

# LAUREL COUNTY WATER DISTRICT NO. 2

## SOUTH LAUREL WATER SYSTEM IMPROVEMENTS

### CONTRACT NO. 2 - HOPEWELL WATER STORAGE TANK

#### LAUREL COUNTY, KENTUCKY

#### TABLE OF CONTENTS

COVER	
GENERAL NOTES	GN-1
500,000 GALLON WATER STORAGE TANK	
EXISTING SITE PLAN	1
PROPOSED SITE PLAN	2
CONSTRUCTION DETAILS	3 - 4
OAK RIDGE TANK CONTROL VALVE VAULT ADDITION	5
EROSION CONTROL & SITE PROTECTION DETAILS	EC-1
STANDARD DETAIL DRAWINGS	SD-1

PROJECT FUNDED BY:  
USDA RURAL DEVELOPMENT

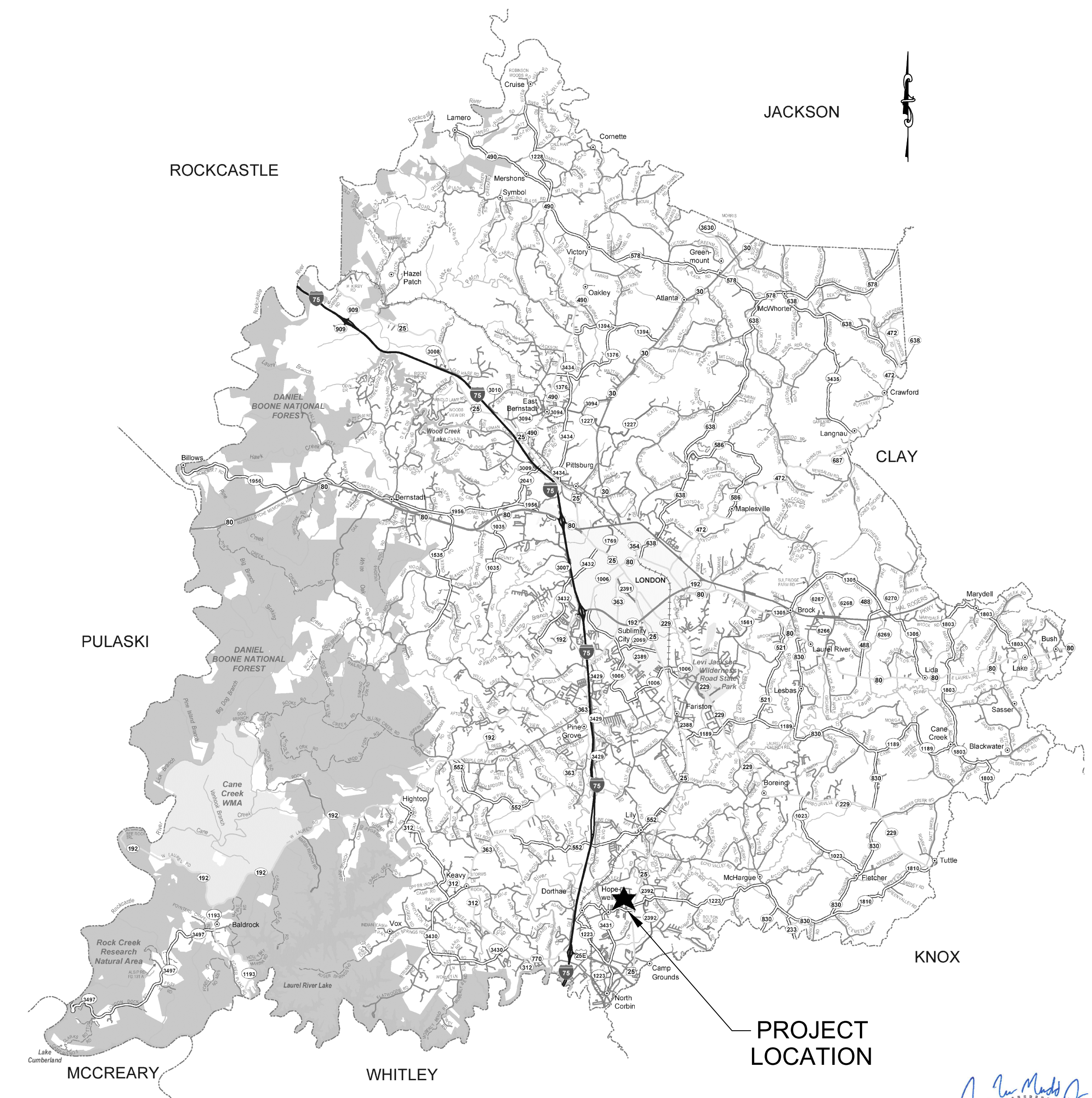
#### BOARD OF COMMISSIONERS

ROY WAYNE JENKINS, CHAIRMAN  
RONNIE BALL, SECRETARY  
KENNETH FINLEY, TREASURER  
DAVID MOORE  
LISA BAKER

MANAGER  
KENNETH FISHER

OCTOBER 2019

#### LOCATION MAP



M

Monarch Engineering, Inc.

556 CARLTON DRIVE  
LAWRENCEBURG, KY 40342





**LOCATION AND SCOPE OF PROJECT**

THE PROJECT LOCATION IS GENERALLY DEFINED AS THE EXISTING TANK SITE BOUNDARY OWNED BY THE LAUREL COUNTY WATER DISTRICT NO. 2, ON KY HIGHWAY 1223 IN SOUTHERN LAUREL COUNTY, KENTUCKY. THE WORK TO BE DONE UNDER THIS CONTRACT INCLUDES FURNISHING ALL MATERIALS, EQUIPMENT, AND LABOR NECESSARY TO CONSTRUCT THE HOPEWELL WATER STORAGE TANK IN ACCORDANCE WITH THE PLANS, SPECIFICATIONS AND CONTRACT DOCUMENTS.

**GENERAL NOTES**

- IT IS THE INTENTION OF THESE PLANS TO CONSTRUCT ALL WORK IN ACCORDANCE WITH ALL APPLICABLE REQUIREMENTS OF THE LAUREL COUNTY WATER DISTRICT NO. 2, LAUREL COUNTY, THE KENTUCKY DEPARTMENT FOR ENVIRONMENTAL PROTECTION, AND THE U.S. ARMY CORPS OF ENGINEERS. WHERE THERE IS A CONFLICT BETWEEN THE CONTRACT DOCUMENTS, PLANS, AND SPECIFICATIONS AND THE PERMIT REQUIREMENTS OF THE AGENCY CONTROLLING THE UTILITY OR RESPECTIVE RIGHTS-OF-WAY, THE MORE RESTRICTIVE SHALL GOVERN.
- THE CONTRACTOR AND ANY APPLICABLE SUBCONTRACTORS SHALL ATTEND A PRE-CONSTRUCTION MEETING AT A TIME AND PLACE ARRANGED BY THE ENGINEER, IN WHICH ALL AFFECTED PARTIES WILL BE PRESENT. ALSO, A PRE-DISTURBANCE WALK THROUGH WILL NEED TO BE ATTENDED BY THE CONTRACTOR.
- FOLLOWING THE PRE-CONSTRUCTION MEETING, THE CONTRACTOR SHALL NOTIFY THE ENGINEER A MINIMUM OF THREE (3) WORKING DAYS PRIOR TO THE START OF CONSTRUCTION FOR INSPECTION COORDINATION. NO WORK CAN COMMENCE UNTIL ALL PERMITS HAVE BEEN OBTAINED AND THE CONTRACTOR HAS BEEN GIVEN THE AUTHORITY TO PROCEED.
- THE CONTRACTOR SHALL NOTIFY KENTUCKY 811 AT LEAST 72 HOURS IN ADVANCE OF CONSTRUCTION, FOR LOCATION AND MARKING OF ALL EXISTING UTILITIES.
- LOCATIONS AND ELEVATIONS OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THE PLANS ARE APPROXIMATE. NO GUARANTEE IS EITHER EXPRESSED OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF. THE CONTRACTOR SHALL BE EXCLUSIVELY RESPONSIBLE FOR DETERMINING AND VERIFYING THE LOCATION, DEPTH, AND ELEVATION OF THE EXISTING UTILITIES WITHIN THE CONSTRUCTION AREA PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IF ANY CONFLICTS ARE APPARENT OR IF LOCATIONS AND DEPTHS DIFFER SIGNIFICANTLY FROM THE PLANS.
- ALL ELEVATIONS REFER TO THE CURRENT NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD '88).
- THE ENGINEER HAS NOT PERFORMED PROPERTY OR RIGHT-OF-WAY SURVEYS FOR ANY OF THE AREAS INCLUDED IN THIS PROJECT. RIGHT-OF-WAY OR PROPERTY LINES SHOWN ON THE PLANS ARE APPROXIMATE AND ARE SHOWN FOR GENERAL ORIENTATION ONLY. PROPERTY CORNERS OR OTHER SURVEY MARKERS HAVE NOT BEEN LOCATED, UNLESS SPECIFICALLY CALLED OUT ON THE PLANS.
- ALL PROPERTIES OR FACILITIES IN THE SURROUNDING AREAS, PUBLIC OR PRIVATE, DESTROYED OR OTHERWISE DAMAGED BY THE CONTRACTORS OPERATIONS SHALL BE REPLACED OR REPAIRED BY THE CONTRACTOR AT THEIR OWN EXPENSE TO THE SATISFACTION OF THE AUTHORITY HAVING JURISDICTION OVER THE IMPACTED PROPERTY OR FACILITY.
- IF, IN THE OPINION OF THE ENGINEER, WORK HAS NOT PROGRESSED IN A REASONABLE AND TIMELY MANNER, THE ENGINEER SHALL HAVE THE RIGHT, WITH THE APPROVAL OF THE OWNER, TO DIRECT THE CONTRACTOR TO PROCEED WITH THE WORK OR ANY PORTION THEREOF IMMEDIATELY. IN THE EVENT THAT THE CONTRACTOR DOES NOT PROCEED WITH THE WORK IMMEDIATELY, AS DIRECTED BY THE ENGINEER, THE ENGINEER, UNDER THE DIRECTION OF THE OWNER, MAY ORDER ANY OR ALL OTHER OPERATIONS OF THE CONTRACTOR, UNDER THIS CONTRACT, TO CEASE UNTIL THE REQUESTED WORK IS PROCEEDING IN AN ACCEPTABLE MANNER. SHOULD THE CONTRACTOR FAIL TO COMPLY WITH THESE PROVISIONS, THE OWNER MAY, WITH OR WITHOUT NOTICE, CAUSE THE REQUIRED WORK TO BE DONE BY THE OWNER OR OTHERS AND WILL DEDUCT THE COST OF SAID WORK FROM ANY FUNDS DUE OR TO BECOME DUE TO THE CONTRACTOR UNDER THIS CONTRACT. THE PERFORMANCE OF SUCH WORK BY THE OWNER OR OTHERS SHALL SERVE IN NO WAY TO RELEASE THE CONTRACTOR FROM HIS GENERAL PARTICULAR LIABILITY FOR THE SAFETY OF THE PUBLIC OR COMPLETION OF THE WORK.
- ACTIONS MUST BE TAKEN TO MINIMIZE THE TRACKING OF MUD AND SOIL FROM CONSTRUCTION AREAS ONTO PUBLIC ROADWAYS. ANY SOIL TRACKED ONTO A PUBLIC ROADWAY SHALL BE REMOVED DAILY.
- ALL WORK SHALL BE INCORPORATED IN TO THOSE UNIT PRICES LISTED IN THE CONTRACT DOCUMENTS. ANY ITEMS NOT SPECIFICALLY LISTED IN THE UNIT PRICES SHALL BE CONSIDERED INCIDENTAL TO THE WORK AND SHALL NOT BE ELIGIBLE FOR SEPARATE PAYMENT OR COMPENSATION.

**EROSION AND SEDIMENTATION CONTROL NOTES**

- THE CONTRACTOR SHALL COMPLY WITH ALL EROSION AND SEDIMENTATION CONTROL REQUIREMENTS OF THE BOTH THE STATE OF KENTUCKY AND THE U.S. ARMY CORPS OF ENGINEERS FOR ALL DISTURBED AREAS INCLUDED IN THE PROJECT.
- THE CONTRACTOR SHALL CONDUCT CONSTRUCTION OPERATIONS IN A MANNER THAT WILL REDUCE ACCELERATED EROSION TO THE PRACTICAL MINIMUM AND PREVENT DAMAGING SILTATION TO EXISTING SEWERS AND WATER COURSES LEADING FROM THE PROJECT AREA.
- THE CONTRACTOR SHALL CONDUCT WORK IN SUCH A MANNER AS TO PREVENT THE ENTRY OF FUELS, OILS, BITUMINOUS MATERIALS, CHEMICALS, SEWERAGE, OR OTHER HARMFUL MATERIALS INTO NEARBY LAKES AND STREAMS.
- WASTE DISPOSAL AREAS SHALL BE SELECTED BY THE CONTRACTOR WITH FULL CONSIDERATION OF EROSION AND SEDIMENT CONTROL, SELECTION OF DISPOSAL SITE(S), AND CONTROL OF OPERATIONS, AND THE RESTORATION OF SAID AREAS SHALL BE SUBJECT TO APPROVAL OF THE ENGINEER.
- EXCAVATIONS FROM THE PROJECT AREA INCLUDING THOSE IN CHANNELS AND WATERCOURSES SHALL NOT BE DEPOSITED IN OR NEAR RIVERS, STREAMS, OR PONDS WHERE IT MAY ENTER THE WATERWAY.
- AT THE COMPLETION OF EACH DAYS CONSTRUCTION, CARE SHOULD BE TAKEN TO ENSURE THAT MINIMAL EROSION WILL OCCUR IN TRENCHES AND TO STOCKPILED MATERIALS UNTIL RESUMPTION OF WORK.
- THE CONTRACTOR SHALL CONFINE CONSTRUCTION OPERATIONS TO THE MINIMUM AMOUNT OF WORKING SPACE PRACTICAL TO AID IN THE MINIMIZATION OF SOIL EROSION.
- THE PROJECT WILL BE CONTINUALLY OBSERVED BY VARIOUS STATE & LOCAL REGULATORY AGENCIES FOR EROSION CONTROL COMPLIANCE. DEFICIENCIES WILL BE CORRECTED BY THE CONTRACTOR IMMEDIATELY UPON NOTICE OF SUCH DEFICIENCIES. FAILURE TO CORRECT THE DEFICIENCIES MAY RESULT IN THE ISSUANCE OF A STOP WORK ORDER AND THERE WILL BE NO CONTRACT TIME EXTENSION GRANTED FOR THIS TYPE OF STOPPAGE.
- TEMPORARY SOIL EROSION CONTROL MEASURES CONSISTING OF SILT FENCE, MULCHING, AND TARPING SHALL BE IMPLEMENTED THROUGHOUT THE ENTIRE CONSTRUCTION AREA OF THE PROJECT, AND SHALL BE REMOVED BY THE CONTRACTOR AFTER THE PERMANENT SOIL EROSION MEASURES HAVE BEEN ESTABLISHED.
- PERMANENT SOIL EROSION MEASURES CONSISTING OF AN APPROVED SEED MIXTURE AND MULCH BLANKET SHALL BE COMPLETED WITHIN FIVE (5) CALENDAR DAYS OF FINAL GRADING. IN THE EVENT IT IS NOT POSSIBLE TO PERMANENTLY STABILIZE THE AREA DUE TO SITE CONDITIONS OR SEASONAL LIMITATIONS, THE TEMPORARY MEASURES SHALL REMAIN IN FORCE AND SHALL BE MAINTAINED BY THE CONTRACTOR UNTIL SUCH TIME IT IS PRACTICAL TO COMPLETE THE PERMANENT SOIL EROSION CONTROL MEASURES.
- THE ENGINEER SHALL HAVE FULL AUTHORITY TO TEMPORARILY SUSPEND WORK IN THE EVENT THAT ANY OF THE ABOVE REQUIREMENTS ARE NOT BEING MET BY THE CONTRACTOR, OR IF CONDITIONS INDICATE THAT ADDITIONAL TEMPORARY MEASURES ARE WARRANTED, IN THE OPINION OF THE ENGINEER OR REGULATORY AGENCIES.
- PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL INSTALL INLET FILTERS AT ALL STORM SEWER INLETS WHICH MAY BE PRESENT IN THE CONSTRUCTION AREA.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF ANY REQUIRED ACCESS ROAD SURFACES AND SOIL EROSION CONTROL MEASURES WITHIN THE CONSTRUCTION AREA UNTIL THE FULL COMPLETION OF THE PROJECT.
- ALL NON-PAVED DISTURBED AREAS SHALL BE RESTORED AS INDICATED ON THE PLANS. IF NOT SPECIFICALLY STATED ON THE PLANS, RESTORATION SHALL CONSIST OF 4-INCHES OF TOPSOIL, FERTILIZER, SEED AND MULCH. UNLESS OTHERWISE STATED, ALL DISTURBED AREAS SHALL BE SEEDED WITH A SEED MIX APPROVED BY THE ENGINEER.

**WORK LIMITS**

IF INDICATED ON THE PLANS, THE CONTRACTOR SHALL KEEP ALL OPERATIONS WITHIN THE WORK LIMITS SHOWN. OTHERWISE, THE CONTRACTOR SHALL ESTABLISH CONSTRUCTION LIMITS WITHIN THE EXISTING AND/OR PROPOSED RIGHTS-OF-WAY AND EASEMENTS AS DIRECTED BY THE ENGINEER. THIS REQUIREMENT SHALL INCLUDE MATERIAL STOCKPILING AND EQUIPMENT STORAGE. THE CONTRACTOR MAY NOT EXIT THE ESTABLISHED PROJECT WORK LIMITS WITHOUT EXPLICIT PERMISSION FROM THE OWNER AND THE ENGINEER.

**UTILITIES**

FOR PROTECTION OF UNDERGROUND UTILITIES AND IN CONFORMANCE WITH KENTUCKY LAW, THE CONTRACTOR SHALL SHALL DIAL KENTUCKY 811 A MINIMUM OF THREE (3) FULL WORKING DAYS, EXCLUDING SATURDAYS, SUNDAYS, AND HOLIDAYS, PRIOR TO BEGINNING WORK IN EACH CONSTRUCTION AREA WHERE PUBLIC UTILITIES HAVE NOT BEEN PREVIOUSLY LOCATED. MEMBERS WILL THUS BE ROUTINELY NOTIFIED. THIS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF NOTIFYING UTILITY OWNERS WHO MAY NOT BE PART OF THE "KY 811" ALERT SYSTEM. UTILITY LOCATIONS SHOWN ON THE PLANS ARE ONLY APPROXIMATE AND SHOULD BE LOCATED IN THE FIELD PRIOR TO ANY EXCAVATION.

