

NAVAJO GALLUP WATER SUPPLY PROJECT

REACH 26.3

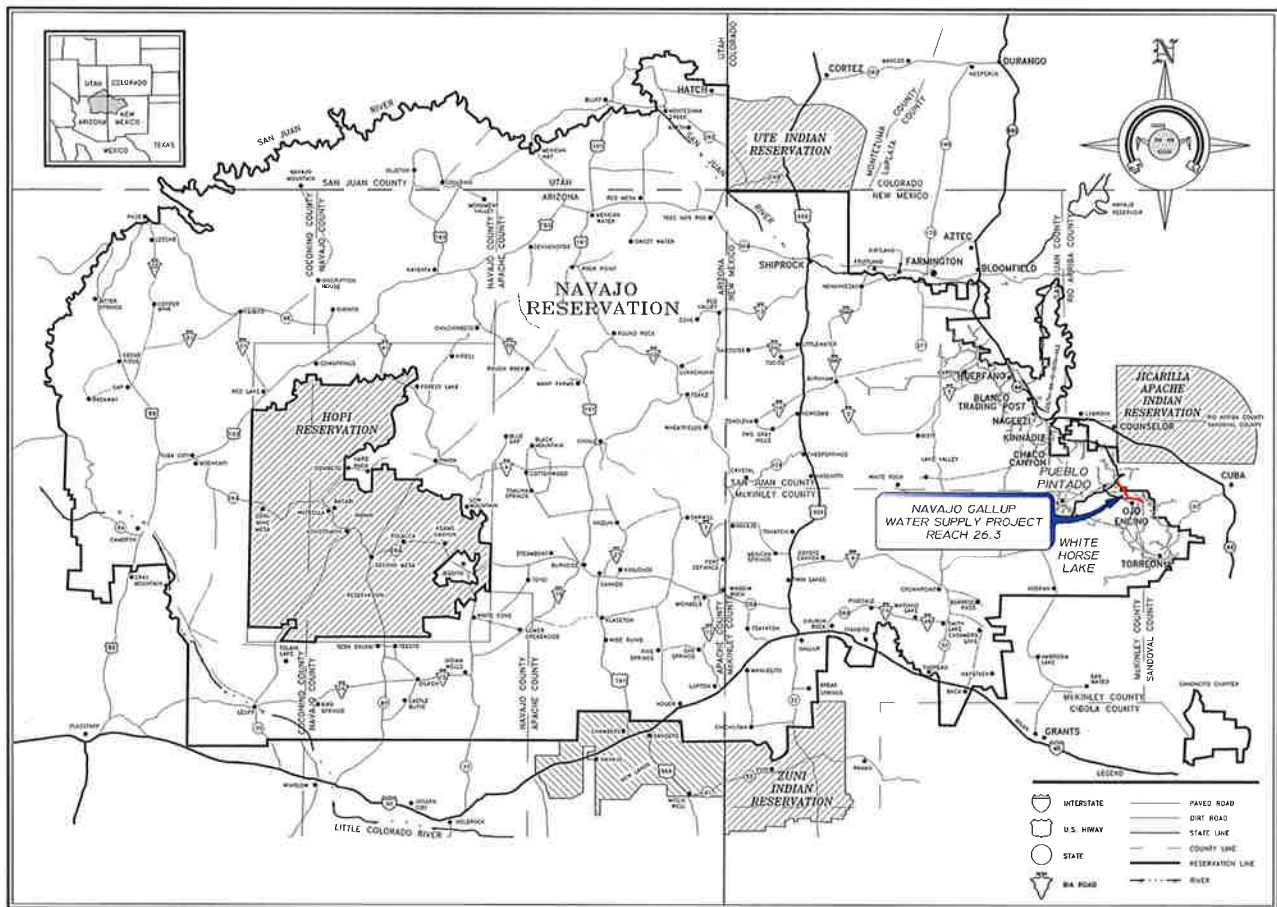


Reach 26.3 To Torreon, NM

February 2018

PROJECT DESCRIPTION

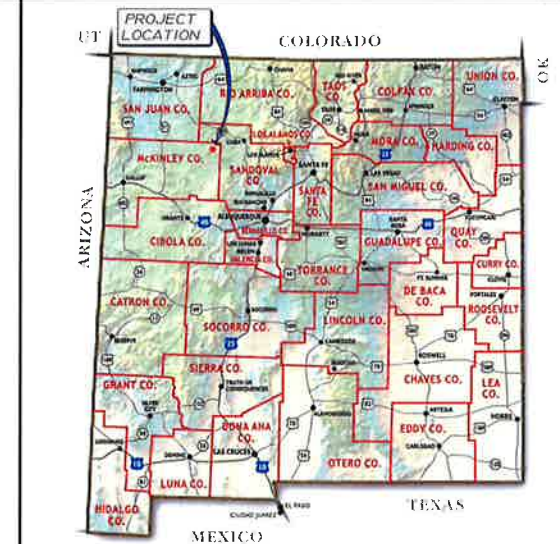
THE PROJECT CONSISTS OF CONSTRUCTION OF
3.06 MILES OF 10" PVC WATERLINE, 6.26 MILES OF 12" PVC WATERLINE,
(2x) 250K GALLON WATER STORAGE TANKS WITH CHLORINATOR



NAVAJO RESERVATION
PROJECT SITE MAP

DRAWING LIST

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C-10	PLAN & PROFILE STA 112+00 TO STA 140+00
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C-17	PLAN & PROFILE STA 302+00 TO STA 323+00
C-18	PLAN & PROFILE STA 323+00 TO STA 350+00
C-19	PLAN & PROFILE STA 350+00 TO STA 374+00
C-20	PLAN & PROFILE STA 374+00 TO STA 402+00
C-21	PLAN & PROFILE STA 402+00 TO STA 430+00
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PROJECT VICINITY MAP

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E203	ELECTRICAL DETAILS
E301	ELECTRICAL DETAILS
E302	ELECTRICAL DETAILS
E303	ELECTRICAL DETAILS

Revision	Date	Description	By	CHKD

SMA
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CLIENT: The Navajo Nation
TOWN: Reach 26.3 To Torreon, NM
COVER SHEET AND DRAWING LIST
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACH 26.3
SANDOVAL & MCKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
TTT	MVA/AV	AGR



THIS DRAWING IS INCOMPLETE
AND NOT TO BE USED FOR
CONSTRUCTION UNLESS IT IS
STAMPED, SIGNED AND DATED

NOTICE OF EXTENDED
PAYMENT PROVISION:
THIS CONTRACT ALLOWS THE
OWNER TO MAKE PAYMENT
WITHIN 45 DAYS AFTER
SUBMISSION OF
AN UNDISPUTED REQUEST
FOR PAYMENT.



Date:	February 1, 2019
Scale:	Horiz: NONE Vert: N/A
Project No:	6921307
Sheet:	G-1

GENERAL NOTES

1. 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 OBTAIN AND/OR FOLLOW THE ENGINEER'S GUIDANCE WITH RESPECT TO ANY ERRORS, OMISSIONS, INCONSISTENCIES, AMBIGUITIES, OR CONFLICTS.
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.
8. 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-SEEDDED PER THE CONTRACT DOCUMENTS.
13. FUSIBLE PVC PIPE SHALL BE USED IN LIEU OF ALL RESTRAINED JOINTS AND SHALL BE USED ON BOTH SIDES OF ALL ISOLATION VALVES, CASINGS, TEES, AND BENDS. REFER TO SPECIFICATIONS AND DETAIL, SHEET DT-3. IN ADDITION, THE PLAN AND PROFILE SHEETS INDICATE SPECIFIC ADDITIONAL LOCATIONS WHERE FUSIBLE PVC PIPE MUST BE USED IN LIEU OF BELL-AND-SPIGOT PIPE. IN THE ABSENCE OF ANY REQUIREMENT TO USE FUSIBLE PVC PIPE, CONTRACTOR HAS THE OPTION TO USE EITHER FUSIBLE OR BELL-AND-SPIGOT PIPE. IN THESE DRAWINGS, THE TERMS "BELL-AND-SPIGOT PIPE" AND "JOINTED PIPE" ARE USED SYNONYMOUSLY.
14. AT MOST LOCATIONS, THE PLAN AND PROFILE SHEETS SHOW HORIZONTAL BENDS WITHOUT SPECIFYING WHETHER THE HORIZONTAL BEND IS TO BE ACCOMPLISHED BY DI ELLS, FUSIBLE PVC SWEEPS, BENDING OF FUSIBLE PVC PIPE, OR JOINT DEFLECTION OF JOINTED PVC PIPE. AT SUCH LOCATIONS, THE METHOD OF BENDING IS AT CONTRACTOR'S OPTION, PROVIDED ALL DESIGN REQUIREMENTS SET FORTH IN THE DRAWINGS AND SPECIFICATIONS ARE MET. AT LOCATIONS WHERE FUSIBLE PVC SWEEPS ARE SHOWN, THEY MUST BE USED.
15. ALL PRESSURE RATINGS GIVEN HEREIN FOR PIPES, VALVES, FITTINGS AND OTHER COMPONENTS REFER TO COLD WATER WORKING PRESSURE RATING, UNLESS OTHERWISE NOTED.
16. VERTICAL CLEARANCES AT WATERLINE CROSSINGS ON PLAN AND PROFILE SHEETS CALLED OUT AS "MIN CLR TO CL" REFER TO MINIMUM CLEARANCE FROM BOTTOM OF EXISTING WATERLINE TO VERTICAL CENTERLINE 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.

17. 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.
18. 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):

TORY TADANO, P.E (OFFICE) (505) 299-0942

NAVAJO TRIBAL UTILITY AUTHORITY (NTUA):

CROWNPOINT SUB-OFFICE (800) 528-5011 (ext. 4758)

ABBREVIATIONS

AASHTO	AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS
A.C.	ASPHALTIC CONCRETE
ACI	AMERICAN CONCRETE INSTITUTE
AC.	ACRE
AC-FT.	ACRE FEET
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
ALIGN.	ALIGNMENT
ALUM	ALUMINUM
AMSL	ABOVE MEAN SEA LEVEL
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
APPROX.	APPROXIMATE
ARV	AIR RELEASE VALVE
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
AWG	AMERICAN WIRE GAUGE
AWWA	AMERICAN WATER WORKS ASSOCIATION
BFV	BUTTERFLY VALVE
BIA	BUREAU OF INDIAN AFFAIRS
BLDG	BUILDING
BLM	BUREAU OF LAND MANAGEMENT
BV	BALL VALVE
BVCE	BEGIN VERTICAL CURVE ELEVATION
BVCS	BEGIN VERTICAL CURVE STATION
CL	CENTERLINE
CFS	CUBIC FEET PER SECOND
CI	CAST IRON
CLR.	CLEARANCE
CMP	CORRUGATED METAL PIPE
COMM.	COMMUNICATION
CONC.	CONCRETE
CONST.	CONSTRUCTION
CONT.	CONTINUOUS
CONT.	CONTINUED
COR.	CORNER
COUP.	COUPLING
CP	CONTROL POINT
CTR	CENTER
CU	CUBIC
CY	CUBIC YARD
DI	DUCTILE IRON
DIA	DIAMETER
DIMS	DIMENSIONS
DR	DIMENSION RATIO
DW	DRIVEWAY
E	EAST
EA.	EASTING
ED.	EACH
EG	EDITION
EG	EXISTING GRADE
ELEC.	ELECTRICAL
EL., ELEV.	ELEVATION
EOP	EDGE OF PAVEMENT
EQ.	EQUAL
ESMT.	EASEMENT
EVCE	END VERTICAL CURVE ELEVATION
EVCS	END VERTICAL CURVE STATION
EX, EXIST.	EXISTING
FBE	FUSION BONDED EPOXY
FF	FINISHED FLOOR
FFE	FINISHED FLOOR ELEVATION
FG	FINISHED GRADE
FIG.	FIGURE
FL	FLANGE
FND.	FOUND
FNPT	FEMALE NATIONAL PIPE THREAD
FRP	FIBER REINFORCED PLASTIC
FT.	FEET
FV	FLUSH VALVE
GA.	GAUGE
GALV.	GALVANIZED
GI	GALVANIZED IRON
GPM	GALLONS PER MINUTE
GV	GATE VALVE
HDD	HORIZONTAL DIRECTIONAL DRILLING
HDPE	HIGH DENSITY POLYETHYLENE
HORIZ.	HORIZONTAL
HP	HORSE POWER
HT	HEIGHT
HWY	HIGHWAY
I.A.	INDIAN ALLOTMENT
I.D.	INNER DIAMETER
I.E.	THAT IS, FOR EXAMPLE
IN.	INCH
INV	INVERT
IPS	IRON PIPE SIZE
KSI	KILO POUNDS PER SQUARE INCH
LAT	LATITUDE
L, LEN	LENGTH

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

LEGEND

	EXISTING BUTTERFLY VALVE
	GATE VALVE
	WATER METER
	HYDRANT
	POWER POLE
	GUY ANCHOR
	ELECTRICAL J-BOX
	TELEPHONE PEDESTAL
	STORM DRAIN INLET / OUTLET
	BUILDING
	CATTLE GUARD
	ROAD SIGN
	EXISTING DRAINAGE WASH
	GUARD RAIL
	ROAD EDGE
	ROAD CENTER
	CONTOUR MAJOR
	CONTOUR MINOR
	SECTION CORNER
	CULTURALLY / BIOLOGICALLY SENSITIVE AREA DO NOT ENCROACH
	SECTION NUMBER
	TRIBAL TRUST / I.A. / BLM
	SECTION LINE
	QUARTER SECTION LINE
	TOWNSHIP / RANGE LINE
	FENCE
	OVERHEAD POWER LINE
	UNDERGROUND POWER LINE
	OVERHEAD TELEPHONE LINE
	UNDERGROUND TELEPHONE LINE
	WATER LINE
	GAS LINE

LEGEND PROPOSED

	WATER LINE		CONTOUR MAJOR
	POWER LINE		CONTOUR MINOR
	FENCE		40' WATERLINE EASEMENT
	CABLE BARRIER		TEMPORARY CONSTRUCTION EASEMENT
	PIPE CASING		ACCESS DRIVE / ROAD
	GATE VALVE		RIP RAP OR CABLE CRETE
	BALL VALVE		GRAVEL OVER BASE COURSE
	VACUUM BREAKER		BERM
	AIR RELEASE VALVE COMBO		DRAIN PIPE
	FLUSH VALVE		SWALE
	POWER POLE		DIRECTION OF FLOW
	GUY ANCHOR		MATCH LINE
	STORM DRAIN INLET / OUTLET		
	DOUBLE SWING GATE		
	BOULDER		

CLIENT: The Navajo Nation

TOWN: Reach 26.3 To Torsion, NM

DESIGNED: TTT

DRAWN: MTH/AAV

CHECKED: AGR

DATE: February 1, 2019

SCALE: Horiz: Vert:

PROJECT NO: 6921307

SHEET: G-2

GENERAL NOTES AND LEGEND

NAVAJO GALLUP WATER SUPPLY PROJECT - REACH 26.3

SANDOVAL & MCKINLEY COUNTIES, NEW MEXICO

THIS DRAWING IS INCOMPLETE AND NOT TO BE USED FOR CONSTRUCTION UNLESS IT IS STAMPED, SIGNED AND DATED

NOTICE OF EXTENDED PAYMENT PROVISION: THIS CONTRACT ALLOWS THE OWNER TO MAKE PAYMENT WITHIN 45 DAYS AFTER SUBMISSION OF AN UNDISPUTED REQUEST FOR PAYMENT.

811 Know what's below. Call before you dig.

SMASOUDER, MILLER & ASSOCIATES

5454 VENICE AVENUE NE, SUITE D

ALBUQUERQUE, NM 87113

Phone (505) 299-0942 Toll-Free (877) 299-0942 Fax (505) 293-3430

www.soudermiller.com

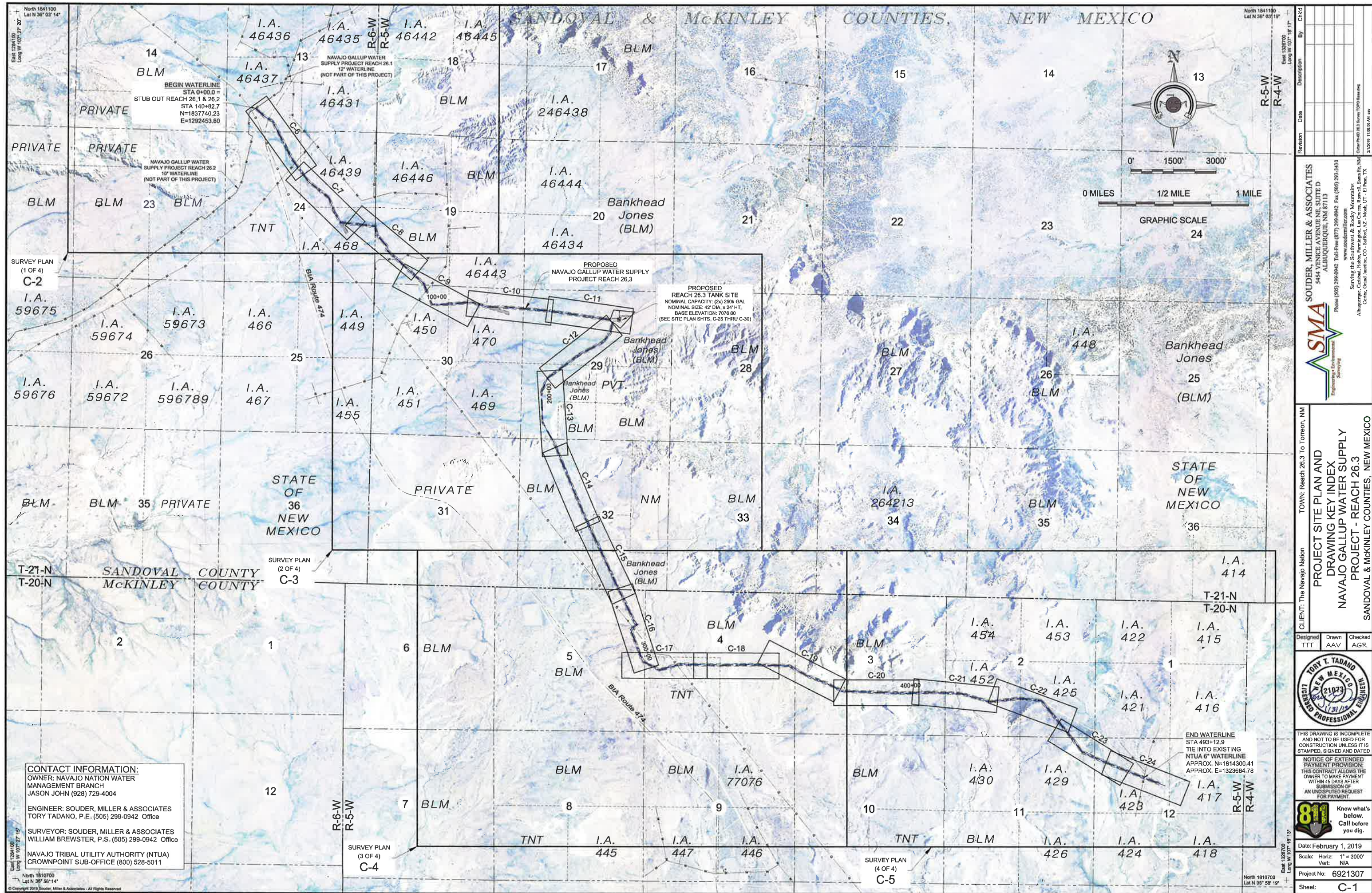
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Pr: 40 Hours 26.3 Cover: 0m 10m 20m 30m

2/1/2019 11:02:20 AM



CONTACT INFORMATION:
OWNER: NAVAJO NATION WATER
MANAGEMENT BRANCH
JASON JOHN (928) 729-4004

ENGINEER: SOUDER, MILLER & ASSOCIATES
TORY TADANO, P.E. (505) 299-0942 Office

SURVEYOR: SOUDER, MILLER & ASSOCIATES
WILLIAM BREWSTER, P.S. (505) 299-0942 Office

NAVAJO TRIBAL UTILITY AUTHORITY (NTUA)
CROWNPOINT SUB-OFFICE (800) 528-5011

Revision	Date	Description	By	Chkd

CLIENT: The Navajo Nation
TOWN: Reach 26.3 To Torreon, NM

PROJECT SITE PLAN AND DRAWING KEY INDEX
NAVAJO GALLUP WATER SUPPLY PROJECT - REACH 26.3
SANDOVAL & MCKINLEY COUNTIES, NEW MEXICO

DESIGNED: TTT
DRAWN: AAV
CHECKED: AGR

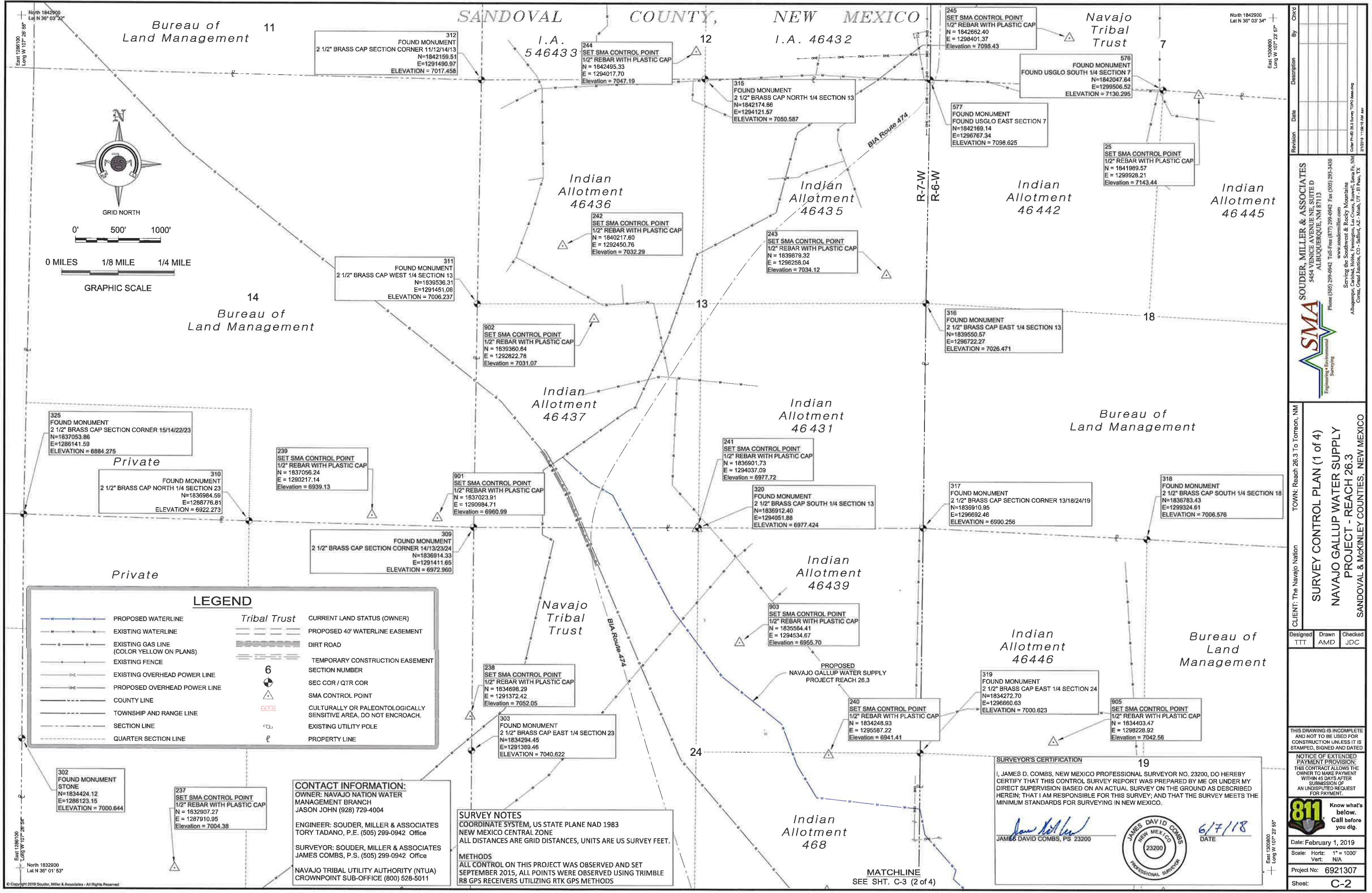
PROFESSIONAL ENGINEER
TORY T. TADANO
NEW MEXICO
21073
1/19/19

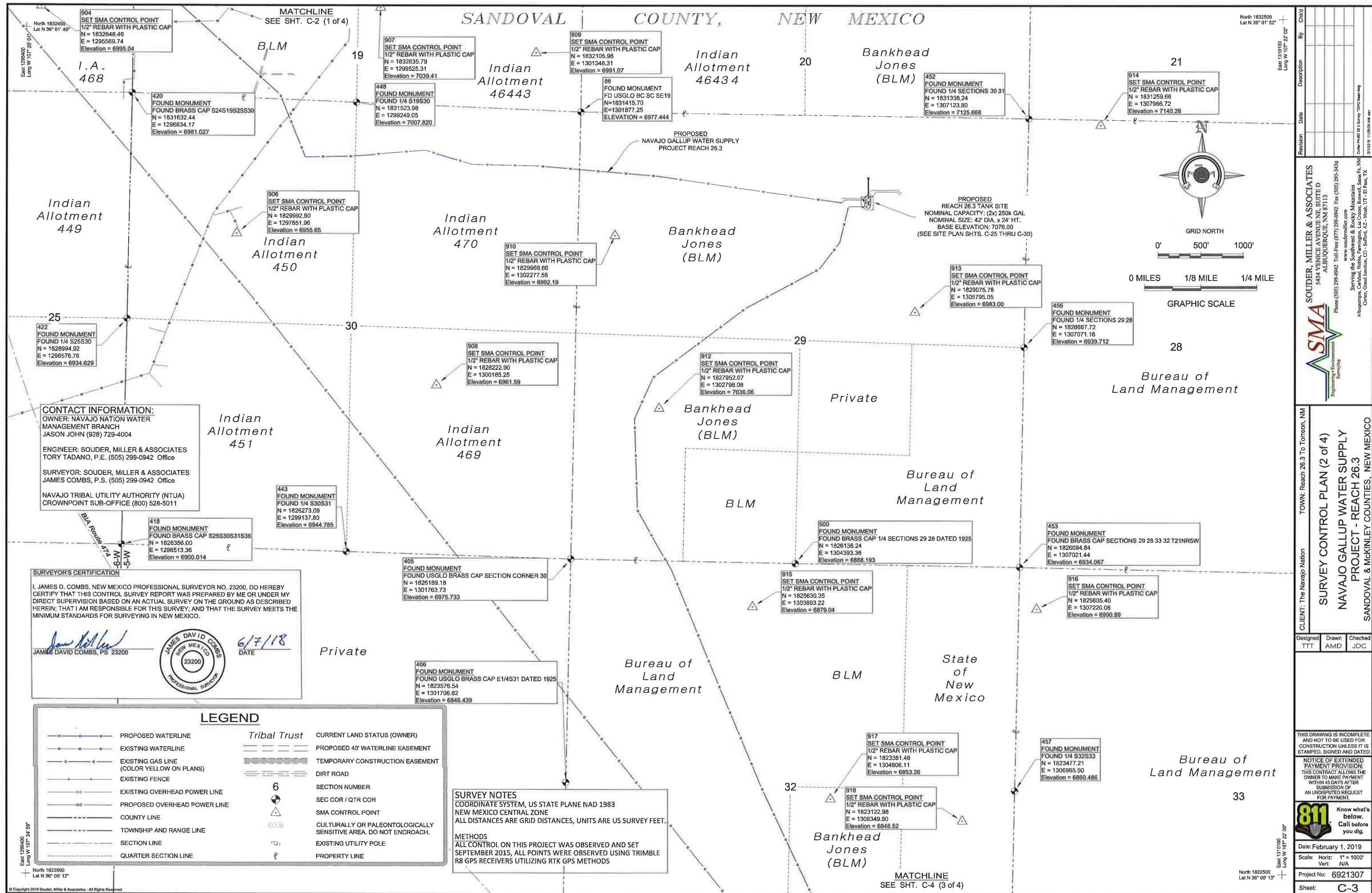
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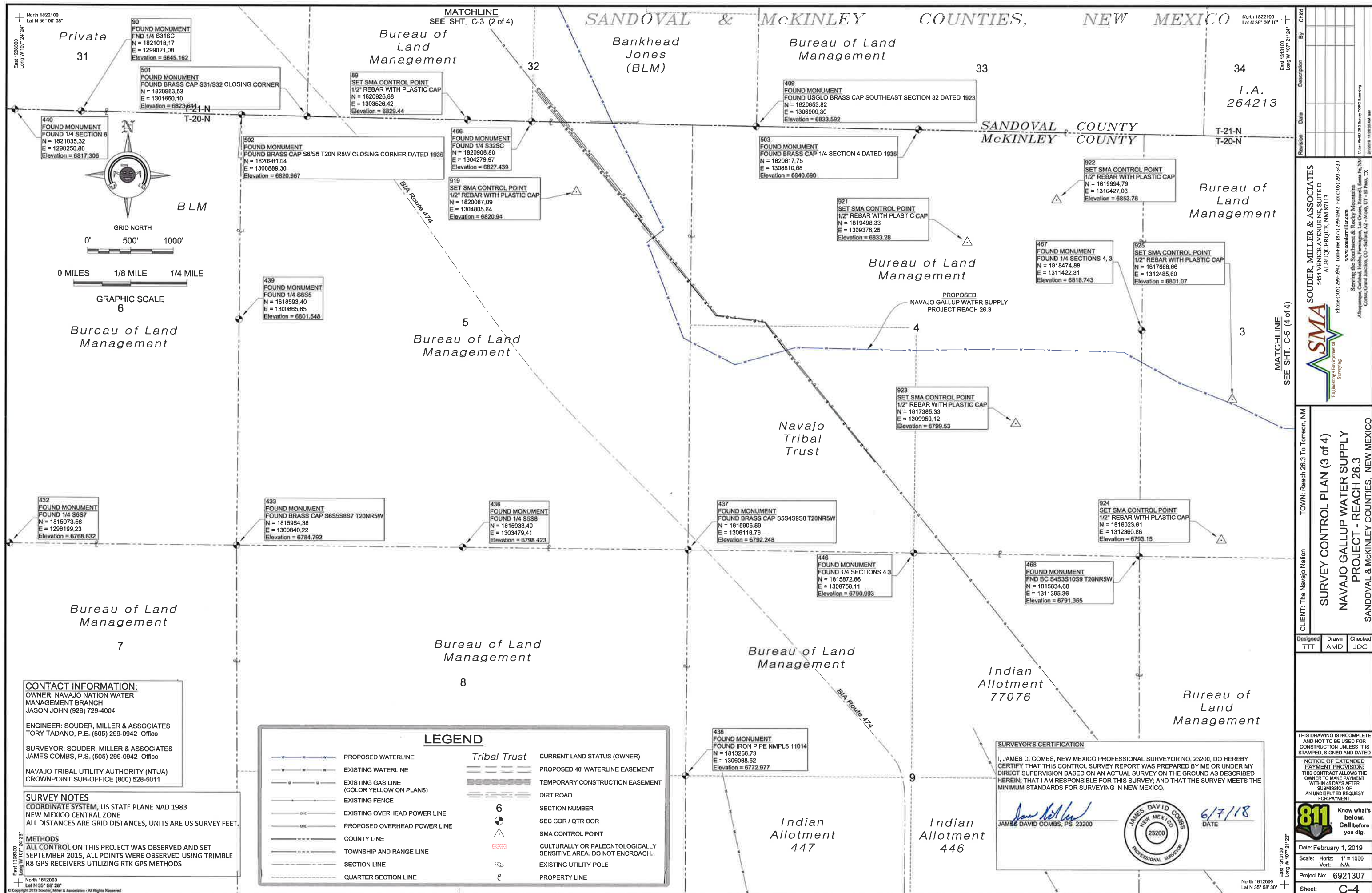
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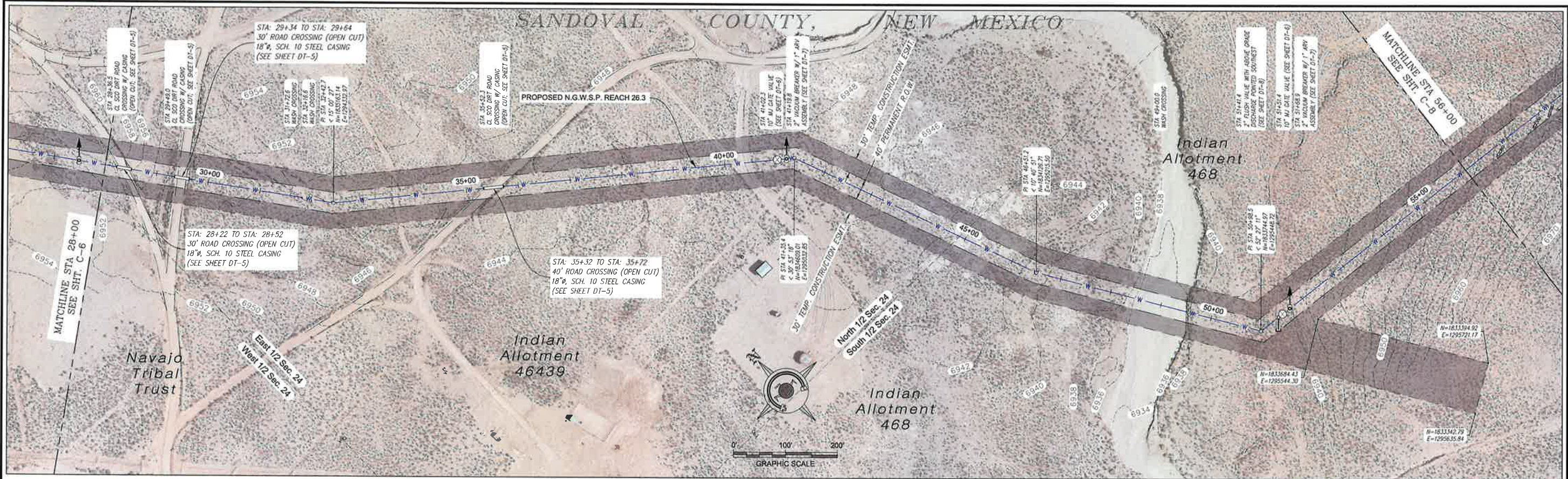
811 Know what's below. Call before you dig.

Date: February 1, 2019
Scale: Horiz: 1" = 3000'
Vert: N/A
Project No: 6921307
Sheet: C-1

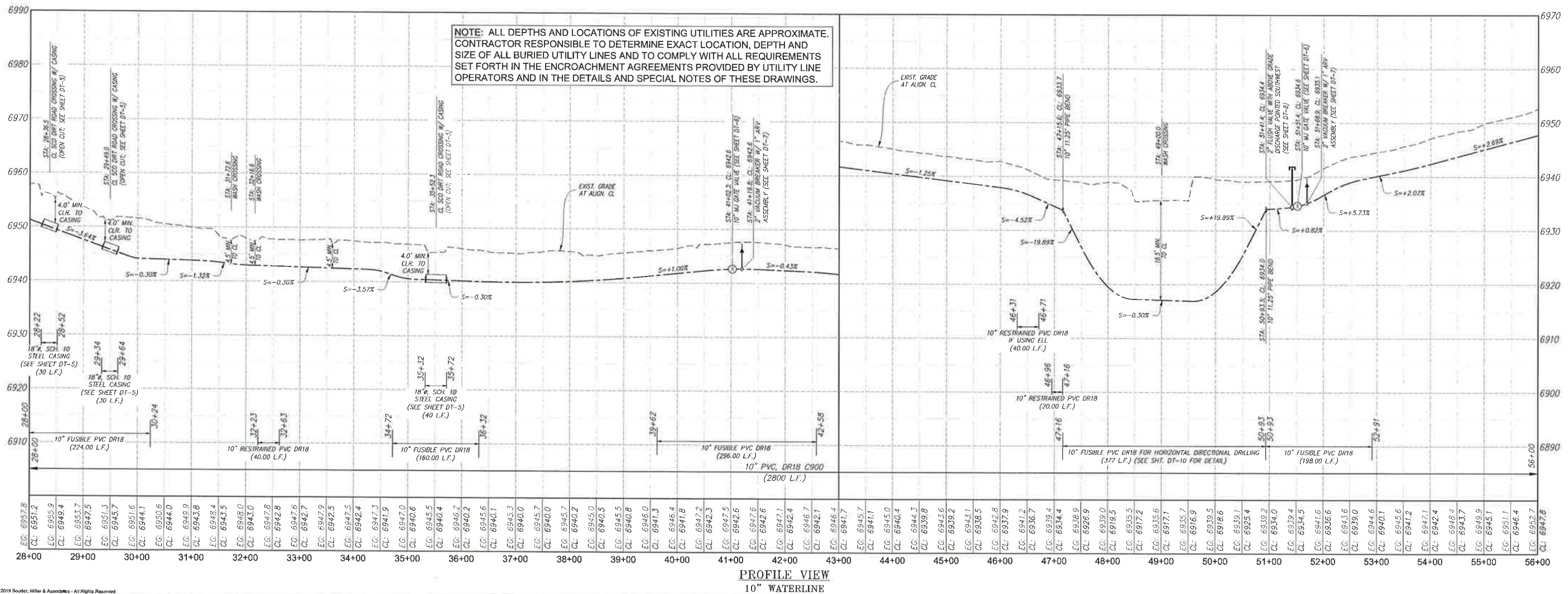








PLAN VIEW
10" WATERLINE



PROFILE VIEW
10" WATERLINE

Revision	Date	Description	By	CHKD

SMA
SOUDEY, MILLER & ASSOCIATES
5454 VANCE AVENUE NE, SUITE D
ALBUQUERQUE, NM 87113
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Albuquerque, Carlsbad, Hobbs, Farmington, Las Cruces, Roswell, Santa Fe, NM
Cortez, Grand Junction, CO • Salt Lake City, UT • El Paso, TX

CLIENT: The Navajo Nation
TOWN: Reach 26.3 To Torreon, NM
PLAN & PROFILE STA 28+00 TO STA 56+00
SECTION 24, T. 21 N., R. 6 W.
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACH 26.3
SANDOVAL & MCKINLEY COUNTIES, NEW MEXICO

Designed TTT Drawn MVA/AV Checked AGR



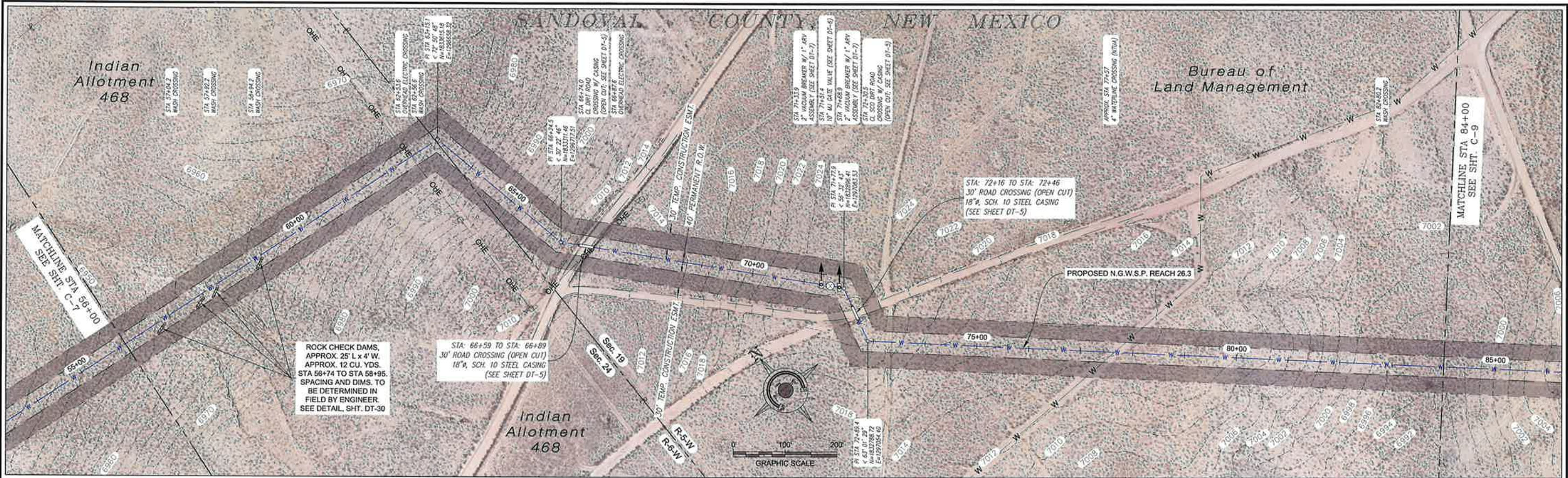
THIS DRAWING IS INCOMPLETE AND NOT TO BE USED FOR CONSTRUCTION UNLESS IT IS STAMPED, SIGNED AND DATED

NOTICE OF EXTENDED PAYMENT PROVISION:
THIS CONTRACT PROVIDES THE OWNER TO MAKE PAYMENT WITHIN 45 DAYS AFTER SUBMISSION OF AN UNDISPUTED REQUEST FOR PAYMENT.

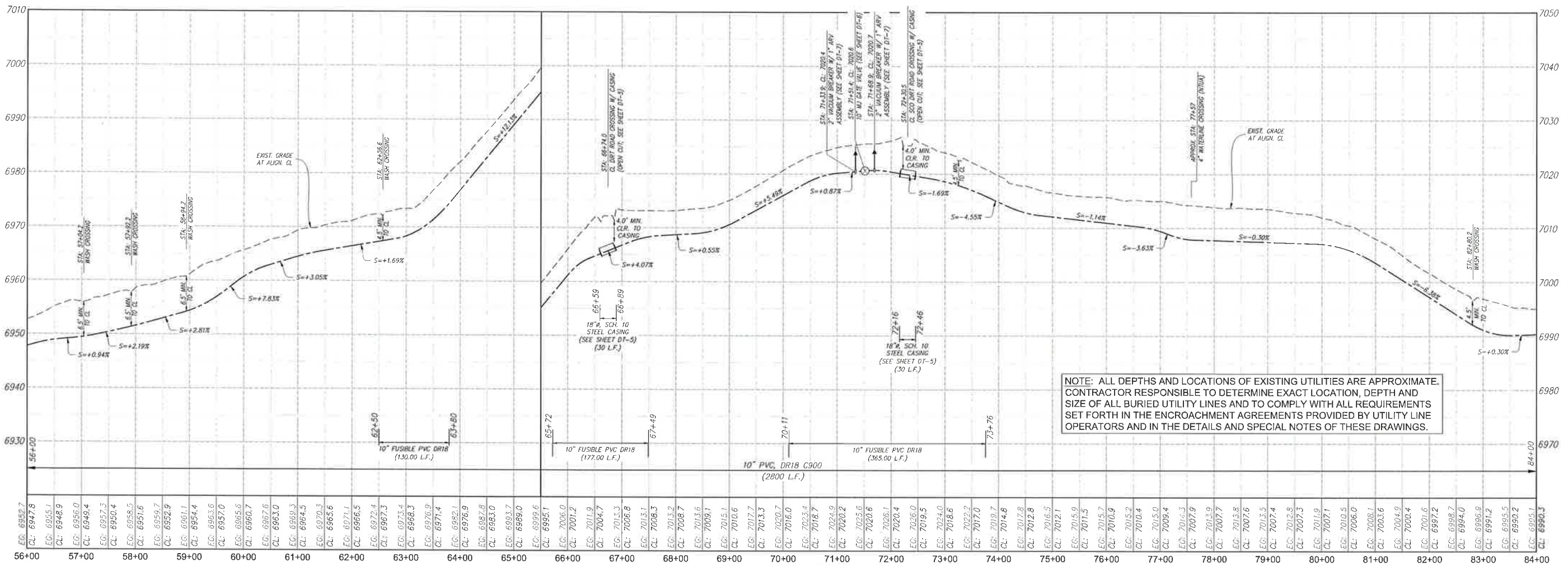


Date: January 15, 2019
Scale: Horiz: 1" = 200'
Vert: 1" = 20'

Project No: 6921307
Sheet: C-7



PLAN VIEW
10" WATERLINE



PROFILE VIEW
10" WATERLINE

Revision	Date	Description	By	CHK'd

SMA SOUDER, MILLER & ASSOCIATES
5454 VENICE AVENUE NE, SUITE D
ALBUQUERQUE, NM 87113
Phone (505) 299-0942 Toll-Free (877) 299-0942 Fax (505) 293-1430
www.soudermiller.com
PH 10-10-2019 2:13 PM
10/10/2019 11:13:29 AM

PLAN & PROFILE STA 56+00 TO STA 84+00
SECTION 24, T. 21 N., R. 6 W. & SECTION 19, T. 21 N., R. 5 W.
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACH 26.3
SANDOVAL & MCKINLEY COUNTIES, NEW MEXICO

CLIENT: The Navajo Nation
TOWN: Reach 26.3 To Torton, NM

Designed: TTT
Drawn: MHA/AAV
Checked: AGR

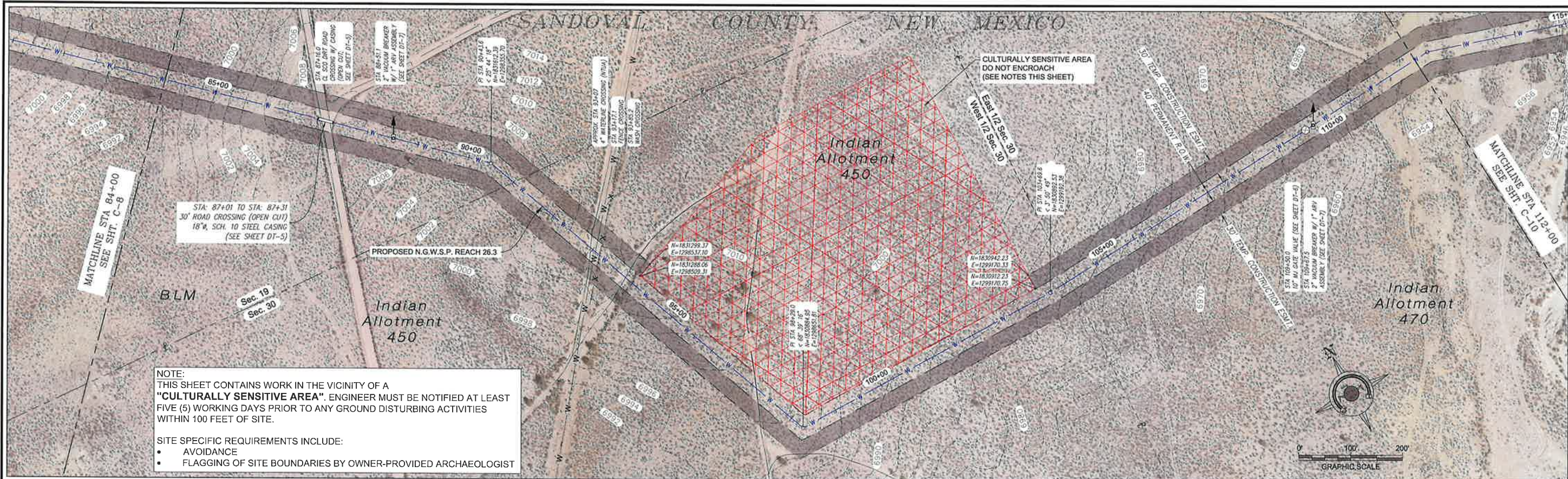
TORY T. YADANO
NEW MEXICO
21073
LICENSED PROFESSIONAL ENGINEER

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CONSTRUCTION UNLESS IT IS
STAMPED, SIGNED AND DATED

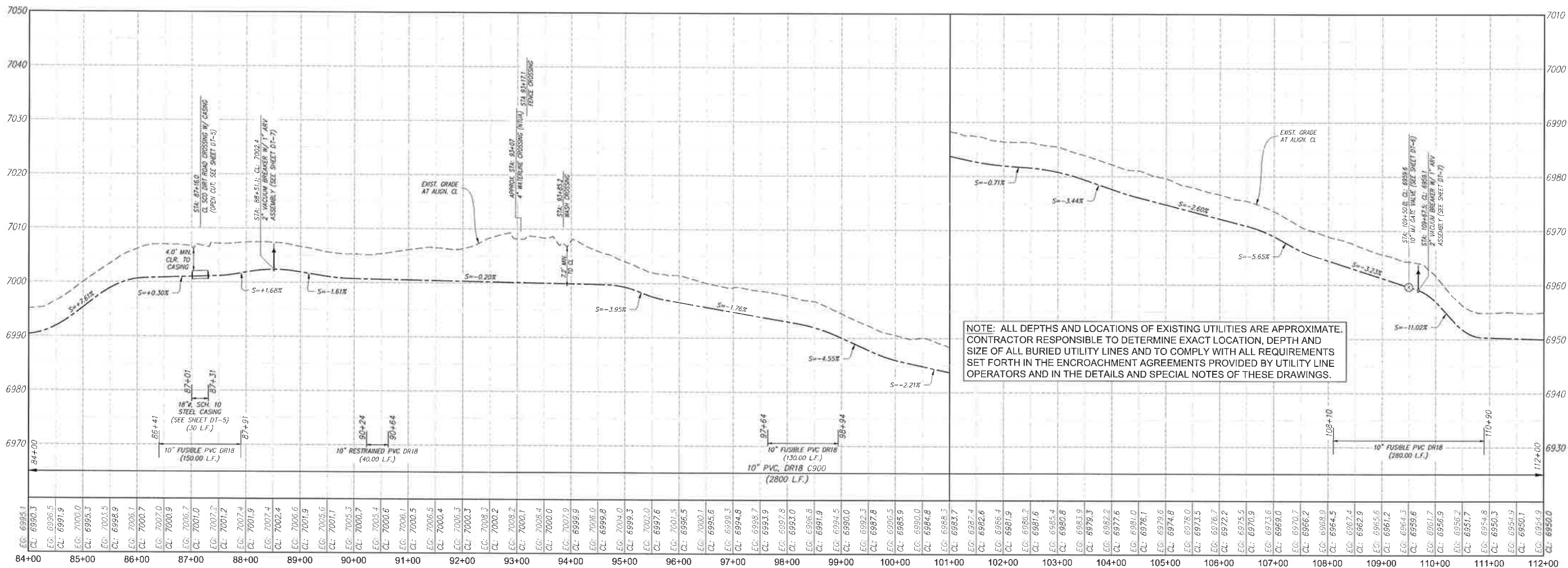
NOTICE OF EXTENDED
PAYMENT PROVISION:
THIS CONTRACT ALLOWS THE
OWNER TO MAKE PAYMENT
WITHIN 45 DAYS AFTER
SUBMISSION OF
AN UNDISPUTED REQUEST
FOR PAYMENT.

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below.
Call before
you dig.

Date: January 15, 2019
Scale: Horiz: 1" = 200'
Vert: 1" = 20'
Project No: 6921307
Sheet: C-8



PLAN VIEW
10" WATERLINE



PROFILE VIEW
10" WATERLINE

Revision	Date	Description	By	Chk'd

SMA
Souder, Miller & Associates
5554 Venice Avenue NE, Suite D
Albuquerque, NM 87113
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Cortez, Grand Junction, CO • Safford, AZ • Moab, UT • El Paso, TX
1/25/2019 11:14:44 AM

CLIENT: The Navajo Nation
TOWN: Reach 26.3 To Tarron, NM
PLAN & PROFILE STA 84+00 TO STA 112+00
SECTIONS 19 & 30, T. 21 N., R. 5 W.
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACH 26.3
SANDOVAL & MCKINLEY COUNTIES, NEW MEXICO

Designed: TTT
Drawn: MVA/AV
Checked: AGR

TORY T. TADANO
NEW MEXICO
21073
REGISTERED PROFESSIONAL ENGINEER

THIS DRAWING IS INCOMPLETE AND NOT TO BE USED FOR CONSTRUCTION UNLESS IT IS STAMPED, SIGNED AND DATED

NOTICE OF EXTENDED PAYMENT PROVISION:
THIS CONTRACT ALLOWS THE OWNER TO MAKE PAYMENT WITHIN 45 DAYS AFTER SUBMISSION OF AN UNDISPUTED REQUEST FOR PAYMENT.

811 Know what's below. Call before you dig.

Date: January 15, 2019
Scale: Horiz: 1" = 200'
Vert: 1" = 20'

Project No: 6921307
Sheet: C-9

SANDOVAL COUNTY, NEW MEXICO

Bankhead Jones
(Bureau of
Land Management)

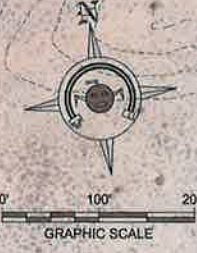
MATCHLINE STA 140+00
SEE SHT. C-10

PROPOSED
REACH 26.3
TANK SITE
(SEE SITE PLAN SHTS.
C-25 THRU C-30)

SENSITIVE
PALEONTOLOGICAL AREA
DO NOT ENCRANCH

MATCHLINE STA 165+00
SEE SHT. C-12

Bankhead Jones
(Bureau of
Land Management)

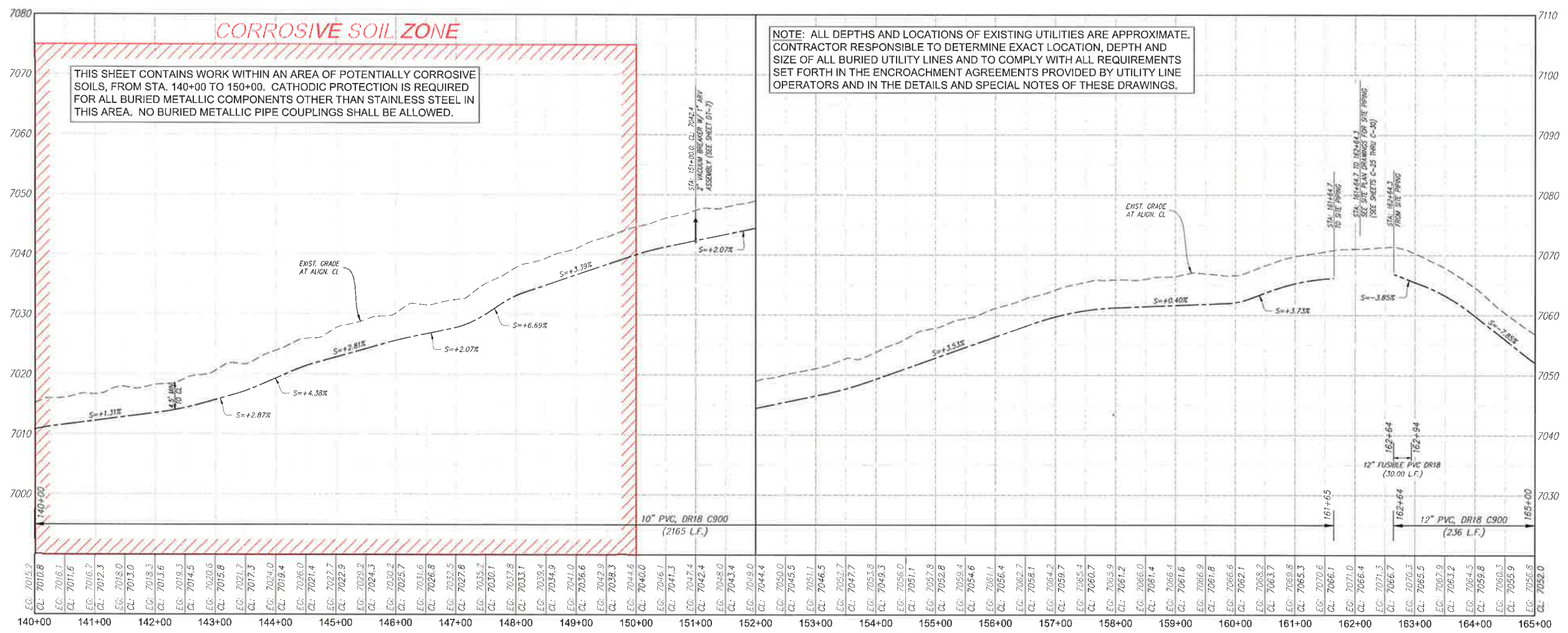


PLAN VIEW
10" & 12" WATERLINE

CORROSIVE SOIL ZONE

THIS SHEET CONTAINS WORK WITHIN AN AREA OF POTENTIALLY CORROSIVE SOILS, FROM STA. 140+00 TO 150+00. CATHODIC PROTECTION IS REQUIRED FOR ALL BURIED METALLIC COMPONENTS OTHER THAN STAINLESS STEEL IN THIS AREA. NO BURIED METALLIC PIPE COUPLINGS SHALL BE ALLOWED.

NOTE: ALL DEPTHS AND LOCATIONS OF EXISTING UTILITIES ARE APPROXIMATE. CONTRACTOR RESPONSIBLE TO DETERMINE EXACT LOCATION, DEPTH AND SIZE OF ALL BURIED UTILITY LINES AND TO COMPLY WITH ALL REQUIREMENTS SET FORTH IN THE ENCROACHMENT AGREEMENTS PROVIDED BY UTILITY LINE OPERATORS AND IN THE DETAILS AND SPECIAL NOTES OF THESE DRAWINGS.



