

NAVAJO GALLUP WATER SUPPLY PROJECT

BEACON BISTI N9

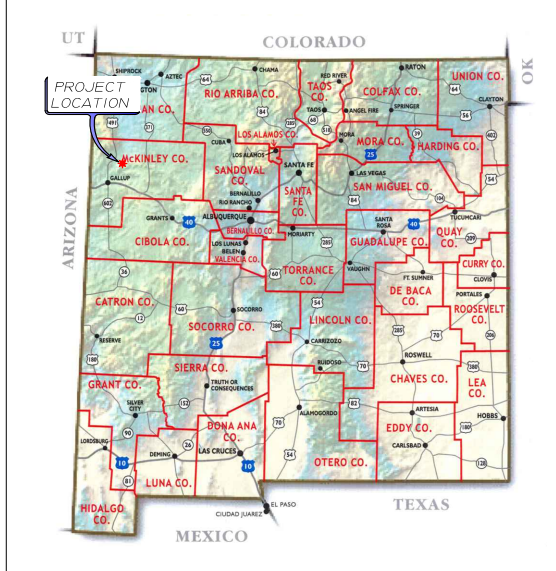
REACH 10.2

90% DRAFT

NOTE: ALL NOTES IN RED ARE DESIGN NOTES ONLY AND WILL NOT BE INCLUDED IN THE FINAL PLAN SET. THESE ARE TO ASSIST IN INTERNAL DESIGN AND REVIEW ONLY.



BUREAU OF RECLAMATION

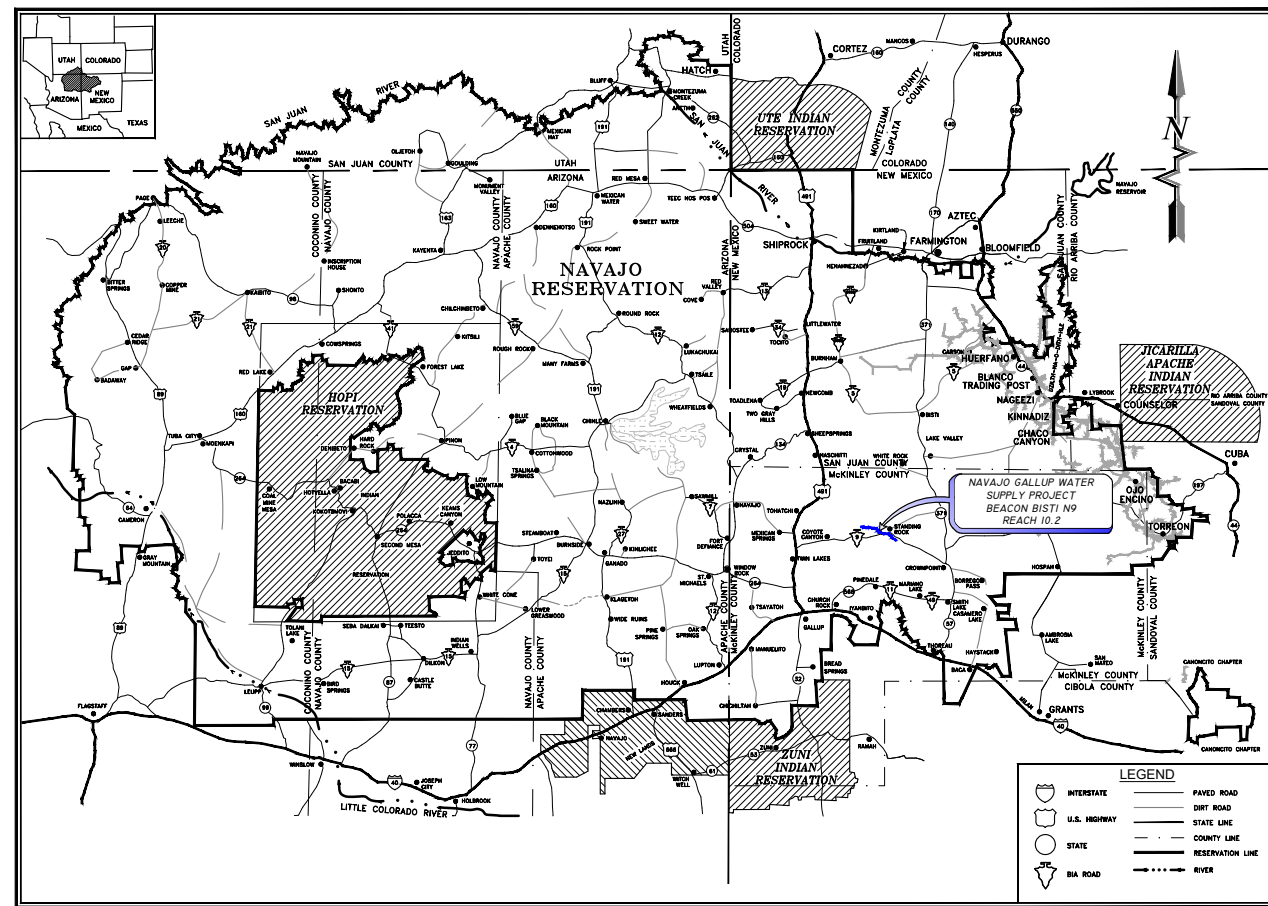


PROJECT VICINITY MAP

NGWSP BBN9 PUMPING PLANT 12 TO PUMPING PLANT 13

September 2022
PROJECT DESCRIPTION

REACH 10.2 IS COMPRISED OF THE FOLLOWING FEATURES:
APPROXIMATELY 4,310 FEET OF 16-INCH PVC DR 14 TRANSMISSION PIPELINE AND APPURTENANCES;
APPROXIMATELY 40,790 FEET OF 16-INCH PVC DR 18 TRANSMISSION PIPELINE AND APPURTENANCES;
TWO (2) 75,000 GALLON REGULATING WATER STORAGE TANKS AND APPURTENANCES;
ONE (1) TRANSMISSION PIPELINE SURGE TANK INCLUDING BUILDING AND APPURTENANCES;
PUMPING PLANT NO. 12 INCLUDING BUILDING AND APPURTENANCES.



NAVAJO RESERVATION
PROJECT SITE MAP

DRAWING INDEX

GENERAL

- G-1 COVER SHEET & DRAWING INDEX
- G-2 GENERAL NOTES & LEGEND
- G-3 BEACON BISTI N9 PROJECT OVERVIEW
- G-4 HYDRAULIC PROFILE
- G-5 SITE PLAN AND DRAWING KEY INDEX (1 OF 2)
- G-6 SITE PLAN AND DRAWING KEY INDEX (2 OF 2)
- G-7 SURVEY CONTROL (1 OF 2)
- G-8 SURVEY CONTROL (2 OF 2)

PLAN AND PROFILES

- C-1 PLAN AND PROFILE STA 1+17.9 TO STA 28+00
- C-2 PLAN AND PROFILE STA 28+00 TO STA 56+00
- C-3 PLAN AND PROFILE STA 56+00 TO STA 84+00
- C-4 PLAN AND PROFILE STA 84+00 TO STA 112+00
- C-5 PLAN AND PROFILE STA 112+00 TO STA 140+00
- C-6 PLAN AND PROFILE STA 140+00 TO STA 168+00
- C-7 PLAN AND PROFILE STA 168+00 TO STA 196+00
- C-8 PLAN AND PROFILE STA 196+00 TO STA 224+00
- C-9 PLAN AND PROFILE STA 224+00 TO STA 252+00
- C-10 PLAN AND PROFILE STA 252+00 TO STA 280+00
- C-11 PLAN AND PROFILE STA 280+00 TO STA 308+00
- C-12 PLAN AND PROFILE STA 308+00 TO STA 336+00
- C-13 PLAN AND PROFILE STA 336+00 TO STA 364+00
- C-14 PLAN AND PROFILE STA 364+00 TO STA 392+00
- C-15 PLAN AND PROFILE STA 392+00 TO STA 420+00
- C-16 PLAN AND PROFILE STA 420+00 TO STA 448+00
- C-17 PLAN AND PROFILE STA 448+00 TO STA 450+93.6

SITE PLANS

- C-18 PUMPING PLANT 12 OVERALL SITE PLAN
- C-19 PUMPING PLANT 12 SITE PLAN
- C-20 PUMPING PLANT 12 SITE GRADING PLAN
- C-21 PUMPING PLANT 12 PIPING PLAN
- C-22 PUMPING PLANT 12 SITE PIPE INVERTS
- C-23 PUMPING PLANT 12 PIPING ELEVATION VIEW
- C-24 PUMPING PLANT 12 VALVE NUMBERING PLAN
- C-25 PUMPING PLANT 13 OVERALL SITE PLAN
- C-26 PUMPING PLANT 13 SITE PLAN
- C-27 PUMPING PLANT 13 SITE GRADING PLAN
- C-28 PUMPING PLANT 13 PIPING PLAN
- C-29 PUMPING PLANT 13 SITE PIPE INVERTS
- C-30 PUMPING PLANT 13 VALVE NUMBERING PLAN
- C-31 PUMPING PLANT 13 DRAIN LINE P&P

DETAILS

- DT-1 TRENCH DETAILS
- DT-2 MISCELLANEOUS CONSTRUCTION DETAILS
- DT-3 THRUST BLOCK & JOINT RESTRAINT DETAILS

- DT-4 GAS LINE CROSSING DETAILS
- DT-5 CASED ROAD CROSSING DETAILS
- DT-6 PIPELINE BUTTERFLY VALVE WITH BYPASS DETAILS
- DT-7 SITE BUTTERFLY AND GATE VALVE DETAILS
- DT-8 2 INCH VACUUM BREAKER WITH 1 INCH ARV DETAIL
- DT-9 4 INCH FLUSH ABOVE-GRADE DISCHARGE DETAIL
- DT-10 SENSOR LINE DETAILS
- DT-11 PRESSURE TRANSDUCER VAULT DETAILS
- DT-12 WASH CROSSING STA 379+88 PIPELINE HDD DETAIL
- DT-13 PP 12 PUMP STATION (AS FURNISHED BY SUPPLIER)
- DT-14 PP 12 PUMP STATION FOUNDATION PLAN
- DT-15 PP 12 PUMP STATION FOUNDATION ELEVATION
- DT-16 PP 12 SURGE TANK DETAILS
- DT-17 PP 12 SURGE TANK BUILDING FOUNDATION PLAN
- DT-18 PP 12 SURGE TANK BUILDING SECTION (1 OF 2)
- DT-19 PP 12 SURGE TANK BUILDING SECTION (2 OF 2)
- DT-20 PP 12 SURGE TANK BUILDING ELEVATION
- DT-21 PP 12 SURGE TANK BUILDING END VIEW
- DT-22 PP 12 SURGE TANK BUILDING ROOF PLAN
- DT-23 PP 12 SURGE TANK BUILDING DETAILS
- DT-24 PP 12 SURGE TANK BUILDING BLOCK DETAILS
- DT-25 PP 12 SURGE TANK BUILDING BLOCK DETAILS
- DT-26 PP 13 TANK 1 DETAILS (1 OF 2)
- DT-27 PP 13 TANK 1 DETAILS (2 OF 2)
- DT-28 PP 13 TANK 2 DETAILS (1 OF 2)
- DT-29 PP 13 TANK 2 DETAILS (2 OF 2)
- DT-30 TYPICAL WATER STORAGE TANK DETAILS (1 OF 2)
- DT-31 TYPICAL WATER STORAGE TANK DETAILS (2 OF 2)
- DT-32 EROSION CONTROL DETAILS (1 OF 4)
- DT-33 EROSION CONTROL DETAILS (2 OF 4)
- DT-34 EROSION CONTROL DETAILS (3 OF 4)
- DT-35 EROSION CONTROL DETAILS (4 OF 4)
- DT-36 FENCE DETAILS
- DT-37 TRAFFIC CONTROL (PAVED ROAD)
- DT-38 TRAFFIC CONTROL (GRAVEL AND DIRT ROAD)

ELECTRICAL PLANS

- E-01 LEGEND AND NOTES
- ES-01 ELECTRICAL SITE PLAN
- E-11 LIGHTING PLAN-SURGE TANK
- E-21 POWER AND SPECIAL SYSTEM PLAN-SURGE TANK
- E-31 LIGHTING PROTECTION PLAN-SURGE TANK
- E-41 NTUA DIAGRAM (1 OF 3)
- E-42 NTUA DIAGRAM (2 OF 3)
- E-43 NTUA DIAGRAM (3 OF 3)
- E-51 POWER RISER DIAGRAM AND DETAILS-SURGE TANK
- E-52 POWER RISER DIAGRAM AND DETAILS-SURGE TANK

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Client: The Navajo Nation
Location: Tse'i'ihai, NM
COVER SHEET & DRAWING INDEX
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
MCKINLEY COUNTY, NEW MEXICO

90% REVIEW
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9/2022

Designed: TTT Drawn: MvH/AaV Checked: JMG

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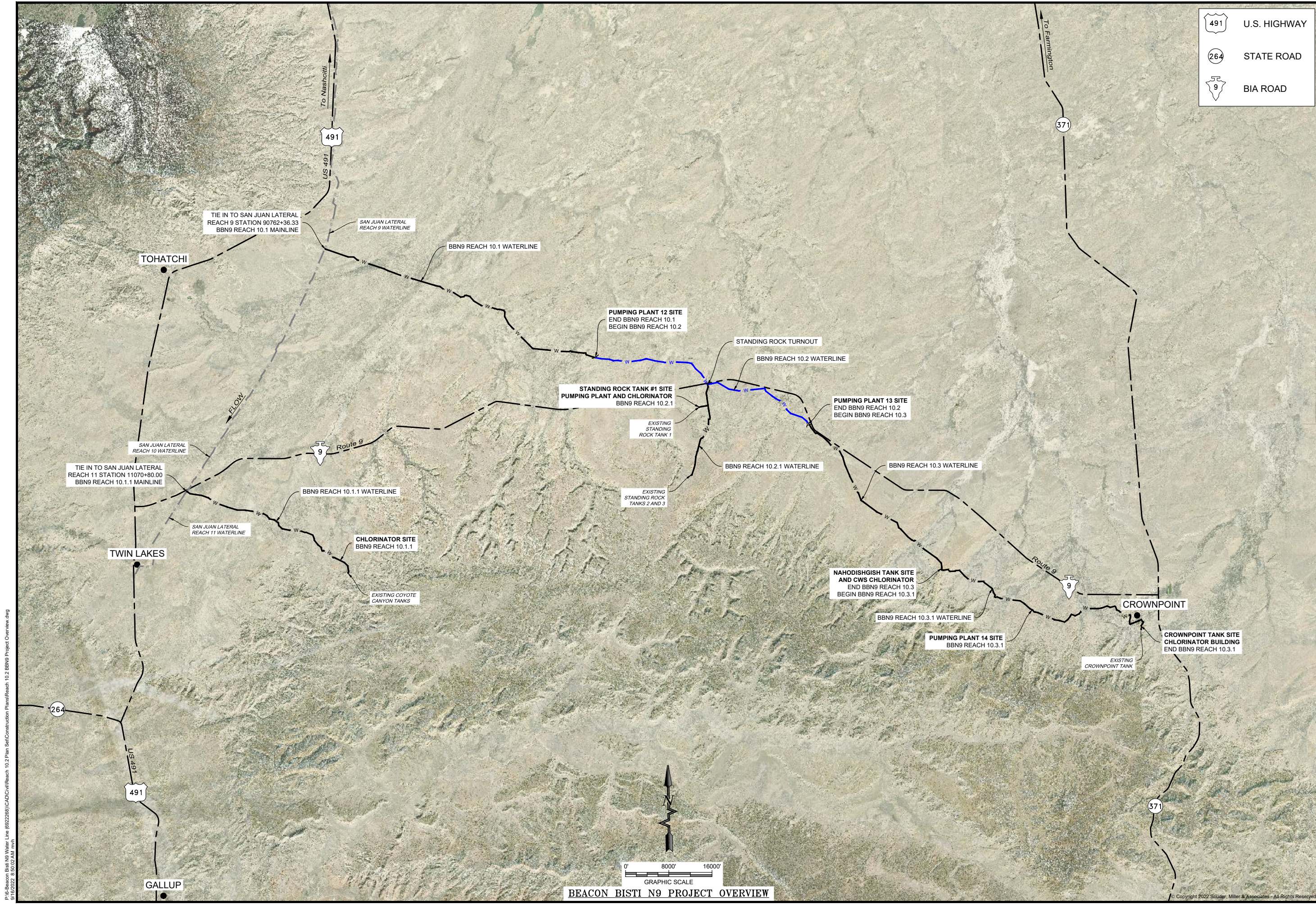
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Project No: 6922268

Sheet: G-1



	U.S. HIGHWAY
	STATE ROAD
	BIA ROAD

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Client: The Navajo Nation
 Location: Tse'i'ihai, NM
BEACON BISTI N9 PROJECT OVERVIEW
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
 MCKINLEY COUNTY, NEW MEXICO

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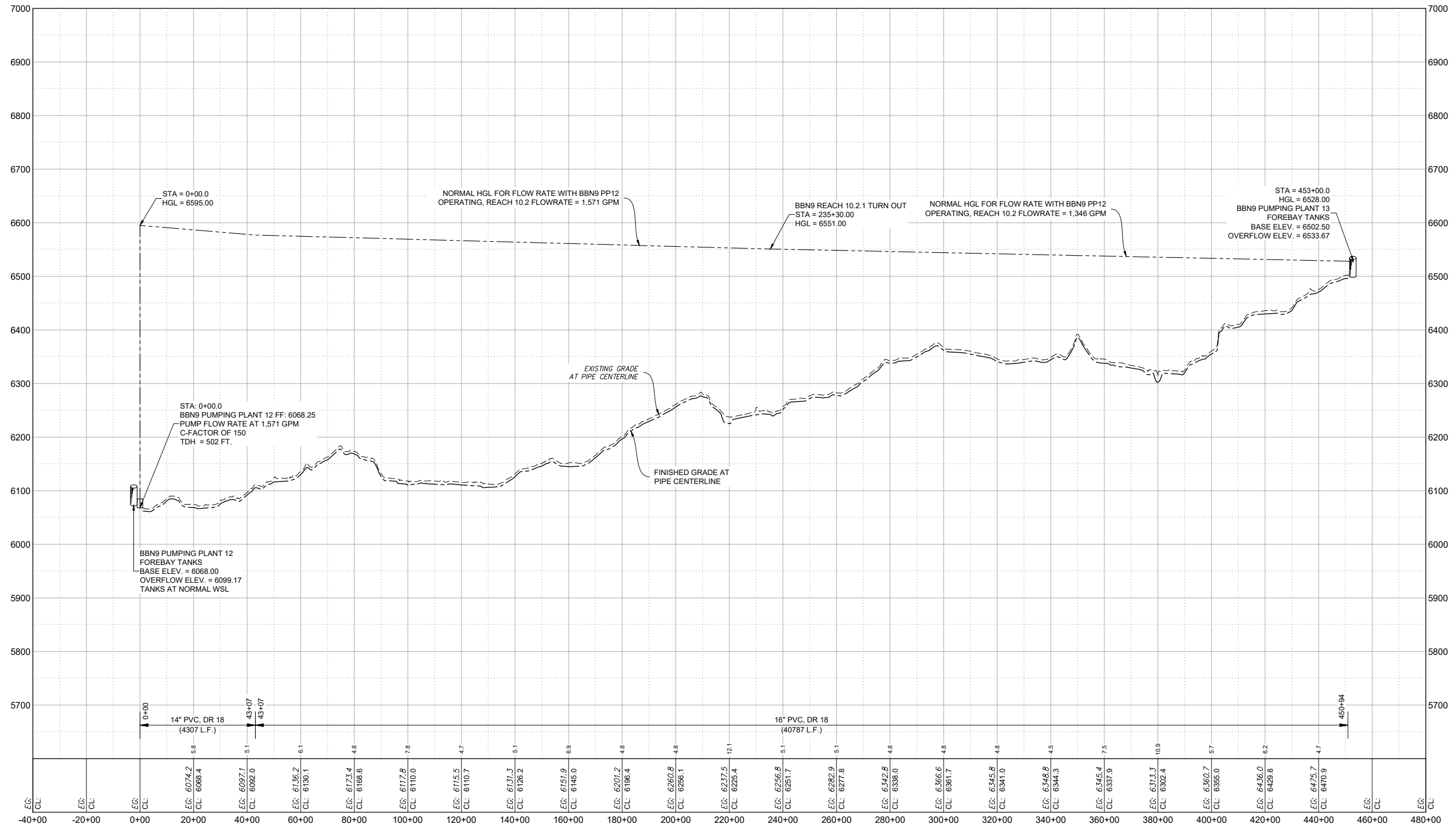
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BEACON BISTI N9 PROJECT OVERVIEW

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P:\6-Beacon Bisti N9 Water Line (6922268)\CAD\Construction Plans\Reach 10.2 Hydraulic Profile.dwg
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BBN9 REACH 10.2 HYDRAULIC PROFILE
 14" & 16" WATERLINE

Revision	Date	Description

Client: The Navajo Nation
 Location: Tsel'ihani, NM

HYDRAULIC PROFILE
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
 MCKINLEY COUNTY, NEW MEXICO

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 Vert: 1" = 200'

Project No: 6922268
 Sheet: **G-4**

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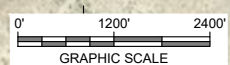
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CONTACT INFORMATION:
 OWNER: NAVAJO NATION WATER MANAGEMENT BRANCH
 JASON JOHN (928) 729-4004

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

NAVAJO TRIBAL UTILITY AUTHORITY (NTUA)
 (928) 729-5721



PROJECT SITE PLAN AND DRAWING KEY INDEX

Revision	Date	Description

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Location: Tseil'ihai, NM
SITE PLAN AND DRAWING KEY INDEX (1 OF 2)
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
 MCKINLEY COUNTY, NEW MEXICO

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 Vert: N/A

Project No: 6922268
 Sheet: G-5

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CONTINUED ON
SHEET G-5 (1 of 2)

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

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

NAVAJO TRIBAL UTILITY AUTHORITY (NTUA)
(928) 729-5721

END REACH 10.2 WATERLINE
PI STA 450+93.6
N=1740730.99
E=2568301.42

PUMPING PLANT 13 SITE
(SEE SHTS. C-25 TO C-31)


FUTURE REACH 10.3 WATERLINE

Approx. 12 Miles
To Crowpoint

PROJECT SITE PLAN AND DRAWING KEY INDEX

Revision	Date	Description

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Client: The Navajo Nation
Location: Tseil'ihni, NM
SITE PLAN AND DRAWING KEY INDEX (2 OF 2)
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
MCKINLEY COUNTY, NEW MEXICO

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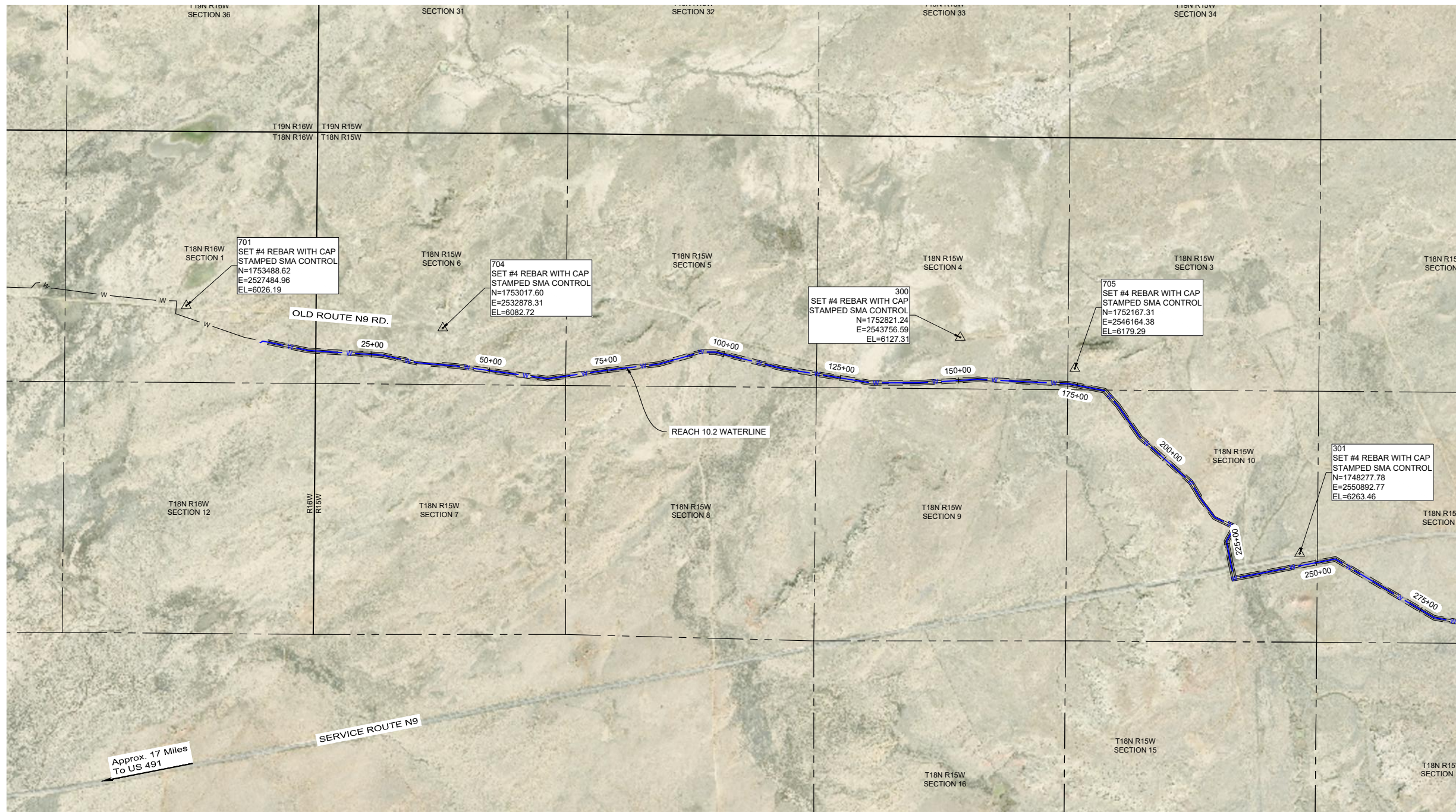


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Vert: N/A

Project No: 6922268
Sheet: **G-6**

SURVEY CONTROL SHEET
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9-REACH 10.2
McKINLEY COUNTY, NEW MEXICO



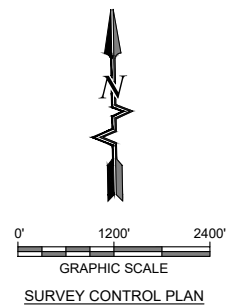
CONTINUED ON
SHEET G-8 (2 of 2)

Point Table				
POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
300	1752821.24	2543756.59	6127.31	SET #4 REBAR WITH CAP STAMPED SMA CONTROL
301	1748277.78	2550892.77	6263.46	SET #4 REBAR WITH CAP STAMPED SMA CONTROL
302	1740668.60	2568872.38	6488.09	SET #4 REBAR WITH CAP STAMPED SMA CONTROL
601	1741606.13	2550092.24	6374.76	SET #4 REBAR WITH CAP STAMPED SMA CONTROL
602	1734810.70	2548327.75	6574.13	SET #4 REBAR WITH CAP STAMPED SMA CONTROL
701	1753488.62	2527484.96	6026.19	SET #4 REBAR WITH CAP STAMPED SMA CONTROL
704	1753017.60	2532878.31	6082.72	SET #4 REBAR WITH CAP STAMPED SMA CONTROL
705	1752167.31	2546164.38	6179.29	SET #4 REBAR WITH CAP STAMPED SMA CONTROL
707	1747554.48	2555934.93	6353.95	SET #4 REBAR WITH CAP STAMPED SMA CONTROL
854	1746550.16	2560207.41	6417.90	SET #4 REBAR WITH CAP STAMPED SMA CONTROL

PROJECT COORDINATE SYSTEM INFORMATION:
 REFERENCE FRAME: NAD1983 (2011) (EPOCH 2010.0000)
 U.S. STATE PLANE NEW MEXICO WEST ZONE
 ALL DISTANCES ARE GRID DISTANCES

VERTICAL DATUM
 NAVD 1988
 GEOID 12B(CONUS) WAS UTILIZED TO ESTABLISH ORTHO HEIGHTS

METHODS
 ALL CONTROL ON THIS PROJECT WAS OBSERVED AND SET BETWEEN MAY 8, 2019 AND NOVEMBER 11, 2019 WITH FINAL ADJUSTMENTS MADE BY NOVEMBER 20, 2019. ALL POINTS WERE OBSERVED USING TRIMBLE R8 GPS RECEIVERS UTILIZING RTK GPS METHODS.



I, WILLIAM F. BREWSTER, NEW MEXICO PROFESSIONAL SURVEYOR NO. 10855, DO HEREBY CERTIFY THAT THIS CONTROL SURVEY REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION BASED ON AN ACTUAL SURVEY ON THE GROUND AS DESCRIBED HEREIN; THAT I AM RESPONSIBLE FOR THIS SURVEY; AND THAT THE SURVEY AND REPORT MEETS THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO.

William F. Brewster
 WILLIAM F. BREWSTER, N.M.P.S. 10855
 DATE: 5/04/2022



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Revision	Date	Description

By: CHK

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SMA

Client: The Navajo Nation
 Location: Tseil'ani, NM
SURVEY CONTROL (1 OF 2)
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
 McKINLEY COUNTY, NEW MEXICO

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Designed	Drawn	Checked
AMD	JDC	JDC

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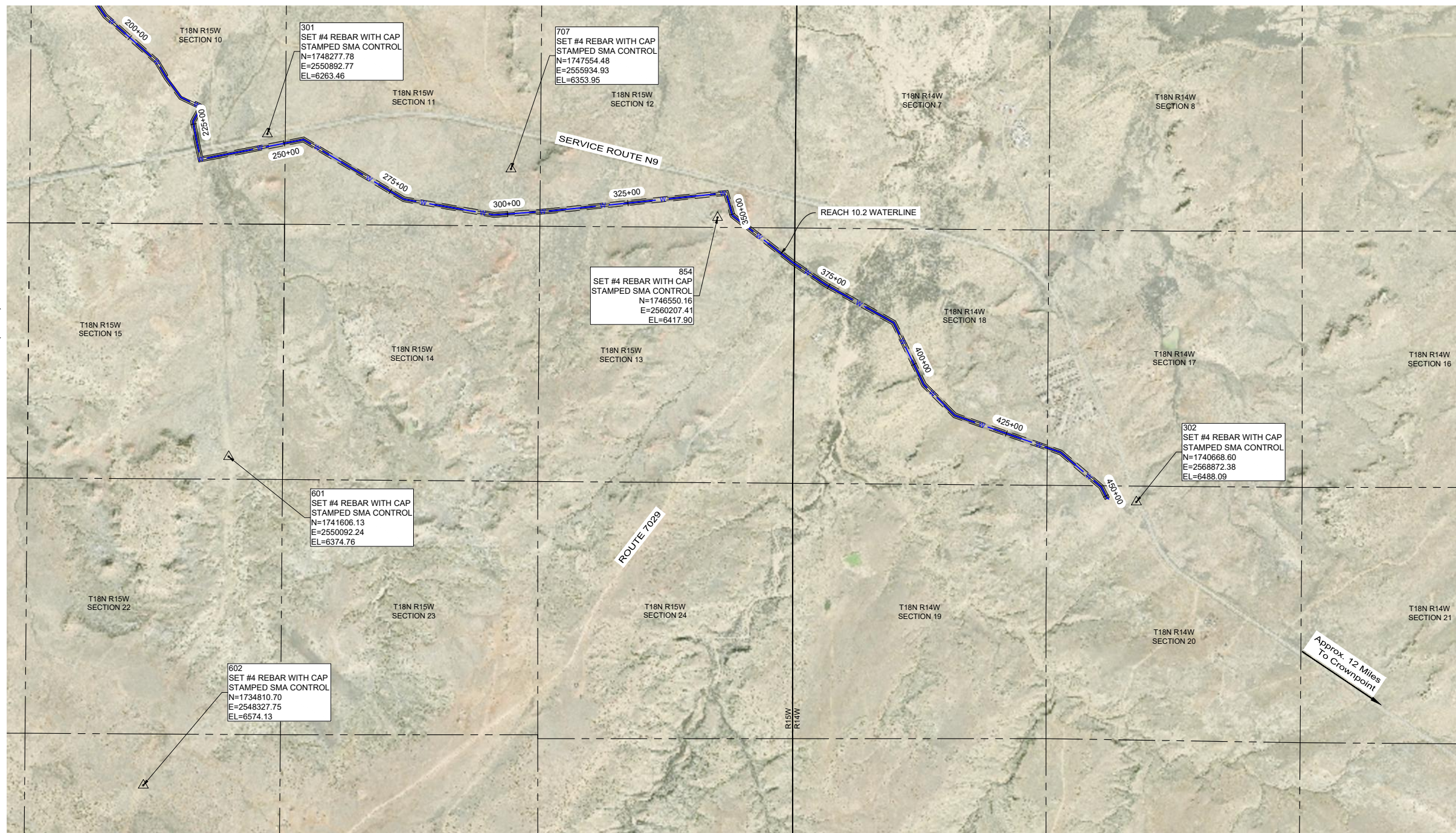
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 Vert: N/A
 Project No: 6922268
 Sheet: G-7

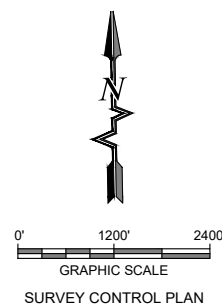
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SURVEY CONTROL SHEET
 NAVAJO GALLUP WATER SUPPLY PROJECT
 BEACON BISTI N9-REACH 10.2
 MCKINLEY COUNTY, NEW MEXICO

CONTINUED ON SHEET G-7 (1 of 2)



POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
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William F. Brewster
 WILLIAM F. BREWSTER, N.M.P.S. 10855



5/04/2022
 DATE

Revision	Date	Description

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Client: The Navajo Nation
 Location: Tseil'ihni, NM
SURVEY CONTROL (2 OF 2)
 NAVAJO GALLUP WATER SUPPLY PROJECT
 BEACON BISTI N9 - REACH 10.2
 MCKINLEY COUNTY, NEW MEXICO

90% REVIEW
 DRAFT

PRELIMINARY
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 9/2022

Designed	Drawn	Checked
	AMD	JDC

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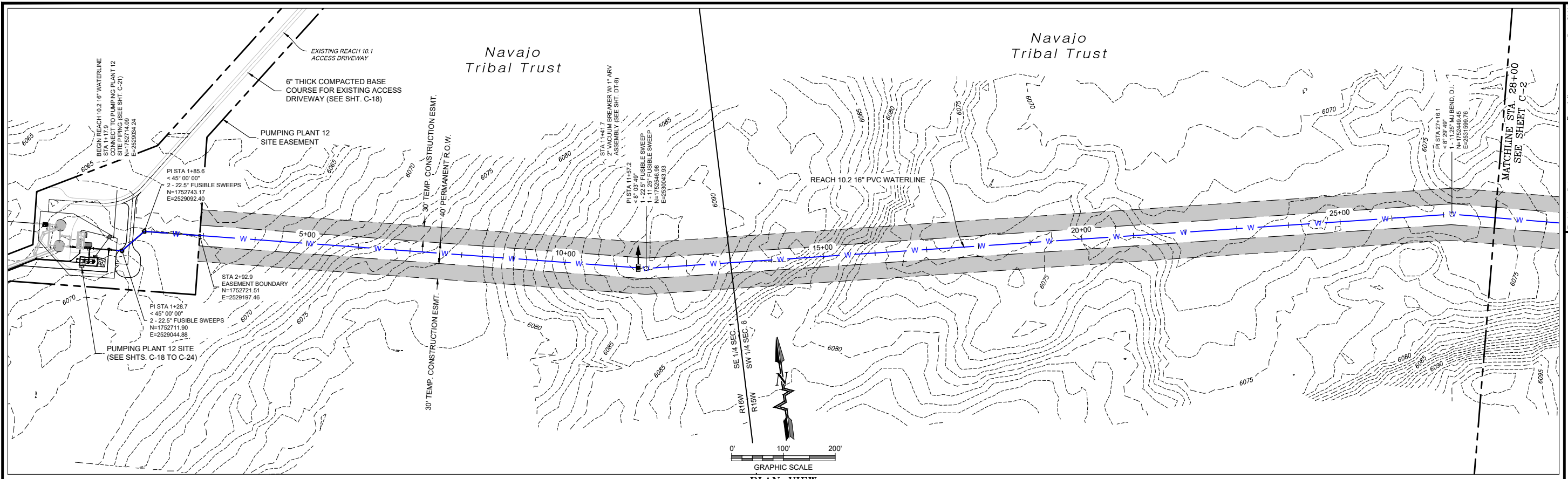
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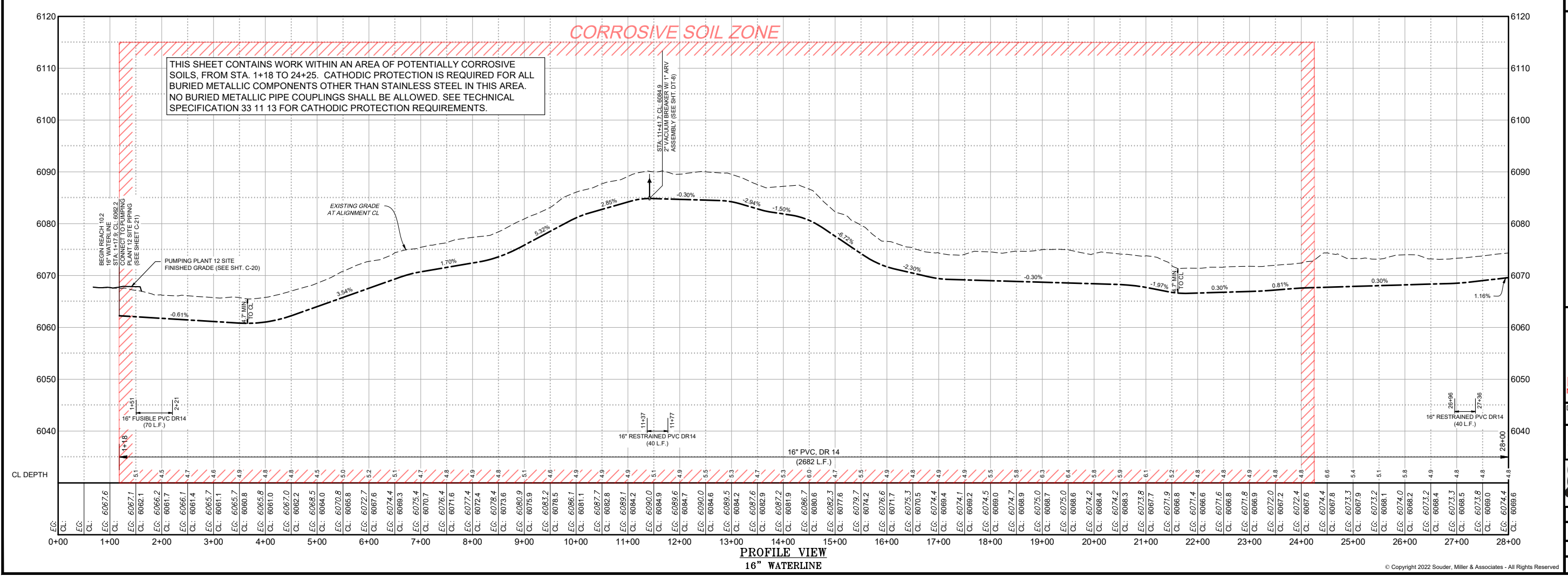
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 Vert: N/A

Project No: 6922268

Sheet: **G-8**



PLAN VIEW
16" WATERLINE



PROFILE VIEW
16" WATERLINE

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Revision	Date	Description

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Client: The Navajo Nation
 Location: Tseil'ahn, NM
PLAN AND PROFILE STA 1+17.9 TO STA 28+00
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
 MCKINLEY COUNTY, NEW MEXICO
 SECTION 1, T. 18 N., R. 16 W.; SECTION 6, T. 18 N., R. 15 W.

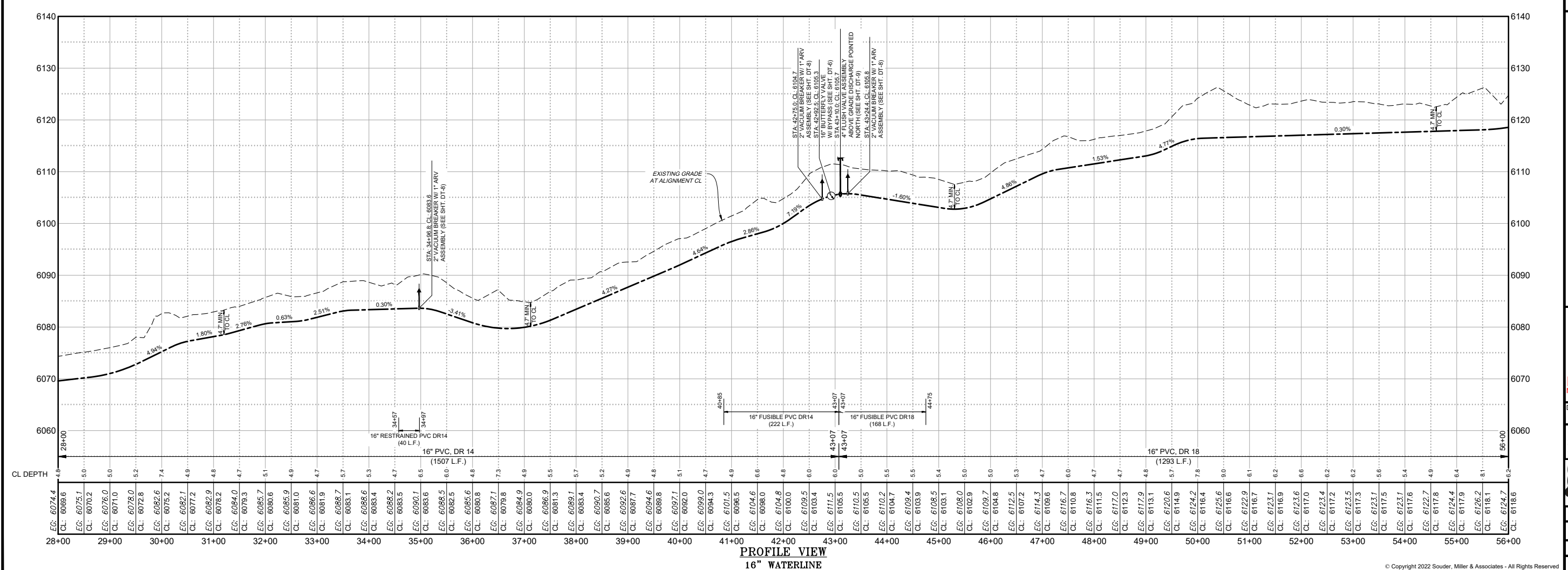
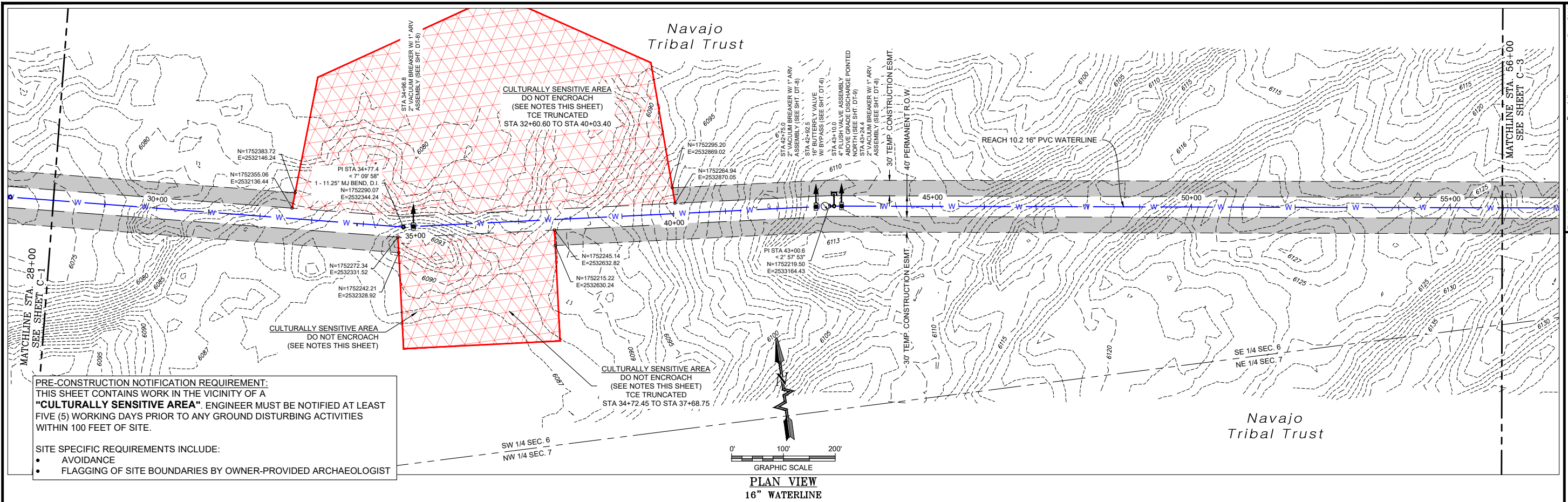
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 9/2022

Designed TTT	Drawn MvH/AaV	Checked JMG
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Date: September 2022
 Scale: Horiz: 1" = 200'
 Vert: 1" = 20'
 Project No: 6922268
 Sheet: C-1



Revision Date Description

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 Engineering • Environmental • Geomatics
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 www.soudermiller.com

Client: The Navajo Nation
 Location: Tseil'ahn, NM

PLAN AND PROFILE STA 28+00 TO STA 56+00
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
 MCKINLEY COUNTY, NEW MEXICO
 SECTION 6, T. 18 N., R. 15 W.

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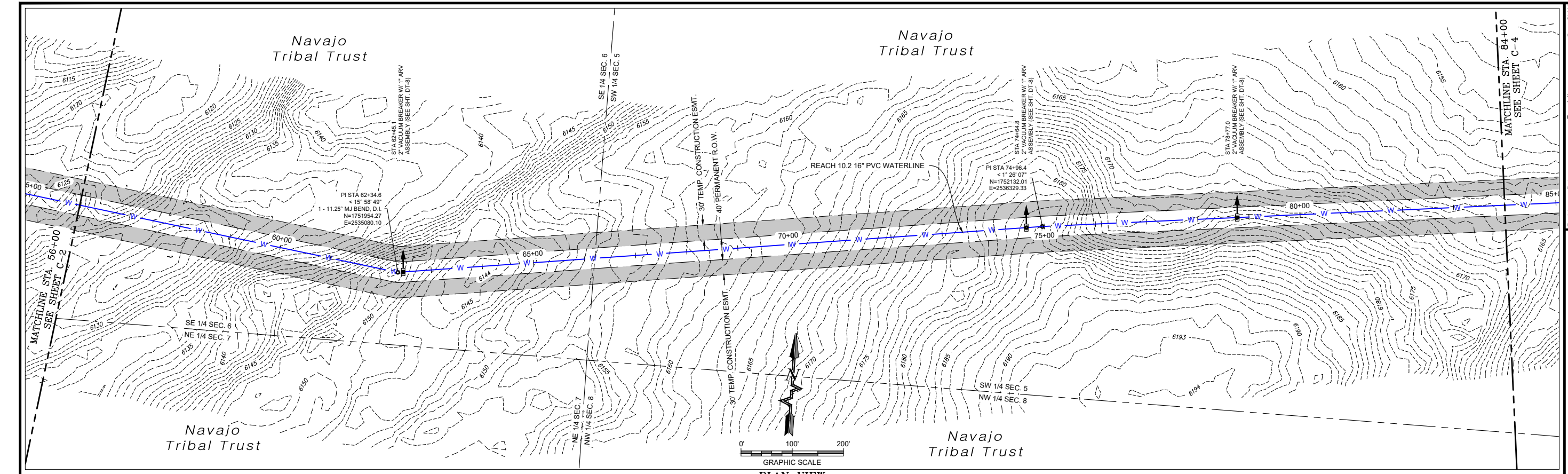
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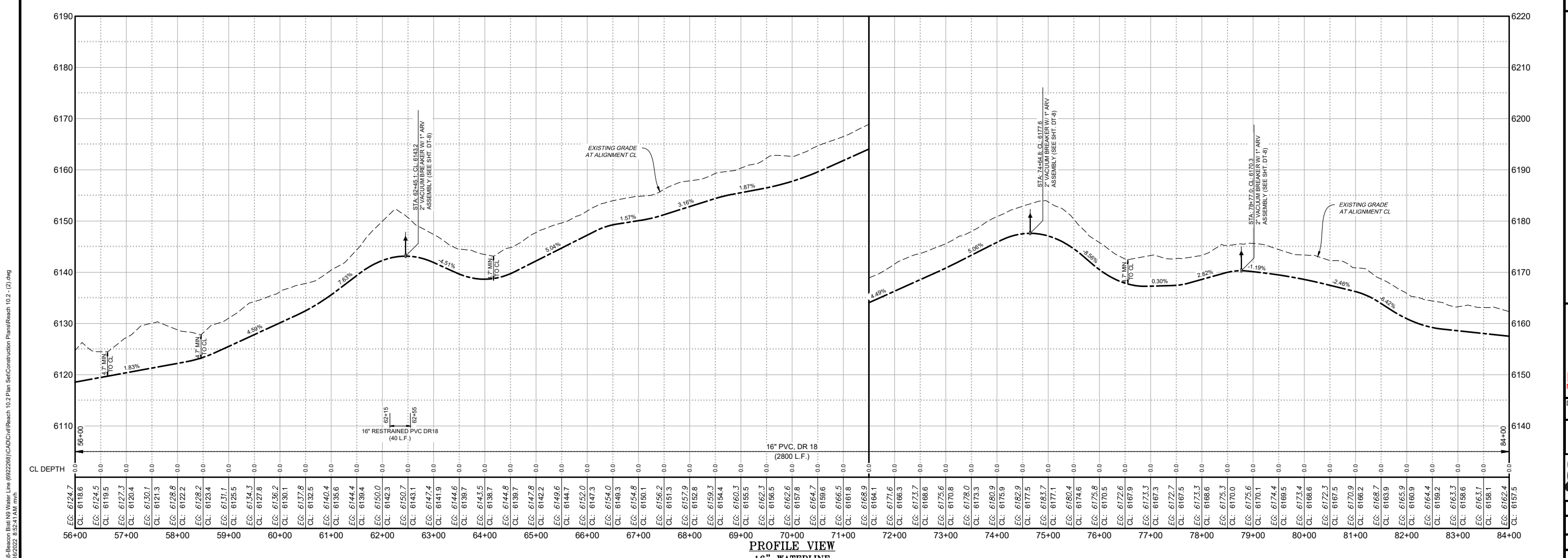
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Project No: 6922268
 Sheet: C-2

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PLAN VIEW
16" WATERLINE



PROFILE VIEW
16" WATERLINE

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www.soudermiller.com

Client: The Navajo Nation
Location: Tseil'ihni, NM

PLAN AND PROFILE STA 56+00 TO STA 84+00
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
MCKINLEY COUNTY, NEW MEXICO
SECTIONS 5 & 6, T. 18 N., R. 15 W.

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9/2022

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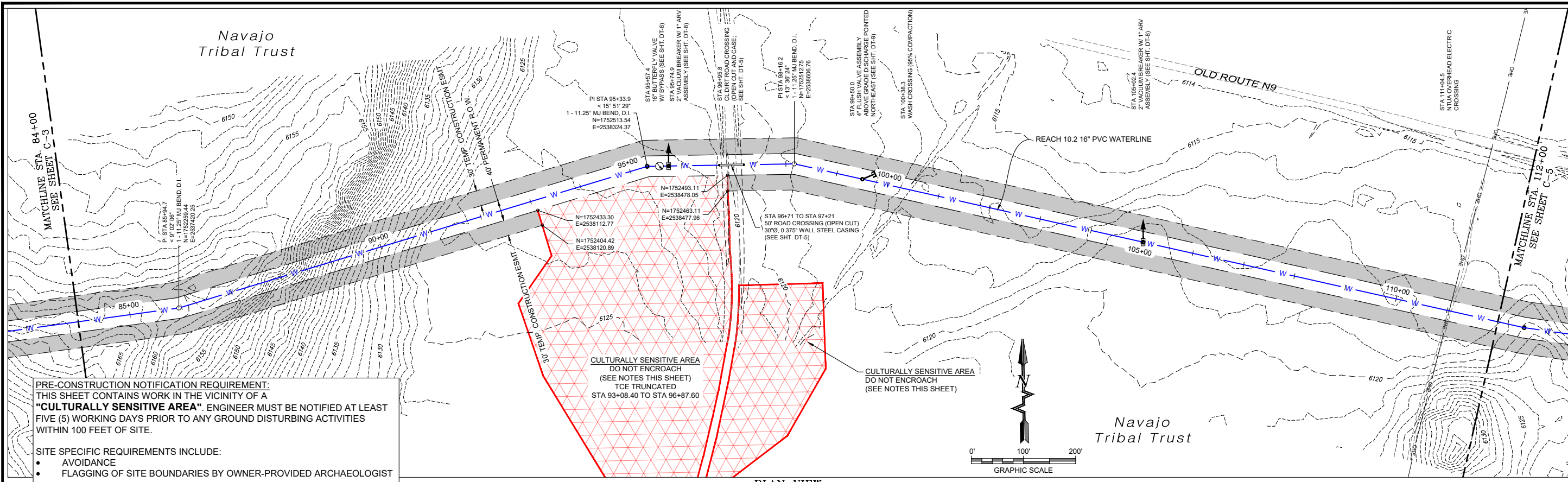
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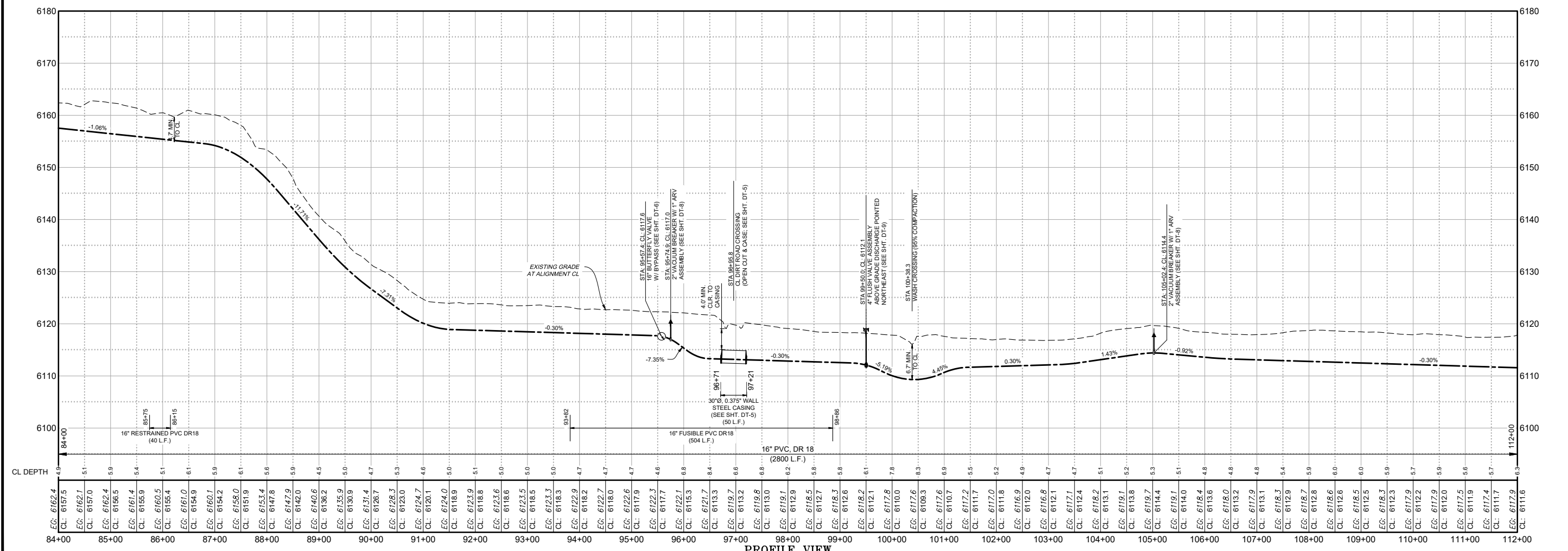


PLAN VIEW
16" WATERLINE

PRE-CONSTRUCTION NOTIFICATION REQUIREMENT:
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SITE SPECIFIC REQUIREMENTS INCLUDE:

- AVOIDANCE
- FLAGGING OF SITE BOUNDARIES BY OWNER-PROVIDED ARCHAEOLOGIST



PROFILE VIEW
16" WATERLINE

Revision Date Description By

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SMA

Client: The Navajo Nation
Location: Tseil'ihni, NM

PLAN AND PROFILE STA 84+00 TO STA 112+00
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
McKINLEY COUNTY, NEW MEXICO
SECTION 5, T. 18 N., R. 15 W.

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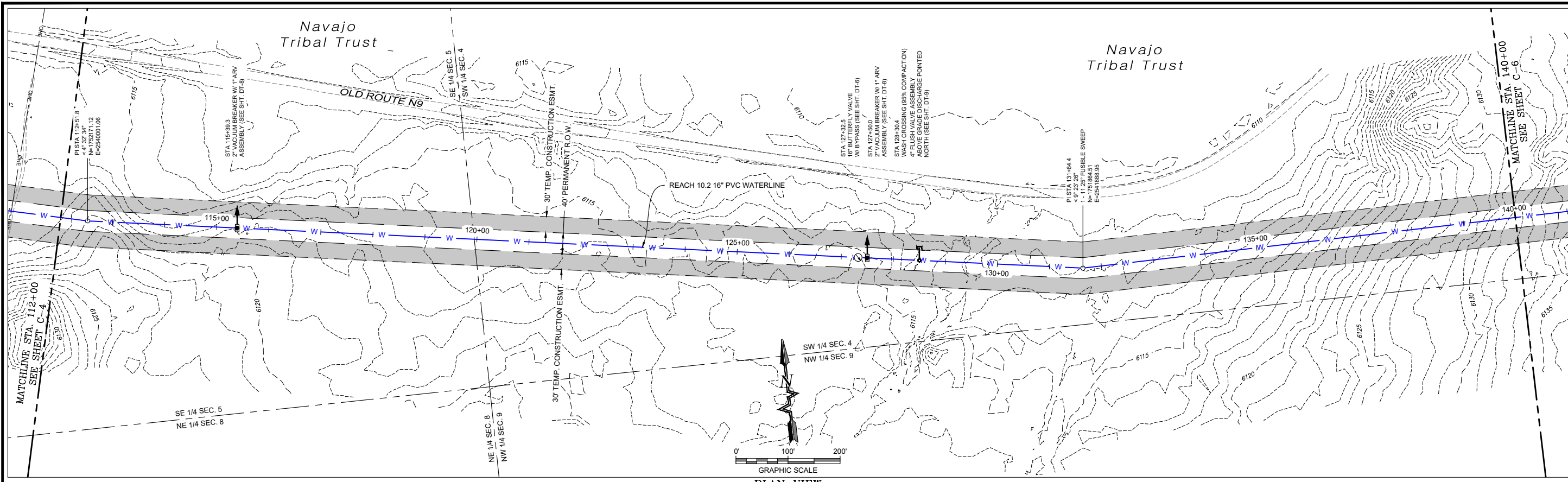
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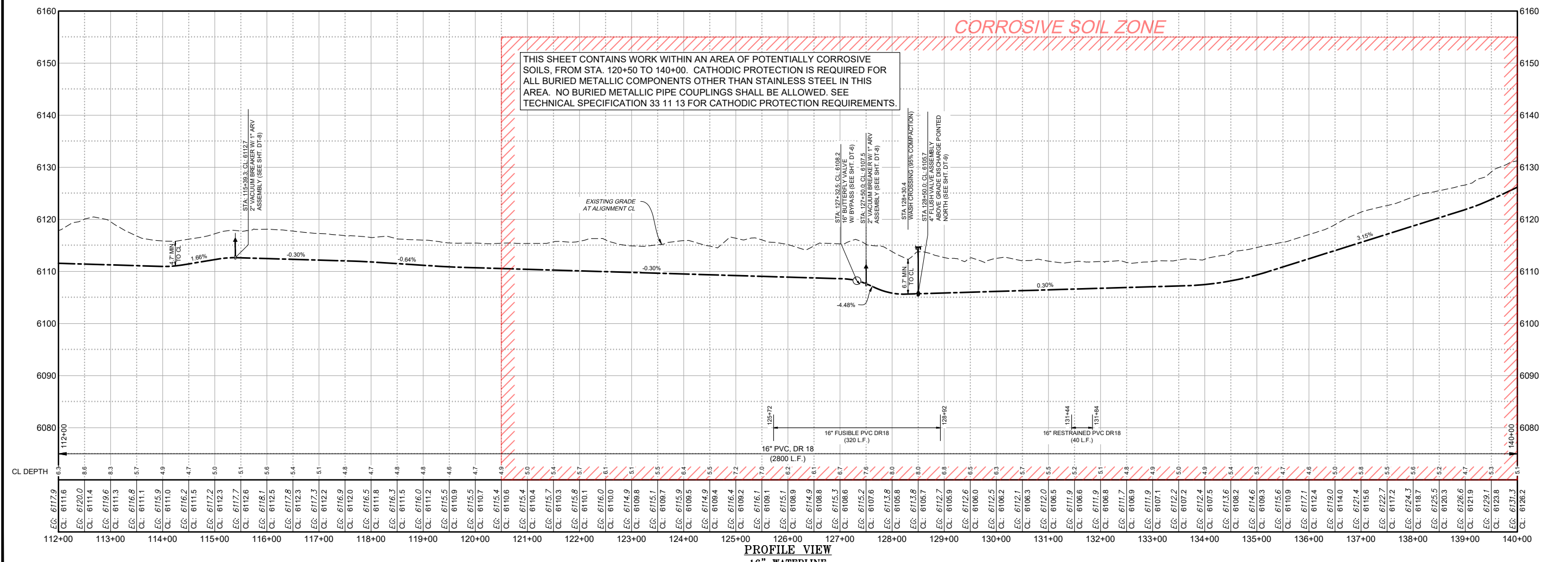
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Project No: 6922268
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PLAN VIEW
16" WATERLINE



PROFILE VIEW
16" WATERLINE

Revision Date Description By: CHK

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Client: The Navajo Nation
Location: Tseil'ihni, NM

PLAN AND PROFILE STA 112+00 TO STA 140+00
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
MCKINLEY COUNTY, NEW MEXICO
SECTIONS 4 & 5, T. 18 N., R. 15 W.

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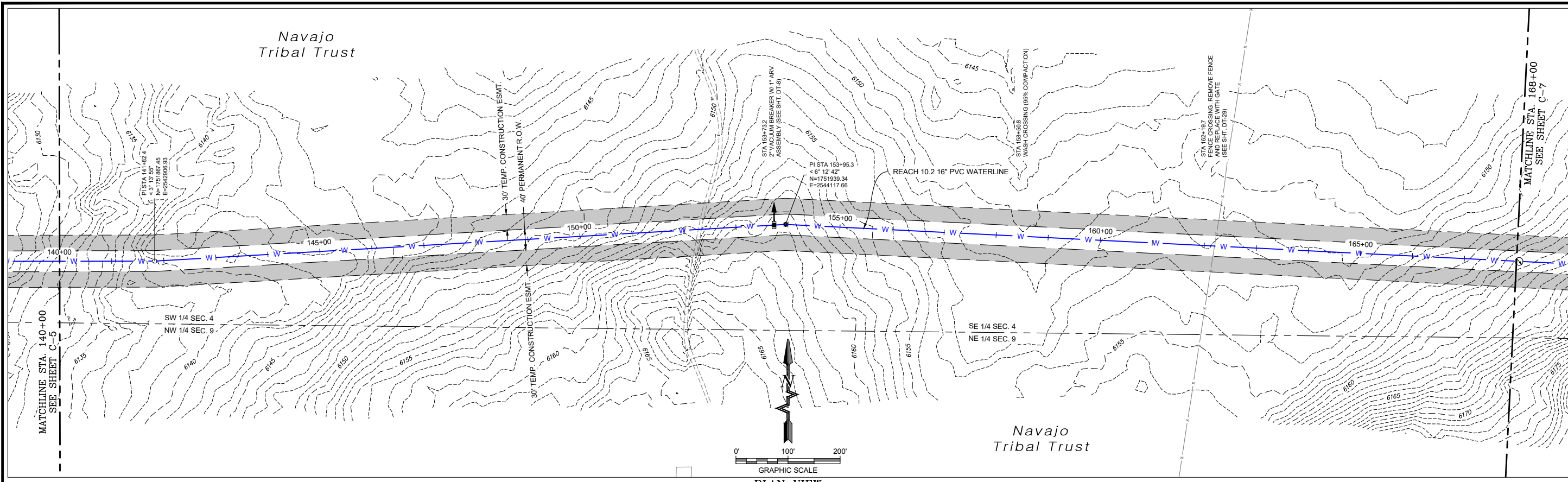
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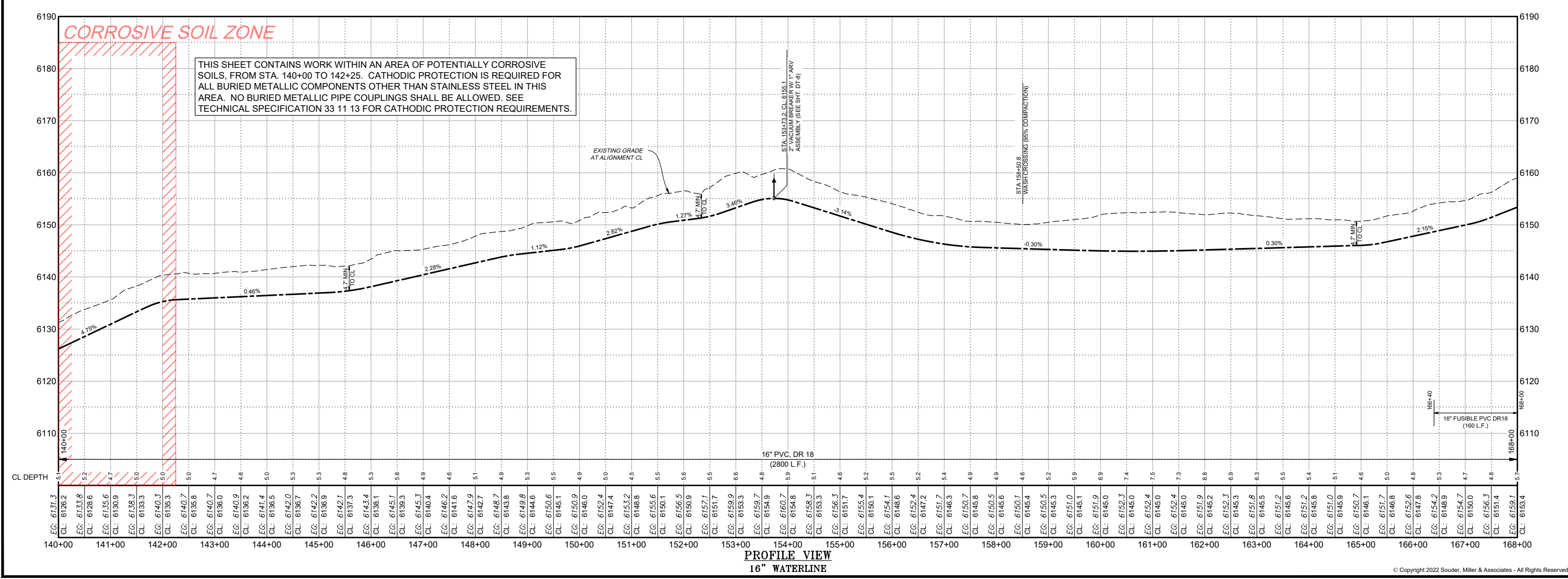
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PLAN VIEW
16" WATERLINE



PROFILE VIEW
16" WATERLINE

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Client: The Navajo Nation
 Location: Tseil'ahni, NM
PLAN AND PROFILE STA 140+00 TO STA 168+00
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
 MCKINLEY COUNTY, NEW MEXICO
 SECTION 4, T. 18 N., R. 15 W.

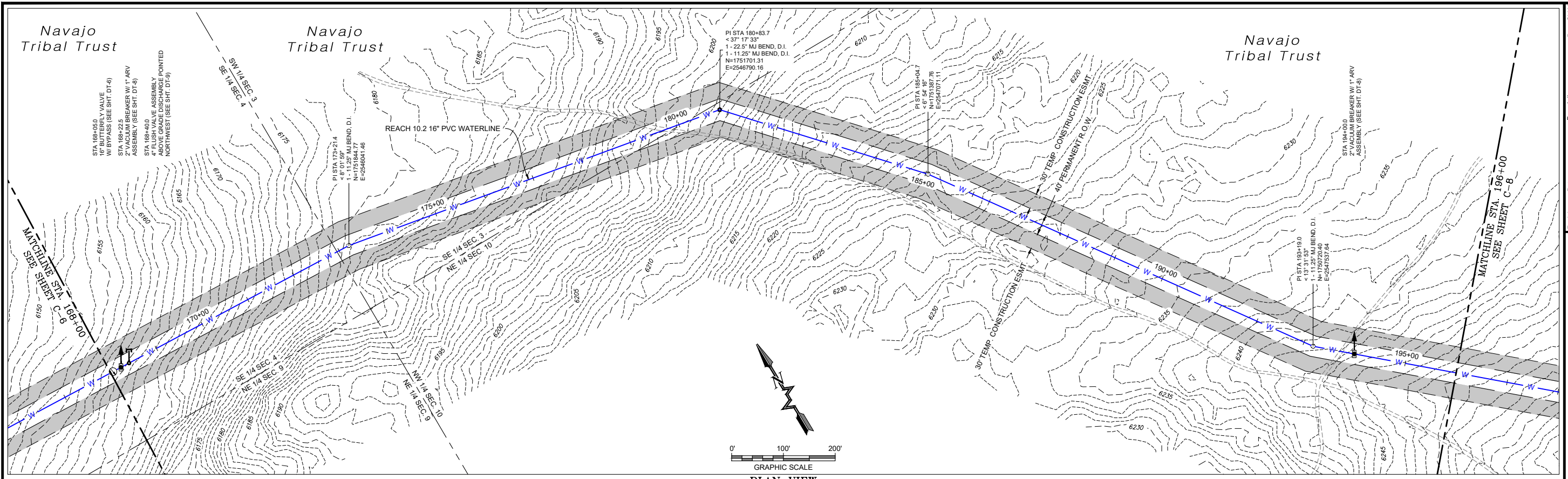
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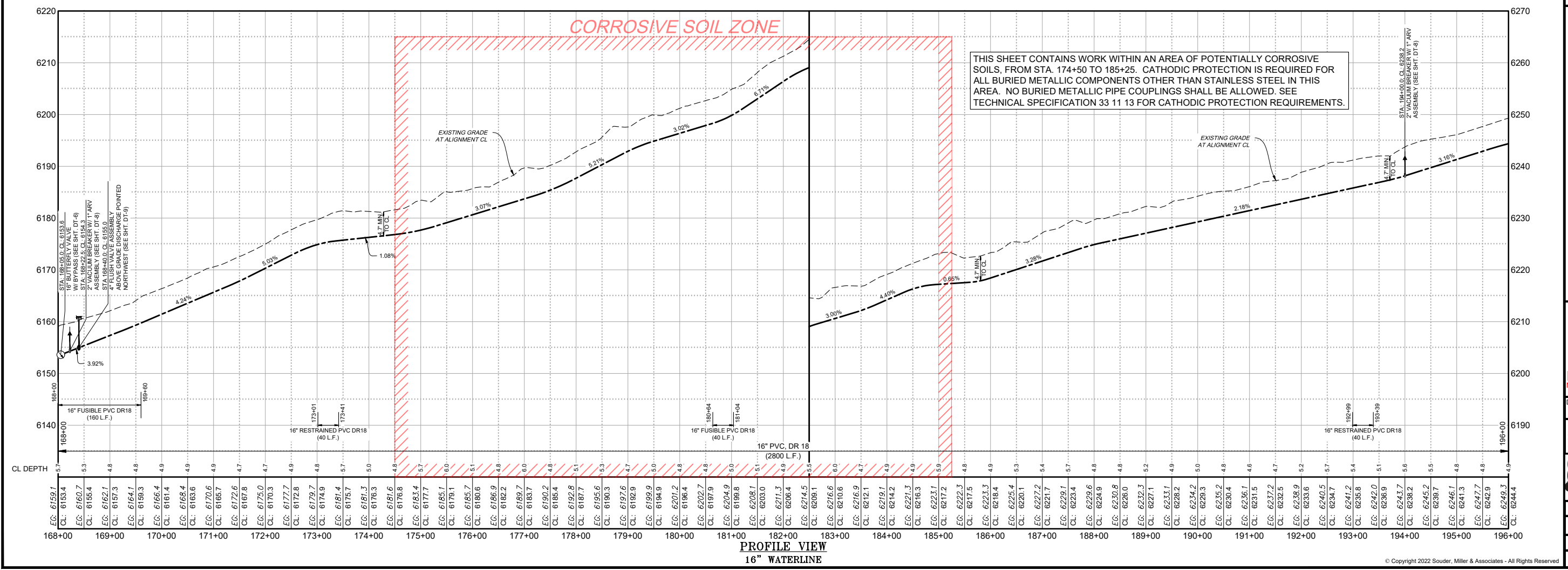
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 Sheet: C-6



PLAN VIEW
16" WATERLINE



PROFILE VIEW
16" WATERLINE

THIS SHEET CONTAINS WORK WITHIN AN AREA OF POTENTIALLY CORROSIVE SOILS, FROM STA. 174+50 TO 185+25. CATHODIC PROTECTION IS REQUIRED FOR ALL BURIED METALLIC COMPONENTS OTHER THAN STAINLESS STEEL IN THIS AREA. NO BURIED METALLIC PIPE COUPLINGS SHALL BE ALLOWED. SEE TECHNICAL SPECIFICATION 33 11 13 FOR CATHODIC PROTECTION REQUIREMENTS.

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Client: The Navajo Nation
Location: Tseil'ihni, NM

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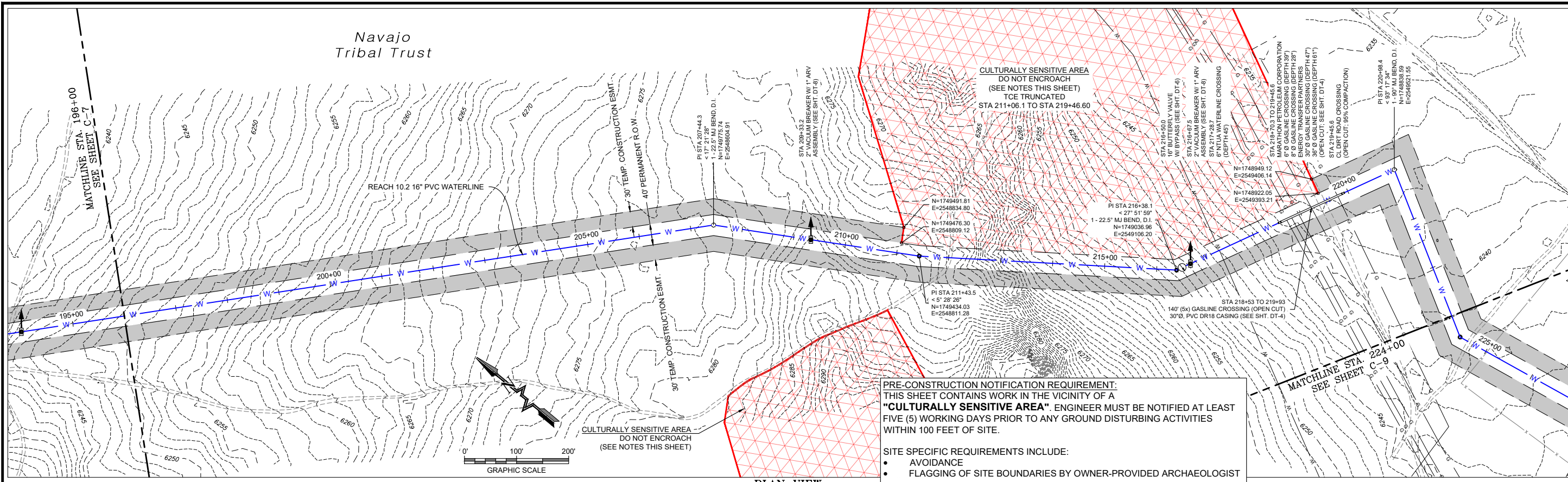
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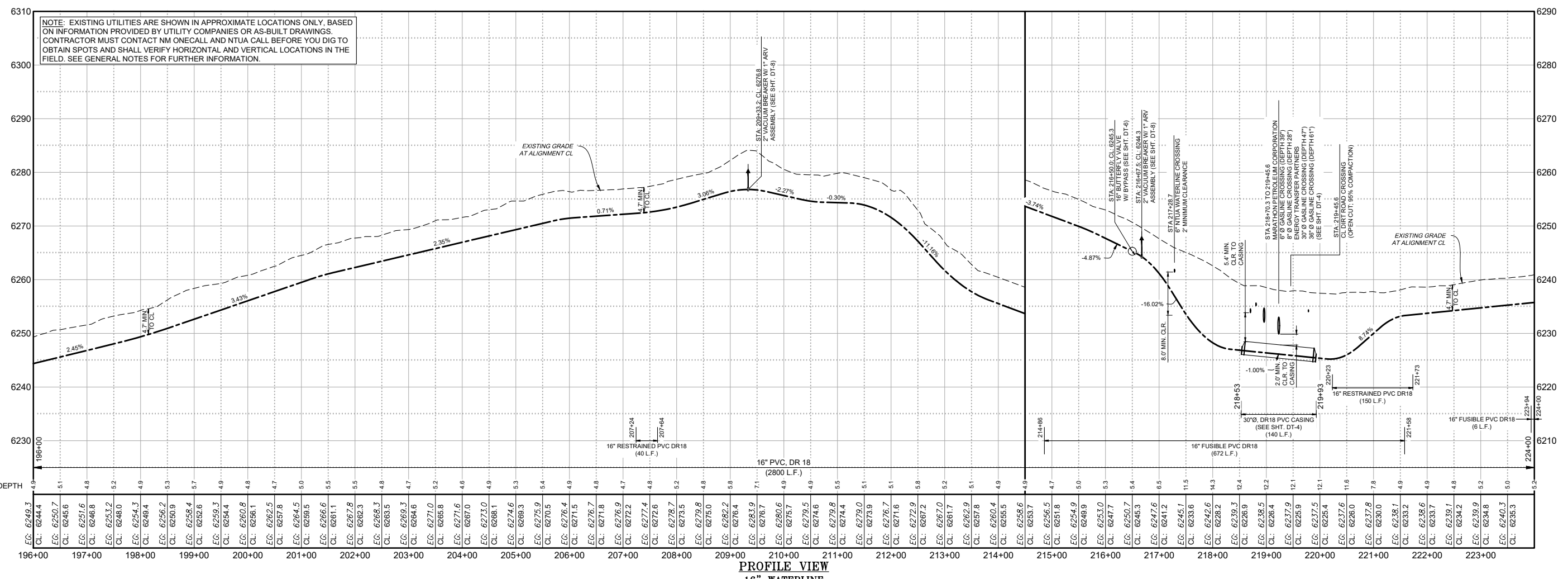
PLAN VIEW
16" WATERLINE

PRE-CONSTRUCTION NOTIFICATION REQUIREMENT:
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SITE SPECIFIC REQUIREMENTS INCLUDE:

- AVOIDANCE
- FLAGGING OF SITE BOUNDARIES BY OWNER-PROVIDED ARCHAEOLOGIST

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

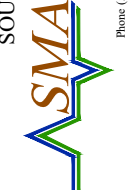


PROFILE VIEW
16" WATERLINE

Revision: _____ Date: _____

By: CHKD

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Client: The Navajo Nation
Location: Tseil'ihni, NM

PLAN AND PROFILE STA 196+00 TO STA 224+00
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
McKINLEY COUNTY, NEW MEXICO
SECTION 10 T. 18 N., R. 15 W.

