

# WATER TOWER UPGRADE

## 1201 TYER ROAD

FINAL CONSTRUCTION PLANS  
MAY 2025



## UTILITY CONTACTS

GRAIN VALLEY  
PATRICK MARTIN  
816-215-9659

AT&T DISTRIBUTION  
816-944-9428

COMCAST/XFINITY  
816-795-2255

EVERGY  
888-544-4852

MISSOURI ONE-CALL  
800-344-7483

SPIRE WEST  
816-634-4584

TRI-COUNTY WATER AUTHORITY  
JOHN OVERSTREET  
816-796-4100 X204

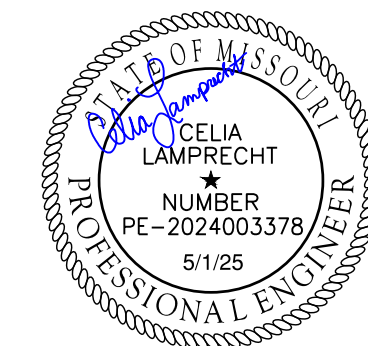


## LOCATION MAP

DRAWING INDEX		
SHEET NUMBER	SHEET DESCRIPTION	SHEET TITLE
1	G-001	COVER SHEET
2	G-002	GENERAL NOTES & LEGEND
3	C-101	SITE PLAN
4	C-102	SITE PLAN AIRPORT MAP
5	C-103	PROCESS FLOW DIAGRAM
6	C-201	LINE 1 - PROPOSED INFLUENT 16" DIP
7	C-202	LINE 2 - PROPOSED EFFLUENT 16" DIP
8	C-301	ELEVATION DETAIL
9	C-302	BASE PLAN
10	C-303	PIPE SECTION VIEW
11	D-501	DETAILS
12	E-101	ELECTRICAL SITE PLAN
13	E-102	ELECTRICAL PLAN - ELEVATED TANK
14	E-103	ELECTRICAL PLAN - ELEVATED TANK
15	E-501	ELECTRICAL DETAILS



1 - 800 - 344 - 7483  
1 - 800 - (DIG-RITE)  
(811)



CRAWFORD MURPHY & TILLY, INC.  
CONSULTING ENGINEERS  
1100 MAIN STREET SUITE 12110  
KANSAS CITY, MO 64105  
CELIA LAMPRECHT  
(816)272-8318  
CLAMPRECHT@CMTENGR.COM



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Date: Thursday, May 1, 2025 8:12:27 AM

GENERAL NOTES

1. THE LOCATION, SIZE AND TYPE OF MATERIALS OF EXISTING UNDERGROUND UTILITIES INDICATED ON THE PLANS ARE NOT REPRESENTED AS BEING ACCURATE, SUFFICIENT OR COMPLETE. NEITHER THE OWNER OR THE ENGINEER ASSUME ANY RESPONSIBILITY IN RESPECT TO THE ACCURACY OR SUFFICIENCY OF THE INFORMATION, AND THERE IS NO GUARANTEE, EITHER EXPRESSED OR IMPLIED, THAT THE CONDITIONS INDICATED ARE REPRESENTATIVE OF THOSE TO BE ENCOUNTERED IN THE CONSTRUCTION. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE ACTUAL LOCATION OF ALL SUCH FACILITIES, INCLUDING SERVICE CONNECTIONS TO UNDERGROUND UTILITIES. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE UTILITY COMPANY OF HIS OPERATIONAL PLANS AND SHALL OBTAIN FROM THE RESPECTIVE UTILITY COMPANY'S DETAILED INFORMATION AND ASSISTANCE RELATIVE TO THE LOCATION OF THEIR FACILITIES AND THE WORKING SCHEDULE OF THE UTILITY COMPANY FOR REMOVAL OR ADJUSTMENT WHERE REMOVAL OR ADJUSTMENT IS REQUIRED. IN THE EVENT AN UNEXPECTED UTILITY INTERFERENCE IS ENCOUNTERED DURING CONSTRUCTION, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE UTILITY COMPANY OF JURISDICTION. THE ENGINEER SHALL ALSO BE IMMEDIATELY NOTIFIED. ANY SUCH MAINS AND SERVICES DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED TO SERVICE AT ONCE. WHENEVER POSSIBLE, RESIDENTS SHALL BE NOTIFIED IN ADVANCE IF THEIR HOUSE SERVICE IS TO BE DISCONNECTED AND NO HOUSE SHALL BE LEFT WITHOUT SERVICE OVERNIGHT.

2. WATER MAIN SHALL BE CLASS 50 DIP COMPLETE WITH ALL ACCESSORIES CONFORMING TO ASA SPECIFICATIONS A21.8. THE JOINTS SHALL BE THE BOLTED, GASKETED JOINT TYPE, "U.S. PIPE & FOUNDRY TYTON" OR "AMERICAN CAST IRON PIPE COMPANY FASTITE" OR APPROVED EQUAL.

3. WATER MAIN SHALL HAVE A MINIMUM DEPTH OF COVER OF 60" UNLESS OTHERWISE NOTED ON THE DRAWINGS.

4. LAND SURVEY MONUMENTS (PROPERTY CORNERS, RIGHT-OF-WAY MARKERS, ETC.) WHICH ARE DISTURBED BY EXCAVATION SHALL BE RESET BY A LICENSED PROFESSIONAL LAND SURVEYOR. COST SHALL BE INCIDENTAL TO CONSTRUCTION CONTRACT.

5. THE CONTRACTOR SHALL CONTACT APPLICABLE UTILITY COMPANY PRIOR TO WORKING AROUND ANY EXISTING UTILITY LINE. THE CONTRACTOR SHALL PROTECT ANY EXISTING UTILITY ENCOUNTERED DURING CONSTRUCTION. ALL UTILITIES SHALL REMAIN IN SERVICE THROUGHOUT CONSTRUCTION UNLESS OTHERWISE APPROVED BY OWNER AND UTILITY COMPANY.

6. THE CONTRACTOR SHALL REVIEW EXISTING SITE CONDITIONS AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED IN CONNECTION WITH THE LOCATION OF EXISTING OVERHEAD FACILITIES.

7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPLACEMENT OF ANY EXISTING FACILITIES/INFRASTRUCTURE (PAVEMENT, SIDEWALK, CURB, INLET, MANHOLE, ETC) REMOVED TO FACILITATE THE INSTALLATION OF THE PROPOSED WATER MAIN AND SERVICES INDICATED ON THE CONSTRUCTION PLANS.

8. THE CONTRACTOR SHALL ENSURE THAT THE FINAL GRADING PROVIDES ADEQUATE DRAINAGE AWAY FROM ANY BUILDINGS AND STRUCTURES. EXISTING DRAINAGE PATTERNS WITHIN THE PROJECT SITE SHALL BE MAINTAINED AND RESTORED AT THE COMPLETION OF THE PROJECT.

9. DETAILED DRAWINGS TAKE PRECEDENCE OVER ALL GENERAL DRAWINGS AND SCHEDULES. ANY CONFLICT SHALL BE RESOLVED IN FAVOR OF THE DETAILED DRAWINGS.

10. ANY COSTS ASSOCIATED WITH PROVISIONS OF ANY PERMIT BY ANY AGENCY SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND INCIDENTAL TO THE CONTRACT.

11. ANY BONDING REQUIREMENTS AND COSTS ASSOCIATED WITH THE PROJECT ARE CONSIDERED INCIDENTAL TO THE CONTRACT.

12. EXISTING SANITARY, GAS, WATER AND TELEPHONE SERVICE CONNECTIONS ARE NOT SHOWN.

13. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR JOB SITE SAFETY THROUGHOUT THE CONSTRUCTION PROJECT. THIS RESPONSIBILITY SHALL NOT BE LIMITED TO WORKING HOURS. THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE OWNER AND THE ENGINEER HARMLESS FROM ALL LIABILITY, REAL, OR ALLEGED IN CONNECTION WITH THE PERFORMANCE OR WORK ON THE PROJECT.

14. THE CONTRACTOR SHALL INSTALL ANY AND ALL APPLICABLE EROSION CONTROL MEASURES NECESSARY TO PREVENT SEDIMENT FROM LEAVING THE SITE PRIOR TO ANY SITE DISTURBANCE. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE EROSION CONTROL FOR THE PROJECT SITE. ANY EROSION CONTROL METHODS, INSTALLATION, REPAIR, REPLACEMENT, ADJUSTMENT SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT. REFER TO NPDES PERMIT AND SWPPP FOR RECOMMENDATIONS.

15. DUST ON THE SITE SHALL BE CONTROLLED. THE USE OF MOTOR OILS AND OTHER PETROLEUM BASED OR TOXIC LIQUIDS FOR DUST SUPPRESSION OPERATIONS IS PROHIBITED.

16. ALL MATERIALS SPILLED, DROPPED OR WASHED INTO THE STORM DRAINS MUST BE REMOVED IMMEDIATELY

17. IF SOIL STOCKPILING IS UTILIZED, SILT FENCES SHALL BE USED TO HELP CONTAIN THE SEDIMENT AND AVOID EROSION DISCHARGE.

18. ANY CONSTRUCTION EXIT SHALL BE MAINTAINED TO A CONDITION WHICH WILL PREVENT TRACKING OR FLOW OF MUD ONTO THE PUBLIC RIGHT-OF-WAY.

19. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CHECKED BY A QUALIFIED PERSON AT LEAST ONCE EVERY 7 CALENDAR DAYS AND WITHIN 24 HOURS OF THE END OF A RAINFALL EVENT. THE MEASURES SHALL BE REPAIRED, REPLACED, OR SUPPLEMENTED AS NEEDED.

20. THE CONTRACTOR SHALL TAKE REASONABLE PRECAUTIONS TO PROTECT PUBLIC AND PRIVATE PROPERTY. IF, AT ANY TIME, CONTRACTOR DAMAGES OR DESTROYS PUBLIC OR PRIVATE PROPERTY, THE CONTRACTOR SHALL RESTORE SUCH PROPERTY TO A CONDITION EQUAL TO THAT EXISTING BEFORE SUCH DAMAGE AT THEIR OWN EXPENSE.

21. TOP LAYER FOR ALL EARTH SHALL BE 8 IN OF TOPSOIL.

22. ALL SECTIONS, DETAILS AND NOTES SHOWN ON THE DRAWINGS ARE INTENDED TO BE TYPICAL AND SHALL APPLY TO SIMILAR SITUATIONS ELSEWHERE UNLESS OTHERWISE SHOWN.

23. SHOP DRAWINGS PREPARED BY SUPPLIERS AND SUBCONTRACTORS SHALL BE REVIEWED BY THE GENERAL CONTRACTOR PRIOR TO SUBMITTING TO ENGINEER. ENGINEERS REVIEW SHALL BE FOR SIZES AND GENERAL ARRANGEMENT ONLY. NO WORK SHALL BE STARTED WITHOUT SUCH REVIEW.

24. A LEAN CONCRETE MUD SLAB 3 TO 4 INCHES THICK SHALL BE USED IN THE FOOTING EXCAVATION IF THE BOTTOM OF THE EXCAVATION TENDS TO BECOME MUDDY AND SOFT. LEAN CONCRETE SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 2,000 P.S.I..

25. UNLESS NOTED OTHERWISE, ALL POST INSTALLED ANCHOR BOLTS SHALL BE HILTI, OR ENGINEER APPROVED EQUAL CHEMICAL ANCHORS. EPOXY SHALL BE HILTI HIT-HY 200 OR ENGINEER APPROVED EQUAL.

26. ALL FOOTING EXCAVATIONS SHALL BE CLEAN AND FREE OF DEBRIS. STANDING WATER AND LOOSE SOIL AND BE INSPECTED AND APPROVED BY THE OWNER'S REPRESENTATIVE PRIOR TO PLACEMENT OF CONCRETE.