PROFILE VIEW
10" & 12" WATERLINE

Revision	Date	Description	By	Chkd

SMA
SOUDEY, MILLER & ASSOCIATES
5454 VANCE AVENUE NE, SUITE D
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CLIENT: The Navajo Nation
TOWN: Reach 26.3 To Tropic, NM
PLAN & PROFILE STA 140+00 TO STA 165+00
SECTION 29, T. 21 N., R. 5 W.
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACH 26.3
SANDOVAL & MCKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
TTT	MW/AJV	AGR

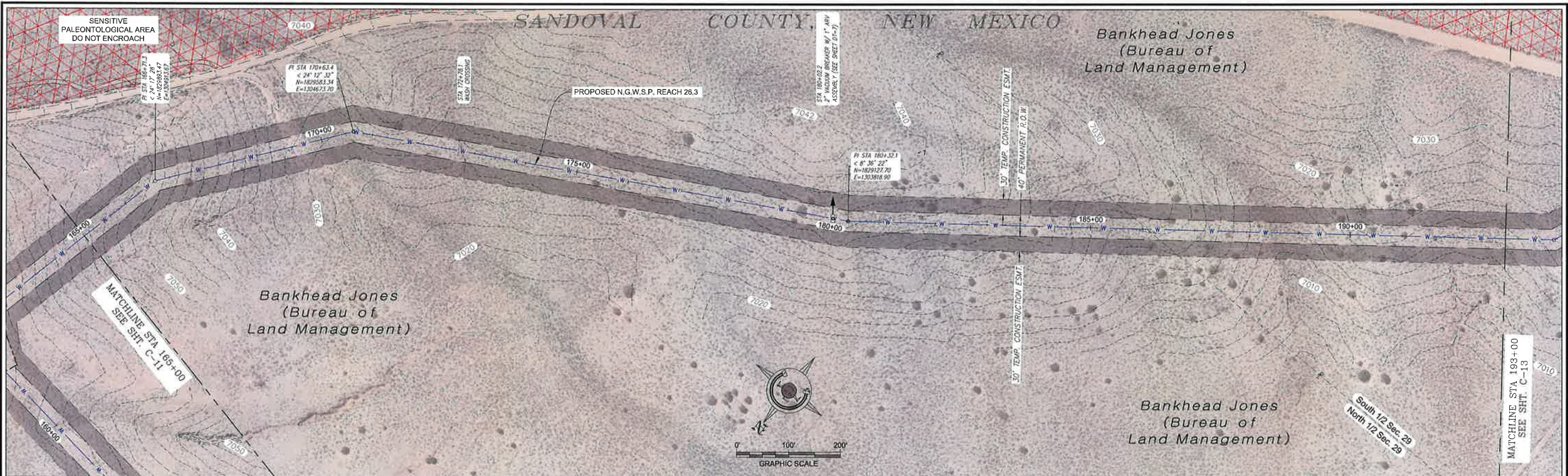


THIS DRAWING IS INCOMPLETE AND NOT TO BE USED FOR CONSTRUCTION UNLESS IT IS STAMPED, SIGNED AND DATED

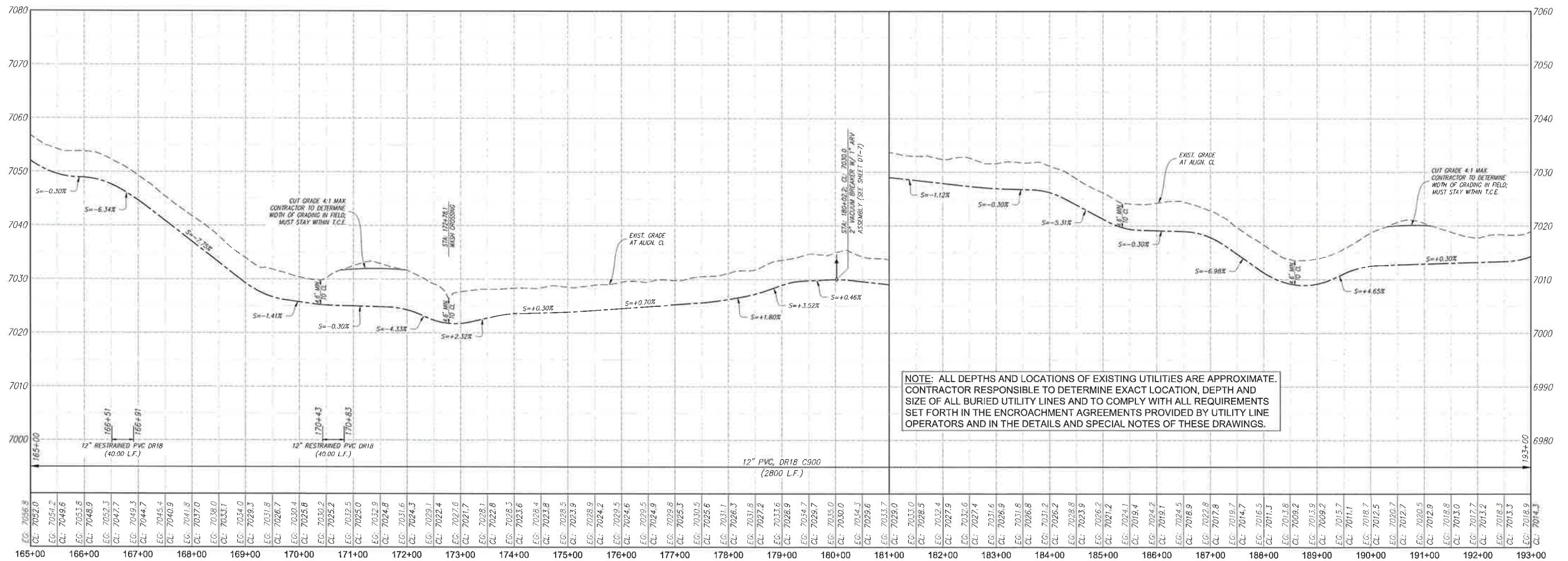
NOTICE OF EXTENDED PAYMENT PROVISION:
THIS CONTRACT PROVIDES THE OWNER TO MAKE PAYMENT WITHIN 45 DAYS AFTER SUBMISSION OF AN UNDISPUTED REQUEST FOR PAYMENT.



Date: January 15, 2019
Scale: Horiz: 1" = 200'
Vert: 1" = 20'
Project No: 6921307
Sheet: C-11



PLAN VIEW
12" WATERLINE



PROFILE VIEW
12" WATERLINE

Revision	Date	Description	By	Chkd

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CLIENT: The Navajo Nation
TOWN: Reach 26.3 To Torreon, NM
PLAN & PROFILE STA 165+00 TO STA 193+00
SECTION 29, T. 21 N., R. 5 W.
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACH 26.3
SANDOVAL & MCKINLEY COUNTIES, NEW MEXICO

Designed: TTT Drawn: MVA/AV Checked: AGR

TORY T. TADANO
NEW MEXICO
21073
LICENSED PROFESSIONAL ENGINEER

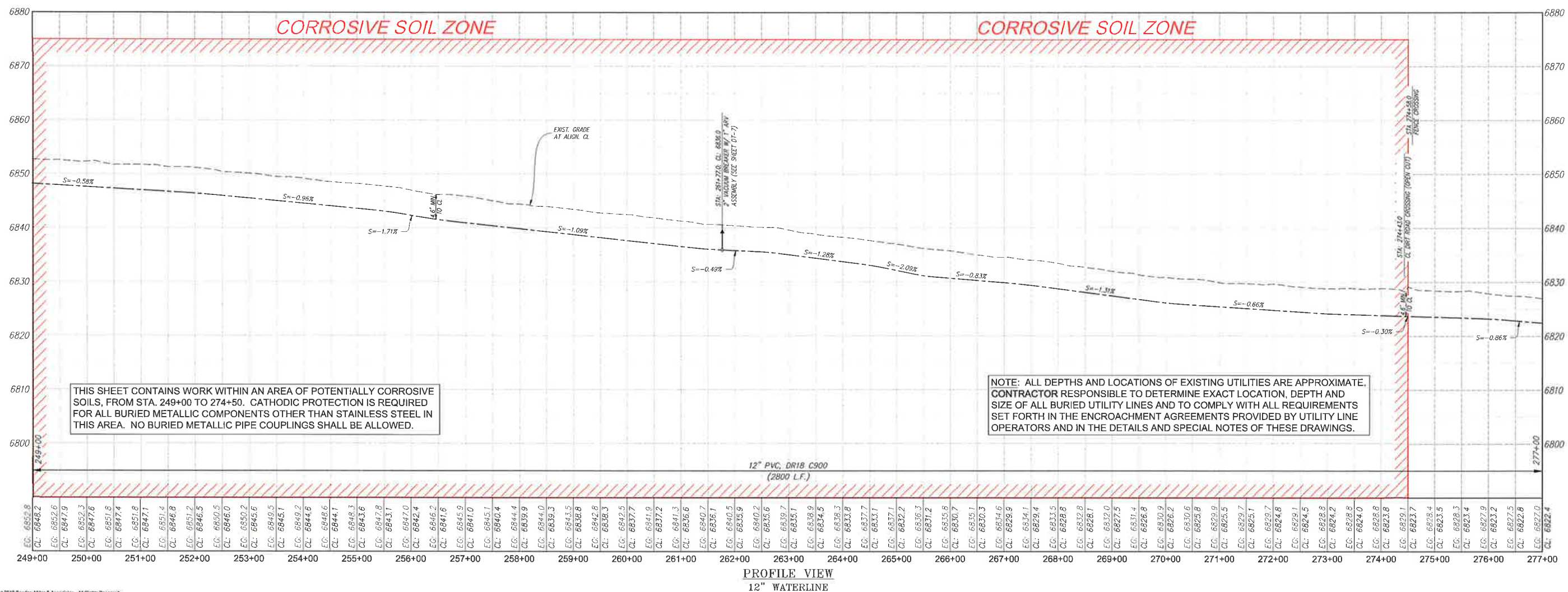
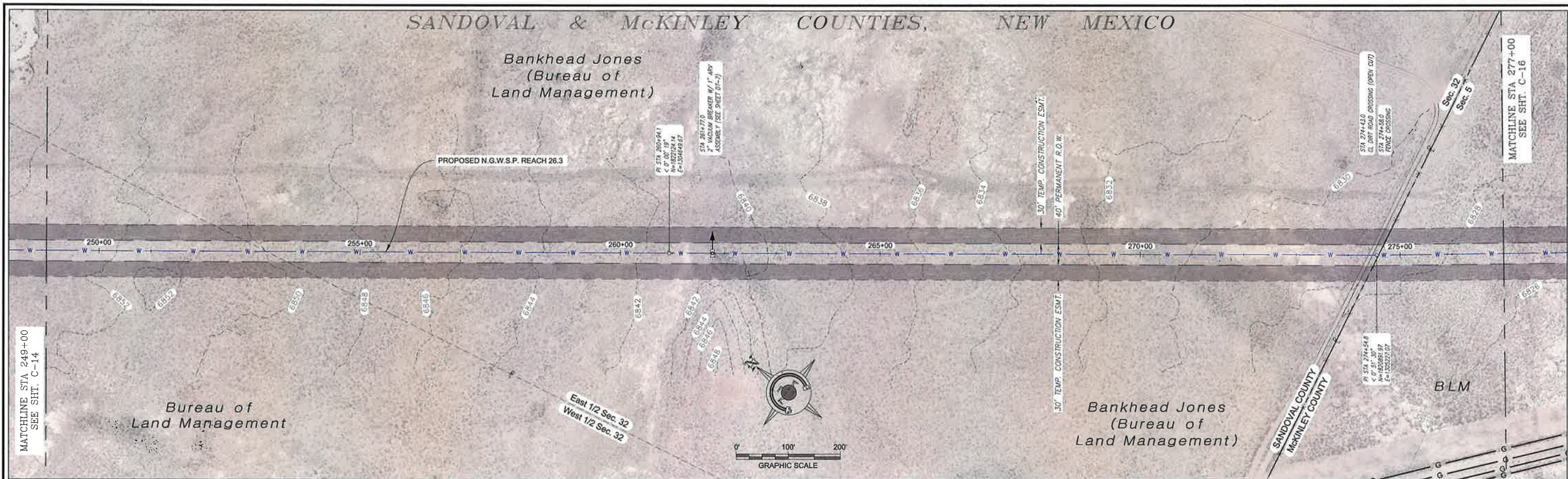
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SUBMISSION OF
AN UNDISPUTED REQUEST
FOR PAYMENT.

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Date: January 15, 2019
Scale: Horiz: 1" = 200'
Vert: 1" = 20'

Project No: 6921307
Sheet: C-12



Revision	Date	Description	By	Chkd

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1/15/2019 11:14:46 AM

CLIENT: The Navajo Nation
TOWN: Reach 26.3 To Torreon, NM
PLAN & PROFILE STA 249+00 TO STA 277+00
SECTION 32, T. 21 N., R. 5 W. & SECTION 5, T. 20 N., R. 5 W.
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACH 26.3
SANDOVAL & MCKINLEY COUNTIES, NEW MEXICO

Designed: TTT Drawn: MVA/AV Checked: AGR

TORY T. TADANO
NEW MEXICO
21873
1/19/19
REGISTERED PROFESSIONAL ENGINEER

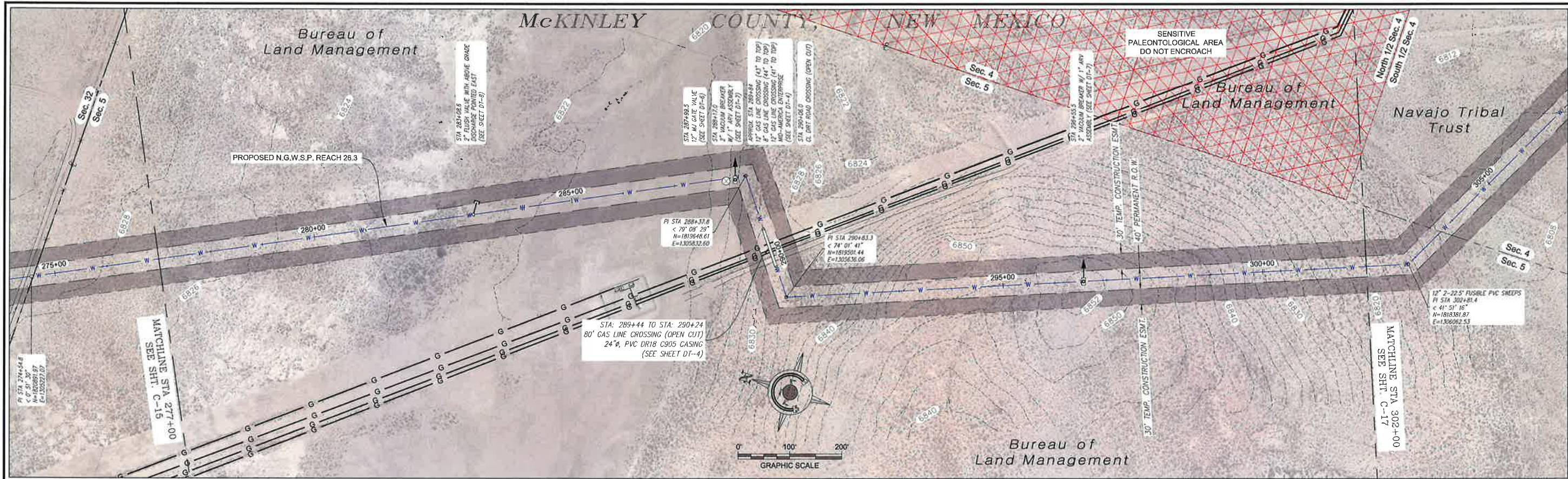
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NOTICE OF EXTENDED PAYMENT PROVISION:
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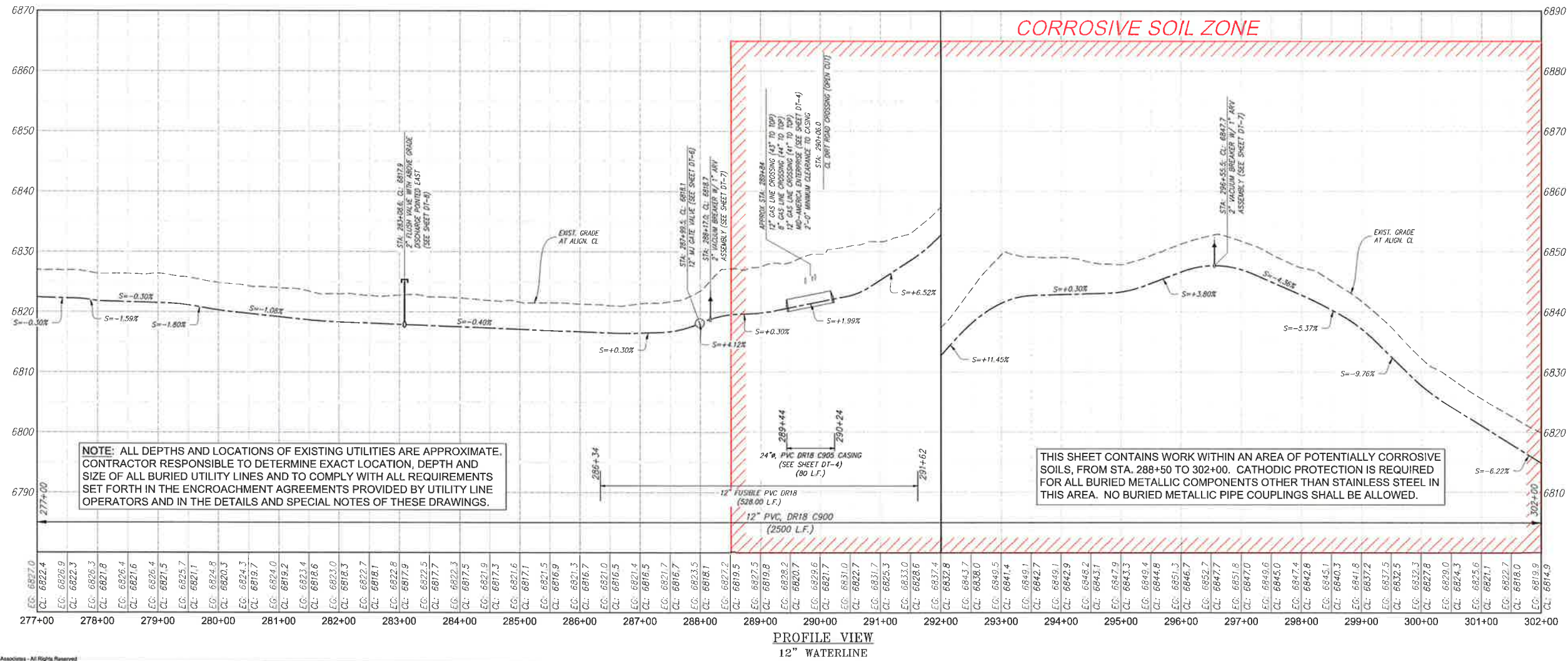
811 Know what's below. Call before you dig.

Date: January 15, 2019
Scale: Horiz: 1" = 200'
Vert: 1" = 20'

Project No: 6921307
Sheet: C-15



PLAN VIEW
12" WATERLINE



PROFILE VIEW
12" WATERLINE

Revision	Date	Description	By	Chkd

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CLIENT: The Navajo Nation
TOWN: Reach 26.3 To Torreon, NM
PLAN & PROFILE STA 277+00 TO STA 302+00
SECTION 5, T. 20 N., R. 5 W.
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACH 26.3
SANDOVAL & MCKINLEY COUNTIES, NEW MEXICO

Designed: TTT
Drawn: MVA/AV
Checked: AGR

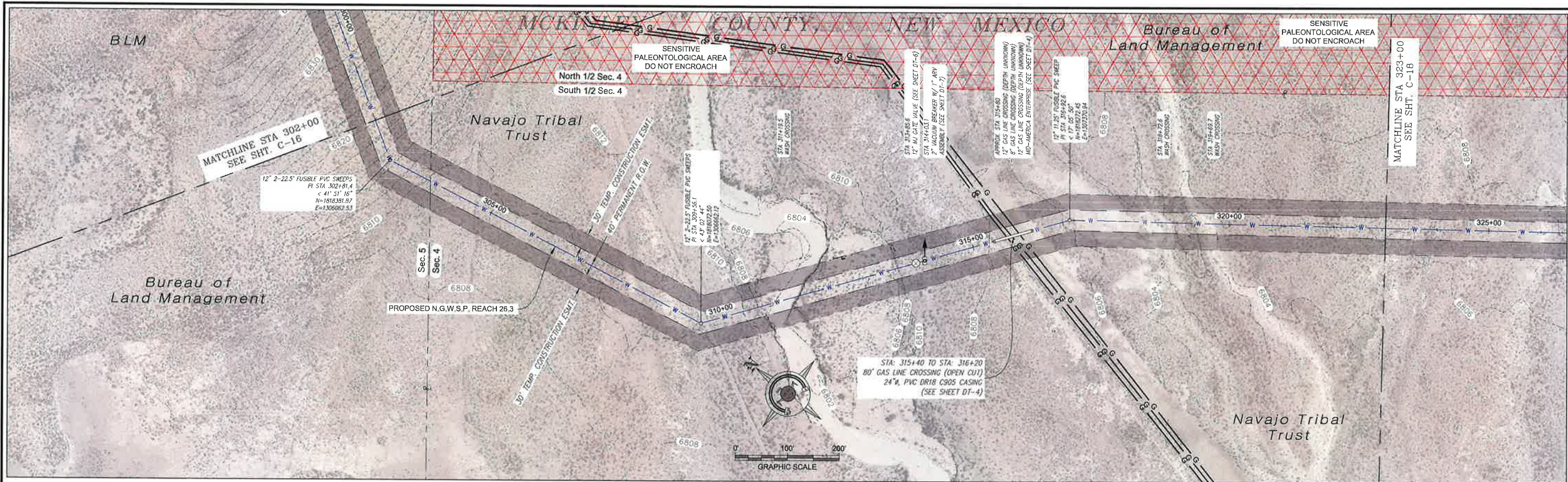
TORY T. YADANO
REGISTERED PROFESSIONAL ENGINEER
NEW MEXICO
21073
1/31/19

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NOTICE OF EXTENDED PAYMENT PROVISION:
THIS CONTRACT PROVIDES THE OWNER TO MAKE PAYMENT WITHIN 45 DAYS AFTER SUBMISSION OF AN UNDISPUTED REQUEST FOR PAYMENT.

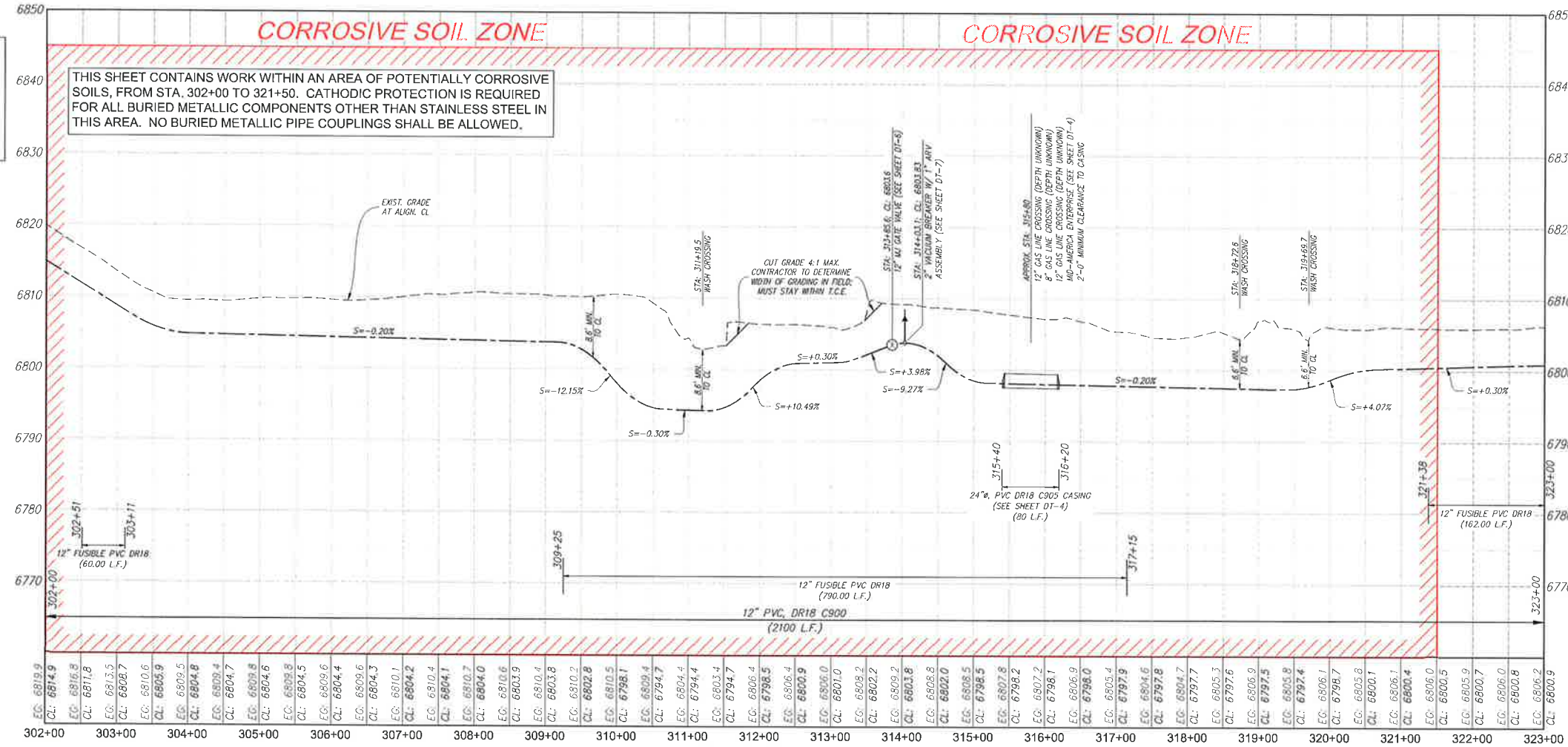
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Date: January 15, 2019
Scale: Horiz: 1" = 200'
Vert: 1" = 20'
Project No: 6921307
Sheet: C-16



PLAN VIEW
12" WATERLINE

NOTE: ALL DEPTHS AND LOCATIONS OF EXISTING UTILITIES ARE APPROXIMATE. CONTRACTOR RESPONSIBLE TO DETERMINE EXACT LOCATION, DEPTH AND SIZE OF ALL BURIED UTILITY LINES AND TO COMPLY WITH ALL REQUIREMENTS SET FORTH IN THE ENCROACHMENT AGREEMENTS PROVIDED BY UTILITY LINE OPERATORS AND IN THE DETAILS AND SPECIAL NOTES OF THESE DRAWINGS.



PROFILE VIEW
12" WATERLINE

Revision	Date	Description	By	CHK'd

SMA
SOUDEY, MILLER & ASSOCIATES
5454 VENICE AVENUE NE, SUITE D
ALBUQUERQUE, NM 87113
Phone: (505) 299-0942 Toll-Free: (877) 299-0942 Fax: (505) 299-3430
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Corral, Grand Junction, CO, Salt Lake City, UT, B. Park, TX
1/15/2019 11:15:58 AM

CLIENT: The Navajo Nation
TOWN: Reach 26.3 To Torreon, NM
PLAN & PROFILE STA 302+00 TO STA 323+00
SECTIONS 4 & 5, T. 20 N., R. 5 W.
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACH 26.3
SANDOVAL & MCKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
TTT	MVA/AV	AGR

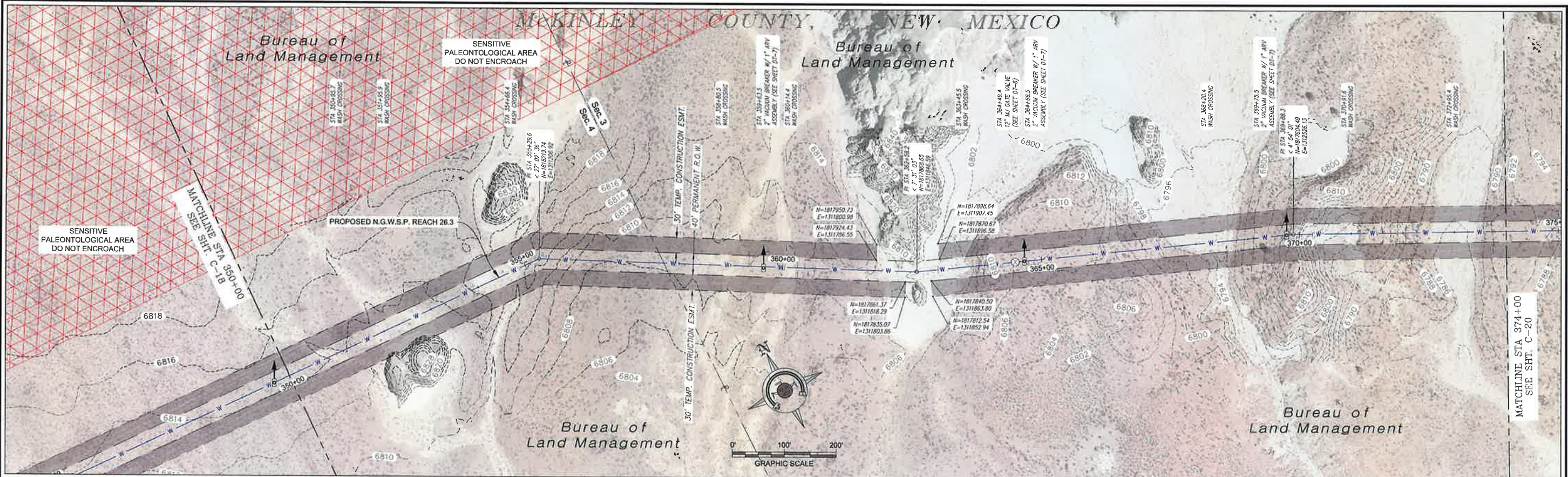
TONY T. TADANO
NEW MEXICO
21073
1/13/19
PROFESSIONAL ENGINEER

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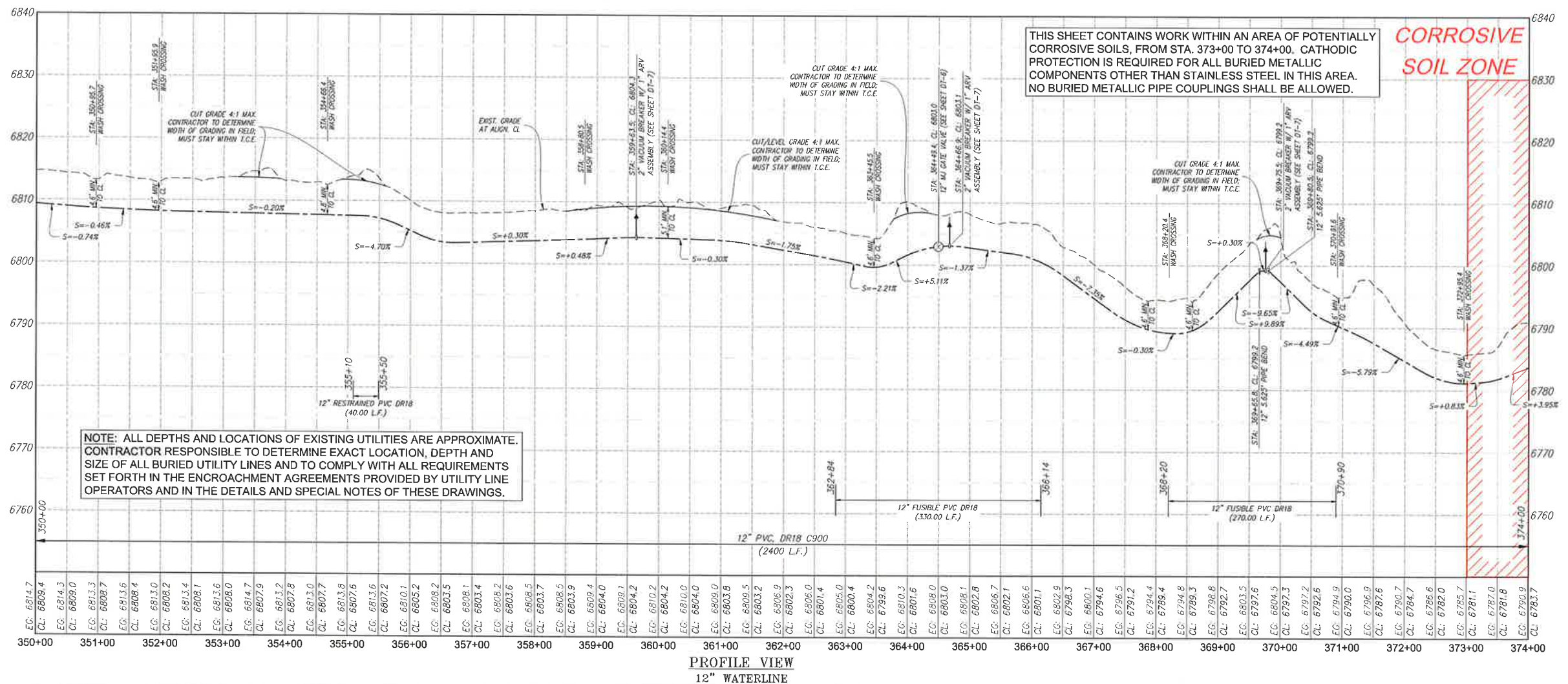
NOTICE OF EXTENDED PAYMENT PROVISION: THIS CONTRACT ALLOWS THE OWNER TO MAKE PAYMENT WITHIN 45 DAYS AFTER SUBMISSION OF AN UNDISPUTED REQUEST FOR PAYMENT.

811
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Vert: 1" = 20'
Project No: 6921307
Sheet: C-17



PLAN VIEW
12" WATERLINE



NOTE: ALL DEPTHS AND LOCATIONS OF EXISTING UTILITIES ARE APPROXIMATE. CONTRACTOR RESPONSIBLE TO DETERMINE EXACT LOCATION, DEPTH AND SIZE OF ALL BURIED UTILITY LINES AND TO COMPLY WITH ALL REQUIREMENTS SET FORTH IN THE ENCROACHMENT AGREEMENTS PROVIDED BY UTILITY LINE OPERATORS AND IN THE DETAILS AND SPECIAL NOTES OF THESE DRAWINGS.

THIS SHEET CONTAINS WORK WITHIN AN AREA OF POTENTIALLY CORROSIVE SOILS, FROM STA. 373+00 TO 374+00. CATHODIC PROTECTION IS REQUIRED FOR ALL BURIED METALLIC COMPONENTS OTHER THAN STAINLESS STEEL IN THIS AREA. NO BURIED METALLIC PIPE COUPLINGS SHALL BE ALLOWED.

**CORROSIVE
SOIL ZONE**

Revision	Date	Description	By	Check

SMA SOUDER, MILLER & ASSOCIATES
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CLIENT: The Navajo Nation TOWN: Reach 26.3 To Torsion, NM
PLAN & PROFILE STA 350+00 TO STA 374+00
SECTIONS 3 & 4, T. 20 N., R. 5 W.
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACH 26.3
SANDOVAL & MCKINLEY COUNTIES, NEW MEXICO

Designed: TTT Drawn: MHA/AV Checked: AGR

TORY T. TADANO
LICENSED PROFESSIONAL ENGINEER
NEW MEXICO
21973
(31) 1/14

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NOTICE OF EXTENDED PAYMENT PROVISION:
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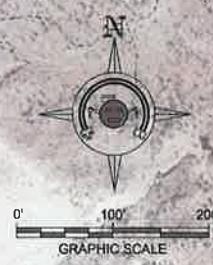
811 Know what's below. Call before you dig.

Date: February 1, 2019
Scale: Horiz: 1" = 200'
Vert: 1" = 20'
Project No: 6921307
Sheet: C-19

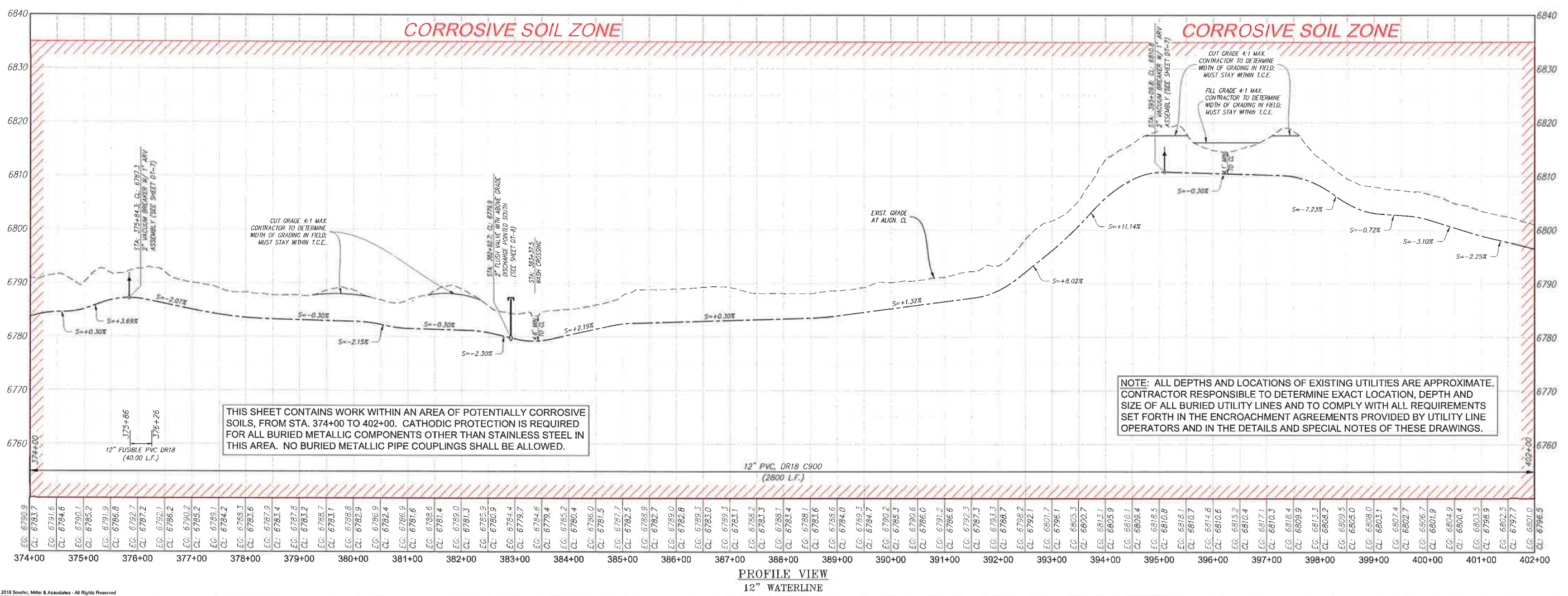
McKINLEY COUNTY, NEW MEXICO

Bureau of
Land Management

Bureau of
Land Management



PLAN VIEW
12" WATERLINE



PROFILE VIEW
12" WATERLINE

Revision	Date	Description	By	CHK'd

SMA SOUDER, MILLER & ASSOCIATES
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Cortez, Grand Junction, CO - Salt Lake City, UT - El Paso, TX
200808 11:17:59 AM

CLIENT: The Navajo Nation TOWN: Reach 26.3 To Torreon, NM
PLAN & PROFILE STA 374+00 TO STA 402+00
SECTION 3, T. 20 N., R. 5 W.
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACH 26.3
SANDOVAL & MCKINLEY COUNTIES, NEW MEXICO

Designed TTT Drawn MHA/AV Checked AGR
TORY T. YADANO
NEW MEXICO
21073
1/31/19
REGISTERED PROFESSIONAL ENGINEER

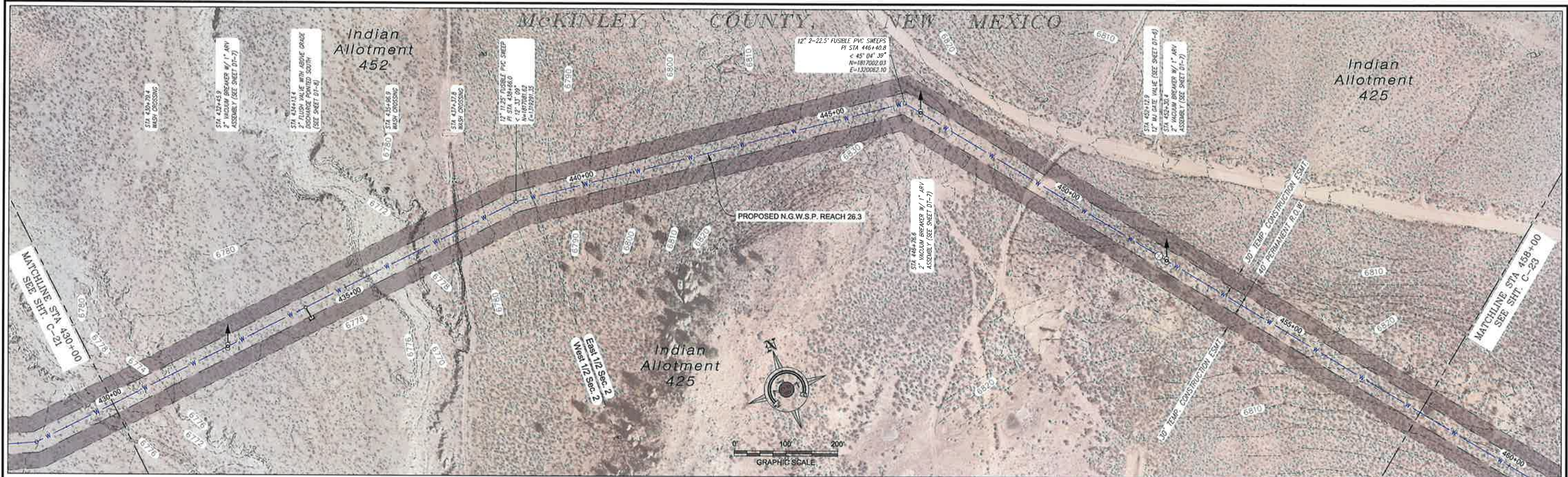
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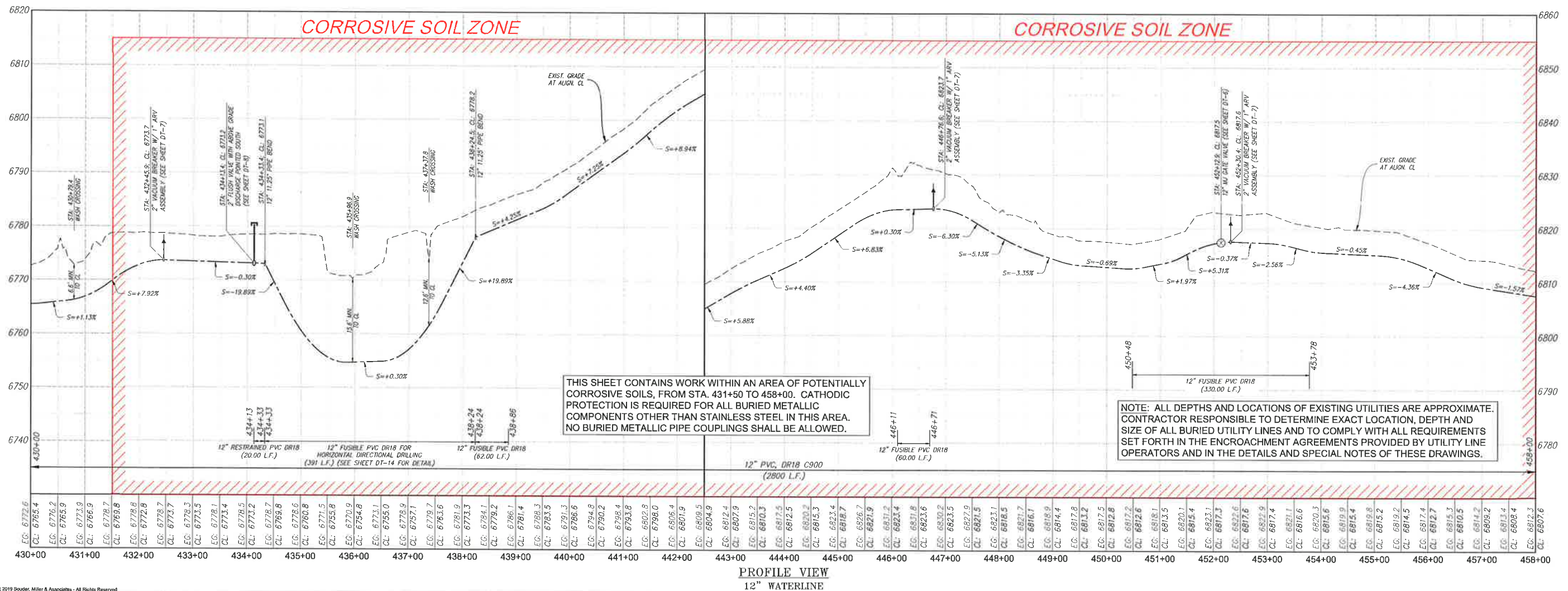
811 Know what's below. Call before you dig.

Date: February 1, 2019
Scale: Horiz: 1" = 200'
Vert: 1" = 20'

Project No: 6921307
Sheet: C-20



PLAN VIEW
12" WATERLINE



Revision	Date	Description	By	Chk'd

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CLIENT: The Navajo Nation
TOWN: Reach 26.3 To Torreon, NM
PLAN & PROFILE STA 430+00 TO STA 458+00
SECTION 2, T. 20 N., R. 5 W.
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACH 26.3
SANDOVAL & MCKINLEY COUNTIES, NEW MEXICO

Designed: TTT
Drawn: MVA/AV
Checked: AGR

TORY T. YADANO
NEW MEXICO
21073
1/31/19
REGISTERED PROFESSIONAL ENGINEER

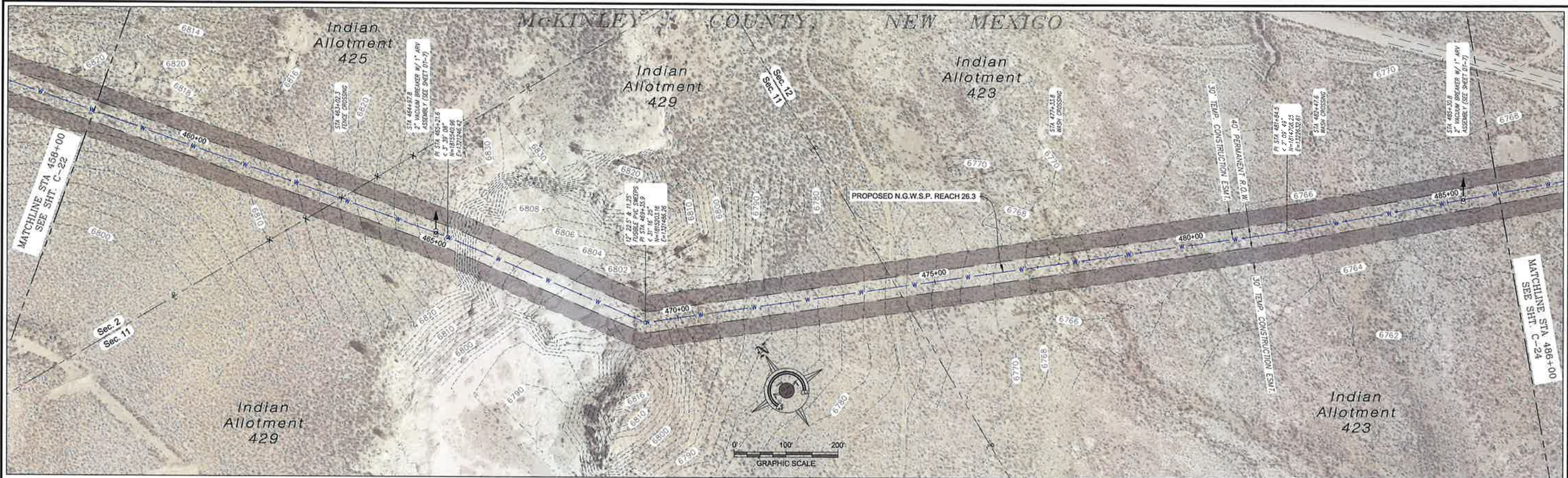
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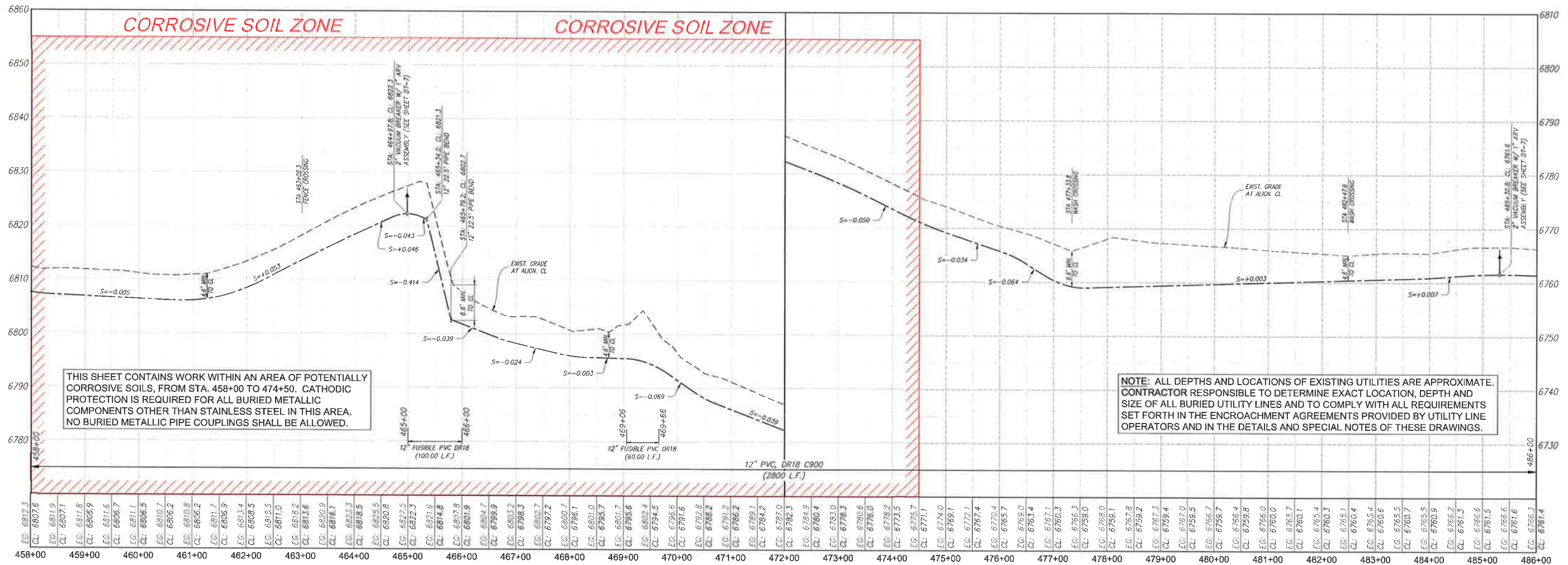
811 Know what's below. Call before you dig.

Date: February 1, 2019
Scale: Horiz: 1" = 200'
Vert: 1" = 20'

Project No: 6921307
Sheet: C-22



PLAN VIEW
12" WATERLINE



PROFILE VIEW
12" WATERLINE

Revision	Date	Description	By	CHKD

SMA
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Albuquerque, NM 87113
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Conter, Grand Junction, CO - Safford, AZ - Mesa, UT - El Paso, TX
10/20/2019 11:18:22 AM

CLIENT: The Navajo Nation
TOWN: Reach 26.3 To Tarron, NM
PLAN & PROFILE STA 458+00 To STA 486+00
SECTIONS 2, 11 & 12, T. 20 N., R. 5 W.
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACH 26.3
SANDOVAL & MCKINLEY COUNTIES, NEW MEXICO

Designed: TTT
Drawn: MMH/AV
Checked: AGR





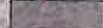

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NOTICE OF EXTENDED PAYMENT PROVISION:
THIS CONTRACT ALLOWS THE OWNER TO MAKE PAYMENT WITHIN 45 DAYS AFTER SUBMISSION OF AN UNDISPUTED REQUEST FOR PAYMENT.



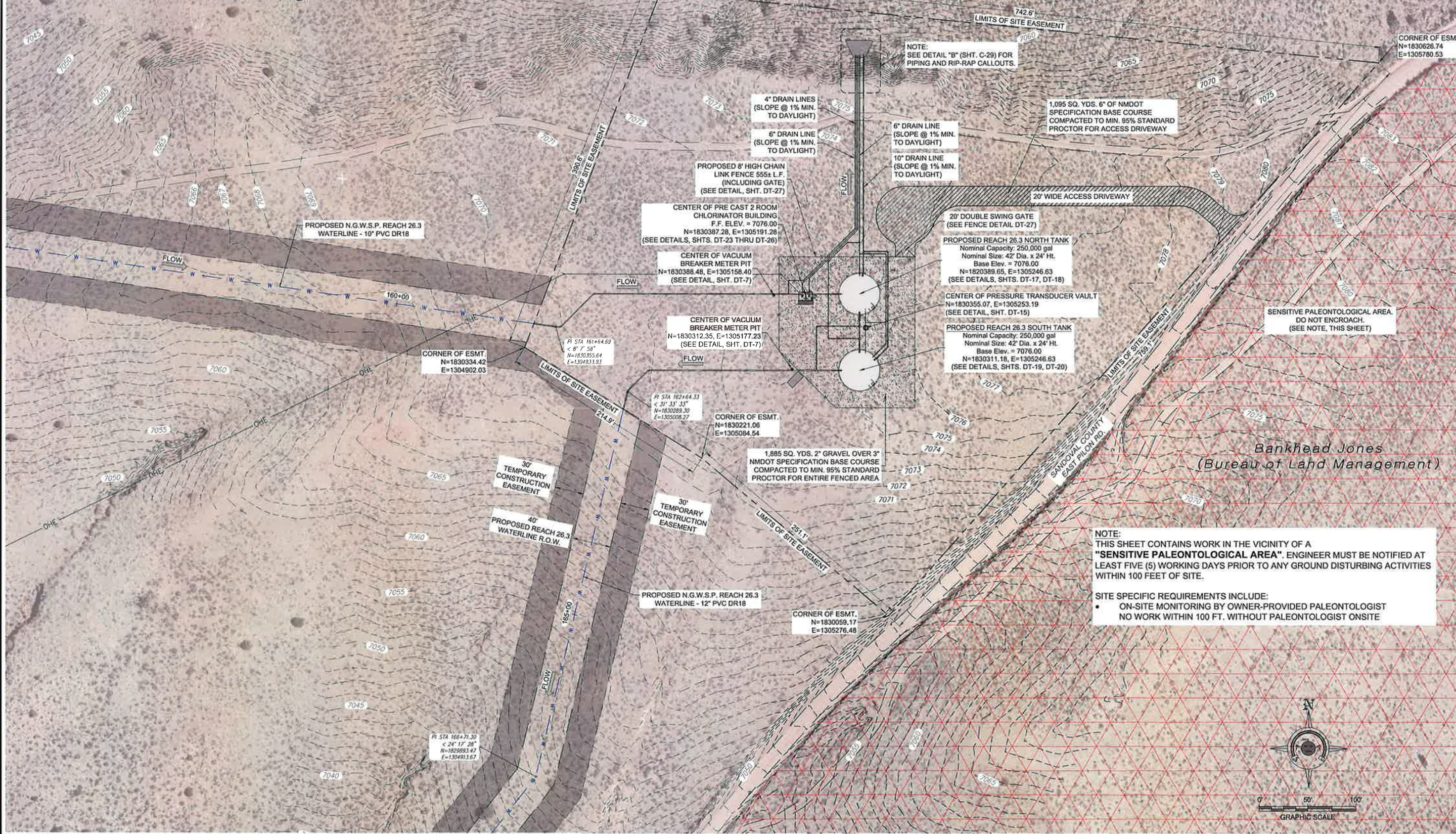
Date: January 15, 2019
Scale: Horiz: 1" = 200'
Vert: 1" = 20'
Project No: 6921307
Sheet: C-23

LEGEND

-  2" GRAVEL OVER 3" NMDOT SPECIFICATION BASE COURSE
-  SENSITIVE PALEONTOLOGICAL AREA. DO NOT ENCROACH.
-  TEMPORARY CONSTRUCTION EASEMENT
-  ACCESS DRIVEWAY

SANDOVAL COUNTY, NEW MEXICO
SEC-29, T-21-N, R-5-W
BUREAU OF LAND MANAGEMENT

Bankhead Jones
(Bureau of Land Management)



Revision	Date	Description	By	Chkd

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CLIENT: The Navajo Nation
TOWN: Reach 26.3 To Torsion, NM
REACH 26.3 TANK SITE OVERALL PLAN
SECTION 29, T. 21 N., R. 5 W.
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACH 26.3
SANDOVAL & MCKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
TTT	MW/AV	AGR



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NOTICE OF EXTENDED
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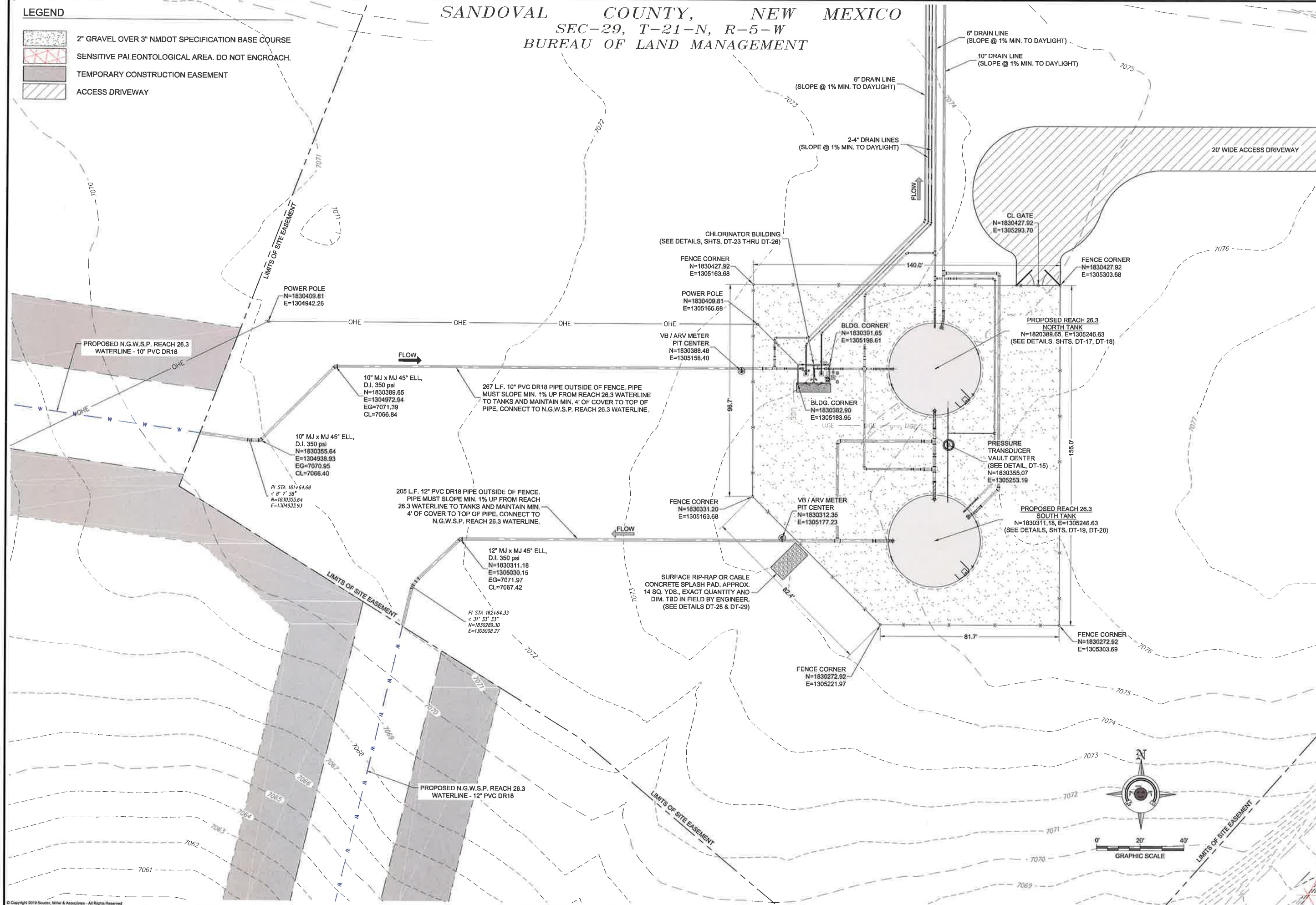
811 Know what's
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Date: January 15, 2019
Scale: Horiz: 1" = 100'
Vert: N/A
Project No: 6921307
Sheet: C-25

LEGEND

- 2" GRAVEL OVER 3" NMDOT SPECIFICATION BASE COURSE
- SENSITIVE PALEONTOLOGICAL AREA. DO NOT ENCROACH.
- TEMPORARY CONSTRUCTION EASEMENT
- ACCESS DRIVEWAY

SANDOVAL COUNTY, NEW MEXICO
SEC-29, T-21-N, R-5-W
BUREAU OF LAND MANAGEMENT



Revision	Date	Description	By	CHK'd

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CLIENT: The Navajo Nation TOWN: Reach 26.3 To Turren, NM

REACH 26.3 TANK SITE PLAN
SECTION 29, T-21-N, R-5-W
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACH 26.3
SANDOVAL & MCKINLEY COUNTIES, NEW MEXICO

Designed TTT	Drawn MHA/AV	Checked AGR
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TORY T. TADANO
NEW MEXICO
21079
REGISTERED PROFESSIONAL ENGINEER
(131)14

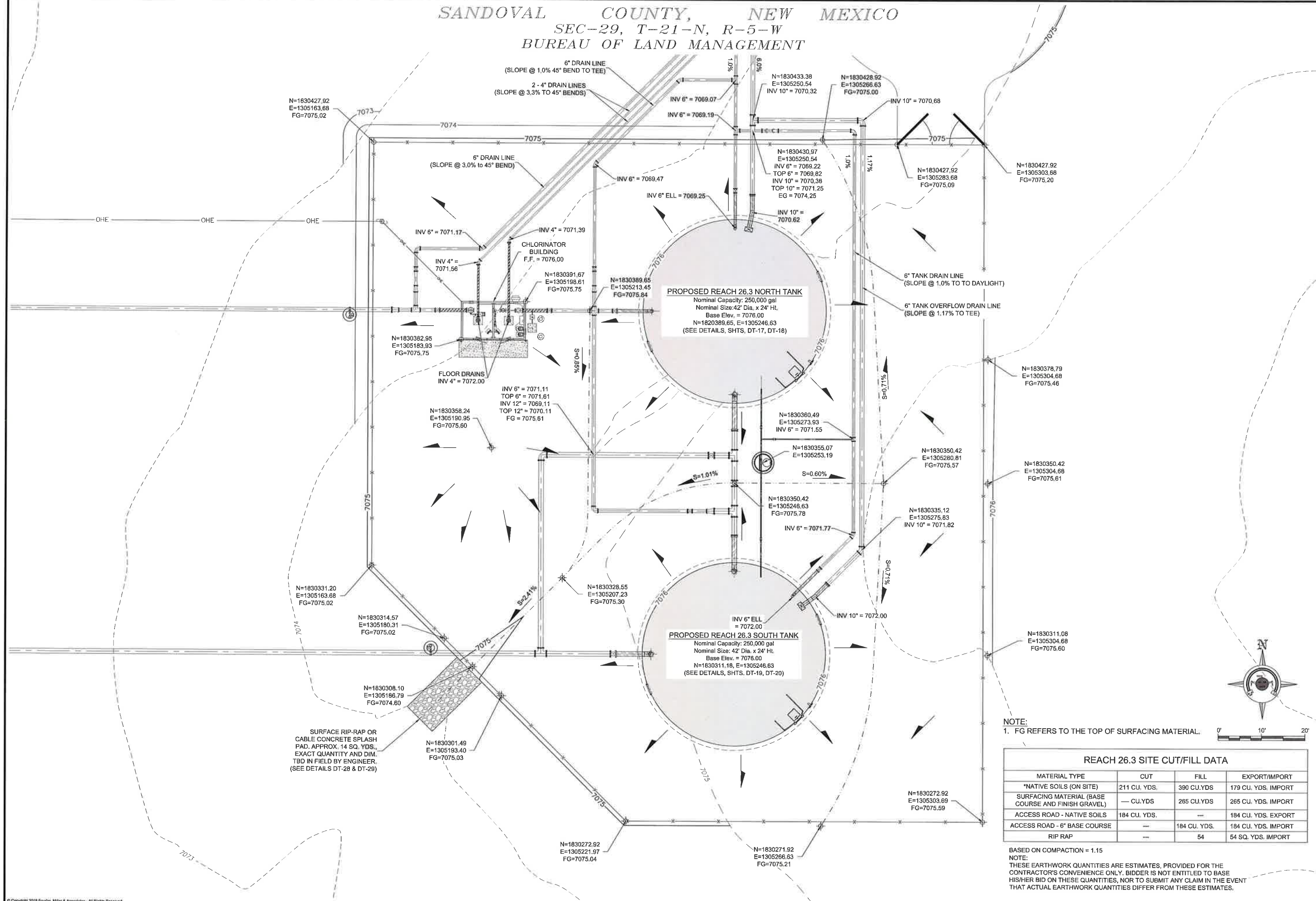
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Date: January 15, 2019
Scale: Horiz: 1" = 40'
Vert: N/A
Project No: 6921307
Sheet: C-26

SANDOVAL COUNTY, NEW MEXICO
SEC-29, T-21-N, R-5-W
BUREAU OF LAND MANAGEMENT



NOTE:
1. FG REFERS TO THE TOP OF SURFACING MATERIAL.

