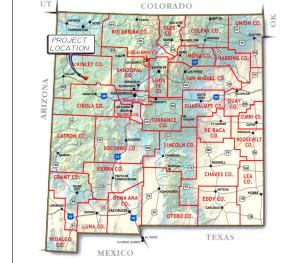
# SMITH LAKE WATER SYSTEM IMPROVEMENTS SMITH LAKE CHAPTER WELL SITE #1 TREATMENT BUILDING



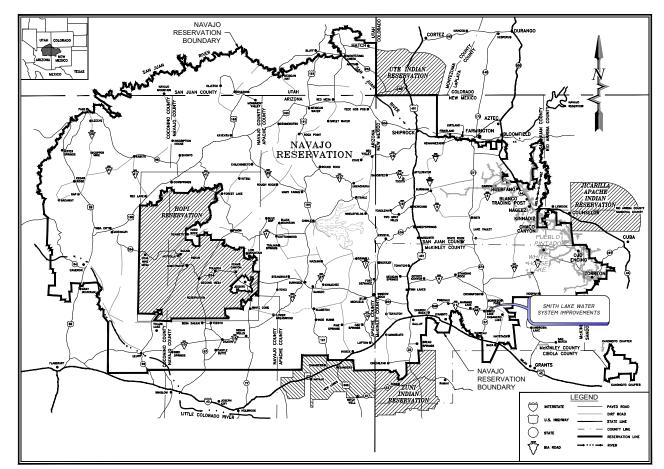
PROJECT VICINITY MAP





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



i-1	COVER SHEET & DRAWING	INDEX

GENERAL NOTES & LEGEND

WELL #1 & TREATMENT BLDG SITE PLAN 1

WELL #1 & TREATMENT BLDG SITE PIPING PLAN

WELL #1 & TREATMENT BLDG SITE VALVE NO. PLAN

BACKWASH DISCHARGE LINE PLAN & PROFILE

FLUSH VALVE DETAILS

TREATMENT BUILDING ELEVATION

TREATMENT BUILDING DETAILS

DT-13 COMBINATION AIR VALVE DETAILS

ELECTRICAL DETAILS

**DRAWING INDEX** 

WELL #1 & TREATMENT BLDG SITE GRADING

LINE 1 PLAN AND PROFILE STA 0+00 TO 26+00

LINE 1 PLAN AND PROFILE STA 26+00 TO 39+48

TREATMENT BUILDING FOUNDATION PLAN

TREATMENT BUILDING SECTION (1 of 2)

TREATMENT BUILDING ROOF PLAN

EROSION CONTROL AND MARKER POST DETAILS

ELECTRICAL LEGEND AND NOTES

#### **GENERAL NOTES**

- THE ENGINEER WAIVES ANY AND ALL RESPONSIBILITY AND IS NOT LIABLE FOR PROBLEMS THAT MAY ARISE FROM CONTRACTOR'S FAILURE TO FOLLOW THESE DRAWINGS, SPECIFICATIONS, AND THE DESIGN INTENT THEY CONVEY, OR FOR PROBLEMS ARISING FROM FAILURE TO ORTAIN AND/OR FOLLOW THE ENGINEER'S GUIDANCE WITH RESPECT TO ANY ERRORS, OMISSIONS, INCONSISTENCIES, AMBIGUITIES, OR
- 2. IF THERE IS A CONFLICT BETWEEN THE PLANS, SPECIFICATIONS AND/OR MANUFACTURER'S RECOMMENDATIONS FOR ANY DEVICE, PART, OR MATERIAL USED IN THE PROJECT, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER, IN WRITING, FOR CLARIFICATION AT LEAST TWO WEEKS PRIOR TO CONSTRUCTION OF SAID DEVICE, PART, OR MATERIAL
- 3. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO FAMILIARIZE HIMSELF WITH THE LOCATION OF ALL UTILITIES LOCATED WITHIN THE LIMITS OF CONSTRUCTION. THE GENERAL LOCATION OF KNOWN EXISTING UTILITIES HAS BEEN SHOWN ON THE CONSTRUCTION DRAWINGS TO INDICATE THAT CAUTION MUST BE EXERCISED WHEN WORKING IN THESE AREAS. IN MANY CASES THE EXACT LOCATION OF THE FACILITIES IS NOT KNOWN. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND PROTECTING ALL OVERHEAD AND UNDERGROUND UTILITIES WITHIN THE VICINITY OF THE NEW CONSTRUCTION. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR, WORKING WITH THE RESPECTIVE UTILITY COMPANIES, SHALL ACCURATELY LOCATE AND MARK ALL BURIED FACILITIES, INCLUDING SERVICE LINES. ALL EQUIPMENT LABOR, ETC. NECESSARY TO PROPERLY LOCATE THE EXISTING UTILITIES SHALL BE FURNISHED BY THE CONTRACTOR, THE COST OF WHICH SHALL BE INCIDENTAL TO THE WORK.
- 4. CONTRACTOR SHALL REPAIR ANY EXISTING STRUCTURE OR UTILITY PIPELINE DAMAGED DURING THE EXECUTION OF THE PROJECT, AT NO ADDITIONAL COSTS TO THE OWNER.
- 5. CONTRACTOR IS SOLELY RESPONSIBLE FOR CONSTRUCTING THE PROJECT ACCORDING TO CURRENT NEW MEXICO STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (NMSSPWC) AWWA SPECS AND NAVAJO NATION / NTUA STANDARDS, INCLUDING WHERE PARTICULAR WORK ITEMS ARE NOT SPECIFIED HEREIN.
- 6. CONTRACTOR SHALL COMPLY WITH ALL REQUIREMENTS AS SET FORTH IN THE TECHNICAL SPECIFICATIONS AND CONTRACT DOCUMENTS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT THE ENGINEER REGARDING ANY QUESTION ARISING FROM ANY ASPECT OF THIS PROJECT NOT SPECIFICALLY COVERED IN THE PLANS AND TECHNICAL SPECIFICATIONS, OR ANY CHANGES OR CORRECTIONS TO THE PLANS AND SPECS.
- 7. THESE DRAWINGS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY, WHICH SHALL REMAIN WHOLLY THE RESPONSIBILITY OF THE CONTRACTOR, ALL WORK ON THIS PROJECT SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE FEDERAL (OSHA), STATE, TRIBAL AND LOCAL LAWS, RULES AND REGULATIONS CONCERNING SAFETY AND HEALTH. ALL EXCAVATION, TRENCHING AND SHORING ACTIVITIES MUST BE CARRIED OUT IN ACCORDANCE WITH OSHA 29 CFR 1926, SUBPART P - EXCAVATIONS.
- CONTRACTOR SHALL PROVIDE INGRESS AND EGRESS TO ANY LOCAL BUSINESSES AND RESIDENTS AS REQUIRED FOR THE DURATION OF THE PROJECT. THE CONTRACTOR SHALL ADVISE OF AND SCHEDULE ACCESS CLOSURES AT LEAST 24 HOURS IN ADVANCE WITH PROPERTY OWNERS AND THE ENGINEER
- 9. THE CONTRACTOR SHALL CONFINE HIS OPERATIONS TO THE CONSTRUCTION LIMITS OF THE PROJECT AND SHALL IN NO WAY ENCROACH ONTO ADJACENT PROPERTIES UNLESS LEGAL EASEMENTS ARE PROVIDED OR SECURED BY THE CONTRACTOR. THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR ANY DAMAGE CAUSED BY CONSTRUCTION ACTIVITIES TO PUBLIC OR PRIVATE PROPERTY, INCLUDING UTILITIES.
- 10. THE DRAWINGS CONTAIN SPECIFIC EROSION CONTROL FEATURES DESIGNED BY THE ENGINEER TO PROTECT PROJECT FACILITIES FROM EROSION. THESE FEATURES ARE NOT DESIGNED TO PREVENT POLLUTION OF WATERWAYS DUE TO SEDIMENT. THE CONTRACTOR IS WHOLLY RESPONSIBLE TO PROVIDE A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AND IMPLEMENT THE BEST MANAGEMENT PRACTICES (BMPs) REQUIRED THEREIN. IN ADDITION TO THE FEATURES SHOWN ON THE DRAWINGS. ALL BID ITEMS REFERRING TO SPECIFIC EROSION CONTROL FEATURES, SUCH AS RIPRAP OR ROCK DAMS, ARE APPLICABLE ONLY TO FEATURES DESIGNED BY THE ENGINEER. A SEPARATE BID ITEM(S) IS PROVIDED FOR PREPARATION AND IMPLEMENTATION OF THE CONTRACTOR'S SWPPP.
- 11. ALL RIPRAP, ROCK CHECK DAMS AND OTHER EROSION CONTROL FEATURES SHOWN ON THE DRAWINGS ARE APPROXIMATE WITH REGARD TO QUANTITY, LOCATION, DIMENSIONS, SPACING, AND ORIENTATION. EXACT PLACEMENT WILL BE DETERMINED IN FIELD BY ENGINEER AFTER FINAL GRADING IS COMPLETE.
- 12. ALL AREAS DISTURBED BY THE CONSTRUCTION ACTIVITIES OF THIS PROJECT SHALL BE RESTORED AND RE-GRADED IN A MANNER ACCEPTABLE TO THE OWNER, ENGINEER, AND LAND OWNER. ALL DISTURBED AREAS SHALL BE RE-SEEDED PER THE CONTRACT
- 13. THE PLAN AND PROFILE SHEETS SHOW HORIZONTAL ANGLES WITH DI ELL(S) CALLED OUT, THE CONTRACTOR IS RESPONSIBLE FOR INSTALLING THE SPECIFIED FITTINGS AT EACH LOCATION. IN ADDITION TO THE SPECIFIED FITTINGS(S). USE JOINT DEFLECTION TO ACHIEVE THE SPECIFIED HORIZONTAL ANGLE. IF A LOCATION IS SHOWN WITHOUT SPECIFYING A FITTING, USE JOINT DEFLECTION TO ACHIEVE THE HORIZONTAL ANGLE.
- 14. ALL PRESSURE RATINGS GIVEN HEREIN FOR PIPES, VALVES, FITTINGS AND OTHER COMPONENTS REFER TO COLD WATER WORKING PRESSURE RATING, UNLESS OTHERWISE NOTED.
- 15. VERTICAL CLEARANCES AT WATERLINE CROSSINGS ON PLAN AND PROFILE SHEETS CALLED OUT AS "MIN CLR" REFER TO MINIMUM CLEARANCE FROM BOTTOM OF EXISTING WATERLINE TO TOP OF PROPOSED WATERLINE. VERTICAL CLEARANCES FOR CASINGS CALLED OUT AS "MIN CLR TO CASING" REFER TO MINIMUM CLEARANCE FROM BOTTOM OF EXISTING PIPELINE OR FINISHED GRADE TO TOP OF PROPOSED CASING. VERTICAL CLEARANCES AT WASH CROSSINGS CALLED OUT AS "MIN TO CL" REFER TO MINIMUM PIPE DEPTH, MEASURED FROM BOTTOM OF WASH TO VERTICAL CENTERLINE OF PROPOSED WATERLINE
- 16. REFER TO PROFESSIONAL REGISTRANTS IDENTIFIED ON INDIVIDUAL PLAN SHEETS AS THE RESPONSIBLE PARTY FOR THOSE DISCIPLINES. THE SEAL AND SIGNATURE OF THE PROFESSIONAL REGISTRANT IDENTIFIED ON THIS COVER SHEET DOES NOT INDICATE RESPONSIBLE CHARGE FOR ALL SHEETS CONTAINED WITHIN THIS PACKAGE OR ANY PLAN SHEETS NOT SIGNED AND SEALED.
- 17. ALL SCALES ARE BASED ON 11" x 17" SHEET SIZE.

## CONTACT INFORMATION: NAVAJO NATION WATER MANAGEMENT BRANCH (OWNER): JASON JOHN (928) 729-4004 SOUDER, MILLER & ASSOCIATES (ENGINEER): RYAN BIEHL, P.E (OFFICE) (505) 610-9883 NAVAJO TRIBAL UTILITY AUTHORITY (NTUA) (800) 528-5011

		<b>ABBREVIATIONS</b>
AAS	SHTO	AMERICAN ASSOCIATION OF STATE HIGHWAY
		AND TRANSPORTATION OFFICIALS
A.C ACI		ASPHALTIC CONCRETE
ACI		AMERICAN CONCRETE INSTITUTE ACRE
	-FT.	ACRE FEET
AIS		AMERICAN INSTITUTE OF STEEL CONSTRUCTION
	GN.	ALIGNMENT
ALL	JM	ALUMINUM
AM:		ABOVE MEAN SEA LEVEL
ANS		AMERICAN NATIONAL STANDARDS INSTITUTE
APF AR\	PROX.	APPROXIMATE AIR RELEASE VALVE
AR		AMERICAN SOCIETY FOR TESTING AND MATERIALS
AW		AMERICAN WIRE GAUGE
	WA	AMERICAN WATER WORKS ASSOCIATION
BF\	/	BUTTERFLY VALVE
BIA		BUREAU OF INDIAN AFFAIRS
BLC		BUILDING
BLN	И	BUREAU OF LAND MANAGEMENT
BV BV0	25	BALL VALVE BEGIN VERTICAL CURVE ELEVATION
BVC		BEGIN VERTICAL CURVE ELEVATION  BEGIN VERTICAL CURVE STATION
CAV		COMBINATION AIR VALVE
CL		CENTERLINE
CFS	3	CUBIC FEET PER SECOND
CI	_	CAST IRON
CLF CMI		CLEARANCE CORRUGATED METAL PIPE
	MM.	CORRUGATED METAL PIPE COMMUNICATION
	NC.	CONCRETE
	NST.	CONSTRUCTION
COI	NT.	CONTINUOUS
COI		CONTINUED
COI		CORNER
COI CP	UP.	COUPLING CONTROL POINT
CTF	3	CENTER
CU	•	CUBIC
CY		CUBIC YARD
DI		DUCTILE IRON
DIA		DIAMETER
DIM DR		DIMENSIONS DIMENSION RATIO
DW		DRIVEWAY
E		EAST
E		EASTING
EA.		EACH
ED.		EDITION
EG ELE	-0	EXISTING GRADE ELECTRICAL
	, ELEV.	
EOF		EDGE OF PAVEMENT
EQ.		EQUAL
ESM		EASEMENT
EVO		END VERTICAL CURVE ELEVATION END VERTICAL CURVE STATION
	EXIST.	
FBE		FUSION BONDED EPOXY

FINISHED FLOOR
FINISHED FLOOR ELEVATION

FEMALE NATIONAL PIPE THREAD

GATE VALVE HORIZONTAL DIRECTIONAL DRILLING

HIGH DENSITY POLYETHYLENE

KILO POUNDS PER SQUARE INCH

FIBER REINFORCED PLASTIC FEET

FINISHED GRADE FIGURE FLANGE

FLUSH VALVE

HORIZONTAL

HIGHWAY

INCH

INVERT

LATITUDE

LINEAR FEET

HORSE POWER HEIGHT

IRON PIPE SIZE

INDIAN ALLOTMENT

INNER DIAMETER
THAT IS, FOR EXAMPLE

GAUGE GALVANIZED GALVANIZED IRON

GALLONS PER MINUTE

FOUND

FG FIG. FND. FNPT FRP FT. FV

GI GPM

GPM GV HDD HDPE HORIZ. HP HT

HWY

I.A. I.D. I.E. IN. INV IPS KSI

L, LEN

LT	LEFT
LONG LVC	LONGITUDE LENGTH VERTICAL CURVE
MANUF MAX.	MANUFACTURER
	MAXIMUM
MIL MIN.	ONE THOUSANDTHS OF AN INCH MINIMUM
M.J.	MECHANICAL JOINT
MNPT	MALE NATIONAL PIPE THREAD
M.S.L. N	MEAN SEA LEVEL NORTH
N	NORTHING
N.C.	NATIONAL ELECTRICAL CODE
NEC NG	NORMALLY CLOSED NATURAL GAS
NGWSP	NAVAJO GALLUP WATER SUPPLY PROJECT
NM	NEW MEXICO
NMDOT NMED	NEW MEXICO DEPARTMENT OF TRANSPORTATION NEW MEXICO ENVIRONMENT DEPARTMENT
NN	NAVAJO NATION
NO.	NUMBER
N.O. NPT	NORMALLY OPEN NATIONAL PIPE THREAD
NTS	NOT TO SCALE
OAE	OR APPROVED EQUAL ON CENTER ON CENTER EACH WAY
0.C.	ON CENTER FACH WAY
O.C.E.W. O.D.	OUTER DIAMETER
OHE	OVERHEAD ELECTRICAL
PE D C D	PLAIN END PER GRADING PLAN
PI	POINT OF INFLECTION
PROP	PROPOSED
PRV	PRESSURE REDUCING VALVE
PSF PSI	POUNDS PER SQUARE FOOT POUNDS PER SQUARE INCH
PVC	POLY VINYL CHLORIDE
PVI	POINT VERTICAL INFLECTION
PVT Q	PRIVATE FLOW
QTY.	QUANTITY
R	RADIUS
R- REF	RANGE REFERENCE
R.O.	ROUGH OPENING
ROW	RIGHT OF WAY
RT S	RIGHT SOUTH
SCH	SCHEDULE
sco	SANDOVAL COUNTY
SDR SEC.	STANDARD DIMENSION RATIO SECTION
SF	SAFETY FACTOR
SHT	SHEET
SPECS. SS	SPECIFICATIONS STAINLESS STEEL
STA	STAINLESS STEEL STATION
STD.	STANDARD
SW T	SIDEWALK TOWNSHIP
TBD	TO BE DETERMINED
TBR	TO BE REMOVED
TCE	TEMPORARY CONSTRUCTION EASEMENT
TDH TELE.	TOTAL DYNAMIC HEAD TELEPHONE
TEMP.	TEMPORARY
THK	THICK
TNT T.O.	NAVAJO TRIBAL TRUST TOP OF
TOE	TOE OF SLOPE
TP	TOP OF PIPE
TRANS TW	TRANSFORMER TOP OF WALL
TYP	TYPICAL
UGE	UNDERGROUND ELECTRIC
USGS V	UNITED STATES GEOLOGICAL SURVEY
v VB	VOLUME VACUUM BREAKER
VERT.	VERTICAL
VLV	VALVE
VR W	VACUUM RELIEF WATER
W	WEST
W/	WITH
WL WP	WATERLINE WORKING PRESSURE

