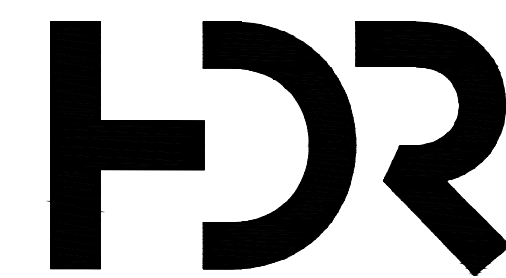


# Lake of the Ozarks State Park

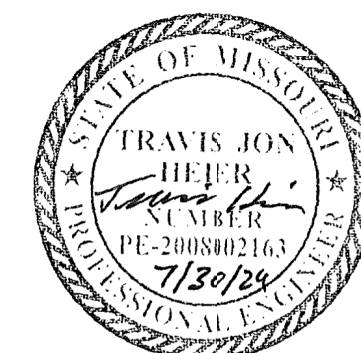
## Water and Wastewater Improvements

### (Kaiser, Missouri)

---



MISSOURI CERTIFICATE OF  
AUTHORITY #: 000856  
PO BOX 969, 187 E. DAVID ST.  
FORSYTH, MO 65653  
417-546-3218



TRAVIS J. HEIER  
MO PE-2008002163  
07/30/24

OWNER: STATE OF MISSOURI  
MICHAEL L. PARSON,  
GOVERNOR  
DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF STATE PARKS

PROJECT  
MANAGEMENT: OFFICE OF ADMINISTRATION  
DIVISION OF FACILITIES MANAGEMENT,  
DESIGN AND CONSTRUCTION

DESIGNER: HDR Engineering Inc.

PROJECT NUMBER: X2307-02

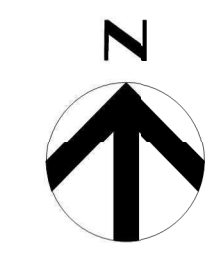
SITE NUMBER: 5306  
INFRASTRUCTURE NUMBER: 7815306238

SHEET NUMBER:

# G-001

1 OF 25 SHEETS  
JULY 30, 2024





**FACILITY NUMBERS:**

- 7815306208 WATER TOWER @ CAMP CLOVER POINT
- 7815306068 WELL HOUSE @ FB1 HOMESTEAD AREA
- 7815306069 WELL HOUSE @ CAMP CLOVER POINT
- 7815306098 WELL HOUSE @ CAMP RED BUD
- 7815306221 WELL HOUSE @ CAMP PIN OAK
- 7815306067 WELL HOUSE @ CAMP RISING SUN
- 7815306134 CAMPGROUNDS
- 7815306040 RESIDENCE @ McCUBBINS PINT
- 7815306237 STORAGE SHED @ OUTPOST

**INDEX OF SHEETS:**

**GENERAL:**

- G-001 COVER SHEET

**CIVIL:**

- C-100 SHEET INDEX AND OVERALL SITE PLAN
- C-101 CAMP RISING SUN WATER IMPROVEMENTS
- C-102 CAMP PIN OAK WATER IMPROVEMENTS
- C-103 CAMP CLOVER POINT WATER IMPROVEMENTS
- C-104 CAMP RED BUD WATER IMPROVEMENTS
- C-105 OUTPOST CABINS WATER IMPROVEMENTS
- C-106 LAGOON SITE PLAN
- C-107 PUMP STATION SITE PLAN
- C-108 PUMP STATION PROCESS PLAN
- C-301 PUMP STATION PROCESS SECTION
- E-101 PUMP STATION ELECTRICAL SITE PLAN
- E-601 PUMP STATION ELECTRICAL SCHEDULES & SCHEMATICS
- C-400 UTILITY REHABILITATION PLAN

**HOMESTEAD CAMPGROUND WATER LINE PLAN & PROFILES:**

- C-200 HOMESTEAD CAMPGROUND SITE PLAN
- C-201 PLAN AND PROFILE - STA. 0+00 TO STA. 13+50
- C-202 PLAN AND PROFILE - STA. 13+50 TO STA. 27+00
- C-203 PLAN AND PROFILE - STA. 27+00 TO STA. 40+50
- C-204 PLAN AND PROFILE - STA. 40+50 TO STA. 54+00
- C-205 PLAN AND PROFILE - STA. 54+00 TO STA. 67+50
- C-206 PLAN AND PROFILE - STA. 67+50 TO STA. 77+50
- C-207 PLAN AND PROFILE - STA. 77+50 TO STA. 87+73.92
- C-208 PLAN AND PROFILE

**DETAIL SHEETS:**

- C-501 STANDARD DETAILS
- C-502 STANDARD DETAILS

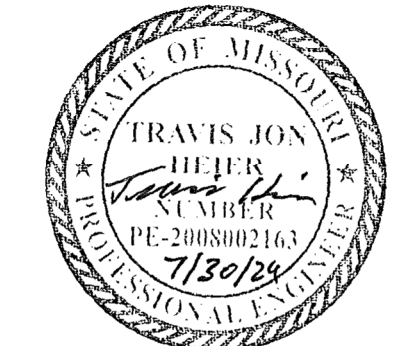
**NOTE:**

HOMESTEAD CAMPGROUND WATER LINE IMPROVEMENTS TO BE COMPLETED FIRST DUE TO COORDINATION REQUIRED WITH CAMPGROUND EXPANSION TO BE COMPLETED BY OTHERS.

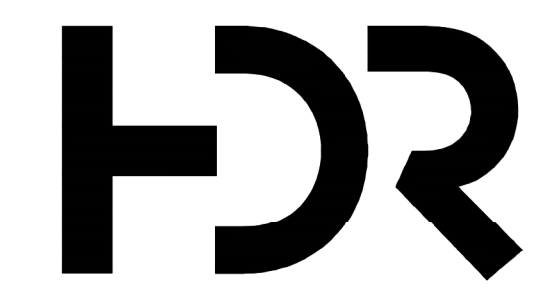
**UTILITY NOTES:**

1. ALL EXISTING UTILITY LOCATIONS ARE APPROXIMATE. CONTRACTOR SHALL VERIFY THE ACTUAL LOCATION OF ALL UTILITIES WITH THEIR RESPECTIVE OWNER'S AS REQUIRED PRIOR TO BEGINNING WORK TO PREVENT DAMAGE BY CONTRACTOR'S OPERATION.
2. CONTRACTOR SHALL EXPOSE ALL UTILITIES TO VERIFY LOCATION AND DEPTHS PRIOR TO CONSTRUCTION. CONTRACTOR SHALL RECORD THE LOCATIONS AND ELEVATIONS OF ALL EXISTING UTILITIES ON CONSTRUCTION RECORD DRAWINGS. UTILITIES DAMAGED THROUGH THE NEGLIGENCE OF THE CONTRACTOR TO OBTAIN THE LOCATION OF THE SAME SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT HIS EXPENSE.
3. THE EXISTING FEATURES AND EXISTING UTILITIES SHOWN THROUGHOUT THESE PLANS ARE SHOWN FOR GENERAL HORIZONTAL LAYOUT LOCATION AND ORIENTATION. THE PLAN LOCATION OF THE EXISTING FEATURES AND EXISTING UTILITIES MAY VARY FROM THE ACTUAL FIELD LOCATION.
4. CONTRACTOR SHALL TAKE ALL APPROPRIATE STEPS TO MAINTAIN CONINUAL SERVICE OF UTILITIES. CONTRACTOR SHALL PROVIDE SUPPORT AND PROTECTION OF ALL UTILITY LINES TO PREVENT UNDERMINING OR DAMAGING OF THE UTILITY DURING CONSTRUCTION. THE ACCEPTABILITY OF CONTRACTOR'S PROPOSED PLAN TO CROSS AND/OR SUPPORT UTILITIES SHALL BE APPROVED BY THE UTILITY OWNER.
5. CONTRACTOR IS RESPONSIBLE FOR ALL COSTS, REPAIRS, ETC. ASSOCIATED WITH DAMAGING, REPLACING, OR RELOCATING ANY UNDERGROUND UTILITY OR SERVICE REGARDLESS IF UTILITY LINE WAS MARKED CORRECTLY OR INCORRECTLY.
6. CONTRACTOR IS RESPONSIBLE FOR NOTIFYING LOCATE COMPANY AND UTILITY COMPANIES TO OBTAIN FIELD LOCATES.

STATE OF MISSOURI  
MICHAEL L. PARSON,  
GOVERNOR

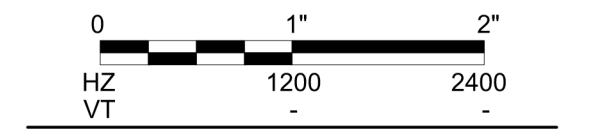


TRAVIS J. HEIER  
MO PE-2008002163  
07/30/24



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AUTHORITY #: 000856

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FORSYTH, MO 65653  
417-546-3218



**OFFICE OF ADMINISTRATION  
DIVISION OF FACILITIES  
MANAGEMENT,  
DESIGN AND CONSTRUCTION**

DEPARTMENT OF NATURAL  
RESOURCES

LAKE OF THE OZARKS  
STATE PARK  
WATER MAIN  
IMPROVEMENTS

MO-134  
KAISER, MO 65047

PROJECT # X2307-02  
SITE # 5306  
FACILITY #  
INFRASTRUCTURE #  
7815306238

REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
ISSUE DATE: \_\_\_\_\_

CAD DWG FILE: C-100  
DRAWN BY: RJL  
CHECKED BY: TJH  
DESIGNED BY: TJH

SHEET TITLE:  
**SHEET INDEX  
AND OVERALL  
SITE PLAN**

SHEET NUMBER:

**C-100**

SHEET 2 OF 25  
DATE: JULY 30, 2024





EXISTING TANK AND WELLHOUSE BUILDING



EXISTING ROOF FRAMING



EXISTING ROOF FRAMING

**NOTES:**

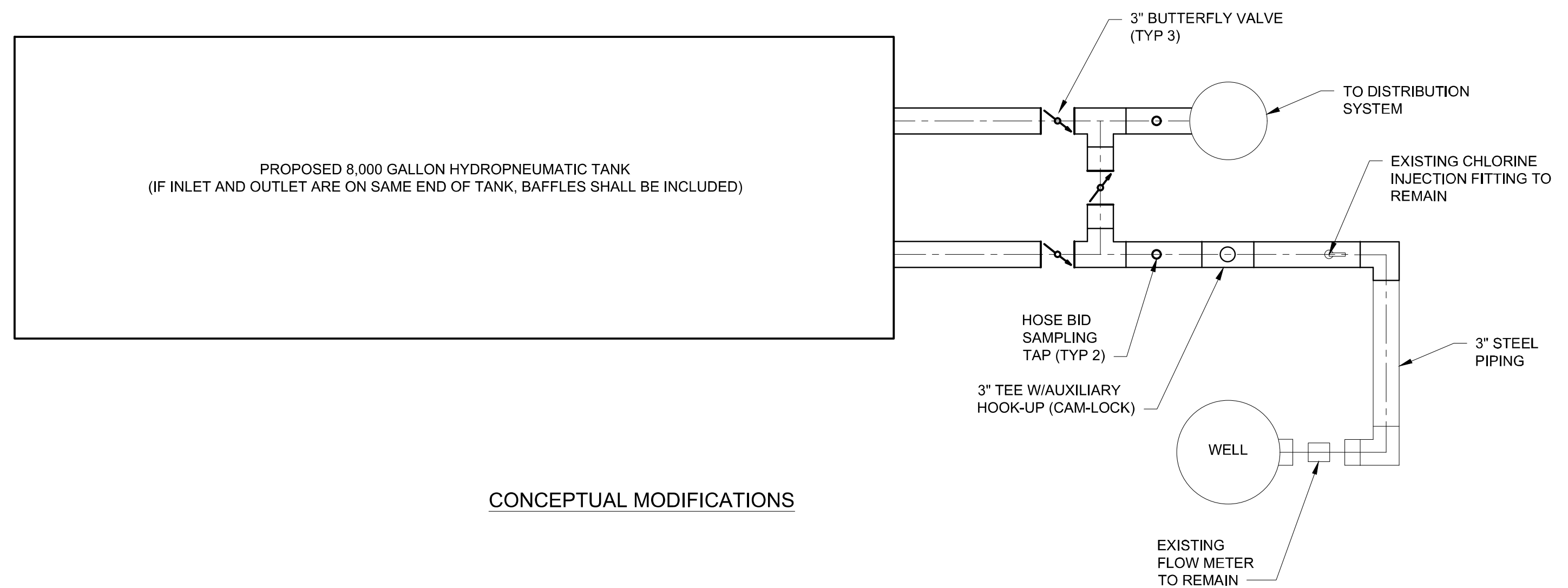
1. EXISTING 6,000 GALLON HYDROPNEUMATIC WATER STORAGE TANK TO BE REMOVED.
2. CONTRACTOR SHALL REMOVE EXISTING BUILDING ROOF IN ORDER TO ACCESS THE TANK FOR REMOVAL. CONTRACTOR SHALL REMOVE EXISTING TANK AND SUPPORTS.
3. NEW 8,000 HYDROPNEUMATIC STORAGE TANK TO BE INSTALLED IN EXISTING SPACE. CONTRACTOR TO VERIFY DIMENSIONS OF 8,000 GALLON TANK TO VERIFY ADEQUATE SPACE IS AVAILABLE. ANTICIPATED DIMENSIONS ARE EITHER A 9' DIAMETER TANK 17' LONG OR A 10' DIAMETER TANK 15' LONG. TANK SHALL BE EQUIPPED WITH COMPRESSOR SIZED BY MANUFACTURER FOR SELECTED TANK. NEW TANK TO INCLUDE SUPPORTS AND INSPECTION HATCH IN TANK.
4. CONTRACTOR TO REPLACE ROOF WITH NEW CONSTRUCTION TO MATCH EXISTING ROOF. PICTURES OF EXISTING ROOF SHOWN FOR REFERENCE. CONTRACTOR TO VERIFY ALL MATERIALS AND SIZING OF EXISTING ROOFING MATERIALS.
5. CONTRACTOR TO NOT DISTURB EXISTING PIPING, FITTINGS, SAMPLING TABS, METERS, ETC. AS REASONABLY POSSIBLE. MODIFY PIPING AS SHOWN TO PROVIDE SEPARATE FILL AND DISCHARGE LINES TO NEW TANK. REINSTALL ANY APPURTENANCES REMOVED DURING PIPING MODIFICATIONS.

**TANK NOTES:**

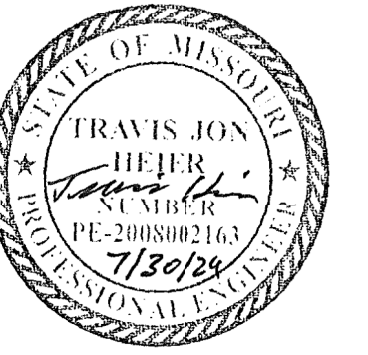
1. HYDROPNEUMATIC TANKS SHALL BE CERTIFIED FOR DRINKING WATER USE UNDER THE LATEST VERSION OF ANSINSF STANDARD 61.
2. LARGE HYDROPNEUMATIC TANKS WITH A GROSS VOLUME LARGER THAN 120 GALLONS SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH THE LATEST ASME BOILER AND PRESSURE VESSEL CODE AS PUBLISHED BY THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS.
3. PROPER PROTECTION SHALL BE GIVEN TO METAL SURFACES OF HYDROPNEUMATIC TANKS.
  - a. INTERIOR COATINGS SHALL BE CERTIFIED FOR DRINKING WATER USE UNDER THE LATEST ANSINSF STANDARD 61.
  - b. TANKS CONSTRUCTED OF STEEL OR OTHER METAL SUBJECT TO CORROSION SHALL HAVE BOTH INTERIOR AND EXTERIOR SURFACES PAINTED.
  - c. TANKS CONSTRUCTED OF CORROSION RESISTANT METALS SHALL NOT BE REQUIRED TO BE PAINTED. TANKS CONSTRUCTED OF CORROSION RESISTANT METALS SHALL BE CERTIFIED FOR DRINKING WATER USE UNDER THE LATEST ANSINSF STANDARD 61.
  - d. HYDROPNEUMATIC TANKS 500 GALLONS OR GREATER IN SIZE SHALL HAVE INTERIORS THAT ARE EITHER EPOXY OR GLASS COATED.
4. HYDROPNEUMATIC TANKS 500 GALLONS OR GREATER IN SIZE AND ALL TANKS USED FOR DISINFECTION CONTACT TIME SHALL HAVE SEPARATE INLET AND OUTLET LINES TO PROVIDE POSITIVE FLOW THROUGH THE TANKS.
5. HYDROPNEUMATIC TANKS WITH GROSS VOLUME LESS THAN 500 GALLONS PER TANK SHALL BE CONSTRUCTED WITH THE FOLLOWING APPURTENANCES AND FEATURES:
  - a. EACH TANK SHALL BE EQUIPPED WITH A SCHRADER TYPE VALVE TO ALLOW AIR TO BE ADDED TO THE TANK AND TO CHECK AIR PRESSURE.
  - b. TANKS SHALL BE EQUIPPED WITH AUTOMATIC CONTROLS TO CONTROL PRESSURE/WATER LEVEL IN THE TANKS.
  - c. A MEANS TO MANAGE THE VOLUME AND PRESSURE OF AIR IN THE AIR CUSHION OF PRESSURE TANKS SHALL BE PROVIDED BUT THIS MAY BE DONE MANUALLY WITH PORTABLE EQUIPMENT.
  - d. THERE SHALL BE AT LEAST ONE PRESSURE GAGE IN THE TANK MANIFOLD.
  - e. SUFFICIENT SPACE SHALL BE PROVIDED AROUND THE TANKS TO BE ACCESSIBLE TO MAINTENANCE.
6. CONVENTIONAL PRESSURE TANKS SHALL HAVE A WATER SIGHT GLASS, A PRESSURE GAGE, A MECHANICAL MEANS OF ADDING AIR, A MEANS TO ADJUST THE AIR TO WATER RATION AND A PRESSURE BLOW-OFF FOR EXCESS PRESSURE.
7. CONVENTIONAL TANKS WITH GROSS VOLUME OF 500 GALLONS OR MORE SHALL ALSO BE CONSTRUCTED WITH THE FOLLOWING APPURTENANCES AND FEATURES:
  - a. EACH TANK SHALL HAVE AT LEAST ONE MANWAY WITH MINIMUM DIAMETER OF 24-INCH CLEAR OPENING FOR CIRCULAR MANWAYS.
  - b. EACH TANK SHALL HAVE A DRAIN THAT SHALL DISCHARGE ABOVE NORMAL GROUND SURFACE WITH NO DIRECT CONNECTION TO A SEWER OR STORM DRAIN.
  - c. EACH TANK SHALL BE PROTECTED FROM FREEZING.



EXISTING WELLHOUSE PIPING



CONCEPTUAL MODIFICATIONS

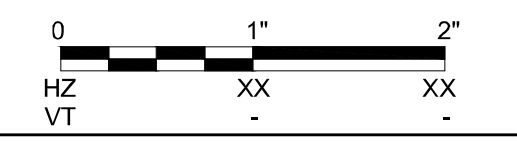


TRAVIS J. HEIER  
MO PE-2008002163  
07/30/24



MISSOURI CERTIFICATE OF  
AUTHORITY #: 000856

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OFFICE OF ADMINISTRATION  
DIVISION OF FACILITIES  
MANAGEMENT,  
DESIGN AND CONSTRUCTION

DEPARTMENT OF NATURAL  
RESOURCES

LAKE OF THE OZARKS  
STATE PARK  
WATER MAIN  
IMPROVEMENTS

MO-134  
KAISER, MO 65047

PROJECT # X2307-02  
SITE # 5306  
FACILITY # 7815306067  
INFRASTRUCTURE #  
7815306238

REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_

ISSUE DATE: \_\_\_\_\_

CAD DWG FILE: C-101  
DRAWN BY: RJL/TLD  
CHECKED BY: TJH  
DESIGNED BY: TJH

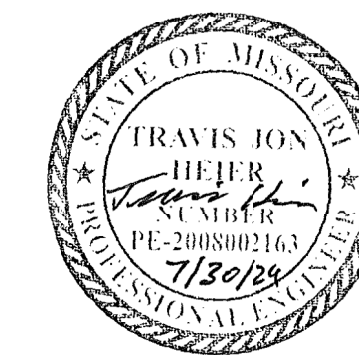
SHEET TITLE:  
**CAMP RISING  
SUN WATER  
IMPROVEMENTS**

SHEET NUMBER:

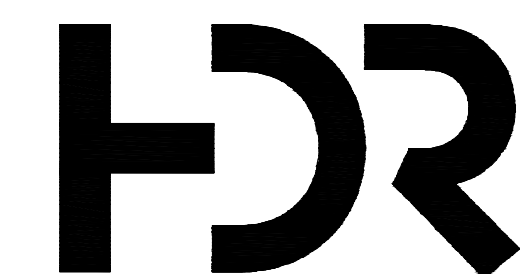
**C-101**

SHEET 3 OF 25  
DATE: JULY 30, 2024



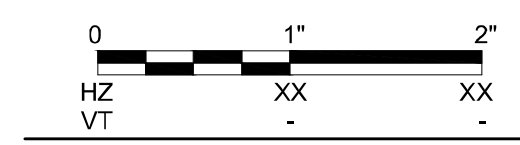


TRAVIS J. HEIER  
MO PE-2008002163  
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OFFICE OF ADMINISTRATION  
DIVISION OF FACILITIES  
MANAGEMENT,  
DESIGN AND CONSTRUCTION

DEPARTMENT OF NATURAL  
RESOURCES

LAKE OF THE OZARKS  
STATE PARK  
WATER MAIN  
IMPROVEMENTS

MO-134  
KAISER, MO 65047

PROJECT # X2307-02  
SITE # 5306  
FACILITY # 7815306221  
INFRASTRUCTURE #  
7815306238

REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_

ISSUE DATE: \_\_\_\_\_

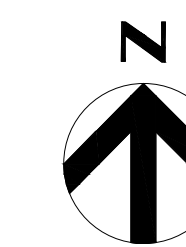
CAD DWG FILE: C-102  
DRAWN BY: RJL/TLD  
CHECKED BY: TJH  
DESIGNED BY: TJH

SHEET TITLE:  
**CAMP PIN  
OAK WATER  
IMPROVEMENTS**

SHEET NUMBER:

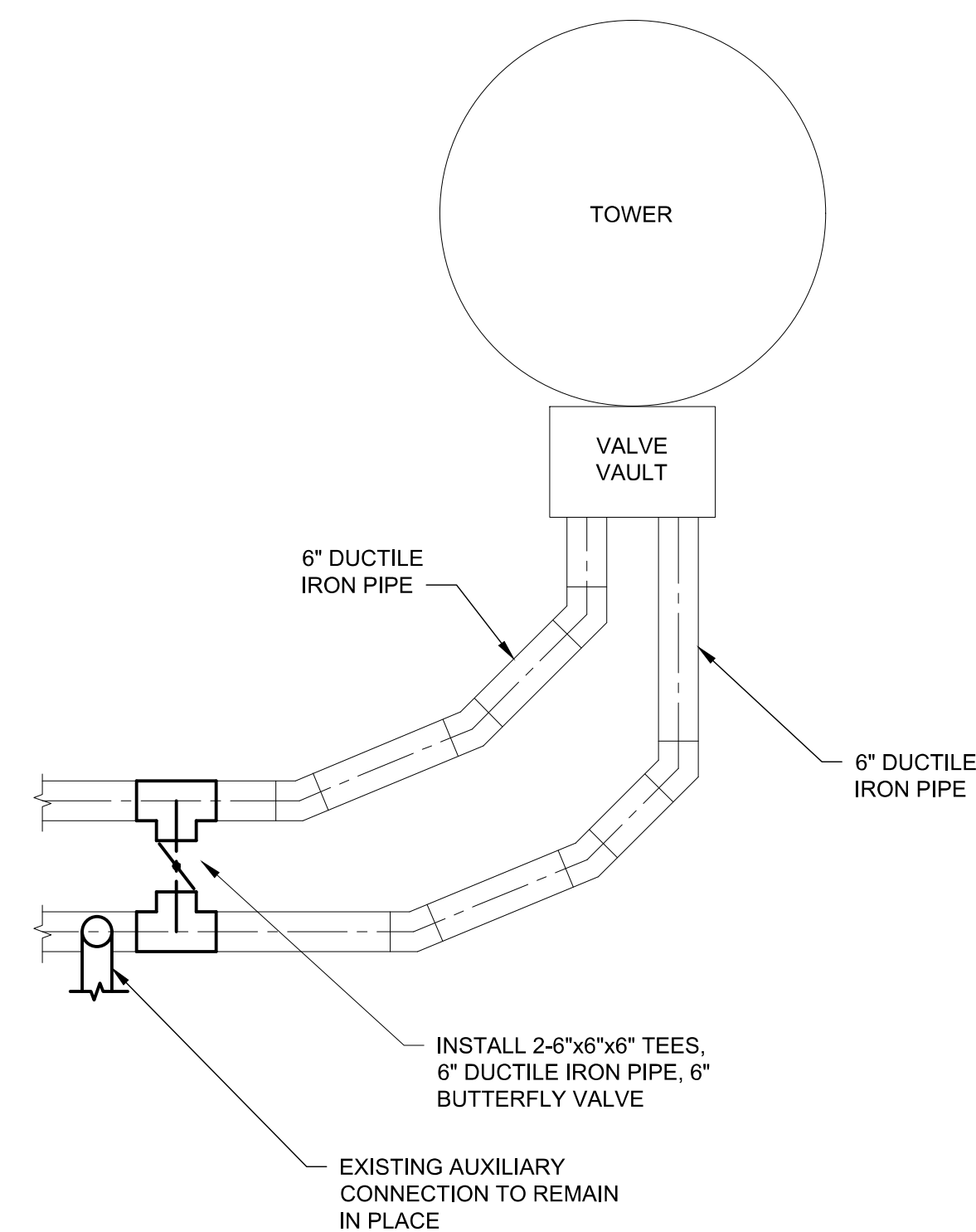
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SHEET 4 OF 25  
DATE: JULY 30, 2024



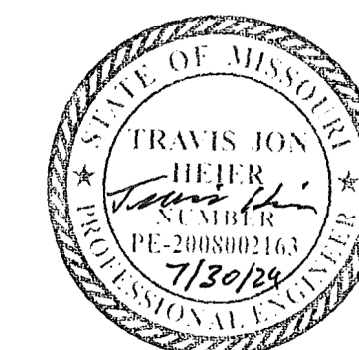
NOTES:

1. CONTRACTOR TO EXPOSE EXISTING FILL AND SYSTEM SUPPLY LINES TO VERIFY ADEQUATE SPACE IS AVAILABLE FOR PROPOSED FITTINGS.
2. CONTRACTOR TO PROVIDE TEMPORARY TANK DURING CONSTRUCTION TO MAINTAIN 20 PSI MINIMUM SYSTEM PRESSURE.
3. CONTRACTOR TO GRADE AROUND TOWER SO THAT 12" OF TOWER CONCRETE FOOTING IS EXPOSED. GRADING SHALL BE COMPLETED SO THAT DRAINAGE IS AWAY FROM TOWER FOUNDATION.

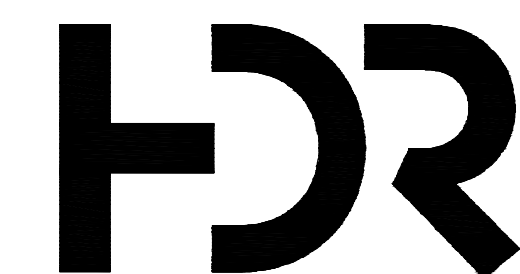


10' DIAMETER 72' TALL TOWER TO BE PAINTED INSIDE AND OUTSIDE



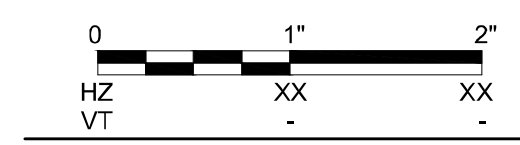


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OFFICE OF ADMINISTRATION  
DIVISION OF FACILITIES  
MANAGEMENT,  
DESIGN AND CONSTRUCTION

DEPARTMENT OF NATURAL  
RESOURCES

LAKE OF THE OZARKS  
STATE PARK  
WATER MAIN  
IMPROVEMENTS

MO-134  
KAISER, MO 65047

PROJECT # X2307-02  
SITE # 5306  
FACILITY # 7815306208  
INFRASTRUCTURE # 7815306069  
7815306238

REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_

ISSUE DATE: \_\_\_\_\_

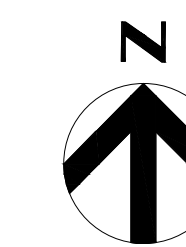
CAD DWG FILE: C-103  
DRAWN BY: RJL/TLD  
CHECKED BY: TJH  
DESIGNED BY: TJH

SHEET TITLE:  
**CAMP CLOVER  
POINT WATER  
IMPROVEMENTS**

SHEET NUMBER:

**C-103**

SHEET 5 OF 25  
DATE: JULY 30, 2024

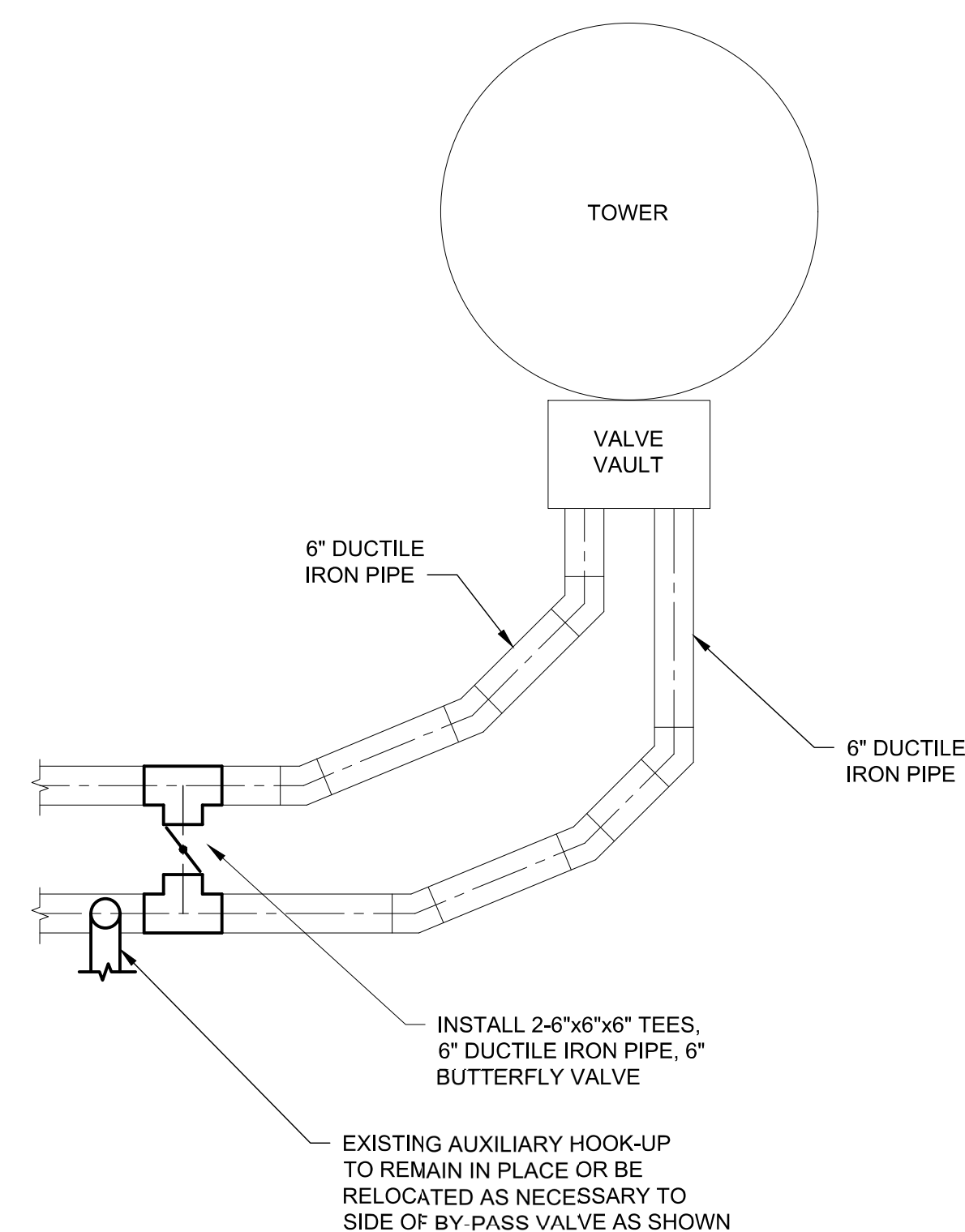


NOTES:

1. CONTRACTOR TO EXPOSE EXISTING FILL AND SYSTEM SUPPLY LINES TO VERIFY ADEQUATE SPACE IS AVAILABLE FOR PROPOSED FITTINGS.
2. SYSTEM MAY BE TAKEN OUT OF SERVICE DURING CONSTRUCTION IF COORDINATED WITH PARKS STAFF FOR OFF-SEASON.
3. CONTRACTOR TO GRADE AROUND TOWER SO THAT 12" OF TOWER CONCRETE FOOTING IS EXPOSED. GRADING SHALL BE COMPLETED SO THAT DRAINAGE IS AWAY FROM TOWER FOUNDATION.



