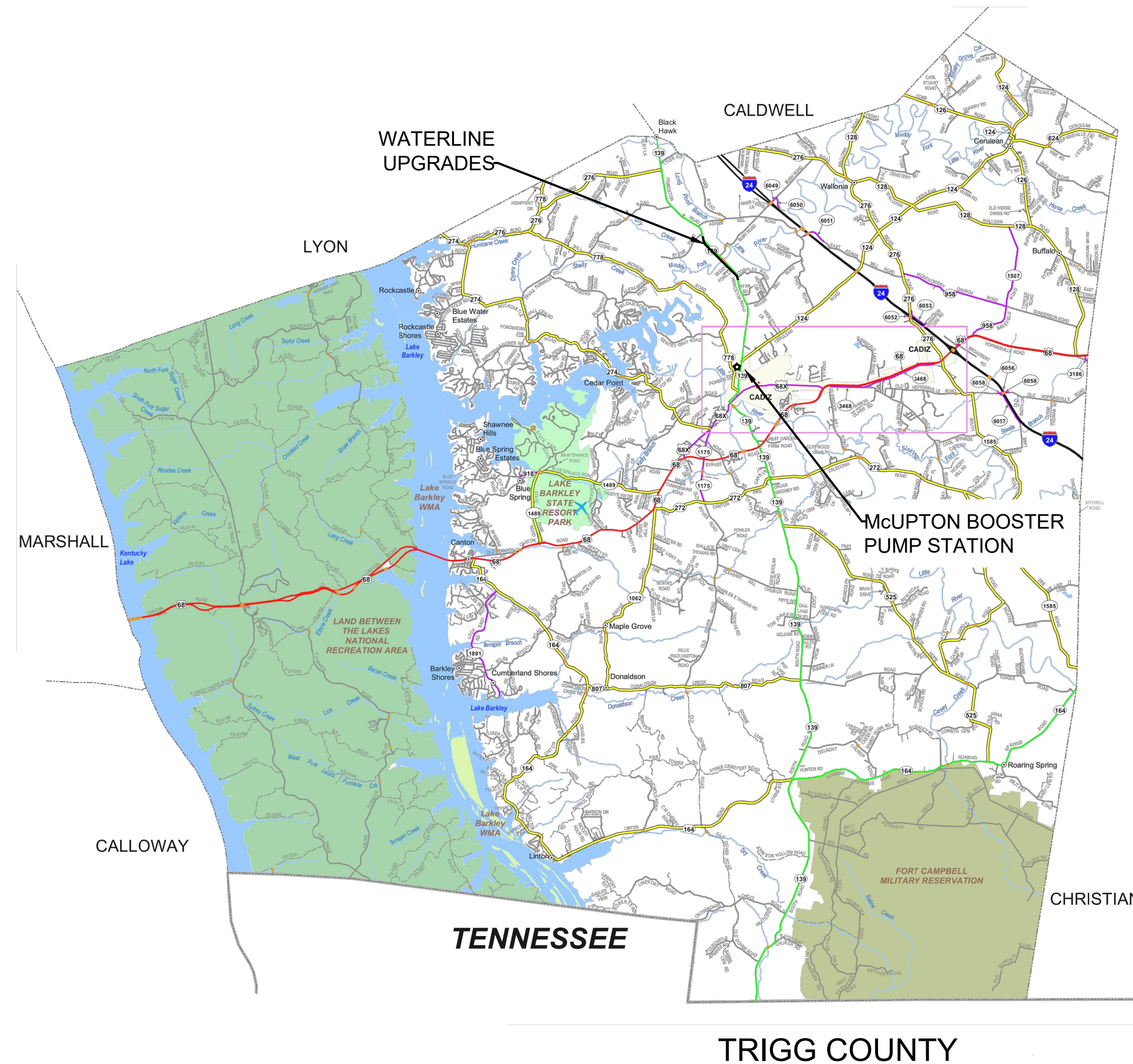


HIGHWAY 139 NORTH WATERLINE UPGRADES AND McUPTON BOOSTER PUMP STATION REPLACEMENT BARKLEY LAKE WATER DISTRICT TRIGG COUNTY, KENTUCKY CONTRACT NO. 586-19-01 DECEMBER, 2019



HIGHWAY 139 NORTH WATERLINE UPGRADES
AND McUPTON BOOSTER PUMP STATION REPLACEMENT
BARKLEY LAKE WATER DISTRICT
CONTRACT NO. 586-19-01



VICINITY MAP
NOT TO SCALE

COMPLETE DRAWING SET INCLUDES:

DIVISION A	
WATERLINE PLAN STA. 0+00 - STA. 54+03.....	SHEET 1-A OF 4
WATERLINE PLAN STA. 54+03 - STA. 76+77, NOTES.....	SHEET 2-A OF 4
BRIDGE CROSSING DETAILS.....	SHEET 3-A OF 4
WATERLINE DETAILS.....	SHEET 4-A OF 4
DIVISION B	
SITE DEMOLITION PLAN.....	SHEET 1-B OF 4
SITE PLAN W/PIPING LAYOUT.....	SHEET 2-B OF 4
BOOSTER PUMP STATION PLAN & SECTIONS.....	SHEET 3-B OF 4
BOOSTER PUMP STATION ELEVATIONS & MISCELLANEOUS DETAILS.....	SHEET 4-B OF 4
BOOSTER PUMP STATION ELECTRICAL.....	SHEETS E-1 THROUGH E-4

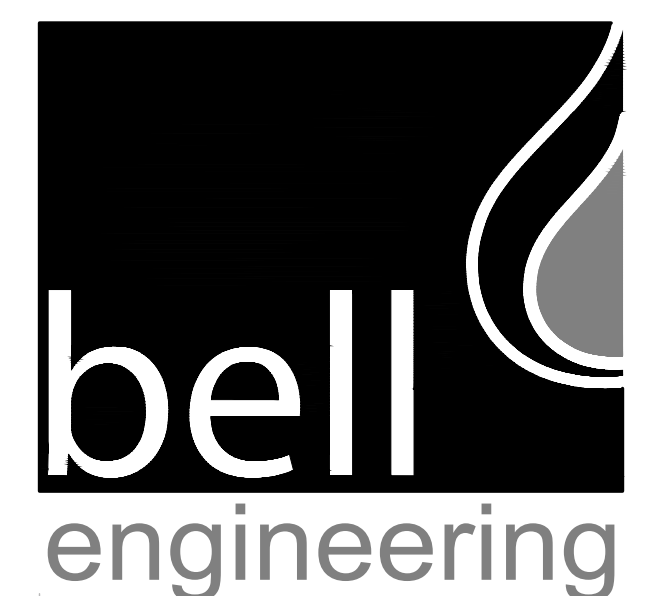
FACSIMILES OF LICENSED PROFESSIONAL ENGINEER AND/OR LAND SURVEYOR SEALS, IF AFFIXED TO THIS DOCUMENT, SHALL BE CONSIDERED LEGITIMATE ONLY IF SIGNED AND DATED BY THE REGISTRANT.

BID NOTE:
KENTUCKY STATUTES (KRS 367.4901 THROUGH 367.4917) REQUIRE THAT ALL EXCAVATORS PLANNING EXCAVATION OR DEMOLITION WORK SHALL NOTIFY ALL UTILITY COMPANIES IN THE AREA AND/OR AN UNDERGROUND PROTECTION SERVICE SUCH AS BUD (1-800-752-6007 OR 811) AT LEAST TWO (2) WORKING DAYS BEFORE COMMENCING WORK TO ALERT UTILITY COMPANIES IN THE AREA WITH UNDERGROUND FACILITIES OF THE PLANNED EXCAVATION OR DEMOLITION ACTIVITIES.

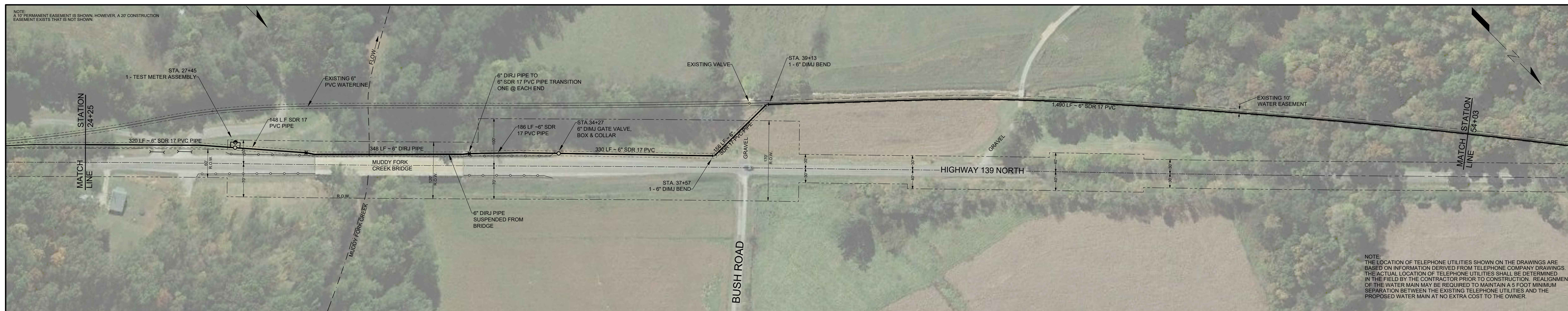
- CLIENT REVIEW
- BELL (QA) REVIEW
- DIVISION OF WATER REVIEW
- HBC REVIEW
- BID DOCUMENTS
- RECORD DRAWINGS



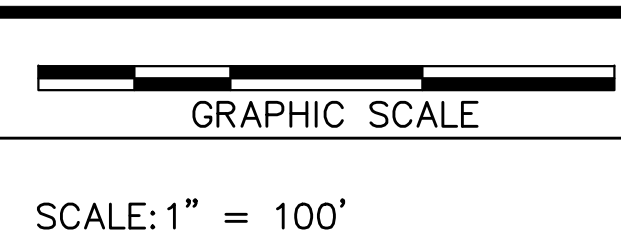
LOVO SYSTEMS, INC.
2501 Sandersville Rd. Unit 120
Lexington, KY 40511
(859) 225-0113
lovosystems.com



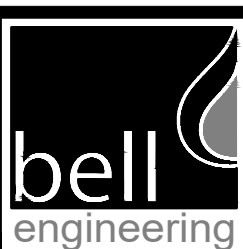
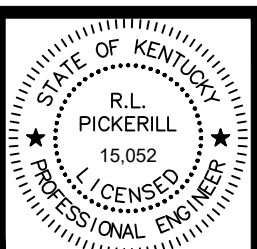
2480 fortune drive, suite 350
lexington, kentucky 40509
P: 859-278-5412 | F: 859-278-2911
www.hkbell.com



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DRAWN	MES			
CHECKED	RLP			
APPROVED	RLP			



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 Hopkinsville, KY (270) 886-5466
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HIGHWAY 139 NORTH WATERLINE UPGRADES
 BARKLEY LAKE WATER DISTRICT
 TRIGG COUNTY, KENTUCKY

HIGHWAY 139 NORTH WATERLINE UPGRADES
 STA. 0+00 - STA. 54+03

DIVISION A
CONTRACT NO. 586-008
DATE DECEMBER, 2019
SHEET NO. 1-A OF 04



GENERAL NOTES AND SPECIFICATIONS

MINIMUM COVER OVER WATER PIPE TO BE 36" UNLESS OTHERWISE NOTED.

MINIMUM COVER OVER VALVE NUT TO BE 12" (NO PAYMENT FOR EXTRA DEPTH TRENCH).

CONCRETE BLOCKING OF FITTINGS REQUIRED AT NO EXTRA COST.

THE CONTRACTOR SHALL HAVE THE OPTION OF USING FITTINGS OR EXTRA DEPTH TRENCHING AT ALL LOCATIONS WHERE VERTICAL BENDS ARE SHOWN. EITHER METHOD WILL BE AT NO EXTRA COST TO OWNER ABOVE THAT BID FOR FURNISHING, TRENCHING, LAYING AND BACKFILLING PIPE AND FITTINGS, AND SHALL BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION.

LAY NEW MAIN UNDER EXISTING WATER LINES AND GAS LINES, EXCEPT AS NOTED OTHERWISE OR DETERMINED IN THE FIELD. (NO PAYMENT FOR EXTRA DEPTH TRENCH).

DISTANCES SHOWN ALONG PIPELINE ARE HORIZONTAL DISTANCES BETWEEN HORIZONTAL ANGLES OF 90° AND/OR MATCH LINES.

LOCATIONS SHOWN FOR EXISTING UTILITIES ARE APPROXIMATE ONLY. EXACT LOCATIONS MUST BE DETERMINED BY CONTRACTOR BEFORE EXCAVATING FOR NEW FACILITIES.

THE OWNER SHALL PROCURE ALL EASEMENTS PRIOR TO CONSTRUCTION.

ON STREET, HIGHWAY, DRIVEWAY, OR SIDEWALK CROSSING, CONTRACTOR SHALL FILL TRENCH TO WITHIN 6 INCHES OF THE SURFACE WITH KENTUCKY DEPARTMENT OF HIGHWAYS NO. 57 CRUSHED STONE.

ANY SIDEWALKS DAMAGED MUST BE REPLACED AT NO ADDITIONAL COST TO THE OWNER.

BEDDING SHALL BE A MINIMUM OF 6 INCHES DEPTH AND MEET ASTM D2321-83A.

ALL LINE VALVES AND HYDRANT VALVES TO BE DUCTILE IRON, MECHANICAL JOINT, RESILIENT WEDGE GATE VALVES W/ NON-RISING STEM. AMERICAN SERIES 2500-1 OR EQUAL.

CORPS STOPS, SADDLES, AND CONNECTION HARDWARE ARE TO BE MANUFACTURED BY THE FORD METER BOX CORPORATION. CONNECTOR NUTS ARE TO BE THE "PICKY" TYPE WITH STAINLESS STEEL STIFFENERS. FOR SERVICE RECONNECTIONS, CTS TUBING EQUAL IN SIZE TO THE EXISTING SERVICE SHALL BE USED. INSTALL STAINLESS STEEL INSERTS IN ALL CONNECTIONS.

FOR RECONNECTIONS OF SERVICES ON THE OPPOSITE SIDE OF THE ROAD, THE CONTRACTOR MAY UTILIZE THE EXISTING SERVICE LINE UNDER THE ROAD.

WHERE BRANCH LINES ARE TO BE CONNECTED TO THE NEW WATERLINE, THE CONTRACTOR SHALL PERFORM THE WORK IN SUCH A MANNER AS TO ALLOW THE VALVE ON THE EXISTING LINE TO REMAIN IN SERVICE.

EXCAVATED MATERIALS FROM TRENCHES AND TUNNELS, IN EXCESS OF QUANTITY REQUIRED FOR TRENCH BACKFILL, SHALL BE DISPOSED OF BY THE CONTRACTOR. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN LOCATION OR PERMITS FOR ITS DISPOSAL.

WHERE SO2 IS DESTROYED IN AREAS MAINTAINED EQUIVALENT TO RESIDENCE YARDS, PASTURES, THIN GRASS OR COVER CROPS ARE DESTROYED BY TRENCHING, LAYING, BACKFILLING, OR TUNNELING OPERATIONS, SURFACE SHALL BE PREPARED BY DISKING, FERTILIZING, AND SEEDING, AS REQUIRED BY THE OWNER OR THE DEPARTMENT OF HIGHWAYS, WHICH SHALL TAKE PRECEDENCE.

IN OTHER AREAS, BACKFILL MATERIAL MUST BE UNIFORMLY RIDGED OVER TRENCH, AND EXCESS HAULED AWAY, WITH NO EXCAVATED ROCK OVER 1 1/2 INCHES DIAMETER OR POCKETS OF CRUSHED ROCK OR GRAVEL IN TOP 12 INCHES OF BACKFILL.

ALL ROCK, INCLUDING CRUSHED ROCK OR GRAVEL FROM CONSTRUCTION, MUST BE REMOVED FROM YARDS AND FIELDS. STREETS AND WALKS SHALL BE BROOMED TO REMOVE ALL EARTH AND LOOSE ROCK IMMEDIATELY FOLLOWING BACKFILLING.

WATER LINES MUST BE LOCATED AT A MINIMUM LATERAL DISTANCE OF 10 FEET FROM ANY EXISTING OR FUTURE SEWER LINES AND SANITARY SEWER MANHOLES MEASURED FROM OUTSIDE DIAMETERS. WHERE A WATER LINE MUST BE PLACED IN THE SAME TRENCH AS A GRAVITY SEWER LINE, THE WATER LINE MUST BE LOCATED ON A SHELF 2 FEET ABOVE AND 2 FEET TO THE SIDE OF THE SEWER LINE.

WATER LINES CROSSING OVER OR UNDER SEWER LINES SHALL HAVE A FULL JOINT OF PIPE CENTERED ON SEWER PIPE.

CONTRACTOR TO FURNISH CONCRETE.

WRAP ALL BOLTS TO BE CONCRETED WITH 6 MIL PLASTIC.

CONTRACTOR TO PLATE ALL ROAD CROSSINGS DURING CONSTRUCTION.

REGRADE & RESEED ALL AREAS DISTURBED BY THE CONSTRUCTION ACTIVITIES.

THE CONTRACTOR IS TO PROVIDE TRAFFIC CONTROL DURING THE CONSTRUCTION ACTIVITIES.

THE CONTRACTOR IS RESPONSIBLE FOR THE LOCATION AND PROTECTION OF EXISTING UTILITIES.

DISINFECTION SPECIFICATION

DISINFECTION SHALL BE IN ACCORDANCE WITH 401 KAR 8:150, AS WELL AS THE FOLLOWING. PRIOR TO ACCEPTANCE THE CONTRACTOR SHALL DISINFECT ALL WATER LINES CONSTRUCTED.

PRIOR TO STARTING DISINFECTION, ALL WATER MAINS MUST BE THOROUGHLY FLUSHED TO REMOVE MUD, ROCKS, ETC. DISINFECTION WILL THEN BE ACCOMPLISHED BY THE ADDING OF CHLORINE SOLUTION WHILE FILLING THE MAIN TO OBTAIN THE INITIAL 50 PPM OF CHLORINE. THE CONTRACTOR SHALL SUPPLY ALL EQUIPMENT, LABOR, ETC., NECESSARY FOR FLUSHING AND DISINFECTING THE MAINS.

DISINFECTION SHALL BE ACCOMPLISHED BY FILLING THE NEW AND/OR REPAIRED PORTIONS OF THE SYSTEM WITH WATER HAVING A CHLORINE CONTENT OF AT LEAST 50 PPM AND AT THE END OF A 24 HOUR CONTACT TIME A RESIDUAL OF AT LEAST 25 PPM SHALL REMAIN. AT THE END OF THE 24 HOUR CONTACT PERIOD, ALL THE STERILIZED SURFACES AND AREAS SHALL BE THOROUGHLY FLUSHED FROM THE WATER SYSTEM.

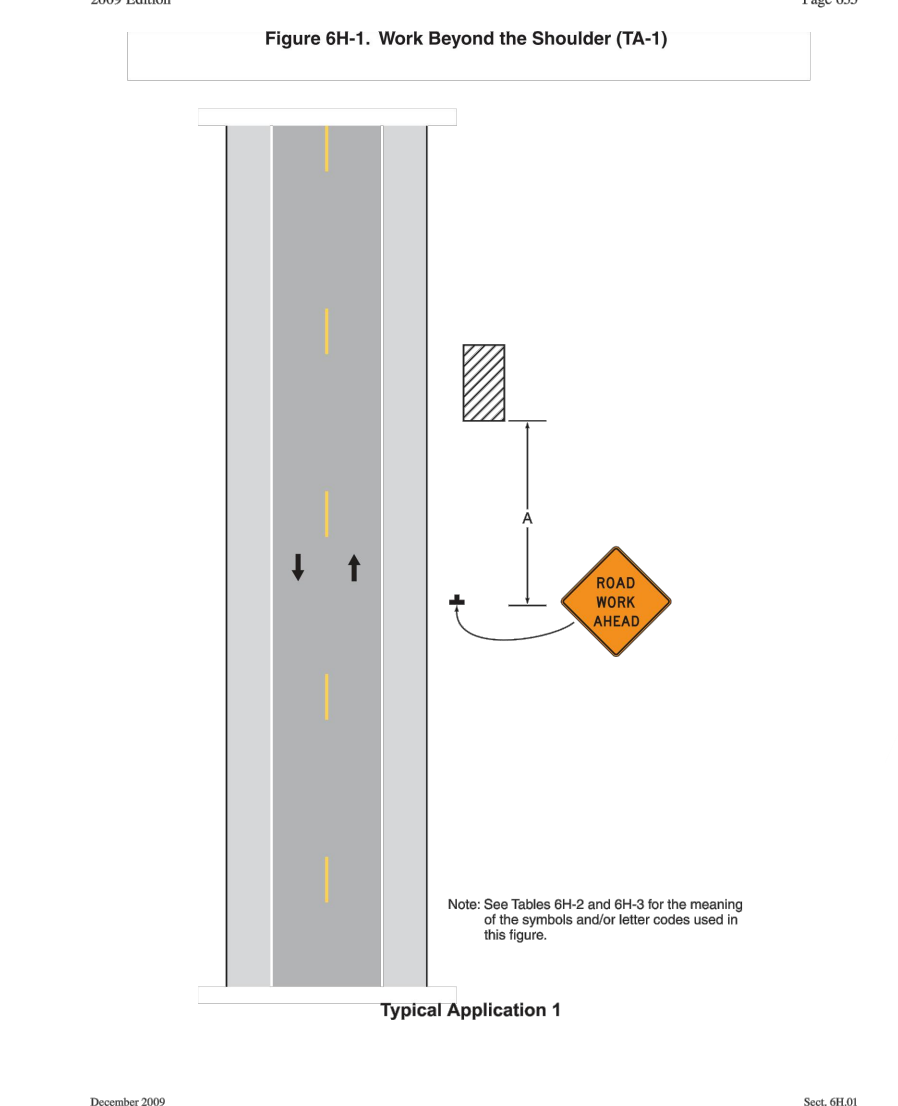
FOR TIE-INS TO AN EXISTING SYSTEM SUCH AS TAPPING VALVES WHERE KEEPING THE MAIN OUT OF SERVICE WOULD RESTRICT SERVICE TO EXISTING CUSTOMERS, DISINFECTION SHALL CONSIST OF THOROUGHLY CLEANING THE NEW PART WITH A SOLUTION CONTAINING NOT LESS THAN 200 MG/L (PPM) CHLORINE.

AFTER INITIAL DISINFECTION AND FLUSHING, THE OWNER WILL COLLECT WATER SAMPLES FOR BACTERIOLOGICAL TESTING. THE NUMBER OF WATER SAMPLES REQUIRED IS ONE PER MILE OF CONTINUOUS WATER MAIN WITH A MINIMUM OF 2 SAMPLES PER SECTION OF NEW MAIN. IF ANY OF THE SAMPLES ARE FOUND TO BE POSITIVE OR CONTAIN CONFLUENT GROWTH, THE CONTRACTOR SHALL REPEAT THE DISINFECTION PROCEDURE UNTIL THE REQUIRED NUMBERS OF NEGATIVE SAMPLES ARE OBTAINED.

CHLORINATED WATER SHALL BE DISPOSED OF IN ACCORDANCE WITH 401 KAR 5:031 AND 8:020, WHICH STATE THAT THE ALLOWABLE IN STREAM CONCENTRATION OF CHLORINE IS 10 UG/L. THE CONTRACTOR SHALL SUBMIT, IN WRITING TO THE ENGINEER, THE METHOD HE PROPOSES FOR DECHLORINATING. RECOMMENDED CHEMICALS ARE GIVEN IN AWWA C651-86.

Page 614 Notes for Figure 6H-1—Typical Application 1 Work Beyond the Shoulder

- Guidance:**
- If the work space is in the median of a divided highway, an advance warning sign should also be placed on the left side of the directional roadway.
- Option:**
- The ROAD WORK AHEAD sign may be replaced with other appropriate signs such as the SHOULDER WORK sign. The SHOULDER WORK sign may be used for work adjacent to the shoulder.
 - The ROAD WORK AHEAD sign may be omitted where the work space is behind a barrier, more than 24 inches behind the curb, or 15 feet or more from the edge of any roadway.
 - For short-term, short duration or mobile operation, all signs and channelizing devices may be eliminated if a vehicle with activated high-intensity rotating, flashing, oscillating, or strobe lights is used.
 - Vehicle hazard warning signals may be used to supplement high-intensity rotating, flashing, oscillating, or strobe lights.
- Standard:**
- Vehicle hazard warning signals shall not be used instead of the vehicle's high-intensity rotating, flashing, oscillating, or strobe lights.



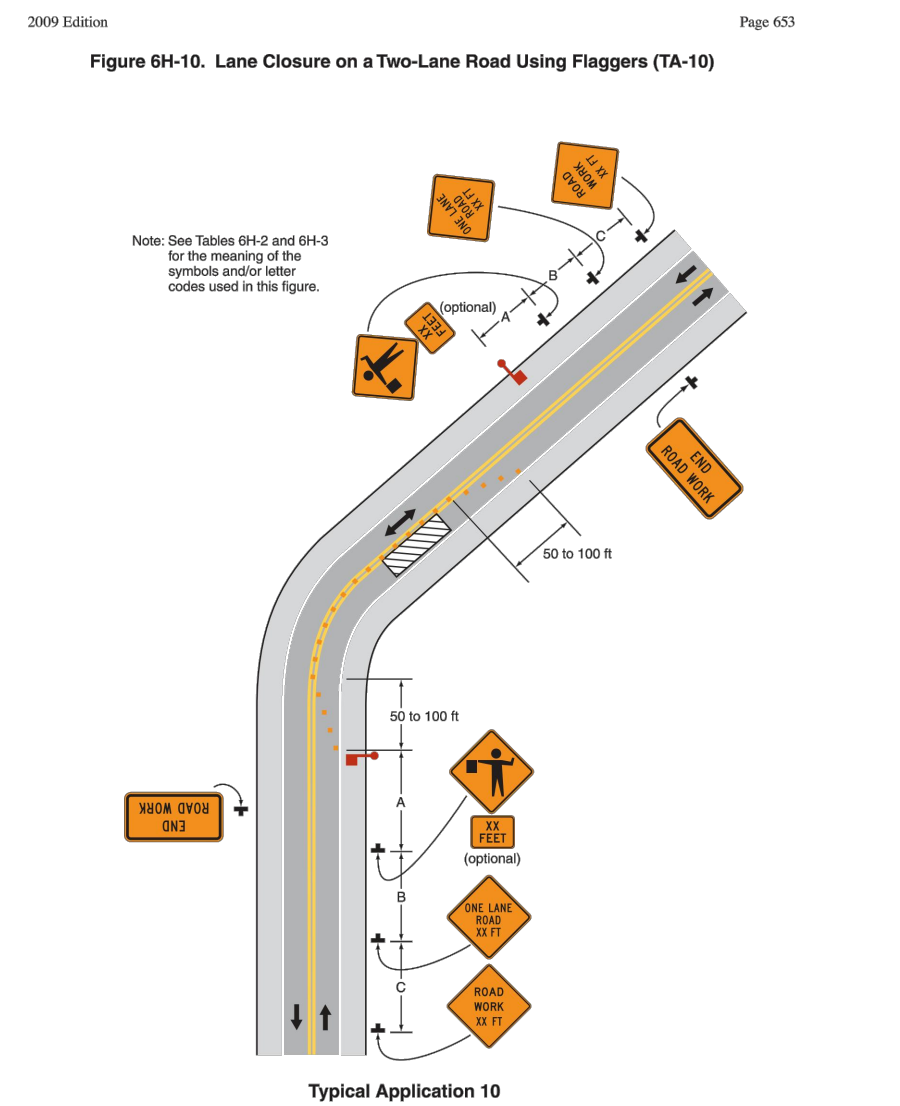
December 2009
TEMPORARY TRAFFIC CONTROL PLAN
FOR WORK BEHIND SHOULDER

WORK ZONE TRAFFIC CONTROL

PRIOR TO BEGINNING OF WORK ON KENTUCKY TRANSPORTATION CABINET RIGHTS-OF-WAY THE CONTRACTOR SHALL HAVE COMPLETED THE KENTUCKY TRANSPORTATION CABINET'S MULTI-PART WORK ZONE TRAFFIC CONTROL EMPLOYEE QUALIFICATION PROGRAM. INDIVIDUALS PERFORMING FLAGGING OPERATIONS ON ANY KENTUCKY ROADWAY MUST BE QUALIFIED AND CERTIFIED BY THE KENTUCKY TRANSPORTATION CABINET. INDIVIDUALS WHO PLACE, MONITOR, AND MAINTAIN TRAFFIC CONTROL DEVICES ON PUBLIC ROADWAYS IN KENTUCKY SHALL HAVE SUCCESSFULLY COMPLETED THE WORK ZONE TRAFFIC CONTROL TECHNICIAN PROGRAM. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR PREPARING AND IMPLEMENTING THE TRAFFIC CONTROL PLAN. THE INDIVIDUALS RESPONSIBLE FOR THIS WORK SHALL HAVE SUCCESSFULLY COMPLETED THE WORK ZONE TRAFFIC CONTROL SUPERVISOR PROGRAM. FOR MORE INFORMATION ON THE WORK ZONE TRAFFIC CONTROL EMPLOYEE QUALIFICATION PROGRAM AS PRESENTED BY THE TECHNOLOGY TRANSFER PROGRAM, KENTUCKY TRANSPORTATION CENTER, UNIVERSITY OF KENTUCKY CALL THE CENTER'S TOLL FREE NUMBER 1-800-432-0719 OR CONTACT THE DEPARTMENT OF HIGHWAYS, DISTRICT 1, 5501 KENTUCKY DAM ROAD, PADUCAH, KY 42003, PHONE: (270) 898-2431.

