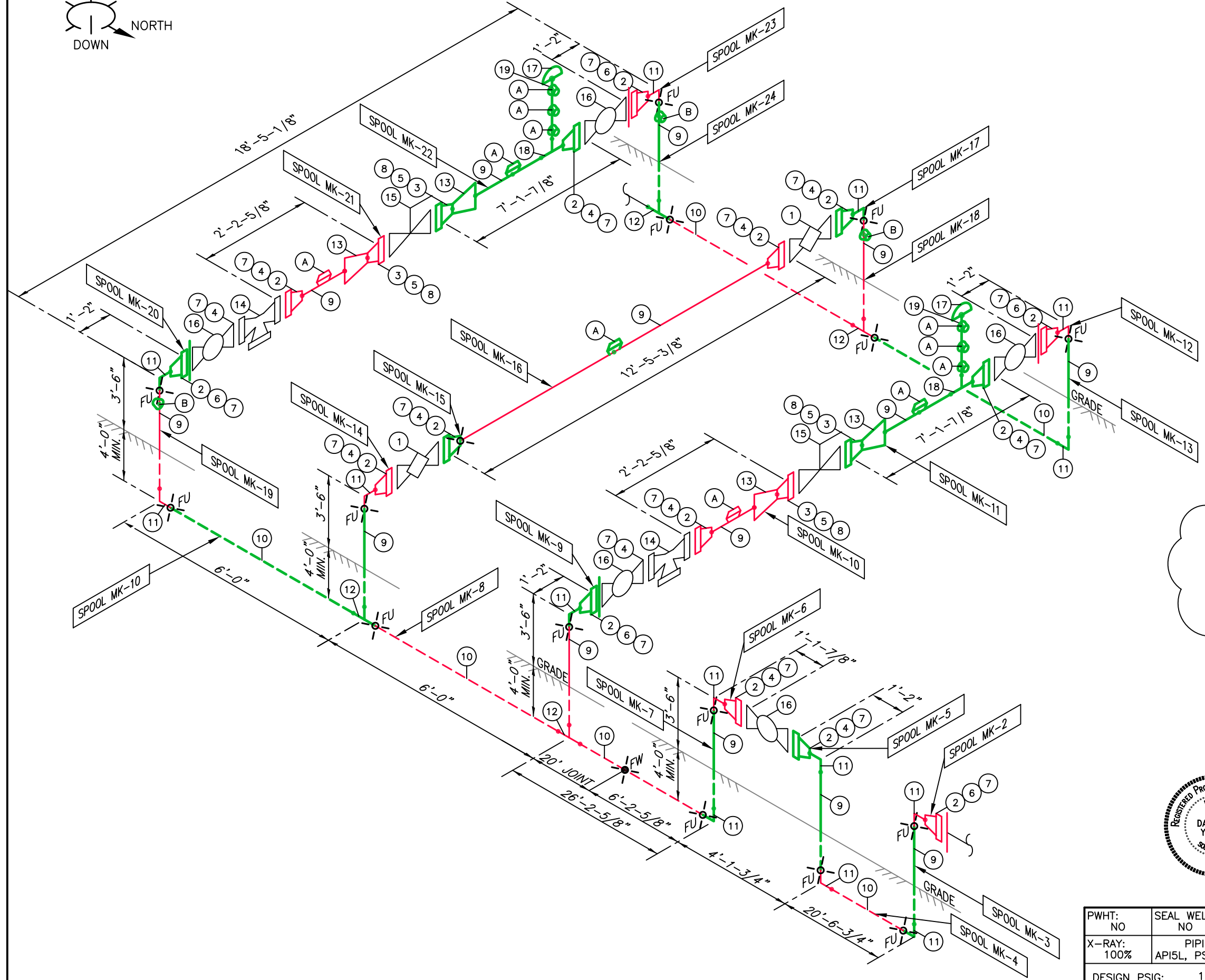
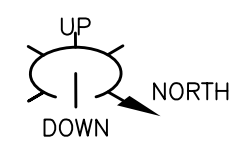
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NONE	6/2/10	CASSIE PETER	DAVE YEXLEY

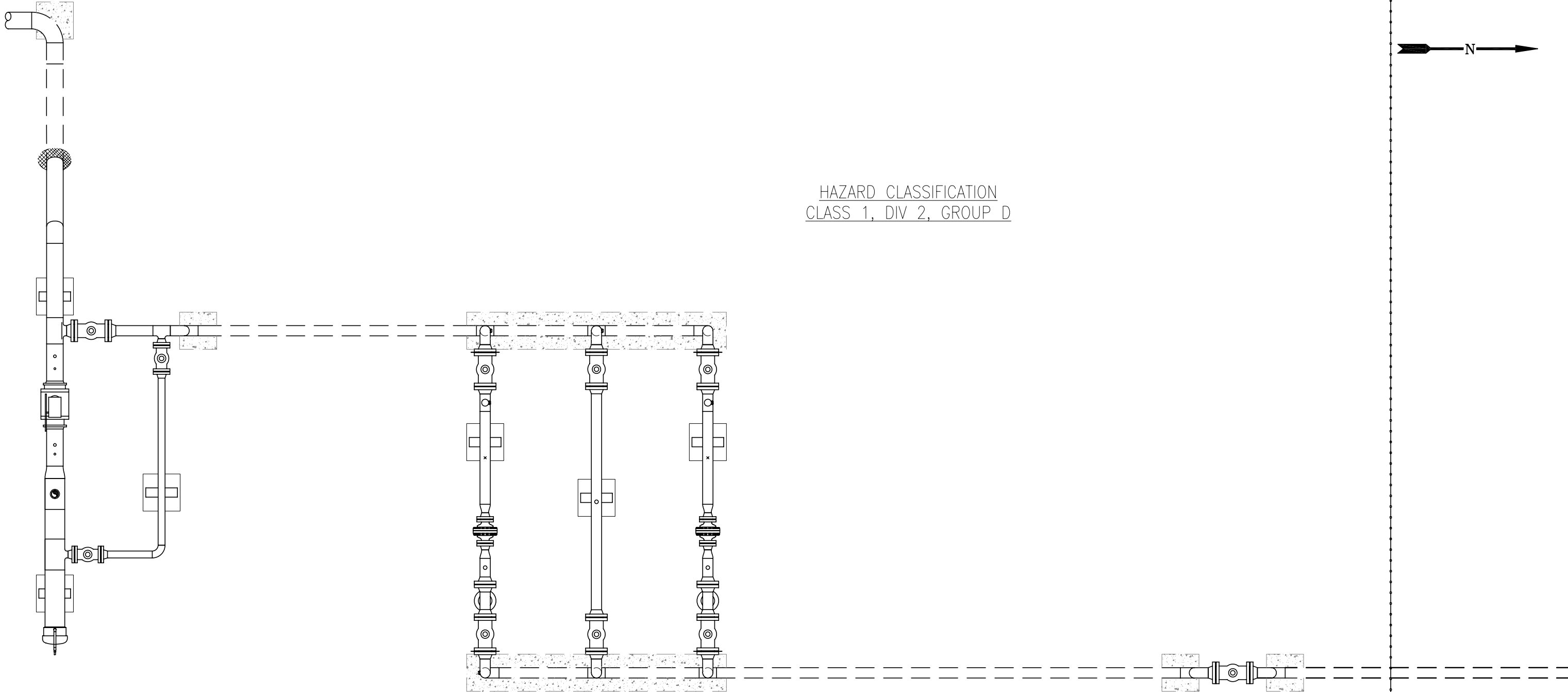
DCS-MP-ONG-0003



PWHT: NO	SEAL WELD: NO	PIPE STRESS ANALYZED: NO
X-RAY: 100%	PIPING SPEC API5L, PSL2, GR.B X52	
DESIGN PSIG: 1440 @ 100 °F		

NOTE: PROVIDE 18" MIN OF ADDITIONAL PIPE TO ALL FIELD FIT-UP (FU) WELDS.





HAZARD CLASSIFICATION  
CLASS 1, DIV 2, GROUP D

NO.	DATE	BY	REVISION
-	-	-	-

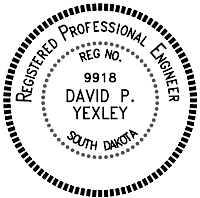
**BASIN ELECTRIC  
POWER COOPERATIVE**  
A Touchstone Energy® Cooperative

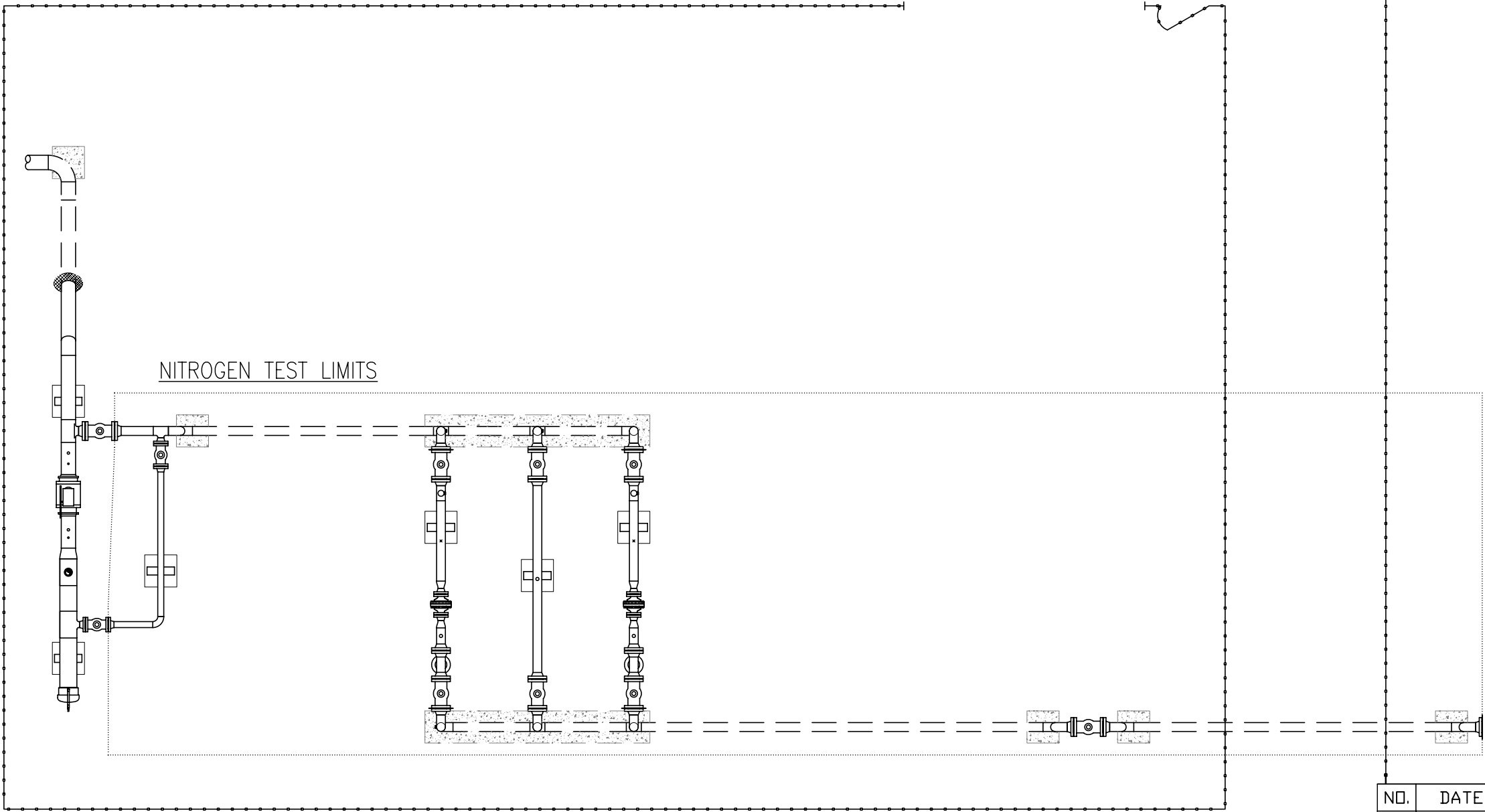
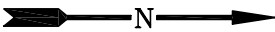
**MONTANA-DAKOTA**  
**UTILITIES CO.**  
A Division of MDU Resources Group, Inc.