**WORK WITHIN STREAMS, CREEKS & WATERWAYS**

ANY AND ALL WORK TO BE COMPLETED WITHIN STREAMS, CREEKS & WATERWAYS SHALL BE COMPLETED ONLY DURING TIMES OF LOW FLOW AS DETERMINED BY THE ENGINEER. THE CONTRACTOR SHALL STRICTLY LIMIT THE USE OF HEAVY EQUIPMENT WITHIN THE WATERCOURSE AT ALL TIMES. STREAM FLOW SHALL NOT BE RESTRICTED OR IMPEDED AT ANY TIME DURING THE COURSE OF CONSTRUCTION.

**BENCHMARKS**

BENCHMARK NO. 1: IRON PIN WITH CAP STAMPED "OWEN PLS 2681"  
 BENCHMARK ALSO SERVES AS SOUTHWESTERN CORNER OF TANK SITE  
 (LOCATION IS DEPICTED ON PLAN SHEET 2)

**DISRUPTION OF SERVICE**

THE CONTRACTOR SHALL COORDINATE ALL DISRUPTIONS OF SERVICE WITH THE OWNER AND ENGINEER. PRIOR TO ANY DISRUPTION, THE CONTRACTOR SHALL INFORM BOTH PARTIES OF HIS INTENTIONS, METHODS AND PROJECTED DURATION OF DISTURBANCE AND RECEIVE THEIR APPROVAL PRIOR TO INITIATING THE SPECIFIC WORK.

**WORK WITHIN PUBLIC ROAD RIGHT-OF-WAYS**

WHEN PERFORMING WORK ALONG OR ACROSS ANY PUBLIC ROADWAY, THE CONTRACTOR SHALL POST WARNING SIGNS PAINTED ORANGE AND THEY SHALL BE FOUR FEET BY FOUR FEET MOUNTED ON POSTS IN ACCORDANCE WITH THE KENTUCKY TRANSPORTATION DEPARTMENT'S MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES. THE SIGNS SHALL BE AS FOLLOWS:

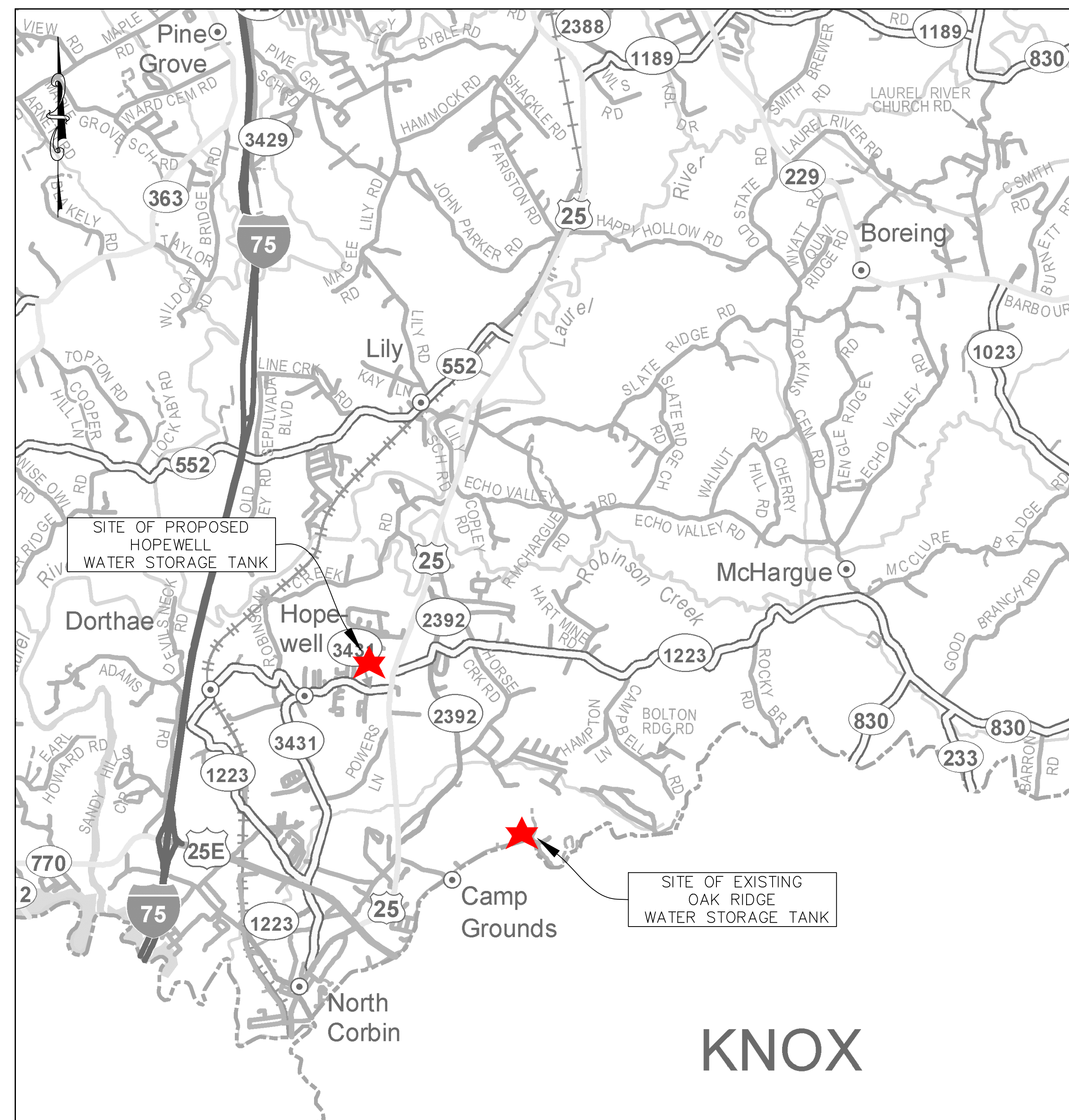
- CAUTION PIPELINE CONSTRUCTION 1500 FEET
- CAUTION PIPELINE CONSTRUCTION 1000 FEET
- CAUTION PIPELINE CONSTRUCTION 500 FEET

ALL SIGNS, BARRICADES, LIGHTS, AND TRAFFIC CONTROL SHALL BE INSTALLED IN ACCORDANCE WITH THE KENTUCKY TRANSPORTATION DEPARTMENT'S MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

THE CONTRACTOR SHALL MAINTAIN TWO FLAG MEN AT ALL TIMES WHERE MACHINERY IS IN OPERATION WHERE THE FLOW OF TRAFFIC WILL BE DISTURBED. THERE IS NO EXCEPTION TO THIS REQUIREMENT. THE USE OF RADIOS WILL BE REQUIRED WHEN VISUAL CONTACT BETWEEN THE FLAGMEN DOES NOT EXIST.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING ENTIRE ROADWAY FREE AND CLEAR AT THE END OF EACH WORKING DAY. NO EQUIPMENT SHALL BE LEFT ON OR PARKED ALONG THE ROAD RIGHT OF WAY. AT THE COMPLETION OF EACH WORK DAY, THE CONTRACTOR SHALL BACKFILL ALL OPEN TRENCHES AND INSTALL ALL TRAFFIC CONTROL SIGNS, BARRICADES, AND LIGHTS IN ACCORDANCE WITH THE KENTUCKY TRANSPORTATION DEPARTMENT'S MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

**PROJECT LOCATION MAP**

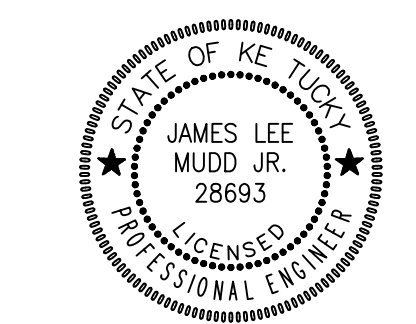


**Monarch Engineering, Inc.**  
 556 CARLTON DRIVE  
 LAWRENCEBURG, KY 40342

DESCRIPTION:	GENERAL NOTES CONTRACT NO. 2
	HOPEWELL WATER STORAGE TANK
CUSTOMER:	LAUREL COUNTY WATER DISTRICT NO. 2
	LAUREL COUNTY, KENTUCKY

PROJECT NO. 1813
DATE: OCT 2019
DRAWN BY: JLM
CHECKED BY: DSB
CHECKED BY: DMB
SCALE: AS NOTED

SHEET:  
**GN-1**



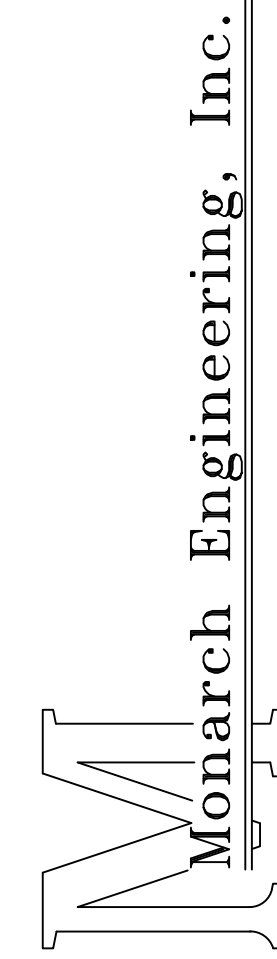




**EXISTING SITE PLAN**  
SCALE: 1"=20'



**PROPERTY & EASEMENT MAP**  
SCALE: 1"=40'



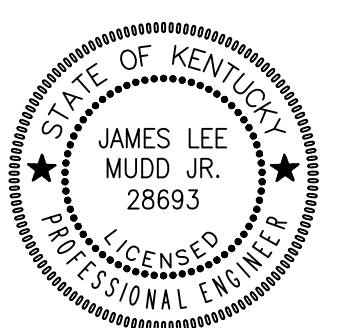
556 CARLTON DRIVE  
LAWRENCEBURG, KY 40342