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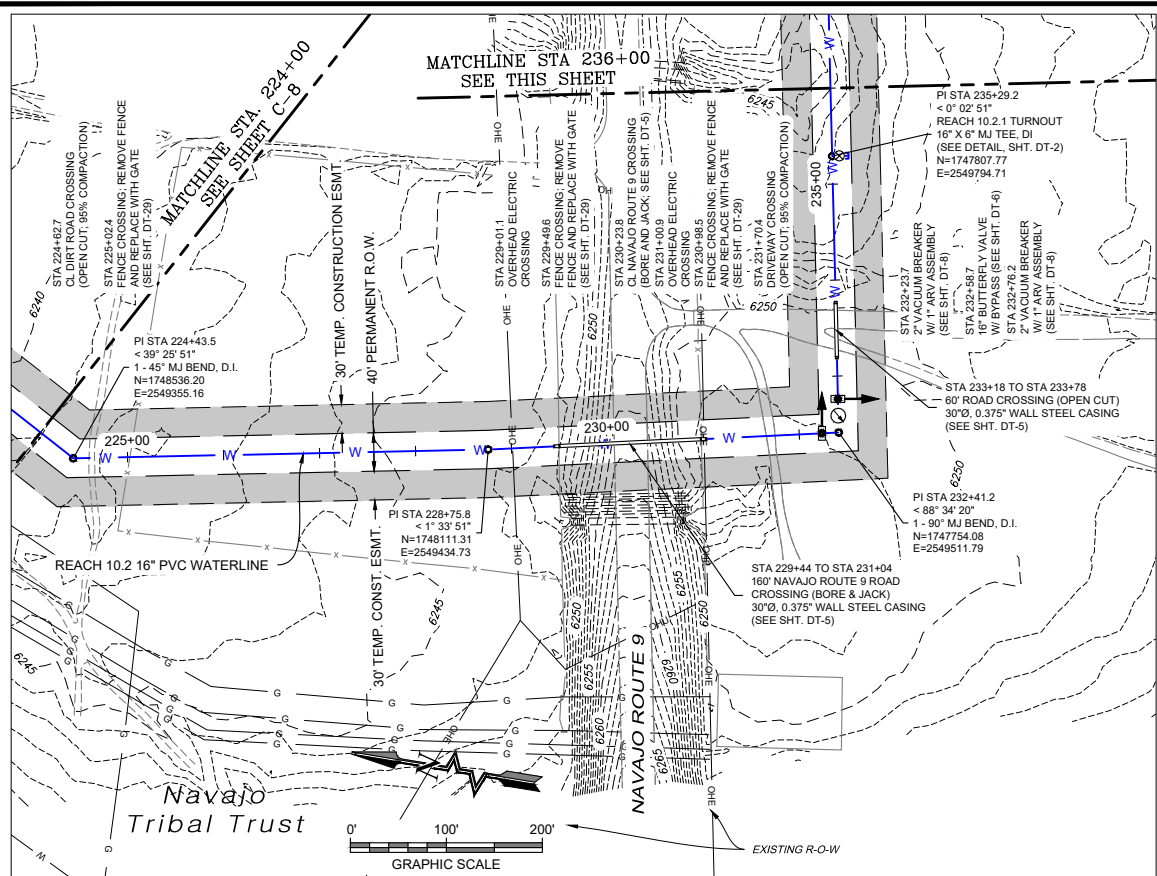
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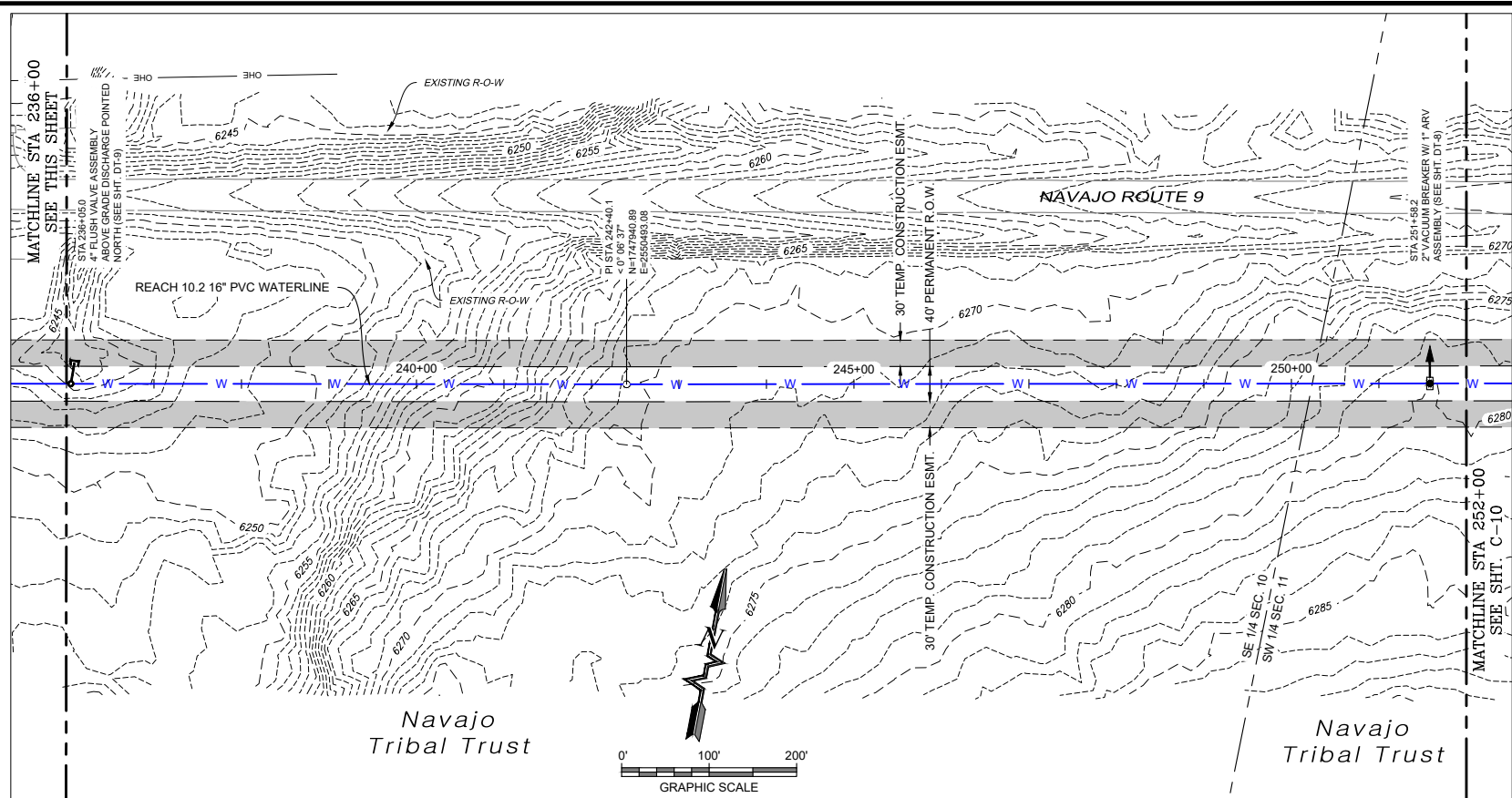
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Project No: 6922268

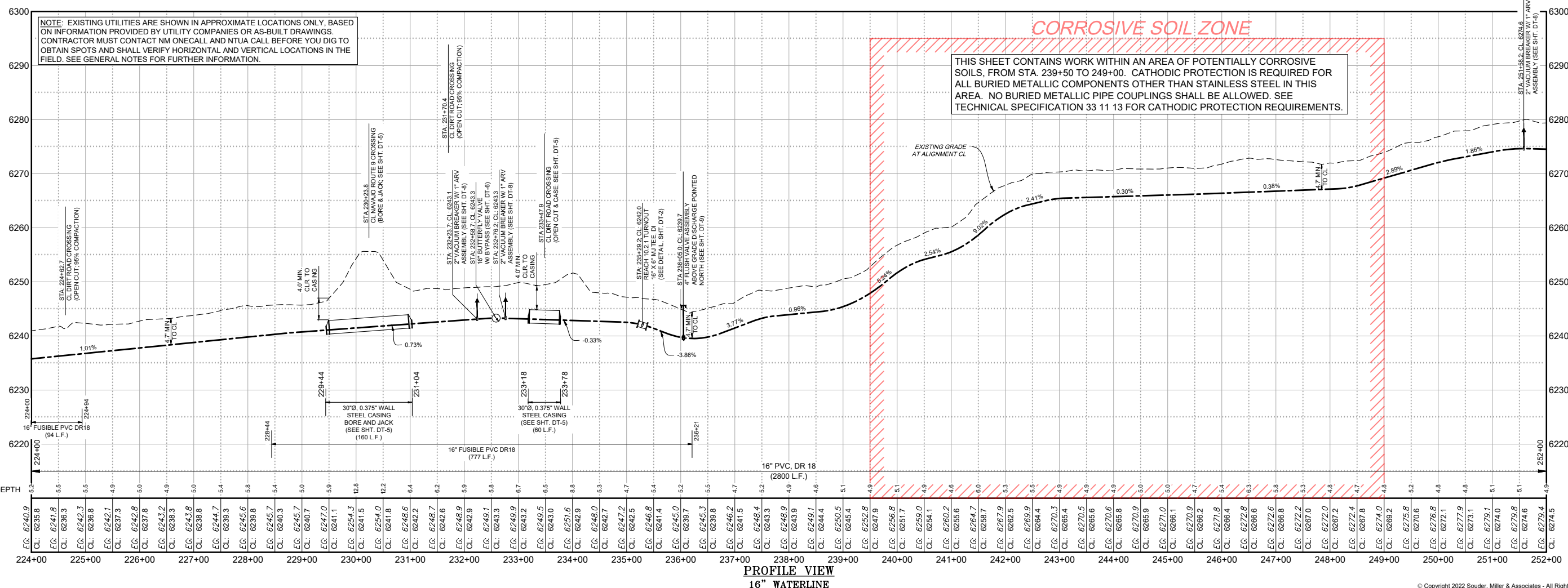
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PLAN VIEW
16" WATERLINE



PLAN VIEW
16" WATERLINE



PROFILE VIEW
16" WATERLINE

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CORROSIVE SOIL ZONE
THIS SHEET CONTAINS WORK WITHIN AN AREA OF POTENTIALLY CORROSIVE SOILS, FROM STA. 239+50 TO 249+00. CATHODIC PROTECTION IS REQUIRED FOR ALL BURIED METALLIC COMPONENTS OTHER THAN STAINLESS STEEL IN THIS AREA. NO BURIED METALLIC PIPE COUPLINGS SHALL BE ALLOWED. SEE TECHNICAL SPECIFICATION 33 11 13 FOR CATHODIC PROTECTION REQUIREMENTS.

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Client: The Navajo Nation
Location: Tse'iilahi, NM

**PLAN AND PROFILE STA 224+00 TO STA 252+00
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
MCKINLEY COUNTY, NEW MEXICO
SECTIONS 10 & 11 T. 18 N., R. 15 W.**

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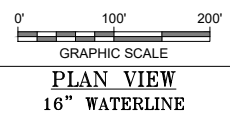
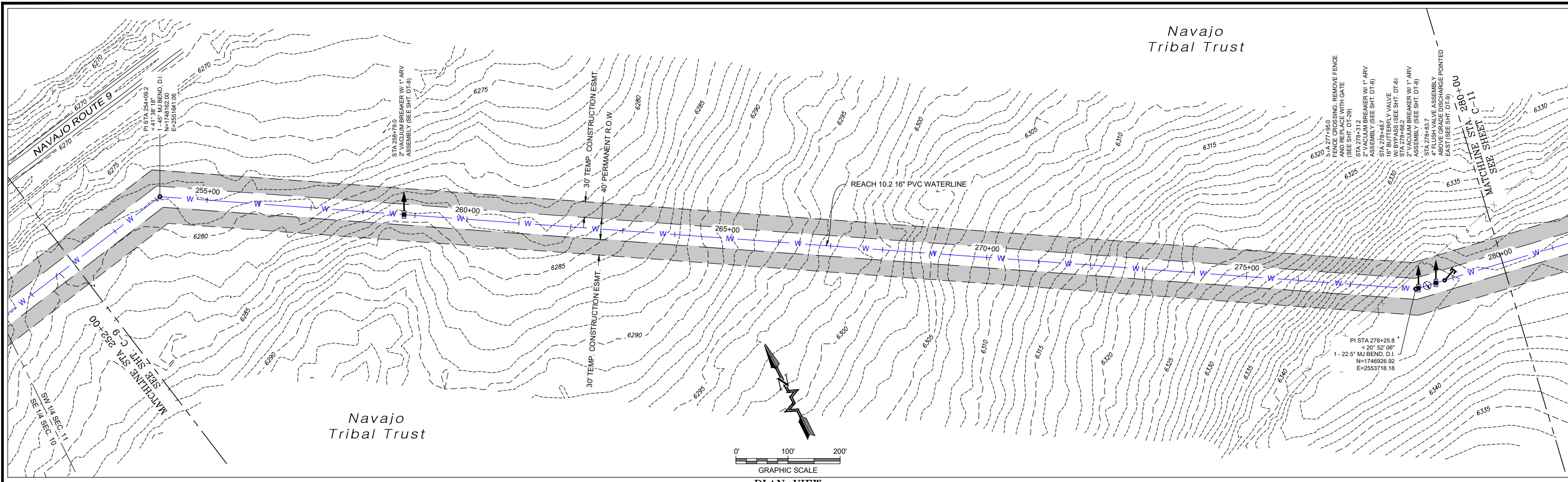
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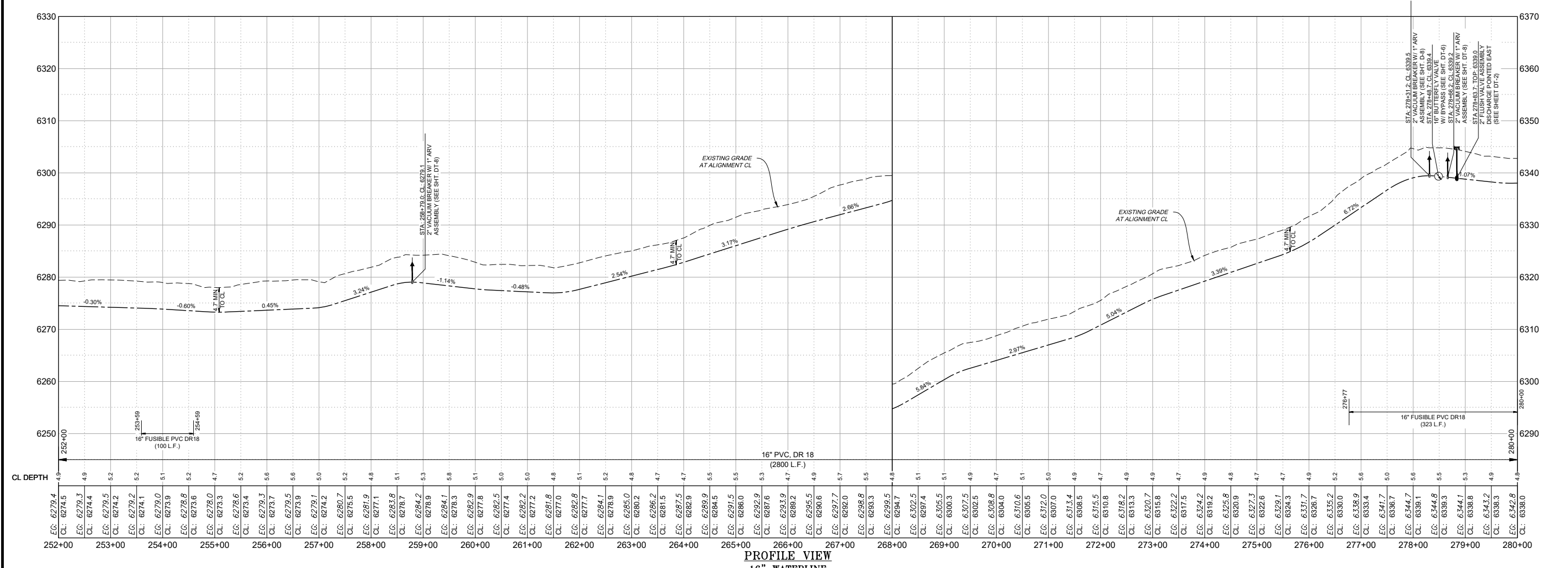
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Sheet: **C-9**

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PLAN VIEW
16" WATERLINE



PROFILE VIEW
16" WATERLINE

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Client: The Navajo Nation
 Location: Tse'iitah, NM
PLAN AND PROFILE STA 252+00 TO STA 280+00
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
 MCKINLEY COUNTY, NEW MEXICO
 SECTION 11 T. 18 N., R. 15 W.

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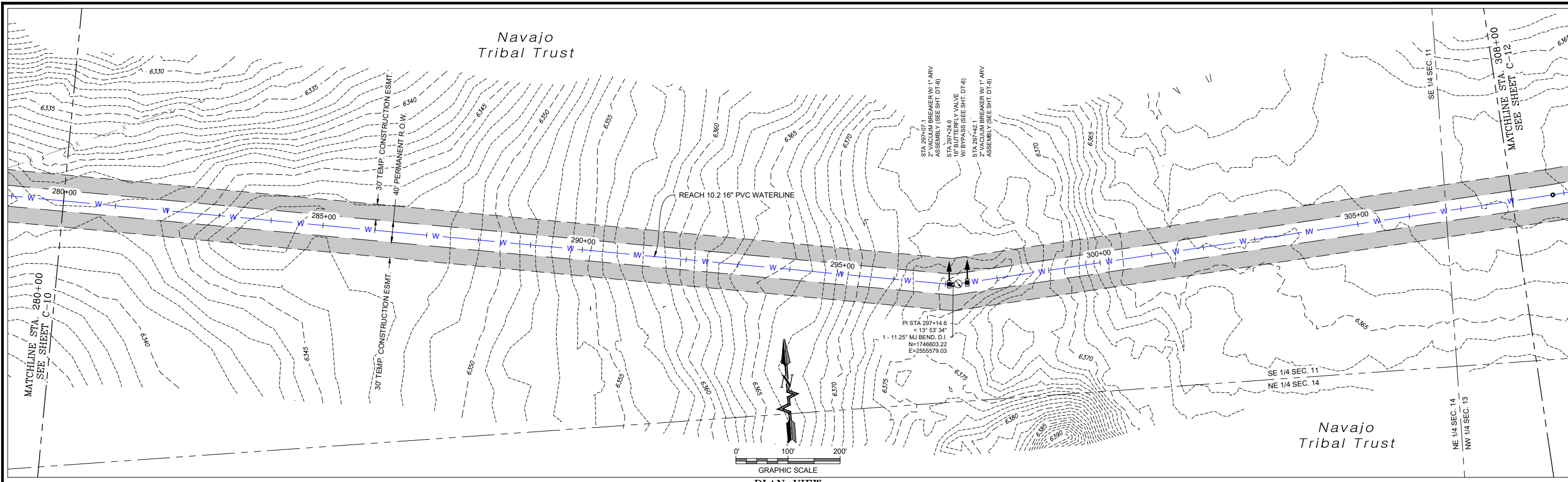
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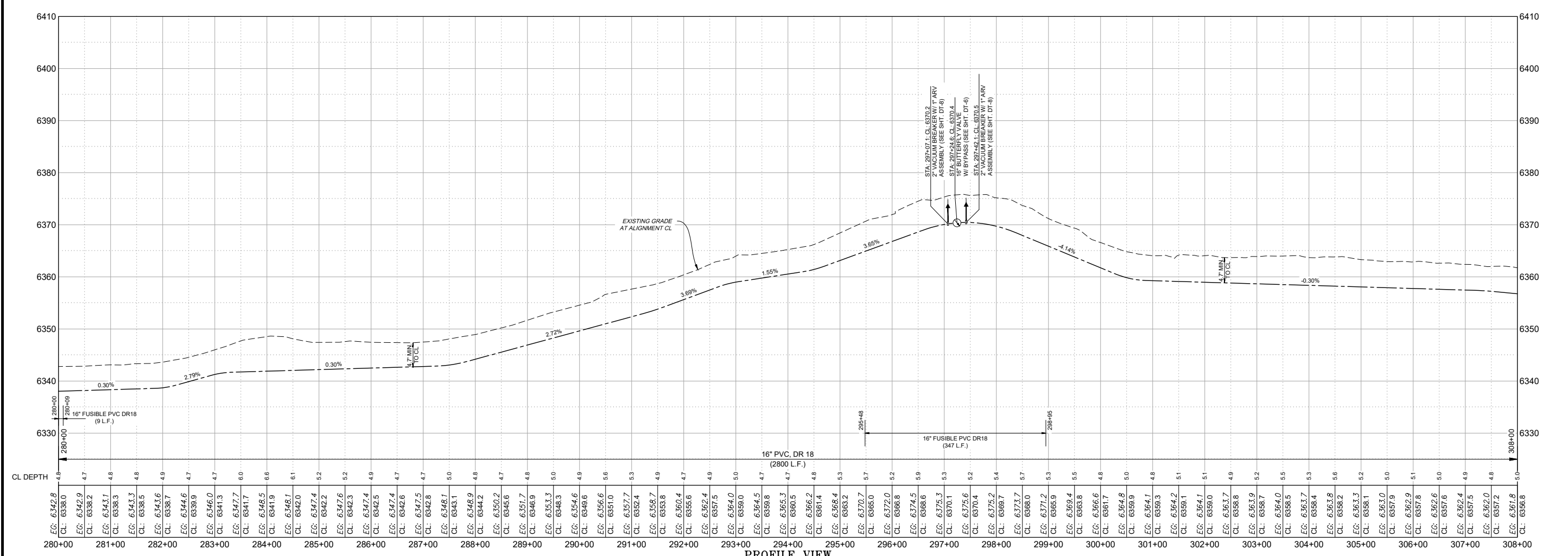
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Navajo Tribal Trust



PLAN VIEW
16" WATERLINE



PROFILE VIEW
16" WATERLINE

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Client: The Navajo Nation
Location: Tseil'ihai, NM

PLAN AND PROFILE STA 280+00 TO STA 308+00
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
MCKINLEY COUNTY, NEW MEXICO
SECTIONS 11 & 12 T. 18 N., R. 15 W.

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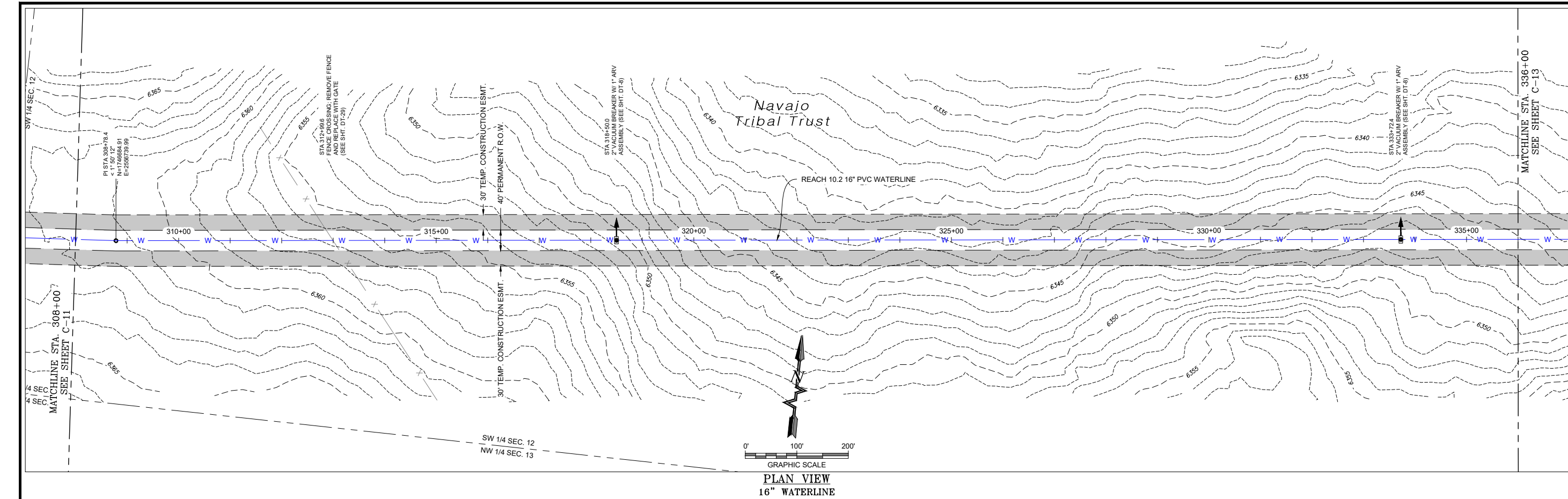
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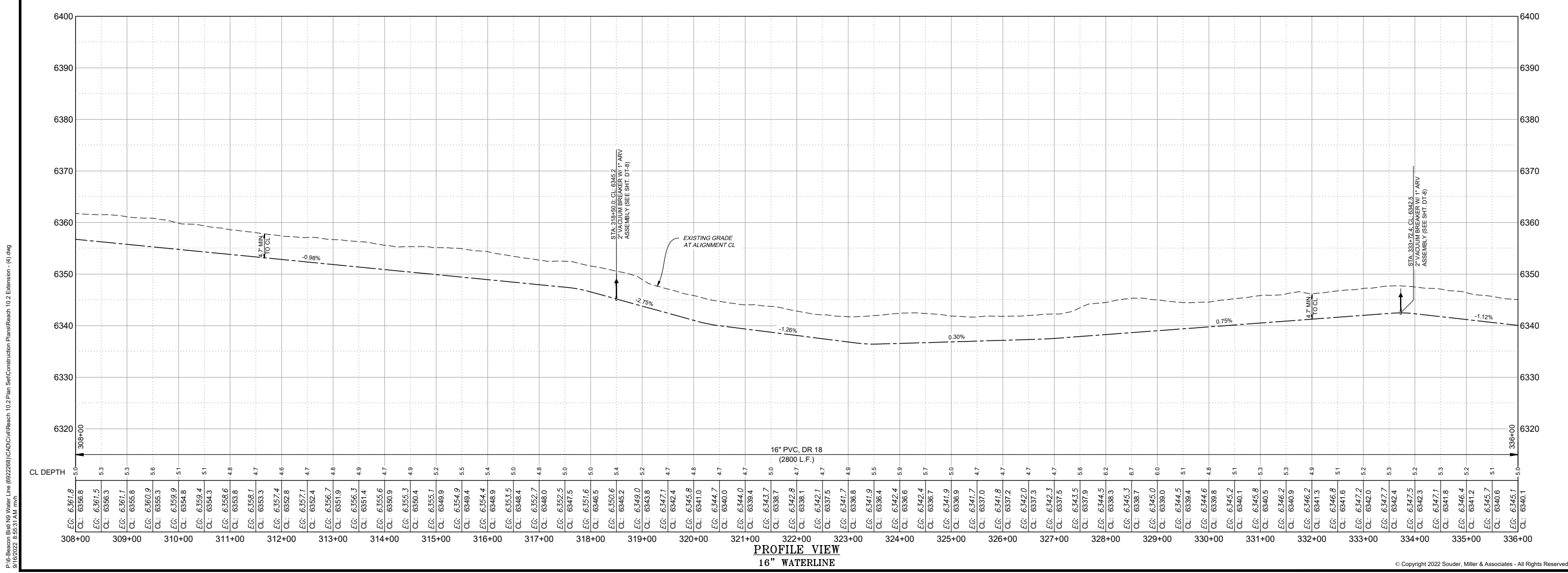
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Project No: 6922268
Sheet: C-11

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GRAPHIC SCALE
0' 100' 200'
PLAN VIEW
16" WATERLINE



PROFILE VIEW
16" WATERLINE

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Client: The Navajo Nation
 Location: Tseil'ihni, NM
PLAN AND PROFILE STA 308+00 TO STA 336+00
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
 MCKINLEY COUNTY, NEW MEXICO
 SECTION 12 T. 18 N., R. 15 W.

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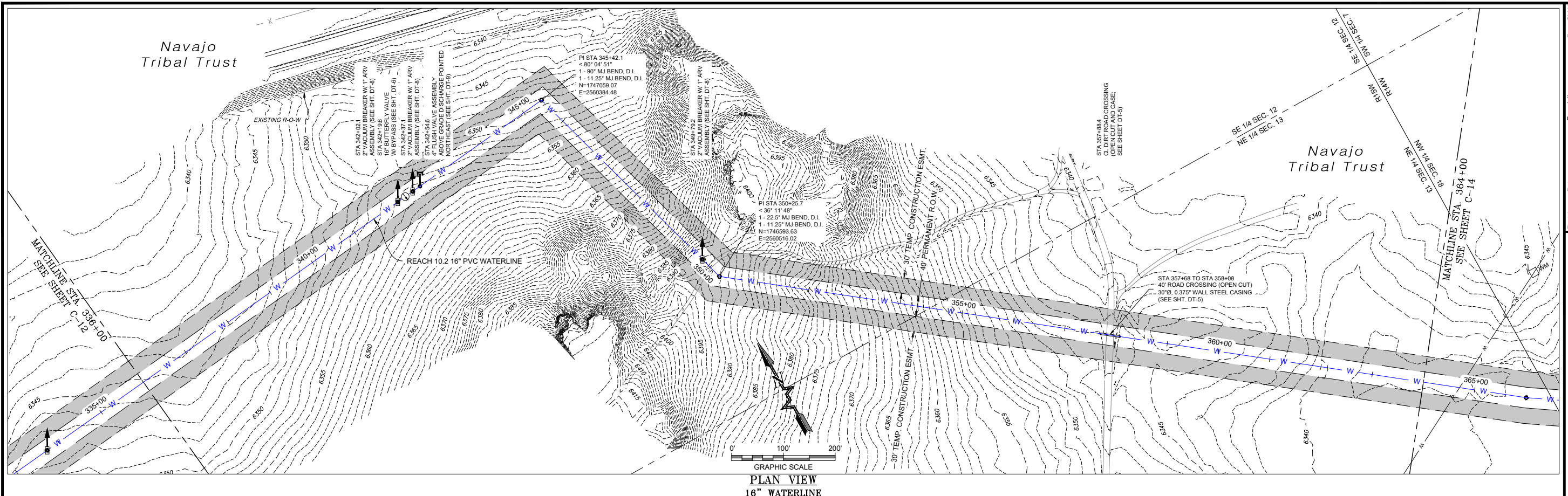
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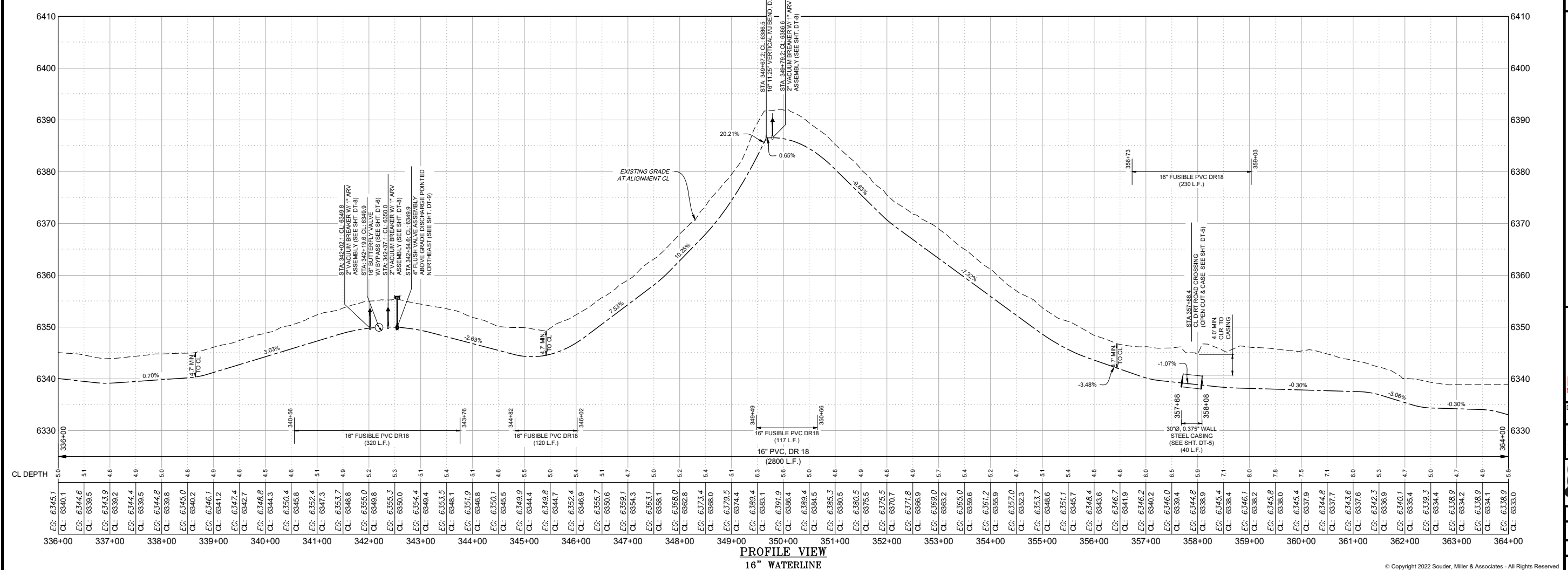
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PLAN VIEW
16" WATERLINE



PROFILE VIEW
16" WATERLINE

Revision	Date	Description

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Client: The Navajo Nation
Location: Tseil'ahii, NM

**PLAN AND PROFILE STA 336+00 TO STA 364+00
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
MCKINLEY COUNTY, NEW MEXICO
SECTIONS 12 & 13 T. 18 N., R. 15 W.**

**90% REVIEW
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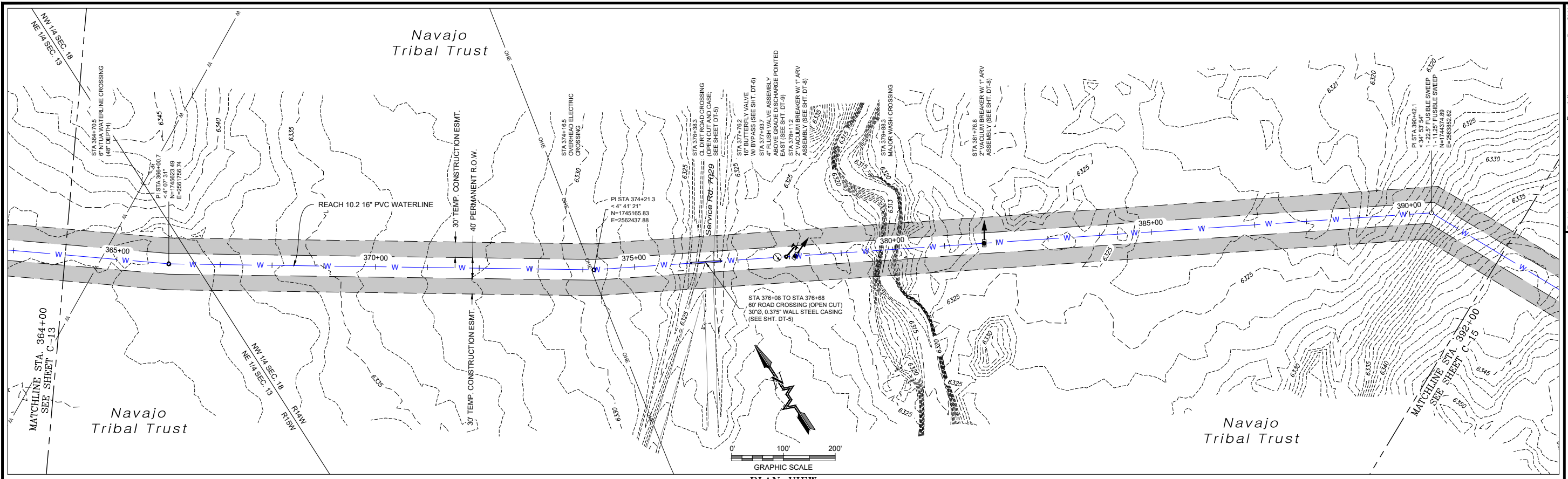
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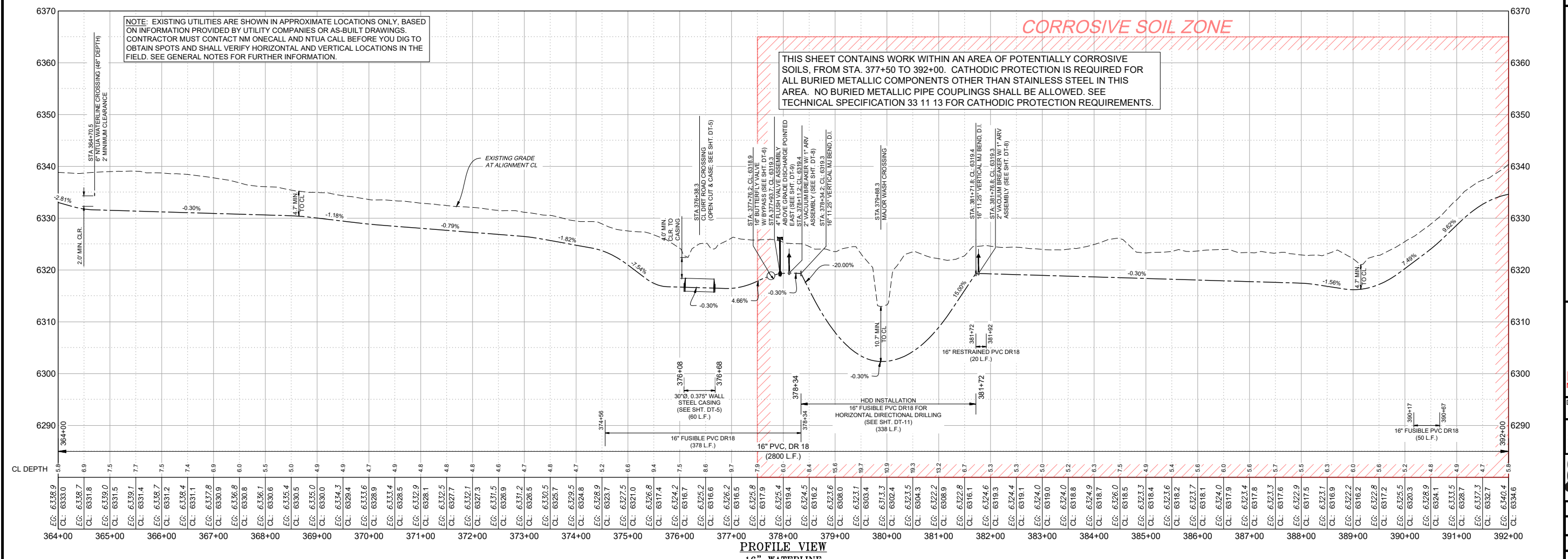
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PLAN VIEW
16" WATERLINE



PROFILE VIEW
16" WATERLINE

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Revision: _____ Date: _____ Description: _____

By: CHKD

Client: The Navajo Nation
Location: Tseil'ahi, NM
PLAN AND PROFILE STA 364+00 TO STA 392+00
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
MCKINLEY COUNTY, NEW MEXICO
SECTION 18 T. 18 N., R. 14 W.; SECTION 13 T. 18 N., R. 15 W.

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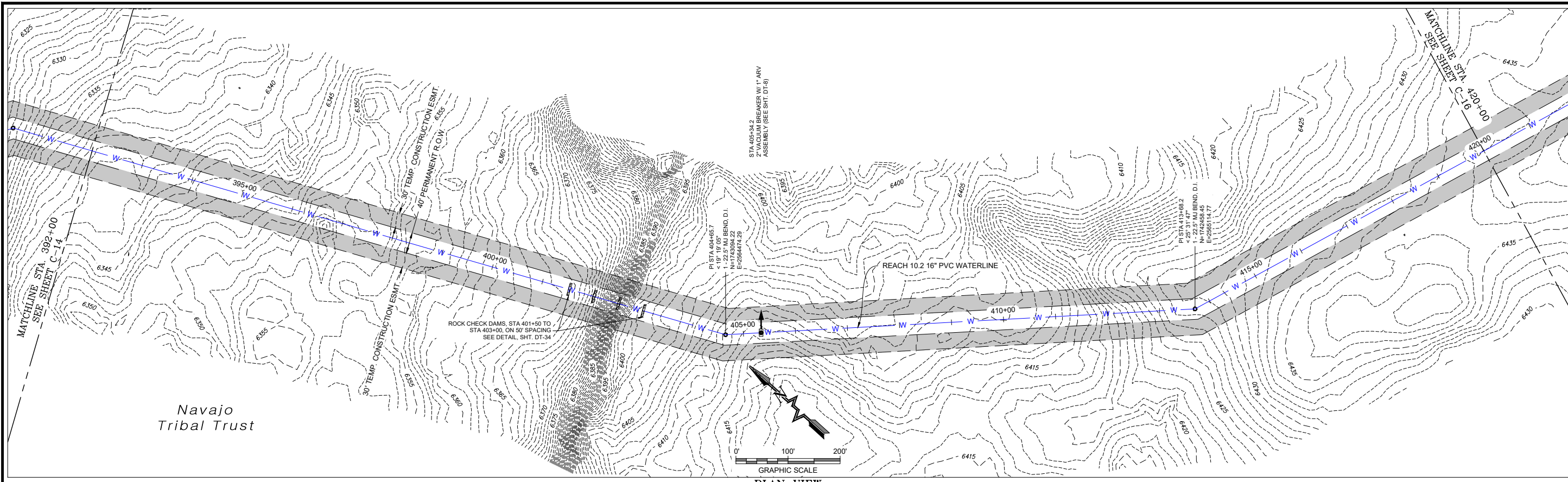
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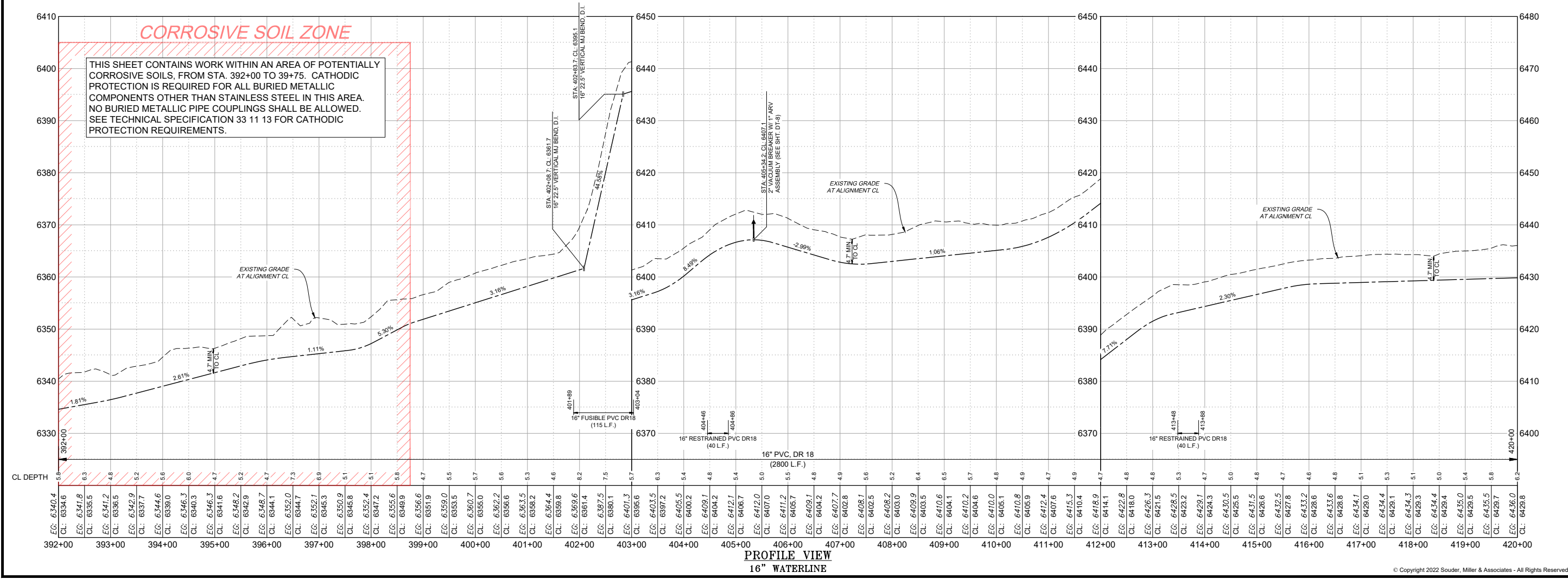
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Project No: 6922268
Sheet: C-14

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PLAN VIEW
16" WATERLINE



PROFILE VIEW
16" WATERLINE

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Client: The Navajo Nation
 Location: Tseil'ihai, NM
PLAN AND PROFILE STA 392+00 TO STA 420+00
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
 MCKINLEY COUNTY, NEW MEXICO
 SECTION 18 T. 18 N., R. 14 W.

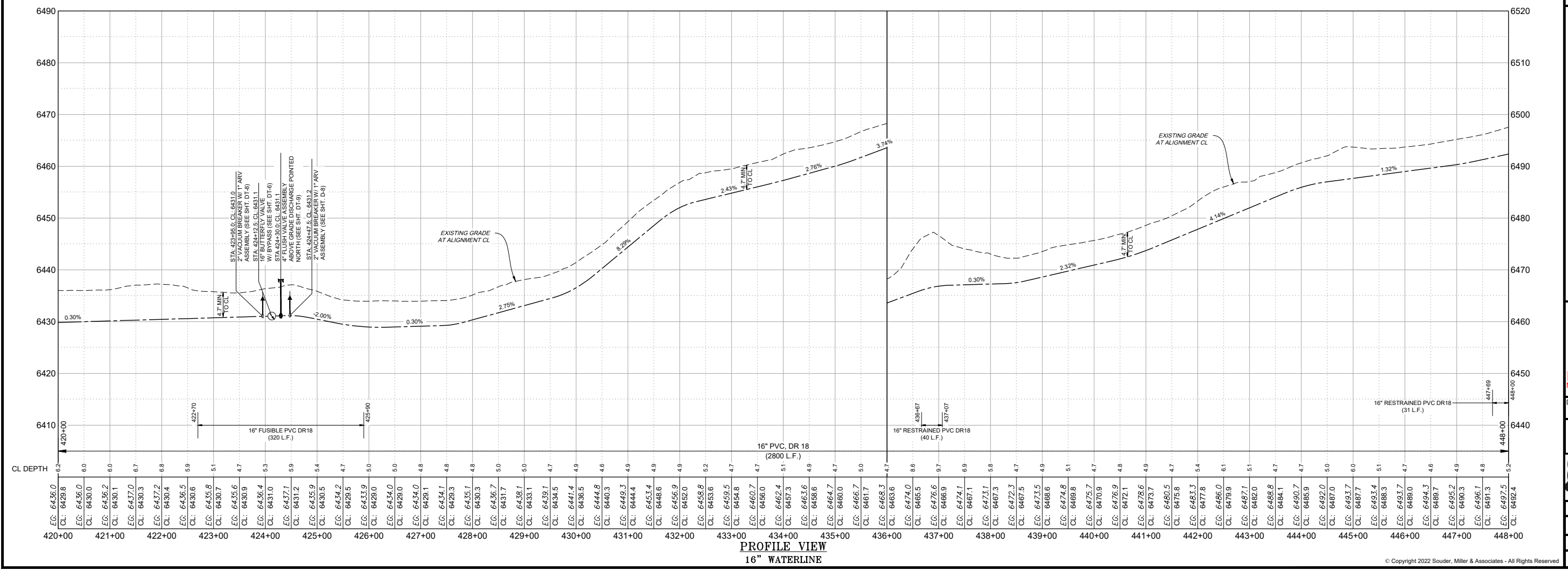
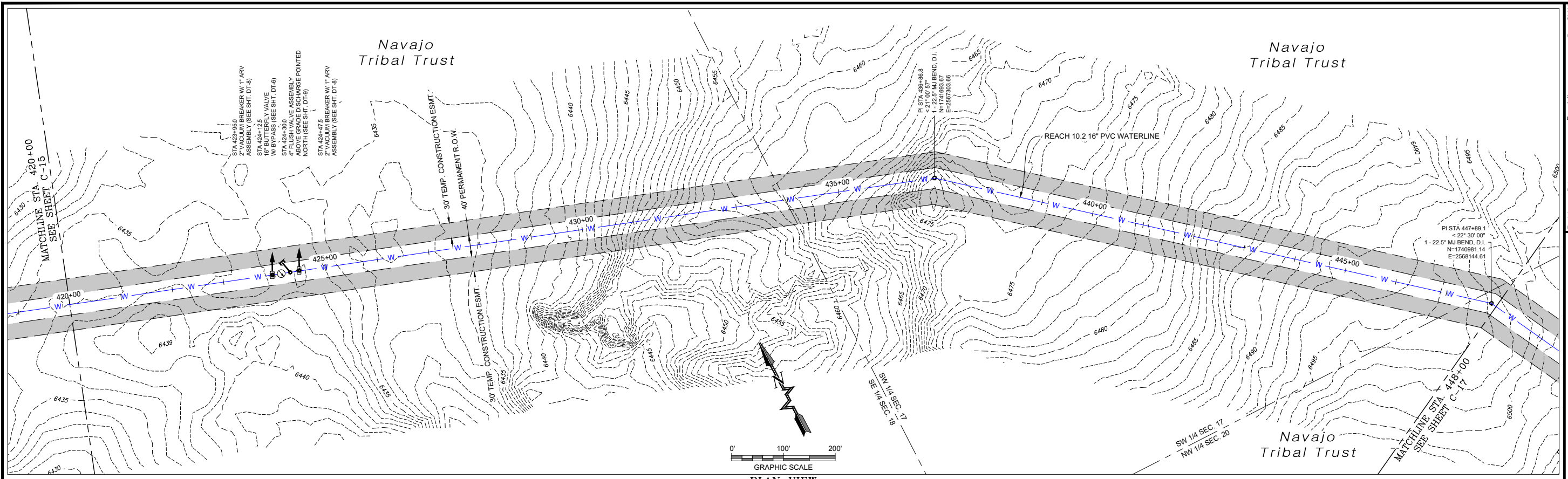
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 Sheet: C-15



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Location: Tseil'ihai, NM

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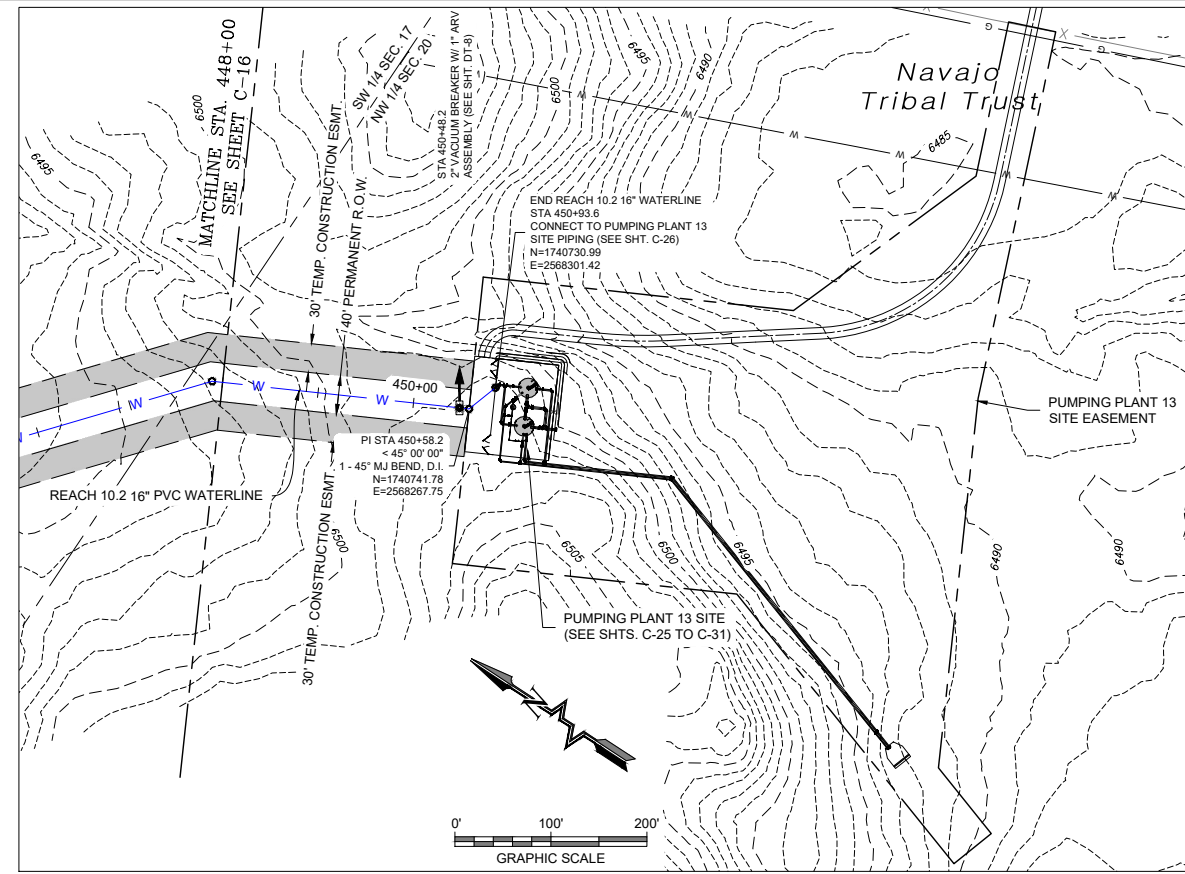
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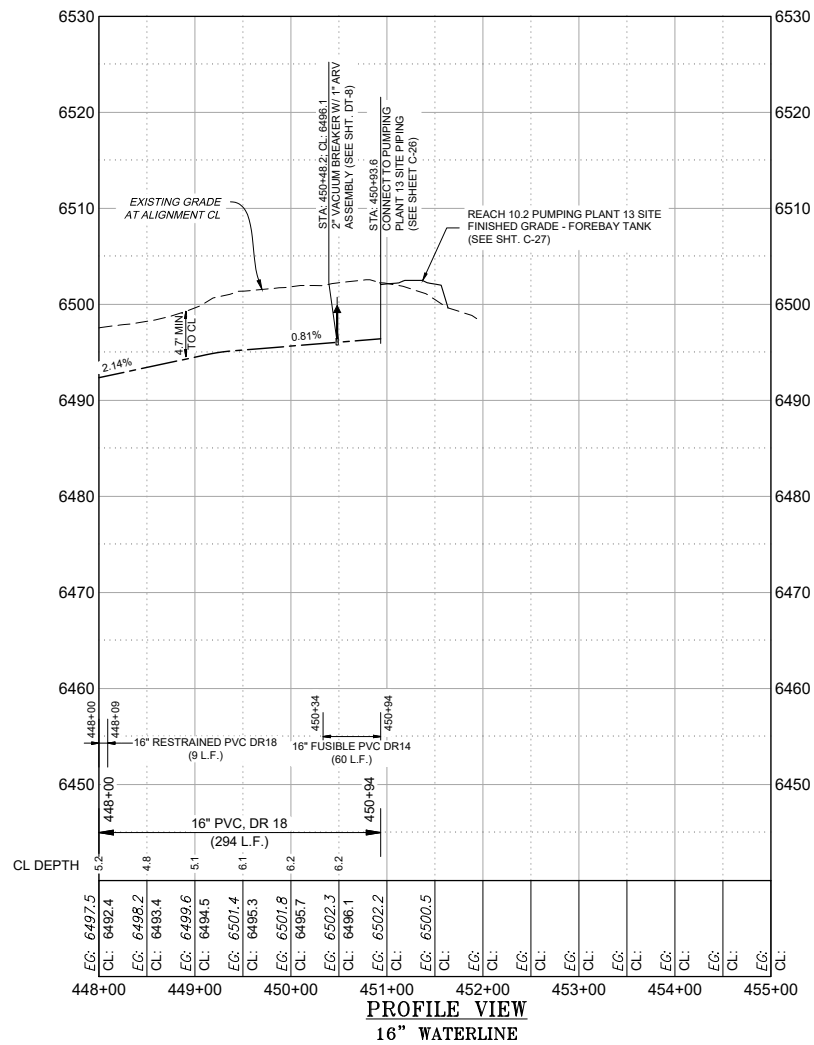
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PLAN VIEW
16" WATERLINE



PROFILE VIEW
16" WATERLINE

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Client: The Navajo Nation
Location: Tseil'ihai, NM
PLAN AND PROFILE STA 448+00 TO STA 450+93.6
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
MCKINLEY COUNTY, NEW MEXICO
SECTION 20 T. 18 N., R. 14 W.

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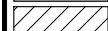
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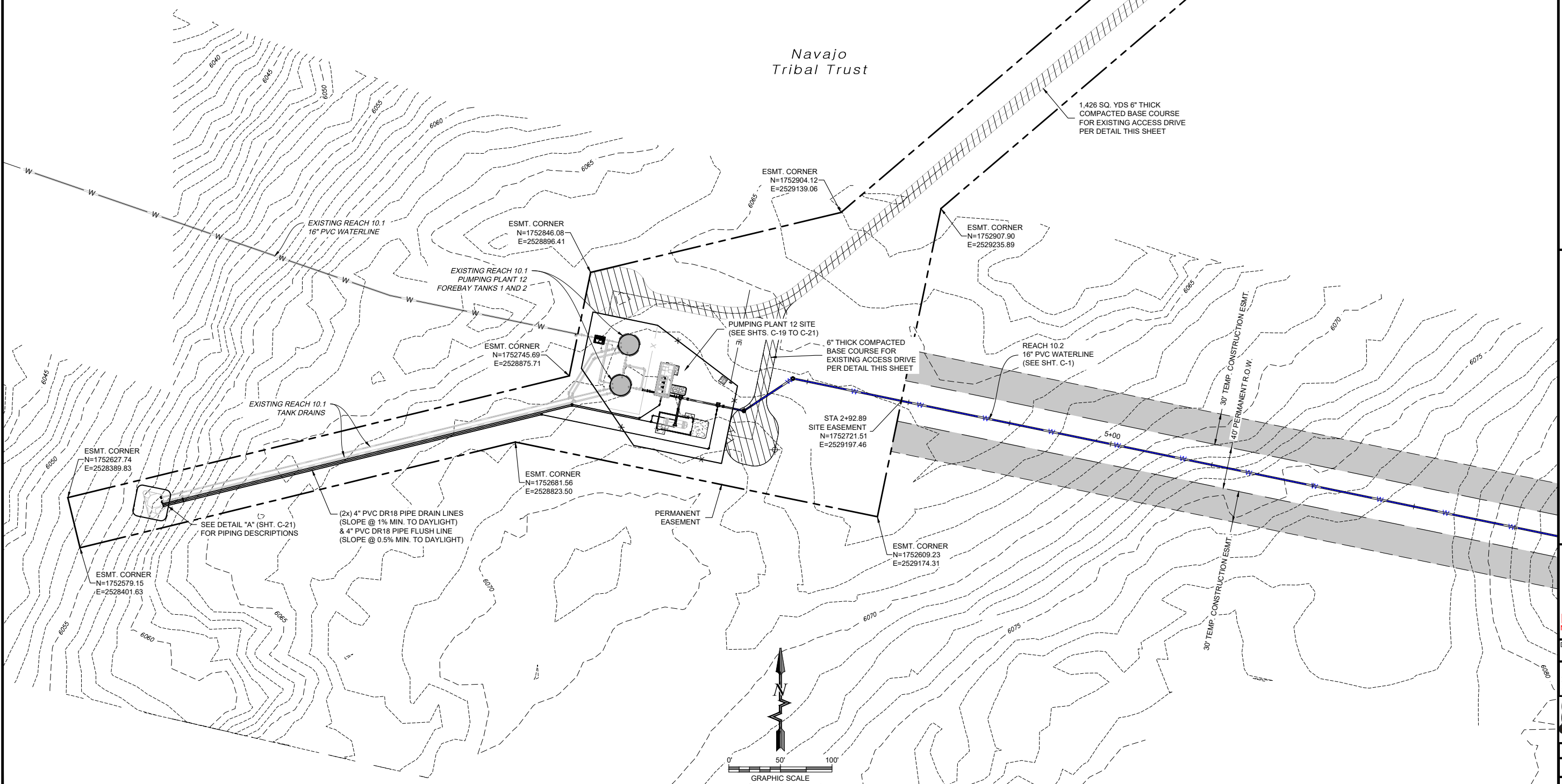
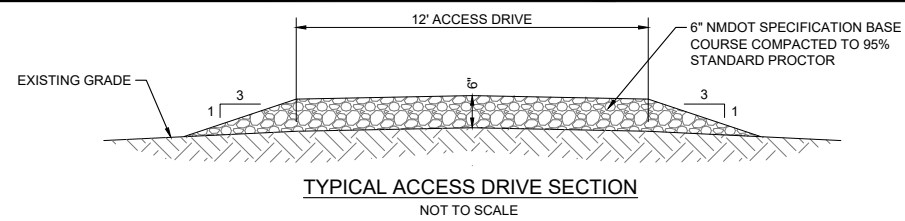
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LEGEND

-  TEMPORARY CONSTRUCTION EASEMENT
-  6" COMPACTED BASE COURSE



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PUMPING PLANT 12 OVERALL SITE PLAN

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Client: The Navajo Nation
 Location: Tseil'ihai, NM
PUMPING PLANT 12 OVERALL SITE PLAN
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
 MCKINLEY COUNTY, NEW MEXICO
 SECTION 1, T. 18 N., R. 16 W.

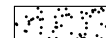


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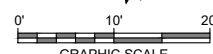
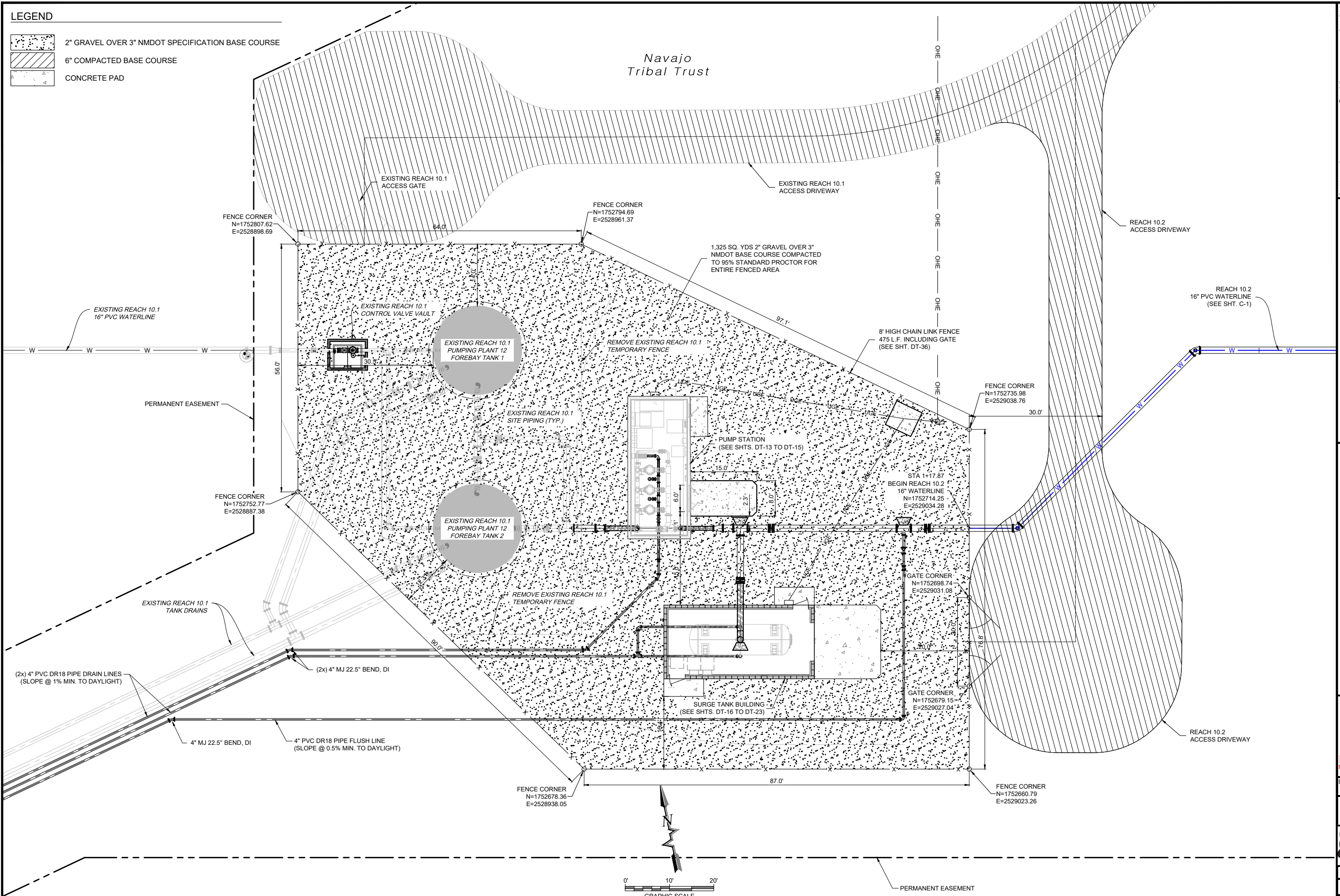

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Project No:	6922268
Sheet:	C-18

LEGEND

-  2" GRAVEL OVER 3" NMDOT SPECIFICATION BASE COURSE
-  6" COMPACTED BASE COURSE
-  CONCRETE PAD


Navajo
Tribal Trust



PUMPING PLANT 12 SITE PLAN

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Client: The Navajo Nation
 Location: Tseil'ahni, NM
PUMPING PLANT 12 SITE PLAN
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
 MCKINLEY COUNTY, NEW MEXICO
 SECTION 1, T. 18 N., R. 16 W.

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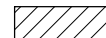


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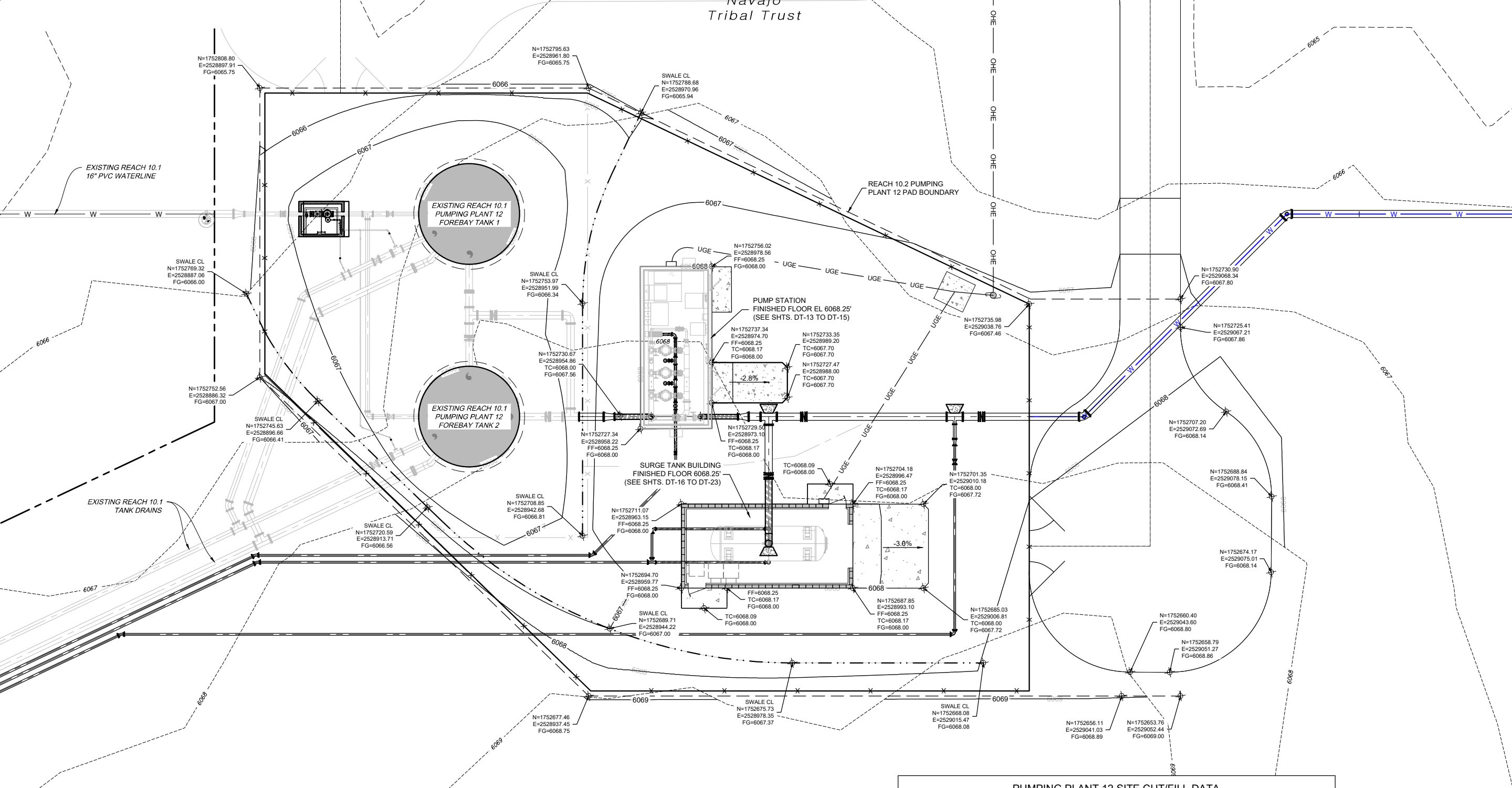
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Project No: 6922268
 Sheet: **C-19**

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LEGEND

-  6" THICK COMPACTED BASE COURSE
-  CONCRETE PAD
-  SITE PAD EXTENTS



PUMPING PLANT 12 SITE CUT/FILL DATA			
MATERIAL TYPE	CUT	FILL	EXPORT/IMPORT
"NATIVE SOILS	220 CU. YDS.	159 CU. YDS.	61 CU. YDS. EXPORT
SURFACING MATERIAL - SITE ONLY (3" BASE COURSE AND 2" FINISH GRAVEL)	0 CU. YDS.	185 CU. YDS.	185 CU. YDS. IMPORT
SURFACING MATERIAL - ENTRY DRIVE (6" BASE COURSE ONLY)	0 CU. YDS.	328 CU. YDS.	328 CU. YDS. IMPORT
ENGINEERED FILL	---	---	-- CU. YDS. IMPORT
RIP RAP (UNCAGED)	---	34 CU. YDS.	34 CU. YDS. IMPORT

NOTES:
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 2. ALL GRADING WORKS SHALL BE COMPACTED TO 95% STANDARD PROCTOR.

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Client: The Navajo Nation
 Location: Tseil'ihni, NM
PUMPING PLANT 12 SITE GRADING PLAN
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
 MCKINLEY COUNTY, NEW MEXICO
 SECTION 1, T. 18 N., R. 16 W.

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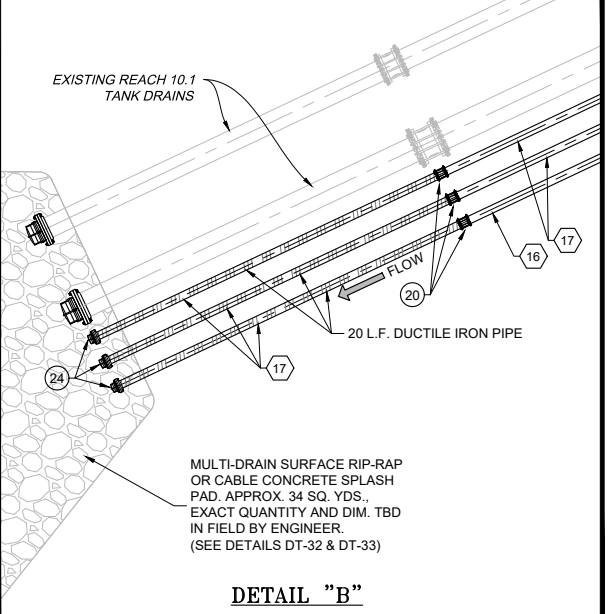
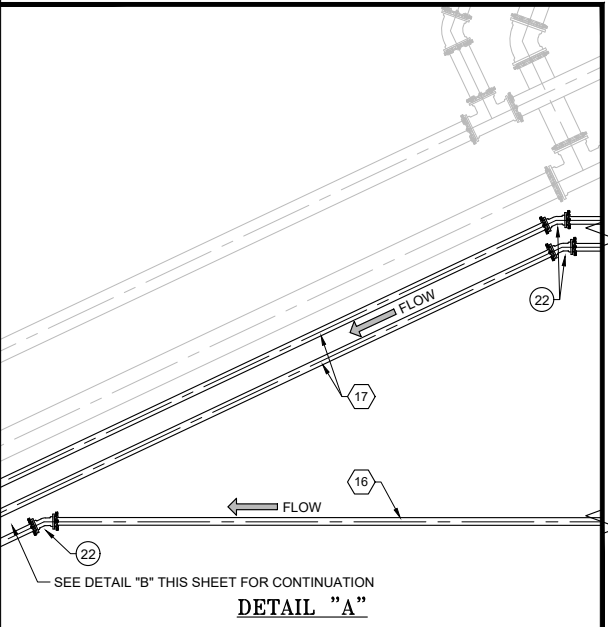
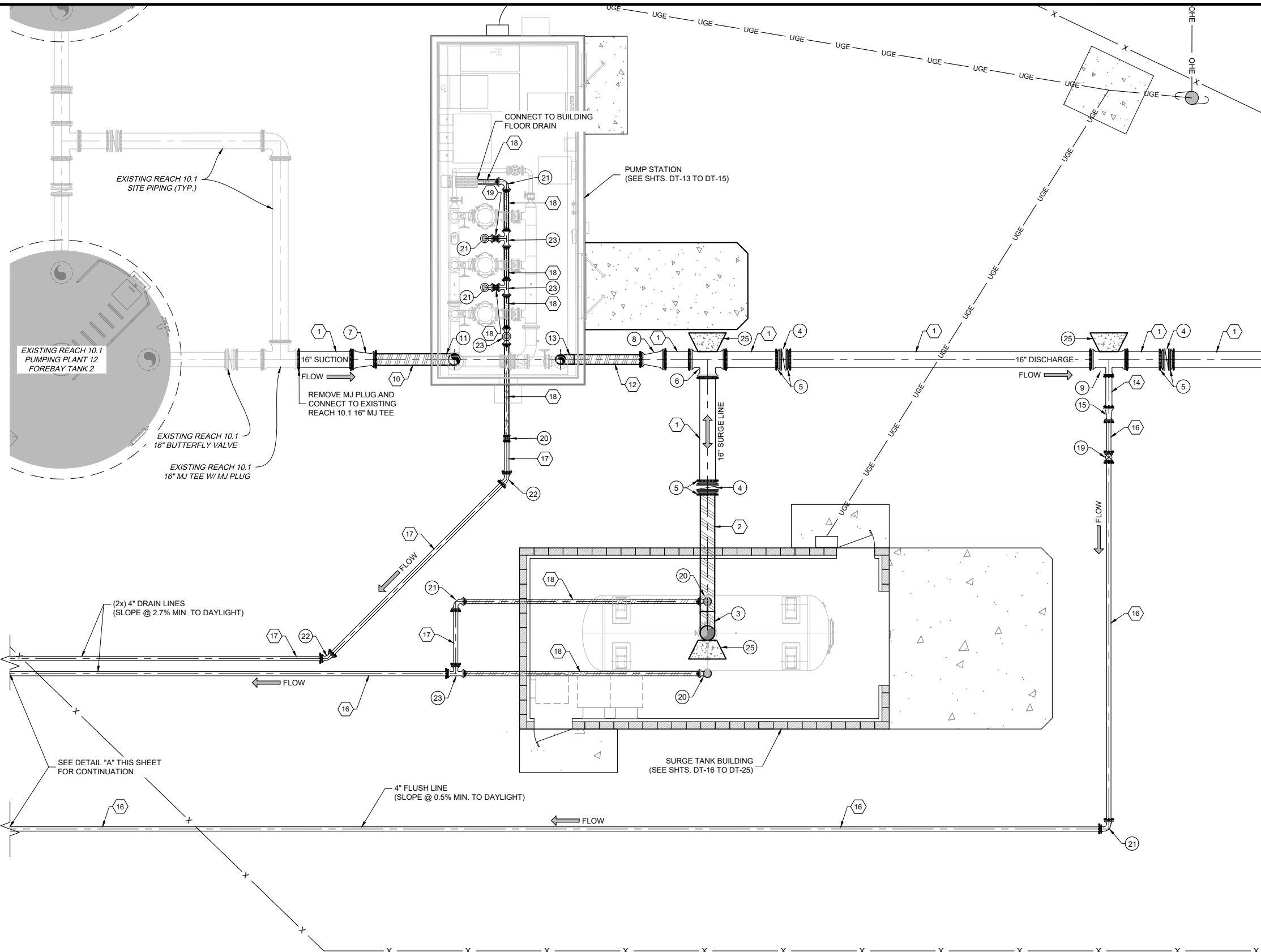
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KEYED NOTES PUMPING PLANT 12 SITE	
Item No.	Description
1	16" PVC DR14 PIPE
2	16" STEEL PIPE, STANDARD WALL
3	16" 90° BEND, WELDED STEEL
4	16" FL x FL BUTTERFLY VALVE (SEE SHT. DT-7) 250 psi
5	16" MJ FLANGE ADAPTER, FBE-COATED WITH SS 304 BOLTS, MEGAFLANGE SERIES 2100, 235 psi, OAE
6	16" MJ TEE, DI
7	16" x 12" MJ x MJ REDUCER, DI
8	16" x 10" MJ x MJ REDUCER, DI
9	16" x 6" MJ x MJ REDUCING TEE, DI
10	12" STEEL PIPE, STANDARD WALL
11	12" 90° BEND, WELDED STEEL
12	10" STEEL PIPE, STANDARD WALL
13	10" 90° BEND, WELDED STEEL
14	6" PVC DR14 PIPE
15	6" x 4" MJ x MJ REDUCER, DI
16	4" PVC DR14 PIPE
17	4" PVC DR18 PIPE
18	4" DUCTILE IRON PIPE
19	4" MJ x MJ GATE VALVE (SEE SHT. DT-7) 350 psi
20	4" RESTRAINED COUPLING, MEGACOUPLING SERIES 3800, OAE
21	4" MJ 90° BEND, DI
22	4" MJ 45° BEND, DI
23	4" MJ TEE, DI
24	4" CAST IRON FLAP VALVE (SEE SHT. DT-33)
25	THRUST BLOCK (SEE SHT. DT-3)

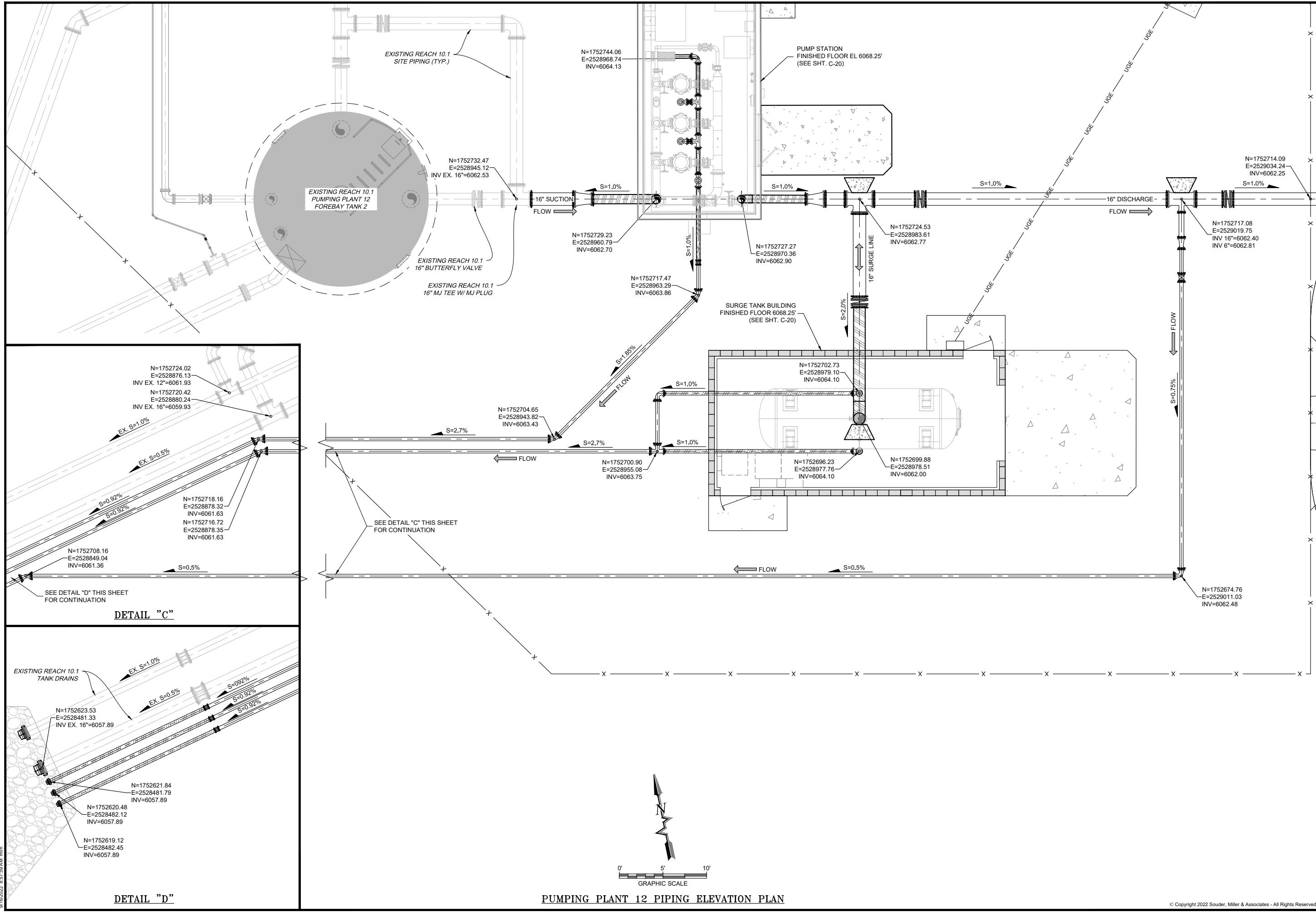


PUMPING PLANT 12 PIPING PLAN

- NOTES:**
1. PROVIDE BUILDING SUB-FOUNDATION, OVER-EXCAVATION AND SITE GRADING IN ACCORDANCE WITH GEOTECHNICAL REPORT AND DETAILS DT-26 TO DT-31.
 2. NO HIGH SPOTS PERMITTED ON SITE PIPING. ALL SITE PIPING (INCLUDING SENSOR LINES) SHALL SLOPE UP TOWARDS TANK OR VACUUM BREAKER / AIR RELEASE VALVE VAULT, (MIN. 1%).
 3. ALL MATERIALS, FITTINGS AND APPURTENANCES SHALL BE RATED TO AT LEAST 305 psi, UNLESS OTHERWISE NOTED.
 4. ALL PIPE AND FITTINGS UNDERNEATH AND WITHIN 5' OF BUILDING FOUNDATIONS SHALL BE STEEL AND SHALL BE SHOP WELDED, SHOP COATED, X-RAY TESTED AND PRESSURE TESTED PRIOR TO PLACING FOUNDATION. SHOP COATINGS SHALL BE APPLIED AFTER WELDING.
 5. ALL VALVES AND STEEL-TO-PVC COUPLINGS AT BUILDINGS SHALL BE LOCATED AT LEAST 5' FROM EDGE OF FOUNDATION.
 6. ALL BURIED NON-STAINLESS STEEL PIPE AND FITTINGS SHALL BE COLD-APPLIED TAPE-WRAPPED, PER SPECIFICATIONS.
 7. ALL BURIED DUCTILE IRON PIPE 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.
 8. ALL BURIED DUCTILE IRON FITTINGS SHALL BE MJ. ALL BURIED DUCTILE IRON PIPES SHALL BE SOLID PIECES. NO DUCTILE IRON PIPE JOINTS ALLOWED.
 9. 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.
 10. FLANGES SHALL BE ANSI CLASS 125 (IRON) / ANSI CLASS 150 (STEEL).

