

UL60 / MAINLINE VALVE SITE

SCALE: 1" = 1,500'

IN-SERVICE DATE: 12/10/2020

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BURNS & MCDONNELL
STATE LICENSE #43

CLAUDE A. MCMULLAN
04/17/2020
KENTUCKY
SEAL 33557

PROFESSIONAL ENGINEER/ARCHITECT STAMP

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NO.	DATE	REVISION(S) DESCRIPTION	BY	CHK	APPD	DESCRIPTION	APPROVALS	
0	02-19-2021	ISSUED FOR AS-BUILT	APW	JRC	CDS	AREA CODE - ACCOUNT NUMBER - PROJECT NUMBER V8351 DRAWING BY APW STATION ID - CHECKER INITIALS JRC	DATE N/A INITIALS N/A DATE N/A INITIALS N/A DATE 02-12-2020 INITIALS CAM	REGIONAL ENGINEER MGR TECH REC & STD PRINCIPAL ENGINEER



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**UL60 / MAINLINE VALVE SITE
DRAWING INDEX / COVER
BOONE COUNTY, KY**

ERLANGER, KY

SHEET(S)	1 OF 2	DWG SCALE	-
DWG DATE	02-12-2020	SUPERSEDED	-
DRAWING NUMBER		REVISION	
PNG -G-043-0001018		0	
C / ERLANGER / UL60			

GENERAL NOTES:

- INSTALLER SHALL FURNISH ALL MATERIALS NOT PROVIDED BY THE COMPANY (UNLESS OTHERWISE NOTED ON DRAWINGS OR SPECIFICATIONS) INCLUDING EQUIPMENT TRANSPORTATION, SERVICES AND PERFORM ALL NECESSARY WORK AS SHOWN ON THE DRAWINGS AND SPECIFIED HEREINAFTER.
- IT SHALL BE THE RESPONSIBILITY OF THE INSTALLER TO VERIFY ALL DIMENSIONS GIVEN ON THE DRAWINGS. ANY ITEM IN QUESTION SHALL BE BROUGHT TO THE ATTENTION OF THE PROJECT MANAGER PRIOR TO PROCEEDING WITH THE WORK.
- INSTALLER SHALL BE RESPONSIBLE FOR PROTECTION OF ALL SURROUNDING AREAS.
- ALL BELOWGROUND WELDS SHALL BE COATED WITH HBE-95 OR SP-2888 PER PERTINENT DUKE ENERGY DESIGN AND CONSTRUCTION STANDARDS.
- ALL ABOVEGROUND PIPING TO BE BLASTED TO CORRECT SOCIETY FOR PROTECTIVE COATINGS (SSPC) SURFACE PROFILE. PAINT SYSTEM TO BE UTILIZED SHALL BE PER PERTINENT DUKE ENERGY DESIGN AND CONSTRUCTION STANDARDS.
- UPON BACKFILLING IN AREAS OF ROCK, BURIED PIPE SHALL HAVE 6" OF SAND PAD FILL PLACED AROUND THE PIPE'S CIRCUMFERENCE.
- PRESSURE TESTING SHALL MEET THE REQUIREMENTS OF DUKES'S PRESSURE TESTING STANDARD, PER PERTINENT DUKE ENERGY DESIGN AND CONSTRUCTION STANDARDS.
- INSTALLER SHALL DEWATER ALL HYDROSTATICALLY TESTED PIPING, USING CLEANING PIGS AS REQUIRED, AND DRY TO A DEWPOINT OF -40 °F PER PERTINENT DUKE ENERGY DESIGN AND CONSTRUCTION STANDARDS.
- ALL WORK SHALL BE CONDUCTED IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS AND LOCAL AND GOVERNMENT CODES, ORDINANCES, AND REGULATIONS. IN CASE OF CONTRADICTION OR DISCREPANCY BETWEEN REQUIREMENTS, CONTRACTOR SHALL INCORPORATE WHICHEVER IS MOST STRINGENT. WHERE A QUESTION REMAINS ON WHICH REQUIREMENT IS MOST STRINGENT, CONTRACTOR SHALL SUBMIT ISSUE TO THE CLIENT REPRESENTATIVE IN WRITING. THE DECISION OF THE CLIENT REPRESENTATIVE SHALL BE CONSIDERED FINAL.
- ALL WORK SHALL BE CONDUCTED IN A PROFESSIONAL WORKMANSHIP MANNER USING USING QUALITY MATERIALS. WORK SHALL CONFORM TO THESE DRAWINGS, UNLESS INDICATED OTHERWISE OR AS DIRECTED BY THE CLIENT REPRESENTATIVE.
- DURING CONSTRUCTION OF THE PROJECT, CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING TRACK OF ANY CLIENT REPRESENTATIVE-APPROVED FIELD CONSTRUCTION REVISIONS TO THE DESIGN DEPICTED ON APPROVED CONSTRUCTION DRAWINGS.
- ALL VARIATIONS IN PROJECT CONDITIONS, LOCATIONS, AND CONFIGURATIONS, AND ANY OTHER CHANGES OR DEVIATIONS FROM THE INFORMATION PRESENTED ON THE ORIGINAL, APPROVED CONSTRUCTION DRAWINGS SHALL BE NOTED. THIS INCLUDES BURIED OR CONCEALED CONSTRUCTION AND UTILITY FEATURES THAT WERE REVEALED DURING CONSTRUCTION.
- THE CLIENT REPRESENTATIVE SHALL REVIEW COMPLETENESS, ACCURACY, AND FORMAT OF SUBMITTED CONSTRUCTION DRAWINGS. IF THE CONSTRUCTION DRAWINGS ARE CONSIDERED UNACCEPTABLE, THEY SHALL BE RETURNED TO THE CONTRACTOR FOR CORRECTION AND RESUBMISSION. THIS SHALL BE AT NO ADDITIONAL COMPENSATION TO THE CONTRACTOR.

CONSTRUCTION NOTES:

- EXISTING OVERHEAD AND BELOWGROUND FACILITIES MAY BE IN THE WORK AREA VICINITY. INSTALLER IS RESPONSIBLE FOR HAVING SUCH FACILITIES LOCATED AND IS RESPONSIBLE FOR MAINTENANCE AND PRESERVATION OF THESE FACILITIES.
- PER PERTINENT DUKE ENERGY DESIGN AND CONSTRUCTION STANDARDS, INSTALLER IS REQUIRED TO CALL 811 FOR UTILITY LOCATES A MINIMUM OF 72 HOURS PRIOR TO COMMENCEMENT OF WORK. NO EXTRA COMPENSATION WILL BE ALLOWED FOR DELAYS FROM ANY WORK PROVIDED BY OTHER UTILITIES.
- IF EXISTING UTILITIES OF ANY TYPE ARE ENCOUNTERED IN THE FIELD AND DEEMED TO BE IN CONFLICT WITH INSTALLATION OF FACILITIES, INSTALLER SHALL NOTIFY THE PROJECT MANAGER IMMEDIATELY SO THE CONFLICT MAY BE RESOLVED.
- WHEN EXISTING DRAINAGE FACILITIES ARE DISTURBED, INSTALLER SHALL PROVIDE AND MAINTAIN TEMPORARY OUTLETS AND CONNECTIONS FOR PRIVATE DRAINS OR SEWERS. RESTORATION OF THESE FACILITIES IS TO BE PERFORMED ONCE CONSTRUCTION IS COMPLETE AND ARE CONSIDERED INCIDENTAL COSTS OF THE PROJECT.
- ALL DRAWING MEASUREMENTS ARE TO BE TAKEN FROM EXISTING GRADE. FINAL GRADE SHALL BE MATCHED TO SURROUNDING GRADE AS PER PERTINENT DUKE ENERGY DESIGN AND CONSTRUCTION STANDARDS.
- INSTALLER IS TO REMAIN WITHIN CONSTRUCTION WORKING LIMITS. ACCESS TO AREAS OUTSIDE WORKING LIMITS MUST BE COORDINATED WITH THE OWNER OR DUKE ENERGY PROJECT MANAGER.
- ALL EXCESS EXCAVATION, CONSTRUCTION DEMOLITION DEBRIS AND UNSUITABLE MATERIALS THAT DO NOT CONTAIN ASBESTOS SHALL BE REMOVED FROM THE SITE AND PROPERLY DISPOSED.
- STANDARD SPECIFICATIONS REFERENCED ON THIS SHEET AND CONSTRUCTION PLANS ARE CONSIDERED AS PART OF THE CONTRACT DOCUMENTS. INCIDENTAL ITEMS OR ACCESSORIES NECESSARY TO COMPLETE THIS WORK MAY NOT BE SPECIFICALLY NOTED, BUT ARE CONSIDERED TO BE A PART OF THIS CONTRACT.
- BEFORE ACCEPTANCE BY THE OWNER AND FINAL PAYMENT, ALL WORK SHALL BE INSPECTED AND APPROVED BY DUKE ENERGY OR COMPANY REPRESENTATIVE. FINAL PAYMENT SHALL BE MADE AFTER ALL OF THE INSTALLER'S WORK HAS BEEN ACCEPTED AND APPROVED AND IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
- DURING CONSTRUCTION, ALL LOOSE MATERIAL THAT ARE DEPOSITED IN THE FLOW LINE OF GUTTERS, DRAINAGE STRUCTURES, DITCHES, ETC. SUCH THAT THE NATURAL FLOW LINE OF WATER IS OBSTRUCTED, SHALL BE REMOVED AT THE END OF EACH WORK DAY.
- ALL FIELD TILE ENCOUNTERED DURING CONSTRUCTION SHALL BE EXTENDED TO OUTLET INTO AN EXISTING DRAINAGE WAY. A RECORD OF ALL FIELD TILE FOR ONSITE DRAIN PIPE ENCOUNTERED SHALL BE KEPT BY THE INSTALLER AND TURNED OVER TO THE PROJECT

MANAGER UPON COMPLETION OF THE PROJECT.

CONSTRUCTION NOTES (CONT.):

- INSTALLER IS REQUIRED TO MAINTAIN A SET OF ISSUED FOR CONSTRUCTION DRAWINGS AND ALL PERMITS AT THE JOB SITE. ANY MODIFICATIONS OR ALTERATIONS TO THE PLANS OR SPECIFICATIONS SHALL BE APPROVED BY THE PROJECT MANAGER.
- INSTALLER IS SOLELY RESPONSIBLE FOR EXECUTION OF HIS/HER WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND SPECIFICATIONS. INSTALLER IS RESPONSIBLE FOR THE CONSTRUCTION METHODS AND TECHNIQUES, SEQUENCES, TIME OF PERFORMANCE ALL SAFETY PRECAUTIONS.
- MINIMUM DEPTH OF BURIAL SHALL BE PER PERTINENT DUKE ENERGY DESIGN AND CONSTRUCTION STANDARDS.
- ALL PIPELINES BEING CROSSED ARE TO BE PROTECTED WITH A MINIMUM OF (3) 4 FEET X 18 FEET WOODEN MATS.
- PER PERTINENT DUKE ENERGY DESIGN AND CONSTRUCTION STANDARDS, FOR OPEN DITCH EXCAVATION, A MINIMUM OF TWO FEET OF SEPARATION SHALL BE MAINTAINED BETWEEN ALL CROSSING STRUCTURES. SEPARATION BETWEEN CROSSING STRUCTURES AND PIPELINES THAT ARE INSTALLED VIA DIRECTIONAL DRILLING METHODS IS AT THE DISCRETION OF ENGINEERING.
- DURING BACKFILLING, A SIX INCH CROWN SHALL BE PLACED ON ALL DISTURBED AREAS. COMPACTION REQUIREMENTS SHALL BE PER PERTINENT DUKE ENERGY DESIGN AND CONSTRUCTION STANDARDS.
- BOLTS FOR FLANGES TO BE TORQUED PER PERTINENT DUKE ENERGY DESIGN AND CONSTRUCTION STANDARDS.

PIPE CLEANING:

- THOROUGHLY CLEAN INTERIOR OF ALL PIPE, FITTINGS, AND JOINTS BEFORE INSTALLATION. EXCLUDE ENTRANCE OF FOREIGN MATTER DURING DISCONTINUANCE OF INSTALLATION BY CAPPING OR PLUGGING TO A WATERTIGHT CONDITION AT THE END OF EACH WORK DAY. PRIOR TO FINAL FITTING OF THE SYSTEM, VISUALLY INSPECT ALL LINES AND JOINTS, REMOVE ALL STRUTS, SWEEP AND/OR FLUSH CLEAN TO THE SATISFACTION OF DUKE ENERGY. NOTIFY DUKE ENERGY AT LEAST 24 HOURS IN ADVANCE OF INTENDED CLOSING UP OF A SYSTEM.
- CONTRACTOR IS RESPONSIBLE FOR PROPERLY CLEANING NEW PIPE TO BE INSTALLED BEFORE RELEASING IT FOR SERVICE. CONTRACTOR SHALL PROVIDE PROCEDURES FOR CLEANING PIPE FOR APPROVAL BY DUKE ENERGY.

PRESSURE AND LEAK TESTING:

- ALL PIPE SHALL BE PRESSURE TESTED IN ACCORDANCE WITH ASME B31.8 AT A PRESSURE DESIGNATED ON THE DRAWINGS. CONTRACTOR SHALL PROVIDE ALL EQUIPMENT AND MATERIALS ASSOCIATED WITH PRESSURE TESTING. SHOULD SURFACE LEAKS BECOME APPARENT, THE LEAKS SHALL BE LOCATED AND REPAIRED, AND THE LINE RE-TESTED UNTIL IT FULFILLS THE ABOVE REQUIREMENTS. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH REPAIRS AND RE-TESTING. CONTRACTOR SHALL PROVIDE NOTIFICATIONS TO DUKE ENERGY 48 HOURS PRIOR TO TESTING FOR WITNESS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL MATERIALS, TOOLS, EQUIPMENT, AND PERSONNEL NECESSARY TO CONDUCT THE PRESSURE TEST INCLUDING BUT NOT LIMITED TO AIR COMPRESSOR, TEST MANIFOLDS, DEAD WEIGHT, AND CERTIFIED GAUGES.
- THE CONTRACTOR IS RESPONSIBLE TO PERFORM INITIAL SERVICE LEAK TESTS IN ACCORDANCE WITH THE REQUIREMENTS OF ASME B31.8
- A SEALED CERTIFIED TEST RECORD SHALL BE PROVIDED TO DUKE ENERGY WITHIN 30 DAYS OF COMPLETION OF THE TEST. TEST RECORDS SHALL INCLUDE ALL EQUIPMENT CERTIFICATIONS AND PRESSURE AND TEMPERATURE RECORDING CHARTS. DRAFT COPY OF TEST RECORDS SHALL BE PROVIDED TO DUKE ENERGY THE DAY OF THE TEST.
- CONTRACTOR SHALL ALLOW THE TEST PRESSURE TO REACH EQUILIBRIUM WITH TEMPERATURE, PRIOR TO STARTING THE TEST.
- CONTRACTOR SHALL BE RESPONSIBLE FOR DE-PRESSURIZATION OF THE TEST MEDIUM TO THE ENVIRONMENT IN A SAFE AND REASONABLE MANNER.
- TEST PRESSURES SHALL BE 1.5 TIMES DESIGN PRESSURE.
- ALL PIPING SHALL BE TESTED FOR 8.5 HOURS MINIMUM.

MATERIAL NOTES:

- MATERIAL LIST SHALL BE CONSIDERED AN ESTIMATE. DUKE ENERGY WILL PROVIDE THE MATERIALS IN THE MATERIALS LIST. CONTRACTOR TO PROVIDE ANY REMAINING MATERIALS NECESSARY TO COMPLETE THE PROJECT.

STEEL PIPE, FITTING, AND VALVE NOTES:

- ALL STEEL PIPE, FITTINGS, VALVES, AND EQUIPMENT SHALL BE INSTALLED ACCORDING TO ASME B31.8 LATEST EDITION, MANUFACTURER'S RECOMMENDATIONS, AND CONSTRUCTION DRAWINGS.
- CONTRACTOR TO PROVIDE ALL HARDWARE NECESSARY TO COMPLETE THE CONSTRUCTION OF THE FACILITIES INCLUDING GASKETS, NUTS, AND BOLTS. ONLY NEW GASKETS AND BOLTS SHALL BE USED WHEN CONNECTING FLANGES.
- FIELD VERIFY ALL DIMENSIONS. WELDING AND NON-DESTRUCTIVE EXAMINATION:
 - THE CONTRACTOR SHALL FURNISH ALL LABOR, MATERIAL, TOOLS AND EQUIPMENT REQUIRED FOR SURFACE PREPARATION AND WELDING.
 - ALL WELDING MUST BE COMPLETED ACCORDING TO ALL APPLICABLE REGULATORY REQUIREMENTS INCLUDING API 1104.
 - WELDING PROCEDURES SPECIFIC TO PROJECT SHALL BE PROVIDED TO ENGINEER AND DUKE ENERGY BY THE CONTRACTOR FOR APPROVAL. WELDING PROCEDURE TO BE QUALIFIED PER API 1104.
 - ALL CONTRACTOR WELDERS MUST HAVE THE APPROPRIATE QUALIFICATION RECORDS TO BE SUBMITTED TO DUKE ENERGY FOR REVIEW PRIOR TO WELDING. DUKE ENERGY INSPECTOR RESERVES THE RIGHT TO WITNESS ANY NEW WELDER QUALIFICATIONS.

STEEL PIPE, FITTING, AND VALVE NOTES (CONT.):

- CONTRACTOR IS RESPONSIBLE FOR COST FOR TESTING AND QUALIFICATION OF WELDERS INCLUDING MATERIALS AND NDE.
- DUKE ENERGY SHALL HIRE A 3RD PARTY X-RAY COMPANY TO XRAY 100% OF ALL THE BUTT WELDS. CONTRACTOR TO COORDINATE SCHEDULING WITH X-RAY COMPANY.
- ALL WELDS SHALL BE EXAMINED PER API 1104. PAINTING NOTES:
 - THE CONTRACTOR SHALL FURNISH ALL LABOR, MATERIAL, PAINTS, TOOLS AND EQUIPMENT REQUIRED FOR PAINTING.
 - ALL STEEL SHALL BE THOROUGHLY WIPED DOWN TO REMOVE ALL TRACES OF GRIT OR OTHER CONTAMINANTS. REMOVE ALL WELD SPLATTER AND GRIND SMOOTH THE BURRS ON ANY CUT EDGES AND ROUGH WELDS. SURFACES TO BE PAINTED SHALL BE PRIMED BEFORE ANY RUSTING CAN OCCUR AND, IN ANY CASE, WITHIN 8 HOURS OF COMPLETION OF SURFACE PREPARATION AND UNDER CONTROLLED TEMPERATURE AND HUMIDITY. IF IT CANNOT BE PRIMED WITHIN THE 8-HOUR PERIOD, THEN ANY RUST BLOOM SHALL BE REMOVED BEFORE PAINT APPLICATION BY SUITABLE HAND OR POWER TOOL.
 - THE PIPING AND PIPING COMPONENT PAINTING SHALL BE INSPECTED AND REPAIRED ACCORDINGLY AFTER INSTALLATION.
 - FOLLOWING THREE-COAT PAINT SYSTEM SHALL BE USED. ALL COATS SHALL BE APPLIED ACCORDING TO MANUFACTURES RECOMMENDATION. ABRASIVE BLAST TO SSPC SP-10 WITH A NOMINAL PROFILE OF 2 MILS. FINAL COLOR TO MATCH ASTM-49-GREY, WITH THE FINAL COAT APPLIED WITHIN 30 DAYS OF PRIMER COAT IF EXPOSED TO SUNLIGHT.
 - COAT NO. 1 - SHERWIN WILLIAMS FAST CLAD HS REINFORCED ZINC 2-PART EPOXY PRIMER - MINIMUM 5 MILS
 - COAT NO. 2 - SHERWIN WILLIAMS MACROPOXY 646 2-PART MARINE EPOXY - 5 MILS
 - COAT NO. 3 - SHERWIN WILLIAMS ACROLON ULTRA HIGH PERFORMANCE MARINE POLYURETHANE UV ADDITIVE - 5 MILS.

COORDINATION AND COMMUNICATION:

- CONTRACTOR SHALL APPOINT A PRIMARY CONSTRUCTION SUPERINTENDENT, SUBJECT TO THE APPROVAL OF THE CLIENT REPRESENTATIVE, WHO SHALL BE PRESENT ON THE CONSTRUCTION SITE AT ALL TIMES DURING WORKING HOURS AND ACCESSIBLE AT ALL TIMES WHILE WORK IS IN PROGRESS. THE PRIMARY CONSTRUCTION SUPERINTENDENT SHALL BE DESIGNATED THE RESPONSIBLE CONTRACTOR'S REPRESENTATIVE WHO SHALL BE AVAILABLE ON A 24-HOUR BASIS. WHEN THE CONTRACTOR'S PRIMARY CONSTRUCTION REPRESENTATIVE IS NOT AVAILABLE ON THE CONSTRUCTION SITE, AN ALTERNATE REPRESENTATIVE SHALL BE PROVIDED. CONTRACTOR SHALL PROVIDE NAMES AND CONTACT INFORMATION OF REPRESENTATIVES TO THE CLIENT REPRESENTATIVE PRIOR TO THE START OF CONSTRUCTION ACTIVITIES.
- CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING CONSTANT COORDINATION BETWEEN ANY SUBCONTRACTORS AND THE CLIENT REPRESENTATIVE. ALL CONSTRUCTION ACTIVITIES PLANNED BY THE CONTRACTOR SHALL BE REVIEWED AND APPROVED BY THE CLIENT REPRESENTATIVE.
- THE FOLLOWING CONTACT INFORMATION IS PROVIDED FOR CONTRACTOR'S USE IN CASE OF AN EMERGENCY:
 - EMERGENCY 911
 - OTHER CONTACTS AS DIRECTED AT PRE-CONSTRUCTION MEETING

SAFETY REQUIREMENTS:

- CONTRACTOR SHALL MAINTAIN SAFETY PRACTICES THAT CONFORM TO OSHA REGULATIONS.
- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN AND PAY FOR ALL APPLICABLE PERMITS, FEES AND LICENSES FOR CONSTRUCTION AND EQUIPMENT.
- THE CONTRACTOR SHALL PERFORM ON-SITE INSPECTIONS THROUGHOUT THE PROJECT AND REMEDY ANY SAFETY CONCERNS IMMEDIATELY.
- THERE SHALL BE NO PERMANENT WASTE SITES ON SITE PROPERTY. ANY TEMPORARY WASTE AREA SHALL BE APPROVED BY THE CLIENT REPRESENTATIVE AND SHALL BE KEPT IN AN ORDERLY CONDITION. REMOVAL OF WASTE THAT IS NOT PROPERLY MAINTAINED IS SUBJECT TO THE DIRECTION OF THE CLIENT REPRESENTATIVE.
- EROSION CONTROL DEVICES SHALL BE USED FOR THE ACCESS AND HAUL ROUTES, STAGING AREA, AND ANY MATERIAL STOCKPILES WHEN NECESSARY TO CONTROL EROSION AND STORM WATER RUNOFF. SEE DRAWINGS PNG-C-025-0001073 AND PNG-C-025-0001074 FOR EROSION AND SEDIMENT CONTROL DETAILS.
- STOCKPILED MATERIAL SHALL BE CONSTRAINED IN A MANNER TO PREVENT MOVEMENT RESULTING FROM WIND CONDITIONS.
- CONTRACTOR SHALL MAKE NECESSARY PROVISIONS TO LIMIT DUST CAUSED BY CONSTRUCTION ACTIVITIES TO A LIMIT ACCEPTABLE TO PROJECT SITE OPERATIONS. THE CONTRACTOR SHALL CONTROL BLOWING DUST ON THE PROJECT SITE FROM ANY HAUL ROUTE OR WORK AREA REGARDLESS OF SOURCE.
- WILDLIFE ATTRACTANTS, SUCH AS TRASH AND FOOD SCRAPS, FROM CONSTRUCTION PERSONNEL AND ACTIVITIES SHALL BE REMOVED FROM THE PROJECT LIMITS.
- GASOLINE, DIESEL FUEL, OIL, AND HAZARDOUS WASTE RESULTING FROM CONTRACTOR'S OPERATIONS OR ACTIVITIES SHALL BE PROPERLY DISPOSED OF IN ACCORDANCE WITH THE SPECIFICATIONS AND LOCAL REGULATORY REQUIREMENTS AND PROPERLY REMOVED FROM THE PROJECT PROPERTY. IF HAZARDOUS MATERIALS ARE ENCOUNTERED OR UNCOVERED DURING CONSTRUCTION ACTIVITIES, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE CLIENT REPRESENTATIVE.

SAFETY REQUIREMENTS (CONT.):

- FAILURE TO COMPLY WITH THE CLIENT REPRESENTATIVE SAFETY REQUIREMENTS SHALL RESULT IN THE SUSPENSION OF CONSTRUCTION ACTIVITIES UNTIL ALL SAFETY CONCERNS ARE ADDRESSED BY THE CONTRACTOR TO THE SATISFACTION OF THE CLIENT REPRESENTATIVE.
- ANY WORKERS AND EQUIPMENT NOT IN COMPLIANCE WITH SAFETY PLAN SHALL IMMEDIATELY BE REMOVED FROM THE WORK AREA.
- THE CONTRACTOR SHALL NOT BURN OR BURY DEBRIS WITHOUT PERMISSION FROM THE SITE INSPECTOR.

ABBREVIATIONS:

ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
BOC	BACK OF CURB
CB	CATCH BASIN
CBR	CALIFORNIA BEARING RATIO
C/L	CENTERLINE
COMB	COMBINATION BEND (VERT. & HOR. DIRECTIONAL CHANGE)
CONC	CONCRETE
CI	CURB INLET
CMP	CORRUGATED METAL PIPE
DB	DEED BOOK
DI	DROP INLET
DR	DRIVE
ELEC	ELECTRICAL
EOP	EDGE OF PAVMENT
EX	EXISTING
FT	FEET
FTG	FITTING
JAB	JACK AND BORE
GIS	GEOGRAPHIC INFORMATION SYSTEM
LL	LAND LOT
MAX	MAXIMUM
MIN	MINIMUM
MISC	MISCELLANEOUS
NTS	NOT TO SCALE
PG	PAGE
PVC	POLYVINYL PLASTIC PIPE
NCDEQ	NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY
NCDDOT	NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
N/F	NOW OR FORMERLY
NPDES	NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
NTS	NOT TO SCALE
OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
PC	POINT OF CURVATURE
P/L	PROPERTY LINE
PT	POINT OF TANGENCY
RCP	REINFORCED CONCRETE PIPE
R/W	RIGHT OF WAY
SAG	SAG (PIPE DIRECTION UP)
SBL	SIDE BEND LEFT
SBR	SIDE BEND RIGHT
SSMH	SANITARY SEWER MANHOLE
STMH	STORM MANHOLE

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	0	02-19-2021	ISSUED FOR AS-BUILT	APW	CDS	CDS	AREA CODE	-	N/A	N/A	REGIONAL ENGINEER	
							ACCOUNT NUMBER	-	N/A	N/A	MGR TECH REC & STD	
							PROJECT NUMBER	V8351	N/A	N/A	PRINCIPAL ENGINEER	
						DRAWING BY	APW	02-12-2020	CAM			
						STATION ID	-					
						CHECKER INITIALS	JRC					

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UL60

GENERAL NOTES

SHEET(S) 2 OF 2	DWG SCALE -
DWG DATE 02-12-2020	SUPERSEDED -
DRAWING NUMBER	REVISION
PNG -G-043-0001040	0
C / ERLANGER / UL60	

LEGEND:

	PROPERTY LINE
	EXISTING FENCE
	EXISTING OVERHEAD ELECTRICAL
	EXISTING TELEPHONE LINE
	EXISTING STORM SEWER
	EXISTING SANITARY SEWER
	EXISTING WATER LINE
	EXISTING GAS LINE
	PROPOSED GAS LINE
	PROPOSED CHAIN LINK FENCE
	DITCH CENTERLINE
	PROPOSED CENTERLINE OF ROAD
	PROPOSED EDGE OF ROAD
	PROPOSED GRAVEL SURFACE BOUNDARY
	PROPOSED CULVERT
	PROPOSED CONSTRUCTION ENTRANCE
	PROPOSED EROSION CONTROL BLANKET / SEEDING
	PROPOSED INLET PROTECTION
	PROPOSED EROSION CONTROL LOGS
	PROPOSED CONCRETE FOR DRIVEWAY
	FLOW ARROW

SURVEY AND SUBSURFACE INVESTIGATION NOTES:

- BEARINGS AND COORDINATES ARE RELATIVE TO NAD83 KENTUCKY STATE PLANES, NORTH ZONE, US. FOOT. VERTICAL DATUM IS NAVD88.
- THE EXISTING SITE UTILITIES AND FEATURES SHOWN ARE BASED ON A FIELD RUN TOPOGRAPHIC SURVEY PERFORMED BY SGC CONSULTING IN JULY, 2019.
- SURVEY CONTROL POINTS WILL BE PROVIDED PRIOR TO CONSTRUCTION. IF THE CONTRACTOR SHOULD NEED TO DISTURB THE CONTROL POINTS DURING CONSTRUCTION, REQUEST SHALL BE GIVEN TO THE SURVEYOR TO HAVE THE CONTROL POINTS RESET.
- IF BENCHMARKS SHOWN ARE IN AREAS THAT REQUIRE DEMOLITION, OTHER BENCHMARKS SHALL BE ESTABLISHED BEFORE DEMOLITION AND CONSTRUCTION WORK BEGINS. CONTRACTOR SHALL GIVE REQUEST TO THE SURVEYOR.

EMBANKMENT FILL NOTES:

- EMBANKMENT FILL SHALL CONSIST OF AN INORGANIC, NON-PLASTIC, GRANULAR SOIL CONTAINING LESS THAN 10% MATERIAL PASSING THE NO. 200 MESH SIEVE WITH UNIFIED SOIL CLASSIFICATION OF SP, SP-SC, OR SP-SM. EMBANKMENT FILL SHALL BE PLACED IN LIFTS NOT EXCEEDING 8 INCHES WHEN USING A STATIC DRUM ROLLER WITH A MINIMUM OPERATING WEIGHT OF 5 TONS WITH A DRUM DIAMETER OF 3 TO 4 FEET. WHERE LIGHTWEIGHT VIBRATORY COMPACTION METHODS ARE UTILIZED MAXIMUM LOOSE LIFT THICKNESS SHALL BE 6 INCHES. COMPACTION SHALL MEET A MAXIMUM DRY DENSITY OF 98% STANDARD PROCTOR DRY DENSITY +/- 2% OF OPTIMUM WATER CONTENT.
- ANY GRADING TO CORRECT SLOPES SHALL BE COMPACTED PER THIS DOCUMENT.

GENERAL NOTES:

- SPOT ELEVATIONS AND CONTOURS ON THESE DRAWINGS ARE TOP OF FINISH GRADE. SUBTRACT FINISHED SURFACE MATERIAL THICKNESS TO OBTAIN SUBGRADE. ALL DIMENSIONS, ELEVATIONS, AND STATIONS ARE IN FEET, UNLESS INDICATED OTHERWISE.
- ALL MATERIALS AND WORKMANSHIP SHALL COMPLY WITH ALL APPLICABLE DUKE STANDARDS, CODES, SPECIFICATIONS, LOCAL ORDINANCES, INDUSTRY STANDARDS AND UTILITY COMPANY REQUIREMENTS.
- THESE DESIGN DRAWINGS PRESENT THE CIVIL CONCEPTS OF THIS PROJECT AND ARE NOT INTENDED TO SERVE AS CONTRACTOR'S SHOP DRAWINGS. CERTAIN ITEMS MAY NOT BE COMPLETELY DETAILED ON THESE DRAWINGS. SUCH ITEMS SHALL BE CONSTRUCTED TO THE CODES AND STANDARDS AS NOTED. THE STANDARDS AND REQUIREMENTS OF THE LOCAL JURISDICTION SHALL TAKE PRECEDENCE.
- GRADING SHALL BE PERFORMED TO THE PLANS, ELEVATIONS, PROFILES, SECTIONS, DETAILS AND SPECIFICATIONS UNLESS APPROVAL HAS BEEN OBTAINED IN ADVANCE.
- UTILITY SHUTDOWNS, INSPECTIONS, AND ACCEPTANCE TESTS SHALL BE COORDINATED IN ADVANCE WITH THE APPROPRIATE AGENCIES.
- THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE PROJECT OBJECTIVES WITH ALL UTILITY COMPANIES.
- NOTIFY THE PROJECT ENGINEER IF ANY EXISTING UTILITY STRUCTURES ARE IN CONFLICT WITH THE PROPOSED GRADING PLAN.
- DOWNTIME FOR UTILITIES SHALL BE HELD TO A MINIMUM AND TEMPORARY BYPASSES SHALL BE PROVIDED WHERE NECESSARY TO MAINTAIN PROPER SERVICE. DO NOT INTERRUPT UTILITIES THAT ARE SERVING FACILITIES OCCUPIED BY THE OWNER OR BY OTHERS UNLESS GRANTED IN WRITING BY THE PROJECT MANAGER OR PROJECT ENGINEER, AND ONLY AFTER ARRANGING TO PROVIDE TEMPORARY SERVICES ACCORDING TO THE REQUIREMENTS AS INDICATED.
- THE LOCATION OF PROPERTY LINES, EXISTING STRUCTURES, FIXTURES AND UNDERGROUND UTILITIES ARE DRAWN FROM THE BEST AVAILABLE AS-BUILT AND SURVEYED INFORMATION. THIS DOES NOT GUARANTEE THAT THE LOCATION OF EXISTING ITEMS ARE EXACT OR COMPLETE.
- SITE CONSTRUCTION PRACTICES SHALL BE IN ACCORDANCE WITH OSHA STANDARDS. THE CONTRACTOR SHALL MAINTAIN ON-SITE, LEGIBLE MATERIAL SAFETY DATA SHEETS FOR ALL HAZARDOUS MATERIALS USED ON-SITE.
- ANY OFF-SITE IMPROVEMENTS FOUND DAMAGED SHALL BE REPLACED TO THE SATISFACTION OF THE INSPECTOR OR DIRECTOR OF THE AFFECTED AGENCY.
- THE WORK SCHEDULE SHALL BE COORDINATED WITH THE OWNER'S REPRESENTATIVE AND WITH ANY LOCAL ORDINANCES.
- THE CONTRACTOR SHALL SECURE THE JOB SITE AT THE END OF EACH DAY. ON-DUTY AND OFF-DUTY CONTACTS AND PHONE NUMBERS FOR THE CONTRACTOR SHALL BE FURNISHED TO THE OWNER'S REPRESENTATIVE.
- THE CONTRACTOR SHALL COORDINATE WITH THE OWNERS REPRESENTATIVE TO MANAGE THE PROJECT'S IMPACT TO SECURITY AND SAFETY MATTERS.
- ANY REVISIONS MADE TO THE APPROVED PLANS REQUIRE SUBSEQUENT APPROVAL BY THE APPROPRIATE AGENCY.
- REMOVE SURPLUS SOIL MATERIAL, UNSUITABLE TOPSOIL, OBSTRUCTIONS, DEMOLISHED MATERIALS, AND WASTE MATERIALS, INCLUDING TRASH AND DEBRIS, AND LEGALLY DISPOSE OF THEM OFF SITE AT AN APPROVED LOCATION.
- NO OPEN BURNING OR BURYING OF WASTE MATERIALS SHALL BE PERMITTED ON THE SITE WITHOUT APPROVAL FROM THE OWNERS REPRESENTATIVE AND APPROPRIATE REGULATORY AGENCIES.
- DUST SHALL BE CONTROLLED AT ALL TIMES BY WATERING. DIRT DEBRIS, TRASH OR OTHER CONSTRUCTION MATERIALS SHALL BE CONTAINED WITHIN CONSTRUCTION BOUNDARIES AT ALL TIMES AND SHALL BE CLEANED AND REMOVED DAILY AS NECESSARY. EXCESS EXCAVATED MATERIALS SHALL BE PROMPTLY DISPOSED OF TO AN APPROVED LOCATION AT THE CONTRACTOR'S EXPENSE. EXCAVATED MATERIAL TO BE REUSED AS BACKFILL MAY BE TEMPORARILY STOCKPILED PER THE DIRECTION OF THE ON-SITE COMPANY REPRESENTATIVE, BUT MUST BE WATERED AND/OR COVERED TO PREVENT BLOWING ONTO ADJACENT PROPERTIES. THE CONTRACTOR SHALL ALSO PREVENT CONSTRUCTION DEBRIS FROM ENTERING ANY EXISTING STORM DRAINAGE REACHES BY IMPLEMENTING PREVENTATIVE MEASURES SUCH AS DAMMING OR TEMPORARY CLOSURES.
- ALL WORK SHALL BE SUBJECT TO INSPECTION BY AUTHORIZED PERSONNEL OF LOCAL AND GOVERNMENT REGULATORY AGENCIES AND THE CLIENT REPRESENTATIVE.
- CONTRACTOR SHALL CONFINE ALL WORK TO BE WITHIN THE PERMANENT AND TEMPORARY EASEMENTS.

GENERAL GRADING NOTES:

- ALL GRADING, PAVEMENT WORK, AND ANY OTHER MISCELLANEOUS WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE CURRENT KENTUCKY DOT (KYTC) STANDARD SPECIFICATIONS FOR ROAD CONSTRUCTION AND SUPPLEMENTAL SPECIFICATIONS.
- THE GRAVEL SURFACE COURSE SHALL BE CONSTRUCTED IN ACCORDANCE WITH KYTC STANDARD COURSE NO. 610 OR 710. SEE DETAIL ON SHEET 8.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR GRADING INCLUDING EXCAVATION, EMBANKMENT, AND BACKFILLING AS NECESSARY TO CONSTRUCT ALL AGGREGATE ACCESS ROADS, AS OUTLINED IN THESE TECHNICAL SPECIAL PROVISIONS AND AS DIRECTED BY THE CLIENT REPRESENTATIVE.
- THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ANY DAMAGE DONE TO STORM MANHOLES OR OTHER UTILITIES DURING GRADING.
- THE TOLERANCE OF THIS WORK SHALL BE TO WITHIN TO 0.1 FT OF THE EXISTING GROUND SURFACE ELEVATIONS.
- THE ACCESS ROAD SUBGRADE SHALL HAVE SUFFICIENT STABILITY TO ACCOMMODATE CONSTRUCTION TRAFFIC WITHOUT EXCESSIVE SUBGRADE RUTTING OR SHOving. AT THE TIME OF PLACEMENT OF THE PAVEMENT, THE IN-SITU SUBGRADE SHALL HAVE A CALIFORNIA BEARING RATIO (CBR) OF AT LEAST 6 PERCENT IN THE TOP 12 INCHES OF SUBGRADE. THE CBR PERCENTAGE WILL BE ASCERTAINED BY THE CONTRACTOR.
- THE QUALITY OF THE SOIL TO BE USED AS FILL MATERIAL SHALL BE AS SPECIFIED IN THIS DOCUMENT. ALL BACKFILL SHALL BE SPREAD IN LOOSE LIFTS NOT EXCEEDING 8" INCHES IN THICKNESS WHEN SELF-PROPELLED EQUIPMENT IS USED AND NOT EXCEEDING 6" WHEN HAND GUIDED EQUIPMENT IS USED. ALL ROOTS, WOOD, AND VEGETATION SHALL BE REMOVED FROM THE LAYER OF FILL PRIOR TO COMPACTION. ALL FILL AND EXPOSED SOIL IN CUT AREAS SHALL BE COMPACTED AS SPECIFIED IN THIS DOCUMENT. SOIL COMPACTION TESTS WILL BE REQUESTED BY THE OWNER AT APPROPRIATE INTERVALS DURING GRADING OPERATIONS.
- ALL HAUL-IN MATERIAL SHALL BE FREE OF ROCKS 3" IN DIAMETER AND LARGER. THE OWNER'S CONSTRUCTION INSPECTOR SHALL APPROVE ALL HAUL-IN MATERIAL TO ENSURE THE QUALITY AND THE ABSENCE OF ENVIRONMENTAL HAZARDS.
- THE FILL AREA SHALL BE CONSTRUCTED TO THE LINES AND GRADES SHOWN ON THE DESIGN DRAWINGS WITH MATERIAL SPECIFIED IN THIS DOCUMENT. THE OWNER'S CONSTRUCTION INSPECTOR WILL PROVIDE ALL NECESSARY BENCHMARKS, SURVEY MONUMENTS, AND BASE LINES REQUIRED FOR THE WORK. THE CONTRACTOR SHALL LAY OUT ALL LINES AND GRADES FOR THE BACKFILL AREAS. ANY PROPOSED CHANGES TO THE SLOPES AND GRADES SHALL REQUIRE THE APPROVAL OF THE OWNER'S CONSTRUCTION INSPECTOR IN ADVANCE. THE CONTRACTOR SHALL BE REQUIRED TO REMOVE, AT HIS OWN EXPENSE, ANY COMPACTED MATERIAL PLACED OUTSIDE OF THE APPROVED LINES OR GRADES.
- SPOIL MATERIAL SHALL BE TOPSOIL AND OTHER SOIL MATERIALS CONTAINING GREATER THAN 5 PERCENT ORGANIC MATERIAL, SOIL WHICH IS TOO WET, SOIL WHICH DOES NOT MEET THE PLASTICITY AND/OR GRADATION LIMITS FOR SELECT MATERIAL AS SPECIFIED IN THIS DOCUMENT, OR OTHER SOIL MATERIAL DESIGNATED BY THE OWNER'S CONSTRUCTION INSPECTOR TO BE UNSUITABLE FOR SELECT MATERIAL.
- SELECT SOIL MATERIAL SHALL BE THAT MATERIAL CLASSIFIED AS SM, SP, SC, SW AND CL, OR SW AND SC IN ACCORDANCE WITH ASTM D2487, AND SHALL HAVE A MAXIMUM LIQUID LIMIT OF 30, A MAXIMUM PLASTICITY INDEX OF 8, AND A MAXIMUM OF 35 PERCENT PASSING THE #200 SIEVE.
- THE TOP SURFACE OF EACH LIFT OF BACKFILL SHALL BE PROTECTED FROM PUMPING, PONDING, AND GULLYING.
- COMPACTION TESTING WILL BE PROVIDED AT THE EXPENSE OF THE CONTRACTOR. COMPACTION REQUIREMENTS OF SOIL BACKFILL SHALL BE AS INDICATED IN THE FOLLOWING TABLE:

LOCATION OF FILL	MINIMUM REQUIRED COMPACTION LEVEL STANDARD PROCTOR
A. GENERAL YARD AREA	98%(ASTM D698)
B. UPPER 18 INCHES OF SOIL TO BE USED AS ROAD SUBGRADE MATERIAL AND EXTENDING A MINIMUM OF 5 FEET BEYOND THE EDGE OF DEFINED ROADWAYS (IMMEDIATELY UNDER BASE MATERIAL)	98%(ASTM D698)

- CRUSHED STONE IN DRIVE AREAS SHALL BE COMPACTED WITH A STATIC STEEL DRUM ROLLER (APPROXIMATELY 8 TONS), IF A VIBRATORY COMPACTOR IS USED, NO MORE THAN FOUR (4) PASSES SHALL BE ALLOWED.
- APPROVAL SHALL BE RECEIVED FROM THE CLIENT REPRESENTATIVE FOR EACH FILL TYPE TO BE USED PRIOR TO PROCEEDING WITH BACKFILL OPERATIONS WITH THE MATERIAL IN QUESTION.
- BACKFILL TO BE IMPORTED SHALL BE TESTED IN ACCORDANCE WITH THIS DOCUMENT AND APPROVED BY THE PROJECT MANAGER PRIOR TO DELIVERY OF MATERIAL TO THE SITE. THE OWNER'S CONSTRUCTION INSPECTOR ACCEPTS NO LIABILITY FOR ANY OUT OF SPECIFICATION MATERIAL ACCEPTED AND STOCKPILED BY THE CONTRACTOR.
- INSPECTION AND TESTING OF MATERIAL SHALL BE PERFORMED AS REQUIRED BY THIS DOCUMENT AT THE EXPENSE OF THE CONTRACTOR.
- TESTS AND ANALYSIS OF MATERIAL SHALL BE PERFORMED IN ACCORDANCE WITH THE APPLICABLE STANDARDS REFERENCED IN THIS DOCUMENT FOR THE SPECIFIC TEST. FIELD INSPECTION SHALL BE PERFORMED AS REQUIRED BY THIS DOCUMENT.
- THE BACKFILL AND EXPOSED SOIL IN CUT AREAS SHALL BE COMPACTED AS SPECIFIED ON THIS DOCUMENT. FIELD DENSITY TESTS SHALL BE PERFORMED BY THE CONTRACTOR TO VERIFY COMPACTION REQUIREMENTS HAVE BEEN ACHIEVED. IN-PLACE FIELD DENSITY TESTING OF THE COMPACTED BACKFILL SHALL BE CONDUCTED ACCORDING TO THE PROCEDURES OF THE SAND CONE METHOD (ASTM 1556), NUCLEAR METHOD (ASTM D3017), OR ACCORDING TO THE PROVISIONS OF THIS DOCUMENT. TEST RESULTS REPORTED SHALL INCLUDE BOTH THE MOISTURE CONTENT AND DRY DENSITY, ALONG WITH OTHER PERTINENT DATA SUCH AS LOCATION, ELEVATION, PROCTOR CURVE USED FOR COMPARISON, ETC. THE TESTING FREQUENCY SHALL BE ONE TEST FOR EACH 5,000 SQUARE FEET OF LIFT AREA OR PORTION THEREOF FOR EACH LIFT. IN ISOLATED AREAS OF LESS THAN 5,000 SQUARE FEET, TEST AT LEAST EVERY THIRD LIFT. WHEN BACKFILL OPERATIONS ARE CONCENTRATED IN SMALL AREAS USING LIGHT MANUALLY-GUIDED EQUIPMENT AND RELATIVELY THIN LIFTS, THE FREQUENCY OF DENSITY TESTING MAY BE REVISED AS DIRECTED BY THE OWNER'S CONSTRUCTION INSPECTOR. TEST LOCATION SHALL BE THE WEAKEST APPEARING AREA OF THE TOP LIFT DETERMINED BY TRACKING ACTION OF THE EQUIPMENT.
- SUITABILITY OF SOIL MATERIAL FOR USE AS BACKFILL SHALL BE DETERMINED FOR EACH FILL TYPE BY THE RESULTS OF THE FOLLOWING TESTS:
 - LIQUID LIMIT IN ACCORDANCE WITH ASTM D4318.
 - PARTICLE SIZE ANALYSIS IN ACCORDANCE WITH ASTM D422.
 - MOISTURE-DENSITY RELATIONS (STANDARD PROCTOR) IN ACCORDANCE WITH ASTM D698.
 - MOISTURE CONTENT IN ACCORDANCE WITH ASTM D2216.
 - SCBLENGTH OF SOIL SHALL BE IN ACCORDANCE WITH ASTM D2216.
 - SOIL SHALL BE CLASSIFIED IN ACCORDANCE WITH ASTM D2487.
- FREQUENCY OF TESTS: TESTS OF MATERIALS TO BE USED IN THE OPERATIONS COVERED IN THIS DOCUMENT SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS GIVEN IN THIS DOCUMENT. FREQUENCIES OF IN-PLACE DENSITY TESTS SHALL BE AS STATED IN THIS DOCUMENT.
- IF QUESTIONABLE COMPACTION RESULTS ARE OBTAINED, THE CLIENT REPRESENTATIVE MAY REQUIRE THE CONTRACTOR TO PERFORM PROCTOR CHECKS (ON DRY SIDE OF OPTIMUM) TO VERIFY THAT THE PROPER PROCTOR CURVE IS BEING REFERENCED. IF NOT, A NEW PROCTOR CURVE DETERMINED BY A FIVE-POINT TEST SHALL BE REQUIRED. IF THE COMPACTION REQUIREMENTS FOR A LIFT HAVE NOT BEEN ACHIEVED, THE LIFT SHALL BE REWORKED OR REPLACED AT THE CONTRACTOR'S EXPENSE.
- TESTING OF IN-PLACE DENSITY AND MOISTURE CONTENT BY NUCLEAR METHODS IN ACCORDANCE WITH ASTM D2922 AND ASTM D3017, RESPECTIVELY, WILL BE ALLOWED PROVIDED:
 - ACCEPTABLE CORRELATION WITH SAND CONE DENSITY AND LABORATORY DETERMINED MOISTURE CONTENT TEST RESULTS CAN BE OBTAINED ACCORDING TO THE GUIDELINES OF "CALIBRATION" SECTIONS OF ASTM D2922 AND ASTM D3017.
 - THE INITIAL CORRELATION RESULTS ARE REVIEWED AND USE OF THE NUCLEAR DEVICE IS APPROVED BY THE OWNER'S CONSTRUCTION INSPECTOR.
 - THE CONTRACTOR INSURES THAT THE REPRESENTATIVE FROM THE TESTING AGENCY OPERATING THE NUCLEAR DENSITY TESTING HAS THE NECESSARY STATE AND/OR FEDERAL LICENSES TO OPERATE THE DEVICE AND CARRY A NUCLEAR ENERGY SOURCE.
- PRIOR TO COMMENCEMENT OF ANY LAND DISTURBING ACTIVITIES THE CONTRACTOR SHALL IMPLEMENT THE BEST MANAGEMENT PRACTICES (BMP'S) AS DEFINED IN THE SEDIMENT AND EROSION CONTROL PLAN & DETAILS.

- TOPSOIL AND ALL EXCAVATED SOIL THAT CANNOT BE RE-USED FOR TOPSOIL SHALL BE DISPOSED OF OFF-SITE. TO MINIMIZE THE DISTURBED AREA TEMPORARY STOCKPILES SHALL BE LOCATED WITHIN THE WORK AREA TO THE EXTENT PRACTICAL. IF IT IS NOT PRACTICAL TO LOCATE THE TEMPORARY STOCKPILES WITHIN THE WORK AREA, THEY SHALL BE PLACED IN A LOCATION THAT WILL NOT ADVERSELY AFFECT SITE DRAINAGE OR CAUSE EXCESSIVE EROSION. THE TEMPORARY STOCKPILES SHALL BE PROTECTED BY EROSION AND SEDIMENT CONTROL DEVICES, AND MAY REQUIRE A NOTICE OF CHANGE TO BE SUBMITTED TO MAINTAIN COVERAGE UNDER THE STATE PERMIT FOR STORM WATER DISCHARGES.
- ALL MATERIALS SHALL BE CONSTRUCTED PER DUKE STANDARDS. ALL CUT AND FILL SLOPES SHALL NOT EXCEED A 3:1 SLOPE, UNLESS OTHERWISE NOTED.
- THE TOP LAYER OF UNSUITABLE ORGANIC TOPSOIL WITHIN THE GRADING LIMITS SHALL BE SCALPED OF DELETERIOUS MATERIALS THROUGH REMOVAL OF THE SURFACE VEGETATION AND 2 TO 4 INCHES OF THE ROOT ZONE. AFTER SCALPING THE SITE, THE TOP 12 INCHES OF THE SUBGRADE SHALL BE SCARIFIED AND COMPACTED PRIOR TO STARTING THE EMBANKMENT OPERATION.
- PROOF ROLLING SHALL BE PERFORMED TO IDENTIFY ANY UNSTABLE OR SOFT AREAS ON THE EXISTING SITE SOILS PRIOR TO BEGINNING EMBANKMENT OPERATIONS, ON THE COMPLETED SUBGRADE THAT CONSISTS OF THE BORROW MATERIAL AND ON THE AGGREGATE BASE COURSE TO ENSURE THE SURFACE IS STABLE. UNSTABLE AREAS SHALL BE REMEDIATED.
- SEE THE SEDIMENT & EROSION CONTROL DRAWINGS FOR MEASURES THAT SHALL BE USED DURING SITE CONSTRUCTION, INCLUDING SEEDING AND FINAL SITE STABILIZATION MEASURES.

