

SMITH LAKE WATER SYSTEM IMPROVEMENTS

SMITH LAKE CHAPTER

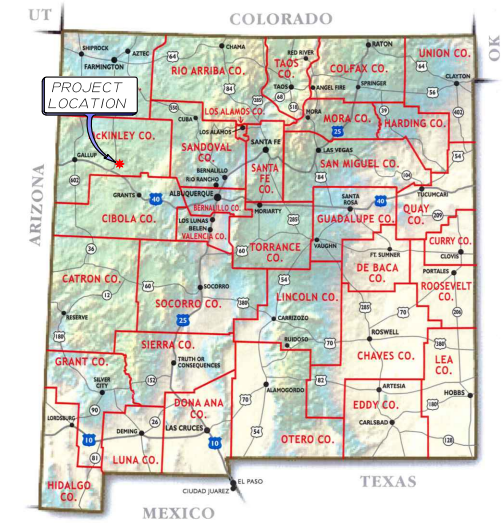
WELL SITE #1 TREATMENT BUILDING



JUNE, 2024

PROJECT DESCRIPTION

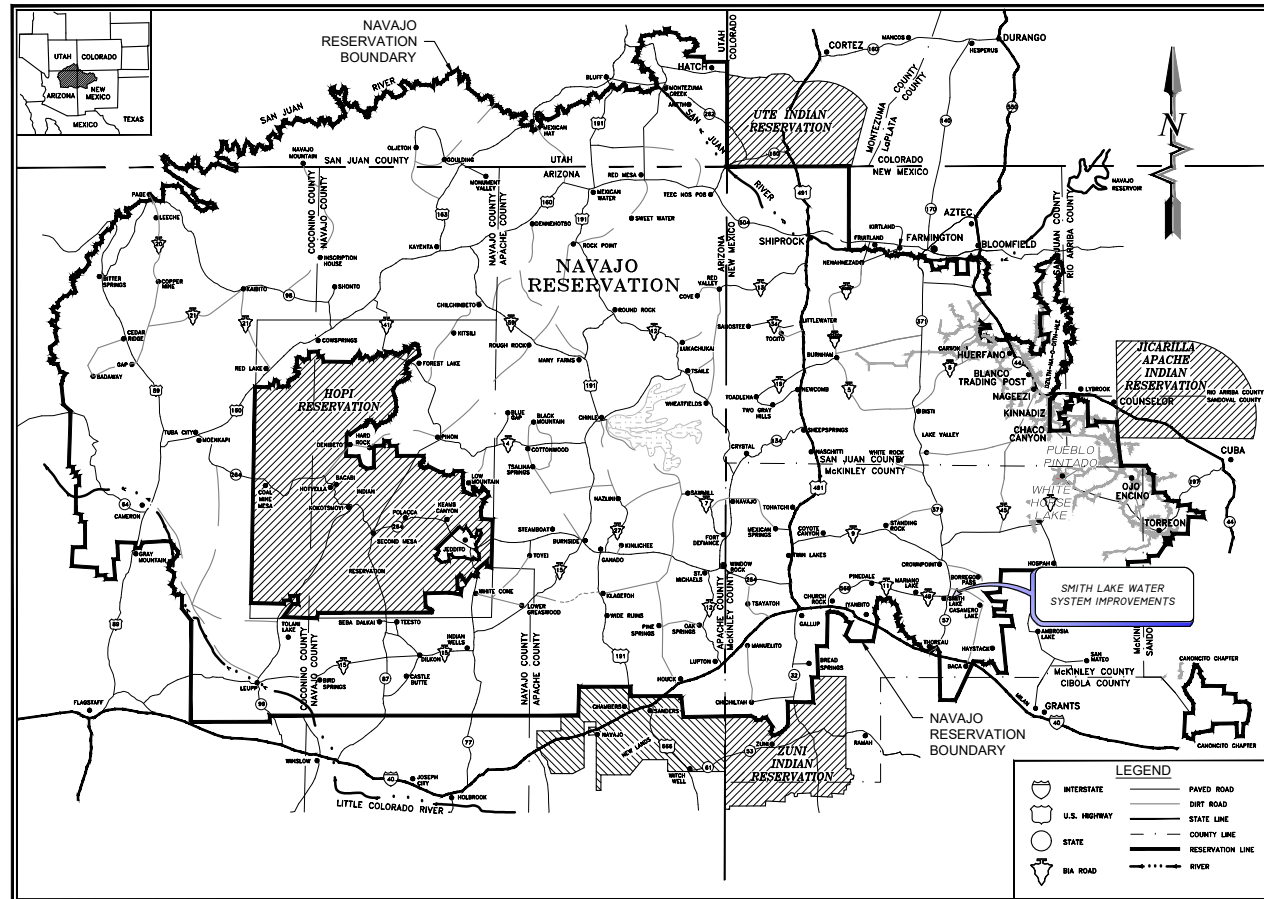
THE PROJECT CONSISTS OF A WATER TREATMENT BUILDING, RELATED SITE IMPROVEMENTS, CONSTRUCTION OF 765 FEET OF 4" PVC/DI BACKWASH DISCHARGE LINE AND 3,950 FEET OF 4" PVC SUPPLY LINE FROM WELL SITE #3 TO WELL SITE #1 TREATMENT BUILDING



PROJECT VICINITY MAP

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NAVAJO RESERVATION
PROJECT SITE MAP

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Client: The Navajo Nation
Location: Smith Lake, NM
COVER SHEET & DRAWING INDEX
SMITH LAKE CHAPTER
WATER SYSTEM IMPROVEMENTS PROJECT
MCKINLEY COUNTY, NEW MEXICO
SECTION 8, T. 15 N., R. 12 W.

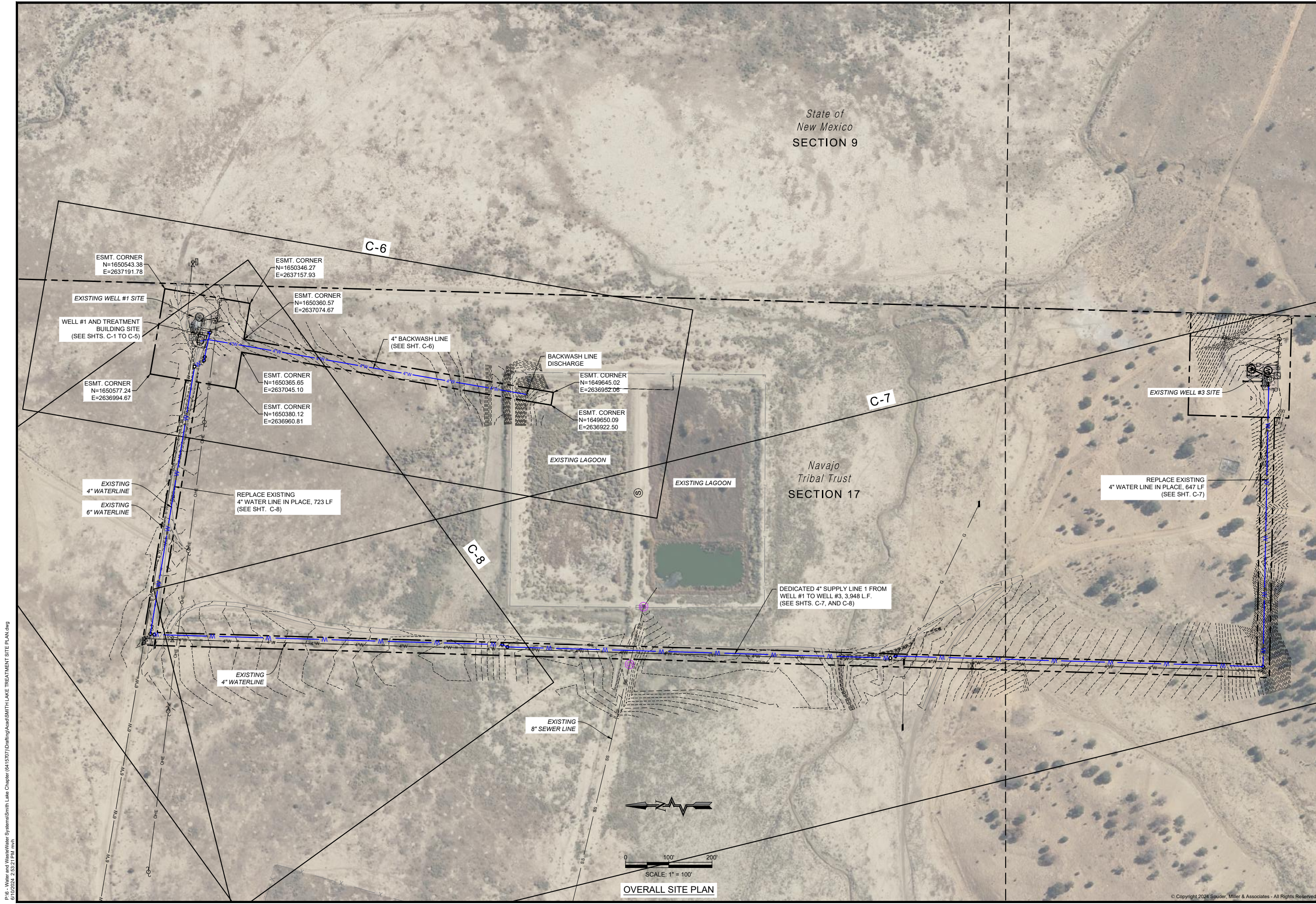


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State of
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SECTION 9

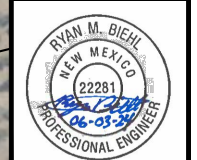
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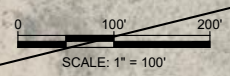


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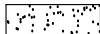




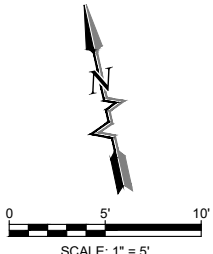
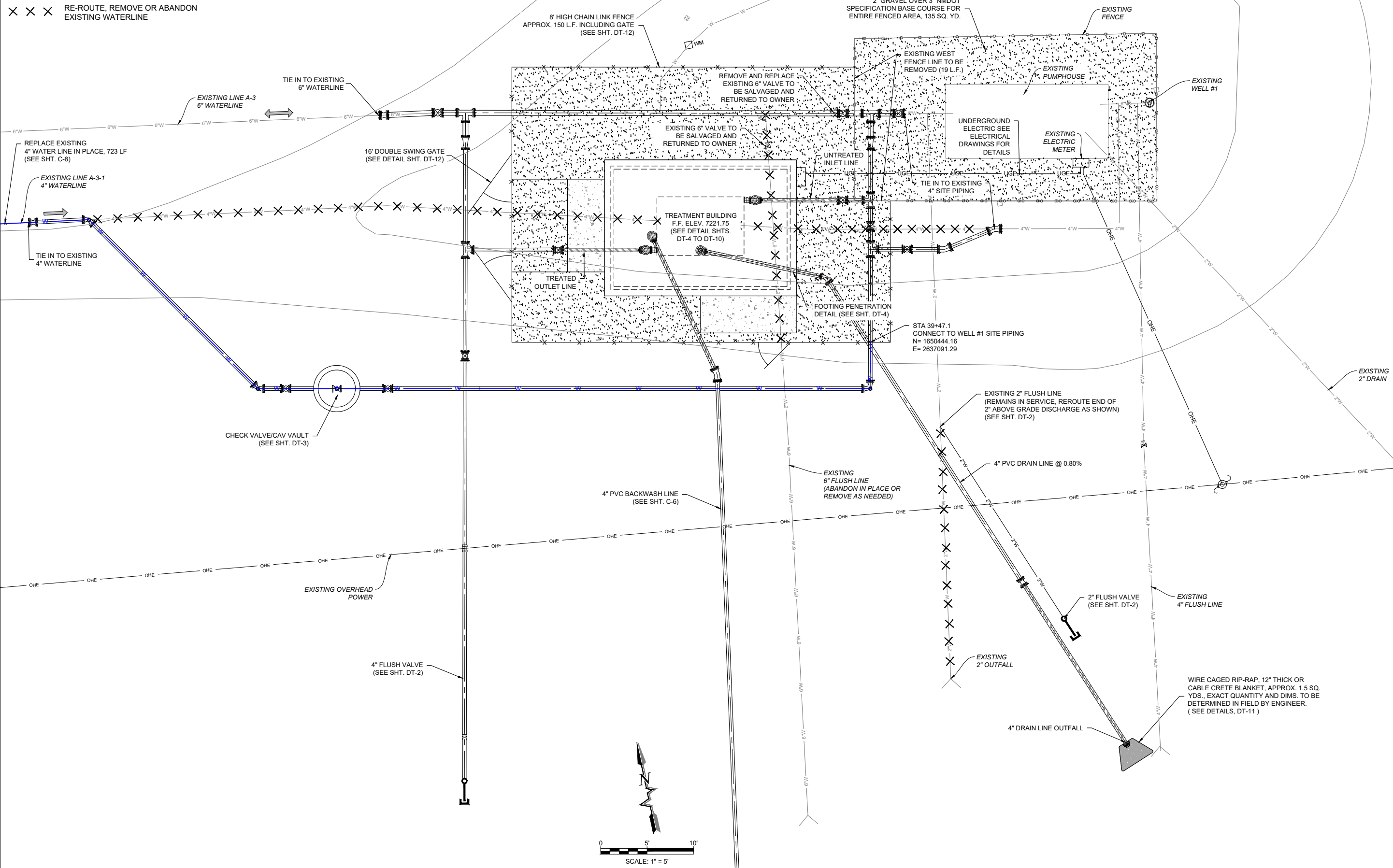
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 Sheet: **G-3**



SCALE: 1" = 100'
OVERALL SITE PLAN

LEGEND

-  2" GRAVEL OVER 3" NMDOT SPECIFICATION BASE COURSE
-  CONCRETE PAD
-  RE-ROUTE, REMOVE OR ABANDON EXISTING WATERLINE



WELL #1 AND TREATMENT BUILDING SITE PLAN 1

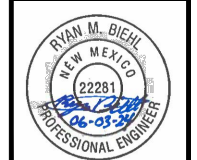
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WELL #1 & TREATMENT BLDG SITE PLAN 1
SMITH LAKE CHAPTER
WATER SYSTEM IMPROVEMENTS PROJECT
 MCKINLEY COUNTY, NEW MEXICO
 SECTION 8, T. 15 N., R. 12 W.



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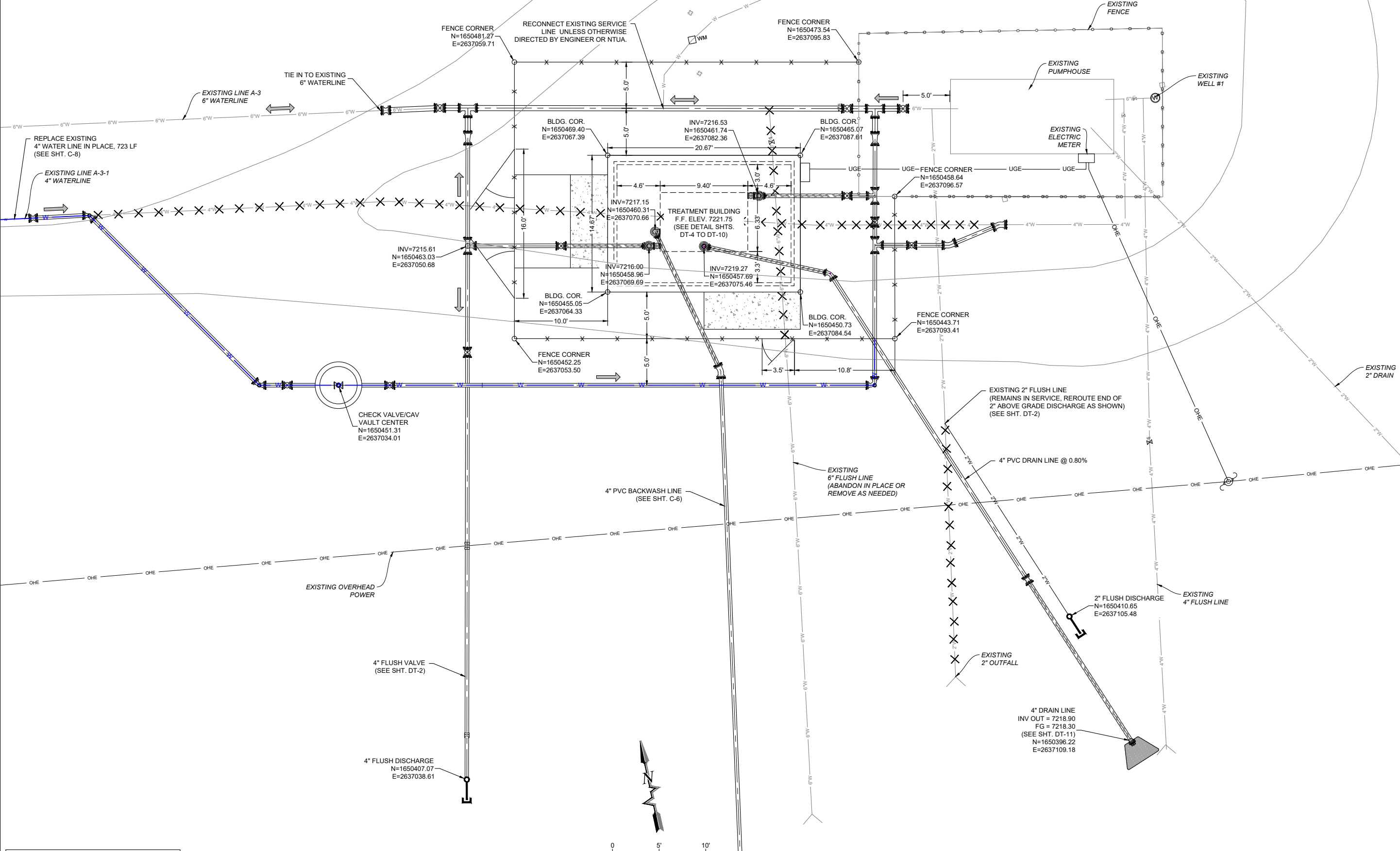


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 Sheet: **C-1**

LEGEND

-  CONCRETE PAD
-  RE-ROUTE, REMOVE OR ABANDON EXISTING WATERLINE



NOTE:
FLOW ARROWS THIS SHEET SHOWN FOR
FE/MN TREATMENT OF BOTH WELLS.

WELL #1 AND TREATMENT BUILDING SITE PLAN

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WELL #1 & TREATMENT BLDG SITE PLAN 2
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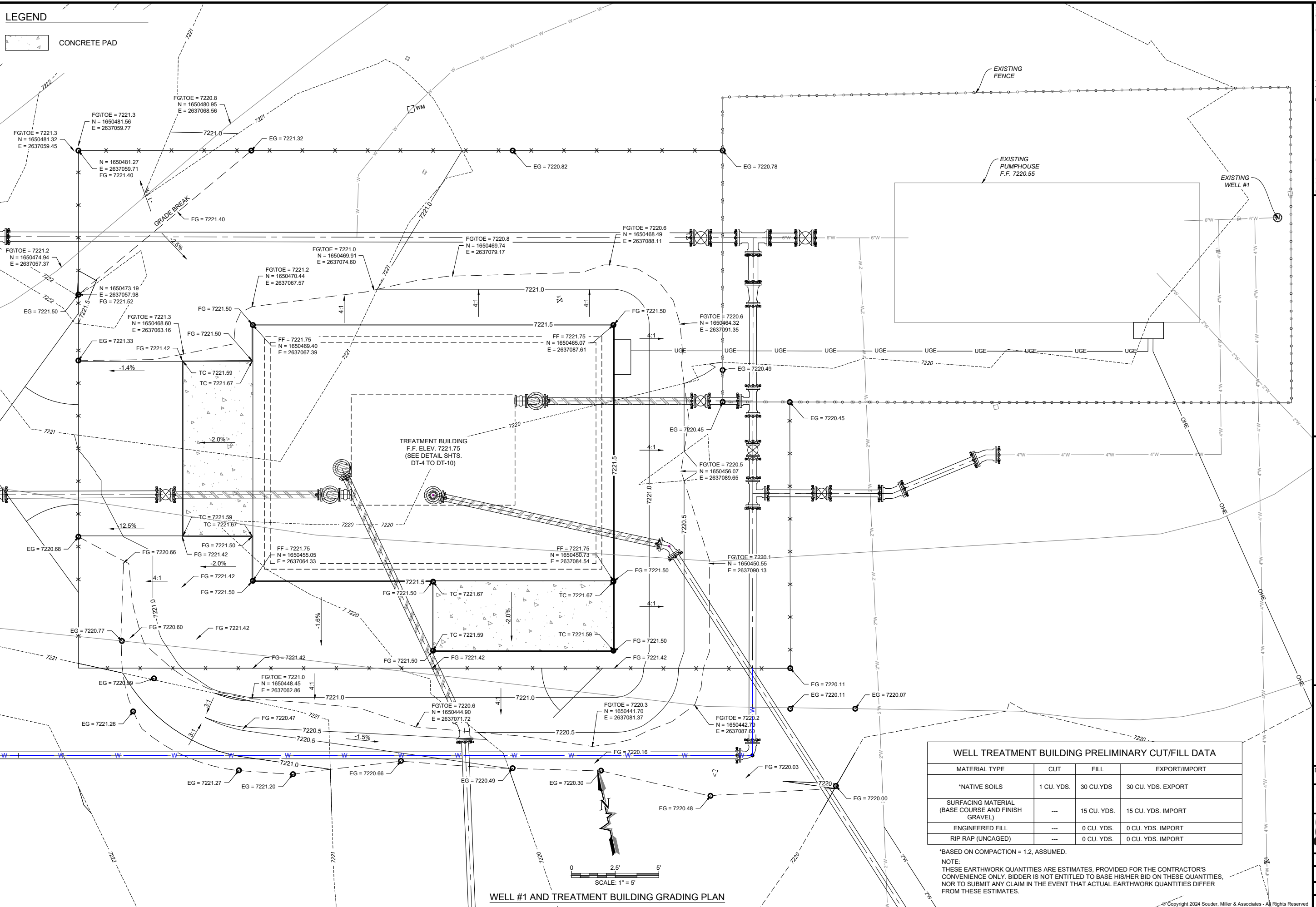
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LEGEND

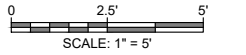
CONCRETE PAD



WELL TREATMENT BUILDING PRELIMINARY CUT/FILL DATA

MATERIAL TYPE	CUT	FILL	EXPORT/IMPORT
*NATIVE SOILS	1 CU. YDS.	30 CU. YDS.	30 CU. YDS. EXPORT
SURFACING MATERIAL (BASE COURSE AND FINISH GRAVEL)	---	15 CU. YDS.	15 CU. YDS. IMPORT
ENGINEERED FILL	---	0 CU. YDS.	0 CU. YDS. IMPORT
RIP RAP (UNCAGED)	---	0 CU. YDS.	0 CU. YDS. IMPORT

*BASED ON COMPACTION = 1.2, ASSUMED.
 NOTE:
 THESE EARTHWORK QUANTITIES ARE ESTIMATES, PROVIDED FOR THE CONTRACTOR'S CONVENIENCE ONLY. BIDDER IS NOT ENTITLED TO BASE HIS/HER BID ON THESE QUANTITIES, NOR TO SUBMIT ANY CLAIM IN THE EVENT THAT ACTUAL EARTHWORK QUANTITIES DIFFER FROM THESE ESTIMATES.



WELL #1 AND TREATMENT BUILDING GRADING PLAN

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 Location: Smith Lake, NM
WELL #1 & TREATMENT BLDG SITE GRADING
SMITH LAKE CHAPTER
WATER SYSTEM IMPROVEMENTS PROJECT
 MCKINLEY COUNTY, NEW MEXICO
 SECTION 8, T. 15 N., R. 12 W.



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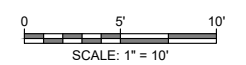
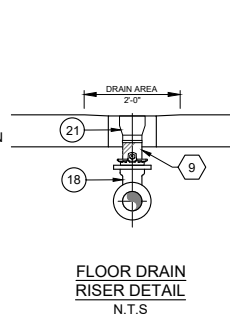
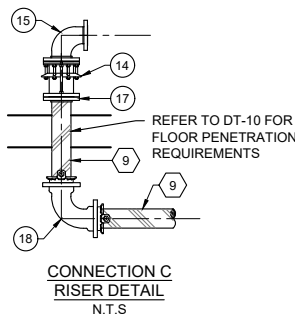
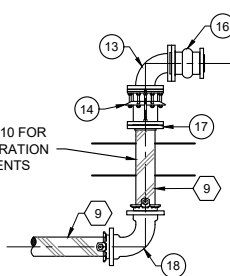
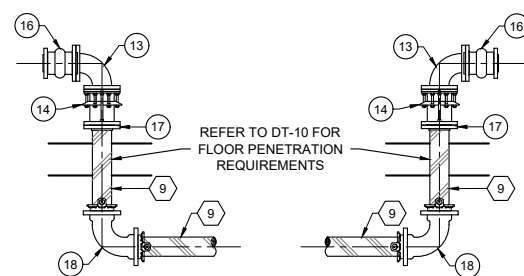
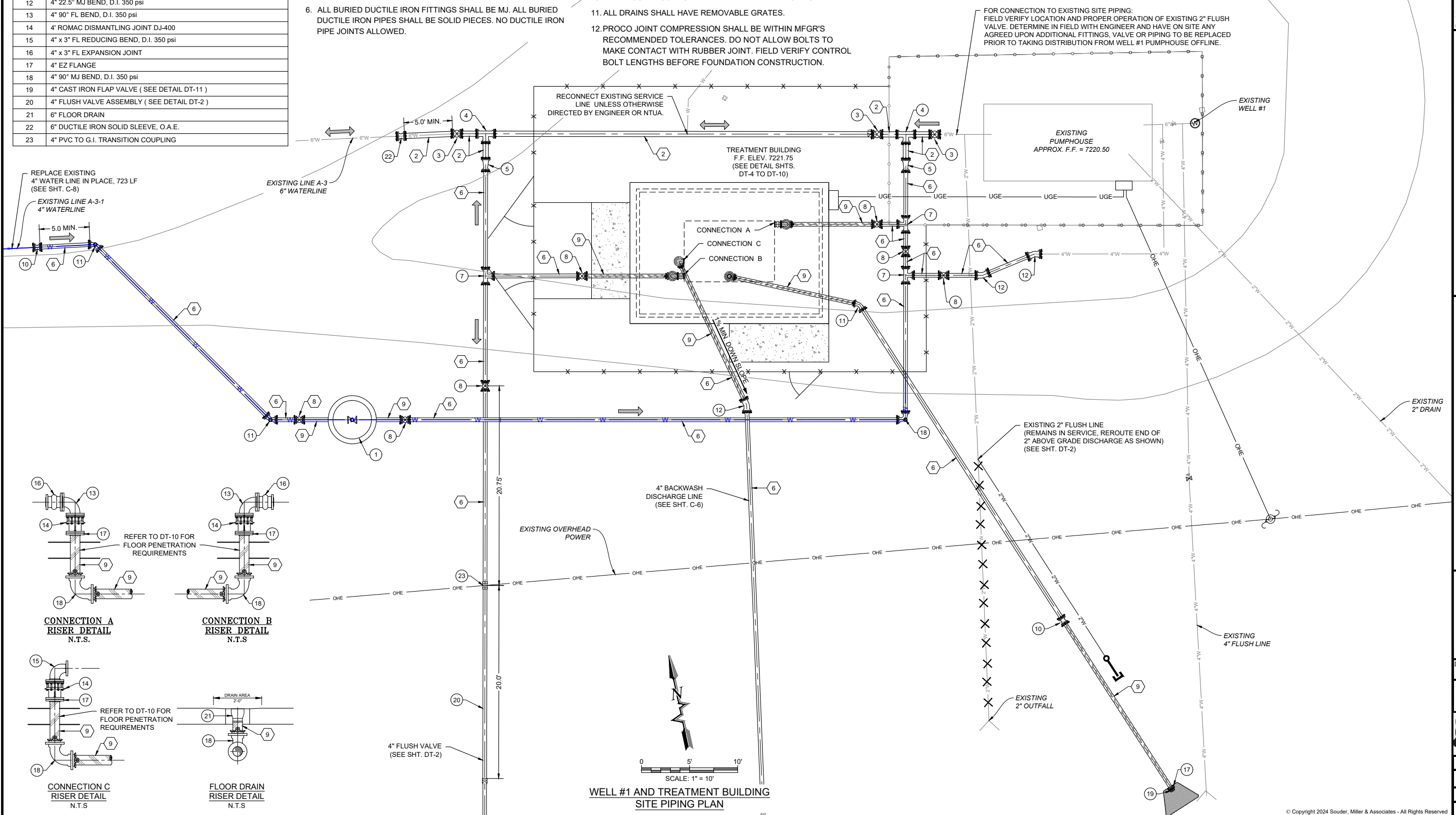
Project No: 6922268
 Sheet: **C-3**

WELL #1 TREATMENT SITE - KEYED NOTES

Item No.	Description
1	CHECK VALVE VAULT (SEE DETAIL, DT-3)
2	6" PVC DR18 PIPE
3	6" MJ x MJ GATE VALVE (SEE DETAIL DT-1) 250 psi
4	6" MJ x MJ TEE, D.I. 350 psi
5	6" x 4" MJ x MJ REDUCER, D.I., 350 psi
6	4" PVC DR18 C900 PIPE
7	4" MJ x MJ TEE, D.I. 350 psi
8	4" MJ x MJ GATE VALVE (SEE DETAIL DT-1) 350 psi
9	4" DUCTILE IRON, PE X PE 350 psi
10	4" DUCTILE IRON SOLID SLEEVE, O.A.E.
11	4" 45° MJ BEND, D.I. 350 psi
12	4" 22.5° MJ BEND, D.I. 350 psi
13	4" 90° FL BEND, D.I. 350 psi
14	4" ROMAC DISMANTLING JOINT DJ-400
15	4" x 3" FL REDUCING BEND, D.I. 350 psi
16	4" x 3" FL EXPANSION JOINT
17	4" EZ FLANGE
18	4" 90° MJ BEND, D.I. 350 psi
19	4" CAST IRON FLAP VALVE (SEE DETAIL DT-11)
20	4" FLUSH VALVE ASSEMBLY (SEE DETAIL DT-2)
21	6" FLOOR DRAIN
22	6" DUCTILE IRON SOLID SLEEVE, O.A.E.
23	4" PVC TO G.I. TRANSITION COUPLING

NOTES:

1. PROVIDE COMPACTION AND FILL REQUIREMENTS FOR BUILDING AND SITE GRADING IN ACCORDANCE WITH GEOTECHNICAL REPORT.
2. DO NOT INSTALL PIPE WITH ANY HIGH POINTS WITHOUT AN APPROVED AIR VALVE.
3. ALL PIPE, FITTINGS, VALVES AND APPURTENANCES SHALL BE RATED TO AT LEAST 235 psi., UNLESS OTHERWISE NOTED.
4. ALL BURIED PIPING WITHIN 5 FEET OF BUILDING FOUNDATIONS SHALL BE PRESSURE TESTED PRIOR TO POURING FOUNDATION.
5. ALL BURIED DUCTILE IRON PIPE AND FITTINGS SHALL BE DOUBLE-WRAPPED IN POLYETHYLENE, PER SPECIFICATIONS. INNER JACKET SHALL BE V-BIO ENHANCED, MIN. 8-MIL. OUTER JACKET SHALL BE STANDARD PE, MIN. 8-MIL.
6. ALL BURIED DUCTILE IRON FITTINGS SHALL BE MJ. ALL BURIED DUCTILE IRON PIPES SHALL BE SOLID PIECES. NO DUCTILE IRON PIPE JOINTS ALLOWED.
7. FLANGE LOCATION AND ELEVATION ARE APPROXIMATE. CONTRACTOR WHOLLY RESPONSIBLE TO VERIFY LOCATION AND ELEVATION OF ALL FLANGE CONNECTIONS TO TREATMENT SYSTEM AND COORDINATE WITH MATERIAL SUPPLIERS PRIOR TO INSTALLATION. CONTRACTOR WHOLLY RESPONSIBLE TO ALIGN FOUNDATIONS, PIPING INLETS/OUTLETS AND DRAINS WITH ACTUAL TREATMENT SYSTEM LAYOUT IN FIELD.
8. ALL PRESSURE BEARING PIPES WITHIN SITE SHALL BE FULLY RESTRAINED. REFER TO DETAIL, SHEET DT-3.
9. CONTRACTOR RESPONSIBLE TO VERIFY AND ALIGN ACTUAL FOUNDATION DIMENSIONS AND LOCATIONS OF PIPING INLETS, OUTLETS AND DRAINS IN THE FIELD AND COORDINATE WITH TREATMENT SYSTEM MANUFACTURER PRIOR TO CONSTRUCTION. CENTER FLOOR DRAINS UNDER PIPE OUTLETS.
10. FIELD LOCATE CONDUITS PER REVIEW WITH ELECTRICIAN.
11. ALL DRAINS SHALL HAVE REMOVABLE GRATES.
12. PROCO JOINT COMPRESSION SHALL BE WITHIN MFGR'S RECOMMENDED TOLERANCES. DO NOT ALLOW BOLTS TO MAKE CONTACT WITH RUBBER JOINT. FIELD VERIFY CONTROL BOLT LENGTHS BEFORE FOUNDATION CONSTRUCTION.