27. IN STRUCTURAL AREAS (WHERE STRUCTURES DERIVE SOME OR ALL SUPPORT FROM FILL-SUPPORTED FOUNDATIONS) AND SLABS-ON-GRADE, FILL SHALL BE COMPACTED TO 98 PERCENT OF STANDARD PROCTOR MAXIMUM DRY DENSITY (ASTM D-698).

28. ALL FOOTINGS SHALL BEAR ON UNDISTURBED SUBGRADE OR COMPACTED STRUCTURAL FILL IN ACCORDANCE WITH SPECIFICATION SECTION 02221.

29. BACKFILL AGAINST GRADE WALLS SHALL BE PLACED EVENLY ON ALL SIDES. DO NOT BACKFILL AROUND BASEMENT WALLS UNTIL FIRST FLOOR AND BASEMENT FLOOR SLABS ARE IN PLACE.

30. AGGREGATE FILL BELOW STRUCTURES SHALL BE MoDOT TYPE 5 AGGREGATE COMPACTED IN 8" MAX. LIFTS TO 98% STANDARD PROCTOR.

31. FOR SLABS ON GRADE, PROVIDE 1/2" THICK PREMOLDED JOINT FILLER AND SEALANT TO ISOLATE THE SLAB FROM CONTACT WITH THE STRUCTURES ALONG ITS PERIMETER. AT DEEP FOUNDATIONS CAST SLABS TIGHT TO WALLS AND PROVIDE 1/2" x 1/2" FORMED NOTCH FILLED WITH SEALANT.

32. ACCESS GATE TO THE PROPERTY SHALL REMAIN CLOSED AT ALL TIMES. CONTACT PATRICK MARTIN (GRAIN VALLEY REPRESENTATIVE) OR JOHN OVERSTREET (GENERAL MANAGER TRI-COUNTY WATER AUTHORITY) FOR ACCESS. ACCESS ROAD SHALL NOT BE BLOCKED AT ANYTIME. CONTRACTOR SHALL BUILD TEMPORARY ACCESS ROAD TO PUMP STATION IF NEEDED.

33. WATER MAIN TO BE TESTED AND DISINFECTED PER THE CITY OF GRAIN VALLEY STANDARDS, SPECIFICATIONS, AND THE LATEST AWWA STANDARDS, WHICHEVER IS MORE STRINGENT. CONTRACTOR TO SUBMIT TESTING AND DISINFECTION PLAN TO THE CITY PRIOR TO TESTING AND DISINFECTION OF WATER MAIN.

34. THE PREMISES MUST REMAIN SECURED AT TIMES DURING AND AFTER FENCE REMOVAL. CONTRACTOR IS RESPONSIBLE FOR REMOVING AND REPLACING FENCE FOR WATER MAIN INSTALLATION. IF ANY PART OF FENCE NEEDS TO BE REPLACED, CONTRACTOR SHALL CONSTRUCT FENCE IN ACCORDANCE WITH SECTION 32 21 00 - FENCES AND GATES.

35. IN THE EVENT THAT THERE IS A SEWER ENCOUNTERED DURING THE CONSTRUCTION OF THE WATER MAIN, CONTRACTOR SHALL ADHERE TO CHAPTER 8.6 REGARDING THE SEPARATION OF WATER MAINS, SANITARY SEWERS, AND COMBINED SEWERS, AS OUTLINED IN THE MISSOURI DEPARTMENT OF NATURAL RESOURCES' MINIMUM DESIGN STANDARDS FOR MISSOURI COMMUNITY WATER SYSTEMS.

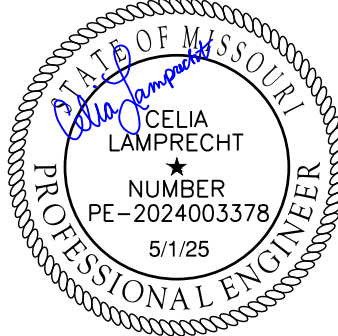
SURVEY CONTROL POINTS

CP # 373 5/8" IRON BAR & CONTROL POINT CAP N: 1042077.08 E: 2867888.46 ELEV. 918.79	CP # 199 N: 1041771.83 E: 2868107.52 ELEV. 934.98
CP # 442 1/2" IRON BAR & CONTROL POINT CAP N: 1041541.18 E: 2868411.38 ELEV. 934.43	CP # 200 N: 1041767.53 E: 2867850.37 ELEV. 934.58
CP # 443 1/2" IRON BAR & CONTROL POINT CAP N: 1041658.61 E: 2868415.98 ELEV. 936.71	CP # 207 5/8" IRON BAR & CONTROL POINT CAP N: 1041627.51 E: 2867861.95 ELEV. 930.21
CP # 444 5/8" IRON BAR & CONTROL POINT CAP N: 1042056.92 E: 2868371.99 ELEV. 926.83	BM # 455 N: 1041696.72 E: 2868250.68 ELEV. 937.23

GEOTECHNICAL BORING LOG

BORING NUMBER	LATITUDE	LONGITUDE	AUGER REFUSAL
B-1 (CENTER OF TOWER)	39.0273	-94.2208	11 FT
B-2	39.0273	-94.2207	12.5 FT
B-3	39.0272	-94.2207	12 FT
B-4	39.0273	-94.2209	12 FT

FULL GEOTECHNICAL REPORT PREPARED BY TERRACON IS INCLUDED IN APPENDIX A OF THE SPECIFICATIONS.



FINAL CONSTRUCTION PLANS  
MAY 2025

WATER TOWER UPGRADE



MARK	DATE	DESCRIPTION
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PROJECT NO:	23005898.00
CAD DWG FILE:	G001 - COVER SHEET.DWG
DESIGNED BY:	CLL
DRAWN BY:	CLL
CHECKED BY:	JJ
APPROVED BY:	JJ
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SHEET TITLE

GENERAL NOTES  
& LEGEND

G-002

SHEET 2 OF 15



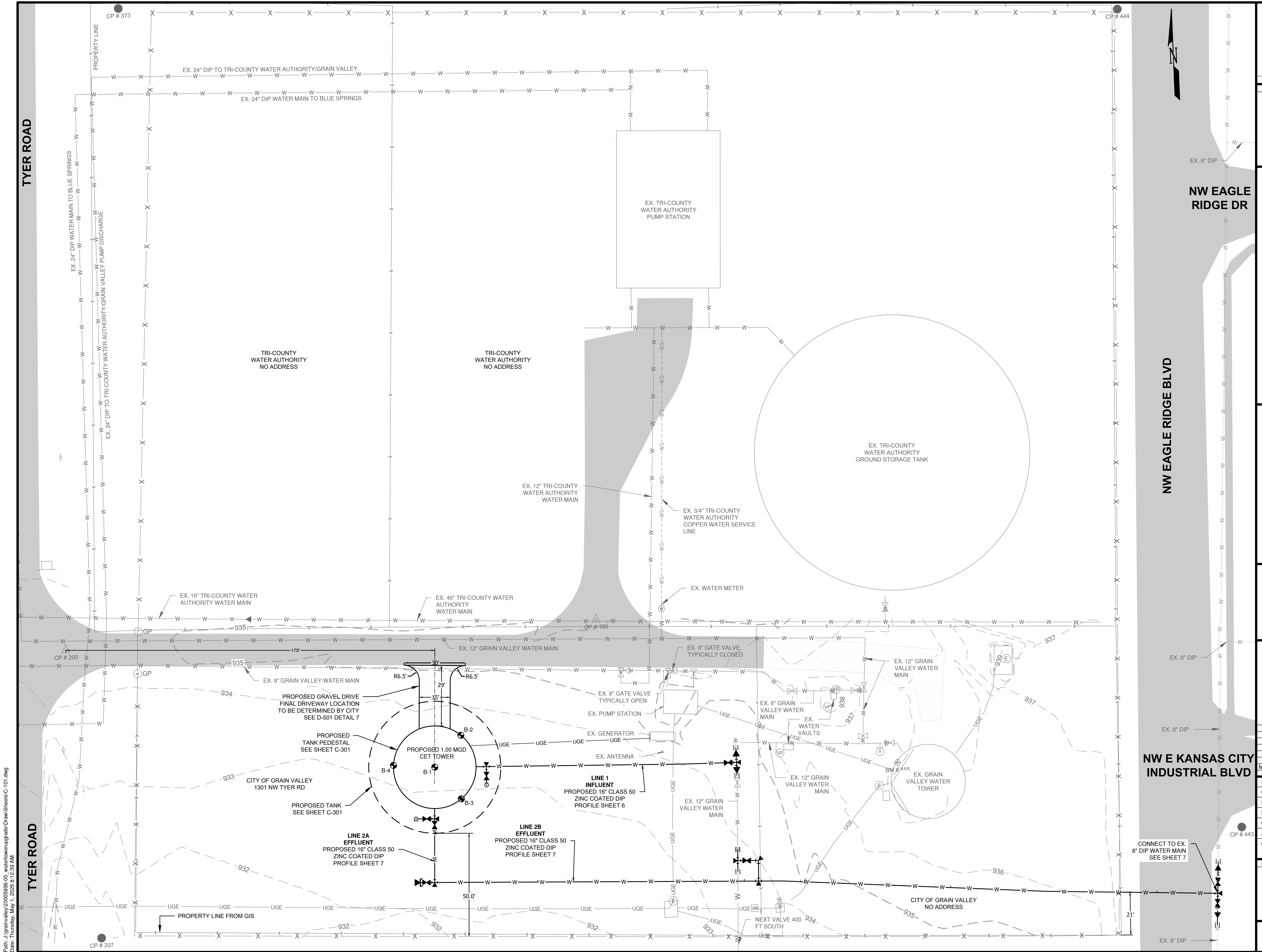


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DRAWN BY:	CLL	
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APPROVED BY:	JJ	
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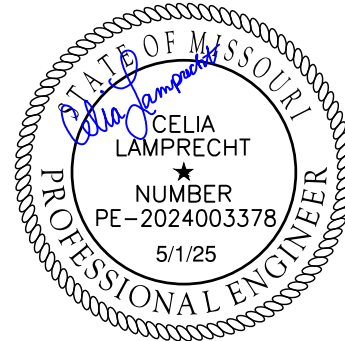
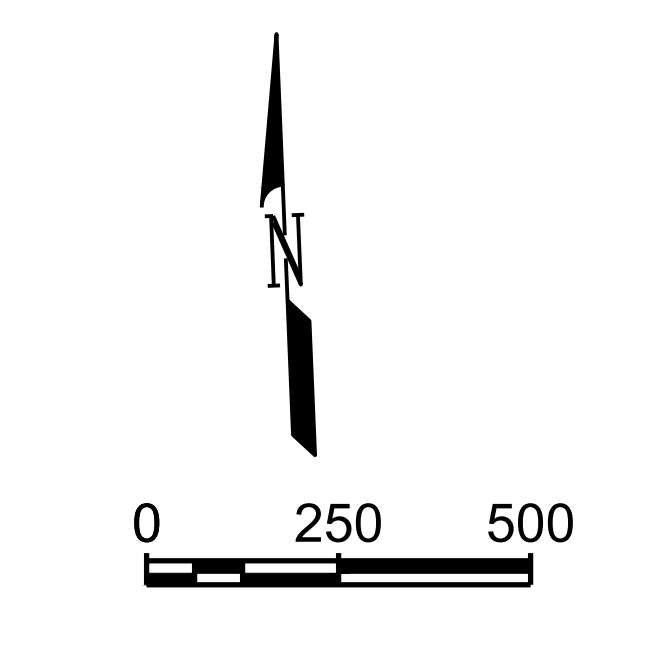
## SITE PLAN

C-101  
SHEET 3 OF 15





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FINAL CONSTRUCTION PLANS  
MAY 2025

