NAVAJO GALLUP WATER SUPPLY PROJECT

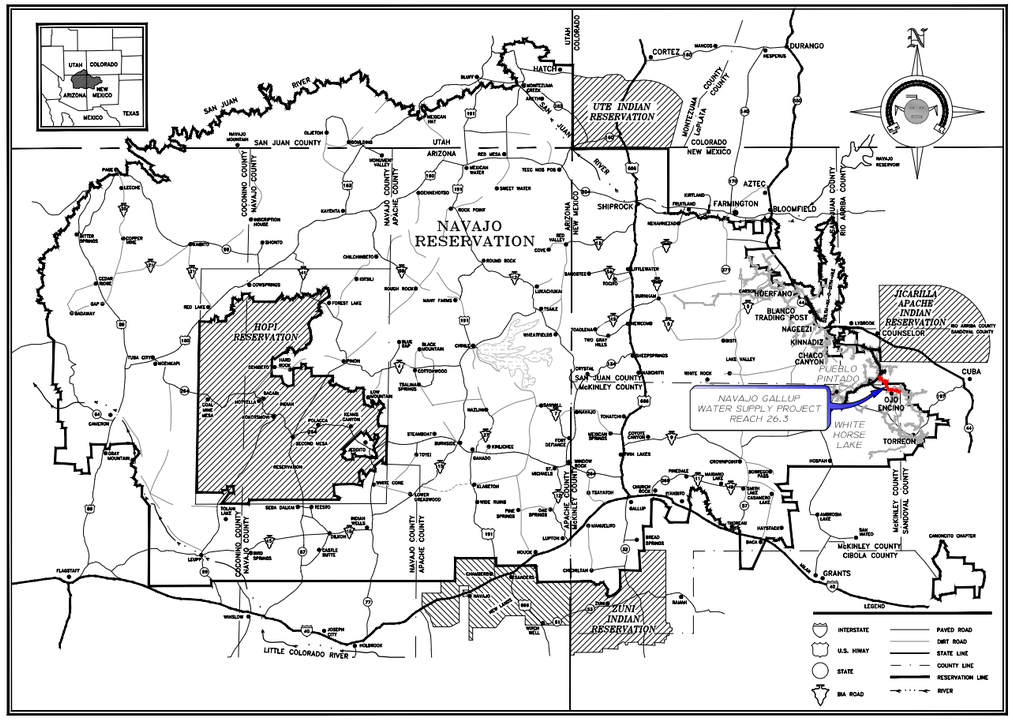
REACH 26.3

Reach 26.3 To Torreon, NM

February 2018

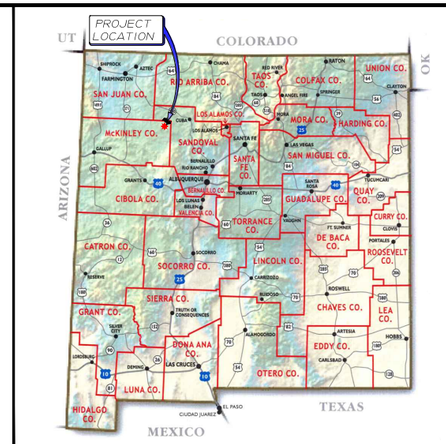
PROJECT DESCRIPTION

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



PROJECT VICINITY MAP

DRAWING LIST

SHEET #	DESCRIPTION
G-1	COVER SHEET AND DRAWING LIST
G-2	GENERAL NOTES AND LEGEND
C-1	PROJECT SITE PLAN AND DRAWING KEY INDEX
C-2	SURVEY CONTROL PLAN (1 of 4)
C-3	SURVEY CONTROL PLAN (2 of 4)
C-4	SURVEY CONTROL PLAN (3 of 4)
C-5	SURVEY CONTROL PLAN (4 of 4)
C-6	PLAN & PROFILE STA 0+00 To STA 28+00
C-7	PLAN & PROFILE STA 28+00 To STA 56+00
C-8	PLAN & PROFILE STA 56+00 To STA 84+00
C-9	PLAN & PROFILE STA 84+00 To STA 112+00
C-10	PLAN & PROFILE STA 112+00 To STA 140+00
C-11	PLAN & PROFILE STA 140+00 To STA 165+00
C-12	PLAN & PROFILE STA 165+00 To STA 193+00
C-13	PLAN & PROFILE STA 193+00 To STA 221+00
C-14	PLAN & PROFILE STA 221+00 To STA 249+00
C-15	PLAN & PROFILE STA 249+00 To STA 277+00
C-16	PLAN & PROFILE STA 277+00 To STA 302+00
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
C-22	PLAN & PROFILE STA 430+00 To STA 458+00
C-23	PLAN & PROFILE STA 458+00 To STA 486+00
C-24	PLAN & PROFILE STA 486+00 To STA 493+12.9
C-25	REACH 26.3 TANK SITE OVERALL PLAN
C-26	REACH 26.3 TANK SITE PLAN
C-27	REACH 26.3 TANK SITE GRADING
C-28	REACH 26.3 TANK SITE DRAIN PIPING AND ACCESS ROAD GRADING PLAN
C-29	REACH 26.3 TANK SITE PIPING PLAN
C-30	REACH 26.3 TANK SITE VALVE NUMBERING PLAN
C-31	REACH 26.3 CONTROL VALVE SITE PLAN
C-32	REACH 26.3 CONTROL VALVE SITE PIPING AND CONNECTION PLAN

SHEET #	DESCRIPTION
DT-1	PIPELINE TRENCH DETAILS
DT-2	MISCELLANEOUS CONSTRUCTION DETAILS
DT-3	THRUST BLOCK AND MECHANICAL JOINT RESTRAINT DETAILS
DT-4	GAS LINE CROSSING DETAILS
DT-5	CASED ROAD CROSSING DETAIL
DT-6	PIPELINE AND SITE GATE VALVE DETAILS
DT-7	2 INCH VACUUM BREAKER WITH 1-INCH AIR RELEASE VALVE DETAIL
DT-8	2 INCH FLUSH WITH ORIFICE AND ABOVE-GRADE DISCHARGE DETAIL
DT-9	4 INCH FLUSH VALVE ABOVE-GRADE DISCHARGE DETAIL
DT-10	6 INCH CONTROL VALVE WITH PRESSURE RELIEF VAULT DETAIL (1 of 2)
DT-11	6 INCH CONTROL VALVE WITH PRESSURE RELIEF VAULT DETAIL (2 of 2)
DT-12	WASH CROSSING STA 49+00 PIPELINE HDD DETAIL
DT-13	WASH CROSSING STA 115+55 PIPELINE HDD DETAIL
DT-14	WASH CROSSING STA 435+97 PIPELINE HDD DETAIL
DT-15	TRANSDUCER VAULT DETAIL
DT-16	SENSOR LINE & YARD HYDRANT DETAILS
DT-17	NORTH TANK DETAILS (1 of 2)
DT-18	NORTH TANK DETAILS (2 of 2)
DT-19	SOUTH TANK DETAILS (1 of 2)
DT-20	SOUTH TANK DETAILS (2 of 2)
DT-21	TYPICAL WATER STORAGE TANK DETAILS (1 of 2)
DT-22	TYPICAL WATER STORAGE TANK DETAILS (2 of 2)
DT-23	CHLORINATION SYSTEM DETAILS (1 of 2)
DT-24	CHLORINATION SYSTEM DETAILS (2 of 2)
DT-25	PRECAST 2-ROOM CHLORINATION BUILDING AND PIPING
DT-26	PRECAST 2-ROOM CHLORINATION BUILDING DETAILS
DT-27	STANDARD FENCE DETAILS
DT-28	EROSION CONTROL DETAILS (1 of 3)
DT-29	EROSION CONTROL DETAILS (2 of 3)
DT-30	EROSION CONTROL DETAILS (3 of 3)
DT-31	TRAFFIC CONTROL (PAVED ROAD)
DT-32	TRAFFIC CONTROL (GRAVEL AND DIRT ROAD)
E001	GENERAL NOTES
E101	ELECTRICAL SITE PLAN
E102	CHLORINATION BUILDING ELECTRICAL PLANS
E103	CHLORINATION BUILDING SCADA SYSTEM AND CONTROL PLAN
E201	ELECTRICAL SCHEDULES AND DETAILS
E202	ELECTRICAL DIAGRAMS AND DETAILS
E203	ELECTRICAL DETAILS
E301	ELECTRICAL DETAILS
E302	ELECTRICAL DETAILS
E303	ELECTRICAL DETAILS

Revision	Date	Description	By	Chk'd

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SMA Engineering • Environmental • Surveying

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	MvH/AaV	AGR

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

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 1, 2019

Scale: Horiz: NONE
Vert: N/A

Project No: 6921307

Sheet: G-1

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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-SEEDED 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
E	EASTING
EA.	EACH
ED.	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
- 6490 — CONTOUR MAJOR
- 6492 — CONTOUR MINOR
- SECTION CORNER
- CULTURALLY / BIOLOGICALLY SENSITIVE AREA DO NOT ENCROACH
- 12 — SECTION NUMBER
- *Tribal Trust/I.A./BLM* — CURRENT LAND STATUS (OWNER)
- SECTION LINE
- QUARTER SECTION LINE
- TOWNSHIP / RANGE LINE
- FENCE
- OHE — OVERHEAD POWER LINE
- UGE — UNDERGROUND POWER LINE
- TEL — OVERHEAD TELEPHONE LINE
- UGT — UNDERGROUND TELEPHONE LINE
- W — WATER LINE
- G — GAS LINE

LEGEND

PROPOSED

- W — WATER LINE
- OHE — POWER LINE
- FENCE
- CABLE BARRIER
- PIPE CASING
- GATE VALVE
- BALL VALVE
- VACUUM BREAKER / AIR RELEASE VALVE COMBO
- FLUSH VALVE
- POWER POLE
- GUY ANCHOR
- STORM DRAIN INLET / OUTLET
- DOUBLE SWING GATE
- BOULDER
- 6965 — CONTOUR MAJOR
- 6964 — CONTOUR MINOR
- 40' WATERLINE EASEMENT
- TEMPORARY CONSTRUCTION EASEMENT
- ACCESS DRIVE / ROAD
- RIP RAP OR CABLE CRETE
- GRAVEL OVER BASE COURSE
- BERM
- DRAIN PIPE
- SWALE
- DIRECTION OF FLOW
- MATCH LINE

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Revision	Date	Description	By	Chk'd

Phx80 Reach 26.3 CoverGenNotes.dwg
2/12/2019 11:08:29 AM dlev

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Cortez, Grand Junction, CO Safford, AZ Duluth, MN Dallas, TX

CLIENT: The Navajo Nation

TOWN: Reach 26.3 To Torreon, NM

GENERAL NOTES AND LEGEND
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACH 26.3
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
TTT	MvH/AaV	AGR

TORY T. TADANO — NEW MEXICO — 21073 — LICENSED PROFESSIONAL ENGINEER — 12/31/19

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 1, 2019

Scale: Horiz:
Vert:

Project No: 6921307

Sheet: G-2

SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

North 1841100
Lat N 36° 03' 14"
East 1284100
Long W 107° 27' 20"

North 1841100
Lat N 36° 03' 19"
East 1328700
Long W 107° 18' 17"

BEGIN WATERLINE
STA 0+00.0 =
STUB OUT REACH 26.1 & 26.2
STA 140+82.7
N=1837740.23
E=1292453.80

NAVAJO GALLUP WATER SUPPLY PROJECT REACH 26.1
12" WATERLINE
(NOT PART OF THIS PROJECT)

NAVAJO GALLUP WATER SUPPLY PROJECT REACH 26.2
10" WATERLINE
(NOT PART OF THIS PROJECT)

PROPOSED
NAVAJO GALLUP WATER SUPPLY
PROJECT REACH 26.3

PROPOSED
REACH 26.3 TANK SITE
NOMINAL CAPACITY: (2x) 250k GAL
NOMINAL SIZE: 42' DIA. x 24' HT.
BASE ELEVATION: 7076.00
(SEE SITE PLAN SHTS. C-25 THRU C-30)

END WATERLINE
STA 493+12.9
TIE INTO EXISTING
NTUA 6" WATERLINE
APPROX. N=1814300.41
APPROX. E=1323684.78

SURVEY PLAN (1 OF 4) C-2

SURVEY PLAN (2 OF 4) C-3

SURVEY PLAN (3 OF 4) C-4

SURVEY PLAN (4 OF 4) C-5

0' 1500' 3000'
GRAPHIC SCALE
0 MILES 1/2 MILE 1 MILE

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

North 1810700
Lat N 35° 58' 14"
East 1284100
Long W 107° 27' 15"

North 1810700
Lat N 35° 58' 19"
East 1328700
Long W 107° 18' 13"

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Revision	Date	Description	By	Chk'd

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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

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

Designed	Drawn	Checked
TTT	AAV	AGR

TORY T. TADANO
NEW MEXICO
21073
REGISTERED PROFESSIONAL ENGINEER
3/1/19

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

SANDOVAL COUNTY, NEW MEXICO

North 1842900
Lat N 36° 03' 32"
East 1286100
Long W 107° 26' 56"

Bureau of Land Management

11

312
FOUND MONUMENT
2 1/2" BRASS CAP SECTION CORNER 11/12/14/13
N=1842159.51
E=1291490.97
ELEVATION = 7017.458

I.A. 546433

12

244
SET SMA CONTROL POINT
1/2" REBAR WITH PLASTIC CAP
N = 1842495.33
E = 1294017.70
Elevation = 7047.19

I.A. 46432

245
SET SMA CONTROL POINT
1/2" REBAR WITH PLASTIC CAP
N = 1842662.40
E = 1298401.37
Elevation = 7098.43

Navajo Tribal Trust

7

576
FOUND MONUMENT
FOUND USGLO SOUTH 1/4 SECTION 7
N=1842047.64
E=1299506.52
ELEVATION = 7130.295

North 1842900
Lat N 36° 03' 34"
East 1300800
Long W 107° 23' 57"

315
FOUND MONUMENT
2 1/2" BRASS CAP NORTH 1/4 SECTION 13
N=1842174.86
E=1294121.57
ELEVATION = 7050.587

577
FOUND MONUMENT
FOUND USGLO EAST SECTION 7
N=1842169.14
E=1296767.34
ELEVATION = 7098.625

BIA Route 474

R-7-W
R-6-W

25
SET SMA CONTROL POINT
1/2" REBAR WITH PLASTIC CAP
N = 1841989.57
E = 1299928.21
Elevation = 7143.44

Indian Allotment 46436

Indian Allotment 46435

Indian Allotment 46442

Indian Allotment 46445

242
SET SMA CONTROL POINT
1/2" REBAR WITH PLASTIC CAP
N = 1840217.60
E = 1292450.76
Elevation = 7032.29

243
SET SMA CONTROL POINT
1/2" REBAR WITH PLASTIC CAP
N = 1839879.32
E = 1296258.04
Elevation = 7034.12

311
FOUND MONUMENT
2 1/2" BRASS CAP WEST 1/4 SECTION 13
N=1839536.31
E=1291451.06
ELEVATION = 7006.237

13

18

316
FOUND MONUMENT
2 1/2" BRASS CAP EAST 1/4 SECTION 13
N=1839550.57
E=1296722.27
ELEVATION = 7026.471

14

Bureau of Land Management

902
SET SMA CONTROL POINT
1/2" REBAR WITH PLASTIC CAP
N = 1839360.64
E = 1292822.78
Elevation = 7031.07

Indian Allotment 46437

Indian Allotment 46431

Bureau of Land Management

325
FOUND MONUMENT
2 1/2" BRASS CAP SECTION CORNER 15/14/22/23
N=1837053.86
E=1286141.59
ELEVATION = 6884.275

Private

239
SET SMA CONTROL POINT
1/2" REBAR WITH PLASTIC CAP
N = 1837056.24
E = 1290217.14
Elevation = 6939.13

310
FOUND MONUMENT
2 1/2" BRASS CAP NORTH 1/4 SECTION 23
N=1836984.59
E=1288776.81
ELEVATION = 6922.273

901
SET SMA CONTROL POINT
1/2" REBAR WITH PLASTIC CAP
N = 1837023.91
E = 1290984.71
Elevation = 6960.99

241
SET SMA CONTROL POINT
1/2" REBAR WITH PLASTIC CAP
N = 1836901.73
E = 1294037.09
Elevation = 6977.72

320
FOUND MONUMENT
2 1/2" BRASS CAP SOUTH 1/4 SECTION 13
N=1836912.40
E=1294051.88
ELEVATION = 6977.424

317
FOUND MONUMENT
2 1/2" BRASS CAP SECTION CORNER 13/18/24/19
N=1836910.95
E=1296692.46
ELEVATION = 6990.256

318
FOUND MONUMENT
2 1/2" BRASS CAP SOUTH 1/4 SECTION 18
N=1836783.43
E=1299324.61
ELEVATION = 7006.576

309
FOUND MONUMENT
2 1/2" BRASS CAP SECTION CORNER 14/13/23/24
N=1836914.33
E=1291411.65
ELEVATION = 6972.960

Private

Indian Allotment 46439

Navajo Tribal Trust

BIA Route 474

903
SET SMA CONTROL POINT
1/2" REBAR WITH PLASTIC CAP
N = 1835564.41
E = 1294534.67
Elevation = 6955.70

Indian Allotment 46446

Bureau of Land Management

PROPOSED
NAVAJO GALLUP WATER SUPPLY
PROJECT REACH 26.3

238
SET SMA CONTROL POINT
1/2" REBAR WITH PLASTIC CAP
N = 1834698.29
E = 1291372.42
Elevation = 7052.05

240
SET SMA CONTROL POINT
1/2" REBAR WITH PLASTIC CAP
N = 1834248.93
E = 1295587.22
Elevation = 6941.41

319
FOUND MONUMENT
2 1/2" BRASS CAP EAST 1/4 SECTION 24
N=1834272.70
E=1296660.63
ELEVATION = 7000.623

905
SET SMA CONTROL POINT
1/2" REBAR WITH PLASTIC CAP
N = 1834403.47
E = 1298228.92
Elevation = 7042.56

303
FOUND MONUMENT
2 1/2" BRASS CAP EAST 1/4 SECTION 23
N=1834294.45
E=1291389.46
ELEVATION = 7040.622

24

19

302
FOUND MONUMENT
STONE
N=1834424.12
E=1286123.15
ELEVATION = 7000.644

237
SET SMA CONTROL POINT
1/2" REBAR WITH PLASTIC CAP
N = 1832907.27
E = 1287910.95
Elevation = 7004.38

East 1286100
Long W 107° 26' 54"
North 1832900
Lat N 36° 01' 53"

Indian Allotment 468

MATCHLINE
SEE SHT. C-3 (2 of 4)

East 1300800
Long W 107° 23' 55"

GRID NORTH

0' 500' 1000'

0 MILES 1/8 MILE 1/4 MILE

GRAPHIC SCALE

LEGEND

PROPOSED WATERLINE	CURRENT LAND STATUS (OWNER)
EXISTING WATERLINE	PROPOSED 40' WATERLINE EASEMENT
EXISTING GAS LINE (COLOR YELLOW ON PLANS)	DIRT ROAD
EXISTING FENCE	TEMPORARY CONSTRUCTION EASEMENT
EXISTING OVERHEAD POWER LINE	SECTION NUMBER
PROPOSED OVERHEAD POWER LINE	SEC COR / QTR COR
COUNTY LINE	SMA CONTROL POINT
TOWNSHIP AND RANGE LINE	CULTURALLY OR PALEONTOLOGICALLY SENSITIVE AREA. DO NOT ENCROACH.
SECTION LINE	EXISTING UTILITY POLE
QUARTER SECTION LINE	PROPERTY LINE

Tribal Trust

6

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
JAMES COMBS, P.S. (505) 299-0942 Office

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

SURVEY NOTES

COORDINATE SYSTEM, US STATE PLANE NAD 1983
NEW MEXICO CENTRAL ZONE
ALL DISTANCES ARE GRID DISTANCES, UNITS ARE US SURVEY FEET.

METHODS
ALL CONTROL ON THIS PROJECT WAS OBSERVED AND SET SEPTEMBER 2015, ALL POINTS WERE OBSERVED USING TRIMBLE R8 GPS RECEIVERS UTILIZING RTK GPS METHODS

SURVEYOR'S CERTIFICATION

I, JAMES D. COMBS, NEW MEXICO PROFESSIONAL SURVEYOR NO. 23200, DO HEREBY CERTIFY THAT THIS CONTROL SURVEY REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION BASED ON AN ACTUAL SURVEY ON THE GROUND AS DESCRIBED HEREIN; THAT I AM RESPONSIBLE FOR THIS SURVEY; AND THAT THE SURVEY MEETS THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO.

JAMES DAVID COMBS, PS 23200

JAMES DAVID COMBS NEW MEXICO 23200 PROFESSIONAL SURVEYOR

6/7/18
DATE

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Revision	Date	Description	By	Chk'd

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Craig, Grand Junction, CO Durango, CO Phoenix, AZ Moab, UT Dallas, TX

CLIENT: The Navajo Nation

TOWN: Reach 26.3 To Torreon, NM

SURVEY CONTROL PLAN (1 of 4)

NAVAJO GALLUP WATER SUPPLY PROJECT - REACH 26.3

SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
TTT	AMD	JDC

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Date: February 1, 2019

Scale: Horiz: 1" = 1000'
Vert: N/A

Project No: 6921307

Sheet: C-2

SANDOVAL COUNTY, NEW MEXICO

MATCHLINE
SEE SHT. C-2 (1 of 4)

North 1832400
Lat N 36° 01' 49"
East 1295400
Long W 107° 25' 01"

904
SET SMA CONTROL POINT
1/2" REBAR WITH PLASTIC CAP
N = 1832648.46
E = 1295569.74
Elevation = 6995.04

907
SET SMA CONTROL POINT
1/2" REBAR WITH PLASTIC CAP
N = 1832635.79
E = 1299525.31
Elevation = 7039.41

909
SET SMA CONTROL POINT
1/2" REBAR WITH PLASTIC CAP
N = 1832105.98
E = 1301348.31
Elevation = 6991.07

448
FOUND MONUMENT
FOUND 1/4 S19S30
N = 1831523.98
E = 1299249.05
Elevation = 7007.820

88
FOUND MONUMENT
FD USGLO BC SC SE19
N=1831415.70
E=1301877.25
ELEVATION = 6977.444

420
FOUND MONUMENT
FOUND BRASS CAP S24S19S25S30
N = 1831632.44
E = 1296634.17
Elevation = 6981.027

452
FOUND MONUMENT
FOUND 1/4 SECTIONS 30 31
N = 1831338.24
E = 1307123.80
Elevation = 7125.668

914
SET SMA CONTROL POINT
1/2" REBAR WITH PLASTIC CAP
N = 1831259.66
E = 1307966.72
Elevation = 7140.28

North 1832500
Lat N 36° 01' 52"
East 1310100
Long W 107° 22' 02"

PROPOSED
NAVAJO GALLUP WATER SUPPLY
PROJECT REACH 26.3

PROPOSED
REACH 26.3 TANK SITE
NOMINAL CAPACITY: (2x) 250k GAL
NOMINAL SIZE: 42' DIA. x 24' HT.
BASE ELEVATION: 7076.00
(SEE SITE PLAN SHTS. C-25 THRU C-30)

906
SET SMA CONTROL POINT
1/2" REBAR WITH PLASTIC CAP
N = 1829992.90
E = 1297851.96
Elevation = 6955.65

910
SET SMA CONTROL POINT
1/2" REBAR WITH PLASTIC CAP
N = 1829969.66
E = 1302277.58
Elevation = 6992.19

913
SET SMA CONTROL POINT
1/2" REBAR WITH PLASTIC CAP
N = 1829075.78
E = 1305795.05
Elevation = 6983.00

456
FOUND MONUMENT
FOUND 1/4 SECTIONS 29 28
N = 1828667.72
E = 1307071.16
Elevation = 6939.712

422
FOUND MONUMENT
FOUND 1/4 S25S30
N = 1828994.92
E = 1296576.76
Elevation = 6934.629

908
SET SMA CONTROL POINT
1/2" REBAR WITH PLASTIC CAP
N = 1828222.90
E = 1300185.25
Elevation = 6961.59

912
SET SMA CONTROL POINT
1/2" REBAR WITH PLASTIC CAP
N = 1827952.07
E = 1302798.08
Elevation = 7036.06

GRID NORTH
0' 500' 1000'
0 MILES 1/8 MILE 1/4 MILE
GRAPHIC SCALE

Bureau of Land Management

Private

BLM

Indian Allotment 468
Indian Allotment 449
Indian Allotment 450
Indian Allotment 451
Indian Allotment 46443
Indian Allotment 46434
Indian Allotment 470
Indian Allotment 469
Bankhead Jones (BLM)

19 20 21 25 30 29 28 32 33

BIA Route 474
6-W
5-W

443
FOUND MONUMENT
FOUND 1/4 S30S31
N = 1826273.09
E = 1299137.80
Elevation = 6944.785

418
FOUND MONUMENT
FOUND BRASS CAP S25S30S31S36
N = 1826356.00
E = 1296513.36
Elevation = 6900.014

405
FOUND MONUMENT
FOUND USGLO BRASS CAP SECTION CORNER 30
N = 1826189.18
E = 1301763.73
Elevation = 6975.733

500
FOUND MONUMENT
FOUND BRASS CAP 1/4 SECTIONS 29 28 DATED 1925
N = 1826138.24
E = 1304393.38
Elevation = 6888.193

453
FOUND MONUMENT
FOUND BRASS CAP SECTIONS 29 28 33 32 T21NR5W
N = 1826094.84
E = 1307021.44
Elevation = 6934.067

915
SET SMA CONTROL POINT
1/2" REBAR WITH PLASTIC CAP
N = 1825630.35
E = 1303893.22
Elevation = 6879.04

916
SET SMA CONTROL POINT
1/2" REBAR WITH PLASTIC CAP
N = 1825605.40
E = 1307220.06
Elevation = 6990.89

406
FOUND MONUMENT
FOUND USGLO BRASS CAP E1/4S31 DATED 1925
N = 1823576.54
E = 1301706.82
Elevation = 6846.439

917
SET SMA CONTROL POINT
1/2" REBAR WITH PLASTIC CAP
N = 1823381.48
E = 1304806.11
Elevation = 6853.26

457
FOUND MONUMENT
FOUND 1/4 S32S33
N = 1823477.21
E = 1306965.50
Elevation = 6860.486

918
SET SMA CONTROL POINT
1/2" REBAR WITH PLASTIC CAP
N = 1823122.98
E = 1306349.80
Elevation = 6848.52

MATCHLINE
SEE SHT. C-4 (3 of 4)

East 1295400
Long W 107° 24' 59"
North 1822500
Lat N 36° 00' 12"
East 1310100
Long W 107° 22' 00"
North 1822500
Lat N 36° 00' 13"

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
JAMES COMBS, P.S. (505) 299-0942 Office

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CROWNPOINT SUB-OFFICE (800) 528-5011

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JAMES DAVID COMBS, PS 23200

JAMES DAVID COMBS NEW MEXICO 23200 PROFESSIONAL SURVEYOR

6/7/18
DATE

LEGEND

PROPOSED WATERLINE	CURRENT LAND STATUS (OWNER)
EXISTING WATERLINE	PROPOSED 40' WATERLINE EASEMENT
EXISTING GAS LINE (COLOR YELLOW ON PLANS)	TEMPORARY CONSTRUCTION EASEMENT
EXISTING FENCE	DIRT ROAD
EXISTING OVERHEAD POWER LINE	SECTION NUMBER
PROPOSED OVERHEAD POWER LINE	SEC COR / QTR COR
COUNTY LINE	SMA CONTROL POINT
TOWNSHIP AND RANGE LINE	CULTURALLY OR PALEONTOLOGICALLY SENSITIVE AREA. DO NOT ENCROACH.
SECTION LINE	EXISTING UTILITY POLE
QUARTER SECTION LINE	PROPERTY LINE

Tribal Trust

SURVEY NOTES

COORDINATE SYSTEM, US STATE PLANE NAD 1983
NEW MEXICO CENTRAL ZONE
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CLIENT: The Navajo Nation

TOWN: Reach 26.3 To Torreon, NM

SURVEY CONTROL PLAN (2 of 4)
NAVAJO GALLUP WATER SUPPLY PROJECT - REACH 26.3
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
TTT	AMD	JDC

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Date: February 1, 2019
Scale: Horiz: 1" = 1000'
Vert: N/A
Project No: 6921307
Sheet: C-3

North 1822100
Lat N 36° 00' 08"

East 1298300
Long W 107° 24' 24"

MATCHLINE
SEE SHT. C-3 (2 of 4)

SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

North 1822100
Lat N 36° 00' 10"

East 1313100
Long W 107° 21' 24"

Private

31

32

33

34

I.A. 264213

Bankhead Jones (BLM)

Bureau of Land Management

SANDOVAL COUNTY
McKINLEY COUNTY

T-21-N
T-20-N

90
FOUND MONUMENT
FND 1/4 S31SC
N = 1821018.17
E = 1299021.08
Elevation = 6845.162

501
FOUND MONUMENT
FOUND BRASS CAP S31/S32 CLOSING CORNER
N = 1820963.53
E = 1301650.10
Elevation = 6823.641

89
SET SMA CONTROL POINT
1/2" REBAR WITH PLASTIC CAP
N = 1820926.88
E = 1303526.42
Elevation = 6829.44

409
FOUND MONUMENT
FOUND USGLO BRASS CAP SOUTHEAST SECTION 32 DATED 1923
N = 1820853.82
E = 1306909.30
Elevation = 6833.592

440
FOUND MONUMENT
FOUND 1/4 SECTION 6
N = 1821035.32
E = 1298250.86
Elevation = 6817.306

502
FOUND MONUMENT
FOUND BRASS CAP S6/S5 T20N R5W CLOSING CORNER DATED 1936
N = 1820981.04
E = 1300889.30
Elevation = 6820.967

466
FOUND MONUMENT
FOUND 1/4 S32SC
N = 1820908.80
E = 1304279.97
Elevation = 6827.439

503
FOUND MONUMENT
FOUND BRASS CAP 1/4 SECTION 4 DATED 1936
N = 1820817.75
E = 1308810.68
Elevation = 6840.690

919
SET SMA CONTROL POINT
1/2" REBAR WITH PLASTIC CAP
N = 1820087.09
E = 1304805.64
Elevation = 6820.94

922
SET SMA CONTROL POINT
1/2" REBAR WITH PLASTIC CAP
N = 1819994.79
E = 1310427.03
Elevation = 6853.78

921
SET SMA CONTROL POINT
1/2" REBAR WITH PLASTIC CAP
N = 1819498.33
E = 1309376.25
Elevation = 6833.28

467
FOUND MONUMENT
FOUND 1/4 SECTIONS 4, 3
N = 1818474.88
E = 1311422.31
Elevation = 6818.743

925
SET SMA CONTROL POINT
1/2" REBAR WITH PLASTIC CAP
N = 1817668.86
E = 1312485.60
Elevation = 6801.07

BIA Route 474

BLM

GRID NORTH

0' 500' 1000'

0 MILES 1/8 MILE 1/4 MILE

GRAPHIC SCALE

6

Bureau of Land Management

439
FOUND MONUMENT
FOUND 1/4 S6S5
N = 1818593.40
E = 1300865.65
Elevation = 6801.548

5

Bureau of Land Management

PROPOSED
NAVAJO GALLUP WATER SUPPLY
PROJECT REACH 26.3

4

3

MATCHLINE
SEE SHT. C-5 (4 of 4)

923
SET SMA CONTROL POINT
1/2" REBAR WITH PLASTIC CAP
N = 1817385.33
E = 1309950.12
Elevation = 6799.53

Navajo Tribal Trust

924
SET SMA CONTROL POINT
1/2" REBAR WITH PLASTIC CAP
N = 1816023.61
E = 1312360.86
Elevation = 6793.15

437
FOUND MONUMENT
FOUND BRASS CAP S5S4S9S8 T20NR5W
N = 1815906.89
E = 1306118.76
Elevation = 6792.248

446
FOUND MONUMENT
FOUND 1/4 SECTIONS 4 3
N = 1815872.86
E = 1308758.11
Elevation = 6790.993

468
FOUND MONUMENT
FND BC S4S3S10S9 T20NR5W
N = 1815834.68
E = 1311395.36
Elevation = 6791.365

432
FOUND MONUMENT
FOUND 1/4 S6S7
N = 1815973.56
E = 1298199.23
Elevation = 6768.632

433
FOUND MONUMENT
FOUND BRASS CAP S6S5S8S7 T20NR5W
N = 1815954.38
E = 1300840.22
Elevation = 6784.792

436
FOUND MONUMENT
FOUND 1/4 S5S8
N = 1815933.49
E = 1303479.41
Elevation = 6798.423

Bureau of Land Management

7

Bureau of Land Management

8

Bureau of Land Management

BIA Route 474

Indian Allotment 77076

Bureau of Land Management

438
FOUND MONUMENT
FOUND IRON PIPE NMPLS 11014
N = 1813266.73
E = 1306088.52
Elevation = 6772.977

9

Indian Allotment 447

Indian Allotment 446

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

SURVEY NOTES

COORDINATE SYSTEM, US STATE PLANE NAD 1983
NEW MEXICO CENTRAL ZONE
ALL DISTANCES ARE GRID DISTANCES, UNITS ARE US SURVEY FEET.

METHODS
ALL CONTROL ON THIS PROJECT WAS OBSERVED AND SET SEPTEMBER 2015, ALL POINTS WERE OBSERVED USING TRIMBLE R8 GPS RECEIVERS UTILIZING RTK GPS METHODS

LEGEND

PROPOSED WATERLINE	CURRENT LAND STATUS (OWNER)
EXISTING WATERLINE	PROPOSED 40' WATERLINE EASEMENT
EXISTING GAS LINE (COLOR YELLOW ON PLANS)	TEMPORARY CONSTRUCTION EASEMENT
EXISTING FENCE	DIRT ROAD
EXISTING OVERHEAD POWER LINE	SECTION NUMBER
PROPOSED OVERHEAD POWER LINE	SEC COR / QTR COR
COUNTY LINE	SMA CONTROL POINT
TOWNSHIP AND RANGE LINE	CULTURALLY OR PALEONTOLOGICALLY SENSITIVE AREA. DO NOT ENCROACH.
SECTION LINE	EXISTING UTILITY POLE
QUARTER SECTION LINE	PROPERTY LINE

Tribal Trust

East 1298300
Long W 107° 24' 23"

North 1812000
Lat N 35° 58' 28"

East 1313100
Long W 107° 21' 22"

North 1812000
Lat N 35° 58' 30"

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SURVEYOR'S CERTIFICATION

I, JAMES D. COMBS, NEW MEXICO PROFESSIONAL SURVEYOR NO. 23200, DO HEREBY CERTIFY THAT THIS CONTROL SURVEY REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION BASED ON AN ACTUAL SURVEY ON THE GROUND AS DESCRIBED HEREIN; THAT I AM RESPONSIBLE FOR THIS SURVEY; AND THAT THE SURVEY MEETS THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO.

JAMES DAVID COMBS, PS 23200

NEW MEXICO JAMES DAVID COMBS 23200 PROFESSIONAL SURVEYOR

6/7/18
DATE

Revision	Date	Description	By	Chk'd

C:\Dan Pfeil\ 29.3 Survey 7\PO-Base.dwg
2/1/2019 11:03:33 AM dan

SOUDER, MILLER & ASSOCIATES
5454 VENICE AVENUE NE, SUITE D
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Cortez, Grand Junction, CO Safford, AZ Austin, TX El Paso, TX

CLIENT: The Navajo Nation

TOWN: Reach 26.3 To Torreon, NM

SURVEY CONTROL PLAN (3 of 4)
NAVAJO GALLUP WATER SUPPLY PROJECT - REACH 26.3
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
TTT	AMD	JDC

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: 1" = 1000'
Vert: N/A
Project No: 6921307
Sheet: C-4

SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

North 1822100
Lat N 36° 00' 10"
East 1313400
Long W 107° 21' 20"

North 1822100
Lat N 36° 00' 11"
East 1328200
Long W 107° 18' 20"

34
Indian Allotment 264213

35
Bureau of Land Management

State of New Mexico

36
Indian Allotment 414

T-21-N
T-20-N

SANDOVAL COUNTY
McKINLEY COUNTY

R-5-W
R-4-W

Bureau of Land Management

Indian Allotment 454

Indian Allotment 453

Indian Allotment 422

Indian Allotment 415

GRID NORTH

0' 500' 1000'

0 MILES 1/8 MILE 1/4 MILE

GRAPHIC SCALE

MATCHLINE
SEE SHT. C-4 (3 of 4)

3

927
SET SMA CONTROL POINT
1/2" REBAR WITH PLASTIC CAP
N = 1818206.42
E = 1315047.77
Elevation = 6813.10

479
FOUND MONUMENT
FOUND 1/4 SECTIONS 3, 2
N = 1818413.10
E = 1316709.39
Elevation = 6796.979

930
SET SMA CONTROL POINT
1/2" REBAR WITH PLASTIC CAP
N = 1818527.98
E = 1319319.90
Elevation = 6808.95

476
FOUND MONUMENT
FOUND 1/4 SECTIONS 2, 1
N = 1818336.15
E = 1321970.00
Elevation = 6808.945

2

1

6

Indian Allotment 452

Indian Allotment 425

933
SET SMA CONTROL POINT
1/2" REBAR WITH PLASTIC CAP
N = 1817490.15
E = 1326179.90
Elevation = 6784.77

PROPOSED
NAVAJO GALLUP WATER SUPPLY
PROJECT REACH 26.3

928
SET SMA CONTROL POINT
1/2" REBAR WITH PLASTIC CAP
N = 1817199.65
E = 1316990.39
Elevation = 6786.69

Indian Allotment 421

Indian Allotment 416

931
SET SMA CONTROL POINT
1/2" REBAR WITH PLASTIC CAP
N = 1816235.68
E = 1322442.56
Elevation = 6782.36

469
FOUND MONUMENT
FOUND 1/4 SECTIONS 3, 10
N = 1815803.54
E = 1314036.62
Elevation = 6776.380

478
FOUND MONUMENT
FOUND REBAR
N = 1815772.21
E = 1316677.26
Elevation = 6791.361

473
FOUND MONUMENT
FOUND 1/4 SECTIONS 2S, 11
N = 1815737.16
E = 1319311.02
Elevation = 6780.320

474
FOUND MONUMENT
FOUND BRASS CAP S2S1S12S11 T20NR5W
N = 1815699.33
E = 1321942.42
Elevation = 6801.421

472
FOUND MONUMENT
FOUND 1/4 SECTIONS 1, 12
N = 1815677.39
E = 1324594.37
Elevation = 6768.374

471
FOUND MONUMENT
FND BC S1S6S7S12 T20NR5/4W
N = 1815657.78
E = 1327231.77
Elevation = 6783.023

926
SET SMA CONTROL POINT
1/2" REBAR WITH PLASTIC CAP
N = 1815796.88
E = 1313935.14
Elevation = 6773.09

929
SET SMA CONTROL POINT
1/2" REBAR WITH PLASTIC CAP
N = 1815267.46
E = 1319019.93
Elevation = 6765.90

10

Bureau of Land Management

Indian Allotment 430

11

Indian Allotment 429

Indian Allotment 423

Indian Allotment 417

932
SET SMA CONTROL POINT
1/2" REBAR WITH PLASTIC CAP
N = 1814385.74
E = 1326097.36
Elevation = 6763.48

R-5-W
R-4-W

475
FOUND MONUMENT
FOUND 1/4 SECTIONS 11, 12
N = 1813059.54
E = 1321915.53
Elevation = 6749.545

470
FOUND MONUMENT
FND 1/4 S12S7
N = 1813016.55
E = 1327168.84
Elevation = 6761.007

477
FOUND MONUMENT
FND 1/4 SECTIONS 10, 11
N = 1813136.13
E = 1316649.48
Elevation = 6747.211

7

Indian Allotment 424

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
JAMES COMBS, P.S. (505) 299-0942 Office

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

SURVEY NOTES

COORDINATE SYSTEM, US STATE PLANE NAD 1983
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LEGEND

W W W	PROPOSED WATERLINE	Tribal Trust	CURRENT LAND STATUS (OWNER)
W W W	EXISTING WATERLINE		PROPOSED 40' WATERLINE EASEMENT
G G	EXISTING GAS LINE (COLOR YELLOW ON PLANS)		TEMPORARY CONSTRUCTION EASEMENT
	EXISTING FENCE		DIRT ROAD
OHE	EXISTING OVERHEAD POWER LINE	6	SECTION NUMBER
OHE	PROPOSED OVERHEAD POWER LINE		SEC COR / QTR COR
	COUNTY LINE		SMA CONTROL POINT
	TOWNSHIP AND RANGE LINE	XXXX	CULTURALLY OR PALEONTOLOGICALLY SENSITIVE AREA. DO NOT ENCROACH.
	SECTION LINE		EXISTING UTILITY POLE
	QUARTER SECTION LINE		PROPERTY LINE

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JAMES DAVID COMBS, PS 23200

JAMES DAVID COMBS NEW MEXICO 23200 PROFESSIONAL SURVEYOR

6/7/18
DATE

North 1812000
Lat N 35° 58' 30"
East 1313400
Long W 107° 21' 19"

North 1812000
Lat N 35° 58' 31"
East 1328200
Long W 107° 18' 19"

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Revision	Date	Description	By	Chk'd

Cabin Photo 29.3 Survey TOPO Base.dwg
2/1/2019 11:09:43 AM akerr

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CLIENT: The Navajo Nation

TOWN: Reach 26.3 To Torreon, NM

SURVEY CONTROL PLAN (4 of 4)
NAVAJO GALLUP WATER SUPPLY PROJECT - REACH 26.3
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
TTT	AMD	JDC

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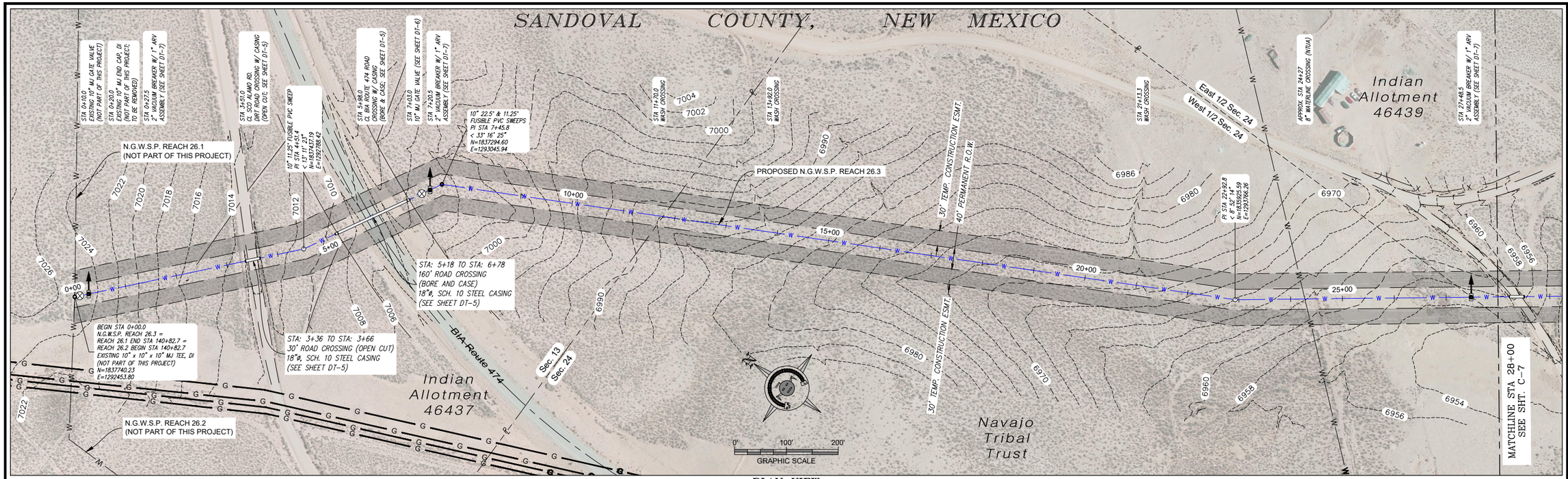
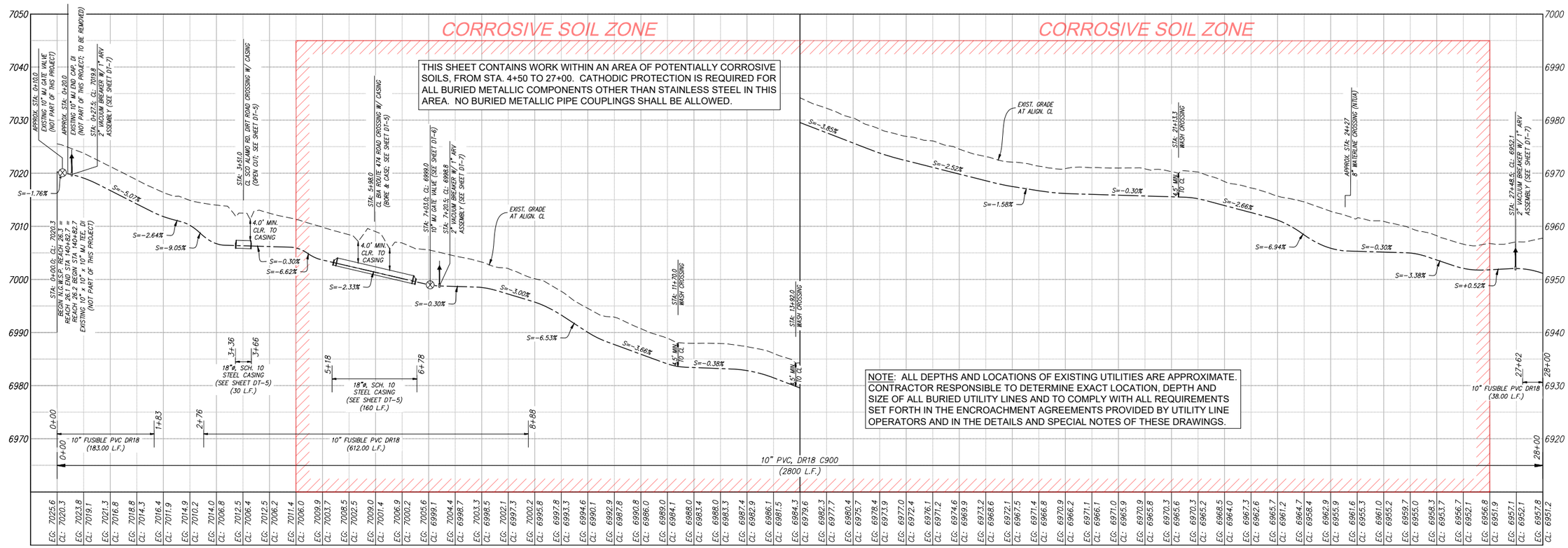
811 Know what's below. Call before you dig.

Date: February 1, 2019
Scale: Horiz: 1" = 1000'
Vert: N/A
Project No: 6921307
Sheet: C-5

SANDOVAL COUNTY, NEW MEXICO



PLAN VIEW
10" WATERLINE



PROFILE VIEW
10" WATERLINE

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Revision	Date	Description	By	Chk'd

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CLIENT: The Navajo Nation

TOWN: Reach 26.3 To Torreon, NM

PLAN & PROFILE STA 0+00 To STA 28+00
SECTIONS 13 & 24, T. 21 N., R. 6 W.
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACH 26.3
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
TTT	MvH/AaV	AGR

TORY T. TADANO — NEW MEXICO — 21073 — REGISTERED PROFESSIONAL ENGINEER — 12/31/19

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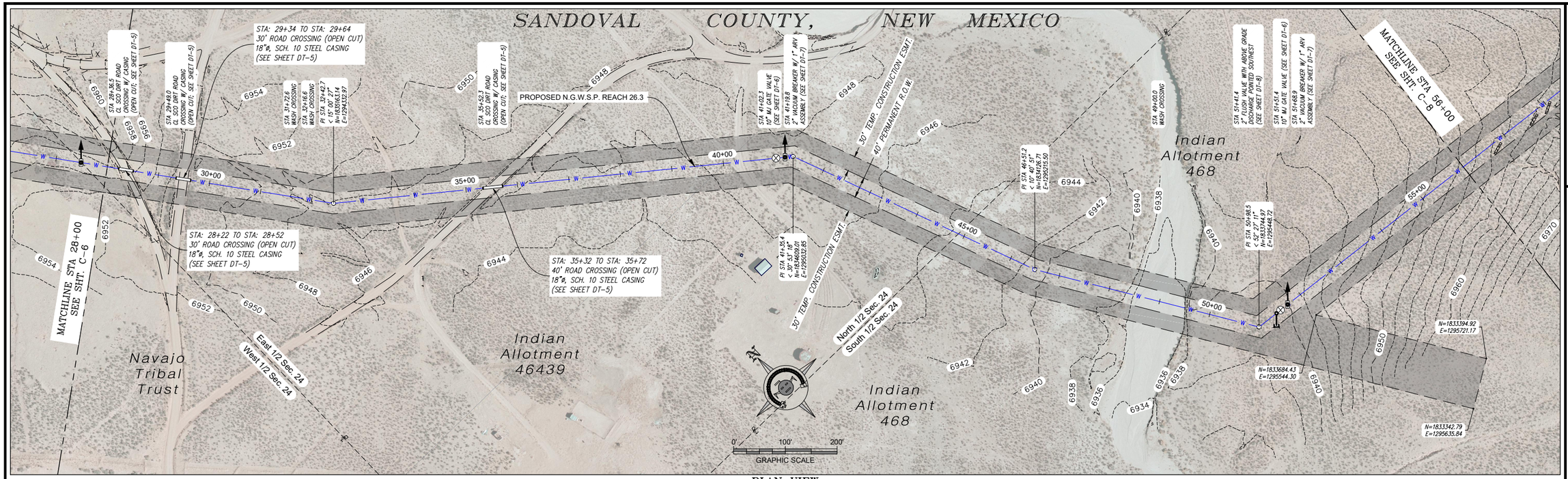
811 Know what's below. Call before you dig.

Date: January 15, 2019

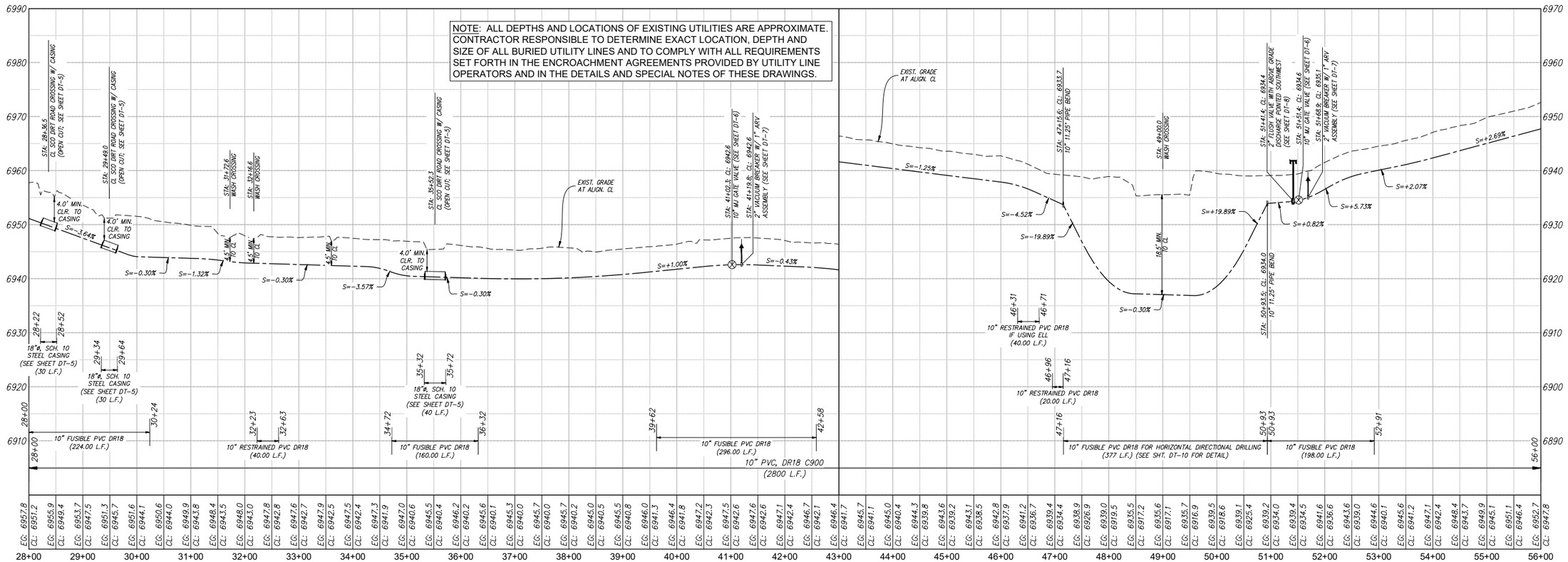
Scale: Horiz: 1" = 200'
Vert: 1" = 20'

Project No: 6921307

Sheet: C-6



PLAN VIEW
10" WATERLINE



PROFILE VIEW
10" WATERLINE

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Revision	Date	Description	By	Chk'd

P:\HD-Reach 26.3 Mpn - 15.dwg 11/5/2019 11:11:04 AM ajw

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

PLAN & PROFILE STA 28+00 To STA 56+00
NAVAJO GALLUP WATER SUPPLY PROJECT - REACH 26.3
SECTION 24, T. 21 N., R. 6 W.
SANDOVAL & MCKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
TTT	MvH/AaV	AGR

TORY T. TADANO — NEW MEXICO — 21073 — REGISTERED PROFESSIONAL ENGINEER — 10/31/19

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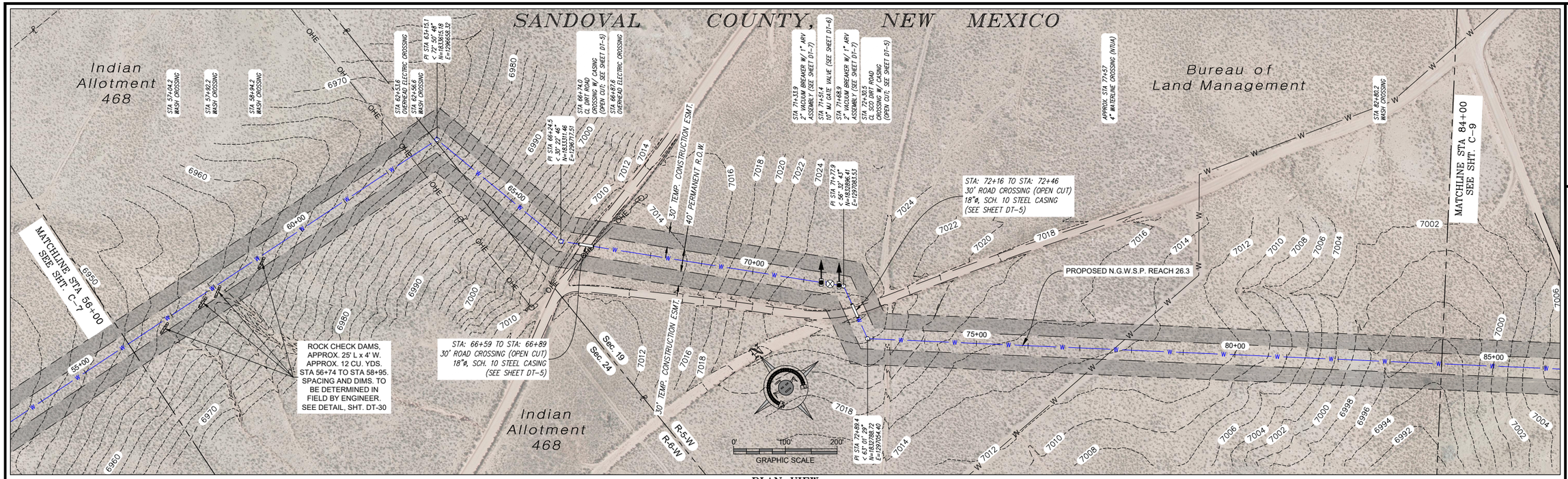
811 Know what's below. Call before you dig.