Client: The Navajo Nation	Location: Tselifahi, NM
PUMPING PLANT 12 PIPING PLAN NAVAJO GALLUP WATER SUPPLY PROJECT BEACON BISTI N9 - REACH 10.2 MCKINLEY COUNTY, NEW MEXICO SECTION 1, T. 18 N., R. 16 W.	
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Project No: 6922268	
Sheet: C-21	

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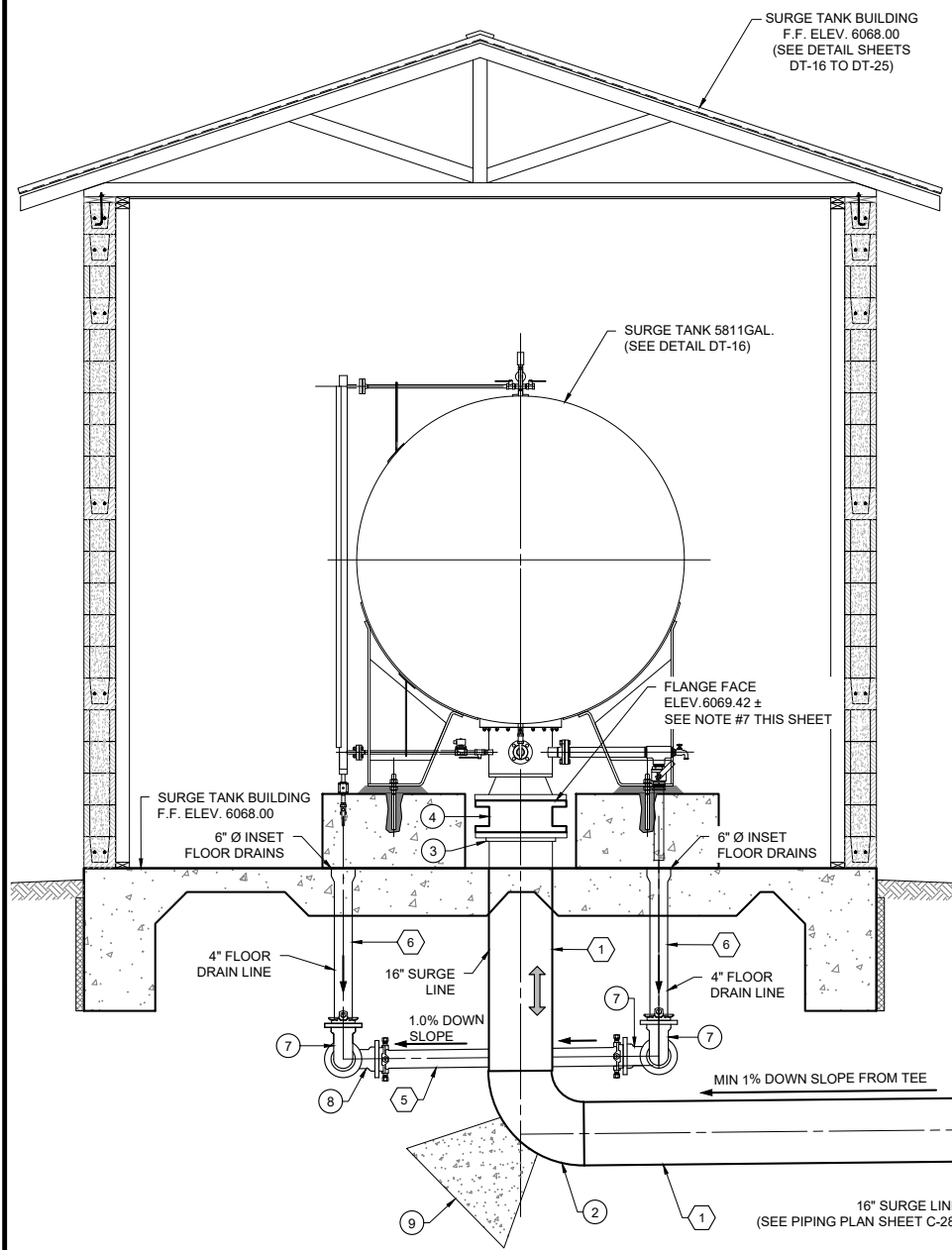
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Client: The Navajo Nation Location: Tseil'ihai, NM	PUMPING PLANT 12 SITE PIPE INVERTS NAVAJO GALLUP WATER SUPPLY PROJECT BEACON BISTI N9 - REACH 10.2 MCKINLEY COUNTY, NEW MEXICO SECTION 1, T. 18 N., R. 16 W.
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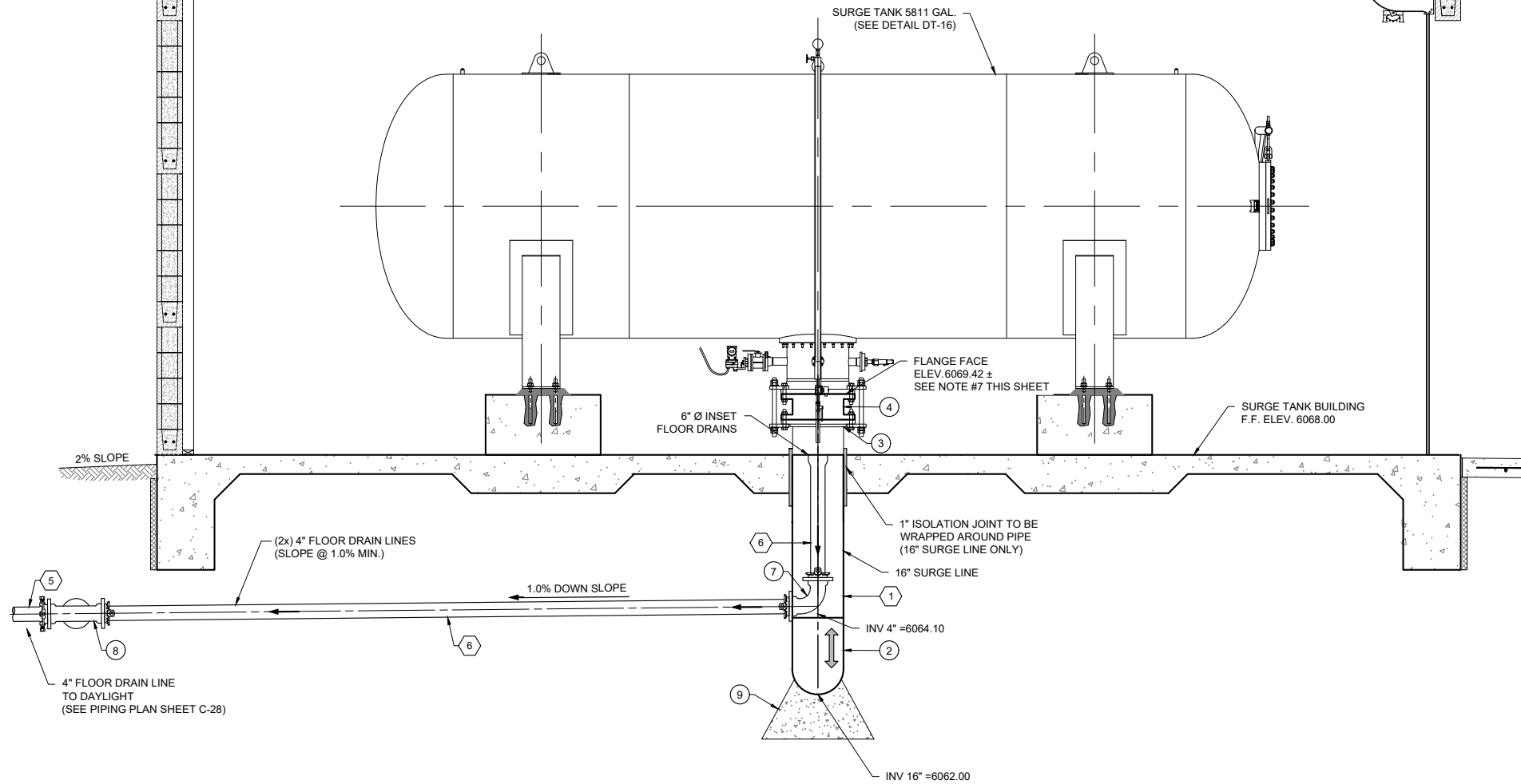


PUMPING PLANT 12 PIPING ELEVATION PLAN

KEYED NOTES PP12 SURGE TANK BUILDING	
Item No.	Description
1	16" STEEL PIPE, STANDARD WALL
2	16" 90° BEND, WELDED STEEL
3	16" FLANGE, WELDED STEEL
4	16" PROCO FITTING, 300 psi (SEE NOTE #13, THIS SHEET)
5	4" PVC DR18 PIPE
6	4" DUCTILE IRON PIPE
7	4" MJ 90° BEND, DI
8	4" MJ TEE, DI
9	THRUST BLOCK (SEE SHT. DT-3)



VIEW A



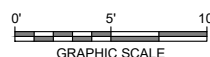
VIEW B

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 305 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 16-INCH ANSI CLASS 125 BLIND FLANGE PRIOR TO FILLING AND FLUSHING PIPELINE. UTILIZE FLUSH VALVE AT PUMP STATION TO FLUSH MAINLINE. COMPLETE HYDROSTATIC TESTING OF PIPING UNDERNEATH AND WITHIN SURGE TANK BUILDING PRIOR TO REMOVING BLIND FLANGE. REMOVE BLIND FLANGE AND INSTALL 16-INCH PROCO FITTING AFTER THIS SECTION OF LINE FLUSHING AND HYDROSTATIC PRESSURE TESTING IS COMPLETE, BUT PRIOR TO STARTING UP SURGE TANK. DO NOT INSTALL PROCO FITTING UNTIL LINE FLUSHING AT THE PUMP STATION IS COMPLETE. DO NOT AIR CHARGE SURGE TANK UNTIL PROCO FITTING IS INSTALLED. DO NOT OPERATE PUMPING PLANT 12 UNTIL SURGE TANK IS STARTED UP AND OPERATIONAL. DO NOT ALLOW FOREIGN OBJECTS OR DEBRIS ENTER SURGE TANK. DO NOT BRING SURGE TANK ONLINE UNTIL SITE PIPING HAS BEEN THOROUGHLY FLUSHED.
14. ALL DRAINS SHALL HAVE REMOVABLE GRATES.
15. ALL BURIED STEEL PIPES SHALL BE STANDARD WALL THICKNESS AND SHALL BE FBE COATED INTERIOR AND EXTERIOR.



**PUMPING PLANT 12 PIPING
ELEVATION VIEW**

Revision	Date	Description

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 www.soudermiller.com

Client: The Navajo Nation
 Location: Tseil'ihni, NM
PUMPING PLANT 12 PIPING ELEVATION VIEW
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
 MCKINLEY COUNTY, NEW MEXICO
 SECTION 1, T. 18 N., R. 16 W.

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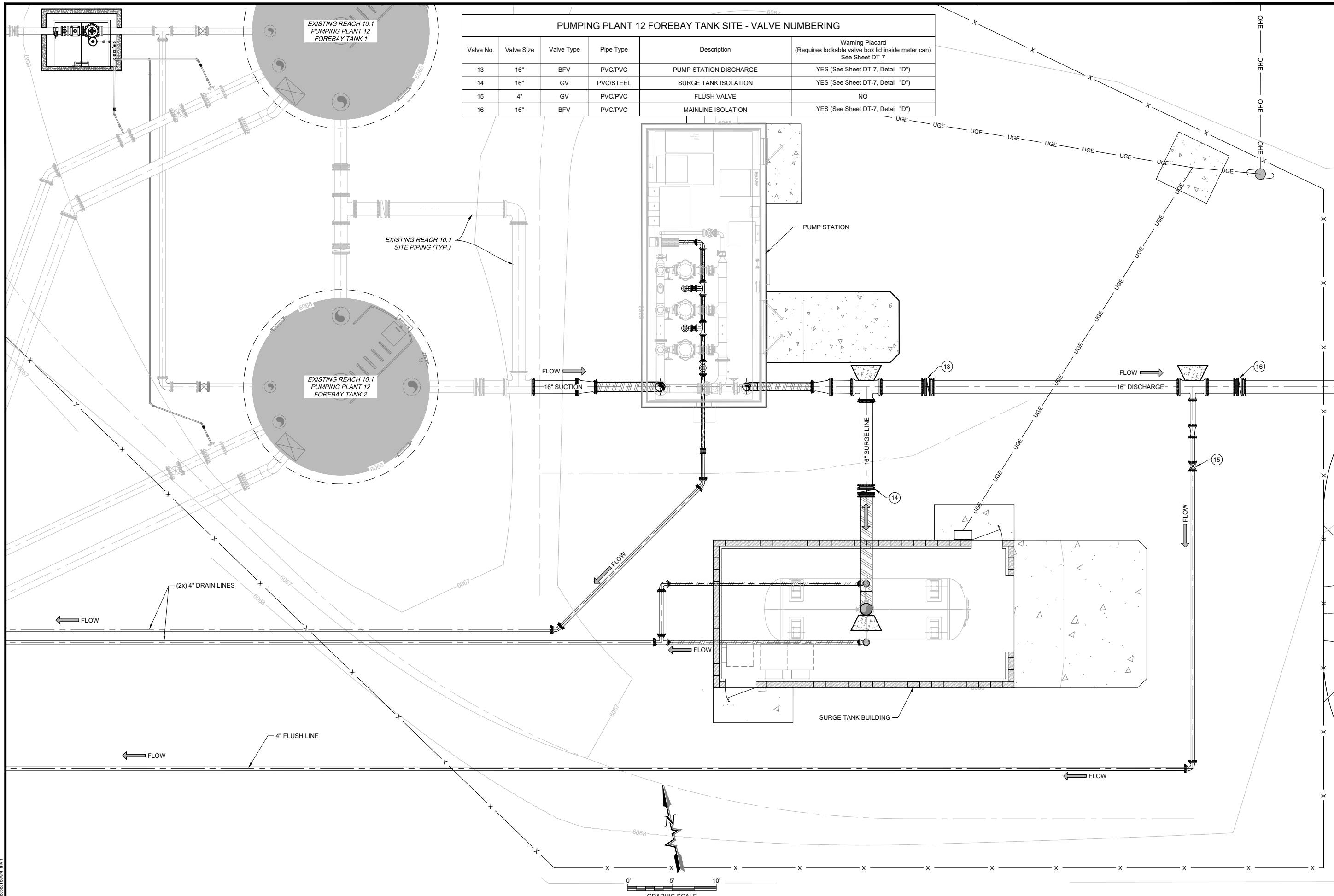
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Project No: 6922268
 Sheet: **C-23**

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 9/16/2022 8:58:10 AM mvh

PUMPING PLANT 12 FOREBAY TANK SITE - VALVE NUMBERING					
Valve No.	Valve Size	Valve Type	Pipe Type	Description	Warning Placard (Requires lockable valve box lid inside meter can) See Sheet DT-7
13	16"	BFV	PVC/PVC	PUMP STATION DISCHARGE	YES (See Sheet DT-7, Detail "D")
14	16"	GV	PVC/STEEL	SURGE TANK ISOLATION	YES (See Sheet DT-7, Detail "D")
15	4"	GV	PVC/PVC	FLUSH VALVE	NO
16	16"	BFV	PVC/PVC	MAINLINE ISOLATION	YES (See Sheet DT-7, Detail "D")

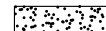




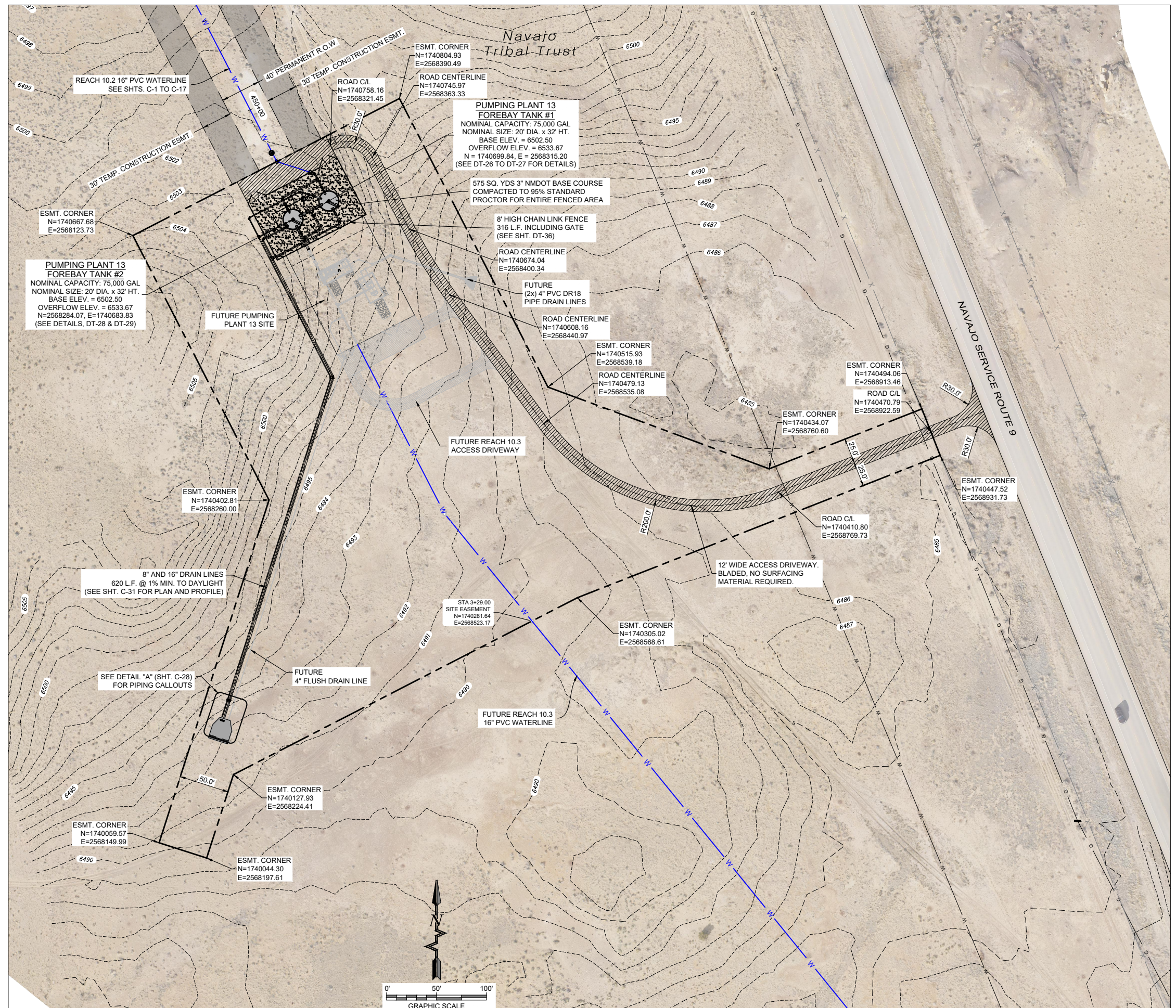
PUMPING PLANT 12 SITE PLAN

By: CHKC	Description:	
Revision:	Date:	
<p>SOUDER, MILLER & ASSOCIATES Engineering • Environmental • Geomatics Serving the Southwest & Rocky Mountains 5454 Venice Avenue NE, Suite D Albuquerque, NM 87113 Phone (505) 299-0942 Toll-Free (877) 299-0942 Fax (505) 293-3430 www.soudermiller.com</p>		
<p>SMA</p>		
<p>Client: The Navajo Nation Location: Tse'i'ihai, NM PUMPING PLANT 12 VALVE NUMBERING PLAN NAVAJO GALLUP WATER SUPPLY PROJECT BEACON BISTI N9 - REACH 10.2 MCKINLEY COUNTY, NEW MEXICO SECTION 1, T. 18 N., R. 16 W.</p>		
<p>90% REVIEW DRAFT</p>		
<p>PRELIMINARY NOT FOR CONSTRUCTION 9/2022</p>		
Designed: TTT	Drawn: MvH/AaV	Checked: JMG
<p>THIS DRAWING IS INCOMPLETE AND NOT TO BE USED FOR CONSTRUCTION UNLESS IT IS STAMPED, SIGNED AND DATED</p>		
<p>811 Know what's BELOW. CALL before you dig.</p>		
<p>Date: September 2022</p>		
<p>Scale: Horiz: 1" = 100' Vert: N/A</p>		
<p>Project No: 6922268</p>		
<p>Sheet: C-24</p>		

P:\6-Beacon Bisti N9 Water Line (6922268)\CAD\Construction Plans\Reach 10.2 PP12 Siteplan.dwg
 9/16/2022 8:58:18 AM mwh

LEGEND

-  3" NMDOT SPECIFICATION BASE COURSE
-  TEMPORARY CONSTRUCTION EASEMENT
-  ACCESS DRIVEWAY, BLADED - NO SURFACING MATERIAL



PUMPING PLANT 13 OVERALL SITE PLAN

P:\6-Beacon Bisti NG Water Line (6922268)\CAD\Civil\Reach 10.2 Plan Set\Construction Plans\Reach 10.2 PP13 Siteplan.dwg
9/16/2022 8:56:50 AM mnh

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 Albuquerque, NM 87113
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 www.soudermiller.com

Client: The Navajo Nation
 Location: Tseil'ihani, NM
PUMPING PLANT 13 OVERALL SITE PLAN
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
 MCKINLEY COUNTY, NEW MEXICO
 SECTION 20, T. 18 N., R. 14 W.

90% REVIEW
DRAFT
PRELIMINARY
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 9/2022

Designed	Drawn	Checked
TTT	MvH/Aav	JMG

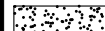


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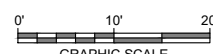
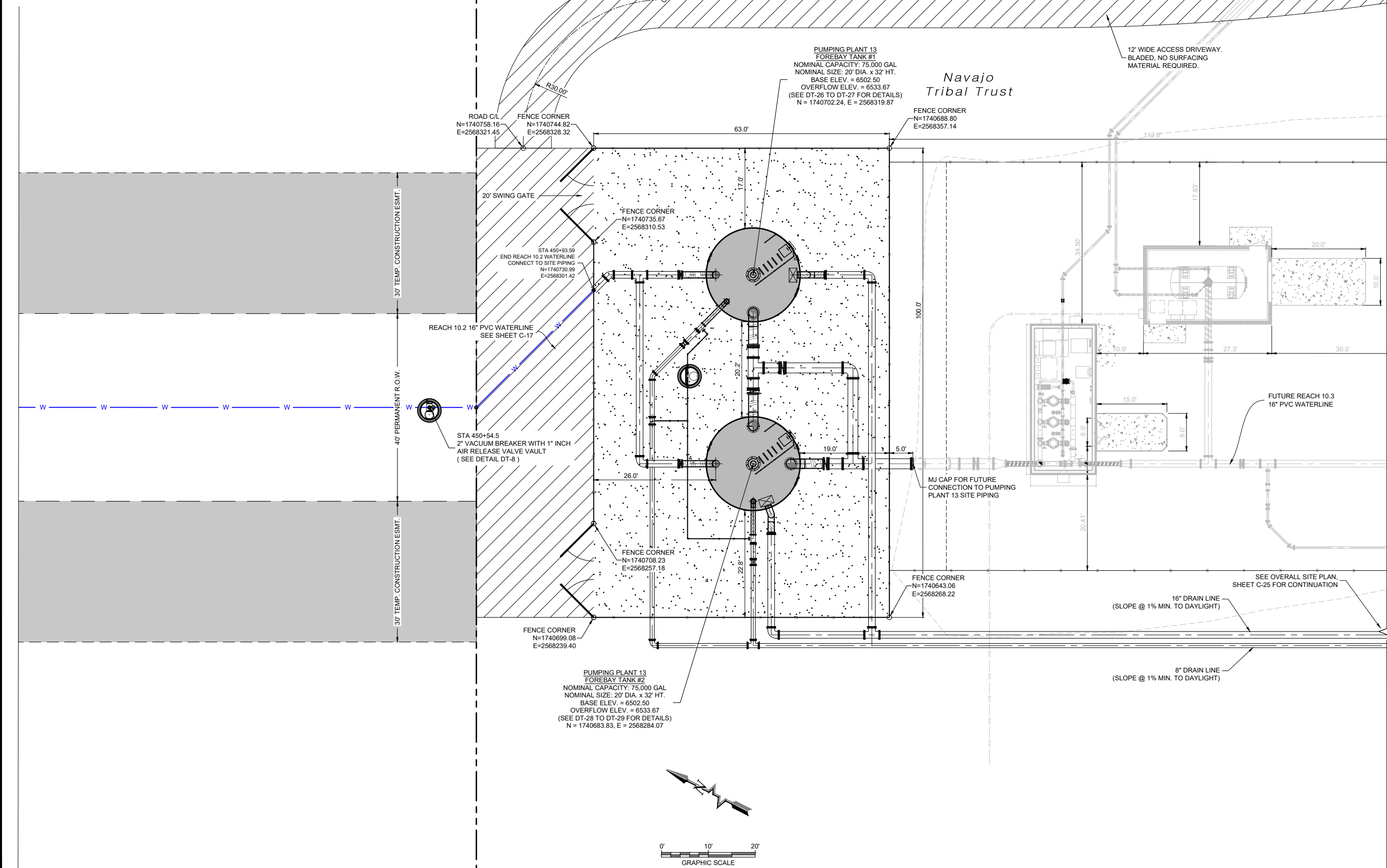
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Date: September 2022
 Scale: Horiz: 1" = 100'
 Vert: N/A

Project No: 6922268
 Sheet: C-25

LEGEND

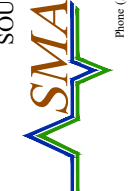
-  3" NMDOT SPECIFICATION BASE COURSE
-  TEMPORARY CONSTRUCTION EASEMENT
-  ACCESS DRIVEWAY, BLADED - NO SURFACING MATERIAL



PUMPING PLANT 13 SITE PLAN

Revision	Date	Description	By	CHKD

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Client: The Navajo Nation
 Location: Tseil'ihai, NM
PUMPING PLANT 13 SITE PLAN
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
 MCKINLEY COUNTY, NEW MEXICO
 SECTION 20, T. 18 N., R. 14 W.

90% REVIEW DRAFT
PRELIMINARY
 NOT FOR CONSTRUCTION
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Designed TTT	Drawn MvH/AaV	Checked JMG
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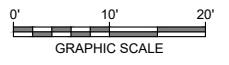
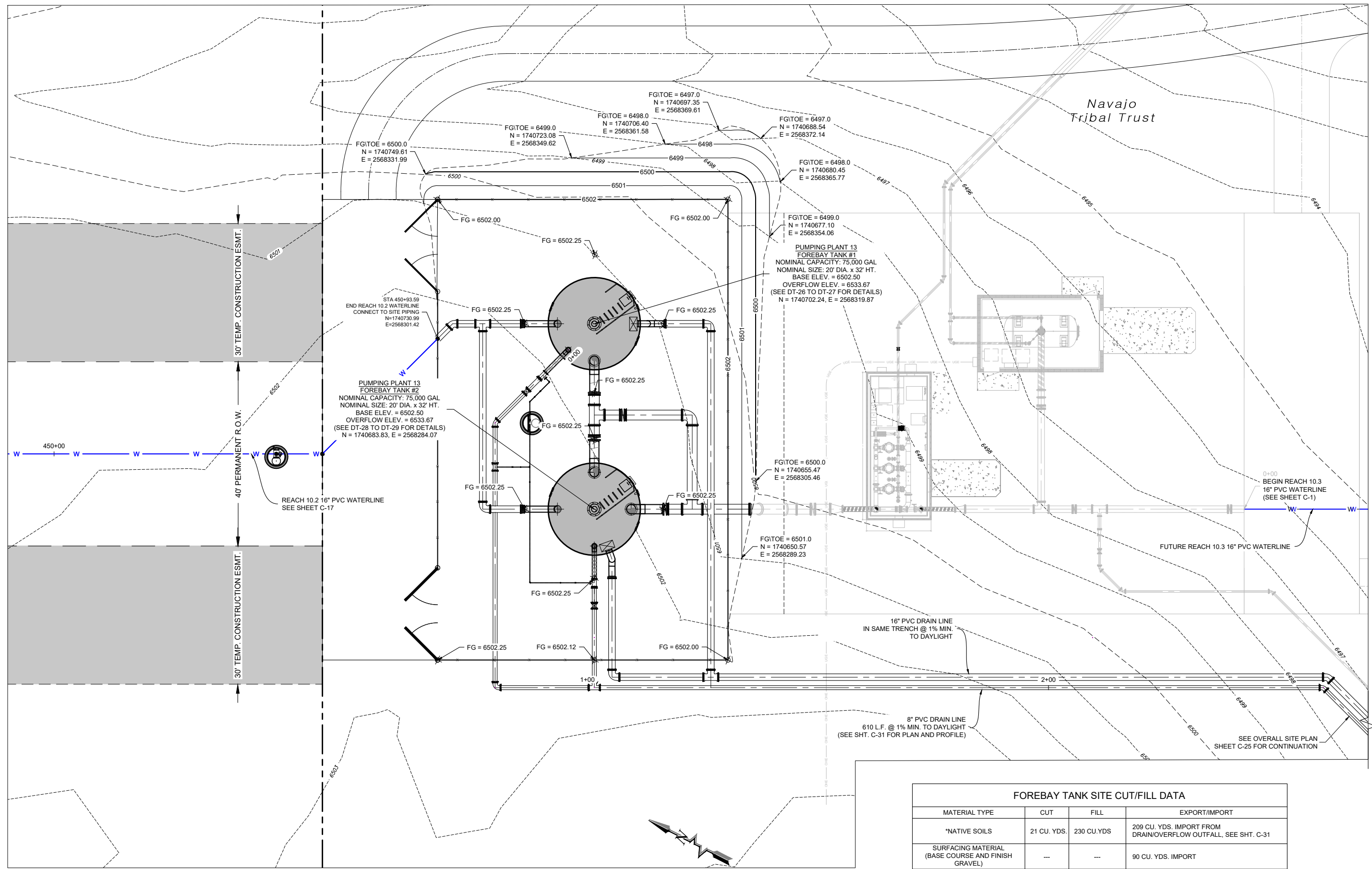
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Date: September 2022
 Scale: Horiz: 1" = 20'
 Vert: N/A

Project No: 6922268
 Sheet: **C-26**

P:\6-Beacon Bisti N9 Water Line (6922268)\CAD\Construction Plans\Reach 10.2 PP13 Siteplan.dwg
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P:\6-Beacon Bisti NG Water Line (6922268)\CAD\Construction Plans\Reach 10.2 PP13 Grading Base Alt.dwg
9/16/2022 8:59:37 AM mwh



PUMPING PLANT 13 SITE PLAN

FOREBAY TANK SITE CUT/FILL DATA			
MATERIAL TYPE	CUT	FILL	EXPORT/IMPORT
*NATIVE SOILS	21 CU. YDS.	230 CU. YDS.	209 CU. YDS. IMPORT FROM DRAIN/OVERFLOW OUTFALL, SEE SHT. C-31
SURFACING MATERIAL (BASE COURSE AND FINISH GRAVEL)	---	---	90 CU. YDS. IMPORT
ENGINEERED FILL	---	---	0 CU. YDS. IMPORT
RIP RAP (UNCAGED)	---	---	0 CU. YDS. IMPORT

*BASED ON COMPACTION = 1.2, ASSUMED.
NOTES:
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.

Revision	Date	Description	By	CHKD

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Albuquerque, NM 87113
Phone (505) 299-0942 Toll-Free (877) 299-0942 Fax (505) 293-3430
www.soudermiller.com

Client: The Navajo Nation
Location: Tseil'ani, NM
PUMPING PLANT 13 SITE GRADING PLAN
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
McKINLEY COUNTY, NEW MEXICO
SECTION 20, T. 18 N., R. 14 W.

90% REVIEW DRAFT
PRELIMINARY NOT FOR CONSTRUCTION 9/2022

Designed TTT	Drawn MvH/AaV	Checked JMG
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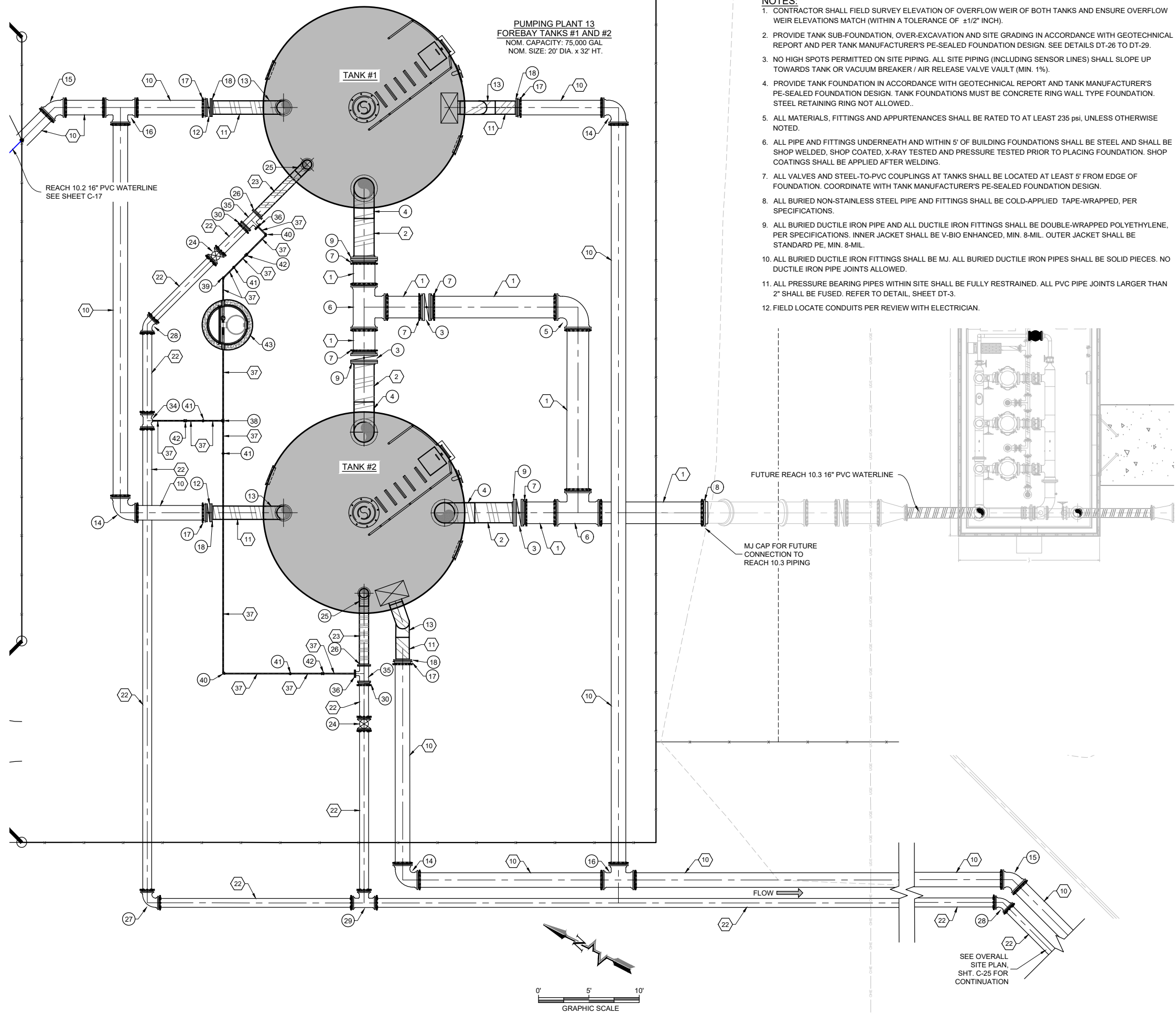
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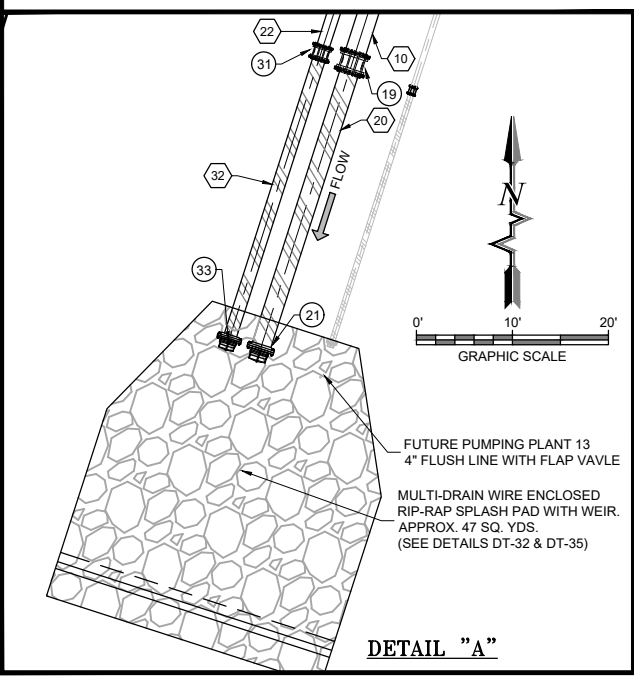
Date: September 2022
Scale: Horiz: 1" = 40'
Vert: N/A
Project No: 6922268
Sheet: C-27

KEYED NOTES PUMPING PLANT 13 SITE

Item No.	Description
1	24" PVC DR18 PIPE
2	24" STEEL PIPE, STANDARD WALL
3	24" FL x FL BUTTERFLY VALVE (SEE DETAIL DT-7) 250 psi
4	24" 90° BEND, WELDED STEEL
5	24" MJ 90° BEND, DI
6	24" MJ TEE, DI
7	24" MJ FLANGE ADAPTER, FBE-COATED WITH SS 304 BOLTS, MEGAFLANGE SERIES 2100, 235 psi, OAE
8	24" MJ CAP, DI
9	24" FLANGE, WELDED STEEL
10	16" PVC DR18 PIPE
11	16" STEEL PIPE, STANDARD WALL
12	16" FL x FL BUTTERFLY VALVE (SEE DETAIL DT-7) 250 psi
13	16" 90° BEND, WELDED STEEL
14	16" MJ 90° BEND, DI
15	16" MJ 45° BEND, DI
16	16" MJ TEE, DI
17	16" MJ FLANGE ADAPTER, FBE-COATED WITH SS 304 BOLTS, MEGAFLANGE SERIES 2100, 235 psi, OAE
18	16" FLANGE, WELDED STEEL
19	16" MJ RESTRAINED COUPLING, MEGACOUPLING SERIES 3800, 235 psi, OAE
20	16" FL x PE DUCTILE IRON PIPE
21	16" CAST IRON FLAP VALVE (SEE DETAIL, SHT. DT-34)
22	8" PVC DR18 PIPE
23	8" STEEL PIPE, STANDARD WALL
24	8" MJ x MJ GATE VALVE (SEE DETAIL DT-7) 350 psi
25	8" 90° BEND, WELDED STEEL
26	8" FLANGE, WELDED STEEL
27	8" MJ 90° BEND, DI
28	8" MJ 45° BEND, DI
29	8" MJ TEE, DI
30	8" MJ FLANGE ADAPTER, FBE-COATED WITH SS 304 BOLTS, MEGAFLANGE SERIES 2100, 235 psi, OAE
31	8" RESTRAINED COUPLING, MEGACOUPLING SERIES 3800, OAE
32	8" FL x PE DUCTILE IRON PIPE
33	8" CAST IRON FLAP VALVE (SEE DETAIL, SHT. DT-34)
34	8" x 1" MJ TAPPED TEE, DI
35	8" x 4" FL REDUCING TEE, DI
36	4" x 1" TAPPED FLANGE, NPT
37	1" STEEL PIPE NPT, SS304
38	1" STEEL TEE NPT, SS304
39	1" STEEL 45° BEND NPT, SS304
40	1" STEEL 90° BEND NPT, SS304
41	1" STEEL UNION NPT, SS304
42	1" MUELLER 300 BALL CURB VALVE, 300 psi OAE (SEE DETAIL TBD)
43	PRESSURE TRANSDUCER VAULT (SEE DETAIL DT-11)



- NOTES:**
- CONTRACTOR SHALL FIELD SURVEY ELEVATION OF OVERFLOW WEIR OF BOTH TANKS AND ENSURE OVERFLOW WEIR ELEVATIONS MATCH (WITHIN A TOLERANCE OF ±1/2" INCH).
 - PROVIDE TANK SUB-FOUNDATION, OVER-EXCAVATION AND SITE GRADING IN ACCORDANCE WITH GEOTECHNICAL REPORT AND PER TANK MANUFACTURER'S PE-SEALED FOUNDATION DESIGN. SEE DETAILS DT-26 TO DT-29.
 - NO HIGH SPOTS PERMITTED ON SITE PIPING. ALL SITE PIPING (INCLUDING SENSOR LINES) SHALL SLOPE UP TOWARDS TANK OR VACUUM BREAKER / AIR RELEASE VALVE VAULT (MIN. 1%).
 - PROVIDE TANK FOUNDATION IN ACCORDANCE WITH GEOTECHNICAL REPORT AND TANK MANUFACTURER'S PE-SEALED FOUNDATION DESIGN. TANK FOUNDATIONS MUST BE CONCRETE RING WALL TYPE FOUNDATION. STEEL RETAINING RING NOT ALLOWED..
 - ALL MATERIALS, FITTINGS AND APPURTENANCES SHALL BE RATED TO AT LEAST 235 psi, UNLESS OTHERWISE NOTED.
 - ALL PIPE AND FITTINGS UNDERNEATH AND WITHIN 5' OF BUILDING FOUNDATIONS SHALL BE STEEL AND SHALL BE SHOP WELDED, SHOP COATED, X-RAY TESTED AND PRESSURE TESTED PRIOR TO PLACING FOUNDATION. SHOP COATINGS SHALL BE APPLIED AFTER WELDING.
 - ALL VALVES AND STEEL-TO-PVC COUPLINGS AT TANKS SHALL BE LOCATED AT LEAST 5' FROM EDGE OF FOUNDATION. COORDINATE WITH TANK MANUFACTURER'S PE-SEALED FOUNDATION DESIGN.
 - ALL BURIED NON-STAINLESS STEEL PIPE AND FITTINGS SHALL BE COLD-APPLIED TAPE-WRAPPED, PER SPECIFICATIONS.
 - ALL BURIED DUCTILE IRON PIPE 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.
 - ALL BURIED DUCTILE IRON FITTINGS SHALL BE MJ. ALL BURIED DUCTILE IRON PIPES SHALL BE SOLID PIECES. NO DUCTILE IRON PIPE JOINTS ALLOWED.
 - 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.
 - FIELD LOCATE CONDUITS PER REVIEW WITH ELECTRICIAN.

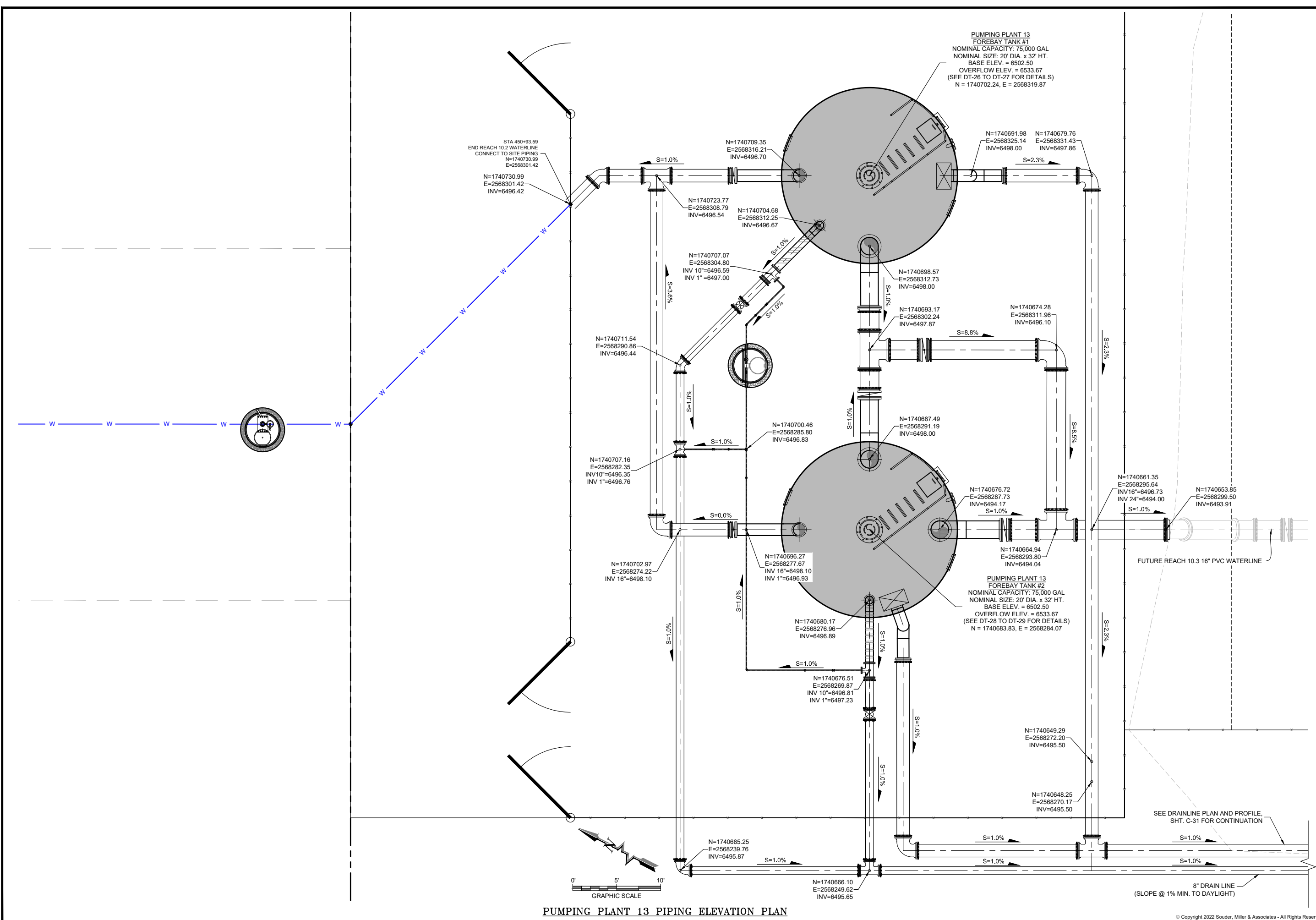


PUMPING PLANT 13 PIPING PLAN

By: CHK	Description:	
Revision:	Date:	
<p>SOUDER, MILLER & ASSOCIATES Engineering • Environmental • Geomatics Serving the Southwest & Rocky Mountains 5454 Venice Avenue NE, Suite D Albuquerque, NM 87113 Phone (505) 299-0942 Toll-Free (877) 299-0942 Fax (505) 293-3430 www.soudermiller.com</p>		
<p>Location: Tse'iłi'ni, NM PUMPING PLANT 13 PIPING PLAN NAVAJO GALLUP WATER SUPPLY PROJECT BEACON BISTI N9 - REACH 10.2 MCKINLEY COUNTY, NEW MEXICO SECTION 20, T. 18 N., R. 14 W.</p>		
<p>90% REVIEW DRAFT</p> <p>PRELIMINARY NOT FOR CONSTRUCTION 9/2022</p>		
Designed: TTT	Drawn: MvH/AaV	Checked: JMG
<p>THIS DRAWING IS INCOMPLETE AND NOT TO BE USED FOR CONSTRUCTION UNLESS IT IS STAMPED, SIGNED AND DATED</p>		
<p>811 Know what's BELOW. CALL before you dig.</p>		
<p>Date: September 2022 Scale: Horiz: 1" = 20' Vert: N/A</p>		
<p>Project No: 6922268 Sheet: C-28</p>		

P:\6-Beacon Bisti N9 Water Line (6922268)\CAD\Construction Plans\Reach 10.2 PP13 Siplan.dwg
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P:\6-Beacon Bisti N9 Water Line (6922268)\CAD\Construction Plans\Reach 10.2 PP13 Slopplan.dwg
9/16/2022 8:00:18 AM msh



PUMPING PLANT 13 PIPING ELEVATION PLAN

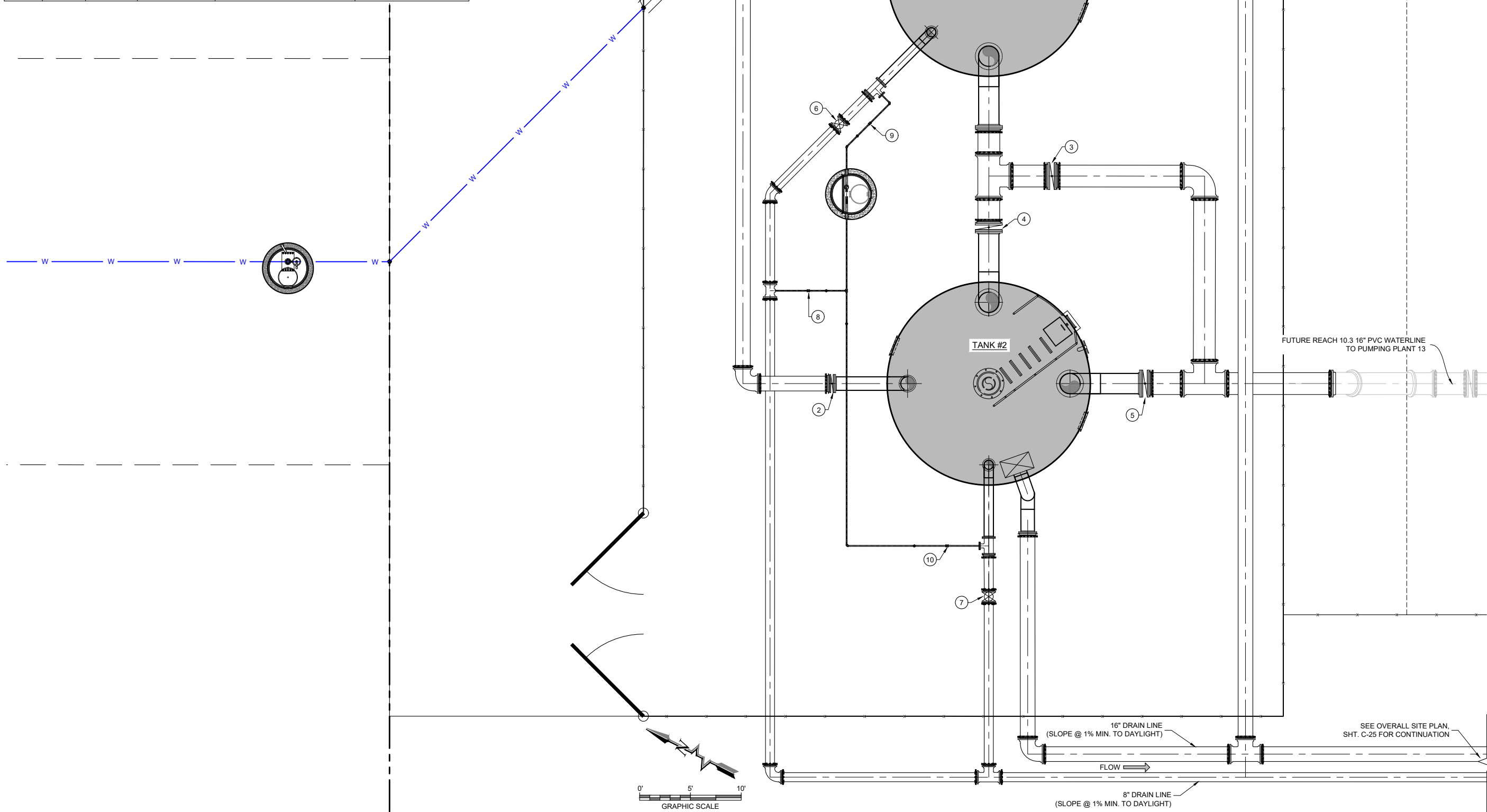
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By	CHKC
Revision	Date
<p>SOUDER, MILLER & ASSOCIATES Engineering • Environmental • Geomatics Serving the Southwest & Rocky Mountains 5454 Venice Avenue NE, Suite D Albuquerque, NM 87113 Phone (505) 299-0942 Toll-Free (877) 299-0942 Fax (505) 293-3430 www.soudermiller.com</p>	
Location:	Tsifitahi, NM
<p>PUMPING PLANT 13 SITE PIPE INVERTS NAVAJO GALLUP WATER SUPPLY PROJECT BEACON BISTI N9 - REACH 10.2 MCKINLEY COUNTY, NEW MEXICO SECTION 6, T. 11 N., R. 18 W.</p>	
<p>90% REVIEW DRAFT</p> <p>PRELIMINARY NOT FOR CONSTRUCTION 9/2022</p>	
Designed	TTT
Drawn	MvH/AaV
Checked	JMG
<p>THIS DRAWING IS INCOMPLETE AND NOT TO BE USED FOR CONSTRUCTION UNLESS IT IS STAMPED, SIGNED AND DATED</p>	
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Date:	September 2022
Scale:	Horiz: 1" = 20' Vert: N/A
Project No:	6922268
Sheet:	C-29

PUMPING PLANT 13 TANK SITE - VALVE NUMBERING

Valve No.	Valve Size	Valve Type	Pipe Type	Description	Warning Placard (Requires lockable valve box lid inside meter can) See Sheet DT-7
1	16"	BFV	PVC/STEEL	TANK #1 INLET	YES (SEE DT-7 DET. "D")
2	16"	BFV	PVC/STEEL	TANK #2 INLET	YES (SEE DT-7 DET. "D")
3	24"	BFV	PVC/PVC	TANK #1 OUTLET, TANK #2 BYPASS	YES (SEE DT-7 DET. "E")
4	24"	BFV	STEEL/PVC	TANK #1 OUTLET TO TANK #2	NO
5	24"	BFV	STEEL/PVC	TANK #2 OUTLET	YES (SEE DT-7 DET. "E")
6	8"	GV	PVC/PVC	TANK #1 DRAIN	NO
7	8"	GV	PVC/PVC	TANK #2 DRAIN	NO
8	1"	CS	STAINLESS STEEL	TANK #1 & #2 SENSOR LINE DRAIN	NO
9	1"	CS	STAINLESS STEEL	TANK #1 SENSOR LINE	NO
10	1"	CS	STAINLESS STEEL	TANK #2 SENSOR LINE	NO

STA 450+93.59
END REACH 10.2 WATERLINE
CONNECT TO SITE PIPING
N=1740730.99
E=2568301.42



PUMPING PLANT 13 VALVE NUMBERING PLAN

By	CHKC
Description	
Revision	
Date	

Client: The Navajo Nation
Location: Tse'iłiłi, NM

PUMPING PLANT 13 VALVE NUMBERING PLAN
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
MCKINLEY COUNTY, NEW MEXICO
SECTION 6, T. 11 N., R. 18 W.

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Designed	Drawn	Checked
TTT	MvH/AaV	JMG

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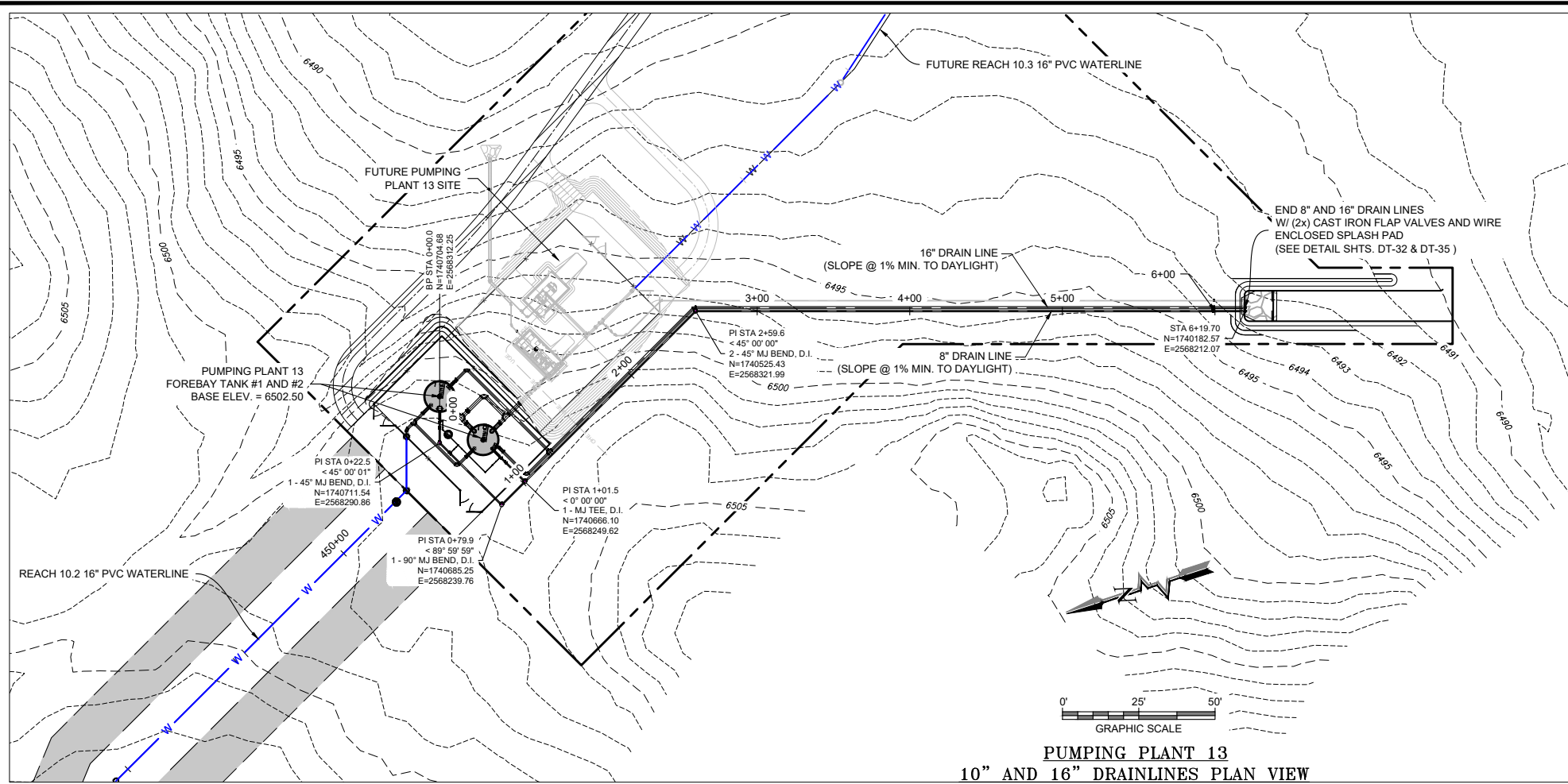
811 Know what's BELOW. CALL before you dig.

Date: September 2022
Scale: Horiz: 1" = 20'
Vert: N/A

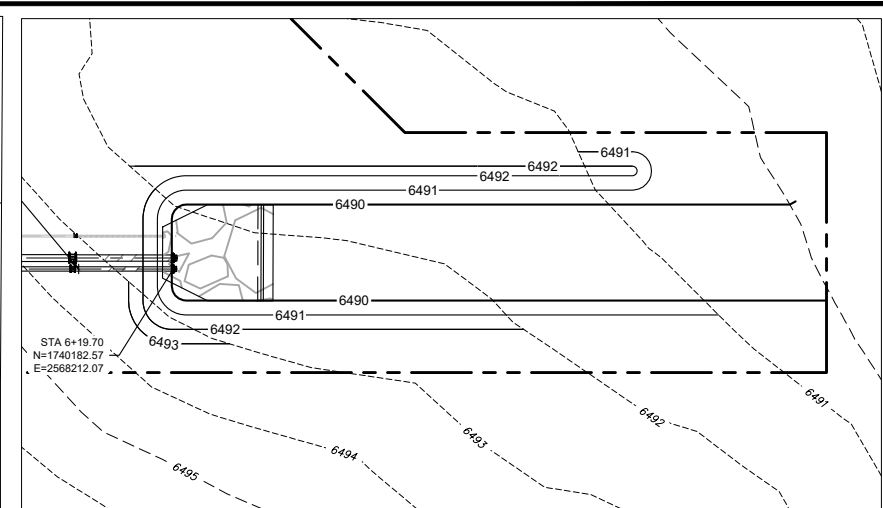
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Sheet: C-30

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**PUMPING PLANT 13
10" AND 16" DRAINLINES PLAN VIEW**



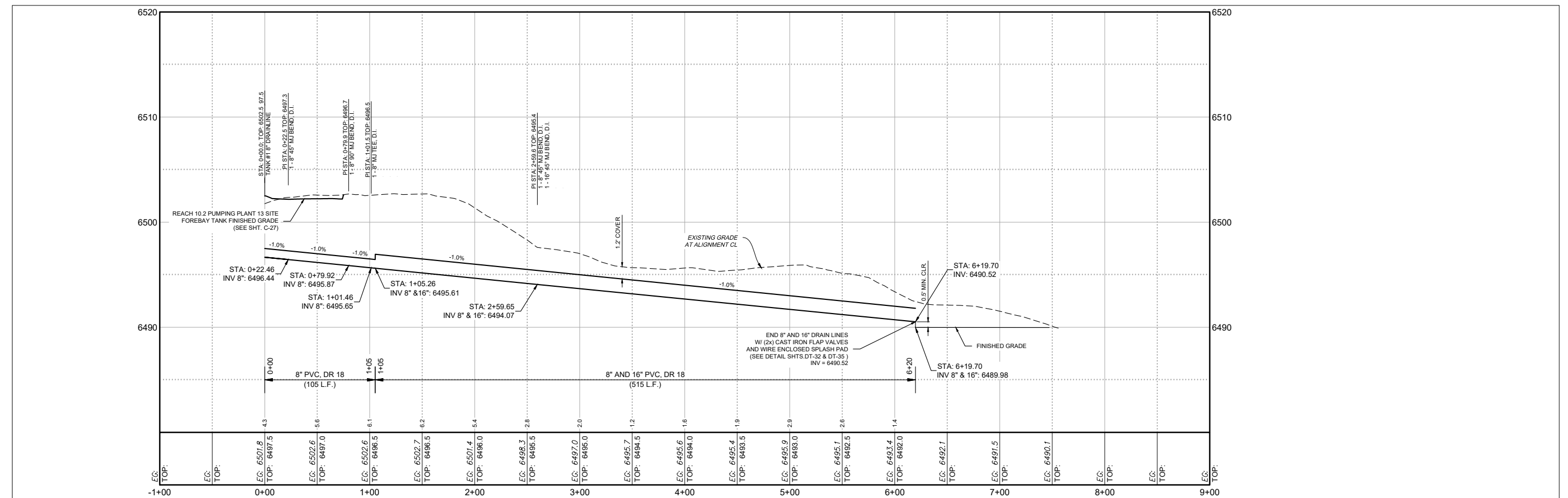
**FOREBAY TANK OUTFALL GRADING
ENLARGEMENT**

FOREBAY TANK SITE CUT/FILL DATA			
MATERIAL TYPE	CUT	FILL	EXPORT/IMPORT
*NATIVE SOILS (TANK SITE)	21 CU. YDS.	230 CU. YDS.	209 CU. YDS. IMPORT
*NATIVE SOILS (OUTFALL)	210 CU. YDS.	10 CU. YDS.	200 CU. YDS. EXPORT
SURFACING MATERIAL (BASE COURSE AND FINISH GRAVEL)	--	--	0 CU. YDS. IMPORT
ENGINEERED FILL	--	--	0 CU. YDS. IMPORT
RIP RAP (UNCAGED)	--	--	1.5 CU. YDS. IMPORT

*BASED ON COMPACTION = 1.2, ASSUMED.

NOTES:

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.




**PUMPING PLANT 13
10" AND 16" DRAINLINES PROFILE**

P:\6-Beacon Bisti N9 Water Line (6922268)\CAD\Construction Plans\Reach 10.2 PP13 Grading Base Alt.dwg
9/16/2022 8:01:02 AM mhh

Revision	Date	Description	By	CHKD

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Albuquerque, NM 87113
Phone (505) 299-0942 Toll-Free (877) 299-0942 Fax (505) 293-3430
www.soudermiller.com



Client: The Navajo Nation
Location: Tseil'ani, NM
PUMPING PLANT 13 DRAIN LINE P&P
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
MCKINLEY COUNTY, NEW MEXICO
SECTION 20, T. 18 N., R. 14 W.

**90% REVIEW
DRAFT**

**PRELIMINARY
NOT FOR CONSTRUCTION**
9/2022

Designed TTT	Drawn MvH/AaV	Checked JMG
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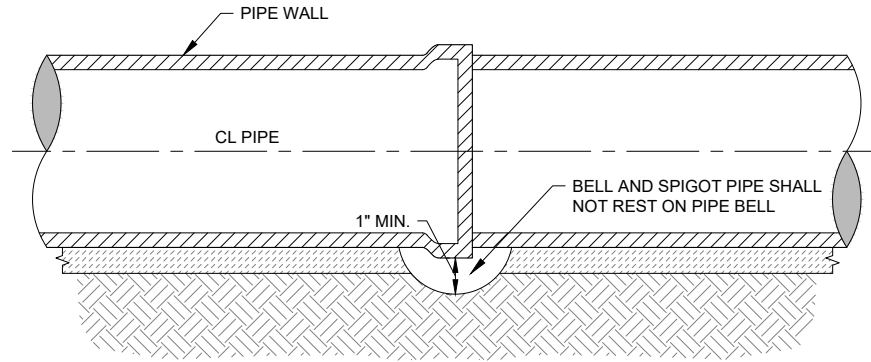
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Vert: N/A

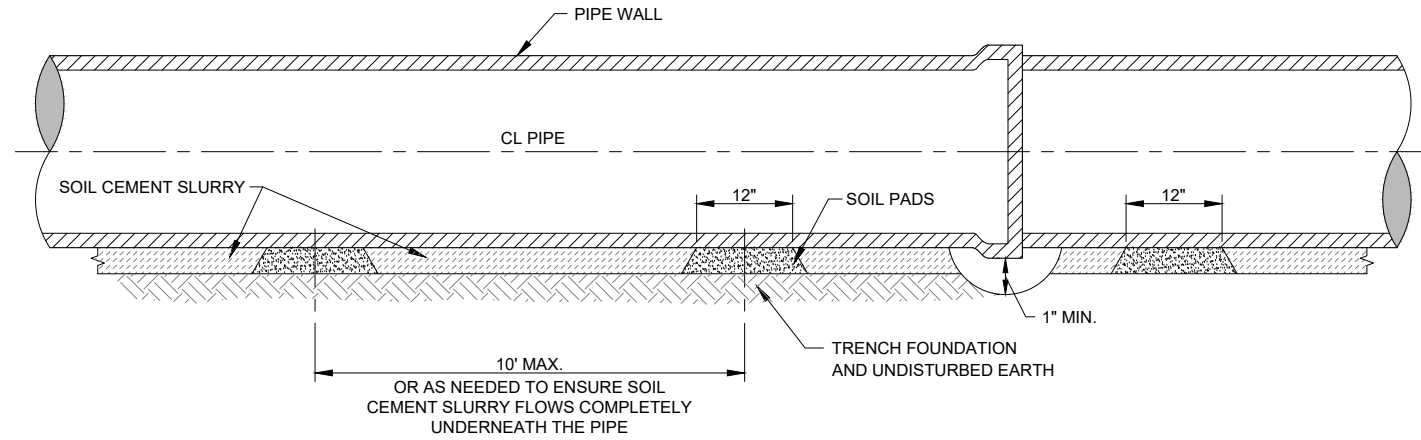
Project No: 6922268
Sheet: C-31

NOTES:

- SOIL CEMENT SLURRY MAY BE USED IN LIEU OF COMPACTED SELECT MATERIAL AT CONTRACTOR'S OPTION AND EXPENSE.
- 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.
- 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.
- ROUNDED TRENCH BOTTOMS MAY BE USED IN CONJUNCTION WITH SOIL CEMENT SLURRY, PROVIDED THE THICKNESS OF SOIL CEMENT AROUND THE PIPE IS AT NO POINT LESS THAN 3".



TYPICAL BELL HOLE DETAIL
NOT TO SCALE

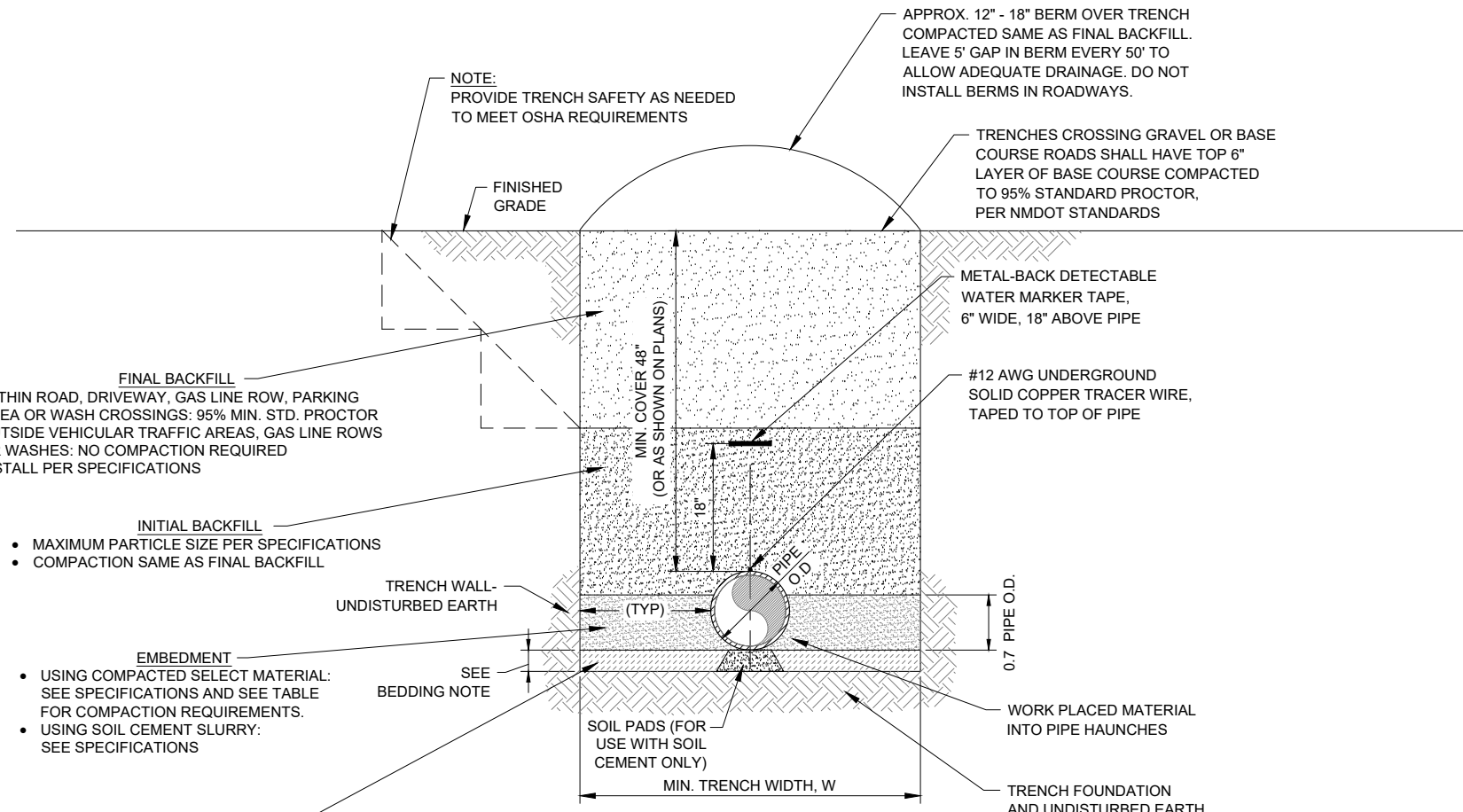


SOIL CEMENT INSTALLATION WITH SOIL PADS
NOT TO SCALE

MINIMUM PERCENT COMPACTION FOR EMBEDMENT OUTSIDE TRAFFIC AREAS, GAS LINES ROW, WASH CROSSINGS	
CLEAN COARSE-GRAINED SOILS	
	16" Pipe
Cover Depth	Minimum Compaction
4' to 20'	85%
<i>Coarse-grained soils (sand or gravel), GW, GP, SW, SP, with less than 12% fines</i>	
SANDY OR GRAVELLY FINE-GRAINED SOILS & COARSE-GRAINED SOILS WITH FINES	
	16" Pipe
Cover Depth	Minimum Compaction
4' to 14'	85%
14' to 20'	90%
<i>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</i>	

NOTES ON COMPACTION:

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



- FINAL BACKFILL**
- WITHIN ROAD, DRIVEWAY, GAS LINE ROW, PARKING AREA OR WASH CROSSINGS: 95% MIN. STD. PROCTOR
 - OUTSIDE VEHICULAR TRAFFIC AREAS, GAS LINE ROWS OR WASHES: NO COMPACTION REQUIRED
 - INSTALL PER SPECIFICATIONS

- INITIAL BACKFILL**
- MAXIMUM PARTICLE SIZE PER SPECIFICATIONS
 - COMPACTION SAME AS FINAL BACKFILL

- EMBEDMENT**
- USING COMPACTED SELECT MATERIAL: SEE SPECIFICATIONS AND SEE TABLE FOR COMPACTION REQUIREMENTS.
 - USING SOIL CEMENT SLURRY: SEE SPECIFICATIONS

- BEDDING**
- USING UNCOMPACTED SELECT MATERIAL: SEE SPECIFICATIONS, THICKNESS: 4"
 - USING SOIL CEMENT SLURRY: SEE SPECIFICATIONS, THICKNESS: 3"

- USING COMPACTED SELECT MATERIAL: O.D.+24" MIN. (12" EACH SIDE OF PIPE), OR GREATER TO ALLOW PROPER COMPACTION IN HAUNCH AREA
- USING SOIL CEMENT SLURRY: O.D.+6" MIN. (3" EACH SIDE OF PIPE), OR GREATER TO ENSURE 3" MIN. THICK SOIL CEMENT SLURRY LAYER ON BOTH SIDES OF PIPE

TYPICAL TRENCH DETAIL
NOT TO SCALE

P:\6-Beacon Bisti N9 Water Line (6922268)\CAD\Civil\Reach 10.2 Trench Details.dwg 9/16/2022 8:01:08 AM mnh

By: CHKD
Description:
Revision: Date:

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SMA

Location: Tseil'ihai, NM

TRENCH DETAILS
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
MCKINLEY COUNTY, NEW MEXICO

90% REVIEW
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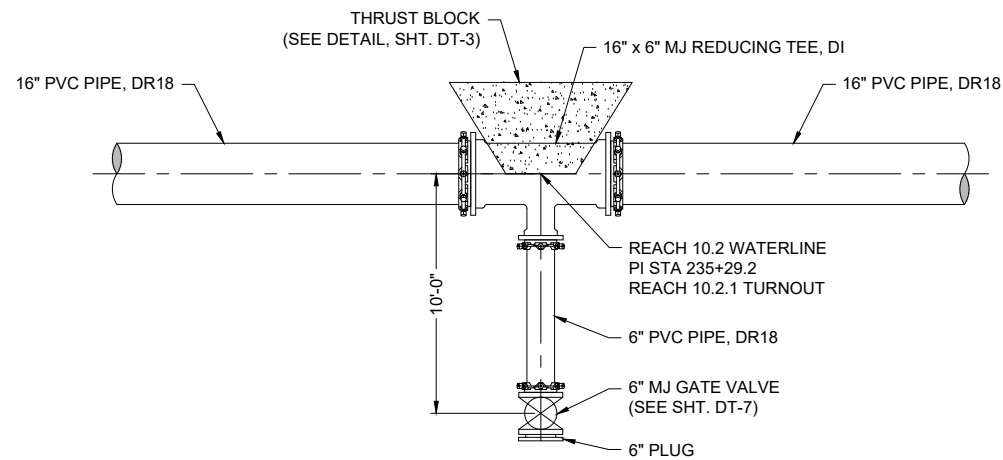
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9/2022

Designed TTT	Drawn AAV	Checked JMG
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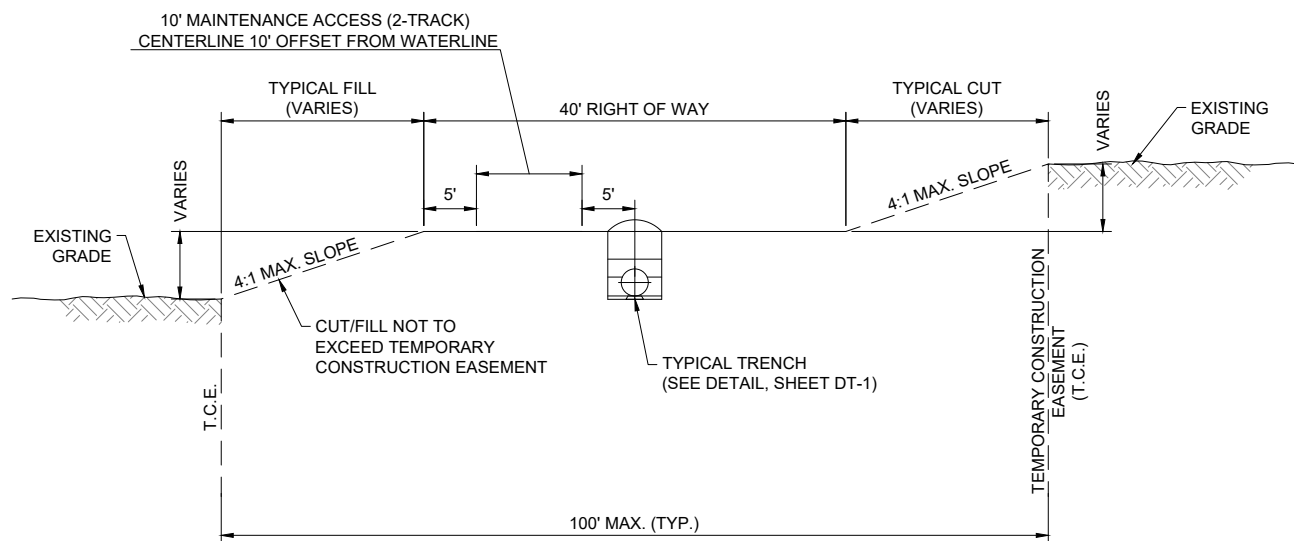
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Date: September 2022
Scale: Horiz: N/A
Vert: N/A
Project No: 6922268
Sheet: **DT-1**



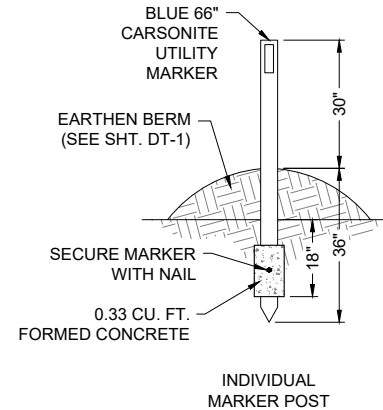
REACH 10.2.1 TURNOUT DETAIL
NOT TO SCALE



TYPICAL PIPELINE ROW FINISHED GRADING DETAIL
NOT TO SCALE

NOTES:

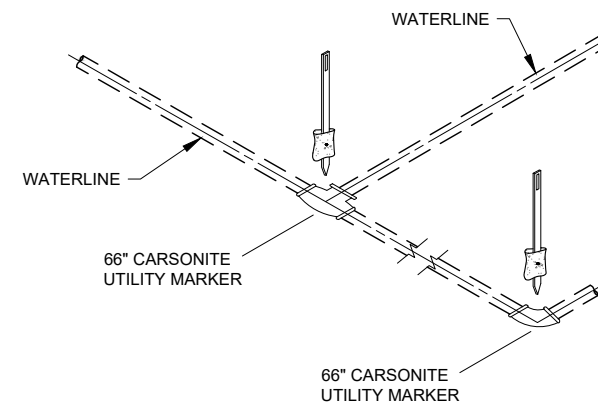
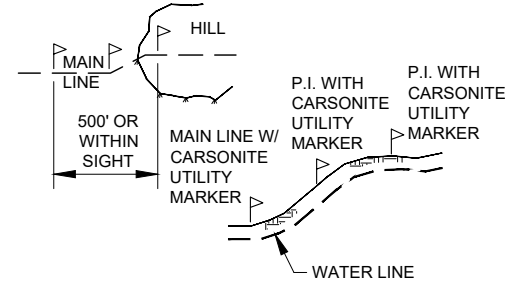
1. ALL DISTURBED EARTH SHALL BE COMPACTED AND RESEEDED AS REQUIRED PER DT-1 AND SPECIFICATIONS.
2. TOTAL WIDTH REDUCED IN AREAS WHERE TEMPORARY CONSTRUCTION EASEMENT IS TRUNCATED DUE TO ADJACENT CULTURALLY SENSITIVE AREAS.
3. FINAL GRADING AND SLOPE STABILIZATION MUST BE APPROVED BY ENGINEER.
4. IF MAINTENANCE ROAD CROSSES WATERLINE, 95% COMPACTION IS REQUIRED AT CROSSING.
5. MAINTENANCE ROAD IS INCIDENTAL TO PIPE CONSTRUCTION.