WALL THICKNESS

WATER VALVE

 $\otimes$ 

9

—)

DOUBLE SWING GATE



LEGEND

FXISTING

ISOLATION VALVE

WATER VAULT

WATER METER

POWER POLE

HYDRANT

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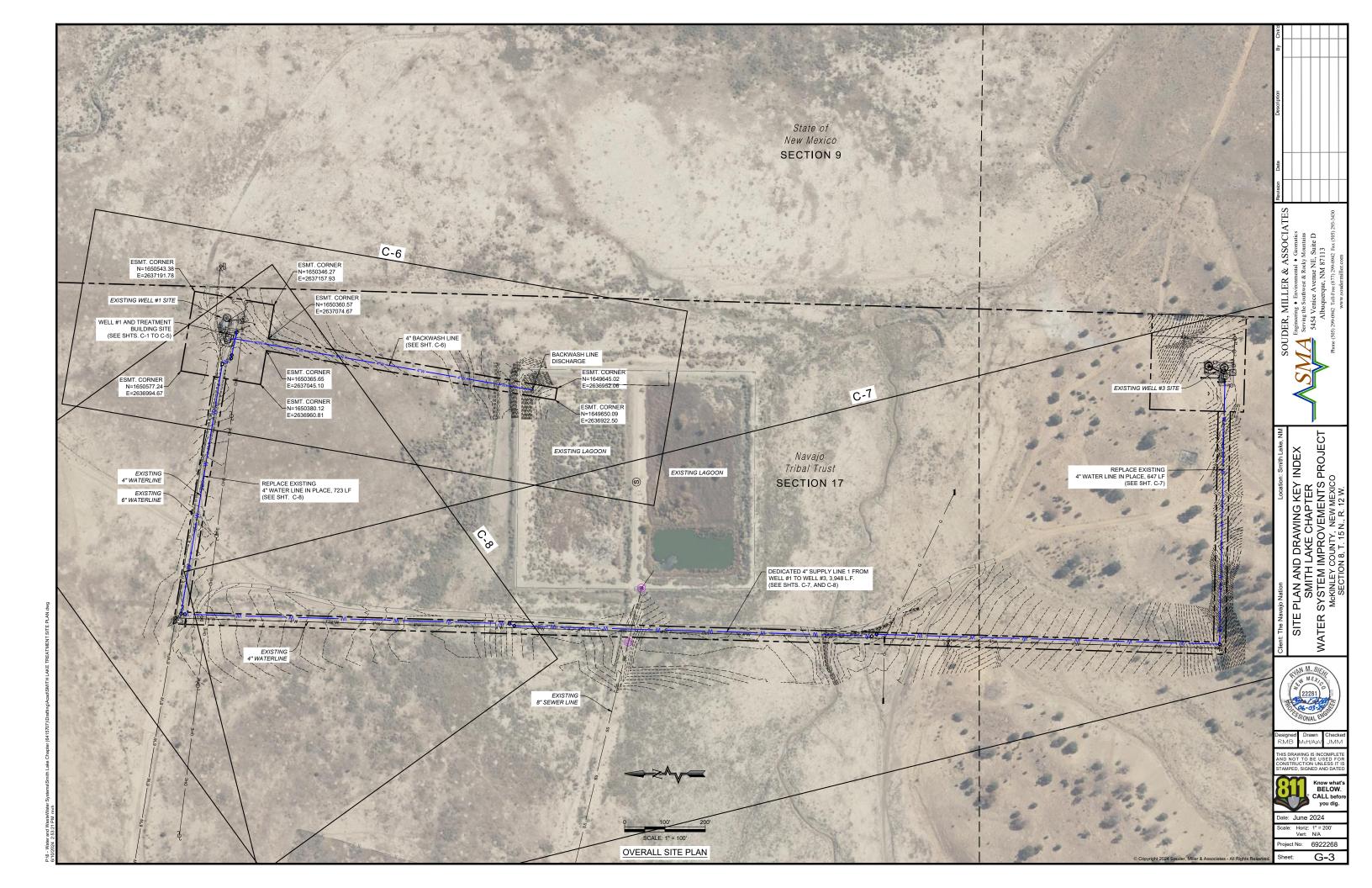


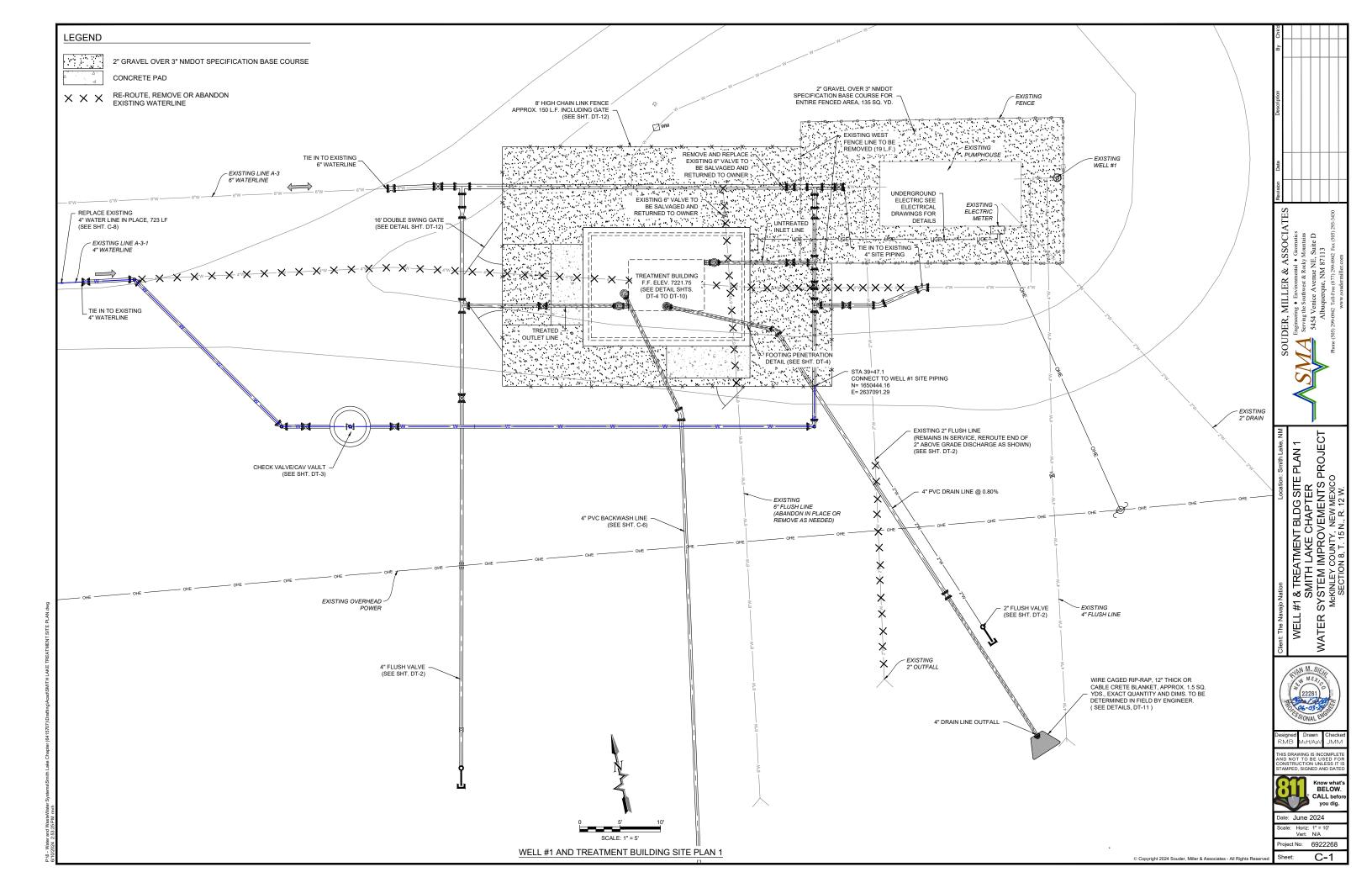
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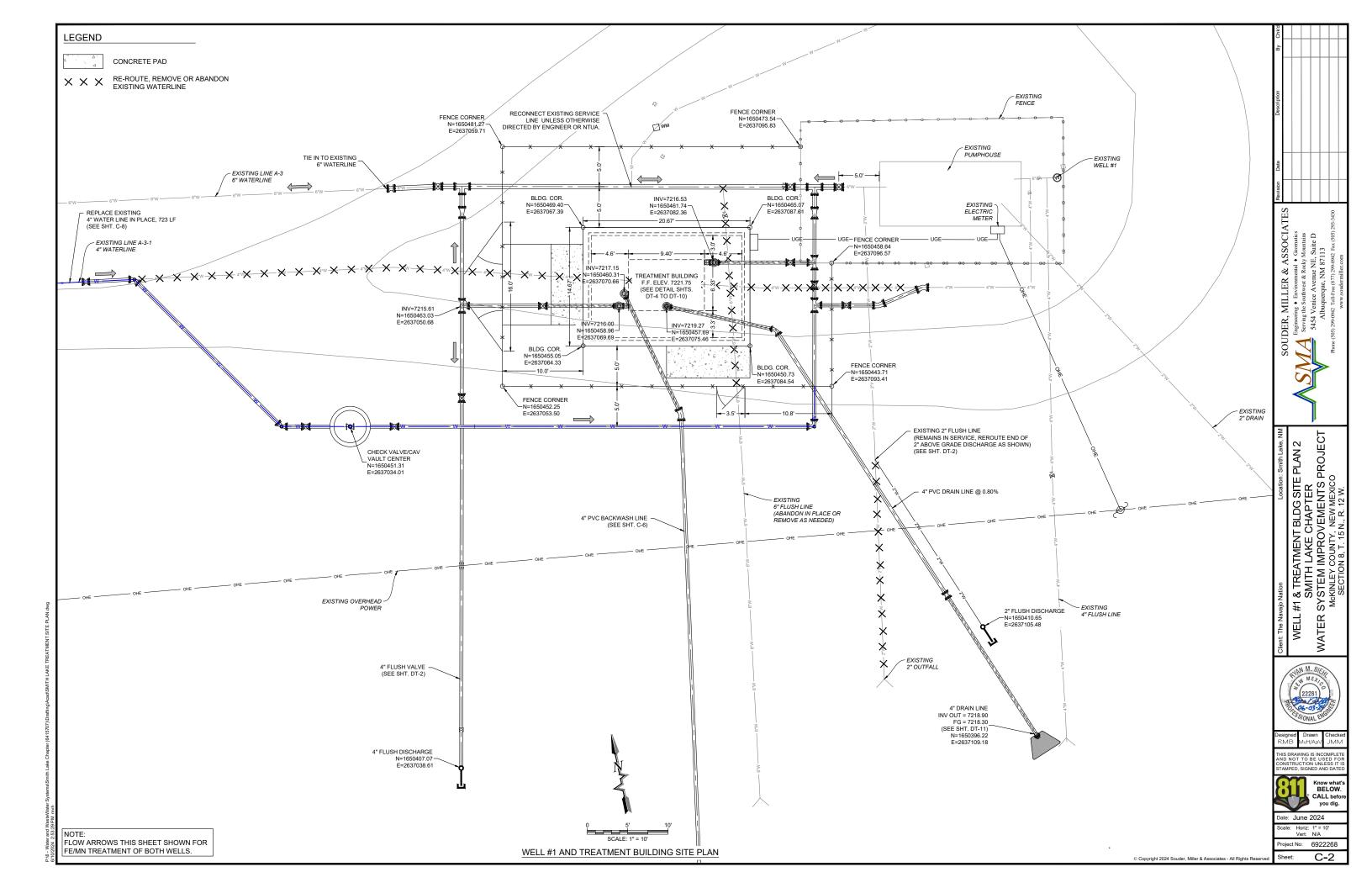
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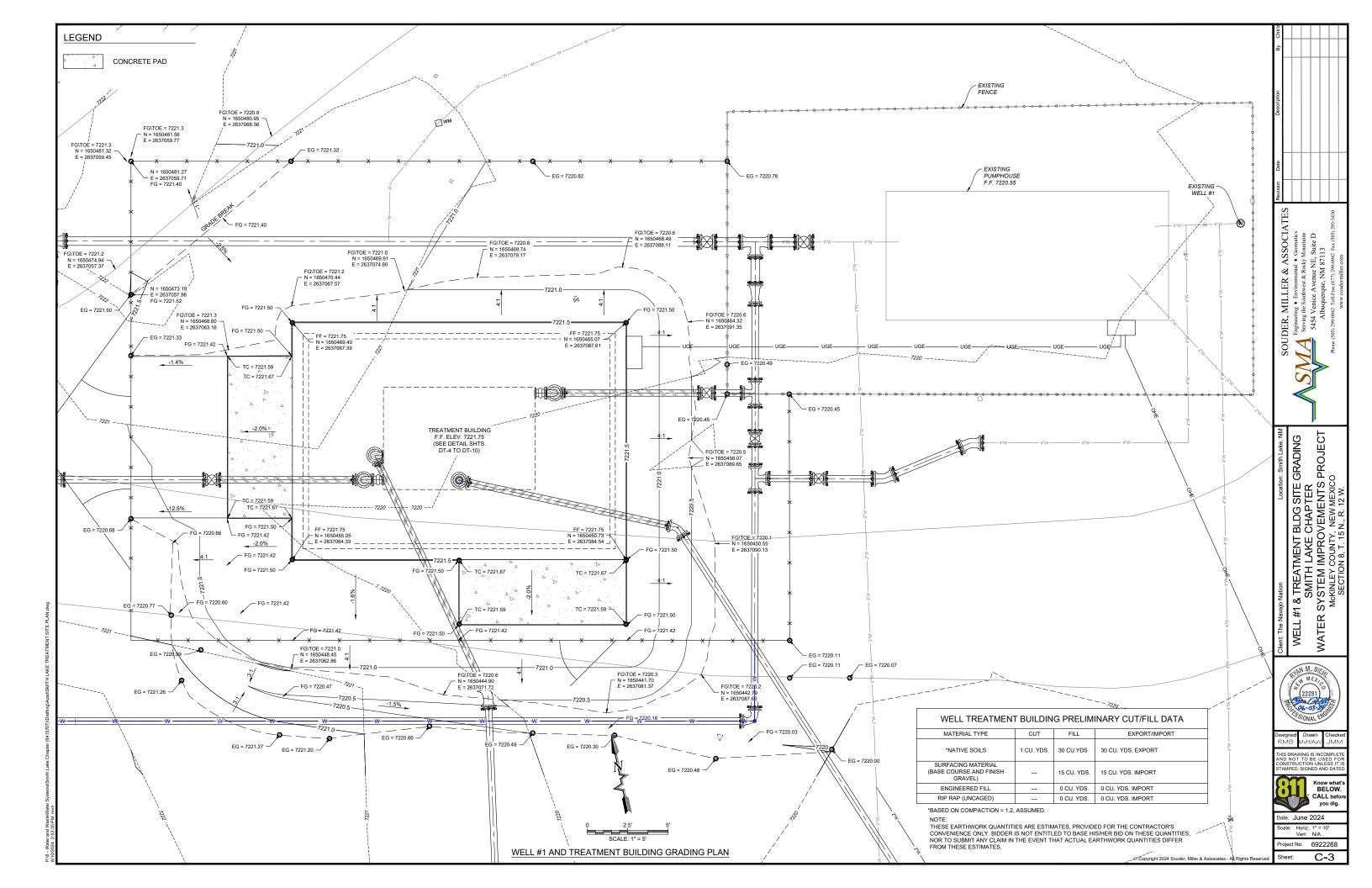
SANITARY SEWER LINE