10' DIAMETER 48' TALL TOWER TO BE PAINTED INSIDE AND OUTSIDE



INSTALL 2-6"x6"x6" TEES,  
6" DUCTILE IRON PIPE, 6"  
BUTTERFLY VALVE

EXISTING AUXILIARY HOOK-UP  
TO REMAIN IN PLACE OR BE  
RELOCATED AS NECESSARY TO  
SIDE OF BY-PASS VALVE AS SHOWN





EXISTING BUILDING



EXISTING LAYOUT



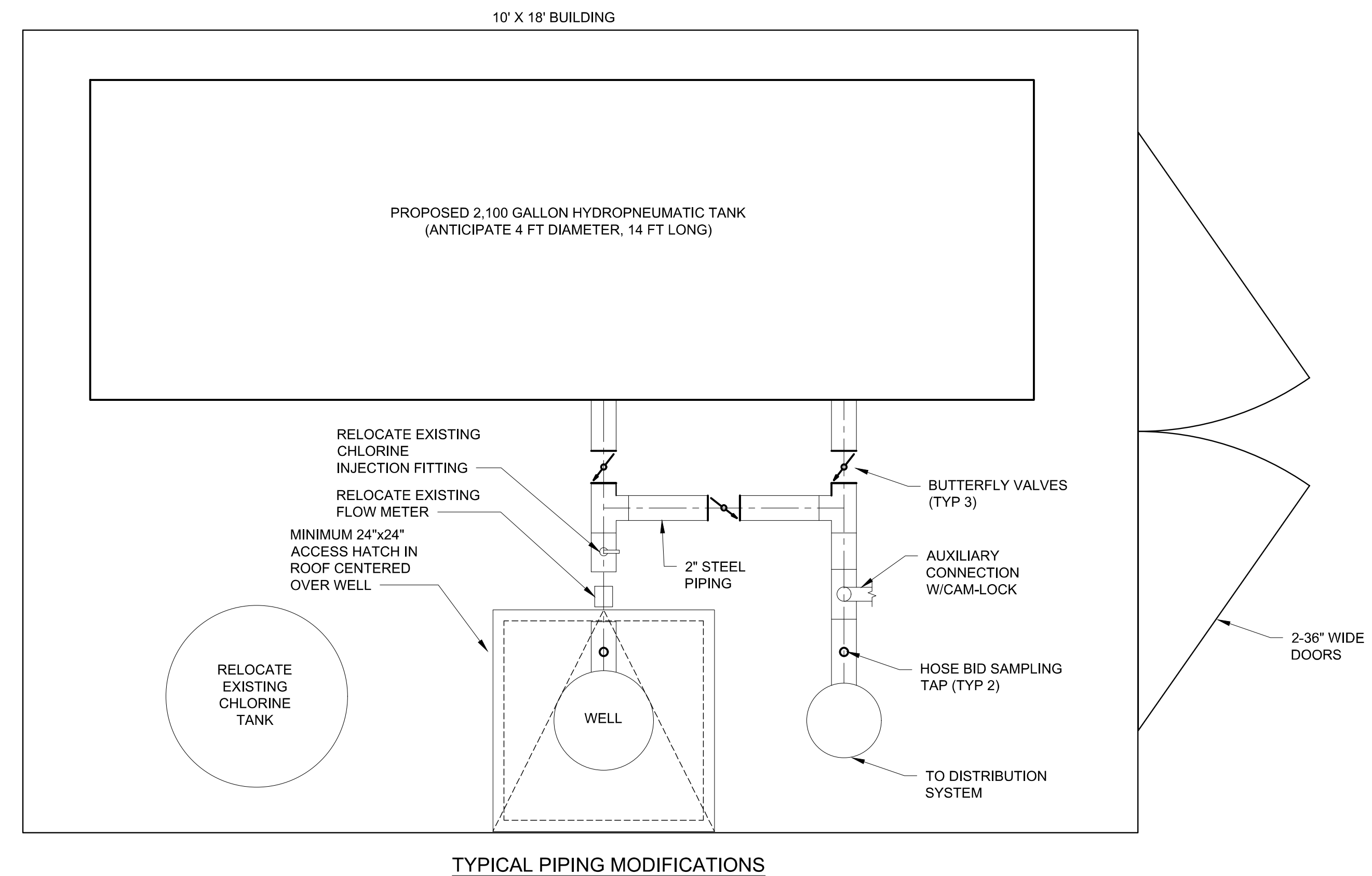
EXISTING PIPING

NOTES:

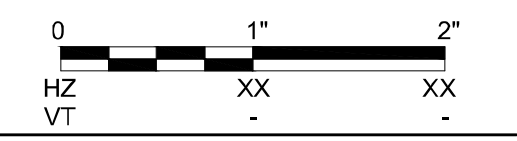
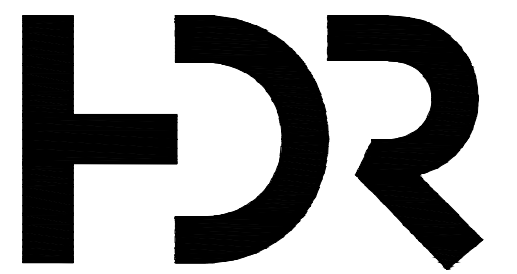
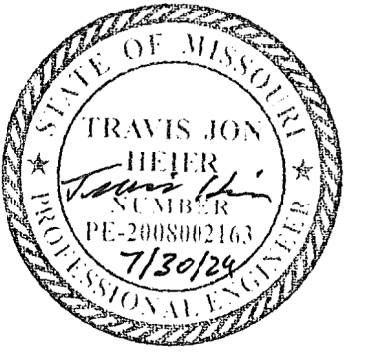
1. EXISTING PRESSURE TANKS TO BE REMOVED.
2. CONTRACTOR SHALL REMOVE EXISTING BUILDING.
3. NEW 2,100 HYDROPNEUMATIC STORAGE TANK TO BE INSTALLED IN NEW BUILDING. CONTRACTOR TO VERIFY DIMENSIONS OF 2,100 GALLON TANK TO VERIFY ADEQUATE SPACE IS AVAILABLE IN PROPOSED BUILDING SIZE. TANK SHALL BE EQUIPPED WITH COMPRESSOR SIZED BY MANUFACTURER FOR SELECTED TANK. ACCESS HATCH IN TANK FOR INSPECTION AND CLEANING SHALL ALSO BE INCLUDED.
4. CONTRACTOR TO CONSTRUCT NEW STICK FRAME BUILDING ON CONCRETE FOOTING AND CONCRETE SLAB FLOOR TO MATCH EXISTING BUILDING IN APPEARANCE, COLOR AND METHOD OF CONSTRUCTION.
5. MODIFY PIPING AS SHOWN TO PROVIDE SEPARATE FILL AND DISCHARGE LINES TO NEW TANK. REINSTALL ANY APPURTENANCES REMOVED DURING PIPING MODIFICATIONS.
6. ALL ELECTRICAL SERVICE SHALL BE INSTALLED AS NECESSARY FOR OPERATION OF WELL PUMP, CHLORINE INJECTION PUMP, AND ALL OTHER EXISTING EQUIPMENT THAT IS REINSTALLED IN NEW BUILDING.

TANK NOTES:

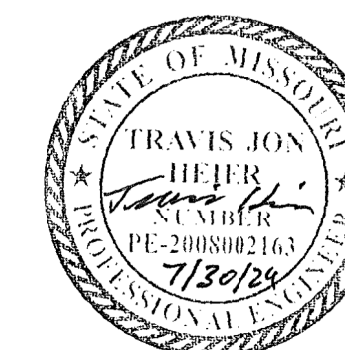
1. HYDROPNEUMATIC TANKS SHALL BE CERTIFIED FOR DRINKING WATER USE UNDER THE LATEST VERSION OF ANS/NSF STANDARD 61.
2. LARGE HYDROPNEUMATIC TANKS WITH A GROSS VOLUME LARGER THAN 120 GALLONS SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH THE LATEST ASME BOILER AND PRESSURE VESSEL CODE AS PUBLISHED BY THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS.
3. PROPER PROTECTION SHALL BE GIVEN TO METAL SURFACES OF HYDROPNEUMATIC TANKS.
  - a. INTERIOR COATINGS SHALL BE CERTIFIED FOR DRINKING WATER USE UNDER THE LATEST ANS/NSF STANDARD 61.
  - b. TANKS CONSTRUCTED OF STEEL OR OTHER METAL SUBJECT TO CORROSION SHALL HAVE BOTH INTERIOR AND EXTERIOR SURFACES PAINTED.
  - c. TANKS CONSTRUCTED OF CORROSION RESISTANT METALS SHALL NOT BE REQUIRED TO BE PAINTED. TANKS CONSTRUCTED OF CORROSION RESISTANT METALS SHALL BE CERTIFIED FOR DRINKING WATER USE UNDER THE LATEST ANS/NSF STANDARD 61.
  - d. HYDROPNEUMATIC TANKS 500 GALLONS OR GREATER IN SIZE SHALL HAVE INTERIORS THAT ARE EITHER EPOXY OR GLASS COATED.
4. HYDROPNEUMATIC TANKS 500 GALLONS OR GREATER IN SIZE AND ALL TANKS USED FOR DISINFECTION CONTACT TIME SHALL HAVE SEPARATE INLET AND OUTLET LINES TO PROVIDE POSITIVE FLOW THROUGH THE TANKS.
5. HYDROPNEUMATIC TANKS WITH GROSS VOLUME LESS THAN 500 GALLONS PER TANK SHALL BE CONSTRUCTED WITH THE FOLLOWING APPURTENANCES AND FEATURES:
  - a. EACH TANK SHALL BE EQUIPPED WITH A SCHRADER TYPE VALVE TO ALLOW AIR TO BE ADDED TO THE TANK AND TO CHECK AIR PRESSURE.
  - b. TANKS SHALL BE EQUIPPED WITH AUTOMATIC CONTROLS TO CONTROL PRESSURE/WATER LEVEL IN THE TANKS.
  - c. A MEANS TO MANAGE THE VOLUME AND PRESSURE OF AIR IN THE AIR CUSHION OF PRESSURE TANKS SHALL BE PROVIDED BUT THIS MAY BE DONE MANUALLY WITH PORTABLE EQUIPMENT.
  - d. THERE SHALL BE AT LEAST ONE PRESSURE GAGE IN THE TANK MANIFOLD.
  - e. SUFFICIENT SPACE SHALL BE PROVIDED AROUND THE TANKS TO BE ACCESSIBLE TO MAINTENANCE.
6. CONVENTIONAL PRESSURE TANKS SHALL HAVE A WATER SIGHT GLASS, A PRESSURE GAGE, A MECHANICAL MEANS OF ADDING AIR, A MEANS TO ADJUST THE AIR TO WATER RATION AND A PRESSURE BLOW-OFF FOR EXCESS PRESSURE.
7. CONVENTIONAL TANKS WITH GROSS VOLUME OF 500 GALLONS OR MORE SHALL ALSO BE CONSTRUCTED WITH THE FOLLOWING APPURTENANCES AND FEATURES:
  - a. EACH TANK SHALL HAVE AT LEAST ONE MANWAY WITH MINIMUM DIAMETER OF 24-INCH CLEAR OPENING FOR CIRCULAR MANWAYS.
  - b. EACH TANK SHALL HAVE A DRAIN THAT SHALL DISCHARGE ABOVE NORMAL GROUND SURFACE WITH NO DIRECT CONNECTION TO A SEWER OR STORM DRAIN.
  - c. EACH TANK SHALL BE PROTECTED FROM FREEZING.



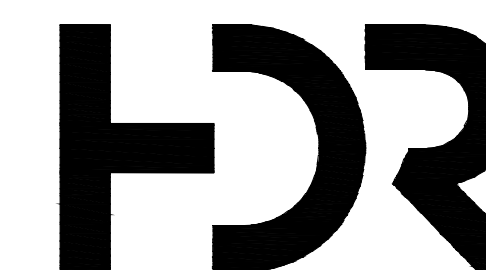
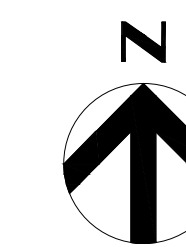
TYPICAL PIPING MODIFICATIONS





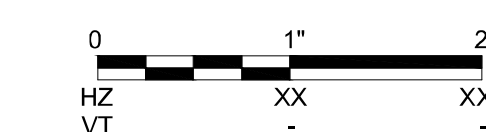


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MO PE-2008002163  
07/30/24



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AUTHORITY #: 000856

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417-546-3218



OFFICE OF ADMINISTRATION  
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DESIGN AND CONSTRUCTION

DEPARTMENT OF NATURAL  
RESOURCES

LAKE OF THE OZARKS  
STATE PARK  
WATER MAIN  
IMPROVEMENTS

MO-134  
KAISER, MO 65047

PROJECT # X2307-02  
SITE # 5306  
FACILITY # 7815306237  
INFRASTRUCTURE #  
7815306238

REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
ISSUE DATE: \_\_\_\_\_

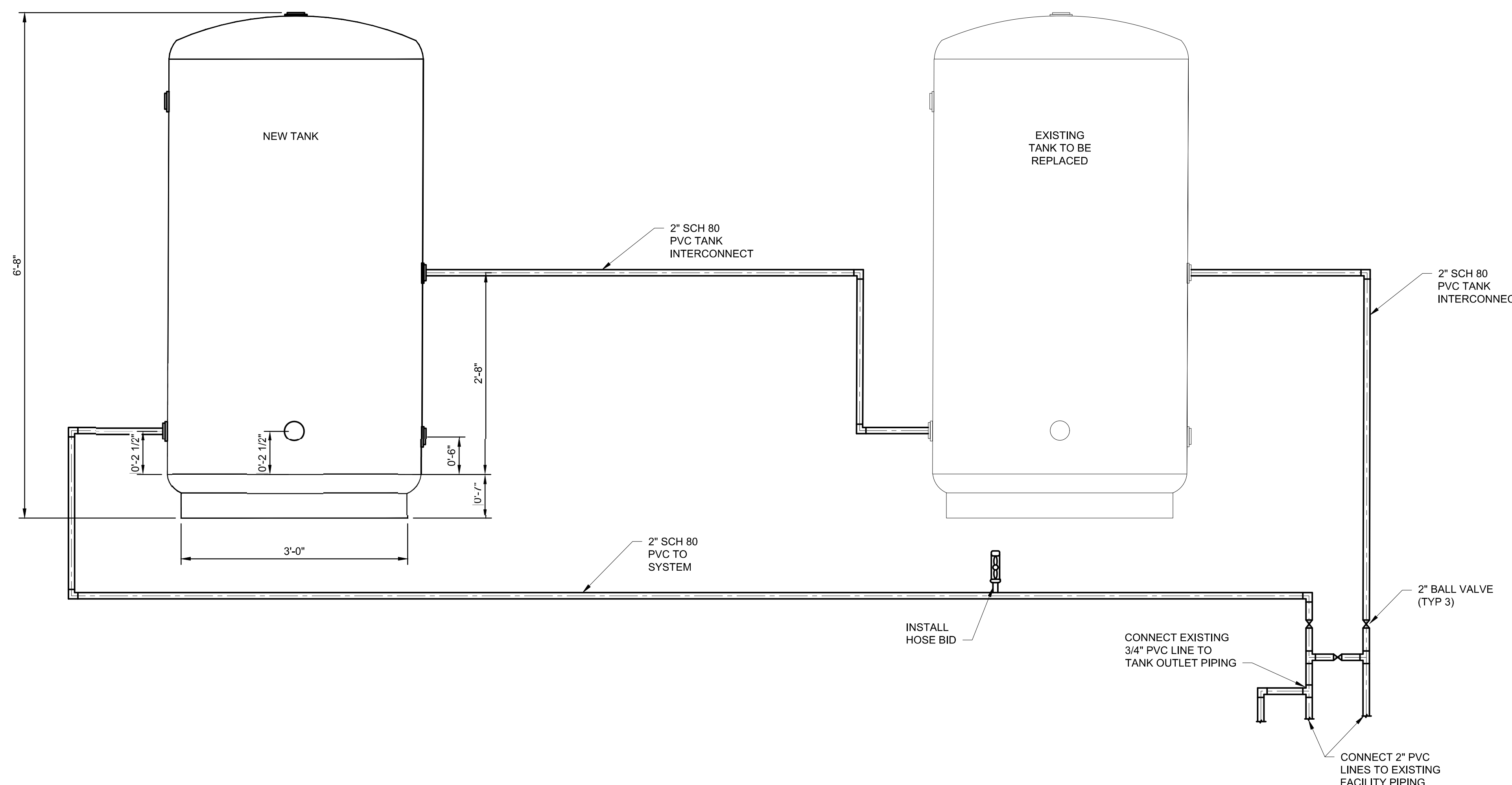
CAD DWG FILE: C-105  
DRAWN BY: RJL/TLD  
CHECKED BY: TJH  
DESIGNED BY: TJH

SHEET TITLE:  
**OUTPOST CABINS  
WATER  
IMPROVEMENTS**

SHEET NUMBER:

**C-105**

SHEET 7 OF 25  
DATE: JULY 30, 2024



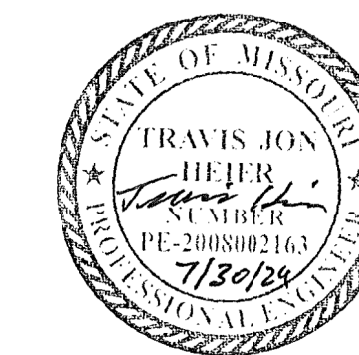
NOTES:

1. NEW TANKS TO BE 450 GAL FIBERGLASS WATER TANKS OR APPROVED EQUAL.
2. CONTRACTOR TO MODIFY EXISTING PIPING AS SHOWN.
3. DRAWINGS ARE SCHEMATIC IN NATURE. ACTUAL PIPING LAYOUT TO BE DETERMINED BY CONTRACTOR BASED ON AVAILABLE SPACING IN THE BUILDING.

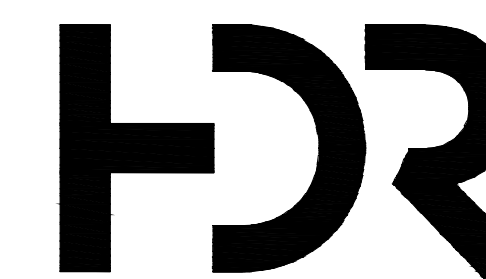
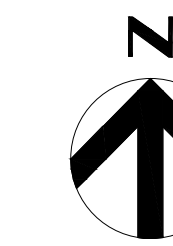
TANK NOTES:

1. HYDROPNEUMATIC TANKS SHALL BE CERTIFIED FOR DRINKING WATER USE UNDER THE LATEST VERSION OF ANSINSF STANDARD 61.
2. LARGE HYDROPNEUMATIC TANKS WITH A GROSS VOLUME LARGER THAN 120 GALLONS SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH THE LATEST ASME BOILER AND PRESSURE VESSEL CODE AS PUBLISHED BY THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS.
3. PROPER PROTECTION SHALL BE GIVEN TO METAL SURFACES OF HYDROPNEUMATIC TANKS.
  - a. INTERIOR COATINGS SHALL BE CERTIFIED FOR DRINKING WATER USE UNDER THE LATEST ANSINSF STANDARD 61.
  - b. TANKS CONSTRUCTED OF STEEL OR OTHER METAL SUBJECT TO CORROSION SHALL HAVE BOTH INTERIOR AND EXTERIOR SURFACES PAINTED.
  - c. TANKS CONSTRUCTED OF CORROSION RESISTANT METALS SHALL NOT BE REQUIRED TO BE PAINTED. TANKS CONSTRUCTED OF CORROSION RESISTANT METALS SHALL BE CERTIFIED FOR DRINKING WATER USE UNDER THE LATEST ANSINSF STANDARD 61.
  - d. HYDROPNEUMATIC TANKS 500 GALLONS OR GREATER IN SIZE SHALL HAVE INTERIORS THAT ARE EITHER EPOXY OR GLASS COATED.
4. HYDROPNEUMATIC TANKS 500 GALLONS OR GREATER IN SIZE AND ALL TANKS USED FOR DISINFECTION CONTACT TIME SHALL HAVE SEPARATE INLET AND OUTLET LINES TO PROVIDE POSITIVE FLOW THROUGH THE TANKS.
5. HYDROPNEUMATIC TANKS WITH GROSS VOLUME LESS THAN 500 GALLONS PER TANK SHALL BE CONSTRUCTED WITH THE FOLLOWING APPURTENANCES AND FEATURES:
  - a. EACH TANK SHALL BE EQUIPPED WITH A SCHRADER TYPE VALVE TO ALLOW AIR TO BE ADDED TO THE TANK AND TO CHECK AIR PRESSURE.
  - b. TANKS SHALL BE EQUIPPED WITH AUTOMATIC CONTROLS TO CONTROL PRESSURE/WATER LEVEL IN THE TANKS.
  - c. A MEANS TO MANAGE THE VOLUME AND PRESSURE OF AIR IN THE AIR CUSHION OF PRESSURE TANKS SHALL BE PROVIDED BUT THIS MAY BE DONE MANUALLY WITH PORTABLE EQUIPMENT.
  - d. THERE SHALL BE AT LEAST ONE PRESSURE GAGE IN THE TANK MANIFOLD.
  - e. SUFFICIENT SPACE SHALL BE PROVIDED AROUND THE TANKS TO BE ACCESSIBLE TO MAINTENANCE.
6. CONVENTIONAL PRESSURE TANKS SHALL HAVE A WATER SIGHT GLASS, A PRESSURE GAGE, A MECHANICAL MEANS OF ADDING AIR, A MEANS TO ADJUST THE AIR TO WATER RATION AND A PRESSURE BLOW-OFF FOR EXCESS PRESSURE.
7. CONVENTIONAL TANKS WITH GROSS VOLUME OF 500 GALLONS OR MORE SHALL ALSO BE CONSTRUCTED WITH THE FOLLOWING APPURTENANCES AND FEATURES:
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  - b. EACH TANK SHALL HAVE A DRAIN THAT SHALL DISCHARGE ABOVE NORMAL GROUND SURFACE WITH NO DIRECT CONNECTION TO A SEWER OR STORM DRAIN.
  - c. EACH TANK SHALL BE PROTECTED FROM FREEZING.



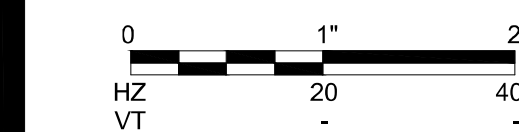


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DEPARTMENT OF NATURAL  
RESOURCES

LAKE OF THE OZARKS  
STATE PARK  
WATER MAIN  
IMPROVEMENTS

MO-134  
KAISER, MO 65047

PROJECT # X2307-02  
SITE # 5306  
FACILITY # 7815306040  
INFRASTRUCTURE #  
7815306238

REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_

ISSUE DATE: \_\_\_\_\_

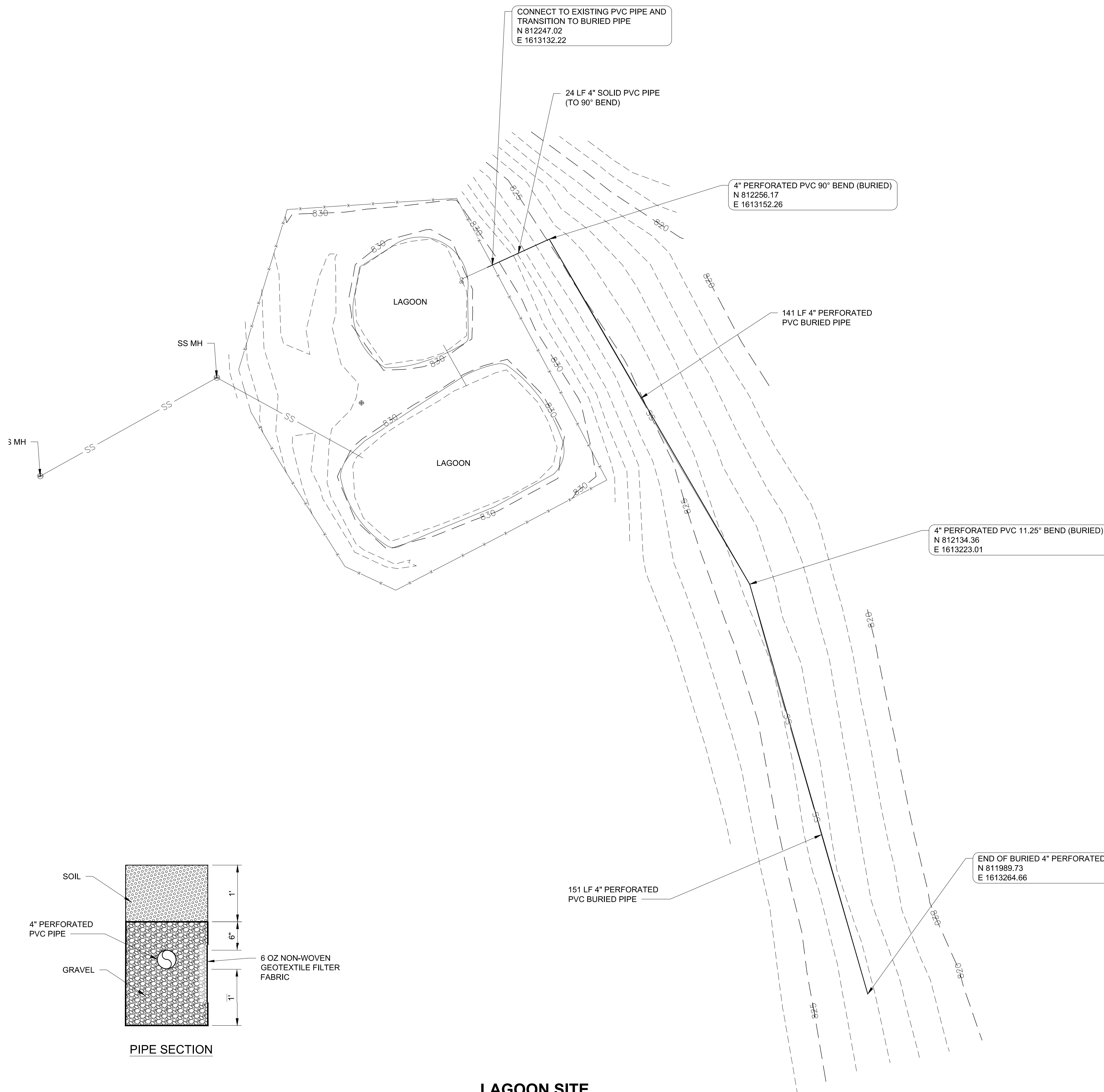
CAD DWG FILE: C-106  
DRAWN BY: TLD  
CHECKED BY: TJH  
DESIGNED BY: TJH

SHEET TITLE:  
**LAGOON  
SITE PLAN**

SHEET NUMBER:

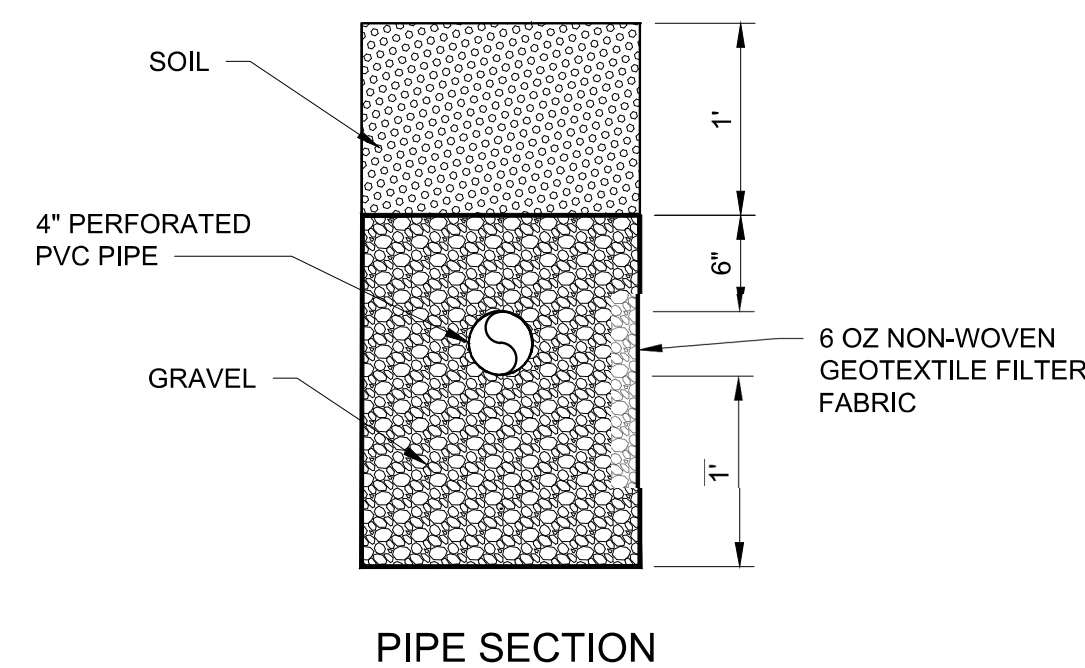
**C-106**

SHEET 8 OF 25  
DATE: JULY 30, 2024



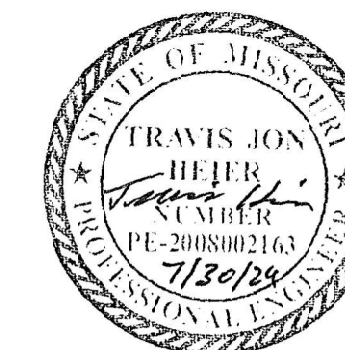
NOTES:

1. ALL PVC PIPE FROM THE OUTLET OF THE LAGOON SHALL BE BURIED.

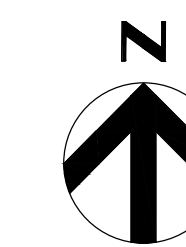


**LAGOON SITE**  
SCALE: 1" = 20'



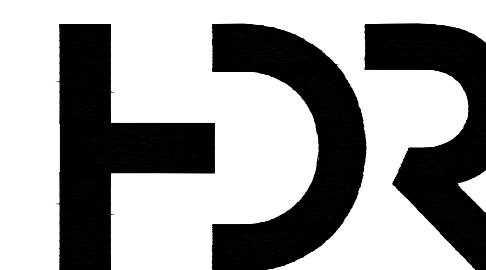


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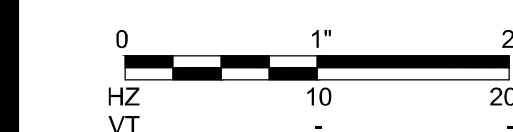
**GENERAL NOTES**

1. CONSTRUCT NEW LIFT STATION AND VALVE VAULT COMPLETE WITH NEW WETWELL, PUMPS, PIPING, FITTING, APPURTENANCES, CONTROLS, ELECTRICAL SERVICE, FENCING, GRAVEL SURFACING, AND OTHER IMPROVEMENTS AS REQUIRED.
2. GRAVEL SURFACING SHALL BE CONSTRUCTED TO THE LIMITS SHOWN ON THE DRAWINGS.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR DEVELOPMENT OF HIS CONSTRUCTION SEQUENCING PLAN AND ITS SUCCESSFUL IMPLEMENTATION. IN DEVELOPING THE SEQUENCE OF CONSTRUCTION, CONTRACTOR SHALL CONSIDER PROVIDING FOR UNINTERRUPTED CONTINUATION OF WASTEWATER SERVICE, OPERATION OF EXISTING FACILITIES, SITE SECURITY, NEIGHBORHOOD IMPACTS, TRAFFIC IMPACTS, AND OTHER FACTORS AS REQUIRED.