0' 10'

MATERIAL TYPE	CUT	FILL	EXPORT/IMPORT
*NATIVE SOILS (ON SITE)	211 CU. YDS.	390 CU. YDS.	179 CU. YDS. IMPORT
SURFACING MATERIAL (BASE COURSE AND FINISH GRAVEL)	— CU. YDS.	265 CU. YDS.	265 CU. YDS. IMPORT
ACCESS ROAD - NATIVE SOILS	184 CU. YDS.	---	184 CU. YDS. EXPORT
ACCESS ROAD - 6" BASE COURSE	---	184 CU. YDS.	184 CU. YDS. IMPORT
RIP RAP	---	54	54 SQ. YDS. IMPORT

BASED ON COMPACTION = 1.15

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.

Revision

Date

Description

By

Chkd

Scale: Horiz: 1" = 40'

Vert: N/A

Project No: 6921307

Sheet: C-27

SMA SOUDER, MILLER & ASSOCIATES

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CLIENT: The Navajo Nation

TOWN: Reach 26.3 To Tarron, NM

REACH 26.3 TANK SITE GRADING

SECTION 29, T. 21 N., R. 5 W.

NAVAJO GALLUP WATER SUPPLY

PROJECT - REACH 26.3

SANDOVAL & MCKINLEY COUNTIES, NEW MEXICO

Designed: TTT

Drawn: MVT/AAV

Checked: AGR

TORY T. TADANO

NEW MEXICO

21073

11/13/14

LICENSED PROFESSIONAL ENGINEER

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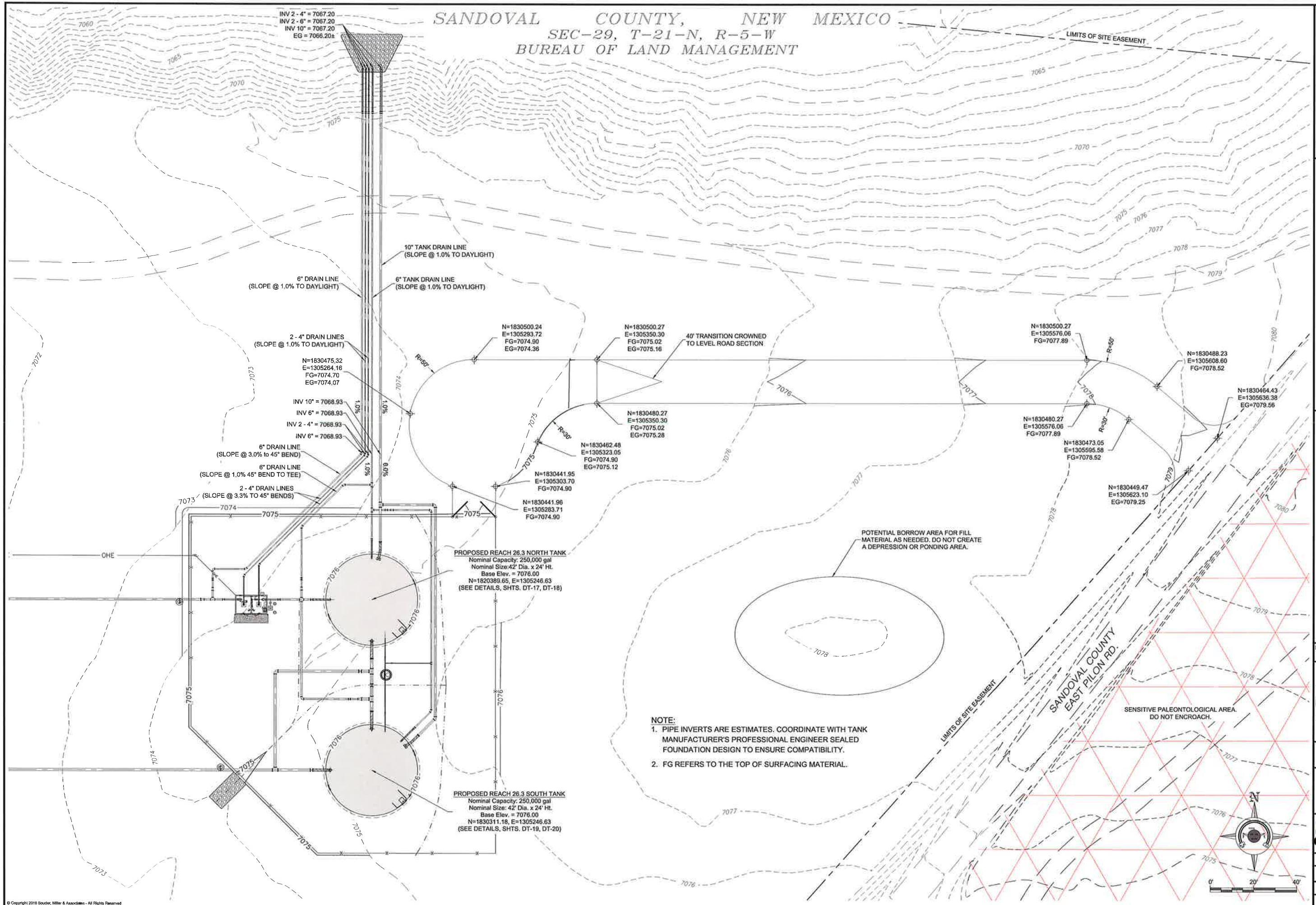
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Date: January 15, 2019

SANDOVAL COUNTY, NEW MEXICO
SEC-29, T-21-N, R-5-W
BUREAU OF LAND MANAGEMENT



Revision	Date	Description	By	CHKD

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11/02/19 11:20:19 AM

CLIENT: The Navajo Nation TOWN: Reach 26.3 To Torsion, NM
REACH 26.3 TANK SITE DRAIN PIPING AND ACCESS ROAD GRADING PLAN
NAVAJO GALLUP WATER SUPPLY PROJECT - REACH 26.3
SANDOVAL & MCKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
TTT	MW/AAV	AGR

TORY T. YADANO
NEW MEXICO
21073
1/31/19
REGISTERED PROFESSIONAL ENGINEER

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Date: January 15, 2019
Scale: Horiz: 1" = 40'
Vert: N/A
Project No: 6921307
Sheet: C-28

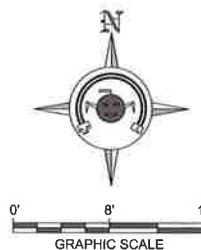
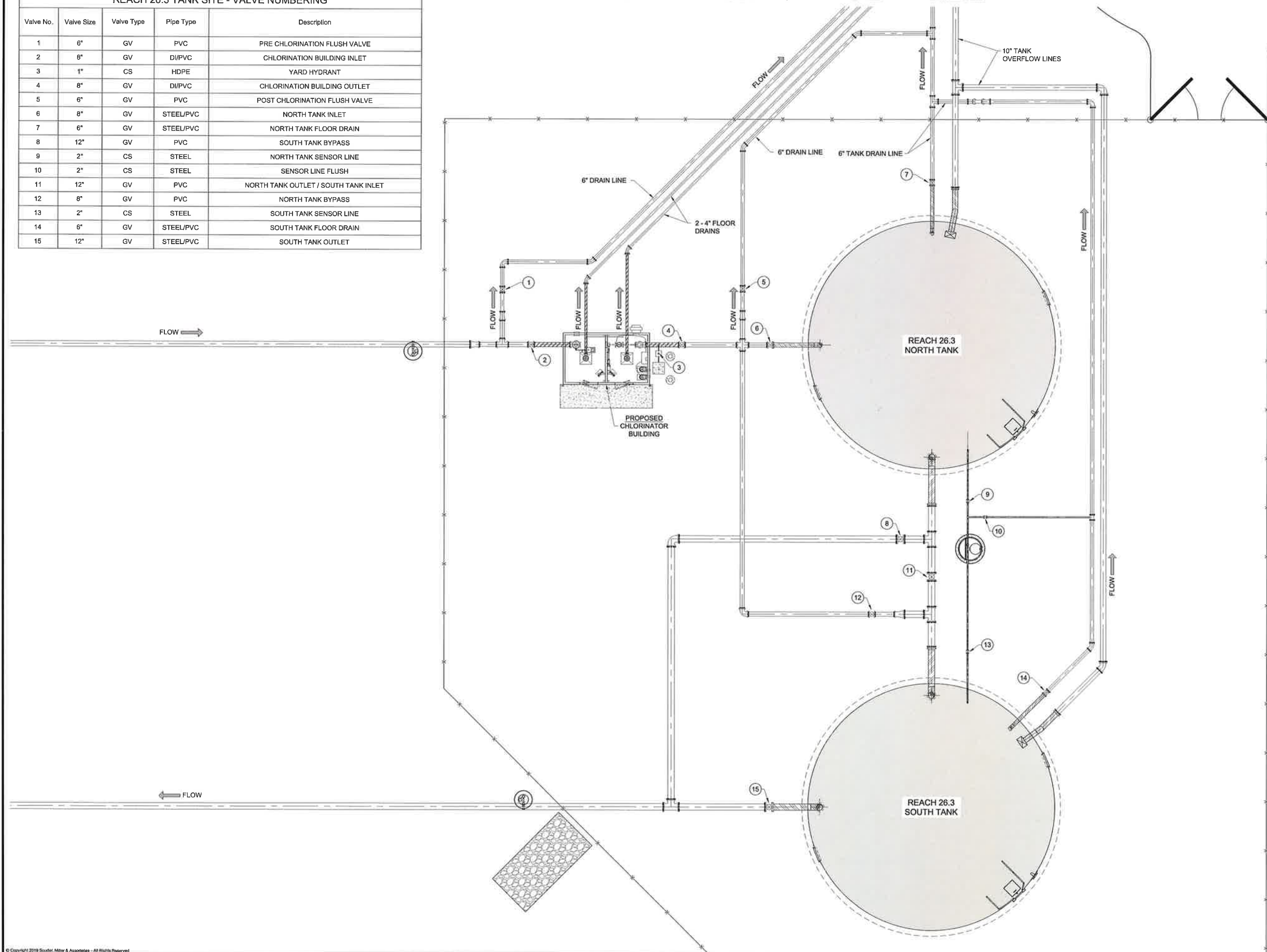
Item No.	Description
1	CHLORINATOR BUILDING (SEE DETAILS DT-23 THRU DT-26)
2	2" VACUUM BREAKER W/ 1" AIR RELEASE VALVE (SEE DETAIL DT-7)
3	PRESSURE TRANSDUCER VAULT (SEE DETAIL DT-15)
4	12" PVC DR18 PIPE
5	12" STEEL PIPE, STANDARD WALL
6	12" MJ x FL GATE VALVE (SEE DETAIL DT-6) 250 psi
7	12" MJ x MJ GATE VALVE (SEE DETAIL DT-6) 250 psi
8	12" MJ x MJ TEE, D.I. 350 psi
9	12" MJ x MJ 90° ELL, D.I. 350 psi
10	12" x 8" MJ x MJ CONCENTRIC REDUCER, D.I. 350 psi
11	10" STEEL PIPE, STANDARD WALL
12	10" PVC DR18 PIPE
13	10" MJ x MJ TEE, D.I. 350 psi
14	10" MJ x MJ 90° ELL, D.I. 350 psi
15	10" MJ x MJ 45° ELL, D.I. 350 psi
16	10" MJ FLANGE ADAPTER, FBE-COATED WITH SS 304 BOLTS, MEGAFLANGE SERIES 2100, 235 psi, OAE
17	10" TIDFLEX VALVE (SEE DETAIL DT-30)
18	10" FL x PE DUCTILE IRON PIPE 350 psi
19	10" MJ X MJ SHORT SLEEVE, D.I. 350 psi
20	10" x 8" MJ x MJ CONCENTRIC REDUCER, D.I. 350 psi
21	8" STEEL PIPE, STANDARD WALL
22	8" PVC DR18 PIPE
23	8" MJ x MJ GATE VALVE (SEE DETAIL DT-6) 350 psi
24	8" MJ x FL GATE VALVE (SEE DETAIL DT-6) 350 psi
25	8" MJ x MJ TEE, D.I. 350 psi
26	8" MJ x MJ CROSS, D.I. 350 psi
27	8" MJ x MJ 90° ELL, D.I. 350 psi
28	8" DUCTILE IRON PIPE 350 psi
29	8" x 6" MJ x MJ CONCENTRIC REDUCER, D.I. 350 psi
30	6" STEEL PIPE, STANDARD WALL
31	6" PVC DR18 PIPE
32	6" MJ x MJ GATE VALVE (SEE DETAIL DT-6) 350 psi
33	6" MJ x FL GATE VALVE (SEE DETAIL DT-6) 350 psi
34	6" MJ x MJ TEE, D.I. 350 psi
35	6" MJ x MJ 90° ELL, D.I. 350 psi
36	6" MJ x MJ 45° ELL, D.I. 350 psi
37	6" FL x PE DUCTILE IRON PIPE 350 psi
38	6" TIDFLEX VALVE (SEE DETAIL DT-30)
39	6" MJ X MJ SHORT SLEEVE, D.I. 350 psi
40	6" x 2" MJ x MJ TAPPED TEE, 350 psi
41	4" PVC DR18 PIPE
42	4" DUCTILE IRON PIPE 350 psi
43	4" FL x PE DUCTILE IRON PIPE 350 psi
44	4" MJ x MJ 45° ELL, D.I. 350 psi
45	4" CAST IRON FLAP VALVE (SEE DETAIL DT-30)
46	4" MJ X MJ SHORT SLEEVE, D.I. 350 psi
47	2" STEEL PIPE NPT, SCHEDULE 40
48	2" STEEL TEE NPT, SCHEDULE 40
49	2" MUELLER 300 BALL CURB VALVE, 300 psi, OAE (SEE DETAIL DT-16)
50	1" YARD HYDRANT ASSEMBLY (SEE DETAIL DT-16)
51	12" MJ FLANGE ADAPTER, FBE-COATED WITH SS 304 BOLTS, MEGAFLANGE SERIES 2100, 235 psi, OAE

1. CONTRACTOR SHALL FIELD SURVEY ELEVATION OF OVERFLOW WEIR OF BOTH TANKS AND ENSURE OVERFLOW WEIR ELEVATIONS MATCH (WITHIN A TOLERANCE OF $\pm 1/2"$ INCH).
2. PROVIDE TANK SUB-FOUNDATIONS, OVER-EXCAVATION AND SITE GRADING IN ACCORDANCE WITH GEOTECHNICAL REPORT (GEOTEST REPORT NO. 1-71108 DATED 1-8-2018) AND DETAILS DT-17 THRU DT-22.
3. PROVIDE TANK FOUNDATION IN ACCORDANCE WITH GEOTECHNICAL REPORT (GEOTEST REPORT NO. 1-71108 DATED 1-8-2018) AND TANK MANUFACTURER'S PE-SEALED FOUNDATION DESIGN.
4. NO HIGH SPOTS PERMITTED ON SITE PIPING. ALL SITE PIPING (INCLUDING SENSOR LINES) SHALL SLOPE UP TOWARDS TANKS, VACUUM BREAKER / AIR RELEASE VALVE VAULTS, PRESSURE TRANSDUCER VAULT, OR CHLORINATOR BUILDING (MIN. 1%).
5. ALL MATERIALS, FITTINGS AND APPURTENANCES SHALL BE RATED TO AT LEAST 235 psi, UNLESS OTHERWISE NOTED.
6. ALL PIPE AND FITTINGS UNDERNEATH AND WITHIN 5' OF TANK AND BUILDING FOUNDATIONS SHALL BE STEEL AND SHALL BE SHOP WELDED, SHOP COATED, X-RAY TESTED AND PRESSURE TESTED PRIOR TO PLACING FOUNDATIONS. SHOP COATINGS SHALL BE APPLIED AFTER WELDING.
7. ALL VALVES AND STEEL-TO-PVC COUPLINGS AT TANKS AND BUILDINGS SHALL BE LOCATED AT LEAST 5' FROM EDGES OF FOUNDATIONS. COORDINATE WITH TANK FOUNDATION PROFESSIONAL ENGINEER DESIGN.
8. ALL BURIED NON-STAINLESS STEEL PIPE AND FITTINGS SHALL BE COLD-APPLIED TAPE-WRAPPED, PER SPECIFICATIONS.
9. IF WELDED STEEL TANKS ARE USED, ALL BURIED STEEL PIPE, WELDED FITTINGS AND OTHER COMPONENTS SHALL BE EXTERIOR COATED W/ COAL TAR EPOXY AND COLD APPLIED TAPE COATING PER SPECIFICATIONS, AND INTERIOR COATED TO MATCH TANK INTERIOR SIDE WALL.
- 9A. IF GLASS-FUSED STEEL TANKS ARE USED, ALL 2-INCH STEEL PIPE AND FITTINGS SHALL BE COLD APPLIED TAPE WRAPPED PER SPECIFICATIONS. ALL 2-INCH STEEL PIPES AND FITTINGS SHALL BE SS 304.
10. ALL BURIED DUCTILE IRON PIPE (EXCEPT FOR RISERS UNDER CHLORINATION BUILDING) AND ALL DUCTILE IRON FITTINGS SHALL BE DOUBLE-WRAPPED POLYETHYLENE, PER SPECIFICATIONS. INNER JACKET SHALL BE V-BIO ENHANCED, MIN. 8-MIL. OUTER JACKET SHALL BE STANDARD PE, MIN. 8-MIL. DUCTILE IRON RISERS UNDER CHLORINATION BUILDING SHALL BE COLD-APPLIED TAPE-WRAPPED, PER SPECIFICATIONS.
11. ALL BURIED DUCTILE IRON FITTINGS SHALL BE MJ. ALL BURIED DUCTILE IRON PIPES SHALL BE SOLID PIECES. NO DUCTILE IRON PIPE JOINTS ALLOWED.
12. ALL PRESSURE BEARING PIPES WITHIN SITE SHALL BE FULLY RESTRAINED. ALL PVC PIPE JOINTS LARGER THAN 2" SHALL BE FUSED. REFER TO DETAIL, SHEET DT-3.
13. FIELD LOCATE CONDUITS PER REVIEW WITH ELECTRICIAN.

[illegible]

SANDOVAL COUNTY, NEW MEXICO

REACH 26.3 TANK SITE - VALVE NUMBERING				
Valve No.	Valve Size	Valve Type	Pipe Type	Description
1	6"	GV	PVC	PRE CHLORINATION FLUSH VALVE
2	8"	GV	DI/PVC	CHLORINATION BUILDING INLET
3	1"	CS	HDPE	YARD HYDRANT
4	8"	GV	DI/PVC	CHLORINATION BUILDING OUTLET
5	6"	GV	PVC	POST CHLORINATION FLUSH VALVE
6	8"	GV	STEEL/PVC	NORTH TANK INLET
7	6"	GV	STEEL/PVC	NORTH TANK FLOOR DRAIN
8	12"	GV	PVC	SOUTH TANK BYPASS
9	2"	CS	STEEL	NORTH TANK SENSOR LINE
10	2"	CS	STEEL	SENSOR LINE FLUSH
11	12"	GV	PVC	NORTH TANK OUTLET / SOUTH TANK INLET
12	8"	GV	PVC	NORTH TANK BYPASS
13	2"	CS	STEEL	SOUTH TANK SENSOR LINE
14	6"	GV	STEEL/PVC	SOUTH TANK FLOOR DRAIN
15	12"	GV	STEEL/PVC	SOUTH TANK OUTLET



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[illegible]

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TOWN: The Navajo Nation
 TOWN: Reach 26.3 To Torreon, NM
 REACH 26.3 TANK SITE VALVE NUMBERING PLAN
 SECTION 29, T. 21 N., R. 5 W.
 NAVAJO GALLUP WATER SUPPLY
 PROJECT - REACH 26.3
 SANDOVAL & MCKINLEY COUNTIES, NEW MEXICO

Designed TTT	Drawn MvH/AJV	Checked AGR
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Date: January 15, 2019

Scale: Horiz: 1" = 16'
Vert: N/A

Project No: 6921307

Sheet: C-30

McKINLEY COUNTY, NEW MEXICO
SEC-12, T-20-N, R-5-W
INDIAN ALLOTMENT 423

Indian
Allotment
423

Indian
Allotment
423

Indian
Allotment
423

APPROX. 550 L.F. 4" PVC DR18 PIPE AT 1.0% MIN.
SLOPE FOR PRESSURE RELIEF VALVE DRAINAGE
(SEE PLAN AND PROFILE SHT. C-24)

4" 45° MJ BEND
N=1814105.78
E=1324160.11

4" FLUSH ASSEMBLY,
ABOVE GRADE DISCHARGE,
(SEE SHT. DT-9)

EXISTING NTUA WATERLINE,
6" PVC DR18

STA 492+54.1

STA 492+74.4
6" & 2" CONTROL VALVES
WITH 6" PRESSURE RELIEF
ASSEMBLY IN VAULT
(SEE SHEETS DT-10 & DT-11)

STA 492+94.9
2" VACUUM BREAKER W/ 1" AIR
ASSEMBLY (SEE SHEET D5-2)

SEE SHT. C-32 FOR CONTROL VALVE
SITE PIPING AND CONNECTION PLAN

$N=1814328.6$
 $E=1323650.2$

$$E=1323654.85$$

6" 90° BEND, DI
N=1814311.30
E=1323629.93
INV. 6"=6757.56

6° T
N=18143
E=13238
INV. 6°=67

STA 493+13.0
END NGWSP REACH 26.3 WATERLINE
CONNECT TO EXISTING 6" NTUA
WATERLINE WITH 12" MJ TEE, D
(SEE PIPING PLAN, SHT. C-32)
APPROX. N=1814301.09
APPROX. E=1323684.93

30' TEMPORARY
CONSTRUCTION
EASEMENT

0' PERMANENT
R.O.W.

30' TEMPORARY
CONSTRUCTION
EASEMENT

	Revision	Date	Description	By	Ck'd
Color: 20 x 30 paper Tm in dwg					
4/15/2019 11:21:08 AM jme					

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REACH 26.3 CONTROL VALVE SITE PLAN
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACH 26.3
SANDOVAL & MCKINLEY COUNTIES, NEW MEXICO

Designed TTT	Drawn MvHVA/v	Checked AGR
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Date: January 15, 2019

Scale: Horiz: 1" = 40'
Vert: N/A

Project No: 6921307

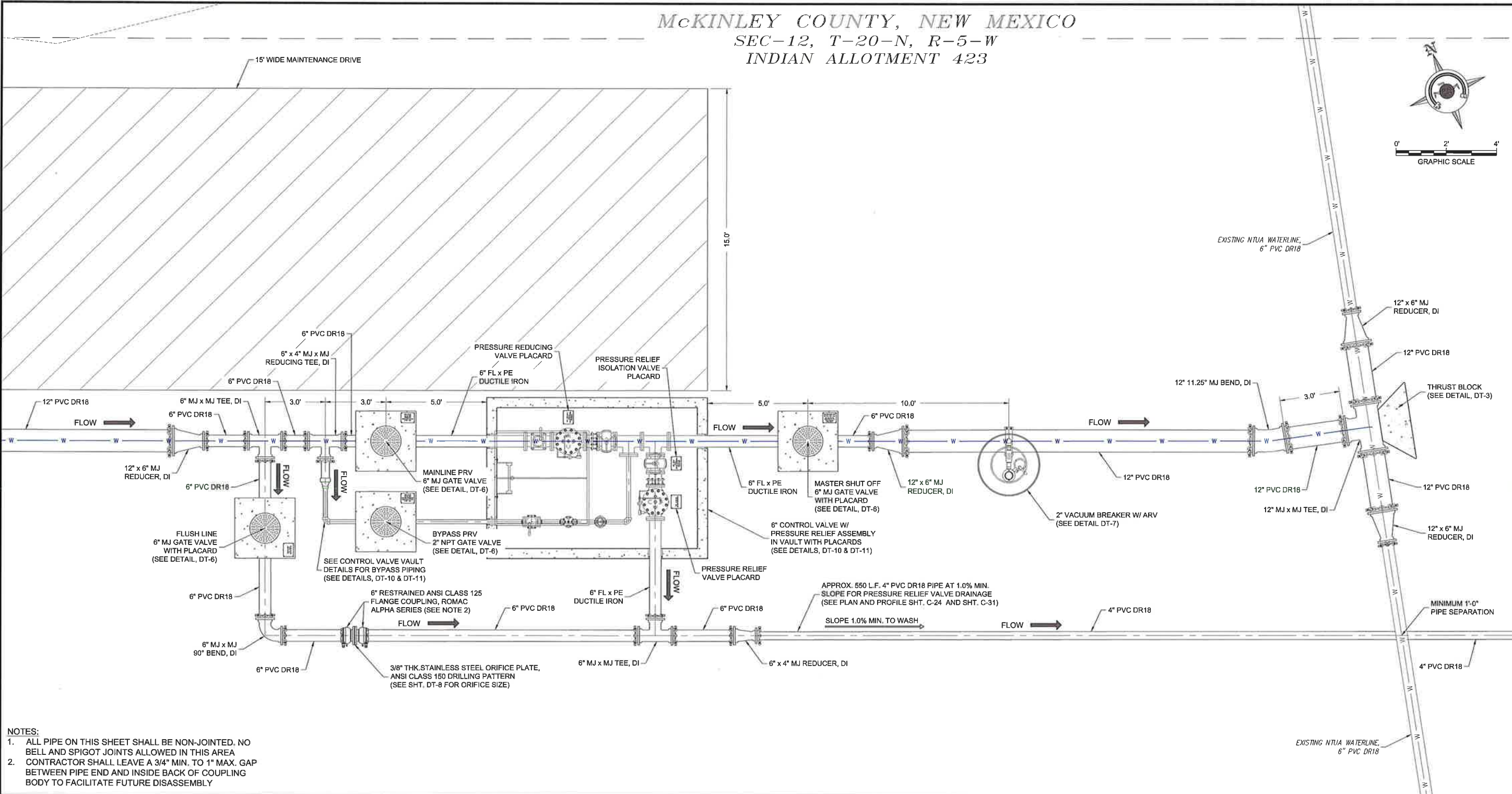
Sheet: C-31



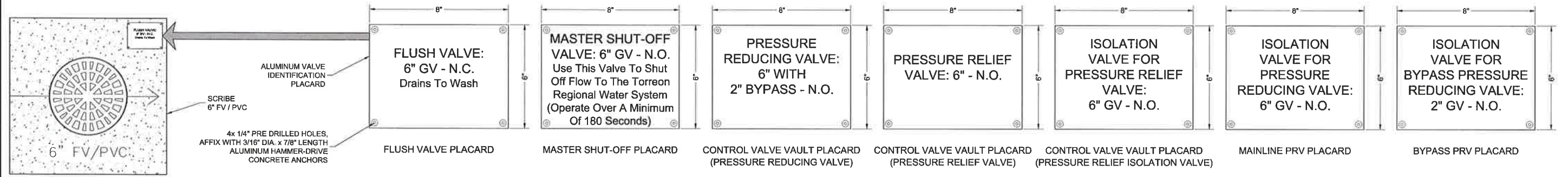
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GRAPHIC SCALE

McKINLEY COUNTY, NEW MEXICO
SEC-12, T-20-N, R-5-W
INDIAN ALLOTMENT 423

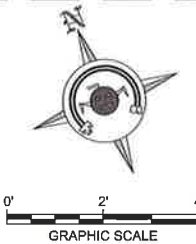


- NOTES:
1. ALL PIPE ON THIS SHEET SHALL BE NON-JOINTED, NO BELL AND SPIGOT JOINTS ALLOWED IN THIS AREA
 2. CONTRACTOR SHALL LEAVE A 3/4\"/>



- NOTE:
1. CONCRETE SHALL BE SCRIBED PRIOR TO CURING OR ETCHED AFTER CURING WITH 4\"/>

PLACARDS FOR CONTROL VALVE SITE AND
FLUSH VALVE COLLAR SCRIBE DETAIL
NOT TO SCALE



Revision	Date	Description	By	Chkd

SMA
Soudier, Miller & Associates
5454 VENICE AVENUE, SUITE D
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CLIENT: The Navajo Nation
TOWN: Reach 26.3 To Torreon, NM

REACH 26.3 CONTROL VALVE SITE
PIPING AND CONNECTION PLAN
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACH 26.3
SANDOVAL & MCKINLEY COUNTIES, NEW MEXICO

Designed: TTT
Drawn: MHA/AV
Checked: AGR

TORRY T. YADANO
NEW MEXICO
21073
11/15/18
REGISTERED PROFESSIONAL ENGINEER

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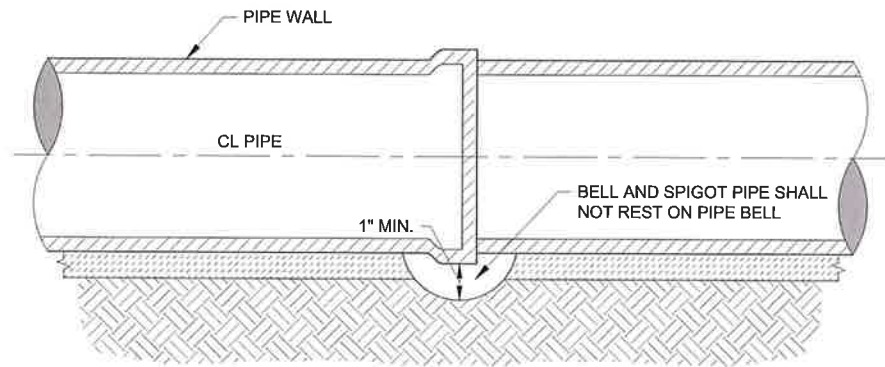
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Date: January 15, 2019
Scale: Horiz: 1" = 4'
Vert: N/A
Project No: 6921307
Sheet: C-32

NOTES:

1. SOIL CEMENT SLURRY MAY BE USED IN LIEU OF COMPACTED SELECT MATERIAL AT CONTRACTOR'S OPTION AND EXPENSE.
2. ANY SECTION OF PIPE EMBEDDED IN COMPACTED SELECT MATERIAL THAT FAILS TO MEET SOIL CLASSIFICATION AND/OR COMPACTION REQUIREMENTS SHALL BE DUG UP, RE-BURIED, RE-COMPACTED AND RE-TESTED AT CONTRACTOR'S SOLE EXPENSE.
3. MINIMUM CLEARANCES BETWEEN PIPE AND TRENCH WALL MUST BE MET PRIOR TO PLACING EMBEDMENT (WHETHER COMPACTED SELECT MATERIAL OR SOIL CEMENT SLURRY). INCREASE CLEARANCES AND/OR TRENCH WIDTH AS NEEDED TO ALLOW FOR COMPACTION AND/OR TO ENSURE ADEQUATE SOIL CEMENT SLURRY LAYER THICKNESS IN HAUNCH AREAS AND PIPE SPRING LINE. DO NOT ALLOW PIPE TO REST AGAINST TRENCH WALL.
4. ROUNDED TRENCH BOTTOMS MAY BE USED IN CONJUNCTION WITH SOIL CEMENT SLURRY, PROVIDED THE THICKNESS OF SOIL CEMENT AROUND THE PIPE IS AT NO POINT LESS THAN 3".

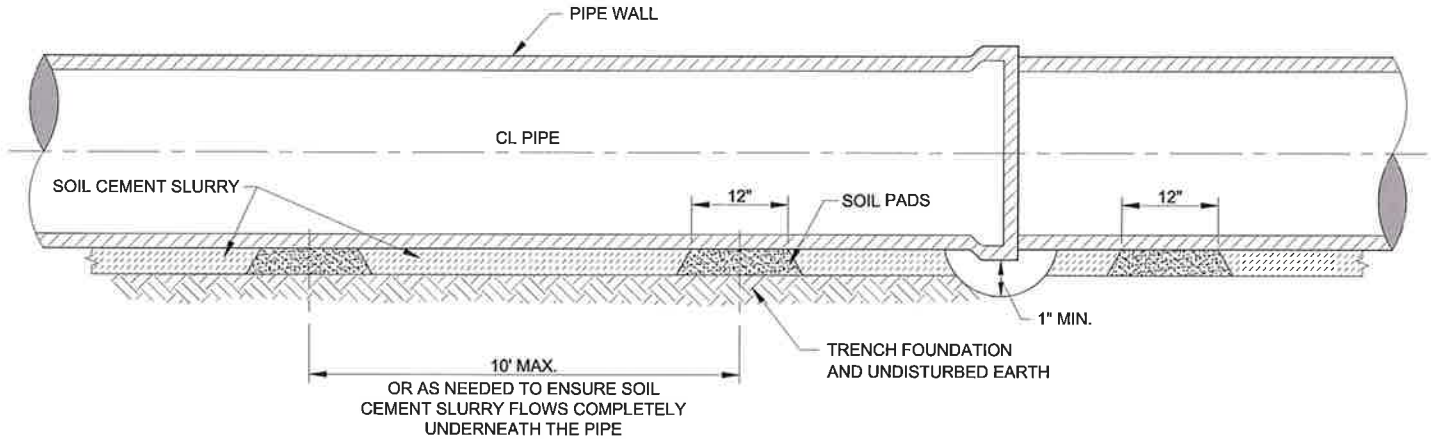


TYPICAL BELL HOLE DETAIL
NOT TO SCALE

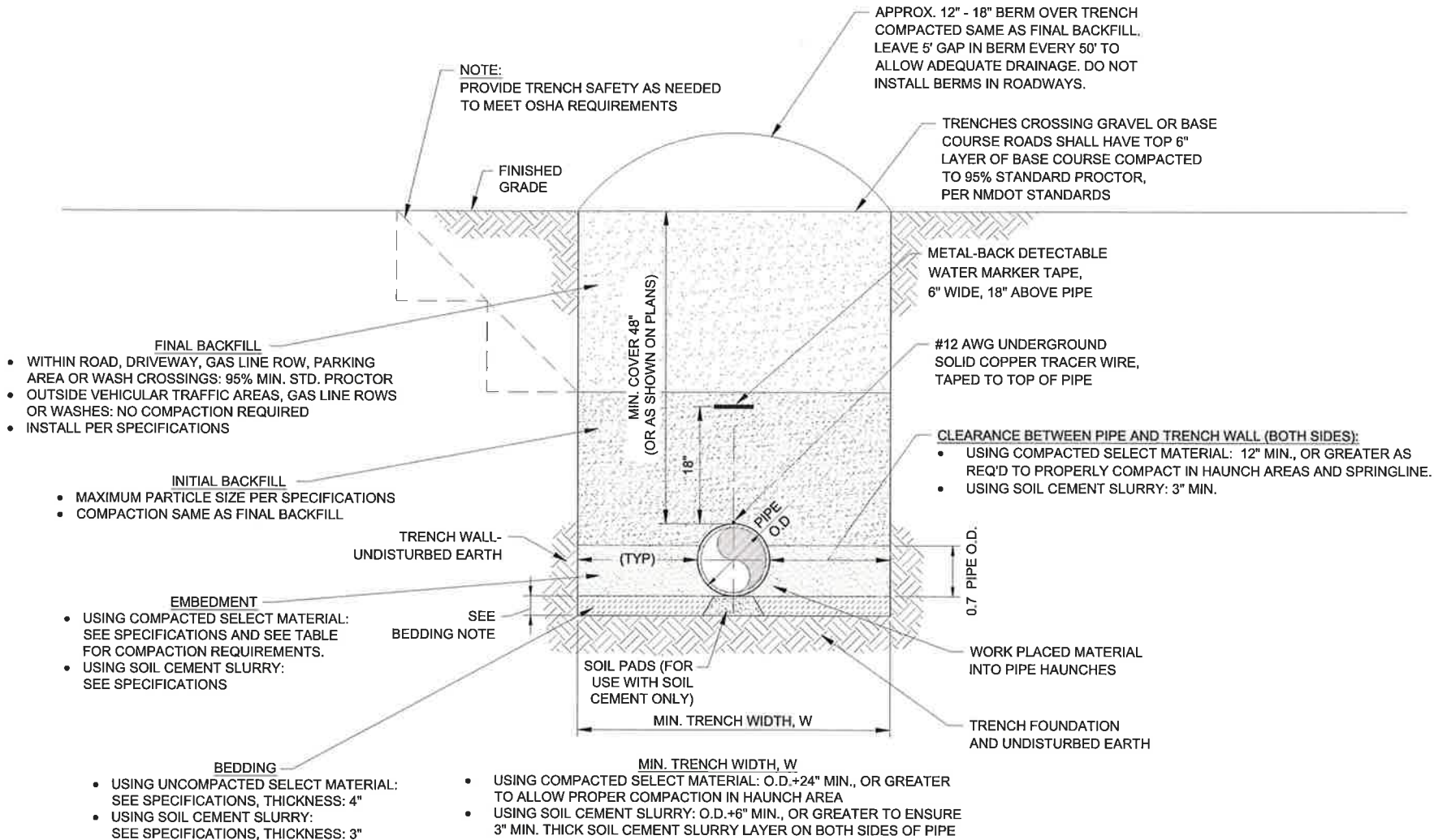
MINIMUM PERCENT COMPACTION FOR EMBEDMENT OUTSIDE TRAFFIC AREAS, GAS LINES ROW, WASH CROSSINGS		
CLEAN COARSE-GRAINED SOILS		
Cover Depth	12" Pipe	10" Pipe
4' to 20'	Minimum Compaction 85%	Minimum Compaction None Required
Coarse-grained soils (sand or gravel), GW, GP, SW, SP, with less than 12% fines		
SANDY OR GRAVELLY FINE-GRAINED SOILS & COARSE-GRAINED SOILS WITH FINES		
Cover Depth	12" Pipe	10" Pipe
4' to 14'	Minimum Compaction 85%	Minimum Compaction None Required
14' to 20'	90%	None Required
Fine-grained soils (LL<50) Soils with medium to no plasticity, CL, ML, ML-CL, with more than 30% coarse-grained particles, or Coarse-grained soils (sand or gravel), GM, GC, SM, SC, with more than 12% fines		

NOTES ON COMPACTION:

1. ALL COMPACTION VALUES BASED ON STD. PROCTOR, ASTM D698. SOIL CLASSIFICATIONS BASED ON ASTM D2487.
2. EMBEDMENT WITHIN DRIVING SURFACES OF ALL ROADS, DRIVEWAYS AND PARKING AREAS AS WELL AS GAS LINES ROW, WASH CROSSINGS, AROUND VAULTS AND METER CANS SHALL BE COMPACTED TO AT LEAST 95% STD. PROCTOR, REGARDLESS OF SOIL TYPE. SOIL CEMENT MAY BE USED IN LIEU OF COMPACTED SELECT MATERIAL.
3. COMPACTION REQUIRED WHERE SHOWN ON DRAWINGS.



SOIL CEMENT INSTALLATION WITH SOIL PADS
NOT TO SCALE



TYPICAL TRENCH DETAIL
NOT TO SCALE

Revision

Date

Description

By

Chkd

Scale: Horiz: NONE
Vert: N/A

Project No: 6921307

Sheet: DT-1

SMA

Souder, Miller & Associates

5454 Venice Avenue NE, Suite D

Albuquerque, NM 87113

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1/15/2019 11:21:24 AM

CLIENT: The Navajo Nation

TOWN: Reach 26.3 To Torreon, NM

PIPELINE TRENCH DETAILS

NAVAJO GALLUP WATER SUPPLY

PROJECT - REACH 26.3

SANDOVAL & MCKINLEY COUNTIES, NEW MEXICO

Designed: TTT

Drawn: AAV

Checked: AGR

2017

NEW MEXICO

21073

1/15/19

PROFESSIONAL ENGINEER

THIS DRAWING IS INCOMPLETE AND NOT TO BE USED FOR CONSTRUCTION UNLESS IT IS STAMPED, SIGNED AND DATED

NOTICE OF EXTENDED PAYMENT PROVISION: THIS CONTRACT PROVIDES THE OWNER TO MAKE PAYMENT WITHIN 45 DAYS AFTER SUBMISSION OF AN UNDISPUTED REQUEST FOR PAYMENT.

811

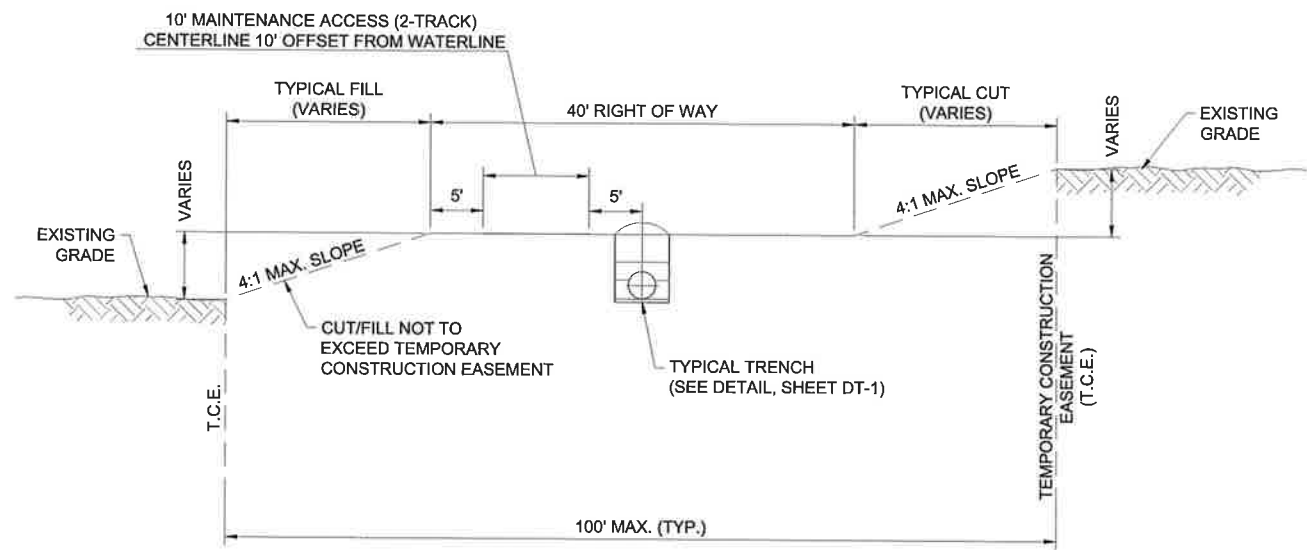
Know what's below. Call before you dig.

Date: January 15, 2019

Scale: Horiz: NONE
Vert: N/A

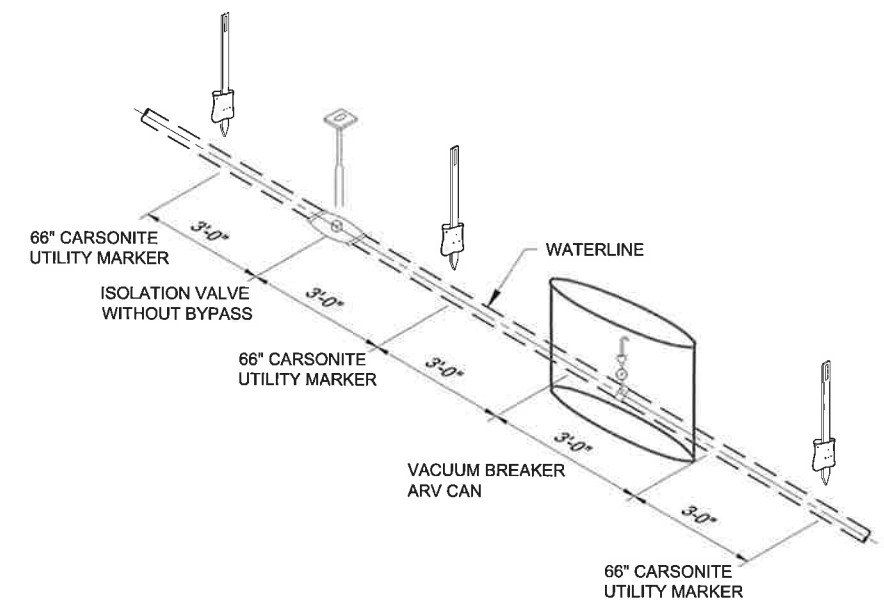
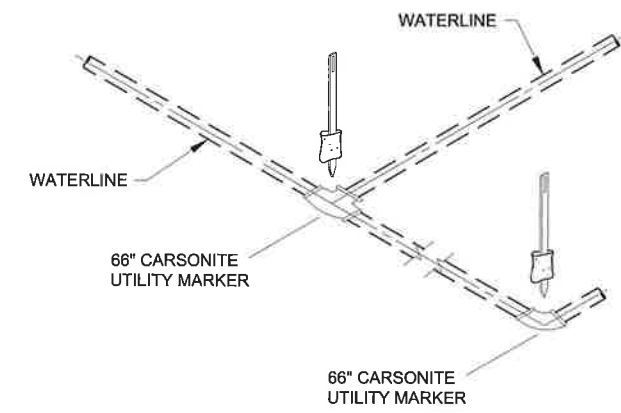
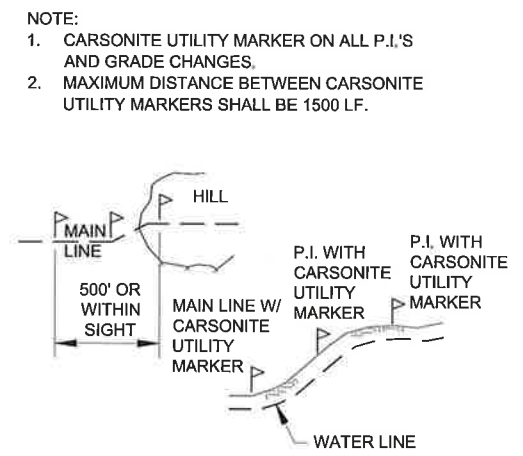
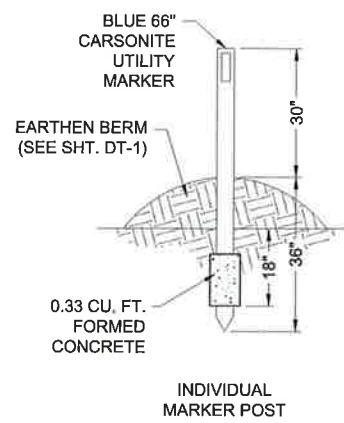
Project No: 6921307

Sheet: DT-1



TYPICAL PIPELINE ROW FINISHED GRADING DETAIL
NOT TO SCALE

- NOTES:
1. ALL DISTURBED EARTH SHALL BE COMPACTED AND RESEEDED AS REQUIRED PER DT-1 AND SPECIFICATIONS.
 2. TOTAL WIDTH REDUCED IN AREAS WHERE TEMPORARY CONSTRUCTION EASEMENT IS TRUNCATED DUE TO ADJACENT CULTURALLY SENSITIVE AREAS, ROADWAYS, PRIVATE PROPERTIES, ETC.
 3. FINAL GRADING AND SLOPE STABILIZATION MUST BE APPROVED BY ENGINEER AND BLM.



TYPICAL MARKER POSTS
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Revision	Date	Description	By	CHK'd

SMA SOUDER, MILLER & ASSOCIATES
5454 VENICE AVENUE NE, SUITE D
ALBUQUERQUE, NM 87113
Phone (505) 259-0942 Toll-Free (877) 259-0942 Fax (505) 261-3400
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CLIENT: The Navajo Nation TOWN: Reach 26.3 To Torsion, NM
MISCELLANEOUS CONSTRUCTION DETAILS
NAVAJO GALLUP WATER SUPPLY PROJECT - REACH 26.3
SANDOVAL & MCKINLEY COUNTIES, NEW MEXICO

Designed TTT Drawn AAV Checked AGR

TORY T. TADANO
NEW MEXICO
21073
REGISTERED PROFESSIONAL ENGINEER

THIS DRAWING IS INCOMPLETE AND NOT TO BE USED FOR CONSTRUCTION UNLESS IT IS STAMPED, SIGNED AND DATED.

NOTICE OF EXTENDED PAYMENT PROVISION: THIS CONTRACT ALLOWS THE OWNER TO MAKE PAYMENT WITHIN 45 DAYS AFTER SUBMISSION OF AN UNDISPUTED REQUEST FOR PAYMENT.

811 Know what's below. Call before you dig.

Date: February 1, 2019
Scale: Horiz: NONE Vert: N/A
Project No: 6921307
Sheet: DT-2

Pipe Location	Pipe Size (Inches)	90° Bend H x W	Tee H x W
Reach 26.3 Chlorinator, Inlet & Outlet	8"	4'-0" x 4'-0"	N/A
Flush Valve with Above-Grade Discharge	2"	N/A	1'-0" x 1'-0"
Tee for Torreon Regional Water System Tie-in	6"	N/A	2'-6" x 2'-6"

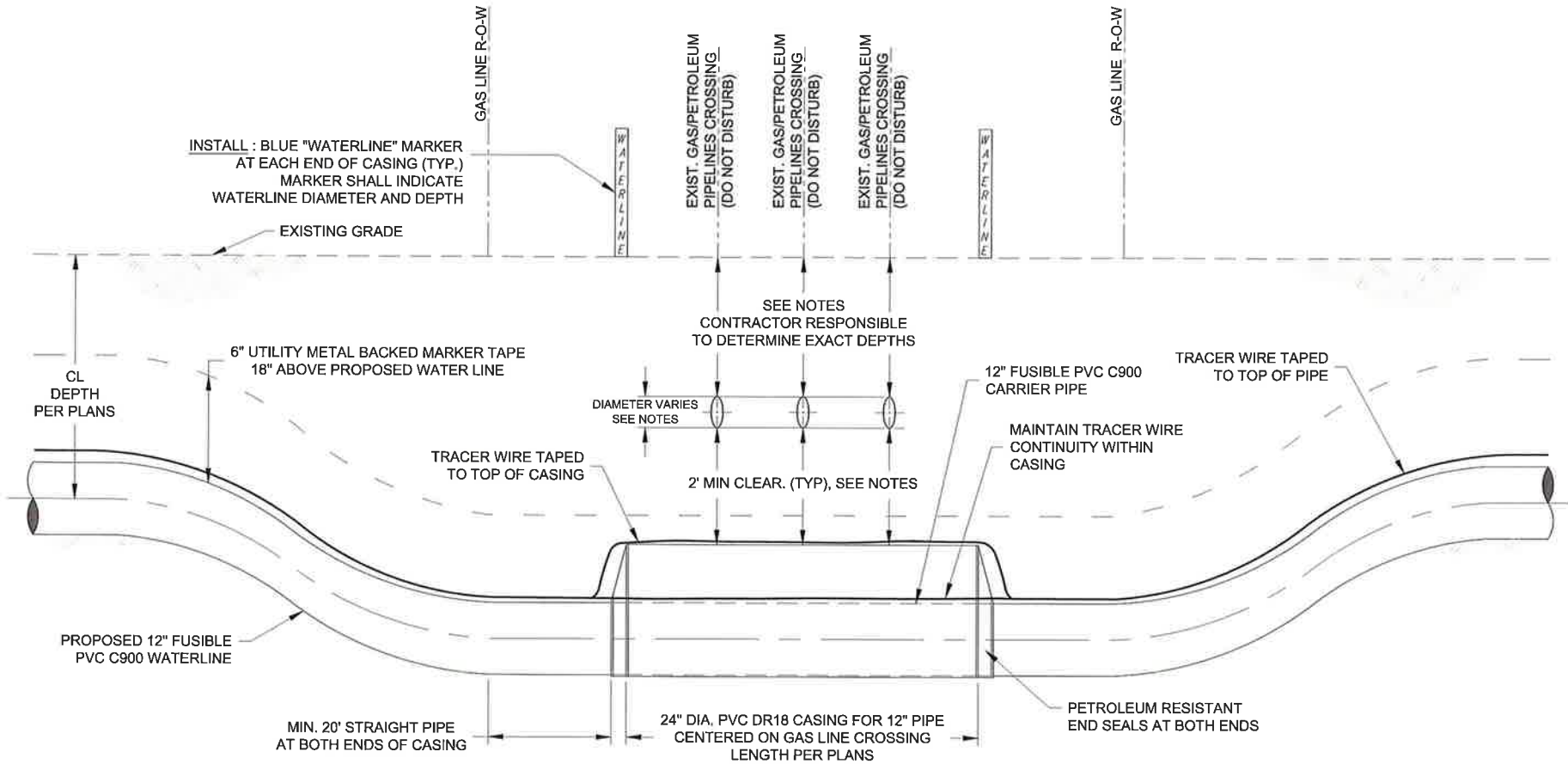
The diagrams illustrate the design of a trench for a pipe. The left diagram shows a trench with a width of 2'-0" and a height of W. The right diagram shows a trench with a width of 2'-0" and a height of H. Both diagrams show the pipe with a diameter of 12" and a label "UNDISTURBED EARTH".