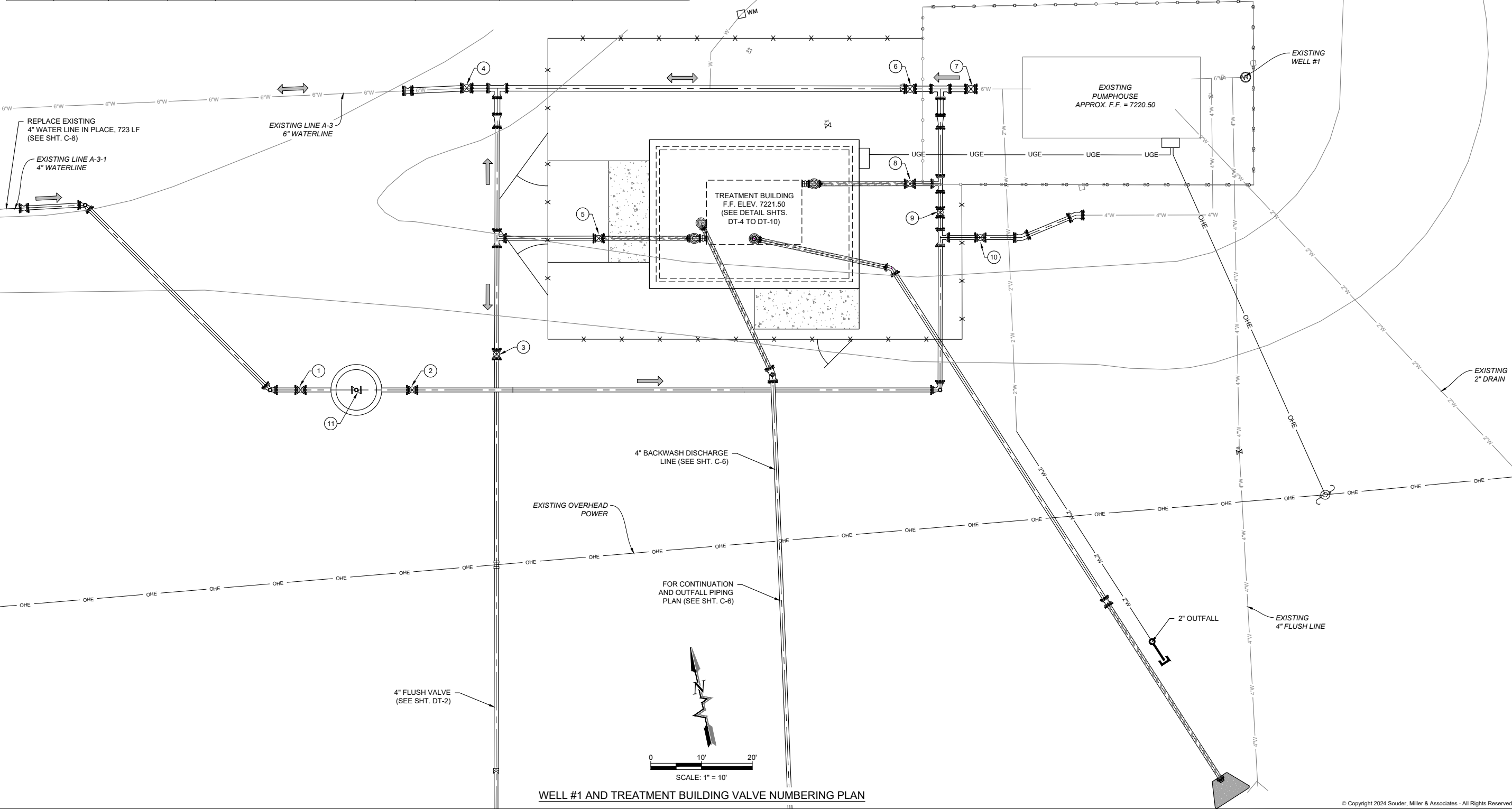


WELL #1 AND TREATMENT BUILDING SITE PIPING PLAN

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<p>SMMA</p>	<p>WELL #1 & TREATMENT BLDG SITE PIPING PLAN SMITH LAKE CHAPTER WATER SYSTEM IMPROVEMENTS PROJECT McKINLEY COUNTY, NEW MEXICO SECTION 8, T. 15 N., R. 12 W.</p>
<p>Designed: RMB Drawn: MvH/Aav Checked: JMM</p>	<p>Professional Engineer RYAN M. BIEHL NEW MEXICO 22281 06-03-2024</p>
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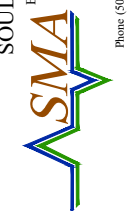
WELL #1 TREATMENT SITE - VALVE NUMBERING							
Valve No.	Valve Size	Valve Type	Pipe Type	Description	Collar Placard	Turns to Close	Normal Valve Position For Fe/Mn Treatment
1	4"	GV	DI/PVC	CHECK VALVE INLET & WELL #3 ISOLATION	Yes (See DT-1)	14	NORMALLY OPEN
2	4"	GV	DI/PVC	CHECK VALVE OUTLET & WELL #3 ISOLATION	Yes (See DT-1)	14	NORMALLY OPEN
3	4"	GV	PVC	TREATMENT & DISTRIBUTION FLUSH	Yes (See DT-1)	14	NORMALLY CLOSED
4	6"	GV	PVC	DISTRIBUTION MAIN SHUTOFF	Yes (See DT-1)	21	NORMALLY OPEN
5	4"	GV	PVC/DI	TREATMENT OUTLET	Yes (See DT-1)	14	NORMALLY OPEN
6	6"	GV	PVC	TREATMENT BYPASS	Yes (See DT-1)	21	NORMALLY CLOSED
7	6"	GV	PVC	WELL #1 PUMPHOUSE OUTLET	Yes (See DT-1)	21	NORMALLY OPEN
8	4"	GV	DI/PVC	TREATMENT INLET	Yes (See DT-1)	14	NORMALLY OPEN
9	4"	GV	PVC	WELL #3 ISOLATION	Yes (See DT-1)	14	NORMALLY OPEN
10	4"	GV	PVC	WELL #3 TO WELL #1 PUMPHOUSE INLET	Yes (See DT-1)	14	NORMALLY CLOSED
11	4"	CV	DI	CHECK VALVE (FLOWS FROM WELL #3)	No	N/A	N/A




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Client: The Navajo Nation
 Location: Smith Lake, NM
WELL #1 & TREATMENT BLDG SITE VALVE NO. PLAN
SMITH LAKE CHAPTER
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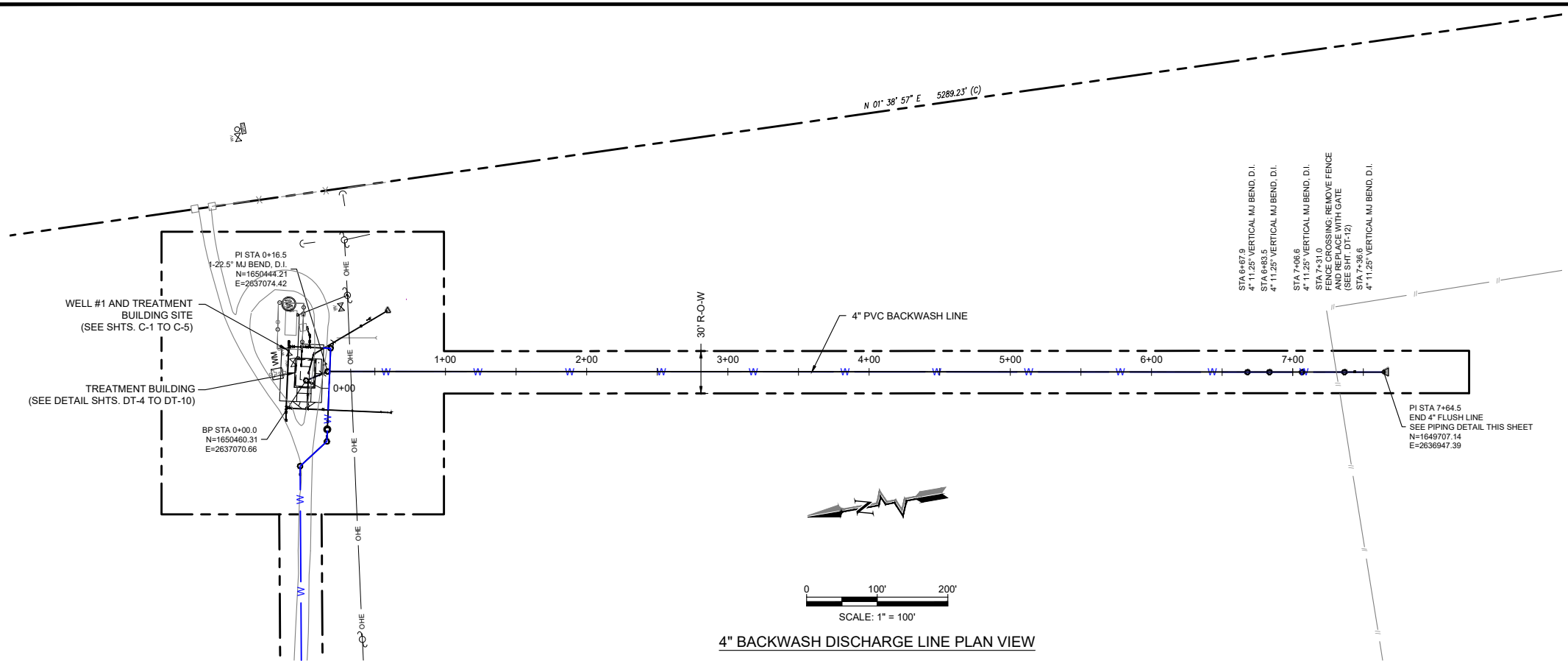


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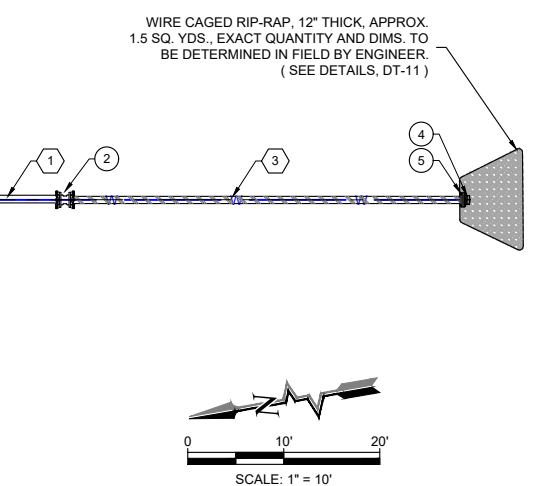
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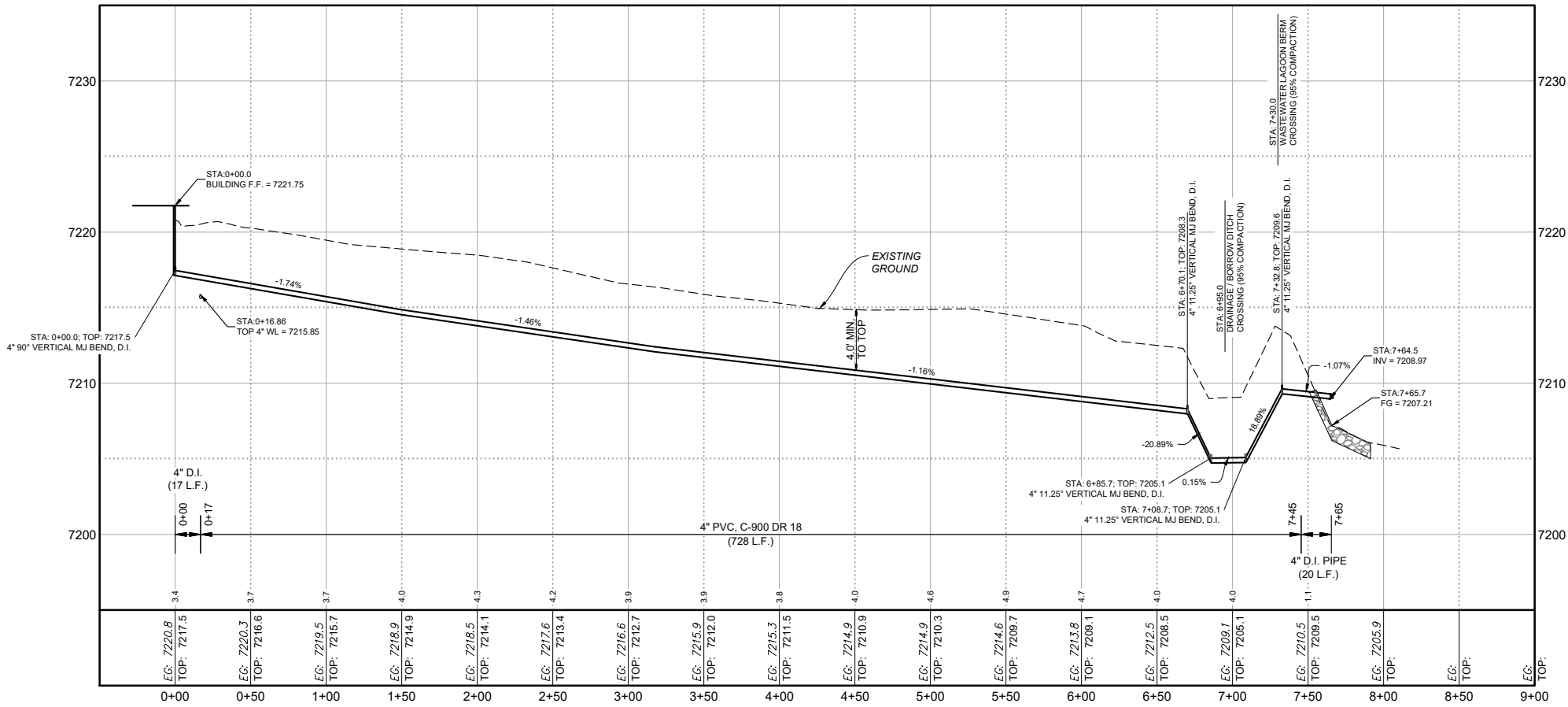
4" BACKWASH DISCHARGE LINE PLAN VIEW

KEYED NOTES - 4" BACKWASH DISCHARGE OUTFALL

Item No.	Description
1	4" PVC C-900 DR18 PIPE
2	4" MJ X MJ SHORT SLEEVE, D.I.
3	4" PE x PE DUCTILE IRON PIPE
4	4" CAST IRON FLAP VALVE (SEE DETAIL DT-11)
5	4" EZ FLANGE



4" BACKWASH DISCHARGE LINE OUTFALL DETAIL



4" BACKWASH DISCHARGE LINE PROFILE VIEW

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 Location: Smith Lake, NM

BACKWASH DISCHARGE LINE PLAN & PROFILE
SMITH LAKE CHAPTER
WATER SYSTEM IMPROVEMENTS PROJECT
 MCKINLEY COUNTY, NEW MEXICO
 SECTION 8, T. 15 N., R. 12 W.

RYAN M. BIEHL
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 PROFESSIONAL ENGINEER

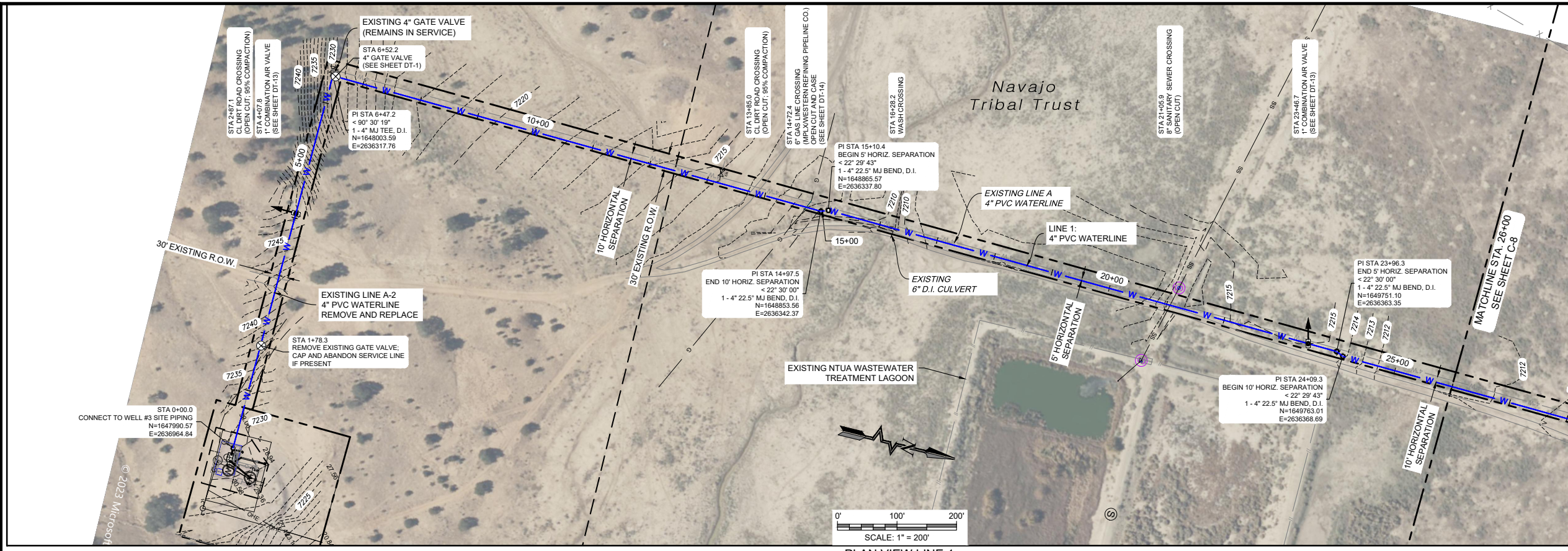
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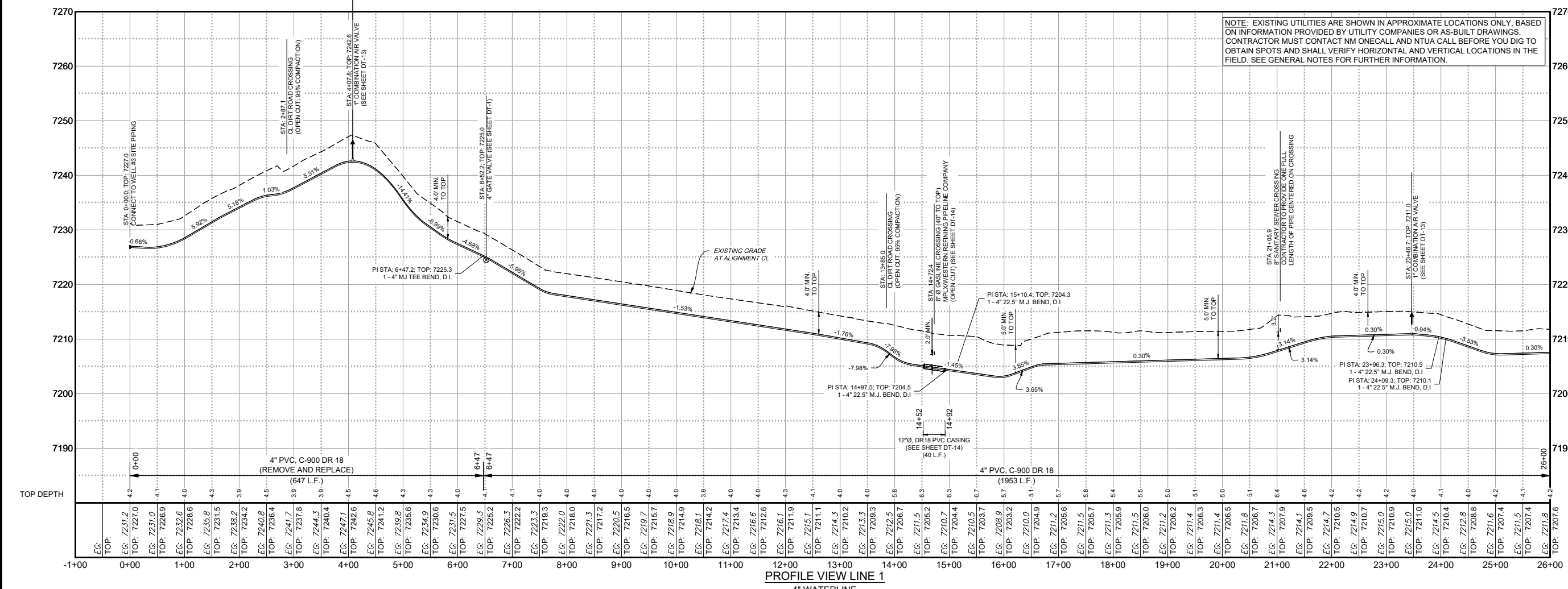
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PLAN VIEW LINE 1
4\"/>



PROFILE VIEW LINE 1
4\"/>

NOTE: EXISTING UTILITIES ARE SHOWN IN APPROXIMATE LOCATIONS ONLY, BASED ON INFORMATION PROVIDED BY UTILITY COMPANIES OR AS-BUILT DRAWINGS. CONTRACTOR MUST CONTACT NM ONECALL AND NTUA CALL BEFORE YOU DIG TO OBTAIN SPOTS AND SHALL VERIFY HORIZONTAL AND VERTICAL LOCATIONS IN THE FIELD. SEE GENERAL NOTES FOR FURTHER INFORMATION.

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Client: The Navajo Nation
Location: Smith Lake, NM

RYAN M. BIEHL
NEW MEXICO
22281
06-03-23
PROFESSIONAL ENGINEER

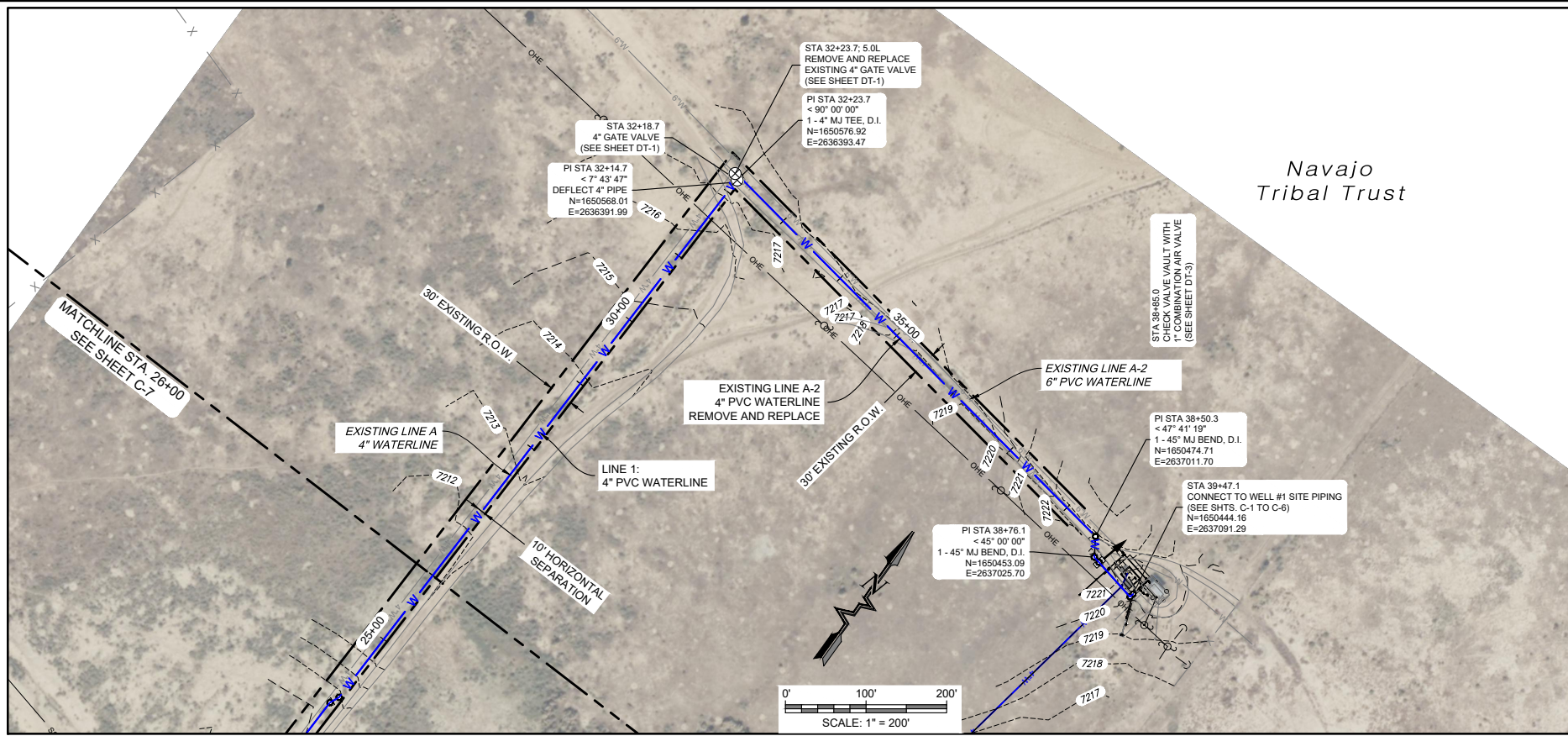
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DRAWN: MvH/Aav
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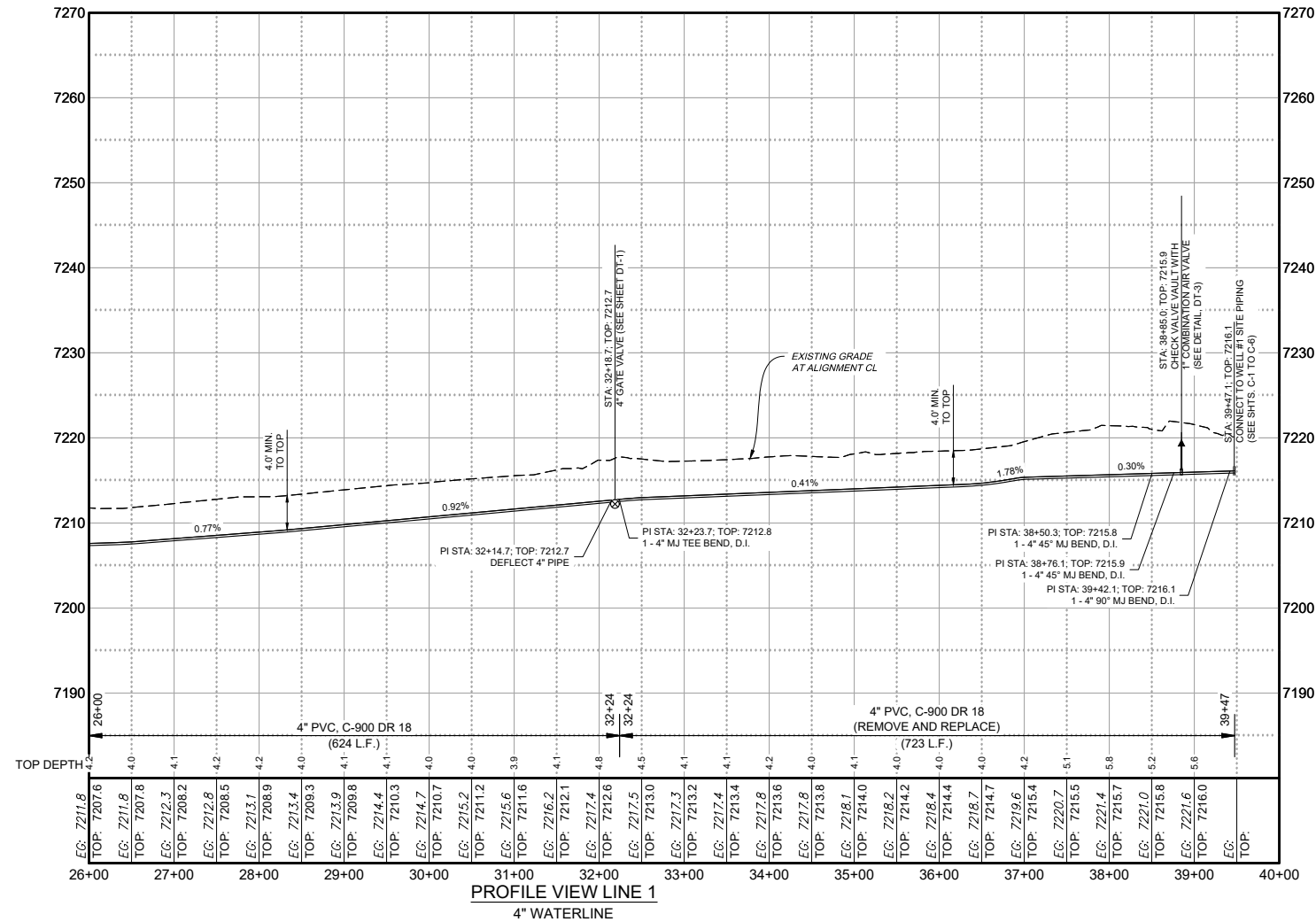
Date: June 2024
Scale: Horiz: 1" = 200'
Vert: 1" = 20'

Project No: 6922268
Sheet: C-7



PLAN VIEW LINE 1
4" WATERLINE

NOTE: EXISTING UTILITIES ARE SHOWN IN APPROXIMATE LOCATIONS ONLY, BASED ON INFORMATION PROVIDED BY UTILITY COMPANIES OR AS-BUILT DRAWINGS. CONTRACTOR MUST CONTACT NM ONECALL AND NTUA CALL BEFORE YOU DIG TO OBTAIN SPOTS AND SHALL VERIFY HORIZONTAL AND VERTICAL LOCATIONS IN THE FIELD. SEE GENERAL NOTES FOR FURTHER INFORMATION.



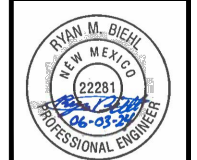
PROFILE VIEW LINE 1
4" WATERLINE

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Revision	Date	Description	By	CHKD

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Client: The Navajo Nation
 Location: Smith Lake, NM
LINE 1 PLAN AND PROFILE STA 26+00 TO 39+48
SMITH LAKE CHAPTER
WATER SYSTEM IMPROVEMENTS PROJECT
 MCKINLEY COUNTY, NEW MEXICO
 SECTION 8, T. 15 N., R. 12 W.