Page 615 Notes for Figure 6H-10—Typical Application 10 Lane Closure on a Two-Lane Road Using Flaggers

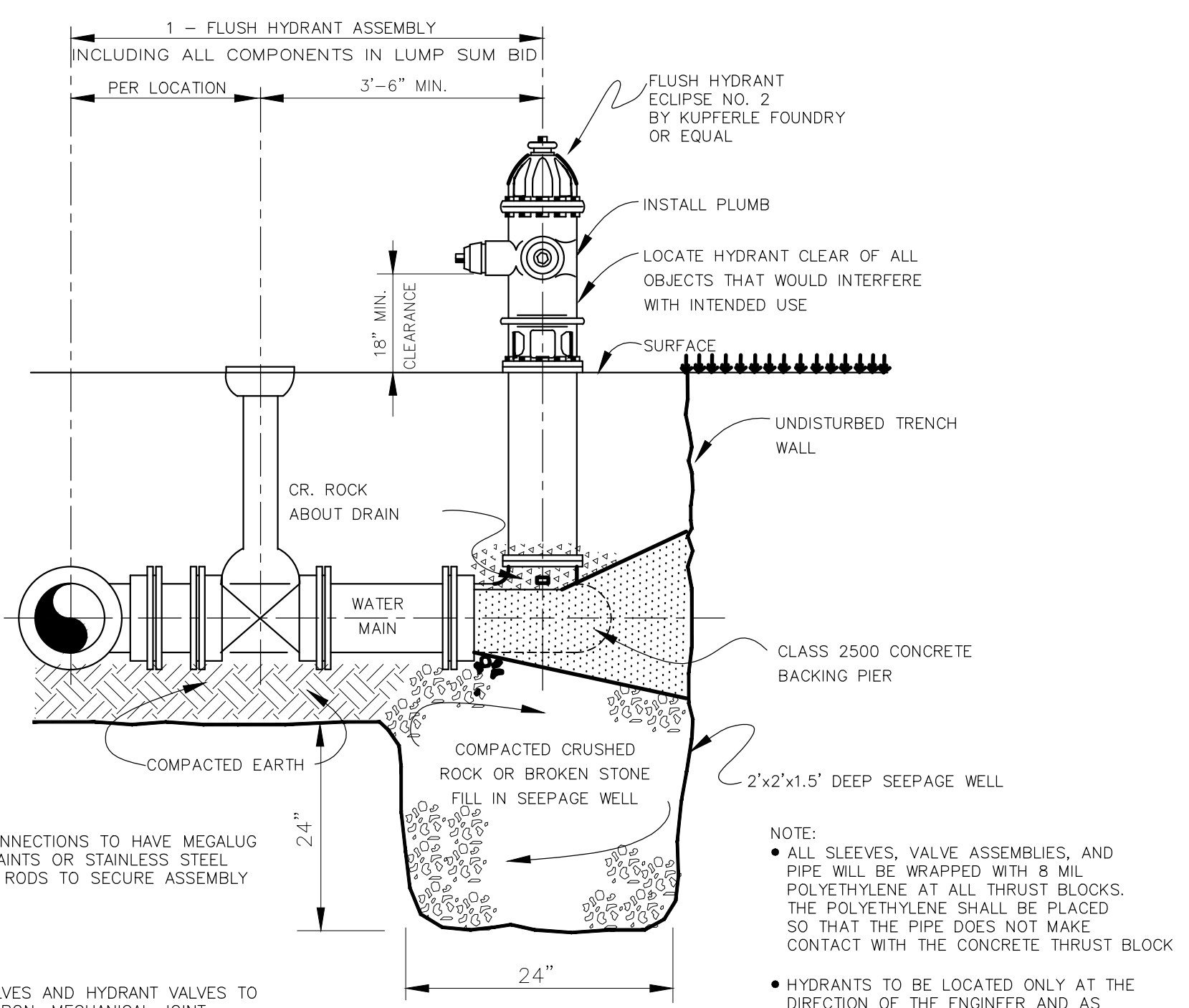
- Option:**
- The low-volume situations with short work zones on straight roadways where the flagger is visible to road users approaching from both directions, a single flagger positioned to be visible to road users approaching from both directions, may be used (see Chapter 6E).
 - The ROAD WORK AHEAD and END ROAD WORK signs may be omitted for short-duration operations.
 - Flashing warning lights and/or flags may be used to call attention to the advance warning sign. A BE PREPARED TO STOP sign may be added to the sign area.
 - The flagger sign should be extended so that the two-way traffic taper is placed before a horizontal line across vertical curve to provide adequate sight distance for the flagger and a space of stopped vehicles.
- Standard:**
- All night, flagger stations shall be illuminated, except in emergencies.
 - When used, the BE PREPARED TO STOP sign should be located between the flagger sign and the ONE WAY ROAD sign.
 - When a grade crossing exists within or upstream of the transition area and it is anticipated that queues resulting from the lane closure might extend through the grade crossing, the TTC sign should be extended so that the transition area precedes the grade crossing.
 - When a grade crossing equipped with active warning devices exists within the activity area, provisions should be made for flaggers informed as to the activation status of these warning devices.
 - When a grade crossing exists within the activity area, advance operation on the right-hand side of the normal travel lane should be provided with compatible warning devices as for drivers operating on the right-hand side of the normal travel lane.
 - Early coordination with the railroad officer or light rail transit agency should occur before work starts.
- Option:**
- A flagger or a certified law enforcement officer may be used at the grade crossing to minimize the probability that vehicles are stopped within 15 feet of the grade crossing, measured from both sides of the grade crossing.



December 2009
TEMPORARY TRAFFIC CONTROL PLAN
FOR WORK IN ROADWAY

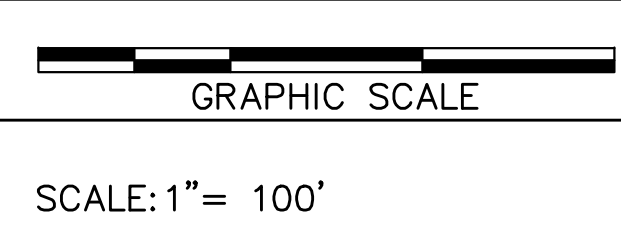
NOTES:

- THE MUTCD STANDARD IS TO BE MODIFIED FOR THIS PROJECT TO CONFORM TO EXISTING CONDITIONS.
- PROVIDE MINIMUM WIDTH OF 10 FT FOR EACH DRIVE LANE. PROVIDE CLEAR DELINEATION OF DRIVE LANES WITH CHANNELIZING DEVICES. CONTRACTOR MAINTAIN THESE DEVICES REGULARLY TO PREVENT DISPLACEMENT.



FLUSH HYDRANT DETAIL
SECTION
NOTES:
LOCATED NEAR STA. 0+00

DESIGNER	MES	DATE	BY	REVISION
DRAWN	MES	2/7/20	MES	TRAFFIC CONTROL PLAN ADDED
CHECKED	RLP			
APPROVED	RLP			



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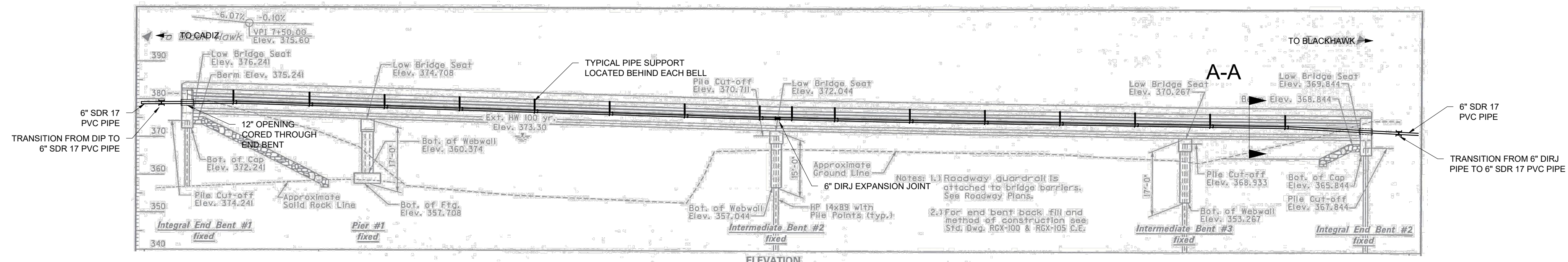
Lexington, KY (859) 278-5412
Hopkinsville, KY (270) 886-5466
Asheville, NC (828) 771-0838

HIGHWAY 139 NORTH WATERLINE UPGRADES
BARKLEY LAKE WATER DISTRICT
TRIGG COUNTY, KENTUCKY

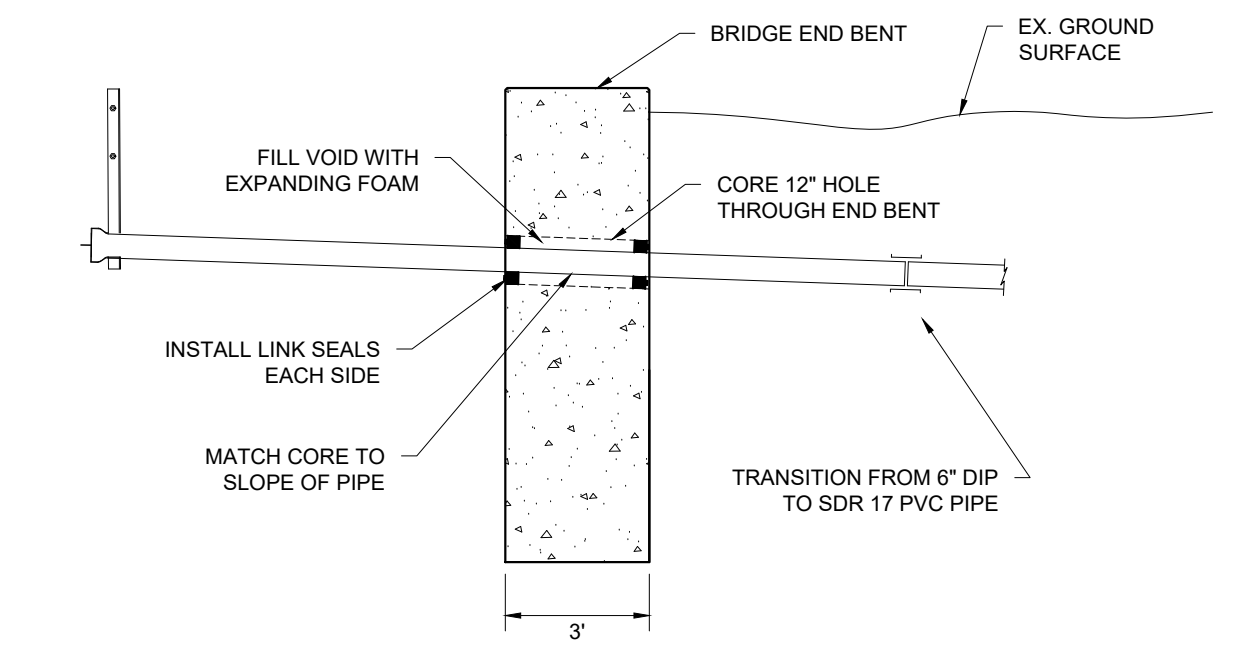
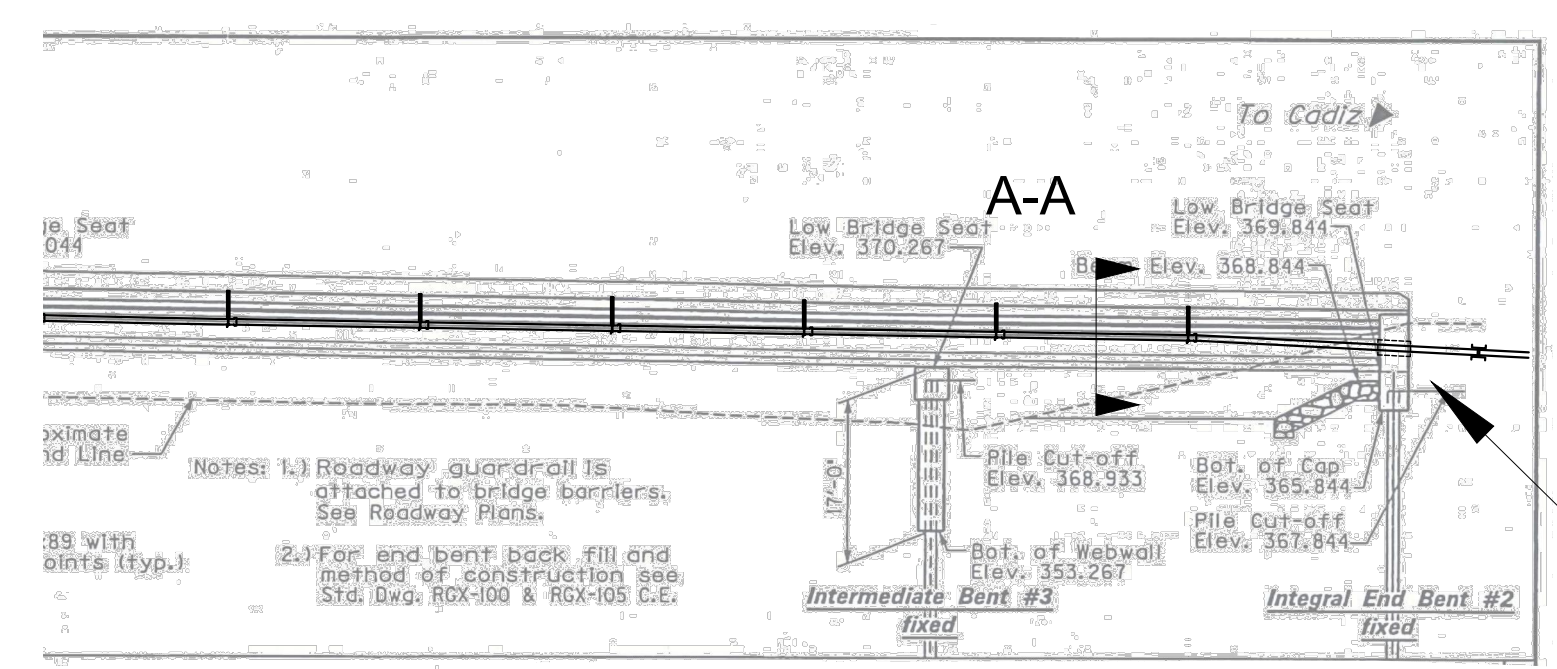
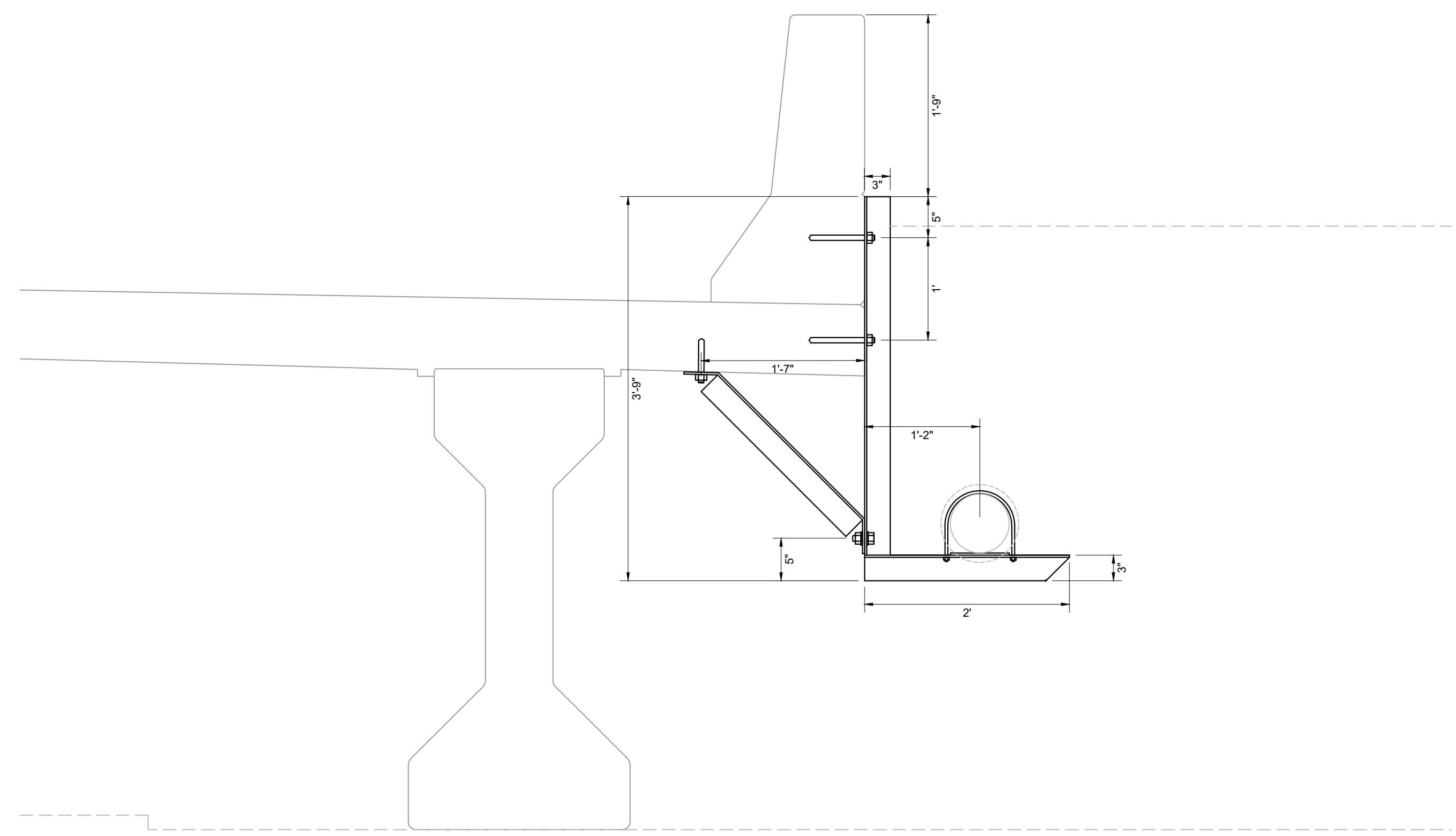
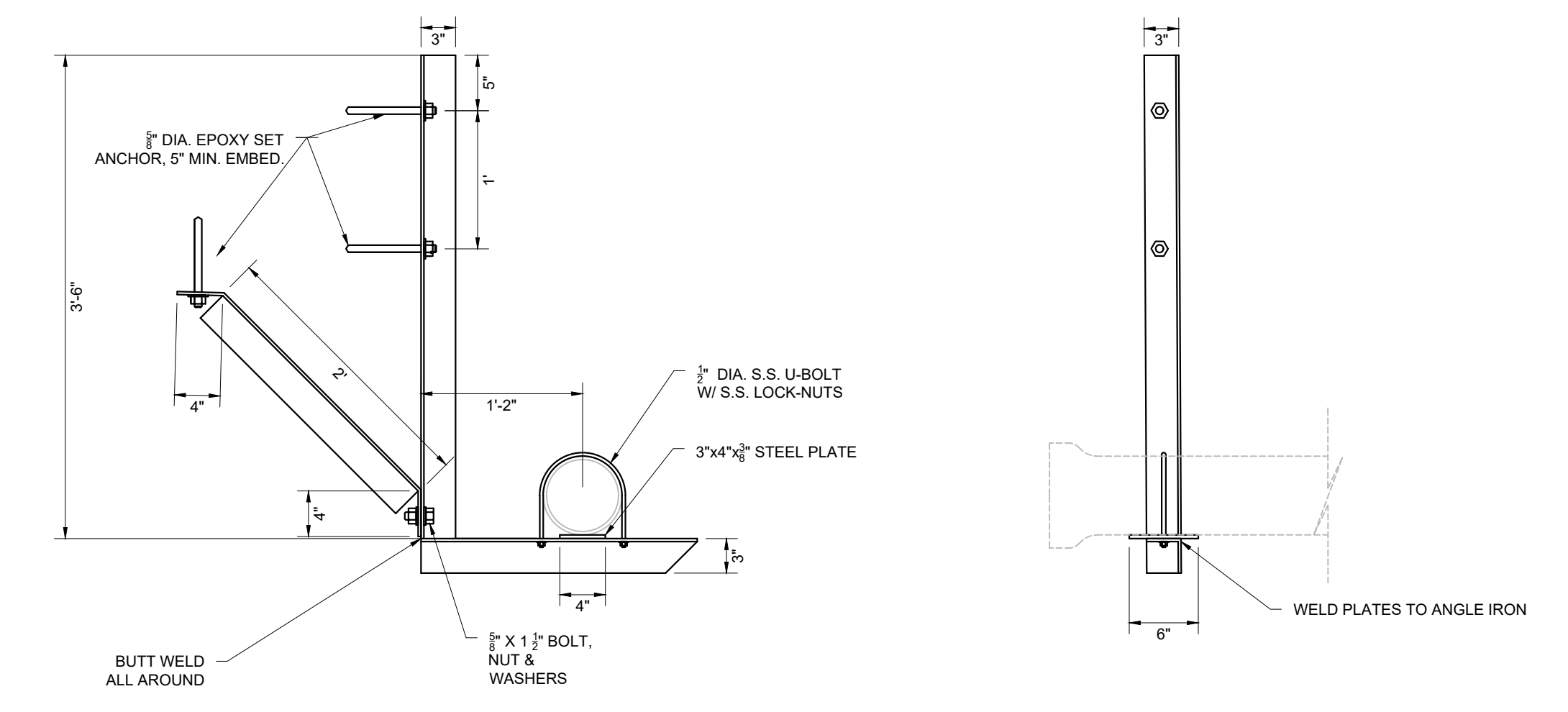
HIGHWAY 139 NORTH WATERLINE UPGRADES
STA. 54+03 - STA. 76+77

DIVISION A	
CONTRACT NO.	586-008
DATE	DECEMBER, 2019
SHEET NO.	2-A OF 04

- NOTE:
- BRACKET TO BE 3"x3"x1/2" ANGLE IRON, FABRICATED AND HOT-DIP GALVANIZED.
 - ALL HARDWARE TO BE STAINLESS STEEL
 - INSTALL MYLAR STRIPS BETWEEN BRACKET AND CONCRETE SURFACES.

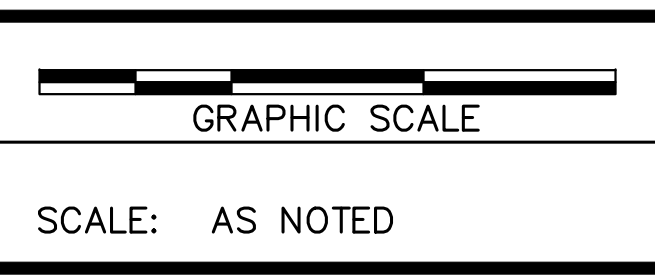


- NOTE:
- PIPELINE TO BE INSTALLED ON THE SOUTHWEST (DOWNSTREAM) SIDE OF HIGHWAY 139 BRIDGE.
 - PIPE INSULATION REQUIRED, BUT NOT SHOWN.
 - DUCTILE IRON PIPE TO BE DIP TO BE "AMERICAN DUCTILE IRON FLEX-RING JOINT PIPE" OR EQUAL.
 - DUCTILE IRON EXPANSION JOINT TO BE "EBAA IRON- EX-TEND 206M1 SERIES", OR EQUAL.



- NOTES:
- INSULATE PIPE TO A POINT AT WHICH 30" COVER OVER PIPE CAN BE PROVIDED.
 - INSULATION REQUIRED, BUT NOT SHOWN.