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RESOURCES

LAKE OF THE OZARKS  
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WATER MAIN  
IMPROVEMENTS

MO-134  
KAISER, MO 65047

PROJECT # X2307-02  
SITE # 5306

FACILITY #  
INFRASTRUCTURE #  
7815306238

REVISION:	_____
DATE:	_____
REVISION:	_____
DATE:	_____
REVISION:	_____
DATE:	_____
ISSUE DATE:	_____

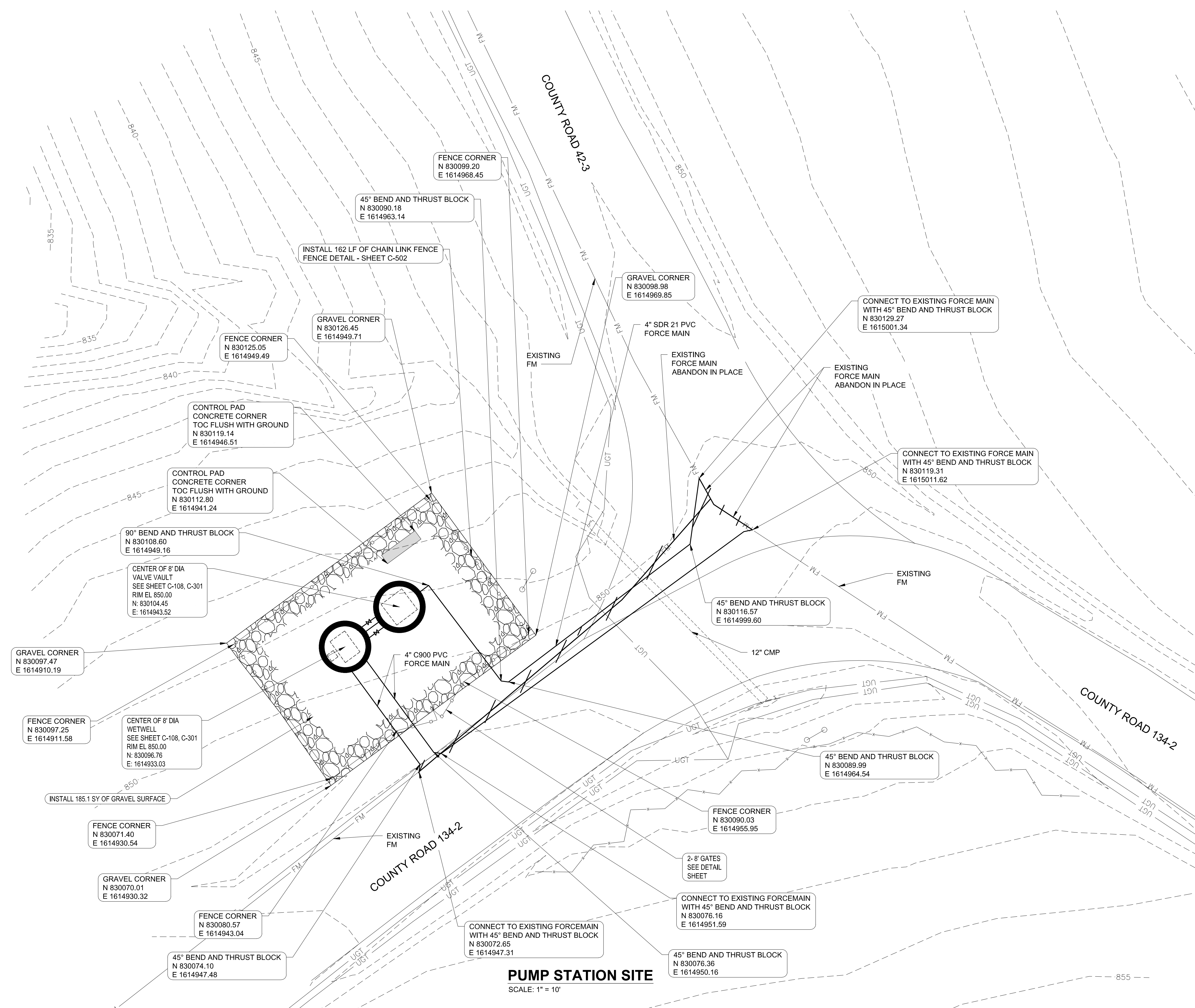
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DRAWN BY: TLD  
CHECKED BY: TJH  
DESIGNED BY: TJH

SHEET TITLE:  
**PUMP STATION  
SITE PLAN**

SHEET NUMBER:

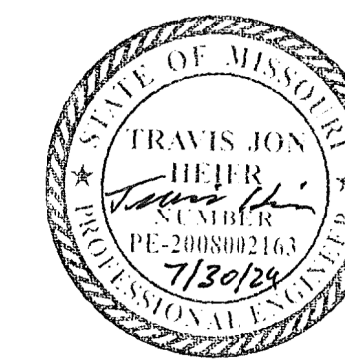
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SHEET 9 OF 25  
DATE: JULY 30, 2024

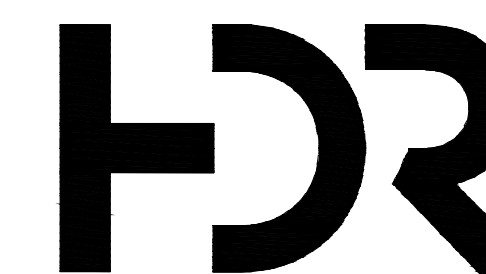


**PUMP STATION SITE**  
SCALE: 1" = 10'



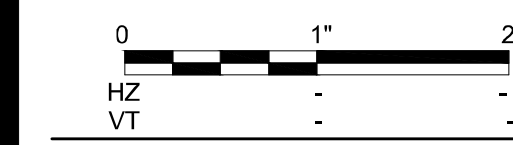


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IMPROVEMENTS

MO-134  
KAISER, MO 65047

PROJECT # X2307-02  
SITE # 5306  
FACILITY #  
INFRASTRUCTURE #  
7815306238

REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
ISSUE DATE: \_\_\_\_\_

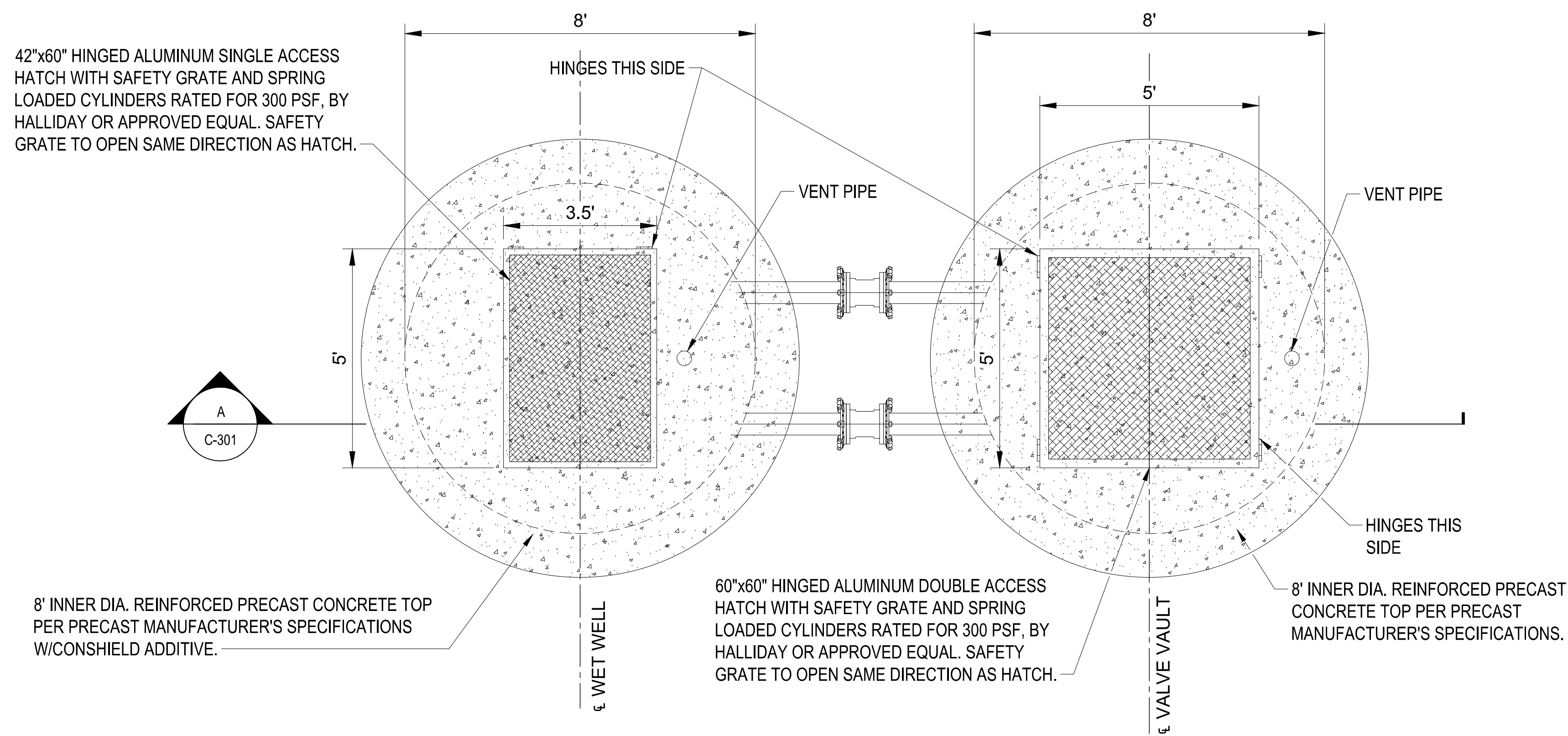
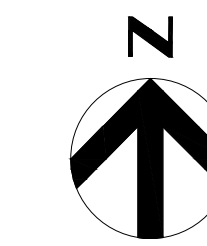
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DRAWN BY: TLD  
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DESIGNED BY: TJH

SHEET TITLE:  
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PROCESS PLAN**

SHEET NUMBER:

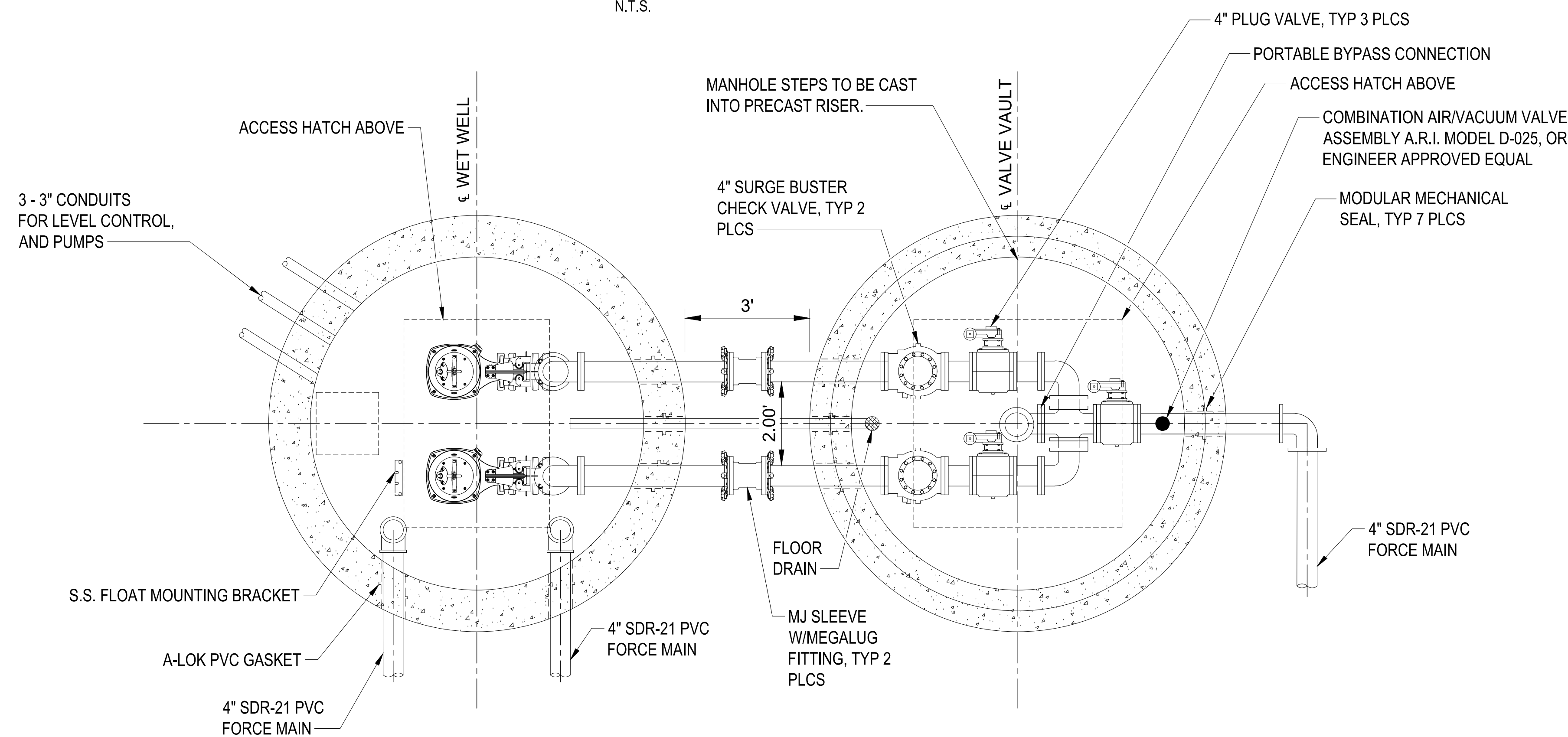
**C-108**

SHEET 10 OF 25  
DATE: JULY 30, 2024



**UPPER LEVEL PLAN**

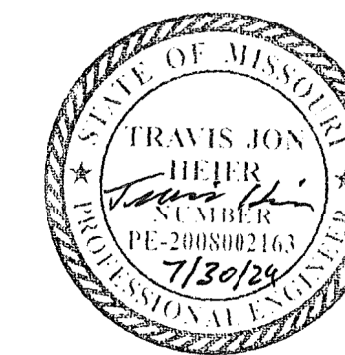
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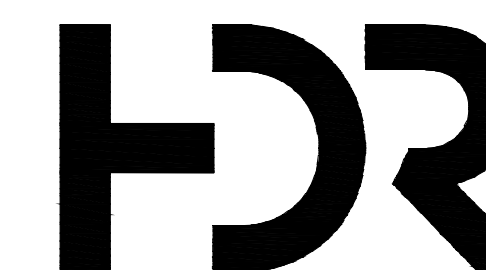
**LOWER LEVEL PLAN**

N.T.S.



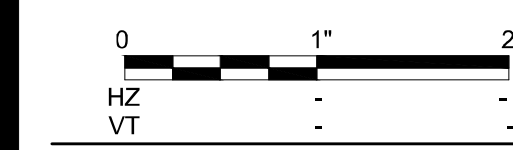


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RESOURCES

LAKE OF THE OZARKS  
STATE PARK  
WATER MAIN  
IMPROVEMENTS

MO-134  
KAISER, MO 65047

PROJECT # X2307-02  
SITE # 5306

FACILITY #  
INFRASTRUCTURE #  
7815306238

REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
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DATE: \_\_\_\_\_

ISSUE DATE: \_\_\_\_\_

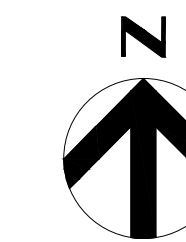
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CHECKED BY: TJH  
DESIGNED BY: TJH

SHEET TITLE:  
**PUMP STATION  
PROCESS SECTION**

SHEET NUMBER:

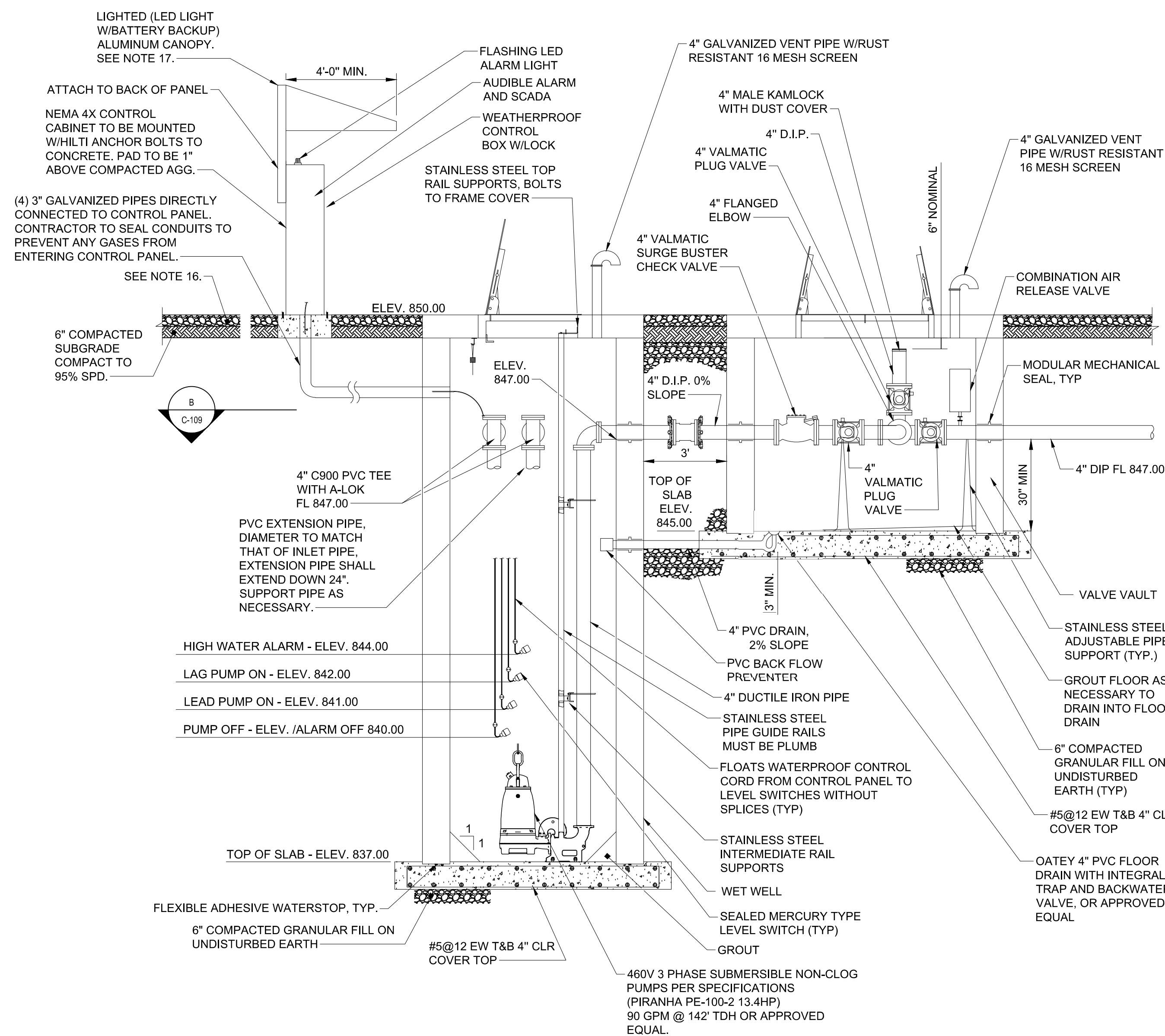
**C-301**

SHEET 11 OF 25  
DATE: JULY 30, 2024



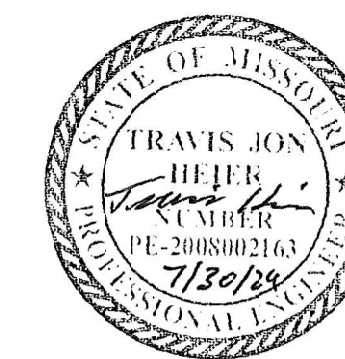
**GENERAL NOTES**

1. PRECAST MANUFACTURER TO SUBMIT SHOP DRAWINGS ON ALL PRECAST STRUCTURES.
2. CERTIFIED TESTS OF THE SPECIFIC PUMPING UNITS SUPPLIED ARE REQUIRED, SEE SPECIFICATIONS.
3. PROVIDE SUFFICIENT CABLE (W/O SPLICES) TO ALLOW DISCONNECTION AND PUMP REMOVAL WITHOUT ENTERING WET WELL. SUPPORT POWER CORD WITH STAINLESS STEEL 1/2" BOLT AND CABLE SUPPORT MOUNTED IN TOP OF WET WELL.
4. ANCHOR BOLT ALIGNMENT AS SPECIFIED BY THE MANUFACTURER, PUMP SUPPORT ANCHOR BOLT, PUMP SPACING, CLEARANCE AND INSTALLATION DIMENSIONS DEPENDANT ON EQUIPMENT FURNISHED.
5. BOTTOM OF BASIN MUST HAVE SMOOTH TROWELED SURFACE FOR MOUNTING SUPPORT CASTING.
6. PROVIDE 6 MIL VAPOR BARRIER BENEATH ALL CAST IN PLACE BASE SLABS.
7. STAINLESS STEEL FLOAT MOUNTING BRACKET, BRACKET SHALL BE MOUNTED SUCH THAT IT IS EASILY REPLACEABLE, FLOAT WIRE GUIDE SHALL BE ATTACHED TO BRACKET AND BRACKET SHALL BE MOUNTED TO WALL, BRACKET SHOWN OUT OF POSITION IN SECTION. SEE SECTION PLAN FOR APPROPRIATE LOCATION.
8. BACKFILL ALL STRUCTURES IN 8" LIFTS COMPACTED TO 95% STANDARD PROCTOR.
9. NO ROCK LARGER THAN 4" MAX. DIMENSION SHALL BE PLACED WITHIN 1" OF EXTERIOR SURFACE OF ANY STRUCTURE.
10. PROVIDE 5-3" CONDUITS WITH GALVANIZED WEATHERHEADS. ONE CONDUIT FOR EACH PUMP, ONE FOR MIXER (FUTURE MIXER), ONE FOR LEVEL CONTROL (FLOATS AND TRANSDUCER).
11. ALL PUMP DISCHARGE PIPING WITHIN WET WELL AND VALVE VAULT SHALL BE FLANGED DUCTILE IRON PIPE; ALL BOLTS SHALL BE STAINLESS STEEL.
12. ALL EXTERIOR SURFACES OF WET WELL AND VALVE VAULT SHALL BE COATED WITH TWO COATS OF BITUMINOUS MATERIAL OR APPROVED EQUAL.
13. ALL ACCESS HATCHES TO BE PROVIDED WITH APPROVED LOCKING DEVICES AND SPRING LOADED CYLINDERS. HATCHES SHALL BE ALUMINUM, HALLIDAY OR EQUAL. HATCH SHOWN OPENING OUT OF POSITION IN SECTION A-A, SEE TOP VIEW FOR ACTUAL HINGE LOCATIONS. ACCESS HATCH OPENING LOCATION ON WET WELL SHALL BE RECOMMENDED BY PUMP MANUFACTURER. ACCESS HATCH OPENING LOCATIONS ON VALVE VAULT SHALL BE SITUATED TO PROVIDE CLEAR ACCESS TO VALVES AND LADDER AS SHOWN.
14. ALL PIPE FITTINGS SHALL BE INSTALLED WITH STAINLESS STEEL BOLTS. ALL POWER CORDS AND CONTROL CABLE HANGERS AND STRAIN RELIEF GRIPS SHALL BE STAINLESS STEEL.
15. BOTTOMS OF VALVE VAULTS MAY EITHER BE CAST IN PLACE OR PRECAST. CONTRACTOR TO ENSURE DRAINAGE TO FLOOR DRAINS.
16. ENTIRE FENCED AREA SHALL BE 6" COMPACTED MODOT TYPE 1 AGGREGATE ON A 4 MIL POLYETHYLENE SHEETING. SHEETING SHALL HAVE 3 ONE INCH HOLES PER SQUARE YARD (TREAT SOIL WITH SOIL STERILANT PRIOR TO PLACING SHEETING).
17. ALUMINUM CANOPY TO BE MOUNTED OVER CONTROL PANEL SUCH THAT IT PROVIDES SHELTER TO OPERATOR WHEN RAINING. WIDTH IS TO BE 1" WIDER THAN CONTROL BOX. SEE DETAIL SHEET 20C507.
18. ALL WET WELL AND VALVE VAULT STRUCTURES TO HAVE CONSHIELD ADDITIVE.

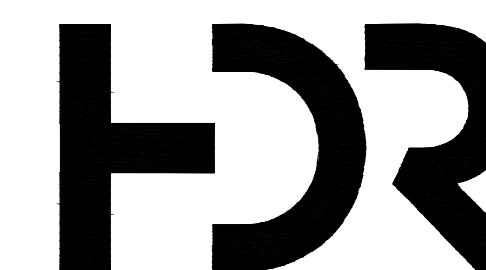


**SECTION**  
A-A  
N.T.S.



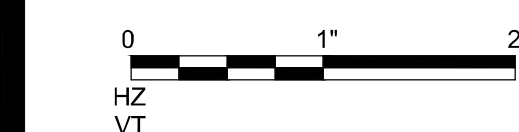


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07/30/24



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DEPARTMENT OF NATURAL  
RESOURCES

LAKE OF THE OZARKS  
STATE PARK  
WATER MAIN  
IMPROVEMENTS

MO-134  
KAISER, MO 65047

PROJECT # X2307-02  
SITE # 5306

FACILITY #  
INFRASTRUCTURE #  
7815306238

REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
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DATE: \_\_\_\_\_  
ISSUE DATE: \_\_\_\_\_

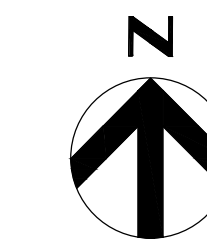
CAD DWG FILE: E-101  
DRAWN BY: TLD  
CHECKED BY: TJH  
DESIGNED BY: TJH

SHEET TITLE:  
PUMP STATION  
ELECTRICAL  
SITE PLAN

SHEET NUMBER:

**E-101**

SHEET 12 OF 25  
DATE: JULY 30, 2024

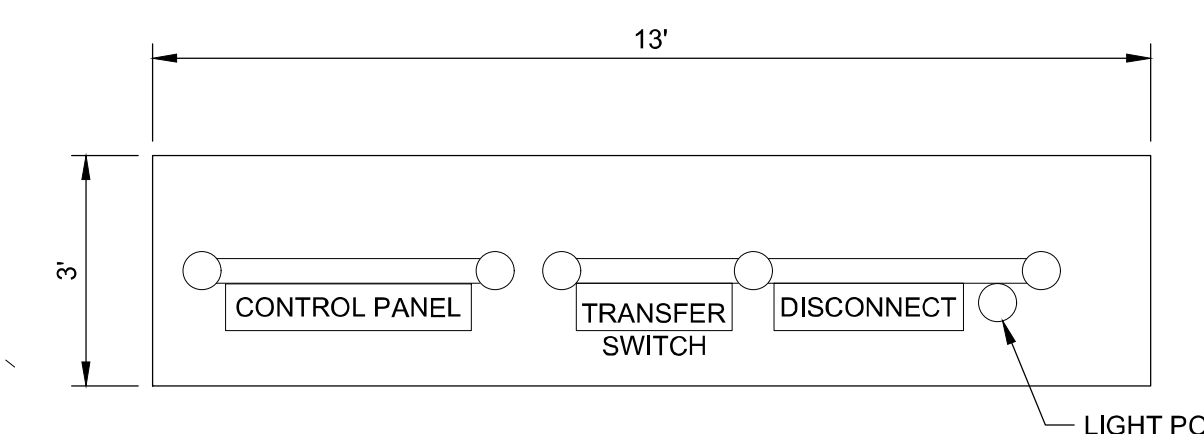


**GENERAL NOTES**

1. CONSTRUCT NEW LIFT STATION AND VALVE VAULT COMPLETE WITH NEW WETWELL, PUMPS, PIPING, FITTING, APPURTENANCES, CONTROLS, ELECTRICAL SERVICE, FENCING, GRAVEL SURFACING, AND OTHER IMPROVEMENTS AS REQUIRED.
2. GRAVEL SURFACING SHALL BE CONSTRUCTED TO THE LIMITS SHOWN ON THE DRAWINGS.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR DEVELOPMENT OF HIS CONSTRUCTION SEQUENCING PLAN AND ITS SUCCESSFUL IMPLEMENTATION. IN DEVELOPING THE SEQUENCE OF CONSTRUCTION, CONTRACTOR SHALL CONSIDER PROVIDING FOR UNINTERRUPTED CONTINUATION OF WASTEWATER SERVICE, OPERATION OF EXISTING FACILITIES, SITE SECURITY, NEIGHBORHOOD IMPACTS, TRAFFIC IMPACTS, AND OTHER FACTORS AS REQUIRED.

**KEYNOTES (#)**

1. PUMP STATION WETWELL WITH SUBMERSIBLE PUMPS IS CLASSIFIED HAZARDOUS, CLASS 1 DIVISION 1, DIVISION 1 ENVELOPE EXTENDS OUT 3-FEET FROM VENT OPENING. AREA FROM 3-FEET TO 5-FEET IS A CLASS 1 DIVISION 2 LOCATION. ELECTRICAL INSTALLATION SHALL MEET NFPA 70 (NEC) REQUIREMENTS.
2. VALVE VAULT IS CLASSIFIED HAZARDOUS, CLASS 1 DIVISION 2, DIVISION 2 ENVELOPE EXTENDS OUT 3-FEET FROM VENT OPENING.
3. NEW CONTROL PANEL ELECTRICAL RACK. SEE 02E501 FOR INSTALLATION DETAILS AND 02E501 FOR ONE-LINES. PROVIDE CONDUIT SEALS AT RACK FOR ALL CONDUITS BETWEEN RACK AND BELOW-GRADE STRUCTURES.
4. PROVIDE CONCRETE PAD FOR RACK AND BELOW GRADE GROUNDING. SEE 02E501.
5. SUBMERSIBLE PUMPS (2) AND FLOAT SWITCHES (1) SHALL EACH BE PROVIDED WITH SUFFICIENT LENGTH OF MFR CABLE TO INSTALL ON THEIR TERMINALS IN CONTROL PANEL. NO SPLICES OR INTERMEDIATE TERMINATIONS.

