NAVAJO GALLUP WATER SUPPLY PROJECT

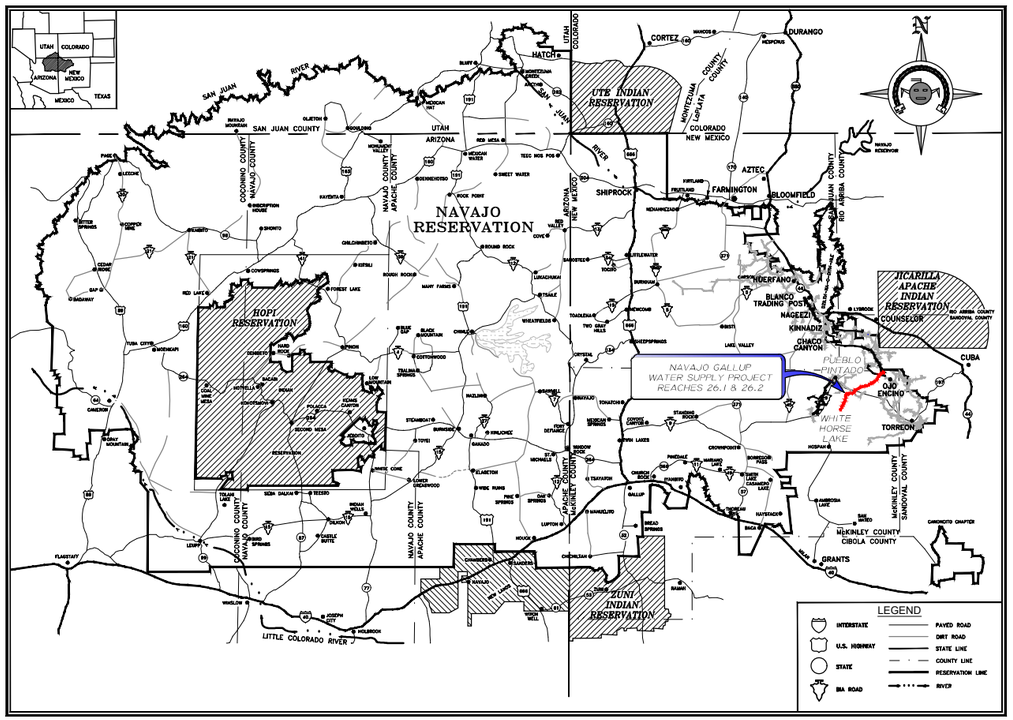
REACHES 26.1 & 26.2

OJO ENCINO TO PUEBLO PINTADO, NM

September 2017

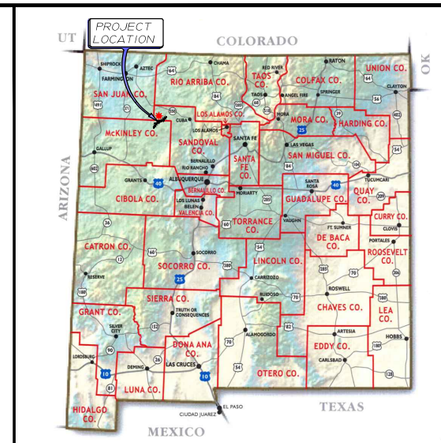
PROJECT DESCRIPTION

THE PROJECT CONSISTS OF CONSTRUCTION OF
2.66 MILES OF 12" PVC WATERLINE, 16.03 MILES OF 10" PVC WATERLINE,
(2x) 175K GALLON WATER STORAGE TANKS WITH CHLORINATOR
AT PUEBLO PINTADO TANK SITE, SURGE TANK SITE.



NAVAJO RESERVATION
PROJECT SITE MAP

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PROJECT VICINITY MAP

DRAWING LIST

SHEET #	DESCRIPTION	SHEET #	DESCRIPTION
G-1	COVER SHEET & DRAWING LIST	DT-1	PIPELINE TRENCH DETAILS
G-2	GENERAL NOTES & LEGEND	DT-2	MISCELLANEOUS CONSTRUCTION DETAILS
C-1	PROJECT SITE PLAN AND DRAWING KEY INDEX	DT-3	THRUST BLOCK AND MECHANICAL JOINT RESTRAINT DETAILS
C-2	SURVEY CONTROL PLAN (1 of 7)	DT-4	GAS LINE CROSSING DETAILS
C-3	SURVEY CONTROL PLAN (2 of 7)	DT-5	ROAD CROSSING DETAILS
C-4	SURVEY CONTROL PLAN (3 of 7)	DT-6	PIPELINE BALL VALVE DETAIL
C-5	SURVEY CONTROL PLAN (4 of 7)	DT-7	PIPELINE AND SITE GATE VALVE DETAILS
C-6	SURVEY CONTROL PLAN (5 of 7)	DT-8	2-INCH VACUUM BREAKER WITH 1-INCH AIR RELEASE VALVE DETAIL
C-7	SURVEY CONTROL PLAN (6 of 7)	DT-9	4-INCH FLUSH VALVE WITH RISER DETAIL
C-8	SURVEY CONTROL PLAN (7 of 7)	DT-10	2-INCH FLUSH VALVE WITH ABOVE-GRADE DISCHARGE
C-9	PLAN & PROFILE STA 0+05.9 To STA 25+50	DT-11	YARD HYDRANT, SENSOR LINE & TRANSDUCER VAULT DETAILS
C-10	PLAN & PROFILE STA 25+50 To STA 53+50	DT-12	PRE FABRICATED CONTROL VALVE VAULT DETAILS (1 of 3)
C-11	PLAN & PROFILE STA 53+50 To STA 81+50	DT-13	PRE FABRICATED CONTROL VALVE VAULT DETAILS (2 of 3)
C-12	PLAN & PROFILE STA 81+50 To STA 109+50	DT-14	PRE FABRICATED CONTROL VALVE VAULT DETAILS (3 of 3)
C-13	PLAN & PROFILE STA 109+50 To STA 137+50	DT-15	SURGE TANK DETAILS
C-14	PLAN & PROFILE STA 137+50 To STA 165+50	DT-16	SURGE TANK BUILDING FOUNDATION PLAN (1 of 3)
C-15	PLAN & PROFILE STA 165+50 To STA 193+50	DT-17	SURGE TANK BUILDING FOUNDATION PLAN (2 of 3)
C-16	PLAN & PROFILE STA 193+50 To STA 221+50	DT-18	SURGE TANK BUILDING FOUNDATION PLAN (3 of 3)
C-17	PLAN & PROFILE STA 221+50 To STA 249+50	DT-19	SURGE TANK BUILDING SECTION
C-18	PLAN & PROFILE STA 249+50 To STA 277+50	DT-20	SURGE TANK BUILDING DETAILS
C-19	PLAN & PROFILE STA 277+50 To STA 305+50	DT-21	PUEBLO PINTADO TANKS
C-20	PLAN & PROFILE STA 305+50 To STA 333+50	DT-22	PUEBLO PINTADO TANKS
C-21	PLAN & PROFILE STA 333+50 To STA 361+50	DT-23	TYPICAL WATER STORAGE TANK DETAILS (1 of 2)
C-22	PLAN & PROFILE STA 361+50 To STA 390+00	DT-24	TYPICAL WATER STORAGE TANK DETAILS (2 of 2)
C-23	PLAN & PROFILE STA 390+00 To STA 418+00	DT-25	PUEBLO PINTADO CHLORINATION SYSTEM DETAILS (1 of 2)
C-24	PLAN & PROFILE STA 418+00 To STA 445+50	DT-26	PUEBLO PINTADO CHLORINATION SYSTEM DETAILS (2 of 2)
C-25	PLAN & PROFILE STA 445+50 To STA 473+50	DT-27	PUEBLO PINTADO PRECAST 2-ROOM CHLORINATION BUILDING & PIPING
C-26	PLAN & PROFILE STA 473+50 To STA 501+50	DT-28	PRECAST 2-ROOM CHLORINATION BUILDING DETAILS
C-27	PLAN & PROFILE STA 501+50 To STA 529+50	DT-29	STANDARD FENCE AND CABLE BARRIER DETAILS
C-28	PLAN & PROFILE STA 529+50 To STA 554+50	DT-30	EROSION CONTROL DETAILS (1 of 3)
C-29	PLAN & PROFILE STA 554+50 To STA 579+50	DT-31	EROSION CONTROL DETAILS (2 of 3)
C-30	PLAN & PROFILE STA 579+50 To STA 604+50	DT-32	EROSION CONTROL DETAILS (3 of 3) AND R-O-W GRADING
C-31	PLAN & PROFILE STA 604+50 To STA 629+50	DT-33	TRAFFIC CONTROL (PAVED ROAD)
C-32	PLAN & PROFILE STA 629+50 To STA 654+50	DT-34	TRAFFIC CONTROL (GRAVEL AND DIRT ROAD)
C-33	PLAN & PROFILE STA 654+50 To STA 680+00	E001	GENERAL NOTES - ELECTRICAL PLANS
C-34	PLAN & PROFILE STA 680+00 To STA 723+50	E101	PUEBLO PINTADO ELECTRICAL SITE PLAN
C-35	PLAN & PROFILE STA 723+50 To STA 751+50	E102	PUEBLO PINTADO CHLORINATION BUILDING ELECTRICAL PLANS
C-36	PLAN & PROFILE STA 751+50 To STA 779+50	E103	PUEBLO PINTADO CHLORINATION BUILDING - SCADA SYSTEM AND CONTROL
C-37	PLAN & PROFILE STA 779+50 To STA 807+50	E104	SURGE TANK ELECTRICAL SITE PLAN
C-38	PLAN & PROFILE STA 807+50 To STA 835+50	E105	SURGE TANK BUILDING - ELECTRICAL PLANS
C-39	PLAN & PROFILE STA 835+50 To STA 863+50	E106	PRV - ELECTRICAL SITE PLAN
C-40	PLAN & PROFILE STA 863+50 To STA 891+50	E107	CONTROL VALVE VAULT ELECTRICAL PLAN
C-41	PLAN & PROFILE STA 891+50 To STA 919+50	E201	ELECTRICAL SCHEDULES AND DETAILS
C-42	PLAN & PROFILE STA 919+50 To STA 946+50	E202	ELECTRICAL DIAGRAMS AND DETAILS
C-43	PLAN & PROFILE STA 946+50 To STA 974+50	E203	ELECTRICAL DETAILS
C-44	PLAN & PROFILE STA 974+50 To STA 987+73.0	E301	ELECTRICAL DETAILS
C-45	SURGE TANK SITE PLAN	E302	ELECTRICAL DETAILS
C-46	SURGE TANK SITE GRADING PLAN	E303	ELECTRICAL DETAILS
C-47	SURGE TANK SITE PIPING PLAN		
C-48	CONTROL VALVE VAULT SITE PLAN		
C-49	PUEBLO PINTADO OVERALL TANK SITE PLAN		
C-50	PUEBLO PINTADO TANK SITE PLAN		
C-51	PUEBLO PINTADO TANK SITE GRADING PLAN		
C-52	PUEBLO PINTADO TANK SITE PIPING PLAN		
C-53	PUEBLO PINTADO TANK SITE VALVE NUMBERS		

Revision	Date	Description	By	Chk'd

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9/25/2017 - 7:09:14 AM - aav

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CLIENT: The Navajo Nation TOWN: Ojo Encino To Pueblo Pintado, NM

COVER SHEET & DRAWING LIST
NAVAJO GALLUP WATER SUPPLY PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
TTT	MvH/AaV	AGR

100% DESIGN

PRELIMINARY
NOT FOR CONSTRUCTION

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: September 25, 2017

Scale: Horiz: NONE
Vert: N/A

Project No: 6921307

Sheet: G-1

GENERAL NOTES

1. THE ENGINEER WAIVES ANY AND ALL RESPONSIBILITY AND IS NOT LIABLE FOR PROBLEMS THAT MAY ARISE FROM CONTRACTOR'S FAILURE TO FOLLOW THESE DRAWINGS, SPECIFICATIONS, AND THE DESIGN INTENT THEY CONVEY, OR FOR PROBLEMS ARISING FROM FAILURE TO OBTAIN AND/OR FOLLOW THE ENGINEER'S GUIDANCE WITH RESPECT TO ANY ERRORS, OMISSIONS, INCONSISTENCIES, AMBIGUITIES, OR CONFLICTS.

2. IF THERE IS A CONFLICT BETWEEN THE PLANS, SPECIFICATIONS AND/OR MANUFACTURER'S RECOMMENDATIONS FOR ANY DEVICE, PART, OR MATERIAL USED IN THE PROJECT, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER, IN WRITING, FOR CLARIFICATION AT LEAST TWO WEEKS PRIOR TO CONSTRUCTION OF SAID DEVICE, PART, OR MATERIAL.

3. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO FAMILIARIZE HIMSELF WITH THE LOCATION OF ALL UTILITIES LOCATED WITHIN THE LIMITS OF CONSTRUCTION. THE GENERAL LOCATION OF KNOWN EXISTING UTILITIES HAS BEEN SHOWN ON THE CONSTRUCTION DRAWINGS TO INDICATE THAT CAUTION MUST BE EXERCISED WHEN WORKING IN THESE AREAS. IN MANY CASES THE EXACT LOCATION OF THE FACILITIES IS NOT KNOWN. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND PROTECTING ALL OVERHEAD AND UNDERGROUND UTILITIES WITHIN THE VICINITY OF THE NEW CONSTRUCTION. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR, WORKING WITH THE RESPECTIVE UTILITY COMPANIES, SHALL ACCURATELY LOCATE AND MARK ALL BURIED FACILITIES, INCLUDING SERVICE LINES. ALL EQUIPMENT LABOR, ETC. NECESSARY TO PROPERLY LOCATE THE EXISTING UTILITIES SHALL BE FURNISHED BY THE CONTRACTOR, THE COST OF WHICH SHALL BE INCIDENTAL TO THE WORK.

4. CONTRACTOR SHALL REPAIR ANY EXISTING STRUCTURE OR UTILITY PIPELINE DAMAGED DURING THE EXECUTION OF THE PROJECT, AT NO ADDITIONAL COSTS TO THE OWNER.

5. CONTRACTOR IS SOLELY RESPONSIBLE FOR CONSTRUCTING THE PROJECT ACCORDING TO CURRENT NEW MEXICO STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (NMSSPWC) AWWA SPECS AND NAVAJO NATION / NTUA STANDARDS, INCLUDING WHERE PARTICULAR WORK ITEMS ARE NOT SPECIFIED HEREIN.

6. CONTRACTOR SHALL COMPLY WITH ALL REQUIREMENTS AS SET FORTH IN THE TECHNICAL SPECIFICATIONS AND CONTRACT DOCUMENTS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT THE ENGINEER REGARDING ANY QUESTION ARISING FROM ANY ASPECT OF THIS PROJECT NOT SPECIFICALLY COVERED IN THE PLANS AND TECHNICAL SPECIFICATIONS, OR ANY CHANGES OR CORRECTIONS TO THE PLANS AND SPECS.

7. THESE DRAWINGS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY, WHICH SHALL REMAIN WHOLLY THE RESPONSIBILITY OF THE CONTRACTOR. ALL WORK ON THIS PROJECT SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE FEDERAL (OSHA), STATE, TRIBAL AND LOCAL LAWS, RULES AND REGULATIONS CONCERNING SAFETY AND HEALTH. ALL EXCAVATION, TRENCHING AND SHORING ACTIVITIES MUST BE CARRIED OUT IN ACCORDANCE WITH OSHA 29 CFR 1926, SUBPART P - EXCAVATIONS.

8. CONTRACTOR SHALL PROVIDE INGRESS AND EGRESS TO ANY LOCAL BUSINESSES AND RESIDENTS AS REQUIRED FOR THE DURATION OF THE PROJECT. THE CONTRACTOR SHALL ADVISE OF AND SCHEDULE ACCESS CLOSURES AT LEAST 24 HOURS IN ADVANCE WITH PROPERTY OWNERS AND THE ENGINEER.

9. THE CONTRACTOR SHALL CONFINE HIS OPERATIONS TO THE CONSTRUCTION LIMITS OF THE PROJECT AND SHALL IN NO WAY ENCROACH ONTO ADJACENT PROPERTIES UNLESS LEGAL EASEMENTS ARE PROVIDED OR SECURED BY THE CONTRACTOR. THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR ANY DAMAGE CAUSED BY CONSTRUCTION ACTIVITIES TO PUBLIC OR PRIVATE PROPERTY, INCLUDING UTILITIES.

10. THE DRAWINGS CONTAIN SPECIFIC EROSION CONTROL FEATURES DESIGNED BY THE ENGINEER TO PROTECT PROJECT FACILITIES FROM EROSION. THESE FEATURES ARE NOT DESIGNED TO PREVENT POLLUTION OF WATERWAYS DUE TO SEDIMENT. THE CONTRACTOR IS WHOLLY RESPONSIBLE TO PROVIDE A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AND IMPLEMENT THE BEST MANAGEMENT PRACTICES (BMPs) REQUIRED THEREIN, IN ADDITION TO THE FEATURES SHOWN ON THE DRAWINGS. ALL BID ITEMS REFERRING TO SPECIFIC EROSION CONTROL FEATURES, SUCH AS RIPRAP OR ROCK DAMS, ARE APPLICABLE ONLY TO FEATURES DESIGNED BY THE ENGINEER. A SEPARATE BID ITEM(S) IS PROVIDED FOR PREPARATION AND IMPLEMENTATION OF THE CONTRACTOR'S SWPPP.

11. ALL RIPRAP, ROCK CHECK DAMS AND OTHER EROSION CONTROL FEATURES SHOWN ON THE DRAWINGS ARE APPROXIMATE WITH REGARD TO QUANTITY, LOCATION, DIMENSIONS, SPACING, AND ORIENTATION. EXACT PLACEMENT WILL BE DETERMINED IN FIELD BY ENGINEER AFTER FINAL GRADING IS COMPLETE.

12. ALL AREAS DISTURBED BY THE CONSTRUCTION ACTIVITIES OF THIS PROJECT SHALL BE RESTORED AND RE-GRADED IN A MANNER ACCEPTABLE TO THE OWNER, ENGINEER, AND LAND OWNER. ALL DISTURBED AREAS SHALL BE RE-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. 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):

ANDREW ROBERTSON, P.E (OFFICE) (505) 299-0942 (CELL) (505) 264-1488

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
NEC	NATIONAL ELECTRICAL CODE
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
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
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

Date Plotted: 9/25/2017 - 7:08:16 AM
File: G:\Projects\Navajo Gallup Water Supply\Drawings\Cover\Gen Notes.dwg

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CLIENT: The Navajo Nation TOWN: Op Enviro To Pueblo Pintado, NM

GENERAL NOTES & LEGEND
NAVAJO GALLUP WATER SUPPLY PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

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TTT	MvH/AaV	AGR

100% DESIGN

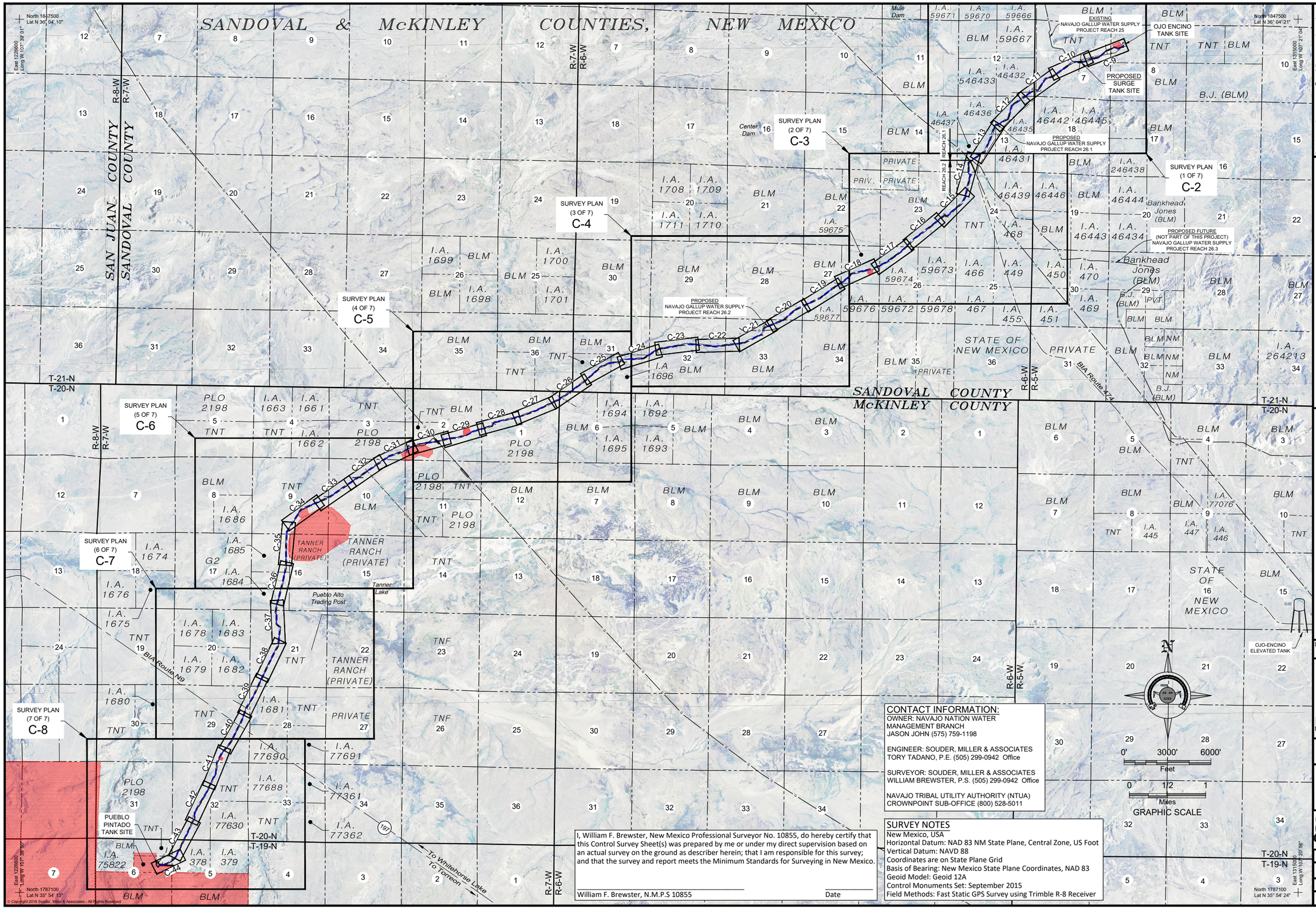
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THIS CONTRACT ALLOWS THE OWNER TO MAKE PAYMENT WITHIN 45 DAYS AFTER SUBMISSION OF AN UNDISPUTED REQUEST FOR PAYMENT.

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

Date: September 25, 2017
Scale: Horiz:
Vert:
Project No: 6921307
Sheet: G-2



CONTACT INFORMATION:
OWNER: NAVAJO NATION WATER MANAGEMENT BRANCH
JASON JOHN (575) 759-1198

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

I, William F. Brewster, New Mexico Professional Surveyor No. 10855, do hereby certify that this Control Survey Sheet(s) was prepared by me or under my direct supervision based on an actual survey on the ground as describer herein; that I am responsible for this survey; and that the survey and report meets the Minimum Standards for Surveying in New Mexico.

William F. Brewster, N.M.P.S 10855 — Date

SURVEY NOTES
New Mexico, USA
Horizontal Datum: NAD 83 NM State Plane, Central Zone, US Foot
Vertical Datum: NAVD 88
Coordinates are on State Plane Grid
Basis of Bearing: New Mexico State Plane Coordinates, NAD 83
Geoid Model: Geoid 12A
Control Monuments Set: September 2015
Field Methods: Fast Static GPS Survey using Trimble R-8 Receiver

North 1787100
Lat N 35° 54' 49"
East 1226600
Long W 107° 39' 01"
North 1787100
Lat N 35° 54' 24"
East 1315000
Long W 107° 20' 58"

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Revision	Date	Description	By	Chk'd

Date Plotted: 9/28/2017 - 7:09:09 AM
User Name: Esther Phelps, BC Survey TOPO Base.dwg

SOUDER, MILLER & ASSOCIATES
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ALBUQUERQUE, NM 87113
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Cortez, Grand Junction, CO - Safford, AZ - Moab, UT - El Paso, TX
SMA Engineering + Environmental Surveying

CLIENT: The Navajo Nation
TOWN: Ojo Encino To Pueblo Pintado, NM

PROJECT SITE PLAN AND DRAWING KEY INDEX
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
AGR	AAV	WFB

100% DESIGN

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Date: September 28, 2017
Scale: Horiz: 1" = 6000'
Vert: N/A
Project No: 6921307
Sheet: C-1

SANDOVAL COUNTY, NEW MEXICO

North 1848400
Lat 36°04'27"
East 1289700
Long -107°26'13"

Indian Allotment 59671
Indian Allotment 59670
Indian Allotment 59666
Indian Allotment 59667
Indian Allotment 546433
Indian Allotment 46432
Indian Allotment 46436
Indian Allotment 46435
Indian Allotment 46442
Indian Allotment 46445
Indian Allotment 46437
Indian Allotment 46431

Bureau of Land Management

Navajo Tribal Trust

R-6-W
R-5-W

FOUND MONUMENT
2 1/2" BC SECCOR 2/1/11/12
N=1847400.70
E=1291543.64

FOUND MONUMENT
2 1/2" IN BC S1/4 SEC 1
N=1847434.16
E=1294181.05

FOUND MONUMENT
FD USGLO SEC 1
N=1847468.17
E=1296817.31

SMA CONTROL POINT 20
1/2" REBAR W/ PLASTIC CAP
N = 1847360.82
E = 1294193.68
ELEV = 7002.72

FOUND MONUMENT
FD USGLO SEC 5
N=1847097.35
E=1302076.97

FOUND MONUMENT
FD USGLO S1/4 SEC6
N=1847277.62
E=1299449.63

SMA CONTROL POINT 24
1/2" REBAR W/ PLASTIC CAP
N = 1846863.30
E = 1301511.98
ELEV = 7170.98

EXISTING
NAVAJO GALLUP WATER SUPPLY
PROJECT REACH 25

EXISTING
OJO ENCINO NORTHWEST
DISTRIBUTION TANK
30' Dia x 20' Ht.
Base Elev: 7291.47
Overflow Elev: 7310.97
Capacity: 100k gal

EXISTING
OJO ENCINO SOUTHWEST
REGULATING TANK
22.5' Dia. x 42' Ht.
Base Elev: 7291.50
Overflow Elev: 7332.75
Capacity: 100k gal

EXISTING
OJO ENCINO EAST
DISTRIBUTION TANK
45' Dia. x 20' Ht.
Base Elev: 7291.47
Overflow Elev: 7310.97
Capacity: 200k gal

CULTURALLY SENSITIVE AREA
DO NOT IMPROVE OR ENCROACH
BEYOND EXISTING ACCESS ROAD

PI STA -0+29.7
N=1845592.14
E=1302904.87

PI STA -0+04.8
N=1845583.82
E=1302881.43

PI STA -1+69.3
N=1845718.4680
E=1302930.8128

PI STA -1+03.2
N=1845653.94
E=1302944.73

PI STA 5+82.4
N=1845560.18
E=1302331.65

PI STA 7+88.0
N=1845479.58
E=1302142.45

BEGIN WATERLINE
STA = 0+05.9
N=1845580.24
E=1302871.36

PI STA 3+38.3
N=1845469.03
E=1302558.10

PI STA 12+15.0
N=1845323.49
E=1301745.06

PI STA 19+32.4
N=1844849.59
E=1301206.40

SMA CONTROL POINT 23
1/2" REBAR W/ PLASTIC CAP
N = 1845391.24
E = 1298163.08
ELEV = 7113.23

FOUND MONUMENT
2 1/2" BC W1/4 S12
N=1844782.25
E=1291517.73

FOUND MONUMENT
FD USGLO W1/4 SEC7
N=1844828.39
E=1296785.72

SMA CONTROL POINT 246
1/2" REBAR W/ PLASTIC CAP
N = 1844673.83
E = 1296947.01
ELEV = 7125.18

PI STA 29+68.4
N=1844545.25
E=1300221.05

PI STA 37+47.4
N=1844538.03
E=1299442.00

PI STA 24+33.3
N=1844749.30
E=1300715.66

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

PROPOSED
NAVAJO GALLUP WATER SUPPLY
PROJECT REACH 26.1

PROPOSED
SURGE TANK SITE
(SEE SHTS. C-45 THRU C-47)

SMA CONTROL POINT 22
1/2" REBAR W/ PLASTIC CAP
N = 1843899.63
E = 1293791.82
ELEV = 7012.66

SMA CONTROL POINT 247
1/2" REBAR W/ PLASTIC CAP
N = 1843930.94
E = 1299779.31
ELEV = 7135.65

FOUND MONUMENT
FD USGLO E1/4 SEC7
N=1844484.16
E=1302033.00

PI STA 60+02.6
N=1843380.25
E=1297532.14

PI STA 54+90.2
N=1843525.66
E=1298023.48

PI STA 72+98.0
N=1842576.07
E=1296674.39

PI STA 79+83.3
N=1842152.84
E=1296135.34

PI STA 69+67.7
N=1842572.05
E=1297004.62

SMA CONTROL POINT 245
1/2" REBAR W/ PLASTIC CAP
N = 1842662.40
E = 1298401.37
ELEV = 7098.43

SMA CONTROL POINT 26
1/2" REBAR W/ PLASTIC CAP
N = 1842978.61
E = 1302975.59
ELEV = 7253.68

SMA CONTROL POINT 244
1/2" REBAR W/ PLASTIC CAP
N = 1842495.33
E = 1294017.70
ELEV = 7047.19

FOUND MONUMENT
2 1/2 BC SECCOR 11/12/14/13
N=1842159.51
E=1291490.97

FOUND MONUMENT
2 1/2" BC N1/4 S13
N=1842174.86
E=1294121.57

PI STA 90+89.0
N=1841545.87
E=1295211.19

FOUND MONUMENT
FD USGLO SECCOR 7/12/13/18
N=1842169.14
E=1296767.34

FOUND MONUMENT
FD USGLO S1/4 SEC7
N=1842047.64
E=1299506.52

SMA CONTROL POINT 25
1/2" REBAR W/ PLASTIC CAP
N = 1841989.57
E = 1299928.21
ELEV = 7143.44

FOUND MONUMENT
FD USGLO SEC 7 8 17 18 T21N R5W
N=1841870.84
E=1302007.74

PI STA 100+57.0
N=1840610.42
E=1294961.94

PI STA 111+05.8
N=1840120.65
E=1294034.61

SMA CONTROL POINT 242
1/2" REBAR W/ PLASTIC CAP
N = 1840217.60
E = 1292450.76
ELEV = 7032.29

SMA CONTROL POINT 243
1/2" REBAR W/ PLASTIC CAP
N = 1839879.32
E = 1296258.04
ELEV = 7034.12

FOUND MONUMENT
2 1/2" BC W1/4 S13
N=1839536.31
E=1291451.06

FOUND MONUMENT
2 1/2 BC E1/4 S13
N=1839550.57
E=1296722.27

PI STA 121+36.3
N=1839148.57
E=1293692.48

PI STA 130+45.4
N=1838324.25
E=1293309.09

PI STA 131+31.7
N=1838289.28
E=1293230.18

MATCHLINE
SEE SHT. C-3 (2 of 7)

North 1838500
Lat 36°02'49"
East 1289700
Long -107°26'11"

North 1848400
Lat 36°04'29"
East 1304300
Long -107°23'15"

North 1838500
Lat 36°02'51"
East 1304300
Long -107°23'13"

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

CONTACT INFORMATION:

OWNER: NAVAJO NATION WATER MANAGEMENT BRANCH
JASON JOHN (575) 759-1198

ENGINEER: SOUDER, MILLER & ASSOCIATES
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NAVAJO TRIBAL UTILITY AUTHORITY (NTUA)
CROWNPOINT SUB-OFFICE (800) 528-5011

SURVEY NOTES

New Mexico, USA
Horizontal Datum: NAD 83 NM State Plane, Central Zone, US Foot
Vertical Datum: NAVD 88
Coordinates are on State Plane Grid
Basis of Bearing: New Mexico State Plane Coordinates, NAD 83
Geoid Model: Geoid 12A
Control Monuments Set: September 2015
Field Methods: Fast Static GPS Survey using Trimble R-8 Receiver

LEGEND

- PROPOSED WATERLINE
- EXISTING WATERLINE
- EXISTING GAS LINE
- EXISTING FENCE
- EXISTING OVERHEAD POWER LINE
- PROPOSED OVERHEAD POWER LINE
- COUNTY LINE
- TOWNSHIP AND RANGE LINE
- SECTION LINE
- QUARTER SECTION LINE
- Tribal Trust — CURRENT LAND STATUS (OWNER)
- PROPOSED 40' WATERLINE EASEMENT
- TEMPORARY CONSTRUCTION EASEMENT
- DIRT ROAD
- 6 — SECTION NUMBER
- SEC COR / QTR COR
- SMA CONTROL POINT
- CULTURALLY SENSITIVE AREA DO NOT ENCROACH
- EXISTING UTILITY POLE
- PROPERTY LINE

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Revision	Date	Description	By	Chk'd

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8/28/2017 - 7:59:29 AM aav

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ALBUQUERQUE, NM 87113
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CLIENT: The Navajo Nation TOWN: Ojo Encino To Pueblo Pintado, NM

SURVEY CONTROL PLAN (1 of 7)
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
AGR	AAV	JDC

100% DESIGN

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Date: September 28, 2017
Scale: Horiz: 1" = 1000'
Vert: N/A
Project No: 6921307
Sheet: C-2

SANDOVAL COUNTY, NEW MEXICO

MATCHLINE
SEE SHT. C-2 (1 of 7)

MATCHLINE
SEE SHT. C-4 (3 of 7)

North 1838000
Lat 36°02'43"
East 1284200
Long 107°07'18"

North 1838000
Lat 36°02'45"
East 1298800
Long 107°04'20"

North 1828100
Lat 36°01'06"
East 1284200
Long 107°07'16"

North 1828100
Lat 36°01'07"
East 1298800
Long 107°04'18"

REACH 26.1
REACH 26.2

PROPOSED
NAVAJO GALLUP WATER SUPPLY
PROJECT REACH 26.1

PROPOSED
NAVAJO GALLUP WATER SUPPLY
PROJECT REACH 26.2

PROPOSED FUTURE
(NOT PART OF THIS PROJECT)
NAVAJO GALLUP WATER SUPPLY
PROJECT REACH 26.3

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

PI STA 140+82.7
N=1837740.16
E=1292453.70

PI STA 143+57.4
N=1837587.96
E=1292225.11

PI STA 151+17.8
N=1836827.56
E=1292216.11

PI STA 152+67.7
N=1836758.54
E=1292349.12

PI STA 168+75.5
N=1835193.01
E=1291982.90

PI STA 173+38.6
N=1834779.58
E=1291774.07

PI STA 180+75.1
N=1834308.82
E=1291207.65

PI STA 187+68.7
N=1833849.44
E=1290688.07

PI STA 189+28.3
N=1833956.27
E=1290569.51

PI STA 202+14.7
N=1833143.20
E=1289572.63

PI STA 215+36.8
N=1832354.09
E=1288511.85

PI STA 228+44.0
N=1831441.87
E=1287575.56

PI STA 240+63.1
N=1830723.03
E=1286590.95

PI STA 250+88.6
N=1830257.63
E=1285677.06

PI STA 267+03.2
N=1829881.98
E=1284106.82

FOUND MONUMENT
2 1/2" BC SECCOR 15/14/22/23
N=1837053.86
E=1286141.59

FOUND MONUMENT
2 1/2" BC N1/4 S23
N=1836984.59
E=1288776.81

SMA CONTROL POINT 239
1/2" REBAR W/ PLASTIC CAP
N = 1837056.24
E = 1290217.14
ELEV = 6939.13

FOUND MONUMENT
2 1/2" BC SECCOR 14/13/23/24
N=1836914.33
E=1291411.65

FOUND MONUMENT
STONE
N=1834424.12
E=1286123.15

FOUND MONUMENT
2 1/2" BC E1/4 S23
N=1834294.45
E=1291389.46

SMA CONTROL POINT 237
1/2" REBAR W/ PLASTIC CAP
N = 1832907.27
E = 1287910.95
ELEV = 7004.38

SMA CONTROL POINT 236
1/2" REBAR W/ PLASTIC CAP
N = 1832253.13
E = 1290494.07
ELEV = 6951.55

FOUND MONUMENT
2 1/2" BC SECCOR 22/23/27/26
N=1831798.00
E=1286099.23

FOUND MONUMENT
2 1/2" BC S1/4 S23
N=1831734.13
E=1288733.87

FOUND MONUMENT
2 1/2" BC SECCOR 23/24/26/25
N=1831669.89
E=1291368.46

FOUND MONUMENT
2 1/2" BC S1/4 S24
N=1831651.18
E=1294000.89

FOUND MONUMENT
2 1/2" BC SECCOR 24/19/25/30
N=1831632.57
E=1296634.32

SMA CONTROL POINT 53
1/2" REBAR W/ PLASTIC CAP
N = 1830566.48
E = 1286470.28
ELEV = 7002.93

CULTURALLY
SENSITIVE AREA
DO NOT ENCROACH

FOUND MONUMENT
2 1/2" BC E1/4 S26
N=1829047.54
E=1291313.79

FOUND MONUMENT
2 1/2" BC E1/4 S27
N=1829170.20
E=1286048.86

FOUND MONUMENT
2 1/2" BC S1/4 S13
N=1836912.40
E=1294051.88

SMA CONTROL POINT 241
1/2" REBAR W/ PLASTIC CAP
N = 1836901.73
E = 1294037.09
ELEV = 6977.72

FOUND MONUMENT
2 1/2" BC SECCOR 13/18/24/19
N=1836910.95
E=1296692.46

SMA CONTROL POINT 240
1/2" REBAR W/ PLASTIC CAP
N = 1834248.93
E = 1295587.22
ELEV = 6941.41

FOUND MONUMENT
2 1/2" BC E1/4 S24
N=1834272.70
E=1296660.63

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

Private
BLM
Bureau of Land Management
Navajo Tribal Trust
BIA Route 474
I.A. 46437
Indian Allotment 46431
Indian Allotment 46439
Indian Allotment 46446
Indian Allotment 468
Indian Allotment 59675
Indian Allotment 59673
Indian Allotment 59674
Indian Allotment 59676
Indian Allotment 59672
Indian Allotment 59678
Indian Allotment 466
Indian Allotment 449
Indian Allotment 450

R-6-W
R-5-W

CONTACT INFORMATION:

OWNER: NAVAJO NATION WATER
MANAGEMENT BRANCH
JASON JOHN (575) 759-1198

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

SURVEYOR: SOUDER, MILLER & ASSOCIATES
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LEGEND

- PROPOSED WATERLINE
- EXISTING WATERLINE
- EXISTING GAS LINE
- EXISTING FENCE
- EXISTING OVERHEAD POWER LINE
- PROPOSED OVERHEAD POWER LINE
- COUNTY LINE
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- CULTURALLY SENSITIVE AREA DO NOT ENCROACH
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Revision	Date	Description	By	Chk'd

Cutter Pfeiffer, BC Survey TOPO Base.dwg
8/28/2017 - 7:09:37 AM - aav

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Cortez, Grand Junction, CO - Safford, AZ - Moab, UT - El Paso, TX

CLIENT: The Navajo Nation TOWN: Ojo Encino To Pueblo Pintado, NM

SURVEY CONTROL PLAN (2 of 7)
NAVAJO GALLUP WATER SUPPLY PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
AGR	AAV	WFB

100% DESIGN

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Date: September 28, 2017
Scale: Horiz: 1" = 1000'
Vert: N/A
Project No: 6921307
Sheet: C-3

North 1832300
Lat 36°01'45"

East 1269100
Long -107°30'21"

I.A. 1711

SANDOVAL COUNTY, NEW MEXICO

I.A. 1710

BLM

BLM

North 1832300
Lat 36°01'47"

East 1283700
Long -107°27'23"

FOUND MONUMENT
2 1/2" BC SECCOR 20/21/29/28
N=1832084.05
E=1275530.87

FOUND MONUMENT
2 1/2" BC N1/4 S28
N=1832012.60
E=1278172.40

FOUND MONUMENT
2 1/2" BC SECCOR 21/22/28/27
N=1831941.88
E=1280814.41

FOUND MONUMENT
2 1/2 BC N1/4 S27
N=1831869.65
E=1283454.86

N

0' 500' 1000'

0 MILES 1/8 MILE 1/4 MILE

GRAPHIC SCALE

Bureau of Land Management

30

Bureau of Land Management

29

Bureau of Land Management

28

Bureau of Land Management

I.A. 59675

27

PI STA 270+35.8
N=1829619.28
E=1283902.74

270+00

FOUND MONUMENT
N=1829304.29
E=1280768.88

PI STA 279+40.7
N=1829098.97
E=1283162.50

PI STA 284+54.2
N=1828813.31
E=1282735.69

280+00

MATCHLINE
SEE SHT. C-3 (2 of 7)

PI STA 294+15.1
N=1828225.67
E=1281975.42

290+00

300+00

PI STA 313+56.8
N=1827393.81
E=1280220.94

310+00

Indian Allotment 59677

I.A. 59676

PROPOSED
NAVAJO GALLUP WATER SUPPLY
PROJECT REACH 26.2

PI STA 323+97.7
N=1826703.98
E=1279441.50

320+00

FOUND MONUMENT
2 1/2" BC SECCOR 30/29/31/32
N=1826920.29
E=1270186.41

FOUND MONUMENT
2 1/2" BC N1/4 S32 BENT
N=1826856.12
E=1272812.63

FOUND MONUMENT
2 1/2" BC SECCOR 29/28/32/31
N=1826791.51
E=1275442.45

FOUND MONUMENT
2 1/2" BC N1/4 S33
N=1826729.28
E=1278082.46

Bureau of Land Management

PI STA 339+09.2
N=1826128.27
E=1278043.89

330+00

340+00

FOUND MONUMENT
2 1/2" BC SECCOR 28/27/33/34
N=1826666.53
E=1280723.18

FOUND MONUMENT
2 1/2" BC S1/4 S27
N=1826603.58
E=1283360.97

SMA CONTROL POINT 229
1/2" REBAR W/ PLASTIC CAP
N = 1825632.61
E = 1270458.07
ELEV = 6750.57

30' TEMP. CONSTRUCTION ESMT.

PI STA 343+01.4
N=1825739.91
E=1277989.58

SMA CONTROL POINT 230
1/2" REBAR W/ PLASTIC CAP
N = 1825035.32
E = 1276205.81
ELEV = 6858.06

350+00

PI STA 396+71.9
N=1825033.26
E=1272786.58

PI STA 386+53.9
N=1824961.88
E=1273802.07

360+00

PI STA 357+48.1
N=1825113.16
E=1276685.65

MATCHLINE
SEE SHT. C-5 (4 of 7)

400+00

390+00

380+00

370+00

Bureau of Land Management

Bureau of Land Management

PI STA 420+67.8
N=1824502.97
E=1270468.43

410+00

PI STA 416+69.1
N=1824694.08
E=1270818.36

420+00

SMA CONTROL POINT 54
1/2" REBAR W/ PLASTIC CAP
N = 1824713.21
E = 1273348.53
ELEV = 6832.38

40' PERMANENT R.O.W.

30' TEMP. CONSTRUCTION ESMT.

PI STA 377+35.0
N=1824858.74
E=1274715.17

31

32

33

34

430+00

FOUND MONUMENT
2 1/2" BC W1/4 S32
N=1824264.06
E=1270138.73

FOUND MONUMENT
2 1/2" BC E1/4 S32
N=1824145.12
E=1275397.23

PI STA 428+90.1
N=1824050.88
E=1269781.57

CONTROL VALVE VAULT
(SEE SHT. C-48)
STA = 430+00.0
N=1824042.36
E=1269672.00

Indian Allotment 1696

Bureau of Land Management

Bureau of Land Management

CONTACT INFORMATION:

OWNER: NAVAJO NATION WATER MANAGEMENT BRANCH
JASON JOHN (575) 759-1198

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

SURVEY NOTES

New Mexico, USA
Horizontal Datum: NAD 83 NM State Plane, Central Zone, US Foot
Vertical Datum: NAVD 88
Coordinates are on State Plane Grid
Basis of Bearing: New Mexico State Plane Coordinates, NAD 83
Geoid Model: Geoid 12A
Control Monuments Set: September 2015
Field Methods: Fast Static GPS Survey using Trimble R-8 Receiver

LEGEND

	PROPOSED WATERLINE	Tribal Trust	CURRENT LAND STATUS (OWNER)
	EXISTING WATERLINE		PROPOSED 40' WATERLINE EASEMENT
	EXISTING GAS LINE		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		CULTURALLY SENSITIVE AREA DO NOT ENCROACH
	SECTION LINE		EXISTING UTILITY POLE
	QUARTER SECTION LINE		PROPERTY LINE

East 1269100
Long -107°30'19"

North 1822300
Lat 36°00'06"

East 1283800
Long -107°27'20"

North 1822300
Lat 36°00'08"

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Revision	Date	Description	By	Chk'd

Date: Plotted, AC Survey TOPO Base.dwg
9/28/2017 - 7:09:49 AM aav

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ALBUQUERQUE, NM 87113
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Cortez, Grand Junction, CO - Safford, AZ - Moab, UT - El Paso, TX

CLIENT: The Navajo Nation TOWN: Ojo Encino To Pueblo Pintado, NM

SURVEY CONTROL PLAN (3 of 7)

NAVAJO GALLUP WATER SUPPLY PROJECT - REACHES 26.1 & 26.2

SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
AGR	AAV	WFB

100% DESIGN

PRELIMINARY
NOT FOR CONSTRUCTION

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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: September 28, 2017

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

Project No: 6921307

Sheet: C-4

SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

North 1825700
Lat 36°00'40"
East 1254000
Long -107°33'24"

North 1825700
Lat 36°00'40"
East 1268700
Long -107°30'25"

N

0' 500' 1000'

0 MILES 1/8 MILE 1/4 MILE

GRAPHIC SCALE

34 35 36 31

Bureau of Land Management

Navajo Tribal Trust

Indian Allotment 1696

Indian Allotment 1694

T-21-N
T-20-N

R-7-W
R-6-W

SANDOVAL COUNTY
McKINLEY COUNTY

FOUND MONUMENT
2 1/2" BC SC 34/35
N=1821940.15
E=1254316.74

FOUND MONUMENT
2 1/2" BC S1/4 S35
N=1821903,11
E=1256947,62

FOUND MONUMENT
2 1/2" BC SC 35/31
N=1821843,23
E=1259576,32

FOUND MONUMENT
2 1/2" BC S1/4 S36
N=1821783,30
E=1262206,19

FOUND MONUMENT
3 1/2" BC CC 1/6
N=1821669,78
E=1263941,39

FOUND MONUMENT
3 1/2" BC SC 36/31
N=1821723.92
E=1264832.29

FOUND MONUMENT
2 1/2" BC S1/4 S31
N=1821660.68
E=1267459,82

FOUND MONUMENT
2 1/2" BC W1/4 S31
N=1824390,81
E=1264870,99

SMA CONTROL POINT 225
1/2" REBAR W/ PLASTIC CAP
N = 1825542,08
E = 1266652,57
ELEV = 6780,26

SMA CONTROL POINT 224
1/2" REBAR W/ PLASTIC CAP
N = 1821970,30
E = 1267229,39
ELEV = 6696,86

SMA CONTROL POINT 223
1/2" REBAR W/ PLASTIC CAP
N = 1821443.59
E = 1264581.01
ELEV = 6689,88

SMA CONTROL POINT 222
1/2" REBAR W/ PLASTIC CAP
N = 1819571,45
E = 1259746,77
ELEV = 6646,96

SMA CONTROL POINT 221
1/2" REBAR W/ PLASTIC CAP
N = 1817833,31
E = 1261935,24
ELEV = 6643,92

SMA CONTROL POINT 220
1/2" REBAR W/ PLASTIC CAP
N = 1816308,82
E = 1257303,70
ELEV = 6666,84

SMA CONTROL POINT 55
1/2" REBAR W/ PLASTIC CAP
N = 1816802,50
E = 1259569,07
ELEV = 6682,12

FOUND MONUMENT
FD USGLO SC SE1 6C
N=1816842,14
E=1263827,54

FOUND MONUMENT
FD USGLO SC SE1 CC
N=1816789,84
E=1263826,52

PI STA 444+69.3
N=1823928.39
E=1268207.09

PI STA 453+17.2
N=1823732.68
E=1267435.61

PI STA 460+14.7
N=1823450.24
E=1266797.86

PI STA 446+74.3
N=1823769.65
E=1268077.38

PI STA 473+07.3
N=1822589.79
E=1265833.24

PI STA 497+44.8
N=1821773.75
E=1263851.13

PI STA 488+65.4
N=1821650.75
E=1264589.87

PI STA 528+39.7
N=1819963.63
E=1261007.76

PI STA 544+56.1
N=1819611.41
E=1259430.16

PI STA 546+66.6
N=1819437.91
E=1259310.89

PI STA 547+51.7
N=1819366.06
E=1259265.35

PI STA 560+57.8
N=1819002.02
E=1258011.01

PI STA 566+46.3
N=1818730.88
E=1257488.70

PI STA 573+22.7
N=1818542.35
E=1256839.07

PI STA 579+11.2
N=1818491.73
E=1256252.76

PI STA 585+17.9
N=1818322.65
E=1255670.17

PI STA 600+73.7
N=1818106.05
E=1254129.47

PI STA 515+47.4
N=1820390.95
E=1262227.36

440+00 450+00 460+00 470+00 480+00 490+00 500+00 510+00 520+00 530+00 540+00 550+00 560+00 570+00 580+00 590+00 600+00

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

CULTURALLY SENSITIVE AREA
DO NOT ENCROACH

CULTURALLY SENSITIVE AREA
DO NOT ENCROACH

EXISTING
NAVAJO GALLUP WATER SUPPLY
PROJECT REACH 26.2

MATCHLINE
SEE SHT. C-4 (3 of 7)

MATCHLINE
SEE SHT. C-6 (5 of 7)

PLO 2198

PLO 2198

1 2 6 11 12

Bureau of Land Management

Navajo Tribal Trust

Bureau of Land Management

Bureau of Land Management

Navajo Tribal Trust

Bureau of Land Management

LEGEND

- PROPOSED WATERLINE
- EXISTING WATERLINE
- EXISTING GAS LINE
- EXISTING FENCE
- EXISTING OVERHEAD POWER LINE
- PROPOSED OVERHEAD POWER LINE
- COUNTY LINE
- TOWNSHIP AND RANGE LINE
- SECTION LINE
- QUARTER SECTION LINE
- Tribal Trust — CURRENT LAND STATUS (OWNER)
- PROPOSED 40' WATERLINE EASEMENT
- TEMPORARY CONSTRUCTION EASEMENT
- DIRT ROAD
- 6 — SECTION NUMBER
- SEC COR / QTR COR
- SMA CONTROL POINT
- CULTURALLY SENSITIVE AREA DO NOT ENCROACH
- EXISTING UTILITY POLE
- PROPERTY LINE

CONTACT INFORMATION:

OWNER: NAVAJO NATION WATER MANAGEMENT BRANCH
JASON JOHN (575) 759-1198

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

SURVEY NOTES

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Vertical Datum: NAVD 88
Coordinates are on State Plane Grid
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Geoid Model: Geoid 12A
Control Monuments Set: September 2015
Field Methods: Fast Static GPS Survey using Trimble R-8 Receiver

Revision	Date	Description	By	Chk'd

Color Pts-4ft_AC Survey TOPO Base.dwg
8/28/2017 - 7:59:58 AM - aav

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CLIENT: The Navajo Nation TOWN: Ojo Encino To Pueblo Pintado, NM

SURVEY CONTROL PLAN (4 of 7)

NAVAJO GALLUP WATER SUPPLY PROJECT - REACHES 26.1 & 26.2

SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
AGR	AAV	WFB

100% DESIGN

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Date: September 28, 2017
Scale: Horiz: 1" = 1000'
Vert: N/A
Project No: 6921307
Sheet: C-5

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North 1818400
Lat 35°59'24"

East 1238900
Long -107°38'26"

N

0' 500' 1000'

0 MILES 1/8 MILE 1/4 MILE

GRAPHIC SCALE

McKINLEY COUNTY, NEW MEXICO

Navajo Tribal Trust

Indian Allotment 1662

PLO 2198

Bureau of Land Management

Navajo Tribal Trust

Indian Allotment 1686

Indian Allotment 1685

Tanner Ranch (Private)

Indian Allotment 1684

G2

5 4 3 8 9 10 17 16 15

PI STA 612+78.2
N=1817570.61
E=1253050.49

PI STA 622+11.9
N=1817278.75
E=1252163.58

610+00 620+00 630+00 640+00 650+00 660+00 670+00 680+00 690+00 700+00 710+00 720+00 730+00 740+00 750+00 760+00

CULTURALLY SENSITIVE AREA DO NOT ENCROACH

MATCHLINE
SEE SHT. C-5 (4 of 7)

PROPOSED
NAVAJO GALLUP WATER SUPPLY
PROJECT REACH 26.2

SMA CONTROL POINT 258
1/2" REBAR W/ PLASTIC CAP
N = 1814823.30
E = 1249104.28
ELEV = 6617.95

SMA CONTROL POINT 259
1/2" REBAR W/ PLASTIC CAP
N = 1814730.77
E = 1251637.56
ELEV = 6587.22

FOUND MONUMENT
FD STONE W 1/4 S10 101
N=1814483.05
E=1247980.39

PI STA 672+46.6
N=1814432.13
E=1248010.88

SMA CONTROL POINT 252
1/2" REBAR W/ PLASTIC CAP
N = 1813775.51
E = 1246316.56
ELEV = 6596.89

SMA CONTROL POINT 139
1/2" REBAR W/ PLASTIC CAP
N = 1813820.67
E = 1242961.99
ELEV = 6549.00

EQUATION STATION:
PI STA BACK 693+68.2
PI STA AHEAD 711+31.2
N=1813580.18
E=1246067.94

PI STA 713+22.1
N=1813424.32
E=1245957.78

30' TEMP. CONSTRUCTION ESMT.

40' PERMANENT R.O.W.

30' TEMP. CONSTRUCTION ESMT.

CULTURALLY SENSITIVE AREA DO NOT ENCROACH

BIOLOGICALLY SENSITIVE AREA DO NOT ENCROACH

PI STA 729+85.3
N=1812016.28
E=1245072.48

FOUND MONUMENT
FD STONE N 1/4 SEC 16 103
N=1811883.72
E=1245300.06

FOUND MONUMENT
FD STONE SEC COR NW SEC 15 104
N=1811847.46
E=1247940.72

SMA CONTROL POINT 216
1/2" REBAR W/ PLASTIC CAP
N = 1811677.95
E = 1251143.01
ELEV = 6598.52

SMA CONTROL POINT 215
1/2" REBAR W/ PLASTIC CAP
N = 1810607.66
E = 1252976.22
ELEV = 6635.32

PI STA 740+46.8
N=1810955.76
E=1245027.44

SMA CONTROL POINT 253
1/2" REBAR W/ PLASTIC CAP
N = 1810482.98
E = 1242498.44
ELEV = 6535.98

PI STA 753+57.9
N=1809644.65
E=1245036.31

BIOLOGICALLY SENSITIVE AREA DO NOT ENCROACH

FOUND MONUMENT
FD STONE W 1/4 SEC 16
N=1809282.94
E=1242627.90

PI STA 766+07.5
N=1808423.28
E=1244772.60

MATCHLINE
SEE SHT. C-7 (6 of 7)

CONTACT INFORMATION:

OWNER: NAVAJO NATION WATER MANAGEMENT BRANCH
JASON JOHN (575) 759-1198

ENGINEER: SOUDER, MILLER & ASSOCIATES
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NAVAJO TRIBAL UTILITY AUTHORITY (NTUA)
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SURVEY NOTES

New Mexico, USA
Horizontal Datum: NAD 83 NM State Plane, Central Zone, US Foot
Vertical Datum: NAVD 88
Coordinates are on State Plane Grid
Basis of Bearing: New Mexico State Plane Coordinates, NAD 83
Geoid Model: Geoid 12A
Control Monuments Set: September 2015
Field Methods: Fast Static GPS Survey using Trimble R-8 Receiver

LEGEND

PROPOSED WATERLINE	Tribal Trust — CURRENT LAND STATUS (OWNER)
EXISTING WATERLINE	PROPOSED 40' WATERLINE EASEMENT
EXISTING GAS LINE	TEMPORARY CONSTRUCTION EASEMENT
EXISTING FENCE	DIRT ROAD
EXISTING OVERHEAD POWER LINE	6 — SECTION NUMBER
PROPOSED OVERHEAD POWER LINE	SEC COR / QTR COR
COUNTY LINE	SMA CONTROL POINT
TOWNSHIP AND RANGE LINE	CULTURALLY/BIOLOGICALLY SENSITIVE AREA, DO NOT ENCROACH
SECTION LINE	EXISTING UTILITY POLE
QUARTER SECTION LINE	PROPERTY LINE

North 1808300
Lat 35°57'44"
East 1238600
Long -107°38'24"

North 1808300
Lat 35°57'46"
East 1253600
Long -107°33'26"

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Revision	Date	Description	By	Chk'd

Color Ph=8, AC Survey TOPO Base.dwg
9/28/2017 - 7:10:08 AM - aav

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CLIENT: The Navajo Nation TOWN: Ojo Encino To Pueblo Pintado, NM

SURVEY CONTROL PLAN (5 of 7)

NAVAJO GALLUP WATER SUPPLY PROJECT - REACHES 26.1 & 26.2

SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
AGR	AAV	WFB

100% DESIGN

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Date: September 28, 2017

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

Project No: 6921307

Sheet: C-6

McKINLEY COUNTY, NEW MEXICO

MATCHLINE
SEE SHT. C-6 (5 of 7)

North 1807900
Lat 35°57'40"
East 1236300
Long -107°39'56"

North 1807900
Lat 35°57'42"
East 1250900
Long -107°33'58"

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

Indian Allotment 1675
Indian Allotment 1678
Indian Allotment 1679
Indian Allotment 1680
Indian Allotment 1682
Indian Allotment 1683
Indian Allotment 1684
Indian Allotment 1681
Indian Allotment 77690
Navajo Tribal Trust
Tanner Ranch (Private)
Pueblo Alto Trading Post

18 17 16 15
19 20 21 22
30 29 28

G2

FOUND MONUMENT
STONE 2"X8"X12"
N=1806718.88
E=1237304.60

FOUND MONUMENT
FD STONE SEC COR SW 16
N=1806642.86
E=1242589.58

FOUND MONUMENT
AXEL
N=1804162.74
E=1237288.19

SMA CONTROL POINT 208
1/2" REBAR W/ PLASTIC CAP
N = 1803928,93
E = 1242699,45
ELEV = 6594,13

FOUND MONUMENT
FD STONE W 1/4 SEC 21 126
N=1803998.36
E=1242550.78

FOUND MONUMENT
FD STONE N 1/4 SEC 28 128
N=1801399.35
E=1239873.08

FOUND MONUMENT
FD STONE SEC COR SW21 129
N=1801369.58
E=1242512.90

SMA CONTROL POINT 210
1/2" REBAR W/ PLASTIC CAP
N = 1805707,55
E = 1244225,78
ELEV = 6599,88

SMA CONTROL POINT 211
1/2" REBAR W/ PLASTIC CAP
N = 1805152,91
E = 1246620,28
ELEV = 6560,03

SMA CONTROL POINT 56
1/2" REBAR W/ PLASTIC CAP
N = 1802738,23
E = 1245252,36
ELEV = 6692,67

SMA CONTROL POINT 209
1/2" REBAR W/ PLASTIC CAP
N = 1802329,57
E = 1245863,95
ELEV = 6667,36

SMA CONTROL POINT 206
1/2" REBAR W/ PLASTIC CAP
N = 1801430,16
E = 1244840,80
ELEV = 6620,29

FOUND MONUMENT
FD STONE S 1/4 SEC 21 130
N=1801323.00
E=1245151.97

FOUND MONUMENT
FD STONE SE 21 COR 131
N=1801256.22
E=1247813.18

PI STA 776+98.4
N=1807367.17
E=1244499.22

PI STA 779+36.7
N=1807140.48
E=1244425.73

PI STA 786+81.4
N=1806407.70
E=1244293.15

PI STA 787+99.7
N=1806315.42
E=1244367.30

PI STA 794+58.7
N=1805656.52
E=1244371.55

PI STA 798+01.9
N=1805425.99
E=1244625.84

PI STA 810+91.8
N=1804144.06
E=1244482.18

PI STA 816+35.9
N=1803672.07
E=1244211.59

PI STA 820+03.7
N=1803343.59
E=1244046.04

PI STA 832+72.4
N=1802203.24
E=1243490.01

PI STA 849+99.7
N=1800637.56
E=1242760.47

PI STA 859+09.2
N=1799862.43
E=1242284.66

PI STA 870+35.5
N=1798807.10
E=1241891.34

PI STA 873+81.5
N=1798508.73
E=1241716.09

770+00
780+00
790+00
800+00
810+00
820+00
830+00
840+00
850+00
860+00
870+00
880+00

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

PROPOSED
NAVAJO GALLUP WATER SUPPLY
PROJECT REACH 26.2

To Whitehorse Lake
To Torreon

BIA Route N9

MATCHLINE
SEE SHT. C-8 (7 of 7)

North 1797900
Lat 35°56'01"
East 1296300
Long -107°39'54"

North 1797900
Lat 35°56'03"
East 1250900
Long -107°33'57"

CONTACT INFORMATION:

OWNER: NAVAJO NATION WATER MANAGEMENT BRANCH
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LEGEND

PROPOSED WATERLINE	CURRENT LAND STATUS (OWNER)
EXISTING WATERLINE	PROPOSED 40' WATERLINE EASEMENT
EXISTING GAS LINE	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 SENSITIVE AREA DO NOT ENCROACH
SECTION LINE	EXISTING UTILITY POLE
QUARTER SECTION LINE	PROPERTY LINE

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Revision	Date	Description	By	Chk'd

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CLIENT: The Navajo Nation TOWN: Ojo Encino To Pueblo Pintado, NM

SURVEY CONTROL PLAN (6 of 7)
NAVAJO GALLUP WATER SUPPLY PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

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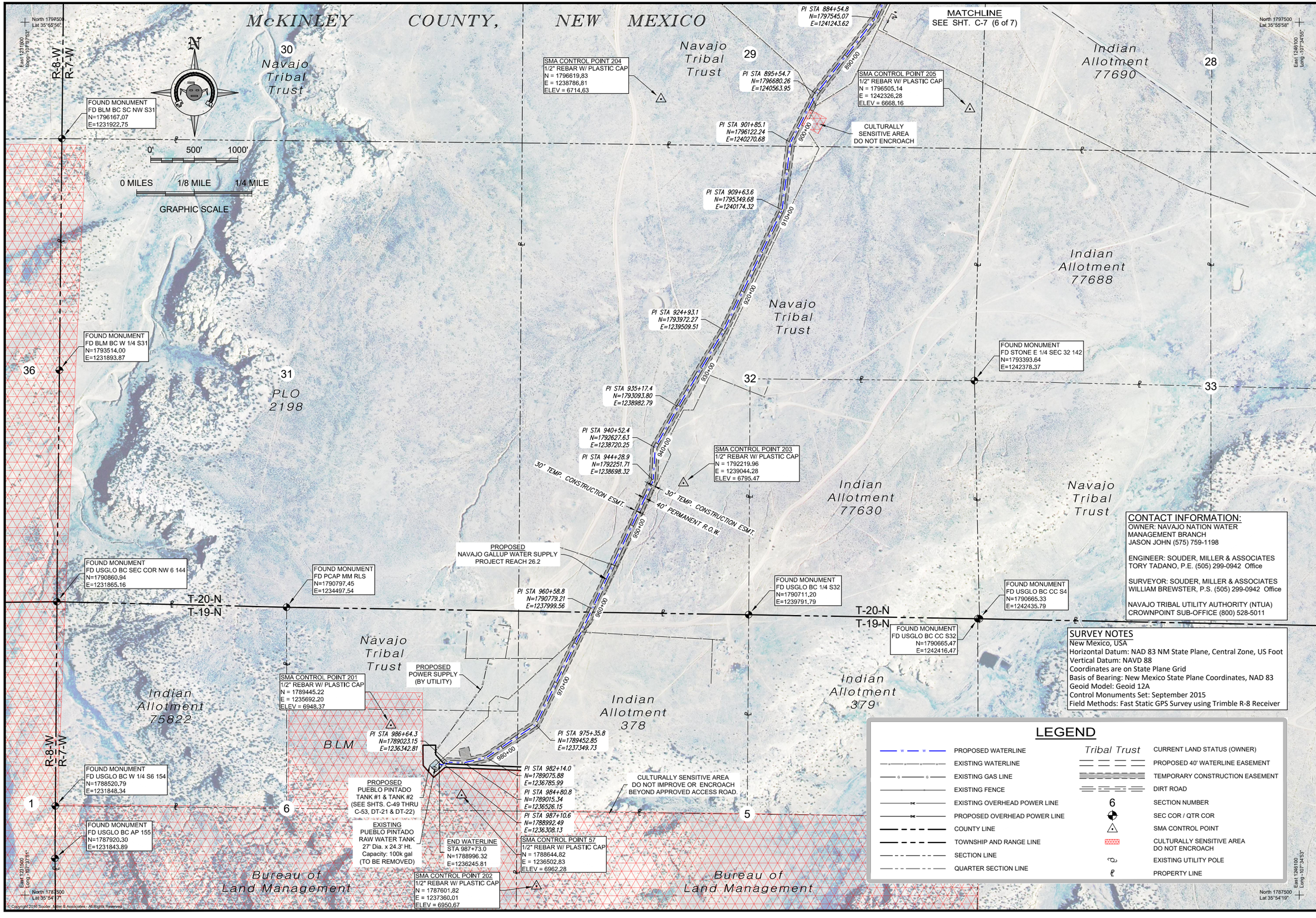
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Project No: 6921307
Sheet: C-7



CONTACT INFORMATION:
OWNER: NAVAJO NATION WATER MANAGEMENT BRANCH
JASON JOHN (575) 759-1198

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

SURVEY NOTES
New Mexico, USA
Horizontal Datum: NAD 83 NM State Plane, Central Zone, US Foot
Vertical Datum: NAVD 88
Coordinates are on State Plane Grid
Basis of Bearing: New Mexico State Plane Coordinates, NAD 83
Geoid Model: Geoid 12A
Control Monuments Set: September 2015
Field Methods: Fast Static GPS Survey using Trimble R-8 Receiver

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Revision	Date	Description	By	Chk'd

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SURVEY CONTROL PLAN (7 of 7)
NAVAJO GALLUP WATER SUPPLY PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

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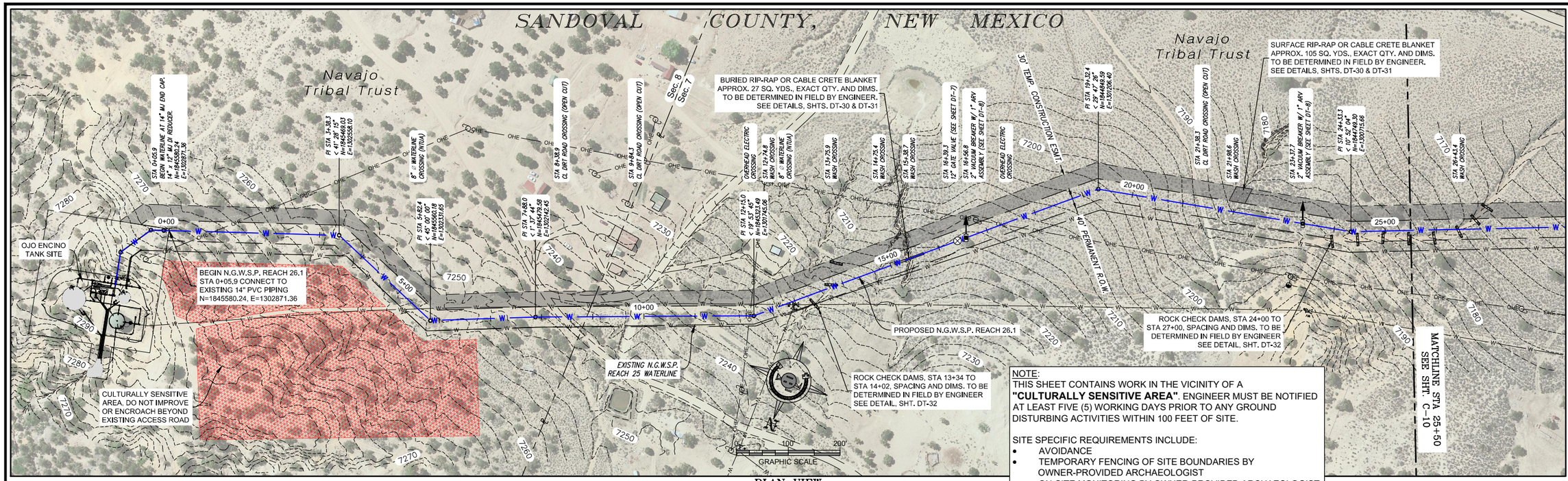
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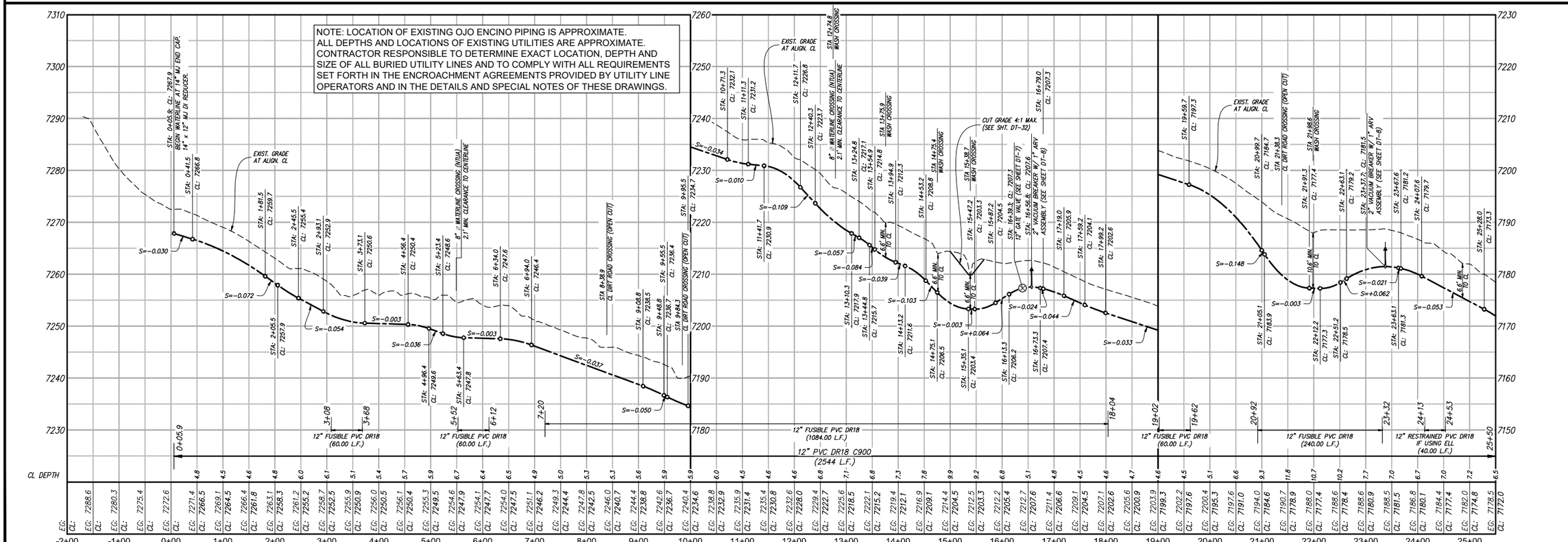
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PLAN VIEW
12" WATERLINE

NOTE:
THIS SHEET CONTAINS WORK IN THE VICINITY OF A **"CULTURALLY SENSITIVE 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:
- AVOIDANCE
- TEMPORARY FENCING OF SITE BOUNDARIES BY OWNER-PROVIDED ARCHAEOLOGIST
- ON-SITE MONITORING BY OWNER-PROVIDED ARCHAEOLOGIST NO WORK WITHIN 100 FT. WITHOUT ARCHAEOLOGIST ONSITE



PROFILE VIEW
12" WATERLINE

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PLAN & PROFILE STA 0+05.9 To STA 25+50
SECTION 7 & 8, T. 21 N., R. 5 W.
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

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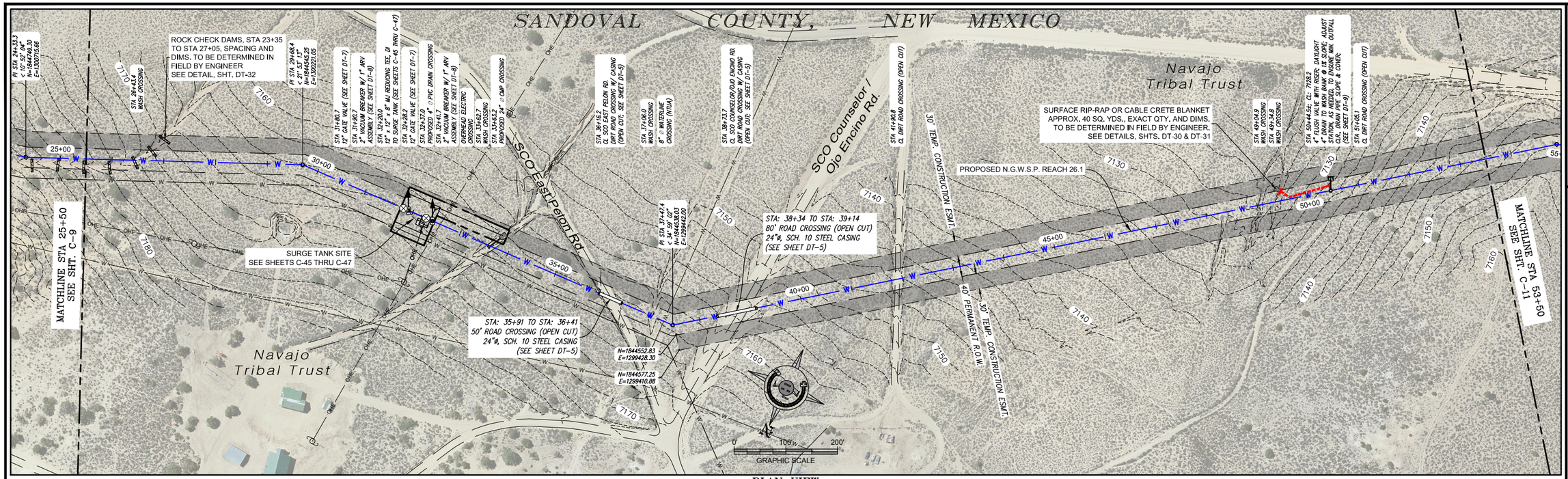
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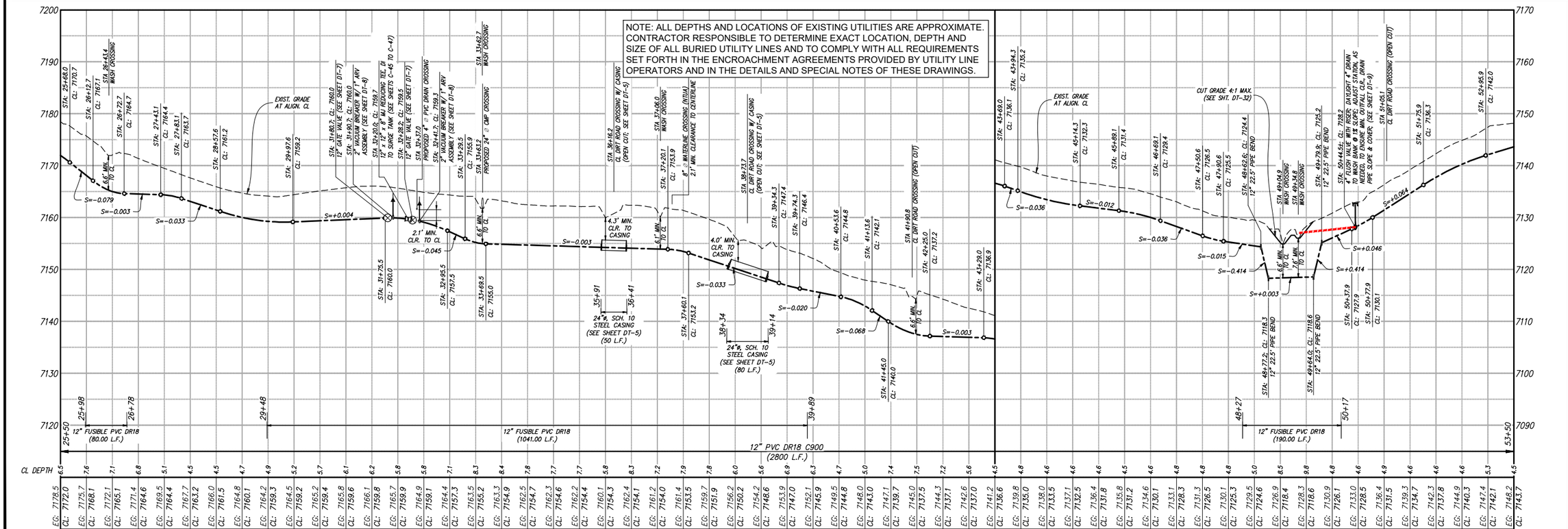
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PLAN VIEW
12" WATERLINE



PROFILE VIEW
12" WATERLINE

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PLAN & PROFILE STA 25+50 To STA 53+50
SECTION 7, T. 21 N., R. 5 W.
NAVAJO GALLUP WATER SUPPLY PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

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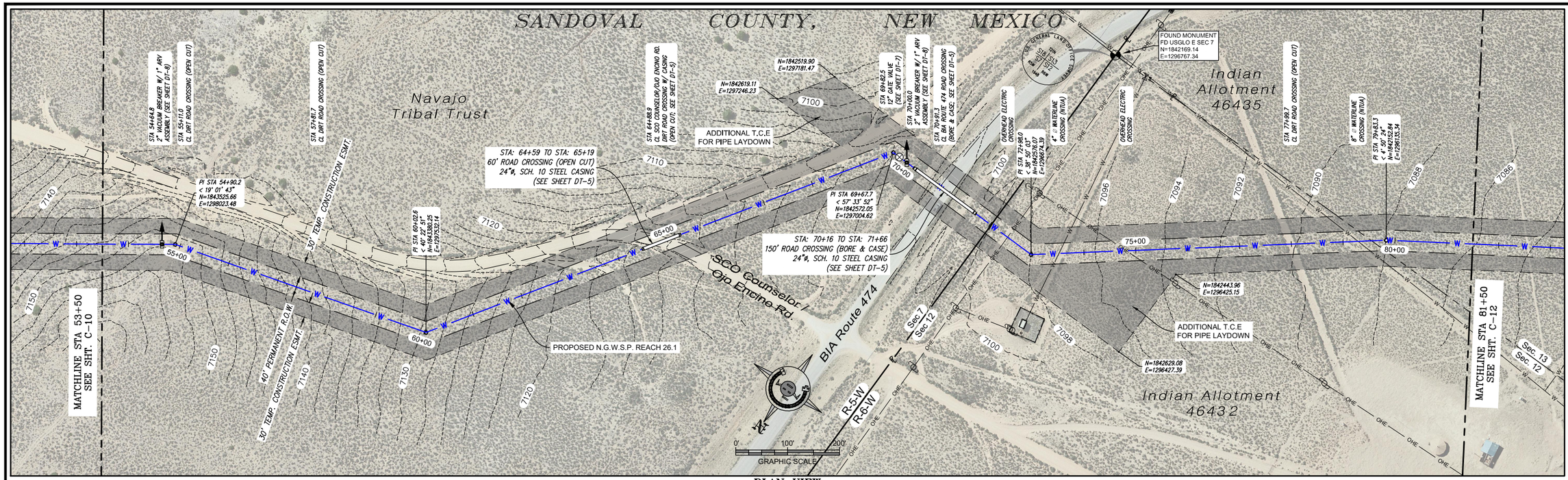
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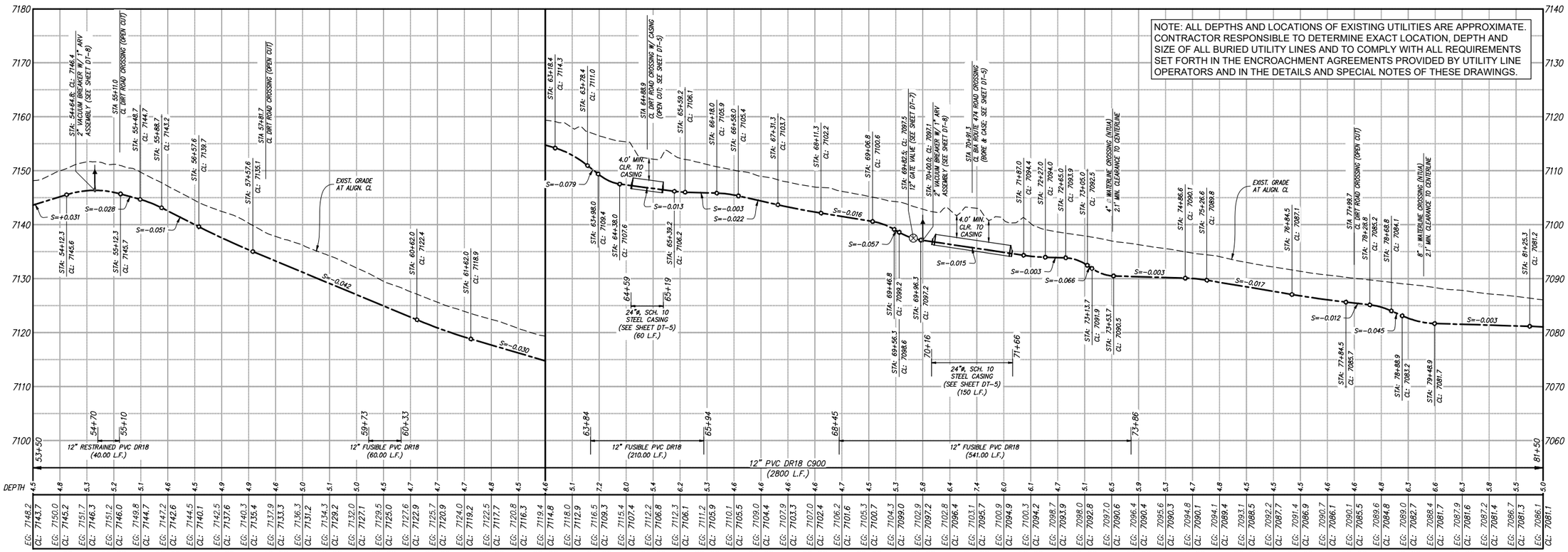
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SANDOVAL COUNTY, NEW MEXICO



PLAN VIEW
12" WATERLINE



PROFILE VIEW
12" WATERLINE

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PLAN & PROFILE STA 53+50 To STA 81+50
SECTION 7 T. 21 N., R. 5 W.; SECTIONS 12 & 13 T. 21 N., R. 6 W.
NAVAJO GALLUP WATER SUPPLY PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

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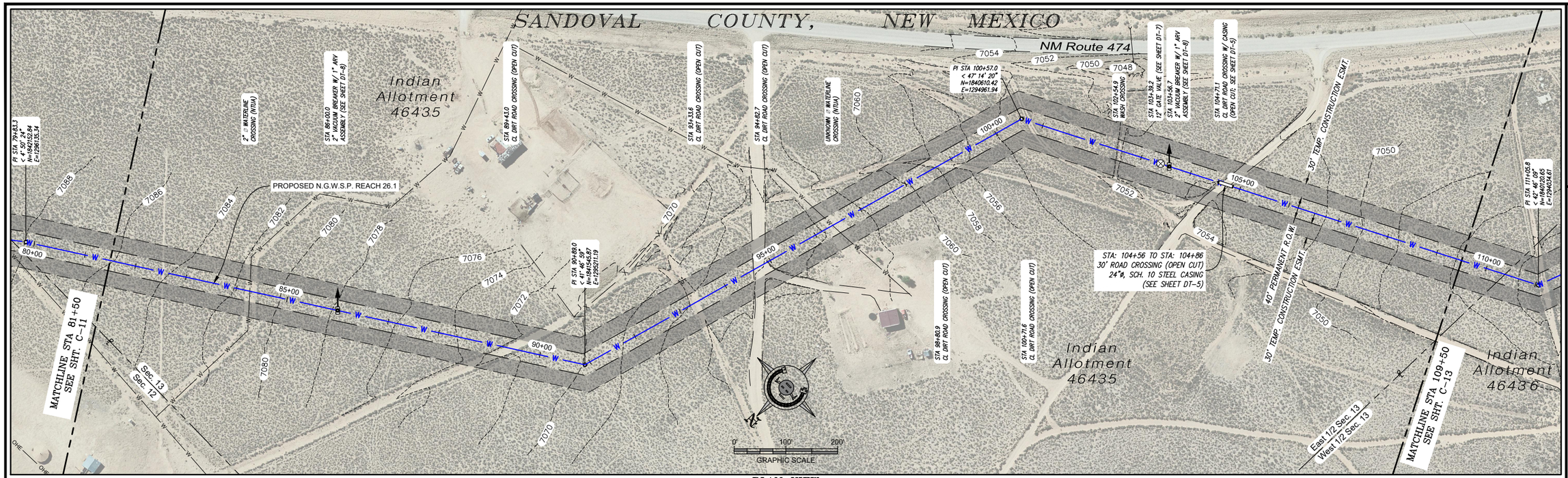
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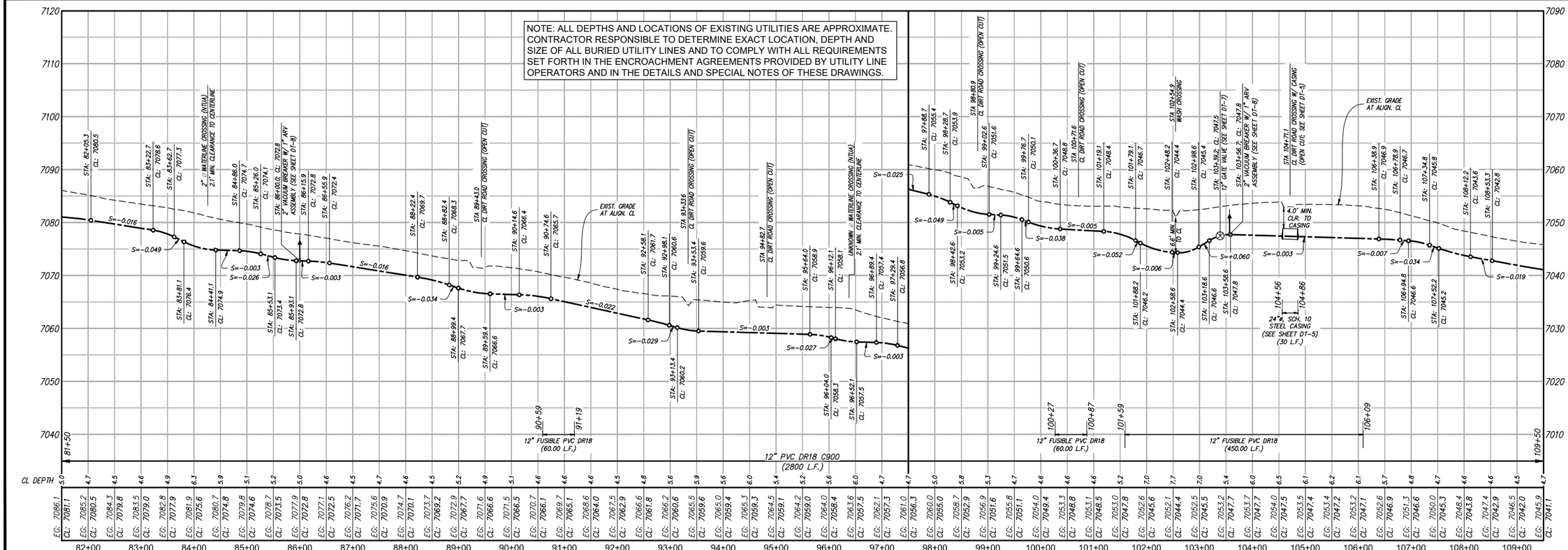
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PLAN VIEW
12" WATERLINE



PROFILE VIEW
12" WATERLINE

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PLAN & PROFILE STA 81+50 To STA 109+50
SECTION 13, T. 21 N., R. 6 W.
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACHES 26.1 & 26.2
SANDOVAL & MCKINLEY COUNTIES, NEW MEXICO

