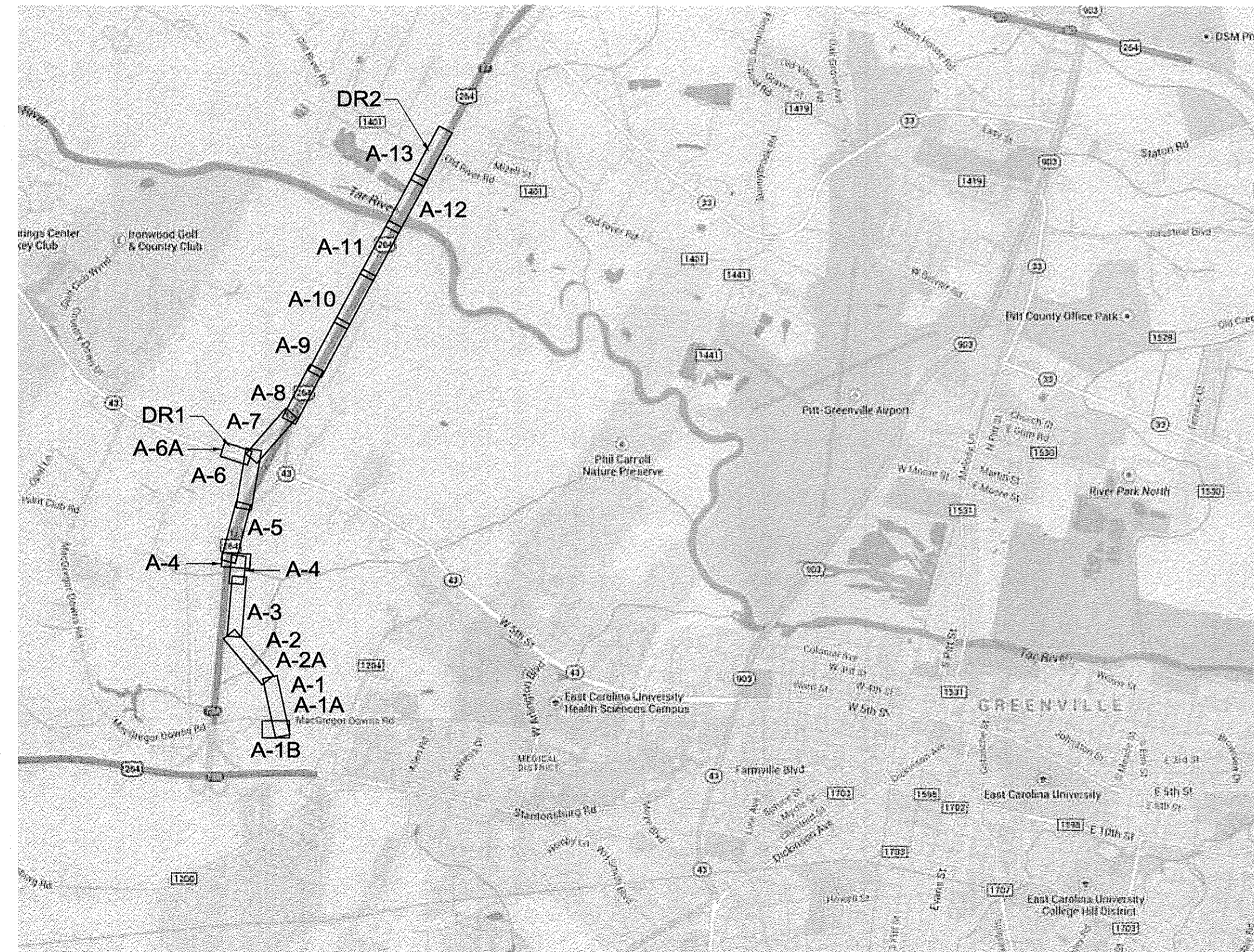


Greenville Utilities

GCP89 - Northwestern Loop High-Pressure Gas Main Extension Pitt County, North Carolina

June 1, 2015



KEY PLAN
NOT TO SCALE

SHEET DESCRIPTION

- GCP89 COVER SHEET
- GENERAL NOTES AND DRAWING LEGEND
- EASEMENT REQUIREMENTS
- PLAN AND PROFILE SHEET STA 10+00 TO STA 24+75
- PLAN SHEET STA 10+00 TO STA 24+75
- GATE 3 REGULATOR STATION SITE PLAN
- PLAN AND PROFILE SHEET STA 24+75 TO STA 39+00
- PLAN SHEET STA 24+75 TO STA 39+00
- PLAN AND PROFILE SHEET STA 39+00 TO STA 53+50
- PLAN AND PROFILE SHEET STA 53+50 TO STA 62+25
- PLAN AND PROFILE SHEET STA 62+25 TO STA 75+50
- PLAN AND PROFILE SHEET STA 75+50 TO STA 89+50
- PLAN AND PROFILE SHEET STA 10+00 TO STA 13+65
- PLAN AND PROFILE SHEET STA 89+50 TO STA 103+00
- PLAN AND PROFILE SHEET STA 103+00 TO STA 116+75
- PLAN AND PROFILE SHEET STA 116+75 TO STA 130+50
- PLAN AND PROFILE SHEET STA 130+50 TO STA 144+10
- PLAN AND PROFILE SHEET STA 144+10 TO STA 158+50
- PLAN AND PROFILE SHEET STA 158+50 TO STA 172+50
- PLAN AND PROFILE SHEET STA 172+50 TO STA 176+32
- BILL OF MATERIALS
- PIPELINE DETAILS
- PIPELINE DETAILS
- EROSION AND SEDIMENT CONTROL NOTES
- EROSION AND SEDIMENT CONTROL DETAILS
- EROSION AND SEDIMENT CONTROL DETAILS
- EROSION AND SEDIMENT CONTROL DETAILS
- EROSION AND SEDIMENT CONTROL DETAILS
- CATHODIC PROTECTION DETAILS
- AC MITIGATION DETAILS
- AC MITIGATION DETAILS
- AC MITIGATION DETAILS AND BILL OF MATERIALS
- GEOTECHNICAL BORE DATA SHEETS
- GEOTECHNICAL BORE DATA SHEETS
- GEOTECHNICAL BORE DATA SHEETS
- GEOTECHNICAL BORE DATA SHEETS

SHEET NUMBER

-
- G-1
- G-2
- A-1
- A-1A
- A-1B
- A-2
- A-2A
- A-3
- A-4
- A-5
- A-6
- A-6A
- A-7
- A-8
- A-9
- A-10
- A-11
- A-12
- A-13
- D-1
- D-2
- D-3
- ES-1
- ES-2
- ES-3
- ES-4
- ES-5
- CP-1
- ACM-1
- ACM-2
- ACM-3
- GT-1
- GT-2
- GT-3
- GT-4

SHEET DESCRIPTION

- TRAFFIC CONTROL NOTES KEY PLAN
- TRAFFIC CONTROL NOTES, LEGEND, AND PLAN AT CE-1
- TRAFFIC CONTROL PLAN AT CONSTRUCTION ENTRANCE CE-1
- TRAFFIC CONTROL PLAN AT CONSTRUCTION ENTRANCE CE-1
- TRAFFIC CONTROL PLAN AT CONSTRUCTION ENTRANCE CE-1
- TRAFFIC CONTROL PLAN AT CONSTRUCTION ENTRANCE CE-2
- TRAFFIC CONTROL PLAN AT CONSTRUCTION ENTRANCE CE-2
- TRAFFIC CONTROL PLAN AT CONSTRUCTION ENTRANCE CE-2
- TRAFFIC CONTROL PLAN AT CONSTRUCTION ENTRANCE CE-2
- TRAFFIC CONTROL PLAN AT CONSTRUCTION ENTRANCE CE-2
- TRAFFIC CONTROL PLAN AT CONSTRUCTION ENTRANCE CE-4
- TRAFFIC CONTROL PLAN AT CONSTRUCTION ENTRANCE CE-4
- TRAFFIC CONTROL PLAN AT CONSTRUCTION ENTRANCE CE-4
- TRAFFIC CONTROL PLAN AT CONSTRUCTION ENTRANCE CE-4
- TRAFFIC CONTROL PLAN AT CONSTRUCTION ENTRANCE CE-4
- TRAFFIC CONTROL PLAN AT CONSTRUCTION ENTRANCE CE-5
- TRAFFIC CONTROL PLAN AT CONSTRUCTION ENTRANCE CE-5
- TRAFFIC CONTROL PLAN AT CONSTRUCTION ENTRANCE CE-5
- TRAFFIC CONTROL PLAN AT CONSTRUCTION ENTRANCE CE-5
- GENERAL TRAFFIC CONTROL PLANS
- HWY 43 DISTRICT REGULATOR STATION COVER SHEET
- HWY 43 DISTRICT REGULATOR STATION BILL OF MATERIALS, GENERAL NOTES, AND LEGEND
- HWY 43 DISTRICT REGULATOR STATION EXISTING CONDITIONS PLAN
- HWY 43 DISTRICT REGULATOR STATION EXISTING SITE CONDITIONS PLAN
- HWY 43 DISTRICT REGULATOR STATION PROPOSED SITE PLAN
- HWY 43 DISTRICT REGULATOR STATION PROPOSED SITE GRADING PLAN
- HWY 43 DISTRICT REGULATOR STATION PROPOSED SITE PLAN DETAIL
- HWY 43 DISTRICT REGULATOR STATION PROPOSED PIPING PLAN
- HWY 43 DISTRICT REGULATOR STATION PIPING SECTION AND DETAILS
- HWY 43 DISTRICT REGULATOR STATION PIPING SECTION AND TIE-IN DETAIL
- HWY 43 DISTRICT REGULATOR STATION PIPING SECTION AND DETAILS
- HWY 43 DISTRICT REGULATOR STATION PIPING SECTION AND DETAIL
- OLD RIVER RD REGULATOR STATION COVER SHEET
- OLD RIVER RD REGULATOR STATION BILL OF MATERIALS, GENERAL NOTES, AND LEGEND
- OLD RIVER RD REGULATOR STATION EXISTING CONDITIONS PLAN
- OLD RIVER RD REGULATOR STATION PROPOSED SITE GRADING PLAN
- OLD RIVER RD REGULATOR STATION PROPOSED SITE PLAN
- OLD RIVER RD REGULATOR STATION PROPOSED SITE PLAN DETAIL
- OLD RIVER RD REGULATOR STATION PROPOSED PIPING PLAN
- OLD RIVER RD REGULATOR STATION PIPING SECTION AND DETAILS
- OLD RIVER RD REGULATOR STATION PIPING SECTION AND DETAILS
- OLD RIVER RD REGULATOR STATION PIPING SECTION
- OLD RIVER RD REGULATOR STATION PIPING SECTION AND DETAIL

SHEET NUMBER

- TC-0
- TC-1
- TC-2
- TC-3
- TC-4
- TC-5
- TC-6
- TC-7
- TC-8
- TC-9
- TC-10
- TC-11
- TC-12
- TC-13
- TC-14
- TC-15
- TC-16
- TC-17
-
- DR1-1
- DR1-2
- DR1-3
- DR1-4
- DR1-5
- DR1-6
- DR1-7
- DR1-8
- DR1-9
- DR1-10
- DR1-11
-
- DR2-1
- DR2-2
- DR2-3
- DR2-4
- DR2-5
- DR2-6
- DR2-7
- DR2-8
- DR2-9
- DR2-10



SURVEYOR'S CERTIFICATE

I, HOWARD O. BARNUM, PLS, CERTIFY THAT THIS MAP WAS DRAWN UNDER MY SUPERVISION FROM AN ACTUAL GPS SURVEY MADE BY ME, AND THE FOLLOWING INFORMATION WAS USED TO PERFORM THE SURVEY:

1. CLASS OF SURVEY: A
2. POSITIONAL ACCURACY: 0.10'
3. TYPE OF GPS FIELD PROCEDURE: ..NORTH CAROLINA VRS RTK
4. DATES OF SURVEY:5-06-2014 TO 1-04-2015
5. DATUM/EPOCH:NAD83(2011), NAVD88
6. PUBLISHED/FIXED:JEROME (DG4522)
VERA (DG4520)
7. GEOD MODEL:.....GEOD12A
8. COMBINED GRID FACTORS..... 0.9998974
9. UNITS:US SURVEY FEET



Issued for Bids



GENERAL NOTES

- 1. ALL CONSTRUCTION METHODS AND MATERIALS SHALL CONFORM TO THE CURRENT SPECIFICATIONS AND STANDARDS OF THE GREENVILLE UTILITIES COMMISSION AND BE IN CONFORMANCE WITH THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION (NCDOT) REQUIREMENTS AND THE PITT COUNTY, NORTH CAROLINA REQUIREMENTS.
2. SURVEY
THE PROJECT BASE MAPPING IS CREATED FROM A COMBINATION OF 2012 ORTHOIMAGERY (NAD 83(2011)) AND 2007 LIDAR (NAVD 88) DATA, PROVIDED BY THE STATE OF NORTH CAROLINA. ALL DISTANCES WERE MEASURED AND REPORTED IN US SURVEY FEET. LIMITED PLANIMETRIC SURVEYS WERE PERFORMED BY STROUD ENGINEERING, P.A. TO FIELD VERIFY ORTHOIMAGERY DATA. TOPOGRAPHIC SURVEYS WERE PERFORMED TO SUPPLEMENT THE LIDAR TOPOGRAPHY AT THE CROSSINGS OF MACGREGOR DOWNS ROAD, NC HWY 264 BYPASS AND NC HWY 43. THESE SURVEYS WERE PERFORMED USING AN ARRANGEMENT OF GPS AND TOTAL STATION EQUIPMENT. THE INSTRUMENT SURVEYS WERE PERFORMED AS A CLASS AA SURVEY WITH A POSITIONAL ACCURACY OF LESS THAN 0.10'. HYDROGRAPHIC SURVEYS WERE PERFORMED ACROSS THE TAR RIVER AND OTHER STANDING BODIES OF WATER USING AN ECHOSOUNDER AND ECHOSOUNDER TRANSDUCER.
3. EXISTING UTILITIES
THE LOCATION OF EXISTING SEWER, WATER, POWER, GAS, TELEPHONE, AND OTHER UTILITIES AND STRUCTURES THAT ARE LOCATED ACROSS, UNDERNEATH, ALONG, AND WITHIN THE LIMITS OF THE PROPOSED WORK WERE OBTAINED FROM EXISTING RECORDS, SUBSURFACE UTILITY LEVEL B DESIGNATION, AND PLANIMETRIC SURVEYING. ALL OF THESE METHODS CONTAIN INHERENT INACCURACIES AND THE LOCATIONS SHOWN ON THE PLANS SHOULD NOT BE CONSIDERED AS EXACT. LIMITED LEVEL A DESIGNATION WORK WAS PERFORMED AT THE CROSSINGS OF GREENVILLE UTILITIES COMMISSION FACILITIES.
A. PRIOR TO CONSTRUCTION OR EXCAVATION, THE CONTRACTOR SHALL ASSUME THE RESPONSIBILITY OF LOCATING ANY UNDERGROUND UTILITIES (PUBLIC AND/OR PRIVATE) THAT MAY EXIST IN THE AREA OF CONSTRUCTION. HE SHALL NOTIFY THE ENGINEER IMMEDIATELY IF THERE APPEARS TO BE A CONSTRUCTION CONFLICT OR UPON DISCOVERY OF ANY UTILITY NOT SHOWN ON THE PLAN. THE CONTRACTOR SHALL BE LIABLE FOR ALL DAMAGE DONE TO ANY STRUCTURES OR PROPERTY THROUGH HIS CARELESSNESS OR NEGLIGENCE. ANY GRADE STAKES, HUBS, ETC. DESTROYED WILL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
B. CONTRACTOR SHALL CLEARLY LOCATE ALL EXISTING UTILITY SERVICE CONNECTIONS AND AVOID DAMAGING THESE DURING CONSTRUCTION.
C. THE CONTRACTOR SHALL CONTACT THE N.C. ONE-CALL CENTER AT 811 OR 1-800-632-4949 72 HOURS IN ADVANCE OF ANY CONSTRUCTION. REFER TO THE NCB11 WEBSITE AT www.nc811.org FOR A COMPLETE LISTING OF NORTH CAROLINA DAMAGE PREVENTION SERVICES.
4. MATERIALS AND WORKMANSHIP
ALL MATERIALS AND WORKMANSHIP SHALL COMPLY WITH (THE LATEST EDITIONS WHERE APPLICABLE) OF:
A. THE GREENVILLE UTILITIES COMMISSION NATURAL GAS OPERATIONS AND MAINTENANCE PLAN,
B. APPLICABLE PITT COUNTY, NORTH CAROLINA ORDINANCES AND REGULATIONS,
C. TITLE 49, CFR, PART 192 -- FEDERAL PIPELINE SAFETY CODE,
D. ASME B31.8 -- GAS TRANSMISSION AND DISTRIBUTION PIPING SYSTEMS,
E. REQUIREMENTS OF THE APPROVED CONSTRUCTION & EROSION AND SEDIMENTATION CONTROL PLAN FROM NCDENR.
F. REQUIREMENTS OF THE NCDOT HIGHWAY ENCROACHMENTS,
G. TITLE 29 CFR, PART 1926 -- FEDERAL OCCUPATIONAL SAFETY AND HEALTH STANDARDS, SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION,
H. NCDOT ROADWAY DESIGN MANUAL,
I. NCDOT WORK ZONE SAFETY REQUIREMENTS, AND
J. CONDITIONS OF NEGOTIATED EASEMENTS AND TEMPORARY WORKSPACE COMPRISING THE PIPELINE RIGHT-OF-WAY AND CONSTRUCTION PATH. REFER TO SHEET G-2 FOR THESE REQUIREMENTS.
K. FINAL CONSTRUCTION PLANS AND SPECIFICATIONS SHALL INCLUDE THE REQUIREMENTS OF ALL FINAL PROJECT PERMITS. FINAL PERMITS WILL BE PROVIDED TO THE SUCCESSFUL BIDDER.
5. NO DEVIATION FROM THESE PLANS WILL BE ALLOWED WITHOUT PRIOR WRITTEN APPROVAL OF THE OWNER, ENGINEER AND AFFECTED GOVERNMENTAL AGENCIES.
6. CLEARING AND GRUBBING
ALL GROWTH OF TREES, OTHER VEGETATION, AND OBJECTIONABLE DEBRIS SHALL BE CLEARED AND GRUBBED FROM THE PROPOSED CONSTRUCTION PATH WITHIN THE UTILITY EASEMENT AND PROPOSED REGULATOR STATION SITE AREAS. ALL DEBRIS SHALL BE REMOVED FROM THE SITE AND DISPOSED OF OFF-SITE IN DESIGNATED DISPOSAL AREAS IN ACCORDANCE WITH ALL REGULATORY REQUIREMENTS.
7. GRADING
EXCEPT WHERE NOTED BY PERMIT REQUIREMENTS AND SPECIFICALLY CALLED OUT IN PLANS, CONTRACTOR SHALL RETURN THE GROUND SURFACE ALONG THE CONSTRUCTION PATH TO PRE-CONSTRUCTION ELEVATIONS AND CONTOURS FOLLOWING CONSTRUCTION AND PRIOR TO VEGETATION RESTORATION.

GENERAL NOTES (CONT'D.)

- 8. TRENCHING, COVER, CLEARANCE, BACKFILLING, AND DRAINAGE STRUCTURES
A. TRENCH DEPTH FOR STEEL PIPE SHALL BE SUFFICIENTLY DEEP TO ALLOW A MINIMUM OF 4 FEET OF COVER OVER THE PIPE AFTER BACKFILLING.
B. TRENCH WIDTH SHALL BE APPROXIMATELY 12 TO 16 INCHES WIDER THAN THE NOMINAL PIPE DIAMETER OR AS CLOSE TO THIS AS SOIL CONDITIONS PERMIT.
C. OPEN TRENCH LENGTHS SHALL BE KEPT TO A MINIMUM.
D. WHERE UNSTABLE SOIL OR ABRASIVE ROCK AND/OR STONE ARE ENCOUNTERED AT THE TRENCH BOTTOM, THE TRENCH SHALL BE EXCAVATED SUFFICIENTLY DEEP TO ALLOW FOR 6 INCHES OF PIPE BEDDING TO BE INSTALLED IN THE BOTTOM OF THE DITCH.
E. BACKFILL SURROUNDING THE PIPE AND EXTENDING 12 INCHES ABOVE THE PIPE SHOULD BE CLEAN AND FREE FROM ABRASIVE MATERIALS.
F. NO TRENCH SHALL BE BACKFILLED UNTIL AUTHORIZED BY THE INSPECTOR OR OWNER.
G. AT THE DIRECTION OF THE INSPECTOR OR OWNER, UNSUITABLE MATERIAL WILL BE REMOVED AND NOT USED AS BACKFILL. IT WILL BE REPLACED WITH ACCEPTABLE MATERIAL. ALL BACKFILL SHALL BE FREE OF DEBRIS.
H. BACKFILL SHALL BE ADDED IN APPROXIMATE 6-INCH LIFTS AND COMPACTED USING MECHANICAL TAMPERS TO THE MAXIMUM DENSITY OBTAINABLE FOR THE CONDITIONS. WITHIN NCDOT RIGHT-OF-WAYS, PRIVATE DRIVEWAYS AND OTHER AREAS WHERE SETTLEMENT ALONG THE TRENCH LINE IS UNACCEPTABLE, COMPACTION SHALL BE TO 95% DENSITY AT OPTIMUM MOISTURE CONTENT +/-2%.
9. GAS PIPING
A. GAS PIPING SHALL BE DELIVERED, HANDLED, STORED, INSTALLED, TESTED, CLEANED, DRIED, TIED-IN AND COMMISSIONED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, PROJECT PLANS AND DETAILS, AND THE REQUIREMENTS OF THE GREENVILLE UTILITIES COMMISSION NATURAL GAS OPERATIONS AND MAINTENANCE PLAN.
B. THE GAS MAIN SHALL BE INSTALLED SO AS TO PROVIDE A MINIMUM OF 24 INCHES OF CLEARANCE TO ALL OTHER UNDERGROUND UTILITIES AND STRUCTURES. WHERE THIS IS NOT POSSIBLE, APPROPRIATE PROTECTION APPROVED BY THE INSPECTOR OR OWNER SHALL BE PROVIDED.
C. WHERE MINOR CHANGES IN DIRECTION ARE REQUIRED, THE PIPE MAY BE FIT TO THE DITCH WITH SIDE, SAG, AND OVER BENDS PROVIDED THE MINIMUM BENDING RADIUS OF 375 FEET OR A DEFLECTION OF 24.5 INCHES PER 40 FEET OF PIPE (0.61 INCHES PER FOOT) IS NOT EXCEEDED. FITTINGS MAY ALSO BE CUT TO ACCOMPLISH MINOR DIRECTIONAL CHANGES. REFER TO THE SPECIFICATIONS FOR MORE DETAILS.
10. SEEDING AND SURFACE RESTORATION
A. ALL SURFACE RESTORATION AND SEEDING, SODDING, ETC., SHALL BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF THE PROJECT EROSION AND SEDIMENT CONTROL PLAN AND DETAILS, AND THE PROJECT PLANS, DETAILS AND SPECIFICATIONS. SURFACE RESTORATION SHALL OCCUR AS SOON AS PRACTICAL FOLLOWING REMOVAL OF CONSTRUCTION MATERIALS, WASTE PILES, RESTORATION OF SURFACE CONTOURS AND GRADES, AND REMOVAL OF EQUIPMENT, AND ACCORDING TO THE REQUIREMENTS OF THE EROSION AND SEDIMENT CONTROL PLAN.
11. SITEWORK
A. ALL CONSTRUCTION STAKING FOR THE PIPELINE WILL BE THE RESPONSIBILITY OF THE CONTRACTOR AT HIS EXPENSE AND UTILIZING THE SERVICES OF A NORTH CAROLINA CERTIFIED PROFESSIONAL LAND SURVEYOR OR ENGINEER UNLESS OTHERWISE AGREED UPON BY THE OWNER IN WRITING.
B. ALL WORK ON THE TWO DISTRICT REGULATOR SITES SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT PLANS AND SPECIFICATIONS; AND PITT COUNTY PERMITTING REQUIREMENTS.
12. PAVEMENT
A. ALL EXISTING PAVEMENT, INCLUDING PAVED DRIVEWAYS AND DRIVEWAYS IMPROVED WITH STONE OR GRAVEL, THAT IS DAMAGED DURING CONSTRUCTION SHALL BE RESTORED TO PRE-CONSTRUCTION CONDITIONS BY THE CONTRACTOR AND ACCORDING TO ANY NOTES AND/OR DETAILS IN THE PROJECT PLANS.
B. ALL PAVING REQUIREMENTS RESULTING FROM EASEMENT NEGOTIATIONS SHALL BE HONORED AND COMPLETED BY THE CONTRACTOR. THESE REQUIREMENTS WILL BE INCLUDED ON SHEET G-2 OF THE PROJECT PLANS.