GAS PIPELINE INTERCONNECT HAZARD  
AREA, DEER CREEK STATION

SCALE	DATE	DRAWN BY	APPROVED BY
3/8"=1'	6/2/10	CASSIE PETER	DAVE YEXLEY

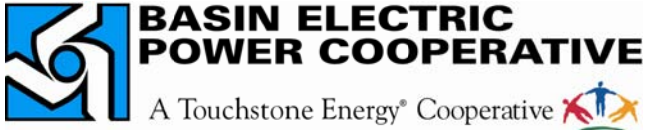
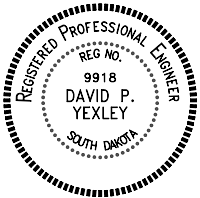
DCS-EI-ONG-0002





SEE PRESSURE TEST PLAN FOR SPECIFIC INSTRUCTIONS

PRESSURE TESTING SPECIFICATIONS/ PRESSURES								CLASS LOCATION
TEST SECTION	TEST MEDIUM	TEST DURATION	MIN. PRESSURE	MAX. PRESSURE	DESIGN PRESSURE	MATERIAL TEST LIMITS	PRESSURE LIMITING COMPONENT	
INTERCONNECT	NITROGEN	8 HRS	2160 psig	2250 psig	1440 psig	2250 psig	FITTINGS (6", .280" W.T., GR B)	3






GAS PIPELINE INTERCONNECT NITROGEN  
TEST LIMITS, DEER CREEK STATION

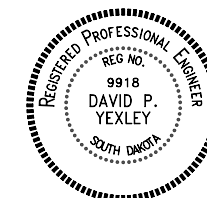
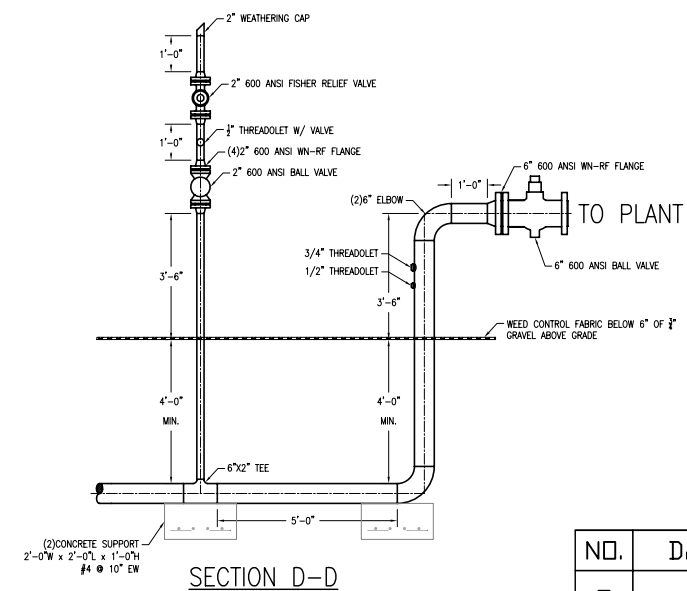
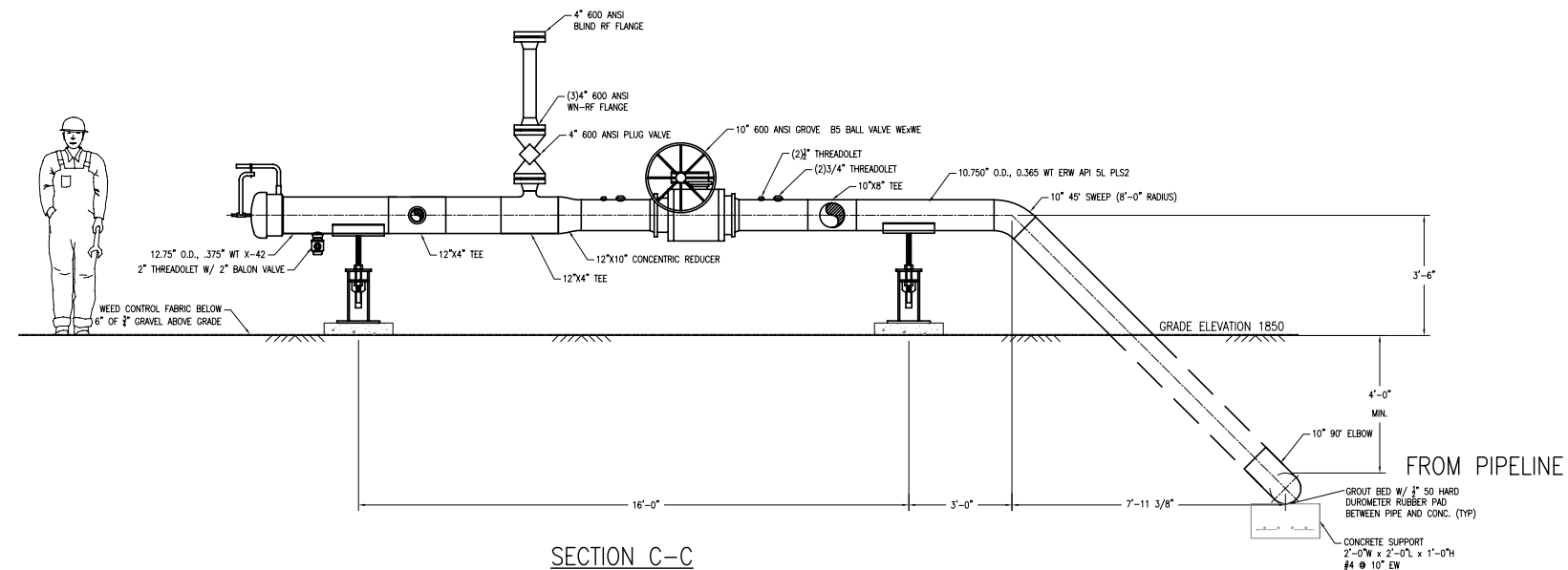
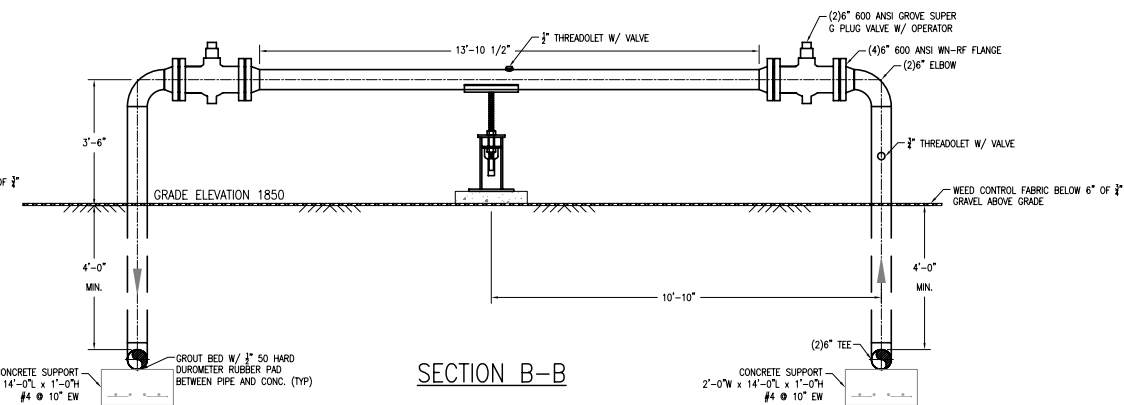
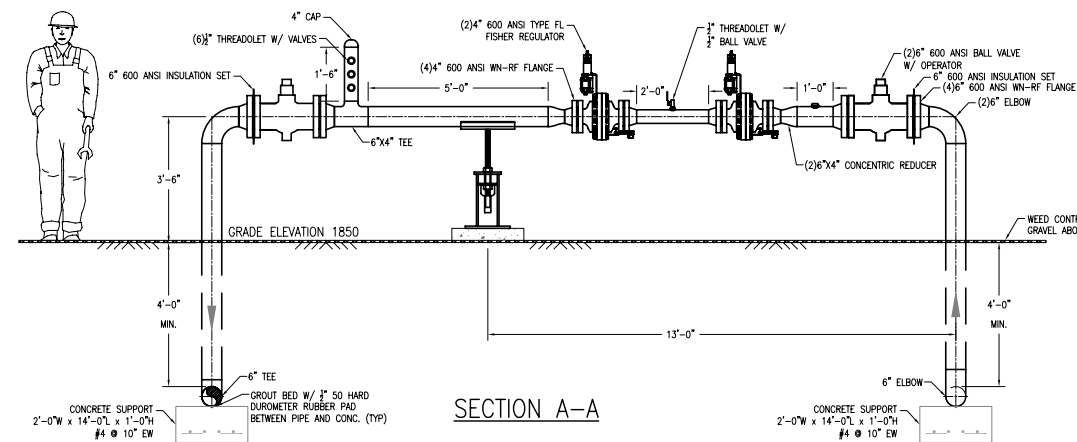
SCALE	DATE	DRAWN BY	APPROVED BY
1/4"=1'	6/2/10	CASSIE PETER	DAVE YEXLEY

DCS-ML-ONG-0001







NO.	DATE	BY	REVISION
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 <b>MONTANA-DAKOTA</b> <b>UTILITIES CO.</b> <i>A Division of MDU Resources Group, Inc.</i>			
GAS PIPELINE PLANT SITE PLAN			
DEER CREEK STATION			
SCALE	DATE	DRAWN BY	APPROVED BY
3/16"=1'	6/2/10	CASSIE PETER	DAVE YEXLEY
DCS-MP-ONG-0005			




NO.	DATE	BY	REVISION
-	-	-	-



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**MONTANA-DAKOTA**

**UTILITIES CO.**

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GAS PIPELINE PLANT SITE SECTIONS

DEER CREEK STATION

SCALE	DATE	DRAWN BY	APPROVED BY
3/8"=1'	6/2/10	CASSIE PETER	DAVE YEXLEY

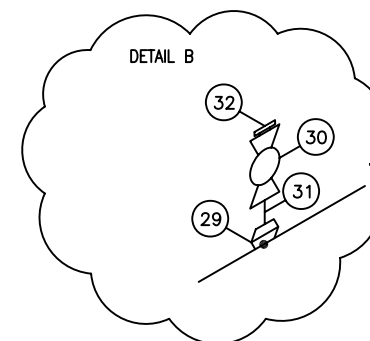
DCS-MP-ONG-0006



DETAIL A: 1/2" THREDOLET DETAIL

DETAIL B: 3/4" THREADOLET DETAIL

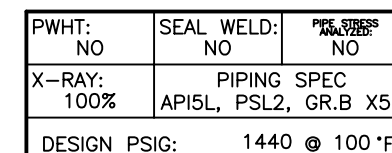
29	4	3/4"	THREDOLET, 3000#, CARBON STEEL
30	4	3/4"	BALL VALVE, BALON SERIES LS, 3000#
31	4	3/4"	INDUSTRIAL PIPE NIPPLE, SHORT HEX, 316 SS, 3000#
32	4	3/4"	PLUG, SQUARE HEAD, 316 SS, 3000#



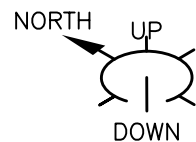
 **MONTANA-DAKOTA**  
UTILITIES CO.  
A Division of MDU Resources Group, Inc.