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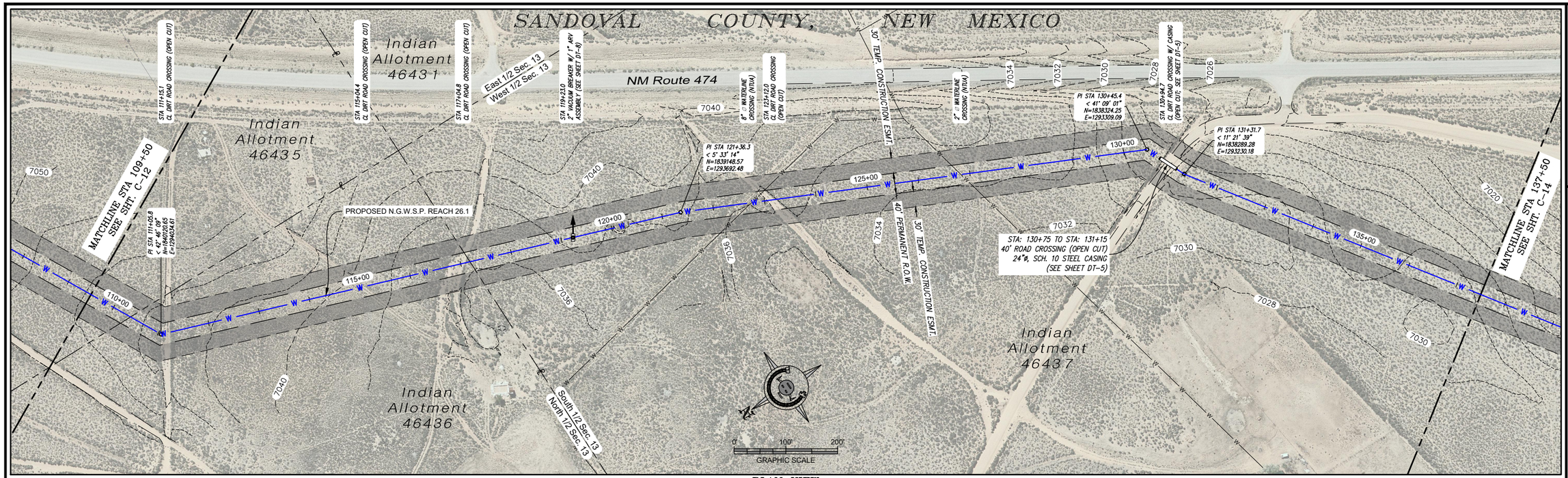
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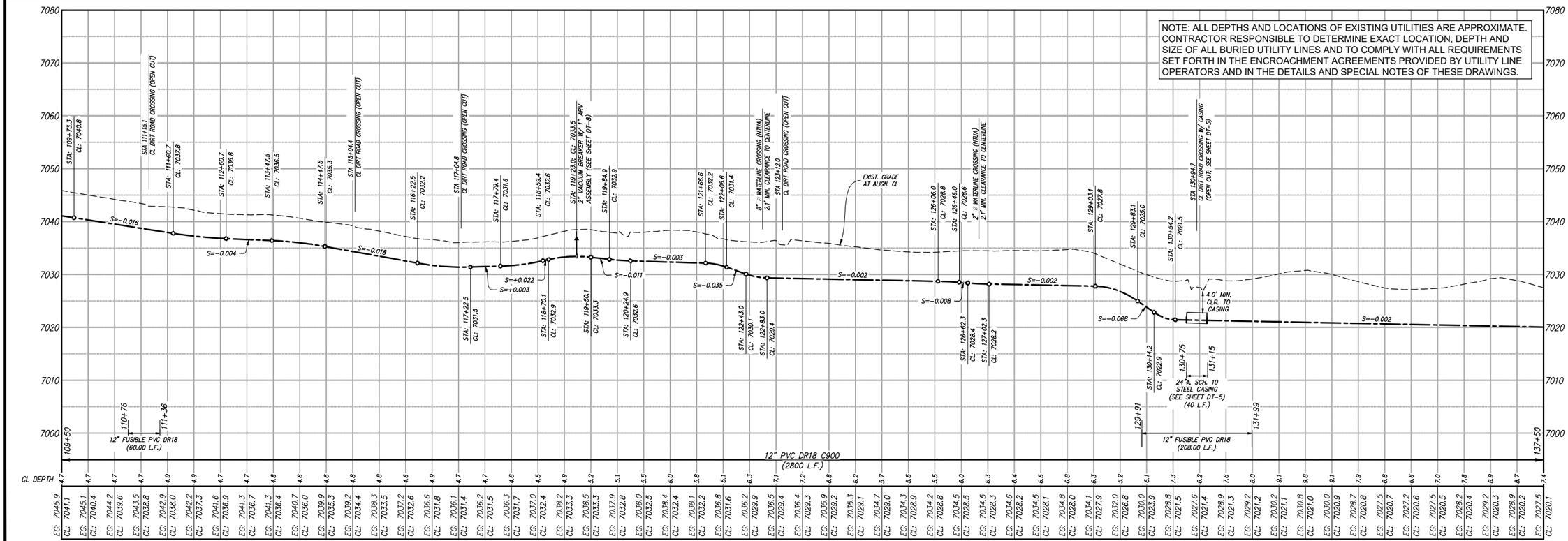
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PLAN VIEW
12" WATERLINE



PROFILE VIEW
12" WATERLINE

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PLAN & PROFILE STA 109+50 To STA 137+50
SECTION 13, T. 21 N., R. 6 W.
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

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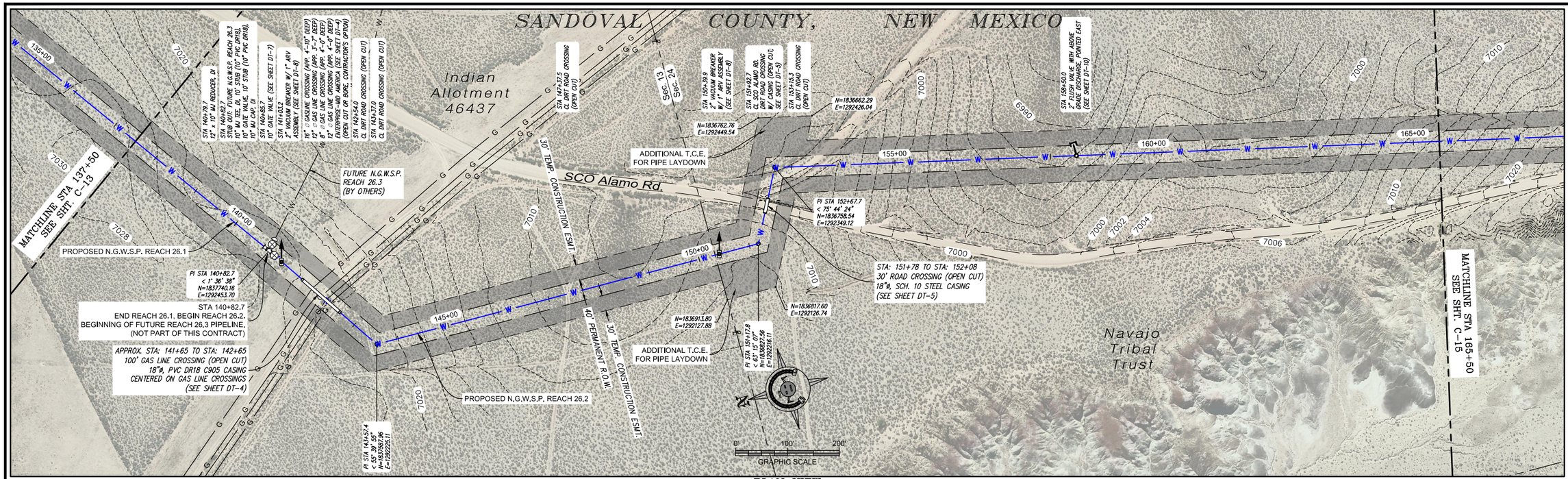
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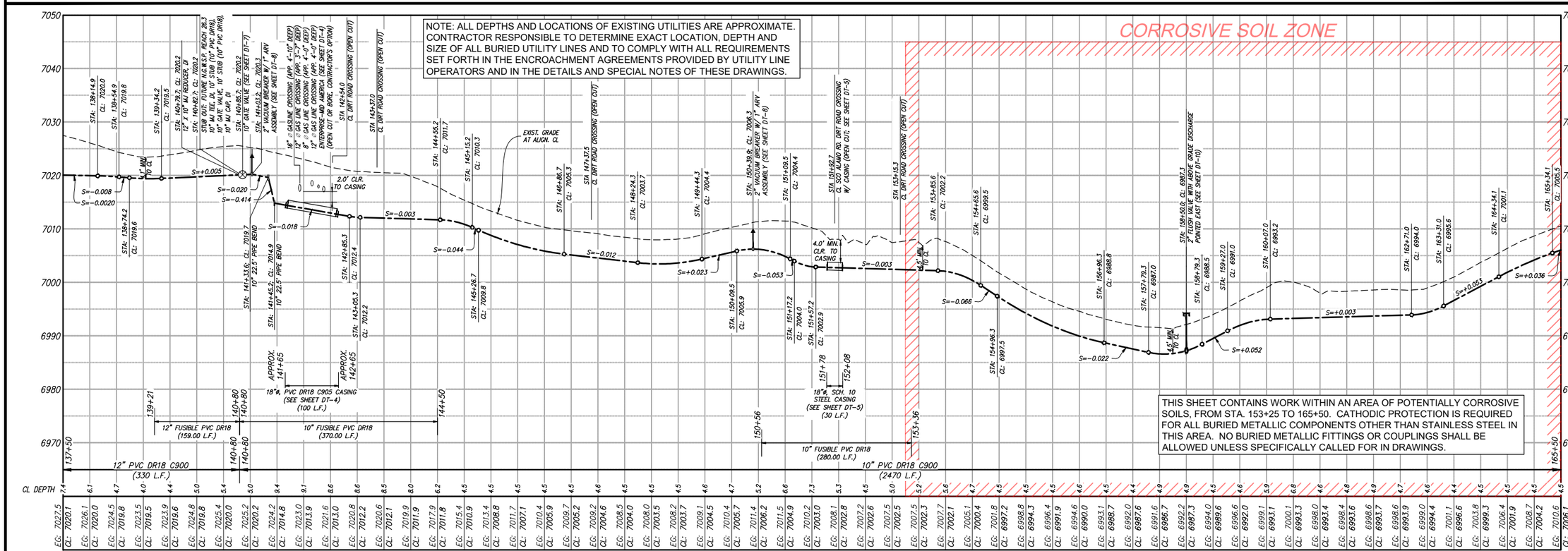
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PLAN VIEW
12" AND 10" WATERLINE



PROFILE VIEW
12" AND 10" WATERLINE

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PLAN & PROFILE STA 137+50 To STA 165+50
SECTIONS 13 & 24, T. 21 N., R. 6 W.
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

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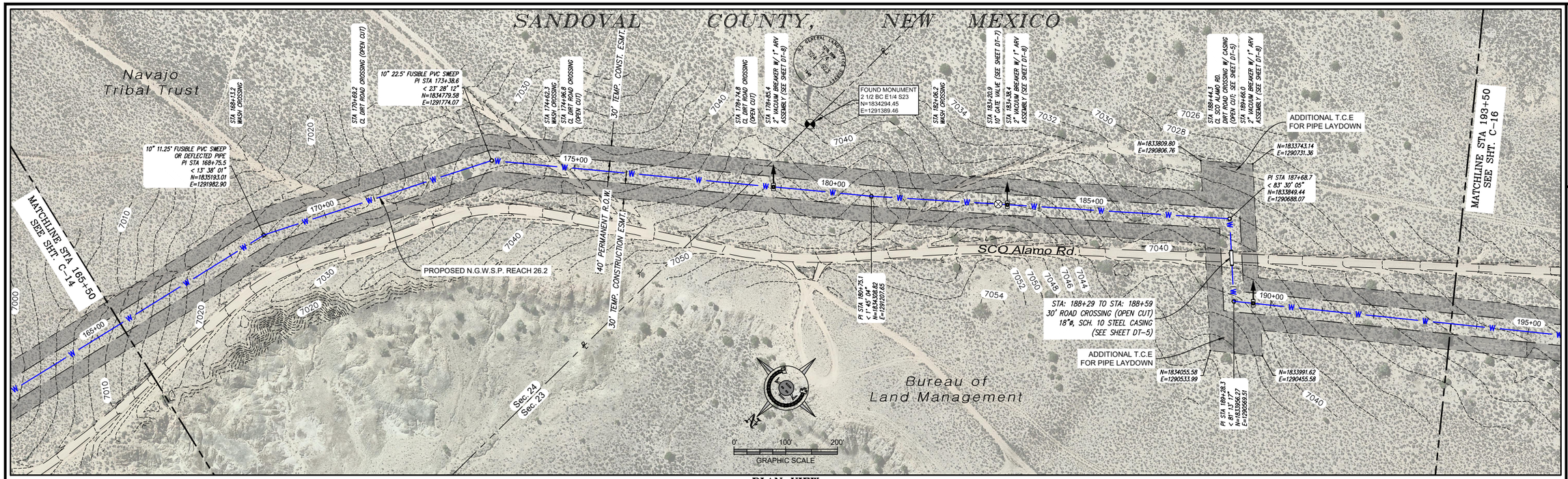
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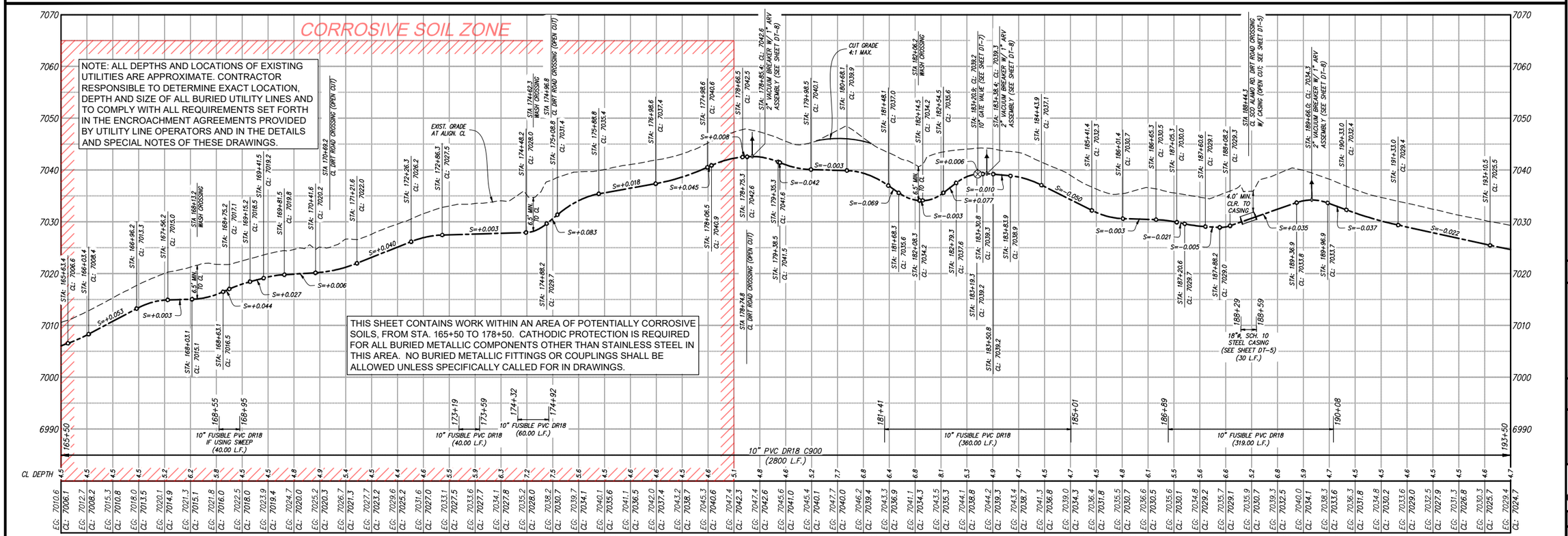
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PLAN VIEW
10" WATERLINE



PROFILE VIEW
10" WATERLINE

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PLAN & PROFILE STA 165+50 To STA 193+50
SECTIONS 23 & 24, T. 21 N., R. 6 W.
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

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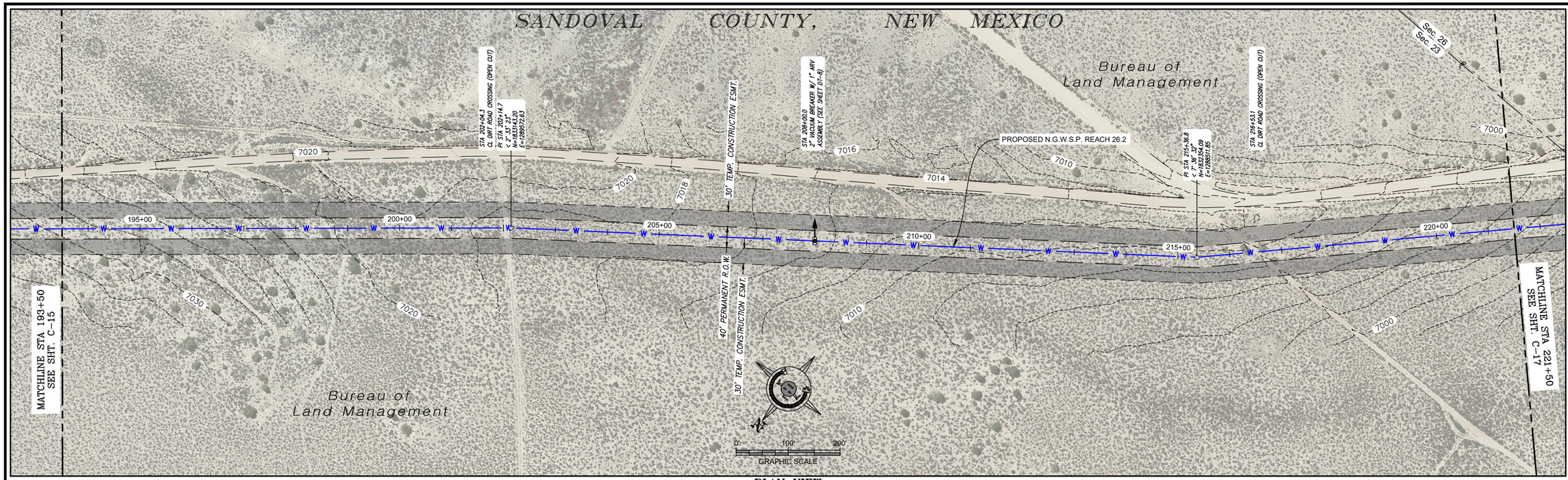
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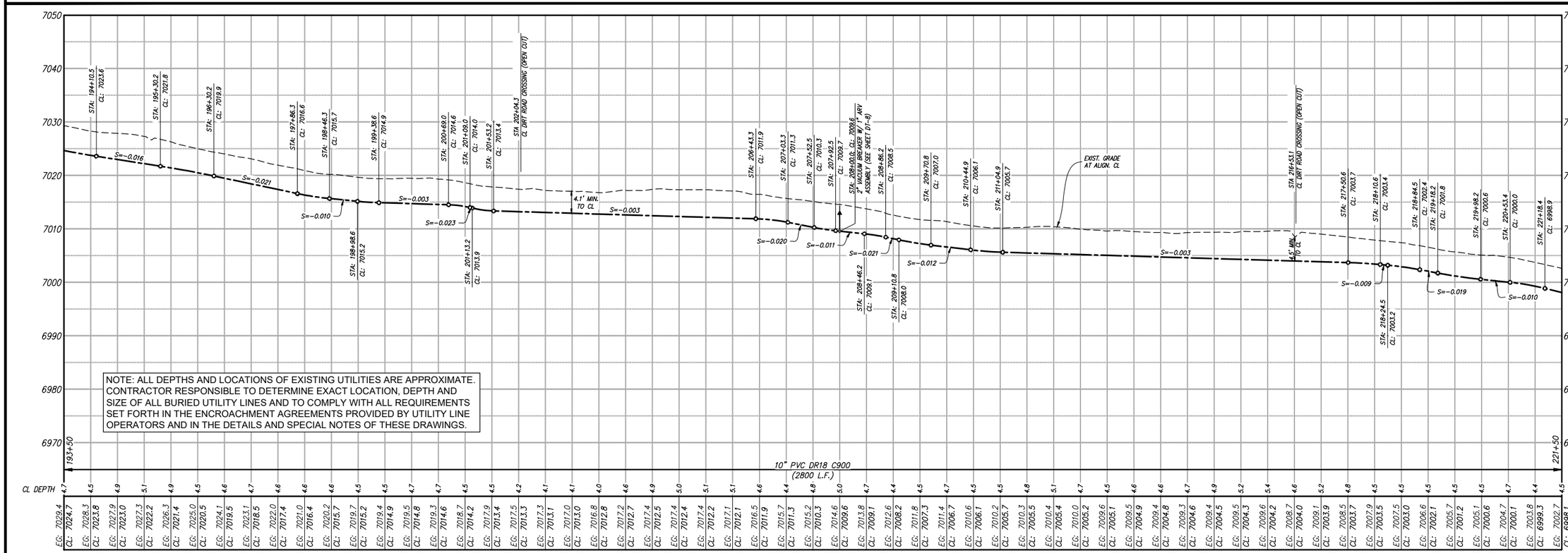
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PLAN VIEW
10" WATERLINE



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.

PROFILE VIEW
10" WATERLINE

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PLAN & PROFILE STA 193+50 To STA 221+50
SECTION 23, T. 21 N., R. 6 W.
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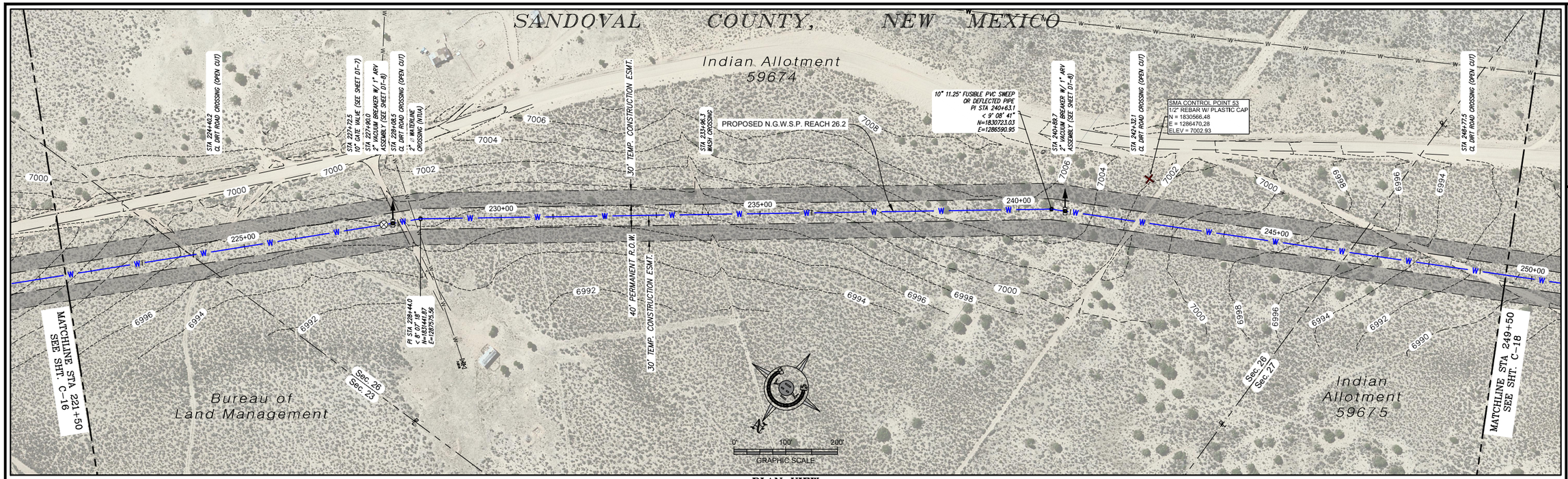
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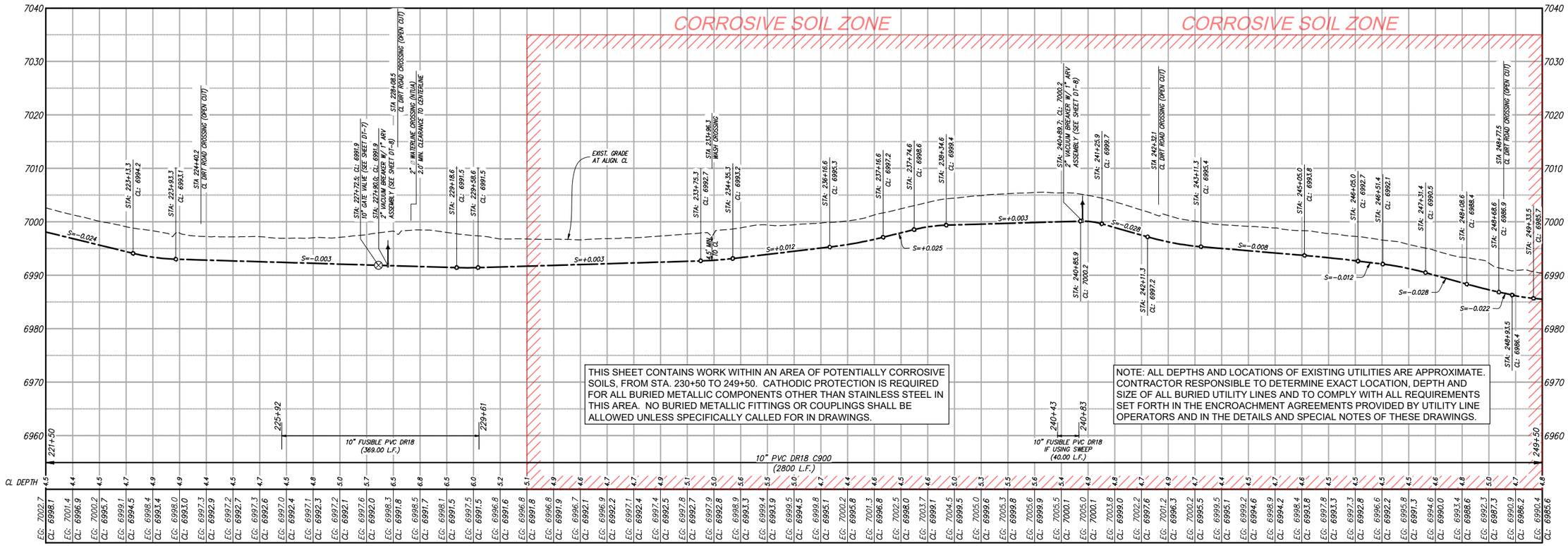
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Project No: 6921307
Sheet: C-16

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PLAN VIEW
10" WATERLINE



PROFILE VIEW
10" WATERLINE

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CLIENT: The Navajo Nation TOWN: Ojo Encino To Pueblo Pintado, NM

PLAN & PROFILE STA 221+50 To STA 249+50
SECTIONS 23, 26 & 27, T. 21 N., R. 6 W.
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
AGR	MvH/AaV	AGR

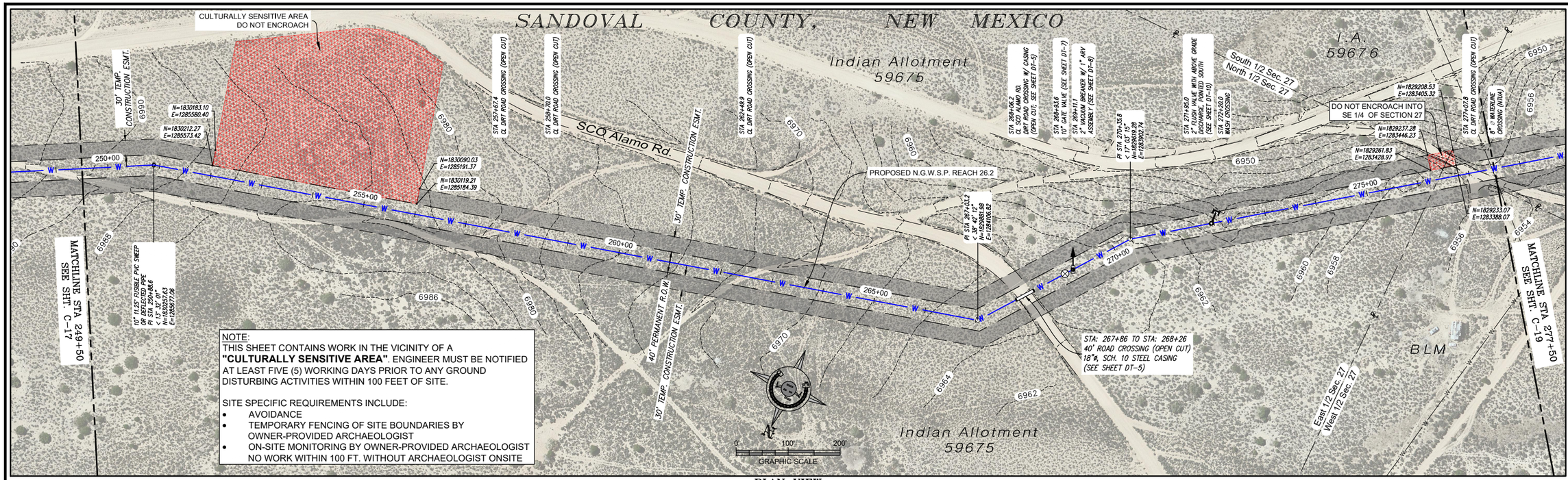
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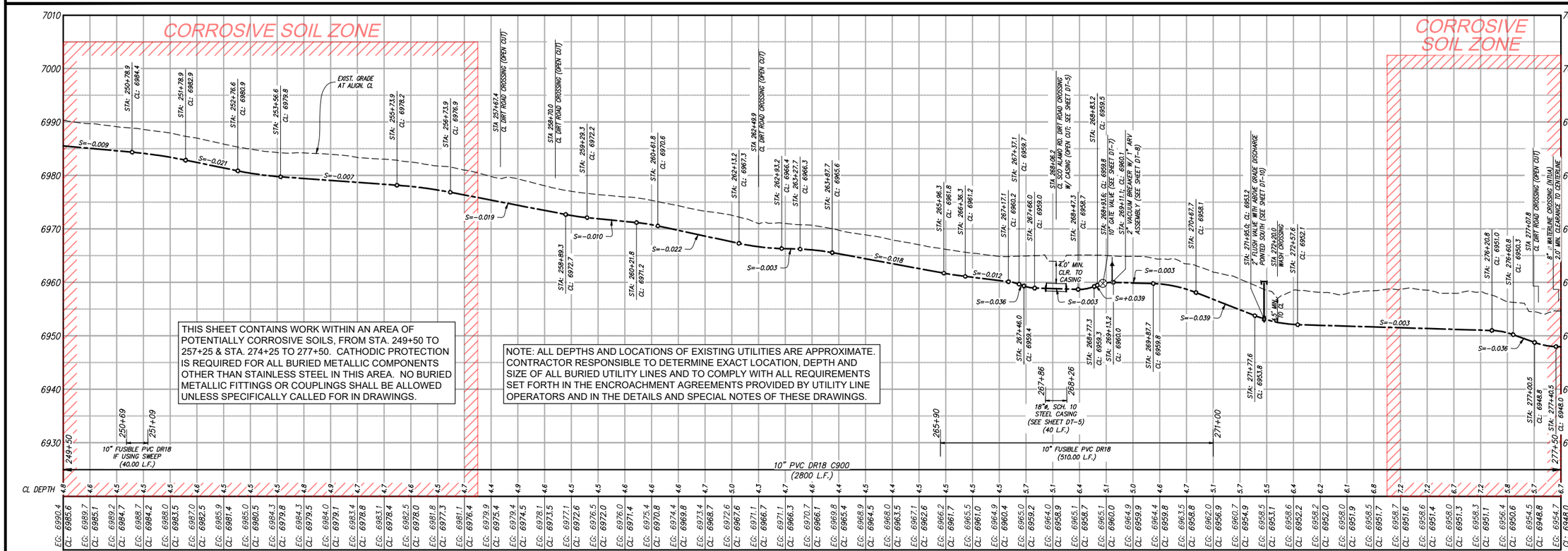
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PLAN VIEW
10" WATERLINE



PROFILE VIEW
10" WATERLINE

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CLIENT: The Navajo Nation TOWN: Ojo Encino To Pueblo Pintado, NM

PLAN & PROFILE STA 249+50 To STA 277+50
SECTION 27, T. 21 N., R. 6 W.
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
AGR	MvH/AaV	AGR

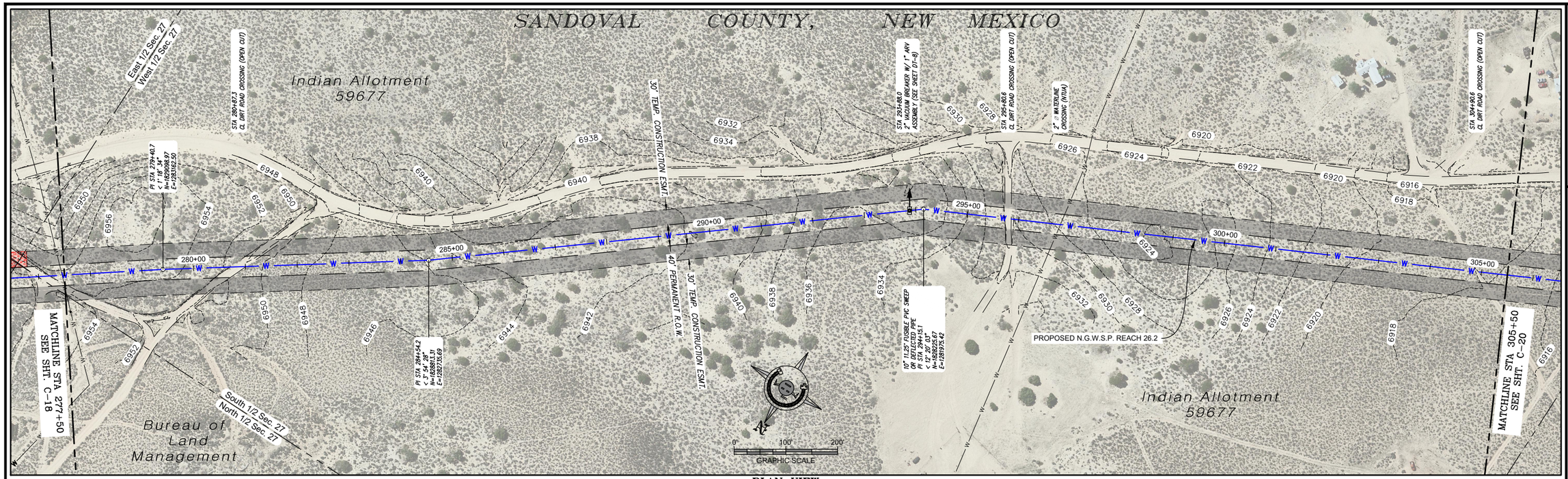
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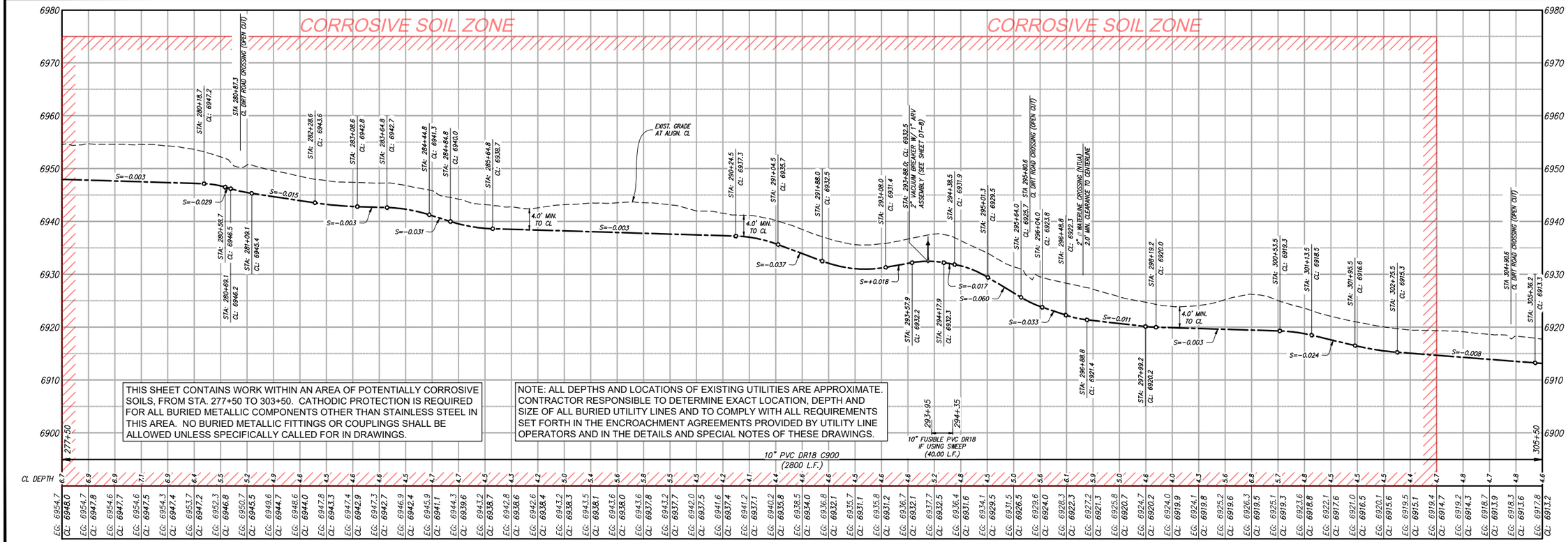
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PLAN VIEW
10" WATERLINE



THIS SHEET CONTAINS WORK WITHIN AN AREA OF POTENTIALLY CORROSIVE SOILS, FROM STA. 277+50 TO 303+50. CATHODIC PROTECTION IS REQUIRED FOR ALL BURIED METALLIC COMPONENTS OTHER THAN STAINLESS STEEL IN THIS AREA. NO BURIED METALLIC FITTINGS OR COUPLINGS SHALL BE ALLOWED UNLESS SPECIFICALLY CALLED FOR IN DRAWINGS.

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

PROFILE VIEW
10" WATERLINE

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PLAN & PROFILE STA 277+50 To STA 305+50
SECTION 27, T. 21 N., R. 6 W.
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
AGR.	MvH/AaV	AGR.

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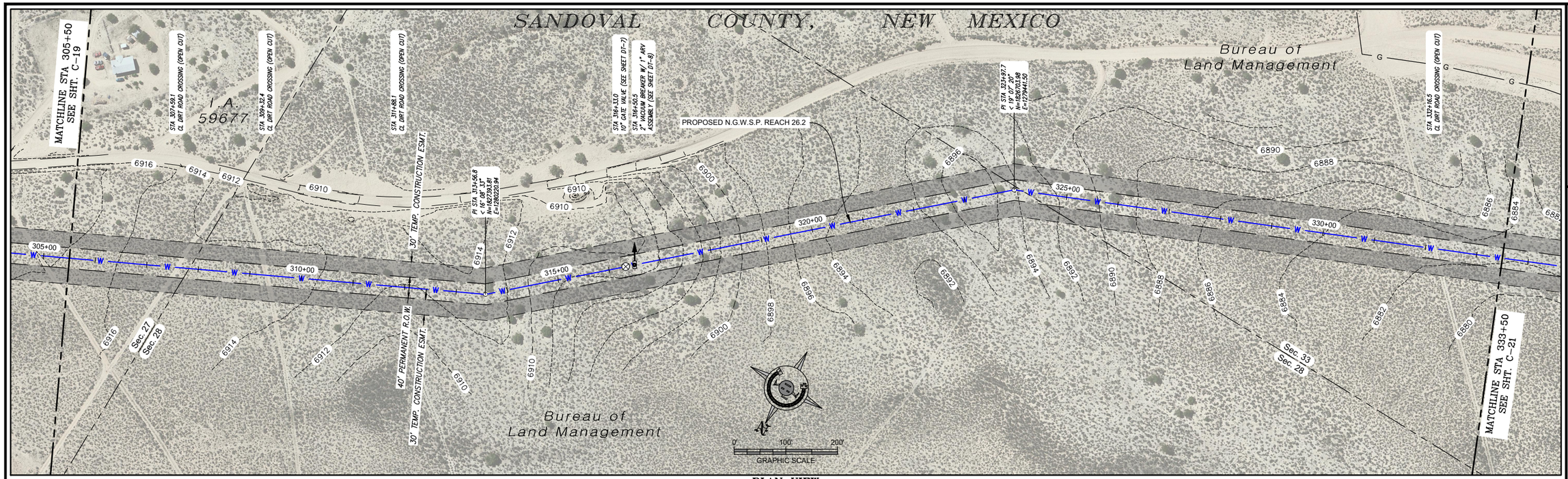
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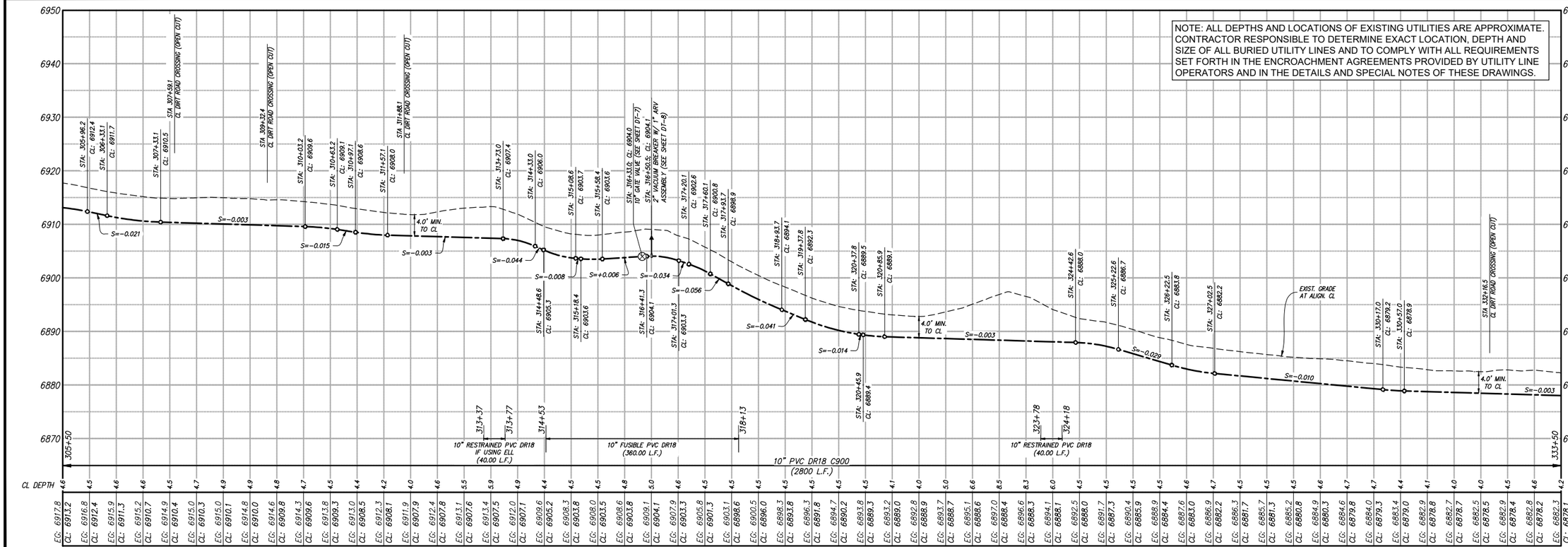
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PLAN VIEW
10" WATERLINE



PROFILE VIEW
10" WATERLINE

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Engineering ◆ Environmental Surveying

CLIENT: The Navajo Nation TOWN: Ojo Encino To Pueblo Pintado, NM

PLAN & PROFILE STA 305+50 To STA 333+50
SECTION 27, 28 & 33 T. 21 N., R. 6 W.
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
AGR.	MvH/AaV	AGR.

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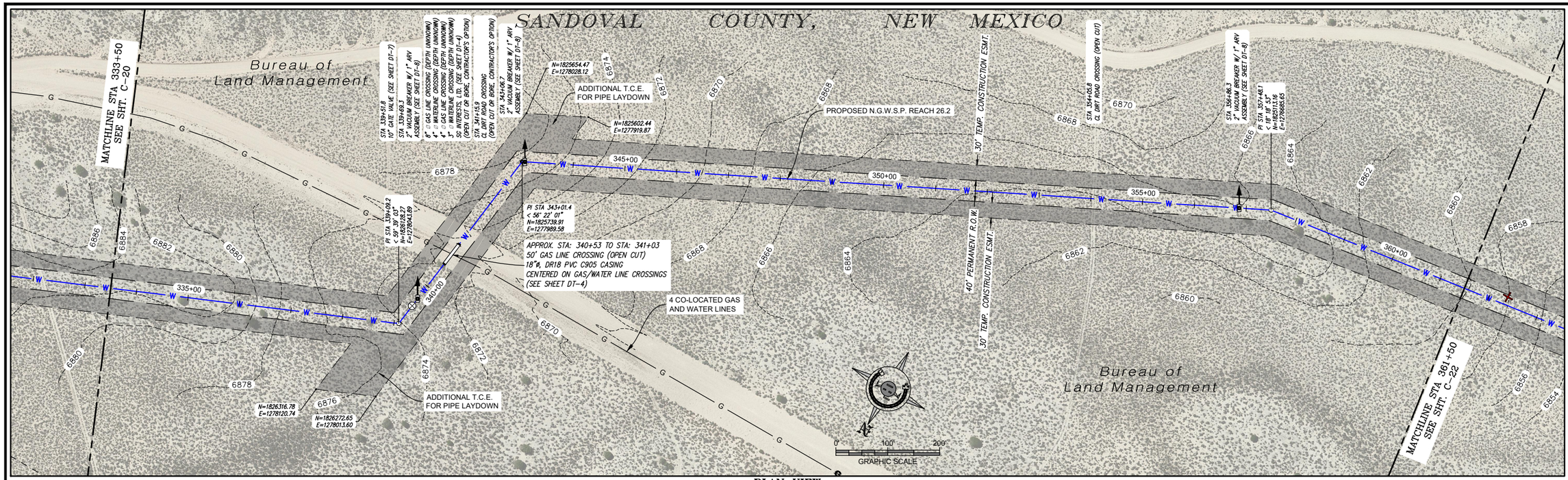
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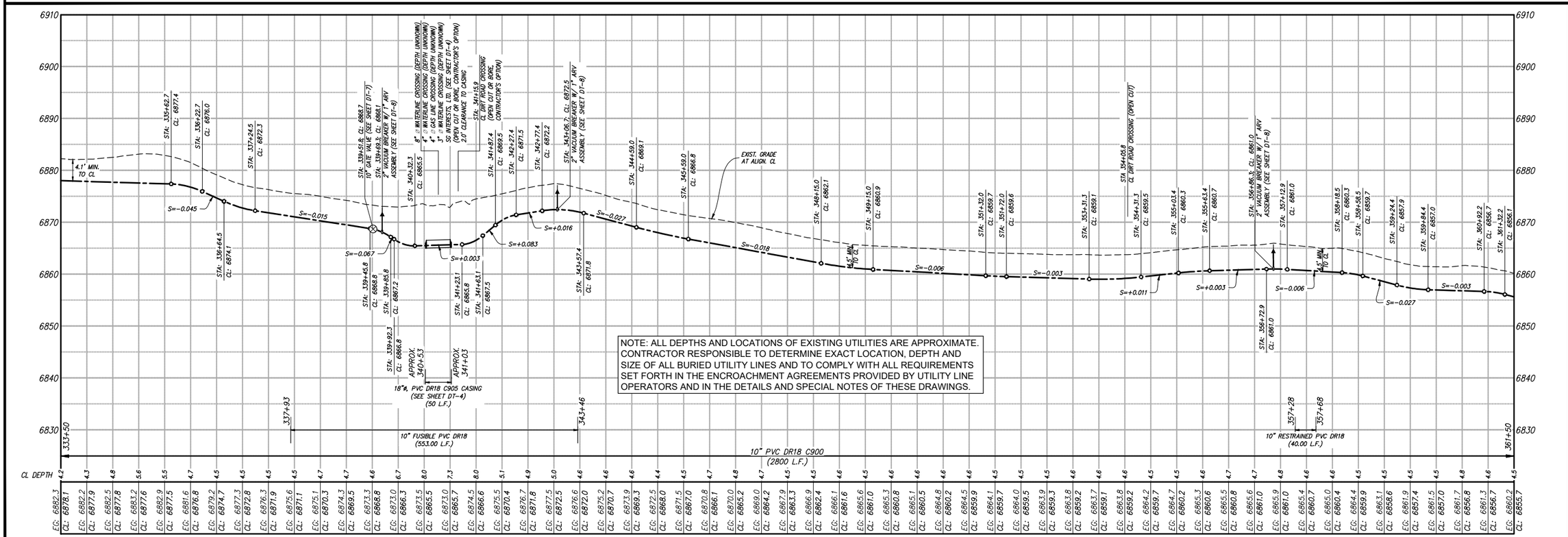
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PLAN VIEW
10" WATERLINE



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PROFILE VIEW
10" WATERLINE

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PLAN & PROFILE STA 333+50 To STA 361+50
SECTION 33, T. 21 N., R. 6 W.
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
AGR	MvH/AaV	AGR

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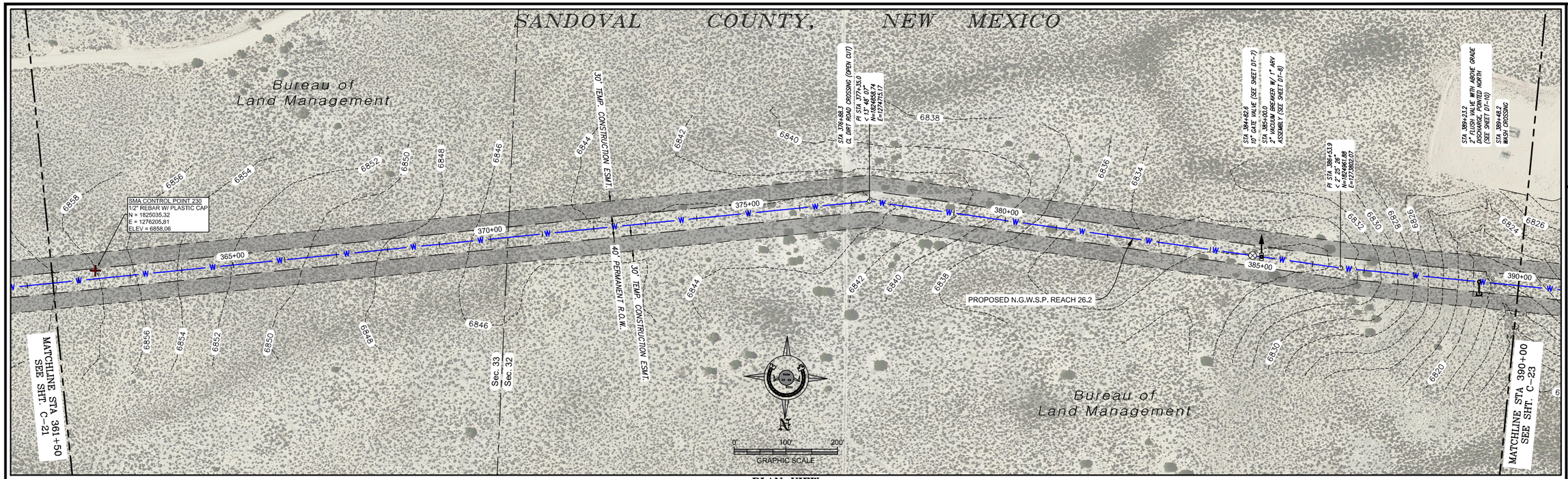
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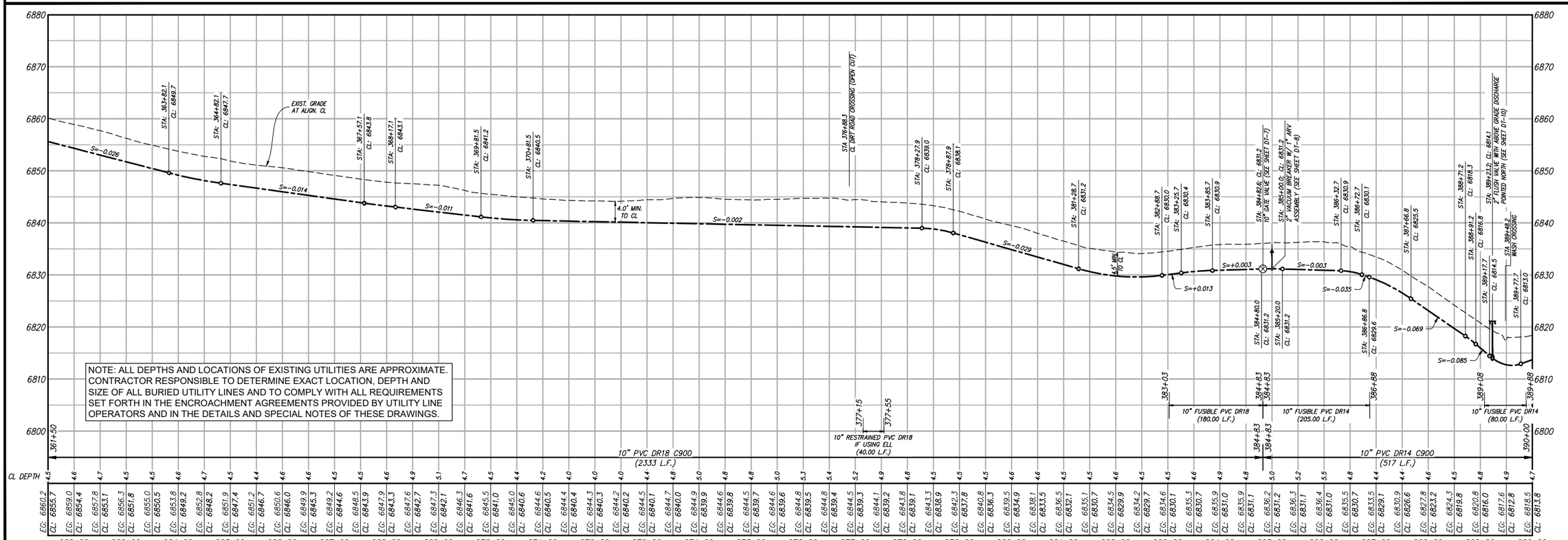
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PLAN VIEW
10" WATERLINE



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PROFILE VIEW
10" WATERLINE

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PLAN & PROFILE STA 361+50 To STA 390+00
SECTIONS 32 & 33, T. 21 N., R. 6 W.
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

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AGR	MvH/AaV	AGR

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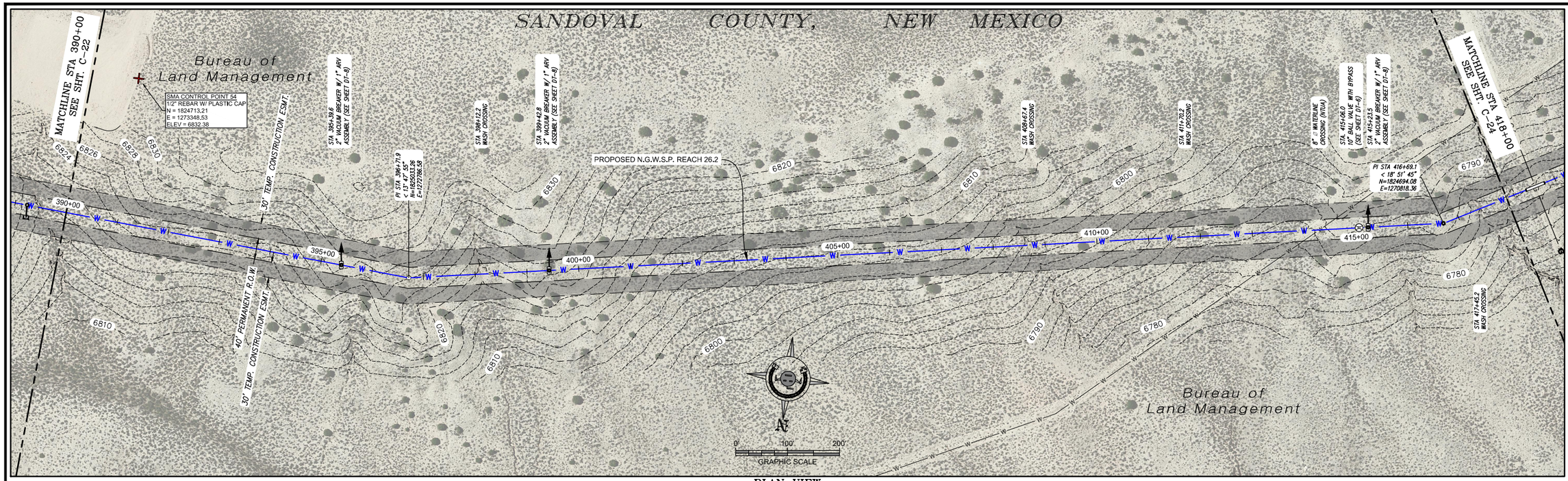
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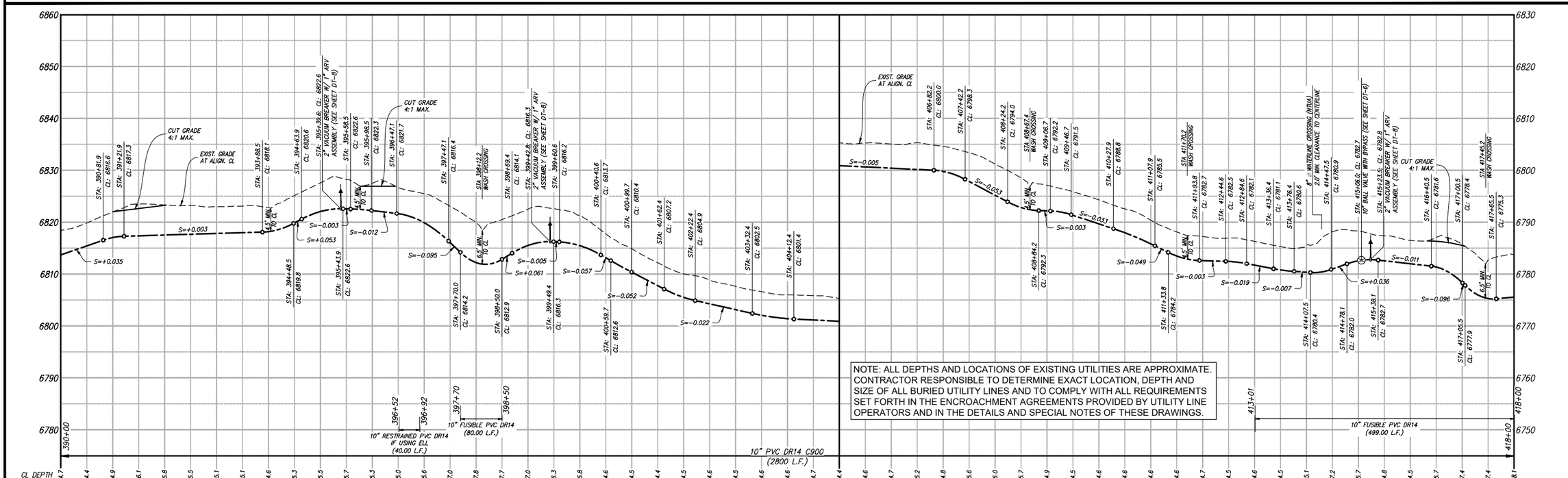
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PLAN VIEW
10" WATERLINE



PROFILE VIEW
10" WATERLINE

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CLIENT: The Navajo Nation TOWN: Ojo Encino To Pueblo Pintado, NM

PLAN & PROFILE STA 390+00 To STA 418+00
SECTION 32, T. 21 N., R. 6 W.
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

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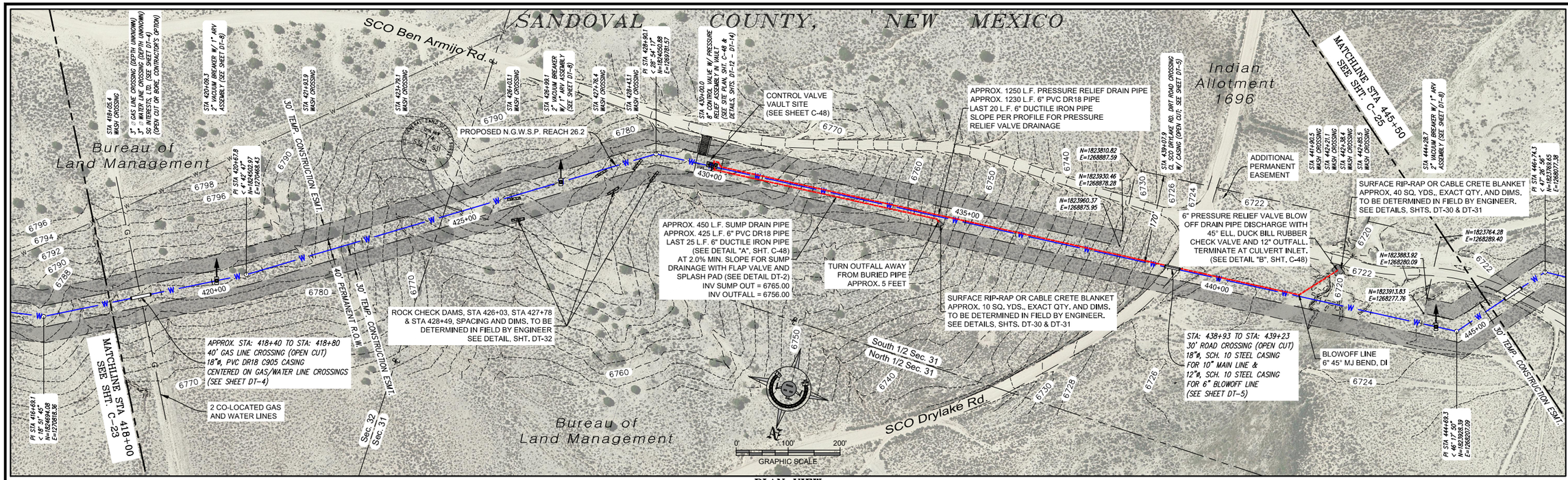
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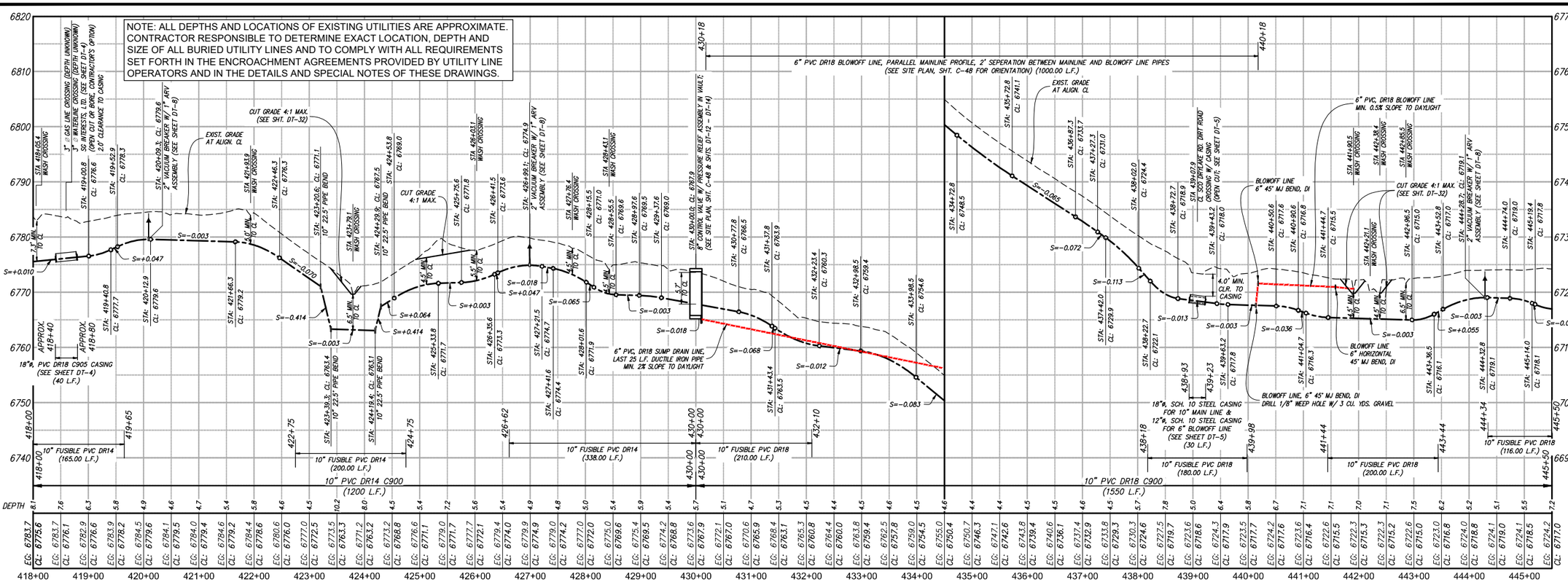
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PLAN VIEW
10" WATERLINE



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CLIENT: The Navajo Nation TOWN: Ojo Encino To Pueblo Pintado, NM

PLAN & PROFILE STA 418+00 To STA 445+50
SECTIONS 31 & 32, T. 21 N., R. 6 W.
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

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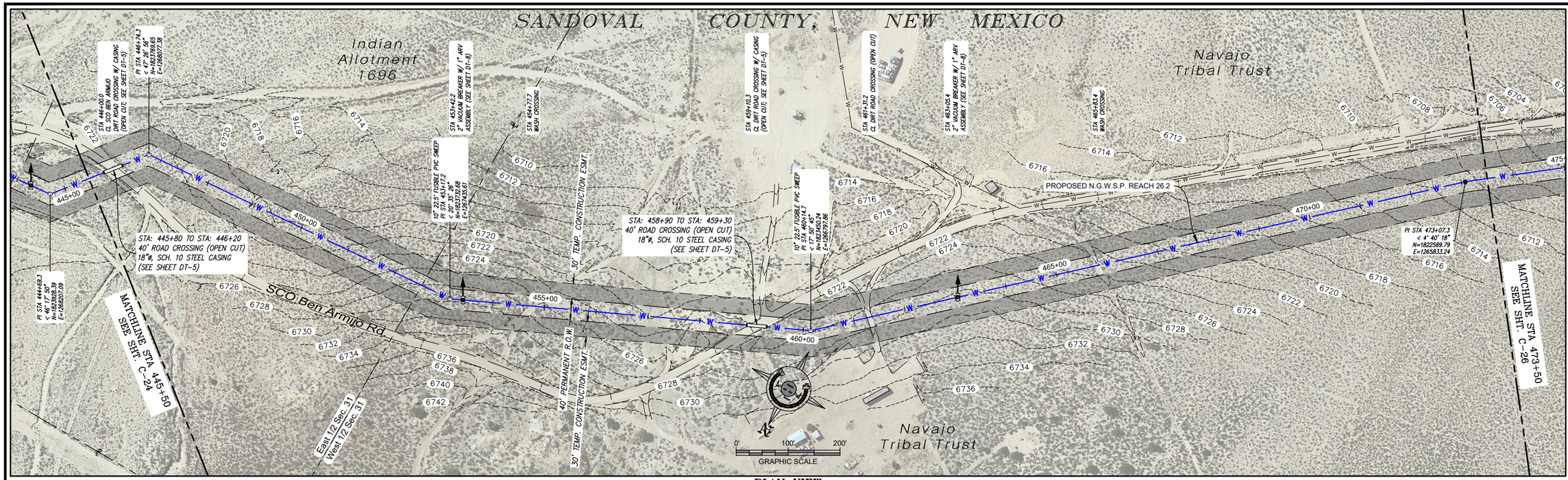
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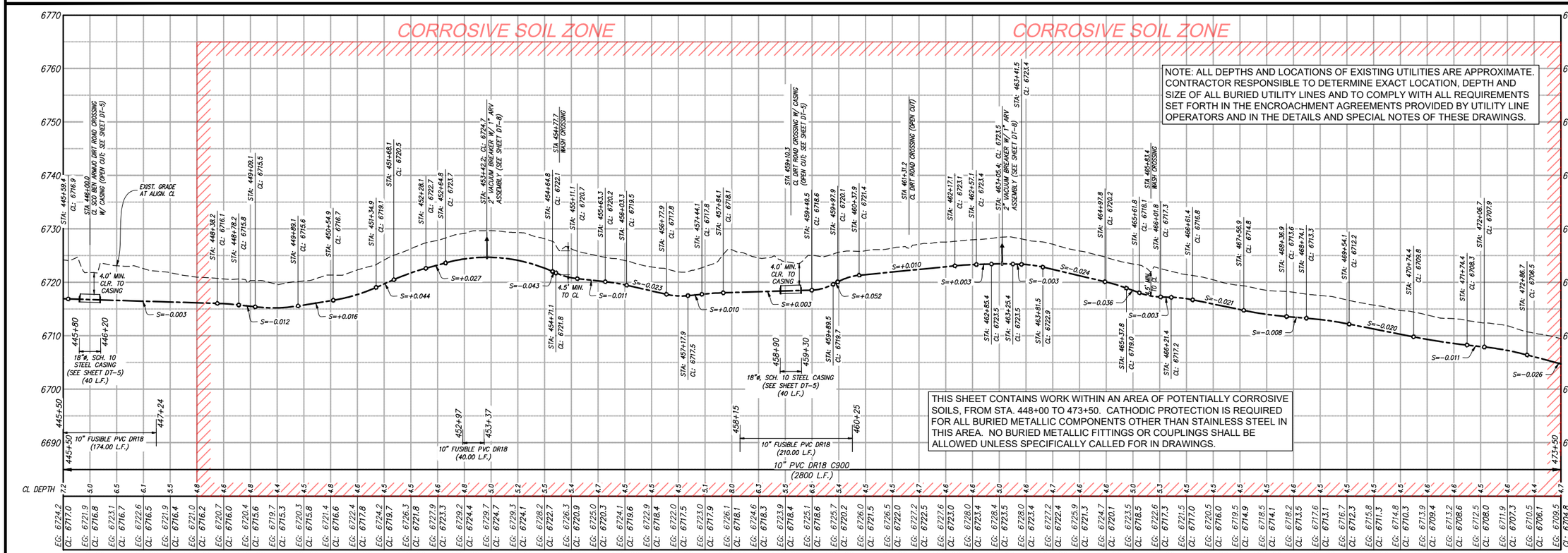
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PLAN VIEW
10" WATERLINE



PROFILE VIEW
10" WATERLINE

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PLAN & PROFILE STA 445+50 To STA 473+50
SECTION 31, T. 21 N., R. 6 W.
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

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Sheet: C-25

SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Navajo Tribal Trust

Bureau of Land Management

Bureau of Land Management

Public Land Order 2198

McKinley County

Sandoval County

MATCHLINE STA 473+50
SEE SHT. C-25

MATCHLINE STA 501+50
SEE SHT. C-27

PROPOSED N.G.W.S.P. REACH 26.2

30' TEMP. CONSTRUCTION ESMT.

40' PERMANENT R.O.W.

30' TEMP. CONSTRUCTION ESMT.

STA 481+26.0
CL DIRT ROAD CROSSING W/ CASING
(OPEN CUT, SEE SHEET DT-5)

STA 482+27.2
10" GATE VALVE (SEE SHEET DT-7)

STA 482+44.8
2" VACUUM BREAKER W/ 1" ARV
ASSEMBLY (SEE SHEET DT-8)

STA 483+38.5
WASH CROSSING

3" ⊘ GAS LINE CROSSING (DEPTH UNKNOWN)
3" ⊘ WATER LINE CROSSING (DEPTH UNKNOWN)
SG INTERESTS, LTD. (SEE SHEET DT-4)
(OPEN CUT OR BORE, CONTRACTOR'S OPTION)
2.0' MIN. CLEARANCE TO CASING
P.I. STA. 484+65.4
E = 1" 4" ⊘
N=1821620.75
E=1264589.87

STA 490+34.9
WASH CROSSING

STA 491+39.4
WASH CROSSING

STA 492+46.2
2" VACUUM BREAKER W/ 1" ARV
ASSEMBLY (SEE SHEET DT-8)

STA 492+49.9
CL DIRT ROAD CROSSING (OPEN CUT)

OVERHEAD ELECTRIC CROSSING

OVERHEAD ELECTRIC CROSSING

OVERHEAD ELECTRIC CROSSING

STA 497+32.4
CL DIRT ROAD CROSSING (OPEN CUT)

STA 498+17.8
WASH CROSSING

UNKNOWN ⊘ WATERLINE CROSSING (INTIA)

P.I. STA 497+44.8
< T 06° 40"
N=1821173.75
E=1263851.13

SMA CONTROL POINT 223
1/2" REBAR W/ PLASTIC CAP
N = 1821443.59
E = 1264581.01
ELEV = 6689.88

STA: 481+06 TO STA: 481+46
40' ROAD CROSSING (OPEN CUT)
18"ø, SCH. 10 STEEL CASING
(SEE SHEET DT-5)

APPROX. STA: 487+79 TO STA: 488+19
40' GAS LINE CROSSING (OPEN CUT)
18"ø, PVC DR18 C905 CASING
CENTERED ON GAS/WATER LINE CROSSINGS
(SEE SHEET DT-4)

2 CO-LOCATED GAS AND WATER LINES

Sec. 6 / Sec. 31 / Sec. 36 / Sec. 1

T-20-N / T-21-N

R-6-W / R-7-W

0' 100' 200'
GRAPHIC SCALE

PLAN VIEW
10" WATERLINE

CORROSIVE SOIL ZONE

CORROSIVE SOIL ZONE

THIS SHEET CONTAINS WORK WITHIN AN AREA OF POTENTIALLY CORROSIVE SOILS, FROM STA. 473+50 TO 501+50. CATHODIC PROTECTION IS REQUIRED FOR ALL BURIED METALLIC COMPONENTS OTHER THAN STAINLESS STEEL IN THIS AREA. NO BURIED METALLIC FITTINGS OR COUPLINGS SHALL BE ALLOWED UNLESS SPECIFICALLY CALLED FOR IN DRAWINGS.

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.

10" PVC DR18 C900 (877 L.F.)

10" FUSIBLE PVC DR18 (295.00 L.F.)

10" FUSIBLE PVC DR14 (205.00 L.F.)

18"ø, SCH. 10 STEEL CASING (SEE SHEET DT-5) (40 L.F.)

18"ø, PVC DR18 C905 CASING (SEE SHEET DT-4) (40 L.F.)

10" FUSIBLE PVC DR14 (210.00 L.F.)

10" FUSIBLE PVC DR14 (80.00 L.F.)

10" PVC DR14 C900 (1923 L.F.)

EXIST. GRADE AT ALIGN. CL

CUT GRADE 4:1 MAX. (SEE SHT. DT-32)

4.0" MIN. CLR. TO CASING

6.0" MIN. TO CL

6.5' MIN. TO CL

PROFILE VIEW
10" WATERLINE

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Revision	Date	Description	By	Ck'd

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CLIENT: The Navajo Nation TOWN: Ojo Encino To Pueblo Pintado, NM

PLAN & PROFILE STA 473+50 To STA 501+50
SECTION 1, T. 20 N., R. 7 W.; SECTION 6, T. 20 N., R. 6 W.
SECTION 31, T. 21 N., R. 6 W.; SECTION 36, T. 21 N., R. 7 W.

NAVAJO GALLUP WATER SUPPLY
PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
AGR.	MvH/AaV	AGR.

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NOTICE OF EXTENDED PAYMENT PROVISION:
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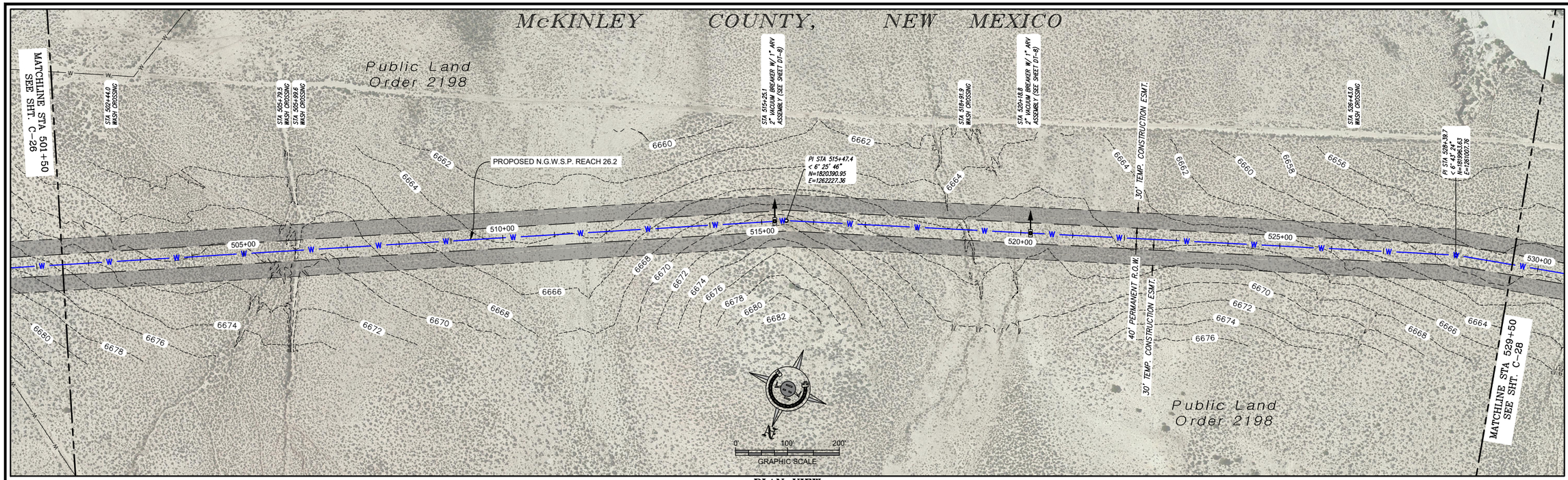
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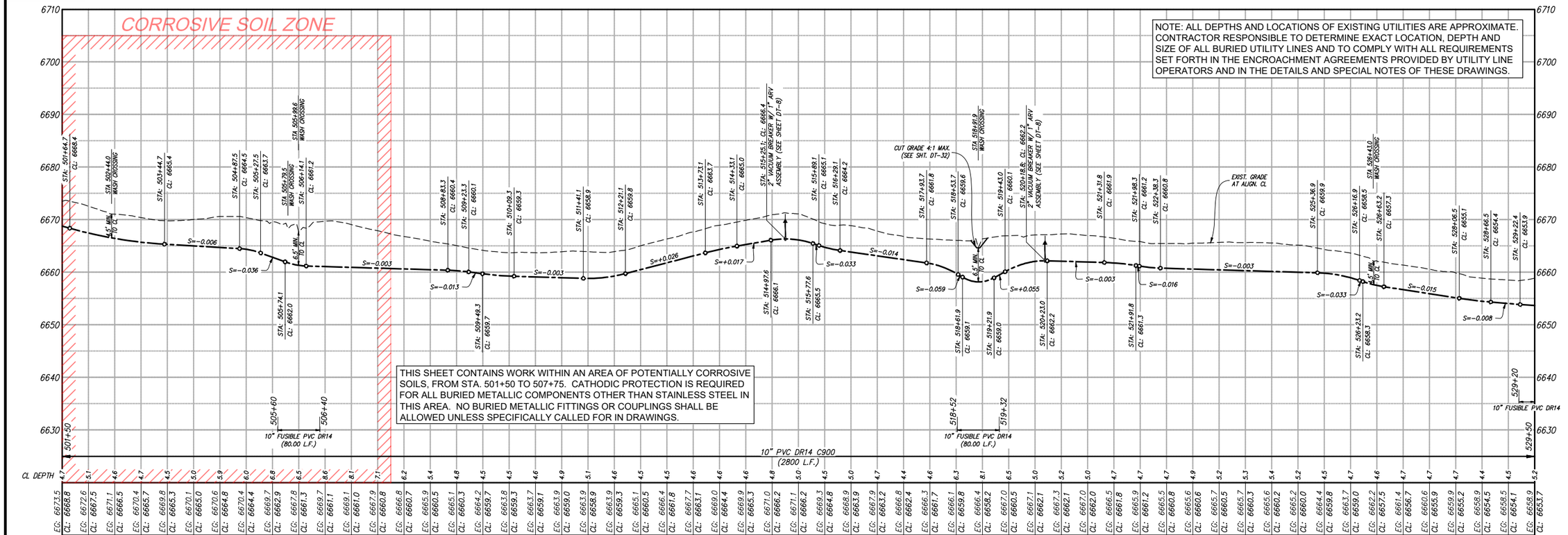
Scale: Horiz: 1" = 200'
Vert: 1" = 20'

Project No: 6921307

Sheet: C-26



PLAN VIEW
10" WATERLINE



PROFILE VIEW
10" WATERLINE

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CLIENT: The Navajo Nation TOWN: Ojo Encino To Pueblo Pintado, NM

PLAN & PROFILE STA 501+50 To STA 529+50
SECTION 1, T. 20 N., R. 7 W.
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
AGR	MvH/AaV	AGR

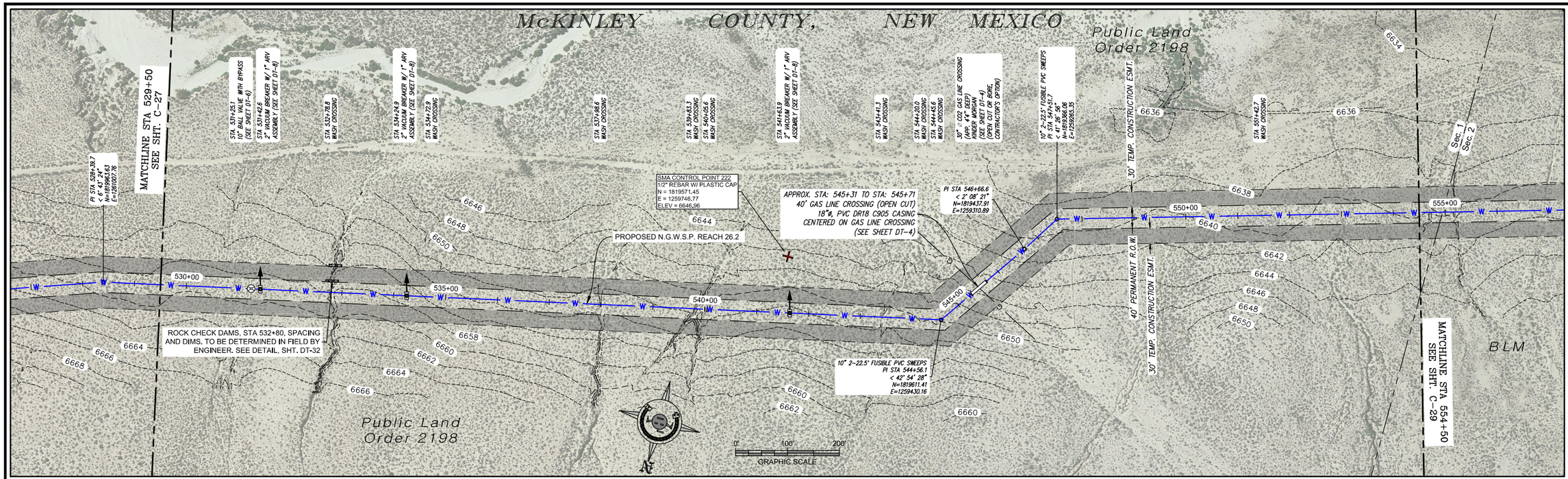
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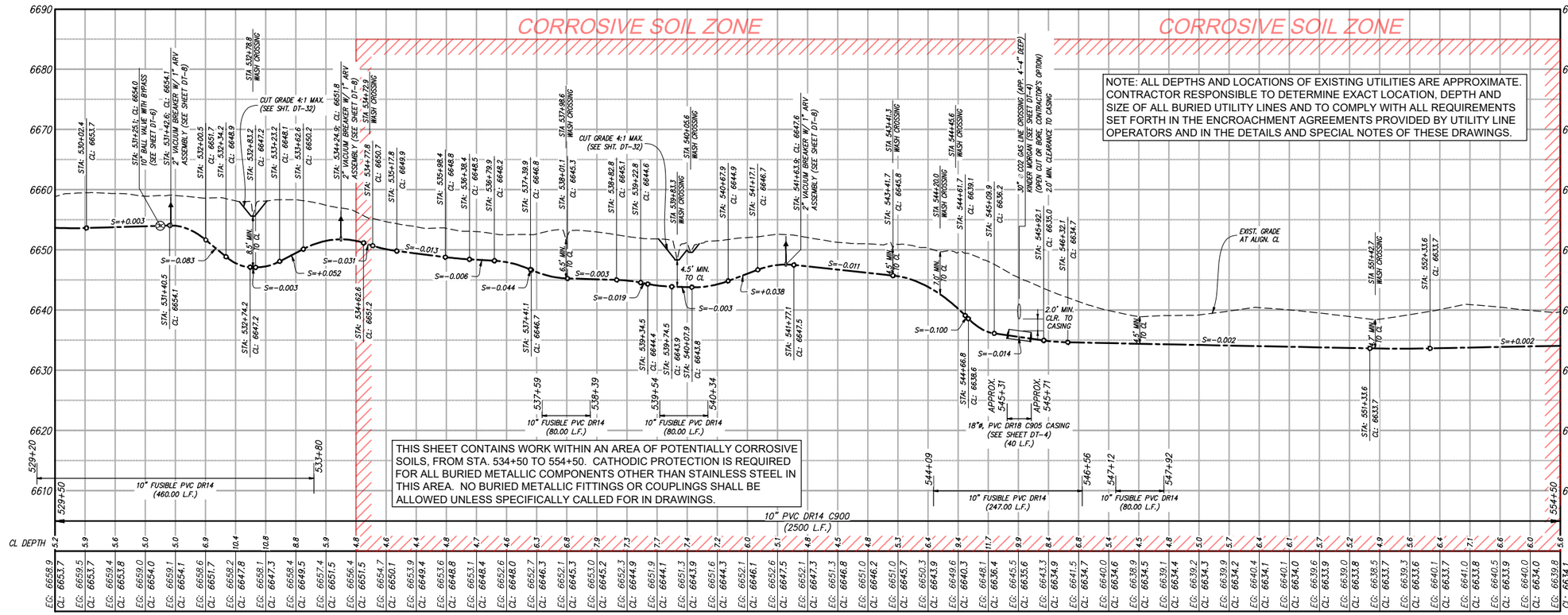
NOTICE OF EXTENDED PAYMENT PROVISION:
THIS CONTRACT ALLOWS THE OWNER TO MAKE PAYMENT WITHIN 45 DAYS AFTER SUBMISSION OF AN UNDISPUTED REQUEST FOR PAYMENT.

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PLAN VIEW
10" WATERLINE



PROFILE VIEW
10" WATERLINE

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CLIENT: The Navajo Nation TOWN: Ojo Encino To Pueblo Pintado, NM

PLAN & PROFILE STA 529+50 To STA 554+50
SECTION 1, T. 20 N., R. 7 W.
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
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Project No: 6921307
Sheet: C-28

McKINLEY COUNTY, NEW MEXICO

MATCHLINE STA 554+50
SEE SHT. C-28

MATCHLINE STA 579+50
SEE SHT. C-30

PLO 2198

Sec. 1 | Sec. 2

Bureau of Land Management

Bureau of Land Management

30' TEMP. CONSTRUCTION ESMT.

40' PERMANENT R.O.W.

30' TEMP. CONSTRUCTION ESMT.

30' TEMP. CONSTRUCTION ESMT.

STA 554+70.1 WASH CROSSING

STA 555+19.4 WASH CROSSING

STA 556+74.1 2" VACUUM BREAKER W/ 1" ARV ASSEMBLY (SEE SHEET D1-8)

10" 11.25° FUSIBLE PVC SWEEP OR DEFLECTED PIPE PI STA 560+57.8 < 11° 15' 00" N=1818708.02 E=1258011.01

STA 561+78.1 WASH CROSSING

STA 562+41.7 WASH CROSSING

10" 11.25° FUSIBLE PVC SWEEP OR DEFLECTED PIPE PI STA 566+46.3 < 11° 15' 00" N=1818730.38 E=1258388.70

STA 567+20.0 2" FLUSH VALVE WITH ABOVE GRADE DISCHARGE POINTED SOUTH (SEE SHEET D1-10)

STA 568+27.9 WASH CROSSING

PROPOSED N.G.W.S.P. REACH 26.2

10" 11.25° FUSIBLE PVC SWEEP OR DEFLECTED PIPE PI STA 573+22.7 < 11° 15' 00" N=1818542.35 E=1256839.07

STA 576+08.0 CL DIRT ROAD CROSSING (OPEN CUT)

STA 576+22.2 WASH CROSSING

STA 578+83.1 2" VACUUM BREAKER W/ 1" ARV ASSEMBLY (SEE SHEET D1-8)

10" 11.25° FUSIBLE PVC SWEEP OR DEFLECTED PIPE PI STA 579+11.2 < 11° 15' 00" N=1818491.73 E=1256252.76

N=1818923.91 E=1257817.14

N=1818951.00 E=1257804.21

N=1818708.31 E=1257339.17

N=1818737.12 E=1257330.81

CULTURALLY SENSITIVE AREA DO NOT ENCROACH

SE 1/4 Sec. 2 | SW 1/4 Sec. 2

0' 100' 200'
GRAPHIC SCALE

NOTE:
THIS SHEET CONTAINS WORK IN THE VICINITY OF A **"CULTURALLY SENSITIVE 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:
- AVOIDANCE
- TEMPORARY FENCING OF SITE BOUNDARIES BY OWNER-PROVIDED ARCHAEOLOGIST
- ON-SITE MONITORING BY OWNER-PROVIDED ARCHAEOLOGIST NO WORK WITHIN 100 FT. WITHOUT ARCHAEOLOGIST ONSITE

PLAN VIEW
10" WATERLINE

CORROSIVE SOIL ZONE

CORROSIVE SOIL ZONE

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.

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EXIST. GRADE AT ALIGN. CL

10" FUSIBLE PVC DR14 IF USING SWEEP (40.00 L.F.)

10" PVC DR14 C900 (2500 L.F.)