CONSTRUCTION NOTES

- 1. THE CONTRACTOR SHALL NOTIFY THE GREENVILLE UTILITIES COMMISSION CONSTRUCTION INSPECTOR PRIOR TO MAKING ANY ADJUSTMENTS TO EXISTING UTILITIES IN THE WORK AREA.
2. THE CONTRACTOR SHALL PREPARE A CONSTRUCTION PLAN AND SCHEDULE OF SUFFICIENT DETAIL TO DESCRIBE THE SEQUENCE OF THE CONTRACTOR'S CONSTRUCTION OPERATIONS. IT IS THE INTENT OF THE GREENVILLE UTILITIES COMMISSION THAT GAS SERVICE TO THE EXISTING DISTRIBUTION SYSTEM NOT BE INTERRUPTED DURING THE CONSTRUCTION OPERATIONS. SHOULD INTERRUPTION OF SERVICE BE REQUIRED DURING TIE-INS, CONTRACTOR SHALL NOTIFY THE CONSTRUCTION INSPECTOR A MINIMUM OF 72 HOURS IN ADVANCE OF THE PLANNED INTERRUPTION.
3. CONTRACTOR SHALL REVIEW ALL CLEANING, TESTING, DEWATERING, DRYING, AND TIE-IN, PURGING, AND GAS-UP PROCEDURES INCLUDING SAFETY PROCEDURES WITH CONSTRUCTION INSPECTOR A MINIMUM OF 5 DAYS PRIOR TO THE SCHEDULED WORK.
4. CONTRACTOR IS RESPONSIBLE FOR ALL LOCAL PERMITS AND APPROVALS NOT OBTAINED AS PART OF THE PROJECT PERMITTING DURING THE DESIGN. CONTRACTOR IS REQUIRED TO KEEP COPIES OF ALL PERMITS AT THE JOBSITE AT ALL TIMES DURING CONSTRUCTION.
5. THE GREENVILLE UTILITIES COMMISSION WILL BE SUPPLYING THE PIPE, VALVES, FITTINGS, AND MAJOR MATERIALS FOR THIS PROJECT. THE INSPECTOR WILL INSPECT THE WORK DURING CONSTRUCTION TO ENSURE THAT ALL METHODS AND CONTRACTOR SUPPLIED MATERIALS ARE IN ACCORDANCE WITH THE PROJECT PLANS, DETAILS, SPECIFICATIONS, AND PERMIT REQUIREMENTS.
6. THE CONTRACTOR SHALL REQUEST VALVE OPERATION BY THE GREENVILLE UTILITIES COMMISSION A MINIMUM OF 48 HOURS IN ADVANCE. THE CONTRACTOR SHALL NOT OPERATE VALVES ON ACTIVE GAS MAINS UNLESS DIRECTED BY THE GREENVILLE UTILITIES COMMISSION.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DAMAGES AND/OR PENALTIES RESULTING FROM NON-COMPLIANCE WITH FEDERAL, STATE AND LOCAL PERMITS, ENCROACHMENT AGREEMENTS, AND EASEMENT STIPULATIONS.
8. "DENR E&S MANUAL" REFERS TO THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES, EROSION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL.
9. DURING CONSTRUCTION AND SURFACE RESTORATION, THE CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION AND SEDIMENT CONTROL MEASURES AS DESCRIBED IN THE PROJECT PLANS AND DETAILS. THE CONTRACTOR SHALL REMOVE SUCH MEASURES WHEN THEY ARE NO LONGER NECESSARY. ALL MEASURES SHALL BE IN ACCORDANCE WITH THE DENR E&S MANUAL AND THE REQUIREMENTS OF THE PITT COUNTY PLANNING DEPARTMENT CONSTRUCTION & SOIL EROSION AND SEDIMENTATION CONTROL PERMIT.
10. REFERENCES TO NCDOT STANDARDS AND SPECIFICATIONS REFER TO THE MOST CURRENT EDITION OF THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION TRANSPORTATION STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES.
ABOVE GROUND PIPING
1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PAINTING ABOVE GRADE PIPING. THE PAINT SYSTEM SHALL BE TNEC SERIES 66, HI-BUILD EPOXOLINE, EPOXY-POLYAMIDE COATING, APPLIED TO THE MANUFACTURER'S SPECIFICATIONS TO A THICKNESS OF 5.0 MILS. THE COLOR SHALL BE GREY. THE APPLICATION EQUIPMENT SHALL BE SUPPLIED BY THE CONTRACTOR. THE PIPE TO BE PAINTED SHALL BE CLEANED AND DRIED. ALL RUST AND SCALE SHALL BE REMOVED WITH A WIRE BRUSH, EITHER BY HAND OR WITH A POWER TOOL. THE CONTRACTOR SHALL ENSURE THAT PARTS AND EQUIPMENT THAT SHOULD NOT BE PAINTED ARE COVERED WITH MASKING TAPE OR EQUIVALENT MATERIAL. CONTRACTOR SHALL APPLY COATING ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS AND IN ACCORDANCE WITH ALL APPLICABLE ENVIRONMENTAL, SAFETY AND HEALTH REQUIREMENTS, INCLUDING THOSE APPLYING TO DISPOSAL OF MATERIALS USED IN THE COATING PROCESS.
GEOTECHNICAL NOTE
A COPY OF THE GEOTECHNICAL REPORT IS INCLUDED IN THE PROJECT SPECIFICATIONS. THE BORE LOCATIONS ARE SHOWN IN THE PROJECT PLANS AND THE BORE PLOTS ARE INCLUDED IN THE PROJECT DETAILS. THE CONTRACTOR IS ENCOURAGED TO STUDY THE GEOTECHNICAL REPORT AND THE PROJECT PLANS PRIOR TO BEGINNING HORIZONTAL DIRECTIONAL DRILLING (HDD) OPERATIONS.
AIR RELEASE VALVE (ARV) NOTE
ARV LOCATIONS ARE APPROXIMATE BASED ON THE GRADES AND PIPE DEPTHS SHOWN ON THE PLANS. CONTRACTOR SHALL LOCATE EACH ARV AT THE HIGHEST PIPE ELEVATION NEAR THE PROPOSED ARV LOCATIONS SHOWN ON THE PLANS. CONTRACTOR MUST HAVE THE MEANS TO VERIFY ARV ELEVATIONS.
FLOOD PLAIN DEVELOPMENT NOTE
AS NOTED ON THE PLANS, PORTIONS OF THIS PROJECT ARE LOCATED WITHIN FLOOD ZONES AE (1% ANNUAL FLOODPLAIN) AND AE FLOODWAY AS DEFINED BY FEMA FLOOD INSURANCE RATE MAPS 3720466800K EFFECTIVE 07/07/2014 AND 3720466900J EFFECTIVE 01/02/2004.

DRAWING LEGEND

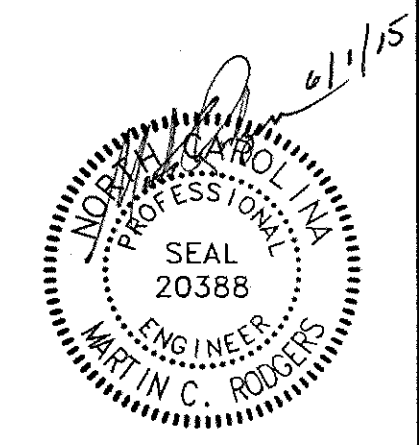
Table with 2 columns: SYMBOL and DESCRIPTION. Includes symbols for existing gas service, steel, polyethylene, proposed gas service, reinforced concrete pipe, station, cut to fit, ahead, BK, existing manhole, water meter, property pin, roadway sign, mail box, utility pole, telephone pedestal, fire hydrant w/ water valve, water valve, existing gas valve, proposed gas valve, CP test station, tree, bush, and proposed test hole.

DRAWING LEGEND

Table with 2 columns: SYMBOL and DESCRIPTION. Includes symbols for centerline, hydro, existing fence, existing guard rail, existing edge-of-pavement, existing driveway/path, existing gas to remain, existing utility easement, existing property line, existing right-of-way (R/W), existing sanitary sewer, existing storm drainage, existing underground electric line, existing underground telephone cable, existing underground fiber optic, existing water, borrow pit, wetland boundary, riparian barrier (RB), AE floodway, AE floodzone, proposed temporary workspace, proposed utility easement, proposed gas below grade, proposed pipeline marker, and proposed air release valve.

EROSION AND SEDIMENT CONTROL LEGEND

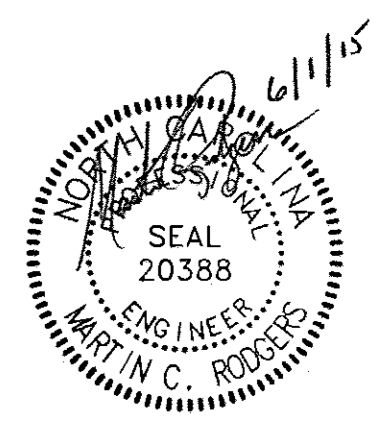
Table with 2 columns: SYMBOL and DESCRIPTION. Includes symbols for TSD (Proposed Temporary Stream Diversion), CE (Proposed Construction Entrance), TB (Proposed Trench Barrier), WB (Proposed Water Bar), PS (Proposed Seed & Mulch), SF (Proposed Silt Fence), STD (Proposed Stone Drive), DS (Proposed Dewatering Structure), and a symbol for Proposed Silt Fence.



Summary of Materials table with columns for Item, Quantity, Description, Revisions, and Date. Includes a Notes section, Approval table (Permits, Bid, Construction), Project information (GCP89 - Northwestern Loop High-Pressure Gas Main Extension), Scale (1" = 40'), and Sheet information (SHEET: G-1, REVISION: 0).

EASEMENT REQUIREMENTS

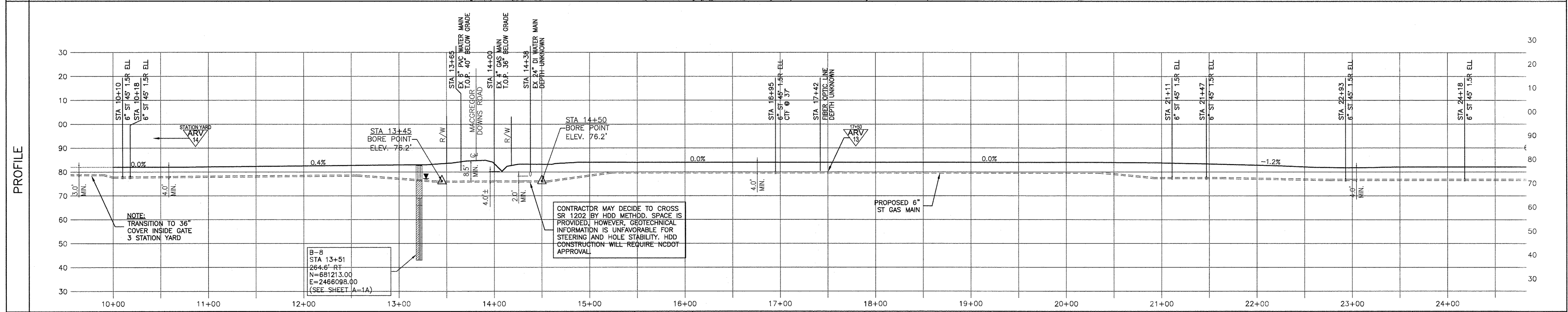
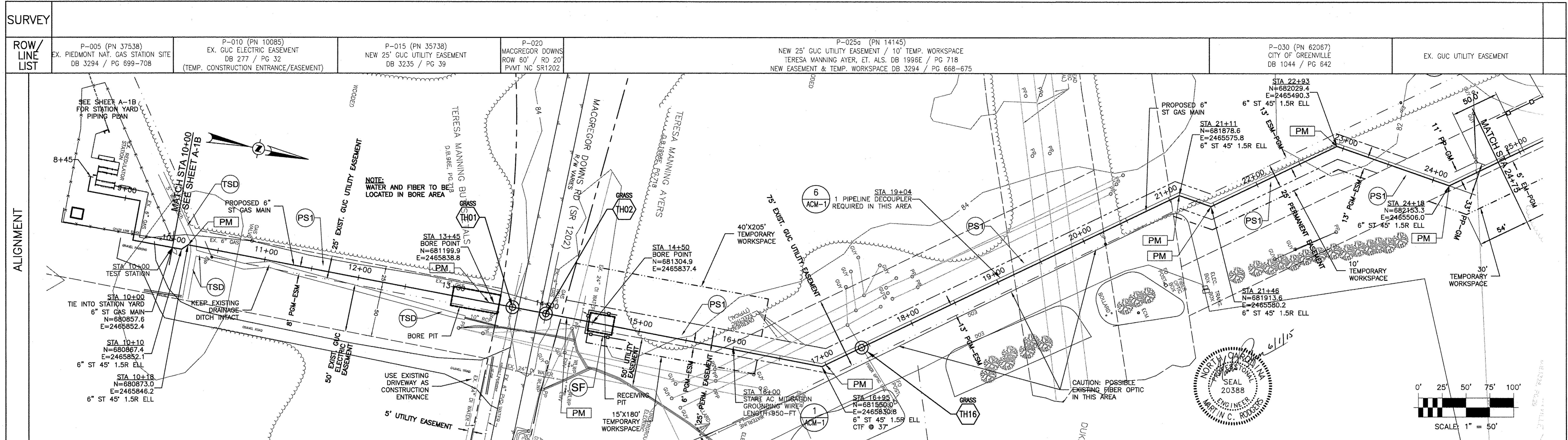
<p>P-005 EXISTING PIEDMONT NATURAL GAS STATION REGULATOR SITE PARCEL NUMBER: 37538 DB 3294 / PG 699-708</p> <p>STATUS: NO SPECIAL CONDITIONS REQUIREMENTS</p>	<p>P-076b MCALISTER FAMILY PROPERTIES LP PARCEL NUMBER: 44393 DB 2828 / PG 225-227</p> <p>STATUS: EASEMENT AND TEMPORARY WORKSPACE ACQUIRED (BEING RECORDED) NO SPECIAL CONDITIONS REQUIREMENTS</p>
<p>P-025a THERESA MANNING AYERS, ET. ALS. PARCEL NUMBER: 14145 DB 1996E / PG 718</p> <p>STATUS: EASEMENT AND TEMPORARY WORKSPACE ACQUIRED DB 3294 / PG 668-675 NO SPECIAL CONDITIONS REQUIREMENTS</p>	<p>P-077 MCALISTER FAMILY PROPERTIES LP PARCEL NUMBER: 44393 DB 2828 / PG 225-227</p> <p>STATUS: EASEMENT AND TEMPORARY WORKSPACE ACQUIRED (BEING RECORDED) NO SPECIAL CONDITIONS REQUIREMENTS</p>
<p>P-030 CITY OF GREENVILLE, NORTH CAROLINA PARCEL NUMBER: 62067 DB 1044 / PG 642</p> <p>STATUS: NO EASEMENT OR TEMPORARY WORKSPACE REQUIRED NO SPECIAL CONDITIONS REQUIREMENTS</p>	<p>P-078 MCALISTER FAMILY PROPERTIES LP PARCEL NUMBER: 44393 DB 2828 / PG 225-227</p> <p>STATUS: EASEMENT AND TEMPORARY WORKSPACE ACQUIRED (BEING RECORDED) NO SPECIAL CONDITIONS REQUIREMENTS</p>
<p>P-035 BARNHILL CONTRACTING COMPANY PARCEL NUMBER: 49497 DB 233 / PG 729</p> <p>STATUS: TEMPORARY WORKSPACE ACQUIRED DB 1948 / PG 509 NO SPECIAL CONDITIONS REQUIREMENTS</p>	<p>P-080 TAR RIVER BASIN PARCEL NUMBER: NA DB NA / PG NA</p> <p>STATUS: EASEMENT ACQUIRED DB 3329 / PG 744-748</p>
<p>P-050 LIBERTY FREE WILL BAPTIST CHURCH PARCEL NUMBER: 07111 DB 1901 / PG 129</p> <p>STATUS: EASEMENT AND TEMPORARY WORKSPACE ACQUIRED DB 3327 / PG 783-786 NO SPECIAL CONDITIONS REQUIREMENTS</p>	<p>P-090 NORTH CAROLINA STATE HIGHWAY COMMISSION PARCEL NUMBER: 29739 DB 425 / PG 364-371</p> <p>STATUS: EASEMENT NEGOTIATIONS ONGOING, REQUIRES STATE LEGISLATURE APPROVAL.</p>
<p>P-060a FORBES FARM LLC PARCEL NUMBER: 07784/41799 DB 2583 / PG 475-478</p> <p>STATUS: EASEMENT AND TEMPORARY WORKSPACE ACQUIRED DB 3293 / PG 5-8 NO SPECIAL CONDITIONS REQUIREMENTS</p>	<p>P-095 NORTH CAROLINA STATE HIGHWAY COMMISSION PARCEL NUMBER: 29739 DB F 39 / PG 307-311</p> <p>STATUS: PROPERTY NEGOTIATIONS ONGOING, REQUIRES STATE LEGISLATURE APPROVAL.</p>
<p>P-075b MCALISTER FAMILY PROPERTIES LP PARCEL NUMBER: 44393 DB 2828 / PG 225-227 (BEING RECORDED)</p> <p>STATUS: SITE PURCHASED</p> <p>SPECIAL CONDITIONS: DO NOT DISTURB OR DAMAGE ABANDONED HOUSE</p>	



SUMMARY OF MATERIALS			NOTES			APPROVAL			PROJECT			Greenville Utilities		
ITEM	QUANTITY	DESCRIPTION	REV.	DESIGN	DRAFT	CHECK	DATE	INITIALS	DATE	INITIALS	DATE	DISTRICT	COUNTY	STATE
			REVISIONS			TEST DATA			ALIGNMENT SHEET			SHEET DESCRIPTION		
			DESCRIPTION			TESTED FROM STATION: _____ TO STATION: _____			SCALE			EASEMENT REQUIREMENTS		
						MEDIUM: _____ RECORD TEST PRESSURE: _____ psig			PLAN			SHEET: G-2		
						DATE TEST COMPLETED: _____			PROFILE			REVISION: 0		
									HOR. _____					
									VERT. _____					



Greenville Utilities
ALIGNMENT SHEET
SHEET: G-2
REVISION: 0



TERRAIN N.T.S.	LEVEL CLEARED SITE	5' WIDE DITCH	LEVEL CLEARED 25' UTILITY EASEMENT	20' PAVEMENT NC SR1202	LEVEL GRASS FIELD	LEVEL WOODED	LEVEL GRASS UTILITY EASEMENT / CORNER OF WOODED AREA	LEVEL GRASS FIELD / EDGE OF TREE LINE	LEVEL CLEARED EXISTING UTILITY EASEMENT		
ENVIRON. N.T.S.	JURISDICTIONAL DITCH		OPEN CUT		BORE AND JACK		OPEN CUT				
CLASS LOC./DES. FACTOR	CLASS 2 / DF = 0.50		CLASS 1 / DF = 0.72		CLASS 2 / DF = 0.50		CLASS 1 / DF = 0.72				
PIPE DETAIL N.T.S.	10+00	10+10	10+18	13+45	14+50	16+95	21+11	21+47	22+93	24+18	24+75

ITEM	QUANTITY	DESCRIPTION
1	1370 LF	6" STEEL PIPE, API-5L GR. B, 0.280" W.T., 12-14 MILS FUSION BONDED EPOXY THINFILM COATED
2	105 LF	6" STEEL PIPE, API-5L GR. B, 0.280" W.T., 35 MILS POWERCONCRETE COATED
3	875 LF	AC MITIGATION GROUND WIRE SPEC:
4	-	6" ST 90° ELL, 1.5R, GR. B, SCH 40
5	7	6" ST 45° ELL, 1.5R, GR. B, SCH 40
6	-	6" ST WELD NECK FLANGE, RF, ANSI 300
7	-	6" FLANGE INSULATING KIT, RF, ANSI 300
11	-	6" STEEL BALL VALVE, WE, WRENCH OPERATED, CAMERON T-31, BORE TO MATCH 0.280"
12	1	TEST STATION, TYPE P
15	-	6" ST WE CAP, GR. B, SCH 40

REV.	DESIGN	DRAFT	CHECK	DATE	DESCRIPTION

APPROVAL					
PERMITS		BID		CONSTRUCTION	
INITIALS	DATE	INITIALS	DATE	INITIALS	DATE

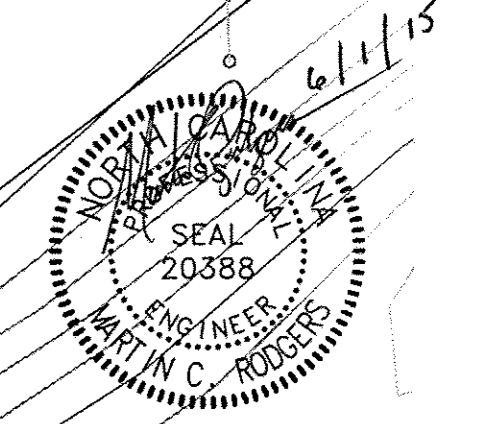
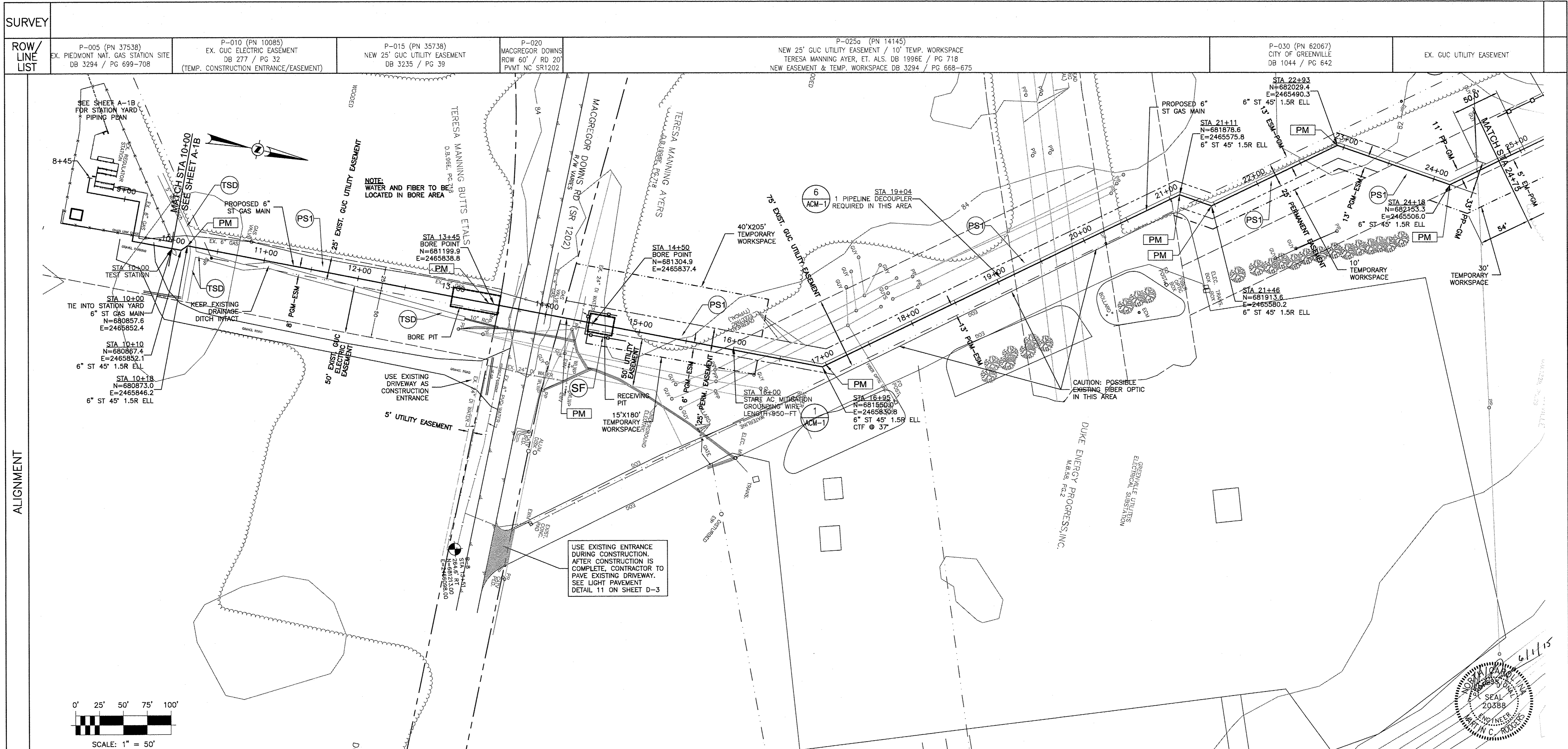
PROJECT			
ALIGNMENT SHEET			
GCP89 - NORTHWESTERN LOOP HIGH-PRESSURE GAS MAIN EXTENSION GREENVILLE, NC			
TESTED FROM STATION: _____ TO STATION: _____ MEDIUM: _____ RECORD TEST PRESSURE: _____ psig DATE TEST COMPLETED: _____			