WATER TOWER UPGRADE

**GRAIN VALLEY**  
MISSOURI  
*LIFE OUTSIDE THE LINES*

MARK	DATE	DESCRIPTION

PROJECT NO: 23005898.00  
CAD DWG FILE: EXHIBITS.DWG  
DESIGNED BY: CLL  
DRAWN BY: CLL  
CHECKED BY: JJ  
APPROVED BY: JJ  
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SHEET TITLE  
**SITE PLAN  
AIRPORT MAP**

**C-102**  
SHEET 4 OF 15

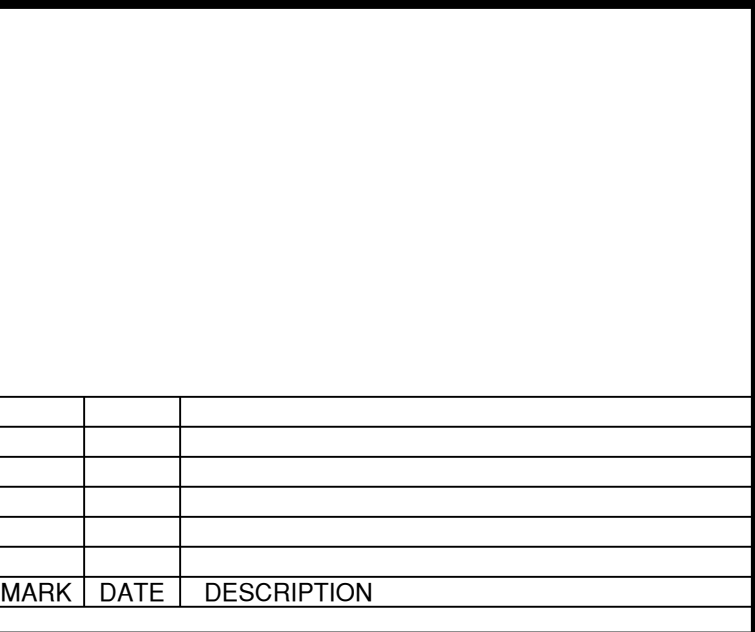
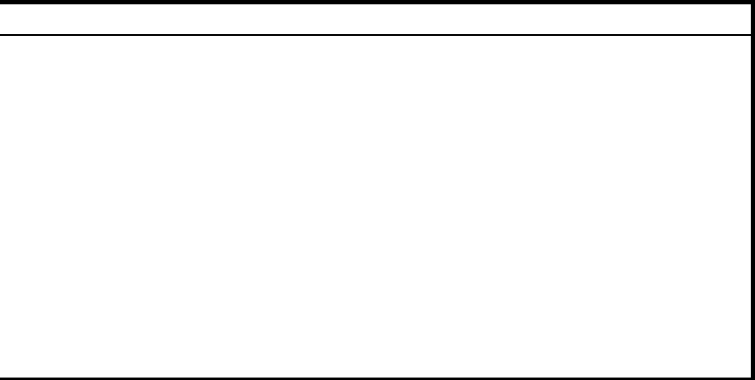












SHEET TITLE	
ELEVATION DETAIL	



### ELEVATION DETAIL

CAPACITY (U.S. GAL.)	HEAD RANGE (FEET)	TANK DIA. (FEET)	PEDESTAL DIA. (FEET)
1,000,000	35.0-40.0	68-74	MANUFACTURER'S STANDARD PEDESTAL DIAMETER RECOMMENDATION

NOTES:

DESIGN:

THE TANK AND CONCRETE SUPPORT PEDESTAL SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH LATEST REVISIONS TO AWWA D100, AWWA D107, A.C.I. 318, A.C.I. 301 AND PROJECT SPECIFICATIONS.

WIND LOAD: \_\_\_\_\_  
SNOW LOAD: \_\_\_\_\_

WIND AND SNOW LOAD TO BE DETERMINED BY STRUCTURAL ENGINEER FROM TANK MANUFACTURER.

THE EXTERIOR OF THE CONCRETE PEDESTAL SHALL INCORPORATE VERTICAL AND HORIZONTAL RUSTICATIONS TO CREATE AN ARCHITECTURAL PATTERN.

THE INTERIOR SURFACES SHALL HAVE A SMOOTH AS-CAST FINISH.

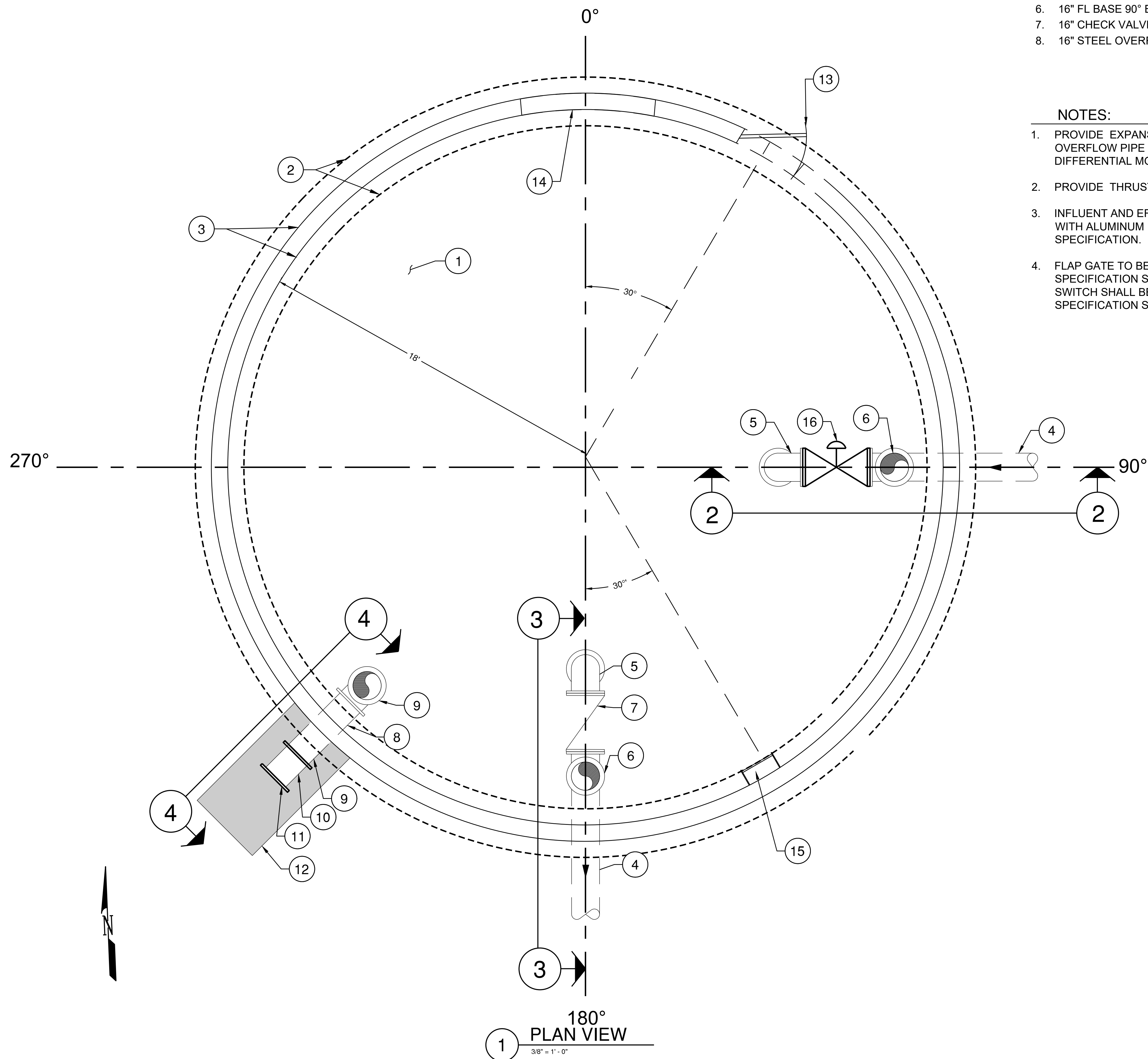
MATERIAL:

STEEL PLATE: ASTM A283 GR.C/A36 STRUCTURAL  
STEEL SHAPES: ASTM A36  
LADDER RUNGS: ASTM A706  
PIPING: TYPE 10S STAINLESS STEEL

GENERAL:

1. HIGH WATER ELEVATION SHALL BE HELD AT 1040.00'.
2. ACCESSORIES SHOWN ON ELEVATION DRAWINGS ARE ROTATED FOR CLARITY.
3. ALL HANDRAILS, PLATFORM LANDINGS, WALKWAYS, LADDERS AND SAFETY CLIMB DEVICES SHALL CONFORM WITH CURRENT OSHA STANDARDS.
4. ALL LADDERS, LANDINGS AND ASSOCIATED COMPONENTS INSTALLED INSIDE THE CONCRETE PEDESTAL SHALL BE HOT-DIP GALVANIZED.
5. SEE PROJECT SPECIFICATIONS FOR SHOP AND FIELD PAINT REQUIREMENTS FOR THE STEEL TANK.
6. PROTECT WORK OF OTHER TRADES, WEATHER TO BE PAINTED ON OR NOT, AGAINST DAMAGE BY PAINTING AND FINISHING WORK. CORRECT DAMAGES BY CLEANING, REPAIRING OR REPLACING AND REPAINTING AS DIRECTED BY THE CITY.
7. DISINFECT TANK IN ACCORDANCE WITH AWWA C652-92 AND PROJECT SPECIFICATIONS.
8. LADDERS SHALL HAVE REST PLATFORMS AT 50'-0" MAXIMUM SPACING.
9. FOR TANKS LOCATED IN REGIONS WHERE FREEZING CONDITIONS MAY OCCUR, CONSIDERATION SHALL BE MADE TO ROUTE OVERFLOW PIPE INSIDE ACCESS TUBE AND OMIT INSIDE TANK LADDER.
10. CONCRETE SUPPORT PEDESTAL DIAMETER AND DIMENSIONS OF FOUNDATION SHALL BE DETERMINED BY THE TANK CONTRACTOR BASED UPON THE SOIL BEARING SPECIFIED AND THE RECOMMENDATIONS IN THE GEOTECHNICAL REPORT. TOP OF FOOTING OR FOUNDATION FOR ELEVATED TANK SHALL BE AT LEAST ONE FOOT ABOVE THE FINISHED GRADE. A DESIGN STANDARD EXCEPTION SHALL BE APPROVED BY MDNR IF FOUNDATION DESIGN DOES NOT ADHERE TO THE ONE FOOT ABOVE FINISHED GRADE REQUIREMENT. CONTRACTOR WILL NEED A LICENSED ENGINEER IN THE STATE OF MISSOURI TO SEAL THE DESIGN STANDARD EXCEPTION REQUEST FORM. THE DESIGN STANDARD EXCEPTION REQUEST FORM CAN BE FOUND IN SPECIFICATIONS APPENDIX D - MDNR STANDARD EXCEPTION REQUEST FORM.