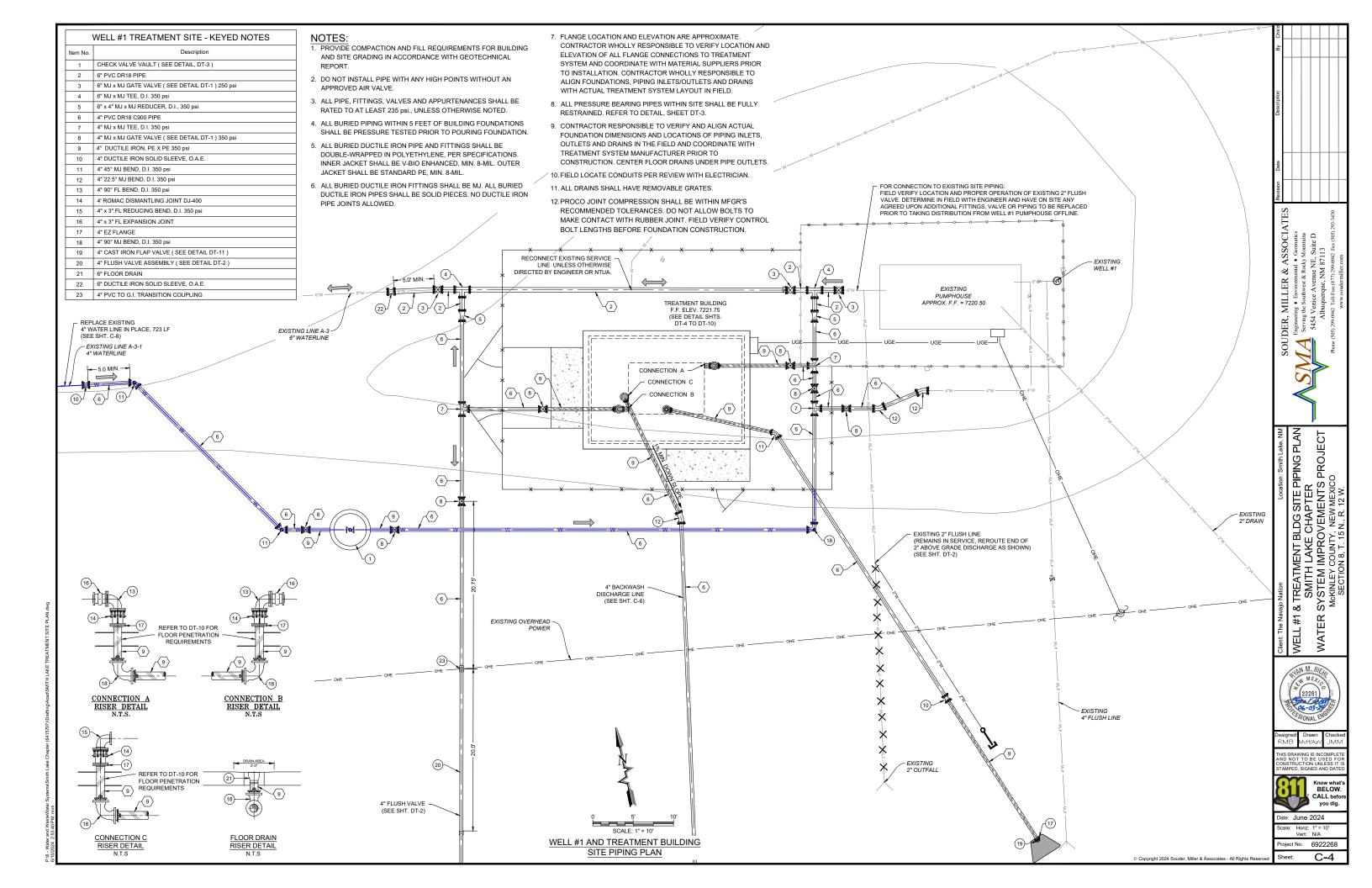
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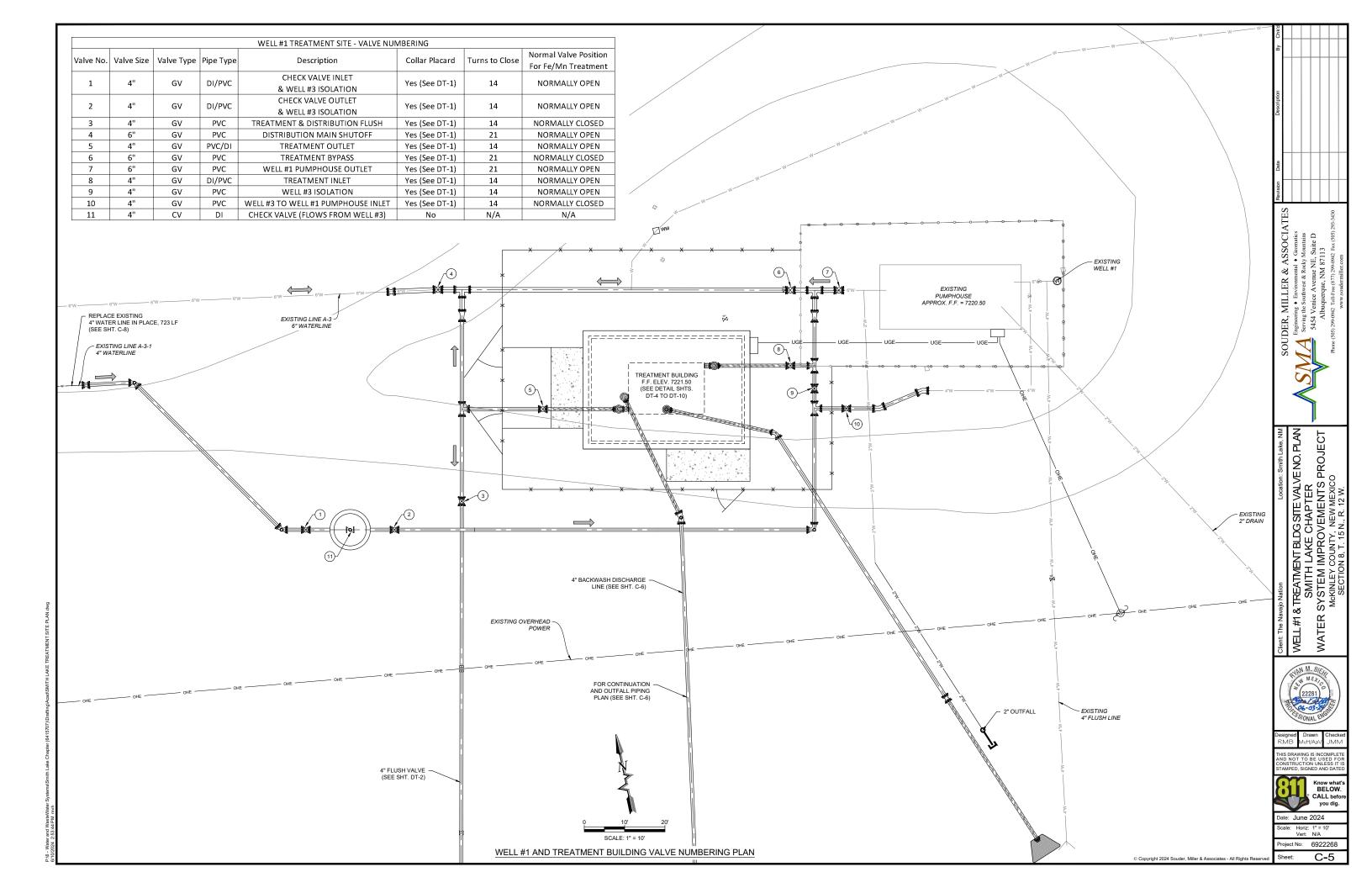


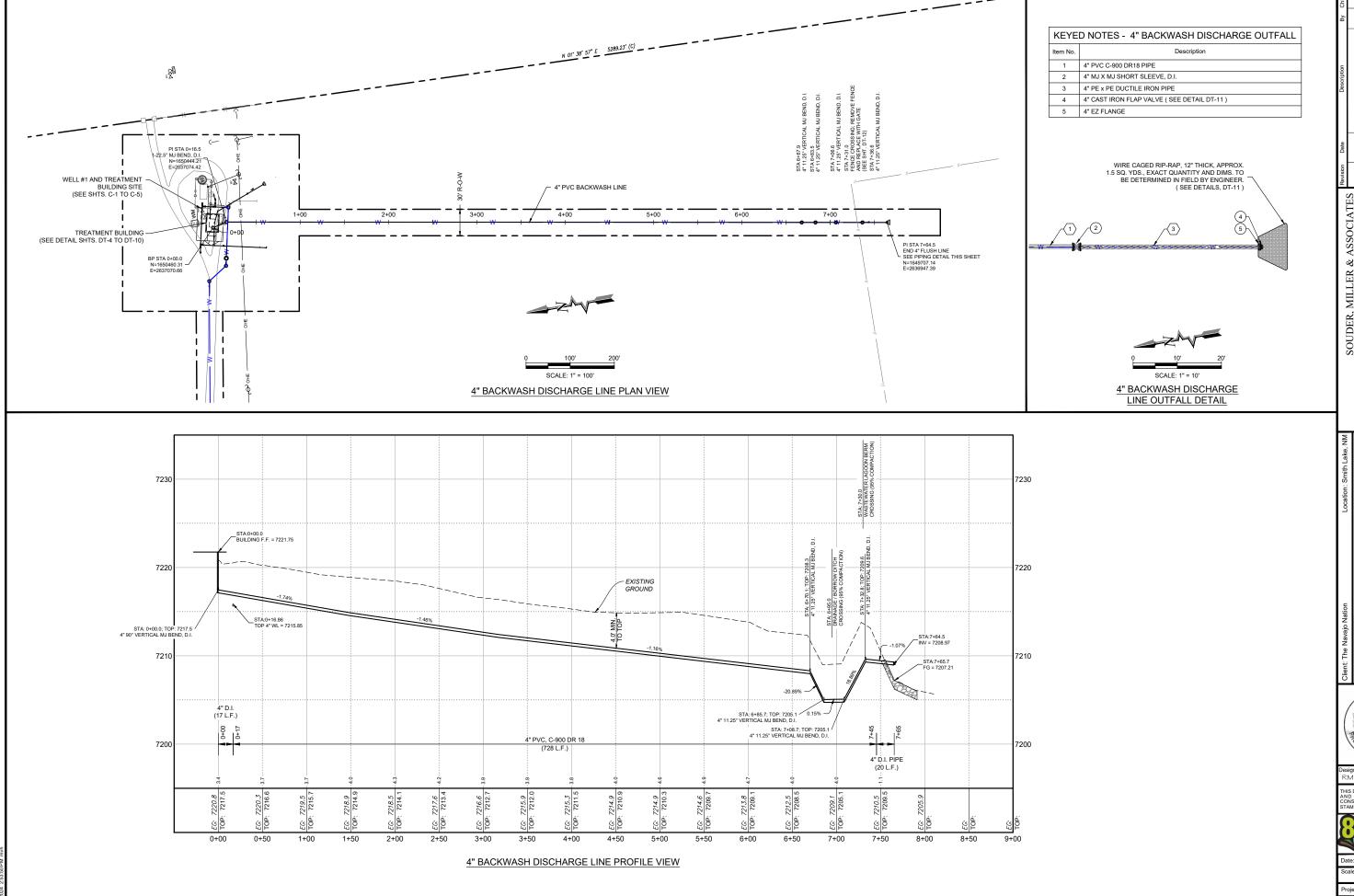












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5454 Venice Avenue NE, Suite D
Albuquerque, NM 87113

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

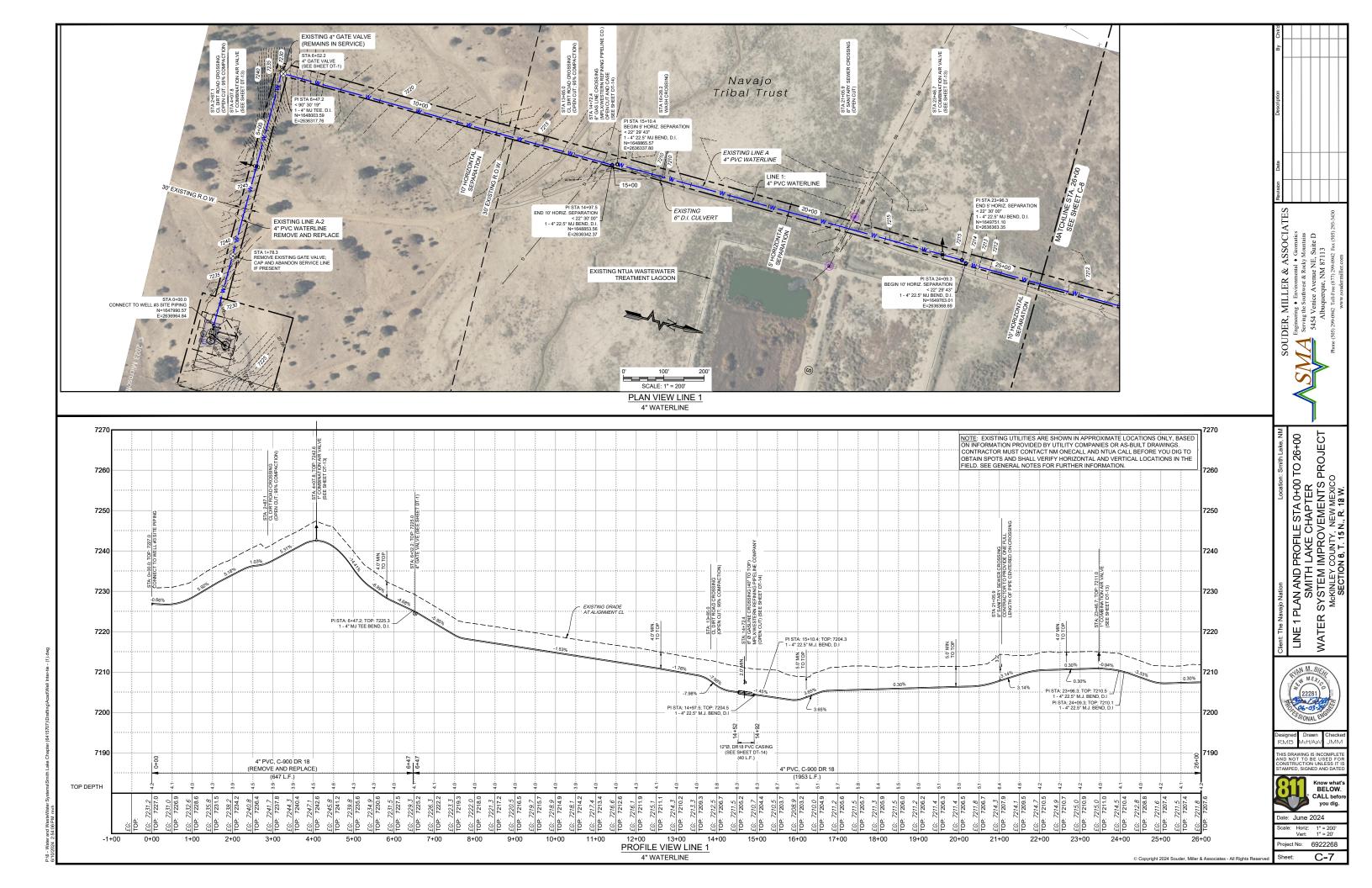


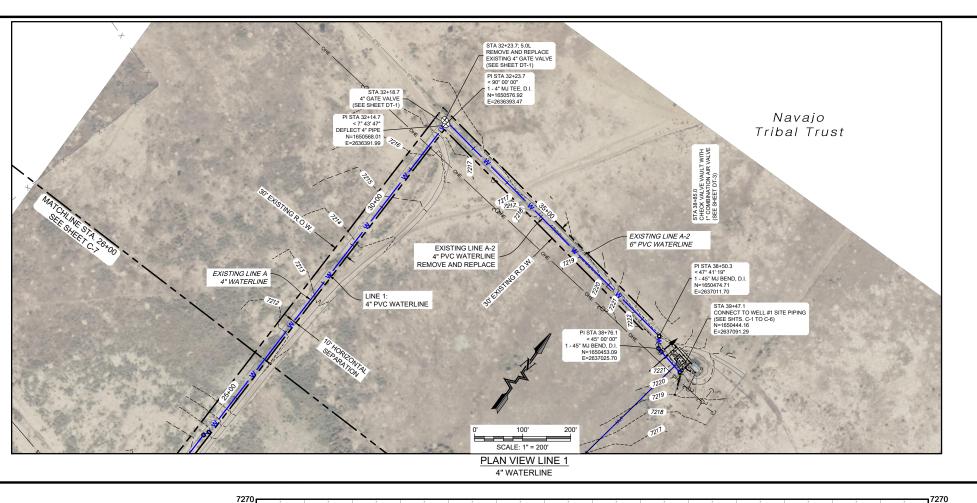


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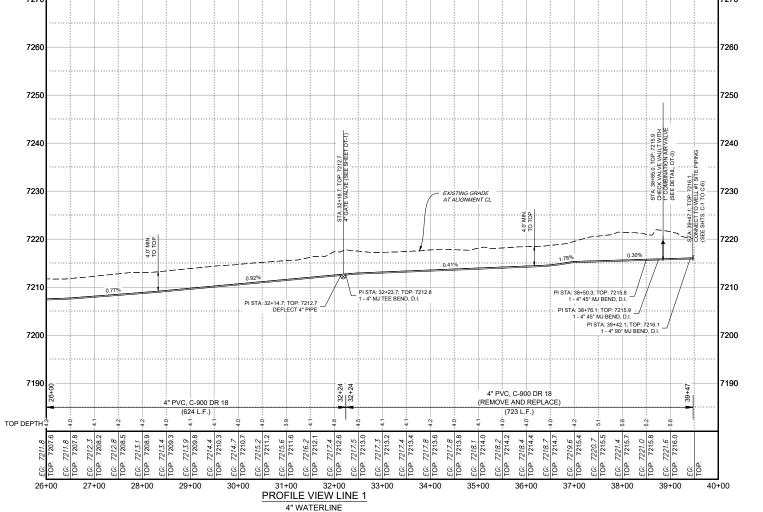
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roject No: 6922268 C-6





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 VERIEY HORIZONTAL AND VERTICAL LOCATIONS IN THE FIELD. SEE GENERAL NOTES FOR FURTHER INFORMATION.