Date: January 15, 2019

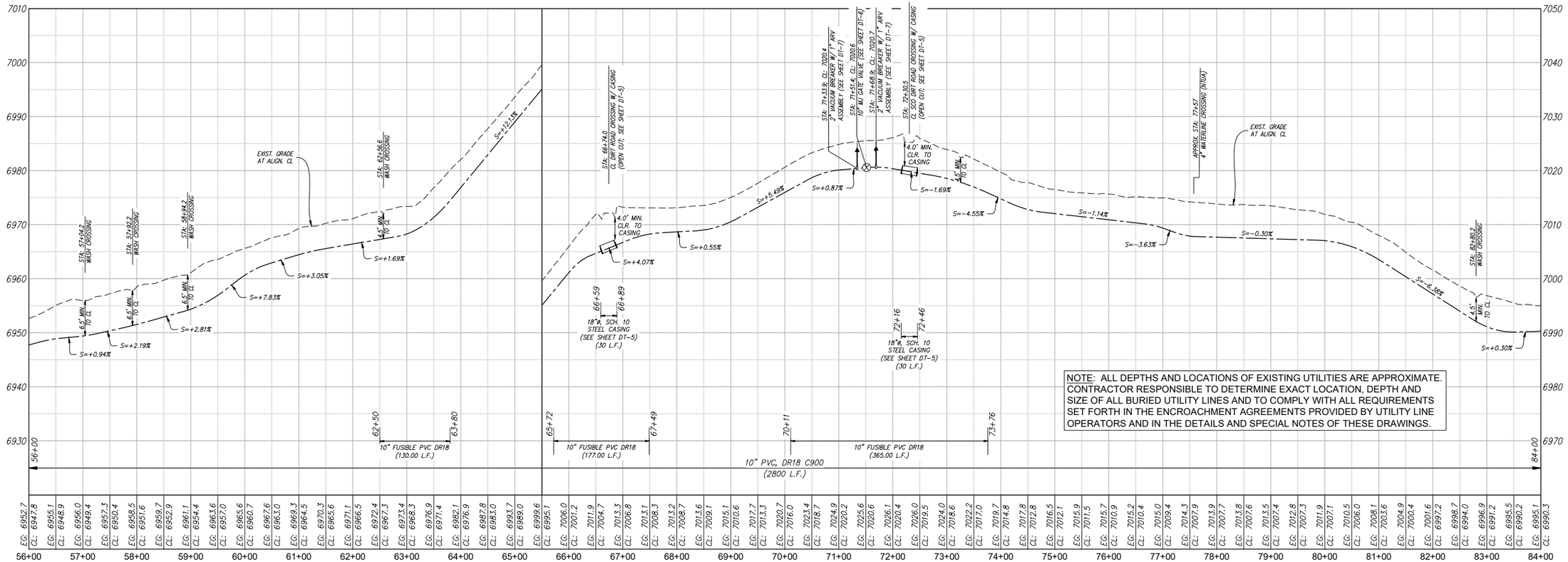
Scale: Horiz: 1" = 200'
Vert: 1" = 20'

Project No: 6921307

Sheet: C-7



PLAN VIEW
10" WATERLINE



PROFILE VIEW
10" WATERLINE

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P:\PUB\Reach 26.3 Mpln 15.dwg
11/15/2019 11:11:21 AM

CLIENT: The Navajo Nation

TOWN: Reach 26.3 To Torreon, NM

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

Designed	Drawn	Checked
TTT	MvH/AaV	AGR

TORY T. TADANO — NEW MEXICO — 21073 — REGISTERED PROFESSIONAL ENGINEER
11/13/19

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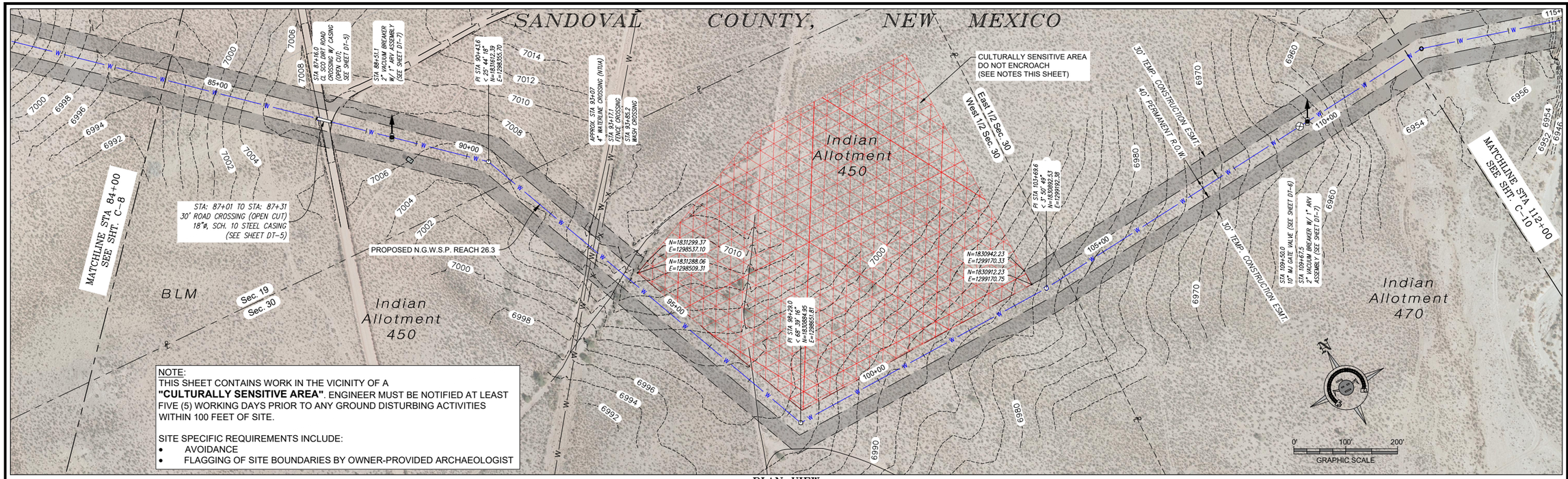
Date: January 15, 2019

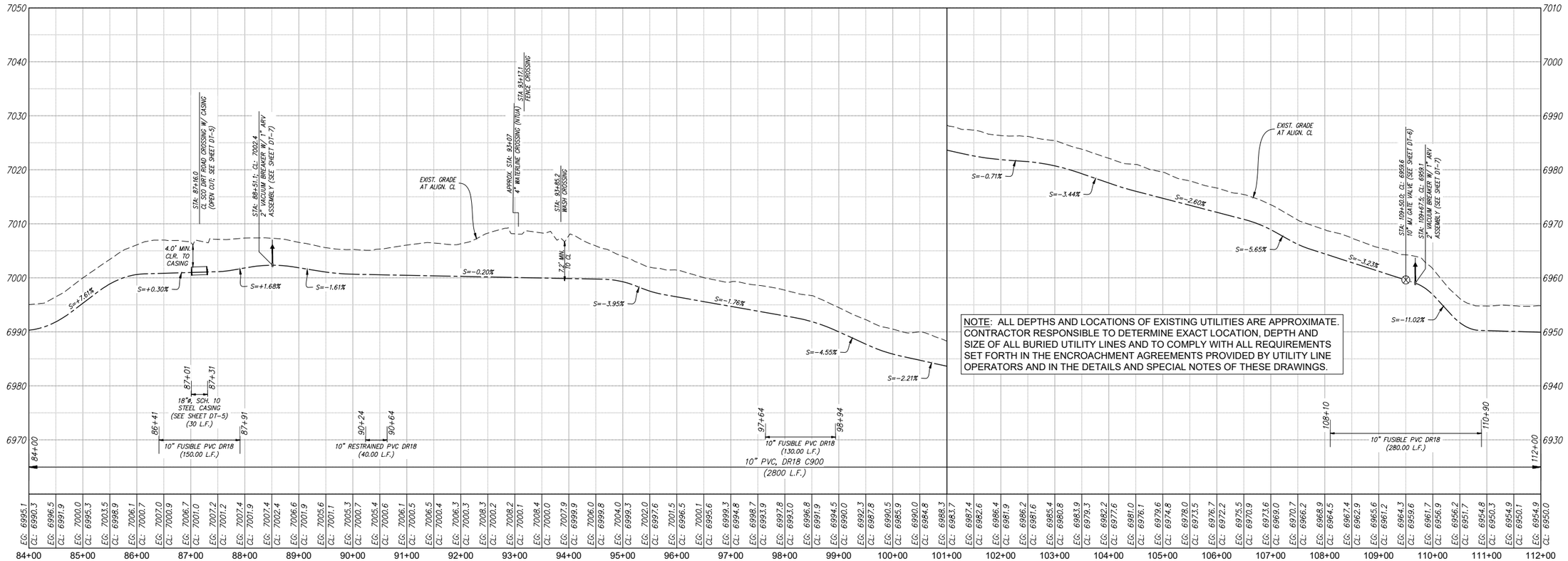
Scale: Horiz: 1" = 200'
Vert: 1" = 20'

Project No: 6921307

Sheet: C-8



PLAN VIEW
10" 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.

| EG: 6995.1 | EG: 6990.3 | EG: 6996.5 | EG: 6991.9 | EG: 7000.0 | EG: 6995.3 | EG: 7003.5 | EG: 6998.9 | EG: 7006.1 | EG: 7000.7 | EG: 7007.0 | EG: 7000.9 | EG: 7006.7 | EG: 7001.0 | EG: 7007.2 | EG: 7001.2 | EG: 7007.4 | EG: 7001.9 | EG: 7007.4 | EG: 7002.4 | EG: 7006.6 | EG: 7001.9 | EG: 7005.6 | EG: 7001.1 | EG: 7005.3 | EG: 7000.7 | EG: 7005.4 | EG: 7000.6 | EG: 7006.1 | EG: 7000.5 | EG: 7006.5 | EG: 7000.4 | EG: 7006.3 | EG: 7000.3 | EG: 7008.3 | EG: 7000.2 | EG: 7008.2 | EG: 7000.1 | EG: 7008.4 | EG: 7000.0 | EG: 7007.9 | EG: 6999.9 | EG: 7006.0 | EG: 6999.8 | EG: 7004.0 | EG: 6999.3 | EG: 7002.0 | EG: 6997.6 | EG: 7001.5 | EG: 6996.5 | EG: 7000.1 | EG: 6995.6 | EG: 6999.3 | EG: 6994.8 | EG: 6998.7 | EG: 6993.9 | EG: 6997.8 | EG: 6993.0 | EG: 6996.8 | EG: 6991.9 | EG: 6994.5 | EG: 6990.0 | EG: 6992.3 | EG: 6987.8 | EG: 6990.5 | EG: 6985.9 | EG: 6990.0 | EG: 6984.8 | EG: 6988.3 | EG: 6983.7 | EG: 6987.4 | EG: 6982.6 | EG: 6986.4 | EG: 6981.9 | EG: 6986.2 | EG: 6981.6 | EG: 6985.4 | EG: 6980.8 | EG: 6983.9 | EG: 6979.3 | EG: 6982.2 | EG: 6977.6 | EG: 6981.0 | EG: 6976.1 | EG: 6979.6 | EG: 6974.8 | EG: 6978.0 | EG: 6973.5 | EG: 6976.7 | EG: 6972.2 | EG: 6975.5 | EG: 6970.9 | EG: 6973.6 | EG: 6969.0 | EG: 6970.7 | EG: 6966.2 | EG: 6968.9 | EG: 6964.5 | EG: 6967.4 | EG: 6962.9 | EG: 6965.6 | EG: 6961.2 | EG: 6964.3 | EG: 6959.6 | EG: 6961.7 | EG: 6956.9 | EG: 6956.2 | EG: 6951.7 | EG: 6954.8 | EG: 6950.3 | EG: 6954.9 | EG: 6950.1 | EG: 6954.9 | EG: 6950.0 |
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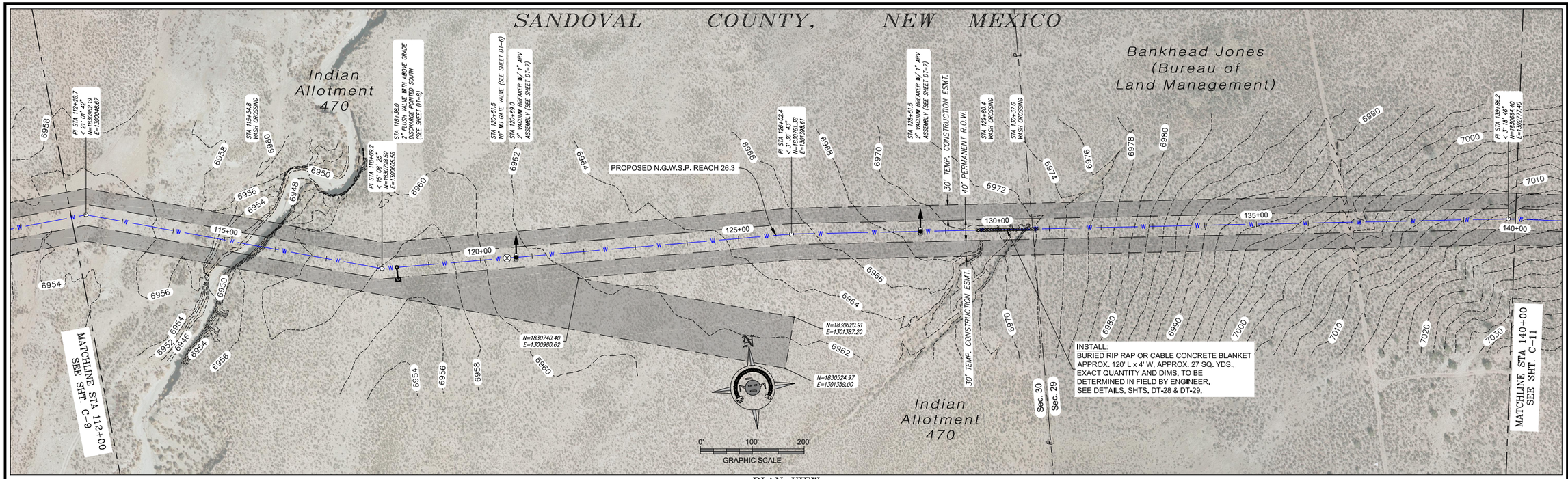


PLAN VIEW
10" WATERLINE

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.

CORROSIVE SOIL ZONE

CORROSIVE SOIL ZONE

STA. 113+21.5; CL: 6949.6
10" 11.25° PIPE BEND

STA. 115+54.8
WASH CROSSING

STA. 117+94.4; CL: 6952.2
10" 11.25° PIPE BEND

STA. 118+38.0; CL: 6952.4
2" FLUSH VALVE WITH ABOVE GRADE DISCHARGE POINTED SOUTH (SEE SHEET DT-8)

STA. 120+51.5; CL: 6956.2
10" MJ GATE VALVE (SEE SHEET DT-6)

STA. 120+69.0; CL: 6956.5
2" VACUUM BREAKER W/ 1" ARV ASSEMBLY (SEE SHEET DT-7)

EXIST. GRADE AT ALIGN. CL

STA. 128+51.5; CL: 6963.9
2" VACUUM BREAKER W/ 1" ARV ASSEMBLY (SEE SHEET DT-7)

STA. 129+80.4
WASH CROSSING

STA. 130+37.6
WASH CROSSING

CUT GRADE 4:1 MAX. CONTRACTOR TO DETERMINE WIDTH OF GRADING IN FIELD; MUST STAY WITHIN T.C.E.

EXIST. GRADE AT ALIGN. CL

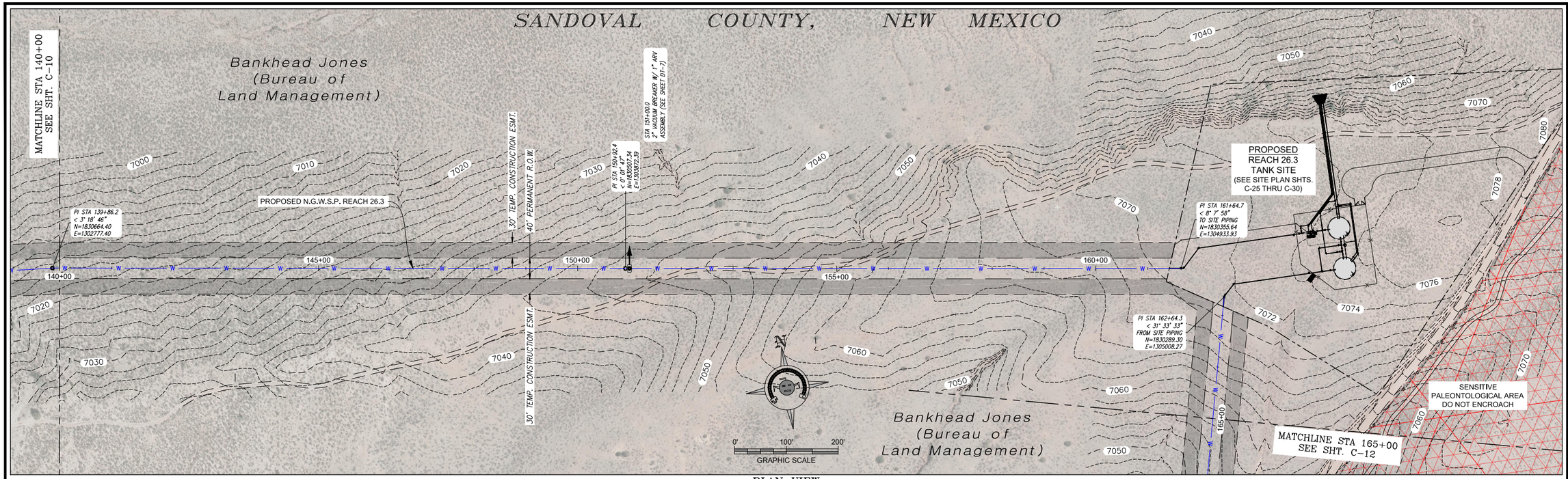
S=−0.30%
S=−19.89%
S=+0.30%
S=+19.89%
S=+2.69%
S=+0.30%
S=+1.19%
S=+0.46%
S=+1.31%
S=+0.95%
S=−5.38%
S=+0.30%
S=+14.89%
S=+4.46%
S=+7.43%
S=+2.26%
S=+2.95%
S=+9.46%
S=+4.68%

16.5' MIN TO CL
9.2' MIN TO CL
6.5' MIN TO CL
6.5' MIN TO CL

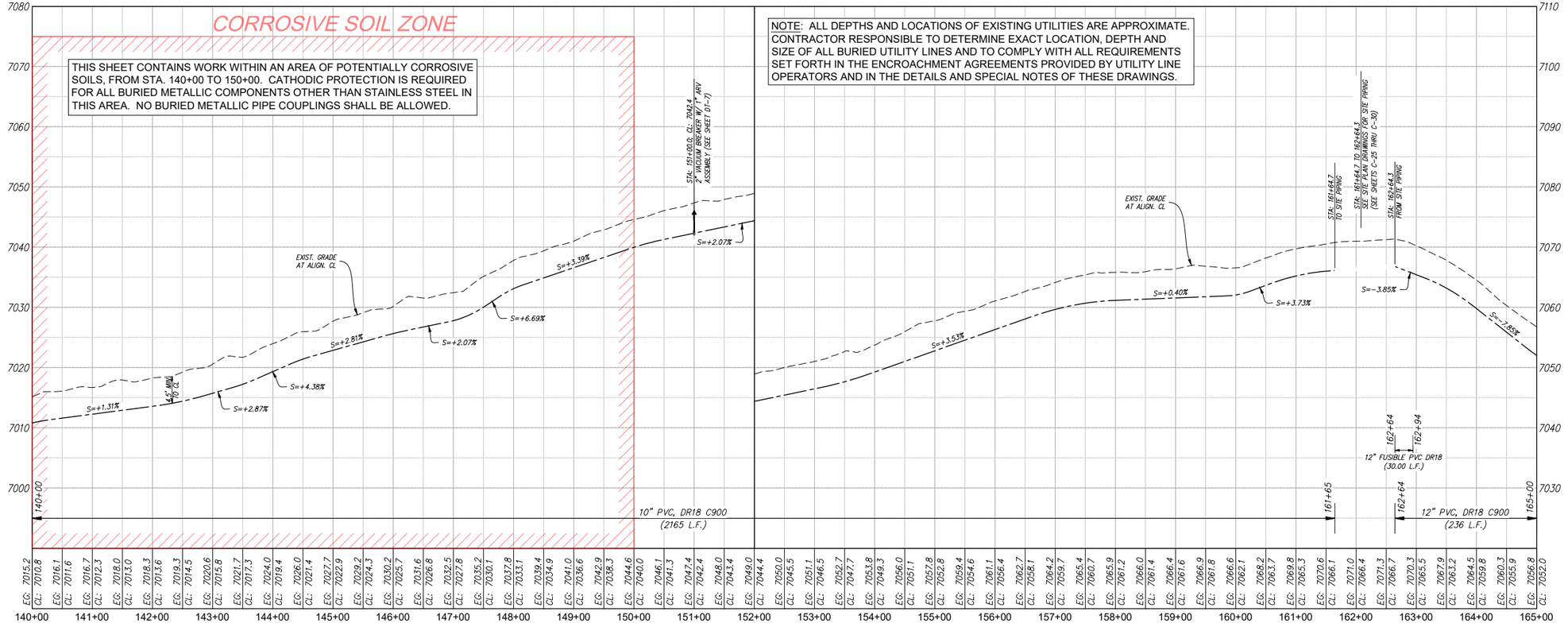
112+09 112+49
10" RESTRAINED PVC DR18 (40.00 L.F.)
113+02 113+22 113+22
10" RESTRAINED PVC DR18 (20.00 L.F.)
10" FUSIBLE PVC DR18 FOR HORIZONTAL DIRECTIONAL DRILLING (472 L.F.) (SEE SHT. DT-11 FOR DETAIL)
117+94 117+94
10" FUSIBLE PVC DR18 (44.00 L.F.)
118+38
119+12
10" FUSIBLE PVC DR18 (280.00 L.F.)
121+92
10" PVC, DR18 C900 (2800 L.F.)
129+51
131+72
10" FUSIBLE PVC DR18 (221.00 L.F.)
112+00
140+00

THIS SHEET CONTAINS WORK WITHIN AN AREA OF POTENTIALLY CORROSIVE SOILS, FROM STA. 125+50 TO 140+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.

| EG: | 6954.9 | 6955.3 | 6949.8 | 6955.3 | 6949.7 | 6955.9 | 6943.9 | 6956.4 | 6934.4 | 6956.7 | 6952.6 | 6958.0 | 6953.5 | 6959.8 | 6954.9 | 6961.1 | 6956.1 | 6961.8 | 6956.9 | 6962.2 | 6957.5 | 6962.5 | 6958.0 | 6962.9 | 6958.3 | 6963.1 | 6958.5 | 6963.2 | 6958.8 | 6963.7 | 6959.0 | 6963.7 | 6959.3 | 6964.2 | 6959.7 | 6964.8 | 6960.3 | 6965.5 | 6961.0 | 6966.1 | 6961.6 | 6966.8 | 6962.3 | 6967.5 | 6962.9 | 6968.0 | 6963.4 | 6968.9 | 6963.9 | 6969.7 | 6962.9 | 6969.8 | 6960.8 | 6969.9 | 6960.3 | 6967.0 | 6960.5 | 6973.0 | 6963.7 | 6974.6 | 6969.8 | 6976.8 | 6972.3 | 6979.1 | 6974.7 | 6982.5 | 6978.0 | 6986.4 | 6981.7 | 6989.8 | 6985.3 | 6992.3 | 6987.8 | 6993.7 | 6989.1 | 6994.7 | 6990.3 | 6997.1 | 6991.6 | 6999.2 | 6993.1 | 7000.6 | 6994.9 | 7003.8 | 6998.5 | 7007.0 | 7002.6 | 7009.5 | 7005.0 | 7012.0 | 7007.3 | 7014.0 | 7009.4 | 7015.2 | 7010.8 |
|---|---|---



PLAN VIEW
10" & 12" WATERLINE



PROFILE VIEW
10" & 12" WATERLINE

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Revision	Date	Description	By	Chk'd

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CLIENT: The Navajo Nation TOWN: Reach 26.3 To Torreon, 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	MvH/AaV	AGR

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

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.

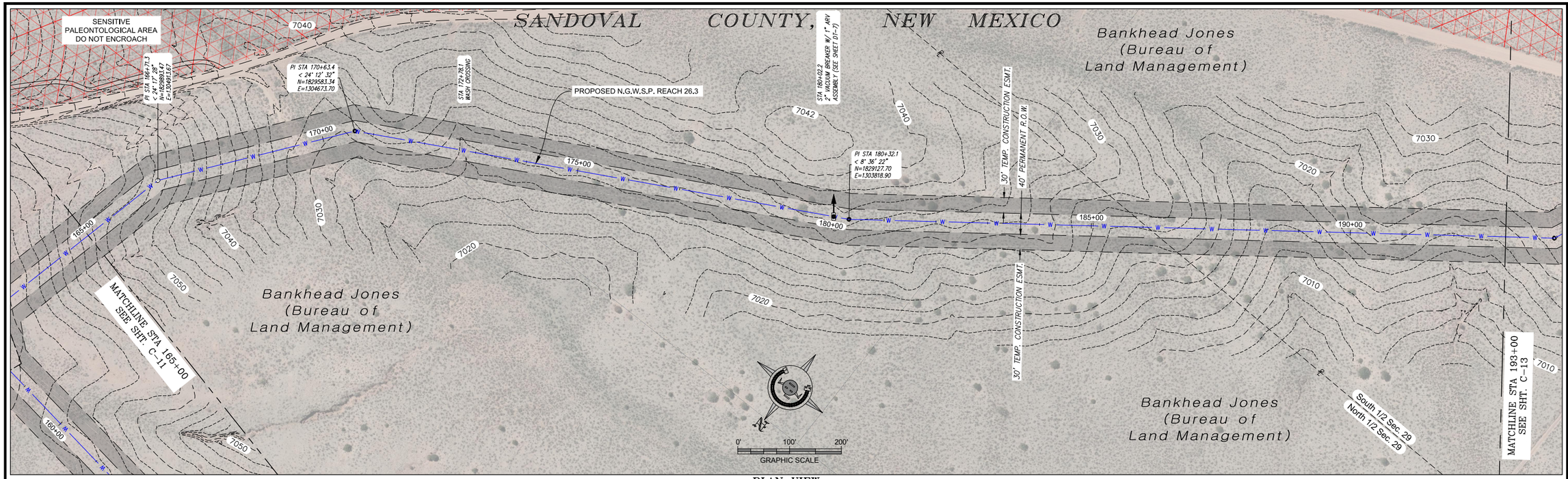
811 Know what's below. Call before you dig.

Date: January 15, 2019

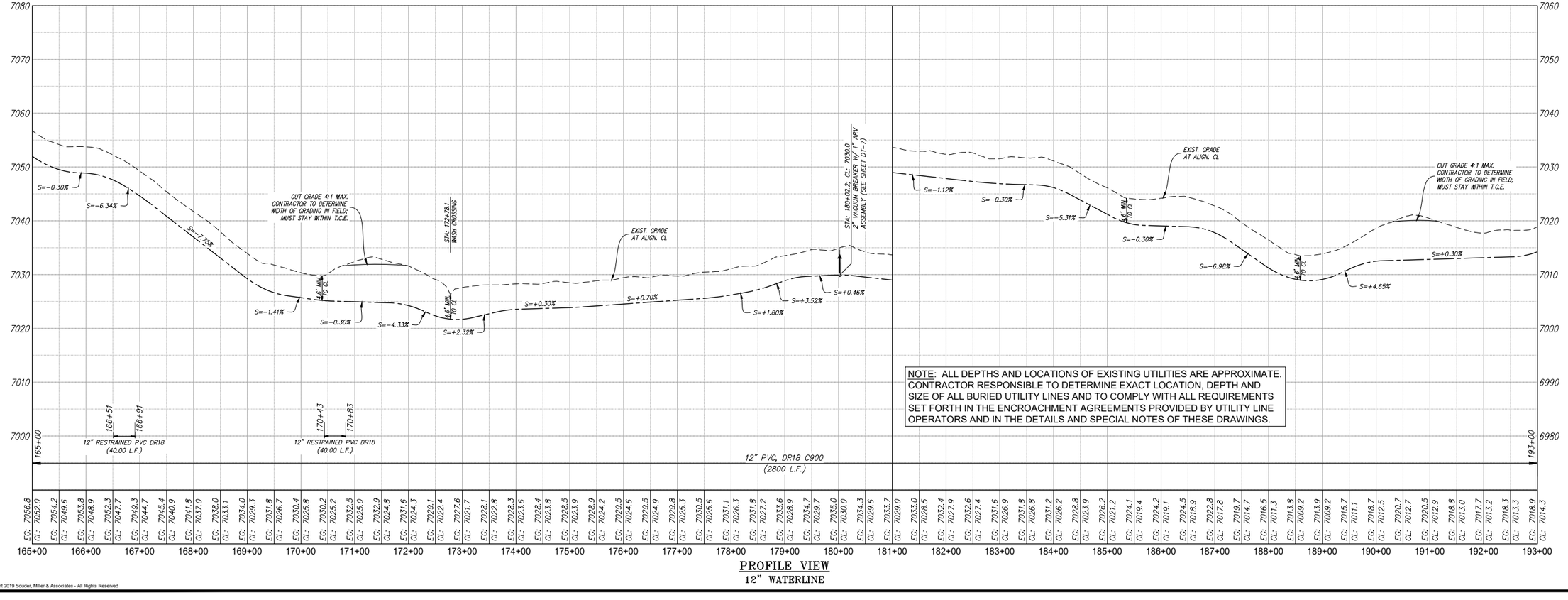
Scale: Horiz: 1" = 200'
Vert: 1" = 20'

Project No: 6921307

Sheet: C-11



PLAN VIEW
12" WATERLINE



PROFILE VIEW
12" WATERLINE

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Revision	Date	Description	By	Chk'd

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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	Drawn	Checked
TTT	MvH/AaV	AGR

TORY T. TADANO — NEW MEXICO — 21073 — LICENSED PROFESSIONAL ENGINEER
11/31/19

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Date: January 15, 2019

Scale: Horiz: 1" = 200'
Vert: 1" = 20'

Project No: 6921307

Sheet: C-12

SANDOVAL COUNTY, NEW MEXICO

NOTE:
THIS SHEET CONTAINS WORK IN THE VICINITY OF A **"PALEONTOLOGICALLY SENSITIVE AREA"**. ENGINEER MUST BE NOTIFIED AT LEAST FIVE (5) WORKING DAYS PRIOR TO ANY GROUND DISTURBING ACTIVITIES WITHIN THIS AREA.

PALEONTOLOGICAL SITE SPECIFIC REQUIREMENTS INCLUDE:
- ON-SITE MONITORING BY OWNER-PROVIDED PALEONTOLOGIST
  NO WORK WITHOUT PALEONTOLOGIST ONSITE

MATCHLINE STA 193+00 SEE SHT. C-12

MATCHLINE STA 221+00 SEE SHT. C-14

STA 197+34.7
12" MJ GATE VALVE (SEE SHEET DT-6) FOR HYDROSTATIC TESTING ONLY. AFTER TEST, REMOVE VALVE BOX AND ABANDON IN PLACE.

STA 197+52.2
2" VACUUM BREAKER W/ 1" ARV ASSEMBLY (SEE SHEET DT-7)

STA 199+45.5
CL SOD TAXI PLOW RD. DIRT ROAD CROSSING W/ CASING (OPEN CUT, SEE SHEET DT-5)

STA 213+80.0
2" VACUUM BREAKER W/ 1" ARV ASSEMBLY (SEE SHEET DT-7)

PI STA 214+92.7
CL SOD TAXI PLOW RD.
N=1826128.34
E=1302786.00

PI STA 218+07.2
< 8° 02' 25"
N=1826168.69
E=1302945.52

SENSITIVE PALEONTOLOGICAL AREA
DO NOT ENCROACH BEYOND
WATERLINE RIGHT-OF-WAY
(SEE NOTE, THIS SHEET)

SENSITIVE PALEONTOLOGICAL AREA
DO NOT ENCROACH BEYOND
WATERLINE RIGHT-OF-WAY
(SEE NOTE, THIS SHEET)

SENSITIVE PALEONTOLOGICAL AREA
DO NOT ENCROACH BEYOND
WATERLINE RIGHT-OF-WAY
(SEE NOTE, THIS SHEET)

30' TEMP. CONSTRUCTION ESMT.
40' PERMANENT R.O.W.

PI STA 193+94.0
< 28° 52' 38"
N=1828314.44
E=1302726.45

N=1827881.41
E=1302584.43

N=1827852.27
E=1302538.22

PI STA 199+23.1
< 26° 18' 17"
N=1827832.84
E=1302507.41

PROPOSED N.G.W.S.P. REACH 26.3

12" 22.5° FUSIBLE PVC SWEEP
PI STA 209+94.3
< 22° 30' 14"
N=1826270.19
E=1302541.94

N=1827820.48
E=1302487.80

N=1827801.93
E=1302458.38

STA: 199+34 TO STA: 199+64
30' ROAD CROSSING (OPEN CUT)
24"Ø, SCH. 10 STEEL CASING
(SEE SHEET DT-5)

ROCK CHECK DAMS,
APPROX. 25' L x 4' W., APPROX. 21 CU. YDS.
STA 215+00 TO STA 219+00, SPACING AND DIMS. TO BE DETERMINED IN FIELD BY ENGINEER.
SEE DETAIL, SHT. DT-30

NOTE:
95% COMPACTION REQUIRED
BETWEEN STA 199+23 TO STA 219+00

Bankhead Jones (Bureau of Land Management)

Bankhead Jones (BLM)

BLM

Sec. 29 Sec. 32

0' 100' 200'
GRAPHIC SCALE

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.

CORROSIVE SOIL ZONE

THIS SHEET CONTAINS WORK WITHIN AN AREA OF POTENTIALLY CORROSIVE SOILS, FROM STA. 205+50 TO 221+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.

STA: 197+34.7, CL: 7024.2
12" MJ GATE VALVE (SEE SHEET DT-6) FOR HYDROSTATIC TESTING ONLY. AFTER TEST, REMOVE VALVE BOX AND ABANDON IN PLACE.

STA: 197+52.2, CL: 7024.3
2" VACUUM BREAKER W/ 1" ARV ASSEMBLY (SEE SHEET DT-7)

STA: 199+45.5
CL SOD TAXI PLOW RD. DIRT ROAD CROSSING W/ CASING (OPEN CUT, SEE SHEET DT-5)

EXIST. GRADE AT ALIGN. CL

S=+4.62%
S=+0.30%
S=+1.57%
S=+3.78%
S=+0.44%
S=-7.01%
4.0' MIN. CLR. TO CASING
S=-0.34%
4.6' MIN. (6.0' CL)
S=-0.30%
S=-3.84%
S=-2.68%
S=-0.30%
S=-3.30%

199+34
199+64
24"Ø, SCH. 10 STEEL CASING (SEE SHEET DT-5) (30 L.F.)

193+64
194+24
12" FUSIBLE PVC DR18 (60.00 L.F.)

195+70
200+48
12" FUSIBLE PVC DR18 (478.00 L.F.)

209+74
210+14
12" FUSIBLE PVC DR18 (40.00 L.F.)

12" PVC, DR18 C900 (2800 L.F.)

STA: 213+80.0, CL: 7002.4
2" VACUUM BREAKER W/ 1" ARV ASSEMBLY (SEE SHEET DT-7)

EXIST. GRADE AT ALIGN. CL

CONSTRUCT 2'W(TOP) x 10'L x 2'H BERM
95% COMPACTION REQUIRED

CUT GRADE 4:1 MAX.
CONTRACTOR TO DETERMINE WIDTH OF GRADING IN FIELD; MUST STAY WITHIN T.C.E.

S=-1.17%
S=-0.30%
S=-25.55%
S=-25.39%
S=-19.80%
S=-3.91%
S=-8.84%

213+95
219+55
12" FUSIBLE PVC, DR18 C900 (560 L.F.)

EG: 7018.9 CL: 7014.3 | EG: 7021.3 CL: 7016.3 | EG: 7022.6 CL: 7016.9 | EG: 7021.7 CL: 7017.0 | EG: 7022.0 CL: 7017.4 | EG: 7022.8 CL: 7018.2 | EG: 7024.5 CL: 7019.8 | EG: 7026.3 CL: 7021.7 | EG: 7028.3 CL: 7023.6 | EG: 7029.4 CL: 7024.3 | EG: 7028.2 CL: 7023.4 | EG: 7025.6 CL: 7020.7 | EG: 7024.3 CL: 7017.8 | EG: 7023.3 CL: 7017.5 | EG: 7022.9 CL: 7017.3 | EG: 7022.1 CL: 7017.2 | EG: 7021.8 CL: 7017.0 | EG: 7021.4 CL: 7016.8 | EG: 7021.4 CL: 7016.7 | EG: 7021.4 CL: 7016.5 | EG: 7021.8 CL: 7016.4 | EG: 7021.7 CL: 7016.2 | EG: 7021.3 CL: 7016.1 | EG: 7021.2 CL: 7015.9 | EG: 7021.6 CL: 7015.8 | EG: 7021.6 CL: 7015.6 | EG: 7021.0 CL: 7015.5 | EG: 7019.1 CL: 7014.5 | EG: 7017.3 CL: 7012.6 | EG: 7015.5 CL: 7010.9 | EG: 7015.0 CL: 7009.5 | EG: 7016.2 CL: 7009.3 | EG: 7017.1 CL: 7009.2 | EG: 7016.2 CL: 7009.0 | EG: 7014.9 CL: 7008.9 | EG: 7012.9 CL: 7008.3 | EG: 7011.1 CL: 7006.6 | EG: 7009.6 CL: 7005.0 | EG: 7008.0 CL: 7003.4 | EG: 7007.3 CL: 7002.7 | EG: 7007.5 CL: 7002.3 | EG: 7008.4 CL: 7002.1 | EG: 7009.7 CL: 7000.1 | EG: 7002.3 CL: 6993.8 | EG: 6990.8 CL: 6983.2 | EG: 6979.8 CL: 6972.1 | EG: 6970.9 CL: 6962.2 | EG: 6962.9 CL: 6952.3 | EG: 6953.8 CL: 6940.5 | EG: 6936.7 CL: 6930.1 | EG: 6931.0 CL: 6924.1 | EG: 6927.2 CL: 6921.7 | EG: 6924.0 CL: 6919.4 | EG: 6921.6 CL: 6915.4 | EG: 6917.7 CL: 6912.1

193+00 194+00 195+00 196+00 197+00 198+00 199+00 200+00 201+00 202+00 203+00 204+00 205+00 206+00 207+00 208+00 209+00 210+00 211+00 212+00 213+00 214+00 215+00 216+00 217+00 218+00 219+00 220+00 221+00

PROFILE VIEW
12" WATERLINE

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Revision	Date	Description	By	Chk'd

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Cortez, Grand Junction, CO Durango, CO Flagstaff, AZ Moab, UT Telluride, CO

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

PLAN & PROFILE STA 193+00 To STA 221+00
SECTIONS 29 & 32, T. 21 N., R. 5 W.
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACH 26.3
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
TTT	MvH/AaV	AGR

TORY T. TADANO
NEW MEXICO
21073
REGISTERED PROFESSIONAL ENGINEER
11/31/19

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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.

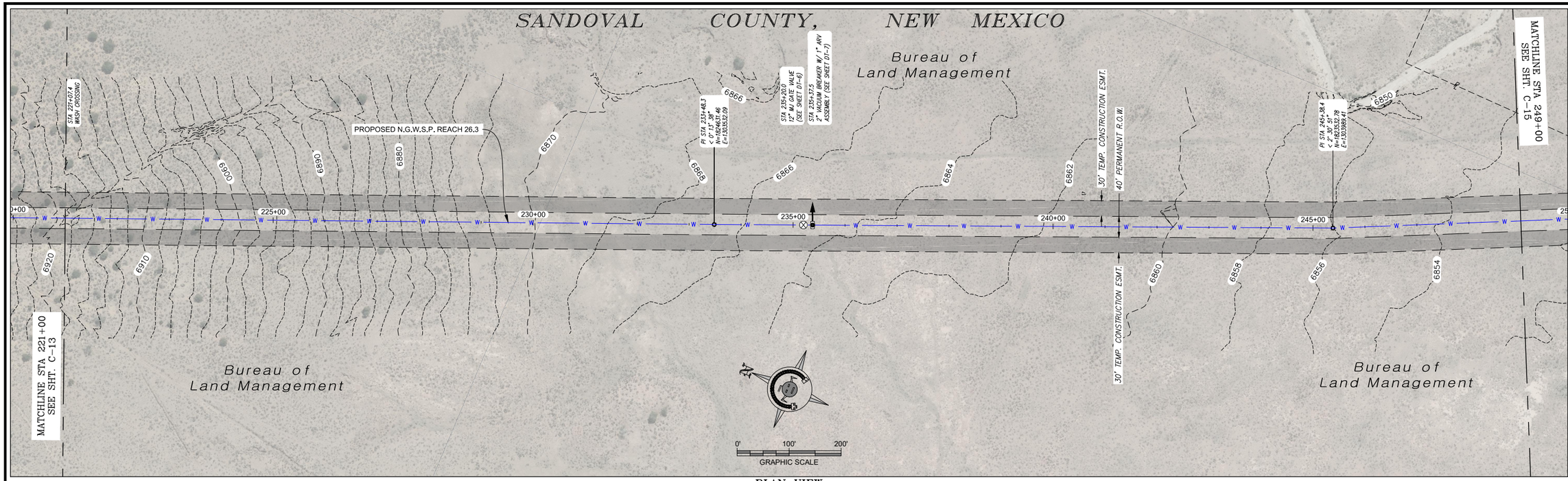
811 Know what's below. Call before you dig.

Date: January 15, 2019

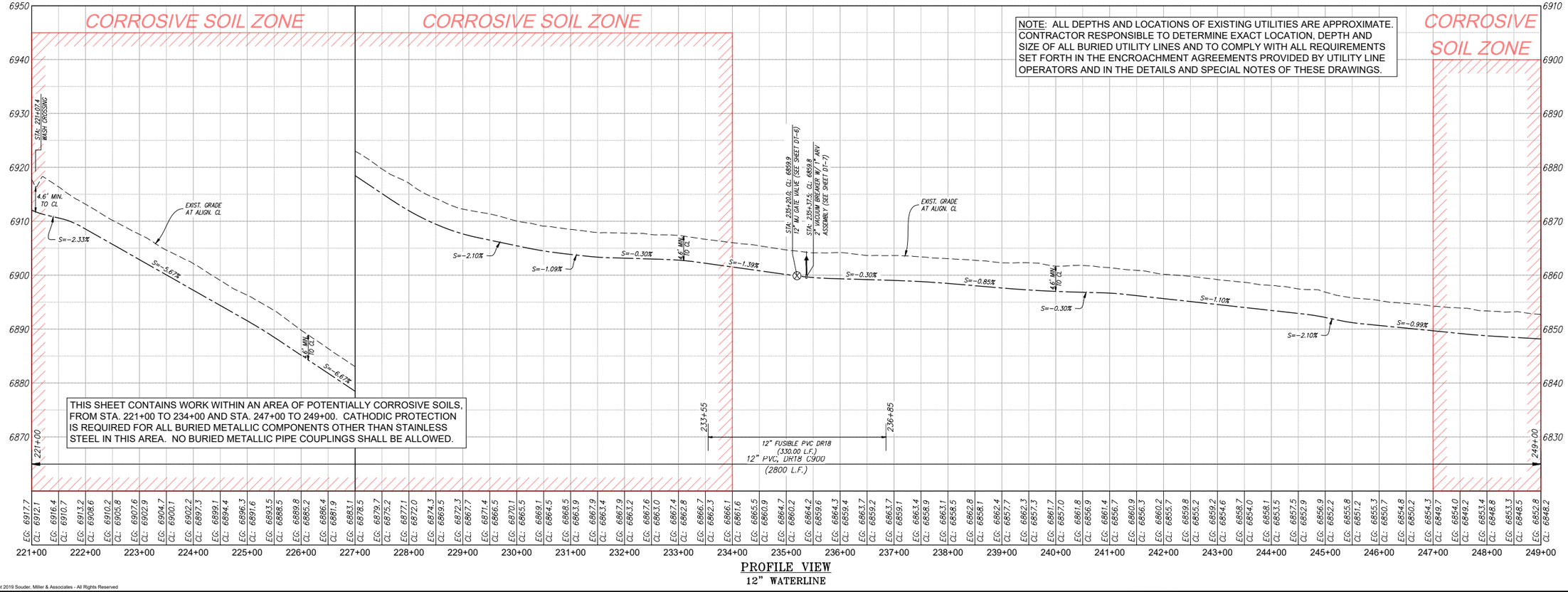
Scale: Horiz: 1" = 200'
Vert: 1" = 20'

Project No: 6921307

Sheet: C-13



PLAN VIEW
12" WATERLINE



PROFILE VIEW
12" WATERLINE

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Revision	Date	Description	By	Chk'd

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CLIENT: The Navajo Nation

TOWN: Reach 26.3 To Torreon, NM

PLAN & PROFILE STA 221+00 To STA 249+00
SECTION 32, T. 21 N., R. 5 W.
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACH 26.3
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
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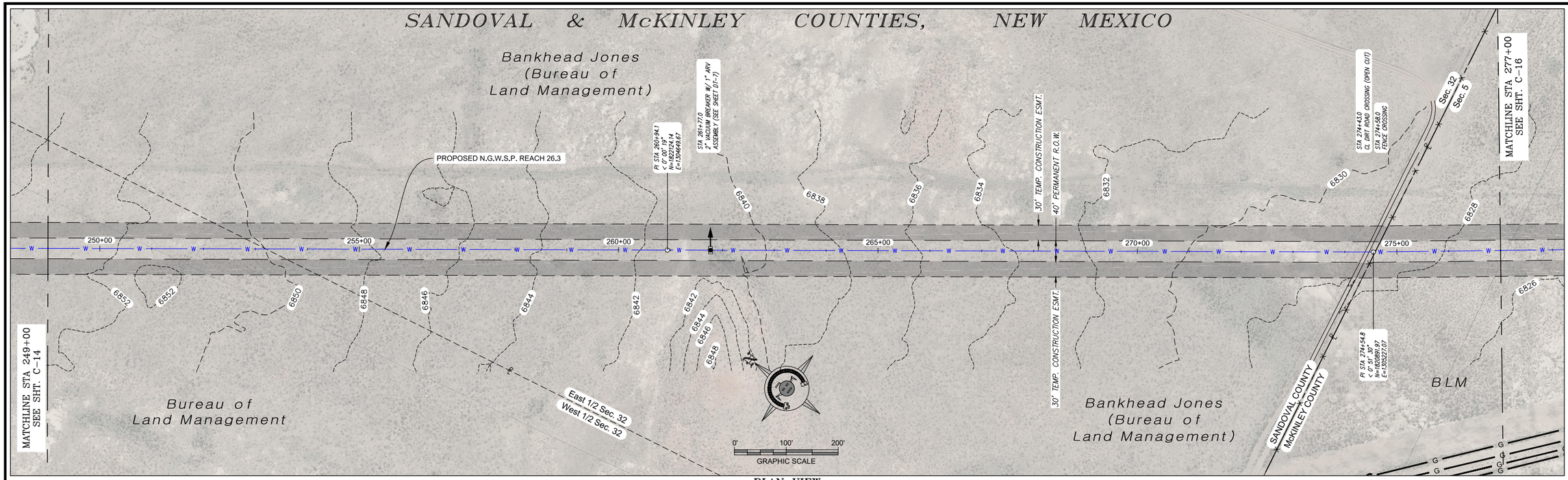
Scale: Horiz: 1" = 200'
Vert: 1" = 20'

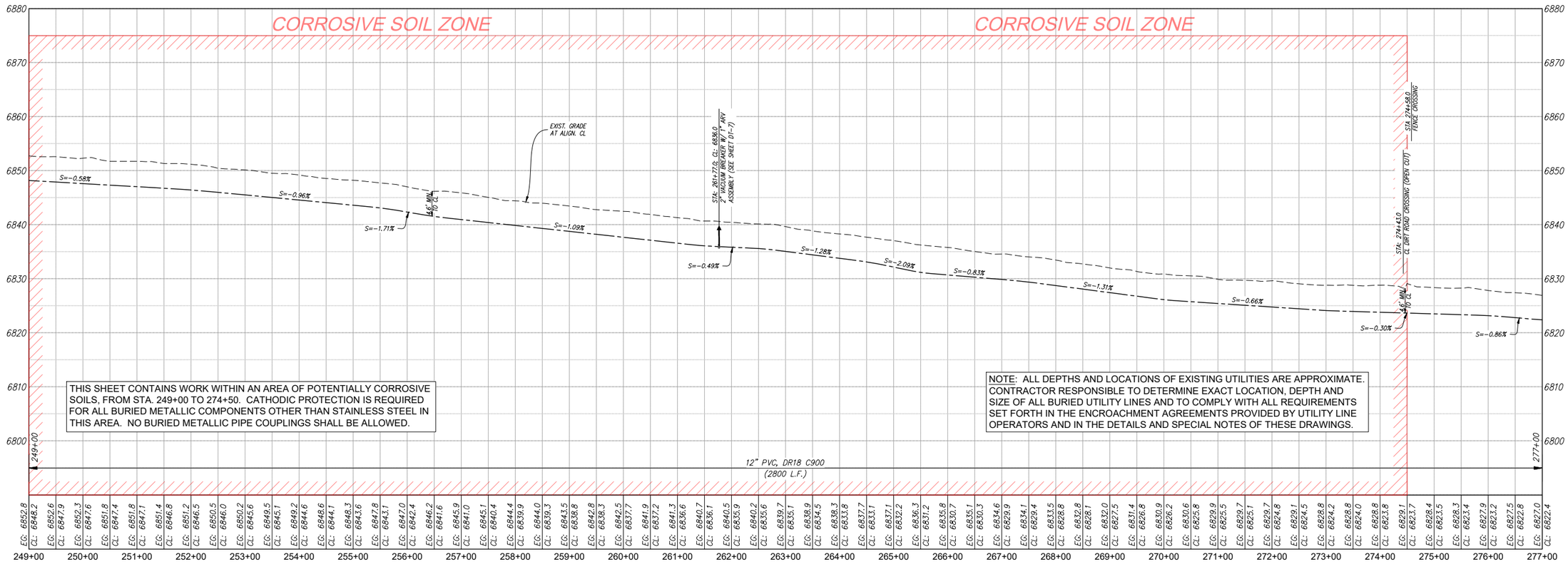
Project No: 6921307

Sheet: C-14

SANDOVAL & McKINLEY COUNTIES, NEW MEXICO



PLAN VIEW
12" WATERLINE



PROFILE VIEW
12" WATERLINE

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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	Drawn	Checked
TTT	MvH/AaV	AGR

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

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Project No: 6921307

Sheet: C-15

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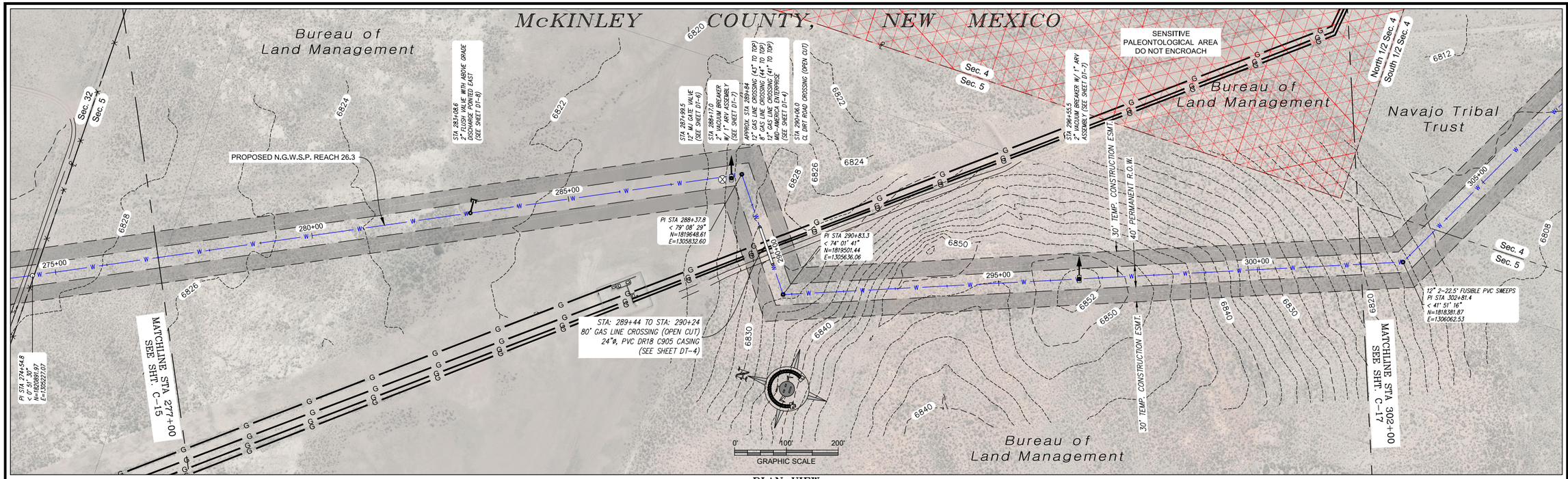
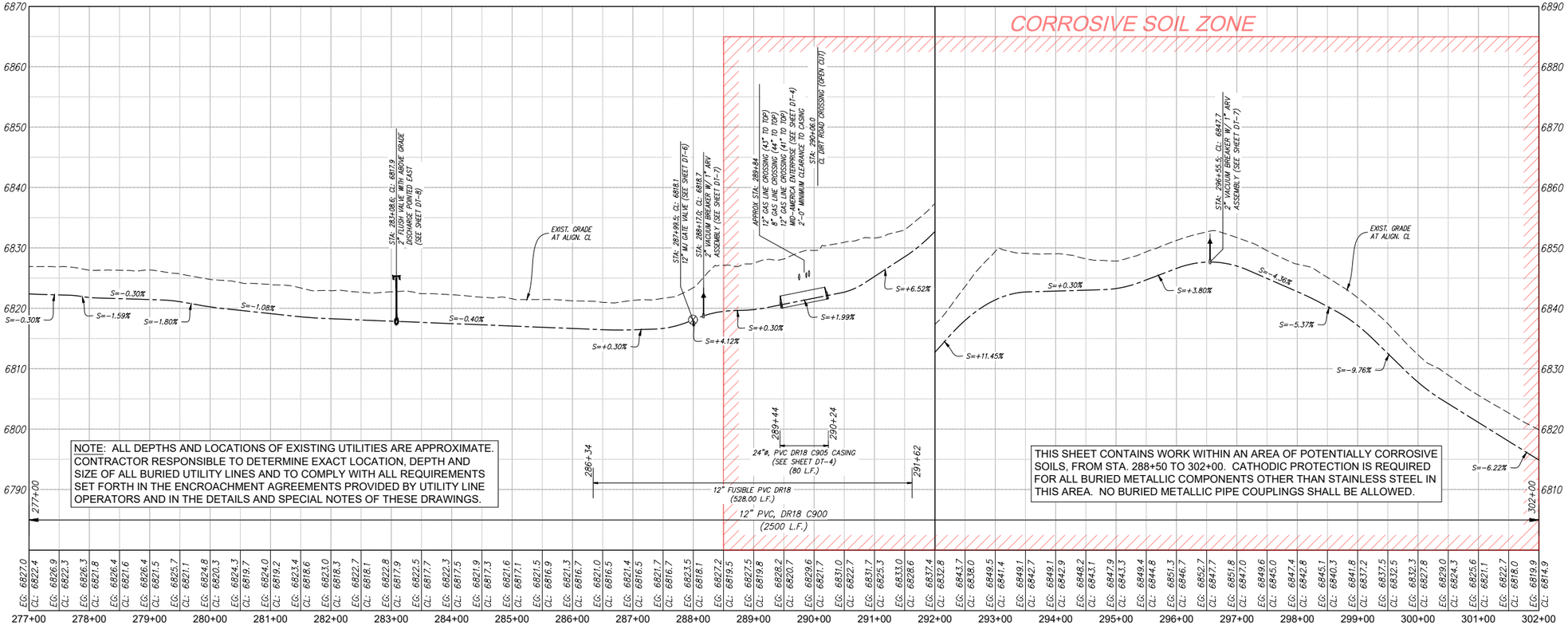


PLAN VIEW
12" WATERLINE



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PROFILE VIEW
12" WATERLINE

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Revision	Date	Description	By	Chk'd

P:\PHD Reach 26.3 Algn (2).dwg 1/15/2019 11:53:12 AM akw

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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	Drawn	Checked
TTT	MvH/AaV	AGR

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

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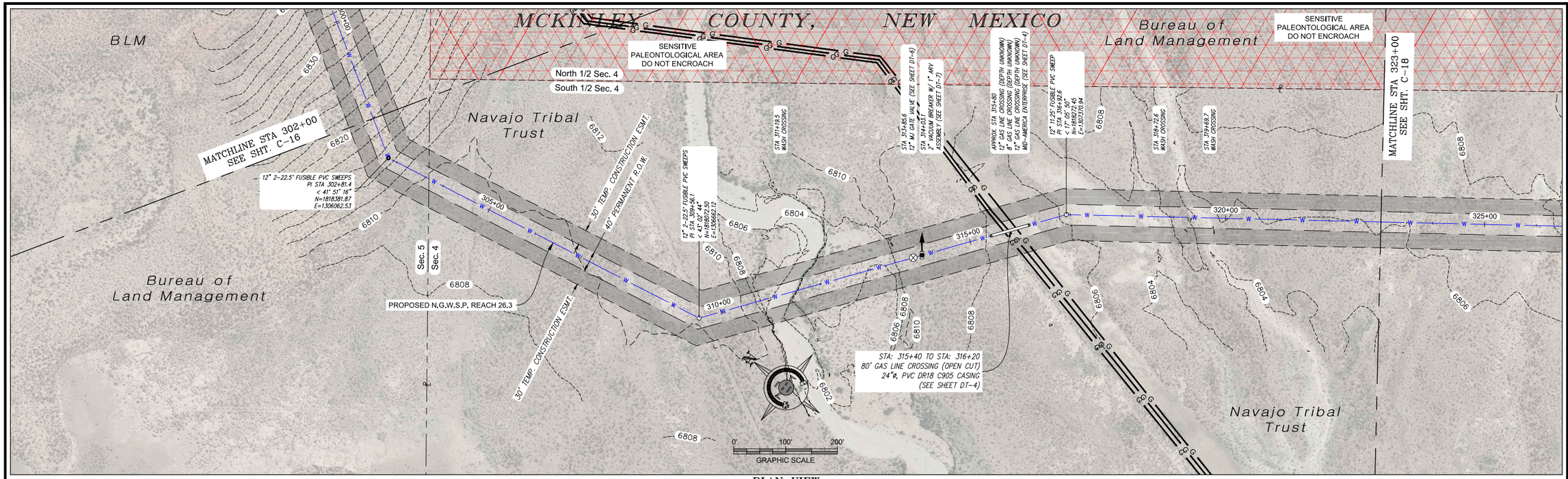
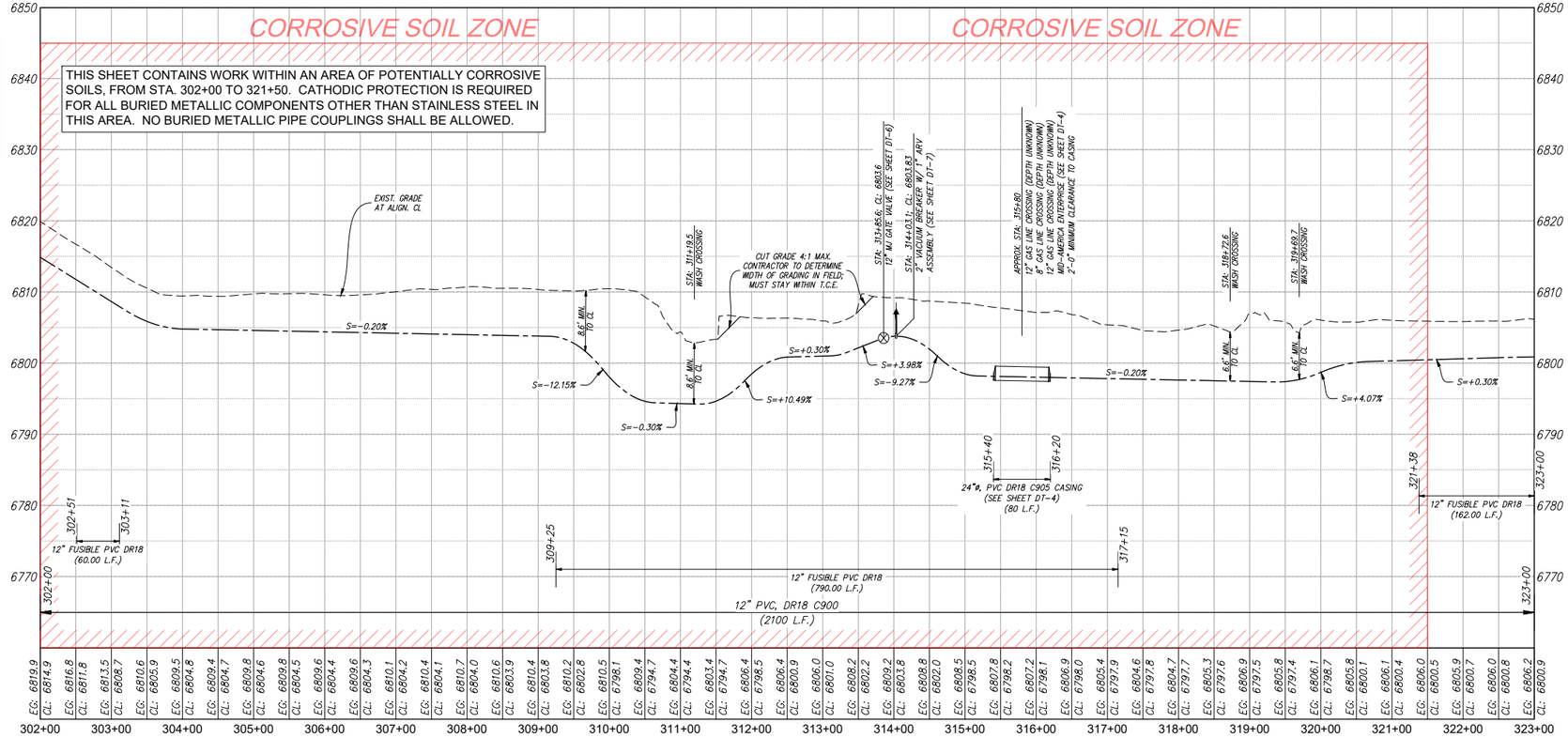
Project No: 6921307

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

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Revision	Date	Description	By	Chk'd

P:\HEP-Reach 26.3 Algn1 (2).dwg 11/15/2019 11:19:32 AM aav

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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	MvH/AaV	AGR

TORY T. TADANO — NEW MEXICO — 21073 — REGISTERED PROFESSIONAL ENGINEER — 12/31/19

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.