Greenville Utilities

DISTRICT: _____ COUNTY: PITT STATE: NORTH CAROLINA

SHEET DESCRIPTION: PLAN AND PROFILE SHEET STA 10+00 TO STA 24+75

SHEET: A-1 REVISION: 0



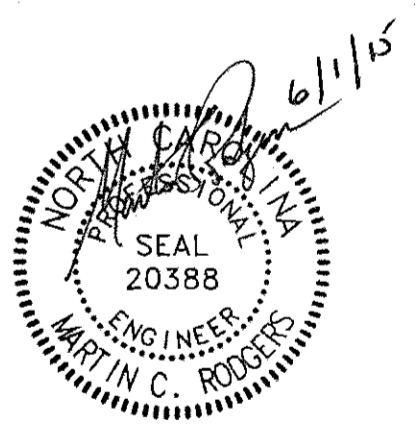
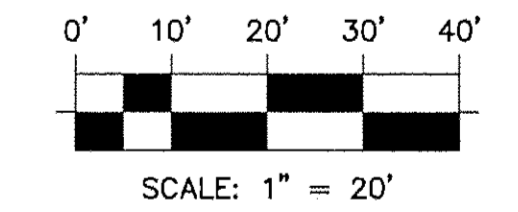
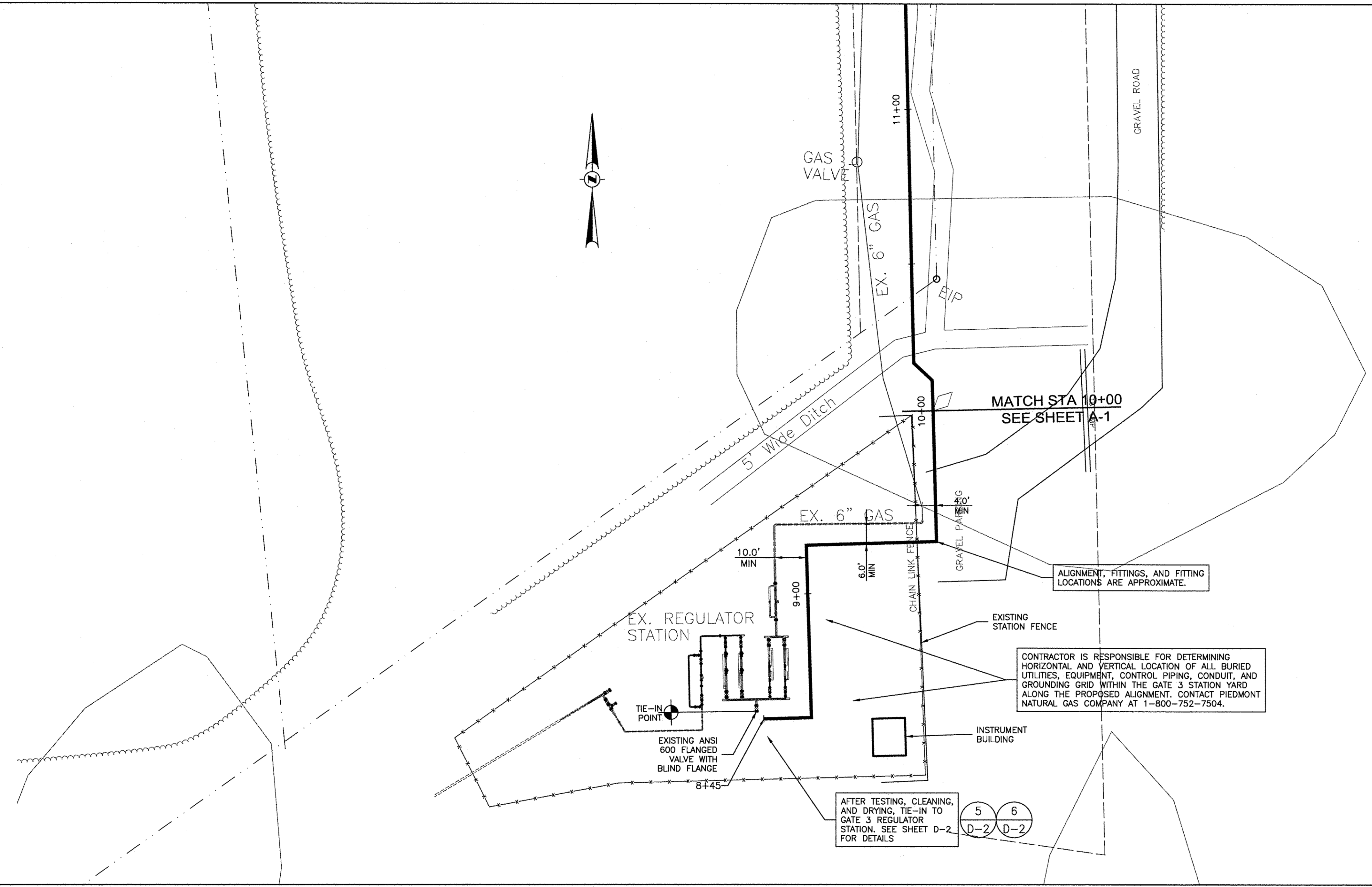
TERRAIN N.T.S.												
ENVIRON. N.T.S.												
CLASS LOC./ DES. FACTOR												
PIPE DETAIL N.T.S.												
ITEM		QUANTITY	SUMMARY OF MATERIALS DESCRIPTION		NOTES		APPROVAL			PROJECT		
					SEE SHEET A-1 FOR PIPELINE PROFILE		PERMITS	BID	CONSTRUCTION	GCP89 - NORTHWESTERN LOOP HIGH-PRESSURE GAS MAIN EXTENSION GREENVILLE, NC		
							INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
										ALIGNMENT SHEET		
										SCALE		
										PLAN 1" = 50'		
										PROFILE		
										HOR. 1" = 50'		
										VERT. 1" = 20'		
							TEST DATA			RK&K <small>RUNNEL, KLEPPER & KAH, LLP 2100 E. GARY ST., SUITE 209 RICHMOND, VIRGINIA 23223 T-804.782.1903 F-804.782.2142</small> ENGINEERS CONSTRUCTION MANAGERS PLANNERS SCIENTISTS RK&K COMM. NO. 1214-011-A		
							TESTED FROM STATION: _____ TO STATION: _____					
							MEDIUM: _____ RECORD TEST PRESSURE: _____ psig					
							DATE TEST COMPLETED: _____					
				REVISIONS						SHEET DESCRIPTION		
				REV.	DESIGN	DRAFT	CHECK	DATE		PLAN SHEET STA 10+00 TO STA 24+75		
										SHEET: A-1A		
										REVISION: 0		

SURVEY

ROW/
LINE
LIST

P-005 (PN 37538)
EX. PIEDMONT NAT. GAS STATION SITE
DB 3294 / PG 699-708

ALIGNMENT



TERRAIN N.T.S.	
ENVIRON. N.T.S.	
CLASS LOC./ DES. FACTOR	
PIPE DETAIL N.T.S.	

SUMMARY OF MATERIALS		
ITEM	QUANTITY	DESCRIPTION
1	155 LF	6" STEEL PIPE, API-5L GR. B, 0.280" W.T., 12-14 MILS FUSION BONDED EPOXY THINFILM COATED
4	3	6" ST 90° ELL, 1.5R, GR. B, SCH 40
12	1	TEST STATION, TYPE P

NOTES			
STATION AS-BUILT DRAWINGS NOT AVAILABLE FOR DESIGN.			
REVISIONS			
REV.	DESIGN	DRAFT	CHECK
DESCRIPTION	DATE		

APPROVAL					
PERMITS		BID		CONSTRUCTION	
INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY					
C.P.					
DRAFTING & DESIGN - RK&K	CSY 2/15	CSY 5/1/15			
ENGINEERING - RK&K	MCR 2/15	MCR 5/1/15			

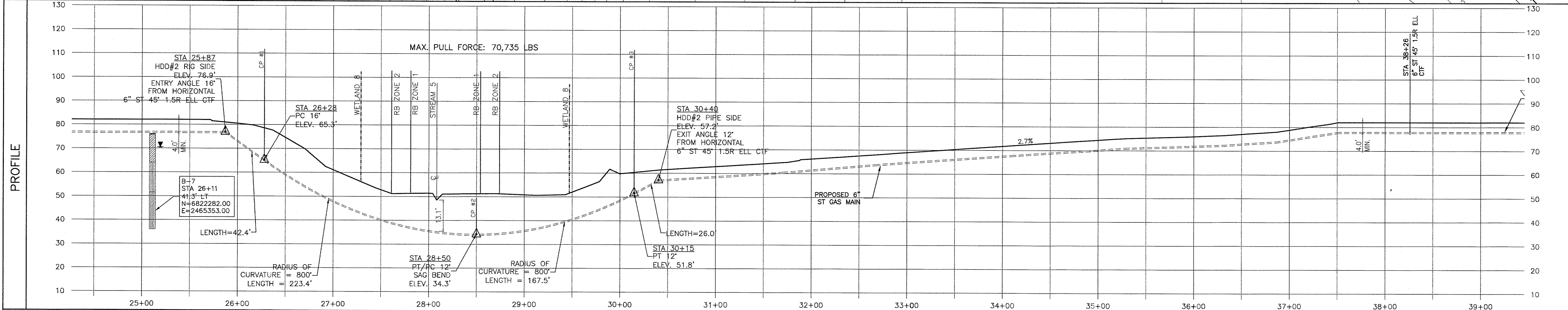
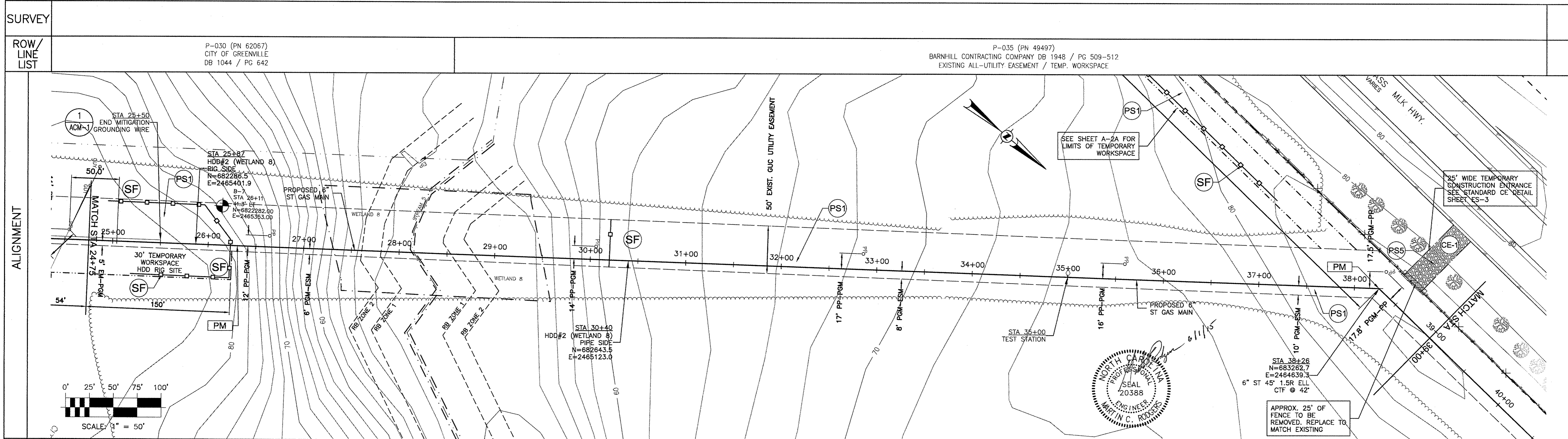
PROJECT	
GCP89 - NORTHWESTERN LOOP HIGH-PRESSURE GAS MAIN EXTENSION GREENVILLE, NC	
ALIGNMENT SHEET	
SCALE	PLAN 1" = 20'
PROFILE	
HOR.	
VERT.	

DISTRICT: COUNTY: STATE: Greenville North Carolina

SHEET DESCRIPTION: GATE 3 REGULATOR STATION SITE PLAN

SHEET: A-1B REVISION: 0

RK&K ENGINEERS | CONSTRUCTION MANAGERS | PLANNERS | SCIENTISTS
 2100 E. CARY ST. SUITE 300
 GREENVILLE, NORTH CAROLINA 27604
 1-804-782-1923 F-804-782-2142
 RK&K COMM. NO. 1214-011-A



TERRAIN N.T.S.	EXISTING CLEARED UTILITY EASEMENT	PITT BRANCH STREAM 5	EXISTING CLEARED UTILITY EASEMENT					
ENVIRON. N.T.S.	OPEN CUT	HDD	HDD WETLAND 8	HDD STREAM 5	HDD WETLAND 8	HDD	OPEN CUT	
CLASS LOC./DES. FACTOR	CLASS 1 / DF = 0.72							
PIPE DETAIL N.T.S.	24+75	25+87	28+50	30+40	35+00	38+26	39+00	

ITEM	QUANTITY	DESCRIPTION
1	972 LF	6" STEEL PIPE, API-5L GR. B, 0.280" W.T., 12-14 MILS FUSION BONDED EPOXY THINFILM COATED
2	460 LF	6" STEEL PIPE, API-5L GR. B, 0.280" W.T., 35 MILS POWERCONCRETE COATED
3	5 LF	AC MITIGATION GROUND WIRE SPEC.
4	-	6" ST 90° ELL, 1.5R, GR. B, SCH 40
5	3	6" ST 45° ELL, 1.5R, GR. B, SCH 40
6	-	6" ST WELD NECK FLANGE, RF, ANSI 300
7	-	6" FLANGE INSULATING KIT, RF, ANSI 300
11	-	6" STEEL BALL VALVE, WE, WRENCH OPERATED, CAMERON T-31, BORE TO MATCH 0.280"
12	1	TEST STATION, TYPE P

NOTES			
TOTAL ACRES DISTURBED: 0.92 ACRES			
TOTAL ACRES TO BE CLEARED: 0 ACRES			
TOTAL WETLAND CONSTRUCTION: 0 ACRES			
REVISIONS			
REV.	DESIGN	DRAFT	CHECK

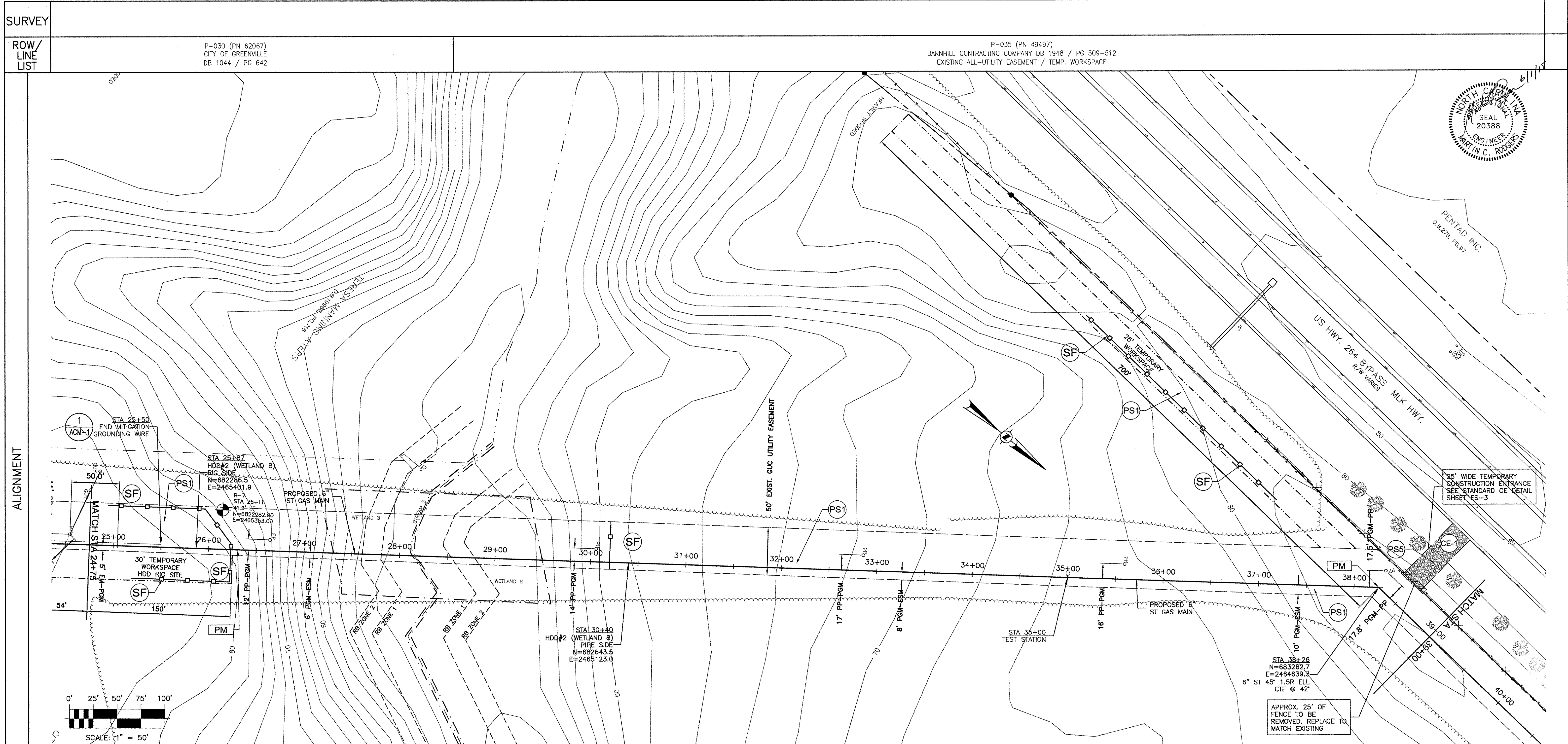
APPROVAL					
PERMITS	BID	CONSTRUCTION			
INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY					
C.P.					
DRAFTING & DESIGN - RK&K					
CSY	2/15	CSY	5/1/15	-	-
ENGINEERING - RK&K					
MCR	2/15	MCR	5/1/15	-	-

PROJECT	
GCP89 - NORTHWESTERN LOOP HIGH-PRESSURE GAS MAIN EXTENSION GREENVILLE, NC	
ALIGNMENT SHEET	
SCALE	
PLAN	1" = 50'
PROFILE	1" = 20'
HOR.	1" = 50'
VERT.	1" = 20'

Greenville Utilities

DISTRICT: COUNTY: STATE: NORTH CAROLINA

SHEET DESCRIPTION: SHEET: A-2 REVISION: 0




TERRAIN	N.T.S.
ENVIRON.	N.T.S.
CLASS LOC./DES. FACTOR	
PIPE DETAIL	N.T.S.

SUMMARY OF MATERIALS	
ITEM	DESCRIPTION

NOTES			
SEE SHEET A-2 FOR PIPELINE PROFILE TOTAL ACREAGE DISTURBED: 0.37 ACRES TOTAL ACREAGE TO BE CLEARED: 0.36 ACRES TOTAL WETLAND CONSTRUCTION: 0 ACRES			
REVISIONS			
REV.	DESCRIPTION	DATE	

APPROVAL					
PERMITS		BID		CONSTRUCTION	
INITIALS	DATE	INITIALS	DATE	INITIALS	DATE

PROJECT	
GCP89 - NORTHWESTERN LOOP HIGH-PRESSURE GAS MAIN EXTENSION GREENVILLE, NC	
ALIGNMENT SHEET	
SCALE PLAN 1" = 50' PROFILE 1" = 50' HOR. 1" = 50' VERT. 1" = 20'	



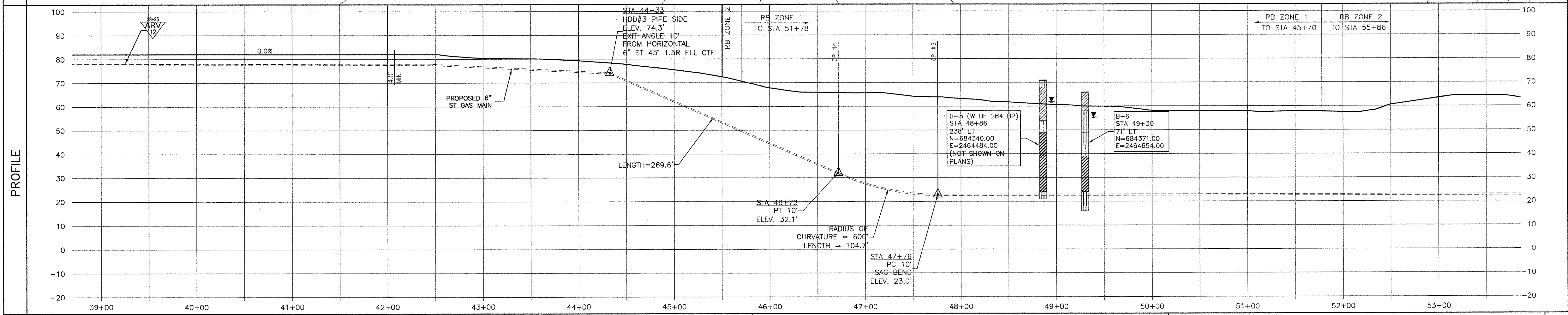
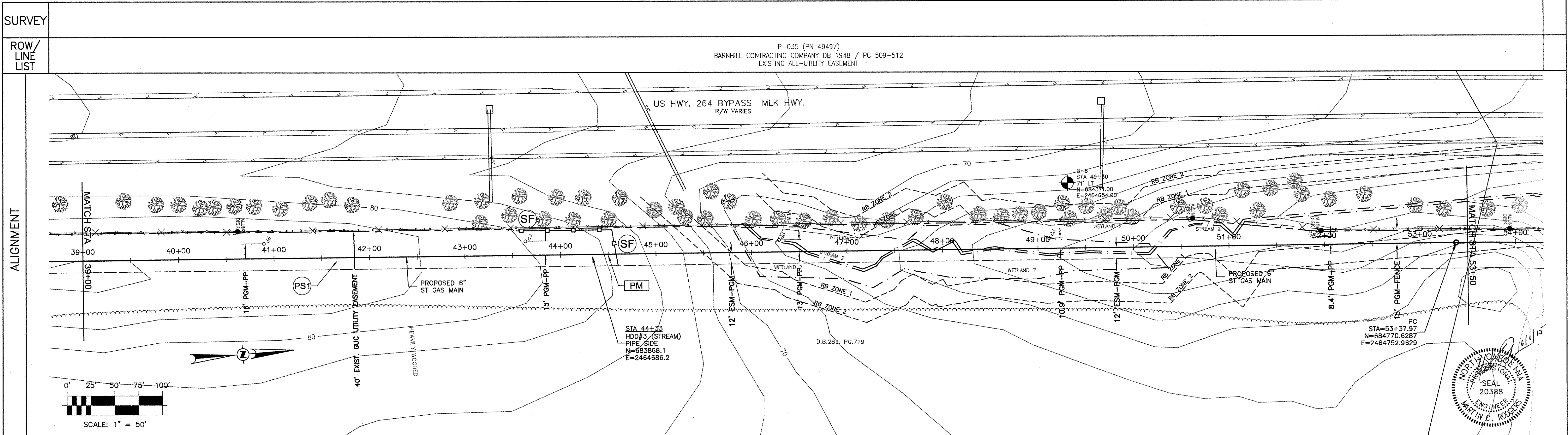
Greenville Utilities

DISTRICT: _____ COUNTY: _____ STATE: NORTH CAROLINA

SHEET DESCRIPTION: _____

PLAN SHEET: STA 24+75 TO STA 39+00

SHEET: A-2A REVISION: 0



TERRAIN N.T.S.	EXISTING CLEARED UTILITY EASEMENT	STREAM 2 RUNNING ALONG EXISTING CLEARED UTILITY EASEMENT	EXISTING CLEARED UTILITY EASEMENT
ENVIRON. N.T.S.	OPEN CUT	HDD - WETLAND 7 / STREAM 2 CROSSING	
CLASS LOC./ DES. FACTOR	CLASS 1 / DF = 0.72		
PIPE DETAIL N.T.S.	①	②	③

ITEM	QUANTITY	DESCRIPTION
1	533 LF	6" STEEL PIPE, API-5L GR. B, 0.280" W.T., 12-14 MILS FUSION BONDED EPOXY THINFILM COATED
2	922 LF	6" STEEL PIPE, API-5L GR. B, 0.280" W.T., 35 MILS POWERCONCRETE COATED
4	-	6" ST 90° ELL, 1.5R, GR. B, SCH 40
5	1	6" ST 45° ELL, 1.5R, GR. B, SCH 40
6	-	6" ST WELD NECK FLANGE, RF, ANSI 300
7	-	6" FLANGE INSULATING KIT, RF, ANSI 300