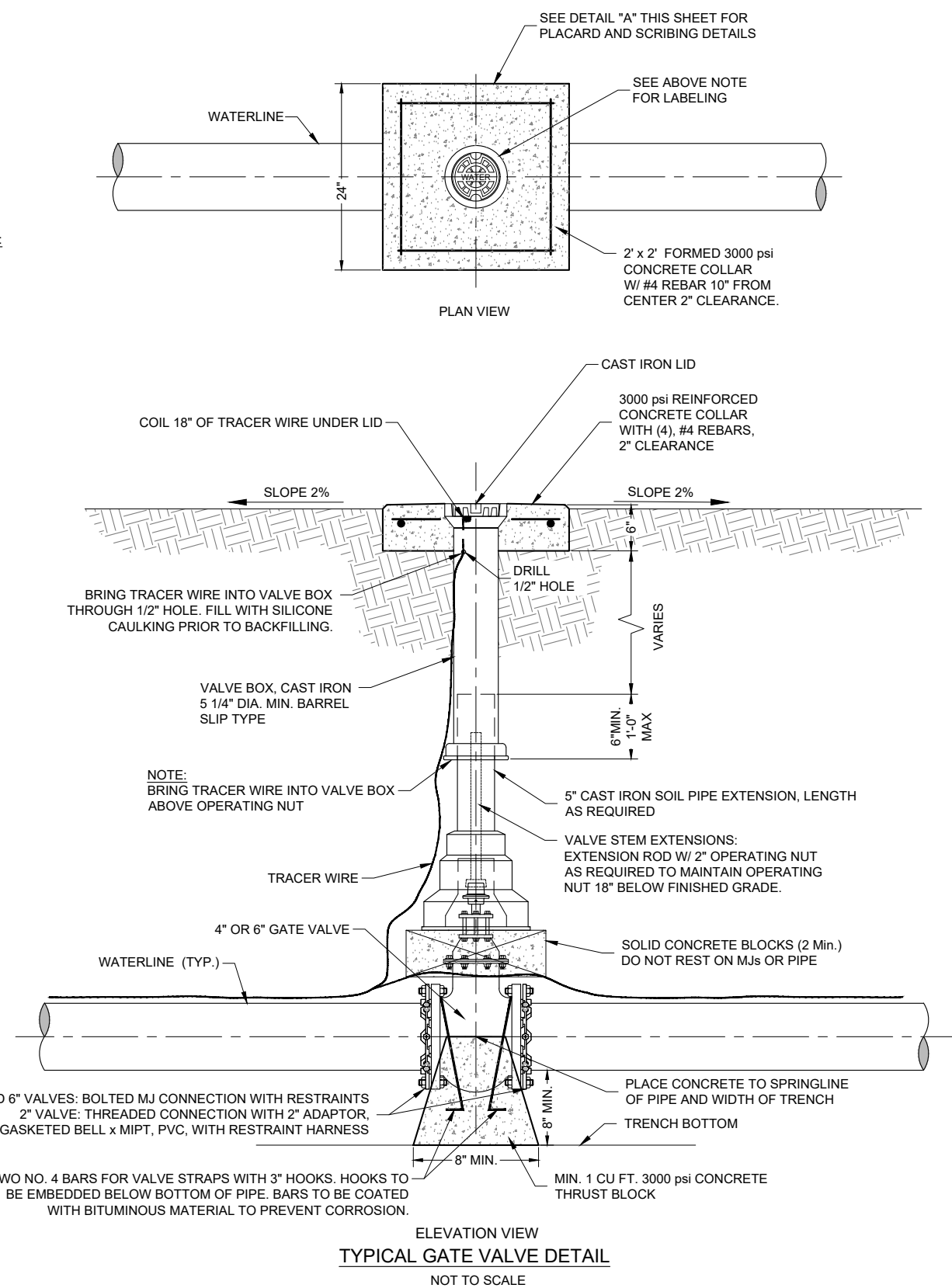
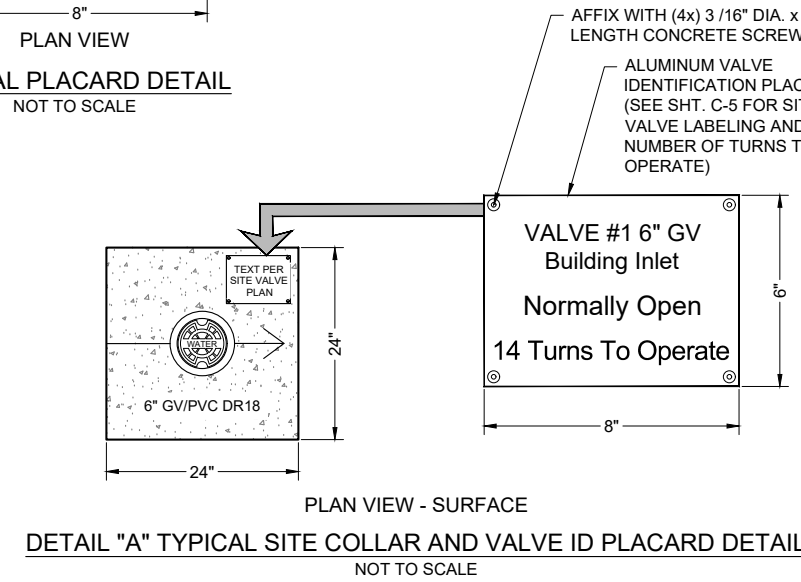
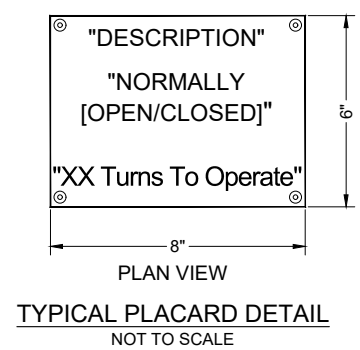
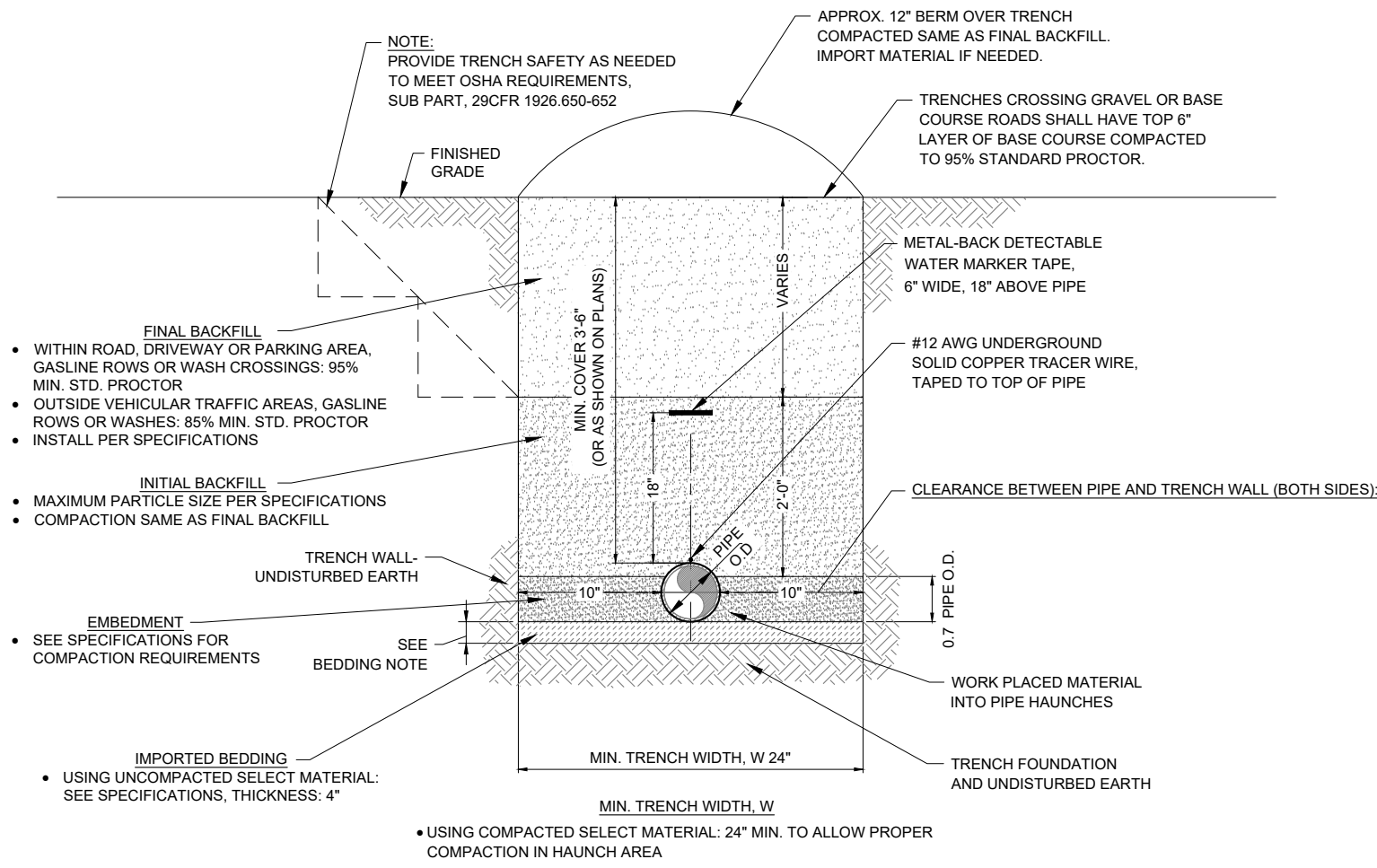


Designed	Drawn	Checked
RMB	MvH/Aav	JMM

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Project No:	6922268
Sheet:	C-8



- NOTES:
- CONTRACTOR SHALL LABEL ALL CONCRETE GATE VALVE COLLARS "GV" WITH DIRECTIONAL ARROWS, PIPE SIZES, MATERIAL, AND LINE STATION.
 - ALL MATERIALS RATED TO AT LEAST THE TEST PRESSURE RATING OF THE WATER MAIN LINE.
 - ALL BURIED METALLIC COMPONENTS IN CONTACT WITH SOIL SHALL BE COLD APPLIED TAPE COATED PER AWWA C209.

By	CHKD
Description	
Date	
Revision	

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Client: The Navajo Nation
Location: Smith Lake, NM

TRENCH AND GATE VALVE DETAILS
SMITH LAKE CHAPTER
WATER SYSTEM IMPROVEMENTS PROJECT
McKINLEY COUNTY, NEW MEXICO
SECTION 8, T. 15 N., R. 12 W.

RYAN M. BIEHL
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22281
06-03-24
PROFESSIONAL ENGINEER

Designed	Drawn	Checked
RMB	MvH/AaV	JMM

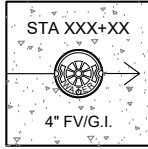
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Date: June 2024
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Vert: N/A
Project No: 6922268
Sheet: DT-1

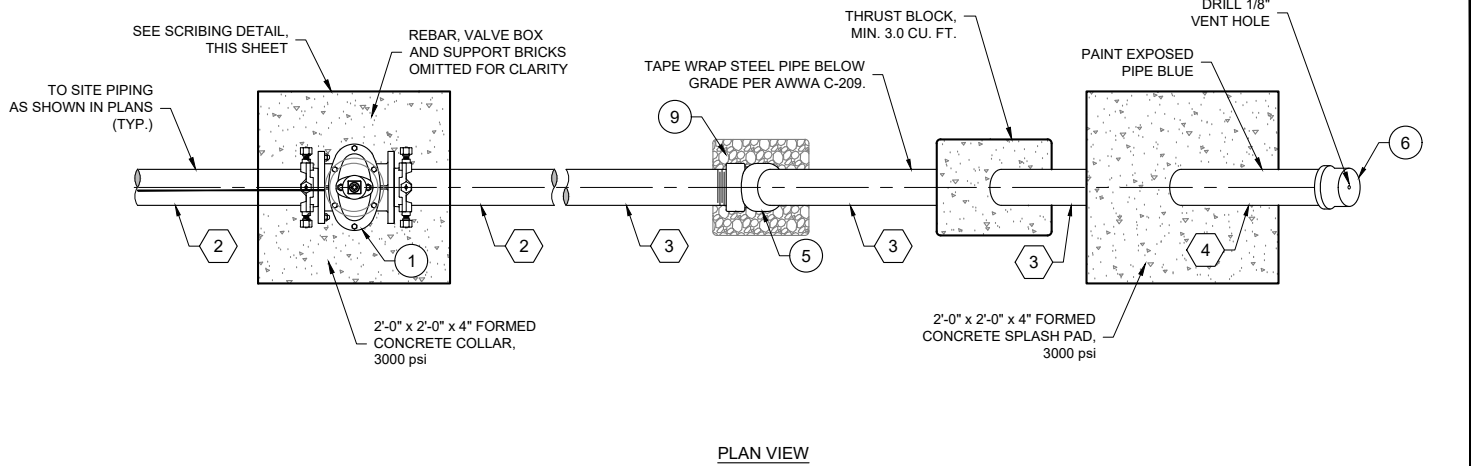
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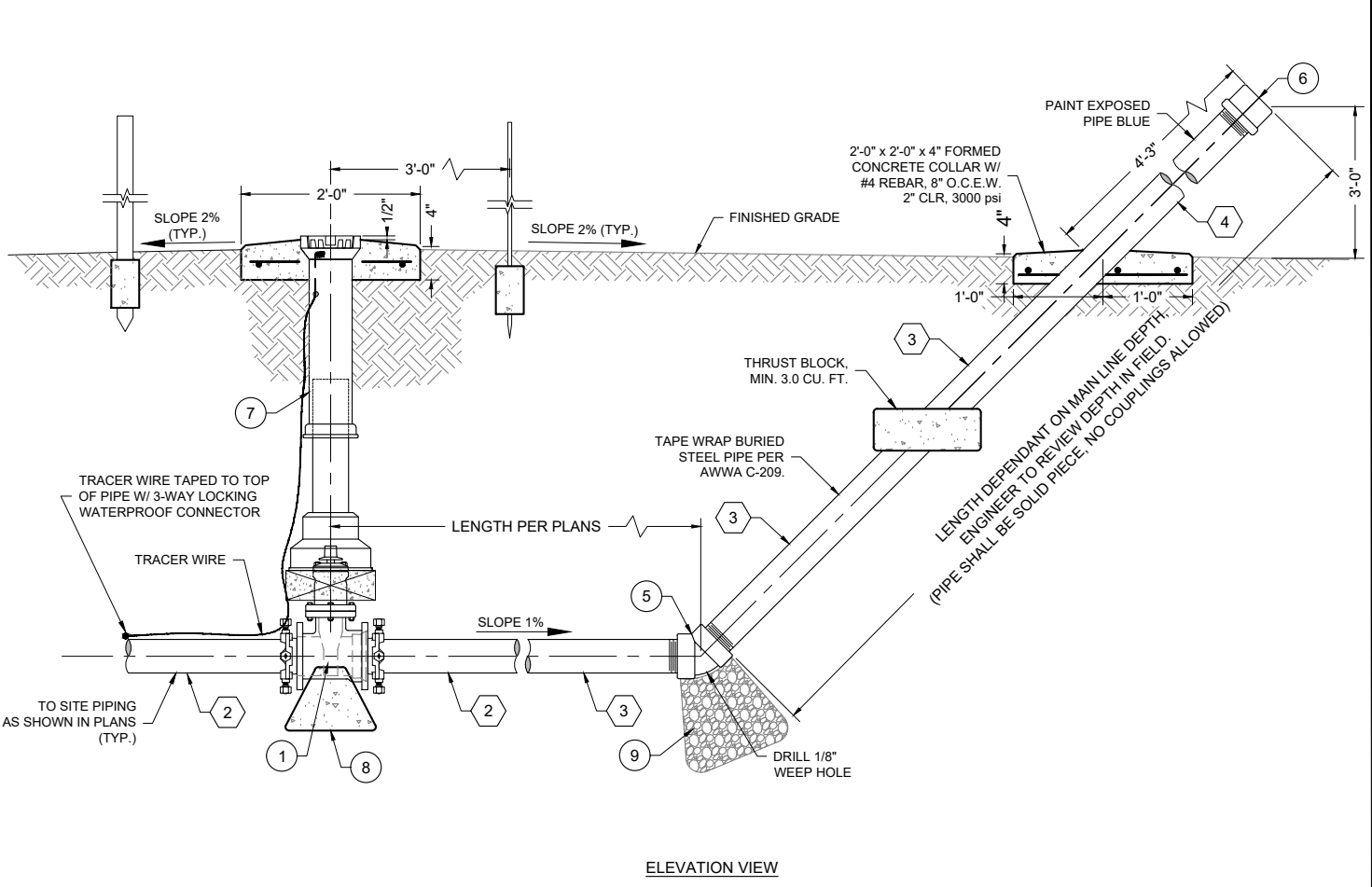


COLLAR SCRIBING DETAIL
NOT TO SCALE

KEYED NOTES - 4" FLUSH VALVE WITH ABOVE GRADE DISCHARGE	
Item No.	DESCRIPTION
1	4" GATE VALVE, MJ x MJ, 350 psi (SEE TYPICAL GATE VALVE DETAIL, SHT. DT-1)
2	4" PVC DR18 PIPE
3	4" G.I. PIPE, STANDARD WALL, NPT, TAPE COATED BELOW GRADE
4	4" G.I. PIPE, STANDARD WALL, NPT, PAINTED BLUE ABOVE GRADE
5	4" G.I. 45° ELL, NPT, 300 psi
6	4" G.I. CAP, NPT, 300 psi, W/ 1/8" VENT HOLE
7	VALVE BOX SLIP TYPE WITH LOCKING CAST IRON COVER (SEE TYPICAL GATE VALVE DETAIL, SHT. DT-1)
8	1'-0" x 1'-0" x 1'-0" CONCRETE BLOCK, 3000 psi
9	ROUNDED ROCK (1.5 CU. YD.)

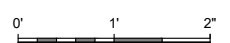


PLAN VIEW

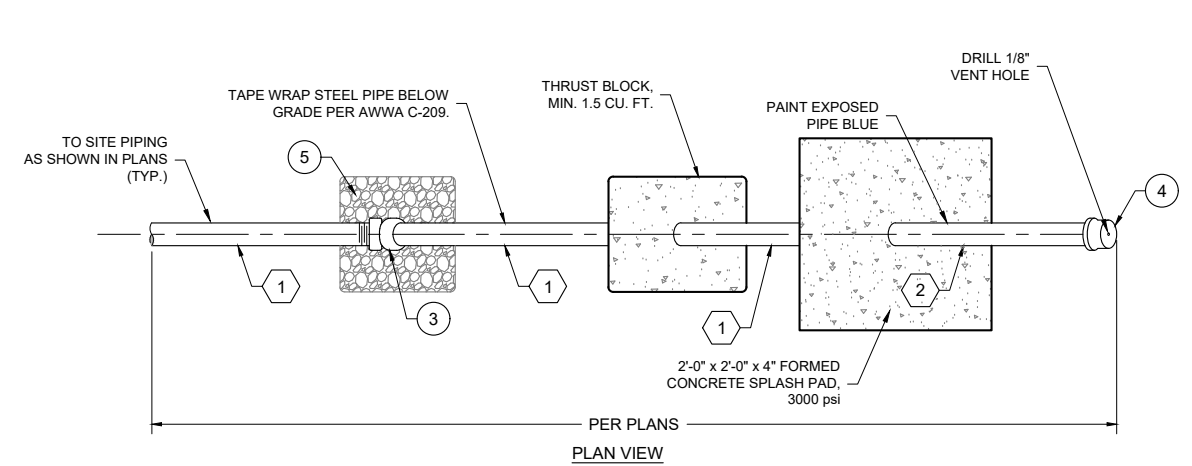


ELEVATION VIEW

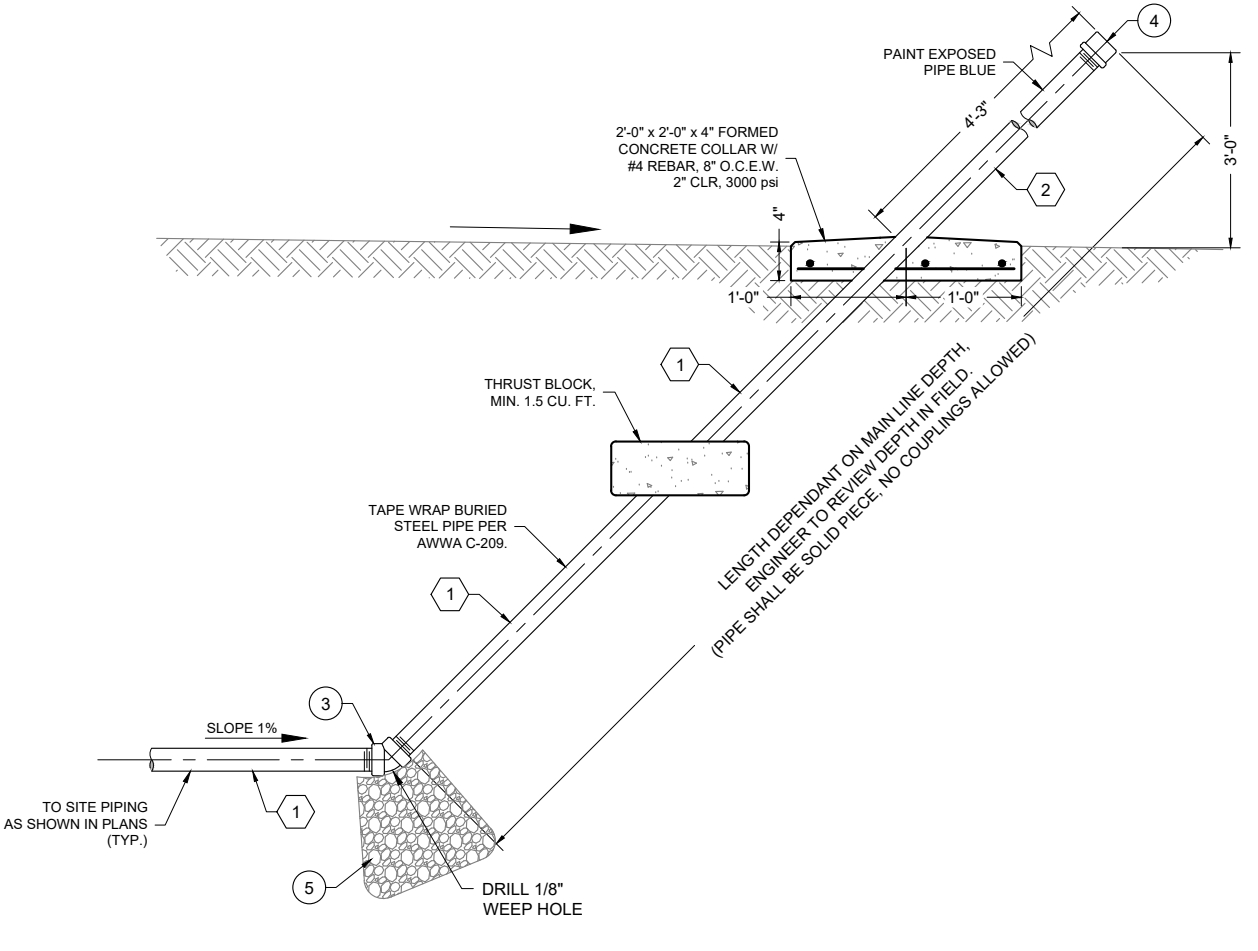
4" FLUSH VALVE WITH ABOVE GRADE DISCHARGE DETAIL



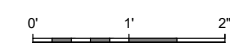
KEYED NOTES - RELOCATED 2" ABOVE GRADE DISCHARGE	
Item No.	DESCRIPTION
1	2" G.I. PIPE, STANDARD WALL, NPT, TAPE COATED BELOW GRADE
2	2" G.I. PIPE, STANDARD WALL, NPT, PAINTED BLUE ABOVE GRADE
3	2" G.I. 45° ELL, NPT, 300 psi
4	2" G.I. CAP, NPT, 300 psi, W/ 1/8" VENT HOLE
5	ROUNDED ROCK (1.5 CU. YD.)



PLAN VIEW



RELOCATED 2" ABOVE GRADE DISCHARGE DETAIL



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Client: The Navajo Nation
Location: Smith Lake, NM
FLUSH VALVE DETAILS
SMITH LAKE CHAPTER
WATER SYSTEM IMPROVEMENTS PROJECT
McKINLEY COUNTY, NEW MEXICO
SECTION 8, T. 15 N., R. 12 W.

RYAN M. BIEHL
NEW MEXICO
22281
06-03-2024
PROFESSIONAL ENGINEER

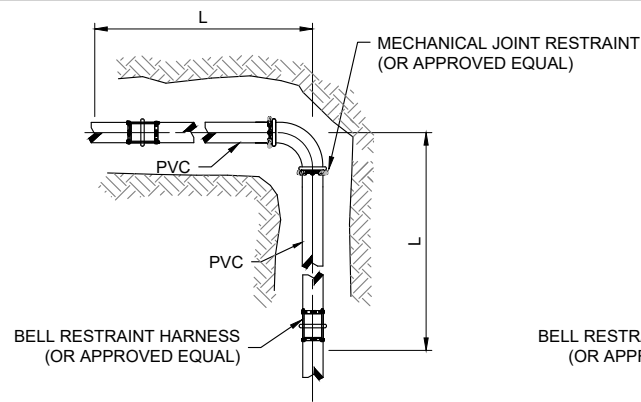
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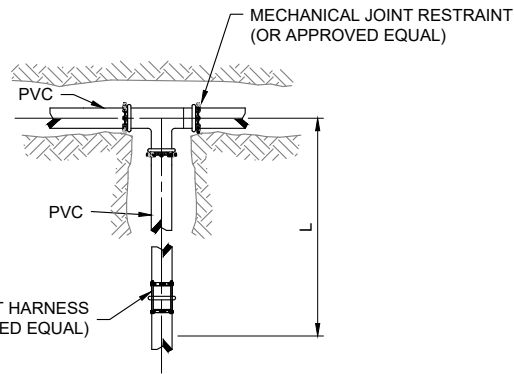
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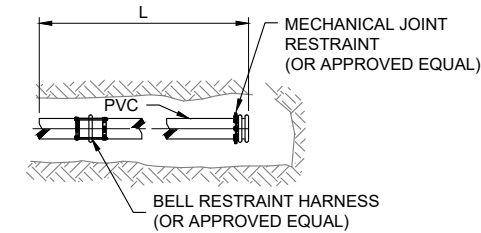
Project No: 6922268
Sheet: DT-2



PLAN VIEW
JOINT RESTRAINT FOR MJ ELBOW



PLAN VIEW
JOINT RESTRAINT FOR MJ TEE



PLAN VIEW
JOINT RESTRAINT FOR DEAD END
AND/OR ISOLATION VALVE

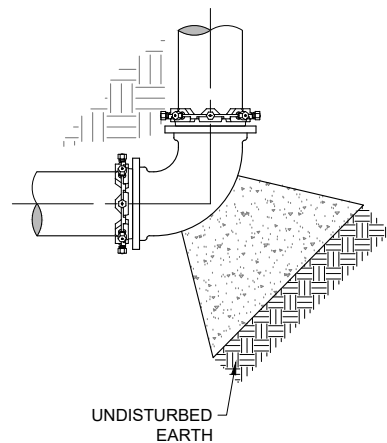
NOTE:
1. INSTALL PER MANUFACTURER'S SPECIFICATIONS
2. SUBMIT JOINT RESTRAINT TABLE BASED ON
MANUFACTURER'S SPECIFICATIONS.
(APPROXIMATE LENGTHS PROVIDED)

Minimum Required Restraint Lengths (L) for Individual Fittings

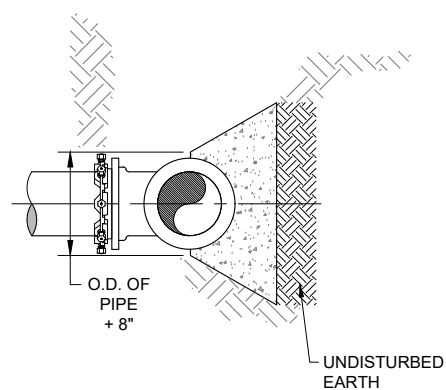
Fitting	Pipe Size	Pipe DR	Test Pressure (psi)	Design Restraint Length (ft)
Isolation Valve/ Dead End	4	18	235	65
From End of Casing	4	18	235	30
Horizontal Bend or Sweep				
90°	4	18	235	30
45°	4	18	235	20
22.5°	4	18	235	20
11.25°	4	18	235	20
Vertical Bend or Sweep ¹				
22.5°, upper bend	4	18	235	20
22.5°, lower bend	4	18	235	20
11.25°, upper bend	4	18	235	20
11.25°, lower bend	4	18	235	20

WATERLINE JOINT RESTRAINTS AT
VERTICAL / HORIZONTAL BENDS AND GATE VALVES
NOT TO SCALE

Thrust Block Dimension Schedule			
Pipe	Fitting	Required Thrust Block Area (ft ²)	Design Thrust Block Size (H x W x T) ¹ (ft)
4"	Treatment Building Vertical Ell	2.9	1.7' x 1.7' x 1.7'



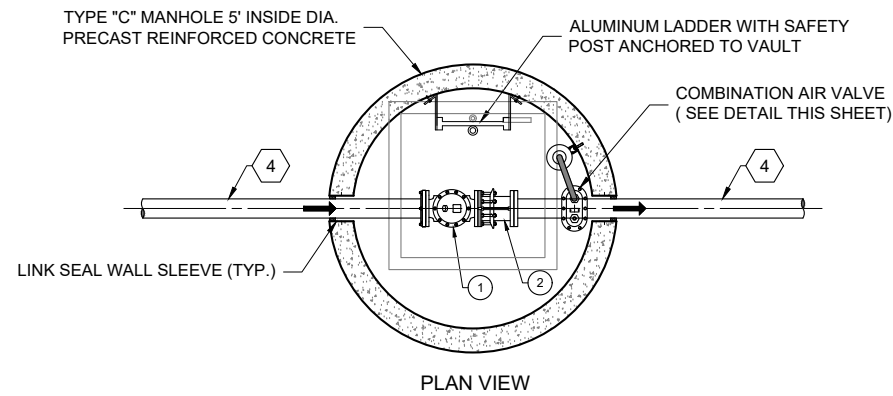
PLAN VIEW
CONCRETE BLOCKING FOR ELBOW



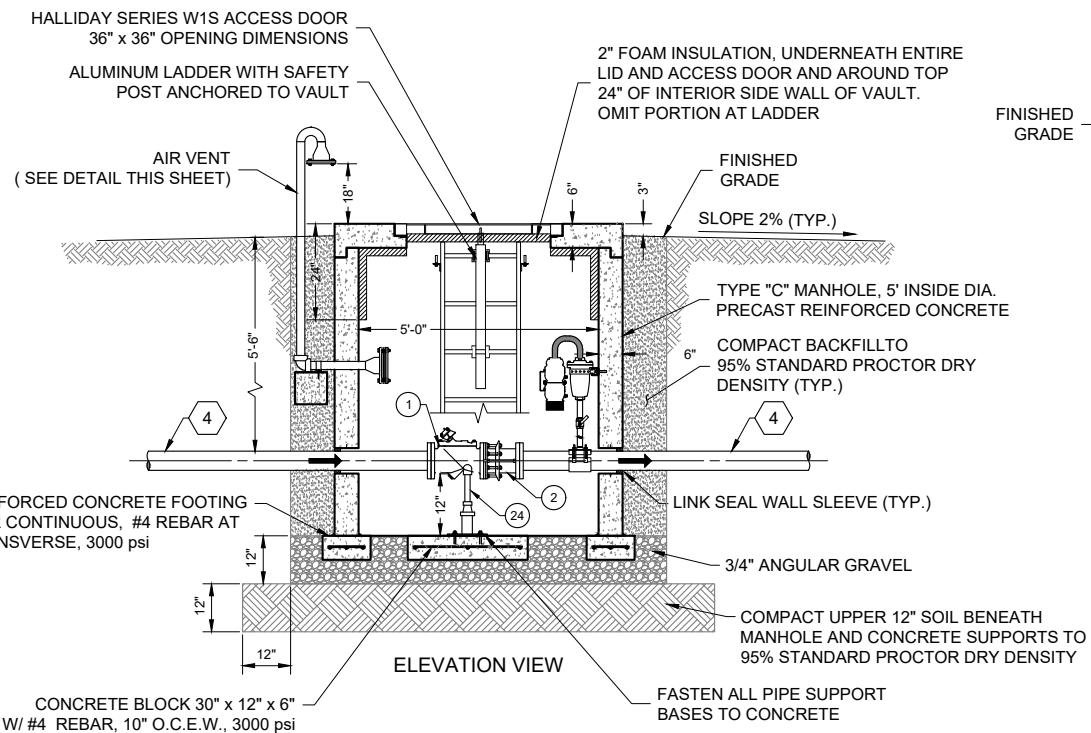
ELEVATION VIEW
CONCRETE BLOCKING FOR ELBOW