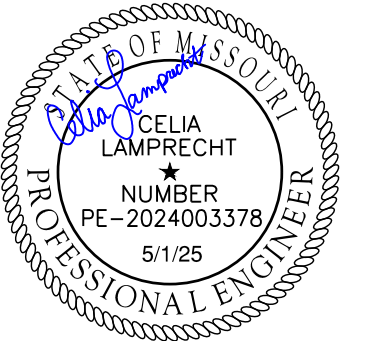


## 1 DETAIL NOMENCLATURE

- |                             |                                    |
|-----------------------------|------------------------------------|
| 1. TANK PEDESTAL BASE SLAB  | 9. 16" STEEL BASE 90° BEND         |
| 2. TANK PEDESTAL FOUNDATION | 10. 16" STEEL 45° BEND             |
| 3. TANK PEDESTAL WALL       | 11. 16" FLAP VALVE                 |
| 4. 16" DIP                  | 12. 5' X 15' CONCRETE SPLASH PAD   |
| 5. 16" FL 90° BEND          | 13. 36" X 84" PERSONAL ACCESS DOOR |
| 6. 16" FL BASE 90° BEND     | 14. 12' X 12' MANUAL OVERHEAD DOOR |
| 7. 16" CHECK VALVE          | 15. LADDER (BY TANK MANUFACTURER)  |
| 8. 16" STEEL OVERFLOW PIPE  | 16. 16" CONTROL VALVE              |

NOTES:

1. PROVIDE EXPANSION JOINT ON INFLUENT, EFFLUENT, AND OVERFLOW PIPE TO ACCOMMODATE MAXIMUM POTENTIAL DIFFERENTIAL MOVEMENT.
2. PROVIDE THRUST RESTRAINT AND SUPPORT AS REQUIRED.
3. INFLUENT AND EFFLUENT PIPE TO BE INSULATED AND CLAD WITH ALUMINUM JACKET FOR FREEZE PROTECTION. SEE SPECIFICATION.
4. FLAP GATE TO BE SERIES A-611 BY RODNEY HUNT OR EQUAL. SEE SPECIFICATION SECTION 40 05 53 FOR ADDITIONAL DETAILS. A LIMIT SWITCH SHALL BE PROVIDED. INSTALL LIMIT SWITCH PER SPECIFICATION SECTION 40 05 53.



FINAL CONSTRUCTION PLANS  
MAY 2025

## WATER TOWER UPGRADE

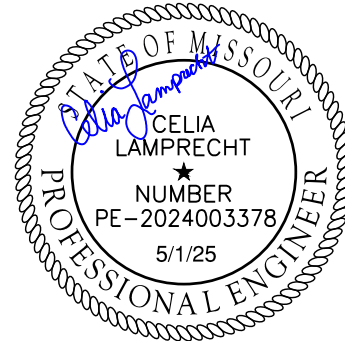
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SHEET TITLE
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## BASE PLAN

C-302





FINAL CONSTRUCTION PLANS  
MAY 2025

WATER TOWER UPGRADE



MARK	DATE	DESCRIPTION

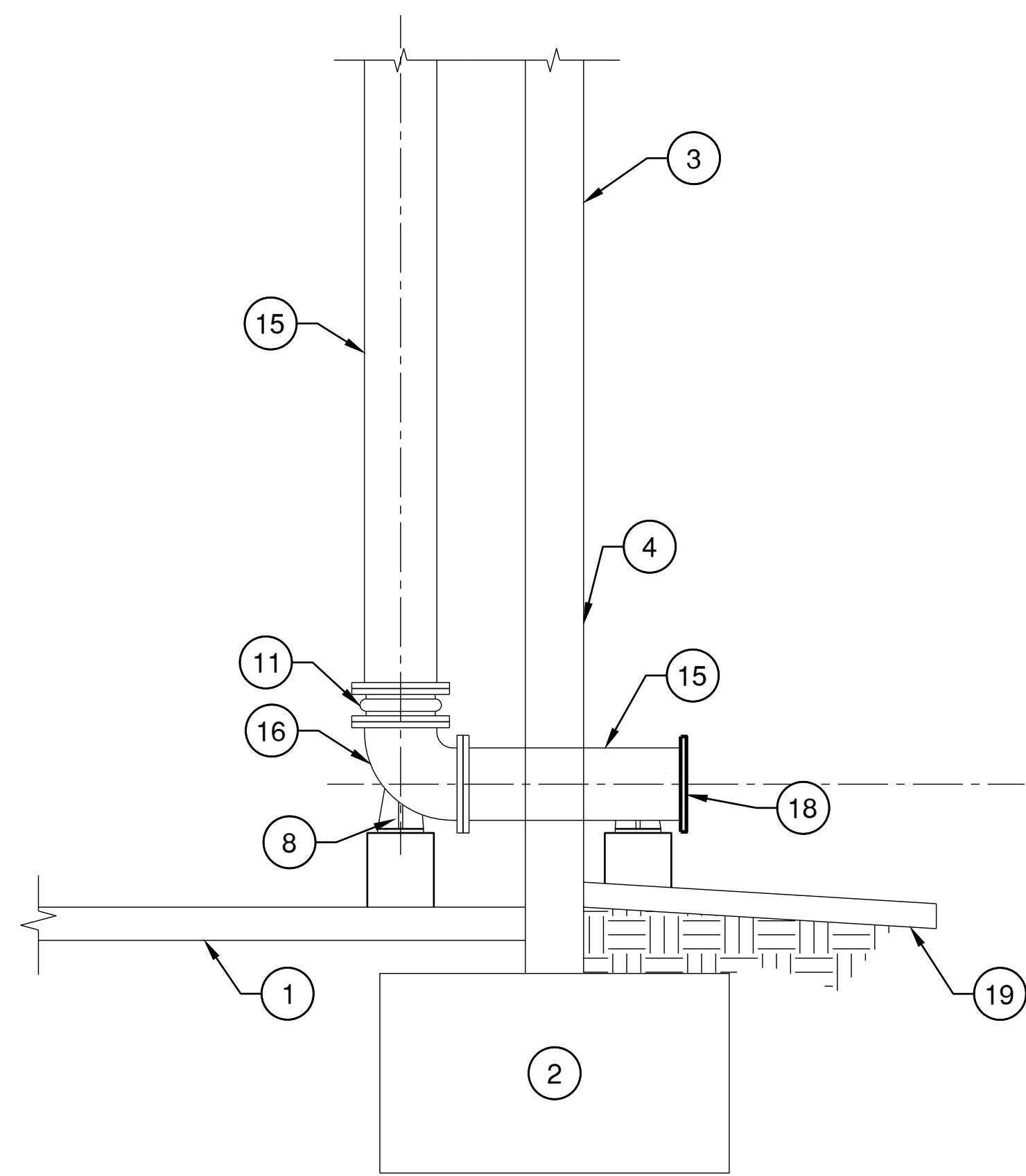
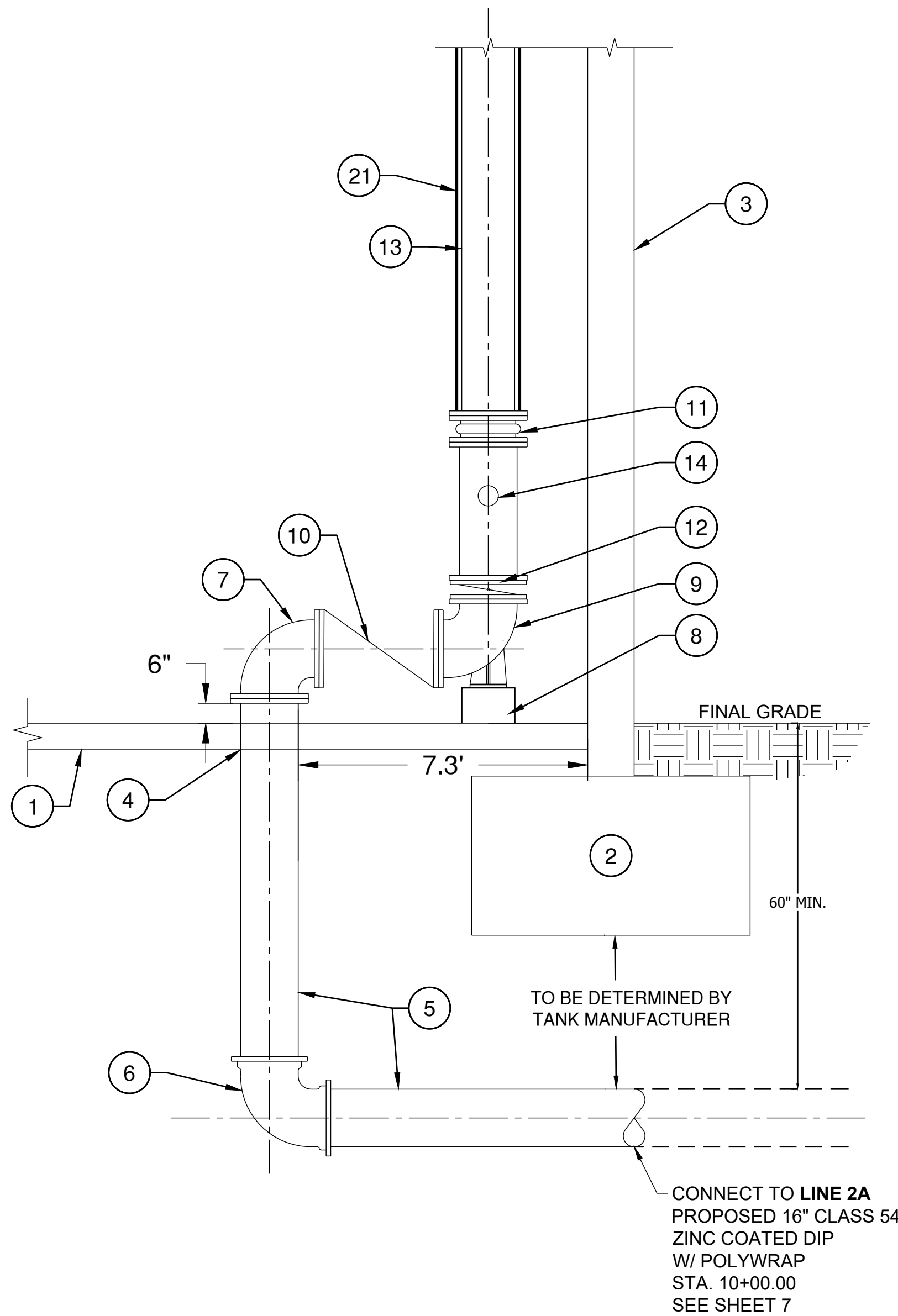
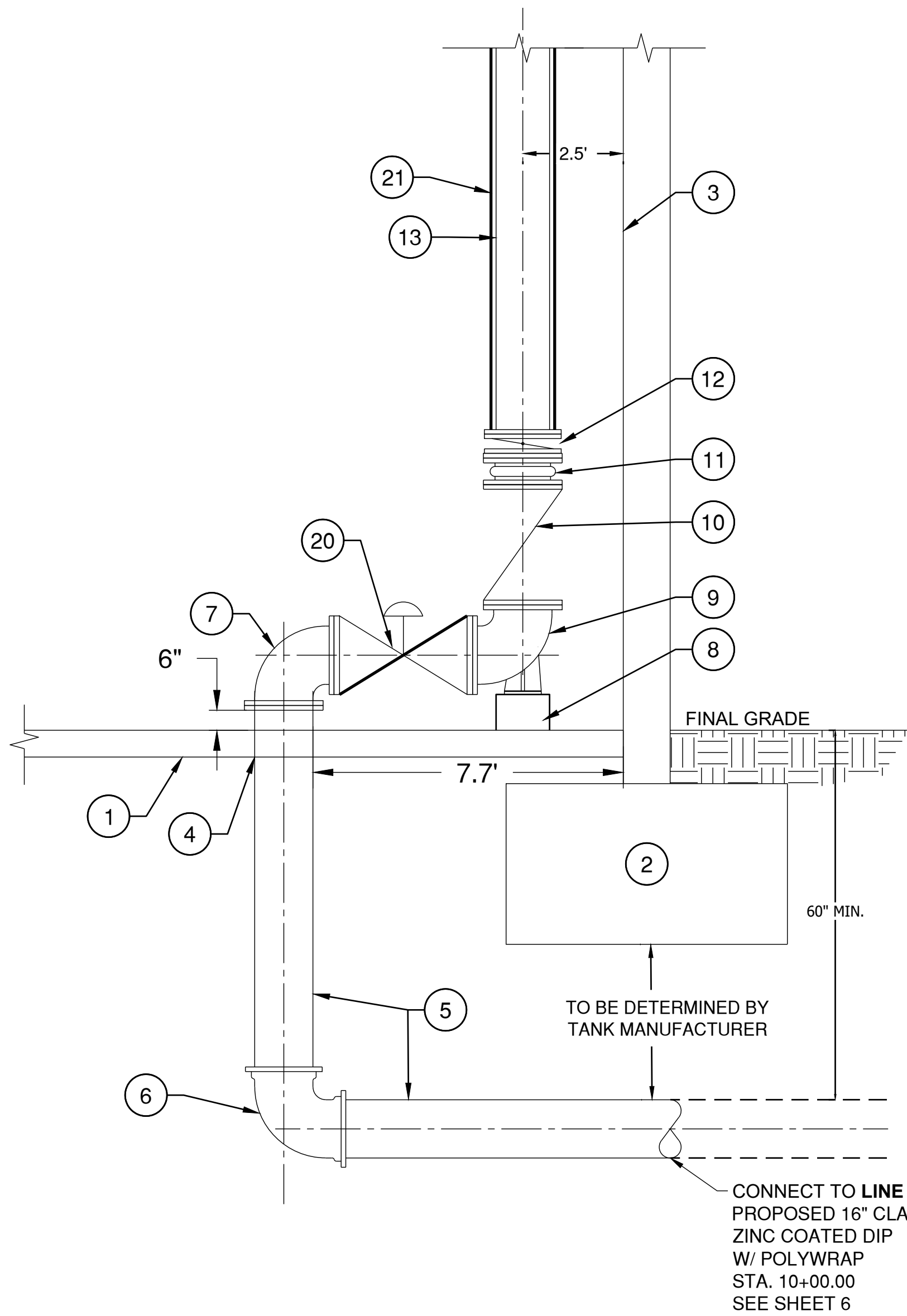
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CAD DWG FILE:	C-302.DWG
DESIGNED BY:	CLL
DRAWN BY:	CLL
CHECKED BY:	JJ
APPROVED BY:	JJ
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SHEET TITLE