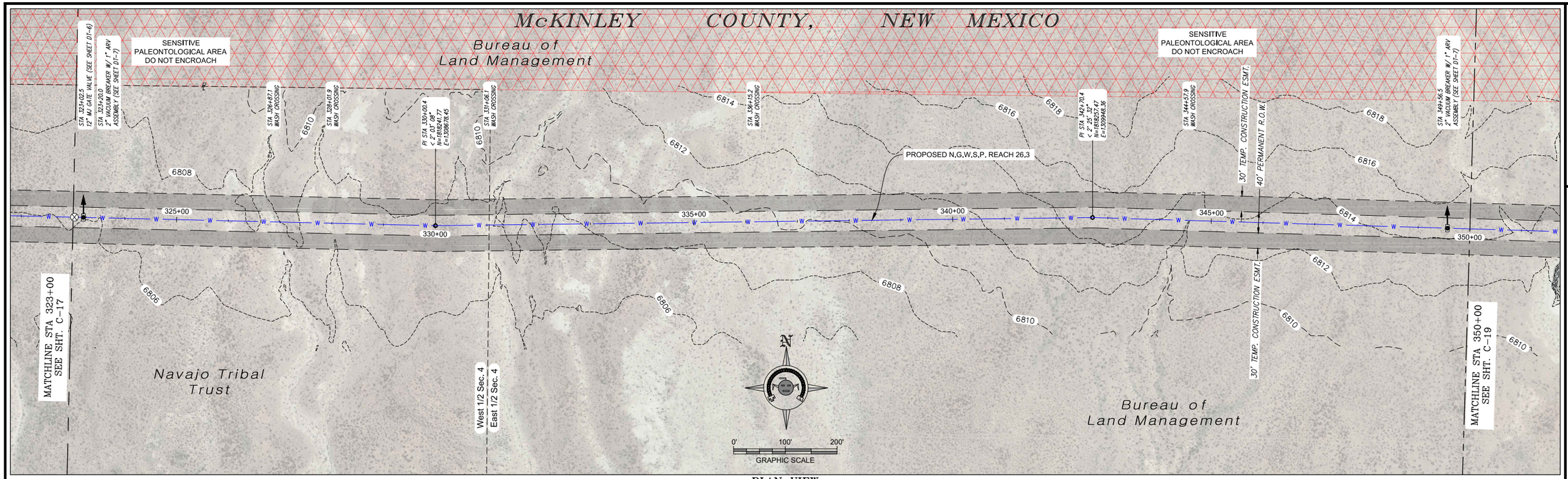
811 Know what's below. Call before you dig.

Date: January 15, 2019

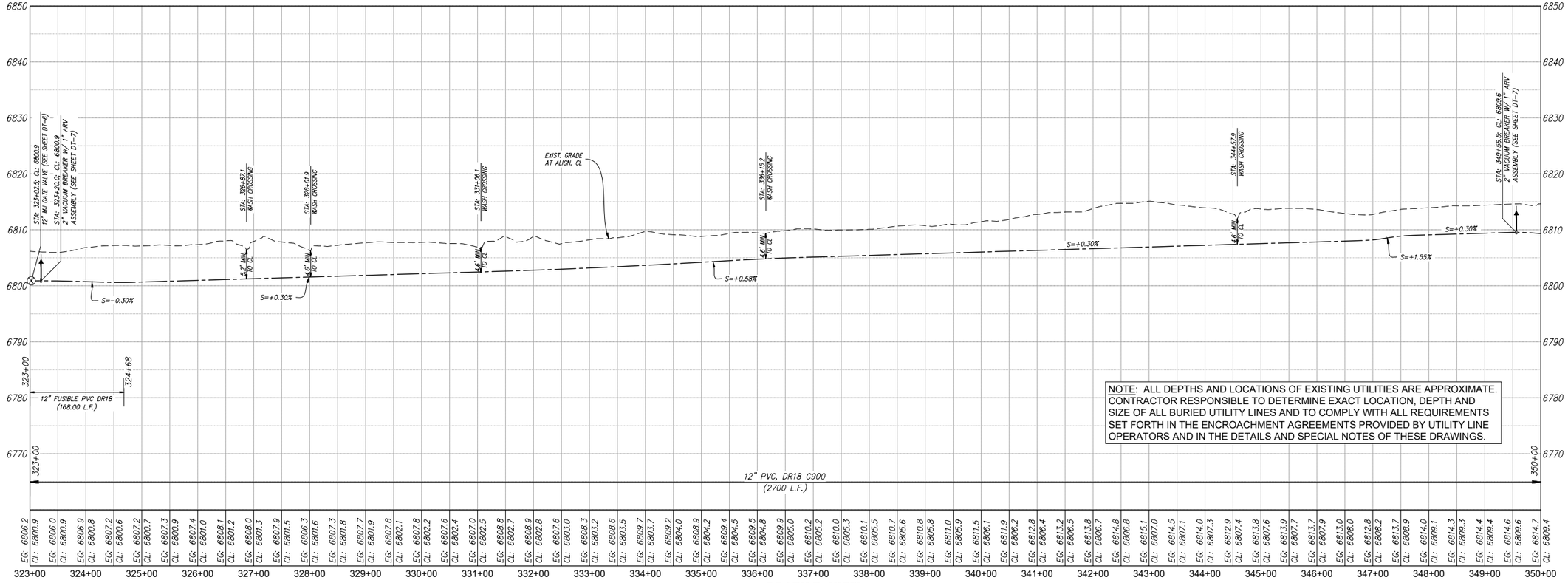
Scale: Horiz: 1" = 200'
Vert: 1" = 20'

Project No: 6921307

Sheet: C-17



PLAN VIEW
12" WATERLINE



PROFILE VIEW
12" WATERLINE

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Revision	Date	Description	By	Chk'd

P:\HB-Reach 26.3 Mgmt - 28.dwg
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PLAN & PROFILE STA 323+00 To STA 350+00
SECTION 4, T. 20 N., R. 5 W.
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACH 26.3
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
TTT	MvH/AaV	AGR

TORY T. TADANO — NEW MEXICO — 21073 — 12/31/19 — LICENSED PROFESSIONAL ENGINEER

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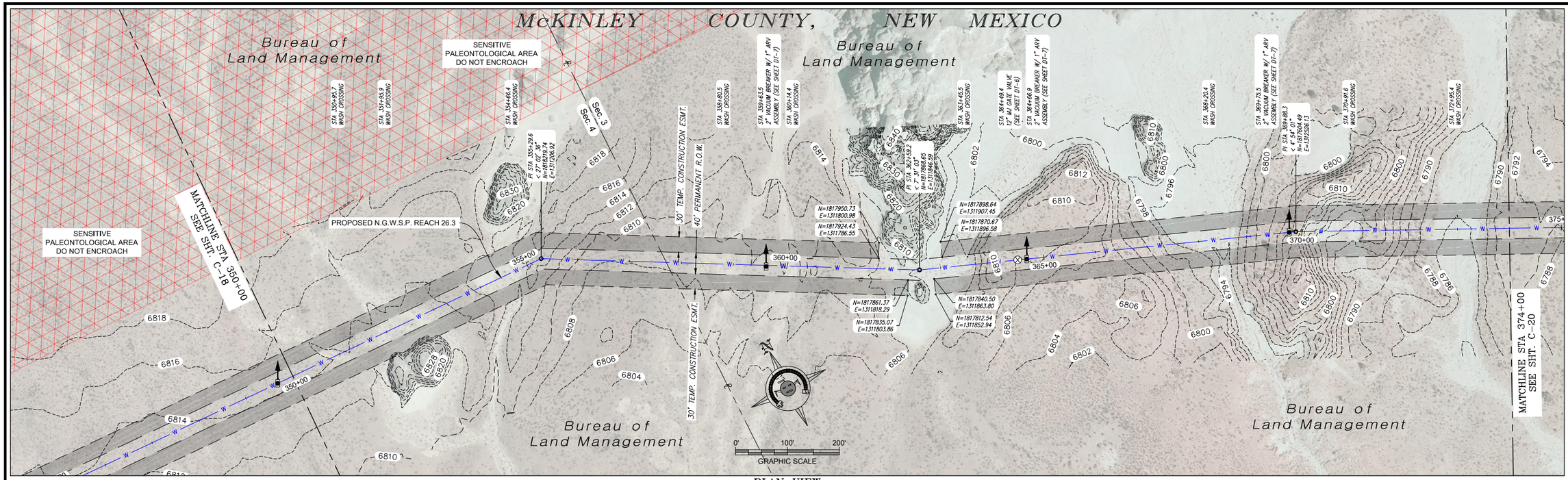
811 Know what's below. Call before you dig.

Date: February 1, 2019

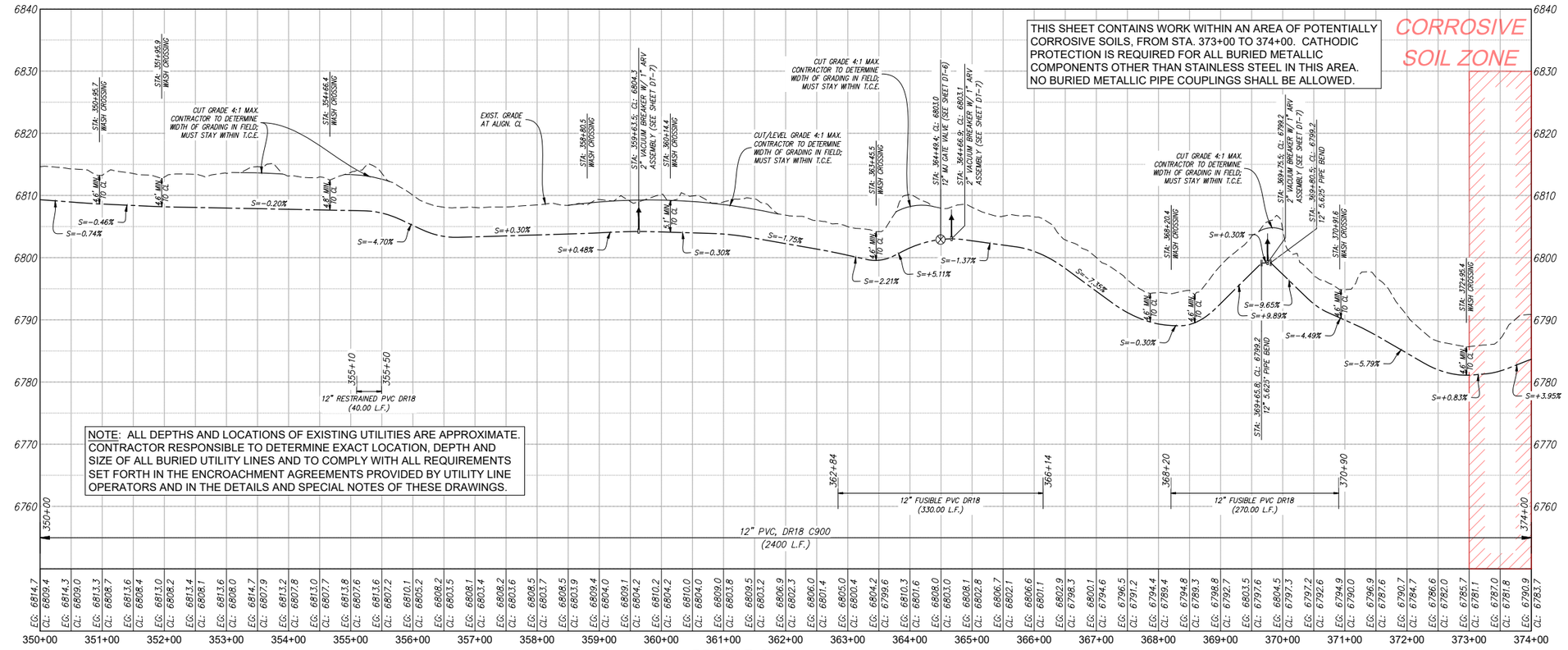
Scale: Horiz: 1" = 200'
Vert: 1" = 20'

Project No: 6921307

Sheet: C-18



PLAN VIEW
12" WATERLINE



PROFILE VIEW
12" WATERLINE

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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	Drawn	Checked
TTT	MvH/AaV	AGR

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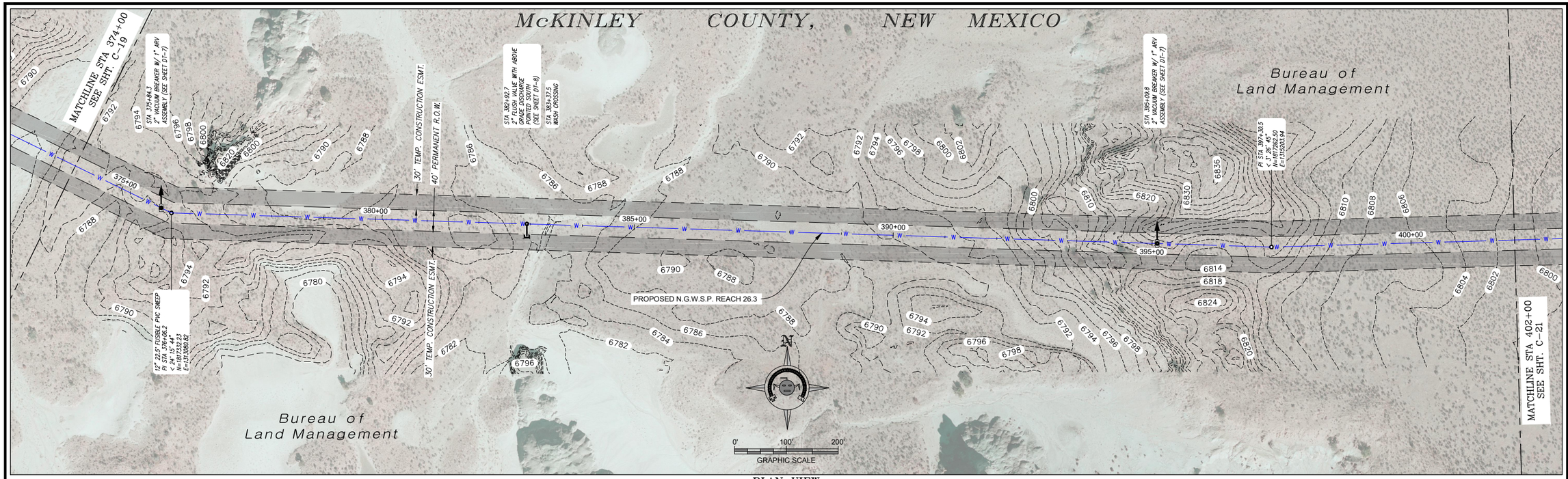
Date: February 1, 2019

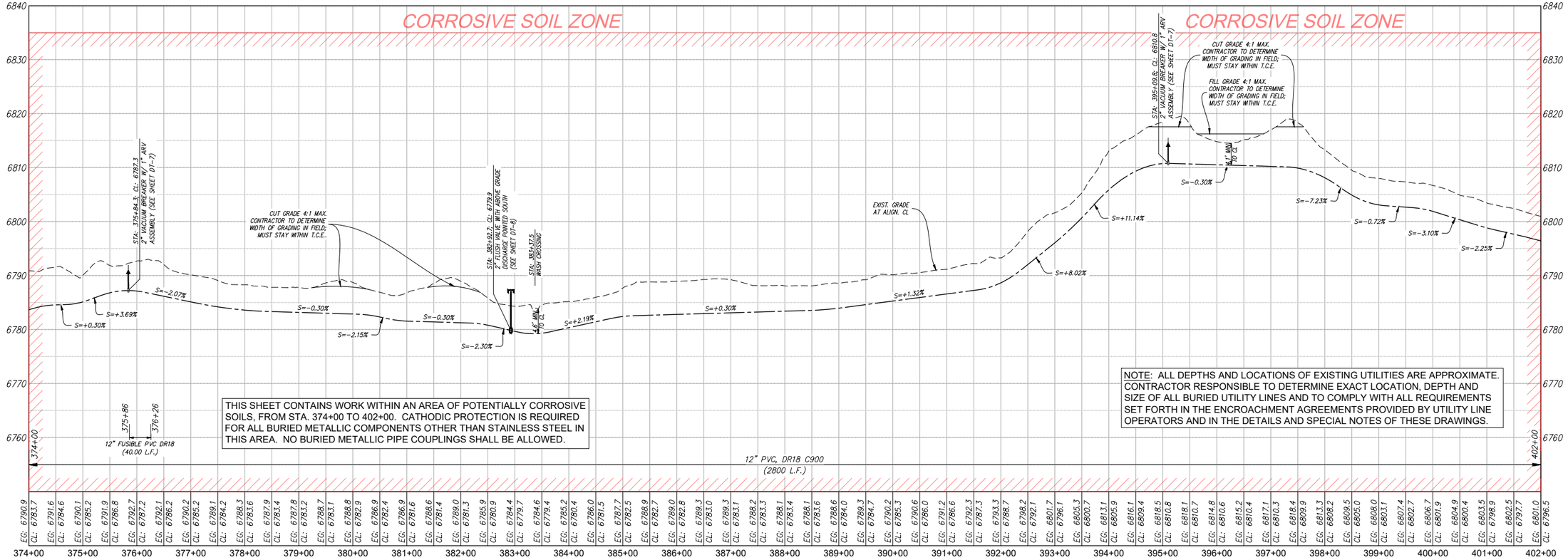
Scale: Horiz: 1" = 200'
Vert: 1" = 20'

Project No: 6921307

Sheet: C-19



PLAN VIEW
12" WATERLINE



THIS SHEET CONTAINS WORK WITHIN AN AREA OF POTENTIALLY CORROSIVE SOILS, FROM STA. 374+00 TO 402+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
12" WATERLINE

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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	Drawn	Checked
TTT	MvH/AaV	AGR

TORY T. TADANO
NEW MEXICO
21073
REGISTERED PROFESSIONAL ENGINEER
12/31/19

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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

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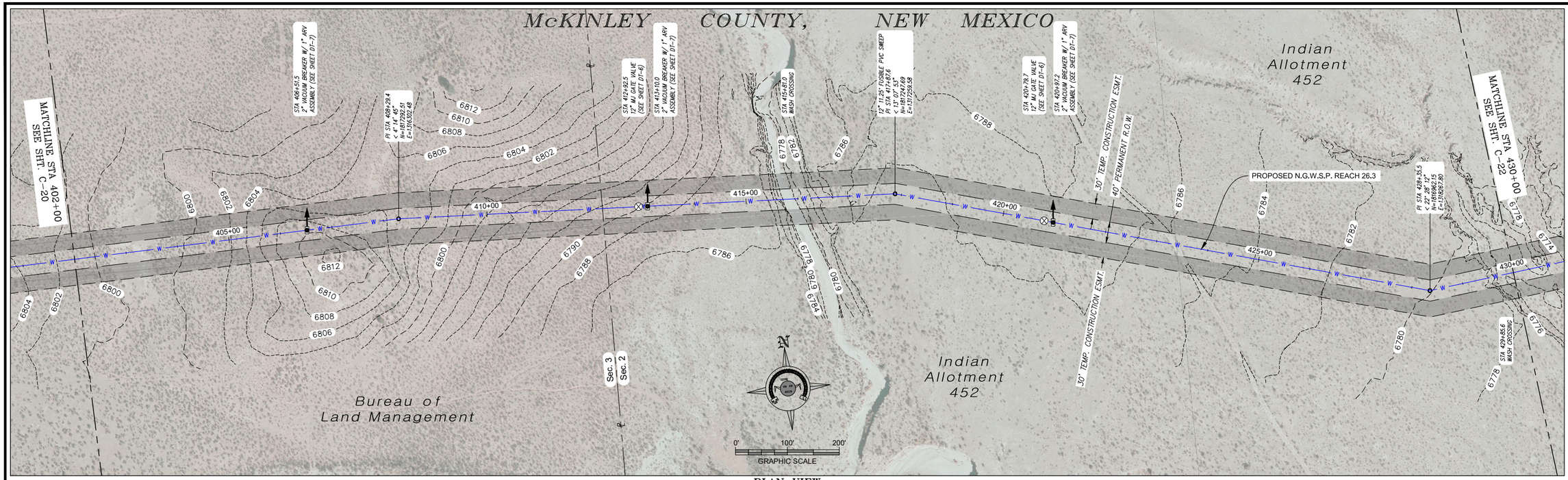
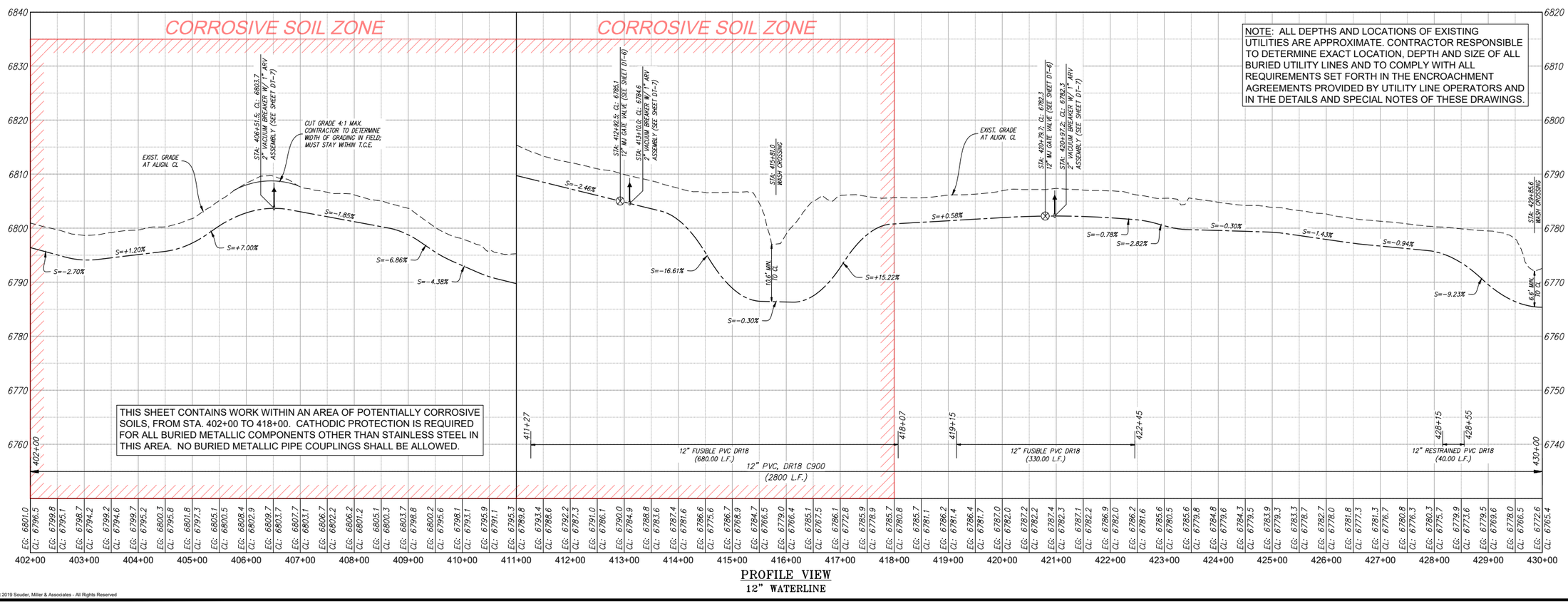


PLAN VIEW
12" WATERLINE



PROFILE VIEW
12" WATERLINE

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

PLAN & PROFILE STA 402+00 To STA 430+00
SECTIONS 2 & 3, T. 20 N., R. 5 W.
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACH 26.3
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
TTT	MvH/AaV	AGR

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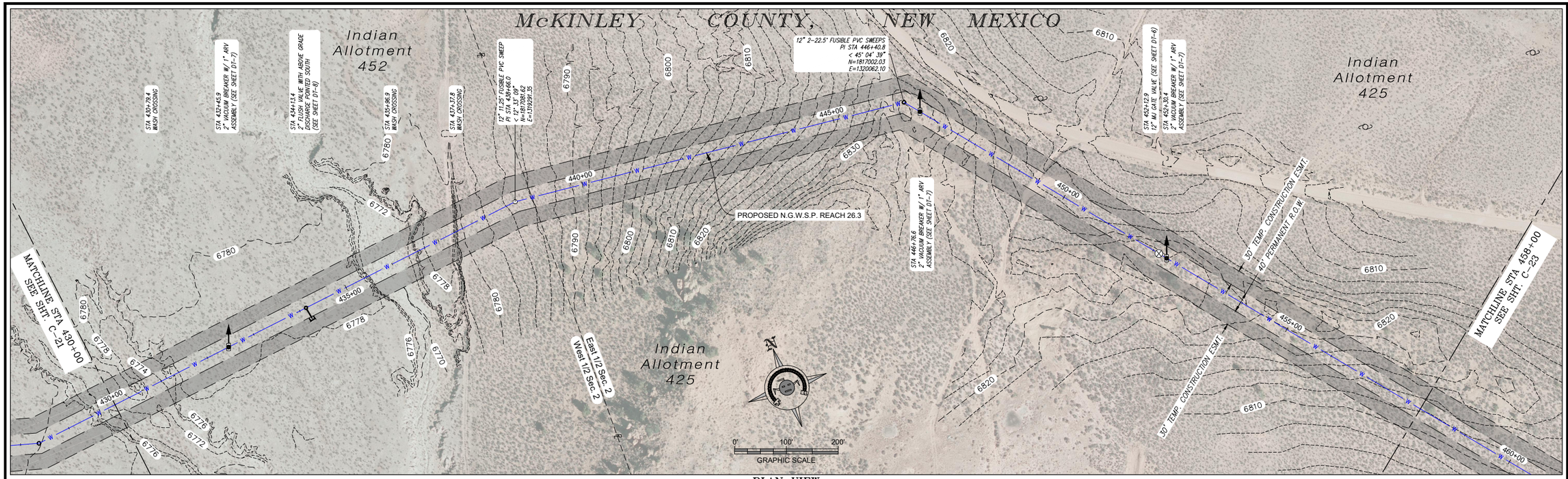
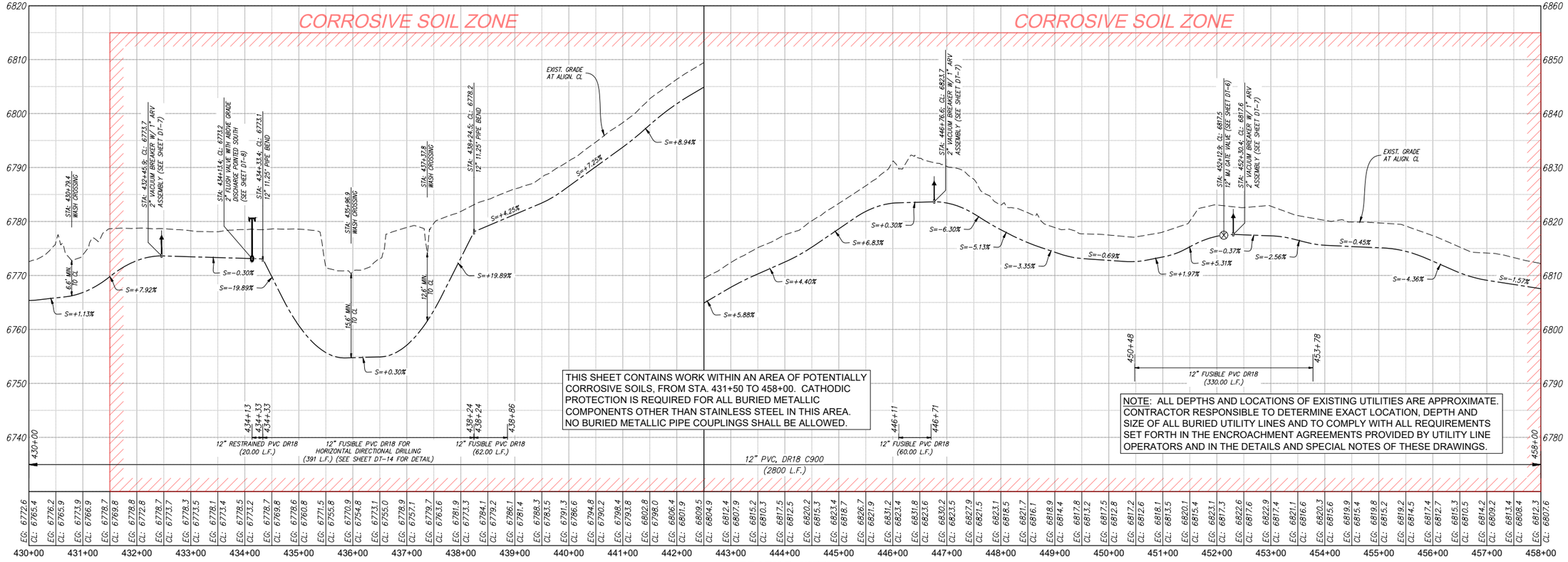
Scale: Horiz: 1" = 200'
Vert: 1" = 20'

Project No: 6921307

Sheet: C-21



PLAN VIEW
12" WATERLINE



PROFILE VIEW
12" WATERLINE

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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	Drawn	Checked
TTT	MvH/AaV	AGR

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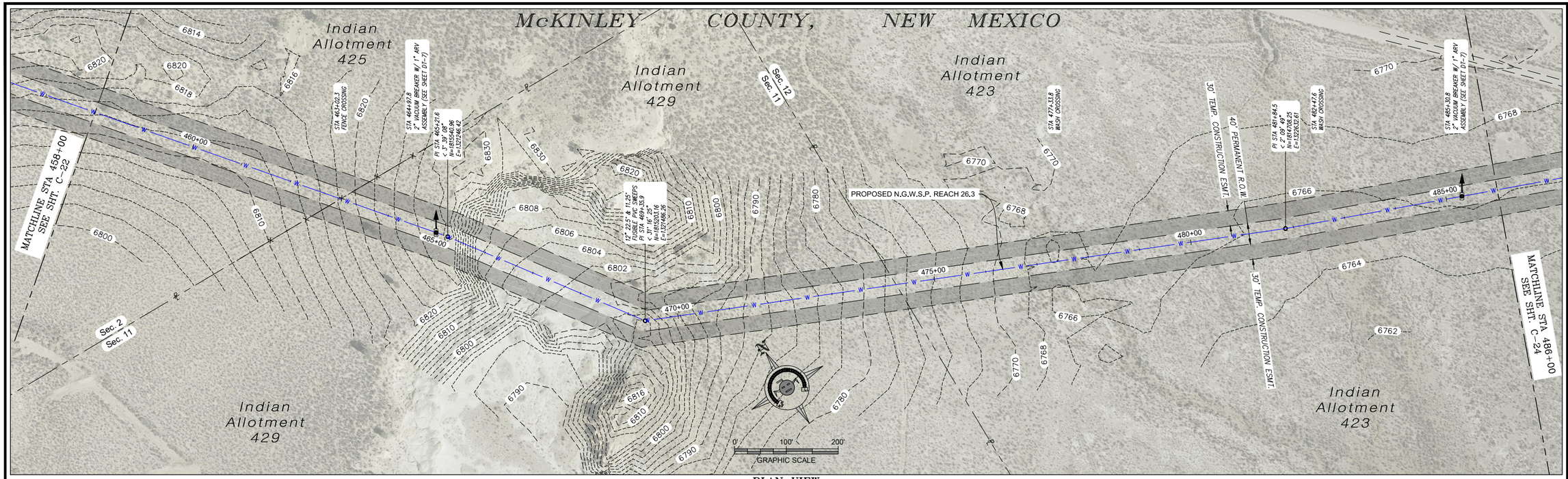
Date: February 1, 2019

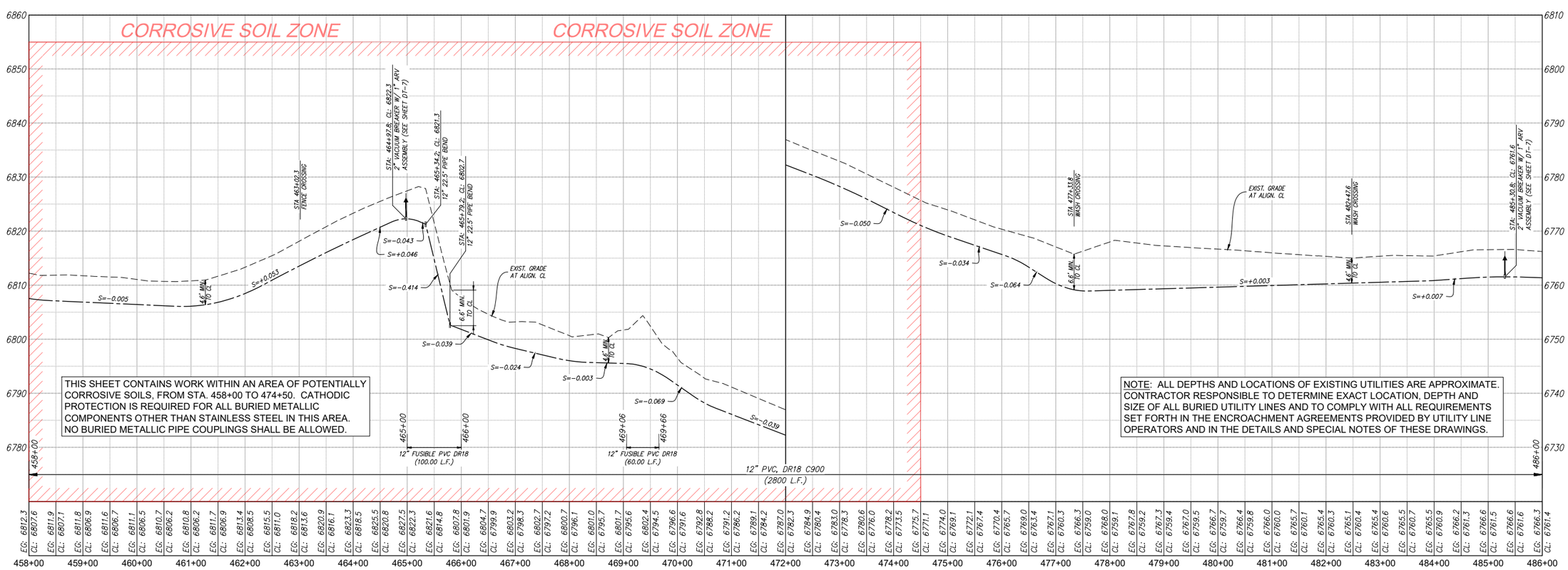
Scale: Horiz: 1" = 200'
Vert: 1" = 20'

Project No: 6921307

Sheet: C-22



PLAN VIEW
12" WATERLINE



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458+00	459+00	460+00	461+00	462+00	463+00	464+00	465+00	466+00	467+00	468+00	469+00	470+00	471+00	472+00	473+00	474+00	475+00	476+00	477+00	478+00	479+00	480+00	481+00	482+00	483+00	484+00	485+00	486+00
EG: 6812.3	EG: 6811.9	EG: 6811.8	EG: 6811.6	EG: 6811.1	EG: 6810.5	EG: 6810.7	EG: 6810.2	EG: 6810.8	EG: 6811.7	EG: 6813.4	EG: 6815.5	EG: 6818.2	EG: 6820.9	EG: 6823.3	EG: 6825.5	EG: 6827.5	EG: 6822.3	EG: 6821.6	EG: 6814.8	EG: 6807.8	EG: 6801.9	EG: 6804.7	EG: 6799.9	EG: 6803.2	EG: 6798.3	EG: 6802.7	EG: 6797.2	EG: 6800.7	EG: 6796.1	EG: 6801.0	EG: 6795.7	EG: 6801.7	EG: 6795.6	EG: 6802.4	EG: 6794.5	EG: 6796.6	EG: 6791.6	EG: 6792.8	EG: 6788.2	EG: 6791.2	EG: 6786.2	EG: 6789.1	EG: 6784.2	EG: 6787.0	EG: 6782.3	EG: 6784.9	EG: 6780.4	EG: 6783.0	EG: 6778.3	EG: 6780.6	EG: 6776.0	EG: 6778.2	EG: 6773.5	EG: 6775.7	EG: 6771.1	EG: 6774.0	EG: 6769.1	EG: 6772.1	EG: 6767.4	EG: 6770.4	EG: 6765.7	EG: 6769.0	EG: 6763.4	EG: 6767.1	EG: 6760.3	EG: 6766.3	EG: 6759.0	EG: 6768.0	EG: 6759.1	EG: 6767.8	EG: 6759.2	EG: 6767.3	EG: 6759.4	EG: 6767.0	EG: 6759.5	EG: 6766.7	EG: 6759.7	EG: 6766.4	EG: 6759.8	EG: 6766.0	EG: 6760.0	EG: 6765.7	EG: 6760.1	EG: 6765.4	EG: 6760.3	EG: 6765.1	EG: 6760.4	EG: 6765.4	EG: 6760.6	EG: 6765.5	EG: 6760.7	EG: 6765.5	EG: 6760.9	EG: 6766.2	EG: 6761.3	EG: 6766.6	EG: 6761.5	EG: 6766.6	EG: 6761.6	EG: 6766.3	EG: 6761.4
CL: 6807.6	CL: 6807.1	CL: 6806.9	CL: 6806.7	CL: 6806.5	CL: 6806.2	CL: 6806.2	CL: 6806.9	CL: 6813.6	CL: 6820.8	CL: 6827.5	CL: 6823.3	CL: 6818.5	CL: 6820.8	CL: 6827.5	CL: 6822.3	CL: 6821.6	CL: 6814.8	CL: 6807.8	CL: 6801.9	CL: 6797.2	CL: 6796.1	CL: 6801.0	CL: 6795.7	CL: 6801.7	CL: 6795.6	CL: 6802.4	CL: 6794.5	CL: 6796.6	CL: 6791.6	CL: 6788.2	CL: 6786.2	CL: 6784.2	CL: 6787.0	CL: 6782.3	CL: 6784.9	CL: 6780.4	CL: 6783.0	CL: 6778.3	CL: 6780.6	CL: 6776.0	CL: 6778.2	CL: 6773.5	CL: 6775.7	CL: 6771.1	CL: 6774.0	CL: 6769.1	CL: 6772.1	CL: 6767.4	CL: 6770.4	CL: 6765.7	CL: 6769.0	CL: 6763.4	CL: 6767.1	CL: 6760.3	CL: 6766.3	CL: 6759.0	CL: 6768.0	CL: 6759.1	CL: 6767.8	CL: 6759.2	CL: 6767.3	CL: 6759.4	CL: 6767.0	CL: 6759.5	CL: 6766.7	CL: 6759.7	CL: 6766.4	CL: 6759.8	CL: 6766.0	CL: 6760.0	CL: 6765.7	CL: 6760.1	CL: 6765.4	CL: 6760.3	CL: 6765.1	CL: 6760.4	CL: 6765.4	CL: 6760.6	CL: 6765.5	CL: 6760.7	CL: 6765.5	CL: 6760.9	CL: 6766.2	CL: 6761.3	CL: 6766.6	CL: 6761.5	CL: 6766.6	CL: 6761.6	CL: 6766.3	CL: 6761.4

PROFILE VIEW
12" WATERLINE

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CLIENT: The Navajo Nation TOWN: Reach 26.3 To Torreon, 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	Drawn	Checked
TTT	MvH/AaV	AGR

TORY T. TADANO — NEW MEXICO — 21073 — REGISTERED PROFESSIONAL ENGINEER — 12/31/19

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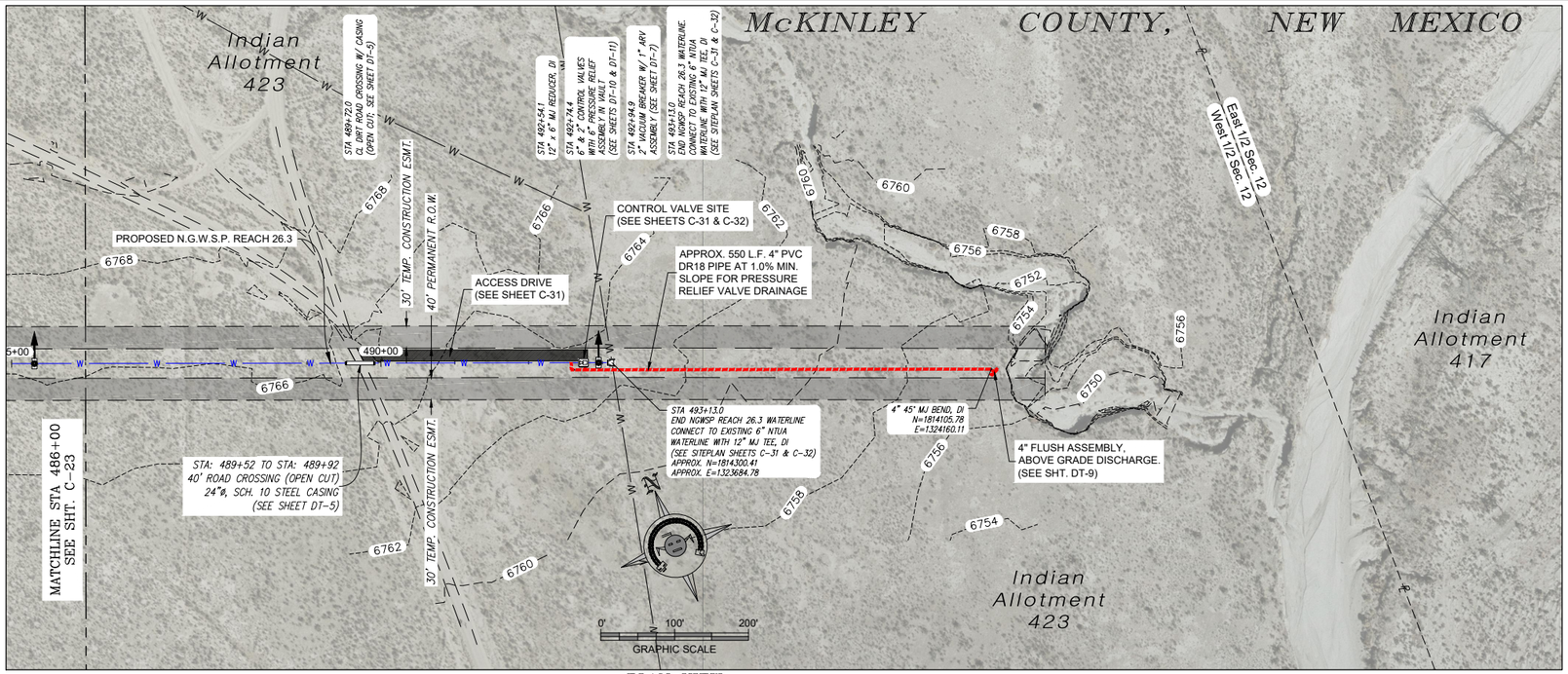
Date: January 15, 2019

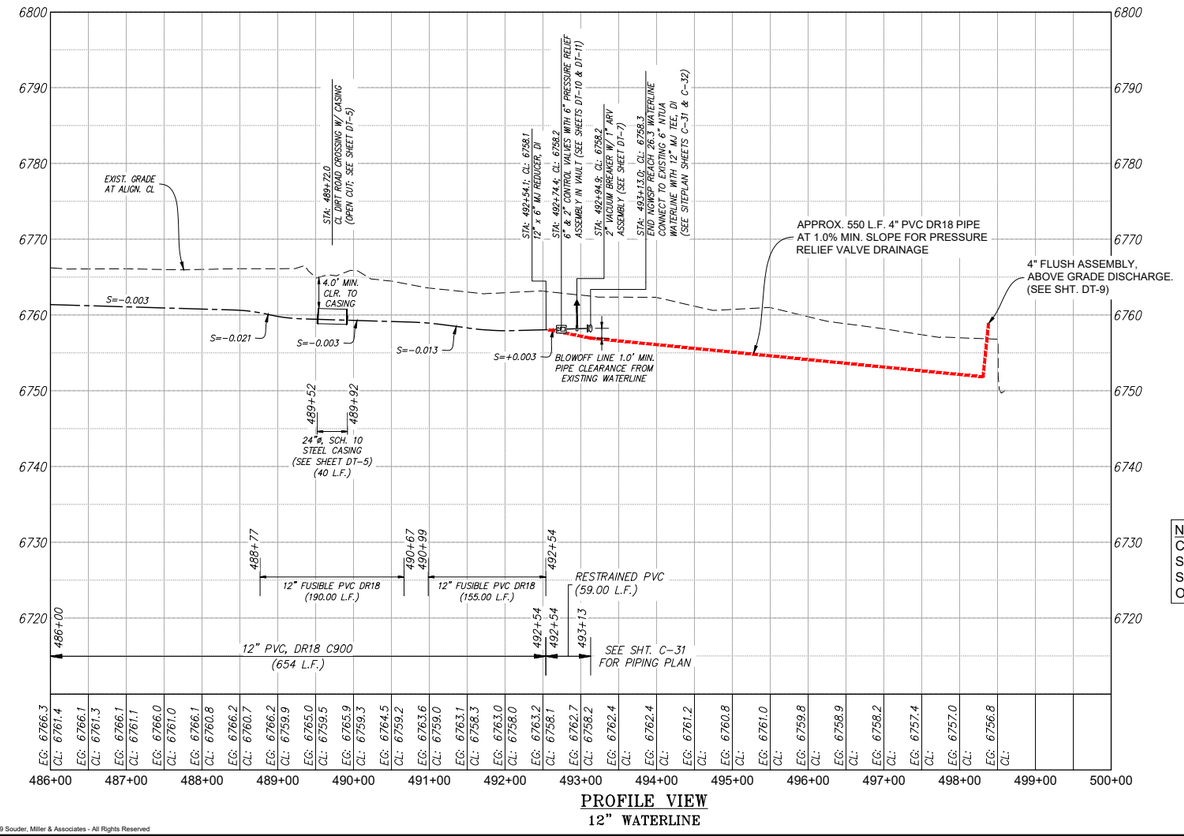
Scale: Horiz: 1" = 200'
Vert: 1" = 20'

Project No: 6921307

Sheet: C-23



PLAN VIEW
12" WATERLINE



PROFILE VIEW
12" WATERLINE

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P:\PHD Reach 26.3 Mgm t.dwg
1/15/2019 11:09:34 AM ajay

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

PLAN & PROFILE STA 486+00 To STA 493+12.9
SECTION 12, T. 20 N., R. 5 W.
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACH 26.3
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
TTT	MvH/AaV	AGR

TORY T. TADANO
NEW MEXICO
21073
REGISTERED PROFESSIONAL ENGINEER
(3)(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: January 15, 2019

Scale: Horiz: 1" = 200'
Vert: 1" = 20'

Project No: 6921307

Sheet: C-24

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

LEGEND

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

Bankhead Jones
(Bureau of Land Management)

CORNER OF ESMT.
N=1830699.27
E=1305041.46

742.6'
LIMITS OF SITE EASEMENT

NOTE:
SEE DETAIL "B" (SHT. C-29) FOR PIPING AND RIP-RAP CALLOUTS.

CORNER OF ESMT.
N=1830626.74
E=1305780.53

4" DRAIN LINES
(SLOPE @ 1% MIN.
TO DAYLIGHT)

6" DRAIN LINE
(SLOPE @ 1% MIN.
TO DAYLIGHT)

6" DRAIN LINE
(SLOPE @ 1% MIN.
TO DAYLIGHT)

10" DRAIN LINE
(SLOPE @ 1% MIN.
TO DAYLIGHT)

1,095 SQ. YDS. 6" OF NMDOT
SPECIFICATION BASE COURSE
COMPACTED TO MIN. 95% STANDARD
PROCTOR FOR ACCESS DRIVEWAY

380.6'
LIMITS OF SITE EASEMENT

PROPOSED 8' HIGH CHAIN
LINK FENCE 555± L.F.
(INCLUDING GATE)
(SEE DETAIL, SHT. DT-27)

20' WIDE ACCESS DRIVEWAY

CENTER OF PRE CAST 2 ROOM
CHLORINATOR BUILDING
F.F. ELEV. = 7076.00
N=1830387.28, E=1305191.28
(SEE DETAILS, SHTS. DT-23 THRU DT-26)

20' DOUBLE SWING GATE
(SEE FENCE DETAIL DT-27)

PROPOSED N.G.W.S.P. REACH 26.3
WATERLINE - 10" PVC DR18

CENTER OF VACUUM
BREAKER METER PIT
N=1830388.48, E=1305158.40
(SEE DETAIL, SHT. DT-7)

PROPOSED REACH 26.3 NORTH TANK
Nominal Capacity: 250,000 gal
Nominal Size: 42' Dia. x 24' Ht.
Base Elev. = 7076.00
N=1820389.65, E=1305246.63
(SEE DETAILS, SHTS. DT-17, DT-18)

CENTER OF PRESSURE TRANSDUCER VAULT
N=1830355.07, E=1305253.19
(SEE DETAIL, SHT. DT-15)

CENTER OF VACUUM
BREAKER METER PIT
N=1830312.35, E=1305177.23
(SEE DETAIL, SHT. DT-7)

PROPOSED REACH 26.3 SOUTH TANK
Nominal Capacity: 250,000 gal
Nominal Size: 42' Dia. x 24' Ht.
Base Elev. = 7076.00
N=1830311.18, E=1305246.63
(SEE DETAILS, SHTS. DT-19, DT-20)

SENSITIVE PALEONTOLOGICAL AREA.
DO NOT ENCROACH.
(SEE NOTE, THIS SHEET)

PI STA 161+64.69
< 8° 7' 58"
N=1830355.64
E=1304933.93

CORNER OF ESMT.
N=1830334.42
E=1304902.03

LIMITS OF SITE EASEMENT
214.9'

PI STA 162+64.33
< 31° 33' 33"
N=1830289.30
E=1305008.27

CORNER OF ESMT.
N=1830221.06
E=1305084.54

1,885 SQ. YDS. 2" GRAVEL OVER 3"
NMDOT SPECIFICATION BASE COURSE
COMPACTED TO MIN. 95% STANDARD
PROCTOR FOR ENTIRE FENCED AREA

30'
TEMPORARY
CONSTRUCTION
EASEMENT

30'
TEMPORARY
CONSTRUCTION
EASEMENT

40'
PROPOSED REACH 26.3
WATERLINE R.O.W.

LIMITS OF SITE EASEMENT
251.1'

PROPOSED N.G.W.S.P. REACH 26.3
WATERLINE - 12" PVC DR18

CORNER OF ESMT.
N=1830059.17
E=1305276.48

LIMITS OF SITE EASEMENT
759.1'

SANDOVAL COUNTY
EAST PILON RD.

Bankhead Jones
(Bureau of Land Management)

NOTE:
THIS SHEET CONTAINS WORK IN THE VICINITY OF A **"SENSITIVE PALEONTOLOGICAL AREA"**. ENGINEER MUST BE NOTIFIED AT LEAST FIVE (5) WORKING DAYS PRIOR TO ANY GROUND DISTURBING ACTIVITIES WITHIN 100 FEET OF SITE.

SITE SPECIFIC REQUIREMENTS INCLUDE:
- ON-SITE MONITORING BY OWNER-PROVIDED PALEONTOLOGIST
  NO WORK WITHIN 100 FT. WITHOUT PALEONTOLOGIST ONSITE

0' 50' 100'
GRAPHIC SCALE

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CLIENT: The Navajo Nation

TOWN: Reach 26.3 To Torreon, 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	MvH/AaV	AGR

TORY T. TADANO
NEW MEXICO
21073
LICENSED PROFESSIONAL ENGINEER
5/31/19

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

Date: January 15, 2019

Scale: Horiz: 1" = 100'
Vert: N/A

Project No: 6921307

Sheet: C-25

Date: 2019 Stepanov\dwg
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SANDOVAL COUNTY, NEW MEXICO
SEC-29, T-21-N, R-5-W
BUREAU OF LAND MANAGEMENT

LEGEND

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

6" DRAIN LINE (SLOPE @ 1% MIN. TO DAYLIGHT)

10" DRAIN LINE (SLOPE @ 1% MIN. TO DAYLIGHT)

6" DRAIN LINE (SLOPE @ 1% MIN. TO DAYLIGHT)

2-4" DRAIN LINES (SLOPE @ 1% MIN. TO DAYLIGHT)

20' WIDE ACCESS DRIVEWAY

CL GATE
N=1830427.92
E=1305293.70

CHLORINATOR BUILDING
(SEE DETAILS, SHTS. DT-23 THRU DT-26)

FENCE CORNER
N=1830427.92
E=1305163.68

FENCE CORNER
N=1830427.92
E=1305303.68

140.0'

POWER POLE
N=1830409.81
E=1304942.26

POWER POLE
N=1830409.81
E=1305165.68

OHE

VB / ARV METER
PIT CENTER
N=1830388.48
E=1305158.40

BLDG. CORNER
N=1830391.65
E=1305198.61

PROPOSED REACH 26.3
NORTH TANK
N=1820389.65, E=1305246.63
(SEE DETAILS, SHTS. DT-17, DT-18)

PROPOSED N.G.W.S.P. REACH 26.3
WATERLINE - 10" PVC DR18

FLOW

10" MJ x MJ 45° ELL,
D.I. 350 psi
N=1830389.65
E=1304972.94
EG=7071.39
CL=7066.84

267 L.F. 10" PVC DR18 PIPE OUTSIDE OF FENCE. PIPE MUST SLOPE MIN. 1% UP FROM REACH 26.3 WATERLINE TO TANKS AND MAINTAIN MIN. 4' OF COVER TO TOP OF PIPE. CONNECT TO N.G.W.S.P. REACH 26.3 WATERLINE.

96.7'

BLDG. CORNER
N=1830382.90
E=1305183.95

UGE

PRESSURE
TRANSDUCER
VAULT CENTER
(SEE DETAIL, DT-15)
N=1830355.07
E=1305253.19

155.0'

10" MJ x MJ 45° ELL,
D.I. 350 psi
N=1830355.64
E=1304938.93
EG=7070.95
CL=7066.40

PI STA 161+64.69
< 8° 7' 58"
N=1830355.64
E=1304933.93

205 L.F. 12" PVC DR18 PIPE OUTSIDE OF FENCE. PIPE MUST SLOPE MIN. 1% UP FROM REACH 26.3 WATERLINE TO TANKS AND MAINTAIN MIN. 4' OF COVER TO TOP OF PIPE. CONNECT TO N.G.W.S.P. REACH 26.3 WATERLINE.