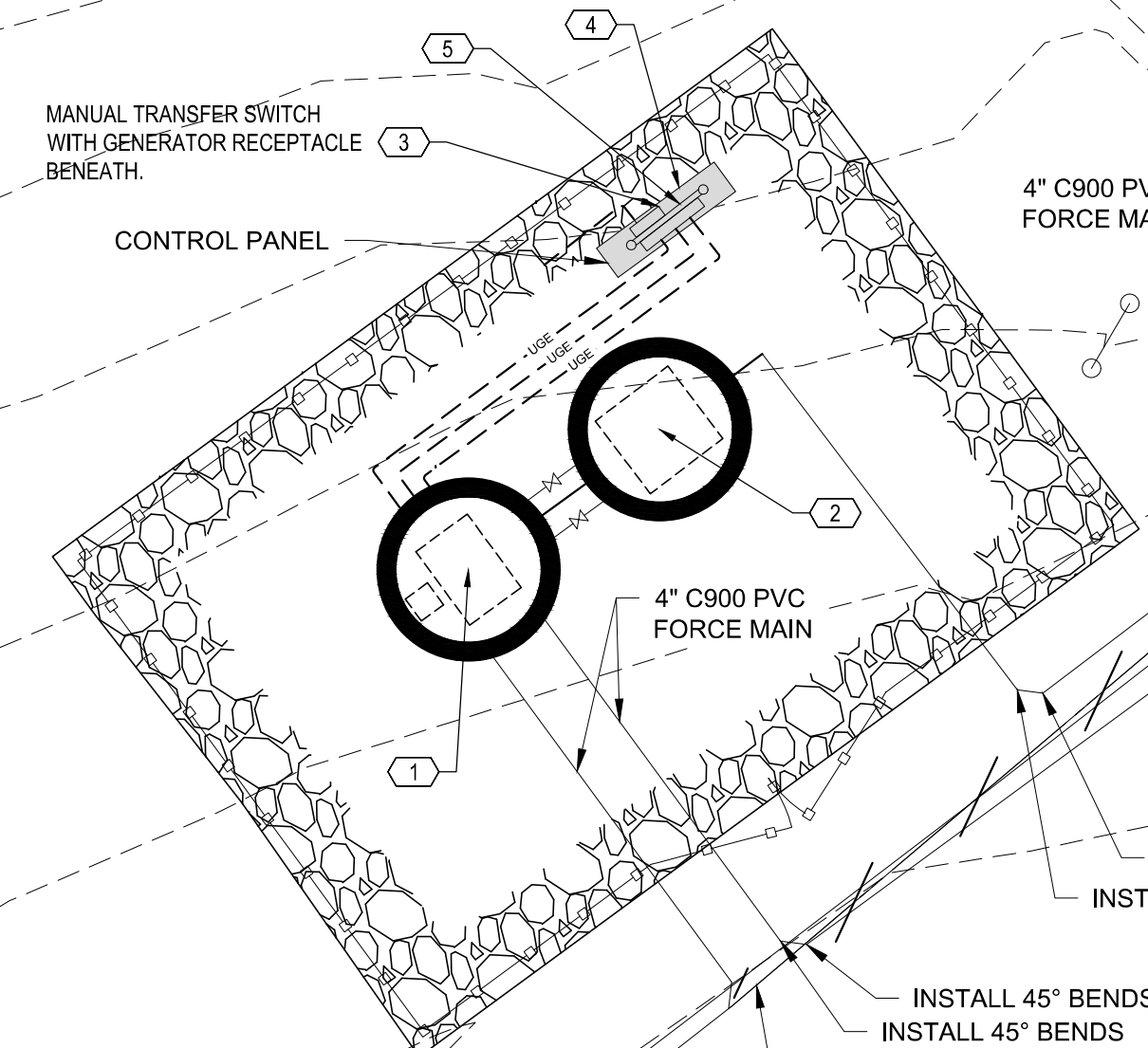
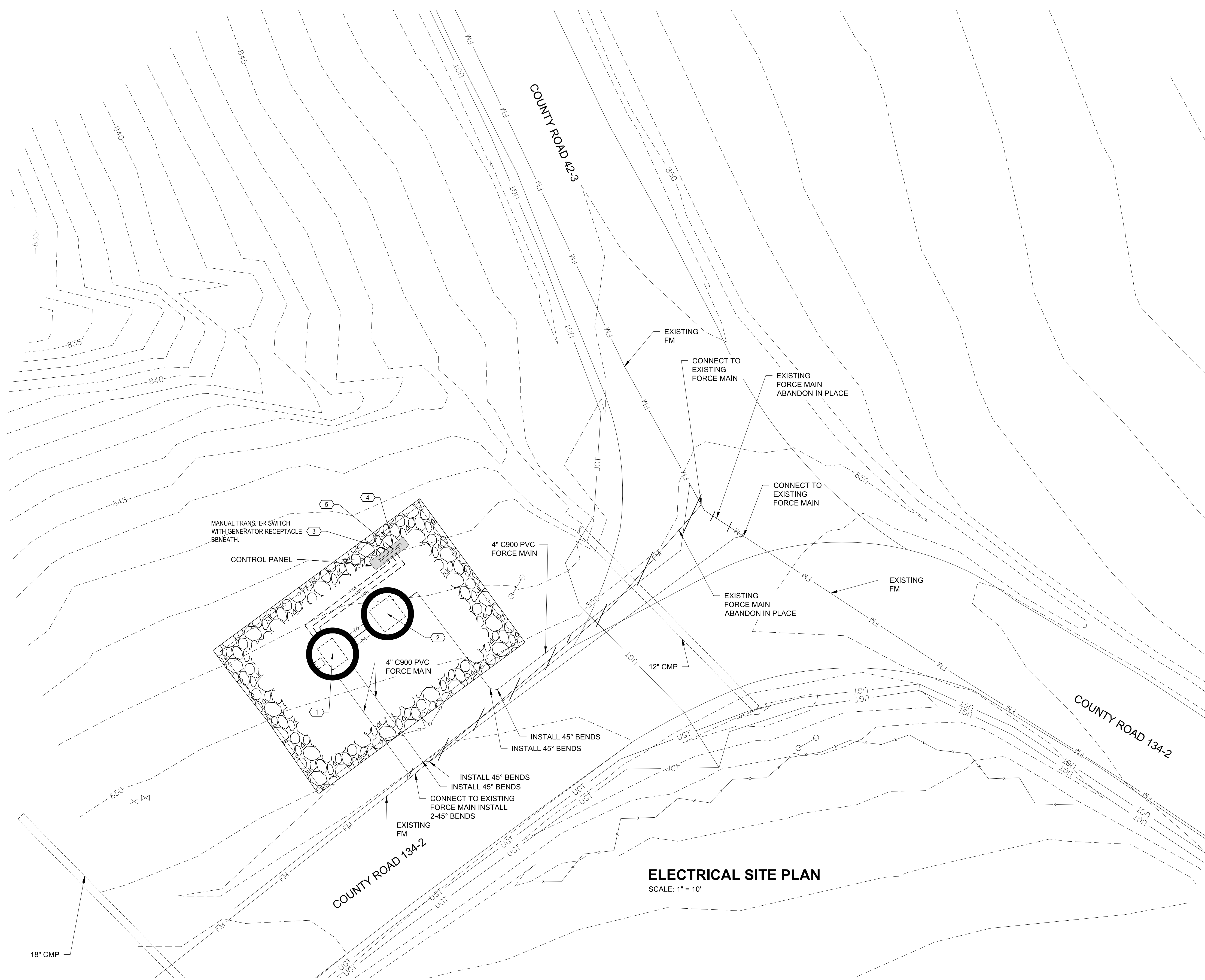


TYPICAL CONTROL PANEL PAD

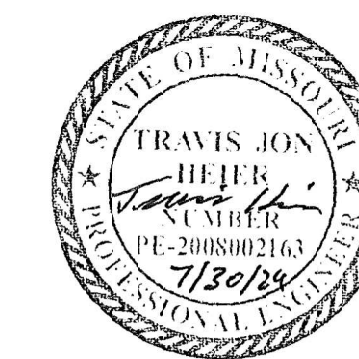
NOTE:  
CONTRACTOR TO COORDINATE WORK IN THIS AREA WITH KAISER SPECIAL ROAD DISTRICT (JASON LING 573-280-36-25).

**ELECTRICAL SITE PLAN**

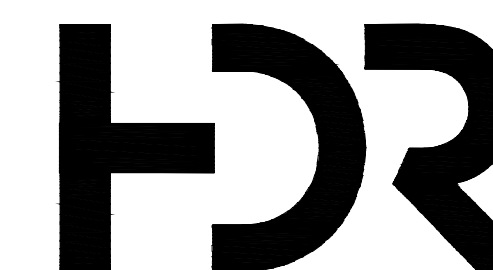
SCALE: 1" = 10'





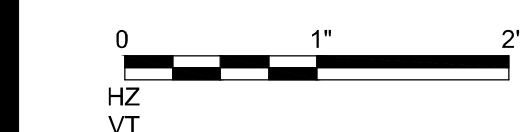


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OFFICE OF ADMINISTRATION  
DIVISION OF FACILITIES  
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DEPARTMENT OF NATURAL  
RESOURCES

LAKE OF THE OZARKS  
STATE PARK  
WATER MAIN  
IMPROVEMENTS

MO-134  
KAISER, MO 65047

PROJECT # X2307-02  
SITE # 5306  
FACILITY #  
INFRASTRUCTURE #  
7815306238

REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
ISSUE DATE: \_\_\_\_\_

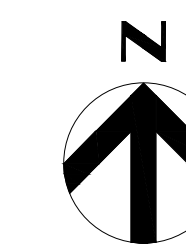
CAD DWG FILE: E-601  
DRAWN BY: TLD  
CHECKED BY: TJH  
DESIGNED BY: TJH

SHEET TITLE:  
PS ELECTRICAL  
SCHEDULES  
& SCHEMATICS

SHEET NUMBER:

**E-601**

SHEET 13 OF 25  
DATE: JULY 30, 2024



**GENERAL NOTES**

ELECTRICAL UTILITIES SHOWN ON THESE PLANS ARE INTENDED TO INDICATE EXISTING ELECTRICAL EQUIPMENT SERVING THE AFFECTED AREA AND ARE NOT INTENDED TO BE A COMPLETE SCHEMATIC OF ALL EXISTING ELECTRICAL EQUIPMENT. UTILITIES SHOWN ARE BASED ON A SITE UTILITY SURVEY AND FIELD OBSERVATIONS. ALL ELECTRICAL EQUIPMENT NOT SHOWN TO BE REMOVED OR RELOCATED IS ASSUMED TO REMAIN AS IS.

CONTRACTOR SHALL CONTACT THE LOCAL ELECTRICAL UTILITY COMPANY AND ARRANGE FOR ELECTRIC SERVICE AS INDICATED ON DRAWINGS. SEWER DISTRICT SHALL PAY ALL UTILITY COSTS, CHARGES, FEES, ETC. DIRECTLY TO THE UTILITY. PROVIDE ALL MATERIALS AS REQUIRED BY LOCAL AUTHORITIES FOR ELECTRIC SERVICE INSTALLATION. ALL WORK SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF LOCAL AUTHORITIES.

PLANS ARE DIAGRAMMATIC AND SHALL NOT BE SCALED. REFER TO CIVIL DRAWINGS FOR DIMENSIONS.

UNLESS NOTED OTHERWISE, ALL HOMERUNS SHALL BE INSTALLED IN PVC CONDUIT BELOW GRADE. RIGID STEEL CONDUIT ABOVE GRADE. TRANSITION TO STEEL CONDUIT SHALL BE MADE PRIOR TO COMING UP FROM BELOW GRADE.

ALL WIRING SHALL BE IN CONDUIT UNLESS NOTED OTHERWISE, AND SHALL BE CONCEALED. CONDUITS SHALL BE INSTALLED BELOW GRADE BETWEEN BOXES, LIGHTS, RECEPTACLES, ETC. UNLESS OTHERWISE NOTED, CONCEAL ALL TERMINATIONS AND CONDUIT UNLESS OTHERWISE NOTED.

REFERENCE SCHEDULES AND SPECIFICATIONS FOR ADDITIONAL INFORMATION REGARDING EQUIPMENT SHOWN ON THIS SHEET.

ROUTE POWER AND CONTROL CONDUITS FROM PANELS TO GENERATOR AND TRANSFER SWITCH. COORDINATE ROUTING WITH ALL EQUIPMENT AND PIPING BEING INSTALLED.

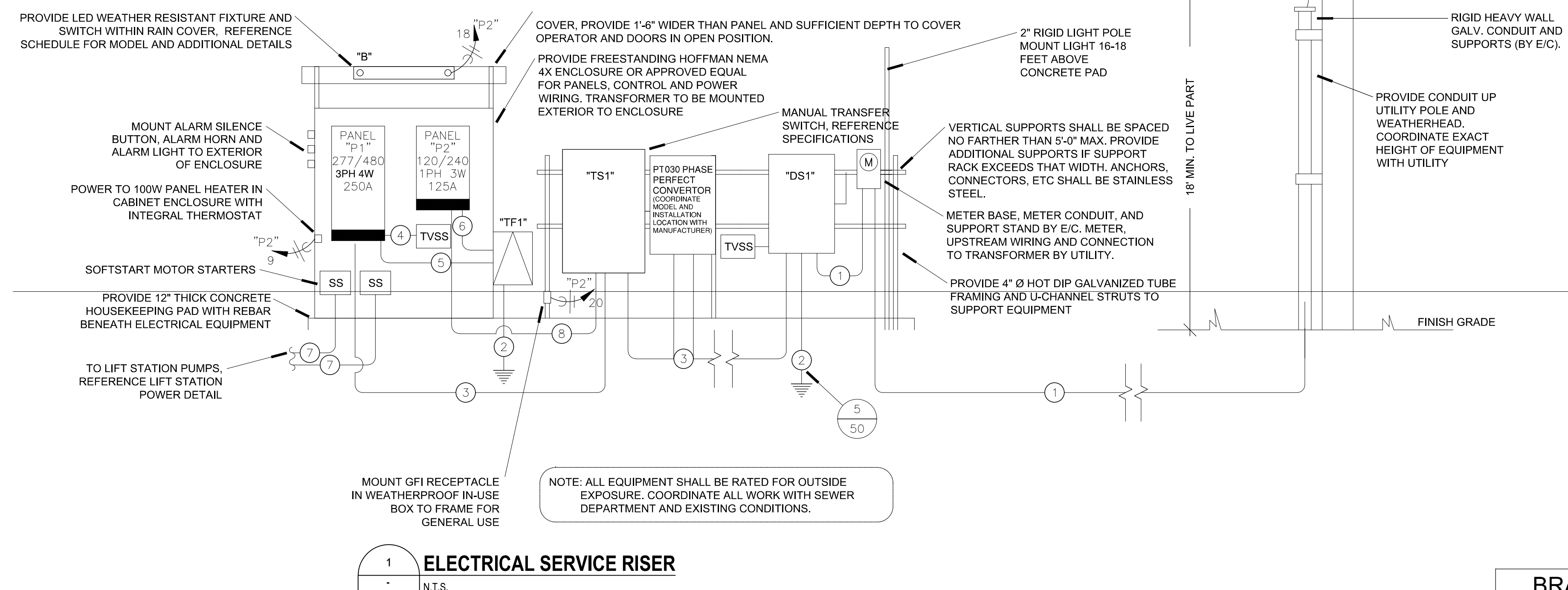
COORDINATE WITH CIVIL ENGINEER FOR PREFERRED ORIENTATION OF LIGHT PRIOR TO INSTALLATION OF ARM. PROVIDE PHOTOCELL WITH SWITCH OVERRIDE AT BASE OF POLE, MOUNTED 48" ABOVE FINISH GRADE.

ALL ELECTRICAL SHALL CONFORM WITH THE CITY OF OSAGE BEACH STANDARDS.

CIRCUIT BREAKER PANELBOARD SCHEDULE												
PANELBOARD DESIGNATION:		MANUFACTURER: SQUARE D			VOLTAGE: 277/480			PHASE: 3				
"P1"		TYPE: NF			WIRE: 4			WIRE: 4				
ENCLOSURE/SPACES: NEMA 3R / 24 POLES		MOUNTING/MAX. DIMENSION: SURFACE / 20"Wx5.75"D			MIN. AIC RATING (AMPS): 11287			MAIN TYPE: 200A MCB				
CIRC NO.	LOAD DESCRIPTION	CIRCUIT BREAKER AMPS	CIRCUIT BREAKER ACC.	LOAD (VA)	PHASE LOADS (VA)			LOAD (VA)	CIRCUIT BREAKER AMPS	CIRCUIT BREAKER ACC.	LOAD DESCRIPTION	CIRC NO.
1	LIFT STATION CONTROL PANEL	100		24941	24941	//////	//////	0	80		PUMP 1	2
3	"	3		24941	24941	//////	//////	0	80		PUMP 1	4
5	"	3		24941	24941	//////	//////	24941	80		PUMP 1	6
7	TRANSFORMER	50		1278	1278	//////	//////	0	80		PUMP 2	8
9	"	2		1284	1284	//////	//////	0	80		PUMP 2	10
11	"			0	0	//////	//////	0	80		PUMP 2	12
13	"			0	0	//////	//////	0				14
15	"			0	0	//////	//////	0				16
17	"			0	0	//////	//////	0				18
19	"			0	0	//////	//////	0	30		TVSS	20
21	"			0	0	//////	//////	0	3		"	22
23	"			0	0	//////	//////	0	3		"	24
CONNECTED SUBTOTAL (VA):				26219	26225	24941		77385	TOTAL CONNECTED (VA)			
*DIVERSIFIED COOLING TOTAL (VA):				26328	26334	25045			COOLING CONTROLLING LOAD			
*DIVERSIFIED HEATING TOTAL (VA):				26328	26334	25045		1.25	FUTURE FACTOR (INCLUDED)			
PHASE LOADS (AMPS):				96	96	91		120	CALCULATED PANEL SIZING AMPS			
CIRCUIT BREAKER ACC. ABBREVIATIONS:												
GF - GROUND-FAULT CIRCUIT INTERRUPTER												
AF - ARC-FAULT CIRCUIT INTERRUPTER												
ST - SHUNT TRIP												
HL-ON - HANDLE-LOCK ON DEVICE												
HL-OFF - HANDLE-LOCK OFF DEVICE												
EPD - EQUIPMENT PROTECTION DEVICE												
(* DIVERSIFIED LOADS HAVE BEEN CALCULATED IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE.)												

CIRCUIT BREAKER PANELBOARD SCHEDULE												
PANELBOARD DESIGNATION:		MANUFACTURER: SQUARE D			VOLTAGE: 120/240			PHASE: 1				
"P2"		TYPE: NQ/MINI POWER ZONE			WIRE: 3			WIRE: 3				
ENCLOSURE/SPACES: NEMA 3R / 24 POLES		MOUNTING/MAX. DIMENSION: SURFACE / 20"Wx5.75"D			MIN. AIC RATING (AMPS): 16000			MAIN TYPE: 100A MCB				
CIRC NO.	LOAD DESCRIPTION	CIRCUIT BREAKER AMPS	CIRCUIT BREAKER ACC.	LOAD (VA)	PHASE LOADS (VA)			LOAD (VA)	CIRCUIT BREAKER AMPS	CIRCUIT BREAKER ACC.	LOAD DESCRIPTION	CIRC NO.
1	SPARE	20		0	0	//////	//////	0	20		SPARE	2
3	SPARE	20		0	0	//////	//////	0	20		SPARE	4
5	SPARE	20		0	0	//////	//////	0	20		SPARE	6
7	VALVE VAULT RECEPTACLE	20	GF	180	180	//////	//////	180	20		SPARE	8
9	CABINET HEATER	20	-	144	144	//////	//////	0	20		SPARE	10
11	SPARE	20	-	0	0	//////	//////	0	20		SPARE	12
13	ENGINE BLOCK HEATER	20	-	500	500	//////	//////	0	20		SPARE	14
15	BATTERY CHARGER	20	-	600	600	//////	//////	0	20		SPARE	16
17	POWER FOR UPS	20	GF	180	360	//////	//////	180	20		LED CANOPY LIGHT	18
19	SPARE	20	-	0	0	//////	//////	0	20		SPARE	20
21	CONTROL POWER	20	-	0	274	//////	//////	274	20		OUTDOOR POLE LIGHT	22
23	SPARE	20	-	0	0	//////	//////	0	20		SPARE	24
CONNECTED SUBTOTAL (VA):				1278	1284			2562	TOTAL CONNECTED (VA)			
*DIVERSIFIED COOLING TOTAL (VA):				1191	1197				HEATING CONTROLLING LOAD			
*DIVERSIFIED HEATING TOTAL (VA):				1335	1341			1.25	FUTURE FACTOR (INCLUDED)			
PHASE LOADS (AMPS):				12	12			15	CALCULATED PANEL SIZING AMPS			
CIRCUIT BREAKER ACC. ABBREVIATIONS:												
GF - GROUND-FAULT CIRCUIT INTERRUPTER												
AF - ARC-FAULT CIRCUIT INTERRUPTER												
ST - SHUNT TRIP												
HL-ON - HANDLE-LOCK ON DEVICE												
HL-OFF - HANDLE-LOCK OFF DEVICE												
EPD - EQUIPMENT PROTECTION DEVICE												
(* DIVERSIFIED LOADS HAVE BEEN CALCULATED IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE.)												

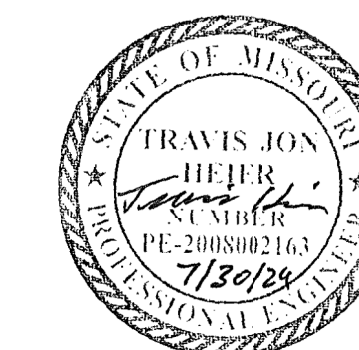
LIGHT FIXTURE SCHEDULE				LAMPS	
MFG	CATALOG #	FINISH	TYPE	CODE	
AEL	ATB2 BOBLEDE10 MVOLT RV NR	GRAY	LED	274W 4000K W/FIXTURE	



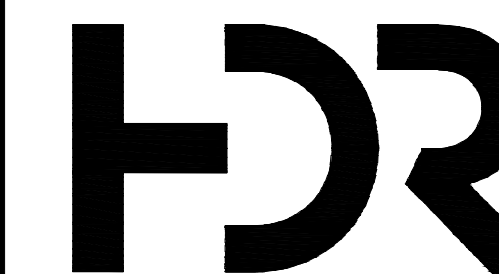
**BRANCH CIRCUIT & FEEDER SCHEDULE:**

- ① 3 - #3/0 IN 4" CONDUIT.
- ② #6 BARE COPPER GROUND.
- ③ 4 - #3/0 AND 1 - #6 GROUND IN 2" CONDUIT.
- ④ 3 - #10 AND 1 - #10 GROUND IN 0.75" CONDUIT, OR AS REQUIRED BY TVSS MANUFACTURER.
- ⑤ 3 - #8 AND 1 - #10 GROUND IN 0.75" CONDUIT.
- ⑥ 3 - #3 AND 1 - #8 GROUND IN 1.25" CONDUIT.
- ⑦ PER PUMP MANUFACTURER
- ⑧ 2-#12 AND 1-#12 GROUND IN 0.75" CONDUIT FOR PHASE MONITOR.



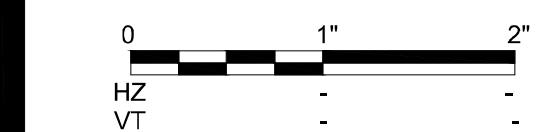


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DEPARTMENT OF NATURAL  
RESOURCES

LAKE OF THE OZARKS  
STATE PARK  
WATER MAIN  
IMPROVEMENTS

MO-134  
KAISER, MO 65047

PROJECT # X2307-02  
SITE # 5306  
FACILITY #  
INFRASTRUCTURE #  
7815306238

REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
ISSUE DATE: \_\_\_\_\_

CAD DWG FILE: C-400  
DRAWN BY: TLD  
CHECKED BY: TJH  
DESIGNED BY: TJH

SHEET TITLE:  
**UTILITY  
REHABILITATION  
PLAN**

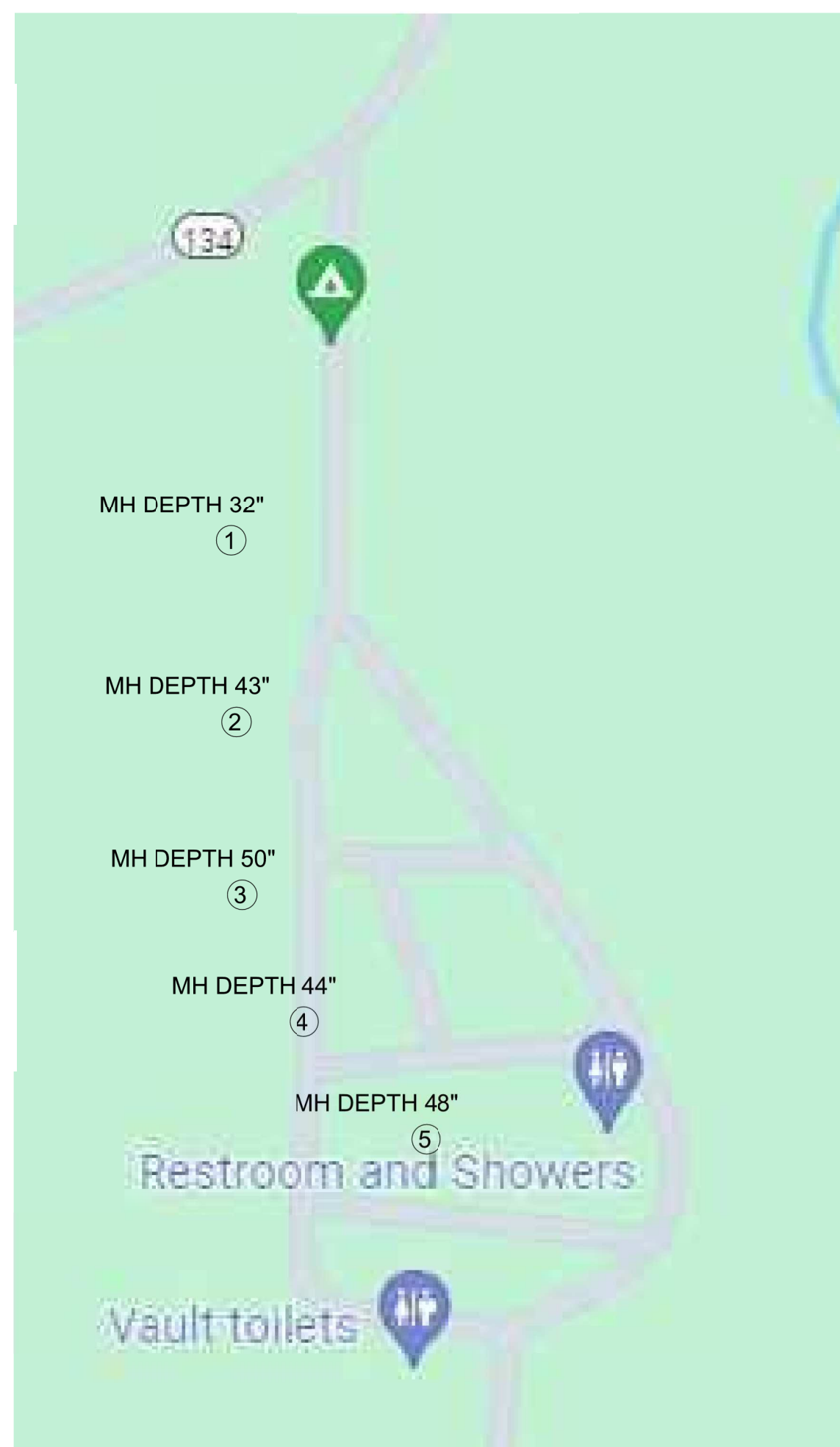
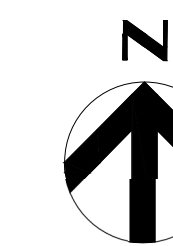
SHEET NUMBER:

**C-400**

SHEET 14 OF 25  
DATE: JULY 30, 2024

NOTE:  
ALL LINING TO BE CEMENTITIOUS MANHOLE LINING OR APPROVED EQUAL.

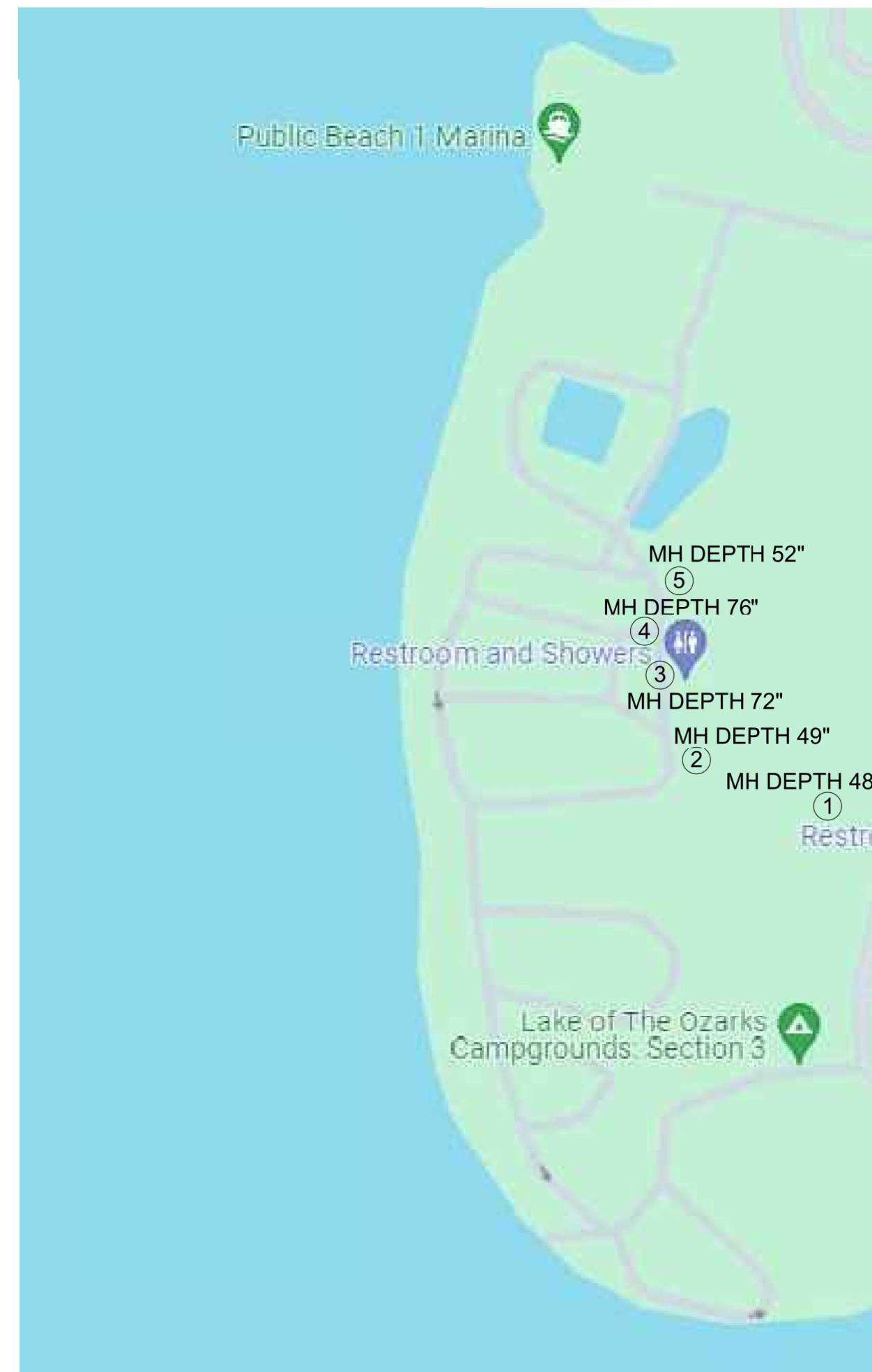
NOTE:  
LIFT STATION 2 IN HOMESTEAD CAMPGROUND: REPLACE BOTH PUMPS,  
CONTROLS, AND RAILS IN DUPLEX LIFT STATION WITH SULZER PIR PE45-2W  
PUMPS.