CL DEPTH

PROFILE VIEW
10" WATERLINE

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CLIENT: The Navajo Nation TOWN: Ojo Encino To Pueblo Pintado, NM

PLAN & PROFILE STA 554+50 To STA 579+50
SECTIONS 1 & 2, T. 20 N., R. 7 W.
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
AGR	MvH/AaV	AGR

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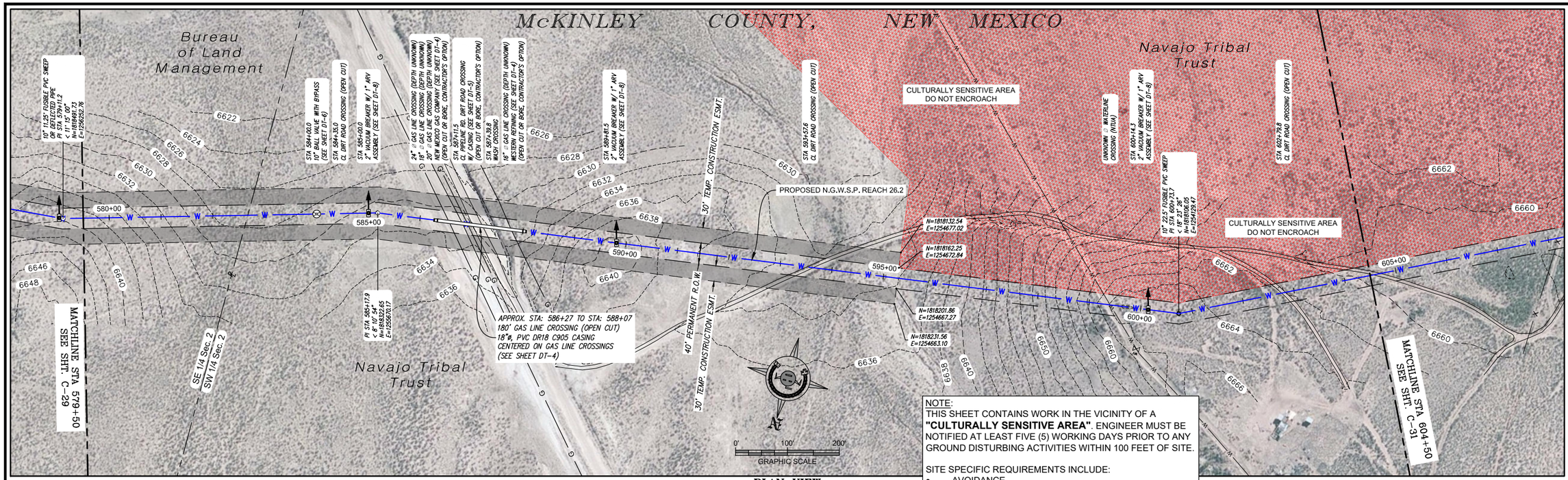
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Project No: 6921307

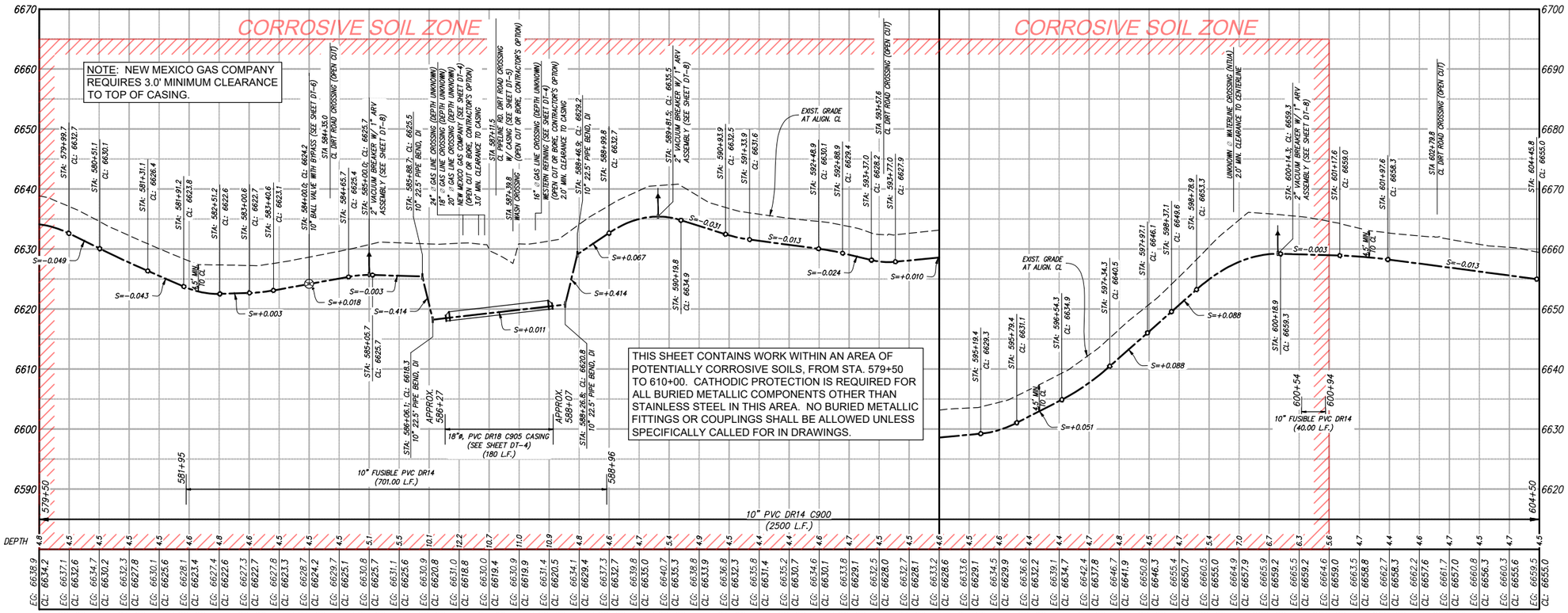
Sheet: C-29



NOTE:
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SITE SPECIFIC REQUIREMENTS INCLUDE:
- AVOIDANCE

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.

PROFILE VIEW
10" WATERLINE

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CLIENT: The Navajo Nation TOWN: Ojo Encino To Pueblo Pintado, NM

PLAN & PROFILE STA 579+50 To STA 604+50
SECTION 2, T. 20 N., R. 7 W.
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
AGR	MvH/AaV	AGR

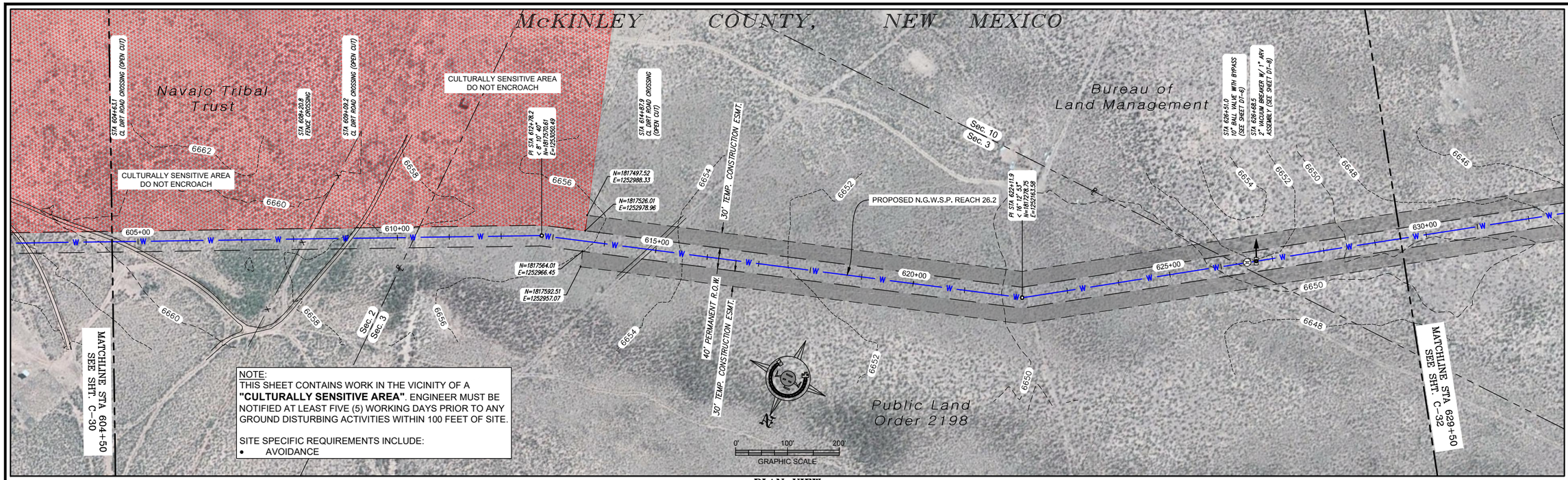
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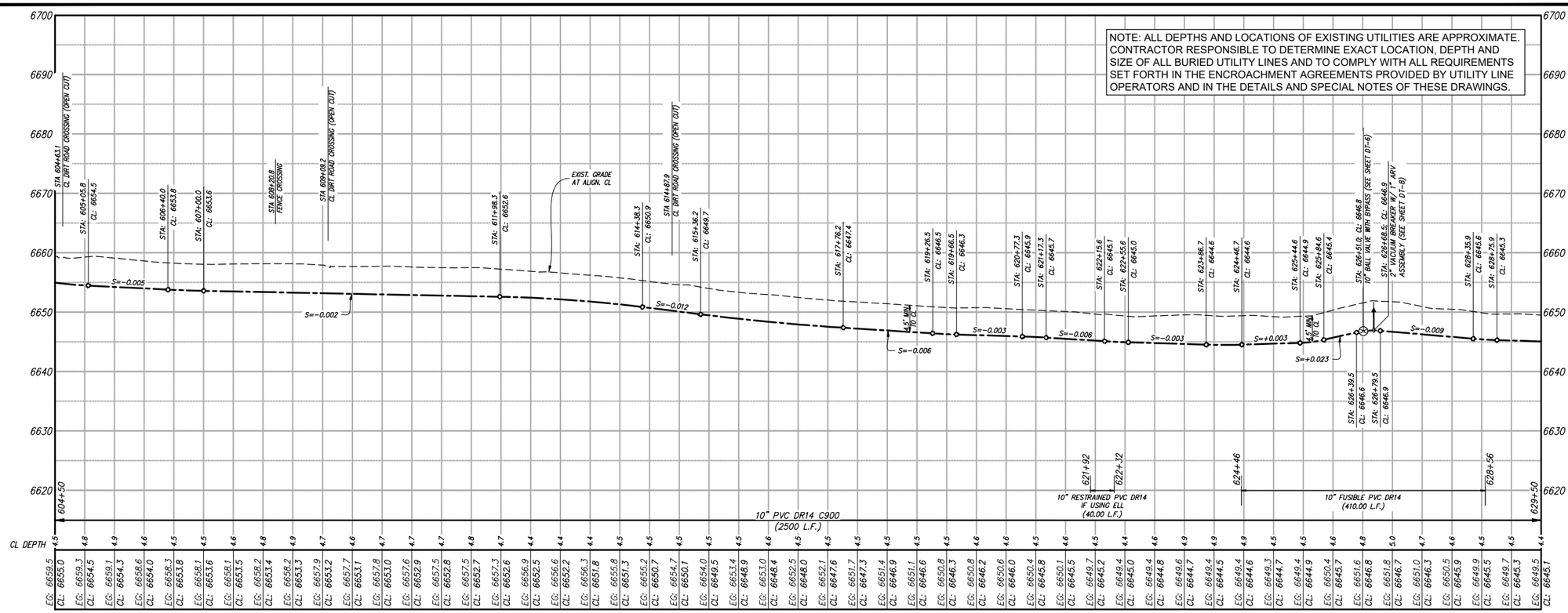
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PLAN VIEW
10" WATERLINE



PROFILE VIEW
10" WATERLINE

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CLIENT: The Navajo Nation TOWN: Ojo Encino To Pueblo Pintado, NM

PLAN & PROFILE STA 604+50 To STA 629+50
SECTIONS 2, 3 & 10, T. 20 N., R. 7 W.
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
AGR	MvH/AaV	AGR

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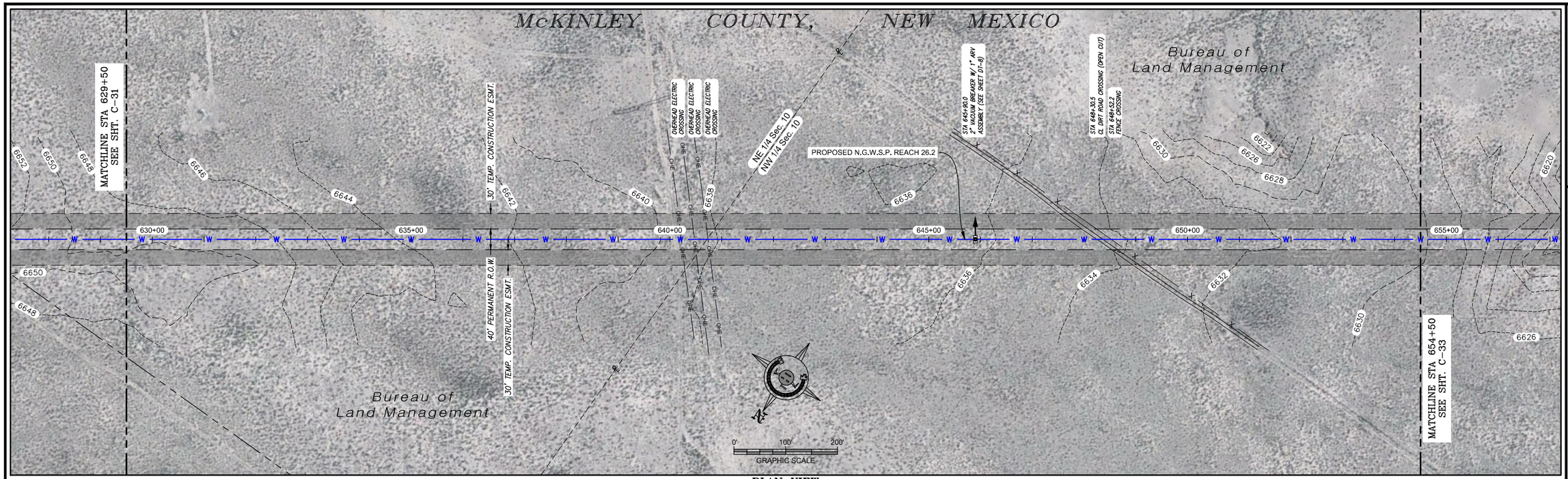
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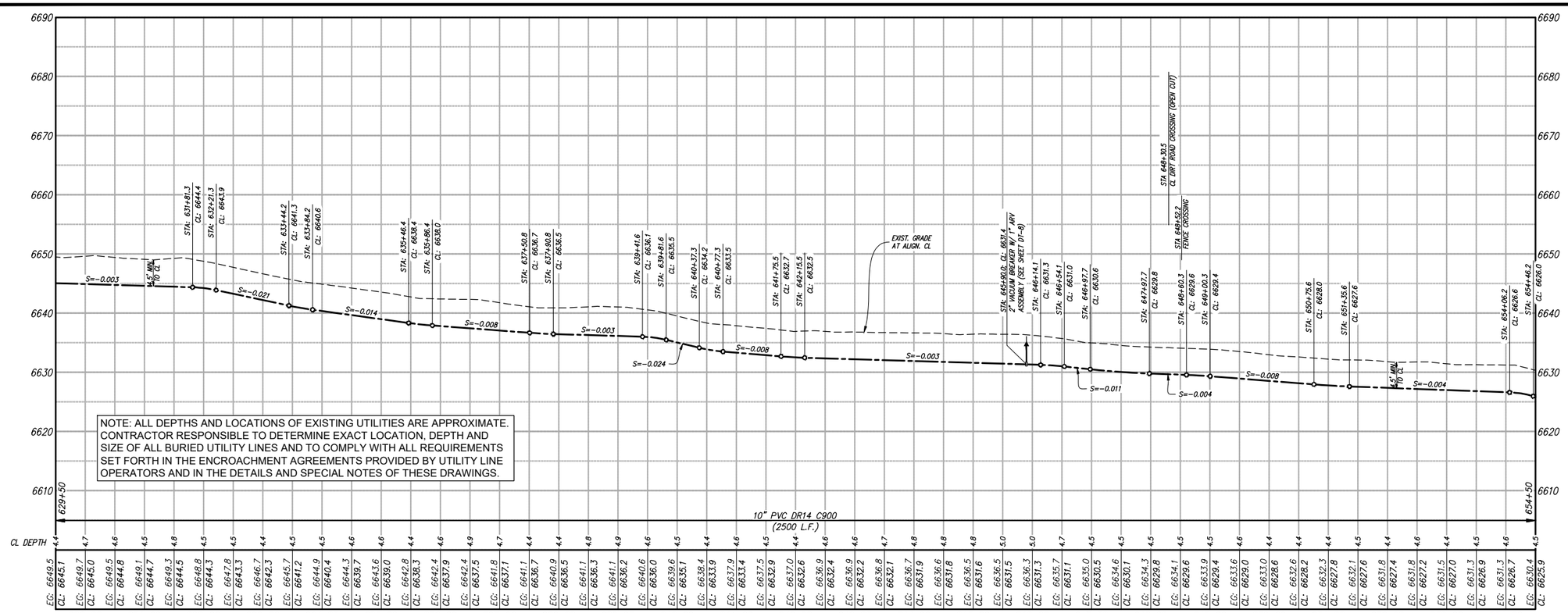
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PLAN VIEW
10" WATERLINE



PROFILE VIEW
10" WATERLINE

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PLAN & PROFILE STA 629+50 To STA 654+50

SECTION 10, T. 20 N., R. 7 W.

NAVAJO GALLUP WATER SUPPLY
PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
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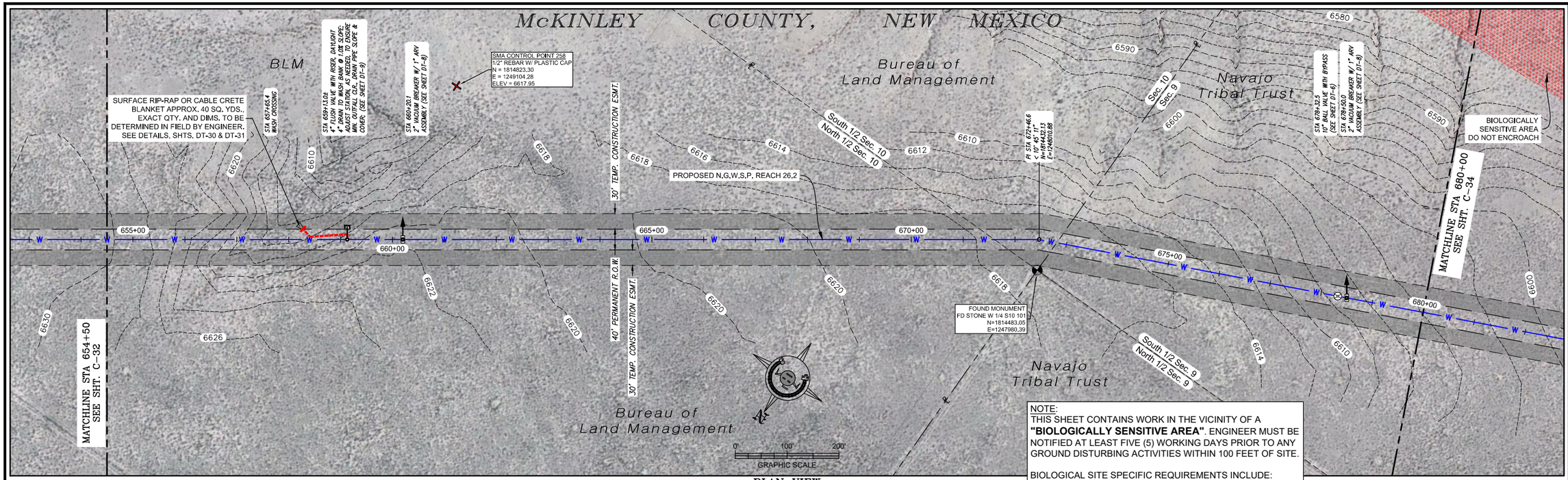
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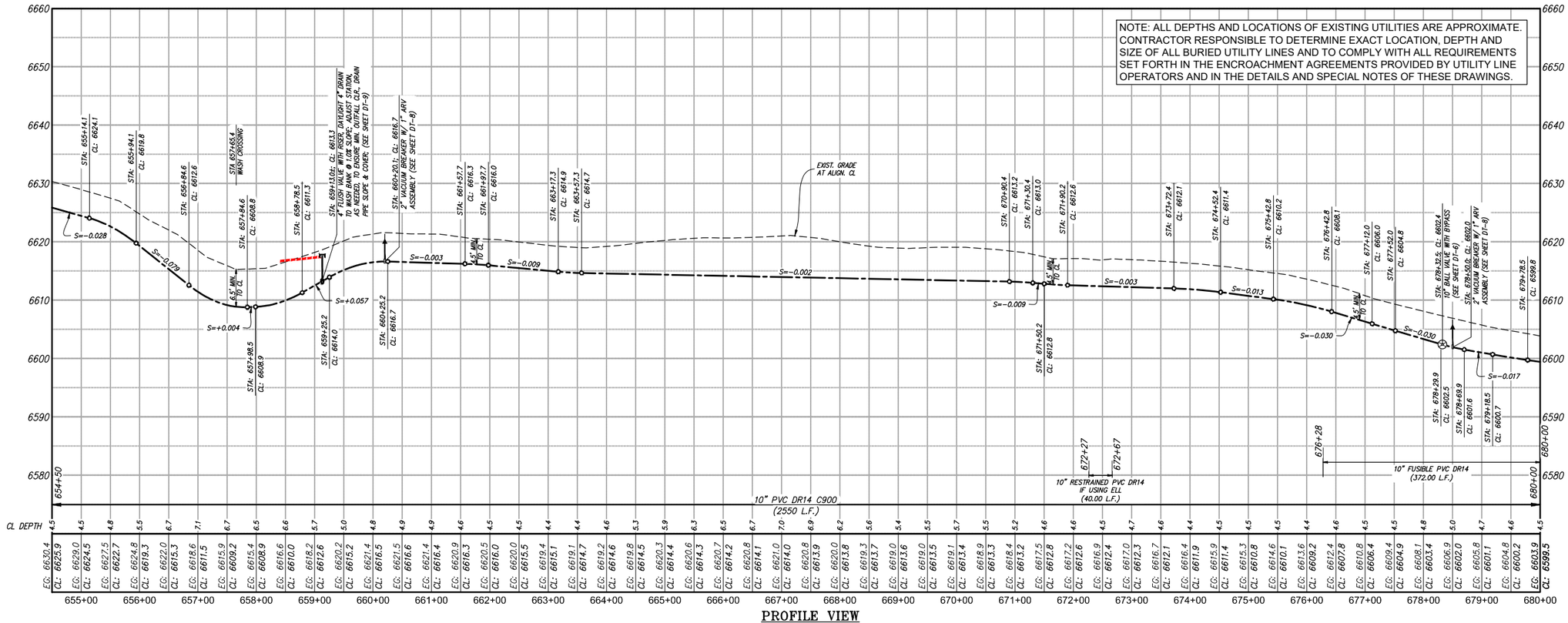
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PLAN VIEW
10" WATERLINE

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

BIOLOGICAL SITE SPECIFIC REQUIREMENTS INCLUDE:
- AVOIDANCE



PROFILE VIEW
10" WATERLINE

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PLAN & PROFILE STA 654+50 To STA 680+00
SECTIONS 9 & 10, T. 20 N., R. 7 W.
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

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AGR	MvH/AaV	AGR

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Project No: 6921307
Sheet: C-33

McKINLEY COUNTY, NEW MEXICO

Navajo Tribal Trust

BIOLOGICALLY SENSITIVE AREA DO NOT ENCROACH

CULTURALLY SENSITIVE AREA DO NOT ENCROACH

STA 684+84.0 WASH CROSSING

STA 691+77.4 2" VACUUM BREAKER W/ 1" ARV ASSEMBLY (SEE SHEET DT-8)

PROPOSED N,G,W,S,P, REACH 26.2

30' TEMP. CONSTRUCTION ESMT.

40' PERMANENT R.O.W.

STATION EQUATION
PI STA 693+68.2
PI STA 711+31.2
Δ 37° 04' 16"
N=1813580.18
E=1246067.34

PI STA 715+32.1
Δ 31° 05' 32"
N=1813424.32
E=1245957.78

MATCHLINE STA 680+00 SEE SHT. C-33

MATCHLINE STA 723+50 SEE SHT. C-35

SMA CONTROL POINT 252
1/2" REBAR W/ PLASTIC CAP
N = 1813775.51
E = 1246316.56
ELEV = 6596.89

0' 100' 200'
GRAPHIC SCALE

NOTE:
THIS SHEET CONTAINS WORK IN THE VICINITY OF A **"CULTURALLY AND BIOLOGICALLY SENSITIVE AREAS"**.
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:
- AVOIDANCE
- TEMPORARY FENCING OF SITE BOUNDARIES BY OWNER-PROVIDED ARCHAEOLOGIST
- ON-SITE MONITORING BY OWNER-PROVIDED ARCHAEOLOGIST NO WORK WITHIN 100 FT. WITHOUT ARCHAEOLOGIST ONSITE

BIOLOGICAL SITE SPECIFIC REQUIREMENTS INCLUDE:
- AVOIDANCE

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.

10" FUSIBLE PVC DR14 (38.00 L.F.)

10" FUSIBLE PVC DR14 (206.00 L.F.)

10" PVC DR14 C900 (2587 L.F.)

10" FUSIBLE PVC DR14 (80.00 L.F.)

STATION EQUATION
STA 693+68.2 = STA 711+31.2

PROFILE VIEW
10" WATERLINE

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Revision	Date	Description	By	Ck'd

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SMA Engineering ♦ Environmental Surveying

CLIENT: The Navajo Nation TOWN: Ojo Encino To Pueblo Pintado, NM

PLAN & PROFILE STA 680+00 To STA 723+50
SECTION 9, T. 20 N., R. 7 W.
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
AGR	MvH/AaV	AGR

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

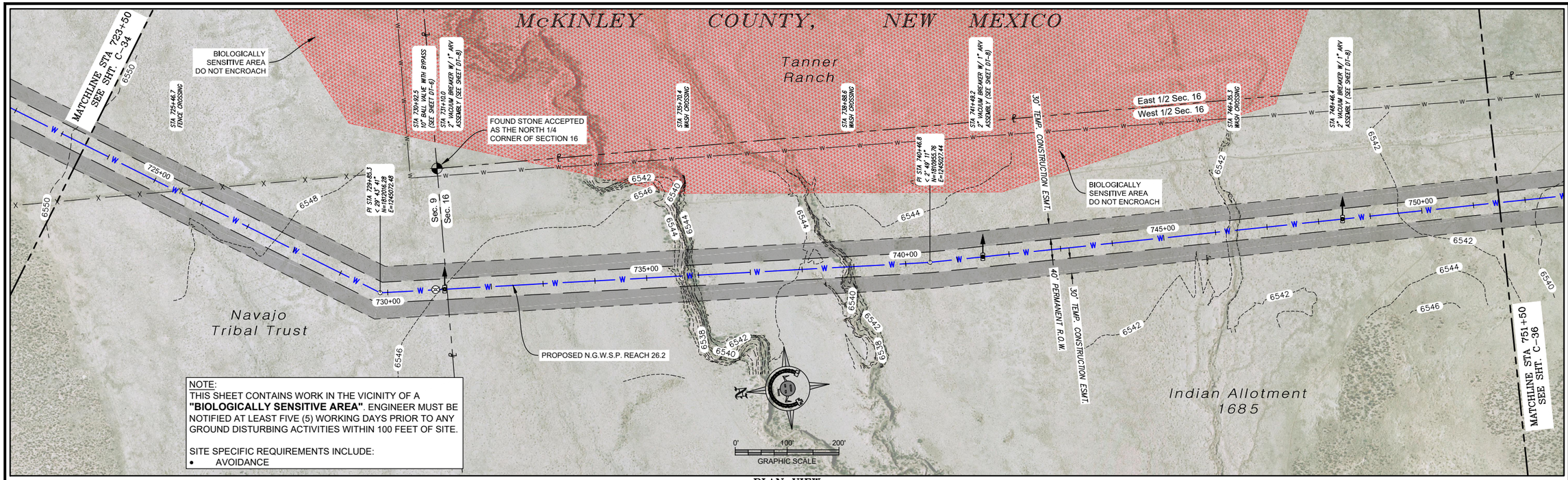
811 Know what's below. Call before you dig.

Date: September 28, 2017

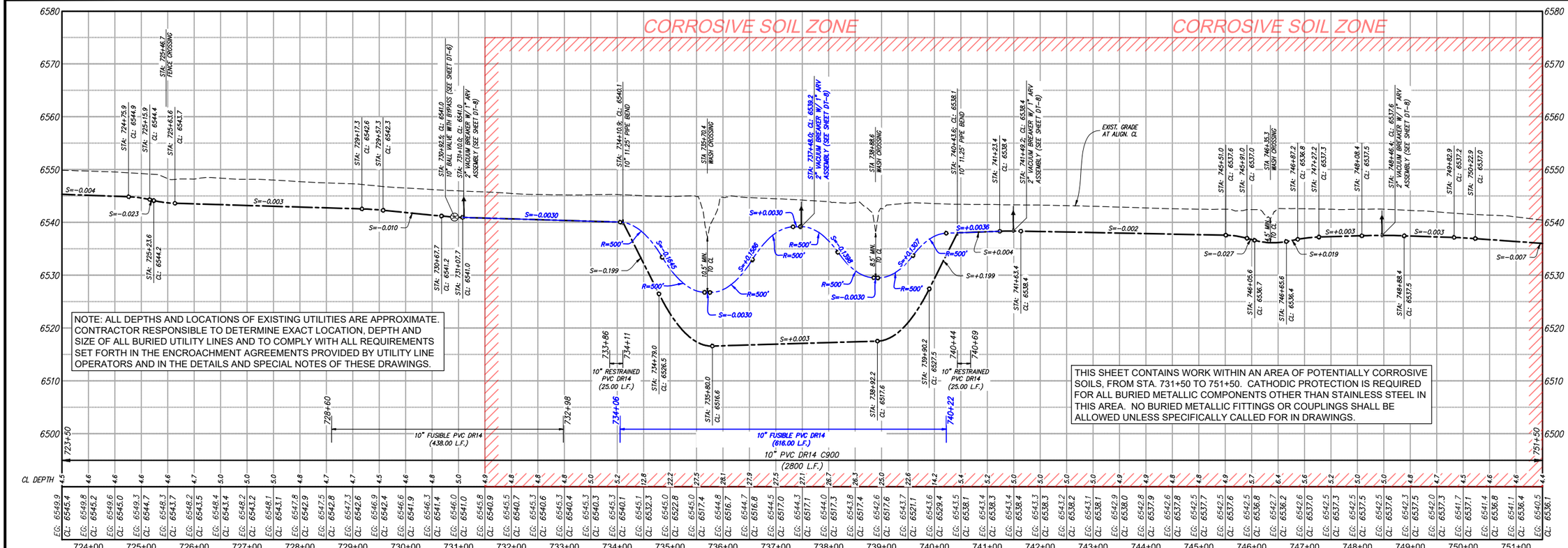
Scale: Horiz: 1" = 200'
Vert: 1" = 20'

Project No: 6921307

Sheet: C-34



PLAN VIEW
10" WATERLINE



PROFILE VIEW
10" WATERLINE

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CLIENT: The Navajo Nation TOWN: Ojo Encino To Pueblo Pintado, NM

PLAN & PROFILE STA 723+50 To STA 751+50
SECTIONS 9 & 16, T. 20 N., R. 7 W.
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

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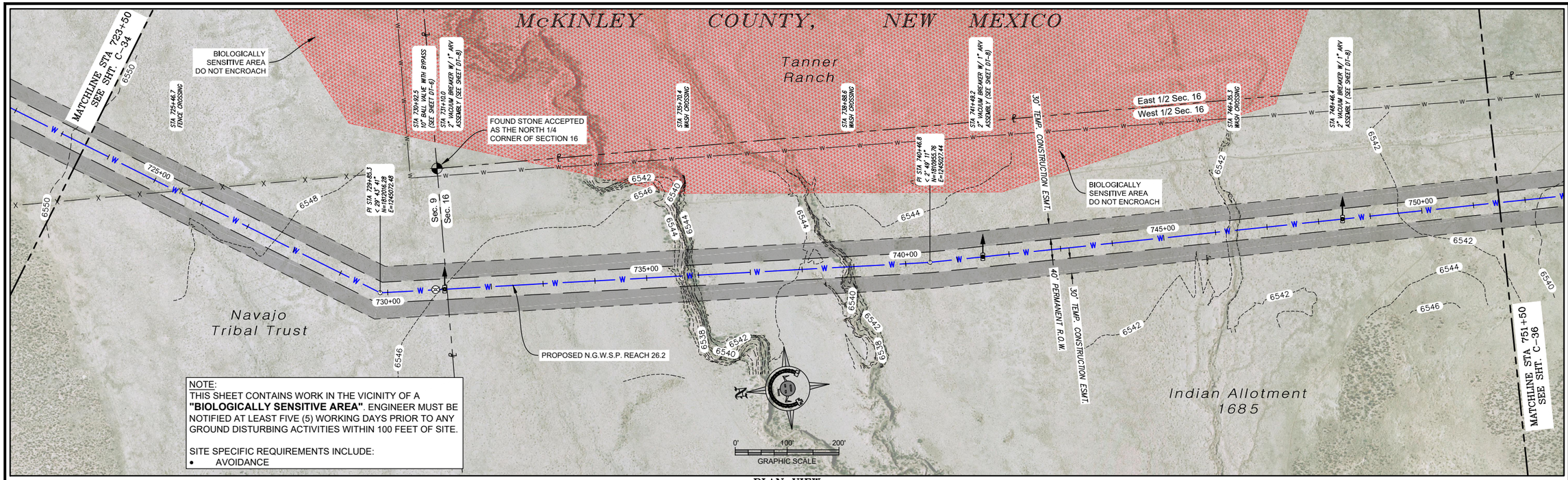
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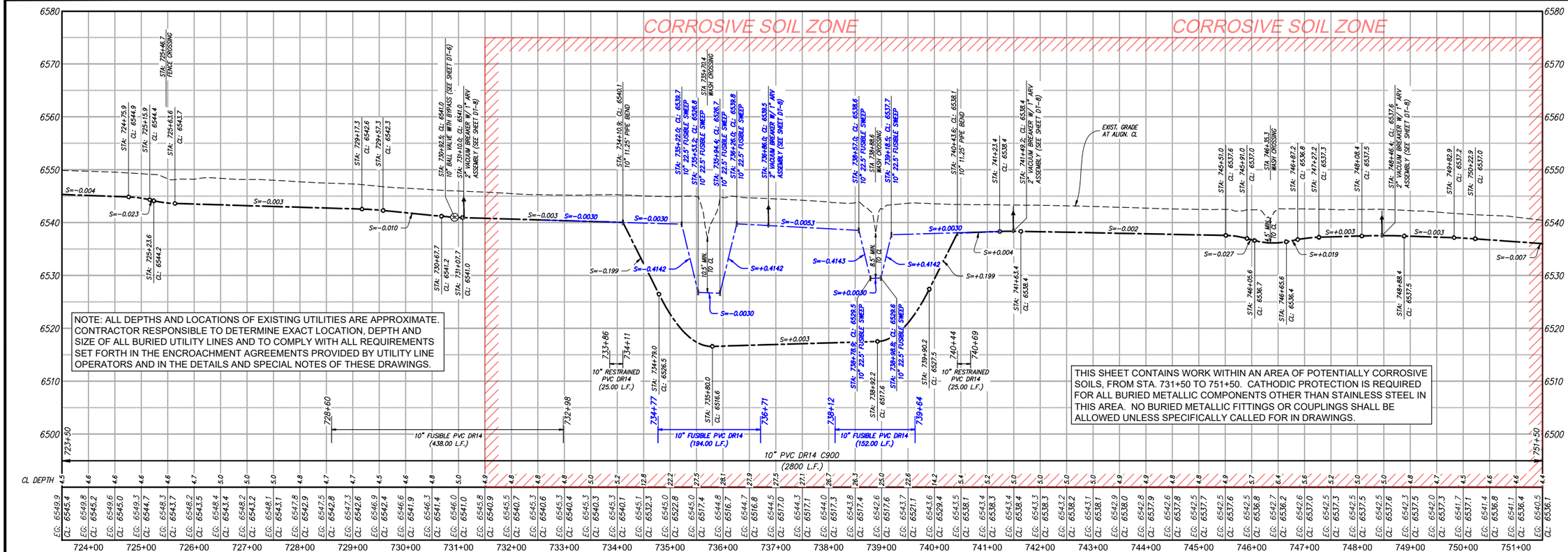
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PLAN VIEW
10" WATERLINE



PROFILE VIEW
10" WATERLINE

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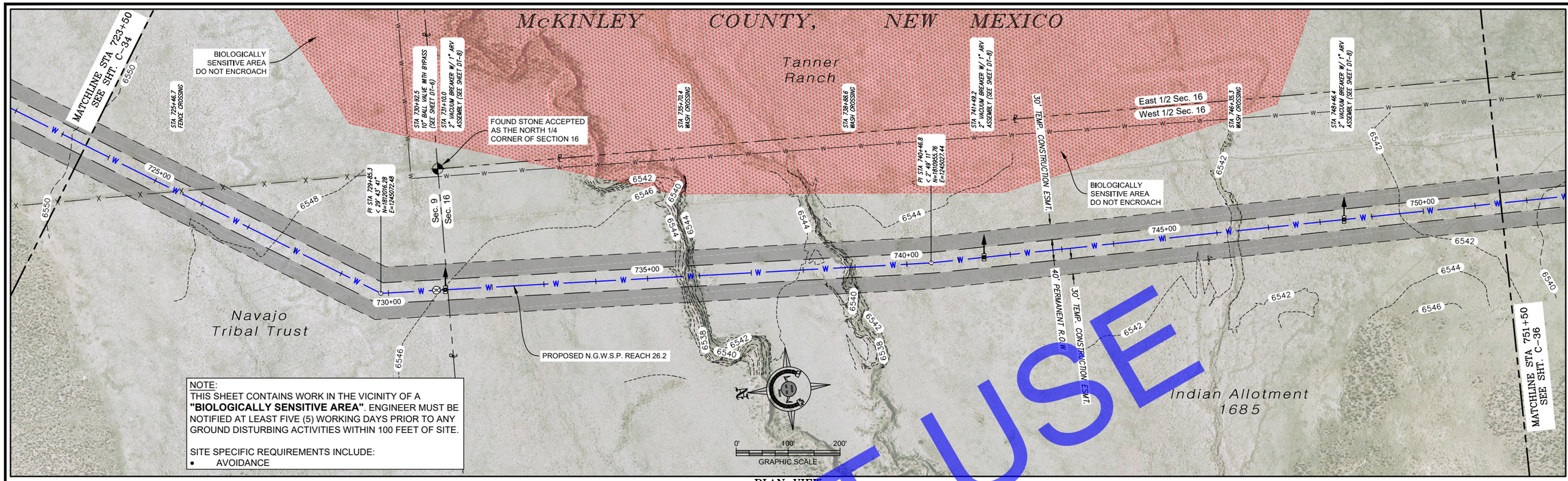
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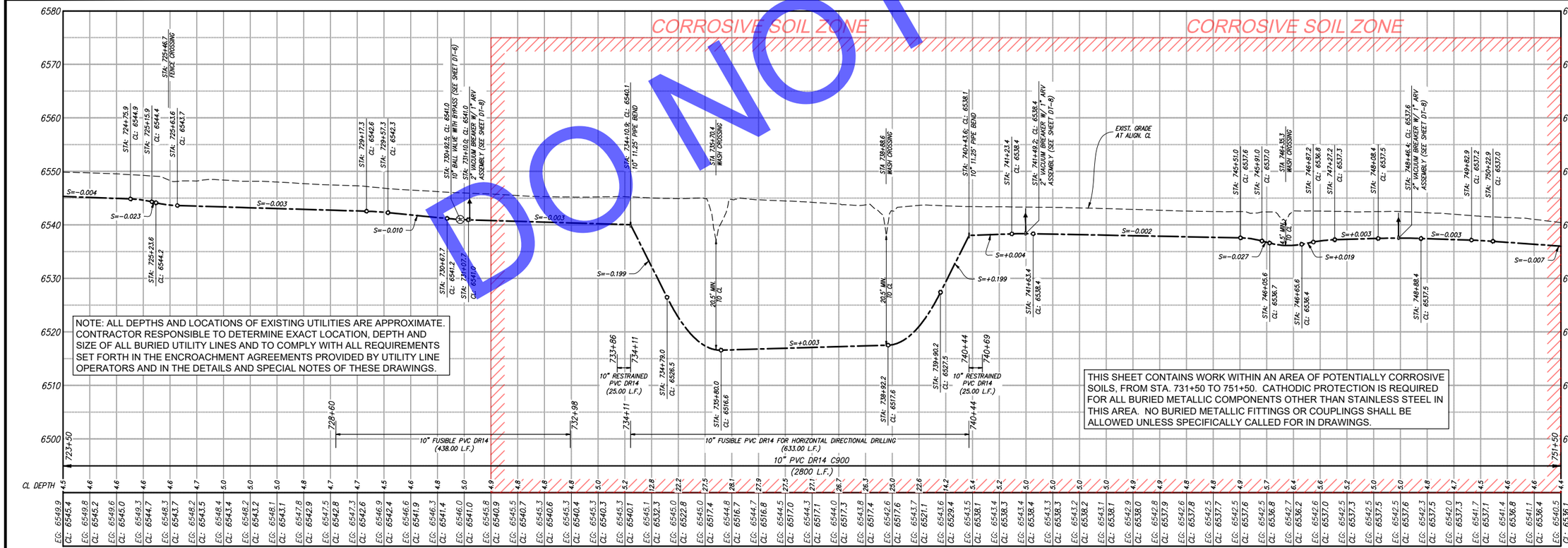
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Sheet: C-35



PLAN VIEW
10" WATERLINE



PROFILE VIEW
10" WATERLINE

DO NOT USE

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Project No: 6921307
Sheet: C-35

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McKINLEY COUNTY, NEW MEXICO

Tanner Ranch

Indian Allotment 1685

Indian Allotment 1684

Indian Allotment 1684

East 1/2 Sec. 16

West 1/2 Sec. 16

North 1/2 Sec. 16

South 1/2 Sec. 16

PROPOSED N.G.W.S.P. REACH 26.2

10" 11.25° FUSIBLE PVC SWEEP
@ STA. 752+88.9
Pi STA. 753+57.9
< 12° 34' 19"
M=1809644.65
E=1243536.31

STA 763+71.0
WASH CROSSING, OPEN CUT OR HDD
(CONTRACTOR'S OPTION)

STA 765+32.04
4" FLUSH VALVE WITH RISER, DAYLIGHT
TO WASH BANK @ 1.0ft SLOPE, ADJUST
STATION, AS NEEDED, TO ENSURE
MIN. OUTFALL CLR., DRAIN PIPE SLOPE &
COVER (SEE SHEET DT-9)

Pi STA 766+07.5
< 2° 19' 44"
M=1809723.28
E=1244172.60

STA 768+22.9
2" VACUUM BREAKER W/ 1" ARV
ASSEMBLY (SEE SHEET DT-8)

30' TEMP. CONSTRUCTION ESMT.

40' PERMANENT R.O.W.

30' TEMP. CONSTRUCTION ESMT.

STA 774+07.7
WASH CROSSING

STA 775+24.5
WASH CROSSING

Pi STA 776+98.4
< 3° 35' 56"
M=1807385.17
E=1245462.12

STA 777+22.5
WASH CROSSING

STA 778+03.1
WASH CROSSING
OPEN CUT OR HDD
(CONTRACTOR'S OPTION)

Pi STA 779+36.7
< 1° 42' 21"
M=1807126.64
E=1244425.73

SURFACE RIP-RAP OR CABLE CRETE BLANKET
APPROX. 40 SQ. YDS., EXACT QTY. AND DIMS.
TO BE DETERMINED IN FIELD BY ENGINEER.
SEE DETAILS, SHTS. DT-30 & DT-31

MATCHLINE STA 751+50
SEE SHT. C-35

MATCHLINE STA 779+50
SEE SHT. C-37

0' 100' 200'
GRAPHIC SCALE

PLAN VIEW
10" WATERLINE

CORROSIVE SOIL ZONE

CORROSIVE SOIL ZONE

EXIST. GRADE AT ALIGN. CL

CUT GRADE 4:1 MAX. IF OPEN CUT (SEE SHT. DT-32)

CUT GRADE 4:1 MAX. IF OPEN CUT (SEE SHT. DT-32)

S=-0.004

S=-0.150

S=+0.143

S=+0.005

S=-0.002

S=-0.008

S=-0.003

S=-0.108

S=+0.118

8.5' MIN. TO CL

THIS SHEET CONTAINS WORK WITHIN AN AREA OF POTENTIALLY CORROSIVE SOILS, FROM STA. 751+50 TO 776+50. CATHODIC PROTECTION IS REQUIRED FOR ALL BURIED METALLIC COMPONENTS OTHER THAN STAINLESS STEEL IN THIS AREA. NO BURIED METALLIC FITTINGS OR COUPLINGS SHALL BE ALLOWED UNLESS SPECIFICALLY CALLED FOR IN DRAWINGS.

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10" FUSIBLE PVC DR14 IF USING SWEEP (40.00 L.F.)

10" FUSIBLE PVC DR14 (320.00 L.F.)

10" PVC DR14 C900 (2800 L.F.)

10" FUSIBLE PVC DR14 (260.00 L.F.)

CL DEPTH

PROFILE VIEW
10" WATERLINE

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PLAN & PROFILE STA 751+50 To STA 779+50
SECTION 16, T. 20 N., R. 7 W.
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
AGR.	MvH/AaV	AGR.

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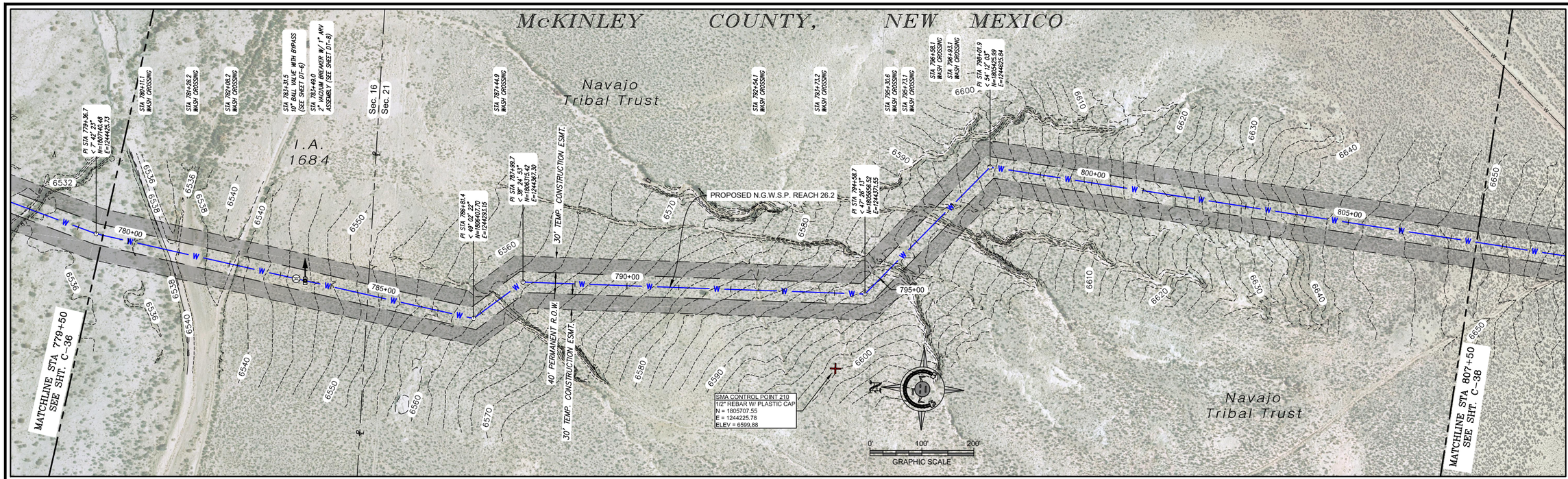
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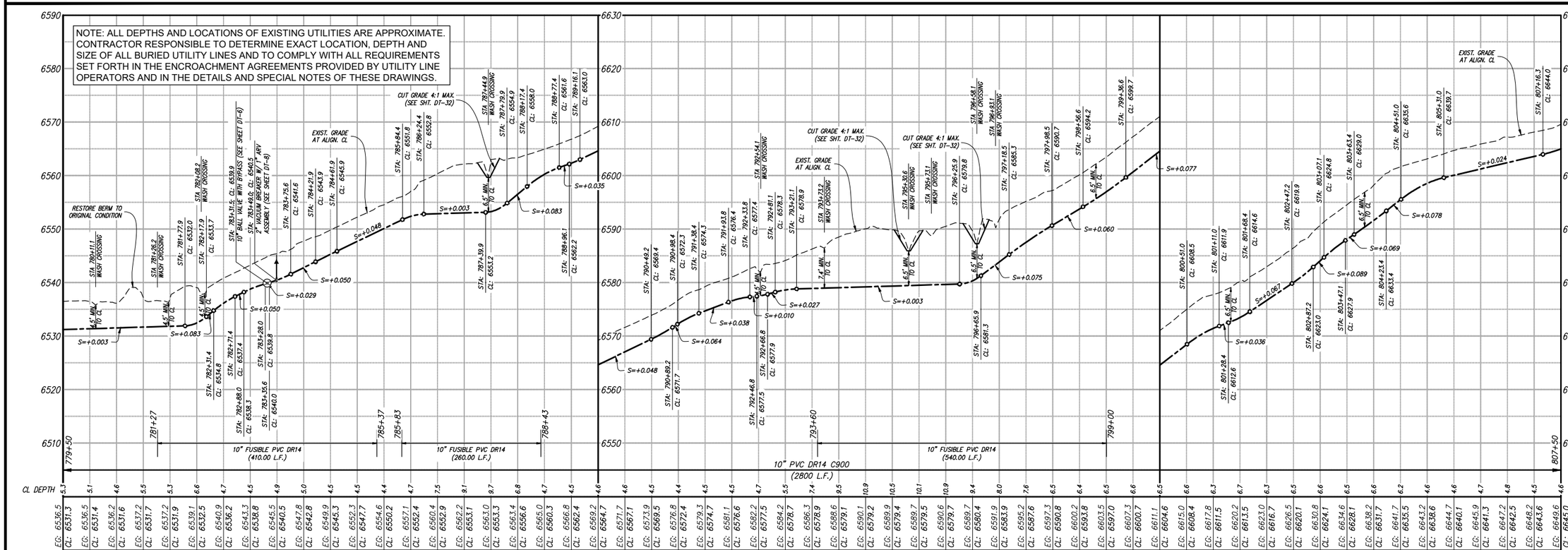
Project No: 6921307

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PLAN VIEW
10" WATERLINE

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PROFILE VIEW
10" WATERLINE

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Revision	Date	Description	By	Chk'd

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PLAN & PROFILE STA 779+50 To STA 807+50
SECTIONS 16 & 21, T. 20 N., R. 7 W.
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SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

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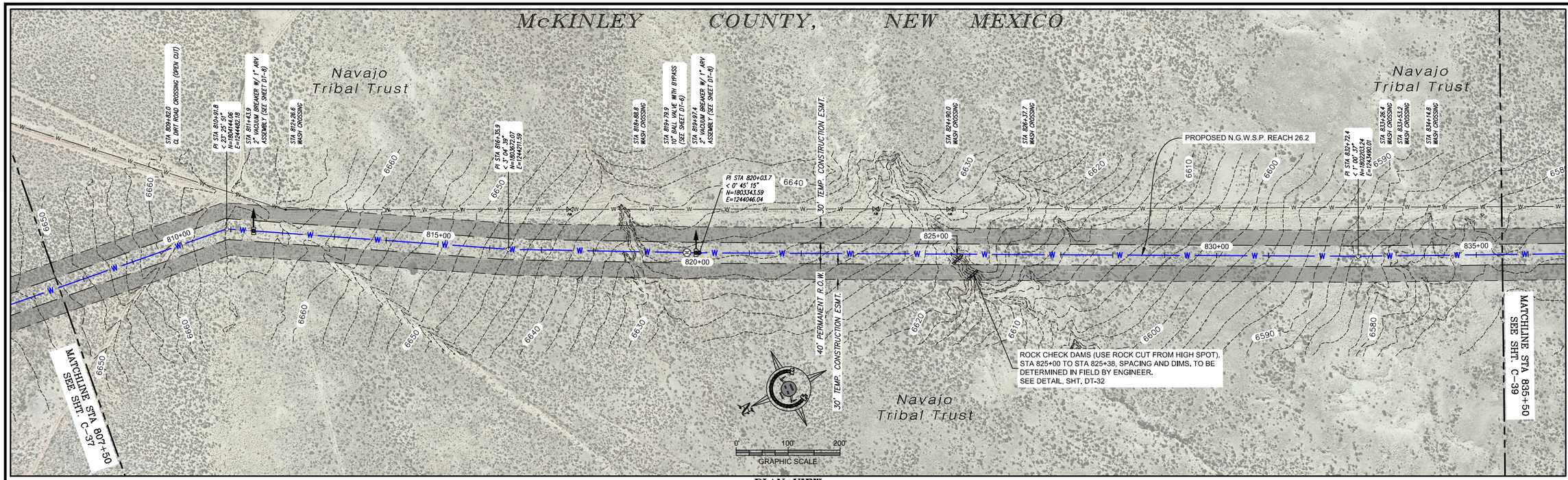
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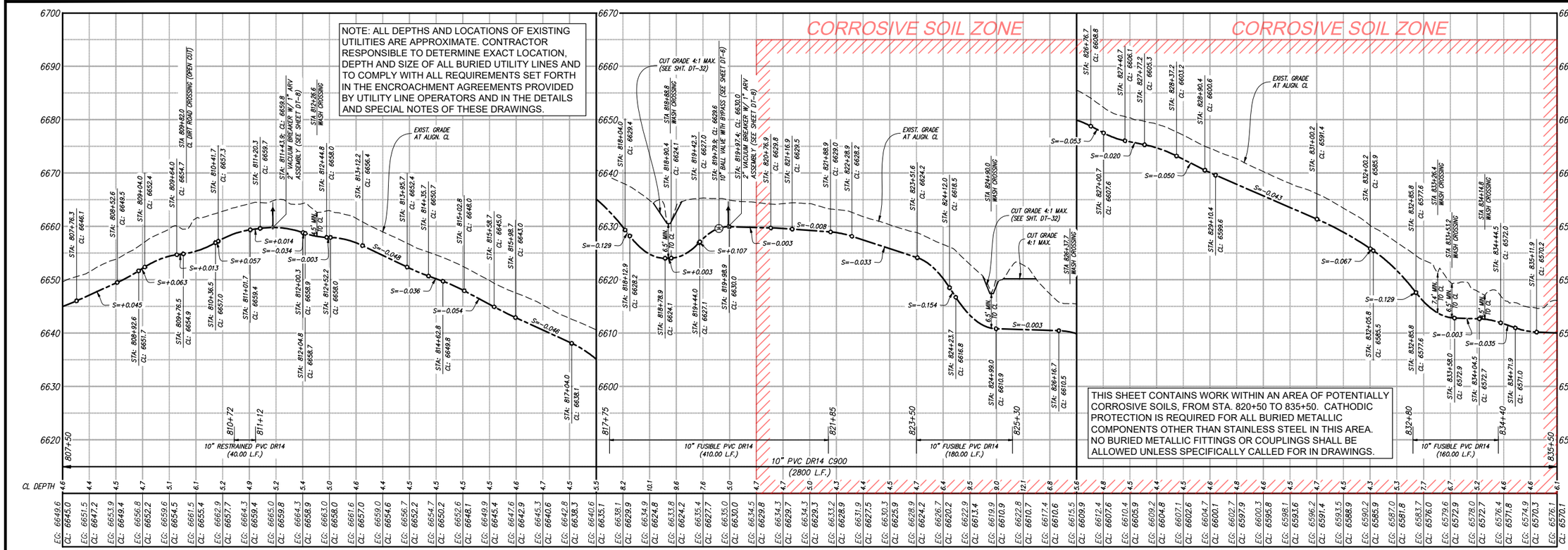
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Project No: 6921307

Sheet: C-37



PLAN VIEW
10" WATERLINE



PROFILE VIEW
10" WATERLINE

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PLAN & PROFILE STA 807+50 To STA 835+50
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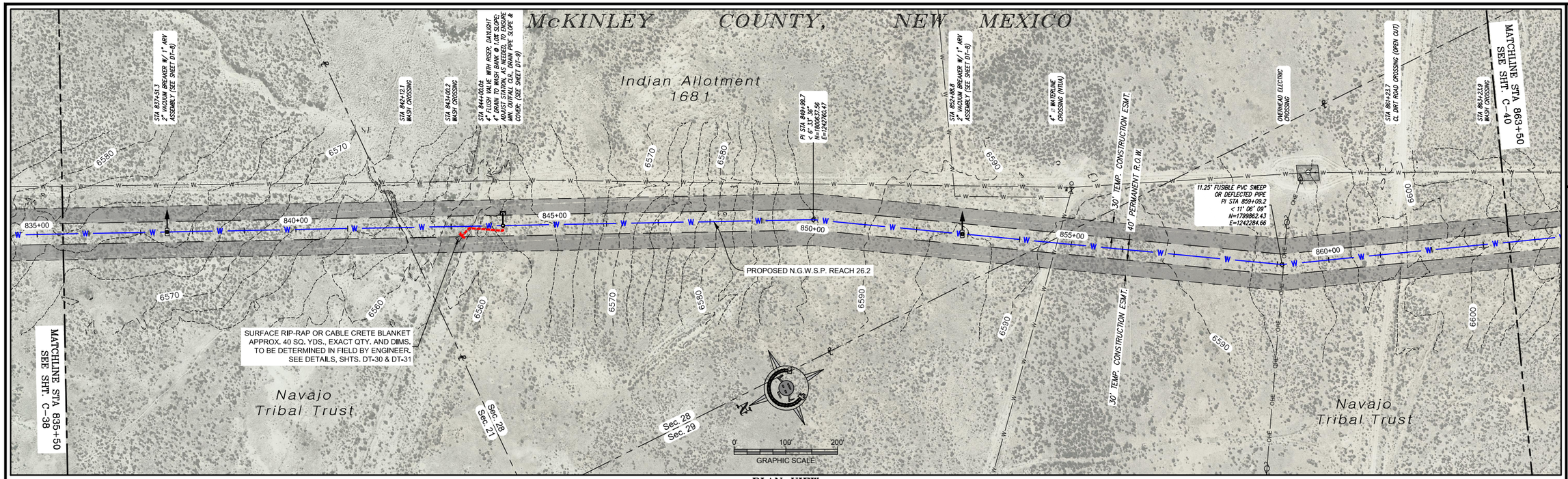
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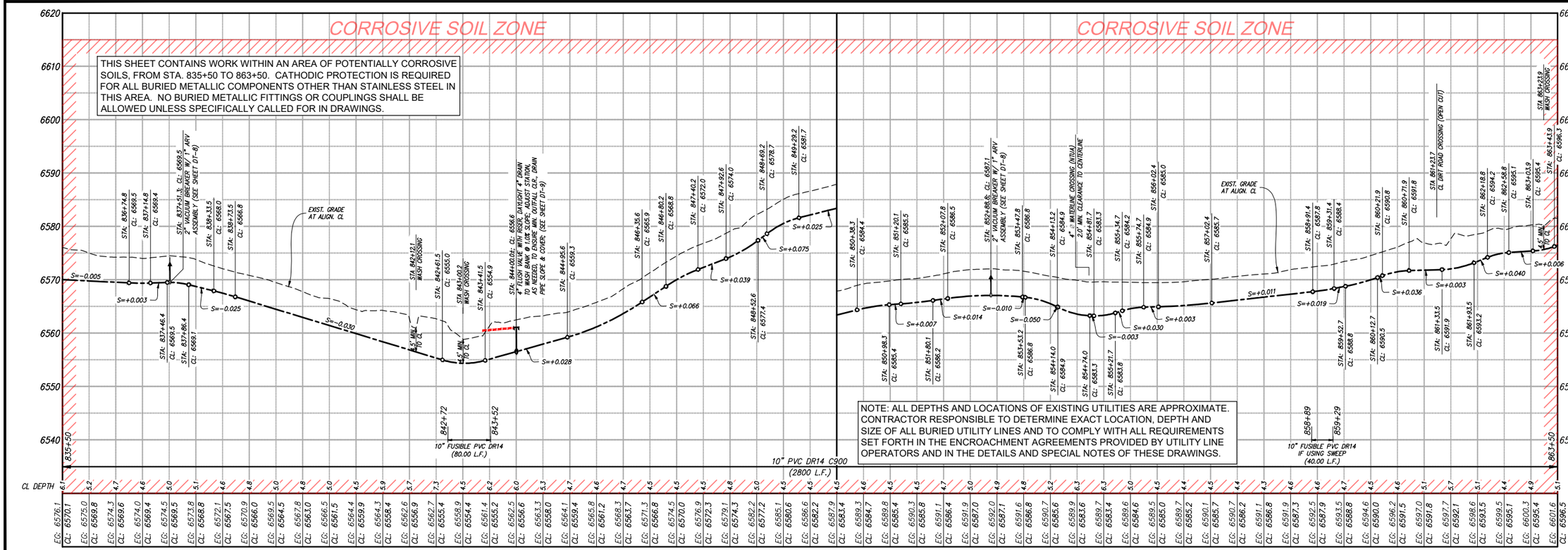
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PLAN VIEW
10" WATERLINE



PROFILE VIEW
10" WATERLINE

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PLAN & PROFILE STA 835+50 To STA 863+50
SECTIONS 21, 28 & 29, T. 20 N., R. 7 W.
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SANDOVAL & MCKINLEY COUNTIES, NEW MEXICO

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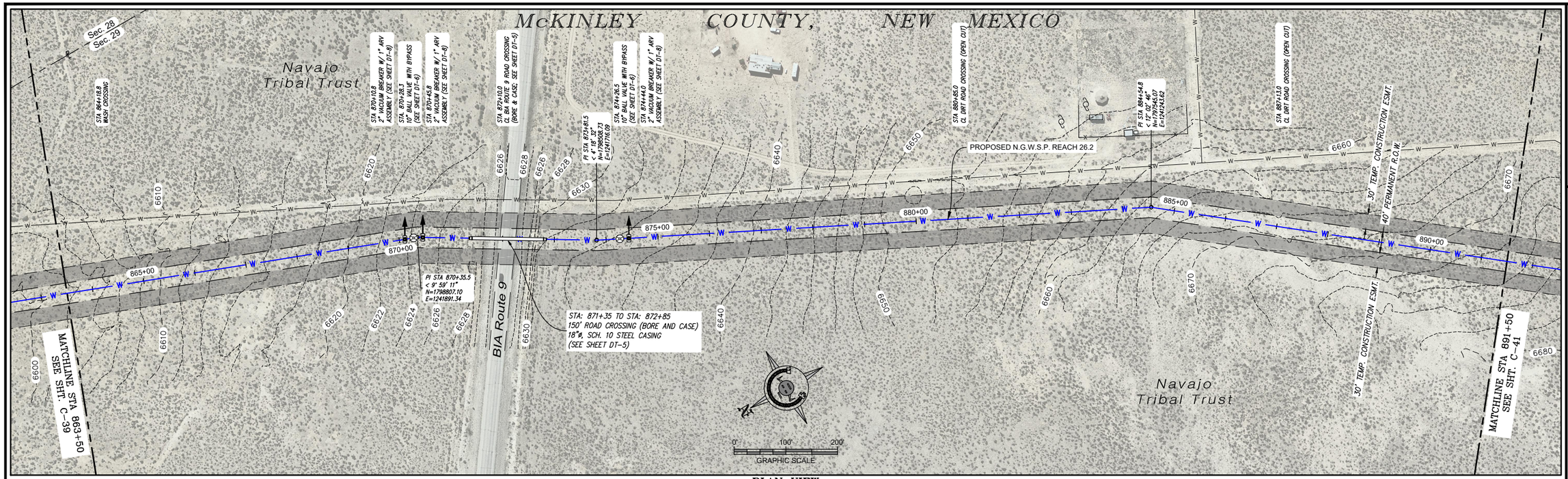
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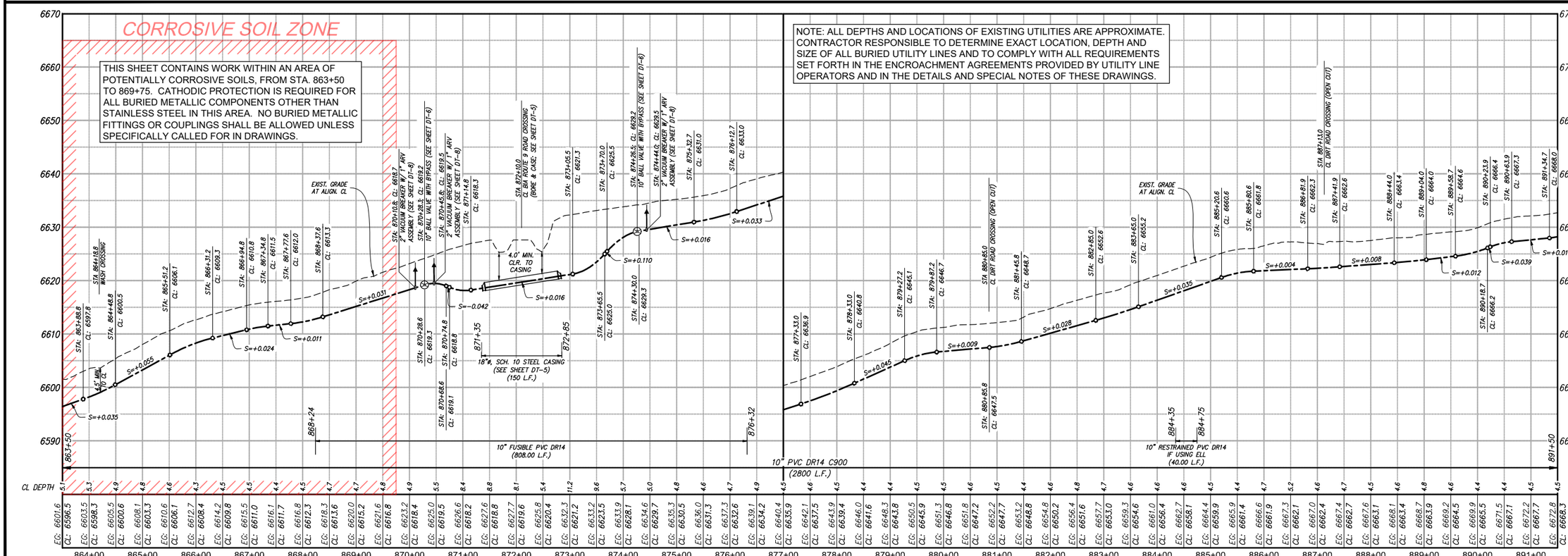
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Sheet: C-39



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: Ojo Encino To Pueblo Pintado, NM

PLAN & PROFILE STA 863+50 To STA 891+50
SECTION 29, T. 20 N., R. 7 W.
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
AGR	MvH/AaV	AGR

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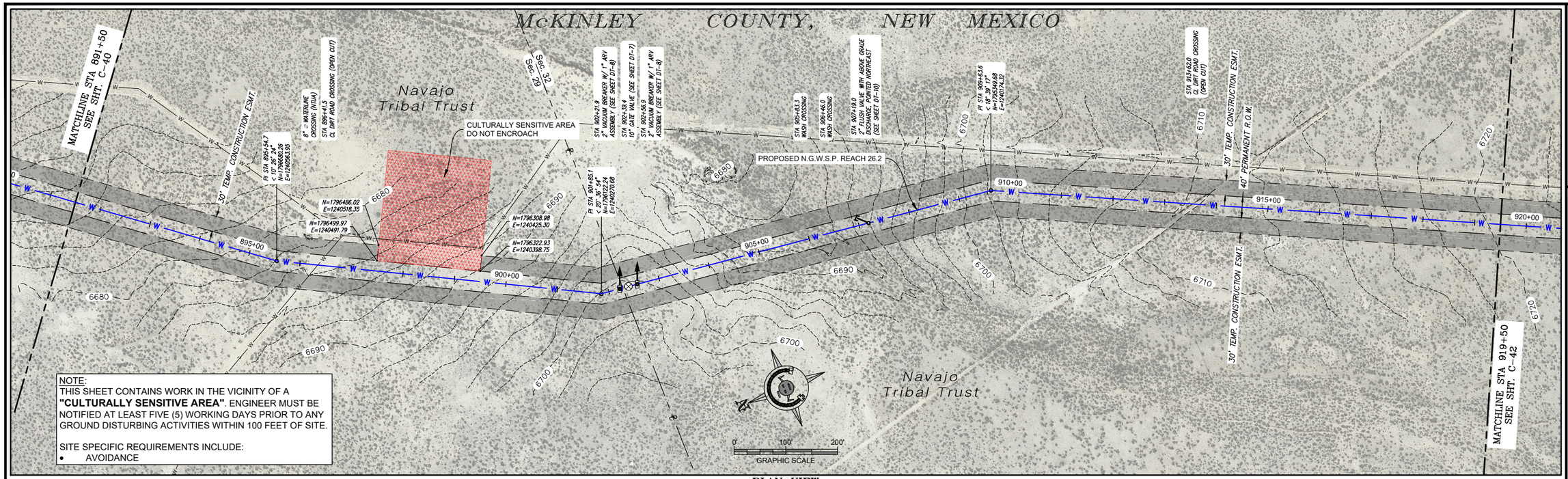
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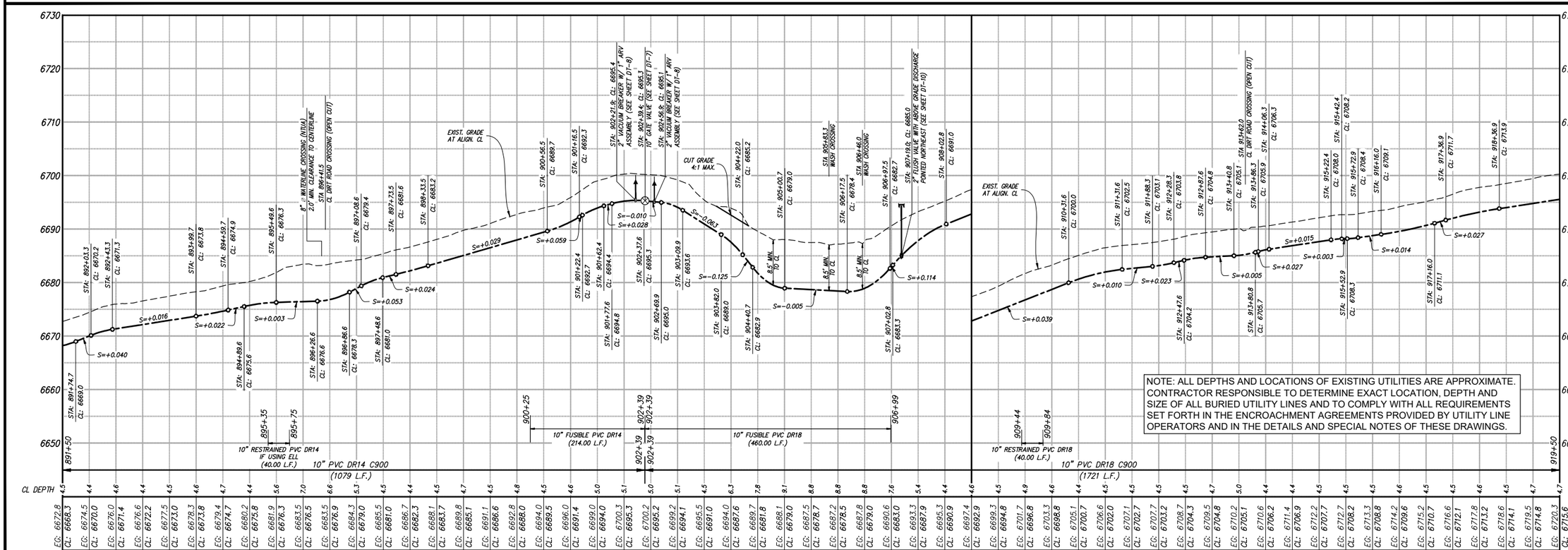
NOTICE OF EXTENDED PAYMENT PROVISION:
THIS CONTRACT ALLOWS THE OWNER TO MAKE PAYMENT WITHIN 45 DAYS AFTER SUBMISSION OF AN UNDISPUTED REQUEST FOR PAYMENT.

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Date: September 27, 2017
Scale: Horiz: 1" = 200'
Vert: 1" = 20'
Project No: 6921307
Sheet: C-40



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.

PROFILE VIEW
10" WATERLINE

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PLAN & PROFILE STA 891+50 To STA 919+50
SECTIONS 29 & 32, T. 20 N., R. 7 W.
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

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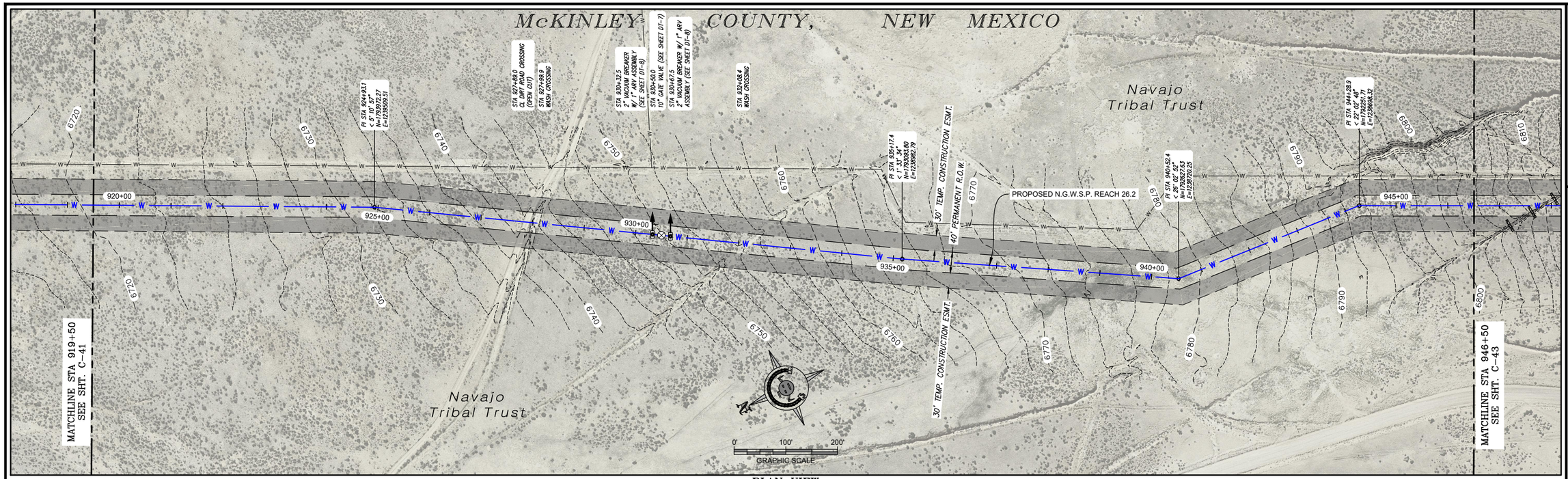
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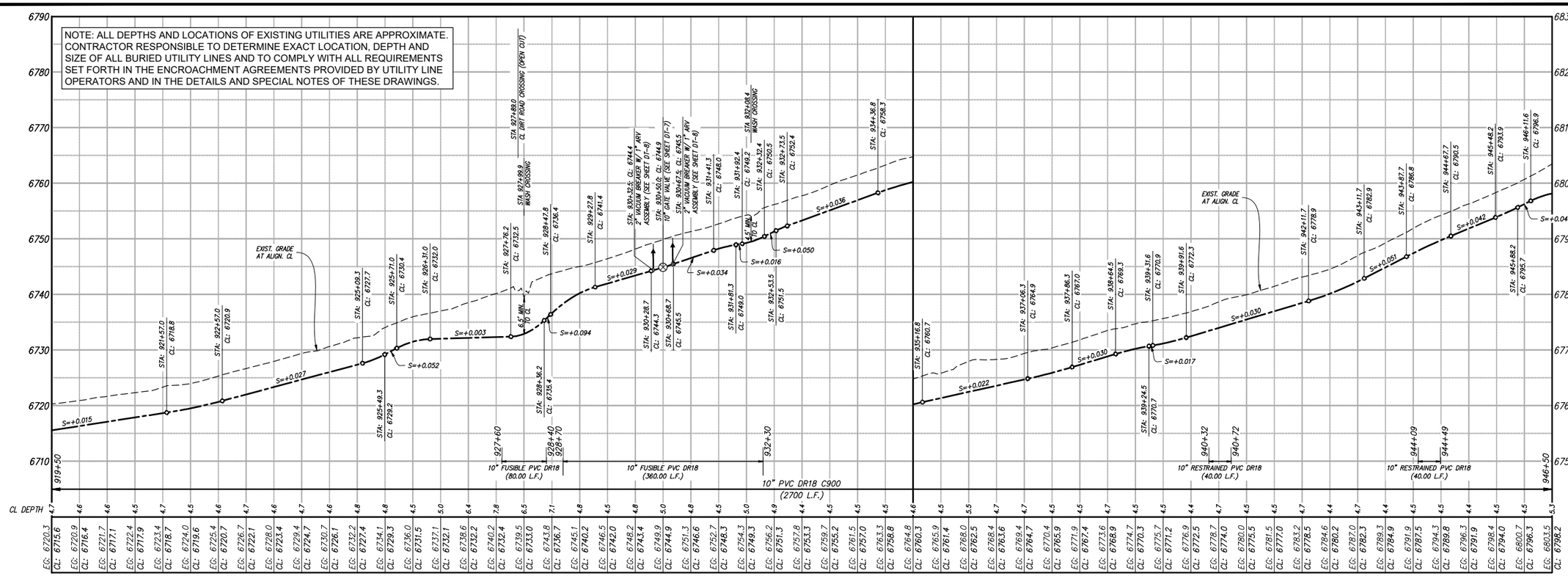
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PLAN VIEW
10" WATERLINE



PROFILE VIEW
10" WATERLINE

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PLAN & PROFILE STA 919+50 To STA 946+50
SECTION 32, T. 20 N., R. 7 W.
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

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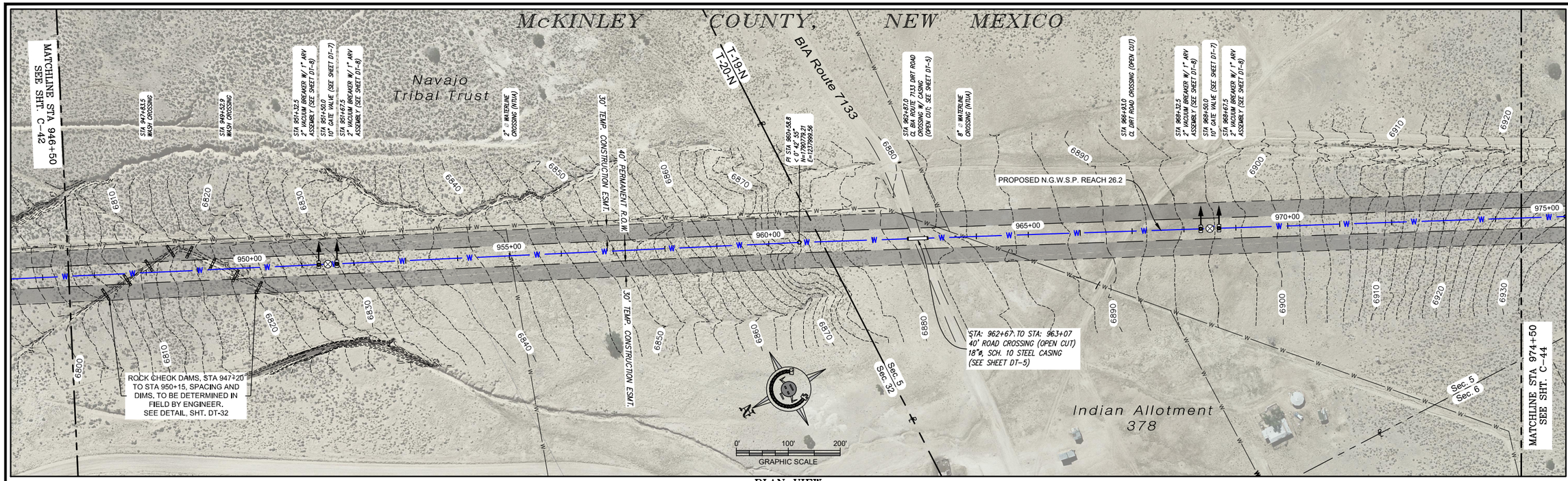
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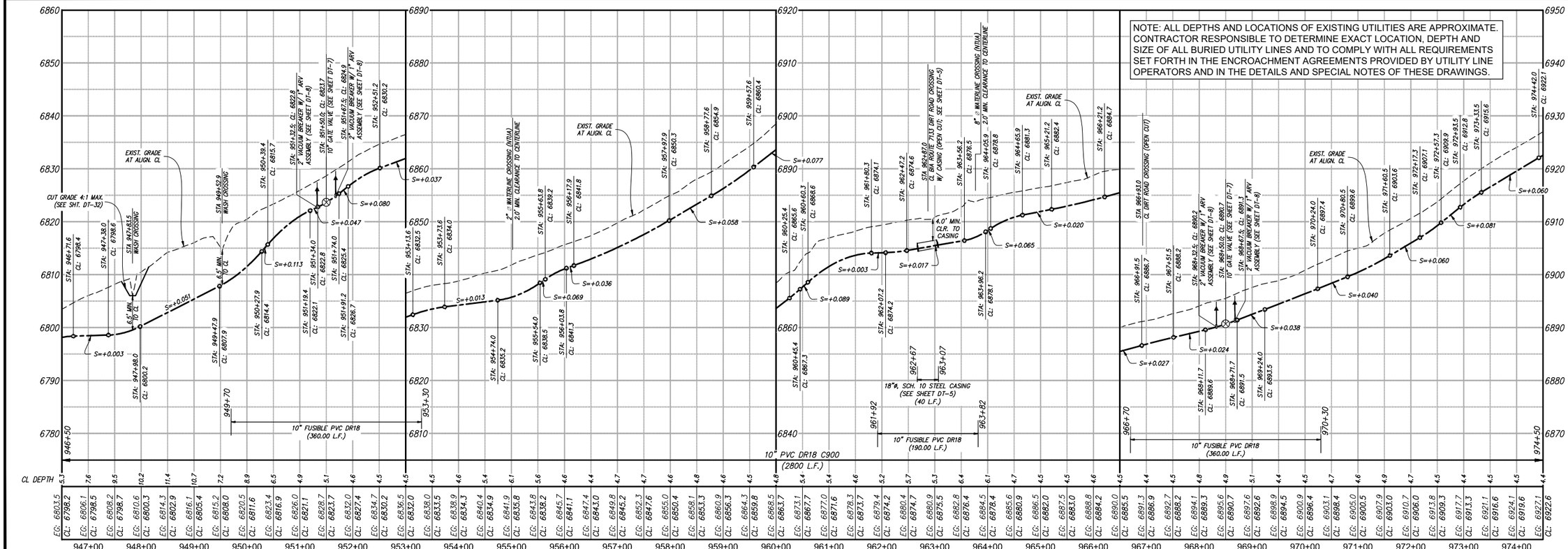
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PLAN VIEW
10" WATERLINE



PROFILE VIEW
10" WATERLINE

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PLAN & PROFILE STA 946+50 To STA 974+50
SECTION 5, T. 19 N., R. 7 W. ; SECTION 32, T. 20 N., R. 7 W.
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

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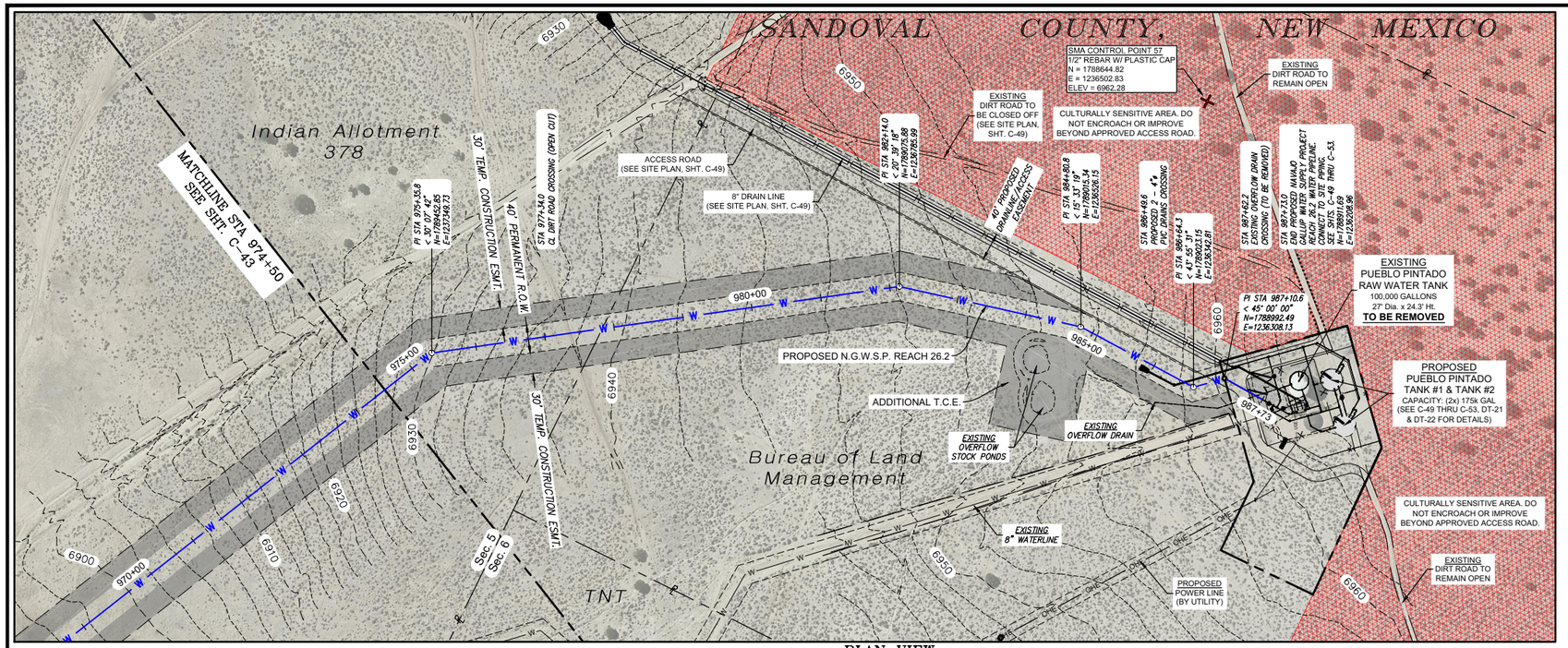
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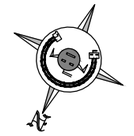
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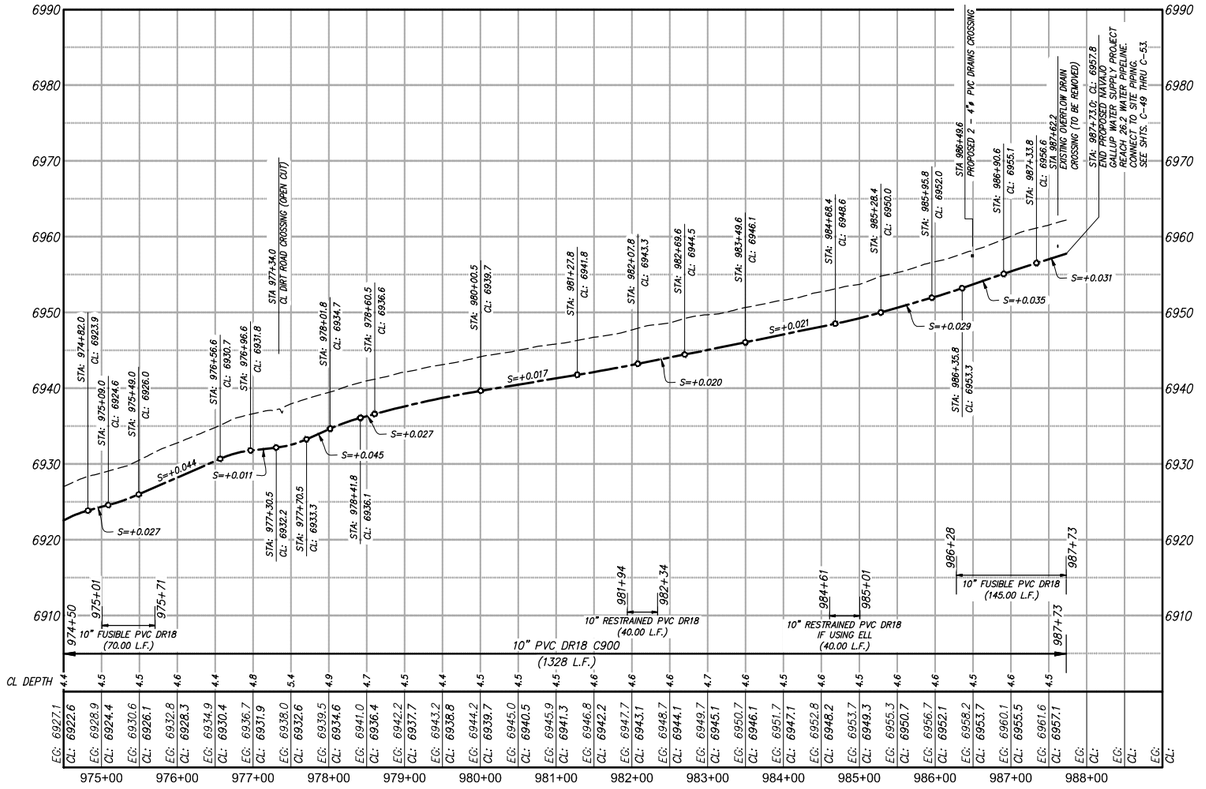


PLAN VIEW
10" WATERLINE



NOTE:
THIS SHEET CONTAINS WORK IN THE VICINITY OF A **"CULTURALLY SENSITIVE 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:
- AVOIDANCE
- TEMPORARY FENCING OF SITE BOUNDARIES BY OWNER-PROVIDED ARCHAEOLOGIST
- PERMANANT PROTECTION BARRIERS TO BE INSTALLED BY CONTRACTOR, SEE SHEET C-49
- ON-SITE MONITORING BY OWNER-PROVIDED ARCHAEOLOGIST NO WORK WITHIN 100 FT. WITHOUT ARCHAEOLOGIST ONSITE



PROFILE VIEW
10" WATERLINE

NOTE: LOCATION OF EXISTING PUEBLO PINTADO PIPING IS APPROXIMATE. 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.