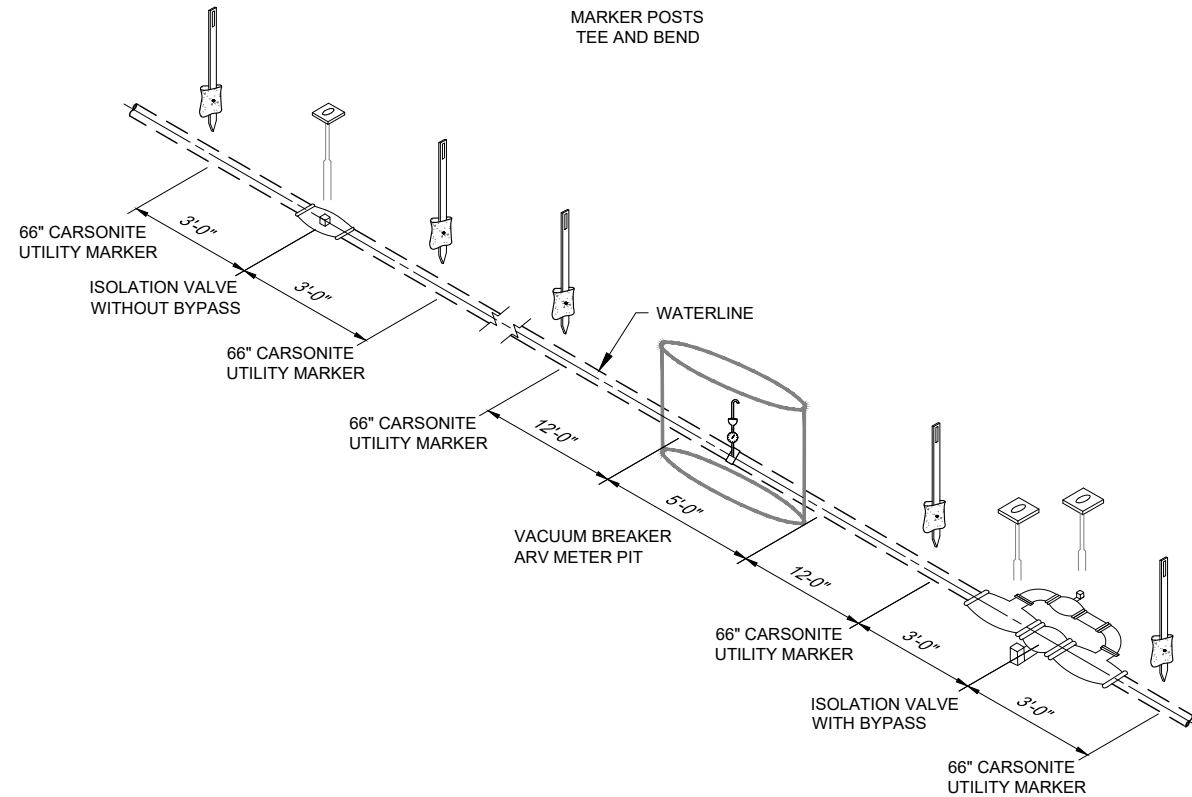
INDIVIDUAL MARKER POST

NOTE:

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



**MARKER POSTS
TEE AND BEND**



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

TYPICAL MARKER POSTS
NOT TO SCALE

Revision	Date	Description

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Client: The Navajo Nation
Location: Tseil'ihai, NM
MISCELLANEOUS CONSTRUCTION DETAILS
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
MCKINLEY COUNTY, NEW MEXICO

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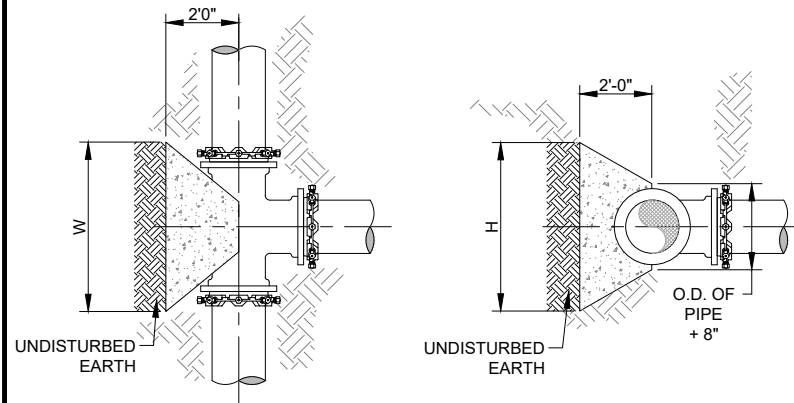
Project No: 6922268
Sheet: DT-2

Thrust Block Dimension Schedule

Pipe	Fitting	Required Thrust Block Area (ft ²)	Design Thrust Block Size (H x W x T) (ft)
16"	90° Ell Pump Station, Inlet & Outlet	68.4	8.5' x 8.5' x 2'
16"	90° Ell Surge Tank Inlet/Outlet	68.4	8.5' x 8.5' x 2'
16"	16" x 16" Tee Surge Tank Inlet/Outlet	48.4	7.0' x 7.0' x 2'
16"	16" x 6" Tee at Reach 10.2.1 TO	5.9	2.5' x 2.5' x 2'
16"	16" x 6" Tee for 4" Flush Valve	5.9	2.5' x 2.5' x 2'

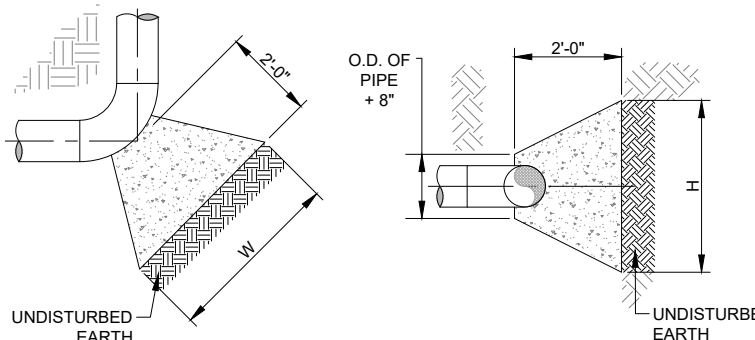
GENERAL NOTES

- ASSUMED SOIL BEARING OF 1,500 PSF
- 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

Minimum Required Restraint Lengths for Individual Fittings

Reach 10.2 - 16" DR 14 PVC				
Fitting	Pipe Size in	Pipe DR	Test Pressure psi	Design Restraint Length ft
Isolation Valve/Dead End	16	14	305	205
From End of Casing	16	14	305	120
Horizontal Bend or Sweep				
90°	16	14	305	75
45°	16	14	305	35
22.5°	16	14	305	20
11.25°	16	14	305	20
Vertical Bend or Sweep ¹				
45°, Upper Bend	16	14	305	85
45°, Lower Bend	16	14	305	25
22.5°, Upper Bend	16	14	305	45
22.5°, Lower Bend	16	14	305	20
11.25°, Upper Bend	16	14	305	25
11.25°, Lower Bend	16	14	305	20

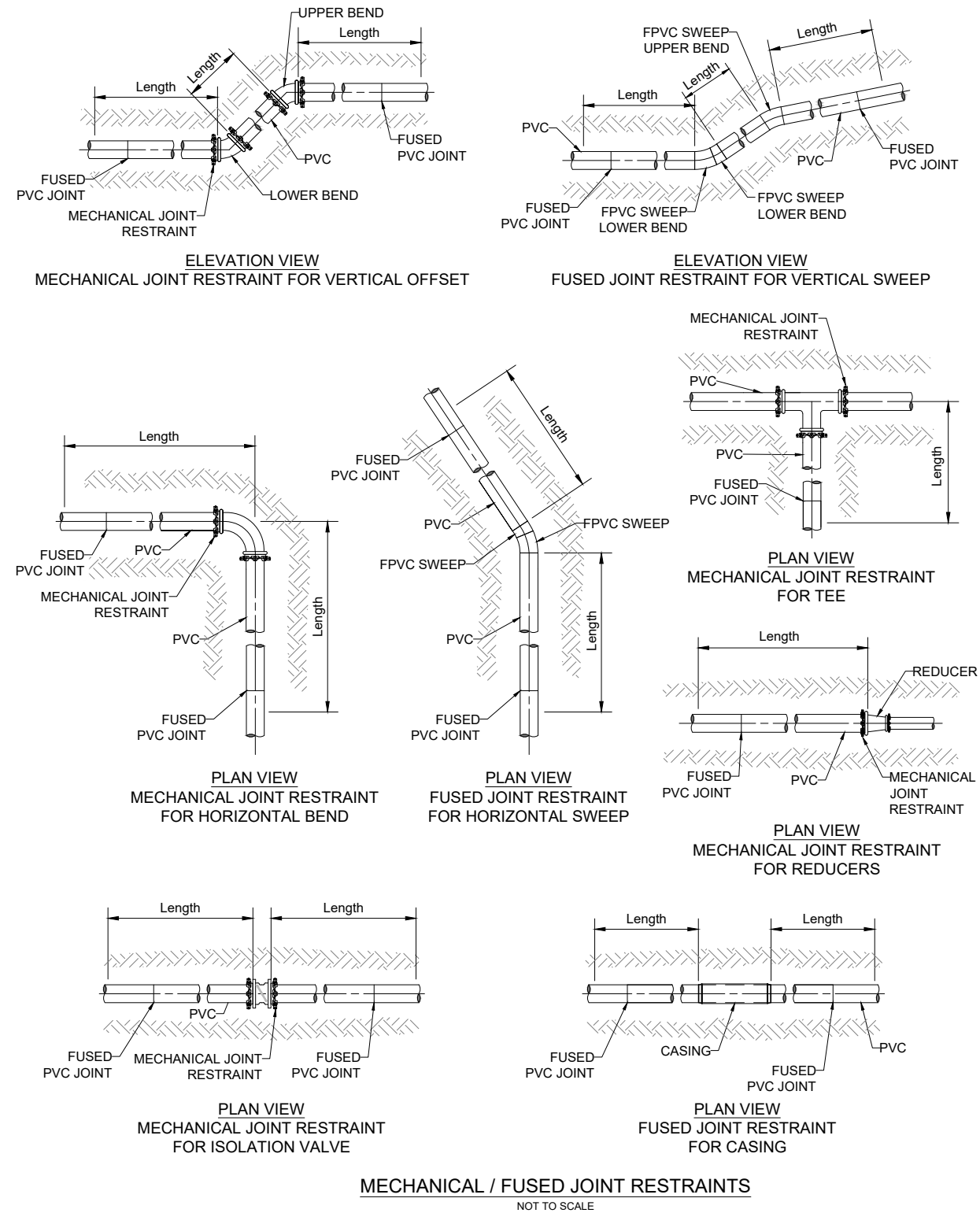
Reach 10.2 - 16" DR 18 PVC				
Fitting	Pipe Size in	Pipe DR	Test Pressure psi	Design Restraint Length ft
Tee 16 x 6 x 16	16	18	235	20
Isolation Valve/Dead End	16	18	235	160
From End of Casing	16	18	235	100
Horizontal Bend or Sweep				
90°	16	18	235	60
45°	16	18	235	25
22.5°	16	18	235	20
11.25°	16	18	235	20
Vertical Bend or Sweep ¹				
45°, Upper Bend	16	18	235	70
45°, Lower Bend	16	18	235	20
22.5°, Upper Bend	16	18	235	35
22.5°, Lower Bend	16	18	235	20
11.25°, Upper Bend	16	18	235	20
11.25°, Lower Bend	16	18	235	20

Reach 10.2 - 16" DR 18 PVC				
Fitting	Pipe Size in	Pipe DR	Test Pressure psi	Design Restraint Length ft
Tee 16 x 6 x 16	16	18	235	20
Isolation Valve/Dead End	16	18	235	160
From End of Casing	16	18	235	100
Horizontal Bend or Sweep				
90°	16	18	235	60
45°	16	18	235	25
22.5°	16	18	235	20
11.25°	16	18	235	20
Vertical Bend or Sweep ¹				
45°, Upper Bend	16	18	235	70
45°, Lower Bend	16	18	235	20
22.5°, Upper Bend	16	18	235	35
22.5°, Lower Bend	16	18	235	20
11.25°, Upper Bend	16	18	235	20
11.25°, Lower Bend	16	18	235	20

¹ Gives the required restraint length on each side of the specified bend, using a low side depth (from ground surface to top of the lower pipe) of 6-ft.

NOTES:

- MECHANICAL JOINT RESTRAINTS SHALL BE RATED TO PIPE PRESSURE RATINGS.
- MECHANICAL JOINT RESTRAINTS INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.
- ALL BURIED METALLIC WATER BEARING COMPONENTS SHALL BE COATED WITH FUSION BONDED EPOXY, INTERIOR AND EXTERIOR.
- APPLY CATHODIC PROTECTION TO ALL BURIED METALLIC COMPONENTS LOCATED WITHIN CORROSIVE SOILS ZONES, AS DESIGNATED IN PLANS AND/OR SPECIFICATIONS.
- ALL RESTRAINED PIPE JOINTS SHALL BE FUSIBLE PVC. NO BELL HARNESS RESTRAINTS SHALL BE ALLOWED.
- ALL SITE PIPING SHALL BE FULLY RESTRAINED WITH FUSIBLE PVC EXCLUDING DRAIN LINES.
- WHERE MULTIPLE FITTING / VALVE RESTRAINT LENGTHS OVERLAP, THE RESTRAINT LENGTHS FOR EACH APPURTENANCE SHALL BE SHOWN ON PLANS. CONTRACTOR TO NOTIFY ENGINEER IF NOT SHOWN.
- FOR ANY FITTING OR APPURTENANCE NOT EXPRESSLY CALLED OUT IN PLANS, REFER TO THIS SHEET FOR RESTRAINT LENGTH REQUIREMENTS.
- 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.
- FOR RESTRAINED LENGTHS 20 LF OR LESS, JOINTED PVC PIPE MAY BE USED IN LIEU OF FUSIBLE PVC, PROVIDED THAT THERE ARE NO BELL AND SPIGOT JOINTS WITHIN REQUIRED RESTRAINT LENGTH.



MECHANICAL / FUSED JOINT RESTRAINTS
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Location: Tseil'ihni, NM
Client: The Navajo Nation
THRUST BLOCK & JOINT RESTRAINT DETAILS
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
MCKINLEY COUNTY, NEW MEXICO

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Project No: 6922268
Sheet: DT-3

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SPECIAL NOTES AND CONTACTS-UTILITY PIPELINE CROSSINGS

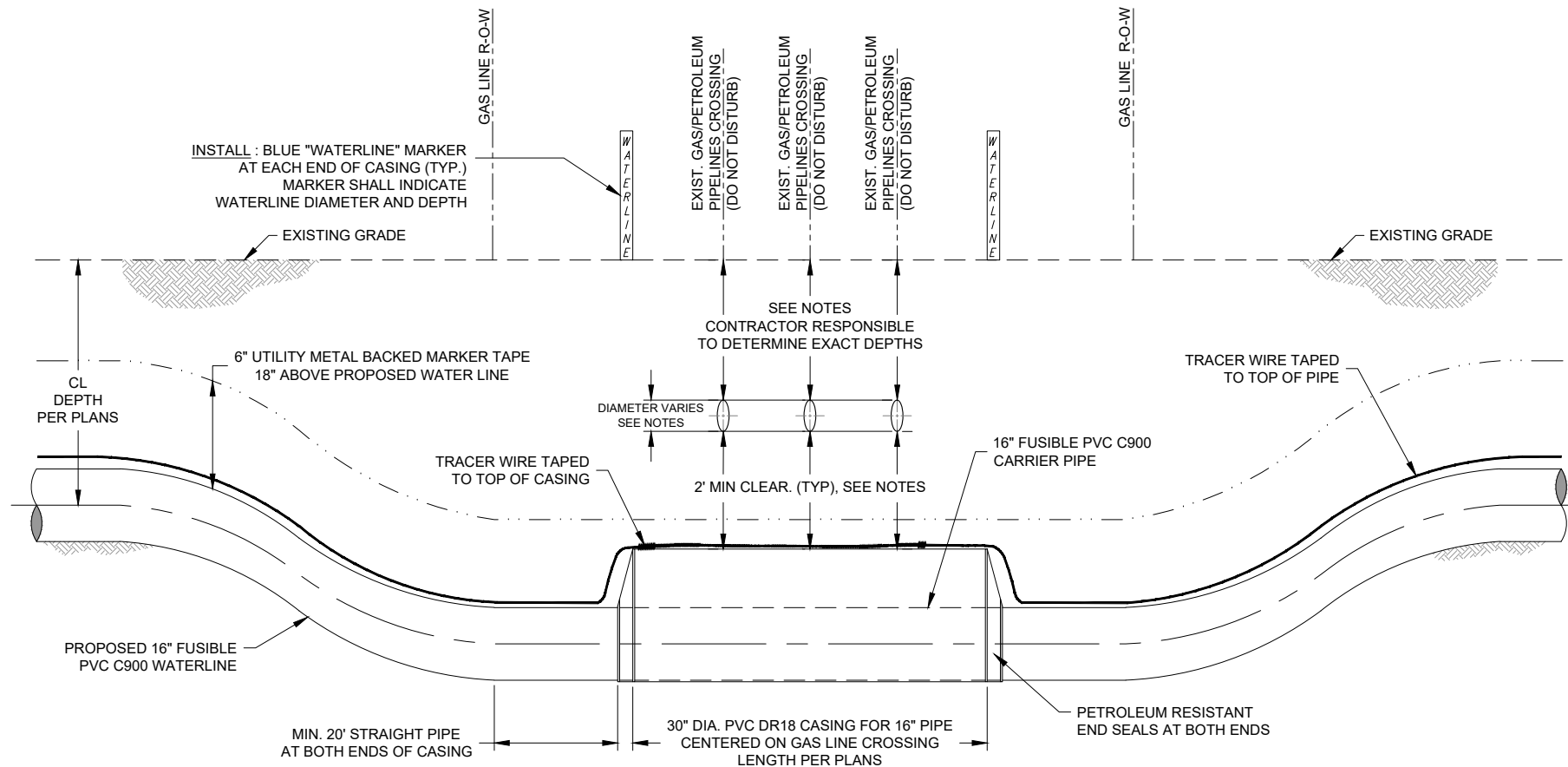
NOTES:

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

(1) = STA 218+70.3 TO 219+45.6 (APPROX.)
 MARATHON PETROLEUM CO.
 DUANE HOWE 505-444-0084
 2 OIL PIPELINES
 (6" DIA. STEEL, 39" TO TOP)
 (8" DIA. STEEL, 28" TO TOP)

ENERGY TRANSFER PARTNERS
 PATRICK R. TRONCOSO 575-347-6968
 2 GAS PIPELINES
 (36" DIA. STEEL, 61" TO TOP)
 (30" DIA. STEEL, 47" TO TOP)

NTUA GAS PIPELINE
 1-800-528-5011
 (2" DIA. PE, 40" TO TOP)




TYPICAL GAS PIPELINE CROSSING DETAIL

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By	CHKD
Description	
Date	
Revision	

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Location: Tseil'fahí, NM
GAS LINE CROSSING DETAILS
 NAVAJO GALLUP WATER SUPPLY PROJECT
 BEACON BISTI N9 - REACH 10.2
 MCKINLEY COUNTY, NEW MEXICO

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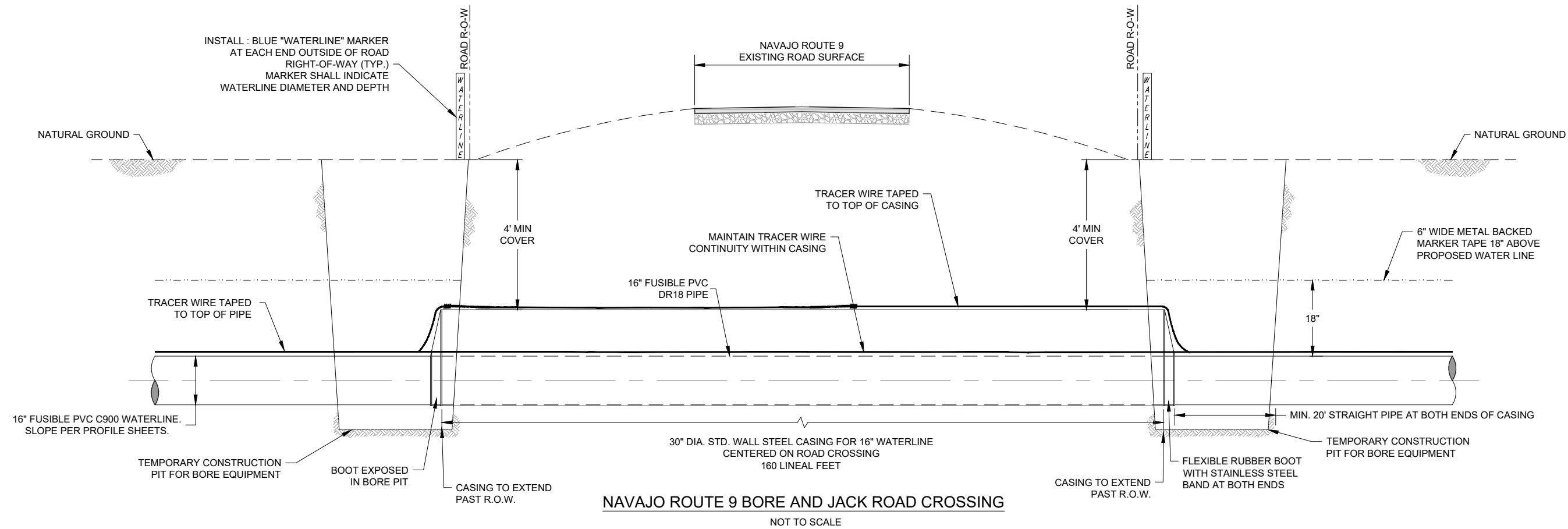


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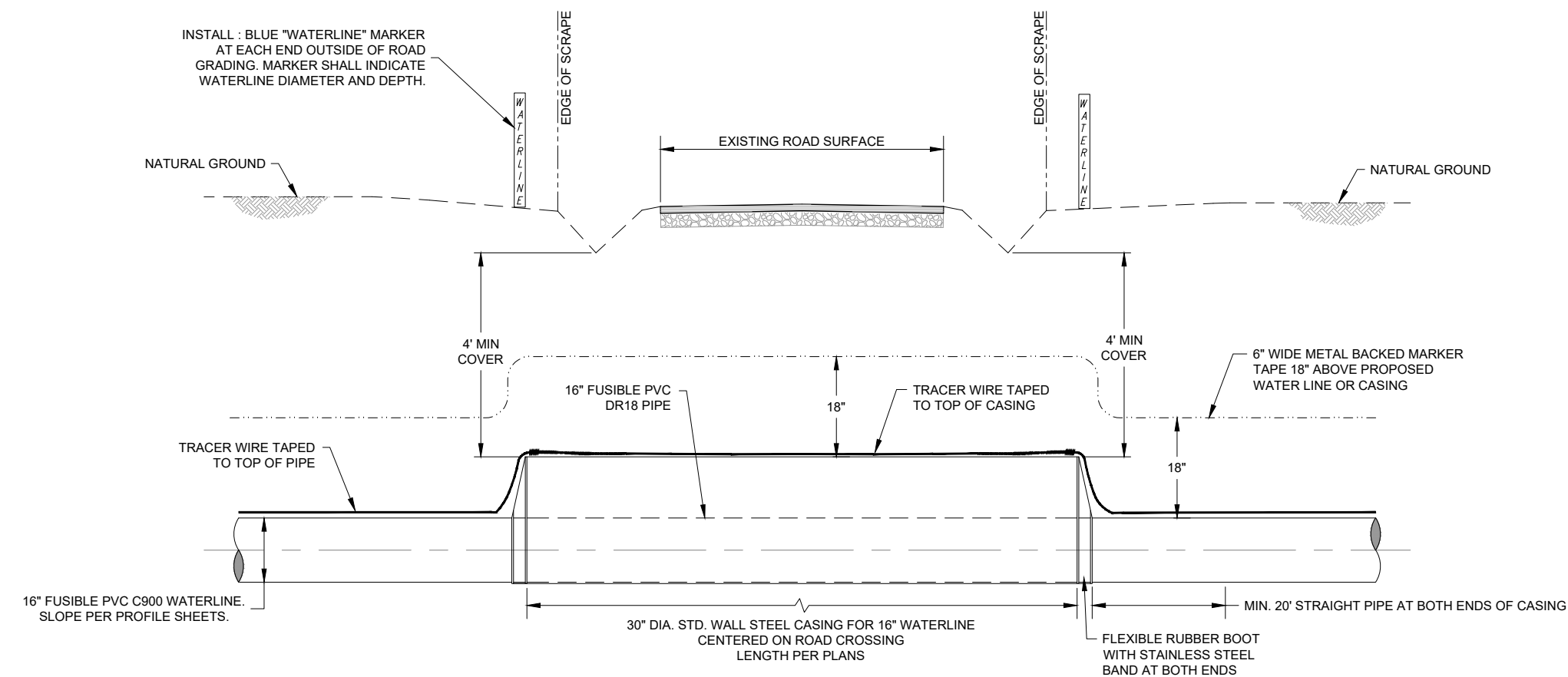
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 Vert: N/A

Project No: 6922268

Sheet: **DT-4**



NAVAJO ROUTE 9 BORE AND JACK ROAD CROSSING
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TYPICAL OPEN CUT ROAD CROSSING
NOT TO SCALE

CONSTRUCTION NOTES:

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

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www.soudermiller.com

Client: The Navajo Nation
Location: Tseil'ihai, NM
CASED ROAD CROSSING DETAILS
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
MCKINLEY COUNTY, NEW MEXICO

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Designed	Drawn	Checked
TTT	AAV	JMG

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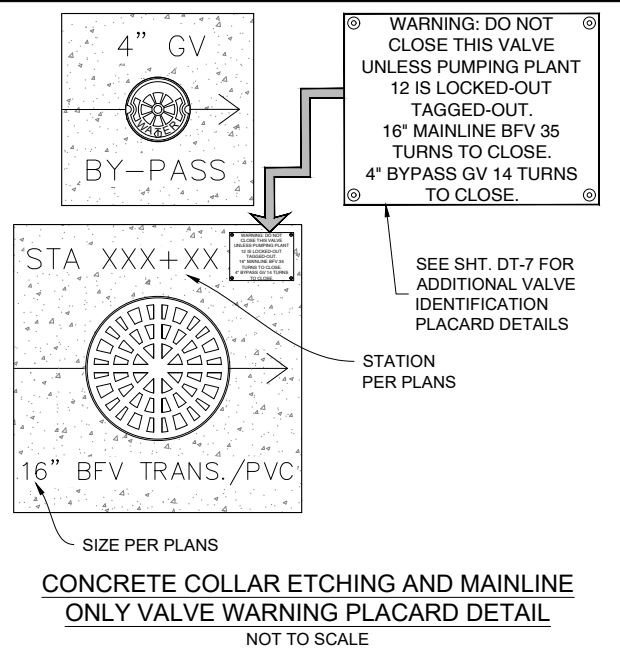
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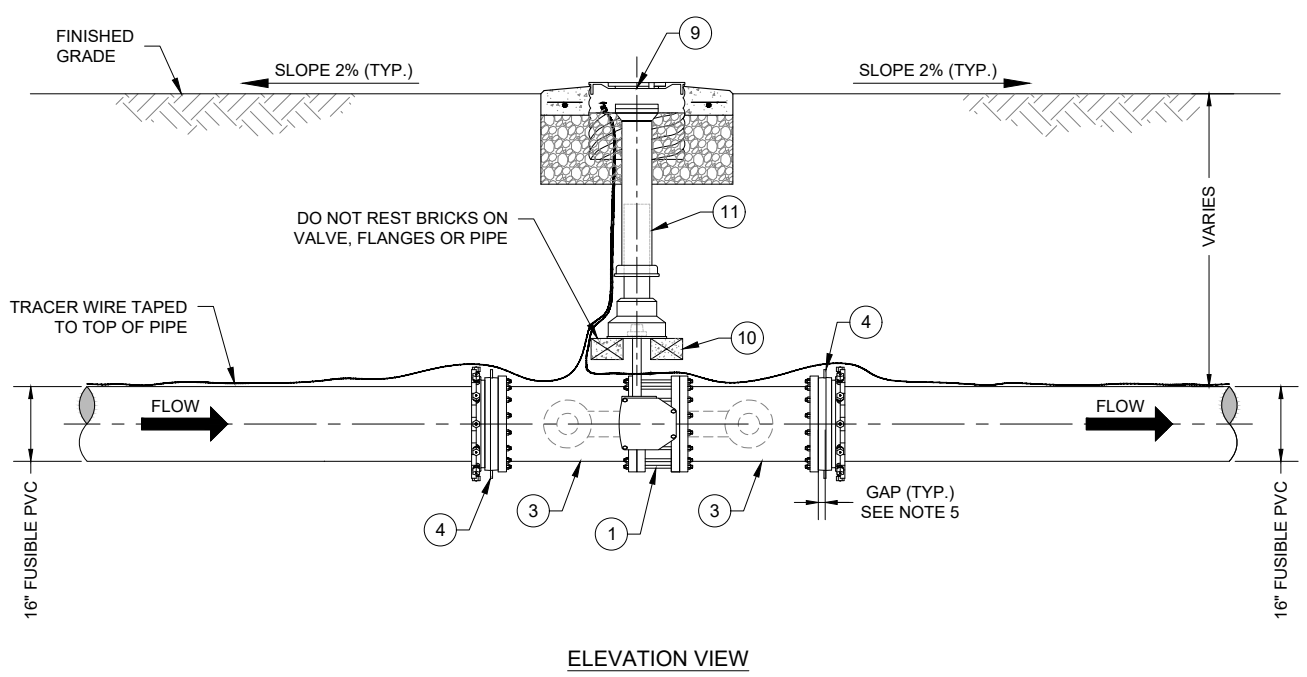
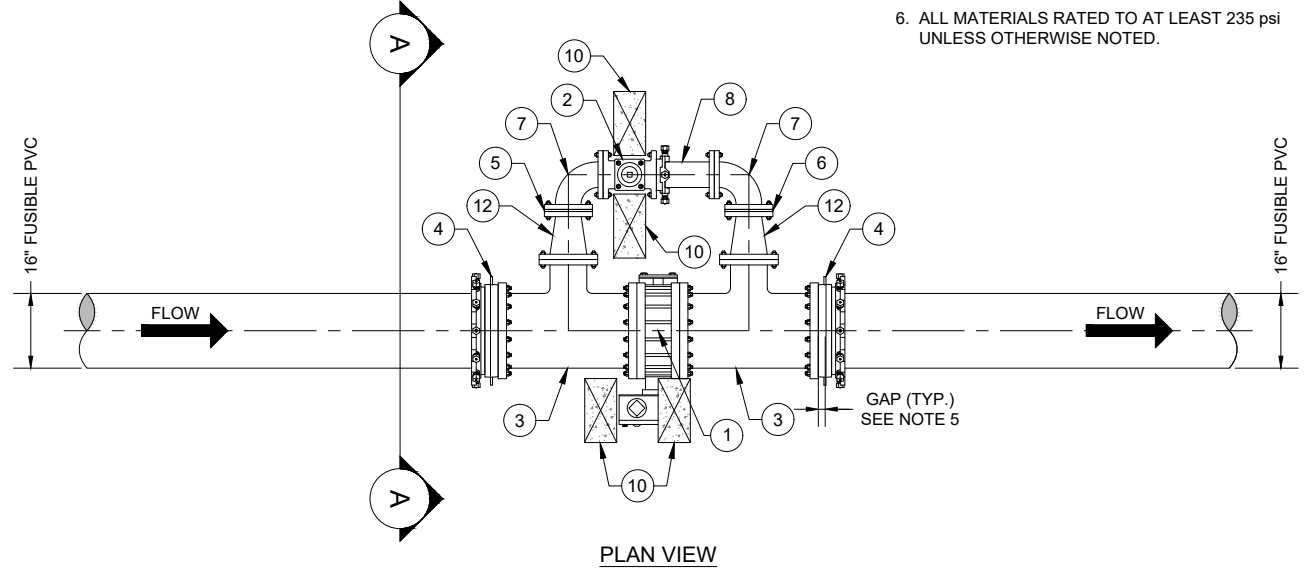
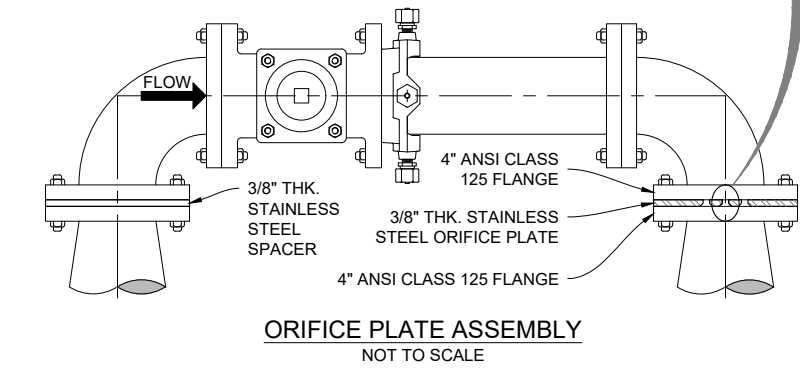
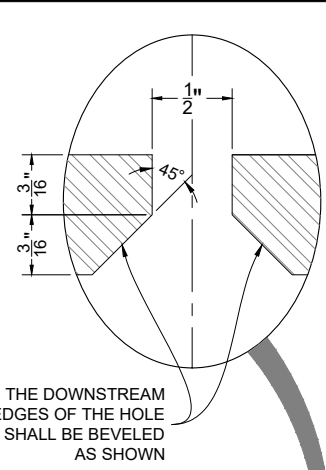
KEYED NOTES - PIPELINE BUTTERFLY VALVE	
Item No.	Description
1	16" FL x FL BUTTERFLY VALVE W/ MANUAL BURIED SERVICE ACTUATOR AWWA C504, 250B, PER PLANS
2	4" FL x MJ GATE VALVE WITH VALVE BOX, 350 psi
3	16" x 6" D.I. REDUCING TEE, FLANGED, W/ ANNULAR RING GASKET, 350 psi, PER PLANS
4	16" MJ FLANGE ADAPTER, FBE COATED, W/ SS 304 BOLTS, MEGAFLANGE SERIES 2100, OAE, 235 psi
5	9" O.D. STAINLESS STEEL SPACER TO MATCH 4" FLANGE, 3/8" THICK
6	9" O.D. STAINLESS STEEL ORIFICE PLATE TO MATCH 4" FLANGE (SEE DETAIL / TABLE THIS SHEET)
7	4" D.I. 90° ELL, FLANGED, W/ ANNULAR RING GASKET, 350 psi
8	4" D.I. SPOOL, FL x PLAIN END, W/ ANNULAR RING GASKET, 350 psi
9	18" DIA. HEAVY DUTY, TRAFFIC-RATED METER CAN (PAINTED BLUE) W/ LOCKING COVER AND FORMED CONCRETE COLLAR, (3000 psi W/ #4 REBAR)
10	12" x 6" x 4" BRICKS, ORIENTATION PER PLAN VIEW
11	CAST IRON SLIP TYPE VALVE BOX WITH LOCKABLE COVER
12	6" x 4" D.I. REDUCER, FLANGED, W/ ANNULAR RING GASKET, 350 psi.

- NOTES:**
- ALL BURIED 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.
 - APPLY CATHODIC PROTECTION TO ALL BURIED METALLIC PRESSURE-BEARING COMPONENTS LOCATED WITHIN CORROSIVE SOIL ZONES, AS DESIGNATED IN THE PLANS AND/OR SPECIFICATIONS.
 - FLANGES SHALL BE ANSI CLASS 125 (IRON).
 - CONTRACTOR SHALL SCRIBE ALL CONCRETE COLLARS PER DETAIL THIS SHEET. CONCRETE SHALL BE SCRIBED PRIOR TO CURING, OR ETCHED AFTER CURING WITH 4" GRINDER.
 - CONTRACTOR SHALL LEAVE A 3/4" MIN. TO 1" MAX. GAP BETWEEN PVC PIPE END AND FLANGE FACE INSIDE MJ FLANGE ADAPTER, TO FACILITATE FUTURE DISASSEMBLY.
 - ALL MATERIALS RATED TO AT LEAST 235 psi UNLESS OTHERWISE NOTED.

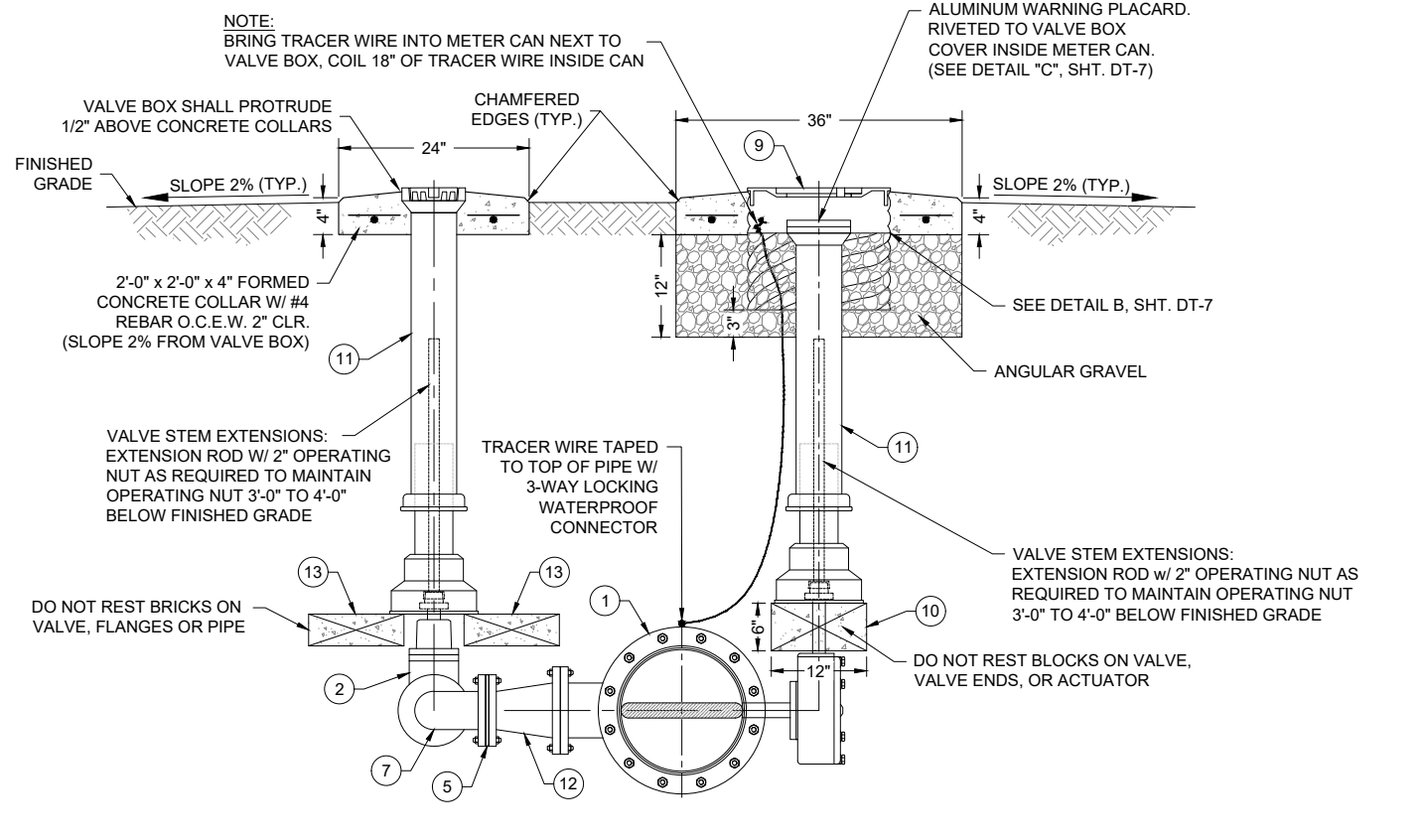
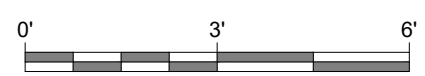


SUMMARY OF BUTTERFLY VALVE ACTUATOR TYPE AND ORIFICE PLATE DRILLING			
Station	Actuator Type	Elevation	Orifice Plate Number of Holes
42+93	Standard	6105	12
95+57	Standard	6118	12
127+33	Standard	6108	12
168+05	Standard	6154	13
216+50	Standard	6245	15
232+59	Standard	6243	15
278+49	Standard	6339	17
297+25	Standard	6370	17
342+20	Standard	6350	17
377+76	Standard	6319	17
424+13	Standard	6431	17

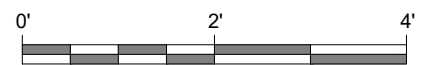
- NOTE:**
- ALL HOLES TO BE DRILLED INSIDE 4" FLOW AREA OF PLATE.
 - RR = REDUCTION RATIO



TYPICAL 16" PIPELINE BUTTERFLY VALVE ASSEMBLY WITH BY-PASS



SECTION "A-A"
TYPICAL 16" PIPELINE BUTTERFLY VALVE ASSEMBLY WITH BY-PASS

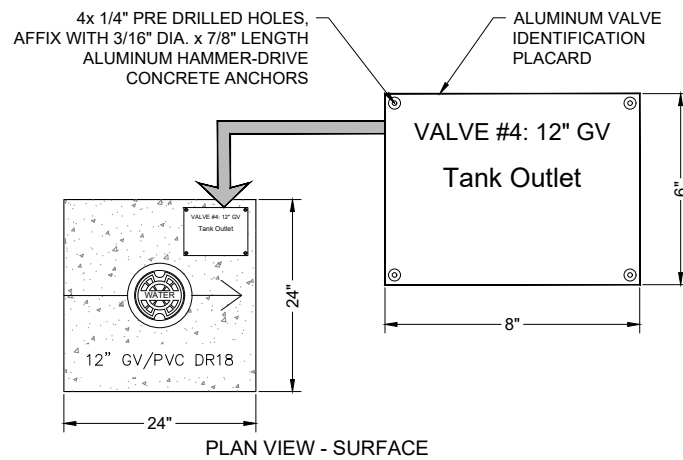
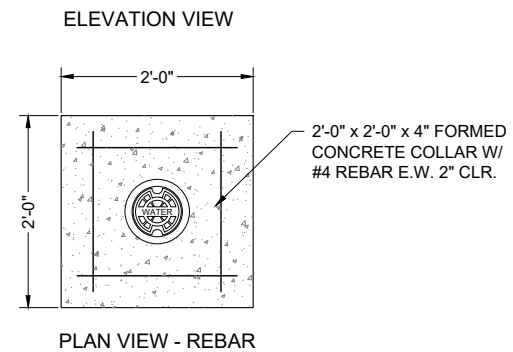
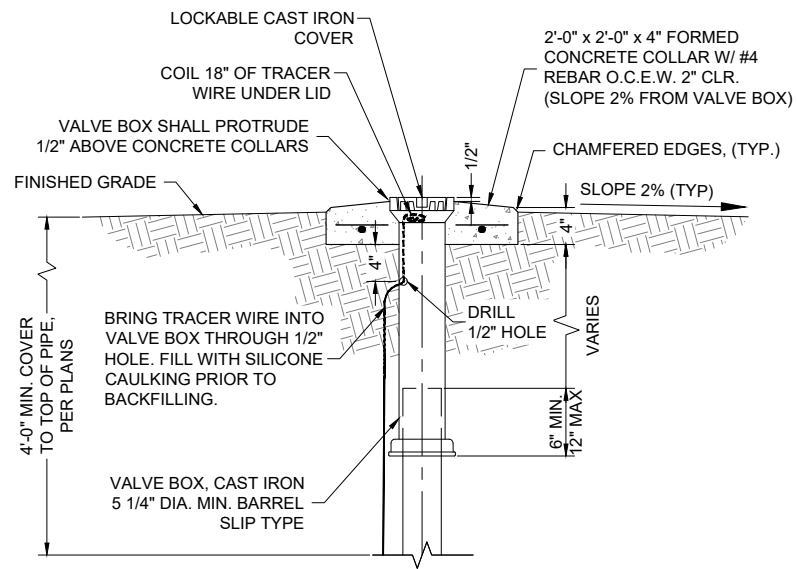
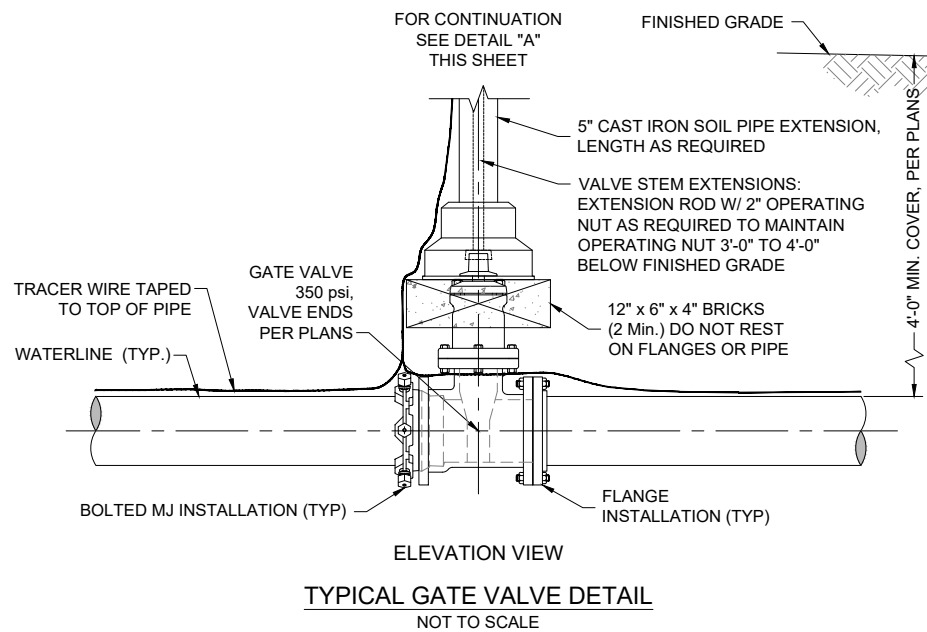
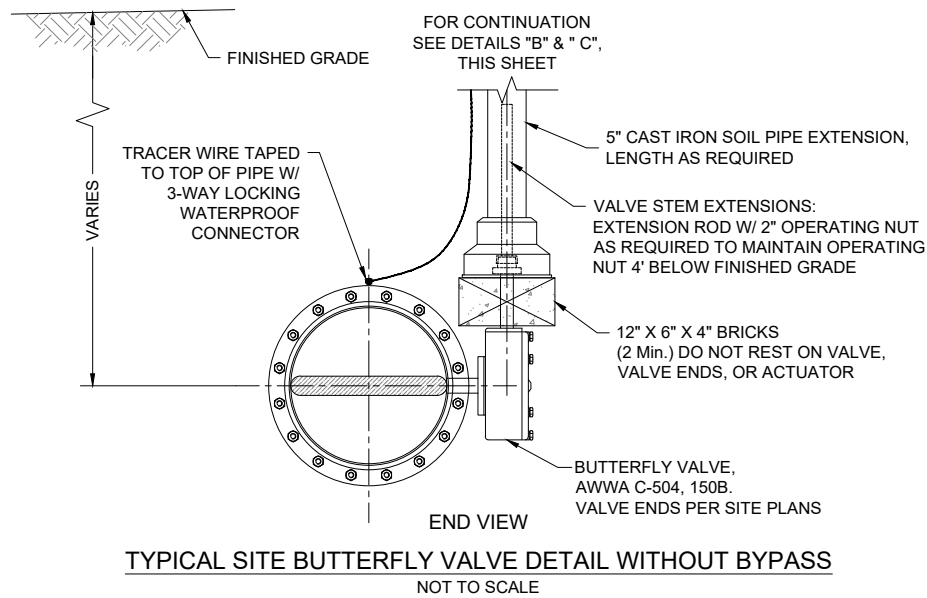


P:\6-Beacon Blist NG Water Line (6922268)\CAD\Construction Plans\Reach 10.2 BFV Detail.dwg 9/16/2022 8:01:39AM mwh

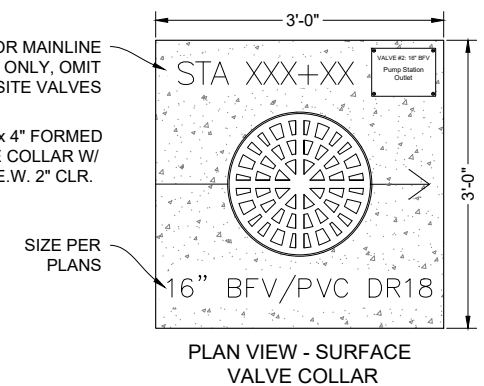
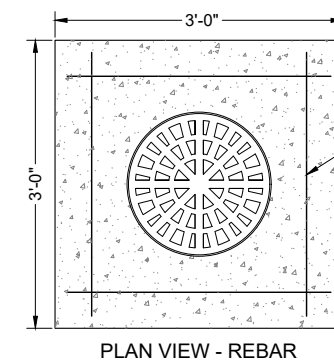
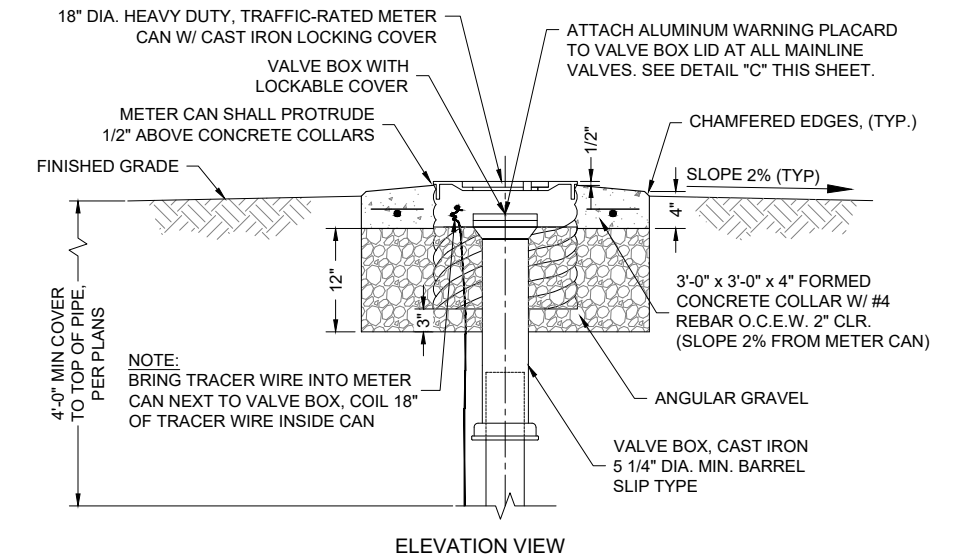
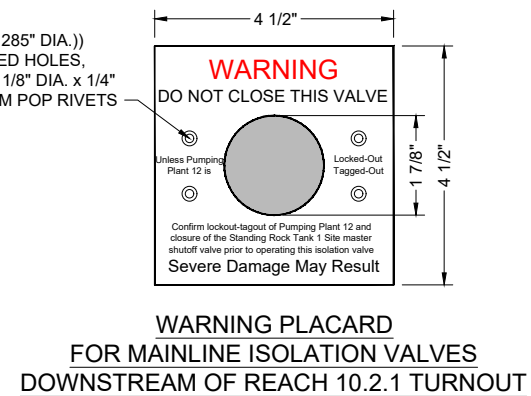
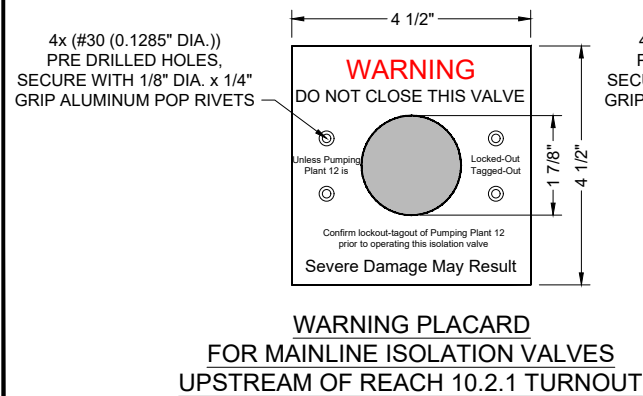
Client: The Navajo Nation
Location: Tseil'ihni, NM
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Project No: 6922268
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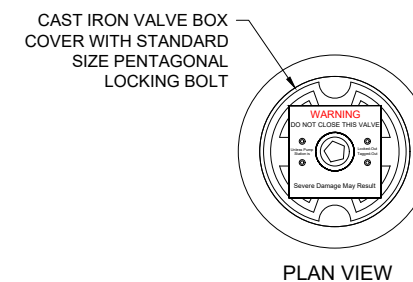
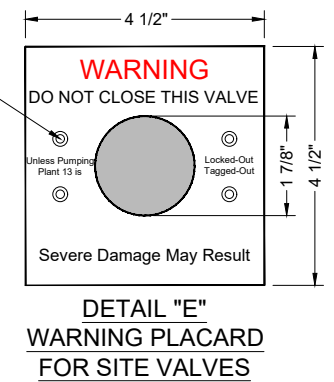
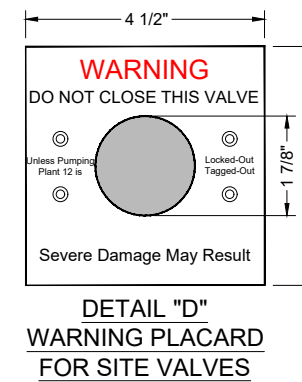
- NOTES:**
- CONTRACTOR SHALL SCRIBE ALL CONCRETE VALVE COLLARS, PER DETAILS "A" & "B" THIS SHEET. CONCRETE SHALL BE SCRIBED PRIOR TO CURING OR ETCHED AFTER CURING WITH 4" GRINDER.
 - AFFIX WARNING PLACARD TO VALVE BOX COVER INSIDE METER CAN FOR ALL MAINLINE VALVES.
 - AFFIX ALUMINUM VALVE IDENTIFICATION AND WARNING PLACARDS TO ALL SITE VALVE COLLARS, PER DETAILS "B" & "C" THIS SHEET. REFER TO SHEETS C-24 & C-28 FOR VALVE-SPECIFIC LABELING.
 - ALL MATERIALS SHALL BE WORKING PRESSURE RATED TO AT LEAST THE PRESSURE RATING OF THE PIPE, UNLESS OTHERWISE NOTED.
 - ALL BURIED VALVES SHALL BE COATED WITH FUSION BONDED EPOXY, INTERIOR AND EXTERIOR.
 - NOTE VALVE ENDS SHALL BE MJ x MJ OR FL x FL AS INDICATED ON PLANS.
 - APPLY CATHODIC PROTECTION TO ALL BURIED METALLIC PRESSURE-BEARING COMPONENTS LOCATED WITHIN CORROSIVE SOIL ZONES, AS DESIGNATED IN THE PLANS AND/OR SPECIFICATIONS.
 - FLANGES SHALL BE ANSI CLASS 125 (IRON).



DETAIL "A" TYPICAL SITE VALVE BOX, COLLAR AND VALVE ID PLACARD DETAIL, USE WITHOUT WARNING PLACARD
NOT TO SCALE



DETAIL "B" TYPICAL MAINLINE AND SITE BUTTERFLY VALVE BOX, COLLAR AND VALVE ID PLACARD DETAIL - USE WITH WARNING PLACARD
NOT TO SCALE



DETAIL "C" TYPICAL WARNING PLACARD DETAIL
NOT TO SCALE

Revision	Date	Description

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Client: The Navajo Nation
Location: Tseil'ihai, NM
SITE BUTTERFLY AND GATE VALVE DETAILS
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
MCKINLEY COUNTY, NEW MEXICO

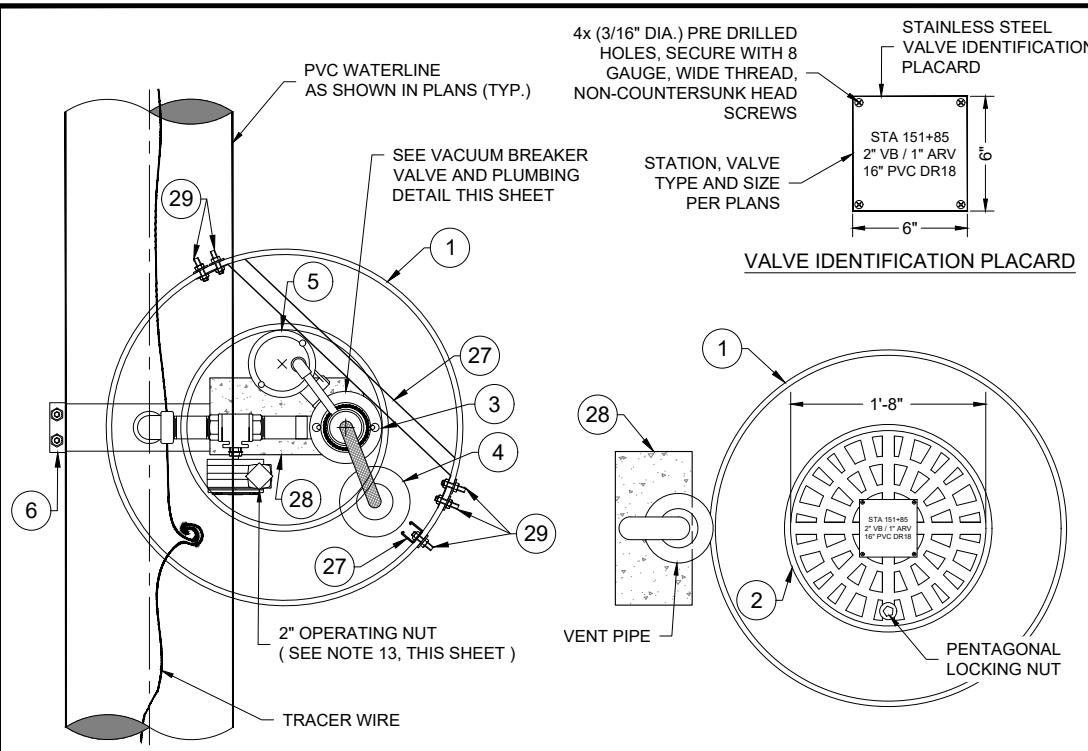
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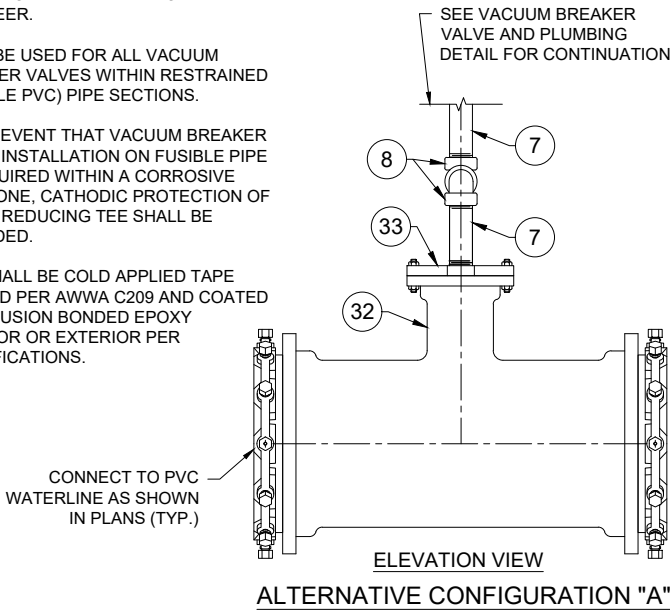


PLAN VIEW

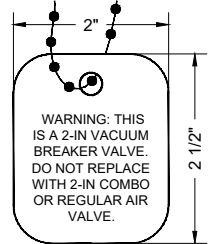
PLAN VIEW - COVER & VENT PIPE

ALTERNATIVE CONFIGURATION "A" NOTES:

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



ELEVATION VIEW
ALTERNATIVE CONFIGURATION "A"



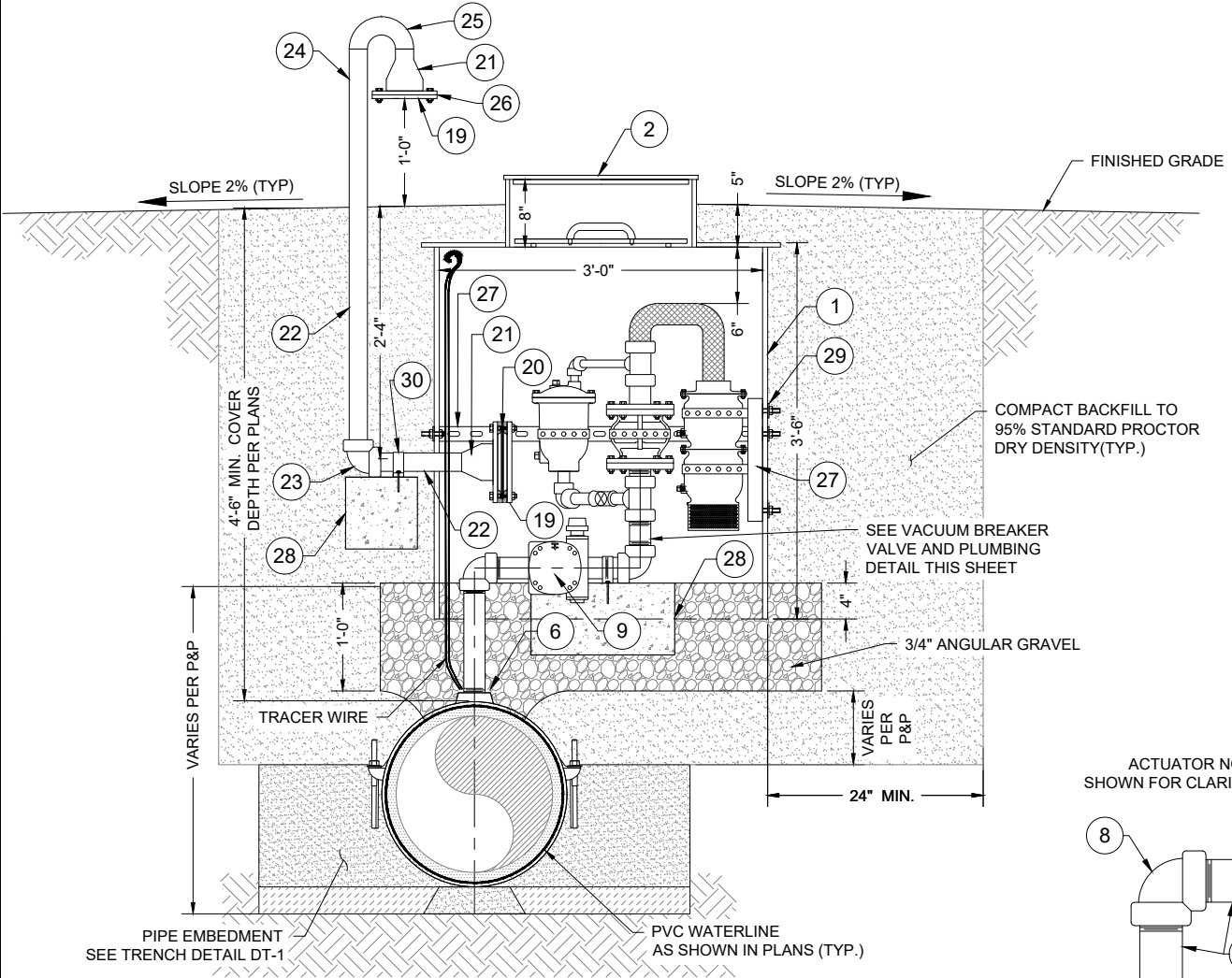
VALVE WARNING TAG DETAIL
(HANG FROM 2" VACUUM BREAKER VALVE)

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

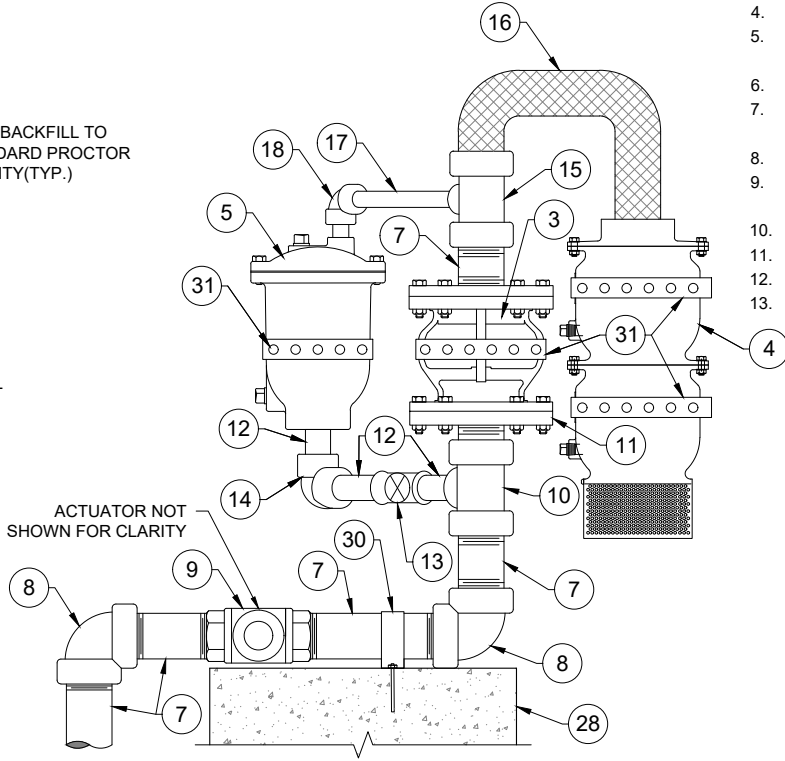
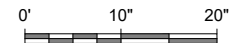
Item No.	Description
1	36" DIA. PLASTIC (METER) PIT WITH REMOVABLE FROST LID
2	20" METER PIT LOCKING COVER(CAST IRON)WITH FROST PROOF INNER LID
3	2" VALMATIC MODEL NO. 1852VB.3XFSVH VACUUM BREAKER VALVE W/ SCREENED HOOD, ANSI CLASS 250 FLANGE, 400 psi WP
4	2" VALMATIC FLOODSAFE INFLOW PREVENTER
5	1" VALMATIC MODEL NO. 38HPDISVH AIR RELEASE VALVE, 500 psi WP
6	16" 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
7	2" NIPPLE, SS 304, NPT
8	2" 90° ELBOW, SS 304, NPT, SCHEDULE 40
9	2" BALL VALVE, SS 304, STANDARD PORT, NPT, W/ AUMA WORM GEARBOX W/ SQUARE OPERATING NUT, 1500 psi
10	2" x 2" x 1" REDUCING TEE, SS 304, NPT, SCHEDULE 40
11	2" FLANGE (THREADED), ANSI CLASS 300, SS 304, FLAT FACE
12	1" x 2" LENGTH NIPPLE, SS 304, NPT
13	1" BALL VALVE, SS 304, NPT, 2000 psi
14	1" 90° ELBOW, SS 304, NPT, SCHEDULE 40
15	2" x 1/2" REDUCING TEE, SS 304, NPT, SCHEDULE 40
16	2" STAINLESS STEEL BRAIDED HOSE, NPT
17	1/2" NIPPLE, SS 304, NPT
18	1/2" 90° ELBOW, SS 304, NPT, SCHEDULE 40
19	4" GALVANIZED IRON COMPANION FLANGE, DRILLED TO FIT
20	4" FREEZE PREVENTION DRAFT DAMPENER. VALMATIC FROSTSAFE MODEL #1504, OAE
21	4" FLANGED x 2" WELDED GALVANIZED IRON REDUCER (PIPE EXTERIOR PAINTED BLUE)
22	2" STD. GALVANIZED IRON PIPE, THREADED END (BELOW GRADE, PIPE EXTERIOR COLD-APPLIED TAPE COATED)
23	2" GALVANIZED IRON 90° ELBOW, THREADED (PIPE EXTERIOR COLD-APPLIED TAPE COATED)
24	2" STD. GALVANIZED IRON PIPE (ABOVE GRADE, PIPE EXTERIOR PAINTED BLUE)
25	2" GALVANIZED IRON LONG RADIUS WELDED RETURN (PIPE EXTERIOR PAINTED BLUE)
26	VARMINT SCREEN
27	1 5/8" GALVANIZED UNI-STRUT (ADJUST AS NEEDED TO FIT BOTH VALVES AND PIPING)
28	CONCRETE SUPPORT BLOCK, SOLID 8" x 8" x 16"
29	2" SS 304 ANCHOR BOLTS, NUTS AND FENDER WASHERS (2x EACH SIDE)
30	1" WIDE PIPE STRAP, BOLT TO SUPPORT BLOCK (3" BOLTS)
31	STAINLESS STEEL PERFORATED METAL HANGER STRAP
32	16" x 16" x 6" MJ x MJ REDUCING TEE, D.I., 350 psi WP
33	6" x 2" TAPPED THREADED MJ PLUG, D.I., 350 psi, FBE COATED

NOTES:

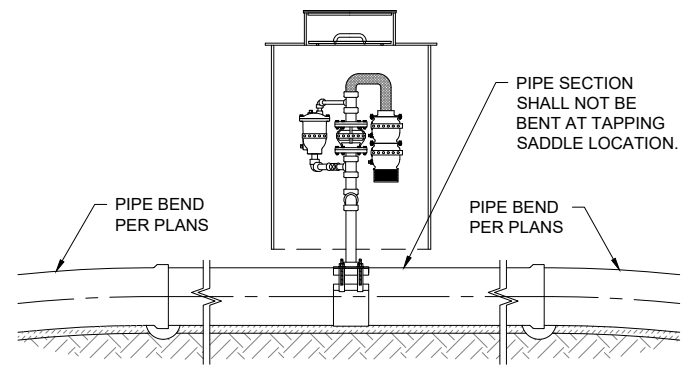
1. ALL FLANGES SHALL BE FLAT FACED, UNLESS OTHERWISE NOTED.
2. ALL NON-STAINLESS METALLIC PIPE IN CONTACT WITH SOIL SHALL BE COLD APPLIED TAPE-COATED PER AWWA C209.
3. VACUUM BREAKER TO BE LOCATED IN FIELD BY ENGINEER.
4. COIL TRACER WIRE ON INSIDE WALLS AT TOP OF METER PIT.
5. ALL STAINLESS STEEL PIPE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



ELEVATION VIEW
VACUUM BREAKER VALVE DETAIL



ELEVATION VIEW
VACUUM BREAKER VALVE AND PLUMBING DETAIL
N.T.S.



ELEVATION VIEW
PIPE BENDING RESTRICTIONS FOR USE
WITH TAPPING SADDLE
N.T.S.

P:\6-Beacon Bisti NG Water Line (6922268)\CAD\Construction Plans\Reach 10.2 Air Valve Details.dwg
9/16/2022 8:01:55 AM anv

Client: The Navajo Nation
Location: Tseil'ihai, NM
2 INCH VACUUM BREAKER WITH 1 INCH ARV DETAIL
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
MCKINLEY COUNTY, NEW MEXICO

By: CHK
Description:
Revision Date:
Date:
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Project No: 6922268
Sheet: DT-8

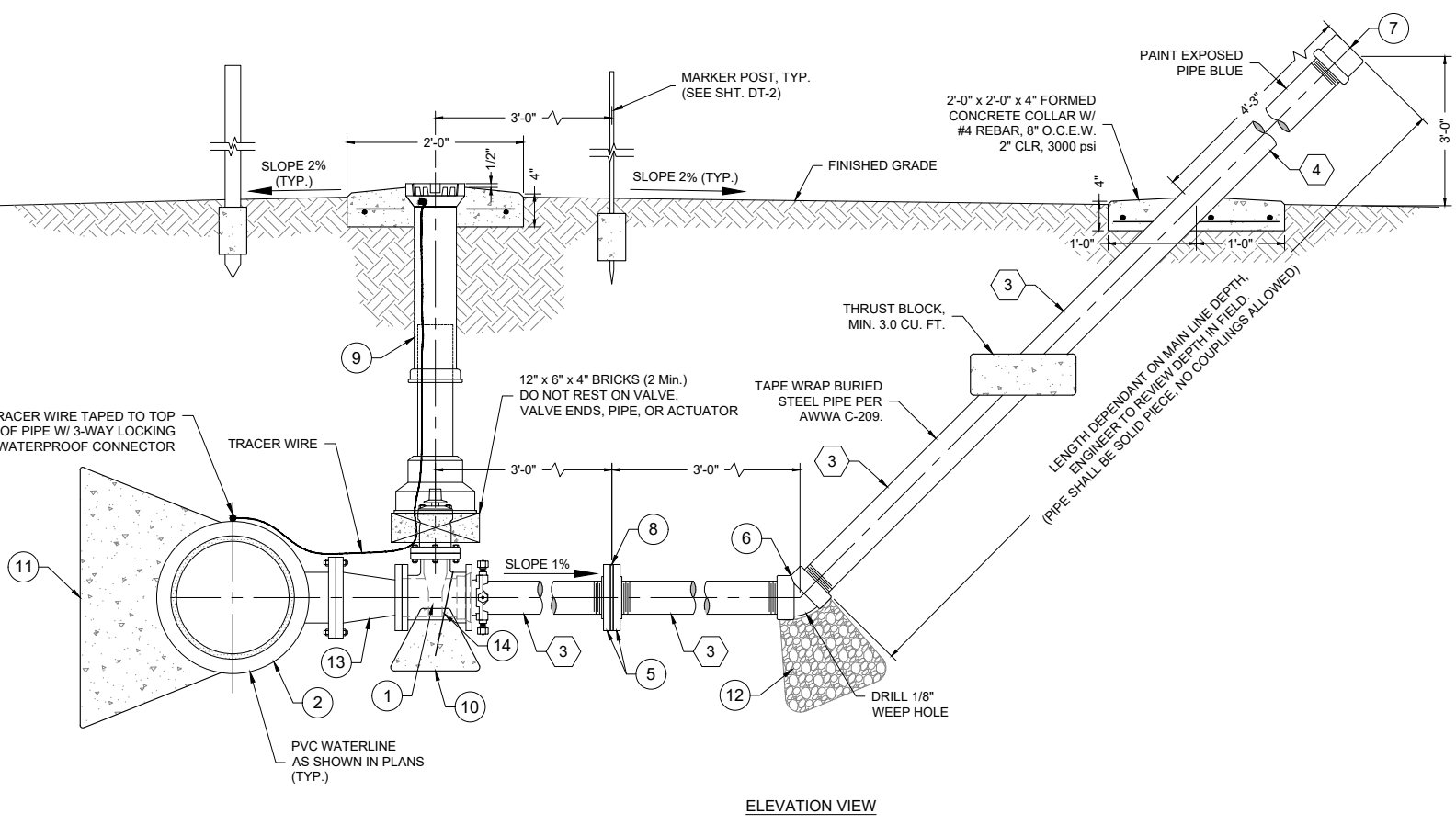
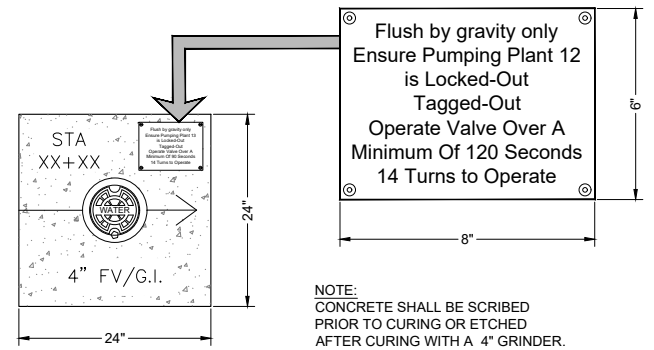
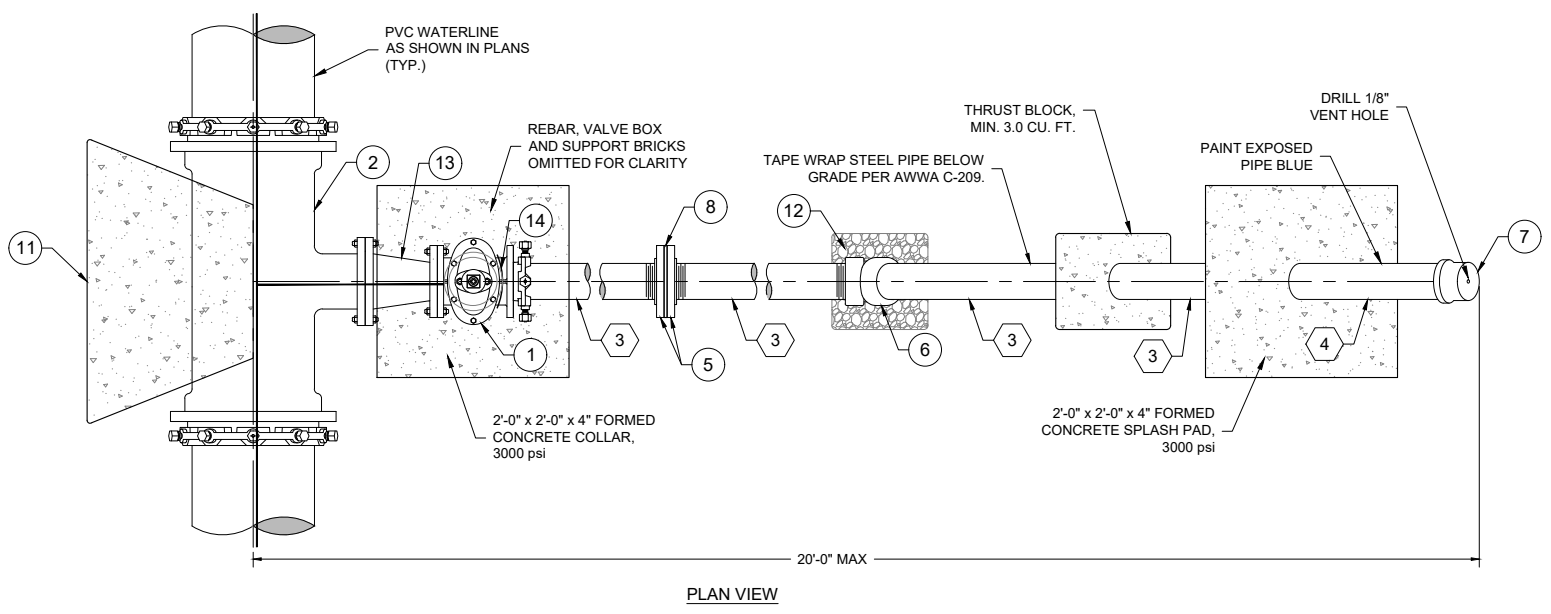
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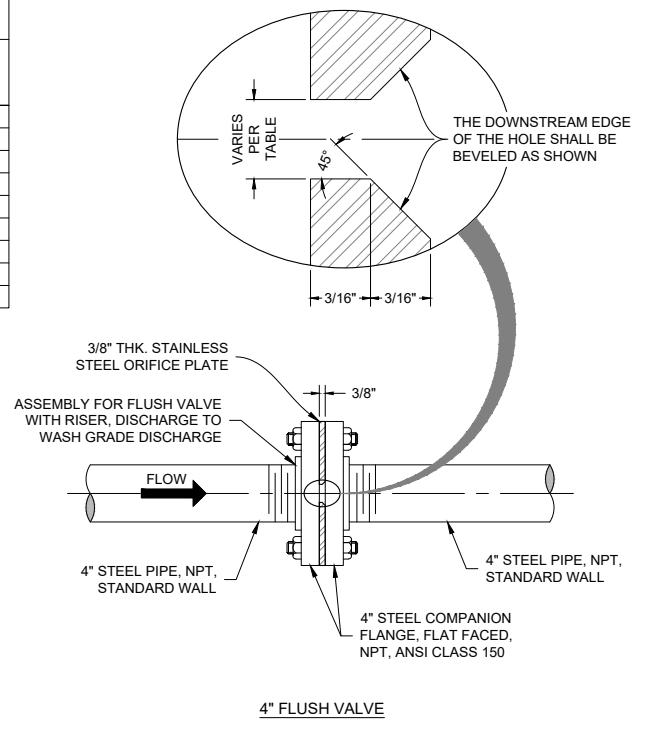
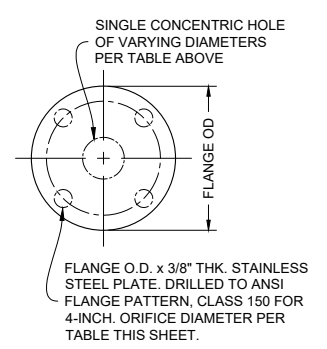
KEYED NOTES - 4" FLUSH VALVE WITH ABOVE GRADE DISCHARGE	
Item No.	DESCRIPTION
1	4" GATE VALVE, FL x MJ, 350 psi (SEE TYPICAL GATE VALVE DETAIL, SHT. DT-7)
2	16" x 6" MJ x FL REDUCING TEE, D.I., 250 psi
3	4" G.I. PIPE, STANDARD WALL, NPT, TAPE COATED BELOW GRADE
4	4" G.I. PIPE, STANDARD WALL, NPT, PAINTED BLUE ABOVE GRADE
5	4" G.I.-HUB, FLAT FACED, COMPANION FLANGE, NPT, SS 304, ANSI CLASS 150
6	4" G.I. 45° ELL, NPT, 300 psi
7	4" G.I. CAP, NPT, 300 psi, W/ 1/8" VENT HOLE
8	3/8" THK. STAINLESS STEEL ORIFICE PLATE, ANSI CLASS 150 DRILLING PATTERN (SEE DETAIL, THIS SHEET)
9	VALVE BOX SLIP TYPE WITH LOCKING CAST IRON COVER (SEE TYPICAL GATE VALVE DETAIL, SHT. DT-7)
10	1'-0" x 1'-0" x 1'-0" CONCRETE BLOCK, 3000 psi
11	THRUST BLOCK (SEE DETAIL, SHT. DT-3)
12	ROUNDED ROCK (1.5 CU. YD.)
13	6" x 4" FL x FL REDUCER, D.I., W/ ANNULAR RING GASKET, 350 psi
14	#4 REBAR RESTRAINT

- NOTES:
1. ALL FLANGES SHALL BE ANSI CLASS 150 (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 FOR ORIFICE PLATE DRILLING AND FLUSH VALVE TYPE REQUIREMENTS.