CAMP GROUND SECTION 1

**Campground Section 1 Manholes (Approx. 44" dia.)**

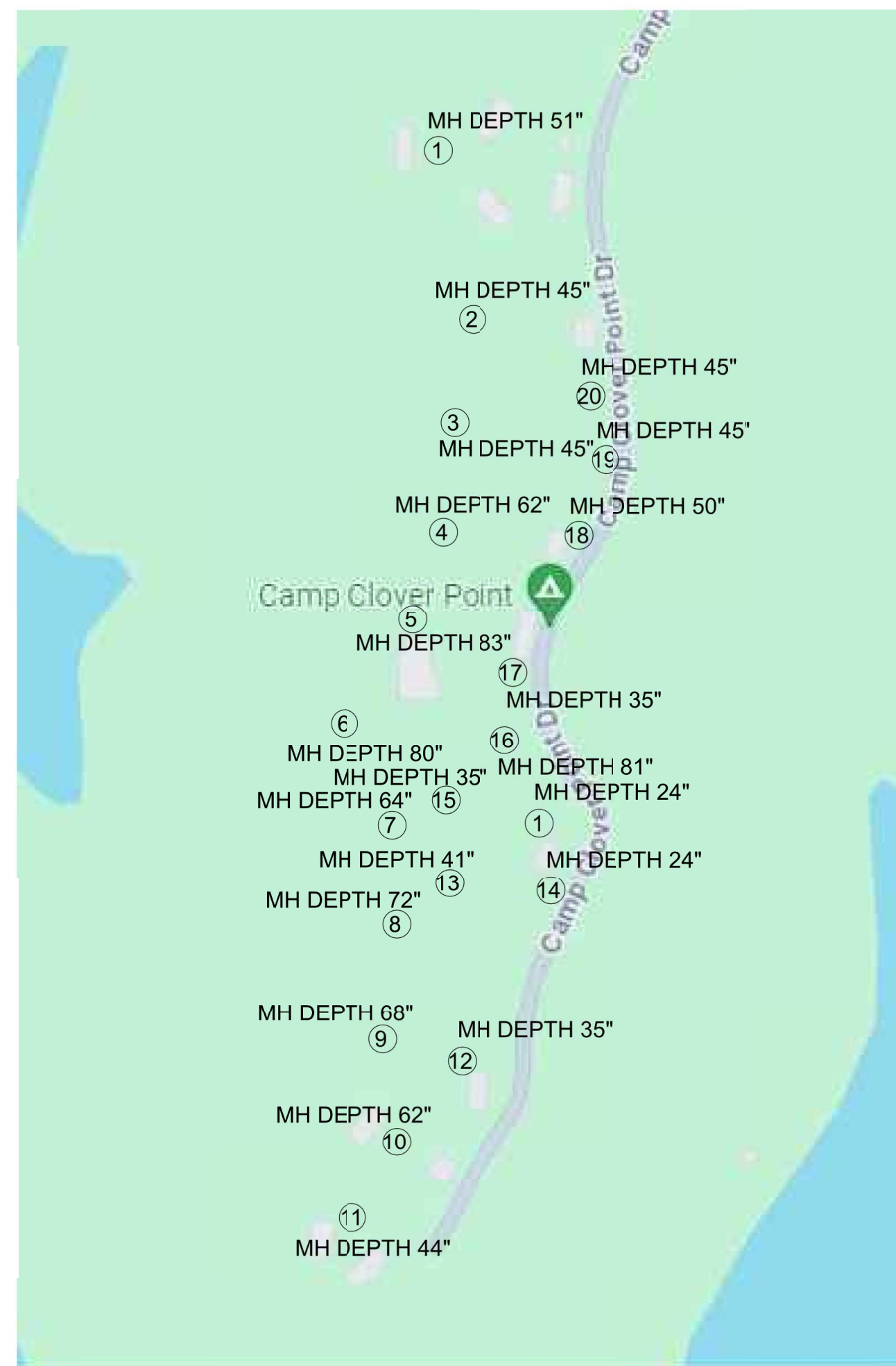
Manhole No.	Depth (in.)	Location Description
1	32	Woods west of road/check station
2	43	Near Campsite No. 2
3	50	Between MH 2 and 4
4	44	Near Campsite No. 15
5	48	Grass area near Showerhouse



CAMP GROUND SECTION 4

**Campground Section 4 Manholes (Approx. 44" dia.)**

Manhole No.	Depth (in.)	Location Description
1	48	Between Camp3 and 4 in woods
2	49	In Woods South of Showerhouse
3	72	On North Side of Section 4 Showerhouse
4	76	Near site 121
5	52	East of Site 134 on outside of road



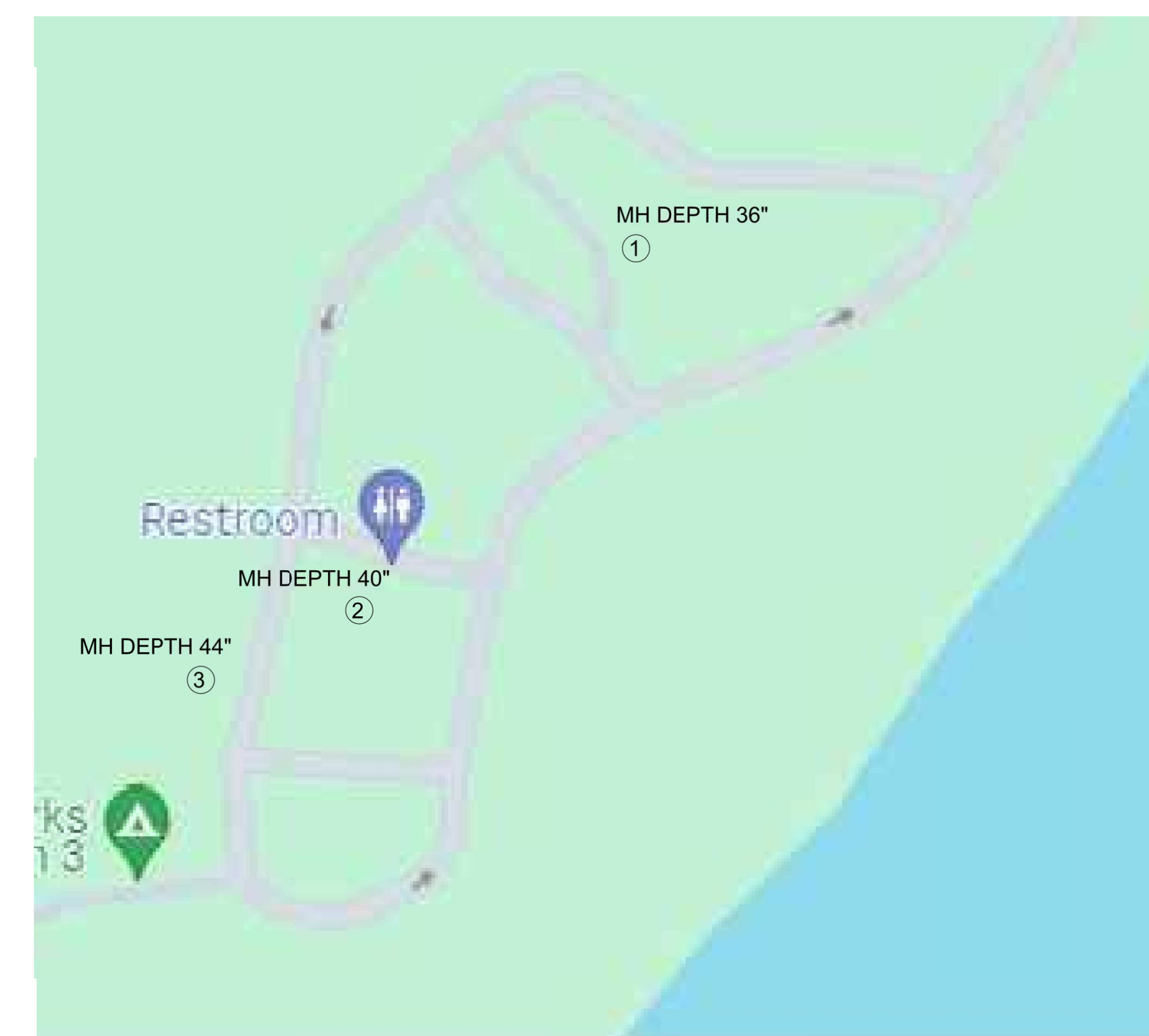
CAMP CLOVER POINT

**Camp Clover Point (Approx. 44" dia.)**

Manhole No.	Depth (in.)	Location Description
1	51	Front of Cabin A-3
2	45	South from A-3 towards Rec Hall
3	45	South of No. 2 in line towards Rec Hall
4	62	South of No. 3 in line towards Rec Hall
5	83	Just North of Recreation Hall
6	80	Behind Rec Hall East of Lagoons
7	64	South of Recreation Hall towards B cabins
8	72	West of MH 13
9	68	Between Cabins B-1, B3, and B-6
10	62	East of B-3

**Camp Clover Point (Approx. 44" dia.) CONT.**

Manhole No.	Depth (in.)	Location Description
11	44	Between B-4 and B-2 (southern most)
12	35	North of Cabin B-5
13	41	SW of Dining Hall near T MH 8
14	24	Behind Dining Hall (SE side)
15	35	Directly West of Dining Hall
16	81	NW of Dining Hall
17	35	East of Admin Building
18	50	East of Craft Shop
19	45	Near road between 18 and 20
20	45	South of A-5 near parking lot



CAMP GROUND SECTION 3

**Campground Section 3 Manholes (Approx. 44" dia.)**

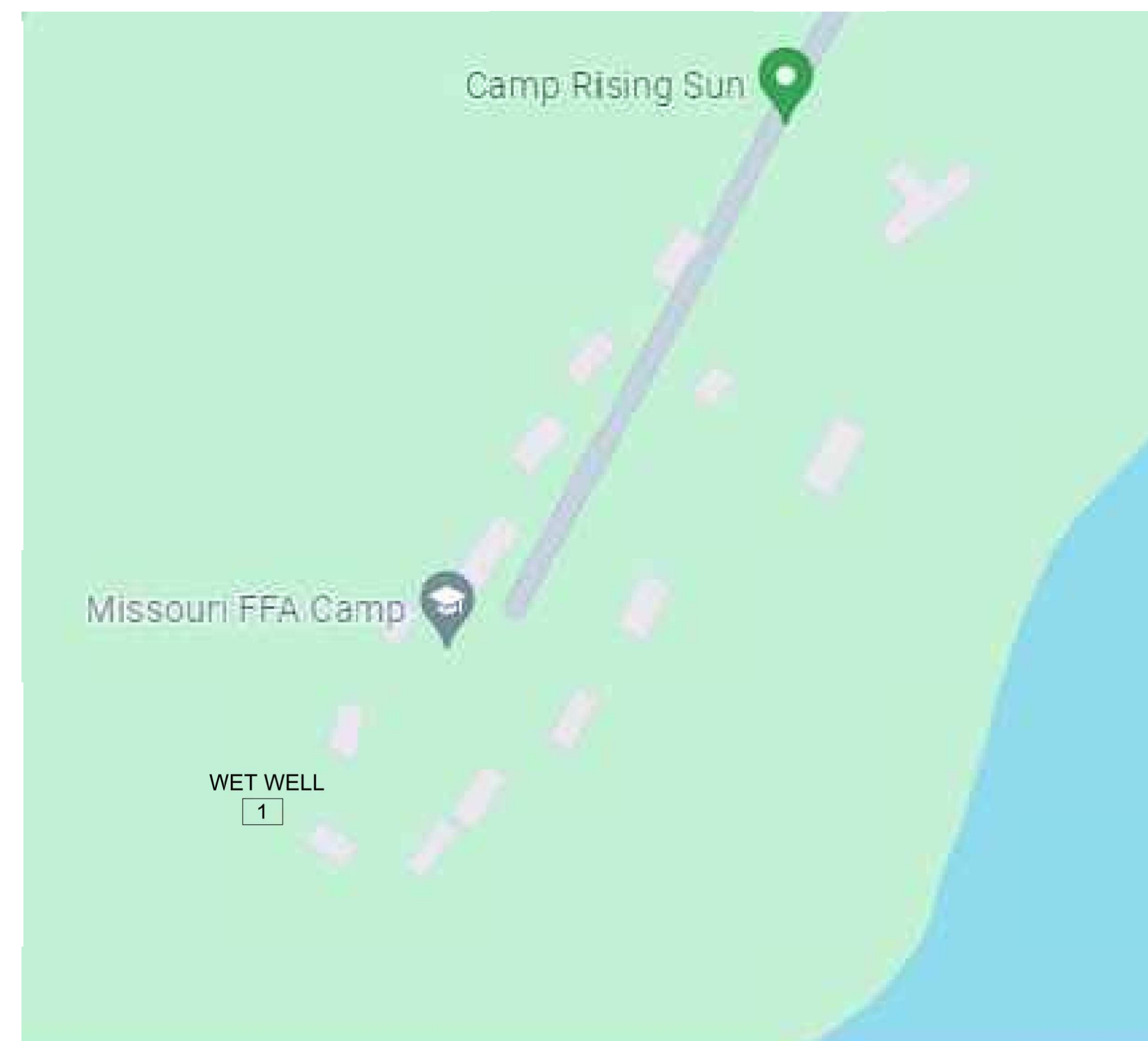
Manhole No.	Depth (in.)	Location Description
1	36	Near Showerhouse
2	40	Behind lower Bathroom
3	44	Near Campsite No. 73



CAMP RED BUD

**Camp Red Bud (Approx. 44" dia.)**

Manhole No.	Depth (in.)	Location Description
1	36	Near Central Restroom, SE corner



CAMP RISING SUN

**Camp Rising Sun 1**

Camp Wetwell 5' x 11'

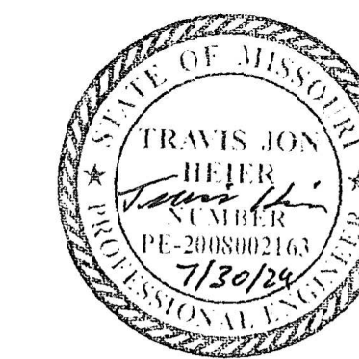


PIN OAK FACILITY

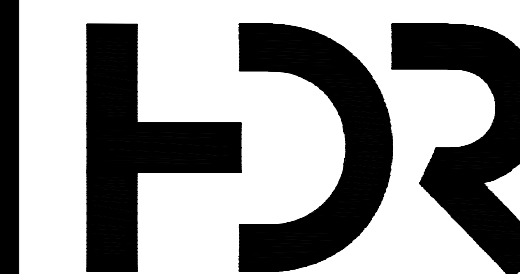
**Pin Oak Facility (Approx. 44" dia.)**

Manhole No.	Depth (in.)	Location Description
1	52	Inside circle drive of Lodge Parking
2	42	SE Corner of Lodge
3	40	Behind S4 and S5



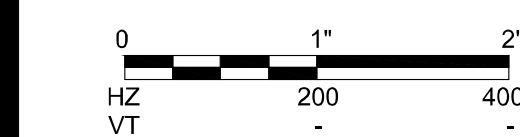


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IMPROVEMENTS

MO-134  
KAISER, MO 65047

PROJECT # X2307-02  
SITE # 5306  
FACILITY # 7815306134  
INFRASTRUCTURE #  
7815306238

REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
ISSUE DATE: \_\_\_\_\_

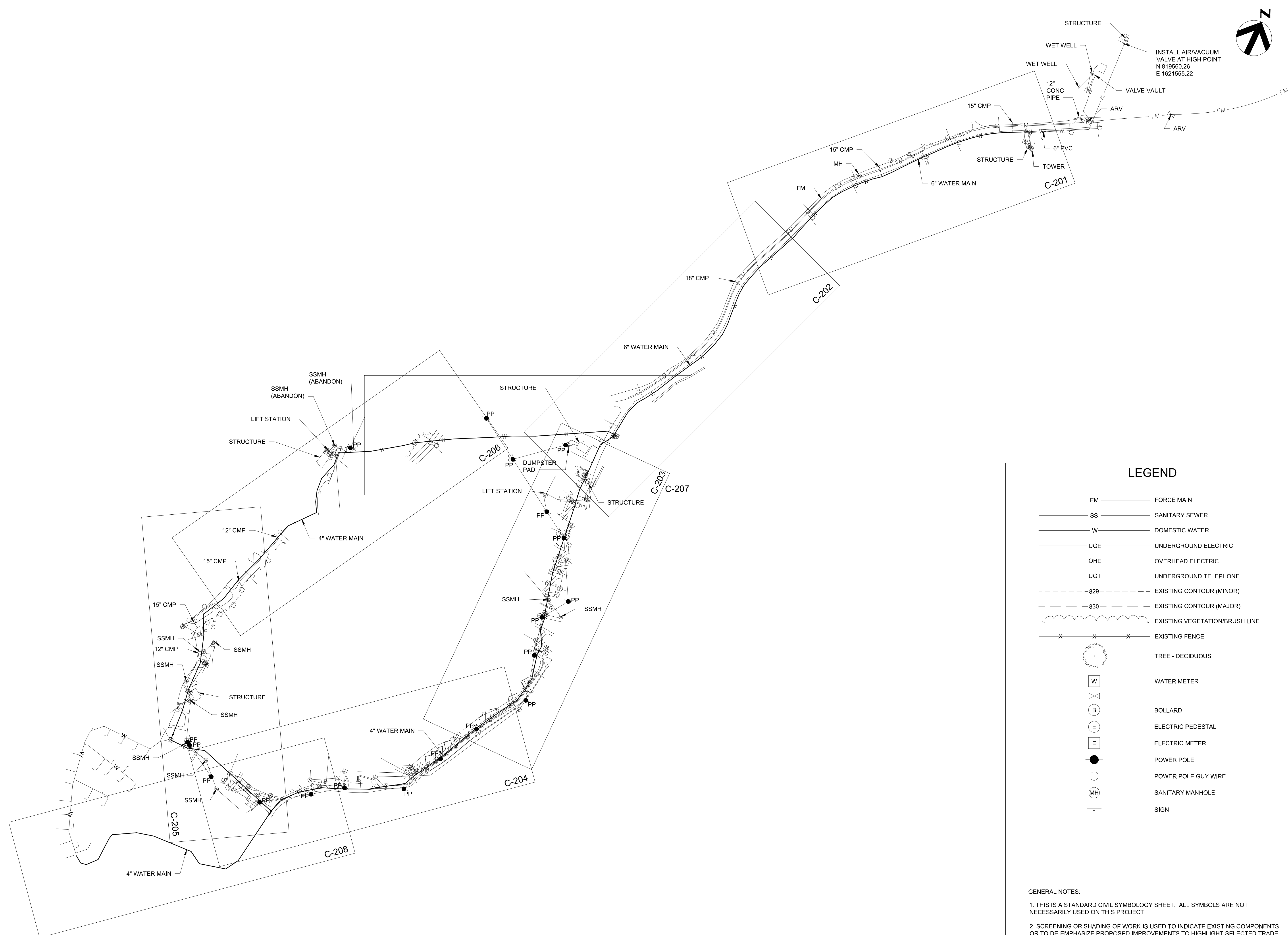
CAD DWG FILE: C-101  
DRAWN BY: RJL/TLD  
CHECKED BY: TJH  
DESIGNED BY: TJH

SHEET TITLE:  
**HOMESTEAD  
CAMPGROUND  
SITE PLAN**

SHEET NUMBER:

**C-200**

SHEET 15 OF 25  
DATE: JULY 30, 2024

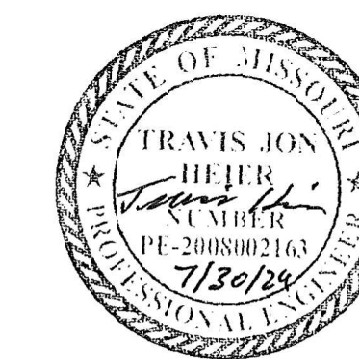


**LEGEND**

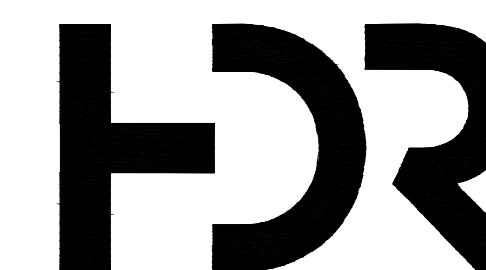
FM	FORCE MAIN
SS	SANITARY SEWER
W	DOMESTIC WATER
UGE	UNDERGROUND ELECTRIC
OHE	OVERHEAD ELECTRIC
UGT	UNDERGROUND TELEPHONE
- - - - -	EXISTING CONTOUR (MINOR)
- - - - -	EXISTING CONTOUR (MAJOR)
~~~~~	EXISTING VEGETATION/BRUSH LINE
X X X	EXISTING FENCE
(Tree symbol)	TREE - DECIDUOUS
(W symbol)	WATER METER
(B symbol)	BOLLARD
(E symbol)	ELECTRIC PEDESTAL
(E symbol)	ELECTRIC METER
(● symbol)	POWER POLE
(GUY symbol)	POWER POLE GUY WIRE
(MH symbol)	SANITARY MANHOLE
(S symbol)	SIGN

**GENERAL NOTES:**  
1. THIS IS A STANDARD CIVIL SYMBOLOLOGY SHEET. ALL SYMBOLS ARE NOT NECESSARILY USED ON THIS PROJECT.  
2. SCREENING OR SHADING OF WORK IS USED TO INDICATE EXISTING COMPONENTS OR TO DE-EMPHASIZE PROPOSED IMPROVEMENTS TO HIGHLIGHT SELECTED TRADE WORK. REFER TO CONTEXT OF EACH SHEET FOR USAGE.



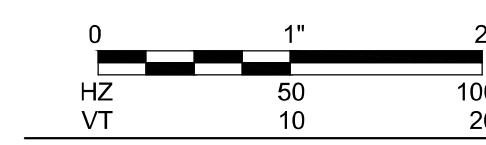


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PROJECT # X2307-02  
SITE # 5306  
FACILITY # 7815306134  
INFRASTRUCTURE #  
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REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
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DATE: \_\_\_\_\_  
ISSUE DATE: \_\_\_\_\_

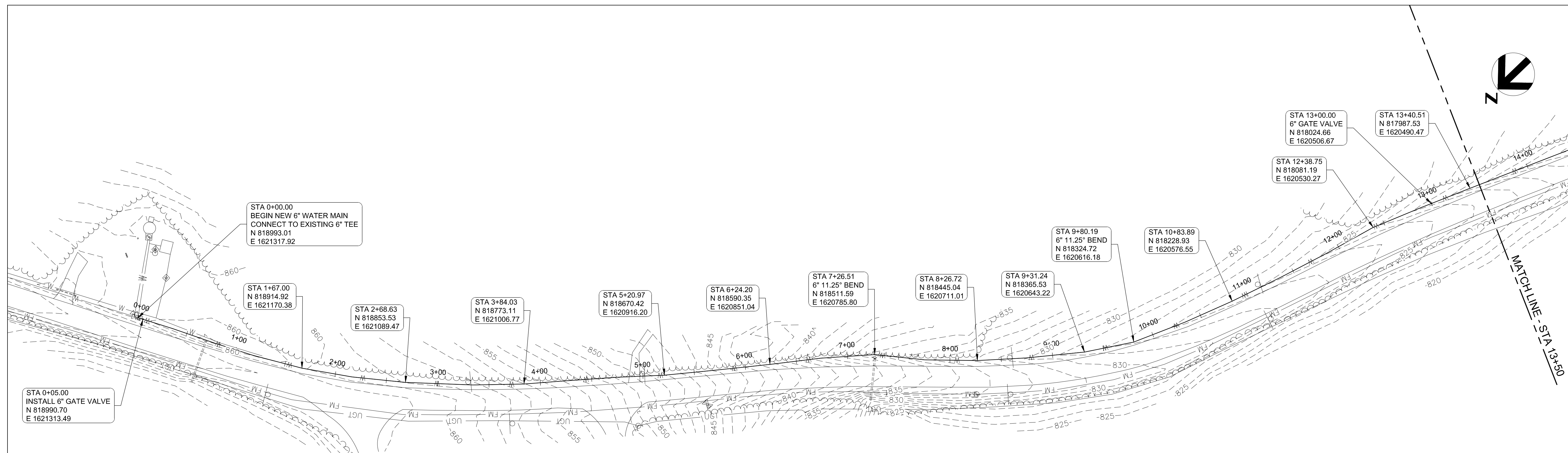
CAD DWG FILE: C-201  
DRAWN BY: RJL  
CHECKED BY: TJH  
DESIGNED BY: TJH

SHEET TITLE:  
**WATER LINE  
PLAN & PROFILE**

SHEET NUMBER:

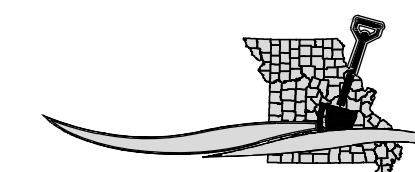
**C-201**

SHEET 16 OF 25  
DATE: JULY 30, 2024

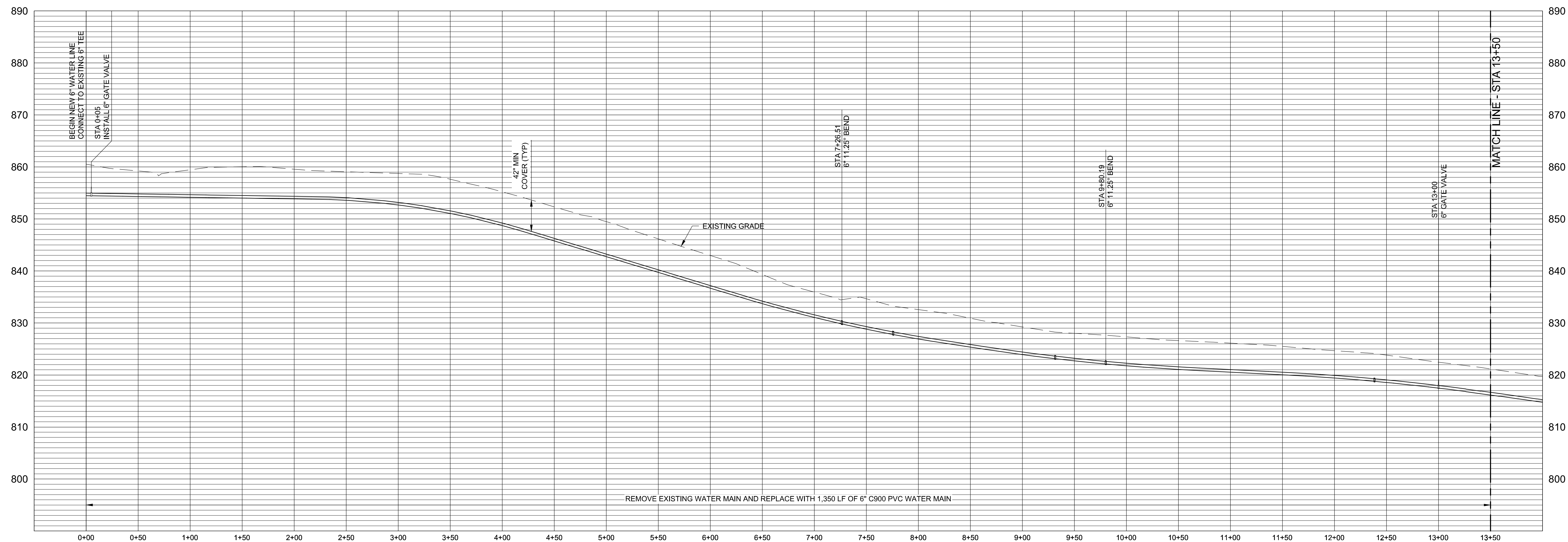


NOTES:

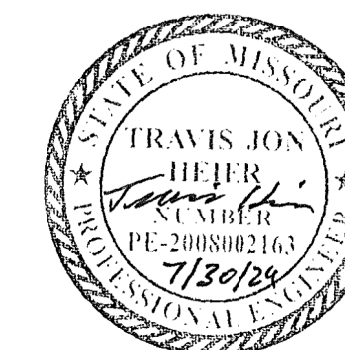
- EXISTING WATER LINE LOCATION INFORMATION IS BASED ON SURVEYED UTILITY LOCATES. CONTRACTOR SHALL REMOVE AND REPLACE EXISTING WATER LINE AND PROVIDE ALL HORIZONTAL AND VERTICAL FITTINGS NECESSARY TO COMPLETE CONSTRUCT OF NEW WATER LINE.
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- ALL FITTINGS SHALL HAVE THRUST BLOCKS OR OTHER APPROVED RESTRAINTS.



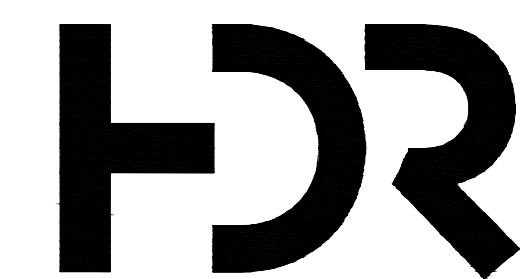
MISSOURI  
ONE CALL SYSTEM  
Locate Request - 24/7  
1-800-344-7483 or 811





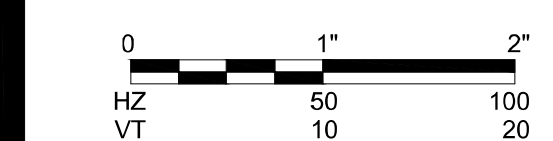


TRAVIS J. HEIER  
MO PE-2008002163  
07/30/24



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AUTHORITY #: 000856

PO BOX 969, 187 E. DAVID ST.  
FORSYTH, MO 65653  
417-546-3218



OFFICE OF ADMINISTRATION  
DIVISION OF FACILITIES  
MANAGEMENT,  
DESIGN AND CONSTRUCTION

DEPARTMENT OF NATURAL  
RESOURCES

LAKE OF THE OZARKS  
STATE PARK  
WATER MAIN  
IMPROVEMENTS

MO-134  
KAISER, MO 65047

PROJECT # X2307-02  
SITE # 5306  
FACILITY # 7815306134  
INFRASTRUCTURE #  
7815306238

REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
ISSUE DATE: \_\_\_\_\_

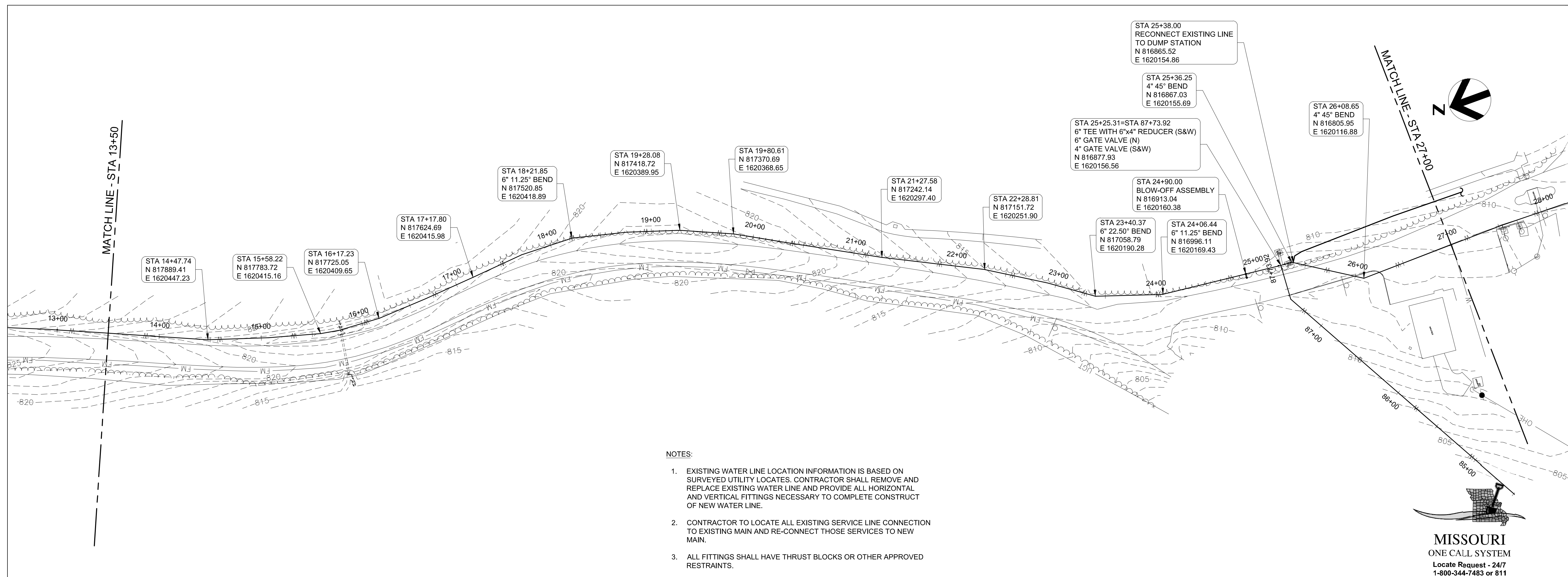
CAD DWG FILE: C-202  
DRAWN BY: RJL  
CHECKED BY: TJH  
DESIGNED BY: TJH

SHEET TITLE:  
**WATER LINE  
PLAN & PROFILE**

SHEET NUMBER:

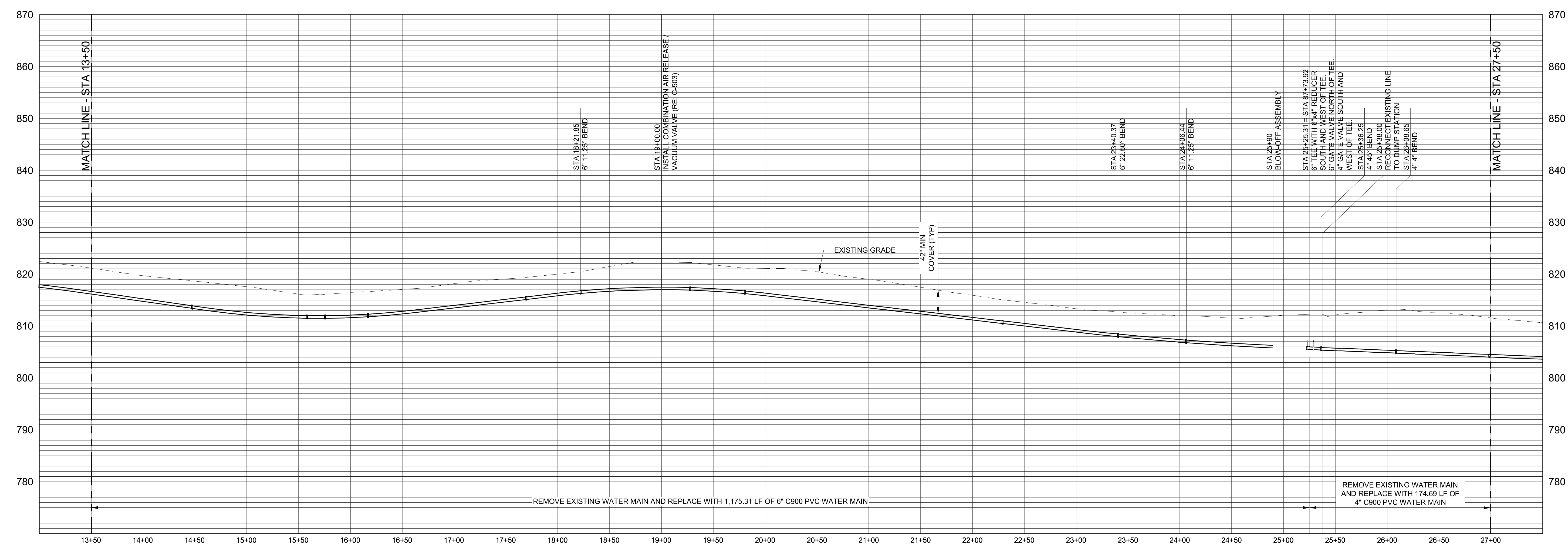
**C-202**

SHEET 17 OF 25  
DATE: JULY 30, 2024



- NOTES:
- EXISTING WATER LINE LOCATION INFORMATION IS BASED ON SURVEYED UTILITY LOCATES. CONTRACTOR SHALL REMOVE AND REPLACE EXISTING WATER LINE AND PROVIDE ALL HORIZONTAL AND VERTICAL FITTINGS NECESSARY TO COMPLETE CONSTRUCT OF NEW WATER LINE.
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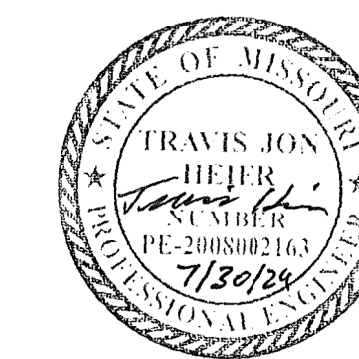
MISSOURI  
ONE CALL SYSTEM  
Locate Request - 247  
1-800-344-7483 or 811



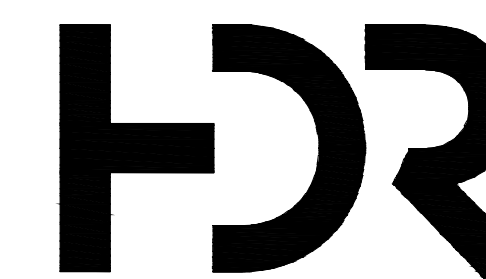
REMOVE EXISTING WATER MAIN AND REPLACE WITH 1,175.31 LF OF 6" C900 PVC WATER MAIN

REMOVE EXISTING WATER MAIN AND REPLACE WITH 174.69 LF OF 4" C900 PVC WATER MAIN



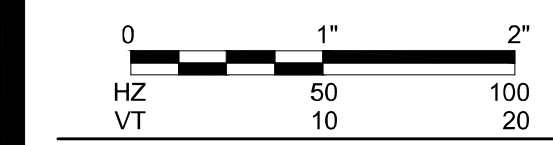


TRAVIS J. HEIER  
MO PE-200802163  
07/30/24



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AUTHORITY #: 000856

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DEPARTMENT OF NATURAL  
RESOURCES

LAKE OF THE OZARKS  
STATE PARK  
WATER MAIN  
IMPROVEMENTS

MO-134  
KAISER, MO 65047

PROJECT # X2307-02  
SITE # 5306  
FACILITY # 7815306134  
INFRASTRUCTURE #  
7815306238

REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
ISSUE DATE: \_\_\_\_\_

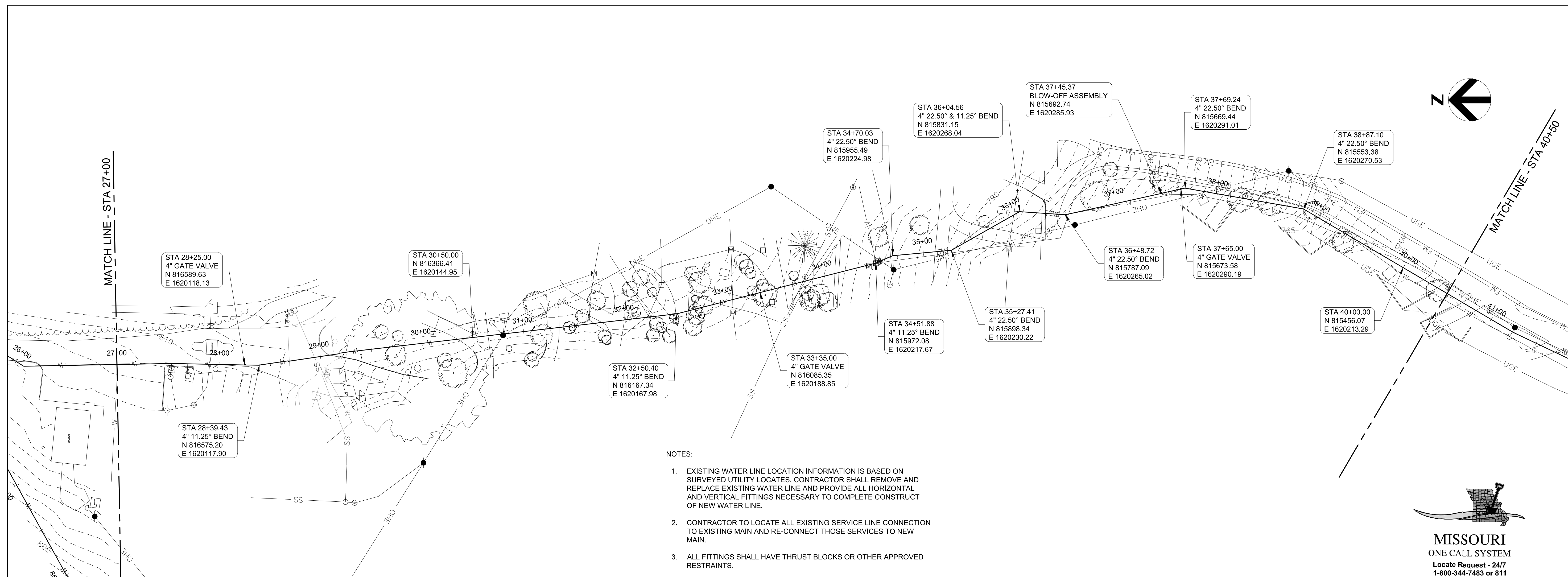
CAD DWG FILE: C-203  
DRAWN BY: RJL  
CHECKED BY: TJH  
DESIGNED BY: TJH

SHEET TITLE:  
**WATER LINE  
PLAN & PROFILE**

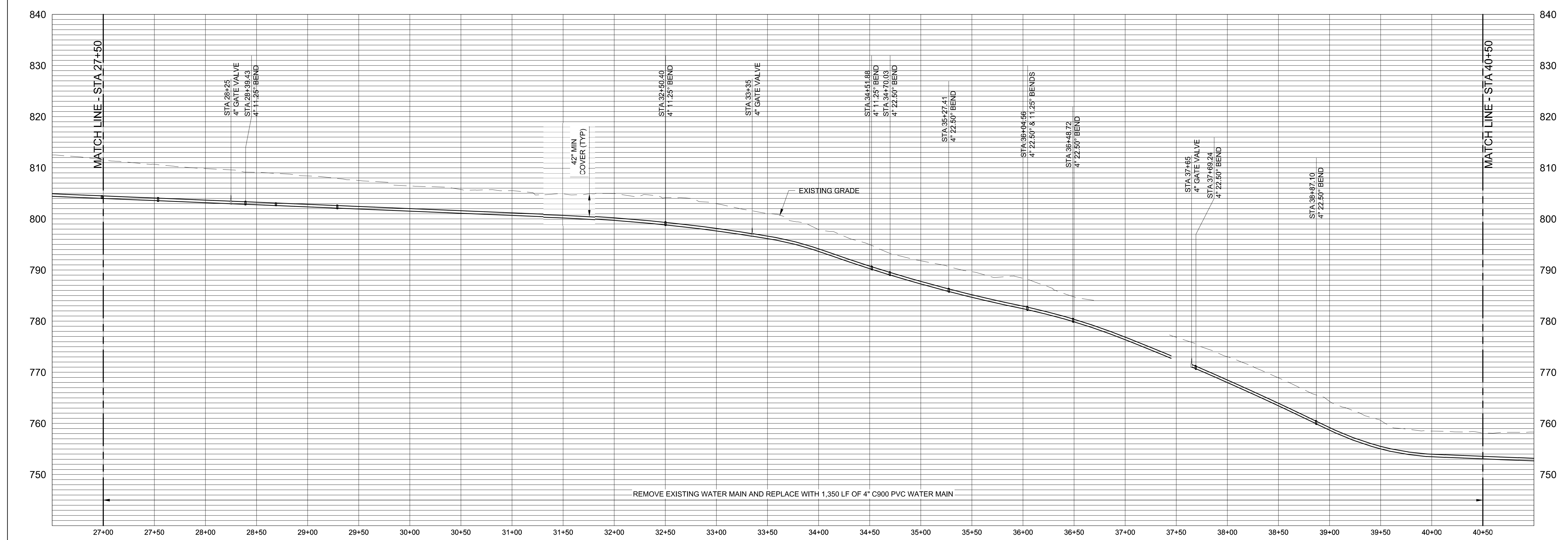
SHEET NUMBER:

**C-203**

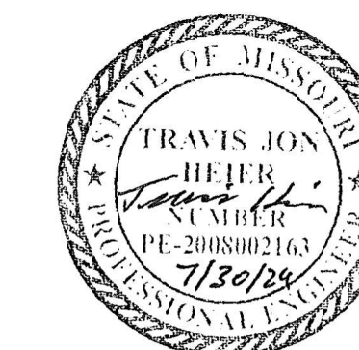
SHEET 18 OF 25  
DATE: JULY 30, 2024



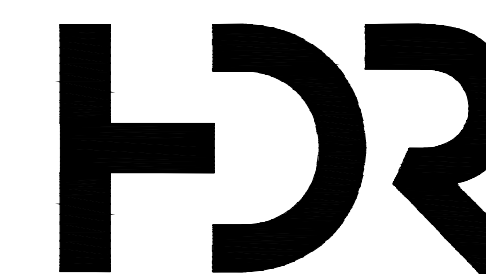
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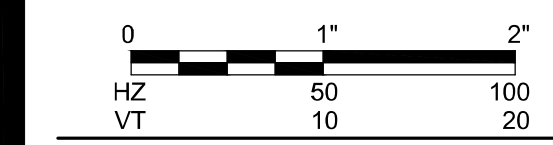


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07/30/24



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DEPARTMENT OF NATURAL  
RESOURCES

LAKE OF THE OZARKS  
STATE PARK  
WATER MAIN  
IMPROVEMENTS

MO-134  
KAISER, MO 65047

PROJECT # X2307-02  
SITE # 5306  
FACILITY # 7815306134  
INFRASTRUCTURE #  
7815306238

REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
ISSUE DATE: \_\_\_\_\_

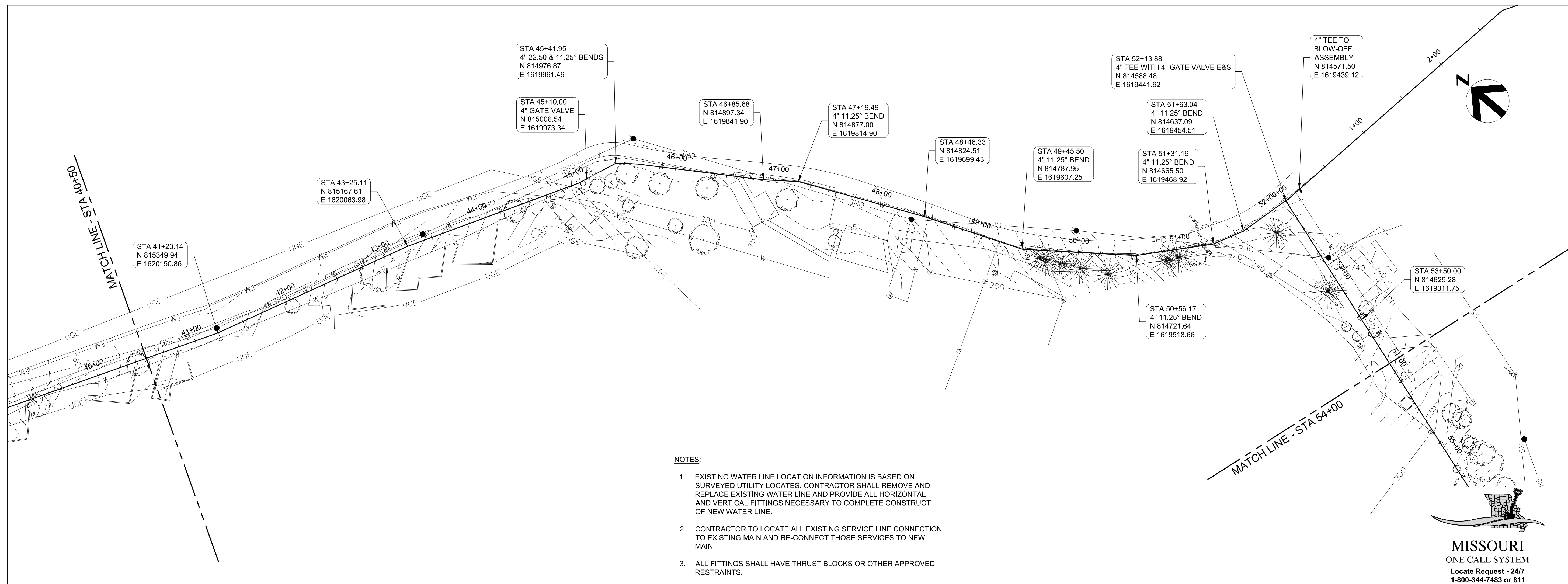
CAD DWG FILE: C-204  
DRAWN BY: RJL  
CHECKED BY: TJH  
DESIGNED BY: TJH

SHEET TITLE:  
**WATER LINE  
PLAN & PROFILE**

SHEET NUMBER:

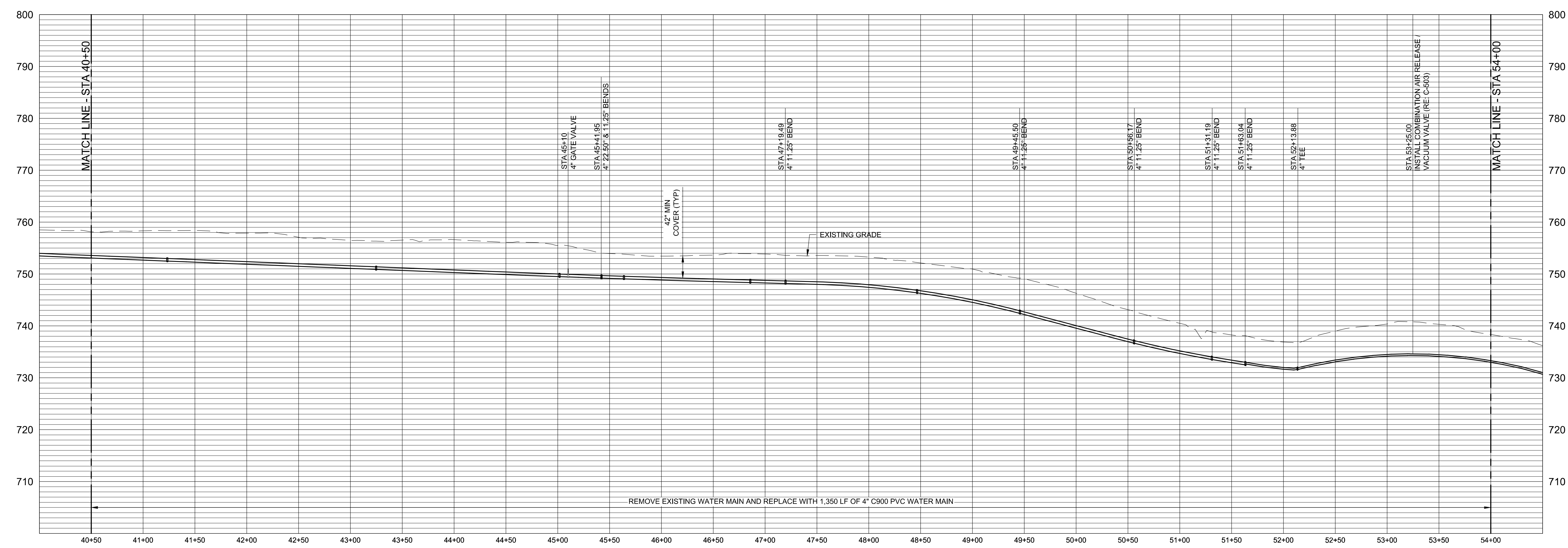
**C-204**

SHEET 19 OF 25  
DATE: JULY 30, 2024

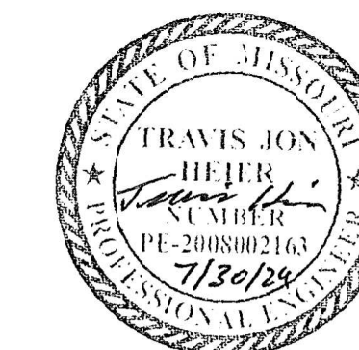


- NOTES:
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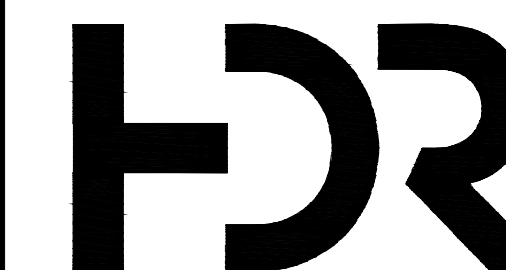
MISSOURI  
ONE CALL SYSTEM  
Locate Request - 24/7  
1-800-344-7483 or 811





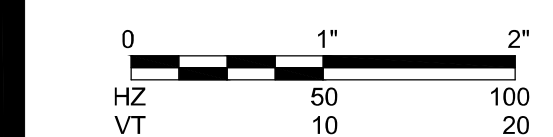


TRAVIS J. HEIER  
MO PE-2008002163  
07/30/24



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AUTHORITY #: 000856

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FORSYTH, MO 65653  
417-546-3218



OFFICE OF ADMINISTRATION  
DIVISION OF FACILITIES  
MANAGEMENT,  
DESIGN AND CONSTRUCTION

DEPARTMENT OF NATURAL  
RESOURCES

LAKE OF THE OZARKS  
STATE PARK  
WATER MAIN  
IMPROVEMENTS

MO-134  
KAISER, MO 65047

PROJECT # X2307-02  
SITE # 5306  
FACILITY # 7815306134  
INFRASTRUCTURE #  
7815306238

REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
ISSUE DATE: \_\_\_\_\_

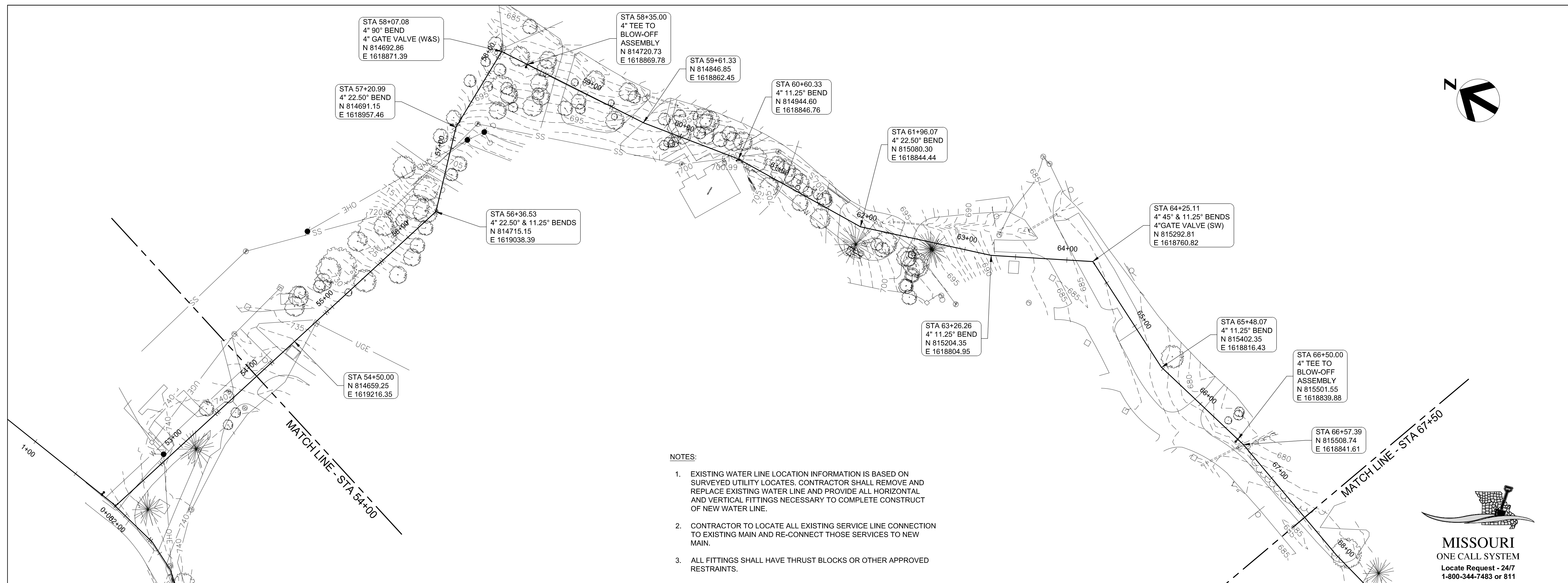
CAD DWG FILE: C-205  
DRAWN BY: RJL  
CHECKED BY: TJH  
DESIGNED BY: TJH

SHEET TITLE:  
**WATER LINE  
PLAN & PROFILE**