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CLIENT: The Navajo Nation TOWN: Ojo Encino To Pueblo Pintado, NM

PLAN & PROFILE STA 974+50 To STA 987+73.0
SECTIONS 5 & 6, T. 19 N., R. 7 W.
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACHES 26.1 & 26.2
SANDOVAL & MCKINLEY COUNTIES, NEW MEXICO

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Sheet: C-44

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SANDOVAL COUNTY, NEW MEXICO
SEC-7, T-21-N, R-5-W
NAVAJO TRIBAL TRUST

STA: 35+162, REACH 26.1
24"ø, SCH. 10 STEEL CASING
(OPEN CUT, SEE SHEET DT-5)

EXISTING N.G.W.S.P. REACH 25

40' PERMANENT R.O.W.

PROPOSED N.G.W.S.P. REACH 26.1

35+00

STA: 35+91 TO STA: 36+41 REACH 26.1
50' ROAD CROSSING (OPEN CUT)
24"ø, SCH. 10 STEEL CASING (SEE SHEET DT-5)

40' PERMANENT R.O.W.

30' TEMP. CONST. ESMT.

15' WIDE SURGE TANK SITE MAINTENANCE DRIVEWAY. GRADE AND LEVEL WITH 2% CROSS SLOPE.

S = 2% MIN.

25 LF 24" CMP W/ END SECTIONS. (SEE DETAIL SHT. DT-32)

STA 33+63.2
PROPOSED 24" CMP CROSSING
STA 33+62.7 REACH 26.1
WASH CROSSING

12" C900 PVC DR18

CENTER VB / ARV VAULT
STA 32+41.7
N=1844543.38
E=1299947.71
(SEE DETAIL DT-8)

12" x 12" x 8" MJ REDUCING TEE, DI 350 psi
STA 32+20.0
N=1844542.92
E=1299969.42

CORNER OF ESMT.
N=1844562.68
E=1299944.02

CORNER OF ESMT.
N=1844592.68
E=1299943.75

STA: 32+57.9 REACH 26.1
OVERHEAD ELECTRIC CROSSING

STA. 32+44.7 REACH 26.1
2" VACUUM BREAKER W/ 1" ARV ASSEMBLY (SEE SHEET DT-8)

STA. 32+37.0
PROPOSED 4" PVC DRAIN LINE CROSSING

STA. 32+28.2 REACH 26.1
12" GATE VALUE
(SEE SHEET DT-7)

STA. 32+20.0 REACH 26.1
12" x 12" x 8" MJ REDUCING TEE, DI

STA. 31+90.7 REACH 26.1
2" VACUUM BREAKER W/ 1" ARV ASSEMBLY (SEE SHEET DT-8)

STA. 31+80.7 REACH 26.1
12" GATE VALUE
(SEE SHEET DT-7)

JMEC POLE #63606

PROPOSED 3 PHASE POWER LINE (BY UTILITY)

PROPOSED 19.5' HIGH ABOVE GROUND METER POLE (SEE SHT. E104)

CORNER OF ESMT.
N=1844593.33
E=1300013.74

SURGE TANK BUILDING
F.F. ELEV. 7167.00±
(SEE DETAIL SHTS. DT-15 THRU DT-20)
N = 1844557.28
E = 1299967.83

BLDG. COR.
N = 1844561.59
E = 1299960.47

BLDG. COR.
N = 1844552.97
E = 1299975.21

CORNER OF ESMT.
N=1844563.33
E=1300014.02

12" C900 PVC DR18

CENTER VB / ARV VAULT
STA 31+90.7
N=1844543.85
E=1299998.71
(SEE DETAIL DT-8)

CORNER OF ESMT.
N=1844523.33
E=1300014.39

CORNER OF ESMT.
N=1844500.50
E=1300014.60

PROPOSED
16' DOUBLE SWING GATE
(SEE DETAIL SHT. DT-29)

CL GATE
N=1844532.69
E=1299944.30

2 - 4" 45° ELL, DI

4" MJ x MJ SLEEVE, DI

4" PVC DR18 DRAIN LINE

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

CORNER OF ESMT.
N=1844521.39
E=1299804.40

4" FL x FL 45° ELL, DI WITH FLAP VALVE, POINTED SOUTHWEST (SEE DETAIL DT-2)

CORNER OF ESMT.
N=1844498.56
E=1299804.61

4" FL x PE DUCTILE IRON PIPE, 20 LF

WIRE CAGED RIP-RAP OR CABLE CRETE BLANKET, 12" THICK, APPROX. 14 SQ. YDS., EXACT QUANTITY AND DIMS. TO BE DETERMINED IN FIELD BY ENGINEER. (SEE DETAILS, SHTS. DT-30 & DT-31)

SCO East Pelon Rd.

EXISTING OVERHEAD ELECTRIC

JMEC POLE #63605

N

0' 20' 40'
GRAPHIC SCALE

SURGE TANK SITE PLAN

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Revision	Date	Description	By	Chkd

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NAVAJO GALLUP WATER SUPPLY
PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

SURGE TANK SITE PLAN

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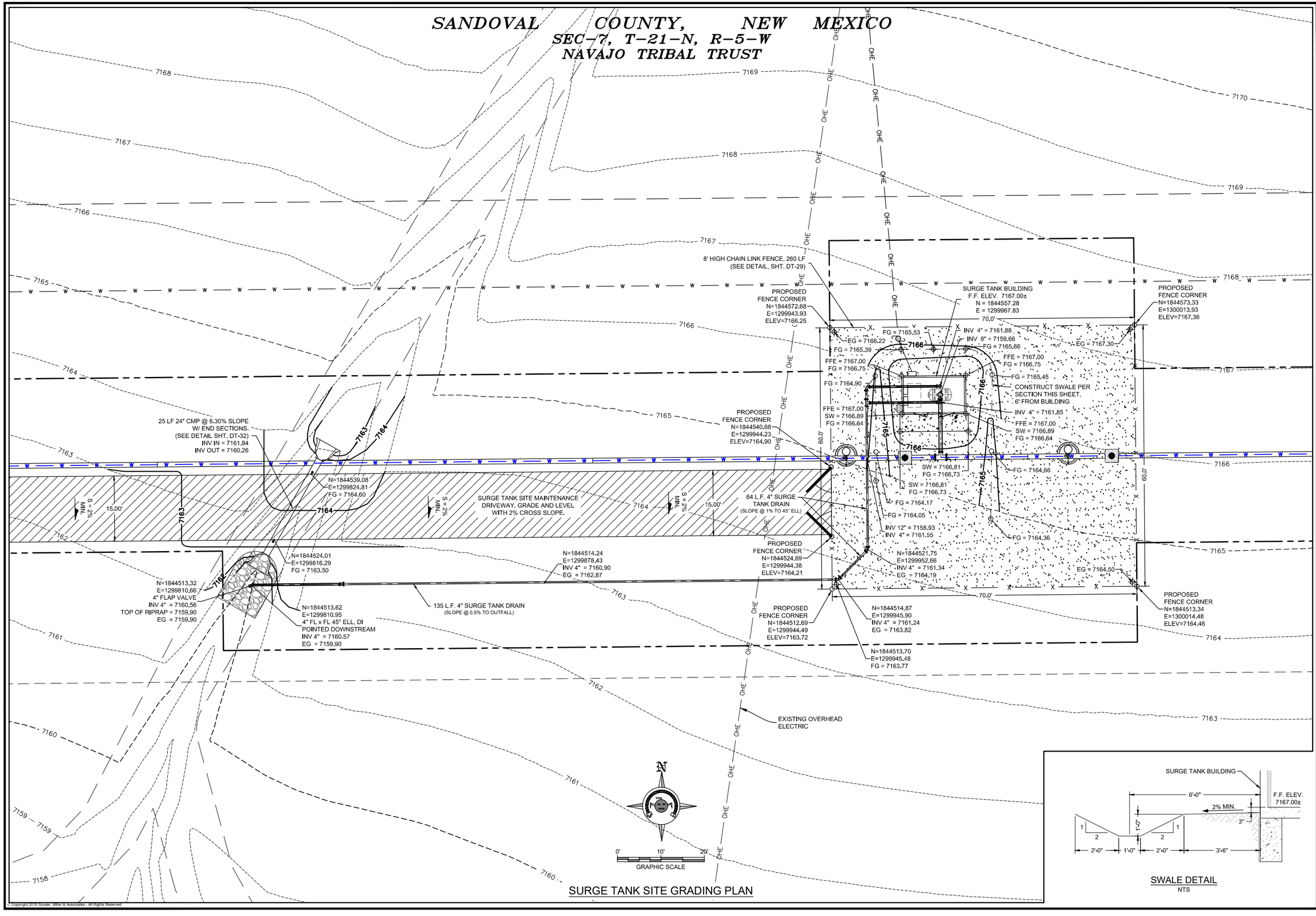
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SANDOVAL COUNTY, NEW MEXICO
SEC-7, T-21-N, R-5-W
NAVAJO TRIBAL TRUST



SURGE TANK SITE GRADING PLAN

SWALE DETAIL
NTS

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Revision	Date	Description	By	Chk'd

Date Plotted: 9/27/2017 10:56:41 AM
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CLIENT: The Navajo Nation TOWN: Ojo Encino To Pueblo Pintado, NM

SURGE TANK SITE GRADING PLAN
NAVAJO GALLUP WATER SUPPLY PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

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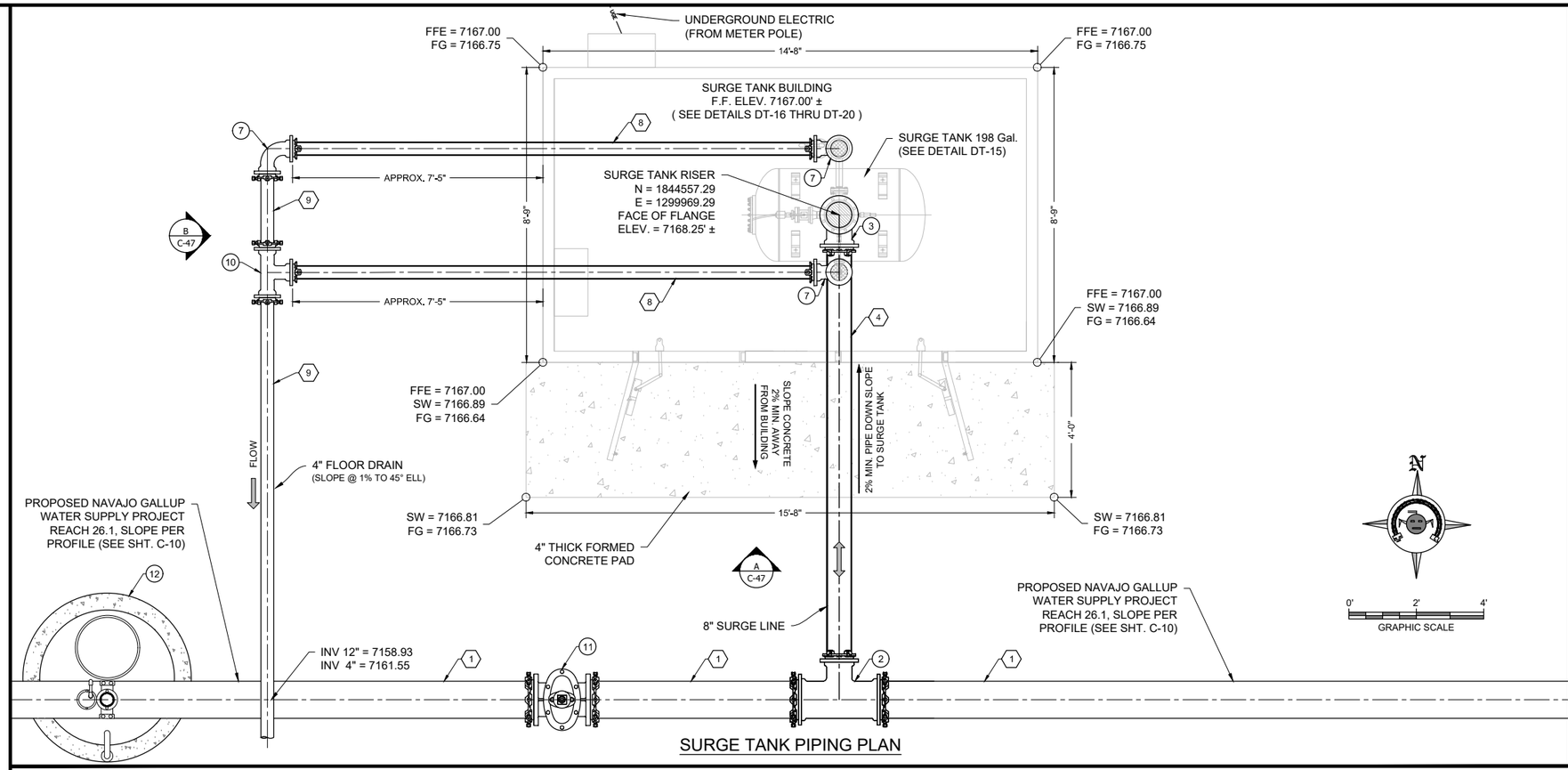
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KEYED NOTES - SURGE TANK SITE	
Item No.	Description
1	12" PVC DR18 PIPE
2	12" x 12" x 8" MJ x MJ REDUCING TEE, D.I. 350 psi
3	8" MJ x MJ 90° ELL, D.I. 350 psi
4	8" DUCTILE IRON PIPE, 350 psi
5	8" ANSI CLASS 125/150 WELDED FLANGE (SEE NOTE #13, THIS SHEET)
6	8" PROCO FITTING, 200 psi (SEE NOTE #13, THIS SHEET)
7	4" MJ x MJ 90° ELL, D.I. 350 psi
8	4" DUCTILE IRON PIPE, 350 psi
9	4" PVC DR18 PIPE
10	4" MJ x MJ TEE, D.I. 350 psi
11	12" MJ x MJ GATE VALVE, 350 psi (SEE DETAIL, SHT. DT-7)
12	2" VACUUM BREAKER W/ 1" AIR RELEASE VAULT (SEE DETAIL, SHT. DT-8)

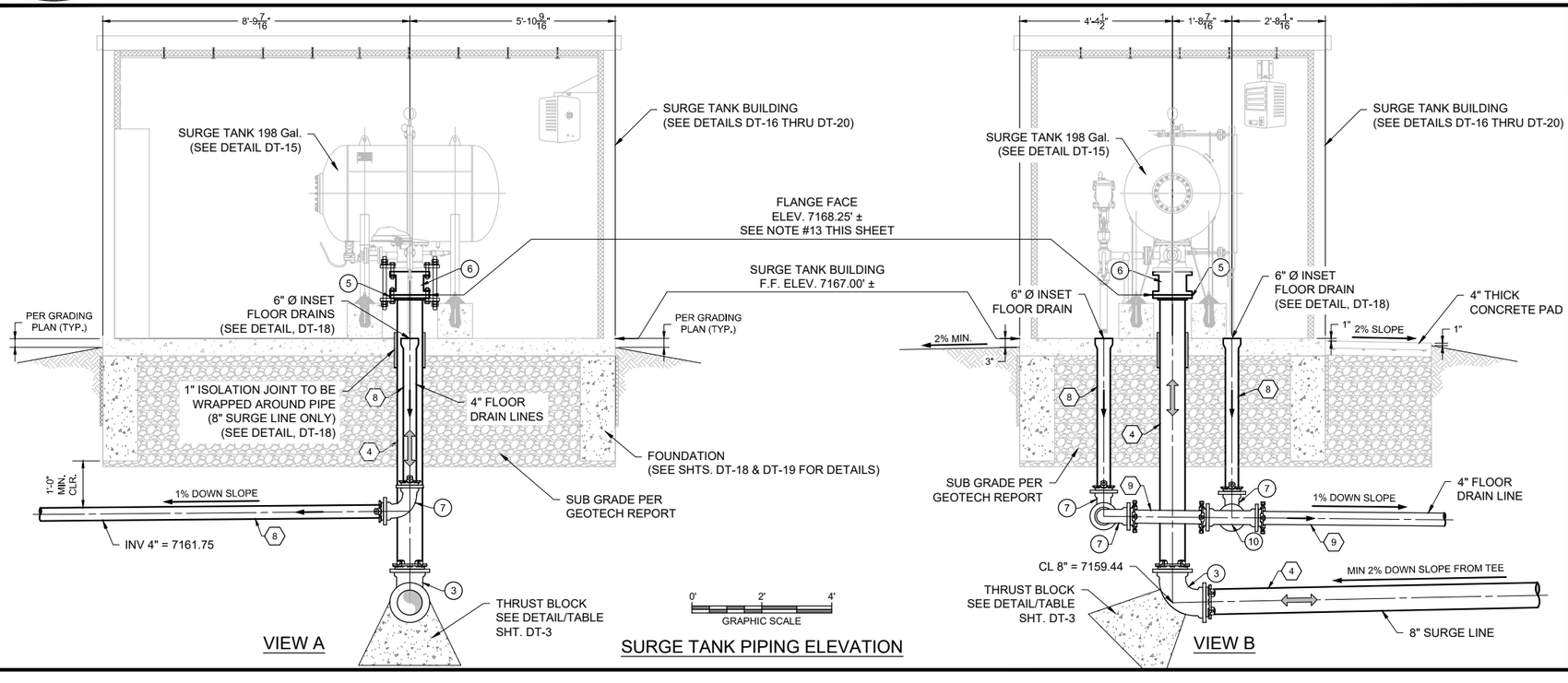
NOTES:

1. PROVIDE COMPACTION AND FILL REQUIREMENTS FOR BUILDING AND TANK SUB GRADE AND SITE GRADING IN ACCORDANCE WITH GEOTECHNICAL REPORT.
2. DO NOT INSTALL PIPE WITH ANY HIGH POINTS WITHOUT AN APPROVED AIR VALVE.
3. ALL PIPE, FITTINGS, VALVES AND APPURTENANCES SHALL BE RATED TO AT LEAST 235 psi., UNLESS OTHERWISE NOTED.
4. ALL BURIED PIPING WITHIN 5 FEET OF BUILDING FOUNDATIONS SHALL BE PRESSURE TESTED PRIOR TO POURING FOUNDATION.
5. ALL BURIED DUCTILE IRON PIPE AND FITTINGS SHALL BE DOUBLE-WRAPPED IN POLYETHYLENE, PER SPECIFICATIONS. INNER JACKET SHALL BE V-BIO ENHANCED, MIN. 8-MIL. OUTER JACKET SHALL BE STANDARD PE, MIN. 8-MIL.
6. ALL BURIED DUCTILE IRON FITTINGS SHALL BE MJ. ALL BURIED DUCTILE IRON PIPES SHALL BE SOLID PIECES. NO DUCTILE IRON PIPE JOINTS ALLOWED.
7. FLANGE LOCATION AND ELEVATION ARE APPROXIMATE. CONTRACTOR WHOLLY RESPONSIBLE TO VERIFY LOCATION AND ELEVATION OF ALL FLANGE CONNECTIONS TO SURGE TANK AND COORDINATE WITH MATERIAL SUPPLIERS PRIOR TO INSTALLATION. CONTRACTOR WHOLLY RESPONSIBLE TO ALIGN FOUNDATIONS, PIPING INLETS/OUTLETS AND DRAINS WITH ACTUAL SURGE TANK LAYOUT IN FIELD.
8. ALL PRESSURE BEARING PIPES WITHIN SITE SHALL BE FULLY RESTRAINED. REFER TO DETAIL, SHEET DT-3.
9. CONTRACTOR RESPONSIBLE TO VERIFY AND ALIGN ACTUAL FOUNDATION DIMENSIONS AND LOCATIONS OF PIPING INLETS, OUTLETS AND DRAINS IN THE FIELD AND COORDINATE WITH SURGE TANK MANUFACTURERS PRIOR TO CONSTRUCTION. CENTER FLOOR DRAINS UNDER PIPE OUTLETS.
10. FIELD LOCATE CONDUITS PER REVIEW WITH ELECTRICIAN.
11. INSTALL FLANGE ISOLATION KITS W/ BOLT ISOLATING SLEEVES BETWEEN THE SURGE TANK RISER PIPE FLANGE AND PROCO FITTING.
12. PROCO JOINT COMPRESSION SHALL BE WITHIN MANUFACTURER'S RECOMMENDED TOLERANCES. DO NOT ALLOW BOLTS TO MAKE CONTACT WITH RUBBER JOINT. FIELD VERIFY CONTROL BOLT LENGTHS BEFORE FOUNDATION CONSTRUCTION.
13. INSTALL TEMPORARY 8 INCH ANSI CLASS 125/150 BLIND FLANGE PRIOR TO FILLING AND FLUSHING PIPELINE. FLUSH LINE FROM STATION 0+05.87 TO STATION 50+45 WITH BLIND FLANGE IN PLACE. COMPLETE HYDROSTATIC TESTING OF PIPING UNDERNEATH AND WITHIN SURGE TANK BUILDING PRIOR TO REMOVING BLIND FLANGE. REMOVE BLIND FLANGE AND INSTALL 8 INCH PROCO FITTING AFTER THIS SECTION OF LINE FLUSHING AND HYDROSTATIC PRESSURE TESTING IS COMPLETE, BUT PRIOR TO AIR CHARGING SURGE TANK. DO NOT INSTALL PROCO FITTING UNTIL LINE FLUSHING FROM STATION 0+05.87 TO STATION 50+45 IS COMPLETE. DO NOT AIR CHARGE SURGE TANK UNTIL PROCO FITTING IS INSTALLED. DO NOT OPERATE THE PROJECT OR FLUSH BEYOND THE FIRST FLUSH VALVE UNTIL SURGE TANK IS STARTED UP AND OPERATIONAL.
14. ALL DRAINS SHALL HAVE REMOVABLE GRATES.

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SURGE TANK PIPING PLAN



VIEW A

SURGE TANK PIPING ELEVATION

VIEW B

Revision	Date	Description	By	Chk'd

Cutter Ph-08_EC-Surge Tank Site.dwg
10/20/2017 4:50:18 PM aav

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5454 VENICE AVENUE NE, SUITE D
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CLIENT: The Navajo Nation TOWN: Ojo Encino To Pueblo Pintado, NM

SURGE TANK SITE PIPING PLAN
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
AGR	AAV	AGR

100% DESIGN

PRELIMINARY
NOT FOR CONSTRUCTION

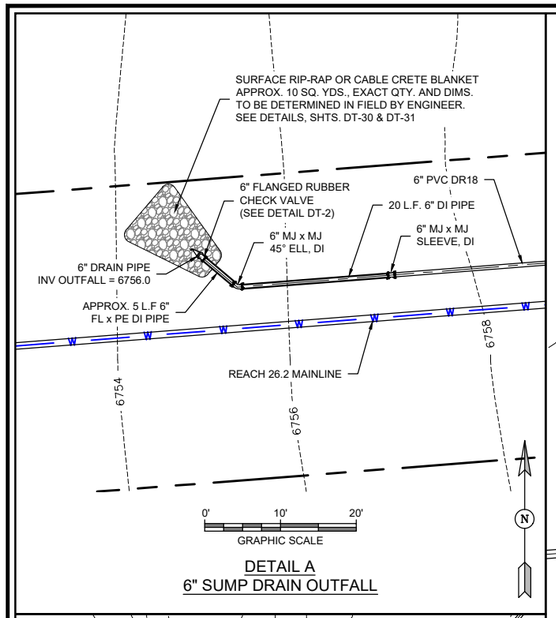
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NOTICE OF EXTENDED PAYMENT PROVISION:
THIS CONTRACT ALLOWS THE OWNER TO MAKE PAYMENT WITHIN 45 DAYS AFTER SUBMISSION OF AN UNDISPUTED REQUEST FOR PAYMENT.

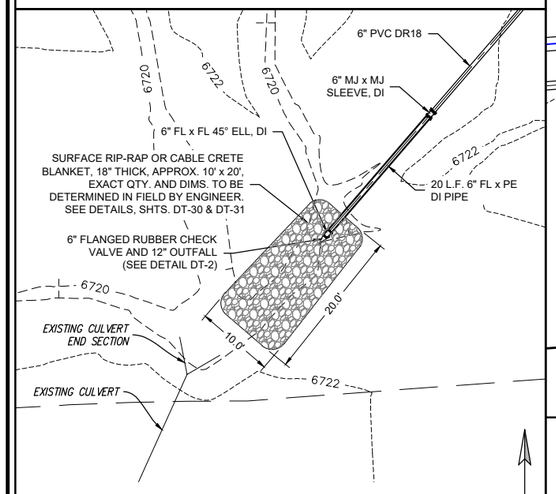
811 Know what's below. Call before you dig.

Date: September 20, 2017
Scale: Horiz: 1" = 40'
Vert: N/A
Project No: 6921307
Sheet: C-47

SANDOVAL COUNTY, NEW MEXICO
SEC-31, T-21-N, R-6-W
INDIAN ALLOTMENT 1696

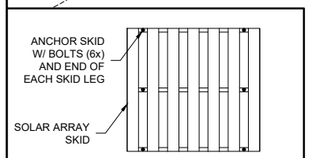


DETAIL A
6" SUMP DRAIN OUTFALL

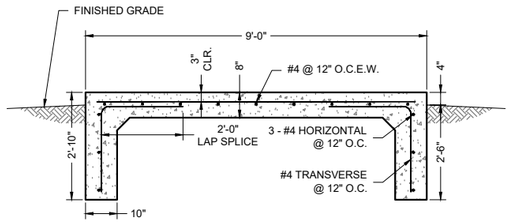


DETAIL B
6" BLOWOFF DRAIN OUTFALL

CONTROL VALVE VAULT SITE PLAN



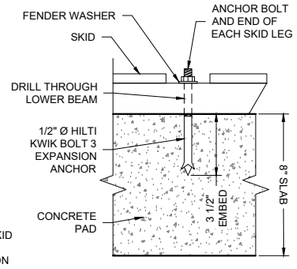
ANCHOR BOLT LOCATION DETAIL
NTS



SECTION A-A

NOTE:
CONTRACTOR TO VERIFY SKID DIMENSIONS PRIOR TO FOUNDATION CONSTRUCTION

REMOTE POWER SUPPLY SYSTEM FOUNDATION DETAIL
1" = 4'



ANCHORAGE DETAIL
NTS

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Revision	Date	Description	By	Ck'd

Cortez Ph-08_SC-PVR Bitelaw.dwg
9/25/2017 8:28:41 PM aav

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CLIENT: The Navajo Nation TOWN: Ojo Encino To Pueblo Pintado, NM

CONTROL VALVE VAULT SITE PLAN
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
AGR	AAV	AGR

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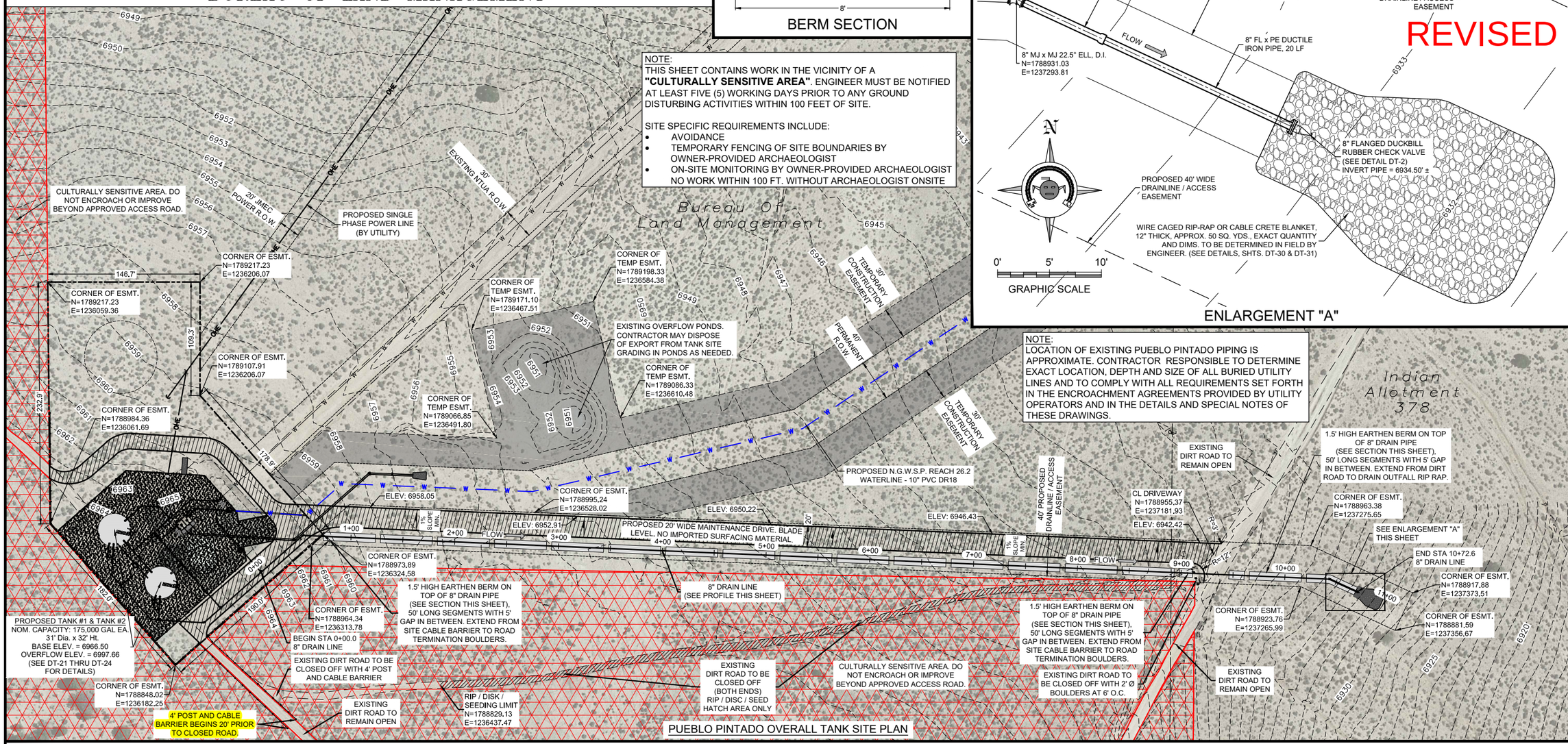
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THIS CONTRACT ALLOWS THE OWNER TO MAKE PAYMENT WITHIN 45 DAYS AFTER SUBMISSION OF AN UNDISPUTED REQUEST FOR PAYMENT.

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

Date: September 25, 2017
Scale: Horiz: 1" = 10'
Vert: N/A
Project No: 6921307
Sheet: C-48

McKINLEY COUNTY, NEW MEXICO
SEC–6, T–19–N, R–7–W
BUREAU OF LAND MANAGEMENT

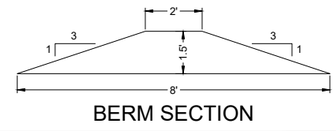


PUEBLO PINTADO OVERALL TANK SITE PLAN

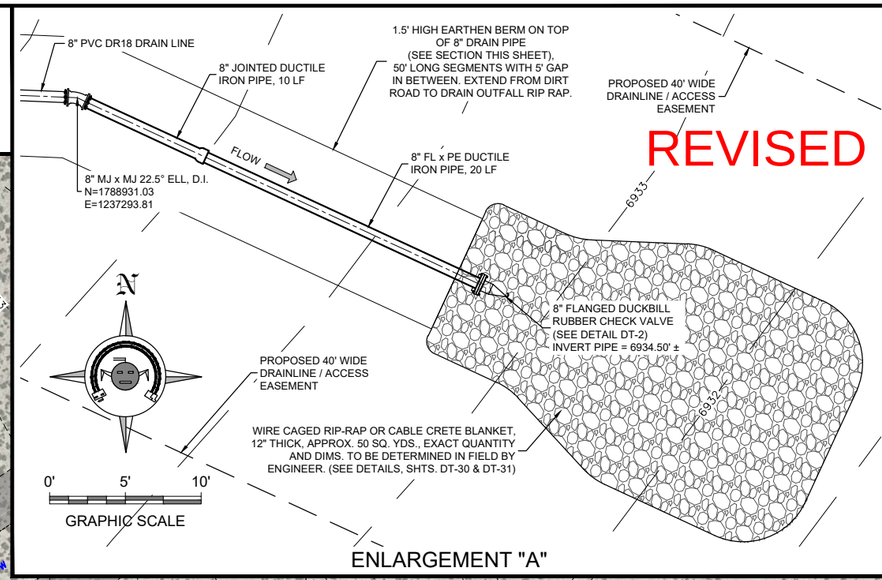
NOTE:
THIS SHEET CONTAINS WORK IN THE VICINITY OF A **"CULTURALLY SENSITIVE AREA"**. ENGINEER MUST BE NOTIFIED AT LEAST FIVE (5) WORKING DAYS PRIOR TO ANY GROUND DISTURBING ACTIVITIES WITHIN 100 FEET OF SITE.

SITE SPECIFIC REQUIREMENTS INCLUDE:
- AVOIDANCE
- TEMPORARY FENCING OF SITE BOUNDARIES BY OWNER-PROVIDED ARCHAEOLOGIST
- ON-SITE MONITORING BY OWNER-PROVIDED ARCHAEOLOGIST NO WORK WITHIN 100 FT. WITHOUT ARCHAEOLOGIST ONSITE

NOTE:
LOCATION OF EXISTING PUEBLO PINTADO PIPING IS 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 OPERATORS AND IN THE DETAILS AND SPECIAL NOTES OF THESE DRAWINGS.

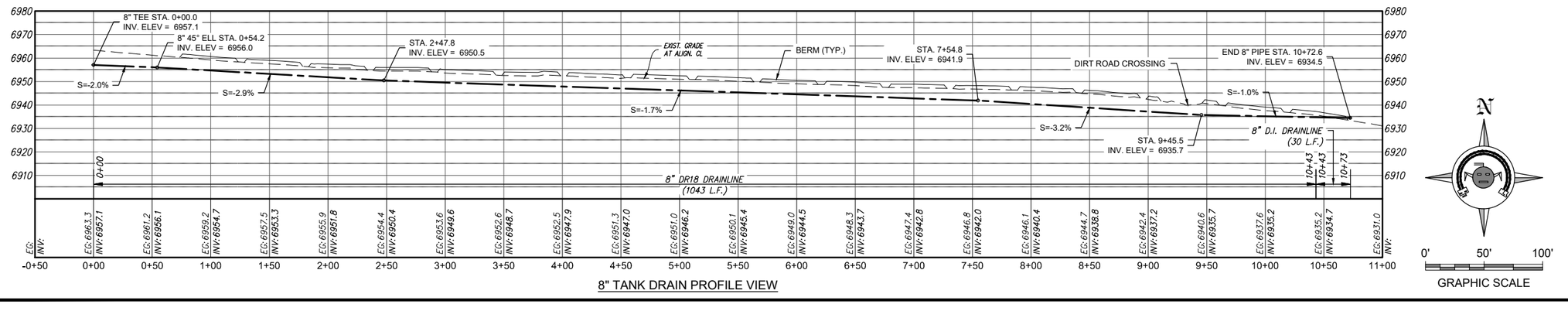


BERM SECTION



ENLARGEMENT "A"

REVISED



8" TANK DRAIN PROFILE VIEW

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Revision	Date	Description	By	Chk'd

Cutter Pb-08_C Pueblo Pintado Tank Site Plan.dwg
12/5/2017 2:54:31 PM awv

CLIENT: The Navajo Nation TOWN: Ojo Encino To Pueblo Pintado, NM

PUEBLO PINTADO OVERALL TANK SITE PLAN
NAVAJO GALLUP WATER SUPPLY PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
AGR	MVH	AGR

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Date: December 5, 2017

Scale: Horiz: 1"=100'
Vert: 1"=50'

Project No: 6921307

Sheet: C-49

McKINLEY COUNTY, NEW MEXICO
SEC-6, T-19-N, R-7-W
BUREAU OF LAND MANAGEMENT

REVISED

Bureau Of Land Management

EXISTING DIRT ROAD TO REMAIN OPEN

CULTURALLY SENSITIVE AREA. DO NOT ENCROACH OR IMPROVE BEYOND APPROVED ACCESS ROAD

LIMITS OF SITE EASEMENT

CABLE BARRIER TERMINATION N=1789091.13 E=1236061.62

50 L.F. 4' POST AND CABLE BARRIER (SEE DETAIL, SHT. DT-29)

CL DRIVEWAY N=1789034.72 E=1236061.19

CABLE BARRIER TERMINATION N=1789026.55 E=1236062.27

APPROX. 50 L.F. 4' POST AND CABLE BARRIER (SEE DETAIL, SHT. DT-29)

CABLE BARRIER TERMINATION N=1789041.51 E=1236062.12

12'

FUTURE TANK LOCATION

GUY ANCHOR (BY OWNER - CONTRACTOR TO COORDINATE EXACT LOCATION WITH UTILITY) N = 1789130.67 E = 1236192.68

LIMITS OF SITE EASEMENT

20.0' UMEC POWER R.O.W.

OHE

PROPOSED SINGLE PHASE POWER LINE (BY UTILITY)

1,910 SQ. YDS. 2" GRAVEL OVER 3" NMDOT SPECIFICATION BASE COURSE. MIN. 95% STANDARD PROCTOR REQUIRED FOR ENTIRE FENCED AREA AND DRIVING SURFACES

PROPOSED 15' WIDE DIRT ROAD

POWER POLE (BY OWNER - CONTRACTOR TO COORDINATE EXACT LOCATION WITH UTILITY) N = 1789130.67 E = 1236192.68

APPROX. 102 L.F. O.H.E.

CABLE BARRIER CORNER N=1788984.74 E=1236062.69

PROPOSED 8' HIGH FENCE, 519 L.F. (SEE DETAIL, SHT. DT-29)

88'

CABLE BARRIER TERMINATION (SEE DETAIL "A", SHT. DT-28) N=1788979.03 E=1236067.74

FENCE CORNER N=1789035.54 E=1236134.68

FENCE CORNER N=1788977.53 E=1236069.07

METER POLE (BY CONTACTOR) N=1789030.09 E=1236174.83

CHLORINATOR BUILDING (SEE DETAILS DT-25 THRU DT-28)

76'

PROPOSED TANK #2 N = 1788978.18 E = 1236123.69 (SEE DT-21 TO DT-24 FOR DETAILS)

APPROX. 48 L.F. U.G.E.

FENCE CORNER N=1789030.90 E=1236210.34

BLDG CORNER N=1788983.97 E=1236182.30

BLDG. CORNER N=1788987.13 E=1236199.09

EXIST. TRANSDUCER VAULT (TO BE REMOVED)

CENTER VB/ARV VAULT N=1788997.67 E=1236234.54 (SEE DETAIL DT-8)

47'

142'

APPROX. 82 L.F. U.G.E.

PROPOSED TANK #1 N = 1788927.76 E = 1236168.28 (SEE DT-21 TO DT-24 FOR DETAILS)

FENCE CORNER N=1788995.83 E=1236241.35

20' DOUBLE SWING GATE (SEE FENCE DETAIL DT-29)

CL GATE N=1788974.62 E=1236245.55

FENCE CORNER N=1788871.16 E=1236163.12

CABLE BARRIER TERMINATION (SEE DETAIL "A", SHT. DT-28) N=1788869.67 E=1236164.44

CENTER VB/ARV VAULT N=1788959.15 E=1236245.01 (SEE DETAIL DT-8)

48'

117'

FENCE CORNER N=1788948.70 E=1236250.67

CABLE BARRIER CORNER N=1788849.44 E=1236182.33

9'

LIMITS OF SITE EASEMENT

CABLE BARRIER CORNER N=1788869.17 E=1236204.66

APPROX. 176 L.F. 4' POST AND CABLE BARRIER (SEE DETAIL, SHT. DT-29)

CABLE BARRIER CORNER N=1788876.90 E=1236213.40

CABLE BARRIER CORNER N=1788870.74 E=1236217.63

APPROX. 267 L.F. 4' POST AND CABLE BARRIER (SEE DETAIL, SHT. DT-29)

8" MJ x MJ 45° ELL, D.I. N=1788973.17 E=1236305.03

CORNER OF ESMT. N=1788964.34 E=1236313.78

CABLE BARRIER TERMINATION (SEE DETAIL "A", SHT. DT-28) N=1788975.78 E=1236325.21

EXISTING DIRT ROAD TO REMAIN OPEN

CULTURALLY SENSITIVE AREA. DO NOT ENCROACH OR IMPROVE BEYOND APPROVED ACCESS ROAD.

1.5' HIGH EARTHEN BERM ON TOP OF 8" DRAIN PIPE (SEE SECTION, SHT. C-49). 50' LONG SEGMENTS WITH 5' GAP IN BETWEEN. EXTEND FROM SITE CABLE BARRIER TO ROAD TERMINATION BOULDERS.

CABLE BARRIER TERMINATION N=1788787.45 E=1236290.43

CABLE BARRIER TERMINATION N=1788796.15 E=1236298.48

REVISED

MIN. 3.5' COVER OVER DRAIN PIPES. ADD FILL ON MAINTENANCE DRIVE AT 4% MAX. AS NEEDED

2 - 4" PVC DR18 DRAIN LINES (SLOPE @ 0.57% MIN. TO DAYLIGHT)

INV 10" = 6953.32
INV 2 - 4" = 6957.33

INV 2 - 4" = 6957.24

2 - 4" PVC DR18 PIPE

2 - 4" MJ x MJ SLEEVES, DI

2 - 4" MJ x MJ 45° ELLS, D.I.

2 - 4" FL x PE DUCTILE IRON PIPE, 20 LF

2 - 4" FLAP VALVES (SEE DETAIL DT-2) INVERT PIPE = 6957.00' ± EG = 6956.50'

WIRE CAGED RIP-RAP OR CABLE CRETE BLANKET, 12" THICK, APPROX. 10 SQ. YDS., EXACT QUANTITY AND DIMS. TO BE DETERMINED IN FIELD BY ENGINEER. (SEE DETAILS, SHTS. DT-30 & DT-31)

50'

PROPOSED 20' WIDE MAINTENANCE DRIVE

5'

40' PERMANENT R.O.W.

40' PROPOSED DRAINLINE AND MAINTENANCE DRIVE EASEMENT

8" PVC DR18 TANK DRAIN LINE (SLOPE @ 1.65% MIN. AND 4' MIN. COVER)

FLOW

EXIST. 8" WATERLINE

30' EXISTING NTUA R.O.W.

CORNER OF TEMP. ESMT. N=1789171.10 E=1236467.51

LIMITS OF TEMPORARY CONSTRUCTION EASEMENT

120.0'

107.0'

CORNER OF TEMP. ESMT. N=1789198.33 E=1236584.38

CORNER OF TEMP. ESMT. N=1789066.85 E=1236491.80

EXISTING OVERFLOW PONDS. CONTRACTOR MAY DISPOSE OF EXPORT FROM TANK SITE GRADING IN PONDS AS NEEDED.

PROPOSED N.G.W.S.P. REACH 26.2 WATERLINE - 10" PVC DR18

115.0'

CORNER OF TEMP. ESMT. N=1789086.33 E=1236610.48

NOTE:
THIS SHEET CONTAINS WORK IN THE VICINITY OF A **"CULTURALLY SENSITIVE 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:
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- TEMPORARY FENCING OF SITE BOUNDARIES BY OWNER-PROVIDED ARCHAEOLOGIST
- ON-SITE MONITORING BY OWNER-PROVIDED ARCHAEOLOGIST NO WORK WITHIN 100 FT. WITHOUT ARCHAEOLOGIST ONSITE

NOTE:
LOCATION OF EXISTING PUEBLO PINTADO PIPING IS 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 OPERATORS AND IN THE DETAILS AND SPECIAL NOTES OF THESE DRAWINGS.

LEGEND

- 2" GRAVEL OVER 3" NMDOT SPECIFICATION BASE COURSE
- LIMITS OF CLEAR AND GRUB ROADWAY GRADING
- CULTURALLY SENSITIVE AREA. DO NOT IMPROVE OR ENCROACH.
- TEMPORARY CONSTRUCTION EASEMENT

0' 20' 40'
GRAPHIC SCALE

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Revision	Date	Description	By	Chk'd

Cutter Pb48_C Pueblo Pintado Tank Site Plan.dwg
12/5/2017 2:42:36 PM mrv

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CLIENT: The Navajo Nation TOWN: Ojo Encino To Pueblo Pintado, NM

PUEBLO PINTADO TANK SITE PLAN
NAVAJO GALLUP WATER SUPPLY PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
AGR	MVH	AGR

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

Date: December 5, 2017

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

Project No: 6921307

Sheet: C-50

SANDOVAL COUNTY, NEW MEXICO
SEC-6, T-22-N, R-6-W
NAVAJO TRIBAL TRUST

LOCAL BENCHMARK:
CP #57, A SET 1/2" REBAR WITH CAP
MARKED "SMA CONTROL"
N = 1788644.82
E = 1236502.83
ELEVATION = 6962.29

NOTE:
LOCATION OF EXISTING PUEBLO PINTADO PIPING IS 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 OPERATORS AND IN THE DETAILS AND SPECIAL NOTES OF THESE DRAWINGS.

CONTINUED ON SHEETS C-49 & C-50

PROPOSED DIRT ROAD

WIRE CAGED RIP-RAP OR CABLE CRETE BLANKET, 12" THICK, APPROX. 5 SQ. YDS., EXACT QUANTITY AND DIMS. TO BE DETERMINED IN FIELD BY ENGINEER. (SEE DETAILS, SHTS. DT-30 & DT-31)

EARTHEN BERM

2 - 4" DRAIN LINES (SLOPE @ 0.57% TO DAYLIGHT)

8" TANK DRAIN LINE (SLOPE @ 3.25% MIN. AND 4' MIN. COVER)

CABLE BARRIER

8" TANK DRAIN LINE (SLOPE @ 2.00% TO ELL)

8" DRAIN LINE (SLOPE @ 13.3% TEE TO ELL)

CHLORINATOR BUILDING F.F. = 6966.25

4" DI DRAIN LINE (SLOPE @ 3.46% TO ELL)

8" DRAIN LINE (SLOPE @ 1.50% ELL TO TEE)

2 - 4" DRAIN LINES (SLOPE @ 3.84% TO ELLS)

4" DI DRAIN LINE (SLOPE @ 2.0% TO ELL)

8" TANK DRAIN LINE (SLOPE @ 6.5% TO TEE)

8" TANK DRAIN LINE (SLOPE @ 2.0% TO TEE)

8" TANK DRAIN LINE (SLOPE @ 4.3% TO ELL)

8" TANK DRAIN LINE (SLOPE @ 2.0% TO TEE)

8" TANK DRAIN LINE (SLOPE @ 10.0% TO TEE)

CULTURALLY SENSITIVE AREA. DO NOT ENCROACH OR IMPROVE BEYOND APPROVED ACCESS ROAD.

PROPOSED TANK #2
CAPACITY: 175,000 gal
31' Dia. x 32' Ht.
BASE ELEV. = 6966.50
OVERFLOW ELEV. = 6997.83
(SEE DT-21 TO DT-24 FOR DETAILS)
N = 1788977.79, E = 1236128.24

PROPOSED TANK #1
CAPACITY: 175,000 gal
31' Dia. x 32' Ht.
BASE ELEV. = 6966.50
OVERFLOW ELEV. = 6997.83
(SEE DT-21 TO DT-24 FOR DETAILS)
N = 1788929.84, E = 1236170.64

0' 10' 20'
GRAPHIC SCALE

PUEBLO PINTADO TANK SITE CUT/FILL DATA

MATERIAL TYPE	CUT	FILL	EXPORT/IMPORT
*NATIVE SOILS (ON SITE)	285 CU. YDS.	320 CU.YDS	35 CU. YDS. IMPORT
*NATIVE SOILS (POND GRADING)	224 CU. YDS.	72 CU.YDS	152 CU. YDS. EXPORT
SURFACING MATERIAL (BASE COURSE AND FINISH GRAVEL)	---	268 CU. YDS.	268 CU. YDS. IMPORT
TANK OVER EXCAVATION	553 CU.YDS	636 CU.YDS	83 CU. YDS. IMPORT
BERM ON DRAINLINE (890 L.F.)	---	320 CU. YDS.	320 CU. YDS. IMPORT
*NATIVE SOILS (ROW OVER EXCAV.)	310 CU.YDS	---	310 CU. YDS. EXPORT
RIP RAP (DRAIN OUTFALLS)	---	---	63 CU. YDS. IMPORT

NOTES: BASED ON COMPACTION = 1.15
1. 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.
2. ALL GRADING WORKS SHALL BE COMPACTED TO 95% STANDARD PROCTOR.

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Revision	Date	Description	By	Chkd

Cutter Ph-6B_C Pueblo Pintado Tank Site Phase.dwg
9/25/2017 4:56:06 PM mmh

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CLIENT: The Navajo Nation TOWN: Ojo Encino To Pueblo Pintado, NM

PUEBLO PINTADO TANK SITE
GRADING PLAN
NAVAJO GALLUP WATER SUPPLY PROJECT - REACHES 26.1 & 26.2
SANDOVAL & MCKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
AGR	MVH	AGR

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

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Date: September 25, 2017
Scale: Horiz: 1" = 20'
Vert: N/A
Project No: 6921307
Sheet: C-51

KEYED NOTES - PUEBLO PINTADO TANK SITE

Item No.	Description
1	CHLORINATOR BUILDING (SEE DETAILS, DT-25 THRU DT-28)
2	2" VACUUM BREAKER W/ 1" AIR RELEASE VAULT (SEE DETAIL DT-8)
3	PRESSURE TRANSDUCER VAULT (SEE DETAIL DT-11)
4	10" PVC DR18 PIPE
5	10" x 8" MJ x MJ CONCENTRIC REDUCER, D.I. 350 psi
6	8" x 2" MJ x MJ TAPPED TEE, 350 psi
7	8" STEEL PIPE, STANDARD WALL (SEE NOTES 9A & 9B, THIS SHEET)
8	8" PVC DR18 PIPE
9	8" MJ x MJ GATE VALVE, 350 psi (SEE DETAIL DT-7)
10	8" MJ x FL GATE VALVE, 350 psi (SEE DETAIL DT-7)
11	8" MJ x MJ 45° ELL, D.I. 350 psi
12	8" MJ x MJ 90° ELL, D.I. 350 psi
13	8" MJ x MJ TEE, D.I. 350 psi
14	8" DUCTILE IRON PIPE
15	8" RESTRAINED FLANGED COUPLING, FBE COATED WITH SS 304 BOLTS, ROMAC ALPHA SERIES, OAE, 350 psi
16	4" DUCTILE IRON PIPE
17	4" PVC DR18 PIPE
18	4" MJ x MJ 45° ELL, D.I. 350 psi
19	1" YARD HYDRANT ASSEMBLY (SEE DETAIL DT-11)
20	2" STEEL PIPE NPT, SCHEDULE 40 (SEE NOTES 9A & 9B, THIS SHEET)
21	2" STEEL TEE NPT, SCHEDULE 40 (SEE NOTES 9A & 9B, THIS SHEET)
22	2" MUELLER 300 BALL CURB VALVE, 300 psi, OAE (SEE DETAIL DT-11)
23	3/8" THK. STAINLESS STEEL ORIFICE PLATE, ANSI CLASS 150 DRILLING PATTERN (SEE SHEET DT-10 FOR ORIFICE SIZE AND DETAIL)

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 AND DT-21.
3. PROVIDE TANK FOUNDATION IN ACCORDANCE WITH GEOTECHNICAL REPORT 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, ARVS 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 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.
8. ALL BURIED NON-STAINLESS STEEL PIPE AND FITTINGS SHALL BE COLD-APPLIED TAPE-WRAPPED, PER SPECIFICATIONS.

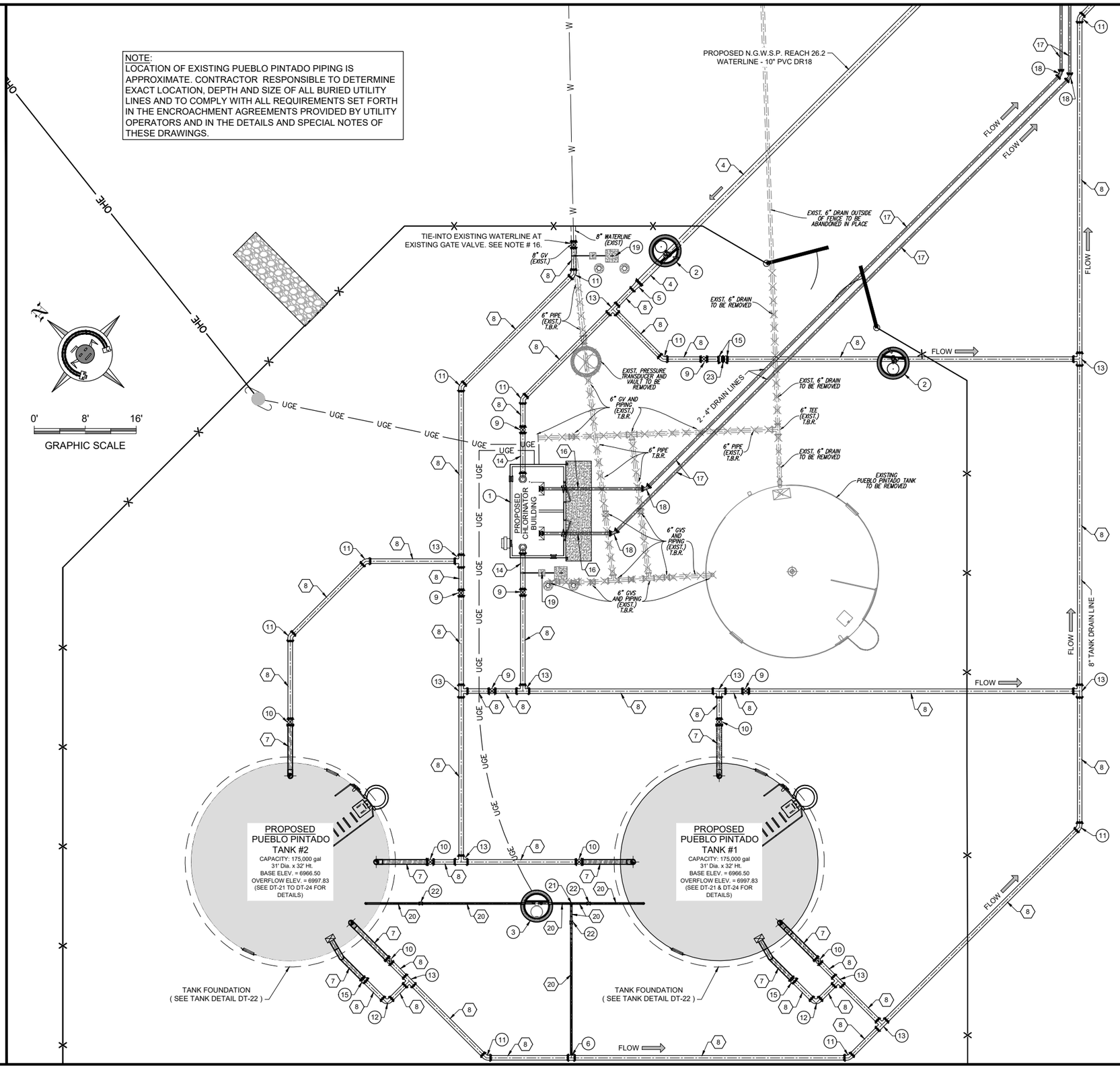
9A. IF WELDED STEEL TANKS ARE USED: ALL STEEL PIPE AND FITTINGS SHALL BE INTERIOR COATED SAME AS TANK INTERIOR AND EXTERIOR COATED WITH COAL TAR EPOXY.

9B. IF GLASS-FUSED STEEL TANKS ARE USED: ALL 8-INCH STEEL PIPE AND FITTINGS SHALL BE FBE-COATED, INTERIOR AND EXTERIOR. ALL 2-INCH STEEL PIPE 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. CONTRACTOR RESPONSIBLE TO VERIFY AND ALIGN ACTUAL FOUNDATION DIMENSIONS AND LOCATIONS OF EXISTING TANK PIPING INLETS, OUTLETS AND DRAINS IN THE FIELD.
14. FIELD LOCATE CONDUITS PER REVIEW WITH ELECTRICIAN.
15. CONTRACTOR SHALL REMOVE AND SALVAGE ALL EXISTING FENCING, FITTINGS, PIPING, VALVES, VAULT AND TANK FROM SITE AND PROVIDE USABLE MATERIALS TO OWNER AT LOCATION TO BE DETERMINED BY OWNER. DISPOSE OF UNUSABLE MATERIALS AT APPROVED DISPOSAL OR RECYCLING FACILITY AT CONTRACTOR'S EXPENSE. DETERMINATION OF WHICH MATERIALS ARE TO BE SALVAGED AND WHICH MATERIALS ARE TO BE DISPOSED OF SHALL BE AT THE SOLE DISCRETION OF NTUA.
16. CONTRACTOR SHALL MAINTAIN WATER SERVICE FOR EXISTING CUSTOMERS AT ALL TIMES. DO NOT TAKE ANY EXISTING FACILITIES OUT OF SERVICE UNTIL NEW TANKS AND SITE PIPING BETWEEN DISTRIBUTION TIE-IN, TANKS AND DRAINS ARE COMPLETED, TESTED AND APPROVED. DO NOT DEMOLISH ANY EXISTING FACILITIES OR TAP EXISTING LINE WITHOUT PRIOR WRITTEN APPROVAL FROM NTUA AND ENGINEER. NTUA AND ENGINEER MUST BE PRESENT DURING TAPPING OF EXISTING LINE. CONTRACTOR IS SOLELY RESPONSIBLE FOR SCHEDULING AND COORDINATION OF TAPPING.

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NOTE:
LOCATION OF EXISTING PUEBLO PINTADO PIPING IS 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 OPERATORS AND IN THE DETAILS AND SPECIAL NOTES OF THESE DRAWINGS.



Revision	Date	Description	By	Chkd

Cutter Pb-tdl_C Pueblo Pintado Tank Site Plan.dwg
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CLIENT: The Navajo Nation TOWN: Ojo Encino To Pueblo Pintado, NM

PUEBLO PINTADO TANK SITE PIPING PLAN
NAVAJO GALLUP WATER SUPPLY PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
AGR	MVH	AGR

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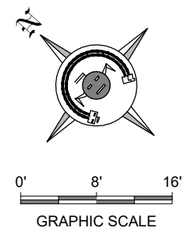
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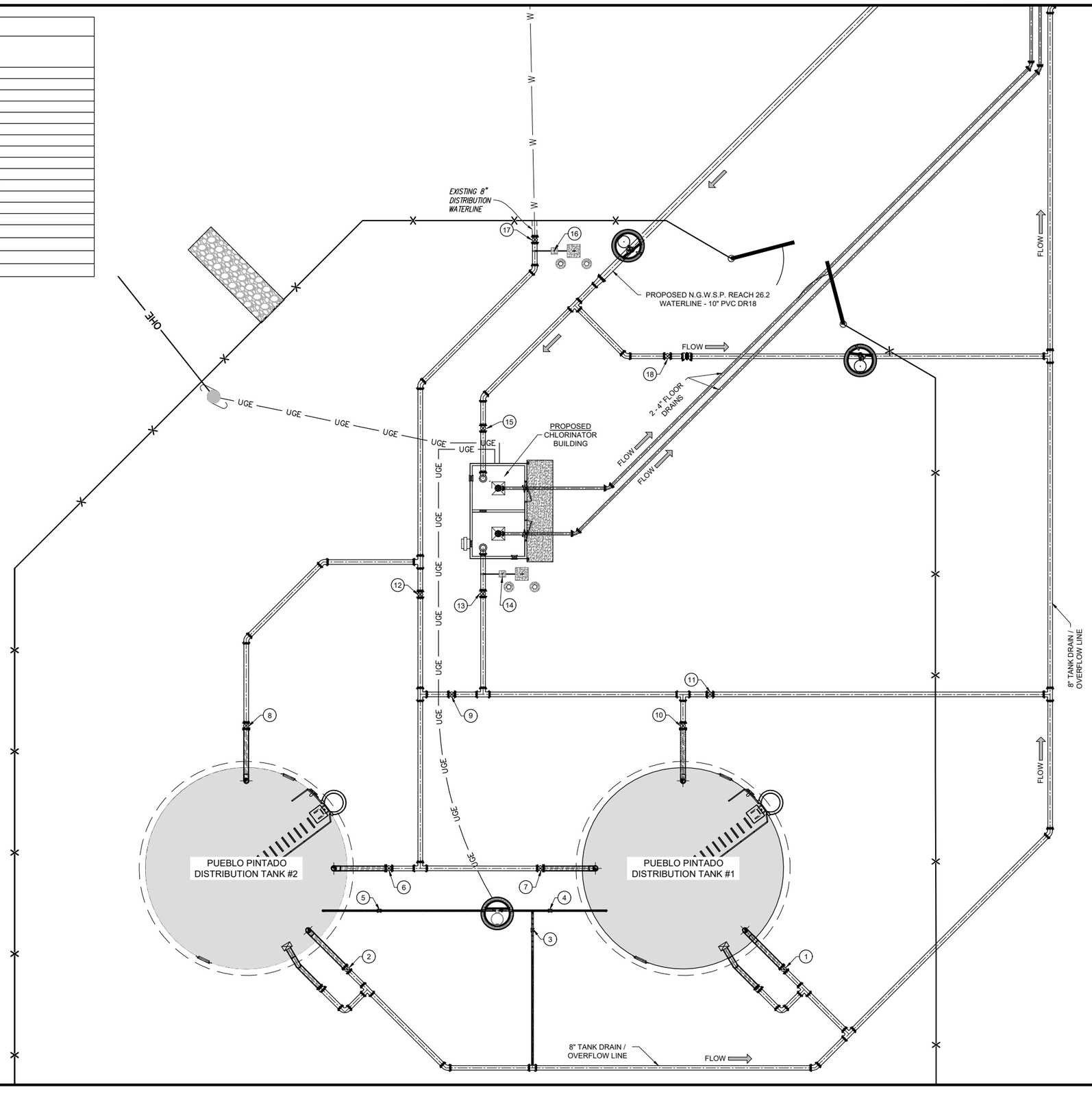
Date: September 25, 2017
Scale: Horiz: 1" = 16'
Vert: N/A
Project No: 6921307
Sheet: C-52

PUEBLO PINTADO TANK SITE - VALVE NUMBERING

Valve No.	Valve Size	Valve Type	Pipe Type	Description
1	8"	GV	STEEL / PVC	TANK #1 FLOOR DRAIN
2	8"	GV	STEEL / PVC	TANK #2 FLOOR DRAIN
3	2"	CS	STEEL	TANK #1 & #2 SENSOR LINE DRAIN
4	2"	CS	STEEL	TANK #1 SENSOR LINE
5	2"	CS	STEEL	TANK #2 SENSOR LINE
6	8"	GV	STEEL / PVC	TANK #2 INLET
7	8"	GV	STEEL / PVC	TANK #1 OUTLET
8	8"	GV	STEEL / PVC	TANK #2 OUTLET
9	8"	GV	PVC	TANK #1 BYPASS
10	8"	GV	STEEL / PVC	TANK #1 INLET
11	8"	GV	PVC	POST CHLORINATION FLUSH VALVE
12	8"	GV	PVC	TANK #2 BYPASS
13	8"	GV	DI / PVC	CHLORINATION BUILDING OUTLET
14	1"	CS	HDPE	YARD HYDRANT
15	8"	GV	DI / PVC	CHLORINATION BUILDING INLET
16	1"	CS	HDPE	YARD HYDRANT
17	8"	GV	PVC	TO DISTRIBUTION
18	8"	GV	PVC	PRE-CHLORINATION FLUSH VALVE

NOTE:
LOCATION OF EXISTING PUEBLO PINTADO PIPING IS 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 OPERATORS AND IN THE DETAILS AND SPECIAL NOTES OF THESE DRAWINGS.





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PUEBLO PINTADO TANK SITE
VALVE NUMBERS
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

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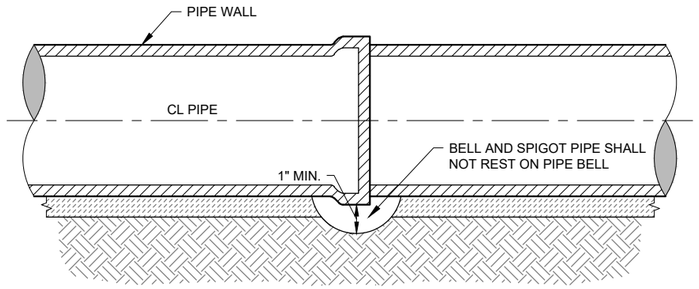
NOTICE OF EXTENDED PAYMENT PROVISION:
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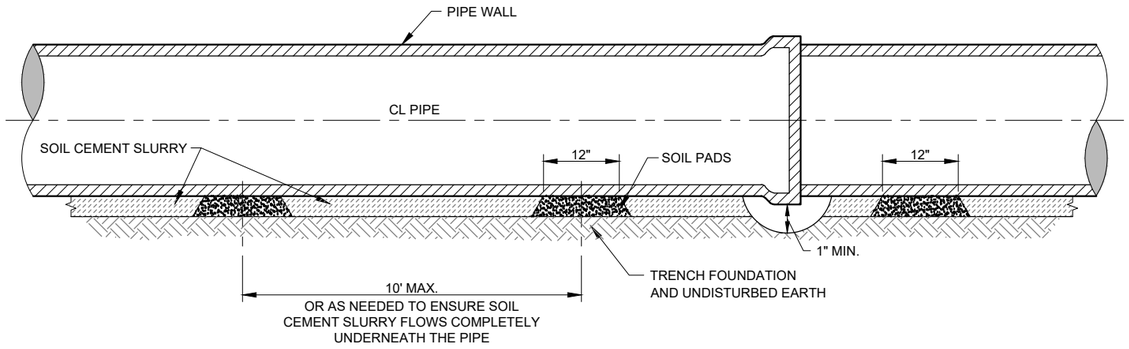
Date: September 25, 2017
Scale: Horiz: 1" = 16'
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Project No: 6921307
Sheet: C-53

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".



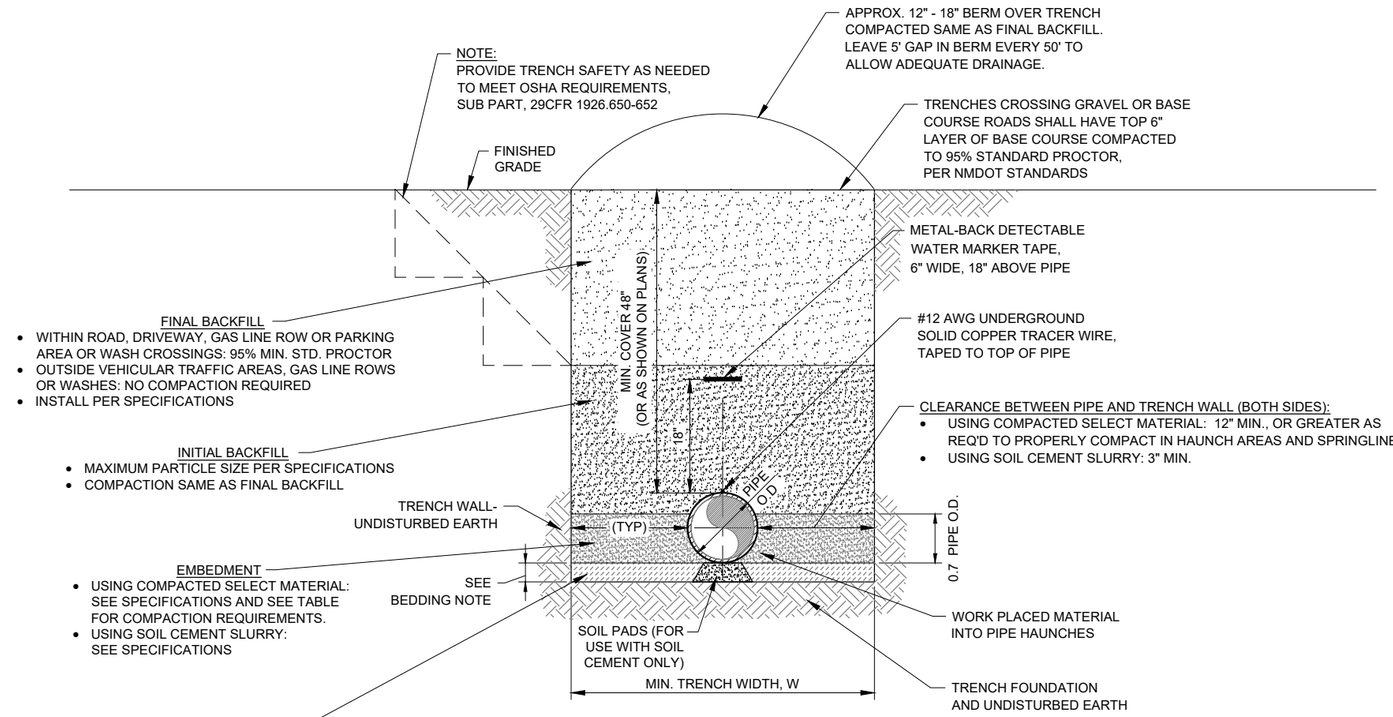
TYPICAL BELL HOLE DETAIL
NOT TO SCALE



SOIL CEMENT INSTALLATION WITH SOIL PADS
NOT TO SCALE

MINIMUM PERCENT COMPACTION FOR EMBEDMENT IN NON-TRAFFICKED AREAS	
CLEAN COARSE-GRAINED SOILS	
Cover Depth	Minimum Compaction
4' to 20'	85%
Coarse-grained soils (sand or gravel), GW, GP, SW, SP, with less than 12% fines	
SANDY OR GRAVELLY FINE-GRAINED SOILS & COARSE-GRAINED SOILS WITH FINES	
Cover Depth	Minimum Compaction
4' to 14'	85%
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 SHALL BE COMPACTED TO AT LEAST 95% STD. PROCTOR, REGARDLESS OF SOIL TYPE. SOIL CEMENT MAY BE USED IN LIEU OF COMPACTED SELECT MATERIAL.



TYPICAL TRENCH DETAIL
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PIPELINE TRENCH DETAILS
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

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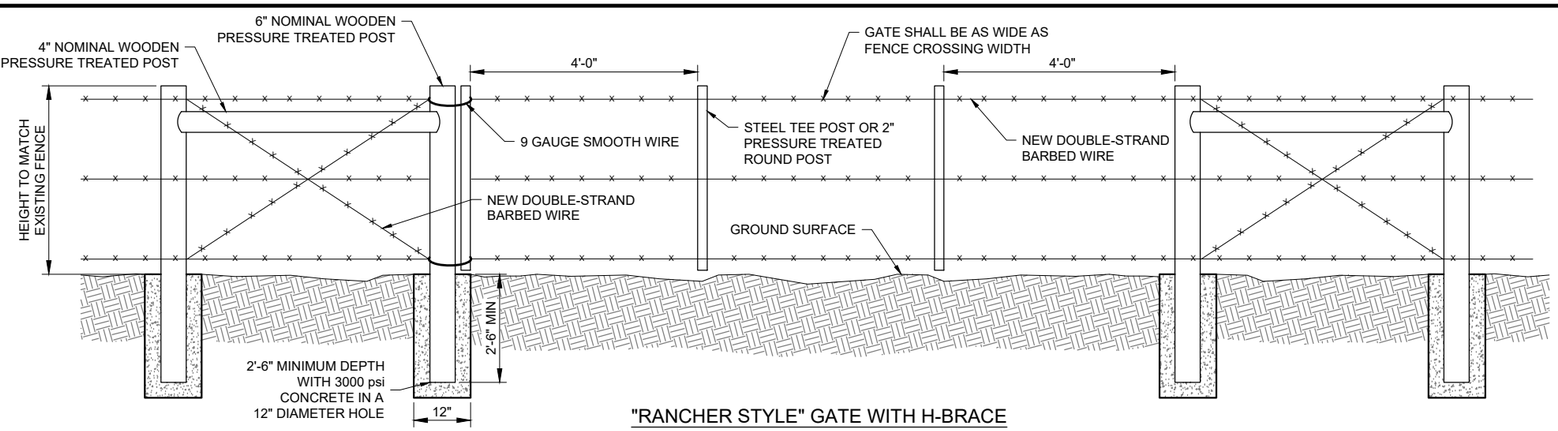
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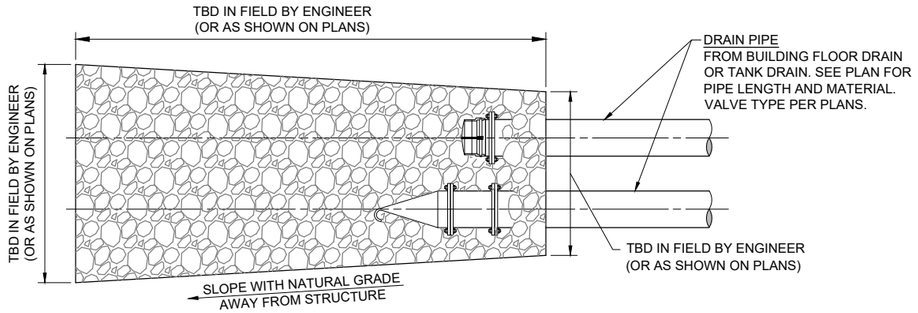
Date: August 17, 2017
Scale: Horiz: NONE Vert: N/A
Project No: 6921307
Sheet: DT-1

NOTES:
1. EXISTING FENCE SHALL NOT BE CUT UNTIL SECURED TO H-BRACE ASSEMBLY.
2. INSTALL RANCHER STYLE GATE AT ALL FENCE CROSSINGS UNLESS SPECIFICALLY NOTED OTHERWISE ON PLANS.

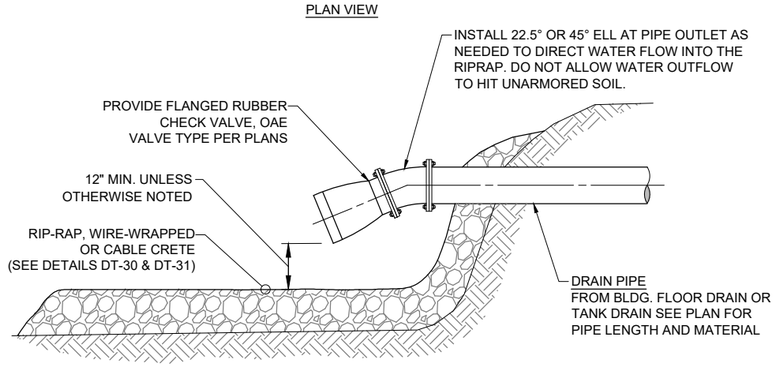


"RANCHER STYLE" GATE WITH H-BRACE PULL ASSEMBLY AT FENCE CROSSING

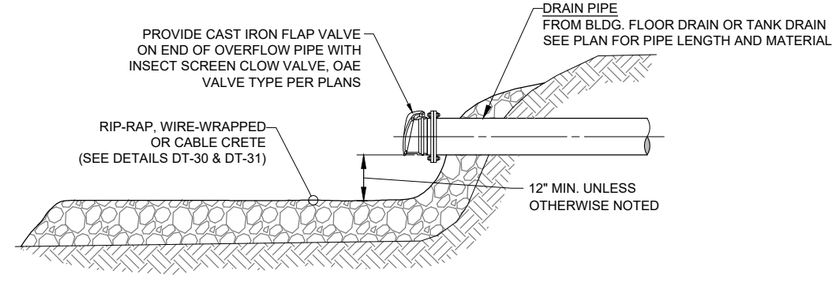
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PLAN VIEW



ELEVATION VIEW

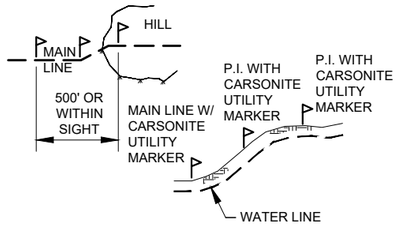


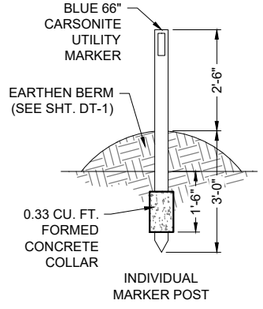
ELEVATION VIEW

TYPICAL SPLASH PAD DETAIL

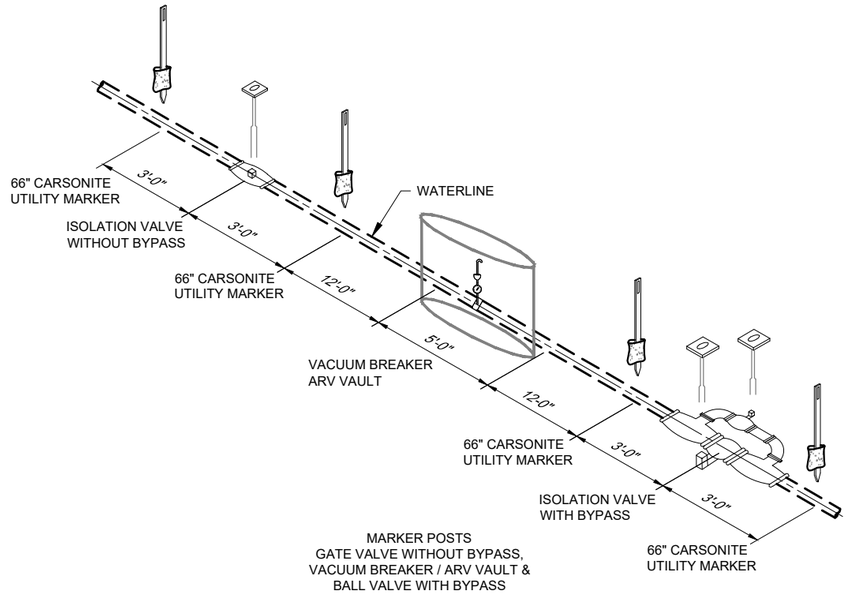
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NOTE:
1. CARSONITE UTILITY MARKER ON ALL P.I.'S AND GRADE CHANGES.
2. MAXIMUM DISTANCE BETWEEN CARSONITE UTILITY MARKERS SHALL BE 1500 LF.

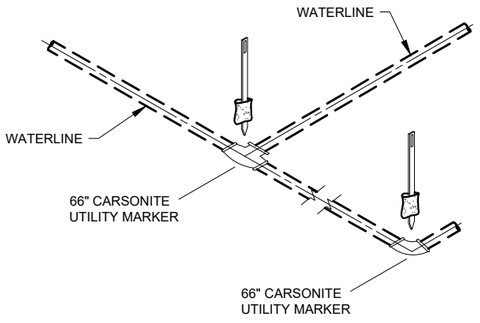




INDIVIDUAL MARKER POST



MARKER POSTS
GATE VALVE WITHOUT BYPASS, VACUUM BREAKER / ARV VAULT & BALL VALVE WITH BYPASS



MARKER POSTS
TEE & ELL

TYPICAL MARKER POSTS

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MISCELLANEOUS CONSTRUCTION DETAILS

NAVAJO GALLUP WATER SUPPLY PROJECT - REACHES 26.1 & 26.2

SANDOVAL & MCKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
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Project No: 6921307

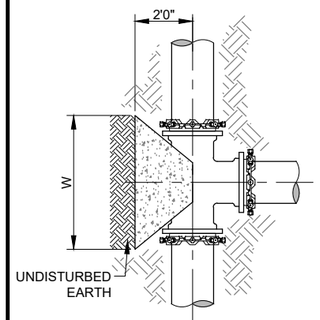
Sheet: DT-2

THRUST BLOCK DIMENSION SCHEDULE

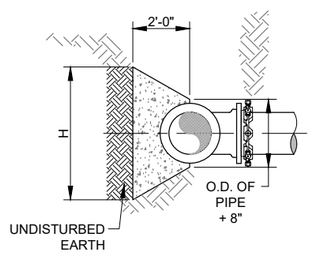
Pipe Location	Pipe Size (Inches)	90° Bend H x W	Tee H x W
Reach 26.1 Surge Tank	8"	3'-6" x 3'-6"	N/A
Pueblo Pintado Chlorinator, Inlet & Outlet	8"	2'-6" x 2'-6"	N/A
Flush Valves	4"	N/A	2'-0" x 2'-0"
Flush Valves	2"	N/A	1'-0" x 1'-0"

GENERAL NOTES

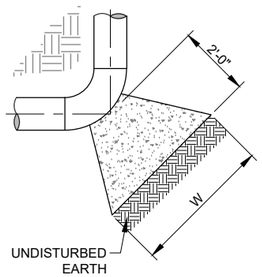
1. SOIL BEARING FROM X8E VINYARD REPORT NO. 15-1-057 DATED JUNE 9, 2016
2. ALL CONCRETE SHALL BE 3000 psi, MINIMUM COMPRESSIVE STRENGTH IN 28 DAYS



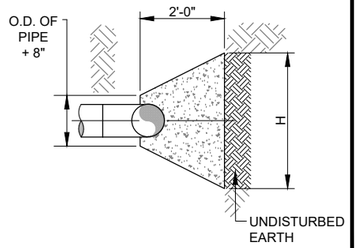
PLAN VIEW
CONCRETE BLOCKING
FOR TEE



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 26.1 - 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	15
Transition				
Reducer	14" x 12"	235	50	
Reducer	12" x 10"	235	50	

Minimum Required Restraint Lengths Reach 26.2 - 10" DR18 PVC

Fitting	Pipe Size	Test Pressure (psi)	Required Restraint Length (ft)	
Tee	10"	300	80	
Isolation Valve / Dead End	10"	300	180	
From End of Casing	10"	300	75	
Horizontal Bend or Sweep				
90°	10"	300	80	
45°	10"	300	35	
22.5°	10"	300	20	
11.25°	10"	300	20	
Vertical Offset or Sweep			Upper Bend	Lower Bend
22.5°	10"	300	35	15
Transition				
Reducer	10" x 6"	300	110	

Minimum Required Restraint Lengths Reach 26.2 - 10" DR14 PVC

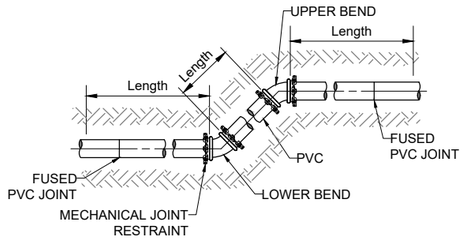
Fitting	Pipe Size	Test Pressure (psi)	Required Restraint Length (ft)	
Tee	10"	350	110	
Isolation Valve / Dead End	10"	350	205	
From End of Casing	10"	350	85	
Horizontal Bend or Sweep				
90°	10"	350	95	
45°	10"	350	40	
22.5°	10"	350	20	
11.25°	10"	350	20	
Vertical Offset or Sweep			Upper Bend	Lower Bend
22.5°	10"	350	45	15
11.25°	10"	350	25	N/A
Transition				
Reducer	10" x 6"	350	130	

Minimum Required Restraint Lengths Reach 26.1 / 26.2 Flush Valves 4" DR18 PVC

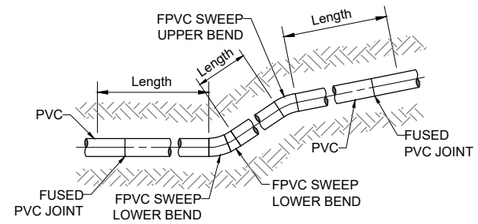
	Pipe Size	Test Pressure (psi)	Required Restraint Length (ft)
Flush Valve Drain Line	4"	No Test	20

NOTES:

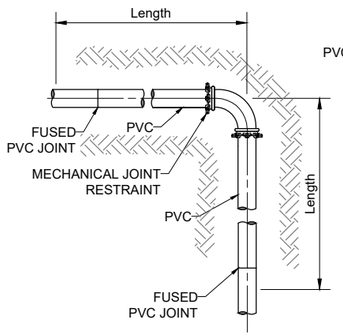
1. MECHANICAL JOINT RESTRAINTS SHALL BE RATED TO PIPE PRESSURE RATINGS.
2. MECHANICAL JOINT RESTRAINTS INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.
3. FITTINGS WITHIN TANK, CONTROL VALVE VAULT AND SURGE TANK SITES SHALL BE MORTAR LINED, BITUMINOUS-COATED AND PE WRAPPED PER SPECIFICATIONS. ALL BURIED 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 JOINT IS INTACT.



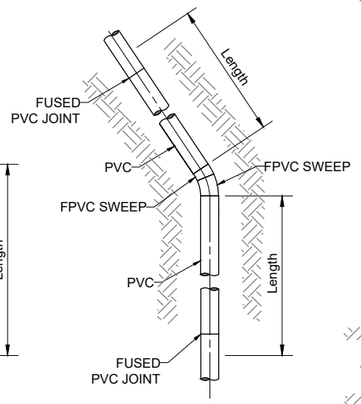
ELEVATION VIEW
MECHANICAL JOINT RESTRAINT FOR VERTICAL OFFSET



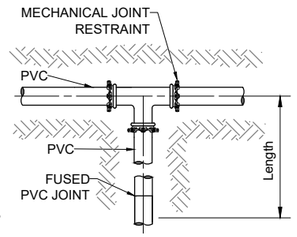
ELEVATION VIEW
FUSED JOINT RESTRAINT FOR VERTICAL SWEEP



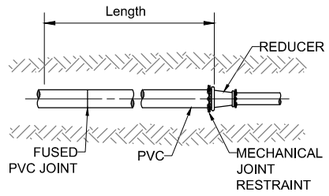
PLAN VIEW
MECHANICAL JOINT RESTRAINT
FOR HORIZONTAL BEND



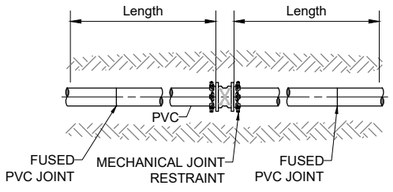
PLAN VIEW
FUSED JOINT RESTRAINT
FOR HORIZONTAL SWEEP



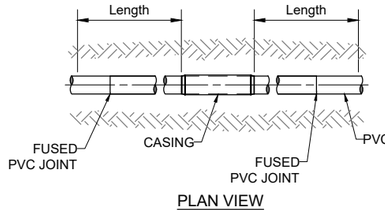
PLAN VIEW
MECHANICAL JOINT RESTRAINT
FOR TEE



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	Ck'd

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CLIENT: The Navajo Nation TOWN: Ojo Encino To Pueblo Pintado, NM

THRUST BLOCK AND MECHANICAL JOINT RESTRAINT DETAILS
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACHES 26.1 & 26.2
SANDOVAL & MCKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
GYQ	AAV	AGR

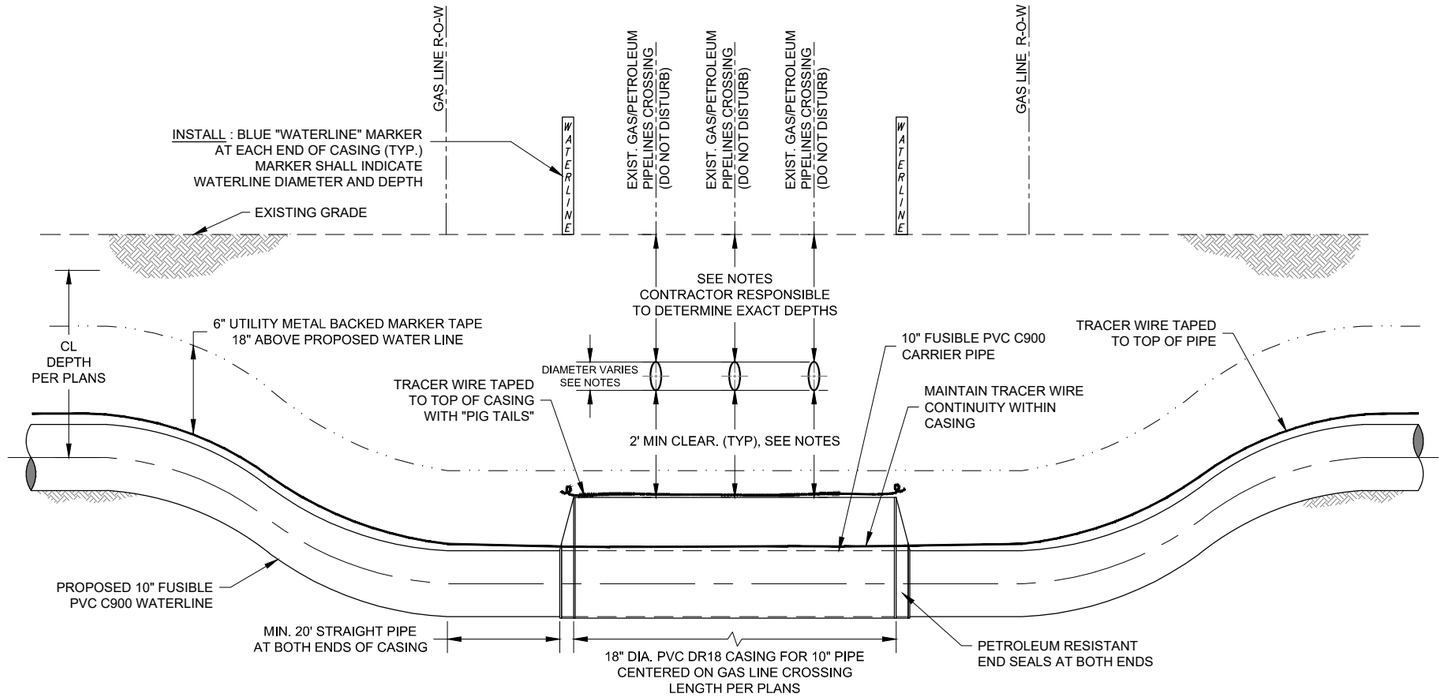
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NOTICE OF EXTENDED PAYMENT PROVISION:
THIS CONTRACT ALLOWS THE OWNER TO MAKE PAYMENT WITHIN 45 DAYS AFTER SUBMISSION OF AN UNDISPUTED REQUEST FOR PAYMENT.