NOTES			
TOTAL ACREAGE DISTURBED: 0.30 ACRES			
TOTAL ACREAGE TO BE CLEARED: 0 ACRES			
TOTAL WETLAND CONSTRUCTION: 0 ACRES			
REVISIONS			
REV.	DESIGN	DRAFT	CHECK

APPROVAL					
PERMITS		BID		CONSTRUCTION	
INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY					
C.P.					
DRAFTING & DESIGN - RK&K		CSY	2/15	CSY	3/1/15
ENGINEERING - RK&K		MCR	2/15	MCR	3/1/15

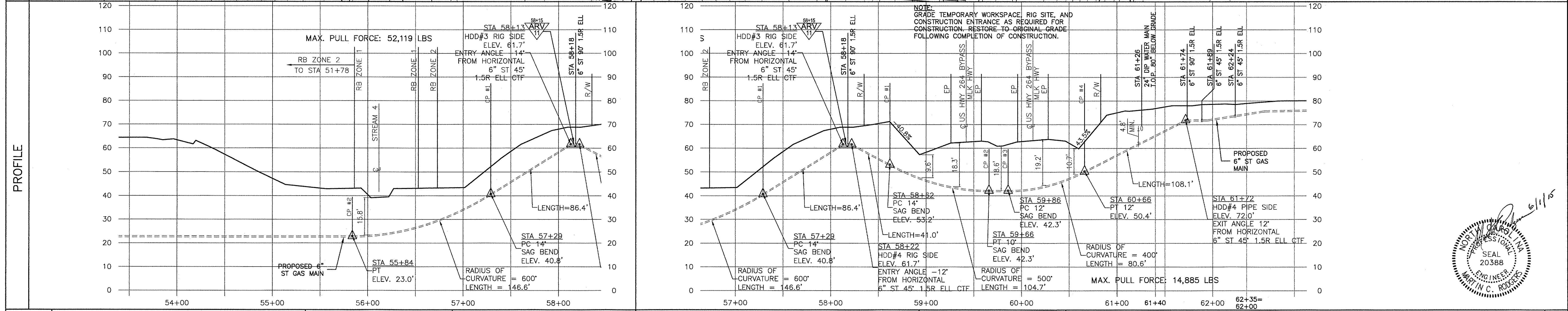
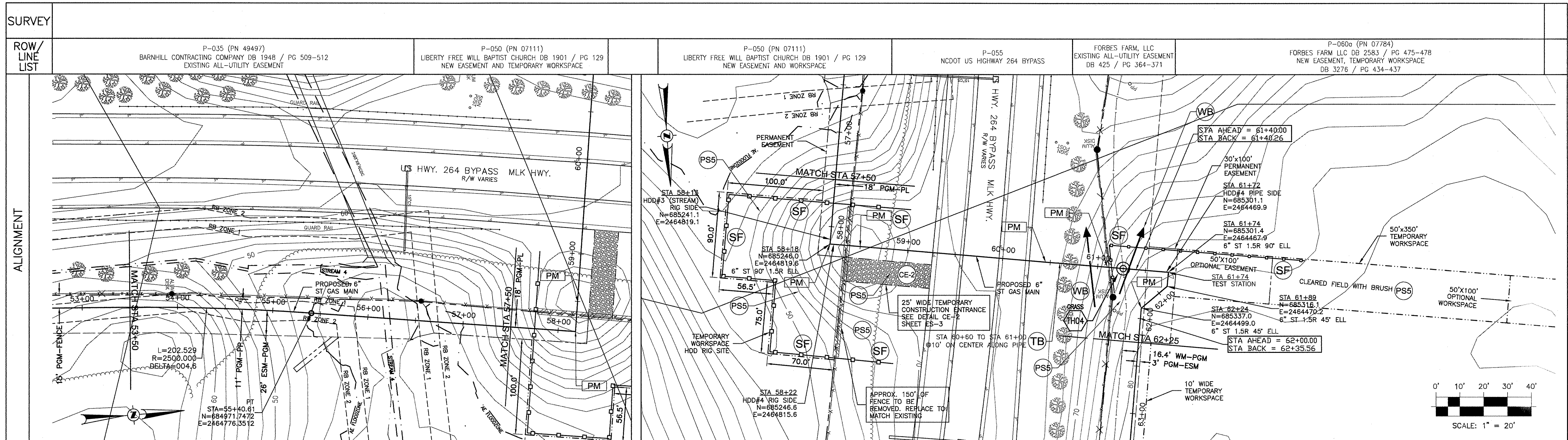
PROJECT	
GCP89 - NORTHWESTERN LOOP HIGH-PRESSURE GAS MAIN EXTENSION GREENVILLE, NC	
ALIGNMENT SHEET	
SCALE PLAN 1" = 50' PROFILE 1" = 20'	

Greenville Utilities

DISTRICT: PITT COUNTY STATE: NORTH CAROLINA

SHEET DESCRIPTION: PLAN AND PROFILE SHEET STA 39+00 TO STA 53+00

SHEET: A-3 REVISION: 0



TERRAIN N.T.S.	EXISTING CLEARED / OVERGROWN UTILITY EASEMENT	HARRIS MILL RUN	NEW UTILITY EASEMENT	NEW UTILITY EASEMENT AND TEMP. WORKSPACE	US HWY 264 BYPASS	EXISTING ALL-UTILITY EASEMENT AND TEMP. WORKSPACE
ENVIRON. N.T.S.	HDD	HDD STREAM 4	HDD	HDD	OPEN CUT	HDD
CLASS LOC./DES. FACTOR	CLASS 1 / DF = 0.72			CLASS 1 / DF = 0.72	CLASS 2 / DF = 0.50	CLASS 1 / DF = 0.72
PIPE DETAIL N.T.S.	53+50	②	57+50	58+50	②	61+74

ITEM	QUANTITY	DESCRIPTION
1	63 LF	6" STEEL PIPE, API-5L GR. B, 0.280" W.T., 12-14 MILS FUSION BONDED EPOXY THINFILM COATED
2	822 LF	6" STEEL PIPE, API-5L GR. B, 0.280" W.T., 35 MILS POWERCONCRETE COATED
4	2	6" ST 90° ELL, 1.5R, GR. B, SCH 40
5	5	6" ST 45° ELL, 1.5R, GR. B, SCH 40
6	-	6" ST WELD NECK FLANGE, RF, ANSI 300
7	-	6" FLANGE INSULATING KIT, RF, ANSI 300
12	1	TEST STATION, TYPE P

NOTES			
TOTAL ACRES DISTURBED: 0.90 ACRES			
TOTAL ACRES TO BE CLEARED: 0.40 ACRES			
TOTAL WETLAND CONSTRUCTION: 0 ACRES			
REVISIONS			
REV.	DESCRIPTION	DRAFT	CHECK

APPROVAL					
PERMITS	BID	CONSTRUCTION			
INITIALS	DATE	INITIALS	DATE	INITIALS	DATE

PROJECT	
GCP89 - NORTHWESTERN LOOP HIGH-PRESSURE GAS MAIN EXTENSION GREENVILLE, NC	
ALIGNMENT SHEET	

Greenville Utilities

DISTRICT: _____ COUNTY: _____ STATE: NORTH CAROLINA

SHEET DESCRIPTION: _____

PLAN AND PROFILE SHEET
STA 53+50 TO STA 62+25

SHEET: A-4 REVISION: 0

TEST DATA			
TESTED FROM STATION:	TO STATION:		
MEDIUM:	RECORD TEST PRESSURE:		
DATE TEST COMPLETED:			

SCALE: 1" = 20'

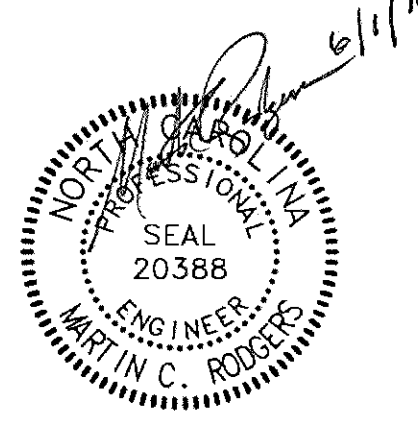
PLAN: 1" = 20'

PROFILE: 1" = 50'

VERT.: 1" = 20'

ENGINEERS [CONSTRUCTION MANAGERS | PLANNERS | SCIENTISTS]

RK&K COMM. NO. 1214-011-A

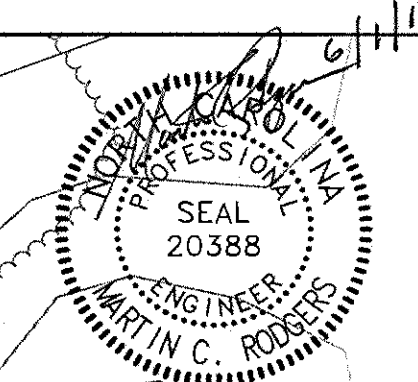
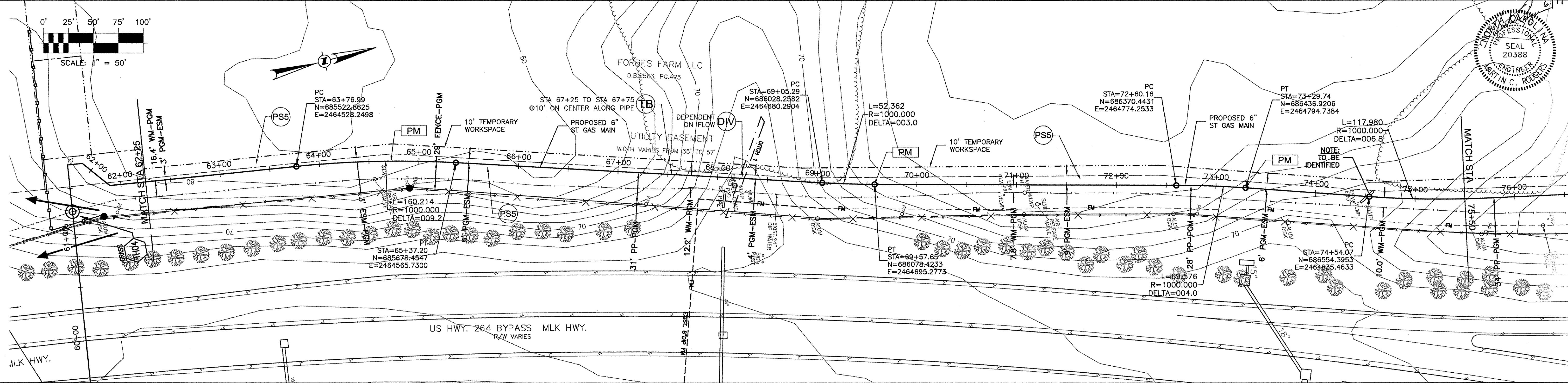


SURVEY

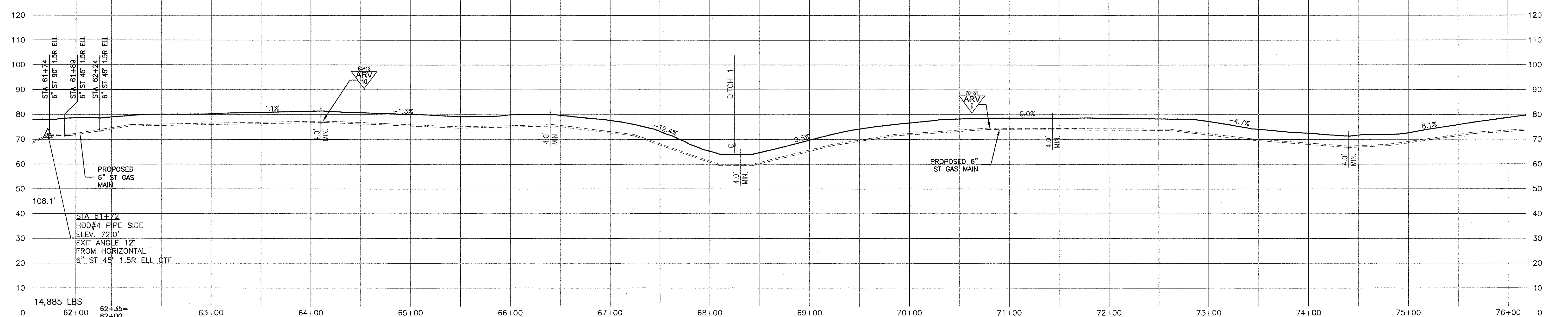
ROW/
LINE
LIST

P-060a (PN 07784)
FORBES FARM LLC DB 2583 / PG 475-478
EXISTING ALL-UTILITY EASEMENT DB 425 / PG 364-371
TEMPORARY WORKSPACE DB 3276 / PG 434-437

ALIGNMENT



PROFILE



TERRAIN N.T.S.	EXISTING CLEARED UTILITY EASEMENT / TEMPORARY WORKSPACE	DITCH 1	EXISTING CLEARED UTILITY EASEMENT / TEMPORARY WORKSPACE
ENVIRON. N.T.S.	OPEN CUT	OPEN CUT/FLUME CROSSING DITCH 1	OPEN CUT
CLASS LOC./ DES. FACTOR	CLASS 1 / DF = 0.72		
PIPE DETAIL N.T.S.	62+25	①	75+50

ITEM	QUANTITY	DESCRIPTION
1	1327 LF	6" STEEL PIPE, API-5L GR. B, 0.280" W.T., 12-14 MILS FUSION BONDED EPOXY THINFILM COATED
2	-	6" STEEL PIPE, API-5L GR. B, 0.280" W.T., 35 MILS POWERCRETE COATED
4	-	6" ST 90° ELL, 1.5R, GR. B, SCH 40
5	-	6" ST 45° ELL, 1.5R, GR. B, SCH 40
6	-	6" ST WELD NECK FLANGE, RF, ANSI 300
7	-	6" FLANGE INSULATING KIT, RF, ANSI 300

NOTES			
TOTAL ACREAGE DISTURBED: 0.79 ACRES TOTAL ACREAGE TO BE CLEARED: 0.32 ACRES TOTAL WETLAND CONSTRUCTION: 0 ACRES			
REVISIONS			
REV.	DESIGN	DRAFT	CHECK
DESCRIPTION			DATE

APPROVAL					
PERMITS		BID		CONSTRUCTION	
INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY					
C.P.					
DRAFTING & DESIGN - RK&K		CSY	2/15	CSY	8/11/15
ENGINEERING - RK&K		MCR	2/15	MCR	8/11/15

PROJECT	
GCP89 - NORTHWESTERN LOOP HIGH-PRESSURE GAS MAIN EXTENSION GREENVILLE, NC	
ALIGNMENT SHEET	
<small>ENGINEERS CONSTRUCTION MANAGERS PLANNERS SCIENTISTS</small> <small>RK&K COMM. NO. 1214-011-A</small>	

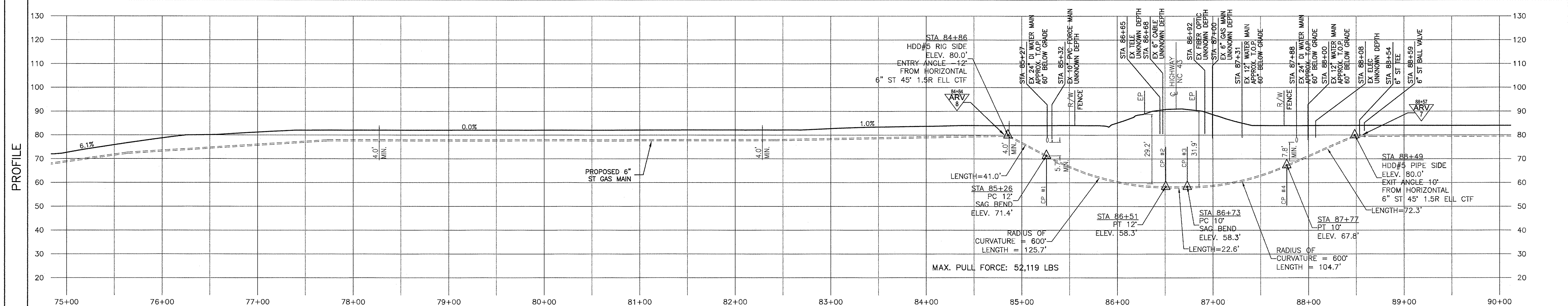
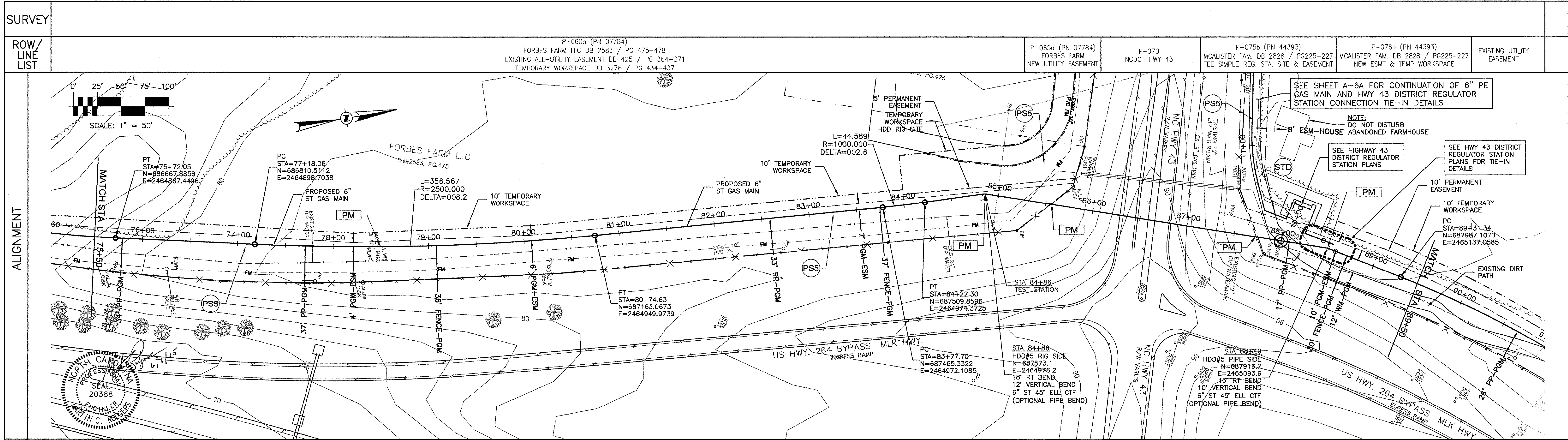
Greenville Utilities

DISTRICT: _____ COUNTY: PITT STATE: NORTH CAROLINA

SHEET DESCRIPTION: _____

PLAN AND PROFILE SHEET
STA 62+25 TO STA 75+50

SHEET: **A-5** REVISION: **0**



TERRAIN	N.T.S.	NEW EASEMENT GRASS / DIRT	EXISTING CLEARED UTILITY EASEMENT / 10' TEMPORARY WORKSPACE IN GRASS FIELD	NEW EASEMENT GRASS / DIRT	PAVEMENT	NEW EASEMENT EXISTING DIRT PATH AND SOME CLEARING	EXISTING CLEARED UTILITY EASEMENT
ENVIRON.	N.T.S.	OPEN CUT				HDD	OPEN CUT
CLASS LOC./DES. FACTOR		CLASS 1 / DF = 0.72				CLASS 2 / DF = 0.50	
PIPE DETAIL	N.T.S.	①				②	

ITEM	QUANTITY	DESCRIPTION
1	1037 LF	6" STEEL PIPE, API-5L GR. B, 0.280" W.T., 12-14 MILS FUSION BONDED EPOXY THINFILM COATED
2	366 LF	6" STEEL PIPE, API-5L GR. B, 0.280" W.T., 35 MILS POWERCONCRETE COATED
4	-	6" ST 90° ELL, 1.5R, GR. B, SCH 40
5	4	6" ST 45° ELL, 1.5R, GR. B, SCH 40
6	-	6" ST WELD NECK FLANGE, RF, ANSI 300
7	-	6" FLANGE INSULATING KIT, RF, ANSI 300
11	1	6" STEEL BALL VALVE, WE, WRENCH OPERATED, CAMERON T-31, BORE TO MATCH 0.280"
12	1	TEST STATION, TYPE P
13	1	6" TEE, GR. B, SCH 40
14	1	FLUSH MOUNTED VALVE BOX
15	-	6" ST WE CAP, GR. B, SCH 40

NOTES			
TOTAL ACREAGE DISTURBED: 0.84 ACRES			
TOTAL ACREAGE TO BE CLEARED: 0.10 ACRES			
TOTAL WETLAND CONSTRUCTION: 0 ACRES			
REVISIONS			
REV.	DESIGN	DRAFT	CHECK

APPROVAL					
PERMITS		BID		CONSTRUCTION	
INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY					
C.P.					
DRAFTING & DESIGN - RK&K	CSY	2/15	CSY	5/11/15	-
ENGINEERING - RK&K	MCR	2/15	MCR	5/11/15	-
TEST DATA					
TESTED FROM STATION: _____ TO STATION: _____					
MEDIUM: _____ RECORD TEST PRESSURE: _____ psig					
DATE TEST COMPLETED: _____					

PROJECT	
GCP89 - NORTHWESTERN LOOP HIGH-PRESSURE GAS MAIN EXTENSION GREENVILLE, NC	
ALIGNMENT SHEET	
SCALE	
PLAN	1" = 50'
PROFILE	1" = 20'
HOR.	1" = 50'
VERT.	1" = 20'

Greenville Utilities

DISTRICT: _____ COUNTY: _____ STATE: NORTH CAROLINA

SHEET DESCRIPTION: _____

PLAN AND PROFILE SHEET STA 75+50 TO STA 89+50

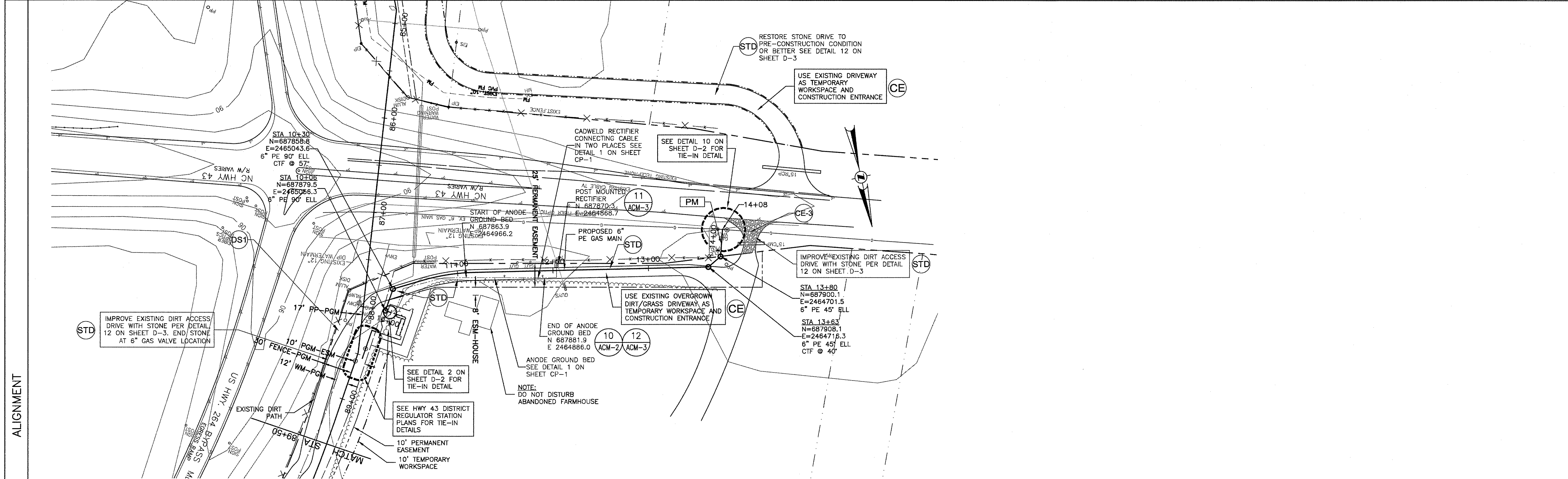
SHEET: A-6 REVISION: 0

SURVEY

ROW/
LINE
LIST

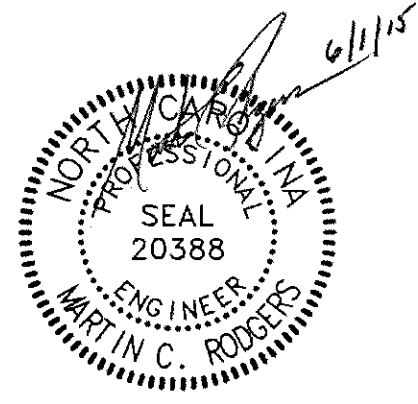
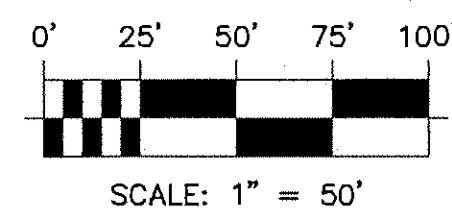
P-055
NCDOT US HIGHWAY 264 BYPASS

P-075b (PN 44393)
MCALISTER FAM. DB 2828 / PG225-227
FEE SIMPLE REGULATOR STATION SITE



ALIGNMENT

- NOTES:**
1. THE 6" ST NW LOOP HP GAS MAIN SHALL BE HYDROTESTED PRIOR TO TIE-IN TO THE 6" STL HWY 43 LATERAL TO THE HWY 43 DISTRICT REGULATOR STATION PIPING.
 2. THE 6" ST HWY 43 LATERAL SHALL BE AIR TESTED IN CONJUNCTION WITH THE REGULATOR STATION PIPING.
 3. THE 6" PE DISTRIBUTION MAIN THAT WILL TIE-IN THE RT 43 REGULATOR STATION TO THE EXISTING DISTRIBUTION SYSTEM SHALL BE AIR-TESTED TO 90 PSIG FOR 30 MINUTES BEFORE TIE-IN TO EXISTING SYSTEM AND REGULATOR STATION.