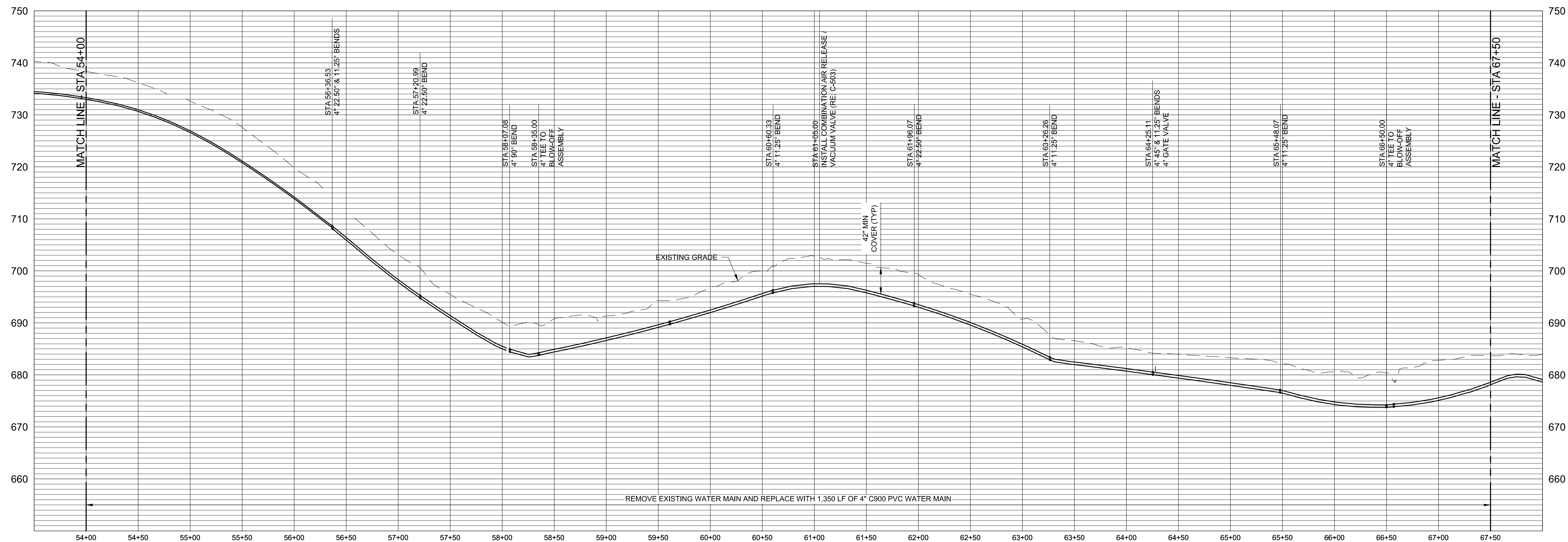
SHEET NUMBER:

**C-205**

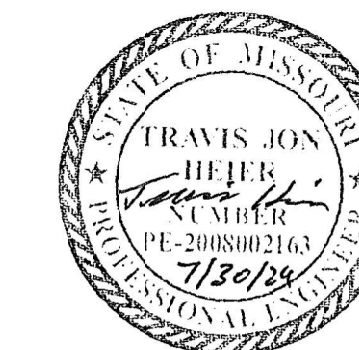
SHEET 20 OF 25  
DATE: JULY 30, 2024



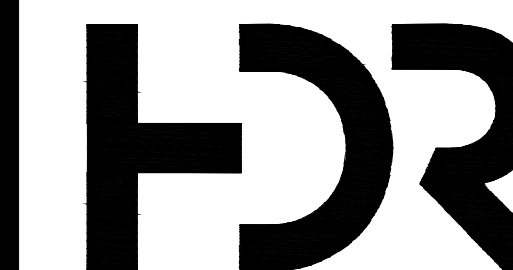
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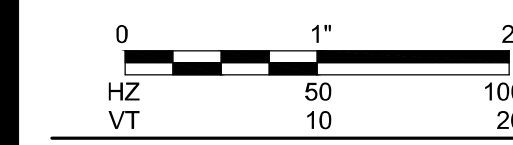


TRAVIS J. HEIER  
MO PE-2008002163  
07/30/24



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AUTHORITY #: 000856

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OFFICE OF ADMINISTRATION  
DIVISION OF FACILITIES  
MANAGEMENT,  
DESIGN AND CONSTRUCTION

DEPARTMENT OF NATURAL  
RESOURCES

LAKE OF THE OZARKS  
STATE PARK  
WATER MAIN  
IMPROVEMENTS

MO-134  
KAISER, MO 65047

PROJECT # X2307-02  
SITE # 5306  
FACILITY # 7815306134  
INFRASTRUCTURE #  
7815306238

REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
ISSUE DATE: \_\_\_\_\_

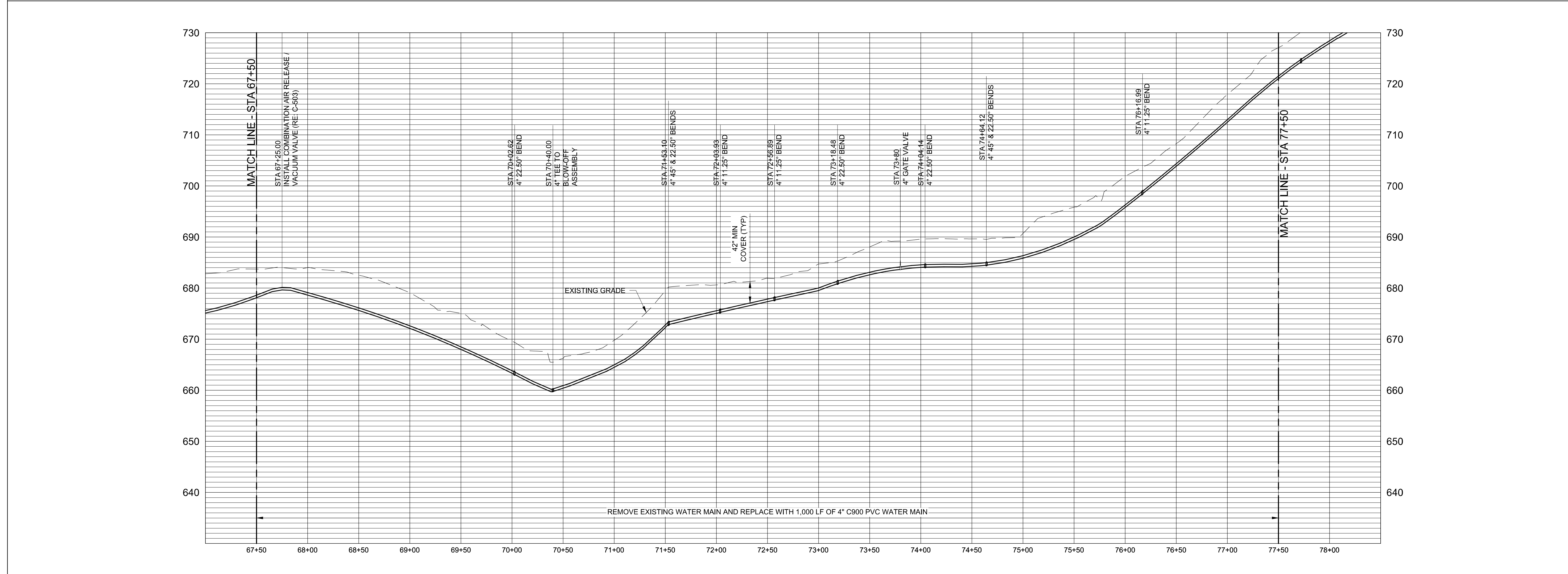
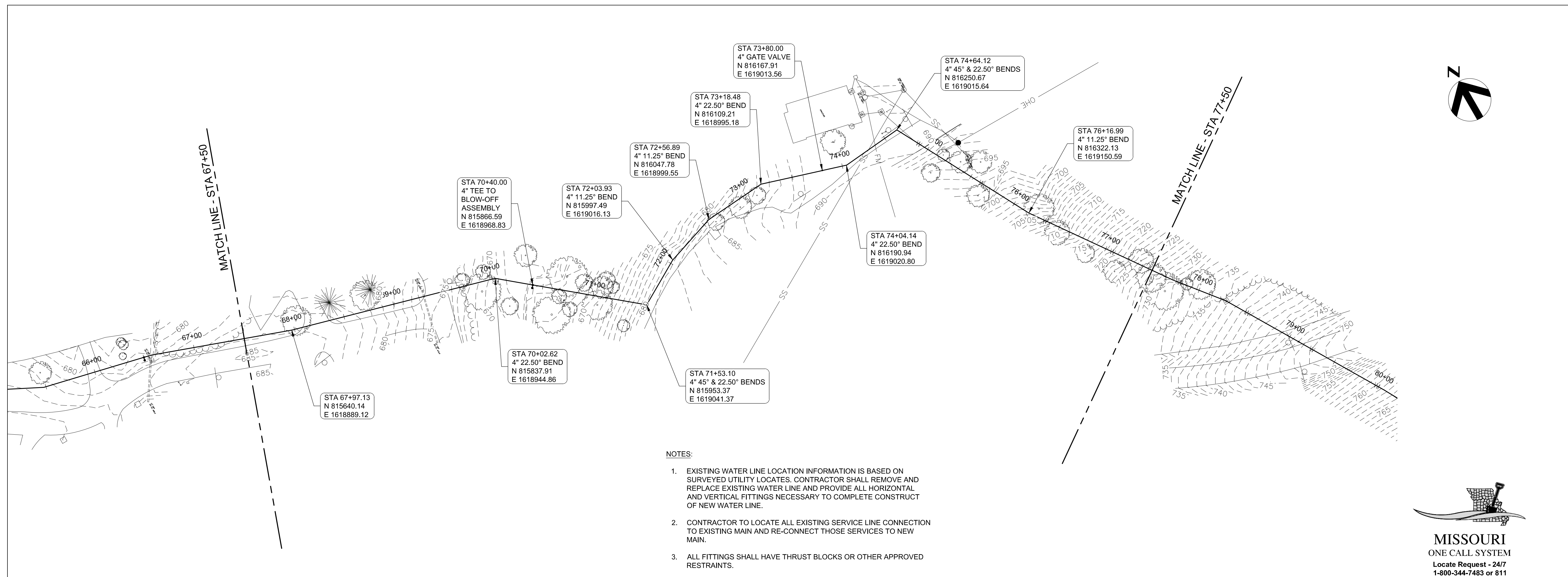
CAD DWG FILE: C-206  
DRAWN BY: RJL  
CHECKED BY: TJH  
DESIGNED BY: TJH

SHEET TITLE:  
**WATER LINE  
PLAN 7 PROFILE**

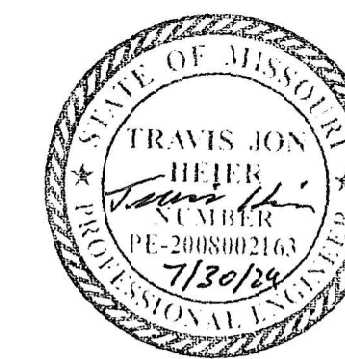
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**C-206**

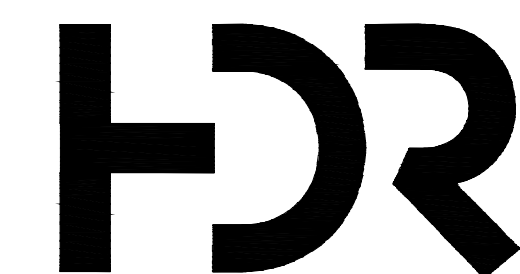
SHEET 21 OF 25  
DATE: JULY 30, 2024





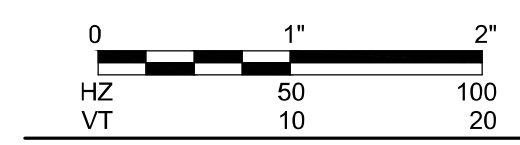


TRAVIS J. HEIER  
MO PE-2008002163  
07/30/24



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DIVISION OF FACILITIES  
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RESOURCES

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STATE PARK  
WATER MAIN  
IMPROVEMENTS

MO-134  
KAISER, MO 65047

PROJECT # X2307-02  
SITE # 5306  
FACILITY # 7815306134  
INFRASTRUCTURE #  
7815306238

REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
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REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
ISSUE DATE: \_\_\_\_\_

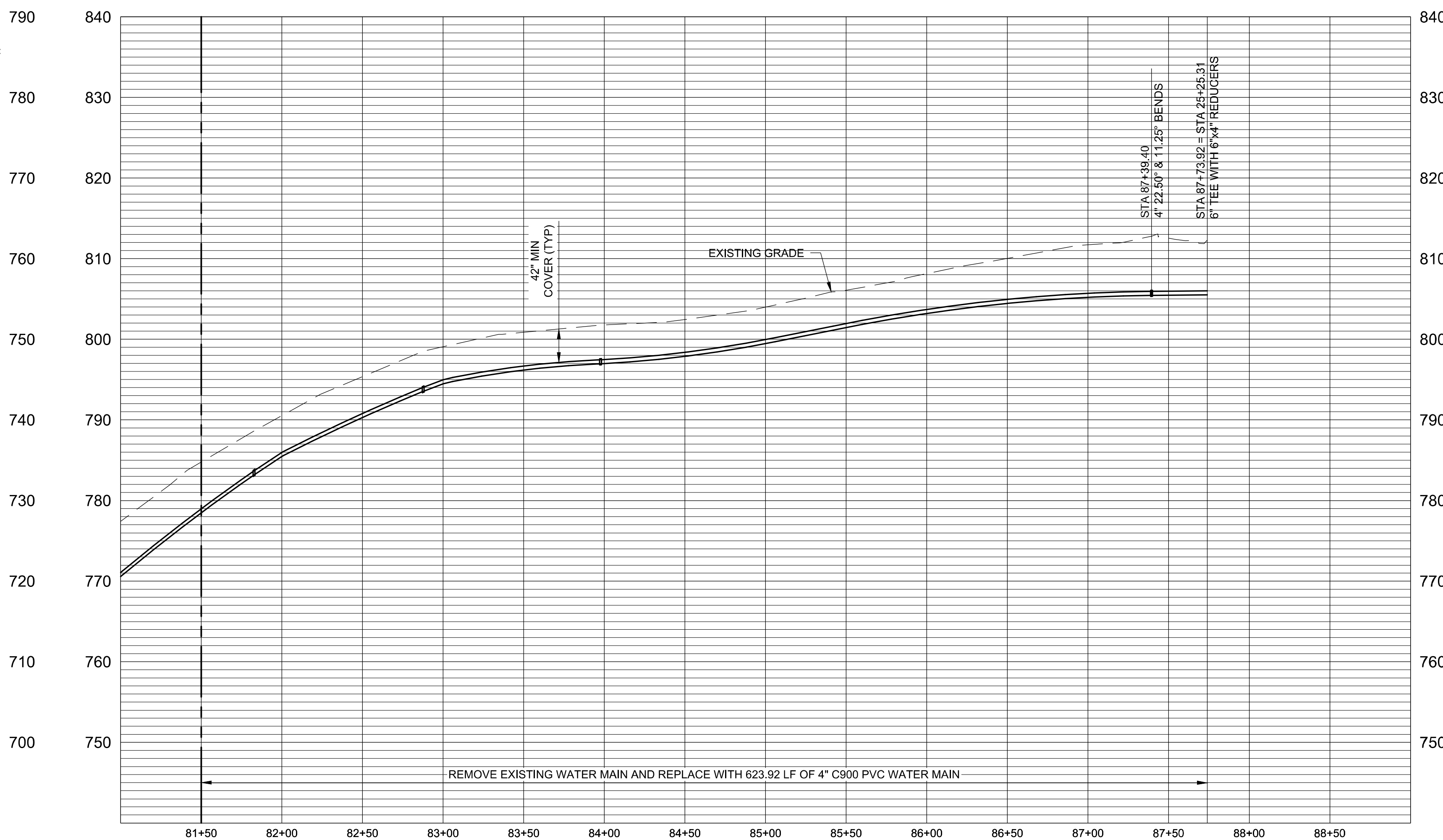
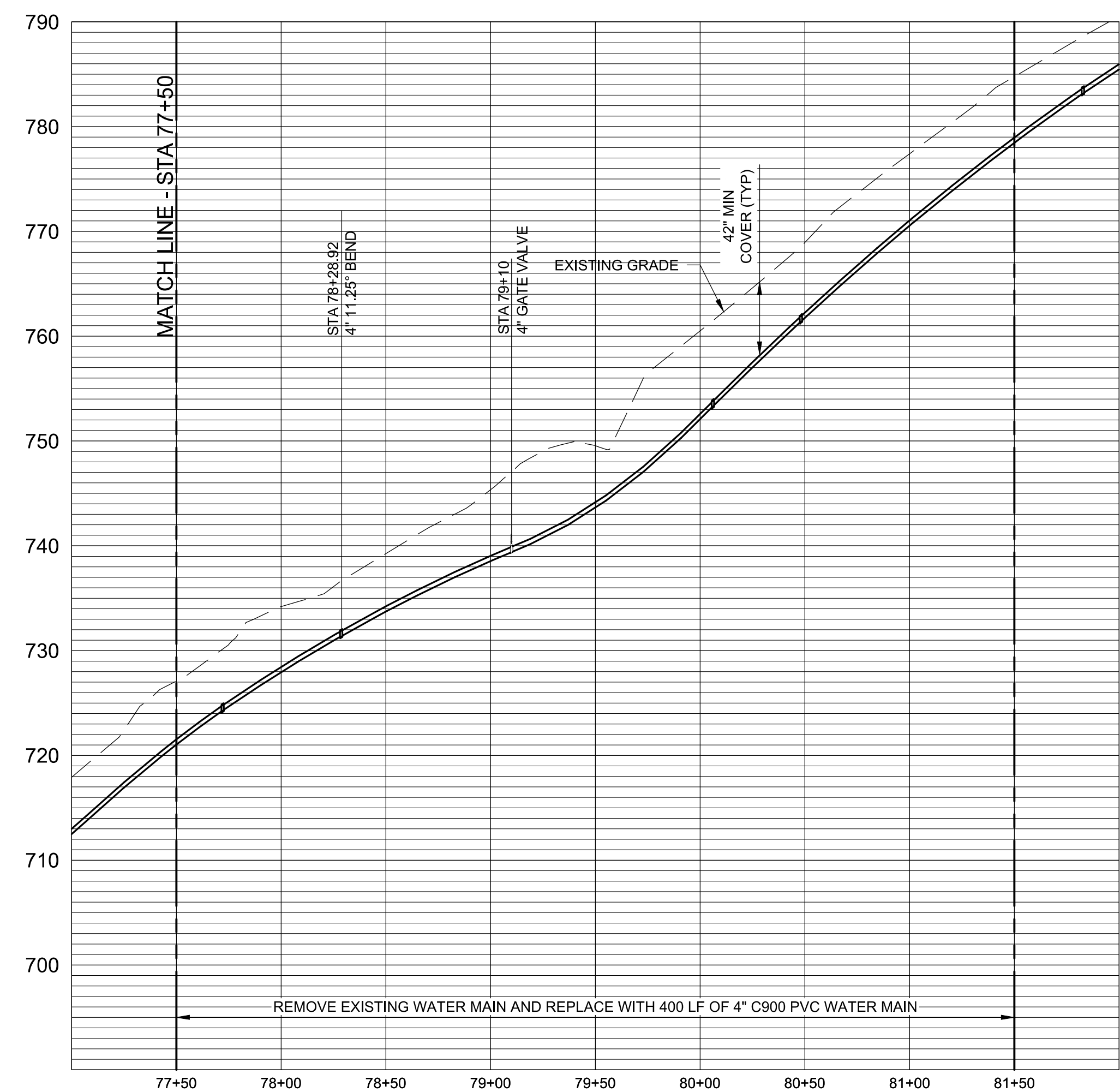
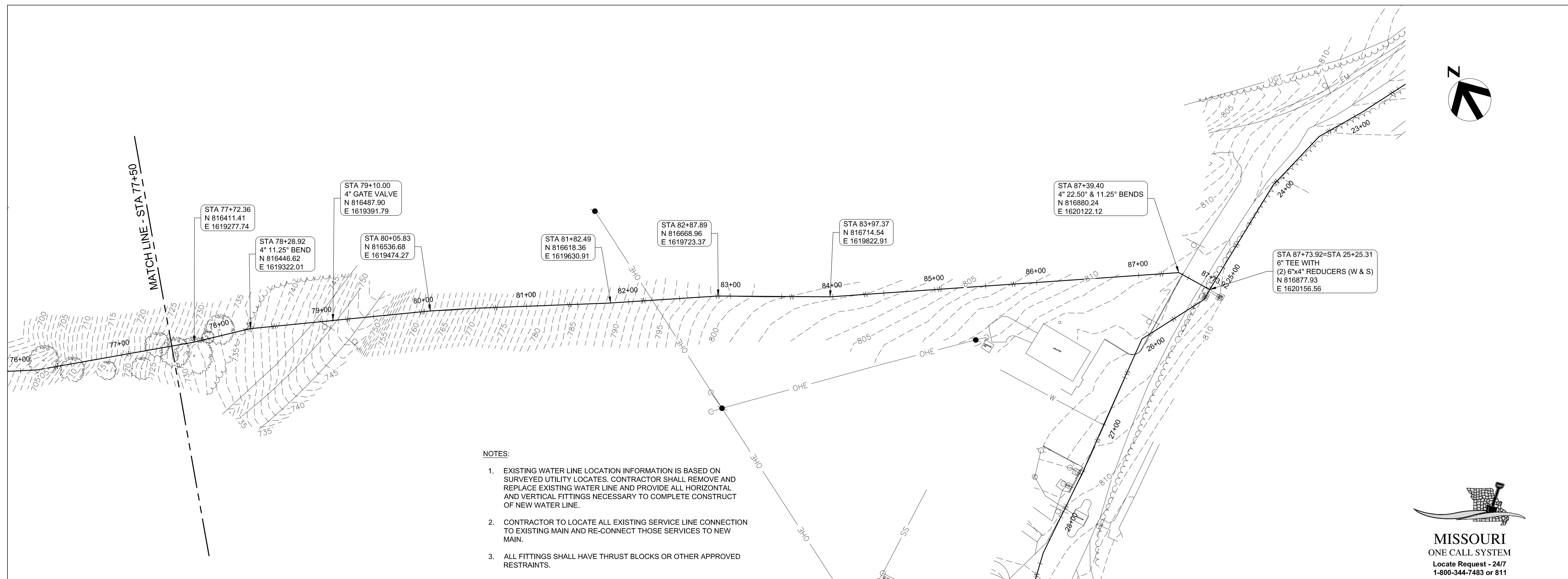
CAD DWG FILE: C-207  
DRAWN BY: RJL  
CHECKED BY: TJH  
DESIGNED BY: TJH

SHEET TITLE:  
**WATER LINE  
PLAN & PROFILE**

SHEET NUMBER:

**C-207**

SHEET 22 OF 25  
DATE: JULY 30, 2024







STA 52+13.88  
4" TEE WITH 4" GATE VALVE E&S  
N 814388.48  
E 1619441.62

STA 0+17.17  
4" TEE TO  
BLOW-OFF  
ASSEMBLY  
N 814571.50  
E 1619439.12

STA 2+78.96  
4" 22.50° BEND  
N 814312.68  
E 1619399.83

STA 3+50.05  
4" 45° BEND  
N 814251.83  
E 1619363.07

STA 4+76.67  
4" 45° BEND  
N 814221.48  
E 1619240.14

STA 6+46.53  
4" 22.50° & 11.25° BENDS  
N 814257.60  
E 1619180.34

STA 11+29.67  
4" 45° BEND  
N 813993.08  
E 1618759.13

STA 11+56.94  
4" 45° BEND  
N 813988.52  
E 1618732.13

STA 11+88.83  
BLOW-OFF ASSEMBLY  
AT LOWEST POINT  
N 814006.56  
E 1618705.83

STA 11+93.83  
4" 11.25° BEND  
CONNECT TO  
EXIST 4" WATER  
N 814009.40  
E 1618701.72

STA 7+37.37  
4" 11.25° BEND  
N 814248.72  
E 1618989.71

STA 8+18.53  
4" 11.25° BEND  
N 814229.27  
E 1618910.91

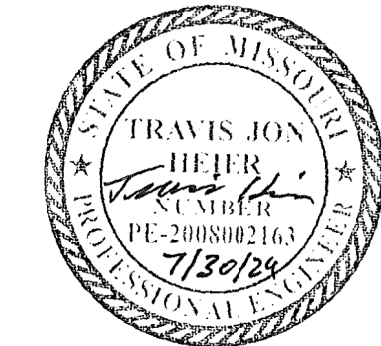
STA 9+33.84  
4" 45° BEND  
N 814172.38  
E 1618810.61

STA 9+55.41  
4" 11.25° BEND  
N 814151.59  
E 1618804.87

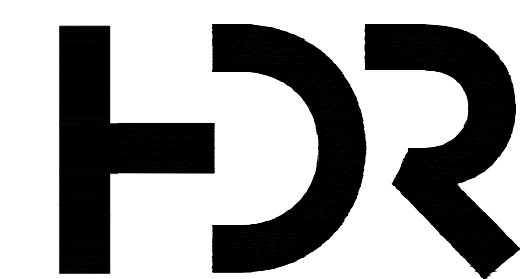
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STATE OF MISSOURI  
MICHAEL L. PARSON,  
GOVERNOR

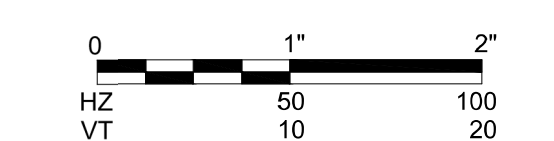


TRAVIS J. HEIER  
MO PE-2008002163  
07/30/24



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AUTHORITY #: 000856

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OFFICE OF ADMINISTRATION  
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RESOURCES

LAKE OF THE OZARKS  
STATE PARK  
WATER MAIN  
IMPROVEMENTS

MO-134  
KAISER, MO 65047

PROJECT # X2307-02  
SITE # 5306  
FACILITY # 7815306134  
INFRASTRUCTURE #  
7815306238

REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_

ISSUE DATE: \_\_\_\_\_

CAD DWG FILE: C-208  
DRAWN BY: RJL  
CHECKED BY: TJH  
DESIGNED BY: TJH

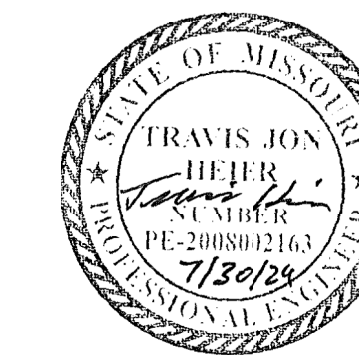
SHEET TITLE:  
WATER LINE  
PLAN & PROFILE

SHEET NUMBER:

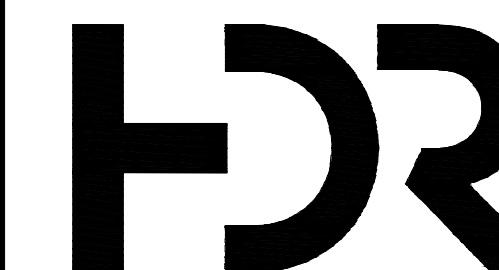
C-208

SHEET 23 OF 25  
DATE: JULY 30, 2024



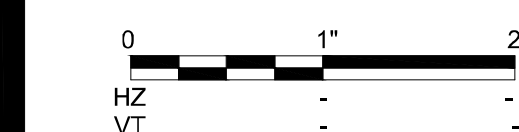


TRAVIS J. HEIER  
MO PE-200802163  
07/30/24



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MO-134  
KAISER, MO 65047

PROJECT # X2307-02  
SITE # 5306

FACILITY #  
INFRASTRUCTURE #  
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REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
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DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
ISSUE DATE: \_\_\_\_\_

CAD DWG FILE: C-501  
DRAWN BY: RJL/TLD  
CHECKED BY: TJH  
DESIGNED BY: TJK

SHEET TITLE:  
**STANDARD  
DETAILS**

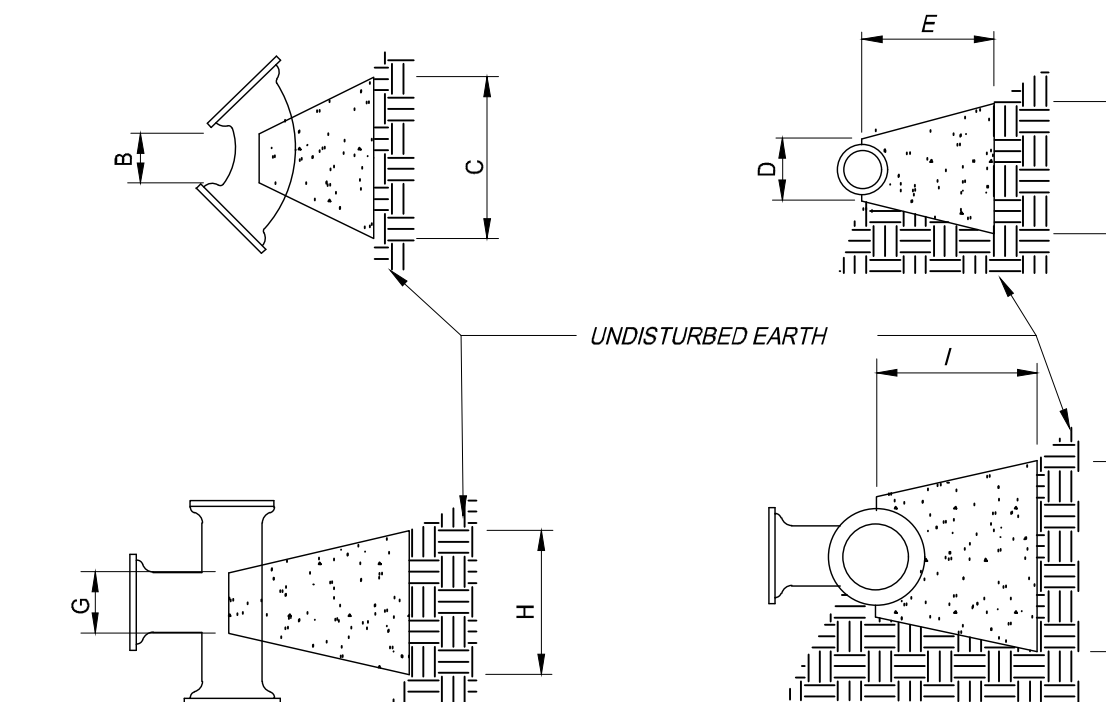
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**C-501**

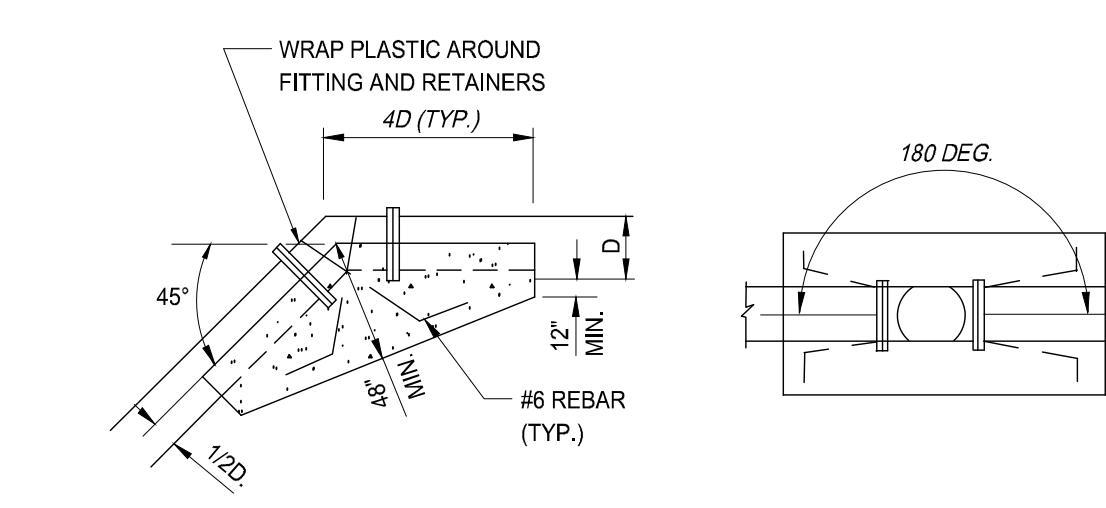
SHEET 24 OF 25  
DATE: JULY 30, 2024

BENDS	B	C	D	E	F	BENDS	B	C	D	E	F
2" 11 1/4 DEG	4"	10"	6"	18"	12"	2" 45 DEG.	4"	12"	6"	18"	12"
2" 22 1/2 DEG	4"	10"	6"	18"	12"	2" 90 DEG.	4"	14"	6"	18"	12"
3" 11 1/4 DEG	6"	12"	9"	18"	12"	3" 35 DEG.	6"	16"	9"	18"	12"
3" 22 1/2 DEG	6"	12"	9"	18"	12"	3" 90 DEG.	6"	18"	9"	18"	12"
4" 11 1/4 DEG	8"	14"	12"	24"	12"	4" 45 DEG.	6"	20"	12"	20"	12"
4" 22 1/2 DEG	8"	14"	12"	24"	12"	4" 90 DEG.	6"	24"	12"	24"	12"
6" 11 1/4 DEG	8"	16"	12"	24"	12"	6" 45 DEG.	8"	30"	12"	24"	14"
6" 22 1/2 DEG	8"	19"	12"	24"	13"	6" 90 DEG.	8"	30"	12"	24"	27"
8" 11 1/4 DEG	8"	20"	12"	24"	12"	8" 45 DEG.	8"	30"	12"	24"	24"
8" 22 1/2 DEG	8"	22"	12"	24"	17"	8" 90 DEG.	8"	38"	12"	24"	36"
10" 11 1/4 DEG	8"	25"	12"	24"	15"	10" 45 DEG.	8"	46"	12"	24"	48"
10" 22 1/2 DEG	8"	27"	12"	24"	24"	10" 90 DEG.	8"	70"	12"	24"	64"
12" 11 1/4 DEG	8"	30"	12"	24"	15"	12" 45 DEG.	8"	45"	12"	24"	48"
12" 22 1/2 DEG	8"	35"	12"	24"	25"	12" 90 DEG.	8"	70"	12"	24"	64"

TEES	G	H	I	J	TEES	G	H	I	J
2" X 2" X 2"	4"	12"	18"	12"	10" X 10" X 6"	12"	24"	24"	18"
3" X 3" X 3"	8"	12"	18"	12"	10" X 10" X 8"	12"	24"	24"	24"
4" X 4" X 4"	12"	24"	24"	16"	10" X 10" X 10"	12"	24"	24"	24"
6" X 6" X 6"	12"	24"	24"	18"	12" X 12" X 6"	12"	24"	24"	18"
8" X 8" X 6"	12"	24"	24"	18"	12" X 12" X 8"	12"	24"	24"	24"
8" X 8" X 8"	12"	24"	24"	24"	12" X 12" X 12"	12"	36"	24"	36"



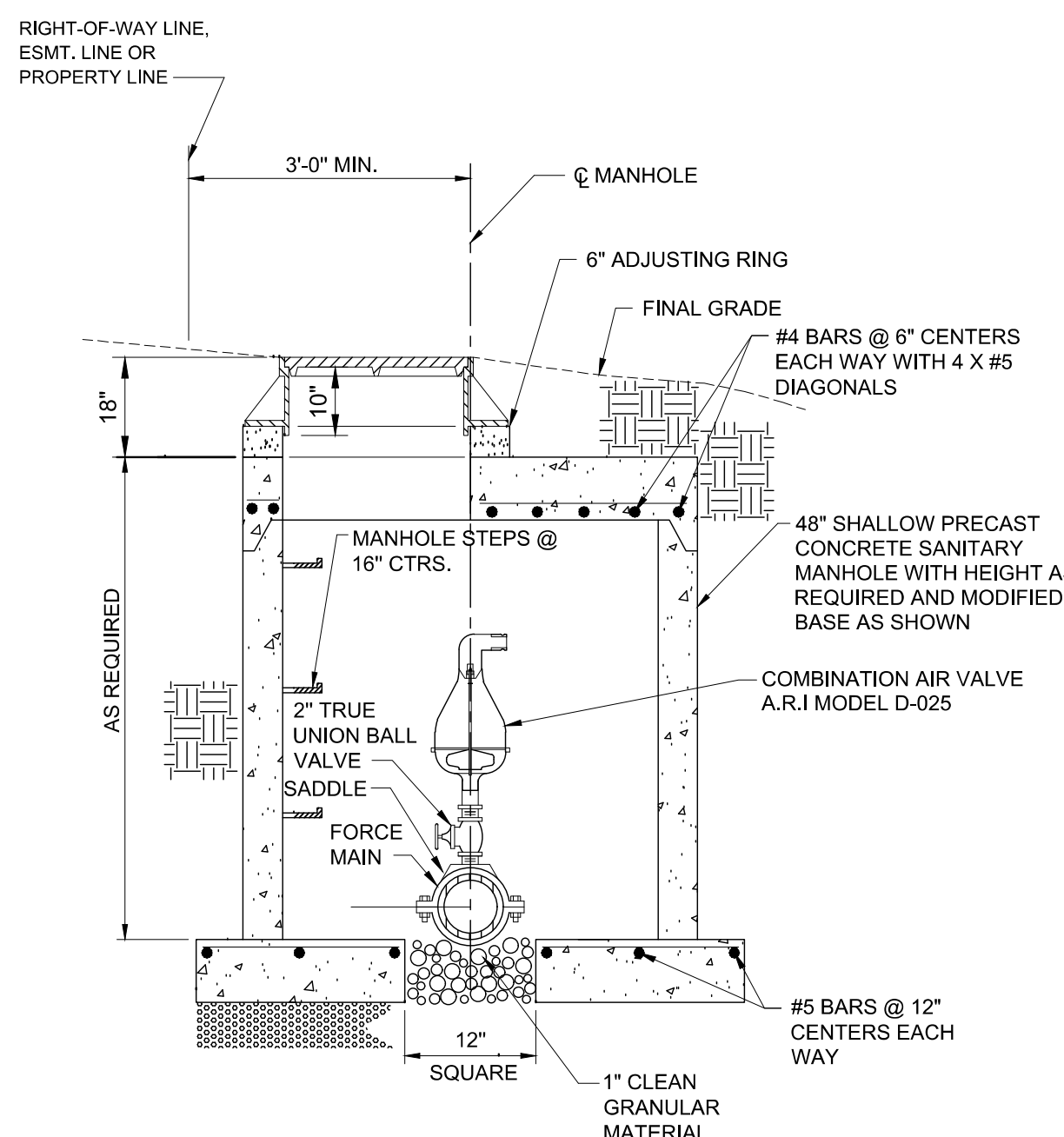
CONCRETE THRUST BLOCK DETAIL  
NOT TO SCALE



NOTE: MJ FITTING WITH RETAINER GLANDS REQUIRED @ ALL VERTICAL BENDS.