SOUDER, MILLER & ASSOCIATES at & Rocky Mountains enue NE, Suite D , NM 87113 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.

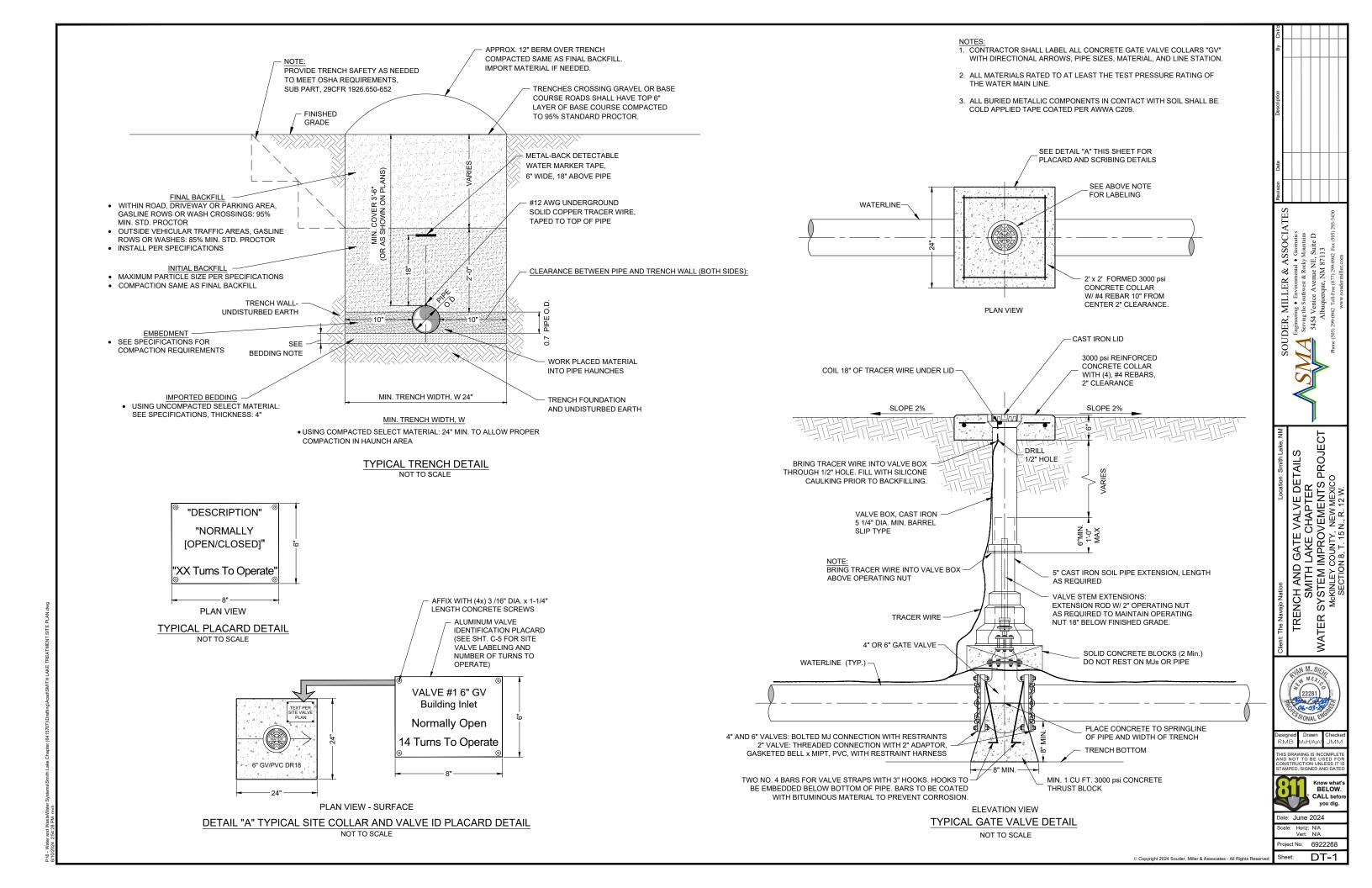
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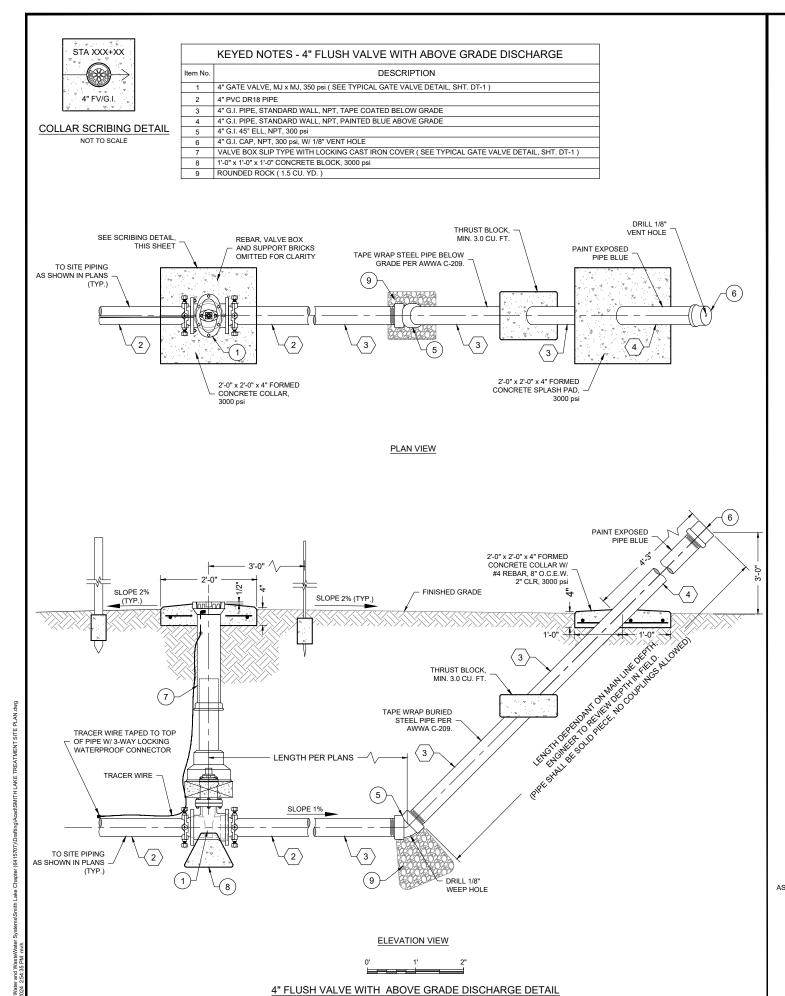
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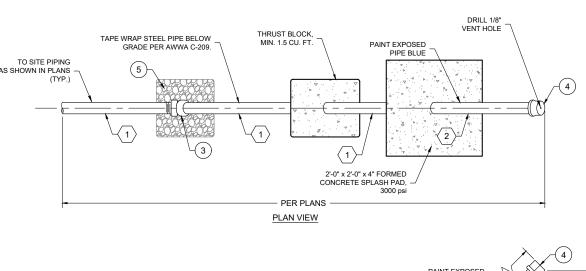
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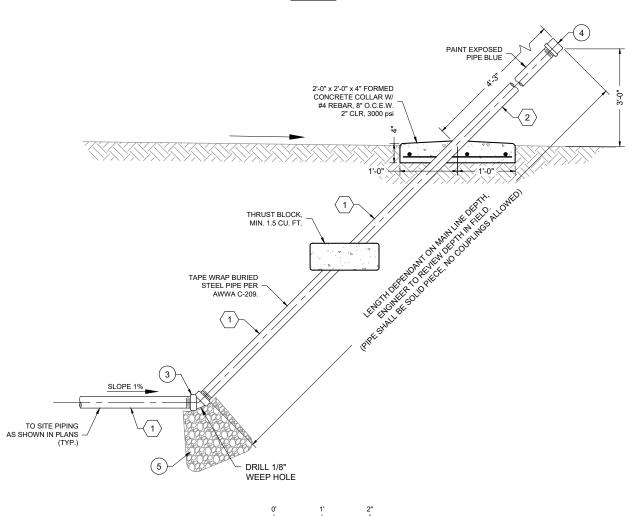
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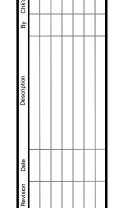


	KEYED NOTES - RELOCATED 2" ABOVE GRADE DISCHARGE
Item No.	DESCRIPTION
1	2" G.I. PIPE, STANDARD WALL, NPT, TAPE COATED BELOW GRADE
2	2" G.I. PIPE, STANDARD WALL, NPT, PAINTED BLUE ABOVE GRADE
3	2" G.I. 45° ELL, NPT, 300 psi
4	2" G.I. CAP, NPT, 300 psi, W/ 1/8" VENT HOLE
5	ROUNDED ROCK (1.5 CU. YD.)





RELOCATED 2" ABOVE GRADE DISCHARGE DETAIL



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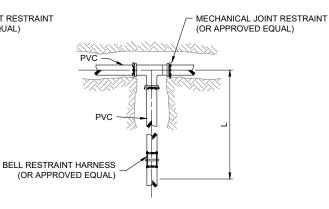
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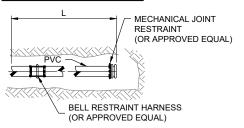


#### PLAN VIEW JOINT RESTRAINT FOR MJ ELBOW

#### Minimum Required Restraint Lengths (L) for Individual Fittings

			Test	Design
			Pressure	Restraint
Fitting	Pipe Size	Pipe DR	(psi)	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 <sup>1</sup>				
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

#### PLAN VIEW JOINT RESTRAINT FOR MJ TEE



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

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

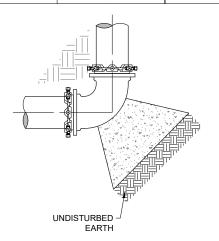
## WATERLINE JOINT RESTRAINTS AT VERTICAL / HORIZONTAL BENDS AND GATE VALVES

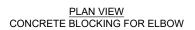
THRUST BLOCK DETAIL

NOT TO SCALE

#### **Thrust Block Dimension Schedule**

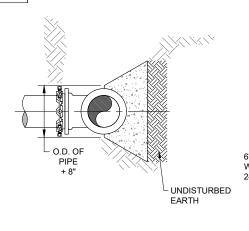
Pipe	Fitting	Required Thrust Block Area (ft²)	Design Thrust Block Size (H x W x T) <sup>1</sup> (ft)
4"	Treatment Building	2.9	1.7' x 1.7' x 1.7'





#### **GENERAL NOTES**

- ASSUMED SOIL BEARING OF 1,500 PSF
- 2. ALL CONCRETE SHALL BE 3000 psi, MINIMUM COMPRESSIVE STRENGTH IN 28 DAYS

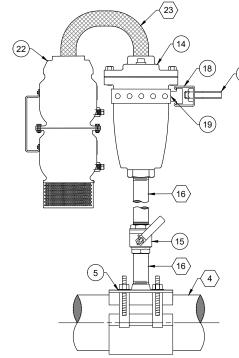


**ELEVATION VIEW** 

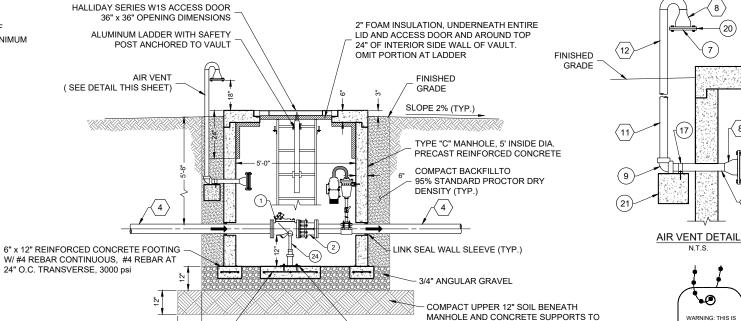
## CONCRETE BLOCKING FOR ELBOW

- NOTES:

  1. 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.
- 3. FLANGES SHALL BE ANSI CLASS 150 (STEEL) OR ANSI CLASS 125
- 4. ALL STEEL PIPE AND FITTINGS SHALL BE STANDARD WALL.



COMBINATION AIR VALVE DETAIL



95% STANDARD PROCTOR DRY DENSITY

FASTEN ALL PIPE SUPPORT

BASES TO CONCRETE

ALUMINUM LADDER WITH SAFETY

COMBINATION AIR VALVE ( SEE DETAIL THIS SHEET)

POST ANCHORED TO VAULT

4" CHECK VALVE IN VAULT DETAIL

**ELEVATION VIEW** 

PLAN VIEW

**KEYED NOTES - CHECK VALVE AND ARV VAULT** 

4" FREEZE PREVENTION DRAFT DAMPENER. VALMATIC FROSTSAFE MODEL #1504, OAE

11 2" STD. GALVANIZED IRON PIPE, THREADED END ( PIPE EXTERIOR COLD-APPLIED TAPE COATED )

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 )

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

18 1 5/8" GALVANIZED UNI-STRUT ( ADJUST AS NEEDED TO FIT BOTH VALVES AND PIPING )

21 CONCRETE SUPPORT BLOCK, SOLID 8" x 8" x 16" ( MIN. 3" FROM EDGE OF PIPE )

10 2" SS 304 ANCHOR BOLTS, NUTS AND FENDER WASHERS ( 2x EACH SIDE )

2" STD. GALVANIZED IRON PIPE ( PIPE EXTERIOR PAINTED BLUE )

1" WIDE PIPE STRAP, BOLT TO SUPPORT BLOCK ( 3" BOLTS )

24 ADJUSTABLE PIPE SUPPORT SIZE W/ U-SHAPED CRADLE, 3" BASE

19 STAINLESS STEEL PERFORATED METAL HANGER STRAP

22 1 " VALMATIC FLOODSAFE PREVENTER

23 1" STAINLESS STEEL BRAIDED HOSE

4" DISMANTLING JOINT, FBE COATED W/ 304 SS BOLTS, ROMAC MODEL DJ400.

1 4" CHECK VALVE, SURGE BUSTER SERIES 7200, 250 psi, OAE

304 BOLT KIT, FNPT, ROMAC 202 NS, OAE, 350 psi WP

7 4" GALVANIZED IRON COMPANION FLANGE, DRILLED TO FIT

Description

4" x 1" TAPPING SADDLE, D.I. W/ FUSION BONDED NYLON COATING, SS 304 DUAL STRAPS AND SS

Item No.

4 4" DUCTILE IRON, FL X PE

15 1" BALL VALVE, SS, NPT

16 1" NIPPLE, SS 304, NPT

20 VARMINT SCREEN

TYPE "C" MANHOLE 5' INSIDE DIA.

LINK SEAL WALL SLEEVE (TYP.)

PRECAST REINFORCED CONCRETE

WARNING: THIS IS 1-IN COMBINATIO AIR VALVE. DO NOT REPLACE WITH A REGULAR AIR RELEASE VALVE

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

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RES.

& ASSOCIATES

**PROJECT** 

6922268

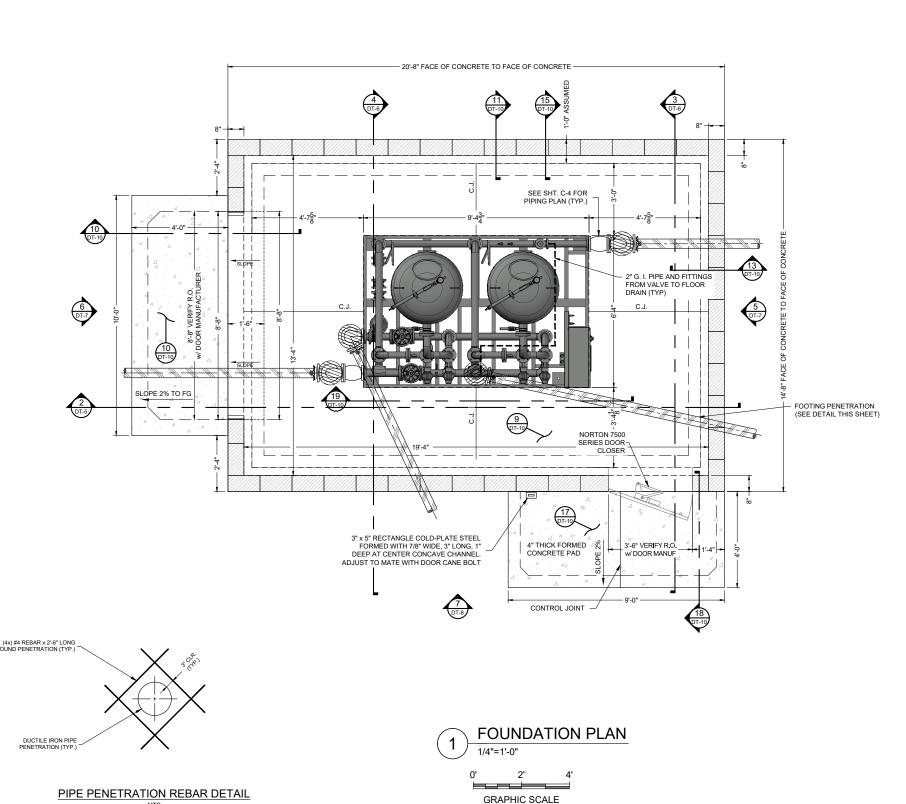
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CONCRETE BLOCK 30" x 12" x 6"

W/ #4 REBAR, 10" O.C.E.W., 3000 psi

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#### 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 ROOF DEAD LOAD 20 PSF 10 PSF ROOF LIVE LOAD 20 PSF WIND BASIC WIND SPEED 114 MPF **EXPOSURE** SEISMIC DESIGN CATEGORY
IMPORTANCE FACTOR (I) 1.5 SOILS SITE CLASS E S-DS S-D1

#### 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

THE MINIMUM NET AREA COMPRESSIVE STRENGTH OF THE MASONARY, fm, 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.