DESIGNER	DATE	BY	REVISION



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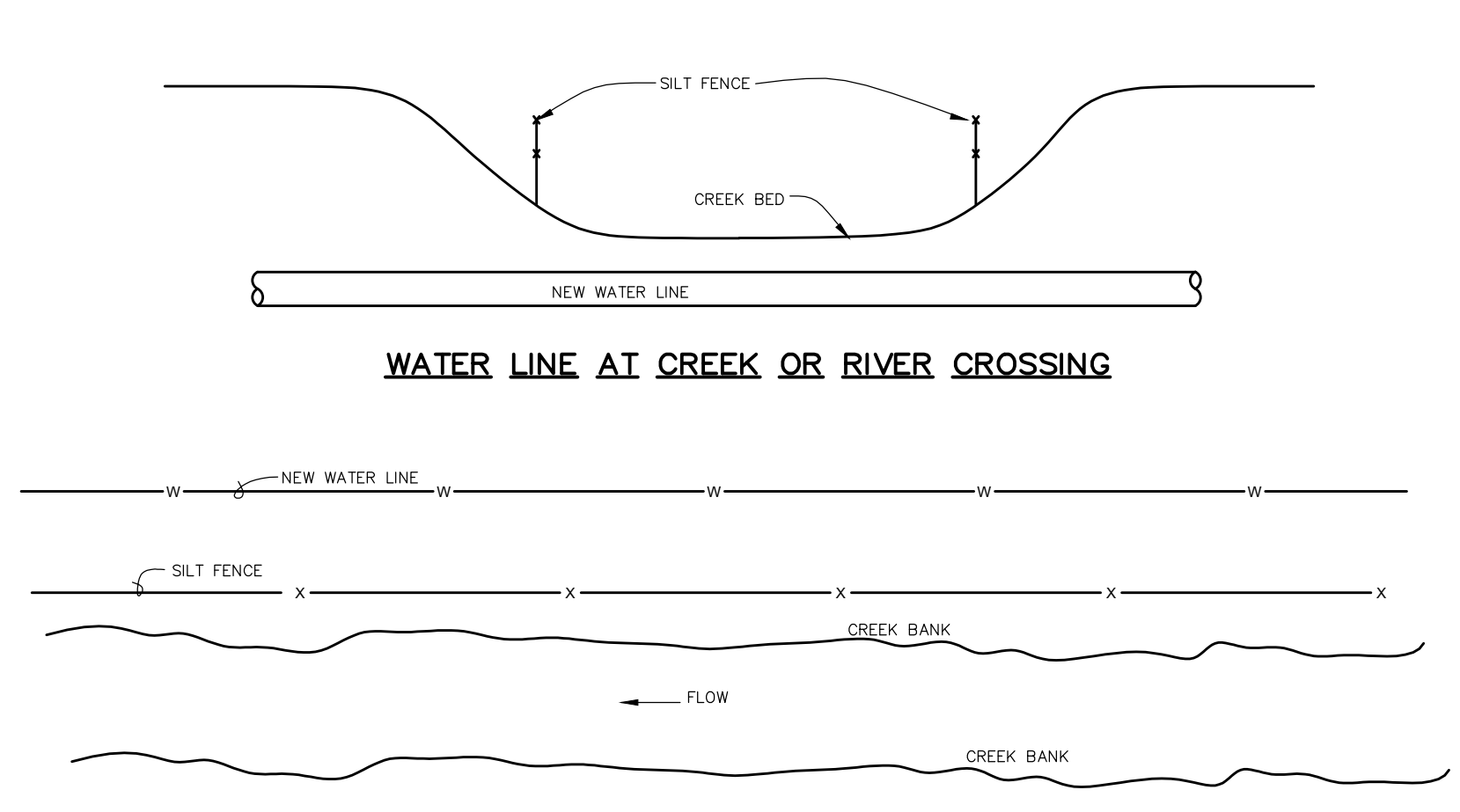
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 Hopkinsville, KY (270) 886-5466
 Asheville, NC (828) 774-5499

HIGHWAY 139 NORTH WATERLINE UPGRADES
 BARKLEY LAKE WATER DISTRICT
 TRIGG COUNTY, KENTUCKY

MUDDY FORK CREEK
 BRIDGE CROSSING & DETAILS

DIVISION	A
CONTRACT NO.	586-008
DATE	DECEMBER, 2019
SHEET NO.	3-A OF 04

EROSION PREVENTION AND SEDIMENT CONTROL



WATER LINE AT CREEK OR RIVER CROSSING

WATER LINE PARALLEL TO CREEK OR RIVER

THE CONTRACTOR SHALL SUBMIT A NOTICE OF INTENT (NOI) TO THE KENTUCKY DIVISION OF WATER AT LEAST 48 HOURS BEFORE ANY CONSTRUCTION ACTIVITY BEGINS.

THE CONTRACTOR SHALL SUBMIT A COPY OF THE NOTICE OF INTENT (NOI) TO THE LOCAL MUNICIPALITY.

THE CONTRACTOR SHALL PREPARE AND IMPLEMENT A "STORM WATER POLLUTION PREVENTION OR BEST MANAGEMENT PRACTICES (BMP) PLAN" AND KEEP A COPY OF THE PLAN ON SITE. THE PLAN SHALL BE PREPARED ACCORDING TO THE CURRENT EDITION OF THE KENTUCKY DIVISION OF WATER'S "EROSION PREVENTION AND SEDIMENT CONTROL PLAN FIELD GUIDE".

ALL STORM DRAINS THAT DISCHARGE INTO A DRAINAGE CHANNEL, STREAM, ETC., AND NOT ONTO AN OPEN FIELD SHALL HAVE AN INLET SEDIMENT CONTROL DEVICE SIMILAR TO THE SILTSACK AS MANUFACTURED BY ACF ENVIRONMENTAL, OR DANDY BAG II BY DANDY PRODUCTS, OR EQUAL.

ROCK CHECKS SHALL BE USED TO TRAP SEDIMENT TRAVELING ALONG DRAINAGE CHANNELS, ETC., STRAW BALES ARE NOT ACCEPTABLE.

ANY CONSTRUCTION ACCESS ROAD, ETC., THAT JOINS ANY PAVED DRIVEWAY OR ROAD SHALL HAVE A CRUSHED STONE ENTRANCE CREATED ACCORDING TO THE DRAWINGS AND THE KENTUCKY EROSION PREVENTION AND SEDIMENT CONTROL PLAN FIELD GUIDE.

STORM WATER RUNOFF FROM UNDISTURBED AREAS SHALL BE DIVERTED AROUND CONSTRUCTING SITES BY THE USE OF DIVERSION BERMS OR DIVERSION DITCHES.

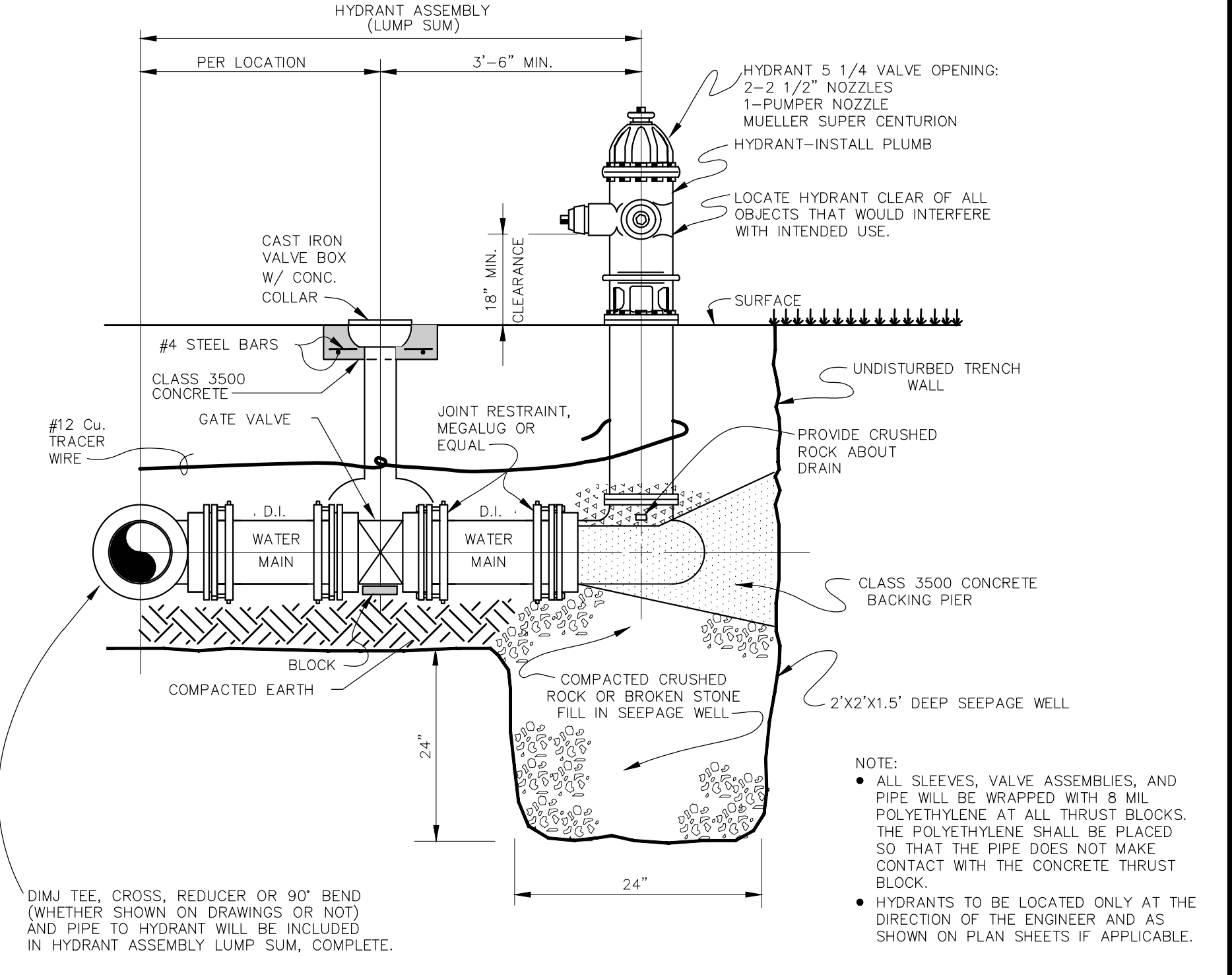
SILT FENCES SHALL BE USED TO TRAP SEDIMENT FROM SEDIMENT LADEN STORM WATER ROLLING DOWN HILLS, ETC., ACCORDING TO THE DRAWINGS AND THE KENTUCKY EROSION PREVENTION AND SEDIMENT CONTROL PLAN FIELD GUIDE.

A DETAILED EROSION CONTROL PLAN SHALL BE PREPARED BY THE CONTRACTOR AND SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO STARTING ANY CONSTRUCTION ACTIVITIES.

NOTE TO CONTRACTOR:

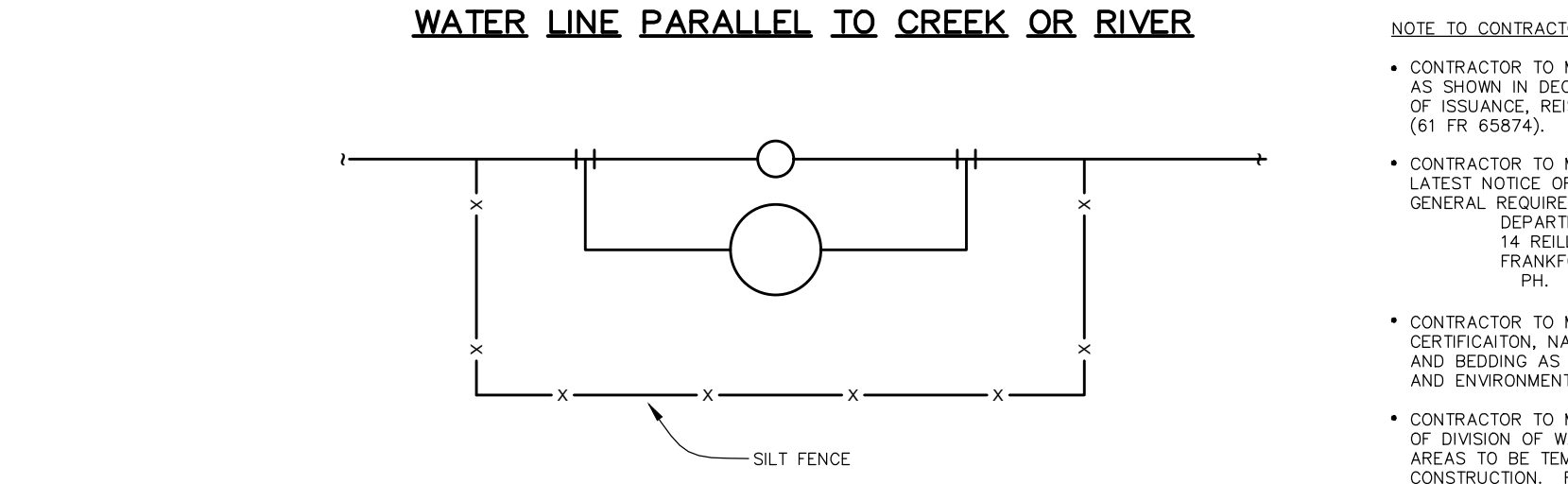
- CONTRACTOR TO MEET OR EXCEED THE NATIONWIDE PERMIT NO. 12 AS SHOWN IN DEC. 13, 1996 OR LATEST FEDERAL REGISTER, FINAL NOTICE OF ISSUANCE, REISSUANCE AND MODIFICATION OF NATIONWIDE PERMITS (61 FR 65874).
- CONTRACTOR TO MEET CURRENT REQUIREMENTS AS OUTLINED IN LATEST NOTICE OF INTENT (NOI) FOR STORM WATER DISCHARGE GENERAL REQUIREMENTS AS DESCRIBED BY: DEPARTMENT FOR ENVIRONMENTAL PROTECTION 14 REILLY ROAD FRANKFORT, KENTUCKY PH. (502)564-3410
- CONTRACTOR TO MEET/EXCEED 401 CLEAN WATER ACT GENERAL CERTIFICATION, NATIONWIDE PERMIT NO. 12, UTILITY LINE BACKFILL AND BEDDING AS OUTLINED BY THE KENTUCKY NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION CABINET.
- CONTRACTOR TO MEET/EXCEED TEMPORARY SEEDING REQUIREMENTS OF DIVISION OF WATER WHICH REQUIRE ALL DISTURBED AREAS TO BE TEMPORARILY SEEDED WITHIN 14 DAYS AFTER CONSTRUCTION. FOR ADDITIONAL INFORMATION CONTACT:

DIVISION OF WATER
FRANKFORT, KENTUCKY



FIRE / FLUSH HYDRANT ASSEMBLY

TO BE LOCATED AT PLAN STATION 76+53
N.T.S.

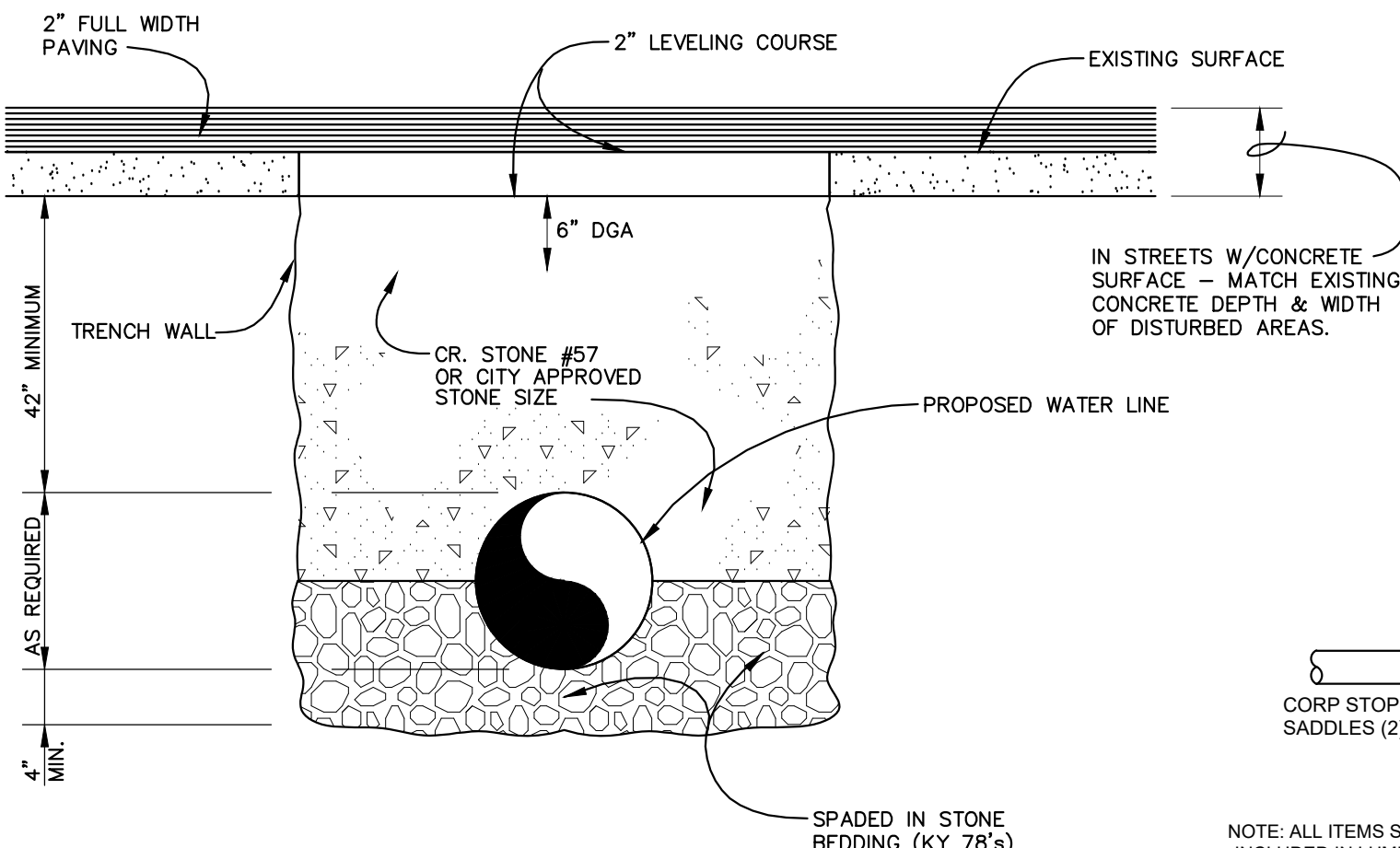


AROUND ANY VAULT

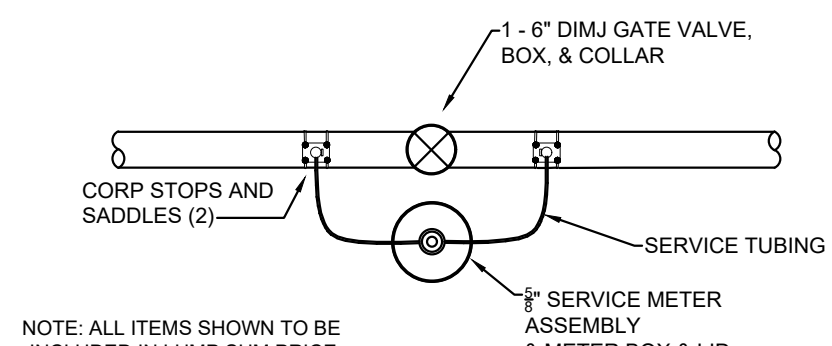
NOTE TO CONTRACTOR:

- CONTRACTOR TO MEET OR EXCEED THE NATIONWIDE PERMIT NO. 12 AS SHOWN IN DEC. 13, 1996 OR LATEST FEDERAL REGISTER, FINAL NOTICE OF ISSUANCE, REISSUANCE AND MODIFICATION OF NATIONWIDE PERMITS (61 FR 65874).
- CONTRACTOR TO MEET CURRENT REQUIREMENTS AS OUTLINED IN LATEST NOTICE OF INTENT (NOI) FOR STORM WATER DISCHARGE GENERAL REQUIREMENTS AS DESCRIBED BY: DEPARTMENT FOR ENVIRONMENTAL PROTECTION 14 REILLY ROAD FRANKFORT, KENTUCKY PH. (502)564-3410
- CONTRACTOR TO MEET/EXCEED 401 CLEAN WATER ACT GENERAL CERTIFICATION, NATIONWIDE PERMIT NO. 12, UTILITY LINE BACKFILL AND BEDDING AS OUTLINED BY THE KENTUCKY NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION CABINET.
- CONTRACTOR TO MEET/EXCEED TEMPORARY SEEDING REQUIREMENTS OF DIVISION OF WATER WHICH REQUIRE ALL DISTURBED AREAS TO BE TEMPORARILY SEEDED WITHIN 14 DAYS AFTER CONSTRUCTION. FOR ADDITIONAL INFORMATION CONTACT:

DIVISION OF WATER
FRANKFORT, KENTUCKY



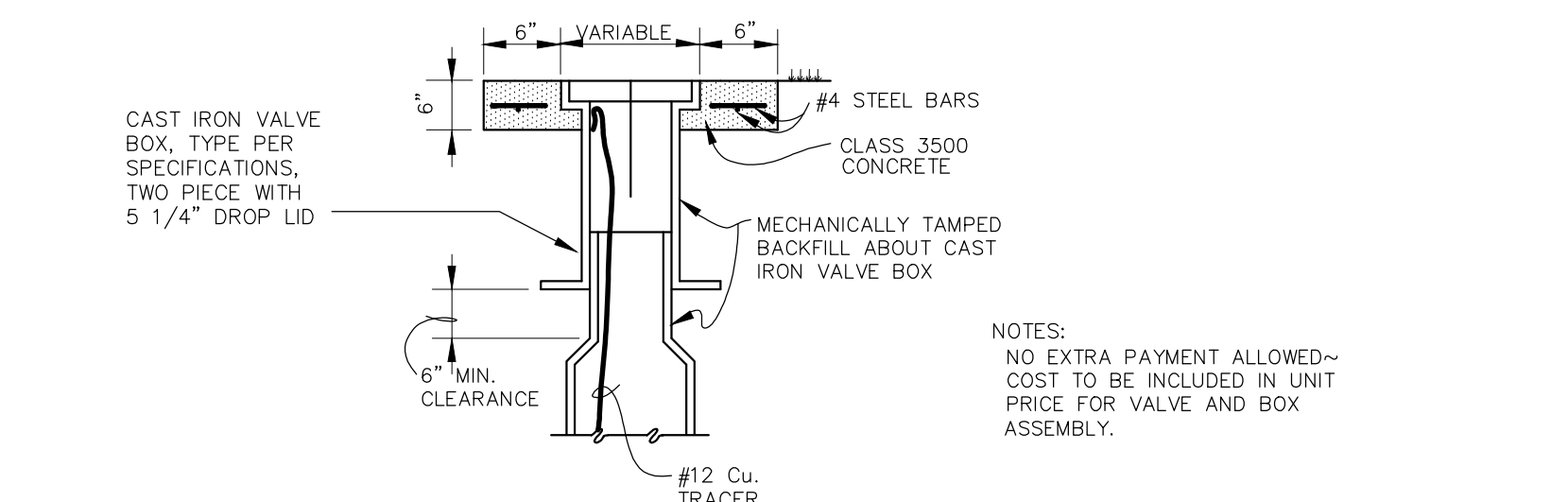
BACKFILL REQUIREMENT FOR PIPE IN CITY STREETS, ROADS, NOT STATE HIGHWAY



TEST METER SETTING

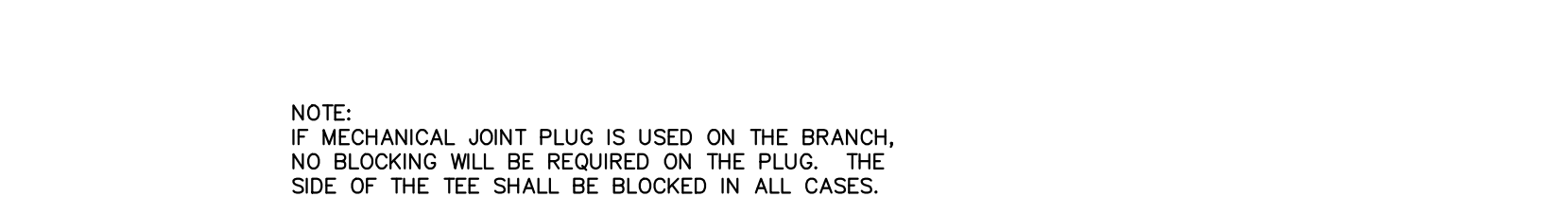
TYPICAL ALL DETAILS

- MINIMUM OR PER LATEST DEPARTMENT OF WATER AND DEPARTMENT OF HIGHWAYS REGULATIONS.
- AT NO ADDITIONAL COST.