SUMMARY OF FLUSH VALVE ORIFICE PLATE DRILLING			
Station	Required	Orifice Plate Hole Ø (in.)	Elevation
43+10	YES	2.70	6105.7
99+50	YES	2.70	6112.1
128+50	YES	2.70	6105.7
168+40	YES	2.80	6155.0
236+05	YES	3.00	6239.7
278+84	YES	3.00	6339.0
342+55	YES	3.00	6349.9
377+94	YES	3.00	6319.3
424+30	YES	3.00	6431.1

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



P:\6-Beacon Blist NG Water Line (6922268)\CAD\Construction Plans\Reach 10.2 Plan Set\Construction Plans\Reach 10.2 4in Flush Valve Details.dwg
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Client: The Navajo Nation
Location: Tse'iłi'ni, NM
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Designed: TTT Drawn: MvH/Aav Checked: JMG
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Project No: 6922268
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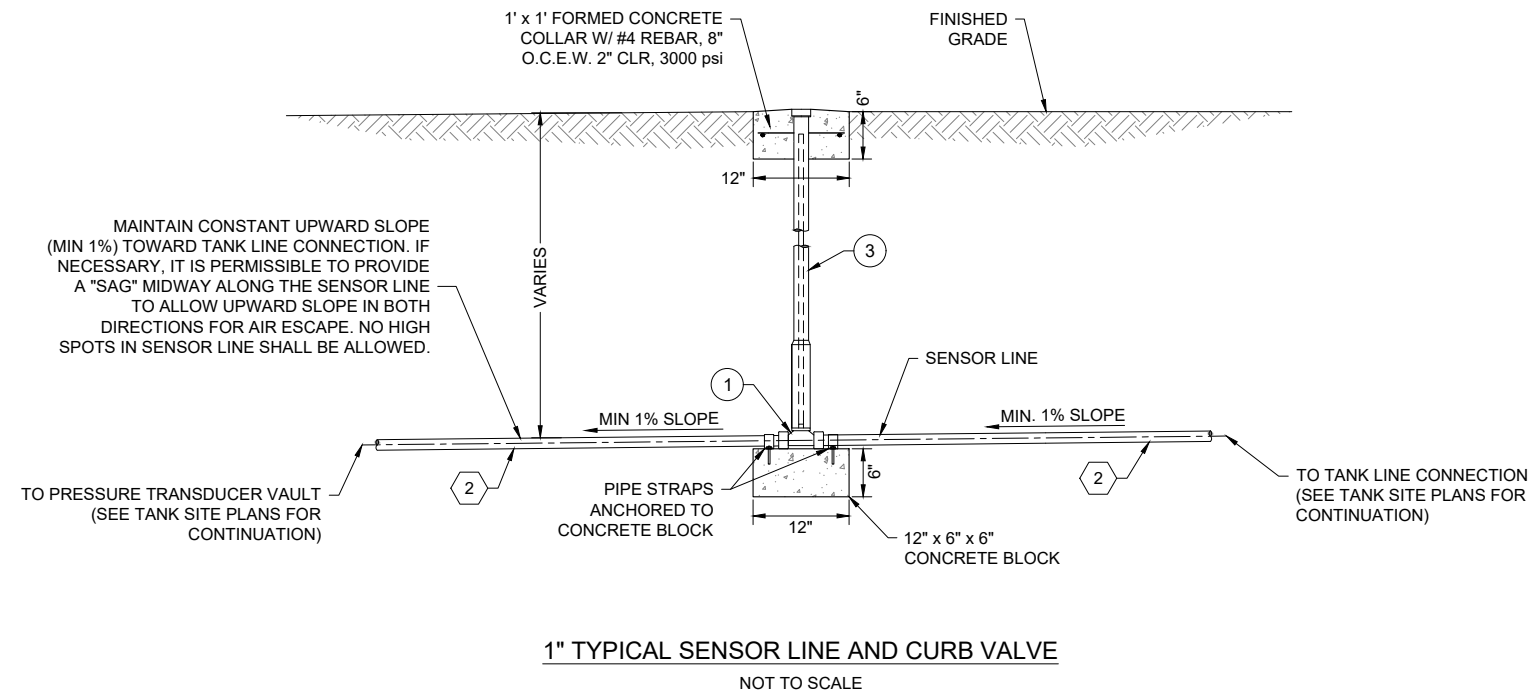
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KEYED NOTES - 1" SENSOR LINE AND CURB VALVE

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

NOTES:

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



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Client: The Navajo Nation
 Location: Tse'iitah, NM
SENSOR LINE DETAILS
 NAVAJO GALLUP WATER SUPPLY PROJECT
 BEACON BISTI N9 - REACH 10.2
 MCKINLEY COUNTY, NEW MEXICO

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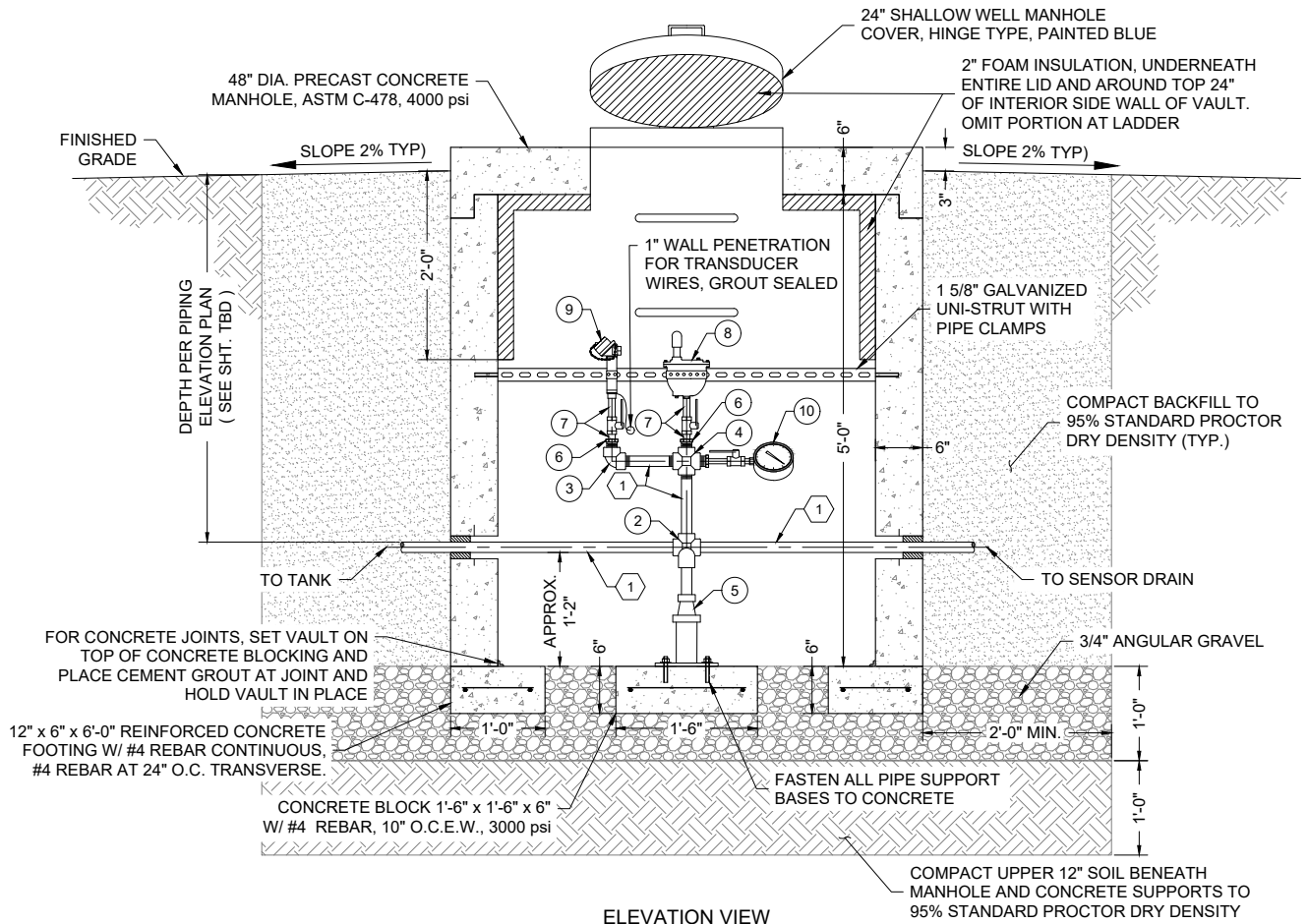
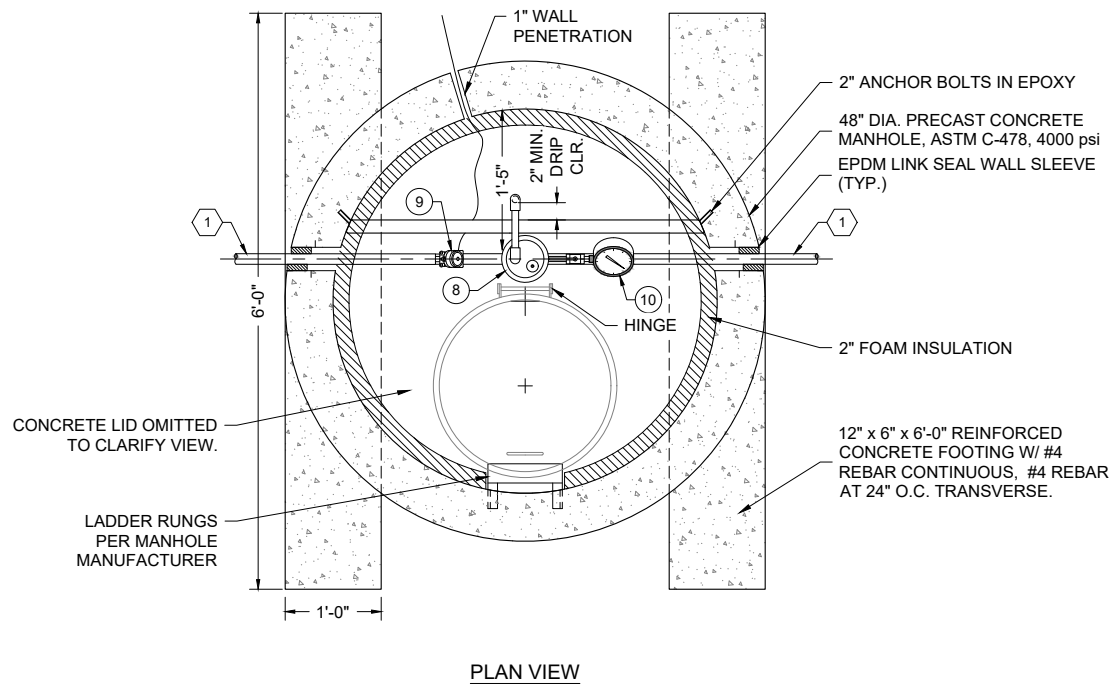
Date: September 2022
 Scale: Horiz: AS SHOWN
 Vert: N/A

Project No: 6922268
 Sheet: DT-10

P:\6-Beacon Bisti N9 Water Line (6922268)\CAD\Civil\Reach 10.2 Plan Set\Construction Plans\Reach 10.2 Sensor and Hydrant Details.dwg
 9/16/2022 8:02:02 AM mwh

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

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



0' 1' 2'
 PRESSURE TRANSDUCER VAULT DETAIL

Client: The Navajo Nation
 Location: Tse'i'ahni, NM
 Client: The Navajo Nation
 Location: Tse'i'ahni, NM
 PRESSURE TRANSDUCER VAULT DETAILS
 NAVAJO GALLUP WATER SUPPLY PROJECT
 BEACON BISTI N9 - REACH 10.2
 MCKINLEY COUNTY, NEW MEXICO

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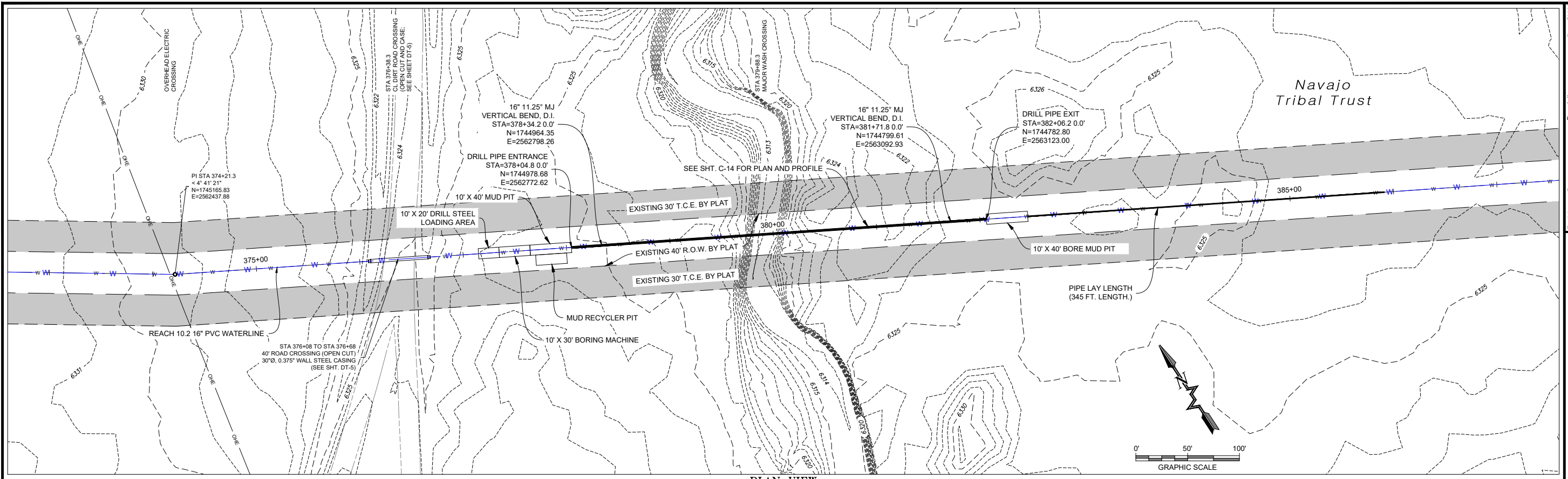
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TTT	MvH/AaV	JMG

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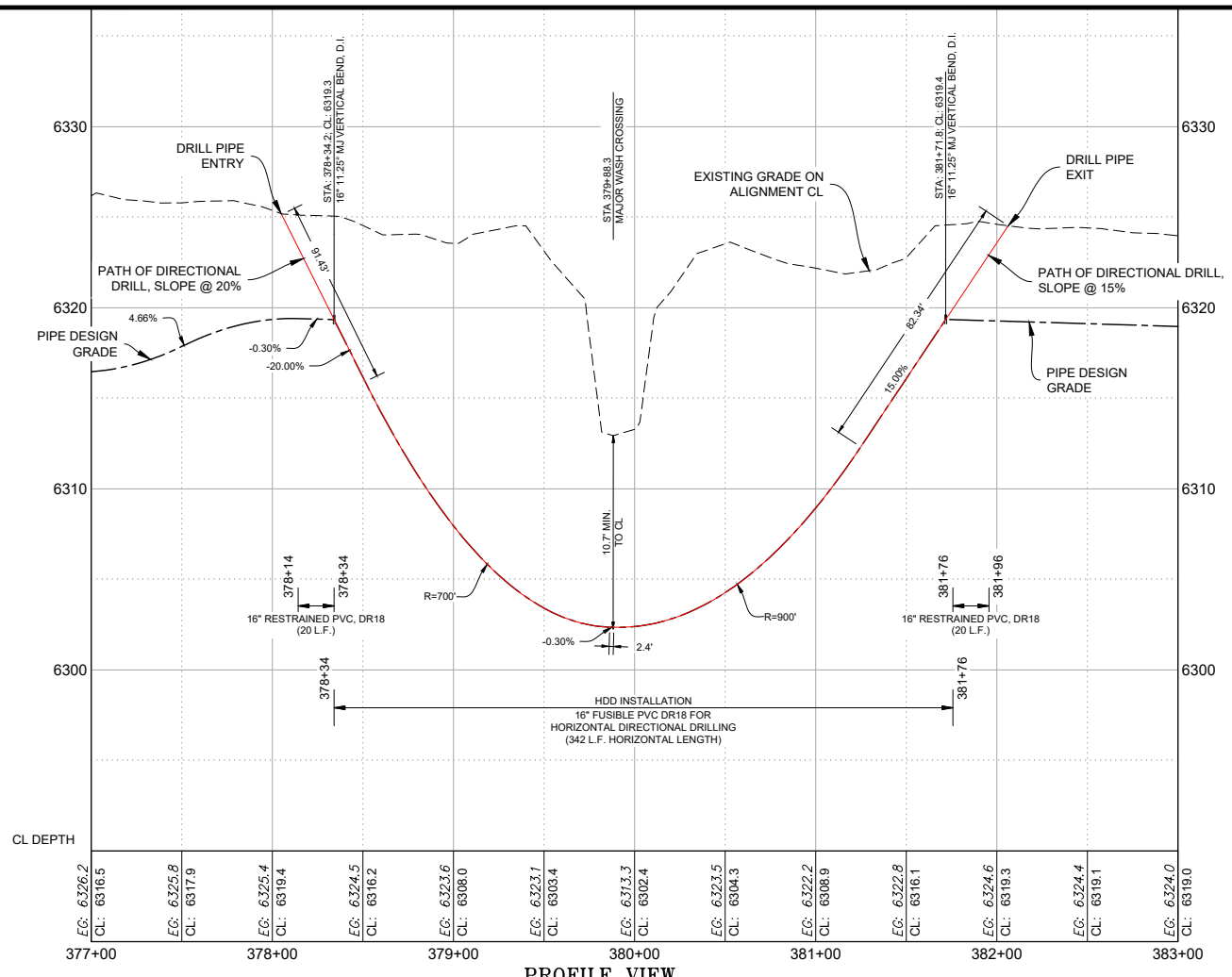
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 Vert: N/A
 Project No: 6922268
 Sheet: DT-11

P:\6-Beacon Bisti N9 Water Line (6922268)\CAD\Construction Plans\Reach 10.2 HDD Drill.dwg
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PLAN VIEW
16" WATERLINE



PROFILE VIEW
16" WATERLINE

- NOTES:**
- MINIMUM ALLOWABLE BEND RADIUS = 700'
 - FUSIBLE PVC PIPE TO BE PRESSURE TESTED ABOVE GROUND PRIOR TO INSTALLATION PER TECHNICAL SPECIFICATIONS.

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Client: The Navajo Nation
Location: Tseil'ihai, NM
WASH CROSSING STA 379+88 PIPELINE HDD DETAIL
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
MCKINLEY COUNTY, NEW MEXICO
SECTION 18 T. 18 N., R. 14 W.; SECTION 13 T. 18 N., R. 15 W.

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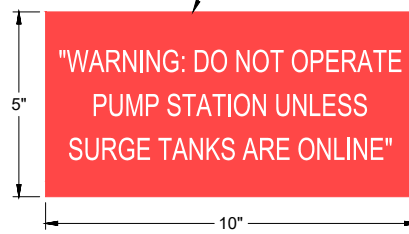
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Vert: 1" = 10'

Project No: 6922268
Sheet: **DT-12**

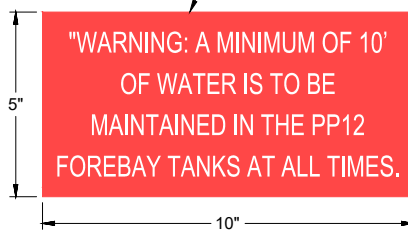
NOTE:
INSTALL WARNING PLACARDS BESIDE / BELOW HMI.

RED CUT VINYL
ON WHITE PLASTIC

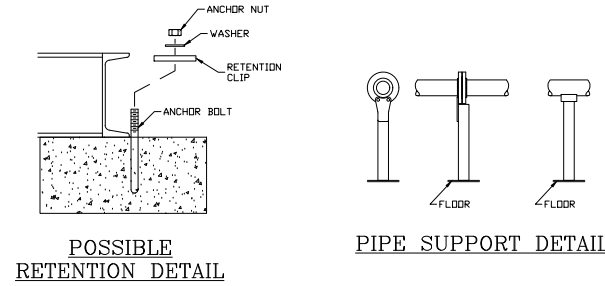
RED CUT VINYL
ON WHITE PLASTIC



WARNING PLACARD DETAIL

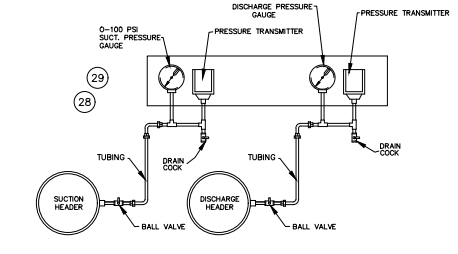


WARNING PLACARD #2 DETAIL

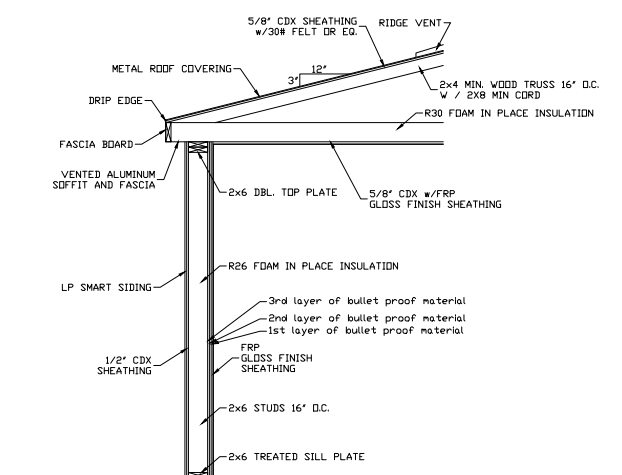


POSSIBLE RETENTION DETAIL

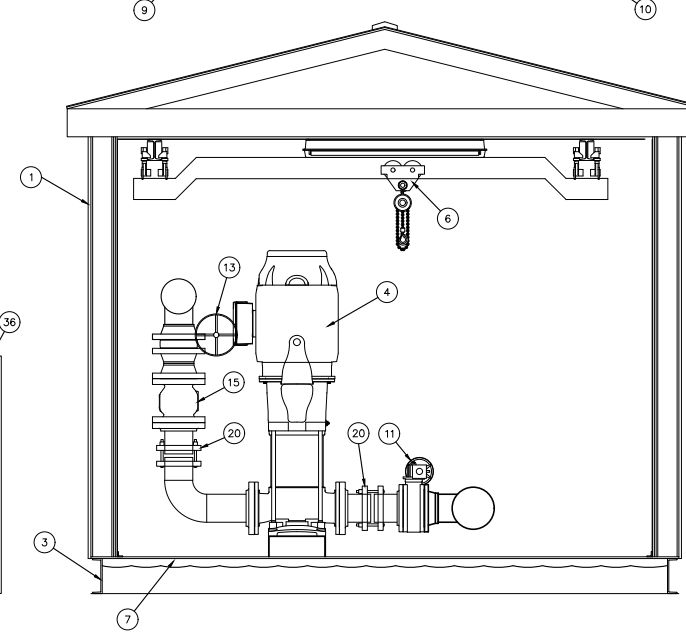
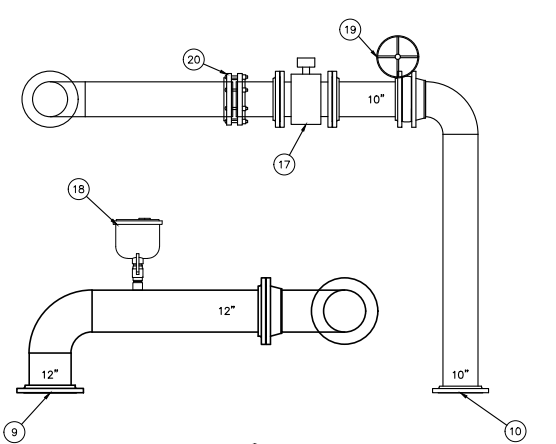
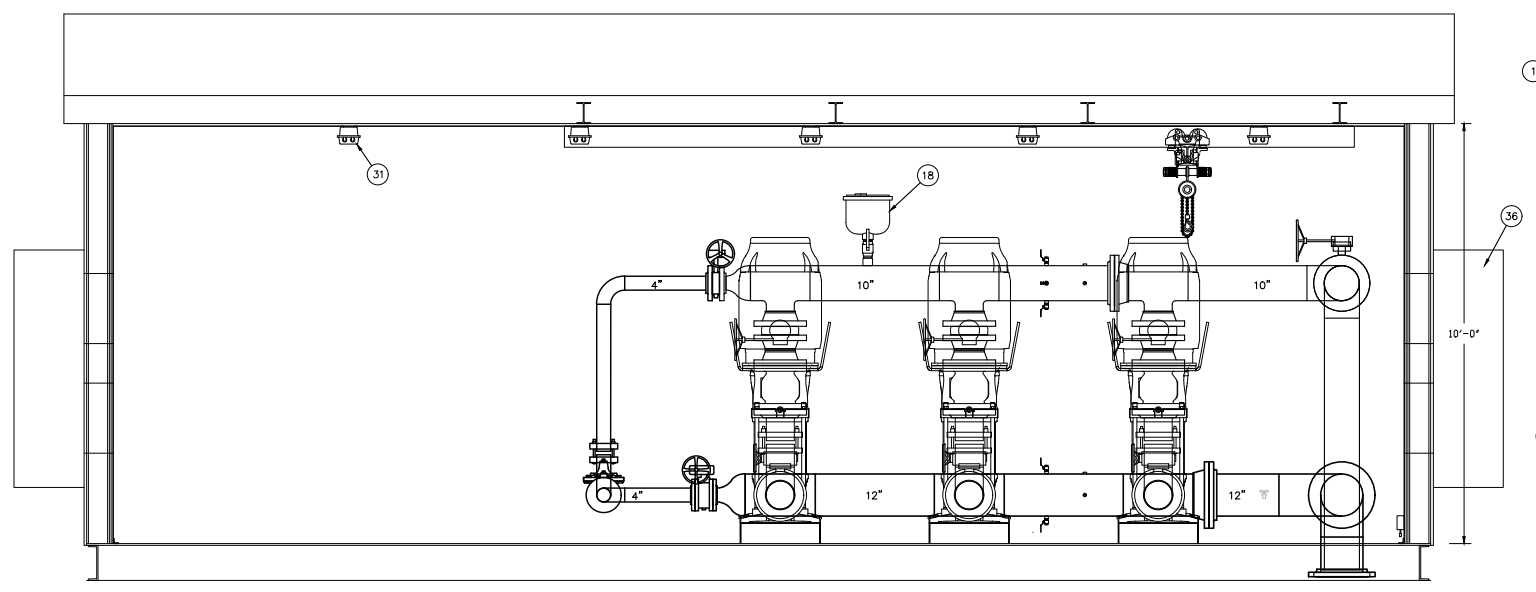
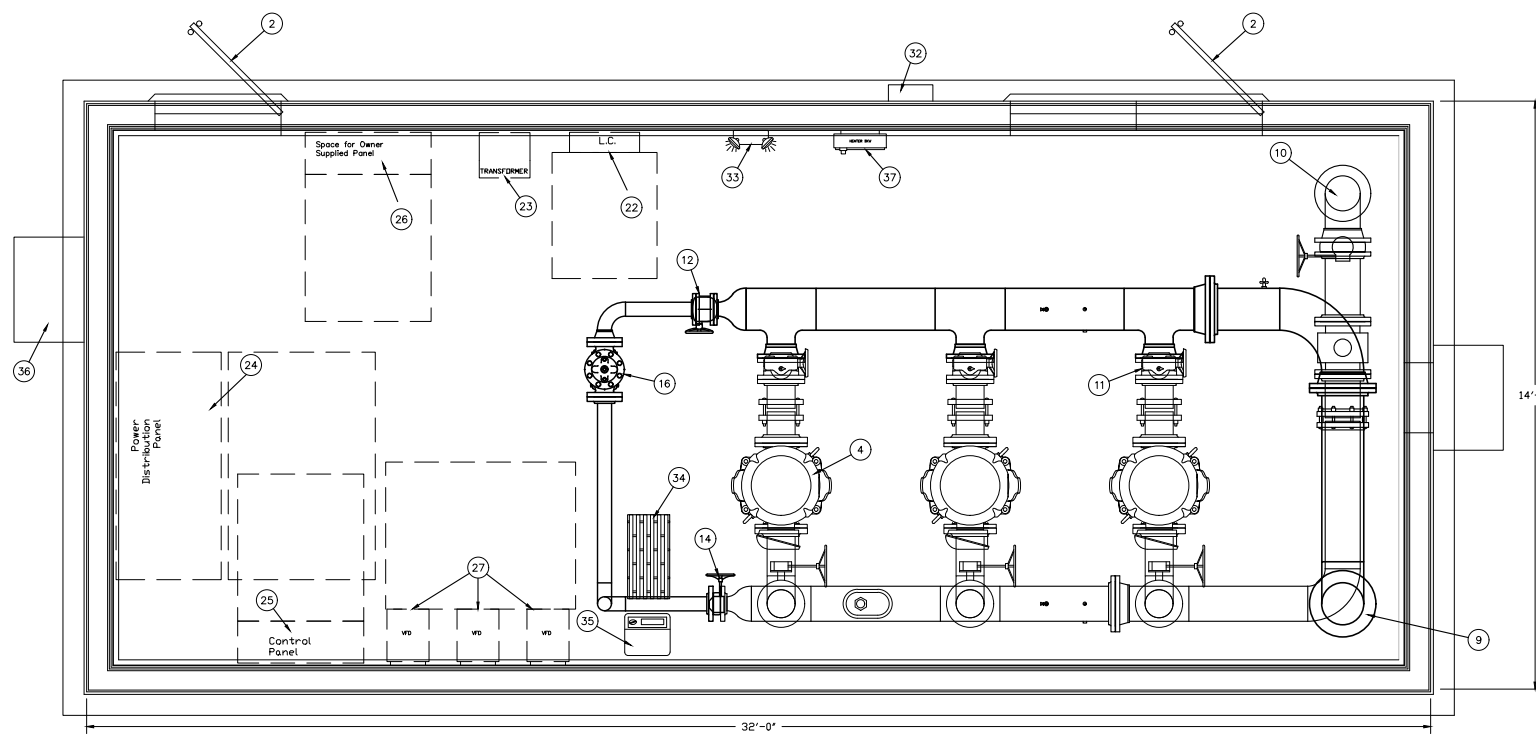
PIPE SUPPORT DETAIL



SUCTION/DISCHARGE PRESSURE GAUGE/TRANSMITTER DETAIL



WALL SECTION



Shims (provided by the installing contractor) around the perimeter base of the building may be required to insure proper level. Without proper level, the door(s) may not operate properly.

ITEM	QUANTITY	DESCRIPTION
40		
39		
38		
37	1	3000 WATT BACK UP HEATER
36	2	HVAC UNITS
35	1	DEHUMIDIFIER
34	1	FLOOR DRAIN OPENING
33	1	EMERGENCY LIGHT
32	1	EXTERIOR LED LIGHT
31	5	INTERIOR LED LIGHTS
30		
29	2	PRESSURE GAUGES
28	2	PRESSURE TRANSDUCERS
27	1	VARIABLE SPEED DRIVES
26	1	SPACE ALLOWANCE FOR OWNER SUPPLIED PANEL
25	1	CONTROL / PLC PANEL
24	1	SINGLE PHASE TRANSFORMER
23	1	SINGLE PHASE LOAD CENTER
22	1	480 VOLT POWER PANEL
21		
20	8	COUPLINGS
19	1	10" HIGH PRESSURE BUTTERFLY VALVE WITH GEAR OP
18	2	AIR VALVES WITH BALL ISOLATION VALVES
17	1	10" HIGH PRESSURE FLOW METER
16	1	4" HIGH PRESSURE RELIEF VALVE
15	3	8" HIGH PRESSURE GLOBE STYLE CHECK VALVES
14	1	4" HIGH PRESSURE BUTTERFLY VALVES WITH GEAR OP
13	3	8" HIGH PRESSURE BUTTERFLY VALVES WITH GEAR OP
12	1	4" BUTTERFLY VALVE WITH GEAR OP
11	3	8" BUTTERFLY VALVES WITH GEAR OP
10	1	10" FLANGED DISCHARGE CONNECTION
9	1	12" FLANGED SUCTION CONNECTION
8		
7		POLYURETHANE BASE INSULATION
6	1	BI-DIRECTIONAL TROLLEY AND HOIST
5		
4	2	PUMPS & MOTORS GRUNDFOS CR185-3, 150 HP, 3550 RPM, 480V/3PH/60HZ CONDITIONS - 786 GPM @ 557' TDH
3	1	STEEL BASE - 1/2" FLOOR PLATE WITH STRUCTURAL REINFORCEMENT
2	2	7' HIGH DOORS WITH HARDWARE - BULLET RESISTANT
1	1	DPI MODULAR BUILDING - BULLET RESISTANT

25524 413TH AVE t. (605)-996-6636
MITCHELL, SD 57301 w. DakotaPump.com

PROJECT:
Navajo Tribal Utility Authority, NM
Pumping Plant #12

DRAWN-BY: BILL DATE: 03-08-22

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LAYOUT IS FOR SUBMITTAL DATA ONLY AND CAN VARY IN THE SHOP
CERTIFIED DIMENSIONS CAN BE FURNISHED UPON REQUEST.

By: CHK

Description

Date

Revision

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Client: The Navajo Nation

Location: Tselifani, NM

PP 12 PUMP STATION (AS FURNISHED BY SUPPLIER)
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
MCKINLEY COUNTY, NEW MEXICO

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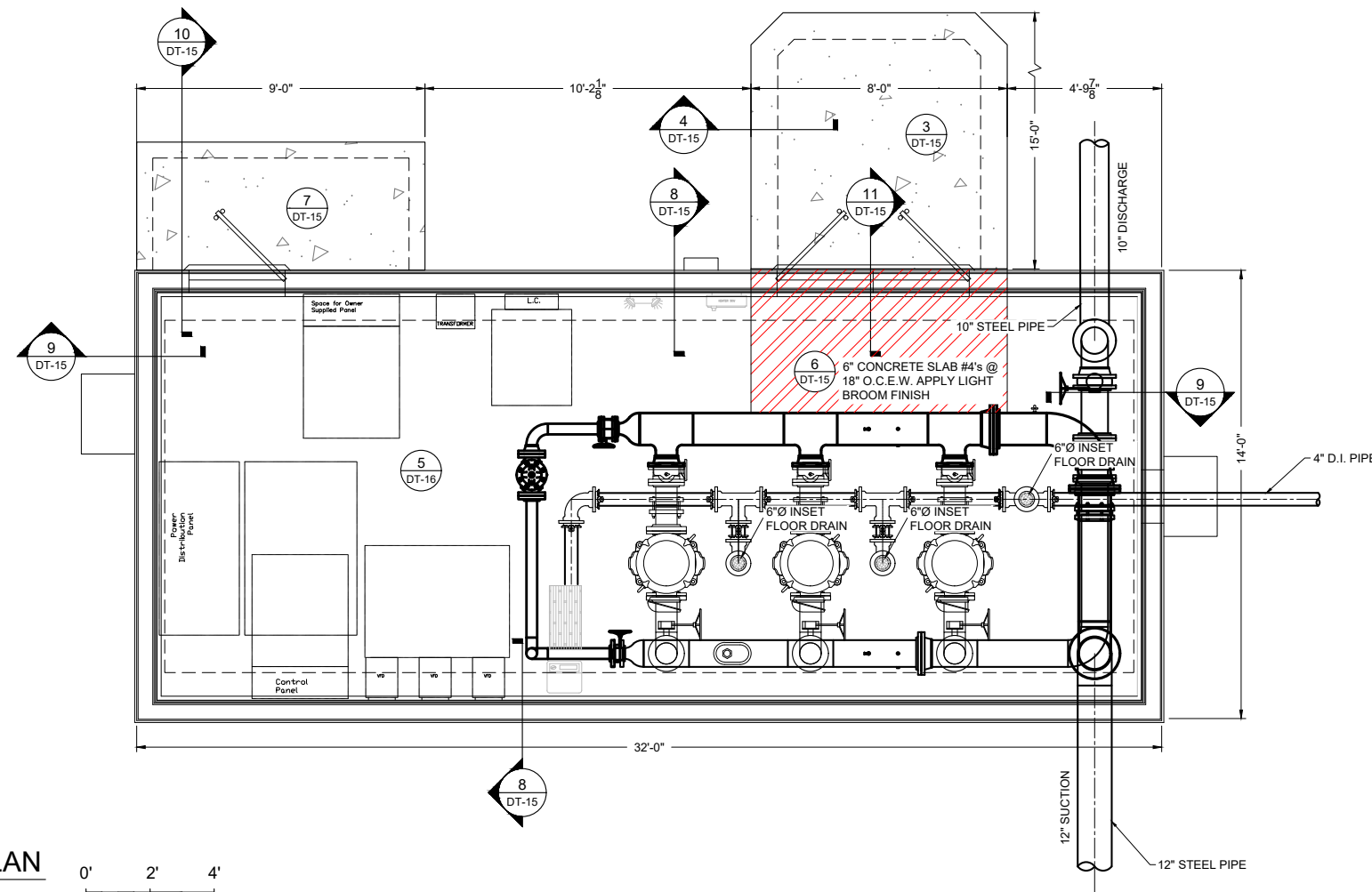
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Project No: 6922268
Sheet: DT-13

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1 FOUNDATION PLAN
3/16"=1'-0"



NOTES:

- CONTRACTOR WHOLLY RESPONSIBLE TO VERIFY ACTUAL PRE-FAB PUMP STATION BUILDING AND PIPING DIMENSIONS AND COORDINATE WITH PUMP STATION MANUFACTURER PRIOR TO CONSTRUCTION. CONTRACTOR RESPONSIBLE TO ALIGN FOUNDATION, PIPING, INLETS & OUTLETS AND DRAINS WITH ACTUAL PUMP STATION LAY-OUT IN FIELD. VERIFY ALL BUILDING SKID BEAMS & MATING LINES PRIOR TO INSTALLING FOUNDATION.
- FIELD LOCATE CONDUITS PER REVIEW WITH ELECTRICIAN.
- CONTRACTOR SHALL GROUT UNDER SOLE PLATES OF PUMPS USING POLYMER TYPE GROUT. DO NOT LEAVE ANY VOIDS.
- CONTRACTOR TO PROVIDE 1" GI PIPING FROM SUCTION DIFFUSER CLEAN-OUTS TO 1" GI DOWN-SPOUT CENTERED OVER FLOOR DRAINS WITH 2" AIR GAPS. CONTRACTOR SHALL VERIFY LOCATIONS & ORIENTATIONS OF CLEAN-OUTS PRIOR TO LOCATING FLOOR DRAINS AND ADJUST FLOOR DRAIN LOCATIONS TO CENTER UNDER DOWN SPOUTS. DO NOT CREATE TRIPPING HAZARDS. PAINT 1" GI PIPES BLUE.
- FOR CONTINUATION OF PUMP STATION UNDERGROUND PIPING SEE PUMP STATION PIPING PLAN DETAIL SHEET C-21 AND C-23.
- CONTROL JOINTS @ 10'-0" O.C.E.W. MAXIMUM, UNLESS OTHERWISE NOTED. BREAKS IN CONCRETE DUE TO SKID I-BEAM OR EXPANSION JOINTS MAY BE CONSIDERED A CONTROL JOINT LOCATION.
- BUILDING FOUNDATION SHALL BEAR ON A MINIMUM OF 2 FEET OF ENGINEERED FILL. SLABS SHALL BEAR ON A MINIMUM OF 4 FEET OF ENGINEERED FILL. 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 FOUNDATION OR SLABS.
- REFER TO GEOTECH REPORT BY X⁸ VINYARD PROJECT #13-1-027rev DATED APRIL 29, 2013 FOR SUBSURFACE INFORMATION, OVER EXCAVATION REQUIREMENTS, SUBGRADE PREPARATION, AND STRUCTURAL FILL & COMPACTION.
- BUILDING SHALL BEAR UNIFORMLY ON FOUNDATIONS. CONTRACTOR TO PROVIDE STEEL SHIMS AND GROUT BETWEEN FOUNDATION AND SKID IF THERE ARE GAPS.
- REFERENCE SPECIFICATIONS FOR CRACK CONTROL INFORMATION.
- INTEGRATE VALVE COLLARS W/ SITE CONCRETE DRIVES/APRONS AS NEEDED.

DESIGN LOADS

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

- ROOF SNOW LOAD = 25 PSF
- ROOF DEAD LOAD = 15 PSF
- FLOOR LIVE LOAD = 50 PSF

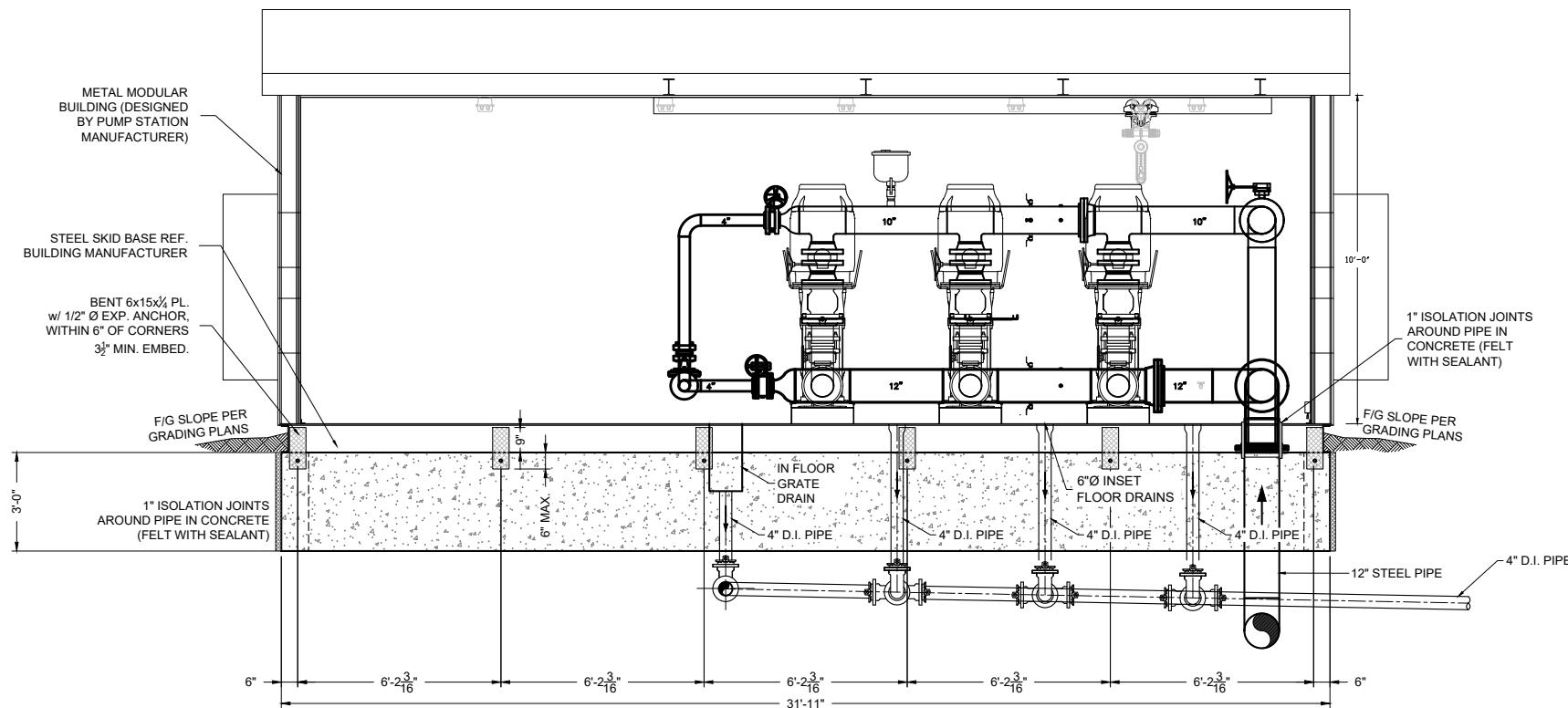
WIND

V-3S.....90 MPH (3 SEC GUST) EXP C

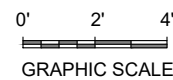
SEISMIC

- SEISMIC DESIGN CATEGORY.....C
- IMPORTANCE FACTOR.....1
- SPECTRAL RESPONSE COEFFICIENTS
- S-DS.....0.372
- S-D1.....0.183
- SITE CLASS.....D

DESIGN AND FOUNDATIONS TO BE UPDATED PENDING STRUCTURAL ENGINEERS REVIEW



2 ELEVATION
3/16"=1'-0"



P:\6-Beacon Bisti NG Water Line (6922268)\CAD\Civil\Reach 10.2 Pump Station Foundation Details.dwg
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Client: The Navajo Nation
Location: Tseil'ihali, NM
PP 12 PUMP STATION FOUNDATION PLAN
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
MCKINLEY COUNTY, NEW MEXICO

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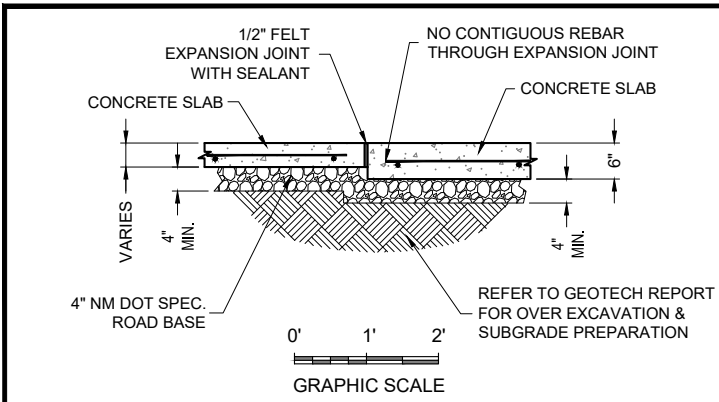
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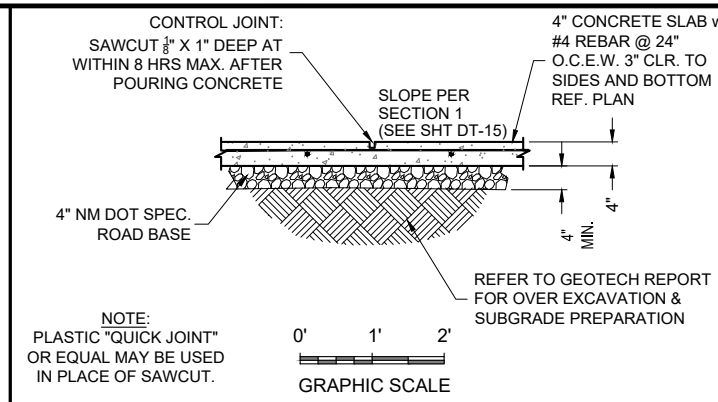
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Project No: 6922268
Sheet: DT-14

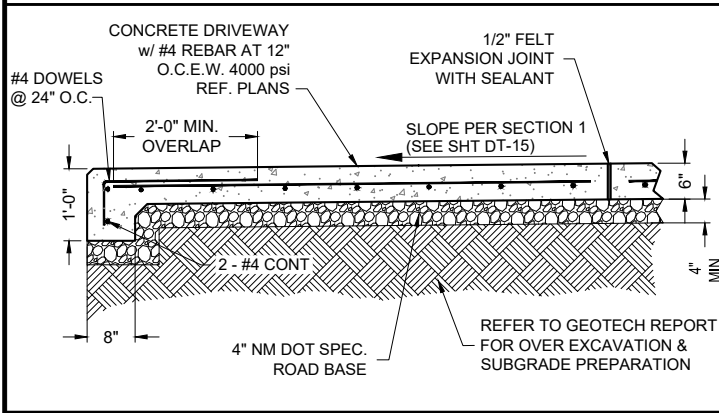
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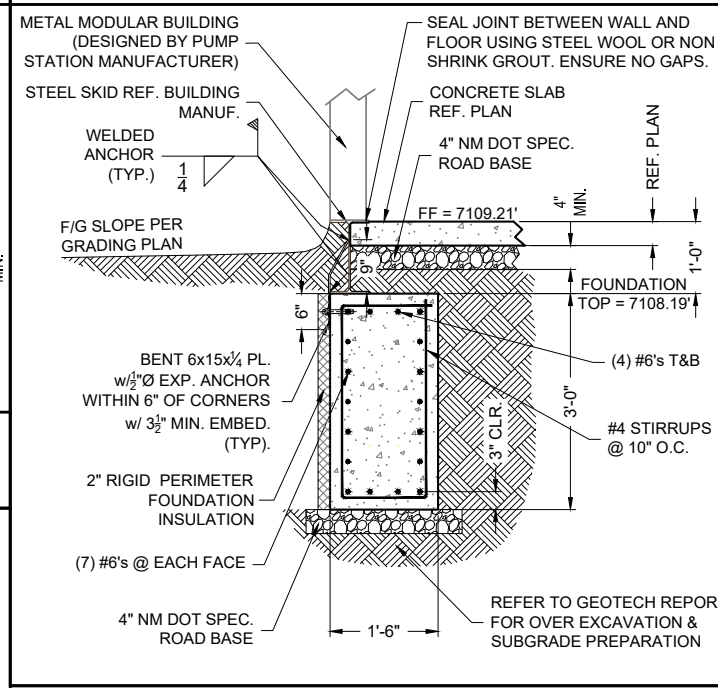
3 TYPICAL EXPANSION JOINT DETAIL
 3/8"=1'-0"



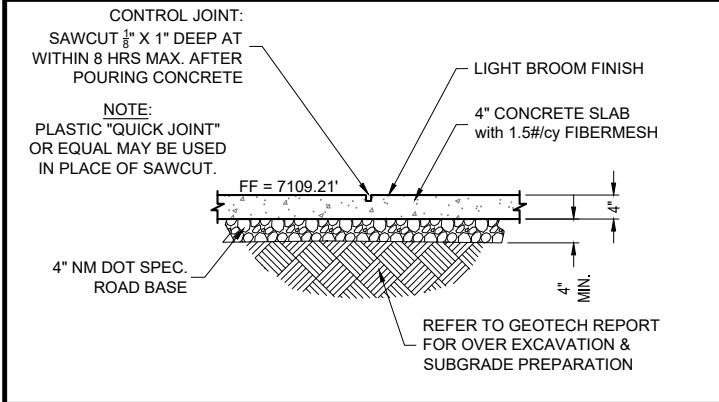
7 EXTERIOR WALKWAY DETAIL
 3/8"=1'-0"



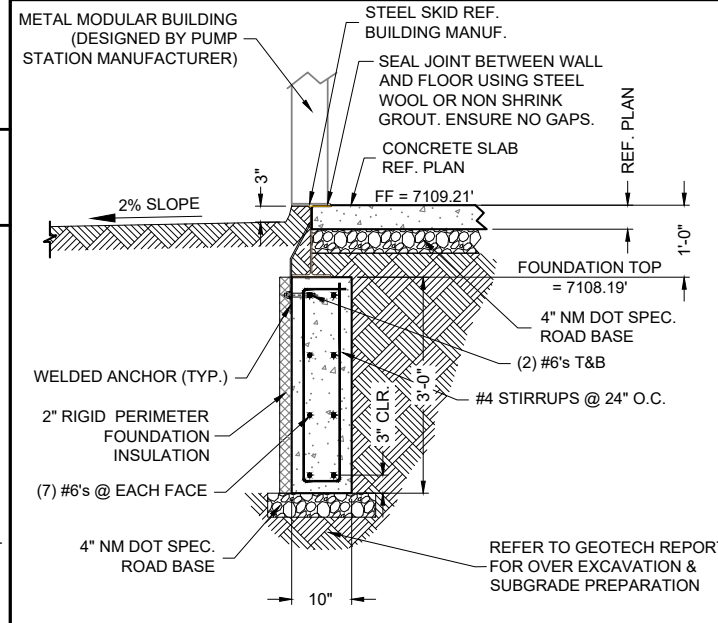
4 DRIVEWAY SECTION
 3/8"=1'-0"



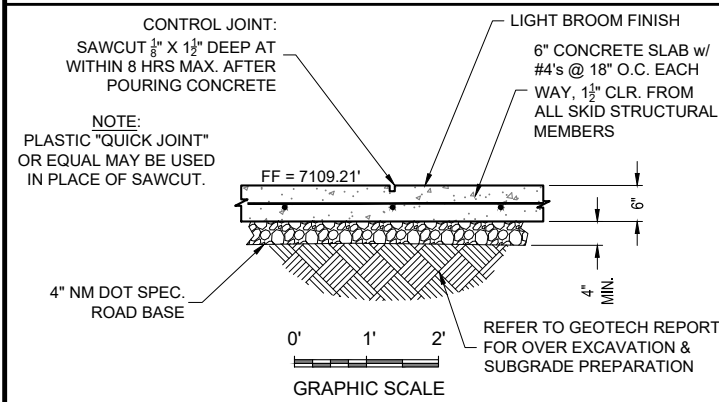
8 FOUNDATION SECTION
 3/8"=1'-0"



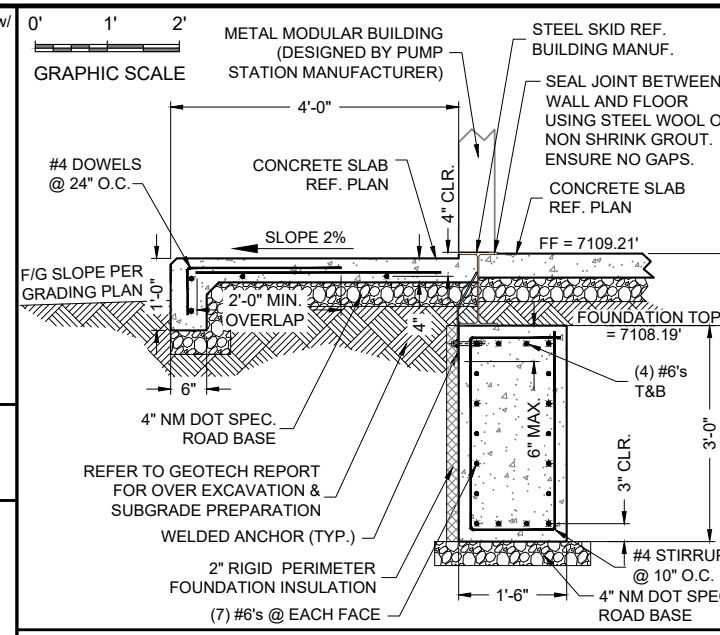
5 4 inch INTERIOR SLAB DETAIL
 3/8"=1'-0"



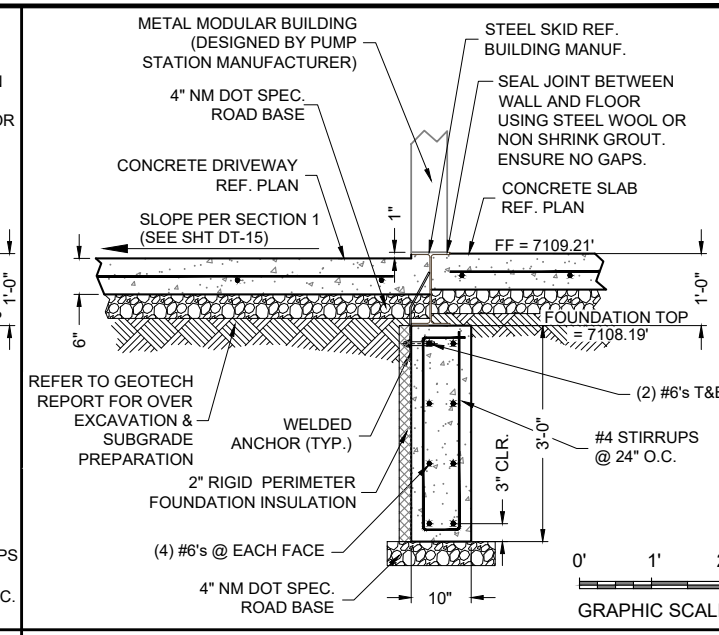
9 FOUNDATION SECTION
 3/8"=1'-0"



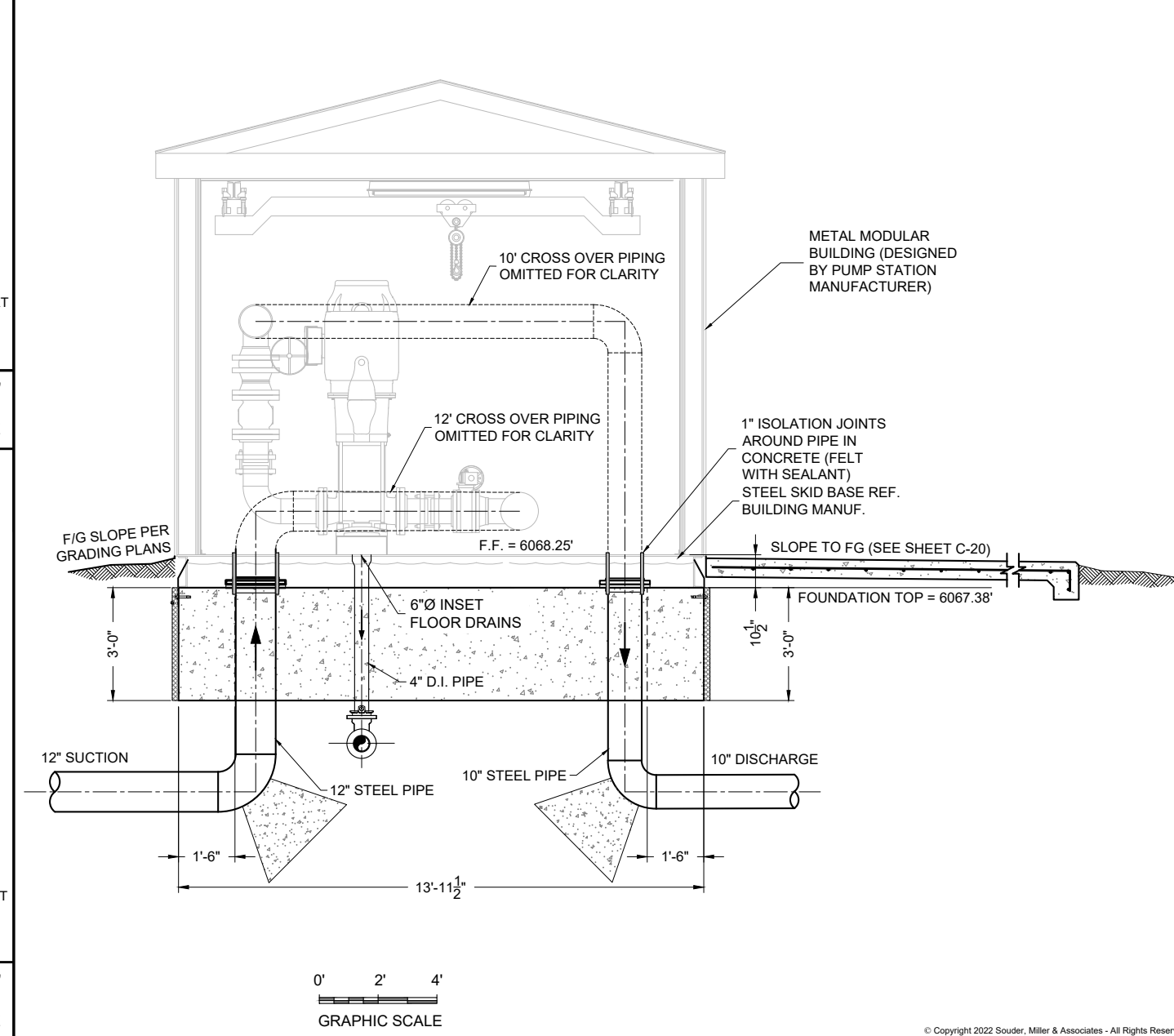
6 6 inch INTERIOR SLAB & HVAC PAD DETAIL
 3/8"=1'-0"



10 FOUNDATION / WALKWAY SECTION
 3/8"=1'-0"



11 FOUNDATION / DRIVEWAY SECTION
 3/8"=1'-0"



10 FOUNDATION / WALKWAY SECTION
 3/8"=1'-0"

Client: The Navajo Nation
 Location: Tseil'ahni, NM
 PP 12 PUMP STATION FOUNDATION ELEVATION
 NAVAJO GALLUP WATER SUPPLY PROJECT
 BEACON BISTI N9 - REACH 10.2
 MCKINLEY COUNTY, NEW MEXICO

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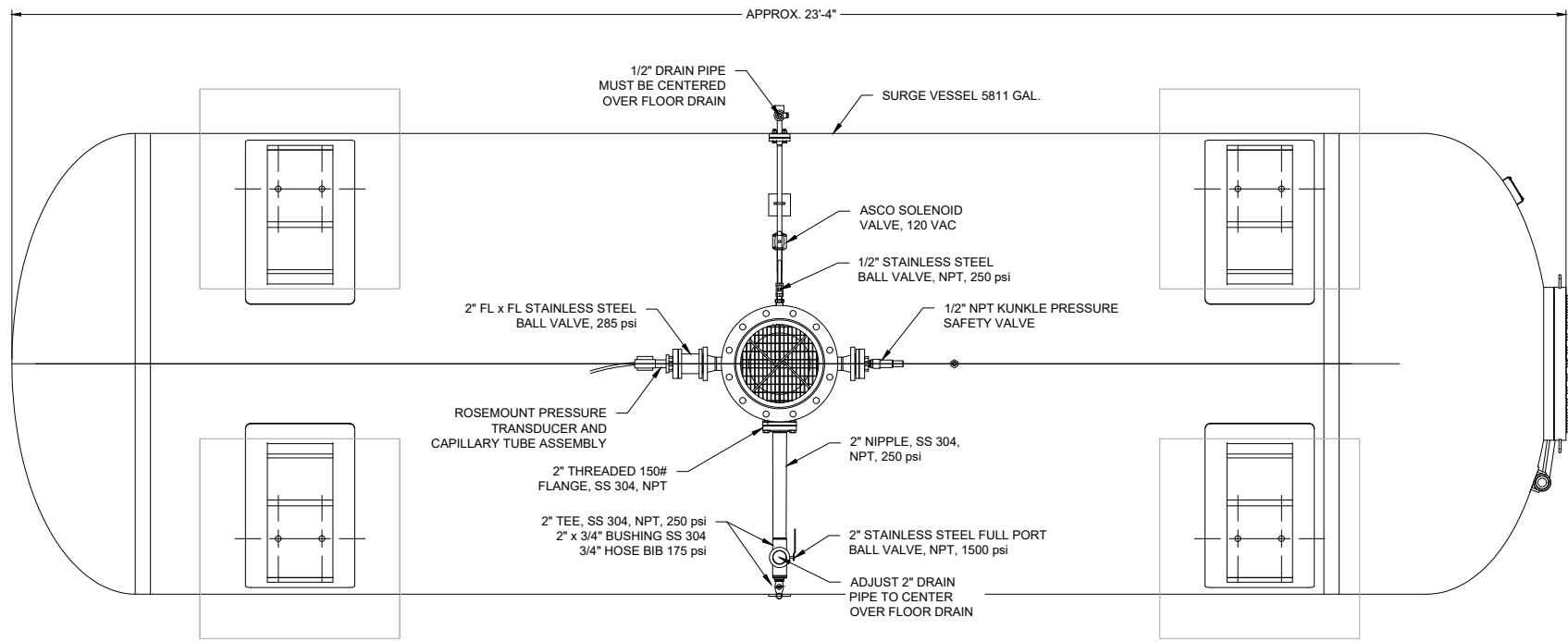
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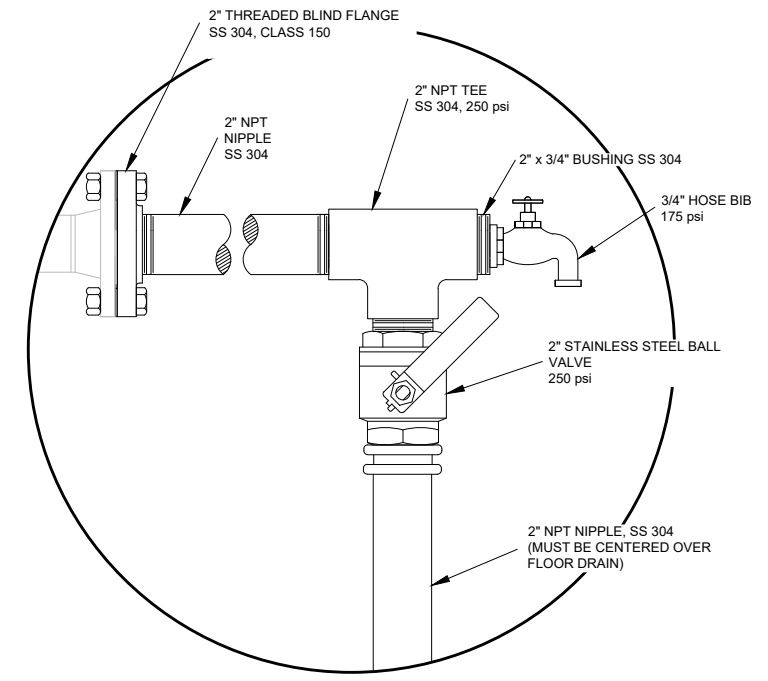
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 Project No: 6922268
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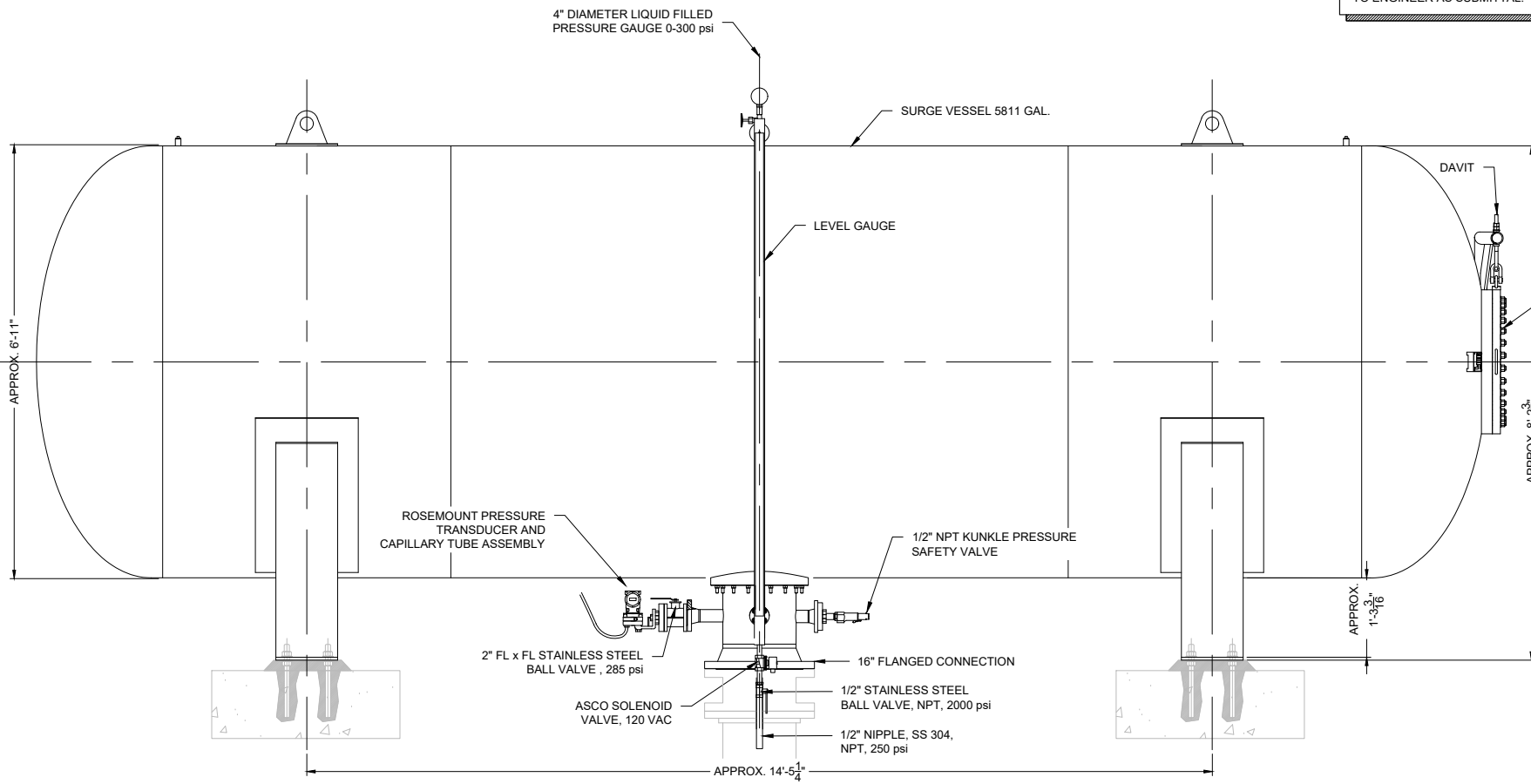


UNDERSIDE VIEW OF SURGE TANK
3/8" = 1' - 0"

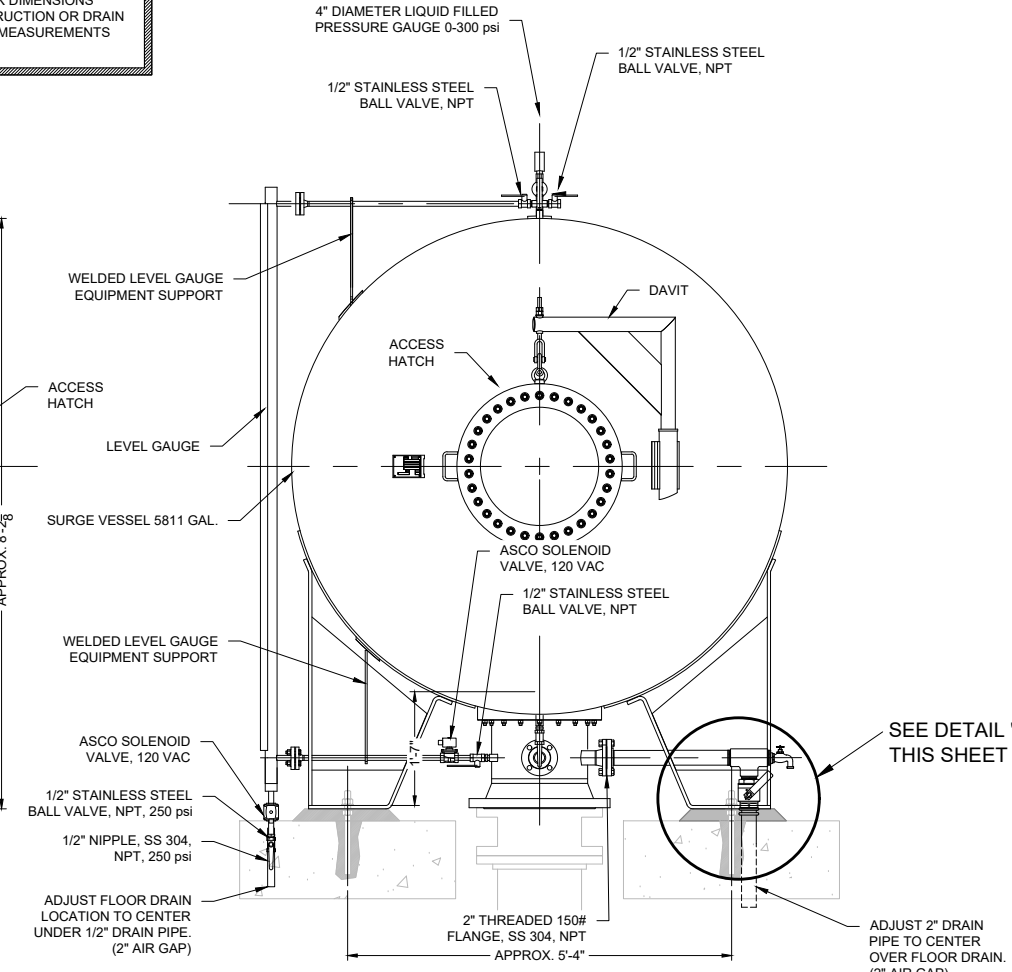


DETAIL 'A'
NOT TO SCALE

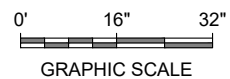
NOTE:
ALL DIMENSIONS RELATED TO TANK SIZES, LEG SPACING, ETC. ARE APPROXIMATE. CONTRACTOR TO FIELD VERIFY ACTUAL TANK DIMENSIONS BEFORE FOUNDATION CONSTRUCTION OR DRAIN PIPE INSTALLATION. PROVIDE MEASUREMENTS TO ENGINEER AS SUBMITTAL.



ELEVATION VIEW OF SURGE TANK
3/8" = 1' - 0"



END VIEW OF SURGE TANK
3/8" = 1' - 0"



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www.soudermiller.com

Client: The Navajo Nation
Location: Tseil'ihani, NM

PP 12 SURGE TANK DETAILS
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
MCKINLEY COUNTY, NEW MEXICO

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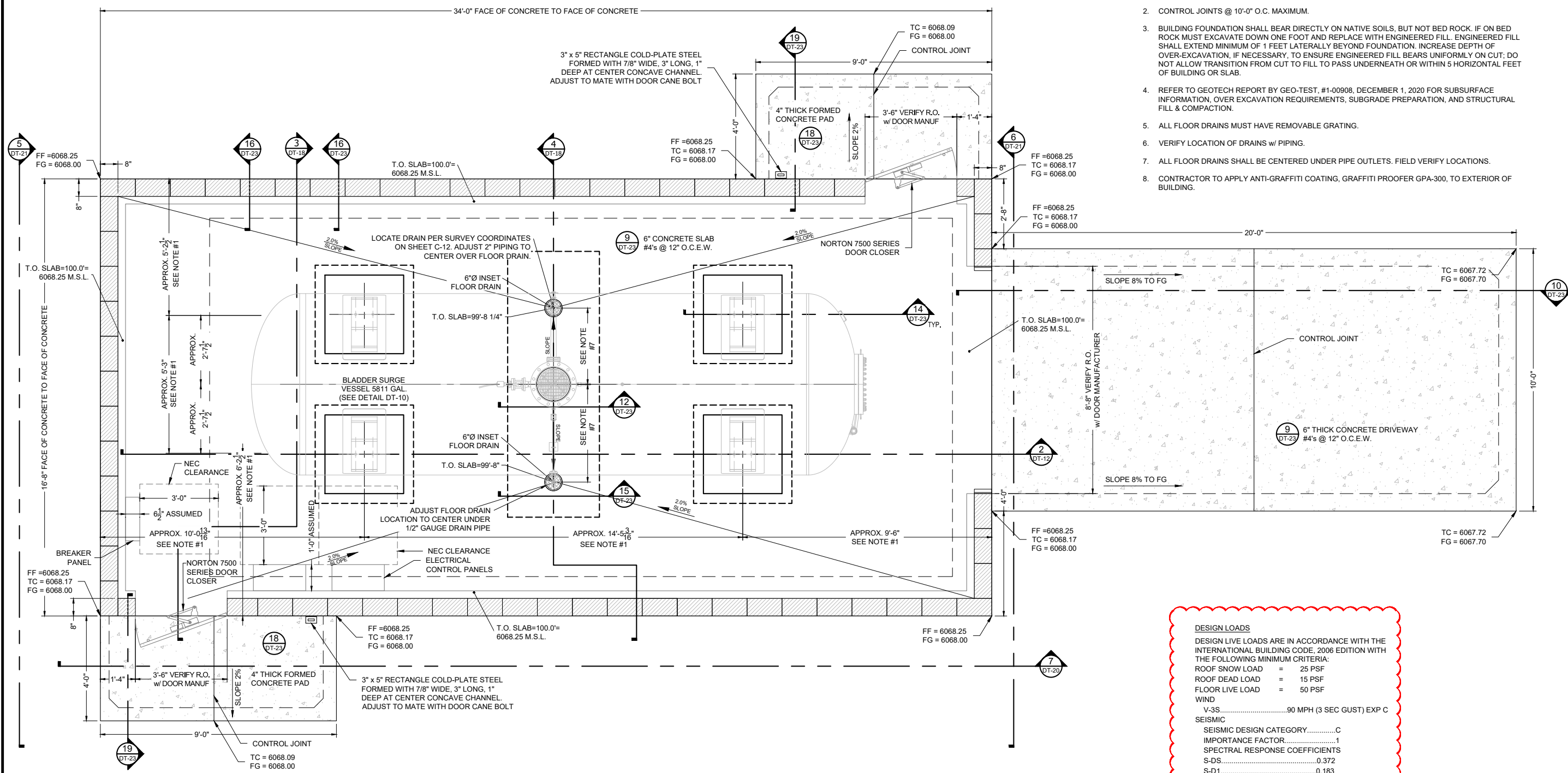
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Project No: 6922268
Sheet: **DT-16**

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P:\6-Beacon Bldg NG Water Line (6922268)\CAD\Construction Plans\Reach 10.2 Surge Tank Bldg Details.dwg
9/16/2022 8:03:25 AM mmh



- NOTES**
- ALL DIMENSIONS RELATED TO TANK SIZES, LEG SPACING, ETC. ARE APPROXIMATE. CONTRACTOR RESPONSIBLE TO VERIFY ACTUAL TANK DIMENSIONS AND ALIGN ACTUAL LOCATION OF TANK LEGS AND ALL PIPING INLETS, OUTLETS AND DRAINS IN THE FIELD PRIOR TO CONSTRUCTION.
 - CONTROL JOINTS @ 10'-0" O.C. MAXIMUM.
 - BUILDING FOUNDATION SHALL BEAR DIRECTLY ON NATIVE SOILS, BUT NOT BED ROCK. IF ON BED ROCK MUST EXCAVATE DOWN ONE FOOT AND REPLACE WITH ENGINEERED FILL. ENGINEERED FILL SHALL EXTEND MINIMUM OF 1 FEET LATERALLY BEYOND FOUNDATION. INCREASE DEPTH OF OVER-EXCAVATION, IF NECESSARY, TO ENSURE ENGINEERED FILL BEARS UNIFORMLY ON CUT; DO NOT ALLOW TRANSITION FROM CUT TO FILL TO PASS UNDERNEATH OR WITHIN 5 HORIZONTAL FEET OF BUILDING OR SLAB.
 - REFER TO GEOTECH REPORT BY GEO-TEST, #1-00908, DECEMBER 1, 2020 FOR SUBSURFACE INFORMATION, OVER EXCAVATION REQUIREMENTS, SUBGRADE PREPARATION, AND STRUCTURAL FILL & COMPACTION.
 - ALL FLOOR DRAINS MUST HAVE REMOVABLE GRATING.
 - VERIFY LOCATION OF DRAINS W/ PIPING.
 - ALL FLOOR DRAINS SHALL BE CENTERED UNDER PIPE OUTLETS. FIELD VERIFY LOCATIONS.
 - CONTRACTOR TO APPLY ANTI-GRAFFITI COATING, GRAFFITI PROOFER GPA-300, TO EXTERIOR OF BUILDING.

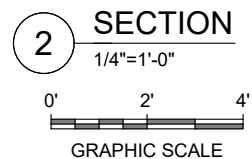
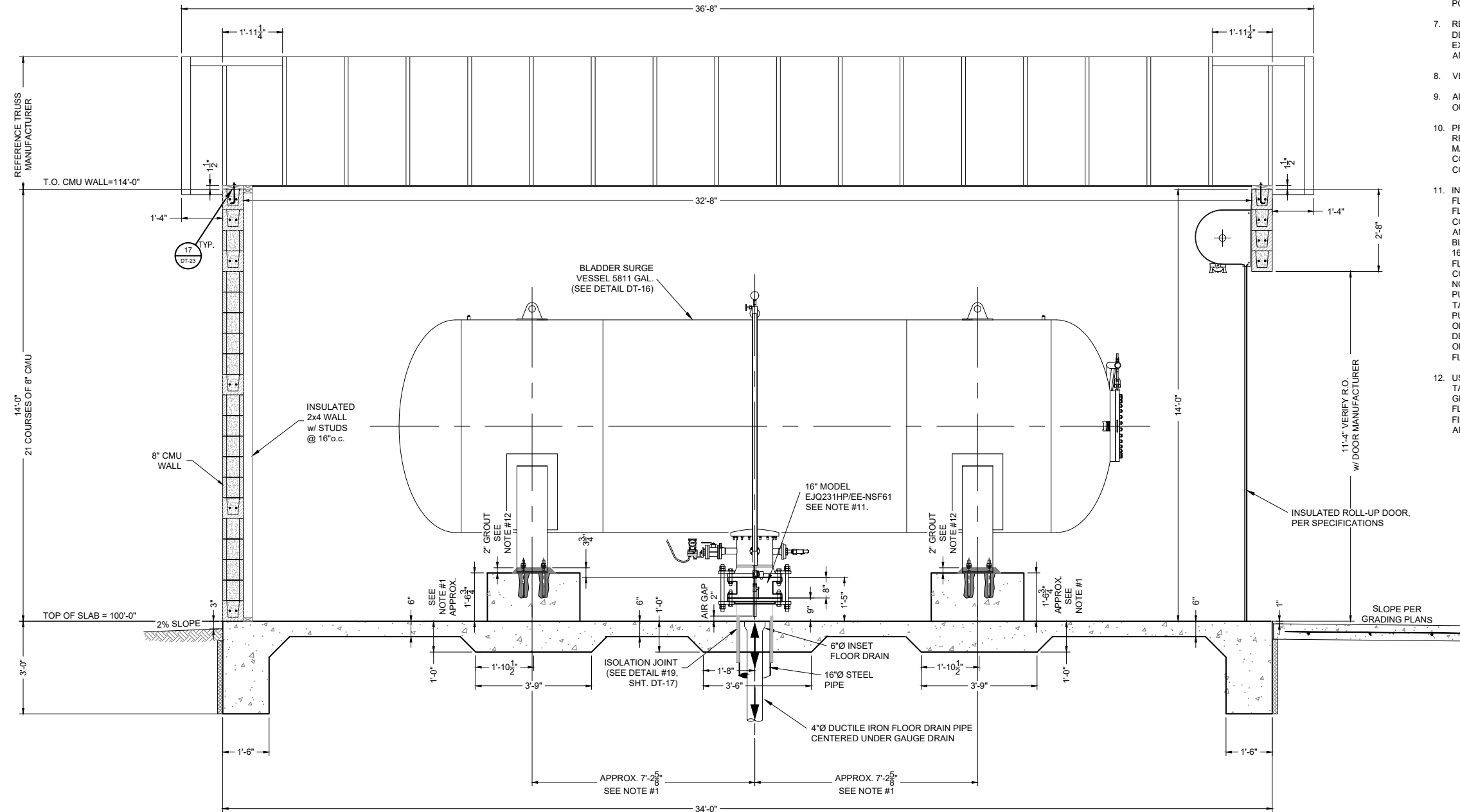
DESIGN LOADS
 DESIGN LIVE LOADS ARE IN ACCORDANCE WITH THE INTERNATIONAL BUILDING CODE, 2006 EDITION WITH THE FOLLOWING MINIMUM CRITERIA:
 ROOF SNOW LOAD = 25 PSF
 ROOF DEAD LOAD = 15 PSF
 FLOOR LIVE LOAD = 50 PSF
 WIND
 V-3S.....90 MPH (3 SEC GUST) EXP C
 SEISMIC
 SEISMIC DESIGN CATEGORY.....C
 IMPORTANCE FACTOR.....1
 SPECTRAL RESPONSE COEFFICIENTS
 S-DS.....0.372
 S-D1.....0.183
 SITE CLASS.....D

DESIGN AND FOUNDATIONS TO BE UPDATED PENDING STRUCTURAL ENGINEERS REVIEW

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

By	CHKC
Revision	Date
<p>SOUDER, MILLER & ASSOCIATES Engineering • Environmental • Geomatics Serving the Southwest & Rocky Mountains 5454 Venice Avenue NE, Suite D Albuquerque, NM 87113 Phone (505) 299-0942 Toll-Free (877) 299-0942 Fax (505) 293-3430 www.soudermiller.com</p>	
Client: The Navajo Nation	Location: Tseil'ihani, NM
<p>PP 12 SURGE TANK BUILDING FOUNDATION PLAN NAVAJO GALLUP WATER SUPPLY PROJECT BEACON BISTI N9 - REACH 10.2 MCKINLEY COUNTY, NEW MEXICO</p>	
<p>90% REVIEW DRAFT</p>	
<p>PRELIMINARY NOT FOR CONSTRUCTION 9/2022</p>	
Designed	Drawn
TTT	AAV
Checked	JMG
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<p>811 Know what's BELOW. CALL before you dig.</p>	
Date:	September 2022
Scale: Horiz:	AS SHOWN
Scale: Vert:	N/A
Project No:	6922268
Sheet:	DT-17

P:\6-Beacon Bldg\19 Water Line (6922268)\CAD\Construction Plans\Reach 10.2 Surge Tank Bldg Details.dwg
9/16/2022 8:03:34 AM mwh



- NOTES**
1. ALL DIMENSIONS RELATED TO TANK SIZES, LEG SPACING, ETC. ARE APPROXIMATE, CONTRACTOR RESPONSIBLE TO VERIFY ACTUAL TANK DIMENSIONS AND ALIGN ACTUAL LOCATION OF TANK LEGS AND ALL PIPING INLETS, OUTLETS AND DRAINS IN THE FIELD PRIOR TO CONSTRUCTION.
 2. REFERENCE DETAILS DT-23 FOR ALL ARCHITECTURAL DETAILING NOT SHOWN HERE.
 3. FOR CONTINUATION OF SURGE TANK UNDERGROUND PIPING SEE PUMP STATION PIPING PLAN SHEETS C-18 THRU C-24.
 4. ALL FLOOR DRAINS MUST HAVE REMOVABLE GRATING.
 5. ALL BURIED STEEL PIPES SHALL BE STANDARD WALL THICKNESS AND SHALL BE FBE COATED INTERIOR AND EXTERIOR.
 6. ALL BURIED PIPING WITHIN 5 FEET OF BUILDING FOUNDATIONS SHALL BE PRESSURE TESTED PRIOR TO POURING FOUNDATIONS.
 7. REFER TO GEOTECH REPORT BY GEO-TEST, #1-00908, DECEMBER 1, 2020 FOR SUBSURFACE INFORMATION, OVER EXCAVATION REQUIREMENTS, SUBGRADE PREPARATION, AND STRUCTURAL FILL & COMPACTION.
 8. VERIFY LOCATION OF DRAIN W/ PIPING.
 9. ALL FLOOR DRAINS SHALL BE CENTERED UNDER PIPE OUTLETS. FIELD VERIFY LOCATIONS & TOP OF SLAB.
 10. PROCO JOINT COMPRESSION SHALL BE WITHIN MFG'S RECOMMENDED TOLERANCES. DO NOT ALLOW BOLTS TO MAKE CONTACT WITH RUBBER JOINT. FIELD VERIFY CONTROL BOLT LENGTHS BEFORE FOUNDATION CONSTRUCTION.
 11. INSTALL TEMPORARY 16-INCH ANSI CLASS 125 BLIND FLANGE PRIOR TO FILLING AND FLUSHING PIPELINE. UTILIZE FLUSH VALVE AT PUMP STATION TO FLUSH MAINLINE. COMPLETE HYDROSTATIC TESTING OF PIPING UNDERNEATH AND WITHIN SURGE TANK BUILDING PRIOR TO REMOVING BLIND FLANGE. REMOVE BLIND FLANGE AND INSTALL 16-INCH PROCO FITTING AFTER THIS SECTION OF LINE FLUSHING AND HYDROSTATIC PRESSURE TESTING IS COMPLETE. BUT PRIOR TO STARTING UP SURGE TANK. DO NOT INSTALL PROCO FITTING UNTIL LINE FLUSHING AT THE PUMP STATION IS COMPLETE. DO NOT AIR CHARGE SURGE TANK UNTIL PROCO FITTING IS INSTALLED. DO NOT OPERATE PUMPING PLANT 12 UNTIL SURGE TANK IS STARTED UP AND OPERATIONAL. DO NOT ALLOW FOREIGN OBJECTS OR DEBRIS ENTER SURGE TANK. DO NOT BRING SURGE TANK ONLINE UNTIL SITE PIPING HAS BEEN THOROUGHLY FLUSHED.
 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.