PLAN

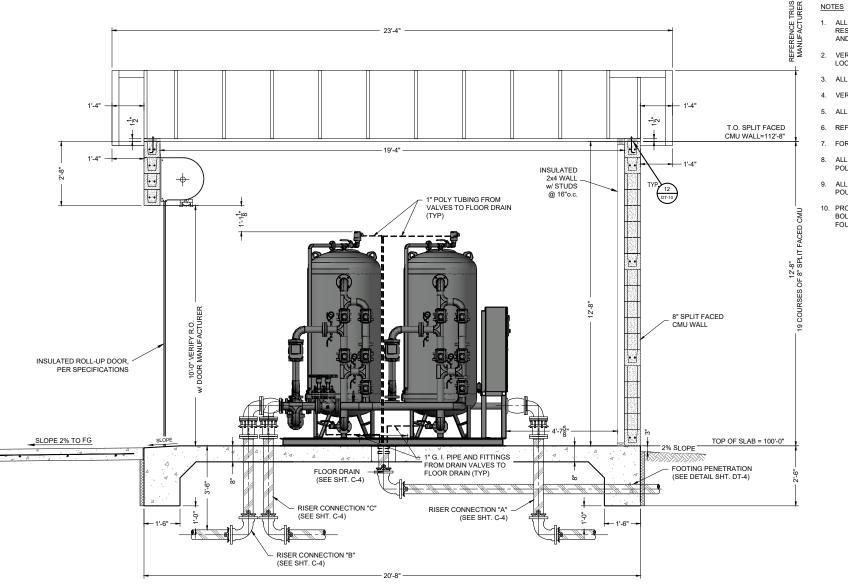
**PROJECT** TREATMENT BUILDING FOUNDATION SMITH LAKE CHAPTER WATER SYSTEM IMPROVEMENTS PROMEMINEY COUNTY, NEW MEXICO SECTION 8, T. 15 N., R. 12 W.





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- 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 MFGR'S RECOMMENDED TOLERANCES. DO NOT ALLOW BOLTS TO MAKE CONTACT WITH RUBBER JOINT. FIELD VERIFY CONTROL BOLT LENGTHS BEFORE FOUNDATION CONSTRUCTION.

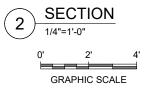
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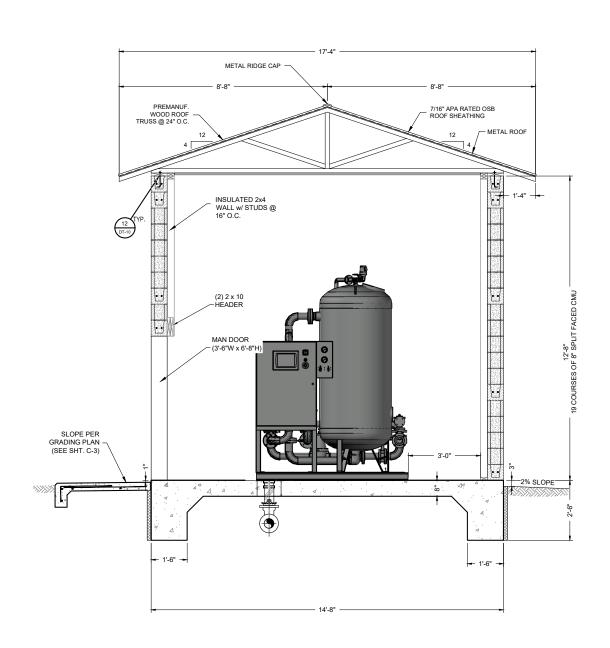
TREATMENT BUILDING SECTION (1 of 2)
SMITH LAKE CHAPTER
WATER SYSTEM IMPROVEMENTS PROJECT
MCKINLEY COUNTY, NEW MEXICO
SECTION 8, T. 15 N., R. 12 W.

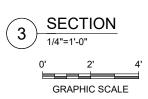
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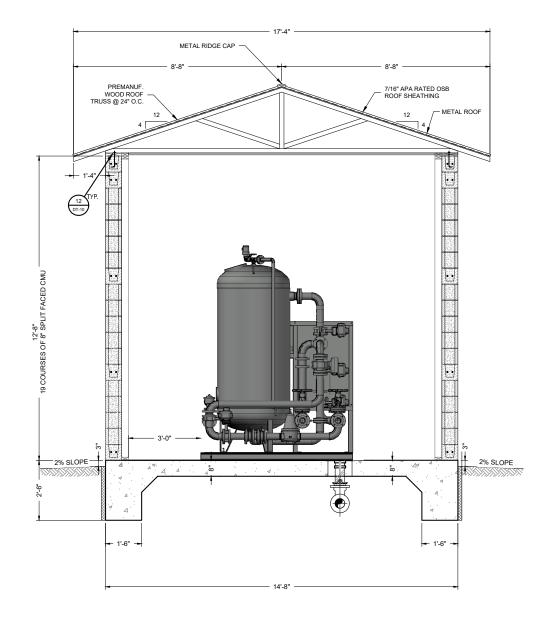
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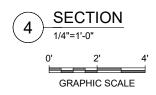
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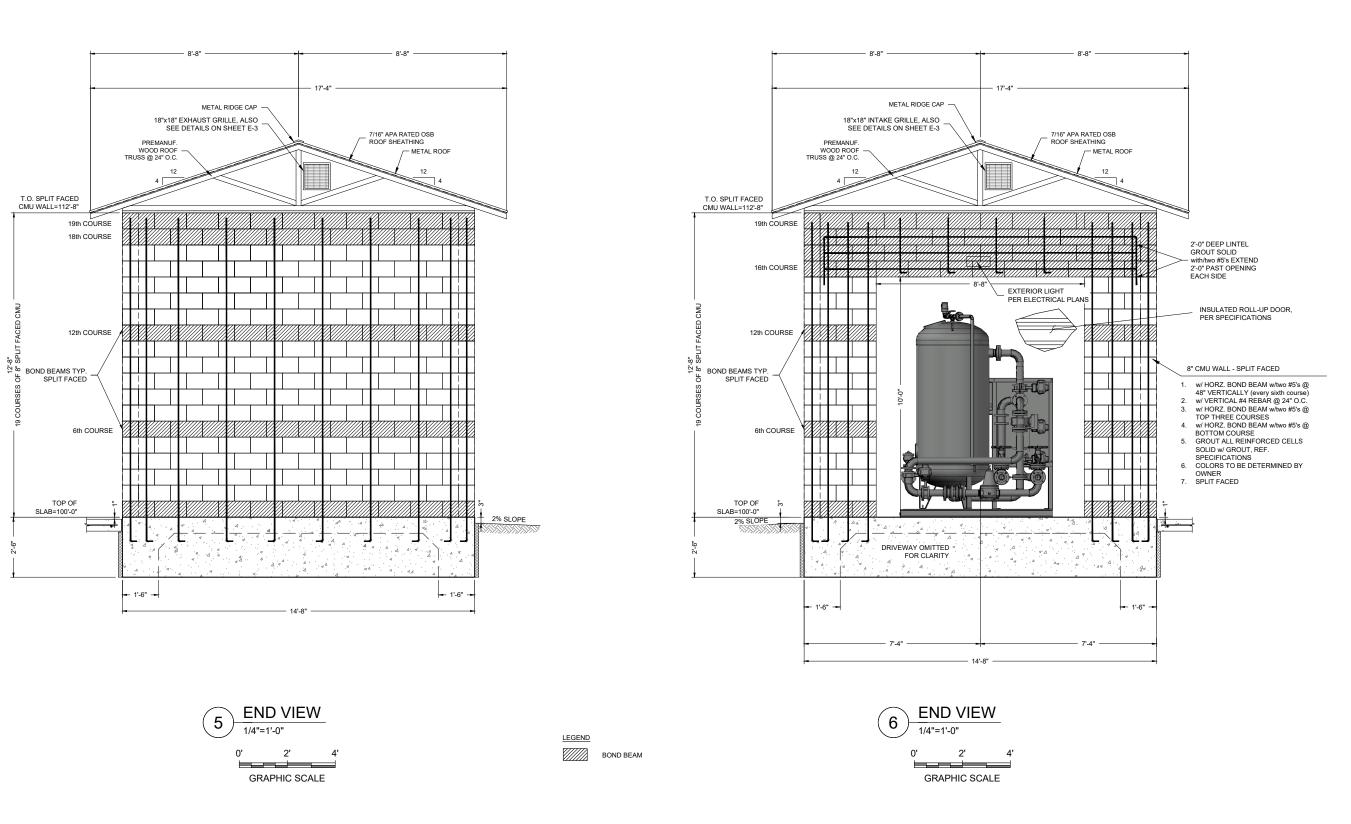


TREATMENT BUILDING SECTION (2 of 2)
SMITH LAKE CHAPTER
WATER SYSTEM IMPROVEMENTS PROJECT
MCKINLEY COUNTY, NEW MEXICO
SECTION 8, T. 15 N., R. 12 W.

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TREATMENT BUILDING END VIEW
SMITH LAKE CHAPTER
WATER SYSTEM IMPROVEMENTS PROJECT
MCKINLEY COUNTY, NEW MEXICO
SECTION 8, T. 15 N., R. 12 W.

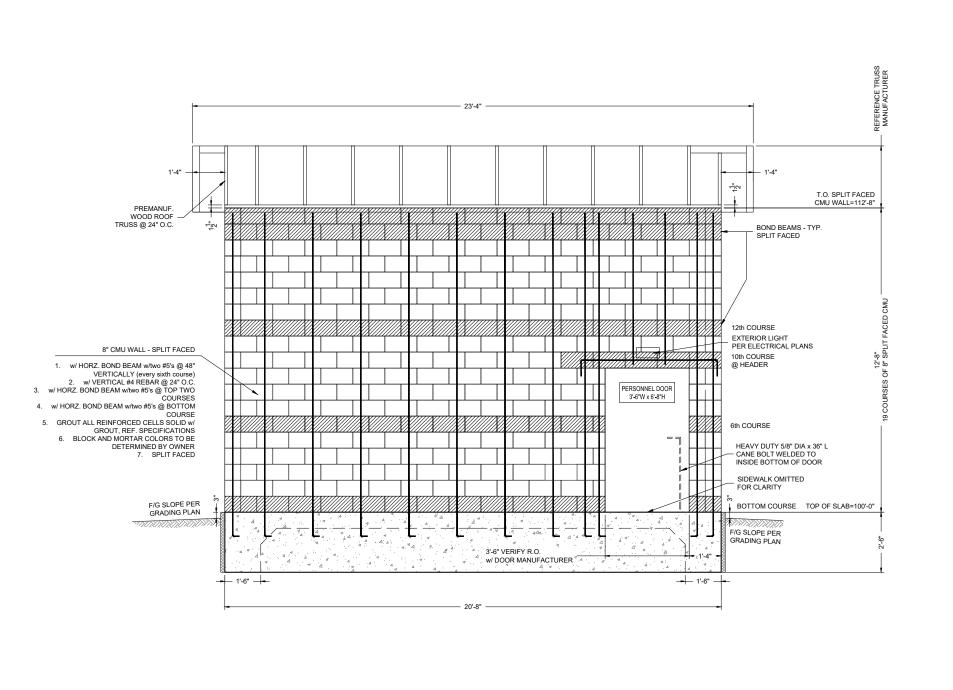


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GRAPHIC SCALE

LEGEND

BOND BEAM

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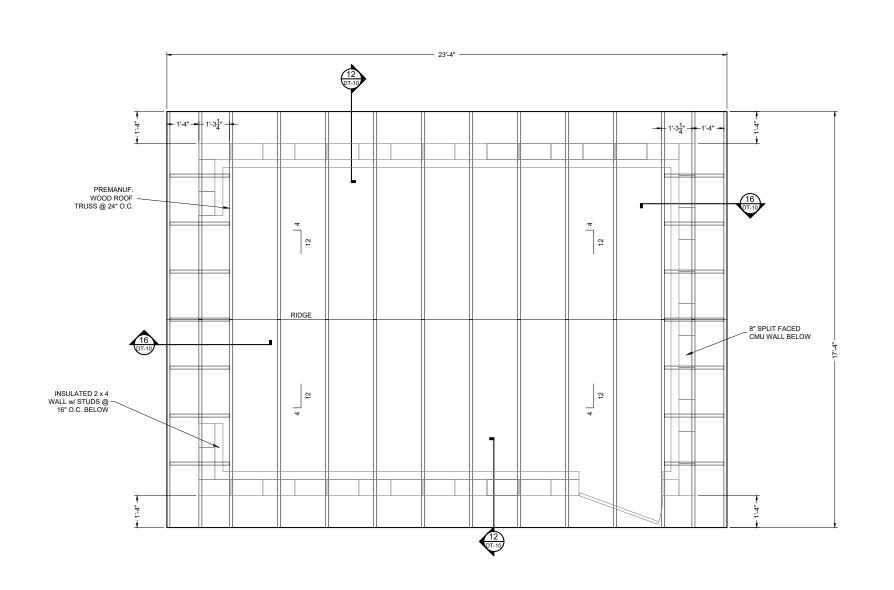
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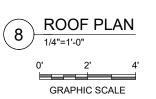
TREATMENT BUILDING ELEVATION
SMITH LAKE CHAPTER
WATER SYSTEM IMPROVEMENTS PROJECT
MCKINLEY COUNTY, NEW MEXICO
SECTION 8, T. 15 N., R. 12 W.