SOIL EROSION AND SEDIMENT CONTROL NOTES:

- SEE EROSION & SEDIMENT CONTROL DETAILS SHEETS FOR BEST MANAGEMENT PRACTICES (BMP) DETAILS.
- INSTALLER IS TO CONSTRUCT ALL SOIL EROSION AND SEDIMENT CONTROL MEASURES AT THE COMMENCEMENT OF THE PROJECT, PROVIDE MAINTENANCE AND ASSURE EFFECTIVENESS THROUGHOUT THE DURATION OF THE PROJECT.
- CARE SHALL BE TAKEN TO MINIMIZE DOWNSTREAM SILTATION. RAW BANKS MAY BE SEEDED AND MULCHED TO PREVENT EROSION.
- ALL SPOILS INCLUDING ORGANIC SOILS, VEGETATION AND DEBRIS SHALL BE REMOVED FROM THE SITE AND PROPERLY DISPOSED OF IN SUCH A MANNER AS TO NOT ERODE INTO ANY BODY OF WATER OR WETLAND.
- SILT FENCING SHALL BE PLACED WHERE NECESSARY TO PREVENT SEDIMENT FROM LEAVING THE WORK AREA.
- CATCH ALL INLET FILTERS ARE REQUIRED AT ALL SEWER INLETS, GRATES AND MANHOLES FOR SEDIMENT CONTROL.
- WETLAND AREAS SHALL HAVE SILT FENCING AND ONE LAYER OF STRAW LOG INSTALLED NO CLOSER THAN 50 FEET FROM POINT OF WETLAND DELINEATION.
- TOPSOIL STOCKPILES SHALL BE LOCATED TO AVOID EROSION OF SAID STOCKPILE ONTO OFFSITE AREAS.
- ALL ENVIRONMENTAL MEASURES SHALL BE PER PERTINENT DUKE DESIGN AND CONSTRUCTION STANDARDS.
- ACTUAL LOCATION OF EROSION CONTROL BMP'S MAY BE ADJUSTED AS REQUIRED FOR CONSTRUCTION. ANY MODIFICATION OF THE LOCATION OF BMP'S SHALL BE INDICATED (RED-LINED) ON THE PLANS KEPT ON SITE AND DOCUMENTED ON THE RECORD OF REVISION WITHIN THE SWPPP NARRATIVE FOR REVIEW BY ANY AUTHORIZED INSPECTORS.
- SEDIMENT CONTROL LOGS, CONCRETE WASHOUT AND EROSION CONTROL BLANKETS ARE INTERIM EROSION CONTROL DEVICES THAT WILL BE INSTALLED PRIOR TO GRADING OPERATIONS OR IMMEDIATELY AFTER IN THE CASE OF DEVICES THAT ARE NOT REQUIRED UNTIL GRADING HAS BEEN COMPLETED. SEEDING AND MULCHING AND RIPRAP STABILIZATION WILL BE THE PERMANENT EROSION CONTROL METHOD AT THIS SITE.

- THE CONTRACTOR SHALL PLACE A MINIMUM OF 4 INCHES OF TOPSOIL ON ALL EXPOSED AREAS OF THE SITE THAT WILL NOT BE SURFACED WITH GRAVEL. IF ON-SITE TOPSOIL IS NOT SUITABLE FOR RE-USE, SUITABLE MATERIAL SHALL BE IMPORTED TO PROVIDE A PROPER MEDIUM FOR SEED GROWTH.
- CONTRACTOR SHALL FINE GRADE AND ROCK-HOUND ALL EXPOSED AREAS PRIOR TO SEEDING TO PROVIDE A SMOOTH AND CONTINUAL SURFACE, FREE OF IRREGULARITIES, BUMPS AND DEPRESSIONS, AND EXTRANEIOUS MATERIAL OR DEBRIS. CONTRACTOR SHALL MAINTAIN POSITIVE DRAINAGE FOR ALL LANDSCAPED AREAS.
- SEEDING, FERTILIZING AND MULCHING SHALL MEET THE REQUIREMENTS OF AND BE COMPLETED IN ACCORDANCE WITH SPECIFICATIONS.
- JASON BURLAGE OF SD1 IS TO BE CONTACTED AT 859-578-6892 AT LEAST 72 HOURS PRIOR TO ALL LAND DISTURBING ACTIVITIES.
- ADDITIONAL EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES MAY BE REQUIRED DURING THE PERIOD OF LAND DISTURBING ACTIVITY TO MEET THE REQUIREMENTS IN THE SD1 STORM WATER RULES AND REGULATIONS.
- THE SITE AND BMP'S WILL BE CHECKED AT LEAST ONCE EVERY SEVEN (7) DAYS AND WITHIN 24 HOURS AFTER A 0.5-INCH OR GREATER RAIN EVENT.

EXCAVATION AND TRENCHES

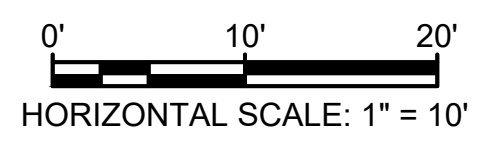
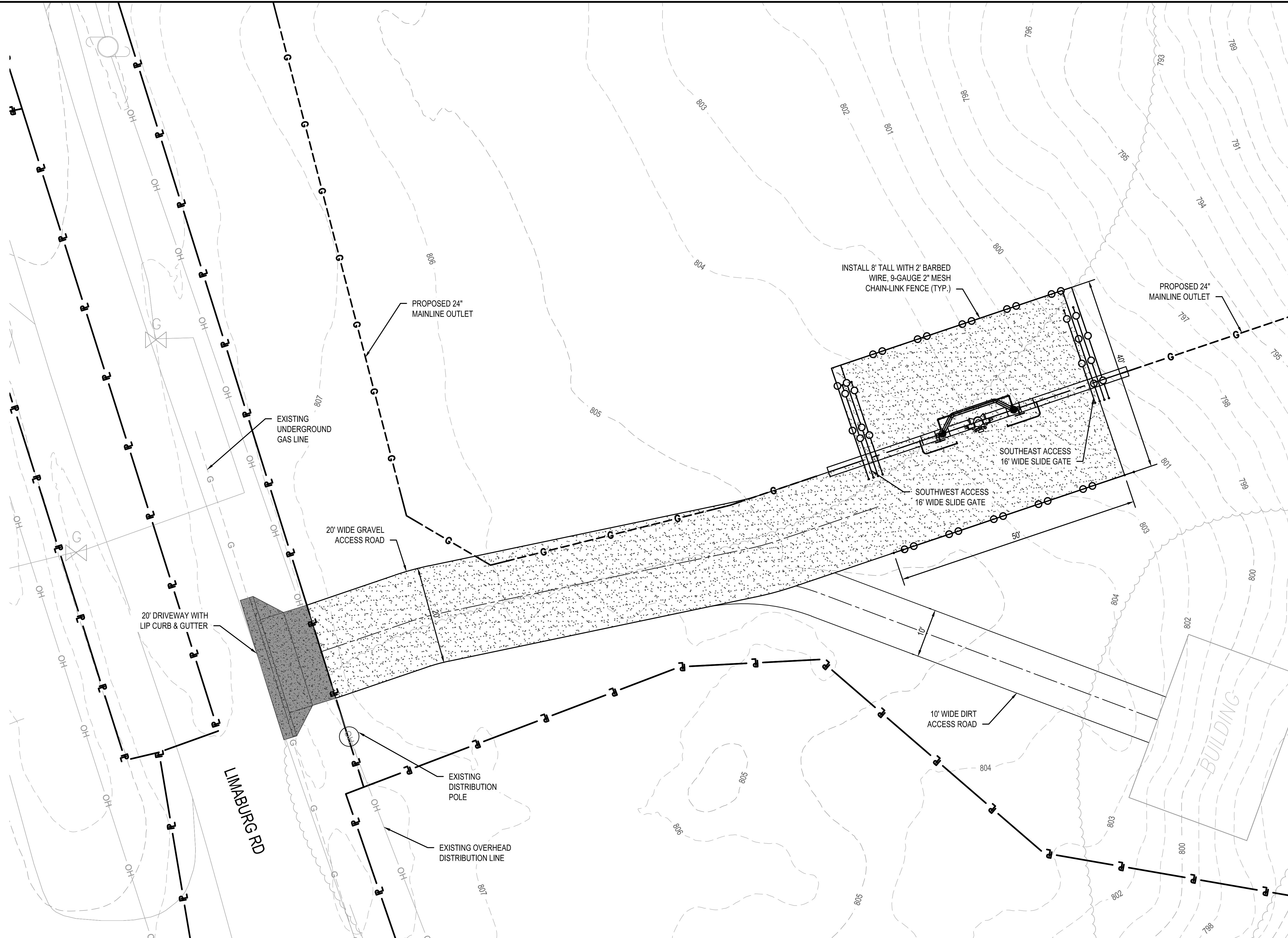
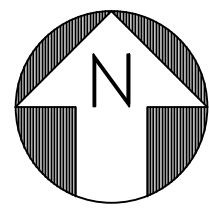
- CAUTION: THERE MAY BE UNDERGROUND UTILITIES/OBSTRUCTIONS IN THIS AREA. THE UNDERGROUND UTILITIES SHOWN ON THE PROVIDED DRAWINGS SHALL NOT BE ASSUMED COMPLETE OR ACCURATE. CONSTRUCTION SHALL LOCATE AND CLEARLY MARK THE LOCATION PRIOR TO ANY EXCAVATION ACTIVITY. 811 SHALL BE CALLED FOR EVERY EXCAVATION PROJECT AT LEAST THREE (3) BUSINESS DAYS PRIOR TO EXCAVATION WORK.
- DRAWINGS SHALL NOT BE RELIED ON AS THE SOLE SOURCE OF INFORMATION REGARDING UNDERGROUND UTILITIES.
- CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THAT ALL EXCAVATION, TRENCHING AND SHORING ARE PERFORMED IN A MANNER THAT COMPLIES WITH LOCAL REGULATIONS AND OSHA REGULATIONS FOR CONSTRUCTION.
- OPEN TRENCHES AND EXCAVATIONS AT THE CONSTRUCTION SITE SHALL BE PROMINENTLY MARKED WITH BARRICADES THAT IS ACCEPTABLE TO THE CLIENT REPRESENTATIVE.
- CONTRACTOR SHALL PROVIDE A MINIMUM NOTICE OF 48 HOURS TO THE CLIENT REPRESENTATIVE AND ASSOCIATED UTILITY COMPANIES AND AGENCIES BEFORE PROCEEDING WITH ANY EXCAVATION.
- DEWATERING OF UTILITY TRENCHES AND OTHER EXCAVATIONS MAY BE REQUIRED.
- OPEN ONLY THOSE TRENCHES FOR WHICH MATERIAL IS ON-HAND AND READY FOR PLACING THEREIN. AS SOON AS POSSIBLE AFTER THE MATERIAL HAS BEEN PLACED AND WORK APPROVED, BACKFILL AND COMPACT TRENCHES AS SPECIFIED.
- NO SPECIAL PROVISIONS WILL BE MADE FOR ROCK EXCAVATION, ANY BOULDERS ENCOUNTERED SHALL BE REMOVED AND DISPOSED OF OFF SITE.

SUBGRADE COMPACTION VERIFICATION

- THE CONTRACTOR SHALL EMPLOY AN INDEPENDENT CONSTRUCTION MATERIAL ENGINEERING TESTING FIRM TO MONITOR THE PROOFROLLING OF THE SITE AFTER THE STRIPPINGS HAVE BEEN REMOVED TO INSPECT AND TEST THE COMPACTED FILL AREAS IN THE ACCESS ROAD AREAS AS INDICATED ON THE BID DOCUMENTS AND/OR AS SPECIFIED BY THE OWNER'S DESIGNATED REPRESENTATIVE. COPIES OF THE TEST RESULTS SHALL BE FURNISHED TO THE OWNER'S DESIGNATED REPRESENTATIVE AND OTHERS AS INDICATED BY OWNER'S DESIGNATED REPRESENTATIVE. THE OWNER'S DESIGNATED REPRESENTATIVE MUST APPROVE THE INDEPENDENT CONSTRUCTION MATERIAL ENGINEERING TESTING FIRM, INCLUDED WITH THE BID PROPOSAL. THE CONTRACTOR SHALL FURNISH THE NAME, ADDRESS AND A PHONE NUMBER OF THE INDEPENDENT CONSTRUCTION MATERIAL ENGINEERING TESTING FIRM FOR APPROVAL.

BURNS & MCDONNELL STATE LICENSE #43		PIEDMONT 'S NATURAL GAS FACILITY DRAWINGS ARE CONSIDERED CONFIDENTIAL (OM-1095) * DRAWING IS CURRENT ONLY THROUGH THE LATEST REVISED DATE * TO ENSURE THERE IS NO RISK OF INAPPROPRIATE DISCLOSURE ALL PREVIOUS PAPER COPIES OF THIS DRAWING MUST BE DESTROYED IN ACCORDANCE WITH RECORDS & INFO. MANAGEMENT (RIM) POLICY 1001										REF. DWG(S)	
JOHN J. SIRHALL 02/11/2020 KENTUCKY SEAL 35301		PROPRIETARY & CONFIDENTIAL ALL RIGHTS RESERVED * DO NOT SCALE THIS DRAWING * USE DIMENSIONS ONLY										SHEET(S) 1 OF 8	
		NO. DATE REVISION(S) DESCRIPTION BY CHK APPD DESCRIPTION APPROVALS										DWG SCALE N.T.S.	
		0 02-19-2021 ISSUED FOR AS-BUILT APW DJH JJS AREA CODE - DATE - INITIALS - REGIONAL ENGINEER										DWG DATE 02/12/2020 SUPERSEDED	
												DRAWING NUMBER	
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**UL60 PIPELINE
CIVIL GENERAL NOTES AND STANDARDS
BOONE COUNTY, KY**



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 REF. DWG(S)

NO.	DATE	REVISION(S) DESCRIPTION	BY	CHK	APPD	DESCRIPTION	DATE	INITIALS	APPROVALS
0	02/19/2021	ISSUED FOR AS-BUILT	APW	DJH	JJS	AREA CODE	-	-	REGIONAL ENGINEER
						ACCOUNT NUMBER	-	-	MGR TECH REC & STD
						PROJECT NUMBER	V8351	-	PRINCIPAL ENGINEER
						DRAWING BY	APW	-	
						STATION ID	-	-	
						CHECKER INITIALS	DJH	02/12/2020	JJS

**MAINLINE VALVE
SITE PLAN
BOONE COUNTY, KY**
ERLANGER, KY

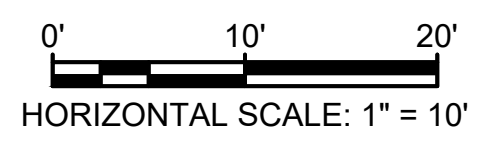
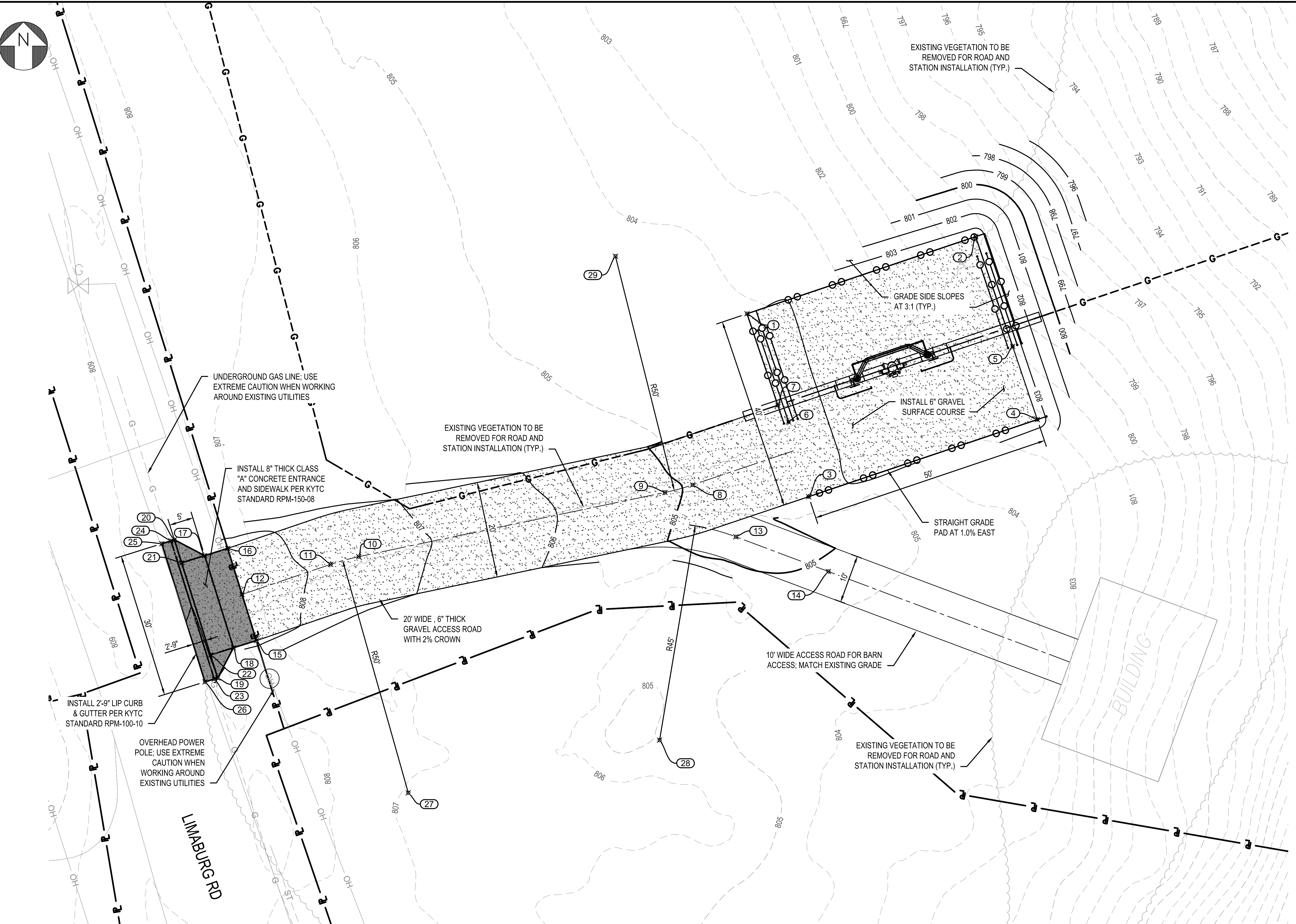
SHEET(S)	2 OF 8	DWG SCALE	1" = 10'
DWG DATE	02/12/2020	SUPERSEDED	-
DRAWING NUMBER	PNG - C-043-0001042		
REVISION	0		
C/ERLANGER/UJL60			

PROFESSIONAL ENG/ARCH STAMP

POINT TABLE				
POINT NO.	NORTHING	EASTING	ELEVATION	DESCRIPTION
1	554007.47	1516272.65	804.09	FENCE CORNER
2	554023.45	1516320.03	803.59	FENCE CORNER
3	553969.56	1516285.43	804.09	FENCE CORNER/EDGE OF ROAD
4	553985.54	1516332.81	803.59	FENCE CORNER
5	554000.70	1516327.70	803.59	FENCE CORNER
6	553985.04	1516281.27	804.08	GATE POST
7	553988.52	1516279.04	804.09	GATE POST
8	553972.00	1516261.36	804.92	CL OF ROAD
9	553970.44	1516255.64	805.14	CL OF ROAD
10	553957.14	1516192.18	807.58	CL OF ROAD
11	553955.54	1516186.34	807.81	CL OF ROAD
12	553949.30	1516167.99	808.54	CL OF ROAD
13	553961.25	1516270.33	804.66	CL OF ROAD
14	553954.06	1516289.51	805.13	CL OF ROAD/MATCH EXIST.
15	553939.75	1516170.98	808.38	EDGE OF DRIVEWAY
16	553958.84	1516165.01	808.70	EDGE OF DRIVEWAY
17	553957.35	1516160.24	808.60	EDGE OF DRIVEWAY
18	553938.26	1516166.21	808.28	EDGE OF DRIVEWAY
19	553932.01	1516162.95	808.00	TOP OF CURB
20	553960.63	1516153.98	808.48	TOP OF CURB
21	553955.86	1516155.47	808.40	FL OF CURB
22	553936.78	1516161.46	808.08	FL OF CURB
23	553931.78	1516162.24	807.75	FL OF CURB
24	553960.41	1516153.26	808.23	FL OF CURB
25	553959.82	1516151.36	808.27	GUTTER/MATCH EXIST.
26	553931.18	1516160.31	807.79	GUTTER/MATCH EXIST.
27	553908.20	1516202.44		RADIUS OF CURVE
28	553919.12	1516254.53		RADIUS OF CURVE
29	554019.38	1516245.38		RADIUS OF CURVE

NOTES:

1. FACILITY AND ROAD ELEVATIONS SHOWN REPRESENT TOP OF GRADE.
2. SEE GENERAL CIVIL CONSTRUCTION NOTES ON SHEET 1.
3. SEE GENERAL CIVIL DETAILS ON SHEET 8.

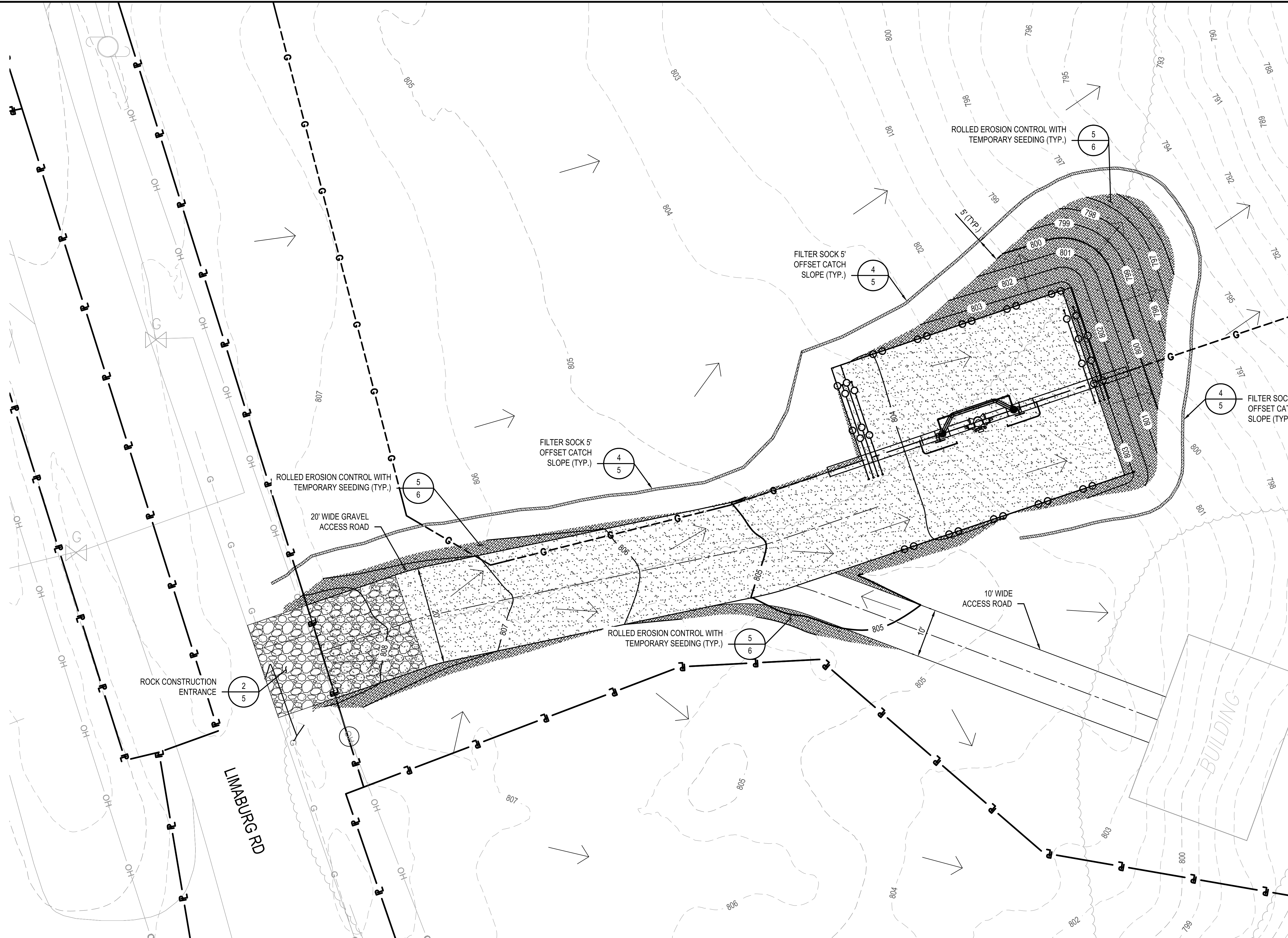
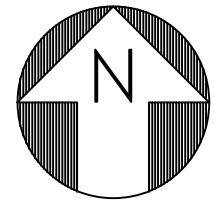


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 REF. DWG(S)

NO.	DATE	REVISION(S) DESCRIPTION	BY	CHK	APPD	DESCRIPTION	DATE	INITIALS	APPROVALS
0	02-19-2021	ISSUED FOR AS-BUILT	APW	DJH	JJS	AREA CODE	-	-	REGIONAL ENGINEER
						ACCOUNT NUMBER	-	-	MGR TECH REC & STD
						PROJECT NUMBER	V8351	-	PRINCIPAL ENGINEER
						DRAWING BY	APW	-	
						STATION ID	-	-	
						CHECKER INITIALS	DJH	04-17-2020	JJS

DUKE ENERGY | Piedmont Natural Gas
 COPYRIGHT 2019
MAINLINE VALVE GRADING PLAN
BOONE COUNTY, KY
 ERLANGER, KY

SHEET(S)	3 OF 8	DWG SCALE	1" = 10'
DWG DATE	04-17-2020	SUPERSEDED	
DRAWING NUMBER		REVISION	
PNG - C-043-0001043		0	
C:ERLANGER\JUL60			



TOTAL DISTURBANCE AREA = 0.152 ACRES
 AREA TO BE SEEDDED = 0.040 ACRES
 IMPERVIOUS AREA = 0.107 ACRES

0' 10' 20'
 HORIZONTAL SCALE: 1" = 10'

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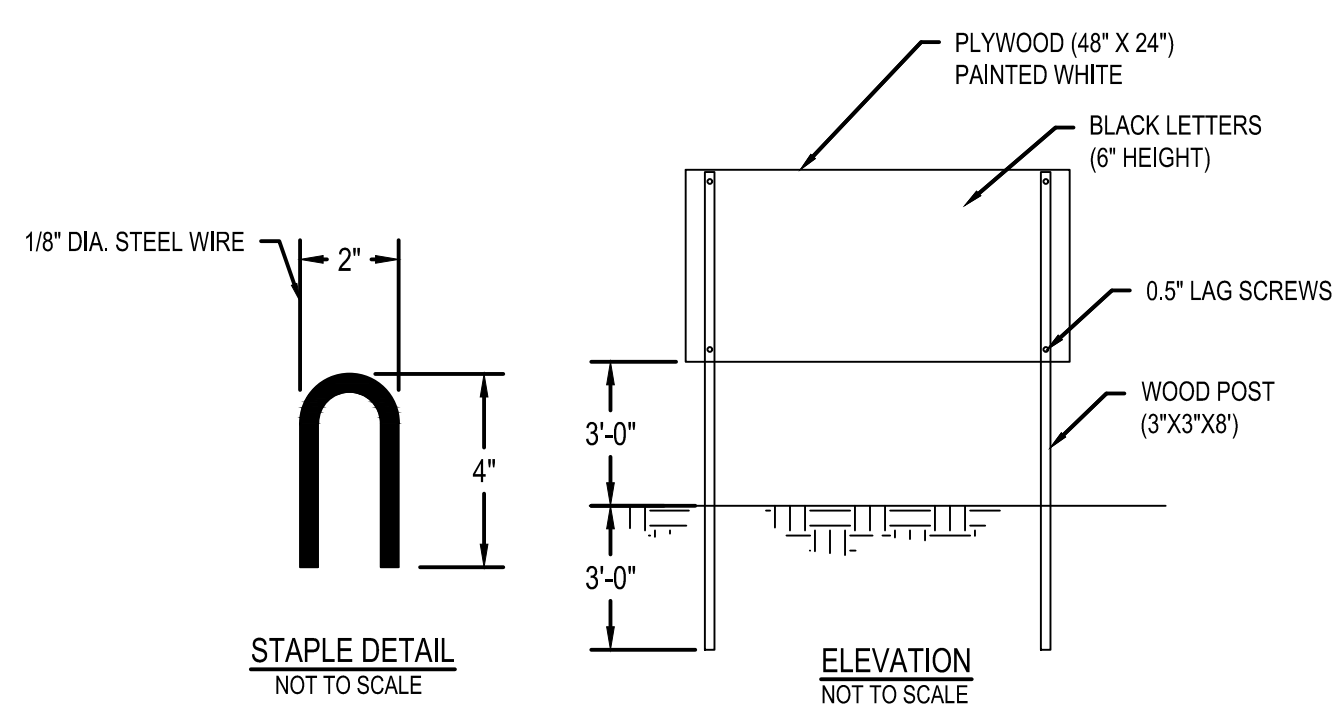
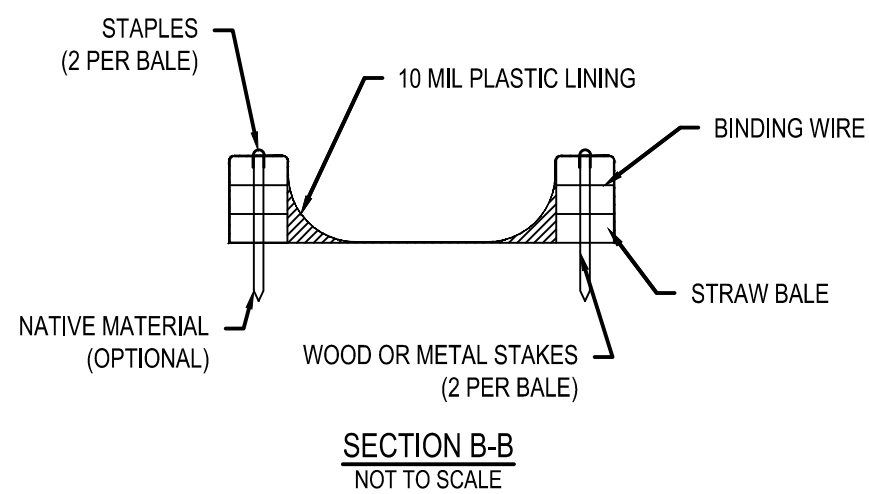
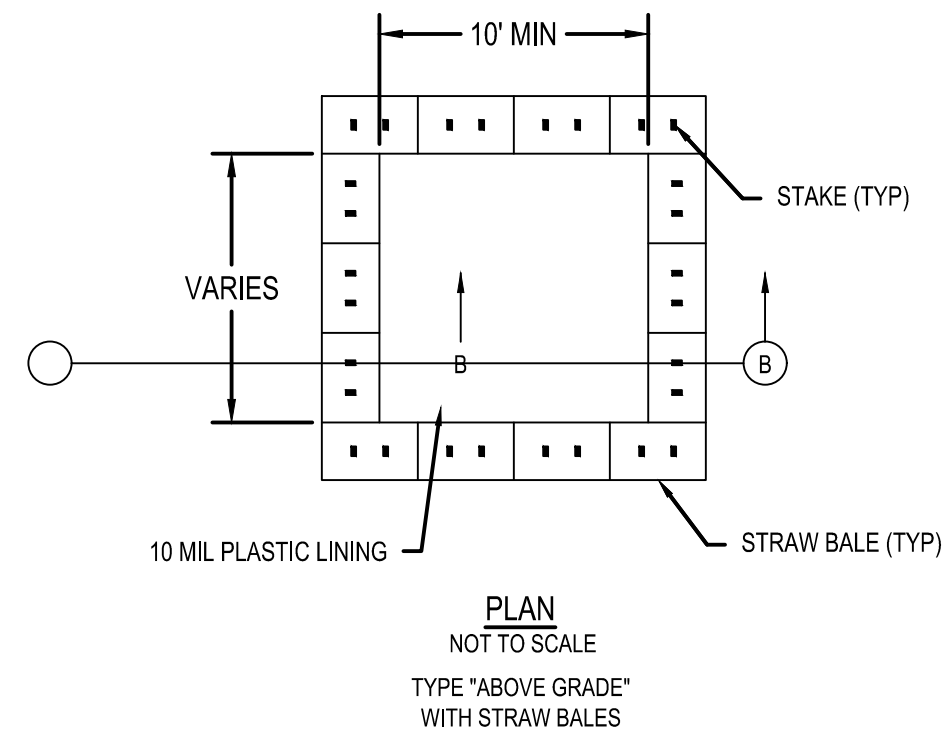
**MAINLINE VALVE
 EROSION & SEDIMENT CONTROL PLAN
 BOONE COUNTY, KY**
 ERLANGER, KY

SHEET(S)	4 OF 8	DWG SCALE	1" = 10'
DWG DATE	04-17-2020	SUPERSEDED	-
DRAWING NUMBER		REVISION	
PNG - C-043-0001044		0	
C:ERLANGER\JUL60			

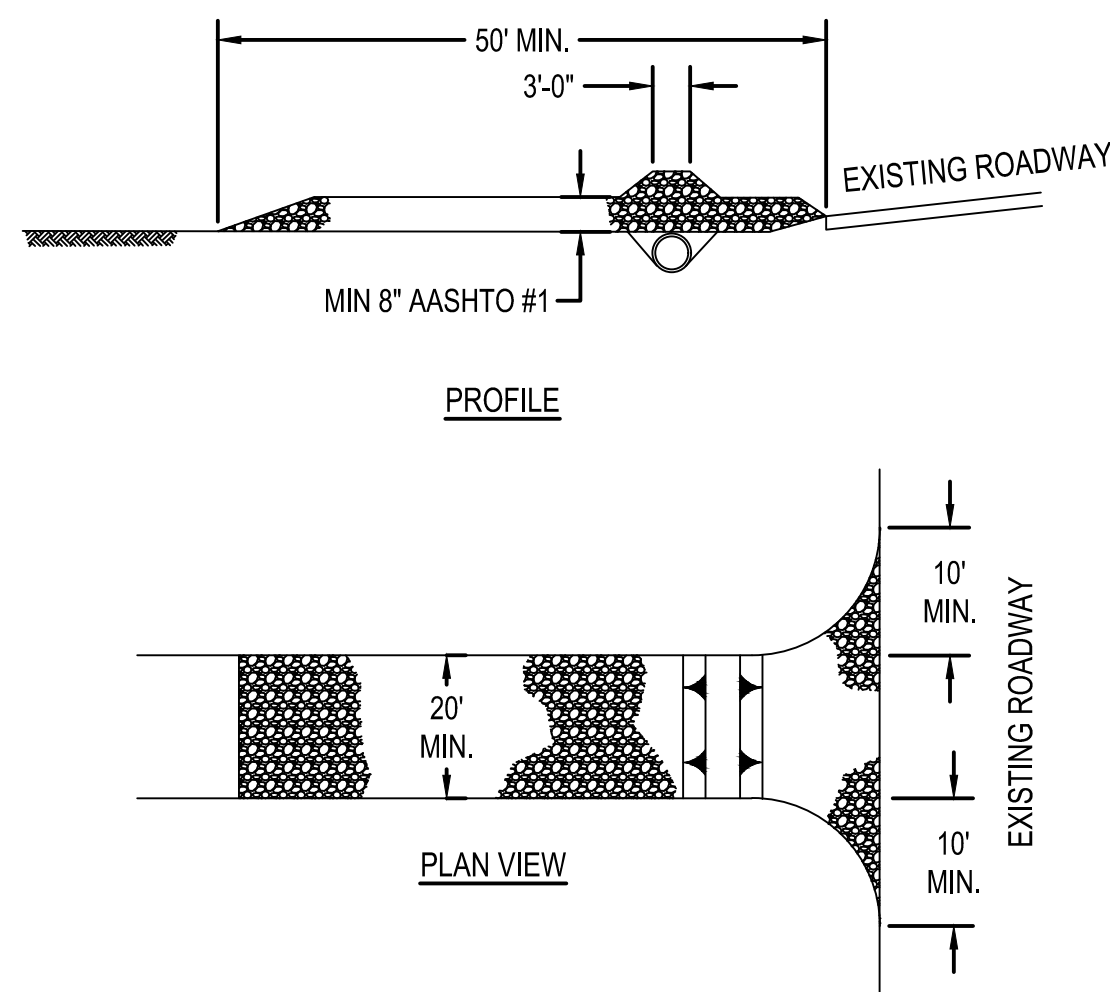
PROFESSIONAL ENG/ARCH STAMP

NOTES:

1. CONCRETE WASHOUT WATER SHALL NOT BE ALLOWED TO FLOW TO STREAMS, DITCHES, STORM DRAINS, OR ANY OTHER WASHOUT CONVEYANCE.
2. THE CONCRETE WASHOUT SIGN SHALL BE INSTALLED ADJACENT TO THE TEMPORARY CONCRETE WASHOUT FACILITY.
3. WASHOUT PIT MUST BE INSPECTED FREQUENTLY TO ENSURE LINER IS INTACT.
4. ONCE 75% OF ORIGINAL PIT VOLUME IS FILLED OR LINER IS TORN, MATERIAL MUST BE REMOVED AND PROPERLY DISPOSED OF ONCE HARDENED. LINER SHALL BE REPLACED IF TORN.



CONCRETE WASHOUT AREAS
SCALE: N.T.S.

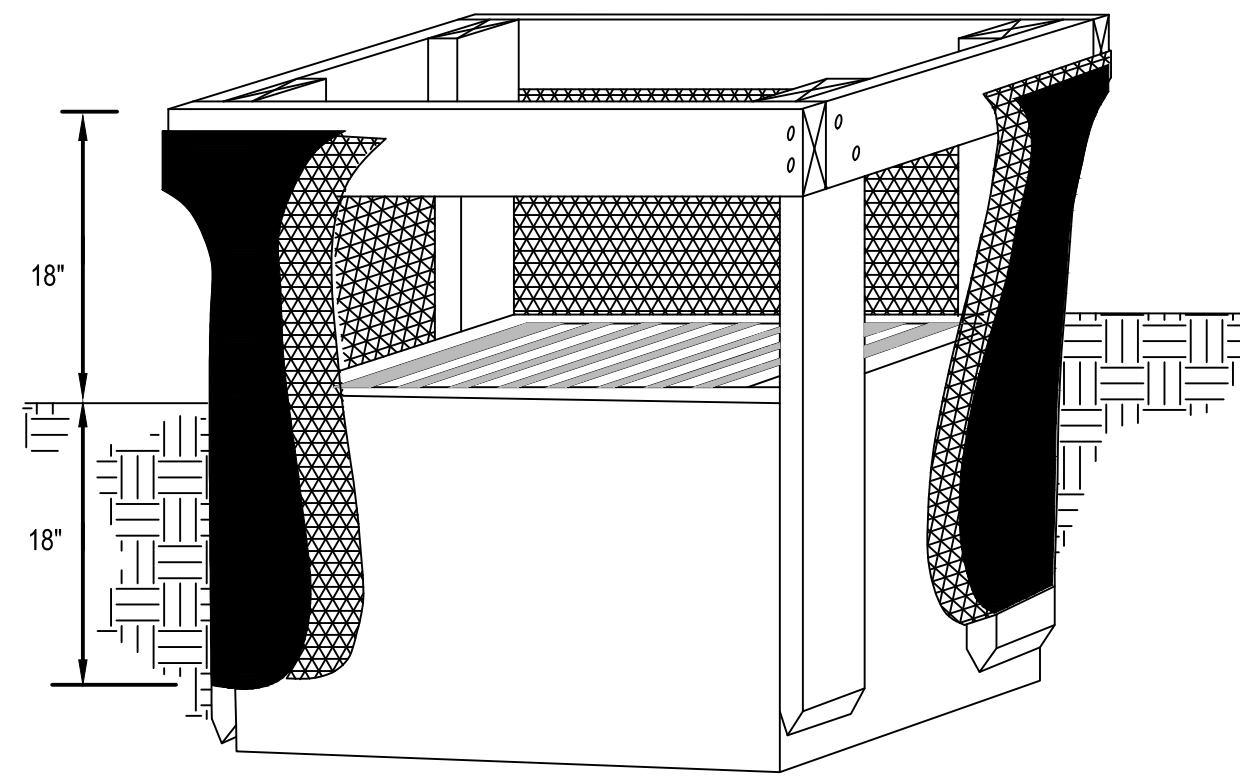


* MOUNTABLE BERM USED TO PROVIDE PROPER COVER FOR PIPE

NOTES:

1. REMOVE TOPSOIL PRIOR TO INSTALLATION OF ROCK CONSTRUCTION ENTRANCE. EXTEND ROCK OVER FULL WIDTH OF ENTRANCE.
2. RUNOFF SHALL BE DIVERTED FROM ROADWAY TO A SUITABLE SEDIMENT REMOVAL BMP PRIOR TO ENTERING ROCK CONSTRUCTION ENTRANCE.
3. MOUNTABLE BERM SHALL BE INSTALLED WHEREVER OPTIONAL CULVERT PIPE IS USED AND PROPER PIPE COVER AS SPECIFIED BY MANUFACTURER IS NOT OTHERWISE PROVIDED. PIPE SHALL BE SIZED APPROPRIATELY FOR SIZE OF DITCH BEING CROSSED.
4. MAINTENANCE: ROCK CONSTRUCTION ENTRANCE THICKNESS SHALL BE CONSTANTLY MAINTAINED TO THE SPECIFIED DIMENSIONS BY ADDING ROCK. A STOCKPILE SHALL BE MAINTAINED ON SITE FOR THIS PURPOSE. ALL SEDIMENT DEPOSITED ON PAVED ROADWAYS SHALL BE REMOVED AND RETURNED TO THE CONSTRUCTION SITE IMMEDIATELY. IF EXCESSIVE AMOUNTS OF SEDIMENT ARE BEING DEPOSITED ON ROADWAY, EXTEND LENGTH OF ROCK CONSTRUCTION ENTRANCE BY 50 FOOT INCREMENTS UNTIL CONDITION IS ALLEVIATED OR INSTALL WASH RACK. WASHING THE ROADWAY OR SWEEPING THE DEPOSITS INTO ROADWAY DITCHES, SEWERS, CULVERTS, OR OTHER DRAINAGE COURSES IS NOT ACCEPTABLE.

ROCK CONSTRUCTION ENTRANCE
SCALE: N.T.S.



INSTALLATION:

1. CONSTRUCT PRIOR TO UPSLOPE LAND DISTURBANCE.
2. CONSTRUCT WOODEN FRAME FROM 2\"/>

MAINTENANCE:

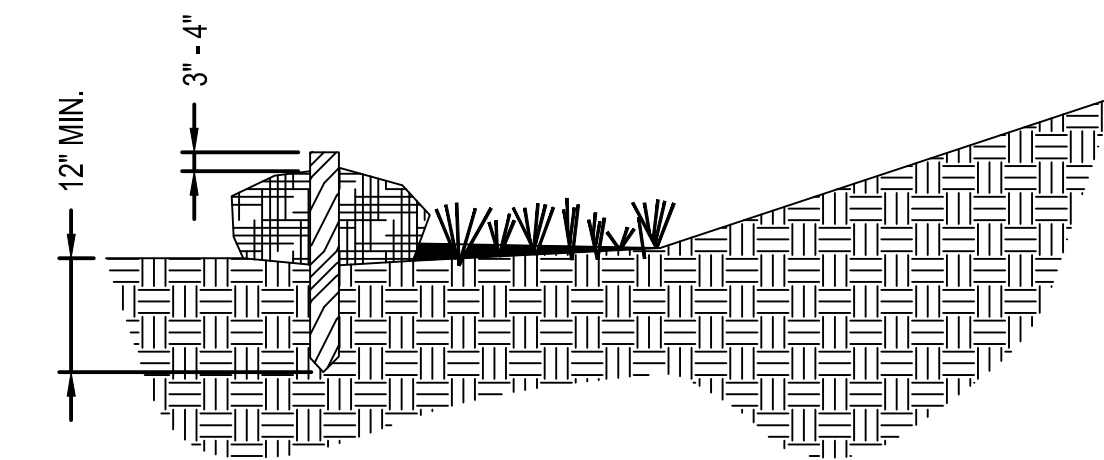
1. REMOVE ACCUMULATED SEDIMENT WHEN IT REACHES ONE-HALF THE HEIGHT OF THE PRACTICE. THE REMOVED SEDIMENT MUST BE STABILIZED AND SHOULD NOT BE PLACED WHERE IT COULD EVENTUALLY BE CONVEYED BACK TO THE INLET VIA SURFACE RUNOFF.
2. REPLACE AND PROPERLY DISPOSE OF DAMAGED SILT FENCE MATERIAL.
3. AREA WHERE SURFACE FLOW HAS CUT UNDER THE SILT FENCE MATERIAL WITHIN THE TRENCH SHALL BE RE-COMPACTED WITH APPROPRIATE MATERIAL (I.E. HIGH CLAY CONTENT)

REMOVAL:

1. PULL OUT ALL SILT FENCE MATERIAL AND STAKES AND PROPERLY DISPOSE OF OFF-SITE.
2. RE-GRADE AREA SEDIMENT HAS ACCUMULATED AS NECESSARY AND ESTABLISH VEGETATION ON ANY RESULTING DISTURBED AREAS.

ALTERNATIVE MANUFACTURED YARD DRAIN INLET PROTECTION PRODUCTS ARE AVAILABLE AND CAN BE USED, SUBJECT TO PRIOR APPROVED BY THE COMMUNITY ENGINEER.

DROP INLET PROTECTION
SCALE: N.T.S.



SLOPE	RATIO (H:V)	8"	12"	18"	24"
0% - 2%	10% - 20%	125	250	300	350
10% - 20%	50:1 - 10:1	100	125	200	250
2% - 10%	10:1 - 5:1	75	100	150	200
20% - 33%	5:1 - 2:1	50	75	75	100
>50%	>2:1	25	50	50	75

NOTES:

1. MATERIALS - COMPOST USED FOR FILTER SOCKS SHALL BE WEED, PATHOGEN AND INSECT FREE AND FREE OF ANY REFUSE, CONTAMINANTS OR OTHER MATERIALS TOXIC TO PLANT GROWTH. THEY SHALL BE DERIVED FROM A WELL-DECOMPOSED SOURCE OF ORGANIC MATTER AND CONSIST OF A PARTICLES RANGING FROM 3/8" TO 2".
2. FILTER SOCKS SHALL BE 3 OR 5 MIL CONTINUOUS, TUBULAR, HDPE 3/8" KNITTED MESH NETTING MATERIAL, FILLED WITH COMPOST PASSING THE ABOVE SPECIFICATIONS FOR COMPOST PRODUCTS.

INSTALLATION:

1. FILTER SOCKS WILL BE PLACED ON A LEVEL LINE ACROSS SLOPES, GENERALLY PARALLEL TO THE BASE OF THE SLOPE OR OTHER AFFECTED AREA. ON SLOPES APPROACHING 2:1, ADDITIONAL SOCKS SHALL BE PROVIDED AT THE TOP AND AS NEEDED MID-SLOPE.
2. FILTER SOCKS INTENDED TO BE LEFT AS A PERMANENT FILTER OR PART OF THE NATURAL LANDSCAPE, SHALL BE SEEDED AT THE TIME OF INSTALLATION FOR ESTABLISHMENT OF PERMANENT VEGETATION.
3. FILTER SOCKS ARE NOT TO BE USED IN CONCENTRATED FLOW SITUATIONS OR IN RUNOFF CHANNELS.

MAINTENANCE:

1. ROUTINELY INSPECT FILTER SOCKS AFTER EACH SIGNIFICANT RAIN, MAINTAINING FILTER SOCKS IN A FUNCTIONAL CONDITION AT ALL TIMES.
2. REMOVE SEDIMENTS COLLECTED AT THE BASE OF THE FILTER SOCKS WHEN THEY REACH 1/3 OF THE EXPOSED HEIGHT OF THE PRACTICE.
3. WHERE THE FILTER SOCK DETERIORATES OR FAILS, IT WILL BE REPAIRED OR REPLACED WITH A MORE EFFECTIVE ALTERNATIVE.
4. REMOVAL - FILTER SOCKS WILL BE DISPERSED ON SITE WHEN NO LONGER REQUIRED IN SUCH AS WAY AS TO FACILITATE AND NOT OBSTRUCT SEEDINGS.

FILTER SOCK
SCALE: N.T.S.