By	CHKC
Description	
Date	
Revision	

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www.soudermiller.com

Location: Tsel'ihah, NM
Client: The Navajo Nation
PP 12 SURGE TANK BUILDING SECTION (1 OF 2)
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
MCKINLEY COUNTY, NEW MEXICO

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9/2022

Designed	Drawn	Checked
TTT	AAV	JMG

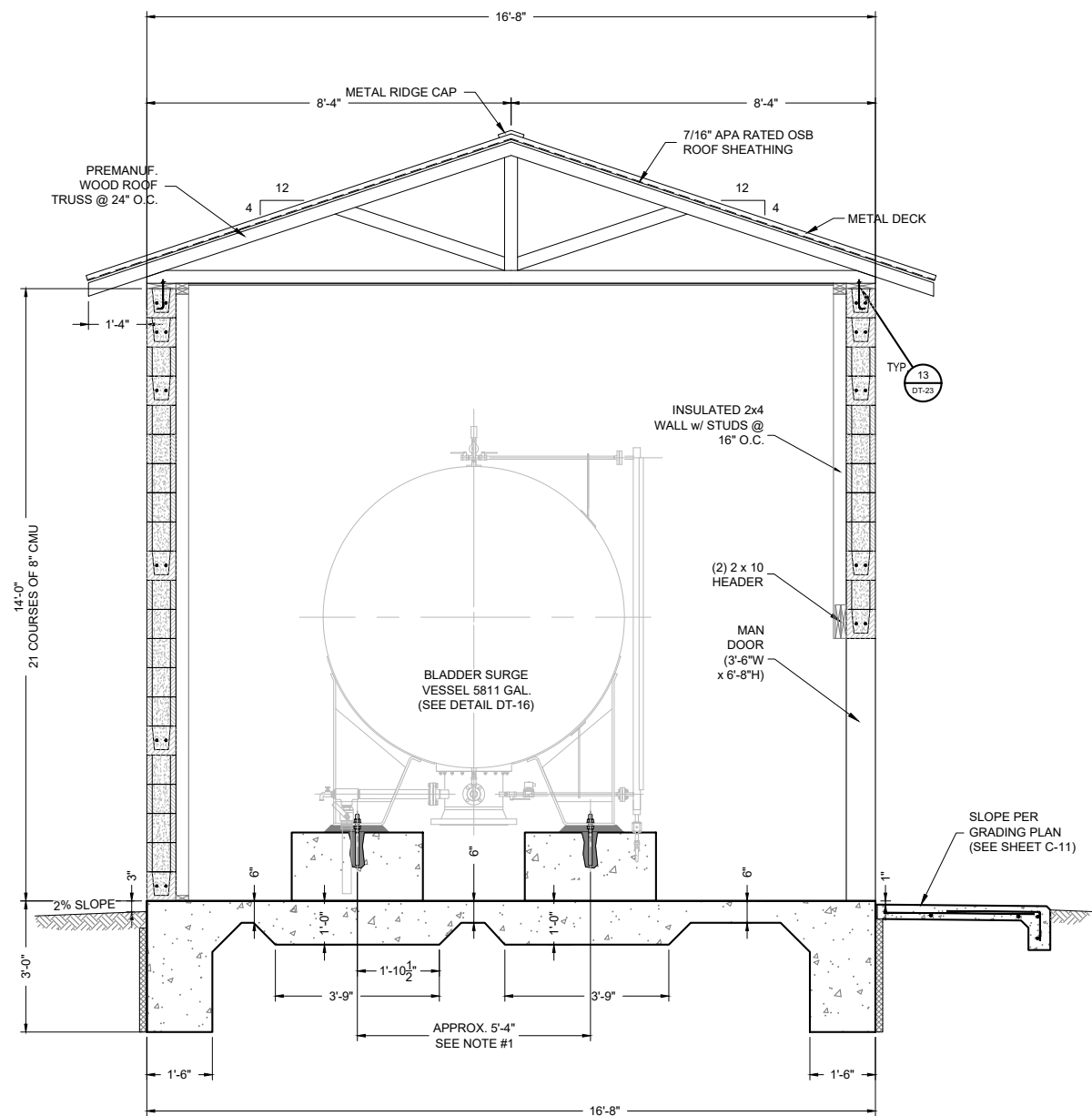
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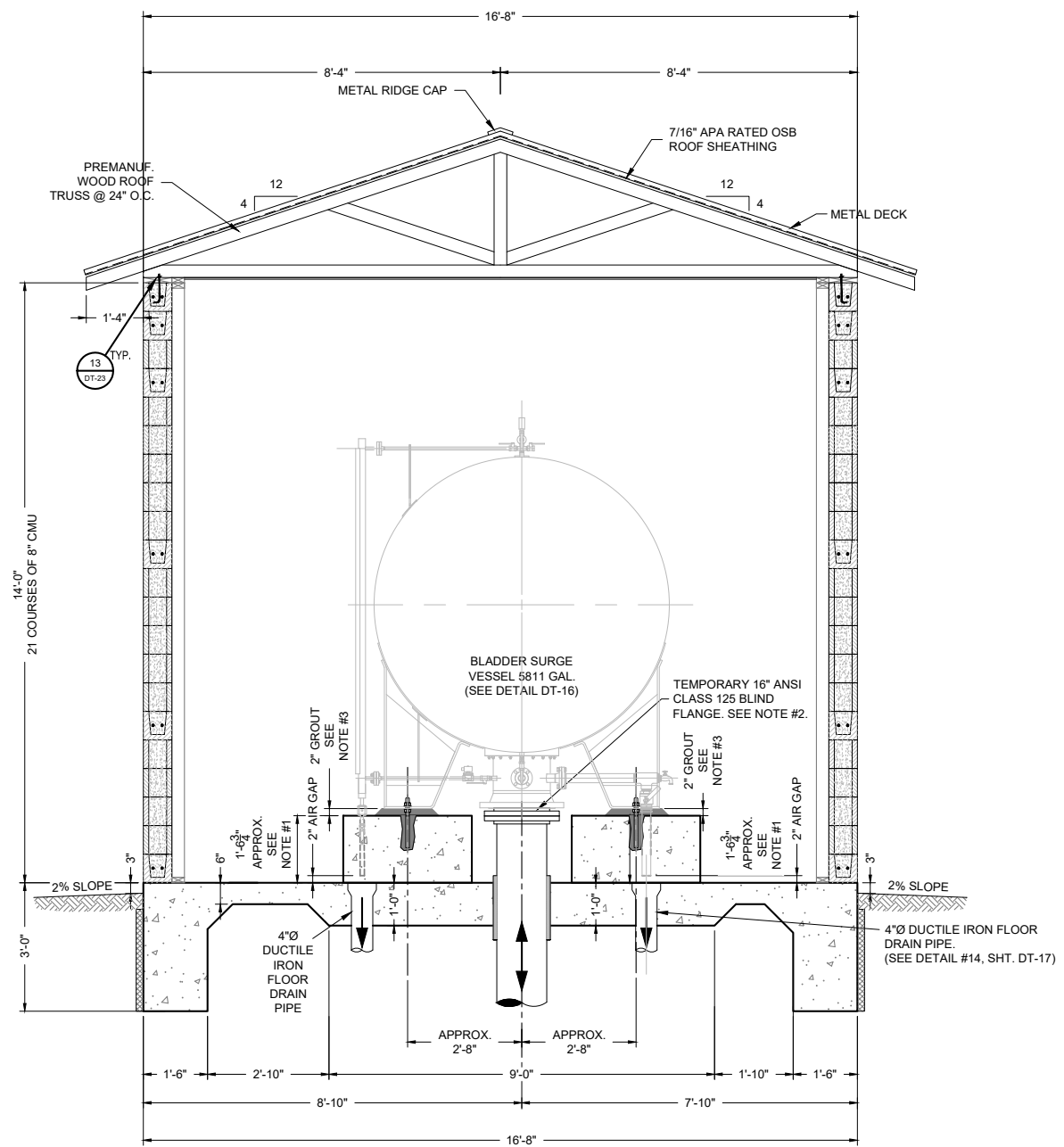
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Vert: N/A
Project No: 6922268
Sheet: **DT-18**

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P:\6-Beacon Bldg 19 Water Line (6922268)\CAD\Construction Plans\Reach 10.2 Surge Tank Bldg Details.dwg
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3 SECTION
 1/4"=1'-0"
 GRAPHIC SCALE



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

NOTES

- ALL DIMENSIONS RELATED TO TANK SIZES, LEG SPACING, ETC. ARE APPROXIMATE, CONTRACTOR RESPONSIBLE TO VERIFY ACTUAL TANK DIMENSIONS AND ALIGN ACTUAL LOCATION OF TANK LEGS AND ALL PIPING INLETS, OUTLETS AND DRAINS IN THE FIELD PRIOR TO CONSTRUCTION.
- INSTALL TEMPORARY 16-INCH ANSI CLASS 125 BLIND FLANGE PRIOR TO FILLING AND FLUSHING PIPELINE. UTILIZE FLUSH VALVE AT PUMP STATION TO FLUSH MAINLINE. COMPLETE HYDROSTATIC TESTING OF PIPING UNDERNEATH AND WITHIN SURGE TANK BUILDING PRIOR TO REMOVING BLIND FLANGE. REMOVE BLIND FLANGE AND INSTALL 16-INCH PROCO FITTING AFTER THIS SECTION OF LINE FLUSHING AND HYDROSTATIC PRESSURE TESTING IS COMPLETE, BUT PRIOR TO STARTING UP SURGE TANK. DO NOT INSTALL PROCO FITTING UNTIL LINE FLUSHING AT THE PUMP STATION IS COMPLETE. DO NOT AIR CHARGE SURGE TANK UNTIL PROCO FITTING IS INSTALLED. DO NOT OPERATE PUMPING PLANT 12 UNTIL SURGE TANK IS STARTED UP AND OPERATIONAL. DO NOT ALLOW FOREIGN OBJECTS OR DEBRIS ENTER SURGE TANK. DO NOT BRING SURGE TANK ONLINE UNTIL SITE PIPING HAS BEEN THOROUGHLY FLUSHED.
- 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.

Revision	Date	Description

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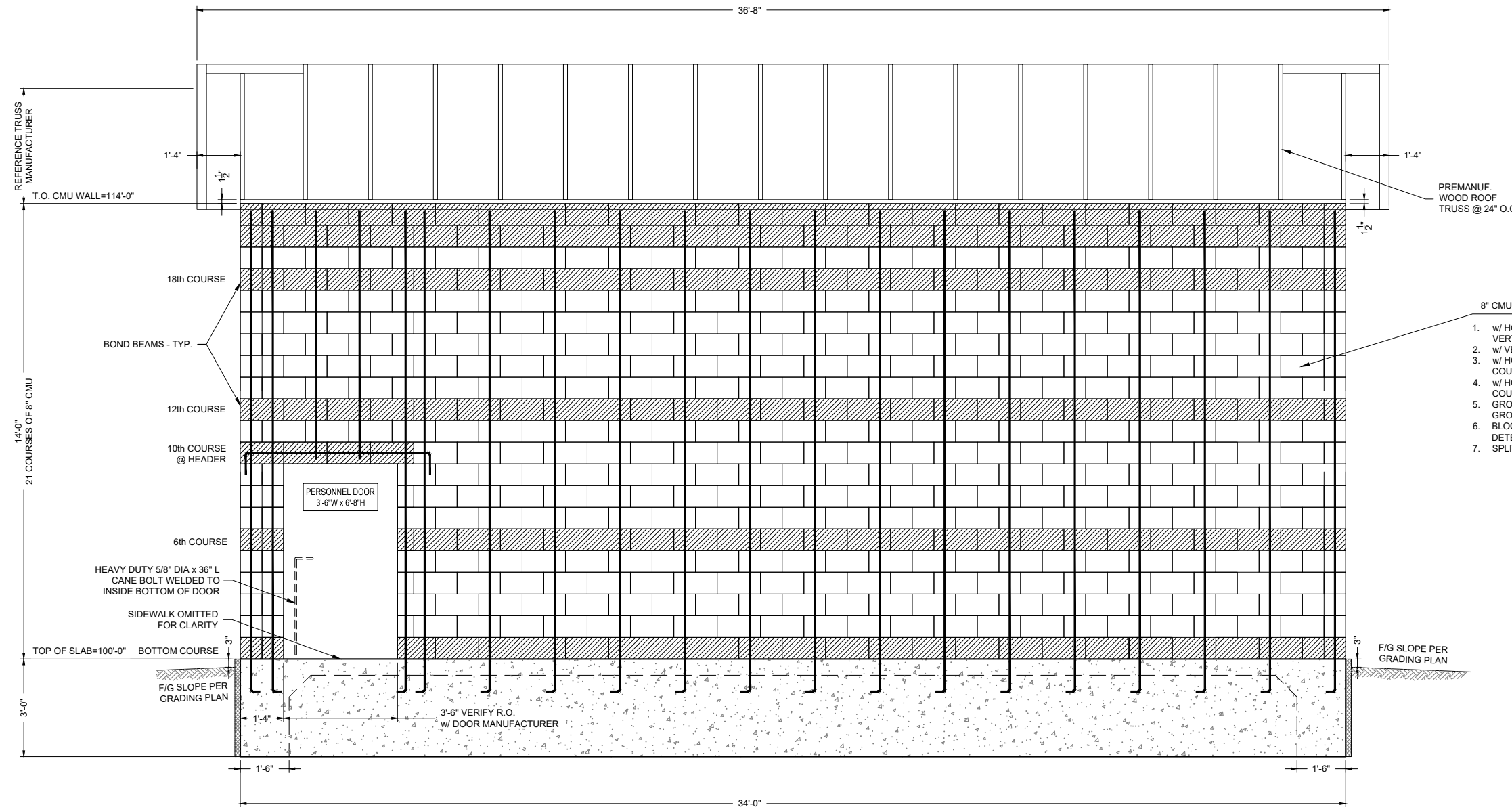
Client: The Navajo Nation
 Location: Tseil'ihni, NM
PP 12 SURGE TANK BUILDING SECTION (2 OF 2)
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
 MCKINLEY COUNTY, NEW MEXICO

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Designed	Drawn	Checked
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 Vert: N/A
 Project No: 6922268
 Sheet: **DT-19**



PREMANUF. WOOD ROOF TRUSS @ 24" O.C.

8" CMU WALL

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

PERSONNEL DOOR
3'-6"W x 6'-8"H

HEAVY DUTY 5/8" DIA x 36" L
CANE BOLT WELDED TO
INSIDE BOTTOM OF DOOR

SIDEWALK OMITTED
FOR CLARITY

TOP OF SLAB=100'-0" BOTTOM COURSE

F/G SLOPE PER
GRADING PLAN

3'-6" VERIFY R.O.
w/ DOOR MANUFACTURER

F/G SLOPE PER
GRADING PLAN

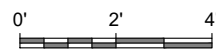
7 ELEVATION W/ PANEL REINFORCING @ PERSONNEL-DOOR
1/4"=1'-0"

LEGEND

BOND BEAM

NOTES

- FOR BLOCK PATTERN DETAILS, SEE SHEET DT-19



GRAPHIC SCALE

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Client: The Navajo Nation
Location: Tselifahi, NM
PP 12 SURGE TANK BUILDING ELEVATION
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
MCKINLEY COUNTY, NEW MEXICO

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Designed TTT	Drawn AAV	Checked JMG
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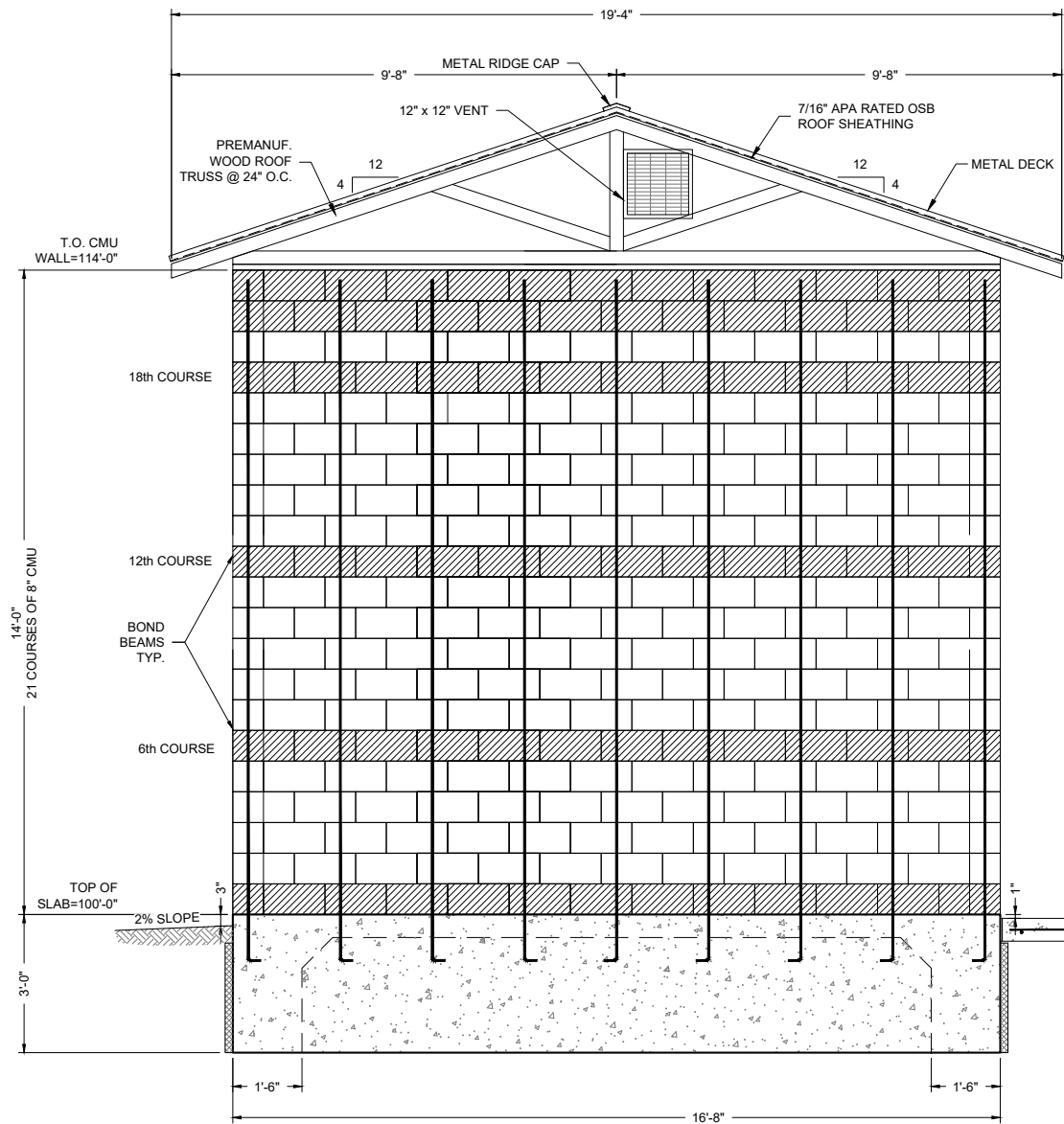
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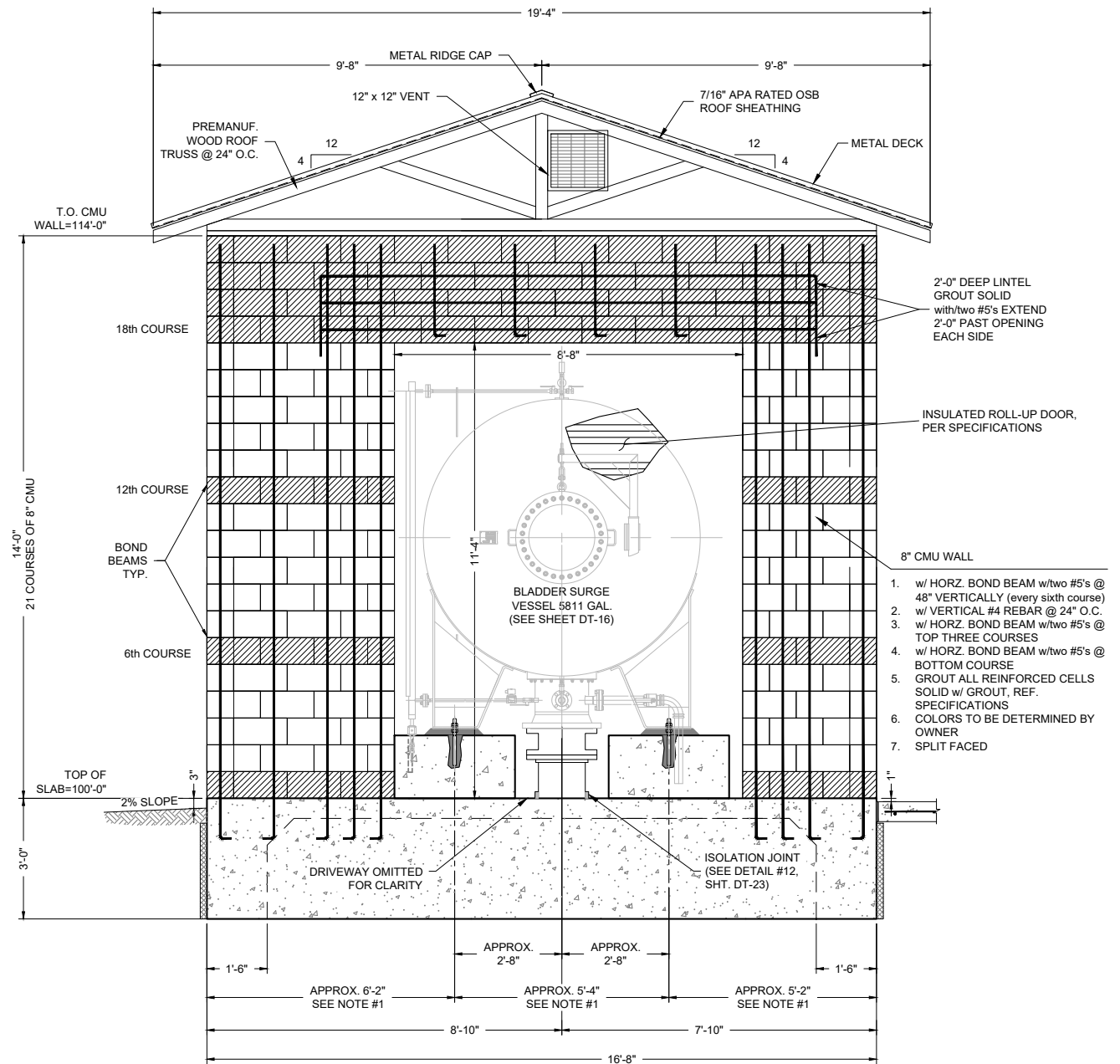
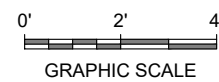
Project No: 6922268
Sheet: **DT-20**

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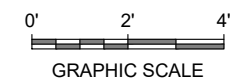
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9/16/2022 8:04:04 AM mwh



5 END VIEW
1/4"=1'-0"



6 END VIEW
1/4"=1'-0"



NOTES

1. ALL DIMENSIONS RELATED TO TANK SIZES, LEG SPACING, ETC. ARE APPROXIMATE. CONTRACTOR RESPONSIBLE TO VERIFY ACTUAL TANK DIMENSIONS AND ALIGN ACTUAL LOCATION OF TANK LEGS AND ALL PIPING INLETS, OUTLETS AND DRAINS IN THE FIELD PRIOR TO CONSTRUCTION.
2. FOR CONTINUATION OF SURGE TANK UNDERGROUND PIPING SEE SURGE TANK SITE PIPING PLANS, SHEETS C-18 TO C-24.
3. FOR BLOCK PATTERN DETAILS, SEE SHEETS DT-24 & DT-25.

LEGEND
 BOND BEAM

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Client: The Navajo Nation
 Location: Tseil'ihni, NM
PP 12 SURGE TANK BUILDING END VIEW
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
 MCKINLEY COUNTY, NEW MEXICO

90% REVIEW
DRAFT
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Designed TTT	Drawn AAV	Checked JMG
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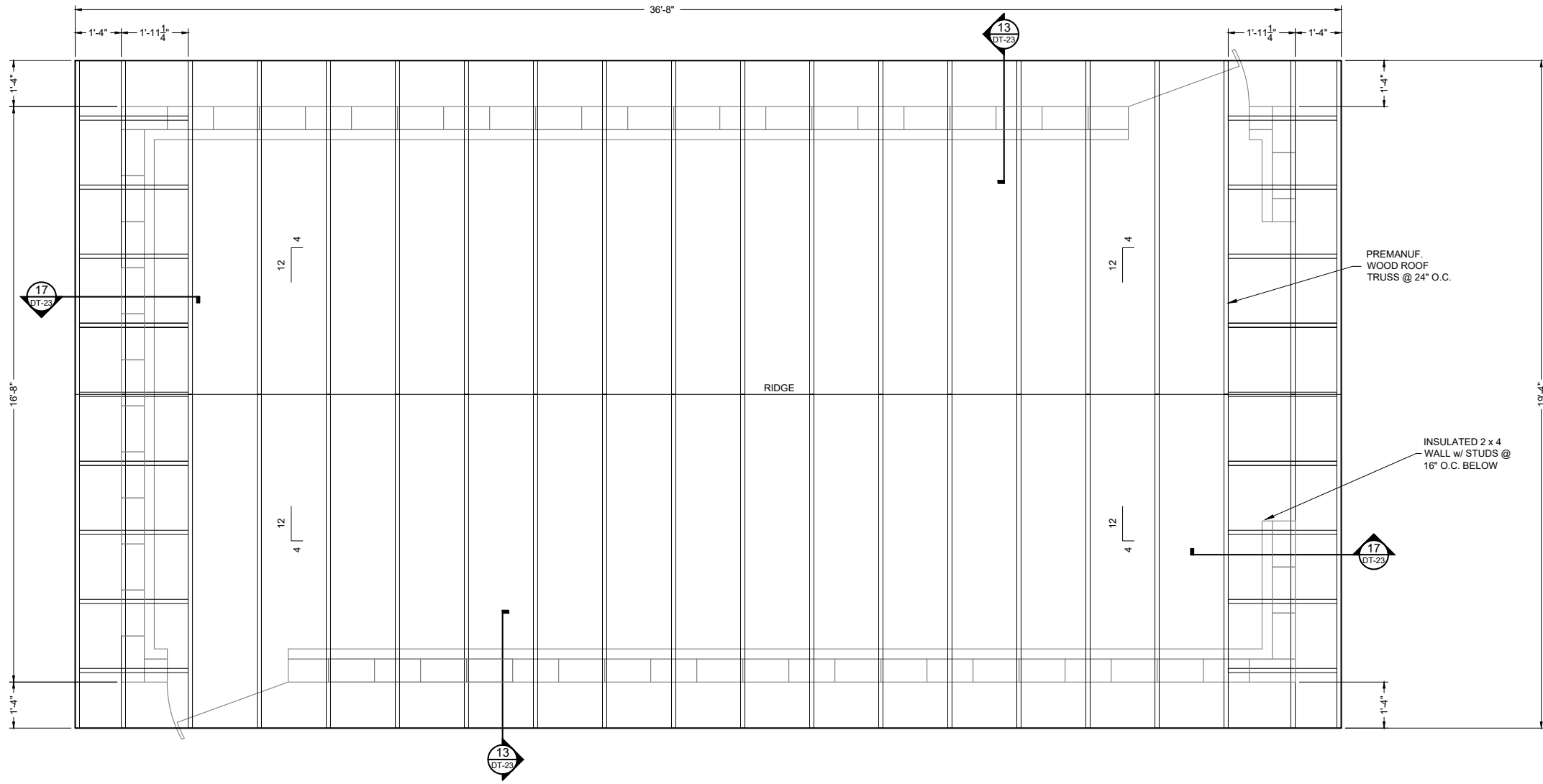
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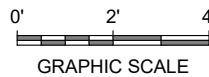
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Project No: 6922268
 Sheet: **DT-21**

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8 ROOF PLAN
 1/4" = 1'-0"



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Client: The Navajo Nation
 Location: Tseil'ihai, NM
PP 12 SURGE TANK BUILDING ROOF PLAN
 NAVAJO GALLUP WATER SUPPLY PROJECT
 BEACON BISTI N9 - REACH 10.2
 MCKINLEY COUNTY, NEW MEXICO

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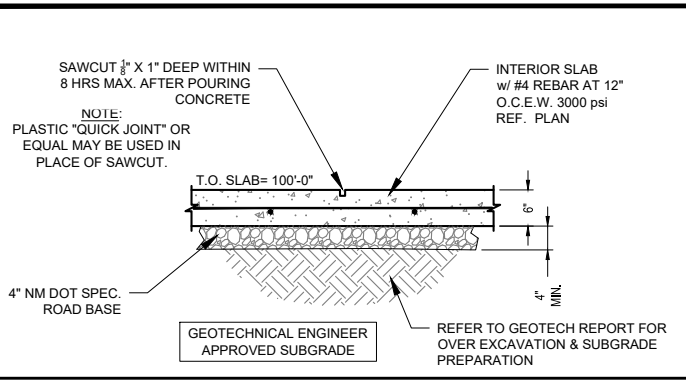
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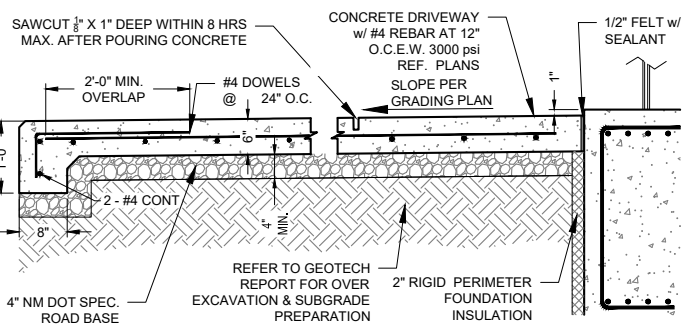
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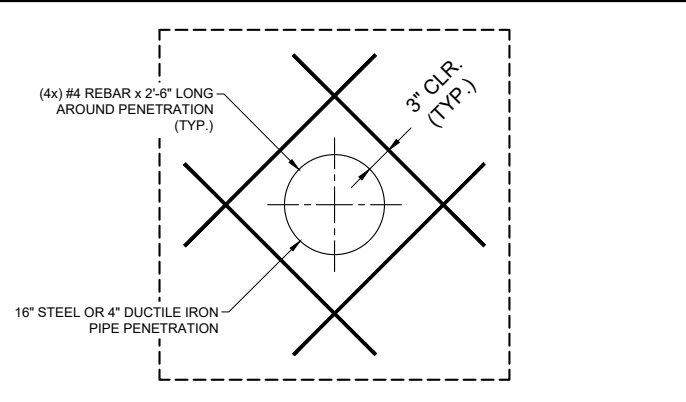
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 Project No: 6922268
 Sheet: DT-22



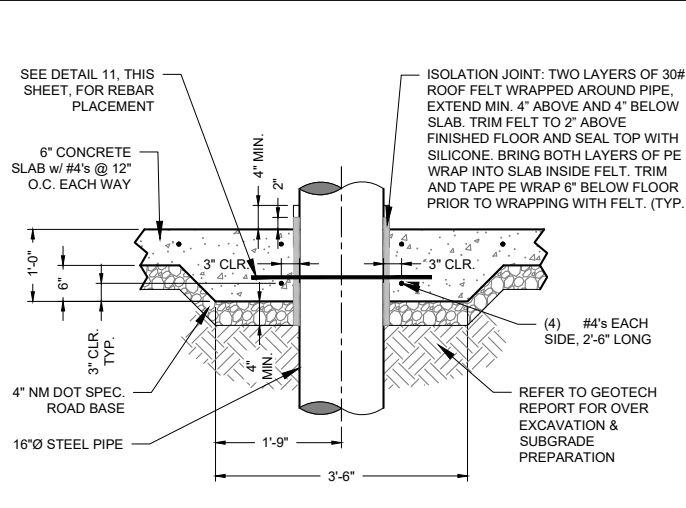
9 6" INTERIOR SLAB SECTION WITH CONTROL JOINT
3/8"=1'-0"



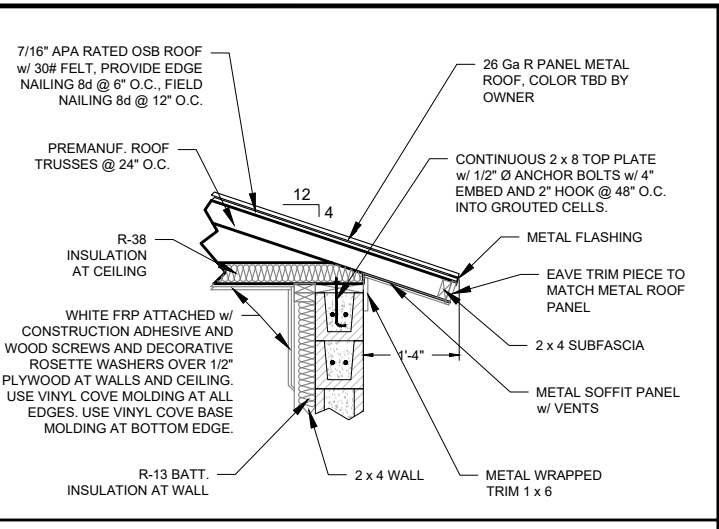
10 6" DRIVEWAY SECTION WITH CONTROL JOINT
3/8"=1'-0"



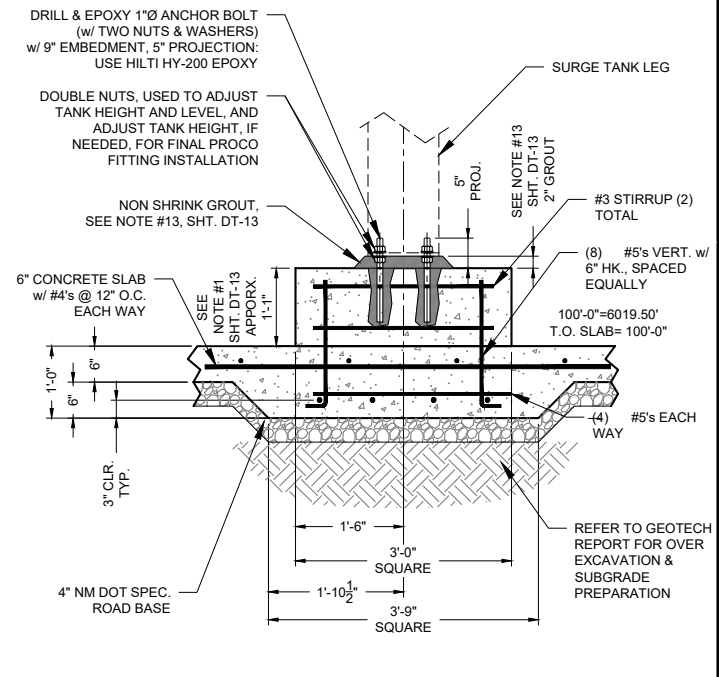
11 PIPE PENETRATION REBAR - THICKENED SLAB
N.T.S.



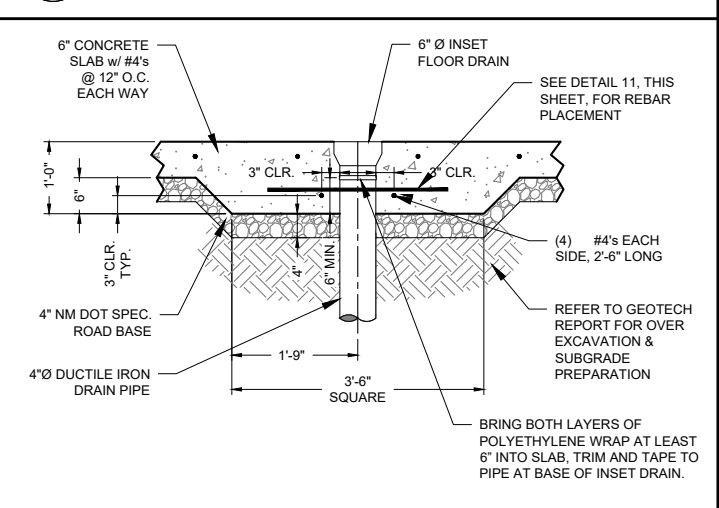
12 PIPE PENETRATION AND THICKENED SLAB DETAIL
3/8"=1'-0"



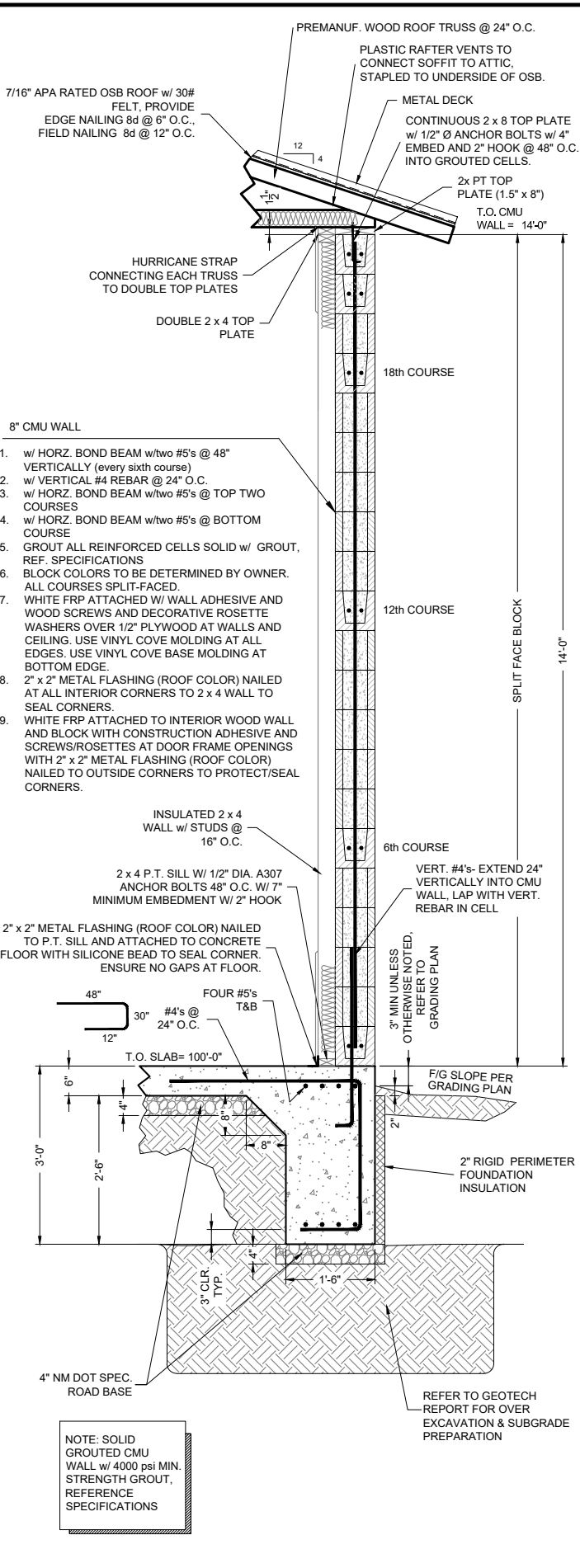
13 FRAMING DETAIL
3/8"=1'-0"



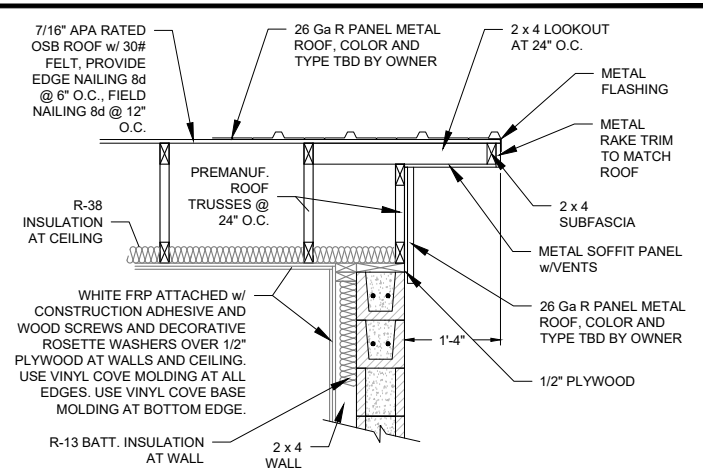
14 TANK PEDESTAL & THICKENED SLAB DETAIL
3/8"=1'-0" LARGE TANK (2642 GALLON TANK)



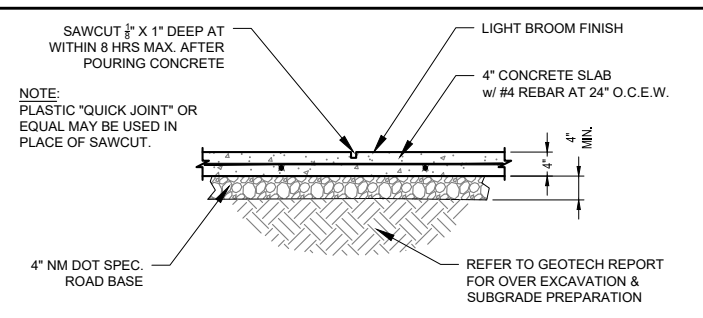
15 DRAIN PIPE PENETRATION AND THICKENED SLAB DETAIL
3/8"=1'-0"



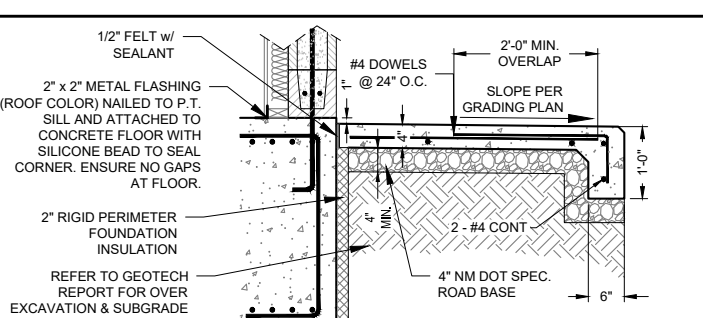
16 WALL AND FOUNDATION SECTION
3/8"=1'-0"



17 FRAMING DETAIL
3/8"=1'-0"



18 PORCH DETAIL
3/8"=1'-0"



19 PORCH SECTION
3/8"=1'-0"

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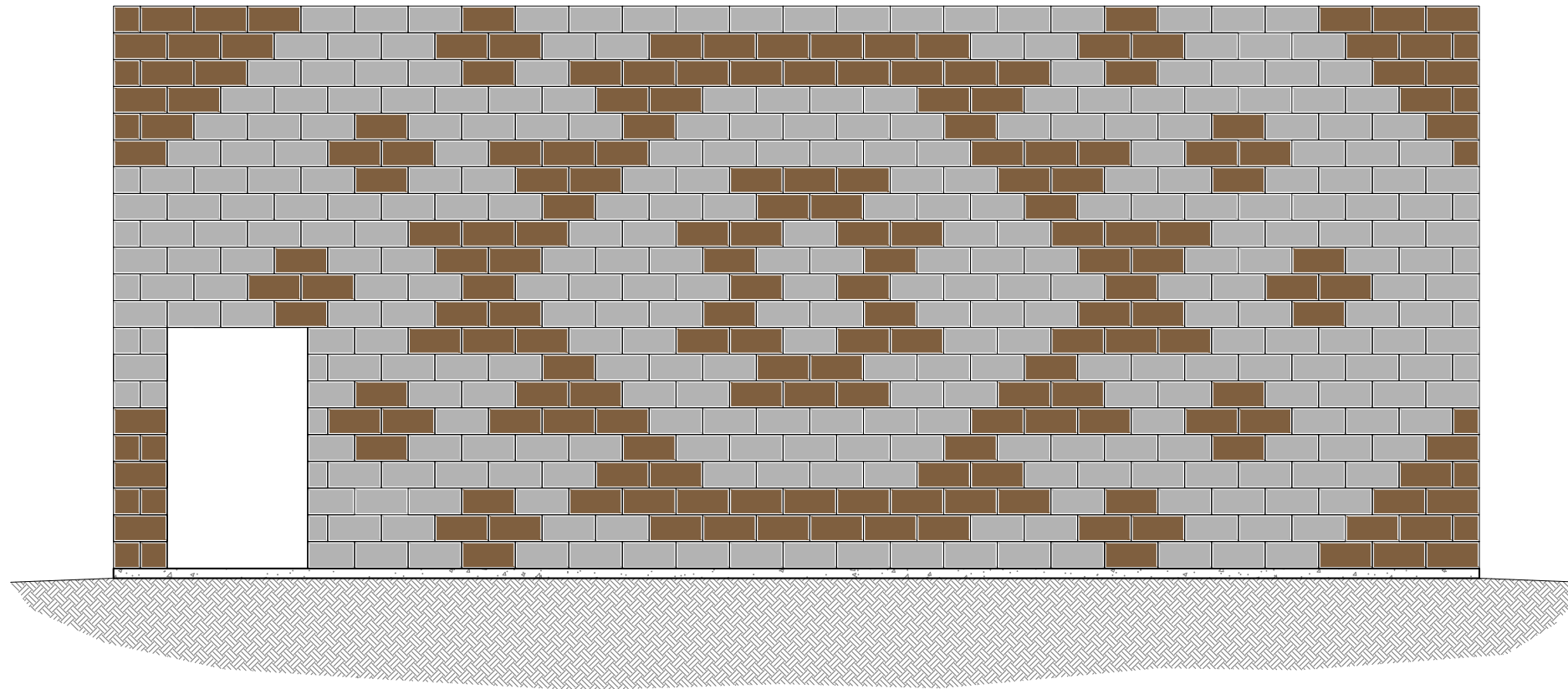
Client: The Navajo Nation	Location: Tseil'ahn, NM
PP 12 SURGE TANK BUILDING DETAILS NAVAJO GALLUP WATER SUPPLY PROJECT BEACON BISTI N9 - REACH 10.2 MCKINLEY COUNTY, NEW MEXICO	
<div style="border: 2px solid red; padding: 5px; color: red; font-weight: bold;">90% REVIEW DRAFT</div>	
<div style="border: 1px solid black; padding: 2px; color: red; font-weight: bold;">PRELIMINARY NOT FOR CONSTRUCTION 9/2022</div>	
Designed: TTT	Drawn: AAV
Checked: JMG	
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<div style="font-size: 24pt; font-weight: bold; color: blue;">811</div>	
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Date: September 2022	
Scale: Horiz: AS SHOWN	
Vert: N/A	
Project No: 6922268	
Sheet: DT-23	

CMU BLOCK COLOR LEGEND

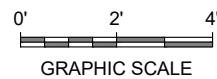
- CANYON BROWN
- GRAY

SURGE BUILDING BLOCK QUANTITIES				
COLOR	FULL BLOCK 16" LENGTH	HALF BLOCK 8" LENGTH (AROUND DOOR)	PARTIAL BLOCK 14" LENGTH (AROUND DOOR)	PARTIAL BLOCK 6" LENGTH (AROUND DOOR)
CANYON BROWN	568	6	0	0
GRAY	818	4	0	24

- NOTES:**
1. QUANTITIES TABLE REFLECTS ENTIRE SURGE TANK BUILDING.
 2. CONTRACTOR SHALL VERIFY QUANTITIES PRIOR TO PURCHASING.
 3. MORTAR COLOR TO MATCH COLOR OF ADJACENT BLOCK.
 4. CONTRACTOR TO APPLY ANTI-GRAFFITI COATING, GRAFFITI PROOFER GPA-300, TO EXTERIOR OF BUILDING.



7 CMU BLOCK PATTERN FRONT VIEW AND BACK VIEW
1/4"=1'-0"



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Revision	Date	Description	By	Checked

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Albuquerque, NM 87113
Phone (505) 299-0942 Toll-Free (877) 299-0942 Fax (505) 293-3430
www.soudermiller.com

Client: The Navajo Nation
Location: Tse'ił'ani, NM
PP 12 SURGE TANK BUILDING BLOCK DETAILS
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
MCKINLEY COUNTY, NEW MEXICO

90% REVIEW
DRAFT

PRELIMINARY
NOT FOR CONSTRUCTION
9/2022

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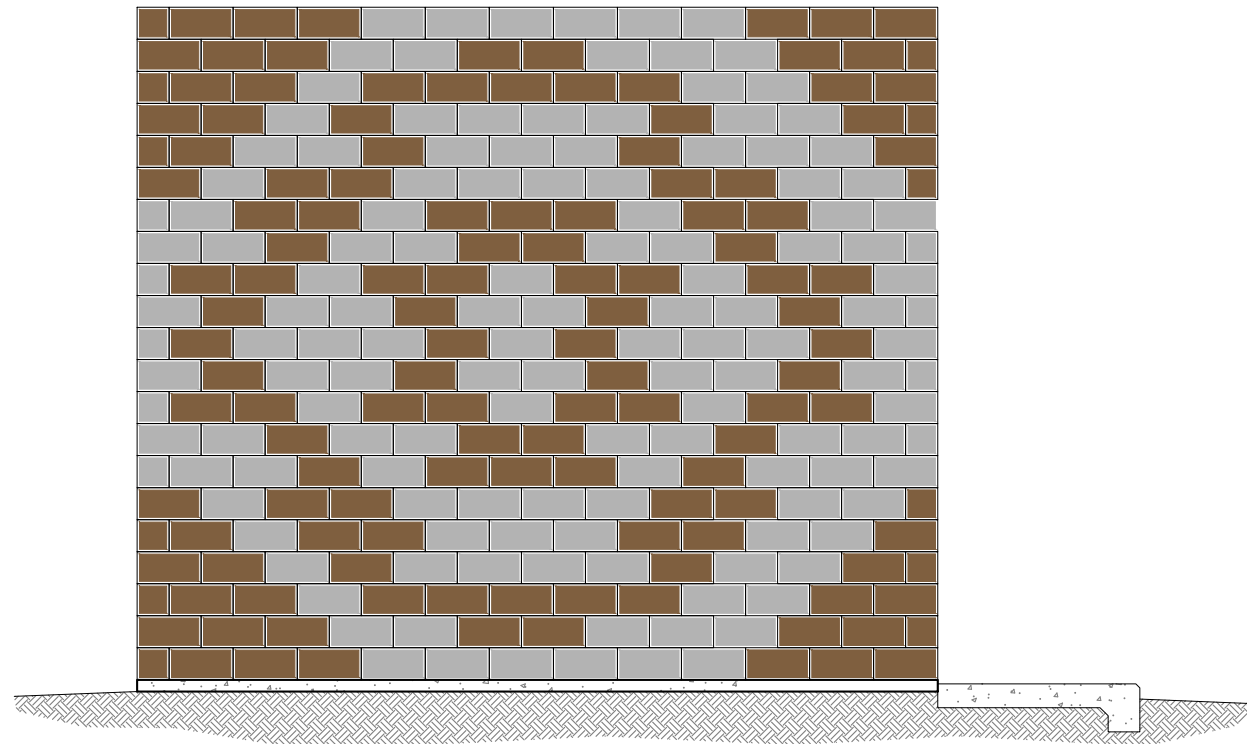
Project No: 6922268
Sheet: DT-24

CMU BLOCK COLOR LEGEND

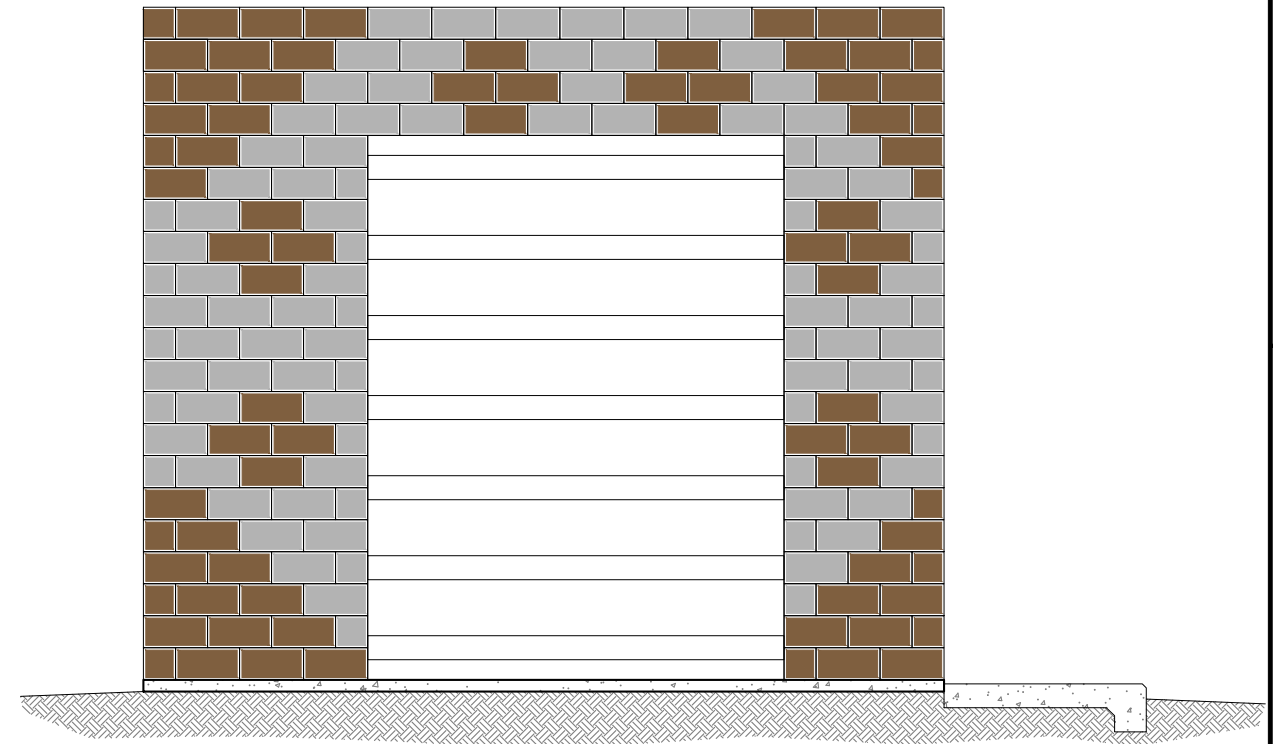
- CANYON BROWN
- GRAY

SURGE BUILDING BLOCK QUANTITIES				
COLOR	FULL BLOCK 16" LENGTH	HALF BLOCK 8" LENGTH (AROUND DOOR)	PARTIAL BLOCK 14" LENGTH (AROUND DOOR)	PARTIAL BLOCK 6" LENGTH (AROUND DOOR)
CANYON BROWN	568	6	0	0
GRAY	818	4	0	24

- NOTES:
1. QUANTITIES TABLE REFLECTS ENTIRE SURGE TANK BUILDING.
 2. CONTRACTOR SHALL VERIFY QUANTITIES PRIOR TO PURCHASING.
 3. MORTAR COLOR TO MATCH COLOR OF ADJACENT BLOCK.
 4. CONTRACTOR TO APPLY ANTI-GRAFFITI COATING, GRAFFITI PROOFER GPA-300, TO EXTERIOR OF BUILDING.



5 CMU BLOCK PATTERN END VIEW
1/4"=1'-0"




6 CMU BLOCK PATTERN END VIEW
1/4"=1'-0"



P:\6-Beacon Bisti N9 Water Line (6922268)\CAD\Civil\Reach 10.2 Surge Tank Bldg Details.dwg
9/16/2022 8:04:34 AM mwh

Revision	Date	Description	By	CHKD

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Client: The Navajo Nation
 Location: Tse'ił'ani, NM
PP 12 SURGE TANK BUILDING BLOCK DETAILS
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
 MCKINLEY COUNTY, NEW MEXICO

90% REVIEW
DRAFT

PRELIMINARY
NOT FOR CONSTRUCTION
9/2022

Designed TTT	Drawn AAV	Checked JMG
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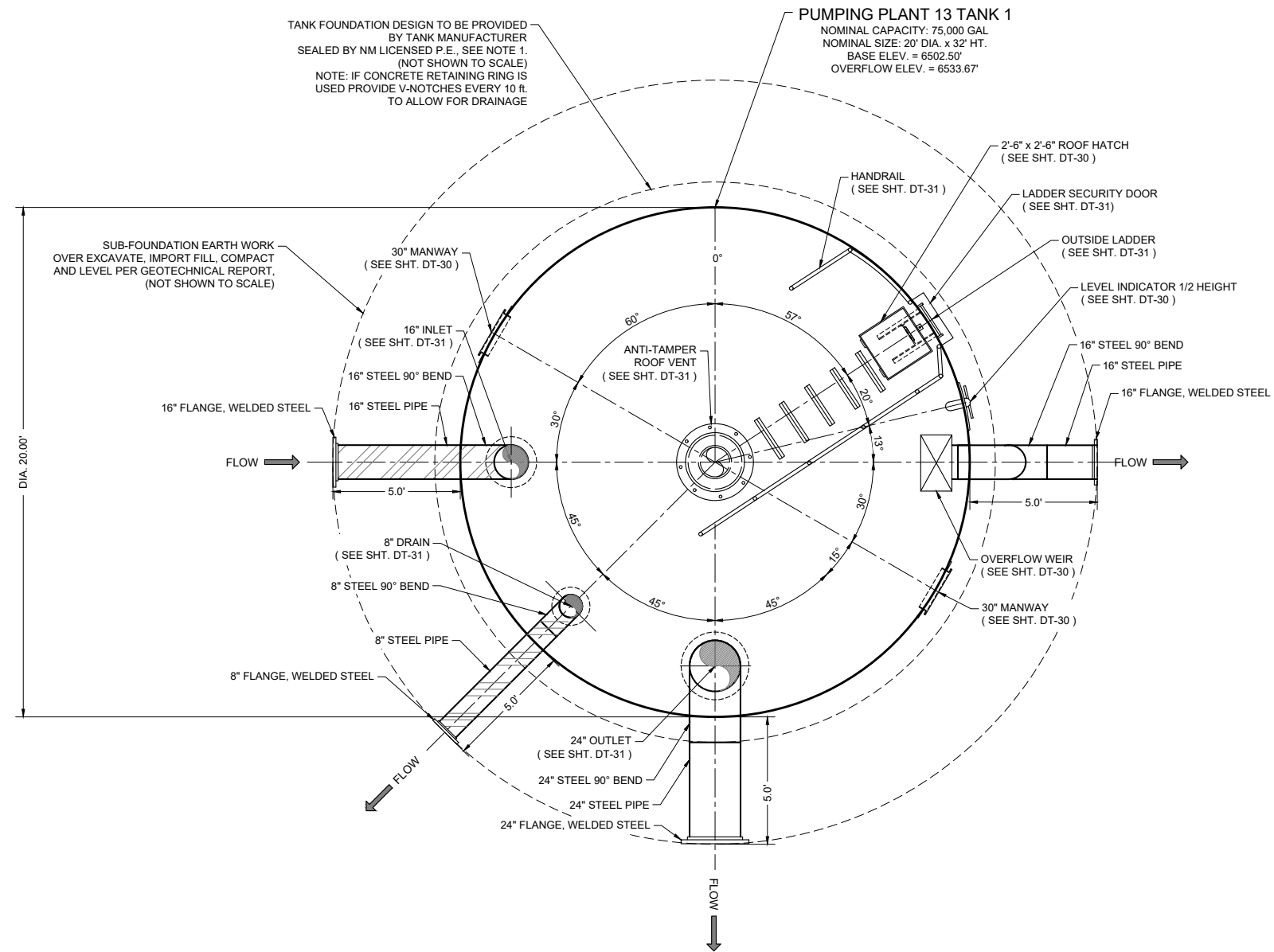
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Date: September 2022
 Scale: Horiz: AS SHOWN
 Vert: N/A

Project No: 6922268
 Sheet: DT-25

NOTES:

- FOUNDATION AND TANK STRUCTURAL DESIGN DRAWINGS AND CALCULATIONS (SEALED BY NEW MEXICO-LICENSED PROFESSIONAL ENGINEER) TO BE PROVIDED BY TANK MANUFACTURER. FOUNDATION SHALL BE CONCRETE RING, BASED ON LICENSED P.E.'S DESIGN AND THE RECOMMENDATIONS OF THE GEOTECHNICAL ENGINEERING SERVICES REPORT NO. 1-00908, DATED DECEMBER 1, 2020 AND ADDENDUM DATED SEPTEMBER 24, 2021.
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- PASSIVE CATHODIC PROTECTION REQUIRED.



PUMPING PLANT 13 TANK 1 DETAIL

P:\6-Beacon Bisti N9 Water Line (6922268)\CAD\Construction Plans\Reach 10.2 Tank Details.rvt
9/16/2022 8:04:45 AM mwh

Revision	Date	Description	By	Chk'd

SOUDER, MILLER & ASSOCIATES
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 www.soudermiller.com

Client: The Navajo Nation
 Location: Tse'ił'ahí, NM
PP 13 TANK 1 DETAILS (1 OF 2)
 NAVAJO GALLUP WATER SUPPLY PROJECT
 BEACON BISTI N9 - REACH 10.2
 MCKINLEY COUNTY, NEW MEXICO

90% REVIEW DRAFT

PRELIMINARY
 NOT FOR CONSTRUCTION
 9/2022

Designed	Drawn	Checked
TTT	AAV	JMG

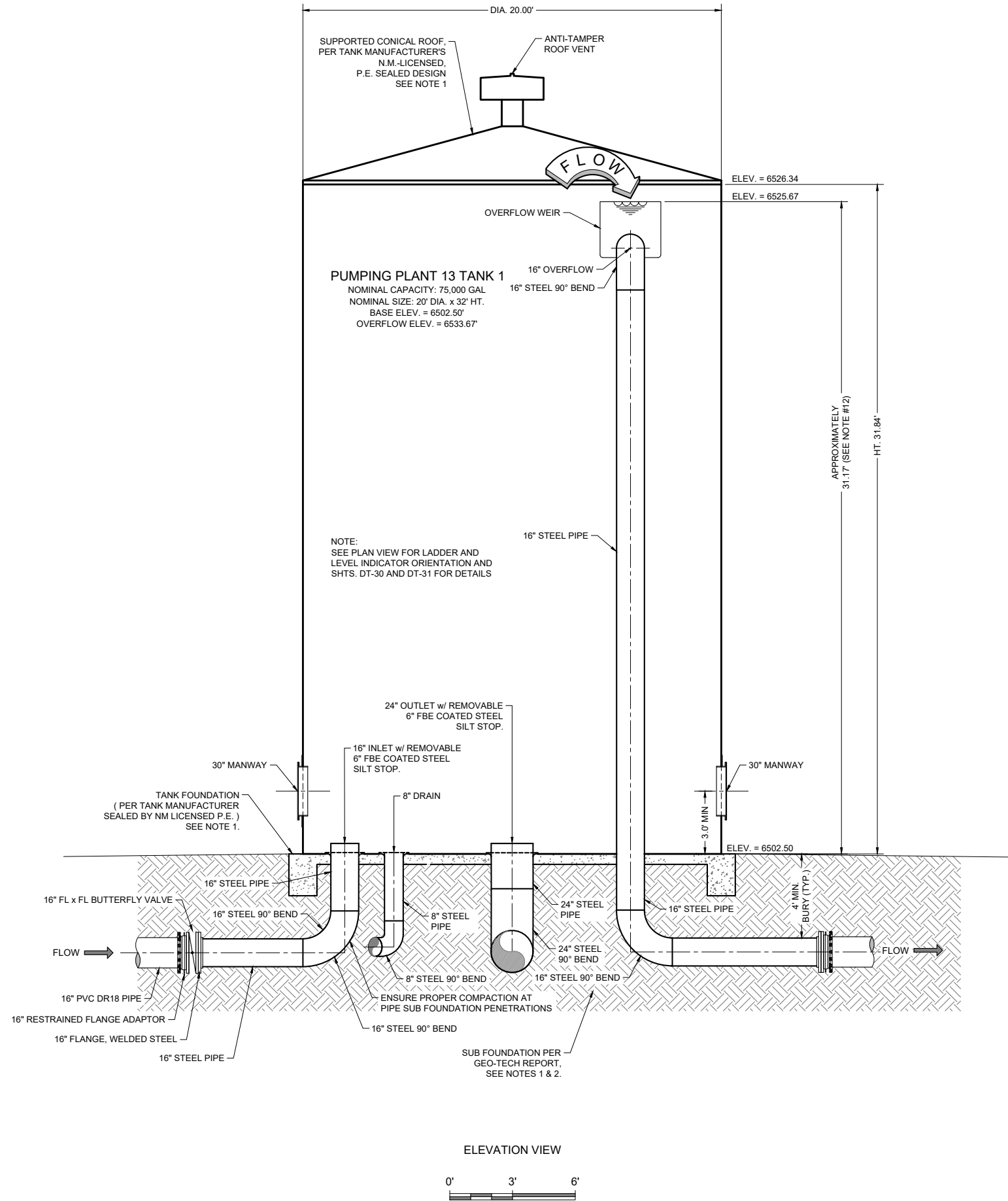
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Date: September 2022
 Scale: Horiz: 1" = 6'
 Vert: N/A
 Project No: 6922268
 Sheet: DT-26

NOTES:

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PUMPING PLANT 13 TANK 1 DETAIL

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 www.soudermiller.com

Client: The Navajo Nation
 Location: Tseil'ihai, NM
PP 13 TANK 1 DETAILS (2 OF 2)
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
 MCKINLEY COUNTY, NEW MEXICO

90% REVIEW DRAFT
PRELIMINARY
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 9/2022

Designed TTT	Drawn AAV	Checked JMG
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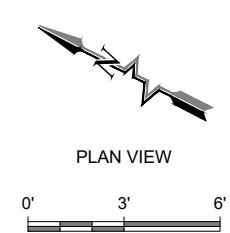
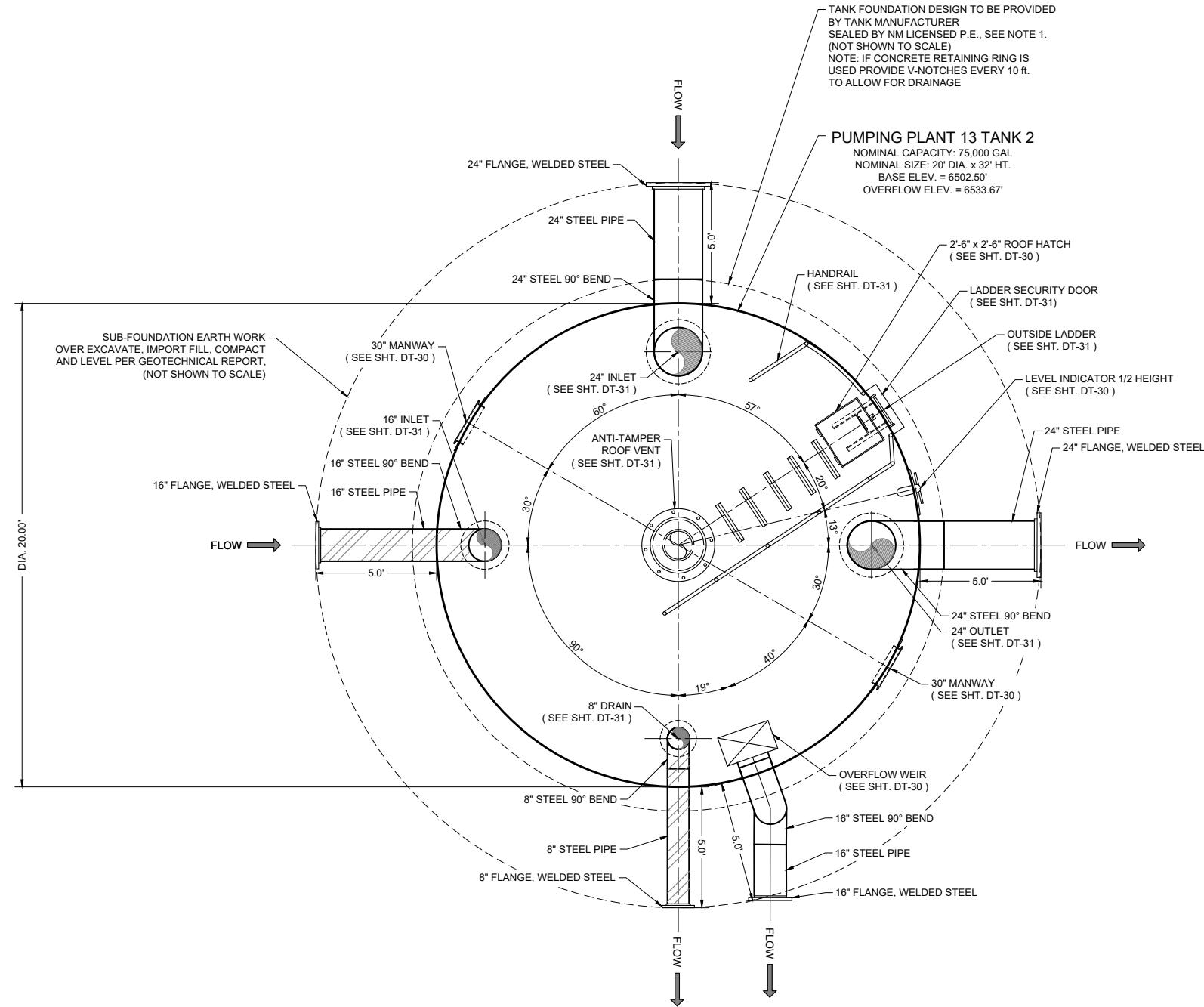
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Project No: 6922268
 Sheet: DT-27

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PUMPING PLANT 13 TANK 2 DETAIL

Revision	Date	Description

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 www.soudermiller.com

Client: The Navajo Nation
 Location: Tseil'ihai, NM
PP 13 TANK 2 DETAILS (1 OF 2)
 NAVAJO GALLUP WATER SUPPLY PROJECT
 BEACON BISTI N9 - REACH 10.2
 MCKINLEY COUNTY, NEW MEXICO

90% REVIEW
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 9/2022

Designed	Drawn	Checked
TTT	AAV	JMG

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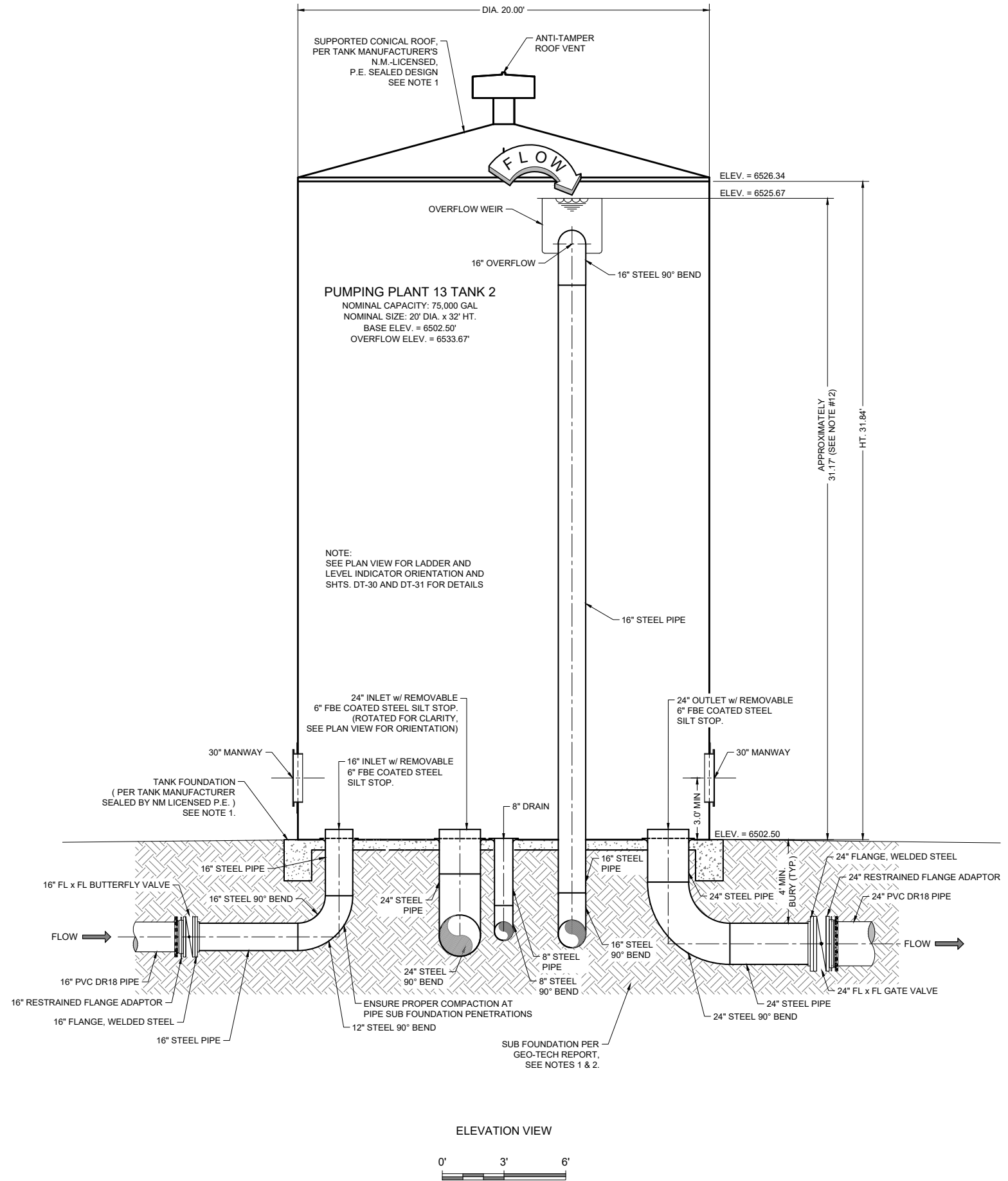
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 Vert: N/A

Project No: 6922268
 Sheet: DT-28

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Client: The Navajo Nation
 Location: Tseil'ihah, NM
PP 13 TANK 2 DETAILS (2 OF 2)
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
 MCKINLEY COUNTY, NEW MEXICO

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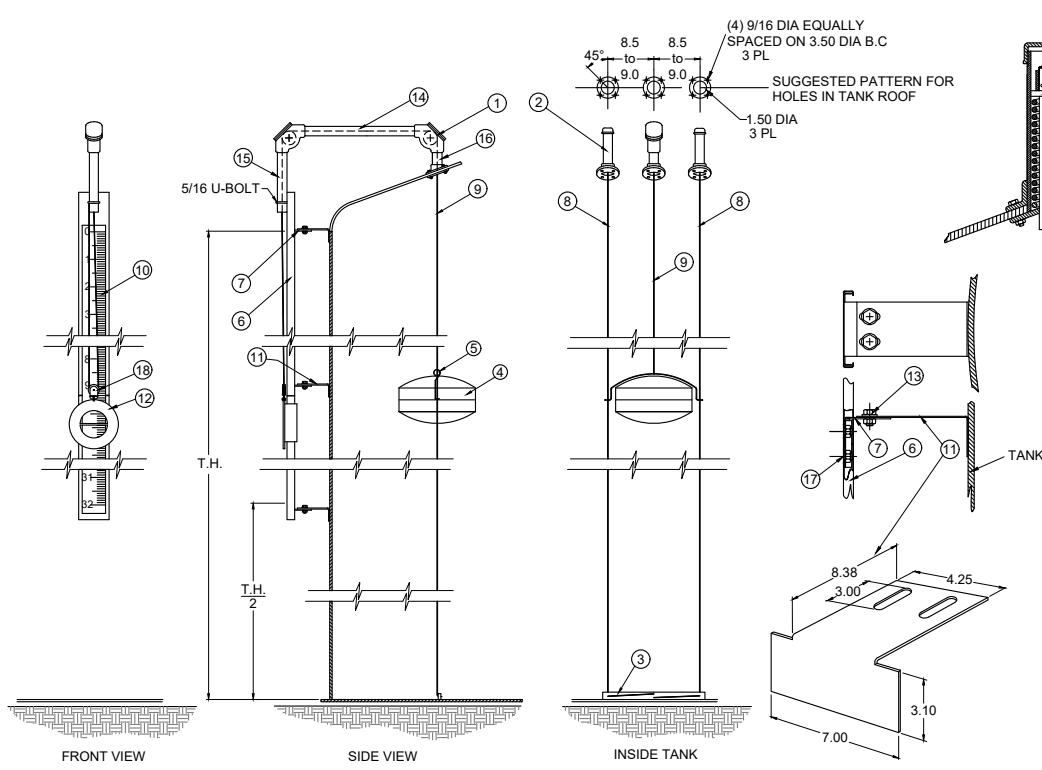
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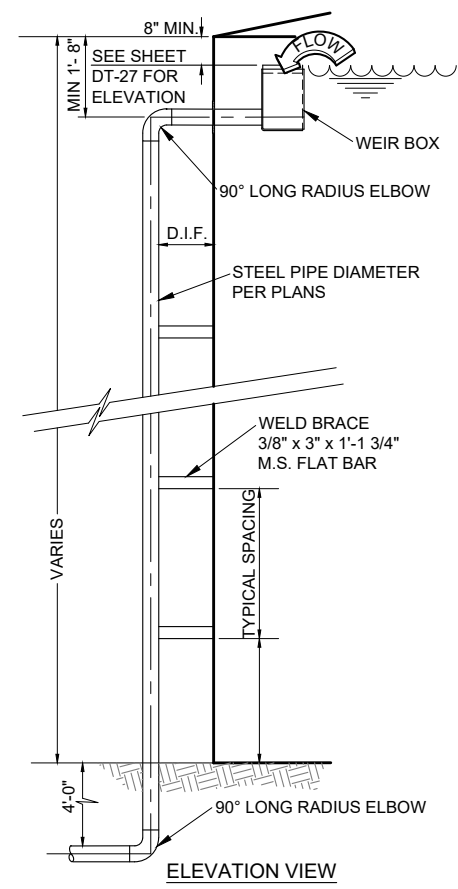
Date: September 2022
 Scale: Horiz: 1" = 6'
 Vert: N/A

Project No: 6922268
 Sheet: DT-29



TYPICAL HALF HEIGHT LIQUID INDICATOR DETAILS
NOT TO SCALE

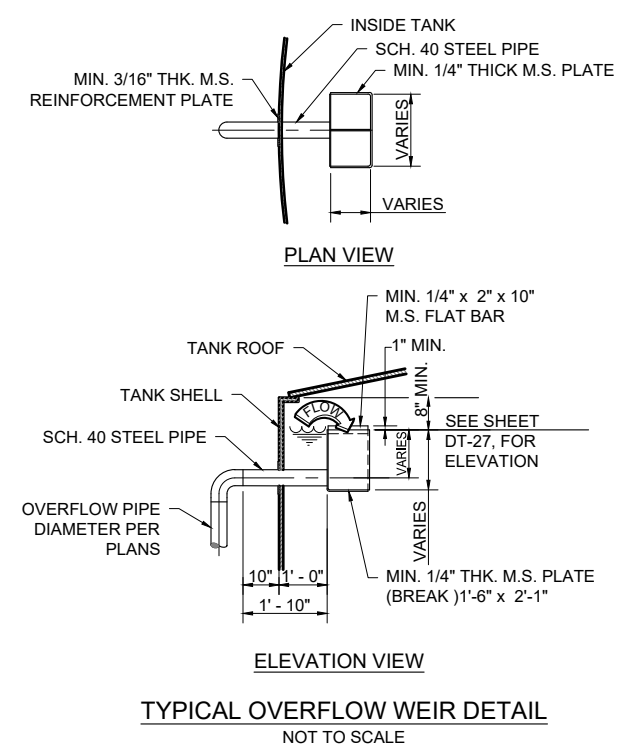
ITEM	NAME	MATERIAL
1	ELBOW, 90°	TEMPERATURE ULTEM PULLEY A356 ALUMINUM WITH HIGH
2	TOP ANCHOR TENSIONER	WITH STAINLESS STEEL SPRING HDG STEEL TENSIONER ASSEMBLY
3	BOTTOM ANCHOR	STAINLESS STEEL ANGLE
4	S/S FLOAT- 16#	WELD, FOAM FILLED .045H STAINLESS STEEL
5	CABLE FASTENERS	304 STAINLESS STEEL CRIMP & 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 TANK OVERFLOW DETAIL
NOT TO SCALE

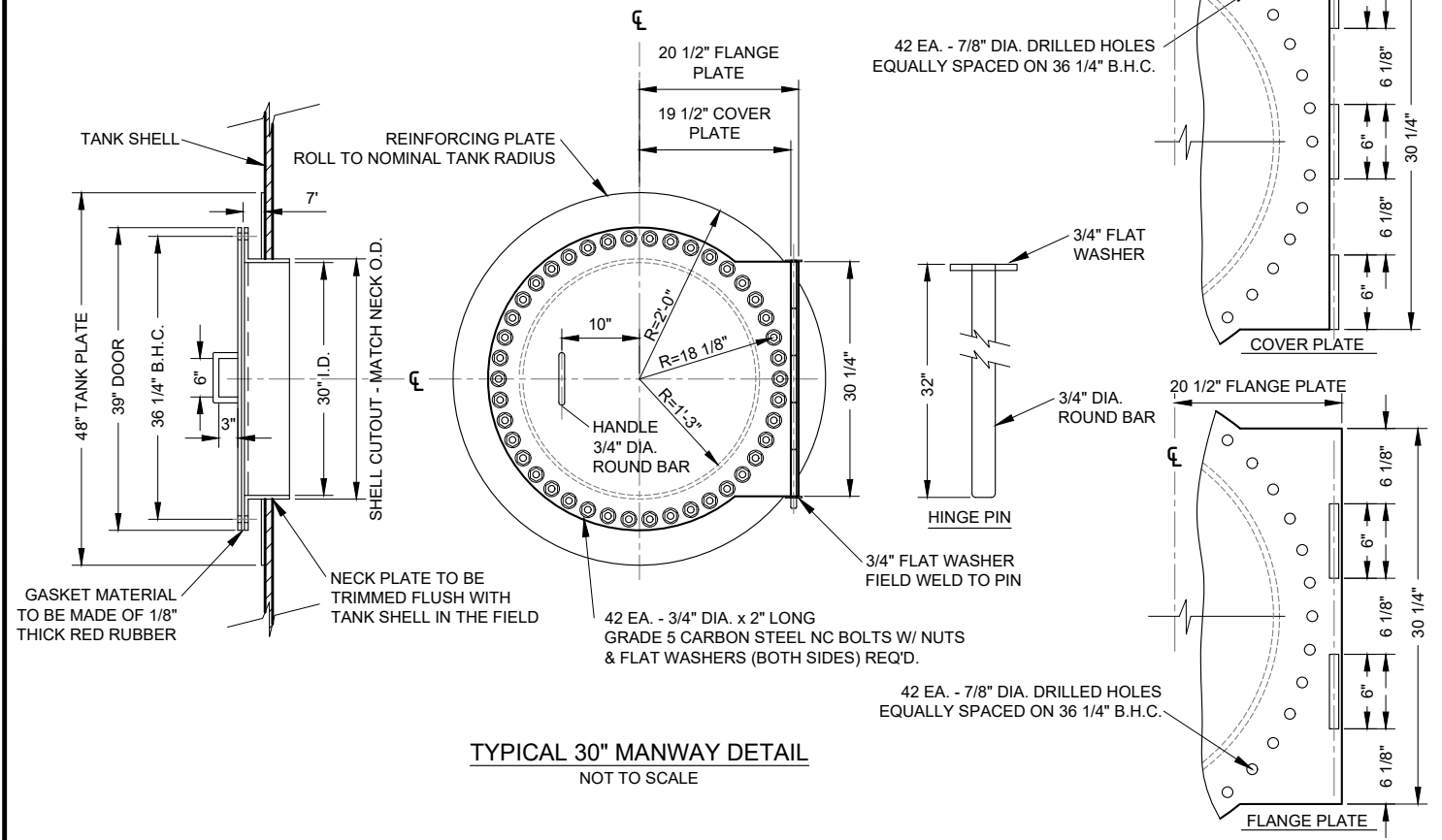
SEE TANK PLAN AND ELEVATION SHEETS DT-26 & DT-27, FOR PIPE SIZE, HEIGHT AND ELEVATION.