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roject No: 6922268 DT-8





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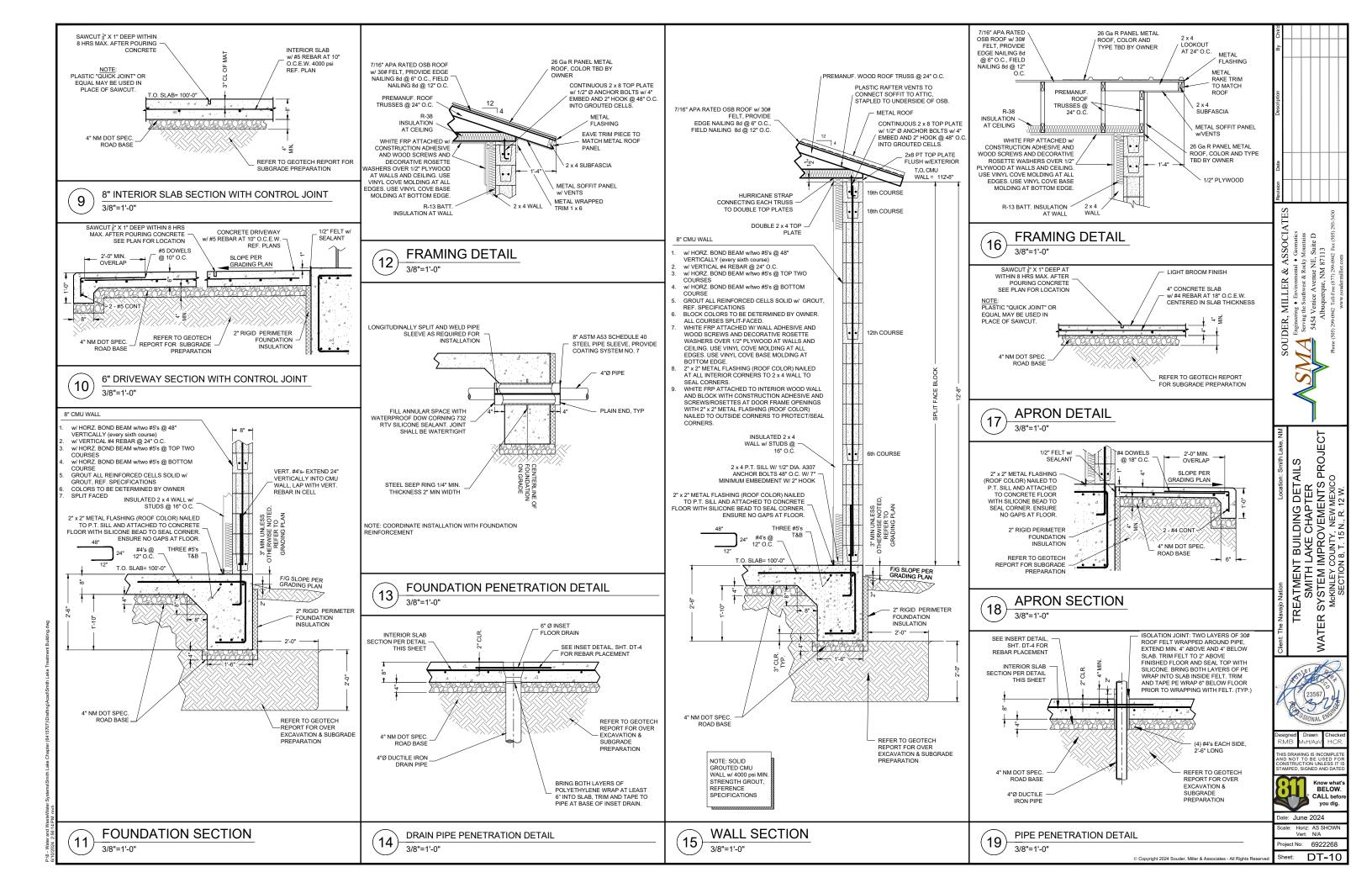
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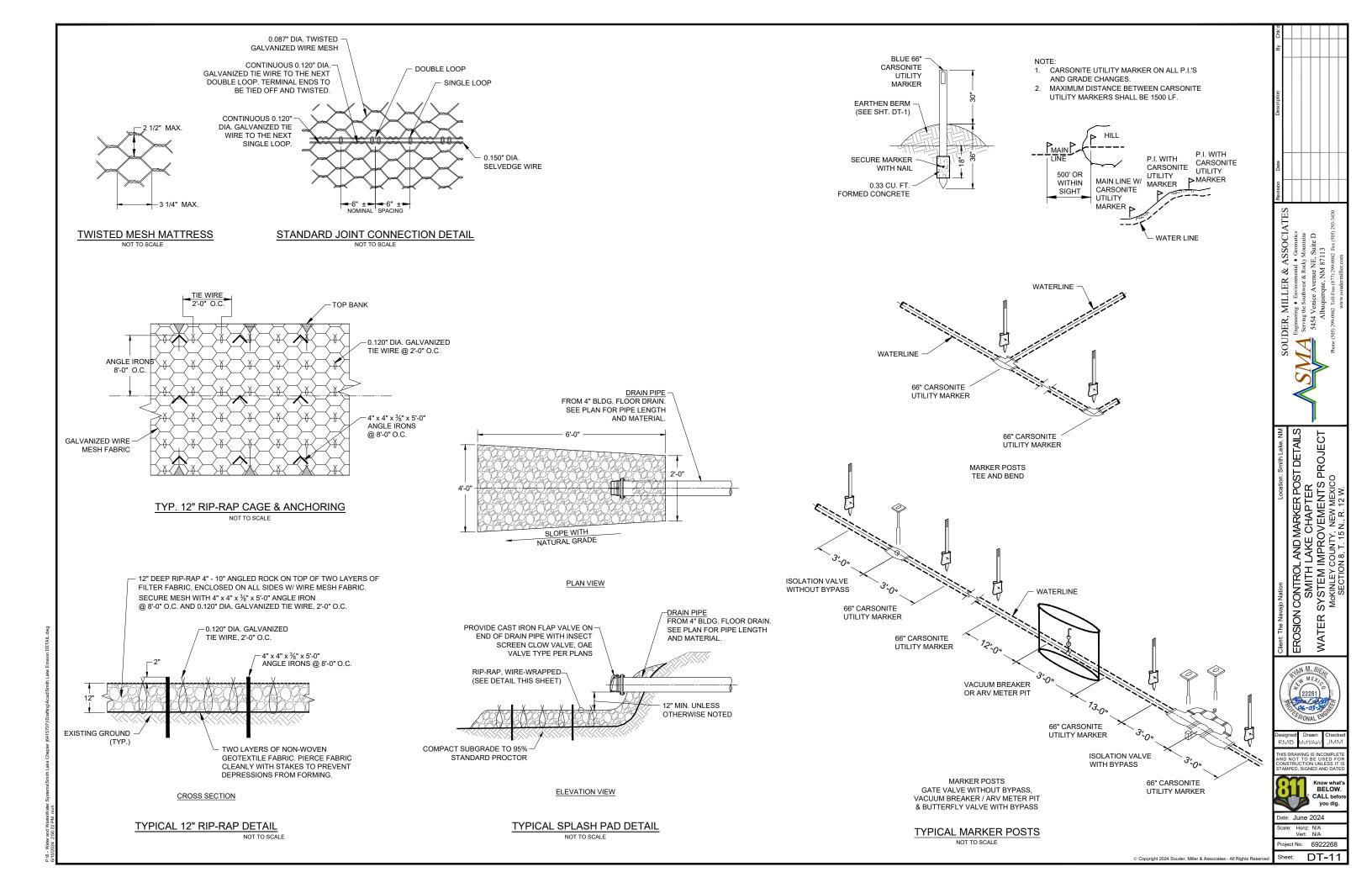
TREATMENT BUILDING ROOF PLAN
SMITH LAKE CHAPTER
WATER SYSTEM IMPROVEMENTS PROJECT
McKINLEY COUNTY, NEW MEXICO
SECTION 8, T. 15 N., R. 12 W.

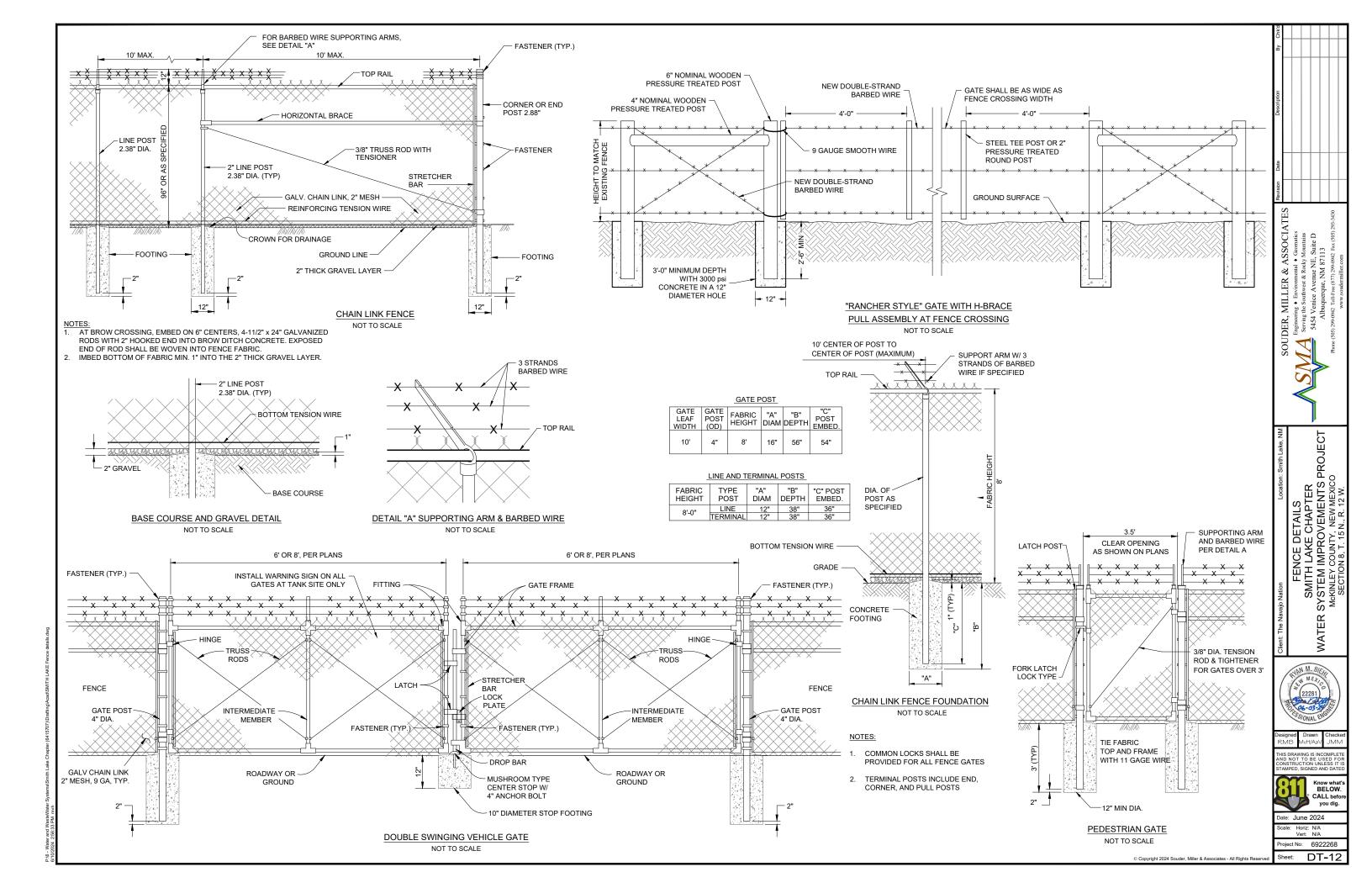
Know what's BELOW. CALL before you dig.

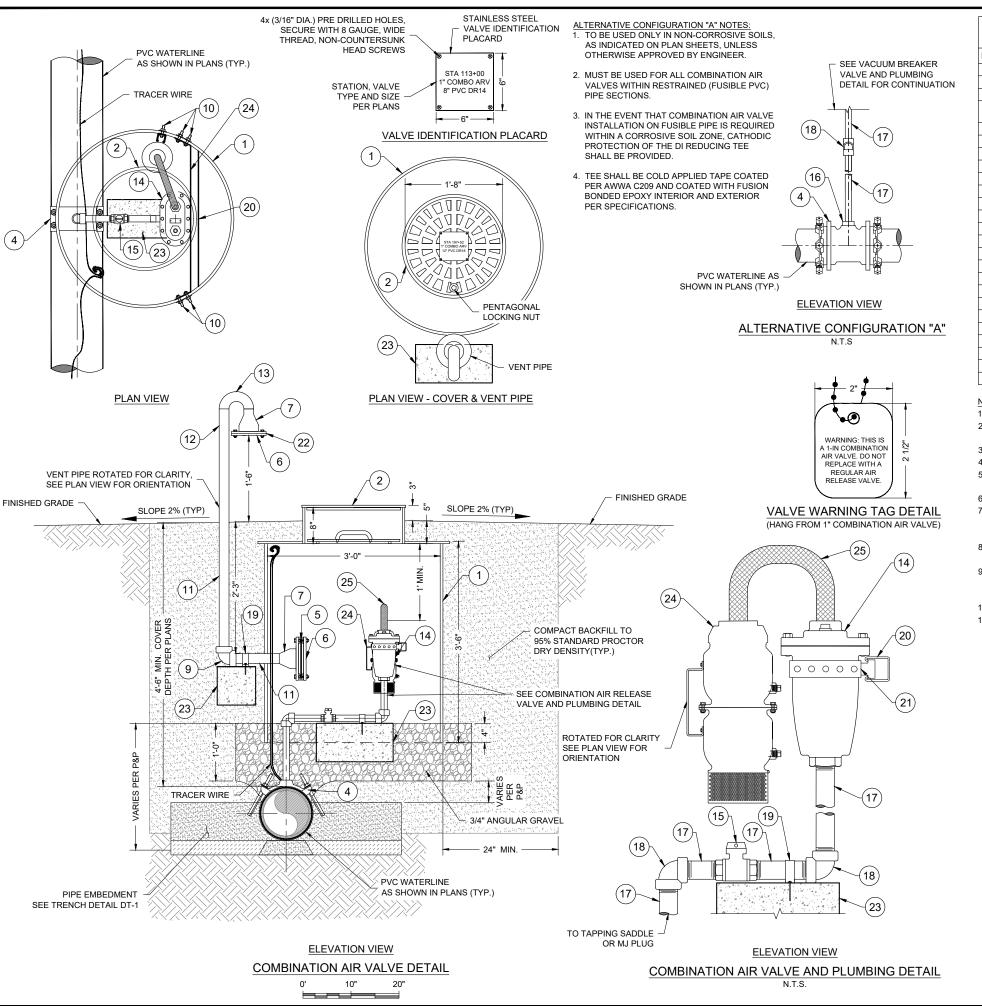
Date: June 2024

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#### Description 1 36" DIA. PLASTIC (METER) PIT WITH REMOVABLE FROST LID 20" METER PIT LOCKING COVER(CAST IRON )WITH FROST PROOF INNER LID 4" x 4" x " MJ x MJ TAPPED TEE, D.I., 350 psi WP 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 4" FREEZE PREVENTION DRAFT DAMPENER. VALMATIC FROSTSAFE MODEL #1504, OAE 4" GALVANIZED IRON COMPANION FLANGE, DRILLED TO FIT 4" FLANGED x 2" WELDED GALVANIZED IRON REDUCER ( PIPE EXTERIOR PAINTED BLUE ) 4" x 1" TAPPED THREADED MJ PLUG, D.I., 350 psi, FBE COATED 2" GALVANIZED IRON 90° ELBOW, THREADED ( PIPE EXTERIOR COLD-APPLIED TAPE COATED ) 2" SS 304 ANCHOR BOLTS, NUTS AND FENDER WASHERS ( 2x EACH SIDE ) 2" STD. GALVANIZED IRON PIPE, THREADED END ( PIPE EXTERIOR COLD-APPLIED TAPE COATED ) 2" STD. GALVANIZED IRON PIPE ( PIPE EXTERIOR PAINTED BLUE ) 2" GALVANIZED IRON LONG RADIUS WELDED RETURN ( PIPE EXTERIOR PAINTED BLUE ) 1" VALMATIC MODEL NO, 201C SV COMBINATION AIR VALVE (SINGLE BODY TYPE), 300 psi 1" CURB STOP, BRONZE, NPT, APOLLO MODEL 78-622-01, (O.A.E.) 2" MALE x 1" FEMALE REDUCING BUSHING, NPT, SS 304 16 1" NIPPLE, SS 304, NPT 1" 90° ELBOW, SS 304, NPT, SCHEDULE 40 18 I" WIDE PIPE STRAP, BOLT TO SUPPORT BLOCK ( 3" BOLTS

KEYED NOTES - 1" COMBINATION AIR VALVE ASSEMBLY

#### NOTES:

21

23

VARMINT SCREEN

1. ALL FLANGES SHALL BE FLAT FACED, UNLESS OTHERWISE NOTED.

STAINLESS STEEL PERFORATED METAL HANGER STRAP

ALL NON-STAINLESS METALLIC PIPE IN CONTACT WITH SOIL SHALL BE COLD APPLIED TAPE-COATED PER AWWA C209

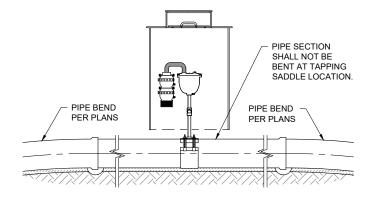
1.5/8" GALVANIZED UNI-STRUT ( ADJUST AS NEEDED TO FIT BOTH VALVES AND PIPING.

CONCRETE SUPPORT BLOCK, SOLID 8" x 8" x 16" ( MIN. 3" FROM EDGE OF PIPE )

- COMBINATION AIR VALVE TO BE LOCATED IN FIELD BY ENGINEER
- 4. COIL TRACER WIRE ON INSIDE WALLS AT TOP OF METER PIT.

1 " VALMATIC FLOODSAFE PREVENTER 25 1" STAINLESS STEEL BRAIDED HOSE

- ALL STAINLESS STEEL PIPE AND FITTINGS SHALL HAVE A WORKING PRESSURE OF AT LEAST 350 psi, UNLESS OTHERWISE NOTED.
- REMOVE ALL PVC CUTTINGS FROM INSIDE MAIN LINE AFTER TAPPING.
- 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
- 8. DO NOT TAP FUSIBLE OR RESTRAINED PIPE. USE ALTERNATIVE CONFIGURATION "A" IN LIEU OF TAPPING.
- 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
- 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



**ELEVATION VIEW** 

PIPE BENDING RESTRICTIONS FOR USE WITH TAPPING SADDLE

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PROJECT

IMPROVEMENTS PI COUNTY, NEW MEXICO ON 8, T. 15 N., R. 12 N.

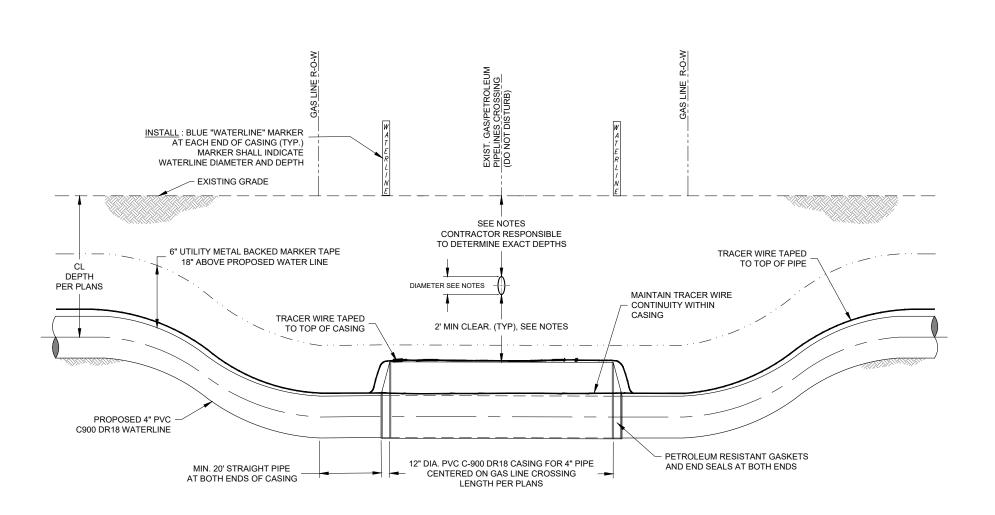
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## TYPICAL GAS PIPELINE CROSSING DETAIL

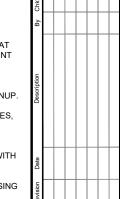
NOT TO SCALE

#### 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
- 8. HEAVY EQUIPMENT MUST CROSS PIPELINE ONLY AT CROSSING LOCATIONS APPROVED BY GAS
- 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")



enue NE, Suite D 8 SOUDER, MILLER

PROJECT

E CROSSING DETAILS 1 LAKE CHAPTER 1 IMPROVEMENTS PF COUNTY, NEW MEXICO 2008, T. 150, R. 12 W.