THRUST BLOCK DETAIL
NOT TO SCALE

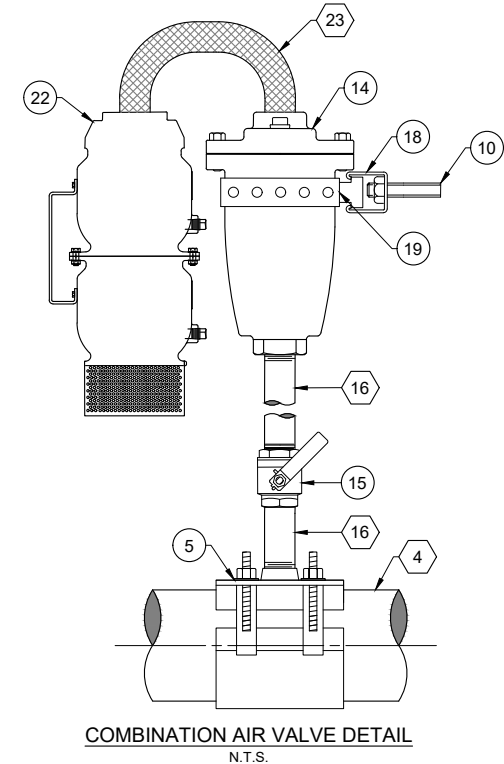
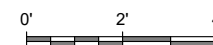
KEYED NOTES - CHECK VALVE AND ARV VAULT	
Item No.	Description
1	4" CHECK VALVE, SURGE BUSTER SERIES 7200, 250 psi, OAE
2	4" DISMANTLING JOINT, FBE COATED W/ 304 SS BOLTS, ROMAC MODEL DJ400, AWWA C207 CLASS E FLANGE, OAE
3	NOT USED
4	4" DUCTILE IRON, FL X PE
5	4" x 1" TAPPING SADDLE, D.I. W/ FUSION BONDED NYLON COATING, SS 304 DUAL STRAPS AND SS 304 BOLT KIT, FNPT, ROMAC 202 NS, OAE, 350 psi WP
6	4" FREEZE PREVENTION DRAFT DAMPENER, VALMATIC FROSTSAFE MODEL #1504, OAE
7	4" GALVANIZED IRON COMPANION FLANGE, DRILLED TO FIT
8	4" FLANGED x 2" WELDED GALVANIZED IRON REDUCER (PIPE EXTERIOR PAINTED BLUE)
9	2" GALVANIZED IRON 90° ELBOW, THREADED (PIPE EXTERIOR COLD-APPLIED TAPE COATED)
10	2" SS 304 ANCHOR BOLTS, NUTS AND FENDER WASHERS (2x EACH SIDE)
11	2" STD. GALVANIZED IRON PIPE, THREADED END (PIPE EXTERIOR COLD-APPLIED TAPE COATED)
12	2" STD. GALVANIZED IRON PIPE (PIPE EXTERIOR PAINTED BLUE)
13	2" GALVANIZED IRON LONG RADIUS WELDED RETURN (PIPE EXTERIOR PAINTED BLUE)
14	1" VALMATIC MODEL NO. 201C SV COMBINATION AIR VALVE (SINGLE BODY TYPE), 300 psi
15	1" BALL VALVE, SS, NPT
16	1" NIPPLE, SS 304, NPT
17	1" WIDE PIPE STRAP, BOLT TO SUPPORT BLOCK (3" BOLTS)
18	1 5/8" GALVANIZED UNI-STRUT (ADJUST AS NEEDED TO FIT BOTH VALVES AND PIPING)
19	STAINLESS STEEL PERFORATED METAL HANGER STRAP
20	VARMINT SCREEN
21	CONCRETE SUPPORT BLOCK, SOLID 8" x 8" x 16" (MIN. 3" FROM EDGE OF PIPE)
22	1" VALMATIC FLOODSAFE PREVENTER
23	1" STAINLESS STEEL BRAIDED HOSE
24	ADJUSTABLE PIPE SUPPORT SIZE W/ U-SHAPED CRADLE, 3" BASE



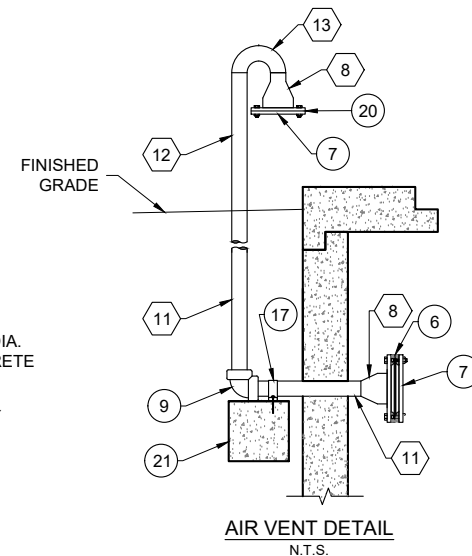
PLAN VIEW



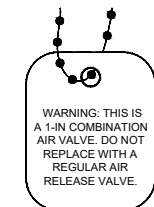
ELEVATION VIEW
4" CHECK VALVE IN VAULT DETAIL



COMBINATION AIR VALVE DETAIL
N.T.S.



AIR VENT DETAIL
N.T.S.



VALVE WARNING TAG DETAIL
(HANG FROM 1" COMBINATION AIR VALVE)

- NOTES:
- ALL MATERIALS SHALL BE RATED TO AT LEAST 235 psi, UNLESS OTHERWISE NOTED.
 - ALL METALLIC PIPE, VALVES AND FITTINGS SHALL BE FBE-COATED, INTERIOR AND EXTERIOR. ALL METALLIC PIPE IN CONTACT WITH SOIL SHALL ALSO BE COLD APPLIED TAPE-COATED, PER SPECIFICATIONS.
 - FLANGES SHALL BE ANSI CLASS 150 (STEEL) OR ANSI CLASS 125 (IRON).
 - ALL STEEL PIPE AND FITTINGS SHALL BE STANDARD WALL.

By: CHKD
Revision: _____
Date: _____
Description: _____

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Location: Smith Lake, NM
RESTRAINTS AND CHECK VALVE DETAILS
SMITH LAKE CHAPTER
WATER SYSTEM IMPROVEMENTS PROJECT
McKINLEY COUNTY, NEW MEXICO
SECTION 8, T. 15 N., R. 12 W.

Client: The Navajo Nation

RYAN M. BIEHL
NEW MEXICO
22281
06-03-21
PROFESSIONAL ENGINEER

Designed: RMB
Drawn: MvH/Aav
Checked: JMM

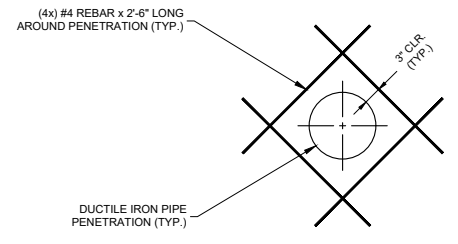
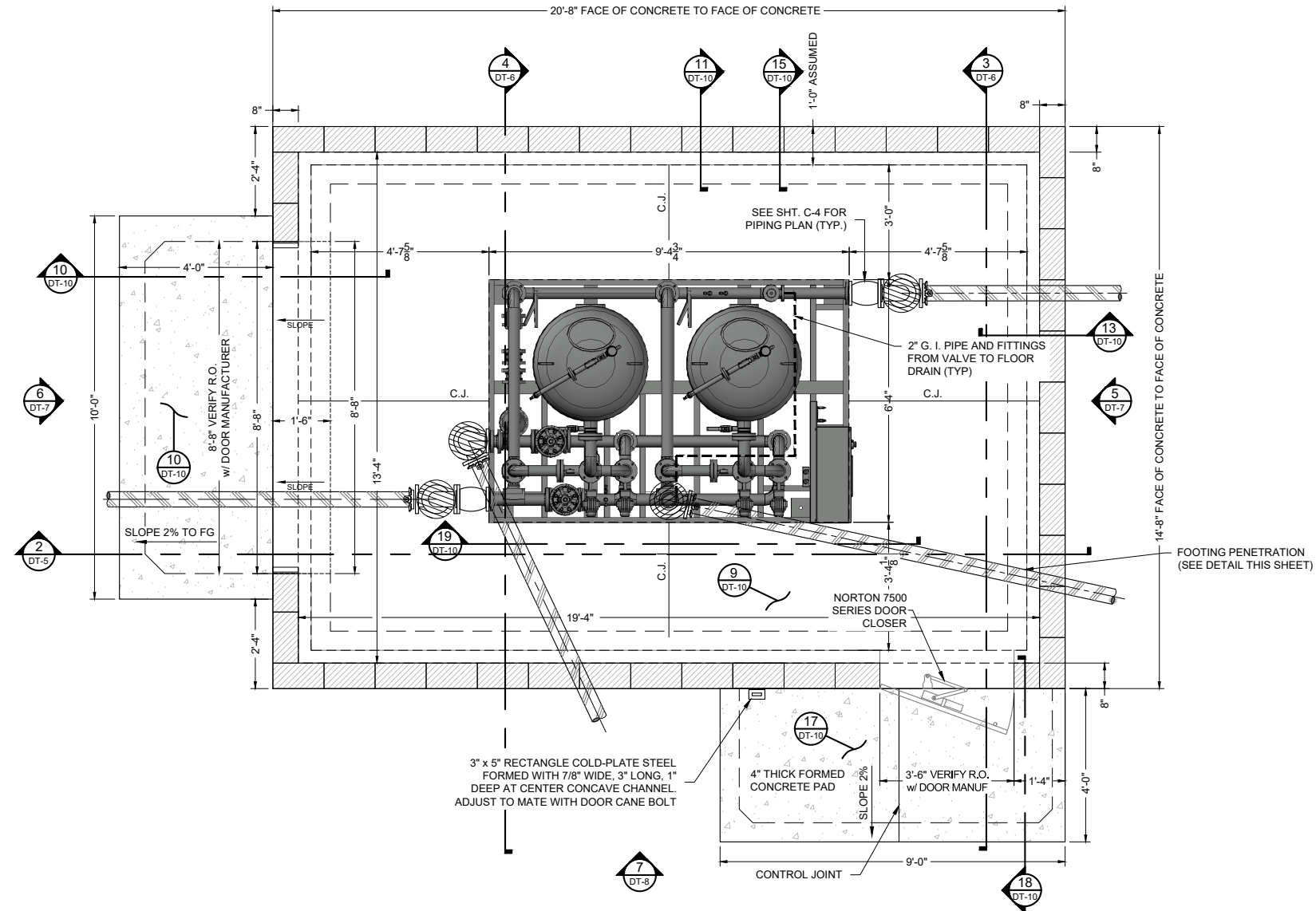
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Scale: Horiz: N/A
Vert: N/A

Project No: 6922268
Sheet: DT-3

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PIPE PENETRATION REBAR DETAIL
NTS

1 FOUNDATION PLAN
1/4"=1'-0"
0' 2' 4'
GRAPHIC SCALE

CODE INFORMATION

2018 INTERNATIONAL BUILDING CODE
ASCE 7-16 MINIMUM DESIGN LOADS FOR BUILDING AND OTHER STRUCTURES
RISK CATEGORY IV (FIRE SUPPRESSION)

LOADS

MINIMUM DESIGN LOADS:	
ROOF SNOW LOAD	20 PSF
ROOF DEAD LOAD	10 PSF
ROOF LIVE LOAD	20 PSF
WIND	
BASIC WIND SPEED	114 MPH
EXPOSURE	C
SEISMIC	
DESIGN CATEGORY	D
IMPORTANCE FACTOR (I)	1.5
SOILS SITE CLASS E	
S-DS	0.313
S-D1	0.179

CONCRETE

ALL SITE-CAST CONCRETE SHALL BE MADE WITH TYPE II (LOW ALKALI RESISTIVE) CEMENT AND SHALL ATTAIN A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI WITHIN 28 DAYS. THE MIX DESIGN SHOULD INCLUDE 6% (±1%) AIR ENTRAINMENT AND SHOULD BE PLACED AND CURED IN ACCORDANCE WITH THE ACI MANUAL OF CONCRETE PRACTICE, VOLUMES 1 THRU 5. SLUMP AT THE TIME OF PLACEMENT SHOULD NOT EXCEED FOUR (4) INCHES, AND MECHANICAL VIBRATION SHOULD BE EMPLOYED FOR CONSOLIDATION TO ELIMINATE VOIDS AND HONEYCOMBING

CONTROL JOINTS @10'-0" O.C. MAXIMUM.

REINFORCEMENT

CONCRETE REINFORCEMENT STEEL SHALL BE ASTM A-615 BILLET BARS, GRADE 60. BARS SHALL BE LAPPED AT LEAST THIRTY (30) BAR DIAMETERS AT SPLICES AND CORNER BARS SHALL BE PROVIDED TO MATCH HORIZONTAL REINFORCING.

FOUNDATION

BUILDING FOUNDATION SHALL BEAR ON A MINIMUM OF 2 FEET OF ENGINEERED FILL. SLABS SHALL BEAR ON A MINIMUM OF 2 FEET OF ENGINEERED FILL. ENGINEERED FILL SHALL EXTEND MINIMUM OF 2 FEET LATERALLY BEYOND FOUNDATION. INCREASE DEPTH OF OVER-EXCAVATION, IF NECESSARY, TO ENSURE ENGINEERED FILL BEARS UNIFORMLY ON CUT; DO NOT ALLOW TRANSITION FROM CUT TO FILL TO PASS UNDERNEATH OR WITHIN 5 HORIZONTAL FEET OF BUILDING OR SLAB.

REFER TO GEOTECH REPORT BY GEOTEST, INC. FOR SUBSURFACE INFORMATION, OVER EXCAVATION REQUIREMENTS, SUBGRADE PREPARATION, AND STRUCTURAL FILL & COMPACTION.

MASONRY

CONCRETE MASONRY UNITS (CMU) SHALL CONFORM TO ASTM C90, GRADE N. BRICK SHALL FULFILL ASTM C62, C216 OR C652. MORTAR SHALL BE ASTM C270 TYPE S.

THE MINIMUM NET AREA COMPRESSIVE STRENGTH OF THE MASONRY, f_m , SHALL BE 2000 PSI.

HORIZONTAL REINFORCING SHALL BE CONTINUOUS AROUND CORNERS.

UNLESS NOTED OTHERWISE, MASONRY WALLS SHALL ALSO BE REINFORCED WITH ONE (#5) VERTICAL AT WALL ENDS, CORNERS, EACH SIDE OF DOOR OR WINDOW OPENING AND AT NOT OVER (4) FEET ON CENTER TYPICALLY. REINFORCEMENT SHALL BE FULLY GROUTED IN PLACE. GROUT SHALL DEVELOP 3000 PSI IN 28 DAYS AND MEET ASTM C476.

ALL CMU WALLS REQUIRE A MINIMUM OF (2) (#5) IN BOND BEAM ABOVE ALL DOORS AND WINDOWS, AT FLOOR AND ROOF LINES, AND TOP OF PARAPETS UNLESS OTHERWISE NOTED.

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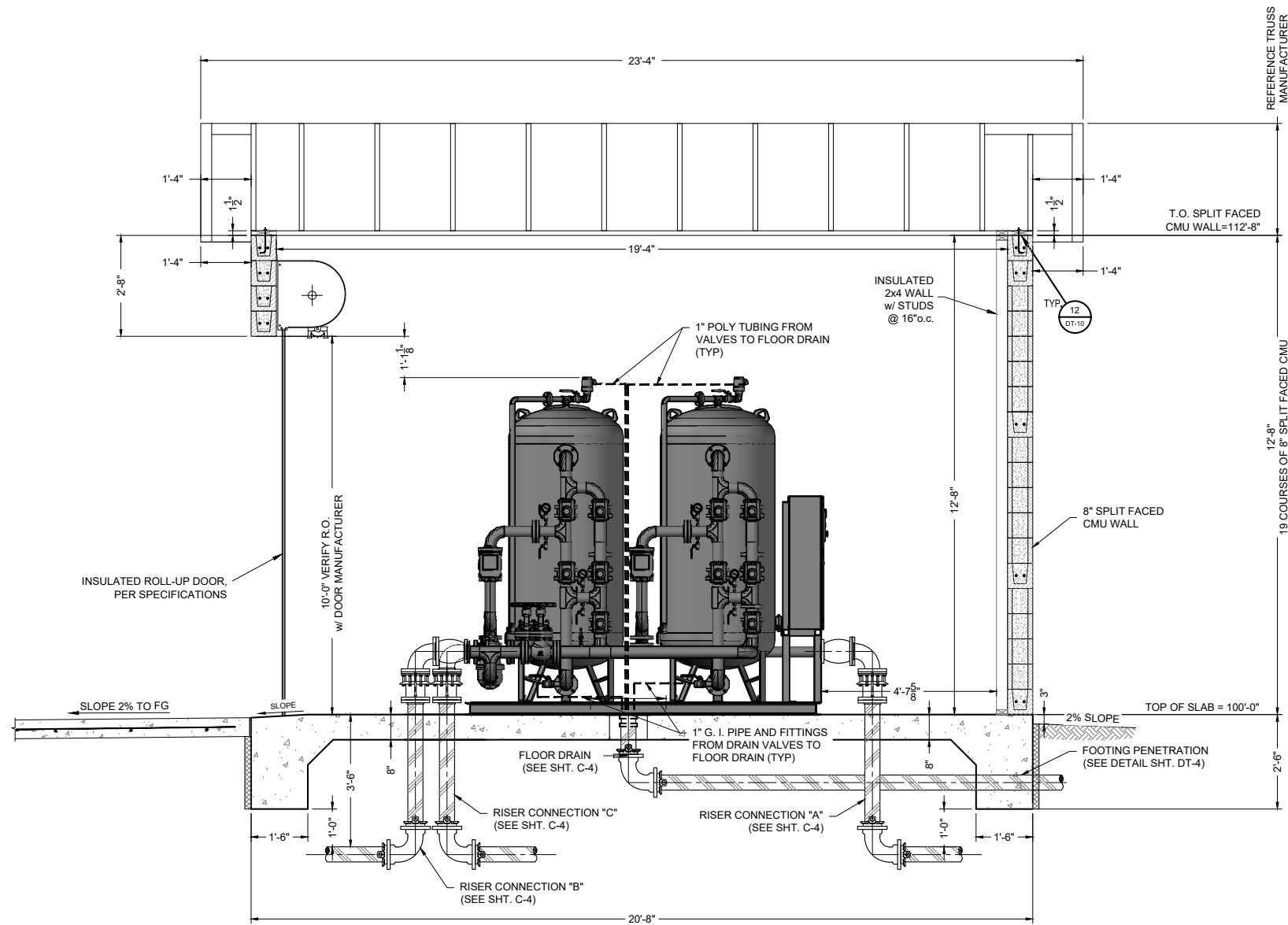
Location: Smith Lake, NM
TREATMENT BUILDING FOUNDATION PLAN
SMITH LAKE CHAPTER
WATER SYSTEM IMPROVEMENTS PROJECT
McKINLEY COUNTY, NEW MEXICO
SECTION 8, T. 15 N., R. 12 W.

Designed RMB	Drawn MvH/AaV	Checked HCR
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Vert: N/A

Project No: 6922268
Sheet: DT-4



2 SECTION
 1/4"=1'-0"
 0' 2' 4'
 GRAPHIC SCALE

NOTES

1. ALL DIMENSIONS RELATED TO SKID-MOUNTED TREATMENT SYSTEM ARE APPROXIMATE. CONTRACTOR RESPONSIBLE TO VERIFY ACTUAL SYSTEM DIMENSIONS AND ALIGN ACTUAL LOCATION OF SKID FRAME AND ALL PIPING INLETS, OUTLETS AND DRAINS IN THE FIELD PRIOR TO CONSTRUCTION.
2. VERIFY DIMENSIONS OF BURIED DUCTILE IRON PIPING AND MJ X MJ ADAPTOR PRIOR TO FINALIZING LOCATIONS OF FLOOR PENETRATIONS.
3. ALL FLOOR DRAINS MUST HAVE REMOVABLE GRATING.
4. VERIFY LOCATION OF DRAINS w/ PIPING.
5. ALL FLOOR DRAINS SHALL BE CENTERED UNDER PIPE OUTLETS. FIELD VERIFY LOCATIONS.
6. REFERENCE DETAILS DT-10 FOR ALL ARCHITECTURAL DETAILING NOT SHOWN HERE.
7. FOR CONTINUATION OF TREATMENT BUILDING UNDERGROUND PIPING SEE SHEETS C-2 & C-4.
8. ALL DUCTILE IRON PIPE SHALL BE 350 psi WP RATED AND SHALL BE ENCASED IN TWO LAYERS OF POLYETHYLENE, PER SPECIFICATIONS.
9. ALL BURIED PIPING WITHIN 5 FEET OF BUILDING FOUNDATIONS SHALL BE PRESSURE TESTED PRIOR TO POURING FOUNDATIONS.
10. PROCO JOINT COMPRESSION SHALL BE WITHIN MFG'R'S RECOMMENDED TOLERANCES. DO NOT ALLOW BOLTS TO MAKE CONTACT WITH RUBBER JOINT. FIELD VERIFY CONTROL BOLT LENGTHS BEFORE FOUNDATION CONSTRUCTION.

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Revision	Date	Description

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Client: The Navajo Nation
 Location: Smith Lake, NM
TREATMENT BUILDING SECTION (1 of 2)
SMITH LAKE CHAPTER
WATER SYSTEM IMPROVEMENTS PROJECT
 MCKINLEY COUNTY, NEW MEXICO
 SECTION 8, T. 15 N., R. 12 W.



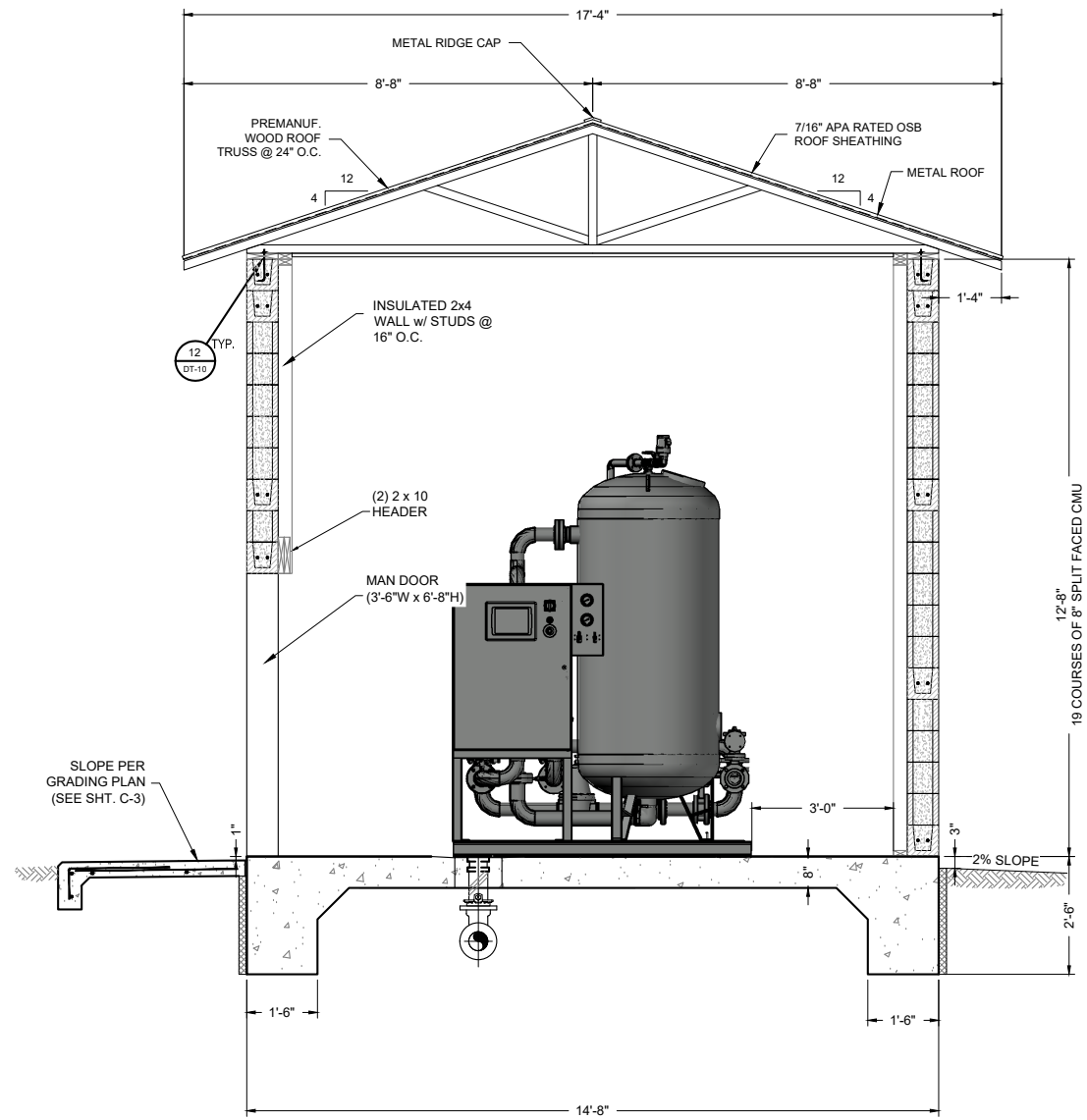
Designed RMB	Drawn MvH/AaV	Checked HCR
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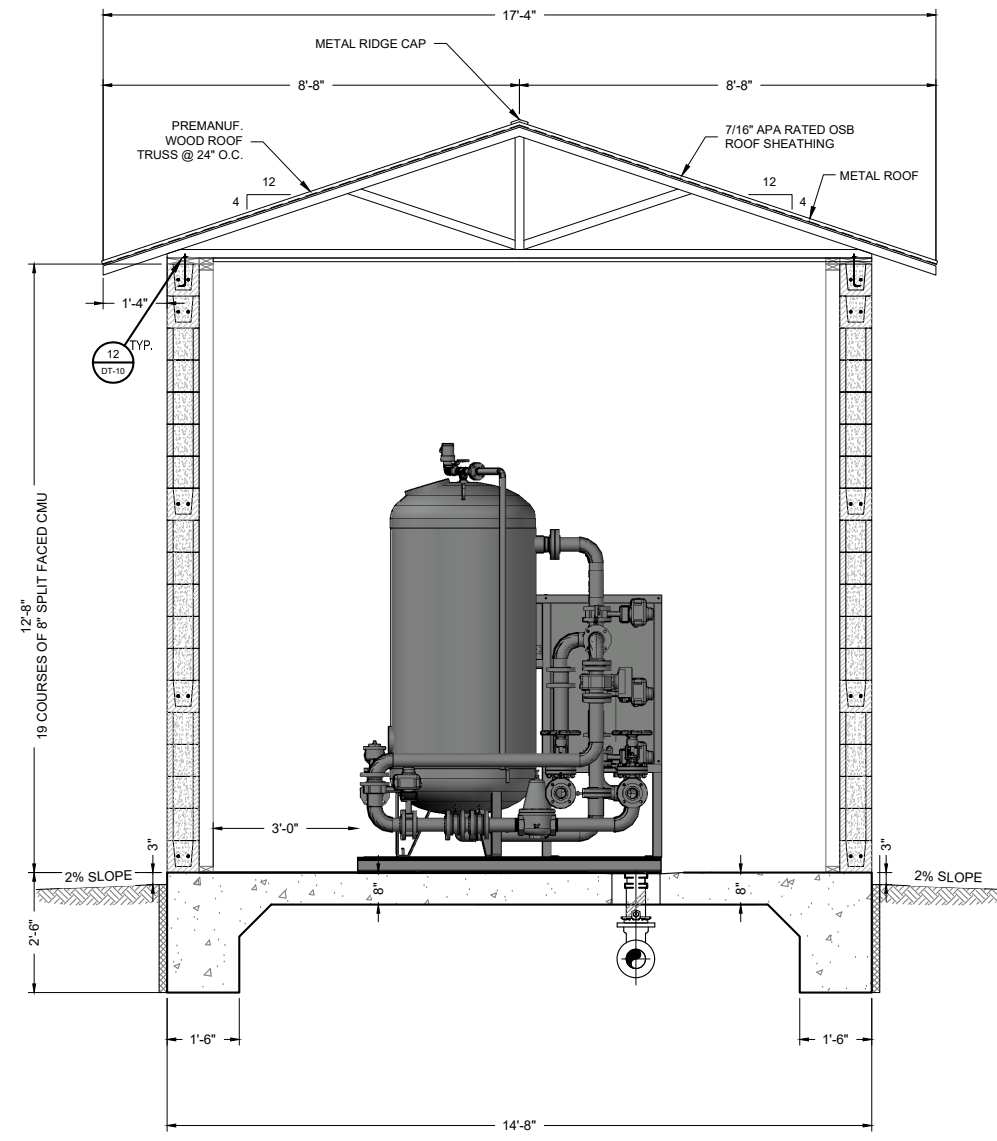


Date:	June 2024
Scale:	Horiz: AS SHOWN Vert: N/A
Project No:	6922268
Sheet:	DT-5

P:\6 - Water and WasteWater Systems\Smith Lake Chapter (6415707)\Drafting\Acad\Smith Lake Treatment Building.dwg
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3 SECTION
1/4"=1'-0"
0' 2' 4'
GRAPHIC SCALE



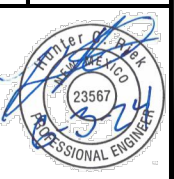
4 SECTION
1/4"=1'-0"
0' 2' 4'
GRAPHIC SCALE

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Client: The Navajo Nation
Location: Smith Lake, NM
TREATMENT BUILDING SECTION (2 of 2)
SMITH LAKE CHAPTER
WATER SYSTEM IMPROVEMENTS PROJECT
McKINLEY COUNTY, NEW MEXICO
SECTION 8, T. 15 N., R. 12 W.