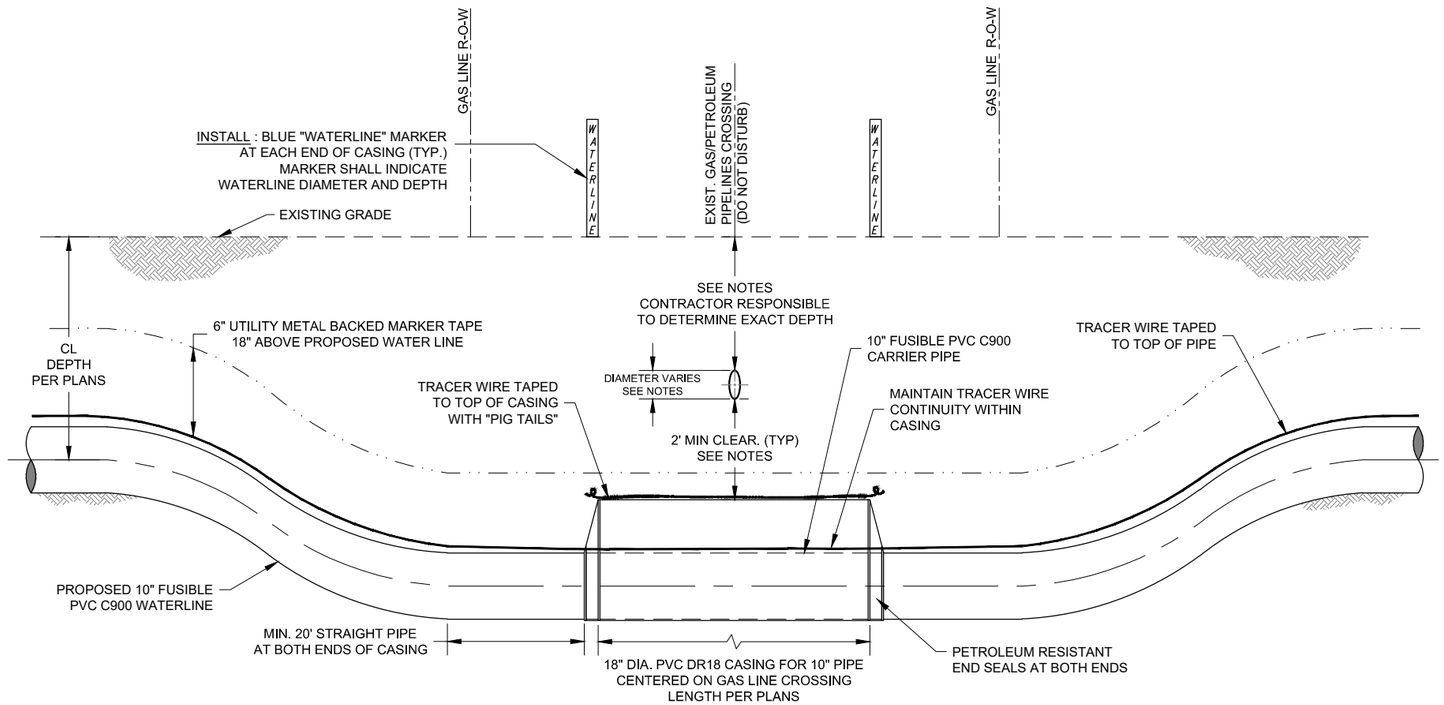
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Vert: N/A
Project No: 6921307
Sheet: DT-3



TYPICAL MULTIPLE GAS PIPELINE CROSSING DETAIL

NOT TO SCALE



TYPICAL SINGLE 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. NEW MEXICO GAS (CROSSING #6) REQUIRES 3' MIN. CLEARANCE FROM TOP OF CASING TO BOTTOM OF GAS LINE. ALL OTHER 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.
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 GAS 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 WITH PETROLEUM RESISTANT GASKETS.
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 ARE MEASURED FROM THE EXISTING GROUND TO THE TOP OF PIPE.

LIST OF GASLINE CROSSINGS

(1) = STA: 141+92.7, 142+15.7, 142+27.7, 142+37.7 (APPROX.)
ENTERPRISE MID AMERICA PIPELINE CO. 281-887-2612
BILL PICKARD - FIELD CONTACT 505-330-5295
4 GAS PIPELINES
(16" DIA. STEEL, APPROX. DEPTH 4'-10")
(12" DIA. STEEL, APPROX. DEPTH 3'-7")
(8" DIA. STEEL, APPROX. DEPTH 4'-0")
(12" DIA. STEEL, APPROX. DEPTH 4'-0")
SEC-13, T-21-N, R-6-W

(2) = STA: 340+77.5, (APPROX.)
SG INTERESTS, LTD.
(MANAGED BY NIKA ENERGY OPERATING, LLC 970-259-2701)
TRIPP SCHWAB - FIELD CONTACT 970-259-2701
GAS PIPELINE (8" DIA., DEPTH UNKNOWN)
WATER PIPELINE (4" DIA., DEPTH UNKNOWN)
GAS PIPELINE (4" DIA., DEPTH UNKNOWN)
WATER PIPELINE (3" DIA., DEPTH UNKNOWN)
SEC-33, T-21-N, R-6-W

(3) = STA: 418+59.8 (APPROX.)
SG INTERESTS, LTD.
(MANAGED BY NIKA ENERGY OPERATING, LLC 970-259-2701)
TRIPP SCHWAB - FIELD CONTACT 970-259-2701
GAS PIPELINE (3" DIA. HDPE, DEPTH UNKNOWN)
WATER PIPELINE (3" DIA. HDPE, DEPTH UNKNOWN)
SEC-32, T-21-N, R-6-W

(4) = STA: 487+99.3 (APPROX.)
SG INTERESTS, LTD.
(MANAGED BY NIKA ENERGY OPERATING, LLC 970-259-2701)
TRIPP SCHWAB - FIELD CONTACT 970-259-2701
GAS PIPELINE (3" DIA. HDPE, DEPTH UNKNOWN)
WATER PIPELINE (3" DIA. HDPE, DEPTH UNKNOWN)
SEC-6, T-20-N, R-6-W

(5) = STA: 545+51.4 (APPROX.)
KINDER MORGAN 877-390-8640 OR 970-882-5522
JOHN LOVETT - FIELD CONTACT 970-529-6869
CO_2 GAS PIPELINE (30" DIA. STEEL, APPROX. DEPTH 4'-4")
SEC-1, T-20-N, R-7-W

(6) = STA: 586+56.4, 586+82.2, 586+92.4 (APPROX.)
NEW MEXICO GAS CO. 888-664-2726
MARK WARNER FIELD CONTACT 505-320-1451
STEPHEN SORRELS FIELD CONTACT 505-320-4506
BRANDY LEY - FIELD SUPERVISOR
505-417-6520 (CELL) 505-697-3598 (OFFICE)
3 GAS PIPELINES **(MIN. 3' CLEARANCE TO CASING)**
(24" DIA. STEEL, DEPTH UNKNOWN)
(18" DIA. STEEL, DEPTH UNKNOWN)
(20" DIA. STEEL, DEPTH UNKNOWN)
SEC-2, T-20-N, R-7-W

(7) = STA: 587+77.0 (APPROX.)
WESTERN REFINING 888-658-8006
COREY PRUITT - FIELD CONTACT 505-947-6569
GAS PIPELINE (16" DIA. STEEL, DEPTH UNKNOWN)
SEC-2, T-20-N, R-7-W

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CLIENT: The Navajo Nation TOWN: Ojo Encino To Pueblo Pintado, NM

GAS LINE CROSSING DETAILS
NAVAJO GALLUP WATER SUPPLY PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
GMM	AAV	AGR

100% DESIGN

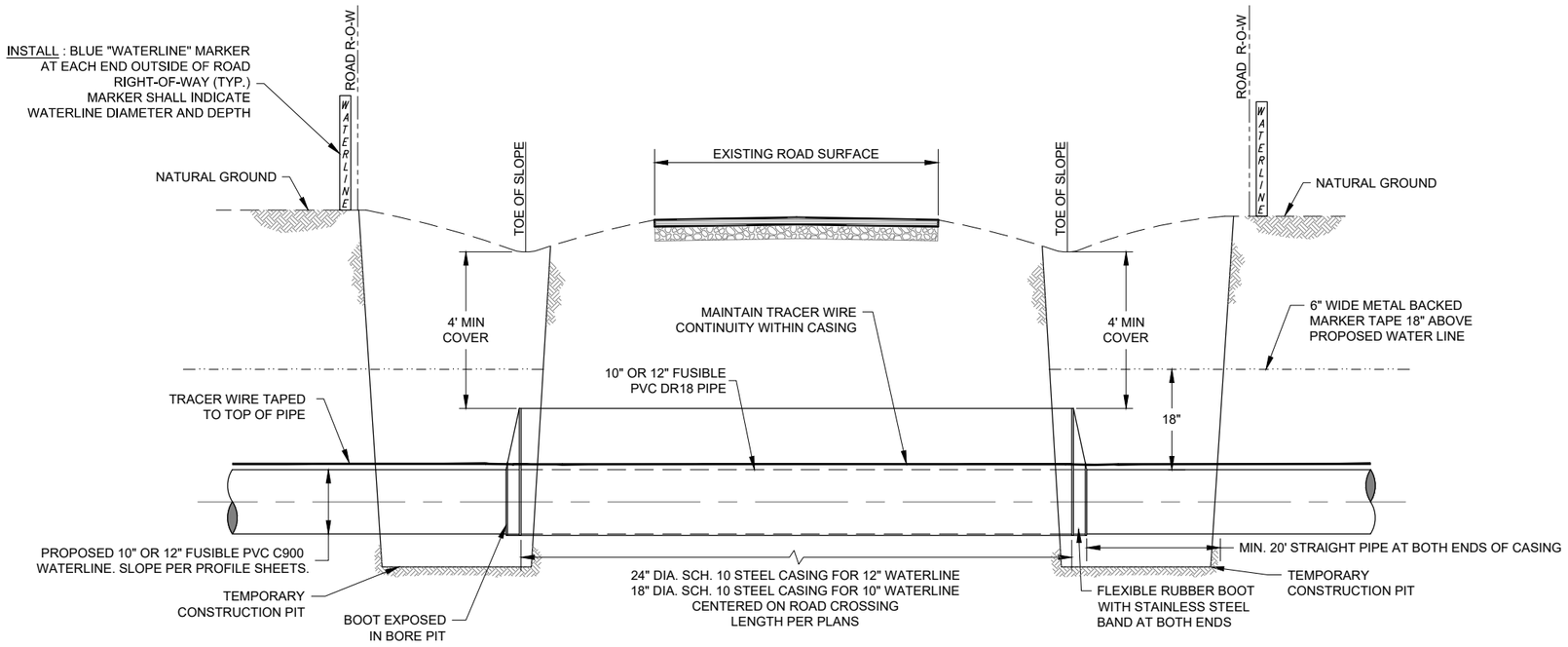
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NOTICE OF EXTENDED PAYMENT PROVISION:
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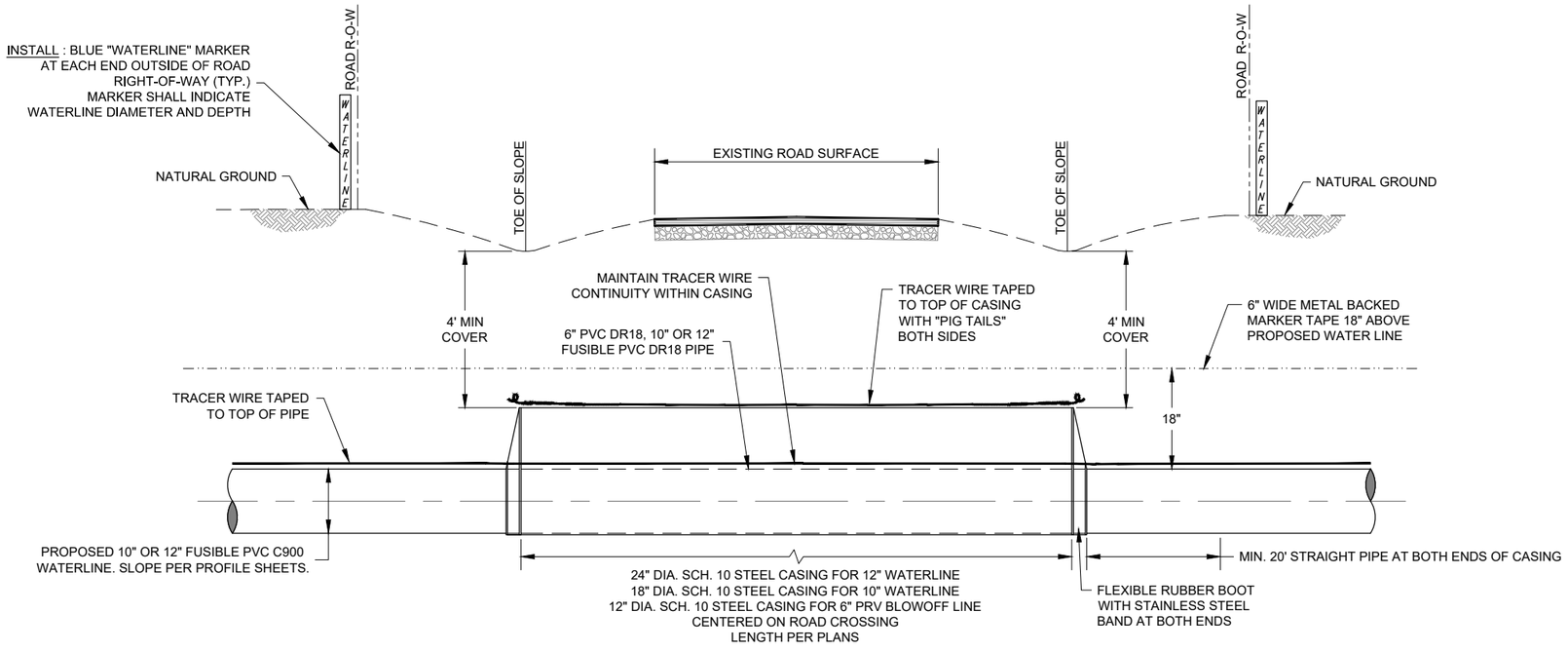
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Project No: 6921307
Sheet: DT-4



TYPICAL BORE AND JACK ROAD CROSSING

NOT TO SCALE



TYPICAL OPEN CUT ROAD CROSSING

NOT TO SCALE

CONSTRUCTION NOTES:

1. EXCAVATIONS OUTSIDE THE ROADWAY FORESLOPES SHALL BE COMPACTED AS SPECIFIED IN THE CONSTRUCTION DOCUMENTS. EXCAVATION WITHIN THE TOE OF THE FORESLOPES 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. CASINGS SHALL BE BITUMINOUS COATED PER AWWA C110 AND COLD-APPLIED TAPE COATED PER AWWA C209. OVERLAP TAPE MINIMUM 1 INCH AND TOTAL TAPE THICKNESS OF 80 MILS.

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CLIENT: The Navajo Nation TOWN: Ojo Encino To Pueblo Pintado, NM

ROAD CROSSING DETAILS
NAVAJO GALLUP WATER SUPPLY PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
GMM	AAV	AGR

100% DESIGN

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Project No: 6921307
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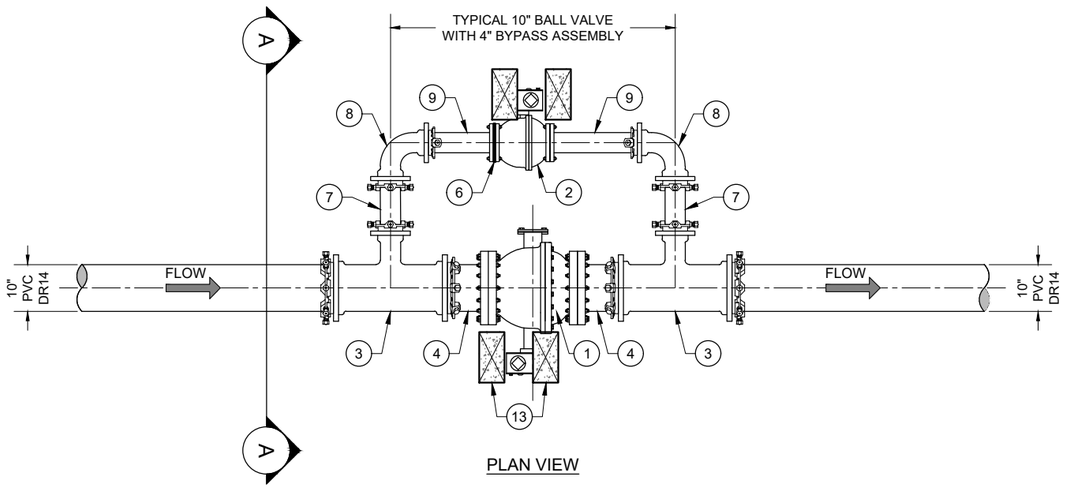
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KEYED NOTES - MAIN LINE BALL VALVE

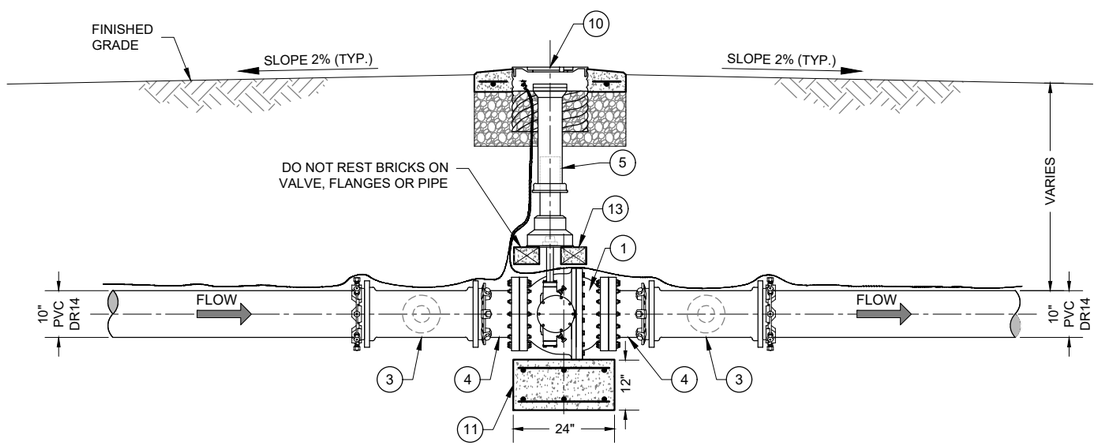
Item No.	Description
1	10" FL x FL BALL VALVE W/ MANUAL BURIED GEARED SERVICE ACTUATOR, 300 psi WP
2	4" FL x FL BALL VALVE, W/ MANUAL BURIED GEARED SERVICE ACTUATOR, 300 psi WP
3	10" x 4" MJ x MJ D.I. REDUCING TEE, 350 psi WP
4	10" FL x PLAIN END D.I. SPOOL, 350 psi WP
5	CAST IRON SLIP TYPE VALVE BOX WITH LOCKABLE CAST IRON LID
6	9" O.D. STAINLESS STEEL ORIFICE PLATE TO MATCH 4" FLANGE (SEE DETAIL / TABLE THIS SHEET)
7	4" PLAIN END D.I. SPOOL, 350 psi WP
8	4" MJ x MJ D.I. 90° ELL, 350 psi WP
9	4" FL x PLAIN END D.I. SPOOL, 350 psi WP
10	18" DIA. HEAVY DUTY, TRAFFIC-RATED METER CAN W/ CAST IRON LOCKING COVER AND FORMED CONCRETE COLLAR, (3000 psi W/ #4 REBAR)
11	2' x 2' x 1' CONCRETE BLOCK, 3000 psi W/ #4 REBAR 10" O.C.E.W., 2" CLR.
12	1' x 1' x 1' CONCRETE BLOCK, 3000 psi W/ #4 REBAR 8" O.C.E.W., 2" CLR.
13	12" x 6" x 4" BRICKS
14	CAST IRON SLIP TYPE VALVE BOX WITH NON LOCKABLE CAST IRON LID

NOTES:

1. ALL BURIED NON-STAINLESS METALLIC PIPE, VALVES AND FITTINGS SHALL BE COATED WITH FUSION BONDED EPOXY, INTERIOR AND EXTERIOR. ALL BURIED METALLIC PIPE SHALL ALSO BE COLD-APPLIED TAPE-COATED, PER SPECIFICATIONS.
2. APPLY CATHODIC PROTECTION TO ALL BURIED METALLIC PRESSURE-BEARING COMPONENTS LOCATED WITHIN CORROSIVE SOIL ZONES, AS DESIGNATED IN THE PLANS AND/OR SPECIFICATIONS.
3. ALL FLANGES SHALL BE ANSI CLASS 250/300.
4. CONTRACTOR SHALL SCRIBE ALL CONCRETE COLLARS PER DETAIL THIS SHEET. CONCRETE SHALL BE SCRIBED PRIOR TO CURING OR ETCHED AFTER CURING WITH 4" GRINDER.
5. ALL MATERIALS RATED TO AT LEAST 305 psi WP UNLESS OTHERWISE NOTED.



PLAN VIEW



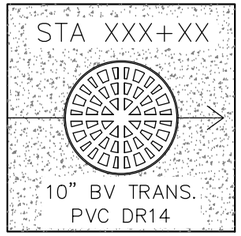
ELEVATION VIEW

TYPICAL 10" MAIN LINE BALL VALVE ASSEMBLY WITH BYPASS

0' 3' 6'

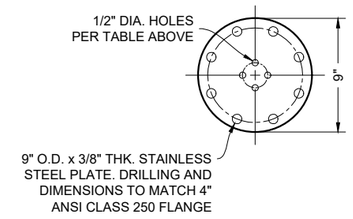
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CONCRETE COLLAR ETCHING DETAIL

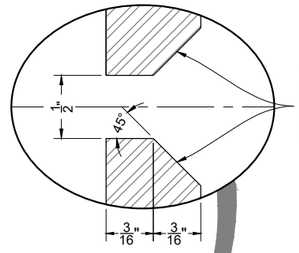
NOT TO SCALE



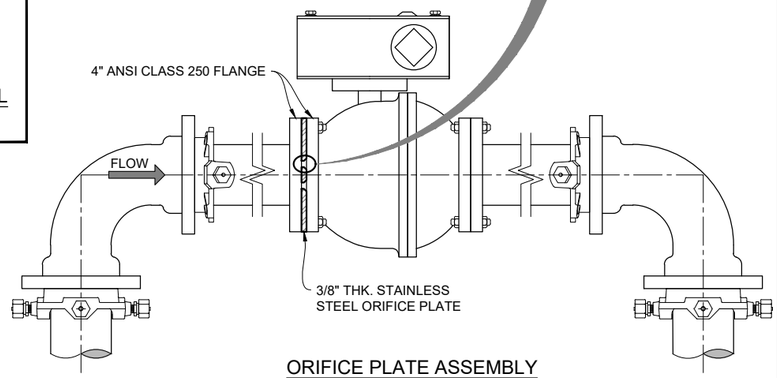
SUMMARY OF BALL VALVE ORIFICE PLATE DRILLING

Station	Elevation	Orifice Plate # of Holes
415+06	6783	4
531+25	6654	4
584+00	6624	4
626+51	6647	4
678+33	6602	4
730+93	6541	4
783+32	6540	4
819+80	6630	4
870+28	6619	4
874+27	6629	4

NOTE:
ALL HOLES TO BE DRILLED INSIDE 4" FLOW AREA OF PLATE.

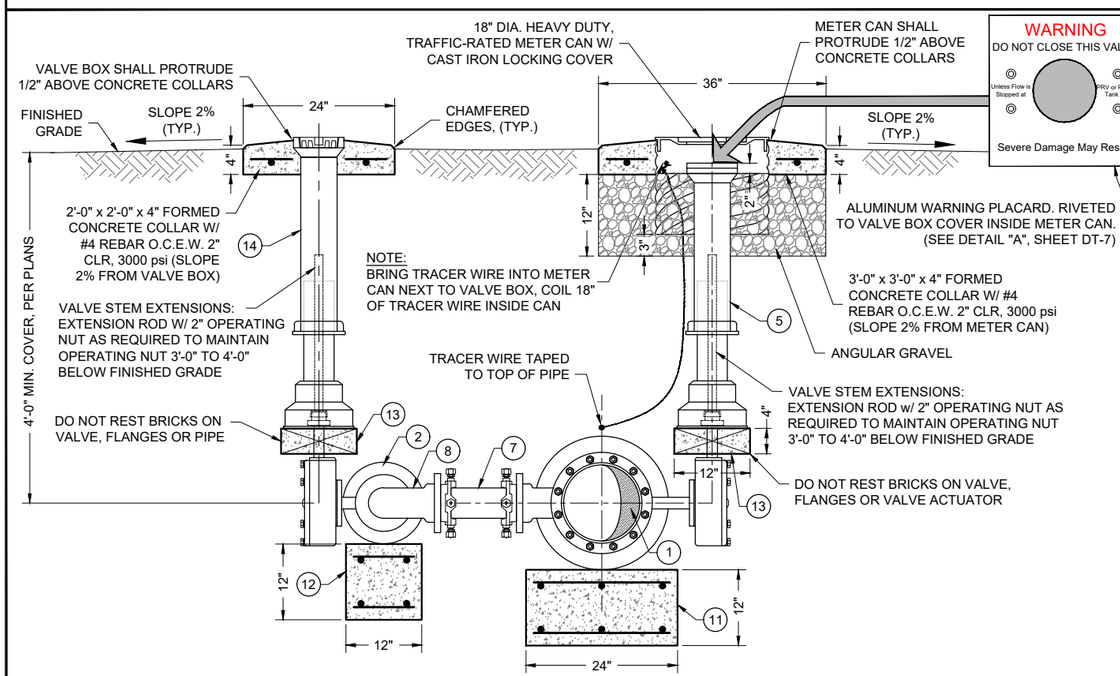


THE DOWNSTREAM EDGES OF THE 1/2" DIA. HOLES SHALL BE BEVELED AS SHOWN



ORIFICE PLATE ASSEMBLY

NOT TO SCALE



SECTION "A-A"

TYPICAL 10" MAIN LINE BALL VALVE ASSEMBLY WITH BYPASS

0' 2' 4'

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Revision	Date	Description	By	Chk'd
		Cutter Pro-BBC BV Detail.dwg		
		3/20/2017 - 10:50:04 AM - aav		

CLIENT: The Navajo Nation TOWN: Ojo Encino To Pueblo Pintado, NM

PIPELINE BALL VALVE DETAIL
NAVAJO GALLUP WATER SUPPLY PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
AGR	AAV	AGR

100% DESIGN

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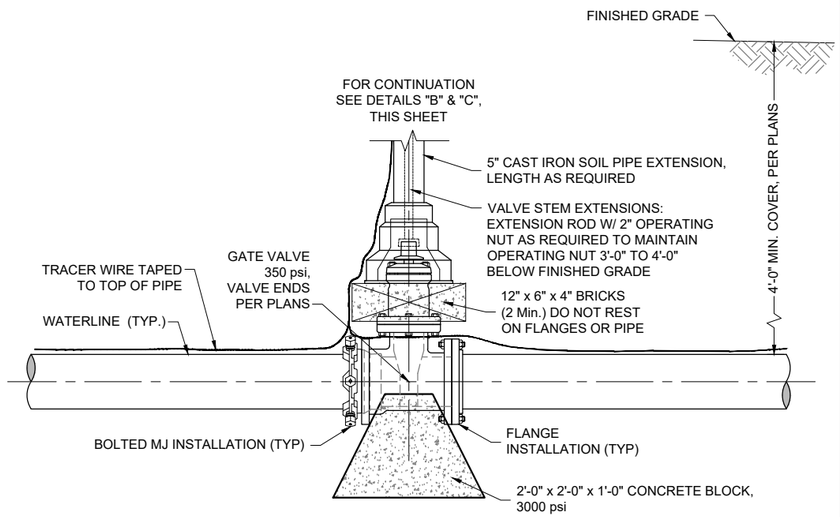
NOTICE OF EXTENDED PAYMENT PROVISION:
THIS CONTRACT ALLOWS THE OWNER TO MAKE PAYMENT WITHIN 45 DAYS AFTER SUBMISSION OF AN UNDISPUTED REQUEST FOR PAYMENT.

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

Date: September 28, 2017
Scale: Horiz: AS SHOWN
Vert: N/A
Project No: 6921307
Sheet: DT-6

NOTES:

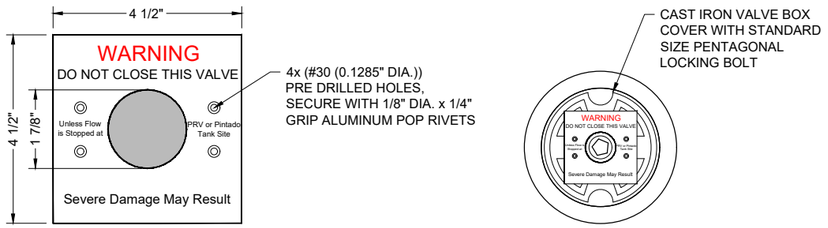
1. CONTRACTOR SHALL SCRIBE ALL CONCRETE VALVE COLLARS, PER DETAILS "B" & "C" THIS SHEET. CONCRETE SHALL BE SCRIBED PRIOR TO CURING OR ETCHED AFTER CURING WITH 4" GRINDER.
2. AFFIX WARNING PLACARD TO VALVE BOX COVER INSIDE METER CAN FOR ALL MAINLINE VALVES.
3. AFFIX ALUMINUM VALVE IDENTIFICATION PLATES TO ALL SITE VALVE COLLARS, PER DETAILS "B" & "C" THIS SHEET. REFER TO SHEET C-53 FOR 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

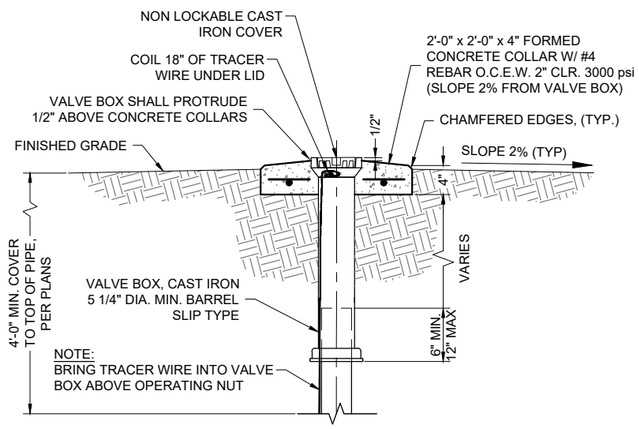


PLAN VIEW

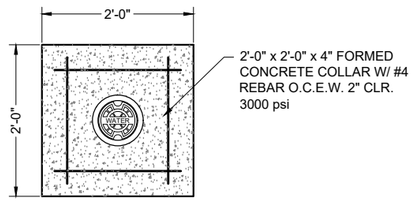
DETAIL "A" TYPICAL WARNING PLACARD DETAIL

NOT TO SCALE

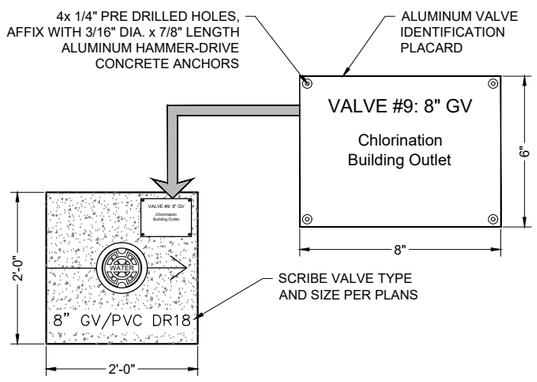
WARNING PLACARD FOR MAINLINE VALVES



ELEVATION VIEW



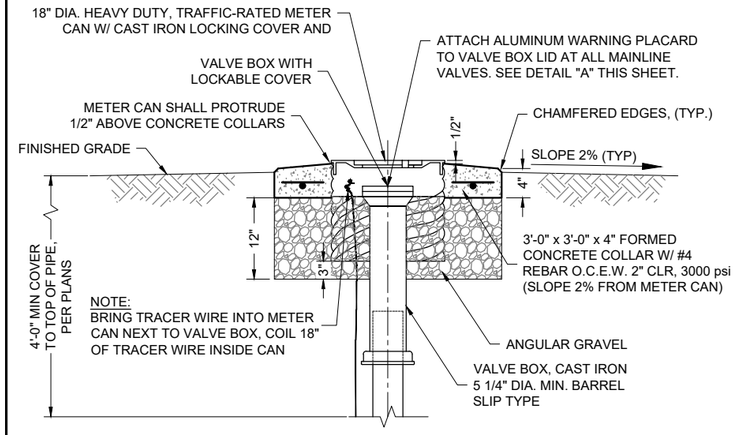
PLAN VIEW - REBAR



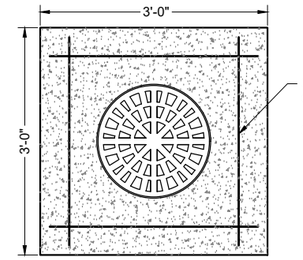
PLAN VIEW - SURFACE

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

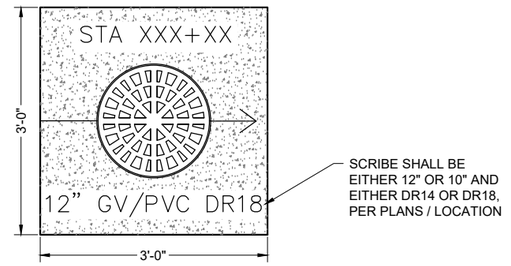
NOT TO SCALE



ELEVATION VIEW



PLAN VIEW - REBAR



PLAN VIEW - SURFACE MAINLINE VALVE COLLAR

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

NOT TO SCALE

Revision	Date	Description	By	Chkd

Cutter-Pro-BIC BV Detail.dwg
10/20/2017 - 10:52:57 AM - amr

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CLIENT: The Navajo Nation TOWN: Ojo Encino To Pueblo Pintado, NM

PIPELINE AND SITE GATE VALVE DETAILS
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
AGR	AAV	AGR

100% DESIGN

PRELIMINARY
NOT FOR CONSTRUCTION

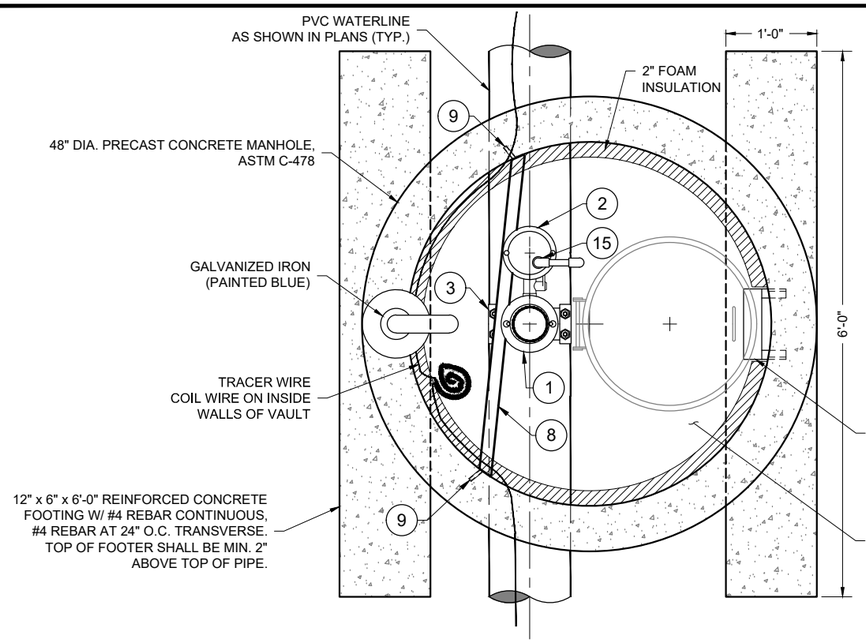
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NOTICE OF EXTENDED PAYMENT PROVISION:
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811 Know what's below. Call before you dig.

Date: September 28, 2017
Scale: Horiz: NONE Vert: N/A
Project No: 6921307
Sheet: DT-7

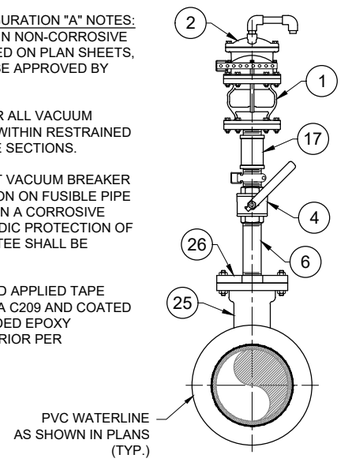
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PLAN VIEW

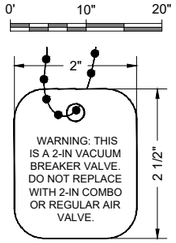
ALTERNATIVE CONFIGURATION "A" NOTES:

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.



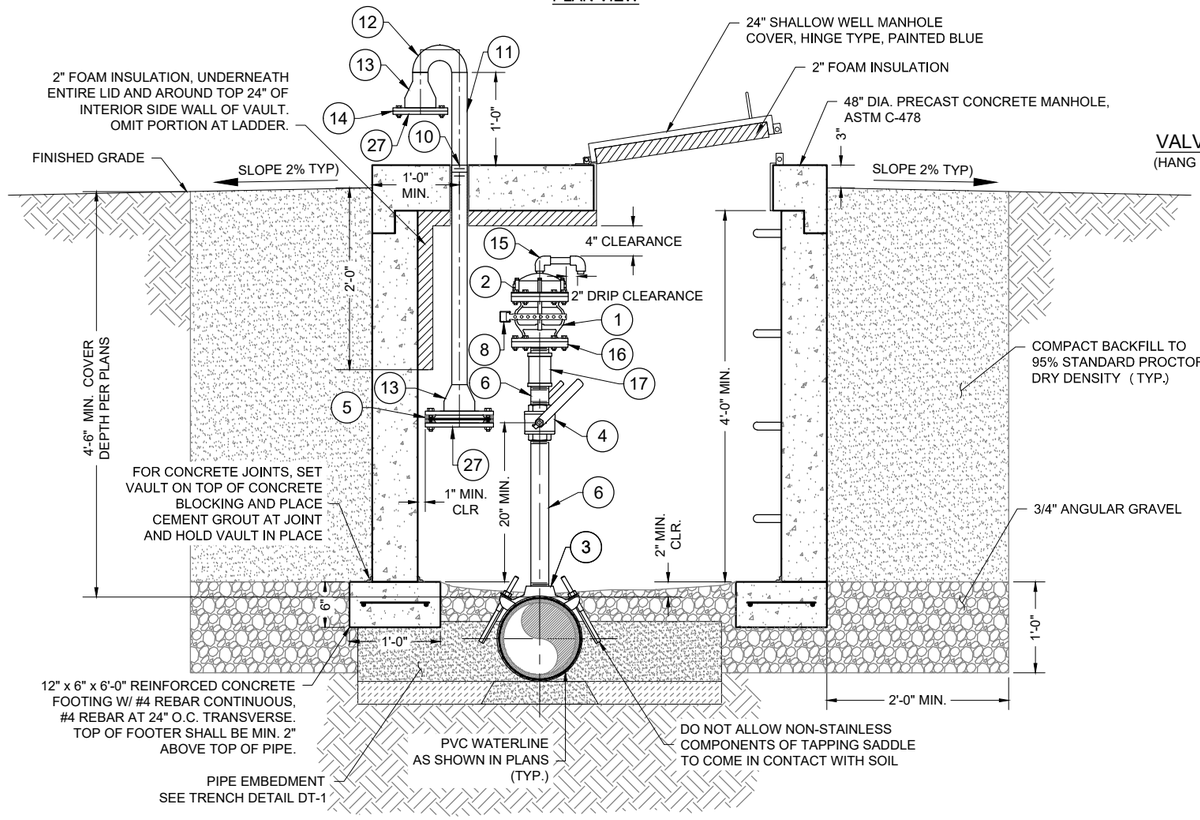
ELEVATION VIEW

ALTERNATIVE CONFIGURATION "A"



VALVE WARNING TAG DETAIL

(HANG FROM 2" VACUUM BREAKER VALVE)



ELEVATION VIEW

VACUUM BREAKER VALVE DETAIL

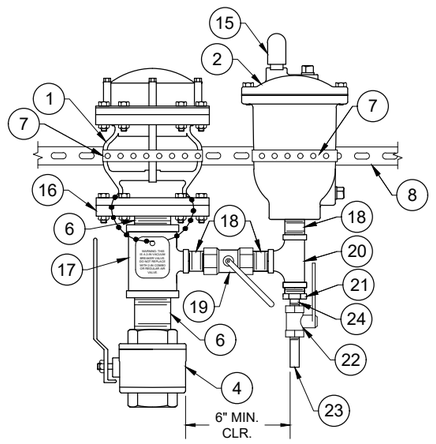
0' 10" 20"

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

Item No.	Description
1	2" VALMATIC MODEL NO. 1852VB.3XFSVH VACUUM BREAKER VALVE W/ SCREENED HOOD, ANSI CLASS 250 FLANGE, 400 psi WP
2	1" VALMATIC MODEL NO. 38HPDISVH AIR RELEASE VALVE, 500 psi WP
3	12" x 2" OR 10" x 2" TAPPING SADDLE, D.I. W/ FUSION BONDED NYLON COATING, SS 304 DUAL STRAPS AND SS 304 BOLT KIT, FNPT, ROMAC 202 NS, OAE, 350 psi WP
4	2" BALL VALVE, STAINLESS STEEL, NPT, 1500 psi WP
5	4" FREEZE PREVENTION DRAFT DAMPENER. VALMATIC FROSTSAFE MODEL #1504, OAE
6	2" NIPPLE, SS 304, NPT
7	GALVANIZED PERFORATED METAL HANGER STRAP
8	1 5/8" GALVANIZED UNI-STRUT(ADJUST AS NEEDED TO FIT BOTH VALVES AND PIPING)
9	2" ANCHOR BOLTS IN EPOXY
10	VENT PIPE W/ EMBEDDED 2" GALVANIZED IRON THREADED COUPLING (PIPE EXTERIOR PAINTED BLUE)
11	2" STD. GALVANIZED IRON PIPE THREADED AT ONE END (PIPE EXTERIOR PAINTED BLUE)
12	2" GALVANIZED IRON LONG RADIUS WELDED RETURN (PIPE EXTERIOR PAINTED BLUE)
13	4" FLANGED x 2" WELDED GALVANIZED IRON REDUCER (PIPE EXTERIOR PAINTED BLUE)
14	VARMINT SCREEN
15	1/2" DOWN SPOUT W/ SCREEN, SCHEDULE 80 PVC
16	2" FLANGE (THREADED), ANSI CLASS 300, SS 304, FLAT FACE
17	2" x 2" x 1" REDUCING TEE, SS 304, NPT, SCHEDULE 40
18	1" x 2" LENGTH NIPPLE, SS 304, NPT
19	1" BALL VALVE, SS 304, NPT, 2000 psi
20	1" TEE, SS 304, SCHEDULE 40
21	1" x 1/4" REDUCING BUSHING, SS 304, NPT
22	1/4" BALL VALVE, SS 304, NPT, 2000 psi
23	1/4" x 2" LENGTH NIPPLE, SS 304, NPT x PE
24	1/4" x CLOSE NIPPLE, SS 304, NPT
25	14" x 14" x 4" OR 10" x 10" x 4" MJ x MJ REDUCING TEE, D.I., 350 psi WP
26	4" x 2" TAPPED THREADED MJ PLUG, D.I., 350 psi, FBE COATED
27	4" GALVANIZED IRON COMPANION FLANGE, DRILLED TO FIT

NOTES:

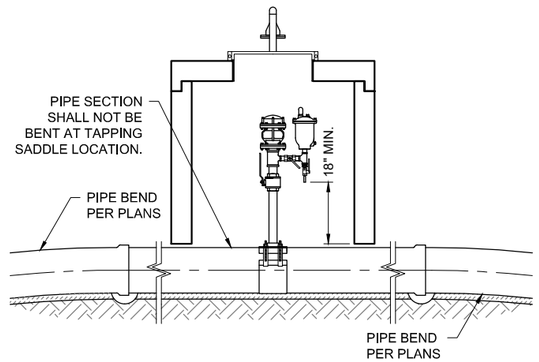
1. ALL FLANGES SHALL BE FLAT FACED, UNLESS OTHERWISE NOTED.
2. ALL NON-STAINLESS METALLIC PIPE, VALVES AND FITTINGS SHALL BE FBE-COATED, INTERIOR AND EXTERIOR. ALL NON-STAINLESS METALLIC PIPE IN CONTACT WITH SOIL SHALL ALSO BE COLD APPLIED TAPE-COATED PER AWWA C209.
3. VACUUM BREAKER TO BE LOCATED IN FIELD BY ENGINEER.
4. COIL TRACER WIRE ON INSIDE WALLS OF VAULT.
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 ETCH ALL VACUUM BREAKER VAULT LIDS WITH 4" GRINDER AS FOLLOWS: PIPE STATION, VALVE SIZE, "ARV / VB", PIPE SIZE AND MATERIAL, WITH DIRECTIONAL ARROWS.
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.



FRONT ELEVATION VIEW

VACUUM BREAKER VALVE DETAIL

N.T.S.



ELEVATION VIEW

PIPE BENDING RESTRICTIONS FOR USE WITH TAPPING SADDLE

N.T.S.

Revision	Date	Description	By	Chk'd

Color Pro:BBC Air Valve Details.dwg
8/25/2017 8:46:01 PM aav

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CLIENT: The Navajo Nation TOWN: Ojo Encino To Pueblo Pintado, NM

2-INCH VACUUM BREAKER WITH
1-INCH AIR RELEASE VALVE DETAIL
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
AGR	AAV	AGR

100% DESIGN

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

Date: September 25, 2017

Scale: Horiz: AS SHOWN
Vert: N/A

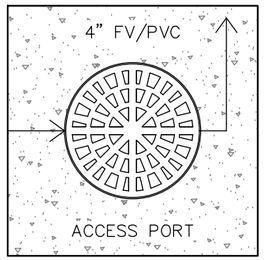
Project No: 6921307

Sheet: DT-8

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BALL VALVE

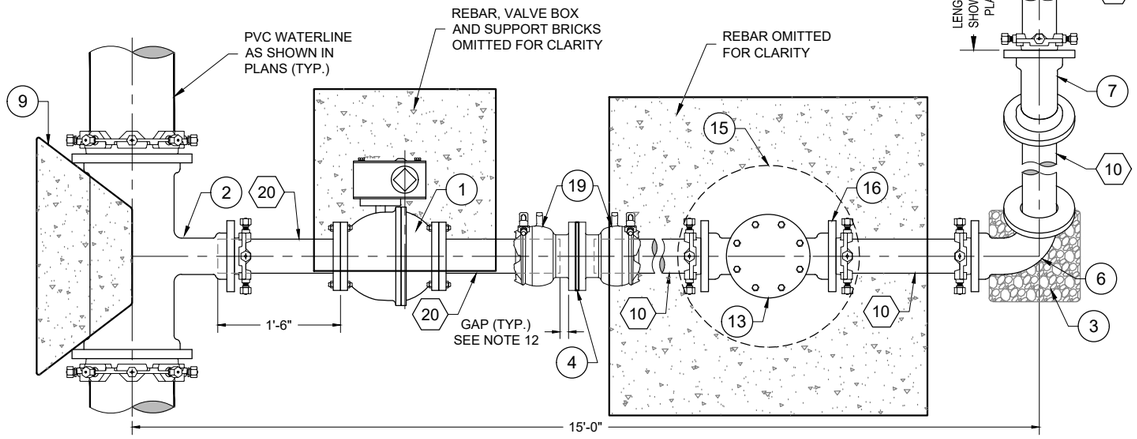


ACCESS PORT

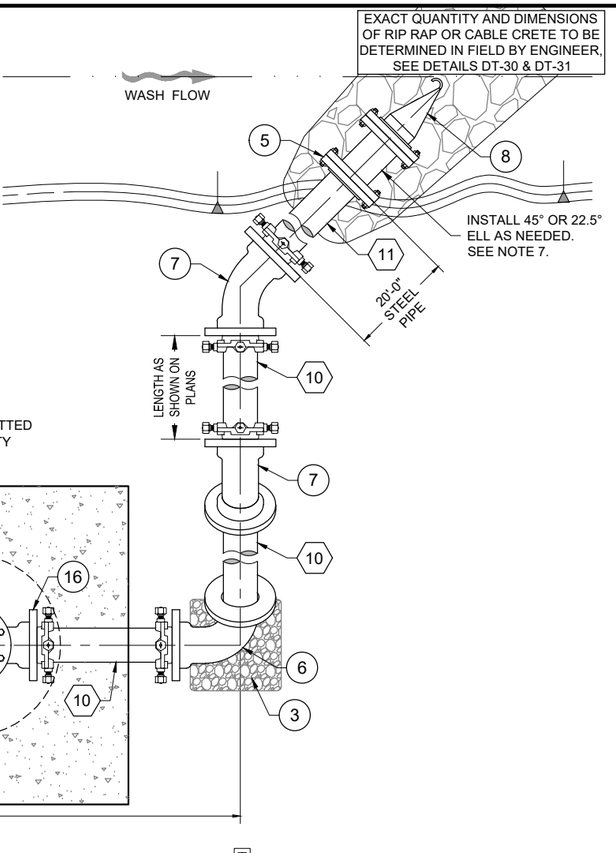
NOTE:
CONCRETE SHALL BE SCRIBED PRIOR TO CURING OR ETCHED AFTER CURING WITH A 4" GRINDER.

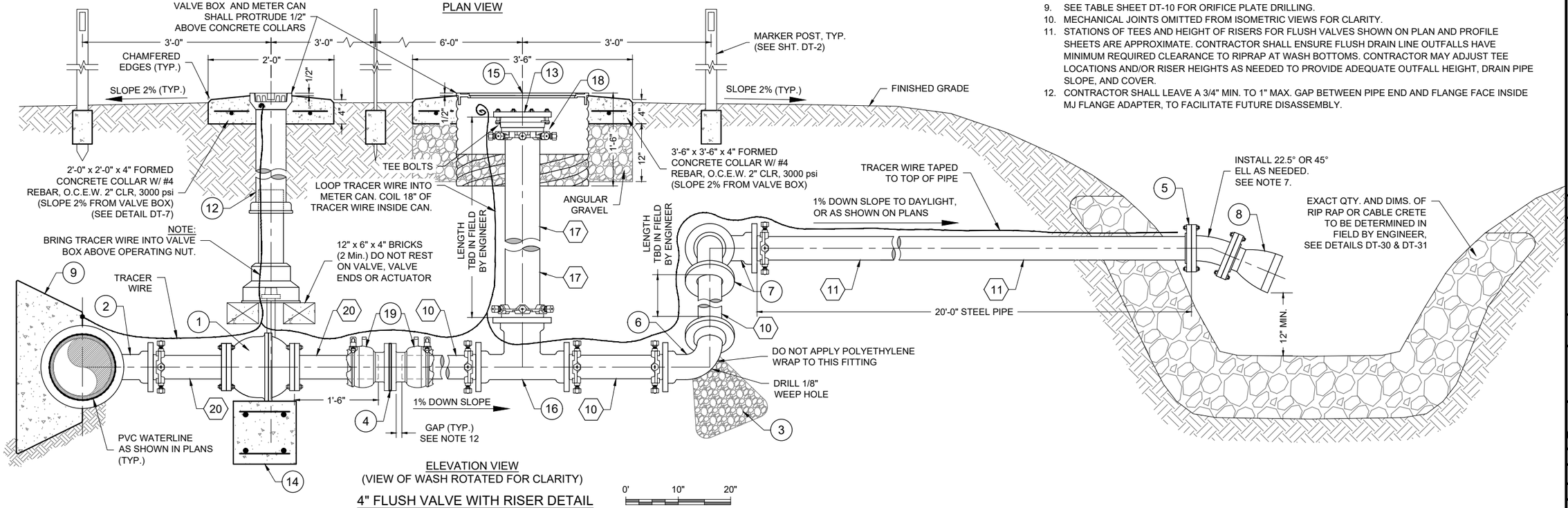
COLLAR SCRIBING DETAIL

NOT TO SCALE



PLAN VIEW





ELEVATION VIEW
(VIEW OF WASH ROTATED FOR CLARITY)

4" FLUSH VALVE WITH RISER DETAIL

0' 10" 20"

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KEYED NOTES - 4" FLUSH VALVE WITH RISER

Item No.	Description
1	4" BALL VALVE, FL x FL, ANSI CLASS 250, 300 psi
2	12" x 4" OR 10" x 4" MJ REDUCING TEE, D.I., 350 psi, AS SHOWN ON PLANS
3	ROUNDED ROCK (2 CU. YD.)
4	3/8" THK. STAINLESS STEEL ORIFICE PLATE, ANSI CLASS 150 DRILLING PATTERN (SEE SHEET DT-10 FOR ORIFICE SIZE AND DETAIL)
5	4" STEEL FLANGE, FLAT FACED, ANSI CLASS 150
6	4" 90° MJ ELL, D.I., 350 psi (ROTATED 45° TOWARDS FINISHED GRADE)
7	4" 45° MJ ELL, D.I., 350 psi
8	4" FLANGED RUBBER CHECK VALVE, ANSI CLASS 150
9	THRUST BLOCK (SEE DETAIL DT-3)
10	4" PVC PIPE, DR18
11	4" STEEL PIPE, STANDARD WALL
12	VALVE BOX SLIP TYPE WITH NON LOCKABLE CAST IRON COVER (SEE TYPICAL GATE VALVE DETAIL, SHEET DT-7)
13	6" BLIND FLANGE, FLAT FACED, ANSI CLASS 150
14	1'-0" x 1'-0" x 1'-0" CONCRETE BLOCK, 3000 psi, W/ #4 REBAR 8" O.C.E.W., 2" CLR.
15	24" DIA. HEAVY DUTY, TRAFFIC-RATED METER CAN W/ 20 3/8" Ø OPENING WITH CAST IRON LOCKING COVER AND FORMED CONCRETE COLLAR, (3000 psi W/ #4 REBAR), DASHED FOR CLARITY
16	4" x 4" x 6" MJ BULLHEAD TEE OR 4" x 4" x 4" MJ TEE W/ 6" x 4" MJ REDUCER, D.I., 350 psi
17	6" PVC PIPE, DR18
18	6" ANSI CLASS 125 FLANGE ADAPTER, MEGAFLANGE SERIES 2100 W/ TEE BOLTS POINTED UP, OAE, 235 psi
19	4" RESTRAINED ANSI CLASS 125 FLANGE COUPLING, ROMAC ALPHA SERIES, OAE, RATED TO PRESSURE RATING OF PIPE
20	4" x 1'-6" LENGTH FL x PLAIN END SPOOL, D.I., ANSI CLASS 250 FLANGE, 350 psi WP

NOTES:

1. ALL NON STAINLESS METALLIC PIPE, VALVES AND FITTINGS SHALL BE FBE-COATED, INTERIOR AND EXTERIOR. ALL NON STAINLESS METALLIC PIPE IN CONTACT WITH SOIL SHALL ALSO BE COLD APPLIED TAPE-COATED PER SPECIFICATIONS.
2. ORIENTATION AND LOCATION OF OUTLET TO BE DETERMINED IN FIELD BY ENGINEER.
3. APPLY CATHODIC PROTECTION TO ALL BURIED METALLIC WATER-CARRYING COMPONENTS LOCATED WITHIN CORROSIVE SOIL ZONES, AS DESIGNATED IN THE PLANS AND/OR SPECIFICATIONS.
4. ALL NON STAINLESS STEEL PIPE AND FITTINGS SHALL BE STANDARD WALL. ALL STAINLESS STEEL PIPE AND FITTINGS SHALL HAVE A WORKING PRESSURE OF AT LEAST 350 psi, UNLESS OTHERWISE NOTED.
5. ALL FLUSH VALVE COMPONENTS SHALL REMAIN WITHIN THE 40' PERMANENT RIGHT-OF-WAY. 4" PVC PIPING PARALLEL TO MAIN LINE SHALL BE ANGLED SLIGHTLY TOWARD MAIN LINE, AS NEEDED, SO THAT RUBBER CHECK VALVE REMAINS WITHIN 40' PERMANENT RIGHT-OF-WAY. EROSION CONTROL MEASURES MAY EXTEND INTO TEMPORARY CONSTRUCTION EASEMENT.
6. RESTRAIN PVC DRAIN LINES PER SHEET DT-3.
7. INSTALL 22.5° OR 45° ELL AT PIPE OUTLET AS NEEDED TO DIRECT WATER FLOW INTO THE RIPRAP. DO NOT ALLOW WATER OUTFLOW TO HIT UNARMORED SOIL.
8. ALL MATERIALS RATED TO AT LEAST MAINLINE PIPE PRESSURE RATING, UNLESS OTHERWISE NOTED.
9. SEE TABLE SHEET DT-10 FOR ORIFICE PLATE DRILLING.
10. MECHANICAL JOINTS OMITTED FROM ISOMETRIC VIEWS FOR CLARITY.
11. STATIONS OF TEES AND HEIGHT OF RISERS FOR FLUSH VALVES SHOWN ON PLAN AND PROFILE SHEETS ARE APPROXIMATE. CONTRACTOR SHALL ENSURE FLUSH DRAIN LINE OUTFALLS HAVE MINIMUM REQUIRED CLEARANCE TO RIPRAP AT WASH BOTTOMS. CONTRACTOR MAY ADJUST TEE LOCATIONS AND/OR RISER HEIGHTS AS NEEDED TO PROVIDE ADEQUATE OUTFALL HEIGHT, DRAIN PIPE SLOPE, AND COVER.
12. CONTRACTOR SHALL LEAVE A 3/4" MIN. TO 1" MAX. GAP BETWEEN PIPE END AND FLANGE FACE INSIDE MJ FLANGE ADAPTER, TO FACILITATE FUTURE DISASSEMBLY.

Revision	Date	Description	By	Ck'd

Cutter Pro:BIC Flush Valve Details.dwg
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CLIENT: The Navajo Nation TOWN: Ojo Encino To Pueblo Pintado, NM

4-INCH FLUSH VALVE WITH RISER DETAIL
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
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NOTICE OF EXTENDED PAYMENT PROVISION:
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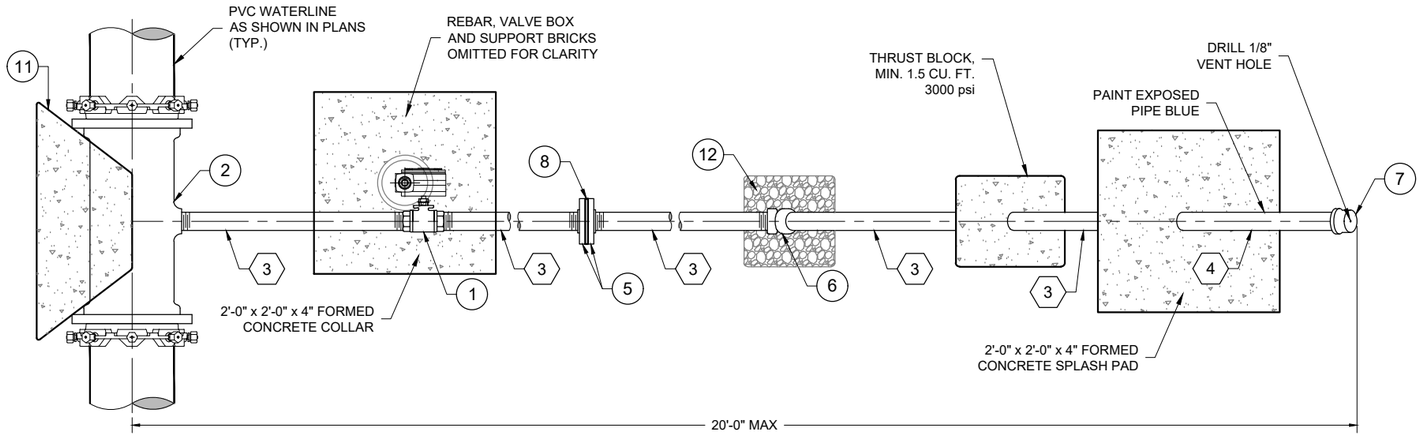
Date: September 27, 2017
Scale: Horiz: AS SHOWN Vert: N/A
Project No: 6921307
Sheet: DT-9



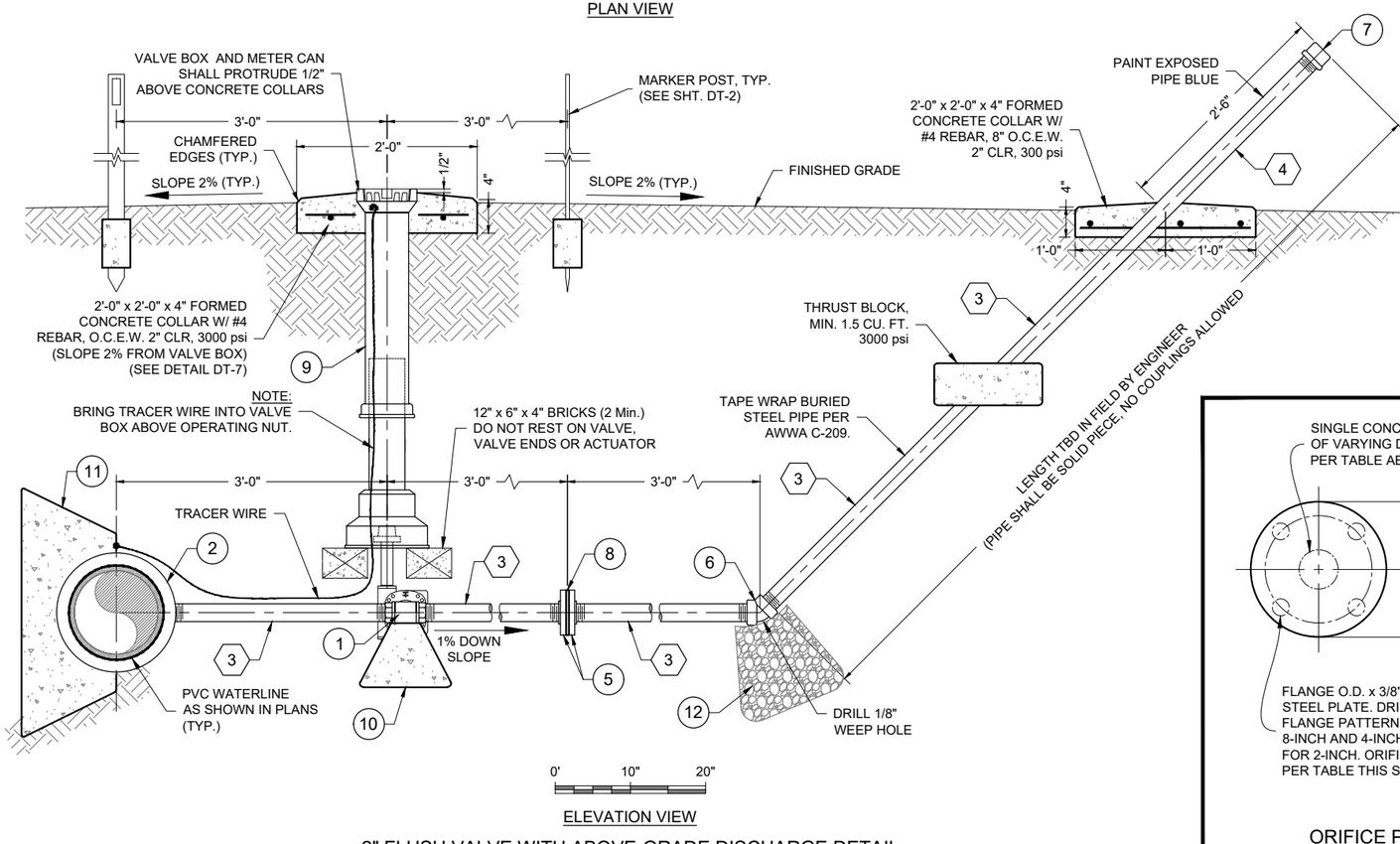
NOTE:
CONCRETE SHALL BE SCRIBED
PRIOR TO CURING OR ETCHED
AFTER CURING WITH A 4" GRINDER.

COLLAR SCRIBING DETAIL

NOT TO SCALE



PLAN VIEW



ELEVATION VIEW

2" FLUSH VALVE WITH ABOVE-GRADE DISCHARGE DETAIL

KEYED NOTES - 2" FLUSH VALVE WITH ABOVE GRADE DISCHARGE

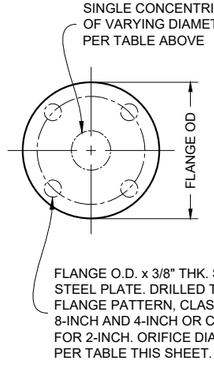
Item No.	DESCRIPTION
1	2" BALL VALVE, SS 304, STANDARD PORT, NPT, W/ AUMA WORM GEARBOX, 1500 psi
2	12" x 2" OR 10" x 2" MJ TAPPED TEE, D.I., 350 psi, AS SHOWN ON PLANS
3	2" STEEL PIPE, STANDARD WALL, NPT, TAPE COATED BELOW GRADE
4	2" STEEL PIPE, STANDARD WALL, NPT, PAINTED BLUE ABOVE GRADE
5	2" STEEL COMPANION FLANGE, FLAT FACED, NPT, ANSI CLASS 300
6	2" STEEL 45° ELL, NPT, 300 psi
7	2" STEEL CAP, NPT, 300 psi, W/ 1/8" VENT HOLE
8	3/8" THK. STAINLESS STEEL ORIFICE PLATE, DRILLED TO MATE WITH ANSI CLASS 300 FLANGE (SEE TABLE, THIS SHEET FOR ORIFICE SIZE)
9	VALVE BOX SLIP TYPE WITH NON LOCKABLE CAST IRON COVER (SEE DETAIL DT-7)
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.)

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.

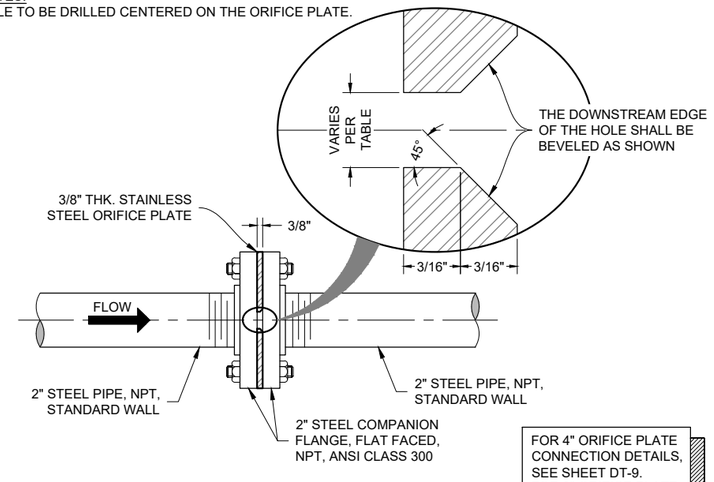
SUMMARY OF FLUSH VALVE TYPE AND ORIFICE PLATE DRILLING

Station	Orifice Plate Hole Ø (in.)	Size / Outfall Type
50+45±	2.15	4" Wash Outfall With Riser
158+50	1.46	2" Above Grade Discharge
271+95	1.46	2" Above Grade Discharge
389+23	1.46	2" Above Grade Discharge
567+20	1.25	2" Above Grade Discharge
659+13±	1.60	4" Wash Outfall With Riser
765+32±	1.58	4" Wash Outfall With Riser
844+00±	1.49	4" Wash Outfall With Riser
907+19	1.46	2" Above Grade Discharge
Pueblo Pintado Tank Site	2.70	8" Wash Outfall

NOTES:
HOLE TO BE DRILLED CENTERED ON THE ORIFICE PLATE.



ORIFICE PLATE
NOT TO SCALE



2" FLUSH VALVE

ORIFICE PLATE ASSEMBLY
NOT TO SCALE

FOR 4" ORIFICE PLATE CONNECTION DETAILS, SEE SHEET DT-9.
FOR 8" ORIFICE PLATE CONNECTION DETAILS, SEE SHEET C-52.

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Revision	Date	Description	By	Ck'd

Color Pro-BSC Flush Valve Details.dwg
9/25/2017 - 4:57:05 PM - aav

CLIENT: The Navajo Nation TOWN: Ojo Encino To Pueblo Pintado, NM

2-INCH FLUSH VALVE WITH
ABOVE-GRADE DISCHARGE
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
AGR	AAV	AGR

100% DESIGN

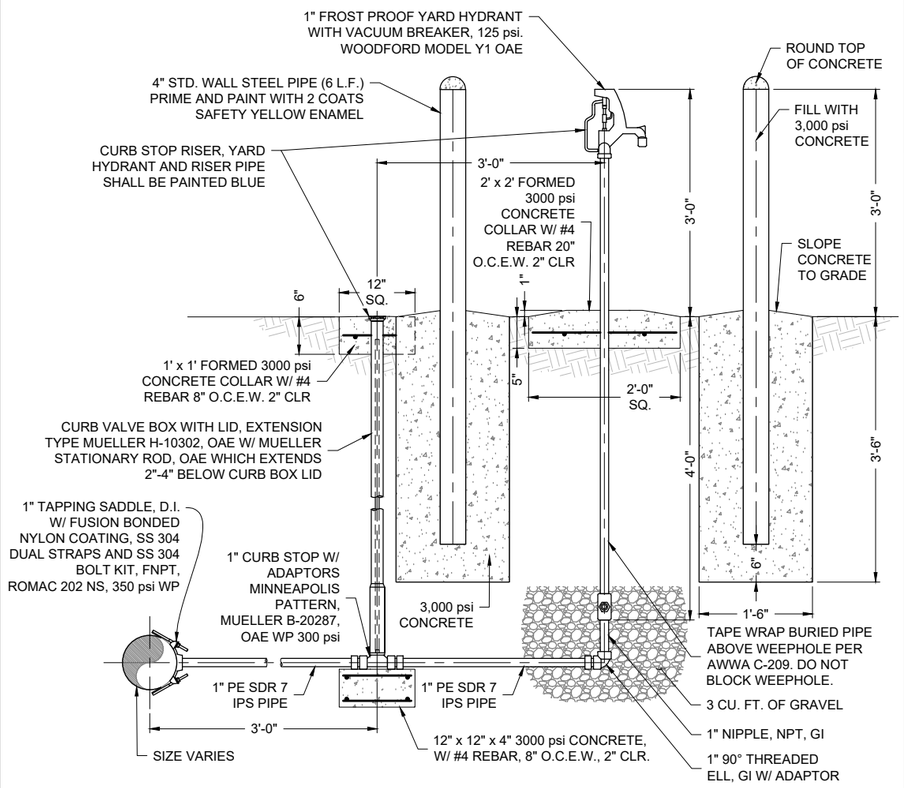
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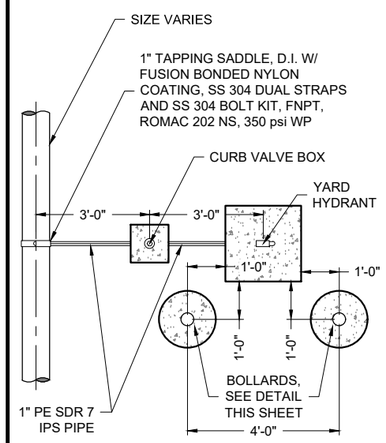
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Sheet: DT-10



YARD HYDRANT AND ASSEMBLY DETAIL

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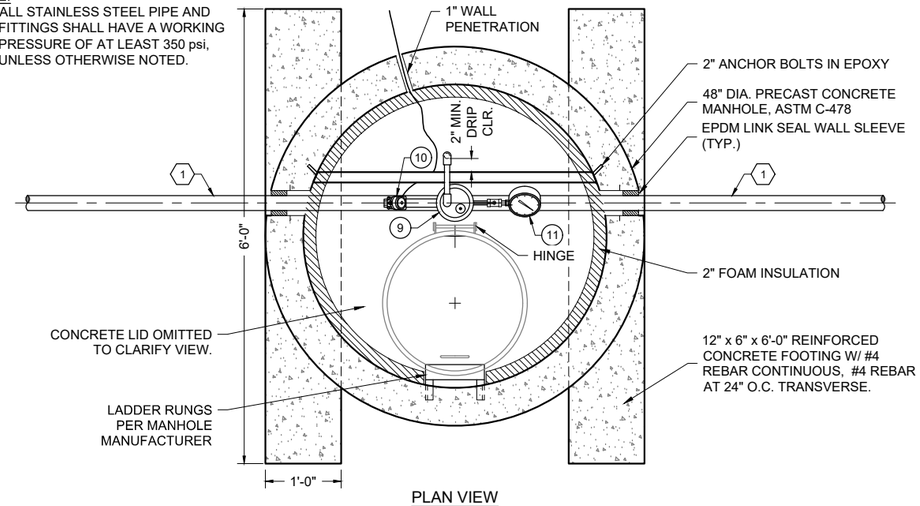


YARD HYDRANT AND ASSEMBLY PLAN VIEW DETAIL

NOT TO SCALE

KEYED NOTES - PRESSURE TRANSDUCER VAULT	
Item No.	Description
1	2" STEEL PIPE, NPT, SCHEDULE 40 (SEE NOTE #2, THIS SHEET)
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 15A.3DISVH, 175 psi W/ 1/2" SS 304 BALL VALVE, 1500 psi & 1/2" SCHEDULE 80 PVC RETURN
10	VERTICAL MOUNT PRESSURE TRANSDUCER 0-30 psi, AMETEK 88C, W/ 1/2" SS 304 BALL VALVE, 2000 psi
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

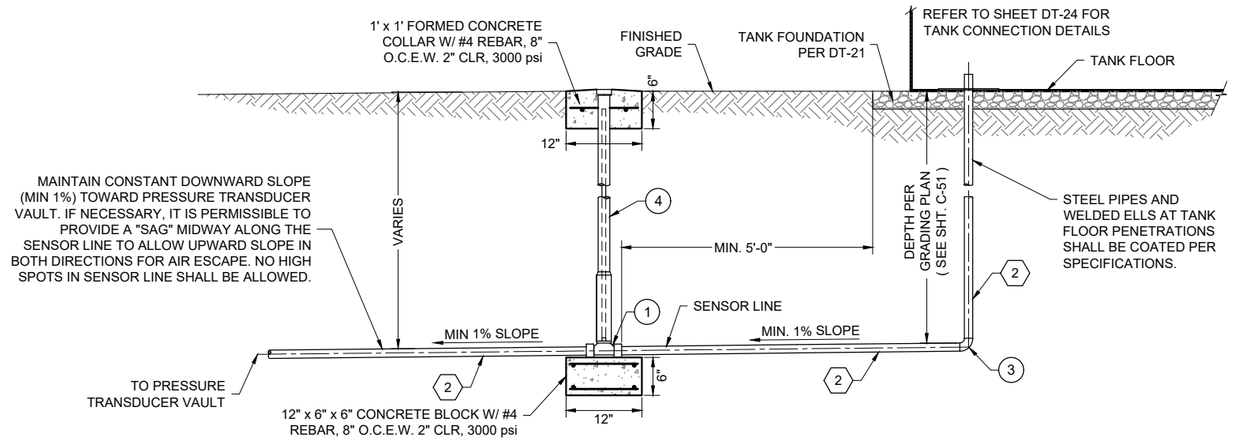
NOTE:
1. ALL STAINLESS STEEL PIPE AND FITTINGS SHALL HAVE A WORKING PRESSURE OF AT LEAST 350 psi, UNLESS OTHERWISE NOTED.



PLAN VIEW

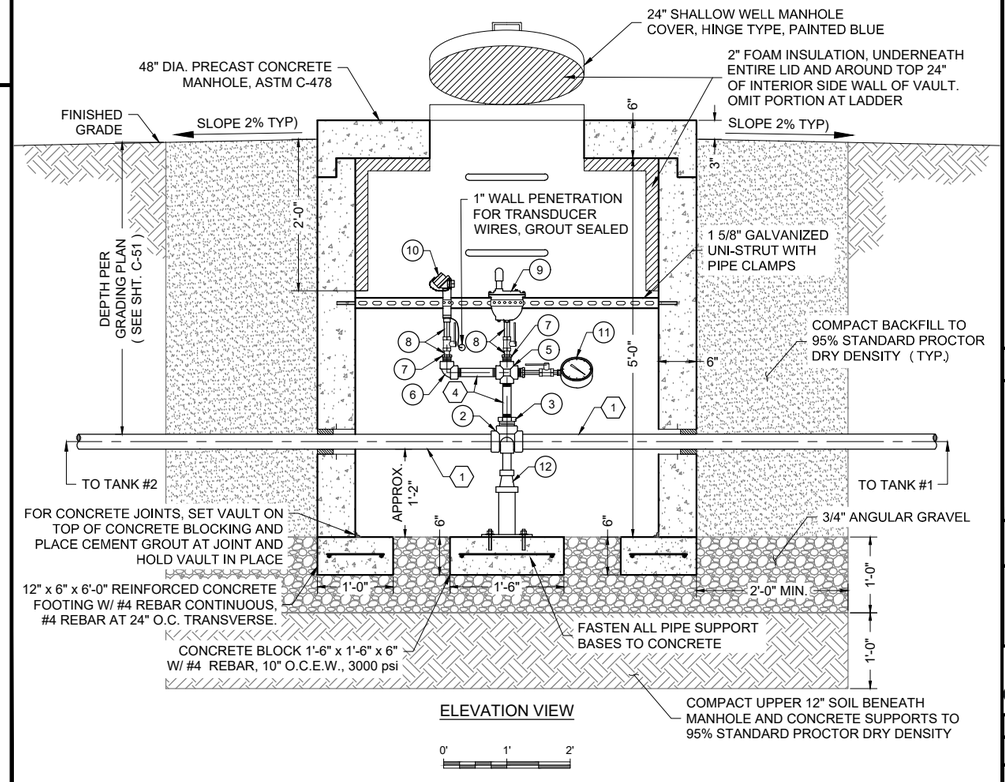
KEYED NOTES - 2" SENSOR PIPE CONNECTION	
Item No.	Description
1	2" BALL CURB VALVE, FNPT, MINNEAPOLIS PATTERN, MUELLER B-20287, OAE WP 300 psi, OAE (COVER PAINTED BLUE)
2	2" STEEL PIPE, NPT, SCHEDULE 40 (SEE NOTE #2, THIS SHEET)
3	2" 90° ELL, WELDED STEEL (SEE NOTE #2, THIS SHEET)
4	CURB STOP BOX, EXTENSION 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 PIPE CONNECTION TO TANK

NOT TO SCALE



ELEVATION VIEW

PRESSURE TRANDSUCER VAULT DETAIL

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CLIENT: The Navajo Nation TOWN: Ojo Encino To Pueblo Pintado, NM

YARD HYDRANT, SENSOR LINE & TRANSDUCER VAULT DETAILS
NAVAJO GALLUP WATER SUPPLY PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

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Date: September 25, 2017
Scale: Horiz: AS SHOWN Vert: N/A
Project No: 6921307
Sheet: DT-11

NOTES:

1) INSTALL 6" DR 18 PVC DRAIN LINES TO DAYLIGHT WITH LAST (MIN.) 20 L.F. TAPE WRAPPED DUCTILE IRON PIPE. INSTALL 6" FLANGED RUBBER CHECK VALVES AT BLOWOFF VALVE OUTFALL AND SUMP OUTFALL. REFER TO PLAN AND PROFILE SHEET C-24 FOR DRAIN PIPE SLOPES.

2) ALL NONSTAINLESS METALLIC PIPE, VALVES & FITTINGS SHALL BE SAND BLASTED AND FBE COATED, INTERIOR & EXTERIOR PER AWWA C-213 AND NSF-61. FINISHED COATING SHALL BE BLUE ENAMEL. ALL METALLIC PIPE IN CONTACT WITH SOIL SHALL ALSO BE COLD APPLIED TAPE-COATED PER SPECS.

3) FLANGES SHALL BE ANSI CLASS 300 (STEEL) OR ANSI CLASS 250 (IRON).

4) ALL STEEL PIPE & FITTINGS SHALL BE STANDARD WALL.

5) ALL GAUGES SHALL BE ANGLED UPWARD TOWARD ACCESS DOOR FOR MAXIMUM VISIBILITY FROM GROUND SURFACE.

6) CONTRACTOR RESPONSIBLE TO PROVIDE ALL FITTINGS NECESSARY (BUSHINGS, FLANGES, ADAPTERS, NIPPLES, ETC) WHETHER EXPLICITLY SHOWN OR NOT, TO COMPLETELY INSTALL ALL ITEMS AS INDICATED.

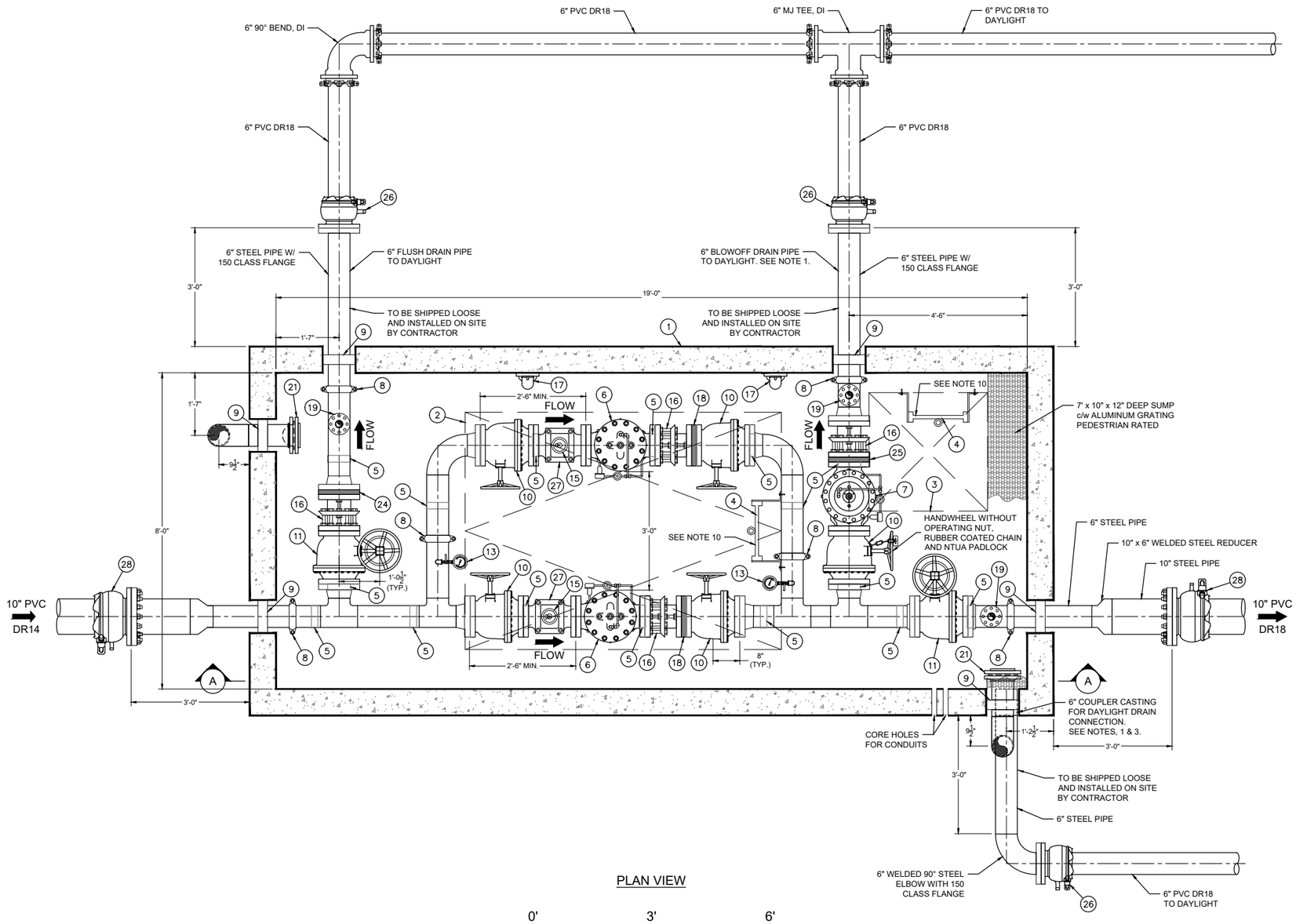
7) RUN TRACER WIRE INSIDE VAULT AND COIL TRACER WIRE ON INSIDE WALLS. RETIGHTEN PROCCO SEALS AND SEAL WITH SILICONE.

8) CONTRACTOR TO VERIFY PIPE BURY, FINISHED GRADE AND VAULT ELEVATIONS PRIOR TO INSTALLATION.

9) ALL MATERIALS SHALL BE LEAD FREE AND NSF-61 COMPLIANT.

10) ADJUST HATCH AND LADDER LOCATIONS TO AVOID INTERFERENCE WITH PIPES AND APPURTENANCES.

11) CAST IRON VALVE BOXES TO BE INSTALLED DIRECTLY ABOVE (2x) 6" BALL VALVE OPERATING NUT ON-SITE BY CONTRACTOR ONCE FINAL VALVE LOCATION VERIFIED.



PLAN VIEW

0' 3' 6'

GRAPHIC SCALE

CONTROL VALVE VAULT

KEYED NOTES

ITEM	QTY.	DESCRIPTION
1	1	PRECAST CONCRETE CHAMBER w/ WHITE INTERIOR & BLACK EXTERIOR SEALANT, 3" SPRAY FOAM INSULATION, PIPESTONE
2	1	CAST IN 96" x 72" ALUMINUM HATCH, PEDESTRIAN LOAD RATING (SEE NOTES)
3	1	CAST IN 36" x 36" ALUMINUM HATCH, PEDESTRIAN LOAD RATING (SEE NOTES)
4	2	ALUMINUM LADDER W/ SAFETY POST ANCHORED TO VAULT OPENING AND FLOOR (SHIPPED LOOSE)
5	16	ADJUSTABLE GALVANIZED STEEL SADDLE PIPE SUPPORTS
6	2	6" CLA-VAL PRESSURE REDUCING, FLOW LIMITING CONTROL VALVE WITH SOLENOID OVERRIDE, INSERTION FLOW METER, VISUAL POSITION INDICATOR, CLASS 300 FLANGE, 400psi WP, AND GROUNDING RINGS.
7	1	6" CLA-VAL PRESSURE RELIEF VALVE, CLOSED POSITION LIMIT SWITCH, DRY POSITION INDICATOR, ANTI-CAVITATION TRIM, CLASS 300 FLANGE, 400psi WP
8	6	6" VICTAULIC 07 ZERO FLEX RIGID COUPLING, 700psi WP
9	6	6" PROCO PEN SEAL ASSEMBLY
10	5	6" VALMATIC 4406 RATED FLANGED BALL VALVE w/ HANDWHEEL & GEAR OPERATOR, DUCTILE IRON, W/ ANSI CLASS 250 FLANGES, 300psi WP
11	2	6" VALMATIC 4406 RATED FLANGED BALL VALVE w/ HANDWHEEL, 2" OPERATING NUT & GEAR OPERATOR, DUCTILE IRON, W/ ANSI CLASS 250 FLANGES, 300psi WP
12	2	CAST IRON VALVE BOX W/ LOCKING LID (SHIPPED LOOSE)
13	2	4" WIKA PRESSURE GAUGE W/ AMETEK 88C-005-A-2 PRESSURE TRANSMITTER, 0-300psi RANGE (SEE DETAIL B, SHT. DT-13)
14	3	4"x6" WELDED TOL UNDERNEATH WITH SS APOLLO BALL VALVE, 300 CLASS W/ ½" NPT x HOSE PLUG
15	2	1" AIR RELEASE VALVE (VALMATIC 38HPDISVH) w/ 1" SS BALL VALVE & 180° VENT RETURN, 1" x 1/2" REDUCER, SS 304, NPT, 500psi WP
16	4	6" ROMAC DJ400 DISTMANTLING JOINT w/ STAINLESS STEEL FASTENERS (CLASS 300 FLANGE RATING), 300psi WP
17	2	DVAKS LED WEATHERPROOF WALL MOUNTED LIGHT FIXTURE (SHIPPED LOOSE) (SEE SHT. E107)
18	2	6" ORIFICE PLATE 3/8" THICK 3.8" CONCENTRIC OPENING SIZE
19	3	VALMATIC 1852VB.3XFSVH/38HPDISVH VACUUM BREAKER W/ HOOD, CLASS 250 FLANGES, 400psi WP (SEE DETAIL A, SHT. DT-13 FOR VACUUM BREAKER ASSEMBLY)
20	3	2" APOLLO 87A-900 SERIES, FLANGED BALL VALVE, CLASS 300 W/ ANSI CLASS 300 FLANGE, 720psi WP
21	2	6" FREEZE PREVENTION DRAFT DAMPENER. VALMATIC FROST MODEL #1506, OAE
22	1	WEATHERPROOF TOGGLE SWITCH FOR VAULT LIGHT MOUNTED AT INSIDE OF HATCH WAY & CHAMBER (SHIPPED LOOSE) (SEE SHT. E107)
23	2	6" SECURITY CAGE, VALMATIC VENTSAFE MODEL #1606, OAE
24	1	6" ORIFICE PLATE 3/8" THICK 1.73" CONCENTRIC OPENING SIZE
25	1	6" ORIFICE PLATE 3/8" THICK 1.87" CONCENTRIC OPENING SIZE
26	3	6" ROMAC RESTRAINED FLANGED COUPLING, ALPHA SERIES, RATED TO PRESSURE RATING OF PIPE
27	2	6" CLA-VAL H STYLE STRAINER, CLASS 300 FLANGE, 400 psi WP
28	2	10" ROMAC RESTRAINED FLANGED COUPLING, ALPHA SERIES, RATED TO PRESSURE RATING OF PIPE

NOTE
INSIDE DIMENSIONS:
19'-0" L x 8'-0" W x 7'-4" H

LOADING: PEDESTRIAN LOAD RATED
ESTIMATED VAULT (BOTTOM) WEIGHT: 45,000 lbs APPROX.
ESTIMATED VAULT LID WEIGHT: 30,000 lbs APPROX.