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- MOUNTING HEIGHTS FOR DEVICES CALLED OUT AT 18" A.F.F. ARE TO THE BOTTOM OF THE DEVICE UNLESS OTHERWISE NOTED
- $\bullet$  MOUNTING HEIGHTS FOR DEVICES CALLED OUT AT 48" A.F.F. ARE TO THE TOP OF THE DEVICE
- ANY SPECIFIC DETAILS ABOVE (MOUNTING HEIGHTS, PART NUMBERS, CONNECTION METHODS, ETC.) MAY BE MODIFIED OR REPLACED BY INFORMATION ON PLANS, SCHEDULES, DETAILS, RISERS, ETC. DETAILS NOT SPECIFICALLY MODIFIED REMAIN AS GIVEN ABOVE.

#### GENERAL NOTES

#### **SPECIFICATIONS**

C4) IF THERE IS A CONFLICT RETWEEN DI ANS/SPECIFICATIONS AND MANUFACTURER'S RECOMMENDATIONS FOR ANY DEVICE PART, OR MATERIAL USED IN THE PROJECT, THE CONTRACTOR S

G2) THE CONTRACTOR SHALL FAMILIARIZE HIMHERSELF WITH THE PLANS, AND THE SITE CONDITIONS PRIOR TO BID OPENING AND SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY AMBIGUITIES, CONTRADICTIONS OR IRREGULARITIES IN

G3) IF, DURING BIDDING OR CONSTRUCTION, THE CONTRACTOR IS IN DOUBT AS TO THE TRUE MEANING OF ANY PART OF THE PLANS, SPECIFICATIONS, OR OTHER CONTRACT DOCUMENTS, OR DISCREPANCIES IN OR POSSIBLE OMISSIONS FROM THE DRAWINGS OR SPECIFICATIONS, THEY SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING AND REQUEST AN INTERPRETATION OF CORRECTION THEREOF. DURING THE BIDDING PROCESS AN ADDENDUM (IF NEEDED) WILL BE ISSUED.

G3.1) THE CONTRACT, IF AWARDED, WILL BE ON THE BASIS OF MATERIAL AND FOLIPMENT SPECIFIED OR DESCRIBED IN THE 93. I) THE CONTROL, IF AVAINABLED, WILL BE ON THE BASIS OF MAINERIAL AND EQUIPMENT SPECIFIED OF DESCRIBED IN THE BIDDING DOCUMENTS WITHOUT CONSIDERATION OF POSSIBLE SUBSTITUTE OR "OR EQUAL" ITEMS. WHEREVER A BRAND NAME IS SPECIFIED OR DESCRIBED IN THE BIDDING DOCUMENTS A SUBSTITUTE OR "OR EQUAL" ITEM OF MATERIAL OR EQUIPMENT MAY BE FURNISHED OR USED BY CONTRACTOR FOR SUCH ACCEPTABLE OF DRIGNER, APPLICATION FOR SUCH ACCEPTABLE OF DRIGNER APPLICATION FOR SUCH FOR SUBMISSION OF ANY SUCH APPLICATION BY CONTRACTOR AND CONSIDERATION BY ENGINEER IS SET FORTH IN THE GENERAL CONDITIONS.

#### EXISTING UTILITIES & OBSTACLES TO WORK

G4) THE CONTRACTOR IS RESPONSIBLE TO INSTALL ALL ITEMS DESCRIBED IN THESE PLANS IN A MANNER THAT PROTECTS THE EXISTING FACILITY. THE CONTRACTOR MUST CONTACT THE ENGINEER IMMEDIATELY IF HE IS UNABLE TO PERFORM THIS WORK WITHOUT DAMAGE TO THE EXISTING FACILITY. THE CONTRACTOR MUST FIELD VERIFY ALL EXISTING INFORMATION SHOWN ON THESE PLANS. DESIGN ELEMENTS OF THIS PROJECT WILL NOT CHANGE WITHOUT CHANGE ORDER UNLESS THE CONTRACTOR NOTIFIES THE RIGINEER IN A TIMELY MANNER REGARDING ITEMS DESCRIBED IN THIS NOTE. CHANGES IN ALIGNMENT CAUSED BY UNKNOWN OR UNANTICIPATED SITE CONDITIONS SHALL BE ACCOUNTED FOR BY THE APPROPRIATE UNIT PRICES, AS RECOMMENDED BY THE ENGINEER AND APPROVED BY THE OWNER.

G5) THE EXISTENCE, CONDITION AND LOCATION OF ANY UNDERGROUND UTILITIES OR STRUCTURES SHOWN IN THESE PLANS WAS OBTAINED BY A CAREFUL SEARCH OF AVAILABLE RECORDS. TO THE BEST OF THE ENGINEERS KNOWLEDGE, THERE ARE NO EXISTING UNDERGROUND UTILITIES EXCEPT THOSE SHOWN ON THESE PLANS. THE CONTRACTOR IS REQUIRED TO TAKE ALL PRECAUTIONARY MEASURES TO PROTECT THE LITILITIES SHOWN, AND ANY OTHER LINES OR STRUCTURES NOT SHOWN ALL PRECAUTIONARY MEASURES TO PROTECT THE UTILITIES SHOWN, AND ANY OTHER LINES OR STRUCTURES NOT SO ON THESE PLANS, AND IS RESPONSIBLE FOR THEIR LOCATING, PROTECTION OF, OR ANY DAMAGE TO THESE LINES OR STRUCTURES, THIS DOES NOT RELIEVE THE CONTRACTOR FROM HIS RESPONSIBILITY TO NOTIFY ALL UTILITY COMPAN AND OBTAIN LINE SPOTS.

G6) THE FOLLOWING IS A LIST OF POSSIBLE OBSTRUCTIONS AND SHALL NOT BE CONSIDERED A COMPLETE LIST OF POSSIBLE OBSTRUCTIONS: EXISTING UTILITIES, STRUCTURE, GEOTECHNICAL FEATURES, ALL CONDUIT, CABLES, PIPES, WATERLINES, SEWER LINES. GAS LINES. POWER LINES. TELEPHONE AND TELEGRAPH LINES, TREES, MONUMENTS, TRAFFIC CONTROL DEVICES AND OTHER STRUCTURES. BOTH BELOW AND ABOVE GROUND

G7) CONTRACTOR SHALL BE HELD RESPONSIBLE FOR COSTS OF REPAIR OF ANY AND ALL DAMAGE TO ANY UTILITY (WHICH IS PREVIOUSLY KNOWN AND DISCLOSED TO HIM BY THE UTILITY OR SHOWN ON THESE PLANS) AS MAY BE CAUSED BY HIS

G8) FIVE (5) WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT NEW MEXICO ONE-CALL SYSTEM, INC. (505) 260-1990, FOR LOCATION OF EXISTING UTILITIES.

G9) CONTRACTOR SHALL GIVE ALL PUBLIC AND PRIVATE UTILITY COMPANIES NOTICE AS SOON AS POSSIBLE, IN NO EVENT LESS THAN FORTY EIGHT (48) HOURS, FOR ANY WORK THAT IS UNDERSTOOD TO INTERFERE WITH THE SERVICE OF ANY EXISTING PUBLIC OR PRIVATE UTILITY. IF SUCH PUBLIC OR PRIVATE UTILITY DOES NOT COOPERATE FOR THE PROTECTION OF ITS SERVICES, CONTRACTOR SHALL NOTIFY ENGINEER.

G10) CONTRACTOR SHALL IMMEDIATELY REPORT ANY DAMAGES TO PUBLIC OR PRIVATE PROPERTY TO THE OWNER OF THE G10) CONTRACTOR SHALL IMMEDIATELY REPORT ANY DAMAGES TO PUBLIC OR PRIVATE PROPERTY TO THE OWNER OF THE PROPERTY INVOLVED AND TO THE ENGINEER. CONTRACTOR SHALL REPAIR OR RESTORE AT HIS OWN EXPENSE ANY DAMAGE TO PUBLIC OR PRIVATE PROPERTY, FOR WHICH THEY ARE DIRECTLY OR INDIRECTLY RESPONSIBLE, TO A CONDITION EQUAL TO THAT EXISTING BEFORE DAMAGE. CONTRACTOR SHALL PROMPTLY NOTIFY HIS INSURANCE CARRIER OF SUCH DAMAGE. IF CONTRACTOR FAILS TO GIVE SUCH NOTICE TO HIS INSURANCE CARRIER OR REFUSES TO EFFECT SUCH REPAIRS OR RESTORATION UPON RECEIPT OF NOTICE, THE ENGINEER MAY CAUSE SUCH REPAIRS OR RESTORATION AND DEDUCT THE COST THEREOF FROM MONEYS DUE, OR WHICH MAY BECOME DUE, TO THE CONTRACTOR.

G11) CONTRACTOR IS RESPONSIBLE FOR RECORDING EXISTING CONDITIONS IN ACCORDANCE WITH THE SUPPLEMENTARY CONDITIONS OF THE CONTRACT BEFORE CONSTRUCTION BEGINS. THE RECORD OF EXISTING CONDITIONS SHALL BE USED AS THE "EQUAL CONDITION BEFORE DAMAGE" IN THE EVENT OF DAMAGE TO PUBLIC OR PRIVATE PROPERTY. CONTRACTOR FAILURE TO RECORD EXISTING CONDITIONS WILL MAKE THE OWNERS CLAIM OF "EQUAL CONDITION BEFORE DAMAGE" THE STANDARD THE CONTRACTOR SHALL BE RESPONSIBLE FOR MEETING AND THE ENGINEER WILL BE IN THE POSITION OF NOT BEING ABLE TO SUPPORT THE CONTRACTOR IN THE MEDIATION OF ANY DISPUTE.

G12) THE CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFICATION OF LOCATION OF ALL EXISTING UTILITIES...

#### SITE CONDITIONS

G13) CONTRACTOR SHALL MAINTAIN ACCESS TO ALL FACILITIES ADJACENT TO THE CONSTRUCTION AREA.

G14) THE CONTRACTOR SHALL USE WATERING EQUIPMENT FOR DUST POLLUTION ABATEMENT AS REQUIRED OR AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND SUPPLYING WATER. THIS WORK AND MATERIAL SHALL BE CONSIDERED INCIDENTAL TO CONSTRUCTION.

G15) <u>EPA STORM WATER DISCHARGE REGULATIONS.</u> THE CONTRACTOR IS RESPONSIBLE FOR COMPLIANCE TO APPLICABLE PORTIONS OF THE EPA STORM WATER DISCHARGE REGULATIONS.

G16) CONTRACTOR SHALL FULLY COORDINATE ALL REPLACEMENT OF DAMAGED OR DESTROYED EQUIPMENT, GRASS, TURF, ETC. THAT WAS DAMAGED OR DESTROYED DURING CONSTRUCTION.

#### SITE DESIGN

G17) <u>SUBGRADE</u>, ALL SUBGRADE AND TRENCH BACKFILL SHALL BE COMPACTED TO 95 % OF STANDARD PROCTOR. ALL SUBGRADE AND BACKFILL SHALL BE COMPACTED IN MAXIMUM 8" LOOSE LIFTS. MOISTURE CONTENT AT THE TIME OF COMPACTION SHALL NOT EXCEED OPTIMUM OR BE LESS THAN 5 PERCENTAGE POINTS BELOW OPTIMUM. DRIVEWAYS, APRONS, FILLETS, CURB AND GUITTER, AND OTHER CONCRETE PAVEMENT SHALL BE PLACED ON 6" OF COMPACTED

G18) RESTORE SURFACE AT TRENCH TO EXISTING CONDITIONS

#### COMMUNICATION

G19) CONTRACTOR SHALL KEEP THE OWNER AND THE ENGINEER UPDATED WEEKLY ON THE CONSTRUCTION SCHEDULE

G20) CONTRACTOR SHALL FULLY COORDINATE ALL WORK WITH CITY OF LOS ALAMOS P.I. OFFICER INCLUDING BUT NOT LIMITED TO NOISE ORDINANCE, TIME OF WORK BEING PERFORMED, ETC.

#### STAGING STORAGE & DEBRIS DISPOSAL

G21) DEBRIS GENERATED BY CONSTRUCTION ACTIVITIES SHALL BE DISPOSED OF AT A PERMITTED LANDFILL OR OTHER DULY CERTIFIED REFUSE FACILITY. THE DISPOSAL OF DEBRIS IS NOT A PAY ITEM.

#### RECORD DRAWINGS

G22) THE CONTRACTOR SHALL PROVIDE A RECORD SKETCH ON THESE PLANS FOR THE AS-CONSTRUCTED CONDITIONS.

#### PHASE AND SCHEDULE

G23) CONTRACTOR SHALL PHASE AND SCHEDULE WORK IN SUCH A WAY AS TO PROVIDE MINIMAL POWER OUTAGES AT THE FACILITY. A PROJECT SCHEDULE SHALL BE SUBMITTED TO THE OWNER FOR REVIEW PRIOR TO ISSUANCE OF NOTICE-TO-PROCEED. CHANGES IN SCHEDULE SHALL BE PRESENTED TO OWNER AND ENGINEER AT LEAST 7 DAYS PRIOR TO PROPOSED IMPLEMENTATION. THESE SCHEDULES, SCHEMATICS AND DIAGRAMS SHALL BE UPDATED WEEKLY AS THE WORK PROGRESSES. MOST CHANGE OVER SHALL BE DONE ON WEEKENDS OR AFTER HOURS.

#### SUBMITTALS

G24) CONTRACTOR SHALL PROVIDE SUBMITTALS FOR ALL EQUIPMENT, MATERIALS, PROCESSES AND SCHEDULES AND AS

#### INSPECTION OF WORK

G25) OWNER SHALL HAVE ACCESS TO FULL TIME INSPECTION OF WORK BEING PERFORMED

	LIGHT FIXTURE SCHEDULE		
TYPE	FIXTURE DESCRIPTION	LAMPS	MOUNTING
А	4' LED SURFACE MOUNTED, LENSED, STRIP LIGHT, 4000 LUMENS, 40W, UNIVERSAL VOLTAGE METALUX #4SLSTP404DD-UNV	LED	CEILING SURFACE
В	LED WALL PACK, FULL CUTOFF, PHOTOCELL, 120V  LUMARK #LDWP-FC-4B-120V-PE	32W LED	EXTERIOR WALL
	EMERGENCY LIGHT, BATTERY BACKUP, UNIVERSAL VOLTAGE SURE-LITES #AP2SQLED	LED	WALL SURFACE

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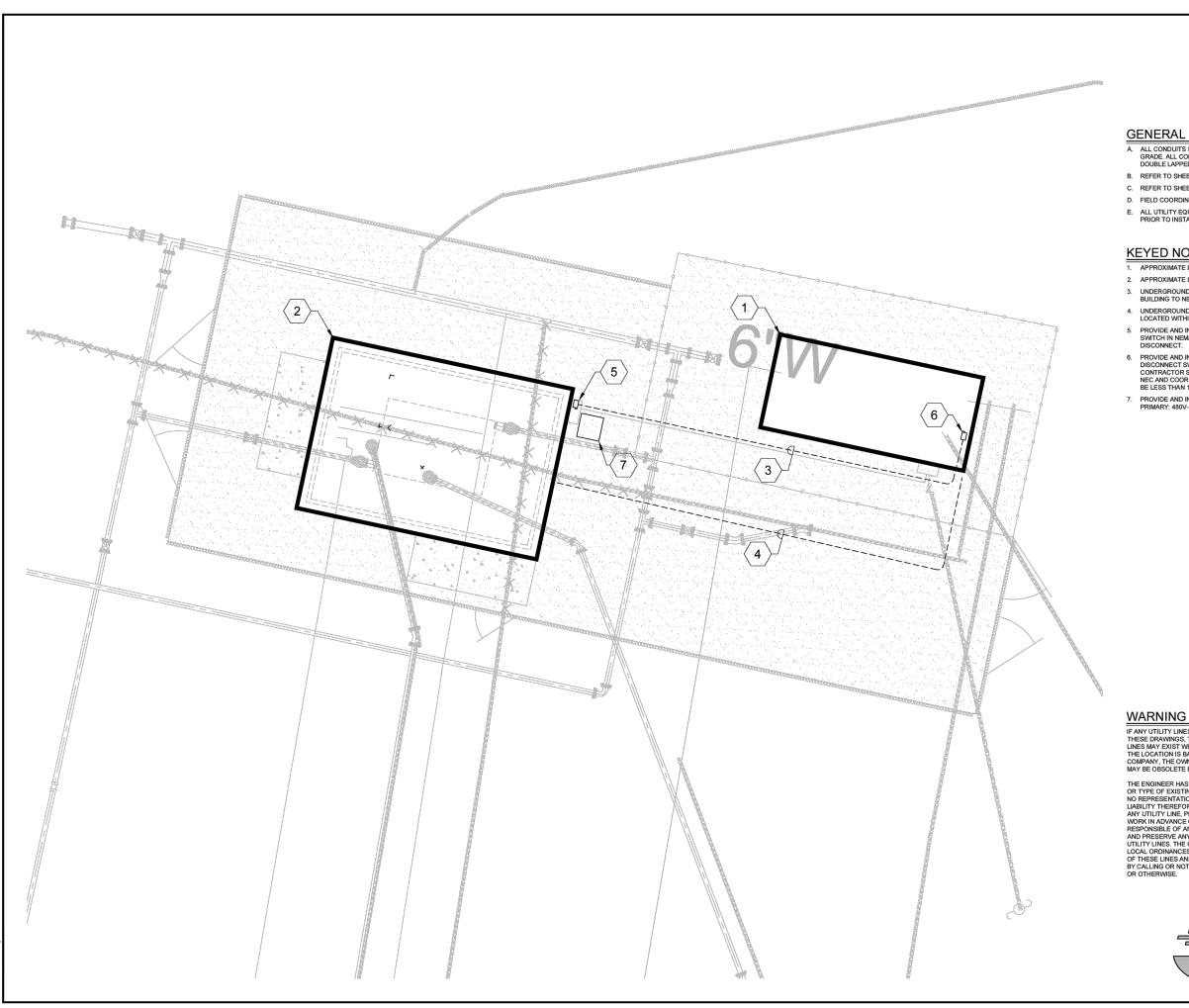
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#### **GENERAL NOTES**

- 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 ○

- APPROXIMATE LOCATION OF EXISTING WELLHOUSE BUILDING.
- 2. APPROXIMATE LOCATION OF NEW TREATMENT BUILDING.
- UNDERGROUND FEEDER FROM EXISTING PANEL "A" LOCATED WITHIN WELLHOUSE BUILDING TO NEW PANEL "B" IN TREATMENT BUILDING.
- 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.
- 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.