SCALE	DATE	DRAWN BY	APPROVED BY
NONE	6/2/10	CASSIE PETER	DAVE YEXLEY

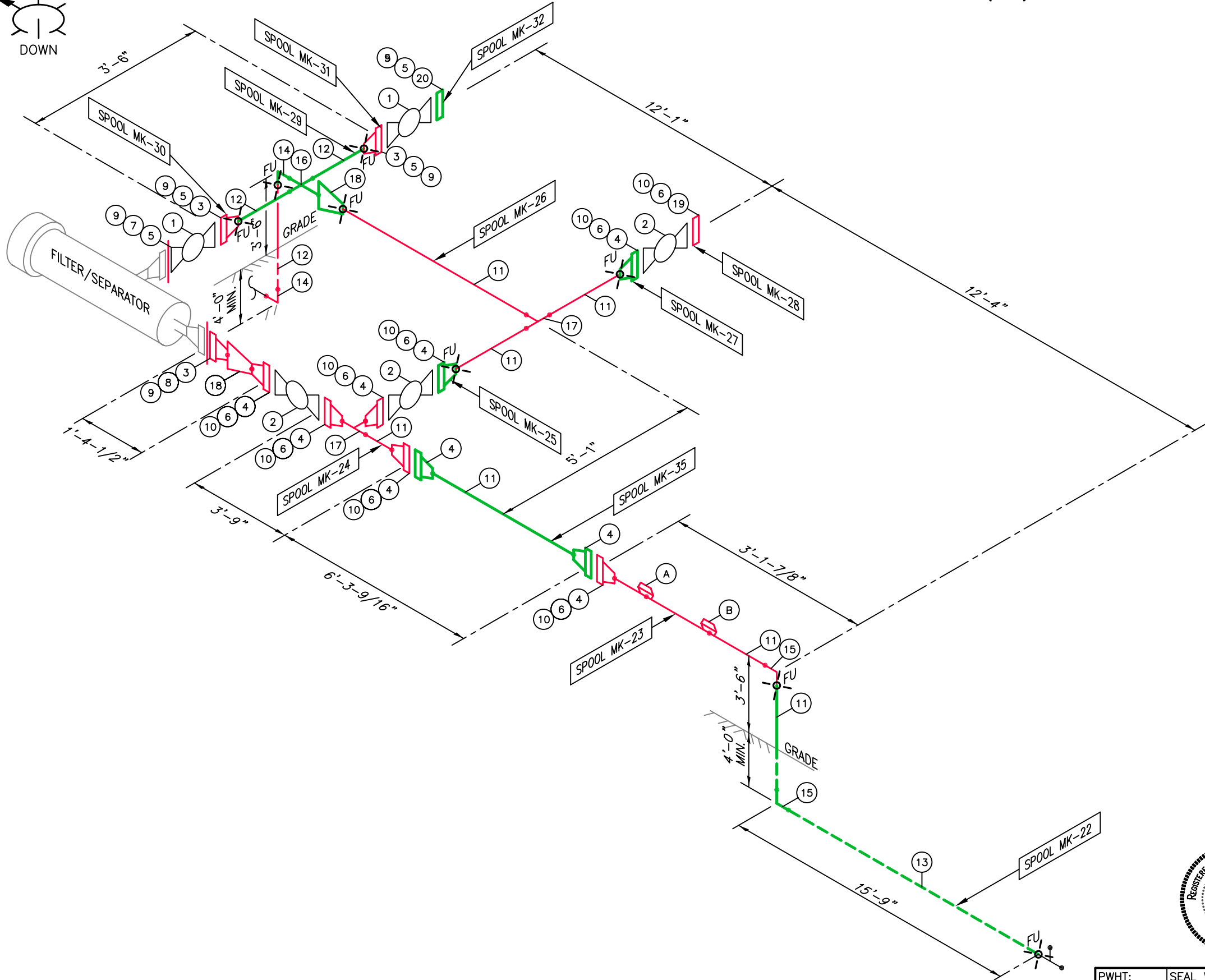
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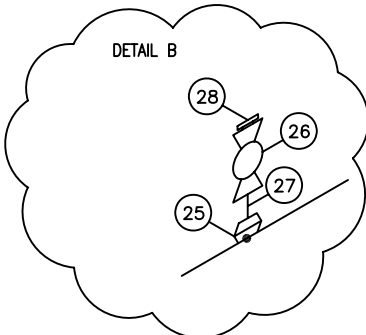
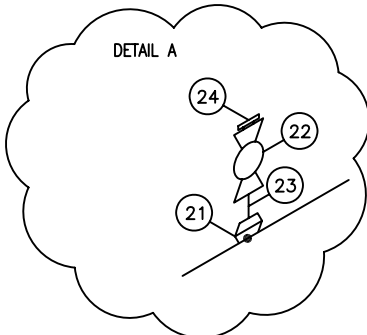


NOTE: PROVIDE 18" MIN OF ADDITIONAL PIPE TO ALL FIELD FIT-UP (FU) WELDS.



BILL OF MATERIALS

ITEM	QTY	SIZE	DESCRIPTION
1	2	8"	BALON, 8F-T63-RF, 600#, RF, FP TRUNNION BALL VALVE
2	3	6"	BALON, 6F-T63-RF, 600#, RF, FP TRUNNION BALL VALVE
3	3	8"	FLANGE, WN, 600, STD, RF, FS, A860 MSS-SP-75 WPHY 52
4	9	6"	FLANGE, WN, 600, STD, RF, FS, A860 MSS-SP-75 WPHY 52
5	3	8"	GASKET, KAMMPRO, LP3 600 5/32 316L-APX2 316-L OR NS
6	7	6"	GASKET, KAMMPRO, LP3 600 5/32 316L-APX2 316-L OR NS
7	1	8"	GASKET, 600, INS, PIKOTEK PGE W/ G10 SLEEVE W/ HCS WASHERS
8	1	6"	GASKET, 600, INS, PIKOTEK PGE W/ G10 SLEEVE W/ HCS WASHERS
9	60	1.125"x8.5"	BOLTS, STUD, /A 193 GR.B7, W/ 2-HVY HEX NUTS, /A 194 2H
10	72	1"x7 3/4"	BOLTS, STUD, /A 193 GR.B7, W/ 2-HVY HEX NUTS, /A 194 2H
11	30'	6"	PIPE, API5L, PSL2, GR. B, .237" W.T. X52
12	12'	8"	PIPE, API5L, PSL2, GR. B, .322" W.T. X52
13	16'	6"	PIPE, 0.280 WT, ERW, API5L, PSL2, X52, 16-18 MIL FBE
14	2	8"	ELBOW, 90, STD, A860 MSS-SP-75 WPHY 52
15	2	6"	ELBOW, 90, STD, A860 MSS-SP-75 WPHY 52
16	1	8"	CROSS, STD, A860 MSS-SP-75 WPHY 52
17	2	6"	TEE, STD, A860 MSS-SP-75 WPHY 52
18	2	8"x6"	REDUCER, CONC, STD, A860 MSS-SP-75 WPHY 52
19	1	6"	FLANGE, BLIND, 600, STD, RF, FS, A860 MSS-SP-75 WPHY 53
20	1	8"	FLANGE, BLIND, 600, STD, RF, FS, A860 MSS-SP-75 WPHY 52
DETAIL A: 3/4" THREDOLET DETAIL			
21	1	3/4"	THREDOLET, 3000#, CARBON STEEL
22	1	3/4"	BALL VALVE, BALON SERIES LS, 3000#
23	1	3/4"	INDUSTRIAL PIPE NIPPLE, SHORT HEX, 316 SS, 3000#
24	1	3/4"	PLUG, SQUARE HEAD, 316 SS, 3000#
DETAIL B: 1/2" THREDOLET DETAIL			
25	1	1/2"	THREDOLET, 3000#, CARBON STEEL
26	1	1/2"	BALL VALVE, BALON SERIES LS, 3000#
27	1	1/2"	INDUSTRIAL PIPE NIPPLE, SHORT HEX, 316 SS, 3000#
28	1	1/2"	PLUG, SQUARE HEAD, 316 SS, 3000#



PWHT: NO	SEAL WELD: NO	PIPE STRESS ANALYZED: NO
X-RAY: 100%	PIPING SPEC API5L, PSL2, GR.B X52	
DESIGN PSIG: 1440 @ 100 °F		

NO.	DATE	BY	REVISION
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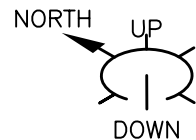
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A Touchstone Energy® Cooperative

**MONTANA-DAKOTA  
UTILITIES CO.**  
A Division of MDU Resources Group, Inc.

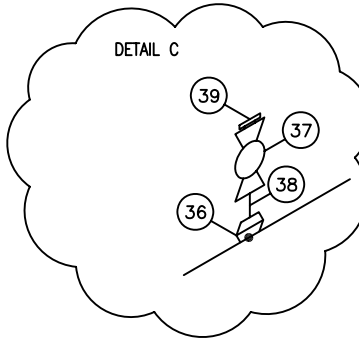
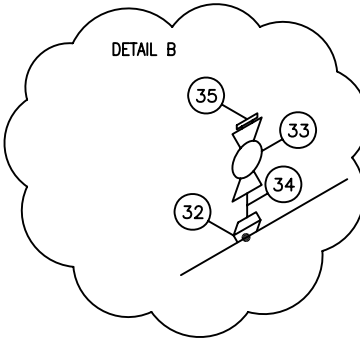
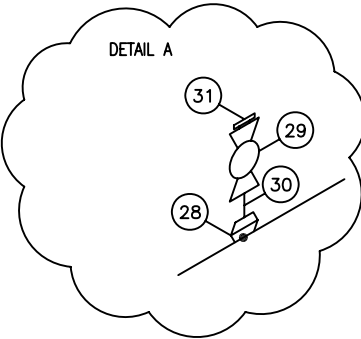
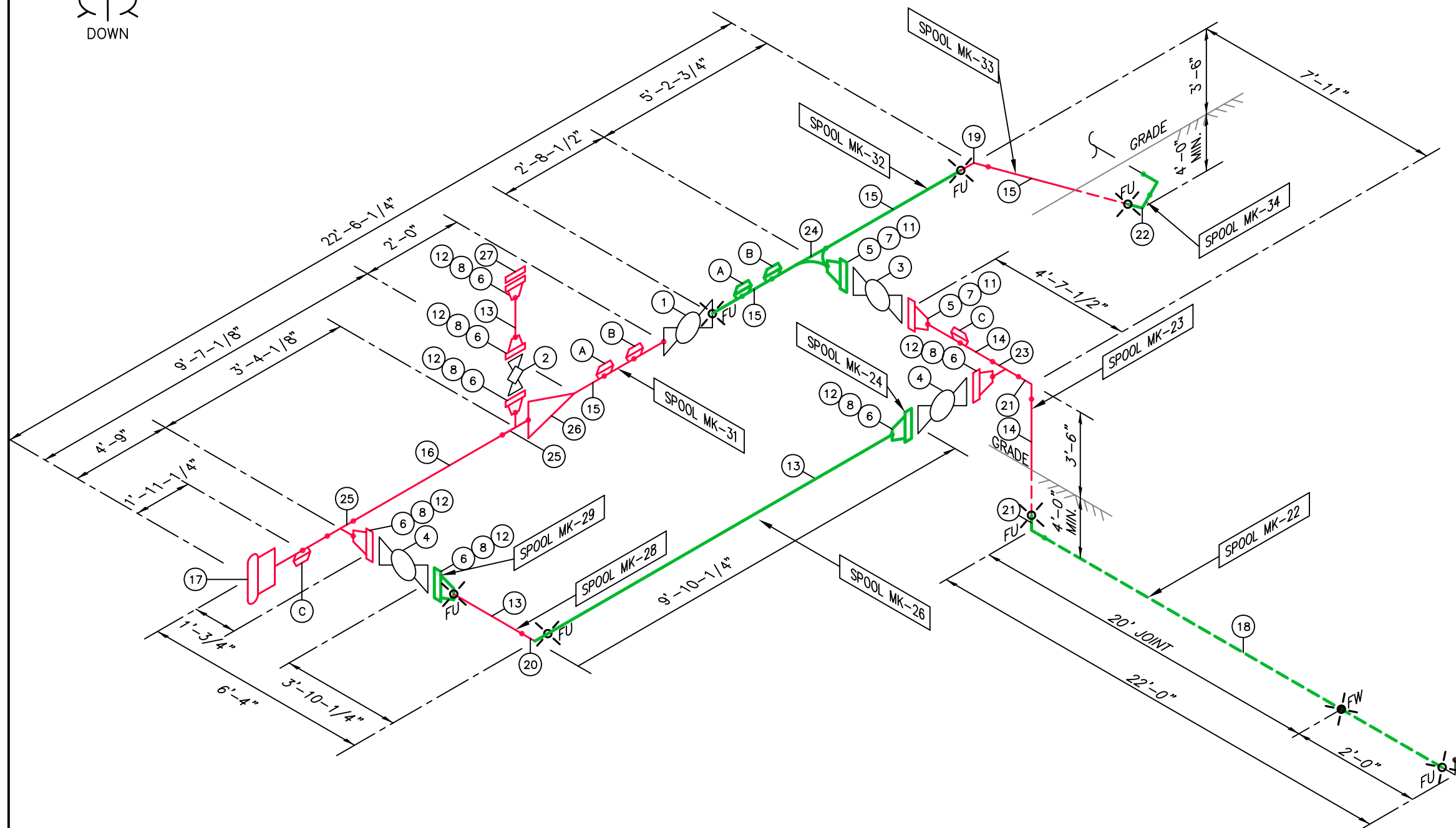
GAS PIPELINE PLANT SITE ISOMETRIC  
SHEET 2 OF 3  
DEER CREEK STATION

SCALE	DATE	DRAWN BY	APPROVED BY
NONE	6/2/10	CASSIE PETER	DAVE YEXLEY

DCS-MP-ONG-0008






NOTE: PROVIDE 18" MIN OF ADDITIONAL PIPE TO ALL FIELD FIT-UP (FU) WELDS.