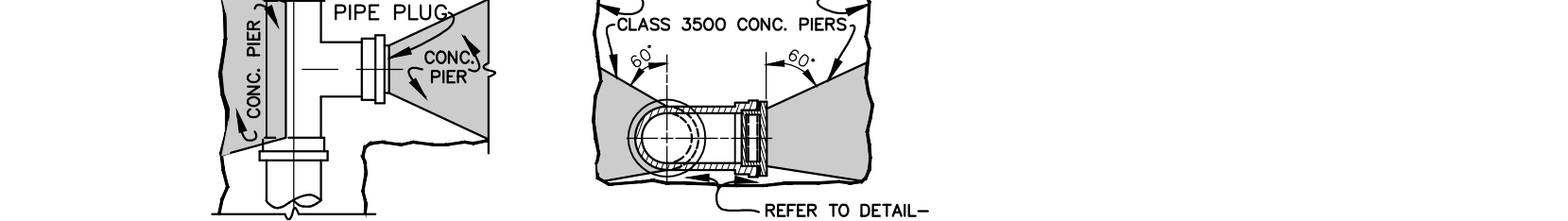


VALVE BOX & COLLAR

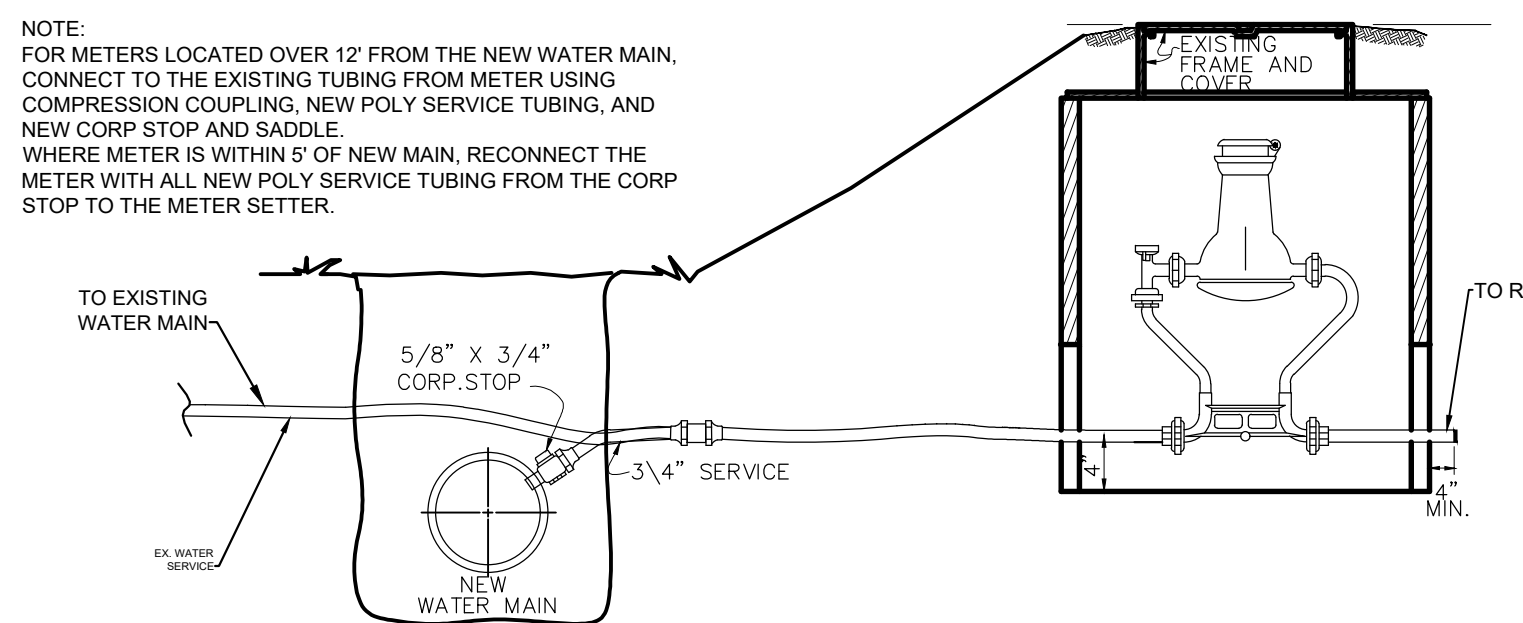
(REQUIRED ON ALL VALVES)
NOT TO SCALE



TYPICAL DETAIL OF CONCRETE BLOCKING AT TEES & PLUGS

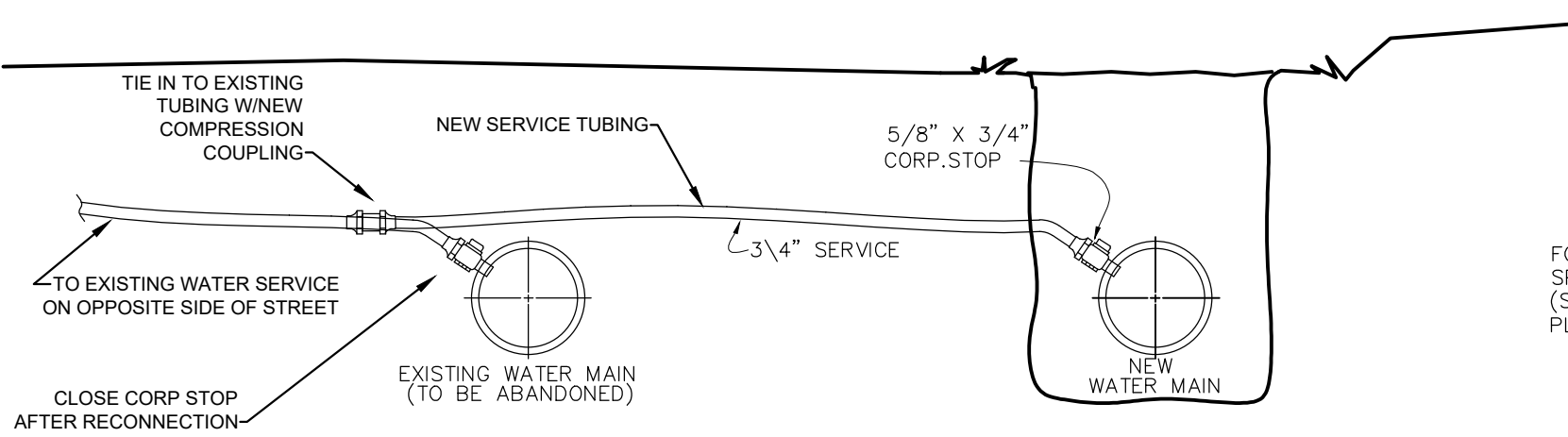


TYPICAL DETAIL OF CONCRETE BLOCKING AT BENDS VERTICAL AND HORIZONTAL



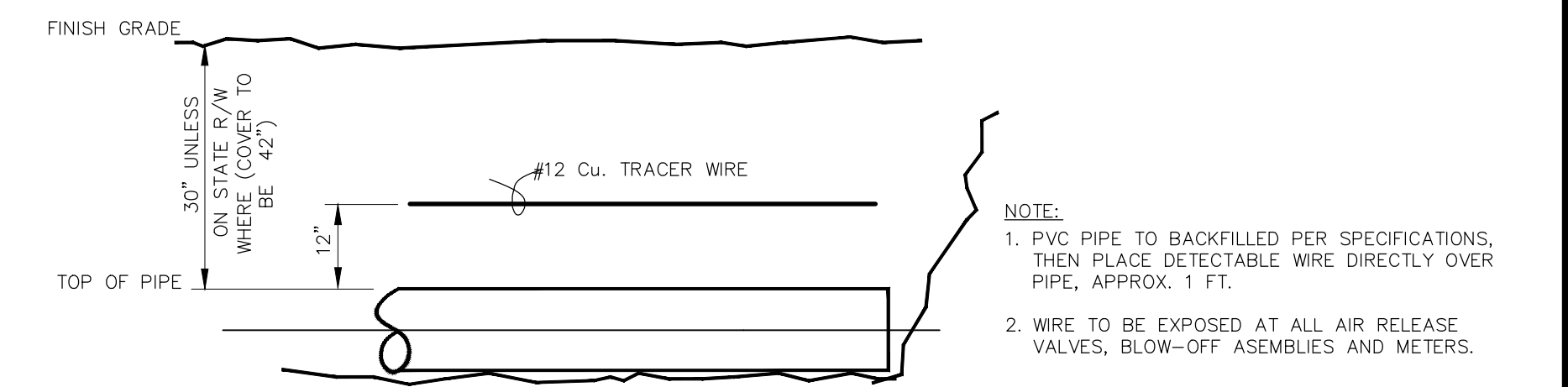
TYPICAL SERVICE METER RECONNECTION

NOT TO SCALE



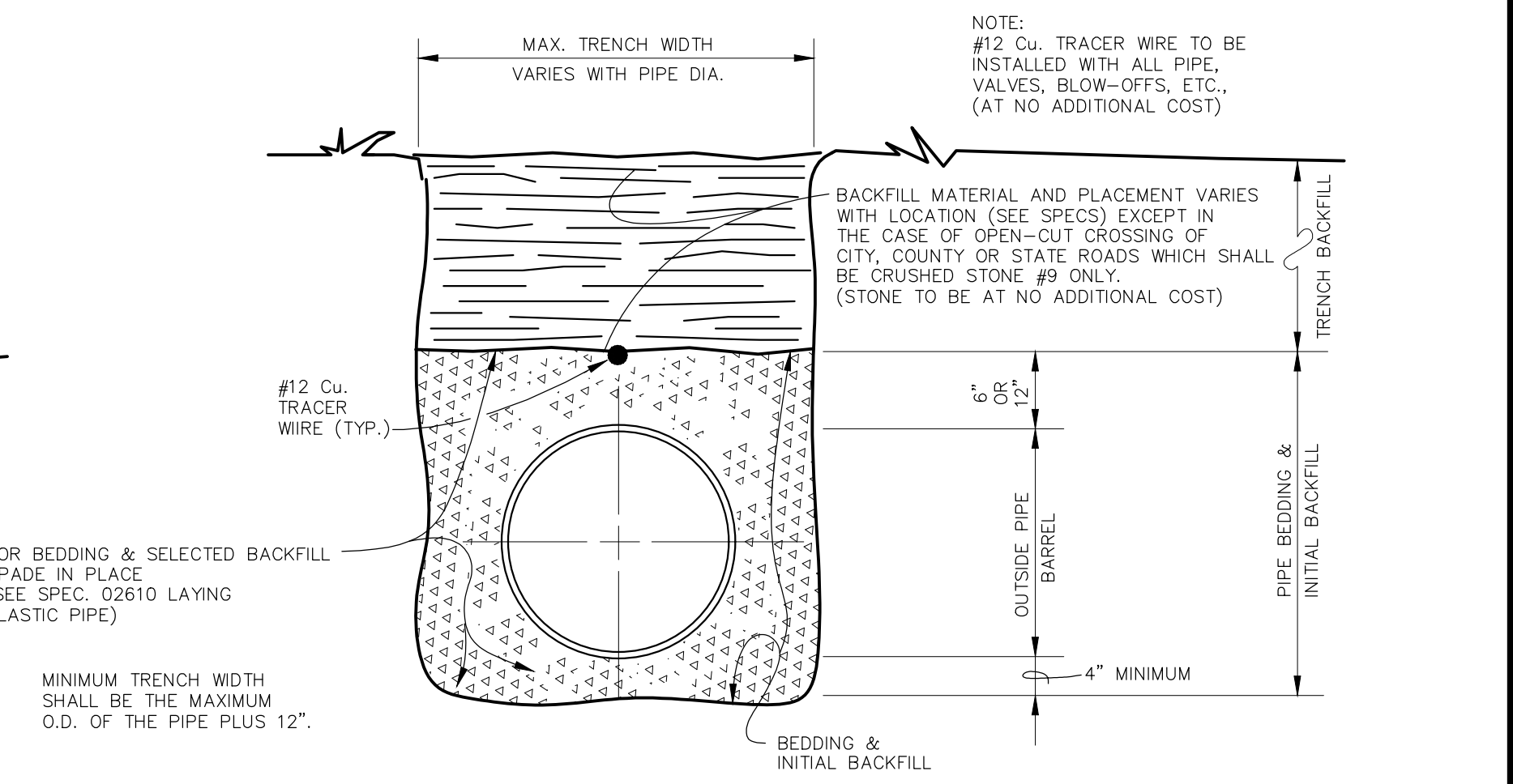
SERVICE CONNECTION FOR SERVICES ON OPPOSITE SIDE OF STREET

NOT TO SCALE



DETECTABLE WIRE INSTALLATION

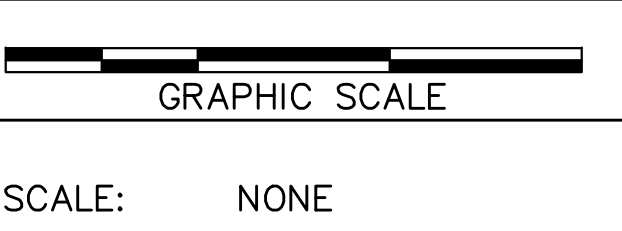
NOT TO SCALE



DETAIL BEDDING & BACKFILL WATER MAIN INSTALLATION

N.T.S.

DESIGNER	SRD	DATE	BY	REVISION
DRAWN	DRH			
CHECKED	RLP			
APPROVED	RLP			



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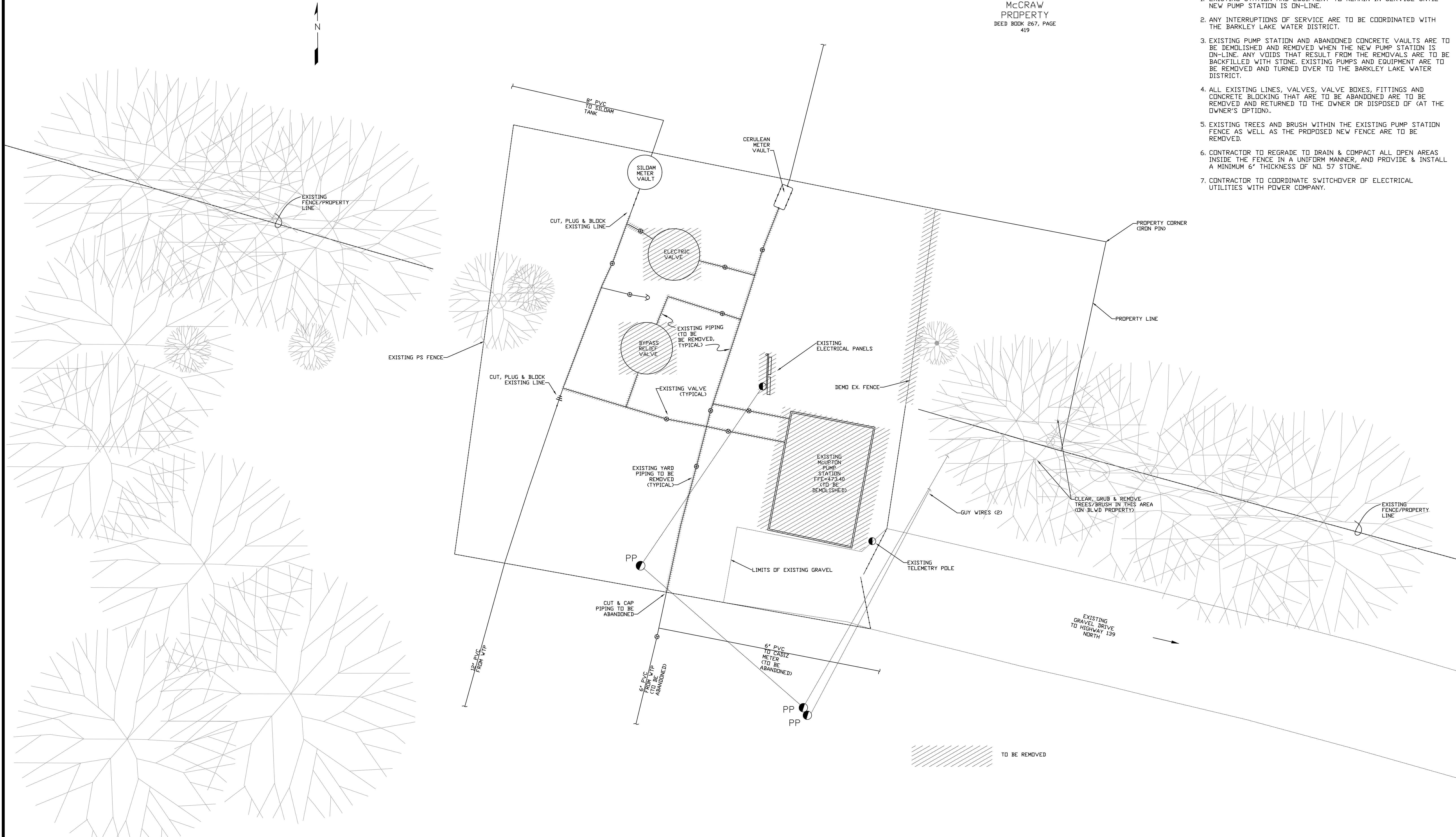
Lexington, KY (859) 278-5412
Hopkinsville, KY (270) 886-5466

**HIGHWAY 139 NORTH WATERLINE REPLACEMENT
BARKLEY LAKE WATER DISTRICT
TRIGG COUNTY, KENTUCKY**

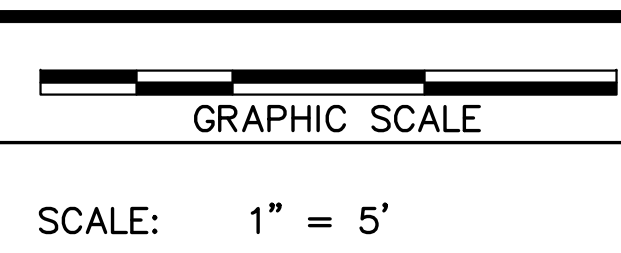
DIVISION	A
CONTRACT NO.	586-008
DATE	DECEMBER, 2019
SHEET NO.	4-A OF 04

PROPERTY OF:
McCRAW
PROPERTY
DEED BOOK 267, PAGE
419

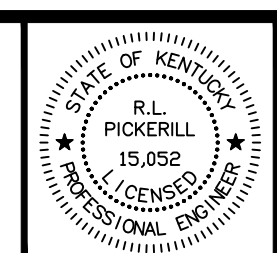
- NOTES:
1. EXISTING STATION AND EQUIPMENT TO REMAIN IN SERVICE UNTIL NEW PUMP STATION IS ON-LINE.
 2. ANY INTERRUPTIONS OF SERVICE ARE TO BE COORDINATED WITH THE BARKLEY LAKE WATER DISTRICT.
 3. EXISTING PUMP STATION AND ABANDONED CONCRETE VAULTS ARE TO BE DEMOLISHED AND REMOVED WHEN THE NEW PUMP STATION IS ON-LINE. ANY VOIDS THAT RESULT FROM THE REMOVALS ARE TO BE BACKFILLED WITH STONE. EXISTING PUMPS AND EQUIPMENT ARE TO BE REMOVED AND TURNED OVER TO THE BARKLEY LAKE WATER DISTRICT.
 4. ALL EXISTING LINES, VALVES, VALVE BOXES, FITTINGS AND CONCRETE BLOCKING THAT ARE TO BE ABANDONED ARE TO BE REMOVED AND RETURNED TO THE OWNER OR DISPOSED OF (AT THE OWNER'S OPTION).
 5. EXISTING TREES AND BRUSH WITHIN THE EXISTING PUMP STATION FENCE AS WELL AS THE PROPOSED NEW FENCE ARE TO BE REMOVED.
 6. CONTRACTOR TO REGRADE TO DRAIN & COMPACT ALL OPEN AREAS INSIDE THE FENCE IN A UNIFORM MANNER, AND PROVIDE & INSTALL A MINIMUM 6" THICKNESS OF NO. 57 STONE.
 7. CONTRACTOR TO COORDINATE SWITCHOVER OF ELECTRICAL UTILITIES WITH POWER COMPANY.



DESIGNER	MES	DATE	BY	REVISION
DRAWN	MES			
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APPROVED	RLP			



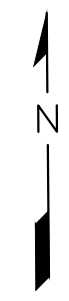
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HIGHWAY 139 NORTH WATERLINE UPGRADES AND
McUPTON PUMP STATION REPLACEMENT
BARKLEY LAKE WATER DISTRICT
TRIGG COUNTY, KENTUCKY

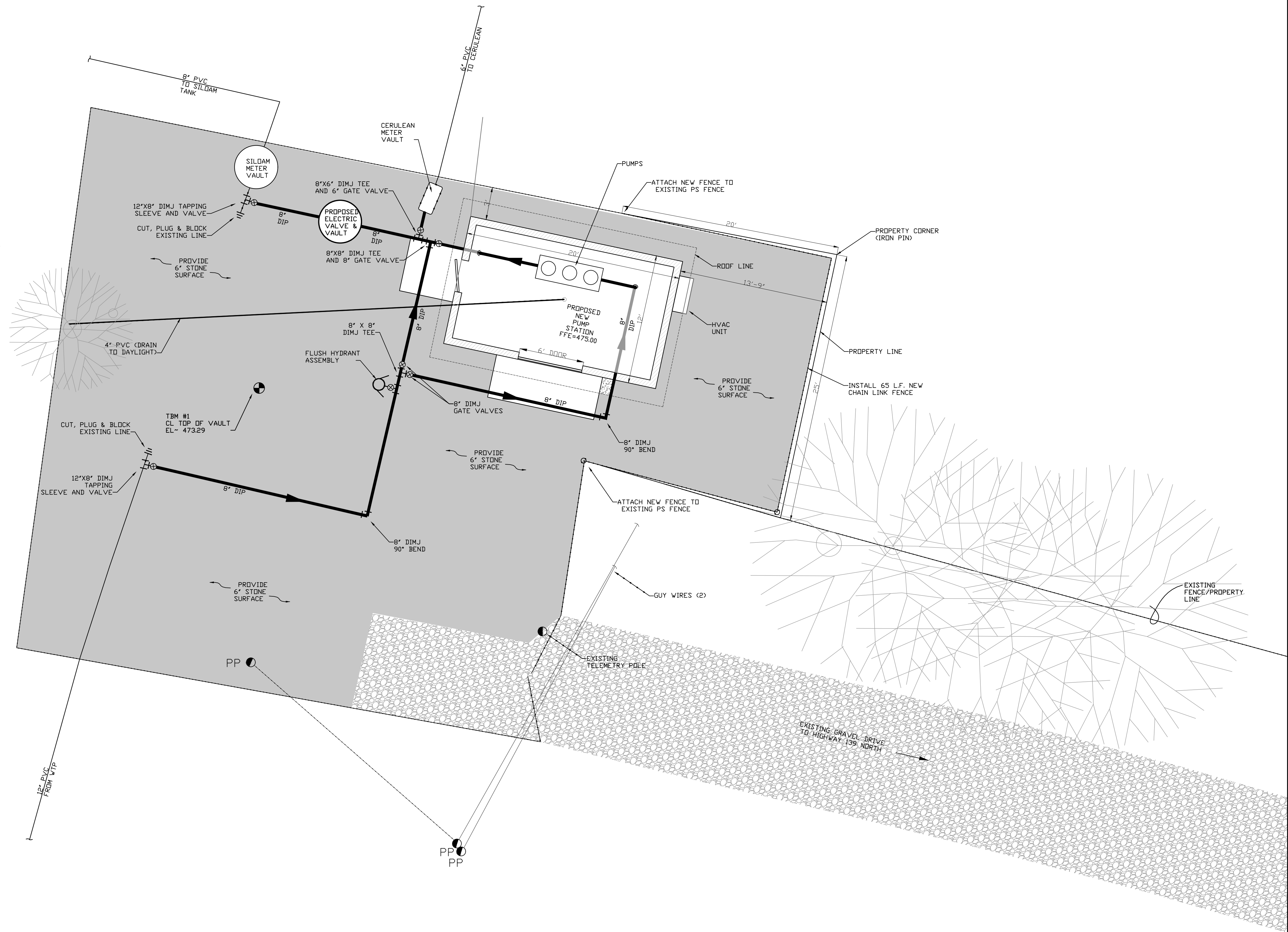
DIVISION B
McUPTON BOOSTER PUMP STATION REPLACEMENT
SITE DEMO PLAN

DIVISION	B
CONTRACT NO.	586-008
DATE	DECEMBER, 2019
SHEET NO.	1-B OF 4



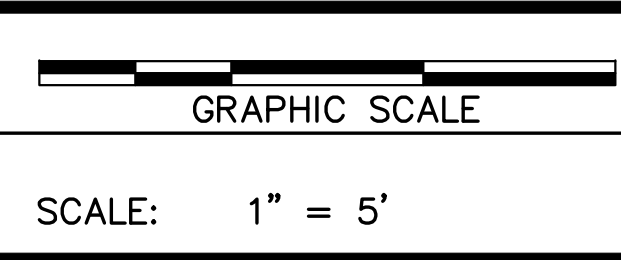
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419

NOTES:
1. EXISTING STATION AND EQUIPMENT TO REMAIN IN SERVICE UNTIL
NEW PUMP STATION IS ON-LINE.

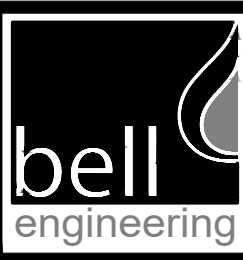
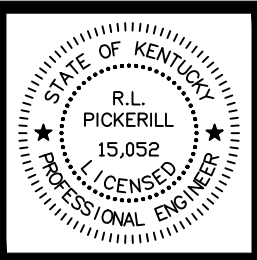


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ELK BRAND
MANUFACTURING CO.
DEED BOOK 139, PAGE 494

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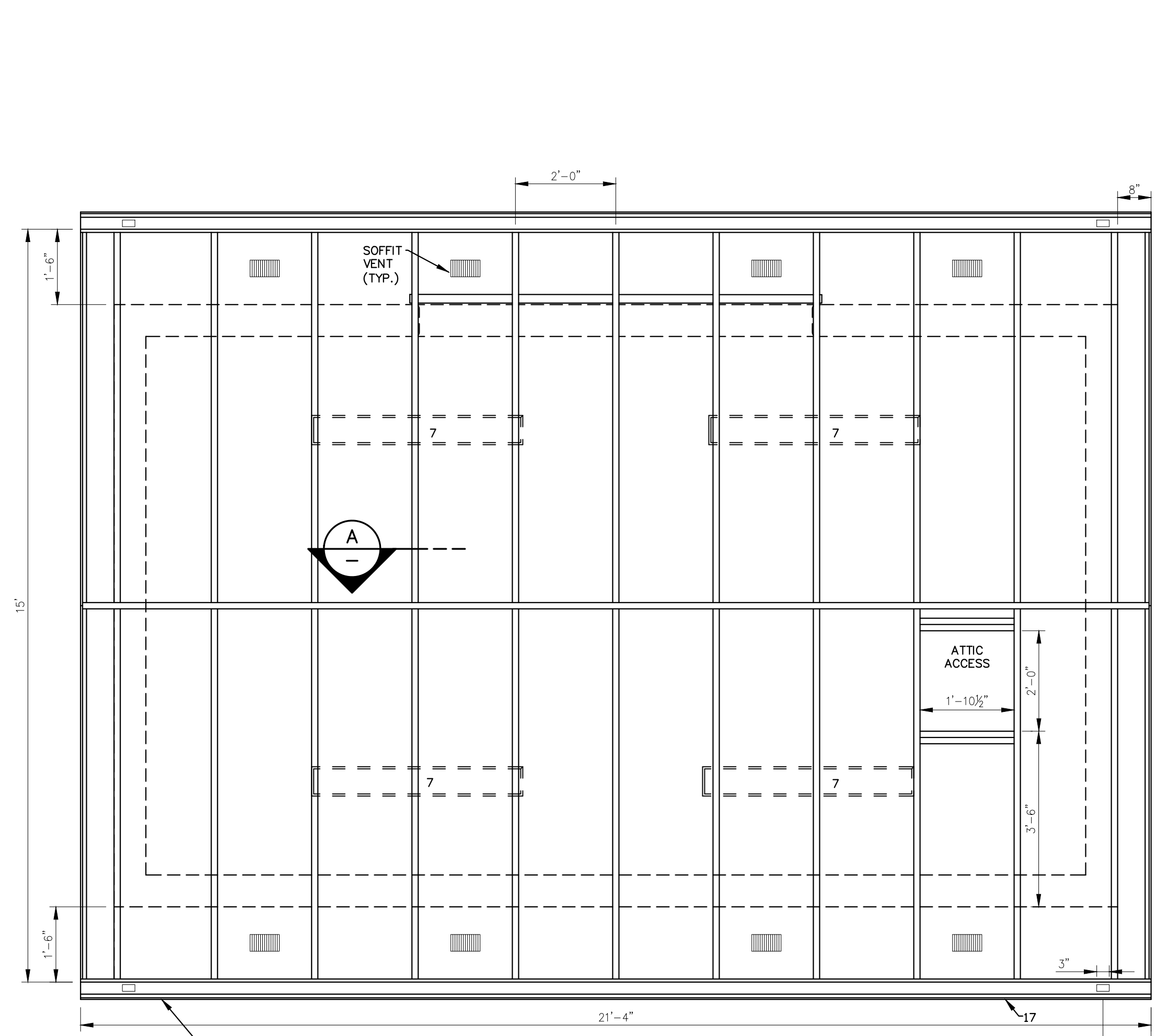
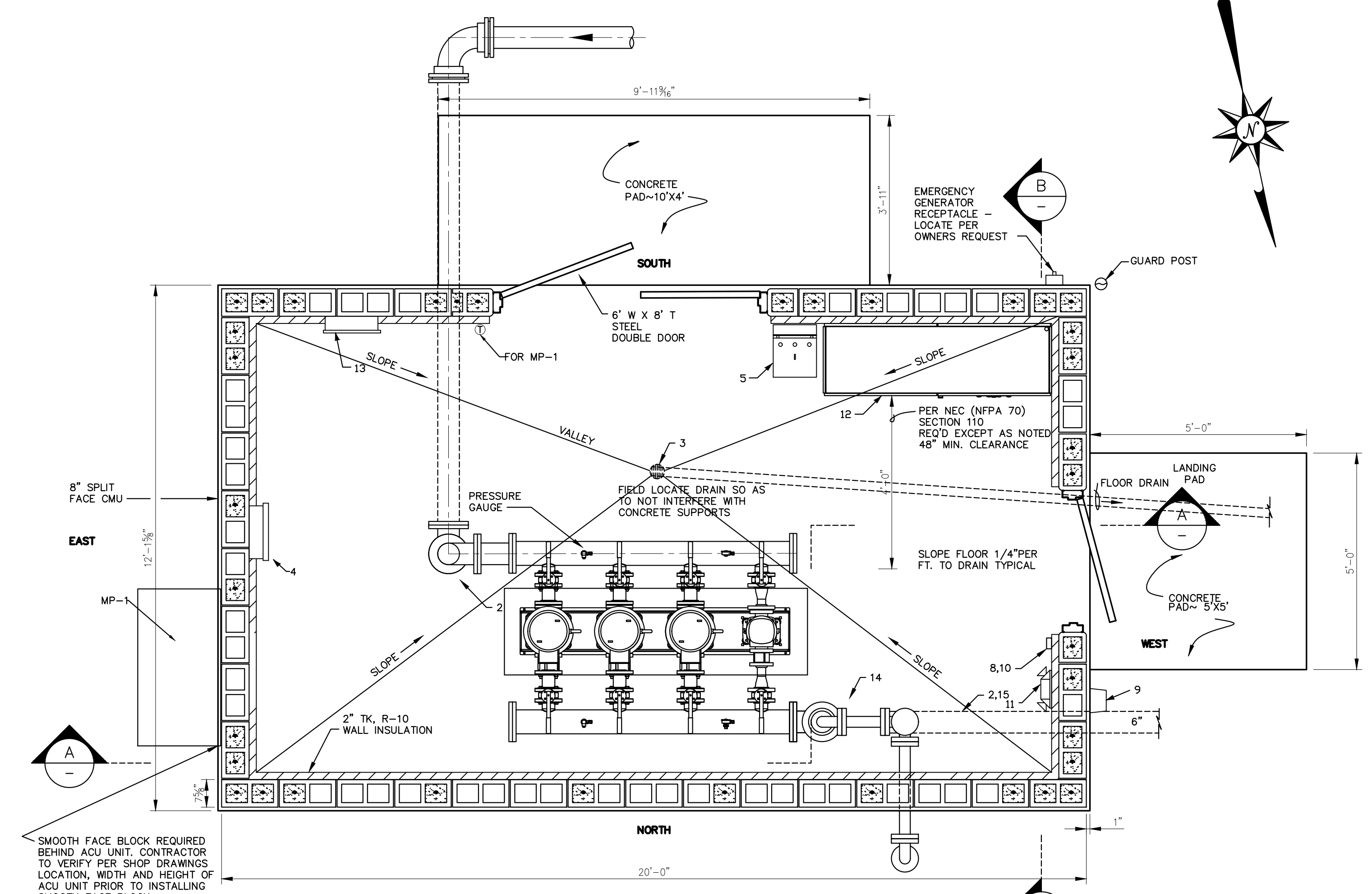