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 IT'S 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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TRICAL SITE PLAN
TH LAKE CHAPTER
M IMPROVEMENTS PF
EY COUNTY, NEW MEXICO
FION 8, T. 15 N., R. 12 W.

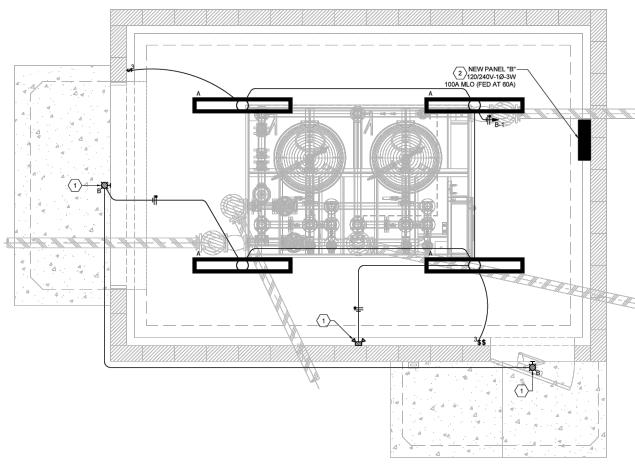
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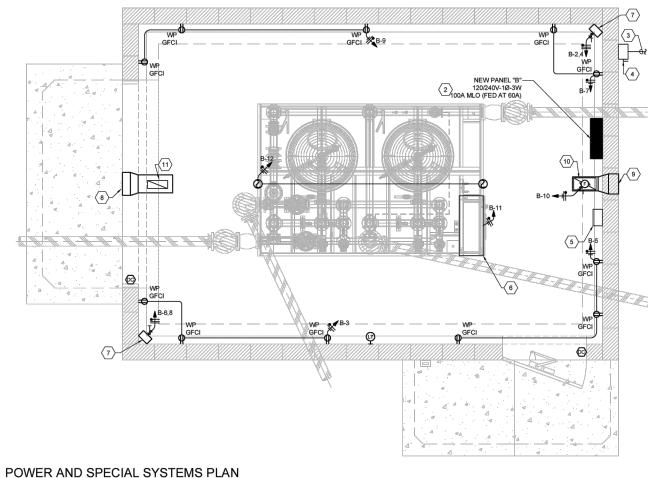
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#### LIGHTING PLAN

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

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



### KEYED NOTES ○

- 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 ADEDGE TREATMENT SYSTEM. CONTRACTOR IS CONTROL PANEL PROVIDED WITH ADEDGE TREATMENT SYSTEM. CONTRACTOR'S RESPONSIBLE FOR "CONDUIT BELOW SLAB WITH A CATG 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 "CONDUIT BELOW SLAB WITH 3#10 THWN CU ROUTED TO PANEL "B" FOR POWER AS SHOWN ON THE PLANS.
- PROVIDE AND INSTALL A 2.6 KW 240 VOLTS, SINGLE PHASE ELECTRIC WALL MOUNTED HEATER WITH INTEGRAL THERMOSTAT. HOMERUN 3 # 10 - 5/2 CONDUIT TO CIRCUIT INDICATED. HEATER SHALL BE AS MANUFACTURED BY CHROMALOX #HVH-02-1-00-TL-0-00-0-5-HVW-1.
- 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.
- 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.
- 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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ELECTRICAL PLANS
SMITH LAKE CHAPTER
SYSTEM IMPROVEMENTS PR
MCKINLEY COUNTY, NEW MEXICO
SECTION 8, 1, 15, W.



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E-3

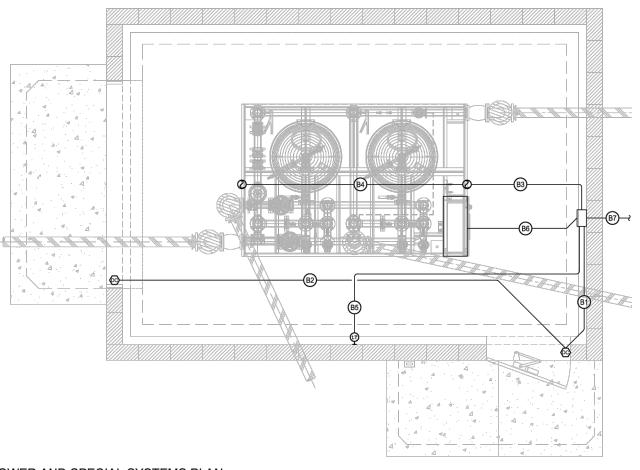
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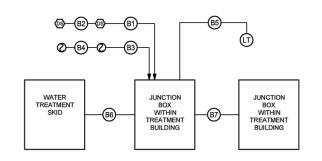
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### POWER AND SPECIAL SYSTEMS PLAN

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

	Contro	ol Wiring Schedule - Treatme	ent Building
TAG #	FED FROM	то	WIRE REQUIRMENTS
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
В3	Smoke Detector	junction box	2 # 14, 1 # 14 Gnd - 1/2" Conduit
В4	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
В6	Treatment system	ĵunction box	(1) CAT6 CABLE - 1/2" CONDUIT
В7	junction box	PLC	all cables from B1 - B6 in 1 1/2" conduit



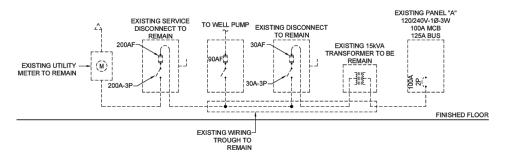
## SURGE TANK BUILDING - CONTROL RISER DIAGRAM SCALE: NONE

DISCRETE & ANALOG I/O LIST									
Site Name	I/O Name	Tag	Point	Type	Local	SCADA	Notes		
TREATMENT Building									
	Treatment Bldg. Intrusion Man Door		11	DI		Yes			
	Treatment Bldg. Intrusion Roll Up Door		12	DI		Yes			
	Treatment Bldg. Smoke Detector		13	DI		Yes			
	Low Temperature Sensor		15	DI		Yes			



CONTROL PLAN
SMITH LAKE CHAPTER
WATER SYSTEM IMPROVEMENTS PROJECT
MAKINLEY COUNTY, NEW MEXICO
SECTION 8. T. 15 N., R. 12 W. Know what's BELOW. CALL before you dig. Date: 05/07/2024 Scale: Horiz: AS SHOWN Vert: N/A Project No: 6922268

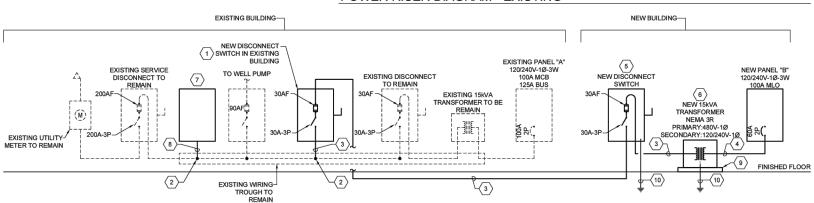
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## LOAD SUMMARY SERVICE DISCONNECT

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) REMAINING AT 100% (0.8 KVA) 0.8 KVA RECEPTACLES (2.0 KVA CONN) FIRST 10 KVA AT 100% REMAINING AT 50% 0.0 KVA LIGHTING (0.2 KVA CONN) AT 125% 0.3 KVA (CONTINUOUS LOAD) EQUIPMENT (5.4 KVA CONN) AT 100% 5.4 KVA 86.9 KVA TOTAL ESTIMATED LOAD: 105 AMPERES AT 480Y/277V-3Ø-4W EXISTING SERVICE SIZE =

### POWER RISER DIAGRAM - EXISTING



#### POWER RISER DIAGRAM - NEW WORK

	: Water Treatment Building	1			120/240		to Troban			Main: 60A	
FED FROM	15KVA TRANSFORMER		ENCLO	)SU	RE: NEM	-71.33	MO		SURFA	CE A/C 10,000	
BKR SIZE	DESCRIPTION	DEMAND	LOAD (VA)	Ckt #		D (VA)	Ckt #	LOAD (VA)	CODE	DESCRIPTION	BKF
20A-1P	LIGHTING	LTG	.230	1	1530		2	1300	EQP	UNIT HEATER	20A-2
20A-1P	RECEPTACLES	REC	540	3		1840	4	1300	EQP	UNII HEATEK	-20A-
20A-1P	RECEPTACLES	REC	540	5	1840		6	1300	EQP	UNIT HEATER	20A-2
20A-1P	RECEPTACLES	REC	360	7		1660	8	1300	EQP	UNIT HEATER	20A-
20A-1P	RECEPTACLES	REC	540	9	1370		10	830	MECH	EXHAUST FAN	20A-
30A-1P	A DEDGE TREATMENT SKID	LMECH	2400	11		2600	12	200	EQP	SMOKE DETECTORS	20A-
1P	SPACEONLY			5			6			SPACE ONLY	1P
1P	SPACE ONLY			7			8			SPACE ONLY	1P
	Total Total P Total Conr		ıds (Am	nps)	39.5	50.8	]	Notes:	2. 12-Cii 3. Copp	Panelboard rcuit, Lockable Enclosure er Neutral and Ground Bus	Bars
	Total P Total Conn	nase Loa ected L	ids (Am oads (k	nps) VA)	39.5	50.8	] ]		2. 12-Cii 3. Copp 4. Door-	rcuit, Lockable Enclosure er Neutral and Ground Bus In-Door Enclosure	Bars
	Total P Total Conn	nase Loa ected L	ids (Am oads (k	nps) VA)	39.5 10.8	50.8		PAN	2. 12-Cii 3. Copp 4. Door- IEL "B	rcuit, Lockable Enclosure er Neutral and Ground Bus In-Door Enclosure	Bars
LTG	Total P. Total Conn Total Conn Connected (kVA) by Type:	nase Loa ected L	ids (Am oads (k	nps) VA)	39.5 10.8	NS - N	d (k\	PAN	2. 12-Cii 3. Copp 4. Door- IEL "B	rcuit, Lockable Enclosure er Neutral and Ground Bus in-Door Enclosure.	
LTG	Total P. Total Conn  Connected (kVA) byType: Lighting 0.2	nase Loa ected L	ids (Am oads (k	nps) VA)	39.5 10.8	NS - N ed Deman at 125% (	d (k\ kVA)	/ PAN	2. 12-Cii 3. Copp 4. Door- IEL "B	rcuit, Lockable Enclosure er Neutral and Ground Bus in-Door Enclosure.	A): 112
LTG REC	Total P. Total Conn Total Conn Connected (kVA) by Type:	nase Loa ected L	ids (Am oads (k	nps) VA)	LATIO Estimate	NS - N ed Deman at 125% (I	d (k\ kVA) cles	/ PAN (A) by Tyj (D) (2)	2. 12-Cii 3. Copp 4. Door- IEL "B	rcuit, Lockable Enclosure er Neutral and Ground Bus in-Door Enclosure  Total Estimated Demand (kv mps at 120/240V-1 Phase (Amp	A): 11:
	Total P. Total Conn  Connected (kVA) byType: Lighting 0.2	nase Loa ected L	ids (Am oads (k	nps) VA)	LATIO Estimate	NS - N ed Deman at 125% (	d (k\ kVA) cles	/ PAN	2. 12-Cii 3. Copp 4. Door- IEL "B	rcuit, Lockable Enclosure er Neutral and Ground Bus in-Door Enclosure.	A): 11:
	Total P. Total Conn  Connected (kVA) byType: Lighting 0.2	nase Loa ected L	ids (Am oads (k	nps) VA)	LATIO Estimate Lighting	NS - N ed Deman at 125% (I	d (k\ kVA): cles: kVA):	/ PAN (A) by Tyr (D) (2)	2. 12-Cii 3. Copp 4. Door- IEL "B	rcuit, Lockable Enclosure er Neutral and Ground Bus in-Door Enclosure  Total Estimated Demand (kv mps at 120/240V-1 Phase (Amp	A): 11:
	Total P. Total Conn  Connected (kVA) byType: Lighting 0.2	nase Loa ected L	ids (Am oads (k	nps) VA)	LATIO Estimate Lighting	NS - N ed Deman at 125% (I	d (k\ kVA) cles kVA) kVA)	/ PAN (A) by Tyr (D) (2)	2. 12-Cii 3. Copp 4. Door- IEL "B 0 A	rcuit, Lockable Enclosure er Neutral and Ground Bus in-Door Enclosure  Total Estimated Demand (kv mps at 120/240V-1 Phase (Amp	(A): 113 s): 47. g): 60
REC	Connected (kVA) byType:  Lighting: 0.2  Receptacles: 2.0	nase Loa ected L	ids (Am oads (k	nps) VA)	LATIO Estimate Lighting 10kVA Res	NS - N ed Deman at 125% (I Recepta at 100% (I	d (k\ kVA) cles kVA) kVA)	/ PAN (A) by Tyr  0 2 2	2. 12-Gii 3. Copp 4. Door- IEL "B 90-2. 3 0 A	rouit, Lockable Enclosure er Neutral and Ground Bus in-Door Enclosure.  Total Estimated Demand (kv mps at 120/240V4 Phase (Amp   Panel Ampacity (Ratin	(A): 113 s): 47. g): 60

## 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).
- 2. 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.
- 3. 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#6 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-5 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, TEMPURARY OVERVOLTAGE PROTECTION SPICE UP 1494 91 THE DITTON 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 
  TABLE 15 TERD BLC 200 (MIN) 1 THAN 10 FEET PER NEC 240.21(B)(1).
- 8. 4#2 THWN Cu AND 1#2 THWN Cu GROUND IN 1 1/2" CONDUIT.
- 9. 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.
- 10. REFER TO "GROUNDING SYSTEM DIAGRAM" ON SHEET E-6 FOR ADDITIONAL

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ELECTRICAL DETAILS SMITH LAKE CHAPTER S SYSTEM IMPROVEMENTS PR MCKINLEY COUNTY, NEW MEXICO

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Date: 05/07/2024

cale: Horiz: AS SHOWN Vert: N/A oject No: 6922268

THE RESPONSE GROUP, INC.

#### **GROUNDING SYSTEM DIAGRAM**

480Y/277V

#### **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) (1) AND (1) MUST BE BONDED TOGETHER AND TO THE GROUNDING ELECTRODE SYSTEM WHEN THEY ARE PRESENT.
- C. ITEM (), 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 HARMIFUL 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.
- WHEN INDICATED ON DRAWINGS, PROVIDE AND INSTALL HORIZONTAL CHEMICAL GROUND ELECTRODE KIT. 10' COPPER ELECTRODE WHEN INDICATED ON DRAWINGS, PROVIDE AND INSTALL HORIZONIAL CHEMICAL GROUND ELECTRODE RIT. 10 COPPER ELECTRODE LENGTH, FACTORY ATTACHED 6"#4/0 COPPER PICTALL, AND HIGH DENSITY POLYETHYLENE HISPECTION WELL & COVER. ERICO #ECRH102Q6U 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\* TO COPPER MAIN GROUNDING BUS BAR WITH BRACKETS AND INSULTORS. CONTRACTOR SHALL COORDINATE PRE-DRILLED (12)-1/4\* HOLES REQUIREMENTS WITH PAIN (O'WER), ERICO OR APPROVED EQUAL EXTEND 1#4/10 CU GROUNDING CONDUCTOR TO MAIN GROUND. COORDINATE EXACT LOCATION AND ROUTING IN THE FIELD. CONTRACTOR SHALL MAKE ALL FINAL TERMINATIONS AS REQUIRED.

	GROUNDING SCHEDULE											
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	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	
AND ACITY OF		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	

GROUND WIRE LUGS AS INDICATED ON GROUNDING DIAGRAM AND/OR REFERENCED ELSEWHERE ON PLANS OR SPECIFICATIONS



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TRICAL DETAILS
I LAKE CHAPTER
I IMPROVEMENTS PF
COUNTY, NEW MEXICO
ON 8, 1, 15 N., R, 12 W. ELECTF SMITH L SYSTEM IN MCKINLEY CO WATER

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Date: 05/07/2024

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