PIPE SECTION VIEW

C-303

SHEET 10 OF 15



1 PROPOSED INFLUENT 16" DIP SECTION

3/8" = 1' - 0" RESTRAIN THROUGHOUT

2 PROPOSED EFFLUENT 16" DIP SECTION

3/8" = 1' - 0" RESTRAIN THROUGHOUT

3 OVERFLOW SECTION

3/8" = 1' - 0"

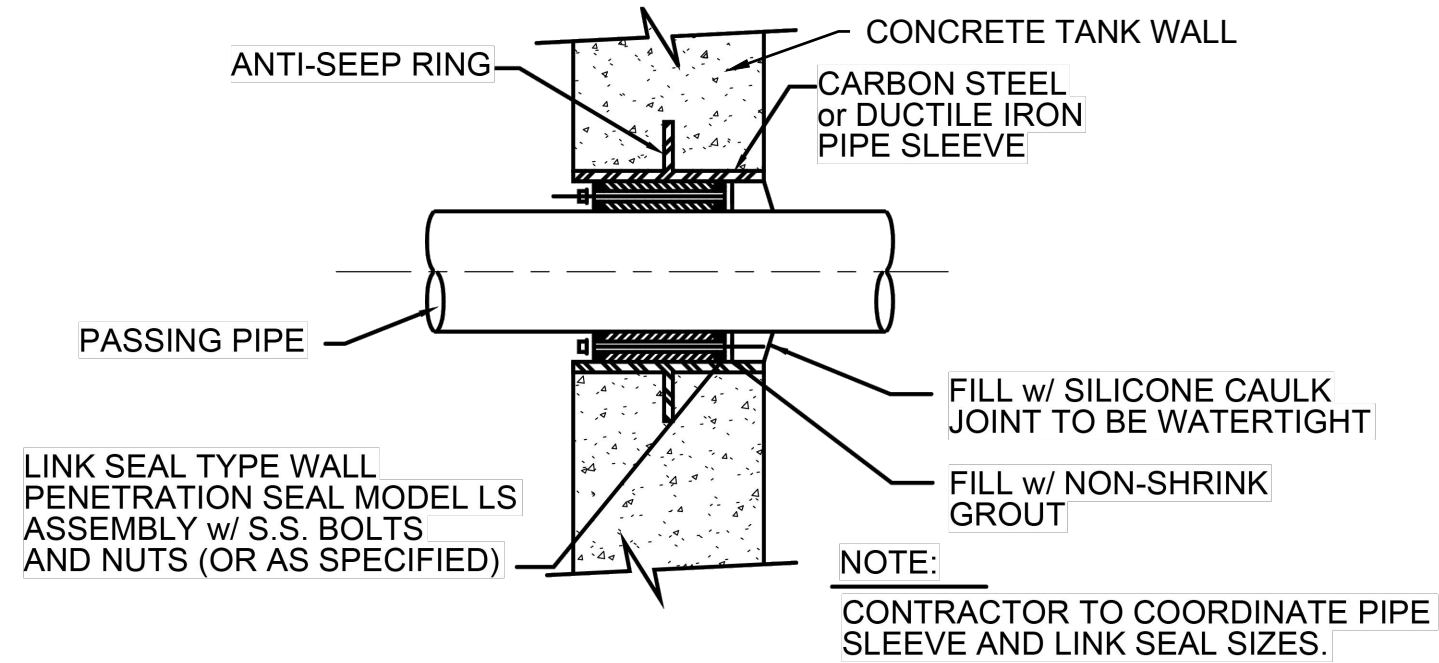
DETAIL NOMENCLATURE

- |   |   |
|---|---|
| 1. TANK PEDESTAL BASE SLAB                                    | 11. 16" EXPANSION JOINT                     |
| 2. TANK PEDESTAL FOUNDATION                                   | 12. 16" BUTTERFLY VALVE                     |
| 3. TANK PEDESTAL WALL   | 13. 16" STEEL PIPE (SEE NOTE 3)             |
| 4. WALL AND FLOOR PENETRATION<br>(SEE DETAILS 1 & 5 SHEET 11) | 14. PRESSURE GAUGE AND TRANSDUCER           |
| 5. 16" DIP W/ POLYWRAP  | 15. 16" STEEL OVERFLOW PIPE<br>(SEE NOTE 4) |
| 6. 16" MJ 90° BEND  | 16. 16" STEEL BASE 90° BEND                 |
| 7. 16" FL 90° BEND  | 17. 16" STEEL 45° BEND                      |
| 8. CONCRETE SUPPORT BASE<br>(SEE DETAIL 4 SHEET 11)           | 18. 16" FLAP VALVE (SEE NOTE 5)             |
| 9. 16" FL BASE 90° BEND                                       | 19. 5' X 15' CONCRETE SPLASH PAD            |
| 10. 16" CHECK VALVE   | 20. 16" CONTROL VALVE                       |
|   | 21. 1" INSULATION W/ ALUMINUM JACKET        |

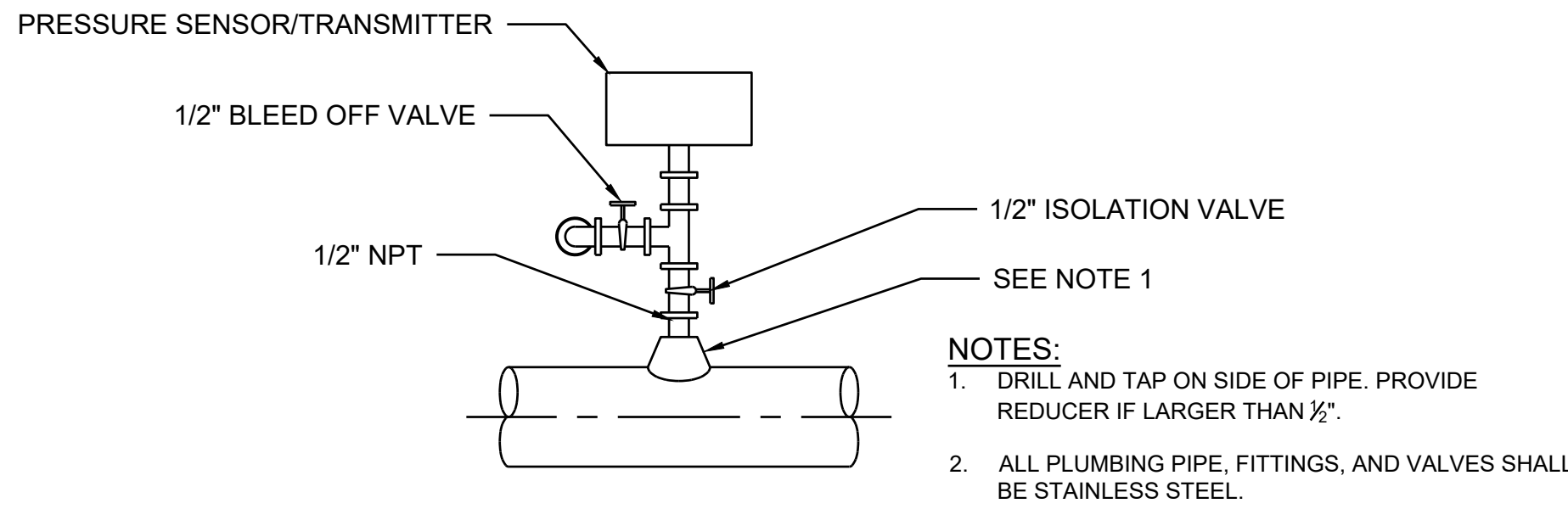
NOTES:

- PROVIDE EXPANSION JOINT ON INFLUENT, EFFLUENT, AND OVERFLOW PIPE TO ACCOMMODATE MAXIMUM POTENTIAL DIFFERENTIAL MOVEMENT.
- PROVIDE THRUST RESTRAINT AND SUPPORT AS REQUIRED.
- INFLUENT AND EFFLUENT PIPE TO BE INSULATED AND CLAD WITH ALUMINUM JACKET WHERE REQUIRED FOR FREEZE PROTECTION IN THE PORTION FROM THE GROUND LEVEL TO THE BOTTOM OF THE BOWL. SEE SPECIFICATION 40 05 24 - FABRICATED WELDED STEEL PIPE AND FITTINGS.
- THE OVERFLOW PIPE SHALL PENETRATE THE SUPPORT WALL APPROXIMATELY 1FT ABOVE GRADE PER SPECIFICATION SECTION 13 21 10.
- FLAP VALVE TO BE SERIES A-611 BY RODNEY HUNT OR EQUAL. SEE SPECIFICATION SECTION 40 05 53 FOR ADDITIONAL DETAILS. A LIMIT SWITCH SHALL BE PROVIDED. INSTALL LIMIT SWITCH PER SPECIFICATION SECTION 40 05 53.