Designed: RMB
Drawn: MvH/AaV
Checked: HCR

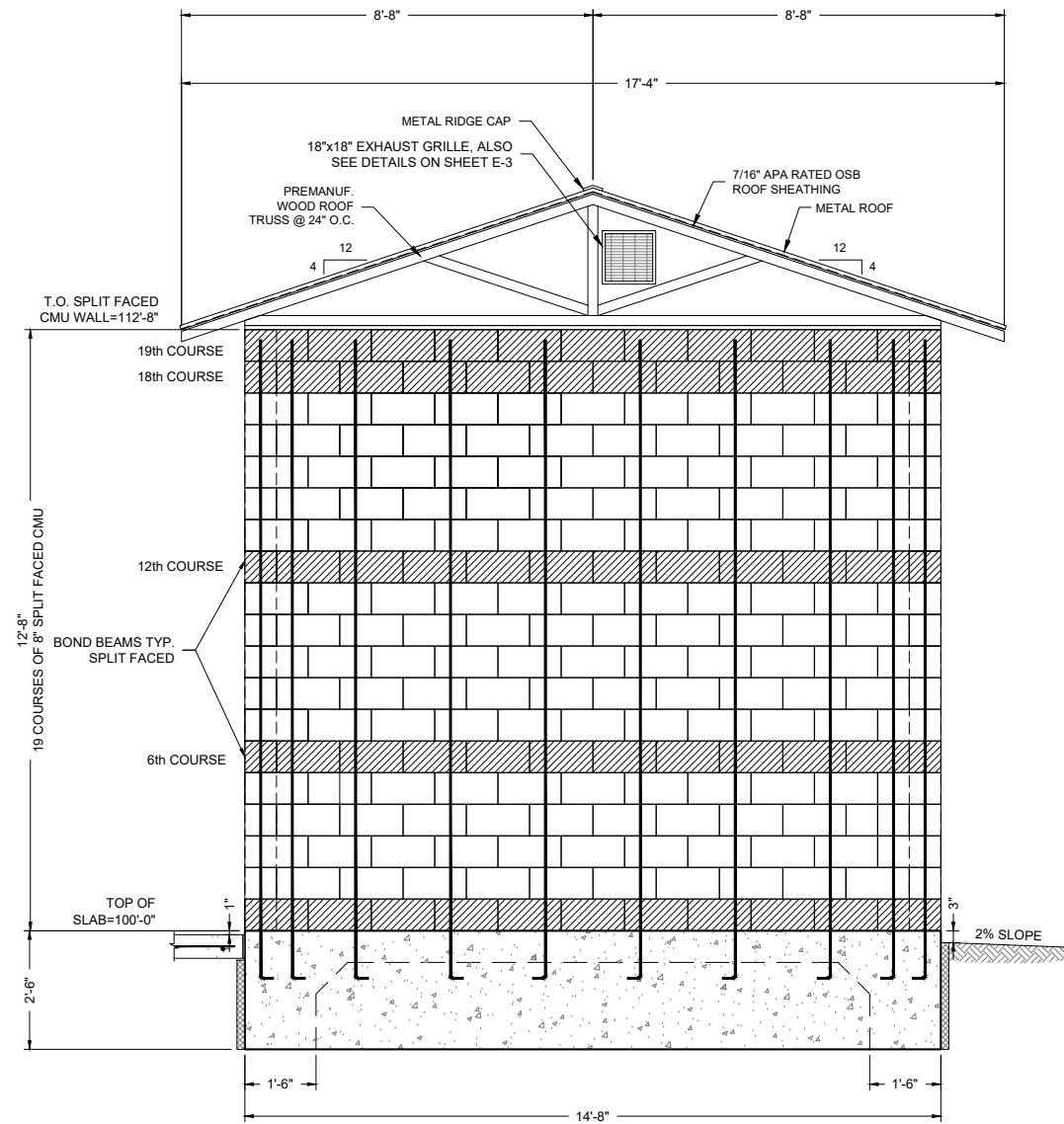
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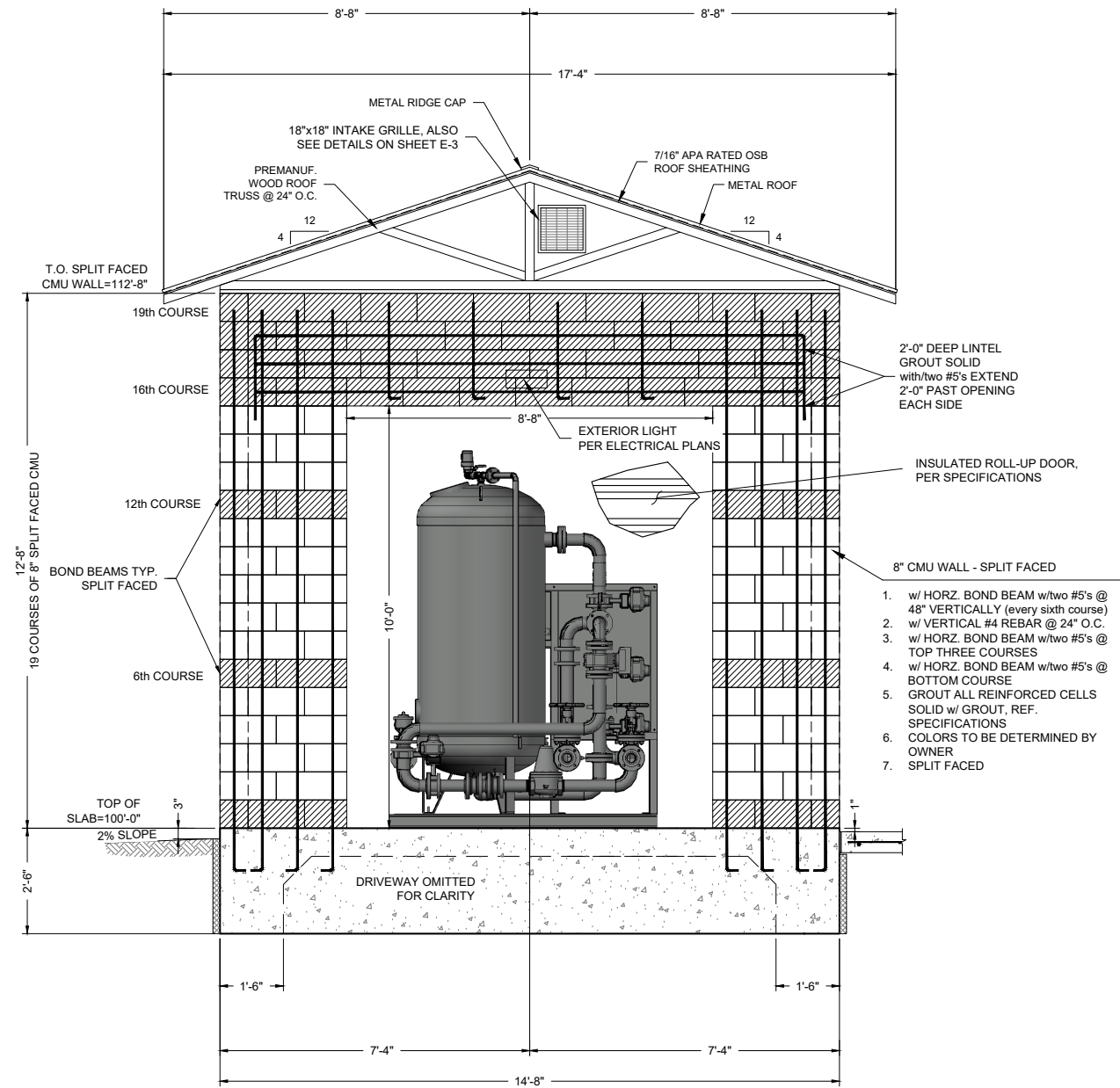
Project No: 6922268

Sheet: DT-6



5 END VIEW
1/4"=1'-0"
0' 2' 4'
GRAPHIC SCALE

LEGEND
 BOND BEAM



6 END VIEW
1/4"=1'-0"
0' 2' 4'
GRAPHIC SCALE

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Client: The Navajo Nation
 Location: Smith Lake, NM
TREATMENT BUILDING END VIEW
SMITH LAKE CHAPTER
WATER SYSTEM IMPROVEMENTS PROJECT
 MCKINLEY COUNTY, NEW MEXICO
 SECTION 8, T. 15 N., R. 12 W.

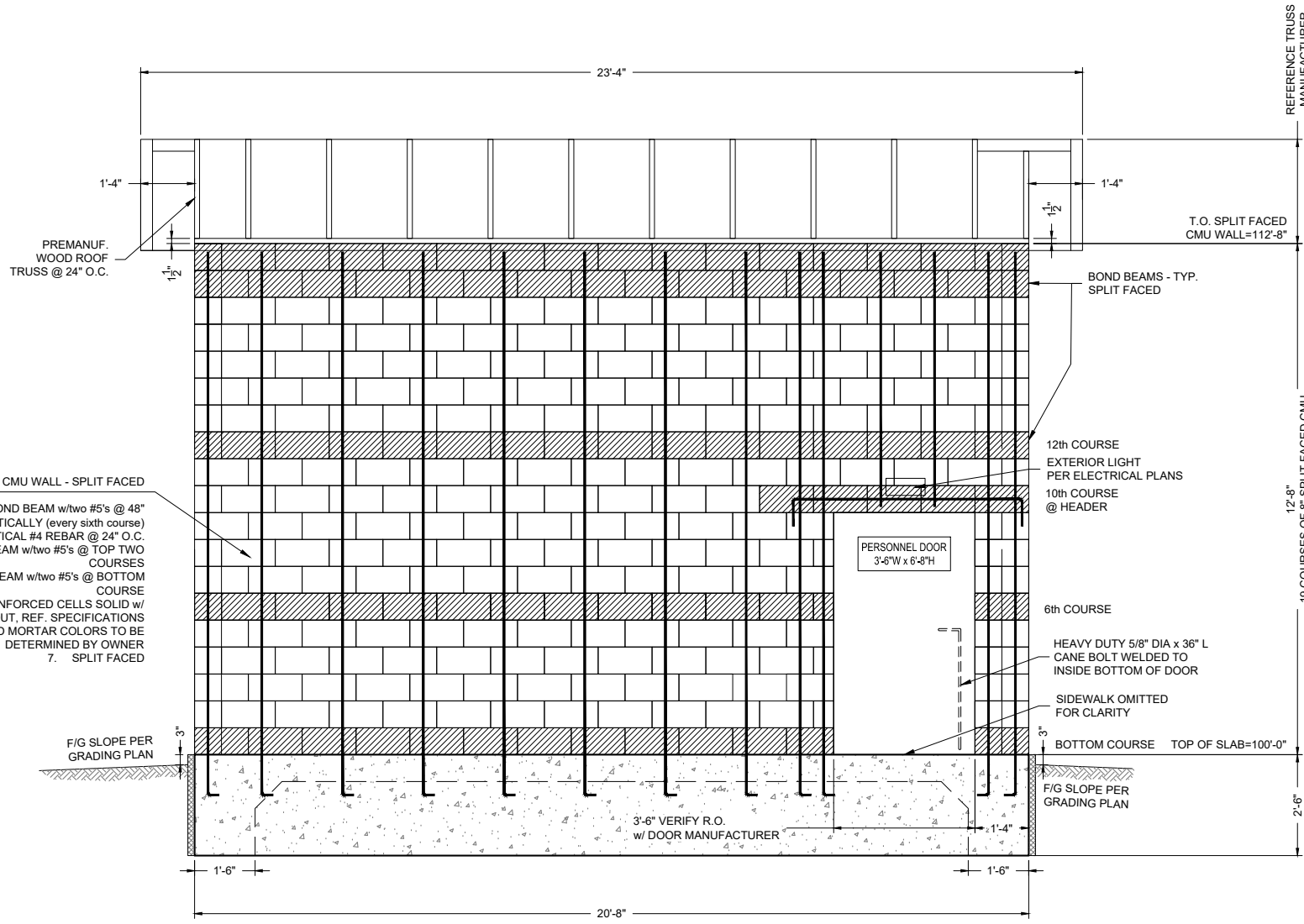


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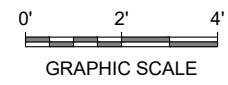


Date: June 2024
Scale: Horiz: AS SHOWN Vert: N/A
Project No: 6922268
Sheet: DT-7



1. w/ HORZ. BOND BEAM w/two #5's @ 48" VERTICALLY (every sixth course)
2. w/ VERTICAL #4 REBAR @ 24" O.C.
3. w/ HORZ. BOND BEAM w/two #5's @ TOP TWO COURSES
4. w/ HORZ. BOND BEAM w/two #5's @ BOTTOM COURSE
5. GROUT ALL REINFORCED CELLS SOLID w/ GROUT, REF. SPECIFICATIONS
6. BLOCK AND MORTAR COLORS TO BE DETERMINED BY OWNER
7. SPLIT FACED

7 ELEVATION W/ PANEL REINFORCING @ PERSONNEL-DOOR
1/4"=1'-0"



LEGEND
 BOND BEAM

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 Location: Smith Lake, NM
TREATMENT BUILDING ELEVATION
SMITH LAKE CHAPTER
WATER SYSTEM IMPROVEMENTS PROJECT
 MCKINLEY COUNTY, NEW MEXICO
 SECTION 8, T. 15 N., R. 12 W.



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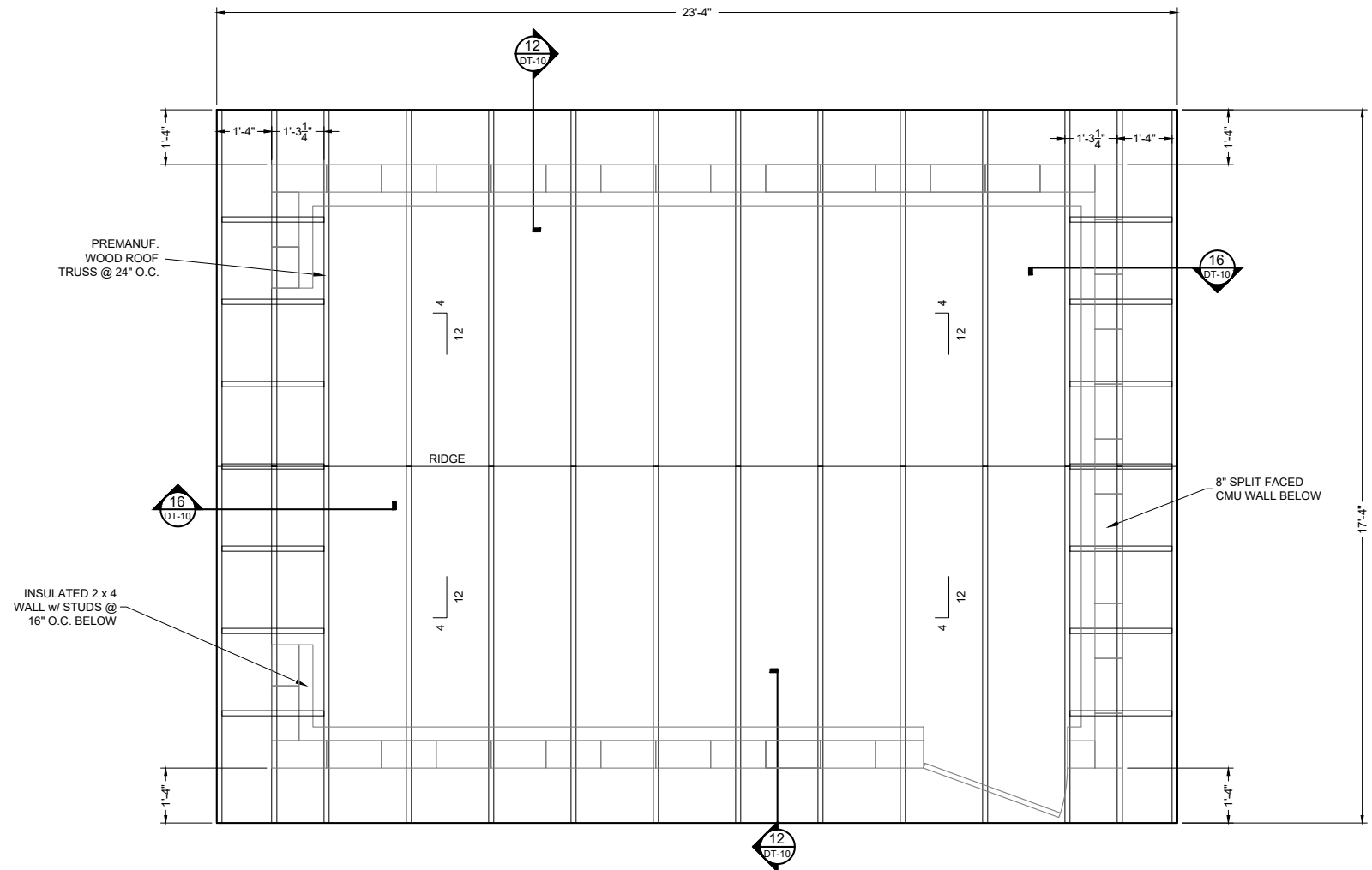
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 Sheet: DT-8

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8 ROOF PLAN
1/4" = 1'-0"
0' 2' 4'
GRAPHIC SCALE

Revision	Date	Description	By	CHKD

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Location: Smith Lake, NM
TREATMENT BUILDING ROOF PLAN
SMITH LAKE CHAPTER
WATER SYSTEM IMPROVEMENTS PROJECT
McKINLEY COUNTY, NEW MEXICO
SECTION 8, T. 15 N., R. 12 W.



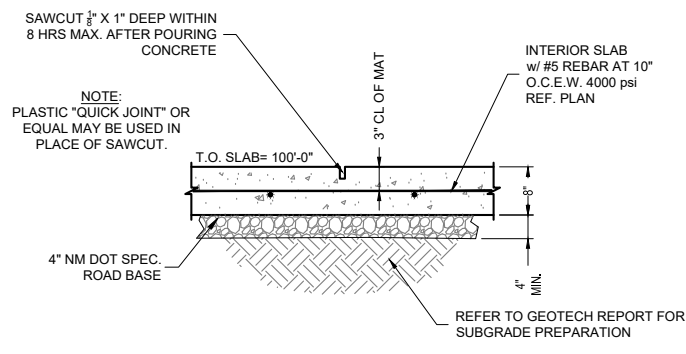
Designed RMB	Drawn MvH/Aav	Checked HCR
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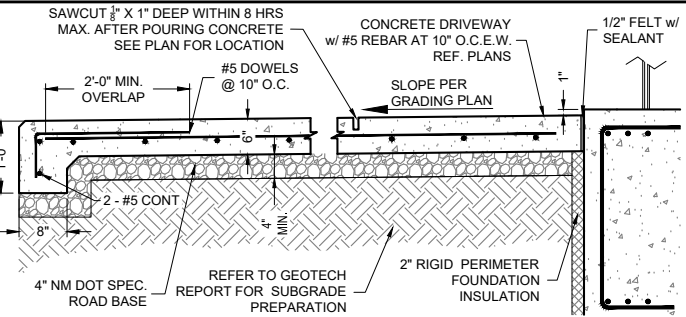


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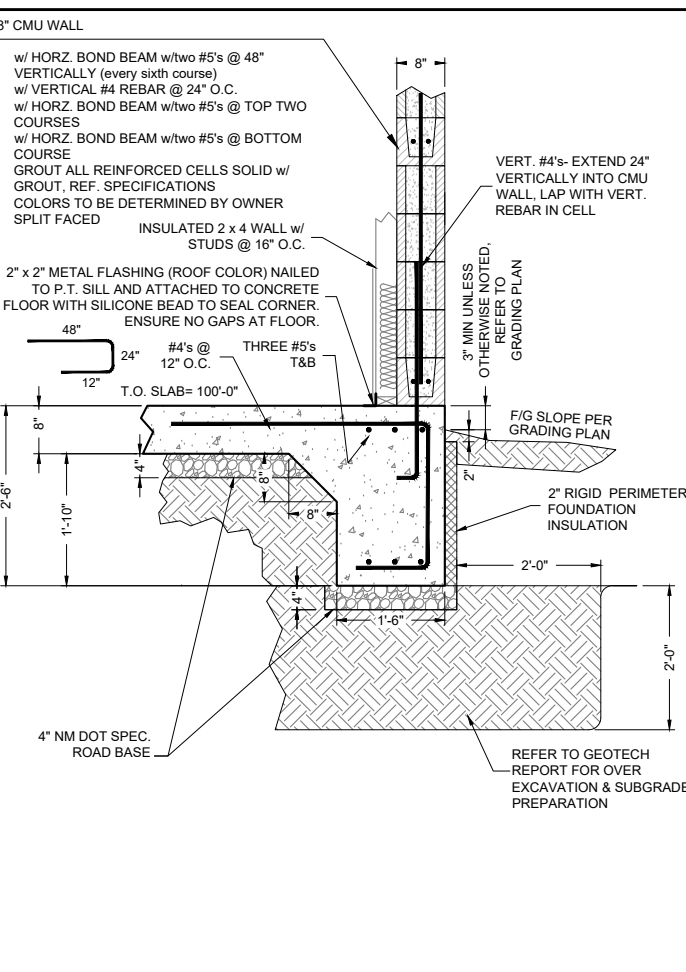
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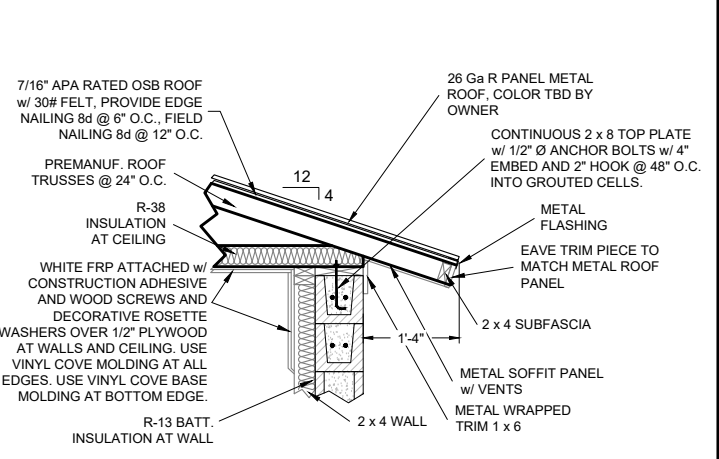
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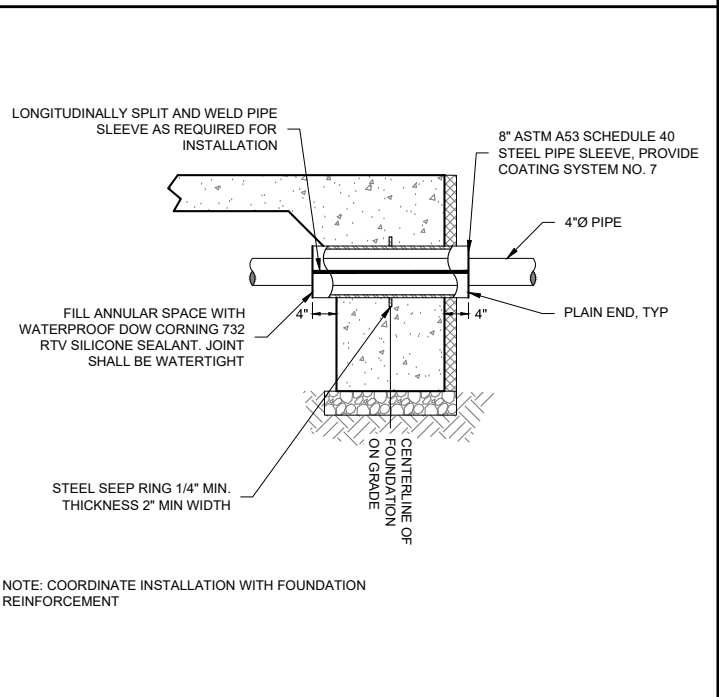
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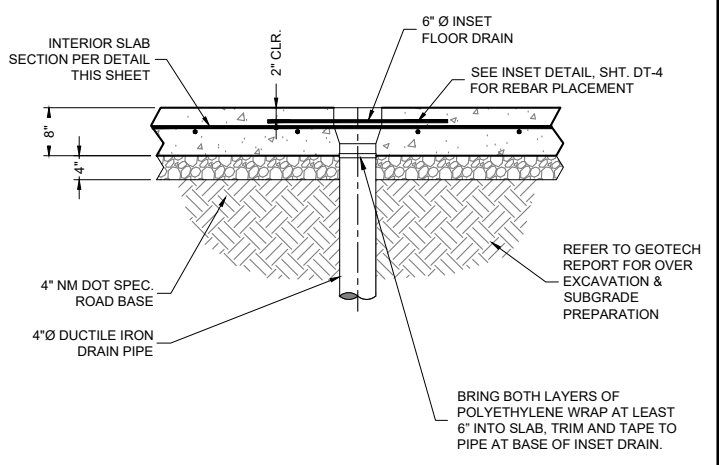
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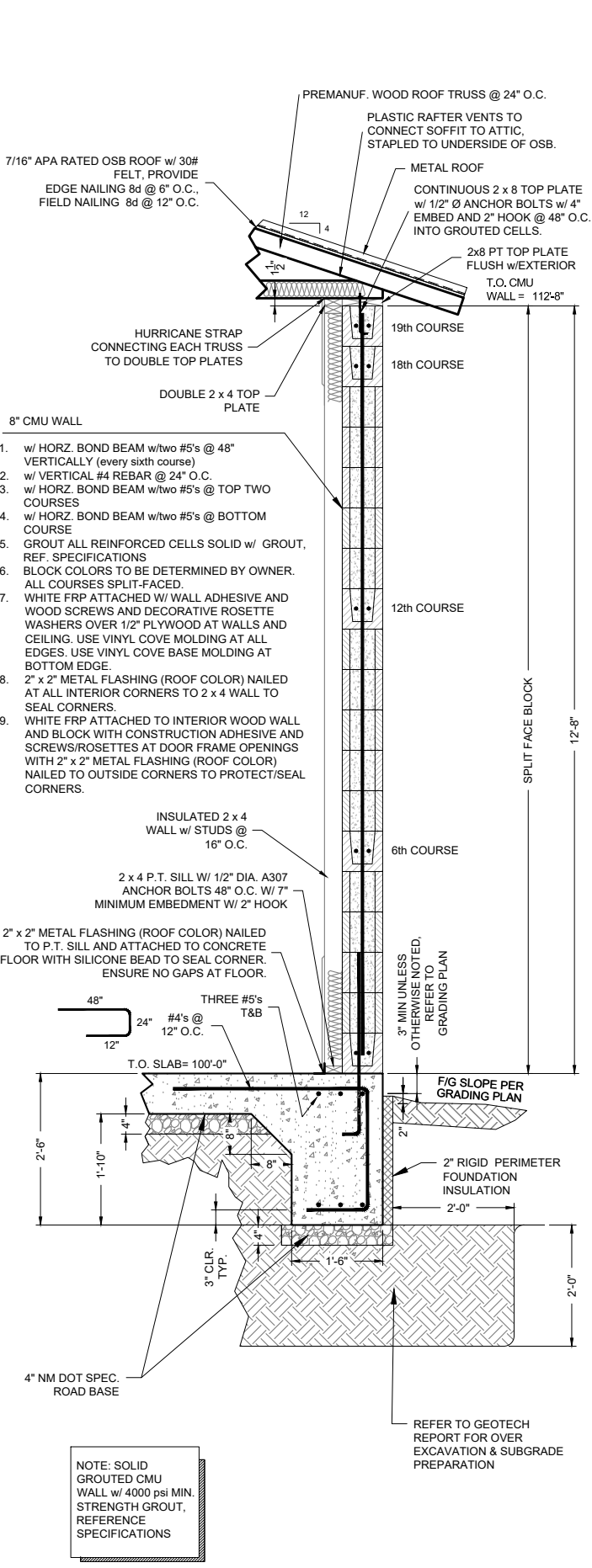
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3/8\"/>



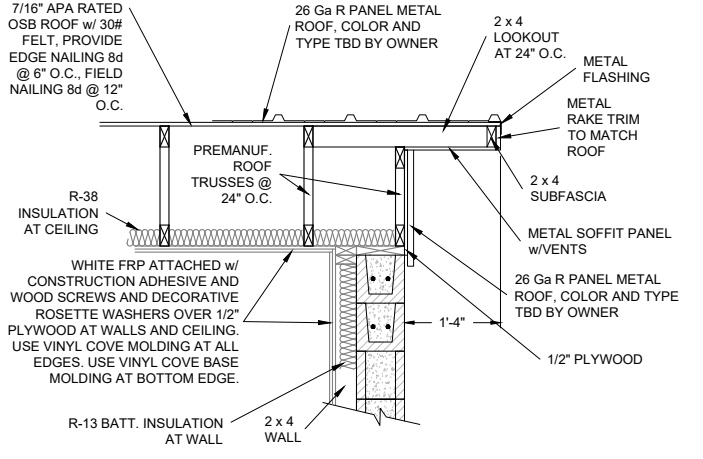
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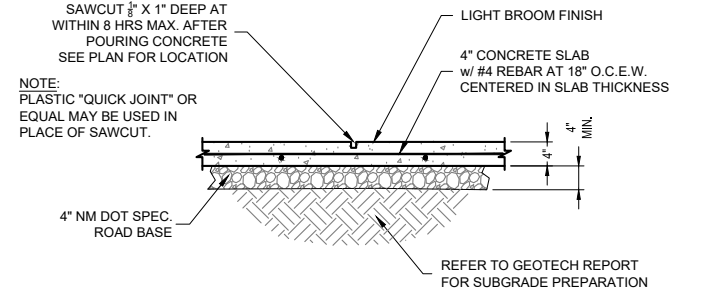
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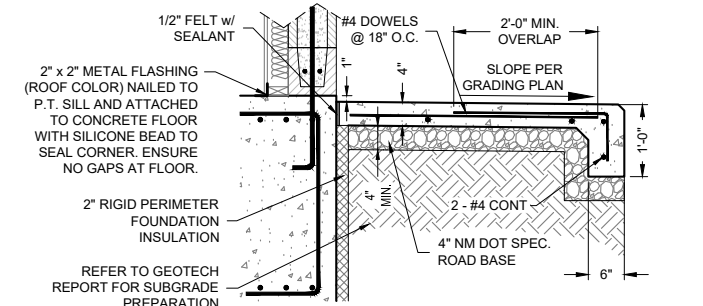
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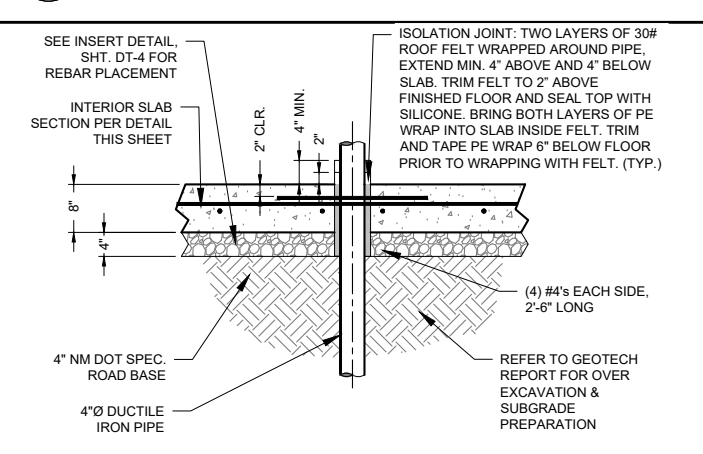
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3/8\"/>



17 APRON DETAIL
3/8\"/>



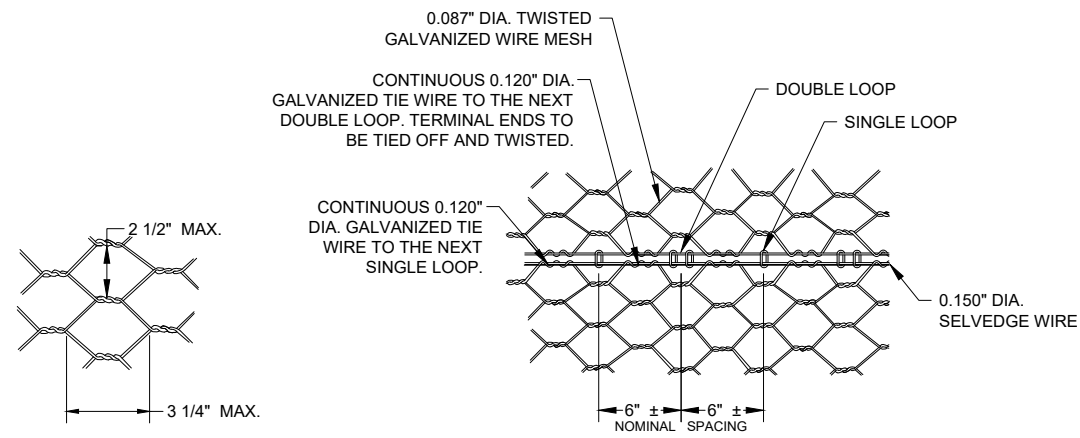
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3/8\"/>