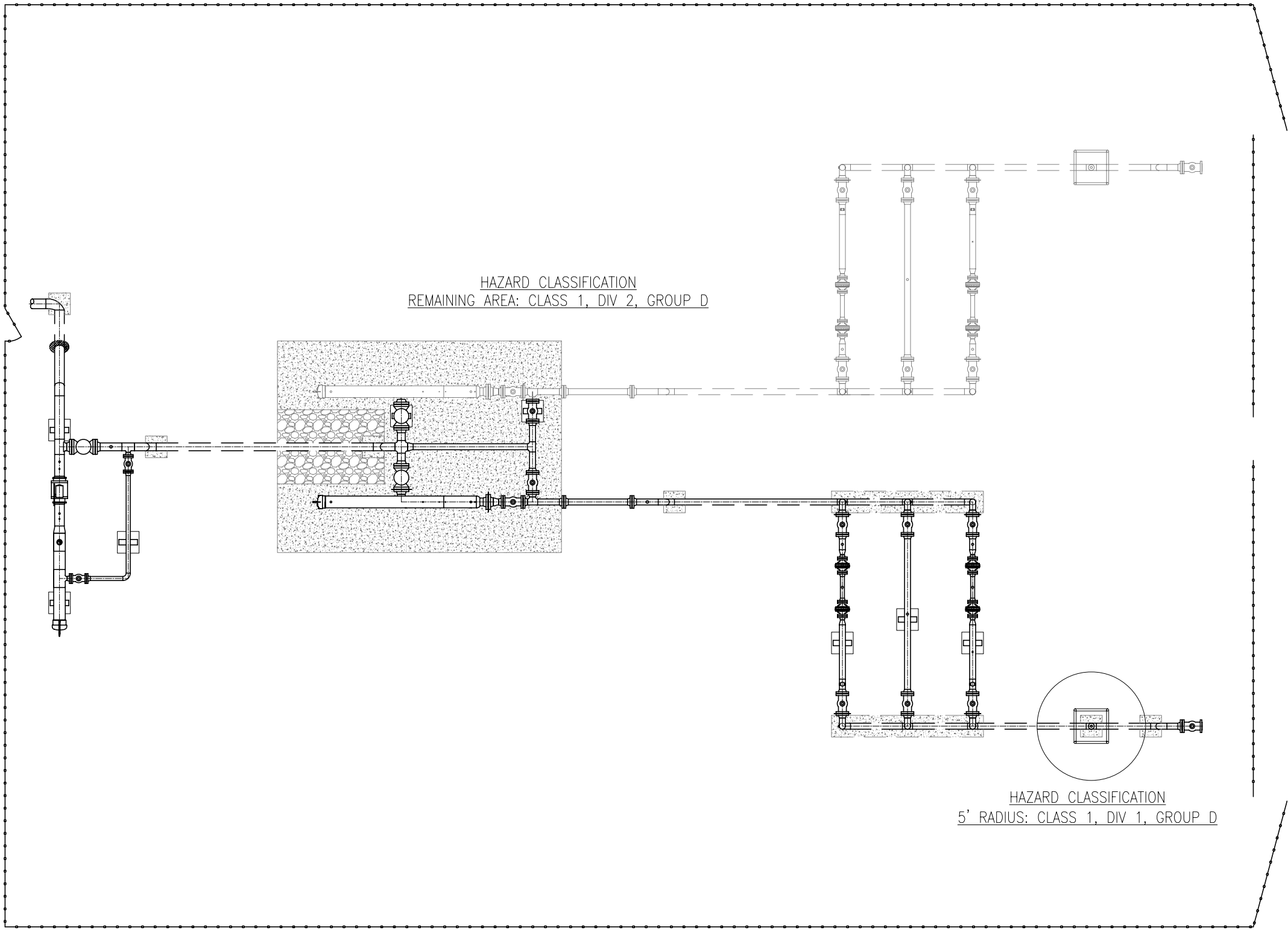
PWHT:	SEAL WELD:	PIPE STRESS
NO	NO	ANALYZED:
X-RAY:	PIPING SPEC	
100%	API5L, PSL2, GR.B X52	
DESIGN PSIG:	1440 @ 100°F	

## BILL OF MATERIALS

ITEM	QTY	SIZE	DESCRIPTION
1	1	10"	GROVE, B5, TRIM D0101, 600#, FP, WE(SCH 40) BALL VALVE W/ OPERATOR
2	1	4"	4x3 TEXTSTREAM 9D-L4006R40C, 600#, RF, PLUG VALVE
3	1	8"	BALON, 8F-T63-RF, 600#, RF, FP TRUNNION BALL VALVE
4	2	4"	BALON, 4F-T63-RF, 600#, RF, FP TRUNNION BALL VALVE
5	2	8"	FLANGE, WN, 600, STD, RF, FS, A860 MSS-SP-75 WPHY 52
6	7	4"	FLANGE, WN, 600, STD, RF, FS, A860 MSS-SP-75 WPHY 52
7	2	8"	GASKET, KAMMPRO, LP3 600 5/32 316L-APX2 316-L OR NS
8	7	4"	GASKET, KAMMPRO, LP3 600 5/32 316L-APX2 316-L OR NS
11	24	1 1/8"x8.5"	BOLTS, STUD, /A 193 GR.B7, W/ 2-HVY HEX NUTS, /A 194 2H
12	56	7/8"x6 3/4"	BOLTS, STUD, /A 193 GR.B7, W/ 2-HVY HEX NUTS, /A 194 2H
13	20	4"	PIPE, API5L, PSL2, GR. B, .237" W.T. X52
14	12	8"	PIPE, API5L, PSL2, GR. B, .322" W.T. X52
15	25	10"	PIPE, API5L, PSL2, GR. B, .365" W.T. X52
16	8	12"	PIPE, API5L, PSL2, GR. B, .375" W.T. X52
17	1	12"	CLOSURE, 600, HUBER-YALE, FIG. 500
18	27	8"	PIPE, API5L, PSL2, GR.B, .322"WT X52, 14-18 MILS FBE COATED
19	1	10"	SWEEP, 45°, API5L, PLS2, 0.365"WT, X52
20	1	4"	ELBOW, 90, STD, A860 MSS-SP-75 WPHY 52
21	2	8"	ELBOW, 90, STD, A860 MSS-SP-75 WPHY 52
22	1	10"	SWEEP, 90°, API5L, PLS2, 0.365"WT, X52, 16-20 MIL FBE
23	1	8"x4"	TEE, STD, A860 MSS-SP-75 WPHY 52
24	1	10"x8"	TEE, STD, A860 MSS-SP-75 WPHY 52
25	2	12"x4"	TEE, STD, A860 MSS-SP-75 WPHY 52
26	1	12"x10"	REDUCER, CONC, STD, A860 MSS-SP-75 WPHY 52
27	1	4"	FLANGE, BLIND, 600, STD, RF, FS, A860 MSS-SP-75 WPHY 52
DETAIL A: 1/2" THREADOLET DETAIL			
28	2	1/2"	THREADOLET, 3000#, CARBON STEEL
29	2	1/2"	BALL VALVE, BALON SERIES LS, 3000#
30	2	1/2"	INDUSTRIAL PIPE NIPPLE, SHORT HEX, 316 SS, 3000#
31	2	1/2"	PLUG, SQUARE HEAD, 316 SS, 3000#
DETAIL B: 3/4" THREADOLET DETAIL			
32	2	3/4"	THREADOLET, 3000#, CARBON STEEL
33	2	3/4"	BALL VALVE, BALON SERIES LS, 3000#
34	2	3/4"	INDUSTRIAL PIPE NIPPLE, SHORT HEX, 316 SS, 3000#
35	2	3/4"	PLUG, SQUARE HEAD, 316 SS, 3000#
DETAIL C: 1" THREADOLET DETAIL			
36	2	2"	THREADOLET, 3000#, CARBON STEEL
37	2	2"	BALL VALVE, BALON SERIES LS, 3000#
38	2	2"	INDUSTRIAL PIPE NIPPLE, SHORT HEX, 316 SS, 3000#
39	2	2"	PLUG, SQUARE HEAD, 316 SS, 3000#

NO.	DATE	BY	REVISION
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 <b>MONTANA-DAKOTA UTILITIES CO.</b> A Division of MDU Resources Group, Inc.			
GAS PIPELINE PLANT SITE ISOMETRIC SHEET 3 OF 3 DEER CREEK STATION			
SCALE	DATE	DRAWN BY	APPROVED BY
NONE	6/2/10	CASSIE PETER	DAVE YEXLEY
DCS-MP-ONG-0009			





NO.	DATE	BY	REVISION
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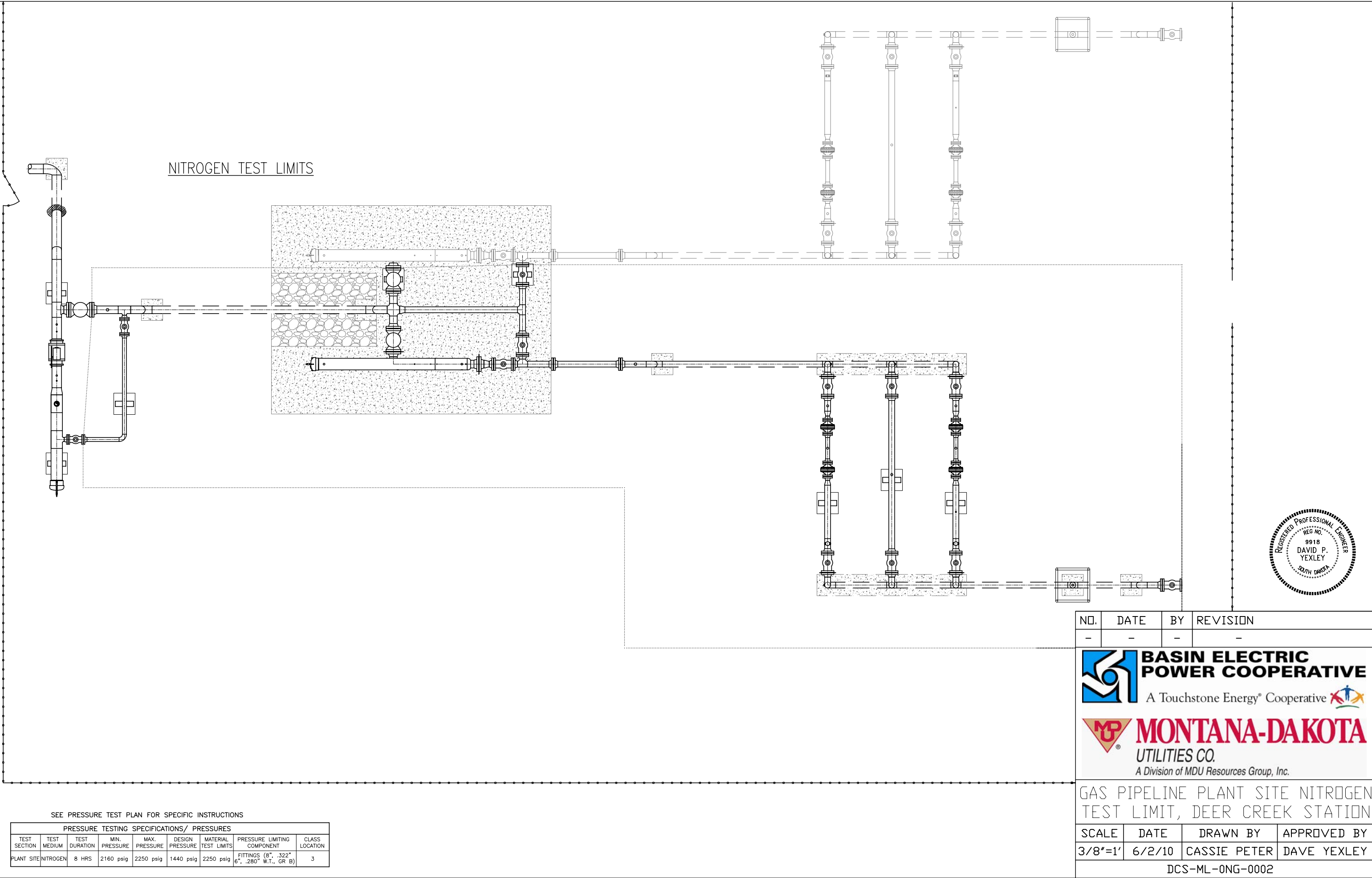