TERRAIN N.T.S.	
ENVIRON. N.T.S.	
CLASS LOC./ DES. FACTOR	
PIPE DETAIL N.T.S.	

SUMMARY OF MATERIALS		NOTES	APPROVAL				PROJECT		
ITEM	QUANTITY	DESCRIPTION	PERMITS				GCP89 - NORTHWESTERN LOOP HIGH-PRESSURE GAS MAIN EXTENSION GREENVILLE, NC		
			INITIALS	DATE	INITIALS	DATE	INITIALS	DATE	
1	5 LF	6" STEEL PIPE, API-5L GR. B, 0.280" W.T., 12-14 MILS FUSION BONDED EPOXY THINFILM COATED							
31	1	PIPELINE MARKER							
32	408 LF	WARNING TAPE							
33	408 LF	6" PIPE, MEDIUM DENSITY POLYETHYLENE							
34	1	6" ST 90° TEE, MEDIUM DENSITY POLYETHYLENE							
35	2	6" ST 90° ELL, MEDIUM DENSITY POLYETHYLENE							
36	2	6" ST 45° ELL, MEDIUM DENSITY POLYETHYLENE							
37	2	6" ST 45° ELL, MEDIUM DENSITY POLYETHYLENE							
38	2	6" ST 45° ELL, MEDIUM DENSITY POLYETHYLENE							
39	2	ELECTROFUSION COUPLING, MEDIUM DENSITY POLYETHYLENE							
40	1	6" TRANSITION FITTING, STEEL X MEDIUM DENSITY POLYETHYLENE							
41	408 LF	TRACER WIRE							

REVISIONS		DESCRIPTION	DATE
REV.	DESIGN	DRAFT	CHECK

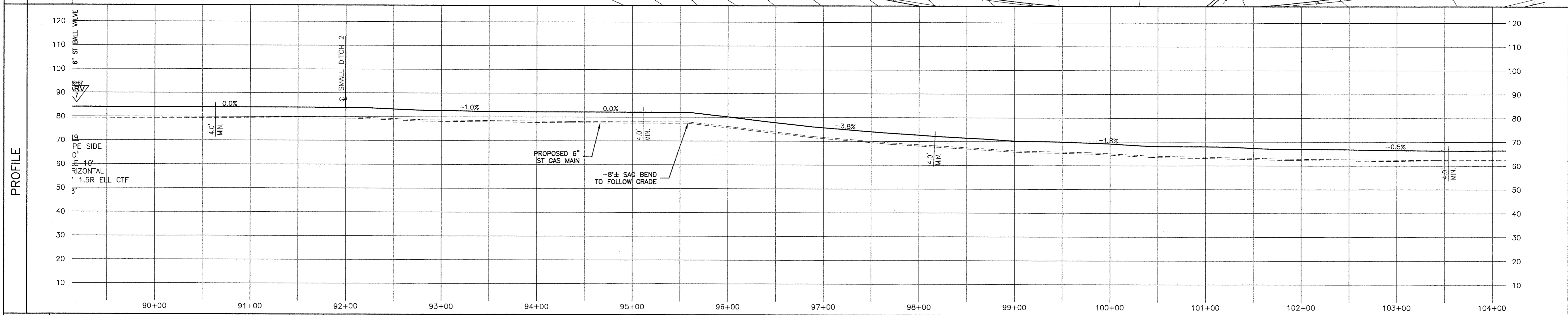
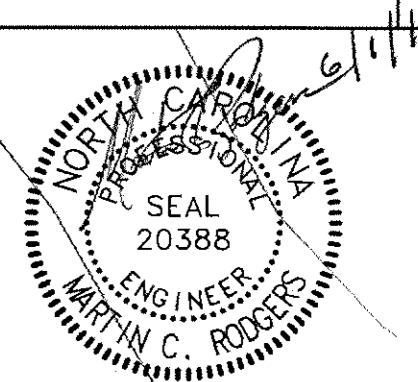
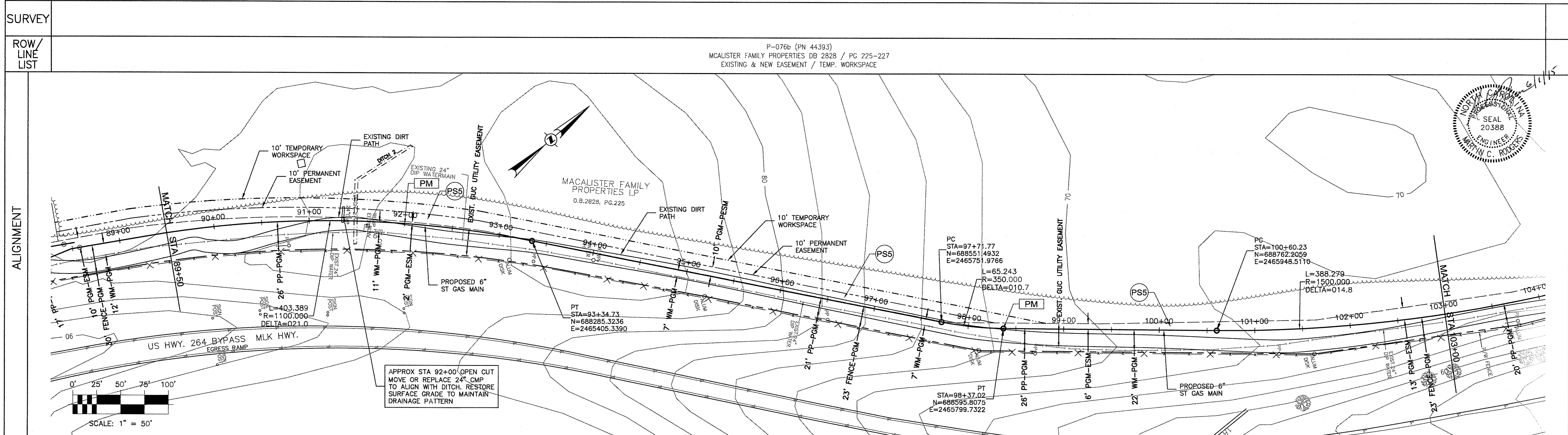
TEST DATA	
TESTED FROM STATION:	TO STATION:
MEDIUM:	RECORD TEST PRESSURE: _____ psig
DATE TEST COMPLETED:	

PROJECT		
DISTRICT	COUNTY	STATE
	PITT	NORTH CAROLINA
SHEET DESCRIPTION		
ALIGNMENT SHEET		
PLAN AND PROFILE SHEET STA 10+00 TO STA 13+65		
SHEET: A-6A		REVISION: 0

RK&K
RICHARD KLEPPER & KAH, LLP
 2100 E. CARY ST. SUITE 309
 RICHMOND, VIRGINIA 23233
 1-804-782-1903 F-804-782-2142

ENGINEERS | CONSTRUCTION MANAGERS | PLANNERS | SCIENTISTS
 RK&K COMM. NO. 1214-011-A





TERRAIN N.T.S.	EXISTING CLEARED UTILITY EASEMENT	DITCH 2	EXISTING CLEARED UTILITY EASEMENT / 10' TEMPORARY WORKSPACE - BRUSH WITH SCATTERED SMALL TREES	EXISTING CLEARED UTILITY EASEMENT
ENVIRON. N.T.S.	OPEN CUT		MINOR CLEARING AND OPEN CUT	OPEN CUT
CLASS LOC./ DES. FACTOR	CLASS 1 / DF = 0.72			
PIPE DETAIL N.T.S.	89+50		①	103+00

ITEM	QUANTITY	DESCRIPTION
1	1363 LF	6" STEEL PIPE, API-5L GR. B, 0.280" W.T., 12-14 MILS FUSION BONDED EPOXY THINFILM COATED
2	-	6" STEEL PIPE, API-5L GR. B, 0.280" W.T., 35 MILS POWERCONCRETE COATED
4	-	6" ST 90° ELL, 1.5R, GR. B, SCH 40
5	-	6" ST 45° ELL, 1.5R, GR. B, SCH 40
6	-	6" ST WELD NECK FLANGE, RF, ANSI 300
7	-	6" FLANGE INSULATING KIT, RF, ANSI 300

NOTES		
TOTAL ACRES DISTURBED: 0.79 ACRES		
TOTAL ACRES TO BE CLEARED: 0.38 ACRES / 0.01 ACRES WOODED		
TOTAL WETLAND CONSTRUCTION: 0 ACRES		
REVISIONS		
REV.	DESCRIPTION	DATE

APPROVAL					
PERMITS		BID		CONSTRUCTION	
INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY					
C.P.					
DRAFTING & DESIGN - RK&K		CSY	2/15	CSY	5/1/15
ENGINEERING - RK&K		MCR	2/15	MCR	5/1/15
TEST DATA					
TESTED FROM STATION: _____ TO STATION: _____			MEDIUM: _____ RECORD TEST PRESSURE: _____ psig		
DATE TEST COMPLETED: _____					

PROJECT	
GCP89 - NORTHWESTERN LOOP HIGH-PRESSURE GAS MAIN EXTENSION GREENVILLE, NC	
ALIGNMENT SHEET	
<small>ENGINEERS CONSTRUCTION MANAGERS PLANNERS SCIENTISTS</small> <small>RK&K COMM. NO. 1214-011-A</small>	

Greenville Utilities

DISTRICT: _____ COUNTY: _____ STATE: NORTH CAROLINA

SHEET DESCRIPTION

PLAN 1" = 50'

PROFILE 1" = 50'

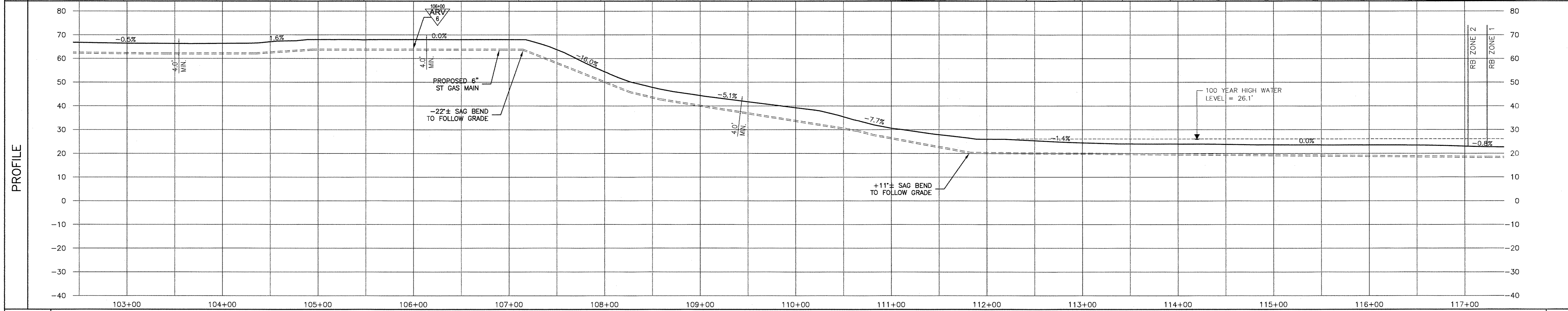
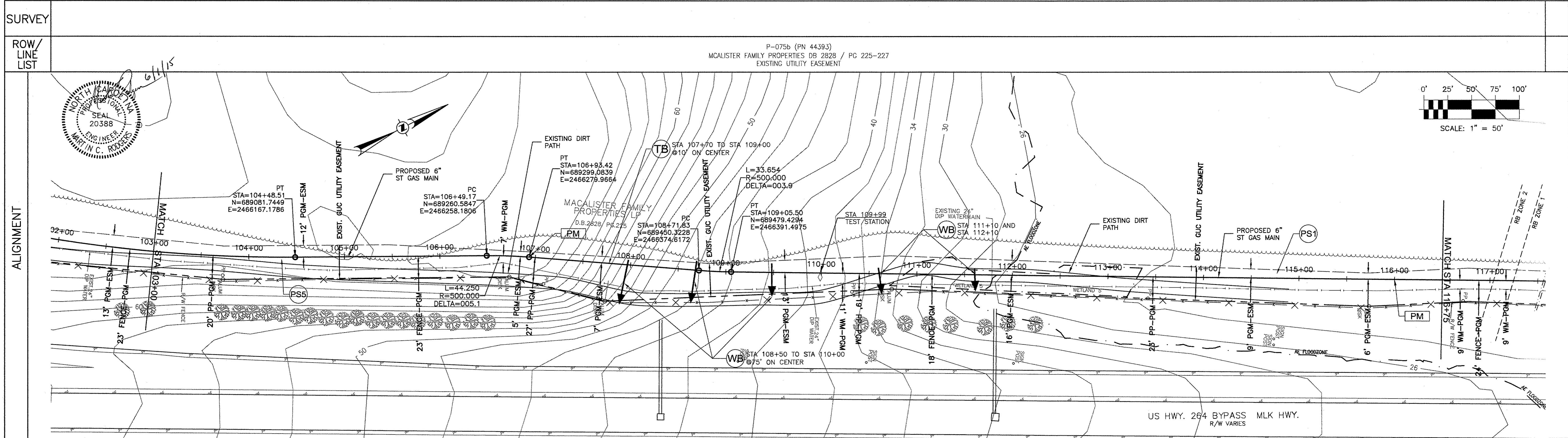
VERT. 1" = 20'

SCALE

PLAN AND PROFILE SHEET
STA 89+50 TO STA 103+00

SHEET: A-7

REVISION: 0



TERRAIN N.T.S.	EXISTING CLEARED UTILITY EASEMENT		
ENVIRON. N.T.S.	OPEN CUT	OPEN CUT WETLAND 5	OPEN CUT
CLASS LOC./ DES. FACTOR	CLASS 1 / DF = 0.72		
PIPE DETAIL N.T.S.	103+00	109+60	116+75

ITEM	QUANTITY	DESCRIPTION
1	1377 LF	6" STEEL PIPE, API-5L GR. B, 0.280" W.T., 12-14 MILS FUSION BONDED EPOXY THINFILM COATED
2	- LF	6" STEEL PIPE, API-5L GR. B, 0.280" W.T., 35 MILS POWERCRETE COATED
4	-	6" ST 90° ELL, 1.5R, GR. B, SCH 40
5	-	6" ST 45° ELL, 1.5R, GR. B, SCH 40
6	-	6" ST WELD NECK FLANGE, RF, ANSI 300
7	-	6" FLANGE INSULATING KIT, RF, ANSI 300
12	1	TEST STATION, TYPE P

NOTES			
TOTAL ACREAGE DISTURBED: 0.79 ACRES			
TOTAL ACREAGE TO BE CLEARED: 0.04 ACRES IN EXISTING UTILITY EASEMENT			
TOTAL WETLAND CONSTRUCTION: 0.14 ACRES			
REVISIONS			
REV.	DESCRIPTION	DRAFT	CHECK

APPROVAL					
PERMITS		BID		CONSTRUCTION	
INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY					
C.P.					
DRAFTING & DESIGN - RK&K		CSY	2/15	CSY	5/1/15
ENGINEERING - RK&K		MCR	2/15	MCR	5/1/15

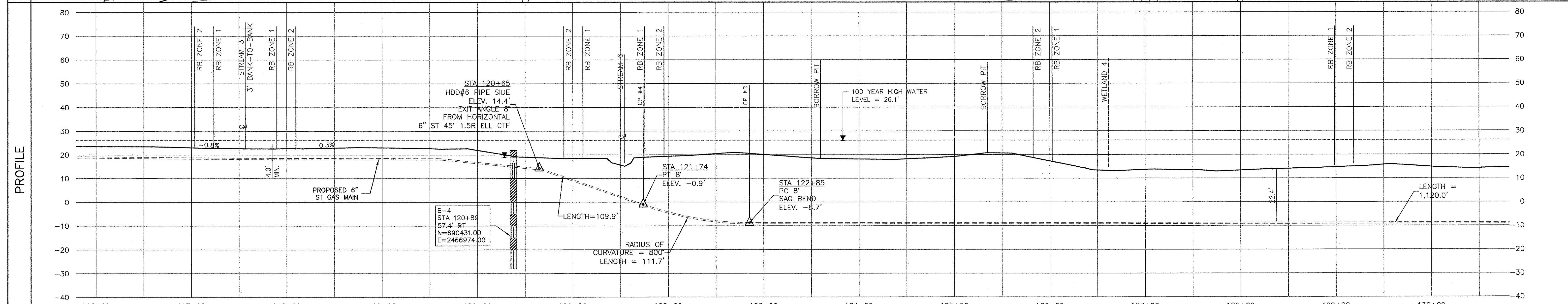
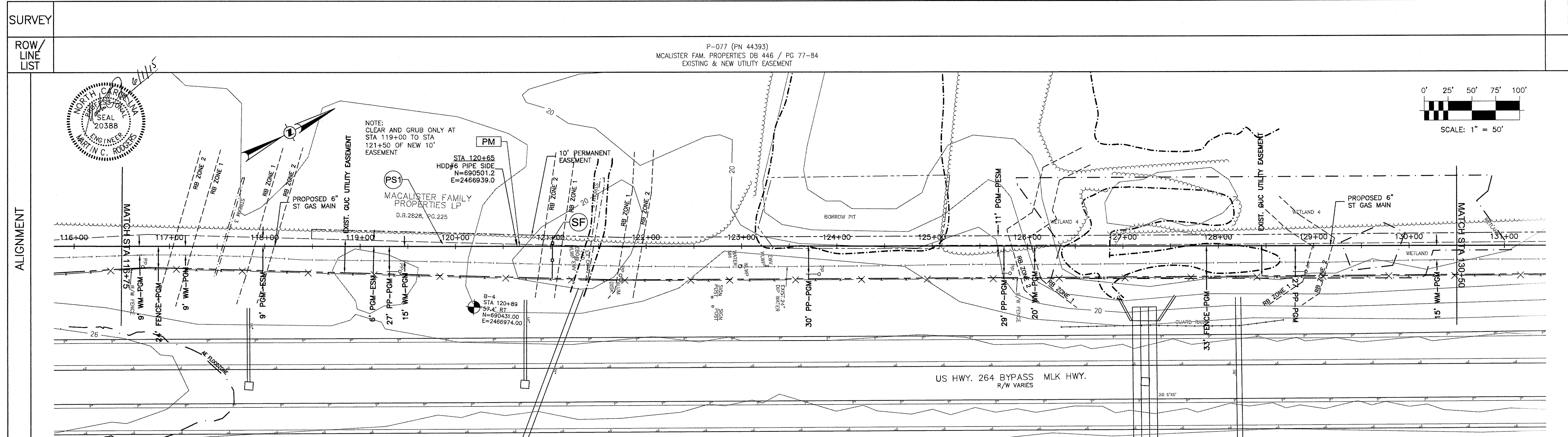
PROJECT	
GCP89 - NORTHWESTERN LOOP HIGH-PRESSURE GAS MAIN EXTENSION GREENVILLE, NC	
ALIGNMENT SHEET	

Greenville Utilities

DISTRICT: _____ COUNTY: PITT STATE: NORTH CAROLINA

SHEET DESCRIPTION: PLAN AND PROFILE SHEET
STA 103+00 TO STA 116+75

SHEET: A-8 REVISION: 0




TERRAIN N.T.S.	EXISTING CLEARED UTILITY EASEMENT	STREAM 3	EXISTING CLEARED UTILITY EASEMENT	EXISTING CLEARED UTILITY EASEMENT / 10' NEW UTILITY EASEMENT - SMALL TREES & BRUSH	STREAM 6	EXISTING CLEARED UTILITY EASEMENT / 10' NEW UTILITY EASEMENT - NO CLEARING	EXISTING CLEARED UTILITY EASEMENT ADJACENT TO BORROW PIT / 10' NEW UTILITY EASEMENT - NO CLEARING	EXISTING CLEARED UTILITY EASEMENT / 10' NEW UTILITY EASEMENT - NO CLEARING	
ENVIRON. N.T.S.	OPEN CUT		HDD	HDD	HDD	HDD	HDD	HDD	
CLASS LOC./DES. FACTOR	CLASS 1 / DF = 0.72								
PIPE DETAIL N.T.S.	116+75	①					120+65	②	

ITEM	QUANTITY	DESCRIPTION
1	390 LF	6" STEEL PIPE, API-5L GR. B, 0.280" W.T., 12-14 MILS FUSION BONDED EPOXY THINFILM COATED
2	987 LF	6" STEEL PIPE, API-5L GR. B, 0.280" W.T., 35 MILS POWERCRETE COATED
4	-	6" ST 90° ELL, 1.5R, GR. B, SCH 40
5	1	6" ST 45° ELL, 1.5R, GR. B, SCH 40
6	-	6" ST WELD NECK FLANGE, RF, ANSI 300
7	-	6" FLANGE INSULATING KIT, RF, ANSI 300

NOTES			
TOTAL ACREAGE DISTURBED: 0.21 ACRES			
TOTAL ACREAGE TO BE CLEARED: 0.06 ACRES			
TOTAL WETLAND CONSTRUCTION: 0 ACRES			
REVISIONS			
REV.	DESIGN	DRAFT	CHECK

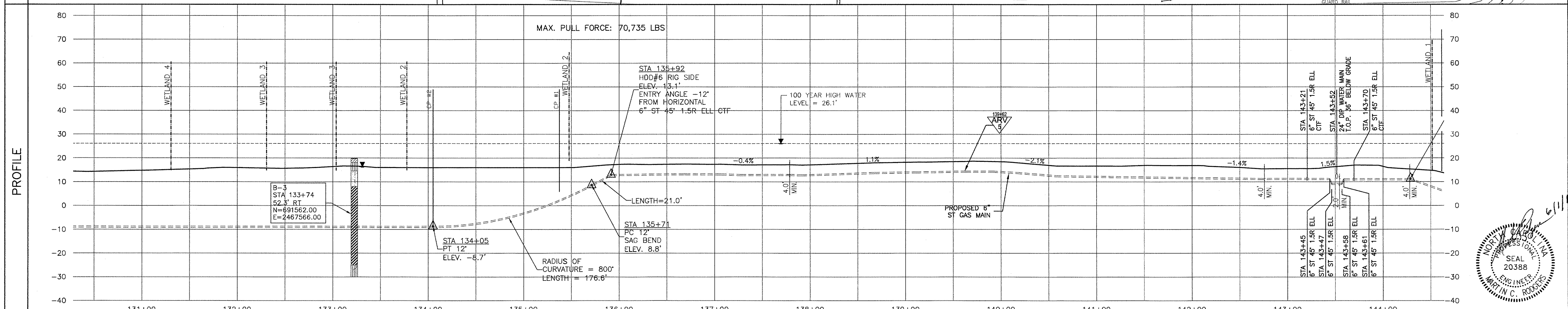
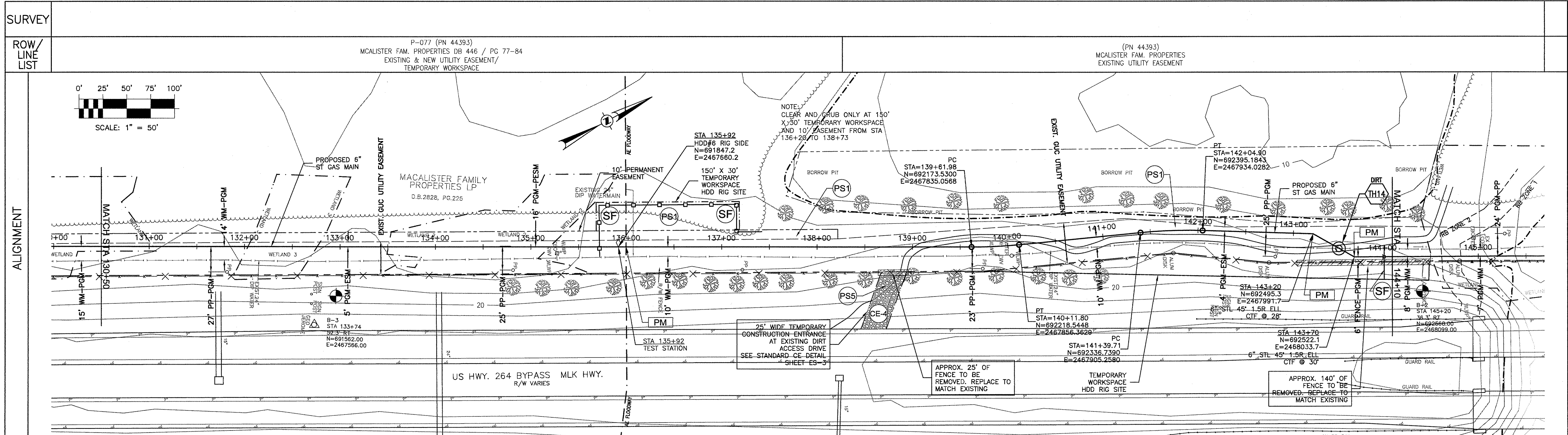
APPROVAL					
PERMITS		BID		CONSTRUCTION	
INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
TEST DATA					
TESTED FROM STATION: _____ TO STATION: _____					
MEDIUM: _____ RECORD TEST PRESSURE: _____ psig					
DATE TEST COMPLETED: _____					