- NOTE:**
- DIMENSIONS INDICATING SEPARATION BETWEEN WEIR FROM ROOF ARE MINIMUMS ONLY. ACTUAL DIMENSIONS MAY BE GREATER TO ACCOMMODATE SLOSH WAVE, AS CALCULATED BY TANK MANUFACTURER.
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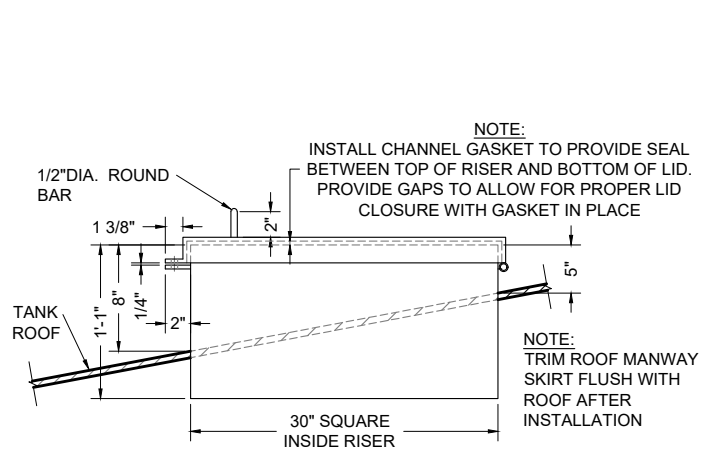


TYPICAL OVERFLOW WEIR DETAIL
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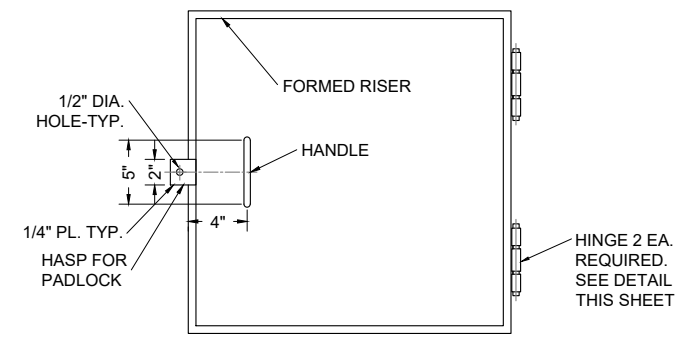
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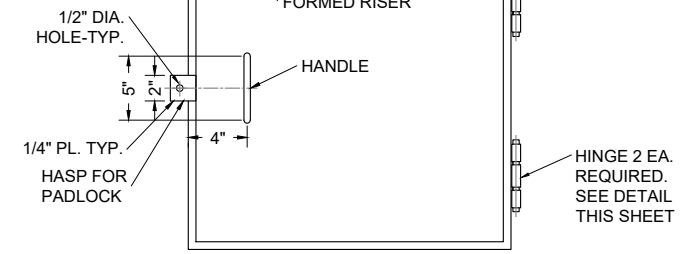
TYPICAL 30" MANWAY DETAIL
NOT TO SCALE



30" SQUARE ROOF HATCH DETAIL
NOT TO SCALE



HINGE DETAIL - 2 EA. REQ'D



30" SQUARE ROOF HATCH DETAIL
NOT TO SCALE

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

NOTE: TRIM ROOF MANWAY SKIRT FLUSH WITH ROOF AFTER INSTALLATION

Client: The Navajo Nation
Location: Tseil'ani, NM

TYPICAL WATER STORAGE TANK DETAILS (1 OF 2)
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
MCKINLEY COUNTY, NEW MEXICO

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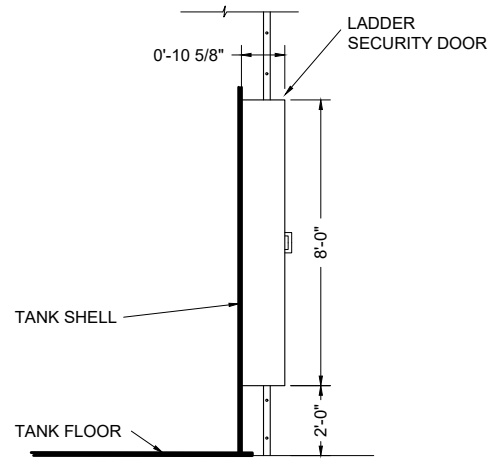
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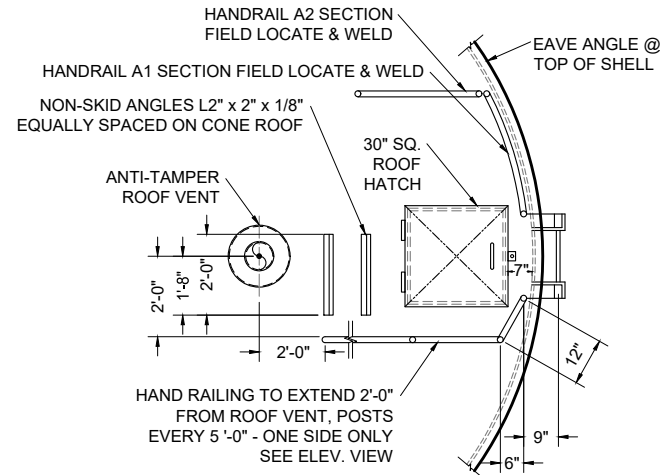
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Project No: 6922268
Sheet: DT-30

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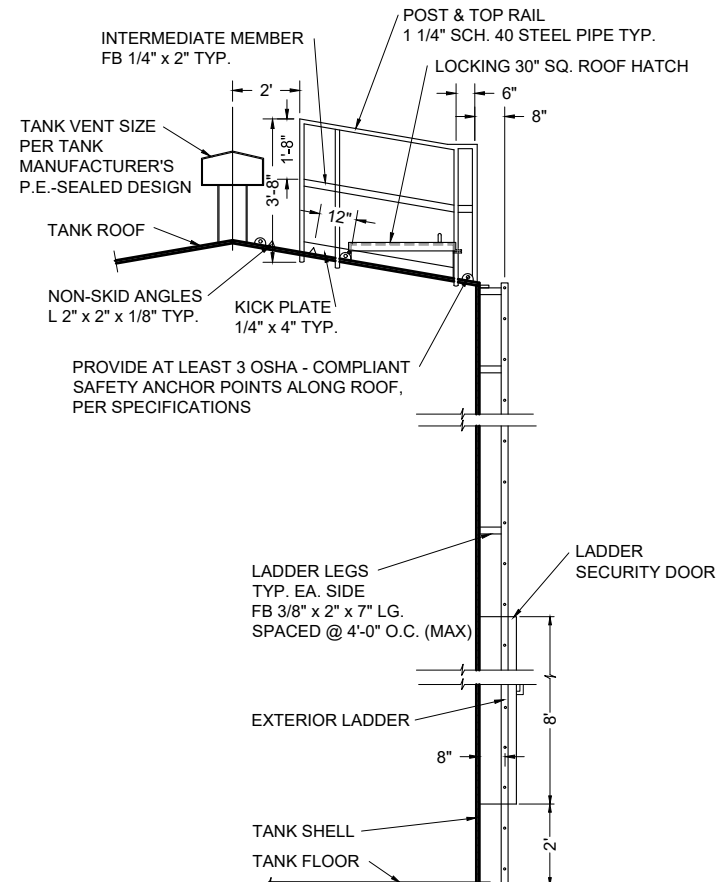
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9/16/2022 9:05:06 AM mwh



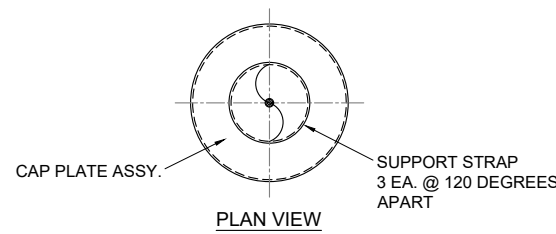
SIDE VIEW
NOT TO SCALE



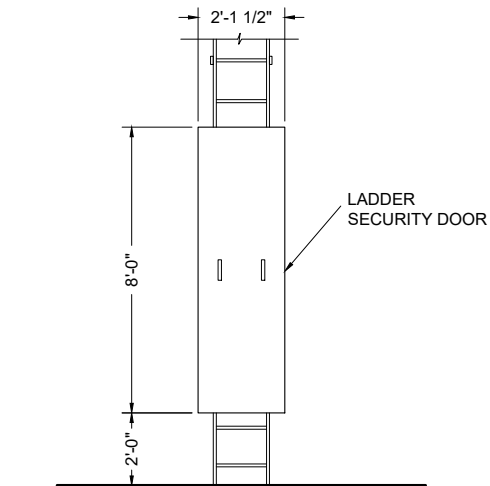
OVERALL PLAN VIEW
NOT TO SCALE



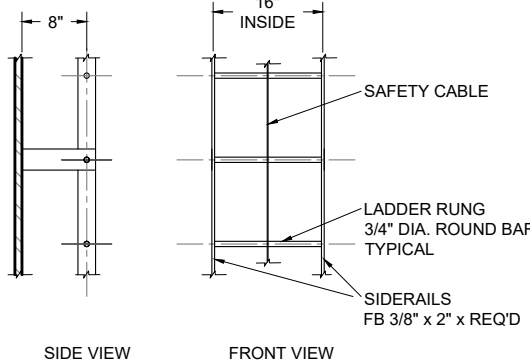
TANK CUTAWAY ELEVATION VIEW



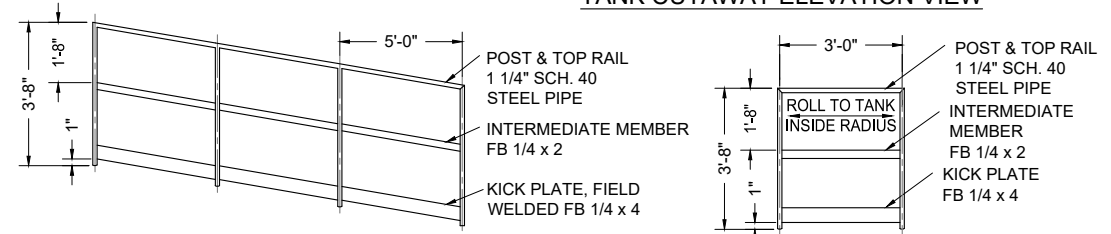
PLAN VIEW



FRONT VIEW
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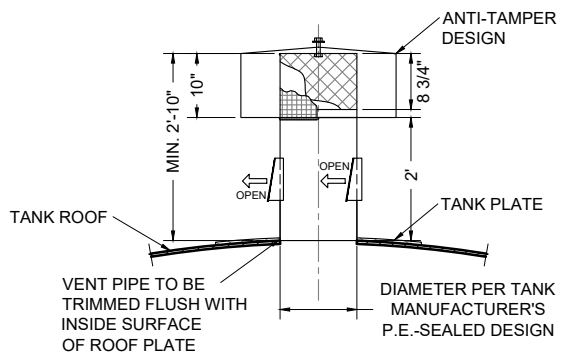


LADDER DETAILS
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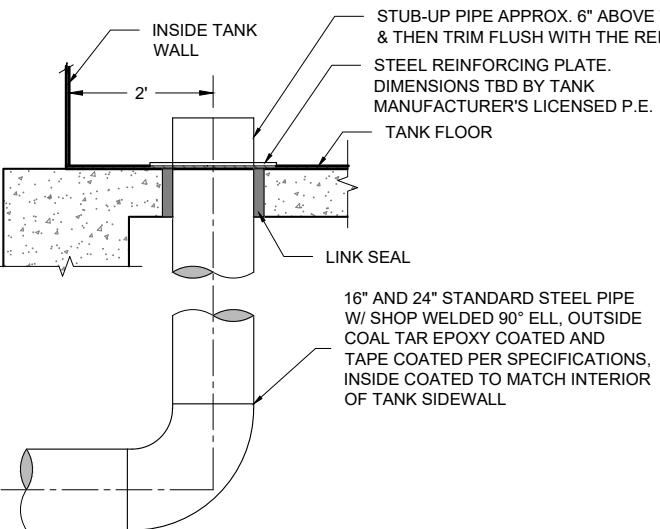


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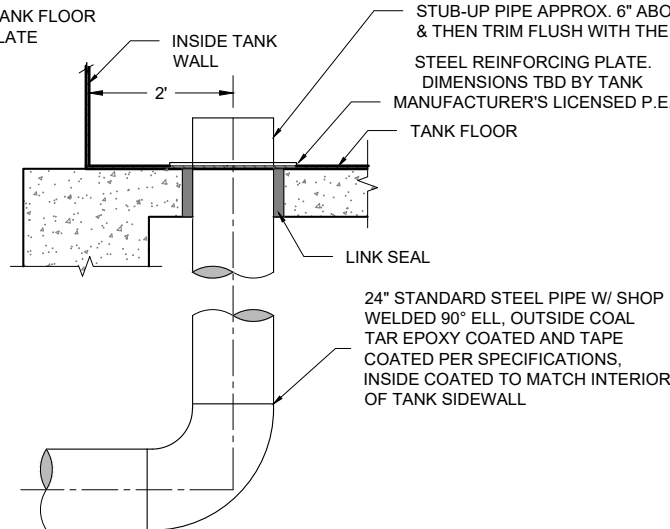
HANDRAIL A1 DETAIL
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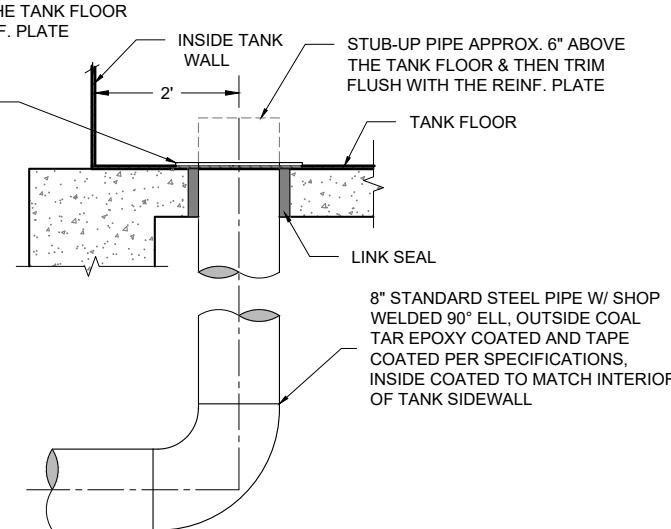
VERTICAL C/L OF TANK AND VENT WITH FROST PROOF DOORS
NOT TO SCALE



ELEVATION VIEW
16" AND 24" INLET DETAIL
NOT TO SCALE



ELEVATION VIEW
24" OUTLET DETAIL
NOT TO SCALE



ELEVATION VIEW
8" TANK FLOOR DRAIN DETAIL
NOT TO SCALE

By: CHKD
Revision: Date: Description: [Table with 3 columns and 10 rows]

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SMA

Location: Tsel'itahi, NM
Client: The Navajo Nation
TYPICAL WATER STORAGE TANK DETAILS (2 OF 2)
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
MCKINLEY COUNTY, NEW MEXICO

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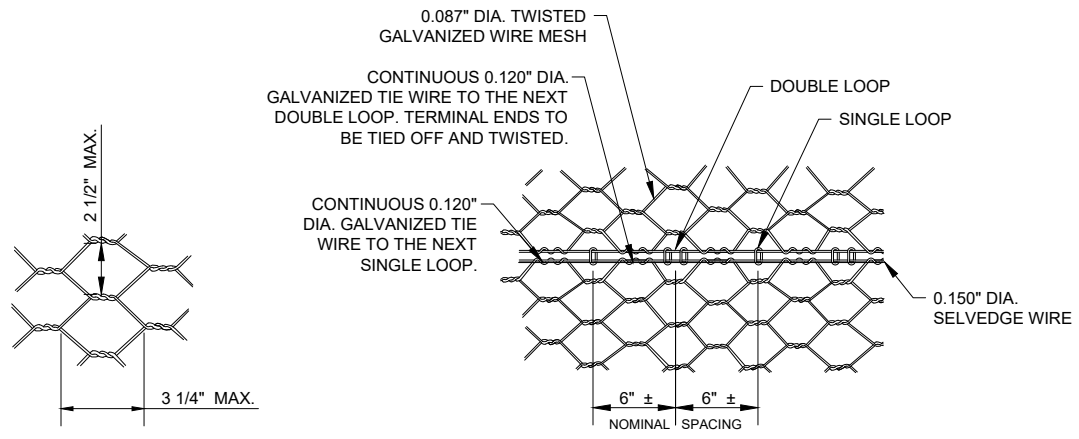
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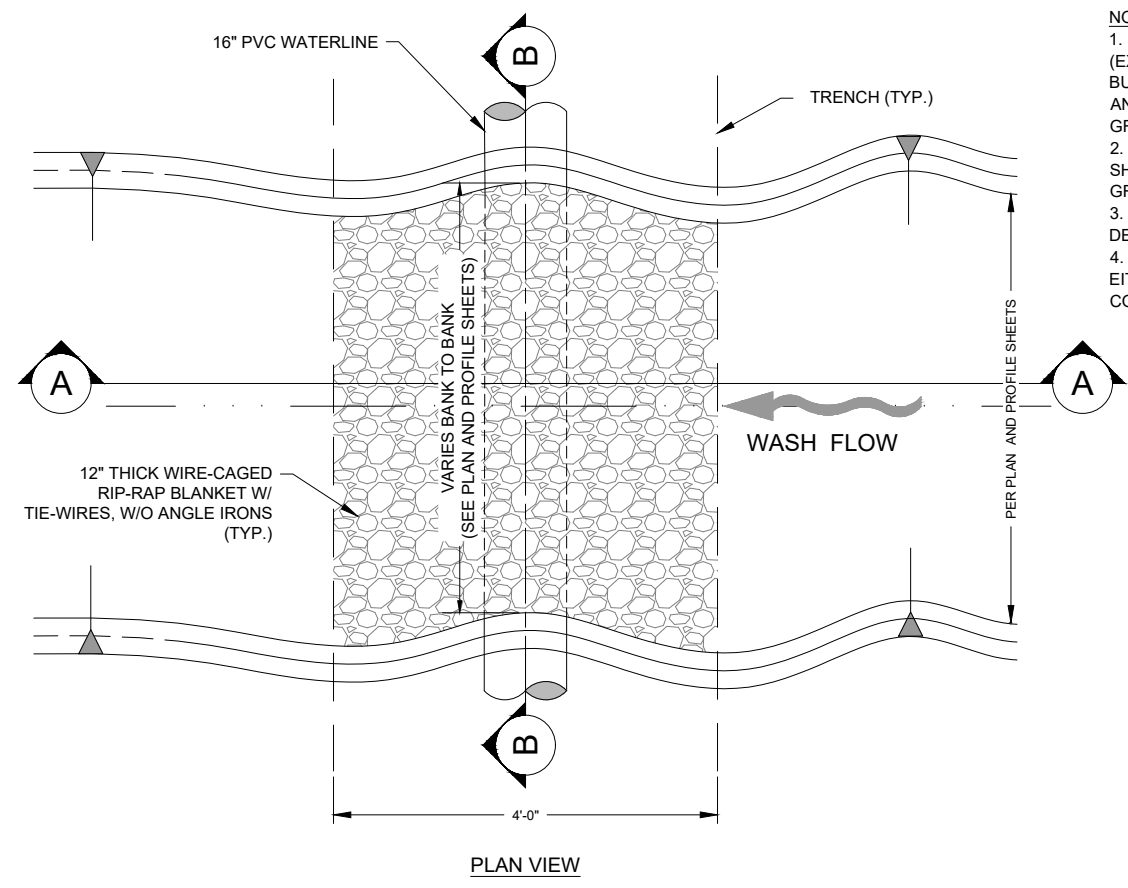
Date: September 2022
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Project No: 6922268
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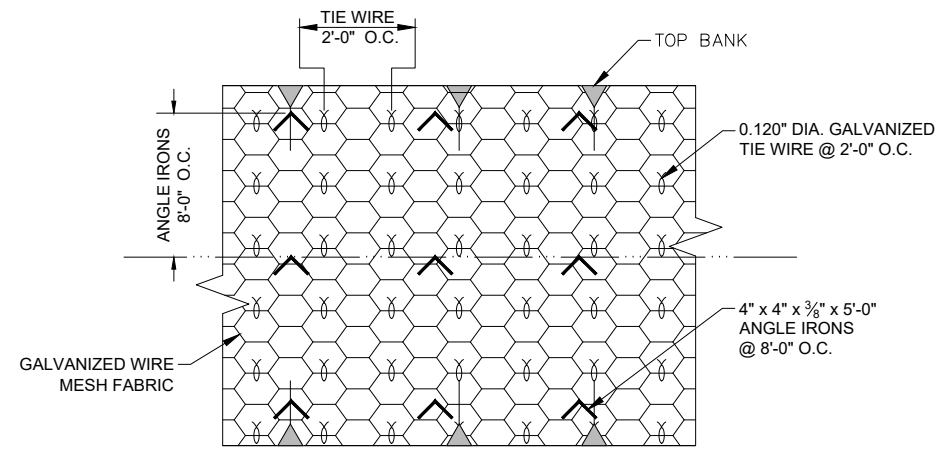
TWISTED MESH MATTRESS
NOT TO SCALE

STANDARD JOINT CONNECTION DETAIL
NOT TO SCALE

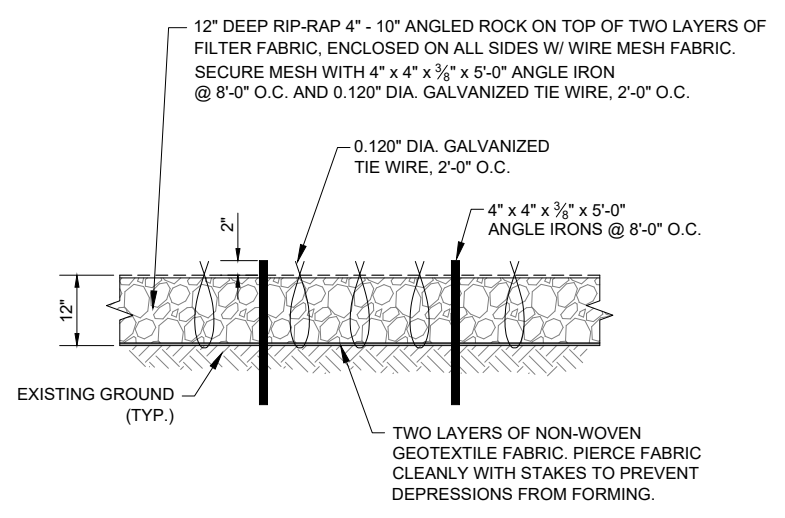


PLAN VIEW

- NOTE:**
1. FOR RIP-RAP BLANKETS IN NATURAL WATERWAYS (EXCEPT FLUSH VALVE OUTLETS), BLANKET SHALL BE BURIED AS SHOWN. COVER BLANKET WITH NATURAL SOIL AND REGRADE TO RESTORE WASH FLOWLINE TO NATURAL GRADE.
 2. RIP-RAP BLANKETS AT SITES AND FLUSH VALVE 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 AND FLUSH VALVE OUTLETS, EITHER RIP-RAP OR CABLE CONCRETE MAY BE USED AT CONTRACTOR'S OPTION

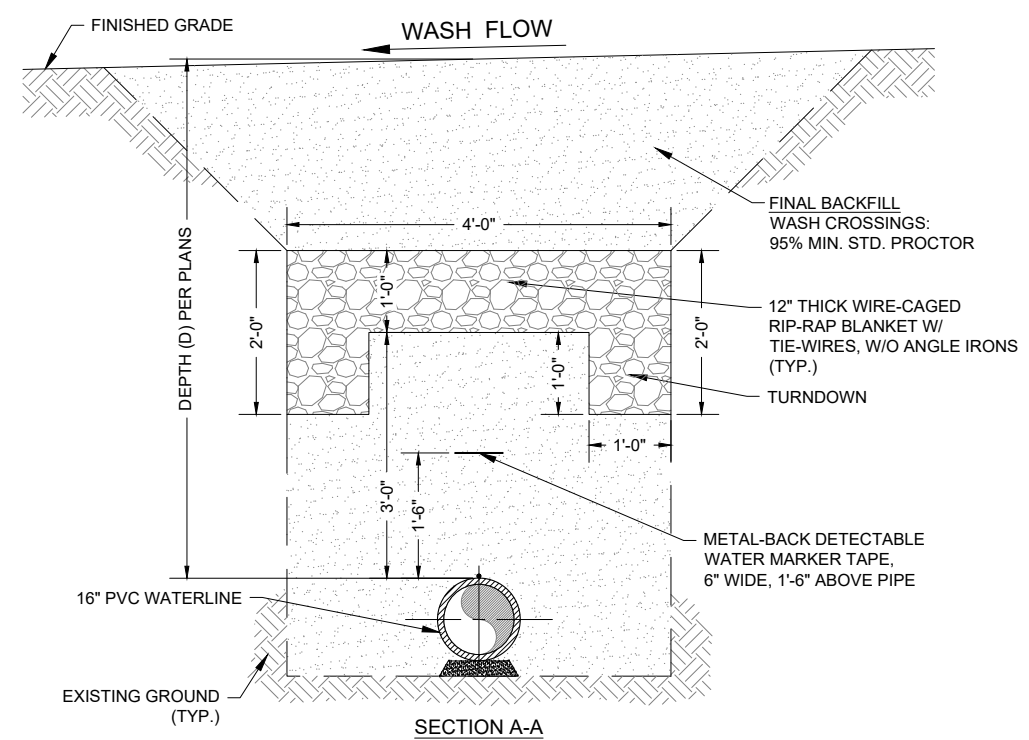


TYP. 12\"/>



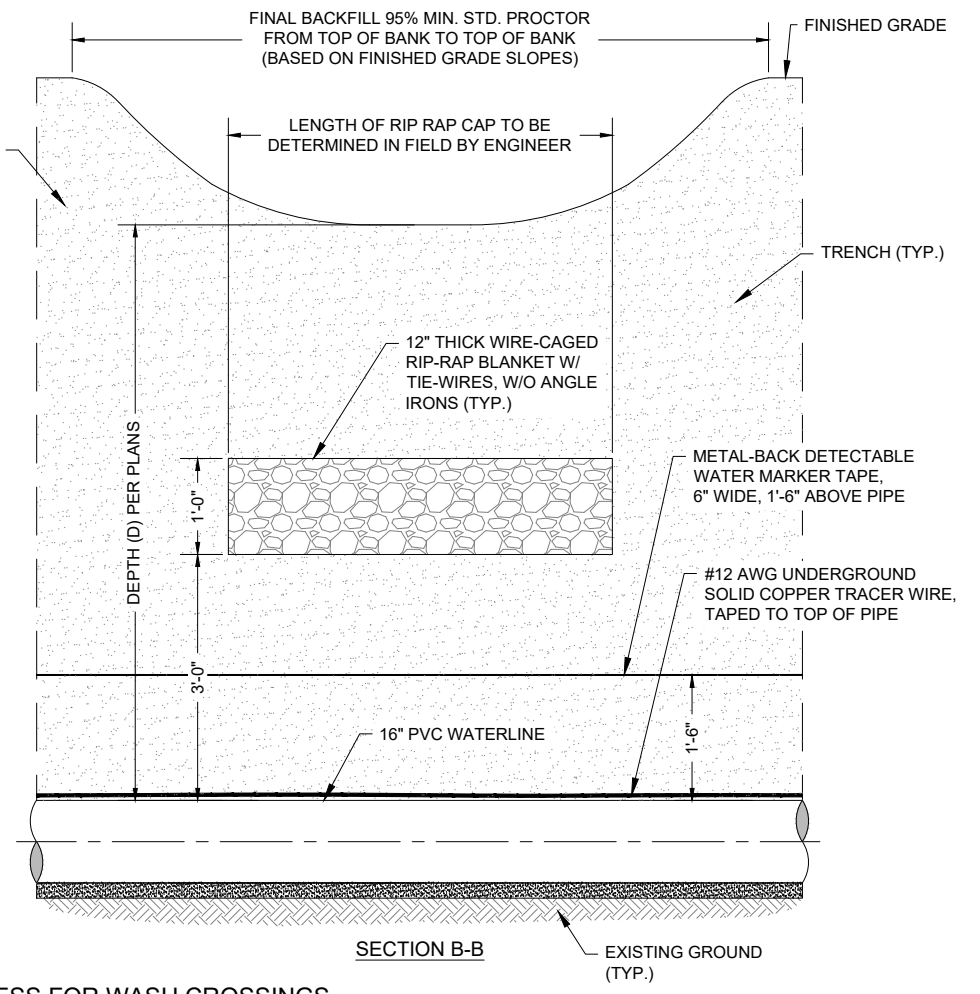
CROSS SECTION

TYPICAL 12\"/>



SECTION A-A

TYPICAL BURIED 12\"/>



SECTION B-B

EXISTING GROUND (TYP.)

P:\6-Beacon Bisti N9 Water Line (6922268)\CAD\Civil\Reach 10.2 Erosion Control Details.dwg 9/16/2022 8:05:22 AM CAB

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Client: The Navajo Nation
Location: Tseil'ihai, NM

EROSION CONTROL DETAILS (1 OF 4)
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
MCKINLEY COUNTY, NEW MEXICO

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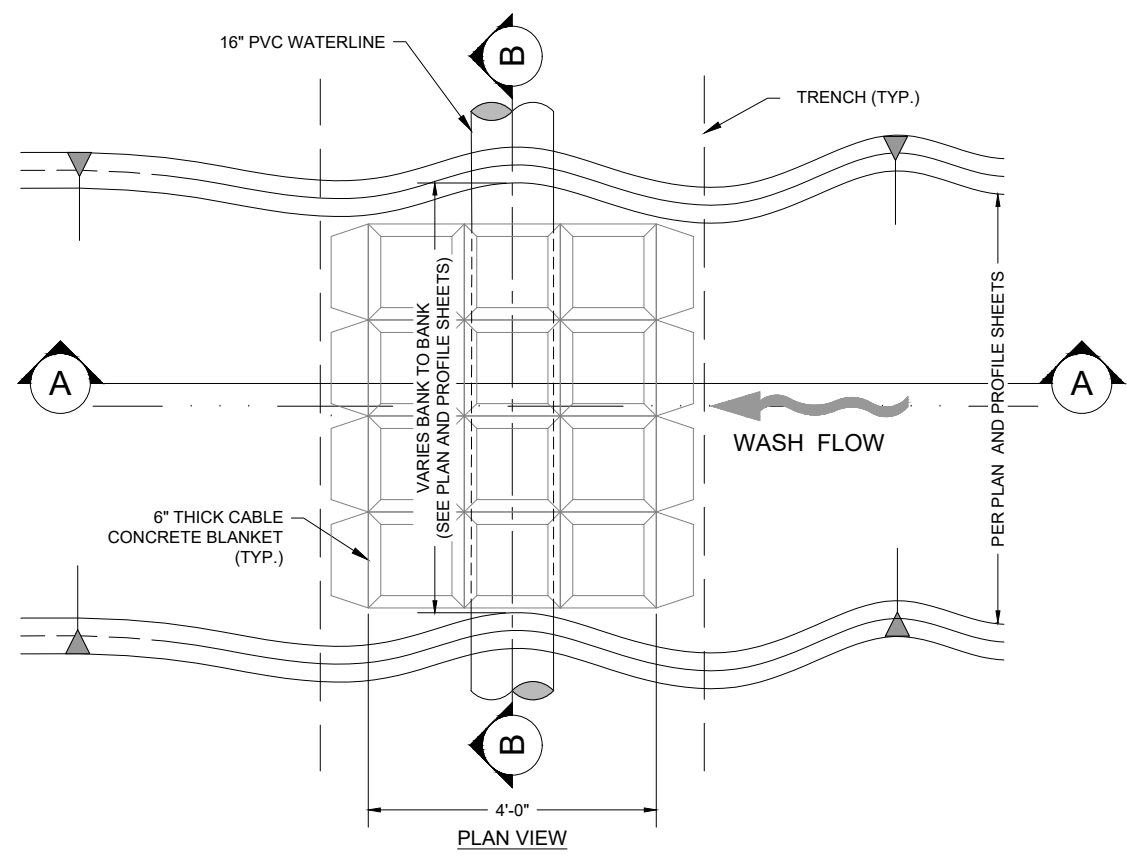
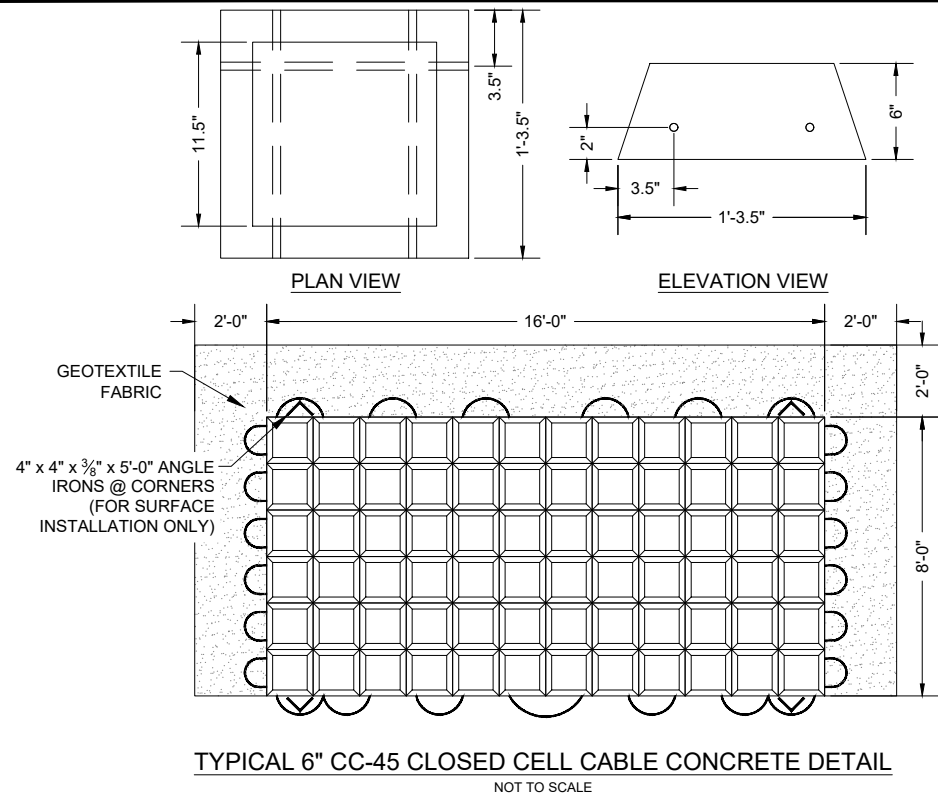
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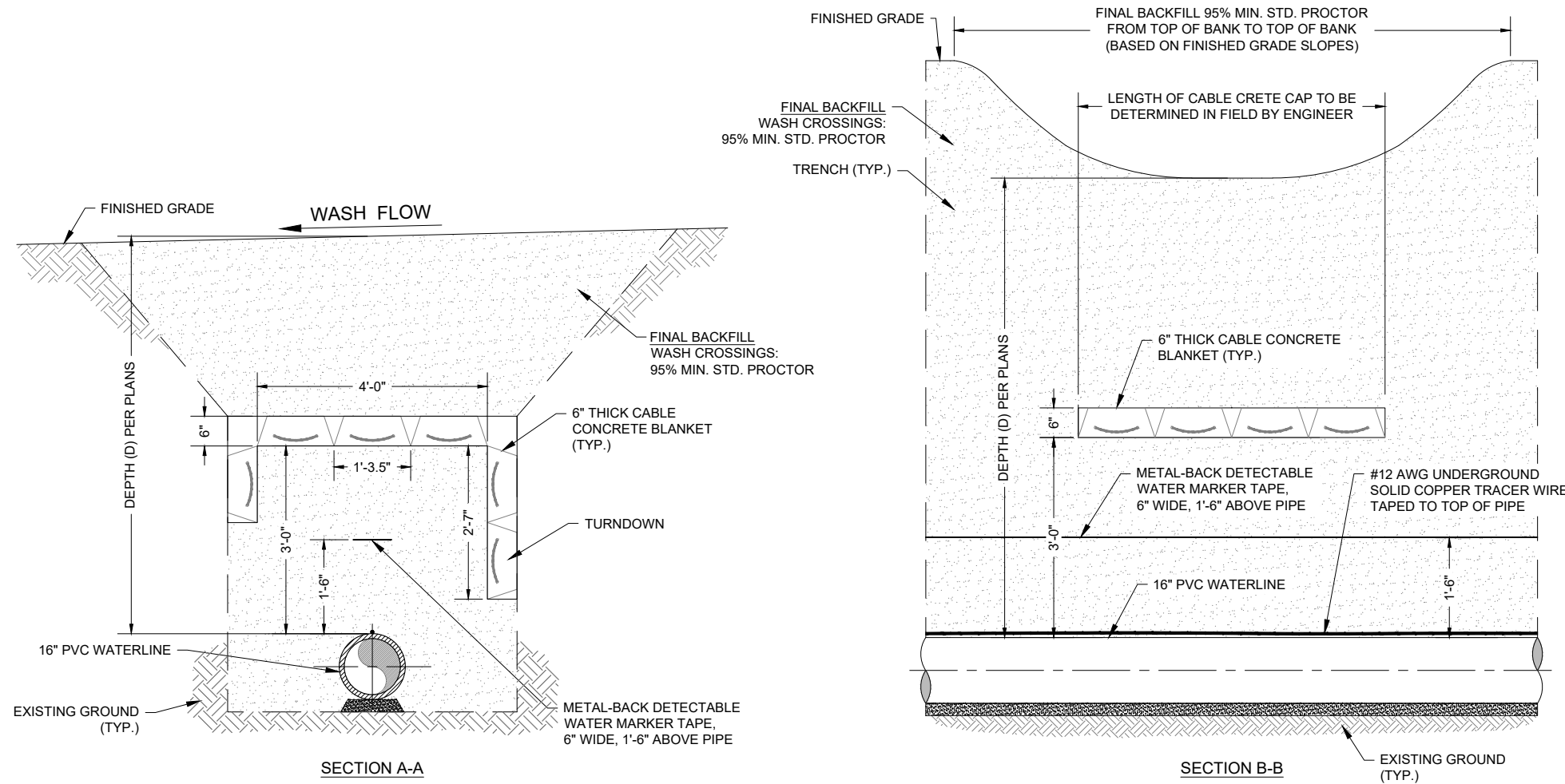
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Vert: N/A

Project No: 6922268
Sheet: **DT-32**



- 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 AND FLUSH VALVE 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 AND FLUSH VALVE OUTLETS, EITHER RIP-RAP OR CABLE CONCRETE MAY BE USED AT CONTRACTOR'S OPTION.



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

By: CHK'd
Description:
Date:
Revision:

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Client: The Navajo Nation
Location: Tseil'ihali, NM

EROSION CONTROL DETAILS (2 OF 4)
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
MCKINLEY COUNTY, NEW MEXICO

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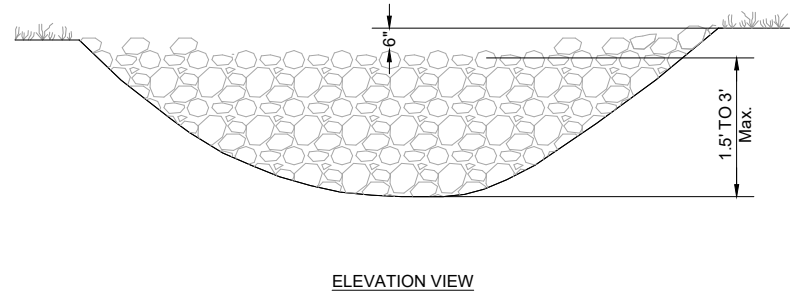
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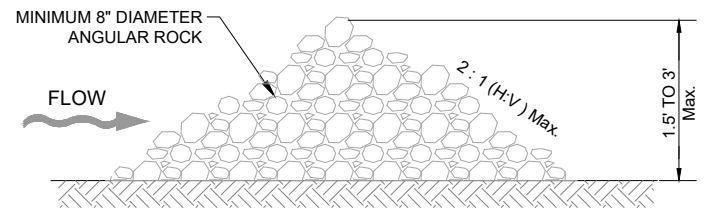
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Project No: 6922268
Sheet: **DT-33**

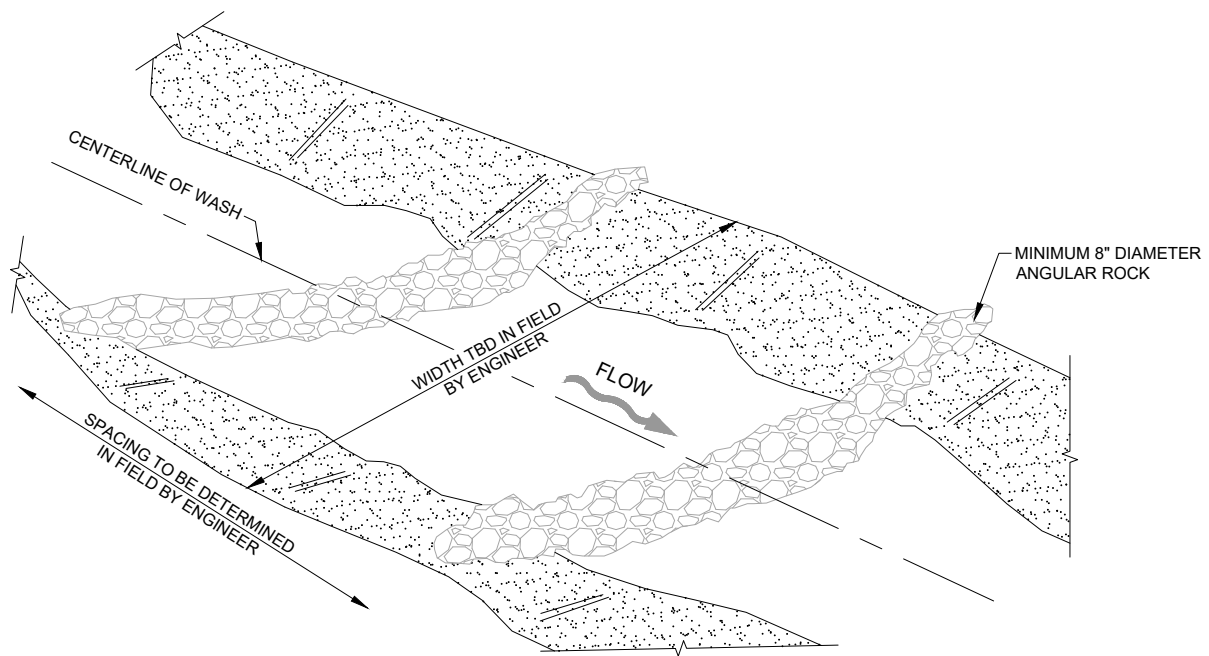
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ELEVATION VIEW

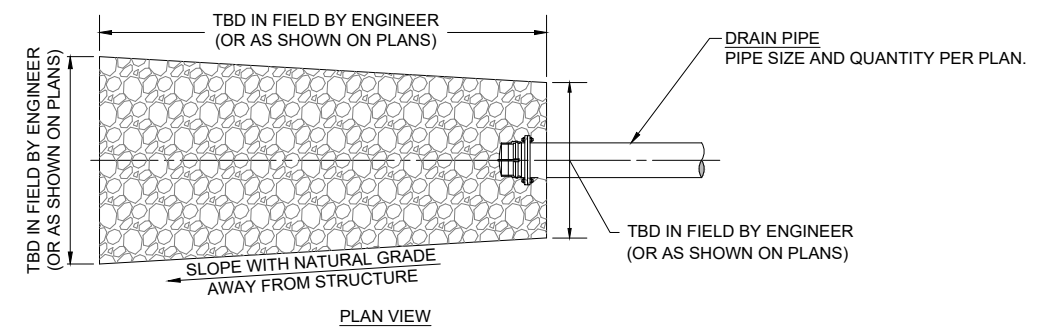


TYPICAL ROCK DAM SECTION

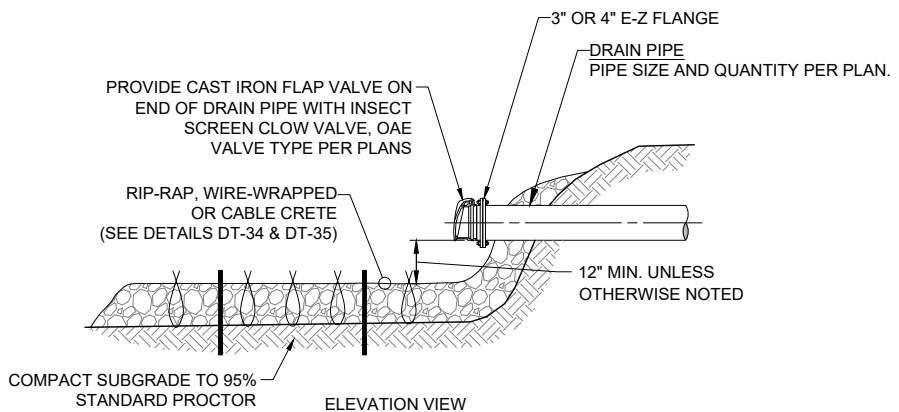


ISOMETRIC VIEW

ROCK CHECK DAM DETAIL
NOT TO SCALE

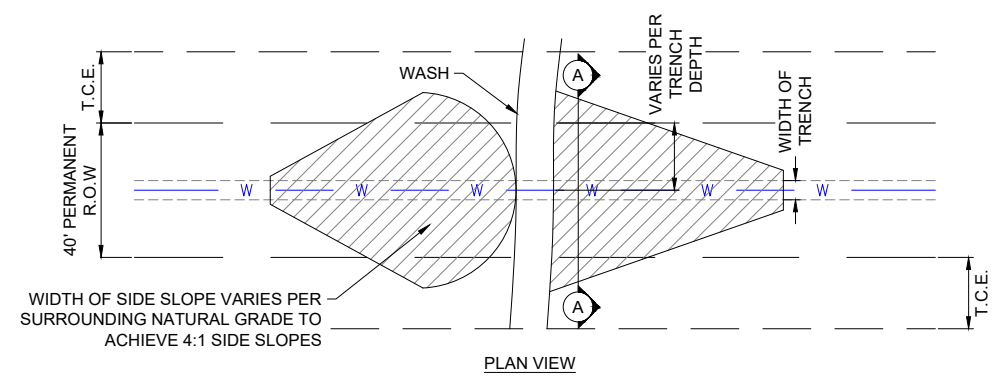


PLAN VIEW

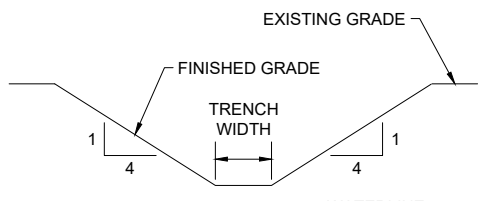


ELEVATION VIEW

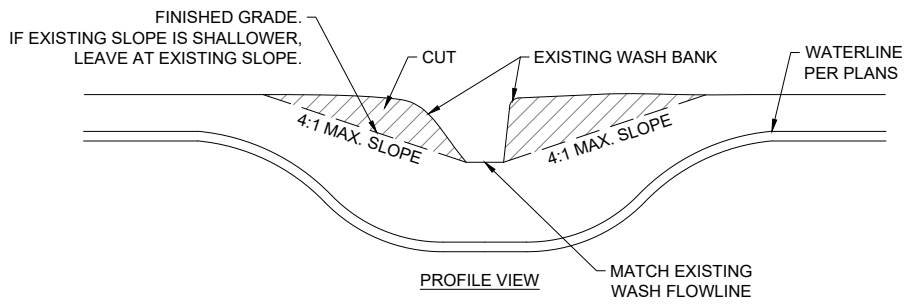
TYPICAL SPLASH PAD DETAIL
NOT TO SCALE



PLAN VIEW



SECTION A-A



PROFILE VIEW

WASH CROSSING GRADING DETAIL
NOT TO SCALE

NOTE:
1. ALL GRADING MUST REMAIN WITHIN
TEMPORARY CONSTRUCTION EASEMENT.

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Client: The Navajo Nation
Location: Tseil'ihah, NM
EROSION CONTROL DETAILS (3 OF 4)
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
MCKINLEY COUNTY, NEW MEXICO

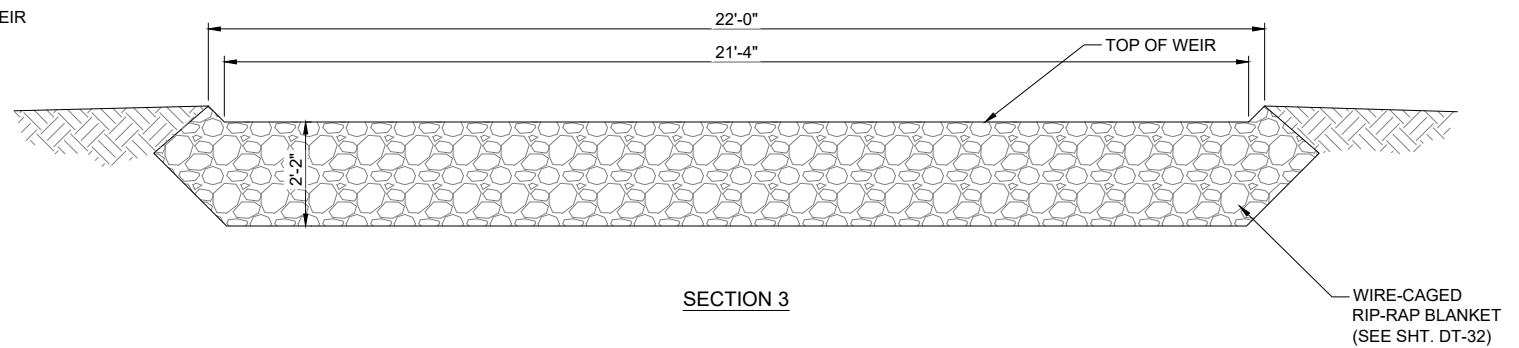
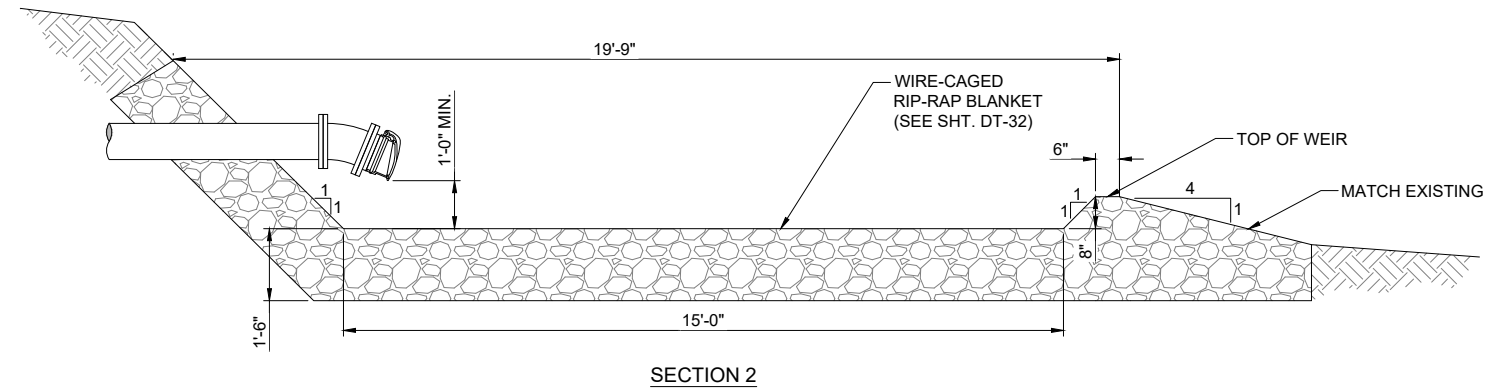
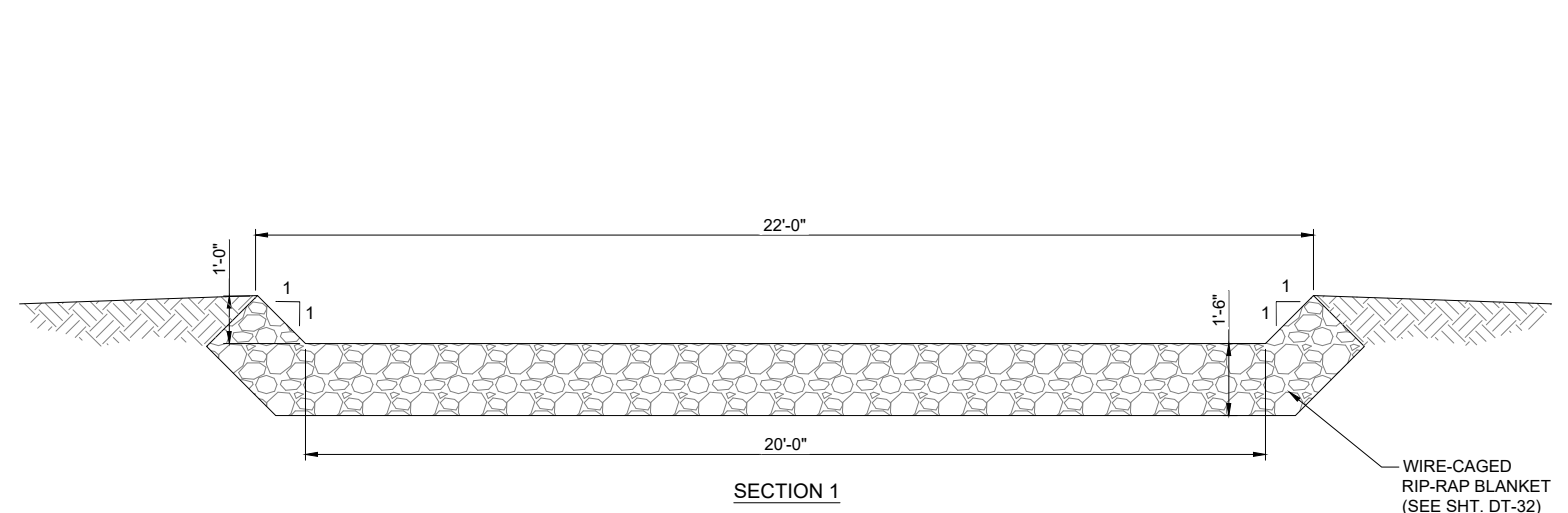
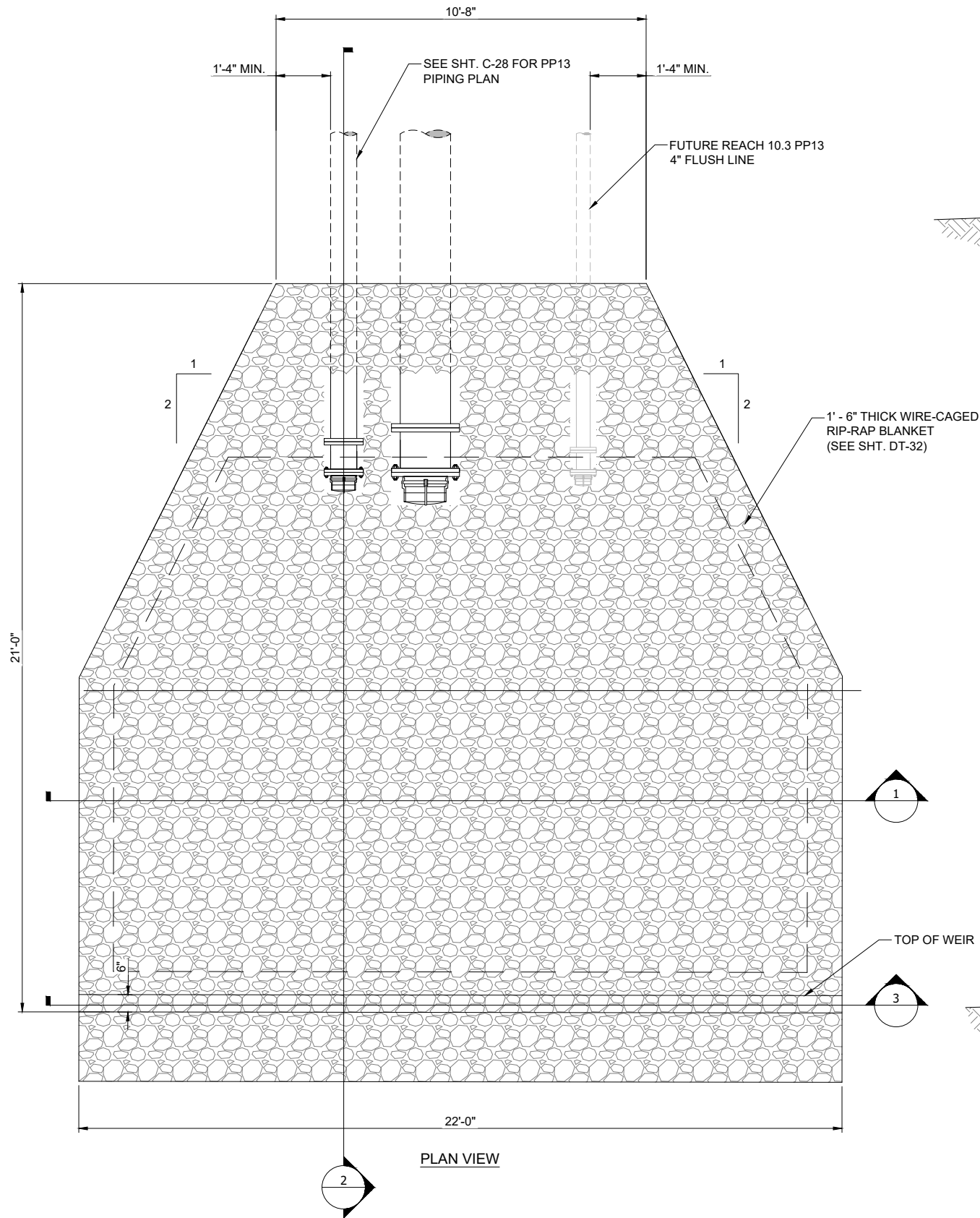
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SPLASH PAD DETAIL
SCALE: 1" = 2'

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Client: The Navajo Nation
Location: Tse'i'ahí, NM

EROSION CONTROL DETAILS (4 OF 4)
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
MCKINLEY COUNTY, NEW MEXICO

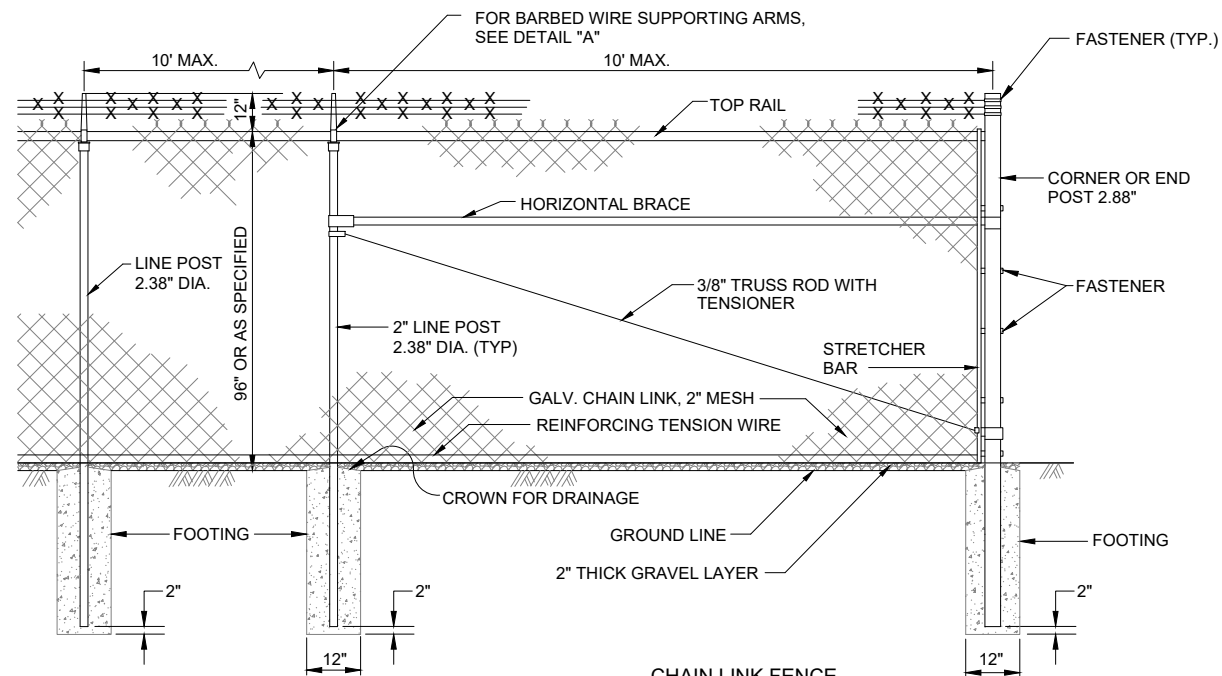
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TTT	CAB	JMG

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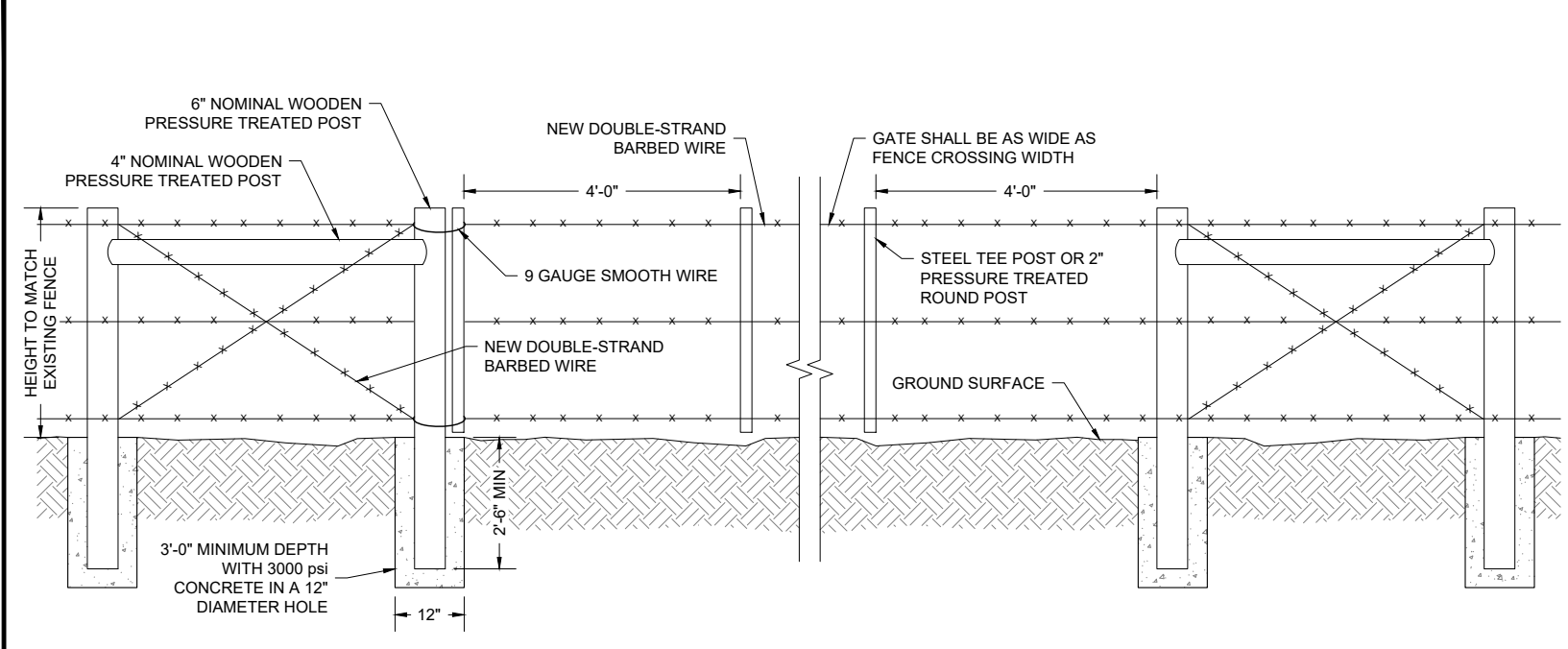
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Project No: 6922268
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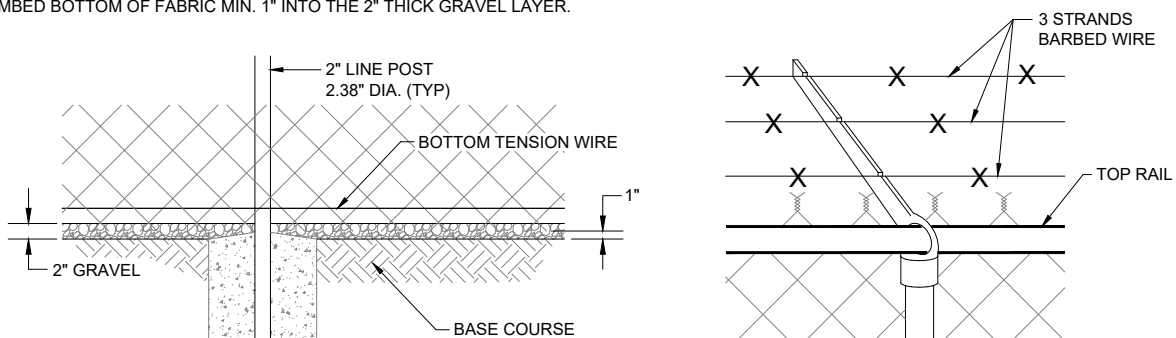


CHAIN LINK FENCE
NOT TO SCALE

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

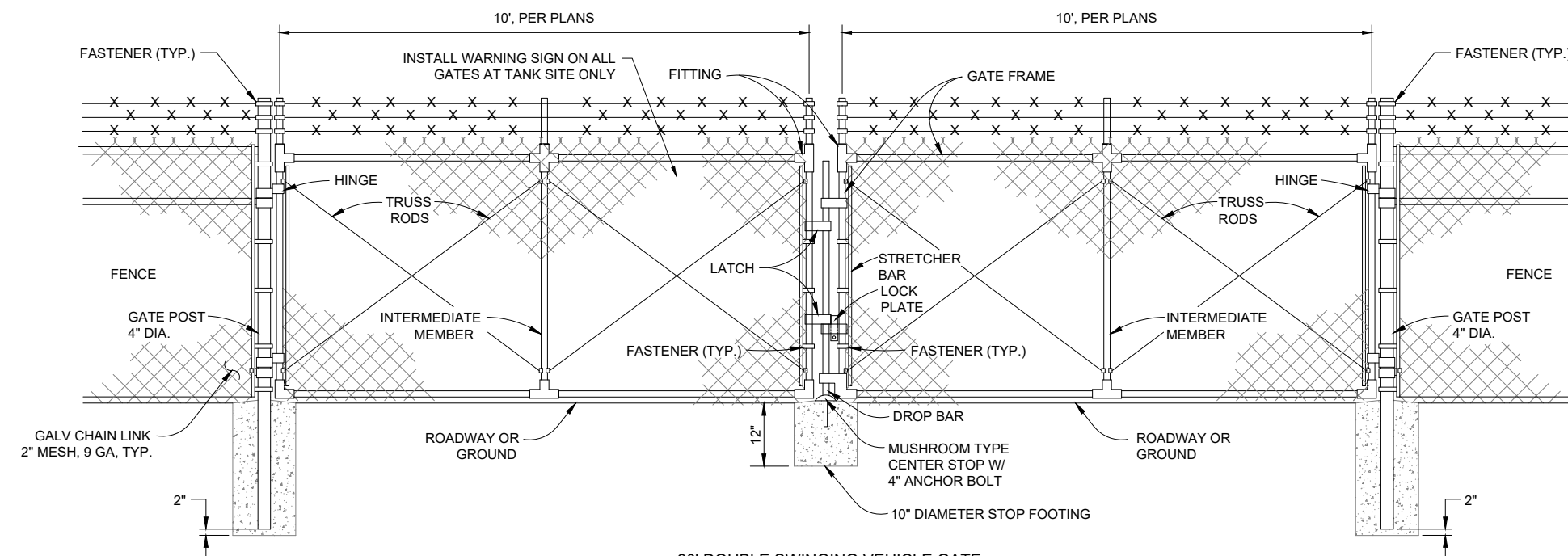


"RANCHER STYLE" GATE WITH H-BRACE PULL ASSEMBLY AT FENCE CROSSING
NOT TO SCALE

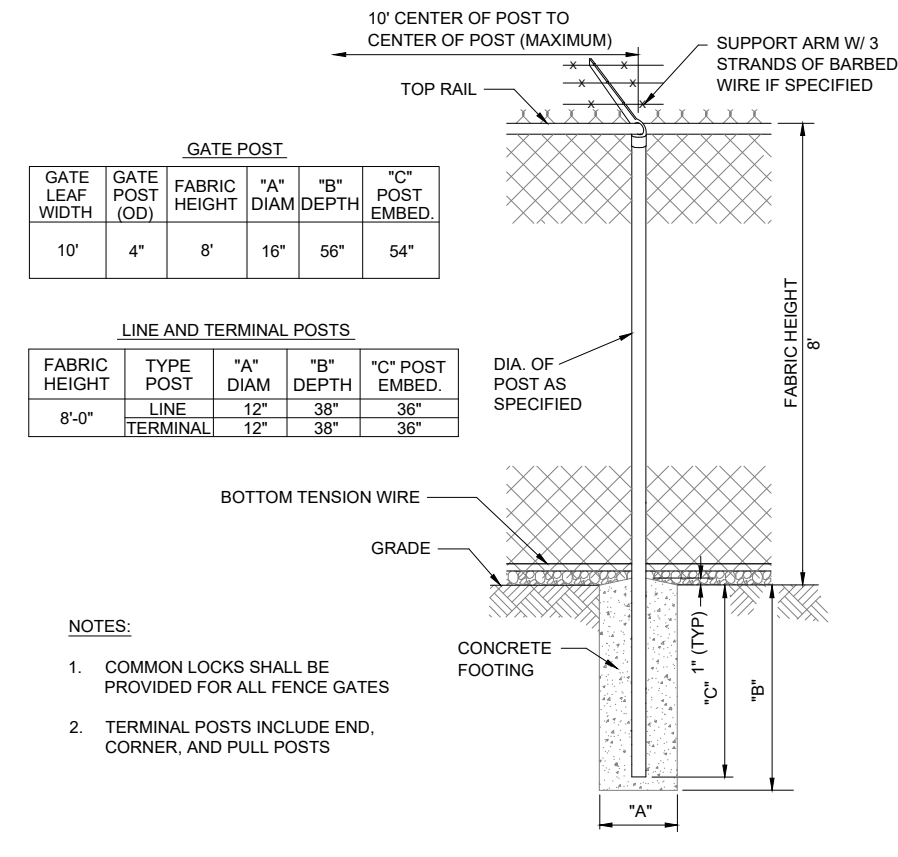


BASE COURSE AND GRAVEL DETAIL
NOT TO SCALE

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



20' DOUBLE SWINGING VEHICLE GATE
NOT TO SCALE



GATE POST

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

LINE AND TERMINAL POSTS

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

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

CHAIN LINK FENCE FOUNDATION
NOT TO SCALE

By: CHKD

Revision: _____ Date: _____

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Location: Tseil'fahli, NMI

Client: The Navajo Nation

FENCE DETAILS
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
MCKINLEY COUNTY, NEW MEXICO

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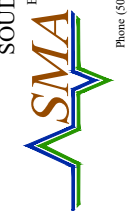
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Client: The Navajo Nation
 Location: Tsel'i'ahni, NM
TRAFFIC CONTROL (PAVED ROAD)
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
 MCKINLEY COUNTY, NEW MEXICO

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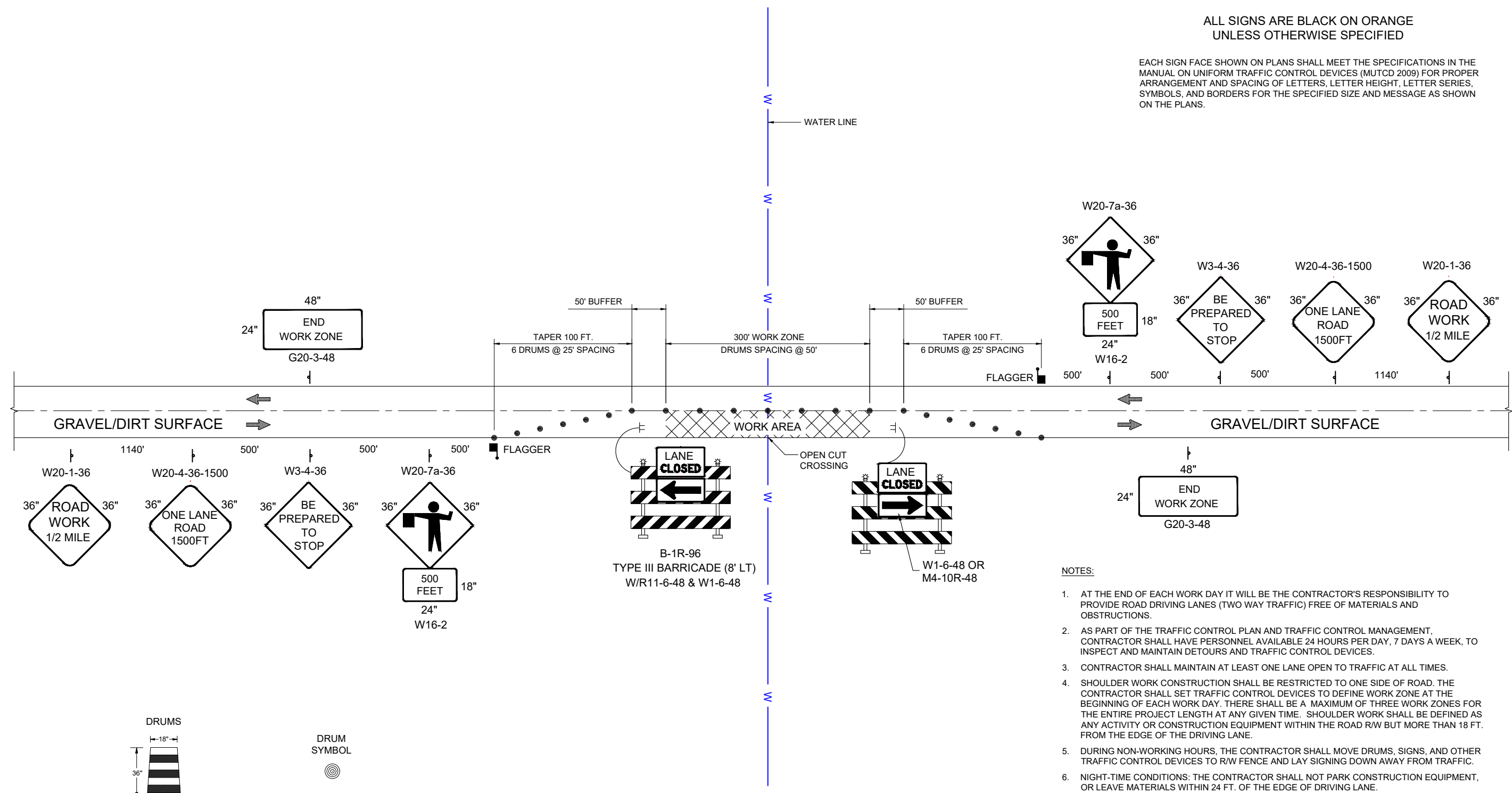


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 Vert: N/A
 Project No: 6922268
 Sheet: DT-37

ALL SIGNS ARE BLACK ON ORANGE
 UNLESS OTHERWISE SPECIFIED

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



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

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

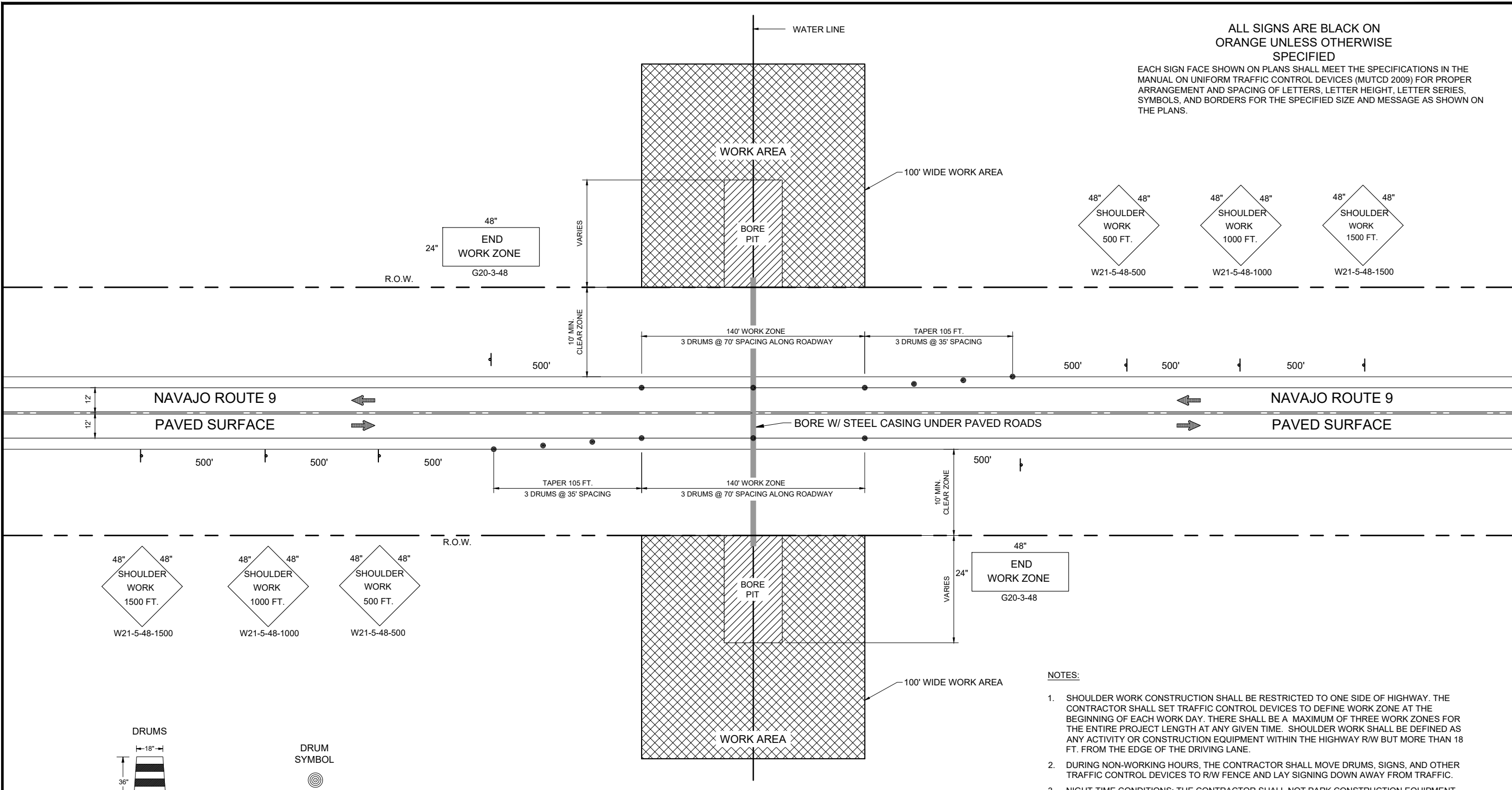
LANE CLOSURE (LEFT AND RIGHT)
 OPEN CUT GRAVEL/DIRT ROADWAYS
 NMDOT CHANNELIZATION DEVICES, TYPE: DRUM, NO. 702525. TOTAL OF 21 DRUMS REQUIRED

NOTES:

- 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.
- 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.
- CONTRACTOR SHALL MAINTAIN AT LEAST ONE LANE OPEN TO TRAFFIC AT ALL TIMES.
- 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.
- 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.
- NIGHT-TIME CONDITIONS: THE CONTRACTOR SHALL NOT PARK CONSTRUCTION EQUIPMENT, OR LEAVE MATERIALS WITHIN 24 FT. OF THE EDGE OF DRIVING LANE.
- THE CONTRACTOR SHALL PROVIDE ACCESS TO ALL DRIVEWAYS AND TURNOUTS AT ALL TIMES.
- LANE CLOSURE SHALL BE USED WHEN ANY CONSTRUCTION EQUIPMENT, CONSTRUCTION MATERIAL, OR CONSTRUCTION OBJECTS ARE WITHIN 18 FT. FROM EDGE OF DRIVING LANE.
- 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.
- EXCEPT DURING AN EMERGENCY, NO NIGHT-TIME WORK TO BE PERFORMED.
- 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.
- FOLLOW ALL ROAD CROSSING PERMITS FOR THE FOLLOWING GRAVEL/DIRT ROADS:
 • MCKINLEY COUNTY ROADS (SEE SHEETS TBD)

P:\6-Beacon Bisti N9 Water Line (6922268)\CAD\Civil\Reach 10.2 Traffic Control.dwg
 9/16/2022 8:05:50 AM msh

P:\6-Beacon Bisti NG Water Line (6922268)\CAD\Civil\Reach 10.2 Traffic Control.dwg
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ALL SIGNS ARE BLACK ON ORANGE UNLESS OTHERWISE SPECIFIED

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

Revision	Date	Description

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 www.soudermiller.com

Client: The Navajo Nation
 Location: Tse'i'ahn, NM
TRAFFIC CONTROL (GRAVEL AND DIRT ROAD)
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
 MCKINLEY COUNTY, NEW MEXICO

90% REVIEW
DRAFT
 PRELIMINARY
 NOT FOR CONSTRUCTION
 9/2022

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

Date: September 2022
 Scale: Horiz: N/A
 Vert: N/A

Project No: 6922268
 Sheet: **DT-38**

**TRAFFIC CONTROL LAYOUT - SHOULDER CLOSURE
 PAVED ROAD CROSSINGS**

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

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

- NOTES:**
- 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.
 - 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.
 - NIGHT-TIME CONDITIONS: THE CONTRACTOR SHALL NOT PARK CONSTRUCTION EQUIPMENT, OR LEAVE MATERIALS WITHIN 24 FT. OF THE EDGE OF DRIVING LANE.
 - THE CONTRACTOR SHALL PROVIDE ACCESS TO ALL DRIVEWAYS AND TURNOUTS AT ALL TIMES.
 - LANE CLOSURE SHALL BE USED WHEN ANY CONSTRUCTION EQUIPMENT, CONSTRUCTION MATERIAL, OR CONSTRUCTION OBJECTS ARE WITHIN 18 FT. FROM EDGE OF DRIVING LANE.
 - 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.
 - EXCEPT DURING AN EMERGENCY, NO NIGHT-TIME WORK TO BE PERFORMED
 - 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.
 - FOLLOW ALL ROAD CROSSING REQUIREMENTS FOR THE FOLLOWING ROAD:
 - NAVAJO ROUTE 9 (SEE SHEET DT-5)

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



ELECTRICAL SYMBOL LEGEND	
SYMBOL	DESCRIPTION
	WALL OUTLET AND SURFACE MOUNTED FIXTURE
	LED OUTLET AND FIXTURE
	SINGLE POLE SWITCH, FLUSH MOUNTED 48" A.F.F.
	DUPLEX CONVENIENCE OUTLET, 18" A.F.F.
	WEATHERPROOF DUPLEX CONVENIENCE OUTLET, 18" A.F.F.
	DUPLEX CONVENIENCE OUTLET, GROUND FAULT CIRCUIT INTERRUPTER, 18" A.F.F.
	JUNCTION BOX INSTALLED ABOVE LAY-IN CEILING WITH FLEXIBLE CONDUIT CONNECTION TO LAY-IN FIXTURES. MAXIMUM 4'-0" LENGTH OF CONDUIT, WITH REQUIRED CONDUCTORS ALONG WITH GREEN GROUND CONDUCTOR
	JUNCTION BOX FLUSH IN WALL, HEIGHT AS INDICATED ON DRAWINGS, WITH CONNECTION TO EQUIPMENT
	CONCEALED BRANCH CIRCUIT WITH CONDUCTORS AS INDICATED. NEUTRAL, HOT, SWITCH LEG AND GROUND RESPECTIVELY
	BRANCH CIRCUIT OR CONDUIT INSTALLED UNDERGROUND OR UNDER FLOOR
	HOMERUN TO PANELBOARD WITH BRANCH CIRCUIT NUMBERS INDICATED
	SOLENOID VALVE
	LIMIT SWITCH
	PRESSURE TRANSMITTER
	FIRE ALARM SMOKE AND HEAT DETECTOR, PHOTOELECTRIC TYPE, 120V AUX CONTACTS
	MOTOR CONNECTION FOR FRACTIONAL HP MOTOR (1/3 HP OR LESS). PROVIDE THERMAL OVERLOAD SWITCH (WEATHERPROOF IF OUTSIDE) ADJACENT TO MOTOR UNLESS SWITCH IS SHOWN ELSEWHERE ON PLANS
	MOTOR CONNECTION FOR MOTOR WITH HP INDICATED
	DISCONNECT SWITCH, POLES AND RATING AS INDICATED OR AS REQUIRED, NEMA 3R IF INSTALLED OUTSIDE
	FUSED DISCONNECT SWITCH, FUSE, POLES AND RATING AS INDICATED OR AS REQUIRED, NEMA 3R IF INSTALLED OUTSIDE
	COMBINATION MAGNETIC MOTOR CONTROLLER/DISCONNECT SWITCH. SIZE, POLES, FUSES AND OVERLOADS PER MOTOR SERVED
	MAGNETIC MOTOR CONTROLLER, SIZE AND POLES PER MOTOR SERVED
	TRANSFORMER, DRY TYPE, SIZE AS INDICATED
	THERMOSTAT(M), 48" A.F.F.
	120V PANELBOARD, REFER TO PANEL SCHEDULE
	277V PANELBOARD, REFER TO PANEL SCHEDULE
	SPECIAL PURPOSE CABINET, AS INDICATED ON DRAWINGS
	INTRUSION ALARM DOOR CONTACT MAGNETIC
	NORMALLY OPEN CONTACT
	NORMALLY CLOSED CONTACT
	CONTACTOR
	MOTOR OVERLOADS
	RED PILOT LIGHT
	GREEN PILOT LIGHT
	TRANSFORMER
	RELAY
	SWITCH
	FUSE(S)
	CIRCUIT BREAKER
	PROGRAMMABLE LOGIC CONTROLLER
	REMOTE TERMINAL UNIT
	THERMOSTAT
	WEATHERPROOF (NEMA 3R)
	NOT IN CONTRACT
	NOT TO SCALE
	ABOVE FINISHED FLOOR
	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. TO THE BEST OF THE ENGINEER'S KNOWLEDGE, THERE ARE NO EXISTING UNDERGROUND UTILITIES EXCEPT THOSE SHOWN ON THESE PLANS. THE CONTRACTOR IS REQUIRED TO TAKE ALL PRECAUTIONARY MEASURES TO PROTECT THE 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) THE CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFICATION OF LOCATION OF ALL EXISTING UTILITIES.