FENCE CORNER
N=1830331.20
E=1305163.68

VB / ARV METER
PIT CENTER
N=1830312.35
E=1305177.23

PROPOSED REACH 26.3
SOUTH TANK
N=1830311.18, E=1305246.63
(SEE DETAILS, SHTS. DT-19, DT-20)

12" MJ x MJ 45° ELL,
D.I. 350 psi
N=1830311.18
E=1305030.15
EG=7071.97
CL=7067.42

SURFACE RIP-RAP OR CABLE CONCRETE SPLASH PAD. APPROX. 14 SQ. YDS., EXACT QUANTITY AND DIM. TBD IN FIELD BY ENGINEER. (SEE DETAILS DT-28 & DT-29)

82.4'

81.7'

FENCE CORNER
N=1830272.92
E=1305303.69

PI STA 162+64.33
< 31° 33' 33"
N=1830289.30
E=1305008.27

FENCE CORNER
N=1830272.92
E=1305221.97

PROPOSED N.G.W.S.P. REACH 26.3
WATERLINE - 12" PVC DR18

LIMITS OF SITE EASEMENT

7061 7062 7063 7064 7065 7066 7067 7068 7069 7070 7071 7072 7073 7074 7075 7076 7077

N

0' 20' 40'
GRAPHIC SCALE

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CLIENT: The Navajo Nation

TOWN: Reach 26.3 To Torreon, 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	Drawn	Checked
TTT	MvH/AaV	AGR

TORY T. TADANO
NEW MEXICO
21073
REGISTERED PROFESSIONAL ENGINEER
3/12/19

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Date: January 15, 2019

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

Project No: 6921307

Sheet: C-26

Date: 1/15/2019 11:20:04 AM .dwr
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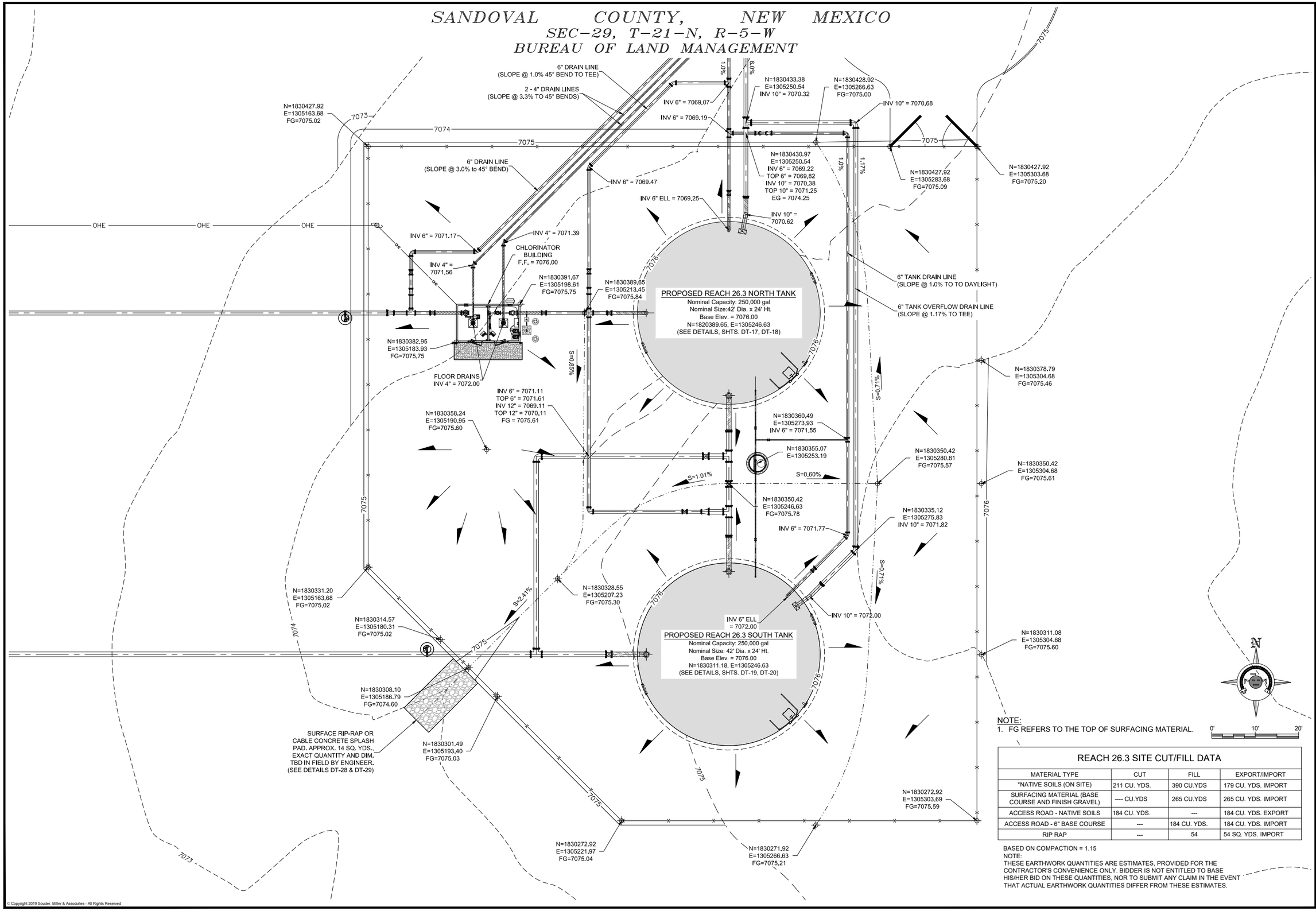
SANDOVAL COUNTY, NEW MEXICO
SEC-29, T-21-N, R-5-W
BUREAU OF LAND MANAGEMENT



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

0' 10' 20'

REACH 26.3 SITE CUT/FILL DATA

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.

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CLIENT: The Navajo Nation
TOWN: Reach 26.3 To Torreon, 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	Drawn	Checked
TTT	MvH/AaV	AGR

TORY T. TADANO — NEW MEXICO — 21073 — LICENSED PROFESSIONAL ENGINEER
1/31/19

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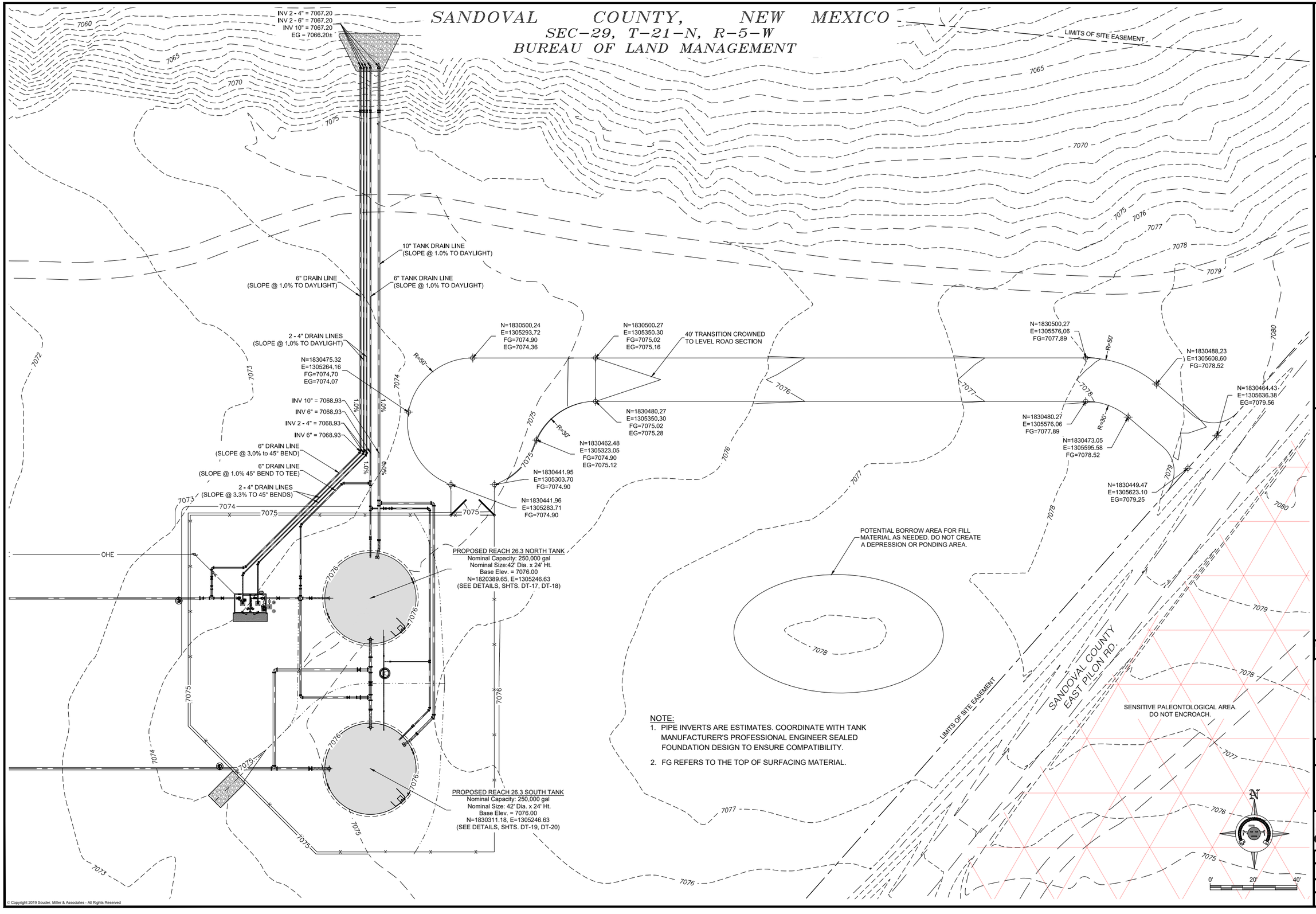
Date: January 15, 2019
Scale: Horiz: 1" = 40'
Vert: N/A
Project No: 6921307
Sheet: C-27

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



NOTE:

1. PIPE INVERTS ARE ESTIMATES. COORDINATE WITH TANK MANUFACTURER'S PROFESSIONAL ENGINEER SEALED FOUNDATION DESIGN TO ENSURE COMPATIBILITY.
2. FG REFERS TO THE TOP OF SURFACING MATERIAL.

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Date: 1/15/2019 11:29:19 AM .dwr

CLIENT: The Navajo Nation

TOWN: Reach 26.3 To Torreon, 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	MvH/AaV	AGR

TORY T. TADANO — NEW MEXICO — 21073 — 1/31/19 — LICENSED PROFESSIONAL ENGINEER

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Date: January 15, 2019

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

Project No: 6921307

Sheet: C-28

KEYED NOTES - REACH 26.3 TANK SITE

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" TIDEFLEX 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" TIDEFLEX 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

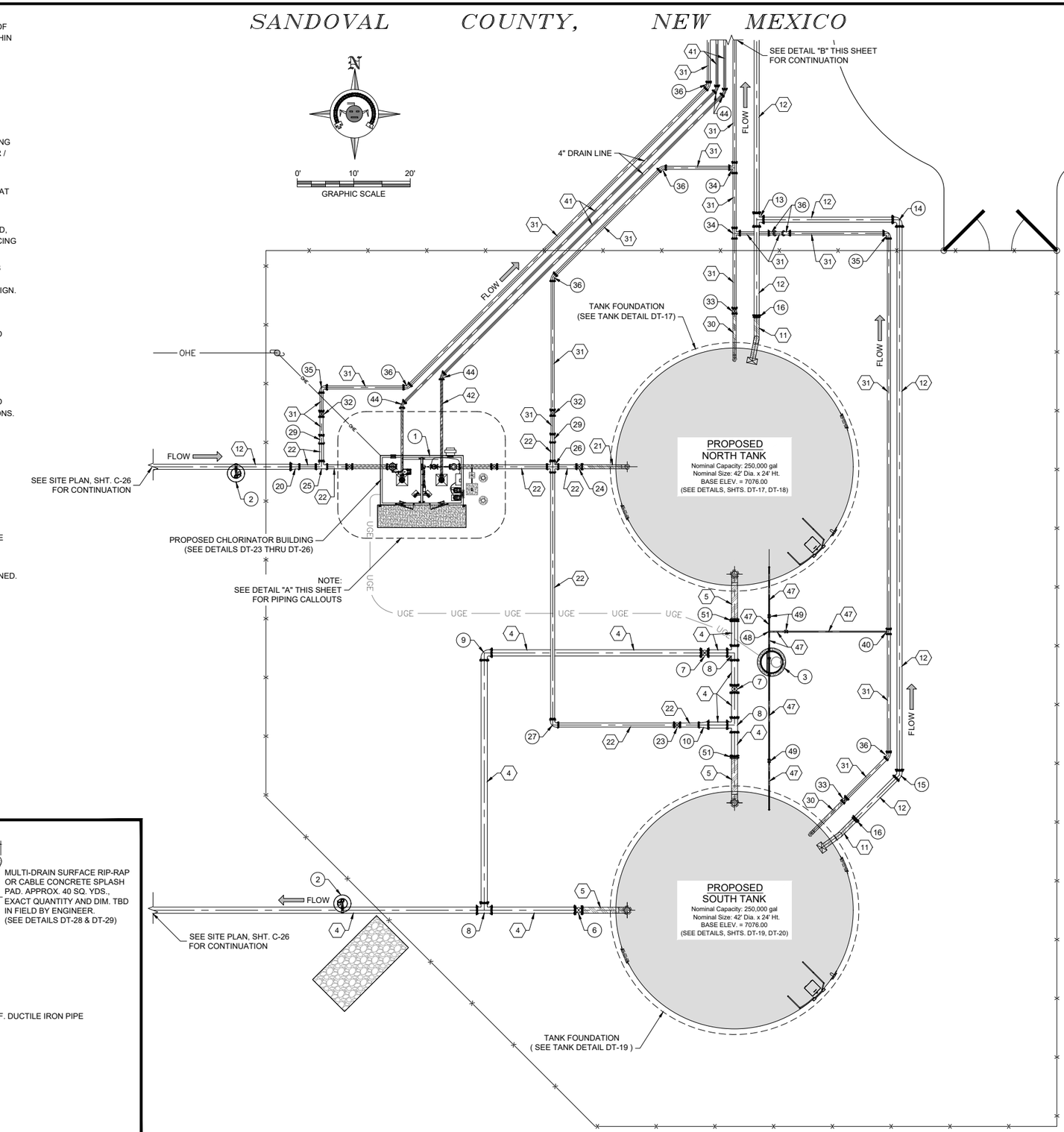
NOTES:

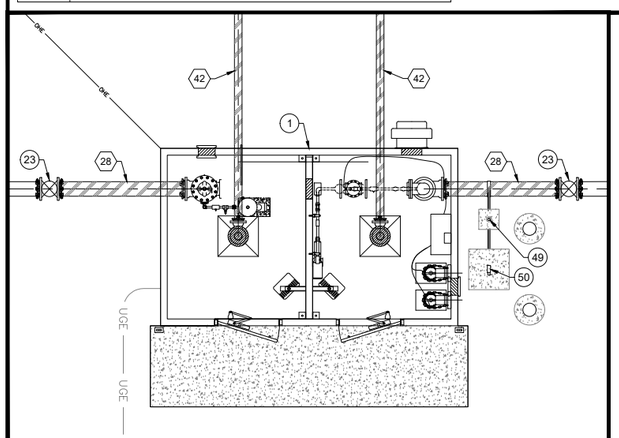
1. CONTRACTOR SHALL FIELD SURVEY ELEVATION OF OVERFLOW WEIR OF BOTH TANKS AND ENSURE OVERFLOW WEIR ELEVATIONS MATCH (WITHIN A TOLERANCE OF ±1/2" INCH).
2. PROVIDE TANK SUB-FOUNDATIONS, OVER-EXCAVATION AND SITE GRADING IN ACCORDANCE WITH GEOTECHNICAL REPORT (GEOTEST REPORT NO. 1-71108 DATED 1-8-2018) 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.

SANDOVAL COUNTY, NEW MEXICO





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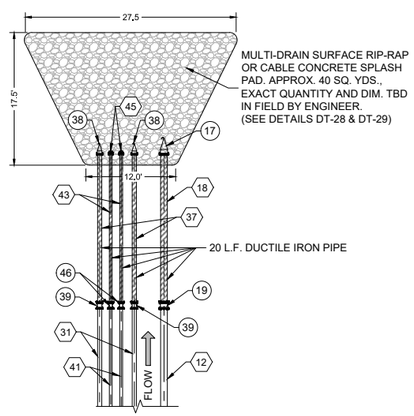

DETAIL "B"
N.T.S.

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Revision	Date	Description	By	Chk'd

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CLIENT: The Navajo Nation

TOWN: Reach 26.3 To Torreon, NM

REACH 26.3 TANK SITE PIPING 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	MvH/AaV	AGR

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

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: January 15, 2019

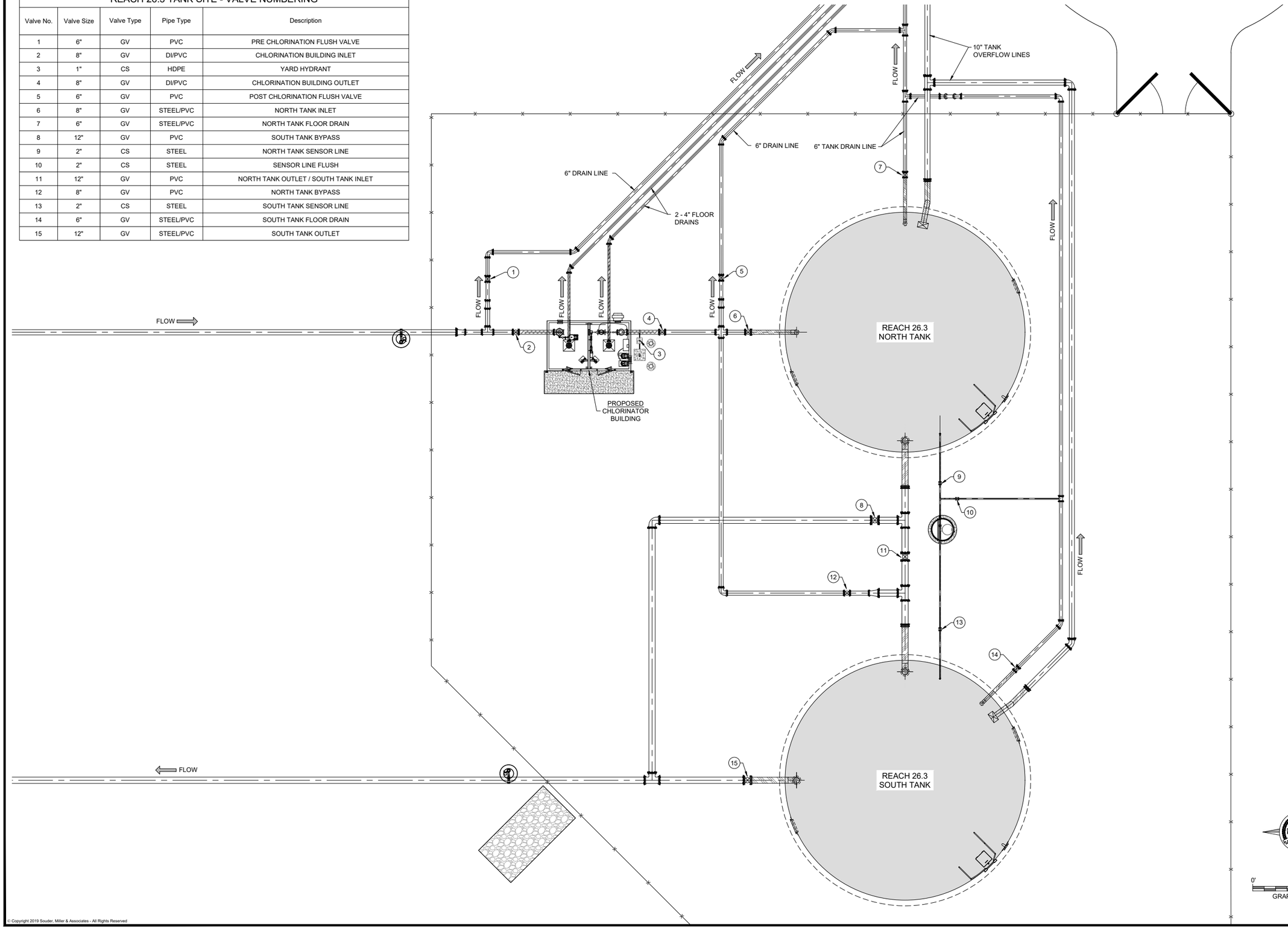
Scale: Horiz: 1" = 20'
Vert: N/A

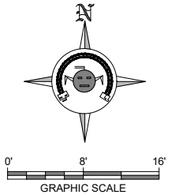
Project No: 6921307

Sheet: C-29

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

SANDOVAL COUNTY, NEW MEXICO





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Revision	Date	Description	By	Chk'd

Date: 1/15/2019 11:20:33 AM .dwr
Date: 26.3 Site.dwg

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CLIENT: 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	Drawn	Checked
TTT	MvH/AaV	AGR

TORY T. TADANO — NEW MEXICO — 21073 — LICENSED PROFESSIONAL ENGINEER
1/31/19

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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

6768 6766 6764 6762 6760 6758 6756 6754 6752 6750

STA 489+72.0
CL DIRT ROAD CROSSING W/ CASING
(OPEN CUT, SEE SHEET DT-5)

EXISTING NTUA WATERLINE, 6" PVC DR18

STA 492+54.1
12" x 6" MJ REDUCER, DI

STA 492+74.4
6" CONTROL VALVES
WITH 4" PRESSURE RELIEF
ASSEMBLY IN VAULT
(SEE SHEETS DT-10 & DT-11)

STA 492+94.9
2" VACUUM BREAKER W/ 1" ARV
ASSEMBLY (SEE SHEET DT-7)

30' TEMPORARY CONSTRUCTION EASEMENT

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

N=1814442.01
E=1323370.32

N=1814328.69
E=1323660.27

N=1814314.71
E=1323654.85

15' WIDE CONTROL VALVE VAULT SITE MAINTENANCE DRIVEWAY. GRADE AND LEVEL WITH 2% CROSS SLOPE.

MIN. %2 = S

MIN. %2 = S

15.0'

490+00

N=1814421.97
E=1323371.99

40' PERMANENT R.O.W.

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

6" TEE, DI
N=1814304.28
E=1323648.02
INV. 6"=6757.37

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

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)

20'

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

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

Indian Allotment 423

Indian Allotment 423

N

0' 20' 40'
GRAPHIC SCALE

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Revision	Date	Description	By	Chk'd

Color 26.3 Stream Thr'd.dwg
1/15/2019 11:21:06 AM .dwx

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CLIENT: The Navajo Nation

TOWN: Reach 26.3 To Torreon, NM

REACH 26.3 CONTROL VALVE SITE PLAN

NAVAJO GALLUP WATER SUPPLY
PROJECT - REACH 26.3

SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
TTT	MvH/AaV	AGR

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

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

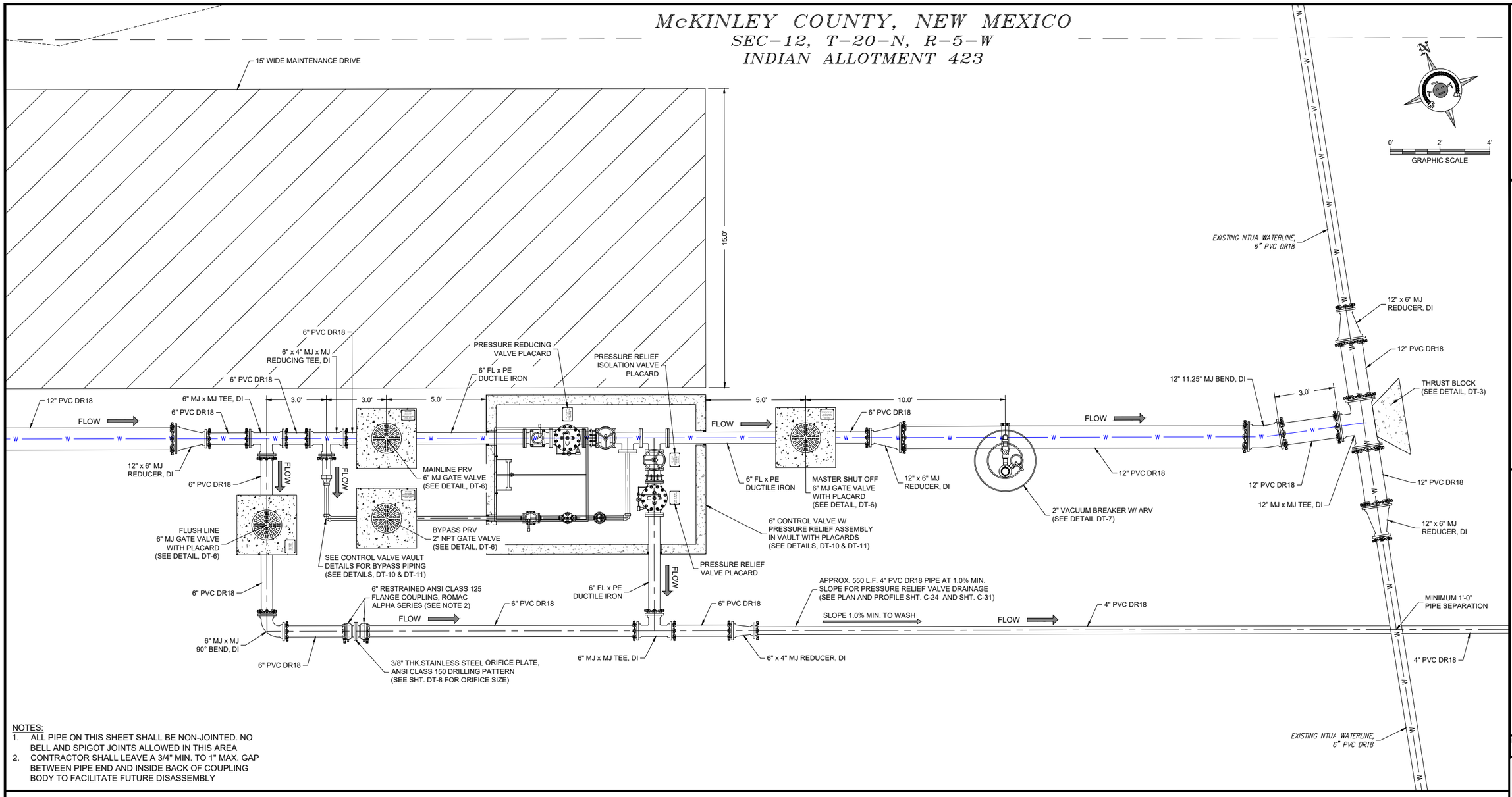
Date: January 15, 2019

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

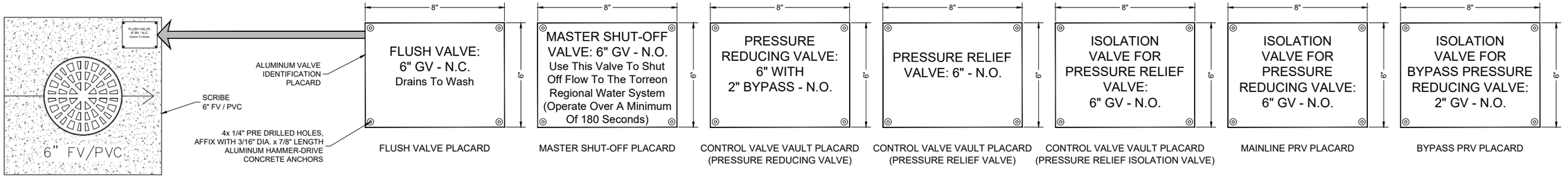
Project No: 6921307

Sheet: C-31

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" MIN. TO 1" MAX. GAP BETWEEN PIPE END AND INSIDE BACK OF COUPLING BODY TO FACILITATE FUTURE DISASSEMBLY



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

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

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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	Drawn	Checked
TTT	MvH/AaV	AGR

TORY T. TADANO — NEW MEXICO — 21073 — LICENSED PROFESSIONAL ENGINEER — 1/31/19

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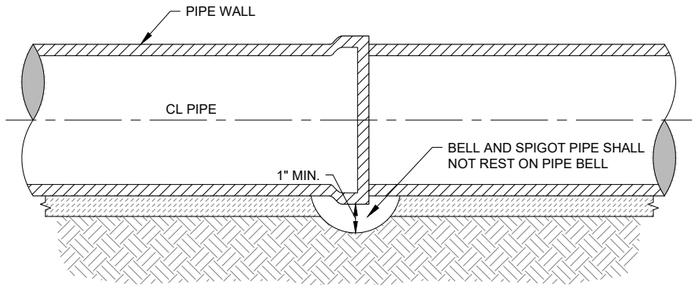
811 Know what's below. Call before you dig.

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

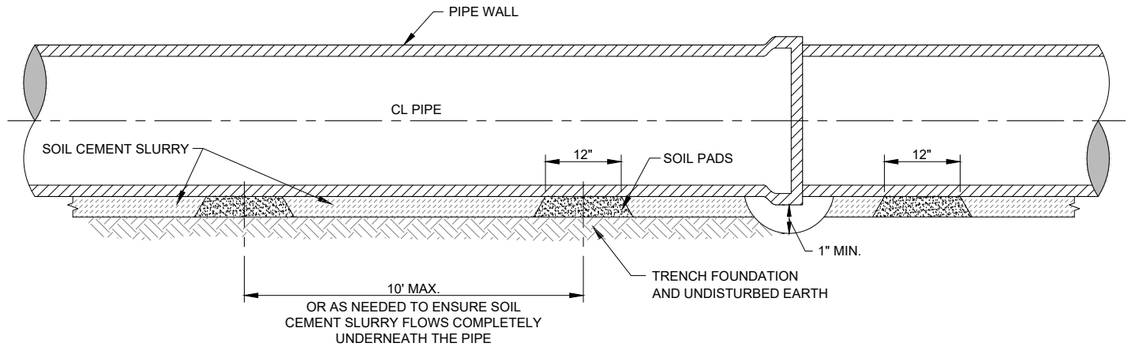
Color 26.3 Station Pair.dwg
1/15/2019 11:21:15 AM .dwr

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



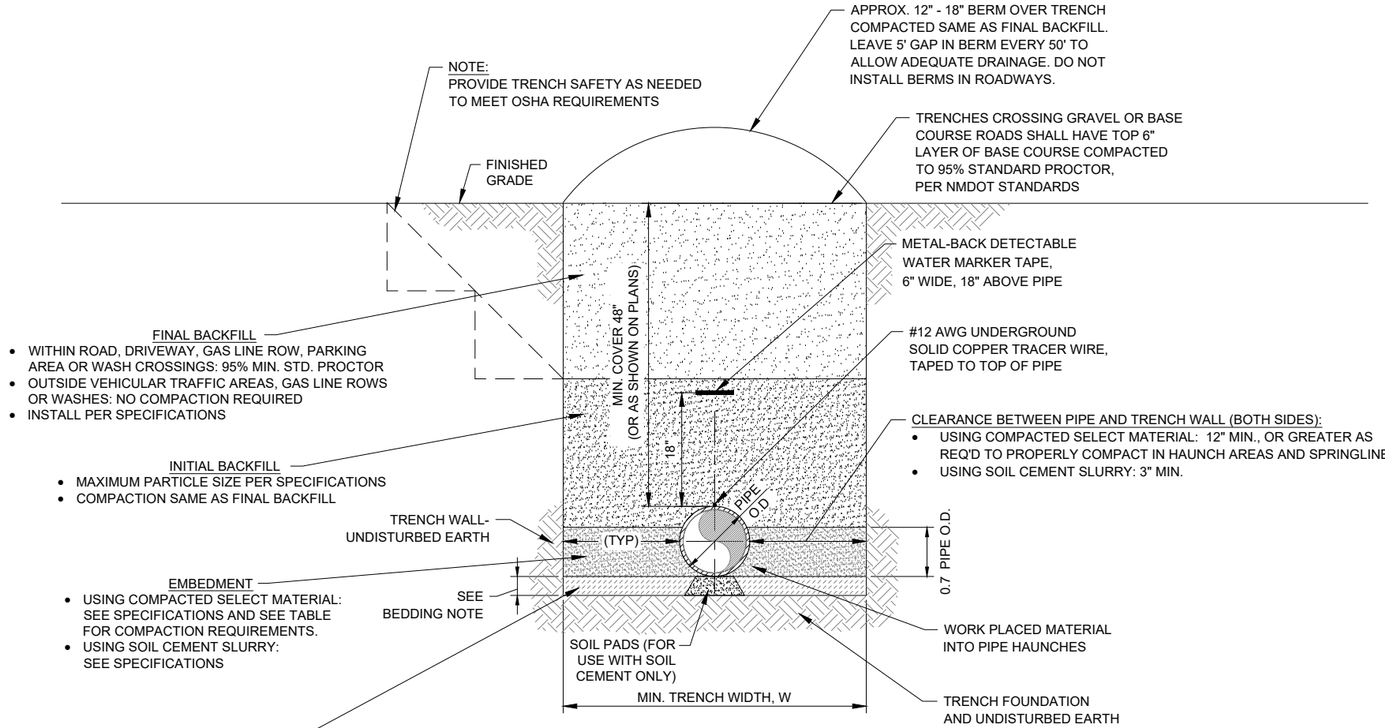
SOIL CEMENT INSTALLATION WITH SOIL PADS
NOT TO SCALE

MINIMUM PERCENT COMPACTION FOR EMBEDMENT OUTSIDE TRAFFIC AREAS, GAS LINES ROW, WASH CROSSINGS

CLEAN COARSE-GRAINED SOILS		
	12" Pipe	10" Pipe
Cover Depth	Minimum Compaction	Minimum Compaction
4' to 20'	85%	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		
	12" Pipe	10" Pipe
Cover Depth	Minimum Compaction	Minimum Compaction
4' to 14'	85%	None Required
14' to 20'	90%	
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.



TYPICAL TRENCH DETAIL
NOT TO SCALE

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Revision	Date	Description	By	Chk'd

(Date/ 26.3 Trevo Details.dwg
1/15/2019 11:21:24 AM ajw

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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	Drawn	Checked
TTT	AAV	AGR

TORY T. TADANO
NEW MEXICO
21073
LICENSED PROFESSIONAL ENGINEER
7/31/19

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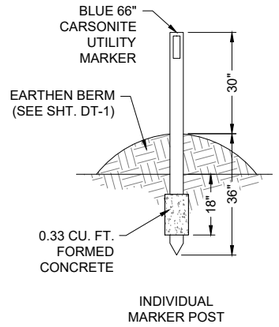
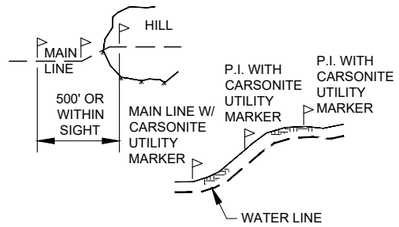
811 Know what's below. Call before you dig.

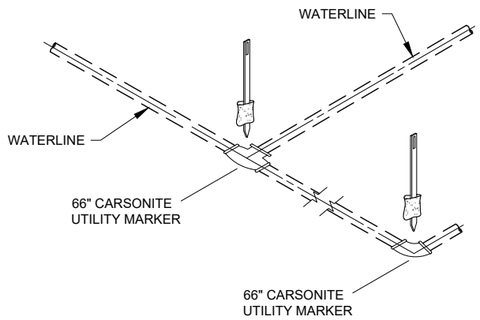
Date: January 15, 2019
Scale: Horiz: NONE
Vert: N/A
Project No: 6921307
Sheet: DT-1



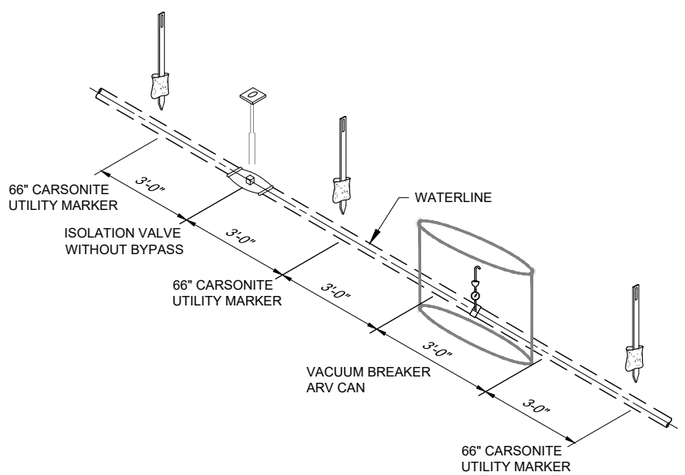
INDIVIDUAL MARKER POST

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



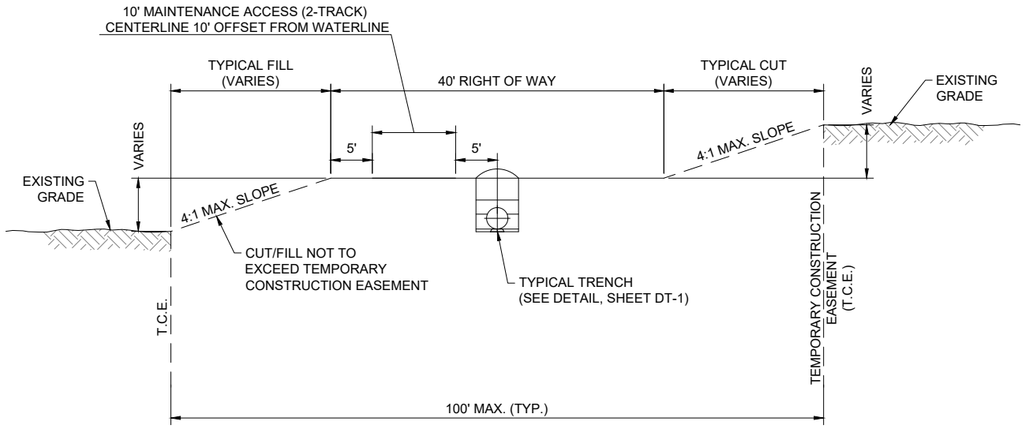


MARKER POSTS
TEE & ELL



MARKER POSTS
GATE VALVE & VACUUM
BREAKER / ARV VAULT

TYPICAL MARKER POSTS
NOT TO SCALE



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.

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

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

Designed	Drawn	Checked
TTT	AAV	AGR

TORY T. TADANO — NEW MEXICO — 21073 — LICENSED PROFESSIONAL ENGINEER — 12/31/19

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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

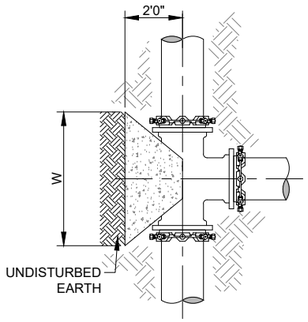
Date: 2/1/2019 11:21:31 AM aav
C:\dan 26.3 Marlow and NGVH Grading Details.dwg

THRUST BLOCK DIMENSION SCHEDULE

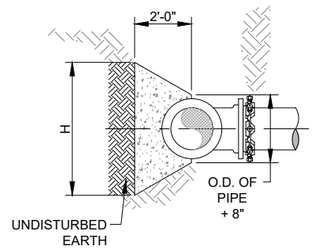
Pipe Location	Pipe Size (Inches)	90° Bend H x W	Tee H x W
Reach 26.3 Chlorinator, Inlet & Outlet	8"	4'-0" x 4'-0"	N/A
Flush Valve with Above-Grade Discharge	2"	N/A	1'-0" x 1'-0"
Tee for Torreon Regional Water System Tie-in	6"	N/A	2'-6" x 2'-6"

GENERAL NOTES

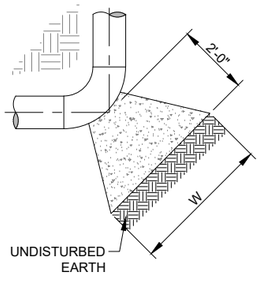
1. SOIL BEARING FROM GEO-TEST REPORT NO. 1-71180 DATED JANUARY 8, 2018
2. ALL CONCRETE SHALL BE 3000 psi, MINIMUM COMPRESSIVE STRENGTH IN 28 DAYS



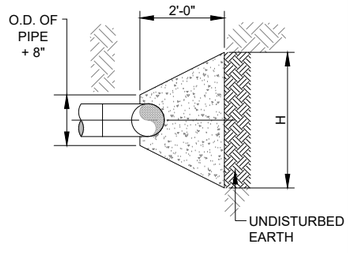
PLAN VIEW
CONCRETE BLOCKING
FOR TEE



ELEVATION VIEW
CONCRETE BLOCKING
FOR TEE



PLAN VIEW
CONCRETE BLOCKING
FOR ELBOW



ELEVATION VIEW
CONCRETE BLOCKING
FOR ELBOW

THRUST BLOCK DETAIL
NOT TO SCALE

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Minimum Required Restraint Lengths Reach 26.3 - 10" DR18 PVC

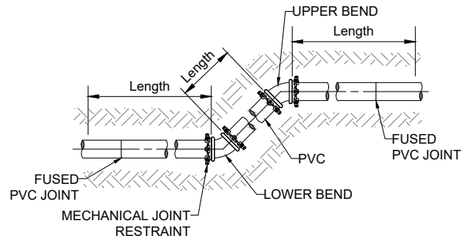
Fitting	Pipe Size	Test Pressure (psi)	Required Restraint Length (ft)	
Tee	10"	235	40	
Isolation Valve / Dead End	10"	235	140	
From End of Casing	10"	235	60	
Horizontal Bend or Sweep				
90°	10"	235	65	
45°	10"	235	30	
22.5°	10"	235	20	
11.25°	10"	235	20	
Vertical Offset or Sweep			Upper Bend	Lower Bend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

Minimum Required Restraint Lengths Reach 26.3 - 12" DR18 PVC

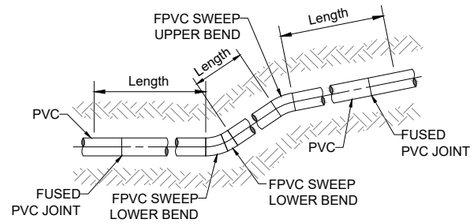
Fitting	Pipe Size	Test Pressure (psi)	Required Restraint Length (ft)	
Tee	12"	235	65	
Isolation Valve / Dead End	12"	235	165	
From End of Casing	12"	235	75	
Horizontal Bend or Sweep				
90°	12"	235	75	
45°	12"	235	30	
22.5°	12"	235	20	
11.25°	12"	235	20	
Vertical Offset or Sweep			Upper Bend	Lower Bend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

NOTES:

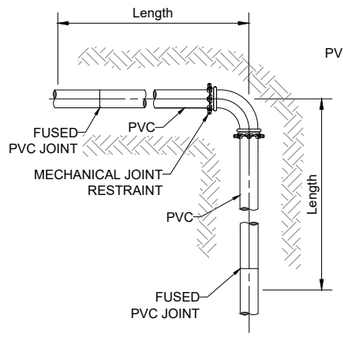
1. MECHANICAL JOINT RESTRAINTS SHALL BE RATED TO PIPE PRESSURE RATINGS.
2. MECHANICAL JOINT RESTRAINTS INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.
3. FITTINGS WITHIN TANK SITE AND CONTROL VALVE VAULT SHALL BE MORTAR LINED, BITUMINOUS-COATED AND PE WRAPPED PER SPECIFICATIONS. ALL BURIED METALLIC WATER BEARING COMPONENTS OUTSIDE THESE SITES SHALL BE COATED WITH FUSION BONDED EPOXY, INTERIOR AND EXTERIOR.
4. APPLY CATHODIC PROTECTION TO ALL BURIED METALLIC COMPONENTS LOCATED WITHIN CORROSIVE SOILS ZONES, AS DESIGNATED IN PLANS AND/OR SPECIFICATIONS.
5. ALL RESTRAINED PIPE JOINTS SHALL BE FUSIBLE PVC. NO BELL HARNESS RESTRAINTS SHALL BE ALLOWED.
6. ALL SITE PIPING SHALL BE FULLY RESTRAINED.
7. WHERE MULTIPLE FITTING / VALVE RESTRAINT LENGTHS OVERLAP, THE RESTRAINT LENGTHS FOR EACH APPURTENANCE SHALL BE ADDED TOGETHER, UNLESS OTHERWISE SHOWN ON PLANS.
8. FOR ANY FITTING OR APPURTENANCE NOT EXPRESSLY CALLED OUT IN PLANS, REFER TO THIS SHEET FOR RESTRAINT LENGTH REQUIREMENTS.
9. NO VERTICAL BENDS SHALL BE ALLOWED THAT ARE NOT SHOWN ON DRAWINGS WITHOUT ENGINEER'S PRIOR APPROVAL. IN THE EVENT VERTICAL BENDS ARE ADDED, ADDITIONAL JOINT RESTRAINT SHALL BE REQUIRED AT CONTRACTOR'S EXPENSE.
10. FOR RESTRAINED LENGTHS 20 LF OR LESS, JOINTED PVC PIPE MAY BE USED IN LIEU OF FUSIBLE PVC, PROVIDED THE ENTIRE PIPE IS A SINGLE STICK.



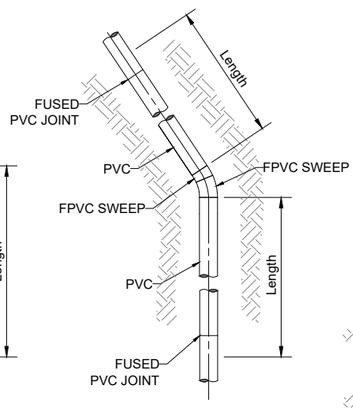
ELEVATION VIEW
MECHANICAL JOINT RESTRAINT FOR VERTICAL OFFSET



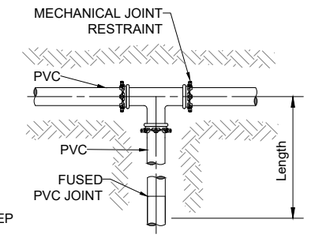
ELEVATION VIEW
FUSED JOINT RESTRAINT FOR VERTICAL SWEEP



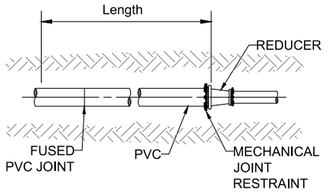
PLAN VIEW
MECHANICAL JOINT RESTRAINT
FOR HORIZONTAL BEND



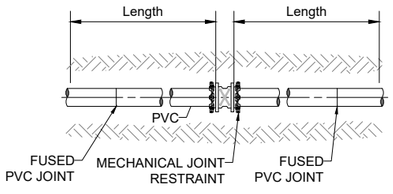
PLAN VIEW
FUSED JOINT RESTRAINT
FOR HORIZONTAL SWEEP



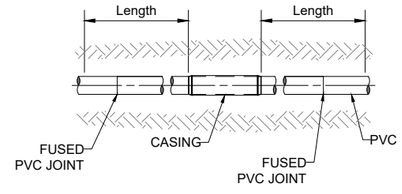
PLAN VIEW
MECHANICAL JOINT RESTRAINT
FOR TEE



PLAN VIEW
MECHANICAL JOINT RESTRAINT
FOR REDUCERS



PLAN VIEW
MECHANICAL JOINT RESTRAINT
FOR GATE VALVE



PLAN VIEW
FUSED JOINT RESTRAINT
FOR CASING

MECHANICAL / FUSED JOINT RESTRAINTS
NOT TO SCALE

Revision	Date	Description	By	Chk'd

Cover 26.3 Bmo and Annex Details.dwg
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CLIENT: The Navajo Nation
TOWN: Reach 26.3 To Torreon, NM

THRUST BLOCK AND MECHANICAL JOINT RESTRAINT DETAILS
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACH 26.3
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
GYQ	AAV	AGR

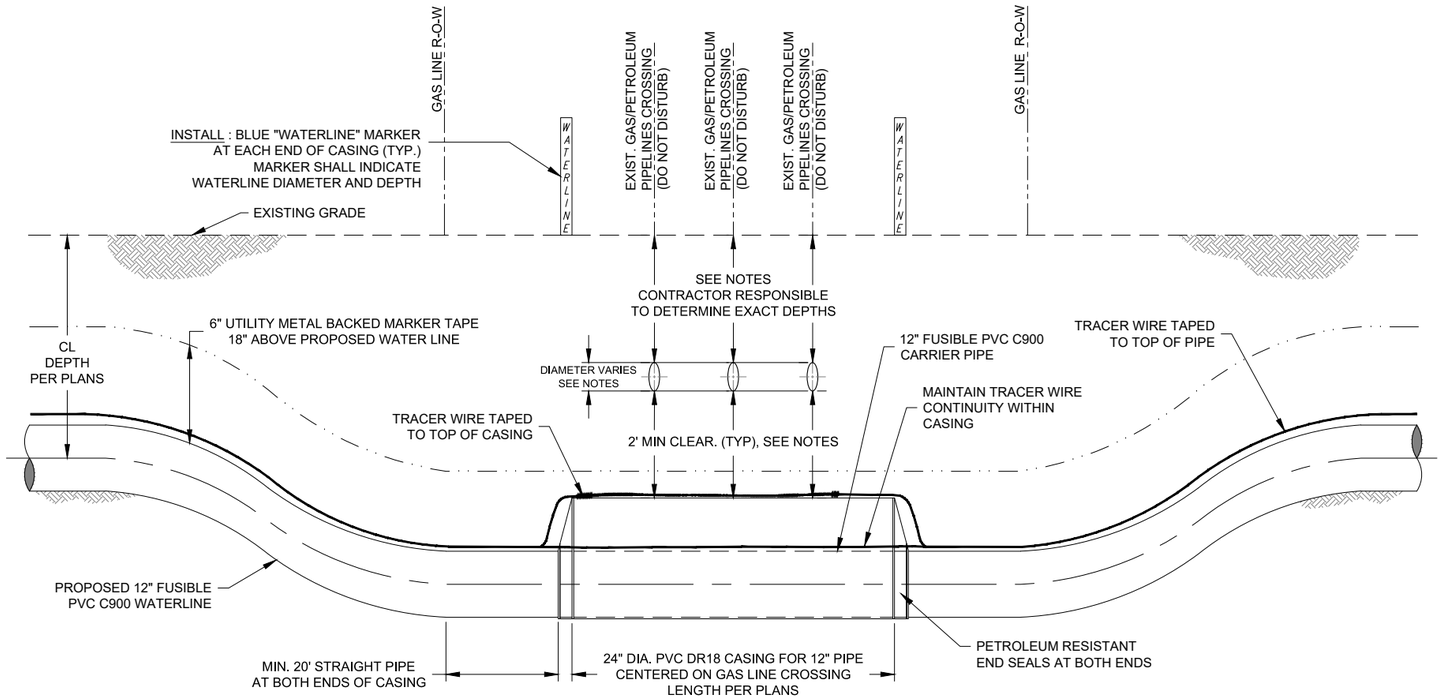
TORY T. TADANO
NEW MEXICO
21073
REGISTERED PROFESSIONAL ENGINEER
1/31/19

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: January 18, 2019
Scale: Horiz: NONE
Vert: N/A
Project No: 6921307
Sheet: DT-3



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	Chk'd

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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. TADANO — NEW MEXICO — 21073 — LICENSED 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 Know what's below. Call before you dig.

Date: January 18, 2019
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Vert: N/A
Project No: 6921307
Sheet: DT-4

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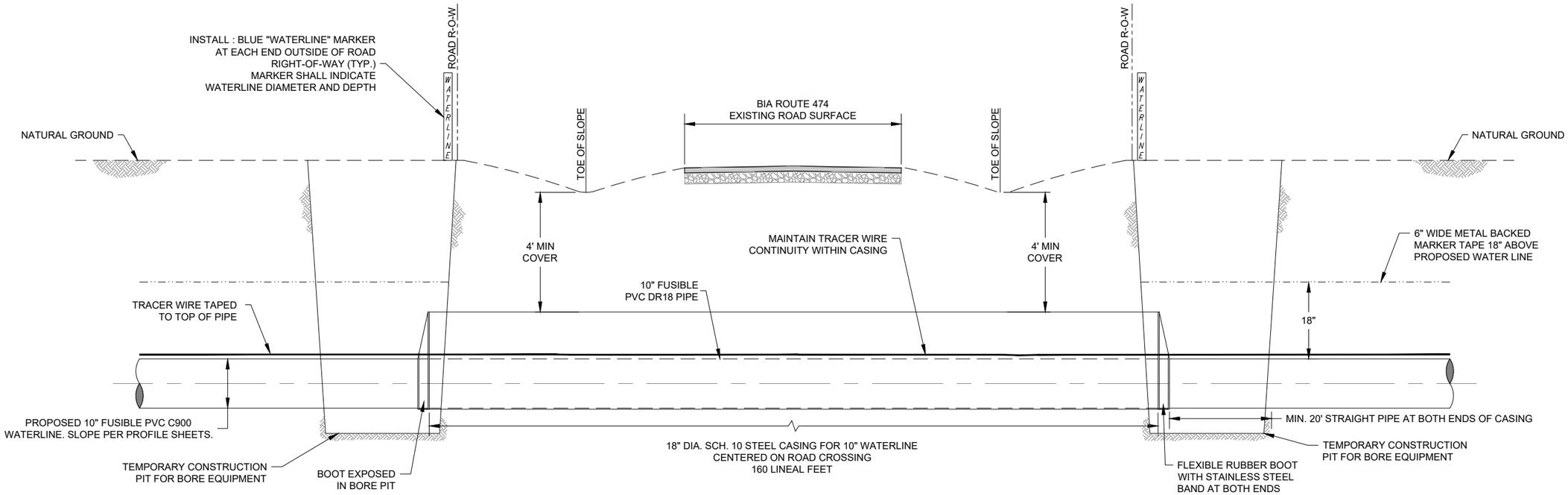
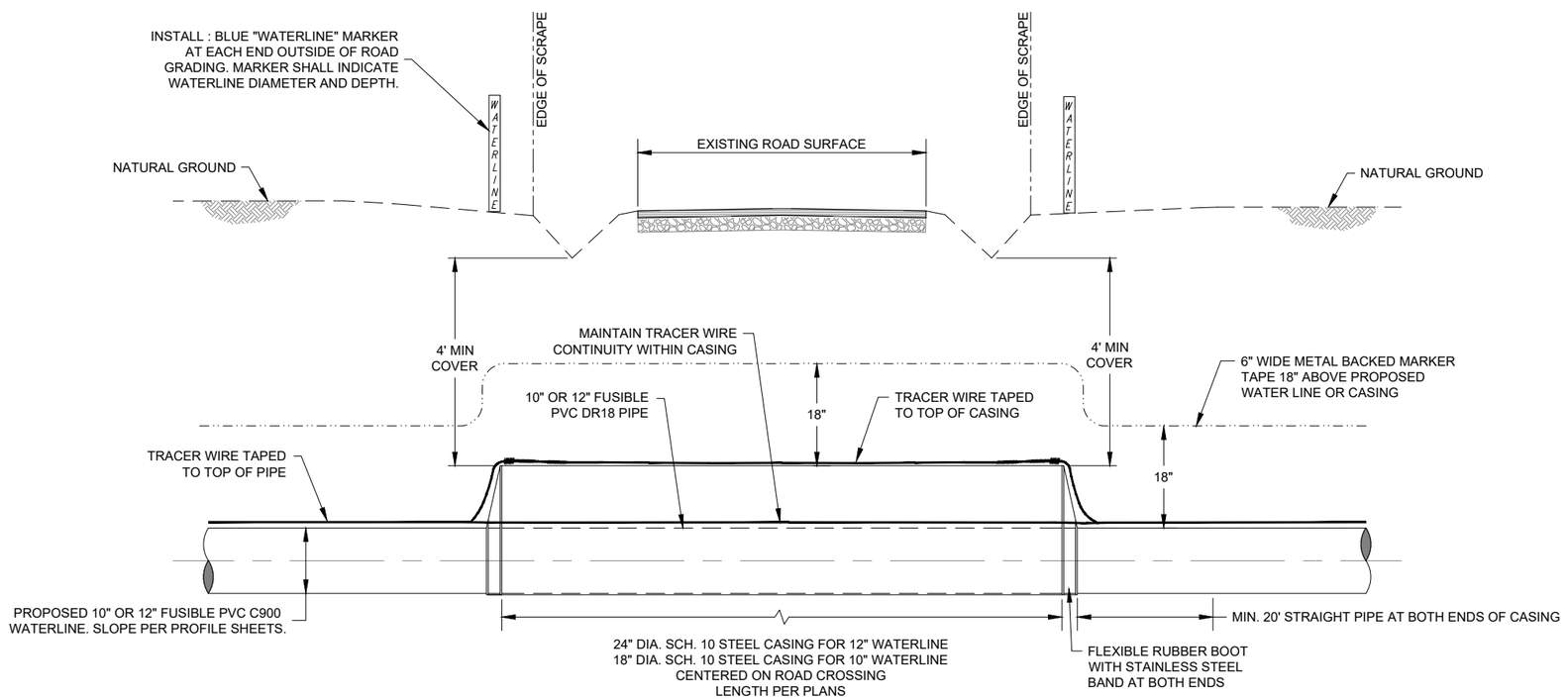


BIA ROUTE 474 BORE AND JACK ROAD CROSSING

NOT TO SCALE



TYPICAL OPEN CUT ROAD CROSSING

NOT TO SCALE

CONSTRUCTION NOTES:

1. EXCAVATIONS OUTSIDE THE ROADWAY BAR DITCH SHALL BE COMPACTED AS SPECIFIED IN THE CONSTRUCTION DOCUMENTS. EXCAVATION WITHIN THE TOE OF THE BAR DITCH SHALL BE COMPACTED TO 95% MAXIMUM DRY DENSITY (STANDARD PROCTOR).
2. APPLY CATHODIC PROTECTION TO ALL BURIED METALLIC CASINGS LOCATED WITHIN CORROSIVE SOIL ZONES, AS DESIGNATED IN THE PLANS AND/OR SPECIFICATIONS.
3. ALL METALLIC PIPE, WHETHER CATHODICALLY PROTECTED OR NOT, SHALL BE PROVIDED WITH CORROSION MONITORING SYSTEMS.
4. TRACER WIRE CONTINUITY SHALL BE MAINTAINED ACROSS THE ROAD XING FOR BOTH OPEN - CUT & BORED CROSSINGS.
5. FOR MINIMUM FUSIBLE PVC PIPE RESTRAINTS REQUIREMENTS ON EACH SIDE OF CASING, SEE TABLE SHEET DT-3.
6. 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.
7. FOR SANDOVAL COUNTY, MCKINLEY COUNTY AND BIA ROADS, ADHERE TO ANY ADDITIONAL CROSSING PERMIT REQUIREMENTS.
8. OPEN CUT CASINGS SHALL BE ASPHALTIC COATED PER AWW C104. BORE AND JACK CASINGS, NO COATING REQUIRED.

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

CASED ROAD CROSSING DETAIL
NAVAJO GALLUP WATER SUPPLY PROJECT - REACH 26.3
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
GMM	AAV	AGR

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

Date: January 18, 2019

Scale: Horiz: NONE
Vert: N/A

Project No: 6921307

Sheet: DT-5

Cabin 26.3 Pipeline X-ings.dwg
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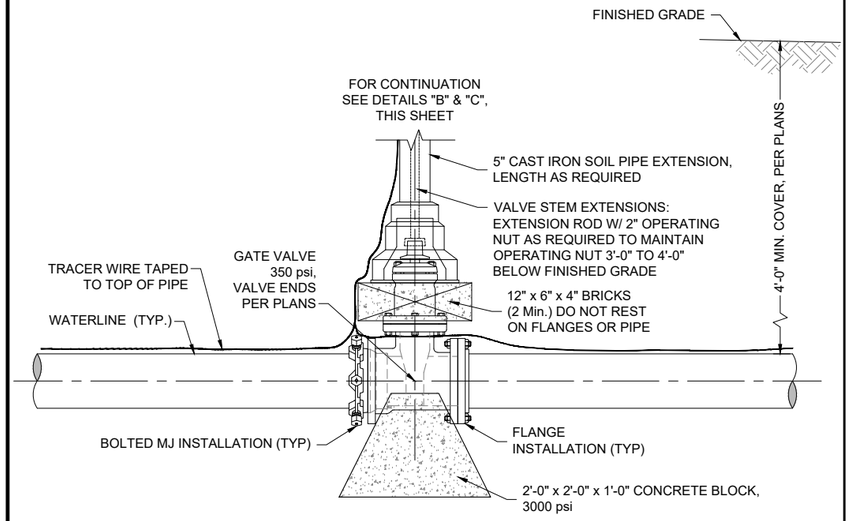
NOTES:

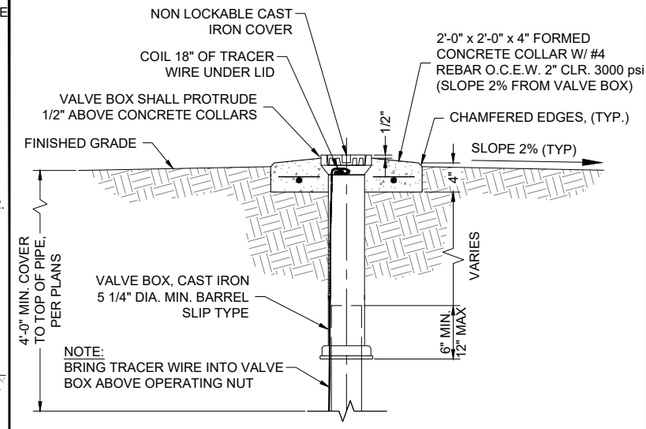
1. CONTRACTOR SHALL SCRIBE ALL CONCRETE VALVE COLLARS, PER DETAILS "B" & "C" THIS SHEET. CONCRETE SHALL BE SCRIBED PRIOR TO CURING OR ETCHED AFTER CURING WITH 4" GRINDER.
2. AFFIX WARNING PLACARD TO VALVE BOX COVER INSIDE METER CAN FOR ALL MAINLINE VALVES.
3. AFFIX ALUMINUM VALVE IDENTIFICATION PLATES 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.