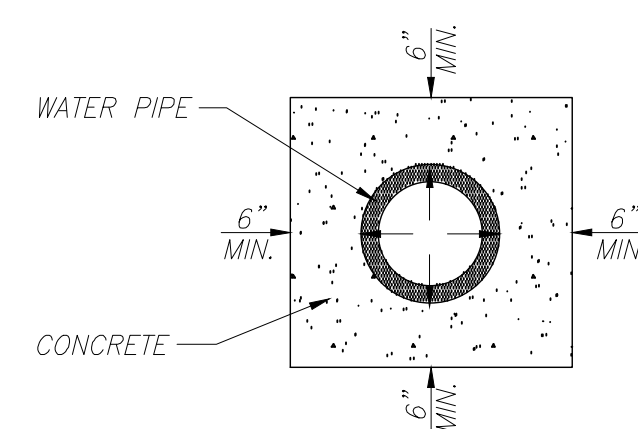
VERTICAL BEND DETAIL  
NOT TO SCALE

- NOTES:
- UNLESS OTHERWISE NOTED, ALL PIPE SHALL BE PVC.
  - ALL UTILITIES ARE LOCATED FROM BEST AVAILABLE INFORMATION. CONTRACTOR SHALL FIELD VERIFY LOCATIONS PRIOR TO CONSTRUCTION.
  - ALL LINES SHALL HAVE 42" MINIMUM COVER.
  - ALL FIRE HYDRANTS ARE REQUIRED TO HAVE (1) 1/4-1/2" AND (2) 2-1/2" NOZZLES.
  - ALL BACKFILL SHALL BE TAMPED.
  - WHERE NEW WATER LINES CROSS EXISTING UTILITY LINES, NEW WATER LINES SHALL BE ROUTED ABOVE OR BELOW EXISTING UTILITY LINES, MAINTAINING 18" MINIMUM SEPARATION BETWEEN LINES, OR AS REQUIRED BY DNR, WHICHEVER IS GREATER. WATER LINE JOINTS SHALL BE A MINIMUM OF 10' FROM THE CROSSING, MEASURED HORIZONTALLY FROM THE CENTER OF THE CROSSING. WHERE FITTINGS FOR BENDS ARE REQUIRED, THEY SHALL BE MJ TYPE WITH RETAINER GLANDS, WITH THRUST BLOCKS AS REQUIRED. MAINTAIN SPECIFIED LINE COVER AT ALL TIMES.

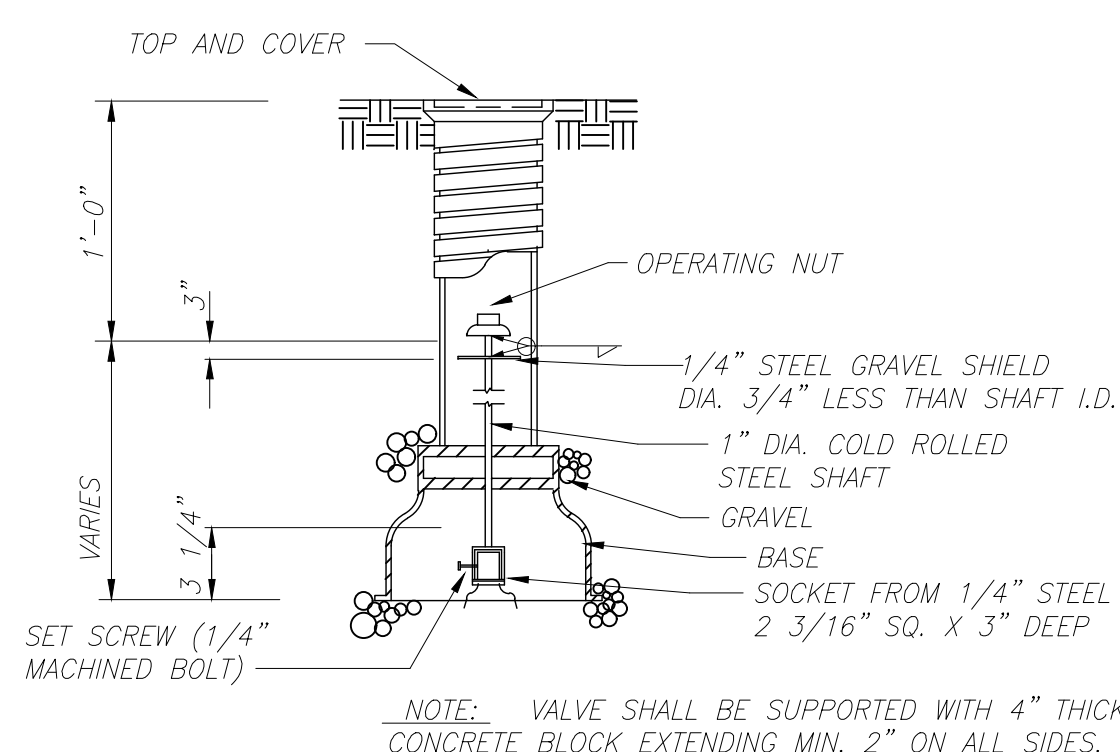


- NOTES:
- AIR-VACUUM VALVE INSTALLATIONS POSITION RING AND COVER ON AIR-VACUUM VALVE ASSEMBLY MANHOLES NEAREST TO RIGHT-OF-WAY LINE, EASEMENT LINE, OR PROPERTY LINE AS PRACTICABLE. INSTALL WARNING SIGN APPROXIMATELY 3' ON RIGHT-OF-WAY OR EASEMENT LINE ADJACENT TO MANHOLE. WARNING SIGN SHALL BE A MINIMUM 16 GAUGE, WHITE BACKGROUND WITH RED LETTER DENOTING "CAUTION SEWER". SIGN SHALL BE APPROXIMATELY 8" WIDE, 12" TALL, AND SHALL BE BOLTED TO A SUITABLE GALVANIZED POST A MINIMUM OF 6' IN LENGTH. SIGN SHALL BE POSITIONED WITH THE TOP OF THE SIGN APPROXIMATELY 42" ABOVE GRADE.
  - CONTRACTOR SHALL PROVIDE ADEQUATE PIPE BACKING AND SUPPORT.
  - CONTRACTOR SHALL PROVIDE ALL NECESSARY FITTINGS TO COMPLETE INSTALLATION TO DIFFERENT SIZE PRESSURE SEWER LINES.

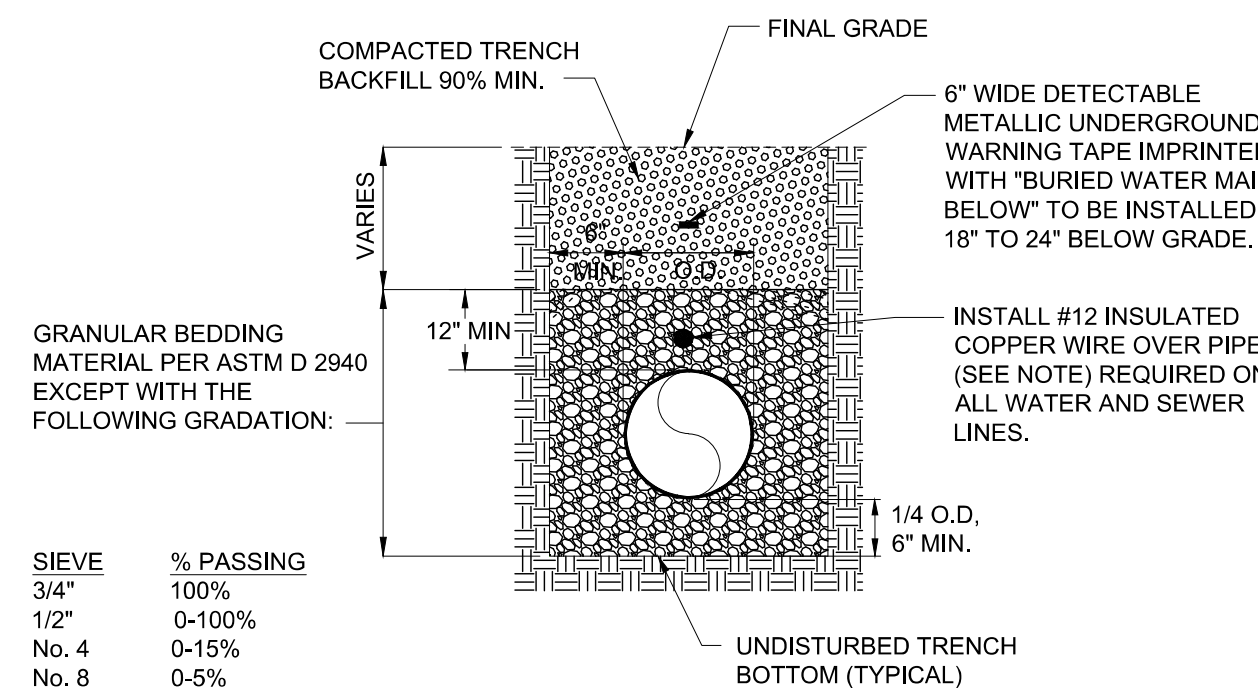
COMBINATION AIR RELEASE/VACUUM VALVE DETAIL  
NOT TO SCALE



CONCRETE ENCASEMENT DETAIL  
NOT TO SCALE



SCREW SHAFT TYPE VALVE BOX DETAIL  
NOT TO SCALE



SIEVE	% PASSING
3/4"	100%
1/2"	0-100%
No. 4	0-15%
No. 8	0-5%

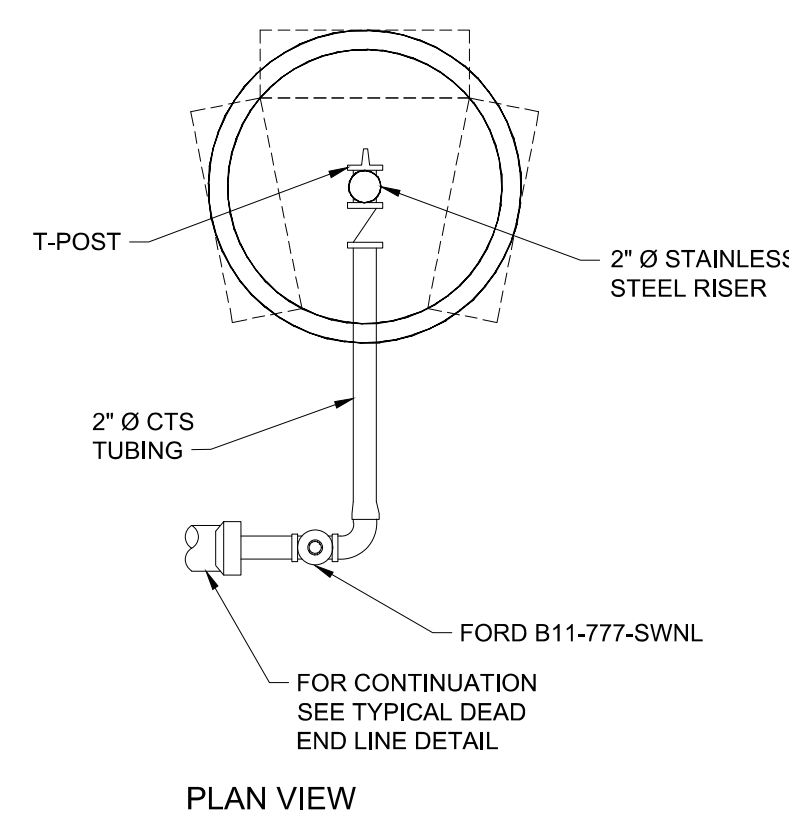
SINGLE PIPE IN TRENCH

NOTE: ENDS OF LOCATOR WIRE SHALL BE PLACED IN A 6" DIP RISER PIPE WITH CAST IRON LIDS AT 500' MIN. SPACING AND SHALL BE GROUNDED TO A 4x1/2" DIA. COPPER ROD AT RISERS. ALL WIRE SPLICES SHALL USE BRASS/COPPER SPLIT-BOLT CONNECTORS.

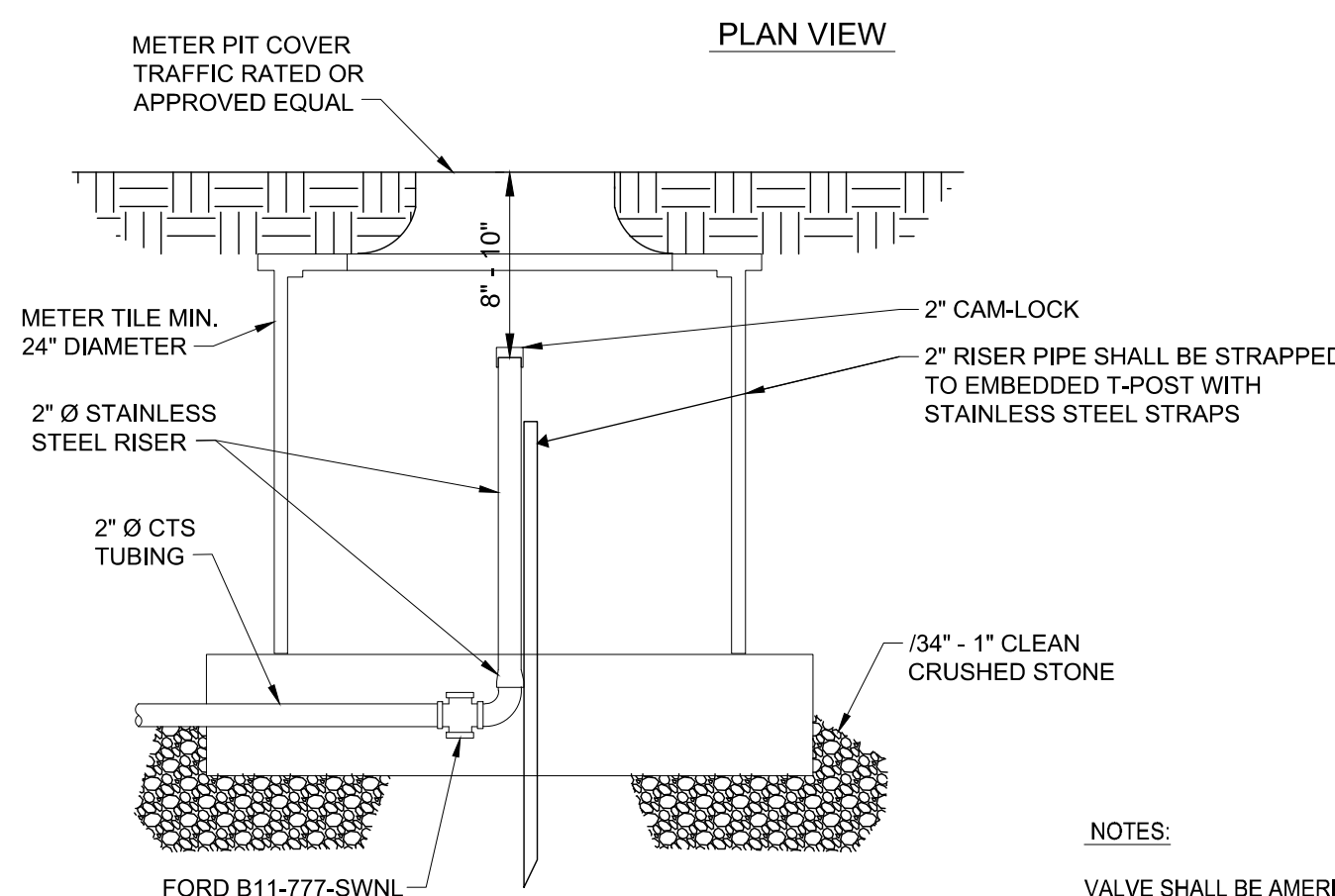
PIPE INSTALLATION DETAIL  
NOT TO SCALE

NOTES:

- WHERE MAIN IS LOCATED BEHIND CURB IN STREET, R/W, OR EASEMENT, FLUSHING ASSEMBLY MAY BE CONSTRUCTED OVER END OF LINE WITHOUT OFFSET AS SHOWN.
- ASSEMBLY TO BE USED ON NEW MAIN EXTENSION WHERE MAIN IS WITHIN PAVED SURFACE, SHOULDER OR IN DITCH LINE. LOCATE TILE IN ESTABLISHED GRADE AREA.
- SET 5'-0" STEEL POST NEAR BLOW OFF ASSEMBLY AS AN ABOVE GROUND MARKER.
- ALL FITTINGS AND PIPING SHALL BE 2" NSF 61 COMPLIANT.



PLAN VIEW

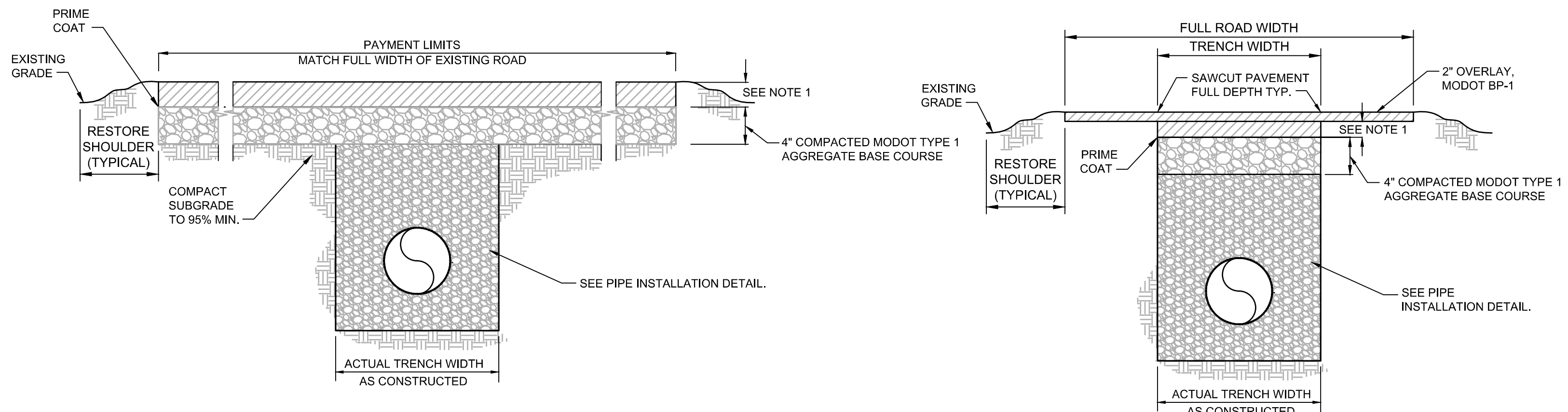


ELEVATION VIEW

FLUSHING ASSEMBLY DETAIL  
NOT TO SCALE

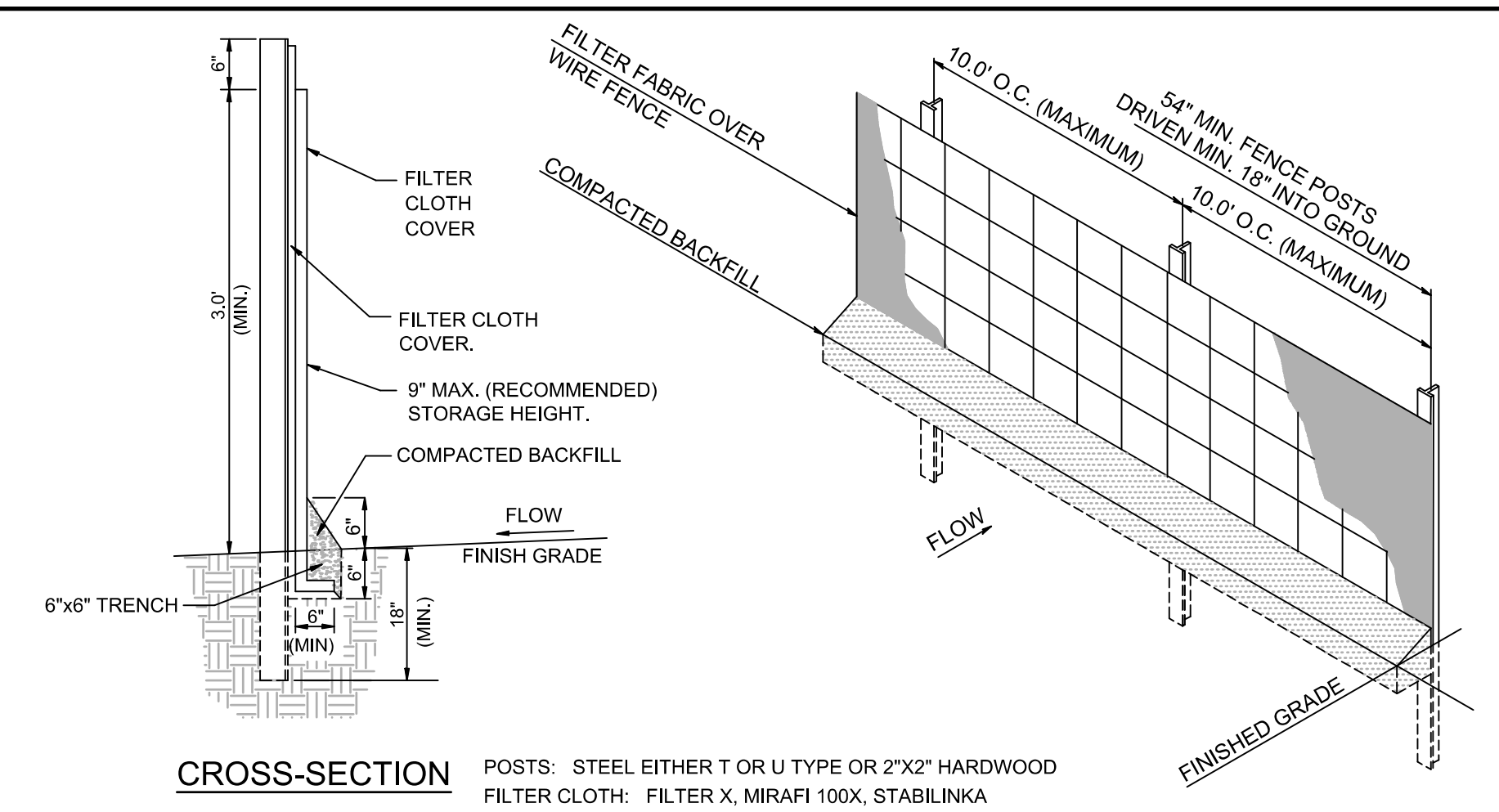
NOTES:  
VALVE SHALL BE AMERICAN OR CLOW MJ GATE VALVE





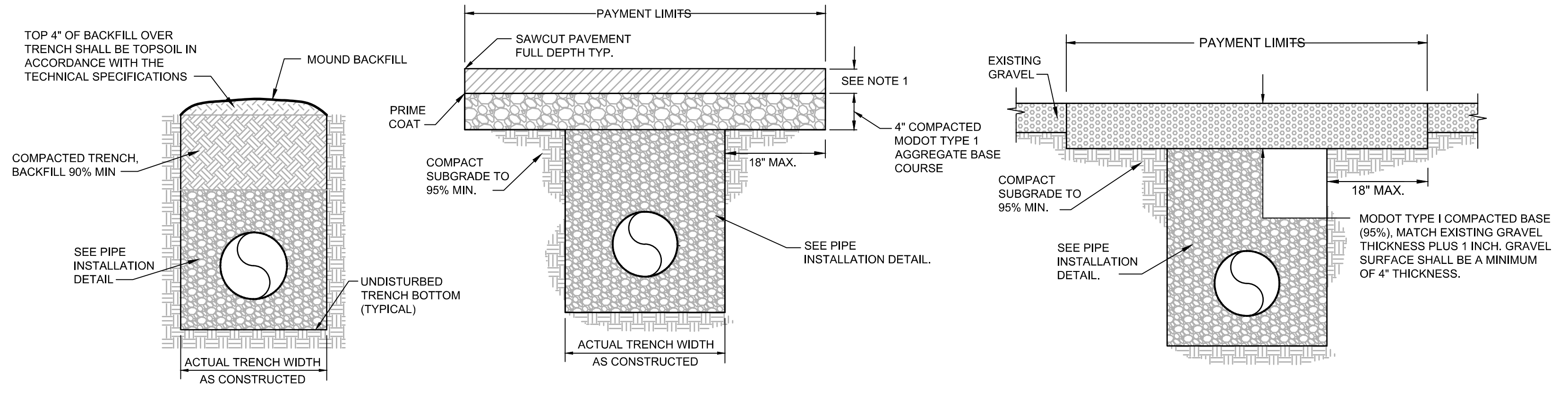
FULL WIDTH BITUMINOUS SURFACED AREA REPLACEMENT DETAIL

FULL WIDTH BITUMINOUS SURFACED AREA OVERLAY DETAIL



CROSS-SECTION

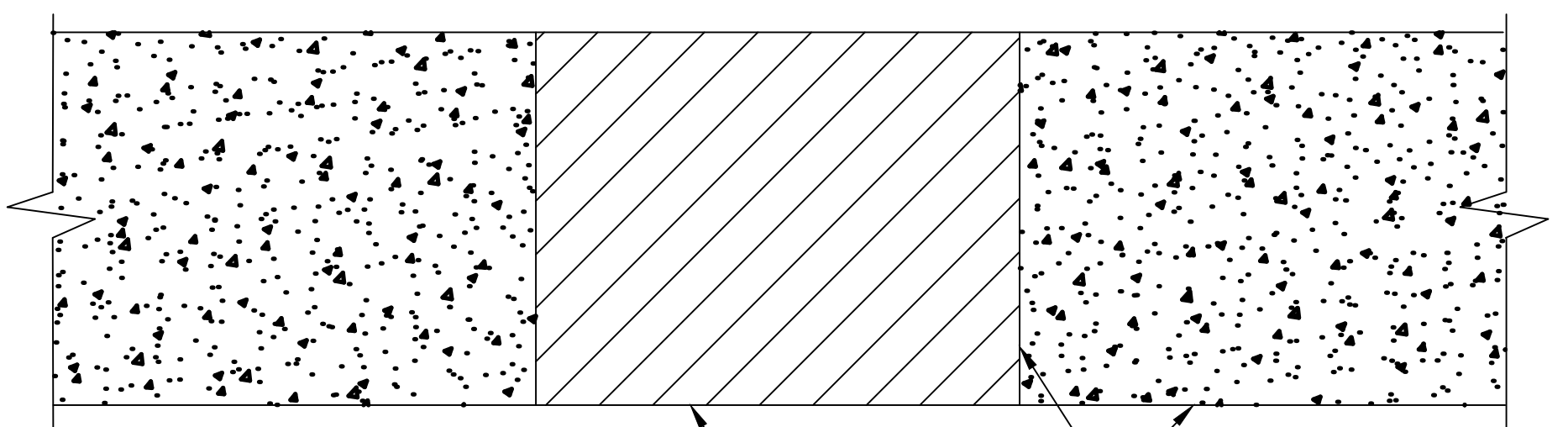
POST MESH SILT FENCE  
NOT TO SCALE



SEEDED AREA

BITUMINOUS SURFACED AREA CROSSING

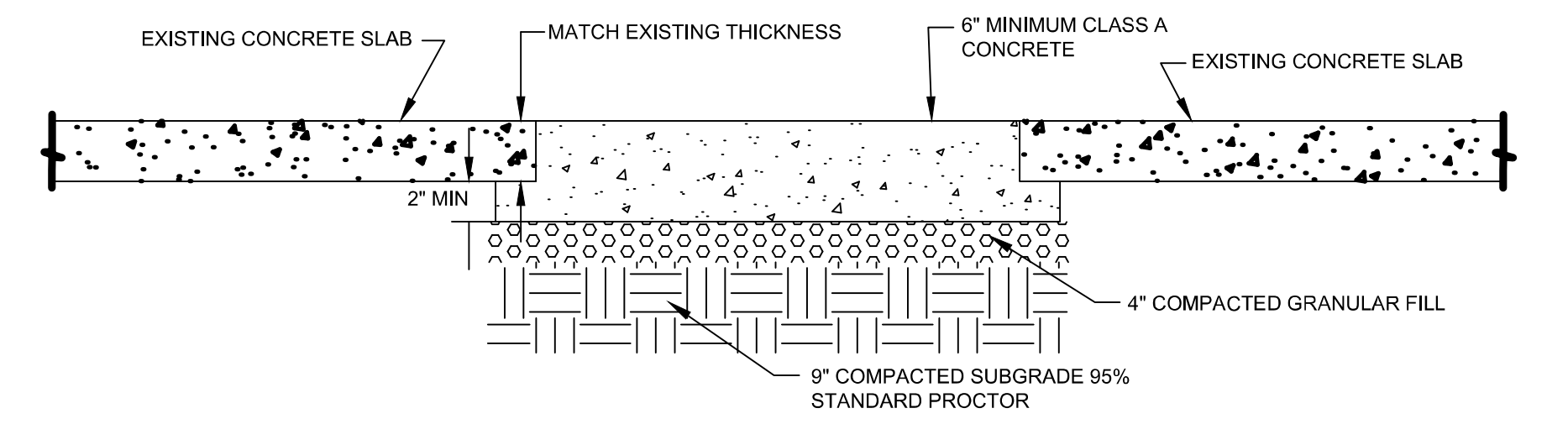
GRAVEL SURFACE AREA CROSSING



NOTES:

1. MATCH EXISTING CONCRETE SLOPE.
2. SAWCUT FULL WIDTH WHEN OPENING EXCEEDS 25% OF SIDEWALK, PATIO OR DRIVEWAY WIDTH.

PLAN



SECTION

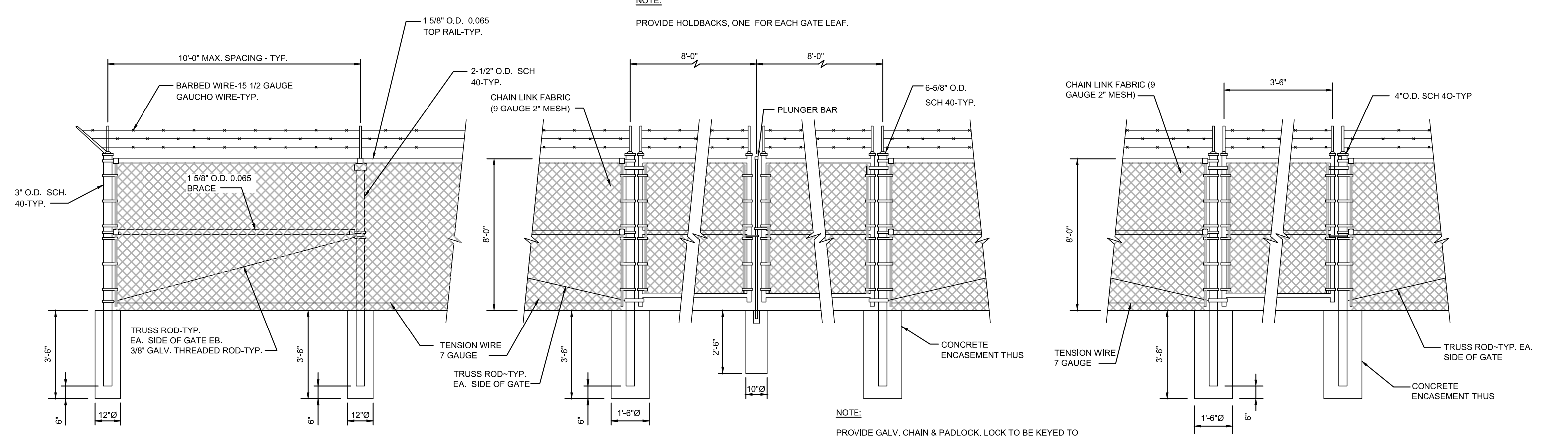
CONCRETE SLAB/CONCRETE DRIVEWAY REPAIR DETAIL  
NOT TO SCALE

NOTES:

1. MODOT BP-1 PLANT MIX BITUMINOUS PAVEMENT. MATCH EXISTING ASPHALT THICKNESS PLUS 1 INCH. ASPHALT SHALL BE A MINIMUM OF 3" THICKNESS AND A MAXIMUM OF 6" THICKNESS. IF BITUMINOUS SURFACE THICKNESS IS 4 INCHES OR GREATER, THE TOP 2 INCHES OF PAVEMENT SHALL BE MODOT BP-1 PLANT MIX BITUMINOUS PAVEMENT AND THE REMAINING PAVEMENT THICKNESS SHALL BE MODOT BASE PLANT MIX BITUMINOUS PAVEMENT.
2. PAYMENT FOR ROAD CROSSING REPLACEMENT SHALL BE TO THE LIMITS SHOWN IN THE DETAILS. ANY AREA DISTURBED BEYOND PAYMENT LIMITS SHALL BE RESTORED IN ACCORDANCE WITH DETAILS AND SPECIFICATIONS AT THE CONTRACTOR'S EXPENSE.
3. CONTRACTOR TO RESHOULDER ROAD WITH TOPSOIL, SEED, AND MULCH OR MODOT TYPE 1 BASE AS REQUIRED TO MATCH EXISTING SHOULDER.
4. CONTRACTOR TO INSTALL FULL WIDTH BITUMINOUS SURFACE OVERLAY IN ALL AREAS REQUIRING FULL WIDTH ROAD REPLACEMENT UNLESS INSTALLING FULL WIDTH ROAD OVERLAY WILL CAUSE DRAINAGE ISSUES, THEN CONTRACTOR TO INSTALL FULL WIDTH ROAD REPLACEMENT PER DETAIL OR CAN USE COLD MILLING TO INSTALL OVERLAY TO ORIGINAL GRADE.
5. CONTRACTOR TO INSTALL FULL DEPTH GRAVEL BACKFILL UNDER ROADS OR MATERIAL COMPACTED TO MEET PROJECT SPECIFICATIONS.

ROAD REPLACEMENT AND TRENCHING BACKFILL METHODS DETAILS

NOT TO SCALE



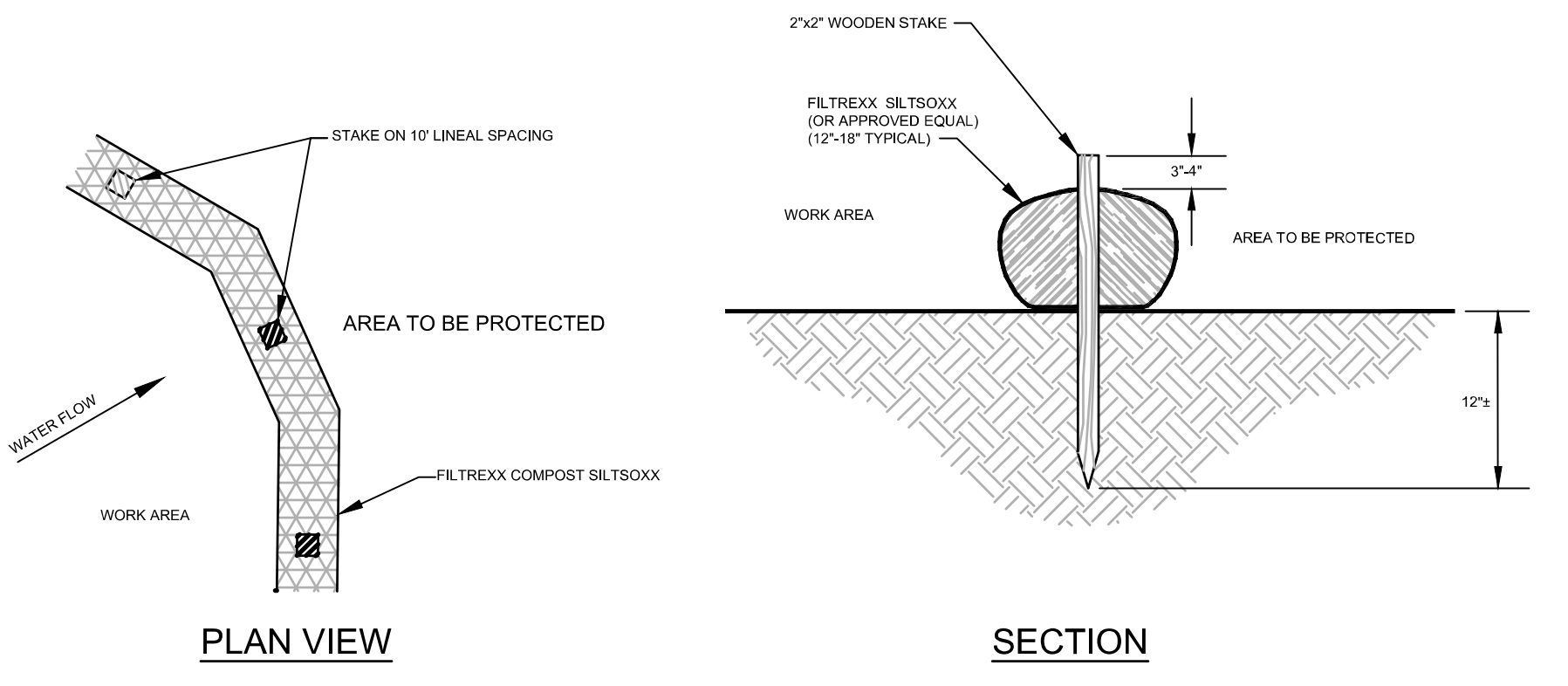
CORNER POST

LINE POST

16 DOUBLE SWING GATE

MAN GATE  
NOT TO SCALE

CHAIN LINK FENCE DETAIL  
NOT TO SCALE



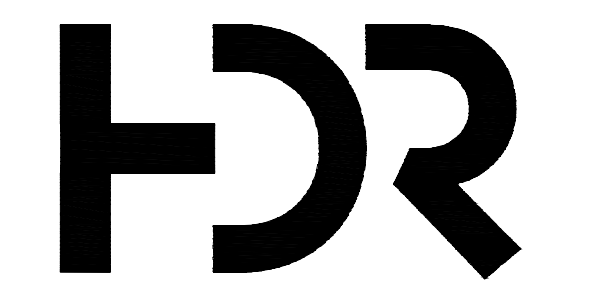
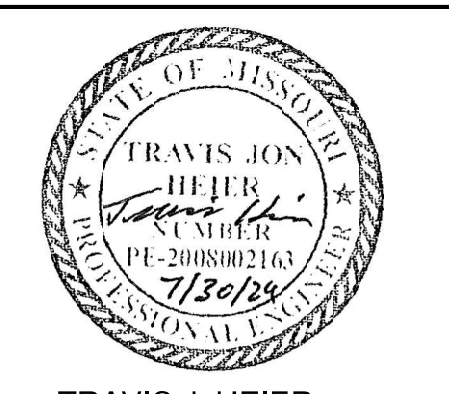
PLAN VIEW

SECTION

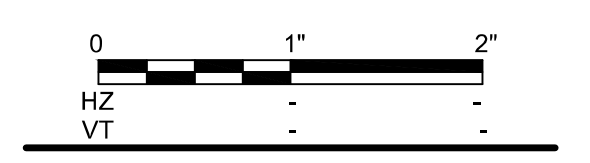
NOTES:

1. ALL MATERIAL TO MEET FILTREXX SPECIFICATIONS (OR EQUAL).
2. SILT SOXX COMPOST/SOIL/ROCK FILL TO MEET APPLICATION REQUIREMENTS.
3. SILT SOXX DEPICTED IS FOR MINIMUM SLOPES. GREATER SLOPES MAY REQUIRE LARGER SOCKS PER THE ENGINEER.
4. COMPOST MATERIAL TO BE DISPERSED ON SITE, AS DETERMINED BY THE ENGINEER.
5. SILT SOXX TO BE INSTALLED PER MANUFACTURERS RECOMMENDATIONS.
6. IN ADDITION TO SPECIFIC AREAS INDICATED ON PLANS, CONTRACTOR SHALL PLACE HAY DALE DAMS AS NECESSARY TO CONTROL EROSION AND DISCHARGE OF SEDIMENT FROM THE SITE.

SILT SOXX EROSION CONTROL  
NOT TO SCALE



MISSOURI CERTIFICATE OF  
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OFFICE OF ADMINISTRATION  
DIVISION OF FACILITIES  
MANAGEMENT,  
DESIGN AND CONSTRUCTION

DEPARTMENT OF NATURAL  
RESOURCES

LAKE OF THE OZARKS  
STATE PARK  
WATER MAIN  
IMPROVEMENTS

MO-134  
KAISER, MO 65047

PROJECT # X2307-02  
SITE # 5306  
FACILITY #  
INFRASTRUCTURE #  
7815306238

REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
ISSUE DATE: \_\_\_\_\_

CAD DWG FILE: C-502  
DRAWN BY: RJL/TLD  
CHECKED BY: TJH  
DESIGNED BY: TJH

SHEET TITLE:  
STANDARD  
DETAILS

SHEET NUMBER:

C-502

SHEET 25 OF 25  
DATE: JULY 30, 2024