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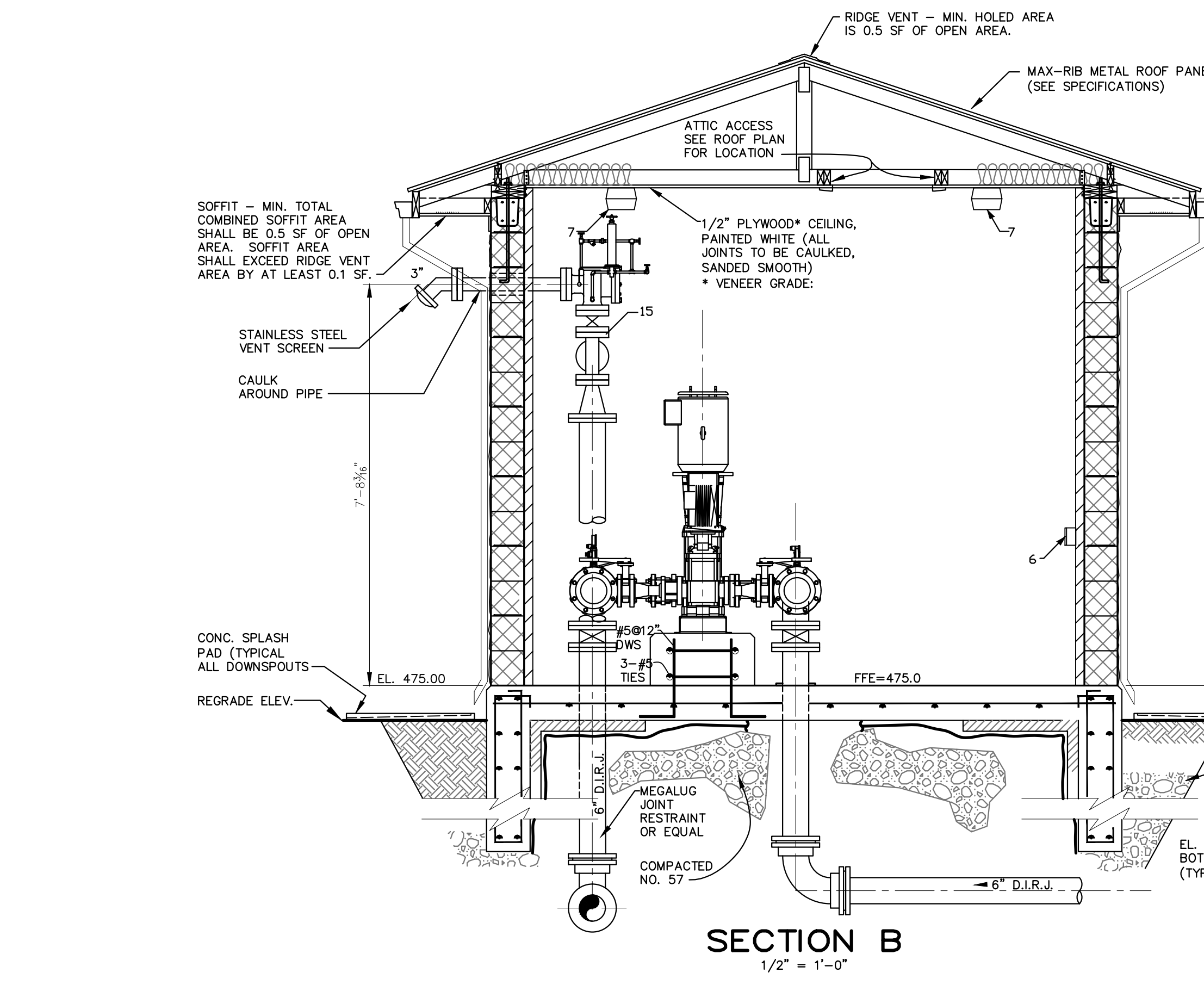
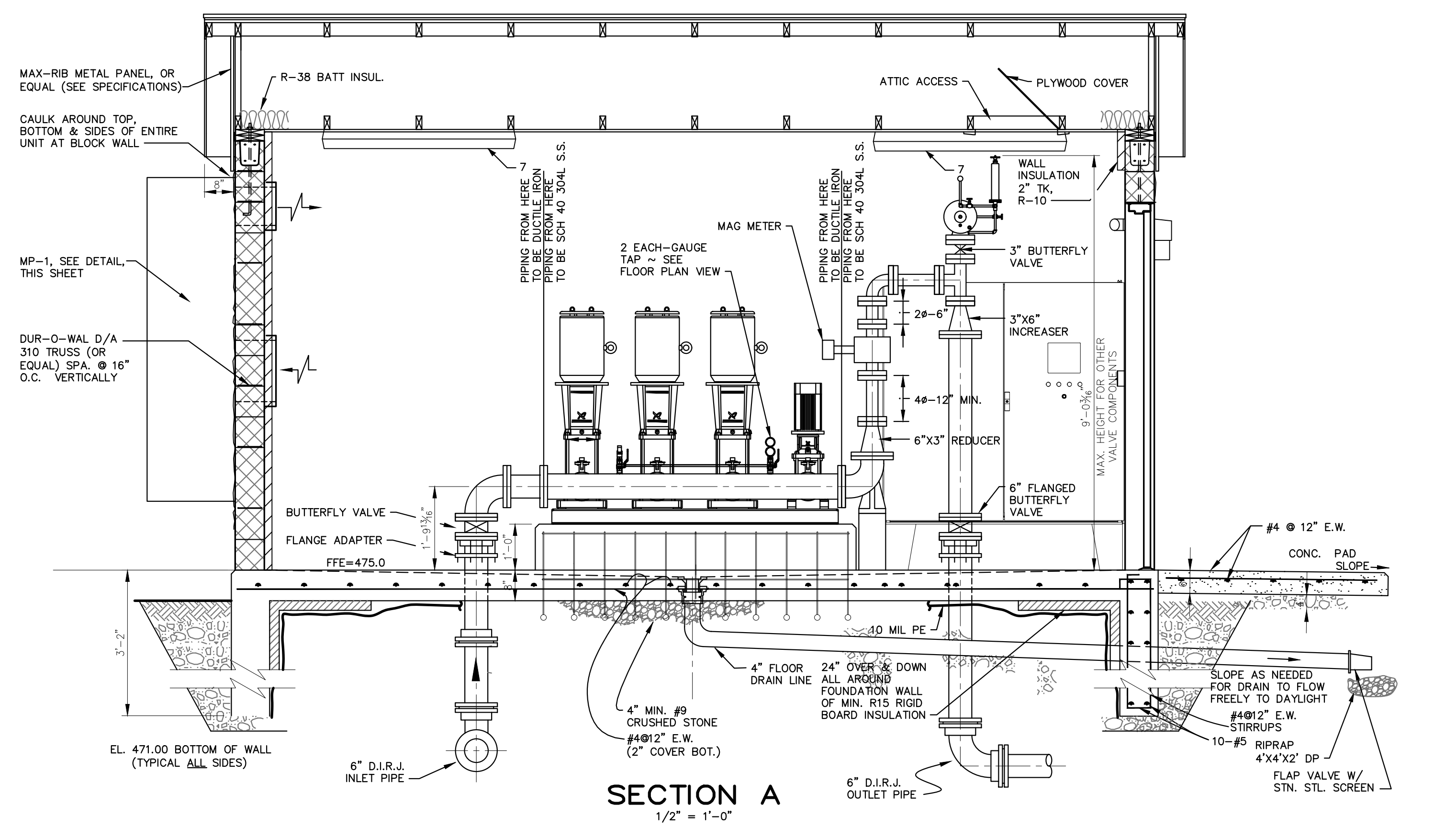
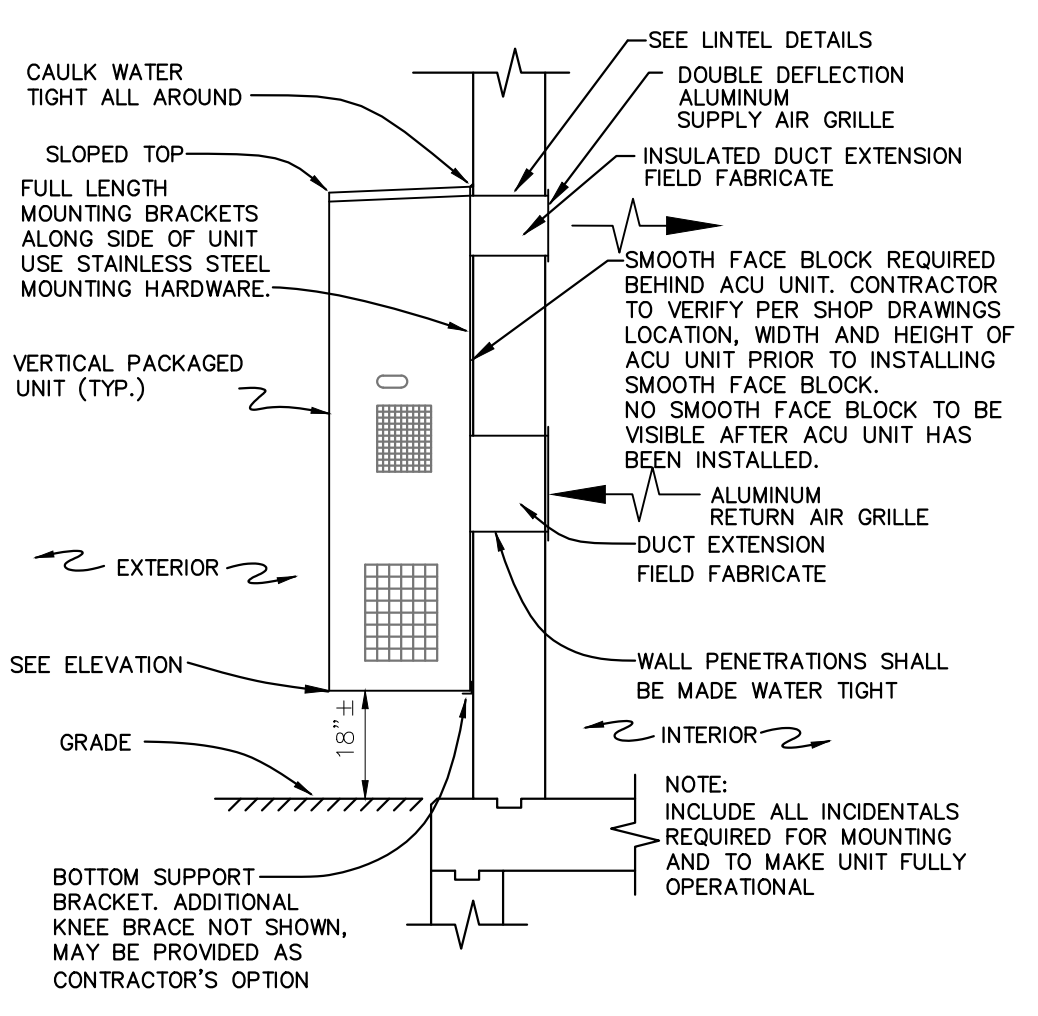
HIGHWAY 139 NORTH WATERLINE UPGRADES AND
McUPTON PUMP STATION REPLACEMENT
BARKLEY LAKE WATER DISTRICT
TRIGG COUNTY, KENTUCKY

DIVISION B
McUPTON BOOSTER PUMP STATION REPLACEMENT
SITE PLAN WITH
PIPING LAYOUT

DIVISION	B
CONTRACT NO.	586-008
DATE	DECEMBER, 2019
SHEET NO.	2-B OF 4

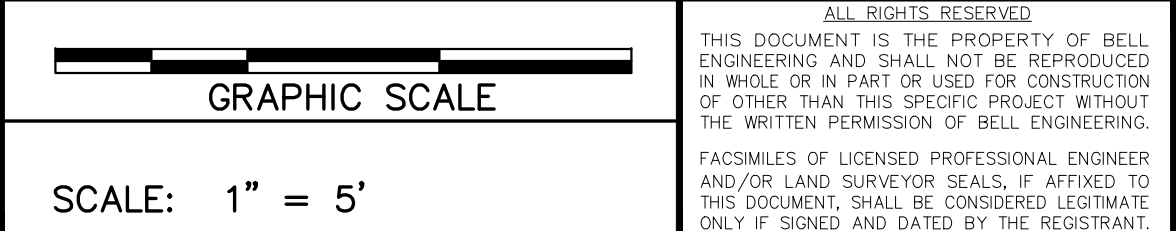


BILL OF MATERIALS			
ITEM	DESCRIPTION	SIZE	QTY.
1.	ADJ. PIPE SUPPORT, GRINNELL FIG 264	6"	5
2.	IRON FLANGED SUCTION DIFFUSER	6"x 6"	2
3.	FLOOR DRAIN (6" BRASS)	6"	
4.	NOT USED	4.8KW	
5.	POWER DISTRIBUTION TRANSFORMER	7.5KVA	
6.	CONVENIENCE OUTLET		
7.	INTERIOR LIGHT	40W(2)	2
8.	EXTERIOR LIGHT SWITCH		
9.	EXTERIOR LIGHT	70W	
10.	EXTERIOR LIGHT SWITCH		
11.	EMERGENCY LIGHT		
12.	SYSTEM POWER AND CONTROL PANEL		
13.	TELEMETRY PANEL		
14.	MAG FLOWMETER		
15.	PRESSURE RELIEF & SUSTAINING VALVE		



- PUMP STATION EQUIPMENT LAYOUT IS SCHEMATIC IN NATURE. CONTRACTOR IS RESPONSIBLE FOR ALL LAYOUT OF EQUIPMENT, PIPE LENGTHS, ETC. BASED ON ACTUAL EQUIPMENT SUPPLIED. FINAL LAYOUT TO BE SUBMITTED TO THE ENGINEER FOR REVIEW PRIOR TO THE START OF CONSTRUCTION.
- COLORS OF BRICK/BLOCK, DOORS, ROOF, GUTTERS, DOWNSPOUTS, INTERIOR CEILING, PIPING AND GABLES TO BE REVIEWED & CHOSEN BY OWNER AND APPROVED BY OWNER PRIOR TO ORDERING ANY MATERIAL.
- WALL INSULATION, MINIMUM R-10, TO BE DUPOUT THERMAX HEAVY-DUTY INSULATION, OR EQUAL WITH A 3.4 MIL EMBOSSED, WHITE, ACRYLIC COATED ALUMINUM SHEET ON OUTSIDE AND 1.25 MIL EMBOSSED ALUMINUM ON THE OTHER WITH A MINIMUM IMPACT RESISTANCE OF 40 LBS., ABLE TO WITHSTAND PRESSURE WASHING UP TO 2000 PSI WITH ANY TIP GREATER THAN 15" (AT 3' MINIMUM DISTANCE), HAVE A 145 PSI STRENGTH MODULUS OF RUPTURE, AND MEET THE FOLLOWING CODES: 2009 IBC, SECTION 2603, UL R5622, UL 723 (ASTM E84), NFPA 285-2006.

DESIGNER	RLP	DATE	BY	REVISION
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HIGHWAY 139 NORTH WATERLINE UPGRADES AND
McUPTON PUMP STATION REPLACEMENT
BARKLEY LAKE WATER DISTRICT
TRIGG COUNTY, KENTUCKY

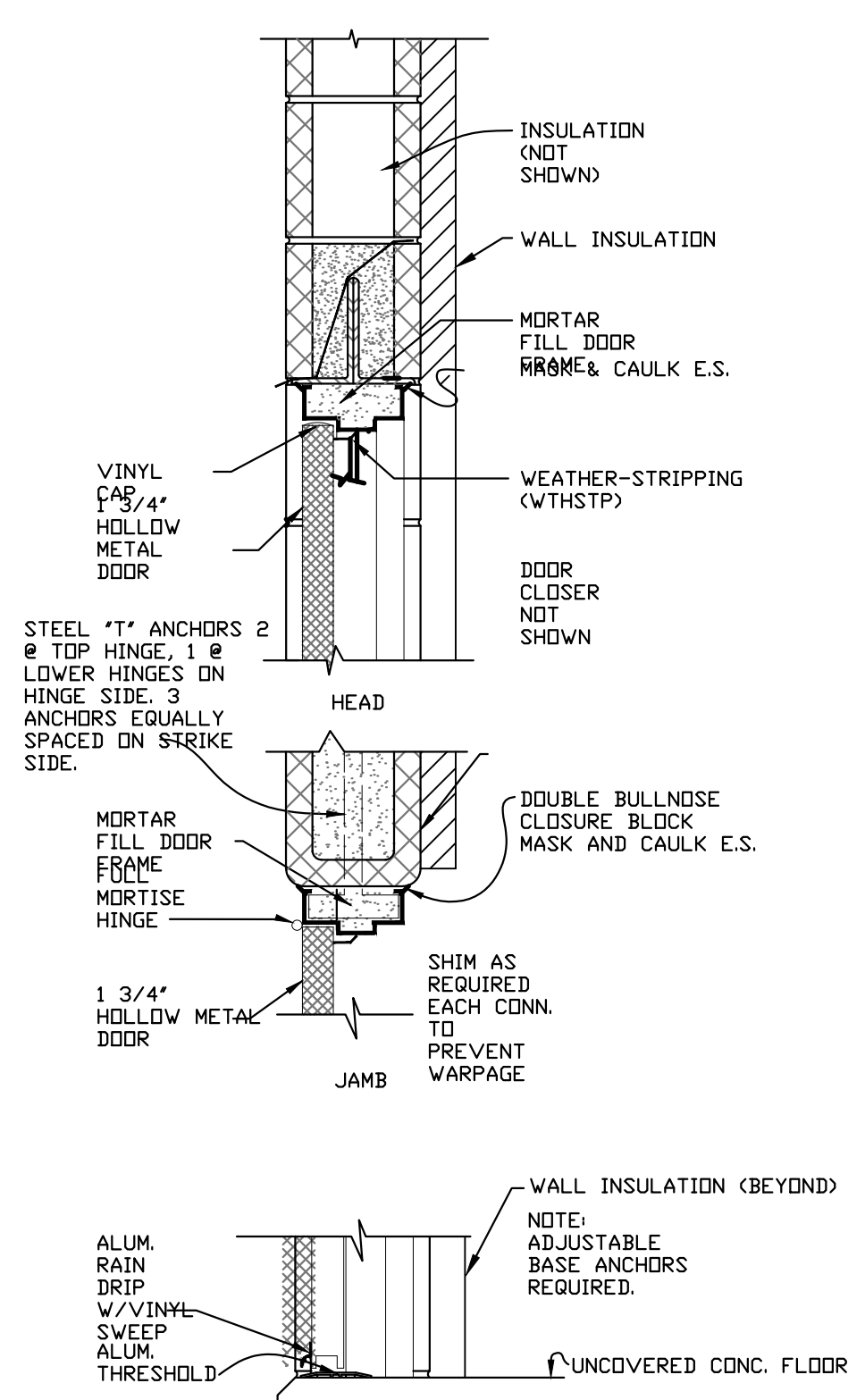
DIVISION B BOOSTER PUMP STATION
PLAN & SECTIONS

DIVISION	B
CONTRACT NO.	
DATE	DECEMBER, 2019
SHEET NO.	3-B OF 4



DOOR FRAME AND HARDWARE SPECIFICATIONS:
 DOOR SHALL BE HOLLOW METAL RESISTANCE TO HIGH IMPACT, HIGH FREQUENCY USE, CORROSION AND HEAT TRANSMISSION ARE THE GOVERNING FACTORS REQUIRING THE DOOR TO MEET DURABILITY STANDARDS OF THE STEEL DOOR INSTITUTE (SDI) STANDARD DATA SERIES ANSI/SOI A250.8 CLASSIFICATION TYPE III, EXTRA HEAVY DUTY OR NAAMM STANDARD CHEM-1-74. DOOR SHALL HAVE PASSED AND SHALL MEET THE REQUIREMENTS OF ANSI STANDARD A250.4, TWIST TEST AND 1 MILLION CYCLE SWING TEST.

SIZE DOOR AND FRAME	ACCEPTABLE MFR. PRODUCTS DESIGNATING THE QUALITY, TYPE, FUNCTION AND ETC.	SIZE DOOR AND FRAME	ACCEPTABLE MFR. PRODUCTS DESIGNATING THE QUALITY, TYPE, FUNCTION AND ETC.
ENTRANCE LOCKSET	6'-0" x 7'-10" RHR ACTIVE CECO 1 3/4" IMPERIAL MAXIM (IU), 14 GAUGE HOT DIP GALV. STL. B90 YALE - MORTISE - MONROE MOSL - (704) - SL8807FL - US32D ASTM A924 AND A653, U FACTOR 0.067, R FACTOR 11.01 HAGER - WS1920 - SWIVEL STAPLE - 4 1/2" 8-HAGER - MORTISE - BB1199 - 4 1/2" x 4 1/2" - US32D NAT. GUARD PROD.-8424 - ALUMINUM IVES - CS115 - 25 1/2" LGTH. THRU BOLT FASTENING IVES - FB458 - US26D FURNISHED BY DOOR MANUFACTURER NAT. GUARD PROD.-101AV - ANO. ALUM. NAT. GUARD PROD.-110A - ANO. ALUM. (HEAD & JAMB) NAT. GUARD PROD.-600 ANO. ALUM. & NYLON YALE - PD2512B-1/2 SERIES, 2 INCH VERTICAL SHACKLE CLEARANCE, KEYED TO DOOR LOCK (PROVIDE 2 KEYS FOR EACH LOCK)	ENTRANCE LOCKSET	3'-0" x 7'-0" RHR ACTIVE CECO 1 3/4" IMPERIAL MAXIM (IU), 14 GAUGE HOT DIP GALV. STL. G90 FRAMES - MIN. 14 GAUGE G90 GALVANIZED ASTM A924 AND A653, U FACTOR 0.067, R FACTOR 11.01 YALE - MORTISE - MONROE MOSL - (704) - SL8807FL - US32D HAGER - MORTISE - BB1199 - 4 1/2" x 4 1/2" - US32D NAT. GUARD PROD.-8424 - ALUMINUM IVES - CS115 - 25 1/2" LGTH. THRU BOLT FASTENING FURNISHED BY DOOR MANUFACTURER NAT. GUARD PROD.-101AV - ANO. ALUM. NAT. GUARD PROD.-110A - ANO. ALUM. (HEAD & JAMB) YALE - PD2512B-1/2 SERIES, 2 INCH VERTICAL SHACKLE CLEARANCE, KEYED TO DOOR LOCK (PROVIDE 2 KEYS FOR EACH LOCK)
HASP & KEEPER		HINGE BUTTS	
HINGE BUTTS		THRESHOLD	
THRESHOLD		STEEL ASTRAGAL	
CRASH STOP		RAIN DRIP	
FLUSH BOLT (TOP & BOTTOM)		WEATHER-STRIPPING	
STEEL ASTRAGAL		SWEEP	
RAIN DRIP		PADLOCKS (TWO)	
WEATHER-STRIPPING		DOORSTOPS	
SWEEP			
PADLOCKS (TWO)			
DOORSTOPS			



- GENERAL MASONRY NOTES**
- PROVIDE 3/8" WEEPHOLES ON 4'-0" CENTERS IN VERTICAL JOINTS AT THE BOTTOM OF EXTERIOR BLOCK WALLS. WEEPHOLES SHALL BE MADE BY APPROVED METHODS AT THE TIME THE WALL IS CONSTRUCTED.
 - EXTERIOR WALL REINFORCING SHALL BE TRUSS TYPE AT 16" O.C. VERTICALLY. THERE SHALL BE REINFORCING BETWEEN TOP TWO MASONRY COURSES.
 - INTERIOR WALL REINFORCING SHALL BE TRUSS TYPE AT 16" O.C. VERTICALLY.
 - PLACE ADDITIONAL RECTANGULAR TIES AROUND ALL DOOR, WINDOW AND LOUVER OPENINGS AT JAMBS, HEADS AND SILLS SO THAT TIES ARE NOT MORE THAN 16" O.C. VERTICALLY AND WITHIN 8" OF OPENING.
 - ALL LINTELS SHALL EXTEND FOR 8" BEARING EACH SIDE OF MASONRY OPENING FOR OPENINGS 8'-0" WIDE OR LESS. FOR LARGER OPENINGS, INCREASE BEARING 1" FOR EACH FOOT GREATER THAN 8'-0". THE CORES OF THE FIRST COURSE OF CONCRETE BLOCK UNDER ALL LINTELS SHALL BE MORTAR FILLED WITH 1-#5 ROD AND DOVEL. ALL LINTELS SHALL BE BEDDED IN MORTAR FOR FULL BEARING UNLESS OTHERWISE NOTED.
 - EXTERIOR CONCRETE BLOCK WALLS SHALL HAVE 1-#5 ROD & DOVEL FROM SLAB IN MORTAR FILLED CORES ON 4'-0" MIN. CENTERS, AND AT CORNERS FOR 2'-0" LENGTH EACH SIDE. MORTAR FILLED CORES SHALL BE FOR FULL HEIGHT OF WALL.
 - ALL WINDOW OPENINGS SHALL HAVE VERTICAL CONTROL JOINTS IN CONCRETE BLOCK ABOVE AND BELOW WINDOW IN LINE WITH SIDE OF OPENINGS. DOORS SHALL HAVE SIMILAR JOINTS ABOVE OPENINGS. INTERIOR SIDE OF CONTROL JOINTS SHALL BE RAKED OUT TO 1/2" DEPTH AND CAULKED. CONTROL JOINTS SHALL BE PLACED AT ONE SIDE OF OPENING IF OPENING IS LESS THAN SIX FEET IN WIDTH AND AT BOTH JAMBS IF OPENING IS OVER SIX FEET IN WIDTH.
 - THE TOP BLOCK COURSES OF ALL EXTERIOR WALLS SHALL CONSIST OF BOND BEAM BLOCK WITH CLASS "A" CONCRETE AND REINFORCED WITH FOUR (4) #5 RODS (WITH STD. 90° HOOKS AT CORNERS). REINFORCING RODS AND CONCRETE IN BOND BEAM SHALL RUN CONTINUOUSLY ACROSS CONTROL JOINTS.