BURNS & MDONNELL
STATE LICENSE #43

JOHN J. SIRHALL
02/11/2020
KENTUCKY
SEAL 35301

PROFESSIONAL ENGINEER ARCHITECT

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						PROJECT NUMBER	V8351	-	PRINCIPAL ENGINEER
						DRAWING BY	DJH	-	
						STATION ID	UL60	-	
						CHECKER INITIALS	DJH	02/12/2020	JJS

DUKE ENERGY | Piedmont Natural Gas

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UL60 PIPELINE
EROSION & SEDIMENT CONTROL DETAILS #1
BOONE COUNTY, KY
ERLANGER, KY

REF. DWG(S)	SHEET(S) 5 OF 8	DWG SCALE AS NOTED
DWG DATE 02/12/2020	SUPERSEDED	
DRAWING NUMBER	REVISION	
PNG - C-043-0001191	0	
ERLANGER/UL60		

ROLLED EROSION CONTROL PRODUCTS (RECP)

GUIDELINES FOR TEMPORARY SEEDING:

- DISTURBED AREAS MUST BE TEMPORARY STABILIZED AS SPECIFIED IN THE FOLLOWING TABLE

AREAS REQUIRING TEMPORARY STABILIZATION:	TIME FRAME TO APPLY EROSION CONTROLS:
ANY DISTURBED AREA WITHIN FIFTY (50) FEET OF A STREAM NOT AT FINAL GRADE.	WITHIN TWO (2) DAYS OF THE MOST RECENT DISTURBANCE IF THAT AREA WILL REMAIN IDLE FOR MORE THAN FOURTEEN (14) DAYS.
FOR ALL CONSTRUCTION ACTIVITIES, ANY DISTURBED AREA, INCLUDING SOIL STOCKPILES THAT WILL BE DORMANT FOR MORE THAN FOURTEEN (14) DAYS BUT LESS THAN ONE YEAR, AND NOT WITHIN FIFTY (50) FEET OF A STREAM.	WITHIN SEVEN (7) DAYS OF THE MOST RECENT DISTURBANCE WITHIN THE AREA.
DISTURBED AREAS THAT WILL BE IDLE OVER WINTER.	PRIOR TO NOVEMBER 1ST.
NOTE: WHERE VEGETATIVE STABILIZATION TECHNIQUES MAY CAUSE STRUCTURAL INSTABILITY OR ARE OTHERWISE UNOBTAINABLE, ALTERNATIVE STABILIZATION TECHNIQUES MUST BE EMPLOYED. THESE TECHNIQUES MAY INCLUDE MULCHING OR EROSION MATTING.	

- THE SEEDBED SHOULD BE LOOSE TO ENSURE THE SUCCESS OF ESTABLISHING VEGETATION. HOWEVER, TEMPORARY SEEDING SHALL NOT BE POSTPONED IF IDEAL SEEDBED PREPARATION IS NOT POSSIBLE.
- ESTABLISHMENT OF TEMPORARY VEGETATION MAY REQUIRE THE USE OF SOIL AMENDMENTS. SOIL TEST SHOULD BE TAKEN ON THE SITE TO PREDICT THE NEED FOR LIME AND FERTILIZER.
- WHEN FEASIBLE, SEED THAT HAS BEEN BROADCAST SHALL BE COVERED BY RAKING OR DRAGGING AND THEN LIGHTLY TAMPED INTO PLACE USING A ROLLER OR CULTIPACKER.
- SEEDED AREAS SHALL BE INSPECTED FOR FAILURE AND VEGETATION RE-ESTABLISHED AS NEEDED. DEPENDING ON SITE CONDITIONS, IT MAY BE NECESSARY TO IRRIGATE, FERTILIZE, OVERSEED, OR RE-ESTABLISHED PLANTINGS IN ORDER TO PROVIDE PERMANENT VEGETATION FOR ADEQUATE EROSION CONTROL.

SUGGESTED RATES FOR TEMPORARY SEEDINGS (OTHER APPROVED SPECIES MAY BE SUBSTITUTED):

SEEDING DATES	SEED MIX	SEEDING RATE	
		PER ACRE	LBS./1000FT ²
MARCH 1 TO AUGUST 15	OATS	4 BUSHEL	3
	TALL FESCUE	40LBS	1
	ANNUAL RYEGRASS	40LBS	1
AUGUST 16 TO NOVEMBER 1	OATS	2 BUSHEL	3
	TALL FESCUE	40 LBS	1
	ANNUAL RYEGRASS	40 LBS	1
NOVEMBER 1 TO SPRING SEEDING	USE MULCH ONLY, SODDING PRACTICES, OR DORMANT SEEDING		

GUIDELINES FOR MULCHING:

- MULCHING SHALL BE APPLIED AFTER SEEDBEDS HAVE BEEN PREPARED AND SEED HAS BEEN APPLIED. IT CAN ALSO BE USED AS A STAND-ALONE PRACTICE TO PROVIDE A TEMPORARY COVER OVER IDLE BARE AREAS.
- STRAW MULCH SHALL BE UNROTTED AND APPLIED UNIFORMLY AT 2 TONS/AC OR 90-LBS/1000FT² (2-3 BALES).
- WOOD CHIPS SHALL BE APPLIED UNIFORMLY AT A RATE OF 10-20 TONS/AC.
- STRAW MULCH SHALL BE ANCHORED IMMEDIATELY TO MINIMIZE LOSS BY WIND OR RUNOFF. ACCEPTABLE MEANS OF ANCHORING INCLUDE DISKING, CRIMPING, NETTING, SYNTHETIC BINDERS, AND WOOD CELLULOSE FIBER.
- MULCH SHALL BE RE-APPLIED IN AREAS WHERE IT HAS BEEN DISPLACED BY SURFACE FLOW AND/OR WIND.

INSTALLATION:

- THE INSTRUCTIONS AND DIAGRAMS BELOW PROVIDED A GENERAL IDEA OF HOW TO INSTALL A VARIETY OF ROLLED EROSION CONTROL PRODUCTS. HOWEVER, THE MANUFACTURER'S SPECIFICATIONS FOR THE PRODUCT OF CHOICE SHOULD BE FOLLOWED.
- THE SELECTED MATERIAL SHALL BE APPROPRIATE FOR SITE CONDITIONS AND BE ABLE TO WITHSTAND SHEAR STRESSES CAUSED BY RUNOFF FROM A 10-YEAR, 24-HOUR STORM EVENT.
- MATting SHALL BE HELD IN PLACE AS RECOMMENDED BY THE MANUFACTURER (I.E. STAPLES) AND AS APPROPRIATE FOR THE SITE CONDITIONS. GENERALLY, EVERY SQUARE YARD OF MATERIAL SHOULD HAVE 1-2.5 ANCHORS, DEPENDANT ON SLOPE.
- APPLY APPROPRIATE SEED MIXTURE TO THE PREPARED SEED BED PRIOR TO INSTALLING RECPs.

FOR SLOPE INSTALLATION:

- EXCAVATE TOP AND BOTTOM TRENCHES. TOP TRENCH SHOULD BE AT LEAST 2-FT OVER CREST OF THE SLOPE. IF NECESSARY, EXCAVATE INTERMITTENT EROSION CHECK SLOTS AT A MAXIMUM OF 30-FT CENTERS OR THE MID POINT OF THE SLOPE.
- INSTALL RECP IN TOP TRENCH AND THEN ANY EROSION CHECK SLOTS, STAPLE ON 12-INCH CENTERS, BACKFILL THE TRENCH AND COMPACT THE SOIL.
- UNROLL RECP DOWN THE SLOPE WITH A MINIMUM 3-INCH OVERLAP WITH ADJACENT ROLLS. ALLOW THE RECP TO REMAIN LOOSE (DO NOT PULL TAUGHT) AND STAPLE THE SIDE SEAMS EVERY 24-INCHES.
- OVERLAP ROLL ENDS A MINIMUM OF 12-INCHES (UPSLOPES RECP ON TOP). BEGIN ALL NEW ROLLS IN AN EROSION CHECK SLOT, DOUBLE ANCHOR EVERY 12-INCHES, BACKFILL THE TRENCH, AND COMPACT THE SOIL.
- INSTALL RECP IN TOP TRENCH, STAPLE ON 12-INCH CENTERS, BACKFILL THE TRENCH AND COMPACT THE SOIL.

FOR CHANNEL INSTALLATION

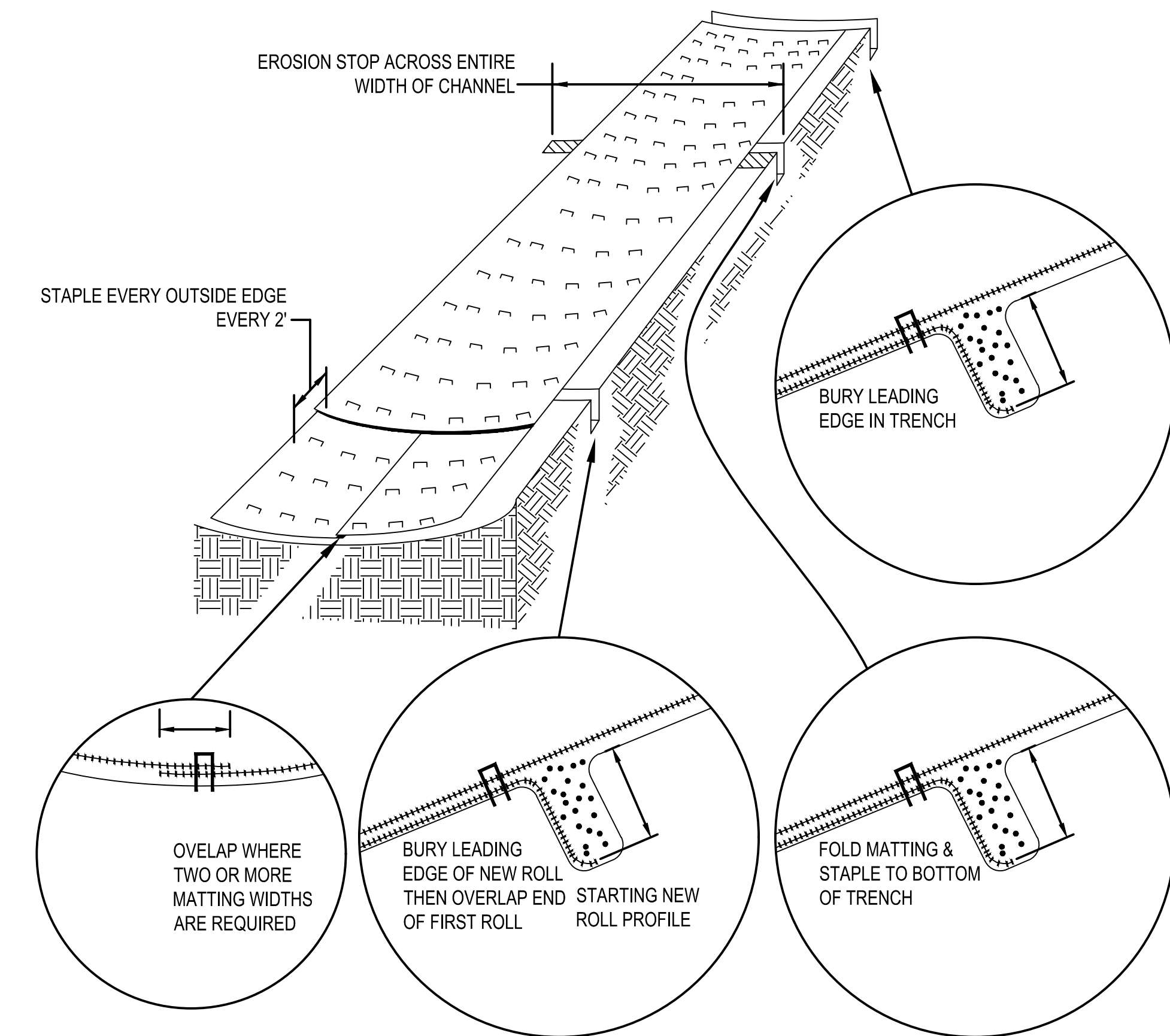
- EXCAVATE INITIAL TRENCH ACROSS THE LOWER END OF THE PROJECT AREA.
- EXCAVATE INTERMITTENT EROSION CHECK SLOTS AT A MAXIMUM OF 30-FT CENTERS UP THE CHANNEL SLOPE.
- EXCAVATE LONGITUDINAL CHANNEL SLOTS ALONG BOTH SIDES OF THE CHANNEL, EXTENDING THE RECP OVER THE CREST OF BOTH OF THE CHANNELS' SIDE SLOPES (WHEN POSSIBLE).
- INSTALL RECP IN INITIAL TRENCH, STAPLE ON 12-INCH CENTERS, BACKFILL THE TRENCH, AND COMPACT THE SOIL.
- ROLL OUT RECP BEGINNING IN THE CENTER OF THE CHANNEL TOWARD AN INTERMITTENT EROSION CHECK SLOT. DO NOT PULL TAUGHT. UNROLL ADJACENT ROLLS UPSTREAM WITH A 3-FOOT MINIMUM OVERLAP (ANCHOR EVERY 24-INCHES) AND UP EACH CHANNEL SIDE SLOPE.
- AT THE TOP OF CHANNEL SIDE SLOPES INSTALL OUTERMOST RECP IN THE LOGITUDINAL ANCHOR SLOTS, ANCHORING EVER 24-INCHES.
- INSTALL RECP IN INTERMITTENT EROSION CHECK SLOTS, STAPLE ON 12-INCH CENTERS, BACKFILL THE TRENCH, AND COMPACT THE SOIL.
- OVERLAP ROLL ENDS A MINIMUM OF 12-INCHES (UPSLOPE RECP ON TOP). BEGIN ALL NEW ROLLS IN AN EROSION CHECK SLOT, DOUBLE ANCHOR EVERY 12-INCHES, BACKFILL THE TRENCH, AND COMPACT THE SOIL.
- INSTALL RECP IN TOP TERMINAL TRENCH, STAPLE ON 12-INCH CENTERS, BACKFILL THE TRENCH AND COMPACT THE SOIL.
- THE SWALE SHALL BE SHAPED, GRADED AND PREPARED IN SUCH A MANNER TO MAXIMIZE MATTING-TO-SOIL CONTACT AND AVOID "BRIDGING" OR "TENTING" OVER OBSTRUCTIONS.

MAINTENANCE:

- TYPICAL FAILURES WITH MATTING INCLUDE EROSION ALONGSIDE AND PARALLEL TO THE MATTING, SCOURING OF THE CHANNEL BOTTOM BELOW THE MATTING, POOR SEED GERMINATION BENEATH, AND TORN OR PULLED-UP MATTING CAUSED BY EXCESSIVE SHEAR STRESSES AND/OR POOR INSTALLATION.
- ENSURE MANUFACTURES INSTALLATION RECOMMENDATIONS AND PLAN REQUIREMENTS WERE FOLLOWED.
- ENSURE GOOD CONTACT BETWEEN SOIL AND THE PRODUCT. IF EROSION IS NOTED UNDER THE PRODUCT, PROPERLY REPAIR THE ERODED AREA AND RE-INSTALL PRODUCT.
- ENSURE STAPLING GUIDELINES WERE FOLLOWED. INSTALL ADDITIONAL STAPLES AS NECESSARY.
- ENSURE THAT EROSION STOPS WERE INSTALLED AS REQUIRED. REPAIR AS NECESSARY.
- IN CHANNELS, ENSURE THE WIDTH OF PRODUCT USED IS SUFFICIENT. INSTALL PRODUCT UP SIDE SLOPES OF DITCH LINE AS WELL AS ACROSS THE BOTTOM. IF FLOWS CAUSE EROSION AT THE EDGE OF THE PRODUCT, INCREASE THE INSTALLATION WIDTH OF THE PRODUCT AS NECESSARY.
- REPLACE ANY DAMAGED PRODUCT PER REQUIRED SPECIFICATIONS. DAMAGED PRODUCT SHALL BE PROPERLY DISPOSED OF OFF-SITE.

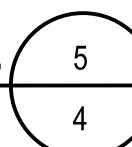
REMOVAL:

- EROSION CONTROL MATTING IS INTENDED TO REMAIN IN PLACE AFTER INSTALLATION AND THEREFORE SHOULD NOT BE REMOVED. IF METAL STAPLES WERE USED TO ANCHOR THE MATTING, BE AWARE THAT THEY MAY WORK THEMSELVES OUT OF THE GROUND OVER TIME. IF THE AREA WHERE MATTING WAS USED IS ACCESSIBLE TO FOOT TRAFFIC OR WILL BE MOWED, IT IS ADVISABLE TO REMOVE THE STAPLES AFTER THE VEGETATION BENEATH THE MATTING HAS BECOME FULLY ESTABLISHED. THE STAPLES CAN BE LOCATED USING A METAL DETECTOR.



TEMPORARY ROLLED EROSION CONTROL

SCALE: N.T.S.



BURNS & MDONNELL STATE LICENSE #43 JOHN J. SIRHALL 02/11/2020 KENTUCKY SEAL 35301 PROFESSIONAL ENGINEER ARCHITECT STAMP	PROPRIETARY & CONFIDENTIAL ALL RIGHTS RESERVED * DO NOT SCALE THIS DRAWING * USE DIMENSIONS ONLY PIEDMONT'S NATURAL GAS FACILITY DRAWINGS ARE CONSIDERED CONFIDENTIAL (OM-1095) * DRAWING IS CURRENT ONLY THROUGH THE LATEST REVISED DATE * TO ENSURE THERE IS NO RISK OF INAPPROPRIATE DISCLOSURE ALL PREVIOUS PAPER COPIES OF THIS DRAWING MUST BE DESTROYED IN ACCORDANCE WITH RECORDS & INFO. MANAGEMENT (RIM) POLICY 1001	REF. DWG(S) SHEET(S) 6 OF 8 DWG SCALE AS NOTED DWG DATE 02/12/2020 SUPERSEDED DRAWING NUMBER PNG - C-043-0001192 REVISION 0 CIERLANGER/UL60																																																															
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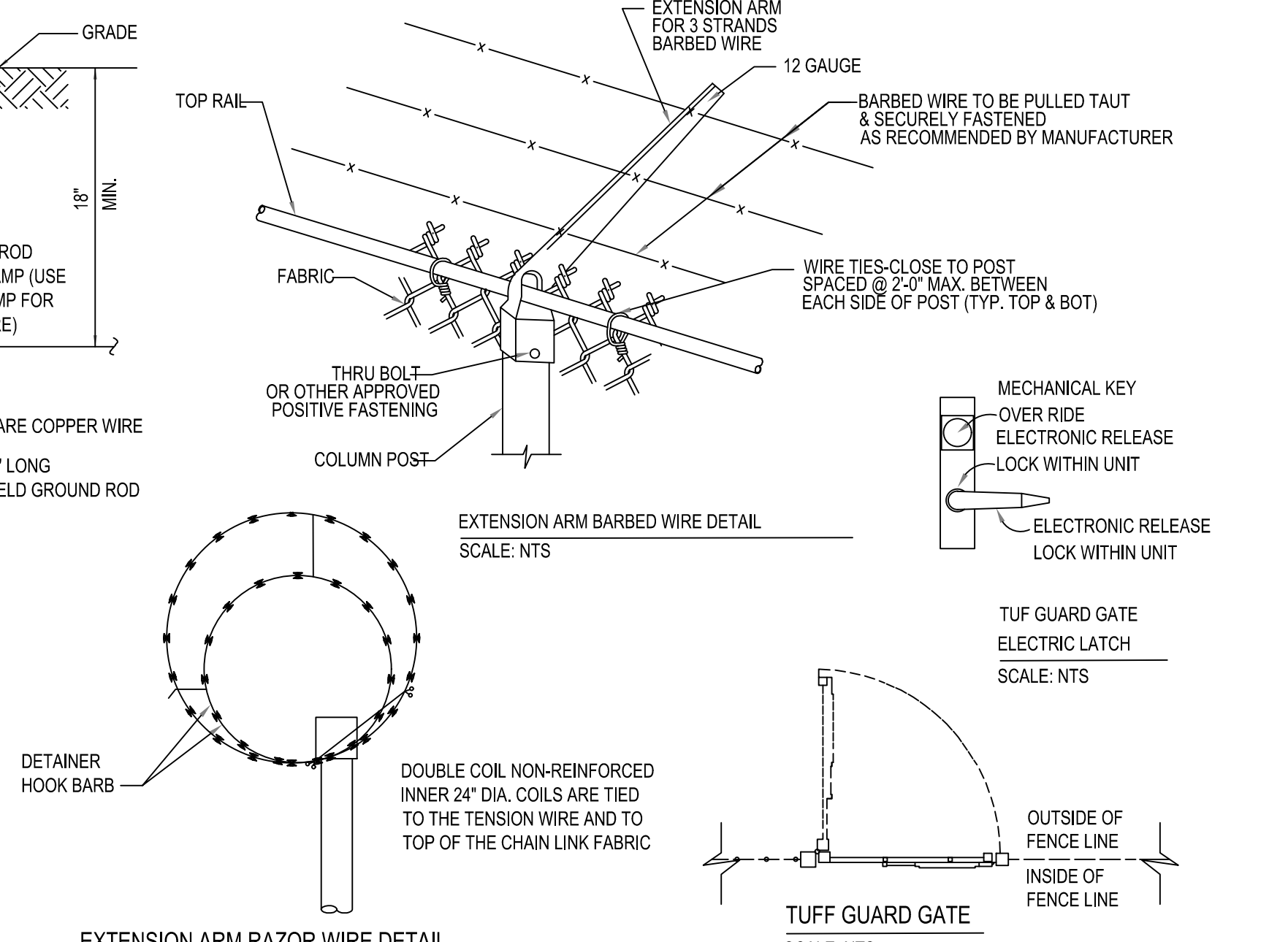
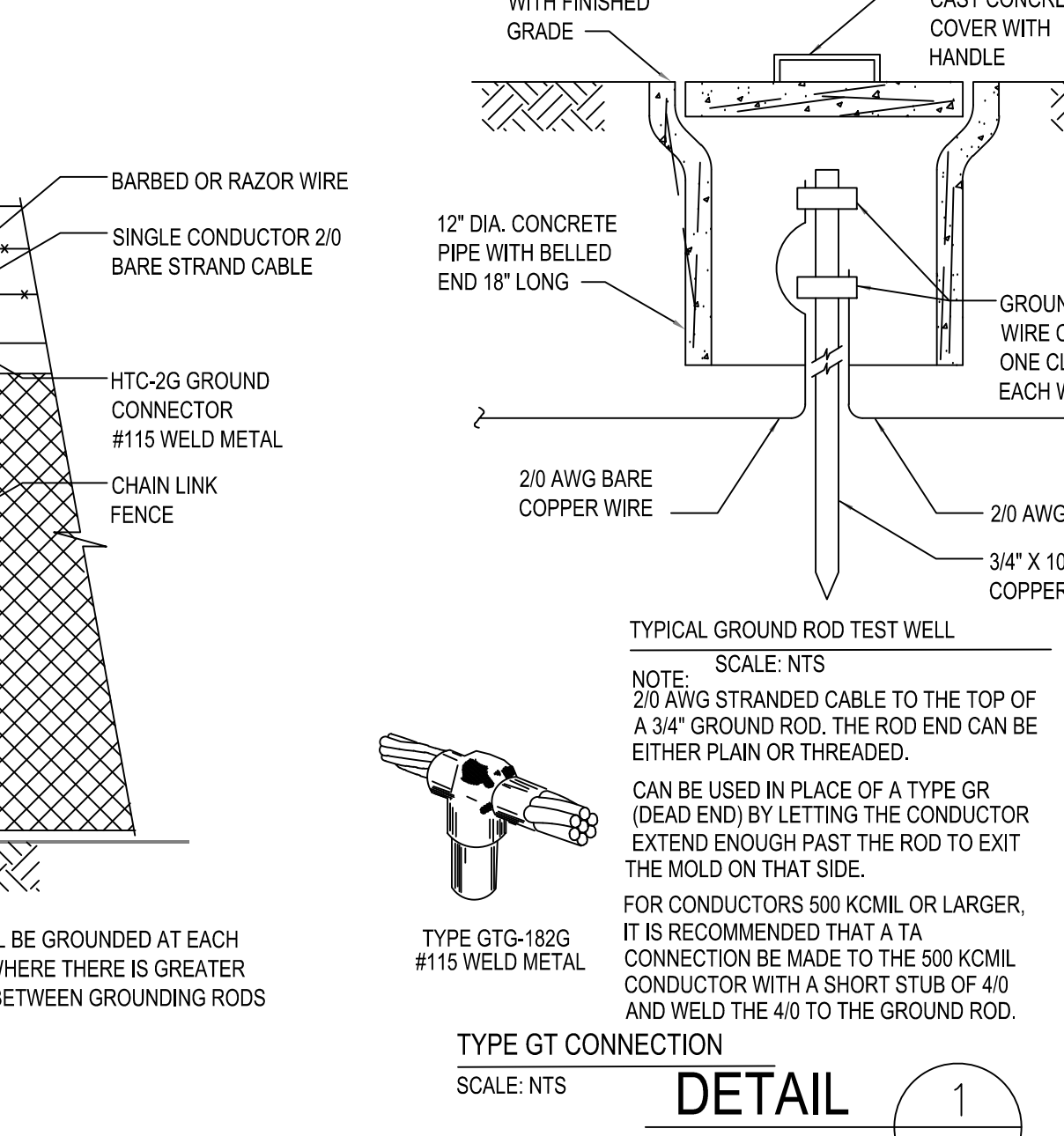
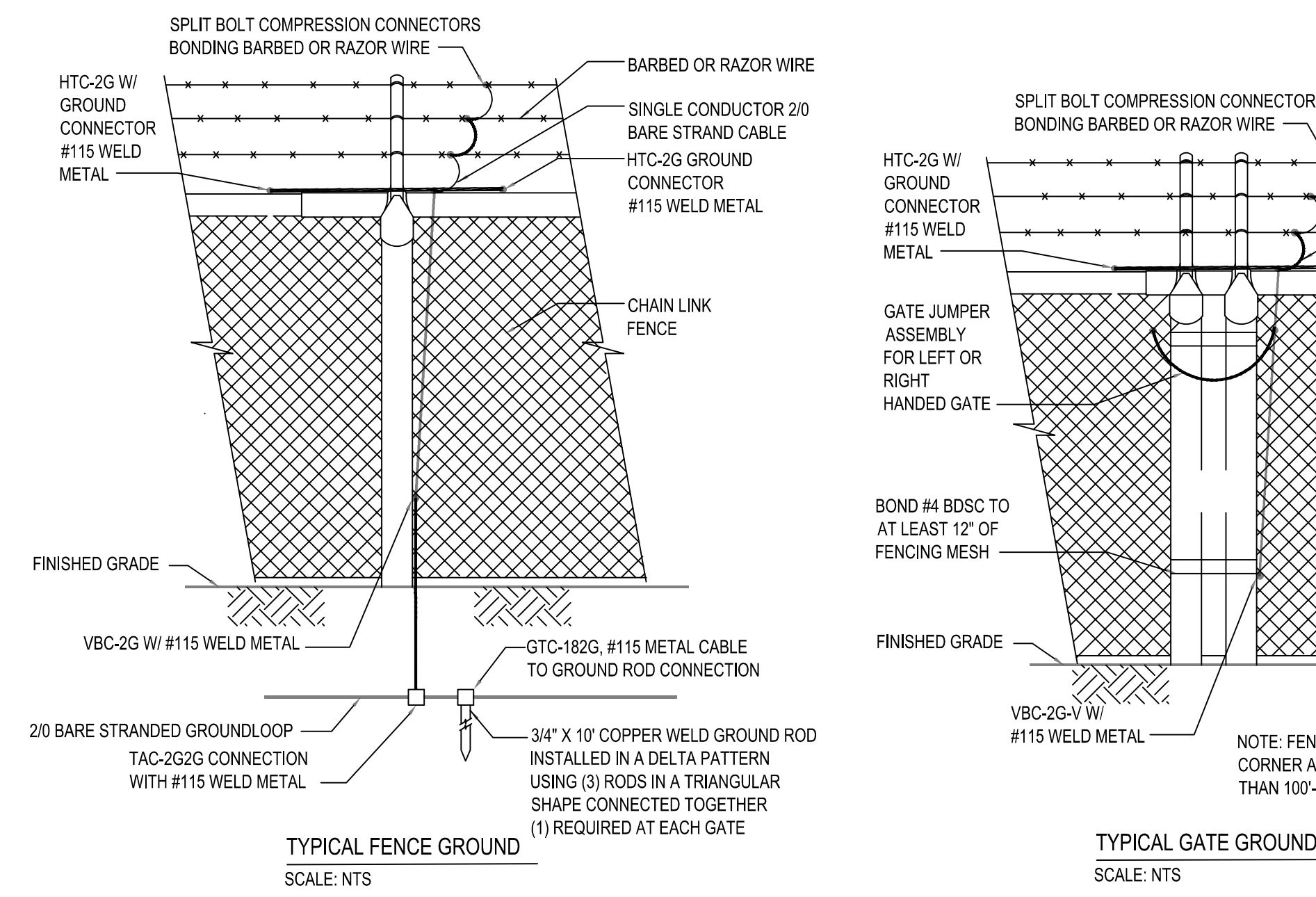
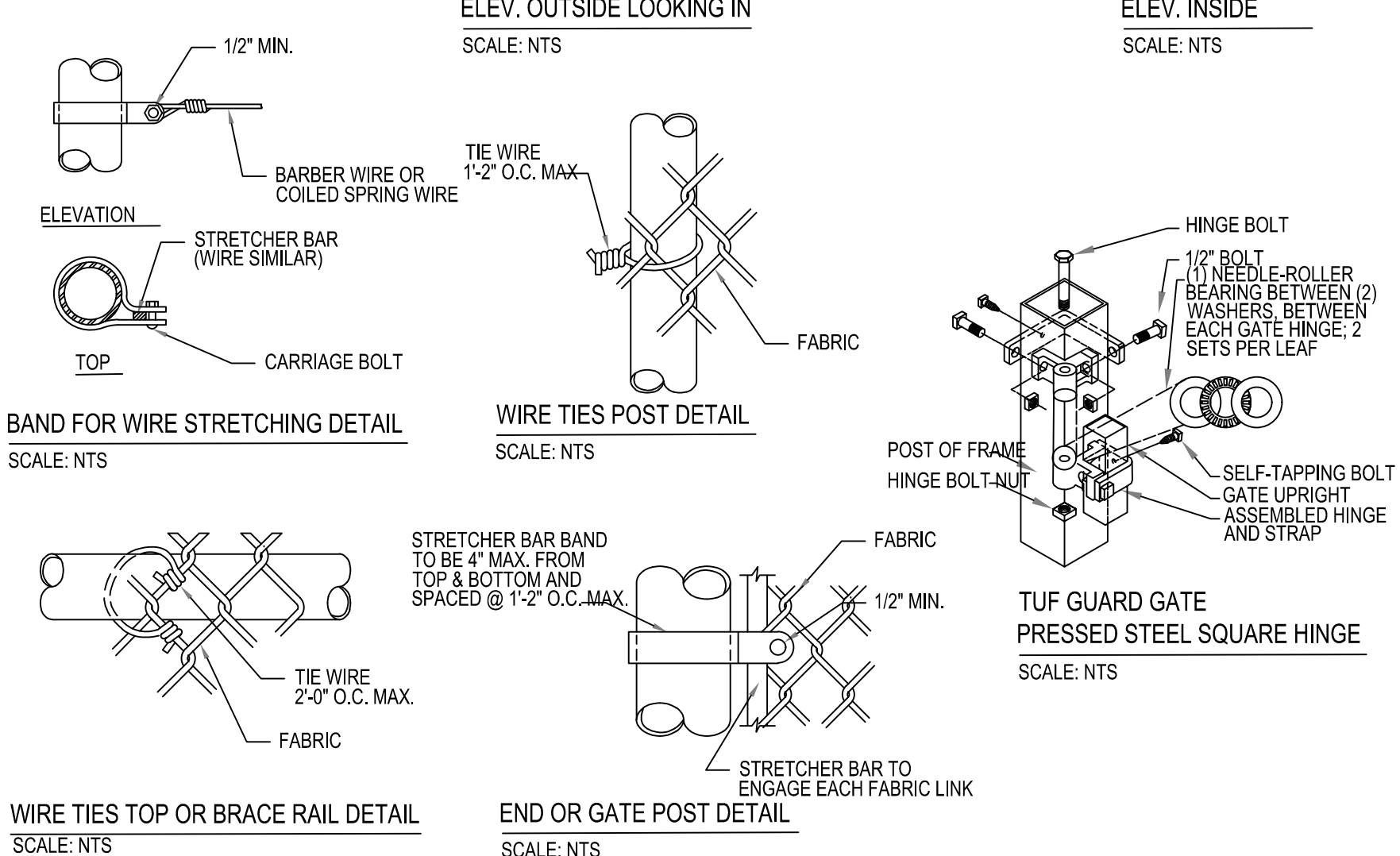
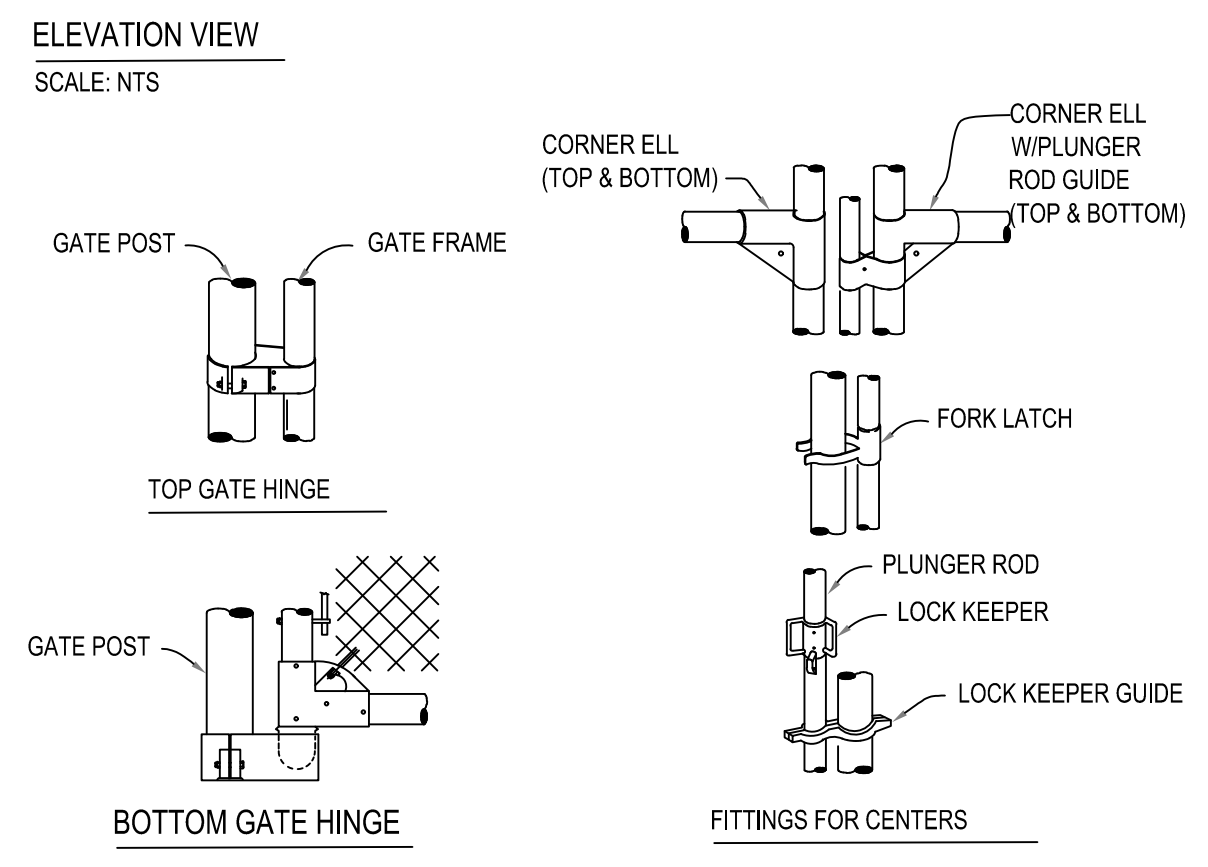
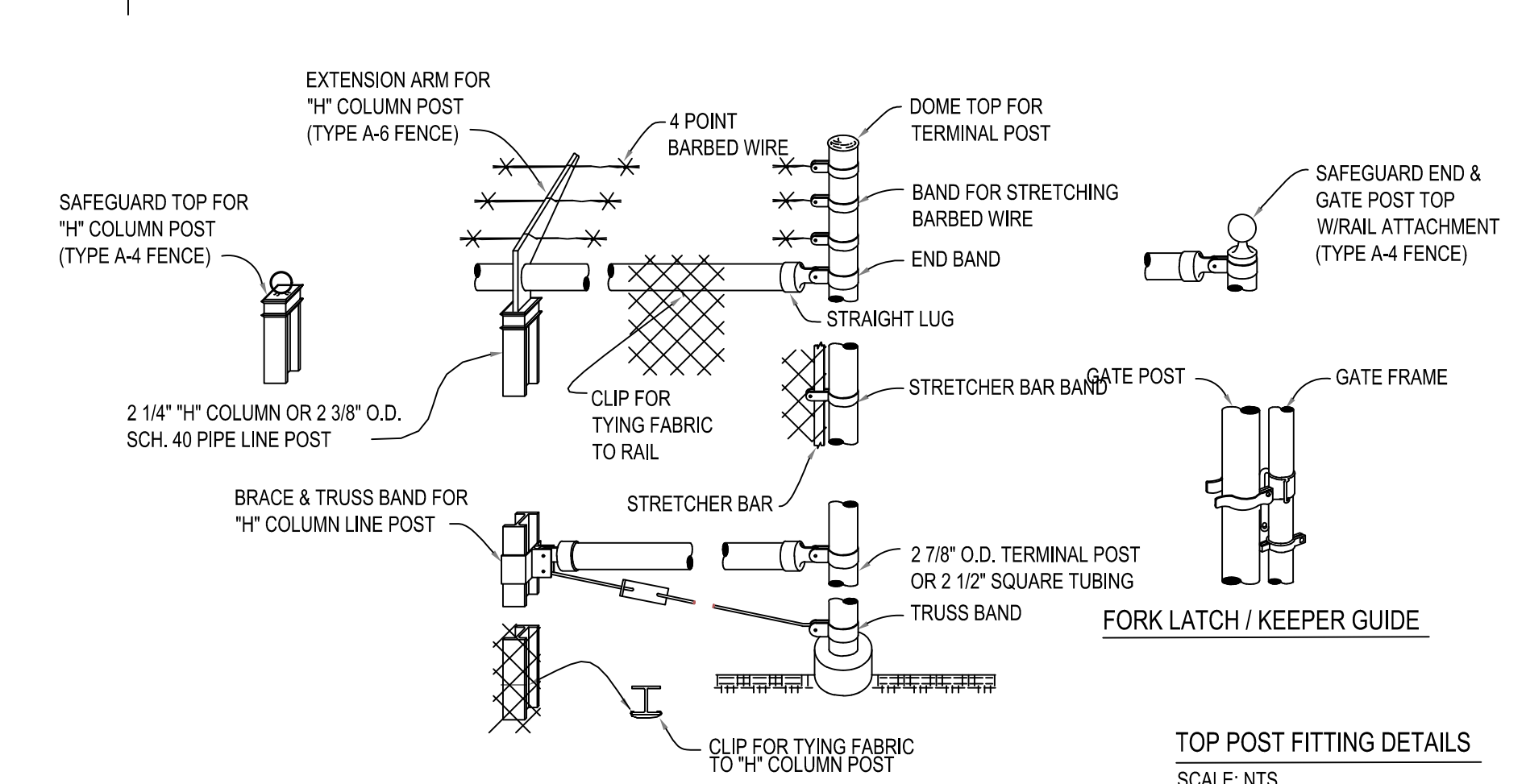
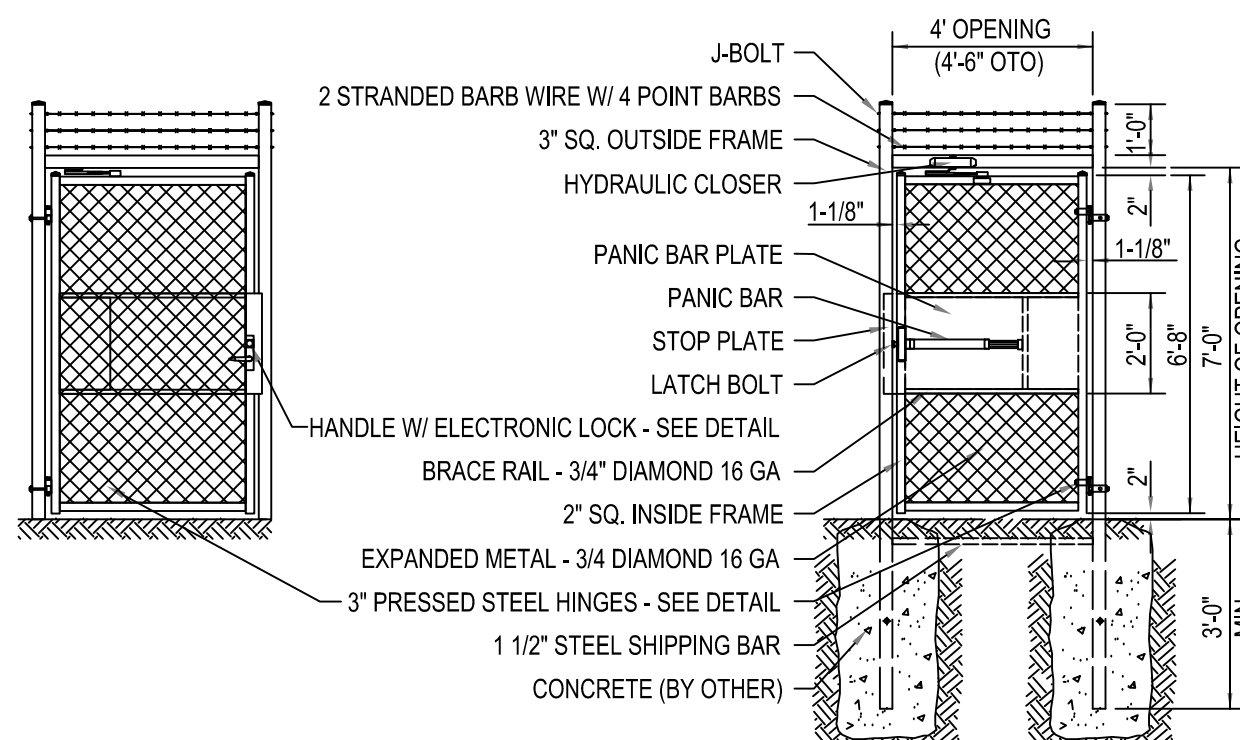
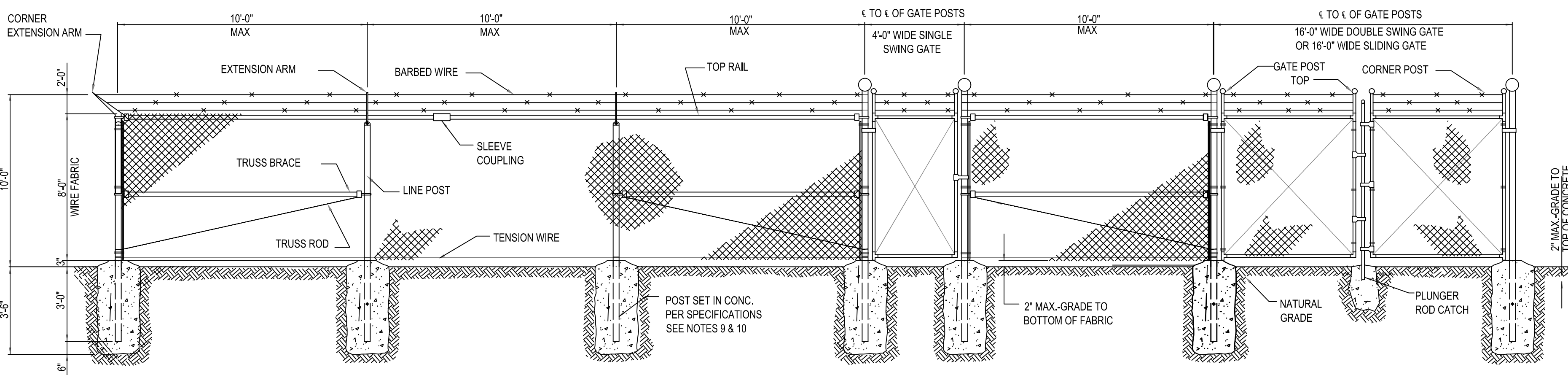
UL60 PIPELINE

EROSION & SEDIMENT CONTROL DETAILS #2

BOONE COUNTY, KY

ERLANGER, KY

NOTE: SEE PLAN DRAWING FOR SPECIFIC DIMENSIONS, LOCATION, SIZE OF AREA AND GATE LOCATIONS



- INSTALLATION OF FENCE ADDITION SHALL BE PLUMB AND TRUE TO LINE, CHAIN LINK FABRIC SHALL BE TAUT AND PROPERLY SECURED. CORNER BRACES AND DIAGONAL BRACES SHALL BE PROPERLY PLACED TO PREVENT SAGGING. THE COMPLETE INSTALLATION SHALL BE INSTALLED BY SKILLED AND EXPERIENCED FENCE ERECTORS, IN A WORKMANLIKE MANNER, IN ACCORDANCE WITH GOOD CONSTRUCTION PRACTICE AND IN ACCORDANCE WITH ALL LOCAL APPLICABLE CODES.
- MATERIAL SHALL BE HOT-DIP GALVANIZED FENCE CHAIN LINK FABRIC - THE CHAIN LINK FABRIC SHALL BE IN ACCORDANCE WITH ASTM A-392 SPECIFICATIONS AND SHALL BE HOT DIPPED GALVANIZED AFTER WEAVING, HAVING A COATING WEIGHT OF 2 OUNCES OF ZINC PER SQUARE FOOT, MINIMUM, OF UNCOATED WIRE SURFACE (CLASS II). FABRIC SHALL BE NO. 9 GAUGE WIRE WOVEN IN A 2-INCH CHAIN LINK DIAMOND MESH. THE FABRIC SHALL BE FASTENED TO THE LINE POST BY MEANS OF NO. 6 GAUGE ALUMINUM WIRE CLIPS SPACED 12 INCHES ON CENTER. IT SHALL BE ATTACHED TO TOP RAIL WITH NO. 9 GAUGE ALUMINUM TIE WIRES SPACED 24 INCHES ON CENTER. FABRIC SHALL BE ATTACHED TO TERMINAL POST BY MEANS OF A 1/4" X 3/4" TENSION BAR WITH HEAVY GAUGE PRESSED STEEL BAND OR CLIPS SPACED APPROXIMATELY 14 INCHES ON CENTER.
- BARBED WIRE SHALL BE OF TWO STRANDS OF NO. 11-1/2 GAUGE GALVANIZED WIRE WITH LARGE BARBS SPACED APPROXIMATELY 4 TO 5 INCHES ON CENTER. RAZOR WIRE SHALL BE USED WHEN LOCAL ORDINANCE REQUIRES OR AT PROJECT MANAGERS REQUEST.
- BOTTOM TENSION WIRE - NO. 7 GAUGE GALVANIZED COIL SPRING TENSION WIRE WITH CLASS I COATING. WIRE TO BE FASTENED TO CHAIN LINK FABRIC WITH NO. 11 GAUGE HOG RINGS ON 18 INCH CENTERS.
- POST AND OTHER APPURTENANCES - ALL POST AND OTHER APPURTENANCES SHALL BE HOT-DIP GALVANIZED WITH A MINIMUM ZINC COATING OF 2.0 OUNCES PER SQUARE FOOT OF SURFACE (CLASS II COATING ASTM A-392).
- LINE POST SHALL BE 2-1/4" "H" COLUMN WEIGHING 4.1 LBS. PER FOOT, MINIMUM CARBON CONTENT .35%, MINIMUM TENSILE STRENGTH 75,000 PSI OR 2-3/8" O.D. SCHEDULE 40 PIPE, OF SUFFICIENT LENGTH TO ALLOW FOR INSTALLATION TO A DEPTH OF 3'-0" BELOW GROUND LEVEL. THE POSTS SHALL BE SPACED IN THE LINE OF FENCE, NO FURTHER.
- TERMINAL POST AND ALL END, CORNER AND PULL POSTS SHALL BE 2-1/2" X 2-1/2" X .1875" W.T. SQUARE TUBING OR 2-7/8" O.D. SCHEDULE 40 PIPE.
- GATE POST SHALL BE OF THE FOLLOWING SIZE FOR SINGLE SWING GATES OR ONE LEAF OF DOUBLE GATE

POST	SIZE	NOM. WT.
UP TO 6' WIDE	2-1/2" SQ. OR 2-7/8" O.D.	SAME AS TERMINAL POST
OVER 6' TO 13'	4" O.D.	9.11 LB/FT
- EACH POST SHALL BE OF SUFFICIENT LENGTH TO ALLOW FOR INSTALLATION TO A DEPTH OF 3'-0" BELOW GROUND LEVEL.
- LINE POST AND TERMINAL POST ANCHORAGE SHALL BE SET IN CYLINDRICAL CONCRETE FOUNDATIONS WITH TOP OF FINISH CONCRETE SURFACE 3 INCHES ABOVE FINISH GRADE. EXCAVATION SHALL BE 3'-6" DEEP AND NOT LESS THAN TEN INCHES (10") IN DIAMETER FOR ALL LINE POSTS, AND NOT LESS THAN 3.5 TIMES THE DIAMETER FOR TERMINAL AND GATE POST. CONCRETE SHALL MEET ACI-318 SPECIFICATION FOR 3000 PSI-28 DAY STRENGTH CONCRETE.
- FENCE SHALL HAVE A CONTINUOUS TOP RAIL FOR ITS FULL LENGTH OF STANDARD GALVANIZED PIPE, 1-5/8" O.D.. THE TOP RAIL SHALL PASS THROUGH OPENINGS PROVIDED FOR THAT PURPOSE IN THE POST TOPS AND EACH LENGTH SHALL BE COUPLED WITH A SLEEVE COUPLING, WITH EXPANSION COUPLING EVERY FIFTH JOINT.
- TRUSS BRACES SHALL BE STANDARD GALVANIZED 1-5/8" O.D. PIPE 2.71 LB./FT., WITH A 3/8" O.D. TRUSS ROD AND TURNBUCKLE ATTACHMENT SHALL BE INSTALLED BETWEEN EACH END OR GATE POST AND THE ADJACENT LINE POST. TWO TRUSS BRACES SHALL BE FURNISHED ON CORNER OR PULL POSTS.
- FITTINGS USED IN THE COMPLETE FENCE ASSEMBLY SHALL BE OF MALLEABLE, CAST IRON OR PRESSED STEEL AND SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION.
- EXTENSION ARM LINE POST SHALL BE EQUIPPED WITH EXTENSION ARMS TO WITHSTAND A MINIMUM PULL-DOWN WEIGHT OF 450 LBS. FROM END OF ARM. ARMS TO BE DESIGNED TO EXTEND AT A 45 DEGREE ANGLE WITH LOCKING DEVICE TO SECURELY FASTEN THREE STRANDS OF BARBED WIRE EQUALLY SPACED WITH THE TOP STRAND LOCATED 12 INCHES (12") ABOVE FABRIC AND 12 INCHES (12") OUT FROM THE FENCE LINE.
- POST TOPS AND ALL END, CORNER, PULL AND GATE POST SHALL BE EQUIPPED WITH TOPS. TUBULAR POST TOPS TO BE SO DESIGNED AS TO EXCLUDE MOISTURE FROM THE POST. ALL LINE POST TOPS DESIGNED TO HOLD THE TOP RAIL AND THE EXTENSION ARM FOR THREE STRANDS OF BARBED WIRE.
- GATE FRAMES SHALL BE MADE OF 2" X 2" X .110" W.T. SQUARE STEEL TUBING OR 1.9 INCH O.D. SCHEDULE 40, 2.72 LB./FT. STANDARD WEIGHT PIPE, HOT-DIP GALVANIZED, FRAMES TO BE JOINED AT CORNERS TO FORM A RIGID PANEL AND SHALL BE FILLED WITH CHAIN LINK FABRIC OF SAME GAUGE AS USED ON THE FENCE. FABRIC SHALL BE FASTENED IN THE FRAME ON ALL FOUR SIDES BY MEANS OF TENSION BARS AND CLIPS. THREE STRANDS OF BARBED WIRE SHALL BE FASTENED TO THE EXTENDED FRAMES OF GATE. EACH FRAME TO BE EQUIPPED WITH 3/8" DIAMETER ADJUSTABLE TRUSS ROD, HINGES, POSITIVE TYPE LATCHING DEVICE WITH PROVISIONS FOR PADLOCKING. ALL DRIVE GATES TO BE PROVIDED WITH CENTER PLUNGER ROD, CATCH AND SEMI-AUTOMATIC OUTER CATCHES TO SECURE GATES IN OPEN POSITION.
- FENCE SECTION COMPANY TYPE - A-8 FABRIC HEIGHT - 96" TOTAL FENCE HEIGHT - 10'-0"
- TUFF GUARD GATE
- SPECIFICATIONS SHOWN CAN BE CHANGED WITH ENGINEERING APPROVAL.
- FOOTING WIDTH TO BE (4)X POST WIDTH. VERIFY FOOTING DEPTH AND WIDTH WITH LOCAL CODES AND SITE CONDITIONS.
- ALL COMPONENTS OF THE TUFF GUARD WILL BE COATED BLACK, EXCEPT FOR THE HANDLE WITH ELECTRONIC LOCK, PANIC BAR, AND CLOSER.
- OUTSIDE LOOKING IN, GATE WILL LATCH ON LEFT AND OPEN OUTSIDE OF FENCE LINE.