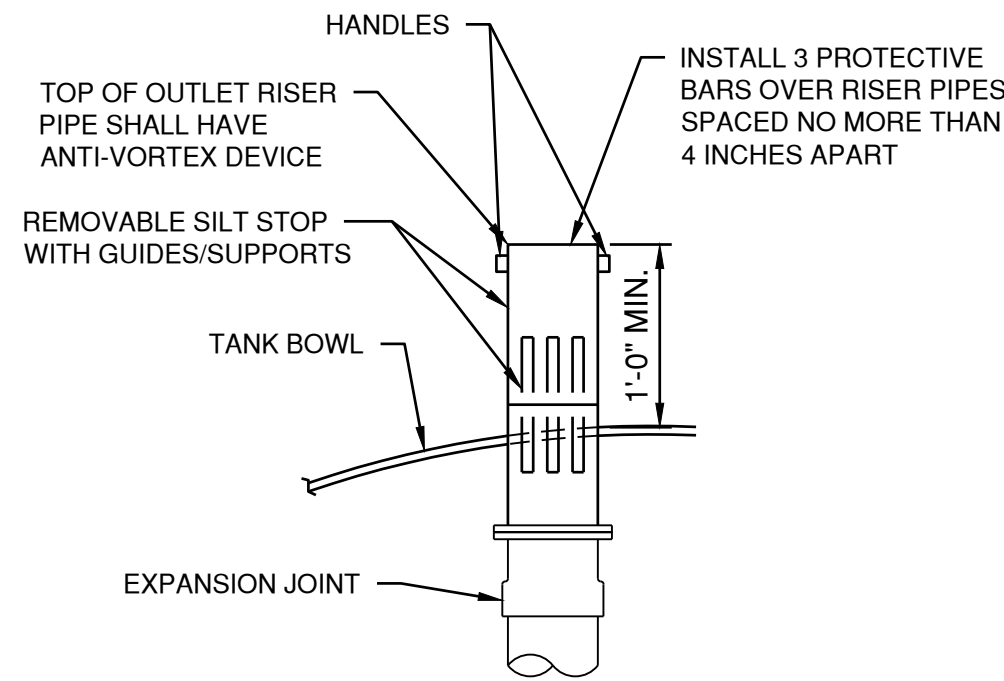




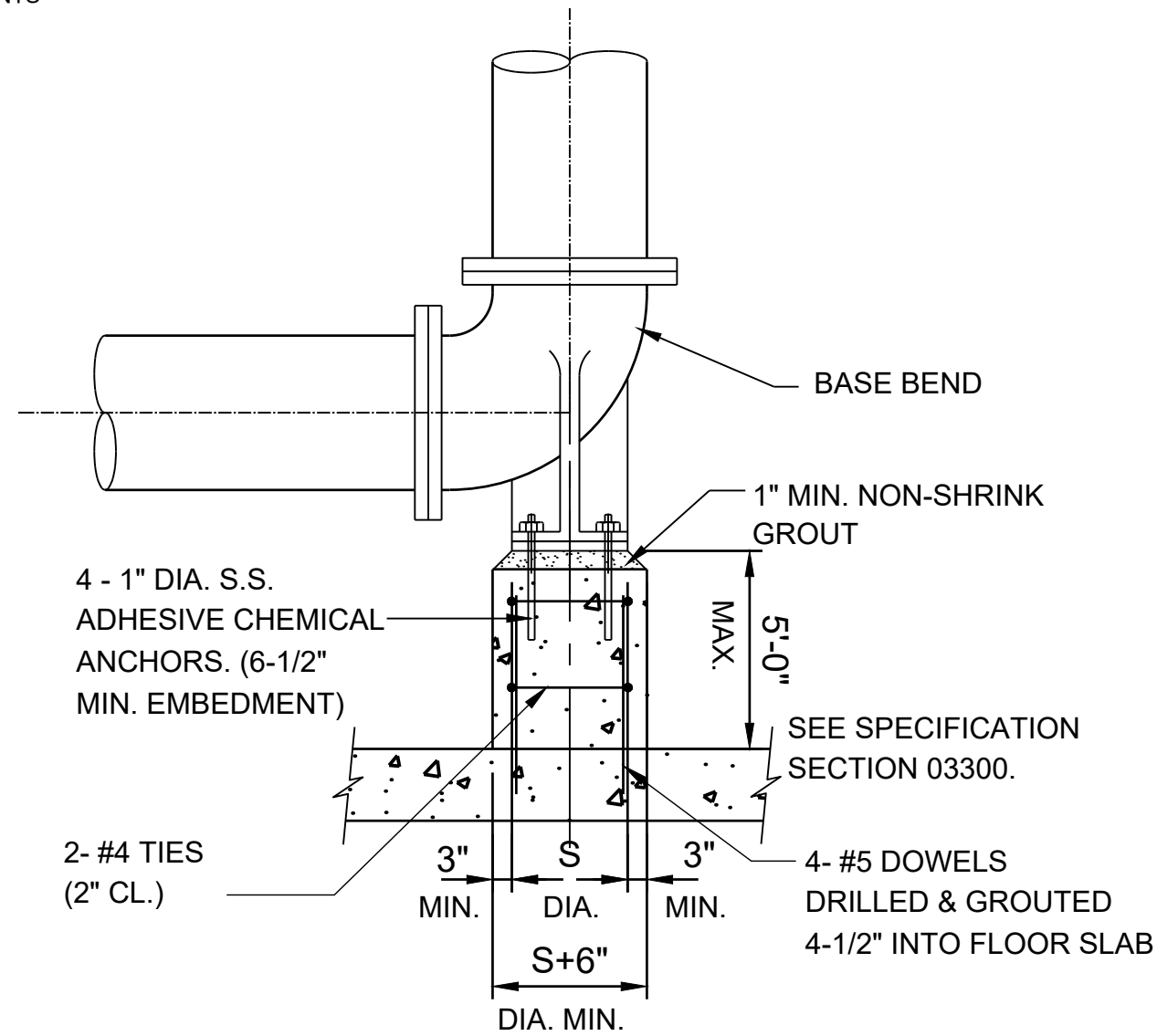
1 WALL PENETRATION DETAIL  
NTS



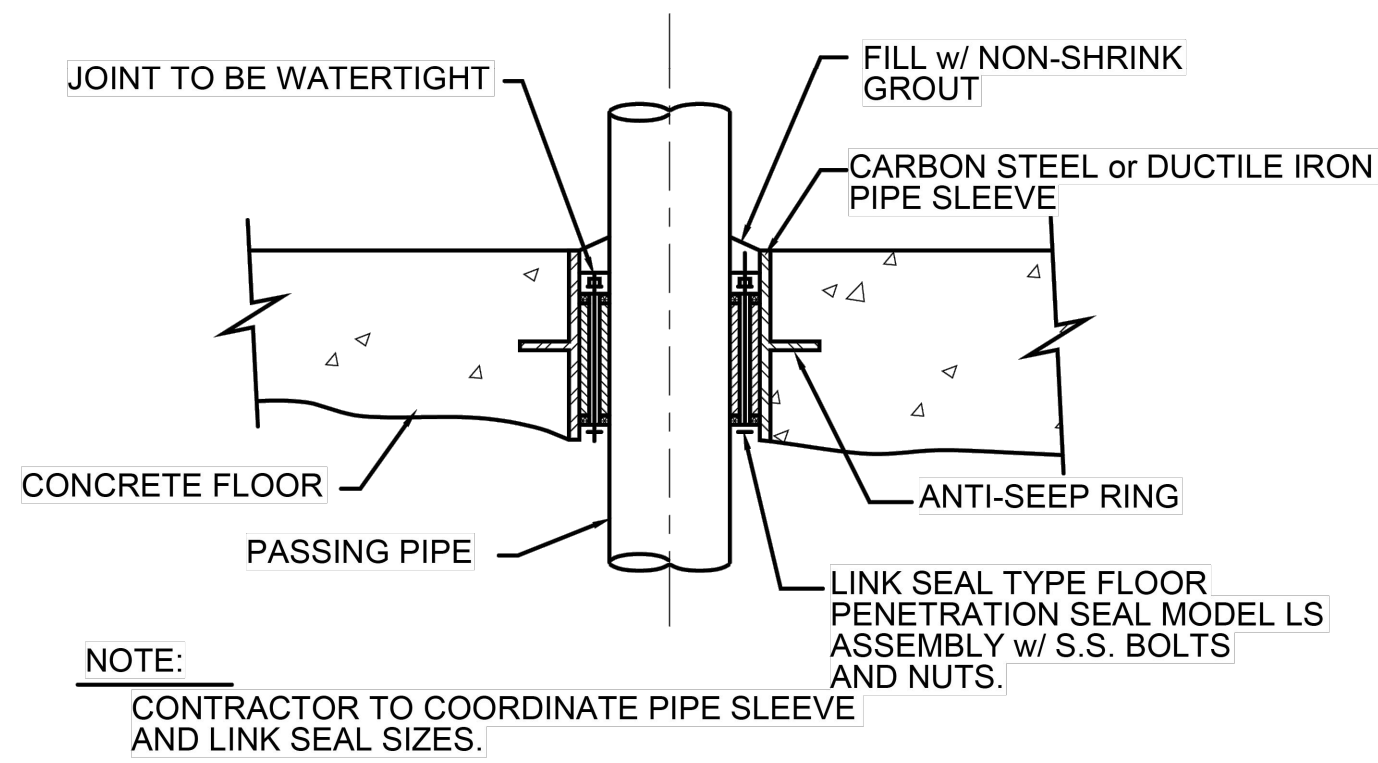
2 PRESSURE MEASURING TAP SCHEMATIC  
NTS



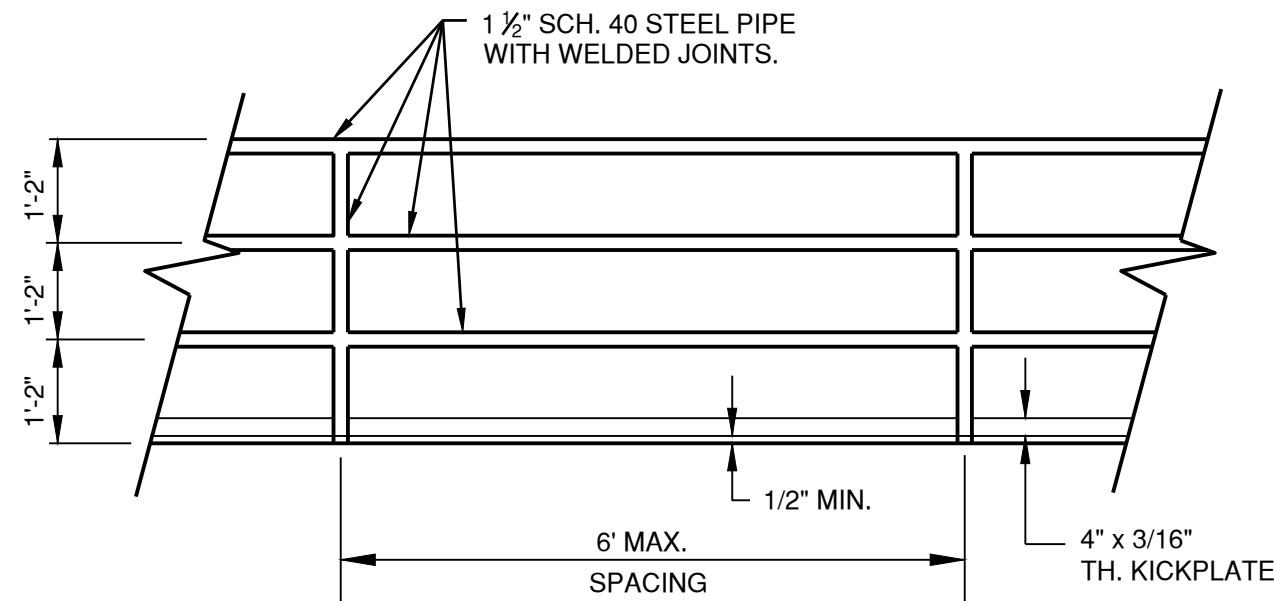
3 RISER PIPE DETAIL  
NTS



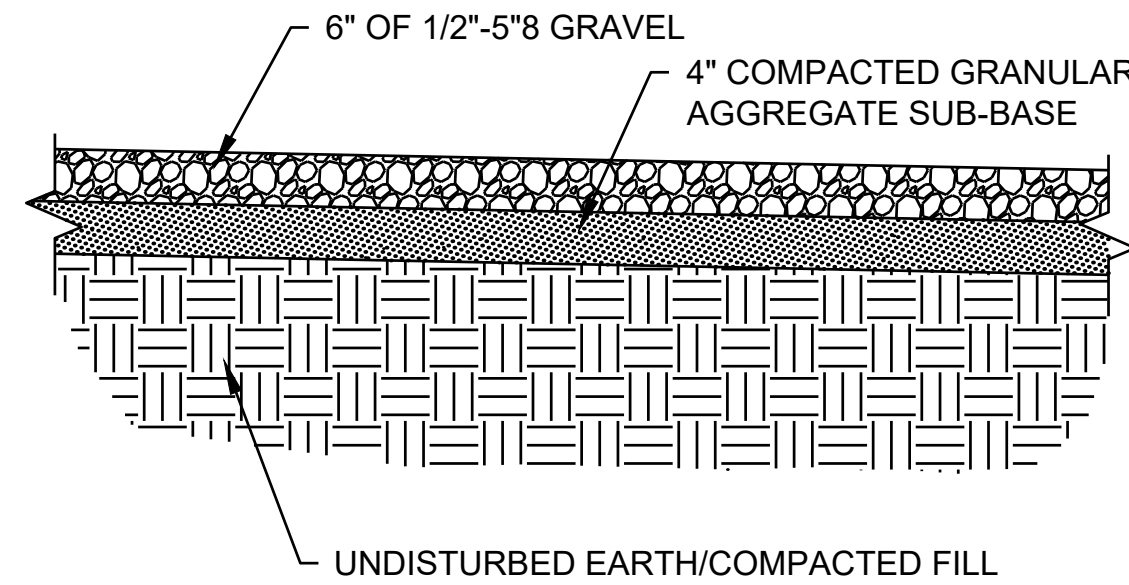
4 CONCRETE BASE DETAIL  
N.T.S.