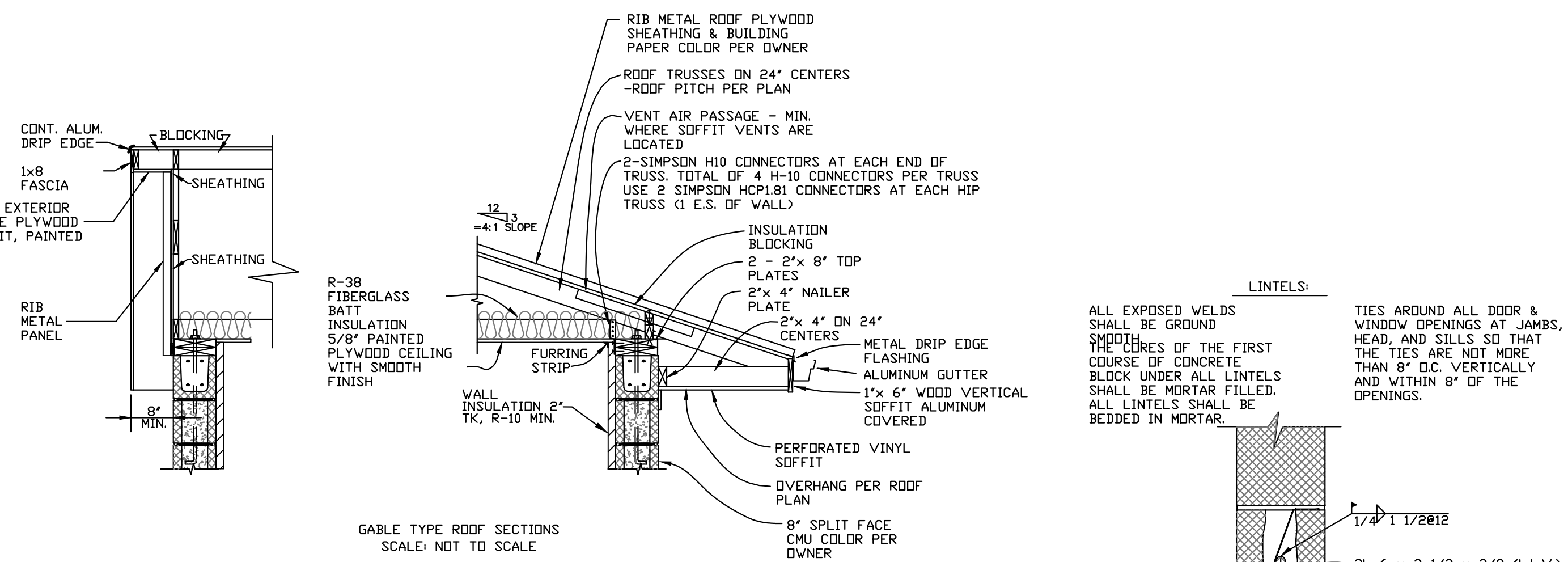
- TRUSS NOTES**
- PREFABRICATED ROOF TRUSSES SHALL BE DESIGNED IN ACCORDANCE WITH THE NATIONAL DESIGN SPECIFICATIONS FOR STRESS-GRADE LUMBER AND ITS FASTENINGS AS RECOMMENDED BY THE NATIONAL FOREST PRODUCTS ASSOCIATION.
 - DESIGN TRUSS LOADINGS:
ROOF TRUSSES:
TOP CHORD DEAD LOAD: 10 PSF
TOP CHORD LIVE LOAD: 20 PSF (SNOW)
BOTTOM CHORD DEAD LOAD: 10 PSF
WIND LOAD: 70 MPH
 - TRUSS MANUFACTURER SHALL SUBMIT ERECTION PLAN AND SHOP DRAWINGS BEARING THE SEAL OF AN ENGINEER REGISTERED IN THE STATE OF KENTUCKY OR VIRGINIA, CONFORMING TO THE DESIGN CRITERIA SPECIFIED HEREIN FOR APPROVAL AND PRIOR TO FABRICATION. SUBMITTED DATA TO CONTAIN:
-DESIGN LOADINGS AND ALLOWABLE STRESS INCREASES EMPLOYED
-CALCULATED TRUSS MEMBER STRESSES
-RATED LOAD CAPACITY OF THE TRUSS MEMBER CONNECTORS
-SIZE, SPECIES AND STRESS-GRADE OF LUMBER EMPLOYED
-FABRICATION DETAILS INDICATING LOCATIONS OF CONNECTORS
-PERMANENT BRIDGING AND/OR BRACING LOCATIONS
-HANDLING AND ERECTION INSTRUCTIONS
-TRUSS TO TRUSS CONNECTION
 - FAILURE TO FURNISH ANY OF THE ABOVE REQUIRED DATA WILL BE REGARDED AS AMPLE REASON FOR THE REJECTION OF THE SHOP DRAWINGS. THE CONTRACTOR SHALL APPROVE FABRICATION AND INSTALLATION DRAWINGS SHOWING SIZE, SHAPE AND LAYOUT PRIOR TO SUBMITTAL FOR REVIEW BY THE ENGINEER.
 - CONNECTOR PLATES SHALL BE A MINIMUM OF 0.036" AND SHALL BE MANUFACTURED FROM MATERIAL MEETING THE REQUIREMENTS OF ASTM A446 GRADE A STEEL. PLATES SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A592 660 SPECIFICATIONS.
 - TRUSS MEMBERS SHALL BE ACCURATELY CUT AND FABRICATED TO INSURE AMPLIFIED MEMBER BEARING AND TRUSS UNIFORMITY WITHIN THE TOLERANCES ESTABLISHED BY THE TRUSS FACTORY INSTITUTE QUALITY CONTROL MANUAL DCM-84.
 - FOR TRUSSES OVER 35' SPAN, ALL LUMBER SHALL BE NO. 1 GRADE MINIMUM, INCLUDING THE WEBS. FOR TRUSSES UP TO 35' SPAN, ALL LUMBER SHALL BE NO. 2 GRADE MINIMUM.

- GENERAL NOTES FOR ROOF CONSTRUCTION**
- THE ROOF SHALL BE THE GABLE ROOF TYPE. TRUSSES SHALL BE PITCHED TYPE WITH 4:12 SLOPE (3" IN 12"). CONNECT TRUSSES TO TOP PLATE USING 2 SIMPSON H-10 CONNECTORS ON EACH SIDE (TOTAL 4 PER TRUSS).
 - PLYWOOD SHEATHING FOR ROOF SHALL BE EXTERIOR GRADE -APA RATED FOUR BY EIGHT FOOT SHEETS, 5/8 INCH THICK. PLY CLIPS SHALL BE PROVIDED BETWEEN EACH RAFTER. PROVIDE PREFORMED ALUMINUM BLOCKING FOR ALL EXPOSED ENDS OR EDGES. NAIL WITH 10d COMMON NAILS SPACED 6 INCHES APART ON THE EDGES AND 12 INCHES APART FOR INTERMEDIATE NAILING.
 - PROVIDE PARTIAL HEIGHT BLOCKING AT NAILER PLATE BETWEEN CEILING JOISTS TO RETAIN INSULATION. INSULATION SHALL BE R-38.
 - CONTINUOUS 0.085 INCH GAUGE WHITE ALUMINUM 4 INCH GUTTERING SHALL BE PROVIDED ON THE BUILDING WITH THE NUMBER OF DOWNSPOUTS AS SHOWN. GUTTERS SHALL BE HUNG USING BRACKET TYPE HANGERS. DOWNSPOUTS SHALL BE CORRUGATED RECTANGULAR TYPE MOUNTED WITH BRACKETS. GUTTER HANGERS SHALL BE 3 FT. O.C.

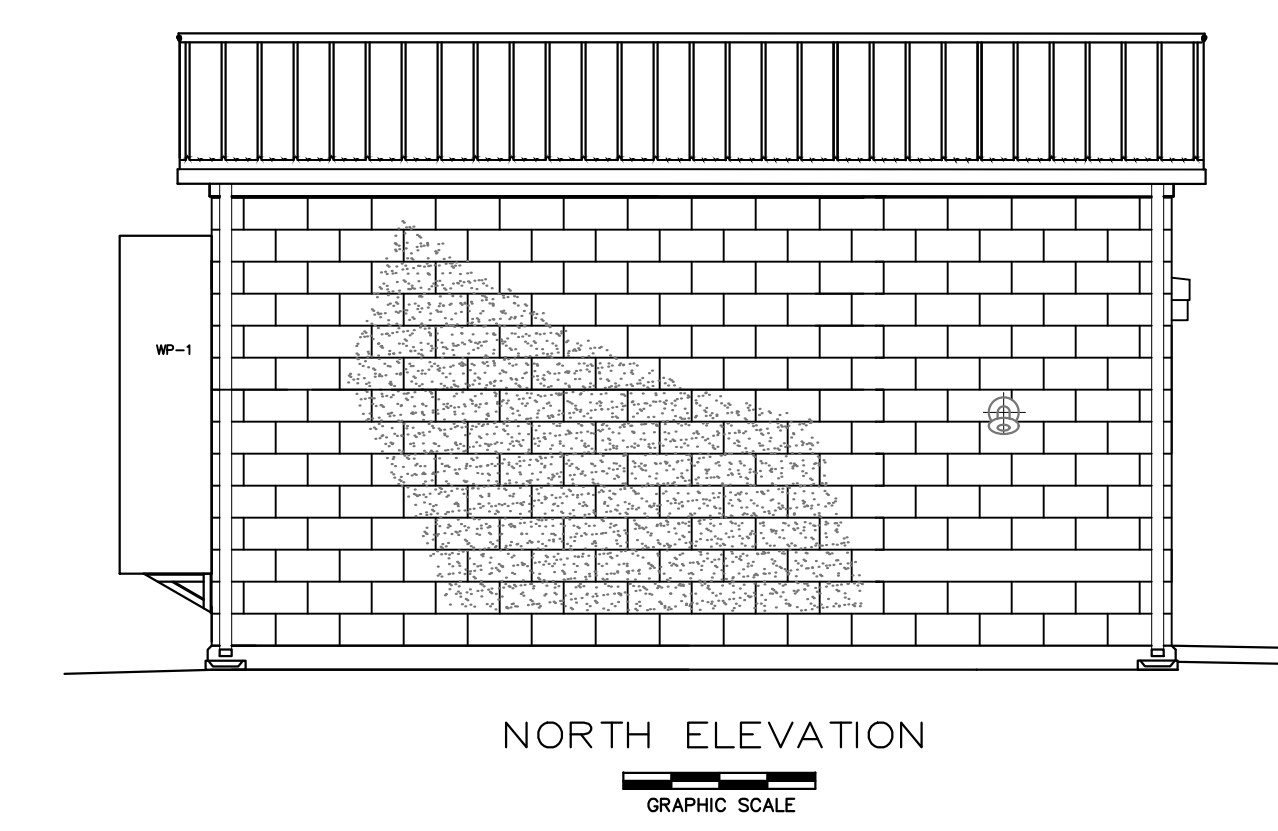
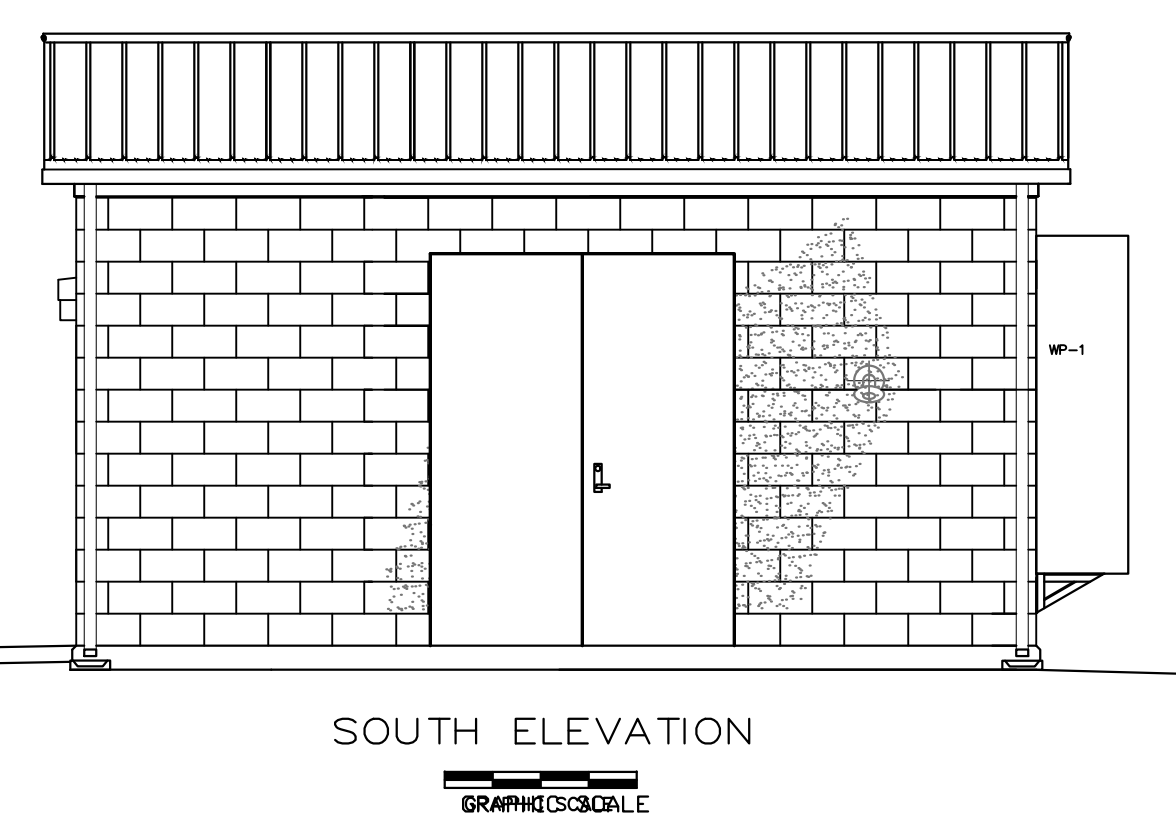
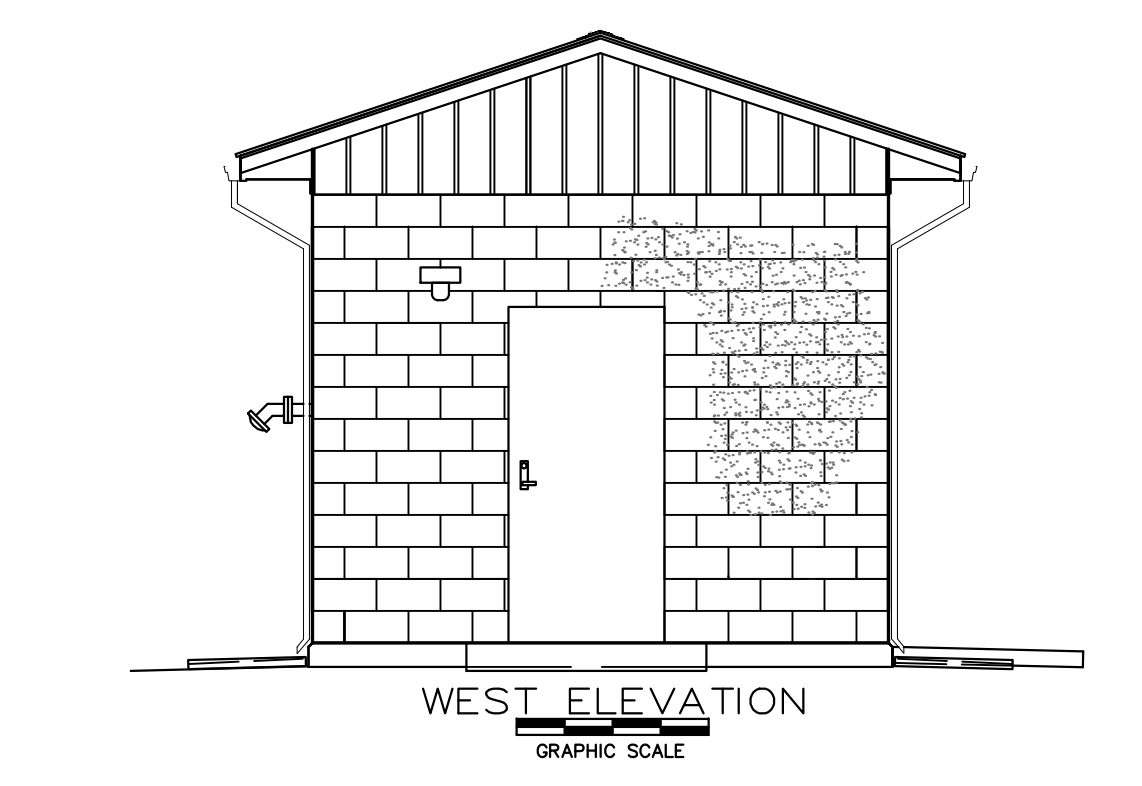
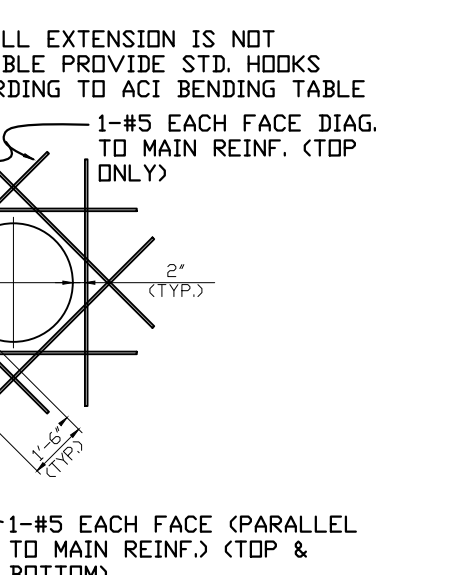
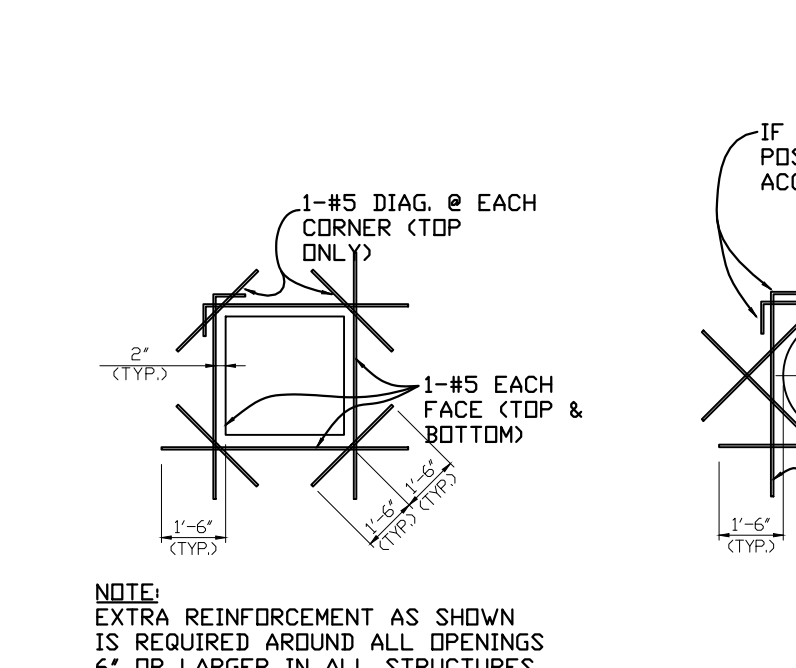
MINIMUM NAILING SCHEDULE

ALL NAILS SHALL BE COMMON WIRE NAILS. WHERE NAILS TEND TO SPLIT THE WOOD, HOLES SHALL BE SUBDRILLED. UNLESS OTHERWISE NOTED NAILING SHALL NOT BE LESS THAN THE FOLLOWING:

JOISTS TO BEARING - TOE NAIL EA. SIDE	2 - 16d
DOUBLE JOISTS:	
NOT BLOCKED APART - STAGGERED	16d @ 16"
BLOCKED APART - EA. BLOCK, EA. SIDE	2 - 16d
BLOCKING BETWEEN JOISTS:	
TO BEARING - TOE NAIL EA. SIDE	2 - 16d
TO JOIST 10' IN DEPTH AND GREATER:	
THRU NAIL, ONE END	3 - 20d
TOE NAIL EA. SIDE, OPP. END	3 - 16d
TO JOIST 8' IN DEPTH AND LESS:	
THRU NAIL, ONE END	2 - 16d
TOE NAIL EA. SIDE, OPP. END	2 - 16d
BRIDGING TO JOISTS - TOE NAIL EA. END	2 - 8d
STUDS TO BEARING - TOE NAIL EA. SIDE	2 - 16d
MULTIPLE STUDS:	
CORNER STUDS AND ANGLES	16d @ 12" O.C.
DOUBLE TOP PLATE:	
LOWER PLATE TO TOP OF STUD	3 - 16d
UPPER PLATE TO LOWER PLATE - STAGGERED	16d @ 18" O.C.
UPPER PLATE TO LOWER PLATE AT INTERSECTION	3 - 16d
PLATE TO JOIST OR BEARING	16d @ 16" O.C.
3/8" PLYWOOD SHEATHING	
(HORIZONTAL OR VERTICAL)	
8d @ 6" O.C. @ PANEL EDGES	
1/2", 5/8", OR 3/4" PLYWOOD SHEATHING	
10d @ 6" O.C. @ PANEL EDGES	
16d @ 30" O.C.	
1/4" PLYWOOD FOR SUB-FLOOR:	
4d @ 4" O.C. @ PANEL EDGES	
8d @ 8" O.C. @ INTERMEDIATE SUPPORTS	
FURRED CEILING:	
2 x 2 HANGERS TO ROOF OR CEILING JOINTS	2 - 12d
1 x 4 FURRING STRIPS TO UNDERSIDE OF JOIST	
EA. BEARING, ON STRAIGHT & ONE SLANT	2 - 8d



EXTERIOR DOOR SETTING IN 8" MASONRY WALL
 SCALE: NOT TO SCALE



WALL MOUNTED AC UNIT

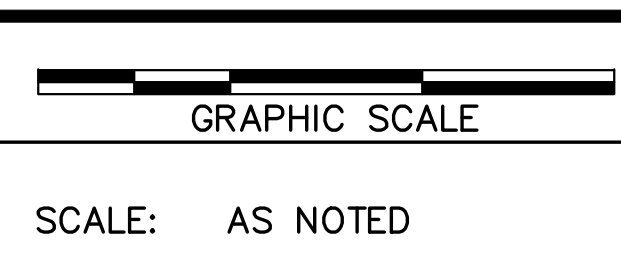
TAG	LOCATION OR AREA SERVED	MANUFACTURER	MODEL (INDOOR / OUTDOOR)	CFM	EXTERNAL STAT. PRESS (INCHES)	COOLING TOTAL/SENSIBLE (MBH)	HEAT PUMP HEATING (MBH)	SUPP. ELEC. HEAT (KW)	SEER / EER	VOLT / PHASE INDOOR - OUTDOOR	REMARKS	WEIGHT (LBS)
WP-1	BOOSTER PUMP STATION	MARVAIR - COMPAC II	HVSA-36 (3.0 ton UHP)	1,300	0.25	35/24.5	NA	8.0	NA/11	240/1	1, 2, 3, 4	565

GENERAL COMMENTS:
 SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS. ALTERNATE MANUFACTURERS WILL BE CONSIDERED. PROOF OF EQUALITY IS THE CONTRACTOR'S RESPONSIBILITY.
 INSTALL ENGRAVED EQUIPMENT TAGS (BLACK TEXT ON WHITE BACKGROUND) ON ALL MAJOR EQUIPMENT AND ASSOCIATED CONTROLS.
 COOLING PERFORMANCE DESIGN CONDITIONS: 95F OUTDOOR, 80F DB / 67F WB INDOOR. HEATING PERFORMANCE DESIGN CONDITIONS: 17F OUTDOOR, 70F DB INDOOR.
 VERIFY WEIGHTS AND DIMENSIONS WITH EQUIPMENT FROM FINAL ACCEPTED SHOP DRAWINGS. PROVIDE STRUCTURAL SUPPORT AND FRAMING FOR WALL OR CEILING MOUNTED EQUIPMENT AS REQUIRED.
 2 STAGE COOLING / 1 STAGE HEATING DIGITAL THERMOSTAT, PROGRAMMABLE, FAN AUTO/ON, AUTO CHANGE-OVER, STATUS LED'S BACKLIT DISPLAY, NON VOLATILE MEMORY. MARVAIR PART NUMBER 50107 OR EQUAL. (NOT APPLICABLE, SEE NOTE 2 BELOW)

REMARKS:

- VERTICAL PACKAGED WALL MOUNT UNIT WITH LOW AMBIENT PACKAGE (FOR OPERATION DOWN TO 20 DEGREES F). DELUXE ALUMINUM SUPPLY AND RETURN GRILLES, 4 FACTORY FILTERS, BLANK OFF PLATE TO RESTRICT OUTSIDE AIR UNLESS ECONOMIZER SPECIFIED, TIME DELAY, THERMAL EXPANSION VALVE, ANTI SHORT CYCLE TIMER, HIGH PRESSURE SWITCH, LOSS OF CHARGE, UTILIZE R-410a REFRIGERANT, LOOKOUT RELAY, TIMED LOW PRESSURE BYPASS, WALL SLEEVE, FACTORY INSTALLED DISCONNECT, COLOR SELECTION DURING SHOP DWG. REVIEW.
- SCROLL COMPRESSOR, SINGLE POINT POWER ENTRY, SLOPED TOP, STAINLESS MOUNTING HARDWARE, CHECKLIST, TEST, AND STARTUP WITH A WRITTEN REPORT TO THE ENGINEER SHALL BE PERFORMED BY A TECHNICIAN FROM THE MANUFACTURER'S REPRESENTATIVE AND SHALL BE INCLUDED IN THE BID PRICE. SEE GENERAL COMMENT ABOVE FOR THERMOSTAT 2 STAGE COOLING REQUIREMENT.
- MANUFACTURER'S POLYCARBONATE ENCASED COMBINATION 4-SENSOR LEAKING CONTROLLER WITH INTEGRAL 1-STAT FOR CONTROLLING TWO 2-STAGE COMPRESSOR UNITS IN TANDEM OR A SINGLE UNIT.
- VERTICAL PACKAGED WALL MOUNTED UNIT SHALL HAVE BUILT-IN FACTORY INSTALLED ECONOMIZER WITH USER ADJUSTABLE ENTHALPY CONTROLLER, INTEGRAL PRESSURE RELIEF, AND MIXED AIR SENSOR TO MODULATE DAMPER FOR CORRECT MIX OF RETURN AND OUTDOOR AIR TO MAINTAIN A 55 TO 65 DEGREE F SUPPLY.
- VERTICAL PACKAGED WALL MOUNTED UNIT SHALL HAVE 2 STAGE COMPRESSOR WITH FIRST STAGE COOLING APPROXIMATELY 65% OF THE TOTAL COOLING CAPACITY.