Diagram illustrating the failure mechanism of a pipe under external pressure. The diagram shows a pipe section with an external pressure of 2.0 psi. The failure zone is defined by dimensions W and H. The diagram is labeled "UNDISTURBED EARTH" on both sides.

Fitting	Pipe Size	Test Pressure (psi)	Required Restraint Length (ft)	
Tee	10"	235	40	
Isolation Valve / Dead End	10"	235	140	
From End of Casing	10"	235	60	
Horizontal Bend or Sweep				
90°	10"	235	65	
45°	10"	235	30	
22.5°	10"	235	20	
11.25°	10"	235	20	
Vertical Offset or Sweep			Upper Bend	Lower Bend
22.5°	10"	235	30	20
11.25°	10"	235	20	20

Fitting	Pipe Size	Test Pressure (psi)	Required Restraint Length (ft)	
Tee	12"	235	65	
Isolation Valve / Dead End	12"	235	165	
From End of Casing	12"	235	75	
Horizontal Bend or Sweep				
90°	12"	235	75	
45°	12"	235	30	
22.5°	12"	235	20	
11.25°	12"	235	20	
Vertical Offset or Sweep			Upper Bend	Lower Bend
22.5°	12"	235	35	20
11.25°	12"	235	20	20
Transition				
Reducer	12" x 6"	235	120	

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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 ENGINEER.
 8. HEAVY EQUIPMENT MUST CROSS PIPELINE ONLY AT CROSSING LOCATIONS APPROVED BY GAS LINE COMPANIES.
 9. FOR MINIMUM FUSIBLE 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 EITHER BE FUSIBLE PVC OR BELL-AND-SPIGOT PVC WITH PETROLEUM RESISTANT GASKETS. CASING SHALL EITHER BE FUSIBLE PVC WITH INTERIOR WELD BEAD REMOVED OR 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: 289+83.5 (APPROX.)
ENTERPRISE MID AMERICA PIPELINE CO. 281-887-2612
DUSTIN HANSCOM - FIELD CONTACT 505-215-2229
ROBERT NORTH - AREA MANAGER 505-486-0713
3 GAS PIPELINES
(12" DIA. STEEL, 43" TO TOP)
(8" DIA. STEEL, 44" TO TOP)
(12" DIA. STEEL, 41" TO TOP)
SEC-5, T-20-N, R-5-W

(2) = STA: 315+79.9 (APPROX.)
ENTERPRISE MID AMERICA PIPELINE CO. 281-887-2612
DUSTIN HANSCOM - FIELD CONTACT 505-215-2229
ROBERT NORTH - AREA MANAGER 505-486-0713
3 GAS PIPELINES
(12" DIA. STEEL, DEPTH UNKNOWN)
(8" DIA. STEEL, DEPTH UNKNOWN)
(12" DIA. STEEL, DEPTH UNKNOWN)
SEC-4, T-20-N, R-5-W

Revision	Date	Description	By	Chkd

SMA SOUDER, MILLER & ASSOCIATES
5454 VENICE AVENUE NE, SUITE D
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1/18/2019 11:21:05 AM aw

CLIENT: The Navajo Nation TOWN: Reach 26.3 To Torreon, NM

GAS LINE CROSSING DETAILS
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACH 26.3
SANDOVAL & MCKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
GMM	AAV	AGR

TORY T. YADANO
NEW MEXICO
21073
LICENSED PROFESSIONAL ENGINEER

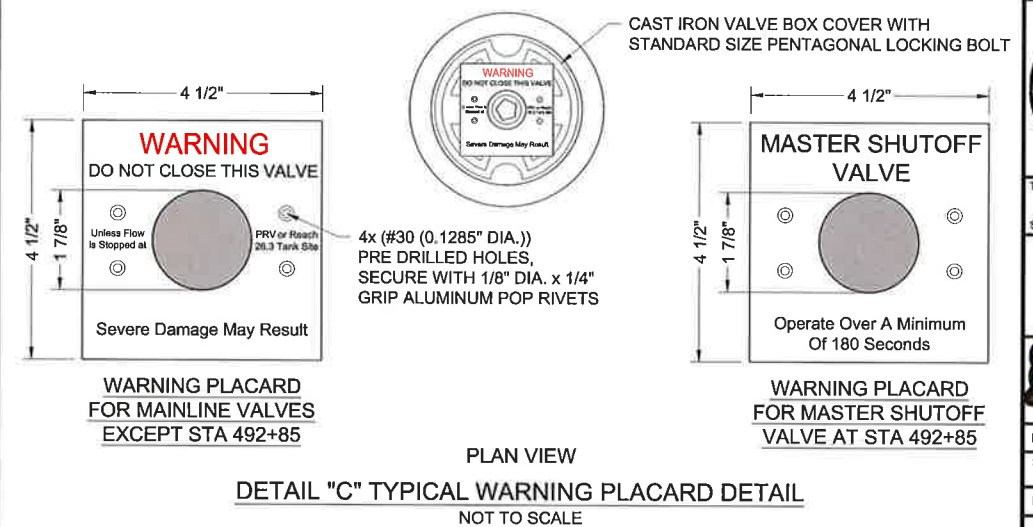
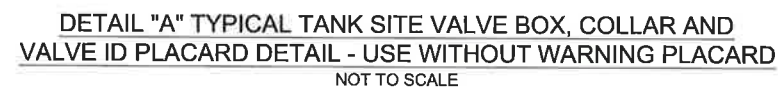
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STAMPED, SIGNED AND DATED

NOTICE OF EXTENDED
PAYMENT PROVISION:
THIS CONTRACT ALLOWS THE
OWNER TO MAKE PAYMENT
WITHIN 45 DAYS AFTER
SUBMISSION OF
AN UNDISPUTED REQUEST
FOR PAYMENT.

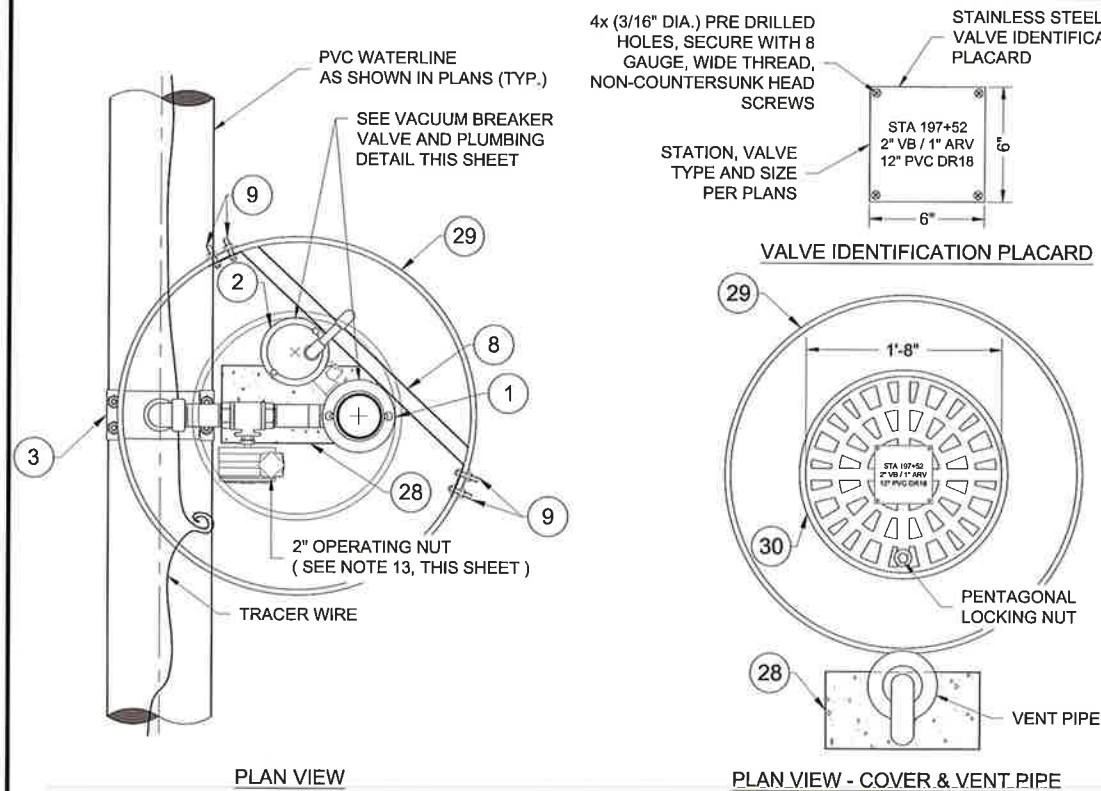
811 Know what's
below.
Call before
you dig.

Date: January 18, 2019
Scale: Horiz: NONE
Vert: N/A
Project No: 6921307
Sheet: DT-4

1. CONTRACTOR SHALL SCRIBE ALL CONCRETE VALVE COLLARS, PER DETAILS "B" & "C" THIS SHEET. CONCRETE SHALL BE SCRIBED PRIOR TO CURING OR ETCHED AFTER CURING WITH 4" GRINDER.
2. AFFIX WARNING PLACARD TO VALVE BOX COVER INSIDE METER CAN FOR ALL MAINLINE VALVES.
3. AFFIX ALUMINUM VALVE IDENTIFICATION PLATES TO ALL SITE VALVE COLLARS, PER DETAILS "B" & "C" THIS SHEET. REFER TO SHEET C-30 FOR SITE VALVE-SPECIFIC LABELING.
4. ALL MATERIALS SHALL BE WORKING PRESSURE RATED TO AT LEAST THE PRESSURE RATING OF THE PIPE, UNLESS OTHERWISE NOTED.
5. ALL BURIED VALVES SHALL BE COATED WITH FUSION BONDED EPOXY, INTERIOR AND EXTERIOR.
6. NOTE VALVE ENDS SHALL BE FL x FL, MJ x MJ, OR FL x MJ AS INDICATED ON PLANS.
7. APPLY CATHODIC PROTECTION TO ALL BURIED METALLIC PRESSURE-BEARING COMPONENTS LOCATED WITHIN CORROSIVE SOIL ZONES, AS DESIGNATED IN THE PLANS AND/OR SPECIFICATIONS.
8. FLANGES SHALL BE ANSI CLASS 125 (IRON).
9. INSTALL CARSONITE VALVE MARKERS ON BOTH SIDES OF VALVE, 3'-0" FROM CENTER OF VALVE. SEE DETAIL, SHT. DT-2.

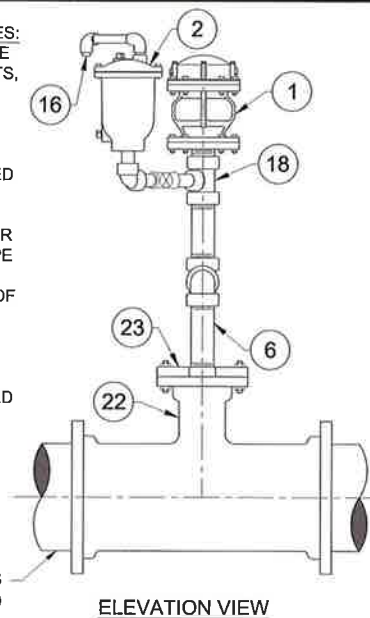


DATE	09/15/2019	BY	09/15/2019
PROJECT	NAVAJO GALLUP WATER SUPPLY PROJECT - REACH 26.3	CLIENT	THE NAVAJO NATION
LOCATION	REACH 26.3, 10 LORREON, NM	DESIGNED	TTTT
SCALE	HORIZ: NONE VERT: N/A	DRAWN	AAV
CHECKED	AGR	PROJECT NO.	6921307
SHEET	DT-6		



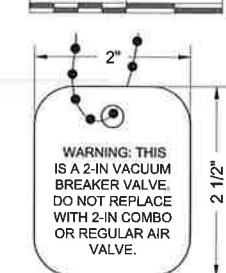
- ALTERNATIVE CONFIGURATION "A" NOTES:**
1. TO BE USED ONLY IN NON-CORROSIVE SOILS, AS INDICATED ON PLAN SHEETS, UNLESS OTHERWISE APPROVED BY ENGINEER.
 2. MUST BE USED FOR ALL VACUUM BREAKER VALVES WITHIN RESTRAINED (FUSIBLE PVC) PIPE SECTIONS.
 3. IN THE EVENT THAT VACUUM BREAKER VALVE INSTALLATION 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 OR EXTERIOR PER SPECIFICATIONS.

PVC WATERLINE AS SHOWN IN PLANS (TYP.)



ALTERNATIVE CONFIGURATION "A"

0' 10' 20'

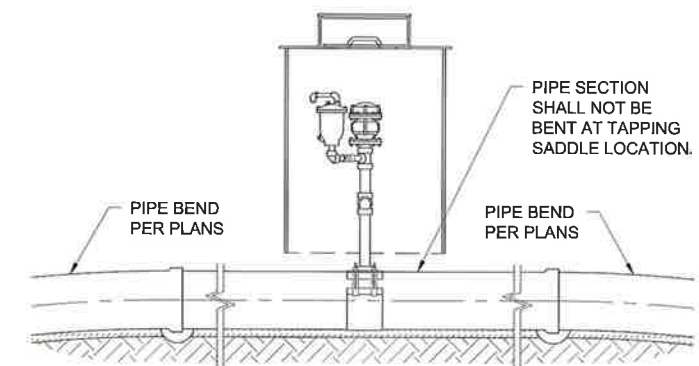
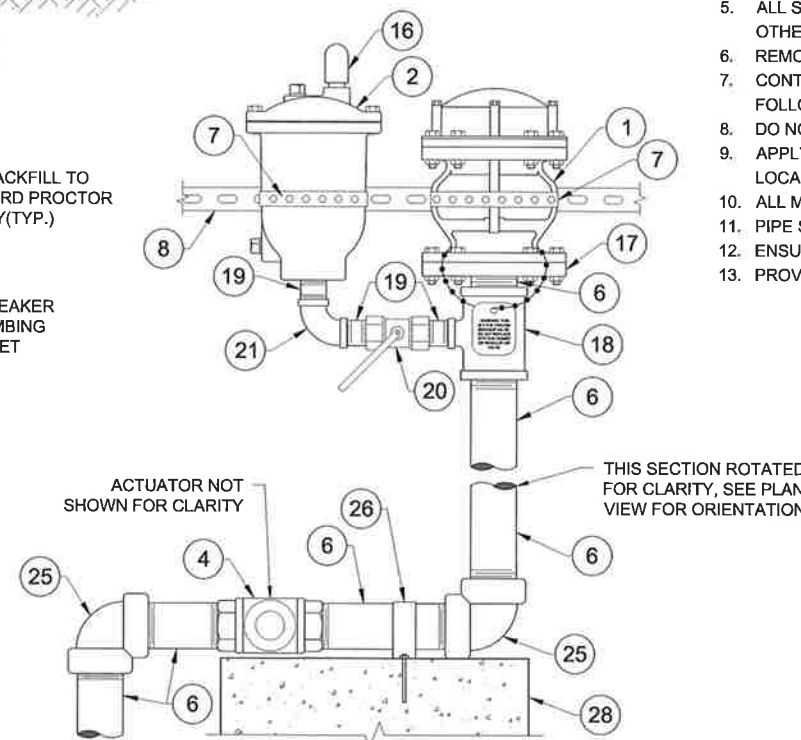
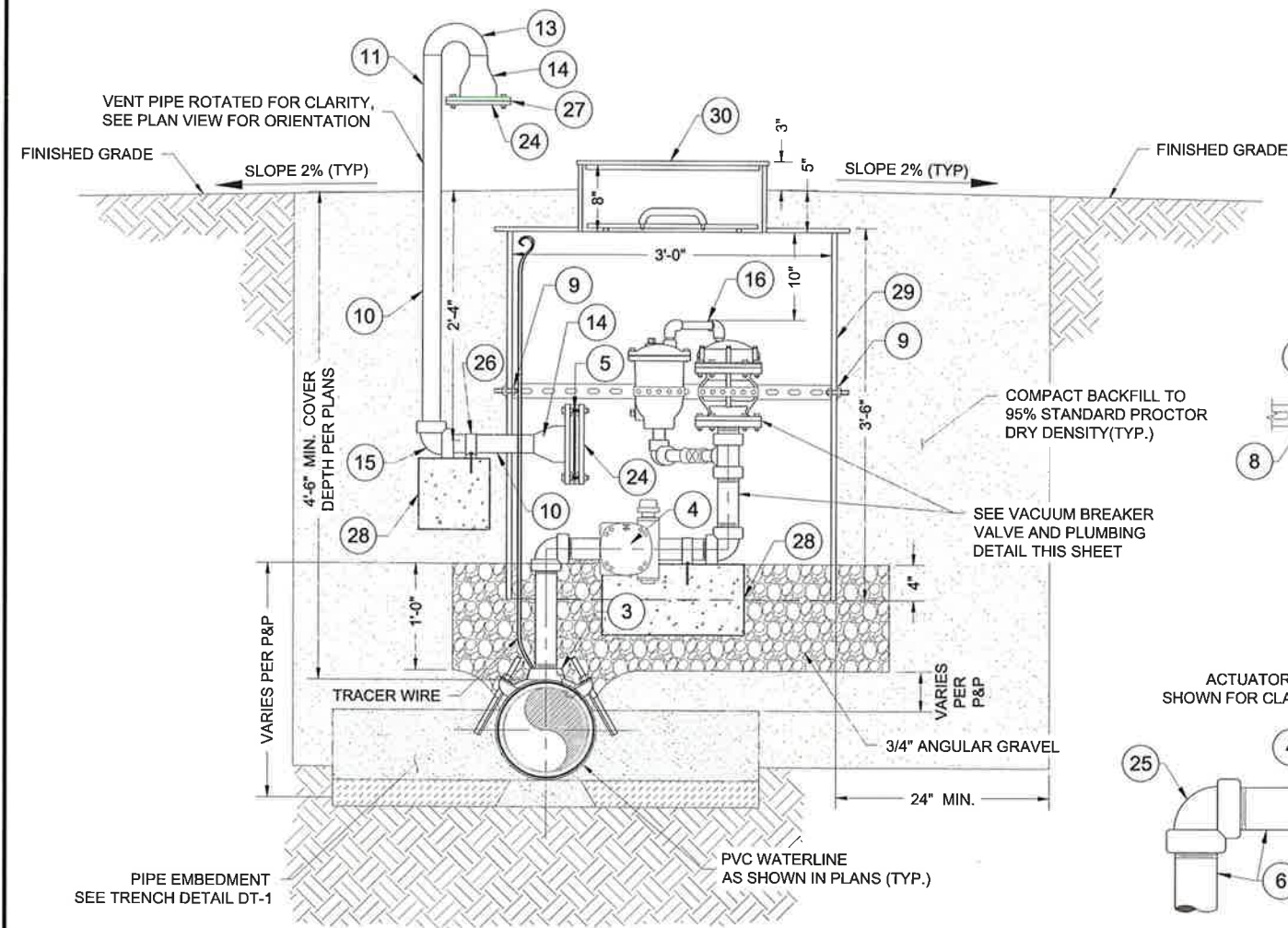


KEYED NOTES - 2" VACUUM BREAKER WITH 1" AIR RELEASE VALVE

Item No.	Description
1	2" VALMATIC MODEL NO. 1852VB.3XFSVH VACUUM BREAKER VALVE W/ SCREENED HOOD, ANSI CLASS 250 FLANGE, 400 psi WP
2	1" VALMATIC MODEL NO. 38HPDISVH AIR RELEASE VALVE, 500 psi WP
3	12" x 2" OR 10" x 2" 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	2" BALL VALVE, SS 304, STANDARD PORT, NPT, W/ AUMA WORM GEARBOX W/ SQUARE OPERATING NUT, 1500 psi
5	4" FREEZE PREVENTION DRAFT DAMPENER. VALMATIC FROSTSAFE MODEL #1504, OAE
6	2" NIPPLE, SS 304, NPT
7	STAINLESS STEEL PERFORATED METAL HANGER STRAP
8	1 5/8" GALVANIZED UNI-STRUT (ADJUST AS NEEDED TO FIT BOTH VALVES AND PIPING)
9	2" SS 304 ANCHOR BOLTS, NUTS AND FENDER WASHERS (2x EACH SIDE)
10	2" STD. GALVANIZED IRON PIPE, THREADED END (PIPE EXTERIOR COLD-APPLIED TAPE COATED)
11	2" STD. GALVANIZED IRON PIPE (PIPE EXTERIOR PAINTED BLUE)
12	NOT USED
13	2" GALVANIZED IRON LONG RADIUS WELDED RETURN (PIPE EXTERIOR PAINTED BLUE)
14	4" FLANGED x 2" WELDED GALVANIZED IRON REDUCER (PIPE EXTERIOR PAINTED BLUE)
15	2" GALVANIZED IRON 90° ELBOW, THREADED (PIPE EXTERIOR COLD-APPLIED TAPE COATED)
16	1/2" DOWN SPOUT W/ SCREEN, SCHEDULE 80 PVC
17	2" FLANGE (THREADED), ANSI CLASS 300, SS 304, FLAT FACE
18	2" x 2" x 1" REDUCING TEE, SS 304, NPT, SCHEDULE 40
19	1" x 2" LENGTH NIPPLE, SS 304, NPT
20	1" BALL VALVE, SS 304, NPT, 2000 psi
21	1" 90° ELBOW, SS 304, NPT, SCHEDULE 40
22	12" x 12" x 4" OR 10" x 10" x 4" MJ x MJ REDUCING TEE, D.I., 350 psi WP
23	4" x 2" TAPPED THREADED MJ PLUG, D.I., 350 psi, FBE COATED
24	4" GALVANIZED IRON COMPANION FLANGE, DRILLED TO FIT
25	2" 90° ELBOW, SS 304, NPT, SCHEDULE 40
26	1" WIDE PIPE STRAP, BOLT TO SUPPORT BLOCK (3" BOLTS)
27	VARMINT SCREEN
28	CONCRETE SUPPORT BLOCK, SOLID 8" x 8" x 16"
29	36" DIA. PLASTIC (METER) PIT WITH REMOVABLE FROST LID
30	20" METER PIT LOCKING COVER(CAST IRON)WITH FROST PROOF INNER LID

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. VACUUM BREAKER 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 VACUUM BREAKER METER BOX LIDS, INFORMATION AS FOLLOWS: PIPE STATION, VALVE SIZE, "VB / 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 VACUUM BREAKER INSTALLATION LOCATIONS, SEE DETAIL THIS SHEET.
12. ENSURE ALL BALL VALVE HANDLES ARE UNIMPEDED THROUGH THEIR FULL RANGE OF MOTION.
13. PROVIDE MIN. 3" HORIZONTAL CLEARANCE ON ALL SIDES AROUND 2" BALL VALVE OPERATING NUT.



CLIENT: The Navajo Nation

TOWN: Reach 26.3 To Tiorron, NM

PROJECT: 2 INCH VACUUM BREAKER WITH 1-INCH AIR RELEASE VALVE DETAIL NAVAJO GALLUP WATER SUPPLY PROJECT - REACH 26.3 SANDOVAL & MCKINLEY COUNTIES, NEW MEXICO

DESIGNED: TTT

DRAWN: AAV

CHECKED: AGR

PROFESSIONAL ENGINEER

NOTICE OF EXTENDED PAYMENT PROVISION: THIS CONTRACT ALLOWS THE OWNER TO MAKE PAYMENT WITHIN 45 DAYS AFTER SUBMISSION OF AN UNDISPUTED REQUEST FOR PAYMENT.

811 Know what's below. Call before you dig.

Date: January 15, 2019

Scale: Horiz: AS SHOWN

Ver: N/A

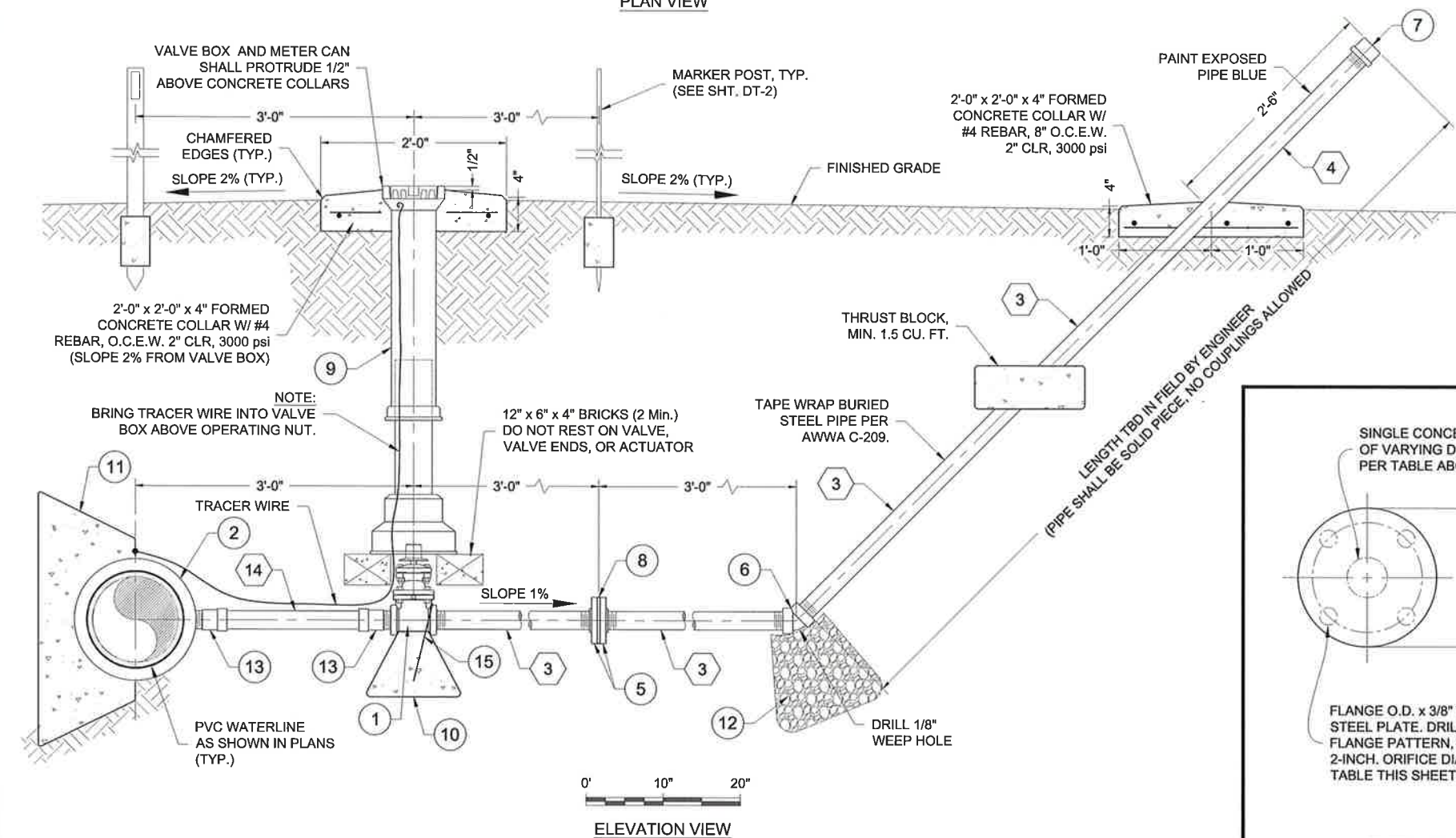
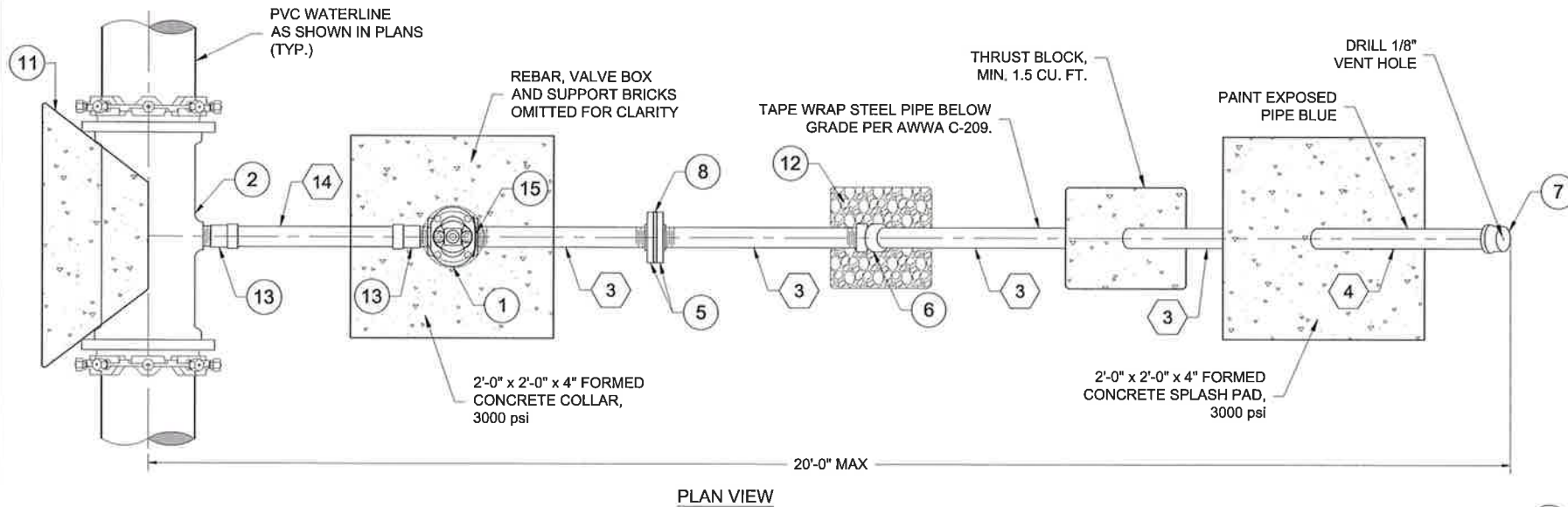
Project No: 6921307

Sheet: DT-7



NOTE:
CONCRETE SHALL BE SCRIBED
PRIOR TO CURING OR ETCHED
AFTER CURING WITH A 4" GRINDER.

COLLAR SCRIBING DETAIL NOT TO SCALE



2" FLUSH VALVE WITH ABOVE-GRADE DISCHARGE DETAIL

KEYED NOTES - 2" FLUSH VALVE WITH ABOVE GRADE DISCHARGE

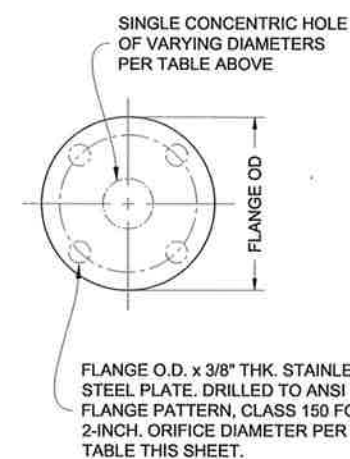
Item No.	DESCRIPTION
1	2" GATE VALVE, FBE COATED, NPT, W/ 2" OPERATING NUT, 250 psi
2	10" x 2" MJ TAPPED TEE, D.I., 350 psi
3	2" G.I. PIPE, STANDARD WALL, NPT, TAPE COATED BELOW GRADE
4	2" G.I. PIPE, STANDARD WALL, NPT, PAINTED BLUE ABOVE GRADE
5	2" G.I.-HUB, FLAT FACED, COMPANION FLANGE, NPT, SS 304, ANSI CLASS 300
6	2" G.I. 45° ELL, NPT, 300 psi
7	2" G.I. CAP, NPT, 300 psi, W/ 1/8" VENT HOLE
8	3/8" THK. STAINLESS STEEL ORIFICE PLATE, ANSI CLASS 300 DRILLING PATTERN (SEE TABLE THIS SHEET FOR ORIFICE SIZE)
9	VALVE BOX SLIP TYPE WITH LOCKING CAST IRON COVER(SEE DETAIL DT-6)
10	1'-0" x 1'-0" x 1'-0" CONCRETE BLOCK, 3000 psi
11	THRUST BLOCK (SEE DETAIL DT-3)
12	ROUNDED ROCK (1.5 CU. YD.)
13	2" ADAPTER, PVC, SLIP-GASKET x NPT, SDR-21, 200 psi
14	2" PVC, SDR-21, 200 psi
15	#4 REBAR RESTRAINT

- NOTES:
- ALL FLANGES SHALL BE ANSI CLASS 300 (STEEL).
 - ALL NON STAINLESS STEEL PIPE AND FITTINGS SHALL BE TWO-PART EPOXY COATED, INTERIOR AND EXTERIOR. ALL NON STAINLESS METALLIC PIPE IN CONTACT WITH SOIL SHALL ALSO BE COLD APPLIED TAPE-COATED PER AWWA C-209 AND SPECIFICATIONS.
 - ORIENTATION AND LOCATION OF OUTLET TO BE DETERMINED IN FIELD BY ENGINEER.
 - APPLY CATHODIC PROTECTION TO ALL BURIED METALLIC WATER-CARRYING COMPONENTS LOCATED WITHIN CORROSIVE SOIL ZONES, AS DESIGNATED IN THE PLANS AND/OR SPECIFICATIONS.
 - ALL STEEL PIPE AND FITTINGS SHALL BE STANDARD WALL.
 - ALL COMPONENTS SHALL REMAIN WITHIN THE 40' PERMANENT RIGHT-OF-WAY.
 - ALL MATERIALS RATED TO AT LEAST MAINLINE PIPE PRESSURE RATING, UNLESS OTHERWISE NOTED.
 - SEE TABLE THIS SHEET FOR ORIFICE PLATE DRILLING AND FLUSH VALVE TYPE REQUIREMENTS.

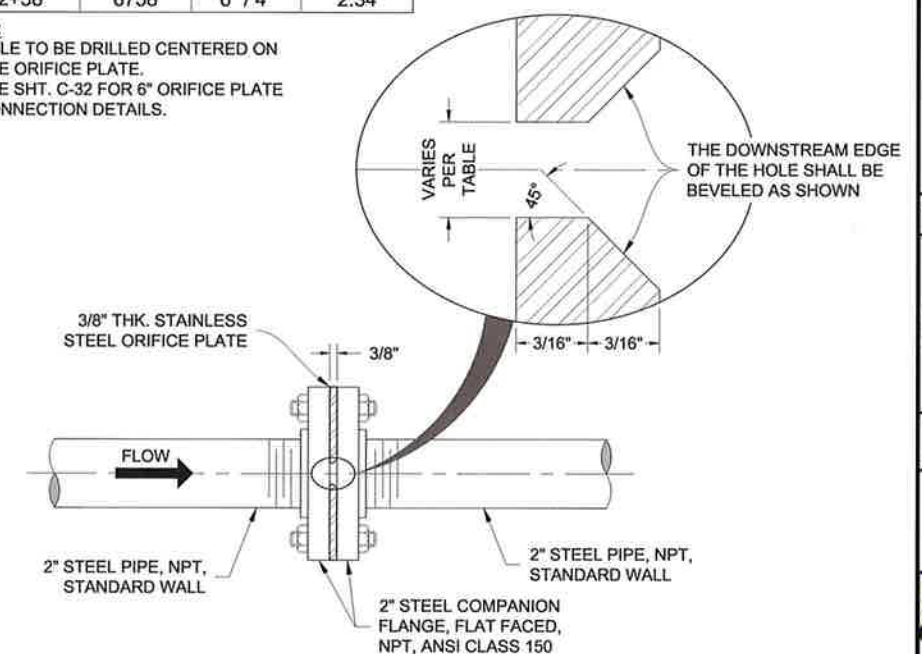
SUMMARY OF FLUSH VALVE ORIFICE PLATE DRILLING

Station	Elevation	Flush Valve Size	Orifice Plate Hole Ø (in.)
51+41	6934	2"	1.46
118+38	6952	2"	1.46
283+09	6818	2"	1.46
382+93	6780	2"	1.46
433+71	6773	2"	1.46
492+58	6758	6" / 4"	2.34

- NOTES:
- HOLE TO BE DRILLED CENTERED ON THE ORIFICE PLATE.
 - SEE SHT. C-32 FOR 6" ORIFICE PLATE CONNECTION DETAILS.



ORIFICE PLATE
NOT TO SCALE



2" FLUSH VALVE
ORIFICE PLATE ASSEMBLY
NOT TO SCALE

Revision

By

Chkd

Description

Date

STA XXX+XX

2" FV/G.I.

NOTE:
CONCRETE SHALL BE SCRIBED
PRIOR TO CURING OR ETCHED
AFTER CURING WITH A 4" GRINDER.

COLLAR SCRIBING DETAIL
NOT TO SCALE

PLAN VIEW

ELEVATION VIEW

2" FLUSH VALVE WITH ABOVE-GRADE DISCHARGE DETAIL

KEYED NOTES - 2" FLUSH VALVE WITH ABOVE GRADE DISCHARGE

SUMMARY OF FLUSH VALVE ORIFICE
PLATE DRILLING

NOTES:

ORIFICE PLATE

ORIFICE PLATE ASSEMBLY

2" FLUSH VALVE

ORIFICE PLATE ASSEMBLY

2" FLUSH VALVE WITH ORIFICE AND
ABOVE-GRADE DISCHARGE DETAIL
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACH 26.3

SANDOVAL & MCKINLEY COUNTIES, NEW MEXICO

CLIENT: The Navajo Nation

TOWN: Reach 26.3 To Torsion, NM

Designed TTT

Drawn AAV

Checked AGR

TORY T. TADANO

NEW MEXICO

21073

1/31/16

REGISTERED PROFESSIONAL ENGINEER

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NOTICE OF EXTENDED
PAYMENT PROVISION:
THIS CONTRACT PROVIDES THE
OWNER TO MAKE PAYMENT
WITHIN 45 DAYS AFTER
SUBMISSION OF
AN UNDISPUTED REQUEST
FOR PAYMENT.

811

Know what's
below.
Call before
you dig.

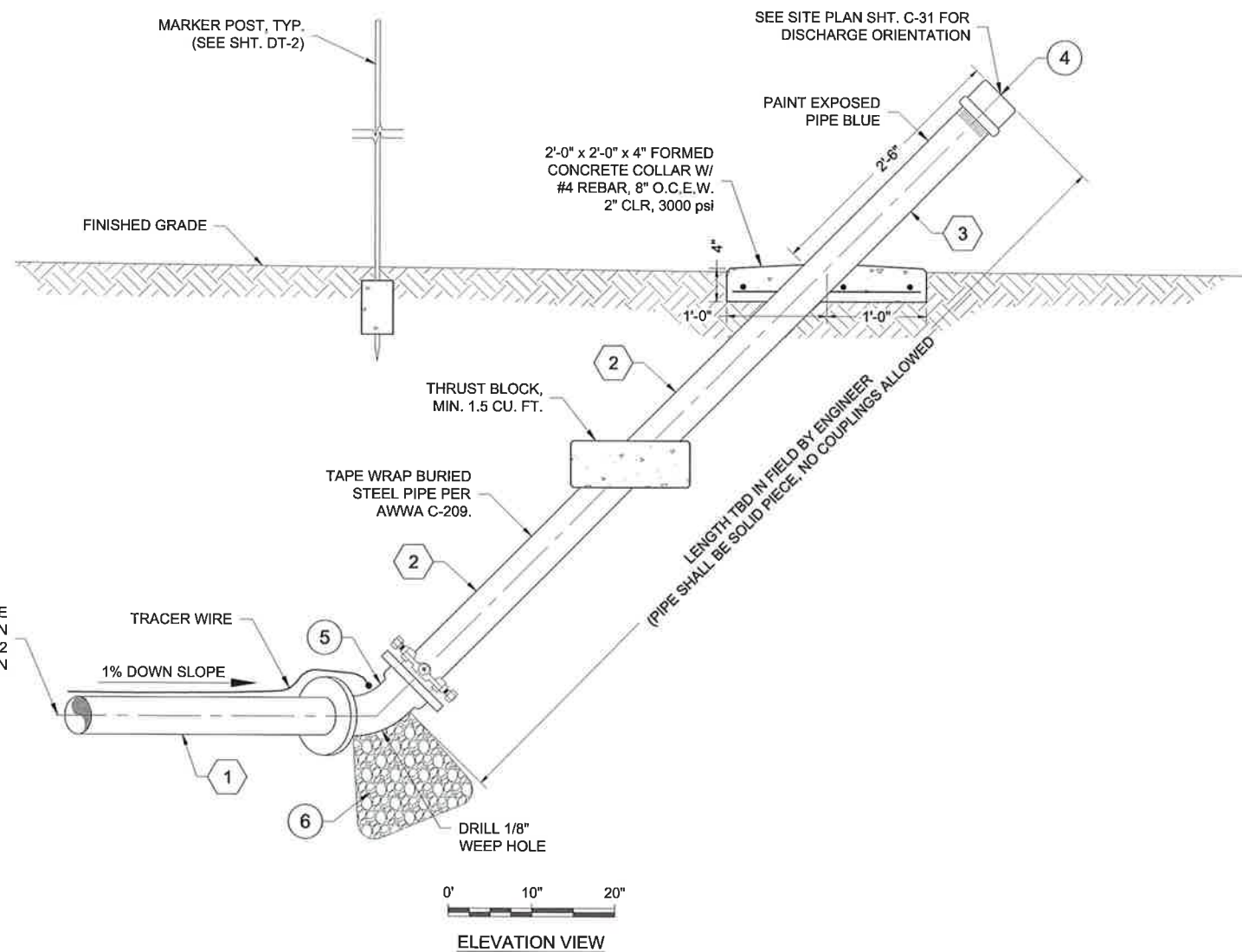
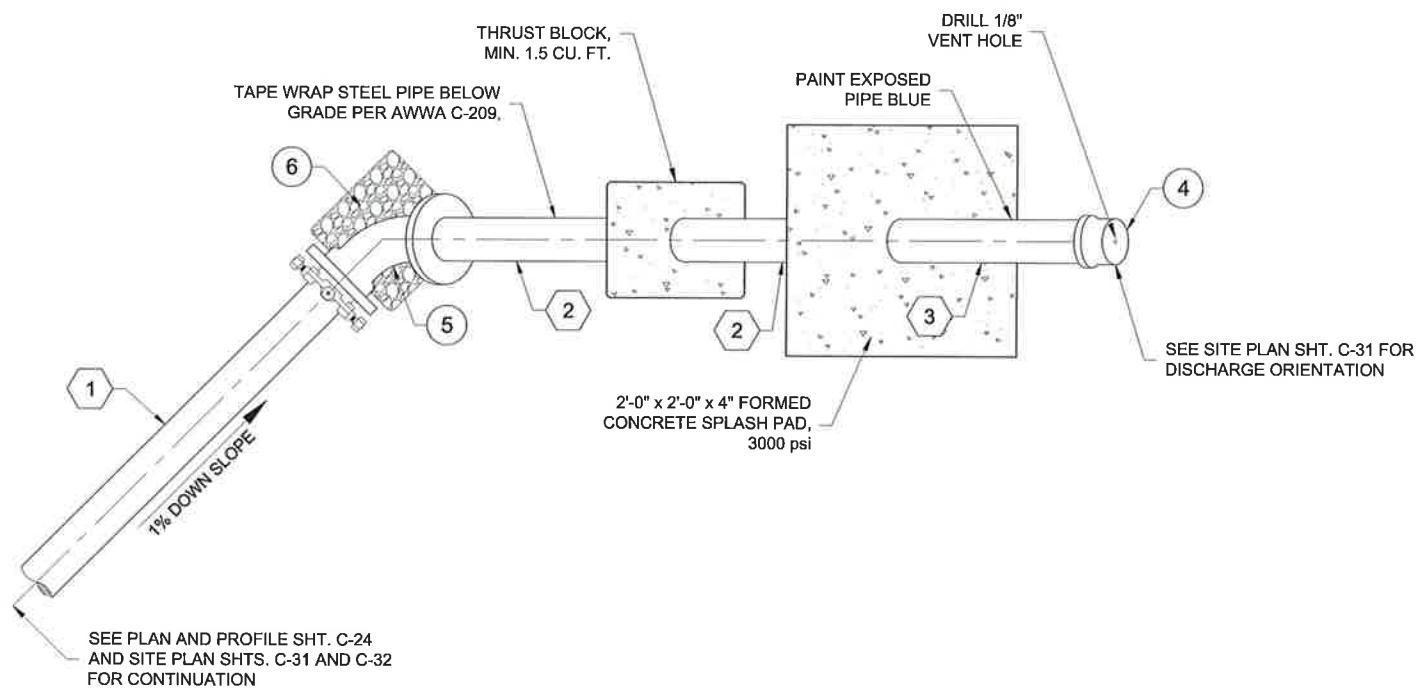
Date: February 1, 2019

Scale: Horiz: AS SHOWN

Vert: N/A

Project No: 6921307

Sheet: DT-8



4" FLUSH VALVE ABOVE-GRADE DISCHARGE DETAIL

KEYED NOTES - 4" FLUSH VALVE ABOVE GRADE DISCHARGE

Item No.	DESCRIPTION
1	4" PVC, DR-18
2	4" G.I. PIPE, STANDARD WALL, PE x NPT, TAPE COATED BELOW GRADE
3	4" G.I. PIPE, STANDARD WALL, PE x NPT, PAINTED BLUE ABOVE GRADE
4	4" G.I. CAP, NPT, 300 psi, W/ 1/8" VENT HOLE
5	4" 45° MJ ELL, D.I., 350 psi (ROTATED 45° TOWARDS FINISHED GRADE)
6	ROUNDED ROCK (1.5 CU. YD.)

NOTES:

1. APPLY CATHODIC PROTECTION TO ALL BURIED METALLIC WATER-CARRYING COMPONENTS LOCATED WITHIN CORROSIVE SOIL ZONES, AS DESIGNATED IN THE PLANS AND/OR SPECIFICATIONS.
2. ALL STEEL PIPE AND FITTINGS SHALL BE STANDARD WALL.
3. ALL COMPONENTS SHALL REMAIN WITHIN THE 40' PERMANENT RIGHT-OF-WAY.
4. ALL MATERIALS RATED TO AT LEAST MAINLINE PIPE PRESSURE RATING, UNLESS OTHERWISE NOTED.
5. MECHANICAL JOINTS OMITTED FROM ISOMETRIC VIEWS FOR CLARITY.

SMA
 SOUDER, MILLER & ASSOCIATES
 5454 VENICE AVENUE NE, SUITE D
 ALBUQUERQUE, NM 87113
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CLIENT: The Navajo Nation
 TOWN: Reach 26.3 To Torreon, NM
4 INCH FLUSH VALVE ABOVE-GRADE DISCHARGE DETAIL
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACH 26.3
 SANDOVAL & MCKINLEY COUNTIES, NEW MEXICO

Designed TTT	Drawn AAV	Checked AGR
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NOTICE OF EXTENDED PAYMENT PROVISION: THIS CONTRACT ALLOWS THE OWNER TO MAKE PAYMENT WITHIN 45 DAYS AFTER SUBMISSION OF AN UNDISPUTED REQUEST FOR PAYMENT.



Date: February 1, 2019

Scale: Horiz: AS SHOWN
Vert: N/A

Project No: 6921307

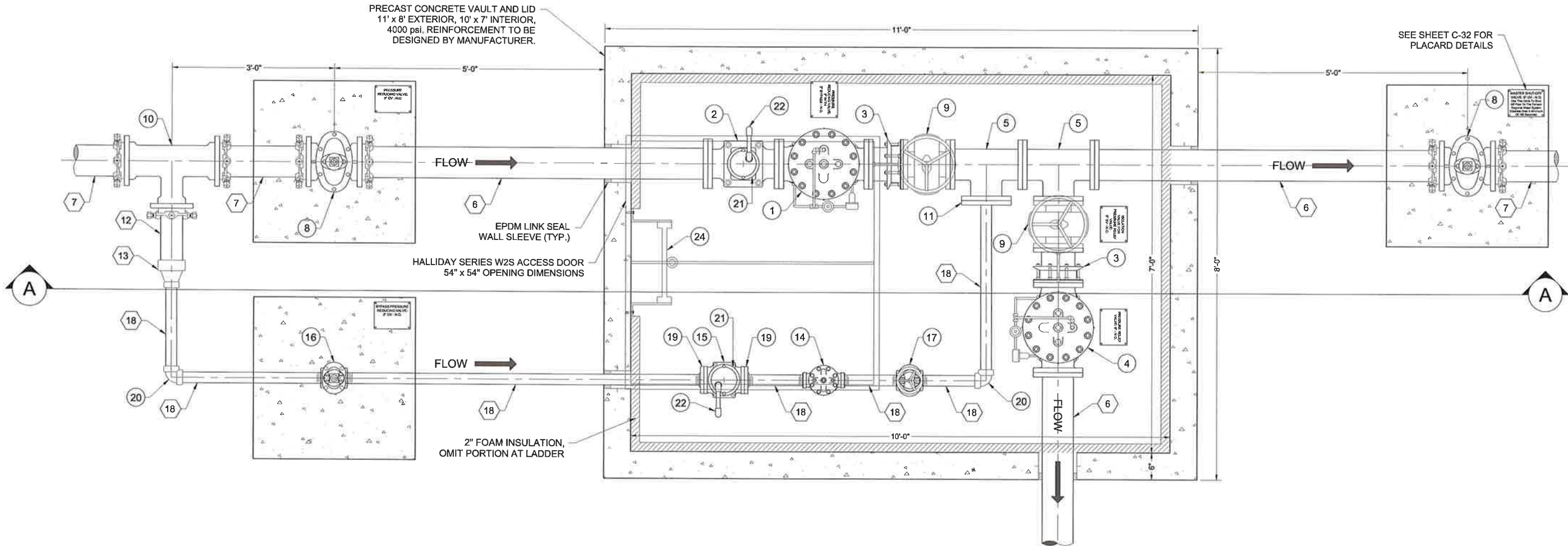
Sheet: DT-9

KEYED NOTES - 6" CONTROL VALVE W/ PRESSURE RELIEF ASSEMBLY VAULT

Item No.	Description
1	6" FL x FL PRESSURE REDUCING VALVE, CLASS 150, 250 psi
2	6" FL x FL H-STYLE STRAINER, CLA-VAL MODEL X43H, CLASS 150, 250 psi
3	6" DISMANTLING JOINT, FBE COATED W/ 304 SS BOLTS, ROMAC MODEL DJ400, CLASS E FLANGE, 275 psi
4	6" FL x FL PRESSURE RELIEF VALVE, CLASS 150, 250 psi
5	6" FL x FL TEE, DI, 350 psi
6	6" FL x PE DUCTILE IRON PIPE, 350 psi
7	6" PVC DR 18 PIPE
8	6" MJ x MJ GATE VALVE, 350 psi (SEE DETAIL, DT-6)
9	6" FL x FL GATE VALVE, 350 psi, HAND WHEEL ACTUATOR
10	6" x 4" MJ REDUCING TEE, DI, 350 psi
11	6" x 2" TAPPED BLIND FLANGE, DI

12	4" PE x NPT G.I. PIPE STANDARD WALL
13	4" x 2" G.I. REDUCER, NPT, 350 psi
14	2" PRESSURE REDUCING VALVE, NPT, 400 psi
15	2" FL x FL H-STYLE STRAINER, CLA-VAL MODEL X43H, CLASS 150, 250 psi
16	2" GATE VALVE, NPT, 350 psi (SEE DETAIL, DT-6)
17	2" GATE VALVE, NPT, 350 psi, HAND WHEEL ACTUATOR
18	2" G.I. PIPE, STANDARD WALL, NPT
19	2" G.I. - HUB, FLAT FACED, COMPANION FLANGE, NPT, SS 304, ANSI CLASS 150
20	2" G.I. 90° ELL, NPT, 350 psi
21	1/2" VALMATIC MODEL NO. 22 AIR RELEASE VALVE, 300 psi WP
22	1/2" DOWN SPOUT W/ SCREEN, SCHEDULE 80 PVC
23	ADJUSTABLE PIPE SUPPORT W/ U-SHAPED CRADLE
24	ALUMINUM LADDER W/ SAFETY POST ANCHORED TO VAULT OPENING AND FLOOR (SHIPPED LOOSE)

- NOTES:
1. ALL MATERIALS RATED TO AT LEAST MAINLINE PIPE PRESSURE RATING, UNLESS OTHERWISE NOTED.
 2. FLANGES SHALL BE ANSI CLASS 125 (IRON).
 3. COIL TRACER WIRE ON INSIDE WALLS OF VAULT.
 4. SOME PIPE SUPPORTS NOT SHOWN FOR CLARITY.
 5. ENSURE ALL BALL VALVE HANDLES ARE UNIMPEDED THROUGH THEIR FULL RANGE OF MOTION.
 6. ALL NON-STAINLESS METALLIC PIPE AND FITTINGS IN CONTACT WITH SOIL SHALL BE COLD APPLIED TAPE WRAPPED PER AWWA C209.
 7. SEE SHEET C-32 FOR PLACARD DETAILS.



PLAN VIEW



6" CONTROL VALVE W/ PRESSURE RELIEF ASSEMBLY VAULT DETAIL

Revision	Date	Description	By	CHKD

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1-800-251-1122 11/23/2018

CLIENT: The Navajo Nation TOWN: Reach 26.3 To Torsion, NM
6 INCH CONTROL VALVE WITH PRESSURE
RELIEF VAULT DETAIL (1 of 2)
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACH 26.3
SANDOVAL & MCKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
TTT	AAV	AGR



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NOTICE OF EXTENDED
PAYMENT PROVISION:
THIS CONTRACT ALLOWS THE
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WITHIN 45 DAYS AFTER
SUBMISSION OF
AN UNDISPUTED REQUEST
FOR PAYMENT



Date:	January 15, 2019
Scale:	Horiz: 1" = 2' Vert: N/A
Project No:	6921307
Sheet:	DT-10

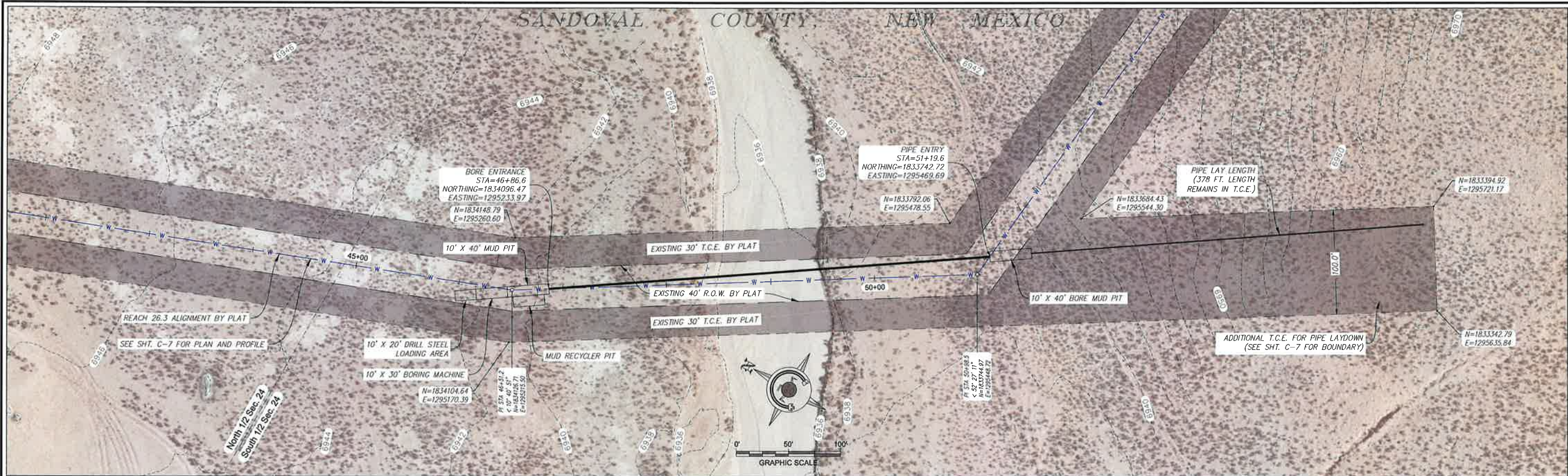
Item No.	Description
1	6" FL x FL PRESSURE REDUCING VALVE, CLASS 150, 250 psi
2	6" FL x FL H-STYLE STRAINER, CLA-VAL MODEL X43H, CLASS 150, 250 psi
3	6" DISMANTLING JOINT, FBE COATED W/ 304 SS BOLTS, ROMAC MODEL DJ400, CLASS E FLANGE, 275 psi
4	6" FL x FL PRESSURE RELIEF VALVE, CLASS 150, 250 psi
5	6" FL x FL TEE, DI, 350 psi
6	6" FL x PE DUCTILE IRON PIPE, 350 psi
7	6" PVC DR 18 PIPE
8	6" MJ x MJ GATE VALVE, 350 psi (SEE DETAIL, DT-6)
9	6" FL x FL GATE VALVE, 350 psi, HAND WHEEL ACTUATOR
10	6" x 4" MJ REDUCING TEE, DI, 350 psi
11	6" x 2" TAPPED BLIND FLANGE, DI

12	4" PE x NPT G.I. PIPE STANDARD WALL
13	4" x 2" G.I. REDUCER, NPT, 350 psi
14	2" PRESSURE REDUCING VALVE, NPT, 400 psi
15	2" FL x FL H-STYLE STRAINER, CLA-VAL MODEL x43H, CLASS 150, 250 psi
16	2" GATE VALVE, NPT, 350 psi (SEE DETAIL, DT-6)
17	2" GATE VALVE, NPT, 350 psi, HAND WHEEL ACTUATOR
18	2" G.I. PIPE, STANDARD WALL, NPT
19	2" G.I. - HUB, FLAT FACED, COMPANION FLANGE, NPT, SS 304, ANSI CLASS 150
20	2" G.I. 90° ELL, NPT, 350 psi
21	1/2" VALMATIC MODEL NO. 22 AIR RELEASE VALVE, 300 psi WP
22	1/2" DOWN SPOUT W/ SCREEN, SCHEDULE 80 PVC
23	ADJUSTABLE PIPE SUPPORT W/ U-SHAPED CRADLE
24	ALUMINUM LADDER W/ SAFETY POST ANCHORED TO VAULT OPENING AND FLOOR (SHIPPED LOOSE)

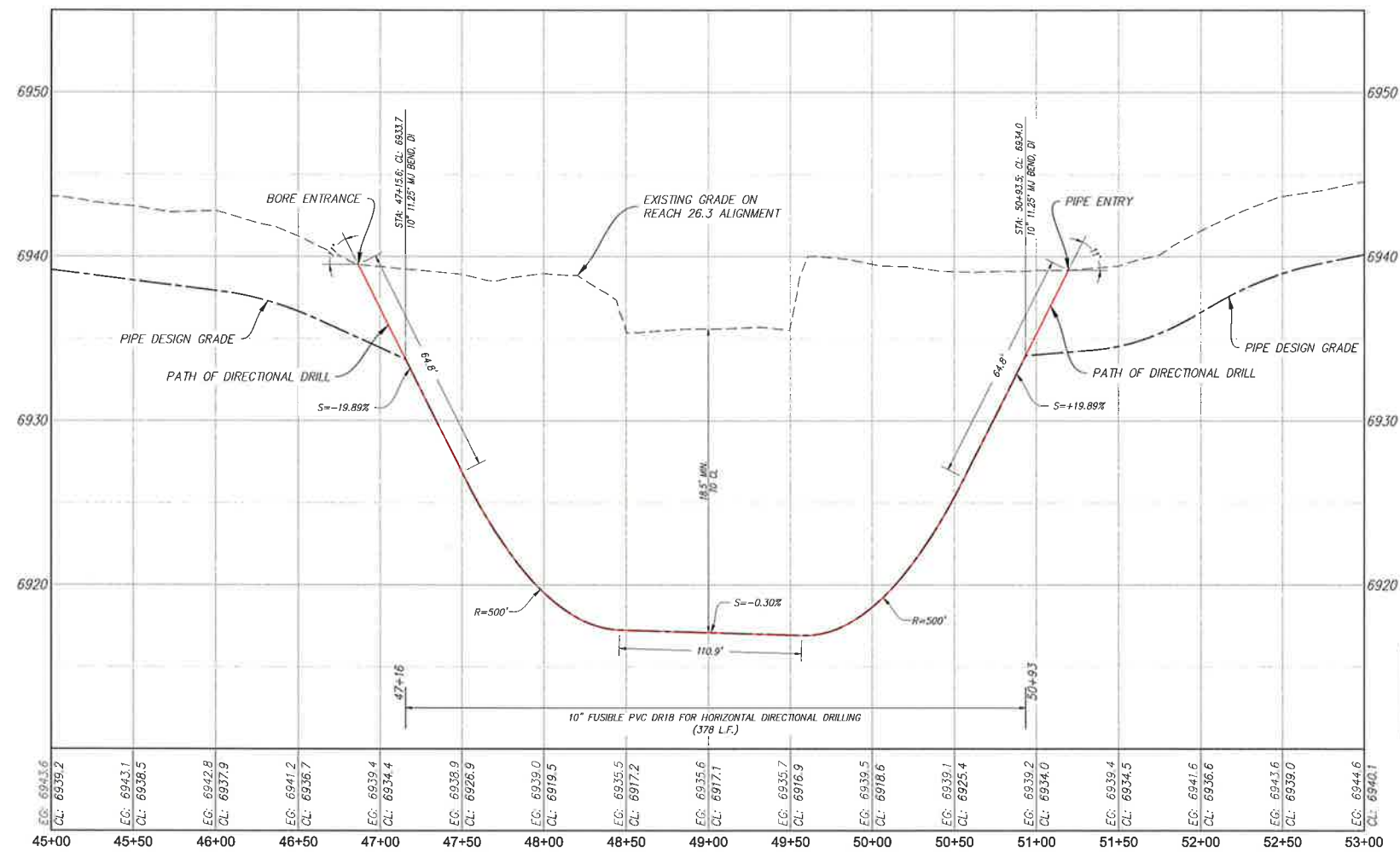
1. ALL MATERIALS RATED TO AT LEAST MAINLINE PIPE PRESSURE RATING, UNLESS OTHERWISE NOTED.
2. FLANGES SHALL BE ANSI CLASS 125 (IRON).
3. COIL TRACER WIRE ON INSIDE WALLS OF VAULT.
4. SOME PIPE SUPPORTS NOT SHOWN FOR CLARITY.
5. ENSURE ALL BALL VALVE HANDLES ARE UNIMPEDED THROUGH THEIR FULL RANGE OF MOTION.
6. ALL NON-STAINLESS METALLIC PIPE AND FITTINGS IN CONTACT WITH SOIL SHALL BE COLD APPLIED TAPE WRAPPED PER AWWA C209.
7. SEE SHEET C-32 FOR PLACARD DETAILS.