19 PIPE PENETRATION DETAIL
3/8\"/>

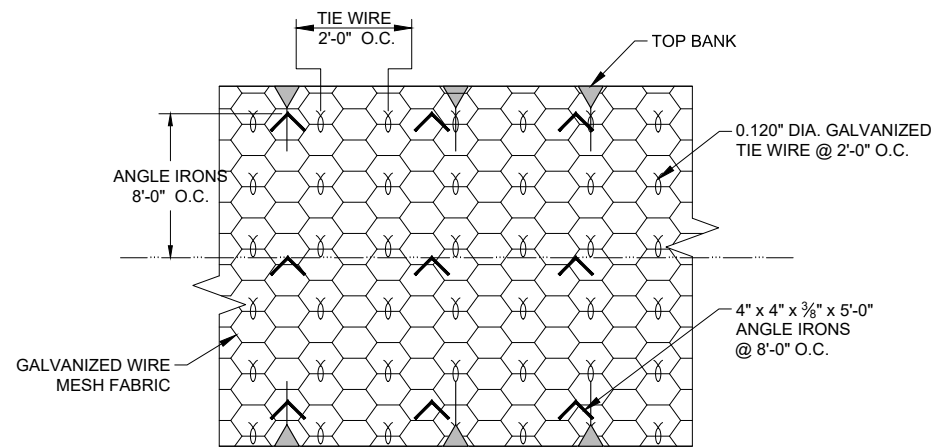
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Client: The Navajo Nation	Location: Smith Lake, NM
TREATMENT BUILDING DETAILS	
SMITH LAKE CHAPTER	
WATER SYSTEM IMPROVEMENTS PROJECT	
McKINLEY COUNTY, NEW MEXICO	
SECTION 8, T. 15 N., R. 12 W.	
Designed: RMB	Checked: HCR
Drawn: MvH/AaV	
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Project No: 6922268	
Sheet: DT-10	

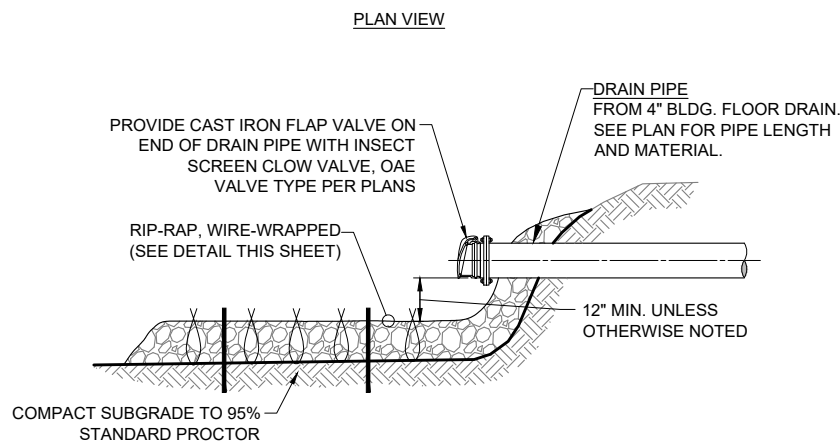
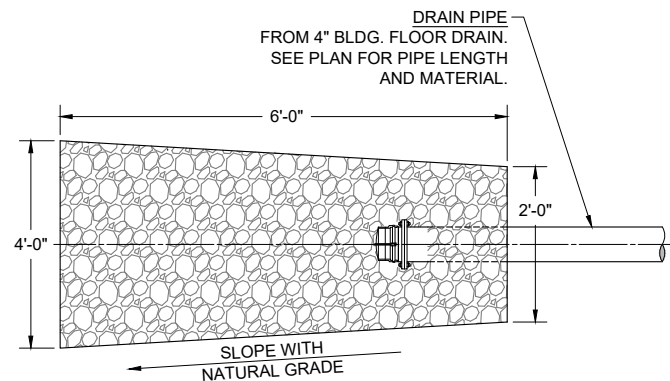


TWISTED MESH MATTRESS
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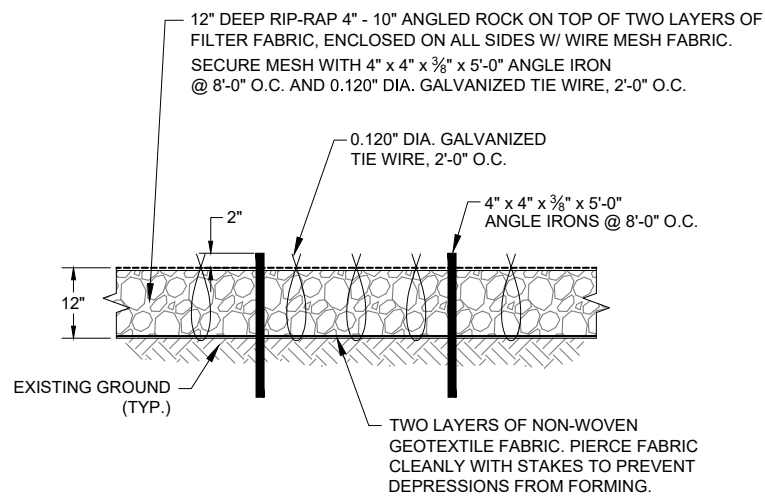
STANDARD JOINT CONNECTION DETAIL
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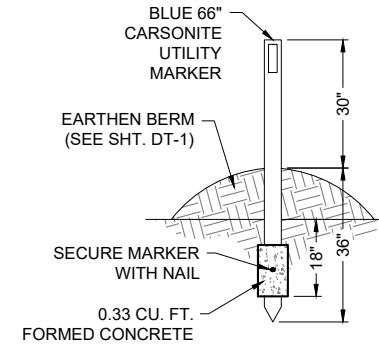
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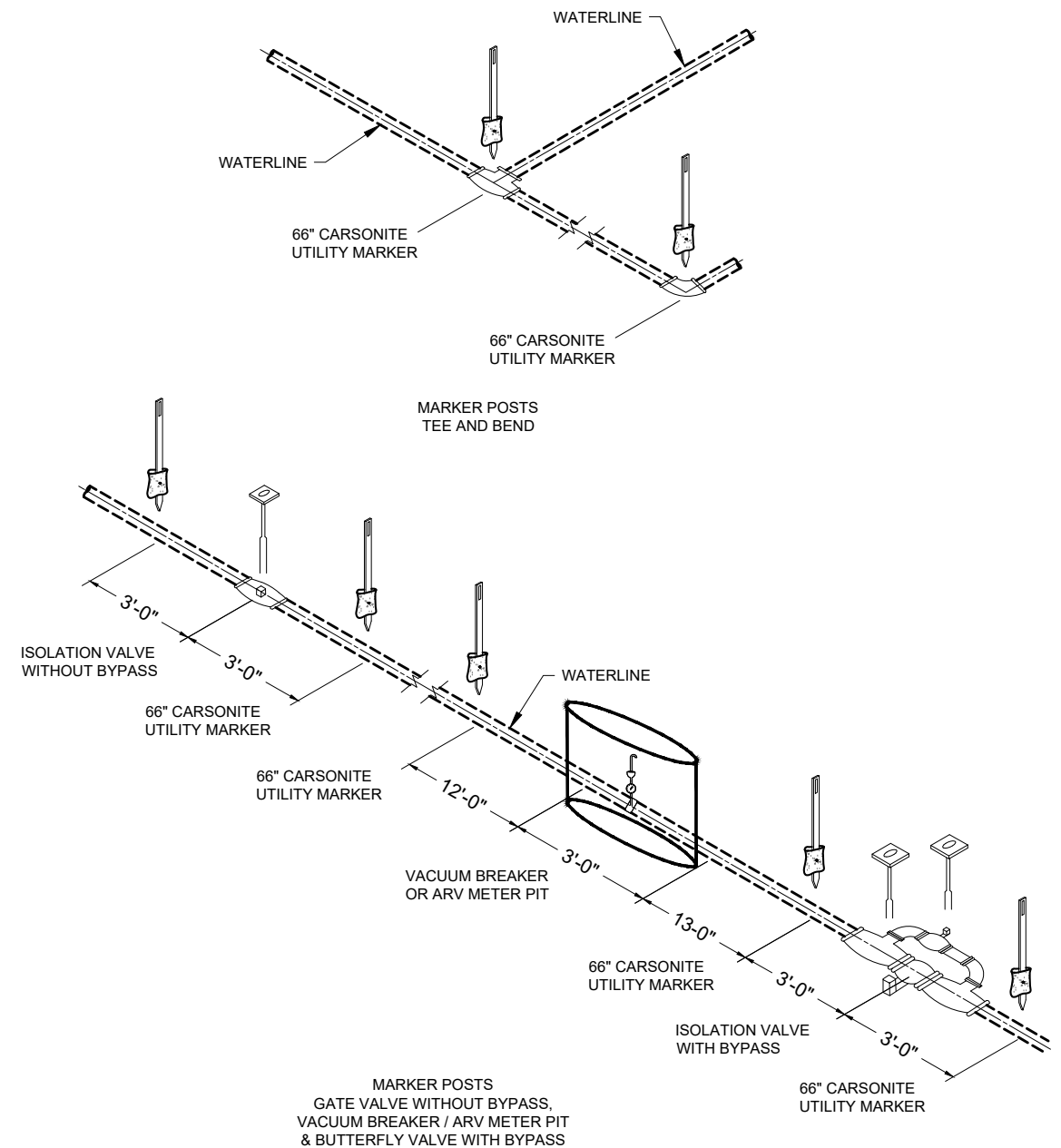
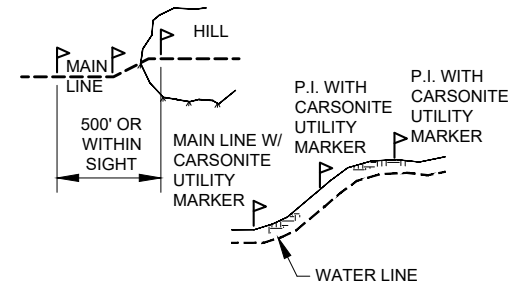
TYPICAL SPLASH PAD DETAIL
NOT TO SCALE



TYPICAL 12\"/> NOT TO SCALE



- NOTE:
1. CARSONITE UTILITY MARKER ON ALL P.I.'S AND GRADE CHANGES.
2. MAXIMUM DISTANCE BETWEEN CARSONITE UTILITY MARKERS SHALL BE 1500 LF.



TYPICAL MARKER POSTS
NOT TO SCALE

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Client: The Navajo Nation
Location: Smith Lake, NM
EROSION CONTROL AND MARKER POST DETAILS
SMITH LAKE CHAPTER
WATER SYSTEM IMPROVEMENTS PROJECT
MCKINLEY COUNTY, NEW MEXICO
SECTION 8, T. 15 N., R. 12 W.

RYAN M. BIEHL
NEW MEXICO
22281
06-03-31
PROFESSIONAL ENGINEER

Designed RMB	Drawn MvH/Aav	Checked JMM
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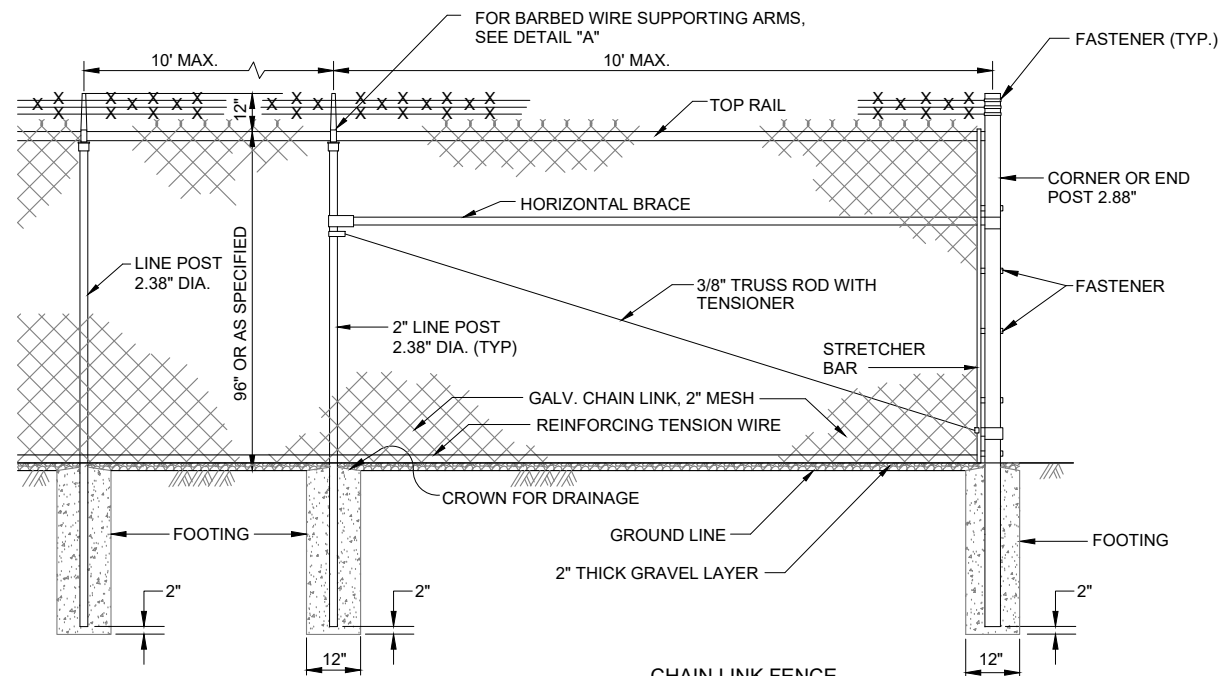
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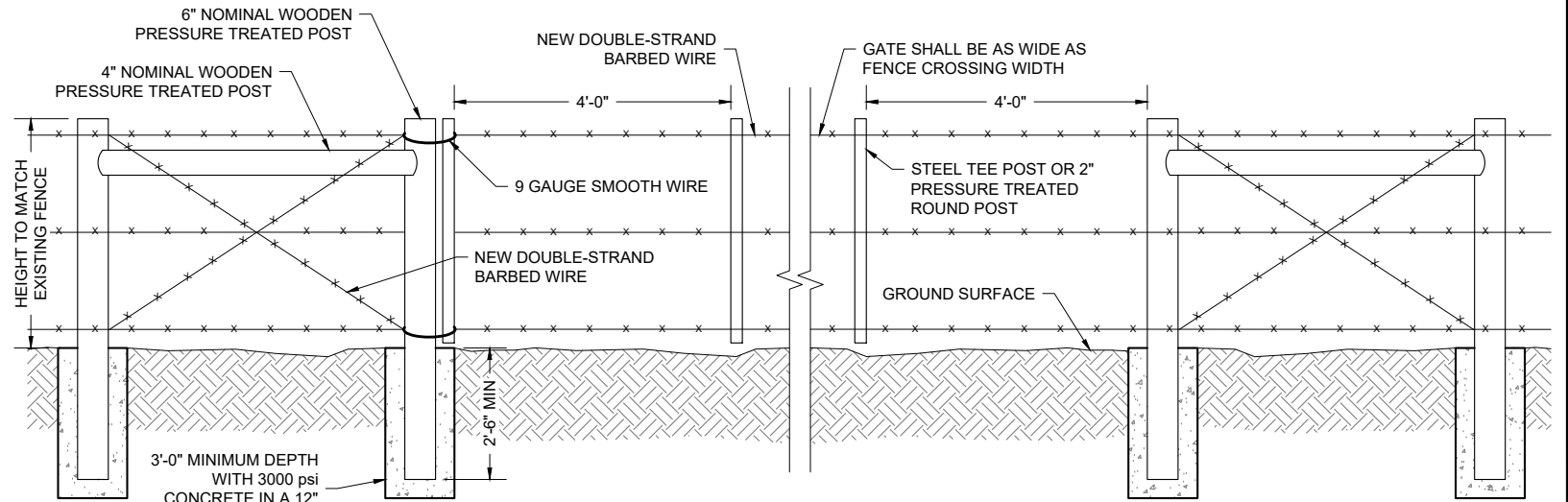
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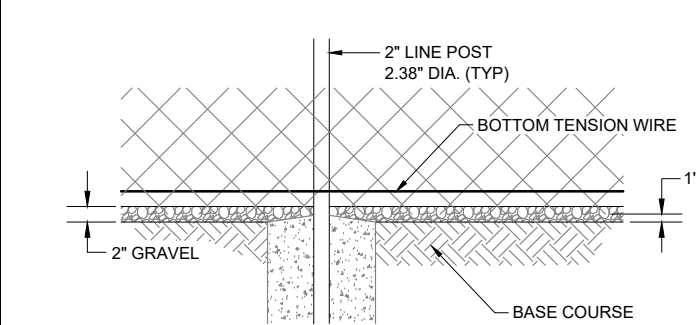


CHAIN LINK FENCE
NOT TO SCALE

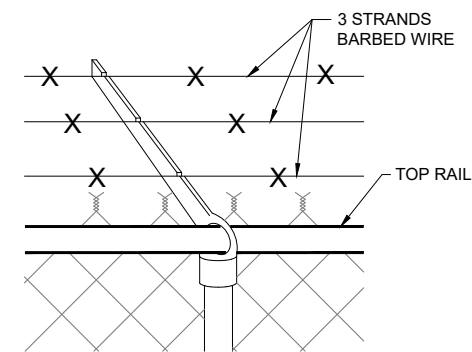
- NOTES:**
1. AT BROW CROSSING, EMBED ON 6" CENTERS, 4-11/2" x 24" GALVANIZED RODS WITH 2" HOOKED END INTO BROW DITCH CONCRETE. EXPOSED END OF ROD SHALL BE WOVEN INTO FENCE FABRIC.
 2. IMBED BOTTOM OF FABRIC MIN. 1" INTO THE 2" THICK GRAVEL LAYER.



"RANCHER STYLE" GATE WITH H-BRACE PULL ASSEMBLY AT FENCE CROSSING
NOT TO SCALE



BASE COURSE AND GRAVEL DETAIL
NOT TO SCALE



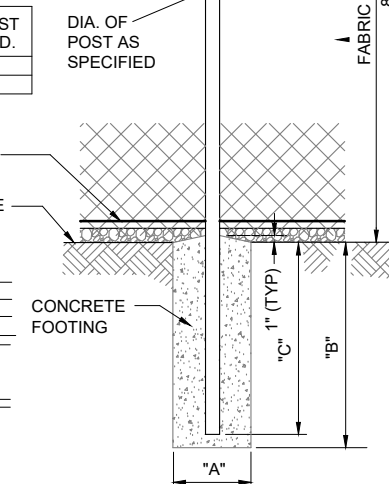
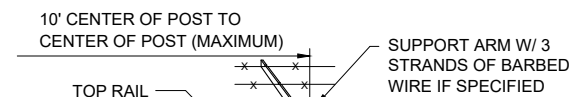
DETAIL "A" SUPPORTING ARM & BARBED WIRE
NOT TO SCALE

GATE POST

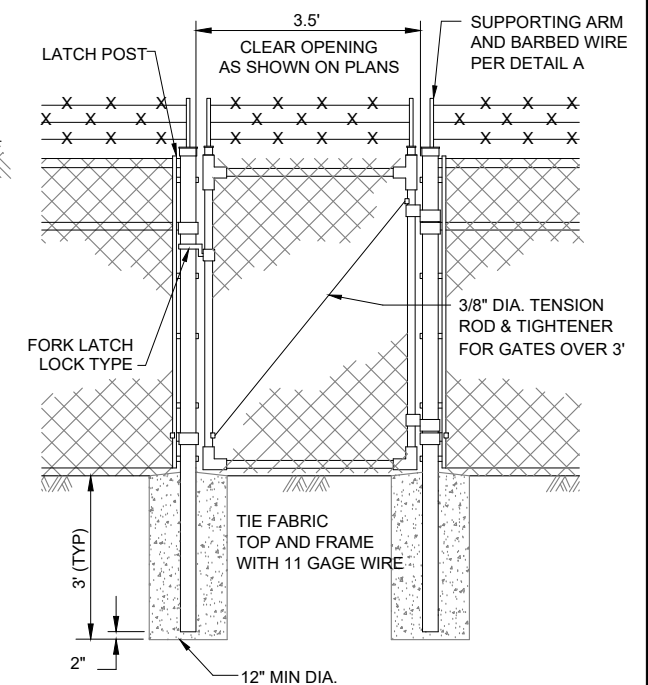
GATE LEAF WIDTH	GATE POST (OD)	FABRIC HEIGHT	"A" DIAM	"B" DEPTH	"C" POST EMBED.
10'	4"	8'	16"	56"	54"

LINE AND TERMINAL POSTS

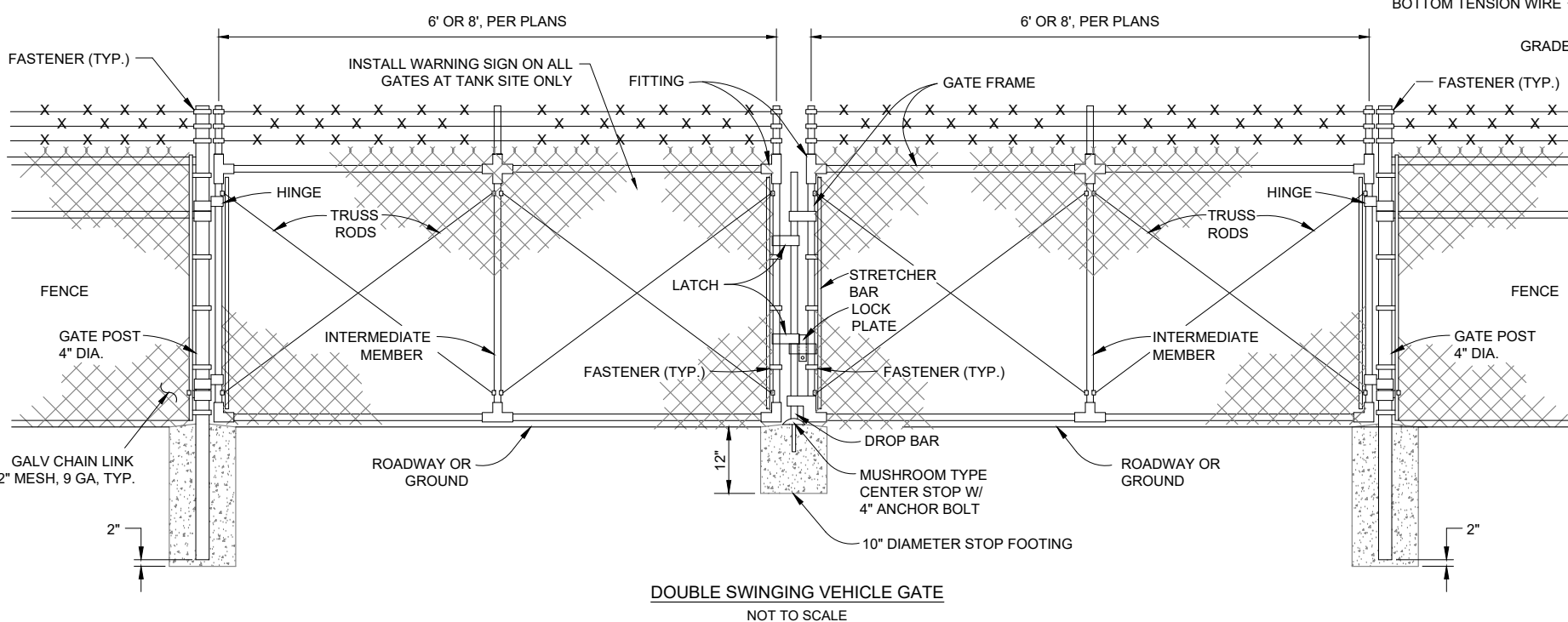
FABRIC HEIGHT	TYPE POST	"A" DIAM	"B" DEPTH	"C" POST EMBED.
8'-0"	LINE	12"	38"	36"
	TERMINAL	12"	38"	36"



CHAIN LINK FENCE FOUNDATION
NOT TO SCALE



PEDESTRIAN GATE
NOT TO SCALE



DOUBLE SWINGING VEHICLE GATE
NOT TO SCALE

NOTES:

1. COMMON LOCKS SHALL BE PROVIDED FOR ALL FENCE GATES
2. TERMINAL POSTS INCLUDE END, CORNER, AND PULL POSTS

By: CHKD

Revision: _____ Date: _____

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SMA

Client: The Navajo Nation Location: Smith Lake, NM

FENCE DETAILS
SMITH LAKE CHAPTER
WATER SYSTEM IMPROVEMENTS PROJECT
McKINLEY COUNTY, NEW MEXICO
SECTION 8, T. 15 N., R. 12 W.

RYAN M. BIEHL
NEW MEXICO
22281
06-03-2024
PROFESSIONAL ENGINEER

Designed: RMB Drawn: MvH/Aav Checked: JMM

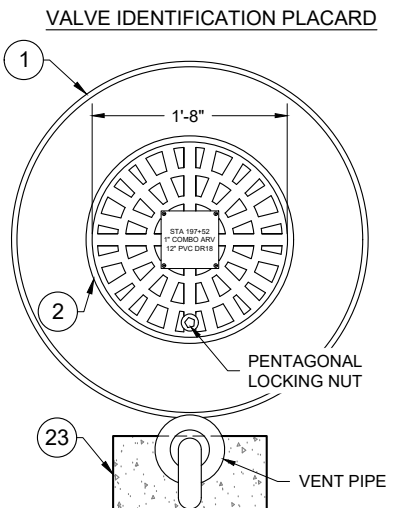
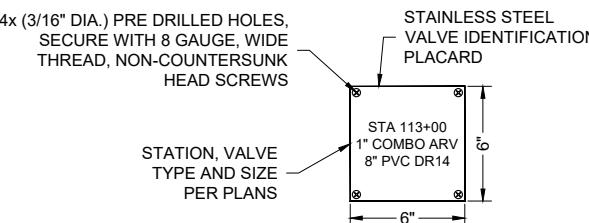
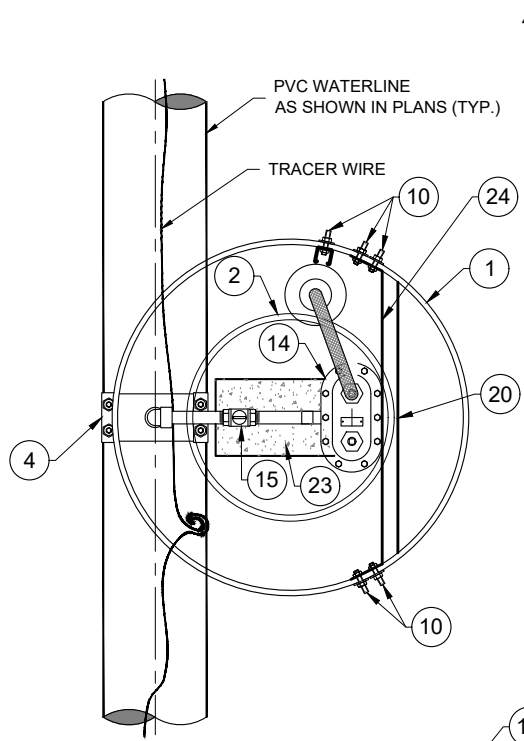
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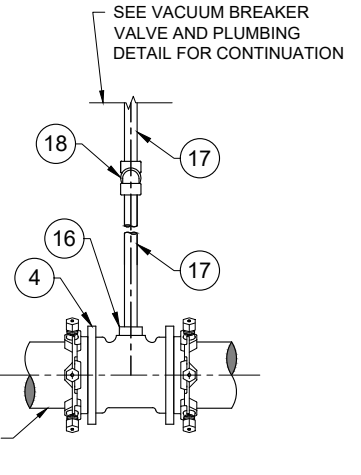
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Project No: 6922268

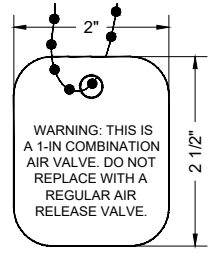
Sheet: DT-12



- ALTERNATIVE CONFIGURATION "A" NOTES:**
1. TO BE USED ONLY IN NON-CORROSIVE SOILS, AS INDICATED ON PLAN SHEETS, UNLESS OTHERWISE APPROVED BY ENGINEER.
 2. MUST BE USED FOR ALL COMBINATION AIR VALVES WITHIN RESTRAINED (FUSIBLE PVC) PIPE SECTIONS.
 3. IN THE EVENT THAT COMBINATION AIR VALVE INSTALLATION ON FUSIBLE PIPE IS REQUIRED WITHIN A CORROSIVE SOIL ZONE, CATHODIC PROTECTION OF THE DI REDUCING TEE SHALL BE PROVIDED.
 4. TEE SHALL BE COLD APPLIED TAPE COATED PER AWWA C209 AND COATED WITH FUSION BONDED EPOXY INTERIOR AND EXTERIOR PER SPECIFICATIONS.