BURNS & MDONNELL STATE LICENSE #43

JOHN J. SIRHALL
02/11/2020
KENTUCKY
SEAL 35301

PROFESSIONAL ENG/ARCH STAMP

PIEDMONT'S NATURAL GAS FACILITY DRAWINGS ARE CONSIDERED CONFIDENTIAL (OM-1095) * DRAWING IS CURRENT ONLY THROUGH THE LATEST REVISED DATE * TO ENSURE THERE IS NO RISK OF INAPPROPRIATE DISCLOSURE ALL PREVIOUS PAPER COPIES OF THIS DRAWING MUST BE DESTROYED IN ACCORDANCE WITH RECORDS & INFO. MANAGEMENT (RIM) POLICY 1001

REF. DWG(S)

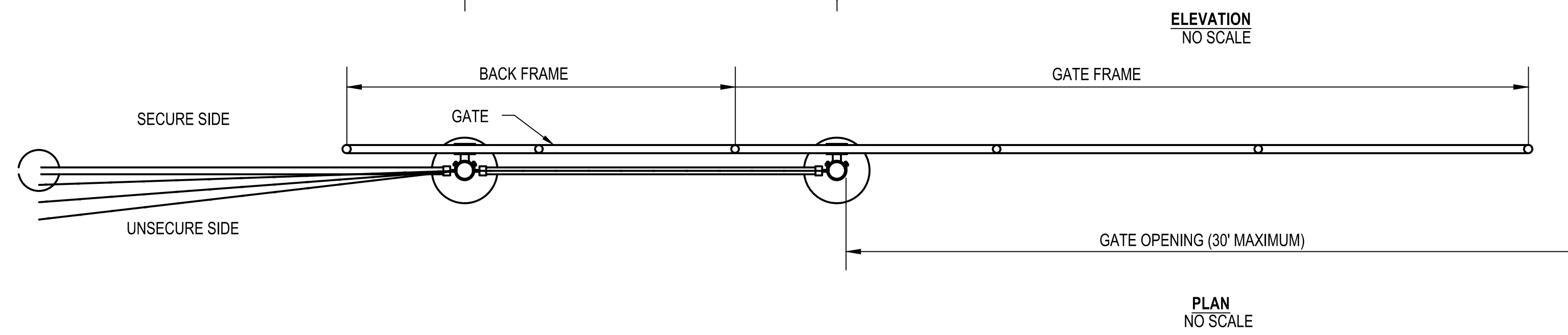
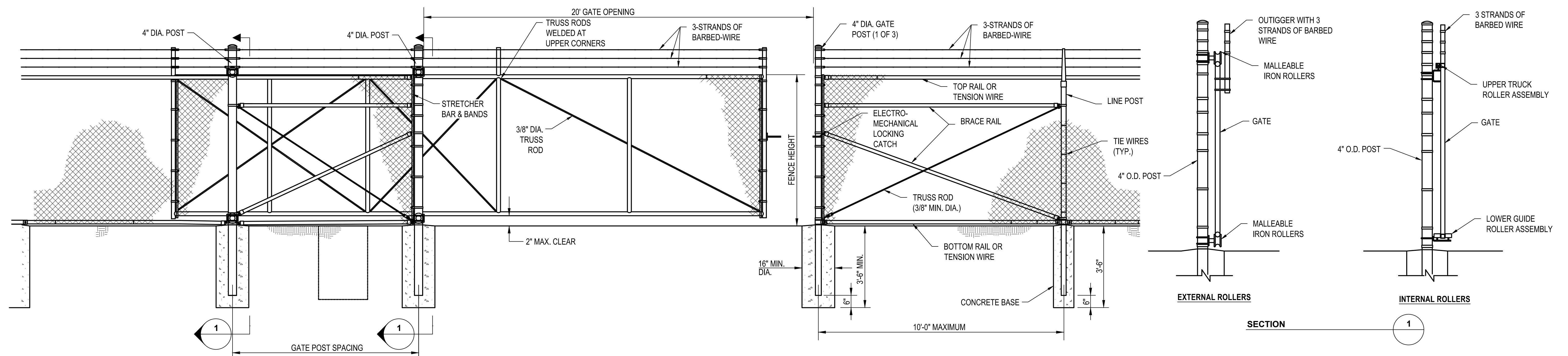
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						PROJECT NUMBER	V8351	-	PRINCIPAL ENGINEER
						DRAWING BY	APW	-	
						STATION ID	UL60	-	
						CHECKER INITIALS	DJH	02/12/2020	JJS

UL60 PIPELINE
GENERAL FENCING DETAILS
BOONE COUNTY, KY
ERLANGER, KY

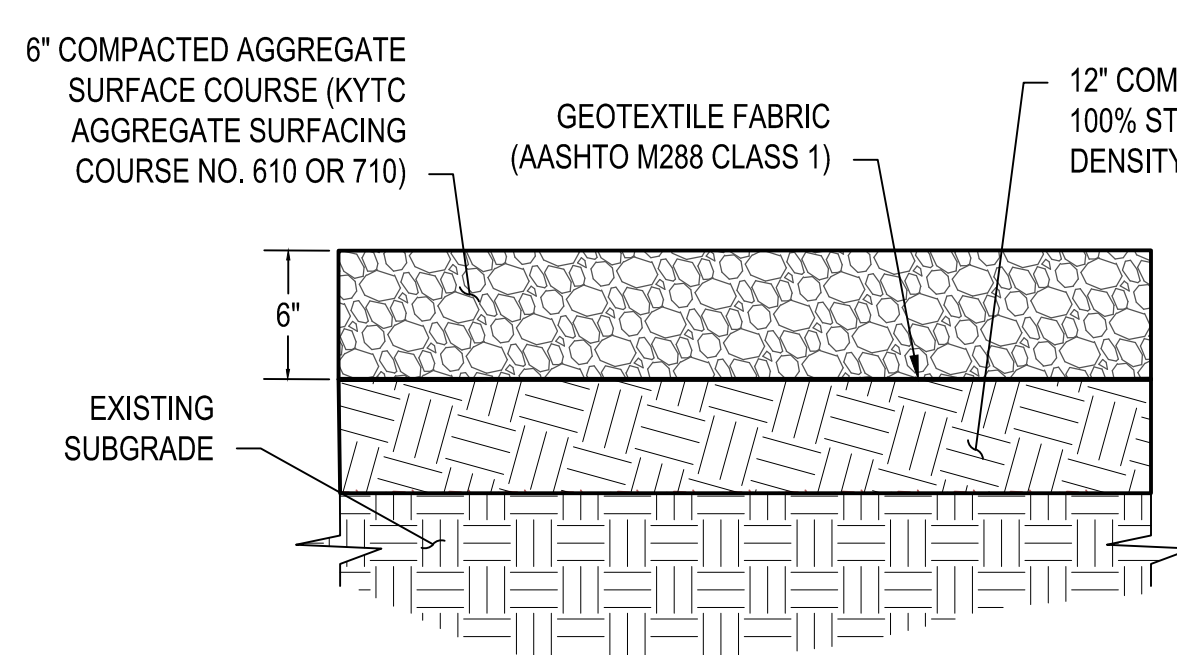
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DUKE ENERGY | Piedmont Natural Gas

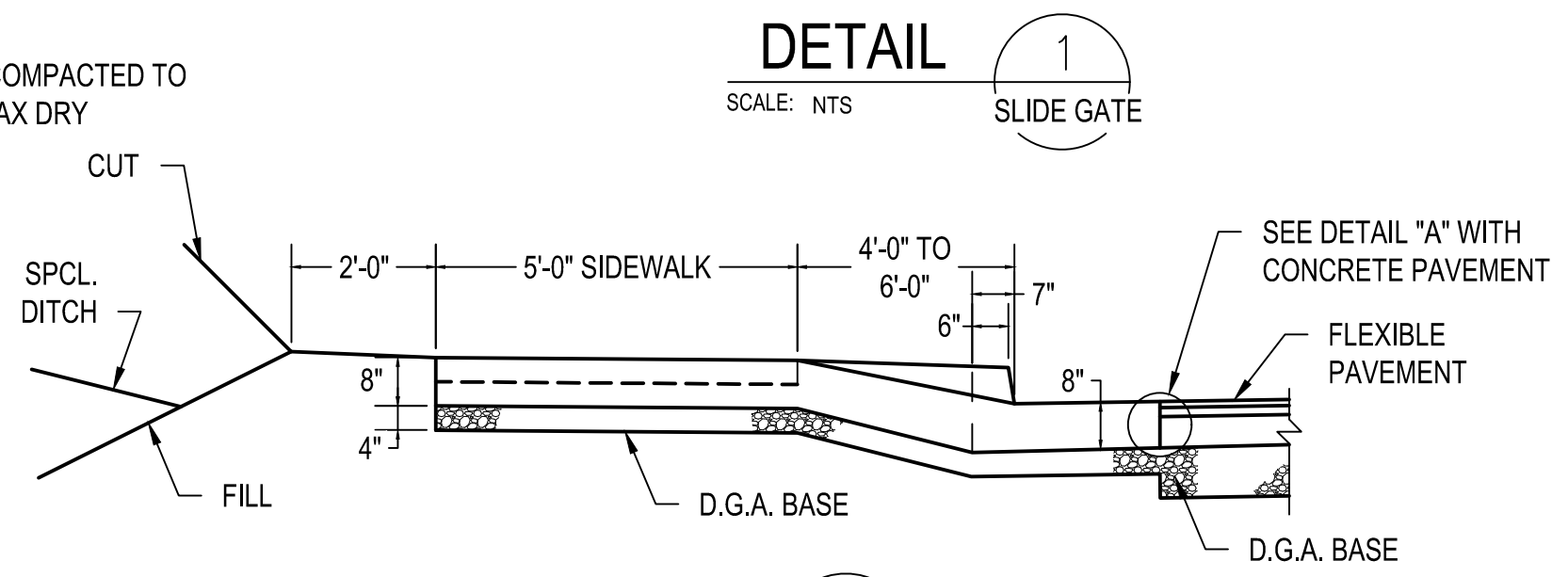
SHEET(S) 7 OF 8 | DWG SCALE 1" = 10'
DWG DATE 02/12/2020 | SUPERSEDED
DRAWING NUMBER PNG - C-043-0001193 | REVISION 0
C/ERLANGER/UL60



- NOTES:**
1. CANTILEVERED SLIDE GATES SHALL CONFORM TO ASTM F1184.
 2. GATE FRAMES SHALL BE EITHER ZINC-COATED STEEL.
 3. ROLLERS SHALL BE EITHER INTERNAL OR EXTERNAL.
 4. DETAILS SHOWN ARE TO CLARIFY REQUIREMENTS AND ARE NOT INTENDED TO LIMIT OTHER TYPES OF GATE SECTIONS AND METHODS OF INSTALLATION.
 5. GATE SHALL BE GROUNDED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
 6. GATE SHALL BE CONSTRUCTED IN ACCORDANCE WITH FENCING SPECIFICATIONS.

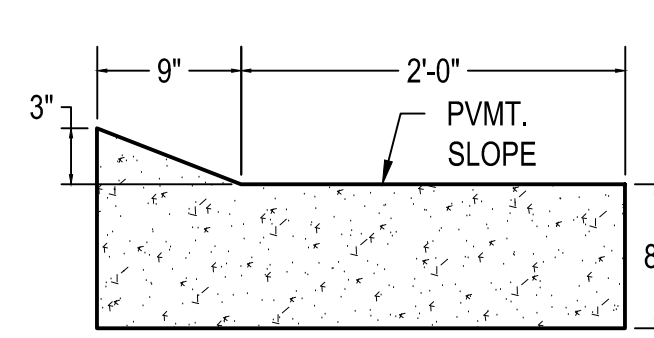


DETAIL 2
SCALE: NTS
GRAVEL SURFACE COURSE

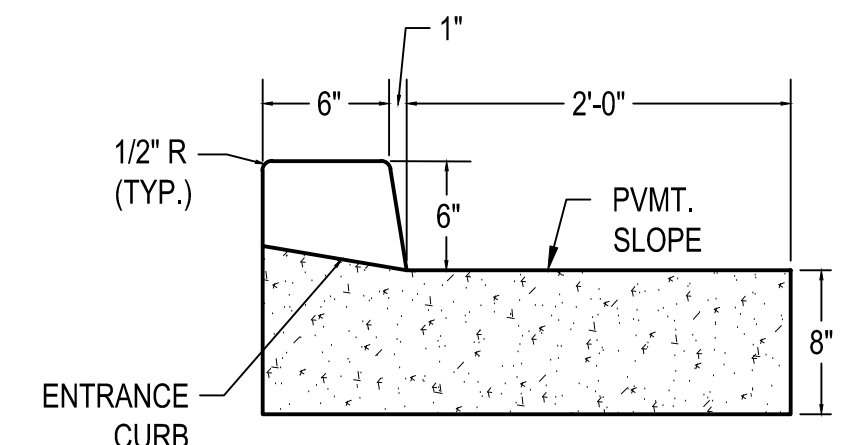


DETAIL 1
SCALE: NTS
SLIDE GATE

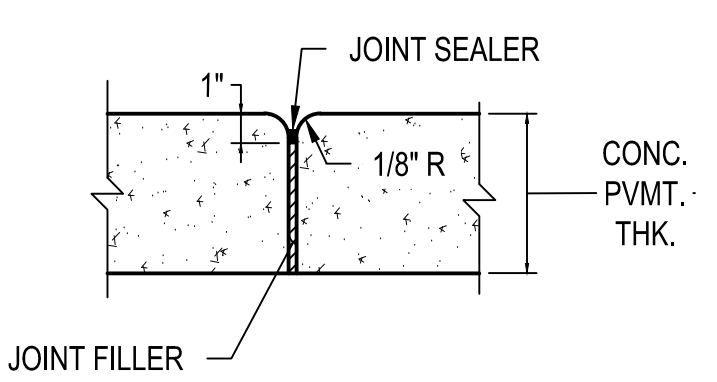
DETAIL 3
SCALE: NTS
ENTRANCE PAVEMENT



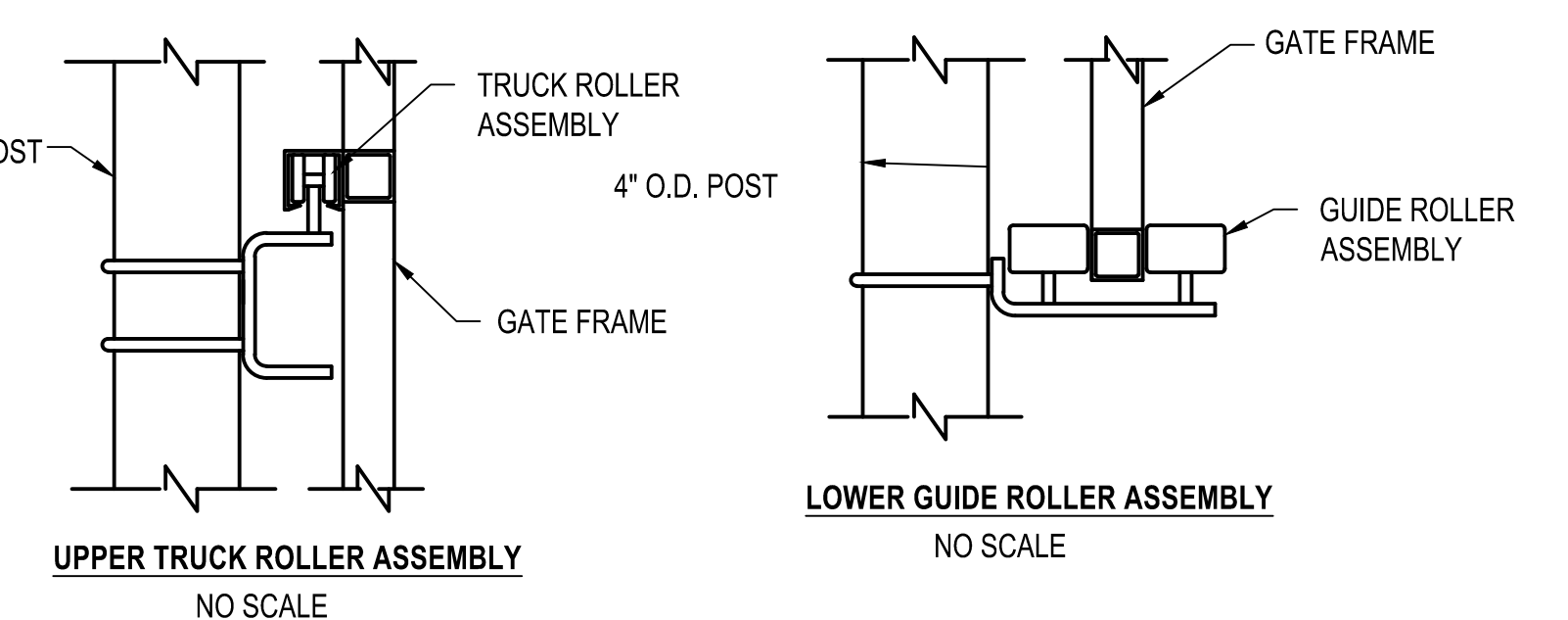
DETAIL 4
SCALE: NTS
LIP CURB & GUTTER



DETAIL 5
SCALE: NTS
STANDARD CURB & GUTTER



DETAIL A
SCALE: NTS



UPPER TRUCK ROLLER ASSEMBLY
NO SCALE

LOWER GUIDE ROLLER ASSEMBLY
NO SCALE

- NOTES:**
1. PAVEMENT, SIDEWALK, AND CURBING DETAILS SHALL BE INSTALLED PER KENTUCKY DEPARTMENT OF HIGHWAY (KYTC) STANDARDS. SEE STANDARD DRAWING NO. RPM-100-10 AND RPM-150-08 FOR FURTHER DETAIL.

BURNS & MDONNELL
STATE LICENSE #43

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02/11/2020
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						DRAWING BY	APW	-	
						STATION ID	UL60	-	
						CHECKER INITIALS	DJH	02/12/2020	JJS



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UL60 PIPELINE
SLIDE GATE & GENERAL CIVIL DETAILS
BOONE COUNTY, KY
ERLANGER, KY

SHEET(S)	8 OF 8	DWG SCALE	AS NOTED
DWG DATE	02/12/2020	SUPERSEDED	-
DRAWING NUMBER	PNG - C-043-0001194		
REVISION	0		
C/ERLANGER/UL60			

GENERAL NOTES:

- THESE NOTES AND OTHER DRAWING NOTES CONTAINED WITHIN ARE PROVIDED TO MEET SPECIFIC REQUIREMENTS AND TO SUPPLEMENT THE CONTRACT SPECIFICATIONS. THESE NOTES NEITHER REPLACE NOR OVERRIDE THE PROVISIONS AND REQUIREMENTS OF THE CONTRACT SPECIFICATIONS.
- CONTRACTOR SHALL COORDINATE ALL STRUCTURAL WORK WITH WORK SHOWN ON ALL OTHER DRAWINGS.
- CONTRACTOR SHALL VERIFY ALL DIMENSIONS OF EXISTING CONSTRUCTION AND REPORT ANY DISCREPANCIES FROM THE CONTRACT DRAWINGS TO THE ENGINEER PRIOR TO COMMENCING WITH WORK. SCALING OF WORKING DIMENSIONS FROM THE STRUCTURAL DRAWINGS IS PROHIBITED.
- CONTRACTOR TO FIELD VERIFY ALL FOUNDATION TOPS OF CONCRETE, REVEALS, AND DIMENSIONS PRIOR TO CONSTRUCTION.
- CONTRACT DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL MEANS AND METHODS OF CONSTRUCTION INCLUDING, BUT NOT LIMITED TO, SHORING AND TEMPORARY BRACING. CONTRACTOR SHALL UNDERTAKE ALL NECESSARY MEASURES TO ENSURE SAFETY OF ALL PERSONS AND STRUCTURES AT THE SITE AND ADJACENT TO THE SITE. VISITS TO THE SITE BY THE COMPANY OR ENGINEER SHALL NOT RELIEVE THE CONTRACTOR OF SUCH RESPONSIBILITY.
- IF CERTAIN FEATURES ARE NOT FULLY SHOWN OR CALLED FOR ON THE CONTRACT DRAWINGS OR SPECIFICATIONS, THEIR CONSTRUCTION SHALL BE OF THE SAME CHARACTER AS FOR SIMILAR CONDITIONS THAT ARE SHOWN OR CALLED FOR WITH THE APPROVAL OF THE ENGINEER. WHERE SECTIONS VARY, CONTRACTOR SHALL PROVIDE FOR SMOOTH TRANSITIONS BETWEEN THEM, UNLESS NOTED OTHERWISE.
- ALL PRODUCTS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS' WRITTEN INSTRUCTIONS AND RECOMMENDATIONS, UNLESS NOTED OTHERWISE.
- ITEMS WHICH ARE TO BE FURNISHED AND INSTALLED BY SEPARATE CONTRACTS ARE IDENTIFIED AND LABELED FOR EACH CONTRACT.
- FOR ADDITIONAL INFORMATION, SUBMITTAL REQUIREMENTS, AND CODES AND STANDARDS, SEE THE CONTRACT SPECIFICATIONS.

DESIGN STANDARDS:

- PRINCIPAL CODE OF RECORD: INTERNATIONAL BUILDING CODE 2018 AS ADOPTED BY THE STATE OF KENTUCKY.
- AMERICAN CONCRETE INSTITUTE: (ACI)
 - ACI 318-14, BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE
- AMERICAN INSTITUTE OF STEEL CONSTRUCTION: (AISC)
 - AISC 360-10, SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS, 14TH EDITION
- AMERICAN SOCIETY OF CIVIL ENGINEERS: (ASCE)
 - ASCE 7-10, MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES
- AMERICAN WELDING SOCIETY: (AWS)
 - AWS D1.1, STRUCTURAL WELDING CODE, 2011
- PROCESS INDUSTRY PRACTICES: (PIP)
 - STC01015, STRUCTURAL DESIGN CRITERIA
 - STE05121, ASCE ANCHORAGE DESIGN FOR PETROCHEMICAL FACILITIES
 - STF05121, ANCHOR FABRICATION AND INSTALLATION INTO CONCRETE
 - STS03001, PLAIN AND REINFORCED CONCRETE SPECIFICATION
 - STS03600, NONSHRINK CEMENTITIOUS GROUT SPECIFICATION
 - STS03601, EPOXY GROUT SPECIFICATION
 - STS05120, STRUCTURAL MISCELLANEOUS STEEL FABRICATION SPECIFICATION
 - STS05130, STRUCTURAL AND MISCELLANEOUS STEEL ERECTION SPECIFICATION
- DUKE ENERGY STANDARDS

STATEMENT OF SPECIAL INSPECTIONS

- REQUIRED AND PREPARED IN ACCORDANCE WITH IBC 2018 SECTIONS 1704 AND 1705.
- THE OWNER OR REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE SHALL EMPLOY ONE OR MORE APPROVED AGENCIES/SPECIAL INSPECTORS TO PROVIDE "SPECIAL INSPECTIONS" DURING CONSTRUCTION.
- THE SPECIAL INSPECTOR(S) SHALL BE QUALIFIED PER IBC 2018 SECTION 1704.2.1.
- THE SPECIAL INSPECTOR(S) SHALL SUBMIT REPORTS PER IBC 2018 SECTION 1704.2.4.
- THE SPECIAL INSPECTOR(S) SHALL USE THE LATEST ISSUE OF THE STRUCTURAL DRAWINGS FOR THE INSPECTIONS. SHOP FABRICATION DRAWINGS SHALL NOT BE USED FOR INSPECTION PURPOSES.
- SPECIAL INSPECTIONS:
 - STEEL CONSTRUCTION PER IBC 2018 SECTION 1705.2.
 - CONCRETE CONSTRUCTION PER IBC 2018 SECTION 1705.3 AND TABLE 1705.3.
 - SOILS PER IBC 2018 SECTION 1705.6 AND TABLE 1705.6.
 - DRILLED PIERS PER IBC 2018 SECTION 1705.7 AND TABLE 1705.7.

DESIGN LOADS:

- RISK CATEGORY: IV PER ASCE 7
- DEAD LOAD:
 - EQUIPMENT LOADS ARE ACTUAL WEIGHTS OF EQUIPMENT (EMPTY, OPERATING, AND/OR TESTING WEIGHTS AS PROVIDED BY EQUIPMENT SUPPLIER)
 - FOUNDATIONS ARE DESIGN FOR EQUIPMENT, WHICH SATISFIES THE CONTRACT SPECIFICATIONS.
- LIVE LOADS PER ASCE 7:
 - PLATFORMS AND WALKWAYS: 60 PSF
 - STAIRS AND EXITWAYS: 100 PSF
 - LIGHT STORAGE: 125 PSF
- SNOW LOADS PER ASCE 7:
 - GROUND SNOW LOAD: 20 PSF
 - EXPOSURE FACTOR: 0.9
 - THERMAL FACTOR: 1.2
 - IMPORTANCE FACTOR: 1.2
- ICE LOADS PER ASCE 7:
 - NOMINAL ICE THICKNESS: 0.75 INCH
 - CONCURRENT WIND SPEED: 30 MPH
 - IMPORTANCE FACTOR: - MULTIPLIER ON ICE THICKNESS: 1.25 - MULTIPLIER ON CONCURRENT WIND PRESSURE: 1.0
- WIND LOAD PER ASCE 7:
 - BASIC WIND SPEED: 120 MPH 3-SECOND GUST - ULTIMATE
 - BASIC WIND SPEED: 90 MPH 3-SECOND GUST - SERVICE LEVEL
 - EXPOSURE CATEGORY: C
- SEISMIC LOAD PER ASCE 7:
 - MAXIMUM CONSIDERED EARTHQUAKE SPECTRAL RESPONSE ACCELERATIONS: - Ss COEFFICIENT: 0.147g - S1 COEFFICIENT: 0.081g
 - DESIGN EARTHQUAKE SPECTRAL RESPONSE ACCELERATIONS: - Sds COEFFICIENT: 0.157g - Sd1 COEFFICIENT: 0.129g
 - IMPORTANCE FACTOR: 1.5
 - SITE CLASS: D
 - SEISMIC DESIGN CATEGORY: C
- FROST DEPTH: 30" (PER 2018 KENTUCKY BUILDING CODE)

SOILS AND FOUNDATIONS:

- USE SPECIAL CARE DURING EXCAVATION NOT TO DAMAGE EXISTING STRUCTURES. PROVIDE SHEETING OR SHORING WHERE NECESSARY.
- FOUNDATION CONSTRUCTION SHALL BE OBSERVED BY THE GEOTECHNICAL ENGINEER OF RECORD.
- SITE PREPARATION PER AMAZON GEOTECHNICAL DESIGN MEMEO 8/15/18 & UL60 GEOTECHNICAL EXPLORATION 1/06/20:
 - ENGINEER OF RECORD SHALL OBSERVE SUBGRADE PRIOR TO CONCRETE PLACEMENT.
 - EXCAVATION, FILL, AND BACKFILL SHALL BE IN ACCORDANCE WITH THE CONTRACT AND SPECIFICATIONS. CONTRACTOR SHALL NOTIFY THE ENGINEER WHEN LOOSE OR SOFT SOILS ARE EXPOSED WHERE SLABS, MATS, OR FOOTINGS ARE TO BE PLACED SO A DETERMINATION MAY BE MADE REGARDING IMPROVEMENT OF THIS POTENTIALLY UNDESIRABLE CONDITION.
 - EXISTING UNDERGROUND UTILITIES AND FOUNDATIONS SHALL BE LOCATED BY CAREFUL EXCAVATION BEFORE STARTING FOUNDATION OR HYDROEXCAVATION AS REQUIRED. SUPPORT AND PROTECTION OF THESE UTILITIES AND FOUNDATIONS SHALL BE PROVIDED DURING EARTHWORK OPERATIONS.
 - SHALLOW FOUNDATION GROUND IMPROVEMENTS:
 - SUBGRADE PREP: OVEREXCAVATE AND RE-COMPACT UNCONSOLIDATED NATIVE SITE SOIL 24 INCHES BELOW BEARING ELEVATION, 24 INCHES OUTSIDE FOOTING PERIMETER.
 - BACKFILL: STRUCTURAL FILL INCLUDING
 - COHESIVE SOILS, SHALE, AND SMALL PIECES OF LIMESTONE CAN BE INCLUDED IN THE BACKFILL
 - COMPACTION: 6 INCH LAYERS, 95% ASTM D 1557
- FILL AND BACKFILL MATERIALS:
 - STRUCTURAL FILL: KYTC #67

RECOMMENDED GRADED MATERIALS	
KYTC #67 AGGREGATE BASE	
SIEVE	PERCENT FINER
1"	100
3/4"	90-100
3/8"	20-55
#4	0-10
#8	0-5

DESIGN PARAMETERS:

- MINIMUM STABILITY FACTORS OF SAFETY:
 - OVERTURNING: 1.5
 - UPLIFT: 1.5
 - SLIDING: 1.0
- NET ALLOWABLE BEARING PRESSURE: 2500 PSF
- COEFFICIENT OF FRICTION: 0.3
- ALLOWABLE LATERAL BEARING PRESSURE: 250 PCF

MATERIALS:

- SEE THE CONTRACT SPECIFICATIONS FOR COMPLETE REQUIREMENTS AND COMPLY WITH ALL APPLICABLE OSHA REGULATIONS.
- REINFORCED CONCRETE:
 - REINFORCED CONCRETE SHALL BE PREPARED AND PLACED IN ACCORDANCE WITH ACI, PIP STS03001, PROJECT SPECIFICATIONS, AND OWNER STANDARD.
 - CONCRETE:
 - ALL CONCRETE CONSTRUCTION SHALL COMPLY WITH THE LATEST ADOPTED EDITION OF THE FOLLOWING ACI CODES: ACI 318, ACI 315, AND ACI 301.
 - ALL CEMENT SHALL BE TYPE I CEMENT AND CONFORM TO ASTM C150, UNLESS OTHERWISE SPECIFIED OR REQUIRED AND HAVE MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 4,500 PSI.
 - MAXIMUM WATER/CEMENT RATIO SHALL BE 0.45.
 - SLUMP OF CONCRETE SHALL BE BETWEEN 3 AND 4 INCHES AS TESTED IN ACCORDANCE WITH ASTM C143. IF CONTRACTOR WISHES TO USE A MIX WITH SLUMP OUTSIDE THE RANGE LISTED ABOVE, WRITTEN APPROVAL FROM ENGINEER OF RECORD IS REQUIRED PRIOR TO MIX DESIGN SUBMITTAL.
 - MIXING WATER SHALL BE POTABLE WATER AND CONFORM TO ASTM C1602.
 - AGGREGATES FOR NORMAL WEIGHT CONCRETE SHALL CONFORM TO ASTM C33 "SPECIFICATION FOR CONCRETE AGGREGATES". THE NOMINAL MAXIMUM SIZE OF THE AGGREGATE SHALL NOT BE MORE THAN 1-1/2".
 - FOR NEW COARSE-AGGREGATE SOURCE, WHEN 3 YEARS' APPROVED SERVICE RECORDS ARE NOT AVAILABLE OR WHEN SERVICE RECORDS ARE UNACCEPTABLE, AGGREGATE SHALL BE EVALUATED FOR POTENTIAL REACTIVITY. AGGREGATE MUST BE CONSIDERED INNOCUOUS IN ACCORDANCE WITH ASTM 1260. IF EVALUATION ABOVE INDICATES REACTIVE AGGREGATES AND ALTERNATE AGGREGATE SOURCES ARE NOT AVAILABLE, REQUEST RE-EVALUATION OF AGGREGATE USING ASTM C1567. COARSE AGGREGATES CONSIDERED DELETERIOUS OR POTENTIALLY DELETERIOUS SHALL NOT BE USED WITHOUT APPROVAL.
 - ADMIXTURES SHALL NOT BE USED WITHOUT THE APPROVAL OF THE ENGINEER'S CONSTRUCTION FIELD REPRESENTATIVE.
 - CONCRETE FOR ALL PARTS OF THE WORK SHALL BE OF THE SPECIFIED QUALITY, CAPABLE OF BEING PLACED WITHOUT EXCESSIVE SEGREGATION, AND WHEN HARDENED, OF DEVELOPING ALL CHARACTERISTICS REQUIRED BY THESE SPECIFICATIONS AND THE CONTRACT DOCUMENTS. BEFORE CONCRETE WORK BEGINS, THE PROPOSED CONCRETE MIX DESIGN ALONG WITH COLLABORATING DATA SHOWING COMPLIANCE WITH THE SPECIFICATIONS SHALL BE SUBMITTED TO ENGINEER FOR APPROVAL.
 - ALL REINFORCING STEEL, WIRE MESH, ANCHOR BOLTS, HOLD-DOWN ANCHORS, AND OTHER INSERTS SHALL BE SECURED IN POSITION PRIOR TO PLACING OF CONCRETE.
 - EXPOSED HORIZONTAL CONCRETE SURFACES SHALL BE WOOD FLOATED TO DEPRESS COARSE AGGREGATE AND STEEL TROWELED TO A SMOOTH SURFACE.
 - LL WALKING SURFACES SHALL HAVE A LIGHT BROOM FINISH.
 - CONCRETE SURFACES SHALL BE PROTECTED DURING CURING AGAINST EARLY EVAPORATION OF WATER, ACTION BY SUN, RAIN, WATER, FROST, AND CRACKING.

FORMWORK:

- CONTRACTOR SHALL BE RESPONSIBLE FOR DESIGN, ENGINEERING, STRUCTURAL ADEQUACY, AND CONSTRUCTION OF ALL CONCRETE FORMWORK IN ACCORDANCE WITH THE CONTRACT SPECIFICATIONS.
- COORDINATE ALL CONCRETE WORK WITH THE PLACEMENT OF PIPING, INSERTS, FLOOR DRAINS, AND OTHER EMBEDDED ITEMS INDICATED ON THE CONTRACT DRAWINGS OR IN THE CONTRACT SPECIFICATIONS.
- ALL NEW OR EXISTING PIPING OR UTILITIES PASSING THROUGH NEW CONCRETE SHALL BE SLEEVED 1/2" CLEAR ALL AROUND UNLESS NOTED OTHERWISE. (SEE OTHER DISCIPLINE DRAWINGS FOR SLEEVE DETAILS. CONTRACTOR SHALL PROVIDE MEASURES TO ENSURE THAT SLEEVES REMAIN FREE OF DEBRIS AND WATER DURING CONSTRUCTION).
- PROVIDE 1", 45° CHAMFER ON ALL EDGES OF EXPOSED CONCRETE UNLESS CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH THE GROUND.

REINFORCING STEEL:

- BARS: ASTM A615 GRADE 60
- ALL CONCRETE SHALL BE REINFORCED UNLESS SPECIFICALLY MARKED "NOT REINFORCED" OR "UNREINFORCED". CONTRACTOR SHALL DETAIL AND PLACE ALL REINFORCEMENT IN ACCORDANCE WITH ACI SP-66, ACI 301, ACI 318, AND CRSI MANUAL OF STANDARD PRACTICE.
- MINIMUM CONCRETE CLEAR COVER OVER REINFORCEMENT SHALL BE AS FOLLOWS, UNLESS NOTED OTHERWISE:
 - CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH: 3"
 - CONCRETE EXPOSED TO EARTH OR WEATHER:
 - #6 THROUGH #18 BARS - 2"
 - #5 AND SMALLER BARS AND WELDED WIRE FABRIC - 1 1/2"
 - CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH THE GROUND:
 - SLABS AND WALLS - #14 AND #18 BARS - 1 1/2"
 - #11 AND SMALLER BARS - 3/4"
 - BEAMS AND COLUMNS, PRIMARY REINFORCEMENT, TIES, STIRRUPS, SPIRALS - 1 1/2"
- EMBEDMENT AND LAP SPLICE LENGTHS FOR ALL REINFORCING STEEL BARS SHALL CONFORM TO THE FOLLOWING PROVISIONS, UNLESS NOTED OTHERWISE.

MINIMUM STRAIGHT EMBEDMENT LENGTHS:

#3 - 15"	#6 - 29"	#9 - 54"
#4 - 19"	#7 - 42"	#10 - 61"
#5 - 24"	#8 - 48"	#11 - 67"

MINIMUM LAP SPLICE LENGTHS:

#3 - 19"	#6 - 37"	#9 - 70"
#4 - 25"	#7 - 54"	#10 - 79"
#5 - 31"	#8 - 62"	#11 - 87"

MINIMUM HOOK EMBEDMENT LENGTHS:

#3 - 8"	#6 - 15"	#9 - 22"
#4 - 10"	#7 - 17"	#10 - 25"
#5 - 12"	#8 - 19"	#11 - 27"

- THE MINIMUM LENGTHS SHOWN ABOVE ARE BASED ON THE FOLLOWING CONCRETE COVERAGE AND REINFORCING C/C SPACING:

BEAMS AND COLUMNS:	COVER = 1.0db (BAR DIAMETER)	CENTER TO CENTER (C/C) SPACING = 2.0db
ALL OTHERS:	COVER = 1.0db (BAR DIAMETER)	CENTER TO CENTER (C/C) SPACING = 3.0db

- THE DEVELOPMENT AND SPLICE LENGTHS SHOWN SHALL NOT APPLY IF ANY OF THE FOLLOWING CONDITIONS OCCUR:

- f_c < 4,000 PSI
- f_y > 60,000 PSI
- THE COVER OR C/C BAR SPACING IS NOT AS LISTED ABOVE.
- THE REINFORCING STEEL IS EPOXY COATED.
- LIGHT WEIGHT CONCRETE IS USED.

- HORIZONTAL BARS HAVING MORE THAN 12" OF CONCRETE PLACED BELOW THEM SHALL BE CONSIDERED TOP REINFORCEMENT AND SHALL HAVE MINIMUM STRAIGHT EMBEDMENT AND LAP SPLICE LENGTHS INCREASED BY NOT LESS THAN 30% OVER THOSE GIVEN ABOVE.

- HOOK EMBEDMENT IS THE MINIMUM STRAIGHT LINE DISTANCE FROM THE CRITICAL SECTION OF THE BAR TO THE FARTHEST EDGE OF THE HOOK.

JOINTS:

- LOCATE ALL CONSTRUCTION, CONTRACTION, ISOLATION, EXPANSION, AND OTHER JOINTS AS INDICATED OR SPECIFIED, OR OTHERWISE APPROVED BY THE ENGINEER.
- SURFACES OF ALL HORIZONTAL AND VERTICAL CONSTRUCTION JOINTS SHALL BE CLEANED OF LAITANCE AND SHALL EXPOSE CLEAN COARSE AGGREGATE SOLIDLY EMBEDDED IN MORTAR MIX TO MINIMUM 1/4" AMPLITUDE. APPLY CONCRETE BONDING AGENT PRIOR TO DEPOSITING CONCRETE IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
- THESE PROVISIONS SHALL ALSO APPLY WHEN NEW CONCRETE IS PLACED AGAINST EXISTING CONCRETE.
- PROVIDE WATERSTOPS AT CONCRETE JOINTS WHERE INDICATED ON THE CONTRACT DRAWINGS. ALL WATERSTOPS SHALL BE FUEL RESISTANT TYPE, UNLESS NOTED OTHERWISE.

BURNS & MDONNELL
STATE LICENSE #43

JOHN J. SIRHALL
02/11/2020
KENTUCKY
SEAL 35301

PROFESSIONAL ENGR/ARCH STAMP

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REF. DWG(S)

NO.	DATE	REVISION(S) DESCRIPTION	BY	CHK	APPD	DESCRIPTION		APPROVALS				
0	02-19-2021	ISSUED FOR AS-BUILT			JJS	AREA CODE	5339	DATE	N/A	INITIALS	N/A	REGIONAL ENGINEER
						ACCOUNT NUMBER	-	DATE	N/A	INITIALS	N/A	MGR TECH REC & STD
						PROJECT NUMBER	V8351	DATE	N/A	INITIALS	N/A	PRINCIPAL ENGINEER
						DRAWING BY	NPH	DATE	02/12/2020	INITIALS	JJS	
						STATION ID	S0907K1	DATE		INITIALS		
						CHECKER INITIALS	NCT	DATE		INITIALS		



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UL60 PIPELINE
STRUCTURAL NOTES (1 OF 2)
BOONE COUNTY, KY

ERLANGER, KY

SHEET(S) XX OF XX	DWG SCALE	NONE
DWG DATE 02-11-2020	SUPERSEDED	
DRAWING NUMBER		REVISION
PNG -S-043-0001000		0
DISCIPLINE / RESOURCE CENTER / LINE NUMBER		

6. STRUCTURAL AND MISCELLANEOUS STEEL:
- STRUCTURAL AND MISCELLANEOUS STEEL SHALL BE FABRICATED AND ERECTED IN ACCORDANCE WITH AISC STEEL CONSTRUCTION MANUAL, 14TH EDITION, PIP STS05120 AND PIP STS05130, AND ALL APPLICABLE OWNER STANDARDS.
 - TEMPORARY ERECTION BRACING SHALL BE DESIGNED AND PROVIDED BY THE CONTRACTOR AS REQUIRED AND SHALL NOT BE REMOVED UNTIL ALL PERMANENT LATERAL-LOAD-RESISTING ELEMENTS AND CONNECTIONS ARE COMPLETELY INSTALLED.
 - ALL STEEL SHALL BE HOT-DIP GALVANIZED UNLESS NOTED OTHERWISE ON PLANS.
 - WIDE FLANGE SHAPES AND TEES: ASTM A992, Fy = 50 KSI OR ASTM A572, Fy = 50 KSI
 - PLATES, ANGLES, AND CHANNELS: ASTM A36, Fy = 36 KSI, UNLESS NOTED OTHERWISE
 - SQUARE AND RECTANGULAR HOLLOW STRUCTURAL SECTIONS: ASTM A500 GRADE B, Fy = 46 KSI
 - ROUND HOLLOW STRUCTURAL SECTIONS: ASTM A500 GRADE B, Fy = 42 KSI
 - PIPE: ASTM A53 GRADE B, Fy = 35 KSI
 - ALL DOUBLE ANGLE MEMBERS SHALL HAVE SPACER PLATES CONFORMING TO AISC STEEL CONSTRUCTION MANUAL PARAGRAPH E6. SPACER PLATES SHALL BE THE SAME THICKNESS AS THE GUSSET PLATES.
7. BOLTS:
- 3/4" DIAMETER ASTM A3125 GRADE A325, UNLESS NOTED OTHERWISE.
 - FRAMING CONNECTIONS: SNUG-TIGHTENED JOINTS WITH STANDARD HOLES, UNLESS NOTED OTHERWISE.
 - BRACING CONNECTIONS: SNUG-TIGHTENED JOINTS WITH STANDARD HOLES, UNLESS NOTED OTHERWISE.
 - ON ONE SIDE OF EACH DOUBLE CONNECTION OF BEAMS TO A COLUMN WEB OR A GIRDER WEB DIRECTLY OVER A COLUMN, PROVIDE A TEMPORARY SEAT ANGLE ATTACHED TO COLUMN OR GIRDER WEB AND TO BOTTOM FLANGE OF BEAM. MINIMUM SEAT CONNECTION SHALL BE 1x3x3/8 LLH WITH TWO 3/4" DIAMETER A307 OR A325-ST BOLTS EACH LEG. SINGLE AND DOUBLE STAGGERED CONNECTIONS ARE PROHIBITED WITHOUT THE EXPLICIT PRIOR APPROVAL IN WRITING OF THE STRUCTURAL ENGINEER OF RECORD.
8. WELDING:
- IN ACCORDANCE WITH AWS D1.1 USING E70 ELECTRODE
 - MINIMUM STRUCTURAL WELD REQUIREMENTS ARE SHOWN ON DESIGN DRAWINGS. CLIENT REQUESTS WELDED CONNECTIONS TO BE FINISHED WITH MINIMUM SEAL WELDING ON REMAINDER OF JOINT AT ALL OTHER CREVICES. SEAL WELDING SHALL NOT PRODUCE AN UNSAFE CONDITION FOR HOT-DIP GALVANIZING.
9. ANCHOR BOLTS:
- ASTM F1554 GRADE 55 NOTED OTHERWISE ON DRAWINGS.
 - ANCHOR BOLT HOLES IN BASE PLATES TO BE OVERSIZED TO ACCOUNT FOR CONSTRUCTION TOLERANCES IN ANCHOR BOLT PLACEMENT. HOLES CORRESPONDING TO APPROPRIATE ANCHOR BOLT SIZE SHALL BE NO LARGER THAN THE MAXIMUM RECOMMENDED SIZES IN THE AISC STEEL CONSTRUCTION MANUAL, 14TH EDITION, TABLE 14-2.
 - PROVIDE PLATE WASHERS AT OVERSIZED ANCHOR BOLT HOLES.
 - LOCATE ANCHOR BOLTS ACCURATELY, SET WITH TEMPLATE, AND SECURELY HOLD IN POSITION WHILE PLACING CONCRETE. PROTECT IN-PLACE ANCHOR BOLTS FROM CONSTRUCTION ACTIVITY.
 - THE FOLLOWING ARE PROHIBITED WITHOUT THE EXPLICIT PRIOR APPROVAL IN WRITING OF THE ENGINEER:
 - INSERTING ANCHOR BOLTS INTO FRESH OR PARTIALLY HARDENED CONCRETE.
 - SUBSTITUTING POST-INSTALLED ANCHORS WHERE EMBEDDED ANCHOR BOLTS ARE INDICATED.
 - REPAIRING, REPLACING, OR MODIFYING INSTALLED ANCHOR BOLTS.
 - ANCHOR BOLT THREADS SHALL BE UNC-2A AND PROTECTED FROM DAMAGE DURING CONSTRUCTION.
 - SLEEVES FOR STATIONARY EQUIPMENT AND STRUCTURAL BASE PLATES SHALL BE FILLED WITH GROUT WHEN BASE PLATE/EQUIPMENT IS GROUTED IN FINAL LOCATION.
 - ANCHOR BOLTS, NUTS, AND WASHERS SHALL BE SHIPPED GALVANIZED.
10. POST-INSTALLED ANCHORS:
- INSTALL ANCHORS PER MANUFACTURER INSTRUCTIONS INCLUDED IN ANCHOR PACKAGING.
 - CONTRACTOR SHALL ARRANGE AN ANCHOR MANUFACTURER'S REPRESENTATIVE TO PROVIDE ONSITE INSTALLATION TRAINING FOR ALL OF THEIR ANCHORING PRODUCTS SPECIFIED. ENGINEER OF RECORD MUST RECEIVE DOCUMENTED CONFIRMATION THAT ALL OF CONTRACTOR'S PERSONNEL WHO INSTALL ANCHORS ARE TRAINED PRIOR TO COMMENCEMENT OF INSTALLING ANCHORS.
 - ANCHOR CAPACITY IS DEPENDENT ON SPACING BETWEEN ADJACENT ANCHORS AND PROXIMITY OF ANCHORS TO EDGE OF CONCRETE. INSTALL ANCHORS IN ACCORDANCE WITH SPACING AND EDGE CLEARANCES INDICATED ON DRAWINGS.
 - EXISTING REINFORCING BARS IN CONCRETE STRUCTURE MAY CONFLICT WITH SPECIFIC ANCHOR LOCATIONS. REINFORCING BARS SHALL NOT BE CUT UNLESS NOTED ON DRAWINGS THAT BARS CAN BE CUT. CONTRACTOR SHALL CONTACT ENGINEER OF RECORD WHEN INTERFERENCES OCCUR.
 - PERMITTED POST INSTALLED ANCHORS/EPOXY ARE LISTED AS FOLLOWS (ALTERNATE PRODUCTS MUST BE APPROVED IN WRITING BY ENGINEER OF RECORD PRIOR TO USE. SUBSTITUTIONS REQUIRE STAMPED CALCULATIONS)
 - WEDGE TYPE - LIFE SAFETY APPLICATIONS:
 - SIMPSON STRONG TIE - STRONG BOLT 2
 - HILTI KWIK BOLT TZ
 - POWERS POWER STUD SD2
 - WEDGE TYPE - NON-LIFE SAFETY APPLICATIONS:
 - SIMPSON STRONG TIE - WEDGE ALL
 - HILTI KWIK BOLT 3
 - POWER POWER STUD SD1
 - UNDERCUT TYPE (USE ONLY WHERE SPECIFICALLY INDICATED ON DRAWINGS):
 - SIMPSON STRONG TIE - TORQUE-CUT
 - HILTI HDA UNDERCUT ANCHOR
 - POWERS ATOMIC + UNDERCUT
 - EPOXY ANCHORS - LIFE SAFETY APPLICATIONS:
 - SIMPSON STRONG TIE - SET XP
 - HILTI HIT-RE500 V3
 - HILTI HIT-HY200
 - POWER PE1000
 - ADHESIVE ANCHORS - FOR NON-VIBRATING EQUIPMENT ANCHORAGE AND OTHER NON-LIFE SAFETY APPLICATIONS:
 - SIMPSON STRONG TIE - AT
 - HILTI HIT-HY200
 - POWER - AC100+ GOLD
 - CONCRETE ANCHORS:
 - GALVANIZED OR ZINC-COATED CARBON STEEL MANUALLY EXPANDED WEDGE TYPE, UNLESS NOTED OTHERWISE.
 - ADHESIVE ANCHORS:
 - INSTALL ADHESIVE ANCHORS AS INDICATED ON DRAWINGS.
 - ALL PERSONNEL INSTALLING ADHESIVE ANCHORS SHALL BE ACI ADHESIVE ANCHOR CERTIFIED.
 - ADHESIVE ANCHORS SHALL BE INSTALLED IN CONCRETE HAVING A MINIMUM AGE OF 21 DAYS AT TIME OF ANCHOR INSTALLATION.
11. GROUT:
- NON-SHRINK GROUT IN ACCORDANCE W/ PIP STS03600.
 - NON-METALLIC, HYDRAULIC-CEMENT GROUT IN ACCORDANCE WITH ASTM C1107.
 - MINIMUM COMPRESSIVE STRENGTH = 6,000 PSI @ 28 DAYS.
 - GROUT SHALL BE SUITED FOR OUTDOOR USE.
 - EPOXY GROUT IN ACCORDANCE W/ PIP STS03601.
 - PROVIDE EPOXY GROUT FOR ALL PUMP BASES
12. STEEL BAR GRATING:
- PER VENDOR INSTRUCTIONS