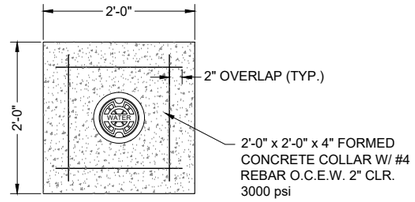
ELEVATION VIEW

TYPICAL GATE VALVE DETAIL

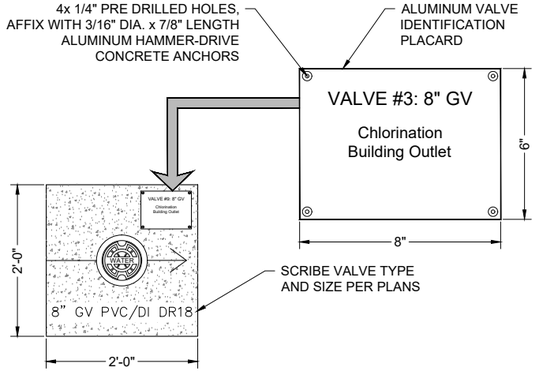
NOT TO SCALE



ELEVATION VIEW



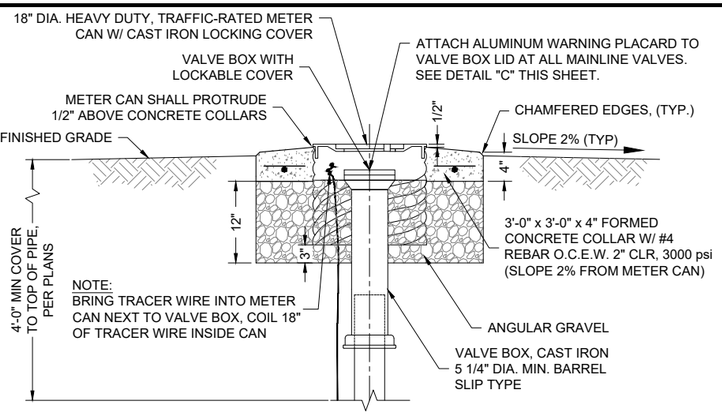
PLAN VIEW - REBAR



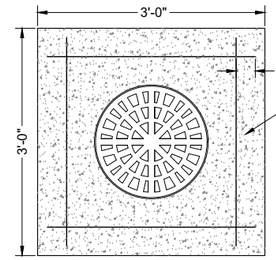
PLAN VIEW - SURFACE

DETAIL "A" TYPICAL TANK SITE VALVE BOX, COLLAR AND VALVE ID PLACARD DETAIL - USE WITHOUT WARNING PLACARD

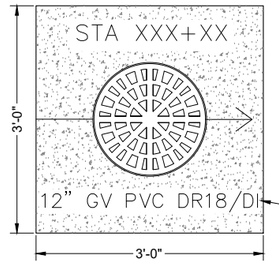
NOT TO SCALE



ELEVATION VIEW

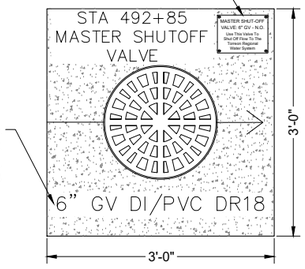


PLAN VIEW - REBAR



PLAN VIEW - SURFACE MAINLINE VALVE COLLAR EXCEPT STA 492+85

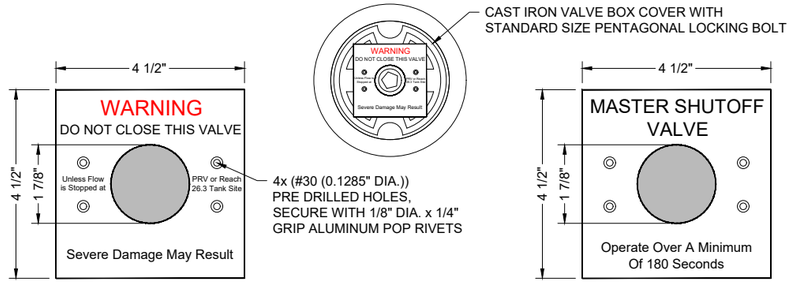
SCRIBE SHALL BE 12", 10" OR 6" AND PVC DR18 / DI PER PLANS / LOCATION



PLAN VIEW - SURFACE MASTER SHUTOFF VALVE COLLAR AT STA 492+85

DETAIL "B" TYPICAL MAINLINE VALVE BOX, COLLAR AND VALVE ID PLACARD DETAIL - USE WITH WARNING PLACARD

NOT TO SCALE



WARNING PLACARD FOR MAINLINE VALVES EXCEPT STA 492+85

PLAN VIEW

WARNING PLACARD FOR MASTER SHUTOFF VALVE AT STA 492+85

DETAIL "C" TYPICAL WARNING PLACARD DETAIL

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1/15/2019 11:22:03 AM aav

CLIENT: The Navajo Nation

TOWN: Reach 26.3 To Torreon, NM

PIPELINE AND SITE GATE VALVE DETAILS
NAVAJO GALLUP WATER SUPPLY PROJECT - REACH 26.3
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
TTT	AAV	AGR

TORY T. TADANO — NEW MEXICO — 21073 — LICENSED PROFESSIONAL ENGINEER — 1/31/19

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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.

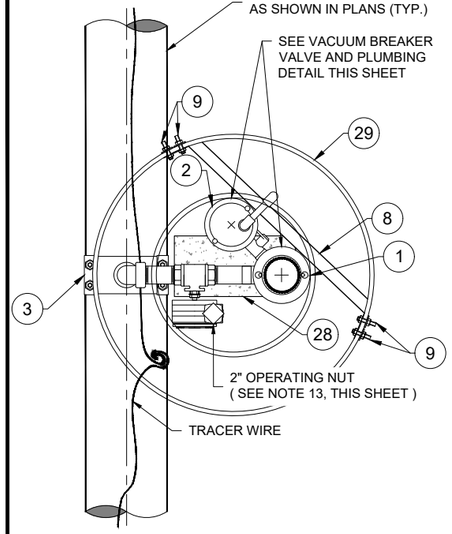
811 Know what's below. Call before you dig.

Date: January 15, 2019

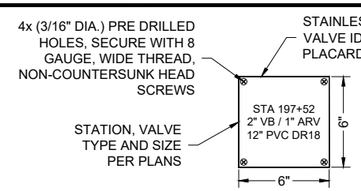
Scale: Horiz: NONE
Vert: N/A

Project No: 6921307

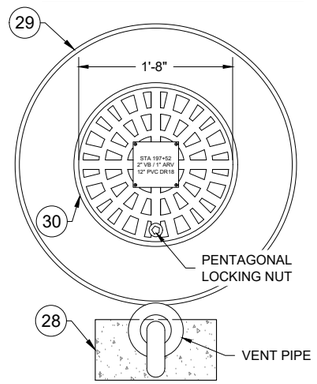
Sheet: DT-6



PLAN VIEW



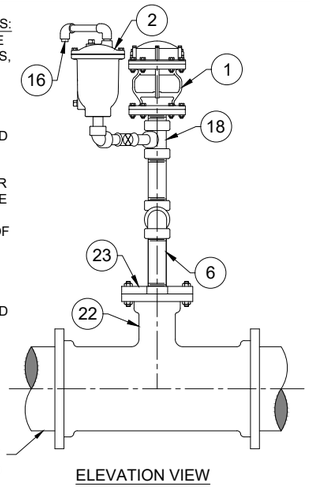
VALVE IDENTIFICATION PLACARD



PLAN VIEW - COVER & VENT PIPE

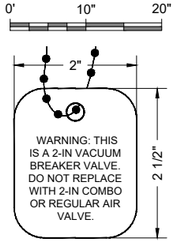
ALTERNATIVE CONFIGURATION "A" NOTES:

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.



ELEVATION VIEW

ALTERNATIVE CONFIGURATION "A"



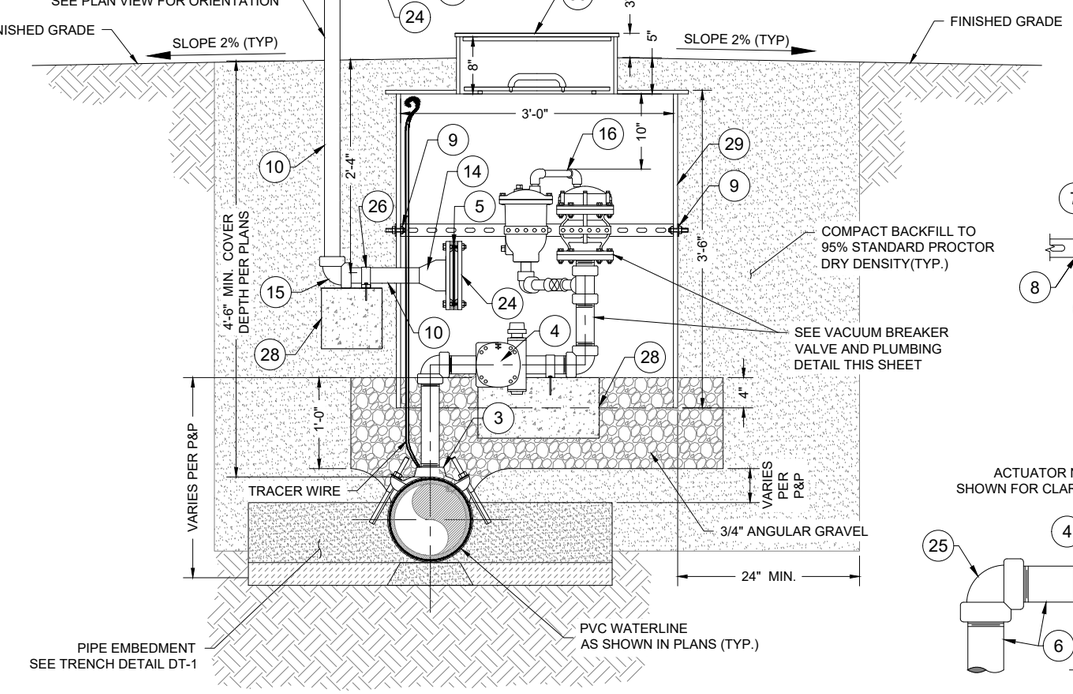
VALVE WARNING TAG DETAIL
(HANG FROM 2" VACUUM BREAKER VALVE)

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:

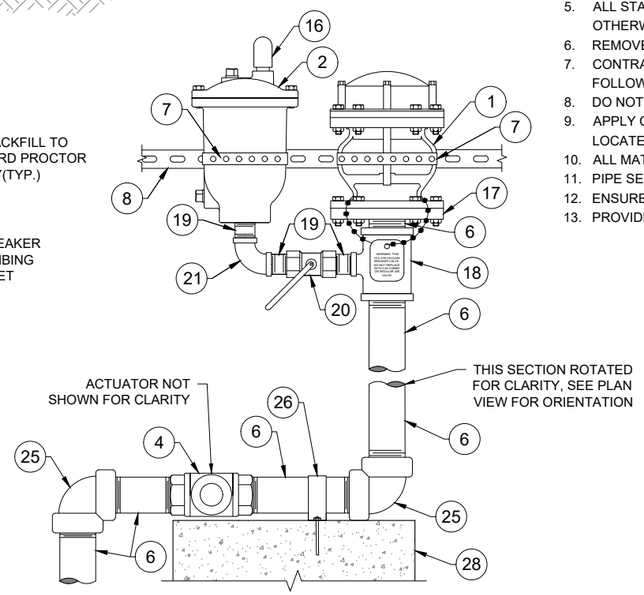
1. ALL FLANGES SHALL BE FLAT FACED, UNLESS OTHERWISE NOTED.
2. ALL NON-STAINLESS METALLIC PIPE IN CONTACT WITH SOIL SHALL BE COLD APPLIED TAPE-COATED PER AWWA C209.
3. VACUUM BREAKER TO BE LOCATED IN FIELD BY ENGINEER.
4. COIL TRACER WIRE ON INSIDE WALLS AT TOP OF METER PIT.
5. ALL STAINLESS STEEL PIPE 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.



ELEVATION VIEW

VACUUM BREAKER VALVE DETAIL

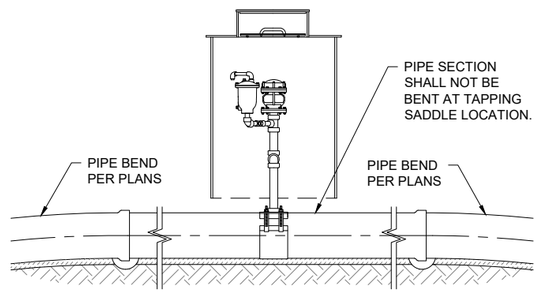
0' 10" 20"



ELEVATION VIEW

VACUUM BREAKER VALVE AND PLUMBING DETAIL

N.T.S.



ELEVATION VIEW

PIPE BENDING RESTRICTIONS FOR USE WITH TAPPING SADDLE

N.T.S.

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Revision	Date	Description	By	Chk'd

Color 26.3 Air Valve Details.dwg
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CLIENT: The Navajo Nation

TOWN: Reach 26.3 To Torreon, NM

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	Drawn	Checked
TTT	AAV	AGR

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

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Date: January 15, 2019

Scale: Horiz: AS SHOWN
Vert: N/A

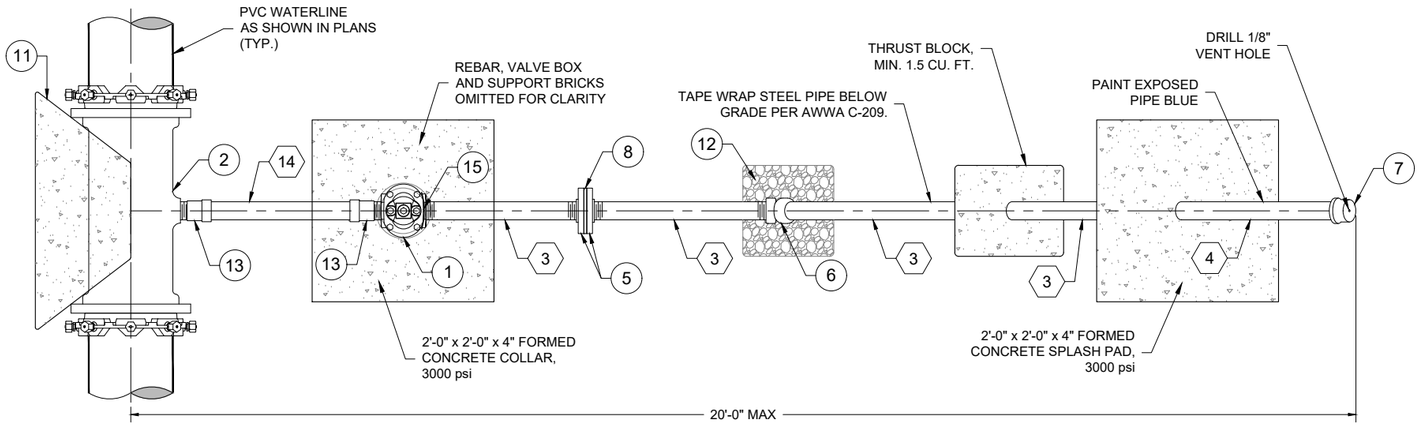
Project No: 6921307

Sheet: DT-7

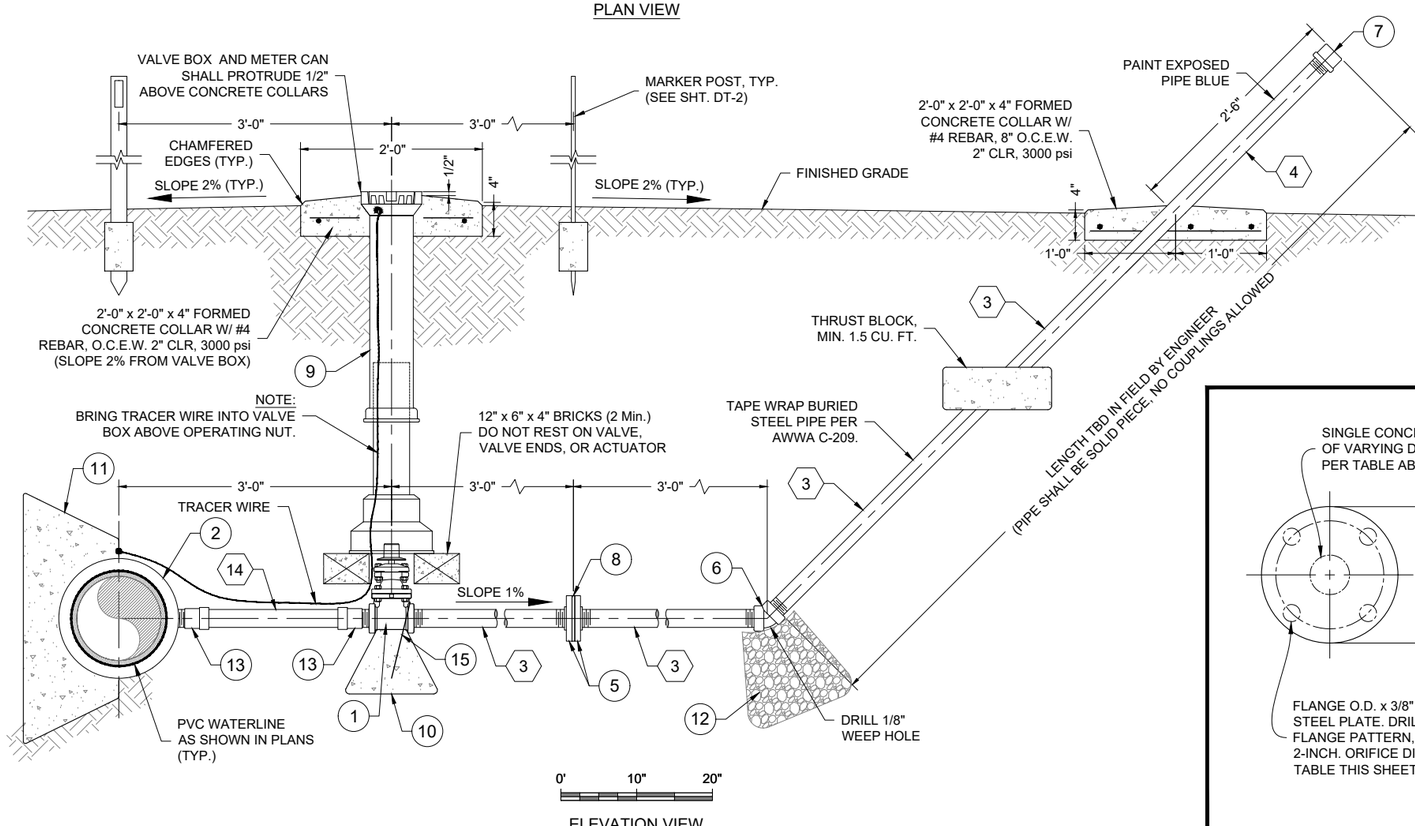
NOTE:
CONCRETE SHALL BE SCRIBED
PRIOR TO CURING OR ETCHED
AFTER CURING WITH A 4" GRINDER.

COLLAR SCRIBING DETAIL

NOT TO SCALE



PLAN VIEW



ELEVATION VIEW

2" FLUSH VALVE WITH ABOVE-GRADE DISCHARGE DETAIL

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KEYED NOTES - 2" FLUSH VALVE WITH ABOVE GRADE DISCHARGE

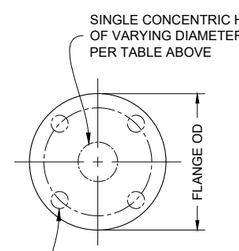
Item No.	DESCRIPTION
1	2" GATE VALVE, FBE COATED, NPT, W/ 2" OPERATING NUT, 250 psi
2	10" x 2" MJ TAPPED TEE, D.I., 350 psi
3	2" G.I. PIPE, STANDARD WALL, NPT, TAPE COATED BELOW GRADE
4	2" G.I. PIPE, STANDARD WALL, NPT, PAINTED BLUE ABOVE GRADE
5	2" G.I.-HUB, FLAT FACED, COMPANION FLANGE, NPT, SS 304, 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:
1. ALL FLANGES SHALL BE ANSI CLASS 300 (STEEL).
2. 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.
3. ORIENTATION AND LOCATION OF OUTLET TO BE DETERMINED IN FIELD BY ENGINEER.
4. APPLY CATHODIC PROTECTION TO ALL BURIED METALLIC WATER-CARRYING COMPONENTS LOCATED WITHIN CORROSIVE SOIL ZONES, AS DESIGNATED IN THE PLANS AND/OR SPECIFICATIONS.
5. ALL STEEL PIPE AND FITTINGS SHALL BE STANDARD WALL.
6. ALL COMPONENTS SHALL REMAIN WITHIN THE 40' PERMANENT RIGHT-OF-WAY.
7. ALL MATERIALS RATED TO AT LEAST MAINLINE PIPE PRESSURE RATING, UNLESS OTHERWISE NOTED.
8. SEE TABLE THIS SHEET FOR ORIFICE PLATE DRILLING AND FLUSH VALVE TYPE REQUIREMENTS.

SUMMARY OF FLUSH VALVE ORIFICE PLATE DRILLING

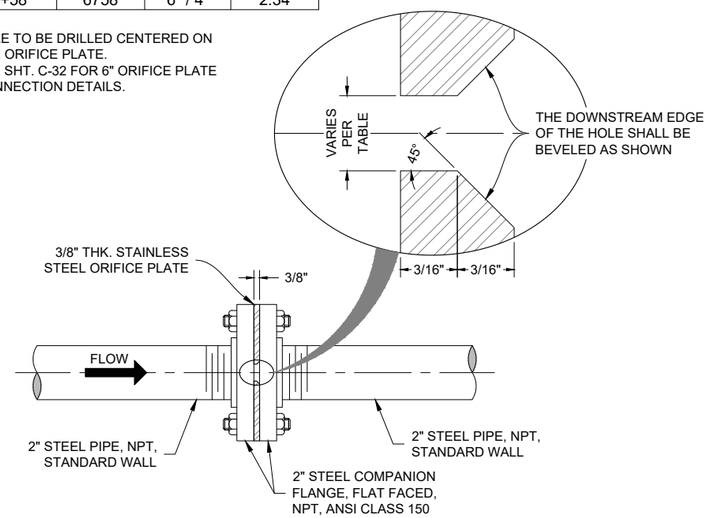
Station	Elevation	Flush Valve Size	Orifice Plate Hole Ø (in.)
51+41	6934	2"	1.46
118+38	6952	2"	1.46
283+09	6818	2"	1.46
382+93	6780	2"	1.46
433+71	6773	2"	1.46
492+58	6758	6" / 4"	2.34

NOTES:
1. HOLE TO BE DRILLED CENTERED ON THE ORIFICE PLATE.
2. 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	Date	Description	By	Chk'd

Color 26.3 From Valve Details.dwg
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CLIENT: The Navajo Nation
TOWN: Reach 26.3 To Torreon, NM

2 INCH FLUSH WITH ORIFICE AND ABOVE-GRADE DISCHARGE DETAIL
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACH 26.3
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
TTT	AAV	AGR

TORY T. TADANO
NEW MEXICO
21073
LICENSED PROFESSIONAL ENGINEER
3/1/19

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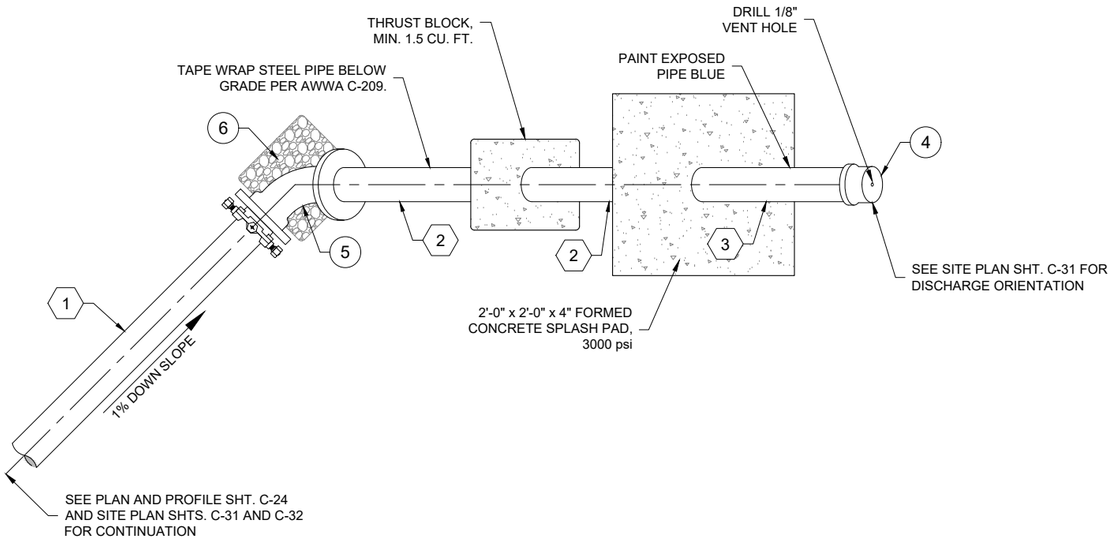
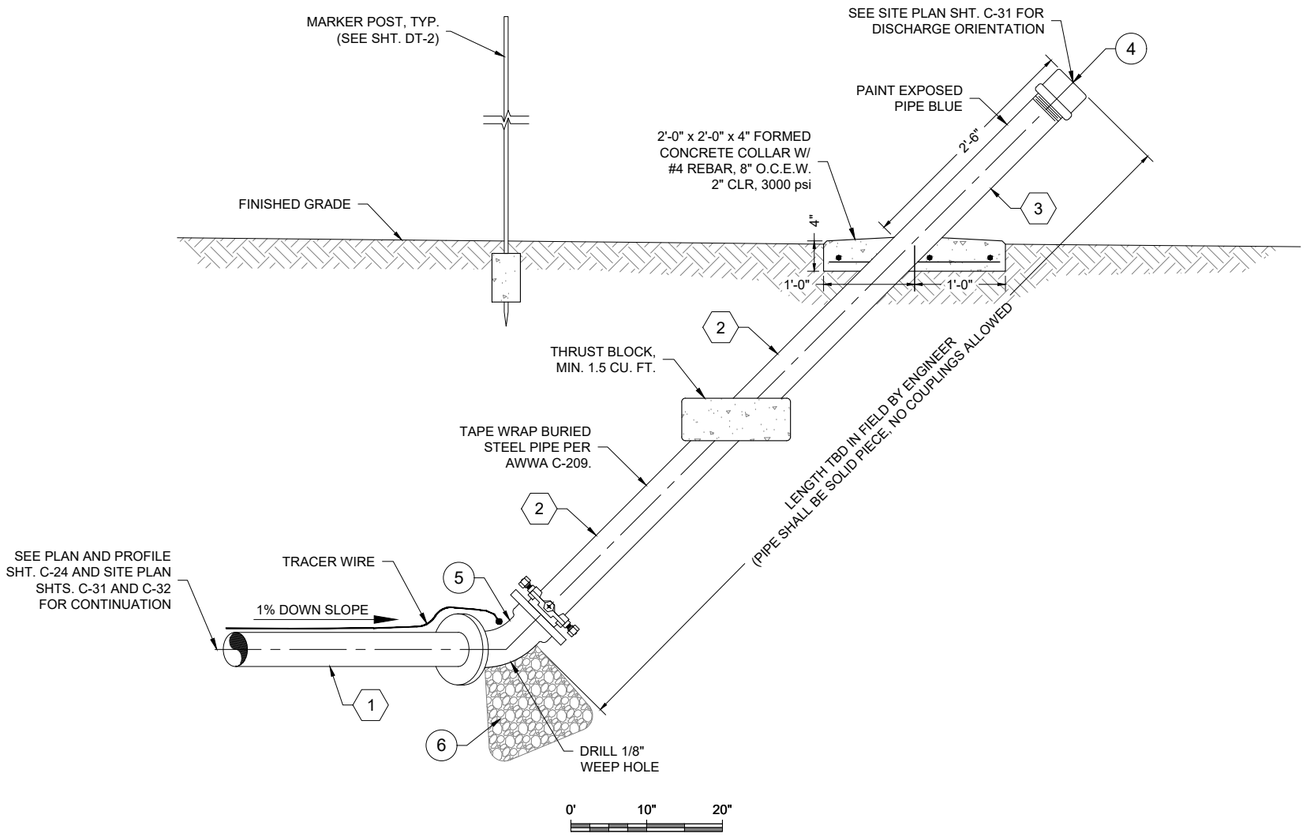
Date: February 1, 2019
Scale: Horiz: AS SHOWN
Vert: N/A
Project No: 6921307
Sheet: DT-8



PLAN VIEW



ELEVATION VIEW

4" FLUSH VALVE ABOVE-GRADE DISCHARGE DETAIL

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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.

Revision	Date	Description	By	Chk'd

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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	Drawn	Checked
TTT	AAV	AGR

TORY T. TADANO
NEW MEXICO
21073
LICENSED PROFESSIONAL ENGINEER
1/31/19

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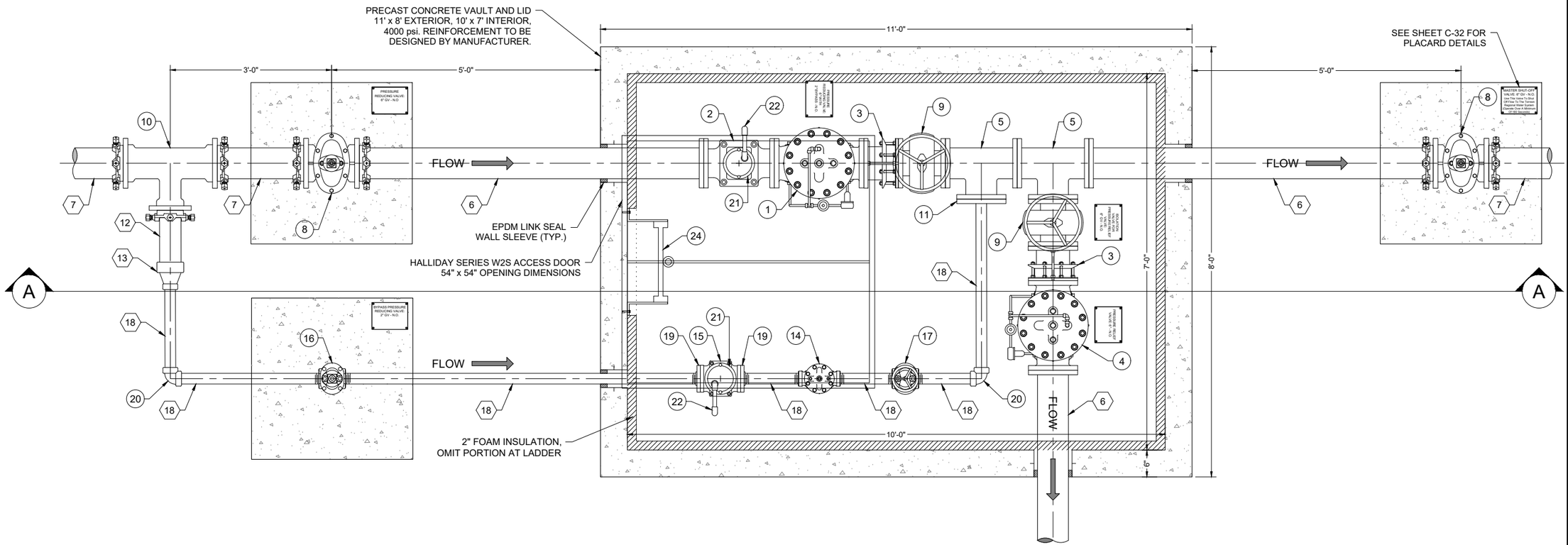
811 Know what's below. Call before you dig.

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

0' 1' 2'

6" CONTROL VALVE W/ PRESSURE RELIEF ASSEMBLY VAULT DETAIL

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Revision	Date	Description	By	Chk'd

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

TORY T. TADANO
NEW MEXICO
21073
LICENSED PROFESSIONAL ENGINEER
1/31/19

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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 Know what's below. Call before you dig.

Date: January 15, 2019

Scale: Horiz: 1" = 2'
Vert: N/A

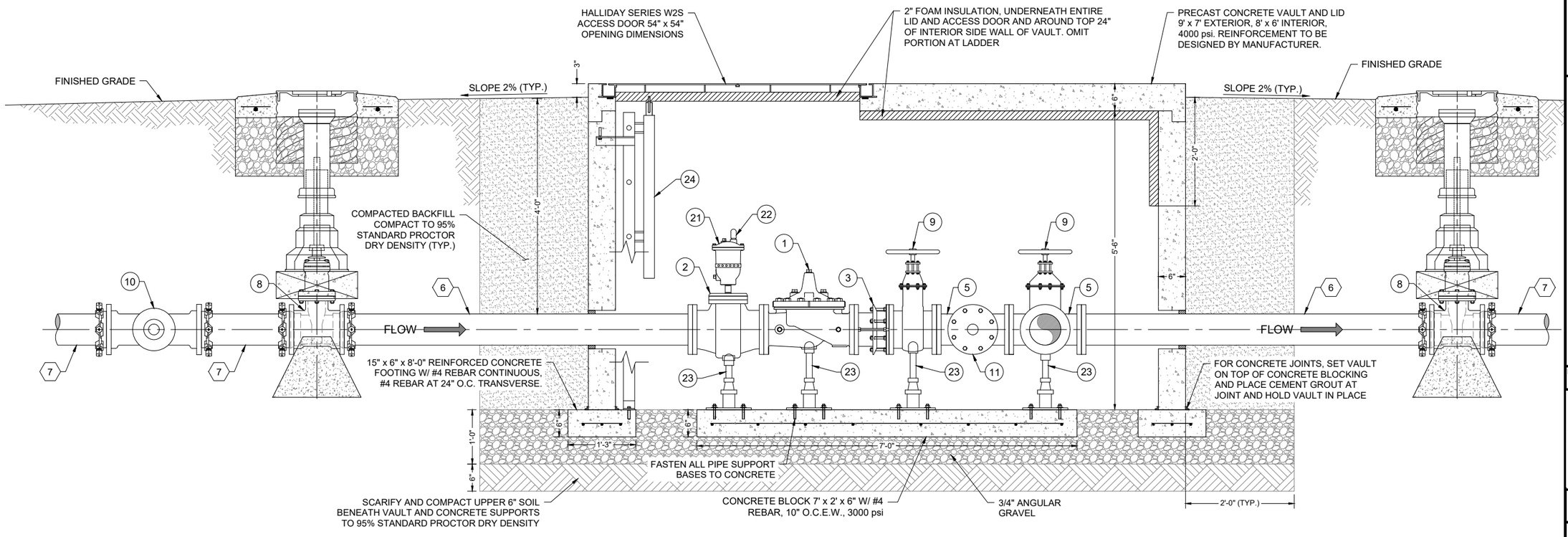
Project No: 6921307

Sheet: DT-10

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.



ELEVATION VIEW

0' 1' 2'

6" CONTROL VALVE W/ PRESSURE RELIEF ASSEMBLY VAULT DETAIL

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Revision	Date	Description	By	Chk'd

(Date: 26.3 PRV Vault Details.dwg 1/15/2019 11:22:42 AM ajw)

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

6 INCH CONTROL VALVE WITH PRESSURE RELIEF VAULT DETAIL (2 of 2)

NAVAJO GALLUP WATER SUPPLY PROJECT - REACH 26.3

SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
TTT	AAV	AGR

TORY T. TADANO — NEW MEXICO — 21073 — LICENSED PROFESSIONAL ENGINEER — 5/31/19

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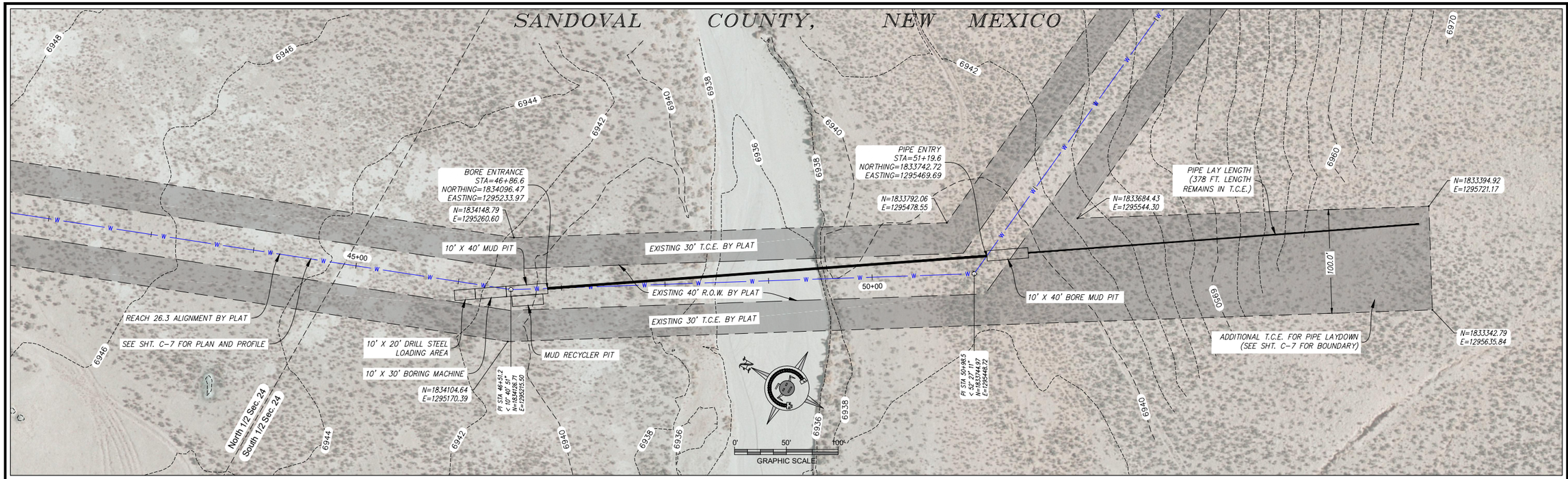
811 Know what's below. Call before you dig.

Date: January 15, 2019

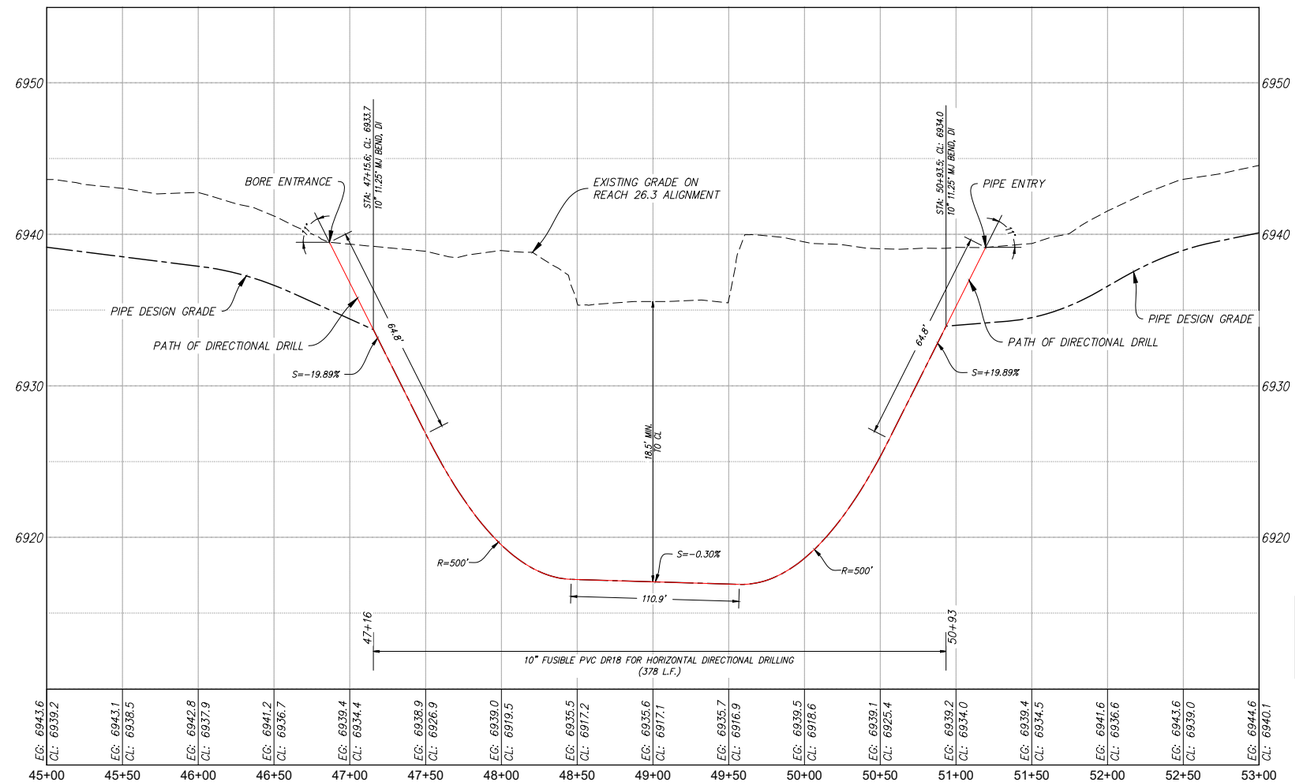
Scale: Horiz: 1" = 2'
Vert: N/A

Project No: 6921307

Sheet: DT-11



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.

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

WASH CROSSING STA 49+00
PIPELINE HDD DETAIL
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACH 26.3
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

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TTT	AAV	AGR

TORY T. TADANO
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1/31/19

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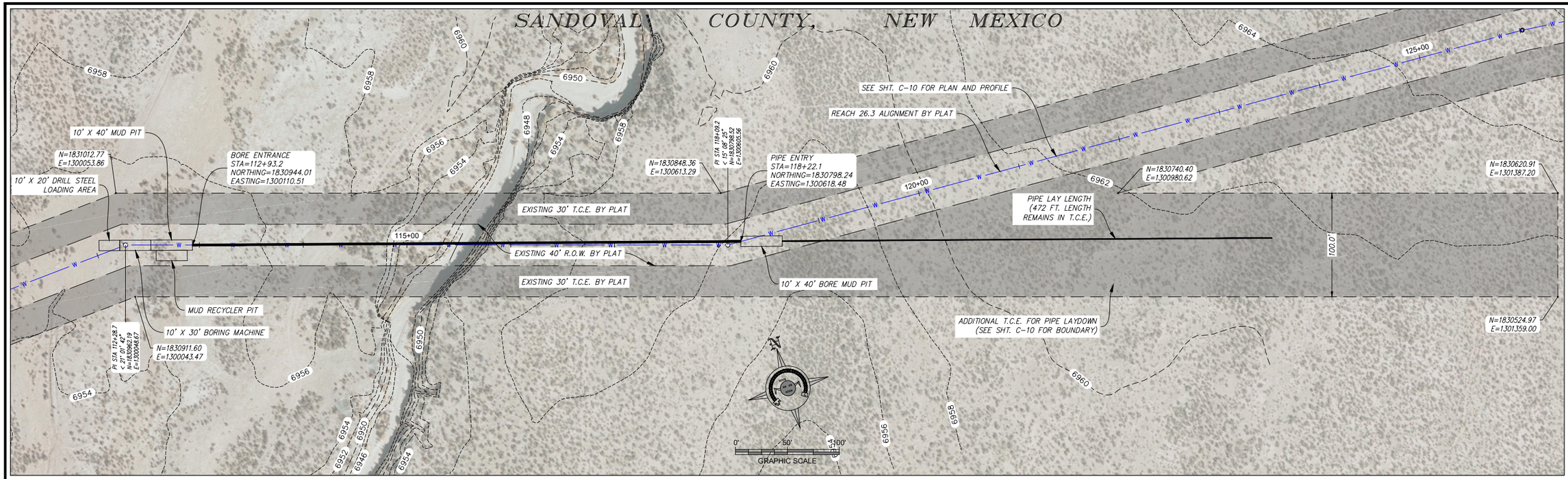
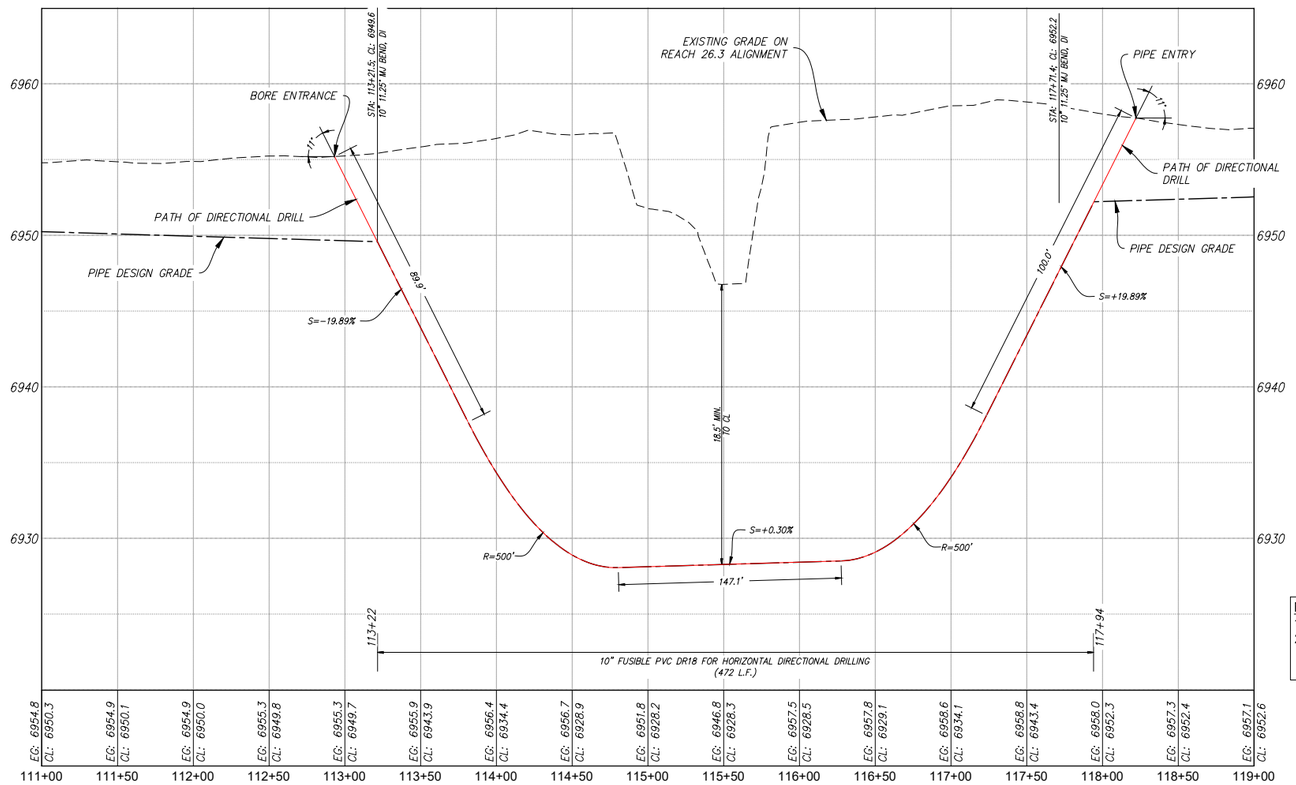
Date: February 1, 2019
Scale: Horiz: 1" = 100'
Vert: 1" = 10'
Project No: 6921307
Sheet: DT-12



PLAN VIEW



PROFILE VIEW

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

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

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1/31/19

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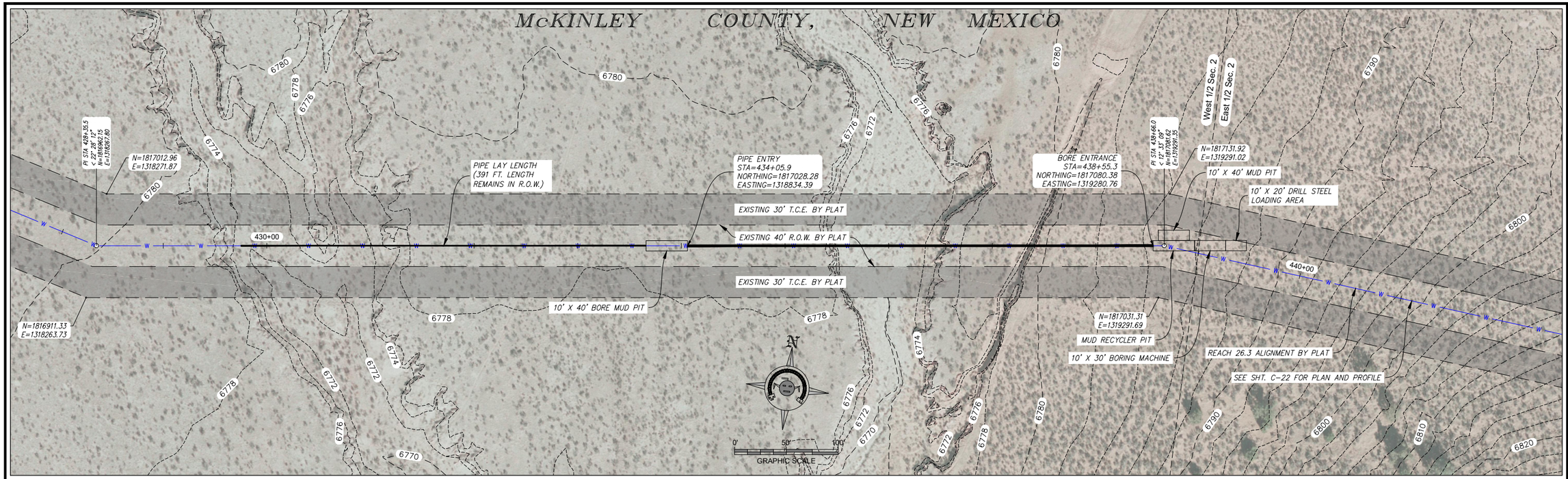
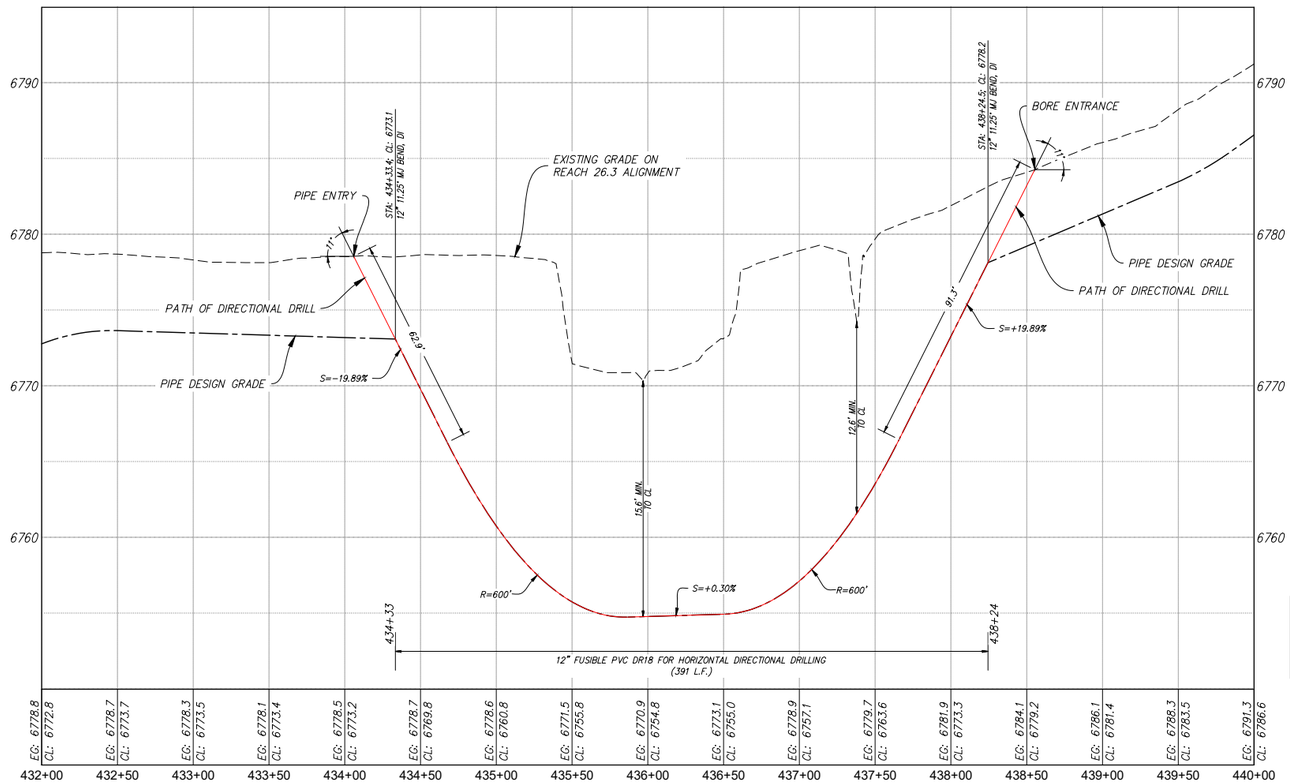
Scale: Horiz: 1" = 100'
Vert: 1" = 10'
Project No: 6921307
Sheet: DT-13



PLAN VIEW



PROFILE VIEW

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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

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LICENSED PROFESSIONAL ENGINEER
1/31/19

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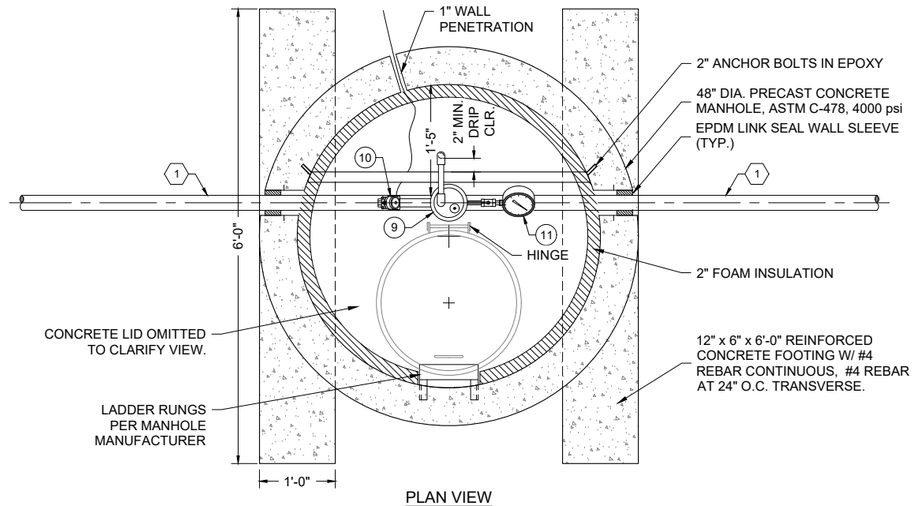
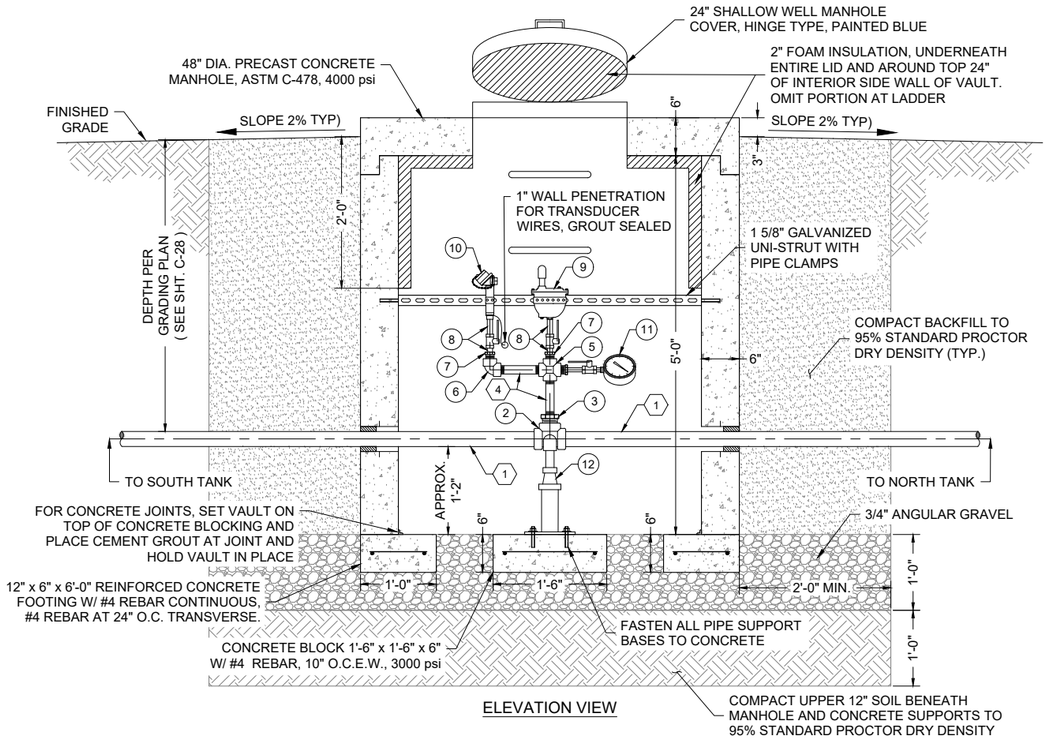
Date: February 1, 2019
Scale: Horiz: 1" = 100'
Vert: 1" = 10'
Project No: 6921307
Sheet: DT-14

KEYED NOTES - PRESSURE TRANSDUCER VAULT	
Item No.	Description
1	2" STEEL PIPE, NPT, SCHEDULE 40
2	2" TEE, SS 304, NPT, SCHEDULE 40
3	2" x 1" REDUCING BUSHING, SS 304, NPT, SCHEDULE 40
4	1" SS 304 PIPE, NPT, SCHEDULE 40
5	1" CROSS, SS 304, NPT, SCHEDULE 40
6	1" 90° ELL, SS 304, NPT, SCHEDULE 40
7	1" x 1/2" REDUCING BUSHING, SS 304, NPT, SCHEDULE 40
8	1/2" SS 304 PIPE, NPT, SCHEDULE 40
9	AIR RELEASE VALVE, 1/2" VALMATIC 15ASV, 175 psi W/ 1/2" SS 304 BALL VALVE, 1500 psi & 1/2" SCHEDULE 80 PVC RETURN (SECURED TO UNISTRUT SUPPORT)
10	VERTICAL MOUNT PRESSURE TRANSDUCER 0-30 psi, AMETEK 88C, W/ 1/2" SS 304 BALL VALVE, 2000 psi (SECURED TO UNISTRUT SUPPORT)
11	PRESSURE GAUGE 0-25 psi W/ 1/4" SS 304 BALL VALVE, 2000 psi, 1" x 1/4" SS 304 REDUCING BUSHING & 1/4" SS 304 PIPE, NPT
12	ADJUSTABLE PIPE SUPPORT W/ U-SHAPED CRADLE

NOTE:
1. ALL STAINLESS STEEL PIPE AND FITTINGS SHALL HAVE A WORKING PRESSURE OF AT LEAST 350 psi, UNLESS OTHERWISE NOTED.