DESCRIPTION:  
**EXISTING SITE PLAN  
HOPEWELL WATER STORAGE TANK**

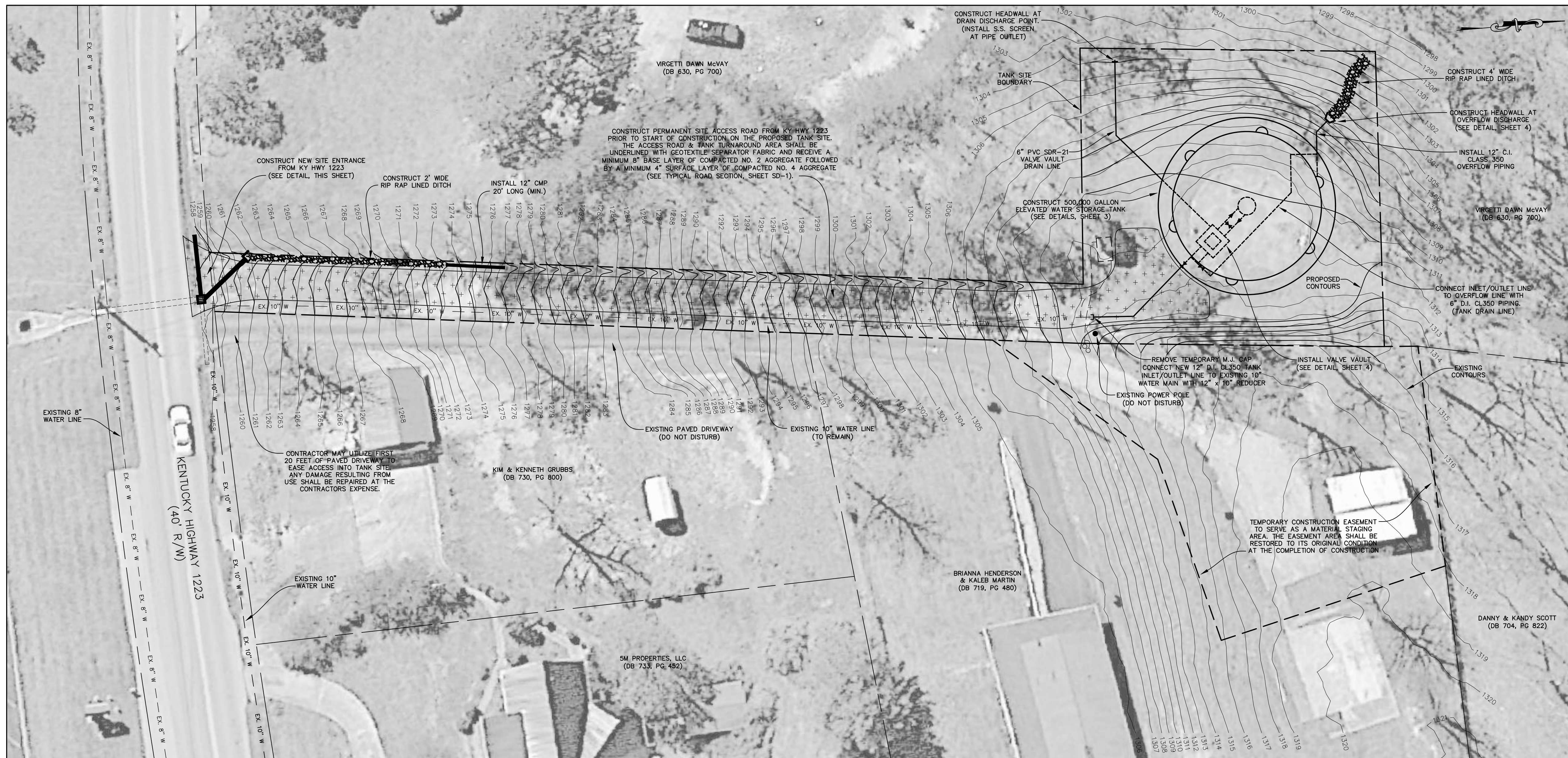
CUSTOMER:  
**LAUREL COUNTY WATER DISTRICT NO. 2  
LAUREL COUNTY, KENTUCKY**

PROJECT NO. 1813  
DATE: OCT 2019  
DRAWN BY: JLM  
CHECKED BY: DSB  
CHECKED BY: DMB  
SCALE: AS NOTED

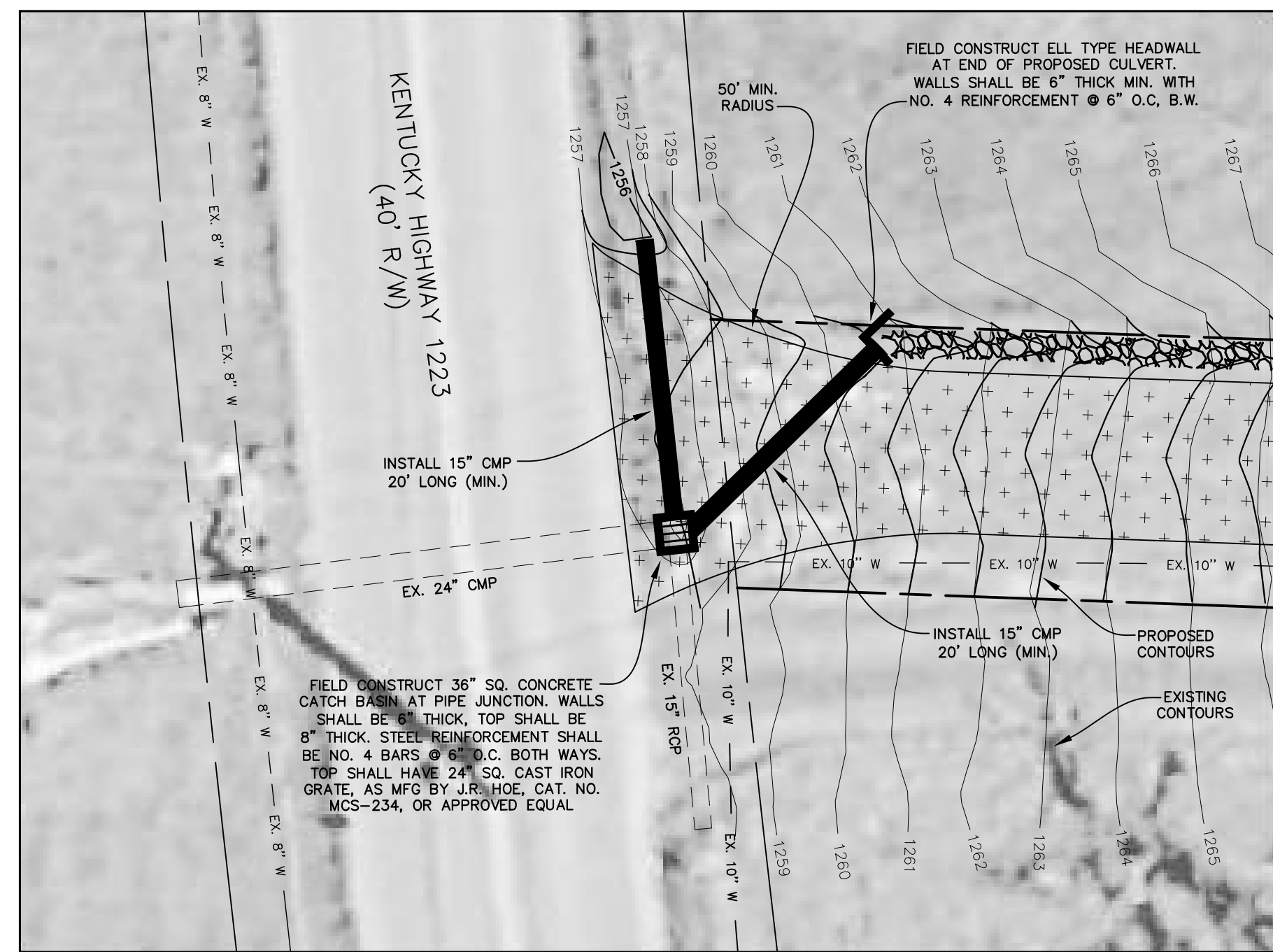
SHEET:  
**1**



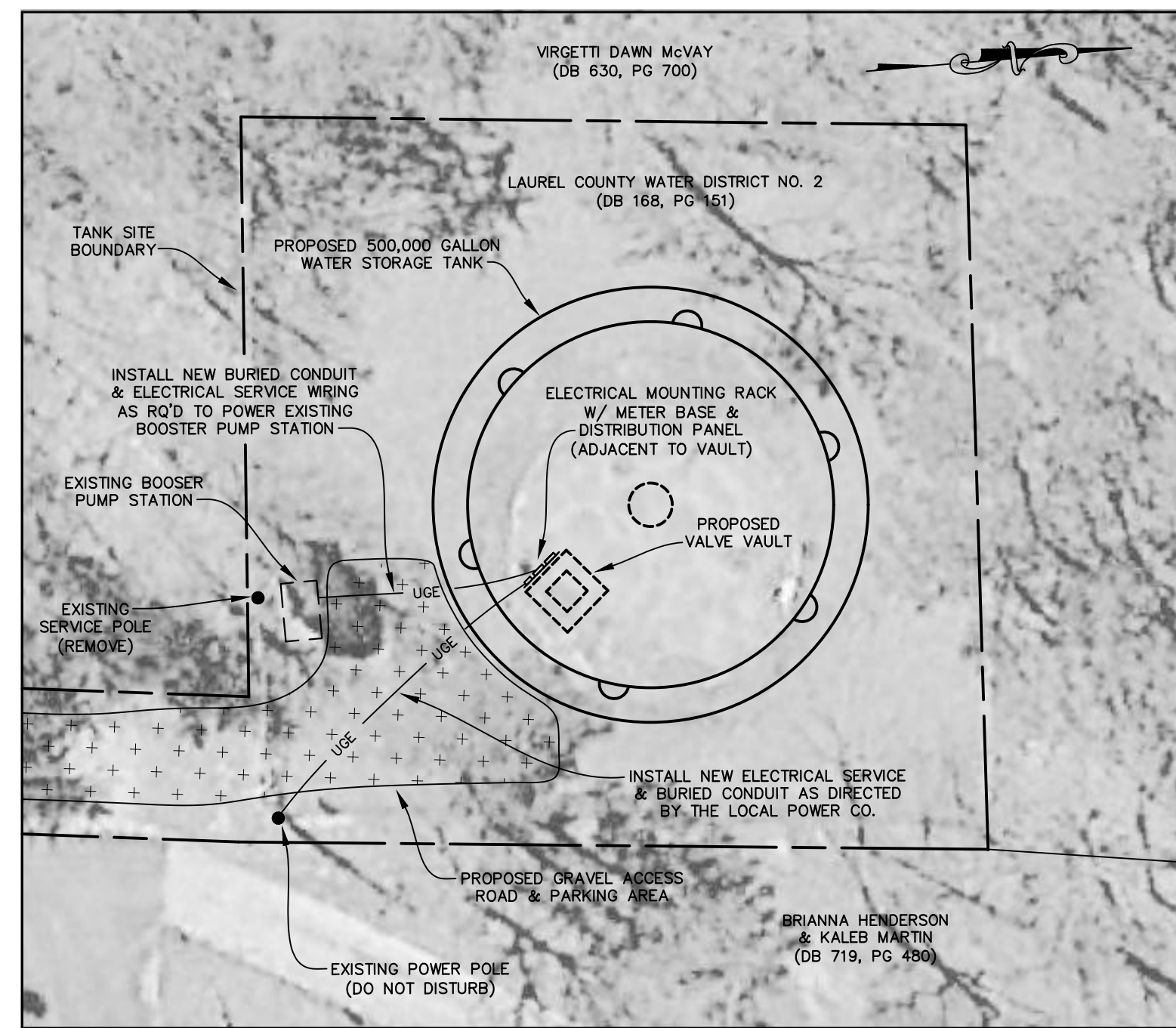




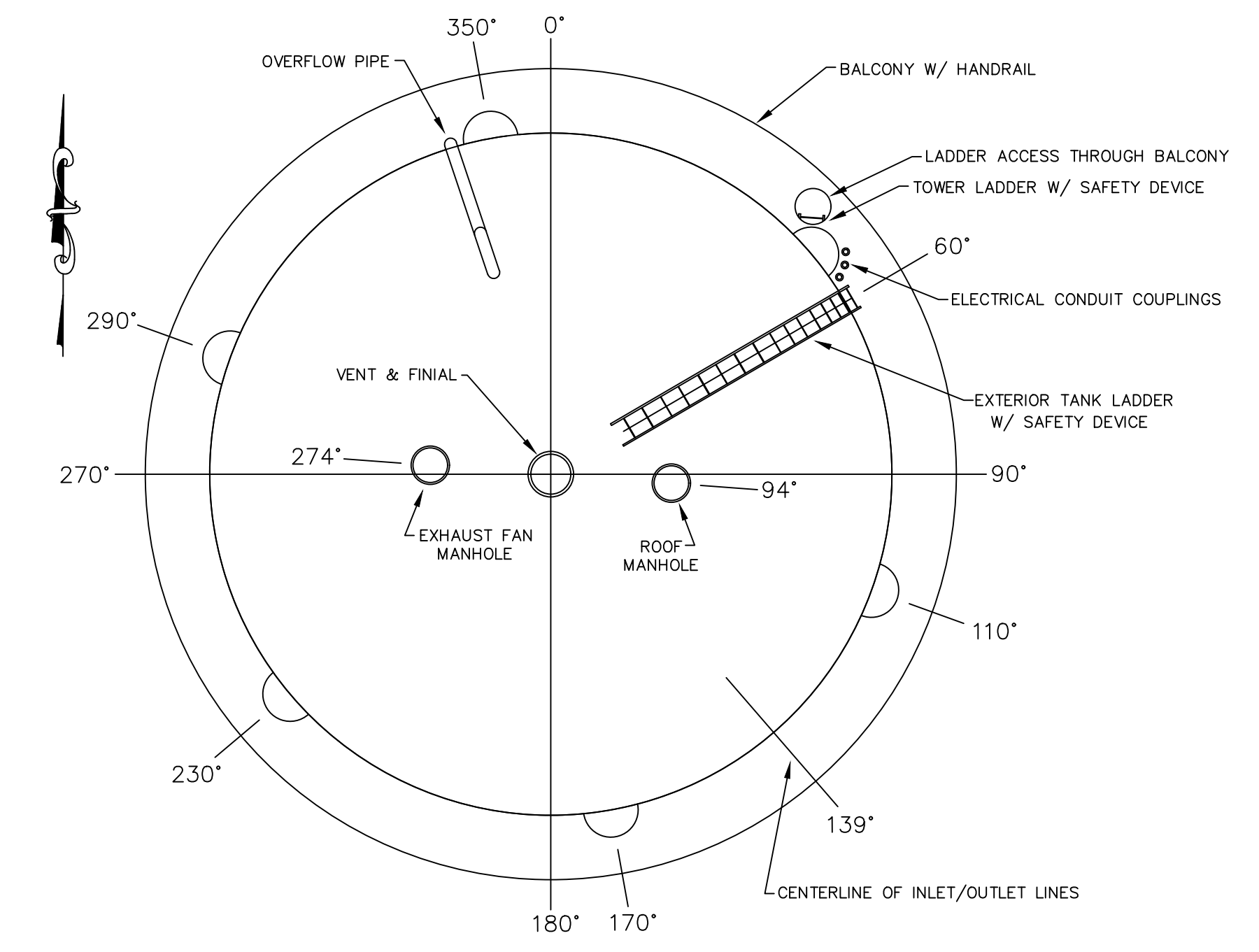
**PROPOSED SITE PLAN**  
SCALE: 1"=20'



**SITE ENTRANCE DETAIL**  
SCALE: 1"=10'



**SITE ELECTRICAL PLAN**  
SCALE: 1"=20'



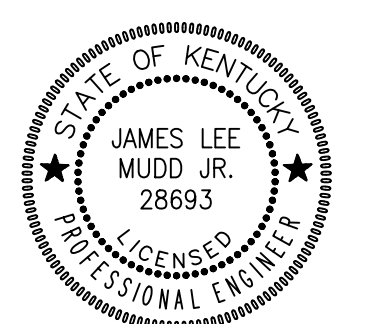
**TANK ORIENTATION LAYOUT**  
NOT TO SCALE

**Monarch Engineering, Inc.**  
556 CARLTON DRIVE  
LAWRENCEBURG, KY 40342

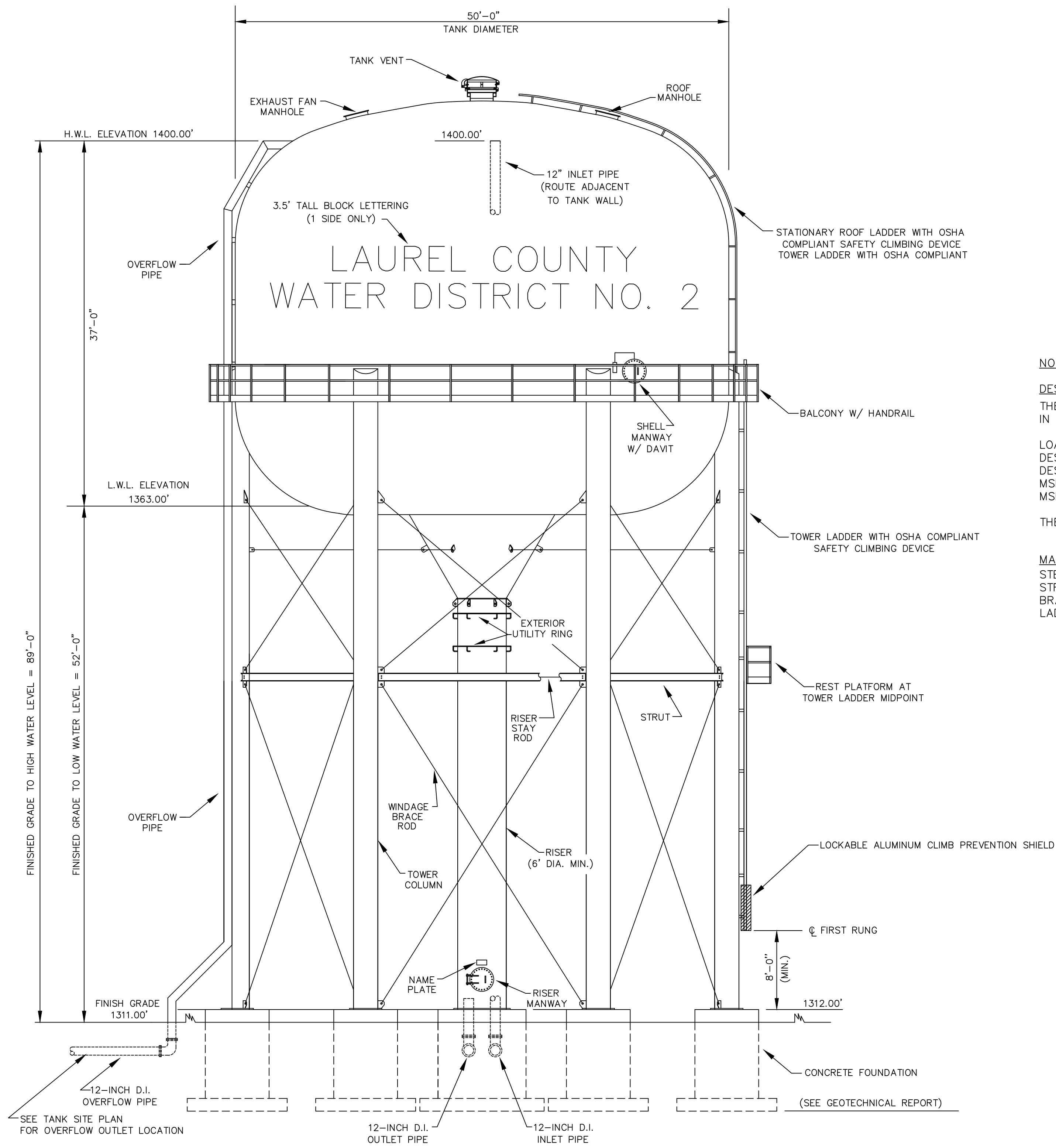
**PROPOSED SITE PLAN**  
**HOPEWELL WATER STORAGE TANK**  
CUSTOMER:  
**LAUREL COUNTY WATER DISTRICT NO. 2**  
**LAUREL COUNTY, KENTUCKY**

DESCRIPTION:  
**PROJECT NO. 1813**  
**DATE: OCT 2019**  
**DRAWN BY: JLM**  
**CHECKED BY: DSB**  
**CHECKED BY: DMB**  
**SCALE: AS NOTED**

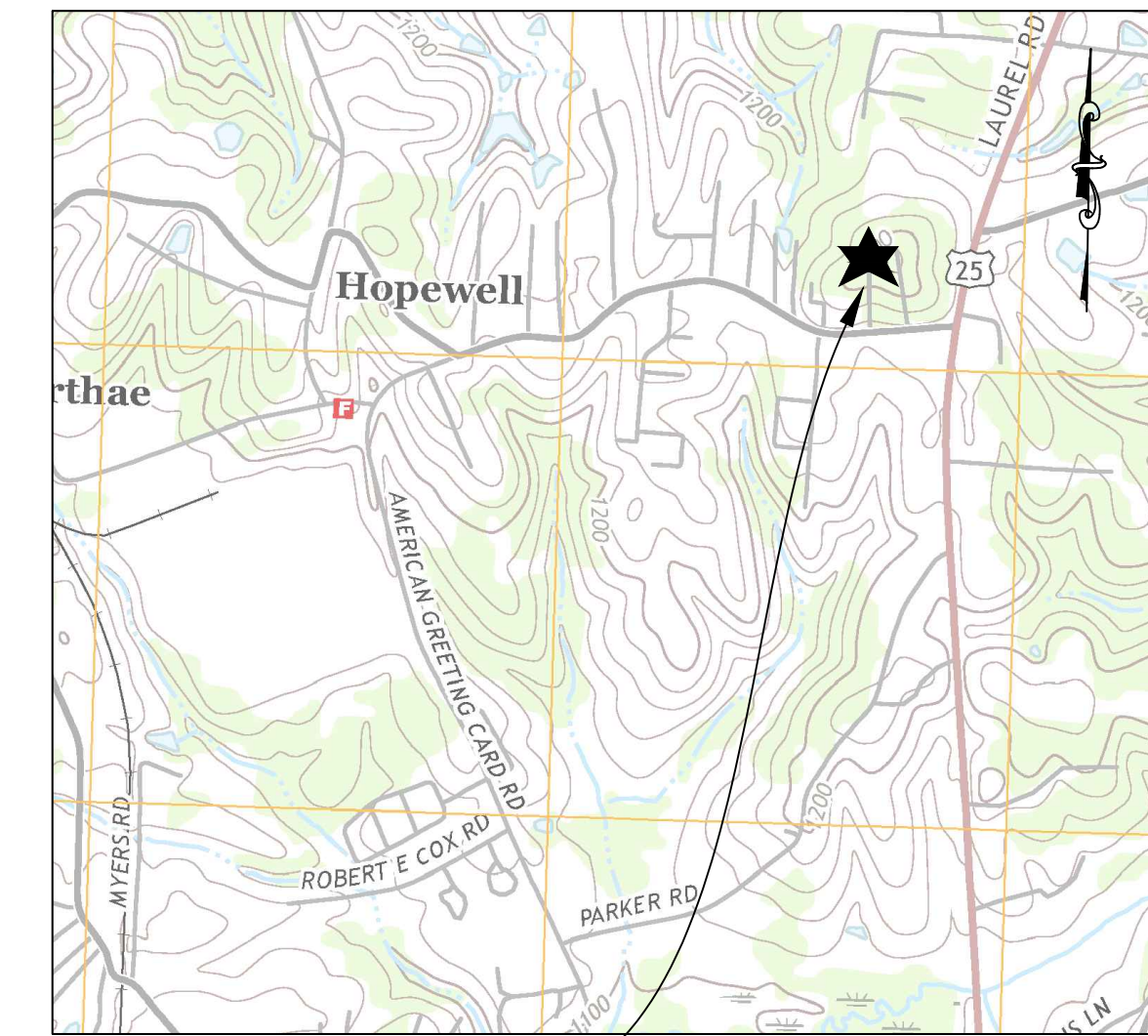
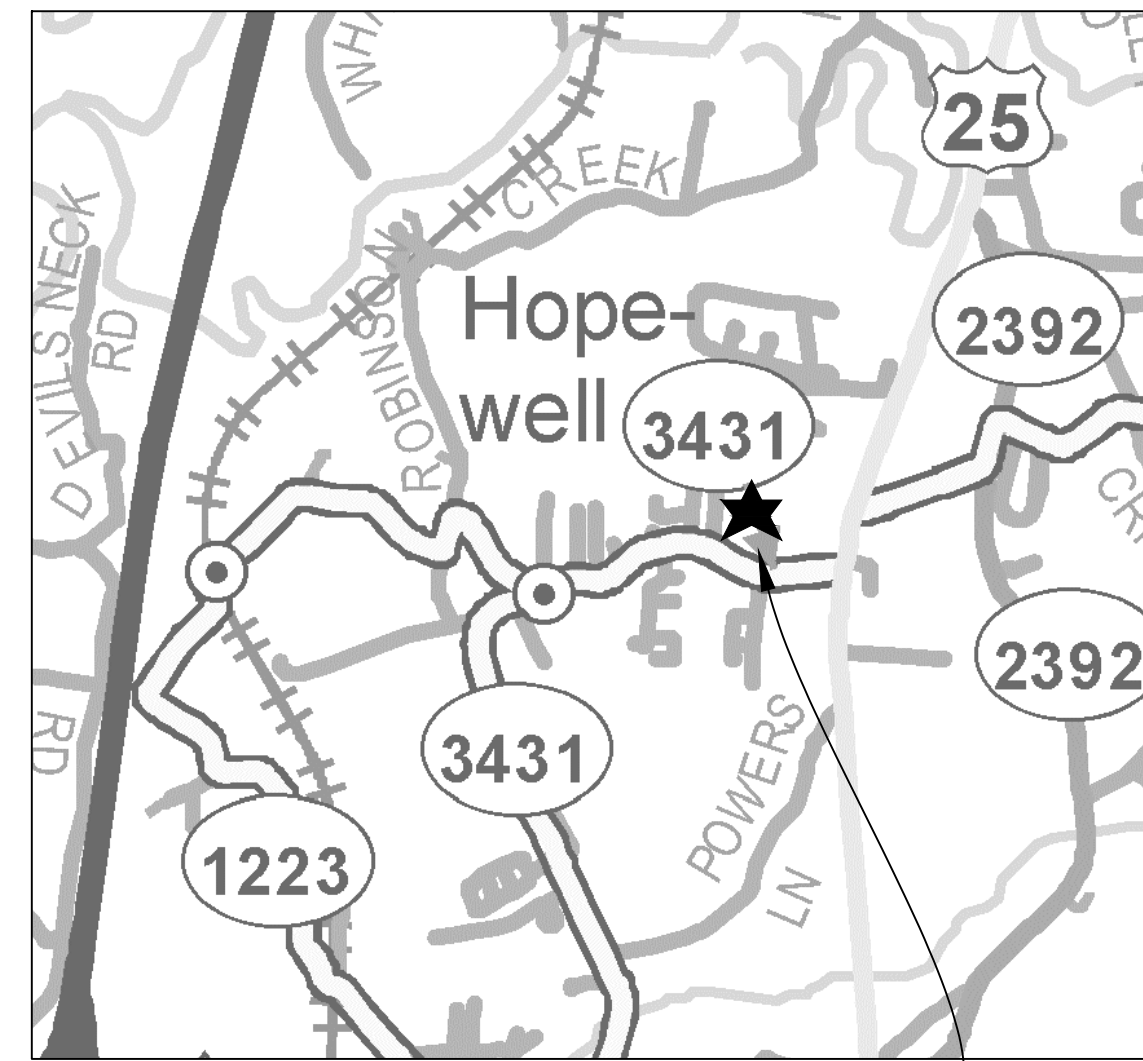
SHEET:  
**2**







ELEVATION DETAIL



LOCATION MAPS

**NOTES:**

**DESIGN:**

THE TANK AND CONCRETE SUPPORT PEDESTAL SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH AWWA D100-11, AND PROJECT SPECIFICATIONS.