ABBREVIATIONS:

AB	ANCHOR BOLT	L	ANGLE
ABV	ABOVE	LB	POUND
ACI	AMERICAN CONCRETE INSTITUTE	LG	LONG
AGGR	AGGREGATE	LL	LIVE LOAD
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION	LLBB	LONG LEG BACK TO BACK
ANSI	AMERICAN NATIONAL STANDARD INSTITUTE	LLH	LONG LEG HORIZONTAL
ASTM	AMERICAN SOCIETY FOR TESTING OF MATERIALS	LLV	LONG LEG VERTICAL
AWS	AMERICAN WELDING SOCIETY	LONG	LONGITUDINAL
BBP	BOTTOM OF BASE PLATE	LS	LAP SPLICE
BTW	BETWEEN	MATL	MATERIAL
BLDG	BUILDING	MAX	MAXIMUM
BM	BEAM	MECH	MECHANICAL
BOC	BOTTOM OF CONCRETE	MFR	MANUFACTURER
BOP	BOTTOM OF PIPE	MH	MANHOLE
BOS	BOTTOM OF STEEL	MIN	MINIMUM
BOT	BOTTOM	MISC	MISCELLANEOUS
CAP	CAPACITY	NA	NOT APPLICABLE
C/C	CENTER TO CENTER	NF	NEAR FACE
CL	CENTERLINE	NO	NUMBER
CIR	CIRCLE	NOM	NOMINAL
CJ	CONSTRUCTION JOINT	NS	NEAR SIDE
CLR	CLEAR	NTS	NOT TO SCALE
CLJ	CONTROL JOINT	OC	ON CENTER
COL	COLUMN	OD	OUTSIDE DIAMETER
CONC	CONCRETE	OF	OUTSIDE FACE
CONT	CONTINUOUS	OPP	OPPOSITE
COORD	COORDINATE	OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
CTR	CENTER	PED	PEDESTAL
db	BAR DIAMETER	PEN	PENETRATE, PENETRATION
DET	DETAIL	PERP	PERPENDICULAR
DIA	DIAMETER	PL	PLATE
DIAG	DIAGONAL	PROJ	PROJECTION
DIM	DIMENSION	PSF	POUNDS PER SQUARE FOOT
DL	DEAD LOAD	PSI	POUNDS PER SQUARE INCH
DN	DOWN	PVC	POLYVINYL CHLORIDE
DWG	DRAWING	RAD	RADIUS
DWL	DOWEL	REF	REFERENCE
EA	EACH	REINF	REINFORCE
EF	EACH FACE	REQD	REQUIRED
EJ	EXPANSION JOINT	REV	REVISION
EL	ELEVATION	SCHED	SCHEDULE
ELEC	ELECTRICAL	SECT	SECTION
ELEV	ELEVATION	SH	SHEET
EMBED	EMBEDMENT	SIM	SIMILAR
EQ	EQUAL	SLP	SLOPE
EQUIP	EQUIPMENT	SPEC	SPECIFICATION
EQUIV	EQUIVALENT	SQ	SQUARE
EXIST	EXISTING	STD	STANDARD
EXP	EXPANSION	STIFF	STIFFENER
EW	EACH WAY	STIR	STIRRUP
fc	SPECIFIED 28-DAY CONCRETE COMPRESSIVE STRENGTH (MINIMUM)	STL	STEEL
FDN	FOUNDATION	STR	STRAIGHT
FF	FAR FACE	STRL	STRUCTURAL
FLG	FLANGE	STRUC	STRUCTURE
FS	FAR SIDE	SYMM	SYMMETRICAL
FT	FEET	T&B	TOP & BOTTOM
FTG	FOOTING	TOB	TOP OF BOLT
Fy, fy	YIELD STRESS	TOC	TOP OF CONCRETE
FV	FIELD VERIFY	TOG	TOP OF GRATING
GA	GAGE	TOS	TOP OF STEEL
GALV	GALVANIZE	TYP	TYPICAL
GR	GRADE	UNO	UNLESS NOTED OTHERWISE
GRTG	GRATING	VAR	VARIES
H	HIGH	VERT	VERTICAL
HORIZ	HORIZONTAL	W	WIDE
HR	HANDRAIL	W/	WITH
HS	HIGH STRENGTH	W/O	WITHOUT
IBC	INTERNATIONAL BUILDING CODE	WD	WIDTH
ID	INSIDE DIAMETER	WF	WIDE FLANGE
IF	INSIDE FACE	WP	WORK POINT
IJ	ISOLATION JOINT	WT	WEIGHT/STRUCTURAL
INTR	INTERIOR	WWF	WELDED WIRE FABRIC
INVT	INVERT	@	AT
JT	JOINT	&	AND
KB	KNEE BRACE	#	POUNDS OR NUMBER
KSI	KIPS PER SQUARE INCH	%	PERCENT
		Ø	DIAMETER

BURNS & MDONNELL
STATE LICENSE #43

JOHN J. SIRHALL
02/11/2020
KENTUCKY
SEAL 35301

PROFESSIONAL ENG/ARCH STAMP

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REF. DWG(S)

NO.	DATE	REVISION(S) DESCRIPTION	BY	CHK	APPD	DESCRIPTION	APPROVALS
0	02-19-2021	ISSUED FOR AS-BUILT	NPH	NCT	JJS	AREA CODE 5339	DATE N/A INITIALS N/A REGIONAL ENGINEER
						ACCOUNT NUMBER -	DATE N/A INITIALS N/A MGR TECH REC & STD
						PROJECT NUMBER V8351	DATE N/A INITIALS N/A PRINCIPAL ENGINEER
						DRAWING BY NPH	DATE 02/12/2020 INITIALS JJS
						STATION ID S0907K1	
						CHECKER INITIALS NCT	



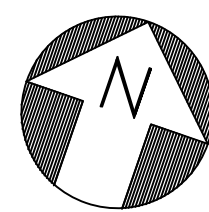
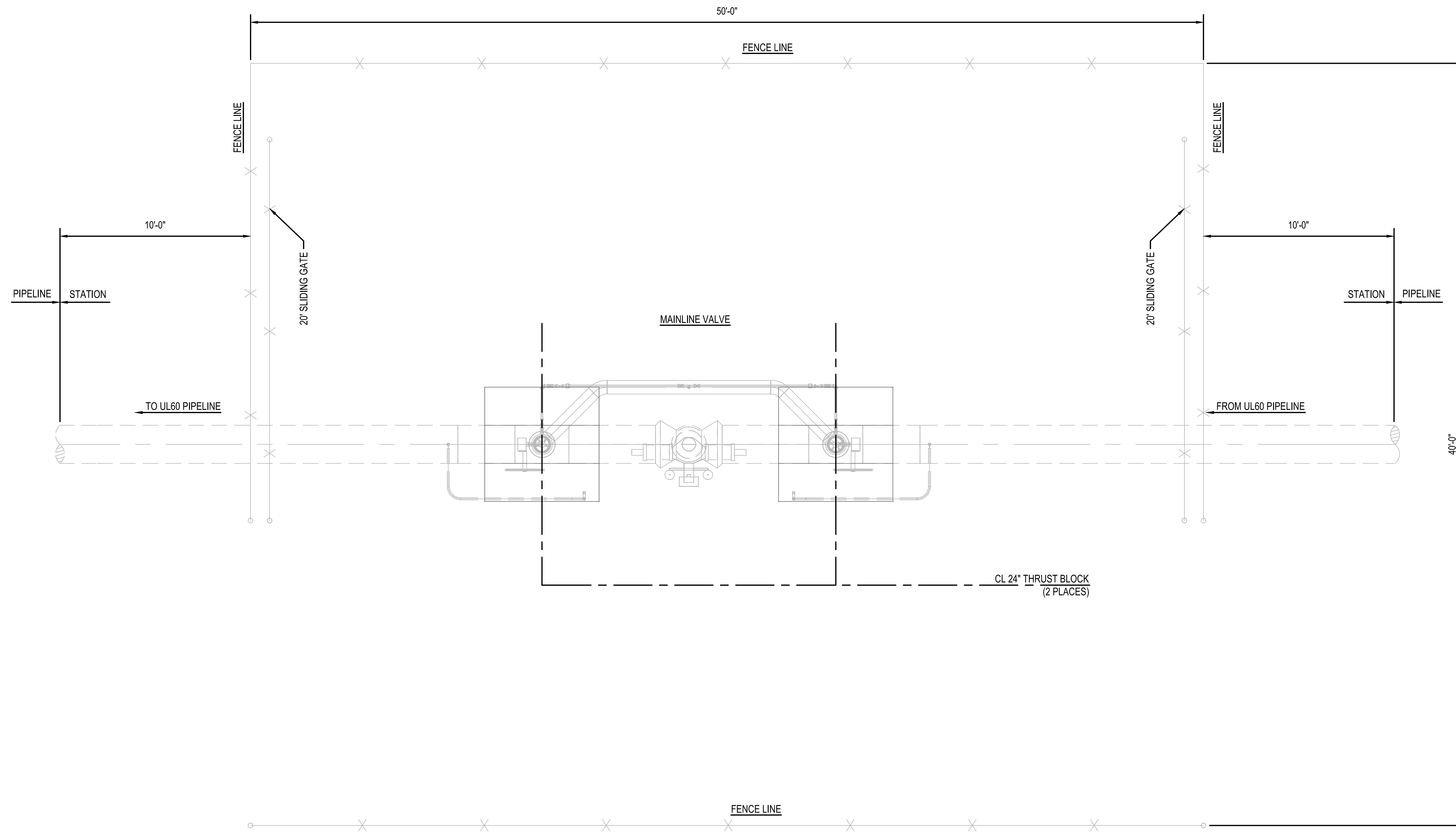
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UL60 PIPELINE
STRUCTURAL NOTES (2 OF 2)
BOONE COUNTY, KY

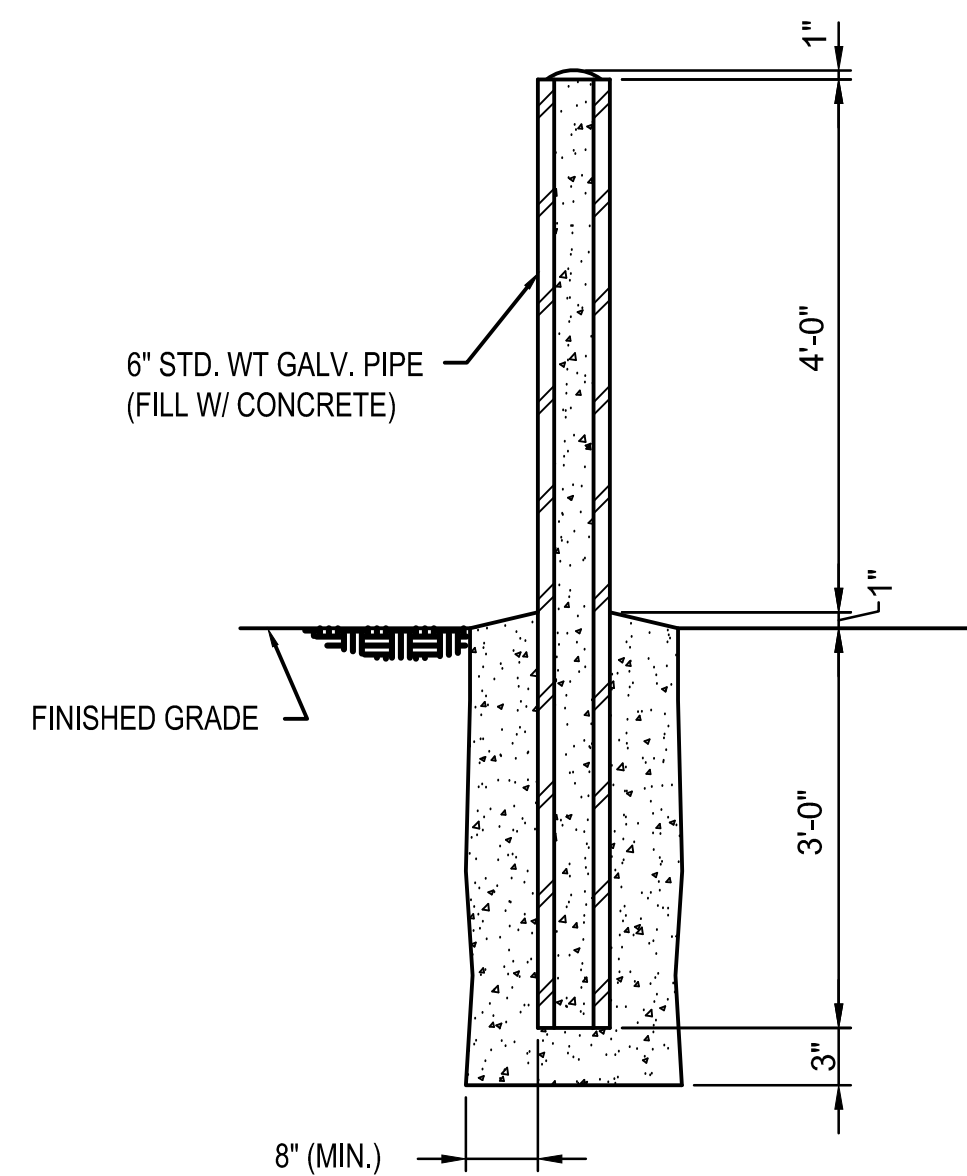
ERLANGER, KY

SHEET(S) XX OF XX	DWG SCALE	NONE
DWG DATE 02-12-2020	SUPERSEDED	
DRAWING NUMBER		REVISION
PNG -S-043-0001001		0
DISCIPLINE / RESOURCE CENTER / LINE NUMBER		

- NOTES:**
1. ANY CHANGES REQUIRED DUE TO FIELD CONDITIONS MUST BE APPROVED BY THE ENGINEER OF RECORD.
 2. LOCATE THRUST BLOCKS PER MECHANICAL DWGS.
 3. SEE DETAIL 18, DWG S-043-0001017 FOR THRUST BLOCK DETAILS.



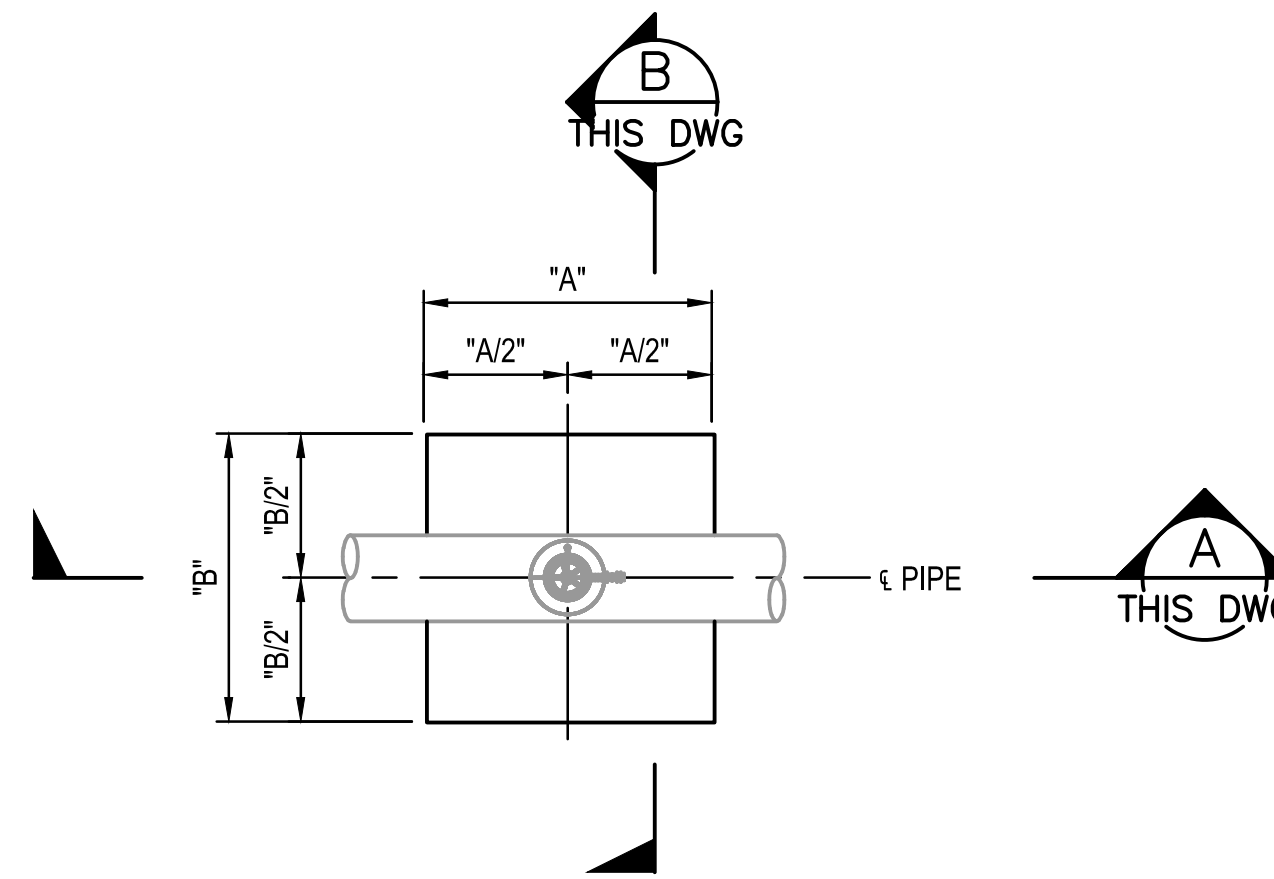
BURNS & MCDONNELL STATE LICENSE #43 JOHN J. SIRHALL 04/17/2020 KENTUCKY SEAL 35301 PROFESSIONAL ENGINEER ARCHITECT	PROPRIETARY & CONFIDENTIAL ALL RIGHTS RESERVED * DO NOT SCALE THIS DRAWING * USE DIMENSIONS ONLY DUKE ENERGY'S NATURAL GAS FACILITY DRAWINGS ARE CONSIDERED CONFIDENTIAL (OM-1095) * DRAWING IS CURRENT ONLY THROUGH THE LATEST REVISED DATE * TO ENSURE THERE IS NO RISK OF INAPPROPRIATE DISCLOSURE ALL PREVIOUS PAPER COPIES OF THIS DRAWING MUST BE DESTROYED IN ACCORDANCE WITH RECORDS & INFO. MANAGEMENT (RIM) POLICY 1001	REF. DWG(S) SHEET(S) XX OF XX DWG SCALE 5/16" = 1'-0" DWG DATE 02-12-2020 SUPERSEDED — DRAWING NUMBER REVISION PNG -S-043-0001003 0 DISCIPLINE / RESOURCE CENTER / LINE NUMBER																																																																						
			DUKE ENERGY COPYRIGHT 2018	MAINLINE VALVE SITE STRUCTURAL FOUNDATION PLAN BOONE COUNTY, KY ERLANGER, KY																																																																				
<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>NO.</th> <th>DATE</th> <th>REVISION(S) DESCRIPTION</th> <th>BY</th> <th>CHK</th> <th>APPD</th> <th>DESCRIPTION</th> <th>DATE</th> <th>INITIALS</th> <th>APPROVALS</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>02-19-2021</td> <td>ISSUED FOR AS-BUILT</td> <td>NPH</td> <td>NCT</td> <td>JJS</td> <td>AREA CODE 5339</td> <td>N/A</td> <td>N/A</td> <td>REGIONAL ENGINEER</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>ACCOUNT NUMBER -</td> <td>N/A</td> <td>N/A</td> <td>MGR TECH REC & STD</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>PROJECT NUMBER V8351</td> <td>N/A</td> <td>N/A</td> <td>PRINCIPAL ENGINEER</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>DRAWING BY NPH</td> <td>04/17/2020</td> <td>JJS</td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>STATION ID S0901K1</td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>CHECKER INITIALS NCT</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	NO.	DATE	REVISION(S) DESCRIPTION	BY	CHK	APPD	DESCRIPTION	DATE	INITIALS	APPROVALS	0	02-19-2021	ISSUED FOR AS-BUILT	NPH	NCT	JJS	AREA CODE 5339	N/A	N/A	REGIONAL ENGINEER							ACCOUNT NUMBER -	N/A	N/A	MGR TECH REC & STD							PROJECT NUMBER V8351	N/A	N/A	PRINCIPAL ENGINEER							DRAWING BY NPH	04/17/2020	JJS								STATION ID S0901K1										CHECKER INITIALS NCT					
NO.	DATE	REVISION(S) DESCRIPTION	BY	CHK	APPD	DESCRIPTION	DATE	INITIALS	APPROVALS																																																															
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						CHECKER INITIALS NCT																																																																		



DETAIL 17
SCALE: NTS
S-043-0001005
S-043-0001006
BOLLARD

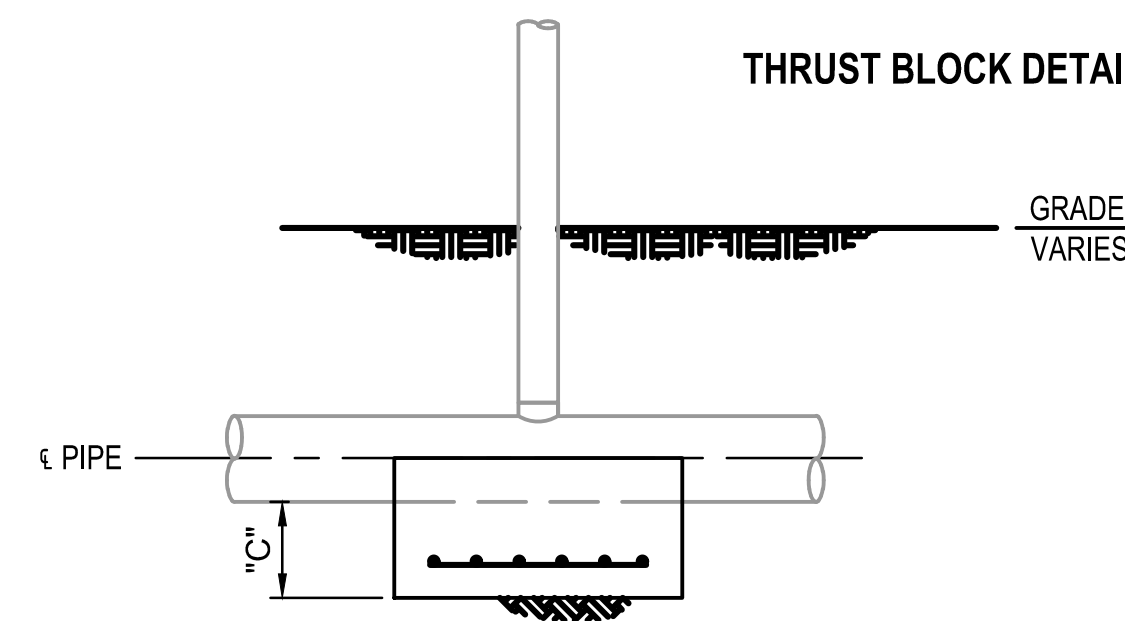
NOTES:
1. AFTER INSTALLATION PAINT BOLLARD WITH ALKYD GLOSS ENAMEL (40% SOLIDS BY VOLUME) "SAFETY" YELLOW AT 1.5 MILS DRY FILM THICKNESS.

THRUST BLOCK SCHEDULE				
PIPE SIZE	"A"	"B"	"C"	REINFORCEMENT
8" - 12"	5'-0"	5'-0"	0'-9"	#6 BARS @ 12" BOTH WAYS MID DEPTH
16" - 24"	6'-0"	6'-0"	0'-9"	#6 BARS @ 12" BOTH WAYS MID DEPTH

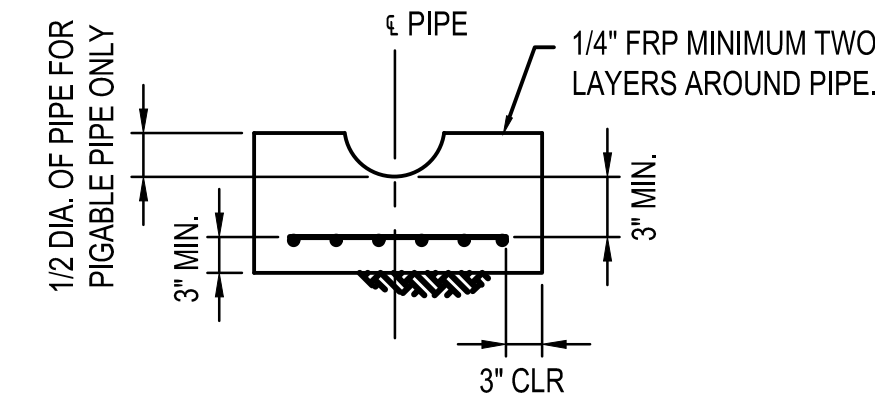


DETAIL 18
SCALE: NTS

THRUST BLOCK DETAILS & SCHEDULES

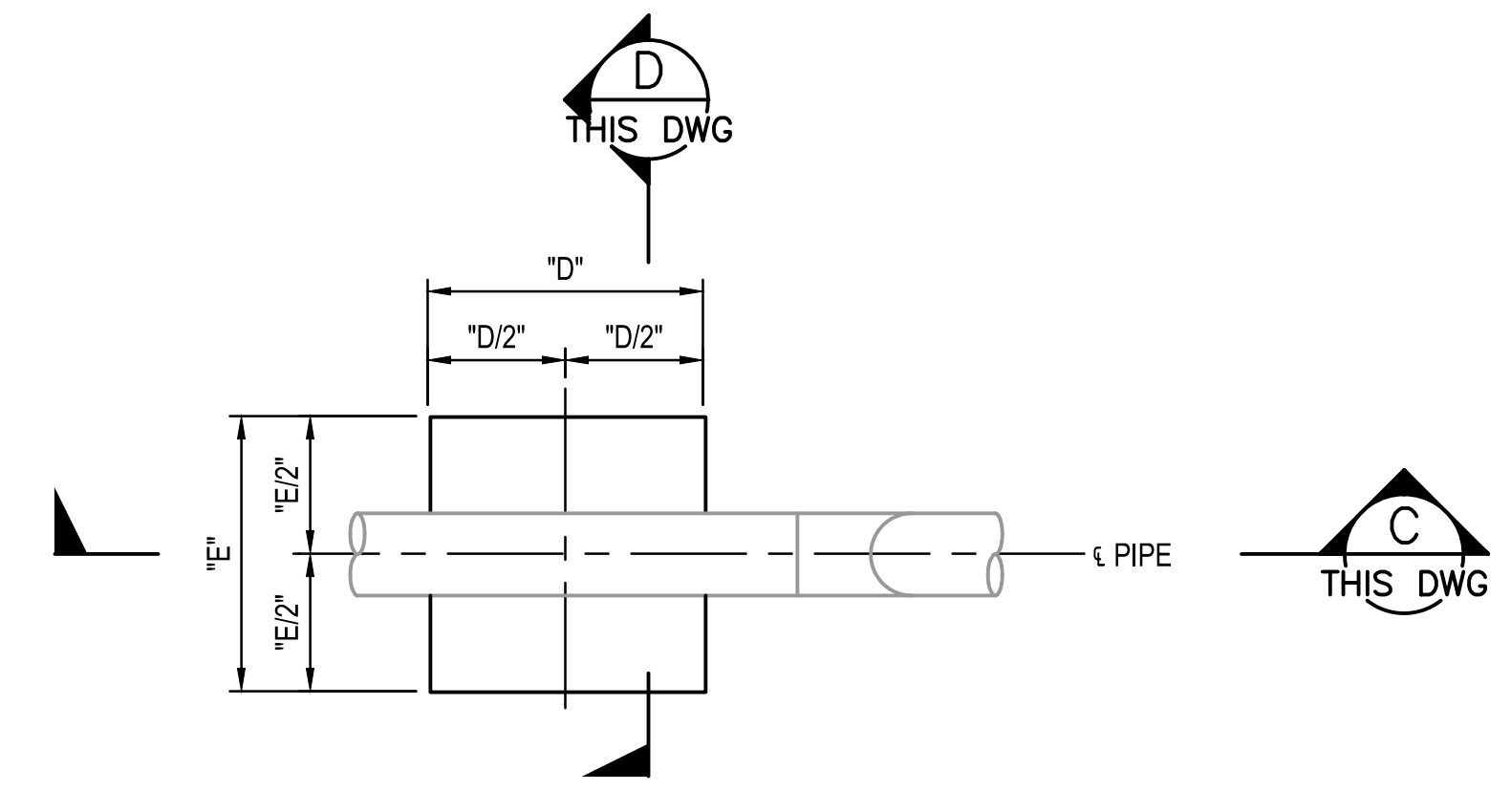


SECTION A
SCALE: NTS
THIS DWG



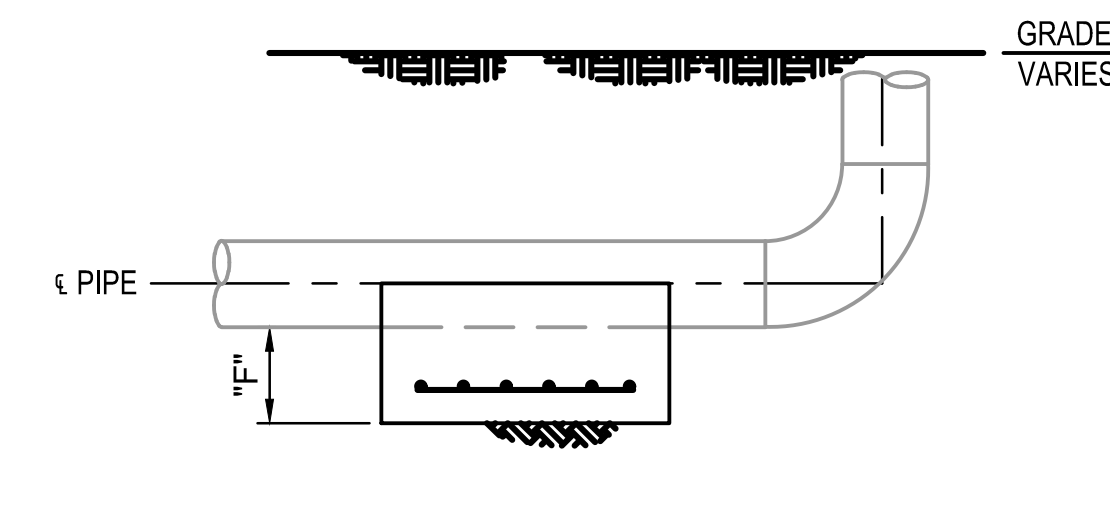
SECTION B
SCALE: NTS
THIS DWG

REST BLOCK SCHEDULE				
PIPE SIZE	"D"	"E"	"F"	REINFORCEMENT
1" - 6"	1'-0"	1'-0"	0'-6"	#4 BARS @ 12" BOTH WAYS MID DEPTH
8" - 12"	2'-0"	2'-0"	0'-6"	#4 BARS @ 12" BOTH WAYS MID DEPTH
16"	2'-6"	2'-6"	0'-6"	#4 BARS @ 12" BOTH WAYS MID DEPTH
24"	3'-0"	3'-0"	0'-6"	#4 BARS @ 12" BOTH WAYS MID DEPTH

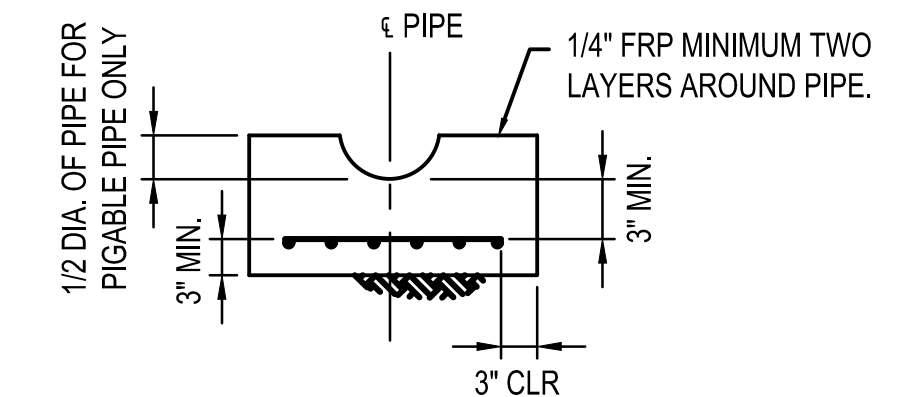


DETAIL 19
SCALE: NTS

REST BLOCK DETAILS & SCHEDULES



SECTION C
SCALE: NTS
THIS DWG



SECTION D
SCALE: NTS
THIS DWG

BURNS & MCDONNELL
STATE LICENSE #43

JOHN J. SIRHALL
04/17/2020
KENTUCKY
SEAL 35301

PROFESSIONAL ENG/ARCH STAMP

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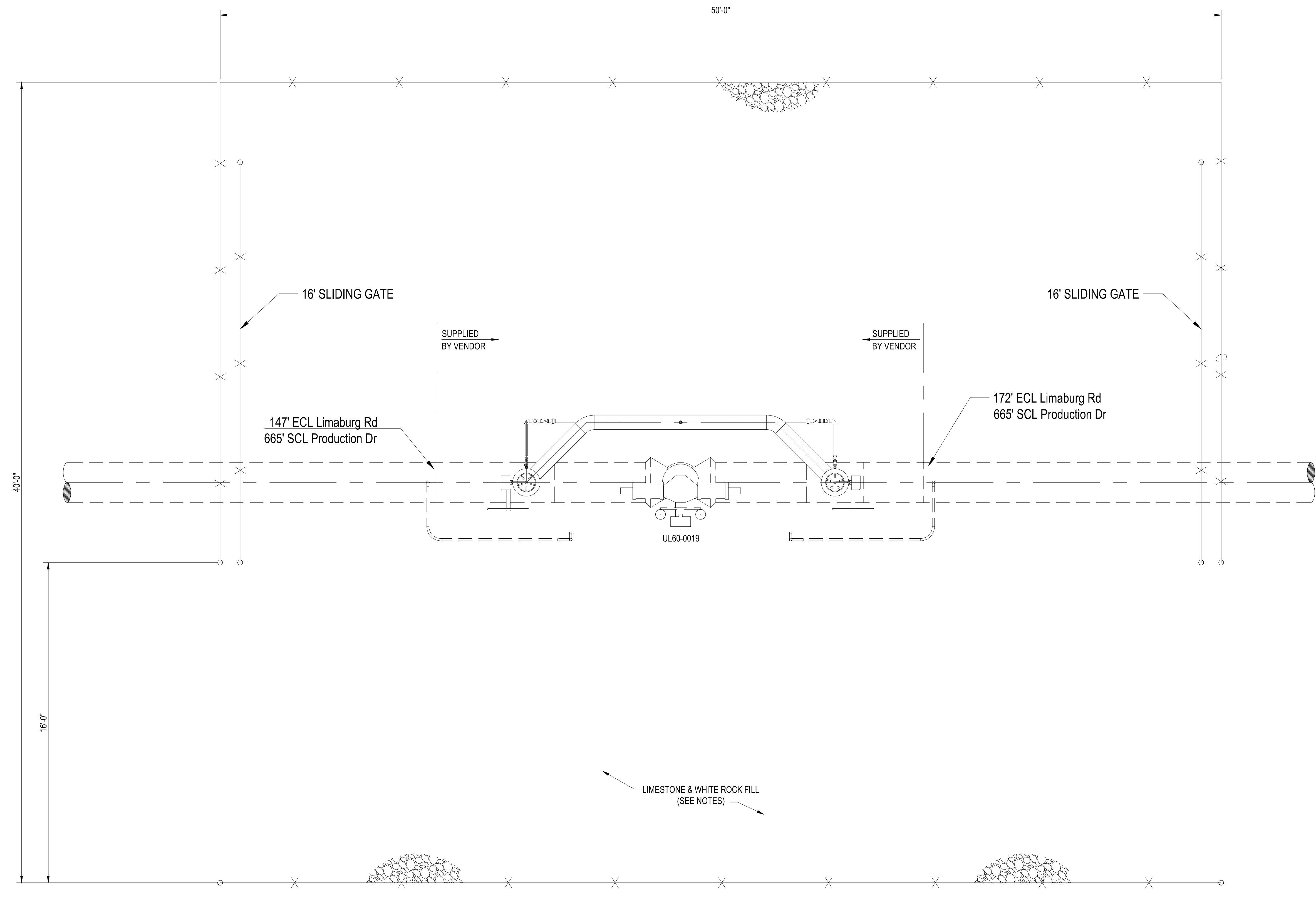
NO.	DATE	REVISION(S) DESCRIPTION	BY	CHK	APPD	DESCRIPTION	DATE	INITIALS	APPROVALS
0	02-19-2021	ISSUED FOR AS-BUILT	NPH	NCT	JJS	AREA CODE 5339	N/A	N/A	REGIONAL ENGINEER
						ACCOUNT NUMBER -	N/A	N/A	MGR TECH REC & STD
						PROJECT NUMBER V8351	N/A	N/A	PRINCIPAL ENGINEER
						DRAWING BY NPH	04/17/2020	JJS	
						STATION ID S0901K1			
						CHECKER INITIALS NCT			

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**UL60 PIPELINE
REST & THRUST BLOCK DETAILS & SCHEDULES
BOONE COUNTY, KY
ERLANGER, KY**

SHEET(S) XX OF XX	DWG SCALE AS SHOWN
DWG DATE 02/12/2020	SUPERSEDED
DRAWING NUMBER	REVISION
PNG -S-043-0001017	0
DISCIPLINE / RESOURCE CENTER / LINE NUMBER	

VALVE #	UL60-0019	SIZE	24"
MANUFACTURER	CAMERON	SER. #	121187398-1
MODEL #	80602-23A-1	W.O.G./M.O.P.	1480
GATE	<input type="checkbox"/> PLUG <input type="checkbox"/> OTHER	BALL	
TURNS TO OPEN	N/A		
LOCATION:			
	164 FT 4 IN	ECL LIMABURG RD	
	666 FT 7 IN	SCL PRODUCTION DR.	
	FT	IN	
BOX <input checked="" type="checkbox"/> PIT <input type="checkbox"/>	COVER AT MAIN	4	T 0 IN
PRESSURE STEMS LOCATED	N	S	(E) (W)
REMARKS	BELOW GROUND WxW		



PLAN VIEW
SCALE: AS NOTED BELOW

BURNS & MCDONNELL
STATE LICENSE #43

CLAUDE A. MCMULLAN
04/17/2020
KENTUCKY
SEAL 33557

PROFESSIONAL ENG/ARCH STAMP

PIEDMONT'S NATURAL GAS FACILITY DRAWINGS ARE CONSIDERED CONFIDENTIAL (OM-1095) * DRAWING IS CURRENT ONLY THROUGH THE LATEST REVISED DATE * TO ENSURE THERE IS NO RISK OF INAPPROPRIATE DISCLOSURE ALL PREVIOUS PAPER COPIES OF THIS DRAWING MUST BE DESTROYED IN ACCORDANCE WITH RECORDS & INFO. MANAGEMENT (RIM) POLICY 1001

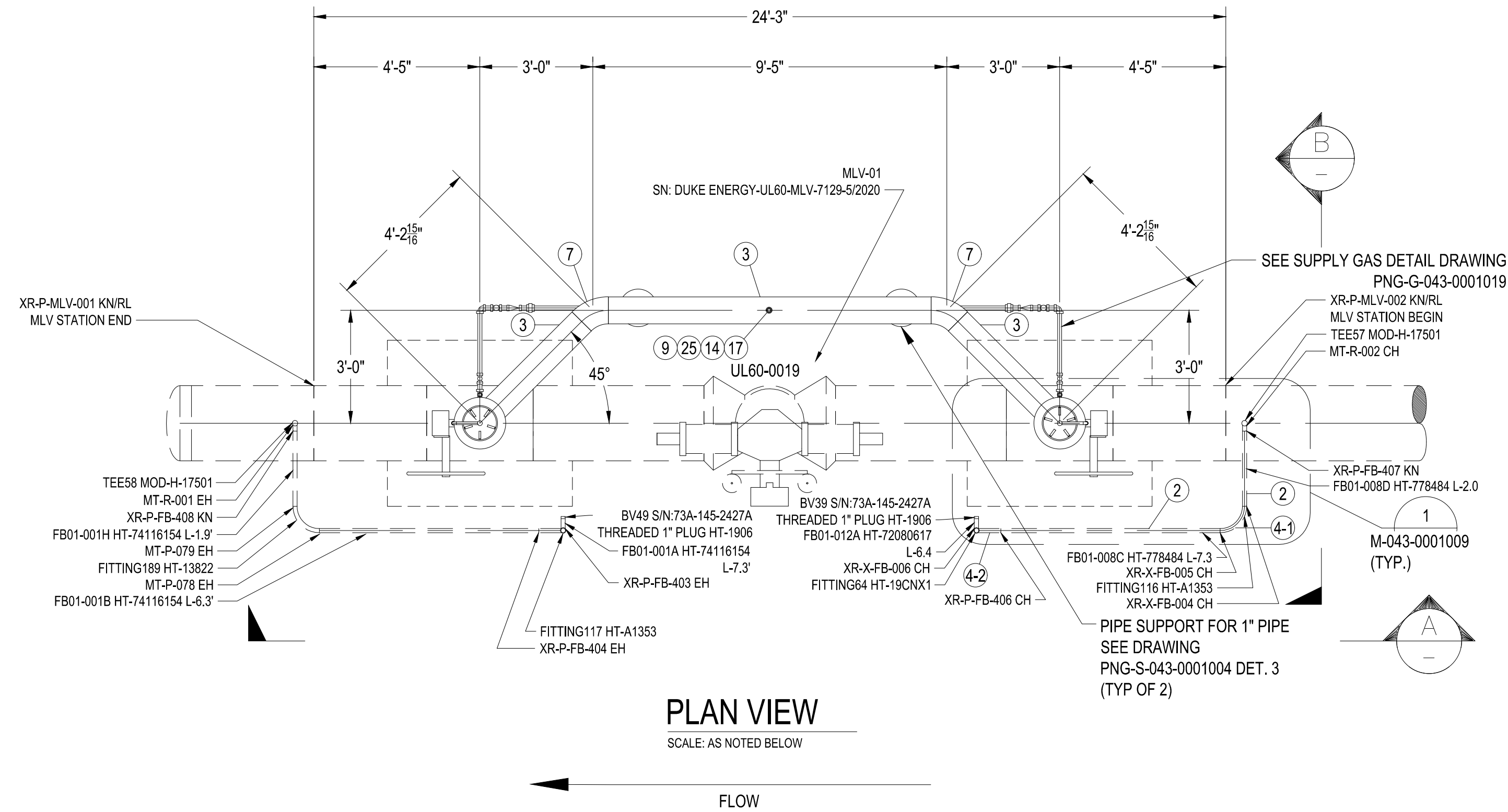
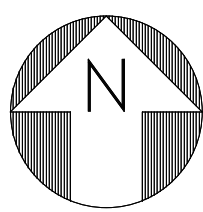
REF. DWG(S)

NO.	DATE	REVISION(S) DESCRIPTION	BY	CHK	APPD	DESCRIPTION	DATE	INITIALS	APPROVALS
0	01-18-2021	ISSUED FOR AS-BUILT	SFS	JRC	CDS	AREA CODE	-	N/A	REGIONAL ENGINEER
1	02-19-2021	ISSUED FOR AS-BUILT	SFS	JRC	CDS	ACCOUNT NUMBER	-	N/A	MGR TECH REC & STD
						PROJECT NUMBER	V8351	N/A	PRINCIPAL ENGINEER
						DRAWING BY	SFS	02/12/2020	
						STATION ID			
						CHECKER INITIALS	JRC		

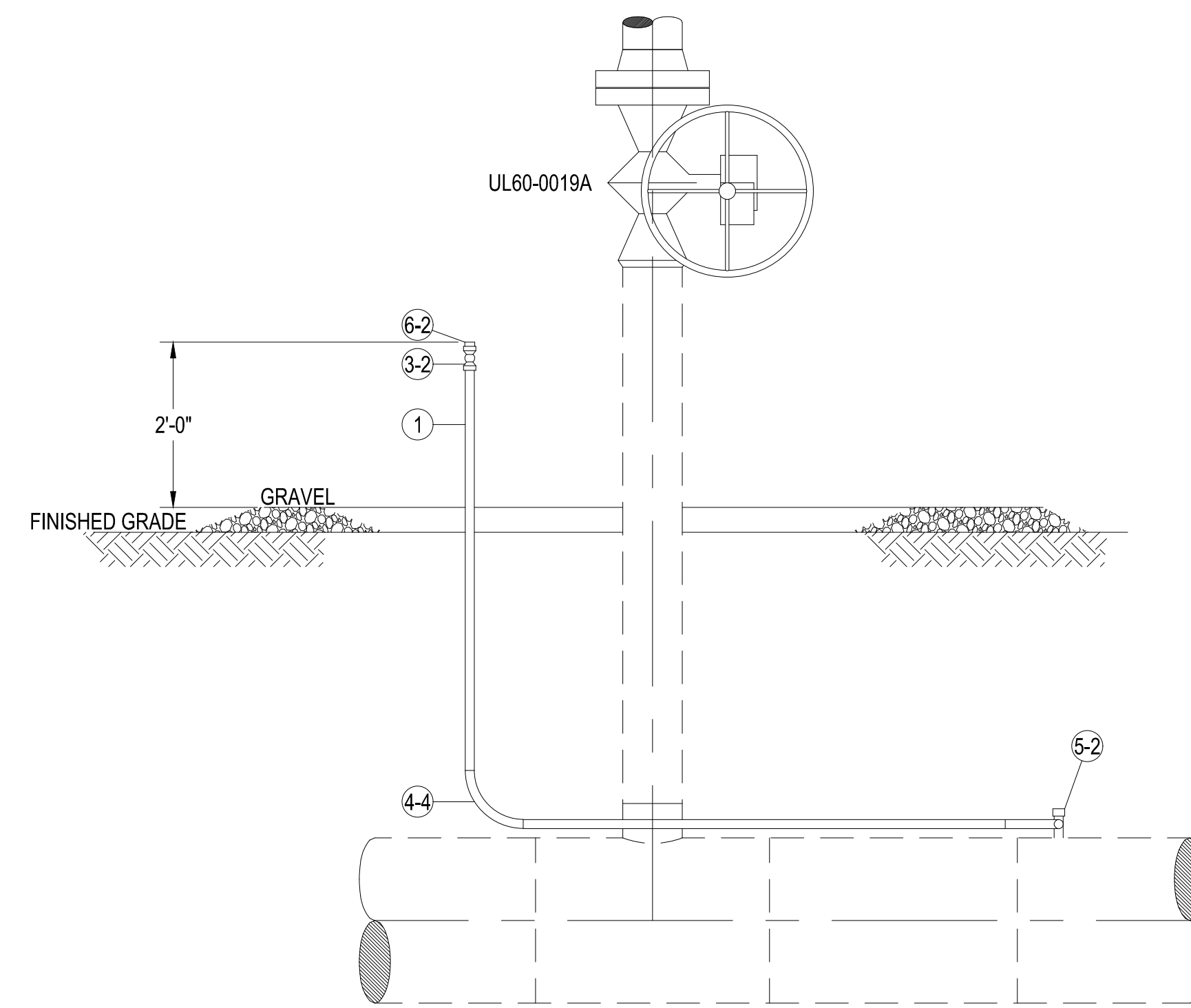


**MAINLINE VALVE SITE
MECHANICAL PLOT PLAN
BOONE COUNTY, KY**
ERLANGER, KY

SHEET(S)	1 OF 1	DWG SCALE	3/8" = 1'-0"
DWG DATE	09-17-2019	SUPERSEDED	
DRAWING NUMBER	PNG -M-043-0001008		
REVISION	1		
DISCIPLINE / RESOURCE CENTER / LINE NUMBER			