**MONTANA-DAKOTA  
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A Division of MDU Resources Group, Inc.

GAS PIPELINE PLANT SITE HAZARD  
AREA, DEER CREEK STATION

SCALE	DATE	DRAWN BY	APPROVED BY
3/16"=1'	6/2/10	CASSIE PETER	DAVE YEXLEY

DCS-EI-ONG-0001



NITROGEN TEST LIMITS



NO.	DATE	BY	REVISION
-	-	-	-



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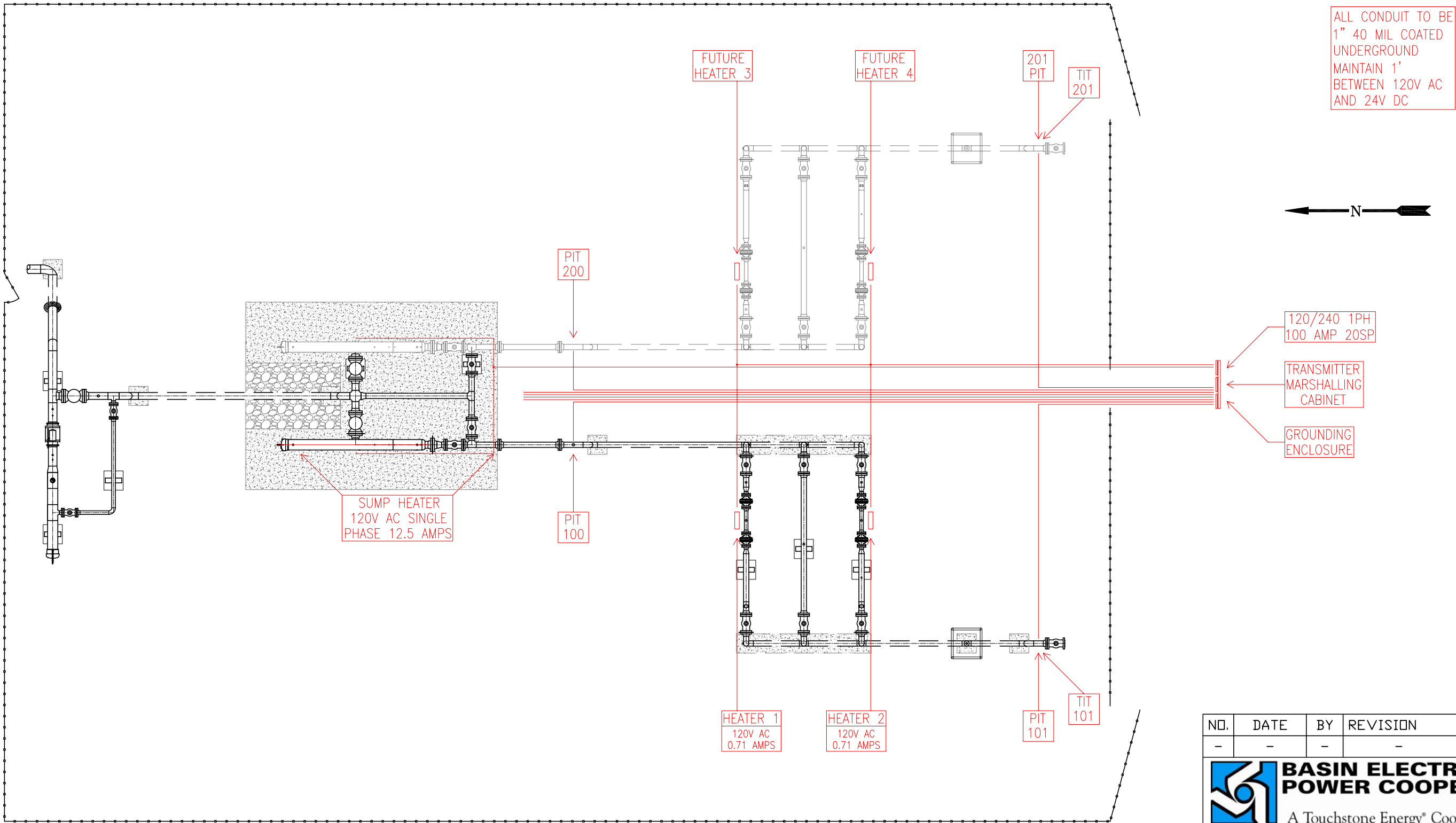
GAS PIPELINE PLANT SITE NITROGEN  
TEST LIMIT, DEER CREEK STATION

SCALE	DATE	DRAWN BY	APPROVED BY
3/8"=1'	6/2/10	CASSIE PETER	DAVE YEXLEY

DCS-ML-0NG-0002

SEE PRESSURE TEST PLAN FOR SPECIFIC INSTRUCTIONS



PRESSURE TESTING SPECIFICATIONS/ PRESSURES								
TEST SECTION	TEST MEDIUM	TEST DURATION	MIN. PRESSURE	MAX. PRESSURE	DESIGN PRESSURE	MATERIAL TEST LIMITS	PRESSURE LIMITING COMPONENT	CLASS LOCATION
PLANT SITE	NITROGEN	8 HRS	2160 psig	2250 psig	1440 psig	2250 psig	FITTINGS (8", .322" 6", .280" W.T., GR B)	3




PIT: PRESSURE INSTRUMENT TRANSMITTER; 9.0–32.0V DC, 17.5 MA MAX, ROSEMONT 2051  
TIT: TEMPERATURE INSTRUMENT TRANSMITTER; 9.0–32.0V DC, 11 MA MAX, ROSEMONT 644  
POWER SUPPLIED FROM FOUNDATION, FIELD BUS



NO.	DATE	BY	REVISION
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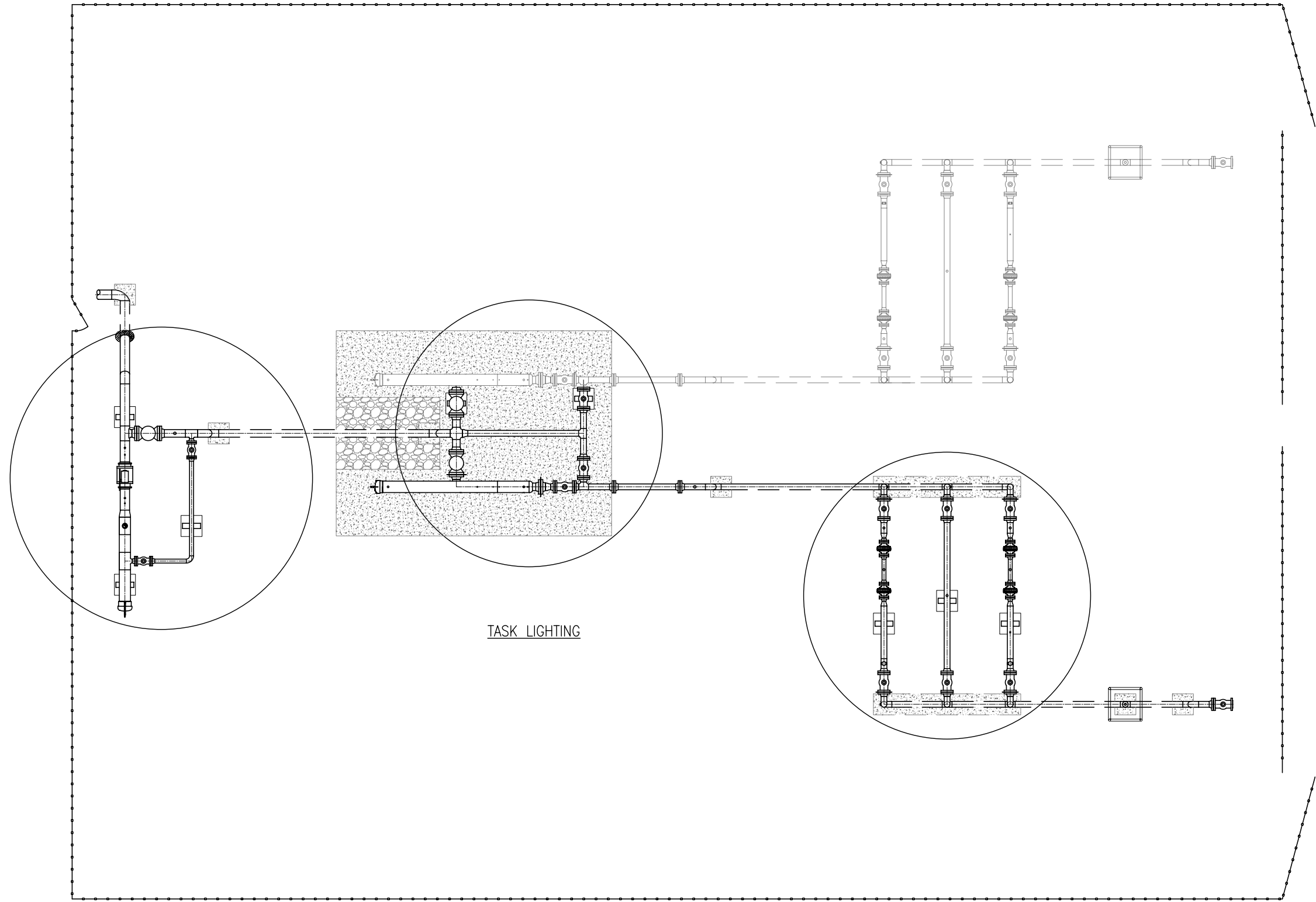
**BASIN ELECTRIC  
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UTILITIES CO.**  
A Division of MDU Resources Group, Inc.