**LOADING CRITERIA:**

DESIGN WIND VELOCITY: 100 MPH  
 DESIGN WIND VELOCITY: 100 PSF  
 MSE SPECTRAL RESPONSE ACCELERATION - 0.2-SEC PERIOD (S<sub>s</sub>): PER AWWA D100-11  
 MSE SPECTRAL RESPONSE ACCELERATION - 1.0-SEC PERIOD (S<sub>1</sub>): PER AWWA D100-11

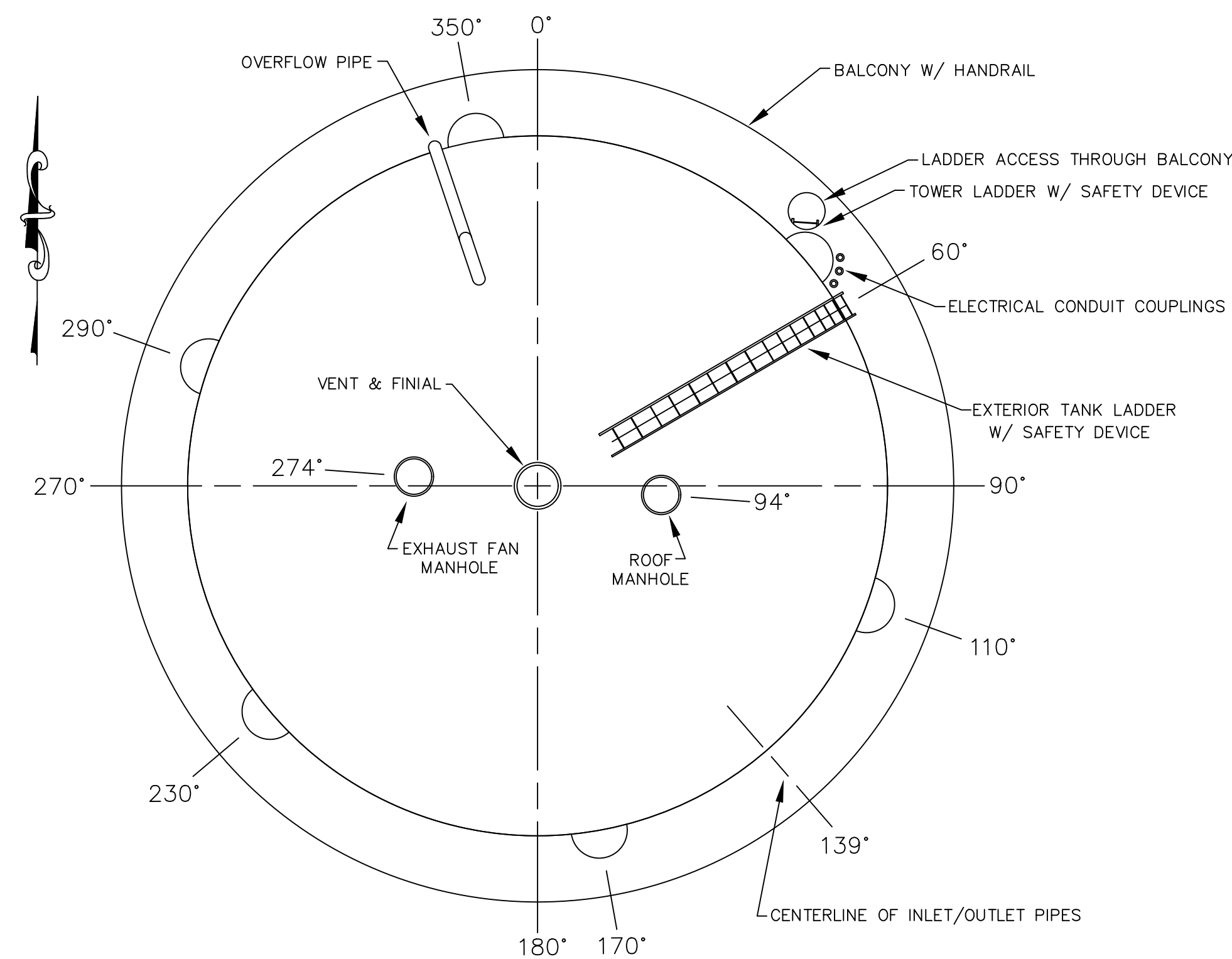
THE CONTRACTOR SHALL GROUT BENEATH BASE PLATES UPON COMPLETION OF ERECTION.

**MATERIAL:**

STEEL PLATE: ASTM A283 GR.C/A36  
 STRUCTURAL STEEL SHAPES: ASTM A36  
 BRACE & STAY RODS: ASTM A36  
 LADDER RUNGS: ASTM A706

**GENERAL:**

- ACCESSORIES SHOWN ON ELEVATION DRAWINGS ARE ROTATED FOR CLARITY.
- ALL HANDRAILS, PLATFORM LANDINGS, WALKWAYS, LADDERS AND SAFETY CLIMB DEVICES SHALL CONFORM WITH CURRENT OSHA STANDARDS.
- SEE PROJECT SPECIFICATIONS FOR SHOP AND FIELD PAINT REQUIREMENTS FOR THE STEEL TANK.
- STERILIZE TANK IN ACCORDANCE WITH AWWA C652-02 AND PROJECT SPECIFICATIONS.
- TOWER LADDER SHALL HAVE 3' X 3' REST PLATFORM AT TOWER LADDER MIDPOINT.



ORIENTATION DETAIL

**CONSTRUCTION DETAILS**

**HOPEWELL WATER STORAGE TANK**

**CUSTOMER:**

**LAUREL COUNTY WATER DISTRICT NO. 2**

**LAUREL COUNTY, KENTUCKY**

**DESCRIPTION:**

PROJECT NO. 1813

DATE: OCT 2019

DRAWN BY: JLM

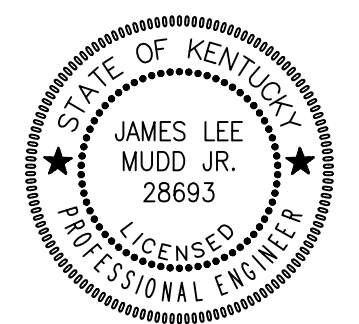
CHECKED BY: DSB

CHECKED BY: DMB

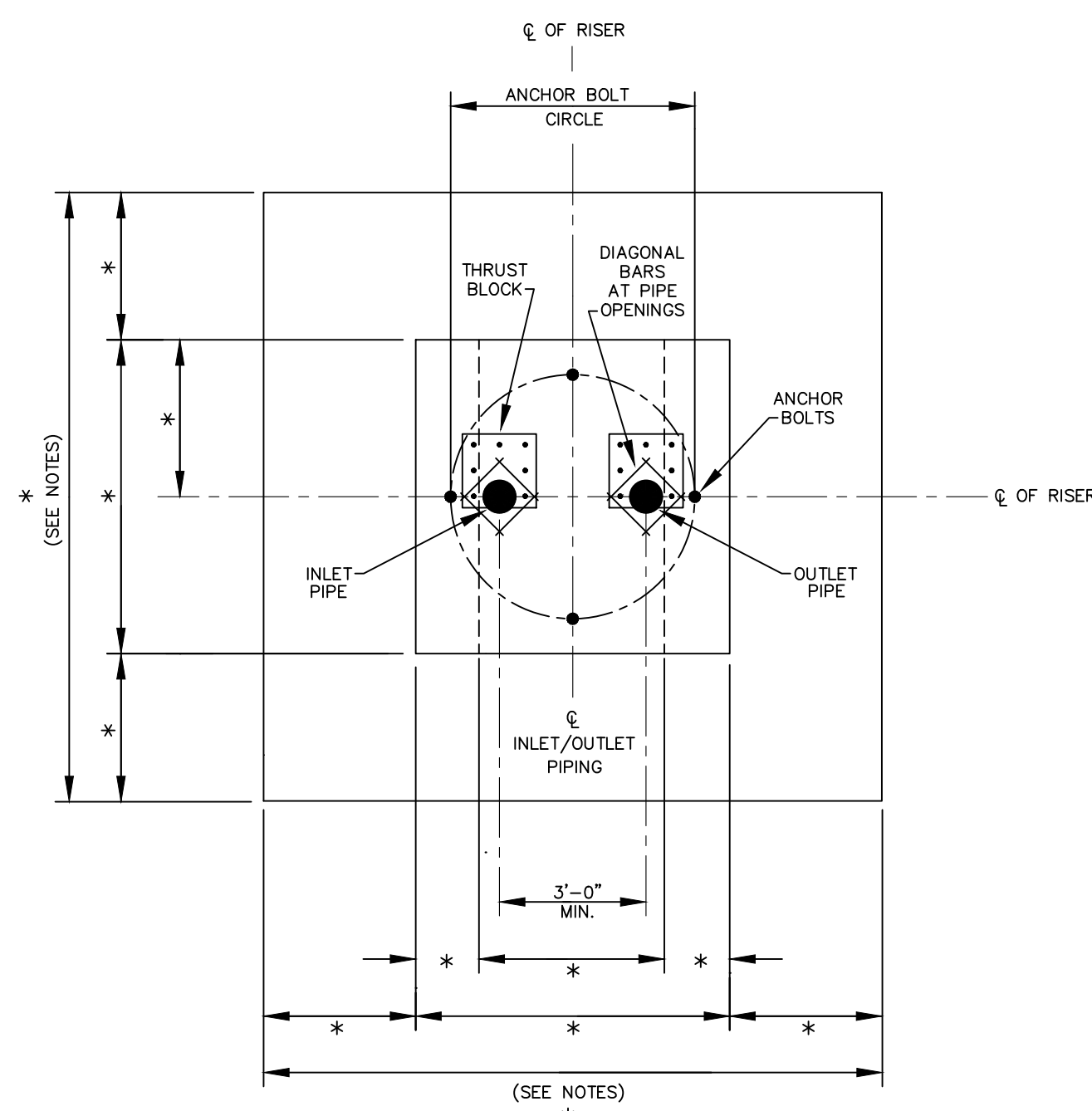
SCALE: N.T.S.

SHEET:

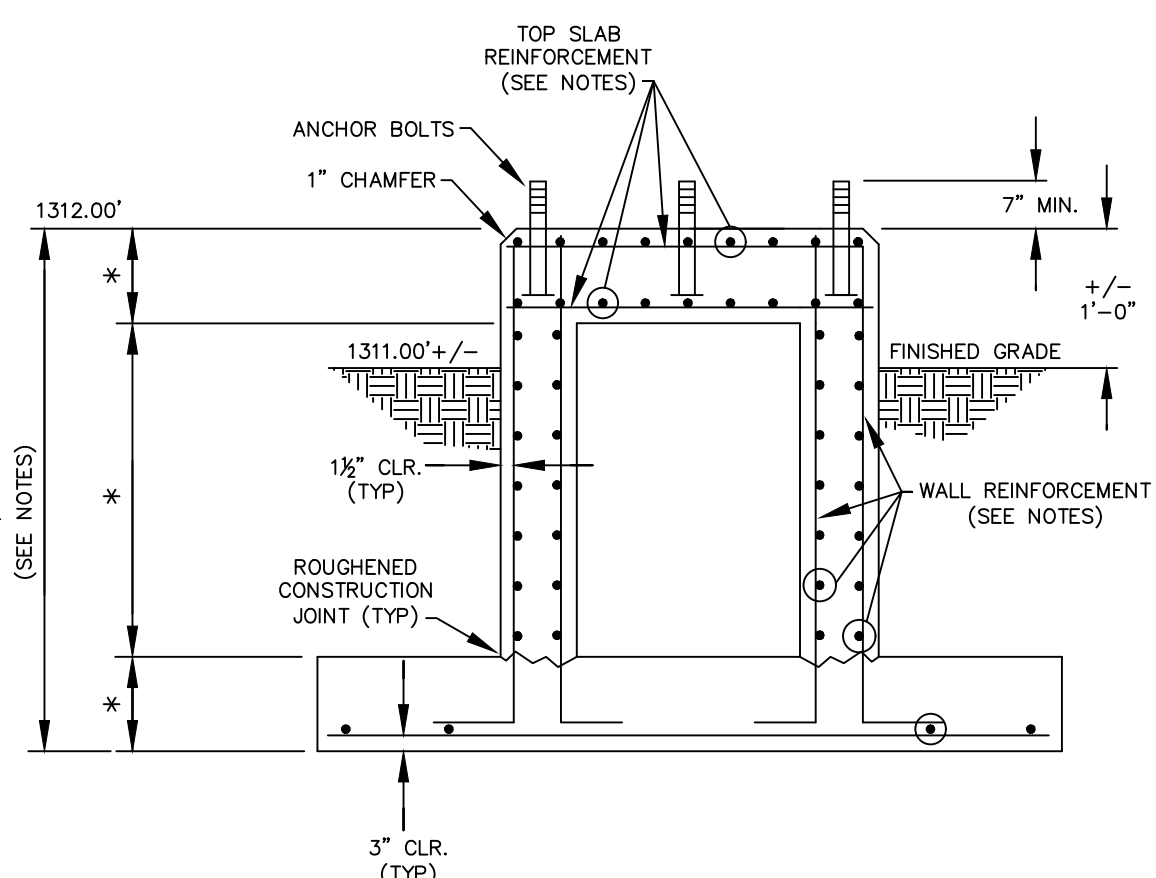
**3**



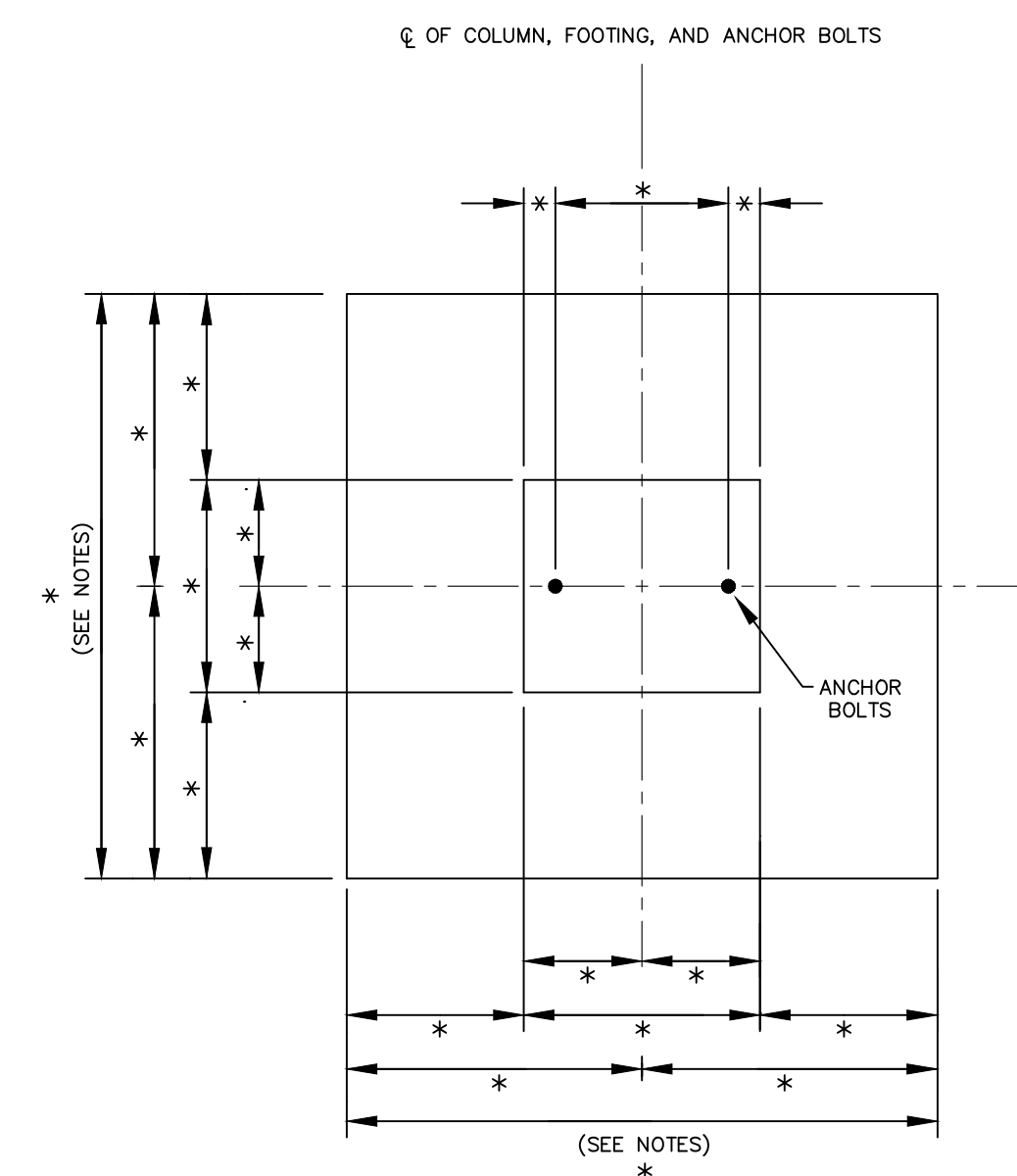




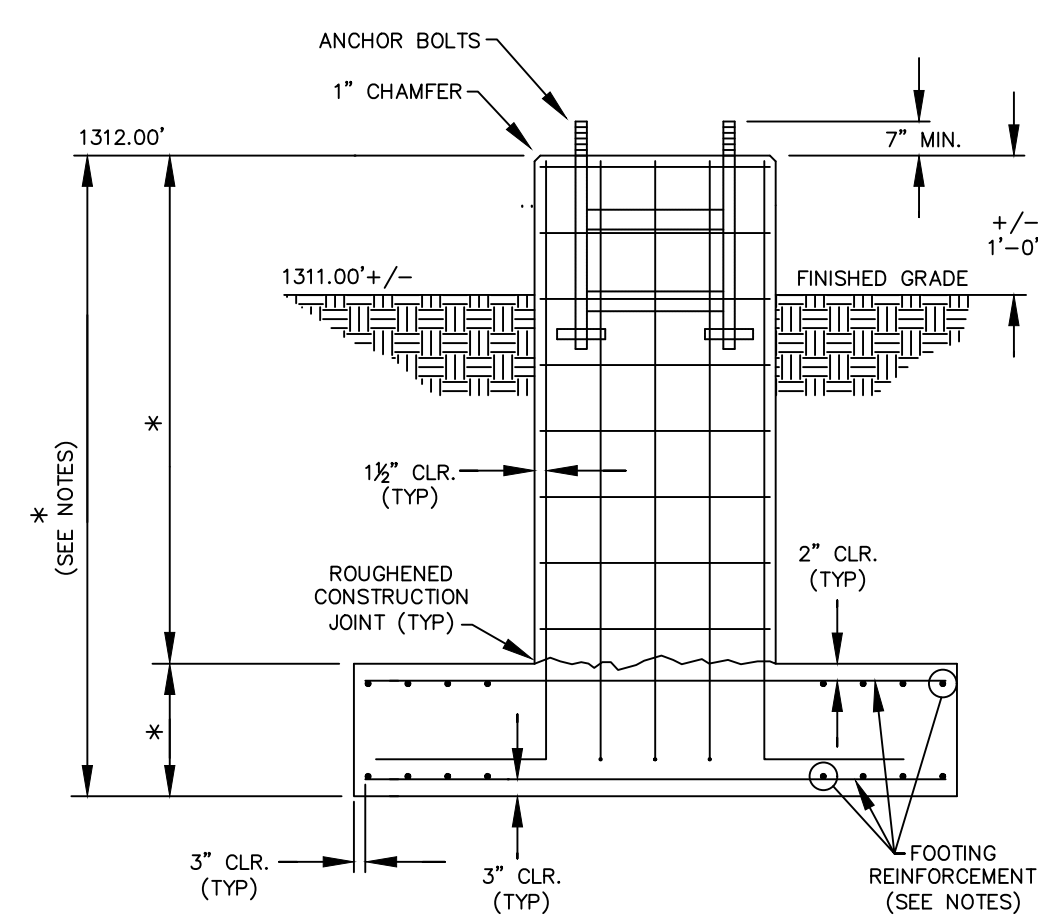
CENTER PIER PLAN



CENTER PIER SECTION THRU



COLUMN PIER PLAN



COLUMN PIER SECTION

**NOTES:**

FINAL FOUNDATION DESIGN WILL BE THE RESPONSIBILITY OF THE TANK CONTRACTOR

FINAL PIER AND FOOTING DIMENSIONS (\*) AND CONCRETE REINFORCEMENT REQUIREMENTS SHALL BE DETERMINED BY THE TANK CONTRACTOR

FOUNDATION CONSTRUCTION SHALL COMPLY WITH AWWA D100-11, A.C.I. 318-99, A.C.I. 301-96 AND APPLICABLE SECTIONS OF THE PROJECT SPECIFICATIONS AND THE PROJECT SOILS REPORT.

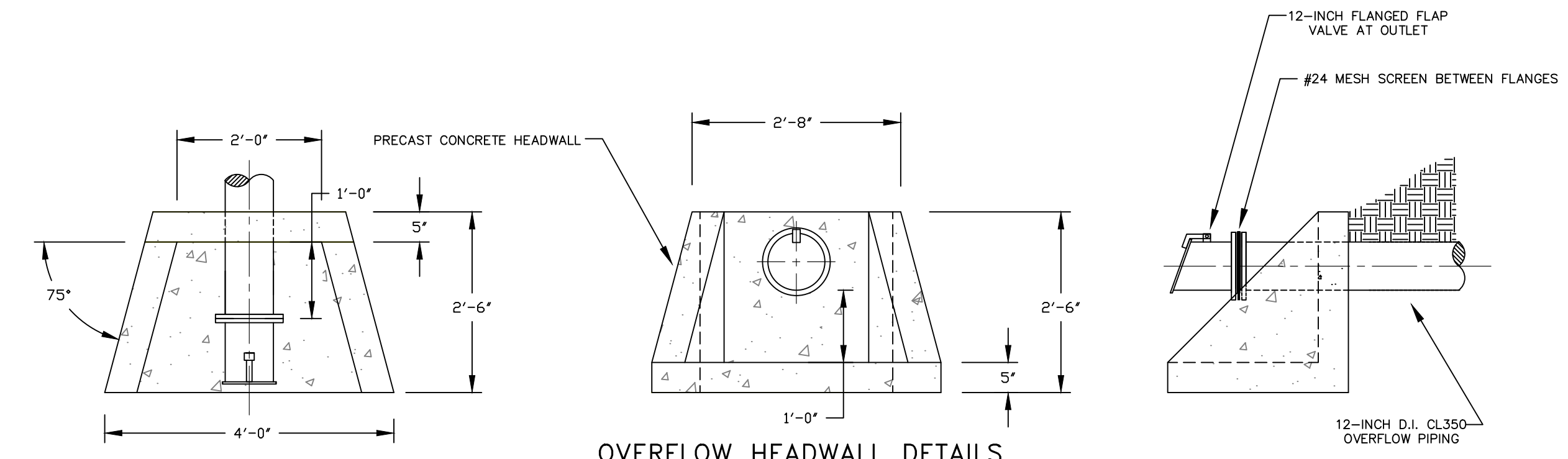
MINIMUM CONCRETE COMPRESSIVE STRENGTH SHALL BE 4,000 PSI @ 28 DAYS. REINFORCEMENT SHALL CONFORM TO A.S.T.M. A615 GR. 60.

CONSTRUCTION JOINTS SHALL BE ROUGHENED ACROSS ENTIRE FACE WITH 1/4" MINIMUM DEPTH INDENTATIONS.

THE TOP OF CONCRETE FOR ALL PIERS INCLUDING THE CENTER PIER SHALL BE LEVEL AND SHALL BE THE SAME ELEVATION (UNLESS OTHERWISE NOTED BY A SPECIFIED ELEVATION) WITH A MAXIMUM DIFFERENTIAL OF (+/-) 1/4".

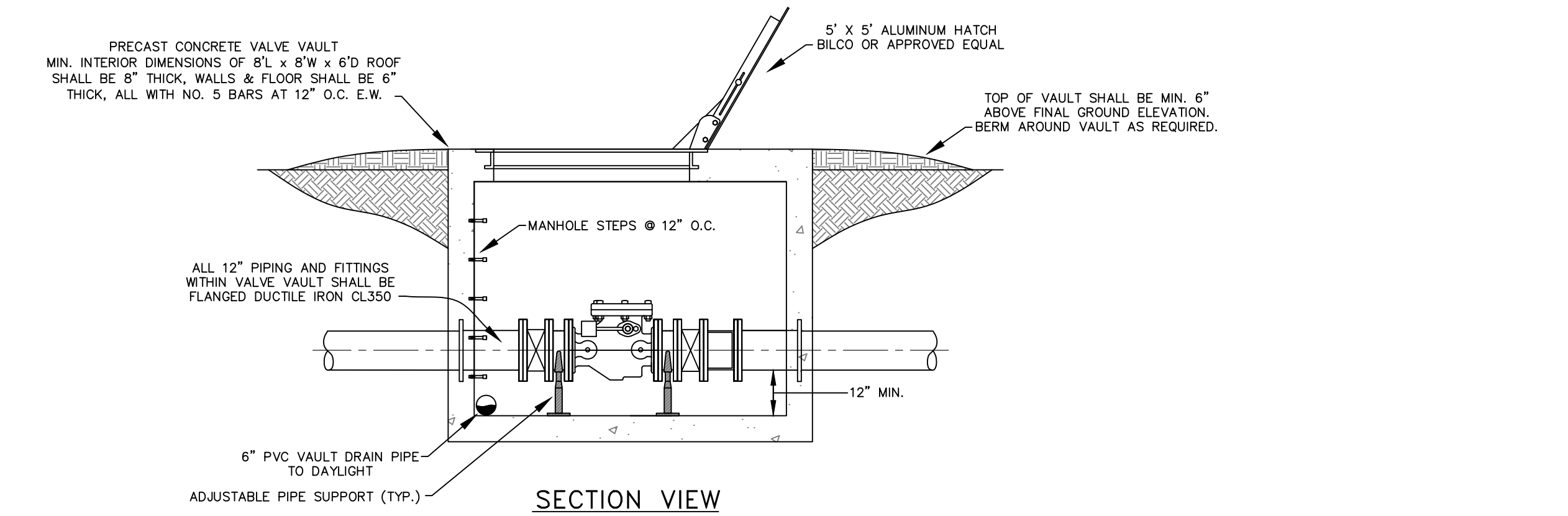
ANCHOR BOLTS SHALL BE PLACED WITHIN (+/-) 1/8" OF THE PLAN DIMENSIONS AT THE TOP OF THE CONCRETE, PLUMB WITHIN 1/4" IN 12" AND EXTEND WITHIN 1/2" OF THE SPECIFIED PROJECTION ABOVE THE TOP OF THE FOUNDATION.

FOUNDATION DETAILS  
SCALE: N.T.S.

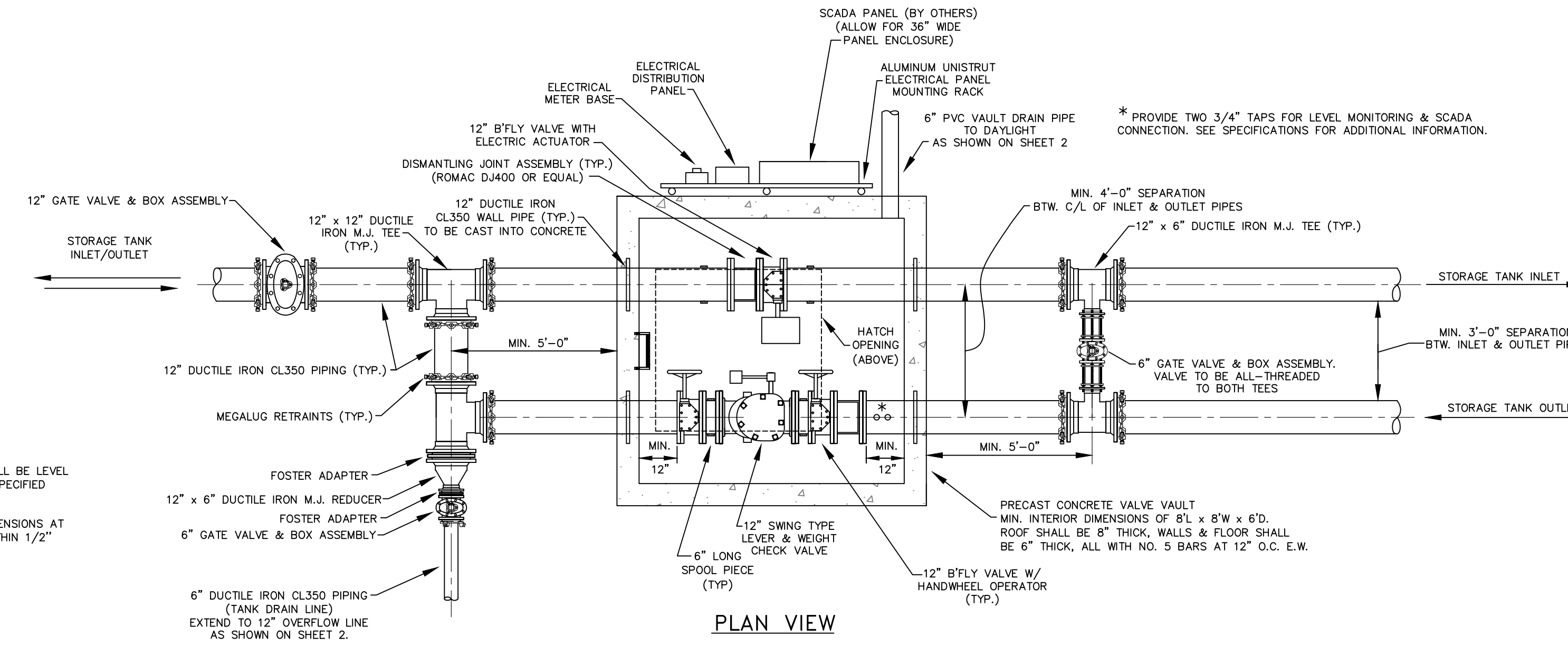


OVERFLOW HEADWALL DETAILS

HEADWALL DETAILS  
SCALE: NTS



SECTION VIEW



PLAN VIEW

VALVE VAULT DETAILS  
SCALE: N.T.S.

**Monarch Engineering, Inc.**

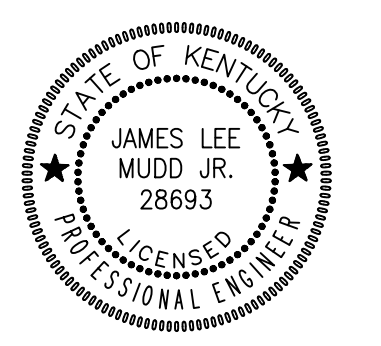
556 CARLTON DRIVE  
LAWRENCEBURG, KY 40342