PLAN VIEW
SCALE: AS NOTED BELOW

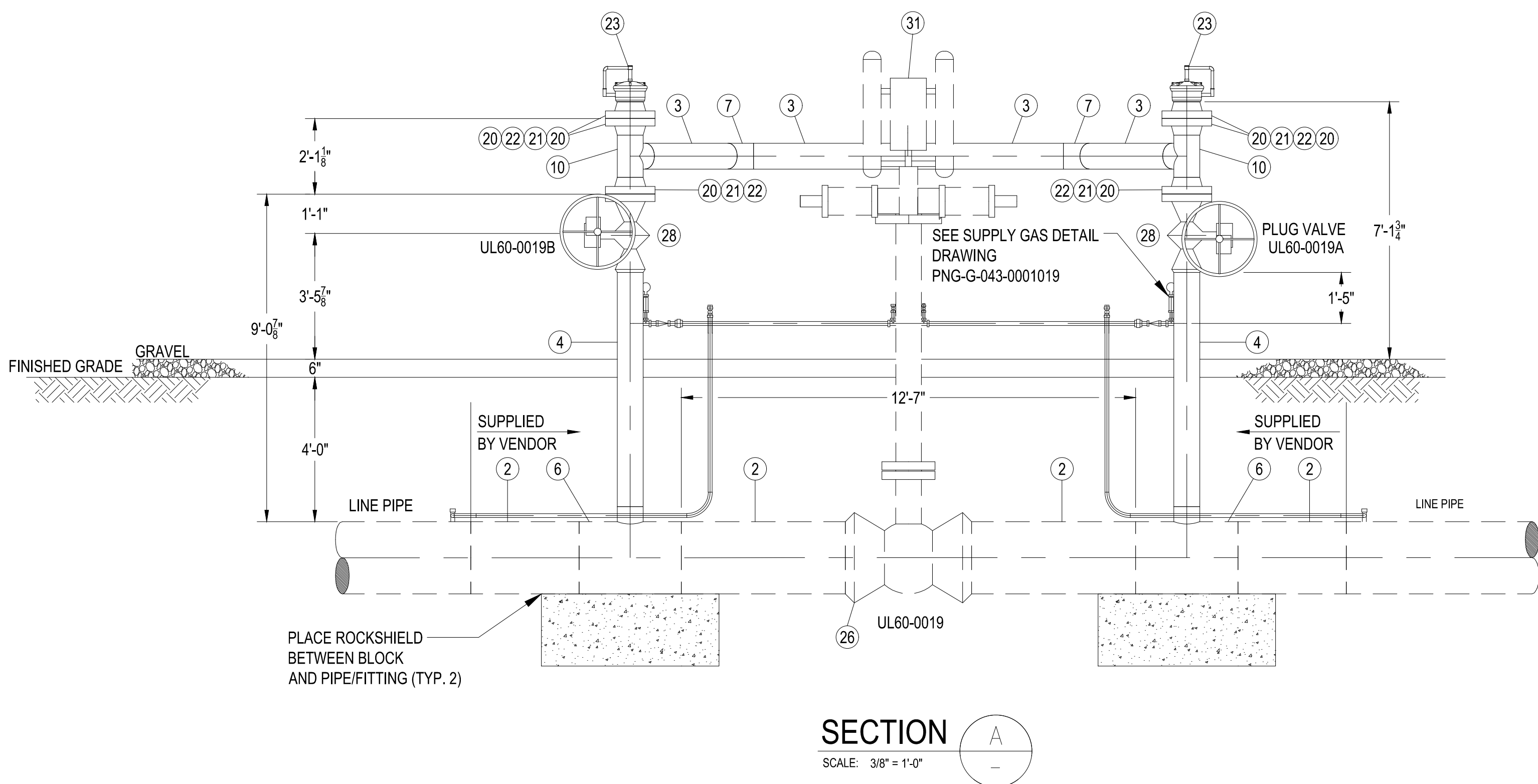


DETAIL 1
SCALE: 5/8" = 1'-0" M-043-0001009

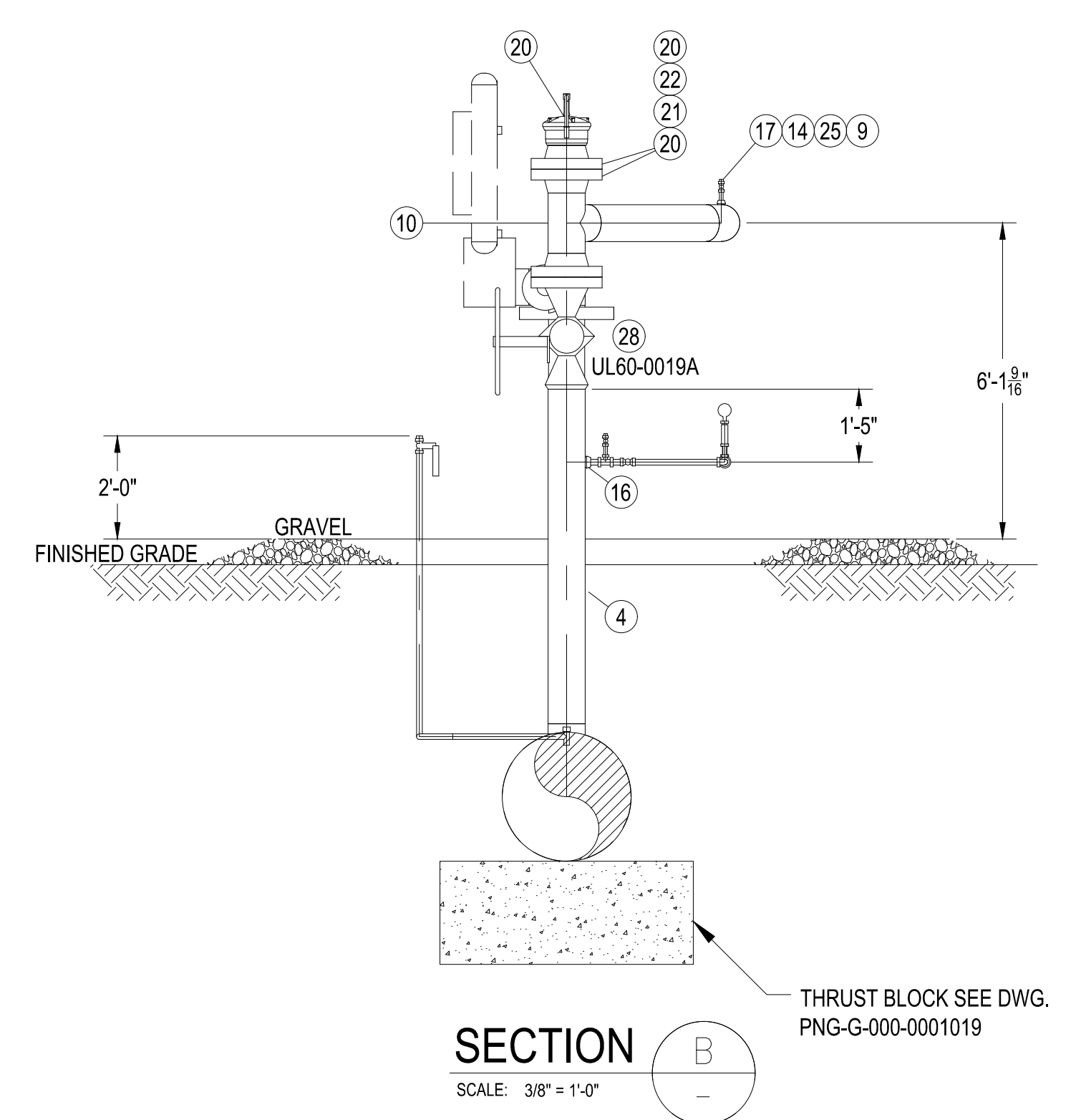
VALVE #	UL60-0019A	SIZE	8"
MANUFACTURER	FLowsERVE	SER. #	61-630129
MODEL #	H2249	W.O.G./M.O.P.	1480
GATE	<input type="checkbox"/> PLUG <input checked="" type="checkbox"/> OTHER		
TURNS TO OPEN	N/A		
LOCATION:	N/A FT N/A IN N/A		
	FT IN		
	FT IN		
BOX <input type="checkbox"/> PIT <input type="checkbox"/> COVER AT MAIN	N/A	T	N/A
PRESSURE STEMS LOCATED	N	S	E W
REMARKS	ABOVE GROUND WxF		

VALVE #	UL60-0019B	SIZE	8"
MANUFACTURER	FLowsERVE	SER. #	61-630130
MODEL #	H2249	W.O.G./M.O.P.	1480
GATE	<input type="checkbox"/> PLUG <input checked="" type="checkbox"/> OTHER		
TURNS TO OPEN	N/A		
LOCATION:	N/A FT N/A IN N/A		
	FT IN		
	FT IN		
BOX <input type="checkbox"/> PIT <input type="checkbox"/> COVER AT MAIN	N/A	T	N/A
PRESSURE STEMS LOCATED	N	S	E W
REMARKS	ABOVE GROUND WxF		

- NOTES:**
- FACILITIES HANDLING GAS DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE OFFICE OF PIPELINE SAFETY OPERATIONS, PART 192 OF TITLE 49 OF THE CODE OF FEDERAL REGULATIONS.
 - MAOP: 1000 PSI
DESIGN FACTOR: 0.4
 - FOR BILL OF MATERIALS PLEASE SEE DWG. PNG-M-000-0001010.



SECTION A
SCALE: 3/8" = 1'-0"



SECTION B
SCALE: 3/8" = 1'-0"

BURNS & MCDONNELL
STATE LICENSE #43

CLAUDE A. MCMULLAN
04/17/2020
KENTUCKY
SEAL 33557

PROFESSIONAL ENGINEER ARCHITECT

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REF. DWG(S)	
SHEET(S)	1 OF 1
DWG DATE	09-17-2019
DWG SCALE	NOTED
DRAWING NUMBER	PNG -M-043-0001009
REVISION	1
DISCIPLINE / RESOURCE CENTER / LINE NUMBER	

NO.	DATE	REVISION(S) DESCRIPTION	BY	CHK	APPD	DESCRIPTION	DATE	INITIALS	APPROVALS
0	01-18-2021	ISSUED FOR AS-BUILT	SFS	JRC	CDS	AREA CODE	-	N/A	REGIONAL ENGINEER
1	02-19-2021	ISSUED FOR AS-BUILT	SFS	JRC	CDS	ACCOUNT NUMBER	-	N/A	MGR TECH REC & STD
						PROJECT NUMBER	V8351	N/A	PRINCIPAL ENGINEER
						DRAWING BY	SFS	CAM	
						STATION ID			
						CHECKER INITIALS	JRC		

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**MAINLINE VALVE SITE
PLAN & ELEVATIONS MAINLINE VALVE
BOONE COUNTY, KY**
ERLANGER, KY

BOM #	LEGACY NUMBER	MAXIMO PART #	SOURCE SYSTEM	QTY	DESCRIPTION	ORDERING INSTRUCTIONS	ORDERING SPECIFICATIONS	MANUF	MODEL	MANUF PART #
					PIPE					
1	17297	1557796	PNG	0	PIPE, 1" NPS X 0.179 W.T., SRL RANDOM LG, BEVELED ENDS, SEAMLESS, FBE, STL, ASTM A106, GR B	Does not come in DRL		UNKNOWN,		1557796
2	17234	1557790	PNGKY-OH	31.2'	PIPE, 1" NPS X 0.179 W.T., 20' RANDOM LG, BEVELED ENDS, SEAMLESS, BARE, STL, ASTM A106, GR B			IPSCOINC		1-179-20LG-ASTMA106-BARE
					VALVES					
3	1570839	1570839	PNG	2	VALVE BALL, FLOATING, 1", 2-WAY, 2000 PSIG, REDUCED PORT, FPT, LOCKING LEVER OPERATED, CS BODY, 316 SS BALL & STEM, ASME B16.34 OR MSS SP-110, API 607, F/ NATURAL GAS USE			CONBRACOINDU,	APOLLO	73A-145-24-27A
					ELBOWS					
4	17396	1553218	PNG	4	ELBOW PIPE, 1" NPS X 0.179 W.T., BW, 90 DEG, 1.5D RADIUS, STL, ASME B16.9, ASTM A234 GR WPB, NON SEGMENTABLE, PAINTED PREFERRED, BARE ACCEPTABLE, MACHINE BEVEL ENDS PER ASME B31.8 APPENDIX I, FIG I-4			UNKNOWN,		1553218
					TEES					
5	16105	1556863	PNG	2	TEE, SERVICE TEE, 1" NPS, WELD, FORGED STL, ASME B16.11, ASME B16.11, ASTM A105, NO-BLO SERVICE, BARE, CAP, ASTM A105, TAPPING TEE			ENLINSTEELCO,		1556863
					PLUGS					
6	11112	50056901	ALL	2	PLUG PIPE, 1" NPS, SQ HEAD, THD, CLASS 3000, FORGED STL, ASME B16.11, ASTM A105, GR 55			CAPITOLMFGCO, PHOENIXFORGE, BONNEY FORGE		12203310, 5.151410

**MLV BILL OF MATERIALS
(SUPPLIED BY OTHERS)**

ITEM	QTY	UNIT	DESCRIPTION
1			NOT USED
2	6	FT	NPS 24 X .500" WT API 5L X65 PSL-2 PIPE, LSAW OR ERW 125.61#/FT, BEVELED 30 DEG FOR WELDING, MILL TESTED TO 2440 PSIG, SPEC MS-1, OD COATED WITH FUSION BONDED EPOXY
3	15	FT	NPS 8 X .322" WT API 5L X52 PSL-2 PIPE, BARE STEEL, ERW, 28.58#/FT, BEVELED 30 DEG FOR WELDING, MILL TESTED TO 2190 PSIG, SPEC MS-1
4	14	FT	NPS 8 X .322" WT API 5L X52 PSL-2 PIPE, BARE STEEL, ERW, 28.58#/FT, BEVELED 30 DEG FOR WELDING, MILL TESTED TO 2910 PSIG, SPEC MS-1, OD COATED WITH FUSION BONDED EPOXY
5			NOT USED
6	2	EA	24 X .500" WT RUN X NPS 8 X .322 WT BRANCH REDUCING TEE WITH GUIDE BARS, GRADE Y65, MS-3, STYLE 1, OD COATED WITH FUSION BONDED EPOXY
7	2	EA	NPS 8 X .322" WT 45 DEG. 1.5D WELD ELBOW, MSS SP-75, GRADE Y52, MS-3
8			NOT USED
9	1	EA	NPS 1/2" HEX PLUG, 3000#, A105, PER B16.11, FORGED STEEL SOLID
10	2	EA	NPS 8 X .322" WT WELD TEE, MSS SP-75, GRADE Y52, MS-3
11			NOT USED
12			NOT USED
13			NOT USED
14	1	EA	NPS 1/2 XH 3" LONG PIPE NIPPLE TBE, A106 GRADE B SEAMLESS BLACK CARBON STEEL PER A733
15			NOT USED
16	2	EA	NPS 1 ON NPS 8 THREADOLET, GRADE A694 F52, MSS SP-97, DESIGNED TO BE WELDED ON NPS 8 X .322" WT API 5L X52 LINE PIPE, CMTR REQUIRED
17	1	EA	NPS 1/2 ON NPS 8 THREADOLET, GRADE A694 F52, MSS SP-97, DESIGNED TO BE WELDED ON NPS 8 X .322" WT API 5L X52 LINE PIPE, CMTR REQUIRED
18			NOT USED
19			NOT USED
20	6	EA	NPS 8 FLANGE, RFWN, ANSI 600, DESIGN TO MATCH 0.322 WT X-52 PIPE, ASTM A694, MSS SP-44
21	4	EA	8-7/8" X 12-5/8" RF FLANGE GASKET, CLASS 600, FLEXITALLIC STYLE CGI W/ FLEXITE SUPER FILLER, 304 SS, 1/8" CARBON STEEL OUTER GAUGE RING AND SS INNER GAUGE RING, ASME B16.20 TO SUIT MSS SP-44 FLANGE
22	48	EA	1-1/8" STUD BOLT, A193 GRADE B7 W/2 A194 GRADE 2H HEX NUTS, CADIUM PLATED
23	2	EA	NPS 8 ANSI 600 TD WILLIAMSON D-500 THREADED CLOSURE WITH VERTICAL HINGE, ASME SECTION VIII, DESIGNED TO MATCH 0.322" WT API 5L X52 PIPE, PRESSURE ALERT VALVE
24			NOT USED
25	1	EA	VALVE, BALL, 1/2" TE, REDUCED PORT, CS BODY, ACETAL SEAT, 316SS TRIM, WRENCH, 3000PSIG @-50-100F, API-607 RATED, WKM #1/2-R-B136-CS-43-S1-WR
26	1	EA	NPS 24 CAMERON T31, CLASS 600 WE BALL VALVE, FULL PORT, CS BODY WITH CR OR NI PLATED BALL, PER CO. SPEC. MS-4, API 6D 23" BORE, DESIGN TO MATCH 0.500" WT X-65 PIPE, WITH 8'-6" EXTENSION STEM, FLAKELINE OR INTERTUF COATING, SUITABLE FOR MOUNTING AN AUTOMATIC OPERATOR, COMPLETE WITH BLOCK AND BLEED FEATURE. MANUFACTURER SUPPLIED 54.5" LG 0.500" WT X-65 PIPE SPOOLS EACH END.
27			NOT USED
28	2	EA	NPS 8 CLASS 600 WE X FE PLUG VALVE, REGULAR PORT, CS BODY CR OR NI PLATED PLUG, PER CO. SPEC. MS-4, API 6D "BORE, DESIGN TO MATCH 0.322" WT X-52 PIPE, GEAR OPERATED, COMPLETE WITH BLOCK AND BLEED FEATURE
29			NOT USED
30			NOT USED
31	1	EA	BETTIS OR SHAFER (SPECIFIC MODEL TBD) ACTUATOR FOR NPS 24 CLASS 600 BALL VALVE, VERSA 316 SS VSG-4522-M-XX-D024 LUBRICATED SOLENOID VALVES, LOCAL MANUAL VERSA CONTROL VALVE, WESTLOCK POSITIONER 9479-BY-2-SP-DT WITH LIMIT SWITCHES, ALL SS TUBING AND FITTINGS, MOUNTING HARDWARE, THREE PART EPOXY COATING
32			NOT USED

**SUPPLY GAS BILL OF MATERIALS
(SUPPLIED BY OTHERS)**

ITEM	QTY	UNIT	DESCRIPTION
1			NOT USED
2			NOT USED
3			NOT USED
4			NOT USED
5	15	FT	NPS 1 X .179" WT A106 BLACK GRADE B SEAMLESS, 2.17#/FT, PLAIN END, SQUARE CUT, MILL TESTED TO 2500 PSIG
6			NOT USED
7			NOT USED
8	2	EA	NPS 1 3000#, 90 DEG ELBOW, FEMALE THREADED FS A234 PER B16.11
9	3	EA	NPS 1/2" HEX, 3000#, A105, PER B16.11, FORGED STEEL SOLID
10			NOT USED
11	5	EA	NPS 1 X 1/2 3000#, FEMALE THREADED REDUCING TEE FS A234 PER B16.11
12	2	EA	GJ UNION, NPS 1 3000#, FEMALE THREADED, DIELECTRIC, FS A234 PER B16.11
13	10	EA	NPS 1 XH 3" LONG PIPE NIPPLE TBE, A106 GRADE B SEAMLESS BLACK CARBON STEEL PER A733
14	5	EA	NPS 1/2 XH 3" LONG PIPE NIPPLE TBE, A106 GRADE B SEAMLESS BLACK CARBON STEEL PER A733
15	1	EA	NPS 1 XH 8" LONG PIPE NIPPLE TBE, A106 GRADE B SEAMLESS BLACK CARBON STEEL PER A733
16			NOT USED
17			NOT USED
18			NOT USED
19			NOT USED
20			NOT USED
21			NOT USED
22			NOT USED
23			NOT USED
24	2	EA	VALVE, BALL, 1" SE, REDUCED PORT, CS BODY, ACETAL SEAT, 316SS TRIM, WRENCH, 3000PSIG @-50-100F, API-607 RATED, WKM #1-R-B136-CS-43-S1-WR
25	3	EA	VALVE, BALL, 1/2" TE, REDUCED PORT, CS BODY, ACETAL SEAT, 316SS TRIM, WRENCH, 3000PSIG @-50-100F, API-607 RATED, WKM #1/2-R-B136-CS-43-S1-WR
26			NOT USED
27	2	EA	GAUGE VALVE, 1/2" MNPT X 1/2" FNPT, AGCO #M9-V-D-S-44
28			NOT USED
29	2	EA	NPS 1 3000# SWING TYPE CHECK VALVE, A105 CARBON STEEL, FNPT, BALON 1F-C03S-SE
30			NOT USED
31			NOT USED
32	2	EA	ASHCROFT PRESURE GAUGE, 4 1/2" DIAL, 1/2" MPT BOTTOM CONN. 0-500 PSIG
33	1	EA	NPS 1 X 3/4 3000#, FEMALE THREADED REDUCING TEE FS A234 PER B16.11
34	1	EA	NPS 3/4 XH 3" LONG PIPE NIPPLE TBE, A106 GRADE B SEAMLESS BLACK CARBON STEEL PER A733
35	1	EA	VALVE, BALL, 3/4" TE, REDUCED PORT, CS BODY, ACETAL SEAT, 316SS TRIM, WRENCH, 3000PSIG @-50-100F, API-607 RATED, WKM #1/2-R-B136-CS-43-S1-WR
36	AR	EA	3/4" STAINLESS STEEL TUBING, FIELD ROUTE

HYDROTEST INFORMATION:

ALL STATION COMPONENTS WERE TESTED WITH TEST V8351-20201023-1 FOR 8 HOURS WITH WATER FROM A MINIMUM PRESSURE OF 1544.9 PSI TO A MAXIMUM PPRESSURE OF 1549.5 PSI.

REF. DWG(S)

SHEET(S)	1 OF 1	DWG SCALE	-
DWG DATE	09-17-2019	SUPERSEDED	-
DRAWING NUMBER		REVISION	
PNG -M-043-0001010		1	
DISCIPLINE / RESOURCE CENTER / LINE NUMBER			

BURNS & MCDONNELL
STATE LICENSE #43

CLAUDE A. MCMULLAN
04/17/2020
KENTUCKY
SEAL 33557

PROFESSIONAL ENG/ARCH STAMP

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NO.	DATE	REVISION(S) DESCRIPTION	BY	CHK	APPD	DESCRIPTION	DATE	INITIALS	APPROVALS
0	01-18-2021	ISSUED FOR AS-BUILT	SFS	JRC	CDS	AREA CODE	-	N/A	REGIONAL ENGINEER
1	02-19-2021	ISSUED FOR AS-BUILT	SFS	JRC	CDS	ACCOUNT NUMBER	-	N/A	MGR TECH REC & STD
						PROJECT NUMBER	V8351	N/A	PRINCIPAL ENGINEER
						DRAWING BY	SFS	02/12/2020	CAM
						CHECKER INITIALS	JRC		



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**MAINLINE VALVE SITE
BILL OF MATERIALS
BOONE COUNTY, KY**
ERLANGER, KY

CONDUIT AND CABLE	RECEPTACLE	EQUIPMENT	GENERAL NOTES: 1. NOT ALL SYMBOLS AND ABBREVIATIONS SHOWN ON THE DRAWING ARE USED FOR THIS PROJECT.	ABBREVIATIONS CONT'D
<p>EXPOSED CONDUIT OR CABLE VISIBLE</p> <p>EXPOSED CONDUIT OR CABLE HIDDEN</p> <p>CONDUIT BURIED IN FLOOR OR UNDERGROUND</p> <p>DIRECT BURIED CONDUIT OR CABLE</p> <p>FLEXIBLE CONDUIT</p> <p>CONDUIT OR CABLE CONTINUATION</p> <p>CONDUIT OR CABLE TURNING DOWN</p> <p>CONDUIT OR CABLE TURNING UP</p> <p>CONDUIT WITH BUSHING</p> <p>CONDUIT CAPPED FOR FUTURE USE</p> <p>CONDUIT CONTINUATION FROM EXISTING CAPPED STUB</p> <p>CONDUIT TURNED UP AND CAPPED (CAP AT ELEVATION NOTED)</p> <p>CONDUIT DROPPING OUT BOTTOM OF EQUIPMENT</p> <p>COMMUNICATIONS TEE</p> <p>TEE IN HORIZONTAL CONDUIT RUN WITH THE BRANCH GOING HORIZONTAL</p> <p>TEE IN HORIZONTAL CONDUIT RUN WITH THE BRANCH GOING UP (AND PIERCING THE PLANE OF PROJECTION)</p> <p>TEE IN HORIZONTAL CONDUIT RUN WITH THE BRANCH GOING DOWN</p> <p>TEE IN VERTICAL CONDUIT RUN WITH THE BRANCH GOING HORIZONTAL</p> <p>NO CONNECTION</p> <p>NEUTRAL CONNECTION</p> <p>LOOP INDICATES SHIELDED CABLE (SIZE AS REQUIRED)</p> <p>CABLE CHANNEL TURNS DOWN</p> <p>CABLE CHANNEL TURNS UP</p> <p>CONDUIT NUMBER CALLOUT, SEE CABLE SCHEDULE</p>	<p><u>RECEPTACLE AND DEVICE SUFFIXES</u></p> <p>WP WEATHERPROOF</p> <p>EP EXPLOSION-PROOF</p> <p>LT LOCKING TYPE</p> <p>IG ISOLATED GROUND</p> <p>GFI GROUND FAULT INTERRUPTER</p> <p>CLOCK HANGER RECEPTACLE, SINGLE, FLUSH MOUNTED</p> <p>SINGLE RECEPTACLE, FLUSH MOUNTED, STRAIGHT-BLADE</p> <p>SINGLE RECEPTACLE, SURFACE MOUNTED</p> <p>DUPLEX RECEPTACLE, FLUSH MOUNTED, STRAIGHT-BLADE (120V)</p> <p>DUPLEX RECEPTACLE, FLUSH MOUNTED, STRAIGHT-BLADE (240V)</p> <p>DUPLEX RECEPTACLE, SURFACE MOUNTED, STRAIGHT-BLADE</p> <p>FLOOR DUPLEX RECEPTACLE, STRAIGHT-BLADE</p> <p>FLOOR SPECIAL PURPOSE RECEPTACLE, STRAIGHT-BLADE</p> <p>SPECIAL PURPOSE POWER RECEPTACLE, SURFACE MOUNTED, STRAIGHT-BLADE, RATING AS NOTED</p> <p>WELDING RECEPTACLE</p> <p>S SINGLE POLE SWITCH</p> <p>S₃ THREE WAY SWITCH</p> <p>S₄ FOUR WAY SWITCH</p> <p>S_D DIMMER SWITCH</p> <p>S_K SINGLE POLE SWITCH, KEY OPERATED</p> <p>S_P SINGLE POLE SWITCH WITH PILOT LIGHT</p>	<p>TWO WINDING TRANSFORMER</p> <p>AUTO TRANSFORMER</p> <p>POTENTIAL TRANSFORMER</p> <p>LINE TRAP</p> <p>CAPACITOR</p> <p>TRANSFER SWITCH</p> <p>AIR OR VACUUM CIRCUIT BREAKER</p> <p>LIGHTNING OR SURGE ARRESTER</p> <p>GROUND CONNECTION</p> <p>BATTERY</p> <p>EQUIPMENT AS NOTED ON PLANS</p> <p>GAUGEBOARD</p> <p>DISCONNECT SWITCH</p> <p>ELECTRICAL DEVICE</p> <p>THERMOSTAT</p> <p>JUNCTION BOX</p> <p>TERMINAL BOX CONTAINING TERMINAL BLOCKS WITH SUFFICIENT NUMBER OF POLES TO TERMINATE ALL CONDUCTORS ENTERING THE BOX</p> <p>TB</p> <p>GENERATOR</p> <p>SPD SURGE SUPPRESSION DEVICE</p> <p>INDICATING LIGHT (COLOR)</p> <p>A - AMBER</p> <p>BL - BLUE</p> <p>C - CLEAR</p> <p>G - GREEN</p> <p>R - RED</p> <p>W - WHITE</p> <p>Y - YELLOW</p> <p>INDICATING LIGHT (FUNCTIONS)</p> <p>L - LINE POTENTIAL</p> <p>S - SYNCHRONIZING</p> <p>SO - SCOPE ON</p> <p>T - TRIP INDICATION</p> <p>T&S - TRIP & SUPER-VISING (TWO LIGHTS)</p> <p>COIL DESIGNATIONS</p> <p>M - MOTOR STARTER</p> <p>TDR - TIME DELAY RELAY</p> <p>C - CONTACTOR</p> <p>CR - CONTROL RELAY</p> <p>MX - MOTOR STARTER AUX RELAY (USUALLY PICKS UP THE "M" COIL)</p> <p>F - FORWARD OR FAST</p> <p>R - REVERSE</p> <p>S - SLOW</p> <p>CONTROL STATION</p> <p>X - TYPE/DESIGNATION:</p> <p>A - HAND/OFF/AUTO</p> <p>B - H/O/A WITH START</p> <p>C - REMOTE STOP</p> <p>D - START/STOP</p> <p>E - AUTO/ON</p> <p>F - JOG/OFF/AUTO</p> <p>G - J/O/A WITH START</p> <p>P - PHOTOCELL</p> <p>V - VIBRATION SWITCH</p> <p>DCS INTERFACE SYMBOL W/ SCHEMATIC REFERENCE DRAWING NUMBER</p>	<p><u>CABLE CONDUCTOR COLOR CODING</u></p> <p>BK - BLACK</p> <p>RD - RED</p> <p>BL - BLUE</p> <p>OR - ORANGE</p> <p>YL - YELLOW</p> <p>BR - BROWN</p> <p>WH - WHITE</p> <p>GN - GREEN</p> <p>RD/BK - RED/BLACK</p> <p>BL/BK - BLUE/BLACK</p> <p>OR/BK - ORANGE/BLACK</p> <p>YL/BK - YELLOW/BLACK</p> <p>BR/BK - BROWN/BLACK</p> <p>BK/RD - BLACK/RED</p> <p><u>ABBREVIATIONS</u></p> <p>A AMPERES</p> <p>AC ALTERNATING CURRENT</p> <p>AGA AMERICAN GAS ASSOCIATION</p> <p>AH ALARM HORN</p> <p>ALM ALARM</p> <p>ANN ANNUNCIATOR</p> <p>API AMERICAN PETROLEUM INSTITUTE</p> <p>A/R (OR) AR AS REQUIRED</p> <p>AS AMMETER SWITCH</p> <p>ATS AUTOMATIC TRANSFER SWITCH</p> <p>AUTO AUTOMATIC</p> <p>AUX AUXILIARY</p> <p>AWG AMERICAN WIRE GAUGE</p> <p>BAT BATTERY</p> <p>BKR BREAKER</p> <p>B.O.M. (OR) BOM BILL OF MATERIALS</p> <p>C CONDUIT</p> <p>CA CABLE</p> <p>CB CIRCUIT BREAKER</p> <p>CHGR CHARGER</p> <p>CKT CIRCUIT</p> <p>CTRL CONTROL</p> <p>CNVT CONVERTER</p> <p>CONT'D CONTINUED ON DRAWING</p> <p>CP CONTROL PANEL</p> <p>CS CIRCUIT SWITCHER</p> <p>CT CURRENT TRANSFORMER</p> <p>DB DIRECT BURIED</p> <p>DC DIRECT CURRENT</p> <p>DET DETECTOR</p> <p>DI DIGITAL INPUT</p> <p>DIFF DIFFERENTIAL</p> <p>DISC DISCONNECT</p> <p>DN DOWN</p> <p>DO DIGITAL OUTPUT</p> <p>DP DISTRIBUTION PANEL</p> <p>DS DISTRIBUTION SWITCH (OR) DISCONNECT SWITCH</p> <p>DWG DRAWING</p> <p>EL ELEVATION</p> <p>ELEC ELECTRICAL</p> <p>EMER EMERGENCY</p> <p>EMT ELECTRICAL METALLIC TUBING</p> <p>EP EXPLOSION PROOF</p> <p>ES (OR) ESD EMERGENCY STOP (OR) EMERGENCY SHUTDOWN</p> <p>F (OR) FWD FORWARD</p> <p>FDR FEEDER</p> <p>FREQ FREQUENCY</p> <p>FU FUSE</p> <p>GEN GENERATOR</p> <p>GND GROUND</p> <p>GRC GALVANIZED RIGID CONDUIT</p> <p>HTR HEATER</p> <p>HV HIGH VOLTAGE</p> <p>HVS HIGH VOLTAGE SWITCHGEAR</p> <p>HZ HERTZ (FREQUENCY)</p> <p>INSTR INSTRUMENT</p> <p>INTLK INTERLOCK</p> <p>IO INPUT/OUTPUT FOR CONTROLLER</p> <p>JB (OR) J-BOX JUNCTION BOX</p> <p>KV KILOVOLT</p> <p>KVA KILOVOLT AMPERES</p> <p>LP LIGHTING PANEL, SMALL POWER PANEL</p> <p>LTG LIGHTING</p> <p>LV LOW VOLTAGE</p>	<p>M METER</p> <p>MAN MANUAL</p> <p>MISC MISCELLANEOUS</p> <p>MTR MOTOR</p> <p>NC NORMALLY CLOSED</p> <p>NEC NATIONAL ELECTRICAL CODE</p> <p>NEUT NEUTRAL</p> <p>NO NORMALLY OPEN</p> <p>NTS NOT TO SCALE</p> <p>Ω OHMMETER</p> <p>O/H (OR) OH OVERHEAD</p> <p>OL OVERLOAD</p> <p>OP OPERATING</p> <p>P POLE</p> <p>PC PHOTOCELL</p> <p>P.F. (OR) PF POWER FACTOR</p> <p>PH (OR) Ø PHASE</p> <p>PNL PANEL</p> <p>POT POTENTIOMETER</p> <p>PP POWER PANEL</p> <p>PS PRESSURE SWITCH</p> <p>PT POTENTIAL TRANSFORMER</p> <p>PVC POLYVINYL CHLORIDE</p> <p>PWR POWER</p> <p>R (OR) REV REVERSE</p> <p>RCT RECTIFIER</p> <p>RCPT RECEPTACLE</p> <p>REF REFERENCE</p> <p>REF DWG # REFERENCE DRAWING NUMBER (AS INDICATED)</p> <p>REQD REQUIRED</p> <p>RES RESISTOR</p> <p>RGS RIGID GALVANIZED STEEL</p> <p>RMC RIGID METALLIC CONDUIT</p> <p>RTD RESISTANCE TEMPERATURE DETECTOR</p> <p>SHLD SHIELDED</p> <p>SH (OR) SHT SHEET</p> <p>SP SPARE</p> <p>STA STATION</p> <p>STR STARTER</p> <p>SW SWITCH</p> <p>SWBD SWITCHBOARD</p> <p>SWGR SWITCHGEAR</p> <p>TB TERMINAL BLOCK</p> <p>TBD TERMINAL BOARD</p> <p>TBX TERMINAL BOX</p> <p>TDR TIME DELAY RELAY</p> <p>TEL TELEPHONE</p> <p>T.O.C. (OR) TOC TOP OF CONCRETE</p> <p>T.O.D. (OR) TOD TOP OF DUCT</p> <p>T.O.G. (OR) TOG TOP OF GRATING</p> <p>T.O.S. (OR) TOS TOP OF STEEL</p> <p>TSP TWISTED SHIELDED PAIR</p> <p>TYP TYPICAL</p> <p>U/G (OR) UG UNDERGROUND</p> <p>UPS UNINTERRUPTIBLE POWER SUPPLY</p> <p>UV UNDERVOLTAGE</p> <p>V VOLTS (OR) VOLTAGE</p> <p>VFD VARIABLE FREQUENCY DRIVE</p> <p>VS VOLTMETER SWITCH</p> <p>W WATT or WIRE</p> <p>WP WEATHERPROOF</p> <p>WR WELDING RECEPTACLE</p> <p>XDCR TRANSDUCER</p> <p>XE MISC. ELECTRICAL EQUIPMENT</p> <p>XF POWER TRANSFORMER</p> <p>XFER TRANSFER</p> <p>XFMR TRANSFORMER</p> <p>XMTR TRANSMITTER</p>
<p><u>LINE SYMBOLS</u></p> <p>POWER CIRCUIT LINE</p> <p>MCC BUS, PANEL BUS, FEEDER BUS, LOAD CENTER OR SWGR BRANCH CIRCUIT</p> <p>POWER PANEL AND MCC BRANCH CIRCUITS, METERING OR RELAY LINE</p> <p>EQUIPMENT ENCLOSURE LINE</p> <p>SWITCHGEAR, MCC'S, TRANSFORMERS AND POWER PANELS</p> <p>OPERATION LINE (WITH DIRECTION OF OPERATION)</p> <p>FUTURE EQUIPMENT OR CIRCUIT</p> <p>CONTINUATION</p>	<p><u>LIGHTING</u></p> <p>BATTERY OPERATED EMERGENCY LIGHT LUMINAIRE</p> <p>EXIT LUMINAIRE</p> <p>FLOODLIGHT LUMINAIRE (AIMED)</p> <p>STREET LIGHTING LUMINAIRE, MAST ARM AND STEEL OR ALUMINUM POLE</p> <p>STREET LIGHTING LUMINAIRE, MAST ARM AND WOOD POLE</p> <p>NORMAL EMERGENCY</p> <p>STRIP LUMINAIRE</p> <p>CEILING MOUNT LUMINAIRE</p> <p>PENDANT MOUNT LUMINAIRE</p> <p>STANCHION MOUNT LUMINAIRE</p> <p>WALL MOUNT LUMINAIRE</p> <p>LIGHTING CONTACTOR</p> <p>PHOTOELECTRIC CONTROL CELL</p>	<p>INDICATING LIGHT (FUNCTIONS)</p> <p>X</p> <p>DCS INTERFACE SYMBOL W/ SCHEMATIC REFERENCE DRAWING NUMBER</p>	<p><u>ABBREVIATIONS</u></p> <p>A AMPERES</p> <p>AC ALTERNATING CURRENT</p> <p>AGA AMERICAN GAS ASSOCIATION</p> <p>AH ALARM HORN</p> <p>ALM ALARM</p> <p>ANN ANNUNCIATOR</p> <p>API AMERICAN PETROLEUM INSTITUTE</p> <p>A/R (OR) AR AS REQUIRED</p> <p>AS AMMETER SWITCH</p> <p>ATS AUTOMATIC TRANSFER SWITCH</p> <p>AUTO AUTOMATIC</p> <p>AUX AUXILIARY</p> <p>AWG AMERICAN WIRE GAUGE</p> <p>BAT BATTERY</p> <p>BKR BREAKER</p> <p>B.O.M. (OR) BOM BILL OF MATERIALS</p> <p>C CONDUIT</p> <p>CA CABLE</p> <p>CB CIRCUIT BREAKER</p> <p>CHGR CHARGER</p> <p>CKT CIRCUIT</p> <p>CTRL CONTROL</p> <p>CNVT CONVERTER</p> <p>CONT'D CONTINUED ON DRAWING</p> <p>CP CONTROL PANEL</p> <p>CS CIRCUIT SWITCHER</p> <p>CT CURRENT TRANSFORMER</p> <p>DB DIRECT BURIED</p> <p>DC DIRECT CURRENT</p> <p>DET DETECTOR</p> <p>DI DIGITAL INPUT</p> <p>DIFF DIFFERENTIAL</p> <p>DISC DISCONNECT</p> <p>DN DOWN</p> <p>DO DIGITAL OUTPUT</p> <p>DP DISTRIBUTION PANEL</p> <p>DS DISTRIBUTION SWITCH (OR) DISCONNECT SWITCH</p> <p>DWG DRAWING</p> <p>EL ELEVATION</p> <p>ELEC ELECTRICAL</p> <p>EMER EMERGENCY</p> <p>EMT ELECTRICAL METALLIC TUBING</p> <p>EP EXPLOSION PROOF</p> <p>ES (OR) ESD EMERGENCY STOP (OR) EMERGENCY SHUTDOWN</p> <p>F (OR) FWD FORWARD</p> <p>FDR FEEDER</p> <p>FREQ FREQUENCY</p> <p>FU FUSE</p> <p>GEN GENERATOR</p> <p>GND GROUND</p> <p>GRC GALVANIZED RIGID CONDUIT</p> <p>HTR HEATER</p> <p>HV HIGH VOLTAGE</p> <p>HVS HIGH VOLTAGE SWITCHGEAR</p> <p>HZ HERTZ (FREQUENCY)</p> <p>INSTR INSTRUMENT</p> <p>INTLK INTERLOCK</p> <p>IO INPUT/OUTPUT FOR CONTROLLER</p> <p>JB (OR) J-BOX JUNCTION BOX</p> <p>KV KILOVOLT</p> <p>KVA KILOVOLT AMPERES</p> <p>LP LIGHTING PANEL, SMALL POWER PANEL</p> <p>LTG LIGHTING</p> <p>LV LOW VOLTAGE</p>	
<p><u>GROUNDING</u></p> <p>GROUND CABLE BURIED</p> <p>GROUND CABLE EXPOSED</p> <p>GROUND ROD</p> <p>TEST WELL IN ACCESSIBLE BOX WITH COVER</p> <p>GROUND CONDUCTOR TURNING UP</p> <p>GROUND CONDUCTOR TURNING DOWN</p> <p>EXOTHERMIC CONNECTION</p> <p>EQUIPMENT, DEVICE, STRUCTURAL, SUPPORT CONNECTION</p> <p>GROUND CONDUCTOR PIGTAIL FOR ABOVE GRADE AND FINISHED CONCRETE CONNECTION TO EQUIPMENT AND FUTURE CONNECTION</p> <p>10 FT</p> <p>AIR TERMINAL (LIGHTNING ROD) CONNECTED TO GROUND CABLE</p> <p>GROUND CABLE CONTINUATION</p> <p>GROUND BAR</p>	<p>STRIP LUMINAIRE</p> <p>CEILING MOUNT LUMINAIRE</p> <p>PENDANT MOUNT LUMINAIRE</p> <p>STANCHION MOUNT LUMINAIRE</p> <p>WALL MOUNT LUMINAIRE</p> <p>LIGHTING CONTACTOR</p> <p>PHOTOELECTRIC CONTROL CELL</p>	<p>INDICATING LIGHT (FUNCTIONS)</p> <p>X</p> <p>DCS INTERFACE SYMBOL W/ SCHEMATIC REFERENCE DRAWING NUMBER</p>	<p><u>ABBREVIATIONS</u></p> <p>A AMPERES</p> <p>AC ALTERNATING CURRENT</p> <p>AGA AMERICAN GAS ASSOCIATION</p> <p>AH ALARM HORN</p> <p>ALM ALARM</p> <p>ANN ANNUNCIATOR</p> <p>API AMERICAN PETROLEUM INSTITUTE</p> <p>A/R (OR) AR AS REQUIRED</p> <p>AS AMMETER SWITCH</p> <p>ATS AUTOMATIC TRANSFER SWITCH</p> <p>AUTO AUTOMATIC</p> <p>AUX AUXILIARY</p> <p>AWG AMERICAN WIRE GAUGE</p> <p>BAT BATTERY</p> <p>BKR BREAKER</p> <p>B.O.M. (OR) BOM BILL OF MATERIALS</p> <p>C CONDUIT</p> <p>CA CABLE</p> <p>CB CIRCUIT BREAKER</p> <p>CHGR CHARGER</p> <p>CKT CIRCUIT</p> <p>CTRL CONTROL</p> <p>CNVT CONVERTER</p> <p>CONT'D CONTINUED ON DRAWING</p> <p>CP CONTROL PANEL</p> <p>CS CIRCUIT SWITCHER</p> <p>CT CURRENT TRANSFORMER</p> <p>DB DIRECT BURIED</p> <p>DC DIRECT CURRENT</p> <p>DET DETECTOR</p> <p>DI DIGITAL INPUT</p> <p>DIFF DIFFERENTIAL</p> <p>DISC DISCONNECT</p> <p>DN DOWN</p> <p>DO DIGITAL OUTPUT</p> <p>DP DISTRIBUTION PANEL</p> <p>DS DISTRIBUTION SWITCH (OR) DISCONNECT SWITCH</p> <p>DWG DRAWING</p> <p>EL ELEVATION</p> <p>ELEC ELECTRICAL</p> <p>EMER EMERGENCY</p> <p>EMT ELECTRICAL METALLIC TUBING</p> <p>EP EXPLOSION PROOF</p> <p>ES (OR) ESD EMERGENCY STOP (OR) EMERGENCY SHUTDOWN</p> <p>F (OR) FWD FORWARD</p> <p>FDR FEEDER</p> <p>FREQ FREQUENCY</p> <p>FU FUSE</p> <p>GEN GENERATOR</p> <p>GND GROUND</p> <p>GRC GALVANIZED RIGID CONDUIT</p> <p>HTR HEATER</p> <p>HV HIGH VOLTAGE</p> <p>HVS HIGH VOLTAGE SWITCHGEAR</p> <p>HZ HERTZ (FREQUENCY)</p> <p>INSTR INSTRUMENT</p> <p>INTLK INTERLOCK</p> <p>IO INPUT/OUTPUT FOR CONTROLLER</p> <p>JB (OR) J-BOX JUNCTION BOX</p> <p>KV KILOVOLT</p> <p>KVA KILOVOLT AMPERES</p> <p>LP LIGHTING PANEL, SMALL POWER PANEL</p> <p>LTG LIGHTING</p> <p>LV LOW VOLTAGE</p>	

BURNS & MCDONNELL STATE LICENSE #43

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REF. DWG(S)

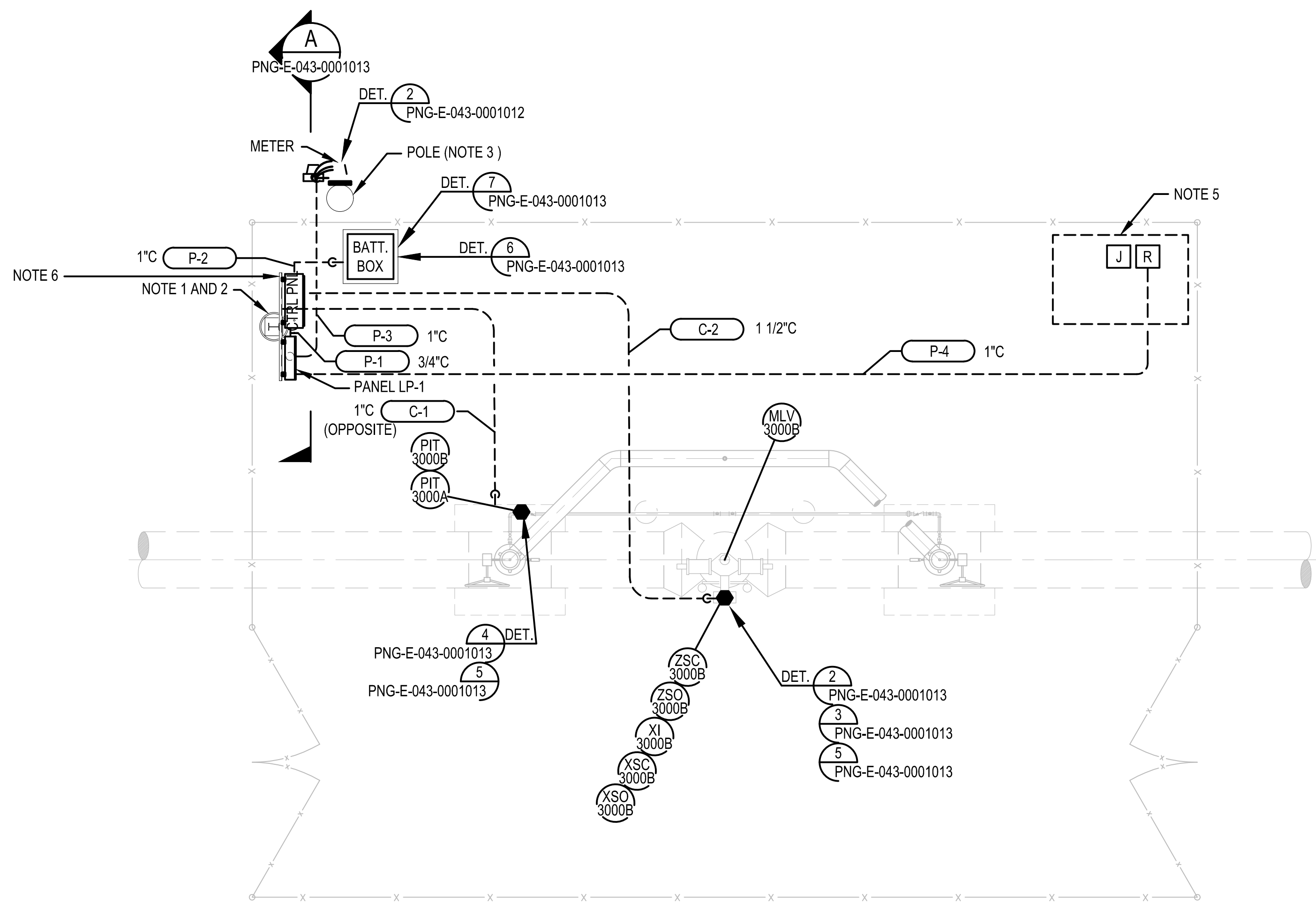
NO.	DATE	REVISION(S) DESCRIPTION	BY	CHK	APPD	DESCRIPTION	APPROVALS
0	02-19-2021	ISSUED FOR AS-BUILT	MCR	KM	AHD	AREA CODE	DATE: N/A INITIALS: N/A REGIONAL ENGINEER
						ACCOUNT NUMBER	DATE: N/A INITIALS: N/A MGR TECH REC & STD
						PROJECT NUMBER	DATE: N/A INITIALS: N/A PRINCIPAL ENGINEER
						DRAWING BY	
						STATION ID	
						CHECKER INITIALS	

DUKE ENERGY | Piedmont Natural Gas

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UL60 PROJECTS
ELECTRICAL LEGEND
BOONE COUNTY, KY
ERLANGER, KY

SHEET(S) 1 OF 1	DWG SCALE NONE
DWG DATE 07/09/2019	SUPERSEDED
DRAWING NUMBER	REVISION
PNG - E-043-0001076	0
DISCIPLINE / RESOURCE CENTER / LINE NUMBER	



TYPICAL SITE PLAN UTILITY POWER SUPPLY TO METER
SCALE: 1/4"=1'-0"

- GROUNDING NOTES:**
1. ELECTRICAL EQUIPMENT SHALL BE LOCATED ON EITHER SIDE OF PROPERTY AND ELECTRICAL EQUIPMENTS MUST BE LOCATED OUTSIDE THE AREA CLASSIFICATION-SEE DWG PNG-E-043-0001015.
 2. EQUIPMENTS CAN BE ROTATED 90° FOR MORE CONVENIENCE TO CONNECT TO UTILITY POWER SUPPLY.
 3. EXACT LOCATION OF POLE WITH METER SHALL BE FIELD DETERMINED WITH LAND APPROVAL. REFERENCE DWG. PNG-E-043-0001012.
 4. PIEDMONT MEASUREMENT IS RESPONSIBLE FOR FURNISHING AND INSTALLING POLE AND DEMARK BOX. ALSO RESPONSIBLE FOR ROUTING CONDUIT AND CAT5/6 CABLE TO CISCO 1750 ROUTER LOCATED IN MAIN VALVE CONTROL PANEL.
 5. ALTERNATE AREA FOR ELECTRICAL EQUIPMENT.
 6. CONTROL PANEL (CTRL PNL) SHALL BE DUKE'S STANDARD WESTERN REGION CONTROL PANEL. CONTRACTOR SHALL COORDINATE WITH OWNER PRIOR TO COMMENCING WORK.