PROJECT	
GCP89 - NORTHWESTERN LOOP HIGH-PRESSURE GAS MAIN EXTENSION GREENVILLE, NC	
ALIGNMENT SHEET	
SCALE	
PLAN	1" = 50'
PROFILE	1" = 50'
HOR.	1" = 50'
VERT.	1" = 20'



Greenville Utilities

DISTRICT	COUNTY	STATE
		NORTH CAROLINA
SHEET DESCRIPTION		
PLAN AND PROFILE SHEET STA 116+75 TO STA 130+50		
SHEET: A-9		REVISION: 0



TERRAIN N.T.S.	EXISTING CLEARED UTILITY EASEMENT / NEW 10' UTILITY EASEMENT					EXISTING CLEARED UTILITY EASEMENT / NEW 10' UTILITY EASEMENT & TEMP. WORKSPACE- TO BE CLEARED	EXISTING CLEARED UTILITY EASEMENT ADJACENT TO BORROW PIT
ENVIRON. N.T.S.	HDD WETLAND 4	HDD	HDD WETLAND 3	HDD	HDD WETLAND 2	HDD	OPEN CUT
CLASS LOC./ DES. FACTOR	CLASS 1 / DF = 0.72						
PIPE DETAIL N.T.S.	130+50	②	135+92	⑤⑫	①	⑥	⑤ ⑤ ⑤ ⑤ ⑤ ⑤ ⑤

ITEM	QUANTITY	DESCRIPTION
1	820 LF	6" STEEL PIPE, API-5L GR. B, 0.280" W.T., 12-14 MILS FUSION BONDED EPOXY THINFILM COATED
2	543 LF	6" STEEL PIPE, API-5L GR. B, 0.280" W.T., 35 MILS POWERCONCRETE COATED
4	-	6" ST 90° ELL, 1.5R, GR. B, SCH 40
5	7	6" ST 45° ELL, 1.5R, GR. B, SCH 40
6	-	6" ST WELD NECK FLANGE, RF, ANSI 300
7	-	6" FLANGE INSULATING KIT, RF, ANSI 300
12	1	TEST STATION, TYPE P

REV.	DESIGN	DRAFT	CHECK	DATE	DESCRIPTION

REVISIONS

APPROVAL	
PERMITS	BID CONSTRUCTION
INITIALS DATE	INITIALS DATE INITIALS DATE

TEST DATA

TESTED FROM STATION: _____ TO STATION: _____

MEDIUM: _____ RECORD TEST PRESSURE: _____ psig

DATE TEST COMPLETED: _____

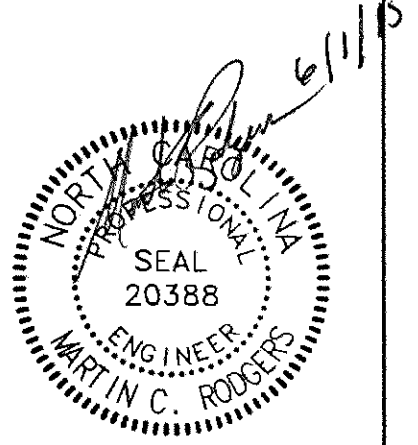
PROJECT	
GCP89 - NORTHWESTERN LOOP HIGH-PRESSURE GAS MAIN EXTENSION GREENVILLE, NC	
ALIGNMENT SHEET	

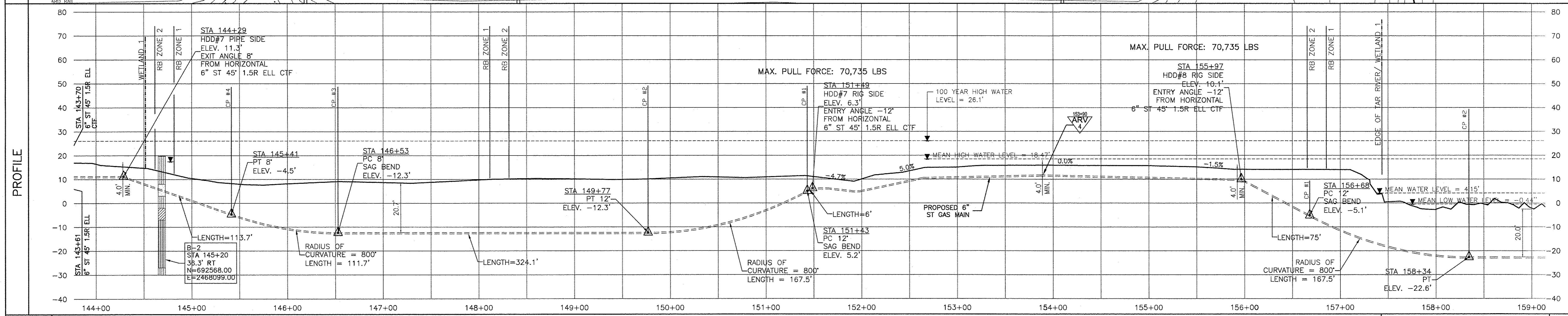
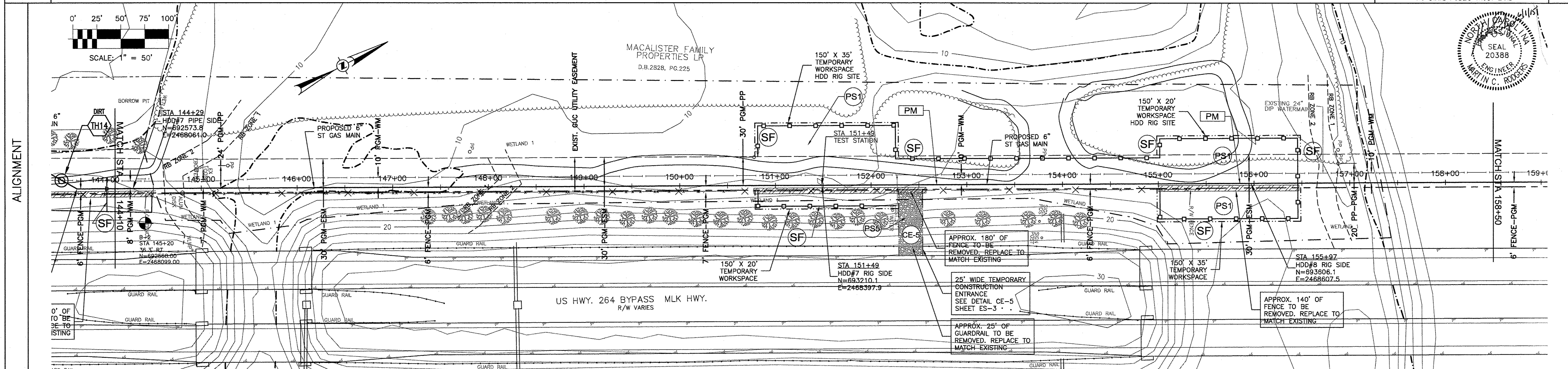
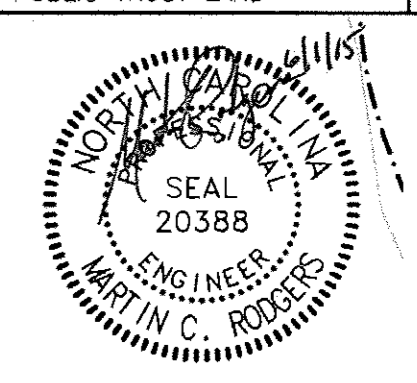
Greenville Utilities

DISTRICT: _____ COUNTY: PITT STATE: NORTH CAROLINA

SHEET DESCRIPTION: PLAN AND PROFILE SHEET STA 130+50 TO STA 144+10

SHEET: A-10 REVISION: 0





TERRAIN N.T.S.	EXISTING CLEARED UTILITY EASEMENT / 10' TEMPORARY WORKSPACE IN BRUSH & GRASS					TAR RIVER
ENVIRON. N.T.S.	OPEN CUT	HDD WETLAND 1 / HIGHWAY CROSS DRAINAGE	HDD WETLAND 1	OPEN CUT & TEMP. WORKSPACE FOR DRILL RIGS WETLAND 1	HDD WETLAND 1	HDD TAR RIVER
CLASS LOC./ DES. FACTOR	CLASS 1 / DF = 0.72					
PIPE DETAIL N.T.S.	①	②	③	④	⑤	⑥

ITEM	QUANTITY	DESCRIPTION
1	468 LF	6" STEEL PIPE, API-5L GR. B, 0.280" W.T., 12-14 MILS FUSION BONDED EPOXY THINFILM COATED
2	979 LF	6" STEEL PIPE, API-5L GR. B, 0.280" W.T., 35 MILS POWERCRETE COATED
4	-	6" ST 90° ELL, 1.5R, GR. B, SCH 40
5	3	6" ST 45° ELL, 1.5R, GR. B, SCH 40
6	-	6" ST WELD NECK FLANGE, RF, ANSI 300
7	-	6" FLANGE INSULATING KIT, RF, ANSI 300
12	1	TEST STATION, TYPE P

NOTES		
TOTAL ACREAGE DISTURBED: 0.90 ACRES TOTAL ACREAGE TO BE CLEARED: 0.16 ACRES TOTAL WETLAND CONSTRUCTION: 0.64 ACRES		
REVISIONS		
REV.	DESCRIPTION	DATE

APPROVAL					
PERMITS		BID		CONSTRUCTION	
INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY					
C.P.					
DRAFTING & DESIGN - RK&K		CSY	2/15	CSY	5/1/15
ENGINEERING - RK&K		MCR	2/15	MCR	5/1/15
TEST DATA					
TESTED FROM STATION: _____ TO STATION: _____					
MEDIUM: _____ RECORD TEST PRESSURE: _____ psig					
DATE TEST COMPLETED: _____					

PROJECT	
GCP89 - NORTHWESTERN LOOP HIGH-PRESSURE GAS MAIN EXTENSION GREENVILLE, NC	
ALIGNMENT SHEET	
ENGINEERS CONSTRUCTION MANAGERS PLANNERS SCIENTISTS 2100 E. GARY ST. SUITE 209 ROCKINGHAM, VIRGINIA 22122 1-804-982-1903 F-804-782-2142 RK&K COMM. NO. 1214-011-A	

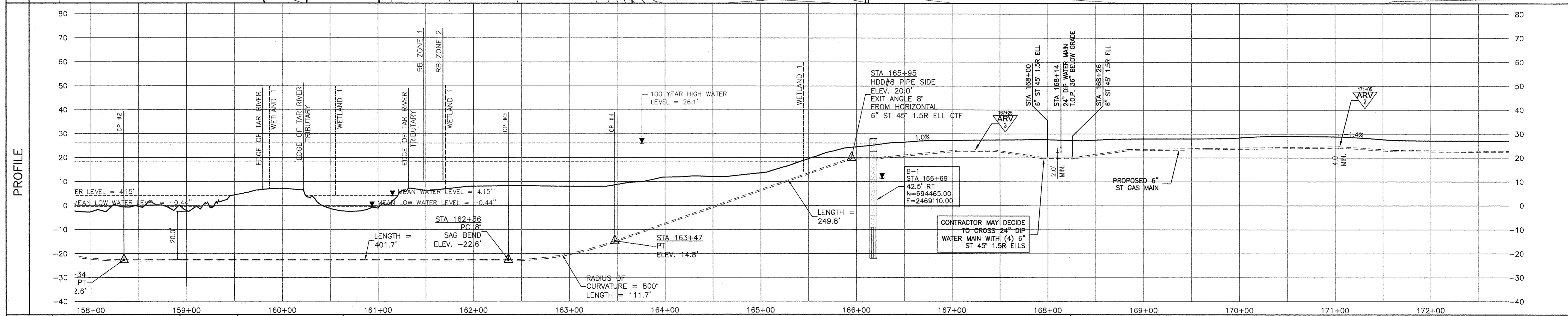
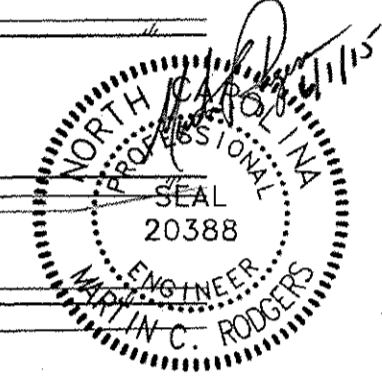
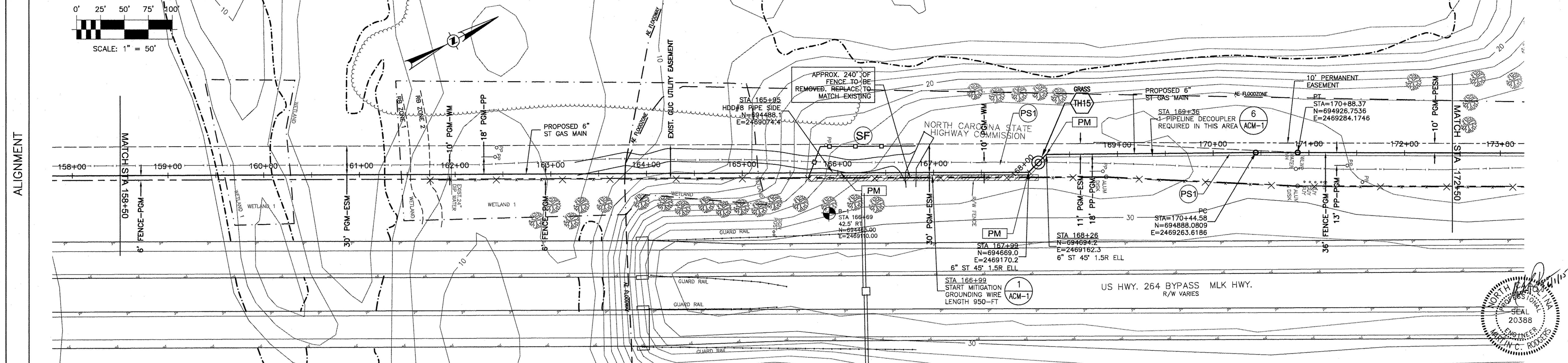
Greenville Utilities

DISTRICT: _____ COUNTY: _____ STATE: NORTH CAROLINA

SHEET DESCRIPTION

PLAN AND PROFILE SHEET
 STA 144+10 TO STA 158+50

SHEET: A-11 REVISION: 0



TERRAIN N.T.S.	TAR RIVER	WOODED	BRYAN CREEK	EXISTING CLEARED UTILITY EASEMENT				EXISTING CLEARED UTILITY EASEMENT / NEW 10' PERMANENT EASEMENT - GRASS			
ENVIRON. N.T.S.	HDD TAR RIVER	HDD WETLAND 1	HDD BRYAN CREEK	HDD WETLAND 1				OPEN CUT			
CLASS LOC./DES. FACTOR	CLASS 1 / DF = 0.72				CLASS 2 / DF = 0.60						
PIPE DETAIL N.T.S.	158+50	②	165+95	①	⑤	①	⑤	①	172+50		

ITEM	QUANTITY	DESCRIPTION
1	656 LF	6" STEEL PIPE, API-5L GR. B, 0.280" W.T., 12-14 MILS FUSION BONDED EPOXY THINFILM COATED
2	747 LF	6" STEEL PIPE, API-5L GR. B, 0.280" W.T., 35 MILS POWERCRETE COATED
3	551 LF	AC MITIGATION GROUND WIRE SPEC.
4	-	6" ST 90° ELL, 1.5R, GR. B, SCH 40
5	7	6" ST 45° ELL, 1.5R, GR. B, SCH 40
6	-	6" ST WELD NECK FLANGE, RF, ANSI 300
7	-	6" FLANGE INSULATING KIT, RF, ANSI 300

NOTES			
TOTAL ACREAGE DISTURBED: 0.44 ACRES			
TOTAL ACREAGE TO BE CLEARED: 0 ACRES			
TOTAL WETLAND CONSTRUCTION: 0 ACRES			
REVISIONS			
REV.	DESIGN	DRAFT	CHECK

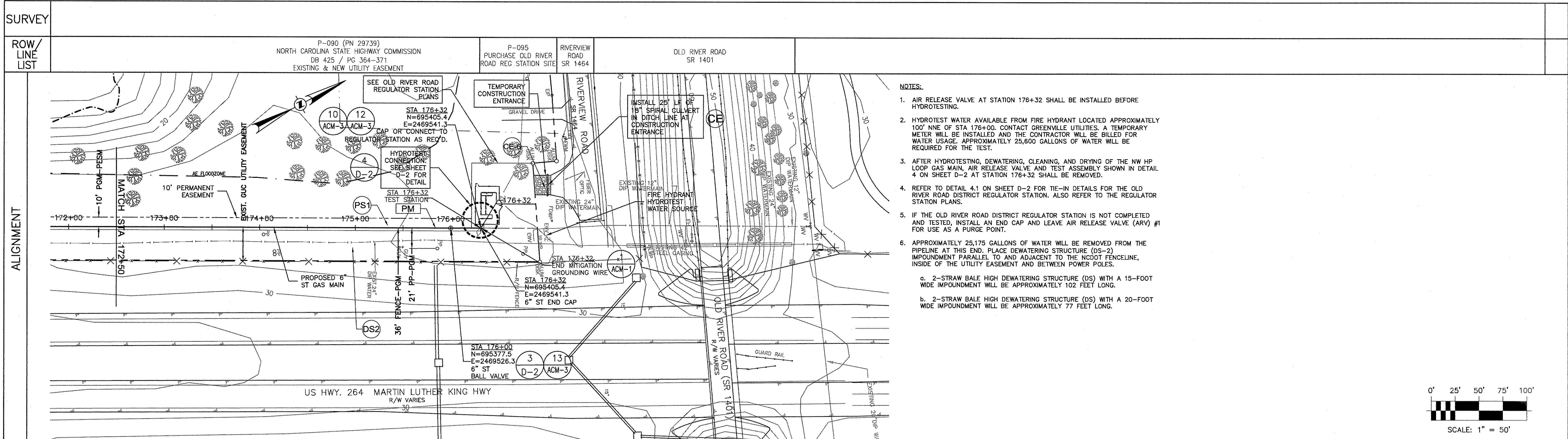
APPROVAL					
PERMITS		BID		CONSTRUCTION	
INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY					
C.P.					
DRAFTING & DESIGN - RK&K		CSY	2/15	CSY	5/1/15
ENGINEERING - RK&K		MCR	2/15	MCR	5/1/15
TEST DATA					
TESTED FROM STATION: _____ TO STATION: _____					
MEDIUM: _____ RECORD TEST PRESSURE: _____ psig					
DATE TEST COMPLETED: _____					

PROJECT	
GCP89 - NORTHWESTERN LOOP HIGH-PRESSURE GAS MAIN EXTENSION GREENVILLE, NC	
ALIGNMENT SHEET	
SCALE PLAN 1" = 50' PROFILE 1" = 20'	

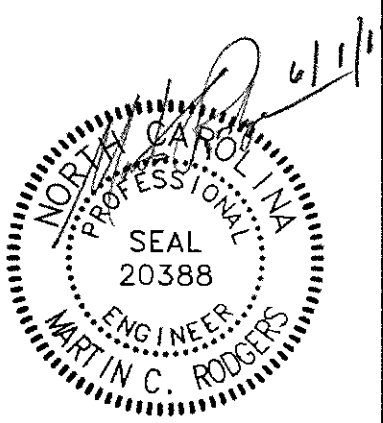
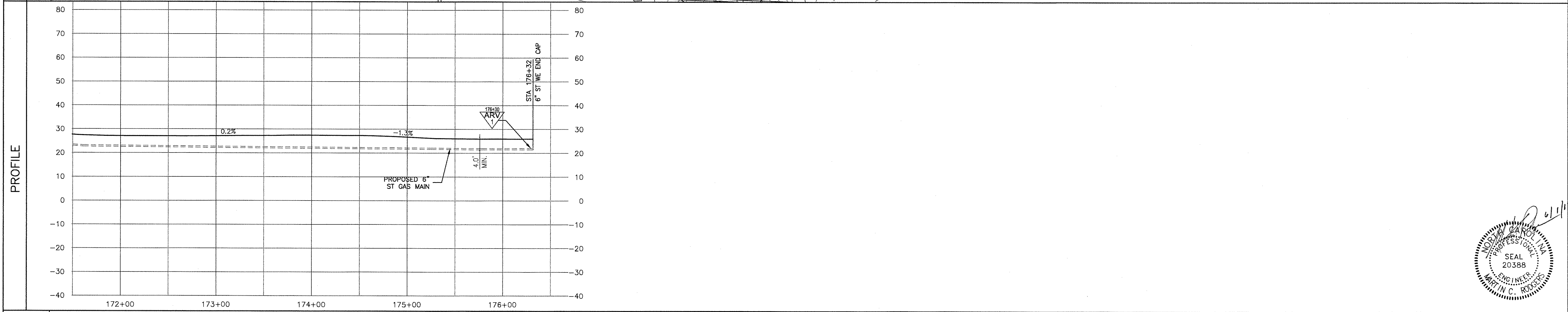
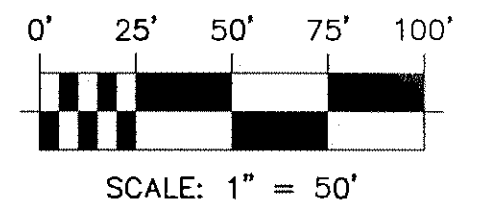
DISTRICT: _____ COUNTY: PITT STATE: NORTH CAROLINA

SHEET DESCRIPTION: PLAN AND PROFILE SHEET STA 158+50 TO 172+50

SHEET: A-12 REVISION: 0



- NOTES:**
- AIR RELEASE VALVE AT STATION 176+32 SHALL BE INSTALLED BEFORE HYDROTESTING.
 - HYDROTEST WATER AVAILABLE FROM FIRE HYDRANT LOCATED APPROXIMATELY 100' NNE OF STA 176+00. CONTACT GREENVILLE UTILITIES. A TEMPORARY METER WILL BE INSTALLED AND THE CONTRACTOR WILL BE BILLED FOR WATER USAGE. APPROXIMATELY 25,600 GALLONS OF WATER WILL BE REQUIRED FOR THE TEST.
 - AFTER HYDROTESTING, DEWATERING, CLEANING, AND DRYING OF THE NW HP LOOP GAS MAIN, AIR RELEASE VALVE AND TEST ASSEMBLY SHOWN IN DETAIL 4 ON SHEET D-2 AT STATION 176+32 SHALL BE REMOVED.
 - REFER TO DETAIL 4.1 ON SHEET D-2 FOR TIE-IN DETAILS FOR THE OLD RIVER ROAD DISTRICT REGULATOR STATION. ALSO REFER TO THE REGULATOR STATION PLANS.
 - IF THE OLD RIVER ROAD DISTRICT REGULATOR STATION IS NOT COMPLETED AND TESTED, INSTALL AN END CAP AND LEAVE AIR RELEASE VALVE (ARV) #1 FOR USE AS A PURGE POINT.
 - APPROXIMATELY 25,175 GALLONS OF WATER WILL BE REMOVED FROM THE PIPELINE AT THIS END. PLACE DEWATERING STRUCTURE (DS-2) IMPOUNDMENT PARALLEL TO AND ADJACENT TO THE NCDOT FENCELINE, INSIDE OF THE UTILITY EASEMENT AND BETWEEN POWER POLES.
 - 2-STRAW BALE HIGH DEWATERING STRUCTURE (DS) WITH A 15-FOOT WIDE IMPOUNDMENT WILL BE APPROXIMATELY 102 FEET LONG.
 - 2-STRAW BALE HIGH DEWATERING STRUCTURE (DS) WITH A 20-FOOT WIDE IMPOUNDMENT WILL BE APPROXIMATELY 77 FEET LONG.