PLAN VIEW



ELEVATION VIEW

0' 1' 2'

PRESSURE TRANSDUCER VAULT DETAIL

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Revision	Date	Description	By	Chk'd

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

TRANSDUCER VAULT DETAIL
NAVAJO GALLUP WATER SUPPLY PROJECT - REACH 26.3
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
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TORY T. TADANO
NEW MEXICO
21073
REGISTERED PROFESSIONAL ENGINEER
1/31/19

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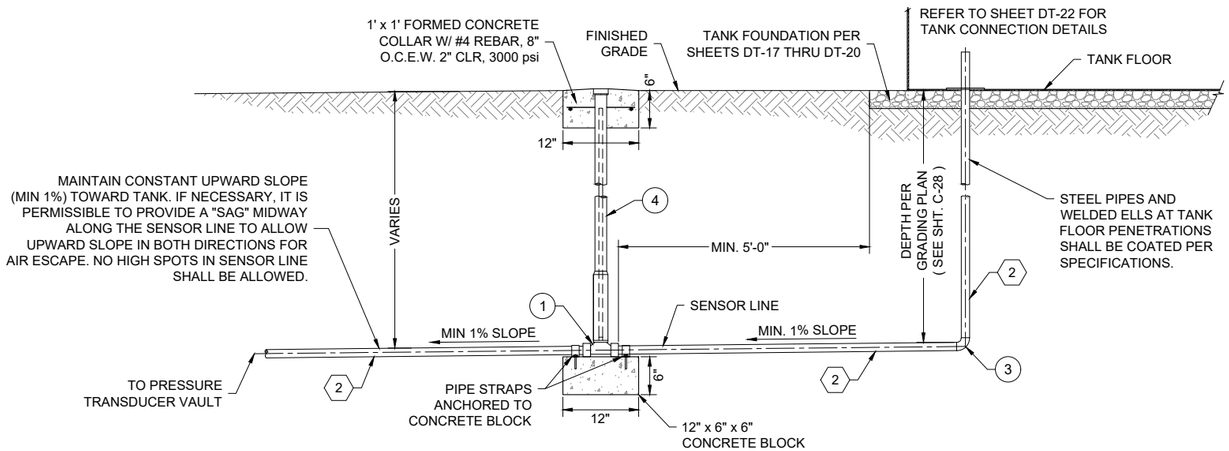
Date: January 18, 2019
Scale: Horiz: AS SHOWN
Vert: N/A
Project No: 6921307
Sheet: DT-15

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

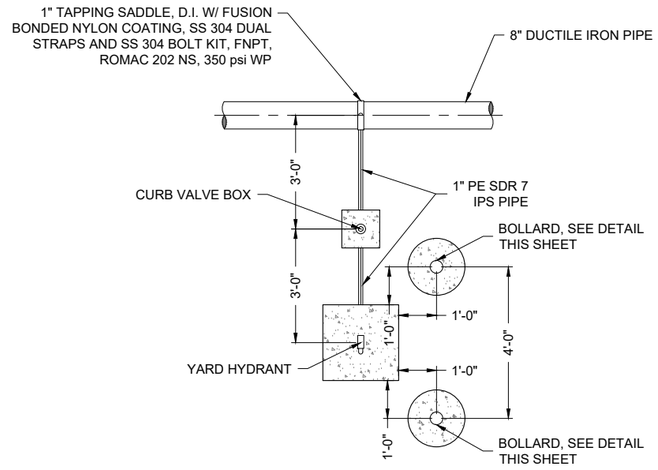
NOTES:

1. ALL MATERIALS, FITTINGS, AND APPURTENANCES SHALL BE RATED TO AT LEAST 150 psi, UNLESS OTHERWISE NOTED.
2. 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.
3. ALL STEEL PIPE AND FITTINGS SHALL BE STANDARD WALL, UNLESS OTHERWISE NOTED.



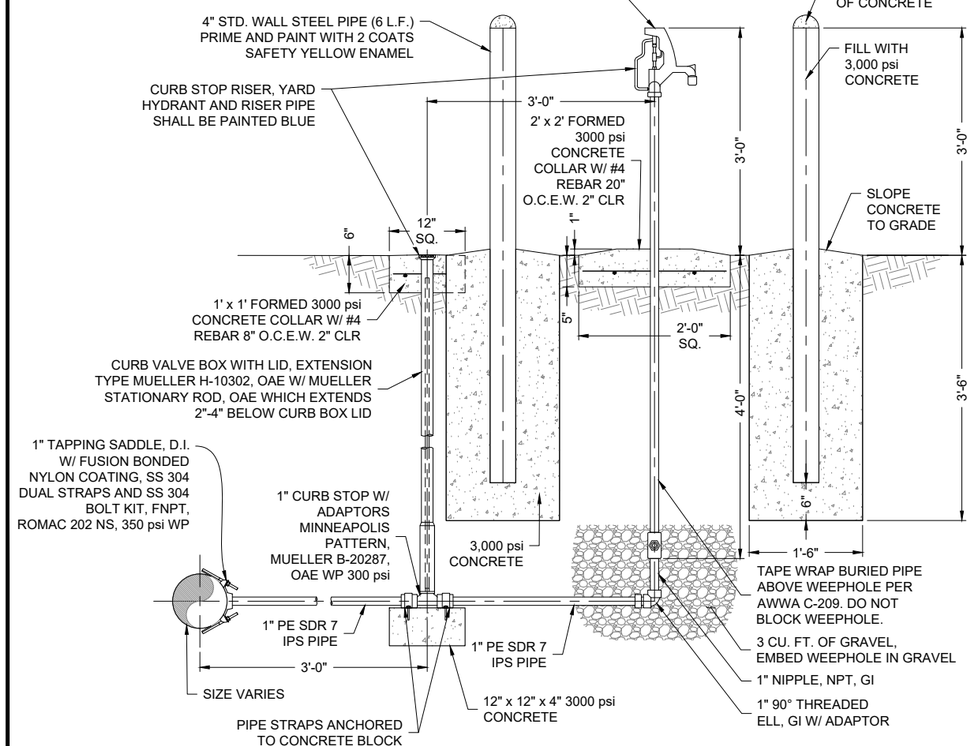
2" TYPICAL SENSOR LINE CONNECTION TO TANK

NOT TO SCALE



YARD HYDRANT AND ASSEMBLY PLAN VIEW DETAIL

NOT TO SCALE



YARD HYDRANT AND ASSEMBLY DETAIL

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CLIENT: The Navajo Nation

TOWN: Reach 26.3 To Torreon, NM

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

Designed	Drawn	Checked
TTT	AAV	AGR

TORY T. TADANO
NEW MEXICO
21073
LICENSED PROFESSIONAL ENGINEER
(3)/14

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Date: January 18, 2019

Scale: Horiz: AS SHOWN
Vert: N/A

Project No: 6921307

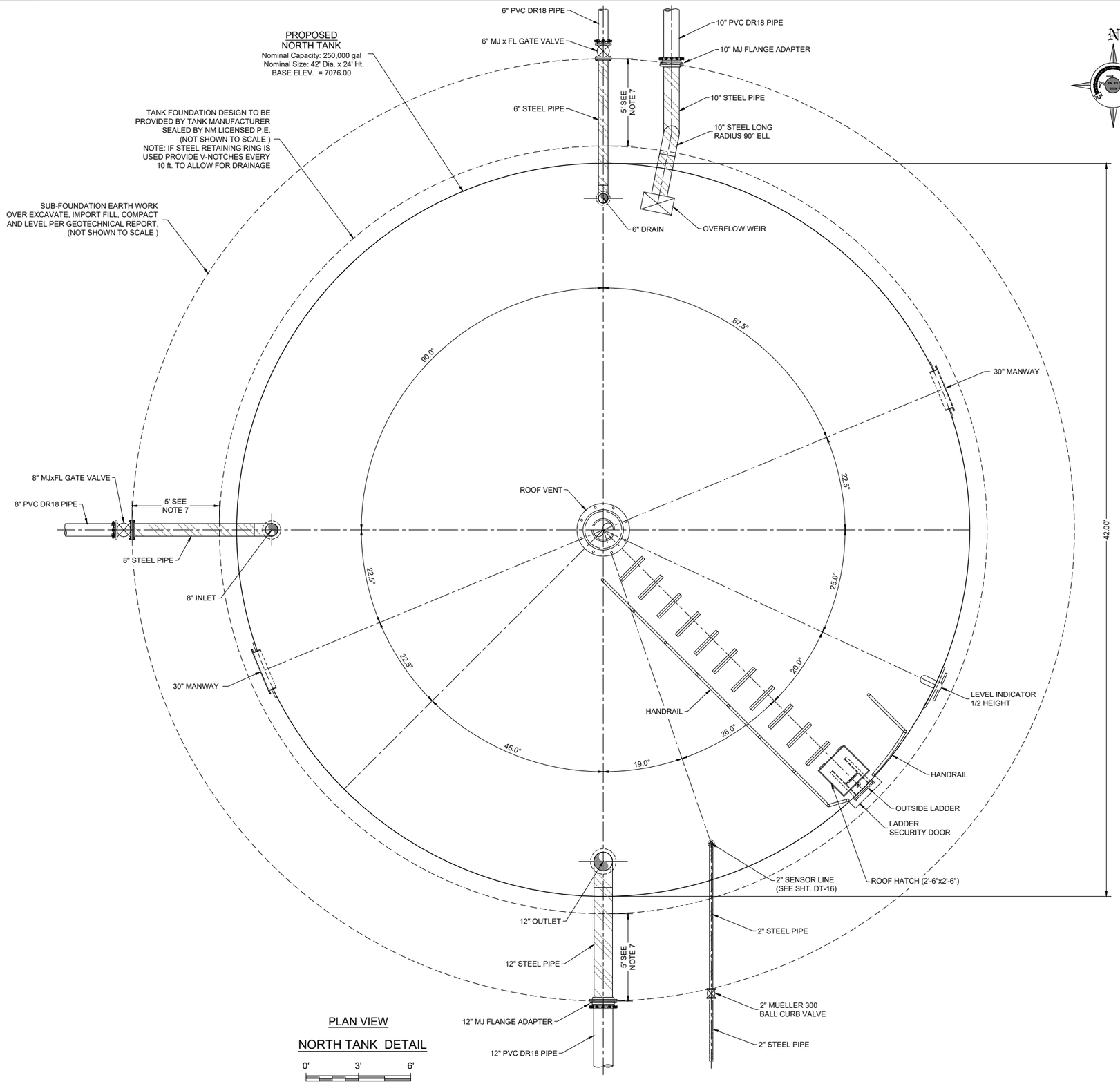
Sheet: DT-16

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.
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.



PLAN VIEW

NORTH TANK DETAIL

0' 3' 6'

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Revision	Date	Description	By	Chk'd

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1/25/2019 11:04:11 AM ajay

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

NORTH TANK DETAILS (1 of 2)

NAVAJO GALLUP WATER SUPPLY
PROJECT - REACH 26.3

SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
TTT	AAV	AGR

TORY T. TADANO — NEW MEXICO — 21073 — 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: January 25, 2019

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

Project No: 6921307

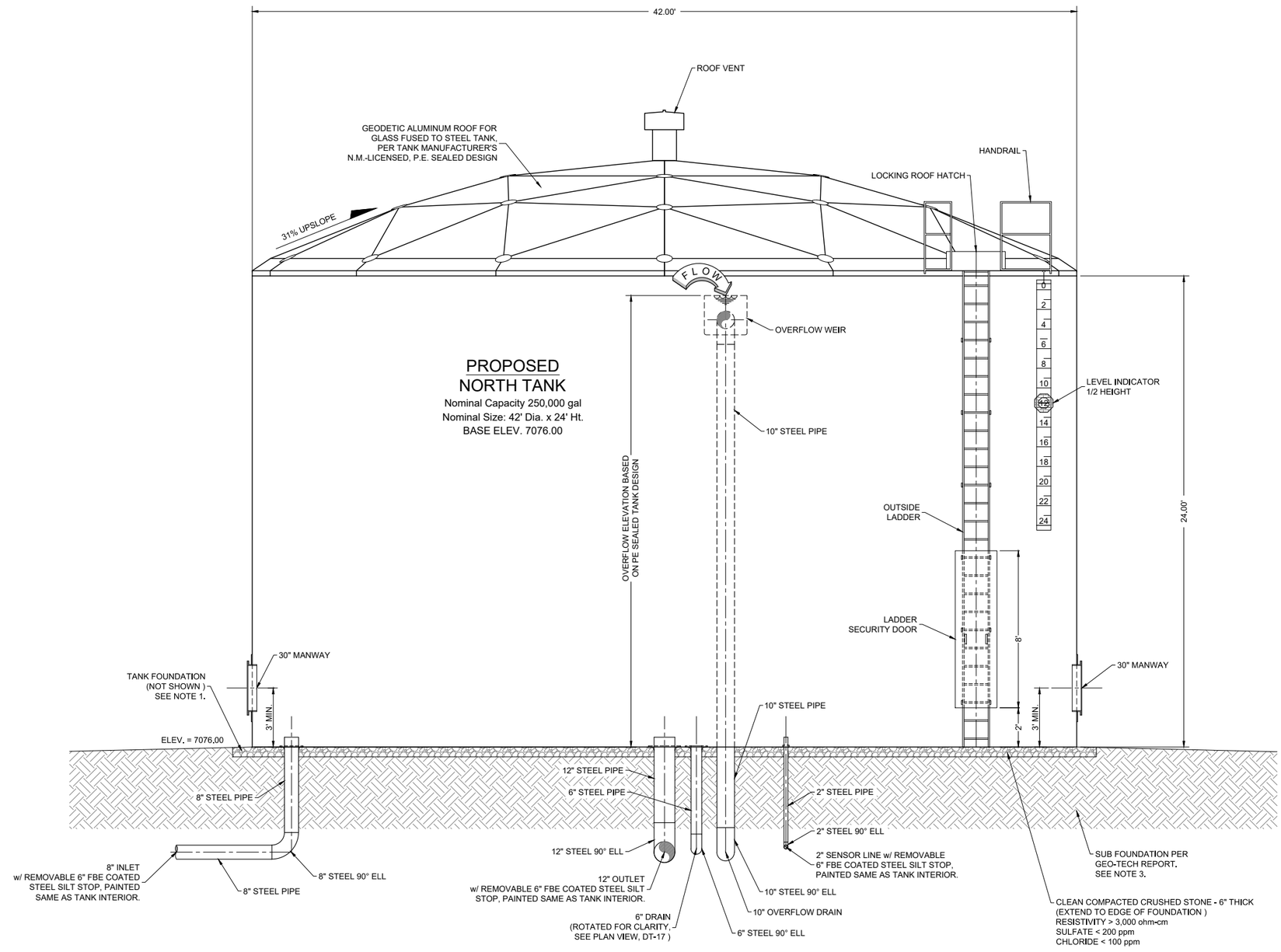
Sheet: DT-17

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.
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.



ELEVATION VIEW

NORTH TANK DETAIL

0' 3' 6'

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Revision	Date	Description	By	Chk'd

(Date: 26.3 Tank Details.dwg 1/25/2019 11:04:14 AM aav)

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ALBUQUERQUE, NM 87113
Phone (505) 299-0942 Toll-Free (877) 299-0942 Fax (505) 293-3430
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Cortez, Grand Junction, CO Safford, AZ Duluth, MN Dallas, TX

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. TADANO
NEW MEXICO
21073
REGISTERED PROFESSIONAL ENGINEER
1/31/19

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Date: January 25, 2019

Scale: Horiz: 1" = 6'
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Project No: 6921307

Sheet: DT-18

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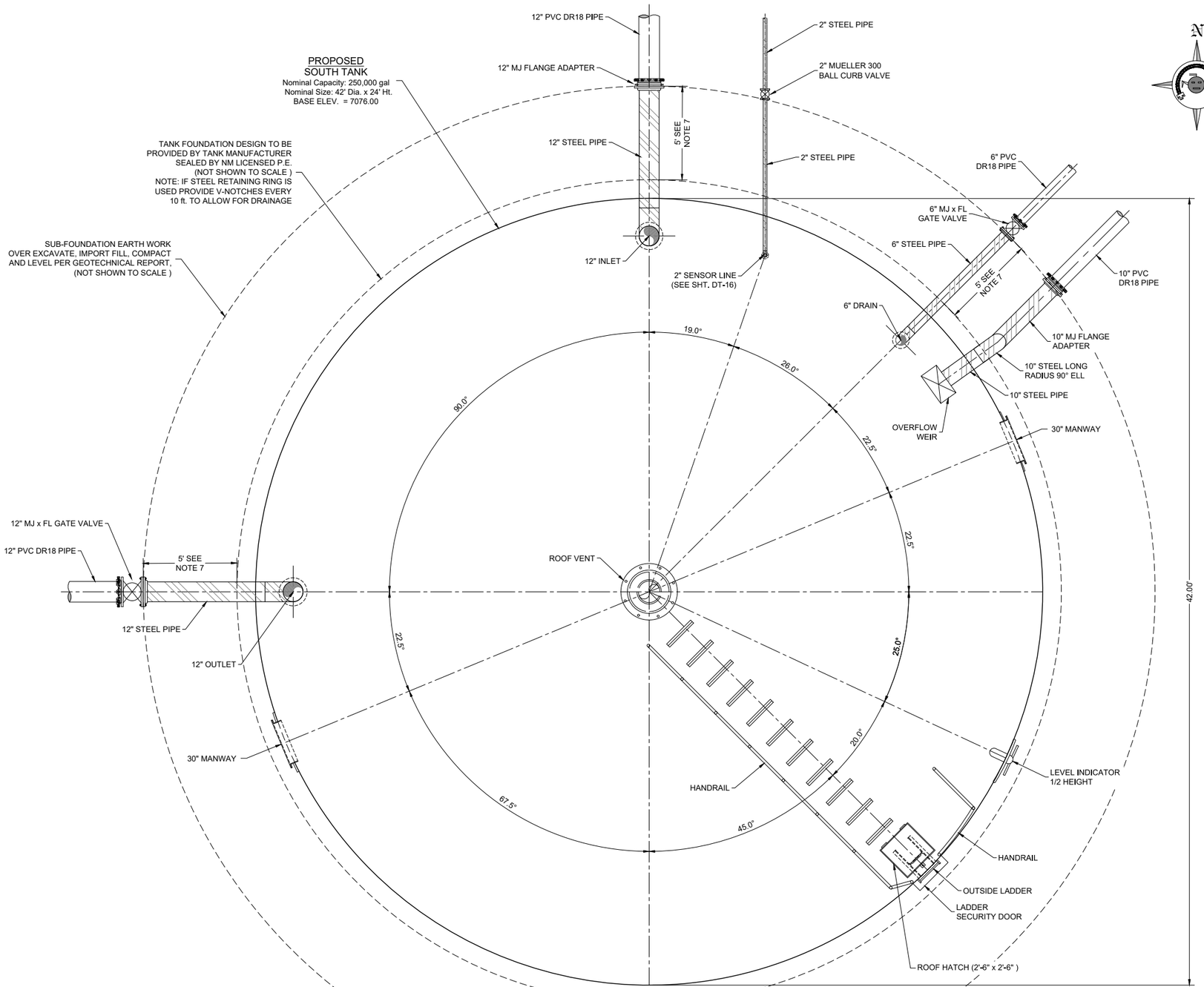

PLAN VIEW

SOUTH TANK DETAIL

0' 3' 6'

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Revision	Date	Description	By	Chk'd

(Date: 25.1 Tem Details.dwg 1/25/2019 11:04:19 AM .dwr)

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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

TORY T. TADANO — NEW MEXICO — 21073 — LICENSED PROFESSIONAL ENGINEER — 1/31/19

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Scale: Horiz: 1" = 6'
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Project No: 6921307

Sheet: DT-19

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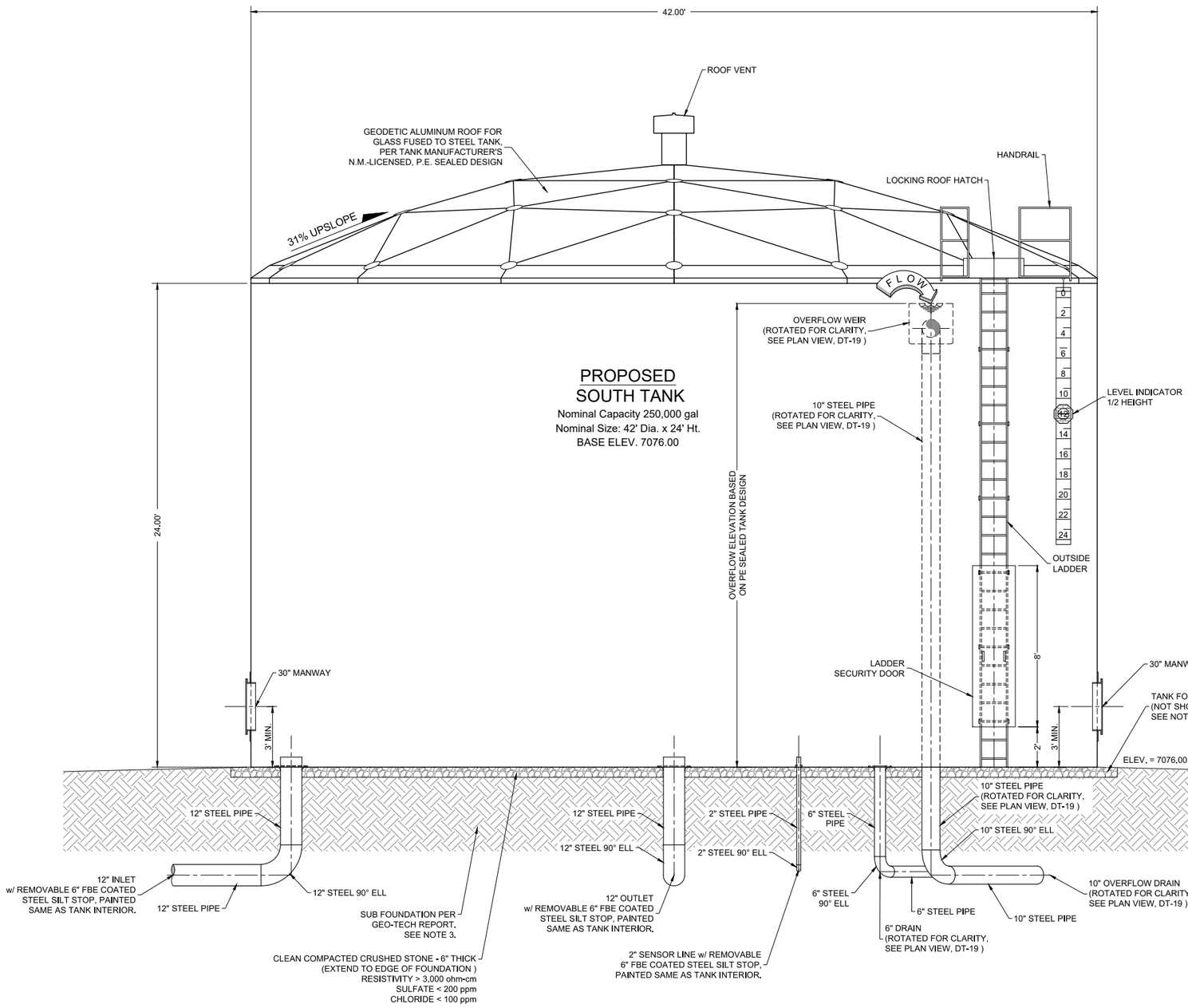

ELEVATION VIEW

SOUTH TANK DETAIL

0' 3' 6'

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Revision	Date	Description	By	Chk'd

C:\den 26.3 Tors Details.dwg 1/25/2019 11:04:24 AM aav

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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

TORY T. TADANO — NEW MEXICO — 21073 — LICENSED PROFESSIONAL ENGINEER — 1/31/19

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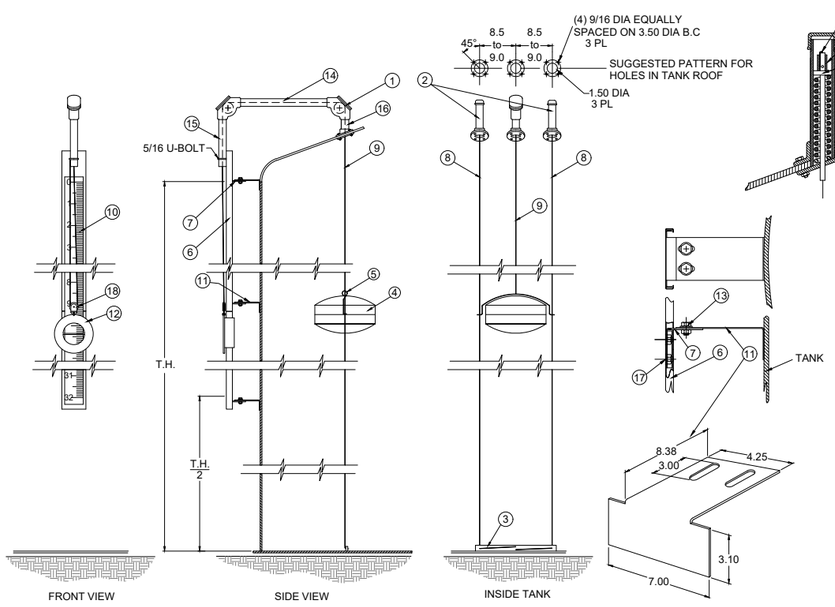
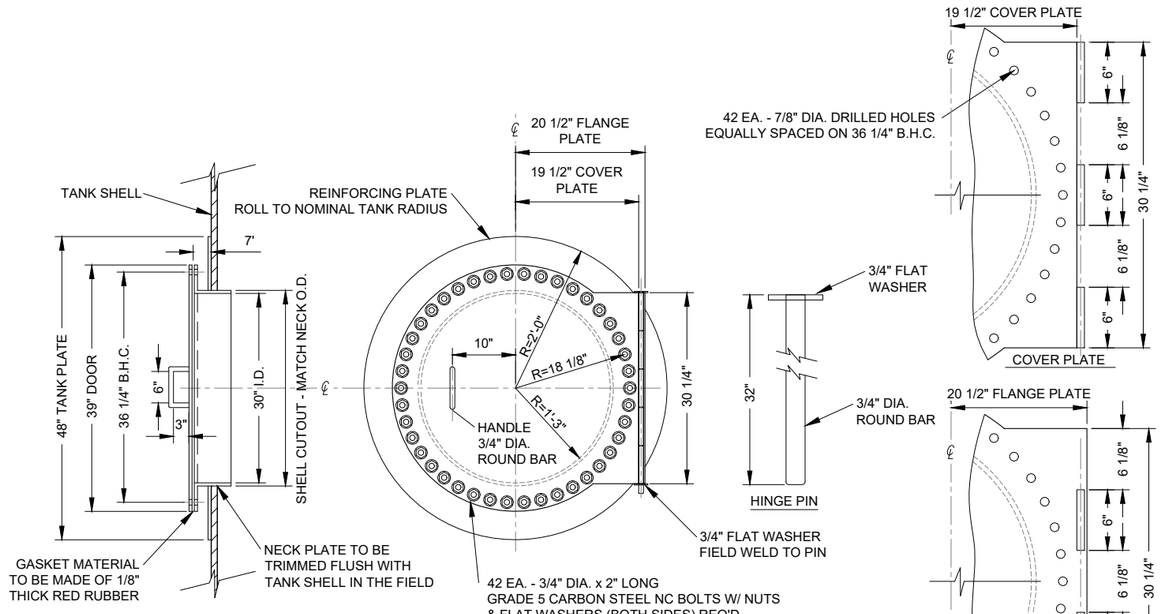
Project No: 6921307

Sheet: DT-20

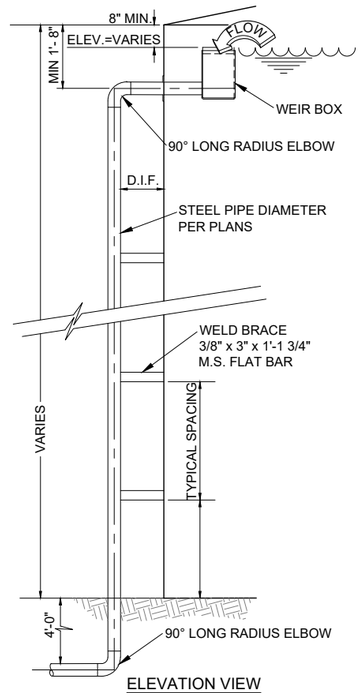


ITEM	NAME	MATERIAL
1	ELBOW, 90°	TEMPERATURE ULTEM PULLEY A356 ALUMINUM WITH HIGH
2	TOP ANCHOR TENSIONER	WITH STAINLESS STEEL SPRING HDG STEEL TENSIONER ASSEMBLY
3	BOTTOM ANCHOR	STAINLESS STEEL ANGLE
4	S/S FLOAT- 16#	WELD, FOAM FILLED .045H STAINLESS STEEL
5	CABLE FASTENERS	304 STAINLESS STEEL CRIMP & THIMBLE
6	GAUGE BOARD	16 GA HDG "C" CHANNEL
7	STD. TP BRACKETS	STAINLESS STEEL
8	FLOAT GUIDE WIRE	1/8" - 304 STAINLESS STEEL
9	FLOAT CABLE	3/32" - 304 STAINLESS STEEL
10	GAGE TAPE	ADHESIVE BACKED VINYL
11	BRACKET	STAINLESS STEEL
12	ROUND TARGET-9.5#	RED, POWDER COATED, DUCT. IRON
13	BOLT & NUT SETS	304 STAINLESS STEEL
14	PIPE (INCLUDED IN KIT)	1-1/2" x 16 HDG PIPE
15	PIPE (INCLUDED IN KIT)	1-1/2" x 14 HDG PIPE W/ PLUG
16	PIPE (INCLUDED IN KIT)	1-1/2" x 4 HDG PIPE
17	TRUSS HEAD S/S BOLTS, NYLOC NUTS & WASHERS	
18	1/2 TRAVEL PULLEY	STAINLESS STEEL

TYPICAL HALF HEIGHT LIQUID INDICATOR DETAILS
NOT TO SCALE



TYPICAL 30" MANWAY DETAIL
NOT TO SCALE

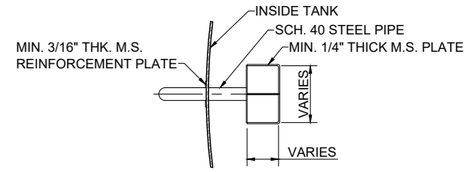


ELEVATION VIEW

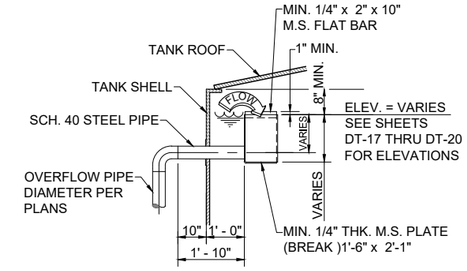
TYPICAL TANK OVERFLOW DETAIL
NOT TO SCALE

SEE TANK PLAN AND ELEVATION SHEETS DT-17 THRU DT-20, FOR PIPE SIZE, HEIGHT AND ELEVATION.

NOTE:
1. DIMENSIONS INDICATING SEPARATION BETWEEN WEIR FROM ROOF ARE MINIMUMS ONLY. ACTUAL DIMENSIONS MAY BE GREATER TO ACCOMMODATE SLOSH WAVE, AS CALCULATED BY TANK MANUFACTURER.
2. SHOP PAINT ALL RAFTER'S, SEE PAINT SCHEDULE FOR INTERIOR PRIME AND FINISH COATINGS.
3. TANK MANUFACTURER SHALL PROVIDE DESIGN CALCULATIONS AND FABRICATION DRAWINGS SEALED BY A NEW MEXICO LICENSED PROFESSIONAL ENGINEER.



PLAN VIEW



ELEVATION VIEW

TYPICAL OVERFLOW WEIR DETAIL
NOT TO SCALE

NOTE:
DIMENSIONS OF WEIR AND APPURTENANCES PROVIDED ARE MINIMUMS. ACTUAL DIMENSIONS MAY BE LARGER TO PROVIDE FOR DESIGN FLOW RATES SPECIFIED IN THE TECHNICAL SPECIFICATIONS. ACTUAL WEIR DIMENSIONS SHALL BE PROVIDED AS PART OF THE TANK MANUFACTURER'S PROFESSIONAL ENGINEER SEALED DESIGN.

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

TYPICAL WATER STORAGE 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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Sheet: DT-21

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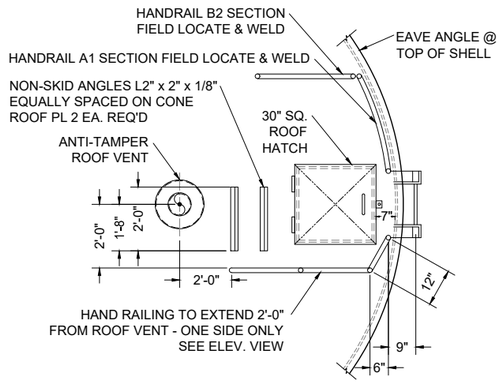

PLAN VIEW
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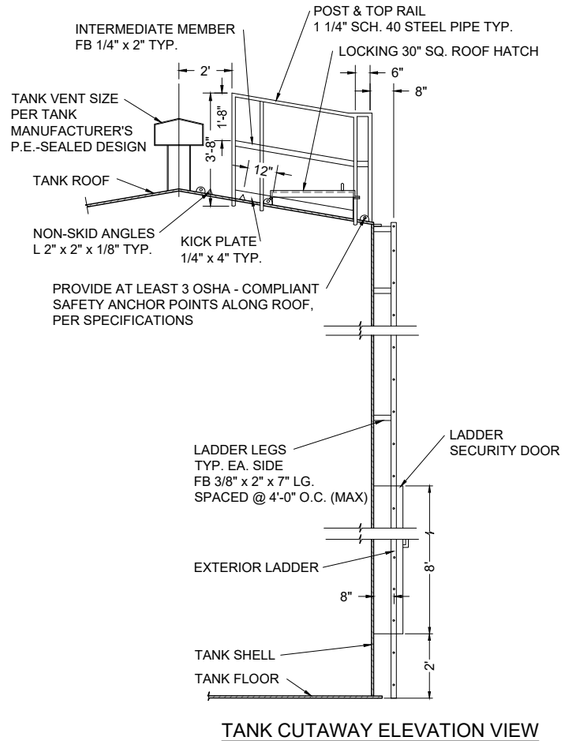
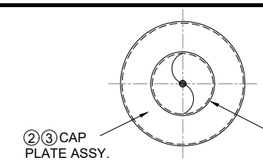


TANK CUTAWAY ELEVATION VIEW



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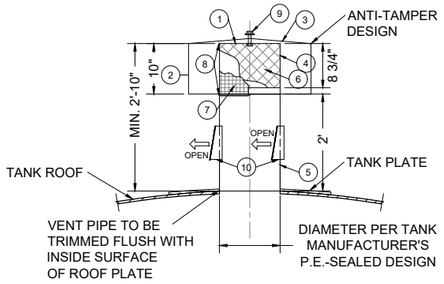
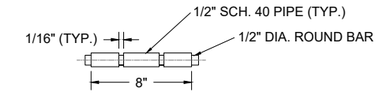
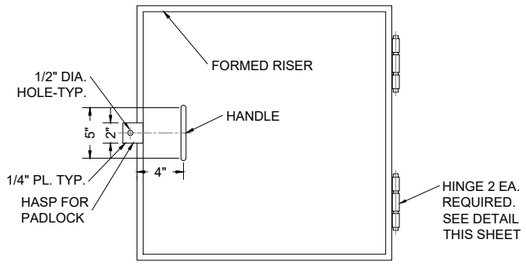


VERTICAL C/L OF TANK AND VENT WITH FROST PROOF DOORS
NOT TO SCALE



HINGE DETAIL - 2 EA. REQ'D



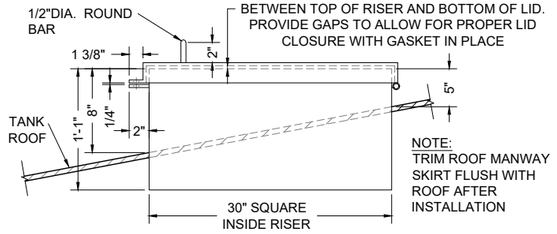
PLAN VIEW

30" SQUARE ROOF HATCH DETAIL
NOT TO SCALE

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 9/16"
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

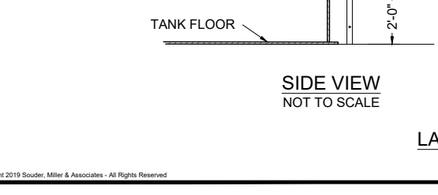
VERTICAL ROOF VENT DETAIL
NOT TO SCALE

NOTE:
INSTALL CHANNEL GASKET TO PROVIDE SEAL BETWEEN TOP OF RISER AND BOTTOM OF LID. PROVIDE GAPS TO ALLOW FOR PROPER LID CLOSURE WITH GASKET IN PLACE

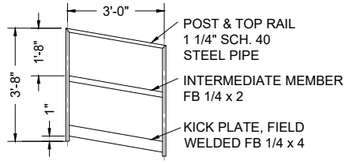


ELEVATION VIEW

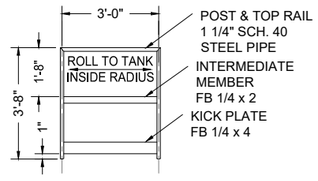
30" SQUARE ROOF HATCH DETAIL
NOT TO SCALE



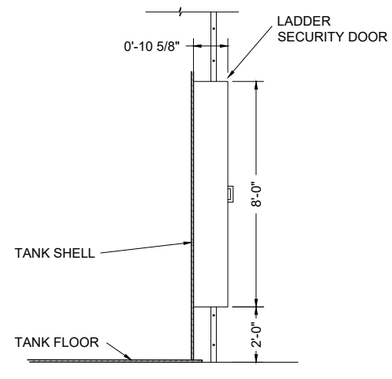
LADDER DETAILS
NOT TO SCALE



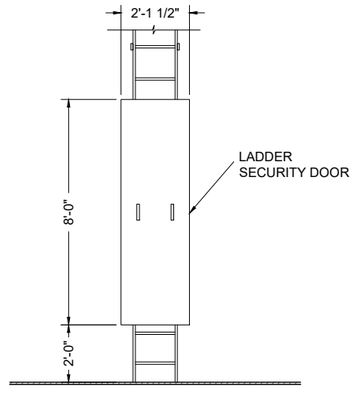
HANDRAIL B2 DETAIL
NOT TO SCALE



HANDRAIL A1 DETAIL - ONE REQ'D
NOT TO SCALE

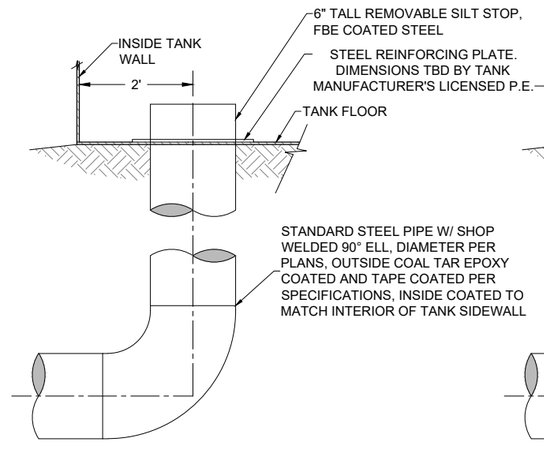


SIDE VIEW
NOT TO SCALE



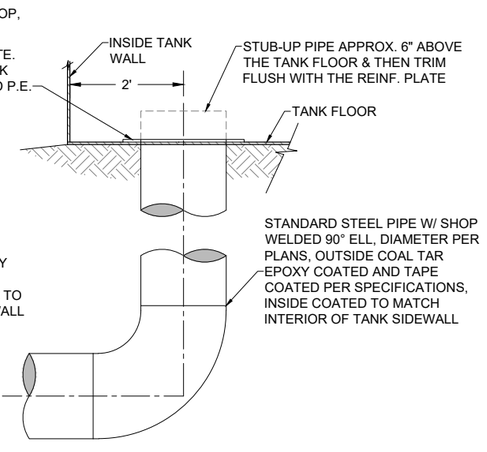
FRONT VIEW
NOT TO SCALE

LADDER SECURITY DOOR DETAILS
NOT TO SCALE



ELEVATION VIEW

2", 8", 10" OR 12" INLET / OUTLET AND SENSOR LINE DETAIL
NOT TO SCALE



ELEVATION VIEW

6" TANK FLOOR DRAIN DETAIL
NOT TO SCALE

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Revision	Date	Description	By	Chk'd

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5454 VENICE AVENUE NE, SUITE D
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Cortez, Grand Junction, CO Safford, AZ Odessa, TX Frisco, TX

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

TYPICAL WATER STORAGE 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. TADANO
NEW MEXICO
21073
LICENSED PROFESSIONAL ENGINEER
1/31/19

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: January 25, 2019
Scale: Horiz: NONE
Vert: N/A
Project No: 6921307
Sheet: DT-22

Color 28.1 Tan Details.dwg
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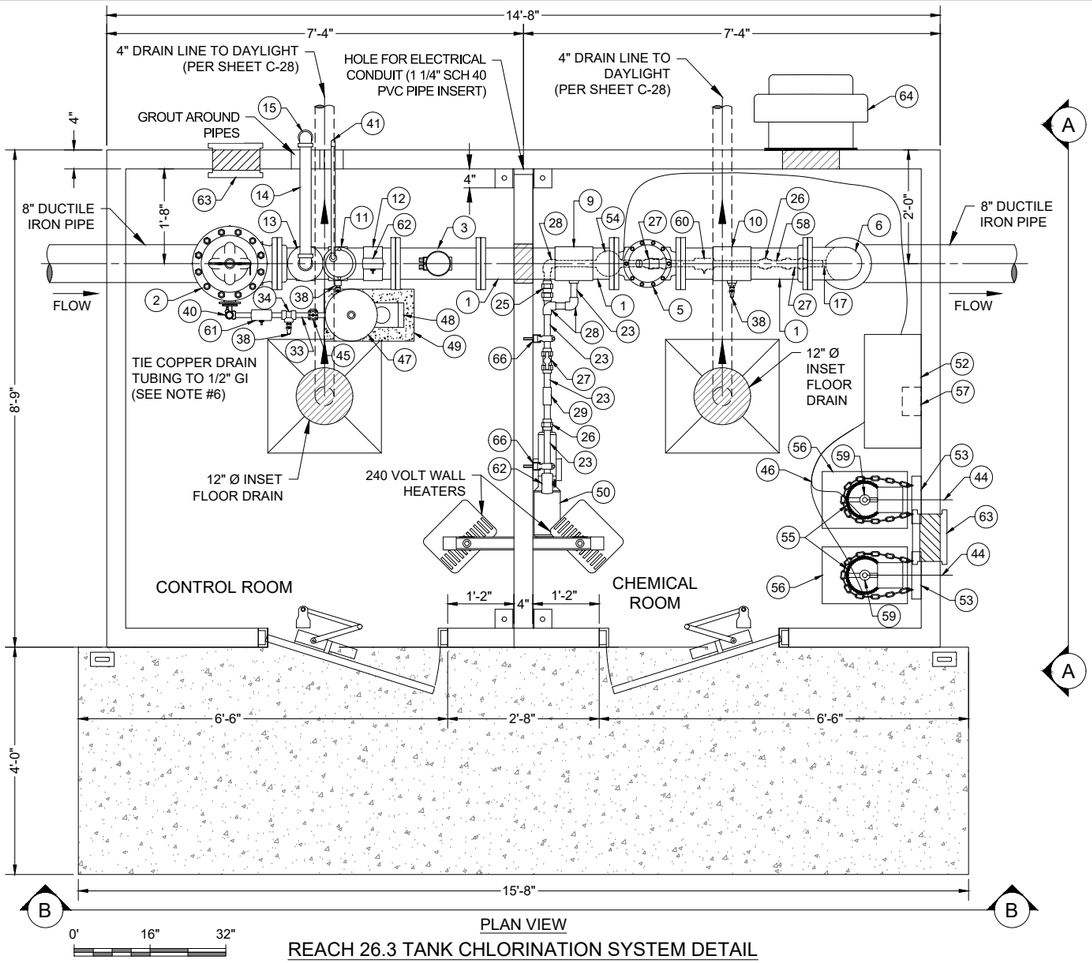
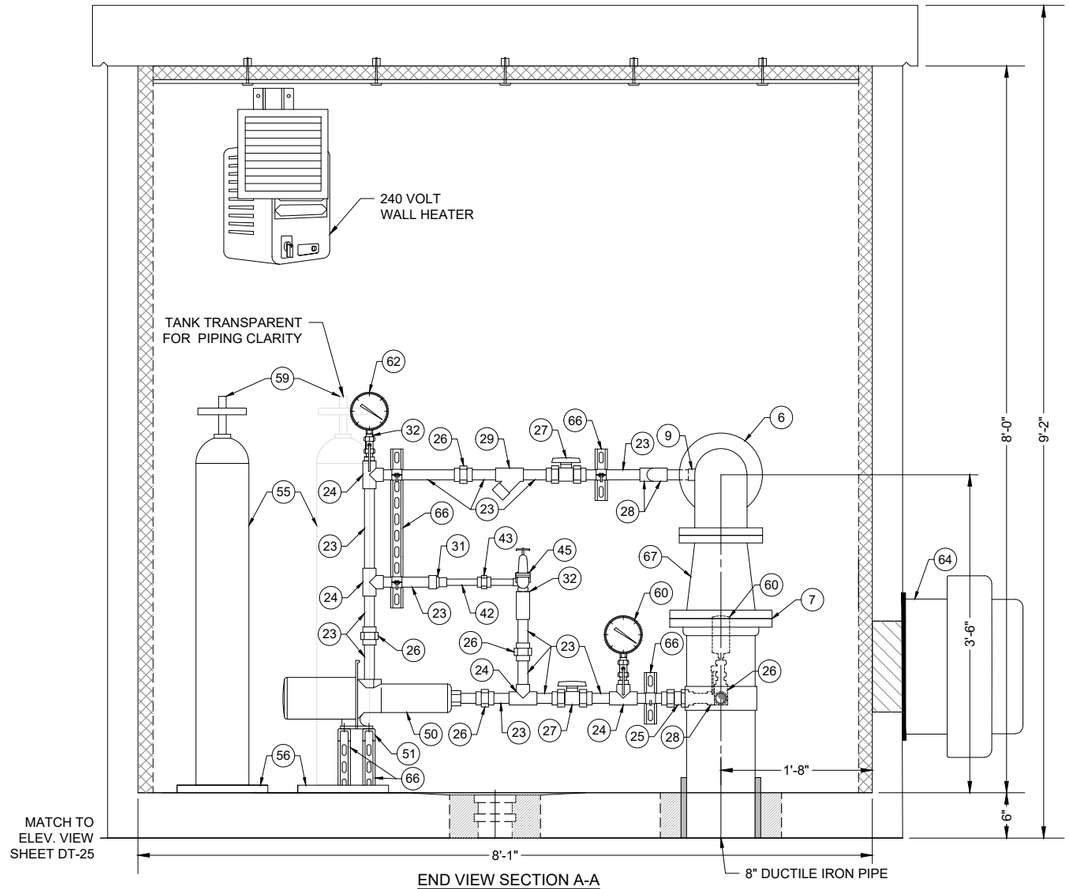


PLAN VIEW

REACH 26.3 TANK CHLORINATION SYSTEM DETAIL



END VIEW SECTION A-A

REACH 26.3 TANK CHEMICAL ROOM CHLORINATION SYSTEM DETAIL

0' 10" 20"

1	6" DUCTILE IRON PIPE
2	6" FLANGED FULL-PORT ELECTRONIC FLOW CONTROL VALVE, CLA-VAL 131A-57 FHBYCSKCKOP-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/TAIL 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 GUAGE, 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.

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Revision	Date	Description	By	Chk'd

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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	Drawn	Checked
TTT	AAV	AGR

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

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 1, 2019
Scale: Horiz: AS SHOWN
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Project No: 6921307
Sheet: DT-23

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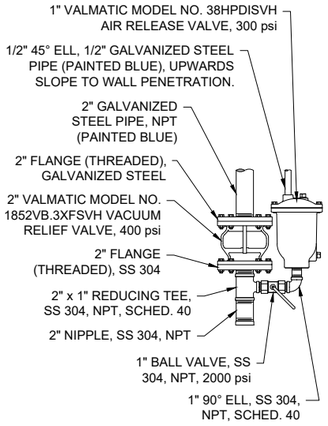
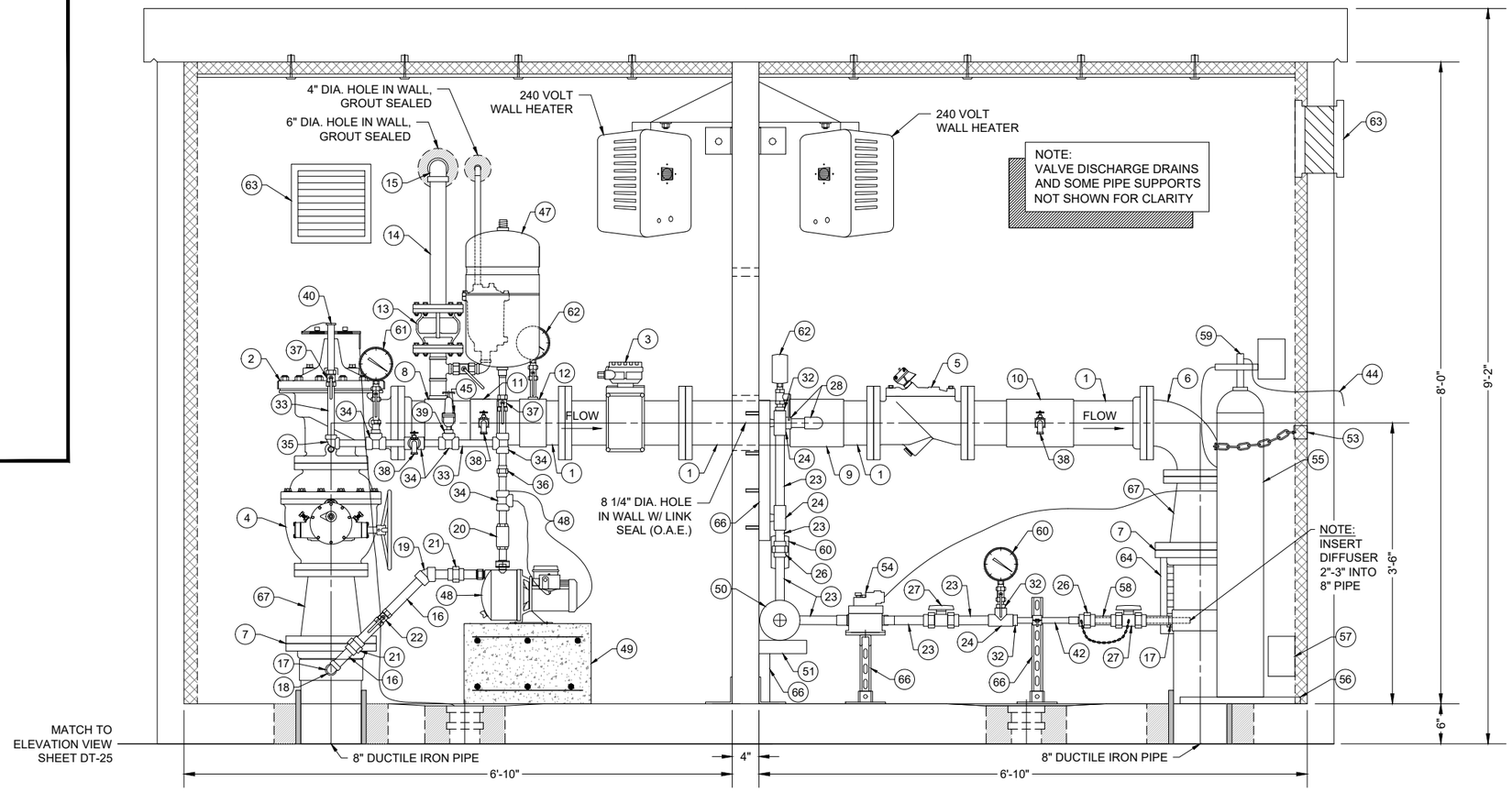


DETAIL "A"
2" VACUUM BREAKER
W/ 1" ARV ASSEMBLY



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 FHBYCSKCKOP-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/TAIL 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 GUAGE, 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.

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Revision	Date	Description	By	Chk'd

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2/12/2019 11:04:55 AM aar

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

CHLORINATION SYSTEM
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. TADANO
NEW MEXICO
21073
LICENSED PROFESSIONAL ENGINEER
1/31/19

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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.

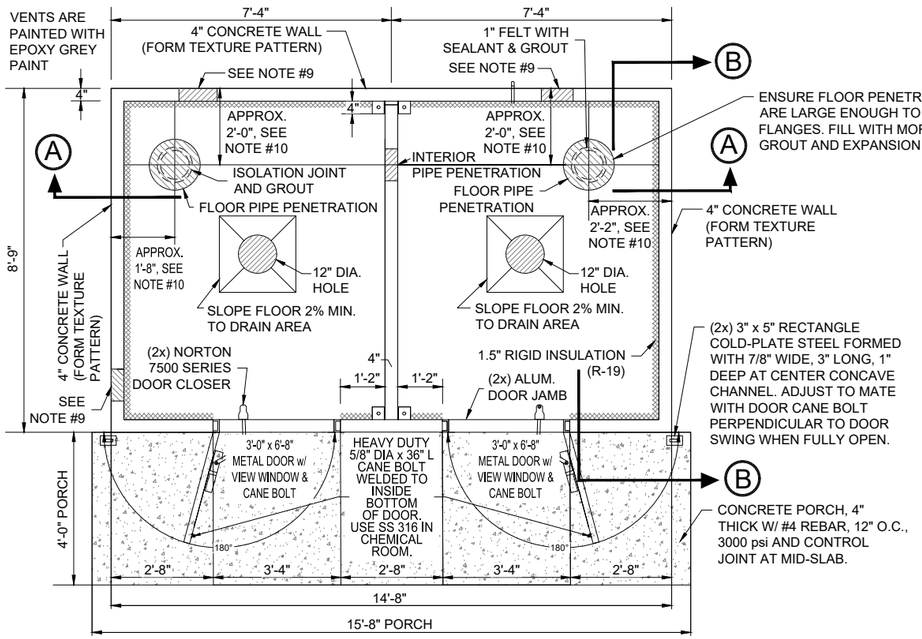
811 Know what's below. Call before you dig.