DESIGNER	MES	DATE	BY	REVISION
DRAWN	MES			
CHECKED	RLP			
APPROVED	RLP			



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HIGHWAY 139 NORTH WATERLINE UPGRADES AND McUPTON BOOSTER PUMP STATION REPLACEMENT BARKLEY LAKE WATER DISTRICT TRIGG COUNTY, KENTUCKY

DIVISION B
 BOOSTER PUMPING STATION ELEVATIONS AND MISCELLANEOUS DETAILS

DIVISION	B
CONTRACT NO.	586-008
DATE	DECEMBER, 2019
SHEET NO.	4-B OF 4

ELECTRICAL ABBREVIATIONS

A	AMPERE
AF	AMPERE FRAME
AFF	ABOVE FINISHED FLOOR
AFD	ADJUSTABLE FREQUENCY DRIVE
AT	AMPERE TRIP
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
BC	BARE COPPER
C	CONDUIT (RACEWAY)
CB	CIRCUIT BREAKER
CCTV	CLOSED CIRCUIT TELEVISION
CKT	CIRCUIT
C/L	CENTERLINE
CLG	CEILING
CP	CONTROL PANEL
CT	CURRENT TRANSFORMER OR CONSTANT TORQUE
CTL	CONTROL
CU	COPPER OR CONDENSING UNIT
Δ/Y	DELTA/WYE
DB	DIRECT BURIAL
DN	DOWN
DPST	DOUBLE POLE-SINGLE THROW
EC	EMPTY CONDUIT
EF	EXHAUST FAN
EG	EQUIPMENT GROUND
EGC	EQUIPMENT GROUND CONDUCTOR
EJ	EXPANSION JOINT
EL	ELEVATION
ELEC	ELECTRIC
EOL	END-OF-LINE
EMERG	EMERGENCY
EUH	ELECTRIC UNIT HEATER
EWG	ELECTRIC WATER COOLER
EMH	ELECTRIC WALL HEATER/WATER HEATER
EX	EXISTING
FA	FIRE ALARM
FACP	FIRE ALARM CONTROL PANEL
FO	FIBER OPTIC
FVNR	FULL VOLTAGE, NON-REVERSING
GEC	GROUNDING ELECTRODE CONDUCTOR
GFCI OR GFI	GROUND FAULT CURRENT INTERRUPTING
GND	GROUND
HOA	HAND-OFF-AUTO SELECTOR SWITCH
HP	HORSEPOWER
J OR JB	JUNCTION BOX
KVA	KILOVOLT-AMPERES
KWH	KILOWATT-HOUR
KCMIL	THOUSAND CIRCULAR MILS
LF	LIGHTING FIXTURE (LUMINAIRE)
LTS	LIGHTING
LTS	LIGHTS
LS	LIMIT SWITCH
LV	LOW VOLTAGE
MCB	MAIN CIRCUIT BREAKER
MCP	MOTOR CIRCUIT PROTECTOR
MCC	MOTOR CONTROL CENTER
MDP	MAIN DISTRIBUTION PANEL
MFR	MANUFACTURER
MH	MANHOLE
MIN	MINIMUM
MLO	MAIN LUGS ONLY
MTD	MOUNTED
MV	MEDIUM VOLTAGE
NA	NOT APPLICABLE
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRICAL CODE
NL	NON LINEAR
NO	NORMALLY OPEN
NTS	NOT TO SCALE
OH	OVERHEAD
OL	OVERLOAD
P	POLE
OT	OVER TEMPERATURE
PH OR Ø	PHASE
PNL	PANEL
PVC	POLY-VINYL CHLORIDE
PWR	POWER
RECEPT	RECEPTACLE
SHT	SHEET
S/N	SOLID NEUTRAL
SP	SINGLE POLE
SPD	SURGE PROTECTION DEVICE
SS	STAINLESS STEEL
STA	STATION
STD	STANDARD
STG	SHIELDED TWISTED INSTRUMENT CABLE
SW	SWITCH
TB	TERMINAL BOX
TEL	TELEPHONE
TM	THERMAL MAGNETIC
TS	TAMPER SWITCH
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
UG	UNDERGROUND
UH	UNIT HEATER
V	VOLTAGE OR VOLTS
W	WIRE
WP	WEATHERPROOF
W/	WITH
XFMR	TRANSFORMER

ELECTRICAL PLAN SYMBOLS

	ELECTRICAL CIRCUIT: SHORT=PHASE CONDUCTOR; LONG = NEUTRAL, DASHED = EQUIPMENT GROUND
	EMERGENCY CIRCUIT
	SWITCH: 3=3 WAY; 4=4 WAY; K=KEY; WP=WEATHERPROOF; M=MOTOR STARTER; PL=PILOT LT
	DUPLEX RECEPTACLE: WP = WEATHERPROOF; GFI = GROUND FAULT; NUMBER = MOUNTING HEIGHT
	SINGLE RECEPTACLE
	208 or 240 VOLT RECEPTACLE
	DUPLEX RECEPTACLE, FLUSH FLOORBOX MOUNTED
	SPECIAL PURPOSE RECEPTACLE OUTLET
	THERMOSTAT
	MOTOR
	JUNCTION BOX - SMALL
	JUNCTION BOX - FLUSH-MOUNTED
	SAFETY SWITCH - NONFUSED UNLESS NOTED OTHERWISE
	MAGNETIC COMBINATION STARTER - THREE PHASE
	MAGNETIC COMBINATION STARTER - SINGLE PHASE
	TELECOM OUTLET: D = DATA; T = TELEPHONE; C = CABLE; NUMBER = QTY OF CABLES & JACKS
	CONDUIT TURNED UP
	CONDUIT TURNED DOWN
	WALL MOUNTED SPEAKER OR ALARM HORN
	PANELBOARD (SURFACE MOUNTED)
	PANELBOARD (FLUSH MOUNTED IN WALL)
	HEATER-WALL MOUNTED
	EXHAUST FAN/VENTILATOR
	SPEAKER GENERAL
	CLOCK
	EXISTING POWER POLE
	NEW POWER POLE
	LIGHTING POLE
	PHOTO CELL
	MANHOLE
	PULLBOX
	MUSHROOM HEAD EMERGENCY SWITCH
	DUCT SMOKE DETECTOR
	HEAT DETECTOR
	SMOKE DETECTOR
	FIRE ALARM MANUAL PULL STATION
	FIRE ALARM HORN/STROBE
	FIRE ALARM STROBE
	FIRE ALARM ZONE ADDRESSABLE MODULE
	SPRINKLER SYSTEM FLOW SWITCH
	TAMPER SWITCH
	MAGNETIC DOOR HOLDER
	KEYNOTE
	CALL SWITCH
	PASSIVE INFRARED MOTION DETECTOR
	ALL WORK IN THE ROOM/AREA SHALL CONFORM TO THE NEMA RATING INDICATED
	ELECTRICAL LINE UNDERGROUND
	ELECTRICAL LINE OVERHEAD
	INSTRUMENTATION LINE UNDERGROUND
	INSTRUMENTATION LINE OVERHEAD
	TELEPHONE LINE UNDERGROUND
	TELEPHONE LINE OVERHEAD

ELECTRICAL DIAGRAM SYMBOLS

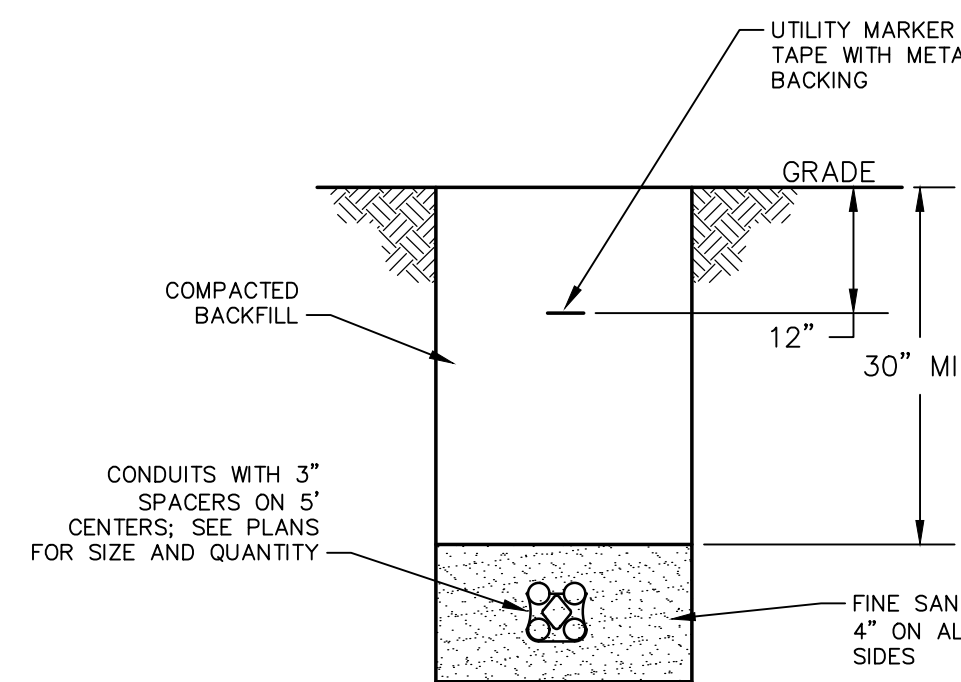
	TRANSFORMER
	CAPACITOR
	GROUND
	CURRENT TRANSFORMER
	POTENTIAL TRANSFORMER
	CIRCUIT BREAKER (GENERAL)
	CIRCUIT BREAKER, THERMAL-MAGNETIC
	CIRCUIT BREAKER, MAGNETIC-ONLY
	CIRCUIT BREAKER (DRAWOUT)
	GROUND FAULT PROTECTED CIRCUIT BREAKER
	RELAY CONTACTS (NORMALLY OPENED)
	RELAY CONTACTS (NORMALLY CLOSED)
	THERMAL OVERLOAD PROTECTION
	FUSE
	DOT INDICATES A CONNECTION OF TWO WIRES
	TERMINALS FOR CONNECTION OF REMOTE WIRING
	RELAY/CONTACTOR COIL: C = CONTRACTOR; CR = CONTROL RELAY; TR = TIMING RELAY; M = MOTOR
	HAND-OFF-AUTOMATIC SWITCH
	FULL VOLTAGE NON-REVERSING MOTOR STARTER; X = NEMA SIZE
	PILOT LIGHT: R = RED; G = GREEN; A = AMBER; W = WHITE
	PILOT LIGHT - PUSH-TO-TEST
	MOTOR
	FUSED DISCONNECT SWITCH
	FLOAT SWITCH
	TEMPERATURE SWITCH (THERMOSTAT)
	PRESSURE SWITCH
	LIMIT SWITCH
	FLOW SWITCH
	SOLENOID VALVE COIL
	ELAPSED TIME METER
	KEY INTERLOCK
	BATTERY
	PUSHBUTTONS, N.C. & N.O. RESPECTIVELY
	SELECTOR SWITCH - TWO POSITION
	FUSED CUTOUT
	SECTIONALIZING SWITCH (3 PHASE)
	TIMER RELAY CONTACT: NORMALLY OPEN - TIMED OPEN UPON DEENERGIZATION
	TIMER RELAY CONTACT: NORMALLY CLOSED -TIMED CLOSE UPON DEENERGIZATION
	TIMER RELAY CONTACT: NORMALLY OPEN - TIMED CLOSE UPON ENERGIZATION
	TIMER RELAY CONTACT: NORMALLY CLOSED -TIMED OPEN UPON ENERGIZATION
	TRANSFER SWITCH
	GENERATOR
	EXTERNAL WIRING

ELECTRICAL DEVICE MOUNTING HEIGHT SCHEDULE

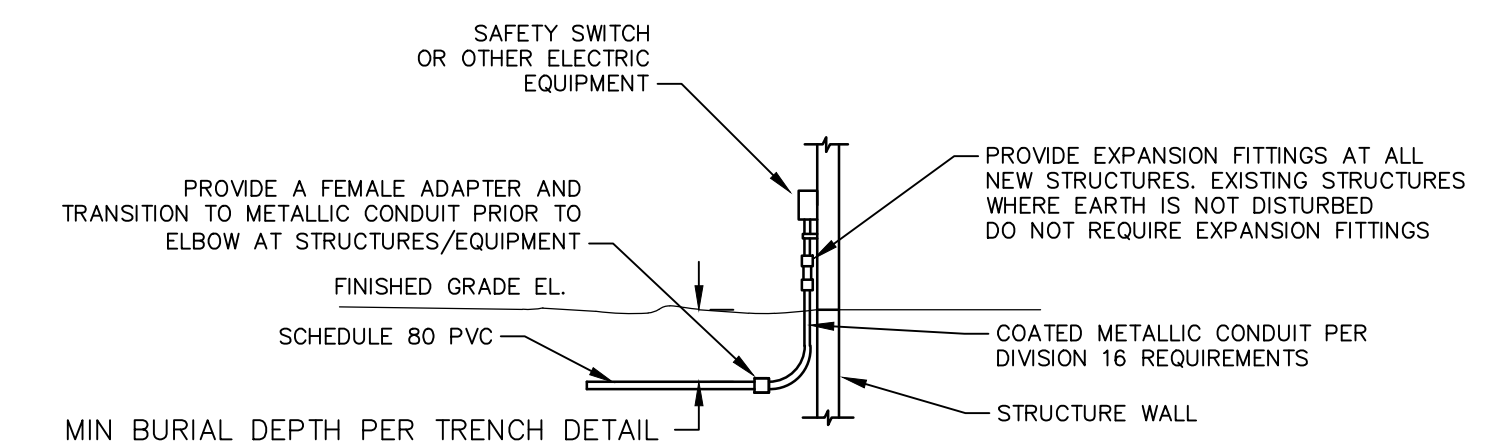
DEVICE	HEIGHT AFF	REMARKS
RECEPTACLE - LOW	1'-4"	TO BOTTOM OF DEVICE BOX
RECEPTACLE - ABOVE COUNTER/MEDIUM	4'-0"	TO TOP OF DEVICE BOX
LIGHT SWITCH	4'-0"	TO BOTTOM OF DEVICE BOX
CONTROL STATIONS & PUSH-BUTTONS	4'-0"	TO BOTTOM OF DEVICE BOX
PANELBOARDS & CONTROL PANELS	6'-6"	TO TOP OF BOX
SAFETY SWITCH	4'-0"	TO TOP OF BOX

LIGHT FIXTURE SCHEDULE

TYPE	MANUFACTURER	CATALOG SERIES	LAMPS	VOLTAGE	MOUNTING	DESCRIPTION	
LF-1	HOLPHANE	EMS LED	6000 LM	120V	SURFACE	ENCLOSED AND GASKETED LINEAR FIXTURE WITH FIBERGLASS HOUSING, 48" LENGTH, ACRYLIC CLEAR DEEP LENS, MEDIUM DISTRIBUTION, 4K COLOR, 80CRI, 5-YR WARRANTY, 38W	
LF-2	HOLOPHANE	CZA11LT	2X2.5W	120V	SURFACE	THERMOPLASTIC EMERGENCY FIXTURE WITH LED LAMPS, DAMP LOCATION LISTING, 90 MIN LITHIUM BATTERY, TEST SWITCH, 5-YR WARRANTY, SIZED FOR REMOTE HEADS	
LF-3	HOLOPHANE	ELA	2X1.5W	9.6V	SURFACE	REMOTE HEADS, WEATHERPROOF WET LOCATION, GRAY, WITH MOUNTING BASE, CORROSION RESISTANT	
LF-4	HOLOPHANE	HLWPC2	11700 LM	120V	SURFACE	WALL PACK, FULL-CUTOFF, GRAY POWDER-COATED, WET LOCATION, FORWARD THROW, -20°F AMBIENT MIN, SURGE PROTECTION, 4K COLOR, 80CRI, 5-YEAR WARRANTY, 115W, WITH INTEGRAL PHOTOCELL	



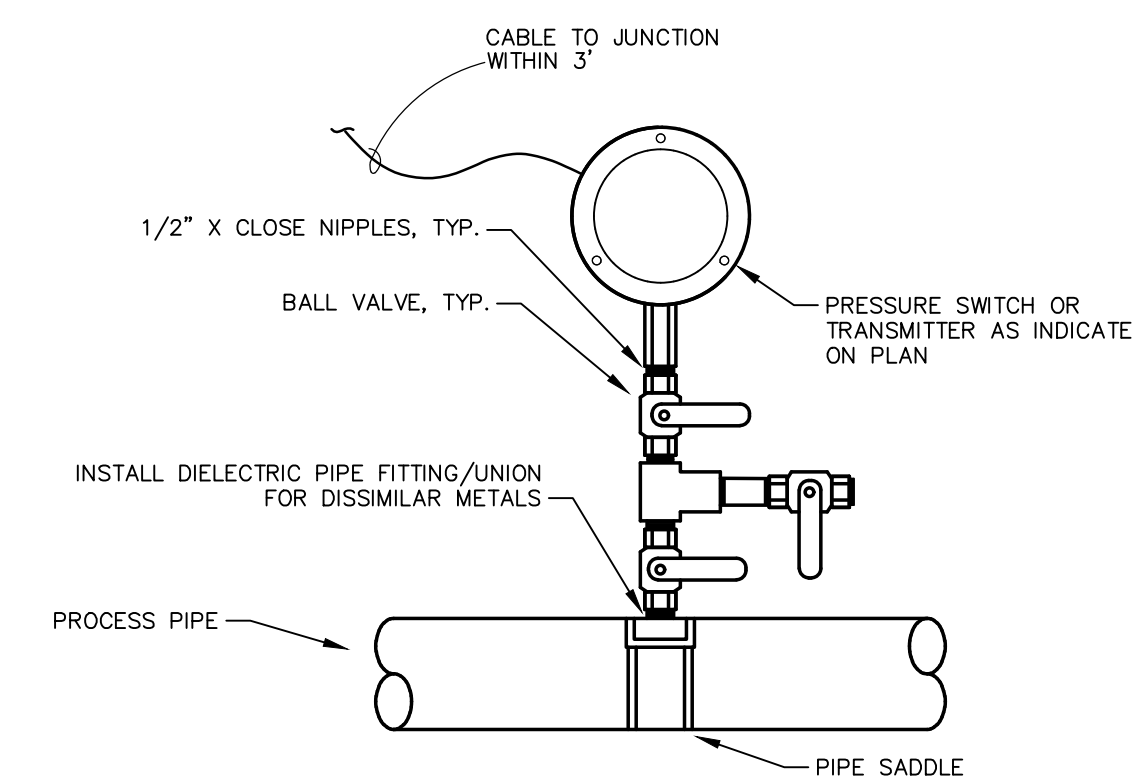
TYPICAL TRENCH DETAIL
NOT TO SCALE



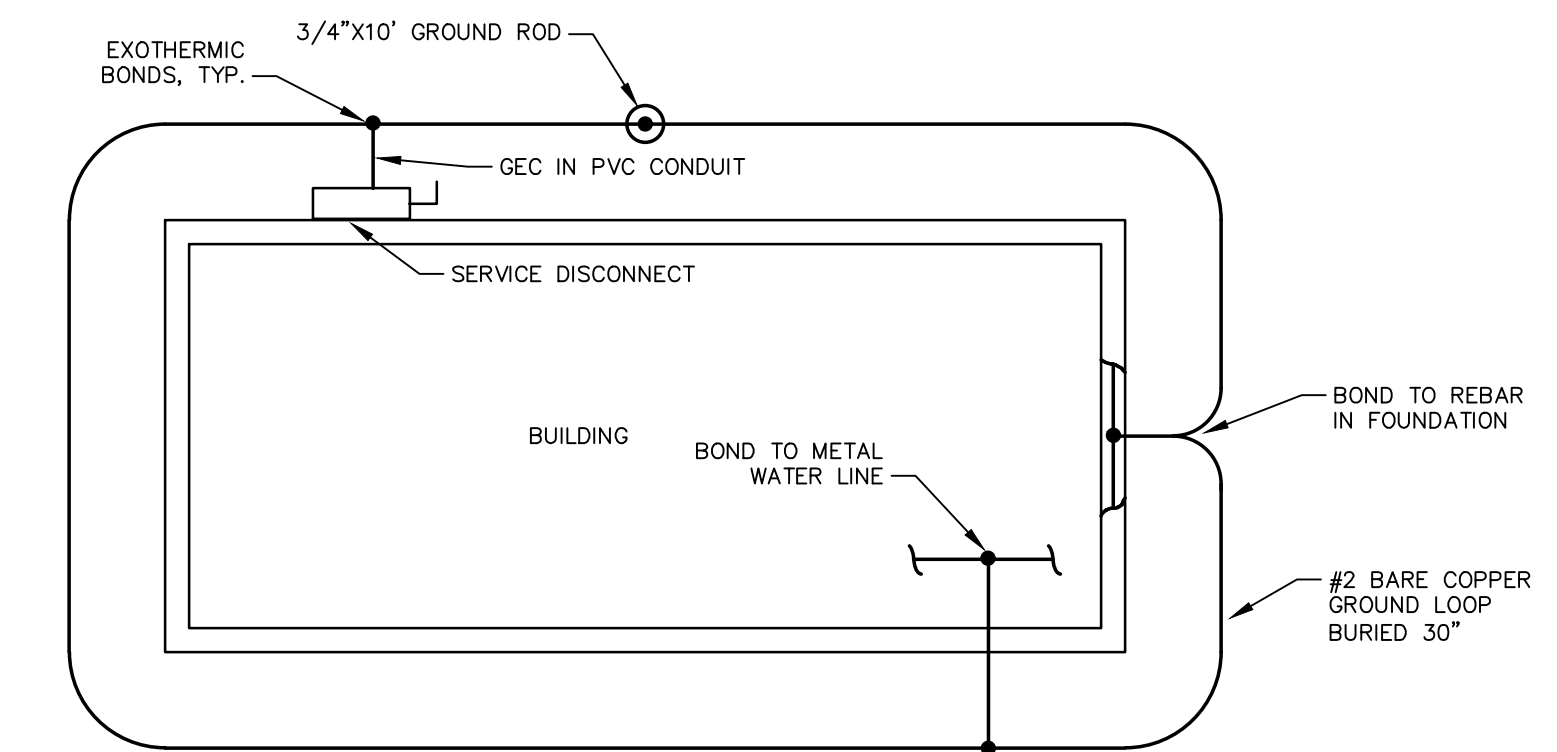
TYPICAL UNDERGROUND PVC CONDUIT TRANSITION TO METALLIC CONDUIT
NOT TO SCALE

TRENCHING NOTES:

- PROVIDE PULL CORD IN ALL CONDUITS.
- UTILITY MARKER TAPE SHALL RUN THE ENTIRE LENGTH OF DUCT BANK.
- MAINTAIN MINIMUM 12" SPACING BETWEEN INSTRUMENTATION AND POWER.
- MAINTAIN MINIMUM 36" SPACING BETWEEN OTHER SITE PIPING, INCLUDING WATER, AND GAS.



PRESSURE SENSOR PIPING DETAIL
NOT TO SCALE



BUILDING GROUND DETAIL
NOT TO SCALE

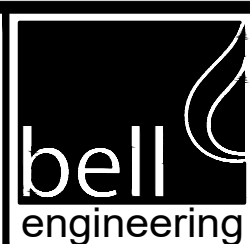
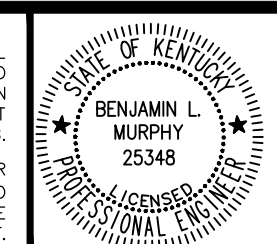


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GRAPHIC SCALE
SCALE: AS NOTED

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B. M. H. 3/2/2020



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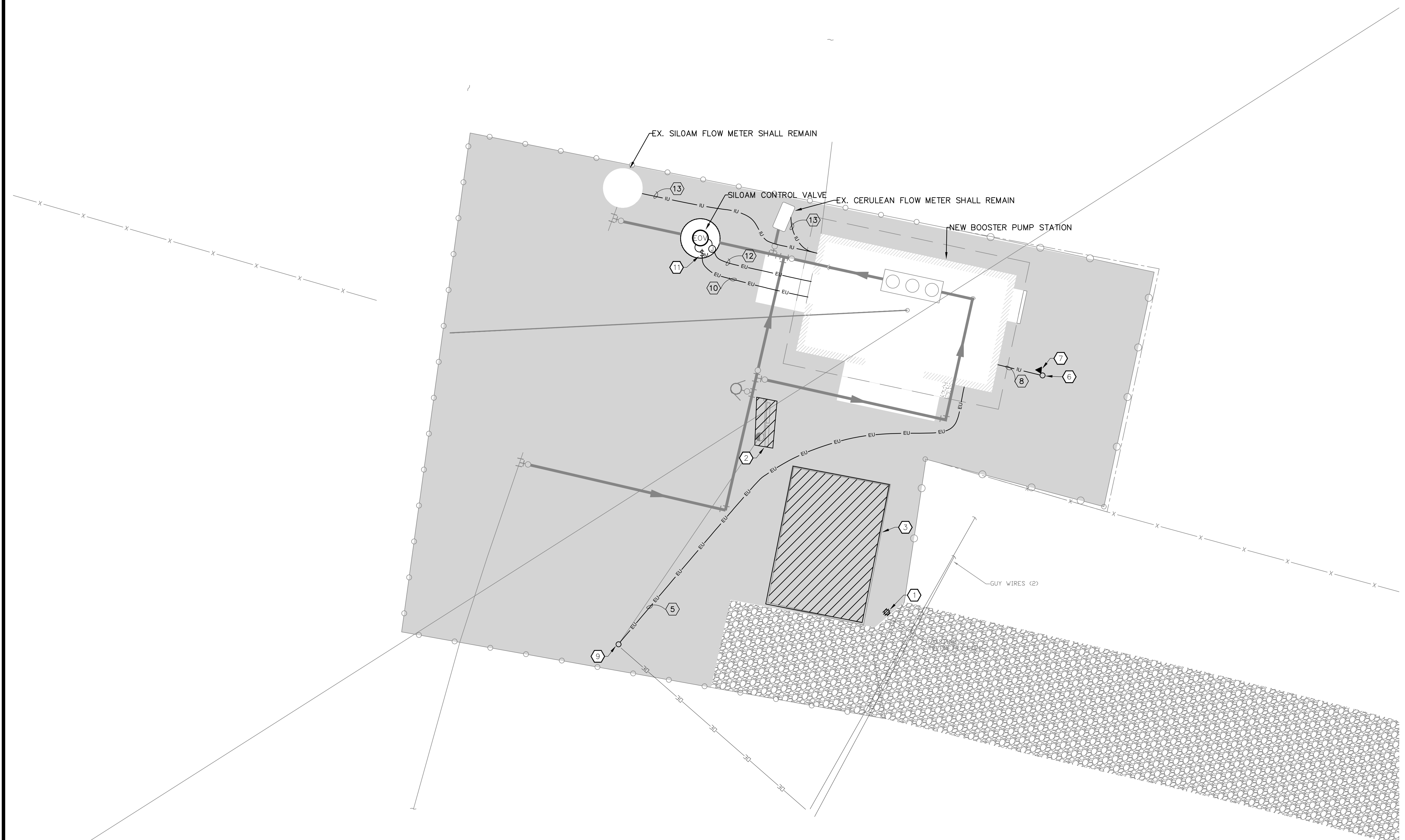
HIGHWAY 139 NORTH WATERLINE UPGRADES AND
MCUPTON PUMP STATION REPLACEMENT
BARKLEY LAKE WATER DISTRICT
TRIGG COUNTY, KENTUCKY

ELECTRICAL SYMBOLS, ABBREVIATIONS, SCHEDULES
AND DETAILS

DIVISION	B
CONTRACT NO.	586-008
DATE	DECEMBER, 2019
SHEET NO.	E-1 OF E-4

SHEET NOTES:

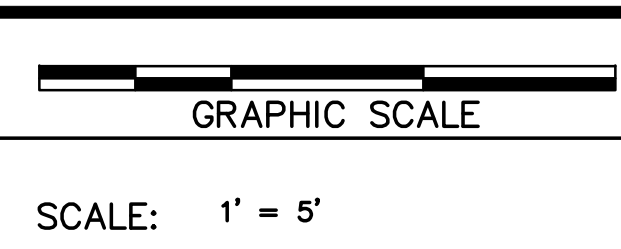
- 1 EX. TELEMETRY POLE SHALL BE DEMOLISHED
- 2 EX. ELECTRICAL SERVICE EQUIPMENT AND POLE SHALL BE DEMOLISHED
- 3 EX. PUMP STATION ELECTRICAL SHALL BE DEMOLISHED
- 4 EX. UTILITY POLE SHALL REMAIN. COORDINATE WITH UTILITY TO INSTALL NEW UNDERGROUND SERVICE ENTRANCE
- 5 PROVIDE UNDERGROUND SERVICE ENTRANCE CONDUIT PER UTILITY REQUIREMENTS. SEE ONE-LINE DIAGRAM
- 6 PROVIDE NEW 35' WOOD POLE WITH AIR TERMINAL, DOWN CONDUCTOR, AND GROUND ROD
- 7 PROVIDE NEW TELEMETRY ANTENNA INSTALLED 12" BELOW BASE OF AIR TERMINAL
- 8 PROVIDE ANTENNA CABLE, 1.25"Ø FROM RTU TO ANTENNA
- 9 COORDINATE WITH UTILITY TO PROVIDE NEW 480/277V ELECTRICAL TRANSFORMER BANK AND SERVICE
- 10 PROVIDE 2#12,1#12G,3/4"Ø TO PANEL LP
- 11 PROVIDE LOCKABLE MOTOR-RATED SWITCH INSTALLED HIGH IN VAULT
- 12 PROVIDE 12#14,1#14G,3/4"Ø FROM VALVE ACTUATOR TO SCADA RTU
- 13 PROVIDE 1"Ø SPARE FROM FLOWMETER VAULT TO WALL ADJACENT TO SCADA RTU. STUB CONDUIT INSIDE VAULT AND CAP FOR FUTURE USE. SEAL PENETRATION WATERTIGHT.