Revision	Date	Description	By	Chkd

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CLIENT: The Navajo Nation TOWN: Ojo Encino To Pueblo Pintado, NM

PRE FABRICATED CONTROL VALVE VAULT DETAILS (1 of 3)
NAVAJO GALLUP WATER SUPPLY PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
AGR	AAV	AGR

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Sheet: DT-12

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NOTES:

1) INSTALL 6" DR 18 PVC DRAIN LINES TO DAYLIGHT WITH LAST (MIN.) 20 L.F. TAPE WRAPPED DUCTILE IRON PIPE. INSTALL 6" FLANGED RUBBER CHECK VALVES AT BLOWOFF VALVE OUTFALL AND SUMP OUTFALL. REFER TO PLAN AND PROFILE SHEET C-24 FOR DRAIN PIPE SLOPES.

2) ALL NONSTAINLESS METALLIC PIPE, VALVES & FITTINGS SHALL BE SAND BLASTED AND FBE COATED, INTERIOR & EXTERIOR PER AWWA C-213 AND NSF-61. FINISHED COATING SHALL BE BLUE ENAMEL. ALL METALLIC PIPE IN CONTACT WITH SOIL SHALL ALSO BE COLD APPLIED TAPE-COATED PER SPECS.

3) FLANGES SHALL BE ANSI CLASS 300 (STEEL) OR ANSI CLASS 250 (IRON).

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5) ALL GAUGES SHALL BE ANGLED UPWARD TOWARD ACCESS DOOR FOR MAXIMUM VISIBILITY FROM GROUND SURFACE.

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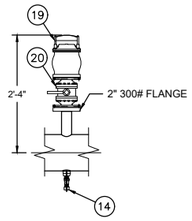
7) RUN TRACER WIRE INSIDE VAULT AND COIL TRACER WIRE ON INSIDE WALLS. RETIGHTEN PROCCO SEALS AND SEAL WITH SILICONE.

8) CONTRACTOR TO VERIFY PIPE BURY, FINISHED GRADE AND VAULT ELEVATIONS PRIOR TO INSTALLATION.

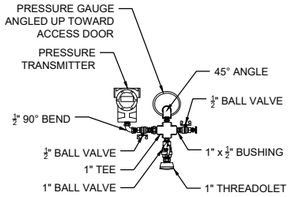
9) ALL MATERIALS SHALL BE LEAD FREE AND NSF-61 COMPLIANT.

10) ADJUST HATCH AND LADDER LOCATIONS TO AVOID INTERFERENCE WITH PIPES AND APPURTENANCES.

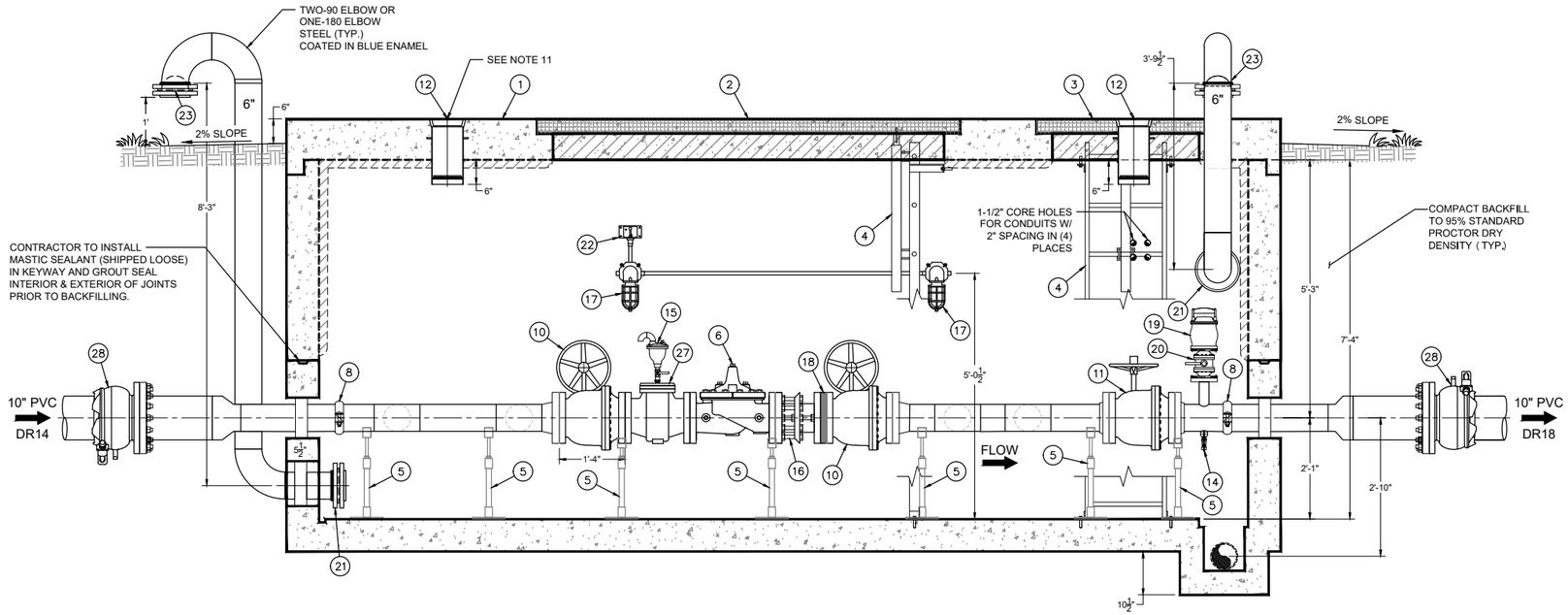
11) CAST IRON VALVE BOXES TO BE INSTALLED DIRECTLY ABOVE (2x) 6" BALL VALVE OPERATING NUT ON-SITE BY CONTRACTOR ONCE FINAL VALVE LOCATION VERIFIED.



DETAIL A



DETAIL B
NTS



SECTION A-A

0' 3' 6'

GRAPHIC SCALE

CONTROL VALVE VAULT

KEYED NOTES

ITEM	QTY.	DESCRIPTION
1	1	PRECAST CONCRETE CHAMBER w/ WHITE INTERIOR & BLACK EXTERIOR SEALANT, 3" SPRAY FOAM INSULATION, PIPESTONE
2	1	CAST IN 96" x 72" ALUMINUM HATCH, PEDESTRIAN LOAD RATING (SEE NOTES)
3	1	CAST IN 36" x 36" ALUMINUM HATCH, PEDESTRIAN LOAD RATING (SEE NOTES)
4	2	ALUMINUM LADDER W/ SAFETY POST ANCHORED TO VAULT OPENING AND FLOOR (SHIPPED LOOSE)
5	16	ADJUSTABLE GALVANIZED STEEL SADDLE PIPE SUPPORTS
6	2	6" CLA-VAL PRESSURE REDUCING, FLOW LIMITING CONTROL VALVE WITH SOLENOID OVERRIDE, INSERTION FLOW METER, VISUAL POSITION INDICATOR, CLASS 300 FLANGE, 400psi WP, AND GROUNDING RINGS.
7	1	6" CLA-VAL PRESSURE RELIEF VALVE, CLOSED POSITION LIMIT SWITCH, DRY POSITION INDICATOR, ANTI-CAVITATION TRIM, CLASS 300 FLANGE, 400psi WP
8	6	6" VICTAULIC 07 ZERO FLEX RIGID COUPLING, 700psi WP
9	6	6" PROCO PEN SEAL ASSEMBLY
10	5	6" VALMATIC 4406 RATED FLANGED BALL VALVE w/ HANDWHEEL & GEAR OPERATOR, DUCTILE IRON, W/ ANSI CLASS 250 FLANGES, 300psi WP
11	2	6" VALMATIC 4406 RATED FLANGED BALL VALVE w/ HANDWHEEL, 2" OPERATING NUT & GEAR OPERATOR, DUCTILE IRON, W/ ANSI CLASS 250 FLANGES, 300psi WP
12	2	CAST IRON VALVE BOX W/ LOCKING LID (SHIPPED LOOSE)
13	2	4" WIKA PRESSURE GAUGE W/ AMETEK 88C-005-A-2 PRESSURE TRANSMITTER, 0-300psi RANGE (SEE DETAIL B, SHT. DT-13)
14	3	4x0 3/4" WELDED TOL UNDERNEATH WITH SS APOLLO BALL VALVE, 300 CLASS W/ ½" NPT x HOSE PLUG
15	2	1" AIR RELEASE VALVE (VALMATIC 38HPDISVH) w/ 1" SS BALL VALVE & 180° VENT RETURN, 1" x 1/2" REDUCER, SS 304, NPT, 500psi WP
16	4	6" ROMAC DJ400 DISTMANTLING JOINT w/ STAINLESS STEEL FASTENERS (CLASS 300 FLANGE RATING), 300psi WP
17	2	DVAKS LED WEATHERPROOF WALL MOUNTED LIGHT FIXTURE (SHIPPED LOOSE) (SEE SHT. E107)
18	2	6" ORIFICE PLATE 3/8" THICK 3.8" CONCENTRIC OPENING SIZE
19	3	VALMATIC 1852VB.3XFSVH/38HPDISVH VACUUM BREAKER W/ HOOD, CLASS 250 FLANGES, 400psi WP (SEE DETAIL A, SHT. DT-13 FOR VACUUM BREAKER ASSEMBLY)
20	3	2" APOLLO 87A-900 SERIES, FLANGED BALL VALVE, CLASS 300 W/ ANSI CLASS 300 FLANGE, 720psi WP
21	2	6" FREEZE PREVENTION DRAFT DAMPENER. VALMATIC FROST MODEL #1506, OAE
22	1	WEATHERPROOF TOGGLE SWITCH FOR VAULT LIGHT MOUNTED AT INSIDE OF HATCH WAY & CHAMBER (SHIPPED LOOSE) (SEE SHT. E107)
23	2	6" SECURITY CAGE, VALMATIC VENTSAFE MODEL #1606, OAE
24	1	6" ORIFICE PLATE 3/8" THICK 1.73" CONCENTRIC OPENING SIZE
25	1	6" ORIFICE PLATE 3/8" THICK 1.87" CONCENTRIC OPENING SIZE
26	3	6" ROMAC RESTRAINED FLANGED COUPLING, ALPHA SERIES, RATED TO PRESSURE RATING OF PIPE
27	2	6" CLA-VAL H STYLE STRAINER, CLASS 300 FLANGE, 400 psi WP
28	2	10" ROMAC RESTRAINED FLANGED COUPLING, ALPHA SERIES, RATED TO PRESSURE RATING OF PIPE

NOTE
INSIDE DIMENSIONS:
19'-0" L x 8'-0" W x 7'-4" H

LOADING: PEDESTRIAN LOAD RATED
ESTIMATED VAULT (BOTTOM) WEIGHT: 45,000 lbs APPROX.
ESTIMATED VAULT LID WEIGHT: 30,000 lbs APPROX.

Revision	Date	Description	By	Chkd

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PRE FABRICATED CONTROL VALVE VAULT DETAILS (2 of 3)
NAVAJO GALLUP WATER SUPPLY PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
AGR	AAV	AGR

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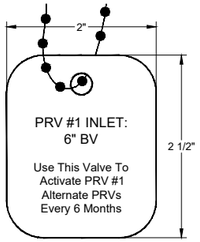
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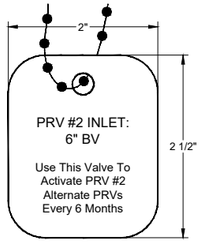
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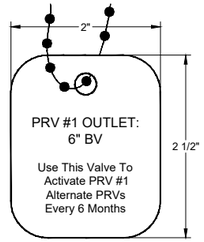
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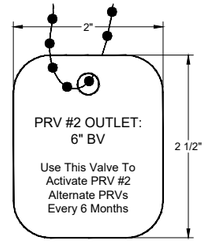
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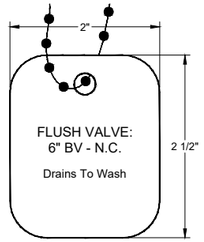
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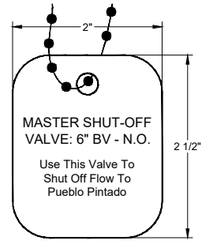
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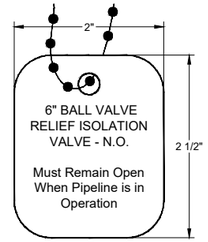
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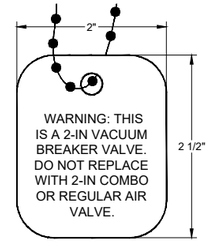
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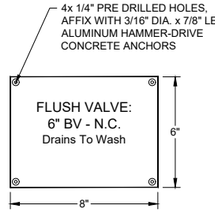
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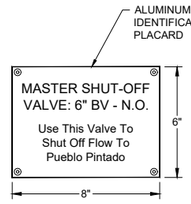
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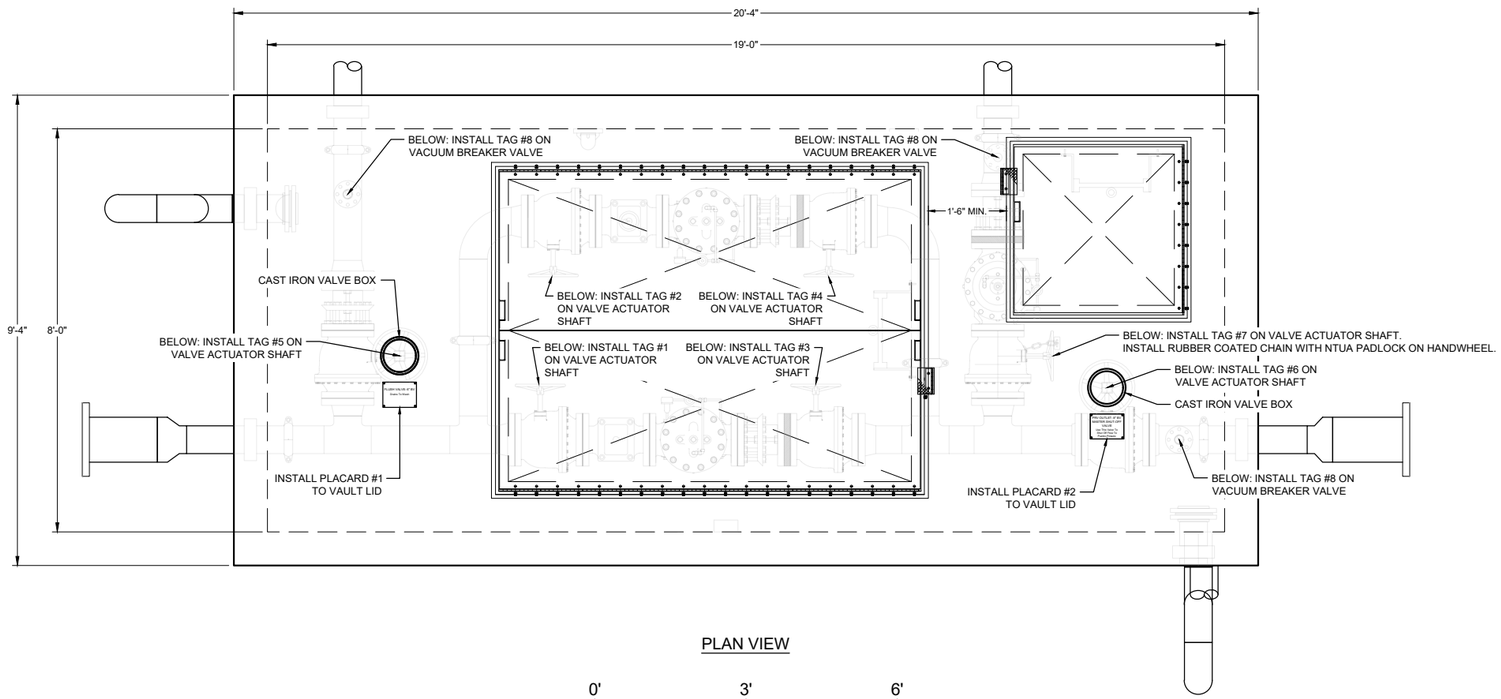
PLACARD #1



PLACARD #2

WARNING PLACARDS AND TAGS FOR CONTROL VALVE VAULT

NOT TO SCALE



PLAN VIEW

0' 3' 6'

GRAPHIC SCALE

CONTROL VALVE VAULT

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PRE FABRICATED CONTROL
VALVE VAULT DETAILS (3 of 3)
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

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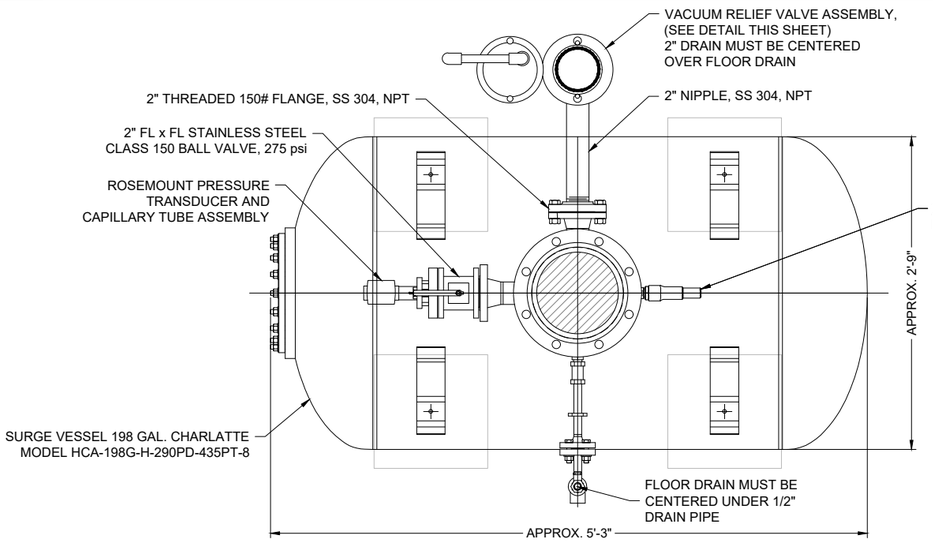
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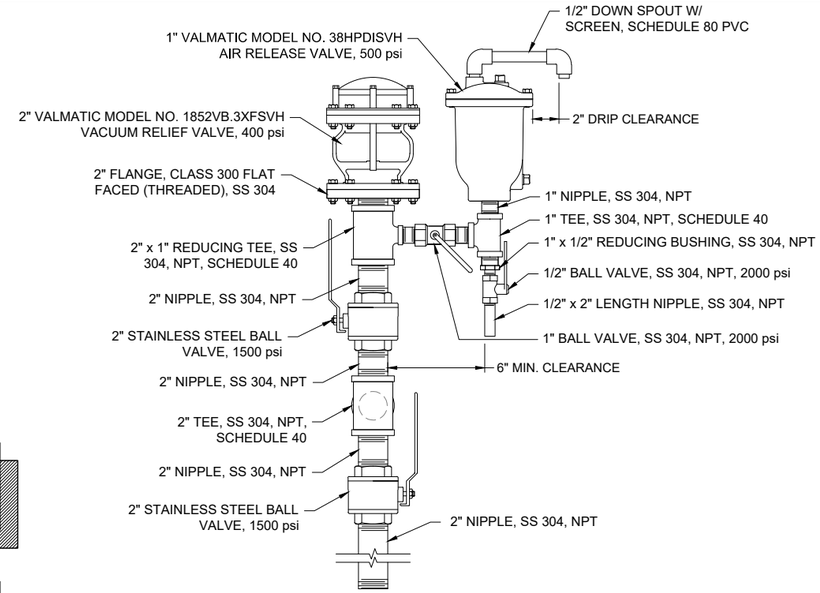


TOP VIEW OF SURGE TANK

3/4" = 1' - 0"

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

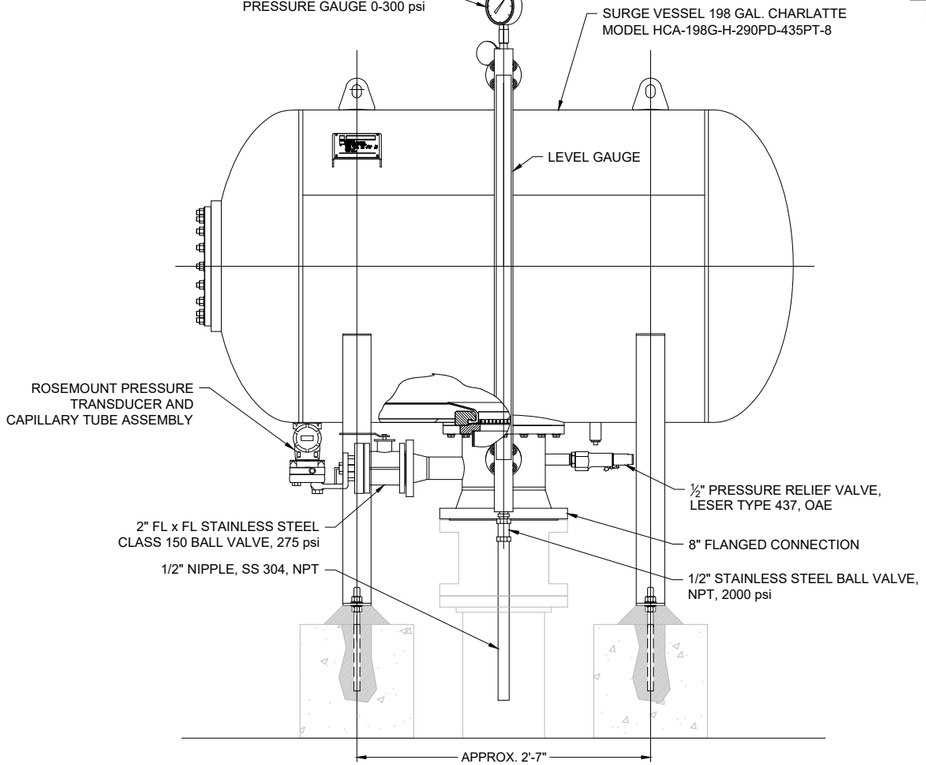
NOTE:
ALL DIMENSIONS RELATED TO TANK SIZES, LEG SPACING, ETC. ARE APPROXIMATE. CONTRACTOR TO FIELD VERIFY ACTUAL TANK DIMENSIONS BEFORE FOUNDATION CONSTRUCTION OR DRAIN PIPE INSTALLATION. PROVIDE MEASUREMENTS TO ENGINEER AS SUBMITTAL.



FRONT ELEVATION VIEW

VACUUM RELIEF VALVE ASSEMBLY DETAIL

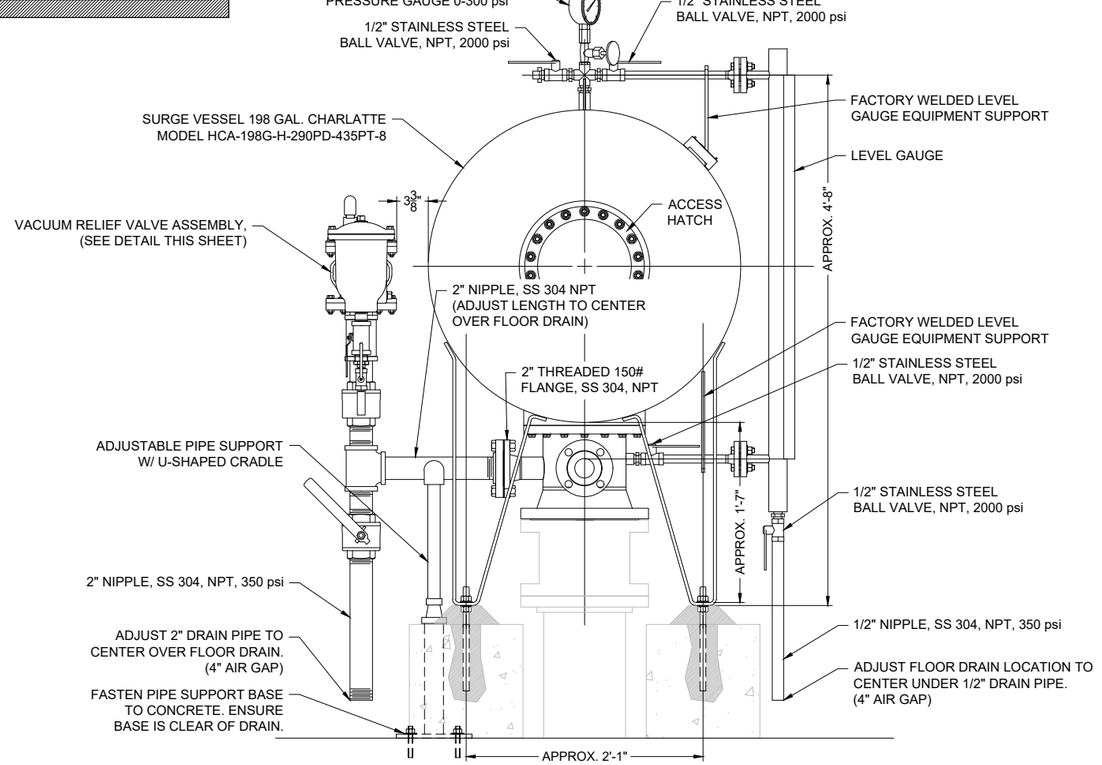
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ELEVATION VIEW OF SURGE TANK

3/4" = 1' - 0"

GRAPHIC SCALE



END VIEW OF SURGE TANK

3/4" = 1' - 0"

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SURGE TANK DETAILS

NAVAJO GALLUP WATER SUPPLY PROJECT - REACHES 26.1 & 26.2

SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

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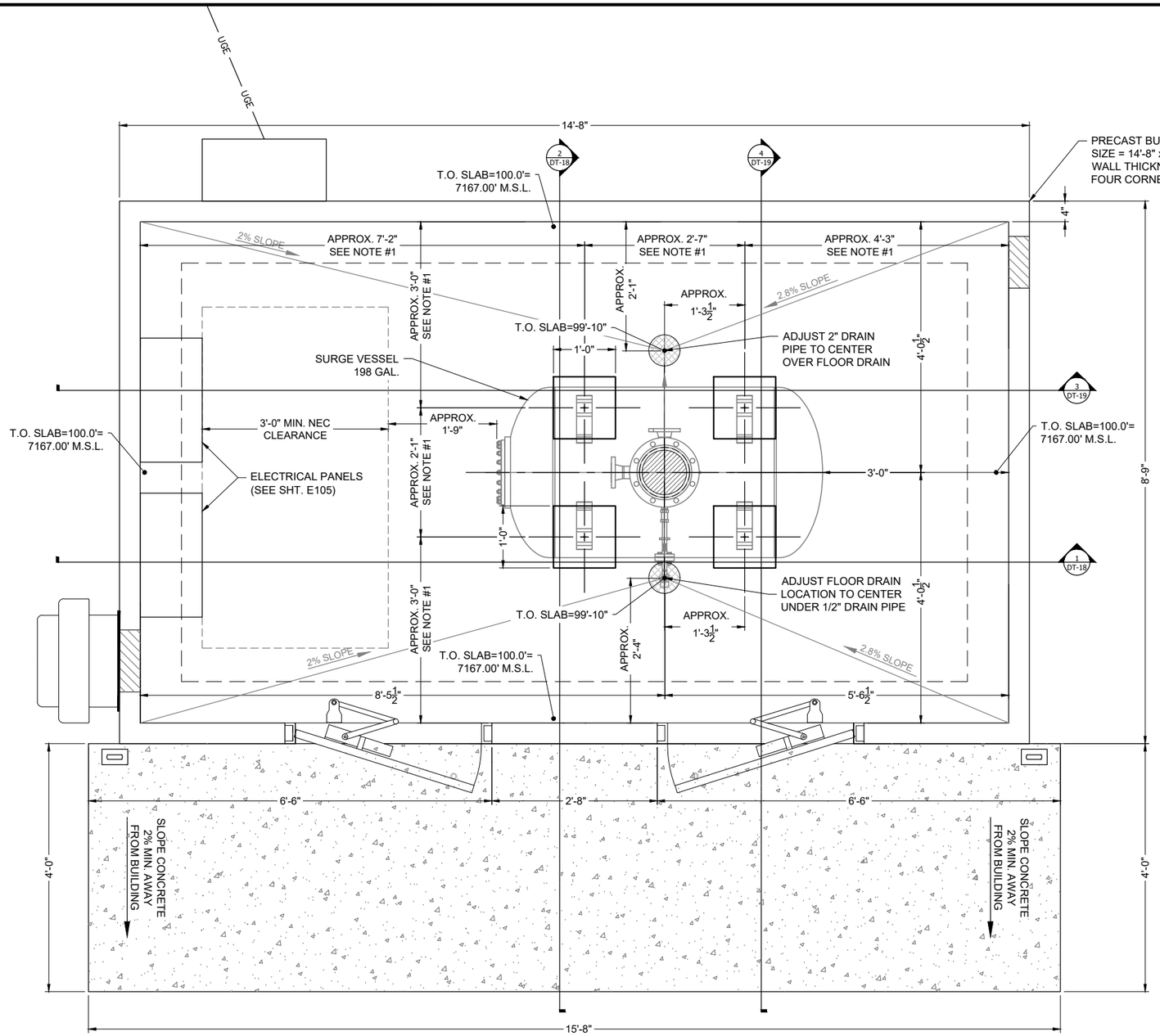
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Project No: 6921307

Sheet: DT-15



PLAN VIEW OF BUILDING DIMENSIONS

1/2" = 1' - 0"

0' 1' 2'

GRAPHIC SCALE

NOTES

DESIGN LIVE LOADS ARE IN ACCORDANCE WITH THE INTERNATIONAL BUILDING CODE, 2009 EDITION WITH THE FOLLOWING MINIMUM CRITERIA:

ROOF SNOW LOAD = 25 PSF
ROOF DEAD LOAD = 15 PSF
FLOOR LIVE LOAD = 50 PSF
WIND
V-3S.....90 MPH (3 SEC GUST) EXP C
SEISMIC
SEISMIC DESIGN CATEGORY.....C
IMPORTANCE FACTOR.....1
SPECTRAL RESPONSE COEFFICIENTS
S-DS.....0.372
S-D1.....0.183
SITE CLASS.....D

1. ALL DIMENSIONS RELATED TO TANK SIZES, LEG SPACING, ETC. ARE APPROXIMATE. CONTRACTOR RESPONSIBLE TO FIELD VERIFY AND ALIGN ACTUAL LOCATION OF TANK LEGS AND ALL PIPING INLETS, OUTLETS, AND DRAINS IN FIELD PRIOR TO CONSTRUCTION.

2. ALL SITE-CAST CONCRETE SHALL BE MADE WITH TYPE II (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.

3. 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.

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

5. 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.

6. FIELD WELDING SHALL BE PERFORMED USING E70XX ELECTRODES AND SHALL CONFORM TO STANDARDS OF THE AMERICAN WELDING SOCIETY FOR WELDING IN BUILDING CONSTRUCTION.

7. ALL DOOR FRAMES, FAN AND VENT ASSEMBLIES AND SLAB PENETRATIONS SHALL BE CAST INTO THEIR RESPECTIVE SLABS.

8. CONTRACTOR RESPONSIBLE TO DETERMINE SPACE REQUIREMENTS FOR SURGE TANK AND APPERTUNANCES, 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.

9. BUILDING FOUNDATION, SUB-FOUNDATION, AND SITE GRADING SHALL BE PROVIDED AS SPECIFIED IN GEOTECHNICAL REPORT, PROVIDED AS APPENDIX TO CONTRACT DOCUMENTS. FOUNDATION SHALL BEAR ON A MINIMUM OF 2' OF ENGINEERED FILL. REFER TO GEOTECH REPORT BY X8E VINYARD REPORT #15-1-057 DATED JUNE 9, 2016 FOR SUBSURFACE INFORMATION, OVER EXCAVATION REQUIREMENTS, SUBGRADE PREPARATION, AND STRUCTURAL FILL & COMPACTION.

10. 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.

11. ALL BURIED DUCTILE IRON PIPE AND FITTINGS SHALL BE ENCASED IN TWO LAYERS OF POLYETHYLENE, PER SPECIFICATIONS.

12. CONTRACTOR RESPONSIBLE FOR LOCATING AND DETERMINING ELECTRICAL CONDUIT PENETRATIONS.

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SURGE TANK BUILDING FOUNDATION
PLAN (1 of 3)
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
AAV	AAV	AGR

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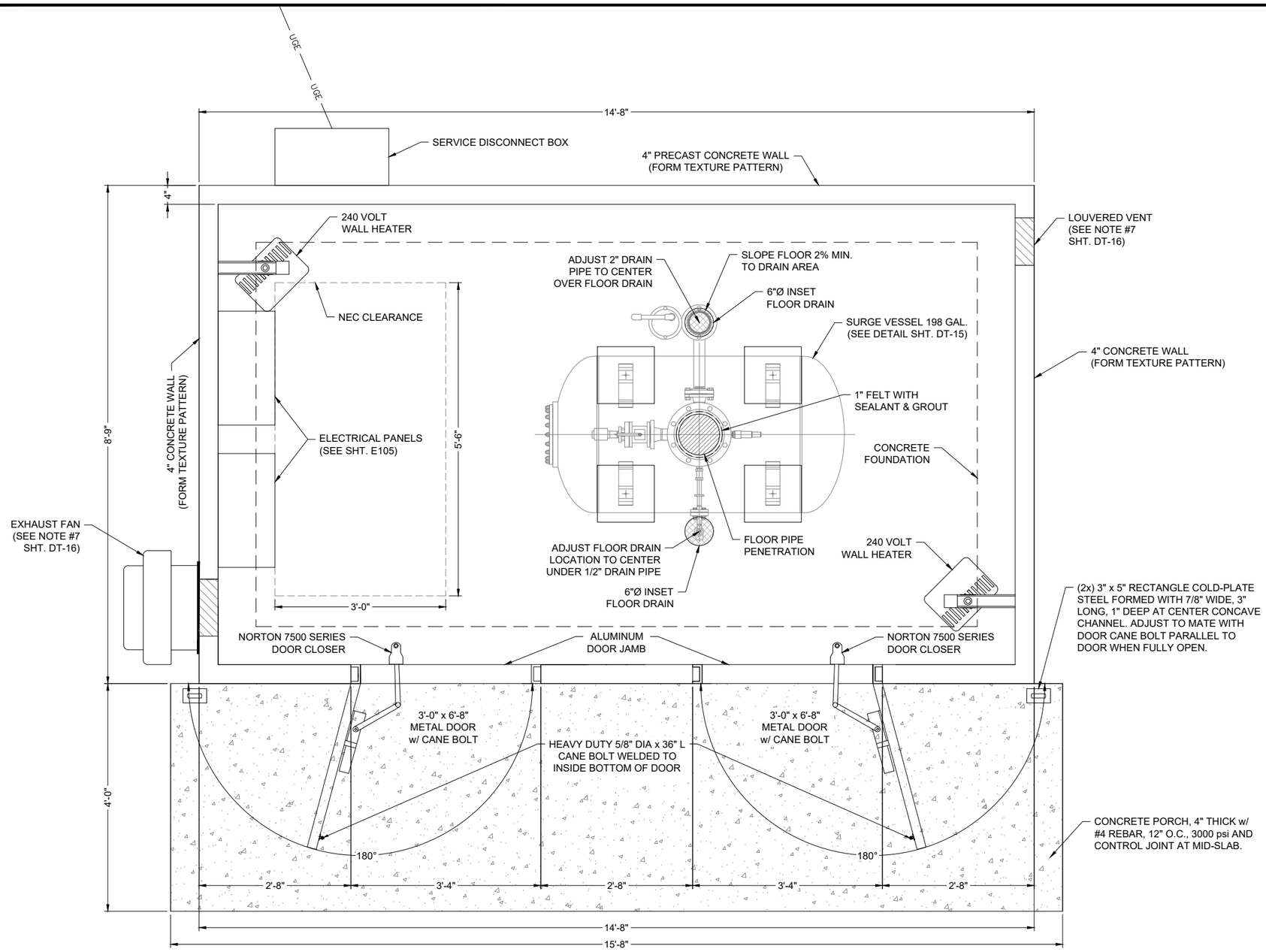
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PLAN VIEW OF BUILDING LAYOUT

1/2" = 1' - 0"

0' 1' 2'

GRAPHIC SCALE

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SURGE TANK BUILDING FOUNDATION
PLAN (2 of 3)
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
AAV	AAV	AGR

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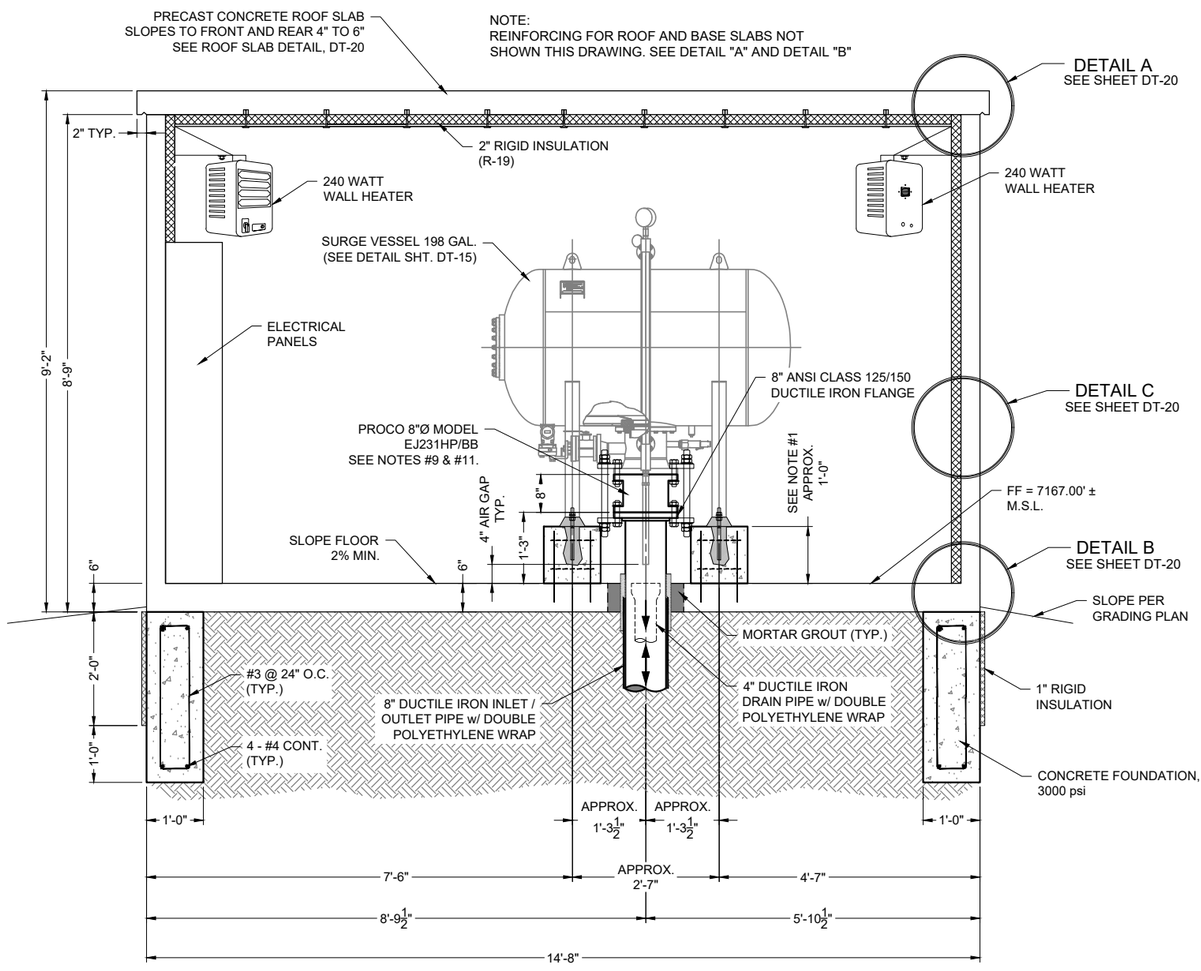
NOTICE OF EXTENDED PAYMENT PROVISION:
THIS CONTRACT ALLOWS THE OWNER TO MAKE PAYMENT WITHIN 45 DAYS AFTER SUBMISSION OF AN UNDISPUTED REQUEST FOR PAYMENT.

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

Date: September 27, 2017
Scale: Horiz: 1/2" = 1'
Vert: N/A
Project No: 6921307
Sheet: DT-17

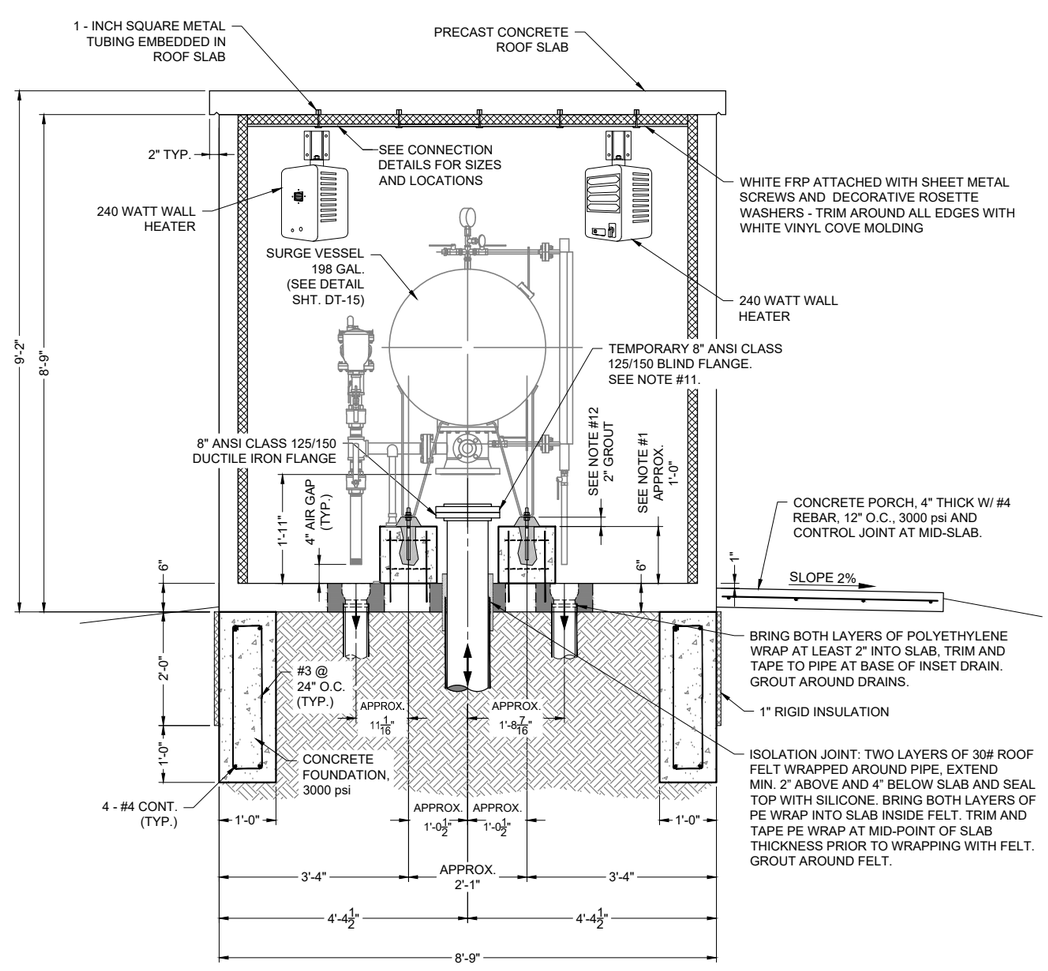
NOTES

1. ALL DIMENSIONS RELATED TO TANK SIZES, LEG SPACING, ETC. ARE APPROXIMATE, CONTRACTOR RESPONSIBLE TO VERIFY AND ALIGN ACTUAL LOCATION OF TANK LEGS AND ALL PIPING INLETS, OUTLETS AND DRAINS IN THE FIELD PRIOR TO CONSTRUCTION.
2. REFERENCE DETAILS ON SHEET DT-20 FOR ALL ARCHITECTURAL DETAILING NOT SHOWN HERE.
3. FOR CONTINUATION OF SURGE TANK UNDERGROUND PIPING SEE SURGE TANK SITE PIPING PLAN DETAIL SHEET C-47.
4. ALL FLOOR DRAINS MUST HAVE REMOVABLE GRATING.
5. 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.
6. ALL BURIED DI PIPE AND FITTINGS SHALL BE ENCASED IN TWO LAYERS OF POLYETHYLENE, PER SPECIFICATIONS.
7. REFER TO GEOTECH REPORT BY X8E VINYARD REPORT #15-1-057 DATED JUNE 9, 2016 FOR SUBSURFACE INFORMATION, OVER EXCAVATION REQUIREMENTS, SUBGRADE PREPARATION, AND STRUCTURAL FILL & COMPACTION.
8. ALL FLOOR DRAINS SHALL BE CENTERED UNDER PIPE OUTLETS. FIELD VERIFY LOCATIONS AND TOP OF SLAB.
9. PROCO JOINT COMPRESSION SHALL BE WITHIN MFGR'S RECOMMENDED TOLERANCES. DO NOT ALLOW BOLTS TO MAKE CONTACT WITH RUBBER JOINT. FIELD VERIFY CONTROL BOLT LENGTHS BEFORE FOUNDATION CONSTRUCTION.
10. BUILDING FOUNDATION SHALL BEAR ON A MINIMUM OF 2 FEET OF ENGINEERED FILL. SLABS SHALL BEAR ON A MINIMUM OF 3 FEET OF ENGINEERED FILL. STRUCTURAL FILL SHALL EXTEND A MINIMUM OF 3 FEET LATERALLY BEYOND EDGE OF ALL FOOTINGS. INCREASE DEPTH OF OVER-EXCAVATION, IF NECESSARY, TO ENSURE ENGINEERED FILL BEARS UNIFORMLY ON CUT; DO NOT ALLOW TRANSITION FROM CUT TO FILL TO PASS UNDERNEATH OR WITHIN 5 HORIZONTAL FEET OF BUILDING OR SLAB.
11. INSTALL TEMPORARY 8 INCH ANSI CLASS 125/150 BLIND FLANGE PRIOR TO FILLING AND FLUSHING PIPELINE. FLUSH LINE FROM STATION 0+05.87 TO STATION 50+45 WITH BLIND FLANGE IN PLACE. COMPLETE HYDROSTATIC TESTING OF PIPING UNDERNEATH AND WITHIN SURGE TANK BUILDING PRIOR TO REMOVING BLIND FLANGE. REMOVE BLIND FLANGE AND INSTALL 8 INCH PROCO FITTING AFTER THIS SECTION OF LINE FLUSHING AND HYDROSTATIC PRESSURE TESTING IS COMPLETE, BUT PRIOR TO AIR CHARGING SURGE TANK. DO NOT INSTALL PROCO FITTING UNTIL LINE FLUSHING FROM STATION 0+05.87 TO STATION 50+45 IS COMPLETE. DO NOT AIR CHARGE SURGE TANK UNTIL PROCO FITTING IS INSTALLED. DO NOT OPERATE THE PROJECT OR FLUSH BEYOND THE FIRST FLUSH VALVE UNTIL SURGE TANK IS STARTED UP AND OPERATIONAL.
12. USE DOUBLE NUTS AT TANK PEDESTALS TO ADJUST SURGE TANK HEIGHT AND LEVEL. DO NOT PLACE NON-SHRINK GROUT BETWEEN PEDESTAL AND TANK BASE UNTIL BLIND FLANGE IS REMOVED, PROCO FITTING INSTALLATION IS FINALIZED, AND TANK HEIGHT AND PROCO COMPRESSION ARE APPROVED IN THE FIELD BY ENGINEER.



SECTION 1
ELEVATION VIEW
3/8" = 1' - 0"

0' 16" 32"
GRAPHIC SCALE



SECTION 2
ELEVATION VIEW
3/8" = 1' - 0"

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Revision	Date	Description	By	Ck'd

Cutter Pro-BBC Chino-Bldg Details.dwg
9/25/2017 4:58:28 PM aav

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CLIENT: The Navajo Nation TOWN: Ojo Encino To Pueblo Pintado, NM

SURGE TANK BUILDING FOUNDATION PLAN (3 of 3)
NAVAJO GALLUP WATER SUPPLY PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
AAV	AAV	AGR

100% DESIGN

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Date: September 25, 2017
Scale: Horiz: 1/4" = 1' Vert: N/A
Project No: 6921307
Sheet: DT-18

NOTES

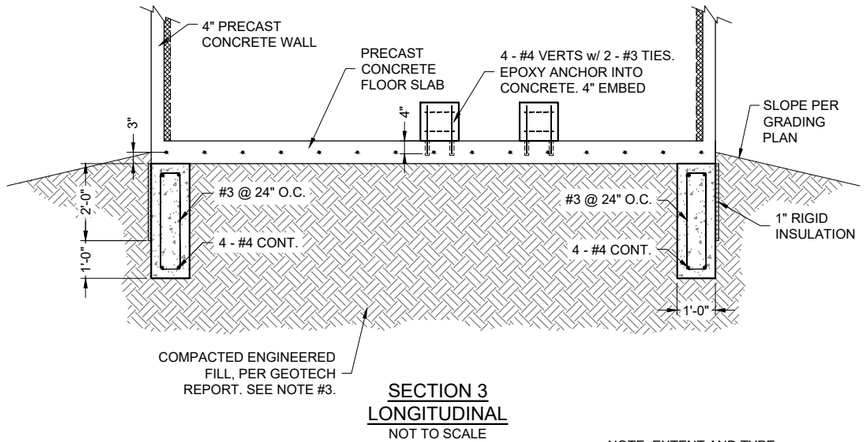
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2. REFER TO GEOTECH REPORT BY X8E VINYARD REPORT #15-1-057 DATED JUNE 9, 2016 FOR SUBSURFACE INFORMATION, OVER EXCAVATION REQUIREMENTS, SUBGRADE PREPARATION, AND STRUCTURAL FILL & COMPACTION.

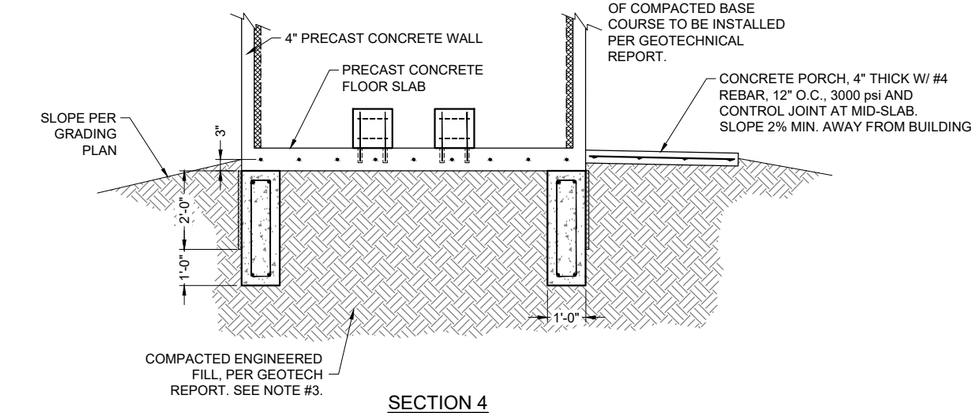
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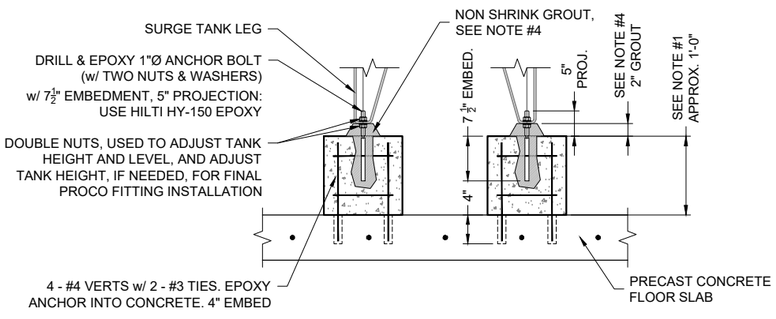
5. CONTRACTOR RESPONSIBLE TO DETERMINE SPACE REQUIREMENTS FOR SURGE TANK AND APPERTUNANCES, AS WELL AS EXHAUST FAN, VENTS, AND ELECTRICAL CONDUITS, AND SUBMIT SHOP DRAWINGS OF BUILDING, INCLUDING LOCATIONS AND SIZES OF FLOOR, EXTERIOR WALL AND INTERIOR WALL PENETRATIONS, FOR ENGINEER'S APPROVAL PRIOR TO FABRICATING PRE-CAST CONCRETE BUILDING. ADEQUATE WALL CLEARANCE SHALL BE PROVIDED FOR O&M OF ALL FLANGES, VALVES AND OTHER APPURTENANCES.



SECTION 3
LONGITUDINAL
NOT TO SCALE

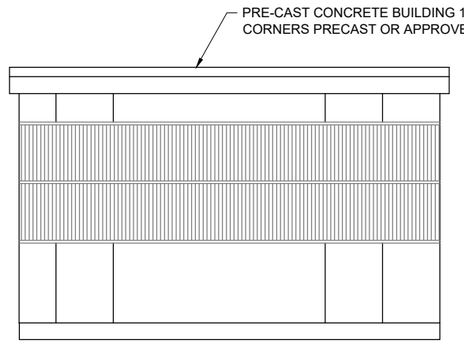


SECTION 4
TRANSVERSE
NOT TO SCALE

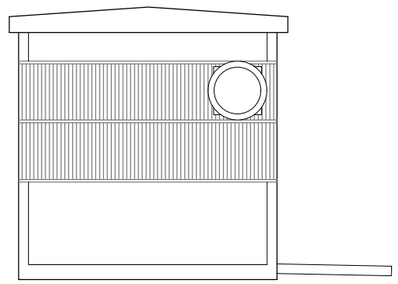


TANK PEDESTAL AND ANCHOR BOLT DETAIL
NOT TO SCALE

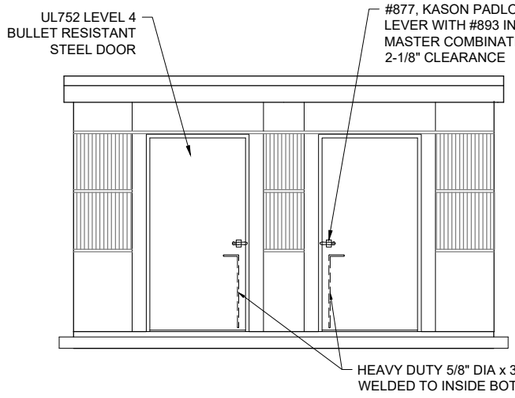
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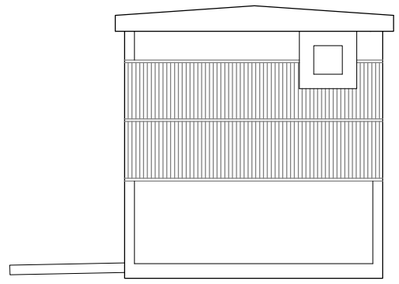
REAR ELEVATION
NOT TO SCALE



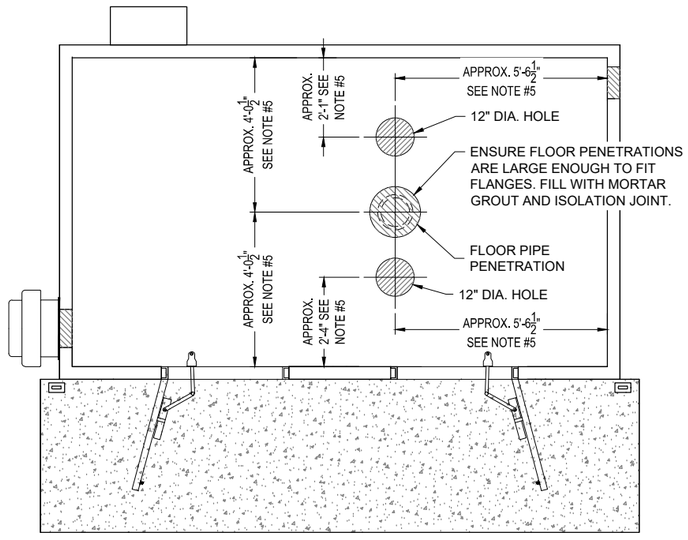
LEFT SIDE ELEVATION
NOT TO SCALE



FRONT ELEVATION
NOT TO SCALE



RIGHT SIDE ELEVATION
NOT TO SCALE



PLAN VIEW OF FLOOR AND WALL PENETRATIONS
NOT TO SCALE

Revision	Date	Description	By	Ck'd

Cortez Pro-BBC Ortiz-Bldg Details.dwg
9/28/2017 - 1:06:06 PM aav

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CLIENT: The Navajo Nation TOWN: Ojo Encino To Pueblo Pintado, NM

SURGE TANK BUILDING SECTION
NAVAJO GALLUP WATER SUPPLY PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
JEG	AAV	AGR

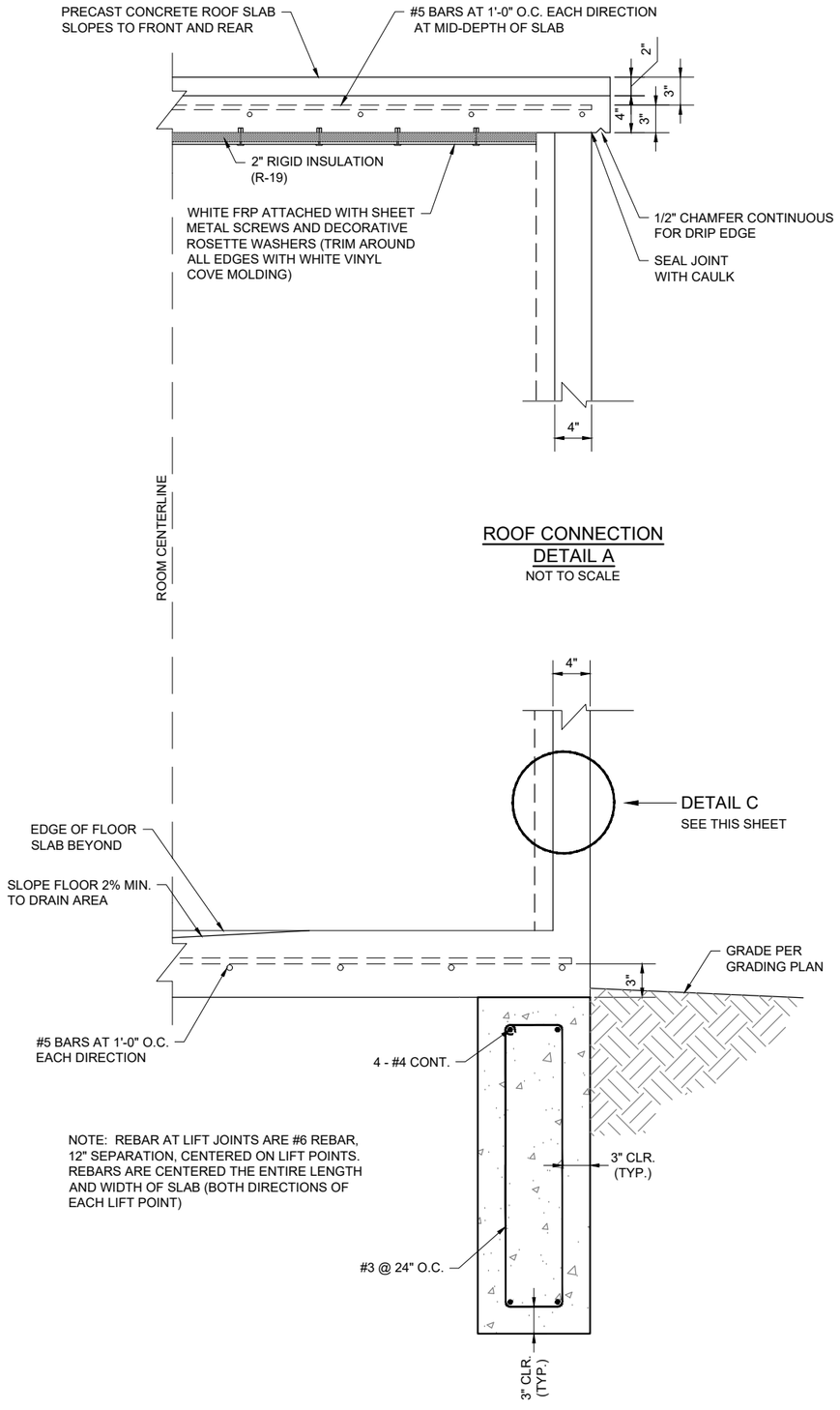
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Date: September 28, 2017
Scale: Horiz: AS SHOWN Vert: N/A
Project No: 6921307
Sheet: DT-19



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)

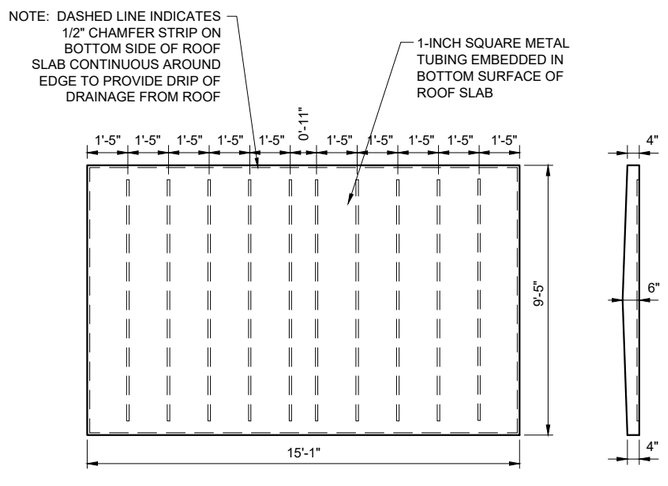
ROOF CONNECTION DETAIL A
NOT TO SCALE

FLOOR CONNECTION DETAIL B
NOT TO SCALE

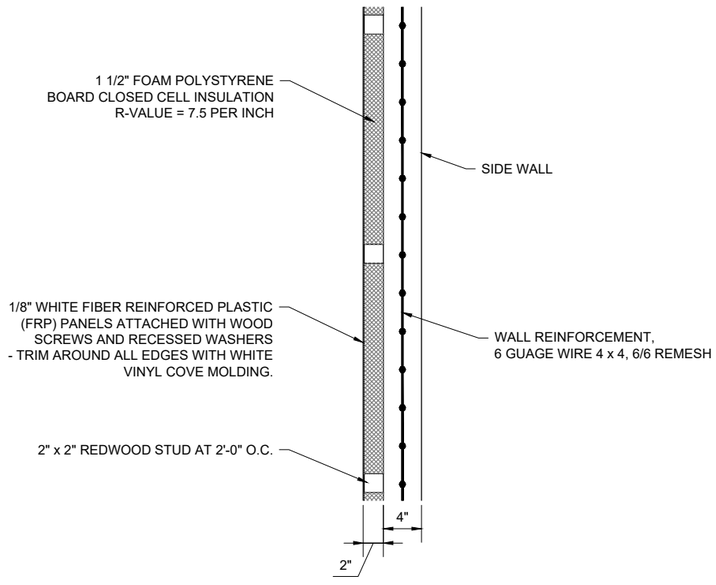
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ROOF SLAB
NOT TO SCALE



WALL SECTION DETAIL C
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SURGE TANK BUILDING DETAILS
NAVAJO GALLUP WATER SUPPLY PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
JEG	AAV	AGR

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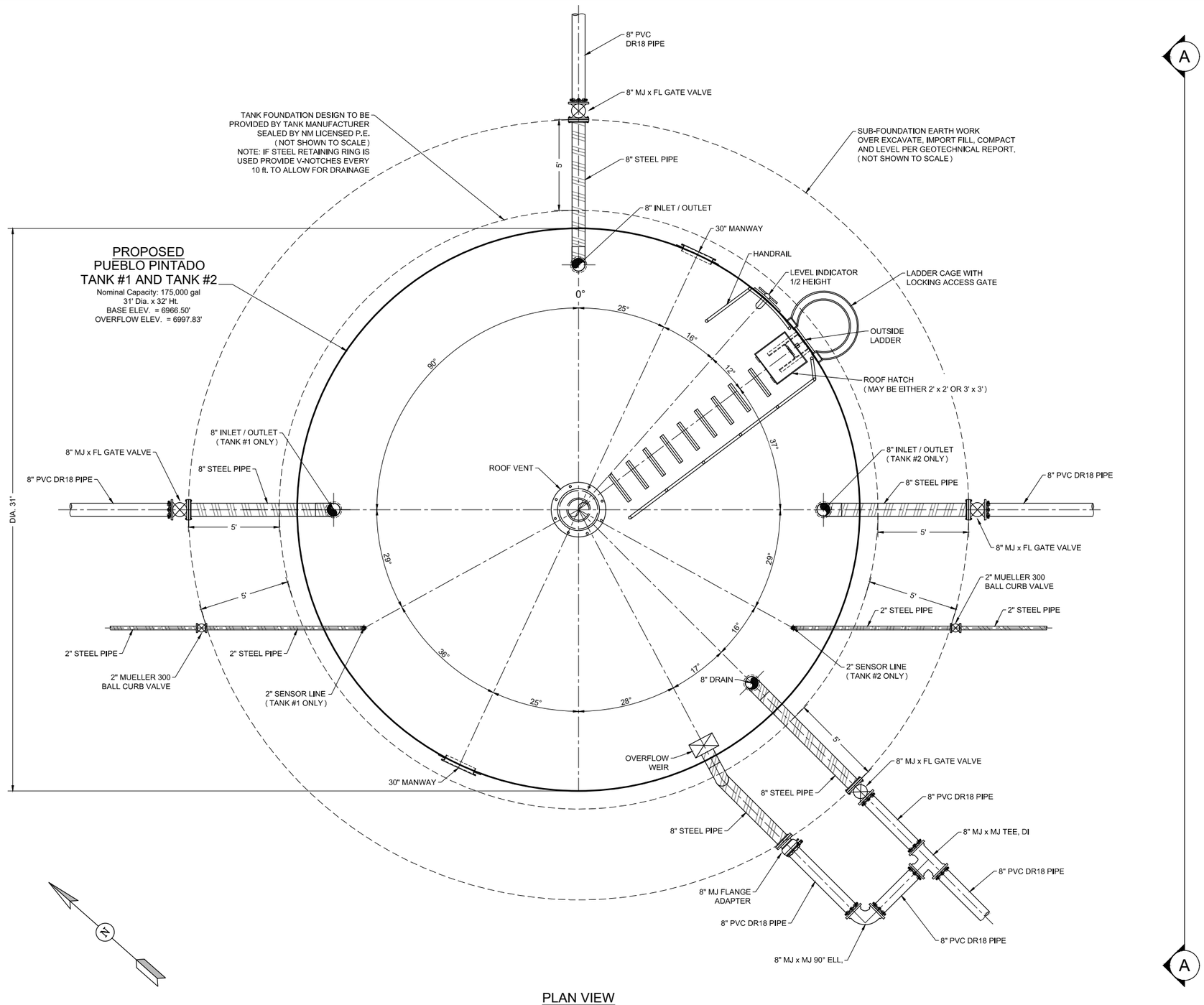
Date: September 25, 2017
Scale: Horiz: AS SHOWN Vert: N/A
Project No: 6921307
Sheet: DT-20

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 P.E.'s DESIGN.
2. TANK #1 SHALL BEAR ON A MINIMUM OF 5 FEET OF ENGINEERED FILL, 3 FEET BEYOND RINGWALL, MEASURED AT BOTTOM OF OVER-EXCAVATION. TANK #2 SHALL BEAR ON A MINIMUM OF 8 FEET OF ENGINEERED FILL, 3 FEET BEYOND RINGWALL, MEASURED AT BOTTOM OF OVER-EXCAVATION. INCREASE DEPTH OF OVER-EXCAVATION, IF NECESSARY, TO ENSURE ENGINEERED FILL BEARS UNIFORMLY ON CUT; DO NOT ALLOW TRANSITION FROM CUT TO FILL TO PASS UNDERNEATH OR WITHIN 5 HORIZONTAL FEET OF TANKS. REFER TO GEOTECH REPORT BY X8E VINYARD REPORT #15-1-057 DATED JUNE 9, 2016 FOR SUBSURFACE INFORMATION, OVER EXCAVATION REQUIREMENTS, SUBGRADE PREPARATION, AND STRUCTURAL FILL & COMPACTION. ENGINEERED FILL SHALL BE COMPACTED TO 95% MIN. STD. PROCTOR.
3. STATED TANK VOLUMES ARE NOMINAL. ACTUAL TANK VOLUMES SHALL BE WITHIN 2% OF THE STATED NOMINAL VALUE.
4. TANK COLOR TO BE DETERMINED BY OWNER.
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 BE FBE COATED, INTERIOR AND EXTERIOR. ALL 2-INCH STEEL PIPES AND FITTINGS SHALL BE SS 304.

7. 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. SANDBLASTING WASTE SHALL BE DISPOSED OF OFF-SITE AT AN APPROVED SOLID WASTE FACILITY AT THE CONTRACTOR'S EXPENSE.
10. 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.
11. ALL STEEL PIPE FLANGES SHALL BE ANSI CLASS 150.
12. 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.
13. FOUNDATION AND FLOOR SLOPE UPWARDS 1% TOWARD CENTER TO PREVENT "OILCANNING"



PLAN VIEW

PUEBLO PINTADO
TANK #1 AND TANK #2 DETAIL

0' 3' 6'

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Color Pro-BSC Tank Details.dwg
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PUEBLO PINTADO TANKS #1 AND #2
DETAILS (1 of 2)
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
AGR	AAV	AGR

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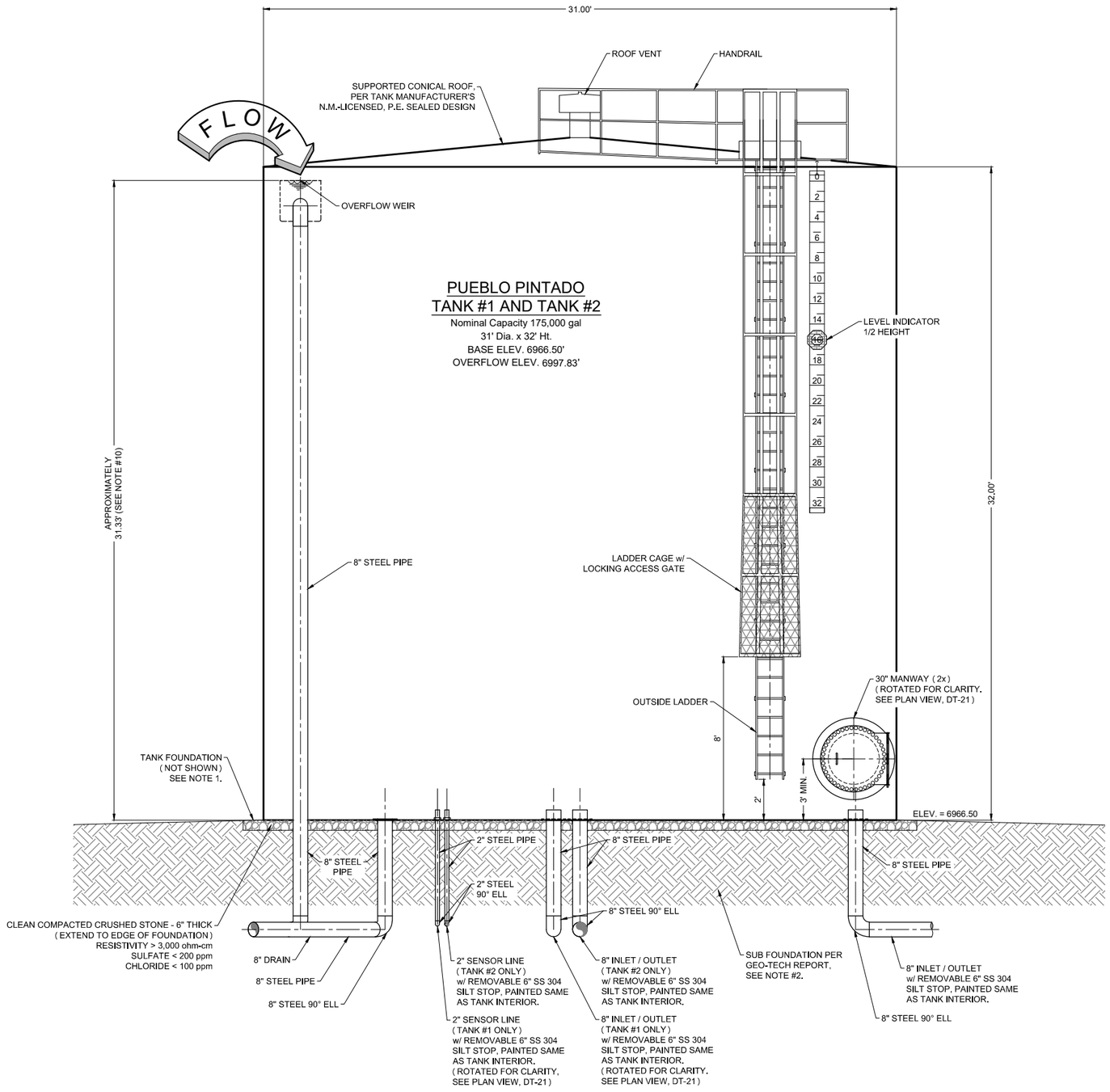
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Project No: 6921307
Sheet: DT-21

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11. ALL STEEL PIPE FLANGES SHALL BE ANSI CLASS 150.
12. 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.
13. FOUNDATION AND FLOOR SLOPE UPWARDS 1% TOWARD CENTER TO PREVENT "OILCANNING"



ELEVATION VIEW A-A

PUEBLO PINTADO
TANK #1 AND TANK #2 DETAIL

0' 3' 6'

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Revision	Date	Description	By	Chkd

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PUEBLO PINTADO TANKS #1 AND #2
DETAILS (2 of 2)
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
AGR	AAV	AGR

100% DESIGN

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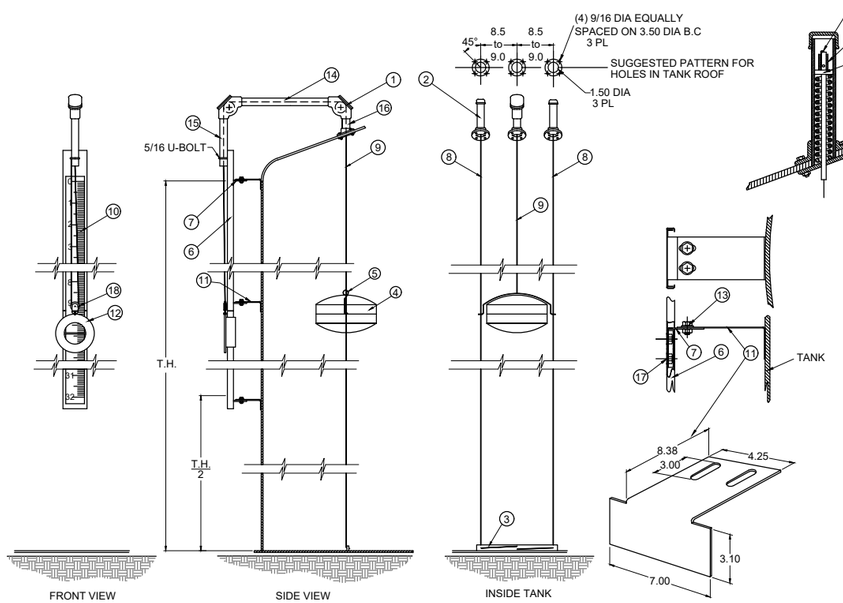
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Date: August 17, 2017

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Vert: N/A

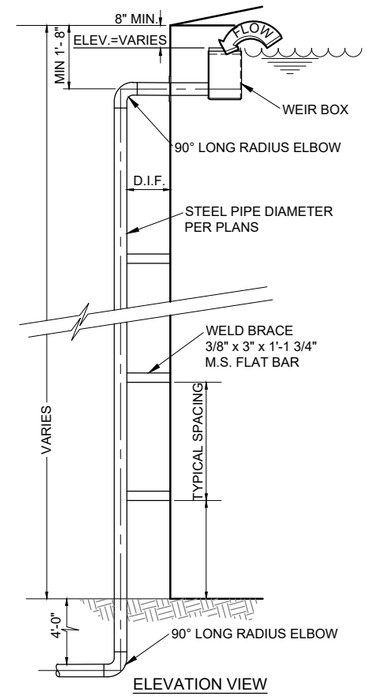
Project No: 6921307

Sheet: DT-22



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

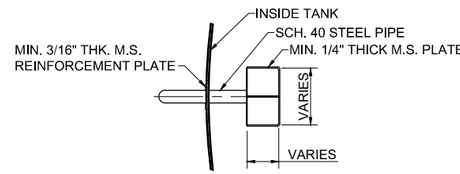


ELEVATION VIEW

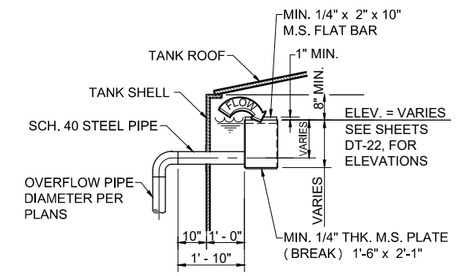
TYPICAL TANK OVERFLOW DETAIL
NOT TO SCALE

SEE TANK PLAN AND ELEVATION SHEET DT-22, FOR PIPE SIZE, HEIGHT AND ELEVATION.

NOTE:
1. DIMENSIONS INDICATING SEPARATION BETWEEN WEIR FROM ROOF ARE MINIMUMS ONLY. ACTUAL DIMENSIONS MAY BE GREATER TO ACCOMODATE 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.



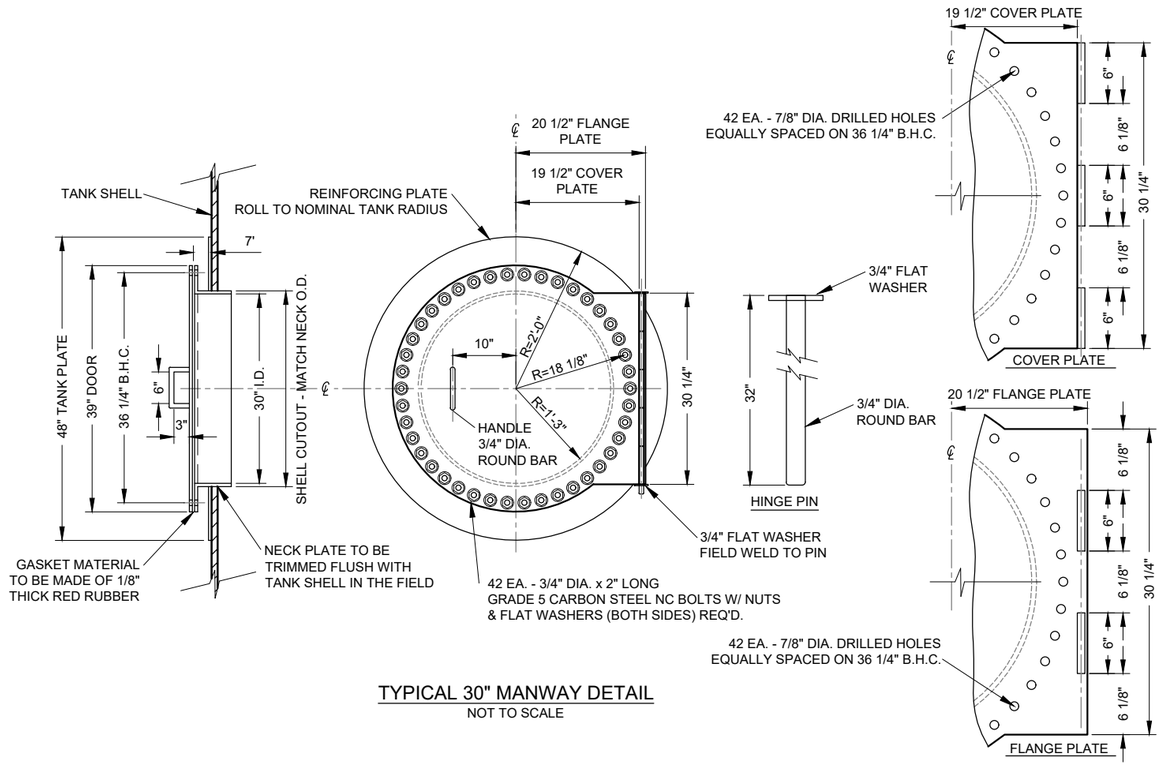
PLAN VIEW



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.