6" CONTROL VALVE W/ PRESSURE RELIEF ASSEMBLY VAULT DETAIL



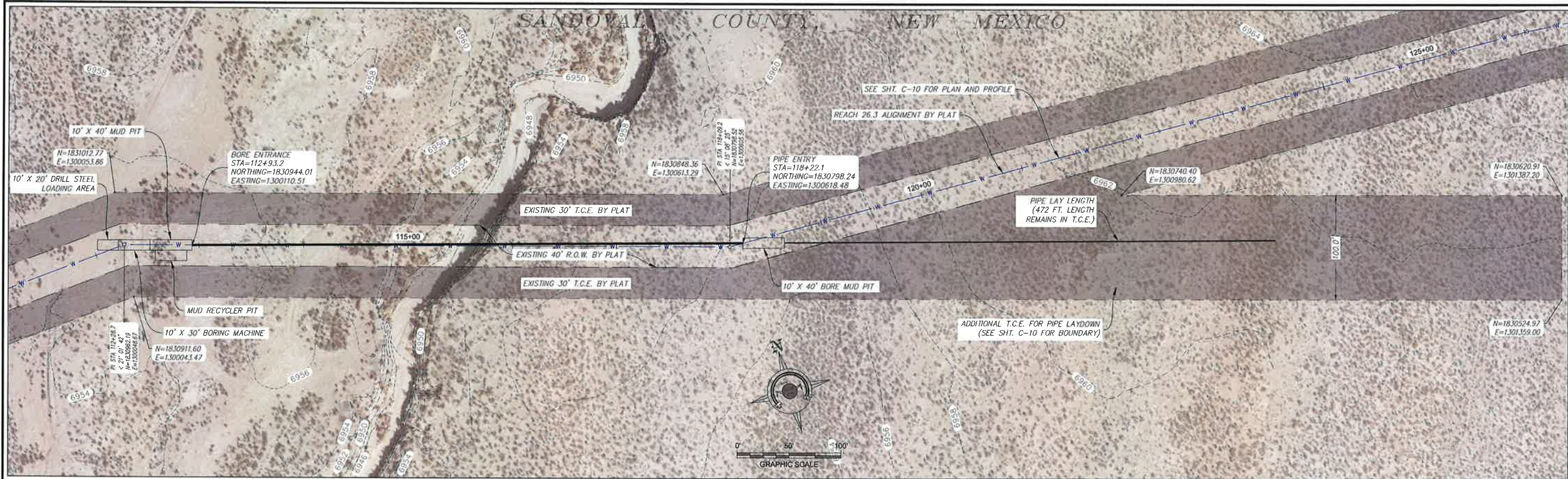
PLAN VIEW



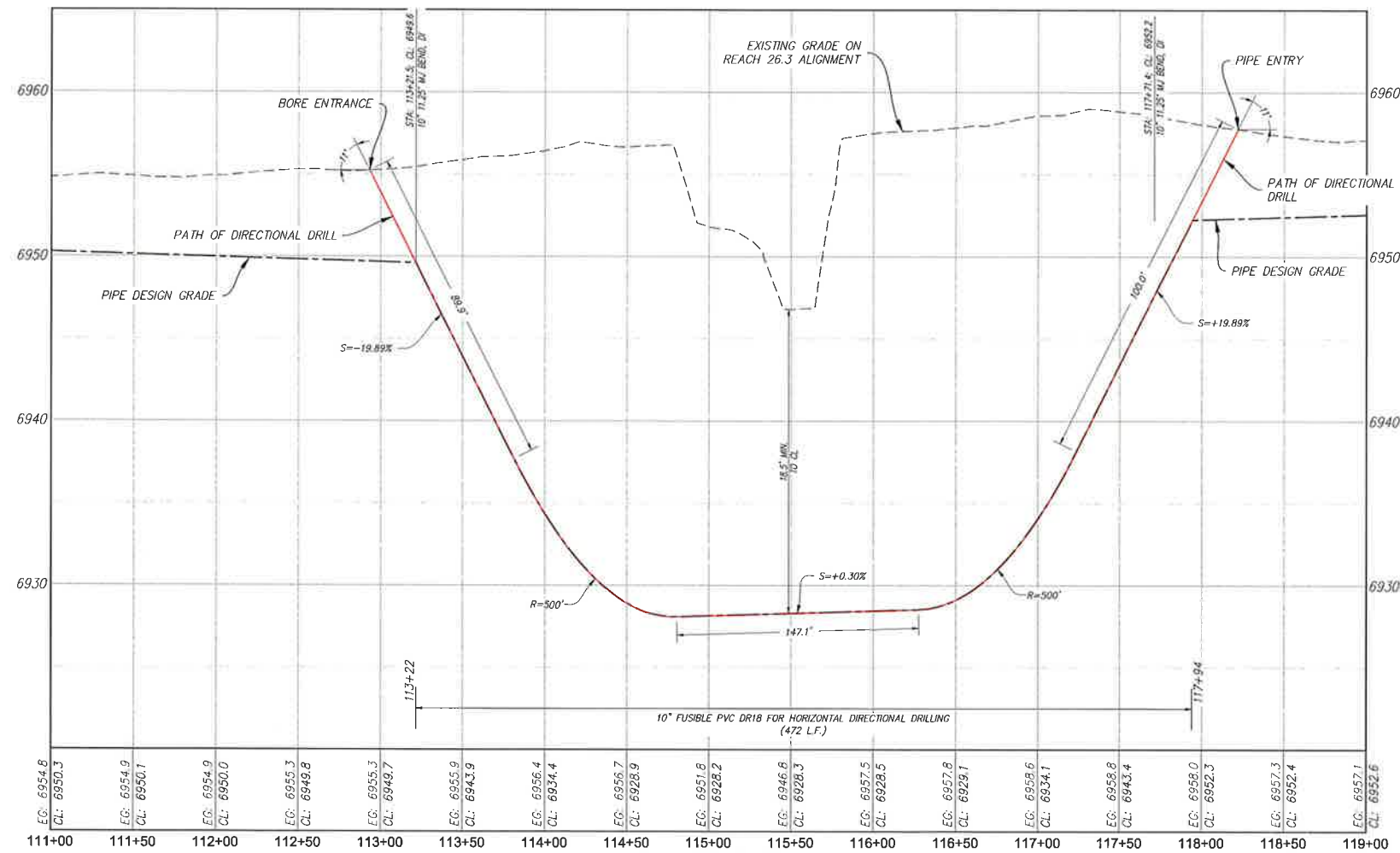
PROFILE VIEW
SCALE: HORIZ. 1" = 100'
SCALE: VERT. 1" = 10'

- NOTES:
1. MINIMUM ALLOWABLE BEND RADIUS = 500'
 2. FUSIBLE PVC PIPE TO BE PRESSURE TESTED ABOVE GROUND PRIOR TO INSTALLATION PER TECHNICAL SPECIFICATIONS.

SMA Souder, Miller & Associates 5454 VENICE AVENUE NE, SUITE D ALBUQUERQUE, NM 87113 Phone: (505) 299-0942 Toll-Free: (877) 299-0942 Fax: (505) 299-3430 www.soudermiller.com Serving the Southwest & Rocky Mountains Albuquerque, Carlsbad, Hobbs, Farmington, Las Cruces, Roswell, Santa Fe, NM Cortez, Grand Junction, CO - Safford, AZ - Moab, UT - B. Paso, TX 2/20/2019 11:23:19 AM	Revision: Date: Description: By: CHK'd:
	CLIENT: The Navajo Nation TOWN: Reach 26.3 To Torreon, NM PROJECT: WASH CROSSING STA 49+00 PIPELINE HDD DETAIL NAVAJO GALLUP WATER SUPPLY PROJECT - REACH 26.3 SANDOVAL & MCKINLEY COUNTIES, NEW MEXICO
Designed: TTT Drawn: AAV Checked: AGR	811 Know what's below. Call before you dig.
Date: February 1, 2019 Scale: Horiz: 1" = 100' Vert: 1" = 10' Project No: 6921307 Sheet: DT-12	



PLAN VIEW



PROFILE VIEW
SCALE: HORIZ. 1" = 100'
SCALE: VERT. 1" = 10'

- NOTES:
1. MINIMUM ALLOWABLE BEND RADIUS = 500'
 2. FUSIBLE PVC PIPE TO BE PRESSURE TESTED ABOVE GROUND PRIOR TO INSTALLATION PER TECHNICAL SPECIFICATIONS.

Revision	Date	Description	By	Check

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3/15/2016 11:23:33 AM

CLIENT: The Navajo Nation
TOWN: Reach 26.3 To Torreon, NM

WASH CROSSING STA 115+55
PIPELINE HDD DETAIL
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACH 26.3
SANDOVAL & MCKINLEY COUNTIES, NEW MEXICO

Designed: TTT
Drawn: AAV
Checked: AGR

TORY T. TADANO
NEW MEXICO
21073
1/19/14
REGISTERED PROFESSIONAL ENGINEER

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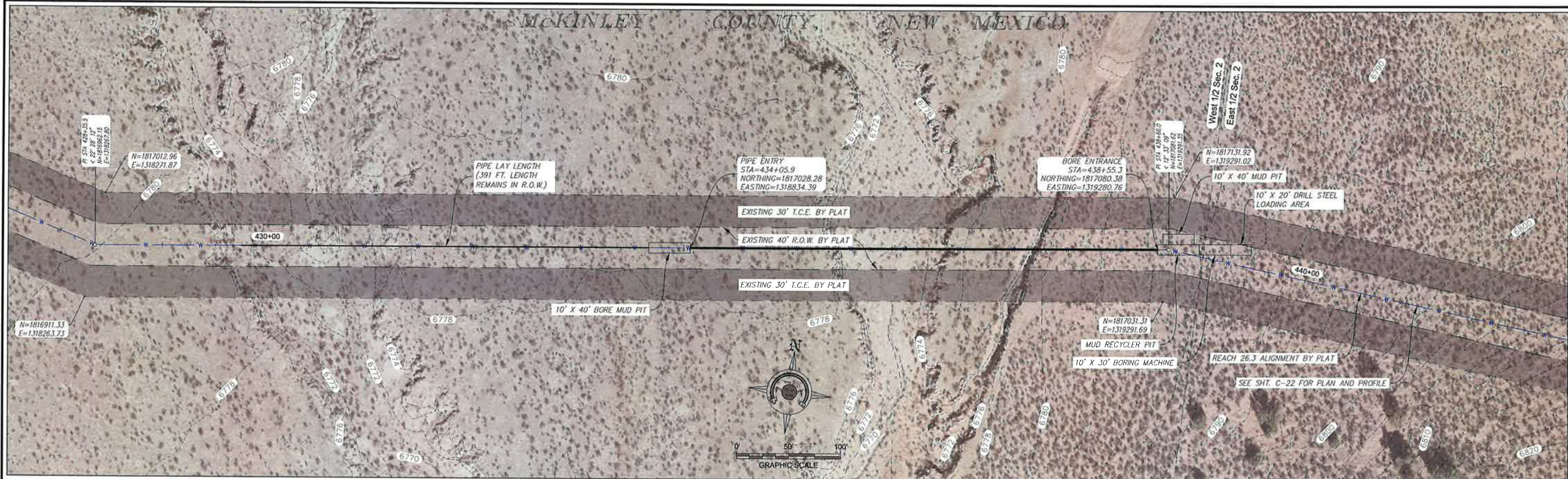
NOTICE OF EXTENDED PAYMENT PROVISION:
THIS CONTRACT ALLOWS THE OWNER TO MAKE PAYMENT WITHIN 45 DAYS AFTER SUBMISSION OF AN UNDISPUTED REQUEST FOR PAYMENT.

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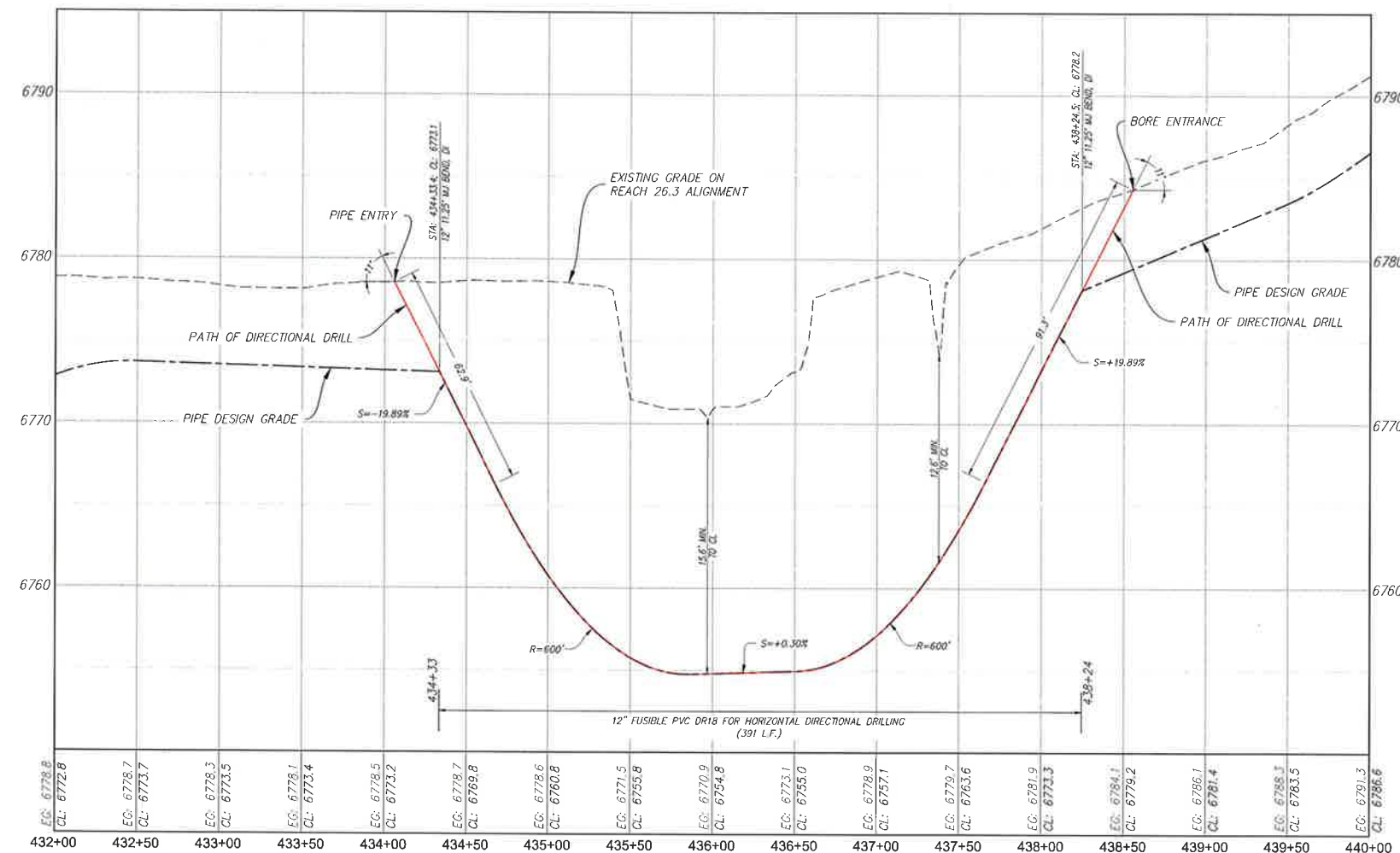
Date: February 1, 2019
Scale: Horiz: 1" = 100'
Vert: 1" = 10'

Project No: 6921307
Sheet: DT-13

McKINLEY COUNTY, NEW MEXICO



PLAN VIEW



PROFILE VIEW

SCALE: HORIZ. 1" = 100'
SCALE: VERT. 1" = 10'

- NOTES:
1. MINIMUM ALLOWABLE BEND RADIUS = 500'
 2. FUSIBLE PVC PIPE TO BE PRESSURE TESTED ABOVE GROUND PRIOR TO INSTALLATION PER TECHNICAL SPECIFICATIONS.

Revision	Date	Description	By	Check

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Cortez, Grand Junction, CO - Salt Lake, UT - El Paso, TX

CLIENT: The Navajo Nation TOWN: Reach 26.3 To Torreon, NM
WASH CROSSING STA 435+97
PIPELINE HDD DETAIL
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACH 26.3
SANDOVAL & MCKINLEY COUNTIES, NEW MEXICO

Designed: TTT Drawn: AAV Checked: AGR

TORY T. TADANO
NEW MEXICO
21073
1/31/14
REGISTERED PROFESSIONAL ENGINEER

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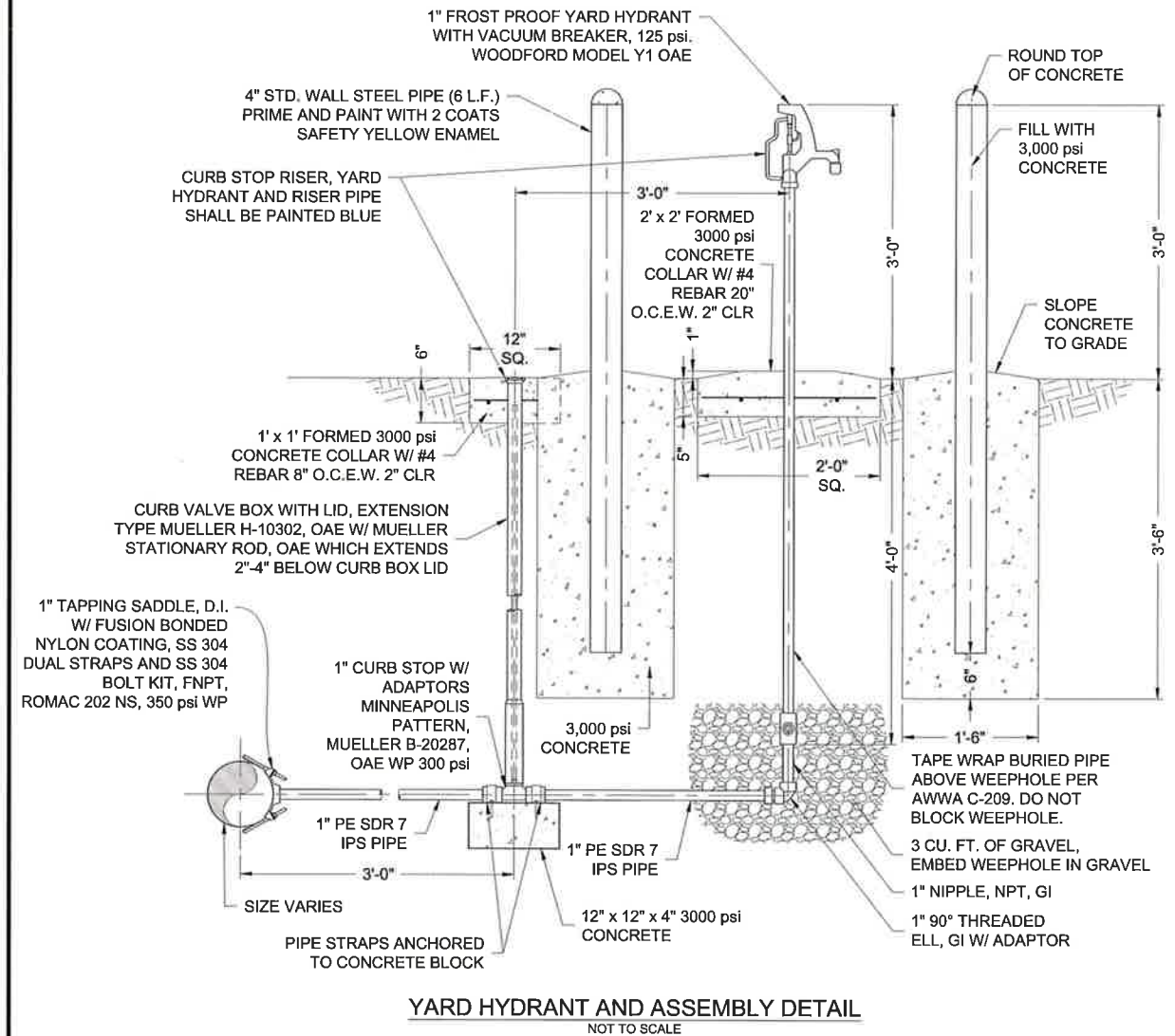
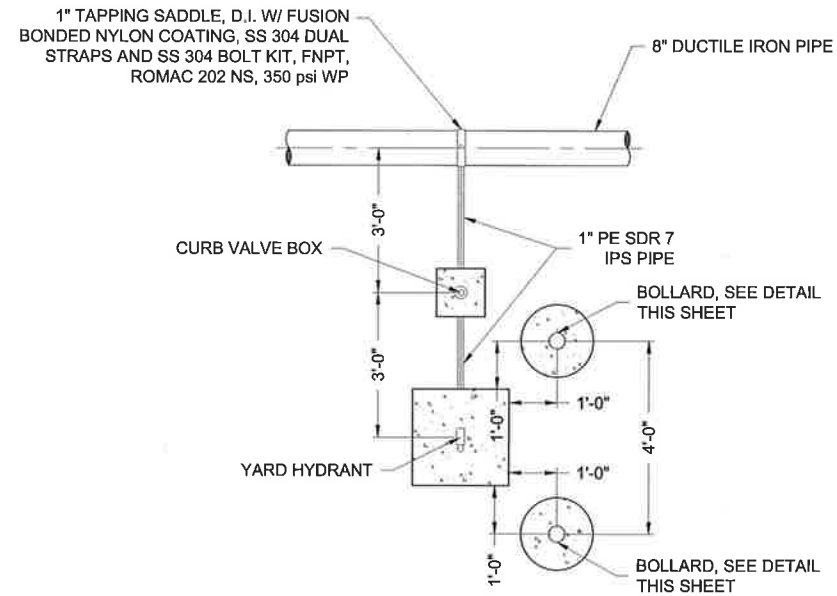
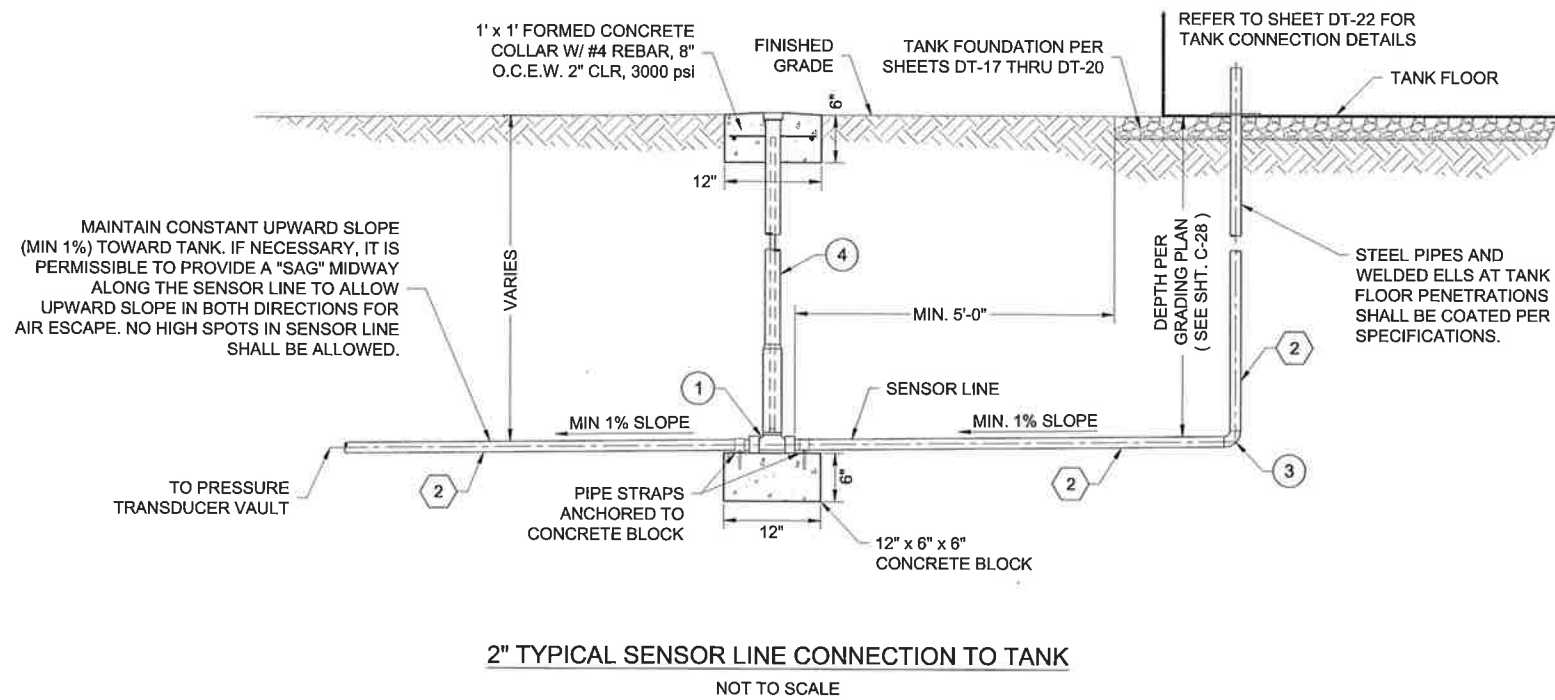
Date: February 1, 2019
Scale: Horiz: 1" = 100'
Vert: 1" = 10'
Project No: 6921307
Sheet: DT-14

KEYED NOTES - 2" SENSOR LINE CONNECTION

Item No.	Description
1	2" BALL CURB VALVE, FNPT, MINNEAPOLIS PATTERN, MUELLER B-20287, OAE WP 300 psi, OAE (COVER PAINTED BLUE)
2	2" STEEL PIPE, NPT, SCHEDULE 40 (SEE NOTE #2, THIS SHEET)
3	2" 90° ELL, WELDED STEEL (SEE NOTE #2, THIS SHEET)
4	CURB STOP BOX, EXTENSION TYPE MUELLER H-10302, OAE W/ MUELLER STATIONARY ROD WHICH EXTENDS 2"-4" BELOW CURB BOX LID, TOP PAINTED BLUE

NOTES:

- ALL MATERIALS, FITTINGS, AND APPURTENANCES SHALL BE RATED TO AT LEAST 150 psi, UNLESS OTHERWISE NOTED.
- FOR USE WITH WELDED TANKS, STEEL PIPES AND FITTINGS SHALL BE INTERIOR COATED SAME AS TANK INTERIOR AND EXTERIOR COATED WITH COAL TAR EPOXY. FOR USE WITH GLASS FUSED TANKS, STEEL PIPES AND FITTINGS SHALL BE SS 304. ALL NON-STAINLESS METALLIC PIPE AND WELDED FITTINGS SHALL BE COLD-APPLIED TAPE-COATED, PER SPECIFICATIONS.
- ALL STEEL PIPE AND FITTINGS SHALL BE STANDARD WALL, UNLESS OTHERWISE NOTED.



Revision	Date	Description	By	CHKD

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ALBUQUERQUE, NM 87113
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1/18/2019 11:02:29 AM

CLIENT: The Navajo Nation TOWN: Reach 26.3 To Tarron, NM

SENSOR LINE & YARD HYDRANT DETAILS
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACH 26.3
SANDOVAL & MCKINLEY COUNTIES, NEW MEXICO

Designed TTT	Drawn AAV	Checked AGR
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NOTICE OF EXTENDED PAYMENT PROVISION: THIS CONTRACT ALLOWS THE OWNER TO MAKE PAYMENT WITHIN 45 DAYS AFTER SUBMISSION OF AN UNDISPUTED REQUEST FOR PAYMENT.

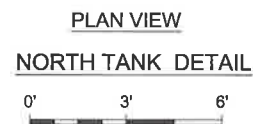


Date: January 18, 2019
Scale: Horiz: AS SHOWN
Vert: N/A

Project No: 6921307

Sheet: DT-16

1. FOUNDATION AND TANK STRUCTURAL DESIGN DRAWINGS AND CALCULATIONS (SEALED BY NEW MEXICO-LICENSED PROFESSIONAL ENGINEER) TO BE PROVIDED BY TANK MANUFACTURER. FOUNDATION SHALL BE EITHER CONCRETE OR STEEL RING, BASED ON LICENSED TANK MANUFACTURER'S DESIGN.
2. FOUNDATIONS SHOWN IN DRAWING ARE FOR REFERENCE ONLY. DIAMETER OF FOUNDATION TO BE BASED ON TANK MANUFACTURER'S P.E.'s DESIGNED FOUNDATION.
3. SUB-FOUNDATION PER GEOTECHNICAL INVESTIGATION REPORT (REFER TO GEOTEST REPORT NO. 1-71108 DATED 1-8-2018).
4. TANK COLOR SHALL BE CARLSBAD CANYON TAN.
5. TANK APPURTENANCES SHOWN IN ELEVATION VIEW HAVE BEEN ROTATED INTO VIEW FOR DEPICTION PURPOSES.
6. IF WELDED STEEL TANKS ARE USED, ALL BURIED STEEL PIPE, WELDED FITTINGS AND OTHER COMPONENTS SHALL BE EXTERIOR COATED W/ COAL TAR EPOXY AND COLD APPLIED TAPE COATING PER SPECIFICATIONS, AND INTERIOR COATED TO MATCH TANK INTERIOR SIDE WALL.
- 6A. IF GLASS-FUSED STEEL TANKS ARE USED, ALL 8-INCH STEEL PIPE AND FITTINGS SHALL COLD APPLIED TAPE WRAPPED PER SPECIFICATIONS, ALL 2-INCH STEEL PIPES AND FITTINGS SHALL BE SS 304.
7. WITHIN 5' OF TANK FOUNDATION ALL PIPE SHALL BE STEEL. ALL STEEL PIPE AND FITTINGS UNDERNEATH AND WITHIN 5' OF TANKS OR BUILDINGS SHALL BE SHOP WELDED AND COATED, X-RAY TESTED AND PRESSURE TESTED PRIOR TO POURING FOUNDATIONS. SHOP COATING SHALL BE APPLIED AFTER WELDING.
8. ALL STEEL PIPE AND FITTINGS SHALL BE STANDARD WALL UNLESS OTHERWISE NOTED.
9. ALL BASE AND OVERFLOW-ELEVATIONS PROVIDED IN THESE DRAWINGS ARE APPROXIMATE. CONTRACTOR SHALL FIELD SURVEY ELEVATION OF OVERFLOW WEIRS AND ENSURE BOTH TANK'S WEIR ELEVATIONS MATCH WITHIN A TOLERANCE OF 1/2 INCHES.
10. ALL STEEL PIPE FLANGES SHALL BE ANSI CLASS 150.
11. EXACT ORIENTATION OF ALL TANK FEATURES AND PIPE PENETRATIONS TO BE DETERMINED IN THE FIELD BY THE ENGINEER. TANK MANUFACTURER SHALL CONFIRM ALL LOCATIONS W/ ENGINEER PRIOR TO FABRICATION. SOME FEATURES MAY BE ROTATED IN ELEVATION VIEW FOR CLARITY.
12. FOUNDATION AND FLOOR SLOPE UPWARDS 1% TOWARD CENTER TO PREVENT "OILCANNING".
13. ALL SITE-CAST CONCRETE SHALL BE MADE WITH TYPE V (ALKALI RESISTIVE) CEMENT AND SHALL ATTAIN A MINIMUM COMPRESSIVE STRENGTH OF 3,000 psi WITHIN 28 DAYS. THE MIX DESIGN SHOULD INCLUDE 5% (±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.

[illegible]

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NORTH TANK DETAILS (1 of 2)
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACH 26.3
SANDOVAL & MCKINLEY COUNTIES, NEW MEXICO

Designed TTT	Drawn AAV	Checked AGR
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THIS DRAWING IS INCOMPLETE
AND NOT TO BE USED FOR
CONSTRUCTION UNLESS IT IS
STAMPED, SIGNED AND DATED

**NOTICE OF EXTENDED
PAYMENT PROVISION:**
THIS CONTRACT ALLOWS THE
OWNER TO MAKE PAYMENT
WITHIN 45 DAYS AFTER
SUBMISSION OF
AN UNDISPUTED REQUEST
FOR PAYMENT.



Date: January 25, 2019

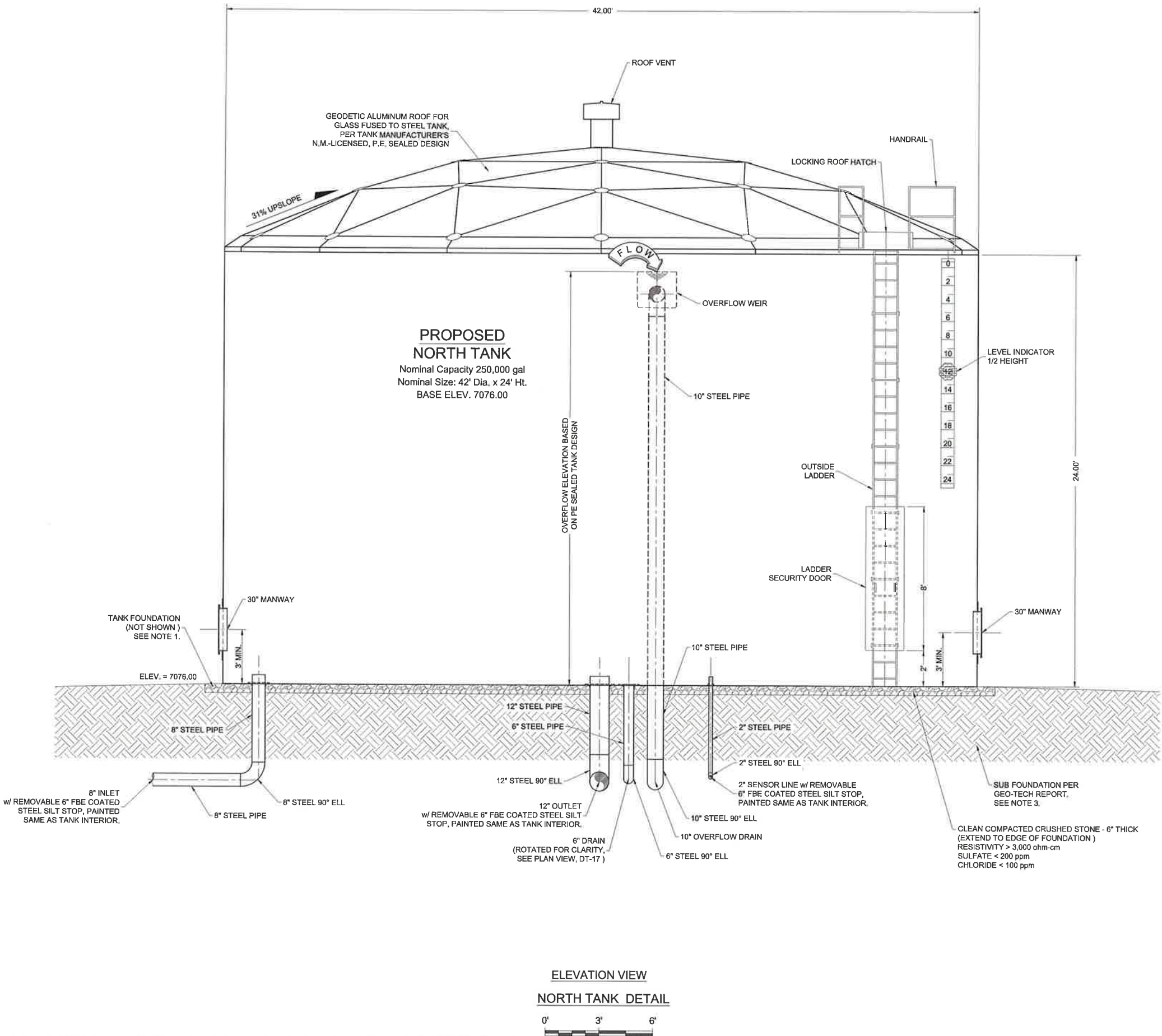
Scale: Horiz: 1" = 6'
Vert: N/A

Project No: 6921307

Sheet: DT-17

NOTES:

1. FOUNDATION AND TANK STRUCTURAL DESIGN DRAWINGS AND CALCULATIONS (SEALED BY NEW MEXICO-LICENSED PROFESSIONAL ENGINEER) TO BE PROVIDED BY TANK MANUFACTURER. FOUNDATION SHALL BE EITHER CONCRETE OR STEEL RING, BASED ON LICENSED TANK MANUFACTURER'S DESIGN.
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ELEVATION VIEW
NORTH TANK DETAIL

0' 3' 6'

Revision	Date	Description	By	Chkd

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1/25/2019 1:54:14 AM sm

CLIENT: The Navajo Nation TOWN: Reach 26.3 To Torreon, NM

NORTH TANK DETAILS (2 of 2)
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACH 26.3
SANDOVAL & MCKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
TTT	AAV	AGR

TORY T. YADANO
NEW MEXICO
21073
LICENSED PROFESSIONAL ENGINEER

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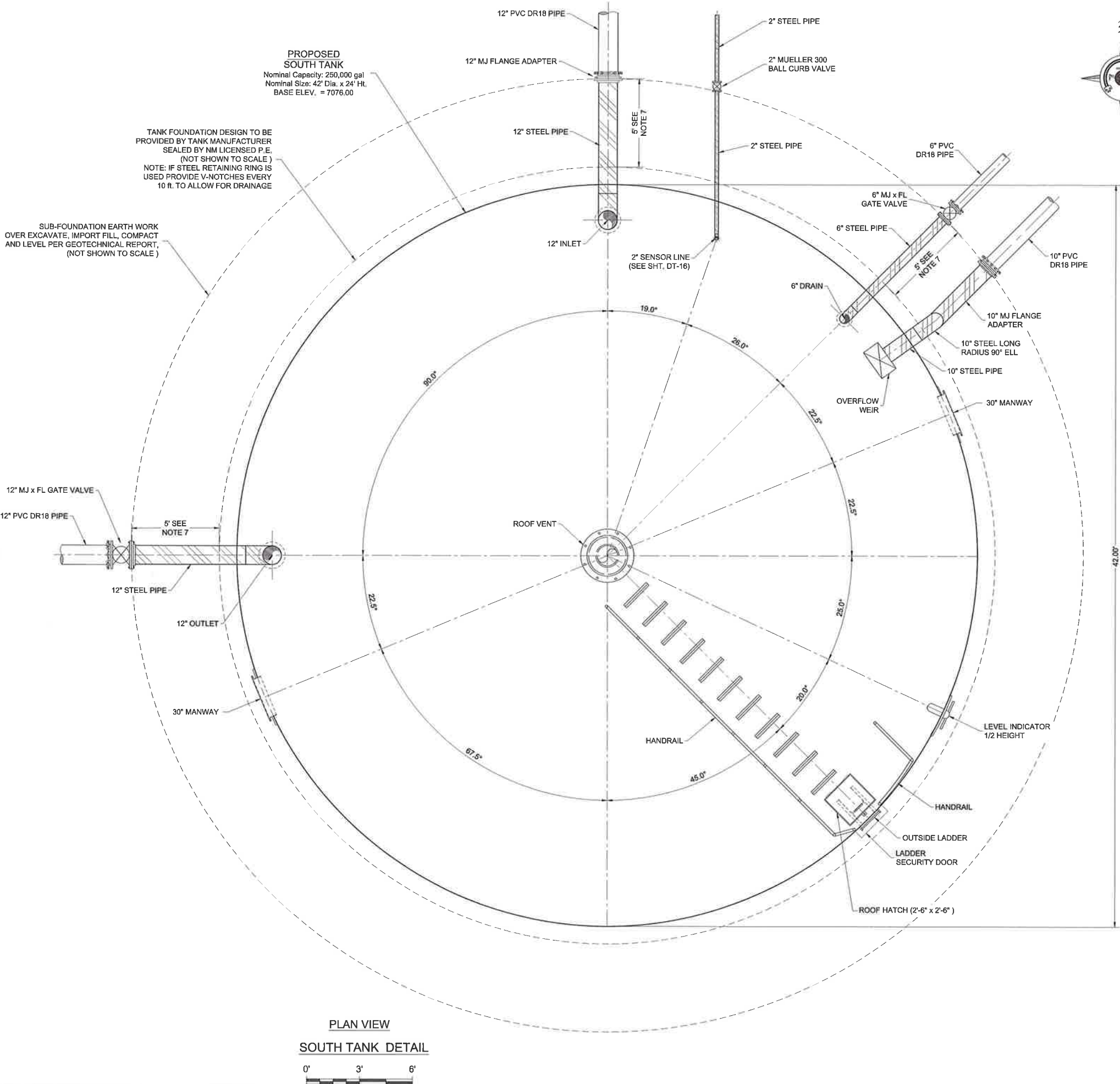
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811 Know what's below. Call before you dig.

Date: January 25, 2019
Scale: Horiz: 1" = 6'
Vert: N/A
Project No: 6921307
Sheet: **DT-18**

NOTES:

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Revision	Date	Description	By	Chkd

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CLIENT: The Navajo Nation TOWN: Reach 26.3 To Torreon, NM

SOUTH TANK DETAILS (1 of 2)
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACH 26.3
SANDOVAL & MCKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
TTT	AAV	AGR



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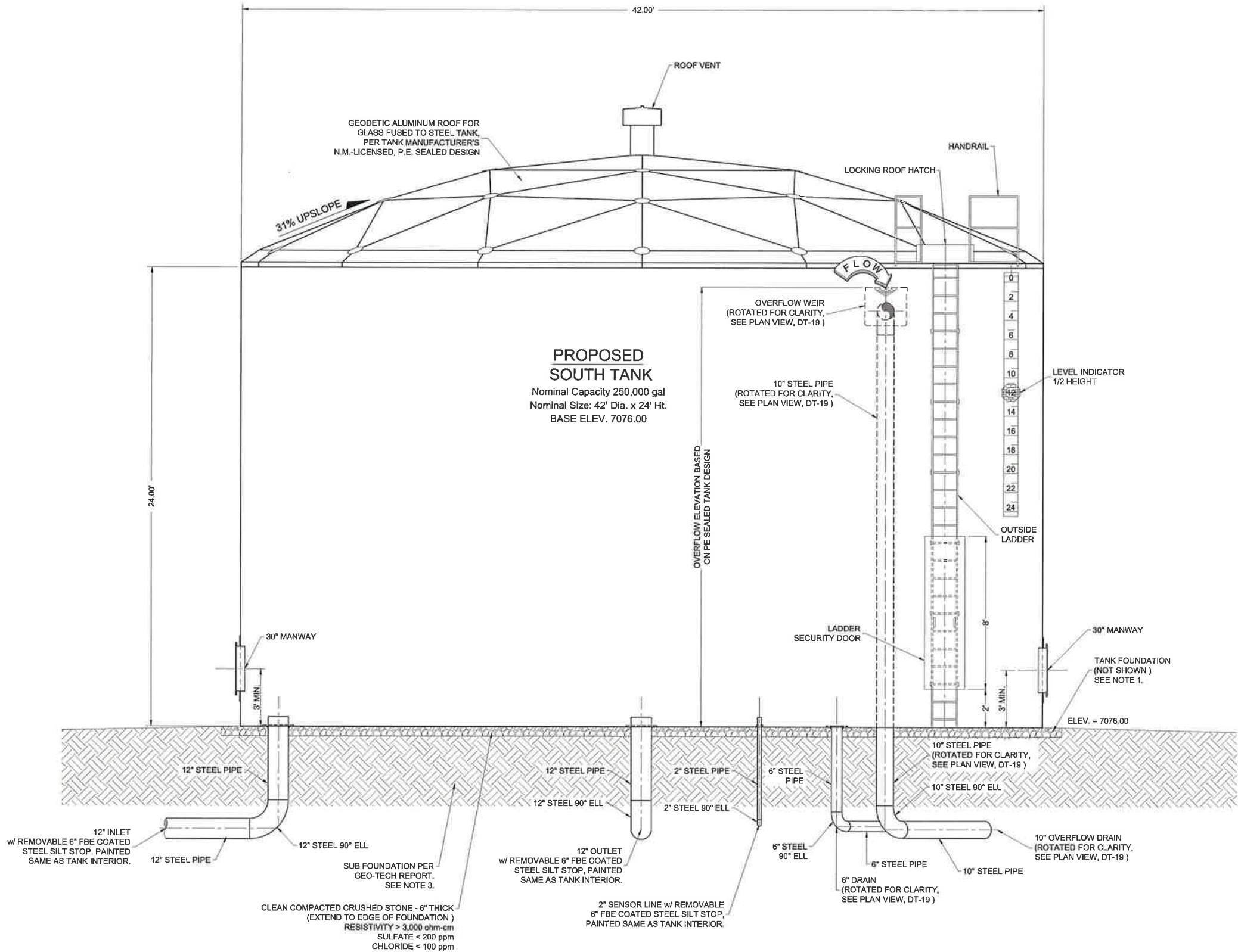
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811 Know what's below. Call before you dig.

Date:	January 25, 2019
Scale:	Horiz: 1" = 6'
	Vert: N/A
Project No:	6921307
Sheet:	DT-19

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ELEVATION VIEW

SOUTH TANK DETAIL



Revision	Date	Description	By	Chkd

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CLIENT: The Navajo Nation TOWN: Reach 26.3 To Torreon, NM
SOUTH TANK DETAILS (2 of 2)
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACH 26.3
SANDOVAL & MCKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
TTT	AAV	AGR

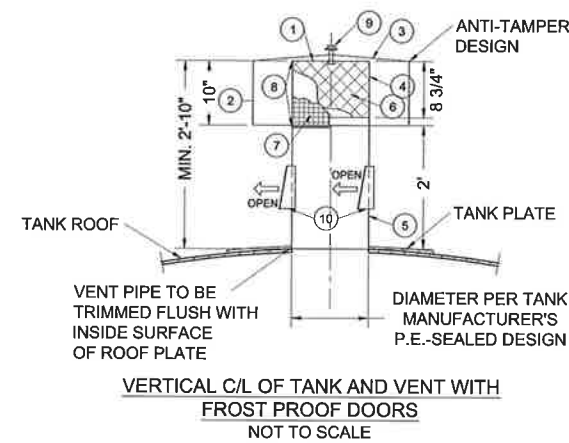
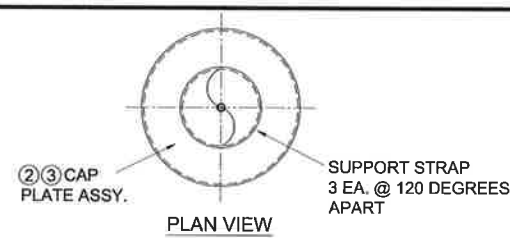
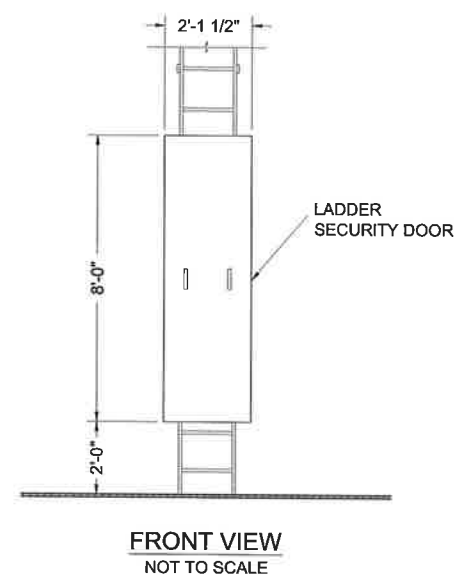
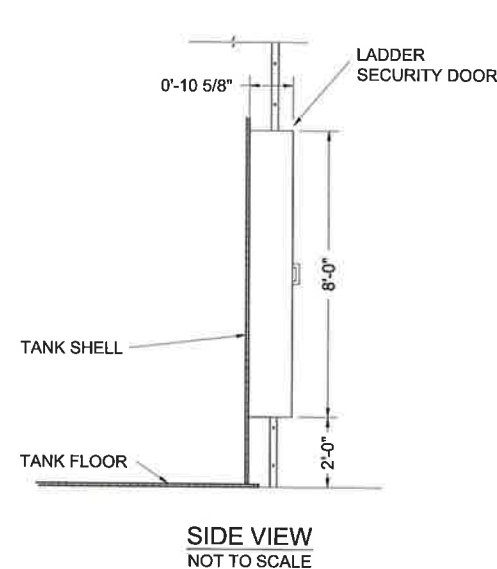
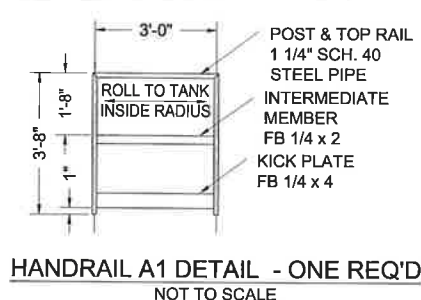
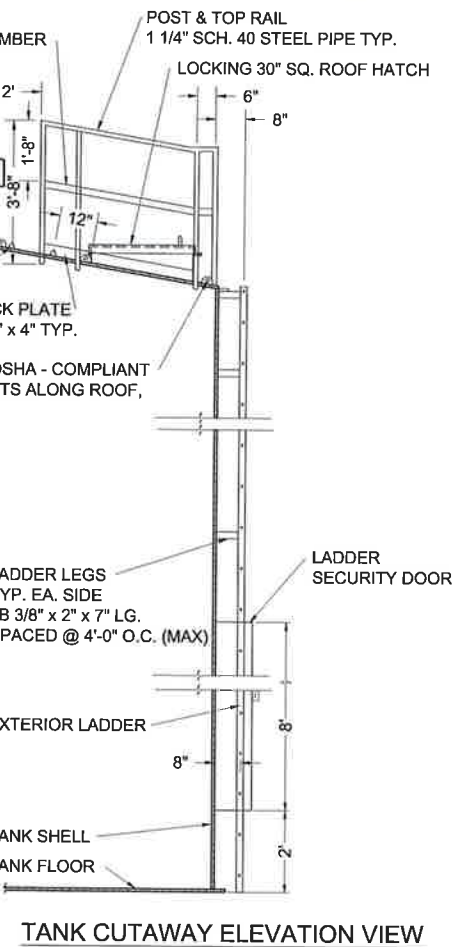
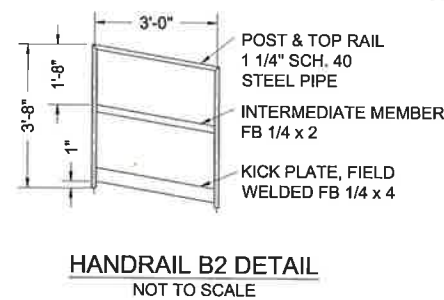
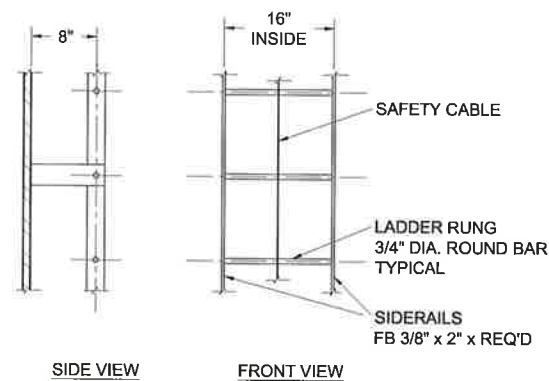
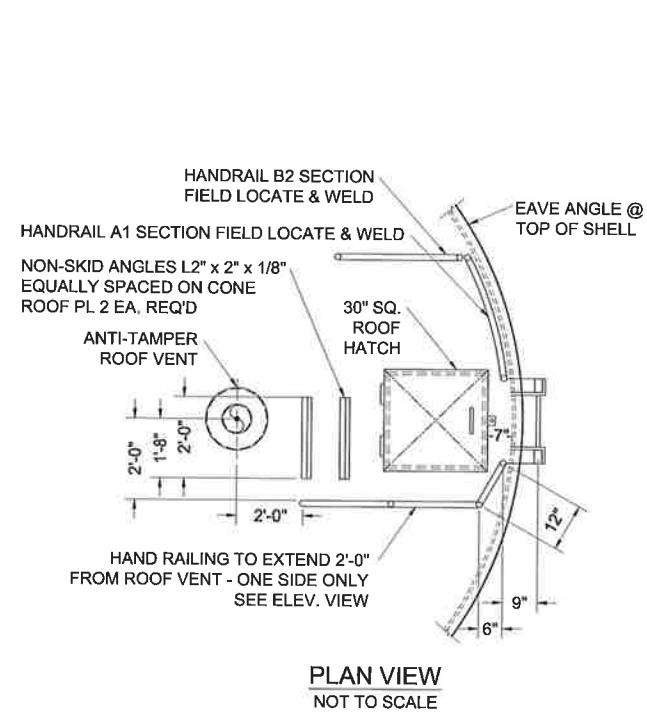