Date: February 1, 2019

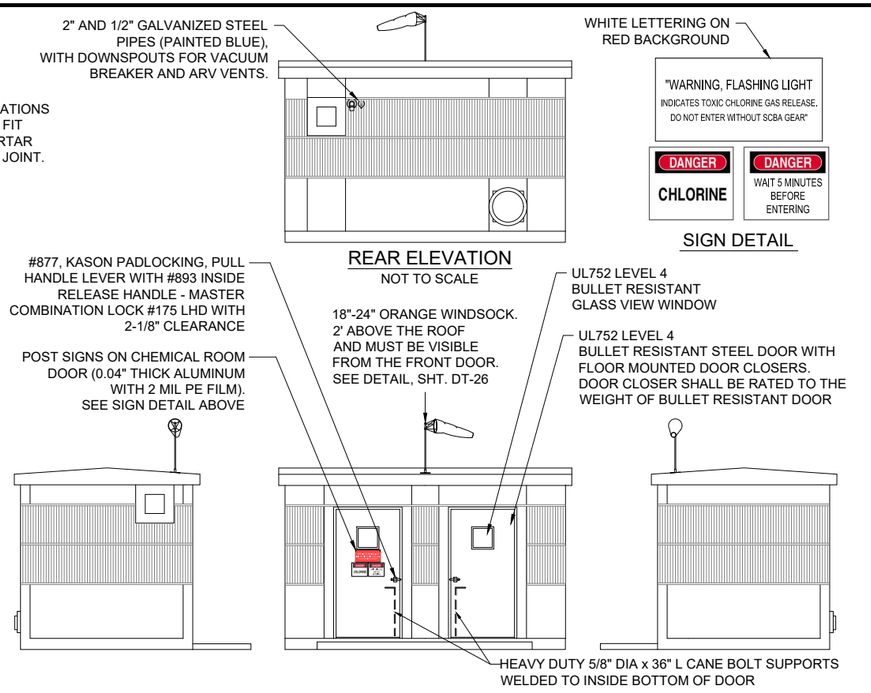
Scale: Horiz: AS SHOWN
Vert: N/A

Project No: 6921307

Sheet: DT-24



PLAN VIEW OF BUILDING
NOT TO SCALE



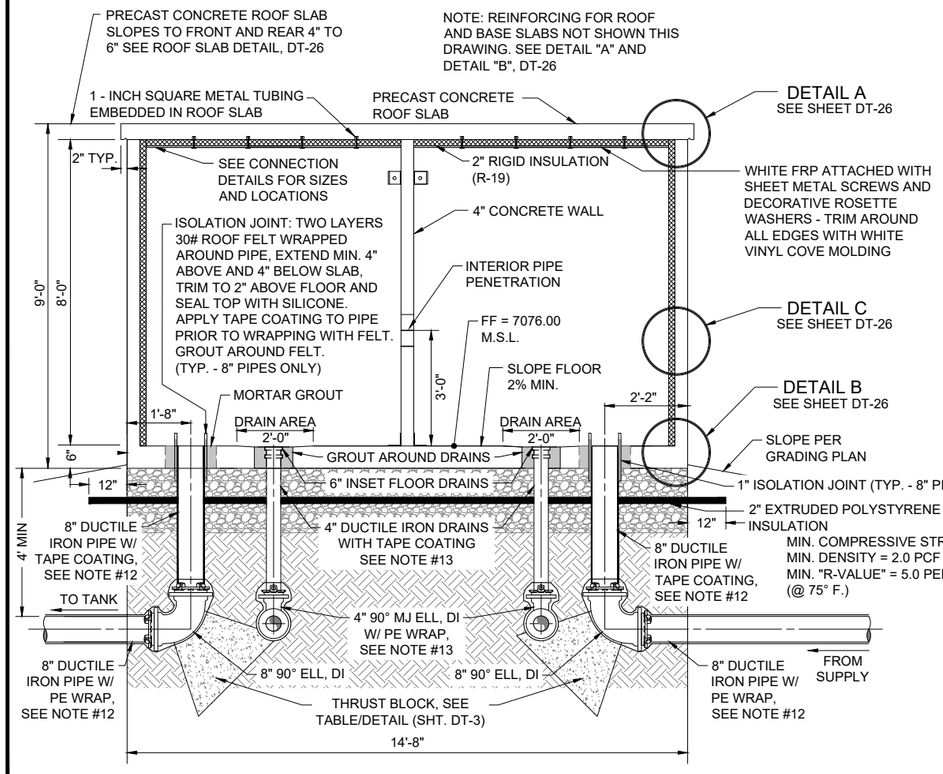
REAR ELEVATION
NOT TO SCALE

SIGN DETAIL

LEFT SIDE ELEVATION
NOT TO SCALE

FRONT ELEVATION
NOT TO SCALE

RIGHT SIDE ELEVATION
NOT TO SCALE



ELEVATION VIEW OF BUILDING AND UNDERGROUND PIPING
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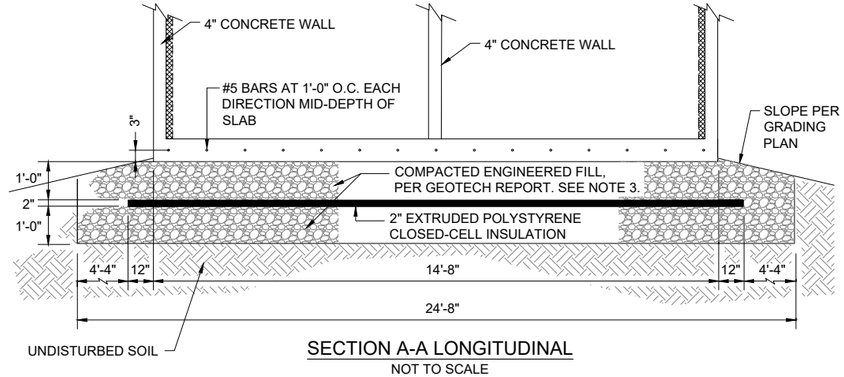

SECTION A-A LONGITUDINAL
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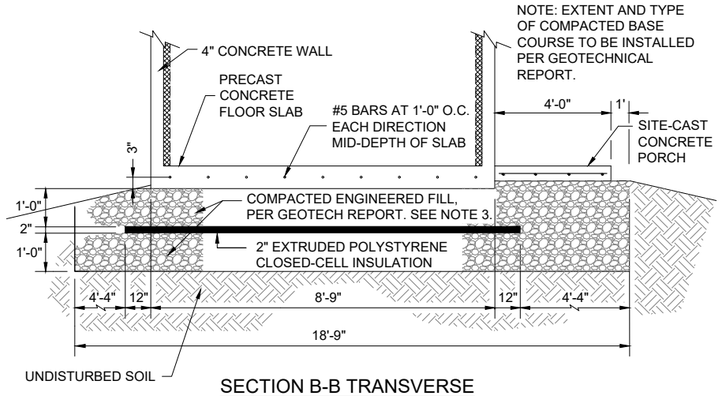

SECTION B-B TRANSVERSE
NOT TO SCALE

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NOTES

1. THE GOVERNING CODE IS THE INTERNATIONAL BUILDING CODE, MOST RECENT EDITION.
2. 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
3. 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.
4. 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.
5. 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.
6. 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.
7. 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.
8. FIELD WELDING SHALL BE PERFORMED USING E70XX ELECTRODES AND SHALL CONFORM TO STANDARDS OF THE AMERICAN WELDING SOCIETY FOR WELDING IN BUILDING CONSTRUCTION.
9. ALL DOOR FRAMES, FAN AND VENT ASSEMBLIES AND SLAB PENETRATION SHALL BE CAST INTO THEIR RESPECTIVE SLABS.
10. 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.
11. ALL BURIED PIPE WITHIN 5 FEET OF BUILDING SHALL BE DUCTILE IRON, 350 psi, SOLID PIPE PIECES ONLY. NO DUCTILE IRON PIPE JOINTS ALLOWED.
12. 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.).
13. 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.).
14. CONTRACTOR RESPONSIBLE FOR LOCATING AND DETERMINING ELECTRICAL CONDUIT PENETRATIONS.

Revision	Date	Description	By	Chk'd

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

PRECAST 2-ROOM CHLORINATION BUILDING AND PIPING
NAVAJO GALLUP WATER SUPPLY PROJECT - REACH 26.3
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
TTT	AAV	AGR

GRETA Y. QUINTANA
NEW MEXICO
13561
PROFESSIONAL ENGINEER
2/4/19

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

Date: February 4, 2019
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Project No: 6921307
Sheet: DT-25

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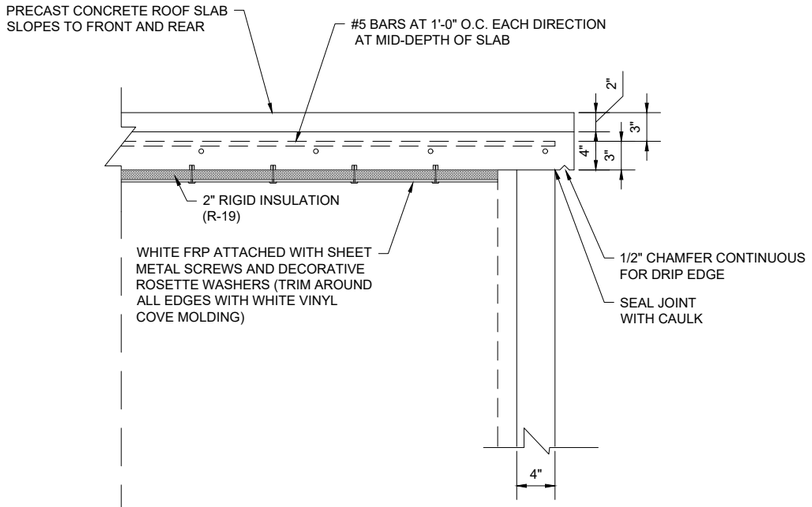

ROOF CONNECTION DETAIL A
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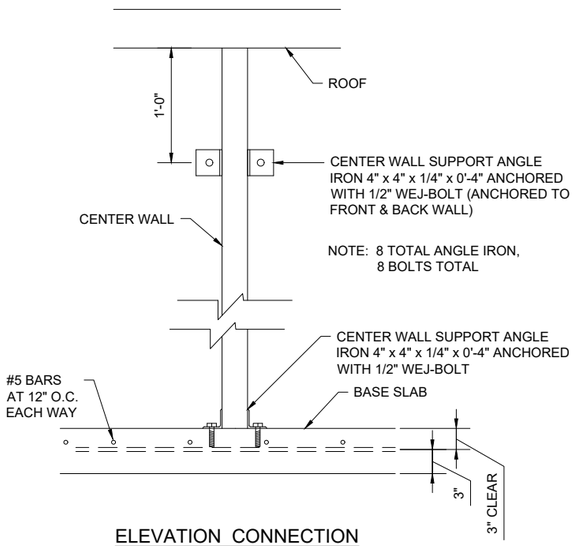
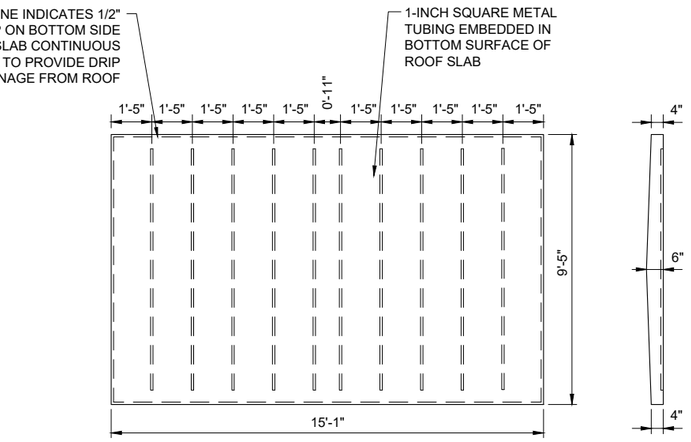


ELEVATION CONNECTION ANGLE IRON AT CENTER WALL
NOT TO SCALE



ROOF SLAB
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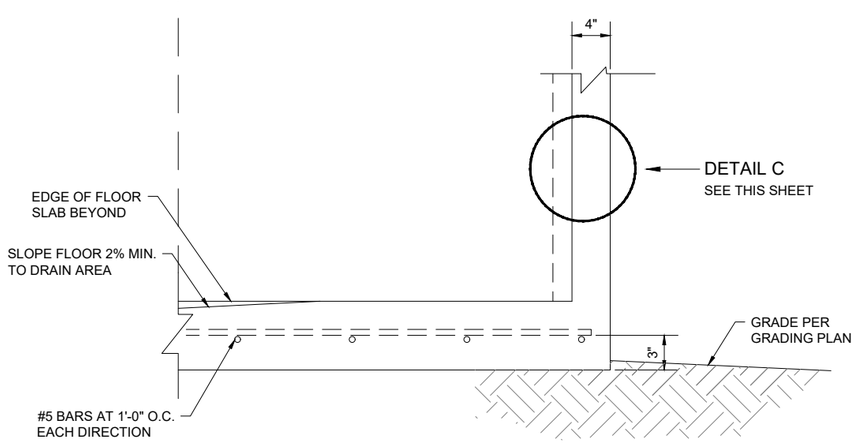
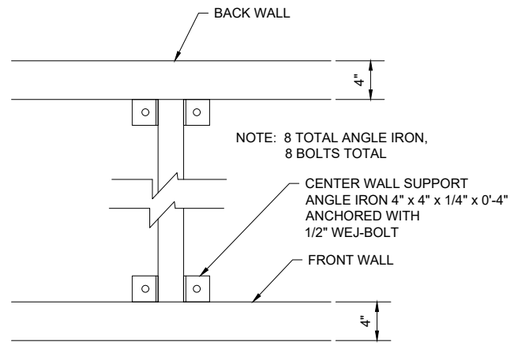


NOTE: REBAR AT LIFT JOINTS ARE #6 REBAR, 12" SEPARATION, CENTERED ON LIFT POINTS. REBARS ARE CENTERED THE ENTIRE LENGTH AND WIDTH OF SLAB (BOTH DIRECTIONS OF EACH LIFT POINT)

FLOOR CONNECTION DETAIL B
NOT TO SCALE



PLAN CONNECTION ANGLE IRON AT CENTER WALL
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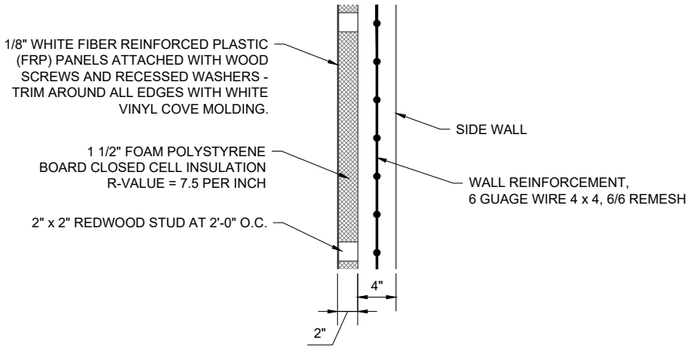

WALL SECTION DETAIL C
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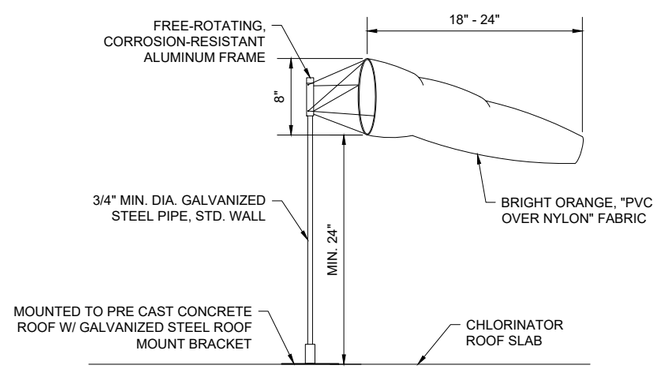

WIND SOCK DETAIL
NOT TO SCALE

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

PRECAST 2-ROOM CHLORINATION
BUILDING DETAILS
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACH 26.3
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
TTT	AAV	AGR

GRETA Y. QUINTANA
NEW MEXICO
13561
PROFESSIONAL ENGINEER
2.5.19

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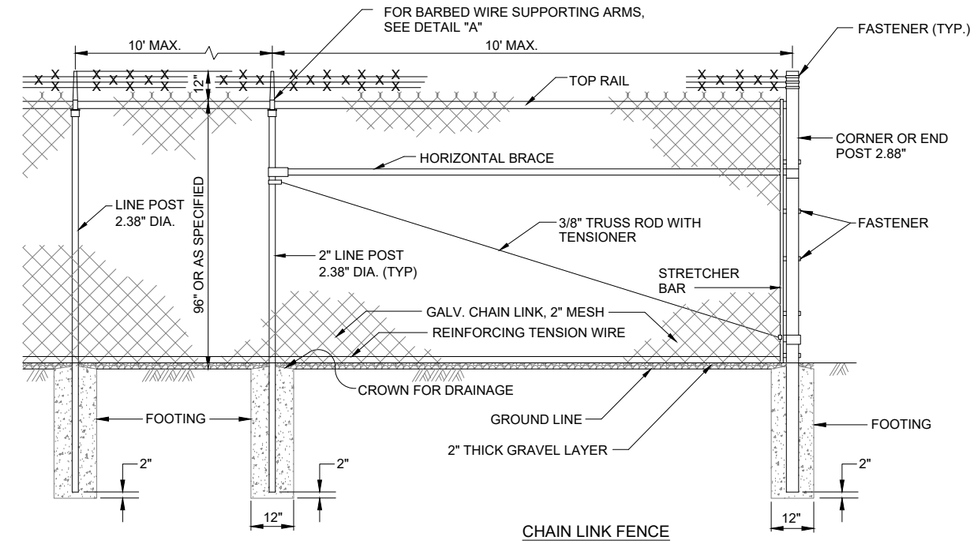
811 Know what's below. Call before you dig.

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

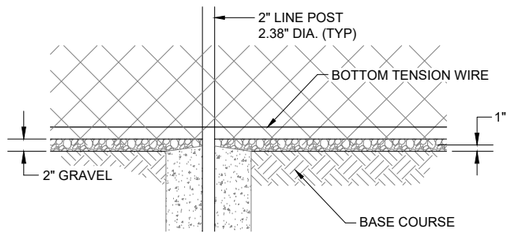


CHAIN LINK FENCE

NOT TO SCALE

NOTES:

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



BASE COURSE AND GRAVEL DETAIL

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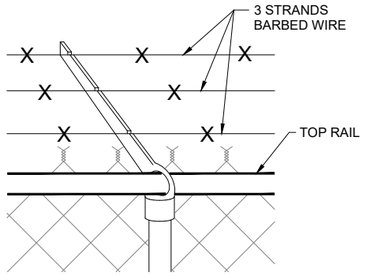

DETAIL "A" SUPPORTING ARM & BARBED WIRE

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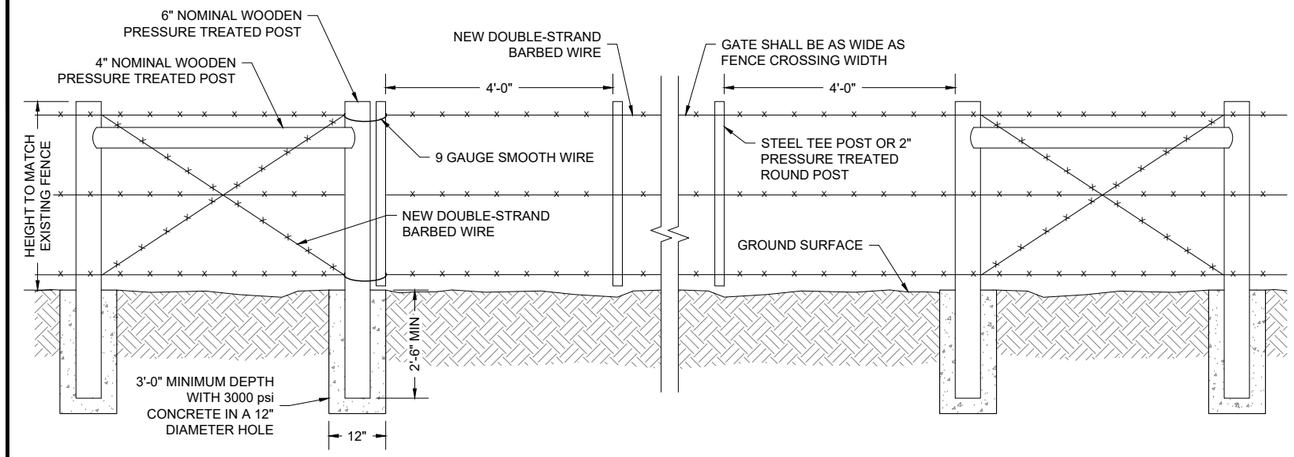
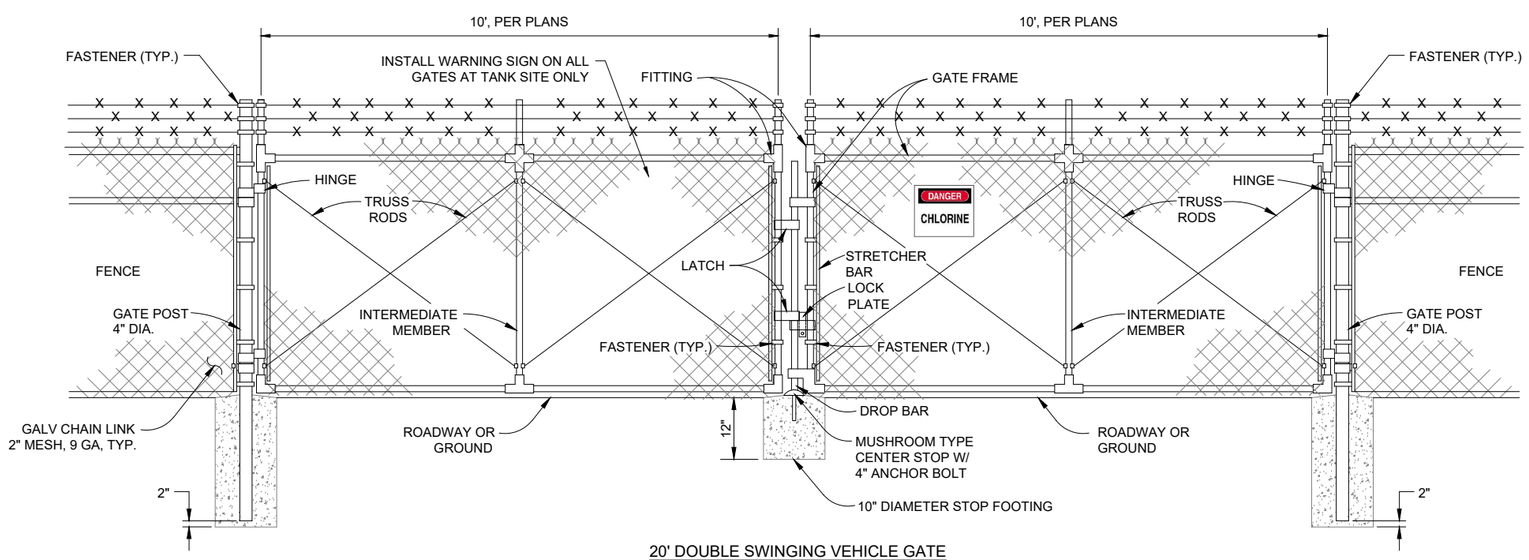


"RANCHER STYLE" GATE WITH H-BRACE

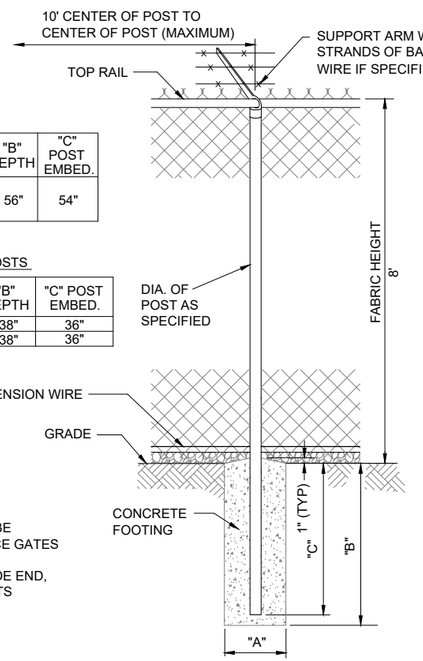
PULL ASSEMBLY AT FENCE CROSSING

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

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CLIENT: The Navajo Nation

TOWN: Reach 26.3 To Torreon, NM

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

Designed	Drawn	Checked
TTT	AAV	AGR

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

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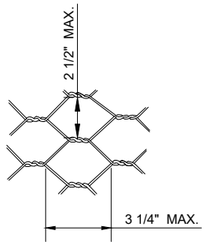
Date: January 15, 2019

Scale: Horiz: NONE
Vert: N/A

Project No: 6921307

Sheet: DT-27



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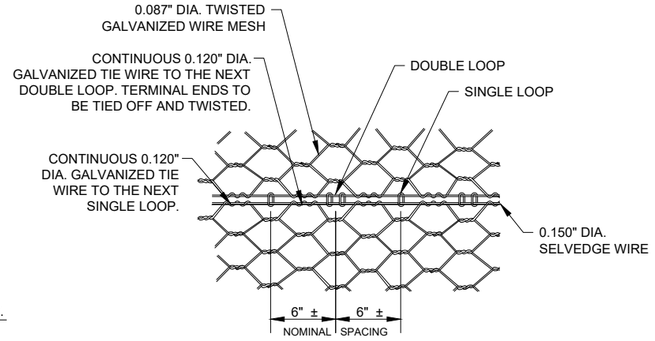

STANDARD JOINT CONNECTION DETAIL
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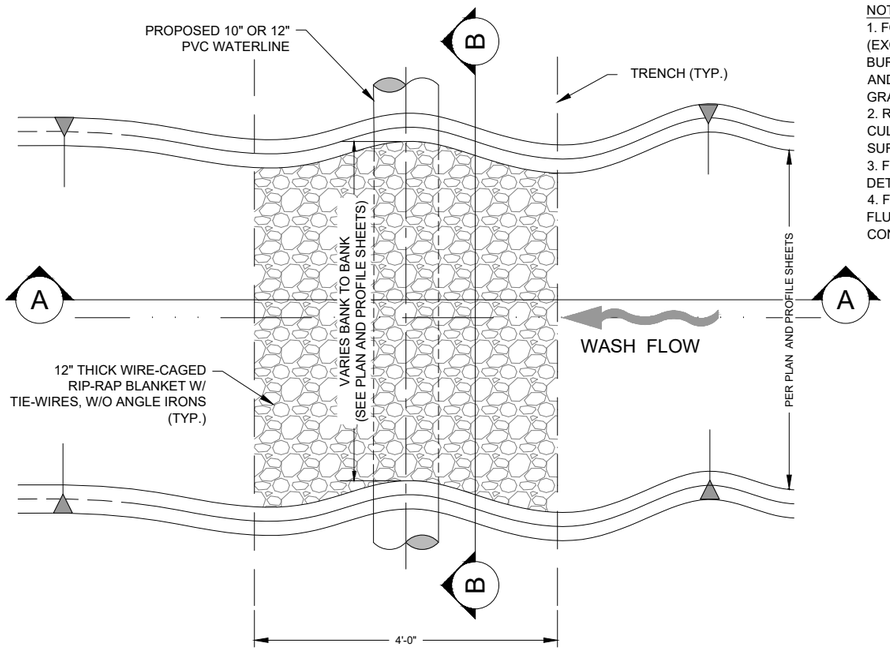
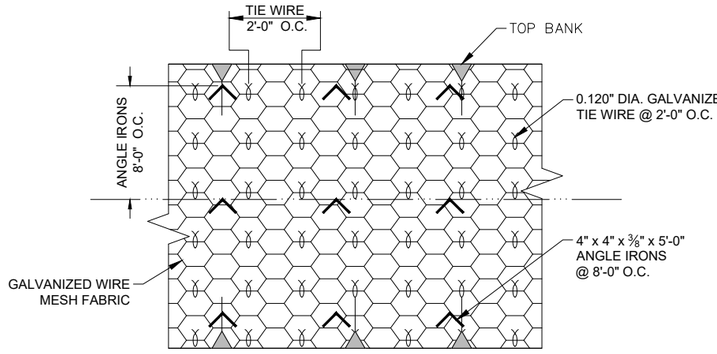
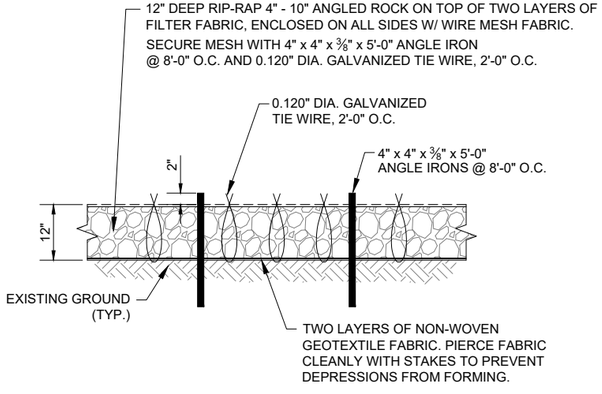


PLAN VIEW

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

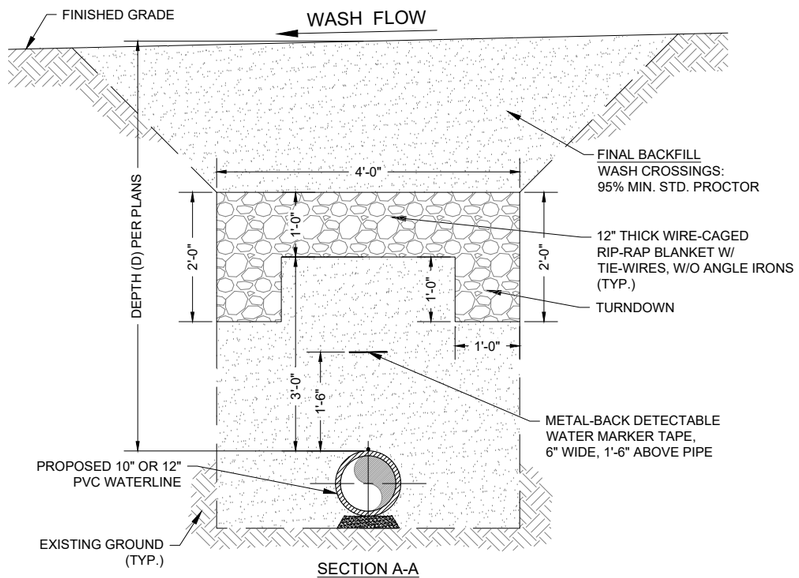


TYP. 12" RIP-RAP CAGE & ANCHORING
NOT TO SCALE

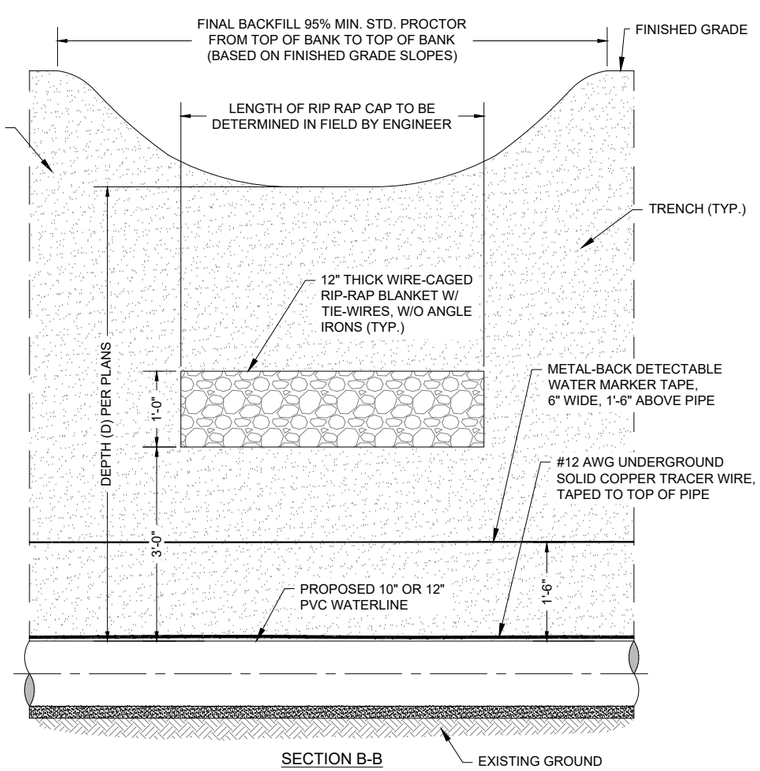


CROSS SECTION

TYPICAL 12" RIP-RAP DETAIL
NOT TO SCALE



SECTION A-A



SECTION B-B

TYPICAL BURIED 12" RIP-RAP MATTRESS FOR WASH CROSSINGS
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CLIENT: The Navajo Nation
TOWN: Reach 26.3 To Torreon, NM

EROSION CONTROL DETAILS (1 of 3)
NAVAJO GALLUP WATER SUPPLY PROJECT - REACH 26.3
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
TTT	AAV	AGR

TORY T. TADANO — NEW MEXICO — 21073 — LICENSED 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 1, 2019
Scale: Horiz: NONE
Vert: N/A
Project No: 6921307
Sheet: DT-28

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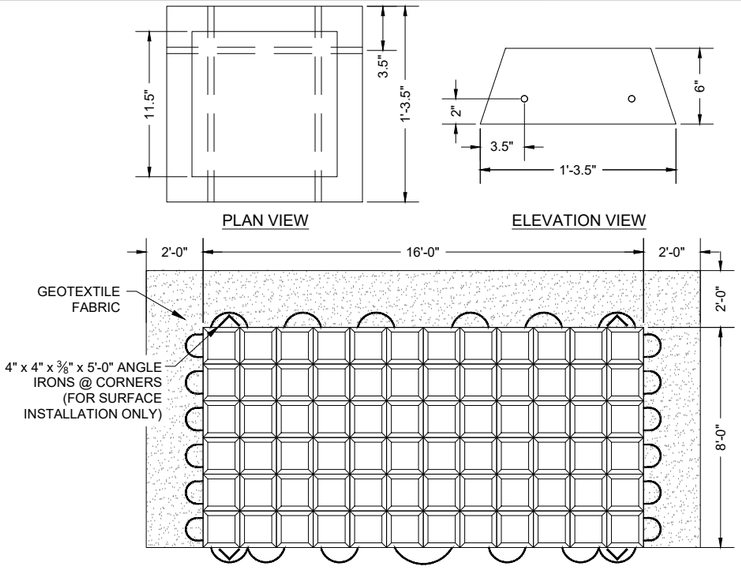
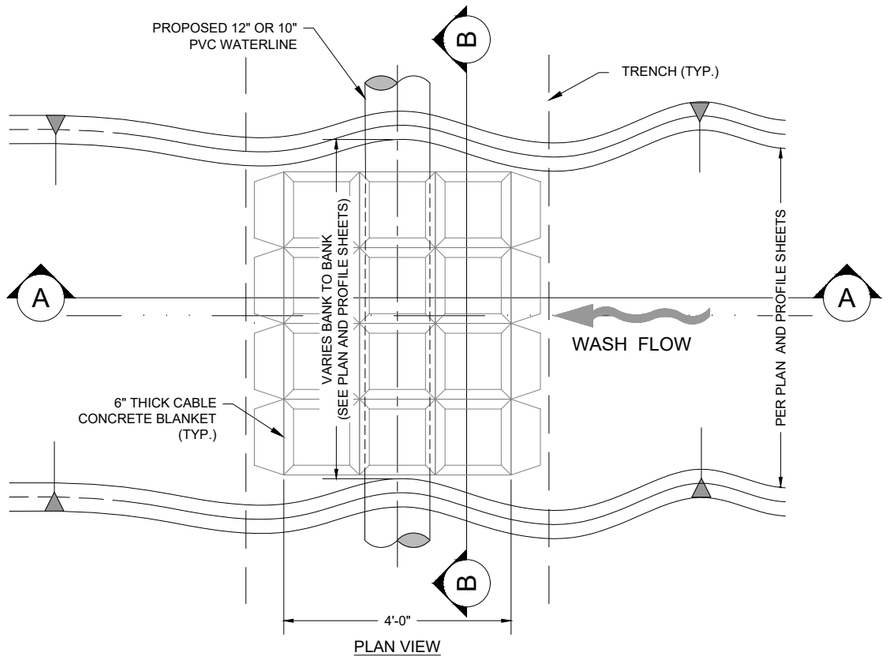


TYPICAL 6" CC-45 CLOSED CELL CABLE CONCRETE DETAIL

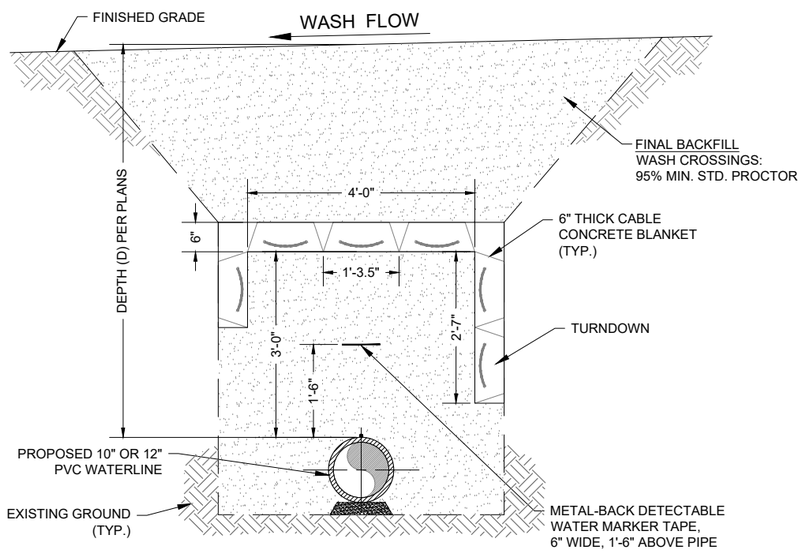
NOT TO SCALE



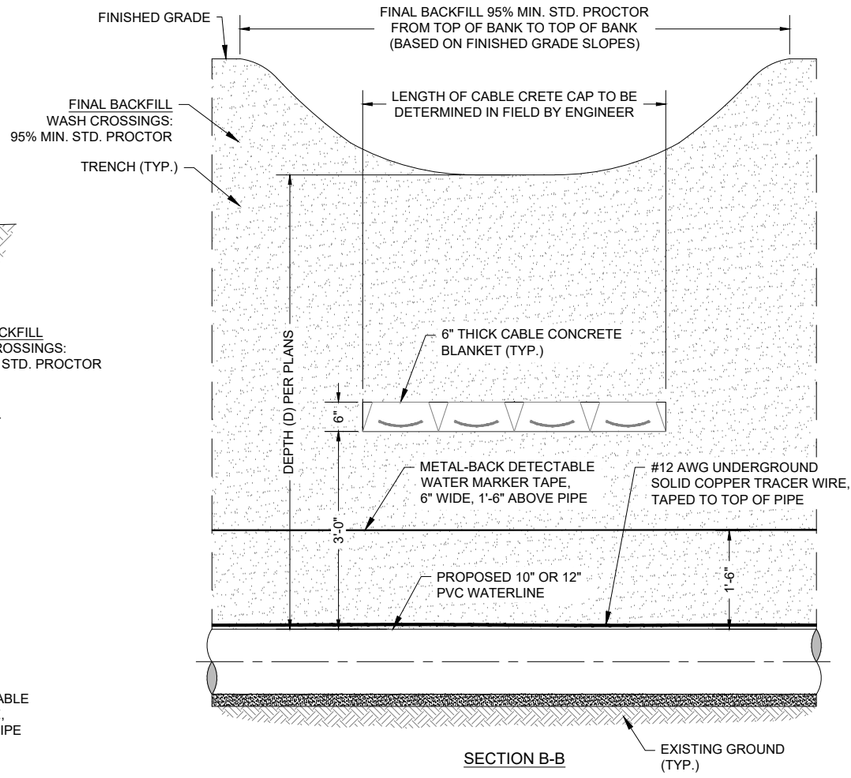
PLAN VIEW

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.



SECTION A-A



SECTION B-B

TYPICAL BURIED 6" CABLE CONCRETE MATTRESS FOR WASH CROSSINGS

NOT TO SCALE

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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	Drawn	Checked
TTT	AAV	AGR

TORY T. TADANO — NEW MEXICO — 21073 — LICENSED PROFESSIONAL ENGINEER — 1/31/19

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Date: February 1, 2019

Scale: Horiz: NONE
Vert: N/A

Project No: 6921307

Sheet: DT-29

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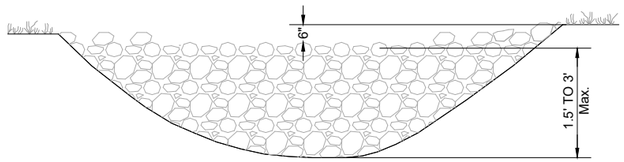
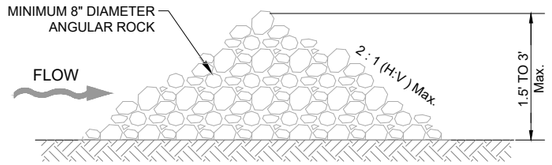
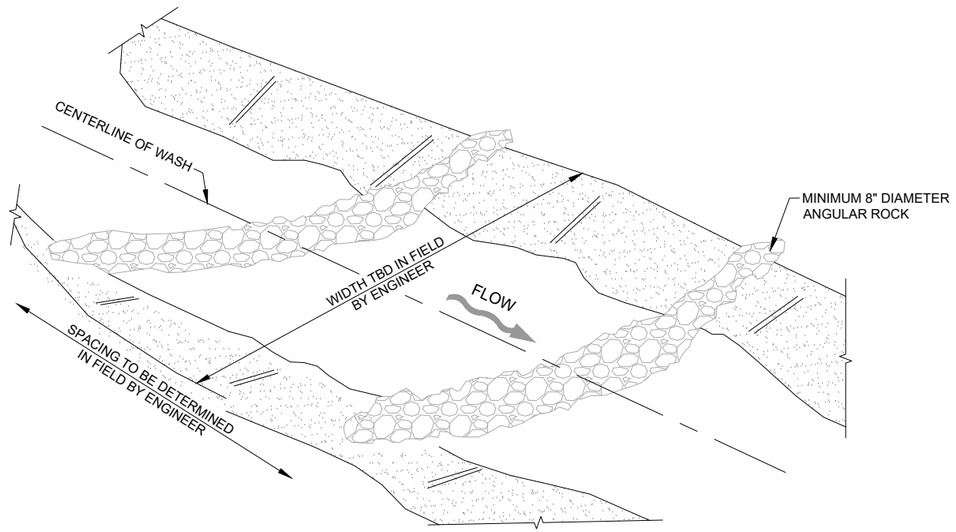


ELEVATION VIEW



TYPICAL ROCK DAM SECTION



ISOMETRIC VIEW

ROCK CHECK DAM DETAIL

NOT TO SCALE

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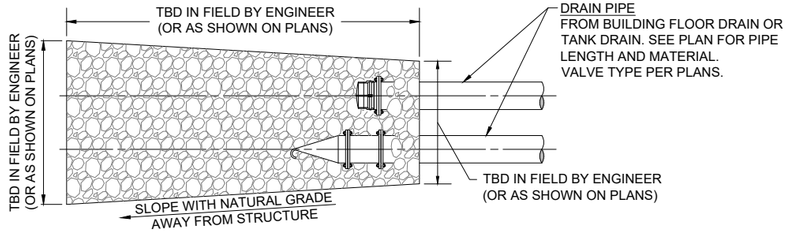
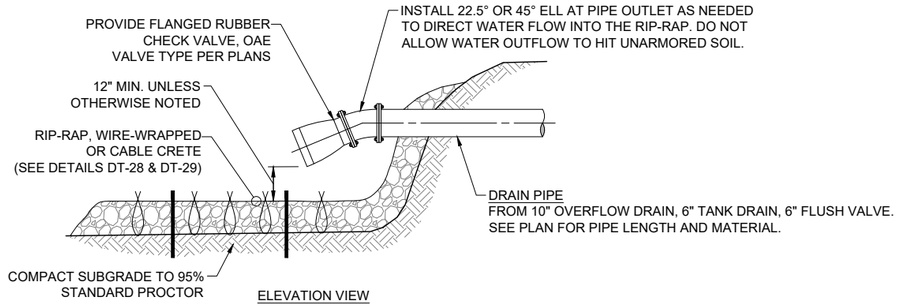
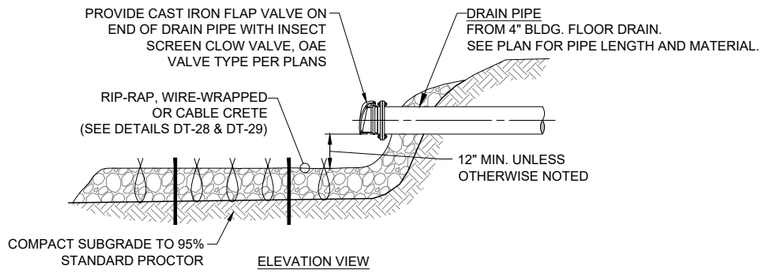


PLAN VIEW



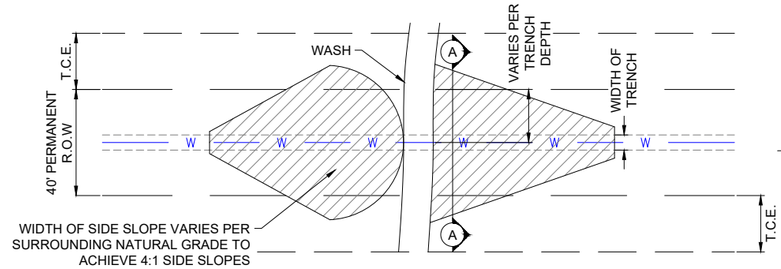
ELEVATION VIEW



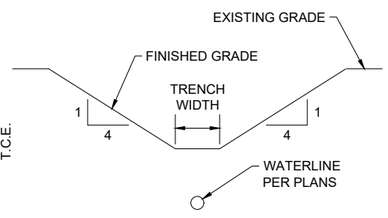
ELEVATION VIEW

TYPICAL SPLASH PAD DETAIL

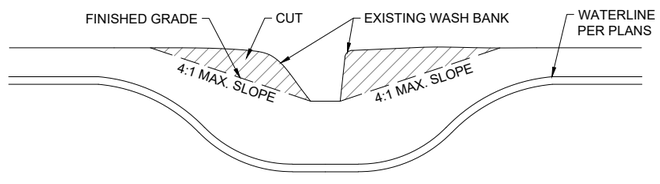
NOT TO SCALE



PLAN VIEW



SECTION A-A



PROFILE VIEW

WASH CROSSING GRADING DETAIL

NOT TO SCALE

NOTE:

1. ALL GRADING MUST REMAIN WITHIN TEMPORARY CONSTRUCTION EASEMENT.

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CLIENT: The Navajo Nation

TOWN: Reach 26.3 To Torreon, NM

EROSION CONTROL DETAILS (3 of 3)

NAVAJO GALLUP WATER SUPPLY PROJECT - REACH 26.3

SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
JEG	AAV	AGR

TORY T. TADANO — NEW MEXICO — 21073 — LICENSED PROFESSIONAL ENGINEER — 12/31/19

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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

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Vert: N/A

Project No: 6921307

Sheet: DT-30

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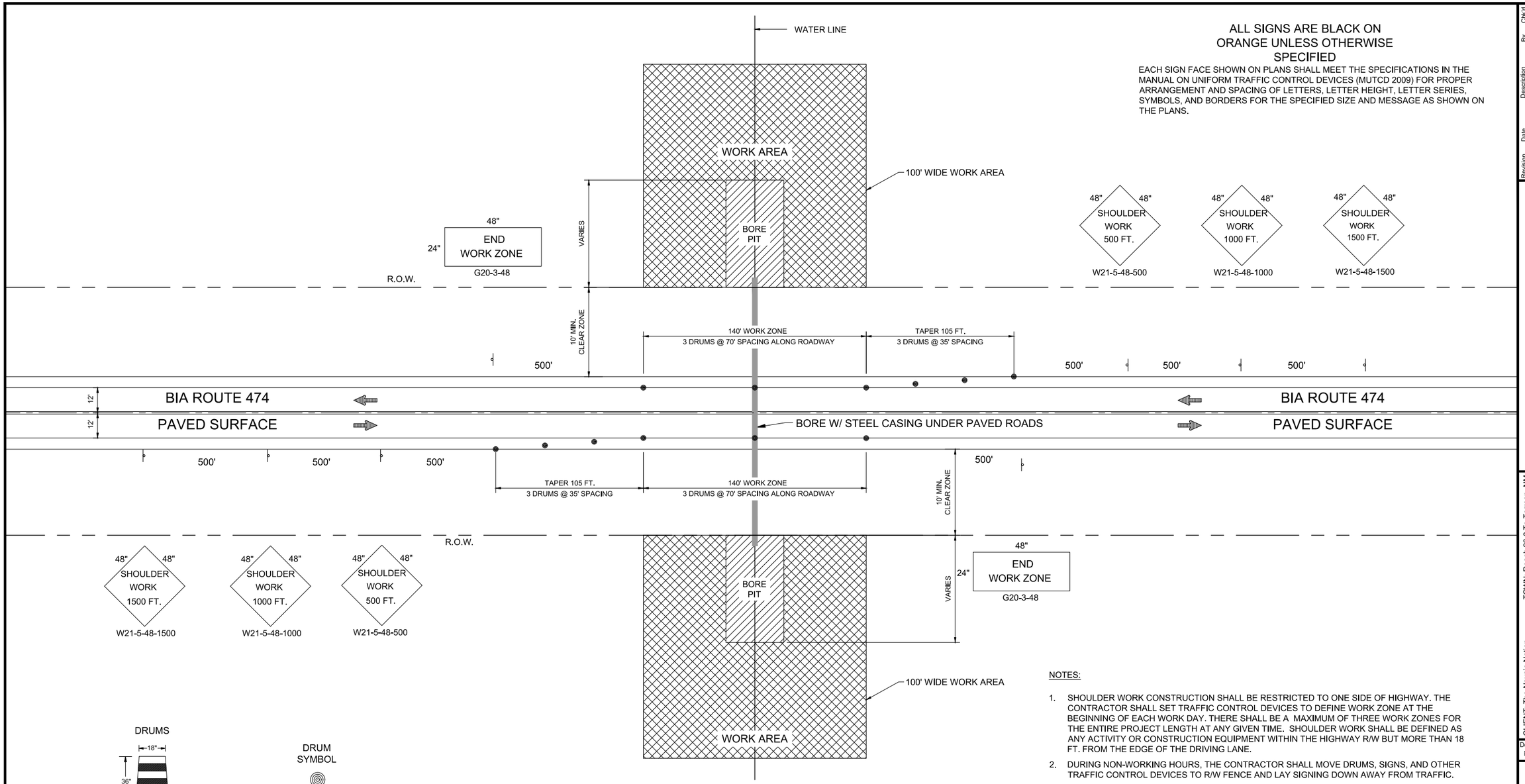
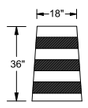


ALL SIGNS ARE BLACK ON ORANGE UNLESS OTHERWISE SPECIFIED

EACH SIGN FACE SHOWN ON PLANS SHALL MEET THE SPECIFICATIONS IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD 2009) FOR PROPER ARRANGEMENT AND SPACING OF LETTERS, LETTER HEIGHT, LETTER SERIES, SYMBOLS, AND BORDERS FOR THE SPECIFIED SIZE AND MESSAGE AS SHOWN ON THE PLANS.

DRUMS



DRUM SYMBOL

ALL DRUMS SHALL COMPLY WITH THE SPECIFICATIONS OF SECTION 702-TRAFFIC CONTROL DEVICES FOR CONSTRUCTION, MUTCD 2009 STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION.

TRAFFIC CONTROL LAYOUT - SHOULDER CLOSURE PAVED ROAD CROSSINGS

SHOULDER CLOSURE (LEFT AND RIGHT)
JACK AND BORE UNDER PAVED ROADWAYS

NMDOT CHANNELIZATION DEVICES, TYPE: DRUM, NO. 702525. TOTAL OF 12 DRUMS REQUIRED.

NOTES:

1. SHOULDER WORK CONSTRUCTION SHALL BE RESTRICTED TO ONE SIDE OF HIGHWAY. THE CONTRACTOR SHALL SET TRAFFIC CONTROL DEVICES TO DEFINE WORK ZONE AT THE BEGINNING OF EACH WORK DAY. THERE SHALL BE A MAXIMUM OF THREE WORK ZONES FOR THE ENTIRE PROJECT LENGTH AT ANY GIVEN TIME. SHOULDER WORK SHALL BE DEFINED AS ANY ACTIVITY OR CONSTRUCTION EQUIPMENT WITHIN THE HIGHWAY R/W BUT MORE THAN 18 FT. FROM THE EDGE OF THE DRIVING LANE.
2. DURING NON-WORKING HOURS, THE CONTRACTOR SHALL MOVE DRUMS, SIGNS, AND OTHER TRAFFIC CONTROL DEVICES TO R/W FENCE AND LAY SIGNING DOWN AWAY FROM TRAFFIC.
3. NIGHT-TIME CONDITIONS: THE CONTRACTOR SHALL NOT PARK CONSTRUCTION EQUIPMENT, OR LEAVE MATERIALS WITHIN 24 FT. OF THE EDGE OF DRIVING LANE.
4. THE CONTRACTOR SHALL PROVIDE ACCESS TO ALL DRIVEWAYS AND TURNOUTS AT ALL TIMES.
5. LANE CLOSURE SHALL BE USED WHEN ANY CONSTRUCTION EQUIPMENT, CONSTRUCTION MATERIAL, OR CONSTRUCTION OBJECTS ARE WITHIN 18 FT. FROM EDGE OF DRIVING LANE.
6. ALL CONSTRUCTION TRAFFIC CONTROL DEVICES SHALL COMPLY WITH BIA-NAVAJO REGIONAL OFFICE DEPARTMENT OF TRANSPORTATION REQUIREMENTS, SANDOVAL COUNTY ROAD DEPARTMENT / PUBLIC WORKS REQUIREMENTS, THE NEW MEXICO STATE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, LATEST EDITION, AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.
7. EXCEPT DURING AN EMERGENCY, NO NIGHT-TIME WORK TO BE PERFORMED
8. ALL STAGING AREAS AND MATERIAL AND EQUIPMENT STORAGE SHALL BE CONFINED TO PROJECT R/W AND ARE SUBJECT TO THE SAME RESTRICTIONS AS THE WORK AREAS AS SET FORTH ABOVE.
9. FOLLOW ALL ROAD CROSSING REQUIREMENTS FOR THE FOLLOWING ROAD:
   - BIA ROUTE 474 (SEE SHEET C-6)

Revision	Date	Description	By	Chk'd

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CLIENT: The Navajo Nation

TOWN: Reach 26.3 To Torreon, NM

TRAFFIC CONTROL (PAVED ROAD)
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACH 26.3
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
MAN	AAV	RLL

MATTHEW A. NICHOLERT
NEW MEXICO
19479
PROFESSIONAL ENGINEER
2/1/2019

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

Date: February 4, 2019

Scale: Horiz: NONE
Vert: N/A

Project No: 6921307

Sheet: DT-31

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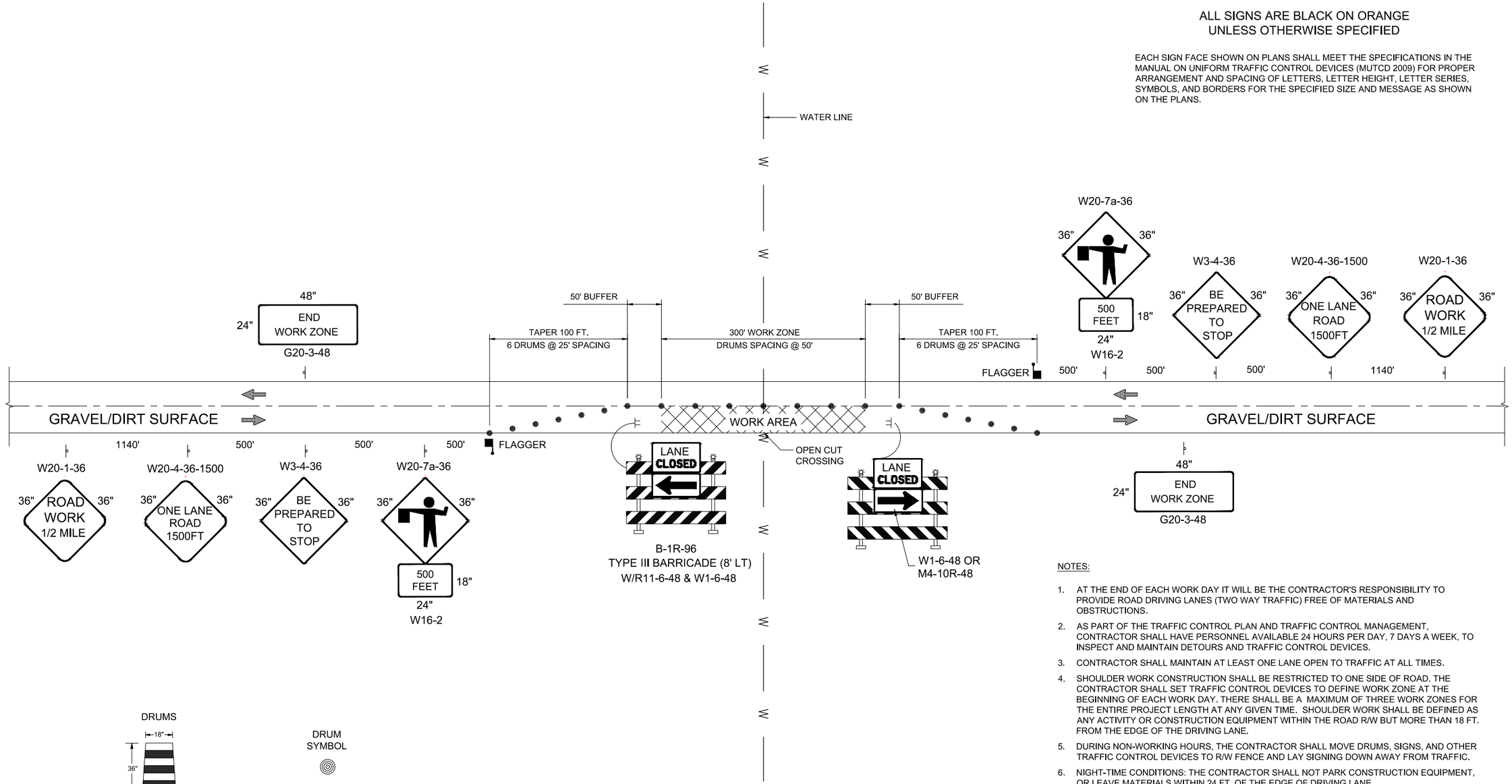
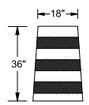
ALL SIGNS ARE BLACK ON ORANGE
UNLESS OTHERWISE SPECIFIED

EACH SIGN FACE SHOWN ON PLANS SHALL MEET THE SPECIFICATIONS IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD 2009) FOR PROPER ARRANGEMENT AND SPACING OF LETTERS, LETTER HEIGHT, LETTER SERIES, SYMBOLS, AND BORDERS FOR THE SPECIFIED SIZE AND MESSAGE AS SHOWN ON THE PLANS.



DRUMS



DRUM SYMBOL

ALL DRUMS SHALL COMPLY WITH THE SPECIFICATIONS OF SECTION 702-TRAFFIC CONTROL DEVICES FOR CONSTRUCTION, MUTCD 2009 STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION.