TERRAIN N.T.S.	EXISTING CLEARED UTILITY EASEMENT / NEW 10' PERMANENT EASEMENT - GRASS
ENVIRON. N.T.S.	OPEN CUT
CLASS LOC./ DES. FACTOR	CLASS 2 / DF = 0.60
PIPE DETAIL N.T.S.	①

SUMMARY OF MATERIALS		NOTES	APPROVAL		PROJECT	
ITEM	QUANTITY	DESCRIPTION	PERMITS	BID	CONSTRUCTION	
1	382 LF	6" STEEL PIPE, API-5L GR. B, 0.280" W.T., 12-14 MILS FUSION BONDED EPOXY THINFILM COATED	INITIALS	DATE	INITIALS	DATE
3	382 LF	AC MITIGATION GROUND WIRE SPEC.				
4	-	6" ST 90° ELL, 1.5R, GR. B, SCH 40				
5	-	6" ST 45° ELL, 1.5R, GR. B, SCH 40				
6	-	6" ST WELD NECK FLANGE, RF, ANSI 300				
7	-	6" FLANGE INSULATING KIT, RF, ANSI 300				
11	1	6" STEEL BALL VALVE, WE, WRENCH OPERATED, CAMERON T-31, BORE TO MATCH 0.280"				
12	1	TEST STATION TYPE P				
14	1	FLUSH MOUNTED VALVE BOX				
15	1	6" ST WE CAP, GR. B, SCH 40				

REVISIONS		TEST DATA
REV.	DESCRIPTION	DATE

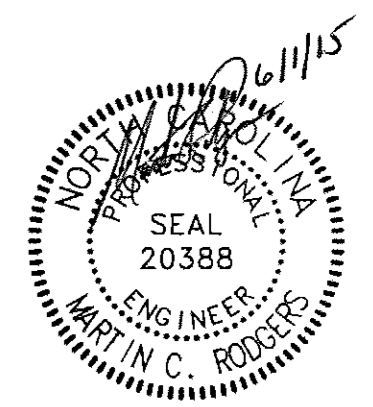
TEST DATA	
TESTED FROM STATION: _____	TO STATION: _____
MEDIUM: _____	RECORD TEST PRESSURE: _____ psig
DATE TEST COMPLETED: _____	


PROJECT	
GCP89 - NORTHWESTERN LOOP HIGH-PRESSURE GAS MAIN EXTENSION GREENVILLE, NC	
DISTRICT	COUNTY
	PIT
	STATE
	NORTH CAROLINA

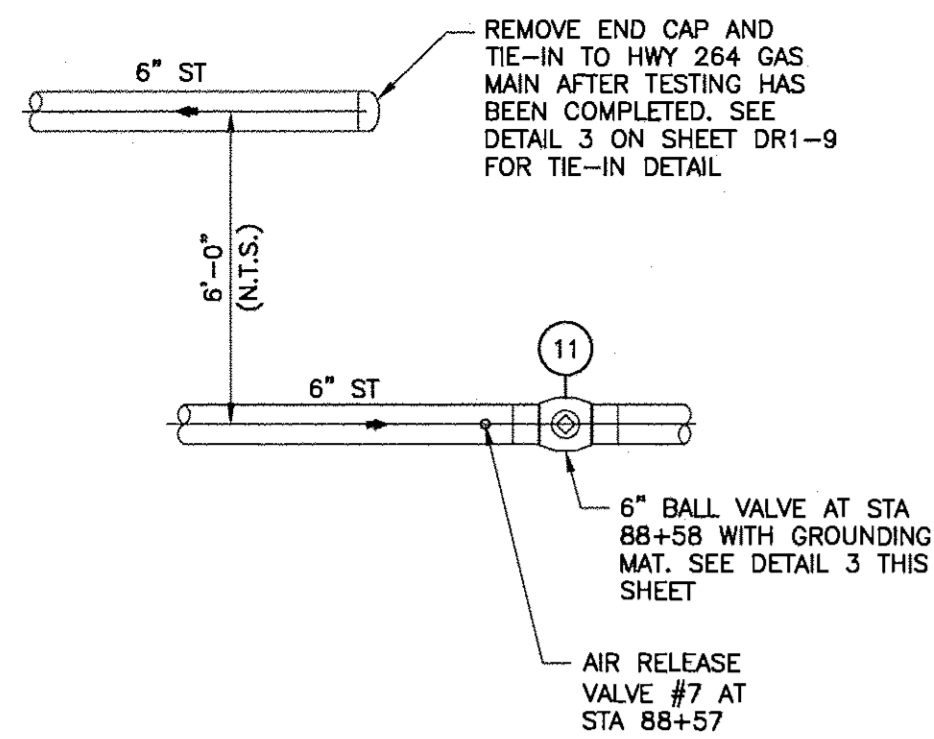
ALIGNMENT SHEET	
SCALE	PLAN 1" = 50'
PROFILE	HOR. 1" = 50'
VERT.	1" = 20'

SHEET DESCRIPTION	
PLAN AND PROFILE SHEET	STA 172+50 TO 176+32
SHEET: A-13	REVISION: 0

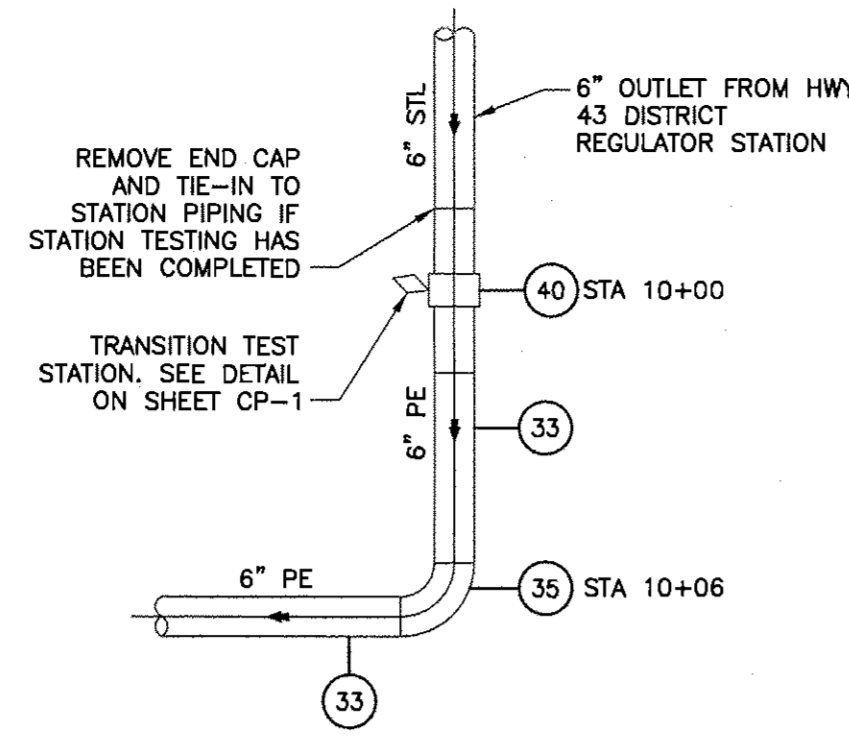
Item	Quantity	Unit	Size	Description of Pipeline Materials
1	11118	LF	6"	Steel Pipe, 0.280" w.t. API-5L Grade B, Seamless, 12-14 MILS Fusion Bonded Epoxy Thinfilm Coated
2	5931	LF	6"	Steel Pipe, 0.280" w.t. API-5L Grade B, Seamless, 35 MILS Powercrete Coated
3	1813	LF	NA	THWN #3 AWG AC Mitigation Ground Wire
4	8	EA	6"	Elbow, 90°, LR, Grade B, SCH 40, 0.280" w.t.
5	38	EA	6"	Elbow, 45°, LR, Grade B, SCH 40, 0.280" w.t.
6	12	EA	36"-4" x 1"	Sockolet, 2000#
7	23	EA	1" x 3"	Pipe Nipple, Extra Strong, Grade B, Seamless C.S., thread both ends
8	23	EA	1"	Valve, Ball, 2000#, NFPT X NFPT
9	23	EA	1"	Pipe plug, Hex Head, Extra Strong, F.S., screwed
10	120	LF	1"	Steel Pipe, 0.133" w.t., Grade B
11	2	EA	6"	Valve, Cameron T-31, ANSI 300, W.E, Wrench Operated, Bore to Match w.t.=0.280", coated for buried installation
12	7	EA	NA	Test Station, Type P
14	3	EA	NA	Flush Mounted Cast Iron Valve Box w/ "Gas" Lid
15	4	EA	6"	Cap, Grade B, 0.280" w.t.
17	10	EA	1"	Cap, Socket Weld, 2000#
18	12	EA	1"	Tee, Threaded, 2000#
19	10	LF	2"	Steel Pipe, 0.154" w.t., Grade B
23	1	EA	4"	Thredolet, 3000#
24	1	EA	4"	Valve, Ball, 2000#, NFPT X NFPT
25	20	LF	4"	Steel Pipe, 0.237" w.t., Grade B
26	1	EA	6"	Blind Flange, ANSI 600
27	2	EA	6"	Weld Neck Flange, ANSI 600
28	2	EA	6"	Gasket, Spiral Wound, Flexitallic, ANSI 600
29	1	EA	6"	Flange, Insulation Kit, ANSI 600, Type E, Linebacker, Double Washer Set, w/Full Length Phenolic Sleeves
30	36	EA	(6") ANSI 600	Stud Bolts, All Thread, 1" Diameter x 6 3/4" Long, Grade B-7, ASTM A-193, w/2 A-194, Grade 2H Heavy Hex Nuts
31	31	EA	NA	Pipeline Marker
32	11526	LF	NA	Warning Tape
33	408	LF	6"	Polyethylene Medium Density Plastic Pipe
34	1	EA	6"	Tee, Polyethylene Medium Density Plastic, Butt Fusion
35	2	EA	6"	Elbow, 90°, LR, Polyethylene Medium Density Plastic, Butt Fusion
36	2	EA	6"	Elbow, 45°, LR, Polyethylene Medium Density Plastic, Butt Fusion
37	2	EA	6"	Cap, Polyethylene Medium Density Plastic, Butt Fusion
38	1	EA	6"	Valve, Polyethylene Medium Density Plastic, Butt Fusion
39	2	EA	6"	Electrofusion Coupling, Polyethylene Medium Density Plastic
40	1	EA	6"	Transition Fitting, Steel 0.280" Wall, Grade B x Polyethylene Medium Density Plastic
41	408	LF	#14	Tracer Wire, solid copper with yellow insulation
42	6	EA	8' x 4'	Gradient Control Mat



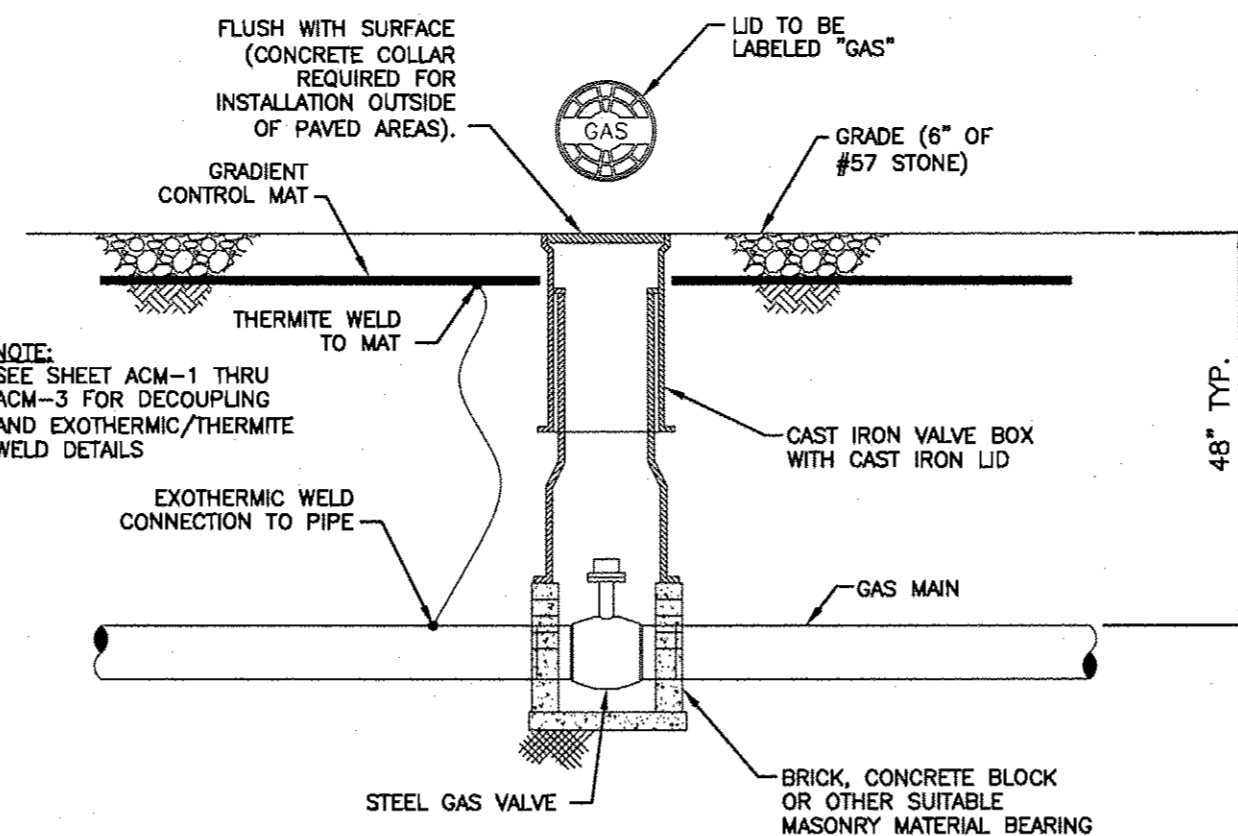
SUMMARY OF MATERIALS				NOTES				APPROVAL						PROJECT			 Greenville Utilities DISTRICT: _____ COUNTY: _____ STATE: NORTH CAROLINA SHEET DESCRIPTION: BILL OF MATERIALS SHEET: D-1 REVISION: 0		
ITEM	QUANTITY	DESCRIPTION		REV.	DESIGN	DRAFT	CHECK	DESCRIPTION	DATE	PERMITS	BID	CONSTRUCTION	ALIGNMENT SHEET						
										INITIALS	DATE	INITIALS	DATE	INITIALS	DATE	SCALE			
										SURVEY						AS NOTED			
										C.P.						PROFILE			
										DRAFTING & DESIGN - RK&K	CSY	5/21	CSY	6/1/15	--	HOR.			
										ENGINEERING - RK&K	MCR	5/21	MCR	5/1/15	--	VERT.			
										TEST DATA						ENGINEERS CONSTRUCTION MANAGERS PLANNERS SCIENTISTS RK&K COMM. NO. 1214-011-A SCALE: _____ PLAN: _____ PROFILE: _____ HOR.: _____ VERT.: _____			
										TESTED FROM STATION: _____ TO STATION: _____									
										MEDIUM: _____ RECORD TEST PRESSURE: _____ psig									
										DATE TEST COMPLETED: _____									



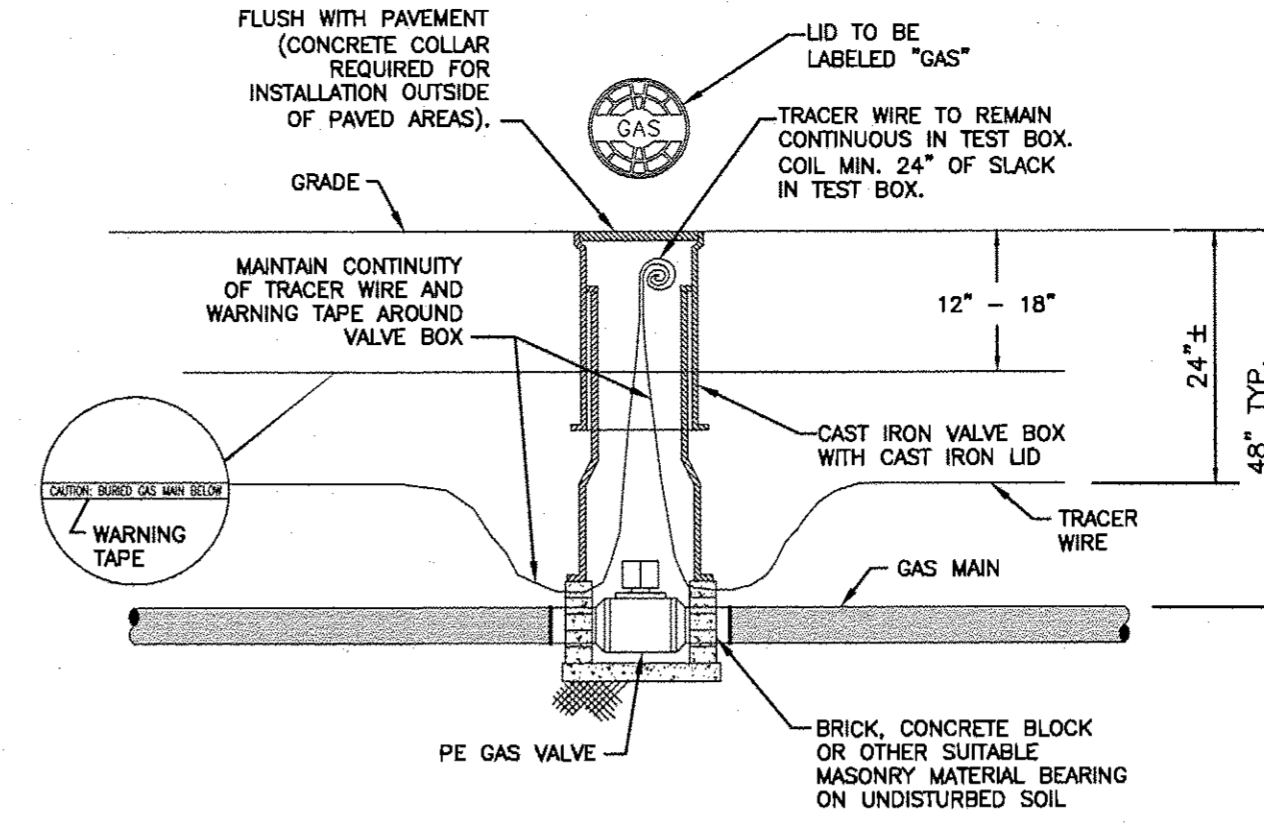
1 TEST CONFIGURATION
AT 6" HWY 43 REG. STA. LATERAL
SCALE: 3/8" = 1'-0"



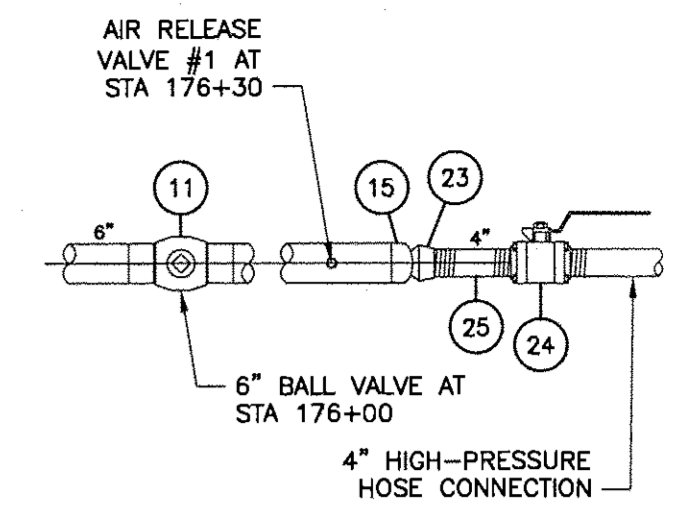
2 GAS MAIN CONNECTION
@ 6" RT. 43 LATERAL
SCALE: 3/8" = 1'-0"



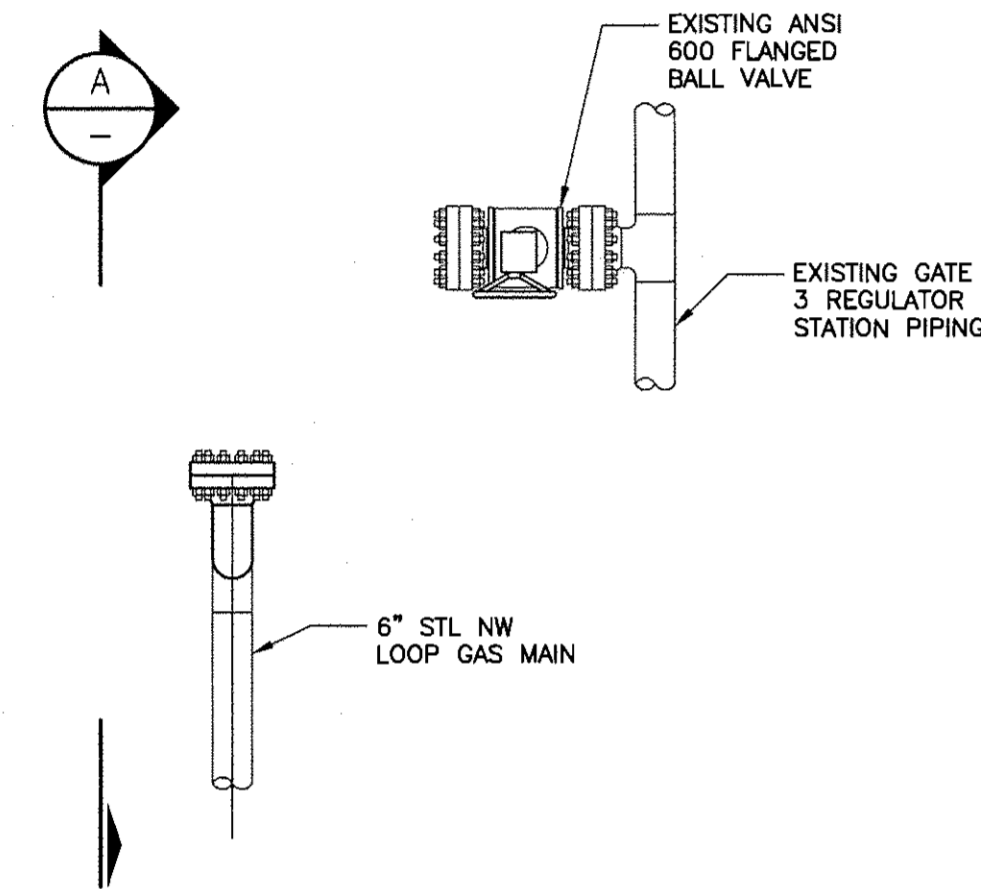
3 TYPICAL STEEL GAS VALVE INSTALLATION
SCALE: 1/2" = 1'-0"
ALSO SEE DETAIL 13 ON SHEET ACM-3