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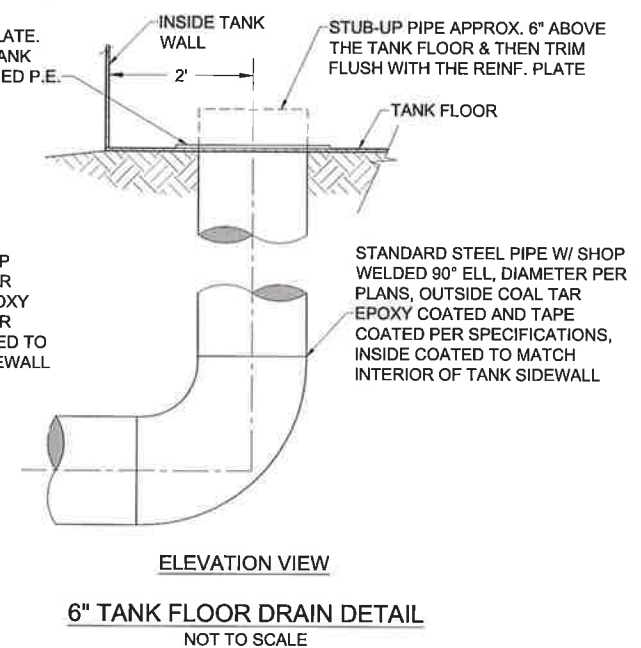
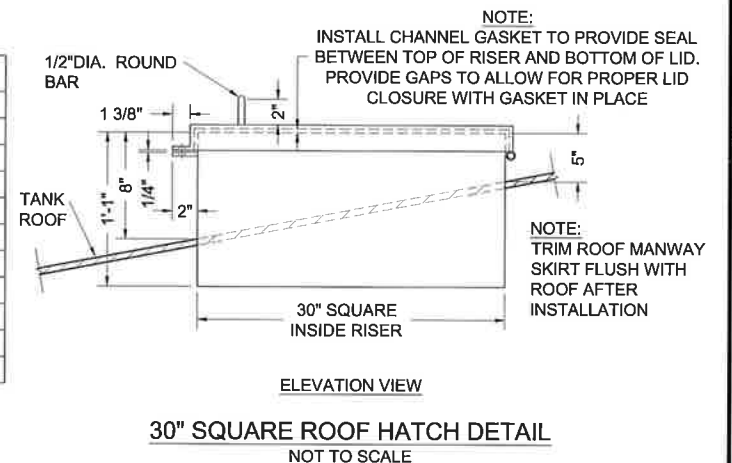
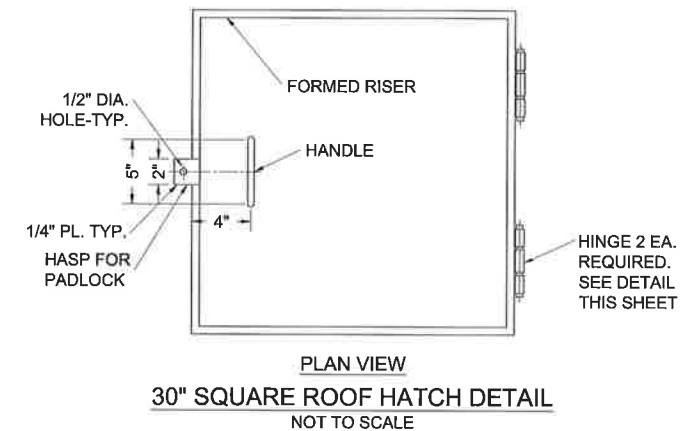
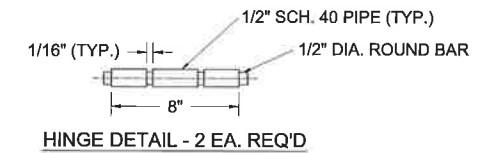
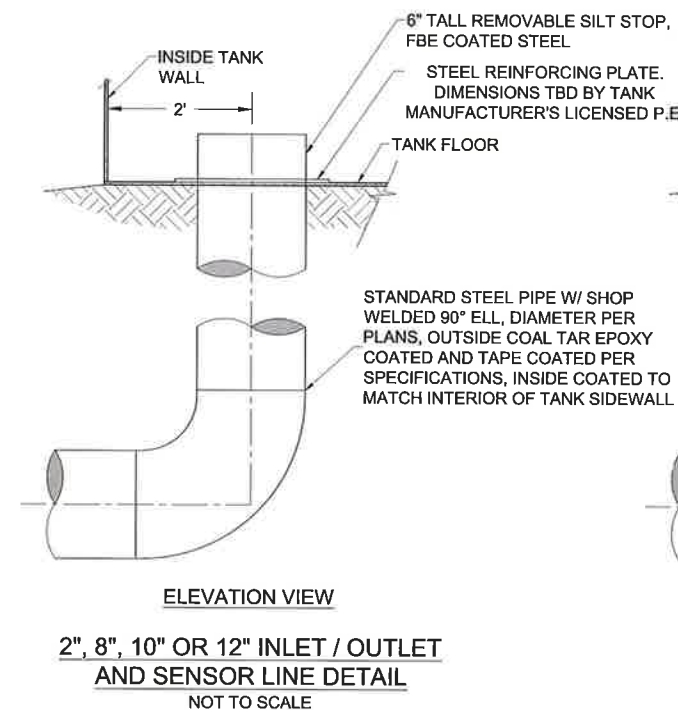
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Date: January 25, 2019
Scale: Horiz: 1" = 6'
Vert: N/A
Project No: 6921307
Sheet: DT-20



BILL OF MATERIALS		
ITEM	QTY.	DESCRIPTION
①	1	3/16" THK. M.S. PLATE (CUT) 1' - 0" 3/4" Ø
②	1	10 GA. H.R. SHEET (ROLL) 10" x 6' - 3 3/8"
③	1	12 GA. H.R. SHEET (CUT) 2' - 0" Ø
④	3	3/16" x 1" M.S. FLAT BAR x 8 1/16"
⑤	1	1/4" THK. M.S. PLATE (ROLL) 16" x 3' - 2 1/2"
⑥	1	3/4 - #9 FLAT EXP. METAL (ROLL) 8 3/4" x 3' - 4"
⑦	1	24 MESH SCREEN (SST) 12" x 3' - 7"
⑧	2	STAINLESS STEEL WORM CLAMP (SST) 3/4" x 3' - 7"
⑨	1	1/2" x 3" HEX BOLT WITH (GRADE 2) NUT, & FLAT WASHER
⑩	4	6" x 8" FREEZE PROTECTION DOOR

[illegible]

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TYPICAL WATER STORAGE TANK DETAILS (2 of 2)

NAVAJO GALLUP WATER SUPPLY
PROJECT - REACH 26.3
SANDOVAL & MCKINLEY COUNTIES, NEW MEXICO

Drawn	Checked
AAV	AGR



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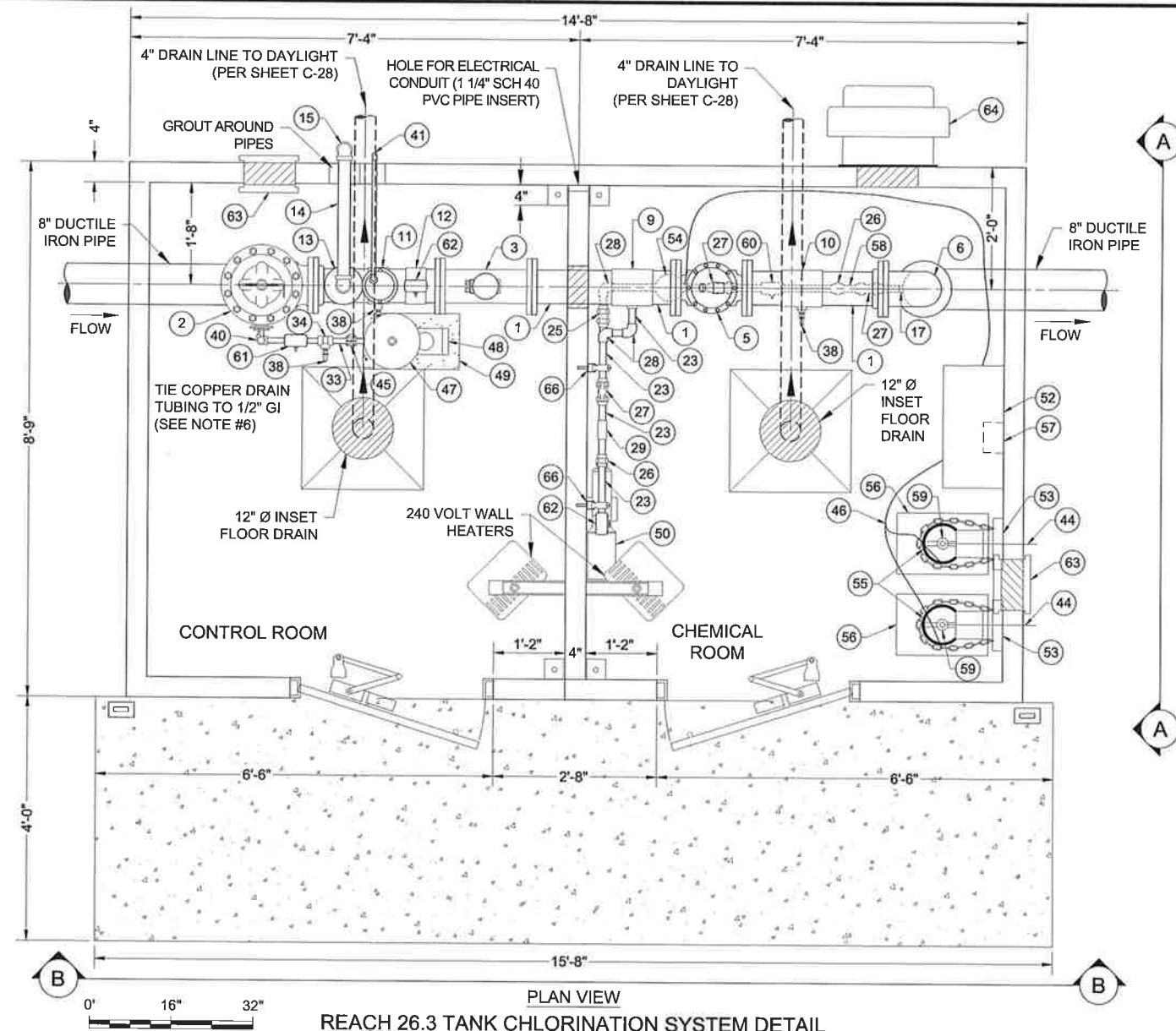


January 25, 2019

e: Horiz:	NONE
Vert:	N/A

ed No: 6921307

DT-22



REACH 26.3 TANK CHLORINATION SYSTEM DETAIL

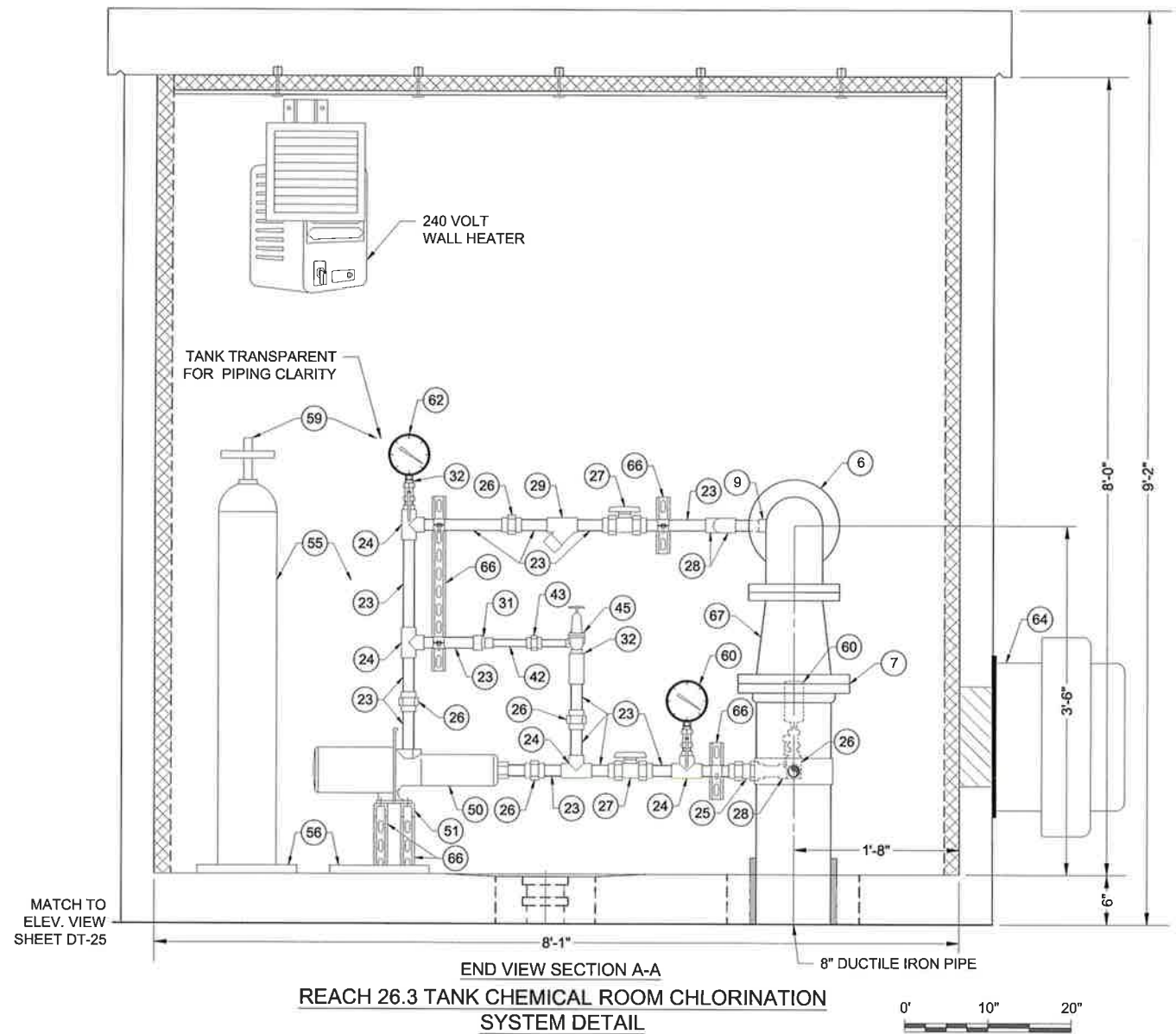
1	6\" DUCTILE IRON PIPE
2	6\" FLANGED FULL-PORT ELECTRONIC FLOW CONTROL VALVE, CLA-VAL 131A-57 FHBYSCKOP-X105LCW-N (0-160 PSI INLET/OUTLET GAUGES) W/ CLA-VAL VC-22D CONTROLLER
3	6\" FLANGED ELECTRONIC FLOW METER, ELSTER EVOQ4, MAINTAIN STRAIGHT PIPE >30\" IN FRONT AND >12\" BEHIND CENTER OF METER.
4	6\" BALL VALVE, FL x FL WITH GEARED ACTUATOR. DI WITH FLANGE ISOLATION KIT.
5	4\" CHECK VALVE, SURGE BUSTER SERIES 7200 (O.A.E.)
6	6\" 90° FL x FL ELBOW, DI
7	8\" FLANGE ISOLATION KIT
8	6\" x 2\" TAPPING SADDLE, DI
9	6\" x 1\" TAPPING SADDLE, SS 304
10	6\" x 3/4\" TAPPING SADDLE, SS 304
11	6\" x 3/4\" TAPPING SADDLE, DI
12	6\" x 1/4\" TAPPING SADDLE, DI
13	2\" VACUUM BREAKER WITH 1\" ARV ASSEMBLY, SEE DETAIL \"A\" (SHT. DT-24). VENT VACUUM BREAKER AND ARV OUTSIDE BUILDING.
14	2\" GALVANIZED STEEL PIPE, NPT
15	2\" 90° ELBOW, GALVANIZED STEEL
16	1\" GALVANIZED STEEL PIPE, NPT
17	8\" x 1\" TAPPING SADDLE, SS 316
18	1\" 90° ELBOW, GALVANIZED STEEL
19	1\" 45° ELBOW, GALVANIZED STEEL
20	1\" CHECK VALVE, GALVANIZED STEEL
21	1\" UNION, GALVANIZED STEEL
22	1\" BALL VALVE, STAINLESS STEEL
23	1\" PVC SCHED 80 PIPE
24	1\" TEE, PVC SCHED 80
25	1\" TRUE UNION CHECK VALVE, PVC SCHED 80
26	1\" UNION, PVC SCHED 80

27	1\" TRUE UNION BALL VALVE, PVC SCHED 80
28	1\" 90° ELBOW, PVC SCHED 80
29	1\" Y-STRAINER, PVC SCHED 80
30	NOT USED
31	1\" x 1/2\" REDUCER, PVC SCHED 80
32	1\" x 1/2\" PVC BUSHING
33	3/4\" GALVANIZED STEEL PIPE, NPT
34	3/4\" TEE, GALVANIZED STEEL
35	3/4\" 90° ELBOW, GALVANIZED STEEL
36	3/4\" UNION, GALVANIZED STEEL
37	3/4\" BALL VALVE, STAINLESS STEEL
38	3/4\" HOSE BIB WITH VACUUM BREAKER
39	3/4\" x 1/2\" GALVANIZED STEEL BUSHING
40	3/4\" GALVANIZED x 3/8\" COPPER BUSHING, WITH 3/8\" COPPER TUBING TO CONTROL VALVE PILOT TUBING
41	1/2\" 90° ELL & 1/2\" GALVANIZED STEEL PIPE (PAINTED BLUE) WITH DOWNSPOUT
42	1/2\" PVC SCHED 80 PIPE
43	1/2\" UNION, PVC SCHED 80
44	1/2\" PE VENT TUBING (WALL PENETRATION MUST BE BELOW REGULATORS)
45	1/2\" PRESSURE RELIEF VALVE, WATTS BP 30 (O.A.E.) PRESSURE SET TO 90 PSI
46	3/8\" PE VACUUM TUBING
47	7.6 GALLON PRESSURE TANK, WELL-X-TROL WX-103 (O.A.E.), INSTALL PIPE CLAMPS/SUPPORT UNDER TANK AND ANCHOR TO WALL
48	BOOSTER PUMP WITH INTEGRATED PRESSURE SWITCH (30-50 psi) DISCHARGE PRESSURE GAUGE AND DISCHARGE CHECK VALVE, 1\" NPT INLET, 3/4\" NPT OUTLET, 1/4\" 100 PSI PE TUBING, TP PUMP MODEL #TPA-CM1-4-AUTO, 232 PSI
49	CONCRETE PEDESTAL FOR BOOSTER PUMP, 19\"L x 11\"W x 12\"H, (OR PER PUMP DIMENSIONS) 4000 PSI CONCRETE W/ #4 REBAR / ANCHOR BOLTS
50	BOOSTER PUMP, FRANKLIN BT4 5JBT03S4 (O.A.E.)

51	SS UNISTRUT PEDESTAL FOR CHLORINATION PUMP. DIMENSIONS TO BE DETERMINED UPON APPROVAL OF PUMP SUBMITTAL BY CONTRACTOR. 9\" ABOVE FLOOR.
52	CHLORINE GAS CONTROL PANEL, WALLACE & TIERNAN S10K (O.A.E.)
53	WALL MOUNTED CHAIN BRACKET, INSTALL 40\" ABOVE FLOOR, WITH SAFETY CHAIN
54	CHLORINE INJECTOR, WALLACE & TIERNAN S10K W/ 99D THROAT/TAI PIECE (O.A.E.) W/ PVC/TEFLON DIAPHRAM VALVE ON VACUUM LINE WITH PEDESTAL SUPPORT WITH UNISTRUTS.
55	CHLORINE GAS CYLINDER, 150 LB (DO NOT INSTALL)
56	ELECTRONIC CHLORINE CYLINDER SCALE, FORCE FLOW GR150-2 W/ FORCE FLOW SOLO G2 DIGITAL INDICATOR (O.A.E.), BOLTED TO FLOOR
57	CHLORINE GAS DETECTOR SENSOR/TRANSMITTER, WALLACE & TIERNAN ACUTEC 35 W/ AUTOTEST (O.A.E.), MOUNTED 6\" ABOVE FLOOR, LOCATION TBD BY ENGINEER IN FIELD. CHLORINE GAS DETECTOR RECEIVER, WALLACE & TIERNAN ACUTEC 35 (O.A.E.) LOCATION AS INDICATED IN ELECTRICAL PLANS OR TBD BY ENGINEER IN FIELD.
58	INSERTION DIFFUSER, MTE (O.A.E.)
59	VACUUM REGULATOR, WALLACE & TIERNAN 210S (O.A.E.)
60	PRESSURE GAUGE, 0-100 PSI, WITH PVC/TEFLON DIAPHRAM SEAL AND 1/2\" BALL VALVE, STAINLESS STEEL
61	PRESSURE GAUGE, 0-100 PSI, WITH ISOLATION 1/4\" SS BALL VALVE
62	PRESSURE GAUGE, 0-25 PSI WITH ISOLATION 1/4\" SS BALL VALVE
63	LOUVERED VENT W/ BACKDRAFT DAMPER McMASTER CARR #2039 KI, W/ EPOXY GREY PAINT
64	19 1/2\" 430 CFM EXHAUST FAN WITH BACKDRAFT DAMPER
65	1 5/8\" UNISTRUT, GALVANIZED STEEL, WITH PIPE SUPPORTS
66	1 5/8\" UNISTRUT, STAINLESS STEEL, WITH PIPE SUPPORTS
67	8\" x 6\" REDUCER, FL x FL D.I., WP 250 PSI

NOTES:

1. POSITION PRESSURE GAUGES SUCH THAT VIEW IS NOT OBSCURED BY OTHER EQUIPMENT IN FRONT.
2. CONTRACTOR RESPONSIBLE TO PROVIDE ALL FITTINGS NECESSARY (SUCH AS BUSHINGS, FLANGES, ADAPTERS, NIPPLES, ETC.), WHETHER EXPLICITLY SHOWN OR NOT, TO COMPLETE THE INSTALLATION AS INDICATED.
3. ALL 1\" AND SMALLER PIPE TO BE SECURED WITH PIPE CLAMPS AND 1 5/8\" UNISTRUTS MOUNTED TO THE WALL. ALL UNISTRUTS ATTACHED TO WALL SHALL BE IN VERTICAL POSITION. SOME PIPE SUPPORTS NOT SHOWN FOR CLARITY.
4. 6\" MINIMUM SPACING BETWEEN SCHED 80 PVC GLUED FITTINGS, UNLESS UNION IS PRESENT.
5. ALL BOLTS, NUTS AND WASHERS IN CHEMICAL ROOM SHALL BE 316 SS.
6. ALL VALVES WHICH MAY DISCHARGE WATER (CONTROL VALVE AND PRESSURE RELEASE VALVE) SHALL HAVE 1/2\" GI DISCHARGE PIPE FROM VALVE OUTLET TO FLOOR DRAIN. DISCHARGE PIPING SHALL BE ROUTED ALONG WALL TO AVOID BLOCKING ACCESS TO OTHER COMPONENTS AND SHALL BE ATTACHED TO WALL WITH PIPE CLAMPS AND 1 5/8\" UNISTRUTS FOR SUPPORT. PAINT GI PIPE BLUE. DISCHARGE PIPING NOT SHOWN FOR CLARITY.
7. ALL MATERIALS SHALL BE RATED TO AT LEAST 125 psi, UNLESS OTHERWISE NOTED.
8. ALL FLANGES SHALL BE ANSI CLASS 150 (STEEL) OR ANSI CLASS 125 (IRON).
9. ALL BURIED PIPE WITHIN 5 FT OF BUILDING SHALL BE DUCTILE IRON, 350 psi WP, SOLID PIPE PIECES ONLY. NO DUCTILE IRON PIPE JOINTS ALLOWED.
10. BURIED DUCTILE IRON PIPE FOR DRAINS AND PIPE PENETRATIONS SHALL BE AWWA C-209 COLD-APPLIED TAPE-COATED PER SPECIFICATIONS ABOVE THE BURIED ELL. ALL OTHER BURIED DUCTILE IRON PIPE AND FITTINGS SHALL BE ENCASED IN TWO LAYERS OF POLYETHYLENE, PER SPECIFICATIONS. ALL DUCTILE IRON PIPE AND FITTINGS SHALL BE TWO-PART EPOXY-COATED, PER SPECIFICATIONS.
11. ALL STEEL COMPONENTS IN THE CHEMICAL ROOM SHALL BE SS 316, UNLESS OTHERWISE NOTED.
12. ALL STAINLESS STEEL PIPE AND FITTINGS SHALL HAVE A WORKING PRESSURE OF AT LEAST 350 psi, UNLESS OTHERWISE NOTED.



REACH 26.3 TANK CHEMICAL ROOM CHLORINATION SYSTEM DETAIL

Revision	Date	Description	By	CHKD

SMA SOUTHER, MILLER & ASSOCIATES
 5454 VENICE AVENUE NE, SUITE D
 ALBUQUERQUE, NM 87113
 Phone (505) 299-0943 Toll-Free (877) 299-0942 Fax (505) 293-3480
 www.southernmiller.com
 Serving the Southwest & Rocky Mountain Regions
 Albuquerque, NM • Grand Junction, CO • Salt Lake City, UT • El Paso, TX

CLIENT: The Navajo Nation
 TOWN: Reach 26.3 To Torreon, NM
 CHLORINATION SYSTEM
 DETAILS (1 of 2)
 NAVAJO GALLUP WATER SUPPLY
 PROJECT - REACH 26.3
 SANDOVAL & MCKINLEY COUNTIES, NEW MEXICO

Designed: TTT
 Drawn: AAV
 Checked: AGR

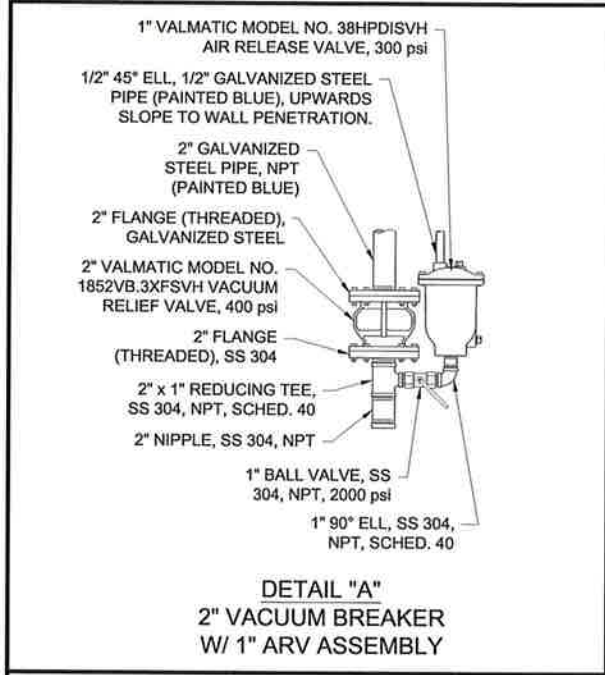
TORY T. TADANO
 LICENSED PROFESSIONAL ENGINEER
 NEW MEXICO
 21073
 1/31/16

THIS DRAWING IS INCOMPLETE AND NOT TO BE USED FOR CONSTRUCTION UNLESS IT IS STAMPED, SIGNED AND DATED

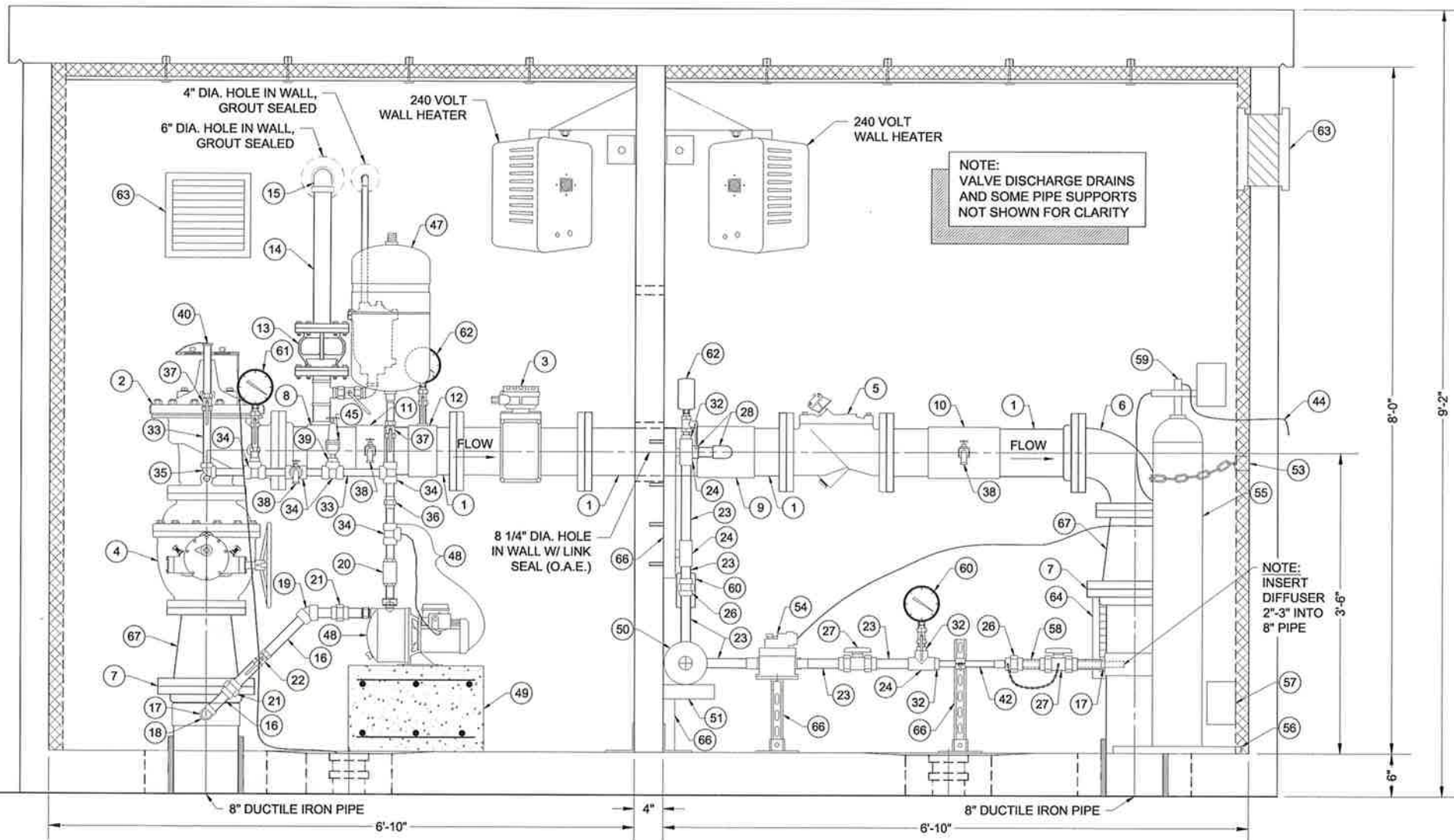
NOTICE OF EXTENDED PAYMENT PROVISION:
 THIS CONTRACT ALLOWS THE OWNER TO MAKE PAYMENT WITHIN 45 DAYS AFTER SUBMISSION OF AN UNDISPUTED REQUEST FOR PAYMENT.

811 Know what's below. Call before you dig.

Date: February 1, 2019
 Scale: Horiz: AS SHOWN
 Vert: N/A
 Project No: 6921307
 Sheet: DT-23



MATCH TO
ELEVATION VIEW
SHEET DT-25



ELEVATION VIEW SECTION B-B
REACH 26.3 TANK CONTROL ROOM CHLORINATION
SYSTEM DETAIL

ELEVATION VIEW SECTION B-B
REACH 26.3 TANK CHEMICAL ROOM CHLORINATION
SYSTEM DETAIL

1	6" DUCTILE IRON PIPE
2	6" FLANGED FULL-PORT ELECTRONIC FLOW CONTROL VALVE, CLA-VAL 131A-57 FHBYSCKCKOP-X105LCW-N (0-160 PSI INLET/OUTLET GAUGES) W/ CLA-VAL VC-22D CONTROLLER
3	6" FLANGED ELECTRONIC FLOW METER, ELSTER EVOQ4, MAINTAIN STRAIGHT PIPE >30" IN FRONT AND >12" BEHIND CENTER OF METER.
4	6" BALL VALVE, FL x FL WITH GEARED ACTUATOR. DI WITH FLANGE ISOLATION KIT.
5	4" CHECK VALVE, SURGE BUSTER SERIES 7200 (O.A.E.)
6	6" 90° FL x FL ELBOW, DI
7	8" FLANGE ISOLATION KIT
8	6" x 2" TAPPING SADDLE, DI
9	6" x 1" TAPPING SADDLE, SS 304
10	6" x 3/4" TAPPING SADDLE, SS 304
11	6" x 3/4" TAPPING SADDLE, DI
12	6" x 1/4" TAPPING SADDLE, DI
13	2" VACUUM BREAKER WITH 1" ARV ASSEMBLY, SEE DETAIL "A" (SHT. DT-24). VENT VACUUM BREAKER AND ARV OUTSIDE BUILDING.
14	2" GALVANIZED STEEL PIPE, NPT
15	2" 90° ELBOW, GALVANIZED STEEL
16	1" GALVANIZED STEEL PIPE, NPT
17	8" x 1" TAPPING SADDLE, SS 316
18	1" 90° ELBOW, GALVANIZED STEEL
19	1" 45° ELBOW, GALVANIZED STEEL
20	1" CHECK VALVE, GALVANIZED STEEL
21	1" UNION, GALVANIZED STEEL
22	1" BALL VALVE, STAINLESS STEEL
23	1" PVC SCHED 80 PIPE
24	1" TEE, PVC SCHED 80
25	1" TRUE UNION CHECK VALVE, PVC SCHED 80
26	1" UNION, PVC SCHED 80

27	1" TRUE UNION BALL VALVE, PVC SCHED 80
28	1" 90° ELBOW, PVC SCHED 80
29	1" Y-STRAINER, PVC SCHED 80
30	NOT USED
31	1" x 1/2" REDUCER, PVC SCHED 80
32	1" x 1/2" PVC BUSHING
33	3/4" GALVANIZED STEEL PIPE, NPT
34	3/4" TEE, GALVANIZED STEEL
35	3/4" 90° ELBOW, GALVANIZED STEEL
36	3/4" UNION, GALVANIZED STEEL
37	3/4" BALL VALVE, STAINLESS STEEL
38	3/4" HOSE BIB WITH VACUUM BREAKER
39	3/4" x 1/2" GALVANIZED STEEL BUSHING
40	3/4" GALVANIZED x 3/8" COPPER BUSHING, WITH 3/8" COPPER TUBING TO CONTROL VALVE PILOT TUBING
41	1/2" 90° ELL & 1/2" GALVANIZED STEEL PIPE (PAINTED BLUE) WITH DOWNSPOUT
42	1/2" PVC SCHED 80 PIPE
43	1/2" UNION, PVC SCHED 80
44	1/2" PE VENT TUBING (WALL PENETRATION MUST BE BELOW REGULATORS)
45	1/2" PRESSURE RELIEF VALVE, WATTS BP 30 (O.A.E.) PRESSURE SET TO 90 PSI
46	3/8" PE VACUUM TUBING
47	7.6 GALLON PRESSURE TANK, WELL-X-TROL WX-103 (O.A.E.), INSTALL PIPE CLAMPS/SUPPORT UNDER TANK AND ANCHOR TO WALL
48	BOOSTER PUMP WITH INTEGRATED PRESSURE SWITCH (30-50 psi) DISCHARGE PRESSURE GAUGE AND DISCHARGE CHECK VALVE, 1" NPT INLET, 3/4" NPT OUTLET, 1/4" 100 PSI PE TUBING, TP PUMP MODEL #TPA-CM1-4-AUTO, 232 PSI
49	CONCRETE PEDESTAL FOR BOOSTER PUMP, 19"L x 11"W x 12"H, (OR PER PUMP DIMENSIONS) 4000 PSI CONCRETE W/ #4 REBAR / ANCHOR BOLTS
50	BOOSTER PUMP, FRANKLIN BT4 5JBT03S4 (O.A.E.)

51	SS UNISTRUT PEDESTAL FOR CHLORINATION PUMP. DIMENSIONS TO BE DETERMINED UPON APPROVAL OF PUMP SUBMITTAL BY CONTRACTOR. 9" ABOVE FLOOR.
52	CHLORINE GAS CONTROL PANEL, WALLACE & TIERNAN S10K (O.A.E.)
53	WALL MOUNTED CHAIN BRACKET, INSTALL 40" ABOVE FLOOR, WITH SAFETY CHAIN
54	CHLORINE INJECTOR, WALLACE & TIERNAN S10K W/ 99D THROAT/TAI PIECE (O.A.E.) W/ PVC/TEFLON DIAPHRAM VALVE ON VACUUM LINE WITH PEDESTAL SUPPORT WITH UNISTRUTS.
55	CHLORINE GAS CYLINDER, 150 LB (DO NOT INSTALL)
56	ELECTRONIC CHLORINE CYLINDER SCALE, FORCE FLOW GR150-2 W/ FORCE FLOW SOLO G2 DIGITAL INDICATOR (O.A.E.), BOLTED TO FLOOR
57	CHLORINE GAS DETECTOR SENSOR/TRANSMITTER, WALLACE & TIERNAN ACUTEC 35 W/ AUTOTEST (O.A.E.), MOUNTED 6" ABOVE FLOOR, LOCATION TBD BY ENGINEER IN FIELD. CHLORINE GAS DETECTOR RECEIVER, WALLACE & TIERNAN ACUTEC 35 (O.A.E.) LOCATION AS INDICATED IN ELECTRICAL PLANS OR TBD BY ENGINEER IN FIELD.
58	INSERTION DIFFUSER, MTE (O.A.E.)
59	VACUUM REGULATOR, WALLACE & TIERNAN 210S (O.A.E.)
60	PRESSURE GAUGE, 0-100 PSI, WITH PVC/TEFLON DIAPHRAM SEAL AND 1/2" BALL VALVE, STAINLESS STEEL
61	PRESSURE GAUGE, 0-100 PSI, WITH ISOLATION 1/4" SS BALL VALVE
62	PRESSURE GAUGE, 0-25 PSI WITH ISOLATION 1/4" SS BALL VALVE
63	LOUVERED VENT W/ BACKDRAFT DAMPER McMASTER CARR #2039 KI, W/ EPOXY GREY PAINT
64	19 1/2" 430 CFM EXHAUST FAN WITH BACKDRAFT DAMPER
65	1 5/8" UNISTRUT, GALVANIZED STEEL, WITH PIPE SUPPORTS
66	1 5/8" UNISTRUT, STAINLESS STEEL, WITH PIPE SUPPORTS
67	8" x 6" REDUCER, FL x FL D.I., WP 250 PSI

- NOTES:**
1. POSITION PRESSURE GAUGES SUCH THAT VIEW IS NOT OBSCURED BY OTHER EQUIPMENT IN FRONT.
 2. CONTRACTOR RESPONSIBLE TO PROVIDE ALL FITTINGS NECESSARY (SUCH AS BUSHINGS, FLANGES, ADAPTERS, NIPPLES, ETC.), WHETHER EXPLICITLY SHOWN OR NOT, TO COMPLETE THE INSTALLATION AS INDICATED.
 3. ALL 1" AND SMALLER PIPE TO BE SECURED WITH PIPE CLAMPS AND 1 5/8" UNISTRUTS MOUNTED TO THE WALL. ALL UNISTRUTS ATTACHED TO WALL SHALL BE IN VERTICAL POSITION. SOME PIPE SUPPORTS NOT SHOWN FOR CLARITY.
 4. 6" MINIMUM SPACING BETWEEN SCHED 80 PVC GLUED FITTINGS, UNLESS UNION IS PRESENT.
 5. ALL BOLTS, NUTS AND WASHERS IN CHEMICAL ROOM SHALL BE 316 SS.
 6. ALL VALVES WHICH MAY DISCHARGE WATER (CONTROL VALVE AND PRESSURE RELEASE VALVE) SHALL HAVE 1/2" GI DISCHARGE PIPE FROM VALVE OUTLET TO FLOOR DRAIN. DISCHARGE PIPING SHALL BE ROUTED ALONG WALL TO AVOID BLOCKING ACCESS TO OTHER COMPONENTS AND SHALL BE ATTACHED TO WALL WITH PIPE CLAMPS AND 1 5/8" UNISTRUTS FOR SUPPORT. PAINT GI PIPE BLUE. DISCHARGE PIPING NOT SHOWN FOR CLARITY.
 7. ALL MATERIALS SHALL BE RATED TO AT LEAST 125 psi, UNLESS OTHERWISE NOTED.
 8. ALL FLANGES SHALL BE ANSI CLASS 150 (STEEL) OR ANSI CLASS 125 (IRON).
 9. ALL BURIED PIPE WITHIN 5 FT OF BUILDING SHALL BE DUCTILE IRON, 350 psi WP, SOLID PIPE PIECES ONLY. NO DUCTILE IRON PIPE JOINTS ALLOWED.
 10. BURIED DUCTILE IRON PIPE FOR DRAINS AND PIPE PENETRATIONS SHALL BE AWWA C-209 COLD-APPLIED TAPE-COATED PER SPECIFICATIONS ABOVE THE BURIED ELL. ALL OTHER BURIED DUCTILE IRON PIPE AND FITTINGS SHALL BE ENCASED IN TWO LAYERS OF POLYETHYLENE, PER SPECIFICATIONS. ALL DUCTILE IRON PIPE AND FITTINGS SHALL BE TWO-PART EPOXY-COATED, PER SPECIFICATIONS.
 11. ALL STEEL COMPONENTS IN THE CHEMICAL ROOM SHALL BE SS 316, UNLESS OTHERWISE NOTED.
 12. ALL STAINLESS STEEL PIPE AND FITTINGS SHALL HAVE A WORKING PRESSURE OF AT LEAST 350 psi, UNLESS OTHERWISE NOTED.

Revision	Date	Description	By	CHK'd

SMA
SOUTHER, MILLER & ASSOCIATES
5454 VENCE AVENUE NE, SUITE D
ALBUQUERQUE, NM 87113
Phone (505) 269-0942 Toll-Free (877) 269-0942 Fax (505) 269-3410
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20209 11/04/2019 AM

CHLORINATION SYSTEM
DETAILS (2 of 2)
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACH 26.3
SANDOVAL & MCKINLEY COUNTIES, NEW MEXICO

CLIENT: The Navajo Nation
TOWN: Reach 26.3 To Tiorreon, NM

Designed: TTT
Drawn: AAV
Checked: AGR

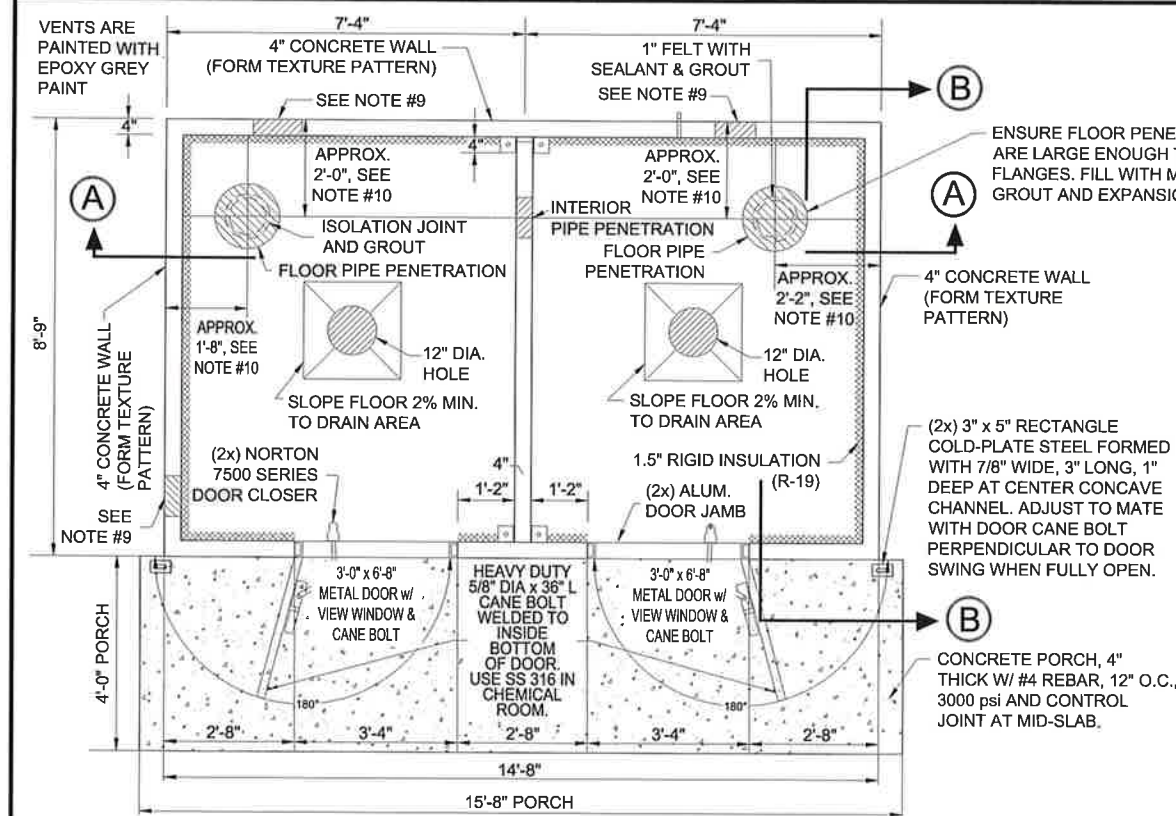
TORY T. TADANO
NEW MEXICO
2019
LICENSED PROFESSIONAL ENGINEER

THIS DRAWING IS INCOMPLETE
AND NOT TO BE USED FOR
CONSTRUCTION UNLESS IT IS
STAMPED, SIGNED AND DATED

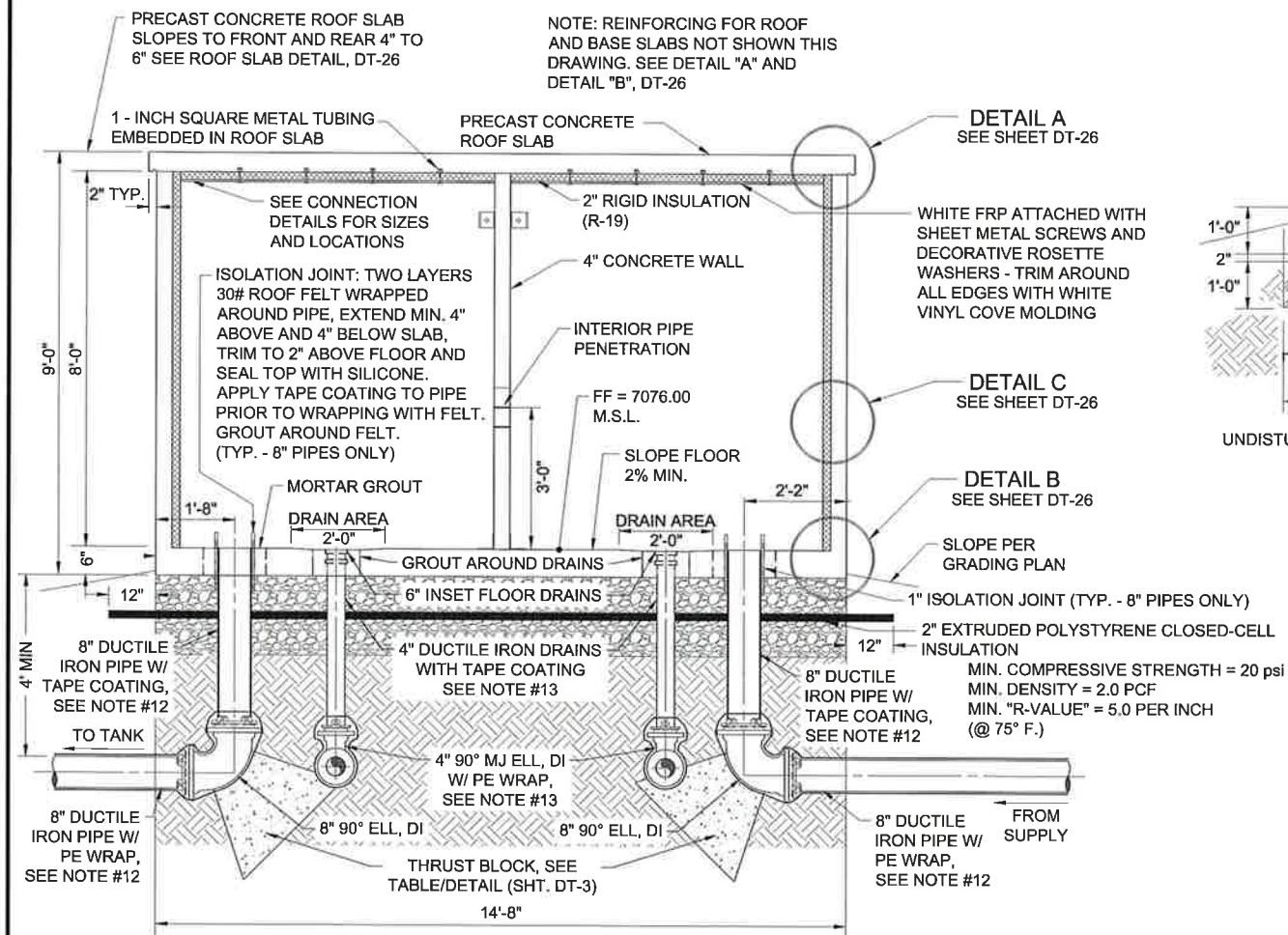
**NOTICE OF EXTENDED
PAYMENT PROVISION:**
THIS CONTRACT ALLOWS THE
OWNER TO MAKE PAYMENT
WITHIN 45 DAYS AFTER
SUBMISSION OF
AN UNDISPUTED REQUEST
FOR PAYMENT.

811 Know what's
below.
Call before
you dig.

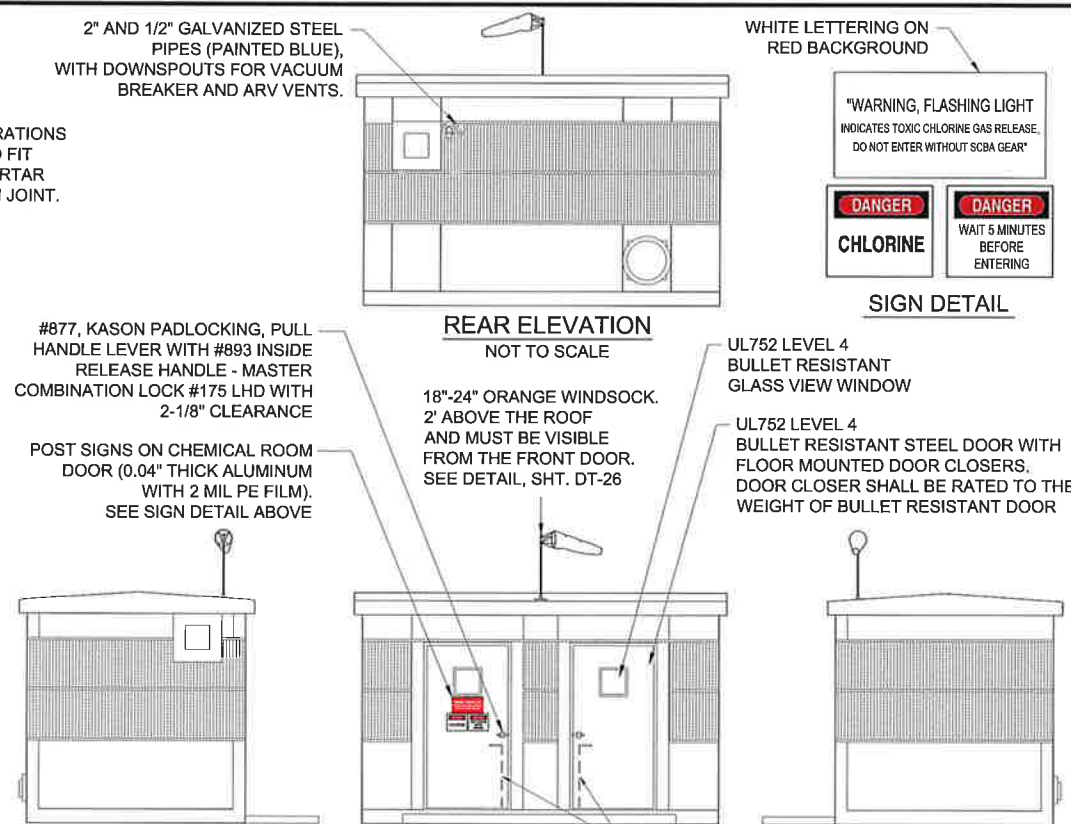
Date: February 1, 2019
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Vert: N/A
Project No: 6921307
Sheet: DT-24



PLAN VIEW OF BUILDING
NOT TO SCALE



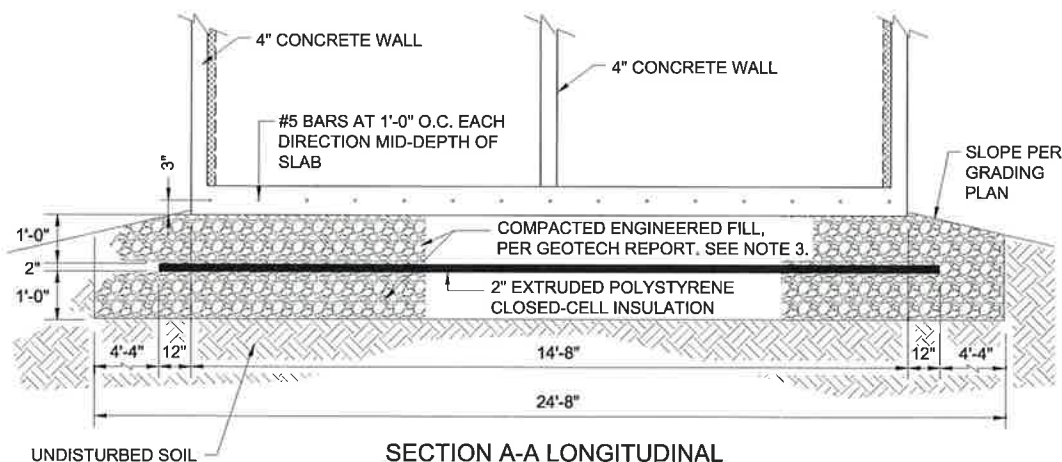
ELEVATION VIEW OF BUILDING AND UNDERGROUND PIPING
NOT TO SCALE



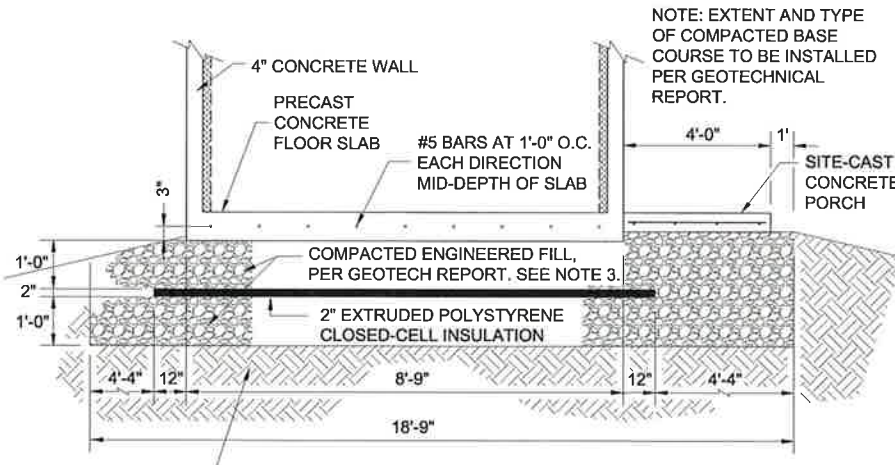
LEFT SIDE ELEVATION
NOT TO SCALE

FRONT ELEVATION
NOT TO SCALE

RIGHT SIDE ELEVATION
NOT TO SCALE



SECTION A-A LONGITUDINAL
NOT TO SCALE

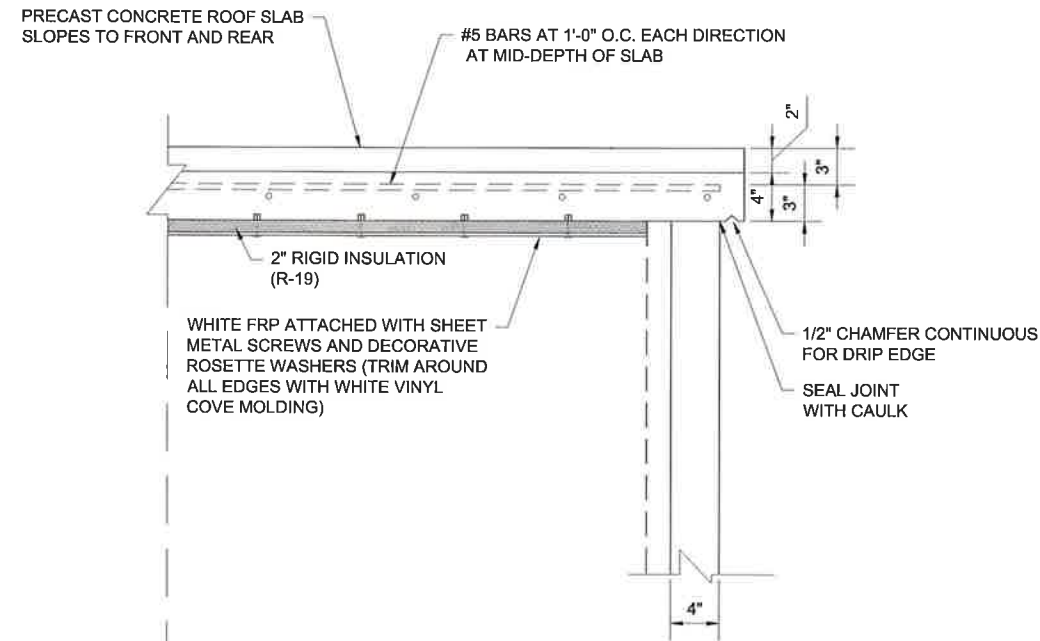


SECTION B-B TRANSVERSE
NOT TO SCALE

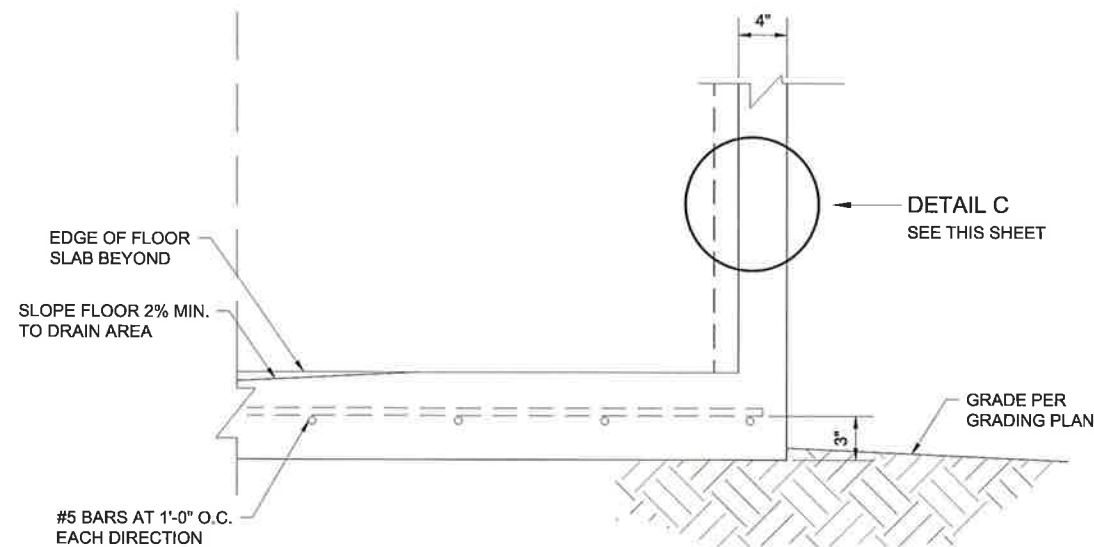
NOTES

- THE GOVERNING CODE IS THE INTERNATIONAL BUILDING CODE, MOST RECENT EDITION.
- MINIMUM DESIGN LIVE LOADS SHALL BE:
25 PSF - ROOF SNOW LOAD
25 PSF - HORIZONTAL WIND LOAD
35 PCF - EQUIVALENT BACKFILL FLUID PRESSURE
SEISMIC ZONE II REQUIREMENTS
- BUILDING FOUNDATION, SUB-FOUNDATION, AND SITE GRADING SHALL BE PROVIDED AS SPECIFIED IN GEOTECHNICAL REPORT, PROVIDED AS APPENDIX TO CONTRACT DOCUMENTS. REFER TO GEOTECHNICAL REPORT FOR FURTHER INFORMATION.
- ALL SITE-CAST CONCRETE SHALL BE MADE WITH TYPE V (ALKALI RESISTIVE) CEMENT AND SHALL ATTAIN A MINIMUM COMPRESSIVE STRENGTH OF 3,000 psi WITHIN 28 DAYS. THE MIX DESIGN SHOULD INCLUDE 5% ($\pm 1\%$) 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.
- PRECAST CONCRETE COMPONENTS SHALL BE CERTIFIED BY THE SUPPLIER TO HAVE ATTAINED A MINIMUM STRENGTH OF 3,000 psi AT TRANSPORT TIME WITH FINAL CONCRETE STRENGTH TO BE AT LEAST 3,500 psi WITHIN 28 DAYS. VERIFICATION OF CONCRETE STRENGTH SHALL BE PROVIDED BY THE SUPPLIER UPON REQUEST AND SHALL BE CONFIRMED THROUGH CYLINDER BREAKS FROM NORMAL PRODUCTION PROCEDURES AND IN-HOUSE QUALITY CONTROL. A SET OF FOUR (4) CYLINDERS SHALL BE TAKEN AT RANDOM IN THE PLANT NOT LESS THAN ONCE DURING EACH WEEK OF PRODUCTION.
- CONCRETE REINFORCING STEEL SHALL BE ASTM A-615 BILLET BARS, GRADE 40. BARS SHALL BE LAPPED AT LEAST THIRTY (30) BAR DIAMETERS AT SPLICES AND CORNER BARS SHALL BE PROVIDED TO MATCH HORIZONTAL REINFORCING.
- STRUCTURAL STEEL, EMBEDMENT STEEL, AND CONNECTIONS SHALL CONFORM TO ASTM A-36. ALL EXPOSED STEEL PLATES AND CONNECTIONS SHALL BE PAINTED WITH ONE FIELD COAT OF COMPATIBLE PRIMER AND ONE COAT OF EPOXY PAINT.
- FIELD WELDING SHALL BE PERFORMED USING E70XX ELECTRODES AND SHALL CONFORM TO STANDARDS OF THE AMERICAN WELDING SOCIETY FOR WELDING IN BUILDING CONSTRUCTION.
- ALL DOOR FRAMES, FAN AND VENT ASSEMBLIES AND SLAB PENETRATION SHALL BE CAST INTO THEIR RESPECTIVE SLABS.
- CONTRACTOR RESPONSIBLE TO DETERMINE SPACE REQUIREMENTS FOR PLUMBING TRAIN, AS WELL AS EXHAUST FAN, VENTS, AND ELECTRICAL CONDUITS, AND SUBMIT SHOP DRAWINGS OF BUILDING, INCLUDING LOCATIONS AND SIZES OF FLOOR, EXTERIOR WALL AND INTERIOR WALL PENETRATIONS, FOR ENGINEER'S APPROVAL PRIOR TO FABRICATING PRE-CAST CONCRETE BUILDING. ADEQUATE WALL CLEARANCE SHALL BE PROVIDED FOR O&M OF ALL FLANGES, VALVES AND OTHER APPURTENANCES.
- ALL BURIED PIPE WITHIN 5 FEET OF BUILDING SHALL BE DUCTILE IRON, 350 psi, SOLID PIPE PIECES ONLY. NO DUCTILE IRON PIPE JOINTS ALLOWED.
- 8" DUCTILE IRON PIPE, TWO-PART EPOXY-COATED AND MORTAR LINED. COLD APPLIED TAPE-COATED PER SPECIFICATIONS FROM TOP OF FLOOR TO BURIED ELL. DOUBLE WRAP WITH POLYETHYLENE FROM ABOVE ELL TO PVC TRANSITION BEYOND FOUNDATION (TYP.).
- 4" DUCTILE IRON DRAIN LINE, TWO-PART EPOXY-COATED AND MORTAR LINED. COLD APPLIED TAPE-COATED PER SPECIFICATIONS FROM INSET DRAIN TO BURIED ELL. DOUBLE WRAP WITH POLYETHYLENE FROM ABOVE ELL TO PVC TRANSITION BEYOND FOUNDATION (TYP.).
- CONTRACTOR RESPONSIBLE FOR LOCATING AND DETERMINING ELECTRICAL CONDUIT PENETRATIONS.