TRAFFIC CONTROL LAYOUT - LANE CLOSURE ON TWO-LANE GRAVEL/DIRT ROAD CROSSINGS

LANE CLOSURE (LEFT AND RIGHT)
OPEN CUT GRAVEL/DIRT ROADWAYS

NMDOT CHANNELIZATION DEVICES, TYPE: DRUM, NO. 702525. TOTAL OF 21 DRUMS REQUIRED

NOTES:

1. AT THE END OF EACH WORK DAY IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE ROAD DRIVING LANES (TWO WAY TRAFFIC) FREE OF MATERIALS AND OBSTRUCTIONS.
2. AS PART OF THE TRAFFIC CONTROL PLAN AND TRAFFIC CONTROL MANAGEMENT, CONTRACTOR SHALL HAVE PERSONNEL AVAILABLE 24 HOURS PER DAY, 7 DAYS A WEEK, TO INSPECT AND MAINTAIN DETOURS AND TRAFFIC CONTROL DEVICES.
3. CONTRACTOR SHALL MAINTAIN AT LEAST ONE LANE OPEN TO TRAFFIC AT ALL TIMES.
4. SHOULDER WORK CONSTRUCTION SHALL BE RESTRICTED TO ONE SIDE OF ROAD. THE CONTRACTOR SHALL SET TRAFFIC CONTROL DEVICES TO DEFINE WORK ZONE AT THE BEGINNING OF EACH WORK DAY. THERE SHALL BE A MAXIMUM OF THREE WORK ZONES FOR THE ENTIRE PROJECT LENGTH AT ANY GIVEN TIME. SHOULDER WORK SHALL BE DEFINED AS ANY ACTIVITY OR CONSTRUCTION EQUIPMENT WITHIN THE ROAD R/W BUT MORE THAN 18 FT. FROM THE EDGE OF THE DRIVING LANE.
5. DURING NON-WORKING HOURS, THE CONTRACTOR SHALL MOVE DRUMS, SIGNS, AND OTHER TRAFFIC CONTROL DEVICES TO R/W FENCE AND LAY SIGNING DOWN AWAY FROM TRAFFIC.
6. NIGHT-TIME CONDITIONS: THE CONTRACTOR SHALL NOT PARK CONSTRUCTION EQUIPMENT, OR LEAVE MATERIALS WITHIN 24 FT. OF THE EDGE OF DRIVING LANE.
7. THE CONTRACTOR SHALL PROVIDE ACCESS TO ALL DRIVEWAYS AND TURNOUTS AT ALL TIMES.
8. LANE CLOSURE SHALL BE USED WHEN ANY CONSTRUCTION EQUIPMENT, CONSTRUCTION MATERIAL, OR CONSTRUCTION OBJECTS ARE WITHIN 18 FT. FROM EDGE OF DRIVING LANE.
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10. EXCEPT DURING AN EMERGENCY, NO NIGHT-TIME WORK TO BE PERFORMED.
11. ALL STAGING AREAS AND MATERIAL AND EQUIPMENT STORAGE SHALL BE CONFINED TO PROJECT R/W AND ARE SUBJECT TO THE SAME RESTRICTIONS AS THE WORK AREAS AS SET FORTH ABOVE.
12. FOLLOW ALL ROAD CROSSING PERMITS FOR THE FOLLOWING GRAVEL/DIRT ROADS:
    - SANDOVAL COUNTY ROADS 3x (SEE SHEET C-7)
    - EUSTACIO CHAVEZ ROAD (SEE SHEET C-8)
    - ROAD (SEE SHEET C-9)

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

TRAFFIC CONTROL (GRAVEL AND DIRT ROAD)

NAVAJO GALLUP WATER SUPPLY
PROJECT - REACH 26.3

SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
MAN	AAV	RLL

MATTHEW A. NIGHBERT
NEW MEXICO
19479
PROFESSIONAL ENGINEER
2/1/2019

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Date: February 4, 2019

Scale: Horiz: NONE
Vert: N/A

Project No: 6921307

Sheet: DT-32

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.
WP	WEATHERPROOF DUPLEX CONVENIENCE OUTLET, 18" A.F.F.
GFCI	DUPLEX CONVENIENCE OUTLET, GROUND FAULT CIRCUIT INTERRUPTER, 18" A.F.F.
J	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
J	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
P2-2,4	HOMERUN TO PANELBOARD WITH BRANCH CIRCUIT NUMBERS INDICATED
SV	SOLENOID VALVE
LS	LIMIT SWITCH
PT	PRESSURE TRANSMITTER
	FIRE ALARM SMOKE AND HEAT DETECTOR, PHOTOELECTRIC TYPE, 120V AUX CONTACTS
P	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
F	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
T	TRANSFORMER, DRY TYPE, SIZE AS INDICATED
T	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
DC	INTRUSION ALARM DOOR CONTACT MAGNETIC
	NORMALLY OPEN CONTACT
	NORMALLY CLOSED CONTACT
C	CONTACTOR
OLS	MOTOR OVERLOADS
	RED PILOT LIGHT
	GREEN PILOT LIGHT
	TRANSFORMER
R	RELAY
	SWITCH
	FUSE(S)
	CIRCUIT BREAKER
PLC	PROGRAMMABLE LOGIC CONTROLLER
RTU	REMOTE TERMINAL UNIT
T	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.

Revision	Date	Description	By	Chk'd

15024 E001 Reach 26.3 - General Notes.dwg
10/3/2018 10:07:08 AM Thiesha

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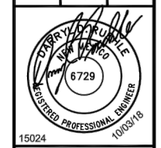
CLIENT: The Navajo Nation
TOWN: Reach 26.3 To Torreon

REACH 26.3 - GENERAL NOTES
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACH 26.3
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
TR	TRG	DDR



15024

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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 Know what's below. Call before you dig.

Date: October 3, 2018
Scale: Horiz: N/A
Vert: N/A
Project No: 6921307
Sheet: E001

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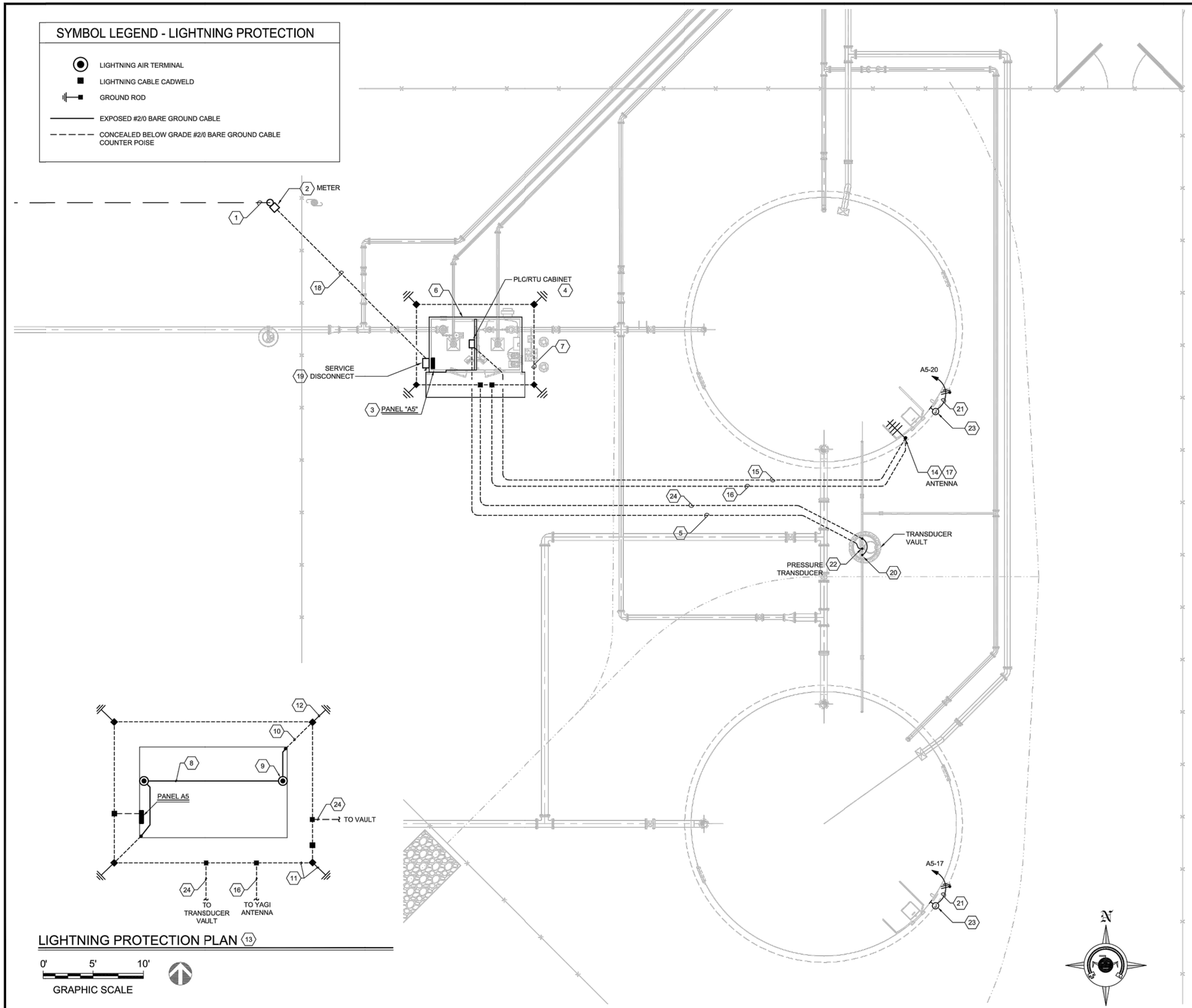
SYMBOL LEGEND - LIGHTNING PROTECTION

- 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

0' 5' 10'

GRAPHIC SCALE

REACH 26.3 - ELECTRICAL SITE PLAN

GENERAL NOTES

A. REFER TO LIGHTNING PROTECTION SPECIFICATION SECTION 26 60 10 FOR ADDITIONAL INFORMATION.

B. CONTRACTOR SHALL PROVIDE LIGHTNING PROTECTION SYSTEM DRAWING BEFORE INSTALLATION, INCLUDING GROUND RODS AND GROUNDING CABLES (BELOW GROUND AND ABOVE ROOF)

C. AFTER THE SYSTEM HAS BEEN INSTALLED, THE UL LISTED INSTALLER SHALL COMPLETE AND SUBMIT THE CERTIFICATION APPLICATION.

D. 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.

E. GROUND ROD AND BUILDING COUNTER POISE DEPTH SHALL BE 24" BELOW GRADE.

F. ALL GROUNDING WIRING SHALL BE PROPERLY CONNECTED PER SPECS SECTION 26 45 00.

G. THE CONTRACTOR SHALL SELECT AN ADHESIVE FOR THE AIR TERMINALS THAT MANUFACTURED RECOMMENDED AND IS COMPATIBLE FOR USE WITH THE ROOFING SYSTEM.

H. 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.

I. ALL WIRING CONNECTORS, AIR TERMINALS, CLAMPS, ETC SHALL BE UL APPROVED FOR A LIGHTNING PROTECTION SYSTEM.

KEYED NOTES

1. 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.
2. 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.
3. BUILDING PANEL "A5". REFER TO POWER RISER DIAGRAM, BUILDING PLAN AND PANEL SCHEDULE FOR ADDITIONAL REQUIREMENTS ON SHEET E102.
4. PLC CABINET. REFER TO FLOOR PLAN FOR LOCATION ON SHEET E201.
5. UNDERGROUND CONDUIT RUN FROM THE VAULT INSTRUMENATION TO THE PLC CABINET. REFER TO BUILDING CONTROL PLAN AND WIRING SCHEDULE ON SHEET E103 FOR CABLE AND CONDUIT REQUIREMENTS.
6. NEW CHLORINATION BUILDING. REFER TO BUILDING PLAN ON SHEET E102 & E103 FOR EQUIPMENT LOCATIONS.
7. REFER TO LIGHTNING PROTECTION PLAN ON THIS SHEET FOR ADDITIONAL REQUIREMENTS.
8. LIGHTNING PROTECTION CLASS 1 ROOF-MOUNTED LATERAL CONDUCTOR AND MOUNTING HARDWARE.
9. 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.
10. LIGHTNING PROTECTION 2/0 BARE COPPER DOWN-CONDUCTOR.
11. LIGHTNING PROTECTION COUNTERPOISE SYSTEM. ALL CONNECTIONS SHALL BE EXO-THERMIC WELDS.
12. GROUND ROD. 3/4" X 10'-0" GROUND ROD
13. 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 26 60 10. SYSTEM SHALL BE PROVIDED WITH A MASTER LABEL.
14. 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.
15. 1" CONDUIT WITH CABLES FROM PLC TO ANTENNA MAST.
16. 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.
17. REFER TO ANTENNA INSTALLATION DETAIL ON SHEET E203 FOR ADDITIONAL REQUIREMENTS.
18. REFER TO POWER RISER DIAGRAM FOR UNDERGROUND CONDUIT AND CONDUCTOR SIZES FOR SECONDARY SERVICE.
19. PROVIDE AND INSTALL A BUILDING MOUNTED SERVICE DISCONNECT SWITCH. REFER TO POWER RISER ON SHEET E201 FOR ADDITIONAL REQUIREMENTS.
20. 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.
21. 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.
22. TANK PRESSURE TRANSDUCER INSTALLED IN VAULT. REFER TO PRESSURE TRANSDUCER VAULT DETAIL ON SHEET E201.
23. 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).
24. 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 IT'S FAILURE TO LOCATE, IDENTIFY AND PRESERVE ANY AND ALL EXISTING UTILITIES, LINES, PIPELINES, OR UNDERGROUND UTILITY LINES. THE CONTRACTOR SHALL COMPLY WITH STATE STATUTES, MUNICIPAL AND LOCAL ORDINANCES, RULES, AND REGULATIONS, IF ANY, PERTAINING TO THE LOCATION OF THESE LINES AND FACILITIES IN PLANNING AND CONDUCTING EXCAVATION, WHETHER BY CALLING OR NOTIFYING THE UTILITIES, COMPLYING WITH "NM ONE CALL" PROCEDURES, OR OTHERWISE.

Revision	Date	Description	By	Chk'd

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ASMA Engineering • Environmental Surveying

15024 E101 Reach 26.3 - Electrical Site Plan.dwg
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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

Designed	Drawn	Checked
TR	TRG	DDR

DEREK D. RUMMELT 6729 REGISTERED PROFESSIONAL ENGINEER 10/03/18

15024

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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: E101

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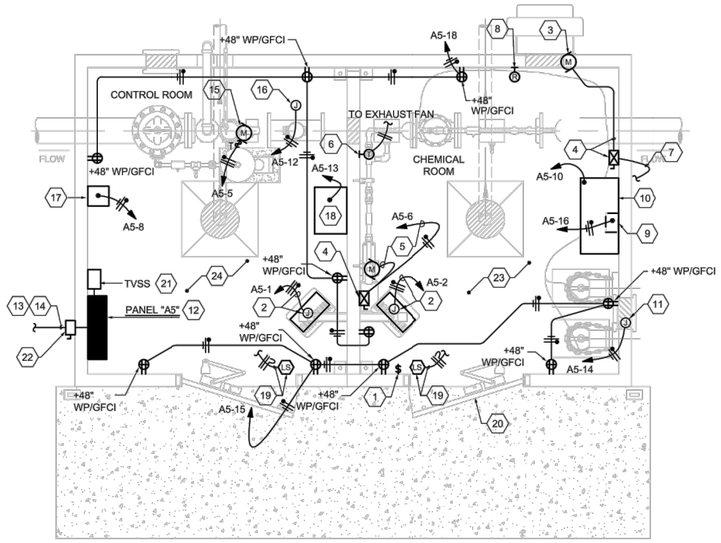
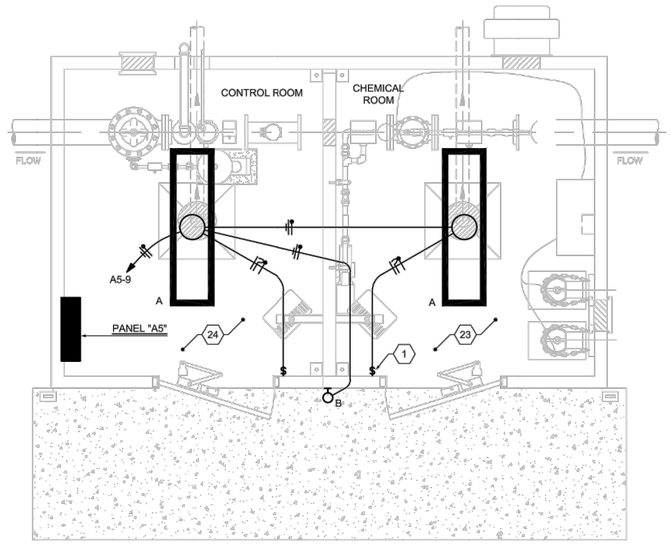


REACH 26.3 CHLORINATION BUILDING - POWER PLAN

0' 2' 4'
GRAPHIC SCALE



REACH 26.3 CHLORINATION BUILDING - LIGHTING PLAN

0' 2' 4'
GRAPHIC SCALE

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		6	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	460		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											

LIGHT FIXTURE SCHEDULE

TYPE	FIXTURE DESCRIPTION	LAMPS	MOUNTING
A	INDUSTRIAL VAPOR TIGHT LED FIXTURE, UL LISTED FOR WET LOCATIONS. METALUX #4VT2-LD4-4-DR-UNV-L835-CD1-WL-SSL-VT2-CHAIN/SET-U	LED 4000 LUMENS	MOUNT AT 8'-0" A.F.F.
B	WALL PACK - LED, DARK SKY COMPLIANT WITH PHOTOCELL LUMARK #LDWP-FC-4B-120V-PE-WG/WPFC	LED 32W	MOUNT AT 8'-0" TO TOP OF FIXTURE

KEYED NOTES

1. PROVIDE AND INSTALL A SINGLE THROW, DOUBLE POLE LIGHTING SWITCH, 120 VOLT. SWITCH SHALL CONTROL THE LIGHTING FIXTURE AND EXHAUST FAN. REFER TO CONTROL DIAGRAM FOR ADDITIONAL REQUIREMENTS. INSTALL A NEMA 4X POLYESTER RATED COVER.
2. PROVIDE AND INSTALL 4 KW 240 VOLT, SINGLE PHASE ELECTRIC WALL MOUNTED HEATER WITH INTEGRAL THERMOSTAT. AS MANUFACTURED BY CHROMALOX #HVH-04-21-00-TL-D-00-0-0-S-HVW-1. FAN SHALL BE RATED FOR EXTERIOR USE.
3. PROVIDE AND INSTALL A THROUGH WALL EXHAUST FAN - 430 CFM, 1/4 HP, 120 VOLTS, WITH BACKDRAFT DAMPER. EXHAUST FAN SHALL BE INTERLOCKED WITH DOOR CONTACT, LIGHT SWITCH, AND THERMOSTAT. REFER TO CONTROL DIAGRAM ON SHEET E202 FOR ADDITIONAL REQUIREMENTS. MOTOR ENCLOSURE AND WIRING COMPONENTS SHALL BE RATED FOR EXTERIOR USE. MOUNTED AT 18"AFF.
4. PROVIDE AND INSTALL A COMBINATION STARTER/NON FUSED DISCONNECT SWITCH. 30 AMPS, 2 POLE, NEMA 4X POLYESTER ENCLOSURE, NEMA SIZE 0, H-A SELECTOR SWITCH. THE CHLORINE PUMP STARTER SHALL BE AUTO CONTROLLED FROM THE VC-22D SYSTEM.
5. CHLORINE FEED BOOSTER PUMP, 1/3 HP, 120 VOLTS. CONTROLLED FROM THE CHLORINATION SYSTEM. EXTEND CONTROL CONDUCTORS AS REQUIRED BETWEEN THE STARTER AND CHLORINATION SYSTEM
6. PROVIDE AND INSTALL A 120 VOLT THERMOSTAT FOR THE CONTROL OF EXHAUST FAN. REFER TO CONTROL DIAGRAM ON SHEET E202 FOR ADDITIONAL REQUIREMENTS.
7. EXTEND CONDUIT AND CONDUCTORS FROM THE EXHAUST FAN STARTER TO THE DOOR SWITCH. REFER TO CONTROL DIAGRAM, SHEET E202 FOR ADDITIONAL INFORMATION.
8. CHLORINE GAS ALARM STROBE LIGHT, HEAVY-DUTY, RED IMPACT RESISTANT LENS, 120 VAC, NEMA 4 X ENCLOSURE, WALL BRACKET. ALARM STROBE SHALL BE VISIBLE FROM VIEW WINDOW IN CHLORINE ROOM DOOR. THE CHLORINE GAS DETECTOR SHALL ACTIVATE THE STROBE AT THE GAS ALARM SET POINT. PROVIDE AN INTERPOSING RELAY ON CHLORINE GAS DETECTOR ALARM OUTPUT. EXTEND POWER TO INTERPOSING RELAY AND STROBE FROM CHLORINE GAS DETECTOR AT 120 VAC. PROVIDE WITH CHLORINE SYSTEM. EXTEND CONDUIT AND CONDUCTORS FROM STROBE LIGHT LOCATION TO CONTROL PANEL. TERMINATE PER EQUIPMENT MANUFACTURER'S RECOMMENDATION. STROBE BEACON # 105STR-H5-120V-60HZ.
9. CHLORINE GAS DETECTOR, SIEMANS, WITH INTEGRAL ALARM HORN AND LED INDICATORS, SENSOR AUTO TEST FEATURE, AND BATTERY BACKUP, NEMA 4X ENLOSURE. MOUNT GAS DETECTOR/RECEIVER TO WALL AT 6' AFF TO TOP OF PANEL. MOUNT GAS SENSOR/TRANSMITTER 6' AFF ADJACENT TO CHLORINE GAS CYLINDERS, AND WIRE TO DETECTOR/RECEIVER WITH MANUFACTURER PROVIDED SENSOR CABLE. PROVIDE INTERLOCK WITH THE ALARM STROBE TO ACTIVATE ON GAS ALARM. PROVIDE WARNING ALARM AND SENSOR TROUBLE SIGNAL TO PLC. REFER TO SHEET E103 TERMINATE PER EQUIPMENT MANUFACTURER'S RECOMMENDATION.
10. NON-PROPORTIONAL CHLORINE GAS FLOW CONTROL PANEL. PROVIDE AND IN NEMA 4X, HINGED ENCLOSURE. PROVIDE CONDUIT AND FIELD WIRING TO MOTOR CONTROLLER ACTUATOR. COORDINATE FINAL LOCATION OF EQUIPMENT GENERAL CONTRACTOR PRIOR TO EXTENDING CIRCUITING AND CONTROL CIRCUITS. CONTRACTORS TO SEAL CONDUIT PENETRATIONS.
11. CHLORINE TANK SCALE, WITH DIGITAL DISPLAY, NEMA 4X ENCLOSURE. TERMINATE POWER CIRCUIT TO EQUIPMENT PER MANUFACTURER'S RECOMMENDATION. FORCE FLOW MODEL GR150-2 WITH FORCE FLOW SOLO G2 DIGITAL INDICATOR.
12. NEW PANEL "A5". REFER TO POWER RISER DIAGRAM FOR ADDITIONAL REQUIREMENTS.
13. NEW METER MOUNT AT POLE. REFER TO POWER RISER DIAGRAM FOR ADDITIONAL REQUIREMENTS.
14. EXTEND UNDERGROUND SERVICE FROM THE SERVICE DISCONNECT SWITCH TO THE METER AT POLE. REFER TO POWER RISER DIAGRAM AND SITE PLAN FOR ADDITIONAL REQUIREMENTS
15. VALVE ACTUATION BOOSTER PUMP, 1/2 HP, 240 VOLT SINGLE PHASE. PUMP CONTROLLED BY INTEGRAL PRESSURE SWITCH. MOTOR ENCLOSURE AND WIRING COMPONENTS SHALL BE RATED FOR EXTERIOR USE.
16. FLOW METER. HOMERUN TO CIRCUIT INDICATED. REFER TO CONTROL FLOOR PLAN FOR ADDITIONAL REQUIREMENTS. ELSTER EVO Q4 WITH INTEGRAL TRANSMITTER INSTALL WITH FLOW IN PROPER DIRECTION AS INDICATED.
17. FLOW CONTROL VALVE CONTROLLER CLA-VAL VC-22D. THE CONTRACTOR SHALL COORDINATE THE INSTALLATION OF EQUIPMENT WITH THE GENERAL CONTRACTOR PRIOR TO THE EXTENSION OF CIRCUIT AND CONTROLS. TERMINATE POWER AND CONTROL CABLING TO CONTROLLER PER EQUIPMENT MANUFACTURERS RECOMMENDATION. PROVIDE AND INSTALL MANUFACTURER'S NEMA 4X HINGED COVER ENCLOSURE
18. PLC/RTU CABINET, NEMA 4X ENCLOSURE. THE CONTRACTOR SHALL COORDINATE THE INSTALLATION OF EQUIPMENT WITH THE GENERAL PRIOR TO THE EXTENSION OF CIRCUIT AND CONTROLS. TERMINATE POWER AND CONTROL CABLING TO CONTROLLER PER EQUIPMENT MANUFACTURER'S RECOMMENDATION. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
19. DOOR LIMIT SWITCH WITH ADJUSTABLE LEVER ARM AS MANUFACTURED BY SQUARE D #9007C62B2, ARM #HA1. REFER TO CONTROL DIAGRAM FOR ADDITIONAL REQUIREMENTS.
20. THE CONTRACTOR SHALL PROVIDE AND INSTALL A SIGN SHOWING: "WARNING: FLASHING LIGHT INDICATES TOXIC CHLORINE GAS RELEASE. DO NOT ENTER WITHOUT SCBA GEAR". SIGN SHALL BE RED IN COLOR WITH WHITE 1" LETTERING, MOUNTED BELOW WINDOW.
21. REFER TO POWER RISER ON SHEET E201 FOR TVSS REQUIREMENTS.
22. PROVIDE AND INSTALL A BUILDING MOUNTED SERVICE DISCONNECT SWITCH. REFER TO POWER RISER ON SHEET E201 FOR ADDITIONAL REQUIREMENTS.
23. 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 AGENTS AND WET LOCATION.
24. 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.

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ASMA Engineering • Environmental Surveying

CLIENT: The Navajo Nation
TOWN: Reach 26.3 To Torreon

REACH 26.3 - CHLORINATION BUILDING
ELECTRICAL PLANS
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACH 26.3
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
TR	TRG	DDR

DONALD D. RUBLE — NEW MEXICO — 6729 — REGISTERED PROFESSIONAL ENGINEER — 10/03/18

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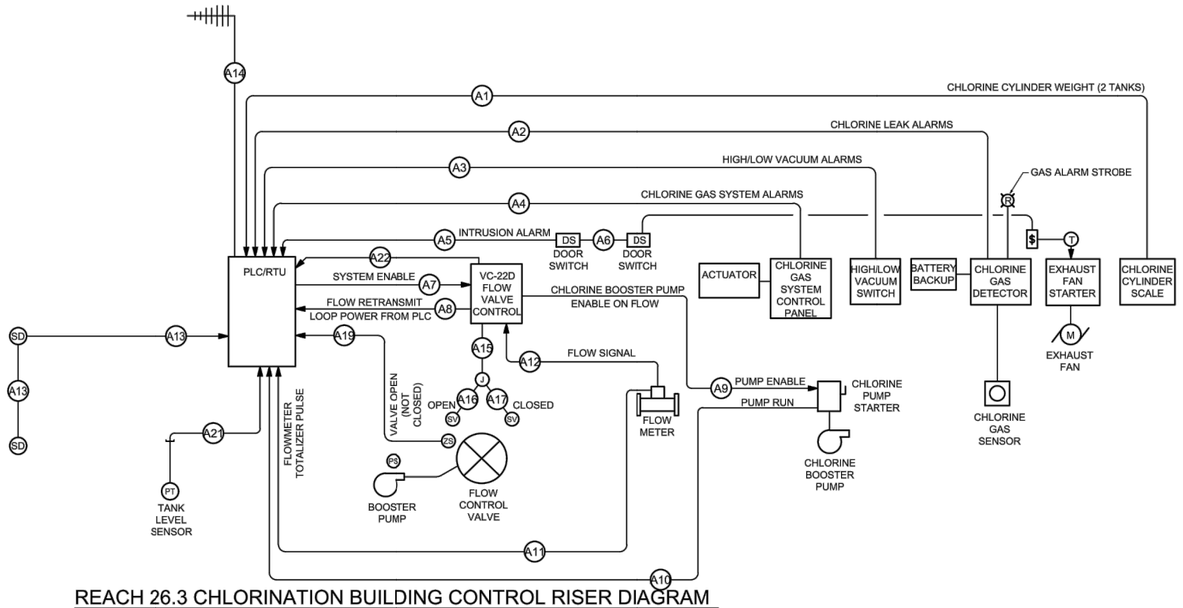
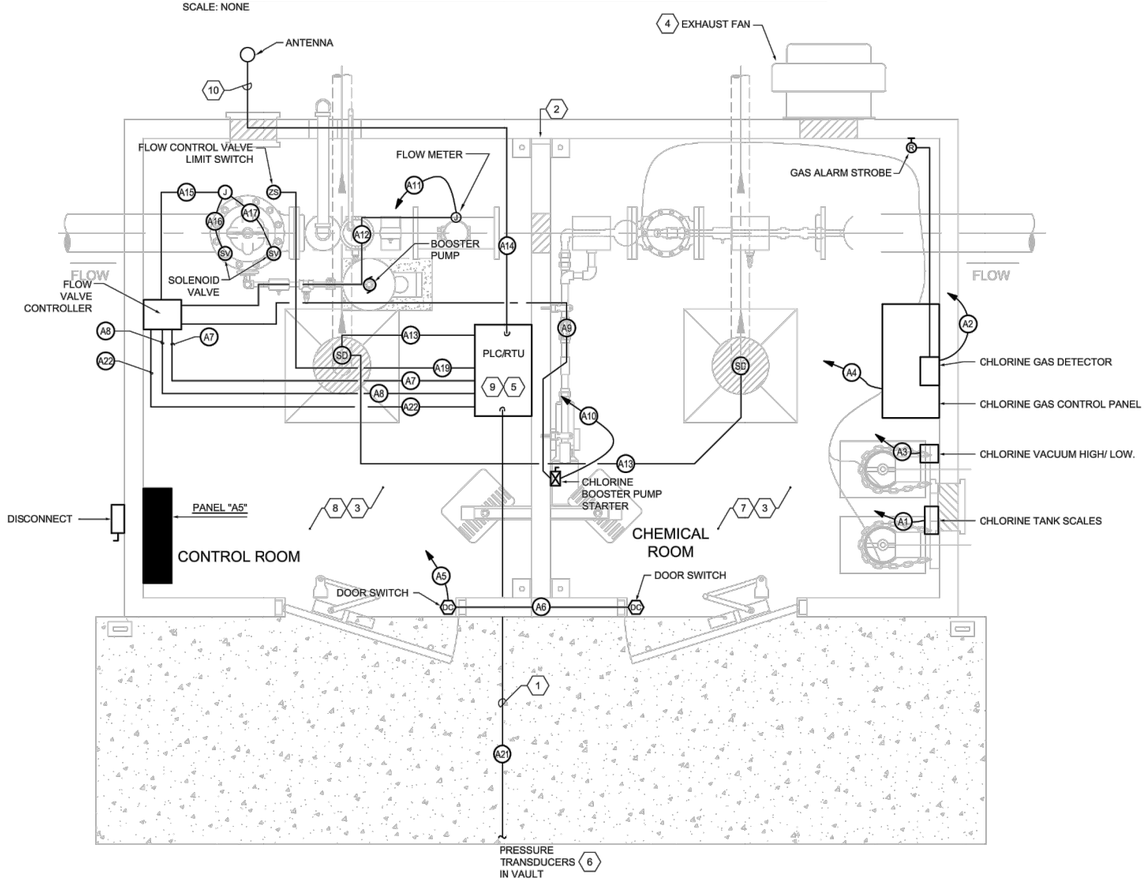


REACH 26.3 CHLORINATION BUILDING CONTROL RISER DIAGRAM

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 TRANSNET 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 REQUIRMENTS
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.

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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

Designed TR | Drawn TRG | Checked DDR

TERRY R. DEROUSSE — NEW MEXICO — 6729 — REGISTERED PROFESSIONAL ENGINEER — 10/03/18

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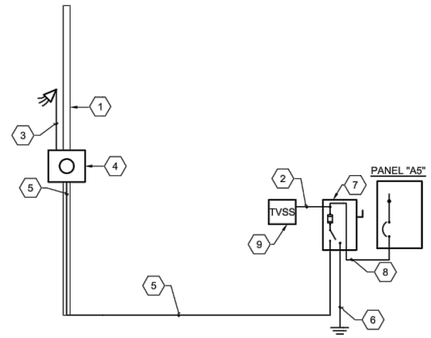


REACH 26.3
CHLORINATOR BUILDING POWER RISER DIAGRAM

SCALE: NONE

KEYED NOTES

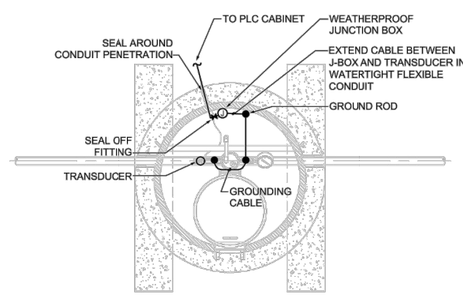
1. PROVIDE AND INSTALL A 25'-0" SOUTHERN PINE CLASS 4 WOOD POLE FOR THE INSTALLATION OF RISER, METER AND DISCONNECT. LOCATE POLE TO PROVIDE A MINIMUM OF 3'-0" CLEARANCE BETWEEN FENCE AND FACE OF METER.
2. 4 # 8 - 1" CONDUIT BETWEEN TVSS AND PANEL.
3. PROVIDE A 2" RGS CONDUIT ON POLE RISER WITH CONDUCTORS. COORDINATE INSTALLATION WITH JEMEZ ELECTRIC PRIOR TO PROCEEDING WITH INSTALLATION OF CONDUITS
4. PROVIDE AND INSTALL A 100 AMP 120/240 VOLT METER SOCKET PER THE LOCAL UTILITY COMPANY REQUIREMENT FACING FENCE.
5. 3 #2 CONDUCTORS IN 2" CONDUIT
6. REFER TO TYPICAL 120/240 VOLT GROUND DETAIL
7. PROVIDE AND INSTALL A FUSIBLE DISCONNECT SWITCH, 100 AMPS, 250 VOLTS, 2 POLE, SN AND GROUND LUG, NEMA 3R ENCLOSURE. FUSE AT 100 AMPS. PROVIDE A MINIMUM WORKING CLEARANCE OF 3'-0" WIDE IN FRONT OF DISCONNECT SWITCH PER NEC.
8. 3 # 2, 1 # 8 GROUND 1 1/4" CONDUIT
9. PROVIDE AND INSTALL A TRANSIENT VOLTAGE SURGE SUPPRESSION DEVICE. THE TVSS SHALL BE MANUFACTURED BY RAYCAP #120-2S-M3-3-06-A-H OR APPROVED EQUAL, NEMA 3R ENCLOSURE.

DISCRETE & ANALOG I/O LIST - REFER TO PLANS & SPECIFICATIONS FOR SEQUENCE OF OPERATIONS

Site Name	I/O Name	Tag	Point	Type	Local	SCADA	Notes
Reach 26.3 Chlorination Building							
	Intrusion Alarm Control Room		I1	DI		Yes	
	Intrusion Alarm Chlorine Room		I2	DI		Yes	
	Smoke Detector		I3	DI		Yes	
	Chlorine Leak Warning		I4	DI		Yes	
	Chlorine Leak Alarm		I5	DI		Yes	
	Chlorine Detector Fault		I6	DI		Yes	
	Chlorine High Vacuum Alarm		I7	DI		Yes	
	Chlorine Low Vacuum Alarm		I8	DI		Yes	
	Chlorination System Alarm		I9	DI		Yes	
	Chlorine Booster Pump Running		I10	DI		Yes	
	Flow Valve Open		I11	DI		Yes	
	Low Temperature Alarm		I12	DI		Yes	
	Manual Flow Control Valve Override		I13	DO		Yes	SCADA override tank level function and close control valve
	Chlorinator Flow Meter Totalizer Pulse		I14	DI		Yes	
	Chlorinator Flow Meter Low Battery		I15	DI		Yes	
	Chlorinator Pulse Modular Low Battery		I16	DI		Yes	
	Chlorinator Flow Meter Tamper Alarm		I17	DI		Yes	
	Chlorinator Flow Meter (Totalizer Pulses)		PI1	DI		Yes	SCADA shows totalized volume of water (gallons)
	Vault Flow Meter (Totalizer Pulses)		PI2	DI			
	Flow Enable		DO1	DO	Yes		Interpose Relay From Distribution Tank Level
			DO2	DO			Interpose Relay
	Distribution Tank Level		AI1	AI		Yes	
	Chlorinator Flow Meter (Flow Rate)		AI2	AI		Yes	SCADA shows flow rate (gpm)
	Vault Flow Meter (Flow Rate)		AI3	AI		Yes	SCADA shows flow rate (gpm)
	Chlorine Bottle #1 Weight		AI4	AI		Yes	
	Chlorine Bottle #2 Weight		AI5	AI		Yes	

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



PRESSURE TRANSDUCER VAULT DETAIL

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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

Designed	Drawn	Checked
TR	TRG	DDR

DDR. HOOPER
NEW MEXICO
6729
REGISTERED PROFESSIONAL ENGINEER
10/03/18

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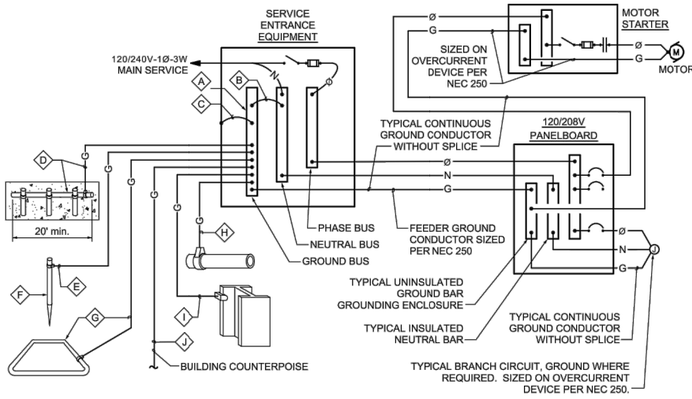

GROUNDING SYSTEM DIAGRAM - 120/240 VOLT SYSTEM

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GROUNDING SYSTEM GENERAL NOTES

A. THE GROUNDING ELECTRODE SYSTEM SHALL CONSIST OF ITEMS (A) (B) (C) (D) (E) (F) AND (G), WHERE APPLICABLE.

B. ITEMS (H) (I) AND (J) MUST BE BONDED TOGETHER AND TO THE GROUNDING ELECTRODE SYSTEM WHEN THEY ARE PRESENT.

C. ITEM (D) CONCRETE ENCASED ELECTRODE (UFER) SHALL HAVE UFER SUPPORT CONSISTING OF 5/8" x 10' COPPER GROUND ROD CUT INTO 2' SECTIONS AND DRIVEN FOR SUPPORT OF UFER CONDUCTOR. ONLY COPPER TO COPPER CONNECTIONS ARE ACCEPTABLE. DO NOT USE RE-BAR FOR UFER SUPPORT. (THIS IS TO AVOID THE HARMFUL EFFECTS OF DISSIMILAR METALS IN CONTACT.) A U.L. LISTED COPPER TO RE-BAR CLAMP (SUCH AS GRAVES "JONES BOND" SYSTEM) IS AN APPROVED ALTERNATIVE.

D. THIS DETAIL IS PROVIDED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE, ARTICLE 250, PERTAINING TO THE ``GROUNDING ELECTRODE SYSTEM".

E. ALL SPLICING SHALL BE ACCOMPLISHED VIA EXOTHERMIC WELD (CAD-WELD) ONLY.

F. ALL CONDUCTOR SIZING INDICATED ON THE GROUNDING SCHEDULE ARE FOR COPPER CONDUCTORS. ALUMINUM IS NOT PERMITTED.

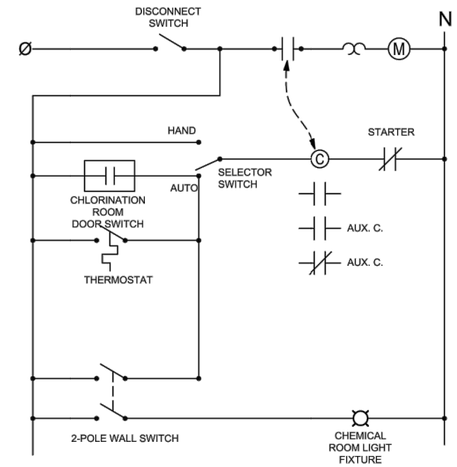
G. ANY VARIANCES FROM THIS DIAGRAM AND ASSOCIATED SCHEDULE AND NOTES MUST BE REQUESTED AND APPROVED IN WRITING PRIOR TO INSTALLATION.

H. ALL INSTALLATIONS SHALL COMPLY WITH THE LATEST ADOPTED EDITION OF N.E.C. ARTICLE 250 (ALL SUBPARAGRAPHS) AND ALL STATE AND LOCAL REQUIREMENTS.

I. THE GROUNDING SYSTEM SHALL PROVIDE LESS THAN (4) FOUR OHMS RESISTANCE TO GROUND AT THE SERVICE CONNECTION. THE RESULTS SHALL BE VERIFIED BY AN INDEPENDENT TESTING AGENCY VIA GROUND TEST (FALL-OF-POTENTIAL) AND SUBMITTED TO ELECTRICAL ENGINEER UPON COMPLETION OF PROJECT.

GROUNDING SCHEDULE

CODE REFERENCE / AMPACITY		(A) FACTORY INSTALLED GROUND BUS BAR	(B) INTEGRATED BUS BAR MAIN BOND JUMPER	(C) INTEGRATED BUS BAR CASE BOND JUMPER	(D) CONCRETE ENCASED ELECTRODE (UFER)	(E) GROUNDING ELECTRODE CONDUCTOR TO ROD, PIPE OR PLATE	(F) CU or CU-CLAD STEEL GROUND ROD	(G) COPPER GROUND RING CONDUCTOR	(H) METALLIC PIPING BONDING CONDUCTOR	(I) BUILDING STEEL BONDING CONDUCTOR	(J) BUILDING COUNTER POISE
		N.E.C. 250.102	N.E.C. 250.102	N.E.C. 250.50(c) 250.66(b)	N.E.C. 250.52(c) 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 LUGS 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	#6	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:

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

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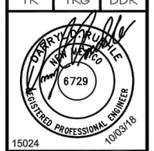
CLIENT: The Navajo Nation — TOWN: Reach 26.3 To Torreon

REACH 26.3 - ELECTRICAL DIAGRAMS AND DETAILS
NAVAJO GALLUP WATER SUPPLY PROJECT - REACH 26.3
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
TR	TRG	DDR



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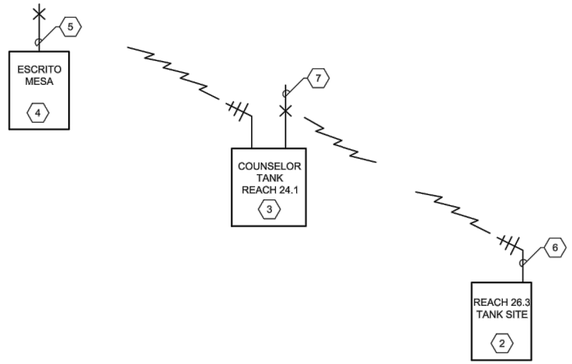
Project No: 6921307

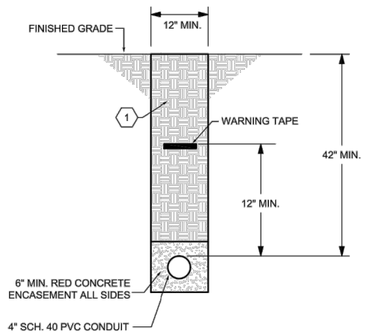
Sheet: E202

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.

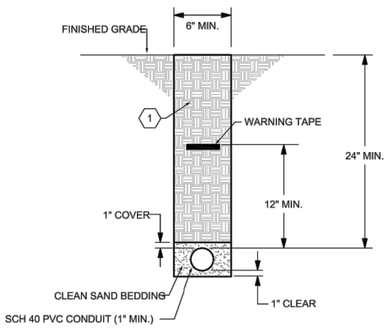


SCADA RADIO TELEMETRY SYSTEM CONFIGURATION



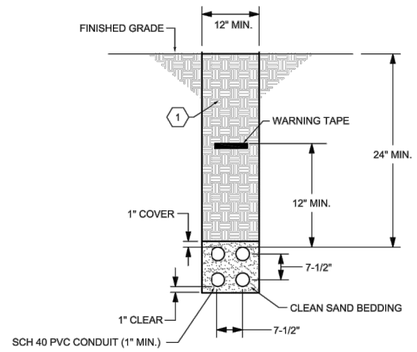
TYPICAL PRIMARY CONDUIT TRENCH DETAIL

SCALE: NONE



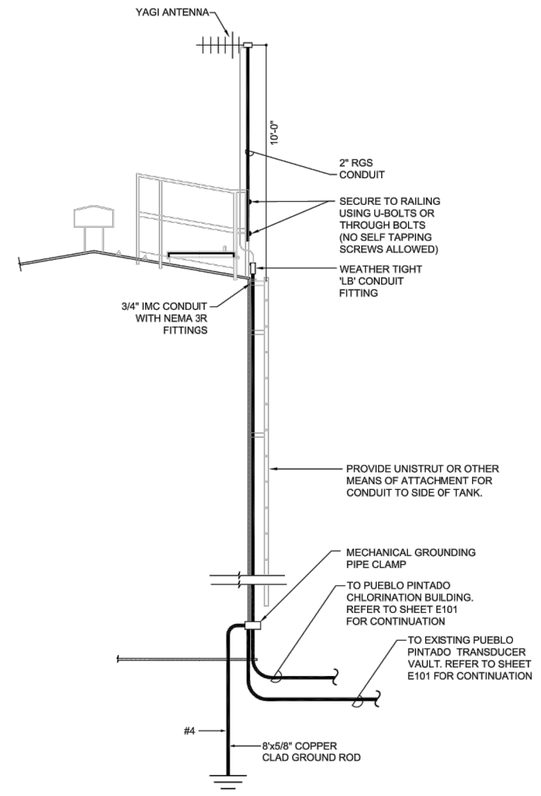
TYPICAL SINGLE CONDUIT TRENCH DETAIL

SCALE: NONE



TYPICAL MULTIPLE CONDUIT TRENCH DETAIL

SCALE: NONE



TYPICAL TANK RADIO TELEMETRY ANTENNA INSTALLATION DETAIL - REACH 26.3

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TOWN: Reach 26.3 To Torreon

REACH 26.3 - ELECTRICAL DETAILS

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

Designed	Drawn	Checked
TR	TRG	DDR

DEBRA D. HARRIMAN
NEW MEXICO
6729
REGISTERED PROFESSIONAL ENGINEER
10/03/18

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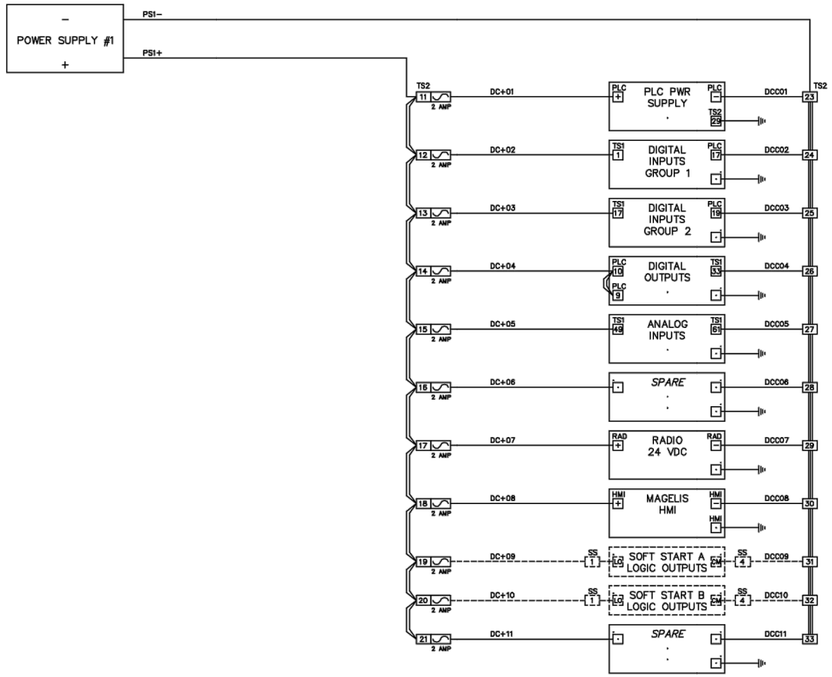

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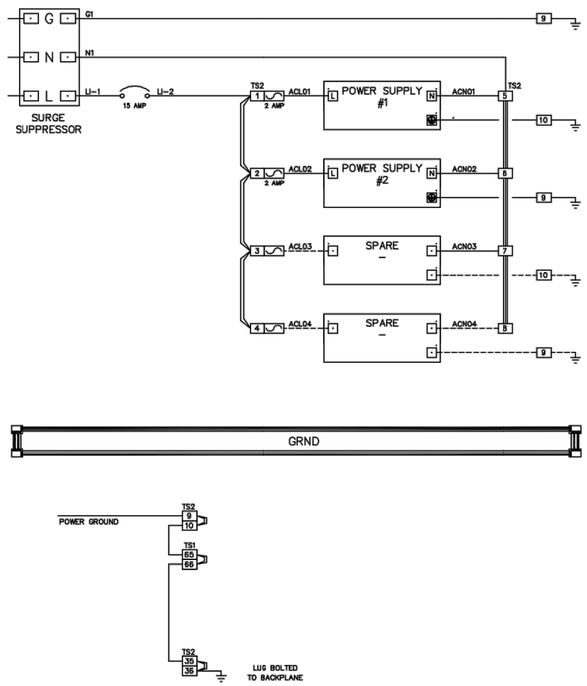

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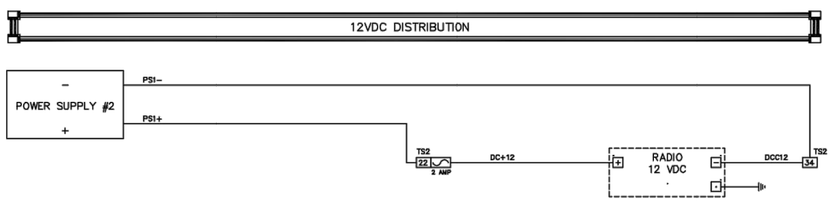

LEGEND	
Field Terminations	----------
Panel Wiring	_____

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NAVAJO TRIBAL UTILITY AUTHORITY

SCALE: NONE

PLC CONTROL PANEL
POWER DISTRIBUTION

SHEET 4 OF 6

Revision	Date	Description	By	Chk'd

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TOWN: Reach 26.3 To Torreon

REACH 26.3 - ELECTRICAL DETAILS

NAVAJO GALLUP WATER SUPPLY PROJECT - REACH 26.3

SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
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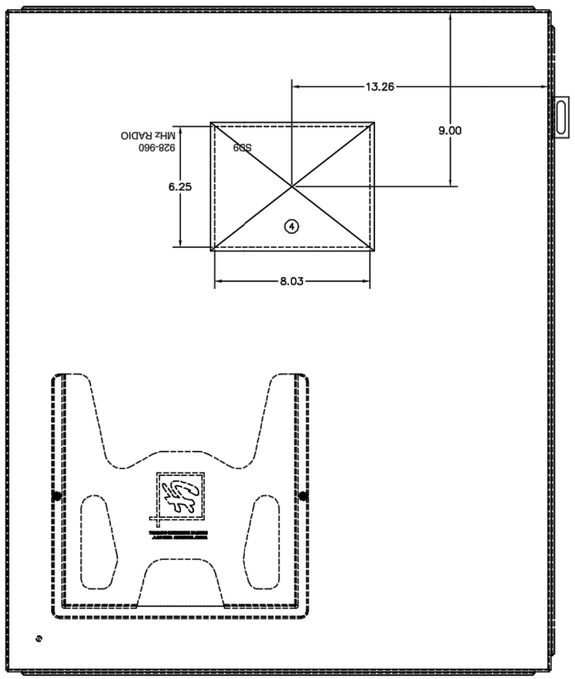

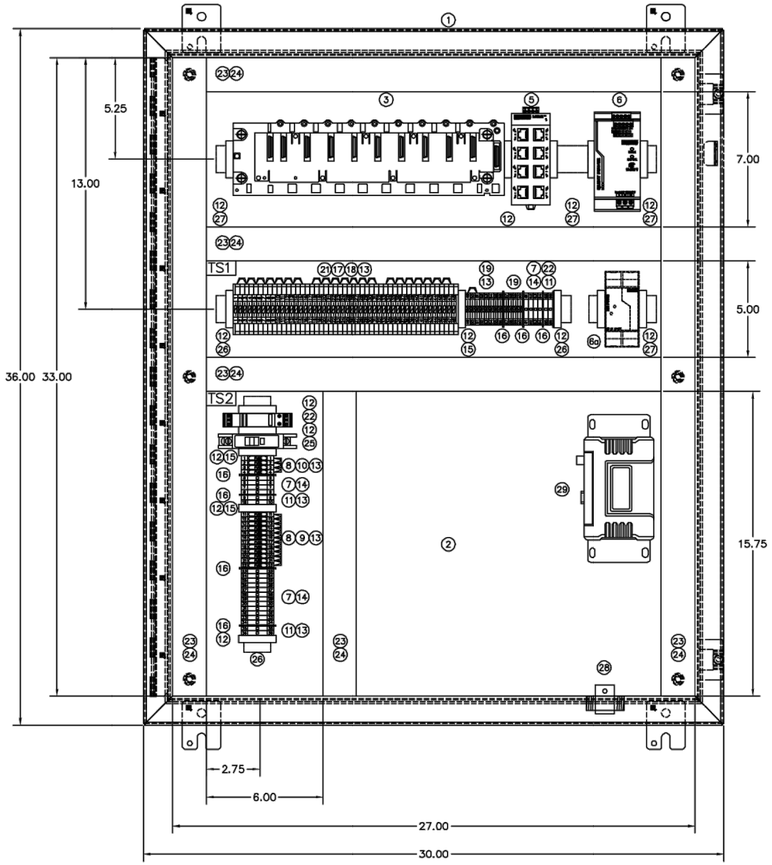

BILL OF MATERIALS

ITEM	QTY	PART NO.	DESCRIPTION	MFG
1	1	SCE-362410P	SINGLE-DOOR TYPE 12 ENCLOSURE	SAGINAW
2	1	SCE-36P30	BACKPLANE	SAGINAW
3*	.	M340	MODICON M340 BOM	MODICON
3a	1	BMXXBM0800	8-SLOT RACK MODULE	MODICON
3b	1	BMXCP3020	POWER SUPPLY MODULE	MODICON
3c	1	BMX342020	CPU PROCESSOR MODULE	MODICON
3d	1	BMXDDI1602	DIGITAL INPUT MODULE	MODICON
3e	1	BMXDRA1605	DIGITAL OUTPUT MODULE	MODICON
3f	1	BMXANI0410	ANALOG INPUT MODULE	MODICON
3g	1	BMXAMO0210	ANALOG OUTPUT MODULE	MODICON
3h	1	BMXNOR0200H	ETHERNET/SERIAL RTU MODULE	MODICON
3i	4	BMXFTB2010	REMOVABLE CONNECTION BLOCK - SCREW CLAMP	MODICON
4	1	HMIGTO2310	GRAPHIIC TERMINAL TOUCHSCREEN (MAGELIS)	SCHNEIDER ELECTRIC
5	1	FL SWITCH SFN 8TX	ETHERNET SWITCH	PHOENIX CONTACT
6	1	QUINT-PS/1AC/24DC/10	POWER SUPPLY 22.5-28.5V ADJUSTABLE	PHOENIX CONTACT
6a	1	MINI-PS-100-240 AC/10-15DC/2	POWER SUPPLY 10-15V ADJUSTABLE	PHOENIX CONTACT
7	20	UK5 N	UK5 N TERMINALS	PHOENIX CONTACT
8	16	UK4TG	FUSE TERMINAL BASE	PHOENIX CONTACT
9	12	ST-SILED24UK4	FUSE	PHOENIX CONTACT
10	4	ST-SILA250UK4	FUSE	PHOENIX CONTACT
11	6	USLKG5	GROUNDING TERMINAL	PHOENIX CONTACT
12	15	E/NS35N	END CLAMP	PHOENIX CONTACT
13	10	FB10-6 #0201184	FIXED BRIDGE	PHOENIX CONTACT
14	10	EB10-6 #0201139	INSERTION BRIDGE	PHOENIX CONTACT
15	10	D-UK4/10	END COVER	PHOENIX CONTACT
16	10	ATP-UK	PARTITION PLATES	PHOENIX CONTACT
17	3	DP-UKK3/5BK #2770833	SLKK5 SPACER PLATE	PHOENIX CONTACT
18	3	D-UK3/5BK #2770228	SLKK5 ENDCOVER	PHOENIX CONTACT
19	12	TT-UK5/24DC #2794699	TERMITRAB UK5 W/SUPPRESSOR DIODE	PHOENIX CONTACT
20	.	.	.	.
21	48	TT-SLKK5/24DC #2794903	TERMITRAB SLKK5 W/VARISTOR 24DC (MOV)	PHOENIX CONTACT
22	1	PT2PE/S12DFM	TERMITRAB AC SURGE PROTECTION	PHOENIX CONTACT
23	AN	F2X4LG6	TYPE F NARROW SLOT WIRING DUCT	PANDUIT
24	AN	C2LG6	WIRING DUCT COVER	PANDUIT
25	1	QOU115	CIRCUIT BREAKER	SQUARE D
26	1	1492DR6	EXTENDED DIN RAIL	ALLEN BRADLEY
27	1	1492-DR5	DIN RAIL	ALLEN BRADLEY
28	1	IS-50NX-C2	LIGHTNING ARRESTER	POLYPHASER
29	1	SD9	928-960 MHz RADIO	GEMDS
30	1	CAT5E	CABLE - PLC TO HMI	BELKIN
31	1	.	CABLE - PLC TO MODEM (TO LENGTH)	.

AN - As needed
3* - BOM - To include items 3a-3g.

NO.	DATE	DESCRIPTION	BY
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DATE: .
DRN. . CHD. .
APVD. .

TITLE: PLC CONTROL PANEL BACKPLANE

SHEET 5 OF 6

Revision	Date	Description	By	Chk'd

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TOWN: Reach 26.3 To Torreon

REACH 26.3 - ELECTRICAL DETAILS
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACH 26.3
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

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REGISTERED PROFESSIONAL ENGINEER 6729 10/03/16

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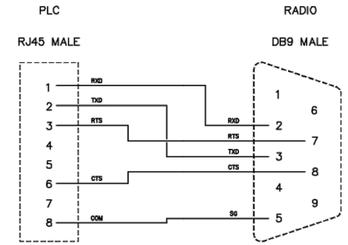

A CABLE DIAGRAM: PLC TO RADIO

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NAVAJO TRIBAL UTILITY AUTHORITY

SCALE: NONE	REVISIONS	BY	DATE
DATE: .	.	.	.
DRN. . CHK. .	.	.	.
APVD. .			

TITLE: PLC CONTROL PANEL
CABLE PINOUT

MAP

SHEET 6 OF 6

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10/03/18

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