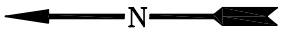
GAS PIPELINE PLANT SITE POWER  
DEER CREEK STATION

SCALE	DATE	DRAWN BY	APPROVED BY
3/16"=1'	6/2/10	CASSIE PETER	DAVE YEXLEY

DCS-EA-ONG-0001






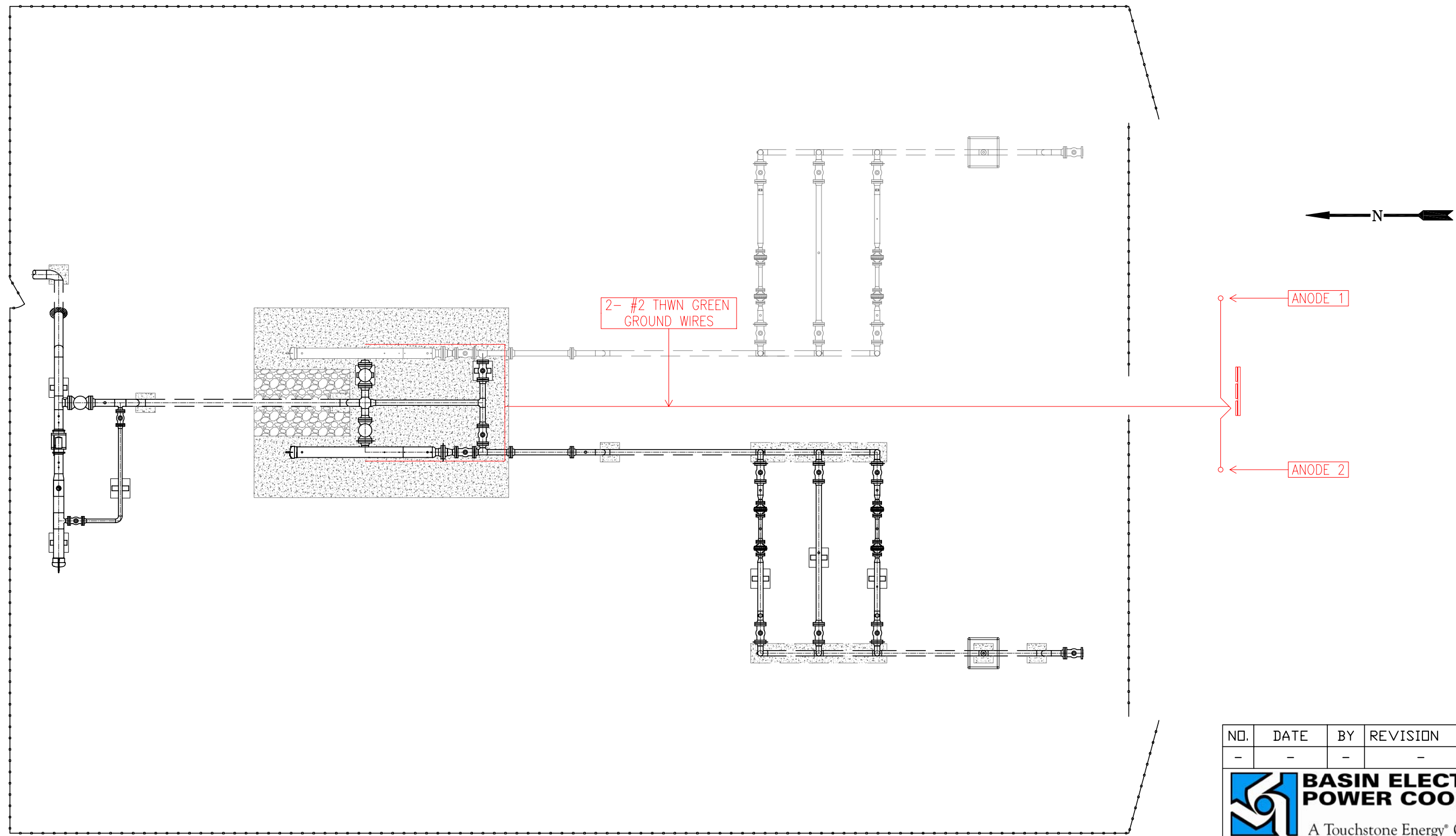
TASK LIGHTING



NOTE: DRAWING SHOWS LOCATIONS OF HIGHER INTENSITY TASK LIGHTING. HOWEVER, ENTIRE SITE REQUIRES GENERAL LIGHTING




NO.	DATE	BY	REVISION
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GAS PIPELINE PLANT SITE TASK LIGHTING, DEER CREEK STATION			
SCALE	DATE	DRAWN BY	APPROVED BY
3/16"=1'	6/2/10	CASSIE PETER	DAVE YEXLEY
DCS-EL-ONG-0001			




NOTE: FENCE TO BE GROUNDED PER DETAILS BY OTHERS



NO.	DATE	BY	REVISION
-	-	-	-

**BASIN ELECTRIC  
POWER COOPERATIVE**  
A Touchstone Energy® Cooperative

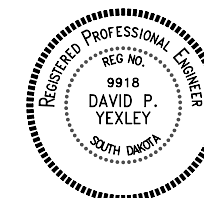
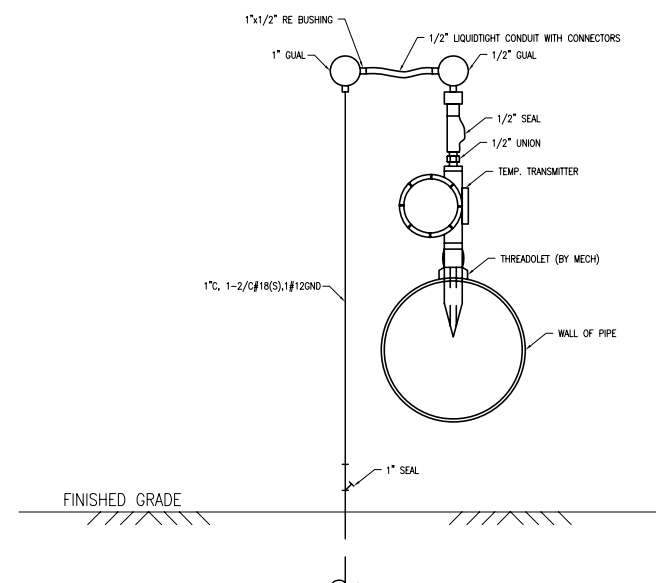
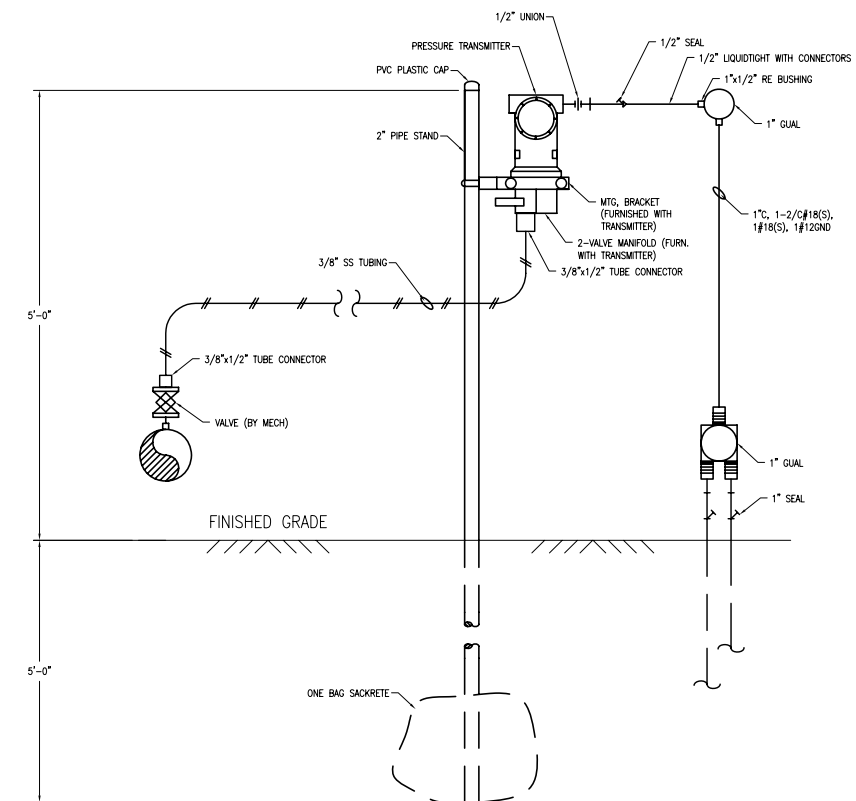
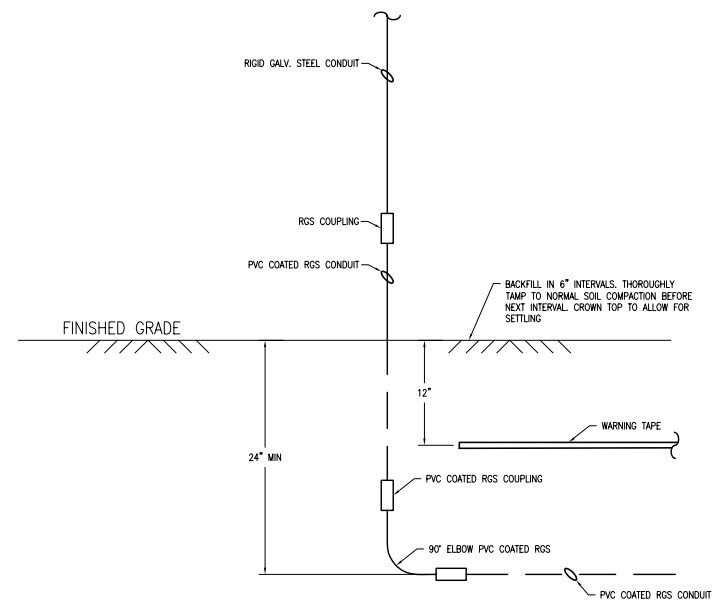
**MONTANA-DAKOTA  
UTILITIES CO.**  
A Division of MDU Resources Group, Inc.

GAS PIPELINE PLANT SITE  
GROUNDING, DEER CREEK STATION


SCALE	DATE	DRAWN BY	APPROVED BY
3/16"=1'	6/2/10	CASSIE PETER	DAVE YEXLEY

DCS-EG-ONG-0001







NO.	DATE	BY	REVISION
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**BASIN ELECTRIC  
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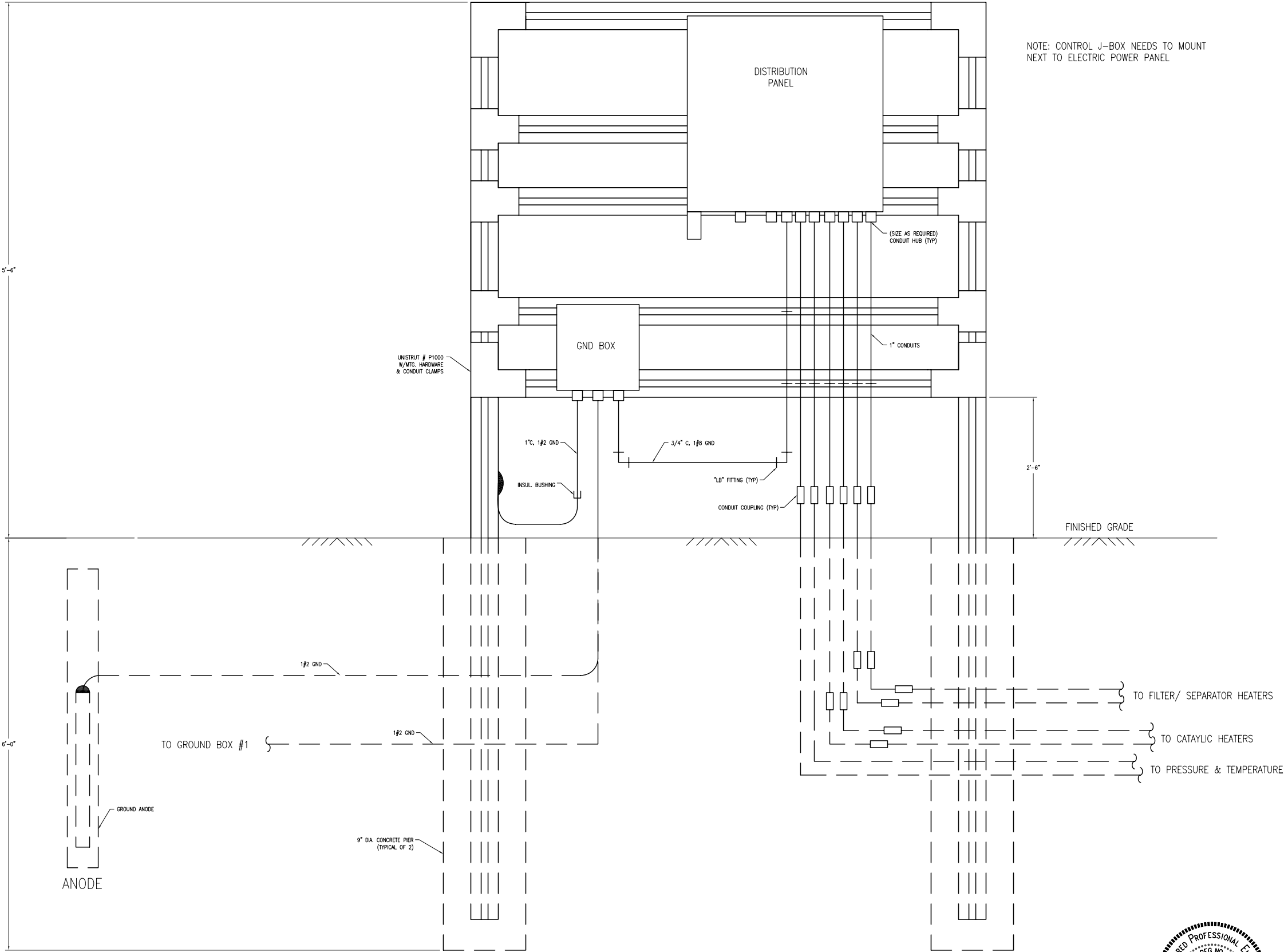
**MONTANA-DAKOTA**