5 FLOOR PENETRATION DETAIL  
NTS



6 HANDRAIL DETAIL  
N.T.S.



#### AGGREGATE SUBBASE NOTES

AGGREGATE FOR SUB-BASE SHALL BE ESSENTIALLY LIMESTONE OR DOLOMITE. THE AGGREGATE SHALL NOT CONTAIN MORE THAN 15 PERCENT DELETERIOUS ROCK AND SHALE. SAND MAY BE ADDED ONLY FOR THE PURPOSE OF REDUCING THE PLASTICITY INDEX OF THE FRACTION PASSING THE NO. 40 SIEVE IN THE FINISHED PRODUCT. ANY SAND, SILT AND CLAY AND ANY DELETERIOUS ROCK AND SHALE SHALL BE UNIFORMLY DISTRIBUTED THROUGHOUT THE MATERIAL. THE FRACTION PASSING THE NO. 40 SIEVE SHALL HAVE A MAXIMUM PLASTICITY INDEX OF SIX (6).

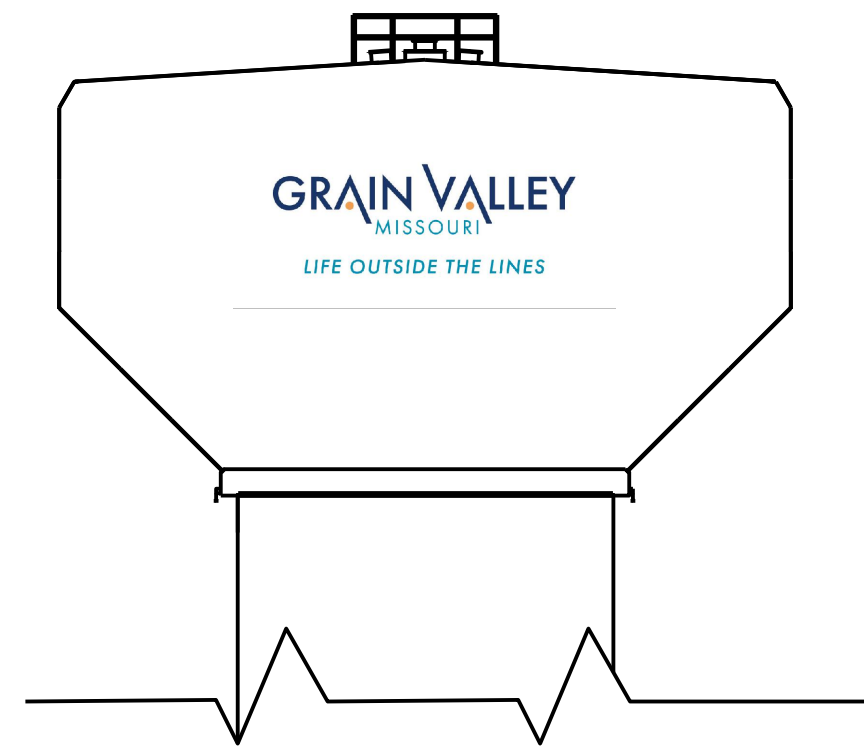
THE AGGREGATE SHALL BE IN ACCORDANCE WITH THE FOLLOWING GRADATION REQUIREMENTS:

SIEVE	PERCENT BY WEIGHT
PASSING 1-INCH	100
PASSING 1/2-INCH	60-90
PASSING NO. 4	35-60
PASSING NO. 30	10-35

#### NOTES:

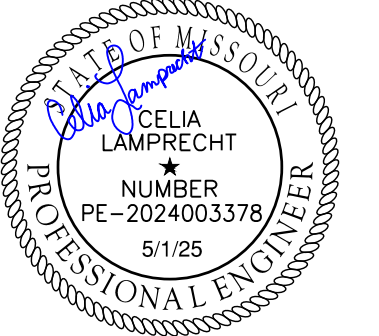
- FINAL DRIVEWAY LOCATION TO BE DETERMINED BY CITY.
- GRADE TO SLOPE AWAY FROM NEW TOWER AND TIE INTO EXISTING GROUND ELEVATION.

7 GRAVEL PARKING PAVEMENT SECTION DETAIL  
N.T.S.



- NOTES:
- LOGO SHALL BE PAINTED IN ONE LOCATION ON THE SOUTH SIDE OF THE TANK. THE DESIGN AND LETTERING IS ATTACHED IN THE TECHNICAL SPECIFICATIONS IN APPENDIX E - CITY OF GRAIN VALLEY LOGO AND COLOR PALLET. THE MINIMUM HEIGHT OF THE LOGO SHOULD BE 20 FEET AND SHOULD BE CENTERED ON THE TANK. TANK MANUFACTURER TO RECOMMEND APPROPRIATE SIZE OF LOGO WHICH WILL BE APPROVED BY OWNER/ENGINEER DURING CONSTRUCTION AND PRIOR TO PAINTING.

8 TANK LOGO DETAIL  
NTS



FINAL CONSTRUCTION PLANS  
MAY 2025

WATER TOWER UPGRADE



PROJECT NO:	23005898.00
CAD DWG FILE:	D-103.DWG
DESIGNED BY:	CLL
DRAWN BY:	CLL
CHECKED BY:	JJ
APPROVED BY:	JJ
COPYRIGHT:	CRAWFORD, MURPHY & TILLY, INC. 2025
SHEET TITLE	

DETAILS

D-501  
SHEET 11 OF 15



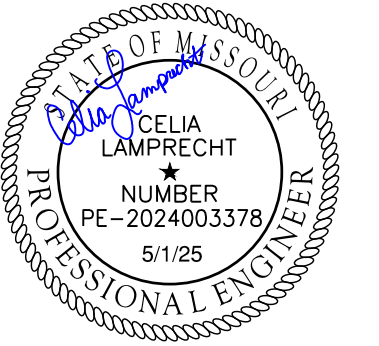
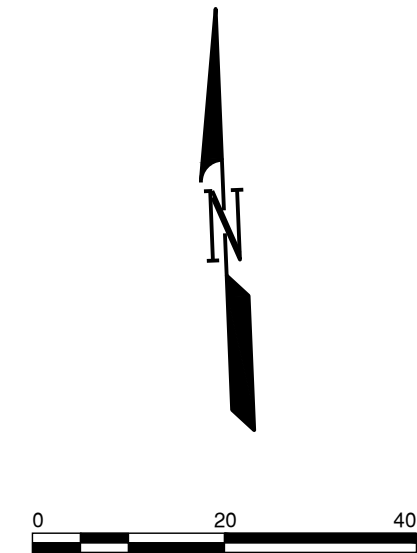
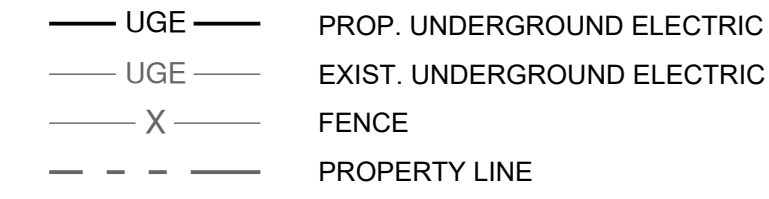
#### GENERAL NOTES

1. ALL ELECTRICAL EQUIPMENT SHALL BE INSTALLED IN CONFORMANCE WITH NFPA 70 (CURRENT LOCAL VERSION IN FORCE), THE RESPECTIVE EQUIPMENT MANUFACTURER'S DIRECTIONS AND ALL OTHER APPLICABLE LOCAL CODES, LAWS, ORDINANCES, AND REQUIREMENTS IN FORCE. ANY INSTALLATION WHICH VOID THE U.L. LISTINGS (OR THIRD PARTY LISTING) AND/OR THE MANUFACTURER'S WARRANTY OF A DEVICE SHALL NOT BE PERMITTED.
2. THE LOCATION, SIZE, AND TYPE OF MATERIAL OF EXISTING UNDERGROUND UTILITIES INDICATED ON THE PLANS IS NOT REPRESENTED AS BEING ACCURATE, SUFFICIENT, OR COMPLETE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE ACTUAL LOCATION OF ALL SUCH FACILITIES, INCLUDING SERVICE CONNECTIONS TO UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY THE UTILITY COMPANIES OF HIS OPERATIONAL PLANS AND SHALL OBTAIN FROM THE RESPECTIVE UTILITY COMPANIES DETAILED INFORMATION AND ASSISTANCE RELATIVE TO THE LOCATION OF THE FACILITIES AND THE WORKING SCHEDULE OF THE COMPANIES FOR REMOVAL OR ADJUSTMENT WHERE REQUIRED. IN THE EVENT AN UNEXPECTED UTILITY INTERFERENCE IS ENCOUNTERED DURING CONSTRUCTION, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE UTILITY COMPANY OF JURISDICTION. THE ENGINEER SHALL ALSO BE IMMEDIATELY NOTIFIED. ANY SUCH MAINS AND SERVICES SHALL BE RESTORED TO SERVICE AT ONCE AND PAID FOR BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE CONTRACT.
3. CONTRACTOR SHALL REPLACE ANY DISTURBED EARTH, SIDEWALKS, OR PAVEMENT STRUCTURES IN KIND TO THE SATISFACTION OF THE OWNER.
4. THE CONTRACTOR SHALL USE MICROCOM CONTACT: TRACY EWBANK (913) 669-3400) FOR TERMINATION OF CONTROL SIGNALS IN EXISTING MICROCOM ENCLOSURE AND INTEGRATION OF THOSE SIGNALS.

KEYED NOTES 

1. 3- #8 AWG, 1- #8 GND IN 1" CONDUIT FROM SAFETY SWITCH TO MINI POWER CENTER.
2. 1- 3/4" TWISTED SHIELDED PAIR (PRESSURE SENSOR), 2- #12 AWG (DOOR LIMIT SWITCH), 2- #12 AWG (OVERFLOW SWITCH), 2- #12 AWG (MIXER ON/OFF CONTROL), 1- 3/4" TWISTED SHIELDED PAIR (MIXER CURRENT) IN 2" CONDUIT AND 2- #12 AWG (SOLENOID VALVE), 2- #12 AWG (SOLENOID VALVE), 1- 2" CONDUIT (OPTION), 4- #12 AWG (SPARE) IN 2" CONDUIT TO MICROPROCESSOR ENCLOSURE IN EXISTING PUMP STATION. INCLUDE ONE 2" CONDUIT SPARE WITH PULL STRING.