DESCRIPTION:  
CONSTRUCTION DETAILS  
HOPEWELL WATER STORAGE TANK

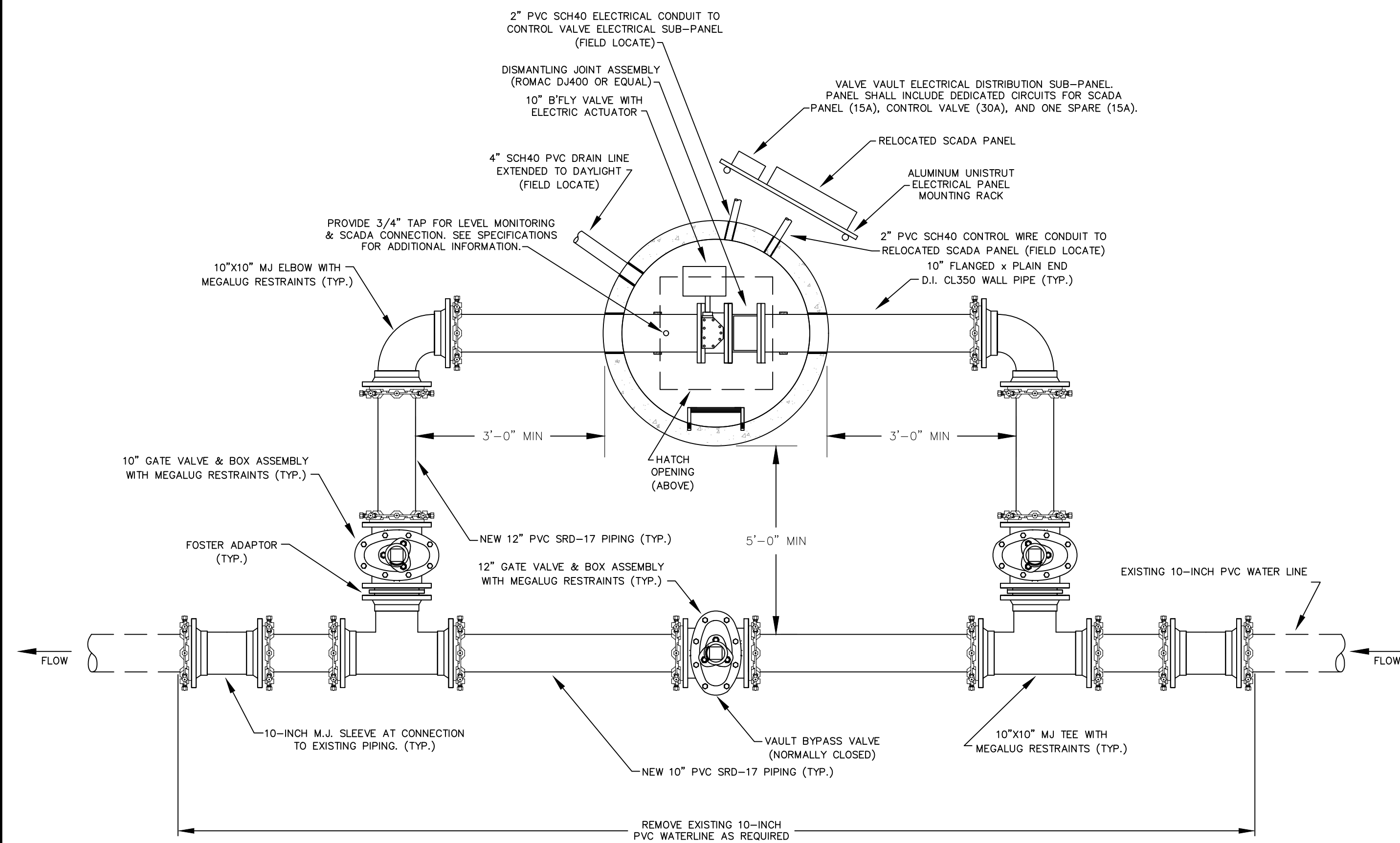
CUSTOMER:  
LAUREL COUNTY WATER DISTRICT NO. 2  
LAUREL COUNTY, KENTUCKY

PROJECT NO. 1813  
DATE: OCT 2019  
DRAWN BY: JLM  
CHECKED BY: DSB  
CHECKED BY: DMB

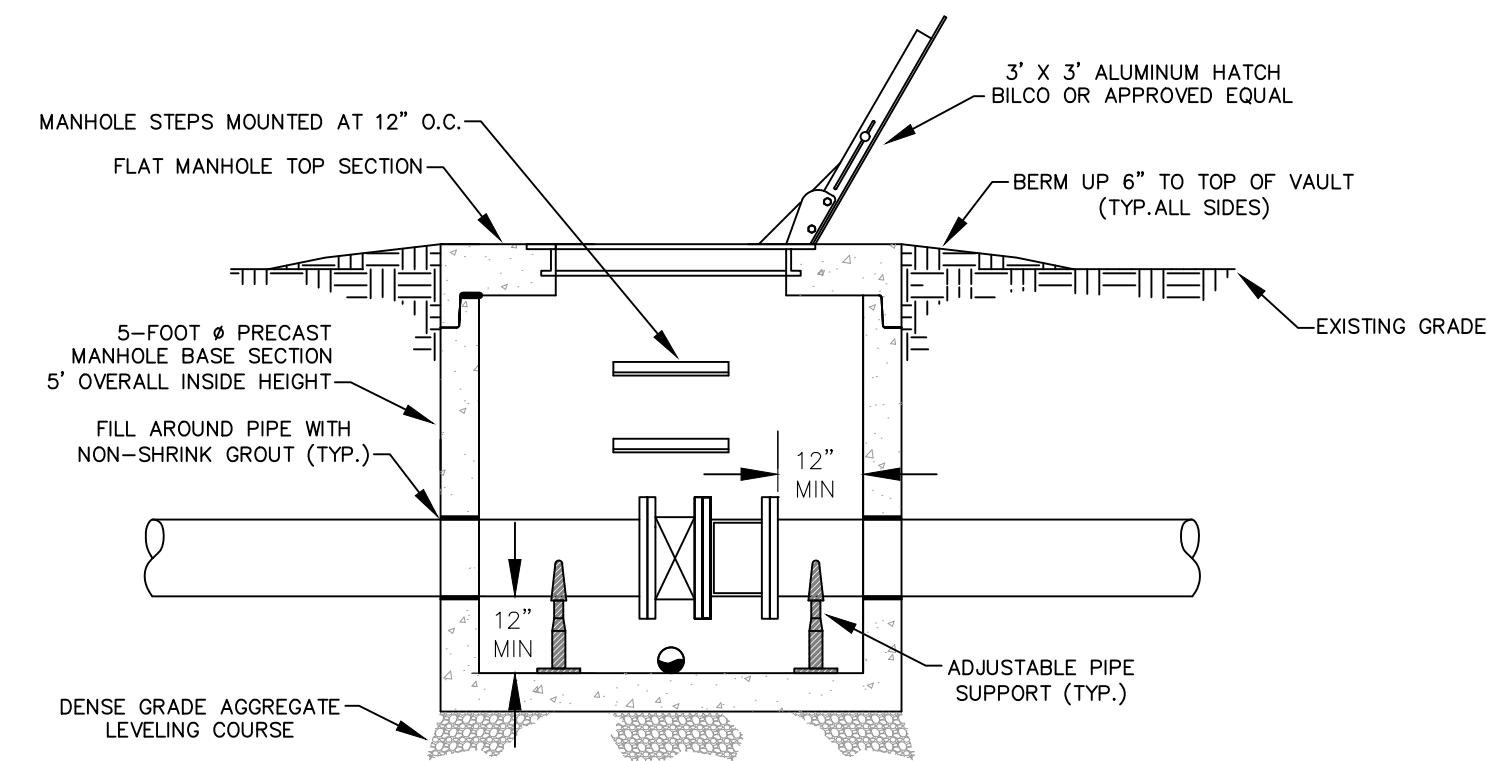
SCALE: N.T.S.  
SHEET:  
4







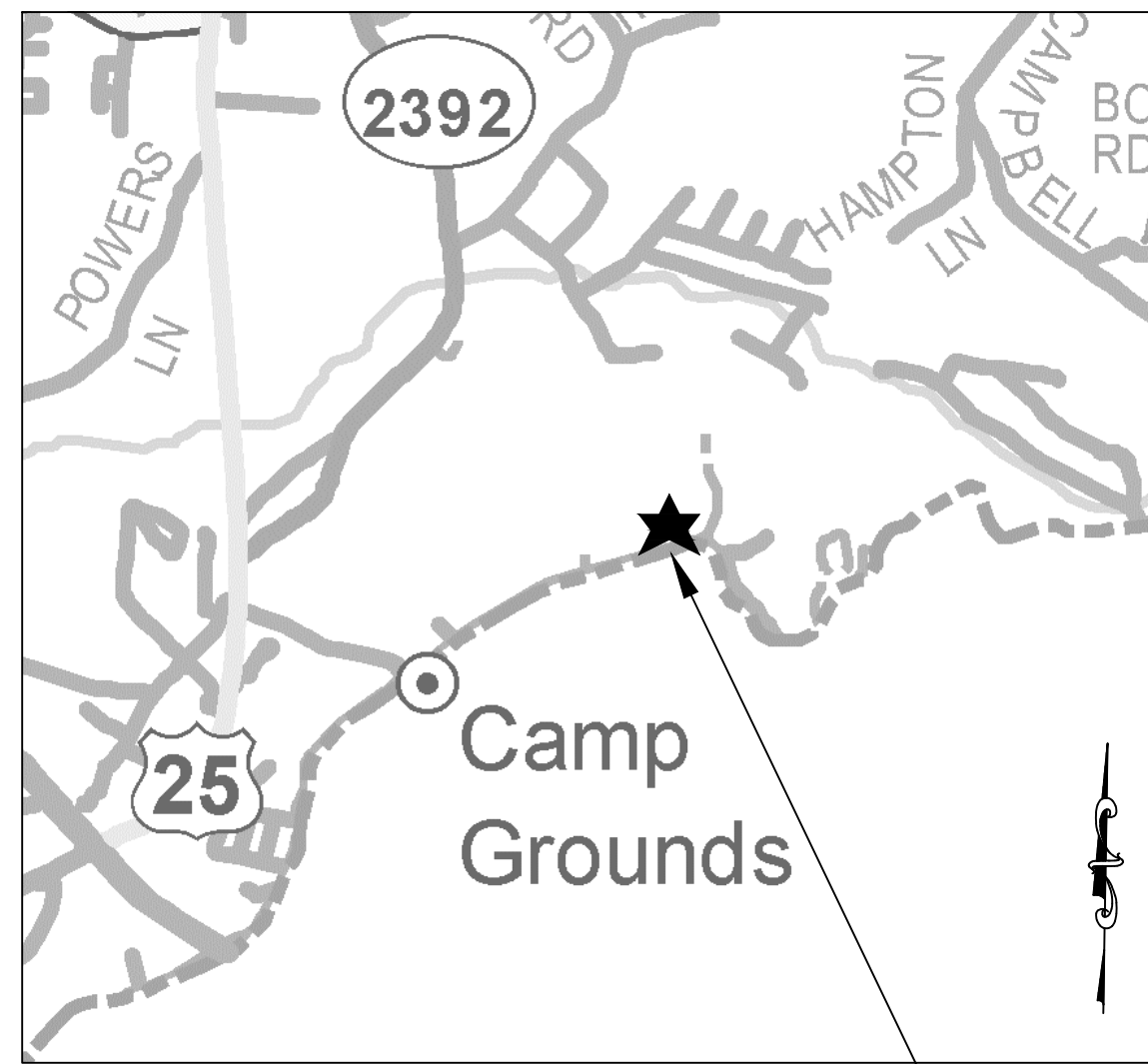
PLAN VIEW



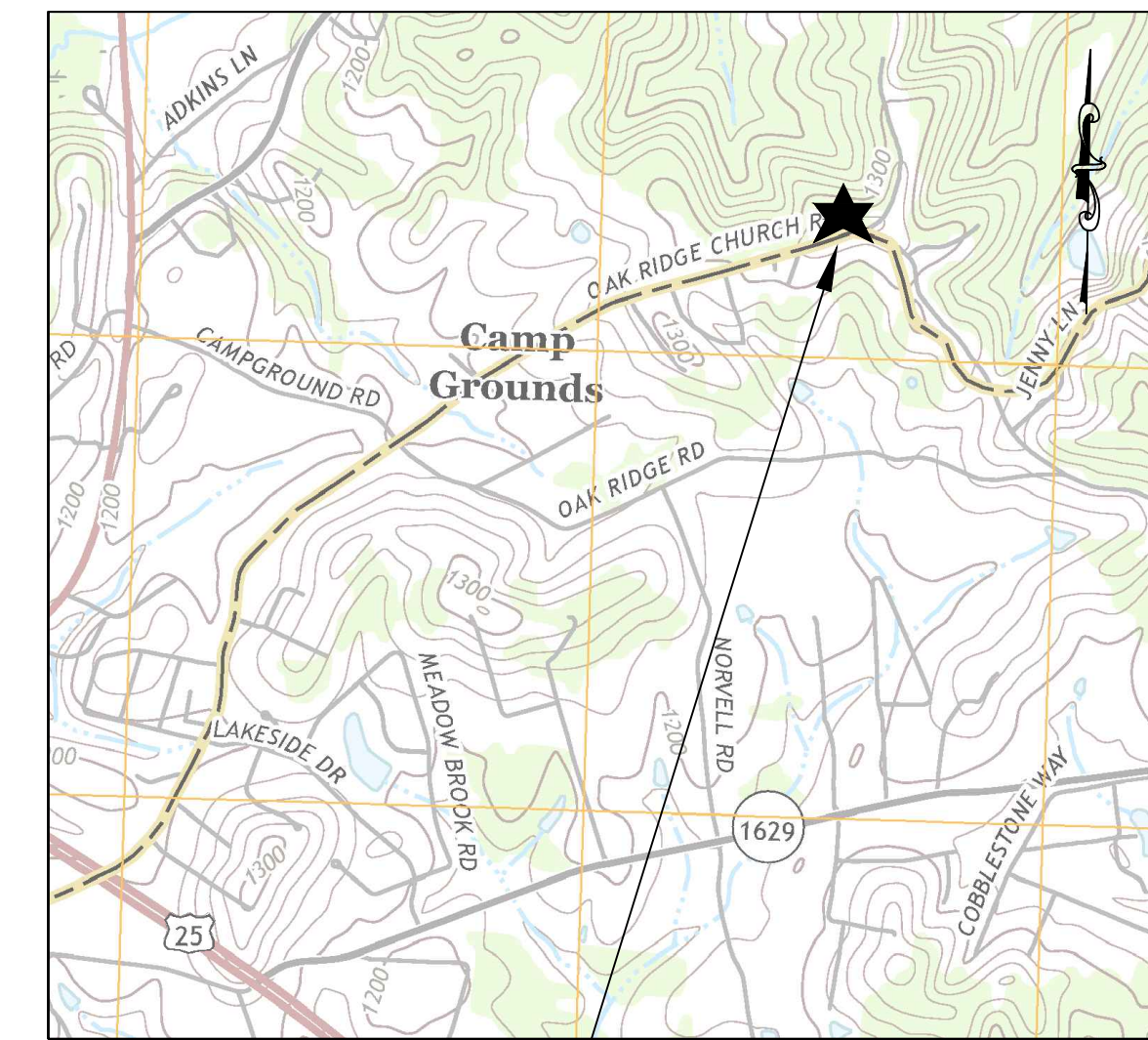
SECTION VIEW

### CONTROL VALVE VAULT DETAILS

SCALE: N.T.S.

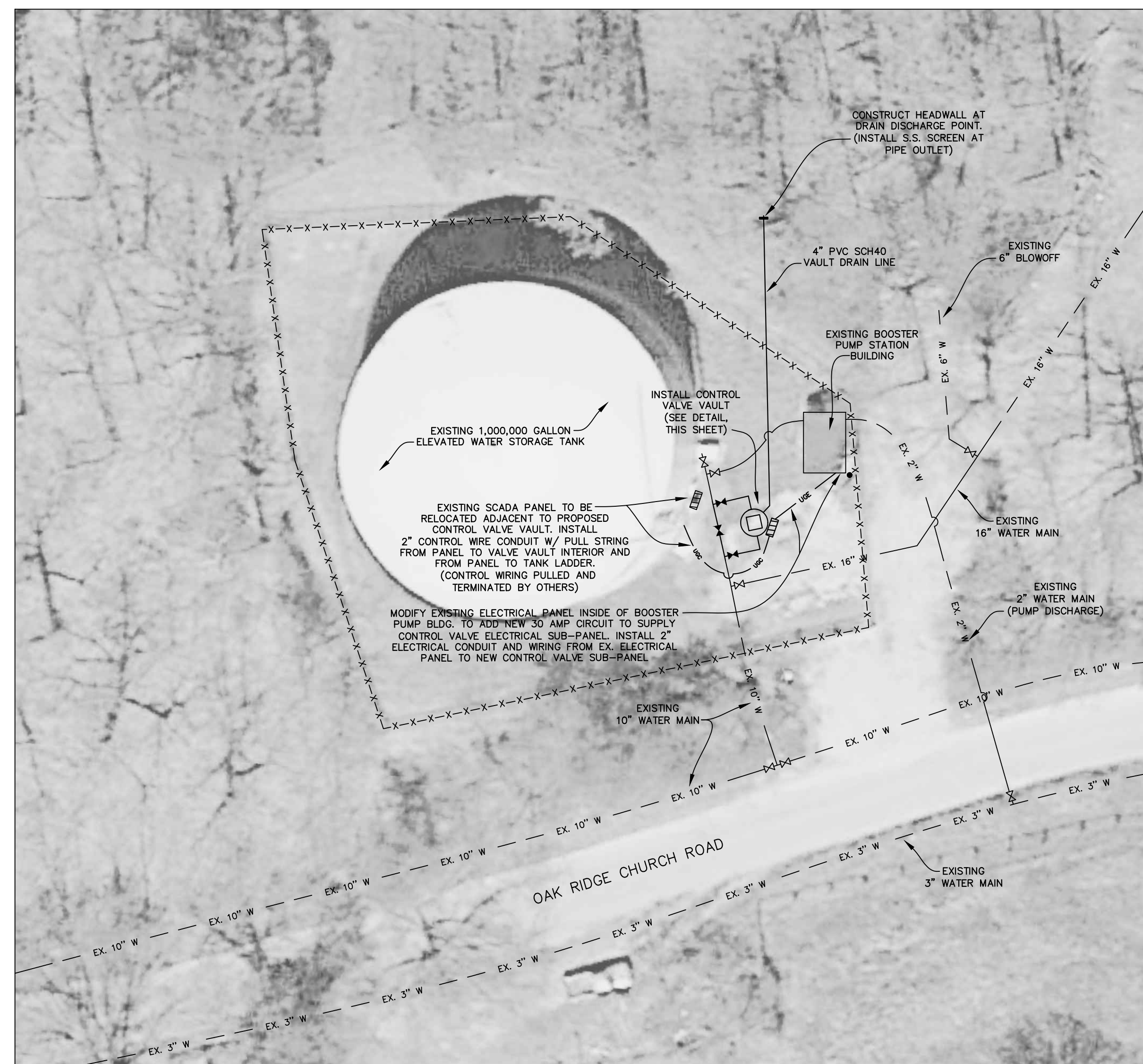


TANK SITE



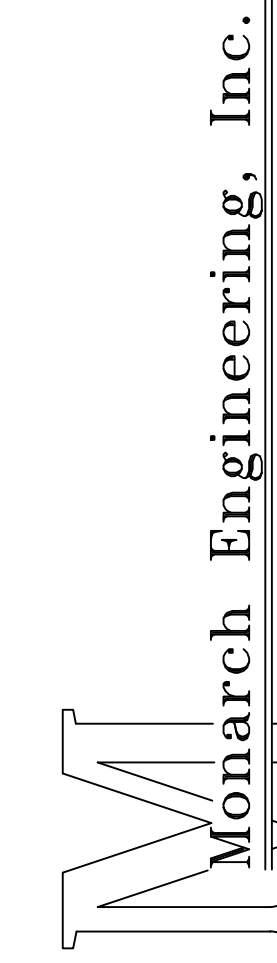
TANK SITE  
LAT: 36°58'35.02" N  
LONG: 84°03'43.39" W

### LOCATION MAPS



### SITE PLAN

SCALE: 1"=20'