Client: The Navajo Nation	Town: Reach 26.3 To Turren, NM
Project: PRECAST 2-ROOM CHLORINATION BUILDING AND PIPING	Project: PRECAST 2-ROOM CHLORINATION BUILDING AND PIPING
Project: NAVAJO GALLUP WATER SUPPLY	Project: NAVAJO GALLUP WATER SUPPLY
Project: PROJECT - REACH 26.3	Project: PROJECT - REACH 26.3
Project: SANDOVAL & MCKINLEY COUNTIES, NEW MEXICO	Project: SANDOVAL & MCKINLEY COUNTIES, NEW MEXICO
Designed: TTT	Drawn: AAV
Checked: AGR	Checked: AGR
<p>THIS DRAWING IS INCOMPLETE AND NOT TO BE USED FOR CONSTRUCTION UNLESS IT IS STAMPED, SIGNED AND DATED</p> <p>NOTICE OF EXTENDED PAYMENT PROVISION: THIS CONTRACT ALLOWS THE OWNER TO MAKE PAYMENT WITHIN 45 DAYS AFTER SUBMISSION OF AN UNDISPUTED REQUEST FOR PAYMENT.</p>	
<p>811 Know what's below. Call before you dig.</p>	
<p>Date: February 4, 2019</p>	
<p>Scale: Horiz: NONE</p>	
<p>Scale: Vert: N/A</p>	
<p>Project No: 6921307</p>	
<p>Sheet: DT-25</p>	

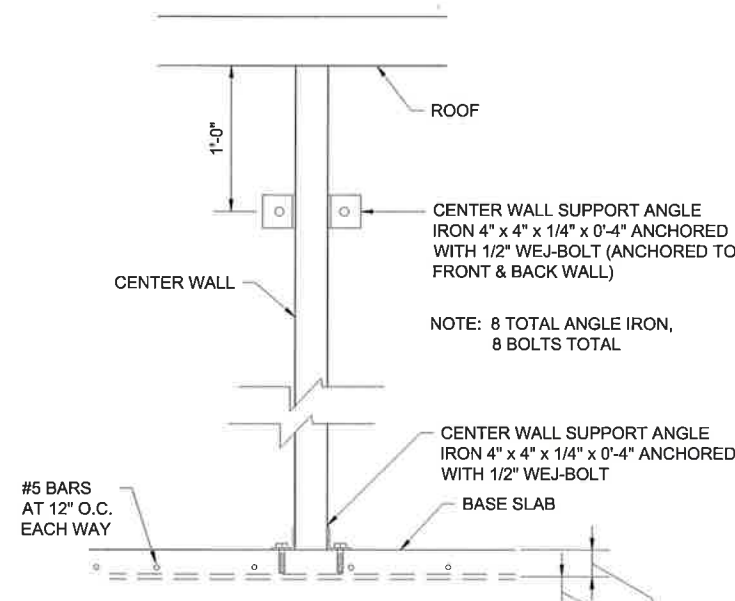


**ROOF CONNECTION
DETAIL A**
NOT TO SCALE

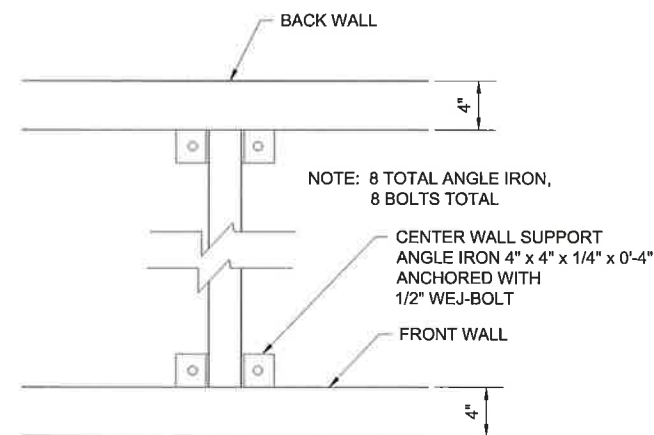


**FLOOR CONNECTION
DETAIL B**
NOT TO SCALE

NOTE: REBAR AT LIFT JOINTS ARE #6 REBAR, 12" SEPARATION, CENTERED ON LIFT POINTS. REBARS ARE CENTERED THE ENTIRE LENGTH AND WIDTH OF SLAB (BOTH DIRECTIONS OF EACH LIFT POINT)

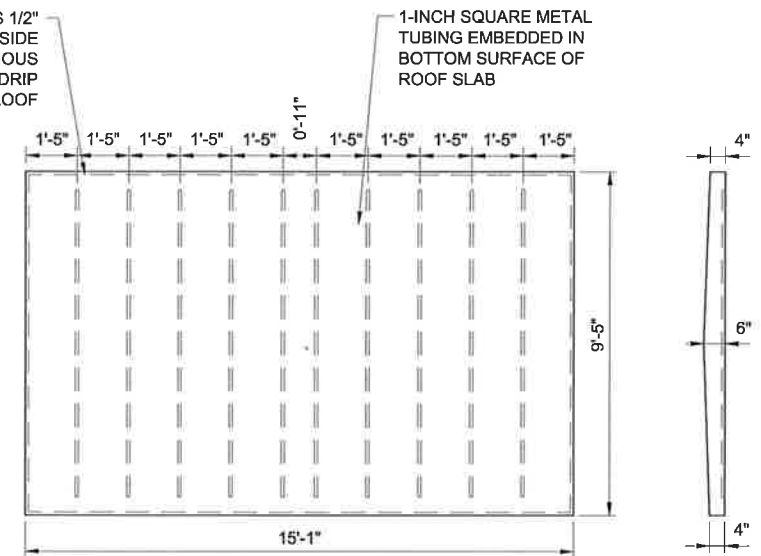


**ELEVATION CONNECTION
ANGLE IRON
AT CENTER WALL**
NOT TO SCALE

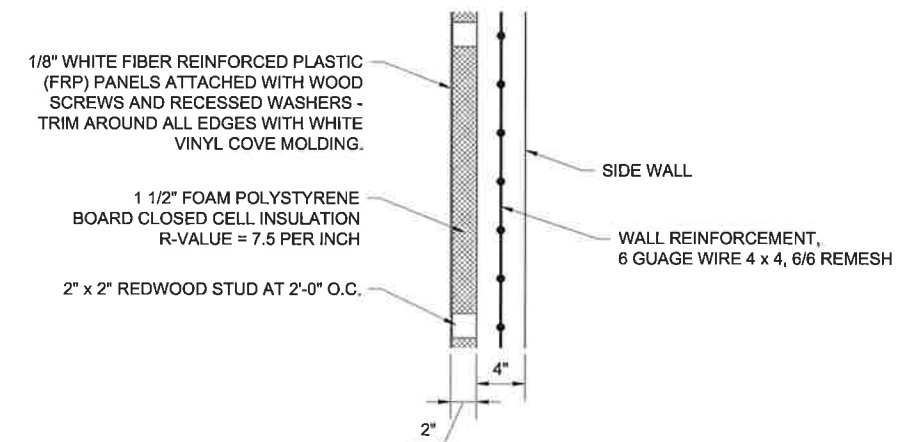


**PLAN CONNECTION
ANGLE IRON
AT CENTER WALL**
NOT TO SCALE

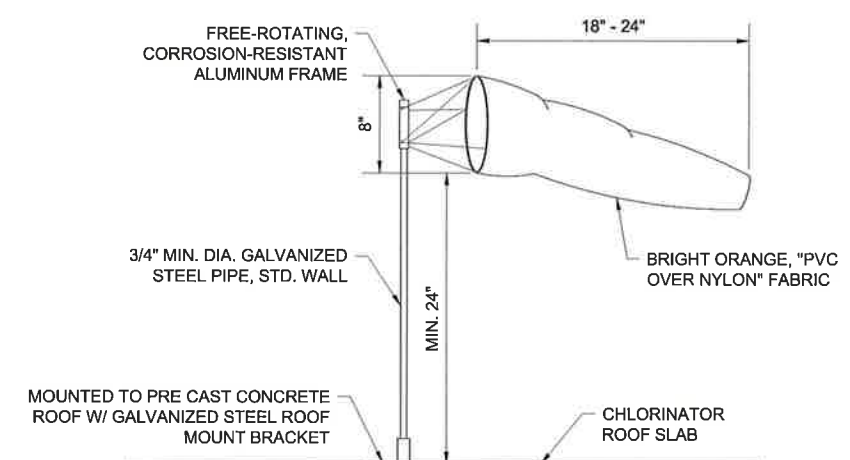
NOTE: DASHED LINE INDICATES 1/2" CHAMFER STRIP ON BOTTOM SIDE OF ROOF SLAB CONTINUOUS AROUND EDGE TO PROVIDE DRIP OF DRAINAGE FROM ROOF



ROOF SLAB
NOT TO SCALE



**WALL SECTION
DETAIL C**
NOT TO SCALE



WIND SOCK DETAIL
NOT TO SCALE

Revision	Date	Description	By	Chkd

SMA
Souder, Miller & Associates
5454 Venice Avenue NE, Suite D
Albuquerque, NM 87113
Phone: (505) 299-0942 Toll-Free: (877) 299-0942 Fax: (505) 293-3430
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Albuquerque, Colorado, Houston, Farmington, Las Cruces, Roswell, Santa Fe, NM
Cortez, Grand Junction, CO - Salt Lake City, UT - El Paso, TX
201910 1105PM AM

CLIENT: The Navajo Nation
TOWN: Reach 26.3 To Torreon, NM
PROJECT: PRECAST 2-ROOM CHLORINATION BUILDING DETAILS
NAVAJO GALLUP WATER SUPPLY PROJECT - REACH 26.3
SANDOVAL & MCKINLEY COUNTIES, NEW MEXICO

Designed: TTT
Drawn: AAV
Checked: AGR

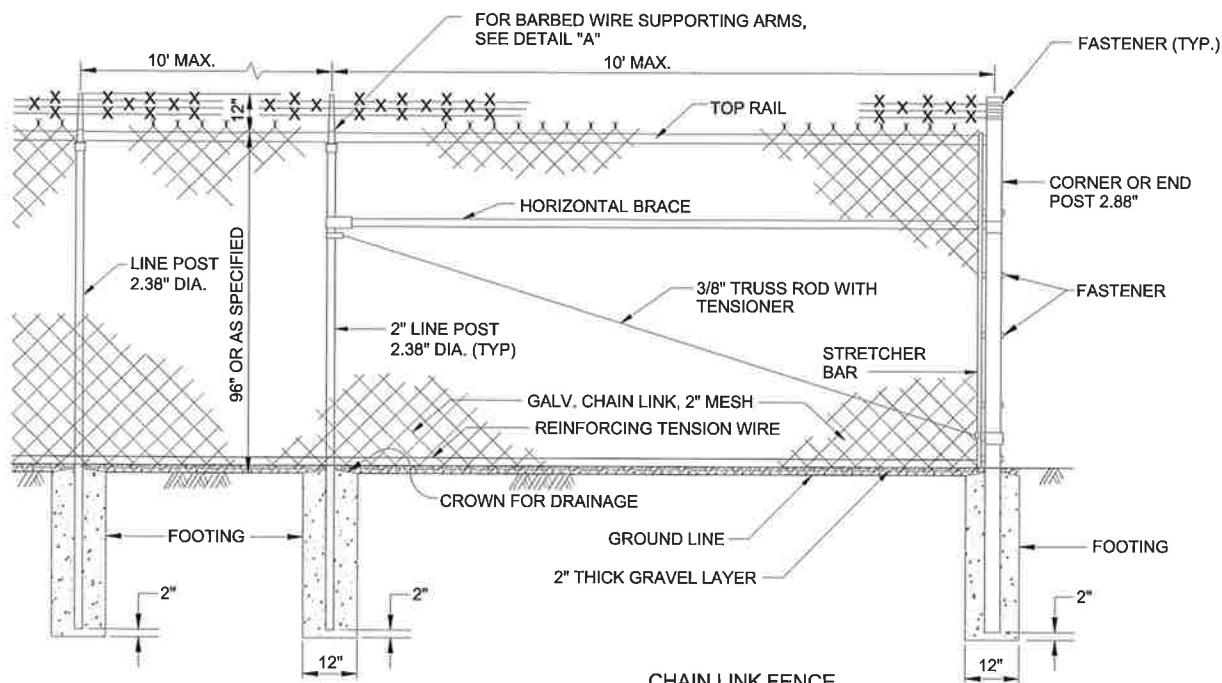
Greta Y. Quintana
NEW MEXICO
13561
PROFESSIONAL ENGINEER
2/1/19

THIS DRAWING IS INCOMPLETE AND NOT TO BE USED FOR CONSTRUCTION UNLESS IT IS STAMPED, SIGNED AND DATED

NOTICE OF EXTENDED PAYMENT PROVISION:
THIS CONTRACT ALLOWS THE OWNER TO MAKE PAYMENT WITHIN 45 DAYS AFTER SUBMISSION OF AN UNDISPUTED REQUEST FOR PAYMENT.

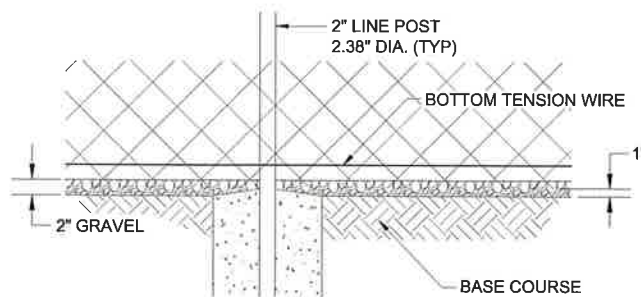
811 Know what's below. Call before you dig.

Date: February 4, 2019
Scale: Horiz: AS SHOWN
Vert: N/A
Project No: 6921307
Sheet: DT-26

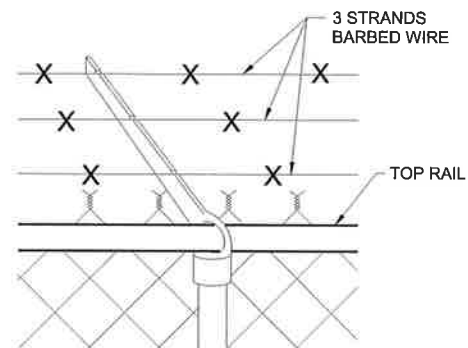


- NOTES:
1. AT BROW CROSSING, EMBED ON 6" CENTERS, 4-11/2" x 24" GALVANIZED RODS WITH 2" HOOKED END INTO BROW DITCH CONCRETE. EXPOSED END OF ROD SHALL BE WOVEN INTO FENCE FABRIC.
 2. IMBED BOTTOM OF FABRIC MIN. 1" INTO THE 2" THICK GRAVEL LAYER.

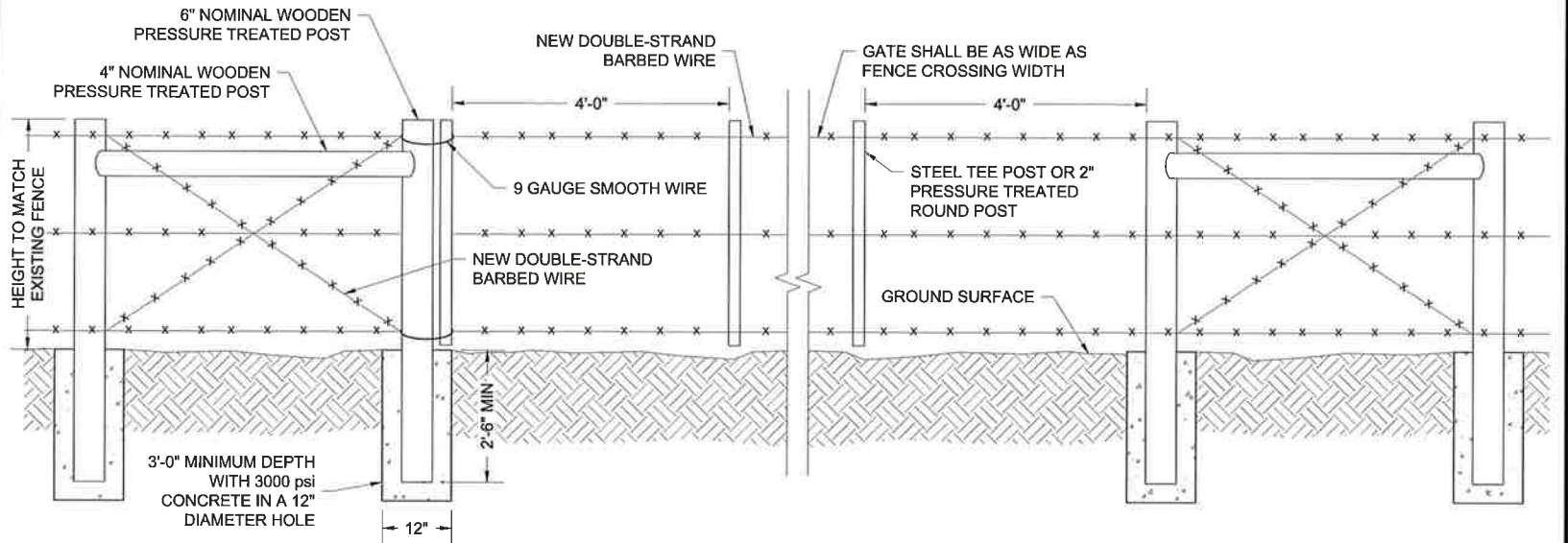
CHAIN LINK FENCE
NOT TO SCALE



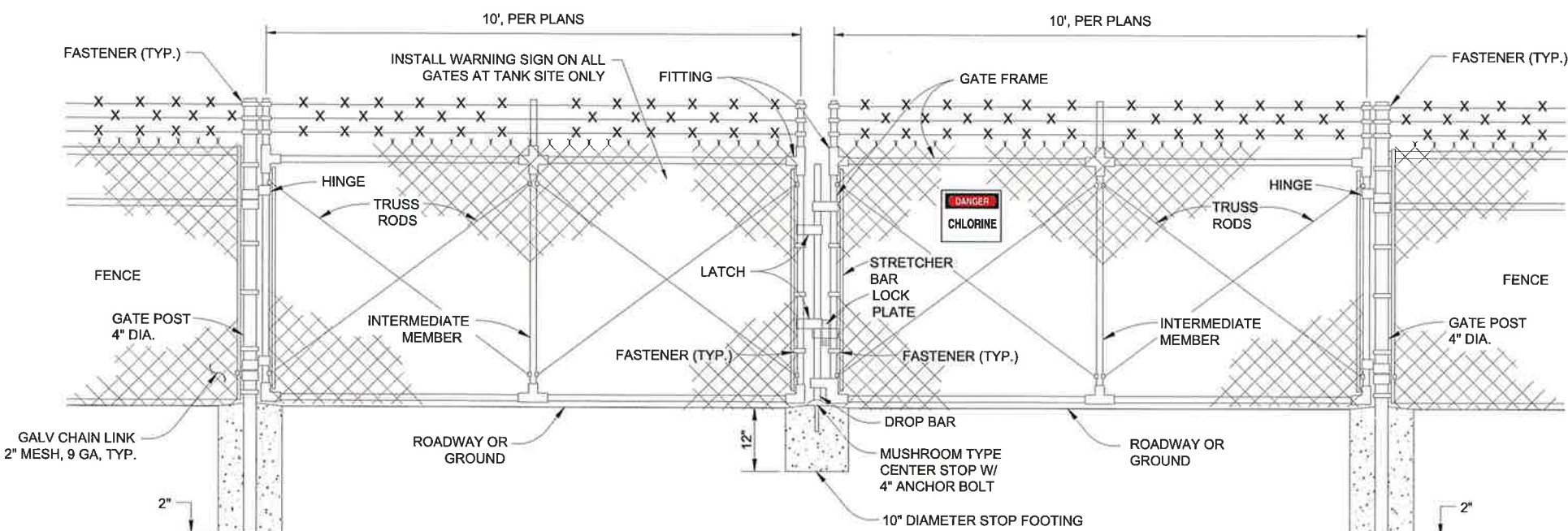
BASE COURSE AND GRAVEL DETAIL
NOT TO SCALE



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



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



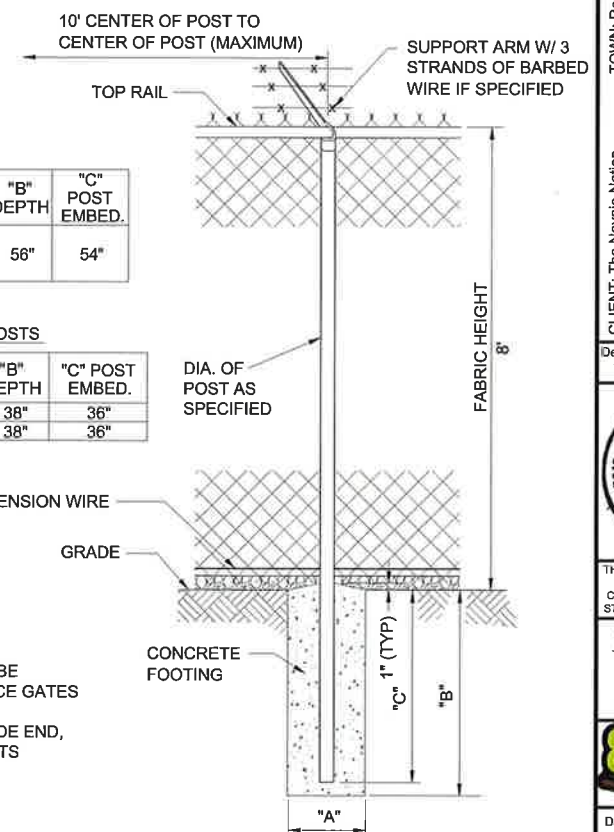
20' DOUBLE SWINGING VEHICLE GATE
NOT TO SCALE

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"	

NOTES:

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



CHAIN LINK FENCE FOUNDATION
NOT TO SCALE

CLIENT: The Navajo Nation
TOWN: Reach 26.3 To Tarron, NM

STANDARD FENCE DETAILS
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACH 26.3
SANDOVAL & MCKINLEY COUNTIES, NEW MEXICO

Designed: TTT
Drawn: AAV
Checked: AGR

TORY T. TADANO
NEW MEXICO
21073
LICENSED PROFESSIONAL ENGINEER

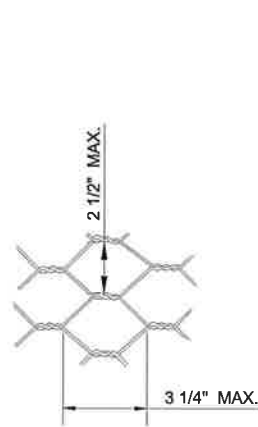
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NOTICE OF EXTENDED PAYMENT PROVISION:
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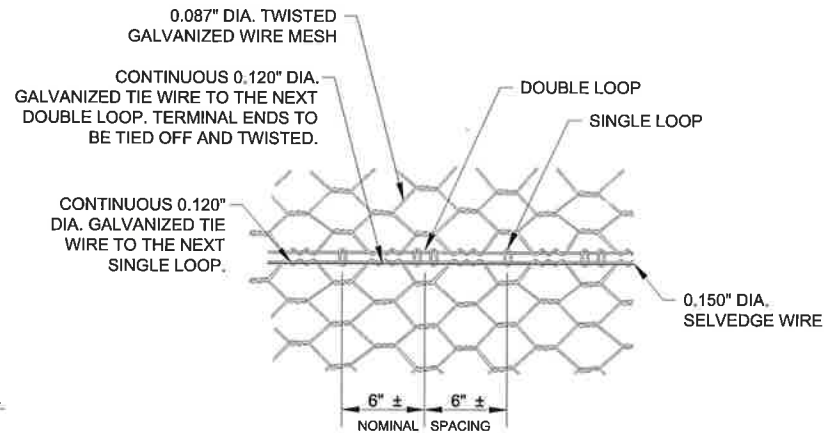
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Date: January 15, 2019
Scale: Horiz: NONE
Vert: N/A
Project No: 6921307
Sheet: DT-27

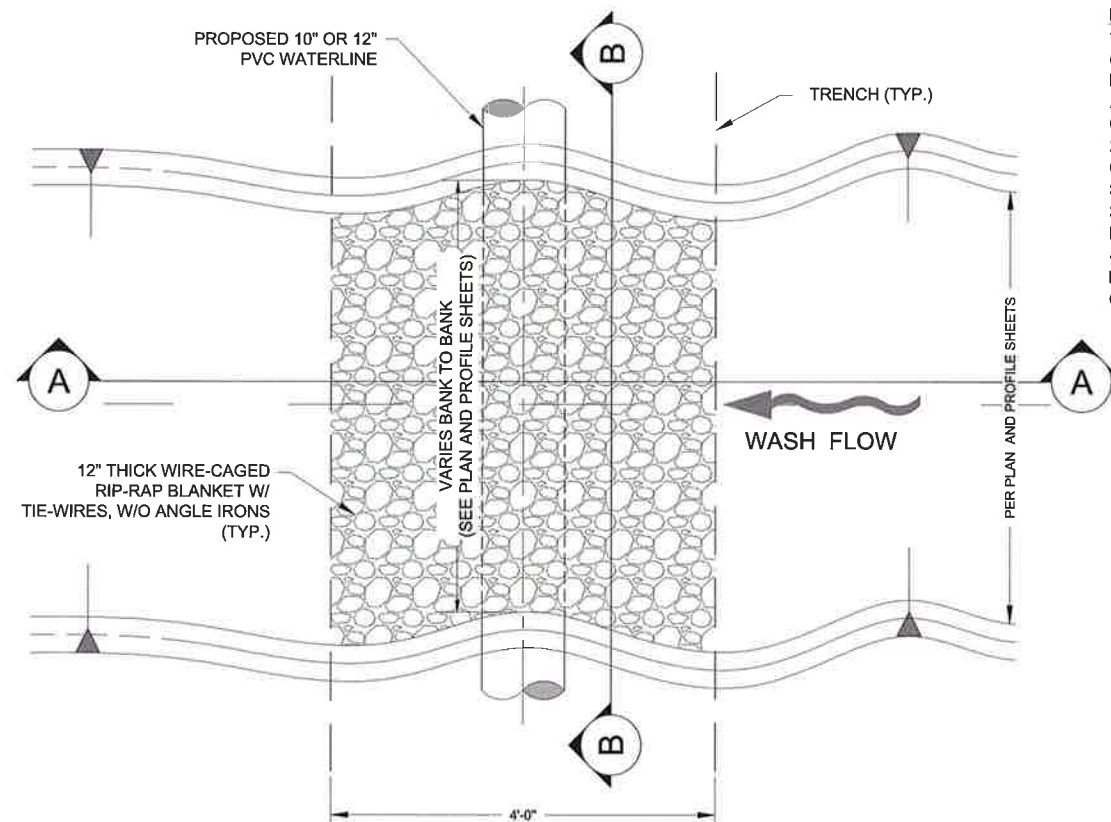
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ALBUQUERQUE, NM 87113
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1/15/2019 11:28:30 AM



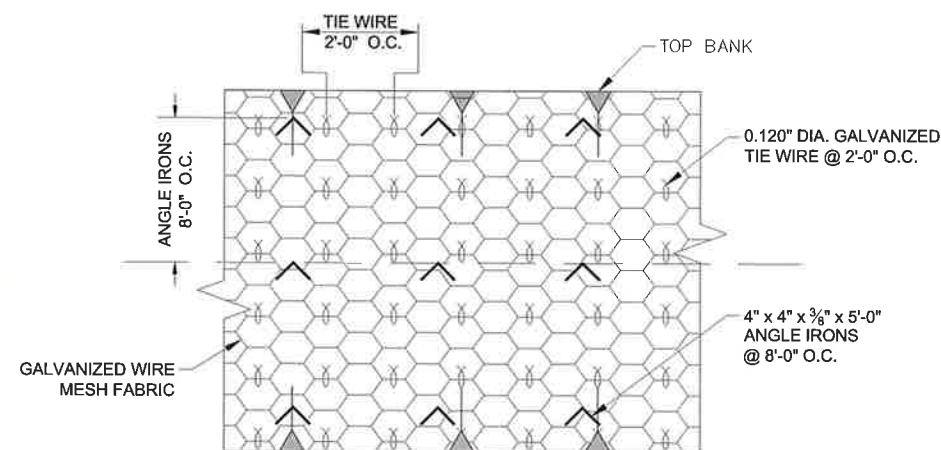
TWISTED MESH MATTRESS
NOT TO SCALE



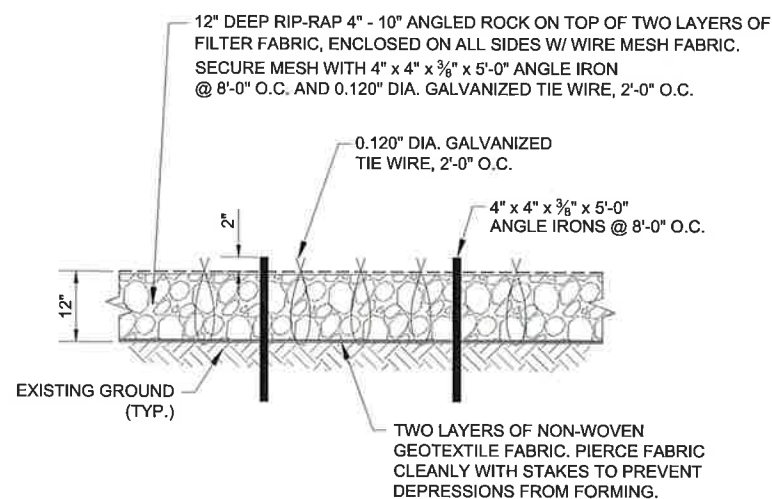
STANDARD JOINT CONNECTION DETAIL
NOT TO SCALE



PLAN VIEW

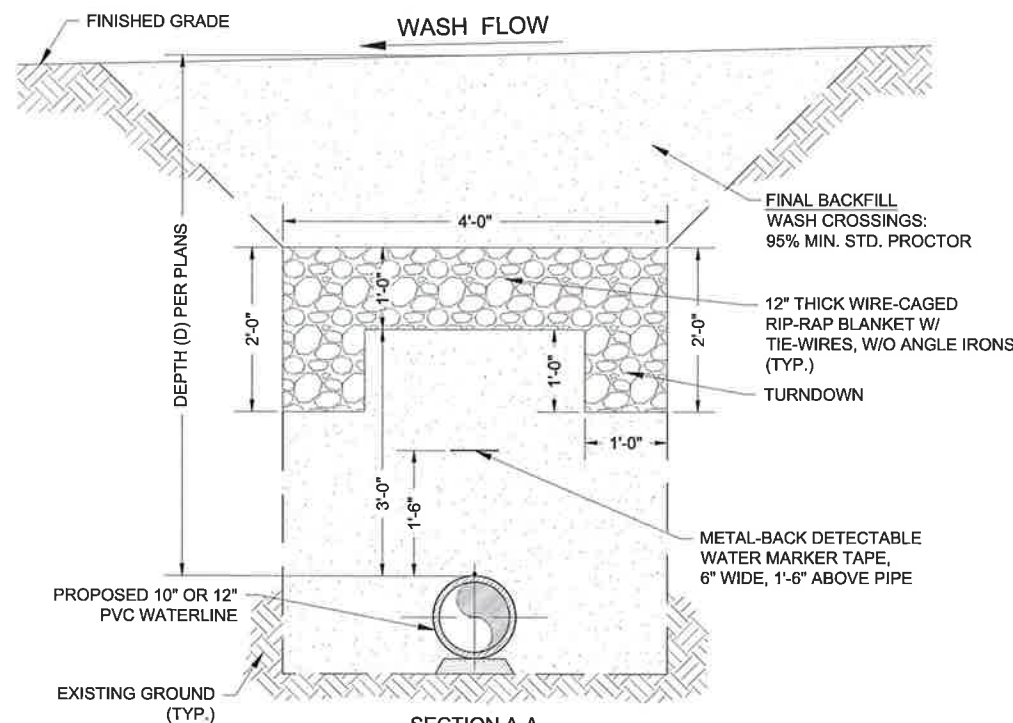


TYP. 12\"/>



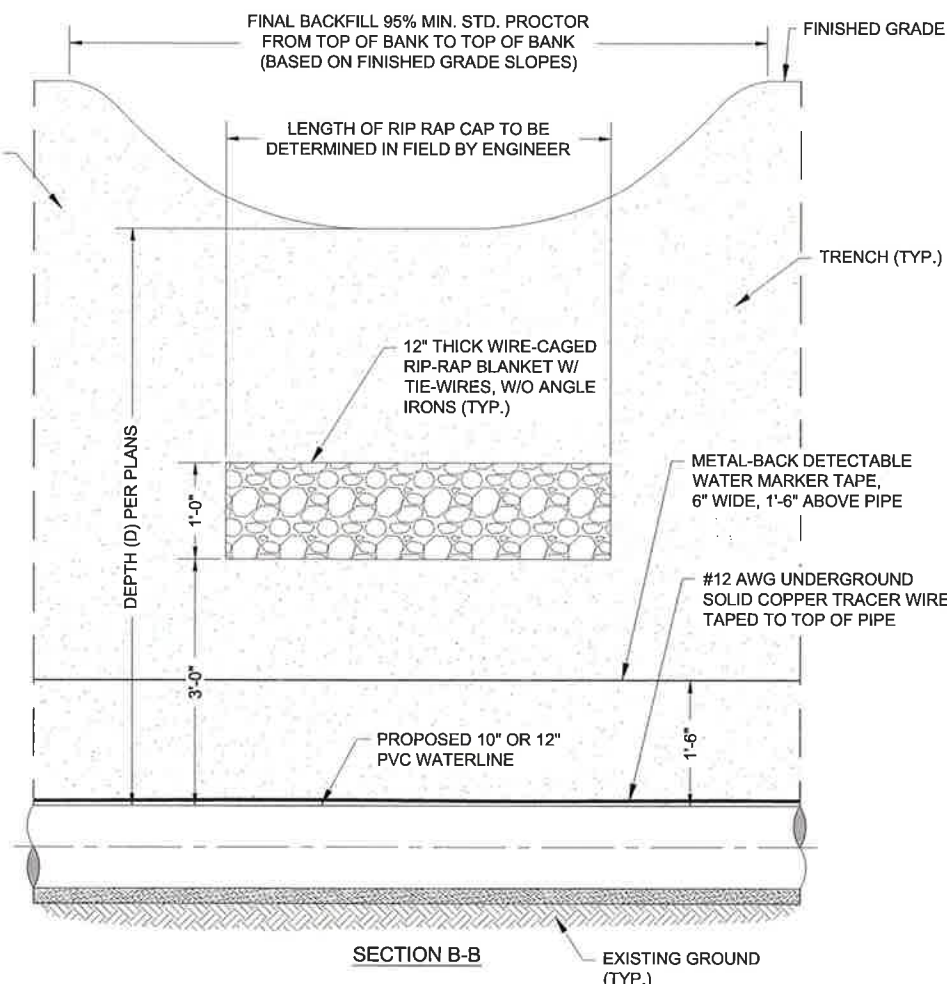
CROSS SECTION

TYPICAL 12\"/>



SECTION A-A

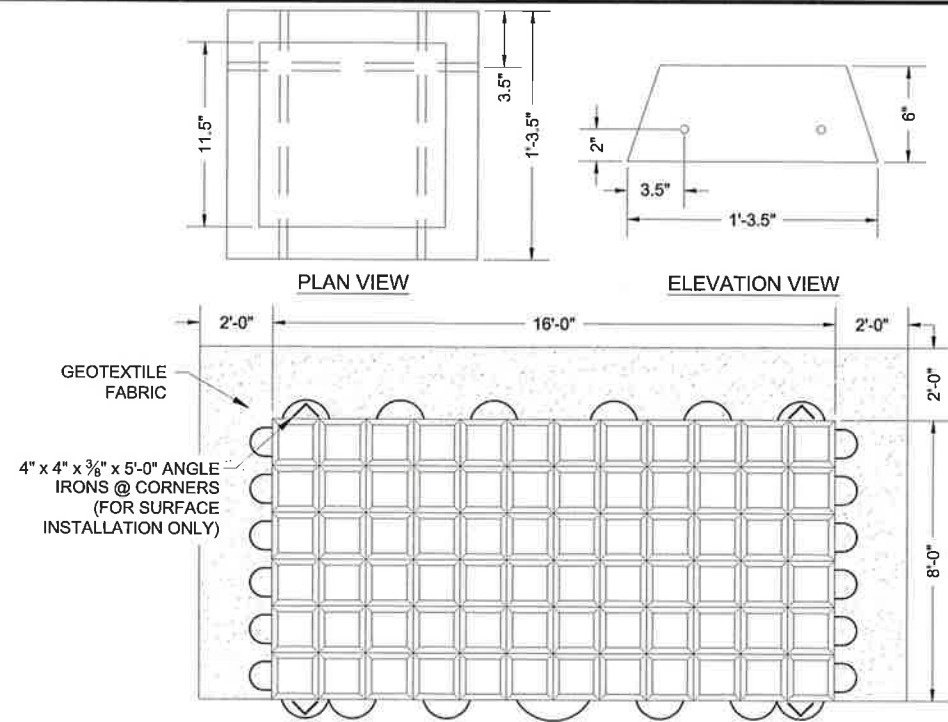
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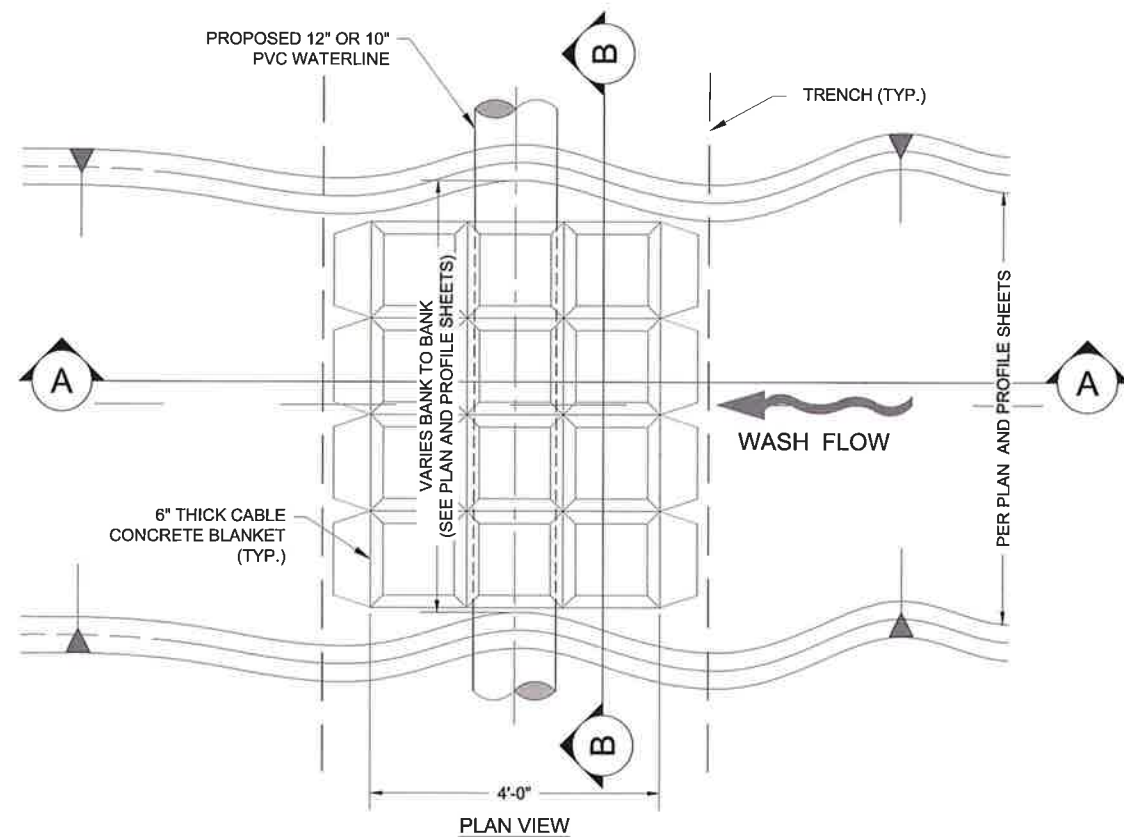
SECTION B-B

- NOTE:**
1. FOR RIP-RAP BLANKETS IN NATURAL WATERWAYS (EXCEPT FLUSH VALVE OUTLETS), BLANKET SHALL BE BURIED AS SHOWN. COVER BLANKET WITH NATURAL SOIL AND REGRADE TO RESTORE WASH FLOWLINE TO NATURAL GRADE.
 2. RIP-RAP BLANKETS AT SITES, FLUSH VALVE OUTLETS AND CULVERT OUTLETS SHALL BE INSTALLED FLUSH WITH SURROUNDING FINISHED GRADE.
 3. FINAL QUANTITIES, DIMENSIONS AND LOCATIONS TO BE DETERMINED IN FIELD BY ENGINEER.
 4. FOR ALL WASH CROSSINGS, CULVERT OUTFALLS, AND FLUSH VALVE OUTLETS, EITHER RIP-RAP OR CABLE CONCRETE MAY BE USED AT CONTRACTOR'S OPTION

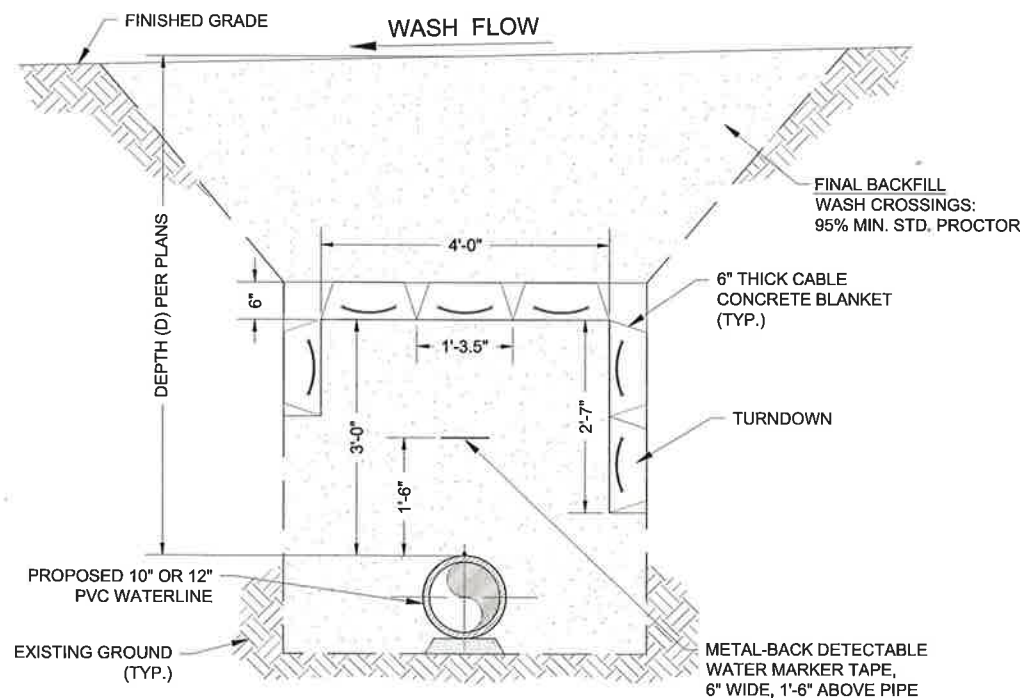
<p>SMA Soudier, Miller & Associates 5454 VANCE AVENUE NE, SUITE D ALBUQUERQUE, NM 87113 Phone: (505) 299-0942 Toll-Free: (877) 299-0942 Fax: (505) 291-3400 www.smaonline.com</p> <p>Serving the Southwest & Rocky Mountain Albuquerque, Colorado, Houston, Farmington, Las Cruces, Roswell, Santa Fe, NM Cortez, Grand Junction, CO - Salt Lake, AZ - Mesa, UT - El Paso, TX</p>	Revision	Date	By	Chkd
<p>CLIENT: The Navajo Nation TOWN: Reach 26.3 To: Torreon, NM</p> <p>EROSION CONTROL DETAILS (1 of 3) NAVAJO GALLUP WATER SUPPLY PROJECT - REACH 26.3 SANDOVAL & MCKINLEY COUNTIES, NEW MEXICO</p>				
Designed TTT	Drawn AAV	Checked AGR	<p>2019.01.14</p> <p>TORRY T. YADANO REGISTERED PROFESSIONAL ENGINEER NEW MEXICO 21073</p>	
<p>THIS DRAWING IS INCOMPLETE AND NOT TO BE USED FOR CONSTRUCTION UNLESS IT IS STAMPED, SIGNED AND DATED</p> <p>NOTICE OF EXTENDED PAYMENT PROVISION: THIS CONTRACT ALLOWS THE OWNER TO MAKE PAYMENT WITHIN 45 DAYS AFTER SUBMISSION OF AN UNDISPUTED REQUEST FOR PAYMENT.</p>				
<p>811 Know what's below. Call before you dig.</p>				
<p>Date: February 1, 2019</p> <p>Scale: Horiz: NONE Vert: N/A</p> <p>Project No: 6921307</p> <p>Sheet: DT-28</p>				



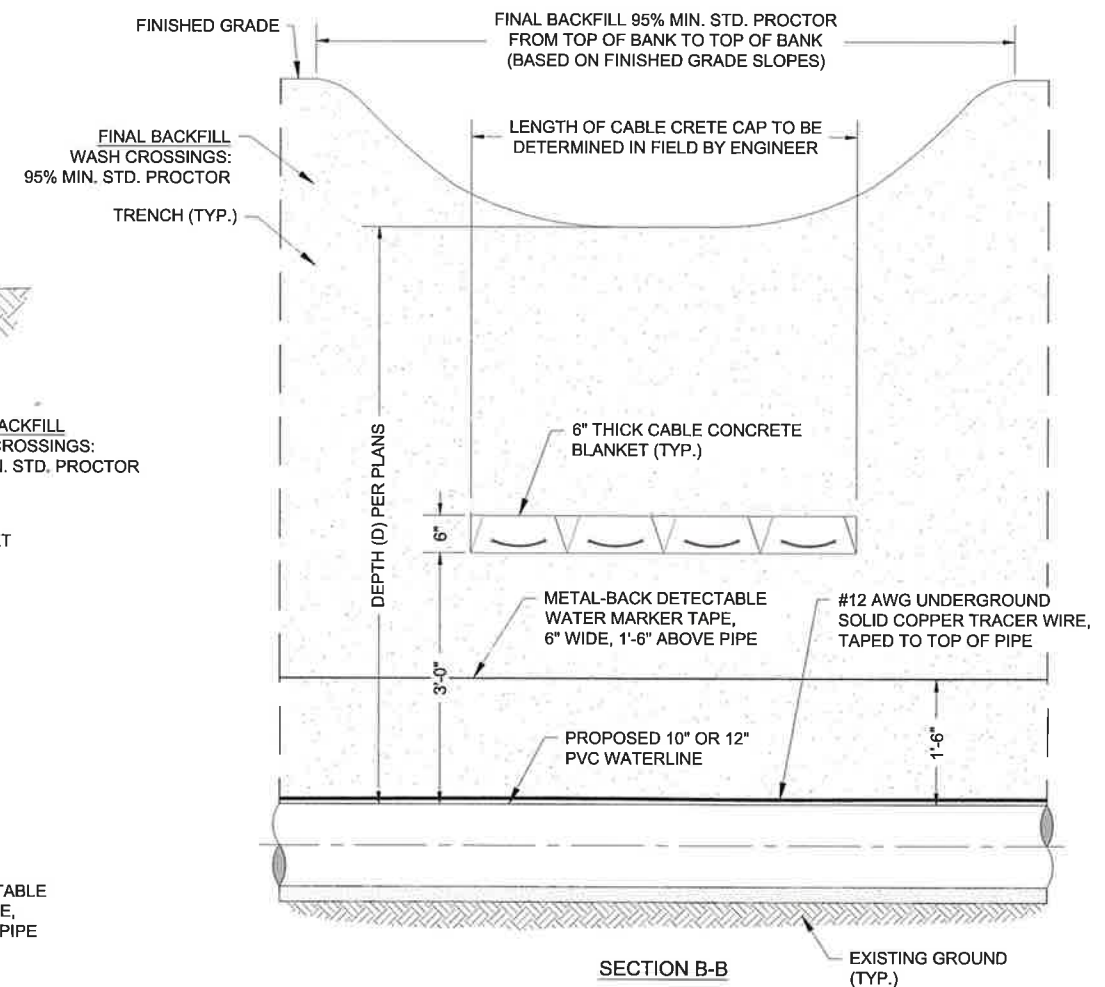
TYPICAL 6" CC-45 CLOSED CELL CABLE CONCRETE DETAIL
NOT TO SCALE



- NOTE:**
1. FOR CABLE CONCRETE BLANKETS IN NATURAL WATERWAYS (EXCEPT FLUSH VALVE OUTLETS), BLANKET SHALL BE BURIED AS SHOWN. COVER BLANKET WITH NATURAL SOIL AND REGRADE TO RESTORE WASH FLOWLINE TO NATURAL GRADE.
 2. CABLE CONCRETE BLANKETS AT SITES, FLUSH VALVE OUTLETS AND CULVERT OUTLETS SHALL BE INSTALLED FLUSH WITH SURROUNDING FINISHED GRADE.
 3. FINAL QUANTITIES, DIMENSIONS AND LOCATIONS TO BE DETERMINED IN FIELD BY ENGINEER.
 4. FOR ALL WASH CROSSINGS, CULVERT OUTFALLS, AND FLUSH VALVE OUTLETS, EITHER RIP-RAP OR CABLE CONCRETE MAY BE USED AT CONTRACTOR'S OPTION.