SITE CONDITIONS

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

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

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

SITE DESIGN

G16) SUBGRADE. ALL SUBGRADE AND TRENCH BACKFILL SHALL BE COMPACTED TO 95 % OF STANDARD PROCTOR. ALL SUBGRADE AND BACKFILL SHALL BE COMPACTED IN MAXIMUM 8" LOOSE LIFTS. MOISTURE CONTENT AT THE TIME OF COMPACTION SHALL NOT EXCEED OPTIMUM OR BE LESS THAN 5 PERCENTAGE POINTS BELOW OPTIMUM. DRIVEWAYS, APRONS, FILLETS, CURB AND 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

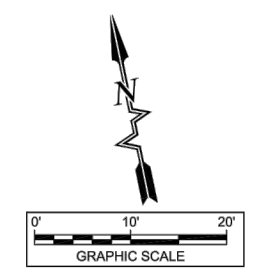
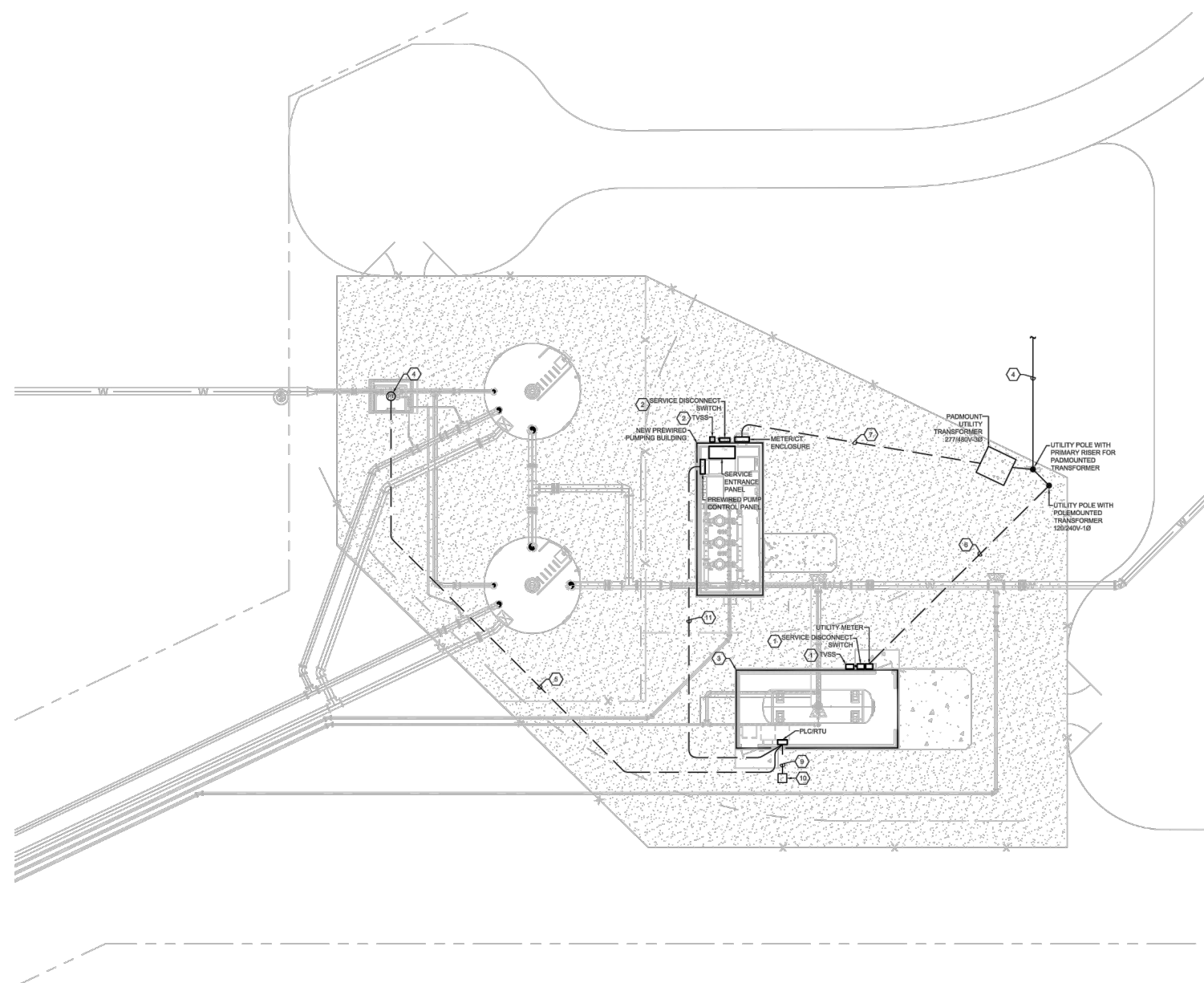
G21) CONTRACTOR SHALL PHASE AND SCHEDULE WORK IN SUCH A WAY AS TO PROVIDE MINIMAL POWER OUTAGES AT THE FACILITY. A PROJECT SCHEDULE SHALL BE SUBMITTED TO THE OWNER FOR REVIEW PRIOR TO ISSUANCE OF NOTICE-TO-PROCEED. CHANGES IN SCHEDULE SHALL BE PRESENTED TO OWNER AND ENGINEER AT LEAST 7 DAYS PRIOR TO 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.



By	CHKD								
Description									
Date									
Revision									
<p style="text-align: center;">SOUDER, MILLER & ASSOCIATES Engineering • Environmental • Geomatics Serving the Southwest & Rocky Mountains 5454 Venice Avenue NE, Suite D Albuquerque, NM 87113 Phone (505) 299-0942, Toll-Free (877) 299-0942, Fax (505) 293-3430 www.soudermiller.com</p>									
<p style="text-align: center;">ELECTRICAL LEGEND AND PROJECT NOTES NAVAJO GALLUP WATER SUPPLY PROJECT BEACON BISTI N9 - REACH 10.2 McKINLEY COUNTY, NEW MEXICO SECTION 1, T. 18 N., R. 16 W.</p>									
Client: ###	Location: ###								
NOT FOR CONSTRUCTION									
22317	Designed TRG/rhp	Drawn TRG/rhp	Checked TRG/itr						
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<div style="display: flex; align-items: center;"> <p>Know what's BELOW. CALL before you dig.</p> </div>									
Date:	9-12-2022								
Scale:	Horiz: Vert:								
Project No:	#####								
Sheet:	E-01								



ELECTRICAL SITE PLAN

GENERAL NOTES

- A. ALL CONDUITS SHOWN DASHED SHALL BE BURIED A MINIMUM OF 36" BELOW FINISHED GRADE. ALL CONDUITS THAT COME IN CONTACT WITH THE GROUND SHALL BE PVC OR DOUBLE LAPPED WRAPPED WITH SCOTCHWRAP-51.
- B. REFER TO SHEET E-01 FOR "ELECTRICAL SYMBOL LEGEND" AND "GENERAL NOTES".
- C. REFER TO SHEET E-51 FOR "POWER RISER DIAGRAM - SURGE TANK" AND SHEET E-52 FOR "POWER RISER DIAGRAM - PUMPING BUILDING".
- D. FIELD COORDINATE ALL EQUIPMENT WITH OWNER PRIOR TO INSTALLATION.
- E. ALL UTILITY EQUIPMENT SHALL BE FULLY COORDINATED WITH NTUA PRIOR TO INSTALLATION.

KEYED NOTES

- 1. REFER TO "POWER RISER DIAGRAM - SURGE TANK" ON SHEET E-51 FOR SERVICE EQUIPMENT SIZES AND WIRING.
- 2. REFER TO "POWER RISER DIAGRAM - PUMPING BUILDING" ON SHEET E-52 FOR SERVICE EQUIPMENT SIZES AND WIRING.
- 3. NEW SURGE TANK BUILDING. REFER TO "LIGHTING PLAN - SURGE TANK" ON SHEET E-11, "POWER AND SPECIAL SYSTEMS PLAN - SURGE TANK" ON SHEET E-21 AND "LIGHTING PROTECTION PLAN - SURGE TANK" ON SHEET E-31 FOR ADDITIONAL INFORMATION.
- 4. PROVIDE AND INSTALL NEW PRESSURE TRANSDUCER IN VAULT. PRESSURE TRANSDUCER TO BE 4-20mA, 4 WIRE (ANALOG POSITIVE, ANALOG NEGATIVE, POWER POSITIVE AND POWER NEGATIVE) AND SEND SIGNAL TO SCADA SYSTEM. PRESSURE TRANSDUCER TO CONTROL UPSTREAM PUMPING BUILDING. COORDINATE EXACT LOCATION IN FIELD. PROGRAM PLC AS REQUIRED.
- 5. 3/4" CONDUIT BURIED 36" BELOW FINISHED GRADE WITH RED WARNING TAPE BURIED 12" ABOVE FINISHED GRADE. CONDUIT TO HAVE #14 THWN Cu (ANALOG POSITIVE, ANALOG NEGATIVE, POWER POSITIVE AND POWER NEGATIVE). MAKE ALL REQUIRED CONNECTIONS FOR A COMPLETE AND OPERATIONAL SYSTEM.
- 6. 3/2 THWN Cu IN 2" CONDUIT BURIED 36" BELOW FINISHED GRADE (OR AS REQUIRED BY NTUA), WITH RED WARNING TAPE BURIED 12" ABOVE CONDUIT. REFER TO "POWER RISER DIAGRAM - SURGE TANK" ON SHEET E-51 FOR ADDITIONAL INFORMATION.
- 7. 2 PARALLEL RUNS OF #350 THWN Cu IN 3" CONDUIT OR 2 PARALLEL RUNS OF #500 XHHW Al IN 3 1/2" CONDUIT. CONDUIT SHALL BE BURIED 36" BELOW FINISHED GRADE (OR AS REQUIRED BY NTUA), WITH RED WARNING TAPE BURIED 12" ABOVE CONDUIT. REFER TO "POWER RISER DIAGRAM - PUMPING BUILDING" ON SHEET E-52 FOR ADDITIONAL INFORMATION.
- 8. NEW OVERHEAD UTILITY CONDUCTORS. COORDINATE ALL REQUIREMENTS WITH NTUA.
- 9. 2" CONDUIT WITH LONG SWEEPING BENDS FOR FIBER OPTIC CABLE. COORDINATE EXACT LOCATION WITH ENDPOINT OF FIBER OPTIC CABLE. EXTEND CONDUIT TO PLC/RTU CABINET AND FLUSH IN GRADE QUAZITE BOX. CONDUIT SHALL BE BURIED A MINIMUM OF 36" BELOW FINISHED GRADE. PROVIDE RED WARNING TAPE 12" ABOVE CONDUIT. MAKE ALL REQUIRED CONNECTIONS FOR A COMPLETE AND OPERATIONAL SYSTEM.
- 10. PROVIDE AND INSTALL FLUSH IN GRADE TRAFFIC RATED QUAZITE BOX FOR FIBER OPTIC CABLE. COORDINATE EXACT LOCATION WITH ENDPOINT OF FIBER OPTIC CABLE.
- 11. 3" CONDUIT BURIED A MINIMUM OF 36" BELOW FINISHED GRADE WITH RED WARNING TAPE BURIED 12" ABOVE CONDUIT. PROVIDE AND INSTALL CONTROL WIRING AS REQUIRED FOR PUMP BUILDING.

Revision	Date	Description	By	CHKD

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Location: ###
 Client: ###
ELECTRICAL SITE PLAN
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
 MCKINLEY COUNTY, NEW MEXICO
 SECTION 1, T. 18 N., R. 16 W.

NOT FOR CONSTRUCTION

22317	Designed TRG/rhp	Drawn TRG/rhp	Checked TRG/itr
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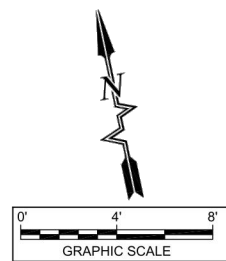
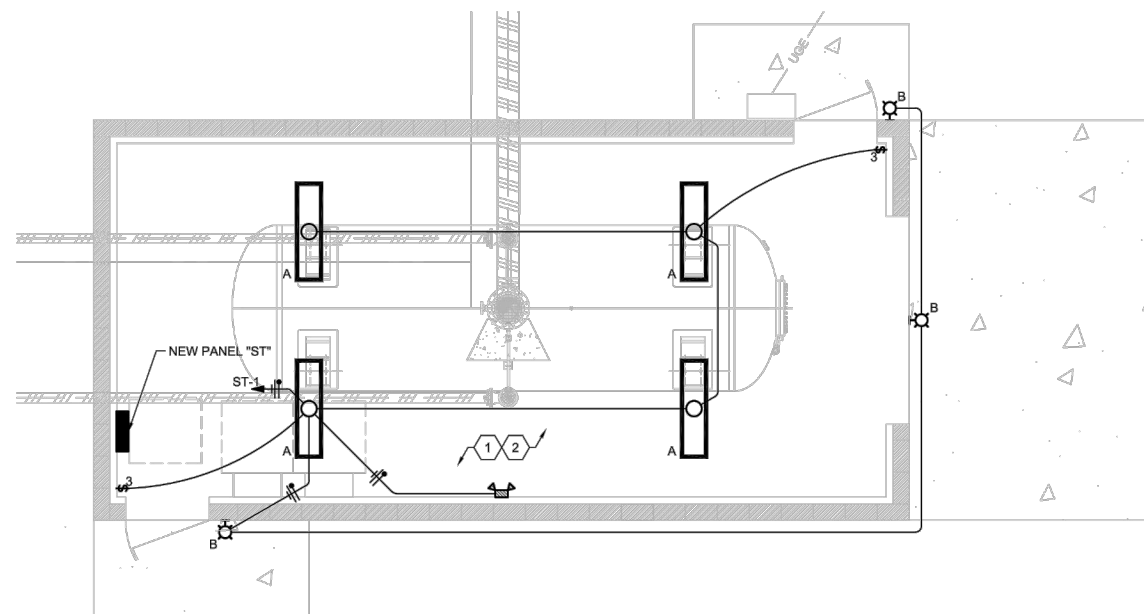
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Date: 9-12-2022
 Scale: Horiz:
 Vert:

Project No: #####
 Sheet: ES-01

THE RESPONSE GROUP, INC.
 An Electrical Engineering Corporation
 11930 Menaul N.E. Suite 214
 Albuquerque, New Mexico 87112
 Phone: (505) 323-7629 Fax: (505) 323-7594
 E-mail: theregroup@trg-inc.net



SURGE TANK BUILDING LIGHTING PLAN

LIGHT FIXTURE SCHEDULE			
TYPE	FIXTURE DESCRIPTION	LAMPS	MOUNTING
A	VAPOR TIGHT LED FIXTURE, UL LISTED FOR WET LOCATIONS, UNIVERSAL VOLTAGE METALUX #4VT2-LD5-4-DR-UNV-L840-WL-U	LED (30W) 4000°K 4000 LM	CEILING SURFACE
B	LED WALL PACK, FULL CUTOFF, PHOTOCELL, 120V LUMARK #LDWP-FC-4B-120V-PE	32W LED	SURFACE MOUNTED AT +8'-0" A.F.F.
	EMERGENCY EGRESS LIGHT FIXTURE, INTEGRAL BATTERY BACKUP, (2) AIMABLE HEADS (FIELD LOCATE HEADS FOR BEST LIGHTING) SURE LITES #APELMINI	WITH UNIT	UNIVERSAL

KEYED NOTES

- ALL CONDUITS SHALL BE RUN OVERHEAD.
- 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.

COMcheck Software Version 4.1.5.3
Interior Lighting Compliance Certificate

Project Information
 Energy Code: 2018 IECC
 Project Title: Reach 10.2 PP12 Surge Tank Building
 Project Type: New Construction

Construction Site: _____ Owner/Agent: _____ Designer/Contractor: _____

Additional Efficiency Package(s)
 Credits: 1.0 Required: 0.0 Proposed

Area Category	Floor Area (ft ²)	Allowed Watts / ft ²	Allowed Watts (B X C)
1-Common Space Types Electrical/Mechanical	475	0.43	203
Total Allowed Watts =			203

Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixtures	D Watt	E (C X D)
1-Common Space Types Electrical/Mechanical	1	4	30	120
LED 1: Other				120
Total Proposed Watts =			120	120

Interior Lighting PASSES: Design 41% better than code

Interior Lighting Compliance Statement
 Compliance Statement: The proposed interior lighting design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed interior lighting systems have been designed to meet the 2018 IECC requirements in COMcheck Version 4.1.5.3 and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Name - Title: _____ Signature: _____ Date: _____

Project Title: Reach 10.2 PP12 Surge Tank Building Report date: 09/06/22
 Data filename: F:\22317 8849 Pump Stations Chlorination Sites and Tanks\Electrical\2-Design\5-Calculators\PP12\ComCheck - Surge Tank.cck Page 1 of 7

COMcheck Software Version 4.1.5.3
Exterior Lighting Compliance Certificate

Project Information
 Energy Code: 2018 IECC
 Project Title: Reach 10.2 PP12 Surge Tank Building
 Project Type: New Construction
 Exterior Lighting Zone: 1 (Developed rural area (LZ1))

Construction Site: _____ Owner/Agent: _____ Designer/Contractor: _____

Area/Surface Category	B Quantity	C Allowed Watts / Unit	D Tradable Wattage	E Allowed Watts (B X C)
Pedestrian and vehicular entrances and exits	15 ft of door	14	Yes	210
Total Tradable Watts (a) =				210
Total Allowed Watts =				210
Total Allowed Supplemental Watts (b) =				350

(a) Wattage tradable is only allowed between tradable areas/surfaces.
 (b) A supplemental allowance equal to 350 watts may be applied toward compliance of both non-tradable and tradable areas/surfaces.

Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixtures	D Watt	E (C X D)
Pedestrian and vehicular entrances and exits (15 ft. of door width): Tradable Wattage	1	3	32	96
LED 1: Other				96
Total Tradable Proposed Watts =			96	96

Exterior Lighting PASSES: Design 83% better than code

Exterior Lighting Compliance Statement
 Compliance Statement: The proposed exterior lighting design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed exterior lighting systems have been designed to meet the 2018 IECC requirements in COMcheck Version 4.1.5.3 and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Name - Title: _____ Signature: _____ Date: _____

Project Title: Reach 10.2 PP12 Surge Tank Building Report date: 09/06/22
 Data filename: F:\22317 8849 Pump Stations Chlorination Sites and Tanks\Electrical\2-Design\5-Calculators\PP12\ComCheck - Surge Tank.cck Page 2 of 7



Revision	Date	Description

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 LIGHTING PLAN - SURGE TANK
 NAVAJO GALLUP WATER SUPPLY PROJECT
 BEACON BISTI N9 - REACH 10.2
 MCKINLEY COUNTY, NEW MEXICO
 SECTION 1, T. 18 N., R. 16 W.

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22317

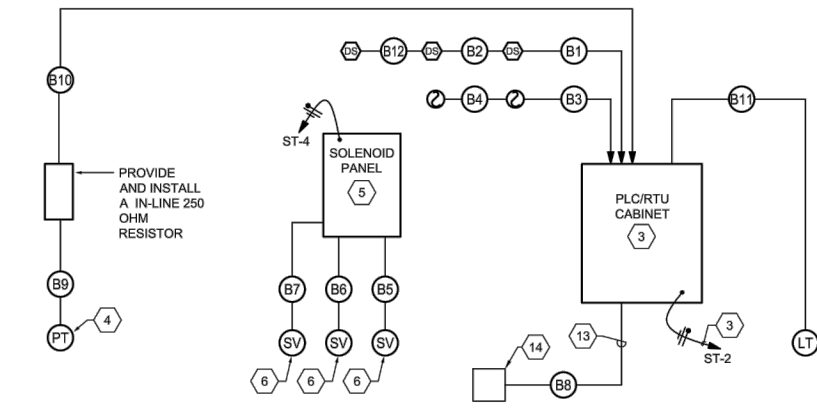
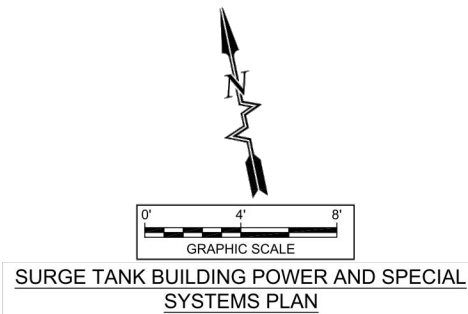
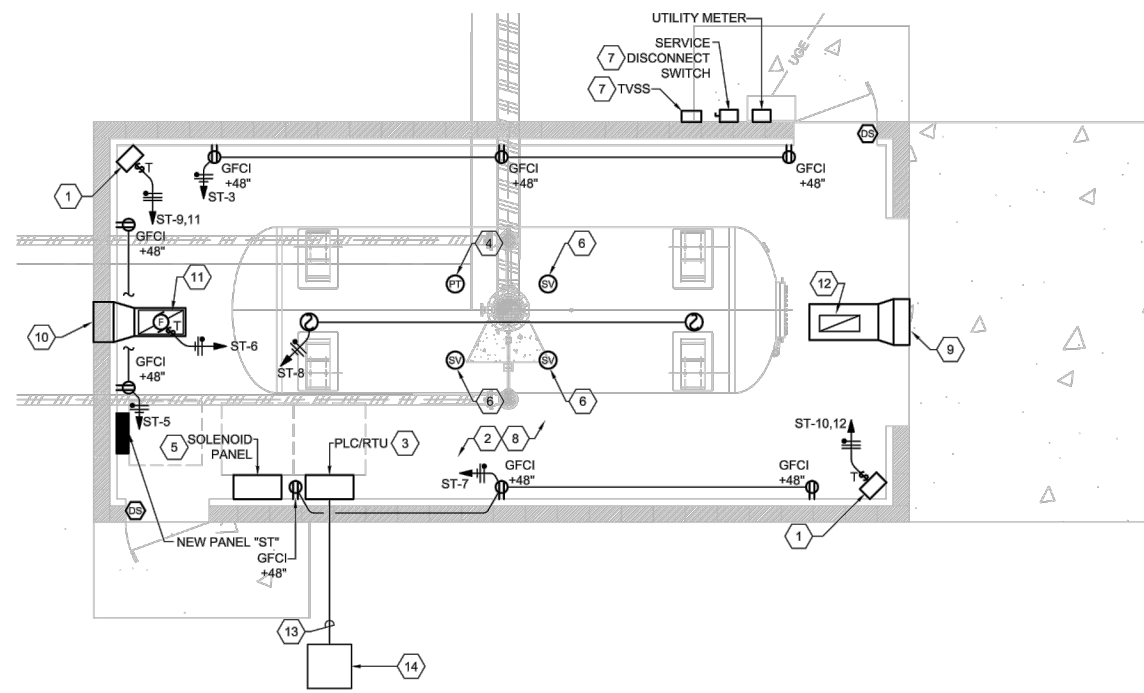
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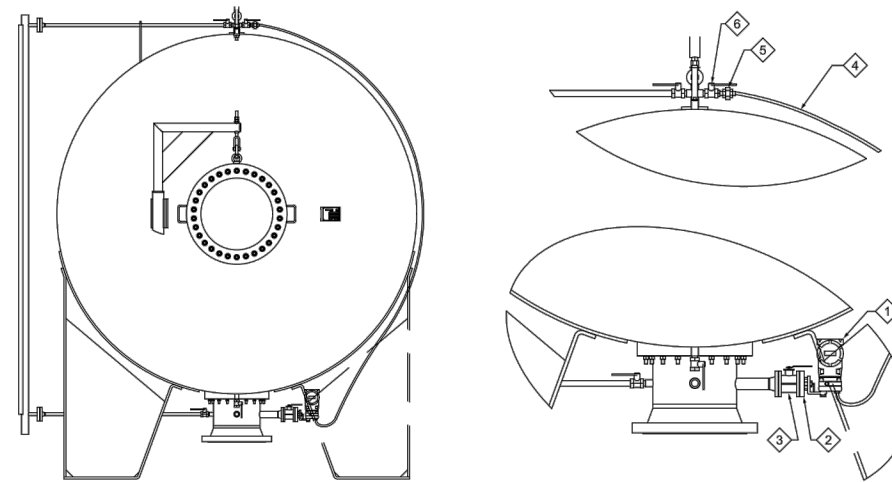
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 Scale: Horiz: _____ Vert: _____

Project No: #####
 Sheet: E-11



SURGE TANK BUILDING - CONTROL RISER DIAGRAM

SCALE: NONE



ROSEMOUNT - PRESSURE DIFFERENTIAL TRANSMITTER - CONNECTION DETAIL

SCALE: NONE

KEYED NOTES

1. PROVIDE AND INSTALL A 2.6 KW, 240 VOLTS, SINGLE PHASE ELECTRIC WALL MOUNTED HEATER WITH INTEGRAL THERMOSTAT. HOMERUN #810 CU IN 3/4" CONDUIT TO CIRCUIT INDICATED. HEATER SHALL BE AS MANUFACTURED BY CHROMALOX #HVH-2-2-1-00-TL-D-0-0-S-HVW-1
2. ALL CONDUITS SHALL BE RUN OVERHEAD.
3. NEW PLC/FIBER OPTIC TRANSMITTER CABINET. CABINET SHALL BE A NEMA 4X ENCLOSURE. PLC CONFIGURED TO OWNER STANDARDS AND REQUIREMENTS. REFER TO SHEETS E-31 THROUGH E-33 AND SPECIFICATIONS. MOUNT ON WALL ADJACENT TO PLC CABINET. REFER TO CONTROL WIRING SCHEDULE ON SHEET E-51 FOR ADDITIONAL INFORMATION.
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 # 3051L, 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 3R 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 - SURGE TANK" ON SHEET E-51 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. 18x18 AIR INTAKE GRILLE - RUSKIN ELF375 OR EQUAL. INSTALL IN GABLE BETWEEN ROOF TRUSSES. DIMENSIONS MAY BE MODIFIED TO EQUIVALENT PERFORMANCE TO ACCOMMODATE STRUCTURAL CONSTRAINTS. PROVIDE DUCTWORK TRANSITION AS REQUIRED.
10. 18x18 EXHAUST GRILLE - RUSKIN ELF375 OR EQUAL. INSTALL IN GABLE BETWEEN ROOF TRUSSES. DIMENSIONS MAY BE MODIFIED TO EQUIVALENT PERFORMANCE TO ACCOMMODATE STRUCTURAL CONSTRAINTS. PROVIDE DUCTWORK TRANSITION FROM EXHAUST FAN.
11. CEILING EXHAUST FAN. GREENHECK SP-A 1050, .895 CFM, .0375"WC, 5.5 SONES, 420 WATTS, 6.3 AMPS. OVERALL DIMENSIONS 14.5" TALL, 23.75" WIDE, 14.5" DEEP. CONTROL FROM LINE VOLTAGE WALL THERMOSTAT WITH ON/OFF OVERRIDE.
12. 12X24 TITUS MODEL EGC CEILING RETURN GRILLE. 18X12 AIR INTAKE METAL DUCTWORK. TRANSITION FROM OUTSIDE LOUVER. INSULATE WITH 1-1/2" FIBERGLASS ALUMINUM FACED SEALED WITH TAPED JOINTS.
13. 2" CONDUIT WITH LONG SWEEPING BENDS FOR FIBER OPTIC CABLE. COORDINATE EXACT LOCATION WITH ENDPOINT OF FIBER OPTIC CABLE. EXTEND CONDUIT TO PLC/RTU CABINET AND FLUSH IN GRADE QUAZITE BOX. CONDUIT SHALL BE BURIED A MINIMUM OF 36" BELOW FINISHED GRADE. PROVIDE RED WARNING TAPE 12" ABOVE CONDUIT. MAKE ALL REQUIRED CONNECTIONS FOR A COMPLETE AND OPERATIONAL SYSTEM.
14. PROVIDE AND INSTALL FLUSH IN GRADE TRAFFIC RATED QUAZITE BOX FOR FIBER OPTIC CABLE. COORDINATE EXACT LOCATION WITH ENDPOINT OF FIBER OPTIC CABLE.

ITEM	DESCRIPTION
1	PRESSURE DIFFERENTIAL TRANSMITTER ROSEMOUNT 3051
2	2" FLANGED CONNECTION HIGH PRESSURE DIAPHRAGM SEAL
3	2" BALL VALVE
4	STAINLESS STEEL FLEXIBLE TUBING TEFLON LINED
5	1/2" NPT UNION FITTING
6	1/2" NPT BALL VALVE

By	CRK
Description	
Revision	Date

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Location: ###
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POWER AND SPECIAL SYSTEMS PLAN - SURGE TANK
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
 MCKINLEY COUNTY, NEW MEXICO
 SECTION 1, T. 18 N., R. 16 W.

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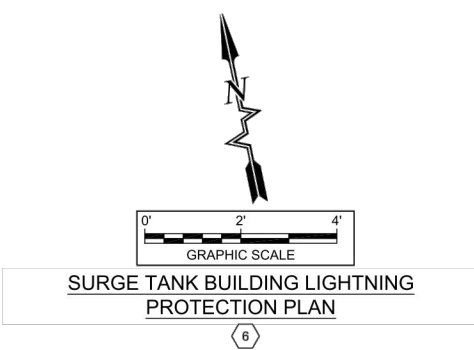
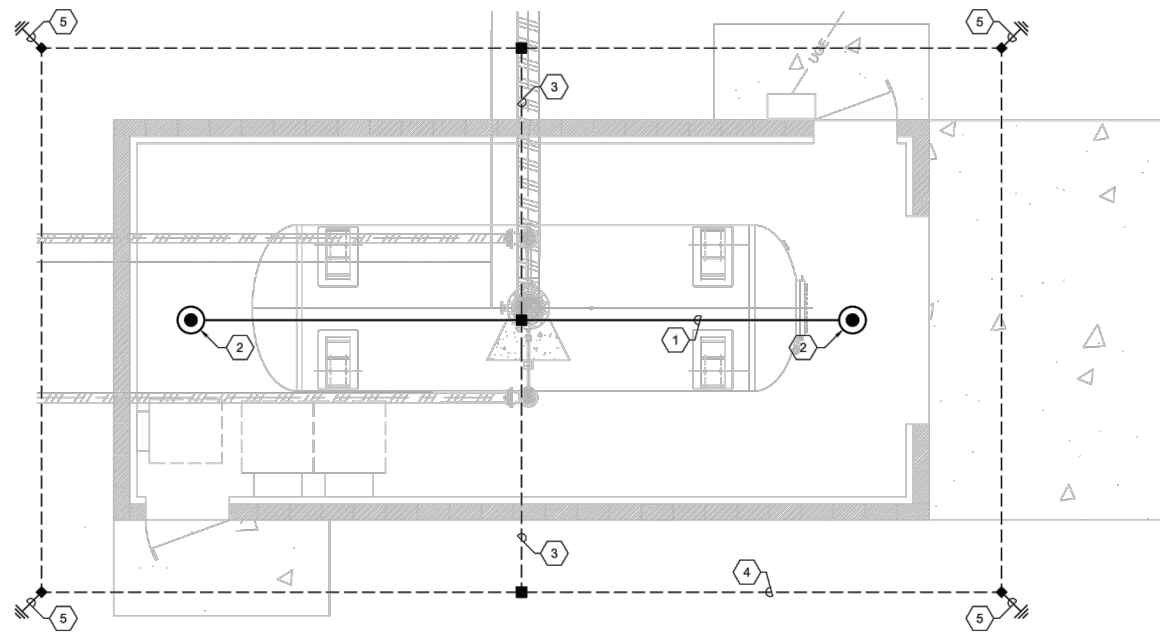
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Project No:	#####
Sheet:	E-21

THE RESPONSE GROUP, INC.
 An Electrical Engineering Corporation
 11930 Menaul N.E. Suite 214
 Albuquerque, New Mexico 87112
 Phone: (505) 323-7829 Fax: (505) 323-7394
 E-mail: theresponsegroup@trg-inc.net



KEYED NOTES ⬡

1. LIGHTNING PROTECTION CLASS 1 ROOF-MOUNTED LATERAL CONDUCTOR AND MOUNTING HARDWARE.
2. 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.
3. LIGHTNING PROTECTION 4/0 BARE ALUMINUM DOWN-CONDUCTOR. SPLICE ALUMINUM CONDUCTOR TO 2/0 BARE COPPER CONDUCTOR USING ALUMINUM TO COPPER SPLICE KIT. PROVIDE AND INSTALL 1" CONDUIT FOR COPPER CONDUCTOR WHERE CONDUCTOR IS EXPOSED ABOVE GROUND.
4. LIGHTNING PROTECTION COUNTERPOISE SYSTEM. ALL CONNECTIONS SHALL BE EXO-THERMIC WELDS.
5. 3/4" X 10'-0" GROUND ROD.
6. LIGHTNING PROTECTION SYSTEM LAYOUT ON THIS PLAN IS FOR BIDDING PURPOSES ONLY. INSTALLATION TO BE PER NFPA-780, U.S. GOVERNMENT STANDARDS. SYSTEM SHALL BE PROVIDED WITH A MASTER LABEL.

SYMBOL LEGEND - LIGHTNING PROTECTION

- ⬤ LIGHTNING AIR TERMINAL
- LIGHTNING CABLE CADWELD
- ⚡ GROUND ROD
- EXPOSED #4/0 BARE ALUMINUM GROUND CABLE
- - - CONCEALED BELOW GRADE #2/0 BARE COPPER GROUND CABLE COUNTERPOISE

Revision	Date	Description	By	Chkd

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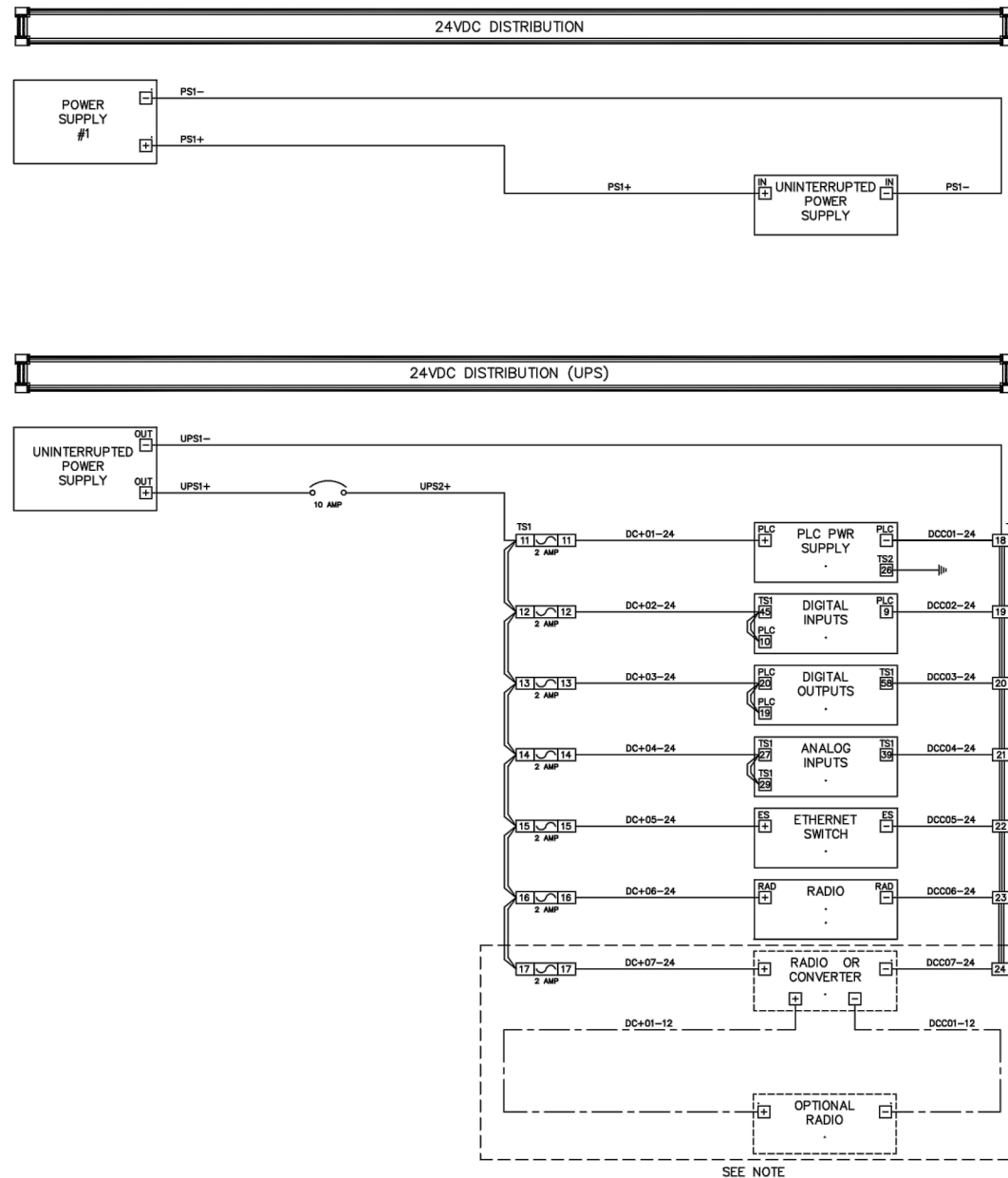
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 LIGHTNING PROTECTION PLAN - SURGE TANK
 NAVAJO GALLUP WATER SUPPLY PROJECT
 BEACON BISTI N9 - REACH 10.2
 MCKINLEY COUNTY, NEW MEXICO
 SECTION 1, T. 18 N., R. 16 W.

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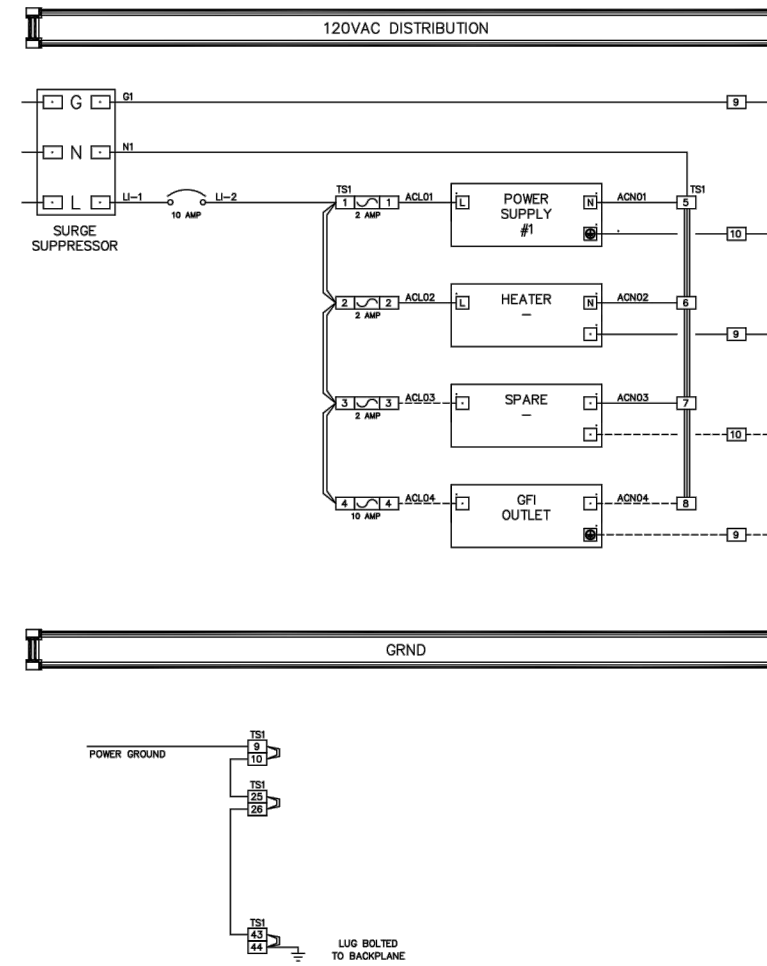
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Sheet: E-31



NOTE: SEE OPTIONS BELOW IF ADDITIONAL RADIO IS REQUIRED, IMPLEMENT ONE OF THE TWO OPTIONS BELOW. OTHERWISE, THIS AREA CAN BE LEFT VACANT FOR ANY FUTURE POWER REQUIREMENTS:
 OPTION #1: WHEN INSTALLING A 24 VDC RADIO, WIRE RADIO DIRECTLY TO TERMINALS 17 & 24 ON TS1.
 OPTION #2: WHEN INSTALLING A 12-13.8 VDC RADIO, INSTALL DC/DC CONVERTER POWERED BY TERMINALS 17 & 24 ON TS1, THEN WIRE RADIO DIRECTLY TO THE DC/DC CONVERTER.



LEGEND	
Field Terminations	-----
Panel Wiring	_____

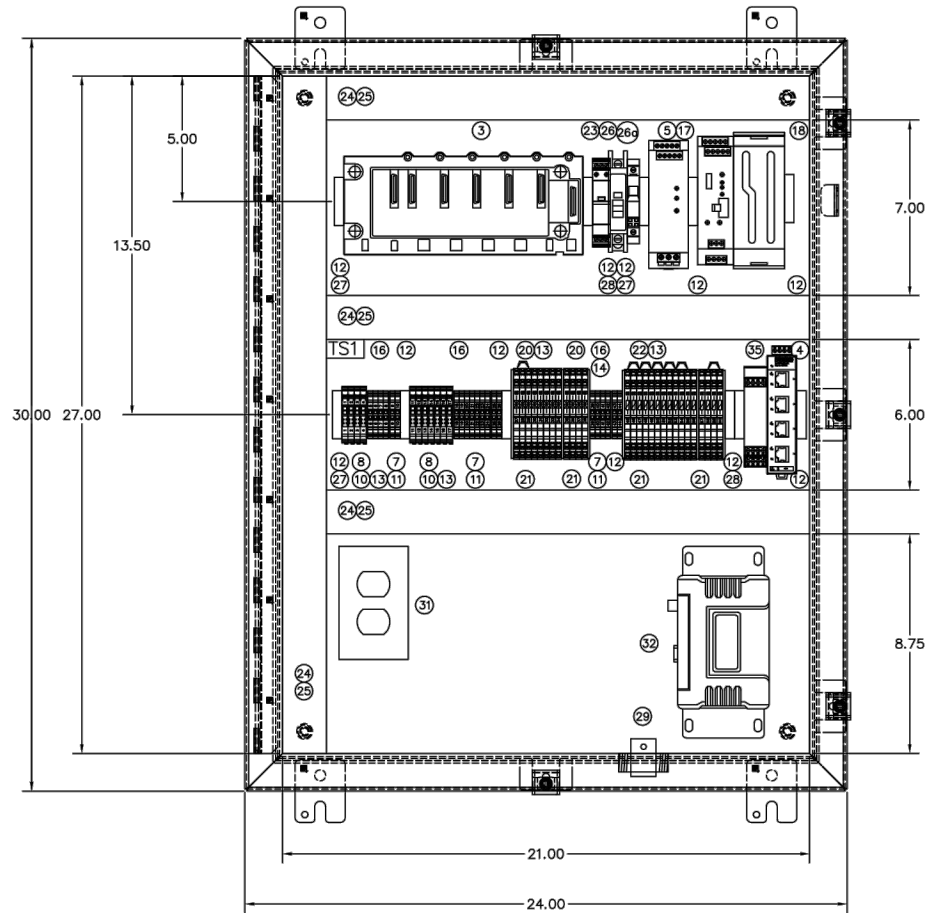
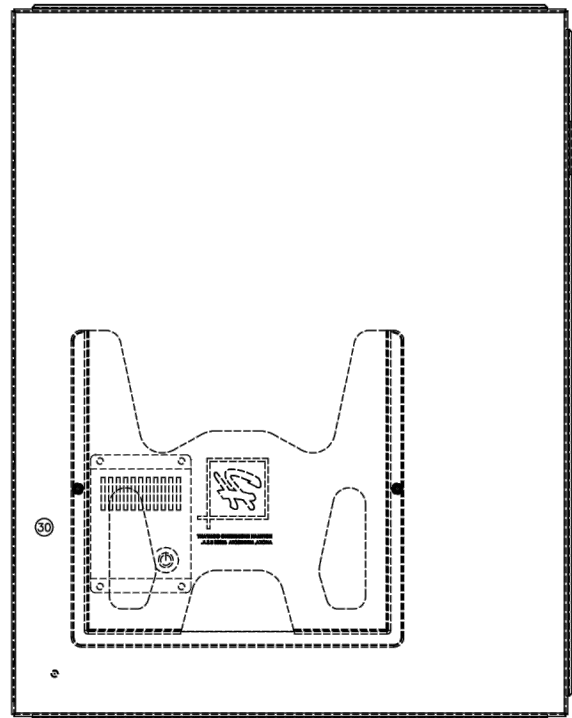
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NAVAJO TRIBAL UTILITY AUTHORITY
 DESIGNED BY: TRG/rhp
 DRAWN BY: TRG/rhp
 CHECKED BY: TRG/rhp
 DATE:
 SCALE:
 TITLE: AC TANK CONTROL PANEL
 POWER DISTRIBUTION
 SHEET 4 OF 6



Client: ###	Location: ###
NAVAJO GALLUP WATER SUPPLY PROJECT BEACON BISTI N9 - REACH 10.2 MCKINLEY COUNTY, NEW MEXICO SECTION 1, T. 18 N., R. 16 W.	
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BILL OF MATERIALS				
ITEM	QTY	PART NO.	DESCRIPTION	MFG
1	1	A30H24DLP	SINGLE-DOOR TYPE 4 ENCLOSURE	HOFFMAN
2	1	A30P24	BACKPLANE	HOFFMAN
3*	.	M340	MODICON M340 BOM	SCHNEIDER ELECTRIC
3a	1	BMXXBM0400	4-SLOT RACK MODULE	SCHNEIDER ELECTRIC
3b	1	BMXCP3020	POWER SUPPLY MODULE	SCHNEIDER ELECTRIC
3c	1	BMXP342020	CPU PROCESSOR MODULE	SCHNEIDER ELECTRIC
3d	1	BMXDM16025	DIGITAL INPUT/OUTPUT MODULE	SCHNEIDER ELECTRIC
3e	1	BMXMM0600	ANALOG INPUT/OUTPUT MODULE	SCHNEIDER ELECTRIC
3f	2	BMXFTB2010	REMOVABLE CONNECTION BLOCK - SCREW CLAMP	SCHNEIDER ELECTRIC
3g*	1	BMXNM0200	SERIAL LINK MODULE	SCHNEIDER ELECTRIC
4	1	FL SWITCH SFN 5TX	INDUSTRIAL ETHERNET SWITCH	PHOENIX CONTACT
5	1	QUINT4-PS/1AC/24DC/5	POWER SUPPLY 22.5-28.5V ADJUSTABLE	PHOENIX CONTACT
6
7	14	UT2,5	UT2,5 TERMINALS	PHOENIX CONTACT
8	10	UT4TG	FUSE TERMINAL BASE	PHOENIX CONTACT
9	7	P-FU5X20LED24	FUSE PLUG	PHOENIX CONTACT
10	4	P-FU5X20LA250	FUSE PLUG	PHOENIX CONTACT
11	6	UT2,5PE	GROUNDING TERMINAL	PHOENIX CONTACT
12	15	E/NS35N	END CLAMP	PHOENIX CONTACT
13	3	FBS 20-6 BU #3032208	FIXED BRIDGE	PHOENIX CONTACT
14	3	FBS 20-5 BU #3036929	INSERTION BRIDGE	PHOENIX CONTACT
15	8	D-UT2,5/10	END COVER	PHOENIX CONTACT
16	4	ATP-UT	PARTITION PLATES	PHOENIX CONTACT
17	2	QUINT4-UPS/24DC/24DC/10	UNINTERRUPTIBLE POWER SUPPLY	PHOENIX CONTACT
18	2	UPS-BAT/VRLA/24DC/1.3AH	ENERGY STORAGE	PHOENIX CONTACT
19
20	12	TTC-6-TVSD-C-24DC-UT-I #2906831	SURGE PROTECTION	PHOENIX CONTACT
21	6	TTC-6-LCP #2906729	END COVER	PHOENIX CONTACT
22	16	TTC-6-MOV-C-24DC-UT-I #2906837	SURGE PROTECTION	PHOENIX CONTACT
23	1	PLT-SEC-T3-120-FM #2905228	TYPE 3 SURGE PROTECTION DEVICE	PHOENIX CONTACT
24	AN	FZX4L66	TYPE F NARROW SLOT WIRING DUCT	PANDUIT
25	AN	C2L66	WIRING DUCT COVER	PANDUIT
26	1	TMC 61C 10A #0902072	CIRCUIT BREAKER	PHOENIX CONTACT
26a	1	UT6-TMCM 10A #0918610	CIRCUIT BREAKER	PHOENIX CONTACT
27	AN	1492DR6	EXTENDED DIN RAIL	ALLEN BRADLEY
28	AN	1492-DR5	DIN RAIL	ALLEN BRADLEY
29	1	IS-50NX-C2	LIGHTNING ARRESTER	POLYPHASER
30	1	D-AH1001A	HEATER 100W 115V .9A	HOFFMAN
31	1	DRUBGF115	DIN RAIL UTILITY BOX	HUBBELL
32	1	ORBIT OR TRANSNET CAT6	902 - 928 MHz RADIO SPREAD SPECTRUM CABLE - PLC TO HMI	GEMDS BELDEN
34*	1	.	CABLE - PLC TO MODEM (TO LENGTH)	.
35*	1	MINI-PS-12-24 DC/5-15/2	DC/DC CONVERTER	PHOENIX CONTACT

AN - As needed
 3* - BOM - To include items 3a-3g.
 3g* - Include in the event item 35* is required.
 34* - Include (1) additional in the event item 33* is required.
 35* - Include in the event a 13.8 VDC radio is required.

NO.	DATE	DESCRIPTION	BY
01	3/19	DWG UPDATES	NTUA

NAVAJO TRIBAL UTILITY AUTHORITY

REVISIONS

NO.	DATE	DESCRIPTION	BY	DATE

TITLE: AC TANK CONTROL PANEL BACKPLANE SHEET 5 OF 6



Client: ##### Location: #####

NAVAJO GALLUP WATER SUPPLY PROJECT
 BEACON BISTI N9 - REACH 10.2
 MCKINLEY COUNTY, NEW MEXICO
 SECTION 1, T. 18 N., R. 16 W.

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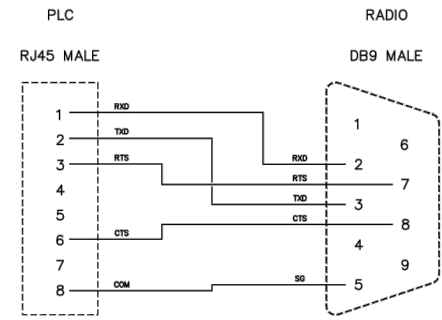
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A CABLE DIAGRAM: PLC TO RADIO

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01	3/19	DWG UPDATES	NTUA

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SCALE	NONE	REVISIONS	BY	DATE
DATE				
DRAWN				
APPROVED				

TITLE: AC TANK CONTROL PANEL SHEET 6 OF 6
CABLE PINOUT



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BEACON BISTI N9 - REACH 10.2
 MCKINLEY COUNTY, NEW MEXICO
 SECTION 1, T. 18 N., R. 16 W.

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 Vert:
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 Sheet: E-43

PANEL SCHEDULE - NEW PANEL "ST"										
LOCATION: Surge Tank Building		VOLTAGE: 120/240V-1P-3W		AMPACITY: 100A		Main: 100A/2P MCB				
FED FROM: 100 Amp Fusible Disconnect		ENCLOSURE: NEMA 3R		MOUNTING: SURFACE		AIC: 10,000				
BKR SIZE	DESCRIPTION	DEMAND CODE	LOAD (VA)	CIR #	LOAD (VA)		LOAD (VA)	DEMAND CODE	DESCRIPTION	BKR SIZE
					PHASE A	PHASE B				
20A-1P	LIGHTING	LIG	221	1	421		200	EQP	PLC/RTU CABINET	20A-1P
20A-1P	RECEPTACLES	REC	720	3		-920	200	EQP	SOLENOID PANEL	20A-1P
20A-1P	RECEPTACLES	REC	640	5	1370		830	MECH	EXHAUST FAN	20A-1P
20A-1P	RECEPTACLES	REC	640	7		640	100	EQP	SMOKE DETECTORS	20A-1P
20A-2P	UNIT HEATER	LMECH	1370	9	2740		1370	MECH	UNIT HEATER	20A-2P
20A-1P	SPARE			11		2740	1370	MECH		20A-1P
20A-1P	SPARE			13						20A-1P
20A-1P	SPARE			15						20A-1P
20A-1P	SPARE			17						20A-1P
20A-1P	SPARE			19						20A-1P
20A-1P	SPARE			21						20A-1P
20A-1P	SPARE			23						20A-1P
1P	SPACE ONLY			25						1P
1P	SPACE ONLY			27						1P
1P	SPACE ONLY			29						1P

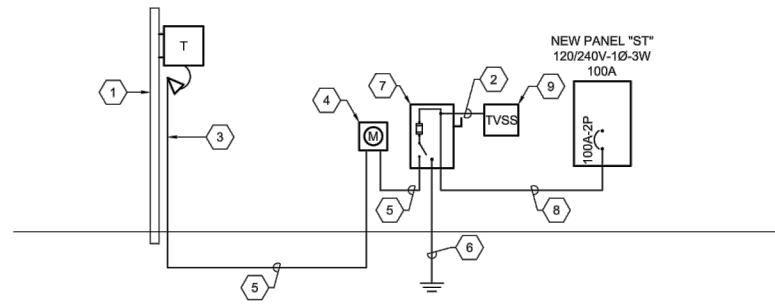
Total Phase Loads (VA):	4,531	4,300	Notes: 1. New Panelboard
Total Phase Loads (Amps):	37.8	35.8	2. 30-Circuit, Lockable Enclosure
Total Connected Loads (kVA):	8.8		3. Copper Neutral and Ground Bus Bars
			4. Door-in-Door Enclosure.

LOAD CALCULATIONS - NEW PANEL "ST"			
Connected (kVA) by Type:		Estimated Demand (kVA) by Type:	
LIG	Lighting: 0.2	Lighting at 125% (kVA): 0.3	Total Estimated Demand (kVA): 9.6
REC	Receptacles: 1.8	Receptacles: 1.8	Amps at 120/240V/1 Phase (Amps): 39.9
		10kVA at 100% (kVA): 1.8	Panel Ampacity (Rating): 100
		Rest at 50% (kVA): 0.9	
EQP	Equipment: 0.5	Eqp at 100% (kVA): 0.5	Spare Capacity: 80.1%
LMECH	Largest Mech: 2.7	Largest at 125% (kVA): 3.4	
MECH	Mechanical: 3.6	Rest at 100% (kVA): 3.6	

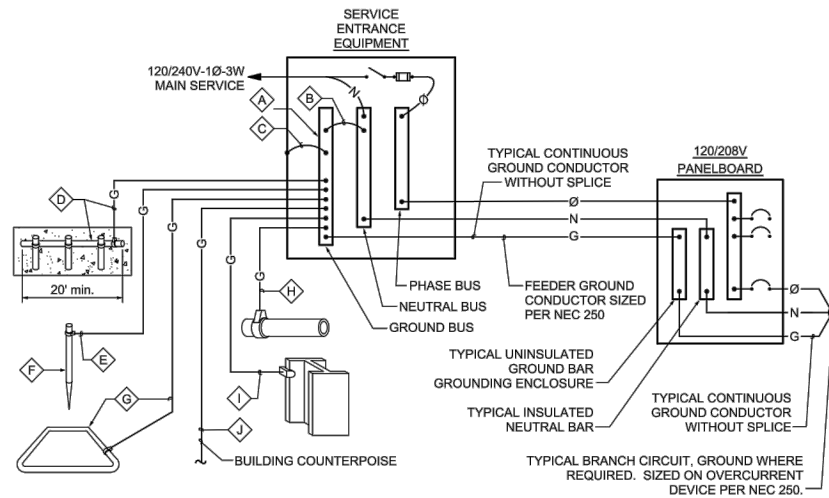
Control Wiring Schedule - Surge Tank Building			
TAG #	FED FROM	TO	WIRE REQUIREMENTS
B1	Door Switch	PLC Panel	2 # 14, 1 # 14 Gnd - 1/2" Conduit
B2	Door Switch	Door Switch	2 # 14, 1 # 14 Gnd - 1/2" Conduit
B3	Smoke Detector	PLC Panel	2 # 14, 1 # 14 Gnd - 1/2" Conduit
B4	Smoke Detector	Smoke Detector	2 # 14, 1 # 14 Gnd - 1/2" Conduit
B5	Solenoid Valve	Solenoid Panel	3 # 14, 1 # 14 Gnd - 1/2" Conduit
B6	Solenoid Valve	Solenoid Panel	3 # 14, 1 # 14 Gnd - 1/2" Conduit
B7	Solenoid Panel	Solenoid Panel	3 # 14, 1 # 14 GND - 1/2" Conduit
B8	Fiber Optic Transmitter Unit	Quazite Box	2" Conduit
B9	250 OHM resistor	Pressure Transmitter	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
B12	Door Switch	Door Switch	2 # 14, 1 # 14 Gnd - 1/2" Conduit

DISCRETE & ANALOG I/O LIST

Site Name	I/O Name	Tag	Point	Type	Local	SCADA	Notes
Surge Tank Building							Remote I/O talks to Booster station PLC. Relays info to and from
	Surge Bldg. Intrusion Man Door		I1	DI	Yes		
	Surge Bldg. Intrusion Roll Up Door		I2	DI	Yes		
	Surge Bldg. Smoke Detector		I3	DI	Yes		
	Low Pressure Alarm		I4	DI	Yes		
	Low Temperature Sensor		I5	DI	Yes		
	Pulse Modular Low Battery		I8	DI	Yes		
	Surge Bldg Intrusion North Door		I11	DI	Yes		
	Surge Tank Level		AI1	AI	Yes		
	Pressure Transmitter		AI3	AI	Yes		



POWER RISER DIAGRAM



GROUNDING SYSTEM DIAGRAM - 120/240 VOLT SYSTEM

NOT TO SCALE

GROUNDING SYSTEM GENERAL NOTES

- THE GROUNDING ELECTRODE SYSTEM SHALL CONSIST OF ITEMS A, B, C, D, E, F, AND G, WHERE APPLICABLE.
- ITEMS I AND J MUST BE BONDED TOGETHER AND TO THE GROUNDING ELECTRODE SYSTEM WHEN THEY ARE PRESENT.
- ITEM D, CONCRETE ENCASED ELECTRODE (UFER) SHALL HAVE UFER SUPPORT CONSISTING OF 5/8" x 10" COPPER GROUND ROD CUT INTO 2' SECTIONS AND DRIVEN FOR SUPPORT OF UFER CONDUCTOR. ONLY COPPER TO COPPER CONNECTIONS ARE ACCEPTABLE. DO NOT USE RE-BAR FOR UFER SUPPORT. (THIS IS TO AVOID THE HARMFUL EFFECTS OF DISSIMILAR METALS IN CONTACT.) A U.L. LISTED COPPER TO RE-BAR CLAMP (SUCH AS GRAVES "JONES BOND" SYSTEM) IS AN APPROVED ALTERNATIVE.
- THIS DETAIL IS PROVIDED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE, ARTICLE 250, PERTAINING TO THE "GROUNDING ELECTRODE SYSTEM".
- ALL SPLICING SHALL BE ACCOMPLISHED VIA EXOTHERMIC WELD (CAD-WELD) ONLY.
- ALL CONDUCTOR SIZING INDICATED ON THE GROUNDING SCHEDULE ARE FOR COPPER CONDUCTORS. ALUMINUM IS NOT PERMITTED.
- ANY VARIANCES FROM THIS DIAGRAM AND ASSOCIATED SCHEDULE AND NOTES MUST BE REQUESTED AND APPROVED IN WRITING PRIOR TO INSTALLATION.
- ALL INSTALLATIONS SHALL COMPLY WITH THE LATEST ADOPTED EDITION OF N.E.C. ARTICLE 250 (ALL SUBPARAGRAPHS) AND ALL STATE AND LOCAL REQUIREMENTS.
- THE GROUNDING SYSTEM SHALL PROVIDE LESS THAN (4) FOUR OHMS RESISTANCE TO GROUND AT THE SERVICE CONNECTION. THE RESULTS SHALL BE VERIFIED BY AN INDEPENDENT TESTING AGENCY VIA GROUND TEST (FALL-OF-POTENTIAL) AND SUBMITTED TO ELECTRICAL ENGINEER UPON COMPLETION OF PROJECT.

CODE REFERENCE	GROUNDING SCHEDULE									
	A	B	C	D	E	F	G	H	I	J
	FACTORY INSTALLED GROUND BUS BAR	INTEGRATED BUS BAR MAIN BOND JUMPER	INTEGRATED BUS BAR CASE BOND JUMPER	CONCRETE ENCASED ELECTRODE (UFER)	GROUNDING ELECTRODE CONDUCTOR TO ROD, PIPE OR PLATE	CU or CU-CLAD STEEL GROUND ROD	COPPER GROUND RING CONDUCTOR	METALLIC PIPING BONDING CONDUCTOR	BUILDING STEEL BONDING CONDUCTOR	BUILDING COUNTER POISE
		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		#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

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

KEYED NOTES

- PROVIDE AND INSTALL A 25'-0" SOUTHERN PINE CLASS 4 WOOD POLE FOR THE INSTALLATION OF RISER AND TRANSFORMER.
- 4#8 THWN CU IN 1" CONDUIT BETWEEN TVSS AND DISCONNECT SWITCH.
- PROVIDE A 2" RGS CONDUIT ON POLE RISER WITH CONDUCTORS. COORDINATE INSTALLATION WITH UTILITY COMPANY PRIOR TO PROCEEDING WITH INSTALLATION OF CONDUITS
- PROVIDE AND INSTALL A 100 AMP 120/240 VOLT METER SOCKET PER THE LOCAL UTILITY COMPANY REQUIREMENT. REFER TO "ELECTRICAL SITE PLAN" ON SHEET ES-11 FOR LOCATION OF METER.
- 3#2 THWN CU IN 2" CONDUIT.
- REFER TO "GROUNDING SYSTEM DIAGRAM - 120/240 VOLT SYSTEM" ON THIS SHEET FOR ADDITIONAL INFORMATION.
- PROVIDE AND INSTALL A FUSIBLE DISCONNECT SWITCH, 100 AMPS, 250 VOLTS, 2 POLE, SOLID NEUTRAL 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.
- 3#2 THWN CU AND 1#8 THWN CU GROUND IN 1 1/4" CONDUIT.
- 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.

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

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POWER RISER DIAGRAM AND DETAILS - SURGE TANK
NAVAJO GALLUP WATER SUPPLY PROJECT
BEACON BISTI N9 - REACH 10.2
MCKINLEY COUNTY, NEW MEXICO
SECTION 1, T. 18 N., R. 16 W.

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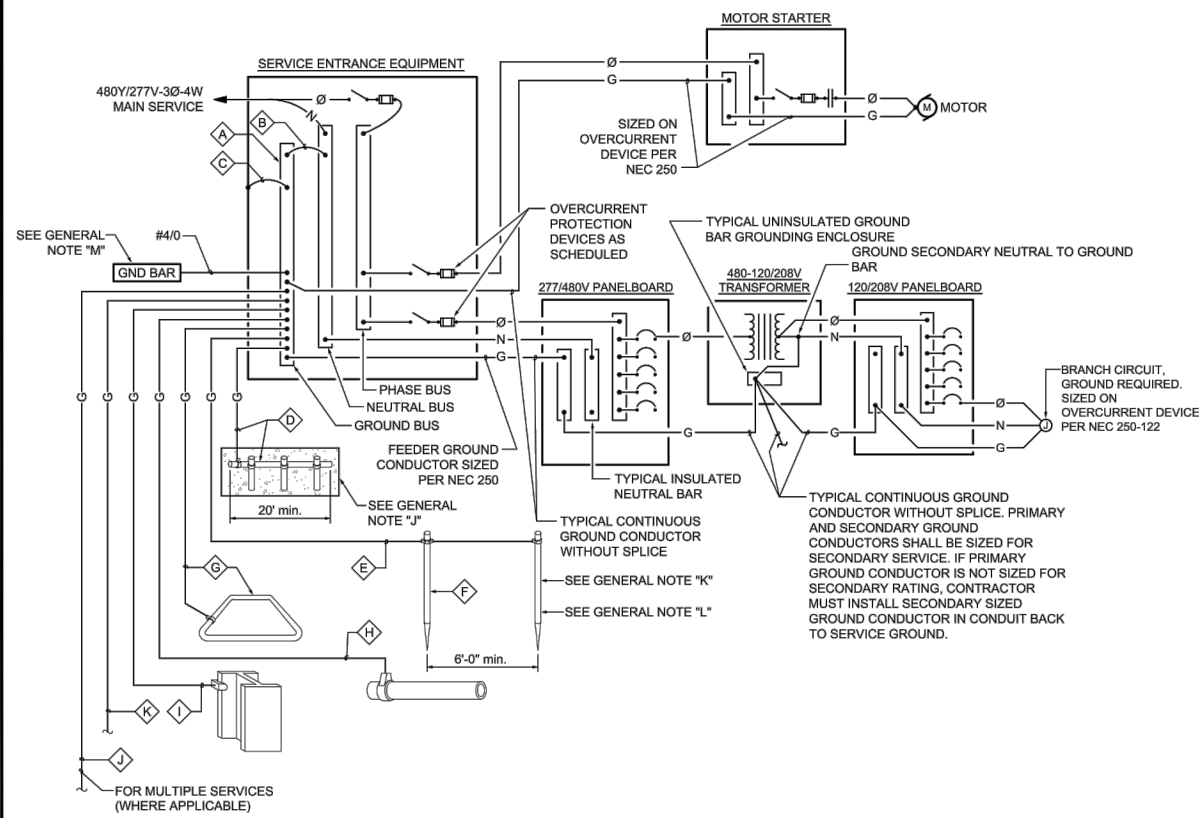
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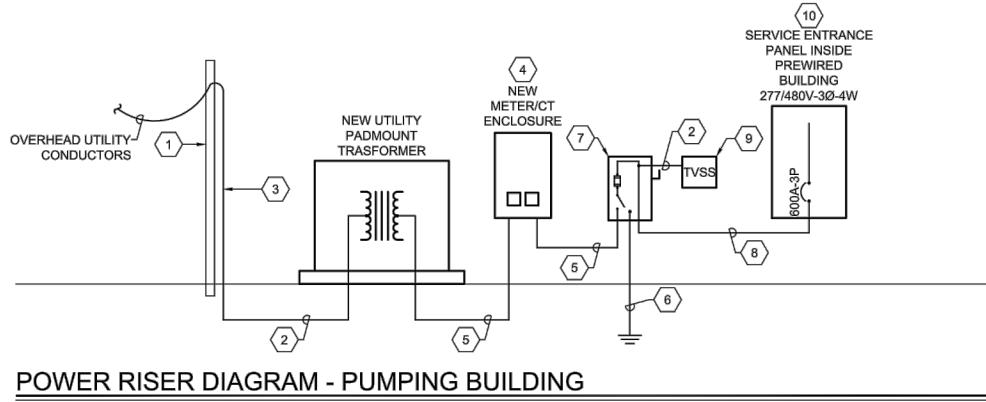
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GROUNDING SYSTEM DIAGRAM 480Y/277V
NOT TO SCALE



POWER RISER DIAGRAM - PUMPING BUILDING

LOAD SUMMARY - SERVICE DISC	
DESCRIPTION	
600A SERVICE FUSIBLE DISCONNECT SWITCH ESTIMATED DEMAND PER NEC 220	
PUMPS (3) AT 150 HP (ONLY 2 RUN AT A TIME)	299.2 KVA
LIGHTING AT 2W/SQFT (400 SQFT) (0.8 KVA CONN) AT 125% (CONTINUOUS LOAD)	1.0 KVA
RECEPTACLES AT 5W/SQFT (400 SQFT)	2.0 KVA
ELECTRIC HEAT	4.0 KVA
TOTAL ESTIMATED LOAD:	306.2 KVA
368 AMPERES AT 480Y/277V-3Ø-4W	
MINIMUM SERVICE CAPACITY =125% x TOTAL ESTIMATED LOAD	382.8 KVA
460 AMPERES AT 480Y/277V-3Ø-4W	
MINIMUM RECOMMENDED SERVICE SIZE =	600 AMPS

KEYED NOTES

- PROVIDE AND INSTALL A 25'-0" SOUTHERN PINE CLASS 4 WOOD POLE FOR THE INSTALLATION OF RISER.
- 3" CONDUIT BURIED A MINIMUM OF 36" (OR PER LOCAL UTILITY REQUIREMENTS) WITH RED WARNING TAPE BURIED 12" ABOVE CONDUIT FOR PRIMARY CONDUCTORS. COORDINATE EXACT REQUIREMENTS WITH NTUA PRIOR TO WORK BEING PERFORMED. PROVIDE AND INSTALL PULLTAPE IN CONDUIT.
- PROVIDE A 3" RGS CONDUIT ON POLE RISER WITH CONDUCTORS. COORDINATE INSTALLATION WITH UTILITY COMPANY PRIOR TO PROCEEDING WITH INSTALLATION OF CONDUITS
- PROVIDE AND INSTALL A 480VOLT CT/METER ENCLOSURE PER THE LOCAL UTILITY COMPANY REQUIREMENTS. REFER TO "ELECTRICAL SITE PLAN" ON SHEET ES-11 FOR LOCATION.
- 2 PARALLEL RUNS OF #350 THWN CU IN 3" CONDUIT OR 2 PARALLEL RUNS OF #500 XHHW AI IN 3 1/2" CONDUIT.
- REFER TO "GROUNDING SYSTEM DIAGRAM - 277/480 VOLT SYSTEM" ON THIS SHEET FOR ADDITIONAL INFORMATION.
- PROVIDE AND INSTALL A FUSIBLE DISCONNECT SWITCH, 600 AMPS, 600 VOLTS, 3 POLE, SOLID NEUTRAL AND GROUND LUG, NEMA 3R ENCLOSURE. FUSE AT 600 AMPS. PROVIDE A MINIMUM WORKING CLEARANCE OF 3'-0" WIDE IN FRONT OF DISCONNECT SWITCH PER NEC.
- 2 PARALLEL RUNS OF #350 THWN CU AND #1 THWN CU GROUND IN 3" CONDUIT OR 2 PARALLEL RUNS OF #500 XHHW AI AND #1 THWN CU GROUND IN 3 1/2" CONDUIT.
- PROVIDE AND INSTALL A TRANSIENT VOLTAGE SURGE SUPPRESSION DEVICE. THE TVSS SHALL BE MANUFACTURED BY RAYCAP #277-3Y-M3-4-06-C-H OR APPROVED EQUAL, NEMA 3R ENCLOSURE.
- MAKE ALL REQUIRED CONNECTIONS FOR POWER ENTRANCE TO PREWIRED BUILDING. COORDINATE EXACT LOCATION OF EQUIPMENT WITH OWNER PRIOR TO INSTALLATION.

GROUNDING SYSTEM GENERAL NOTES 2018

- THE GROUNDING ELECTRODE SYSTEM SHALL CONSIST OF ITEMS A, B, C, D, E, F, AND G, WHERE APPLICABLE.
- ITEMS H, I, AND J MUST BE BONDED TOGETHER AND TO THE GROUNDING ELECTRODE SYSTEM WHEN THEY ARE PRESENT.
- ITEM D, CONCRETE ENCASED ELECTRODE (UFER) SHALL HAVE UFER SUPPORT CONSISTING OF 5/8" x 10' COPPER GROUND ROD CUT INTO 2' SECTIONS AND DRIVEN FOR SUPPORT OF UFER CONDUCTOR. ONLY COPPER TO COPPER CONNECTIONS ARE ACCEPTABLE. DO NOT USE RE-BAR FOR UFER SUPPORT. (THIS IS TO AVOID THE HARMFUL EFFECTS OF DISSIMILAR METALS IN CONTACT.) A U.L. LISTED COPPER TO RE-BAR CLAMP (SUCH AS GRAVES "JONES BOND" SYSTEM) IS AN APPROVED ALTERNATIVE.
- THIS DETAIL IS PROVIDED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE, ARTICLE 250, PERTAINING TO THE "GROUNDING ELECTRODE SYSTEM".
- ALL SPLICING AND UNDERGROUND CONNECTIONS SHALL BE ACCOMPLISHED VIA EXOTHERMIC WELD (CAD-WELD) ONLY.
- ALL CONDUCTOR SIZING INDICATED ON THE GROUNDING SCHEDULE ARE FOR COPPER CONDUCTORS. ALUMINUM IS NOT PERMITTED.
- ANY VARIANCES FROM THIS DIAGRAM AND ASSOCIATED SCHEDULE AND NOTES MUST BE REQUESTED AND APPROVED IN WRITING PRIOR TO INSTALLATION.
- ALL INSTALLATIONS SHALL COMPLY WITH THE LATEST ADOPTED EDITION OF N.E.C. ARTICLE 250 (ALL SUBPARAGRAPHS) AND ALL STATE AND LOCAL REQUIREMENTS.
- THE GROUNDING SYSTEM SHALL PROVIDE LESS THAN (4) FOUR OHMS RESISTANCE TO GROUND AT THE SERVICE CONNECTION. THE RESULTS SHALL BE VERIFIED BY AN INDEPENDENT TESTING AGENCY VIA GROUND TEST (FALL-OF-POTENTIAL) AND SUBMITTED TO ELECTRICAL ENGINEER UPON COMPLETION OF PROJECT.
- IF A 20'-0" LONG (MINIMUM) CONCRETE ENCASED ELECTRODE IS NOT AVAILABLE, CONTRACTOR MAY INSTALL A 20'-0" (MINIMUM) UFER GROUND 30" BELOW GRADE WITH AT LEAST TWO GROUND RODS (ONE AT EACH END).
- PROVIDE SECOND GROUND ROD AT LEAST 6'-0" FROM INITIAL GROUND ROD.
- WHEN INDICATED ON DRAWINGS, PROVIDE AND INSTALL HORIZONTAL CHEMICAL GROUND ELECTRODE KIT. 10' COPPER ELECTRODE LENGTH, FACTORY ATTACHED 6' #4/0 COPPER PIGTAIL, AND HIGH DENSITY POLYETHYLENE INSPECTION WELL & COVER. ERICO #ECRH102Q6U OR APPROVED EQUAL. CONTRACTOR SHALL USE MANUFACTURER RECOMMENDED ELECTROLYTIC SALTS, BENTONITE CLAY BACKFILL MATERIAL, AND GROUND ENHANCEMENT MATERIAL (GEM). CONTRACTOR SHALL INSTALL PER MANUFACTURERS RECOMMENDATIONS. CONTRACTOR SHALL MAINTAIN 6'-0" SEPARATION (MINIMUM) BETWEEN GROUNDING ELECTRODES. INSPECTION WELL INSTALLED FLUSH WITH FINAL GRADE.
- PROVIDE AND INSTALL 1/4" X 4" X 18" COPPER MAIN GROUNDING BUS BAR WITH BRACKETS AND INSULATORS. CONTRACTOR SHALL COORDINATE PRE-DRILLED (12)-1/4" HOLES REQUIREMENTS WITH PNM (OWNER), ERICO OR APPROVED EQUAL. EXTEND #4/0 CU GROUNDING CONDUCTOR TO MAIN GROUND. COORDINATE EXACT LOCATION AND ROUTING IN THE FIELD. CONTRACTOR SHALL MAKE ALL FINAL TERMINATIONS AS REQUIRED.

GROUNDING SCHEDULE											
	A	B	C	D	E	F	G	H	I	J	K
	FACTORY INSTALLED GROUND BUS BAR	INTEGRATED BUS BAR MAIN BOND JUMPER	INTEGRATED BUS BAR CASE BOND JUMPER	CONCRETE ENCASED ELECTRODE (UFER)	GROUNDING ELECTRODE CONDUCTOR TO ROD, PIPE OR PLATE	CU or CU-CLAD STEEL GROUND ROD	COPPER GROUND RING CONDUCTOR	METALLIC PIPING BONDING CONDUCTOR	BUILDING STEEL BONDING CONDUCTOR	MULTIPLE SERVICE BONDING CONDUCTOR	TELEPHONE SYSTEM GROUNDING CONDUCTOR
CODE REFERENCE CAPACITY		N.E.C. 250.102(C)	N.E.C. 250.102(C)	N.E.C. 250.52(A)(3) 250.66(B)	N.E.C. 250.52(A)(5) 250.52(A)(7) 250.66(A)	N.E.C. 250.52(A)(5)	N.E.C. 250.52(A)(4) 250.66(C)	N.E.C. 250.52(A)(1) 250.66	N.E.C. 250.50(A)(2) 250.66	N.E.C. 250.66	.
200 AMP	#4	#4	#4	#6	5/8"x8'	#2	#4	#4	#4	#4	#6
225 AMP	#2	#2	#4	#6	5/8"x8'	#2	#2	#2	#2	#2	#6
400 AMP	#1/0	#1/0	#4	#6	5/8"x8'	#1/0	#1/0	#1/0	#1/0	#1/0	#6
600 AMP	#2/0	#2/0	#4	#6	5/8"x8'	#2/0	#2/0	#2/0	#2/0	#2/0	#6

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

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