**UTILITIES CO.**

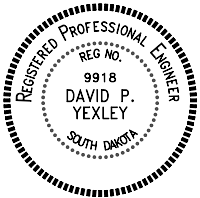
*A Division of MDU Resources Group, Inc.*

<h1 style="margin: 0;">GAS PIPELINE PLANT SITE INSTRUMENTATION</h1> <h2 style="margin: 0;">DEER CREEK STATION</h2>			
SCALE	DATE	DRAWN BY	APPROVED BY
NONE	6/2/10	CASSIE PETER	DAVE YEXLEY


DCS-IA-ONG-0001




NOTE: CONTROL J-BOX NEEDS TO MOUNT  
NEXT TO ELECTRIC POWER PANEL



NO.	DATE	BY	REVISION
-	-	-	-

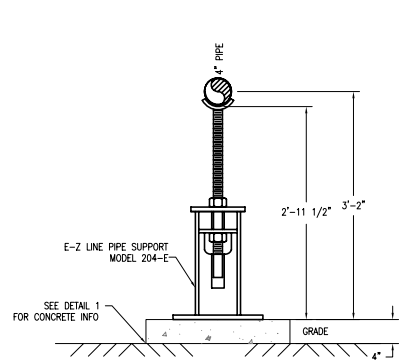
**BASIN ELECTRIC  
POWER COOPERATIVE**  
A Touchstone Energy® Cooperative

**MONTANA-DAKOTA  
UTILITIES CO.**  
A Division of MDU Resources Group, Inc.

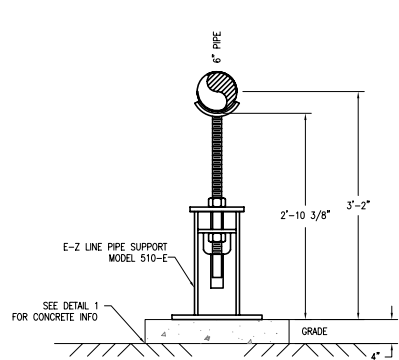
GAS PIPELINE PLANT SITE ELECTRICAL  
EQUIP RACK, DEER CREEK STATION

SCALE	DATE	DRAWN BY	APPROVED BY
NONE	6/2/10	CASSIE PETER	DAVE YEXLEY

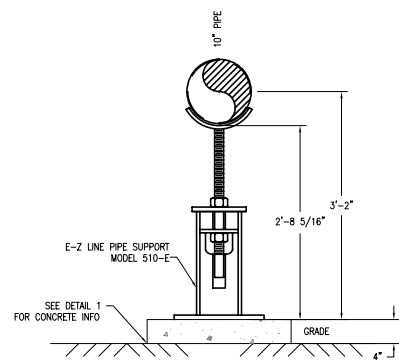
DCS-EA-0NG-0002



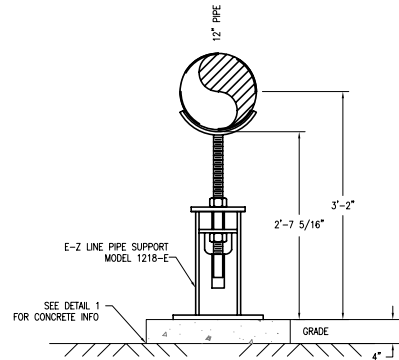
4" PIPE SUPPORT  
SCALE: 3/4"=1'-0"  
(2) REQUIRED



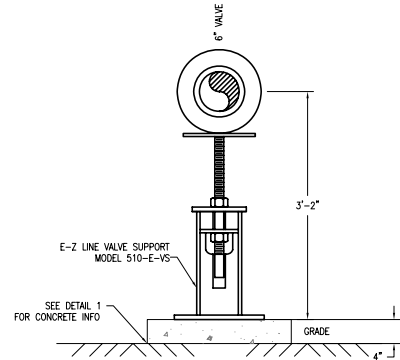
6" PIPE SUPPORT  
SCALE: 3/4"=1'-0"  
(6) REQUIRED



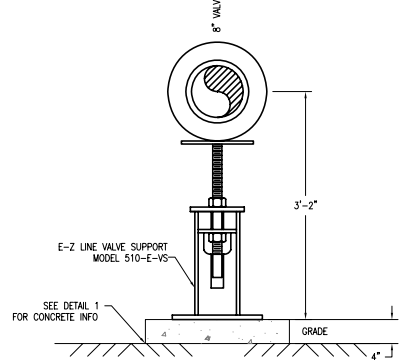
10" PIPE SUPPORT  
SCALE: 3/4"=1'-0"  
(2) REQUIRED



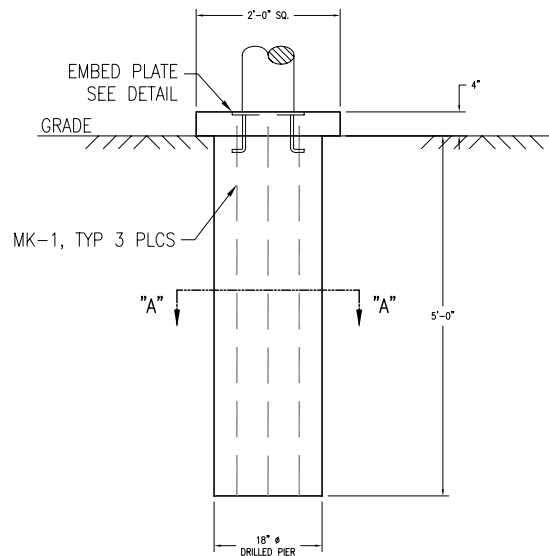
12" PIPE SUPPORT  
SCALE: 3/4"=1'-0"  
(2) REQUIRED



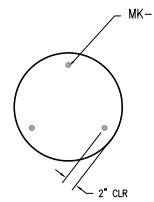
6" VALVE SUPPORT  
SCALE: 3/4"=1'-0"  
(1) REQUIRED



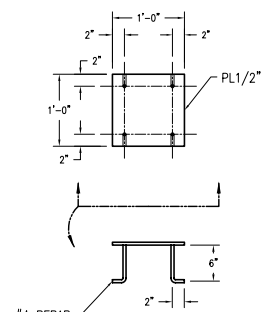
8" VALVE SUPPORT  
SCALE: 3/4"=1'-0"  
(1) REQUIRED



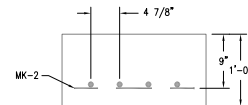
CONCRETE DETAIL 1  
SCALE: 3/4"=1'-0"  
(5) REQUIRED



SECTION A-A  
SCALE: 3/4"=1'-0"



EMBED PLATE DETAIL  
SCALE: 3/4"=1'-0"  
(5) REQUIRED

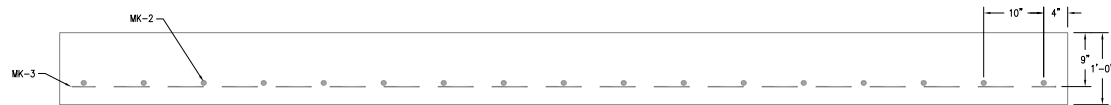


CONCRETE SUPPORT  
2'-0"W x 2'-0"L x 1'-0"H  
(6) REQUIRED

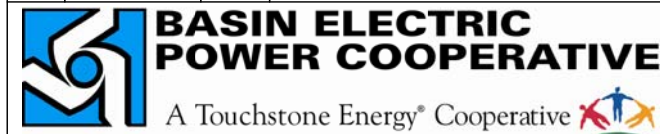
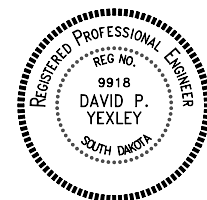
REINFORCING BAR SCHEDULE				
MARK	QUANTITY	SIZE	LENGTH	BENDING
MK-1	15	#6	5'-0"	STRAIGHT
MK-2	82	#6	2'-0"	STRAIGHT
MK-3	8	#6	14'-0"	STRAIGHT
351' TOTAL REBAR				

4.87 CU YDS TOTAL CONCRETE

- CONCRETE NOTES:
1. SOIL BEARING VALUE TO BE 2000 PSF.
  2. CONCRETE TESTING 3750 POUND PER SQUARE INCH AFTER 28 DAYS. MAXIMUM AGGREGATE.
  3. WOOD FLOAT FINISH, LEAVING NO DEPRESSIONS.
  4. ALL EXPOSED CONCRETE SHALL BE RUBBED WITH A NEAT SAND MIXTURE.
  5. ALL CONCRETE SHALL HAVE A CURING AGENT APPLIED IMMEDIATELY AFTER FINISHING TO ENHANCE CURING.
  6. ALL CONCRETE UNLESS SPECIFIED OTHERWISE IS A 5 1/2 BAG PORTLAND MIX WITH A 3500 PSI MINIMUM 28 DAY COMPRESSIVE STRENGTH (ASTM C39). SUPER PLASTISIZORS ALLOWED WITH ENGINEERING APPROVAL.
  7. NO CONCRETE TO BE POURED WITH A SLUMP GREATER THAN 3" BEFORE PLASTISIZING WITHOUT ENGINEERING APPROVAL.
  8. ALL CONCRETE TO BE AIR EXTRACTED 5% TO 6% (BY VOLUME).
  9. ALL REBAR TO BE ASTM A615 GRADE 60.



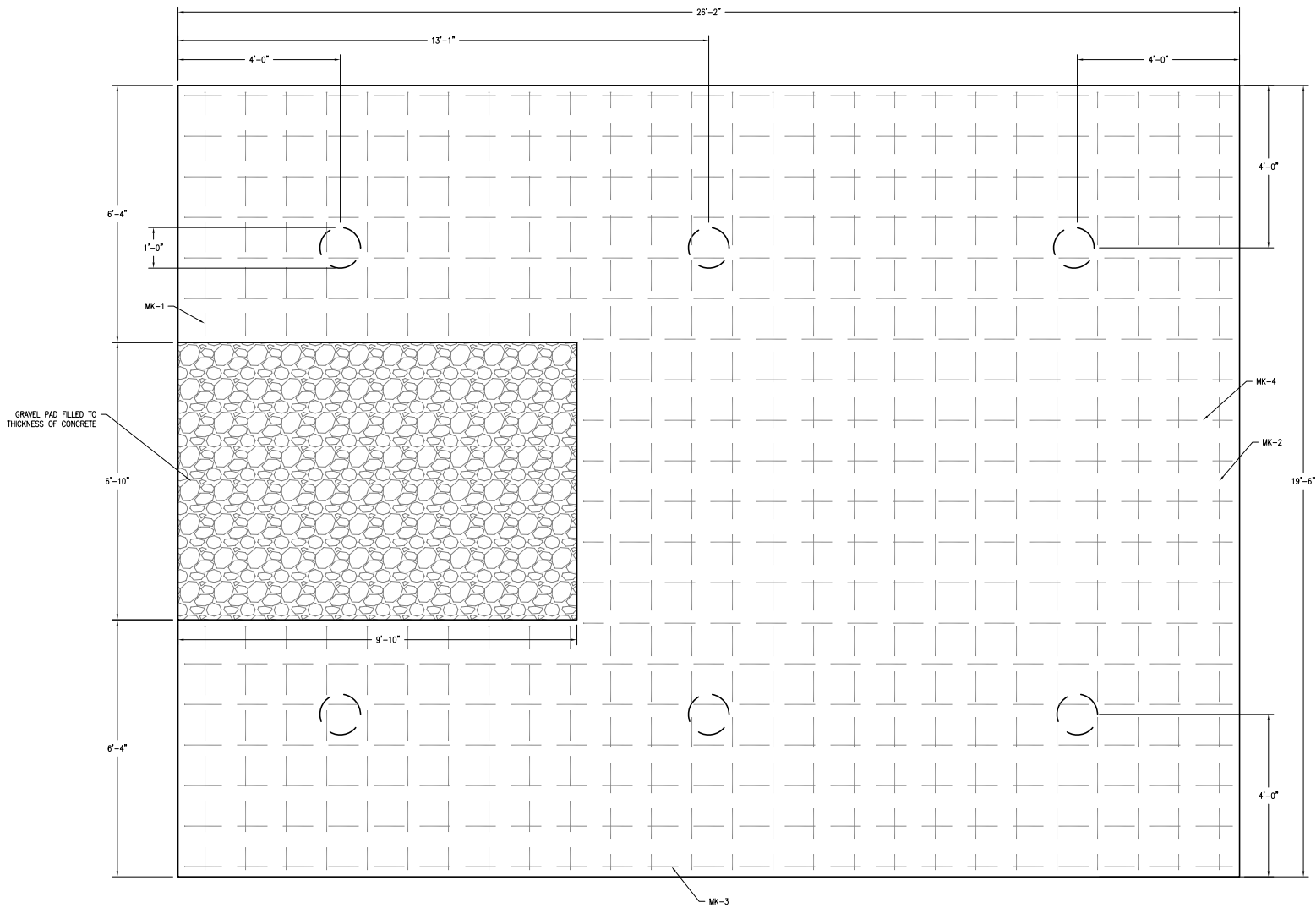
CONCRETE SUPPORT  
2'-0"W x 14'-0"L x 1'-0"H  
(2) REQUIRED