MAIN LINE VALVE (MLV) CABLE AND CONDUIT SCHEDULE (240/120VAC POWER SUPPLY)									
CABLE/CONDUIT NUMBER	CONDUIT SIZE	CONDUIT TYPE	% FILL	INSTRUMENT TAG	NUMBER OF CABLE	CONDUCTOR (COPPER) (600V INSULATION)	WORKING VOLTAGE	FROM	TO
P-1	3/4"	RGS	8.69%	N/A	1	2-1/C #12 AWG + #10 AWG GND, THWN-2	120 VAC	AC PANEL, LP-1, CKT-1	RTU, CONTROL PANEL
P-2	1"	RGS	3.69%	N/A	1	2-1/C #14 AWG + #12 AWG GND, THWN-2	12 VDC	POWER SUPPLY/CHARGER	12VDC BATTERY
P-3	1"	RGS	19.53%	N/A	1	3-1/C #6 AWG + #8 AWG GND, THWN-2	240/120 VAC	RTU, CONTROL PANEL	METER
P-4	1"	RGS		N/A	1	2-1/C #12 AWG + #12 AWG GND, THWN-2	240/120 VAC	LP-1	CP RECTIFIER
C-1	1"	RGS	13.69%	PIT-3000A	1	1PR #18 AWG TSP, THWN-2	24 VDC	RTU, CONTROL PANEL	PIT-3000A
				PIT-3000B	1	1PR #18 AWG TSP, THWN-2	24 VDC	RTU, CONTROL PANEL	PIT-3000B
C-2	1.5"	RGS	19.50%	ZSO-3000B	1	12PR #18 AWG TSP, THWN-2	12 VDC	RTU, CONTROL PANEL	SV-3000B
				ZSC-3000B			12 VDC	RTU, CONTROL PANEL	
				XI-3000B			12 VDC	RTU, CONTROL PANEL	
				XSO-3000B			12 VDC	RTU, CONTROL PANEL	
				XSC-3000B			12 VDC	RTU, CONTROL PANEL	

1. MULTIPAIR CONDUCTOR MAY BE USED IN PLACE OF SINGLE PAIR INSTRUMENT CABLE WITH OWNER'S APPROVAL.
2. CABLE LENGTH ARE SIZED FOR 100 FEET MAXIMUM AND CONTRACTOR TO FIELD VERIFY BASED ON THE FINAL ROUTING AND ADJUST PER NEC CODE AS NEEDED.

ELECTRICAL LINES PLACED AT 1.5' DEPTH.

BURNS & MCDONNELL
STATE LICENSE #43

YEVGENIY KHISLAVSKIY
04/17/2020
KENTUCKY
SEAL 34514

PROFESSIONAL ENG/ARCH STAMP

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REF. DWG(S)

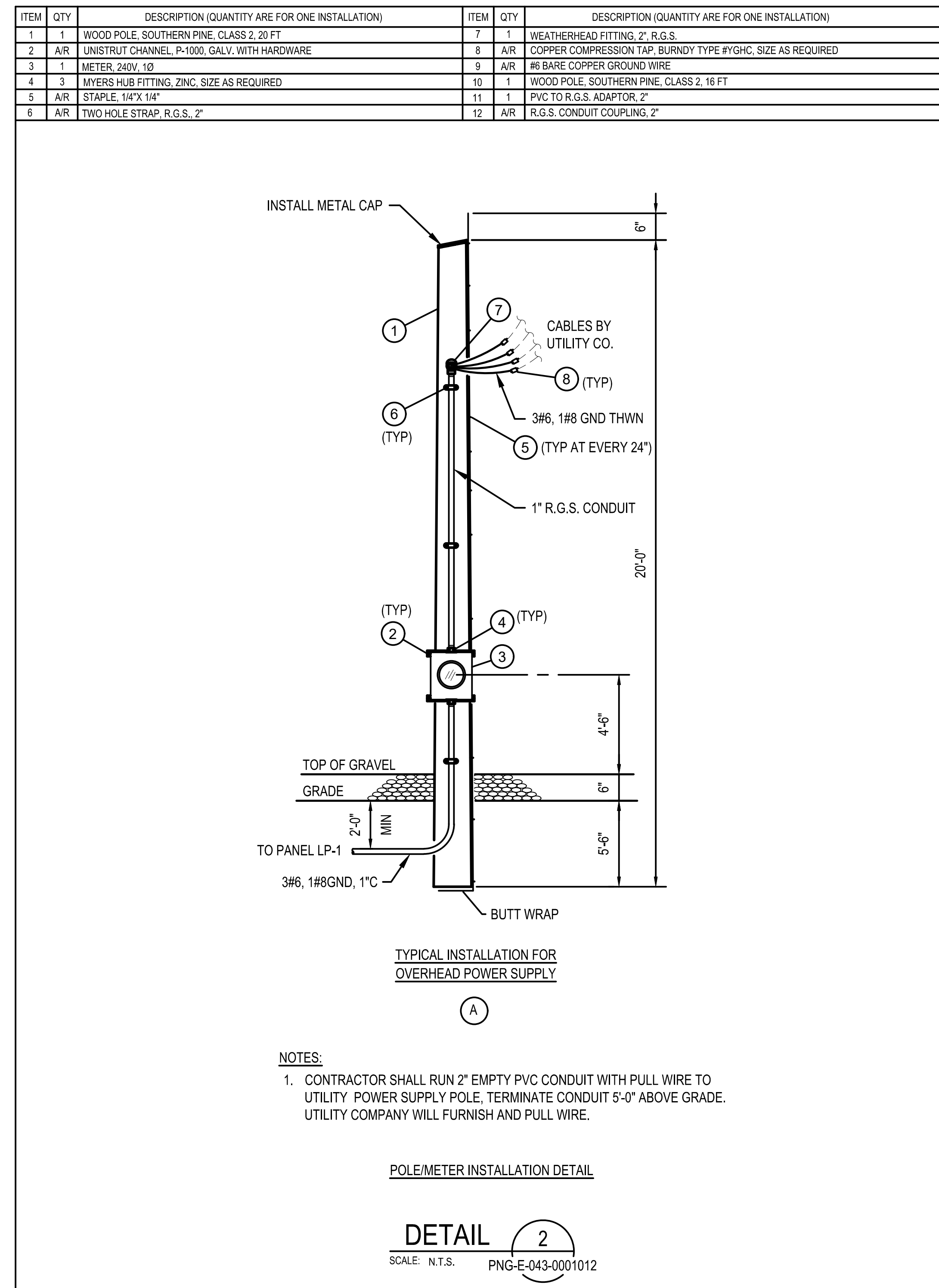
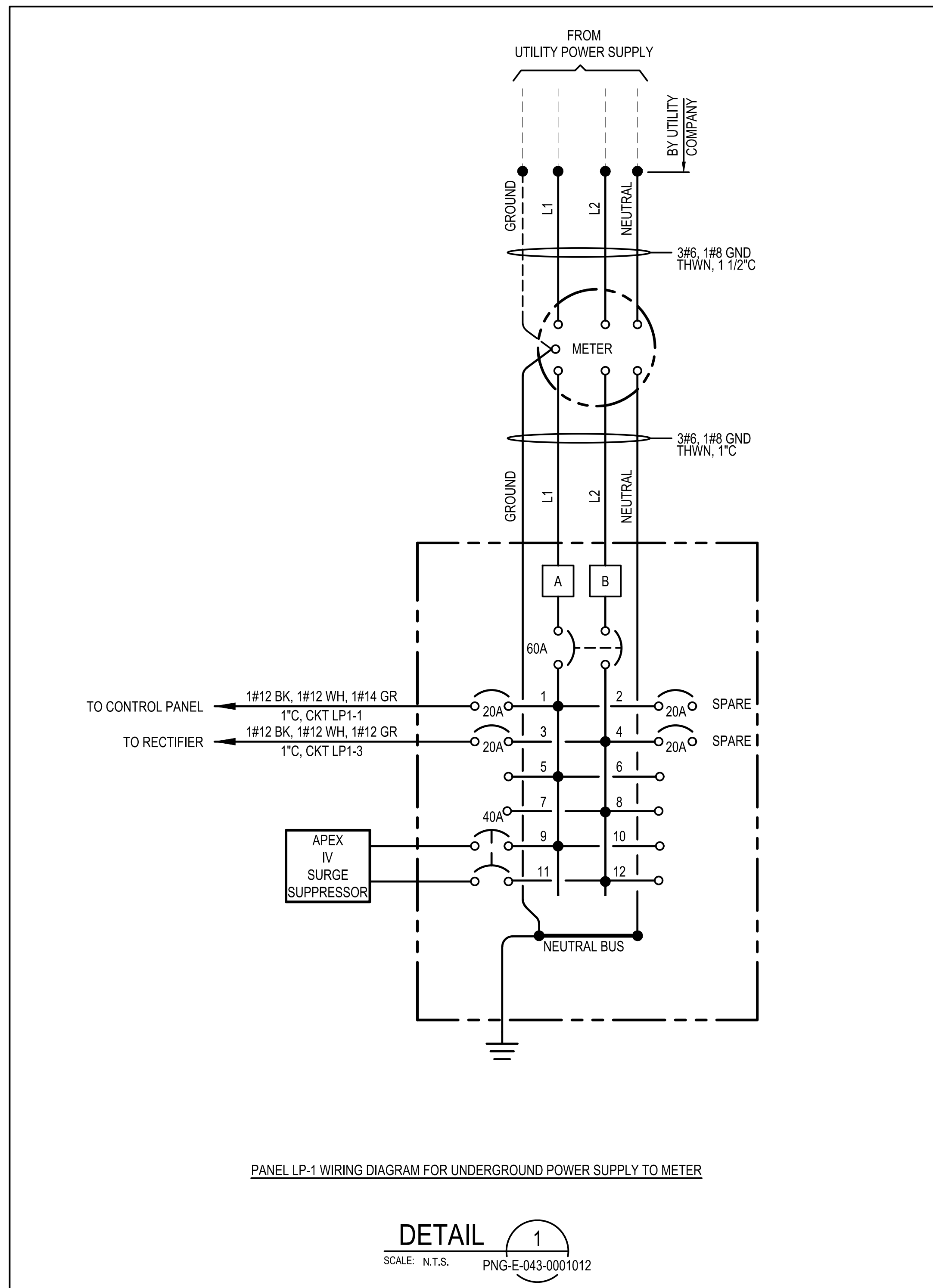
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						PROJECT NUMBER	N/A	N/A	PRINCIPAL ENGINEER
						DRAWING BY	04-17-2020	YBK	
						STATION ID			
						CHECKER INITIALS			



**MAINLINE VALVE
TYPICAL INSTRUMENT PLAN
BOONE COUNTY, KY**
ERLANGER, KY

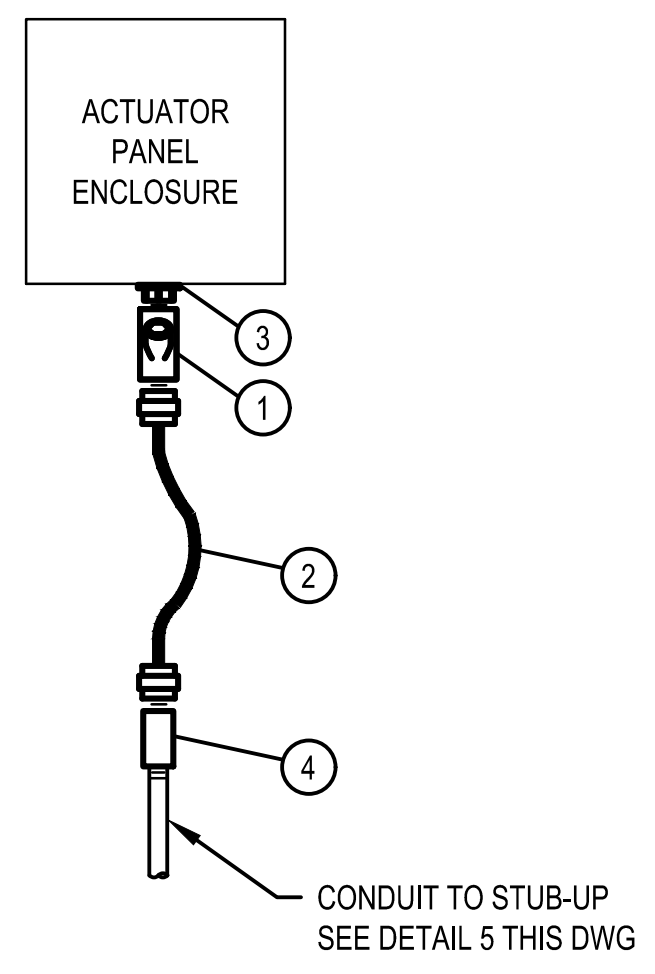
SHEET(S)	1 OF 1	DWG SCALE	AS SHOWN
DWG DATE	07/17/2019	SUPERSEDED	
DRAWING NUMBER		REVISION	
PNG -E-043-0001011		0	
DISCIPLINE / RESOURCE CENTER / LINE NUMBER			

NOTES:



<p>BURNS & MCDONNELL STATE LICENSE #43</p> <p>YEVGENIY KHISLAVSKIY 02/12/2020 KENTUCKY SEAL 34514</p> <p>PROFESSIONAL ENG/ARCH STAMP</p>	<p>PIEDMONT'S NATURAL GAS FACILITY DRAWINGS ARE CONSIDERED CONFIDENTIAL (OM-1095) * DRAWING IS CURRENT ONLY THROUGH THE LATEST REVISED DATE * TO ENSURE THERE IS NO RISK OF INAPPROPRIATE DISCLOSURE ALL PREVIOUS PAPER COPIES OF THIS DRAWING MUST BE DESTROYED IN ACCORDANCE WITH RECORDS & INFO. MANAGEMENT (RIM) POLICY 1001</p> <p>PROPRIETARY & CONFIDENTIAL ALL RIGHTS RESERVED * DO NOT SCALE THIS DRAWING * USE DIMENSIONS ONLY</p>	<p>REF. DWG(S)</p> <p>SHEET(S) 1 OF 1 DWG SCALE AS SHOWN</p> <p>DWG DATE 07/17/2019 SUPERSEDED</p> <p>DRAWING NUMBER PNG -E-043-0001012 REVISION 0</p> <p>DISCIPLINE / RESOURCE CENTER / LINE NUMBER</p>																																																																						
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>NO.</th> <th>DATE</th> <th>REVISION(S) DESCRIPTION</th> <th>BY</th> <th>CHK</th> <th>APPD</th> <th>DESCRIPTION</th> <th>DATE</th> <th>INITIALS</th> <th>APPROVALS</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>02-19-2021</td> <td>ISSUED FOR AS-BUILT</td> <td>MCR</td> <td>KM</td> <td>AHD</td> <td>AREA CODE</td> <td>N/A</td> <td>N/A</td> <td>REGIONAL ENGINEER</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>ACCOUNT NUMBER</td> <td>N/A</td> <td>N/A</td> <td>MGR TECH REC & STD</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>PROJECT NUMBER</td> <td>02/12/2020</td> <td>YBK</td> <td>PRINCIPAL ENGINEER</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>DRAWING BY</td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>STATION ID</td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>CHECKER INITIALS</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	NO.	DATE	REVISION(S) DESCRIPTION	BY	CHK	APPD	DESCRIPTION	DATE	INITIALS	APPROVALS	0	02-19-2021	ISSUED FOR AS-BUILT	MCR	KM	AHD	AREA CODE	N/A	N/A	REGIONAL ENGINEER							ACCOUNT NUMBER	N/A	N/A	MGR TECH REC & STD							PROJECT NUMBER	02/12/2020	YBK	PRINCIPAL ENGINEER							DRAWING BY										STATION ID										CHECKER INITIALS				<p>DUKE ENERGY</p> <p>PIEDMONT Natural Gas</p> <p>COPYRIGHT 2018</p> <p>MAINLINE VALVE TYPICAL AC POWER DETAILS BOONE COUNTY, KY ERLANGER, KY</p>
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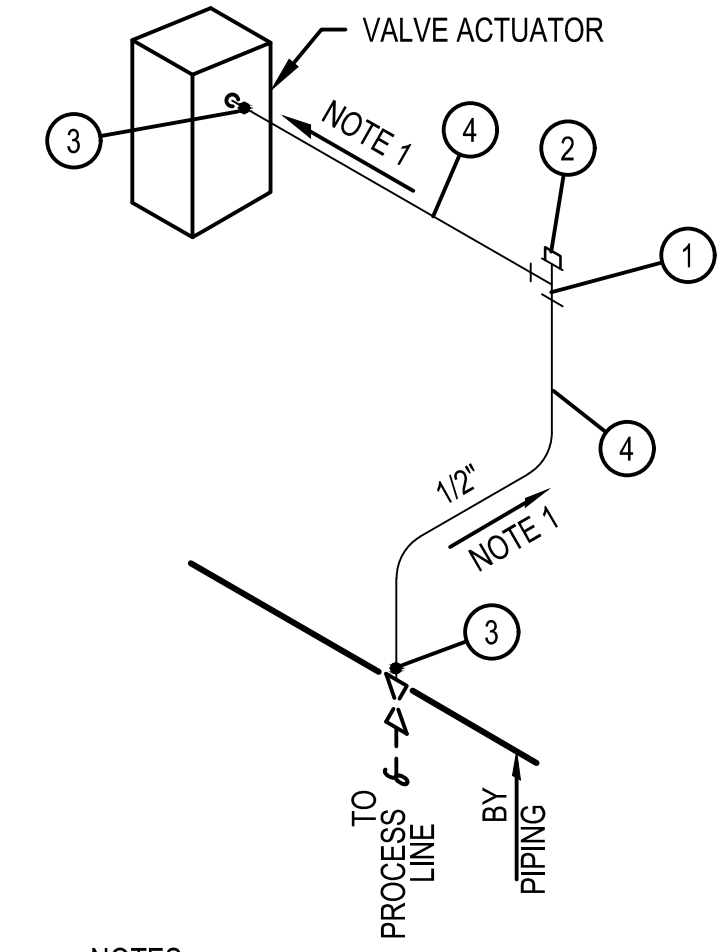
ITEM	QTY	DESCRIPTION (QUANTITY FOR ONE INSTALLATION)
1	1	SEAL FITTING, M.F., 1 1/2", CROUSE-HINDS #EYS16
2	1	EXPLOSION PROOF FLEX COUPLING, M.F., 1 1/2", 15' LONG, CROUSE-HINDS #ECLK15
3	1	MYERS HUB FITTING, 1 1/2", ZINC
4	1	CONDUIT COUPLING, R.G.S., 1 1/2"



CLASS 1, DIVISION 1 APPLICATION

DETAIL 2
SCALE: N.T.S. PNG-E-043-0001011

ITEM	QTY	DESCRIPTION (ALL MANUFACTURERS ARE "OR EQUAL")
1	1	1/2" TUBE TEE, 316 S.S.
2	1	1/2" TUBE CAP, 316 S.S.
3	2	1/2" T x 1/2" N.P.T. MALE CONNECTOR, 316 S.S.
4	A/R	1/2" O.D. x .035" WALL 316 S.S. TUBING SMLS

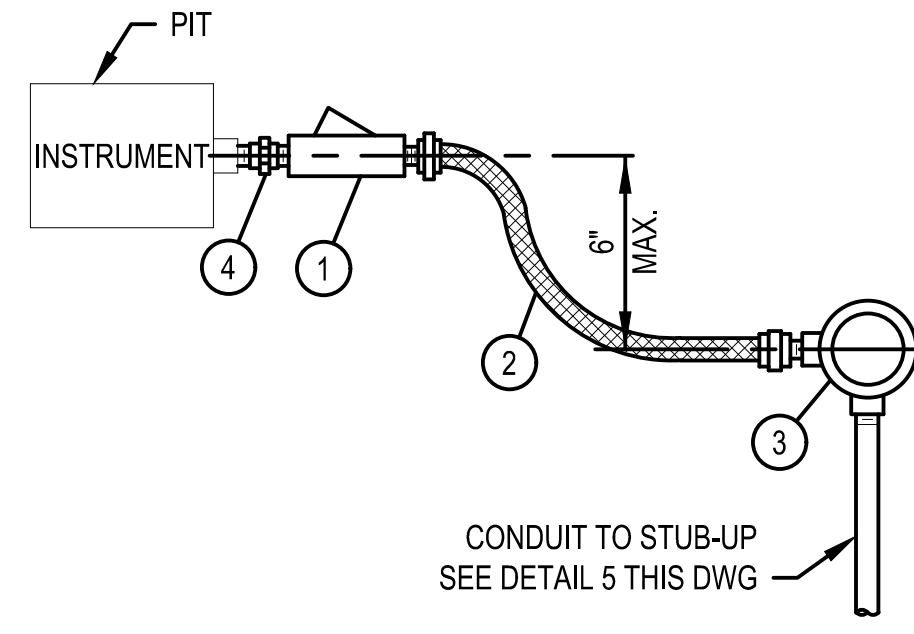


NOTES:
1. SLOPE TUBING DOWN TO DRAIN VALVE 1" PER 1'-0" MIN., DO NOT POCKET.
2. SUPPORT INSTRUMENT TUBING AT TAPS AND AT 5'-0" INTERVALS.

INSTRUMENT INSTALLATION DETAIL
INSTRUMENT MOUNTED ABOVE
PROCESS LINE

DETAIL 3
SCALE: N.T.S. PNG-E-043-0001011

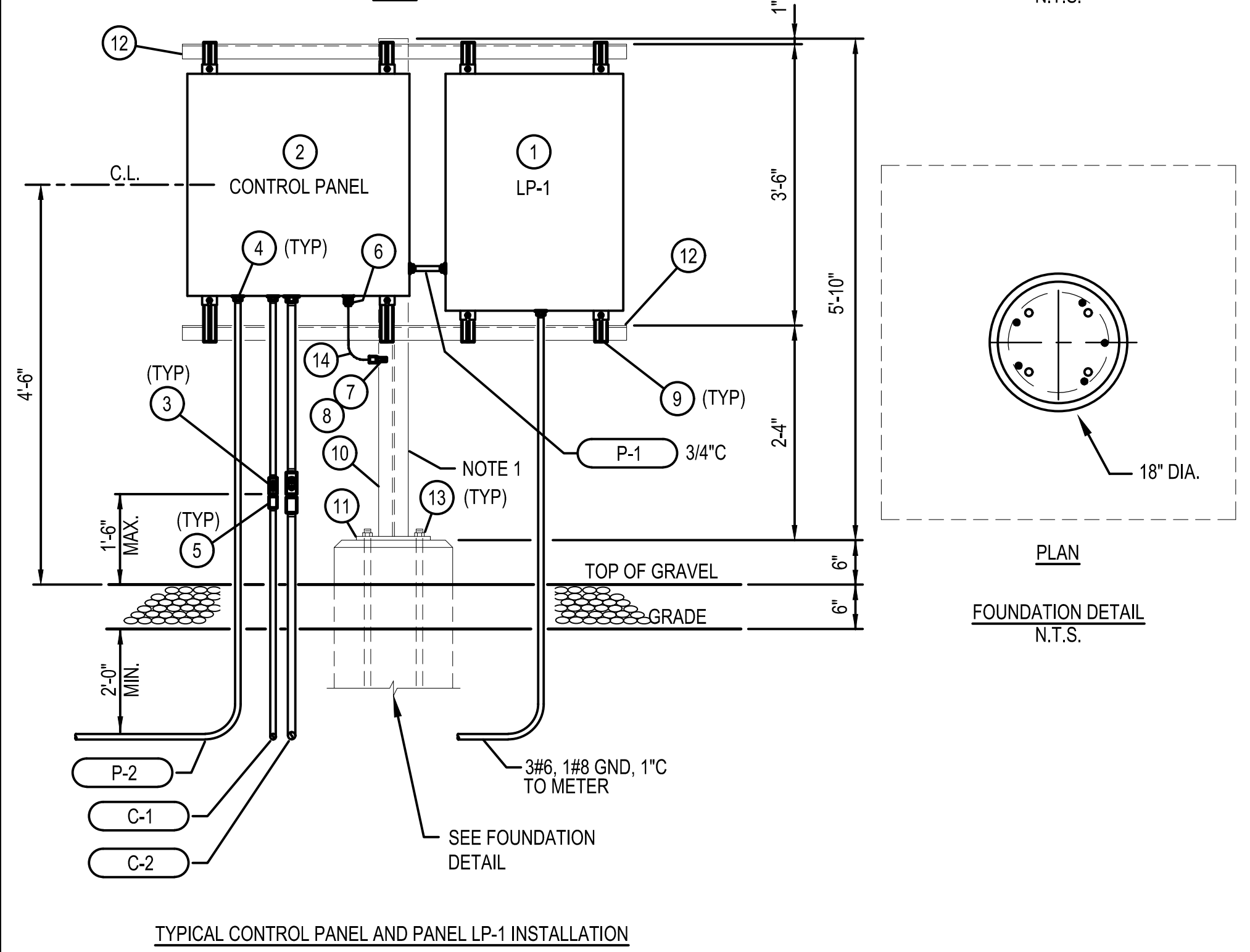
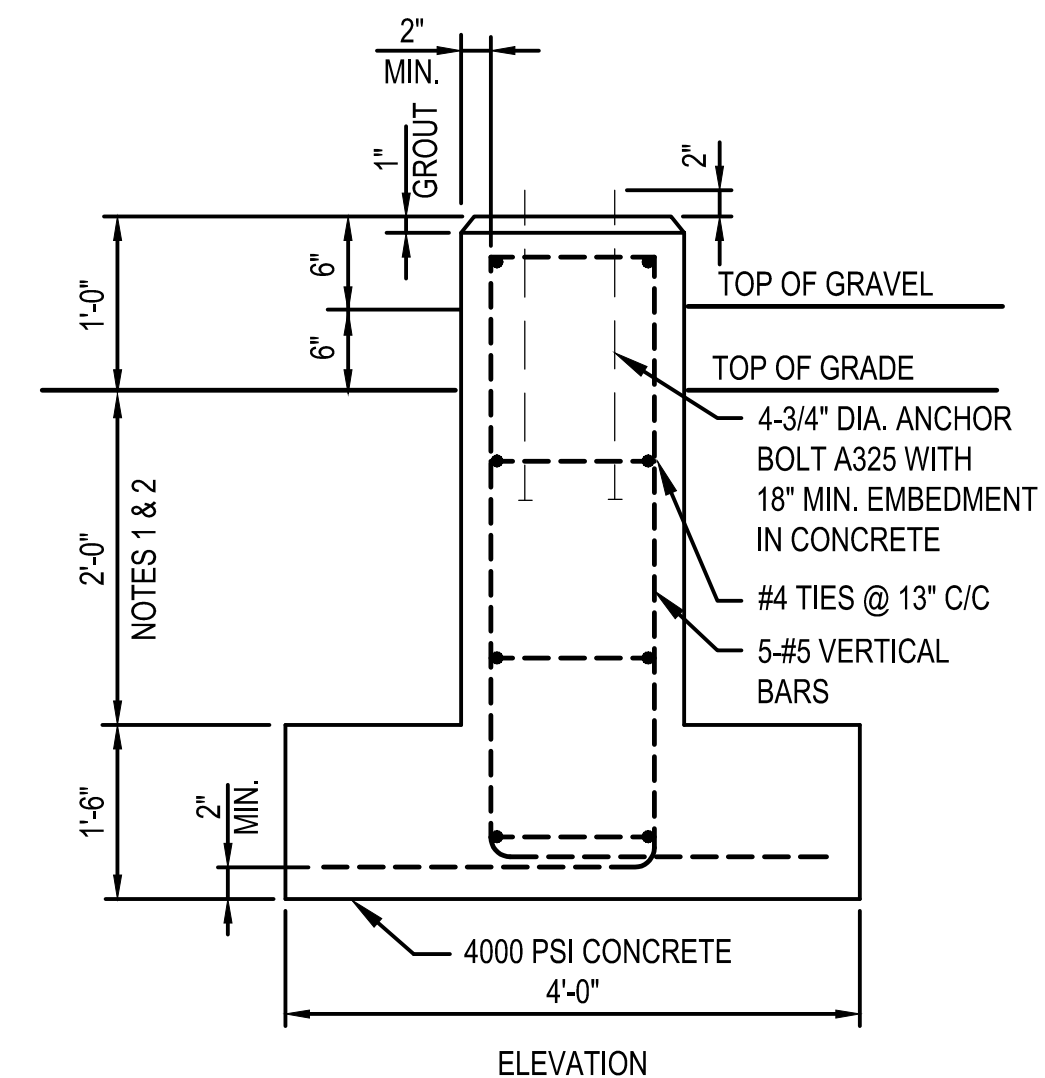
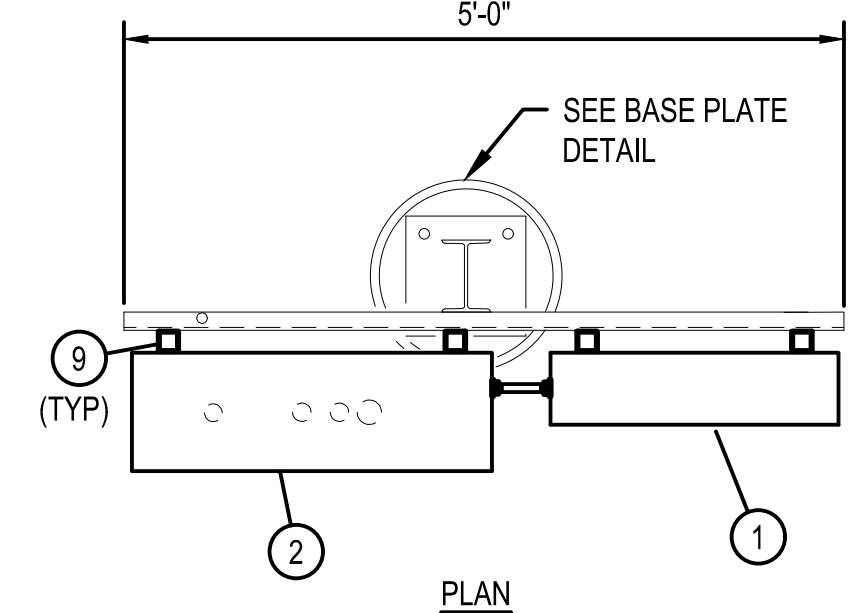
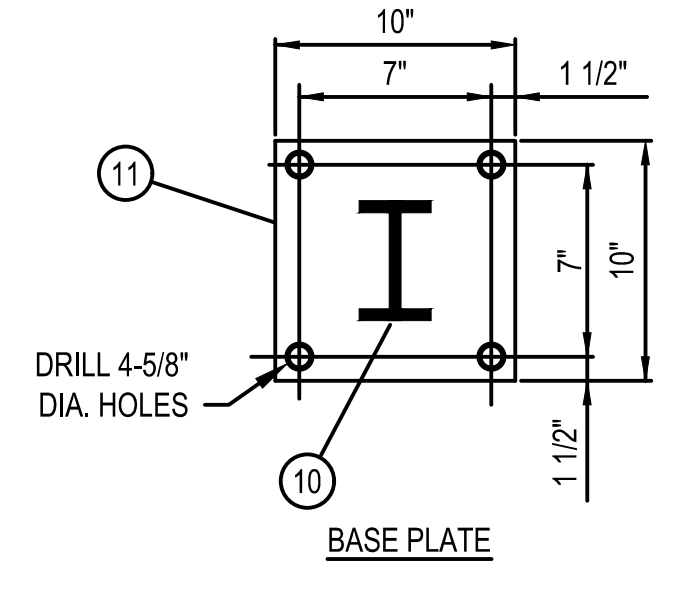
ITEM	QTY	DESCRIPTION (ALL MANUFACTURERS ARE "OR EQUAL")
1	1	CONDUIT SEAL, M.F., 3/4", CROUSE-HINDS #EYS216
2	1	EXPLOSION PROOF FLEX COUPLING, M.F., 3/4", 8' LONG, CROUSE-HIND #ECLK28
3	1	CONDULET #W2-3/4" HUBS, CROUSE-HINDS #GUAL26
4	1	CONDUIT UNION, 3/4", CROUSE-HINDS #UNY205



ELECTRICAL DETAIL FOR
INSTRUMENT WITHOUT PIG-TAIL
(CLASS 1, DIVISION 1 AREA)

DETAIL 4
SCALE: N.T.S. PNG-E-043-0001011

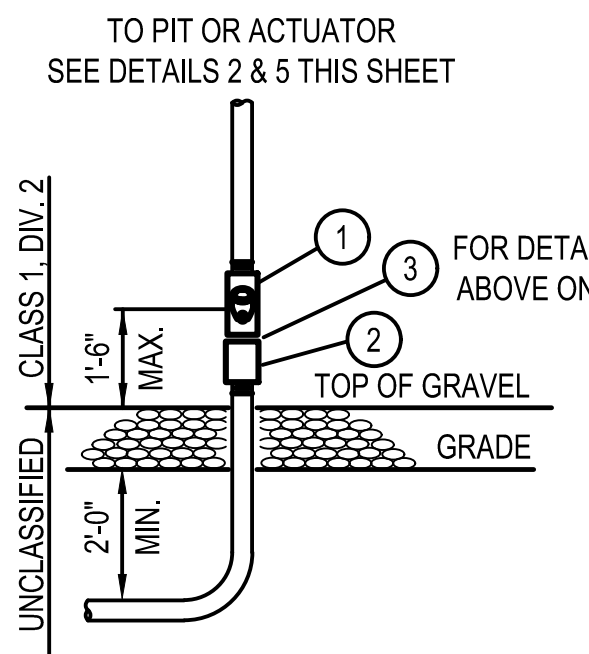
ITEM	QTY	DESCRIPTION (ALL MANUFACTURERS ARE "OR EQUAL")
1	1	PANELBOARD, NEMA 3R ENCLOSURE, 100A MAIN, 12 CIRCUITS MAXIMUM, 120/240V, WITH NEUTRAL BUS, 4-20A SINGLE POLE CIRCUIT BREAKER, SQUARE D TYPE NQOD
2	1	MAINLINE VALVE CONTROL PANEL, 36" X 30" X 10", SEE DWG 175-MLV-TYP16
3	2	"DRAIN SEAL FITTING, M.F. SIZE AS REQUIRED, CROUSE-HINDS TYPE EYD
4	5	MYERS HUB FITTING, ZINC, SIZE AS REQUIRED
5	2	CONDUIT COUPLING, R.G.S., SIZE AS REQUIRED
6	1	CGB CONNECTOR, 3/8", CROUSE-HINDS #CCB3814
7	1	BURNDY "QIKLUG" CONNECTOR, TYPE QA FOR #6 WIRE



NOTES:
1. HOT DIPPED GALVANIZED STANCHION AFTER FABRICATION.

DETAIL A
SCALE: N.T.S. PNG-E-043-0001011

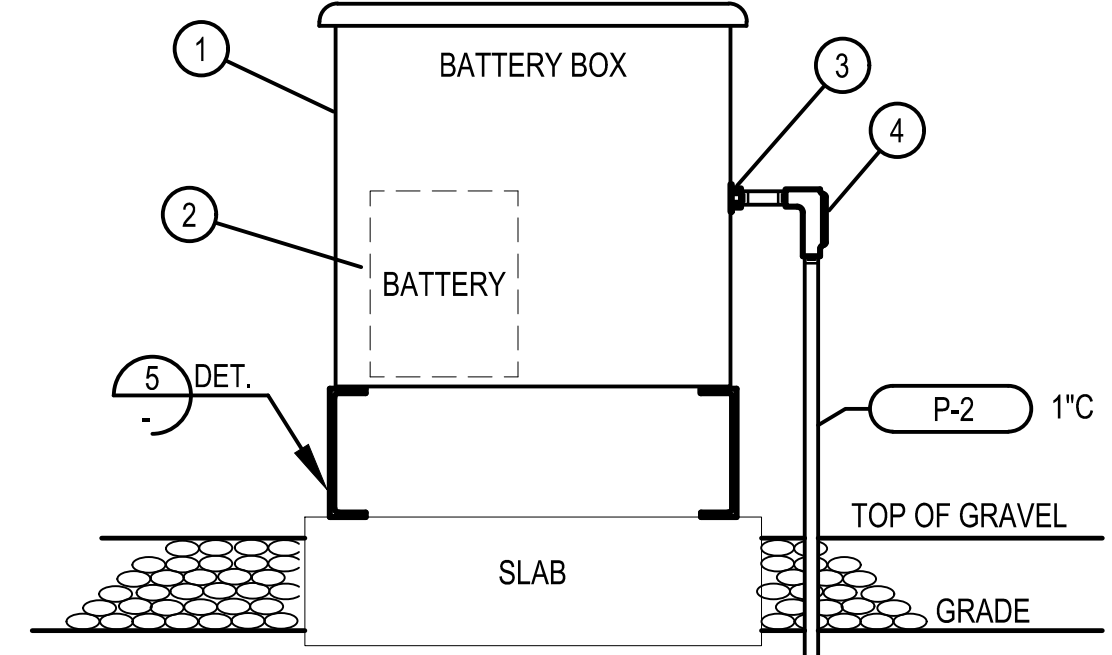
ITEM	QTY	DESCRIPTION (QUANTITY FOR ONE INSTALLATION)
1	1	DRAIN SEAL FITTING, M.F., SIZE A/R, CROUSE-HINDS TYPE EYD
2	1	CONDUIT COUPLING, R.G.S., SIZE AS REQ'D
3	1	REDUCING BUSHING, 1" X 3/4" (FOR DETAIL 4 ONLY)



TYPICAL CONDUIT STUB-UP

DETAIL 5
SCALE: N.T.S. PNG-E-043-0001011

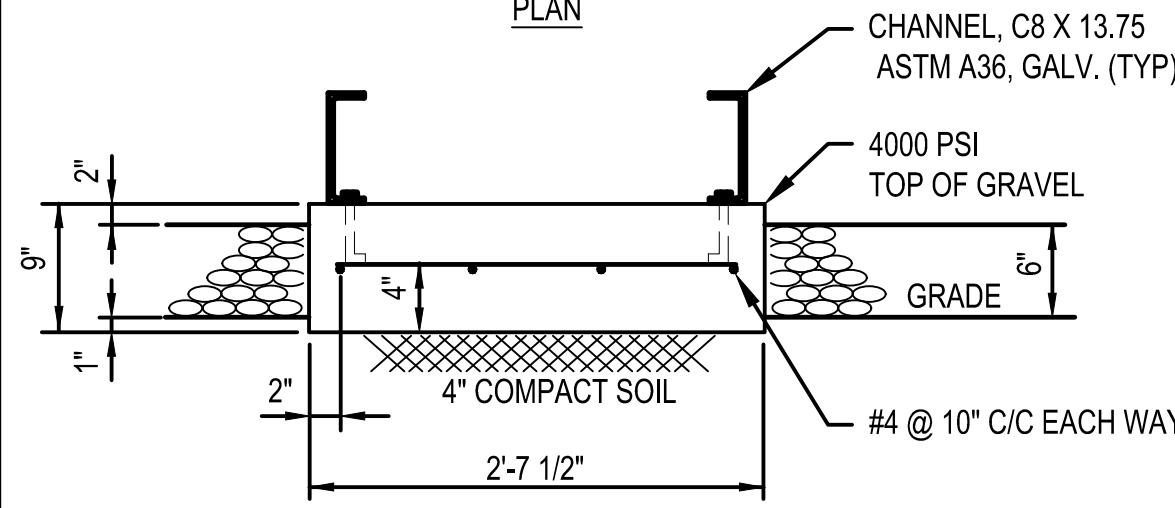
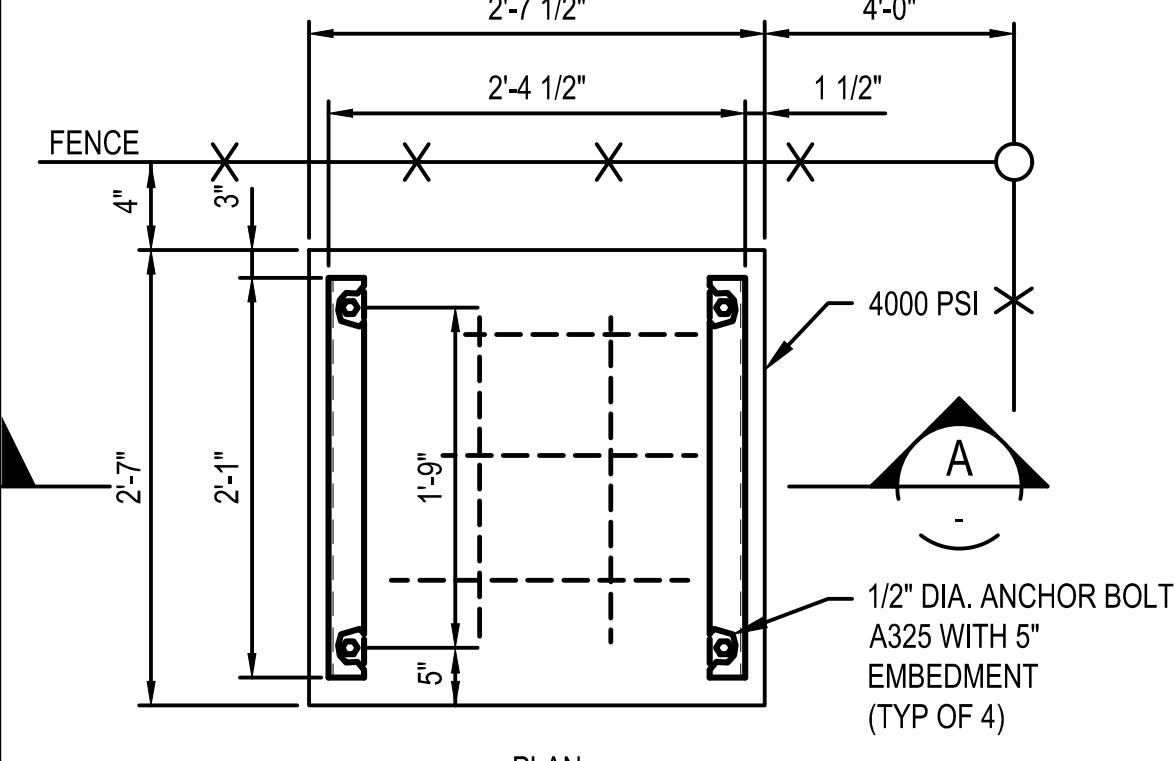
ITEM	QTY	DESCRIPTION (ALL MANUFACTURERS ARE "OR EQUAL")
1	1	NEMA 3R ENCLOSURE, 16"H X 25" D (7RU), WITH DOOR LOCK & RACKING RAIL, DDB #DD-16DXC
2	1	UPG SEALED LEAD-ACID UNIVERSAL BATTERY #UB121100
3	1	MYERS HUB FITTING, 1", ZINC
4	1	LB FITTING, 1", WITH COVER & GASKET, CROUSE-HINDS FORM 7



BATTERY BOX DETAIL
UNCLASSIFIED AREA APPLICATION

DETAIL 6
SCALE: N.T.S. PNG-E-043-0001011

ITEM	QTY	DESCRIPTION (ALL MANUFACTURERS ARE "OR EQUAL")
1	1	CONDUIT SEAL, M.F., 3/4", CROUSE-HINDS #EYS216
2	1	EXPLOSION PROOF FLEX COUPLING, M.F., 3/4", 8' LONG, CROUSE-HIND #ECLK28
3	1	CONDULET #W2-3/4" HUBS, CROUSE-HINDS #GUAL26
4	1	CONDUIT UNION, 3/4", CROUSE-HINDS #UNY205



SECTION A
BATTERY FOUNDATION DETAIL

DETAIL 7
SCALE: N.T.S. PNG-E-043-0001011

BURNS & MCDONNELL
STATE LICENSE #43

YEVGENIY KHISLAVSKIY
02/12/2020
KENTUCKY
SEAL 34514

PROFESSIONAL ENGINEER ARCHITECT STAMP

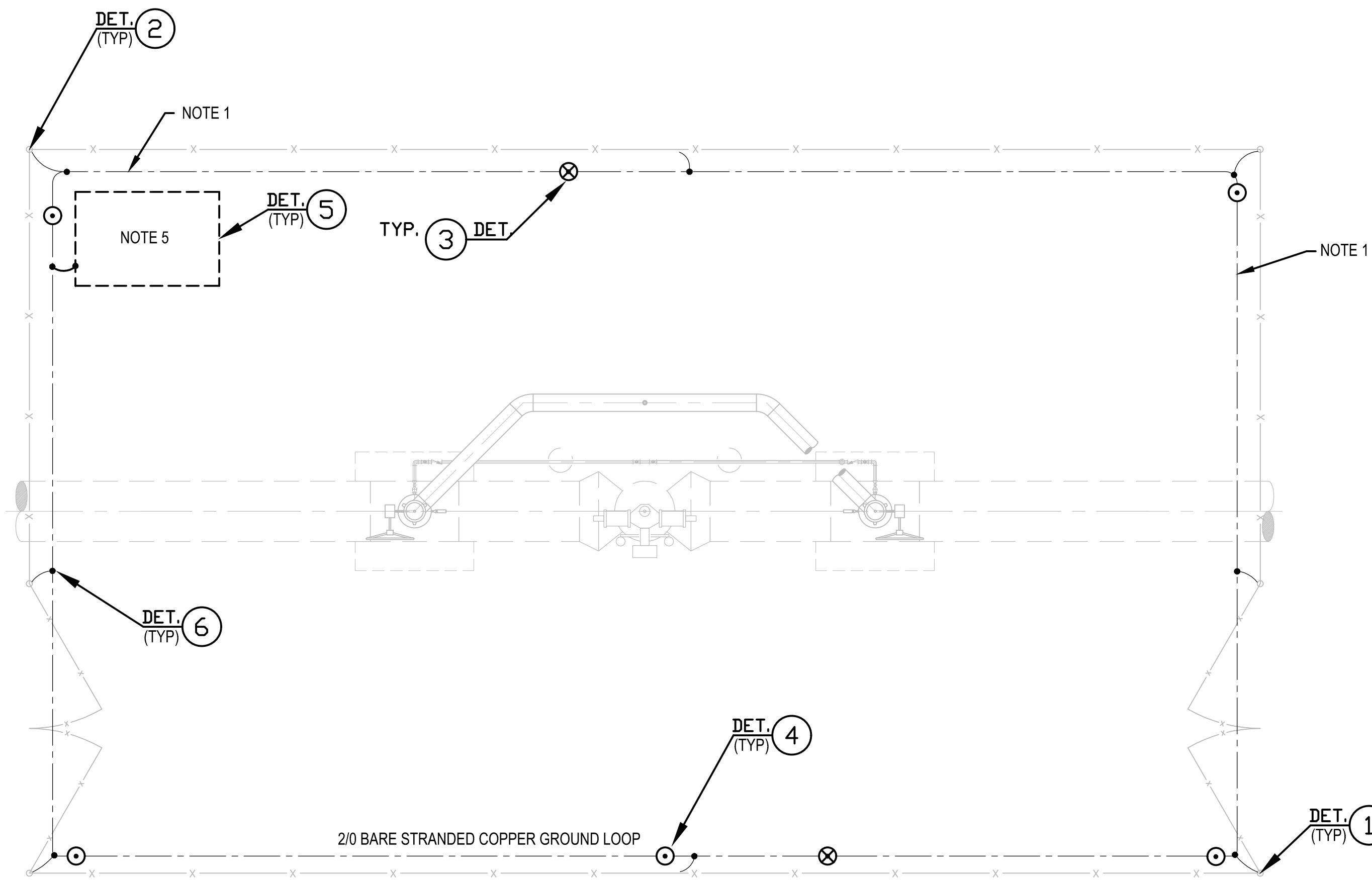
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						PROJECT NUMBER	V8351	N/A	N/A
						DRAWING BY	MCR	N/A	N/A
						STATION ID	-	N/A	N/A
						CHECKER INITIALS	KM	02/12/2020	YBK