TYPICAL 30" MANWAY DETAIL
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TYPICAL WATER STORAGE TANK DETAILS (1 of 2)

NAVAJO GALLUP WATER SUPPLY
PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
JEG	JEG	AGR

100% DESIGN

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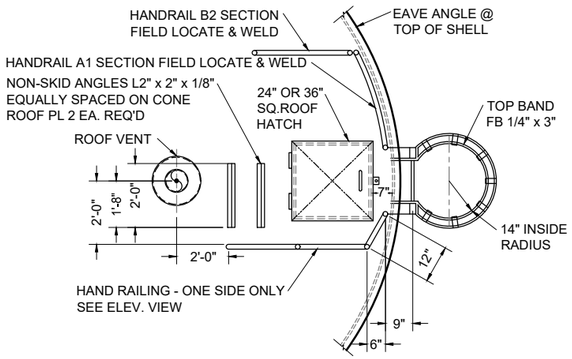
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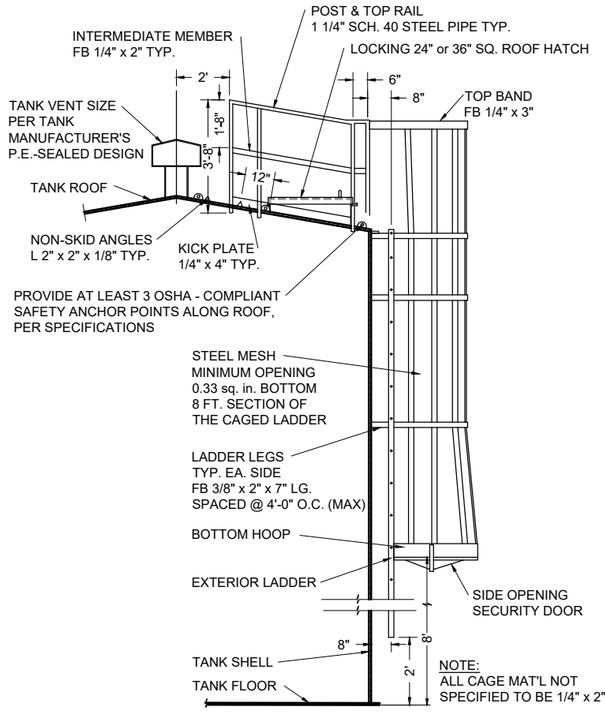
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Project No: 6921307

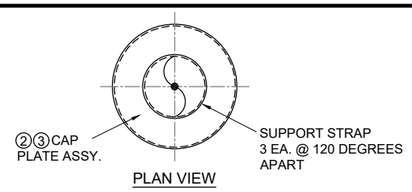
Sheet: DT-23



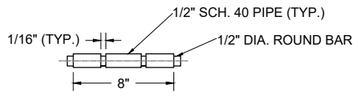
PLAN VIEW
NOT TO SCALE



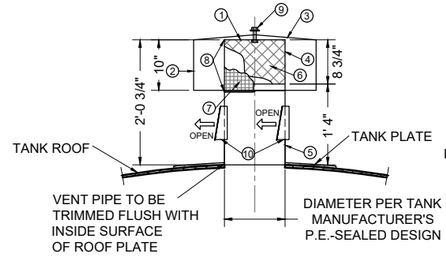
TANK CUTAWAY ELEVATION VIEW



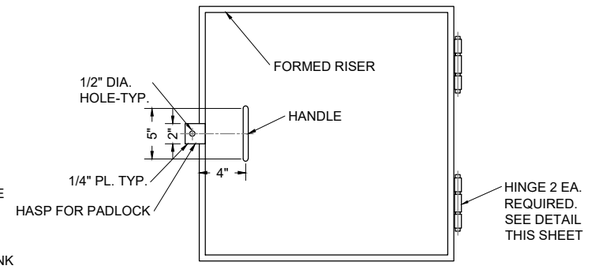
PLAN VIEW



HINGE DETAIL - 2 EA. REQ'D



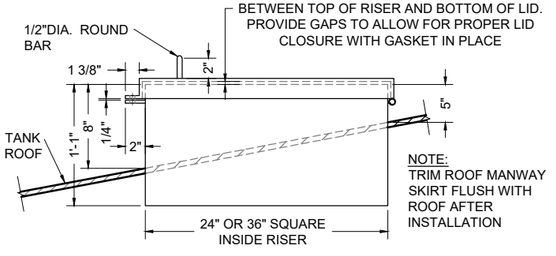
VERTICAL C/L OF TANK AND VENT WITH FROST PROOF DOORS



PLAN VIEW

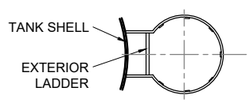
BILL OF MATERIALS		
ITEM	QTY.	DESCRIPTION
①	1	3/16" THK. M.S. PLATE (CUT) 1' - 0" 3/4" Ø
②	1	10 GA. H.R. SHEET (ROLL) 10" x 6' - 3 3/8"
③	1	12 GA. H.R. SHEET (CUT) 2' - 0" Ø
④	3	3/16" x 1" M.S. FLAT BAR x 8 9/16"
⑤	1	1/4" THK. M.S. PLATE (ROLL) 16" x 3' - 2 1/2"
⑥	1	3/4 - #9 FLAT EXP. METAL (ROLL) 8 3/4" x 3' - 4"
⑦	1	14 - 16 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

12" VERTICAL ROOF DETAIL
NOT TO SCALE



ELEVATION VIEW

24" OR 36" SQUARE ROOF HATCH DETAIL
NOT TO SCALE

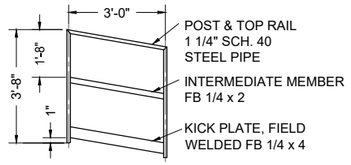


SECTION DETAIL
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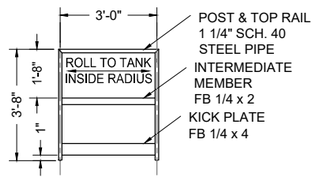


SIDE VIEW FRONT VIEW

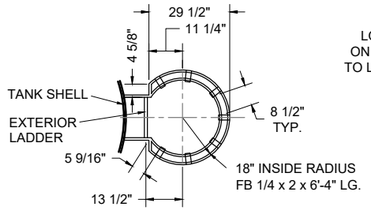
LADDER DETAILS
NOT TO SCALE



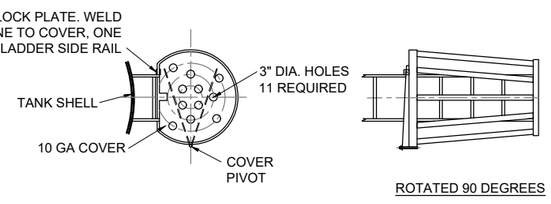
HANDRAIL B2 DETAIL
NOT TO SCALE



HANDRAIL A1 DETAIL - ONE REQ'D
NOT TO SCALE

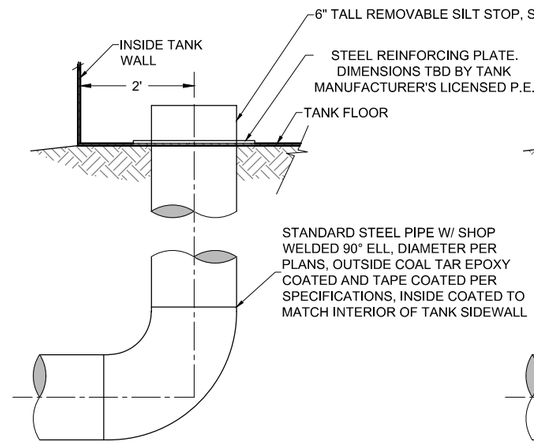


VIEW - LOOKING UP
NOT TO SCALE



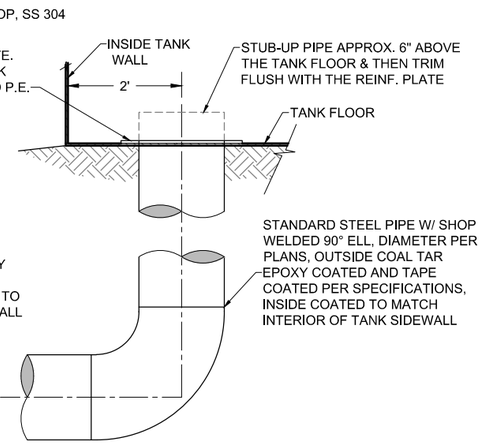
SIDE OPENING SECURITY DOOR DETAIL
NOT TO SCALE

EXTERIOR CAGED LADDER DETAILS
NOT TO SCALE



ELEVATION VIEW

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



ELEVATION VIEW

8" TANK FLOOR DRAIN DETAIL
NOT TO SCALE

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TYPICAL WATER STORAGE TANK DETAILS (2 of 2)

NAVAJO GALLUP WATER SUPPLY
PROJECT - REACHES 26.1 & 26.2
SANDOVAL & MCKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
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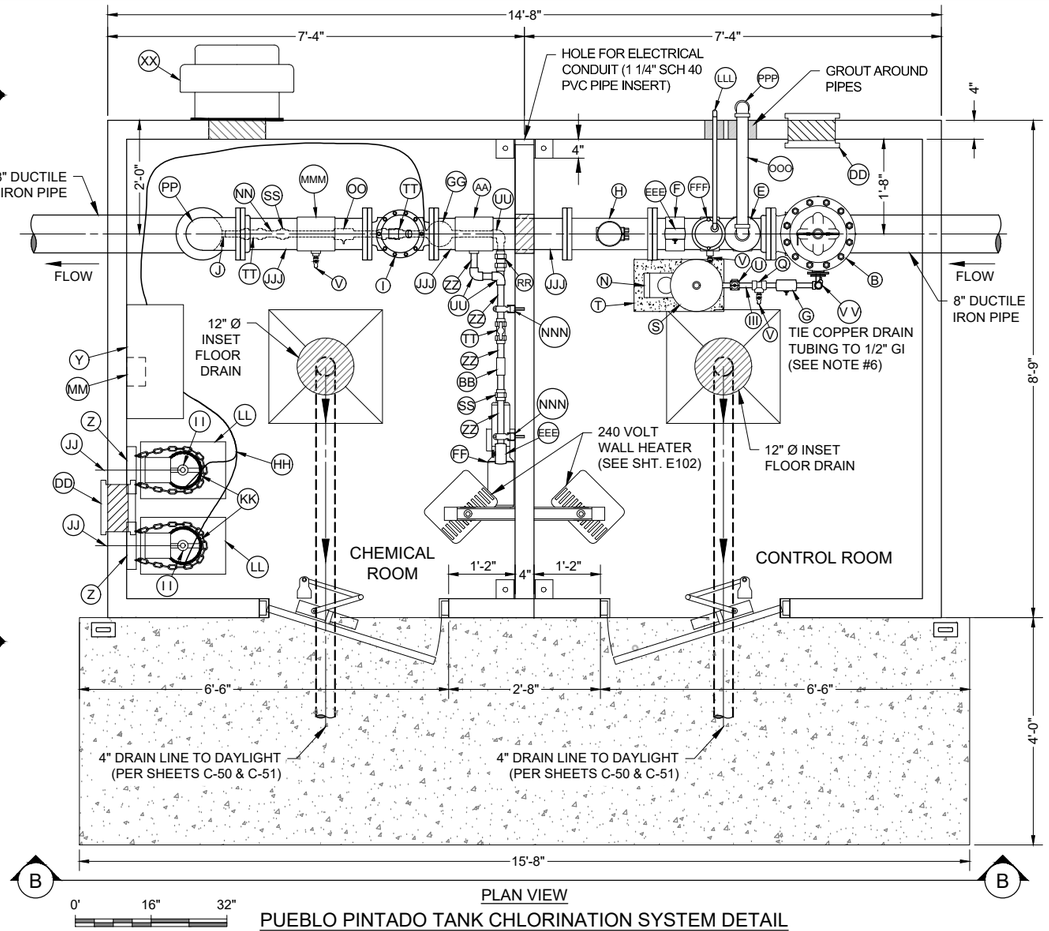
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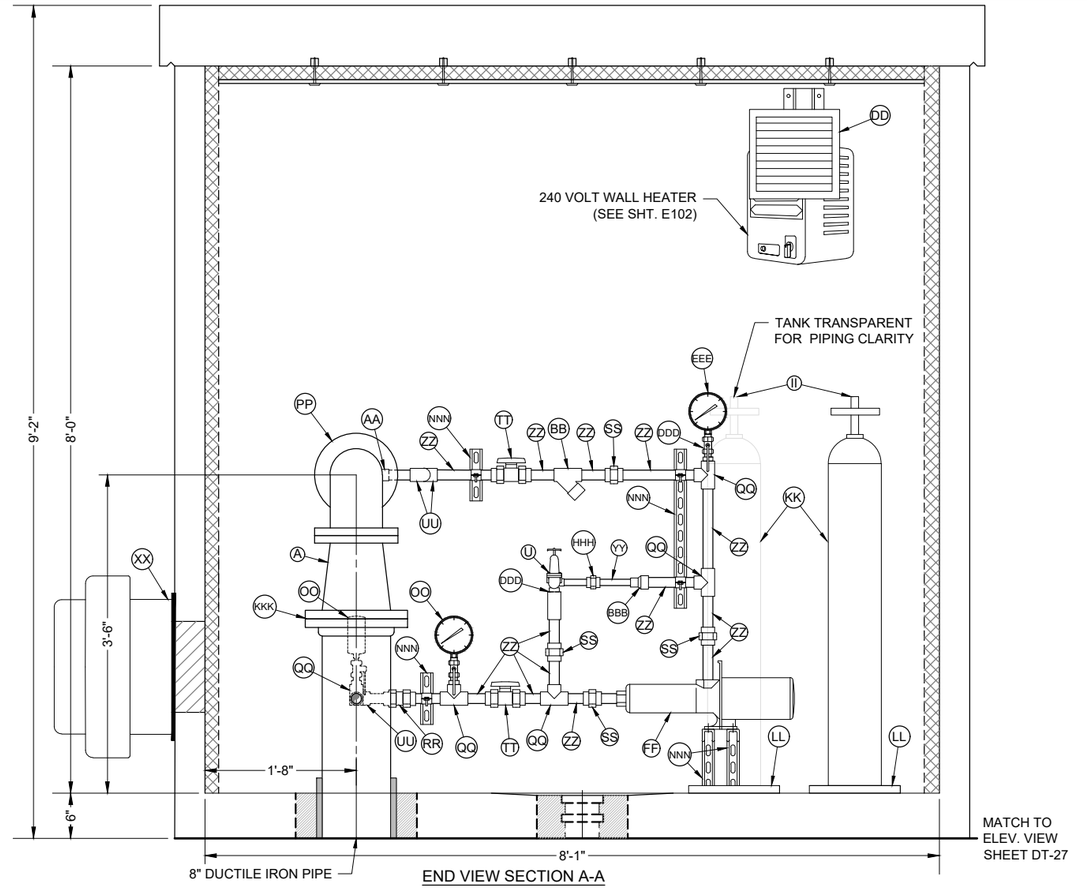
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Sheet: DT-24



PLAN VIEW



END VIEW SECTION A-A

PUEBLO PINTADO TANK CHEMICAL ROOM CHLORINATION SYSTEM DETAIL

0' 10" 20"

Ⓐ 8" x 6" REDUCER, FL x FL D.I., WP 250 PSI
Ⓑ 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
Ⓒ 6" x 2" TAPPING SADDLE, DI
Ⓓ 1" GALVANIZED STEEL PIPE, NPT
Ⓔ 2" VACUUM BREAKER WITH 1" ARV ASSEMBLY, SEE DETAIL "A" (SHT. DT-26). VENT VACUUM BREAKER AND ARV OUTSIDE BUILDING.
Ⓕ 6" x 1/4" TAPPING SADDLE, DI
Ⓖ PRESSURE GAUGE, 0-100 PSI, WITH ISOLATION 1/4" SS BALL VALVE
Ⓗ 6" FLANGED ELECTRONIC FLOW METER, ELSTER EVOQ4, MAINTAIN STRAIGHT PIPE >30" IN FRONT AND >12" BEHIND CENTER OF METER.
Ⓘ 6" CHECK VALVE, SURGE BUSTER SERIES 7200 (O.A.E.)
Ⓙ 1" THREADED TAP OR 6" x 1" TAPPING SADDLE
Ⓚ 1" 90° ELBOW, GALVANIZED STEEL
Ⓛ 1" BALL VALVE, STAINLESS STEEL
Ⓜ 1" UNION, GALVANIZED STEEL
Ⓝ 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
Ⓞ 3/4" CHECK VALVE, GALVANIZED STEEL
Ⓟ NOT USED
Ⓠ 3/4" TEE, GALVANIZED STEEL
Ⓡ 1" 45° ELBOW, GALVANIZED STEEL
Ⓢ 7.6 GALLON PRESSURE TANK, WELL-X-TROL WX-103 (O.A.E.), INSTALL PIPE CLAMPS/ SUPPORT UNDER TANK AND ANCHOR TO WALL
Ⓣ 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
Ⓤ 1/2" PRESSURE RELIEF VALVE, WATTS BP 30 (O.A.E.) PRESSURE SET TO 90 PSI
Ⓥ 3/4" HOSE BIB WITH VACUUM BREAKER
Ⓦ SS UNISTRUT PEDESTAL FOR CHLORINATION PUMP. DIMENSIONS TO BE DETERMINED UPON APPROVAL OF PUMP SUBMITTAL BY CONTRACTOR. 9" ABOVE FLOOR.
Ⓧ 3/4" 90° ELBOW, GALVANIZED STEEL
Ⓨ CHLORINE GAS CONTROL PANEL, WALLACE & TIERNAN S10K (O.A.E.)
Ⓩ WALL MOUNTED CHAIN BRACKET, INSTALL 40" ABOVE FLOOR, WITH SAFETY CHAIN
Ⓐⓐ 6" x 1" TAPPING SADDLE, SS 316
Ⓑⓑ 1" Y-STRAINER, PVC SCHED 80
Ⓒⓒ NOT USED
Ⓓⓓ LOUVERED VENT W/ BACKDRAFT DAMPER McMASTER CARR #2039 KI, W/ EPOXY GREY PAINT
Ⓔⓔ 3/4" BALL VALVE, STAINLESS STEEL
Ⓕⓕ BOOSTER PUMP, FRANKLIN BT4 5JBT03S4 (O.A.E.)
Ⓖⓖ 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.
Ⓗⓗ 3/8" PE VACUUM TUBING
Ⓘⓘ VACUUM REGULATOR, WALLACE & TIERNAN 210S (O.A.E.)
Ⓙⓙ 1/2" PE VENT TUBING (WALL PENETRATION MUST BE BELOW REGULATORS)
Ⓚⓚ CHLORINE GAS CYLINDER, 150 LB (DO NOT INSTALL)
Ⓛⓛ ELECTRONIC CHLORINE CYLINDER SCALE, FORCE FLOW GR150-2 W/ FORCE FLOW SOLO G2 DIGITAL INDICATOR (O.A.E.), BOLTED TO FLOOR
Ⓜⓜ 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.
Ⓝⓝ INSERTION DIFFUSER, MTE (O.A.E.)
Ⓞⓞ PRESSURE GAUGE, 0-100 PSI, WITH PVC/TEFLON DIAPHRAM SEAL AND 1/2" BALL VALVE, STAINLESS STEEL
Ⓟⓟ 6" 90° FL x FL ELBOW, DI
Ⓠⓠ 1" TEE, PVC SCHED 80
Ⓡⓡ 1" TRUE UNION CHECK VALVE, PVC SCHED 80
Ⓢⓢ 1" UNION, PVC SCHED 80
Ⓣⓣ 1" TRUE UNION BALL VALVE, PVC SCHED 80
Ⓤⓤ 1" 90° ELBOW, PVC SCHED 80
Ⓥⓥ 3/4" GALVANIZED x 3/8" COPPER BUSHING, WITH 3/8" COPPER TUBING TO CONTROL VALVE PILOT TUBING
Ⓦⓦ 3/4" x 1/2" GALVANIZED STEEL BUSHING
Ⓧⓧ 19 1/2" 430 CFM EXHAUST FAN WITH BACKDRAFT DAMPER
Ⓨⓨ 1/2" PVC SCHED 80 PIPE
Ⓩⓩ 1" PVC SCHED 80 PIPE
Ⓐⓐⓐ 6" BALL VALVE, FL x FL WITH GEARED ACTUATOR. SS WITH FLANGE ISOLATION KIT.
Ⓑⓑⓑ 1" x 1/2" REDUCER, PVC SCHED 80
Ⓒⓒⓒ 3/4" UNION, GALVANIZED STEEL
Ⓓⓓⓓ 1" x 1/2" PVC BUSHING
Ⓔⓔⓔ PRESSURE GUAGE, 0-25 PSI WITH ISOLATION 1/4" SS BALL VALVE
Ⓕⓕⓕ 6" x 3/4" TAPPING SADDLE, DI
Ⓖⓖⓖ 1 5/8" UNISTRUT, GALVANIZED STEEL, WITH PIPE SUPPORTS
Ⓗⓗⓗ 1/2" UNION, PVC SCHED 80
Ⓘⓘⓘ 3/4" GALVANIZED STEEL PIPE, NPT
Ⓙⓙⓙ 6" DUCTILE IRON PIPE
Ⓚⓚⓚ 8" FLANGE ISOLATION KIT
Ⓛⓛⓛ 1/2" 90° ELL & 1/2" GALVANIZED STEEL PIPE (PAINTED BLUE) WITH DOWNSPOUT
Ⓜⓜⓜ 6" x 3/4" TAPPING SADDLE, SS 316
Ⓝⓝⓝ 1 5/8" UNISTRUT, STAINLESS STEEL, WITH PIPE SUPPORTS
Ⓞⓞⓞ 2" GALVANIZED STEEL PIPE, NPT
Ⓟⓟⓟ 2" 90° ELBOW, GALVANIZED STEEL

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	Ck'd

Cutter Pro-BBC Chlor-System Details.dwg
9/25/2017 - 4:59:47 PM akv

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CLIENT: The Navajo Nation TOWN: Ojo Encino To Pueblo Pintado, NM

PUEBLO PINTADO CHLORINATION
SYSTEM DETAILS (1 of 2)
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
JEG	AAV	AGR

100% DESIGN

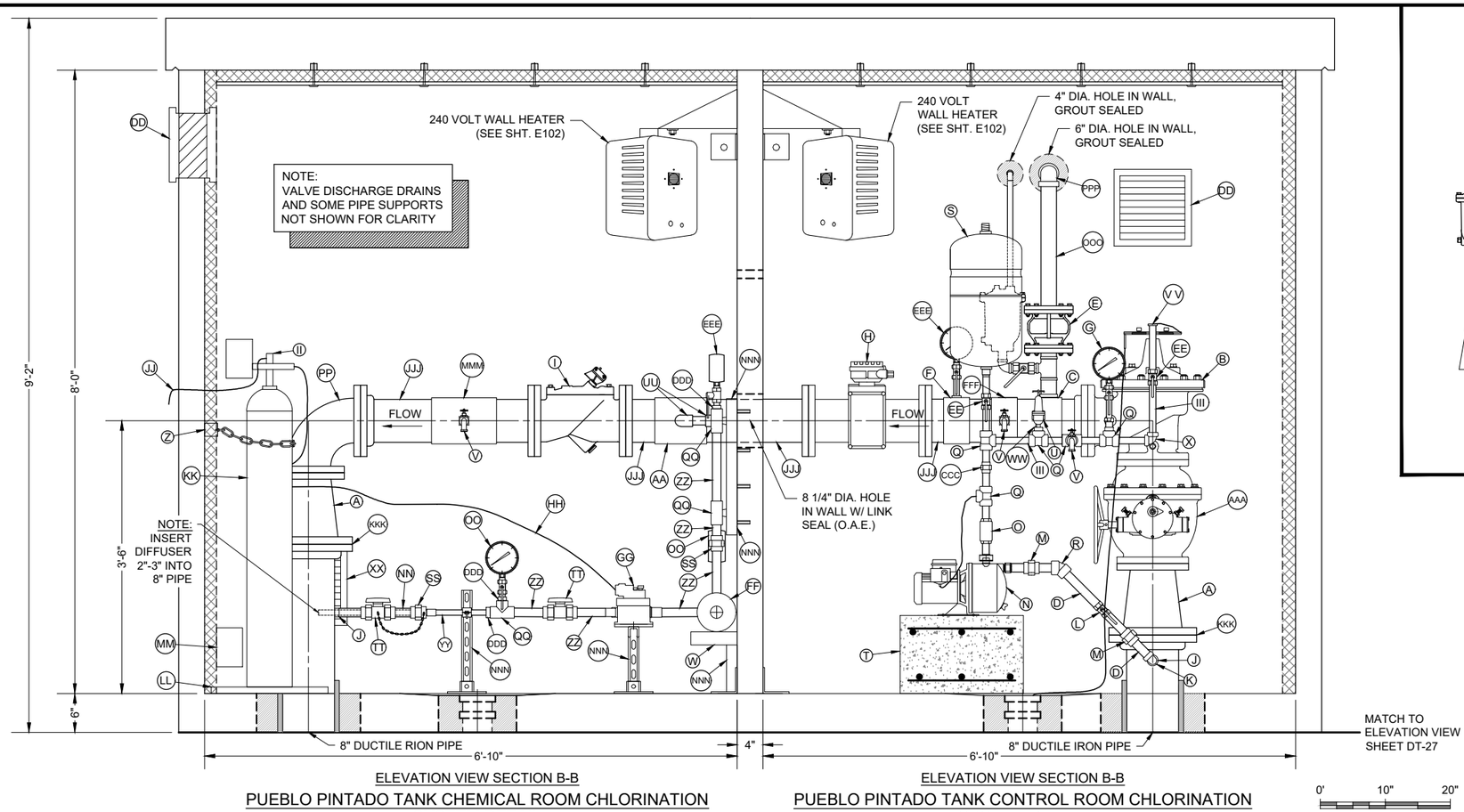
PRELIMINARY
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NOTICE OF EXTENDED PAYMENT PROVISION:
THIS CONTRACT ALLOWS THE OWNER TO MAKE PAYMENT WITHIN 45 DAYS AFTER SUBMISSION OF AN UNDISPUTED REQUEST FOR PAYMENT.

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

Date: September 25, 2017
Scale: Horiz: AS SHOWN Vert: N/A
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Sheet: DT-25

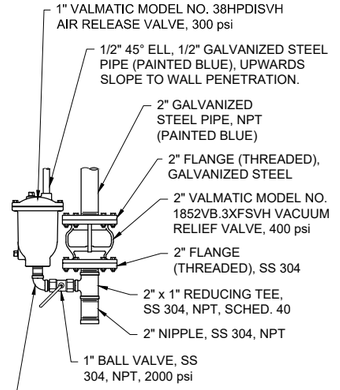


ELEVATION VIEW SECTION B-B

PUEBLO PINTADO TANK CHEMICAL ROOM CHLORINATION SYSTEM DETAIL

ELEVATION VIEW SECTION B-B

PUEBLO PINTADO TANK CONTROL ROOM CHLORINATION SYSTEM DETAIL



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

Ⓐ 8" x 6" REDUCER, FL x FL D.I., WP 250 PSI
Ⓑ 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
Ⓒ 6" x 2" TAPPING SADDLE, DI
Ⓓ 1" GALVANIZED STEEL PIPE, NPT
Ⓔ 2" VACUUM BREAKER WITH 1" ARV ASSEMBLY, SEE DETAIL "A" (SHT. DT-26). VENT VACUUM BREAKER AND ARV OUTSIDE BUILDING.
Ⓕ 6" x 1/4" TAPPING SADDLE, DI
Ⓖ PRESSURE GAUGE, 0-100 PSI, WITH ISOLATION 1/4" SS BALL VALVE
Ⓗ 6" FLANGED ELECTRONIC FLOW METER, ELSTER EVOQ4, MAINTAIN STRAIGHT PIPE >30" IN FRONT AND >12" BEHIND CENTER OF METER.
Ⓘ 6" CHECK VALVE, SURGE BUSTER SERIES 7200 (O.A.E.)
Ⓙ 1" THREADED TAP OR 6" x 1" TAPPING SADDLE
Ⓚ 1" 90° ELBOW, GALVANIZED STEEL
Ⓛ 1" BALL VALVE, STAINLESS STEEL
Ⓜ 1" UNION, GALVANIZED STEEL
Ⓝ 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
Ⓞ 3/4" CHECK VALVE, GALVANIZED STEEL
Ⓟ NOT USED
Ⓠ 3/4" TEE, GALVANIZED STEEL
Ⓡ 1" 45° ELBOW, GALVANIZED STEEL
Ⓢ 7.6 GALLON PRESSURE TANK, WELL-X-TROL WX-103 (O.A.E.), INSTALL PIPE CLAMPS/ SUPPORT UNDER TANK AND ANCHOR TO WALL
Ⓣ 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
Ⓤ 1/2" PRESSURE RELIEF VALVE, WATTS BP 30 (O.A.E.) PRESSURE SET TO 90 PSI
Ⓥ 3/4" HOSE BIB WITH VACUUM BREAKER
Ⓦ SS UNISTRUT PEDESTAL FOR CHLORINATION PUMP. DIMENSIONS TO BE DETERMINED UPON APPROVAL OF PUMP SUBMITTAL BY CONTRACTOR. 9" ABOVE FLOOR.
Ⓧ 3/4" 90° ELBOW, GALVANIZED STEEL
Ⓨ CHLORINE GAS CONTROL PANEL, WALLACE & TIERNAN S10K (O.A.E.)
Ⓩ WALL MOUNTED CHAIN BRACKET, INSTALL 40" ABOVE FLOOR, WITH SAFETY CHAIN
Ⓐⓐ 6" x 1" TAPPING SADDLE, SS 316
Ⓑⓑ 1" Y-STRAINER, PVC SCHED 80
Ⓒⓒ NOT USED
Ⓓⓓ LOUVERED VENT W/ BACKDRAFT DAMPER McMASTER CARR #2039 KI, W/ EPOXY GREY PAINT
Ⓔⓔ 3/4" BALL VALVE, STAINLESS STEEL
Ⓕⓕ BOOSTER PUMP, FRANKLIN BT4 5JBT03S4 (O.A.E.)
Ⓖⓖ 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.
Ⓗⓗ 3/8" PE VACUUM TUBING
Ⓘⓘ VACUUM REGULATOR, WALLACE & TIERNAN 210S (O.A.E.)
Ⓙⓙ 1/2" PE VENT TUBING (WALL PENETRATION MUST BE BELOW REGULATORS)
Ⓚⓚ CHLORINE GAS CYLINDER, 150 LB (DO NOT INSTALL)
Ⓛⓛ ELECTRONIC CHLORINE CYLINDER SCALE, FORCE FLOW GR150-2 W/ FORCE FLOW SOLO G2 DIGITAL INDICATOR (O.A.E.), BOLTED TO FLOOR
Ⓜⓜ 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.
Ⓝⓝ INSERTION DIFFUSER, MTE (O.A.E.)
Ⓞⓞ PRESSURE GAUGE, 0-100 PSI, WITH PVC/TEFLON DIAPHRAM SEAL AND 1/2" BALL VALVE, STAINLESS STEEL
Ⓟⓟ 6" 90° FL x FL ELBOW, DI
Ⓠⓠ 1" TEE, PVC SCHED 80
Ⓡⓡ 1" TRUE UNION CHECK VALVE, PVC SCHED 80
Ⓢⓢ 1" UNION, PVC SCHED 80
Ⓣⓣ 1" TRUE UNION BALL VALVE, PVC SCHED 80
Ⓤⓤ 1" 90° ELBOW, PVC SCHED 80
Ⓥⓥ 3/4" GALVANIZED x 3/8" COPPER BUSHING, WITH 3/8" COPPER TUBING TO CONTROL VALVE PILOT TUBING
Ⓦⓦ 3/4" x 1/2" GALVANIZED STEEL BUSHING
Ⓧⓧ 19 1/2" 430 CFM EXHAUST FAN WITH BACKDRAFT DAMPER
Ⓨⓨ 1/2" PVC SCHED 80 PIPE
Ⓩⓩ 1" PVC SCHED 80 PIPE
ⒶⒶⒶ 6" BALL VALVE, FL x FL WITH GEARED ACTUATOR. SS WITH FLANGE ISOLATION KIT.
ⒷⒷⒷ 1" x 1/2" REDUCER, PVC SCHED 80
ⒸⒸⒸ 3/4" UNION, GALVANIZED STEEL
ⒹⒹⒹ 1" x 1/2" PVC BUSHING
ⒺⒺⒺ PRESSURE GUAGE, 0-25 PSI WITH ISOLATION 1/4" SS BALL VALVE
ⒻⒻⒻ 6" x 3/4" TAPPING SADDLE, DI
ⒼⒼⒼ 1 5/8" UNISTRUT, GALVANIZED STEEL, WITH PIPE SUPPORTS
ⒽⒽⒽ 1/2" UNION, PVC SCHED 80
Ⓘⓘⓘ 3/4" GALVANIZED STEEL PIPE, NPT
ⒿⒿⒿ 6" DUCTILE IRON PIPE
ⓀⓀⓀ 8" FLANGE ISOLATION KIT
ⓁⓁⓁ 1/2" 90° ELL & 1/2" GALVANIZED STEEL PIPE (PAINTED BLUE) WITH DOWNSPOUT
ⓂⓂⓂ 6" x 3/4" TAPPING SADDLE, SS 316
ⓃⓃⓃ 1 5/8" UNISTRUT, STAINLESS STEEL, WITH PIPE SUPPORTS
ⓄⓄⓄ 2" GALVANIZED STEEL PIPE, NPT
ⓅⓅⓅ 2" 90° ELBOW, GALVANIZED STEEL

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Revision	Date	Description	By	Ck'd

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SMA Engineering ♦ Environmental ♦ Surveying

CLIENT: The Navajo Nation
TOWN: Ojo Encino To Pueblo Pintado, NM

PUEBLO PINTADO CHLORINATION SYSTEM DETAILS (2 of 2)
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
JEG	AAV	AGR

100% DESIGN

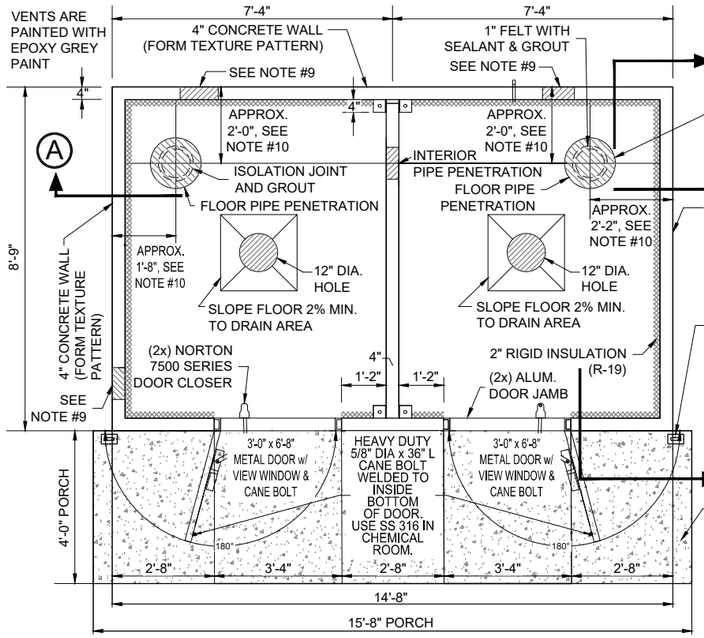
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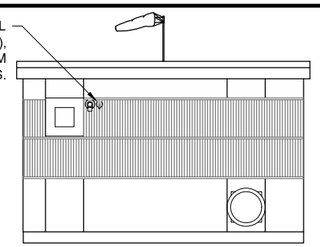
NOTICE OF EXTENDED PAYMENT PROVISION:
THIS CONTRACT ALLOWS THE OWNER TO MAKE PAYMENT WITHIN 45 DAYS AFTER SUBMISSION OF AN UNDISPUTED REQUEST FOR PAYMENT.

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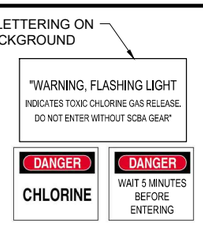
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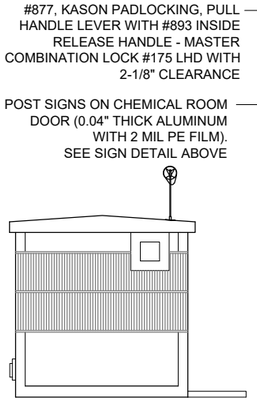
PLAN VIEW OF BUILDING
NOT TO SCALE



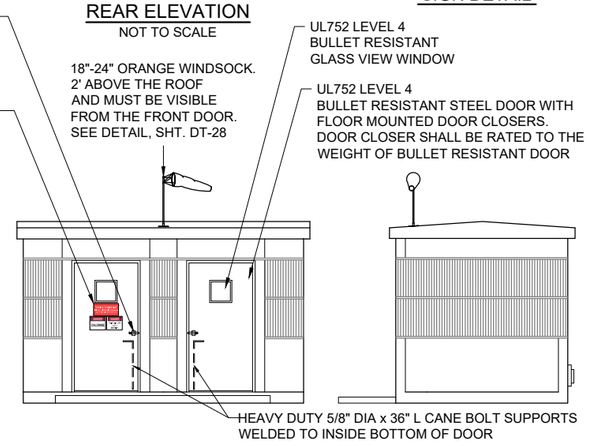
REAR ELEVATION
NOT TO SCALE



SIGN DETAIL

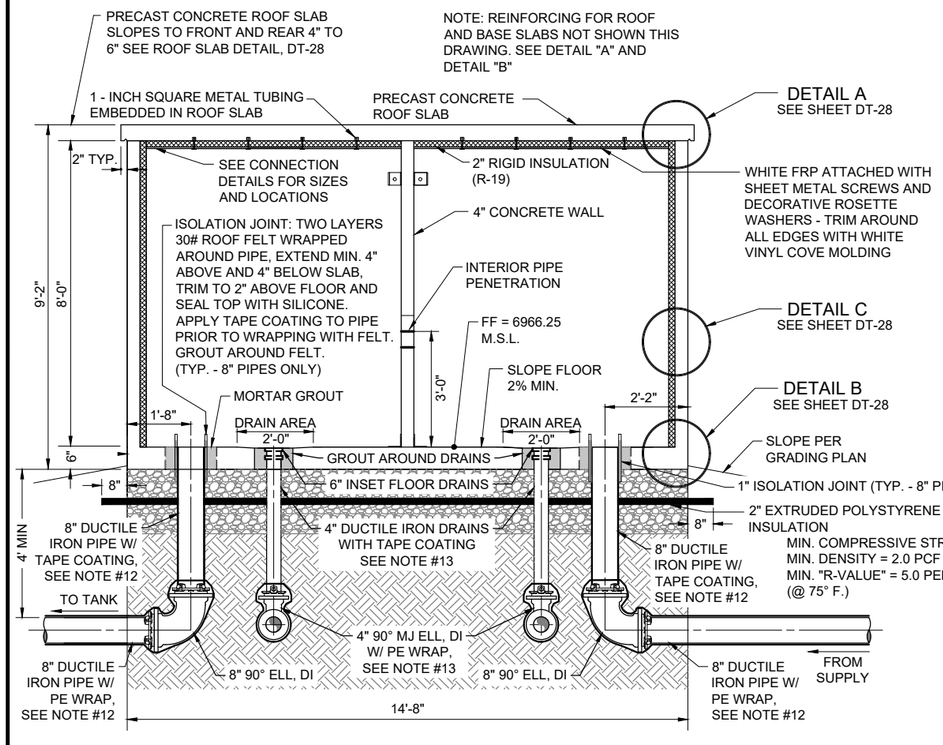


LEFT SIDE ELEVATION
NOT TO SCALE

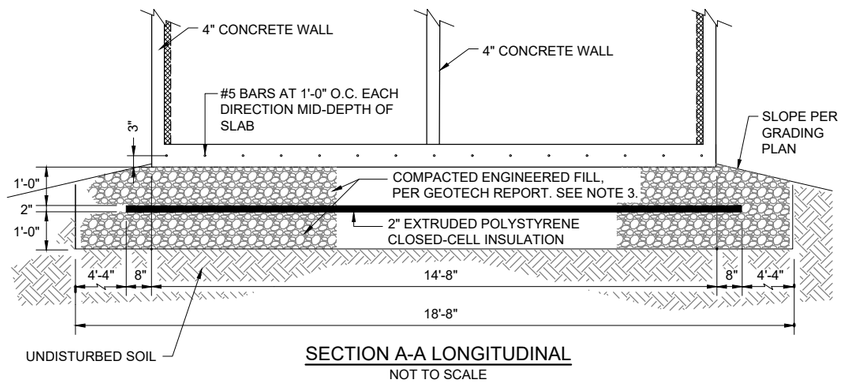


FRONT ELEVATION
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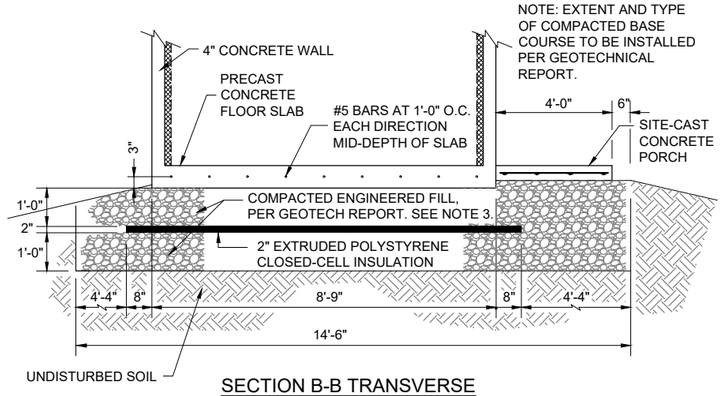
RIGHT SIDE ELEVATION
NOT TO SCALE



ELEVATION VIEW OF BUILDING AND UNDERGROUND PIPING
NOT TO SCALE



SECTION A-A LONGITUDINAL
NOT TO SCALE



SECTION B-B TRANSVERSE
NOT TO SCALE

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. FOUNDATION SHALL BEAR ON A MINIMUM OF 3' OF ENGINEERED FILL. REFER TO GEOTECHNICAL REPORT FOR FURTHER INFORMATION.
4. ALL SITE-CAST CONCRETE SHALL BE MADE WITH TYPE II (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.

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CLIENT: The Navajo Nation TOWN: Ojo Encino To Pueblo Pintado, NM

PUEBLO PINTADO PRECAST 2-ROOM CHLORINATION BUILDING & PIPING
NAVAJO GALLUP WATER SUPPLY PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
JEG	AAV	AGR

100% DESIGN

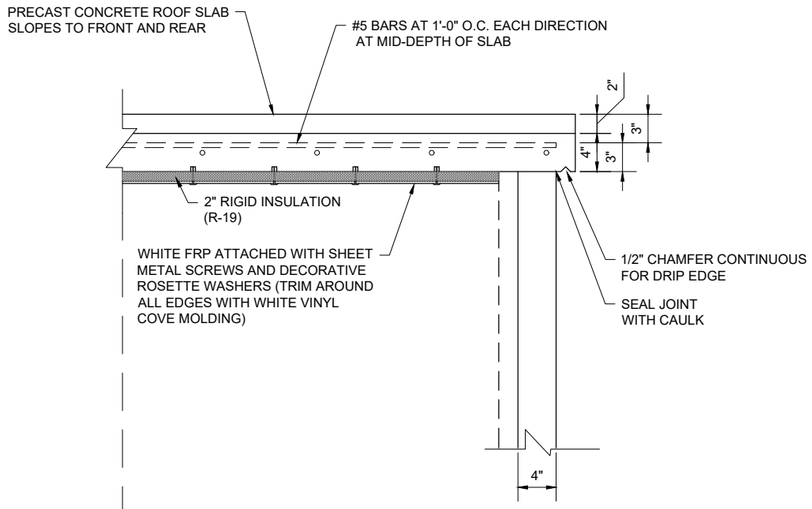
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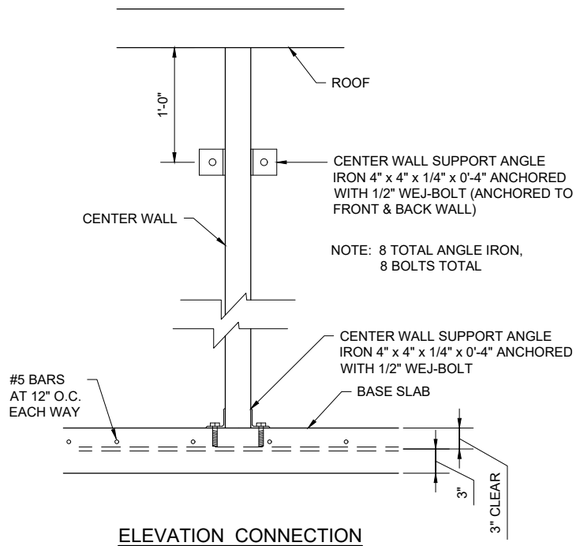
NOTICE OF EXTENDED PAYMENT PROVISION:
THIS CONTRACT ALLOWS THE OWNER TO MAKE PAYMENT WITHIN 45 DAYS AFTER SUBMISSION OF AN UNDISPUTED REQUEST FOR PAYMENT.

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

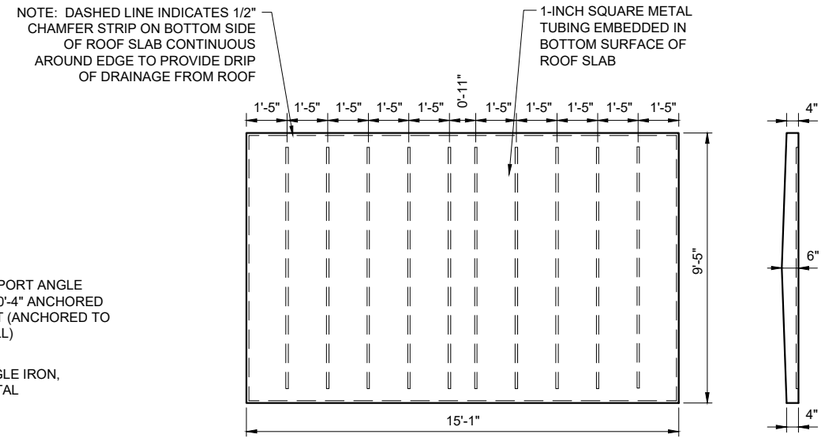
Date: September 28, 2017
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Project No: 6921307
Sheet: DT-27



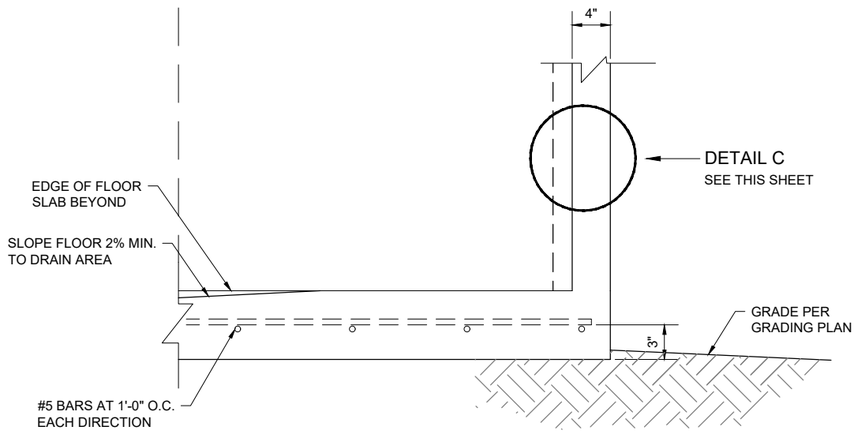
ROOF CONNECTION
DETAIL A
NOT TO SCALE



ELEVATION CONNECTION
ANGLE IRON
AT CENTER WALL
NOT TO SCALE

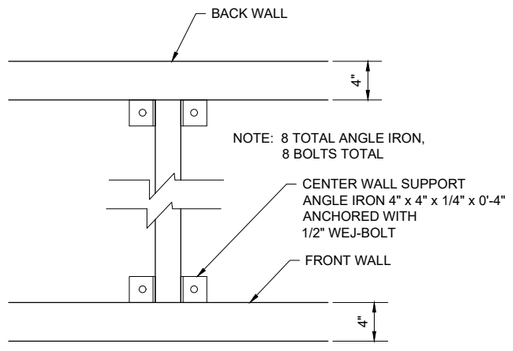


ROOF SLAB
NOT TO SCALE

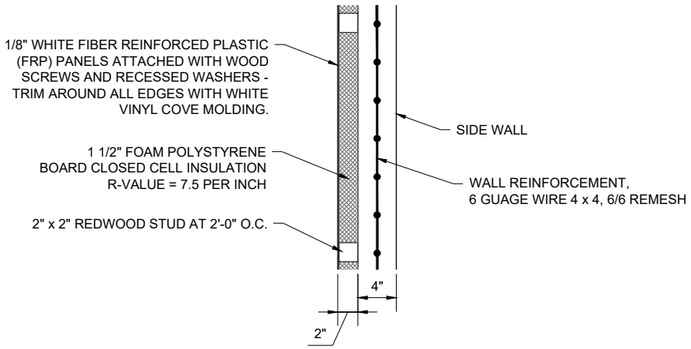


NOTE: REBAR AT LIFT JOINTS ARE #6 REBAR, 12" SEPARATION, CENTERED ON LIFT POINTS. REBARS ARE CENTERED THE ENTIRE LENGTH AND WIDTH OF SLAB (BOTH DIRECTIONS OF EACH LIFT POINT)

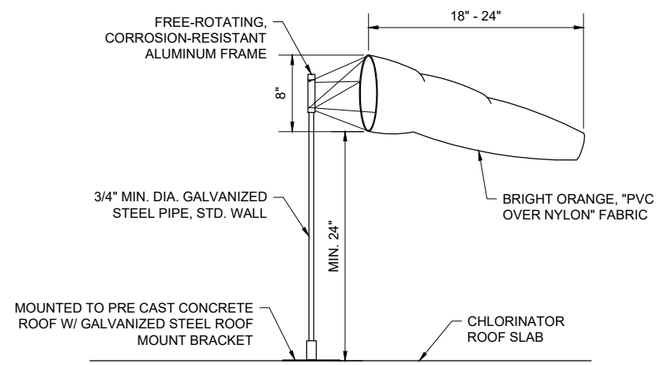
FLOOR CONNECTION
DETAIL B
NOT TO SCALE



PLAN CONNECTION
ANGLE IRON
AT CENTER WALL
NOT TO SCALE



WALL SECTION
DETAIL C
NOT TO SCALE



WIND SOCK DETAIL
NOT TO SCALE

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Revision	Date	Description	By	Ck'd

Center Pvt-SBC Chlor-Bldg Details.dwg
9/25/2017 5:00:20 PM akv

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PRECAST 2-ROOM CHLORINATION BUILDING DETAILS

NAVAJO GALLUP WATER SUPPLY PROJECT - REACHES 26.1 & 26.2

SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
JEG	AAV	AGR

100% DESIGN

PRELIMINARY
NOT FOR CONSTRUCTION

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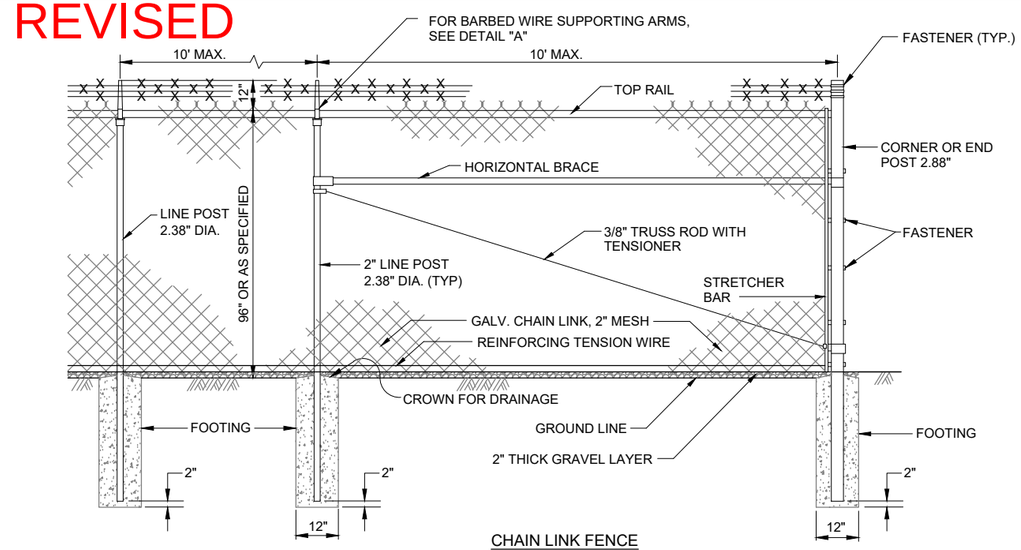
Date: September 25, 2017

Scale: Horiz: AS SHOWN
Vert: N/A

Project No: 6921307

Sheet: DT-28

REVISED

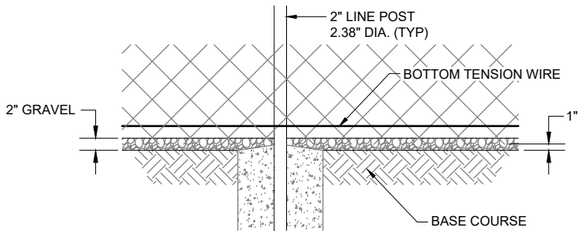


CHAIN LINK FENCE

NOT TO SCALE

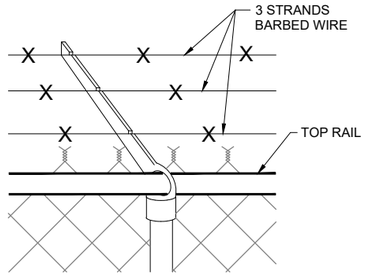
NOTES:

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2. IMBED BOTTOM OF FABRIC MIN. 1" INTO THE 2" THICK GRAVEL LAYER.



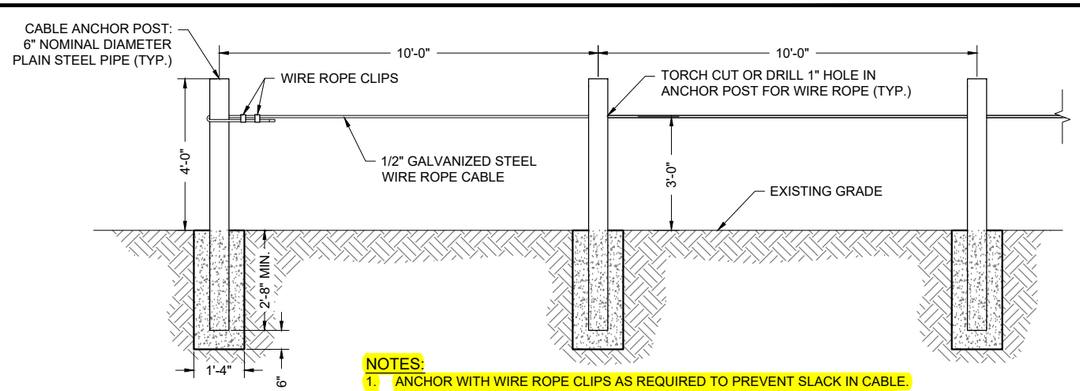
BASE COURSE AND GRAVEL DETAIL

NOT TO SCALE



DETAIL "A" SUPPORTING ARM & BARBED WIRE

NOT TO SCALE

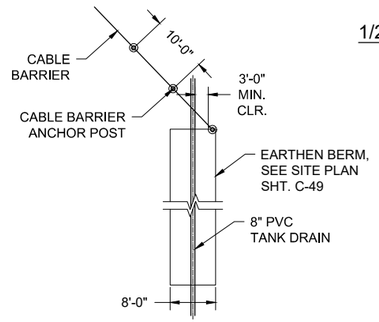


NOTES:

1. ANCHOR WITH WIRE ROPE CLIPS AS REQUIRED TO PREVENT SLACK IN CABLE.
2. STEEL PIPE FOR POSTS SHALL BE OPEN AT BOTH ENDS AND FREE OF PAINT OR OTHER ANTI-CORROSIVE COATINGS.

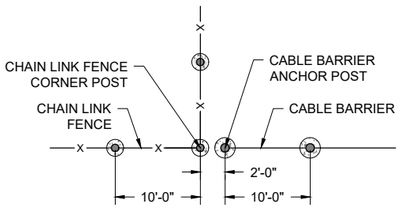
1/2" WIRE ROPE CABLE BARRIER DETAIL

NOT TO SCALE



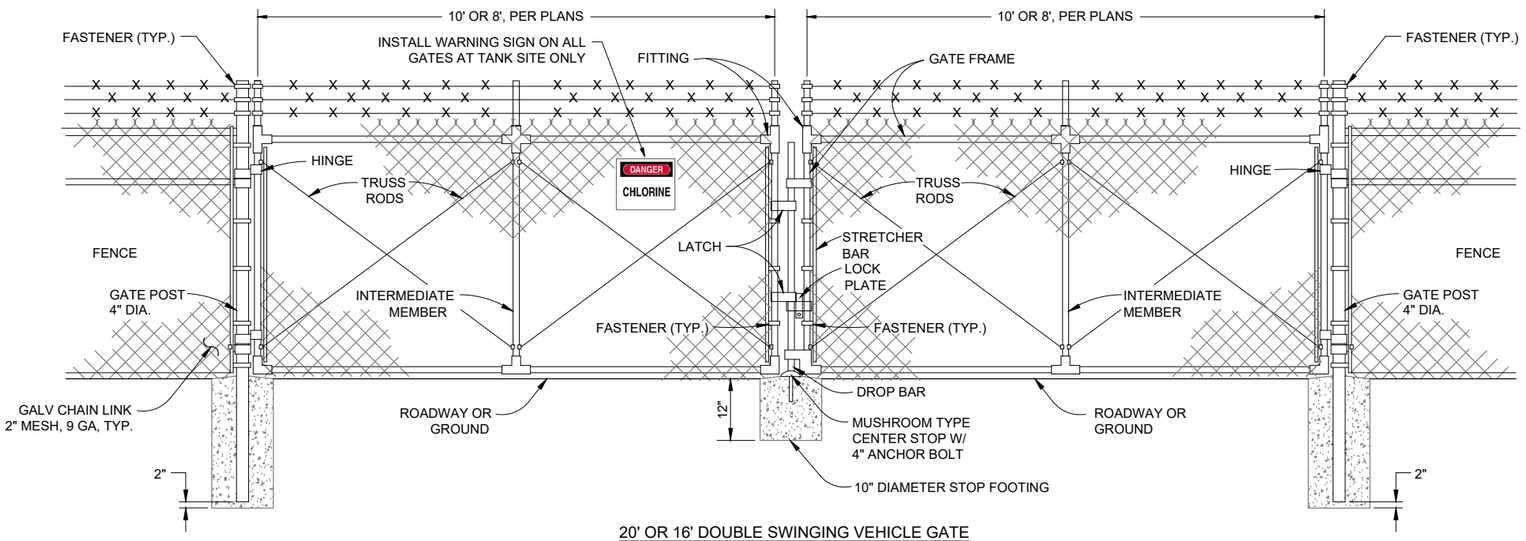
CABLE BARRIER TERMINATION AT BERM DETAIL "A"

NOT TO SCALE



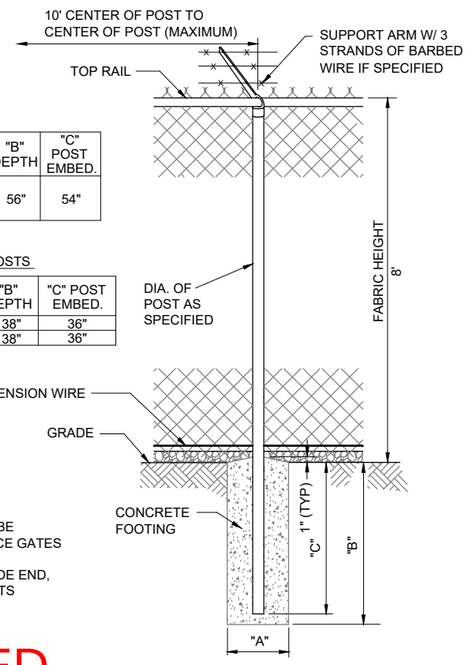
CABLE BARRIER TERMINATION AT FENCE DETAIL (TYP.)

NOT TO SCALE



20' OR 16' 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

REVISED

CHAIN LINK FENCE FOUNDATION

NOT TO SCALE

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Revision	Date	Description	By	Chk'd

Cable-Pb-d&C Fence Details.dwg
12/7/2017 3:05:25 PM aav

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STANDARD FENCE AND CABLE BARRIER DETAILS
NAVAJO GALLUP WATER SUPPLY PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
AAV	AAV	AGR

100% DESIGN

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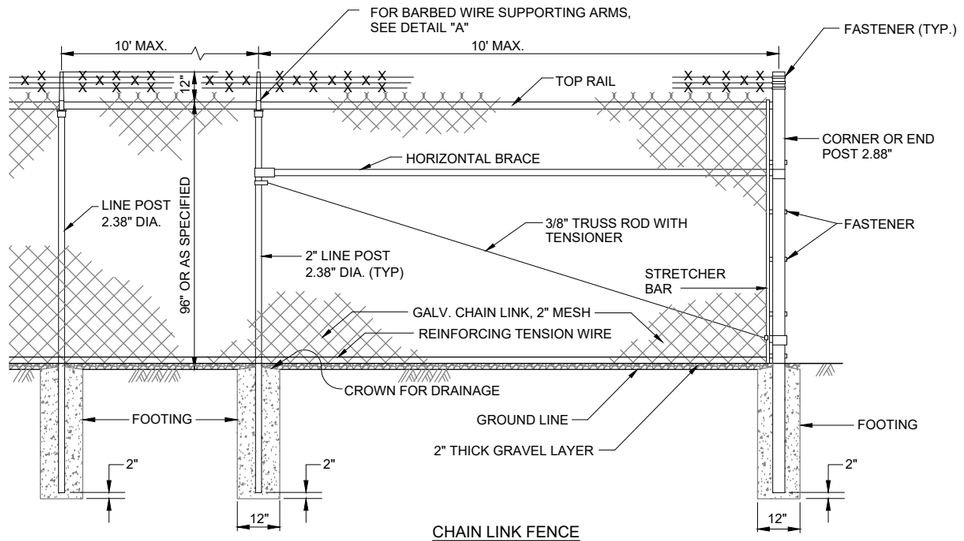
811 Know what's below. Call before you dig.

Date: December 1, 2017

Scale: Horiz: NONE
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Project No: 6921307

Sheet: DT-29

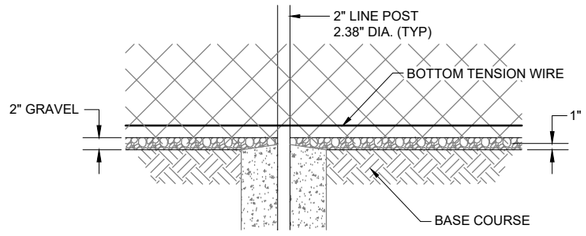


CHAIN LINK FENCE

NOT TO SCALE

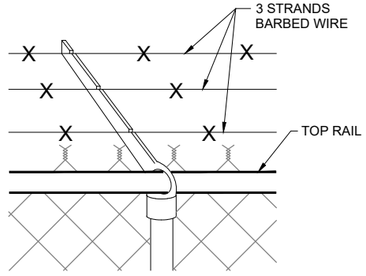
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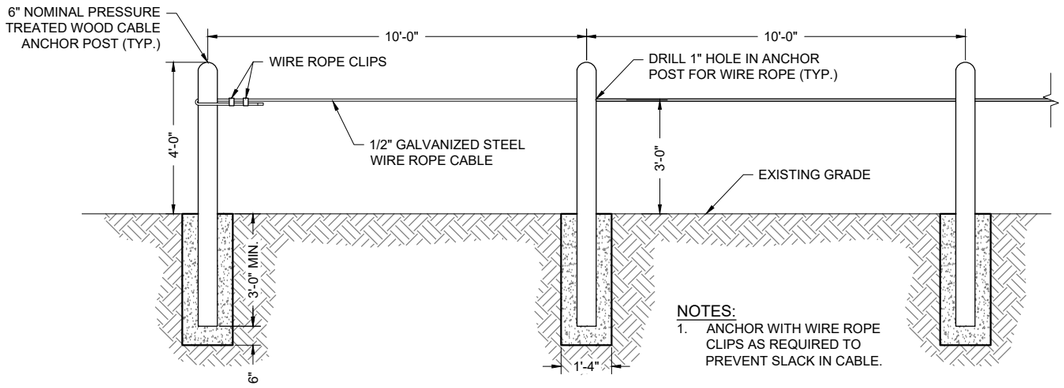
BASE COURSE AND GRAVEL DETAIL

NOT TO SCALE



DETAIL "A" SUPPORTING ARM & BARBED WIRE

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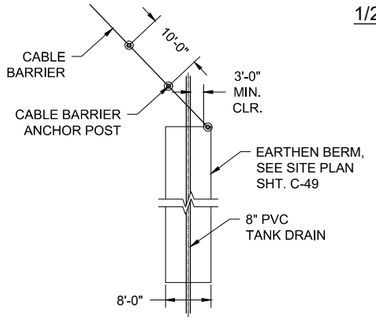


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1/2" WIRE ROPE CABLE BARRIER DETAIL

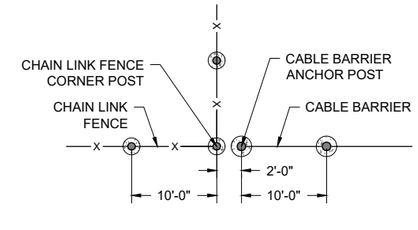
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CABLE BARRIER

TERMINATION AT BERM DETAIL "A"

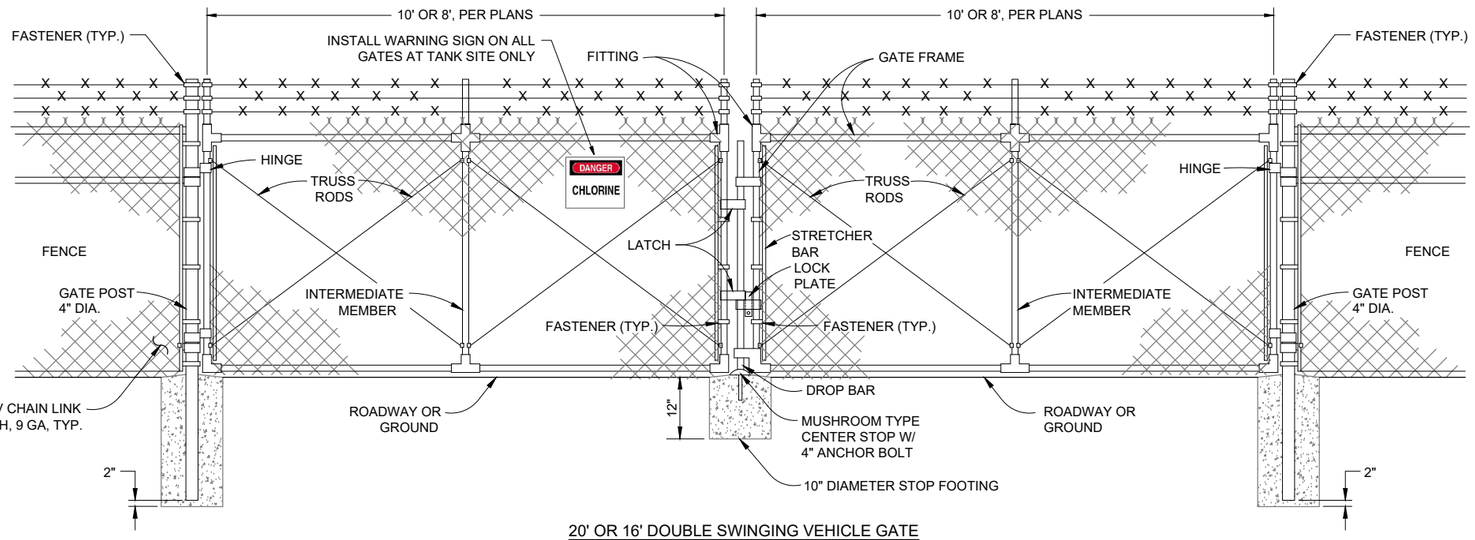
NOT TO SCALE



CABLE BARRIER

TERMINATION AT FENCE DETAIL (TYP.)

NOT TO SCALE



20' OR 16' DOUBLE SWINGING VEHICLE GATE

NOT TO SCALE

GATE POST

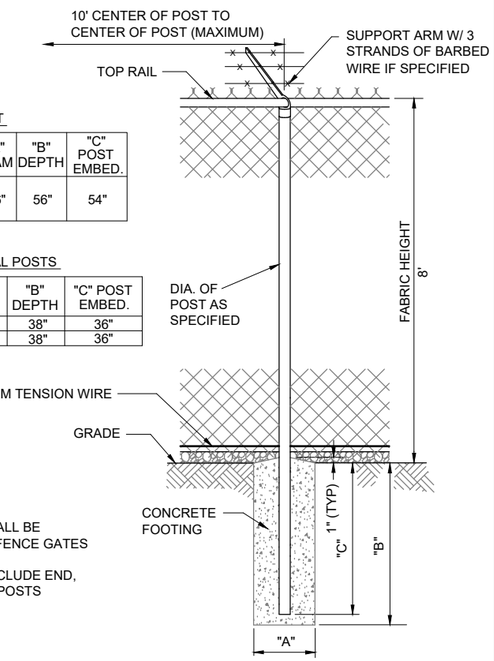
GATE LEAF WIDTH	GATE POST (OD)	FABRIC HEIGHT	"A" DIAM	"B" DEPTH	"C" POST EMBED.
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FABRIC HEIGHT	TYPE POST	"A" DIAM	"B" DEPTH	"C" POST EMBED.
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NOTES:

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CHAIN LINK FENCE FOUNDATION

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Revision	Date	Description	By	Ck'd

Cutter Pro:BBC Fence Details.dwg
8/17/2017 8:00:27 PM aav

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STANDARD FENCE AND CABLE BARRIER DETAILS
NAVAJO GALLUP WATER SUPPLY PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
AAV	AAV	AGR

100% DESIGN

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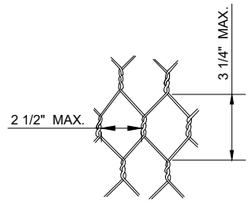
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Date: August 17, 2017

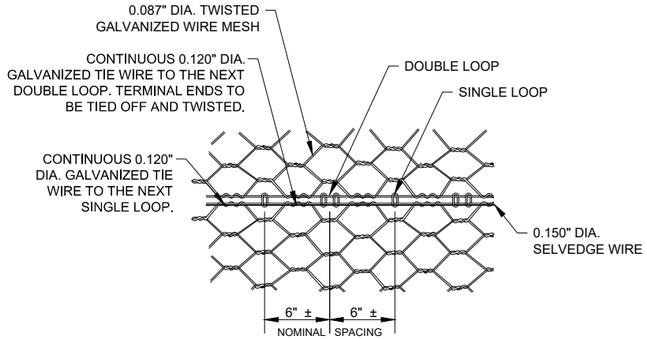
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Project No: 6921307

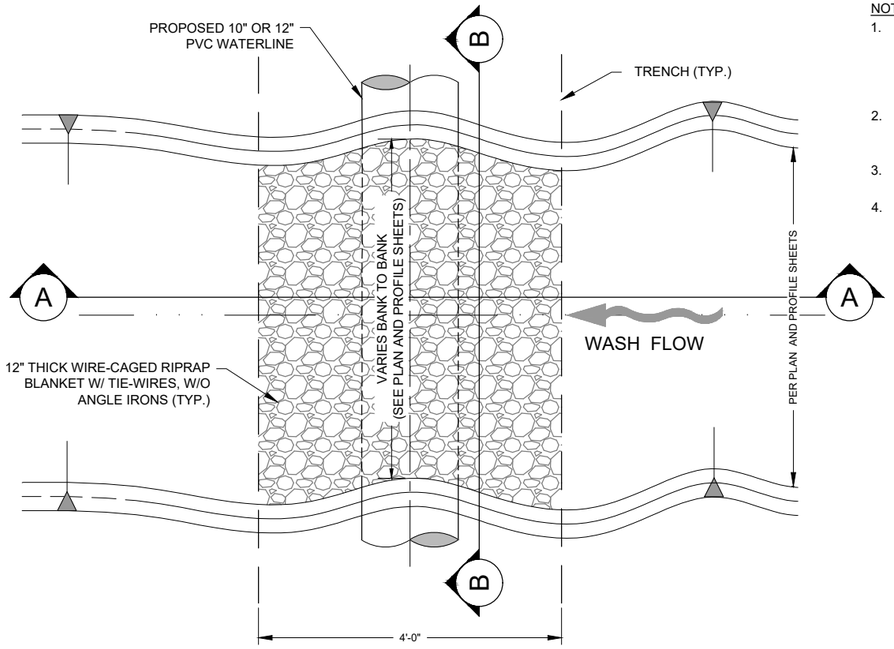
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TWISTED MESH MATTRESS
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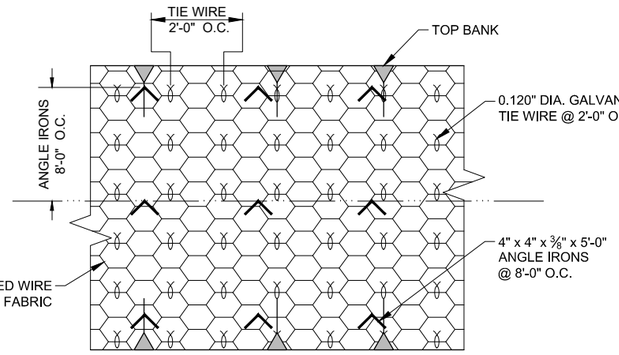
STANDARD JOINT CONNECTION DETAIL
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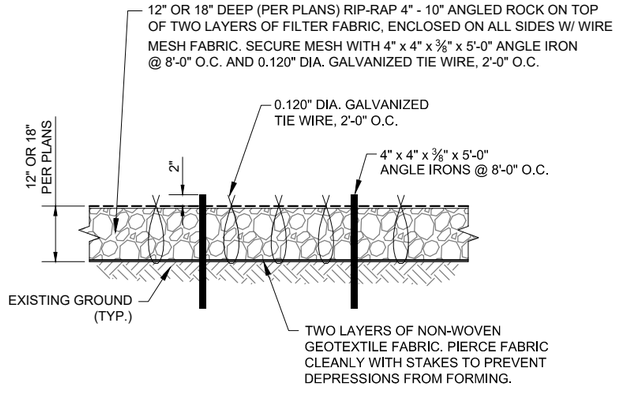
PLAN VIEW

NOTE:

1. FOR RIPRAP 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. RIPRAP 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 RIPRAP OR CABLE CONCRETE MAY BE USED AT CONTRACTOR'S OPTION

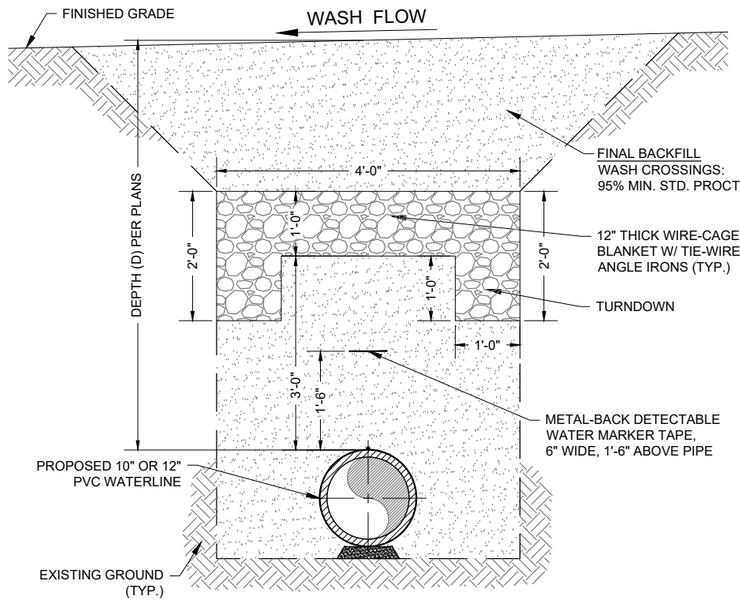


TYP. 12" OR 18" RIP-RAP CAGE & ANCHORING
NOT TO SCALE

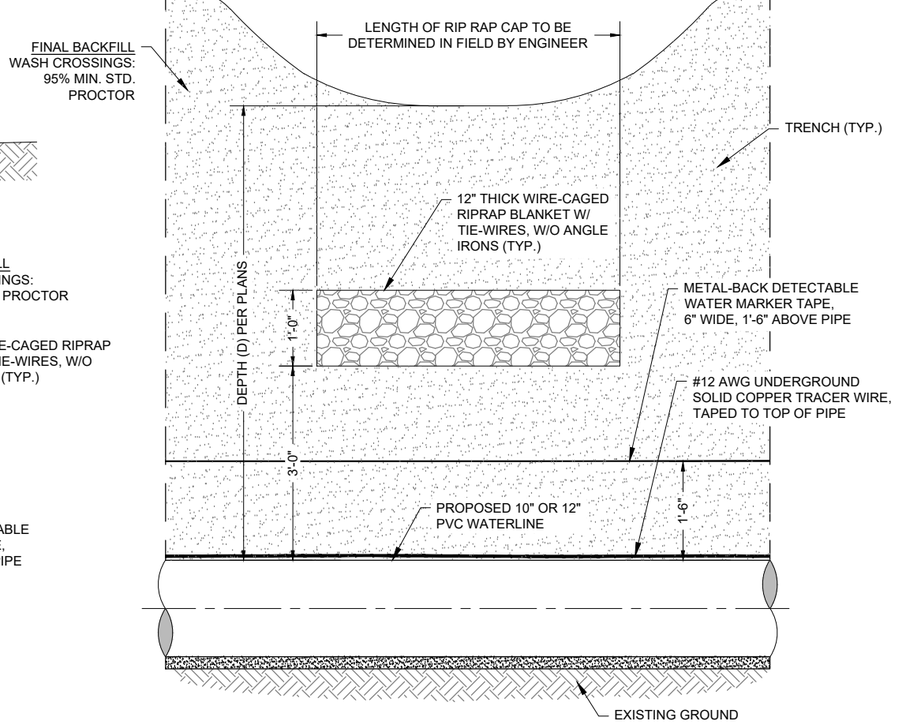


CROSS SECTION

TYPICAL 12" OR 18" RIP-RAP DETAIL
NOT TO SCALE



SECTION A-A



SECTION B-B

TYPICAL BURIED 12" RIPRAP MATTRESS FOR WASH CROSSINGS
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EROSION CONTROL DETAILS (1 of 3)
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
AGR	AAV	AGR

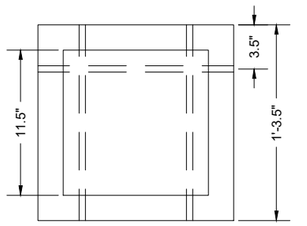
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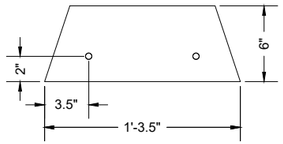
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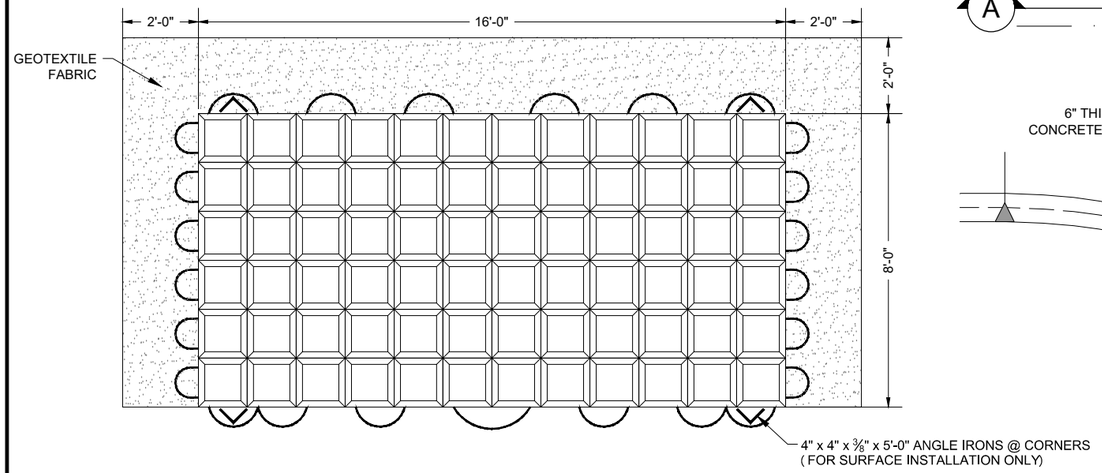
Date: September 25, 2017
Scale: Horiz: NONE Vert: N/A
Project No: 6921307
Sheet: DT-30



PLAN VIEW

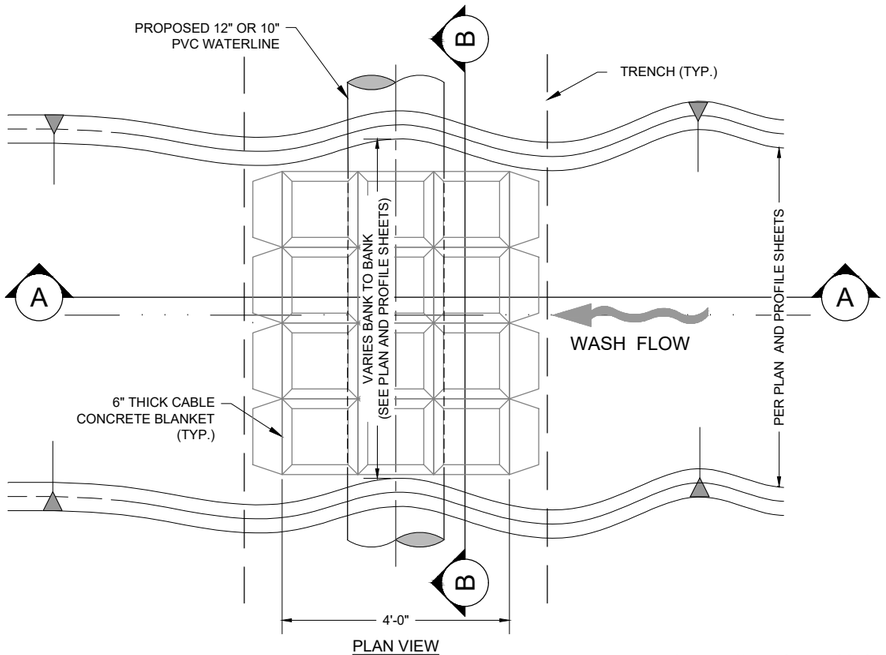


ELEVATION VIEW



TYPICAL 6" CC-45 CLOSED CELL CABLE CONCRETE DETAIL

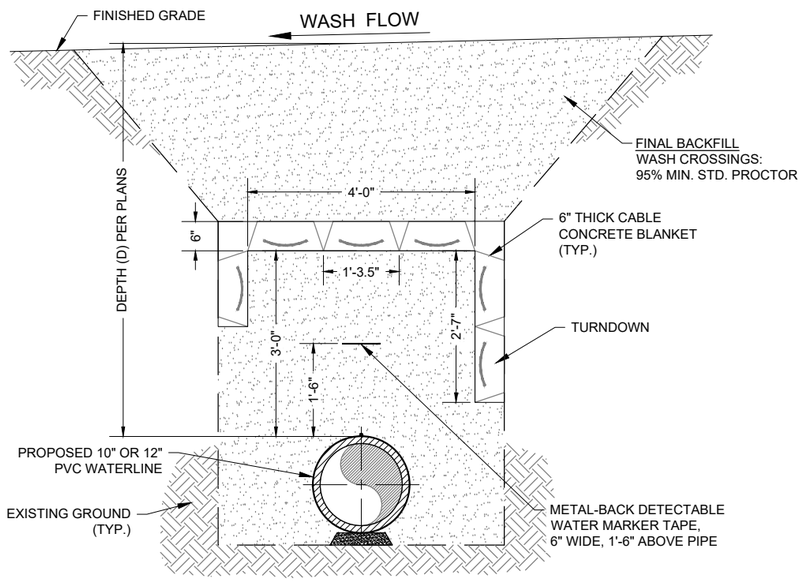
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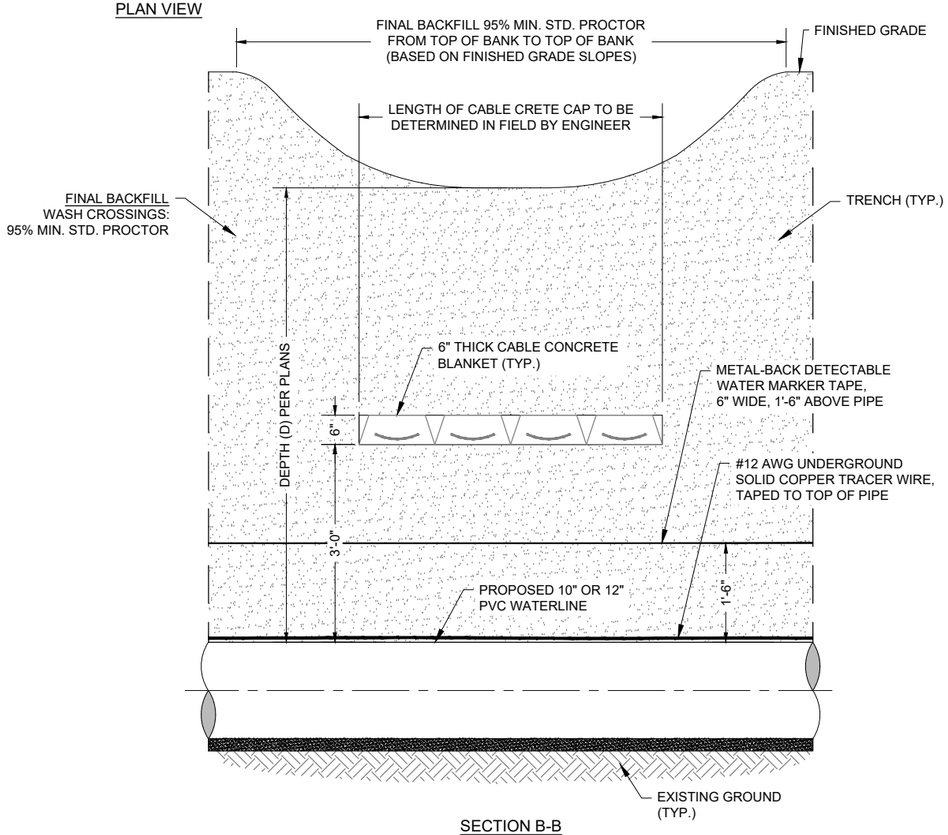
PLAN VIEW

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 RIPRAP 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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SMA Engineering ♦ Environmental ♦ Surveying

CLIENT: The Navajo Nation TOWN: Ojo Encino To Pueblo Pintado, NM

EROSION CONTROL DETAILS (2 of 3)

NAVAJO GALLUP WATER SUPPLY
PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
AGR	AAV	AGR

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

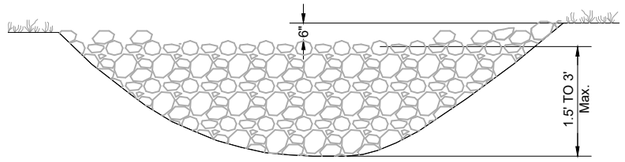
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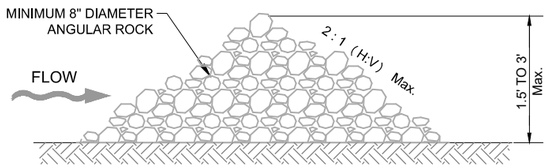
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Vert: N/A

Project No: 6921307

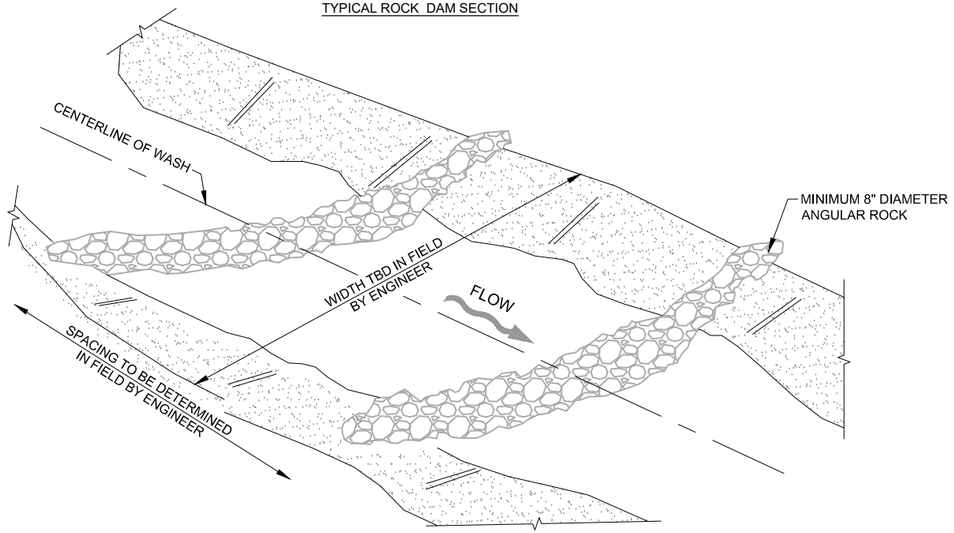
Sheet: DT-31



ELEVATION VIEW



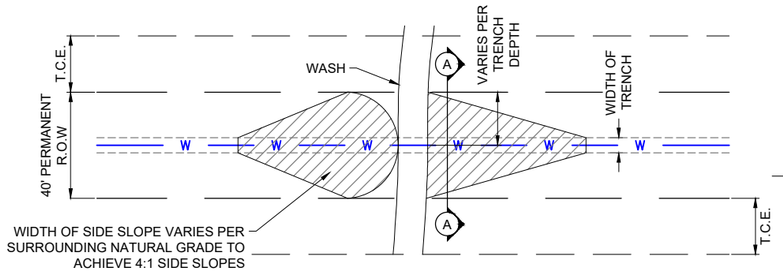
TYPICAL ROCK DAM SECTION



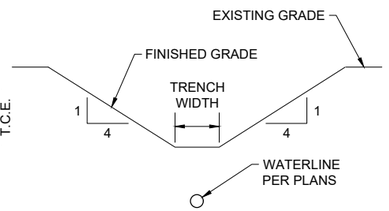
ISOMETRIC VIEW

ROCK CHECK DAM DETAIL

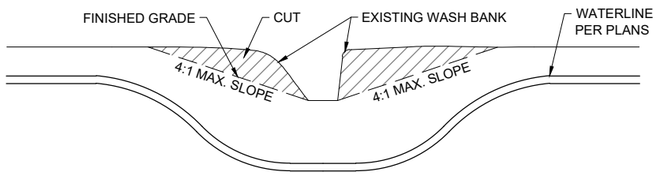
NOT TO SCALE



PLAN VIEW



SECTION A-A



PROFILE VIEW

WASH CROSSING GRADING DETAIL

NOT TO SCALE

NOTE:

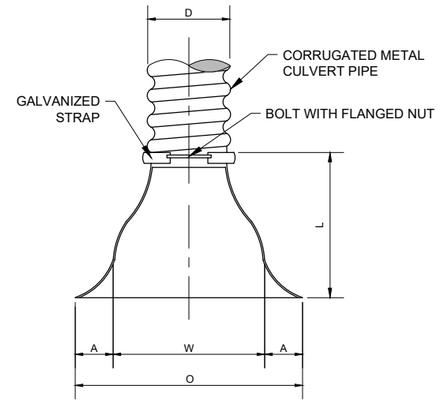
1. ALL GRADING MUST REMAIN WITHIN TEMPORARY CONSTRUCTION EASEMENT.

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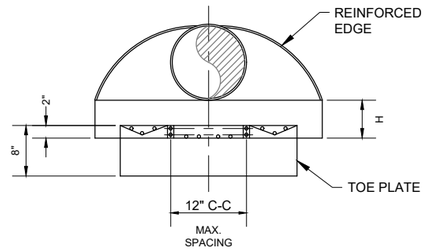
END SECTIONS FOR ROUND PIPE								
Location	D (Pipe Diameter) (Inches)	Culvert Length (Feet)	Pipe Gage	A (± 1") (Inches)	H (Min) (Inches)	L (± 2") (Inches)	W (± 2") (Inches)	O (Overall Width) (± 4") (Inches)
Surge Tank Building Driveway	24"	25'-0"	16	10"	6"	41"	48"	68"

NOTES:

1. ALL 3 PIECE BODIES TO HAVE 12 GA. SIDES AND 10 GA. CENTER PANELS. WIDTH OF CENTER PANELS TO BE GREATER THAN 20% OF THE PIPE PERIPHERY. MULTIPLE PANEL BODIES TO HAVE LAP SEAMS WHICH ARE TO BE TIGHTLY JOINED BY ~6" GALVANIZED RIVETS OR BOLTS.
2. WELDING WILL NOT BE PERMITTED IN CONNECTING END SECTIONS TO CONNECTOR SECTIONS OR CONNECTOR SECTIONS TO PIPE.
3. TYPE 1 PIPE MAY BE USED WITH WELDED SEAM OR LOCKSEAM CONNECTED HELICALLY CORRUGATED PIPE WITH RE-ROLLED ENDS. RE-ROLLED ENDS SHALL INCLUDE A MINIMUM OF 2 ANNULAR CORRUGATIONS OF THE SAME SIZE AS THE PIPE CORRUGATIONS.
4. INSTALL 4x 66" YELLOW CARSONITE UTILITY MARKERS WITH REFLECTORS, 2x AT EACH END, AT ALL CULVERT CROSSINGS OFFSET 12" FROM THE ROAD OR DRIVEWAY SURFACE.
5. ALL FILL TO BE COMPACTED EARTH, 95% OF MAXIMUM DENSITY AS DETERMINED BY ASTM D1557.



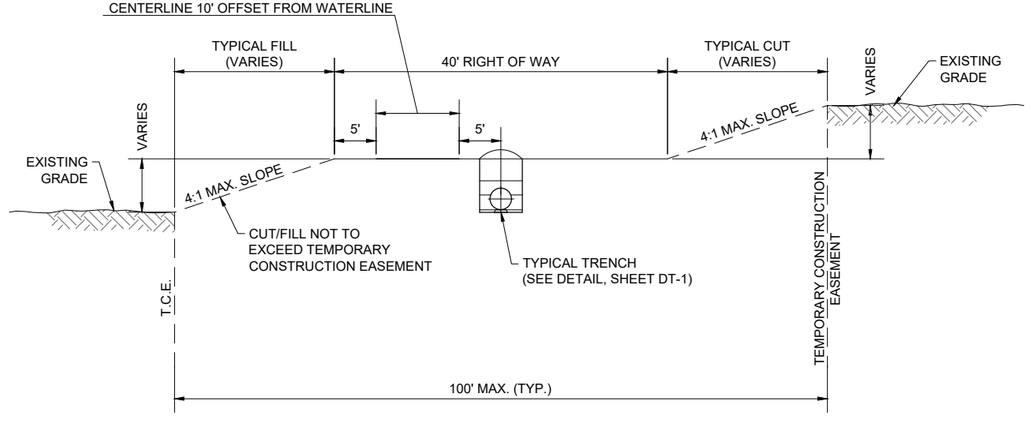
PLAN VIEW



ELEVATION VIEW

STANDARD END SECTION FOR CORRUGATED METAL CULVERT PIPE

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.