### LEGEND



FINAL CONSTRUCTION PLANS  
MAY 2025

## WATER TOWER UPGRADE



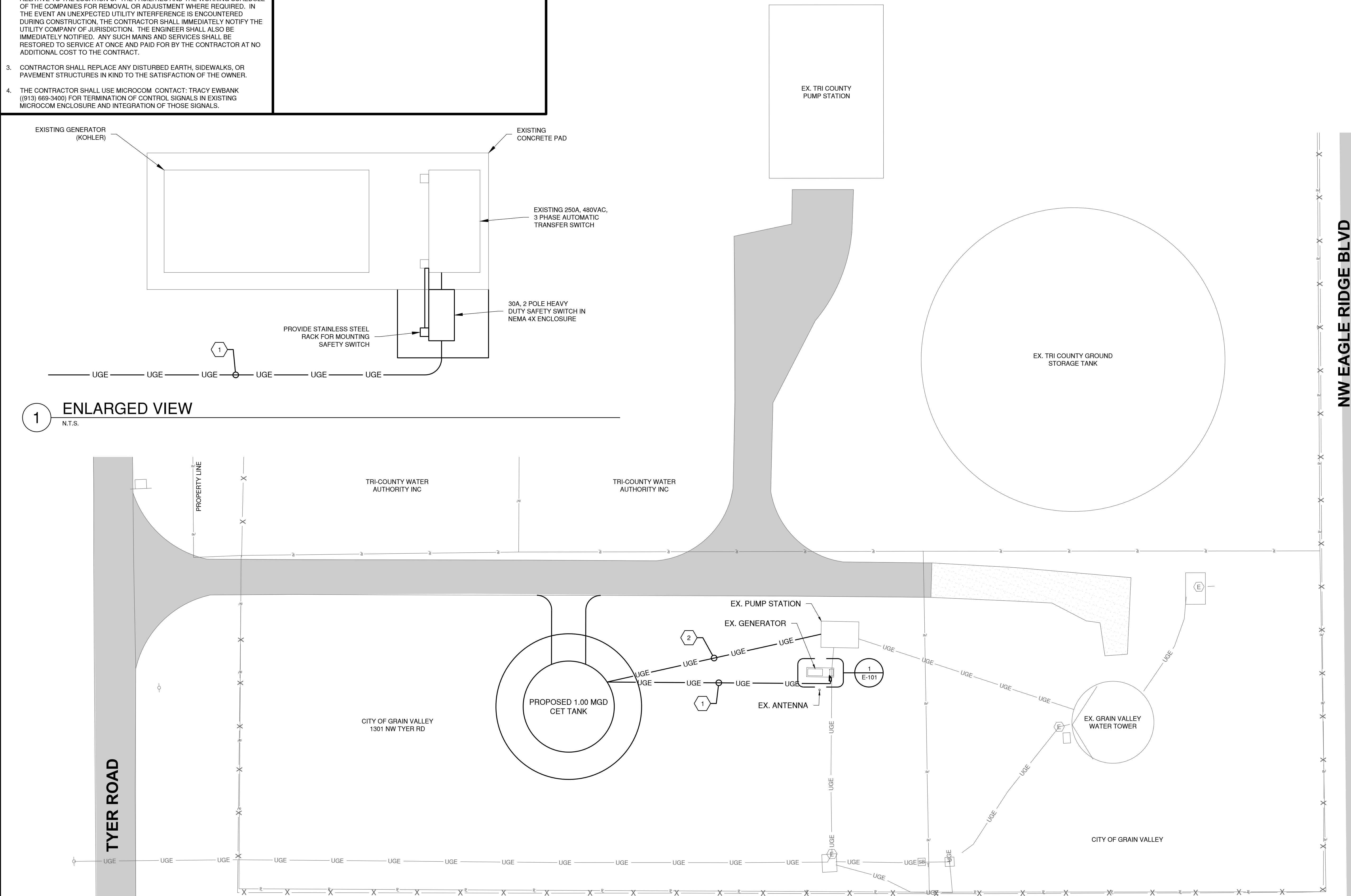
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CAD DWG FILE: 13 ELECTRICAL SITE PLAN.DWG		
DESIGNED BY: JRV		
DRAWN BY: JRV		
CHECKED BY: LDW		
APPROVED BY: JJ		
COPYRIGHT: CRAWFORD, MURPHY & TILLY, INC. 2025		

SHEET TITLE
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ELECTRICAL SITE PLAN

E-101

SHEET 12 OF 15



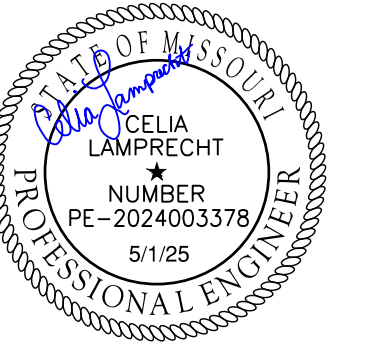
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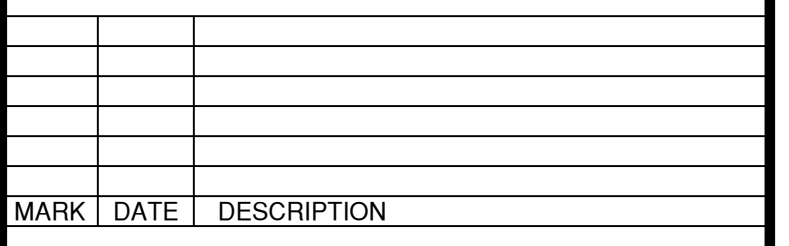




1. LIGHTS IN A CESS TUBE AND PEDESTAL SHAFT TO BE EQUALLY SPACED AS DETAILED.
2. TANK BASE DIAMETER WILL VARY BASED DEPENDING ON TANK CAPACITY AND MANUFACTURER. ADJUST CONDUIT, WIRE, ETC. AS REQUIRED.
3. OBSTRUCTION LIGHT PER FAA ADVISORY CIRCULAR 70/7460-1M SECTION 3.7, AND 4.3.4, AND DETERMINATION LETTER ISSUED 1/15/2025.

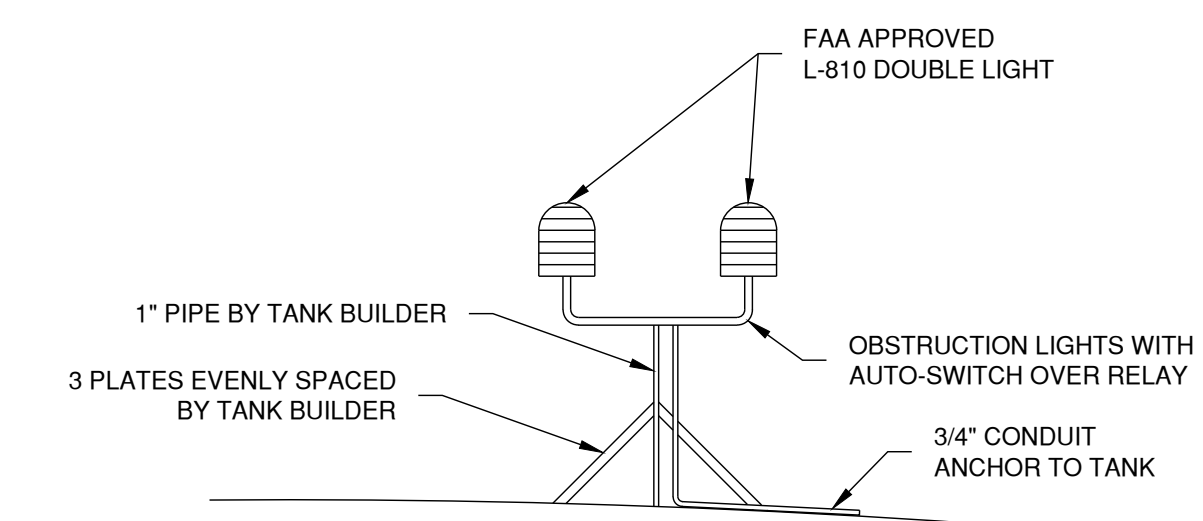


## WATER TOWER UPGRADE



SHEET TITLE

E-103

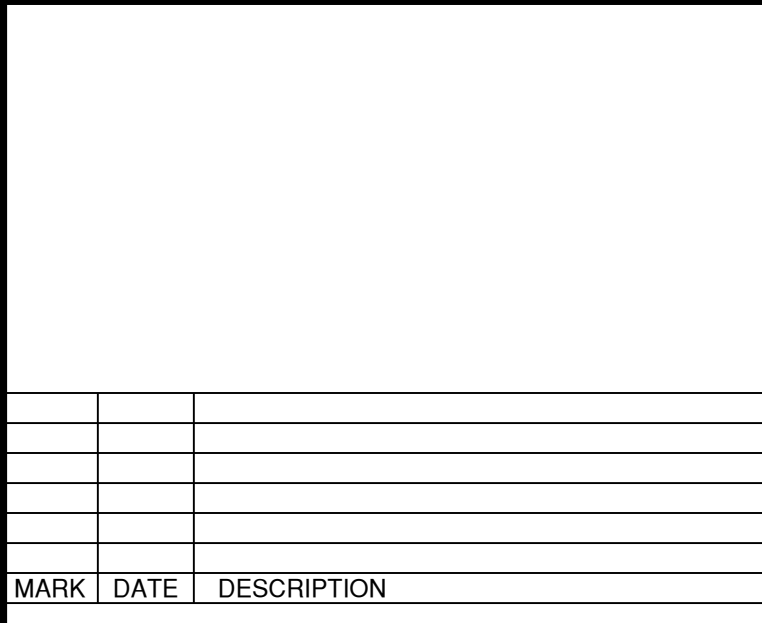


2 N.T.S.

N.T.S.

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Date: Thursday, May 1, 2025 8:13:44 AM





SHEET TITLE
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E-501  
SHEET 15 OF 15

LIGHT FIXTURE SCHEDULE					
FIXTURE NO.	DESCRIPTION	MANUFACTURER	CATALOG MODEL NO.	LAMP	LOCATION & MOUNTING
F1	EGRESS LIGHT, 2-HEAD LED FIXTURES WITH EMERGENCY BATTERY SYSTEM, 120-277V	LITHONIA	ELM4L	LED	WALL MOUNT NEAR EXIT APPROX. 8FT TO 9FT ABOVE FLOOR
		MULE LIGHTING	R-16-HO-LED		
		LIGHT ALARMS	LCA-2RHL-ID		
F2	LED VAPORTIGHT FIXTURE, 4000K COLOR TEMPERATURE, 120-277V	LITHONIA	OLVTWM	LED	RIGHT SIDE OF LADDER IN PEDESTAL SHAFT & RISER TUBE, PLATFORM AREAS & TANK BASE: WALL MOUNT HORIZONTALLY. BASE FIXTURES TO BE MOUNTED 8FT ABOVE FLOOR
		MAX LITE	JJ-W-14-U-50		
		STONCO	VWXL-14-NW-G1-8		
F3	WALL PACK, 3200 LUMENS, 4000K COLOR TEMPERATURE, TYPE III DISTRIBUTION, 120-277V, PHOTOCELL, DARK BRONZE IN COLOR	LITHONIA	TWH LED-P1-40K-T3M-MVOLT-PER-DB8XD	LED	10FT ABOVE GRADE ON OUTSIDE TANK WALL FOR SECURITY LIGHTING
		LEDALUX	MWP08-30-27V-40K-D-P0		
		STONCO	WP-30-NW-G1-PCB-8-BZ		