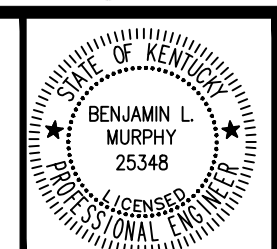
ELECTRICAL SITE PLAN
SCALE: 1" = 5'



DESIGNER	BLM	DATE	BY	REVISION
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CHECKED	BLM			
APPROVED	BLM			



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HIGHWAY 139 NORTH WATERLINE UPGRADES AND McUPTON PUMP STATION REPLACEMENT
BARKLEY LAKE WATER DISTRICT
TRIGG COUNTY, KENTUCKY

ELECTRICAL SITE PLAN

DIVISION	B
CONTRACT NO.	586-008
DATE	DECEMBER, 2019
SHEET NO.	E-2 OF E-4

GENERAL NOTES:

• EXTERIOR ELECTRICAL EQUIPMENT SHALL BE NEMA 4X S.S. 316. INTERIOR EQUIPMENT CAN BE NEMA 1

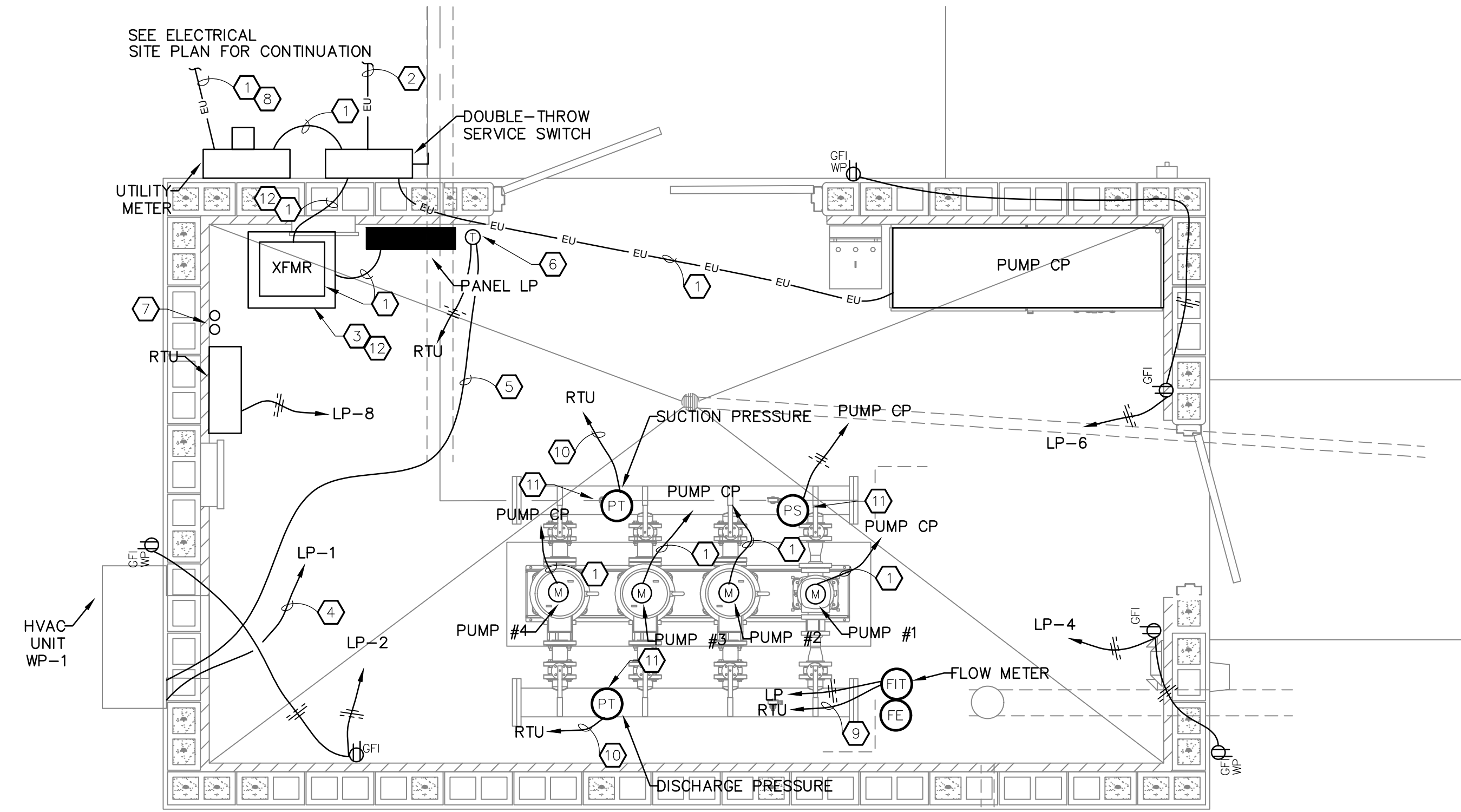
SHEET NOTES:

- 1) SEE ONE-LINE DIAGRAM FOR REQUIREMENTS
- 2) PROVIDE #2 GEC AND PROVIDE BUILDING GROUND LOOP DETAIL
- 3) PROVIDE 4" CONCRETE PAD FOR TRANSFORMER
- 4) PROVIDE 2#8, 1#10G, 3/4"C
- 5) PROVIDE THERMOSTAT CABLE, 1#14G, 3/4"C
- 6) CONNECT ALARM SIGNALS IN SERIES TO PROVIDE A SINGLE SUMMARY ALARM TO SCADA
- 7) STUB UP AND CAP SPARE CONDUITS TO YARD FLOWMETERS. SEE ELECTRICAL SITE PLAN
- 8) PROVIDE 4" EXPANSION JOINT ON UTILITY SERVICE CONDUIT WHERE CONDUIT EMERGES FROM GROUND
- 9) PROVIDE 2-2#18 STIC, 1#14G, 3/4"C
- 10) PROVIDE 2#18 STIC, 1#14G, 3/4"C
- 11) PROVIDE PRESSURE INSTRUMENT INSTALLED PER PRESSURE SENSOR DETAIL
- 12) MAXIMUM LENGTH OF TRANSFORMERS PRIMARY AND SECONDARY CONDUCTORS COMBINED SHALL BE LESS THAN 25FT PER NEC TAP RULE

PANEL:	LP	VOLTAGE:	120/240V, 1Ø, 3W
ENCLOSURE:	NEMA 1	MAINS AMPACITY:	100A
MOUNTING:	SURFACE	MAIN C.B. SIZE:	80A
LOCATION:	MCUPTON BPS	TOTAL SPACES:	18 MIN

CIRCUIT DESCRIPTION	VA	POLES	BREAKER	NO	PHASE A		PHASE B		BREAKER	POLES	VA	CIRCUIT DESCRIPTION
					VA	NO.	VA	NO.				
SPD		2	30A	1	400		2	20A	1	400	RECEPTACLES	
				3			4	20A	1	400	RECEPTACLES	
INTERIOR LIGHTING	200	1	20A	5	600		6	20A	1	400	RECEPTACLES	
EXTERIOR LIGHTING	300	1	20A	7			8	20A	1	500	RTU SCADA CABINET	
HVAC UNIT WP-1	5000	2	50A	9	5100		10	15A	1	100	FLOW METER	
				11			12	20A	1	1000	SILOAM CONTROL VALVE	
SPARE		1	20A	13	0		14	20A	1		SPARE	
SPARE		1	20A	15	0		16	15A	1		SPARE	
SPARE		1	20A	17	0		18	15A	1		SPARE	
TOTAL VA PER PHASE:					6100		7200					
TOTAL AMPS PER PHASE:					50.8		60	TOTAL PANEL VA: 13300				

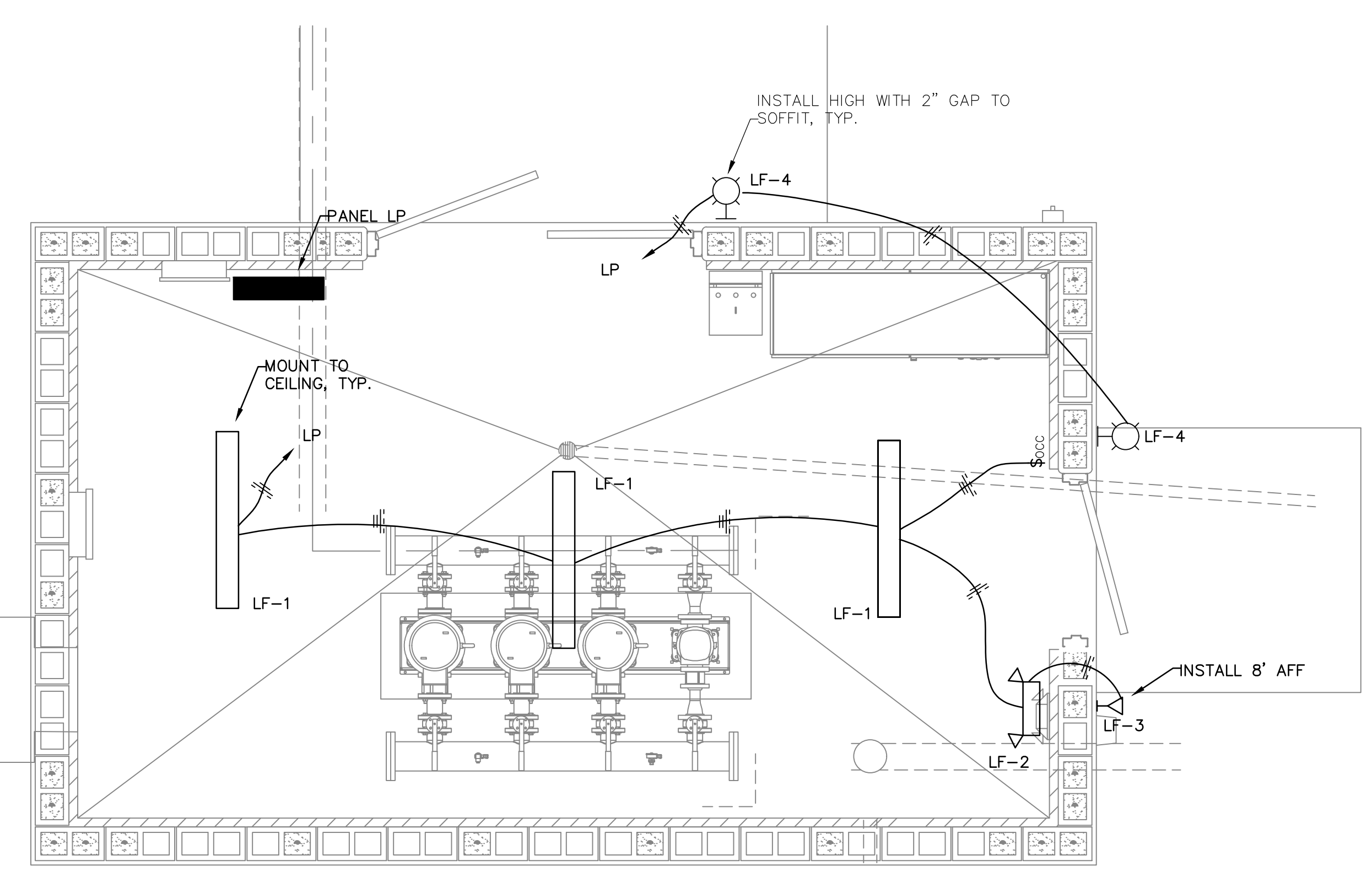
NOTES:
1. PROVIDE INTEGRAL SPD WITH DISCONNECT



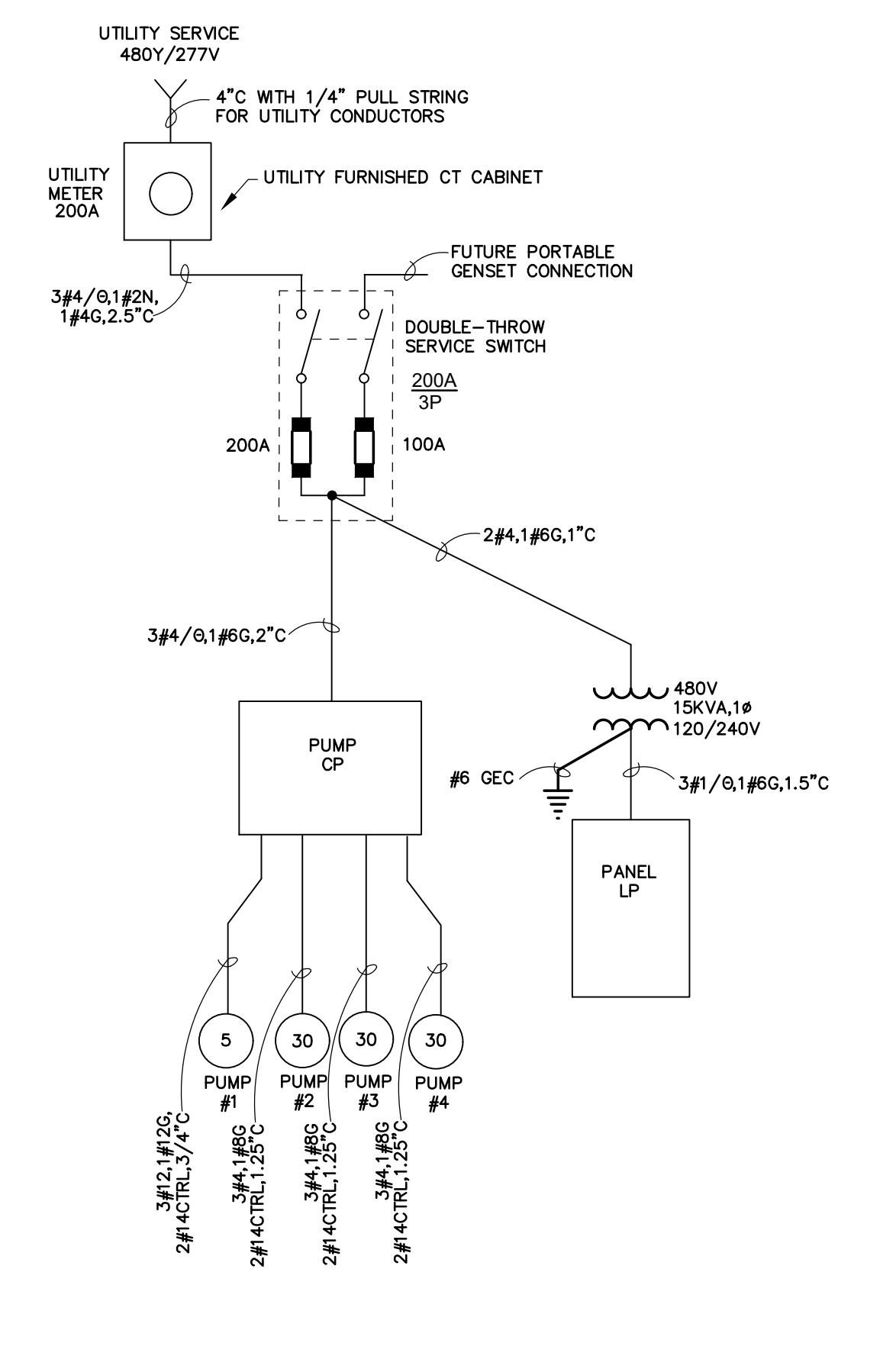
POWER PLAN
SCALE: 1/2" = 1'

CONDUCTORS	I/O TAG	TYPE	UNIT	CONTROL	MONITOR	TREND	HISTORIZE	TOTALIZE	AVERAGE	ALARM	REPORT	NOTES
RTU	POWER LOSS ALARM	DI								X		
RTU	BATTERY ALARM	DI								X		
RTU	COMM FAIL ALARM	DI								X		
2#14	SILOAM VALVE OPEN CMD	DO		X								
2#14	SILOAM VALVE CLOSE CMD	DO		X								
2#14	SILOAM VALVE STOP CMD	DO		X								
2#14	SILOAM VALVE OPENED STATUS	DI			X							
2#14	SILOAM VALVE CLOSED STATUS	DI			X							
2#14	SILOAM VALVE FAULT	DI								X		
2#18 STIC	FLOWRATE	AI	GPM	X	X	X						
2#18 STIC	FLOW TOTAL PULSE	DI	GAL				X			X		REPORT DAILY & MONTHLY FLOW
2#18 STIC	SUCTION PRESSURE	AI	PSIG	X	X	X				X		ALARM LOW
2#18 STIC	DISCHARGE PRESSURE	AI	PSIG	X	X	X				X		ALARM LOW/HIGH
2#14	HVAC SUMMARY ALARM	DI								X		
2#14	PUMP SUCTION PRESSURE ALARM	DI								X		
2#14	PUMP 1 CALL-TO-RUN	DO		X								
2#14	PUMP 1 RUNNING STATUS	DI			X	X				X		REPORT # STARTS & RUNTIMES
2#14	PUMP 1 DRIVE FAULT	DI								X		
2#14	PUMP 1 OVERTEMP	DI								X		
2#14	PUMP 1 IN-AUTO	DI			X							
2#18 STIC	PUMP 1 SPEED COMMAND	AO	HZ	X								
2#18 STIC	PUMP 1 SPEED FEEDBACK	AI	HZ	X	X	X						
2#14	PUMP 2 CALL-TO-RUN	DO		X								
2#14	PUMP 2 RUNNING STATUS	DI			X	X				X		REPORT # STARTS & RUNTIMES
2#14	PUMP 2 DRIVE FAULT	DI								X		
2#14	PUMP 2 OVERTEMP	DI								X		
2#14	PUMP 2 IN-AUTO	DI			X							
2#18 STIC	PUMP 2 SPEED COMMAND	AO	HZ	X								
2#18 STIC	PUMP 2 SPEED FEEDBACK	AI	HZ	X	X	X						
2#14	PUMP 3 CALL-TO-RUN	DO		X								
2#14	PUMP 3 RUNNING STATUS	DI			X	X				X		REPORT # STARTS & RUNTIMES
2#14	PUMP 3 DRIVE FAULT	DI								X		
2#14	PUMP 3 OVERTEMP	DI								X		
2#14	PUMP 3 IN-AUTO	DI			X							
2#18 STIC	PUMP 3 SPEED COMMAND	AO	HZ	X								
2#18 STIC	PUMP 3 SPEED FEEDBACK	AI	HZ	X	X	X						
2#14	PUMP 4 CALL-TO-RUN	DO		X								
2#14	PUMP 4 RUNNING STATUS	DI			X	X				X		REPORT # STARTS & RUNTIMES
2#14	PUMP 4 DRIVE FAULT	DI								X		
2#14	PUMP 4 OVERTEMP	DI								X		
2#14	PUMP 4 IN-AUTO	DI			X							
2#18 STIC	PUMP 4 SPEED COMMAND	AO	HZ	X								
2#18 STIC	PUMP 4 SPEED FEEDBACK	AI	HZ	X	X	X						

SCADA IO TABLE
NOT TO SCALE



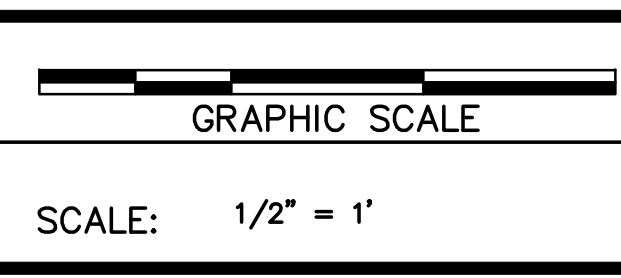
LIGHTING PLAN
SCALE: 1/2" = 1'



ELECTRICAL ONE-LINE DIAGRAM
NOT TO SCALE



DESIGNER	BLM	DATE	BY	REVISION
DRAWN	CA			
CHECKED	BLM			
APPROVED	BLM			



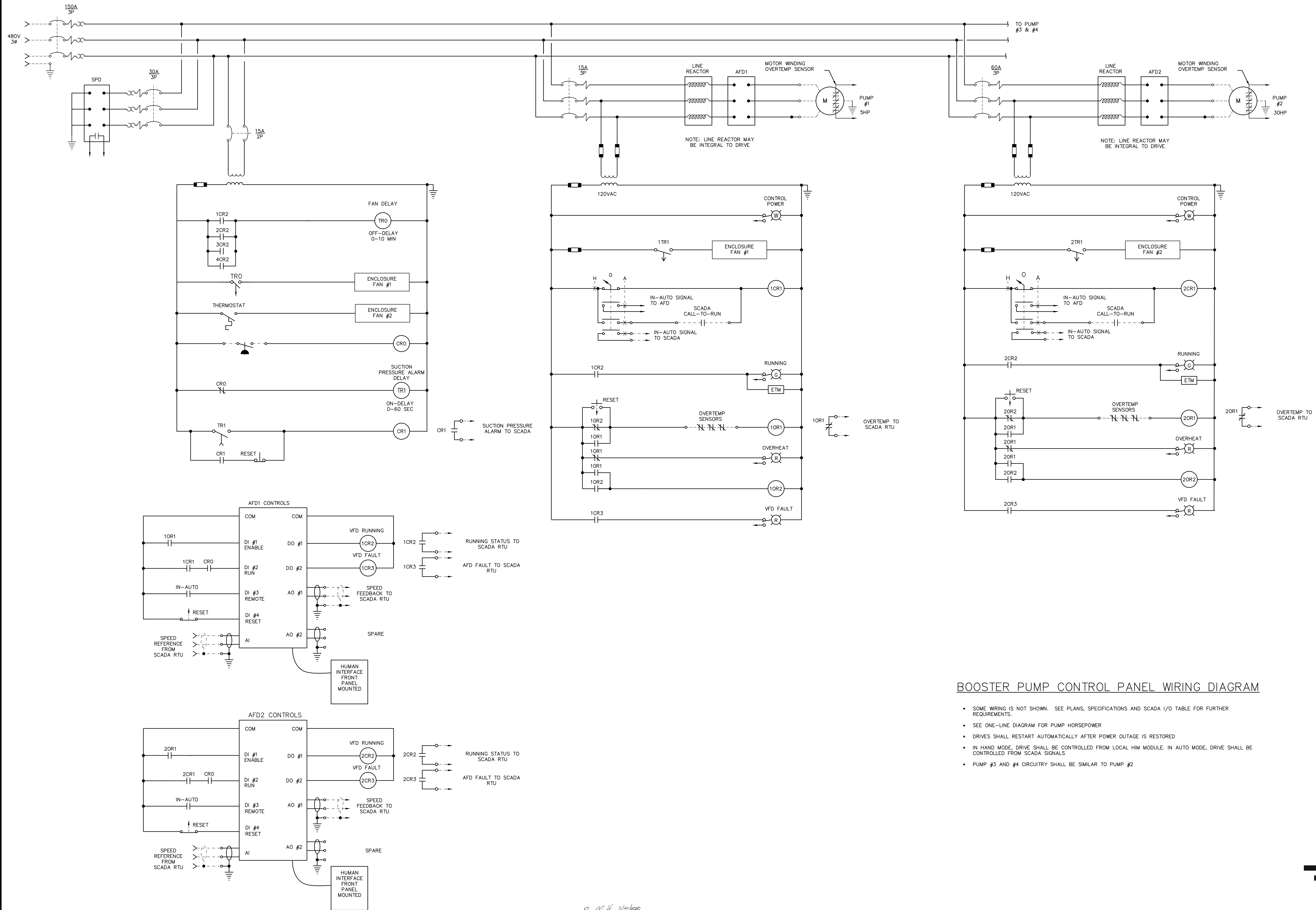
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HIGHWAY 139 NORTH WATERLINE UPGRADES AND
MCUPTON PUMP STATION REPLACEMENT
BARKLEY LAKE WATER DISTRICT
TRIGG COUNTY, KENTUCKY

DIVISION B
CONTRACT NO. 586-008
DATE DECEMBER, 2019
SHEET NO. E-3 OF E-4

DIVISION	B
CONTRACT NO.	586-008
DATE	DECEMBER, 2019
SHEET NO.	E-3 OF E-4

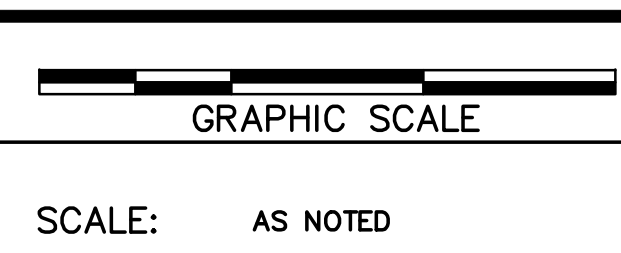


BOOSTER PUMP CONTROL PANEL WIRING DIAGRAM

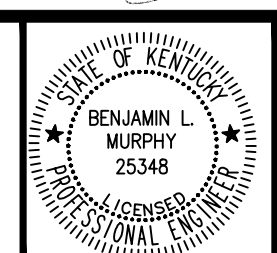
- SOME WIRING IS NOT SHOWN. SEE PLANS, SPECIFICATIONS AND SCADA I/O TABLE FOR FURTHER REQUIREMENTS.
- SEE ONE-LINE DIAGRAM FOR PUMP HORSEPOWER
- DRIVES SHALL RESTART AUTOMATICALLY AFTER POWER OUTAGE IS RESTORED
- IN HAND MODE, DRIVE SHALL BE CONTROLLED FROM LOCAL HIM MODULE. IN AUTO MODE, DRIVE SHALL BE CONTROLLED FROM SCADA SIGNALS
- PUMP #3 AND #4 CIRCUITRY SHALL BE SIMILAR TO PUMP #2



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 BARKLEY LAKE WATER DISTRICT
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PUMP CONTROL PANEL

DIVISION	B
CONTRACT NO.	586-008
DATE	DECEMBER, 2019
SHEET NO.	E-4 OF E-4