ALTERNATIVE CONFIGURATION "A"
N.T.S

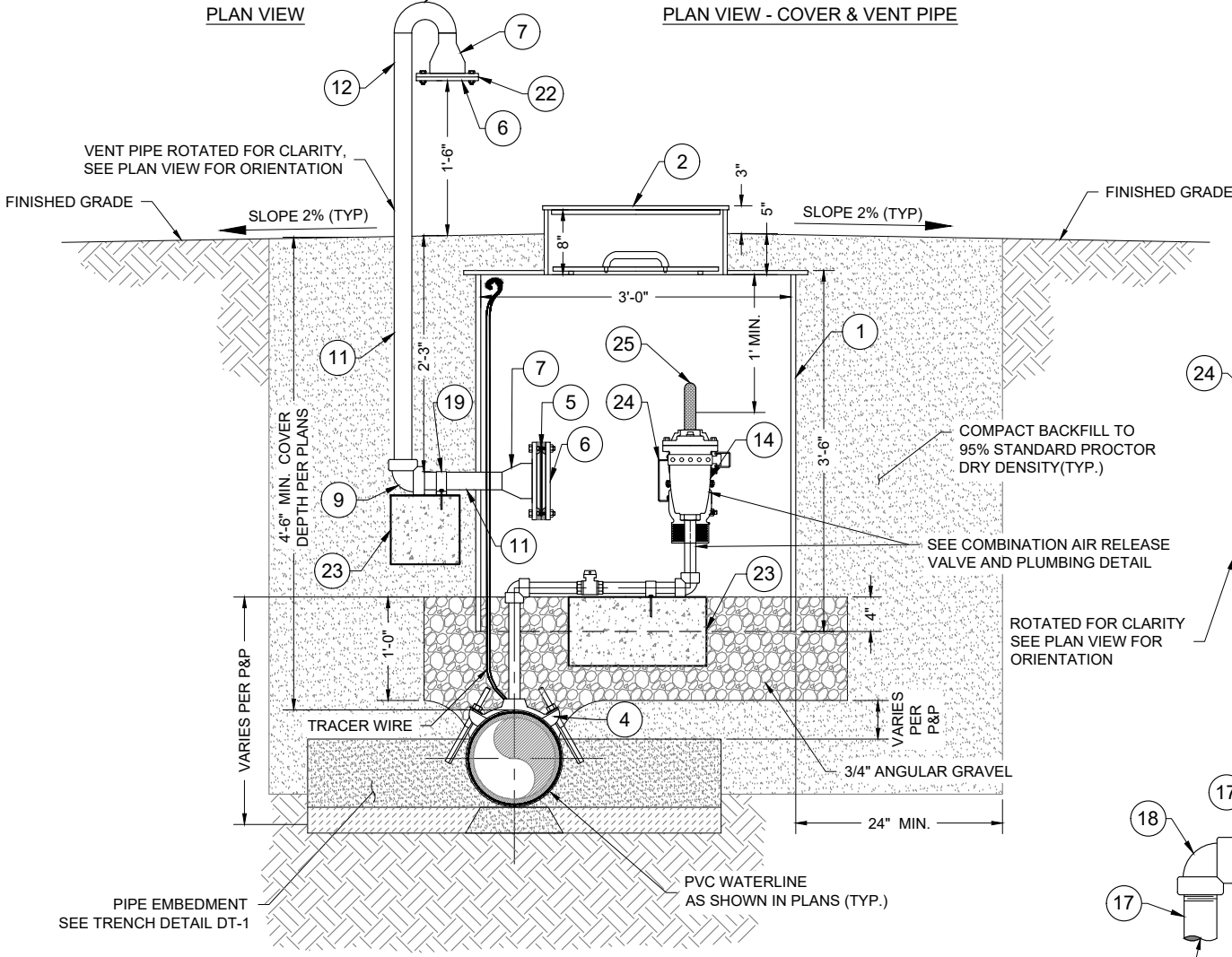


VALVE WARNING TAG DETAIL
(HANG FROM 1" COMBINATION AIR VALVE)

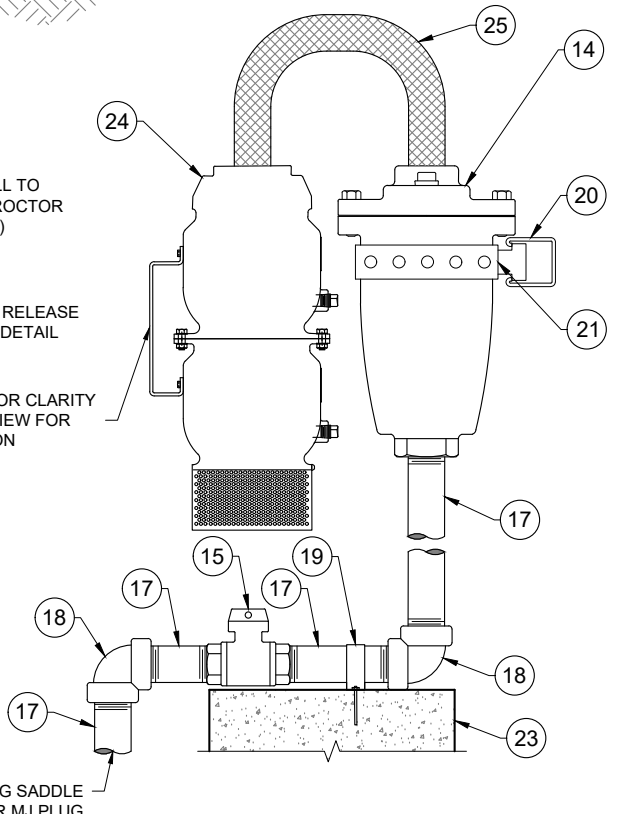
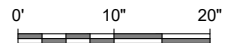
KEYED NOTES - 1" COMBINATION AIR VALVE ASSEMBLY

Item No.	Description
1	36" DIA. PLASTIC (METER) PIT WITH REMOVABLE FROST LID
2	20" METER PIT LOCKING COVER(CAST IRON)WITH FROST PROOF INNER LID
3	4" x 4" x 2" MJ x MJ TAPPED TEE, D.I., 350 psi WP
4	4" x 1" TAPPING SADDLE, D.I. W/ FUSION BONDED NYLON COATING, SS 304 DUAL STRAPS AND SS 304 BOLT KIT, FNPT, ROMAC 202 NS, OAE, 350 psi WP
5	4" FREEZE PREVENTION DRAFT DAMPENER. VALMATIC FROSTSAFE MODEL #1504, OAE
6	4" GALVANIZED IRON COMPANION FLANGE, DRILLED TO FIT
7	4" FLANGED x 2" WELDED GALVANIZED IRON REDUCER (PIPE EXTERIOR PAINTED BLUE)
8	4" x 1" TAPPED THREADED MJ PLUG, D.I., 350 psi, FBE COATED
9	2" GALVANIZED IRON 90° ELBOW, THREADED (PIPE EXTERIOR COLD-APPLIED TAPE COATED)
10	2" SS 304 ANCHOR BOLTS, NUTS AND FENDER WASHERS (2x EACH SIDE)
11	2" STD. GALVANIZED IRON PIPE, THREADED END (PIPE EXTERIOR COLD-APPLIED TAPE COATED)
12	2" STD. GALVANIZED IRON PIPE (PIPE EXTERIOR PAINTED BLUE)
13	2" GALVANIZED IRON LONG RADIUS WELDED RETURN (PIPE EXTERIOR PAINTED BLUE)
14	1" VALMATIC MODEL NO. 201C SV COMBINATION AIR VALVE (SINGLE BODY TYPE), 300 psi
15	1" CURB STOP, BRONZE, NPT, APOLLO MODEL 78-622-01, (O.A.E.)
16	2" MALE x 1" FEMALE REDUCING BUSHING, NPT, SS 304
17	1" NIPPLE, SS 304, NPT
18	1" 90° ELBOW, SS 304, NPT, SCHEDULE 40
19	1" WIDE PIPE STRAP, BOLT TO SUPPORT BLOCK (3" BOLTS)
20	1 5/8" GALVANIZED UNI-STRUT (ADJUST AS NEEDED TO FIT BOTH VALVES AND PIPING)
21	STAINLESS STEEL PERFORATED METAL HANGER STRAP
22	VARMINT SCREEN
23	CONCRETE SUPPORT BLOCK, SOLID 8" x 8" x 16" (MIN. 3" FROM EDGE OF PIPE)
24	1" VALMATIC FLOODSAFE PREVENTER
25	1" STAINLESS STEEL BRAIDED HOSE

- NOTES:**
1. ALL FLANGES SHALL BE FLAT FACED, UNLESS OTHERWISE NOTED.
 2. ALL NON-STAINLESS METALLIC PIPE IN CONTACT WITH SOIL SHALL BE COLD APPLIED TAPE-COATED PER AWWA C209.
 3. COMBINATION AIR VALVE TO BE LOCATED IN FIELD BY ENGINEER.
 4. COIL TRACER WIRE ON INSIDE WALLS AT TOP OF METER PIT.
 5. ALL STAINLESS STEEL PIPE AND FITTINGS SHALL HAVE A WORKING PRESSURE OF AT LEAST 350 psi, UNLESS OTHERWISE NOTED.
 6. REMOVE ALL PVC CUTTINGS FROM INSIDE MAIN LINE AFTER TAPPING.
 7. CONTRACTOR SHALL ATTACH PLACARD TO ALL COMBO AIR VALVE METER BOX LIDS, INFORMATION AS FOLLOWS: AS BUILT PIPE STATION, VALVE SIZE, "COMBO ARV", PIPE SIZE AND MATERIAL. SEE DETAIL, THIS SHEET.
 8. DO NOT TAP FUSIBLE OR RESTRAINED PIPE. USE ALTERNATIVE CONFIGURATION "A" IN LIEU OF TAPPING.
 9. APPLY CATHODIC PROTECTION TO ALL NON-STAINLESS METALLIC COMPONENTS IN CONTACT WITH SOIL LOCATED WITHIN CORROSIVE SOIL ZONES, AS DESIGNATED IN THE PLANS AND/OR SPECIFICATIONS.
 10. ALL MATERIALS RATED TO AT LEAST THE PIPE PRESSURE RATING UNLESS OTHERWISE NOTED.
 11. PIPE SECTION SHALL NOT BE BENT AT COMBO AIR VALVE INSTALLATION LOCATIONS, SEE DETAIL THIS SHEET.

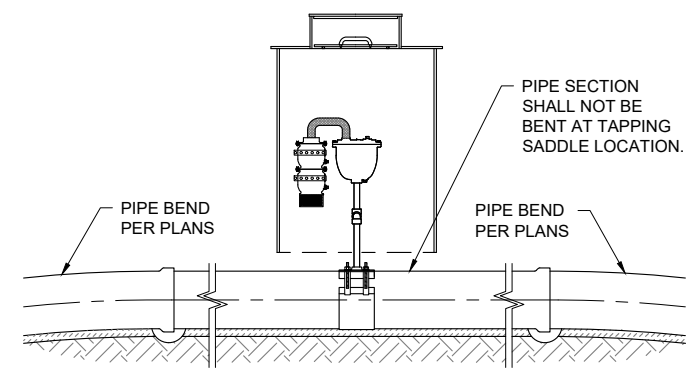


COMBINATION AIR VALVE DETAIL
ELEVATION VIEW



COMBINATION AIR VALVE AND PLUMBING DETAIL
ELEVATION VIEW

N.T.S.



PIPE BENDING RESTRICTIONS FOR USE WITH TAPPING SADDLE
ELEVATION VIEW

N.T.S.

By: CHKD
Description:
Revision Date:
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Location: Smith Lake, NM
COMBINATION AIR VALVE DETAILS
SMITH LAKE CHAPTER
WATER SYSTEM IMPROVEMENTS PROJECT
McKINLEY COUNTY, NEW MEXICO
SECTION 8, T. 15 N., R. 12 W.

Client: The Navajo Nation
DESIGNED BY: RYAN M. BIEHL
NEW MEXICO
22281
06-03-24
PROFESSIONAL ENGINEER

Designed: TTT
Drawn: AAV
Checked: JMM

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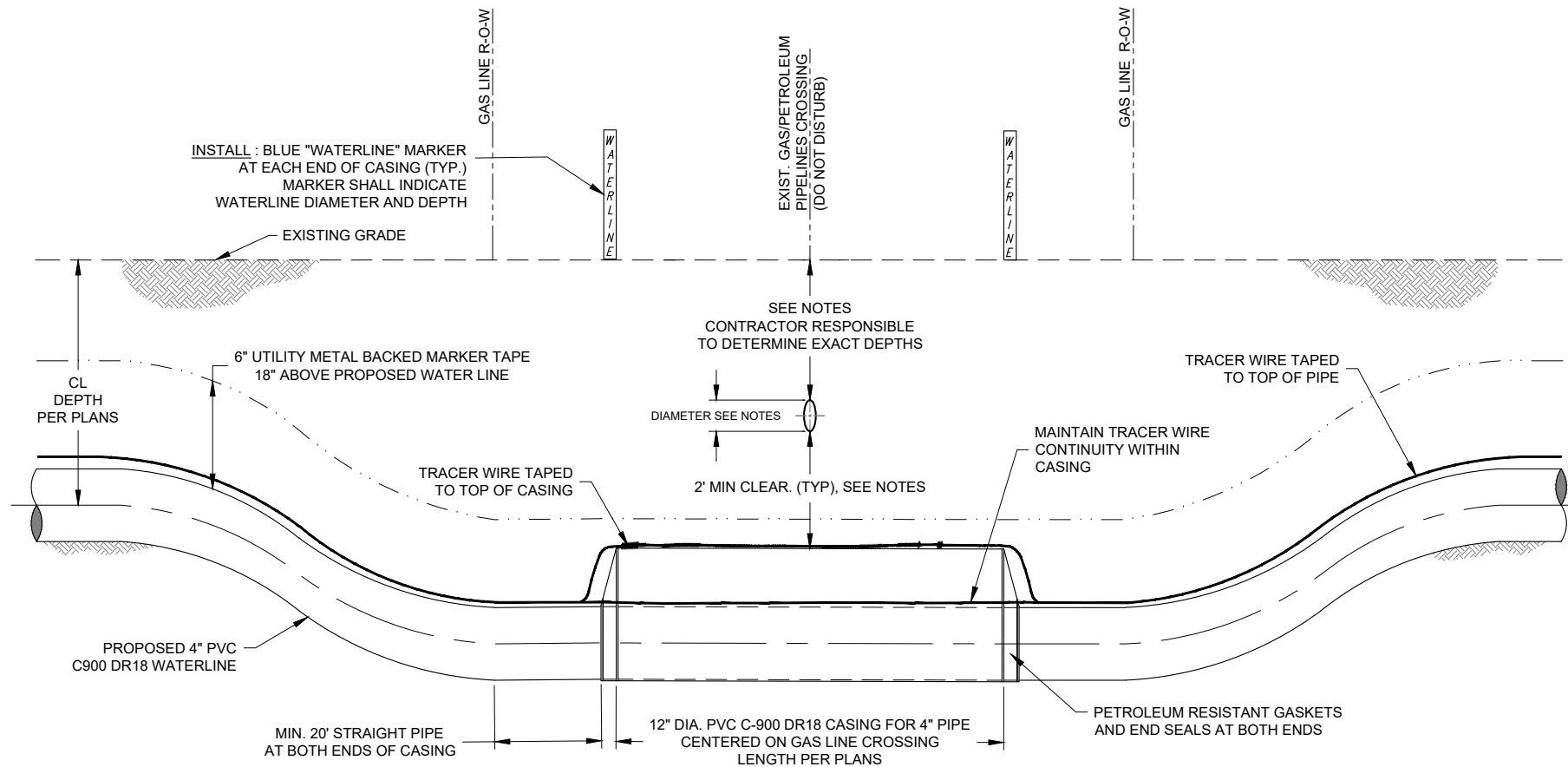
Project No: 6922268
Sheet: DT-13

SPECIAL NOTES AND CONTACTS-UTILITY PIPELINE CROSSINGS

NOTES:

1. NOTIFY GAS LINE COMPANIES (LISTED BELOW) 30 WORKING DAYS AND CALL NM ONE-CALL AT LEAST 3 WORKING DAYS PRIOR TO GRADING, CROSSING, MATERIAL STORAGE OR EQUIPMENT MOVING ACROSS GAS LINE RIGHT-OF-WAY OR ADJACENT ACCESS ROADS.
2. GAS LINE COMPANY REPRESENTATIVE **MUST** BE PRESENT DURING ALL CONSTRUCTION ACTIVITIES WITHIN GAS LINE RIGHT-OF-WAY, INCLUDING GRADING, EXCAVATION AND CLEANUP.
3. CONTRACTOR RESPONSIBLE TO LOCATE AND EXPOSE ALL EXISTING GAS / PETROLEUM LINES, IN ACCORDANCE WITH GAS COMPANY REQUIREMENTS.
4. EXCAVATE BY HAND OR VACUUM DRILL WITHIN 2 FEET OF GAS LINE. IF GAS LINE COMPANY APPROVES, CONTRACTOR MAY INSTALL CASING BY BORING, USING FUSIBLE PVC CASING WITH INTERIOR WELD BEAD REMOVED.
5. CROSS UNDER ALL GAS LINES. CROSSINGS REQUIRE 2' MIN. CLEARANCE FROM TOP OF CASING TO BOTTOM OF GAS LINE. WHERE MULTIPLE GAS LINES ARE CROSSED IN THE SAME ROW, MAINTAIN MIN. CLEARANCE UNDER THE LOWEST GAS LINE.
6. CONTRACTOR SHALL NOT SUSPEND EXISTING GAS LINE PIPE MORE THAN 12 FEET WITHOUT SOIL BEDDING OR OTHER SUPPORT APPROVED BY GAS LINE COMPANY.
7. COMPLETE ANY AND ALL ENCROACHMENT AGREEMENTS REQUIRED BY GAS LINE COMPANIES. ABIDE BY ALL CONDITIONS STIPULATED BY GAS LINE COMPANIES AND PROVIDE COPIES TO ENGINEER.
8. HEAVY EQUIPMENT MUST CROSS PIPELINE ONLY AT CROSSING LOCATIONS APPROVED BY GAS LINE COMPANIES.
9. FOR MINIMUM PVC PIPE RESTRAINT REQUIREMENTS ON EACH SIDE OF CASING, SEE TABLE SHEET DT-3. ALL REMAINING CARRIER PIPE WITHIN A 200 FT. RADIUS OF LIQUID PETROLEUM LINE SHALL BE BELL-AND-SPIGOT PVC WITH PETROLEUM RESISTANT GASKETS. CASING SHALL EITHER BE BELL AND SPIGOT PVC.
10. TRACER WIRE CONTINUITY SHALL BE MAINTAINED ACROSS THE GAS LINE XING.
11. THE INSIDE OF THE CASING AND THE OUTSIDE OF THE CARRIER PIPE MUST BE FREE OF ANY IRREGULARITIES THAT WOULD CAUSE A POINT LOAD ON CARRIER PIPE. ENGINEER RESERVES THE RIGHT TO REQUIRE SPACERS (MAX. 10' APART) IF CASING OR CARRIER PIPE ARE NOT SUFFICIENTLY SMOOTH AND REGULAR. EXTERIOR WELD BEADS SHALL BE REMOVED FROM FUSIBLE PVC CARRIER PIPE.
12. APPROXIMATE DEPTH CALL OUTS OF GAS LINES ARE MEASURED FROM THE EXISTING GROUND TO THE TOP OF PIPE. APPROXIMATE DEPTH CALL OUTS OF CASING MEASURED FROM BOTTOM OF EXISTING GAS LINES TO TOP OF CASING.

(1) = STA: 14+72.4 (APPROX.)
 MPLX/WESTERN REFINING PIPELINE COMPANY
 CONTACT: JEREMY WILLIE (505)-592-6194
 1 GAS PIPELINE
 (6" Ø GASLINE CROSSING (DEPTH 40"))



TYPICAL GAS PIPELINE CROSSING DETAIL

NOT TO SCALE

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Client: The Navajo Nation
 Location: Smith Lake, NM

GAS LINE CROSSING DETAILS
SMITH LAKE CHAPTER
WATER SYSTEM IMPROVEMENTS PROJECT
 MCKINLEY COUNTY, NEW MEXICO
 SECTION 8, T. 15 N., R. 12 W.



Designed RMB	Drawn AAV	Checked JMM
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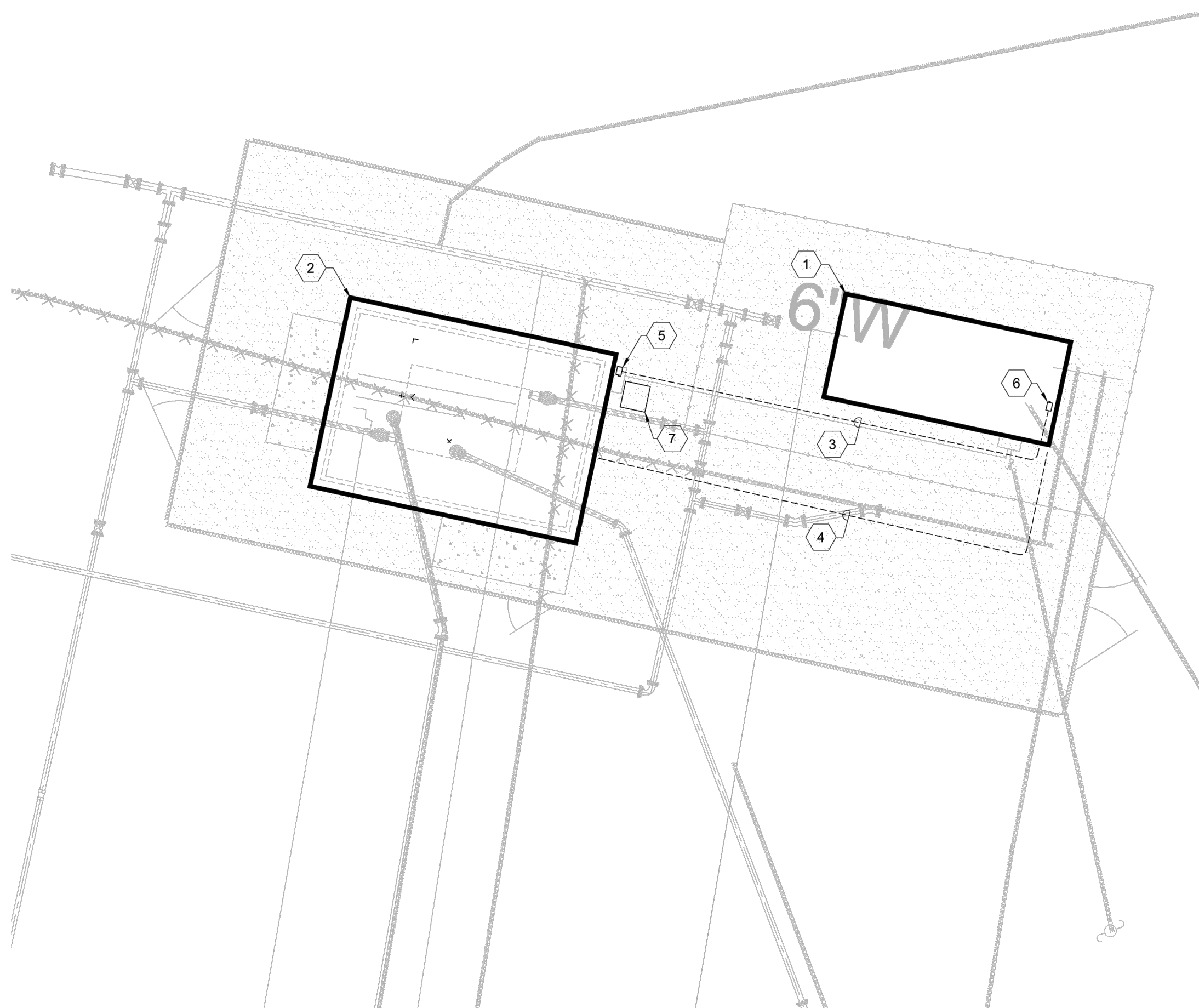
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Project No: 6922268
 Sheet: DT-14

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GENERAL NOTES

- A. ALL CONDUITS SHOWN DASHED SHALL BE BURIED A MINIMUM OF 36" BELOW FINISHED GRADE. ALL CONDUITS THAT COME IN CONTACT WITH THE GROUND SHALL BE PVC OR DOUBLE LAPPED WRAPPED WITH SCOTCHWRAP-51.
- B. REFER TO SHEET E-1 FOR "ELECTRICAL SYMBOL LEGEND" AND "GENERAL NOTES".
- C. REFER TO SHEET E-5 FOR "POWER RISER DIAGRAM".
- D. FIELD COORDINATE ALL EQUIPMENT WITH OWNER PRIOR TO INSTALLATION.
- E. ALL UTILITY EQUIPMENT SHALL BE FULLY COORDINATED WITH UTILITY COMPANY PRIOR TO INSTALLATION.

KEYED NOTES

- 1. APPROXIMATE LOCATION OF EXISTING WELLHOUSE BUILDING.
- 2. APPROXIMATE LOCATION OF NEW TREATMENT BUILDING.
- 3. UNDERGROUND FEEDER FROM EXISTING PANEL "A" LOCATED WITHIN WELLHOUSE BUILDING TO NEW PANEL "B" IN TREATMENT BUILDING.
- 4. UNDERGROUND 1 1/2" CONDUIT FOR CABLES AND CONDUCTORS BACK TO PLC LOCATED WITHIN WELLHOUSE BUILDING.
- 5. PROVIDE AND INSTALL NEW HEAVY-DUTY, 30 AMP, 250 VOLT, FUSIBLE DISCONNECT SWITCH IN NEMA 3R ENCLOSURE. PROVIDE AND INSTALL 30 AMP FUSES WITHIN DISCONNECT.
- 6. PROVIDE AND INSTALL A NEW 30 AMP, 600 VOLT, 2-POLE, HEAVY-DUTY, FUSIBLE DISCONNECT SWITCH IN NEMA 1 ENCLOSURE LOCATED WITHIN EXISTING BUILDING. CONTRACTOR SHALL MAINTAIN WORKING CLEARANCE OF DISCONNECT SWITCH PER NEC AND COORDINATE EXACT LOCATION IN FIELD. TAP CONDUCTOR LENGTH SHALL BE LESS THAN 10 FEET PER NEC 240.21(B)(1).
- 7. PROVIDE AND INSTALL A NEW 15 KVA TRANSFORMER IN A NEMA 3R ENCLOSURE. PRIMARY: 480V-1Ø. SECONDARY: 120/240V-1Ø.

WARNING

IF ANY UTILITY LINES, PIPELINES, OR UNDERGROUND UTILITY LINES ARE SHOWN ON THESE DRAWINGS, THEY ARE SHOWN IN AN APPROXIMATE MANNER ONLY, AND SUCH LINES MAY EXIST WHERE NONE ARE SHOWN. IF ANY SUCH EXISTING LINES ARE SHOWN, THE LOCATION IS BASED UPON INFORMATION PROVIDED BY THE UTILITY OR PIPELINE COMPANY, THE OWNER OR BY OTHERS, AND THE INFORMATION MAY BE INCOMPLETE, OR MAY BE OBSOLETE BY THE TIME CONSTRUCTION COMMENCES.

THE ENGINEER HAS UNDERTAKEN NO FIELD VERIFICATION OF THE LOCATION, DEPTH, SIZE OR TYPE OF EXISTING UTILITY LINES, PIPELINES, OR UNDERGROUND UTILITY LINES, MAKES NO REPRESENTATION PERTAINING THERETO, AND ASSUMES NO RESPONSIBILITY OR LIABILITY THEREFORE. THE CONTRACTOR SHALL INFORM ITSELF TO THE LOCATION OF ANY UTILITY LINE, PIPELINE OR UNDERGROUND UTILITY LINE IN OR NEAR THE AREA OF THE WORK IN ADVANCE OF AND DURING EXCAVATION WORK. THE CONTRACTOR IS FULLY RESPONSIBLE OF ANY AND ALL DAMAGE CAUSED BY ITS FAILURE TO LOCATE, IDENTIFY AND PRESERVE ANY AND ALL EXISTING UTILITIES, LINES, PIPELINES, OR UNDERGROUND UTILITY LINES. THE CONTRACTOR SHALL COMPLY WITH STATE STATUTES, MUNICIPAL AND LOCAL ORDINANCES, RULES, AND REGULATIONS, IF ANY, PERTAINING TO THE LOCATION OF THESE LINES AND FACILITIES IN PLANNING AND CONDUCTING EXCAVATION, WHETHER BY CALLING OR NOTIFYING THE UTILITIES, COMPLYING WITH "NM ONE CALL" PROCEDURES, OR OTHERWISE.



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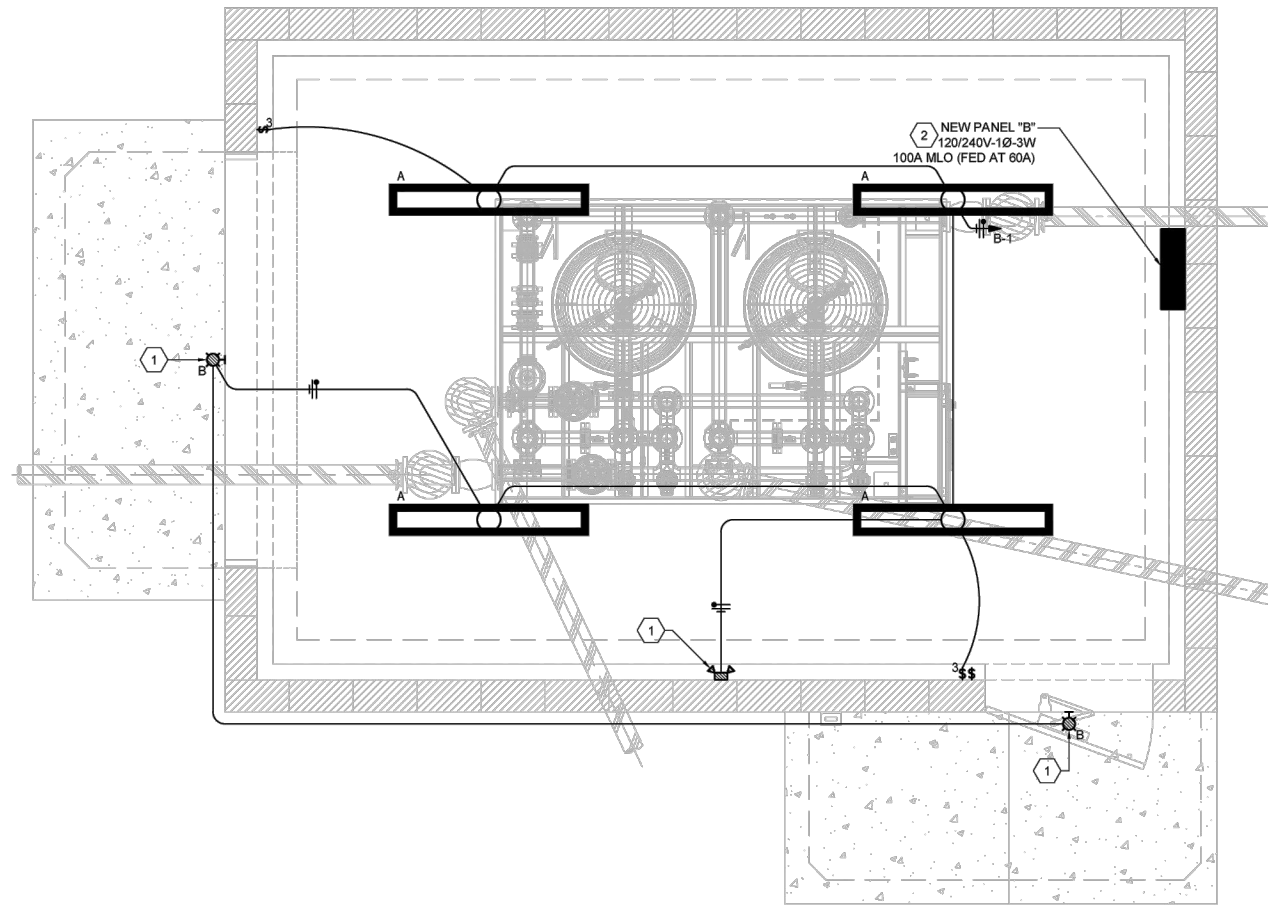
Client: The Navajo Nation
 Location: Smith Lake, NM
ELECTRICAL SITE PLAN
SMITH LAKE CHAPTER
WATER SYSTEM IMPROVEMENTS PROJECT
 MCKINLEY COUNTY, NEW MEXICO
 SECTION 8, T. 15 N., R. 12 W.