TYPICAL BURIED 6" CABLE CONCRETE MATTRESS FOR WASH CROSSINGS
NOT TO SCALE



Revision	Date	Description	By	CHK'd

SMA
Soudier, Miller & Associates
5454 VENICE AVENUE, SUITE D
ALBUQUERQUE, NM 87113
Phone (505) 299-0942 Toll-Free (877) 299-0942 Fax (505) 293-3430
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Corral, Grand Junction, CO, Salt Lake, UT, El Paso, TX

CLIENT: The Navajo Nation TOWN: Reach 26.3 To Torreon, NM

EROSION CONTROL DETAILS (2 of 3)
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACH 26.3
SANDOVAL & MCKINLEY COUNTIES, NEW MEXICO

Designed TTT	Drawn AAV	Checked AGR
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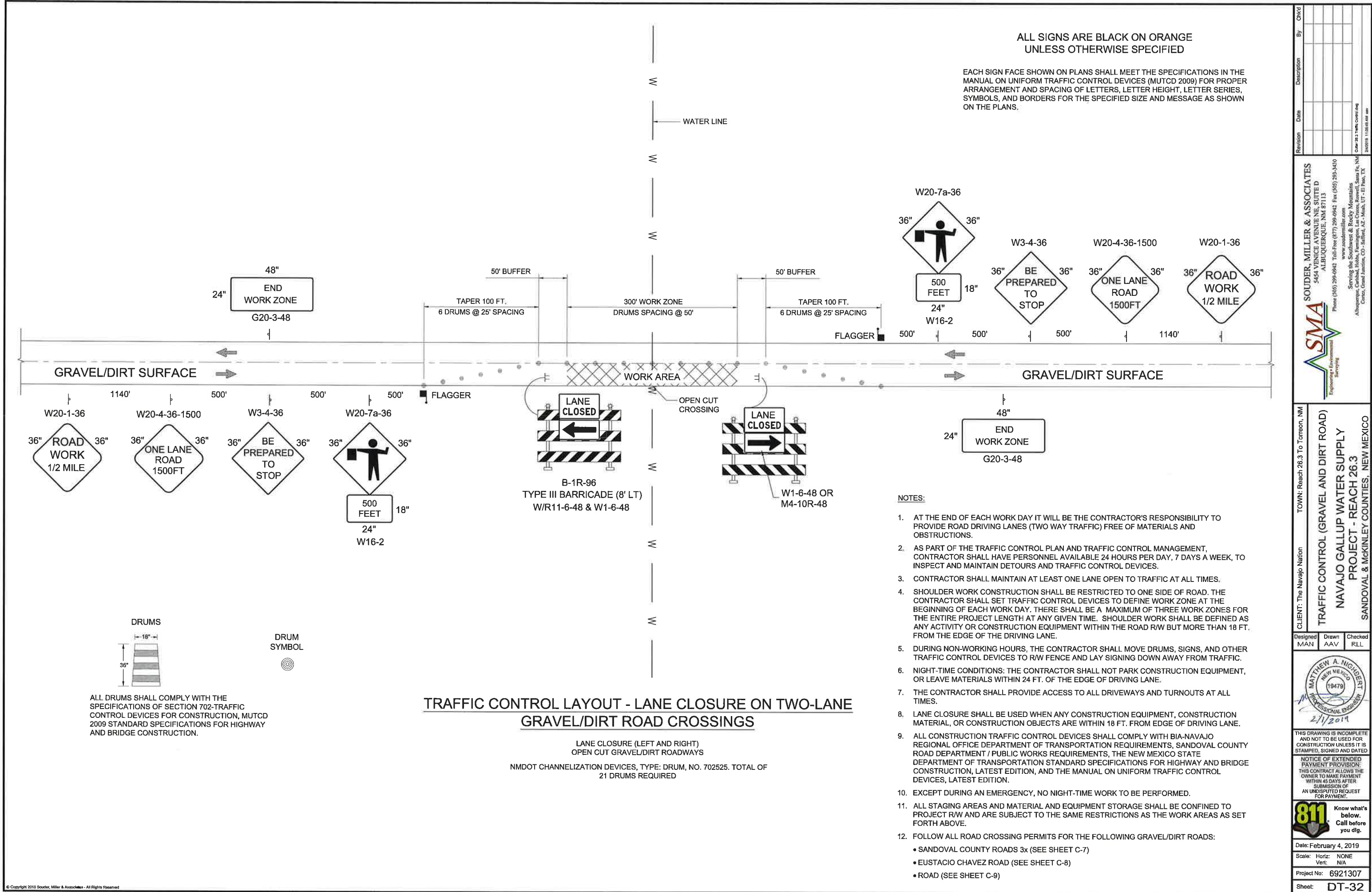
Tony T. Tadano
NEW MEXICO
21023
Professional Engineer
11/31/14








































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Date: February 1, 2019
Scale: Horiz: NONE
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Project No: 6921307
Sheet: DT-29



ELECTRICAL SYMBOL LEGEND	
SYMBOL	DESCRIPTION
	WALL OUTLET AND SURFACE MOUNTED FIXTURE
	FLUORESCENT OUTLET AND FIXTURE
	SINGLE POLE SWITCH, FLUSH MOUNTED 48" A.F.F.
	DUPLEX CONVENIENCE OUTLET, 18" A.F.F.
	WEATHERPROOF DUPLEX CONVENIENCE OUTLET, 18" A.F.F.
	DUPLEX CONVENIENCE OUTLET, GROUND FAULT CIRCUIT INTERRUPTER, 18" A.F.F.
	JUNCTION BOX INSTALLED ABOVE LAY-IN CEILING WITH FLEXIBLE CONDUIT CONNECTION TO LAY-IN FIXTURES. MAXIMUM 4'-0" LENGTH OF CONDUIT, WITH REQUIRED CONDUCTORS ALONG WITH GREEN GROUND CONDUCTOR
	JUNCTION BOX FLUSH IN WALL, HEIGHT AS INDICATED ON DRAWINGS, WITH CONNECTION TO EQUIPMENT
	CONCEALED BRANCH CIRCUIT WITH CONDUCTORS AS INDICATED. NEUTRAL, HOT, SWITCH LEG AND GROUND RESPECTIVELY
	BRANCH CIRCUIT OR CONDUIT INSTALLED UNDERGROUND OR UNDER FLOOR
	HOMERUN TO PANELBOARD WITH BRANCH CIRCUIT NUMBERS INDICATED
	SOLENOID VALVE
	LIMIT SWITCH
	PRESSURE TRANSMITTER
	FIRE ALARM SMOKE AND HEAT DETECTOR, PHOTOELECTRIC TYPE, 120V AUX CONTACTS
	MOTOR CONNECTION FOR FRACTIONAL HP MOTOR (1/3 HP OR LESS). PROVIDE THERMAL OVERLOAD SWITCH (WEATHERPROOF IF OUTSIDE) ADJACENT TO MOTOR UNLESS SWITCH IS SHOWN ELSEWHERE ON PLANS
	MOTOR CONNECTION FOR MOTOR WITH HP INDICATED
	DISCONNECT SWITCH, POLES AND RATING AS INDICATED OR AS REQUIRED, NEMA 3R IF INSTALLED OUTSIDE
	FUSED DISCONNECT SWITCH, FUSE, POLES AND RATING AS INDICATED OR AS REQUIRED, NEMA 3R IF INSTALLED OUTSIDE
	COMBINATION MAGNETIC MOTOR CONTROLLER/DISCONNECT SWITCH. SIZE, POLES, FUSES AND OVERLOADS PER MOTOR SERVED
	MAGNETIC MOTOR CONTROLLER, SIZE AND POLES PER MOTOR SERVED
	TRANSFORMER, DRY TYPE, SIZE AS INDICATED
	THERMOSTAT(M), 48" A.F.F.
	120V PANELBOARD, REFER TO PANEL SCHEDULE
	277V PANELBOARD, REFER TO PANEL SCHEDULE
	SPECIAL PURPOSE CABINET, AS INDICATED ON DRAWINGS
	INTRUSION ALARM DOOR CONTACT MAGNETIC
	NORMALLY OPEN CONTACT
	NORMALLY CLOSED CONTACT
	CONTACTOR
	MOTOR OVERLOADS
	RED PILOT LIGHT
	GREEN PILOT LIGHT
	TRANSFORMER
	RELAY
	SWITCH
	FUSE(S)
	CIRCUIT BREAKER
PLC	PROGRAMMABLE LOGIC CONTROLLER
RTU	REMOTE TERMINAL UNIT
	THERMOSTAT
WP	WEATHERPROOF (NEMA 3R)
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
A.F.F.	ABOVE FINISHED FLOOR
A.F.G.	ABOVE FINISHED GRADE
NOTES:	
• LIGHTING FIXTURES ARE OF TYPE AS INDICATED ON LIGHT FIXTURE SCHEDULE U.N.O.	
• MOUNTING HEIGHTS FOR DEVICES CALLED OUT AT 18" A.F.F. ARE TO THE BOTTOM OF THE DEVICE UNLESS OTHERWISE NOTED.	
• MOUNTING HEIGHTS FOR DEVICES CALLED OUT AT 48" A.F.F. ARE TO THE TOP OF THE DEVICE UNLESS OTHERWISE NOTED.	
• 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

G1) IF THERE IS A CONFLICT BETWEEN PLANS/SPECIFICATIONS AND MANUFACTURER'S RECOMMENDATIONS FOR ANY DEVICE, PART, OR MATERIAL USED IN THE PROJECT, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY IN WRITING THE ENGINEER FOR CLARIFICATION.

G2) THE CONTRACTOR SHALL FAMILIARIZE HIM/HERSELF 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 THE PLANS.

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 EQUIPMENT SPECIFIED OR 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 IF ACCEPTABLE TO ENGINEER. APPLICATION FOR SUCH ACCEPTANCE WILL NOT BE CONSIDERED BY ENGINEER UNTIL AFTER THE EFFECTIVE DATE OF AGREEMENT. THE PROCEDURE 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 ENGINEER 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. THE CONTRACTOR IS REQUIRED TO TAKE ALL PRECAUTIONARY MEASURES TO PROTECT THE UTILITIES SHOWN, AND ANY OTHER LINES OR STRUCTURES NOT SHOWN 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 COMPANIES 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 OPERATIONS.

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 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) UTILITY LOCATION 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) EPA STORM WATER DISCHARGE REGULATIONS. THE CONTRACTOR IS RESPONSIBLE FOR COMPLIANCE TO APPLICABLE PORTIONS OF THE EPA STORM WATER DISCHARGE REGULATIONS.

G15) DUST ABATEMENT. 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 SHALL BE CONSIDERED INCIDENTAL TO CONSTRUCTION.

SITE DESIGN

G16) SUBGRADE. ALL ELECTRICAL 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 GUTTER, AND OTHER CONCRETE PAVEMENT SHALL BE PLACED ON 6" OF COMPACTED SUBGRADE.

G17) RESTORE SURFACE AT TRENCH TO EXISTING CONDITIONS.

COMMUNICATION

G18) CONTRACTOR SHALL KEEP THE OWNER AND THE ENGINEER UPDATED WEEKLY ON THE CONSTRUCTION SCHEDULE AND/OR PHASE SCHEDULE, AND PROGRESS TO DATE.

STAGING STORAGE & DEBRIS DISPOSAL

G19) 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

G20) THE CONTRACTOR SHALL PROVIDE A RECORD SKETCH ON THESE PLANS FOR THE AS-CONSTRUCTED CONDITIONS.

PHASE AND SCHEDULE

G21) 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

G22) CONTRACTOR SHALL PROVIDE SUBMITTALS FOR ALL EQUIPMENT, MATERIALS, PROCESSES AND SCHEDULES AND AS REQUESTED BY ENGINEER.

PROGRAMMING OF PLC + SCADA SYSTEMS

G23) CONTRACTOR RESPONSIBLE FOR PROVIDING, INSTALLING, AND PROGRAMMING A COMPLETE AND WORKING SYSTEM.

G24) CONTRACTOR SHALL COORDINATE ALL PROGRAMMING REQUIREMENTS WITH OWNER AND SHALL REFER TO PLANS AND SPECIFICATIONS FOR SEQUENCE OF OPERATIONS. REFER TO CONTROL WIRING SCHEDULE, DISCRETE & ANALOG I/O LIST, CONTROL AND WIRING DIAGRAMS, AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.

CLIENT: The Navajo Nation

TOWN: Reach 26.3 To Torreon

REACH 26.3 - GENERAL NOTES


NAVAJO GALLUP WATER SUPPLY PROJECT - REACH 26.3

SANDOVAL & MCKINLEY COUNTIES, NEW MEXICO

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NOTICE OF EXTENDED PAYMENT PROVISION: THIS CONTRACT ALLOWS THE OWNER TO MAKE PAYMENT WITHIN 45 DAYS AFTER SUBMISSION OF AN UNDISPUTED REQUEST FOR PAYMENT.



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Date: October 3, 2018

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

Project No: 6921307

Sheet: E001

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Revision




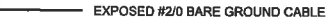
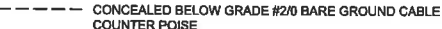
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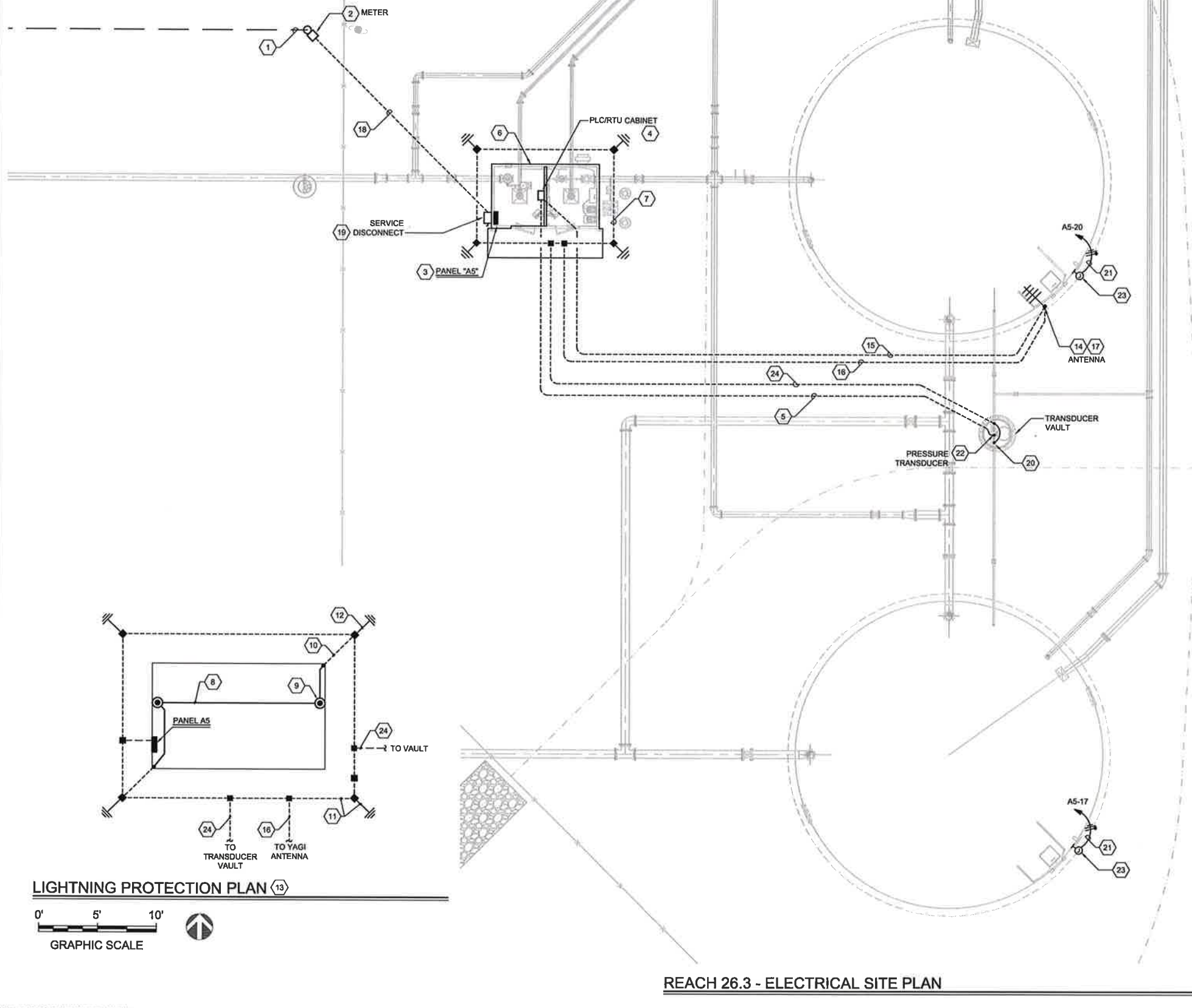
Description

By

Ck'd

SYMBOL LEGEND - LIGHTNING PROTECTION

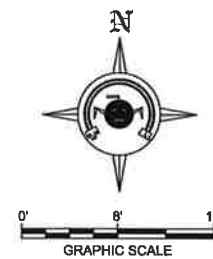
-  LIGHTNING AIR TERMINAL
-  LIGHTNING CABLE CADWELD
-  GROUND ROD
-  EXPOSED #2/0 BARE GROUND CABLE
-  CONCEALED BELOW GRADE #2/0 BARE GROUND CABLE COUNTER POISE



LIGHTNING PROTECTION PLAN 13



REACH 26.3 - ELECTRICAL SITE PLAN



GENERAL NOTES

- REFER TO LIGHTNING PROTECTION SPECIFICATION SECTION 28 60 10 FOR ADDITIONAL INFORMATION.
- CONTRACTOR SHALL PROVIDE LIGHTNING PROTECTION SYSTEM DRAWING BEFORE INSTALLATION, INCLUDING GROUND RODS AND GROUNDING CABLES (BELOW GROUND AND ABOVE ROOF).
- AFTER THE SYSTEM HAS BEEN INSTALLED, THE UL LISTED INSTALLER SHALL COMPLETE AND SUBMIT THE CERTIFICATION APPLICATION.
- THE UL LISTED INSTALLER SHALL FORWARD THE CERTIFICATION TO THE OWNER AND PROVIDE PROOF THAT THE LIGHTNING PROTECTION SYSTEM IS IN COMPLIANCE WITH UL, NFPA, OR U.S. GOVERNMENT STANDARDS.
- GROUND ROD AND BUILDING COUNTER POISE DEPTH SHALL BE 24" BELOW GRADE.
- ALL GROUNDING WIRING SHALL BE PROPERLY CONNECTED PER SPECS SECTION 28 45 00.
- THE CONTRACTOR SHALL SELECT AN ADHESIVE FOR THE AIR TERMINALS THAT MANUFACTURED RECOMMENDED AND IS COMPATIBLE FOR USE WITH THE ROOFING SYSTEM.
- ALL WIRING CONNECTIONS, AIR TERMINAL BASES, CLAMPS, AND PLATES THAT COME IN CONTACT WITH THE ROOFING MATERIAL SHALL BE INSTALLED USING AN APPROVED ADHESIVE. THE LIGHTNING PROTECTION SYSTEM INSTALLER SHALL NOT CREATE ANY PENETRATION IN THE ROOF WHEN INSTALLING THEIR EQUIPMENT.
- ALL WIRING CONNECTORS, AIR TERMINALS, CLAMPS, ETC SHALL BE UL APPROVED FOR A LIGHTNING PROTECTION SYSTEM.

KEYED NOTES

- NEW OVERHEAD 240 VOLT, SINGLE PHASE LINE OF OVERHEAD CONDUCTORS TO POLE BY JEMEZ UTILITY COMPANY. POLE INSTALLED BY CONTRACTOR PER JEMEZ ELECTRIC COOP SPECIFICATION. VERIFY POWER POLE LOCATION WITH ENGINEER AND UTILITY PRIOR TO FINAL PLACEMENT. MAINTAIN 3'-0" CLEARANCE BETWEEN METER AND FENCE.
- CONTRACTOR SHALL PROVIDE A METER ENCLOSURE MOUNTED ON POLE. REFER TO POWER RISER DIAGRAM FOR ADDITIONAL REQUIREMENTS. METER SHALL FACE TOWARDS FENCE. 25'-0" POLE PROVIDED AND INSTALLED BY THE CONTRACTOR. PROVIDE A MINIMUM WORKING CLEARANCE OF 3'-0" BETWEEN METER AND FENCE PER N.E.C. REQUIREMENTS.
- BUILDING PANEL "AS". REFER TO POWER RISER DIAGRAM, BUILDING PLAN AND PANEL SCHEDULE FOR ADDITIONAL REQUIREMENTS ON SHEET E102.
- PLC CABINET. REFER TO FLOOR PLAN FOR LOCATION ON SHEET E201.
- UNDERGROUND CONDUIT RUN FROM THE VAULT INSTRUMENTATION TO THE PLC CABINET. REFER TO BUILDING CONTROL PLAN AND WIRING SCHEDULE ON SHEET E103 FOR CABLE AND CONDUIT REQUIREMENTS.
- NEW CHLORINATION BUILDING. REFER TO BUILDING PLAN ON SHEET E102 & E103 FOR EQUIPMENT LOCATIONS.
- REFER TO LIGHTNING PROTECTION PLAN ON THIS SHEET FOR ADDITIONAL REQUIREMENTS.
- LIGHTNING PROTECTION CLASS 1 ROOF-MOUNTED LATERAL CONDUCTOR AND MOUNTING HARDWARE.
- LIGHTNING PROTECTION AERIAL TERMINAL. 1/2" x 18" TUBULAR COPPER AERIAL TERMINAL AND MOUNTING HARDWARE, MOUNTED AT ROOF PARAPET, PENTHOUSE AND ROOFTOP UNITS AS INDICATED.
- LIGHTNING PROTECTION 2/0 BARE COPPER DOWN-CONDUCTOR.
- LIGHTNING PROTECTION COUNTERPOISE SYSTEM. ALL CONNECTIONS SHALL BE EXO-THERMIC WELDS.
- GROUND ROD. 3/4" X 10'-0" GROUND ROD
- LIGHTNING PROTECTION SYSTEM LAYOUT ON THIS PLAN IS FOR BIDDING PURPOSES ONLY. INSTALLATION TO BE PER NFPA-780, U.S. GOVERNMENT STANDARDS AND SPECIFICATIONS SECTION 28 60 10. SYSTEM SHALL BE PROVIDED WITH A MASTER LABEL
- INSTALL A YAGI ANTENNA ON TOP OF A 2" RGS CONDUIT MAST AND MOUNT TO THE SIDE OF THE TANK LADDER CAGE. EXTEND CONDUIT TO 10' ABOVE TOP OF TANK. ADJUST ANTENNA FOR MAXIMUM SIGNAL STRENGTH FROM COUNSELOR SITE. REFER TO SHEET E103 FOR COAXIAL ANTENNA CABLE REQUIREMENT.
- 1" CONDUIT WITH CABLES FROM PLC TO ANTENNA MAST.
- BOND ANTENNA CABLE CONDUIT AND ANTENNA MAST TO A 8" X 5/8" COPPER-CLAD STEEL GROUND ROD AND TO BUILDING COUNTER POISE WITH #4 COPPER GROUND CONDUCTORS.
- REFER TO ANTENNA INSTALLATION DETAIL ON SHEET E203 FOR ADDITIONAL REQUIREMENTS.
- REFER TO POWER RISER DIAGRAM FOR UNDERGROUND CONDUIT AND CONDUCTOR SIZES FOR SECONDARY SERVICE.
- PROVIDE AND INSTALL A BUILDING MOUNTED SERVICE DISCONNECT SWITCH. REFER TO POWER RISER ON SHEET E201 FOR ADDITIONAL REQUIREMENTS.
- PROVIDE A 5/8" x 8" COPPER-CLAD STEEL GROUND ROD IN VAULT. CONNECT BOTH PIPE FLANGES AND ENCLOSURE TO THE GROUND ROD WITH #4 COPPER CONDUCTORS FROM VAULT GROUND ROD EXTEND A #4 COPPER CONDUCTOR IN A 3/4" CONDUIT, UP TO THE GROUNDING SYSTEM.
- HOMERUN 3 #12 - 1" CONDUIT FROM THE J-BOX TO PANEL "A4" LOCATED IN THE CHLORINATION BUILDING. ALL CONDUIT RISERS OUT OF THE GROUND SHALL BE RGS.
- TANK PRESSURE TRANSDUCER INSTALLED IN VAULT. REFER TO PRESSURE TRANSDUCER VAULT DETAIL ON SHEET E201.
- THE CONTRACTOR SHALL PROVIDE AND INSTALL A WEATHERPROOF J-BOX ADJACENT TO THE CATHODIC PROTECTION RECTIFIER. RECTIFIER WILL BE MOUNTED NEXT TO THE TANK LADDER. COORDINATE FINAL LOCATION PRIOR TO INSTALLATION. EXTEND POWER TO RECTIFIER AND MAKE FINAL CONNECTION AS REQUIRED BY MANUFACTURER'S RECOMMENDATIONS. (FOR USE WITH WELDED STEEL TANKS ONLY).
- EXTEND A #4 BARE COPPER CONDUCTOR BETWEEN VAULT GROUNDING AND BUILDING COUNTERPOISE.

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.

Revision	Date	Description	By	Checked

15024 E 101 Reach 26.3 - Electrical Site Plan
10/03/18

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Soudier, Miller & Associates
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5454 VINCE AVENUE, SUITE D
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CLIENT: The Navajo Nation
TOWN: Reach 26.3 To Torreon

REACH 26.3 - ELECTRICAL SITE PLAN
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACH 26.3
SANDOVAL & MCKINLEY COUNTIES, NEW MEXICO

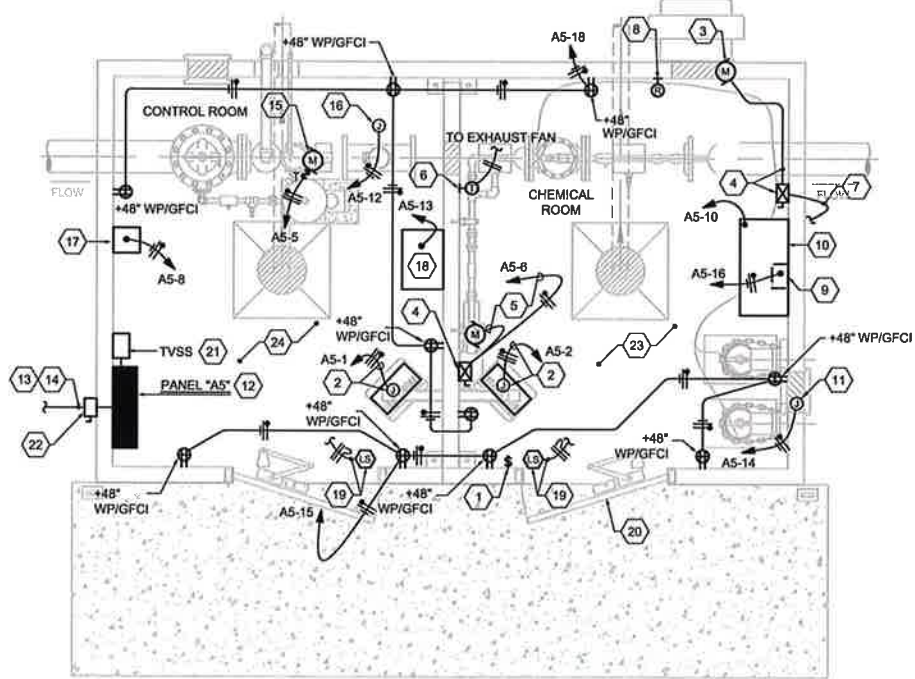
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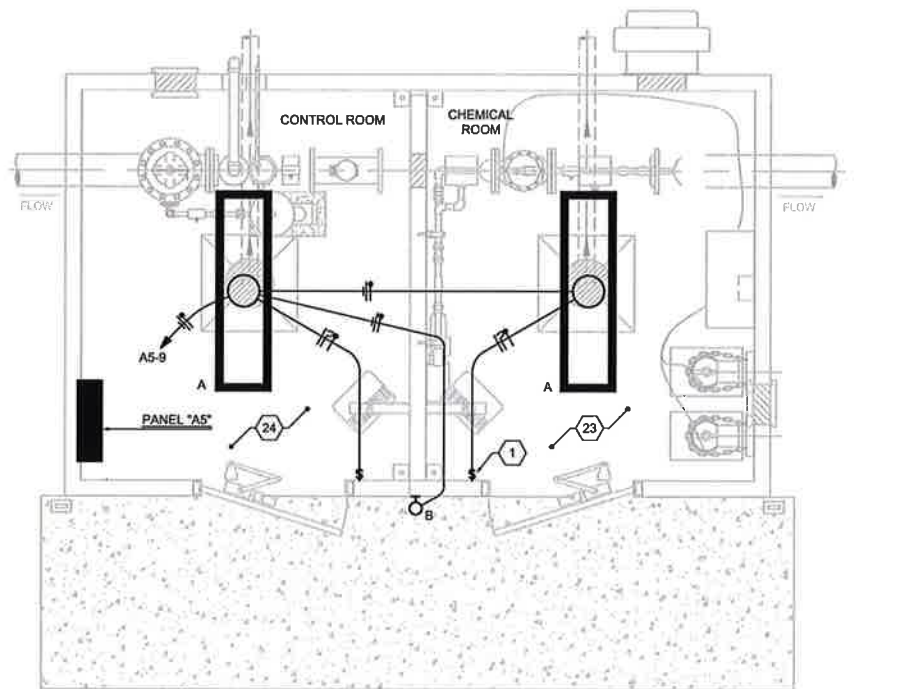
NOTICE OF EXTENDED PAYMENT PROVISION:
THIS CONTRACT ALLOWS THE OWNER TO MAKE PAYMENT WITHIN 45 DAYS AFTER SUBMISSION OF AN UNDISPUTED REQUEST FOR PAYMENT.

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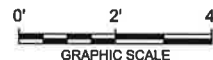
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Project No: 6921307
Sheet: E101



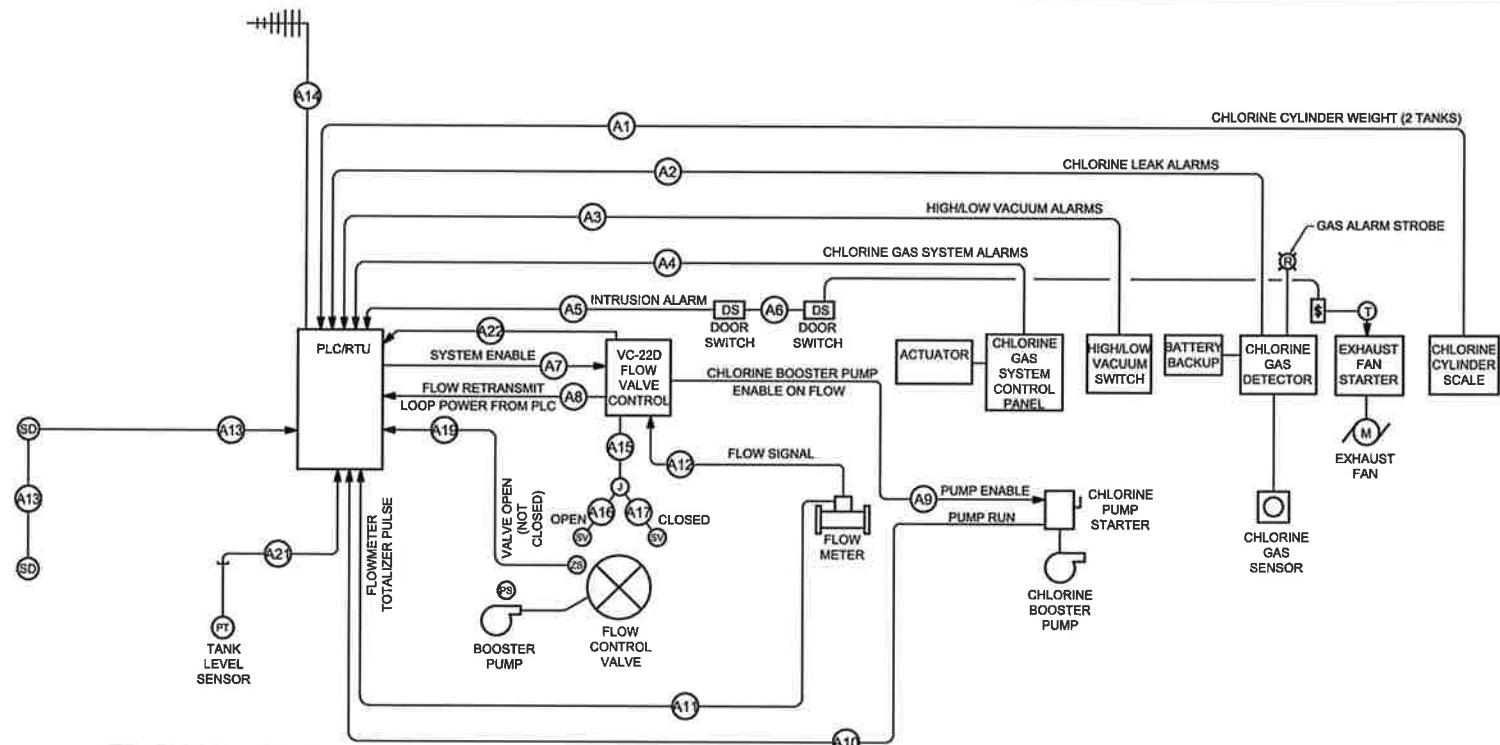
REACH 26.3 CHLORINATION BUILDING - POWER PLAN



REACH 26.3 CHLORINATION BUILDING - LIGHTING PLAN

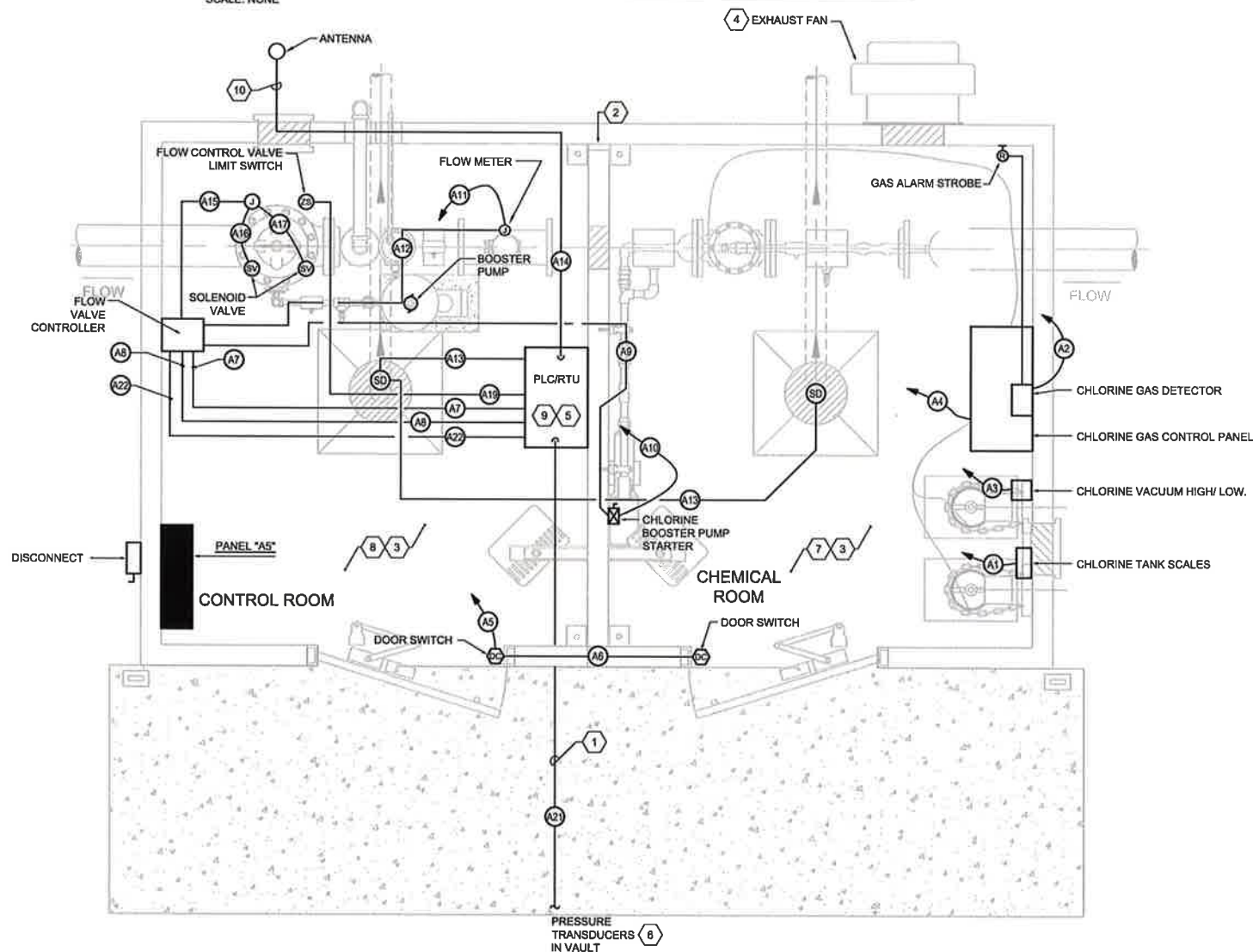


PANEL: "A5"			OC DEVICE TYPE: BREAKER			ENCLOSURE: NEMA 4X			MAINS (A): 100A MCB				
REACH 26.3 CHLORINATION BLDG.			DEVICE FAMILY: BOLT ON			MOUNTING: SURFACE			WIRING: 1 PH., 3 WIRE				
FED FROM: SERVICE DISC SWITCH			MODEL:			VOLTAGE: 120/240V			AIC: 10,000				
BKR SIZE	NOTES	DESCRIPTION	DEMAND CODE	LOAD (VA)	CKT NO.	PHASE A	LOADS PHASE B	CKT NO.	LOAD (VA)	DEMAND CODE	DESCRIPTION	NOTES	BKR SIZE
30A/2P		UNIT HEATER		2000	1	4000		2	2000		UNIT HEATER		30A/2P
				2000	3		4000	4	2000				
20A/2P		BOOSTER PUMP		588	5	1452		8	864		CHLORINE PUMP		20A/1P
				588	7		838	8	250		VALVE CONTROL		20A/1P
20A/1P		LIGHTS/EXHAUST		320	9	520		10	200		CHLORINE PANEL		20A/1P
20A/1P		HEAT TRACE		100	11		200	12	100		FLOW METER		20A/1P
20A/1P		PLC PANEL		500	13	600		14	100		CHLORINE SCALE		20A/1P
20A/1P		RECEPTACLES		500	15		600	16	100		CHLORIN DET.		20A/1P
20A/1P		CATHODIC PROT.		100	17	450		18	360		RECEPTACLES		20A/1P
20A/1P		SPARE			19		100	20	100		CATHODIC PROT.		20A/1P
		SPACE			21			22			SPARE		20A/1P
		SPACE			23			24			SPARE		20A/1P
		SPACE			25			26			SPARE		20A/1P
		SPACE			27			28			TVSS		30A
		SPACE			29			30			TVSS		2P
	KVA	AMPS	PHASE TOTALS:		VA	AMPS	NOTES:						
SECT. 1	12.8	53.2		PHASE A:	7032	58.6	1.) NEUTRAL BAR, GROUND BAR						
				PHASE B:	5738	47.8	2.) DOOR-IN DOOR TRIM, 30 TOTAL POLES						
TOTAL	12.8	53.2											



REACH 26.3 CHLORINATION BUILDING CONTROL RISER DIAGRAM

SCALE: NONE



REACH 26.3 CHLORINATION BUILDING - SCADA SYSTEM AND CONTROL PLAN

0' 16" 32"
GRAPHIC SCALE

KEYED NOTES

1. REFER TO SITE PLAN ON E101 FOR LOCATION OF PRESSURE TRANSDUCER.
2. PROVIDE (2) 1/4" CONDUIT SLEEVES THROUGH WALL WITH J-BOXES ON EACH SIDE OF WALL AND FIRE SEAL GAS TIGHT. ALL CONTROL CABLES AND WIRING BETWEEN ROOMS SHALL BE ROUTED THROUGH SLEEVES. ONE CONDUIT FOR ANALOG CABLES THE OTHER FOR DIGITAL CABLES. SIZE J-BOXES PER NUMBER OF CONDUITS TERMINATIONS.
3. PROVIDE AND INSTALL CONDUIT AND CABLING BETWEEN EQUIPMENT AS CALLED OUT IN THE CONTROL WIRING SCHEDULE AND CONTROL RISER LOCATED ON THIS SHEET. COORDINATE TERMINATION OF CABLE PER THE EQUIPMENT SUPPLIER AND REQUIREMENTS IN THE TECHNICAL SPECIFICATIONS.
4. REFER TO CONTROL DIAGRAM ON SHEET E-202 FOR EXHAUST FAN AND DETECTION SYSTEM CONTROLS.
5. PLC CONFIGURED TO OWNERS STANDARDS AND REQUIREMENTS, REFER TO SHEET E-301 THRU E-303 AND SPECIFICATIONS.
6. TANK LEVEL PRESSURE TRANSDUCER, AMETEK MODEL 88C 003-A-2-RANGE 0-30PSI ANALOG PRESSURE TRANSDUCER, INSTALLED IN NEW VAULT. REFER TO VAULT DETAIL ON SHEET E-201 FOR ADDITIONAL REQUIREMENTS.
7. ALL EXPOSED CONDUIT RUNS WITHIN THE CHLORINATION CHEMICAL SIDE OF THE BUILDING SHALL BE PVC CONDUIT. ALL HANGERS AND FITTINGS SHALL BE PVC COATED. CONDUITS THAT EXIT THE CHEMICAL SIDE OF THE BUILDING SHALL BE PROVIDED WITH A SEAL OFF FITTING AFTER EXITING. ALL EQUIPMENT AND MOTOR ENCLOSURE SHALL BE RATED FOR USE WITHIN A CORROSIVE ENVIRONMENT AND WET LOCATION.
8. ALL EXPOSED CONDUIT INSTALLED WITHIN THE CONTROL ROOM SIDE OF THE CHLORINATION BUILDING SHALL BE RIGID STEEL CONDUIT WITH THREADED CONDUIT BODIES. ALL EQUIPMENT ENCLOSURES AND CONDUIT INSTALLATION SHALL BE RATED FOR WET LOCATION.
9. THE PLC / RTU CABINET WILL BE PROVIDED WITH UNLICENSED RADIO TYPE TRANSMIT AS MANUFACTURED BY GE, WHICH WILL TRANSMIT AND RECEIVE SIGNALS FROM COUNSELOR SITE.
10. PROVIDE AND INSTALL LIGHTNING ARRESTORS ON THE ANTENNA CABLES IN THE PLC / RTU CABINET FOR THE CONNECTION OF THE CABLES BETWEEN THE ANTENNA AND RADIOS. PROVIDE AND INSTALL DATA AND SIGNAL LINE PROTECTION BETWEEN THE PRESSURE TRANSDUCER AND THE PLC CONNECTION. LINE PROTECTOR AS MANUFACTURED BY JOSLYN #1820-28-A3 ON EACH LINE.

Control Wiring Schedule			
TAG #	FED FROM	TO	WIRE REQUIREMENTS
A1	Chlorine Scale	PLC Panel	2-2/C #18 Twisted Pair Shielded Cable - 1/2" Conduit
A2	Chlorine Gas Detector	PLC Panel	6 # 14, 1 # 14 Gnd - 1/2" Conduit
A3	High/Low Vacuum Switch	PLC Panel	6 # 14, 1 # 14 Gnd - 1/2" Conduit
A4	Chlorine Gas Control Panel	PLC Panel	4 # 14, 1 # 14 Gnd - 1/2" Conduit
A5	Door Switch	PLC Panel	2 # 14, 1 # 14 Gnd - 1/2" Conduit
A6	Door Switch	Door Switch	2 # 14, 1 # 14 Gnd - 1/2" Conduit
A7	PLC Panel	Flow Valve Control	2-2/C #18 Twisted Pair Shielded Cable - 1/2" Conduit
A8	Flow Valve Control	PLC Panel	2 # 14, 1 # 14 Gnd - 1/2" Conduit
A9	Flow Valve Control	Chlorine Booster Pump Starter	2 # 14, 1 # 14 Gnd - 1/2" Conduit
A10	Chlorine Booster Pump Starter	PLC Panel	2 # 14, 1 # 14 Gnd - 1/2" Conduit
A11	Flow Meter	PLC Panel	2 # 14, 1 # 14 Gnd - 1/2" Conduit
A12	Flow Meter	Flow Valve Control	2-2/C #18 Twisted Pair Shielded Cable - 1/2" Conduit
A13	Smoke Detectors	PLC	2 # 14, 1 # 14 Gnd - 1/2" Conduit
A14	Radio Transmitter Unit (RTU)	YAGI Antenna	1" Conduits each with Cable - Refer to Specification 27 43 30 2.4.C2 for Cable Requirements
A15	Flow Valve Control	Solenoid Valves J-box	3 # 14, 1 # 14 Gnd - 1/2" Conduit
A16	Solenoid Valve J-box	Solenoid Valve Open	2 # 14, 1 # 14 Gnd - 1/2" Conduit
A17	Solenoid Valve J-box	Solenoid Valve Closed	2 # 14, 1 # 14 Gnd - 1/2" Conduit
A18	not used	not used	not used
A19	Flow Control Valve Limit Switch	PLC Panel	2 # 14, 1 # 14 Gnd - 1/2" Conduit
A20	not used	not used	not used
A21	Pressure Transducer	PLC Panel	1 - 2/C #16 Twisted Pair Shielded Cable - 1" Conduit.
A22	Flow Rate Signal	PLC/RTU	1 - 2/C #18 Twisted Pair Shielded Cable - 1/2" Conduit.

Revision	Date	Description	By	CHK'd

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15024 10/03/18

CLIENT: The Navajo Nation
TOWN: Reach 26.3 To Torreon
**REACH 26.3 - CHLORINATION BUILDING
SCADA SYSTEM AND CONTROL PLAN
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACH 26.3
SANDOVAL & MCKINLEY COUNTIES, NEW MEXICO**

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STAMPED, SIGNED AND DATED
NOTICE OF EXTENDED
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THIS CONTRACT ALLOWS THE
OWNER TO HAVE PAYMENT
WITHIN 45 DAYS AFTER
SUBMISSION OF
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FOR PAYMENT.

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Date: October 3, 2018

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Project No: 6921307

Sheet: E103



- [illegible]

CLIENT: The Navajo Nation TOWN: Reach 26.3 To Torreon

REACH 26.3 - ELECTRICAL SCHEDULES AND DETAILS

NAVAJO GALLUP WATER SUPPLY PROJECT - REACH 26.3

SANDOVAL & MCKINLEY COUNTIES, NEW MEXICO

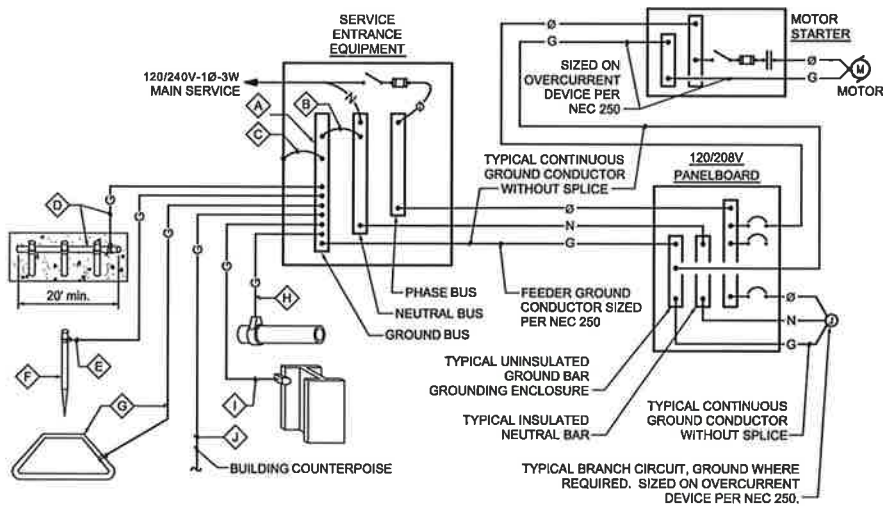


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Date:	October 3, 2018
Scale:	Horiz: N/A Vert: N/A
Project No:	6921307
Sheet:	E201

LOAD SUMMARY - PANEL "A5"	
DESCRIPTION	
PANELBOARD "A5"	
ESTIMATED DEMAND PER NEC 220	
MECHANICAL UNITS (8.0 KVA CONN)	8.0 KVA
RECEPTACLES (0.9 KVA CONN)	
FIRST 10 KVA AT 100%	0.9 KVA
REMAINING AT 50%	. KVA
LIGHTING (0.3 KVA CONN) AT 100%	0.3 KVA
EQUIPMENT (3.6 KVA CONN) AT 100%	3.6 KVA
TOTAL ESTIMATED LOAD:	12.8 KVA
53 AMPERES AT 120Y/240V-1Ø-4W	
MINIMUM SERVICE CAPACITY =125% x TOTAL ESTIMATED LOAD	16.0 KVA
66 AMPERES AT 120Y/240V-1Ø-4W	
. . MINIMUM RECOMMENDED SERVICE SIZE =	100 AMPS





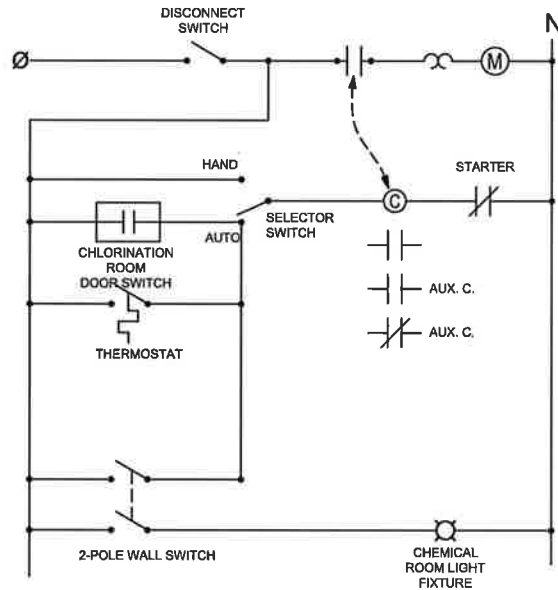
GROUNDING SYSTEM DIAGRAM - 120/240 VOLT SYSTEM

NOT TO SCALE

GROUNDING SYSTEM GENERAL NOTES

- THE GROUNDING ELECTRODE SYSTEM SHALL CONSIST OF ITEMS **A**, **B**, **C**, **D**, **E**, **F**, AND **G**, WHERE APPLICABLE.
- ITEMS **H**, **I**, AND **J** MUST BE BONDED TOGETHER AND TO THE GROUNDING ELECTRODE SYSTEM WHEN THEY ARE PRESENT.
- 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.
- THIS DETAIL IS PROVIDED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE, ARTICLE 250, PERTAINING TO THE "GROUNDING ELECTRODE SYSTEM".
- ALL SPLICING SHALL BE ACCOMPLISHED VIA EXOTHERMIC WELD (CAD-WELD) ONLY.
- ALL CONDUCTOR SIZING INDICATED ON THE GROUNDING SCHEDULE ARE FOR COPPER CONDUCTORS. ALUMINUM IS NOT PERMITTED.
- ANY VARIANCES FROM THIS DIAGRAM AND ASSOCIATED SCHEDULE AND NOTES MUST BE REQUESTED AND APPROVED IN WRITING PRIOR TO INSTALLATION.
- ALL INSTALLATIONS SHALL COMPLY WITH THE LATEST ADOPTED EDITION OF N.E.C. ARTICLE 250 (ALL SUBPARAGRAPHS) AND ALL STATE AND LOCAL REQUIREMENTS.
- 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.

GROUNDING SCHEDULE										
	A	B	C	D	E	F	G	H	I	J
	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	BUILDING COUNTER POISE
CODE REFERENCE		N.E.C. 250.102	N.E.C. 250.102	N.E.C. 250.50(c) 250.68(b)	N.E.C. 250.52(e) 250.52(d) 250.66(a)	N.E.C. 250.52(c)(2)	N.E.C. 250.50(d) 250.66(c)	N.E.C. 250.50(a) 250.66	N.E.C. 250.50(b) 250.66	N.E.C. 250.66
100 AMP	SHALL BE SIZED TO ACCOMMODATE ALL GROUND WIRE LOADS AS INDICATED ON GROUNDING DIAGRAM AND/OR REFERENCED ELSEWHERE ON PLANS OR SPECIFICATIONS	#4	#4	#4	#6	5/8"x8'	#2	#4	#4	#2/0
225 AMP		#2	#2	#4	#8	5/8"x8'	#2	#2	#2	#2



CHLORINATOR BUILDING
EXHAUST FAN CONTROL DIAGRAM

NO SCALE

CHLORINATION ROOM EXHAUST FAN OPERATES AS FOLLOWS:
WITH THE STARTER SWITCH IN AUTO:

- THE FAN WILL TURN ON WHEN THE DOOR IS OPEN VIA THE DOOR SWITCH.
- WITH THE DOOR CLOSED THE FAN WILL TURN ON WHEN THE LIGHTING SWITCH IS SWITCHED ON.
- WITH THE DOOR CLOSED THE FAN WILL TURN ON BY THERMOSTAT.

SMA Souder, Miller & Associates 5454 VENICE AVENUE NE, SUITE D ALBUQUERQUE, NM 87113 Phone (505) 299-6942 Toll-Free (877) 299-6942 Fax (505) 260-3430 www.soudermiller.com Serving the Southwest & Rocky Mountains Albuquerque, Carlsbad, Hobbs, Farmington, Las Cruces, Roswell, Santa Fe, NM Center, Grand Junction, CO - Salt Lake, AZ - Mesa, UT - El Paso, TX 10/03/18 10:00:00 AM TMO	Revision	Date	Description	By	Chkd

CLIENT: The Navajo Nation
 TOWN: Reach 26.3 To Turren
 REACH 26.3 - ELECTRICAL DIAGRAMS AND DETAILS
 NAVAJO GALLUP WATER SUPPLY PROJECT - REACH 26.3
 SANDOVAL & MCKINLEY COUNTIES, NEW MEXICO

Designed	TR	Drawn	TRG	Checked	DDR
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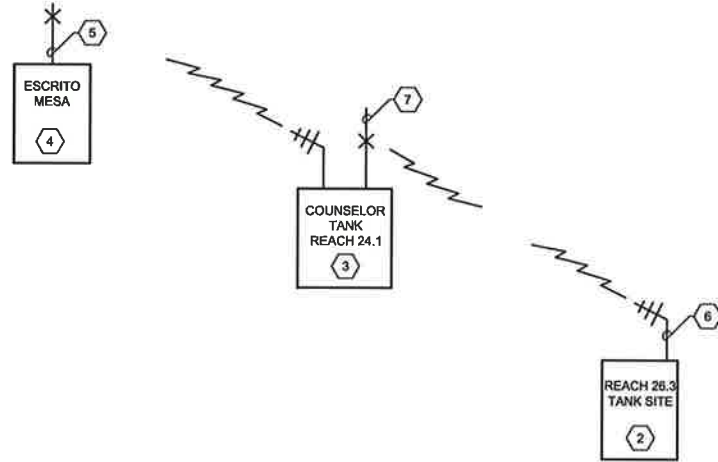
15024

THIS DRAWING IS INCOMPLETE AND NOT TO BE USED FOR CONSTRUCTION UNLESS IT IS STAMPED, SIGNED AND DATED.

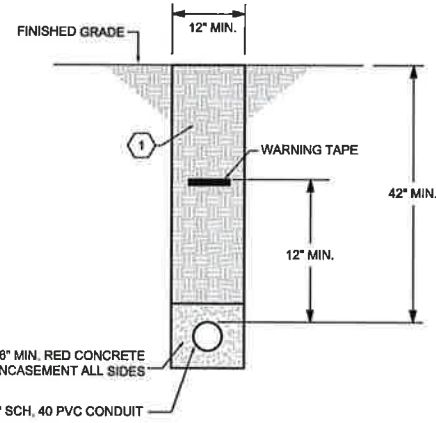
NOTICE OF EXTENDED PAYMENT PROVISION:
THIS CONTRACT ALLOWS THE OWNER TO MAKE PAYMENT WITHIN 45 DAYS AFTER SUBMISSION OF AN UNDISPUTED REQUEST FOR PAYMENT.

811 Know what's below. Call before you dig.

Date: October 3, 2018
 Scale: Horiz: N/A
 Vert: N/A
 Project No: 6921307
 Sheet: E202

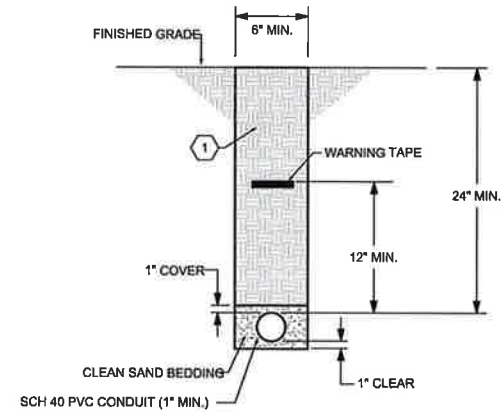


SCADA RADIO TELEMETRY SYSTEM CONFIGURATION



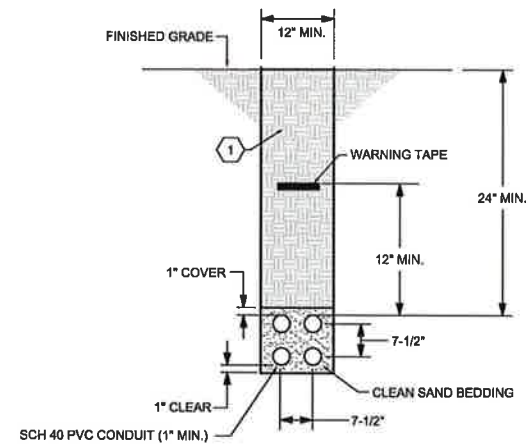
TYPICAL PRIMARY CONDUIT TRENCH DETAIL

SCALE: NONE



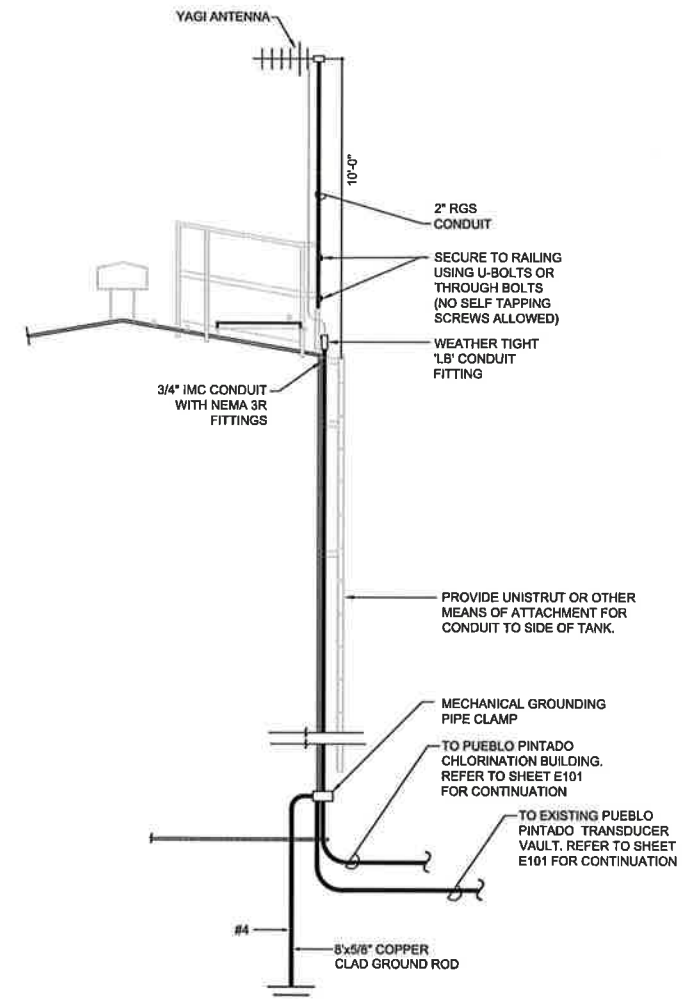
TYPICAL SINGLE CONDUIT TRENCH DETAIL

SCALE: NONE



TYPICAL MULTIPLE CONDUIT TRENCH DETAIL

SCALE: NONE



TYPICAL TANK RADIO TELEMETRY ANTENNA INSTALLATION DETAIL - REACH 26.3

SCALE: NONE

KEYED NOTES

1. REFER TO GENERAL NOTES ON SHEET E001 FOR BACKFILL REQUIREMENTS
2. NEW UNLICENSED GE MDS TRANSNET 900 MHz RADIO LINK. REFER TO SPECIFICATION SECTION 27 43 30 FOR ADDITIONAL REQUIREMENTS.
3. EXISTING UNLICENSED GE MDS TRANSNET 900 MHz RADIO LINK. REPROGRAM EXISTING SCADA PLC TO COMMUNICATE WITH NEW RTU.
4. EXISTING ESCRITO MESA SITE
5. EXISTING ANTENNA
6. NEW YAGI ANTENNA. REFER TO SPECIFICATION SECTION 27 43 30 FOR ADDITIONAL REQUIREMENTS.
7. EXISTING OMNI ANTENNA.

SMA
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Designed TR Drawn TRG Checked DDR

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Date: October 3, 2018
Scale: Horiz: N/A
Vert: N/A
Project No: 6921307
Sheet: E203

[illegible]