556 CARLTON DRIVE  
LAWRENCEBURG, KY 40342

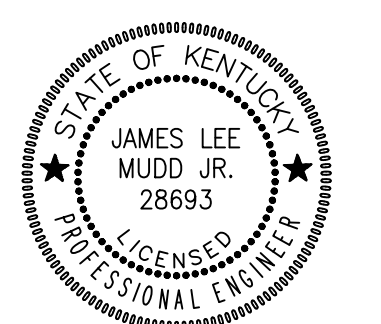
DESCRIPTION:  
**PROPOSED SITE PLAN  
EXISTING OAK RIDGE STORAGE TANK**

CUSTOMER:  
**LAUREL COUNTY WATER DISTRICT NO. 2  
LAUREL COUNTY, KENTUCKY**

PROJECT NO. 1813  
DATE: OCT 2019  
DRAWN BY: JLM  
CHECKED BY: DSB

CHECKED BY: DMB  
SCALE: AS NOTED

SHEET:  
5



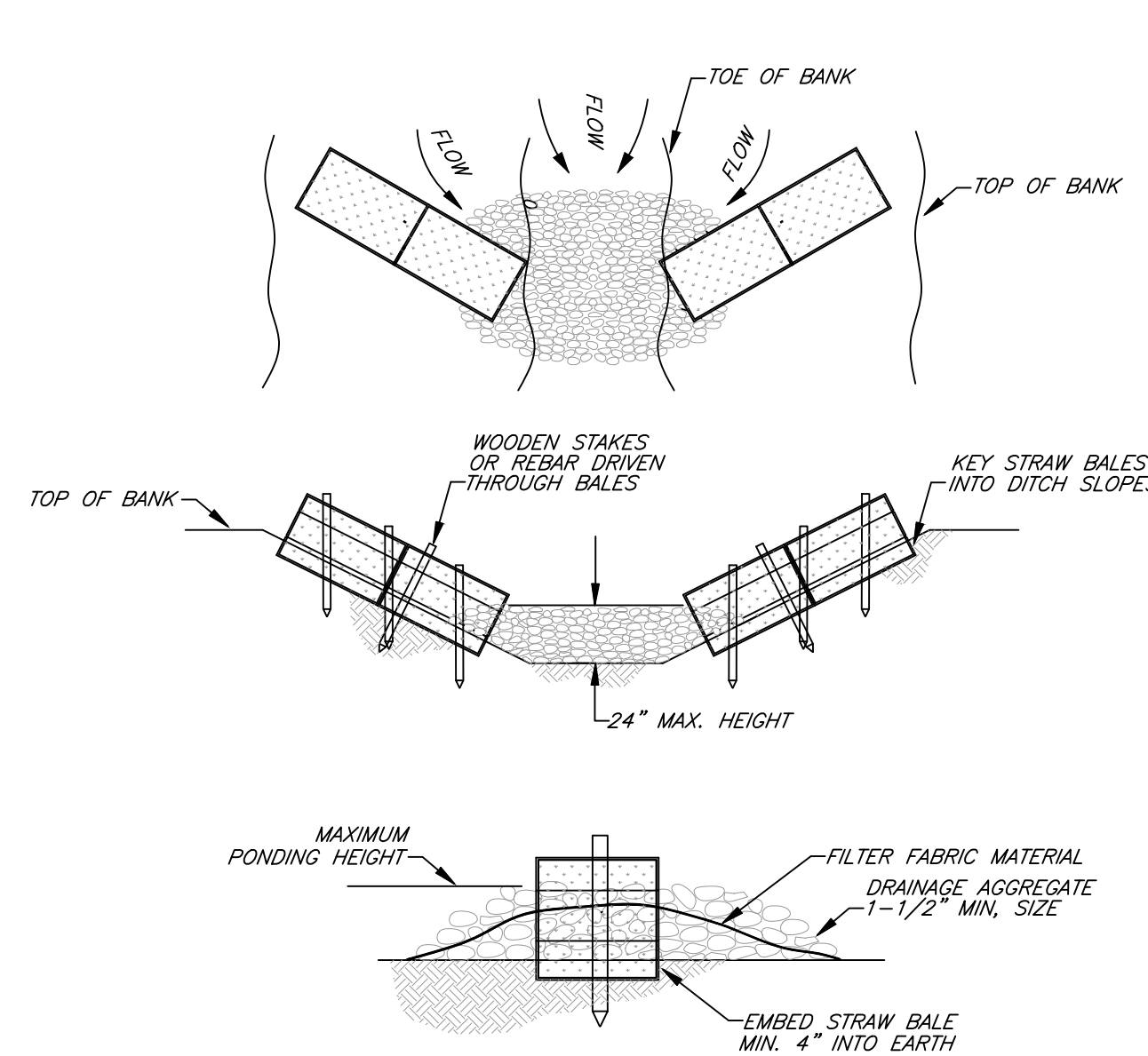




**EROSION CONTROL  
& SITE PROTECTION PLAN**

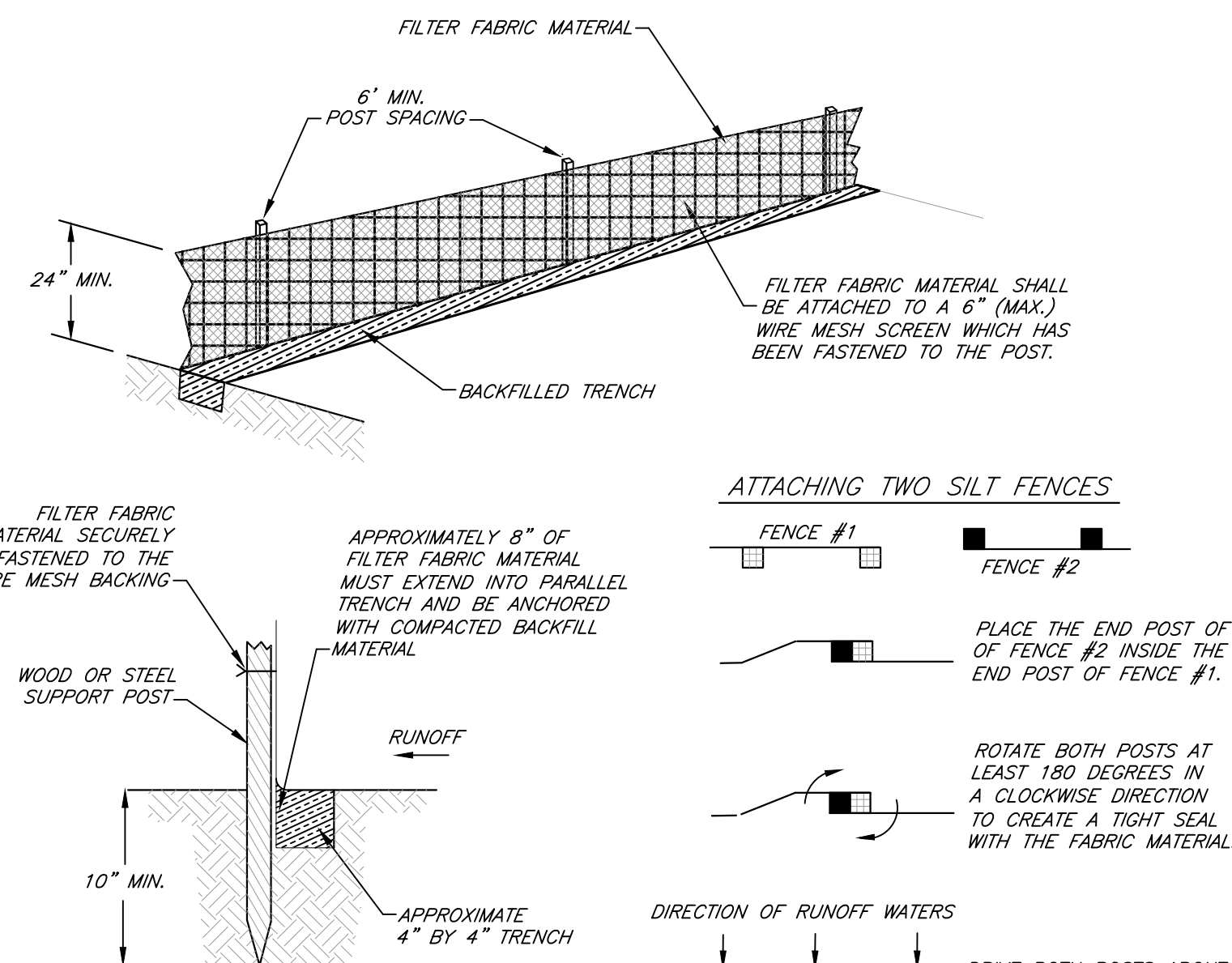
SCALE: 1"=20'

LEGEND	
PROPERTY LINES	-----
TEMPORARY CONSTRUCTION BARRIER FENCE	-X-X-X-X-
FILTER FABRIC SILT FENCE	-SF-SF-SF-SF-SF-
ANTICIPATED LIMITS OF DISTURBANCE	.....
SEMI-PERVIOUS CHECK DAM	
PROPOSED/EXISTING STRUCTURE	
SOIL STOCKPILE	
STABILIZED CONSTRUCTION ENTRANCE	



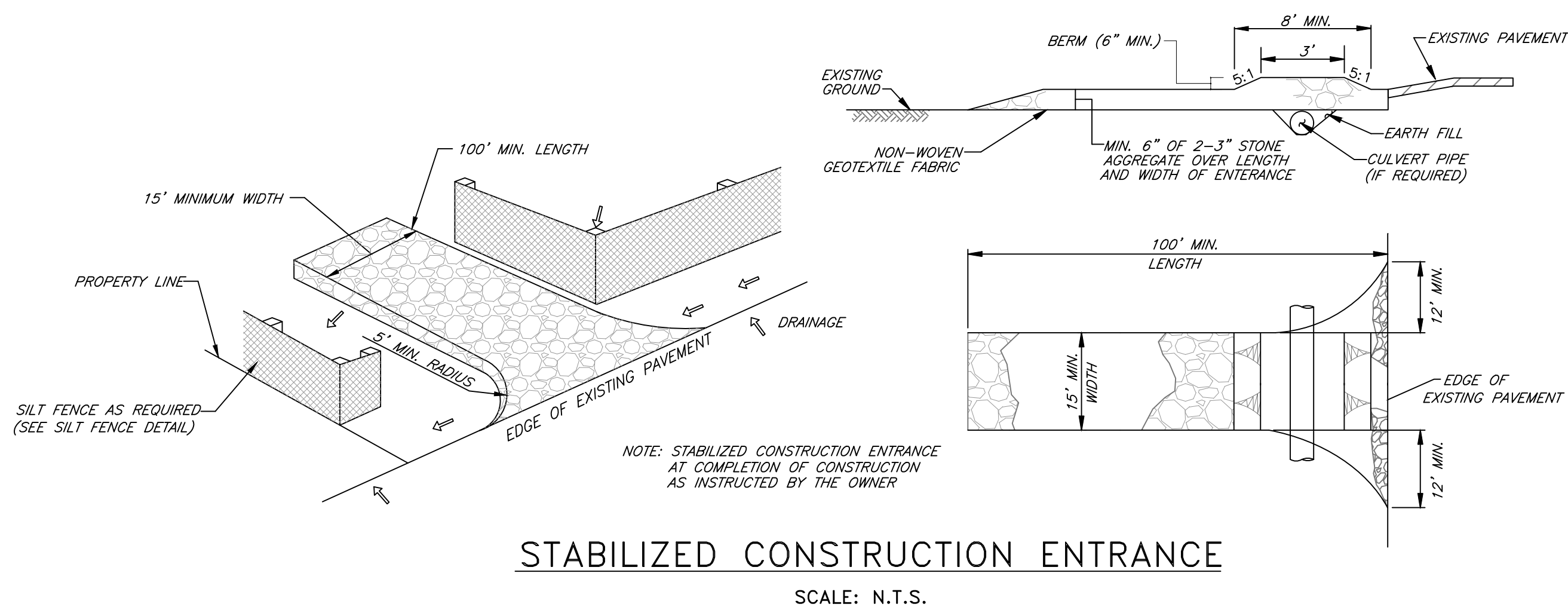
**SEMI-PERVIOUS CHECK DAM**

SCALE: N.T.S.



**FILTER FABRIC SILT FENCE**

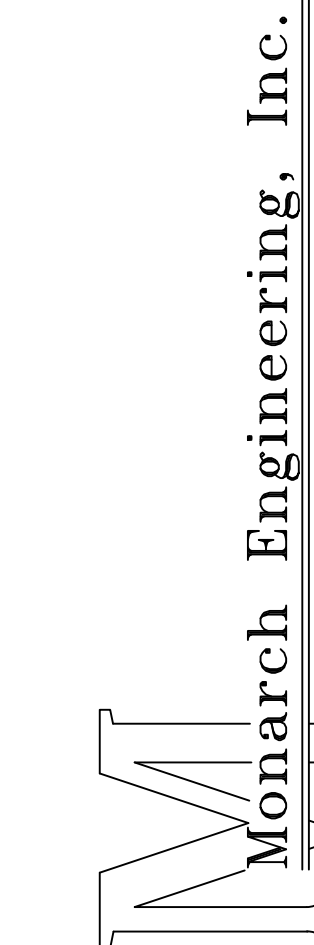
SCALE: N.T.S.



**STABILIZED CONSTRUCTION ENTRANCE**

SCALE: N.T.S.

NOTE: THE CONTRACTOR SHALL DO ALL WORK AND TAKE ALL MEASURES NECESSARY TO CONTROL SOIL EROSION RESULTING FROM CONSTRUCTION OPERATIONS. THE FLOW OF SEDIMENT AND ALL OTHER CONSTRUCTION MATERIALS INCLUDING EXCAVATION AND BACKFILL SHALL BE CONTAINED TO THE CONSTRUCTION SITE SO TO PROTECT ADJACENT WATERCOURSE AND WETLANDS. CONTRACTOR SHALL USE ANY APPROVED METHOD REQUIRED TO ACHIEVE THIS, AND AT A MINIMUM THOSE MEASURES DEPICTED HEREIN. THIS REQUIREMENT APPLIES TO ANY AND ALL DISTURBED AREAS WITHIN PROJECT AREA. THE COST OF EROSION CONTROL MEASURES SHALL BE INCIDENTAL TO THE COST OF CONSTRUCTING OTHER PROJECT COMPONENTS.



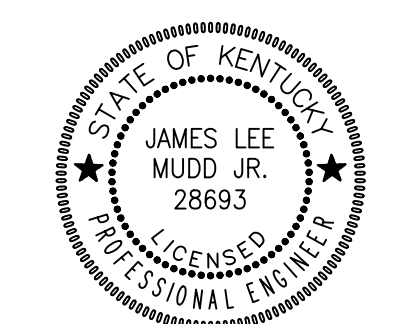
556 CARLTON DRIVE  
LAWRENCEBURG, KY 40342

DESCRIPTION:  
**EROSION CONTROL &  
SITE PROTECTION DETAILS**

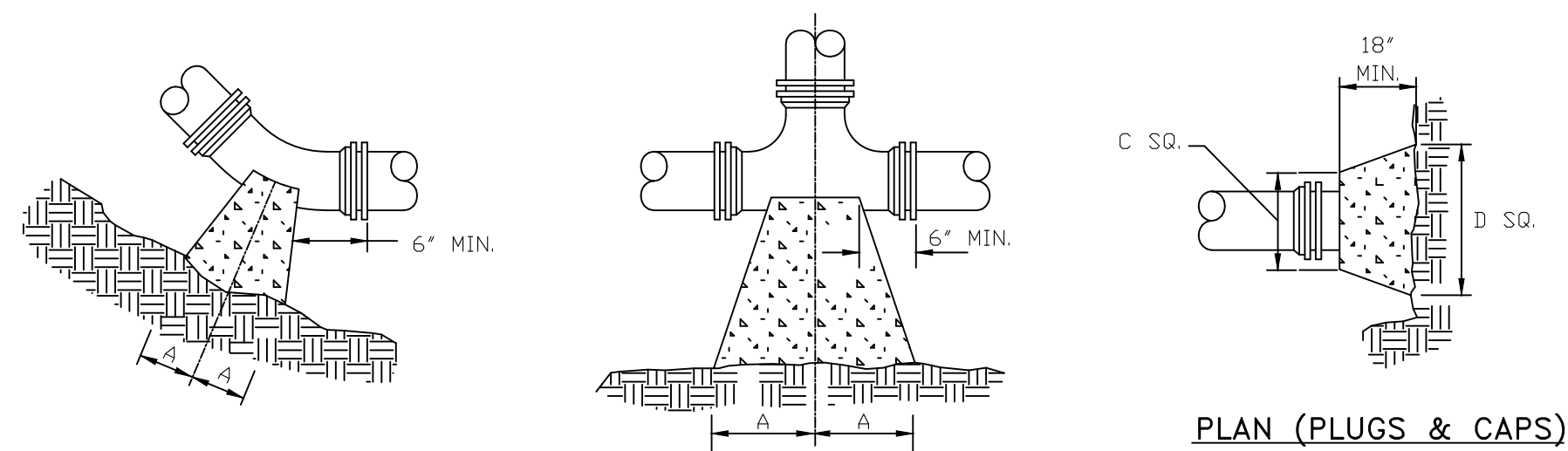
CUSTOMER:  
**LAUREL COUNTY WATER DISTRICT NO. 2  
LAUREL COUNTY, KENTUCKY**

PROJECT NO. 1813  
DATE: OCT 2019  
DRAWN BY: JLM  
CHECKED BY: DSB  
CHECKED BY: DMB  
SCALE: AS NOTED

SHEET:  
**EC-1**



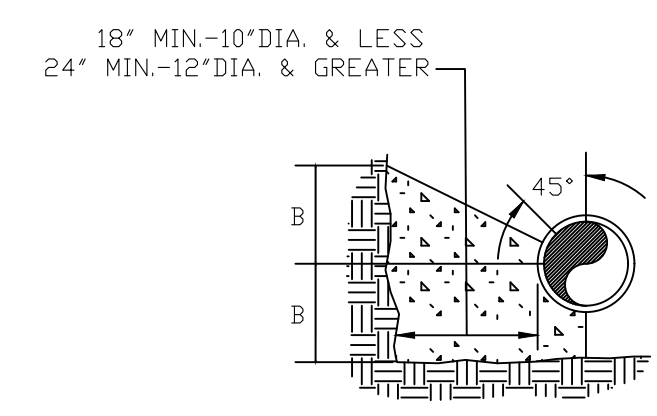




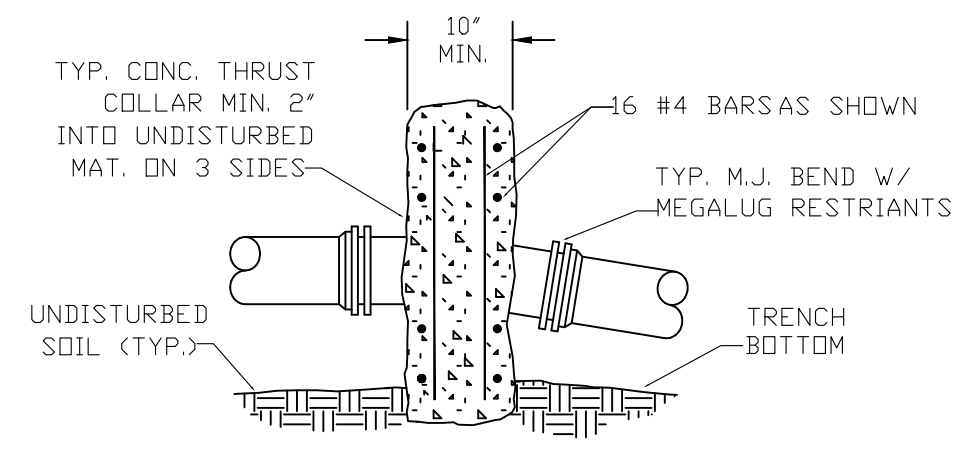
PLAN (HORIZONTAL BENDS)

PLAN (TEES)

PLAN (PLUGS & CAPS)



SECTION (HORIZONTAL BENDS & TEES)