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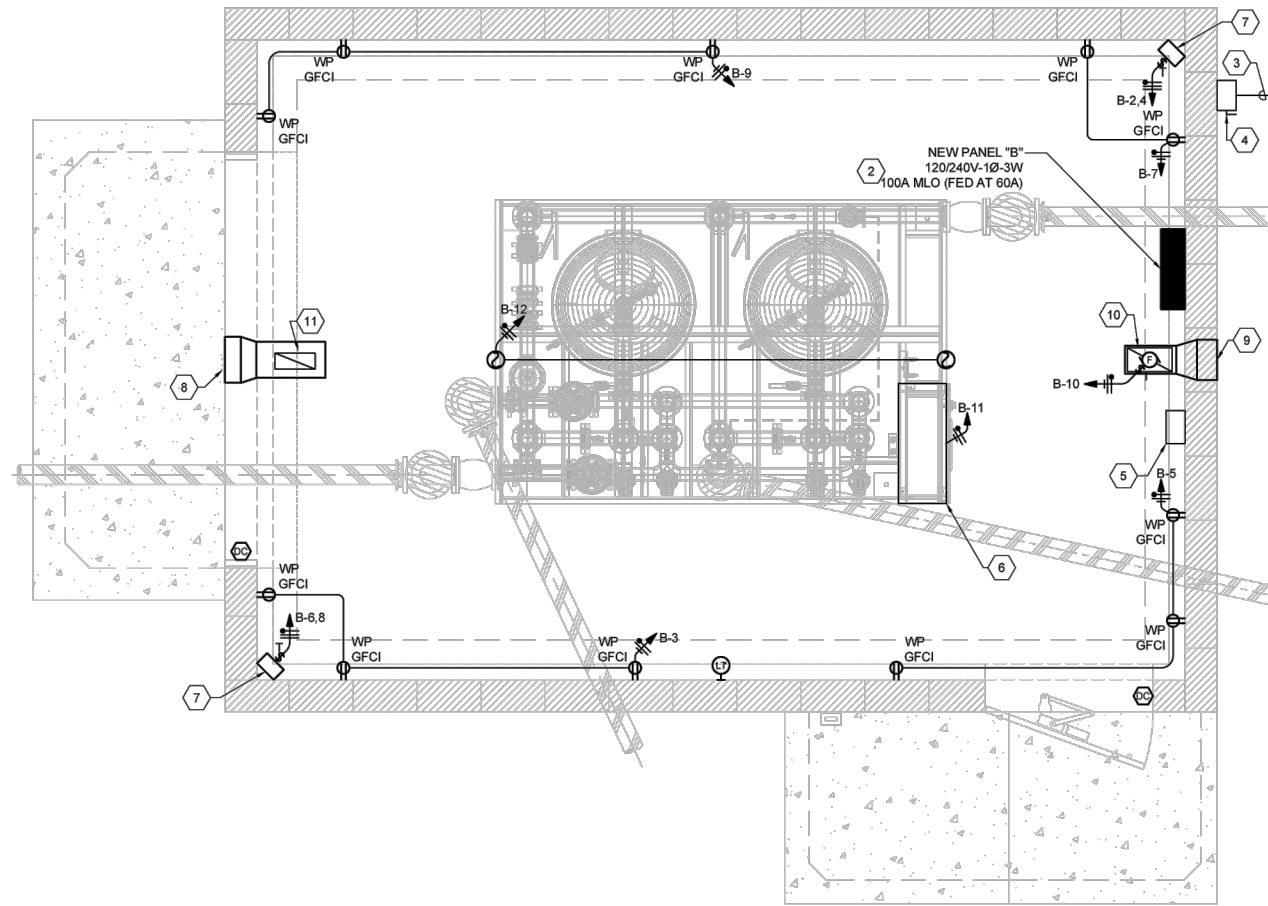
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Sheet: E-2



LIGHTING PLAN

SCALE: 1/2" = 1'-0"



POWER AND SPECIAL SYSTEMS PLAN

SCALE: 1/2" = 1'-0"

KEYED NOTES

1. LIGHT FIXTURE INDICATED SHALL BE CIRCUITED WITH AN 'UNSWITCHED' HOT CONDUCTOR FOR BATTERY CHARGING CIRCUIT.
2. REFER TO POWER RISER DIAGRAMS ON SHEET E-5 FOR ADDITIONAL INFORMATION.
3. INCOMING UNDERGROUND CONDUCTORS FROM PANEL "A" LOCATED IN THE WELLPUMP BUILDING.
4. PROVIDE AND INSTALL NEW HEAVY-DUTY, 60 AMP, 250 VOLT, FUSIBLE DISCONNECT SWITCH IN NEMA 3R ENCLOSURE. PROVIDE AND INSTALL 60 AMP FUSES WITHIN DISCONNECT.
5. PROVIDE AND INSTALL A JUNCTION BOX SIZED FOR ALL THE SIGNAL CABLES AND CONDUCTORS TO BE ROUTED TO THE PLC LOCATED IN WELLPUMP BUILDING. REFER TO CONTROL PLAN ON SHEET E-4 FOR ADDITIONAL INFORMATION.
6. CONTROL PANEL PROVIDED WITH AEDGE TREATMENT SYSTEM. CONTRACTOR IS RESPONSIBLE FOR 1" CONDUIT BELOW SLAB WITH A CAT6 CABLE FOR COMMUNICATIONS TO PLC LOCATED IN WELLPUMP BUILDING. REFER TO CONTROL PLAN ON SHEET E-4 FOR ADDITIONAL INFORMATION. CONTRACTOR IS ALSO RESPONSIBLE FOR 1" CONDUIT BELOW SLAB WITH 3#10 THWN Cu ROUTED TO PANEL "B" FOR POWER AS SHOWN ON THE PLANS.
7. PROVIDE AND INSTALL A 2.6 KW 240 VOLTS, SINGLE PHASE ELECTRIC WALL MOUNTED HEATER WITH INTEGRAL THERMOSTAT. HOMERUN 3 # 10 - 1/2" CONDUIT TO CIRCUIT INDICATED. HEATER SHALL BE AS MANUFACTURED BY CHROMALOX #HVH-02-1-00-TL-D-00-0-0-S-HVW-1.
8. 18x18 AIR INTAKE GRILLE - RUSKIN ELF375 OR EQUAL. INSTALL IN GABLE BETWEEN ROOF TRUSSES. DIMENSIONS MAY BE MODIFIED TO EQUIVALENT PERFORMANCE TO ACCOMMODATE STRUCTURAL CONSTRAINTS. PROVIDE DUCTWORK TRANSITION AS REQUIRED.
9. 18x18 EXHAUST GRILLE - RUSKIN ELF375 OR EQUAL. INSTALL IN GABLE BETWEEN ROOF TRUSSES. DIMENSIONS MAY BE MODIFIED TO EQUIVALENT PERFORMANCE TO ACCOMMODATE STRUCTURAL CONSTRAINTS. PROVIDE DUCTWORK TRANSITION FROM EXHAUST FAN.
10. CEILING EXHAUST FAN. GREENHECK SP-A 1050. 885 CFM. .0375"WC. 5.5 SONES. 420 WATTS. 6.3 AMPS. OVERALL DIMENSIONS 14.5" TALL, 23.75"WIDE, 14.5" DEEP. CONTROL FROM LINE VOLTAGE WALL THERMOSTAT WITH ON/OFF OVERRIDE.
11. 12x12 TITUS MODEL EGC CEILING RETURN GRILLE. 18X12 AIR INTAKE METAL DUCTWORK. TRANSITION FROM OUTSIDE LOUVER. INSULATE WITH 1-1/2" FIBERGLASS ALUMINUM FACED SEALED WITH TAPED JOINTS.

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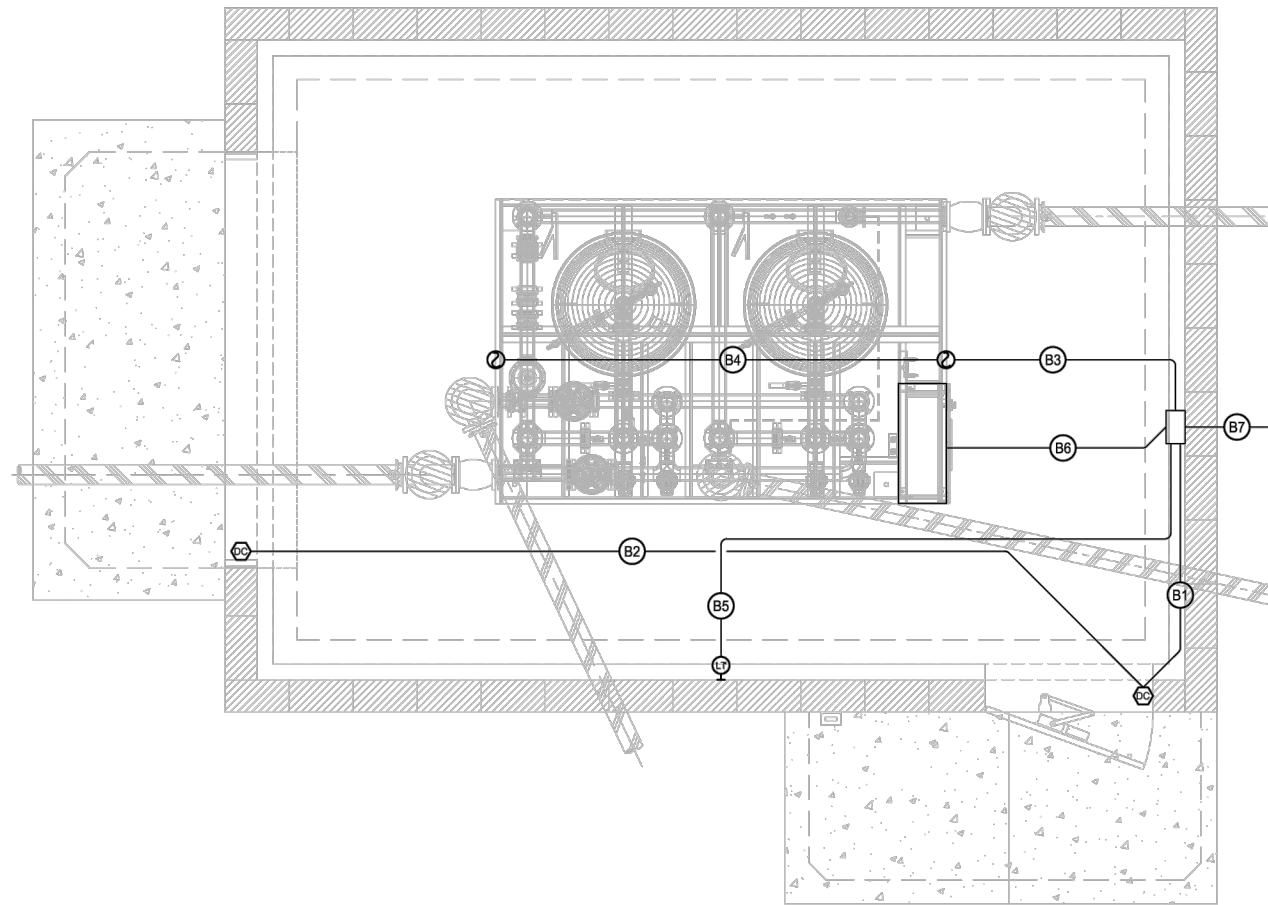
Client: The Navajo Nation
 Location: Smith Lake, NM
ELECTRICAL PLANS
SMITH LAKE CHAPTER
WATER SYSTEM IMPROVEMENTS PROJECT
 MCKINLEY COUNTY, NEW MEXICO
 SECTION 8, T. 15 N., R. 12 W.

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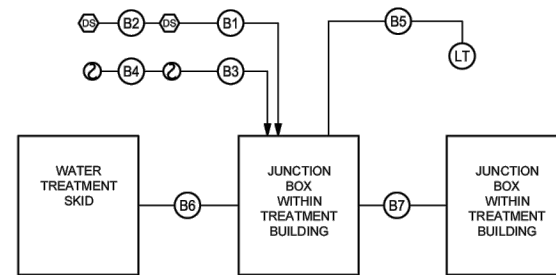
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 An Electrical Engineering Corporation
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 Albuquerque, New Mexico 87109
 Phone: (505) 323-7529 Fax: (505) 323-7594
 E-mail: theresponsegroup@trg-inc.net



POWER AND SPECIAL SYSTEMS PLAN

SCALE: 1/2" = 1'-0"

Control Wiring Schedule - Treatment Building			
TAG #	FED FROM	TO	WIRE REQUIREMENTS
B1	Door Switch	Junction box	2 # 14, 1 # 14 Gnd - 1/2" Conduit
B2	Door Switch	Door Switch	2 # 14, 1 # 14 Gnd - 1/2" Conduit
B3	Smoke Detector	junction box	2 # 14, 1 # 14 Gnd - 1/2" Conduit
B4	Smoke Detector	Smoke Detector	2 # 14, 1 # 14 Gnd - 1/2" Conduit
B5	Low Temperature Sensor	junction box	2 # 14, 1 # 14 Gnd - 1/2" Conduit
B6	Treatment system	junction box	(1) CAT6 CABLE - 1/2" CONDUIT
B7	junction box	PLC	all cables from B1 - B6 in 1 1/2" conduit



SURGE TANK BUILDING - CONTROL RISER DIAGRAM

SCALE: NONE

DISCRETE & ANALOG I/O LIST

Site Name	I/O Name	Tag	Point	Type	Local	SCADA	Notes
TREATMENT Building	Treatment Bldg. Intrusion Man Door		I1	DI		Yes	
	Treatment Bldg. Intrusion Roll Up Door		I2	DI		Yes	
	Treatment Bldg. Smoke Detector		I3	DI		Yes	
	Low Temperature Sensor		I5	DI		Yes	

Revision	Date	Description	By	Chkd

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Location: Smith Lake, NM
CONTROL PLAN
SMITH LAKE CHAPTER
WATER SYSTEM IMPROVEMENTS PROJECT
 MCKINLEY COUNTY, NEW MEXICO
 SECTION 8, T. 15 N., R. 12 W.

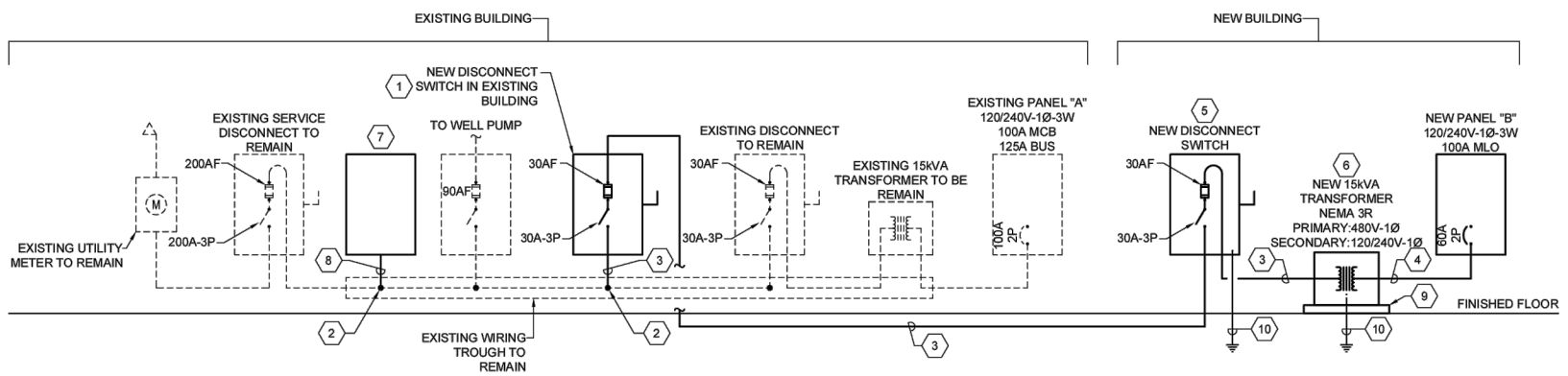
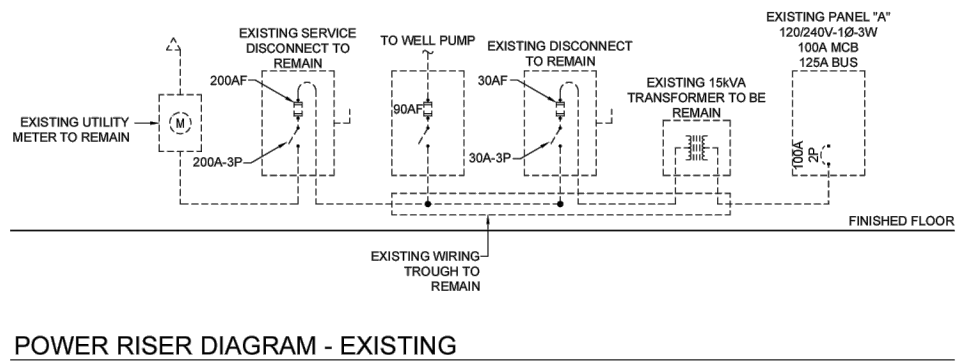
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Sheet: E-4

LOAD SUMMARY SERVICE DISCONNECT	
DESCRIPTION	
SERVICE DISCONNECT ESTIMATED DEMAND PER NEC 220	
EXISTING LOAD (60.3 KVA CONN) AT 125%	75.4 KVA
MECHANICAL UNITS (3.2 KVA CONN)	
LARGEST AT 125% (2.4 KVA)	3.0 KVA
REMAINING AT 100% (0.8 KVA)	0.8 KVA
RECEPTACLES (2.0 KVA CONN)	
FIRST 10 KVA AT 100%	2.0 KVA
REMAINING AT 50%	0.0 KVA
LIGHTING (0.2 KVA CONN) AT 125% (CONTINUOUS LOAD)	0.3 KVA
EQUIPMENT (5.4 KVA CONN) AT 100%	5.4 KVA
TOTAL ESTIMATED LOAD:	86.9 KVA
105 AMPERES AT 480V/277V-3Ø-4W	
EXISTING SERVICE SIZE =	200 AMPS



POWER RISER DIAGRAM - NEW WORK

- KEYED NOTES**
- PROVIDE AND INSTALL A NEW 30 AMP, 600 VOLT, 2-POLE, HEAVY-DUTY, FUSIBLE DISCONNECT SWITCH IN NEMA 1 ENCLOSURE LOCATED WITHIN EXISTING BUILDING. CONTRACTOR SHALL MAINTAIN WORKING CLEARANCE OF DISCONNECT SWITCH PER NEC AND COORDINATE EXACT LOCATION IN FIELD. TAP CONDUCTOR LENGTH SHALL BE LESS THAN 10 FEET PER NEC 240.21(B)(1).
 - CONTRACTOR SHALL PROVIDE AND INSTALL PRE-INSULATED TAPS WITHIN WIRING TROUGH FOR NEW TAP CONDUCTORS. PRE-INSULATED TAPS SHALL BE SIZED FOR EXISTING AND NEW CONDUCTORS.
 - 2#10 THWN Cu AND 1#10 THWN Cu GROUND IN 1" CONDUIT.
 - 3#4 THWN Cu AND 1#10 THWN Cu GROUND IN 1 1/4" CONDUIT OR 3#3 XHHW AI AND 1#8 XHHW AI GROUND IN 1 1/4" CONDUIT.
 - PROVIDE AND INSTALL NEW HEAVY-DUTY, 600 VOLT, 2-POLE, 30 AMP, FUSIBLE DISCONNECT SWITCH IN NEMA 3R ENCLOSURE. PROVIDE AND INSTALL NEW 30 AMP FUSES WITHIN DISCONNECT SWITCH. REFER TO "POWER AND SPECIAL SYSTEMS PLAN" ON SHEET E-3 FOR LOCATION AND ADDITIONAL INFORMATION.
 - PROVIDE AND INSTALL NEW 15kVA TRANSFORMER NEMA 3R ENCLOSURE. PRIMARY: 480V SINGLE PHASE. SECONDARY: 120/240V SINGLE PHASE.
 - TEMPORARY OVERVOLTAGE PROTECTION SPD, UL 1449 4TH EDITION LISTED, TYPE 1, INOMINAL = 20 KA. INSTALL EXTERNAL TO GEAR. NEMA 4/12 ENCLOSURE. SURGE CURRENT RATING TO BE A TESTED VALUE. 20 YEAR WARRANTY. NETWORK-BASED MONITORING SYSTEM, INSTALLED TESTING WITH A PORTABLE SURGE GENERATOR-TEST SET. RECORD ALL LET-THRU VOLTAGES. SUBMIT A REPORT TO THE ENGINEER. CURRENT TECHNOLOGY SL3-50. COORDINATE EXACT LOCATION IN FIELD. TAP CONDUCTOR LENGTH SHALL BE LESS THAN 10 FEET PER NEC 240.21(B)(1).
 - 4#2 THWN Cu AND 1#2 THWN Cu GROUND IN 1 1/2" CONDUIT.
 - PROVIDE AND INSTALL 6" THICK CONCRETE HOUSEKEEPING PAD FOR PADMOUNTED TRANSFORMER. PAD SHALL EXTEND BEYOND FOOTPRINT OF TRANSFORMER BY A MINIMUM OF 6" IN ALL DIRECTIONS.
 - REFER TO "GROUNDING SYSTEM DIAGRAM" ON SHEET E-6 FOR ADDITIONAL INFORMATION.

PANEL SCHEDULE - NEW PANEL "B"											
LOCATION: Water Treatment Building			VOLTAGE: 120/240V-1P-3W			CAPACITY: 100A			Main: 60A		
FED FROM: 15KVA TRANSFORMER			ENCLOSURE: NEMA 3R			MOUNTING: SURFACE			AIC: 10,000		
BKR SIZE	DESCRIPTION	DEMAND CODE	LOAD (VA)	CKT #	LOAD (VA) PHASE A	LOAD (VA) PHASE B	CKT #	LOAD (VA)	DEMAND CODE	DESCRIPTION	BKR SIZE
20A-1P	LIGHTING	LIG	230	1	1530		2	1300	EQP	UNIT HEATER	20A-2P
20A-1P	RECEPTACLES	REC	540	3		1840	4	1300	EQP		
20A-1P	RECEPTACLES	REC	540	5		1840	6	1300	EQP		
20A-1P	RECEPTACLES	REC	360	7		1660	8	1300	EQP	UNIT HEATER	20A-2P
20A-1P	RECEPTACLES	REC	540	9		1370	10	830	MECH	EXHAUST FAN	20A-1P
30A-1P	A DEDGE TREATMENT SKID	LMECH	2400	11		2600	12	200	EQP	SMOKE DETECTORS	20A-1P
1P	SPACE ONLY			5			6			SPACE ONLY	1P
1P	SPACE ONLY			7			8			SPACE ONLY	1P
Total Phase Loads (VA):			4,740		6,100						
Total Phase Loads (Amps):			39.5		50.8						
Total Connected Loads (KVA):			10.8								
Notes: 1. New Panelboard 2. 12-Circuit, Lockable Enclosure 3. Copper Neutral and Ground Bus Bars. 4. Door-in-Door Enclosure.											
LOAD CALCULATIONS - NEW PANEL "B"											
Connected (kVA) by Type:				Estimated Demand (kVA) by Type:				Total Estimated Demand (kVA):			
LIG	Lighting	0.2		Lighting at 125% (kVA)	0.3			Receptacles	2.0		11.5
REC	Receptacles	2.0		10kVA at 100% (kVA)	2.0			Amps at 120/240V-1 Phase (Amps)	47.9		
				Rest at 50% (kVA)	0.0			Panel Ampacity (Rating)	60		
EQP	Equipment	5.4		Eqp at 100% (kVA)	5.4			Spare Capacity	20.2%		
LMECH	Largest Mech.	2.4		Largest at 125% (kVA)	3.0						
MECH	Mechanical	0.8		Rest at 100% (kVA)	0.8						

By: CJK

Description:

Date:

Revision:

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Client: The Navajo Nation
 Location: Smith Lake, NM

ELECTRICAL DETAILS
SMITH LAKE CHAPTER
WATER SYSTEM IMPROVEMENTS PROJECT
 MCKINLEY COUNTY, NEW MEXICO
 SECTION 8, T. 15 N., R. 12 W.

THOMAS F. FARRER
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 PROFESSIONAL ENGINEER
 9/17/24

20306

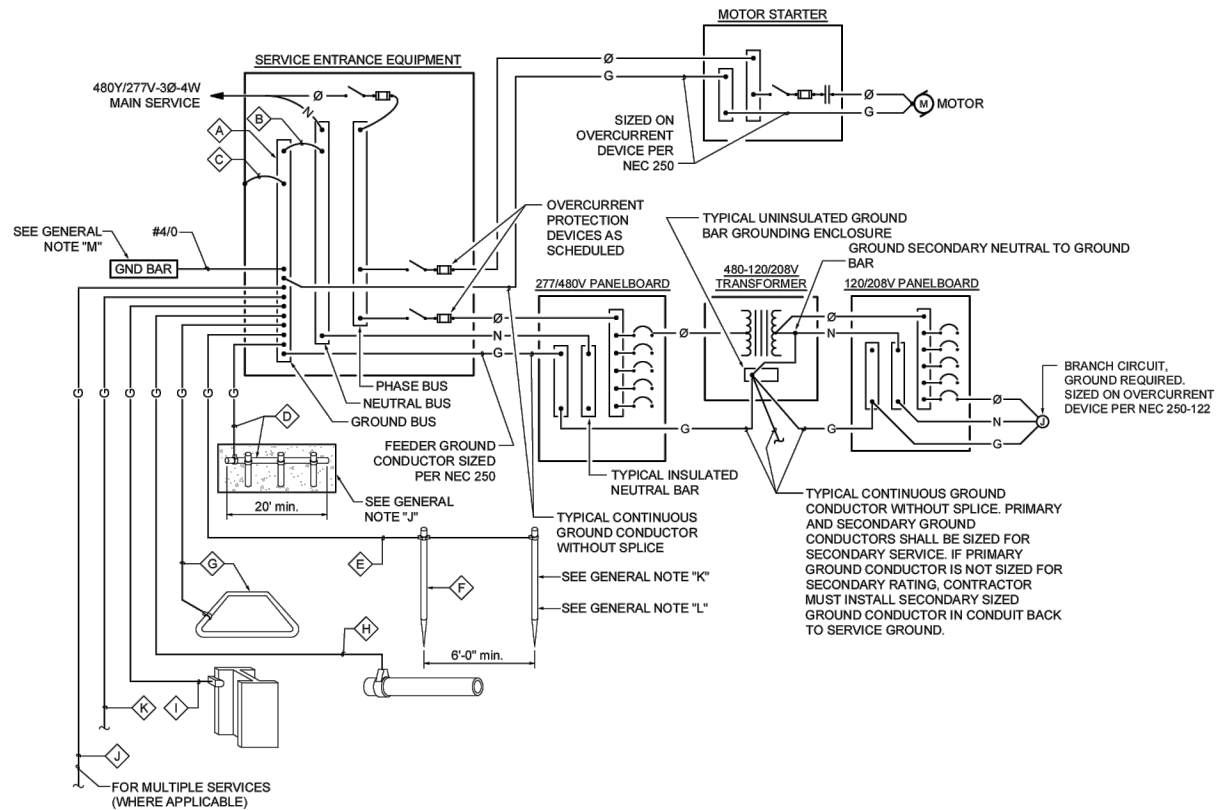
Designed TRG/rhp Drawn TRG/hfp Checked TRG/efr

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GROUNDING SYSTEM DIAGRAM 480Y/277V
NOT TO SCALE

GROUNDING SYSTEM GENERAL NOTES 2018

- A. THE GROUNDING ELECTRODE SYSTEM SHALL CONSIST OF ITEMS A, B, C, D, E, F, AND G, WHERE APPLICABLE.
- B. ITEMS H, I, AND J MUST BE BONDED TOGETHER AND TO THE GROUNDING ELECTRODE SYSTEM WHEN THEY ARE PRESENT.
- C. ITEM D, CONCRETE ENCASED ELECTRODE (UFER) SHALL HAVE UFER SUPPORT CONSISTING OF 5/8" x 10' COPPER GROUND ROD CUT INTO 2 SECTIONS AND DRIVEN FOR SUPPORT OF UFER CONDUCTOR. ONLY COPPER TO COPPER CONNECTIONS ARE ACCEPTABLE. DO NOT USE RE-BAR FOR UFER SUPPORT. (THIS IS TO AVOID THE HARMFUL EFFECTS OF DISSIMILAR METALS IN CONTACT.) A U.L. LISTED COPPER TO RE-BAR CLAMP (SUCH AS GRAVES "JONES BOND" SYSTEM) IS AN APPROVED ALTERNATIVE.
- D. THIS DETAIL IS PROVIDED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE, ARTICLE 250, PERTAINING TO THE "GROUNDING ELECTRODE SYSTEM".
- E. ALL SPLICING AND UNDERGROUND CONNECTIONS SHALL BE ACCOMPLISHED VIA EXOTHERMIC WELD (CAD-WELD) ONLY.
- F. ALL CONDUCTOR SIZING INDICATED ON THE GROUNDING SCHEDULE ARE FOR COPPER CONDUCTORS. ALUMINUM IS NOT PERMITTED.
- G. ANY VARIANCES FROM THIS DIAGRAM AND ASSOCIATED SCHEDULE AND NOTES MUST BE REQUESTED AND APPROVED IN WRITING PRIOR TO INSTALLATION.
- H. ALL INSTALLATIONS SHALL COMPLY WITH THE LATEST ADOPTED EDITION OF N.E.C. ARTICLE 250 (ALL SUBPARAGRAPHS) AND ALL STATE AND LOCAL REQUIREMENTS.
- I. THE GROUNDING SYSTEM SHALL PROVIDE LESS THAN (4) FOUR OHMS RESISTANCE TO GROUND AT THE SERVICE CONNECTION. THE RESULTS SHALL BE VERIFIED BY AN INDEPENDENT TESTING AGENCY VIA GROUND TEST (FALL-OF-POTENTIAL) AND SUBMITTED TO ELECTRICAL ENGINEER UPON COMPLETION OF PROJECT.
- J. IF A 20'-0" LONG (MINIMUM) CONCRETE ENCASED ELECTRODE IS NOT AVAILABLE, CONTRACTOR MAY INSTALL A 20'-0" (MINIMUM) UFER GROUND 30" BELOW GRADE WITH AT LEAST TWO GROUND RODS (ONE AT EACH END).
- K. PROVIDE SECOND GROUND ROD AT LEAST 6'-0" FROM INITIAL GROUND ROD.
- L. WHEN INDICATED ON DRAWINGS, PROVIDE AND INSTALL HORIZONTAL CHEMICAL GROUND ELECTRODE KIT. 10' COPPER ELECTRODE LENGTH, FACTORY ATTACHED 6" #4/0 COPPER PIGTAIL, AND HIGH DENSITY POLYETHYLENE INSPECTION WELL & COVER. ERICO #ECRH10208U OR APPROVED EQUAL. CONTRACTOR SHALL USE MANUFACTURER RECOMMENDED ELECTROLYTIC SALTS, BENTONITE CLAY BACKFILL MATERIAL, AND GROUND ENHANCEMENT MATERIAL (GEM). CONTRACTOR SHALL INSTALL PER MANUFACTURERS RECOMMENDATIONS. CONTRACTOR SHALL MAINTAIN 6'-0" SEPARATION (MINIMUM) BETWEEN GROUNDING ELECTRODES. INSPECTION WELL INSTALLED FLUSH WITH FINAL GRADE.
- M. PROVIDE AND INSTALL 1/4" x 4" x 18" COPPER MAIN GROUNDING BUS BAR WITH BRACKETS AND INSULATORS. CONTRACTOR SHALL COORDINATE PRE-DRILLED (12)-1/4" HOLES REQUIREMENTS WITH PNM (OWNER), ERICO OR APPROVED EQUAL. EXTEND #4/0 CU GROUNDING CONDUCTOR TO MAIN GROUND. COORDINATE EXACT LOCATION AND ROUTING IN THE FIELD. CONTRACTOR SHALL MAKE ALL FINAL TERMINATIONS AS REQUIRED.

	A	B	C	D	E	F	G	H	I	J	K
	FACTORY INSTALLED GROUND BUS BAR	INTEGRATED BUS BAR MAIN BOND JUMPER	INTEGRATED BUS BAR CASE BOND JUMPER	CONCRETE ENCASED ELECTRODE (UFER)	GROUNDING ELECTRODE CONDUCTOR TO ROD, PIPE OR PLATE	CU or CU-CLAD STEEL GROUND ROD	COPPER GROUND RING CONDUCTOR	METALLIC PIPING BONDING CONDUCTOR	BUILDING STEEL BONDING CONDUCTOR	MULTIPLE SERVICE BONDING CONDUCTOR	TELEPHONE SYSTEM GROUNDING CONDUCTOR
CODE REFERENCE IMPACT		N.E.C. 250.102(C)	N.E.C. 250.102(C)	N.E.C. 250.52(A)(3) 250.66(B)	N.E.C. 250.52(A)(5) 250.52(A)(7) 250.66(A)	N.E.C. 250.52(A)(5)	N.E.C. 250.52(A)(4) 250.66(C)	N.E.C. 250.52(A)(1) 250.66	N.E.C. 250.50(A)(2) 250.66	N.E.C. 250.66	
200 AMP		#4	#4	#4	#6	5/8"x8'	#2	#4	#4	#4	#6

SHALL BE SIZED TO ACCOMMODATE ALL GROUND WIRE LUGS AS INDICATED ON GROUNDING DIAGRAM AND/OR REFERENCED ELSEWHERE ON PLANS OR SPECIFICATIONS



By	CHKD
Revision	Date
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Client: The Navajo Nation	Location: Smith Lake, NM
<p>ELECTRICAL DETAILS SMITH LAKE CHAPTER WATER SYSTEM IMPROVEMENTS PROJECT McKinley County, New Mexico SECTION 8, T. 15 N., R. 12 W.</p>	
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