Revision	Date	Description	By	Ck'd

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EROSION CONTROL DETAILS (3 of 3)
AND R-O-W GRADING
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
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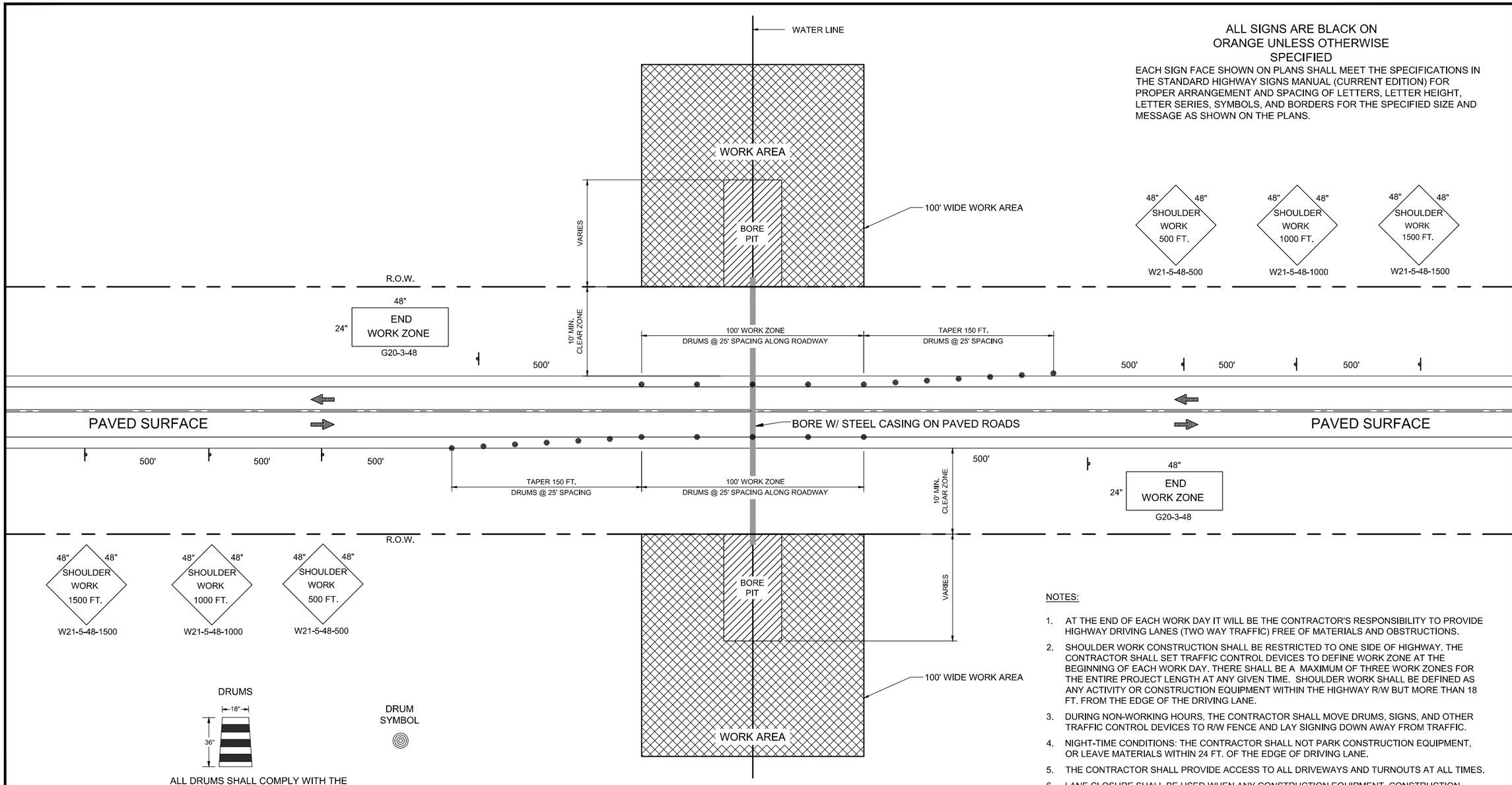
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Project No: 6921307

Sheet: DT-32



ALL SIGNS ARE BLACK ON ORANGE UNLESS OTHERWISE SPECIFIED

EACH SIGN FACE SHOWN ON PLANS SHALL MEET THE SPECIFICATIONS IN THE STANDARD HIGHWAY SIGNS MANUAL (CURRENT EDITION) 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.

ALL DRUMS SHALL COMPLY WITH THE SPECIFICATIONS OF SECTION 702-TRAFFIC CONTROL DEVICES FOR CONSTRUCTION, NMSHTD STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, CURRENT EDITION

TRAFFIC CONTROL LAYOUT - SHOULDER CLOSURE PAVED ROAD CROSSINGS

NOT TO SCALE

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

NMDOT CHANNELIZATION DEVICES, TYPE: DRUM, NO. 702525.
TOTAL OF 22 DRUMS REQUIRED.

NOTES:

1. AT THE END OF EACH WORK DAY IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE HIGHWAY DRIVING LANES (TWO WAY TRAFFIC) FREE OF MATERIALS AND OBSTRUCTIONS.
2. 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.
3. 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.
4. NIGHT-TIME CONDITIONS: THE CONTRACTOR SHALL NOT PARK CONSTRUCTION EQUIPMENT, OR LEAVE MATERIALS WITHIN 24 FT. OF THE EDGE OF DRIVING LANE.
5. THE CONTRACTOR SHALL PROVIDE ACCESS TO ALL DRIVEWAYS AND TURNOUTS AT ALL TIMES.
6. LANE CLOSURE SHALL BE USED WHEN ANY CONSTRUCTION EQUIPMENT, CONSTRUCTION MATERIAL, OR CONSTRUCTION OBJECTS ARE WITHIN 18 FT. FROM EDGE OF DRIVING LANE.
7. ALL CONSTRUCTION TRAFFIC CONTROL DEVICES SHALL COMPLY WITH 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.
8. EXCEPT DURING AN EMERGENCY, NO NIGHT-TIME WORK TO BE PERFORMED
9. 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.
10. FOLLOW ALL ROAD CROSSING REQUIREMENTS FOR THE FOLLOWING ROADS:
    - BIA ROUTE 474 (SEE SHEET C-11)
    - BIA ROUTE 9 (SEE SHEET C-40)

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CLIENT: The Navajo Nation TOWN: Ojo Encino To Pueblo Pintado, NM

TRAFFIC CONTROL (PAVED ROAD)
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
GMM	AAV	GMM

100% DESIGN

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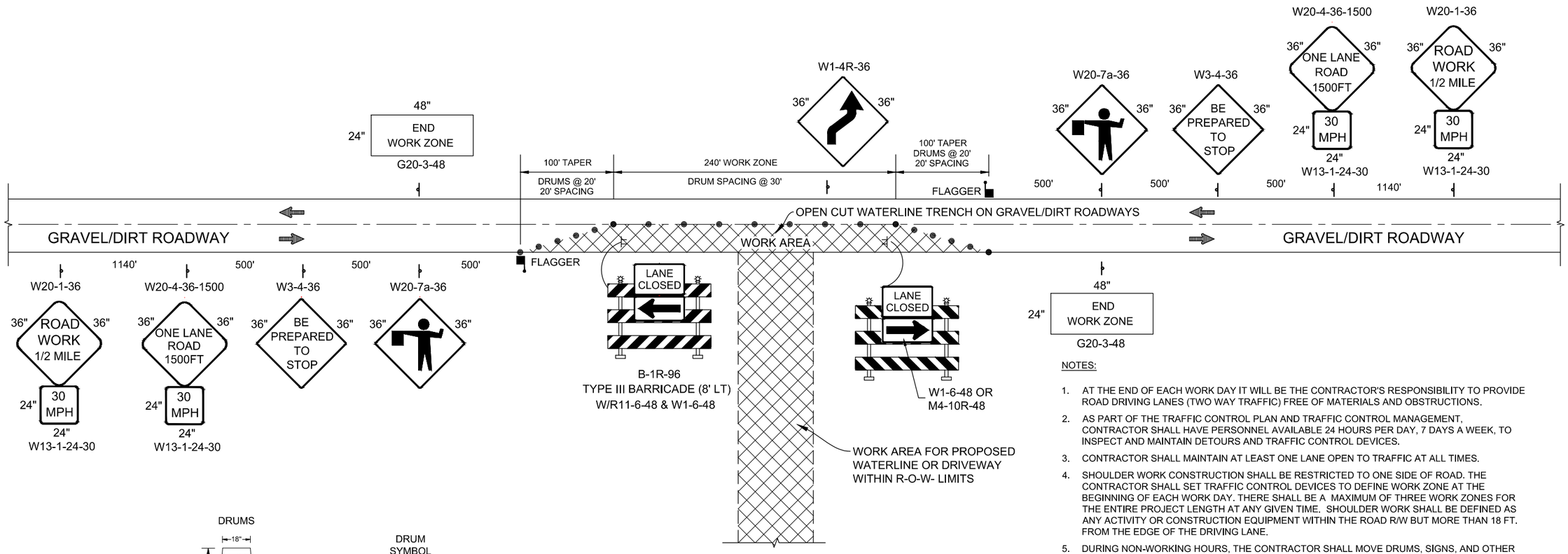
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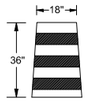
Date: August 17, 2017
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Project No: 6921307
Sheet: DT-33

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DRUMS



DRUM SYMBOL



ALL DRUMS SHALL COMPLY WITH THE SPECIFICATIONS OF SECTION 702-TRAFFIC CONTROL DEVICES FOR CONSTRUCTION, NMSHTD STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, CURRENT EDITION

TRAFFIC CONTROL LAYOUT - LANE CLOSURE OF GRAVEL/DIRT ROADWAY FOR CONSTRUCTION OF WATERLINE CROSSING OR CONSTRUCTION OF DRIVEWAY

NOT TO SCALE

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

NMDOT CHANNELIZATION DEVICES, TYPE: DRUM, NO. 702525.
TOTAL OF 19 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.
9. 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.
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 ALAMO ROAD (SEE SHEETS C-14, C-15, AND C-18)
    - SANDOVAL COUNTY DRY LAKE ROAD (SEE SHEET C-24)
    - BIA ROUTE 7133 (SEE SHEET C-43)

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TRAFFIC CONTROL (GRAVEL AND DIRT ROAD)

NAVAJO GALLUP WATER SUPPLY
PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
JDS	AAV	JDS

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Date: August 17, 2017

Scale: Horiz: NONE
Vert: N/A

Project No: 6921307

Sheet: DT-34

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
OL	MOTOR CONNECTION FOR FRACTIONAL HP MOTOR (1/3 HP OR LESS). PROVIDE THERMAL OVERLOAD SWITCH (WEATHERPROOF IF OUTSIDE) ADJACENT TO MOTOR UNLESS SWITCH IS SHOWN ELSEWHERE ON PLANS
#	MOTOR CONNECTION FOR MOTOR WITH HP INDICATED
	DISCONNECT SWITCH, POLES AND RATING AS INDICATED OR AS REQUIRED, NEMA 3R IF INSTALLED OUTSIDE
	FUSED DISCONNECT SWITCH, FUSE, POLES AND RATING AS INDICATED OR AS REQUIRED, NEMA 3R IF INSTALLED OUTSIDE
	COMBINATION MAGNETIC MOTOR CONTROLLER/DISCONNECT SWITCH. SIZE, POLES, FUSES AND OVERLOADS PER MOTOR SERVED
	MAGNETIC MOTOR CONTROLLER, SIZE AND POLES PER MOTOR SERVED
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.

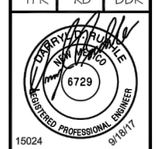
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CLIENT: The Navajo Nation TOWN: Ojo Encino To Pueblo Pintado, NM

GENERAL NOTES - ELECTRICAL PLANS
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
TFR	KD	DDR



15024 9/18/17

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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.

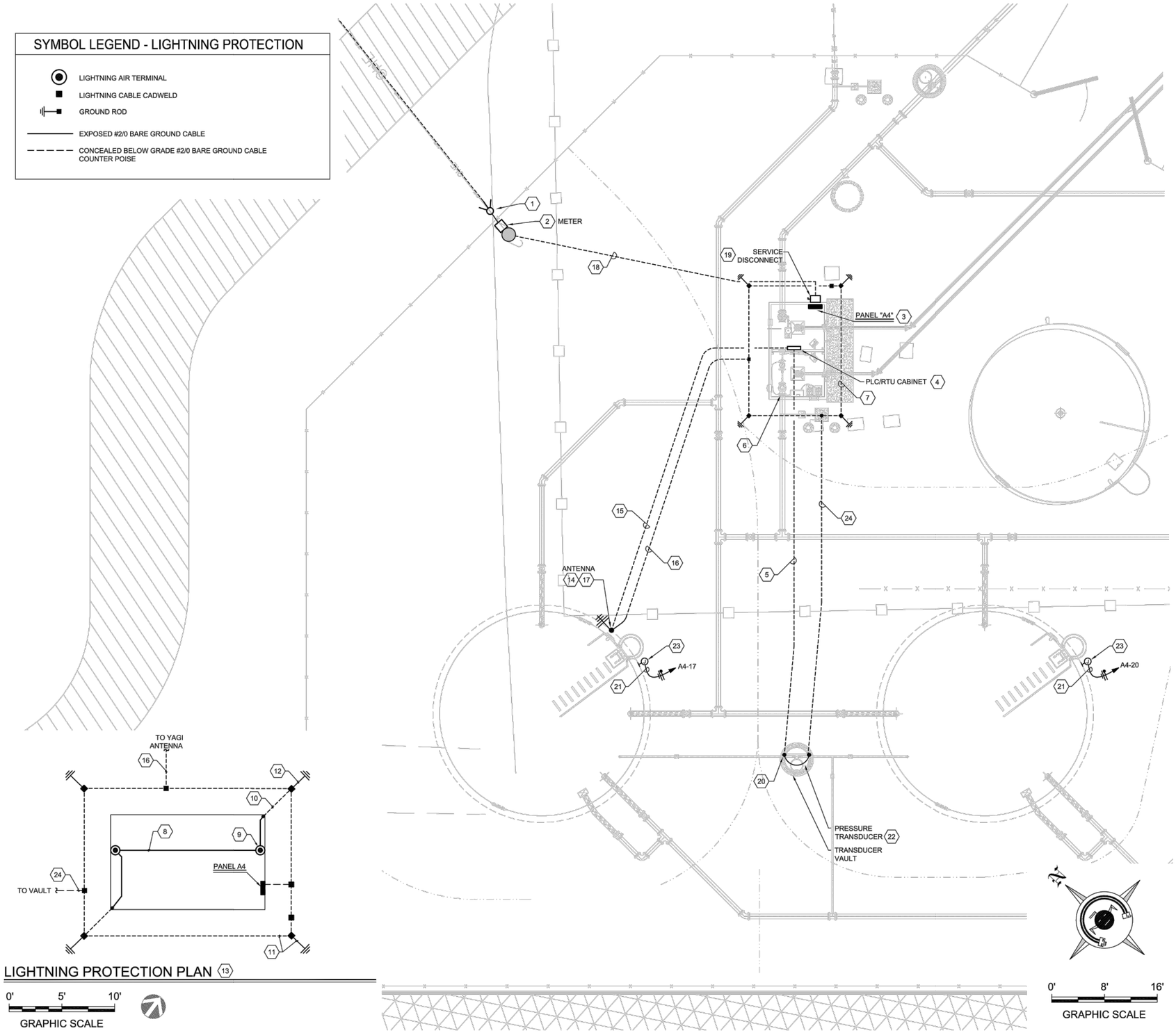
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Project No: 6921307
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SYMBOL LEGEND - LIGHTNING PROTECTION

- 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

PUEBLO PINTADO TANK ELECTRICAL SITE PLAN

0' 8' 16'

GRAPHIC SCALE

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 "A4". 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 PRESSURE TRANSDUCERS 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 TRANSDUCER 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 PRESSURE TRANSDUCER 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
		15024 E101 Pueblo Pintado Electrical Site Plan.dwg		
		9/18/2017 10:31:29 AM Tombe		

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Engineering • Environmental Surveying

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PUEBLO PINTADO ELECTRICAL SITE PLAN

NAVAJO GALLUP WATER SUPPLY
PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
TFR	KD	DDR

DARRYL D. HUMBLE — NEW MEXICO — 6729 — REGISTERED PROFESSIONAL ENGINEER — 9/18/17

15024

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NOTICE OF EXTENDED PAYMENT PROVISION:
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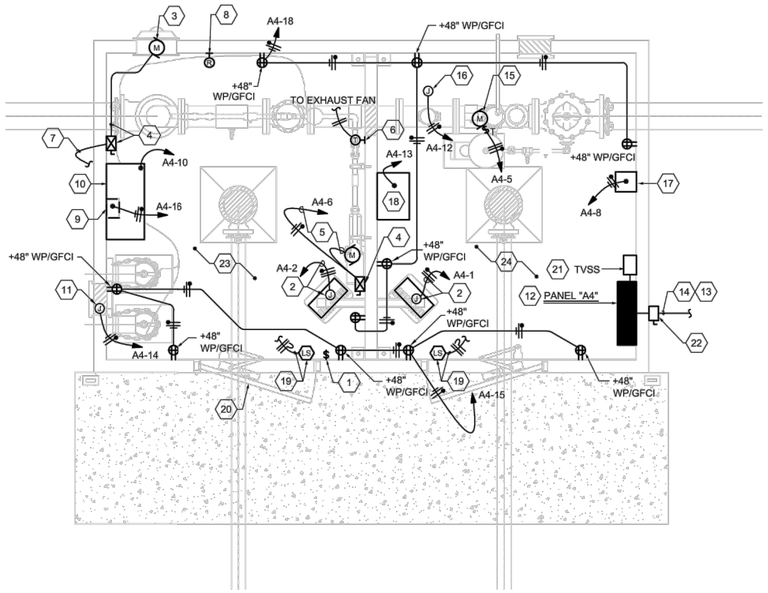
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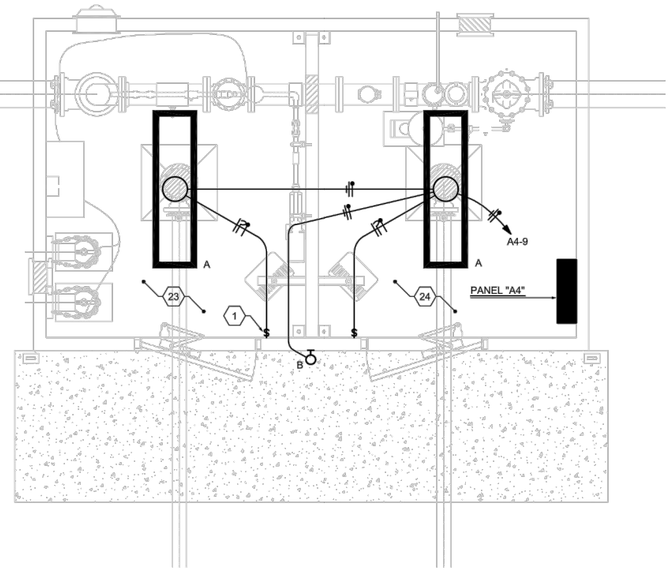
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PUEBLO PINTADO CHLORINATION BUILDING - POWER PLAN

0' 2' 4'

GRAPHIC SCALE



PUEBLO PINTADO CHLORINATION BUILDING - LIGHTING PLAN

0' 2' 4'

GRAPHIC SCALE

PANEL: "A4" | OC DEVICE TYPE: BREAKER | ENCLOSURE: NEMA 4X | MAINS (A): 100A MCB
PUEBLO PINTADO 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 "A4". 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.

Revision	Date	Description	By	Chk'd
		15024 E102 Pueblo Pintado Chlorination Details.dwg		
		9/18/2017 10:01:12 AM Tcirillo		

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CLIENT: The Navajo Nation TOWN: Ojo Encino To Pueblo Pintado, NM

PUEBLO PINTADO CHLORINATION BUILDING
ELECTRICAL PLANS
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
TFR	KD	DDR

DARRYL D. ROBERTS — NEW MEXICO — 6729 — REGISTERED PROFESSIONAL ENGINEER — 9/18/17

15024

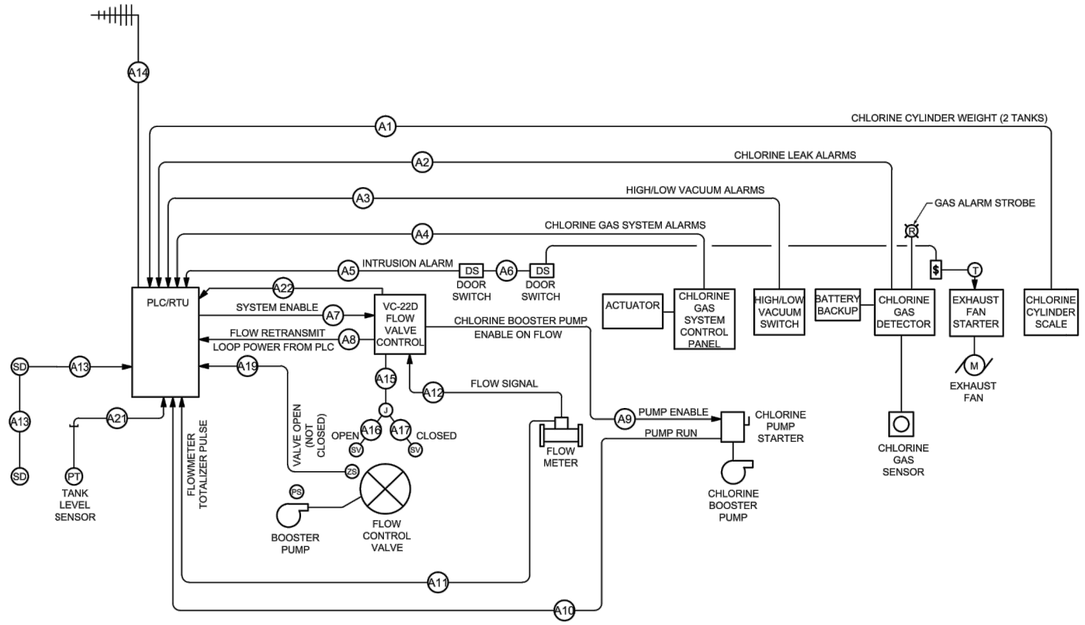
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NOTICE OF EXTENDED PAYMENT PROVISION:
THIS CONTRACT ALLOWS THE OWNER TO MAKE PAYMENT WITHIN 45 DAYS AFTER SUBMISSION OF AN UNDISPUTED REQUEST FOR PAYMENT.

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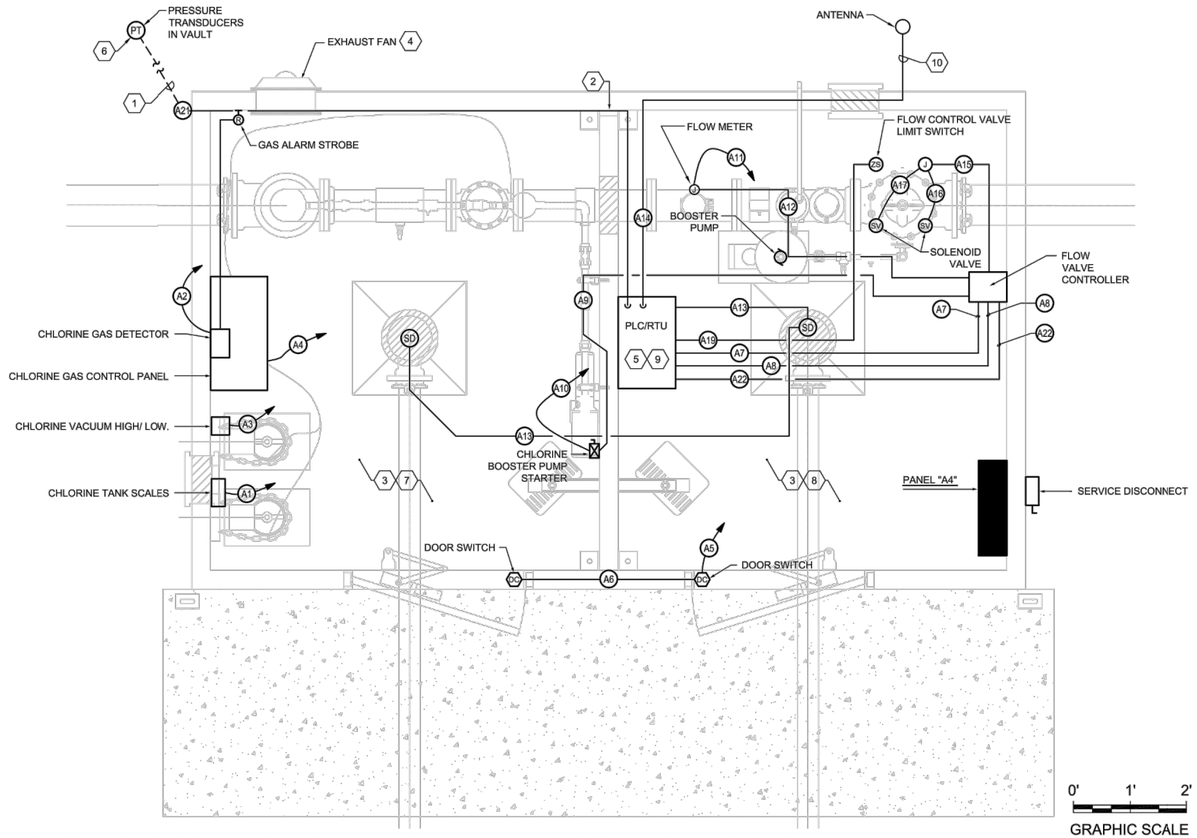
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Sheet: E102

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PUEBLO PINTADO CHLORINATION BUILDING CONTROL RISER DIAGRAM

SCALE: NONE



PUEBLO PINTADO CHLORINATION BUILDING - SCADA SYSTEM AND CONTROL PLAN

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.

Revision	Date	Description	By	Chk'd

15024 E103 Pueblo Pintado Chlor Bldg Plan, Riser & Wiring Schedule.dwg
9/18/2017 10:05:08 AM Tortello

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TOWN: Ojo Encino To Pueblo Pintado, NM

PUEBLO PINTADO CHLORINATION BUILDING - SCADA SYSTEM AND CONTROL PLAN
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
TFR	KD	DDR

15024

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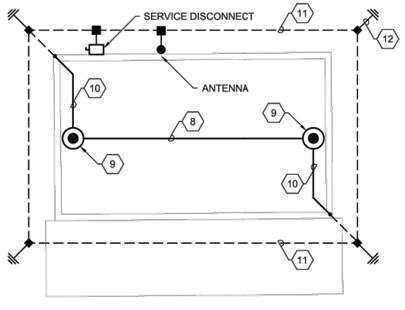
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Sheet: E103

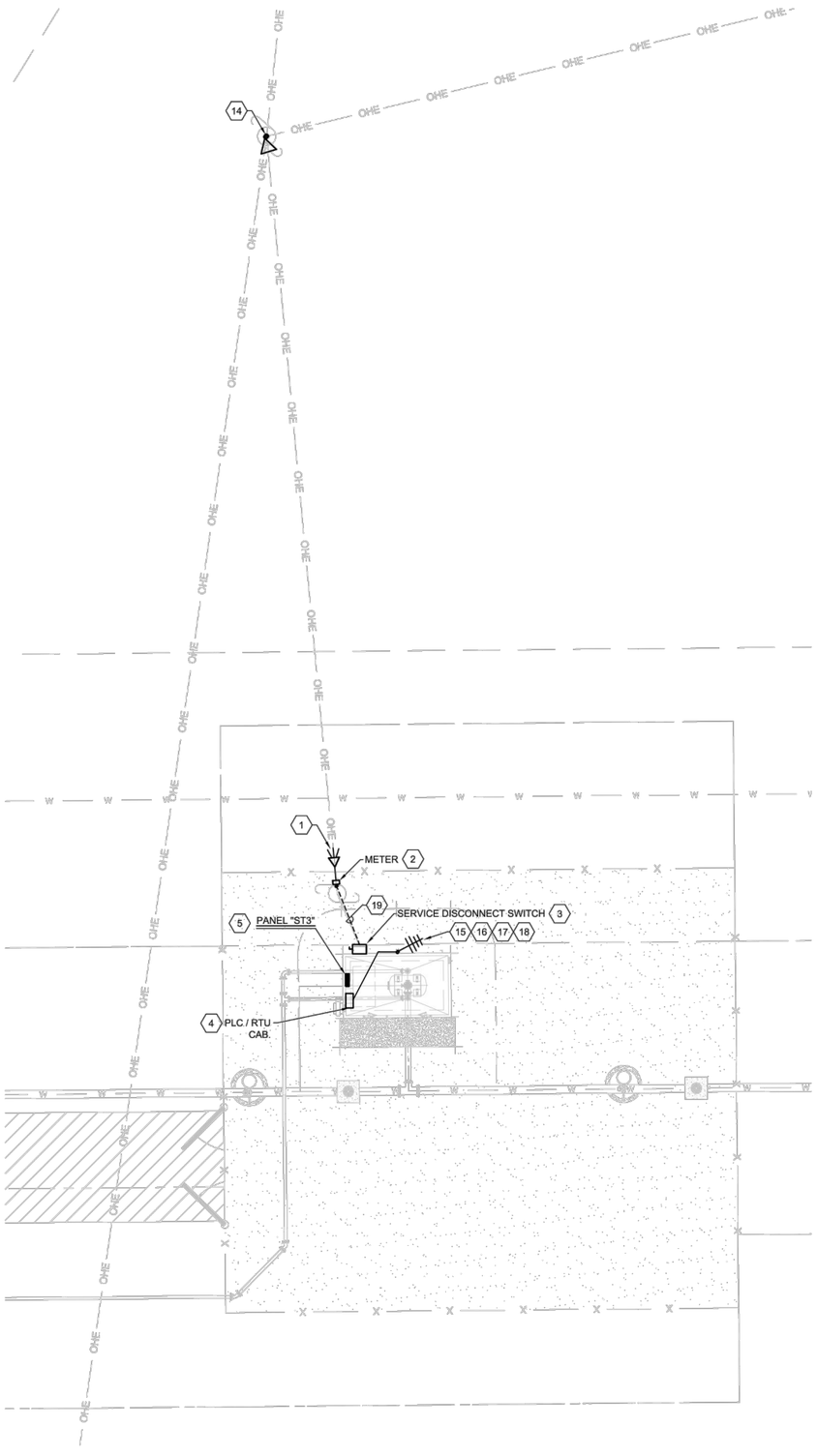
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SYMBOL LEGEND - LIGHTNING PROTECTION

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

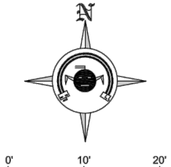


LIGHTNING PROTECTION PLAN (13)



0' 4' 8' GRAPHIC SCALE

REACH 26.1 SURGE TANK BUILDING - ELECTRICAL SITE PLAN (6) (7)



0' 10' 20' GRAPHIC SCALE

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 IS MANUFACTURER 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

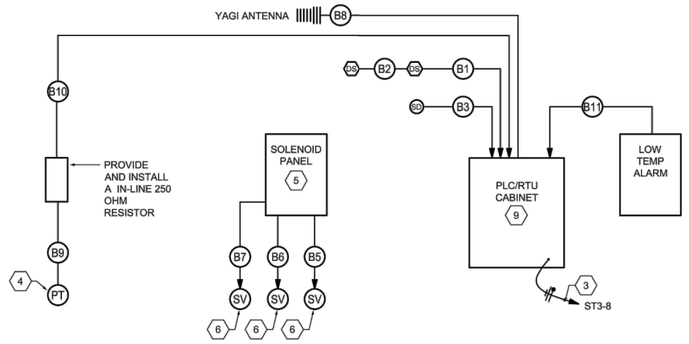
1. NEW OVERHEAD 240 VOLT, SINGLE PHASE LINE OF OVERHEAD CONDUCTORS TO POLE BY JEMEZ UTILITY COMPANY. POLE INSTALLED BY CONTRACTOR PER JEMEZ ELECTRIC COOP SPECIFICATION. VERIFY POWER POLE LOCATION WITH ENGINEER AND UTILITY PRIOR TO FINAL PLACEMENT.
2. CONTRACTOR SHALL PROVIDE A METER ENCLOSURE MOUNTED ON 25' POLE. REFER TO POWER RISER DIAGRAM FOR ADDITIONAL REQUIREMENTS. METER SHALL FACE TOWARDS FENCE. POLE PROVIDED AND INSTALLED BY THE CONTRACTOR. PROVIDE WORKING CLEARANCE OF 3'-0" BETWEEN METER AND FENCE PER N.E.C. REQUIREMENTS.
3. SERVICE DISCONNECT SWITCH. REFER TO POWER RISER DIAGRAM, ON SHEET E201, FOR ADDITIONAL REQUIREMENTS.
4. RTU/PLC CABINET. CABINET SHALL BE A NEMA 4X ENCLOSURE. COORDINATE FINAL LOCATION WITH THE GENERAL CONTRACTOR.
5. SURGE TANK BUILDING LOAD CENTER. REFER TO POWER RISER DIAGRAM AND SURGE TANK BUILDING PLAN.
6. REFER TO SURGE TANK BUILDING FLOOR PLAN FOR EQUIPMENT LAYOUT AND CIRCUITING.
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. POLE TRANSFORMER AND SECONDARY AERIAL CONDUCTORS PROVIDED BY JEMEZ UTILITY. COORDINATE FINAL LOCATION AND REQUIREMENTS.
15. INSTALL A YAGI ANTENNA ON TOP OF ANTENNA MAST, ANTENNA SHALL BE ADJUSTED FOR MAXIMUM SIGNAL STRENGTH AT THE OJO ENCINO TANK SITE. REFER TO SHEETS E105 & E203 FOR COAXIAL ANTENNA CABLE REQUIREMENT
16. 1" CONDUIT WITH CABLE FROM PLC TO ANTENNA MAST.
17. 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.
18. REFER TO ANTENNA DETAIL ON SHEET E203 FOR ADDITIONAL REQUIREMENTS.
19. UNDERGROUND SECONDARY CONDUIT CONDUCTOR, REFER TO POWER RISER ON SHEET E201.

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.

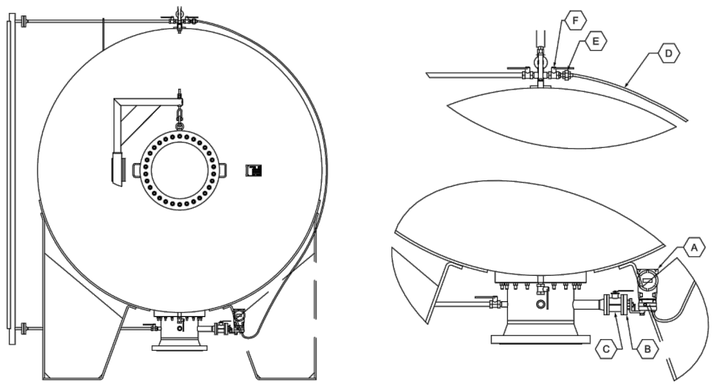
THE ENGINEER HAS UNDERTAKEN NO FIELD VERIFICATION OF THE LOCATION, DEPTH, SIZE OR TYPE OF EXISTING UTILITY LINES, PIPELINES, OR UNDERGROUND UTILITY LINES, MAKES NO REPRESENTATION PERTAINING THERETO, AND ASSUMES NO RESPONSIBILITY OR LIABILITY THEREFORE. THE CONTRACTOR SHALL INFORM ITSELF TO THE LOCATION 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



SURGE TANK BUILDING - CONTROL RISER DIAGRAM

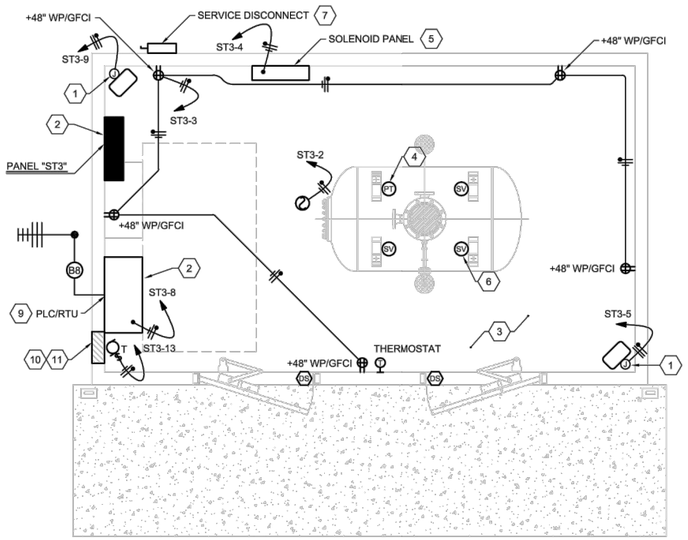
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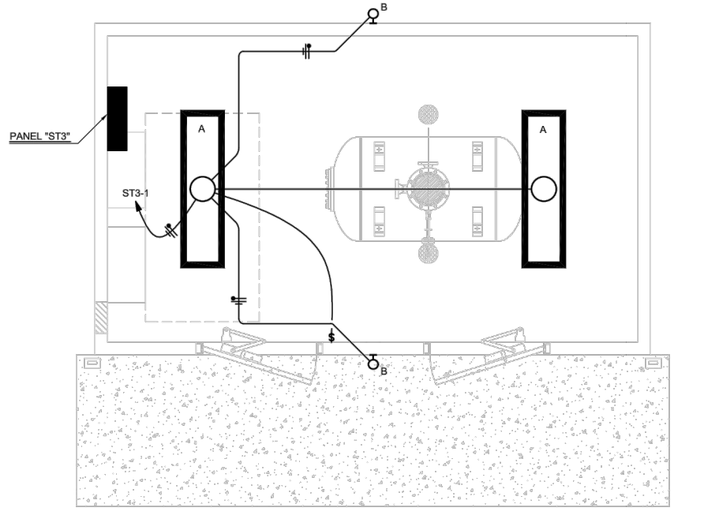
ITEM	DESCRIPTION
A	PRESSURE DIFFERENTIAL TRANSMITTER ROSEMOUNT 3051
B	2" FLANGED CONNECTION HIGH PRESSURE DIAPHRAGM SEAL
C	2" BALL VALVE
D	STAINLESS STEEL FLEXIBLE TUBING TEFLON LINED
E	1/2" NPT UNION FITTING
F	1/2" NPT BALL VALVE

ROSEMOUNT 3051 - PRESSURE DIFFERENTIAL TRANSMITTER - CONNECTION DETAIL

SCALE: NONE



SURGE TANK BUILDING - POWER PLAN 8



SURGE TANK BUILDING - LIGHTING PLAN 8

0' 2' 4'

GRAPHIC SCALE

0' 2' 4'

GRAPHIC SCALE

KEYED NOTES

1. PROVIDE AND INSTALL A 2.6 KW 240 VOLTS, SINGLE PHASE ELECTRIC WALL MOUNTED HEATER WITH INTEGRAL THERMOSTAT. HOMERUN 3 # 10 - ¾" CONDUIT TO CIRCUIT INDICATED. HEATER SHALL BE AS MANUFACTURED BY CHROMALOX #HVH-02-1-00-TL-D-00-0-0-S-HVW-1.
2. PROVIDE A MINIMUM WORKING CLEARANCE IN FRONT OF PANEL PER THE NEC OF 30" WIDE X 36" DEEP.
3. ALL CONDUITS SHALL BE RUN OVERHEAD.
4. FIELD COORDINATE THE LOCATION OF THE PRESSURE TRANSMITTER PRIOR TO THE EXTENSION OF THE CONTROL WIRING. PRESSURE TRANSMITTER SHALL BE AS MANUFACTURED BY ROSEMOUNT # 3051C, RANGE 2-5, COORDINATE ALL ADDITIONAL OPTIONS REQUIRED FOR A COMPLETE FUNCTIONAL SYSTEM WITH THE EQUIPMENT SUPPLIER.
5. FIELD COORDINATE THE LOCATION OF THE SOLENOID VALVE CONTROL PANEL PRIOR TO THE EXTENSION OF POWER AND CONTROL WIRING. SOLENOID LEVEL INDICATION SYSTEM CONTROL PANEL SHALL BE AS MANUFACTURED BY GOLDER., NEMA 4X ENCLOSURE.
6. FIELD COORDINATE THE LOCATION OF THE SURGE TANK SOLENOID VALVE LOCATIONS PRIOR TO THE EXTENSION OF CONTROL WIRING. SOLENOID VALVES SHALL BE AS MANUFACTURED BY ASCO, SERIES 8210,304 STAINLESS STEEL, #238610 & SERIES 8262, 304 STAINLESS STEEL, # 238210. COORDINATE ALL ADDITIONAL OPTIONS REQUIRED FOR A COMPLETE FUNCTIONAL SYSTEM WITH THE SUPPLIER.
7. REFER TO POWER RISER DIAGRAM ON SHEET E201 FOR SERVICE EQUIPMENT SIZES AND WIRING.
8. ALL EXPOSED CONDUITS INSTALLED WITHIN THE BUILDING SHALL BE RIGID STEEL CONDUITS WITH THREADED CONDUIT BODIES. ALL EQUIPMENT ENCLOSURES AND CONDUIT INSTALLATION SHALL BE RATED FOR WET LOCATIONS.
9. NEW PLC/RADIO CABINET. CABINET SHALL BE A NEMA 4X ENCLOSURE. PLC CONFIGURED TO OWNER STANDARDS AND REQUIREMENTS. REFER TO SHEETS E301 THRU E303 AND SPECIFICATIONS. REFER TO SPECIFICATIONS SECTION 27 43 30 FOR RADIO REQUIREMENTS. MOUNT ON WALL ADJACENT TO PLC CABINET. PROVIDE WITH RADIO ANTENNA CABLE SURGE ARRESTOR BETWEEN ANTENNA CABLE AND RADIO.
10. EXHAUST FAN - CONTINENTAL MODEL AXC355B, 830 WATTS, 120V POWER CORD, SPEED CONTROLLER. CONTROL FROM LINE VOLTAGE WALL THERMOSTAT WITH ON/OFF OVERRIDE. REFER TO SHEET E202 FOR ADDITIONAL INFORMATION. SUPPORT FAN WIH UNISTRUT AND ALL-THREAD ROD FROM TRUSSES. PROVIDE 1/2" HARDWARE CLOTH ON OPEN END OF FAN SECURED TO FAN HOUSING.
11. 6X22 AIR RELIEF GRILLE - TITUS 300 OR EQUAL. INSTALL IN GABLE ENDS. DIMENSIONS MAY BE MODIFIED TO AN EQUIVALENT OPENING SIZE TO FIT STRUCTURE. RECTANGULAR TO ROUND DUCTWORK TRANSITION FROM GRILLE TO EXHAUST FAN.

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

PANEL: "ST3" | **LOCATION:** SURGE TANK BUILDING | **FED FROM:** SERVICE DISCONNECT | **OC DEVICE TYPE:** BREAKER | **DEVICE FAMILY:** BOLT ON | **MODEL:** | **ENCLOSURE:** NEMA 3R | **MOUNTING:** SURFACE | **VOLTAGE:** 120/240V | **MAINS (A):** 100 MCB | **WIRING:** 1 PH., 3 WIRE | **AIC:** 10,000

BKR SIZE	NOTES	DESCRIPTION	DEMAND CODE	LOAD (VA)	CKT NO.	PHASE A	PHASE B	CKT NO.	LOAD (VA)	DEMAND CODE	DESCRIPTION	NOTES	BKR SIZE
20A/1P		LIGHTING	LTS	584	1	634		2	50		SMOKE DETECTOR		20A/1P
20A/1P		RECEPTACLES	REC	540	3		540	4	100		SOLENOID PANEL		20A/1P
30A/2P		UNIT HEATER		2066	5	2066		6			SPARE		20A/1P
				2066	7		2166	8	100		PT CONTROL PNL		20A/1P
30A/2P		UNIT HEATER		2066	9	2606		10	540	REC	RECEPTACLES		20A/1P
				2066	11		2066	12			SPARE		20A/1P
20A/1P		EXHAUST FAN	MECH	830	13	830		14			SPACE		
20A/1P		SPARE			15			16			SPACE		
20A/1P		SPARE			17			18			SPACE		
20A/1P		SPARE			19			20			SPACE		
	KVA	AMPS	PHASE TOTALS:		VA	AMPS	NOTES:						
SECT. 1	11.0	45.9	PHASE A:		6136	51.1	1.) NEUTRAL BAR, GROUND BAR						
			PHASE B:		4872	40.6	2.) 20 TOTAL POLES						
TOTAL:	11.0	45.9											

Control Wiring Schedule - Surge Tank Building

TAG #	FED FROM	TO	WIRE REQUIRMENTS
B1	Door Switch	PLC Panel	2 # 14, 1 # 14 Gnd - 1/2" Conduit
B2	Door Switch	Door Switch	2 # 14, 1 # 14 Gnd - 1/2" Conduit
B3	Smoke Detector	PLC Panel	2 # 14, 1 # 14 Gnd - 1/2" Conduit
B4	Thermostat	Exhaust Fan	2 # 14, 1#14 Gnd - 1/2" Conduit
B5	Solenoid Panel	Solenoid Valve	3 # 14, 1 # 14 Gnd - 1/2" Conduit
B6	Solenoid Panel	Solenoid Valve	3 # 14, 1 # 14 Gnd - 1/2" Conduit
B7	Solenoid Panel	Solenoid Valve	3 # 14, 1 # 14 GND - 1/2" Conduit
B8	Radio Transmitter Unit RTU	Yagi Antenna	Refer to Specification 27 43 30 2.4.C2 for Cable Requirements - 1" Conduit
B9	Pressure Transmitter	250 OHM resistor	2/C #18 Twisted Pair Shielded Cable - 1/2" Conduit
B10	250 OHM resistor	PLC	2/C #18 Twisted Pair Shielded Cable - 3/4" Conduit
B11	Low Temperature Sensor	PLC	2 # 14, 1 # 14 Gnd - 1/2" Conduit

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Revision	Date	Description	By	Chk'd
		15024 E105 Surge Tank Building Electrical Plans.dwg		
		9/18/2017 03/25/20 Add Trimble		

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SURGE TANK BUILDING - ELECTRICAL PLANS
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACHES 26.1 & 26.2
SANDOVAL & MCKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
TFR	KD	DDR

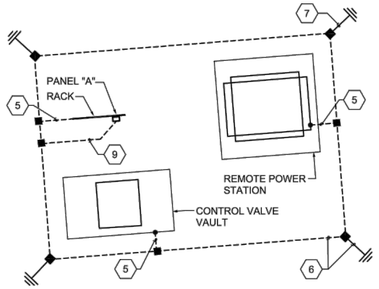
DARRYL D. RUSSELL — NEW MEXICO — 6729 — REGISTERED PROFESSIONAL ENGINEER
15024 9/18/17

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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.

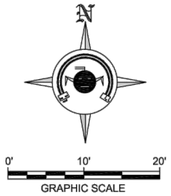
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Project No: 6921307
Sheet: E105

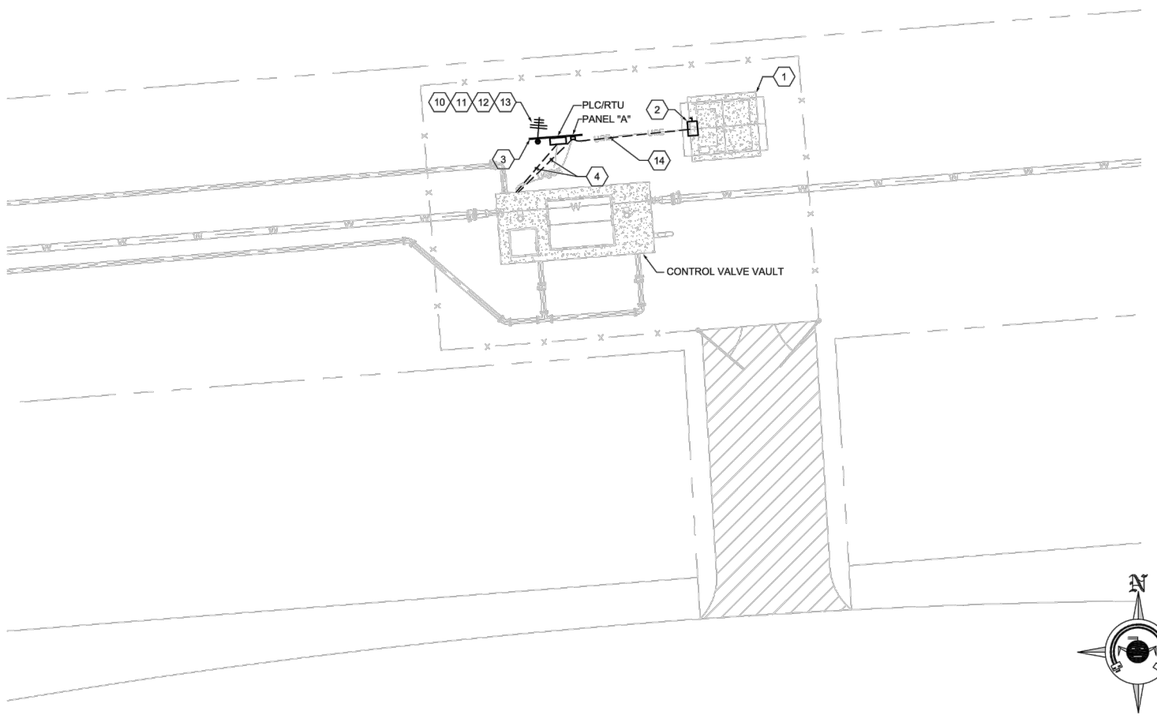


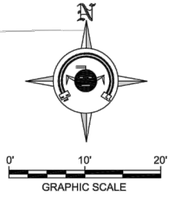
SYMBOL LEGEND - LIGHTNING PROTECTION

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



PRESSURE CONTROL VALVE - LIGHTNING PROTECTION PLAN (8)





PRESSURE CONTROL VALVE - 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 SUBMITS 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. ALL WIRING CONNECTORS, AIR TERMINALS, CLAMPS, ETC SHALL BE UL APPROVED FOR A LIGHTNING PROTECTION SYSTEM

KEYED NOTES (8)

1. REMOTE POWER STATION (RPS). SELF-CONTAINED SOLAR POWER SYSTEM. CONSOLIDATED SOLAR TECHNOLOGIES #RPS-1308 OR APPROVED EQUAL COORDINATE EXACT LOCATION AND ORIENTATION IN THE FIELD PER MANUFACTURERS RECOMMENDATIONS.
2. 120V, 30A-1P DISCONNECT (INTEGRAL OF REMOTE POWER STATION EQUIPMENT). COORDINATE LOCATION IN THE FIELD.
3. APPROXIMATE LOCATION OF EQUIPMENT RACK AND ANTENNA. COORDINATE EXACT LOCATION IN THE FIELD. RACK AND ANTENNA LOCATION SHALL NOT BLOCK SUN TO REMOTE POWER STATION.
4. COORDINATE EXTENSION AND PENETRATIONS OF CONDUIT FROM PLC/RTU AND PANEL "A" TO CONTROL VALVE VAULT. EXTEND (4)1" CONDUITS FROM PLC/RTU TO VAULT, AND (2)1" CONDUITS FROM PANEL "A" TO VAULT. REFER TO E107 FOR ADDITIONAL REQUIREMENTS.
5. LIGHTNING PROTECTION 2/0 BARE COPPER DOWN-CONDUCTOR.
6. LIGHTNING PROTECTION COUNTERPOISE SYSTEM. ALL CONNECTIONS SHALL BE EXO-THERMIC WELDS.
7. GROUND ROD, 3/4" X 10'-0" GROUND ROD
8. 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.
9. EXTEND A #4 BARE COPPER CONDUCTOR TO COUNTERPOISE.
10. INSTALL A YAGI ANTENNA ON TOP OF ANTENNA MAST, ANTENNA SHALL BE ADJUSTED FOR MAXIMUM SIGNAL STRENGTH AT THE COUNSELOR TANK SITE. REFER TO SHEETS E107 & E203 FOR COAXIAL ANTENNA CABLE REQUIREMENT
11. 1" CONDUIT WITH CABLE FROM PLC TO ANTENNA MAST.
12. 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.
13. REFER TO ANTENNA DETAIL ON SHEET E203 FOR ADDITIONAL REQUIREMENTS.
14. EXTEND 2#8 THWN CU AND 1#10 CU GROUND UNDERGROUND IN 1" CONDUIT FROM DISCONNECT TO PANEL ON EQUIPMENT RACK. COORDINATE ROUTING IN THE FIELD.

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
		15024 E106 Control Valve Vault Site Plan.dwg		
		9/18/2017 10:20:17 AM Trotella		

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CONTROL VALVE VAULT - ELECTRICAL SITE PLAN

NAVAJO GALLUP WATER SUPPLY PROJECT - REACHES 26.1 & 26.2

SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
TFR	KD	DDR

TERRY FRANKLIN ROTELLA NEW MEXICO 6729 REGISTERED PROFESSIONAL ENGINEER 9/18/17

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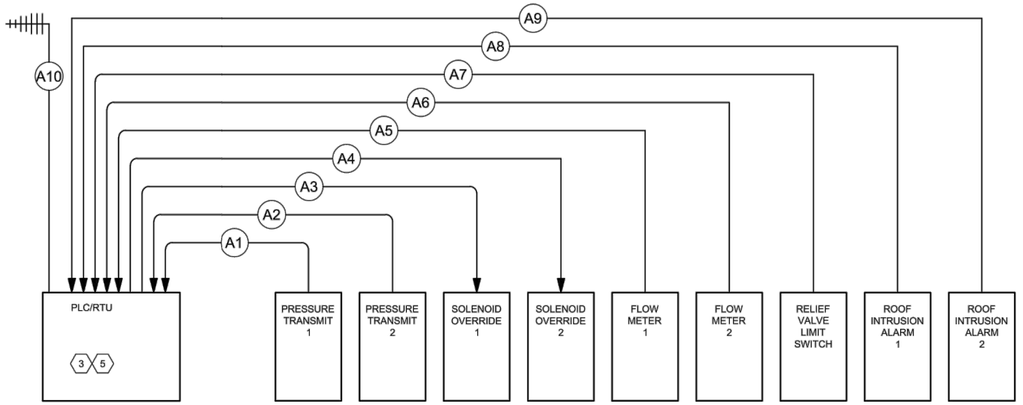
Date: September 18, 2017

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Project No: 6921307

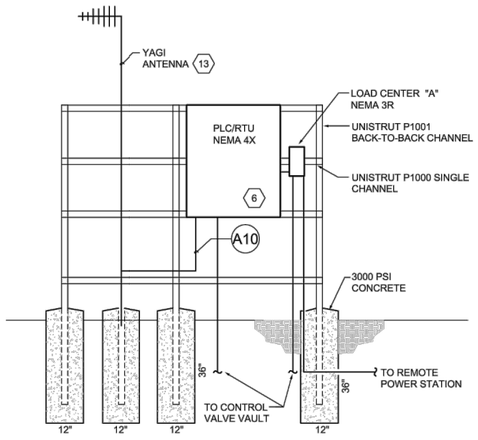
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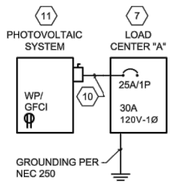
CONTROL VALVE VAULT CONTROL RISER DIAGRAM

SCALE: NONE



EQUIPMENT RACK DETAIL 12

SCALE: NONE



POWER RISER DIAGRAM

SCALE: NONE

KEYED NOTES

1. PROVIDE AND INSTALL CONDUIT SLEEVES THROUGH WALL WITH JUNCTION BOXES ON EACH SIDE OF WALL AND FIRE SEAL GAS TIGHT. ALL CONTROL CABLES AND WIRING BETWEEN AREAS SHALL BE ROUTED THROUGH SLEEVES. ONE CONDUIT FOR ANALOG CABLES, AND ONE CONDUIT FOR DIGITAL CABLES. SIZE JUNCTION BOXES PER NUMBER OF CONDUIT TERMINATIONS. (TYPICAL)
2. 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 CONTRACT SPECIFICATIONS.
3. PLC/RTU CONFIGURED TO THE OWNERS STANDARDS AND REQUIREMENTS.
4. ALL EXPOSED CONDUIT SHALL BE RIGID STEEL CONDUIT WITH THREADED CONDUIT BODIES. ALL EQUIPMENT ENCLOSURES AND CONDUIT INSTALLATION SHALL BE RATED FOR WET LOCATION.
5. THE PLC/RTU CABINET SHALL BE PROVIDED WITH UNLICENSED RADIO TYPE TRANSNET AS MANUFACTURED BY GE, WHICH WILL TRANSMIT AND RECEIVE SIGNALS FROM COUNSELOR SITE.
6. 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 TRANSDUCERS AND THE PLC CONNECTION. LINE PROTECTOR AS MANUFACTURERD BY JOSLYN #1820-28-A3 ON EACH LINE.
7. 120V-1Ø-2W, 30A MAINS RATED LOAD CENTER WITH 25A-1P MAIN CIRCUIT BREAKER, GROUND & NEUTRAL BAR. SIMILAR TO SQUARE D - QO LOAD CENTER OR APPROVED EQUAL. PROVIDE WITH (3)15A-1P BRACH CIRCUIT BREAKERS.
8. PROVIDE AND INSTALL WEATHERPROOF TOGGLE SWITCH FOR VAULT LIGHTING. MOUNT AT INSIDE OF HATCHWAY & CHAMBER. COORDINATE EXACT LOCATION IN THE FIELD.
9. PROVIDE AND INSTALL LED WALL MOUNT LIGHTING FIXTURE. RDA LIGHTING #DVAKS-LED14-120-NAT OR APPROVED EQUAL. (TYPICAL FOR 2 LOCATIONS)
10. 2#8 THWN CU AND 1#10 CU GROUND IN A 1" CONDUIT. COORDINATE ROUTING IN THE FIELD.
11. REMOTE POWER STATION (RPS). SELF-CONTAINED SOLAR POWER SYSTEM. CONSOLIDATED SOLAR TECHNOLOGIES #RPS-1308 OR APPROVED EQUAL.
12. PROVIDE AND INSTALL UNISTRUT, SUPPORTS, AND HARDWARE AS REQUIRED FOR EQUIPMENT. CONTRACTOR SHALL COORDINATE MOUNTING REQUIREMENTS WITH EQUIPMENT BEING USED/SERVED.
13. REFER TO CONTROL VALVE VAULT RADIO ANTENNA AND MAST DETAIL, SHEET E203, FOR ADDITIONAL INFORMATION.
14. JUNCTION BOX FOR USE WITH 120V WIRING. SIZE PER NEC REQUIREMENTS.
15. JUNCTION BOX FOR USE WITH ANALOG SIGNAL WIRING. SIZE PER NEC REQUIREMENTS.
16. JUNCTION BOX FOR USE WITH DIGITAL SIGNAL WIRING. SIZE PER NEC REQUIREMENTS
17. EXTEND (2)1" CONDUITS FOR USE WITH 120V WIRING. ONE CONDUIT SHALL BE SPARE WITH PULLCORD. EXTEND TO PANEL "A".
18. EXTEND (2)1" CONDUITS FOR USE WITH ANALOG SIGNAL WIRING. ONE CONDUIT SHALL BE SPARE WITH PULLCORD. EXTEND TO PLC CABINET.
19. EXTEND (2)1" CONDUITS FOR USE WITH DIGITAL SIGNAL WIRING. ONE CONDUIT SHALL BE SPARE WITH PULLCORD. EXTEND TO PLC CABINET.

LIGHT FIXTURE SCHEDULE

TYPE	FIXTURE DESCRIPTION	LAMPS	MOUNTING
A	LED WALL MOUNT LIGHTING FIXTURE. RDA LIGHTING #DVAKS-LED14-120-NAT OR APPROVED EQUAL.	LED	WALL MOUNTED 12" BELOW CEILING

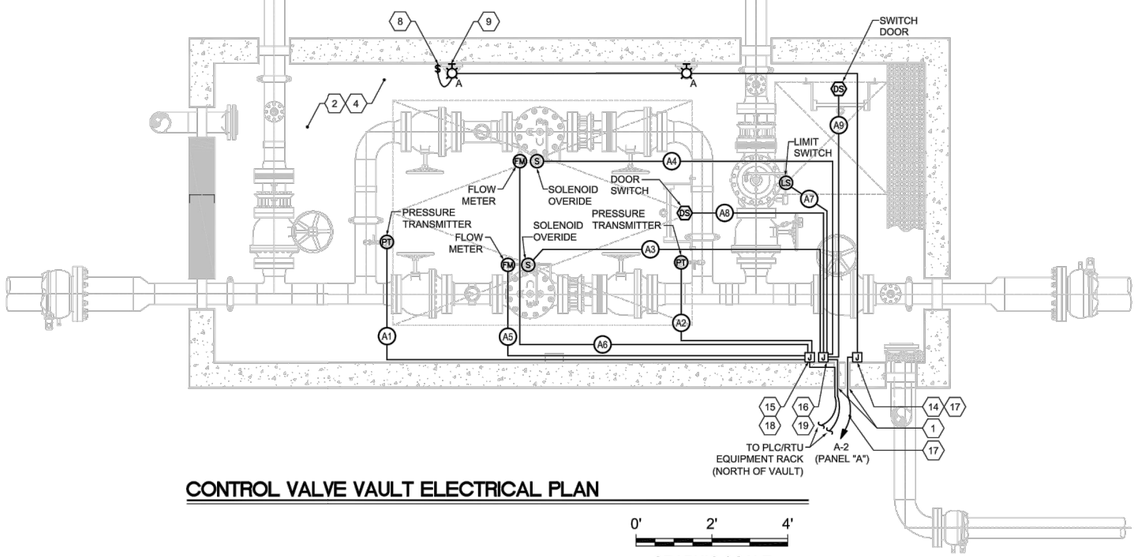
LOAD CENTER: "A" — VOLTAGE: 120V-1Ø-2W — MAINS: 30A — AIC: 10,000
SOURCE: INVERTER — SKIRTS: NONE — FEED: TOP — MAIN BREAKER: 25A-1P — MOUNTING: SURFACE

DESCRIPTION	BRKR	LOAD (VA)	CCT NO.	LOAD (VA) ØA
RECEPTACLE	15A/1P	180	1	180
LIGHTING	15A/1P	32	2	32
PLC/RTU	15A/1P	500	3	500

TOTAL LOAD (VA): 712
TOTAL CONNECTED (KVA): 0.7 — ESTIMATED DEMAND (KVA): 0.9 — NEMA 3R GROUND BUS

Control Wiring Schedule

TAG #	FED FROM	TO	WIRE REQUIRMENTS
A1	Pressure Transmitter 1	PLC Panel	2-2/C #18 Twisted Pair Shielded Cable - 1/2" Conduit
A2	Pressure Transmitter 2	PLC Panel	2-2/C #18 Twisted Pair Shielded Cable - 1/2" Conduit
A3	PLC	Solenoid Overide 1	2 # 14, 1 # 14 Gnd - 1/2" Conduit
A4	PLC	Solenoid Overide 2	2 # 14, 1 # 14 Gnd - 1/2" Conduit
A5	Flow Meter 1	PLC Panel	2-2/C #18 Twisted Pair Shielded Cable - 1/2" Conduit
A6	Flow Meter 2	PLC Panel	2-2/C #18 Twisted Pair Shielded Cable - 1/2" Conduit
A7	Relief Valve Limit Switch	PLC Panel	2 # 14, 1 # 14 Gnd - 1/2" Conduit
A8	Roof Intrusion Alarm 1	PLC Panel	2 # 14, 1 # 14 Gnd - 1/2" Conduit
A9	Roof Intrusion Alarm 2	PLC Panel	2 # 14, 1 # 14 Gnd - 1/2" Conduit
A10	Radio Transmitter Unit RTU	YAGI Antenna	1" Conduits with Cable - Refer to Specification 27 43 30 2.4.C2 for Cable Requirements



CONTROL VALVE VAULT ELECTRICAL PLAN

0' 2' 4'
GRAPHIC SCALE

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Revision	Date	Description	By	Chk'd

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CONTROL VALVE VAULT ELECTRICAL PLAN
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
TFR	KD	DDR

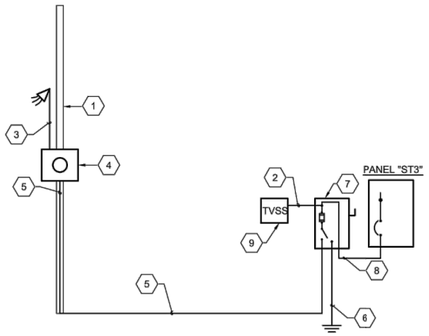
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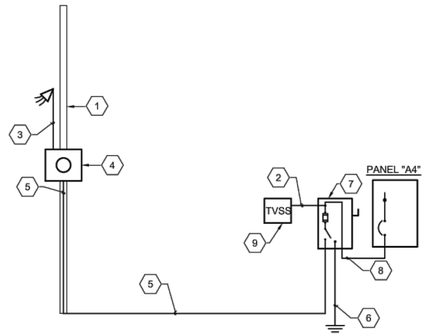
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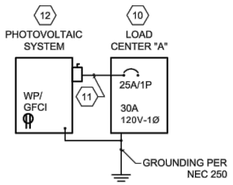
REACH 26.1
SURGE TANK BUILDING POWER RISER DIAGRAM

SCALE: NONE



PUEBLO PINTADO
CHLORINATOR BUILDING POWER RISER DIAGRAM

SCALE: NONE



CONTROL VALVE VAULT
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.
10. 120V-1Ø-2W, 30A MAINS RATED LOAD CENTER WITH 25A-1P MAIN CIRCUIT BREAKER, GROUND & NEUTRAL BAR. SIMILAR TO SQUARE D - QO LOAD CENTER OR APPROVED EQUAL. PROVIDE WITH (3)15A-1P BRACH CIRCUIT BREAKERS.
11. 2#8 THWN CU AND 1#10 CU GROUND IN A 1" CONDUIT. COORDINATE ROUTING IN THE FIELD.
12. REMOTE POWER STATION (RPS). SELF-CONTAINED SOLAR POWER SYSTEM. CONSOLIDATED SOLAR TECHNOLOGIES #RPS-1308 OR APPROVED EQUAL.

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 26.1 Surge Building							
	Surge Bldg. Intrusion		I1	DI		Yes	
	Surge Bldg. Smoke Detector		I2	DI		Yes	
	Low Tempterature Alarm		I3	DI		Yes	
			I4	DI			
			I5	DI			
			I6	DI			
			I7	DI			
			I8	DI			
	Surge Tank Level		AI1	AI		Yes	
			AI2	AI			
			AI3	AI			
			AI4	AI			
Pueblo Pintado 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
			I14	DI			
			I15	DI			
			I16	DI			
	Flow Meter (Totalizer Pulses)		PI1	DI		Yes	SCADA shows totalized volume of water (gallons)
			PI2	DI			
	Flow Enable		DO1	DO	Yes		Interpose Relay From Distribution Tank Level
			DO2	DO			Interpose Relay
	Distribution Tank Level		AI1	AI		Yes	
	Flow Meter (Flow Rate)		AI2	AI		Yes	SCADA shows flow rate (gpm)
	Chlorine Bottle #1 Weight		AI3	AI		Yes	
	Chlorine Bottle #2 Weight		AI4	AI		Yes	
Control Valve Site							
	Solenoid Valve 1		I1	DO		Yes	Both Solenoid 1 and Solenoid 2 activate at same time
	Solenoid Valve 2		I2	DO		Yes	Both Solenoid 1 and Solenoid 2 activate at same time
	Intrusion Alarm 1		I3	DI		Yes	SCADA shows single alarm for activation of either Intrusion Alarm 1 or Intrusion Alarm 2
	Intrusion Alarm 2		I4	DI		Yes	SCADA shows single alarm for activation of either Intrusion Alarm 1 or Intrusion Alarm 2
	Pressure Relief Valve Limit Switch		I5	DI		Yes	
	High Pressure Alarm		I6	DI		Yes	Generated by PLC
	Pressure Transmitter 1		AI1	AI		Yes	Pressure
	Pressure Transmitter 2		AI2	AI		Yes	Pressure & High Pressure Alarm on downstream transducer
	Flow Meter 1 (Flow Rate)		AI3	AI		Yes	SCADA shows flow rate (gpm)
	Flow Meter 2 (Flow Rate)		AI4	AI		Yes	SCADA shows flow rate (gpm)
	Total Flow					Yes	Calculated by PLC. SCADA shall show totalized volume of water (gallons)

LOAD SUMMARY - PANEL "ST3"

DESCRIPTION

PANELBOARD "ST3" ESTIMATED DEMAND PER NEC 220	
MECHANICAL UNITS (4.5 KVA CONN)	4.5 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 (1.1 KVA CONN) AT 100%	1.1 KVA
TOTAL ESTIMATED LOAD:	6.8 KVA
28.3 AMPERES AT 120Y/240V-1Ø-4W	
MINIMUM SERVICE CAPACITY =125% x TOTAL ESTIMATED LOAD	8.5 KVA
35.4 AMPERES AT 120Y/240V-1Ø-4W	
∴ MINIMUM RECOMMENDED SERVICE SIZE =	100 AMPS

LOAD SUMMARY - PANEL "A4"

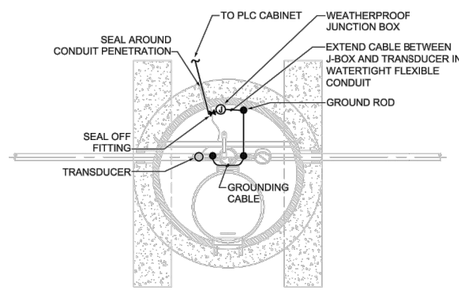
DESCRIPTION

PANELBOARD "A4" 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

LOAD SUMMARY - PANEL "A"

DESCRIPTION

PANELBOARD "A" ESTIMATED DEMAND PER NEC 220	
RECEPTACLES (0.9 KVA CONN)	
FIRST 10 KVA AT 100%	0.2 KVA
REMAINING AT 50%	
EQUIPMENT (0.1 KVA CONN) AT 100%	0.5 KVA
TOTAL ESTIMATED LOAD:	0.7 KVA
6 AMPERES AT 120V-1Ø-2W	
MINIMUM SERVICE CAPACITY =125% x TOTAL ESTIMATED LOAD	0.9 KVA
7 AMPERES AT 120V-1Ø-2W	
∴ MINIMUM RECOMMENDED SERVICE SIZE =	25 AMPS



PRESSURE TRANSDUCER VAULT DETAIL

NOT TO SCALE

Electrical Loads for Reach 26.2 Flow Control Vault

Item	Voltage	Amps	Watts Rating	Watts Continuous?	Watts For Sizing
2 @ 16 W Light Bulbs	24 vdc		32	No	32
2x Solenoids (constant power)	24 vdc		4	Yes	4
2 x ClaVal X144 Flow Meter Power (0.7W each)	24 vdc		1.4	Yes	1.4
2 x ClaVal X145 Flow Meter Transmitter (4-20mA)	24 vdc		0.5	Yes	0.5
Relief Valve Closed Limit Discrete Input	24 vdc		0.584	Yes	0.584
Upstream Pressure Transmitter (4-20mA)	24 vdc		0.5	Yes	0.5
Downstream Pressure Transmitter (4-20mA)	24 vdc		0.5	Yes	0.5
Modicon PLC & Monitor	24 vdc		25.5	Yes	25.5
Modicon Transnet Radio Receive	24 vdc		1.224	Yes	1.224
Modicon Transnet Radio Send	24 vdc		5.7	2%	0.095
Battery Voltage Monitor (4-20mA)	24 vdc		0.5	Yes	0.5
Charge Controller - MidNite Solar Kid - Loads in Derate Morningstar 30	24 vdc		0	Yes	0
Totals					66.803

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ELECTRICAL SCHEDULES AND DETAILS
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
TFR	KD	DDR

DARRYL D. RUMLEY — NEW MEXICO — 6729 — REGISTERED PROFESSIONAL ENGINEER — 9/18/17
15024

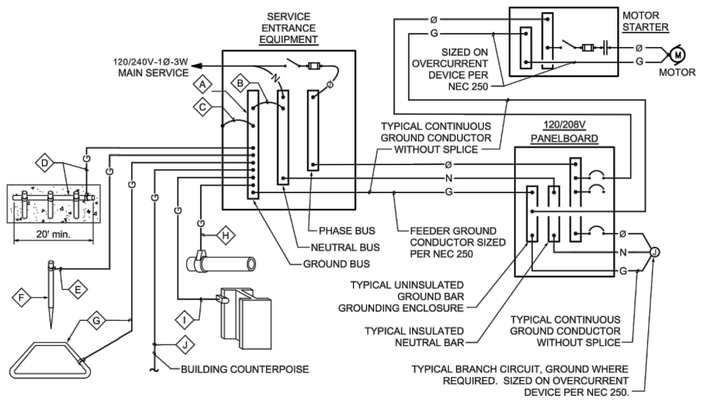
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Project No: 6921307
Sheet: E201

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GROUNDING SYSTEM DIAGRAM - 120/240 VOLT SYSTEM

NOT TO SCALE

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.

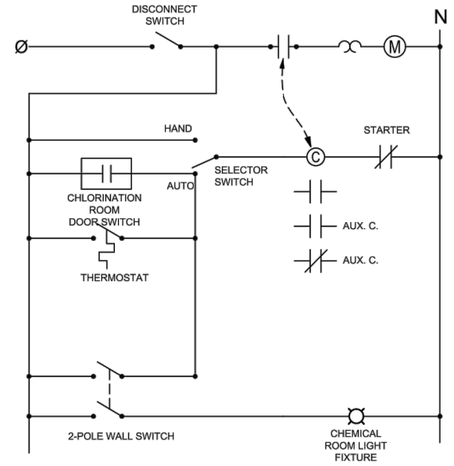
G. ANY VARIANCES FROM THIS DIAGRAM AND ASSOCIATED SCHEDULE AND NOTES MUST BE REQUESTED AND APPROVED IN WRITING PRIOR TO INSTALLATION.

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

	(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
CODE REFERENCE / AMPACITY		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 SPECIFIED 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

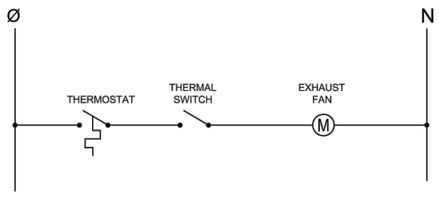


CHLORINATOR BUILDING EXHAUST FAN CONTROL DIAGRAM

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.



SURGE TANK BUILDING EXHAUST FAN CONTROL DIAGRAM

NO SCALE

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ELECTRICAL DIAGRAMS AND DETAILS
NAVAJO GALLUP WATER SUPPLY
PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
TFR	KD	DDR

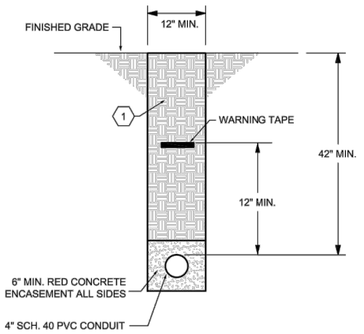
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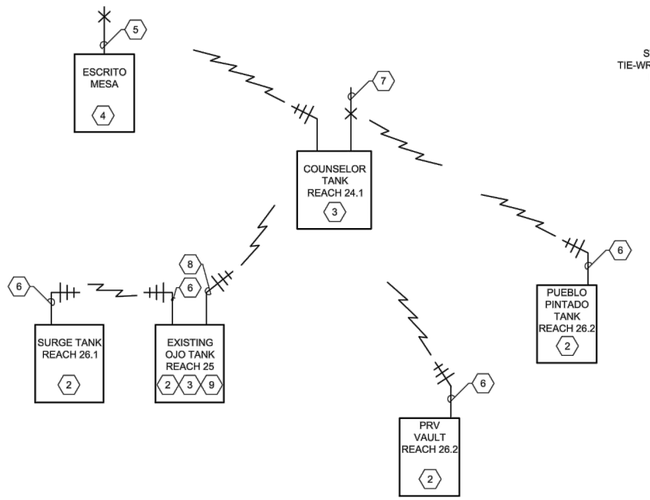
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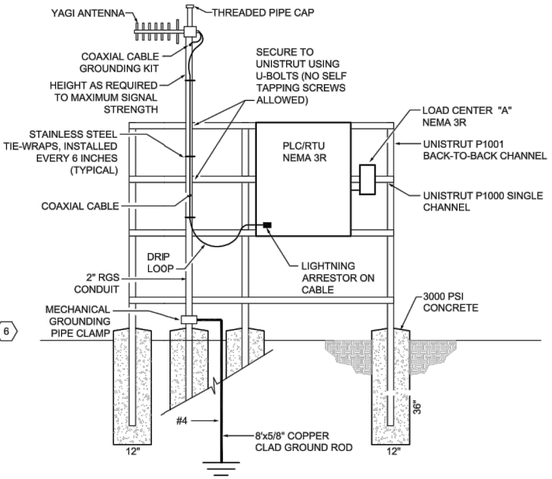
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TYPICAL PRIMARY CONDUIT TRENCH DETAIL

SCALE: NONE



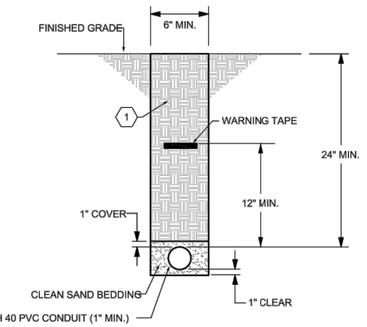


CONTROL VALVE VAULT RADIO ANTENNA AND MAST DETAIL

SCALE: NONE

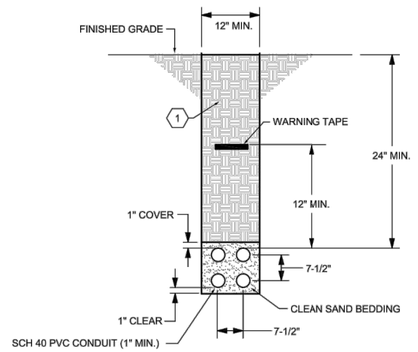
KEYED NOTES

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



TYPICAL SINGLE CONDUIT TRENCH DETAIL

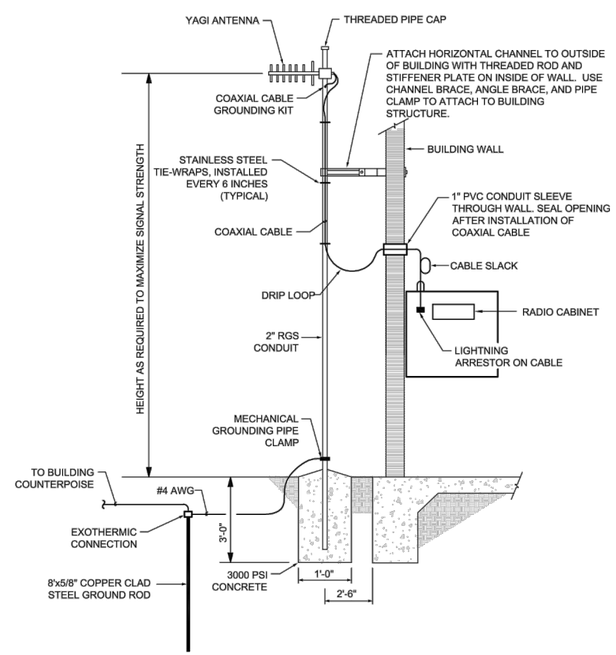
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TYPICAL MULTIPLE CONDUIT TRENCH DETAIL

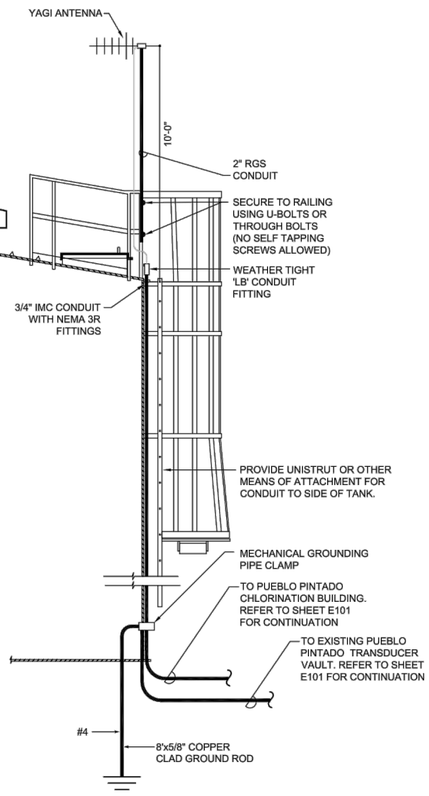
SCALE: NONE

SCADA RADIO TELEMETRY SYSTEM CONFIGURATION



RADIO ANTENNA AND MAST DETAIL - REACH 26.1 SURGE TANK BLDG.

SCALE: NONE



TYPICAL TANK RADIO TELEMETRY ANTENNA INSTALLATION DETAIL - PUEBLO PINTADO SITE

SCALE: NONE

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ELECTRICAL DETAILS
NAVAJO GALLUP WATER SUPPLY PROJECT - REACHES 26.1 & 26.2
SANDOVAL & MCKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
TFR	KD	DDR

DARRYL D. RUSHTON NEW MEXICO 6729 REGISTERED PROFESSIONAL ENGINEER 9/18/17

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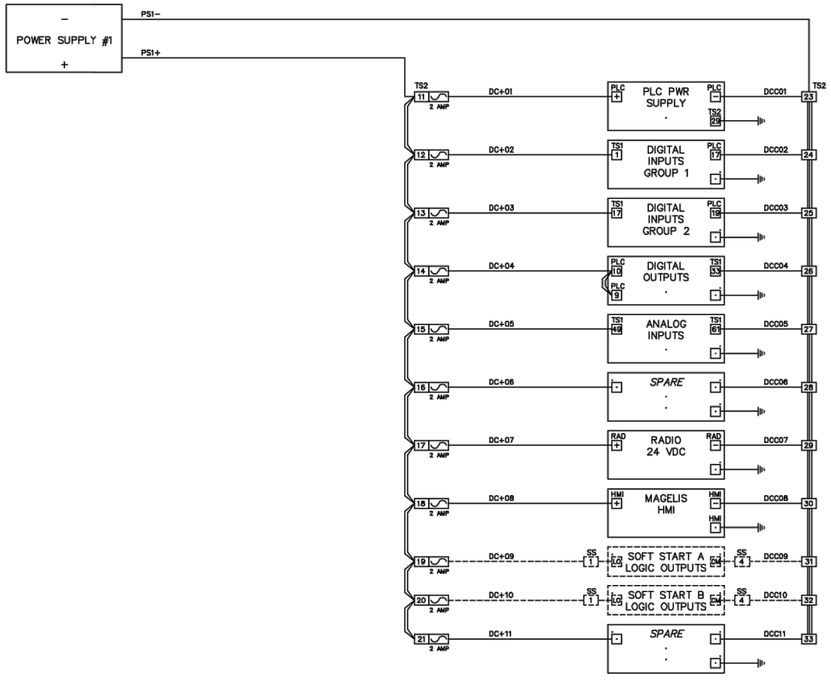
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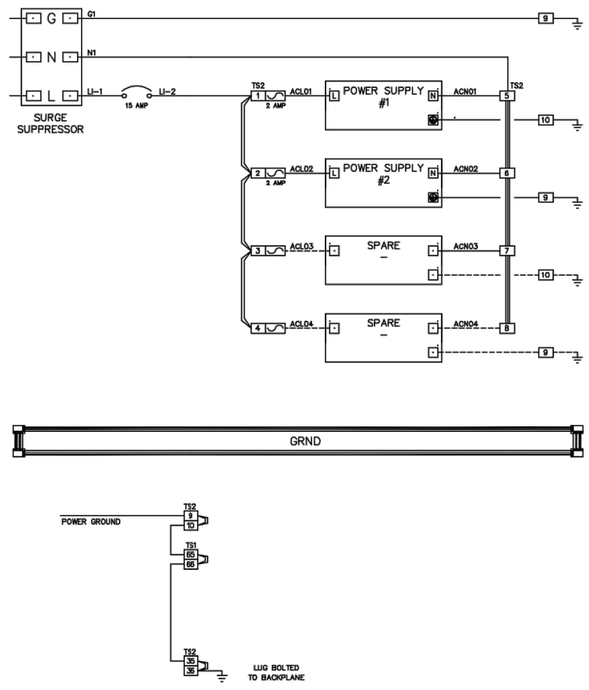
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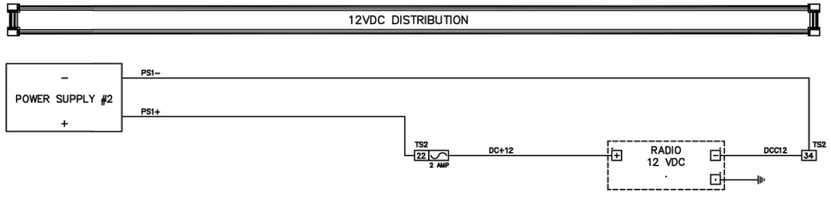


120VAC DISTRIBUTION



GRND

12VDC DISTRIBUTION



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

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NAVAJO TRIBAL UTILITY AUTHORITY

SCALE: NONE | DATE: . | DRN. . | CHKD. . | APVD. .

TITLE: PLC CONTROL PANEL
POWER DISTRIBUTION

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ELECTRICAL DETAILS
NAVAJO GALLUP WATER SUPPLY PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
TFR	KD	DDR



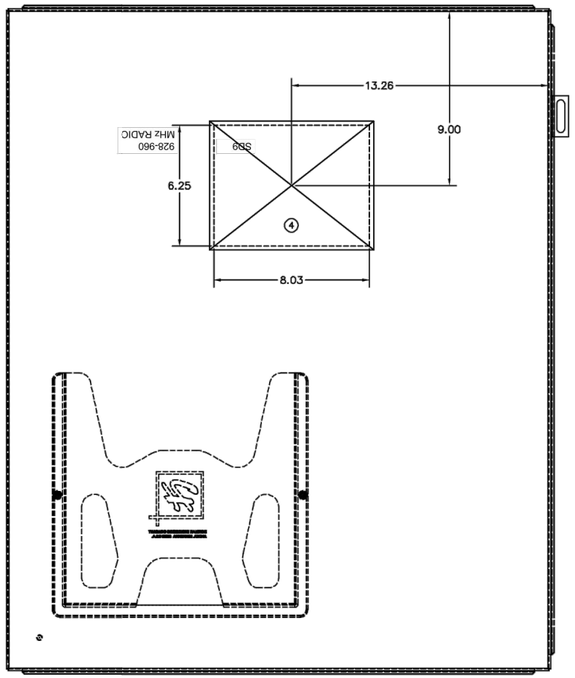
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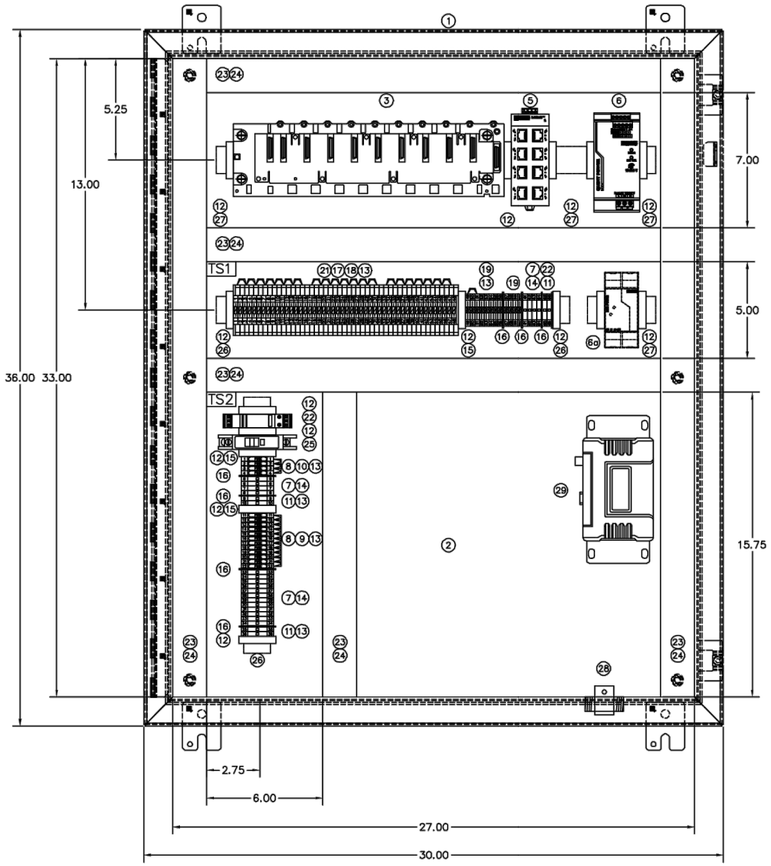
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NOTICE OF EXTENDED PAYMENT PROVISION:
THIS CONTRACT ALLOWS THE OWNER TO MAKE PAYMENT WITHIN 45 DAYS AFTER SUBMISSION OF AN UNDISPUTED REQUEST FOR PAYMENT.

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Date: September 18, 2017
Scale: Horiz: N/A
Vert: N/A
Project No: 6921307
Sheet: E301





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	GRAPHIC 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-UKK3/5BK #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
01	09/13	MATERIALS LIST & DWG UPDATES	NTUA

NAVAJO TRIBAL UTILITY AUTHORITY

SCALE: NONE | REVISIONS | BY | DATE

DRAWN . | . | . | .
DSN. . | CHKD. . | . | .
APVD. .

TITLE: PLC CONTROL PANEL BACKPLANE

SHEET 5 OF 6

Revision	Date	Description	By	Chk'd
		15024 E302 Electrical NTUA Diagrams.dwg		
		9/18/2017 10:28:47 AM Tomlie		

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PROJECT - REACHES 26.1 & 26.2
SANDOVAL & McKINLEY COUNTIES, NEW MEXICO

Designed	Drawn	Checked
TFR	KD	DDR

DARRYL D. ROBINETTE
NEW MEXICO
6729
REGISTERED PROFESSIONAL ENGINEER
9/18/17
15024

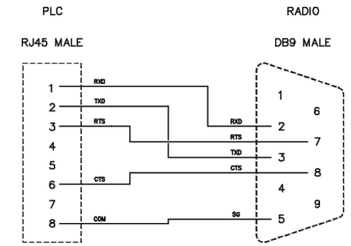
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Date: September 18, 2017
Scale: Horiz: N/A
Vert: N/A
Project No: 6921307
Sheet: E302

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A CABLE DIAGRAM: PLC TO RADIO

NO.	DATE	DESCRIPTION	BY
01	09/13	DWG UPDATES	NTUA

NAVAJO TRIBAL UTILITY AUTHORITY

SCALE: NONE	REVISIONS	BY	DATE
DATE: .	.	.	.
DES. . DRD. .	.	.	.
APVD. .	.	.	.

TITLE: PLC CONTROL PANEL CABLE PINOUT

DWG # SHEET 6 OF 6

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Revision	Date	Description	By	Chk'd

15024 E303 Electrical NTUA Diagrams.dwg
9/18/2017 10:28:33 AM Tramble

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Designed	Drawn	Checked
TFR	KD	DDR

DARRYL D. RUMMERFIELD NEW MEXICO 6729 REGISTERED PROFESSIONAL ENGINEER
15024 9/18/17

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