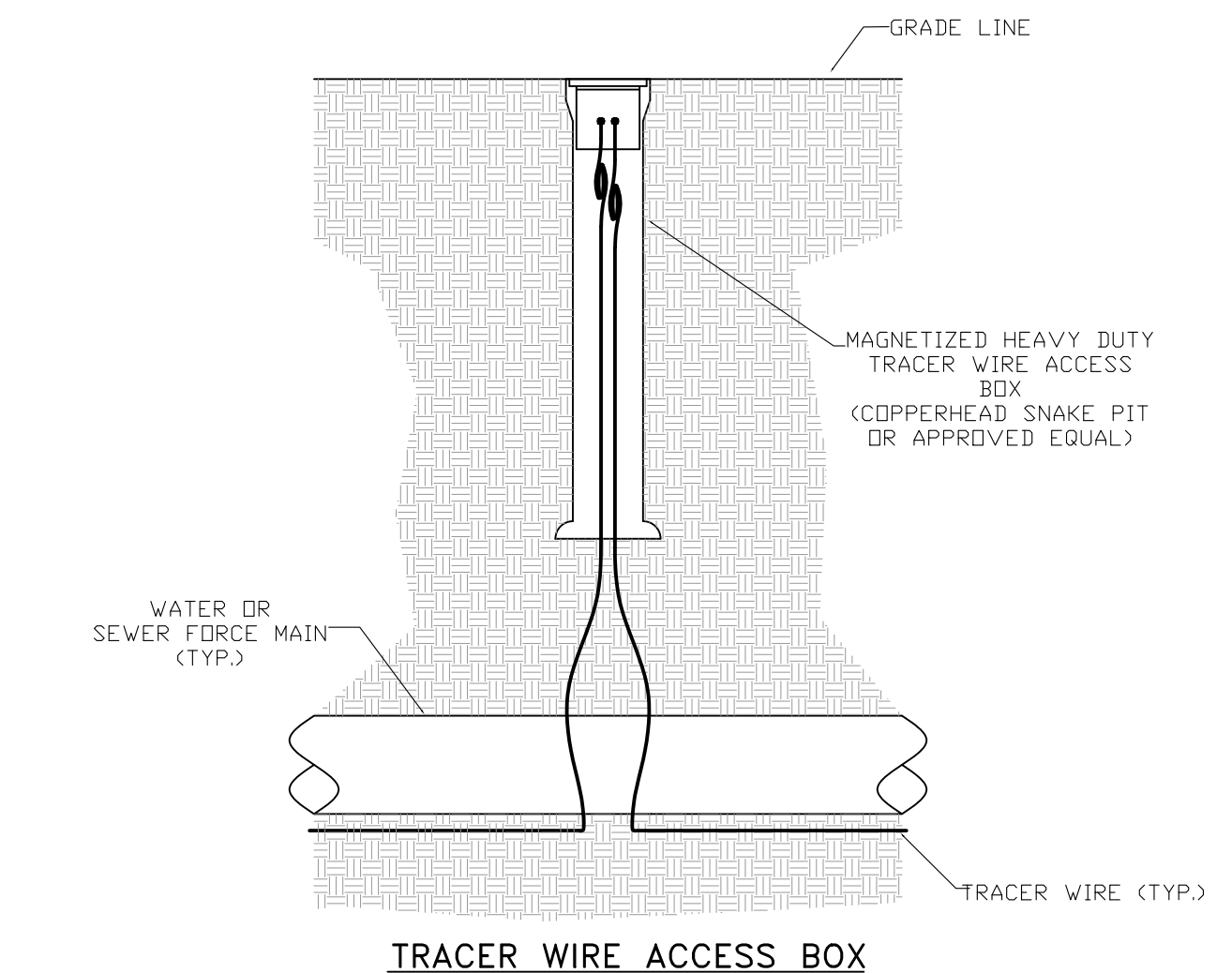


SECTION (VERTICAL BENDS)

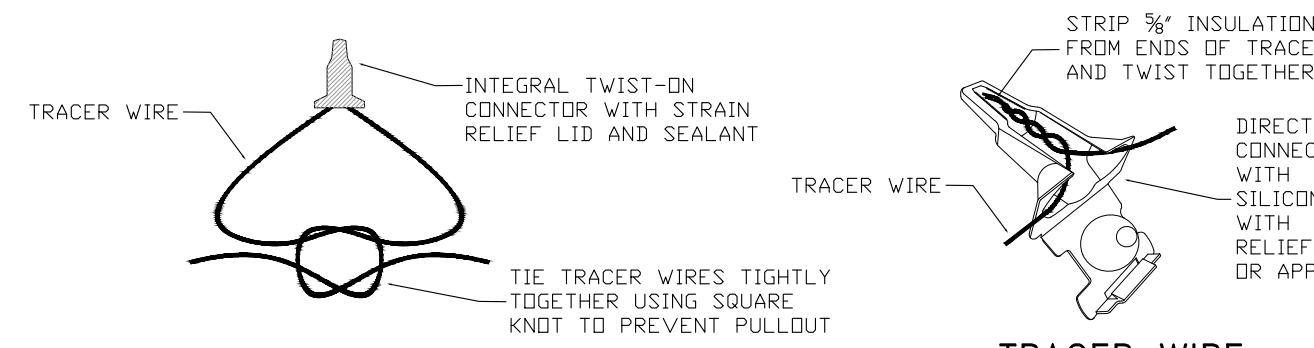
- NOTES:
- FOR VERT. BEND DOWN IN EXCESS OF 11 1/4" BEND, ANCHORAGE SHALL BE DESIGNED BY ENGINEER.
  - FOR VERT. BEND UPWARD, BLOCKING TO BE SIMILAR TO THAT FOR HORIZ. BEND.
  - GLANDS & BOLTS SHALL REMAIN ACCESSIBLE AND MUST BE PROTECTED FROM CONCRETE BY PLASTIC SHEETING OR OTHERWISE.
  - ALL THRUST BLOCK & SUPPORT CONCRETE SHALL BE 3000 PSI READY MIX
  - THRUST BLOCKS WITH "B" DIMENSION GREATER THAN 30" SHALL HAVE THE RESTRAINED PIPE INSTALLED WITH A MINIMUM OF 4" OF COVER.
  - DESIGN CRITERIA:  
LINE PRESSURE = 200 psi  
SOIL BEARING CAPACITY = 2000 psf  
FACTOR OF SAFETY = 1.5

PIPE SIZE	90° BEND		45° BEND		22 1/2° BEND		11 1/4° BEND		TEE		PLUG	
	A	B	A	B	A	B	A	B	A	B	C	D
4"	8"	12"	8"	8"	6"	6"	6"	6"	11"	9"	10"	6"
6"	18"	12"	8"	10"	8"	8"	8"	8"	11"	10"	12"	18"
8"	18"	13"	10"	10"	8"	8"	8"	8"	11"	12"	12"	24"
10"	20"	16"	12"	14"	8"	12"	8"	12"	14"	16"	16"	30"
12"	20"	16"	12"	14"	8"	12"	8"	12"	14"	16"	16"	30"
16"	26"	20"	16"	18"	11"	13"	11"	13"	18"	20"	20"	36"
24"	82"	42"	62"	30"	44"	22"	22"	16"	82"	42"	82"	42"
30"	185"	42"	100"	42"	52"	42"	40"	30"	185"	42"	185"	42"

THRUST BLOCK DETAILS



TRACER WIRE ACCESS BOX

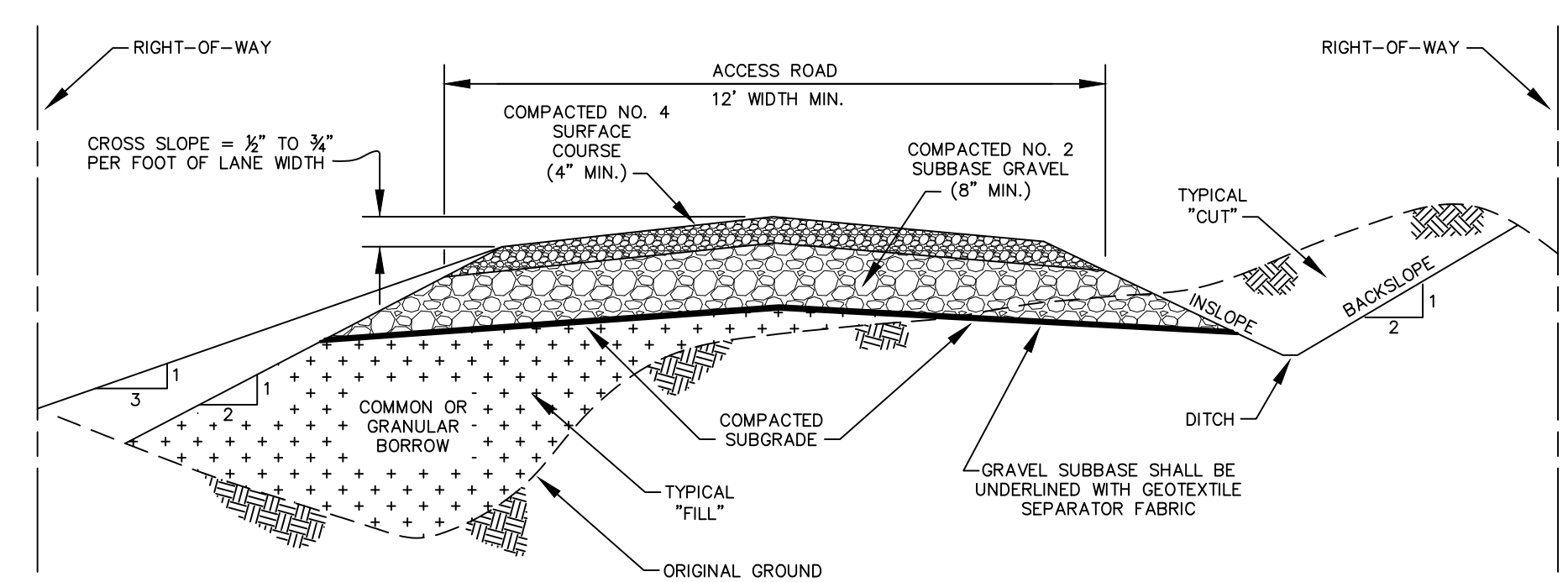


TRACER WIRE CONNECTION

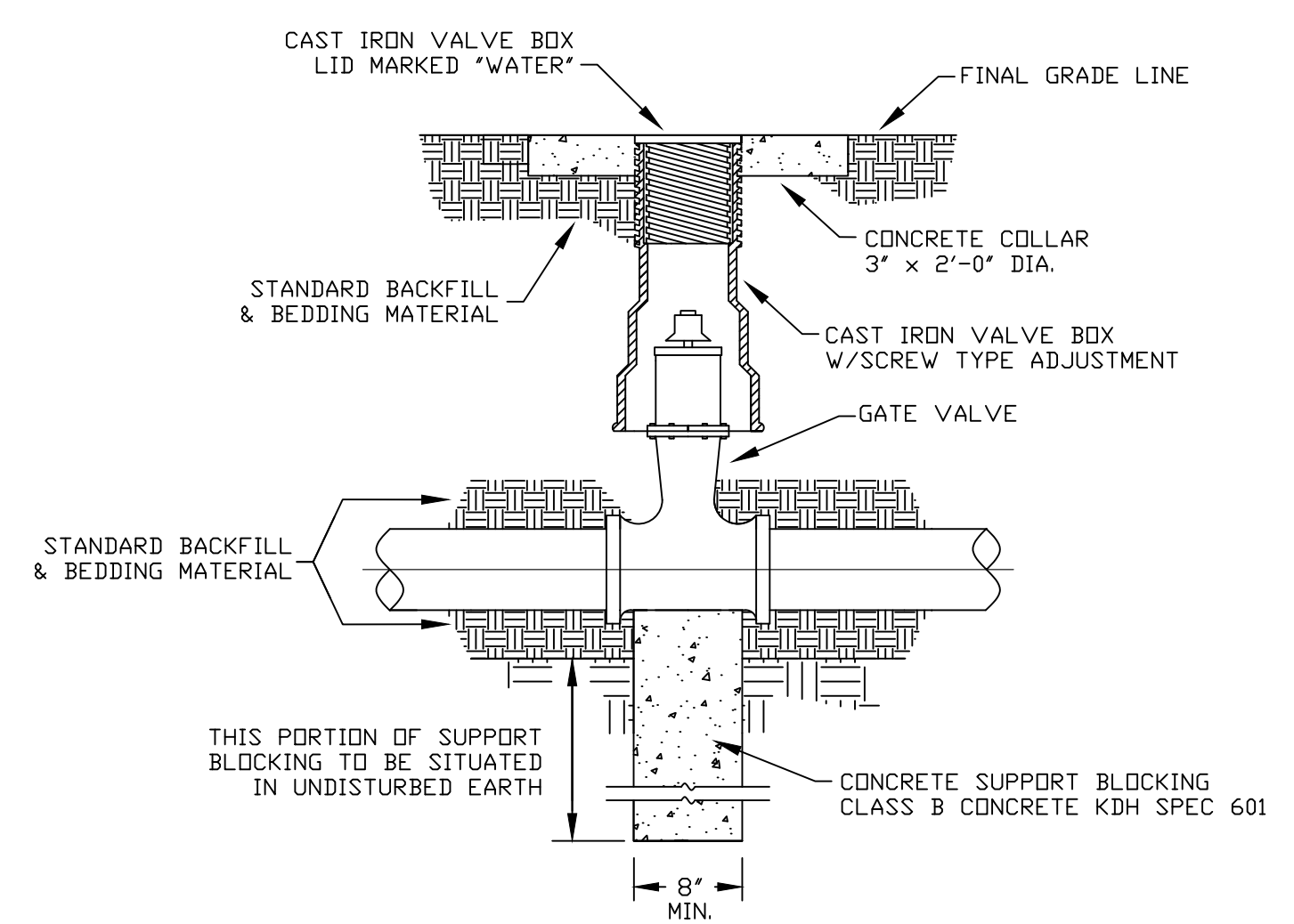
TRACER WIRE CONNECTOR DETAIL

NOTES:  
FOR OPEN CUT INSTALLATION, TRACER WIRE IS TO BE #12 AWG SOLID COPPER WITH 30 MIL BLUE HMWPE INSULATION. FOR TRENCHLESS INSTALLATION, TRACER WIRE IS TO BE #12 AWG SOLID COPPER CLAD STEEL CORE WITH 45 MIL BLUE HDPE INSULATION.  
TRACER WIRE SHALL BE INSTALLED WITH THE PIPE AT THE TRENCH BOTTOM. ACCESS BOXES SHALL BE INSTALLED AT EACH VALVE, HYDRANT AND AIR RELEASE VALVE. TRACER WIRE ACCESS BOXES SHALL BE SPACED NO FURTHER THAN 1000' APART. A MINIMUM OF 3 FEET OF TRACER WIRE SHOULD BE COILED UP INSIDE OF EACH ACCESS BOX.

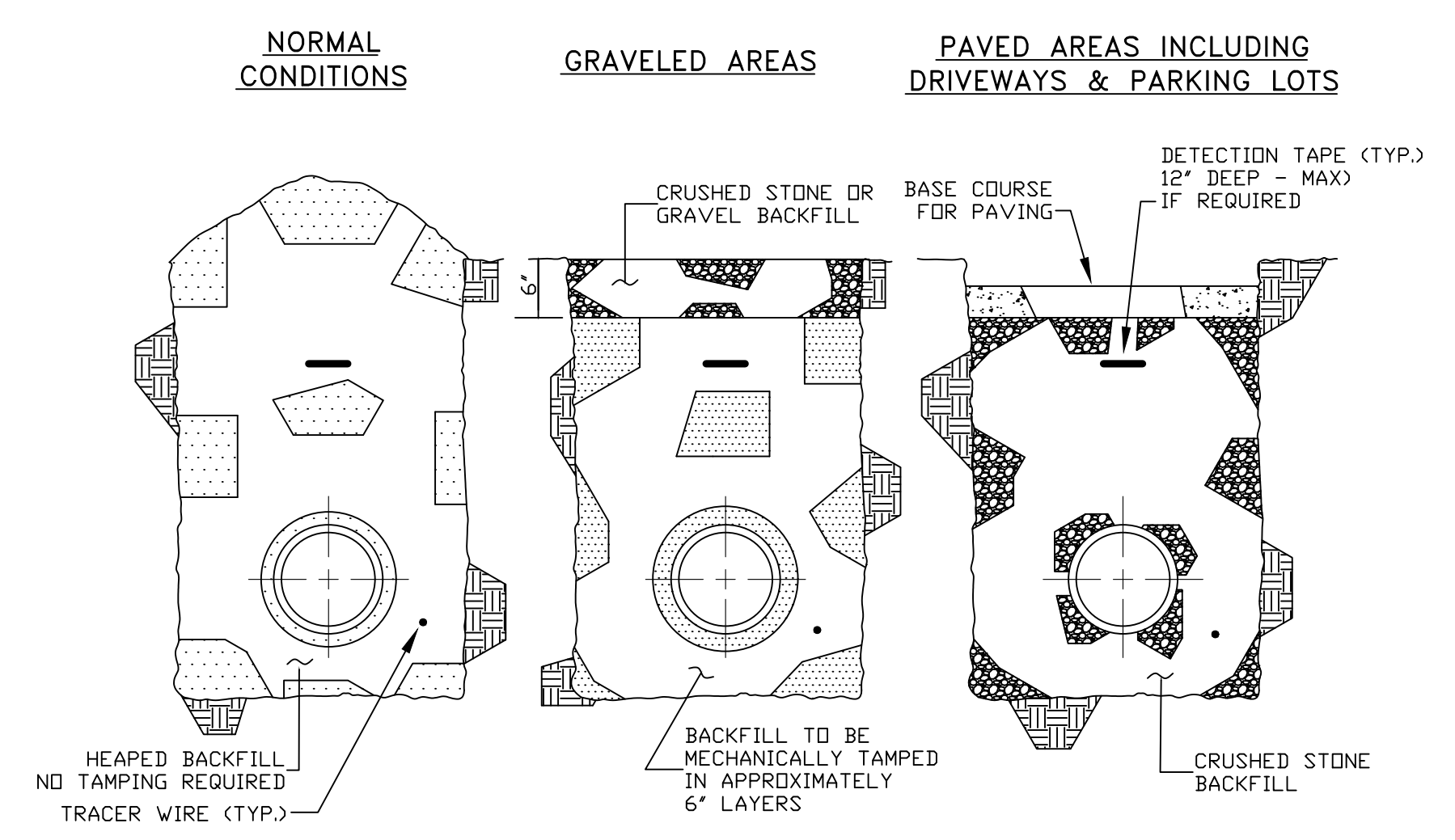
TRACER WIRE DETAILS



TYPICAL ACCESS ROAD SECTION DETAIL



GATE VALVE DETAIL



BACKFILLING

**Monarch Engineering, Inc.**

556 CARLTON DRIVE  
LAWRENCEBURG, KY 40342

STANDARD DRAWINGS

CUSTOMER:  
LAUREL COUNTY WATER DISTRICT NO. 2  
LAUREL COUNTY, KENTUCKY

DESCRIPTION:

PROJECT NO. 1813  
DATE: OCT 2019  
DRAWN BY: JLM  
CHECKED BY: DSB  
CHECKED BY: DMB  
SCALE: N.T.S.

SHEET:

SD-1