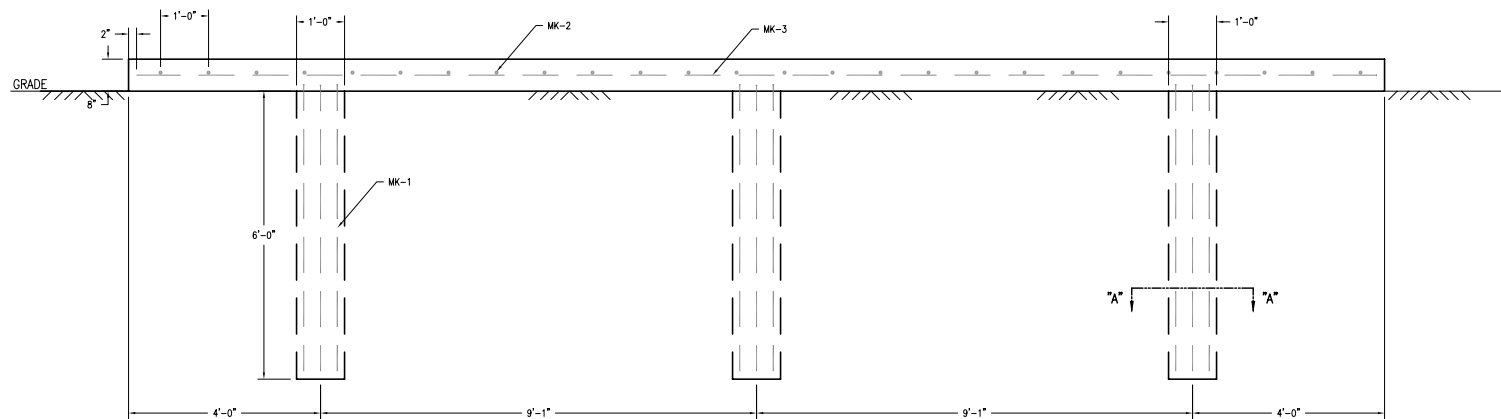
GAS PIPELINE CONCRETE DETAILS  
SHEET 1 OF 2, DEER CREEK STATION

SCALE	DATE	DRAWN BY	APPROVED BY
3/8"=1'	6/2/10	CASSIE PETER	DAVE YEXLEY

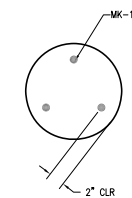
DCS-CC-ONG-0001



CONCRETE SLAB PLOT PLAN  
SCALE: 1/2"=1'-0"



CONCRETE SLAB SECTION  
SCALE: 1/2"=1'-0"






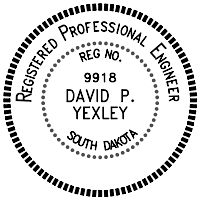
SECTION A-A  
SCALE: 1"=1'-0"

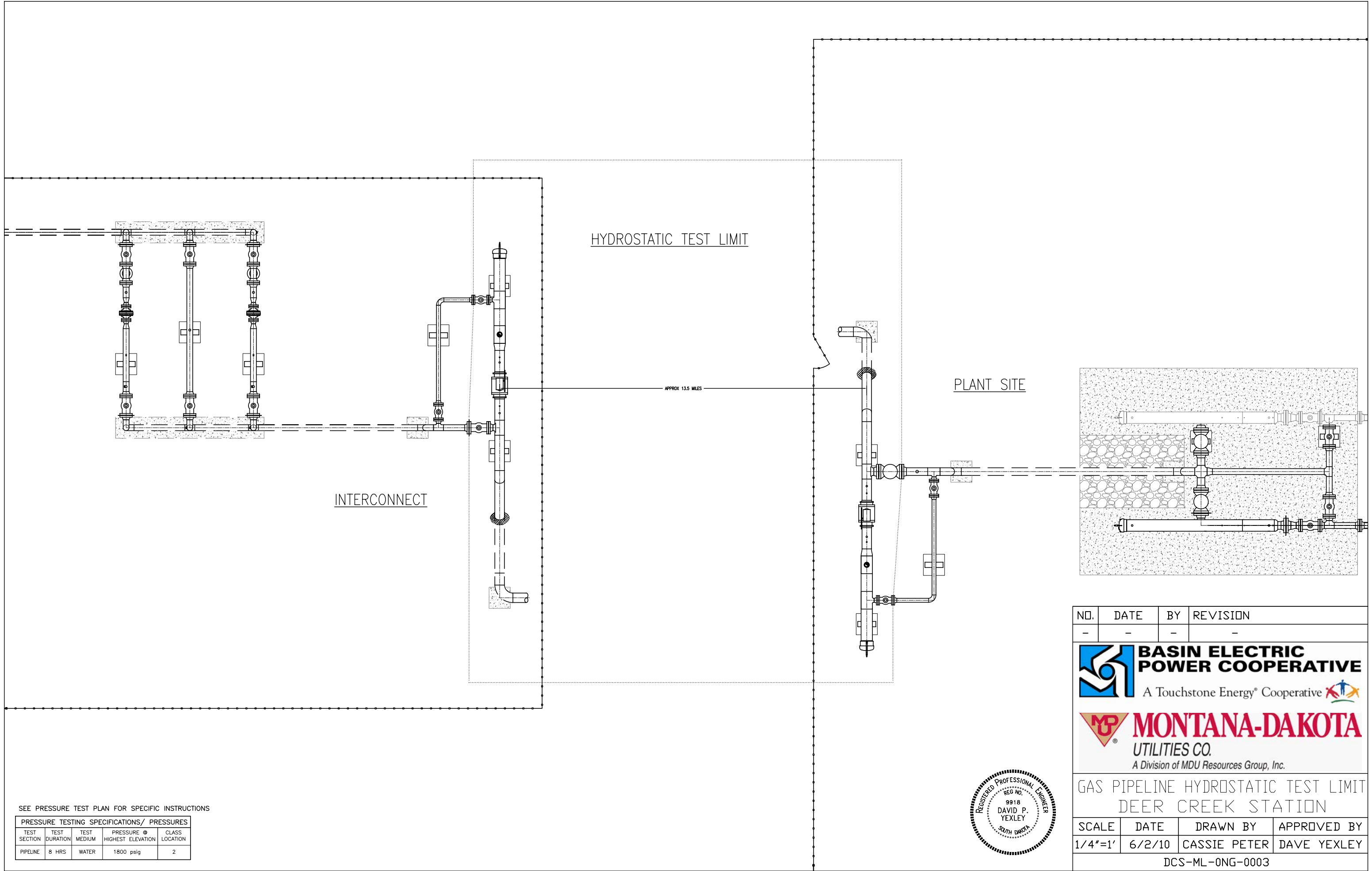
REINFORCING BAR SCHEDULE				
MARK	QUANTITY	SIZE	LENGTH	BENDING
MK-1	38	#4	6'-0"	STRAIGHT
MK-2	16	#4	19'-6"	STRAIGHT
MK-3	12	#4	26'-0"	STRAIGHT
MK-4	8	#4	16'-0"	STRAIGHT
1214' TOTAL REBAR				

12.00 CU YDS TOTAL CONCRETE

- CONCRETE NOTES:**
1. SOIL BEARING VALUE TO BE 2000 PSF.
  2. CONCRETE TESTING 3750 POUND PER SQUARE INCH AFTER 28 DAYS. MAXIMUM AGGREGATE.
  3. WOOD FLOAT FINISH, LEAVING NO DEPRESSIONS.
  4. ALL EXPOSED CONCRETE SHALL BE RUBBED WITH A NEAT SAND MIXTURE.
  5. ALL CONCRETE SHALL HAVE A CURING AGENT APPLIED IMMEDIATELY AFTER FINISHING TO ENHANCE CURING.
  6. ALL CONCRETE UNLESS SPECIFIED OTHERWISE IS A 5 1/2 BAG PORTLAND MIX WITH A 3500 PSI MINIMUM 28 DAY COMPRESSIVE STRENGTH (ASTM C39). SUPER PLASTISIZORS ALLOWED WITH ENGINEERING APPROVAL.
  7. NO CONCRETE TO BE POURED WITH A SLUMP GREATER THAN 3" BEFORE PLASTISIZING WITHOUT ENGINEERING APPROVAL.
  8. ALL CONCRETE TO BE AIR EXTRACTED 5% TO 6% (BY VOLUME).
  9. ALL REBAR TO BE ASTM A615 GRADE 60.

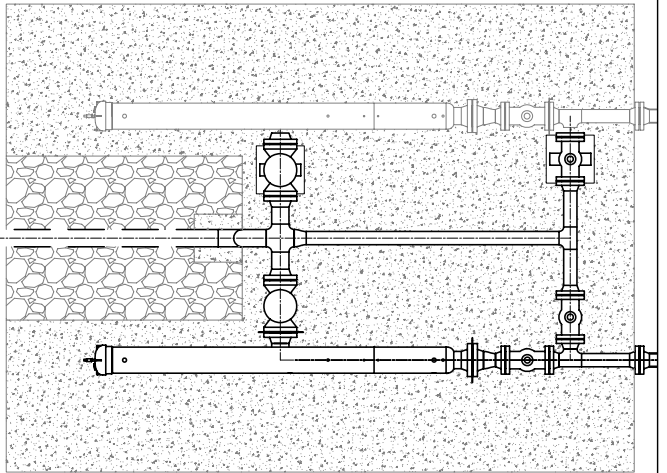
NO.	DATE	BY	REVISION
-	-	-	-
<div><div><b>BASIN ELECTRIC POWER COOPERATIVE</b></div><div>A Touchstone Energy® Cooperative </div><div><b>MONTANA-DAKOTA UTILITIES CO.</b></div><div>A Division of MDU Resources Group, Inc.</div></div>			
GAS PIPELINE CONCRETE DETAILS SHEET 2 OF 2, DEER CREEK STATION			
SCALE	DATE	DRAWN BY	APPROVED BY
1/2"=1'	6/2/10	CASSIE PETER	DAVE YEXLEY
DCS-CC-0NG-0002			








SEE PRESSURE TEST PLAN FOR SPECIFIC INSTRUCTIONS

PRESSURE TESTING SPECIFICATIONS/ PRESSURES				
TEST SECTION	TEST DURATION	TEST MEDIUM	PRESSURE @ HIGHEST ELEVATION	CLASS LOCATION
PIPELINE	8 HRS	WATER	1800 psig	2



NO.	DATE	BY	REVISION
-	-	-	-
 <b>BASIN ELECTRIC POWER COOPERATIVE</b> A Touchstone Energy® Cooperative 			
 <b>MONTANA-DAKOTA UTILITIES CO.</b> A Division of MDU Resources Group, Inc.			
GAS PIPELINE HYDROSTATIC TEST LIMIT DEER CREEK STATION			
SCALE	DATE	DRAWN BY	APPROVED BY
1/4"=1'	6/2/10	CASSIE PETER	DAVE YEXLEY
DCS-ML-ONG-0003			