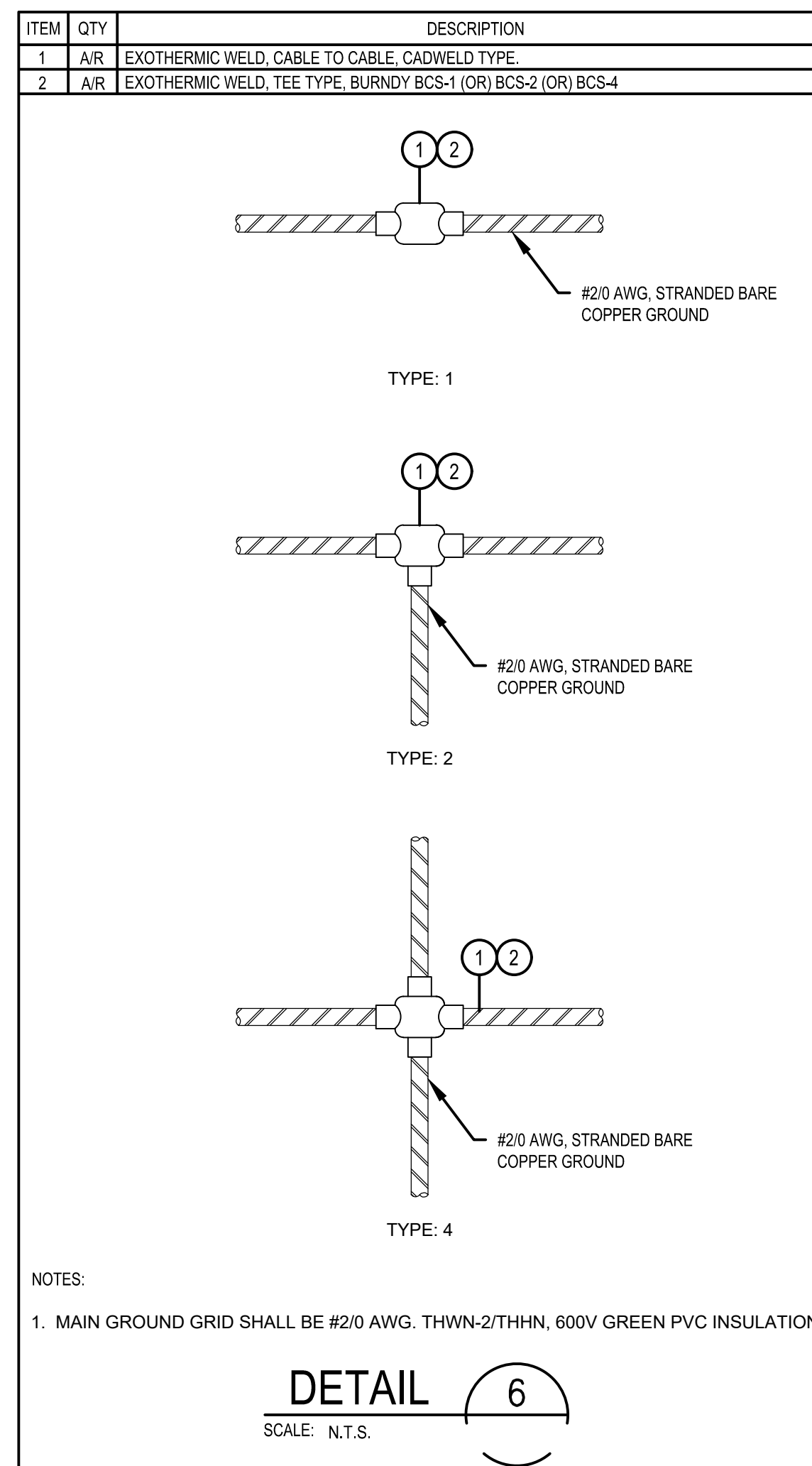
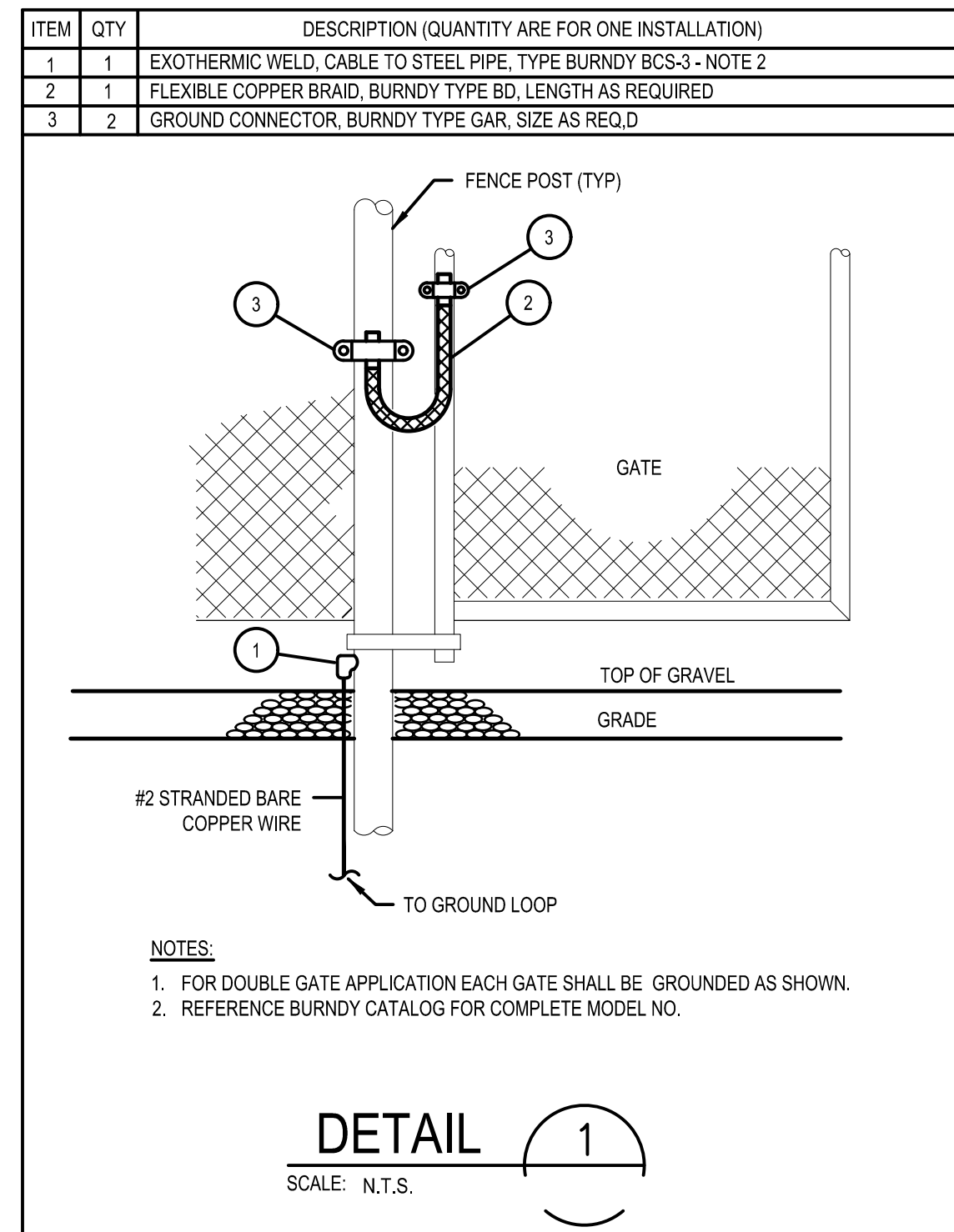
**MAINLINE VALVE
TYPICAL INSTALLATION DETAILS
BOONE COUNTY, KY**
ERLANGER, KY

REF. DWG(S)	SHEET(S) 1 OF 1	DWG SCALE AS SHOWN
	DWG DATE 07/17/2019	SUPERSEDED
	DRAWING NUMBER	REVISION
	PNG -E-043-0001013	0
	DISCIPLINE / RESOURCE CENTER / LINE NUMBER	



TYPICAL GROUNDING PLAN

SCALE: 1/4"=1'-0"

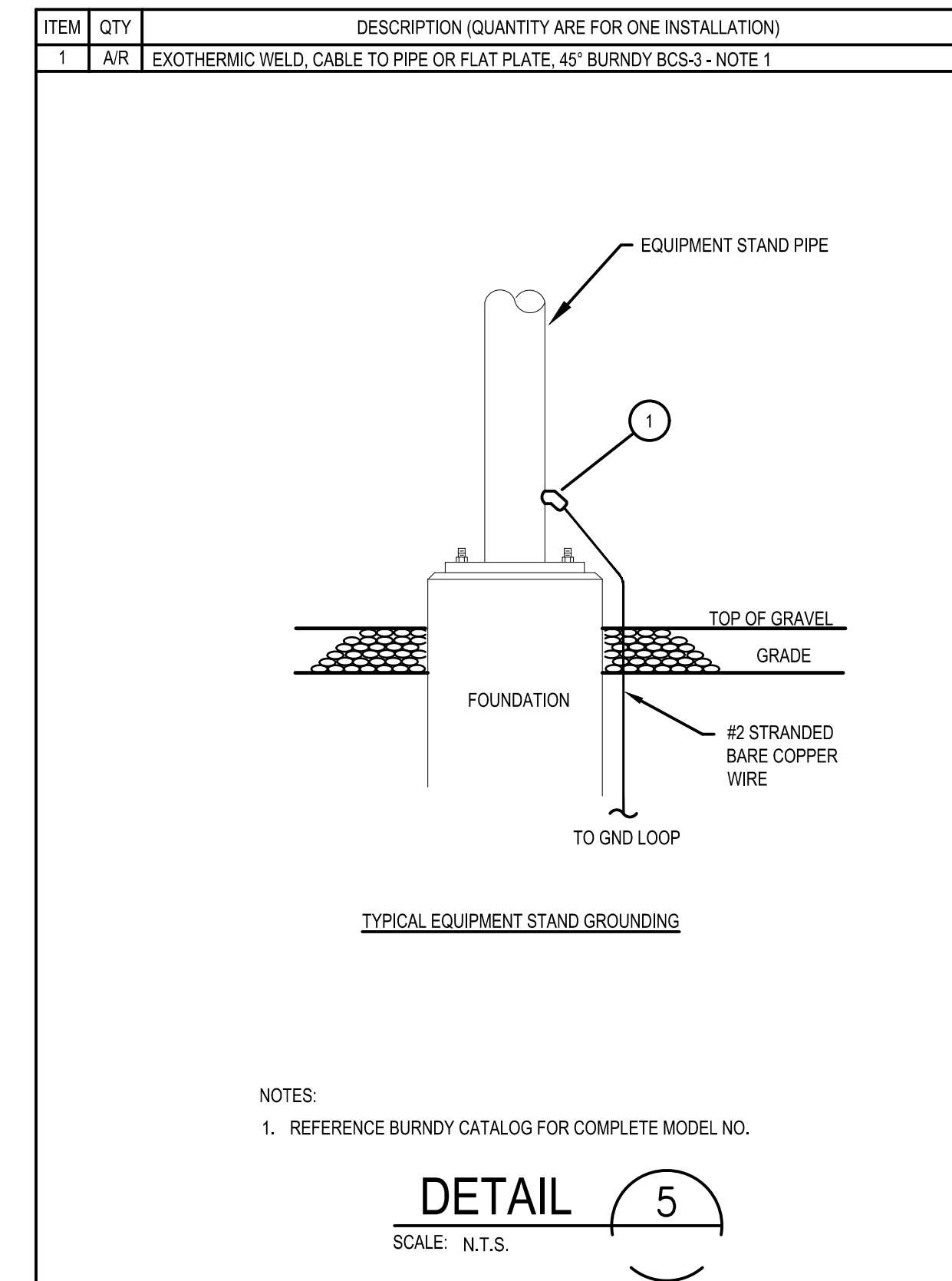
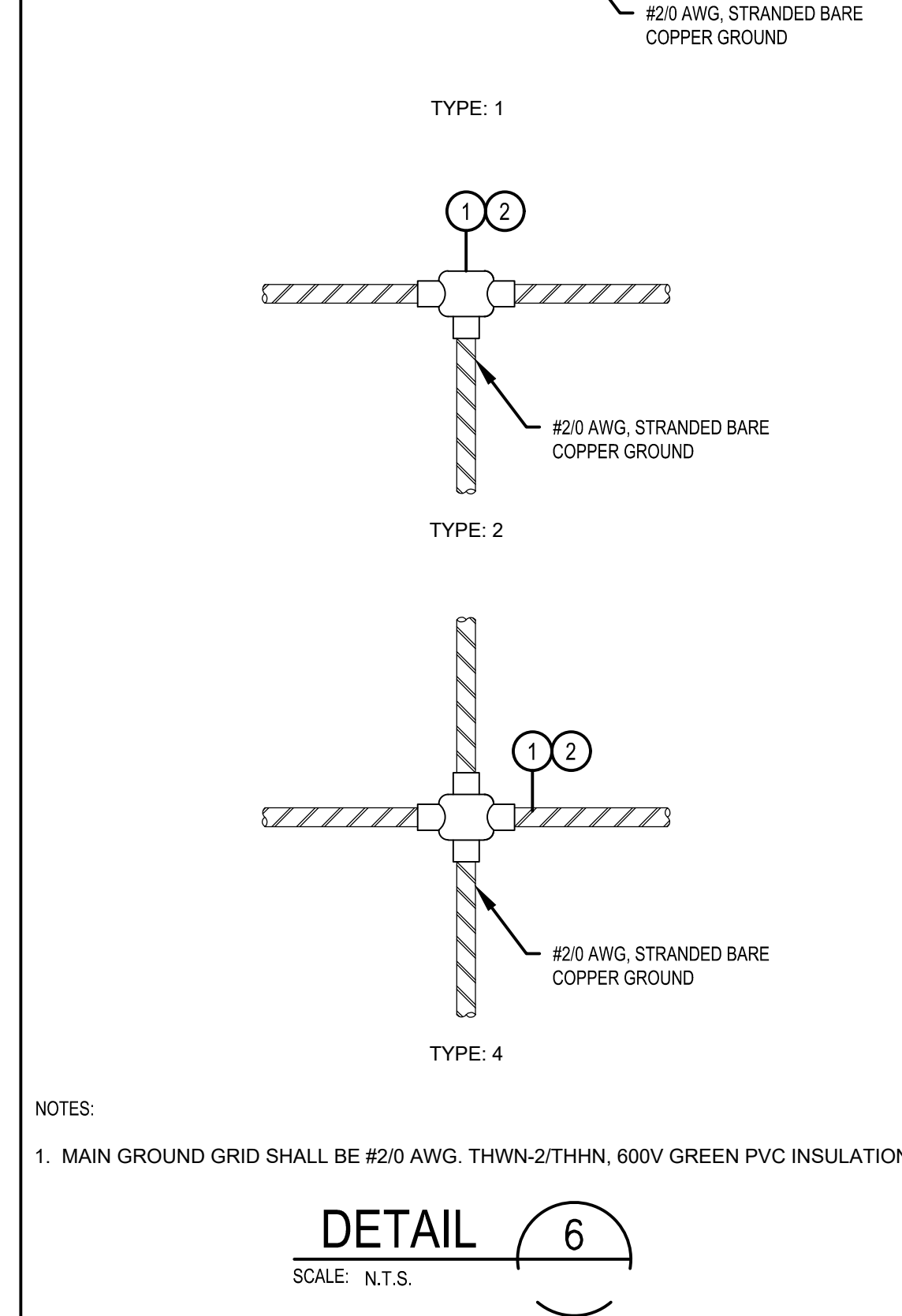
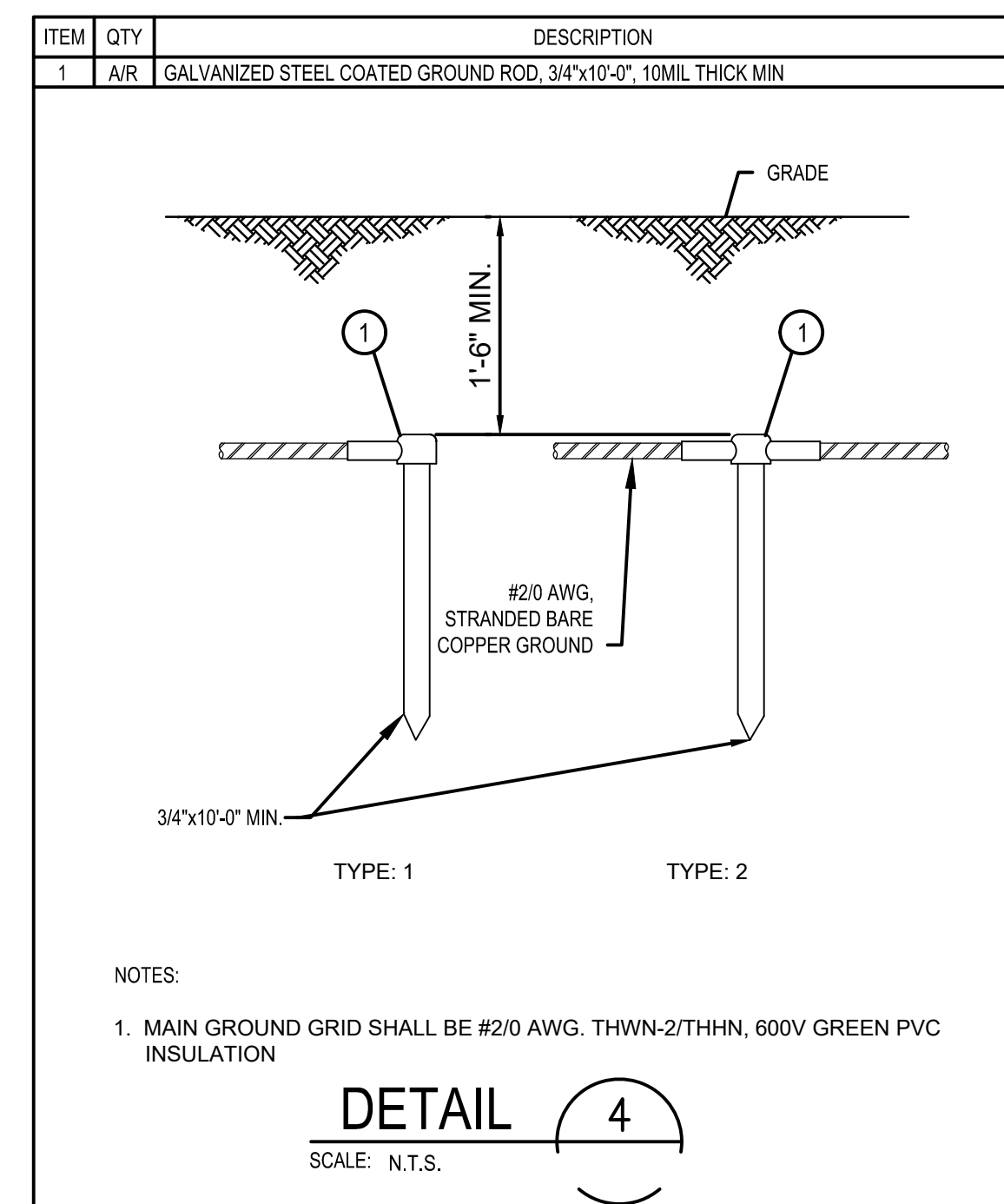
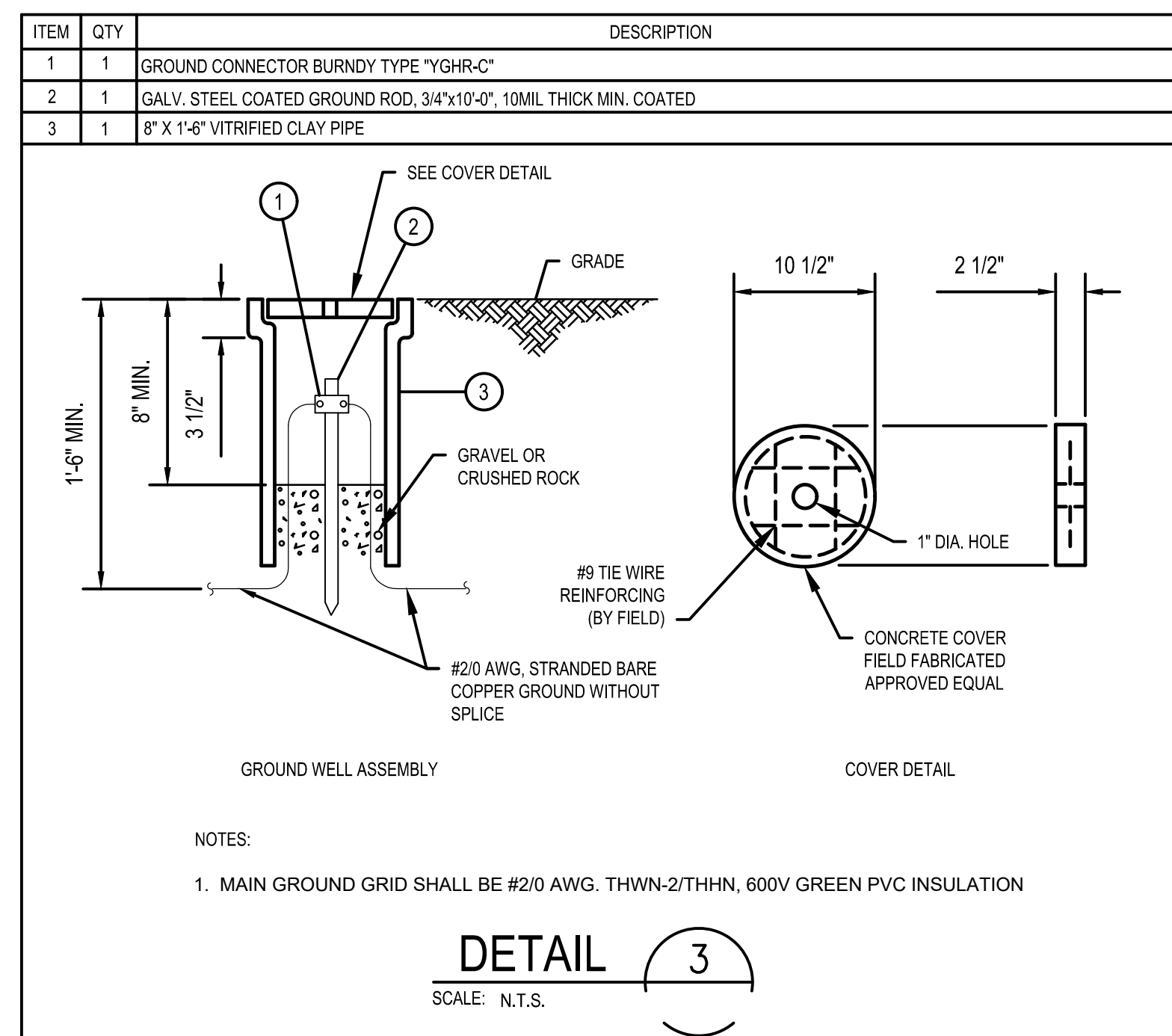


GROUNDING LEGEND:

- GROUND TESTING WELL
- GROUND ROD
- EXOTHERMIC TEE
- BARE GROUND WIRE

GROUNDING NOTES:

1. GROUNDING INSTALLATION MUST COMPLY WITH OSHA AND NATIONAL ELECTRICAL CODE REQUIREMENTS, EXCEPT WHERE LOCAL CODE PREVAILS.
2. A TEST MEASUREMENT OF THE RESISTANCE OF THE GROUNDING SYSTEM MUST BE TAKEN WHEN INSTALLED. IF THE RESISTANCE TO GROUND IS GREATER THAN 5 OHMS, ADDITIONAL GROUND RODS MUST BE INSTALLED UNTIL A COMBINED RESISTANCE OF 5 OHMS OR LESS IS OBTAINED.
3. THE GROUNDING SYSTEM IS SHOWN DIAGRAMMATICALLY SO THAT APPROXIMATE ROUTING OF GROUNDING CONDUCTORS AND LOCATIONS OF TAPS, WELLS AND GROUND RODS CAN BE ACCOMPLISHED.
4. WHERE GROUNDING CONDUCTORS ARE ROUTED EXPOSED, THEY MUST BE SECURED MINIMUM EVERY 24".
5. AREA RESERVED FOR 120VAC PANEL INSTALLATIONS. ONLY ONE SYSTEM PER SITE. GROUND ALL PANELS PER DETAIL 5 - SEE DRAWING PNG-E-043-0001011 FOR PANEL LOCATIONS AND ACCESSORY EQUIPMENT. SEE DRAWING PNG-E-043-0001011 FOR DETAILS ON PROPOSED PANEL LOCATIONS.
6. FENCE IS SHOWN DIAGRAMMATICALLY AND WILL CHANGE DIMENSIONS BASED ON HAZARDOUS LOCATION DWG. PNG-E-043-0001015.



REF. DWG(S)

SHEET(S)	1 OF 1	DWG SCALE	AS SHOWN
DWG DATE	09/11/2019	SUPERSEDED	
DRAWING NUMBER		REVISION	
PNG -E-043-0001014		0	
DISCIPLINE / RESOURCE CENTER / LINE NUMBER			

BURNS & MCDONNELL
STATE LICENSE #43

YEVGENIY KHISLAVSKIY
02/12/2020
KENTUCKY
SEAL 34514

PROFESSIONAL ENG/ARCH STAMP

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						PROJECT NUMBER	V8351	N/A	N/A
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						STATION ID	-	N/A	N/A
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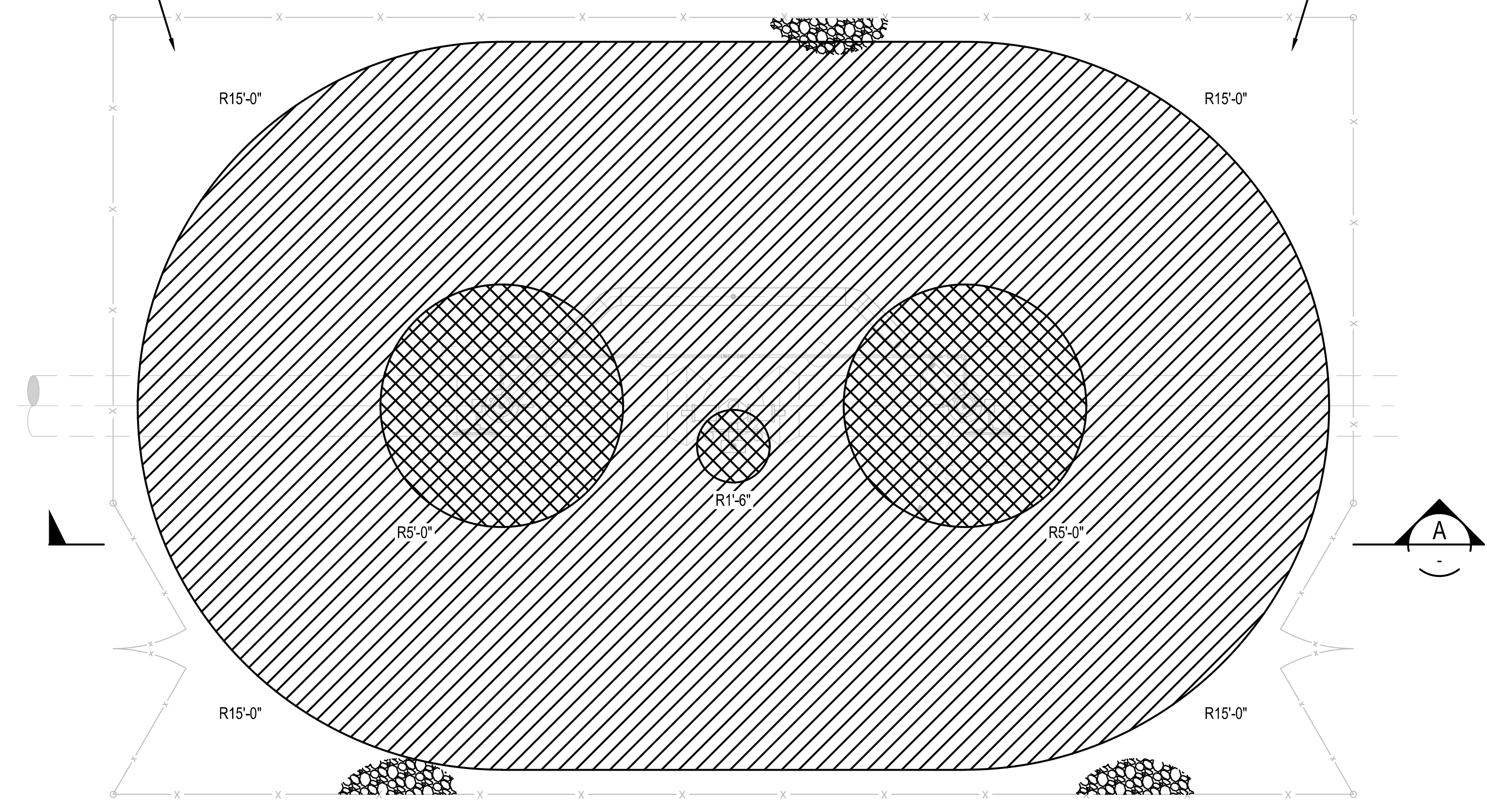
**MAINLINE VALVE
TYPICAL GROUNDING PLAN
BOONE COUNTY, KY**
ERLANGER, KY

AREA RESERVED FOR ELECTRICAL EQUIPMENT.

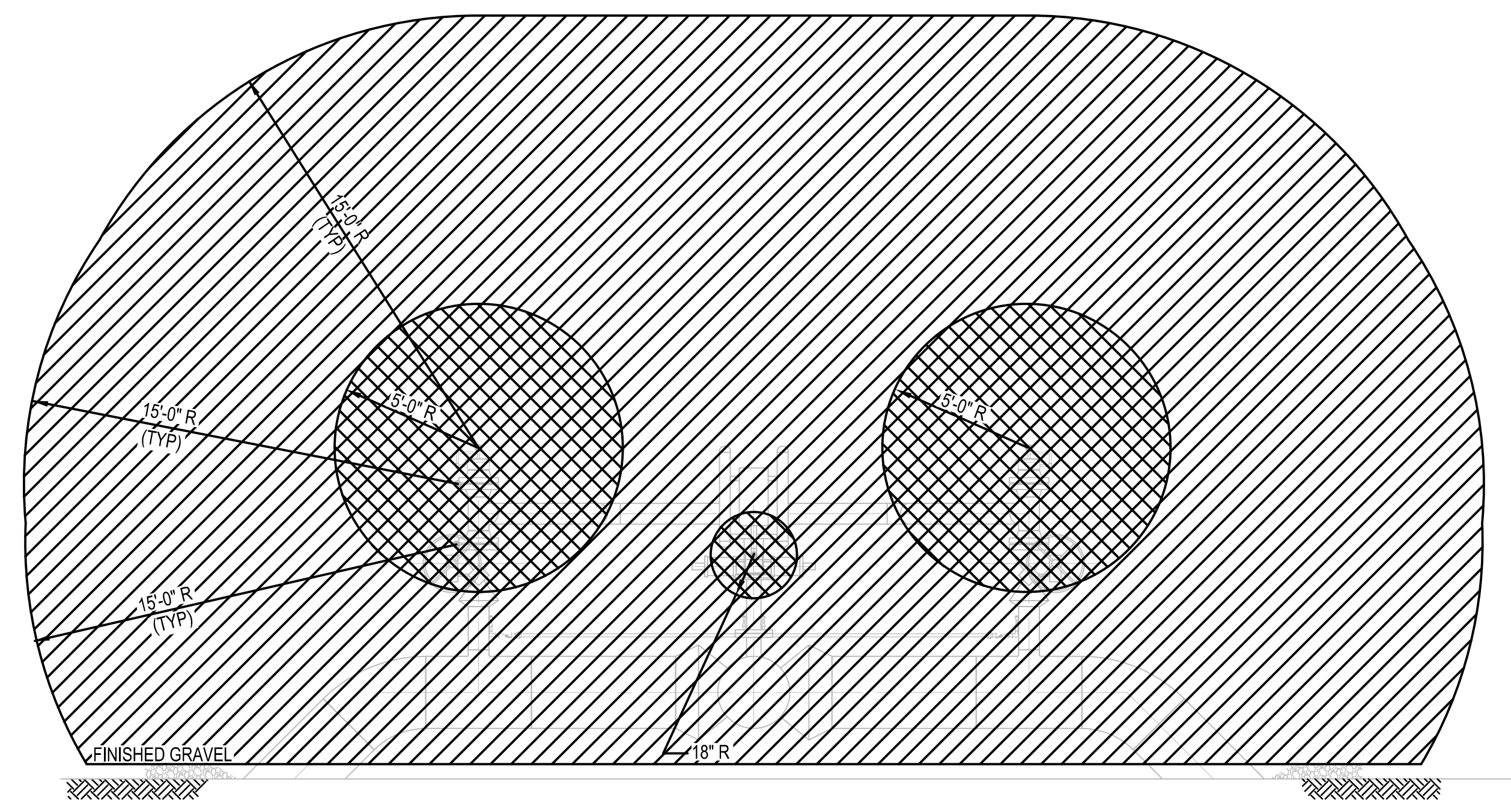
AREA RESERVED FOR ELECTRICAL EQUIPMENT.

	CLASS 1, DIVISION 1, GROUP D, T1
	CLASS 1, DIVISION 2, GROUP D, T1
	UNCLASSIFIED

- NOTES:**
1. AREA CLASSIFICATION ARE PER THE LATEST EDITION OF AMERICAN GAS ASSOCIATION AGA-XL1001
 2. ELECTRICAL WORK IN AREA CLASSIFICATION SHALL BE IN COMPLIANCE WITH THE LATEST EDITION OF NATIONAL ELECTRIC CODE, ARTICLE 500, 501 AND 504, AND PER STATE, LOCAL AND OSHA REGULATIONS.



TYPICAL HAZARDOUS AREA CLASSIFICATION PLAN
SCALE: 1/4"=1'-0"



SECTION A
SCALE: 1/4"=1'-0"

BURNS & MCDONNELL
STATE LICENSE #43

YEVGENIY KHISLAVSKIY
02/12/2020
KENTUCKY
SEAL 34514

PROFESSIONAL ENGINEER ARCHITECT STAMP

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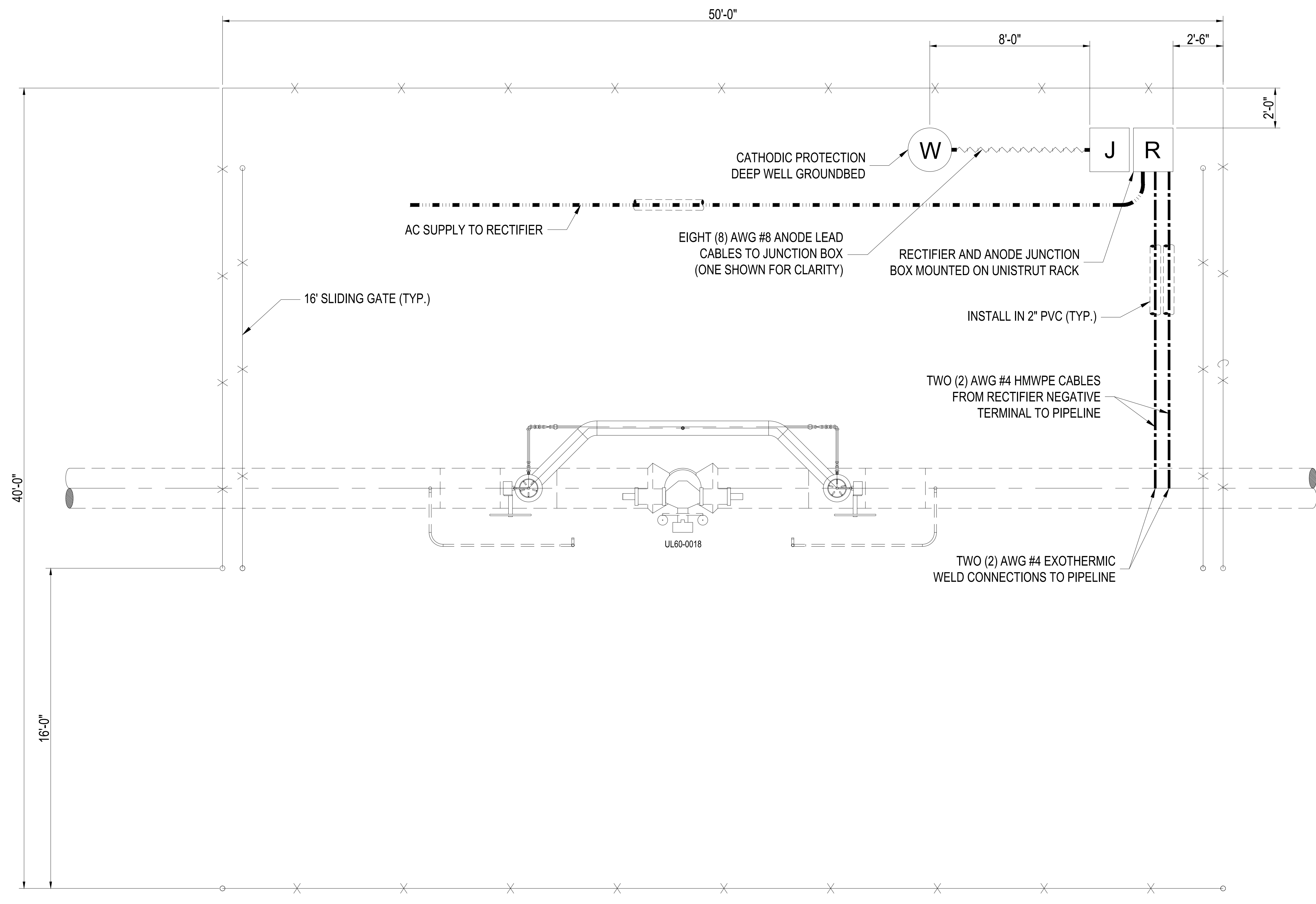
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						DRAWING BY	MCR	N/A	N/A
						STATION ID	-	02/12/2020	YBK
						CHECKER INITIALS	KM		

DUKE ENERGY | Piedmont Natural Gas
MGR TECH REC & STD
PRINCIPAL ENGINEER
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MAINLINE VALVE
TYPICAL HAZARDOUS LOCATION SITE PLAN
BOONE COUNTY, KY
ERLANGER, KY

SHEET(S)	1 OF 1	DWG SCALE	AS SHOWN
DWG DATE	07/17/2019	SUPERSEDED	-
DRAWING NUMBER	PNG -E-043-0001015		
REVISION	0		
DISCIPLINE / RESOURCE CENTER / LINE NUMBER			



PLAN VIEW
SCALE: AS NOTED BELOW

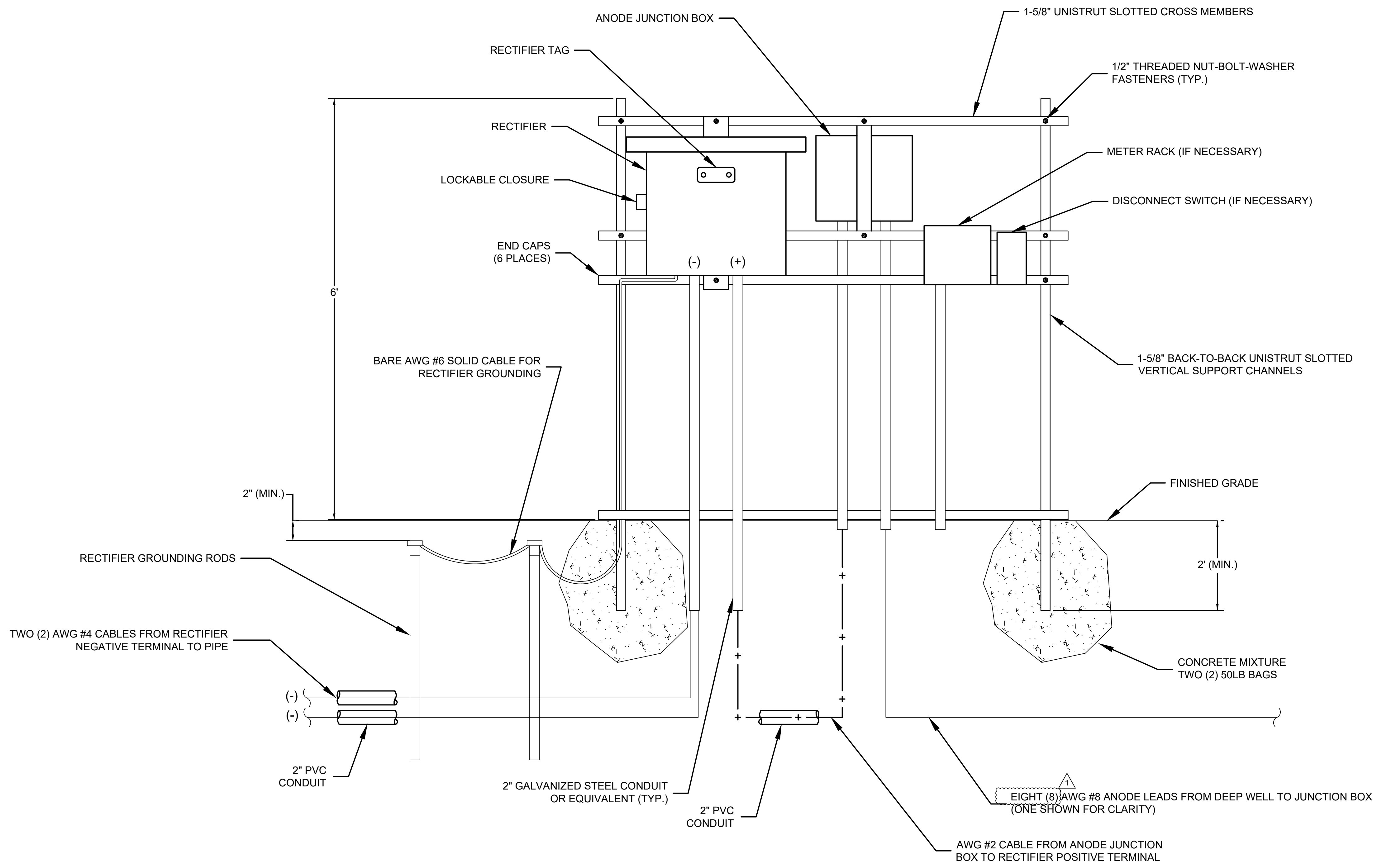
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						DRAWING BY	FFO		
						STATION ID			
						CHECKER INITIALS	FFO	11/13/2020	



MAINLINE VALVE SITE
CATHODIC PROTECTION PLOT PLAN
BOONE COUNTY, KY
 ERLANGER, KY

REF. DWG(S)	SHEET(S) 1 OF 1	DWG SCALE 3/8" = 1'-0"
	DWG DATE 11-13-2020	SUPERSEDED
	DRAWING NUMBER	REVISION 0
DISCIPLINE / RESOURCE CENTER / LINE NUMBER		



STEEL FRAME MOUNTED RECTIFIER
DETAIL 5
SCALE: NOT TO SCALE

BURNS & MCDONNELL
STATE LICENSE #43

AMANDA M. PALM
04/17/2020
KENTUCKY
SEAL 33142

PROFESSIONAL ENG/ARCH STAMP

PIEDMONT'S NATURAL GAS FACILITY DRAWINGS ARE CONSIDERED CONFIDENTIAL (OM-1095) * DRAWING IS CURRENT ONLY THROUGH THE LATEST REVISED DATE * TO ENSURE THERE IS NO RISK OF INAPPROPRIATE DISCLOSURE ALL PREVIOUS PAPER COPIES OF THIS DRAWING MUST BE DESTROYED IN ACCORDANCE WITH RECORDS & INFO. MANAGEMENT (RIM) POLICY 1001

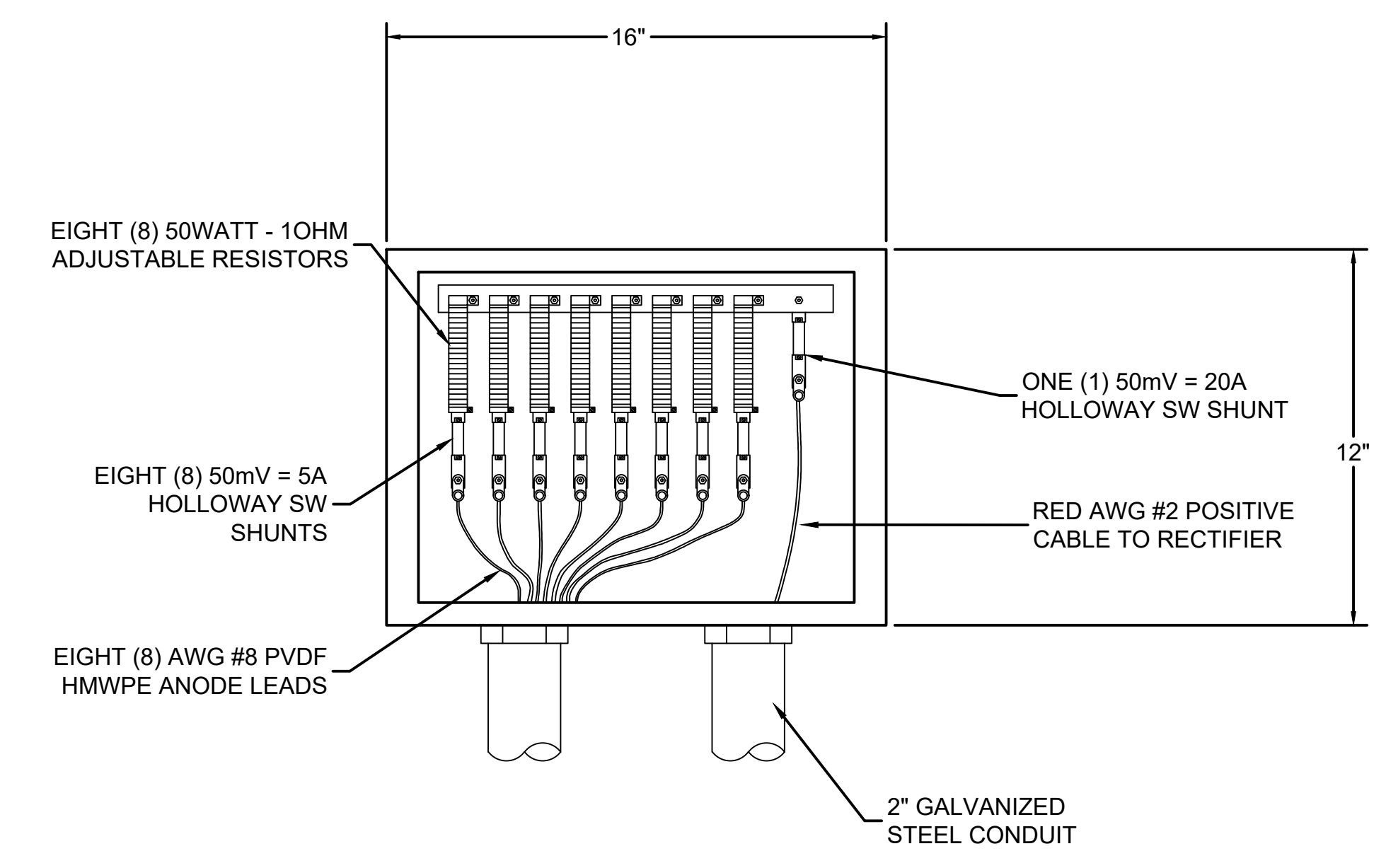
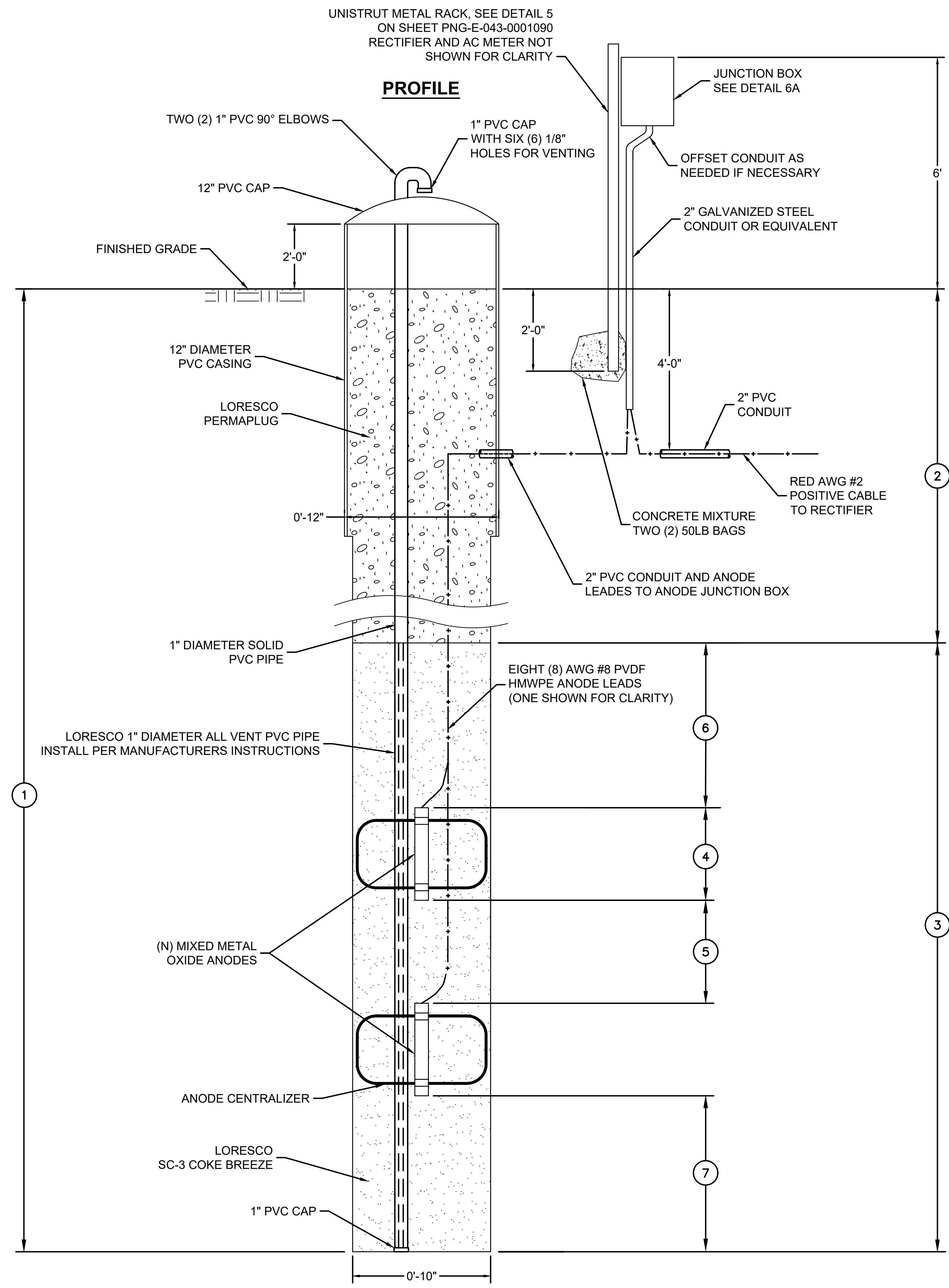
REF. DWG(S)

NO.	DATE	REVISION(S) DESCRIPTION	BY	CHK	APPD	DESCRIPTION	APPROVALS
0	02-19-2021	ISSUED FOR AS-BUILT	MCR	FFO	JRC	AREA CODE - ACCOUNT NUMBER - PROJECT NUMBER V8351 DRAWING BY AJB STATION ID - CHECKER INITIALS FFO	DATE N/A INITIALS N/A DATE N/A INITIALS N/A DATE 04-17-2020 INITIALS AMP

REGIONAL ENGINEER	
MGR TECH REC & STD	
PRINCIPAL ENGINEER	

UL60 PROJECTS
RECTIFIER
BOONE COUNTY, KY
ERLANGER, KY

SHEET(S) 1 OF 1	DWG SCALE -
DWG DATE 09/16/2019	SUPERSEDED -
DRAWING NUMBER PNG -E-043-0001090	REVISION 0



DEEP WELL DIMENSIONS

1. TOTAL WELL DEPTH	205'
2. INACTIVE COLUMN LENGTH	100'
3. ACTIVE COLUMN LENGTH	105'
4. ANODE LENGTH	19.7"
5. DISTANCE BETWEEN ANODES	10'
6. DISTANCE FROM TOP OF ACTIVE COLUMN TO FIRST ANODE	10'
7. DISTANCE FROM BOTTOM OF ACTIVE COLUMN TO LAST ANODE	10'
N. NUMBER OF ANODES	8

DEEP WELL GROUND BED DETAIL 6

SCALE: NOT TO SCALE

BURNS & MCDONNELL
STATE LICENSE #43

AMANDA M. PALM
02/11/2020
KENTUCKY
SEAL 33142

PROFESSIONAL ENGR/ARCH STAMP

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REF. DWG(S)

NO.	DATE	REVISION(S) DESCRIPTION	BY	CHK	APPD	DESCRIPTION	DATE	INITIALS	APPROVALS
0	02-19-2021	ISSUED FOR AS-BUILT	MCR	FFO	EPM	AREA CODE	-	N/A	N/A
						ACCOUNT NUMBER	-	N/A	N/A
						PROJECT NUMBER	V8351	N/A	N/A
						DRAWING BY	AJB	N/A	N/A
						STATION ID	-	N/A	N/A
						CHECKER INITIALS	FFO	02-12-2020	AMP



UL60 PROJECTS
DEEP WELL DETAIL
BOONE COUNTY, KY
ERLANGER, KY

SHEET(S)	1 OF 1	DWG SCALE	-
DWG DATE	09/16/2019	SUPERSEDED	-
DRAWING NUMBER	PNG -E-043-0001091		
REVISION	0		