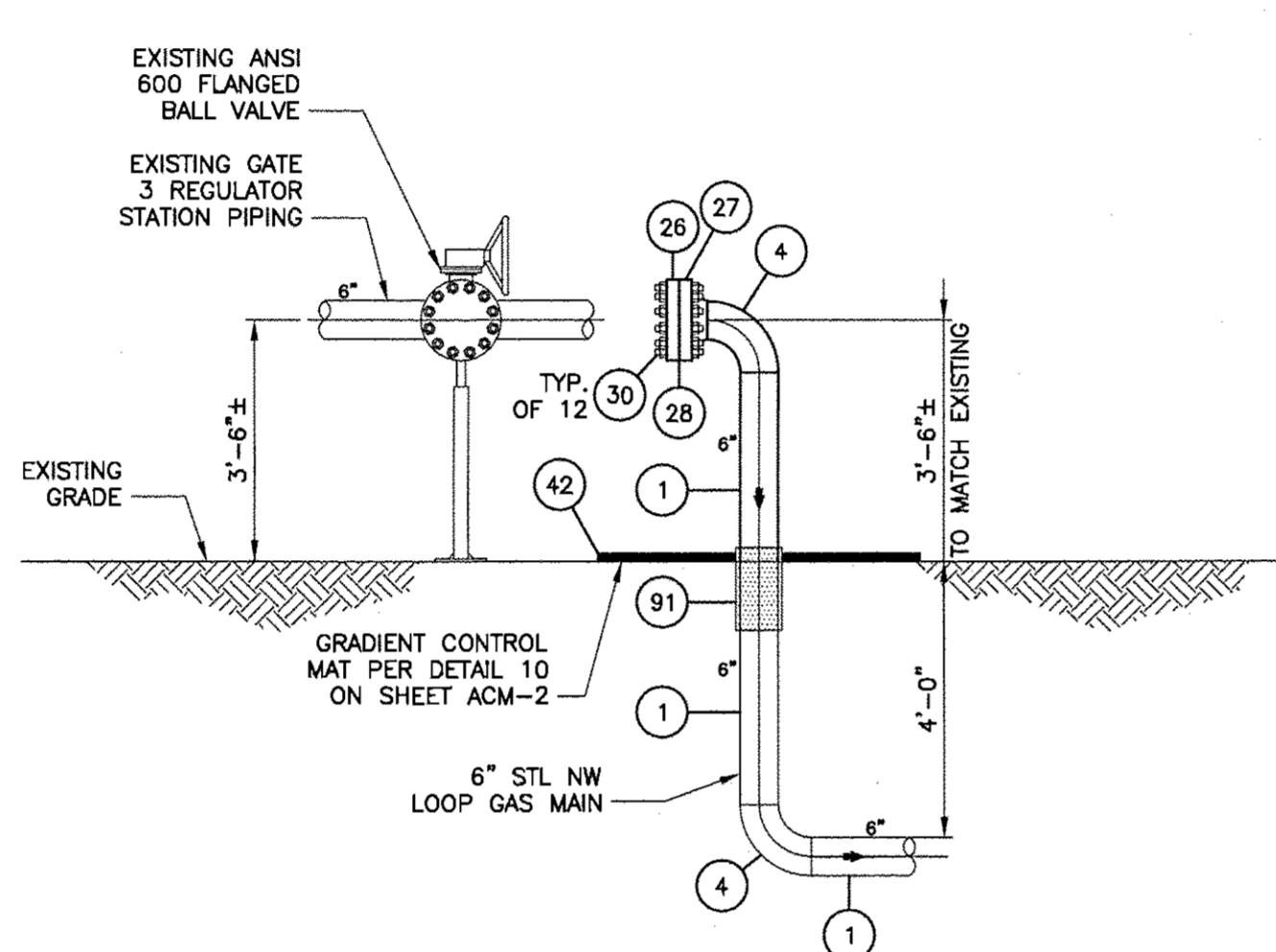
3A TYPICAL PLASTIC GAS VALVE INSTALLATION
SCALE: 1/2" = 1'-0"



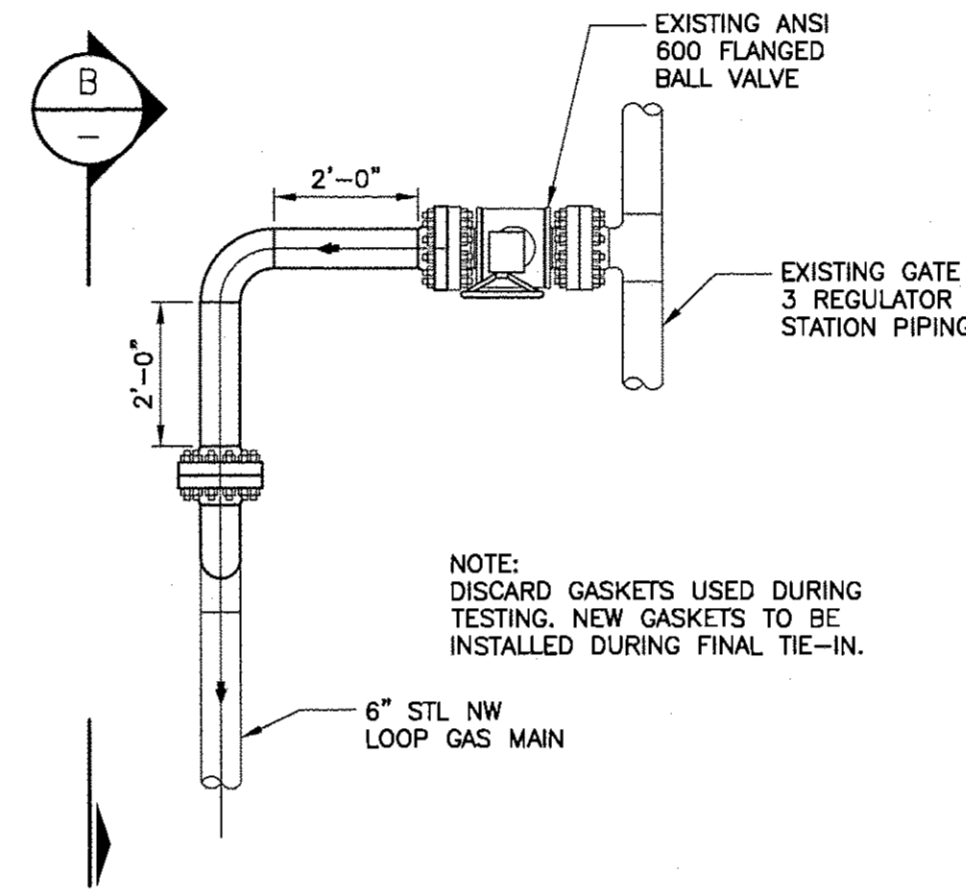
4 TEST ASSEMBLY
AT STA 176+32
SCALE: 3/8" = 1'-0"



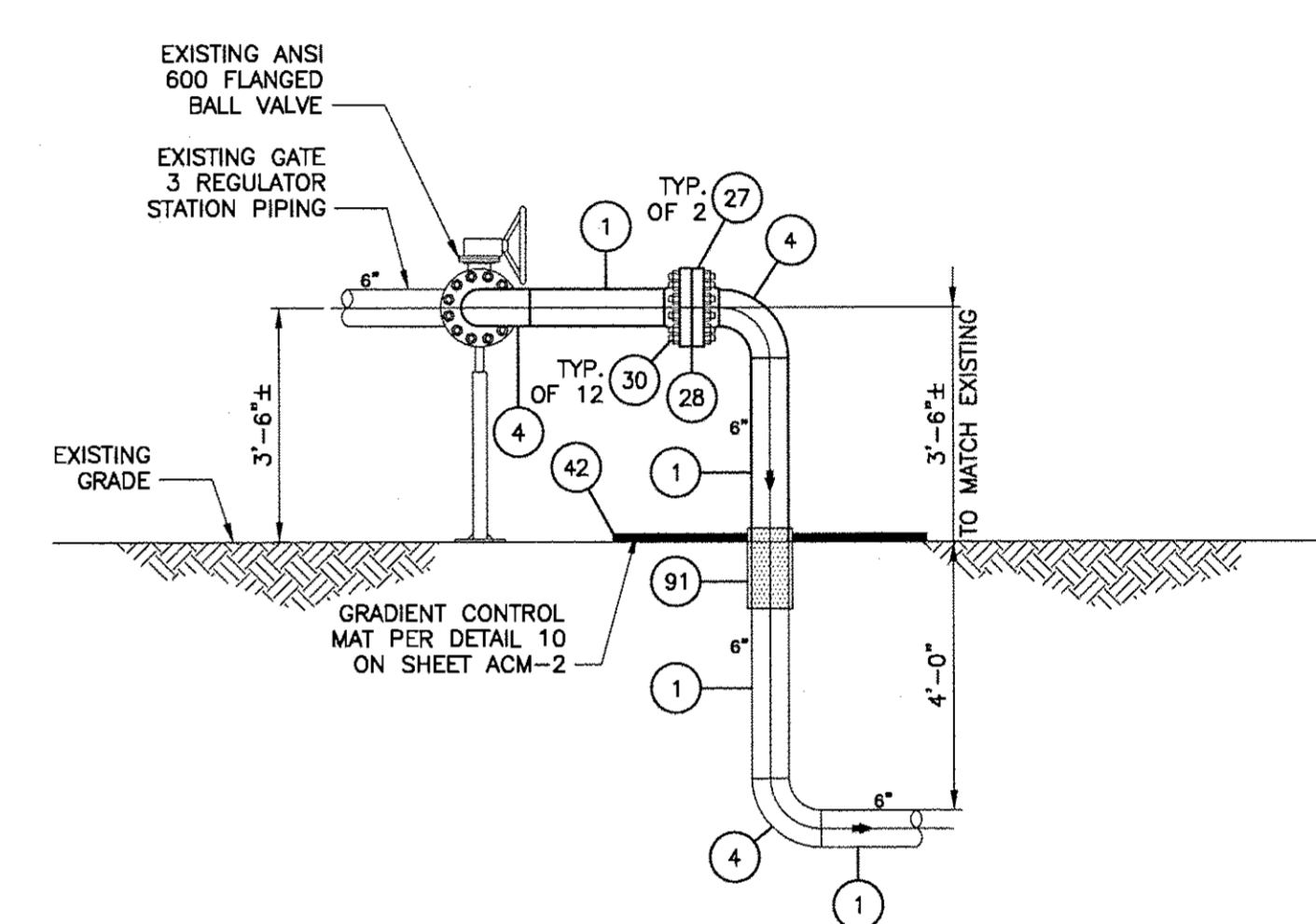
5 END DETAIL AT EXISTING
GATE 3 REGULATOR STATION
PIPE TEST CONFIGURATION
SCALE: 3/8" = 1'-0"



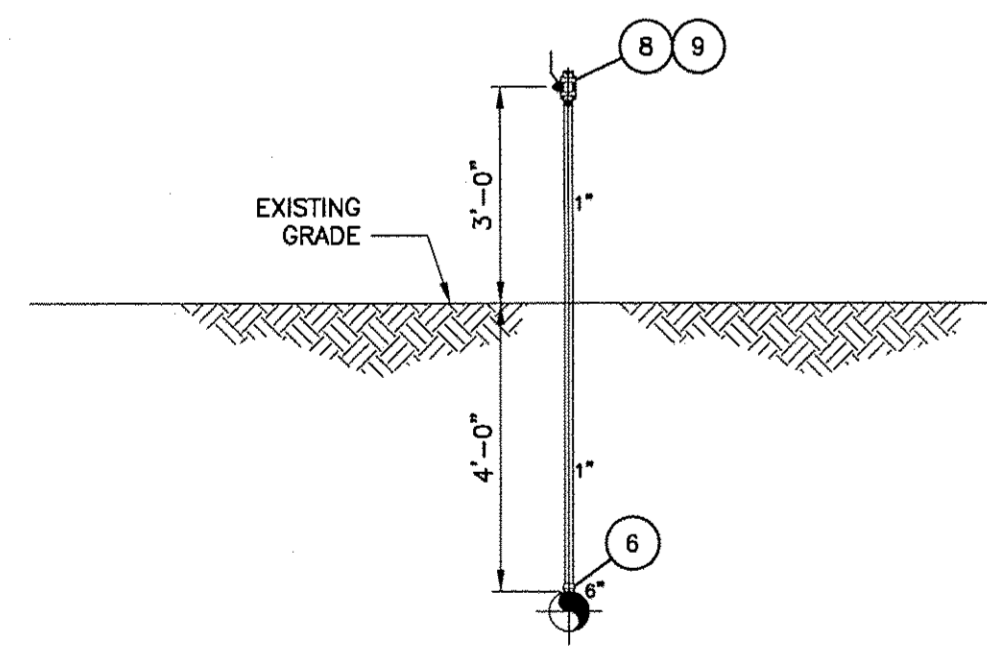
A ELEVATION
SCALE: 3/8" = 1'-0"



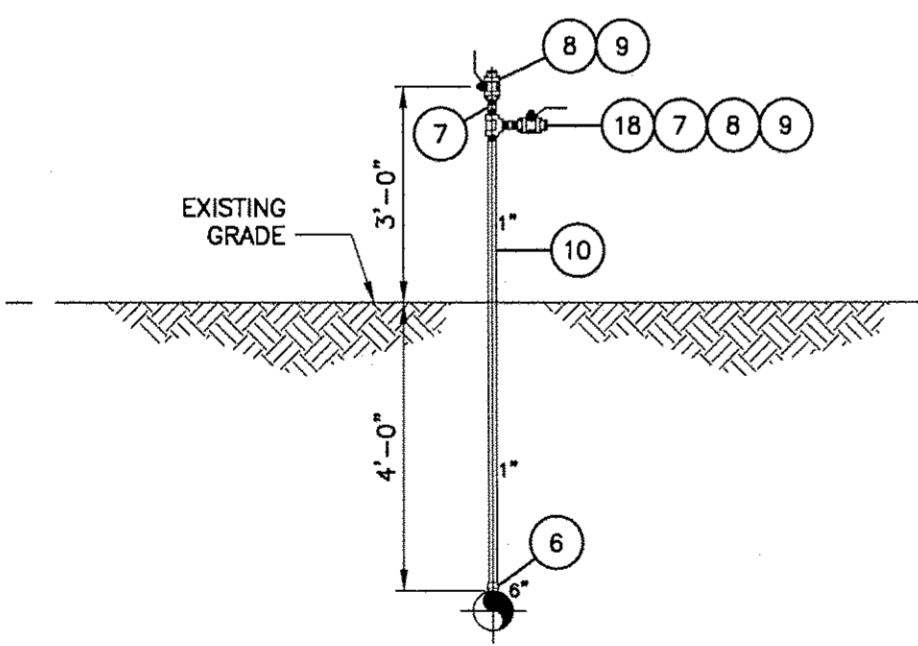
6 TIE-IN DETAIL AT EXISTING
GATE 3 REGULATOR STATION
SCALE: 3/8" = 1'-0"



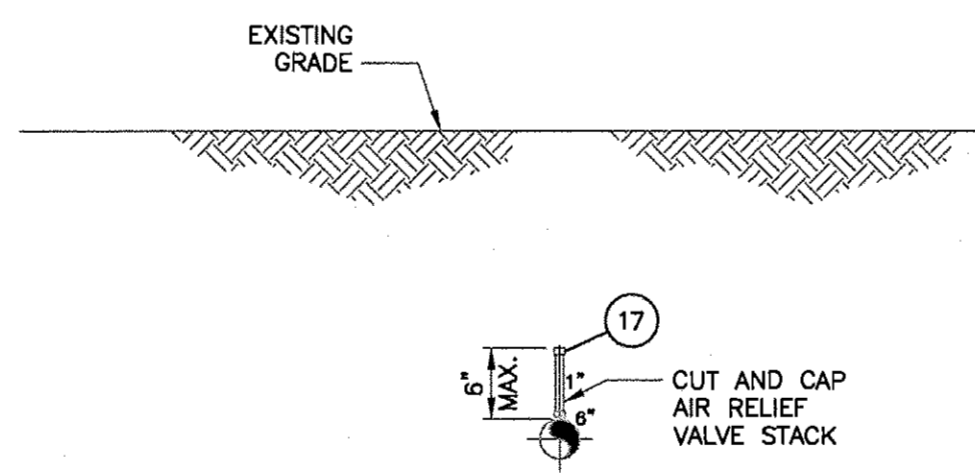
B ELEVATION
SCALE: 3/8" = 1'-0"



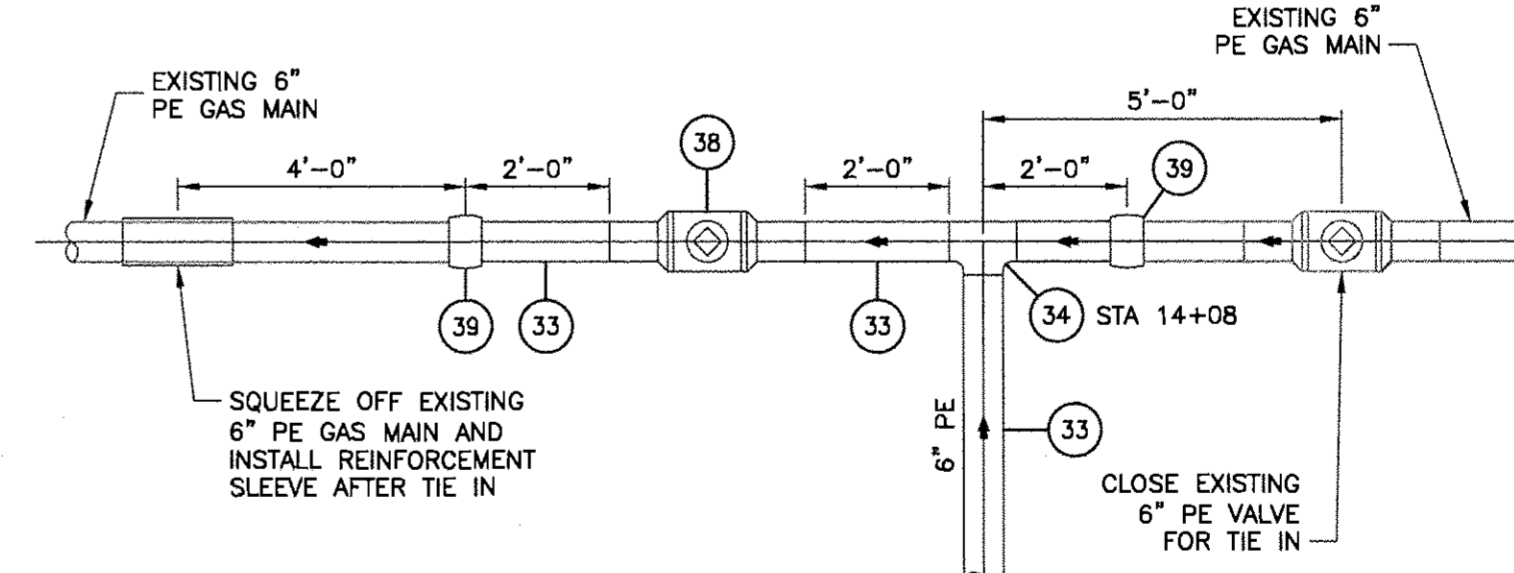
7 TYPICAL AIR RELEASE VALVE
ASSEMBLY
SCALE: 3/8" = 1'-0"



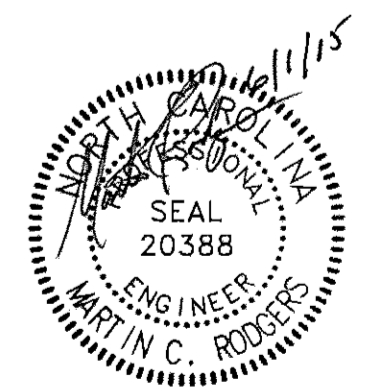
8 AIR RELEASE VALVE
ASSEMBLY W/ PRESSURE GAUGE
ARVs #1, #13, #14, #16
SCALE: 3/8" = 1'-0"



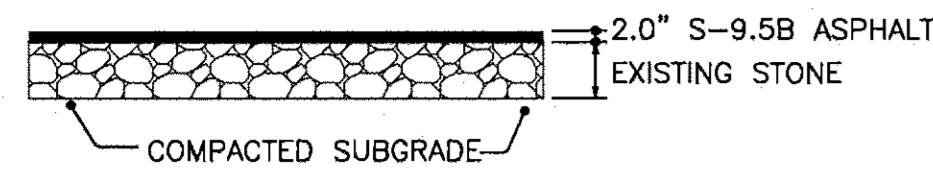
9 TYPICAL AIR RELEASE VALVE
CUT AND CAP (IF NOT REMOVED)
SCALE: 3/8" = 1'-0"



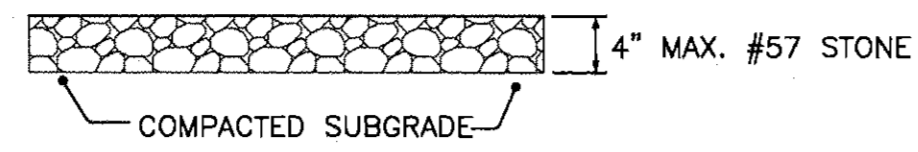
10 TIE-IN DETAIL AT HWY 43
PE GAS MAIN
SCALE: 3/8" = 1'-0"



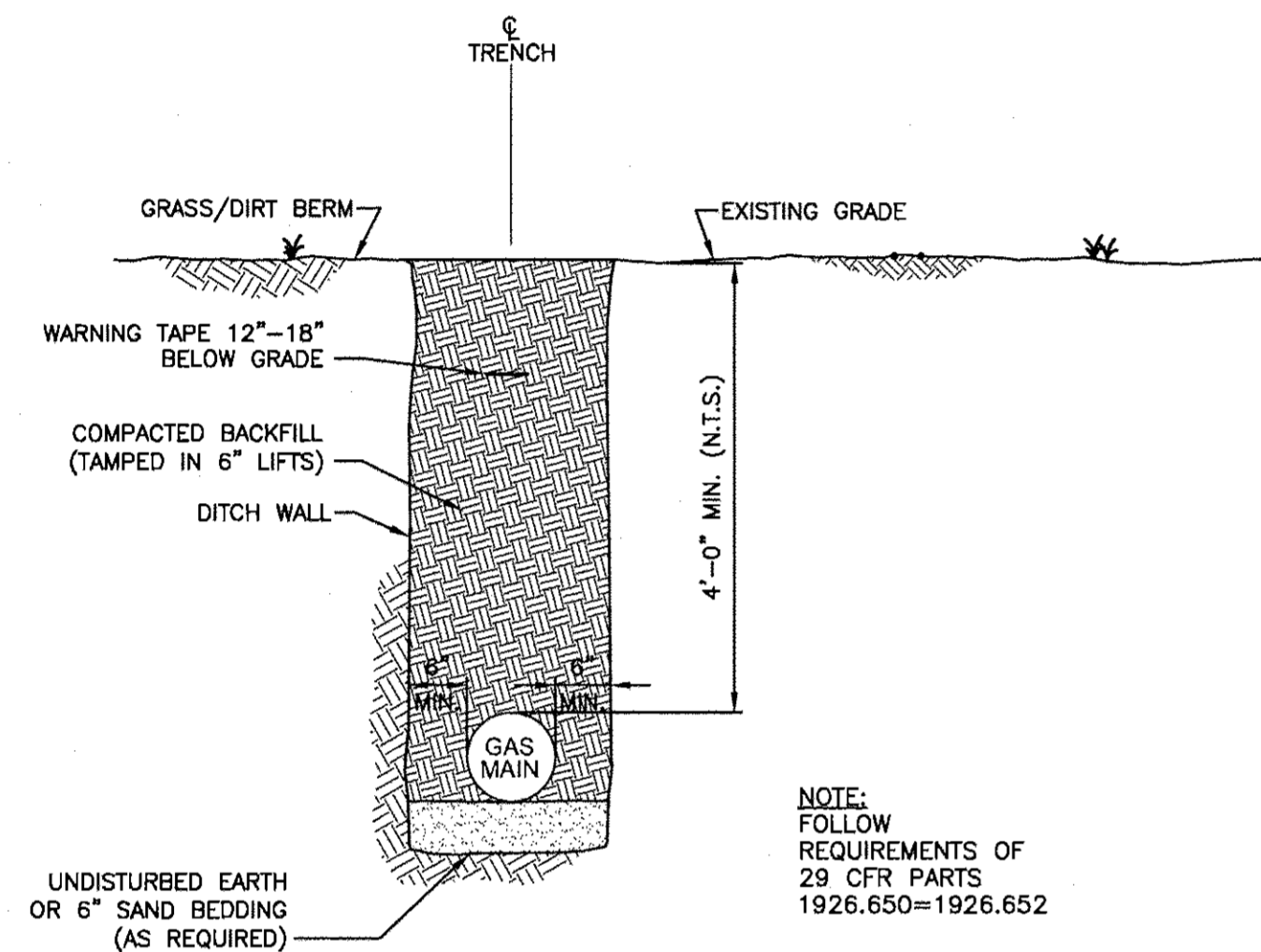
ITEM		QUANTITY	DESCRIPTION	NOTES	APPROVAL			PROJECT				
SUMMARY OF MATERIALS				SEE SHEET D-1 FOR BILL OF MATERIALS.	PERMITS	BID	CONSTRUCTION	GCP89 - NORTHWESTERN LOOP HIGH-PRESSURE GAS MAIN EXTENSION GREENVILLE, NC				
REVISIONS				REV. DESIGN DRAFT CHECK	INITIALS	DATE	INITIALS	DATE	ALIGNMENT SHEET			
TEST DATA				TESTED FROM STATION: _____ TO STATION: _____	TEST DATA			SCALE AS NOTED				
MEDIUM: _____ RECORD TEST PRESSURE: _____ psig				DATE TEST COMPLETED: _____			PLAN			PROFILE		
DATE TEST COMPLETED: _____				DATE TEST COMPLETED: _____			HOR. _____			VERT. _____		
SHEET: D-2				REVISION: 0			GREENVILLE UTILITIES			DISTRICT _____ COUNTY _____ STATE NORTH CAROLINA		



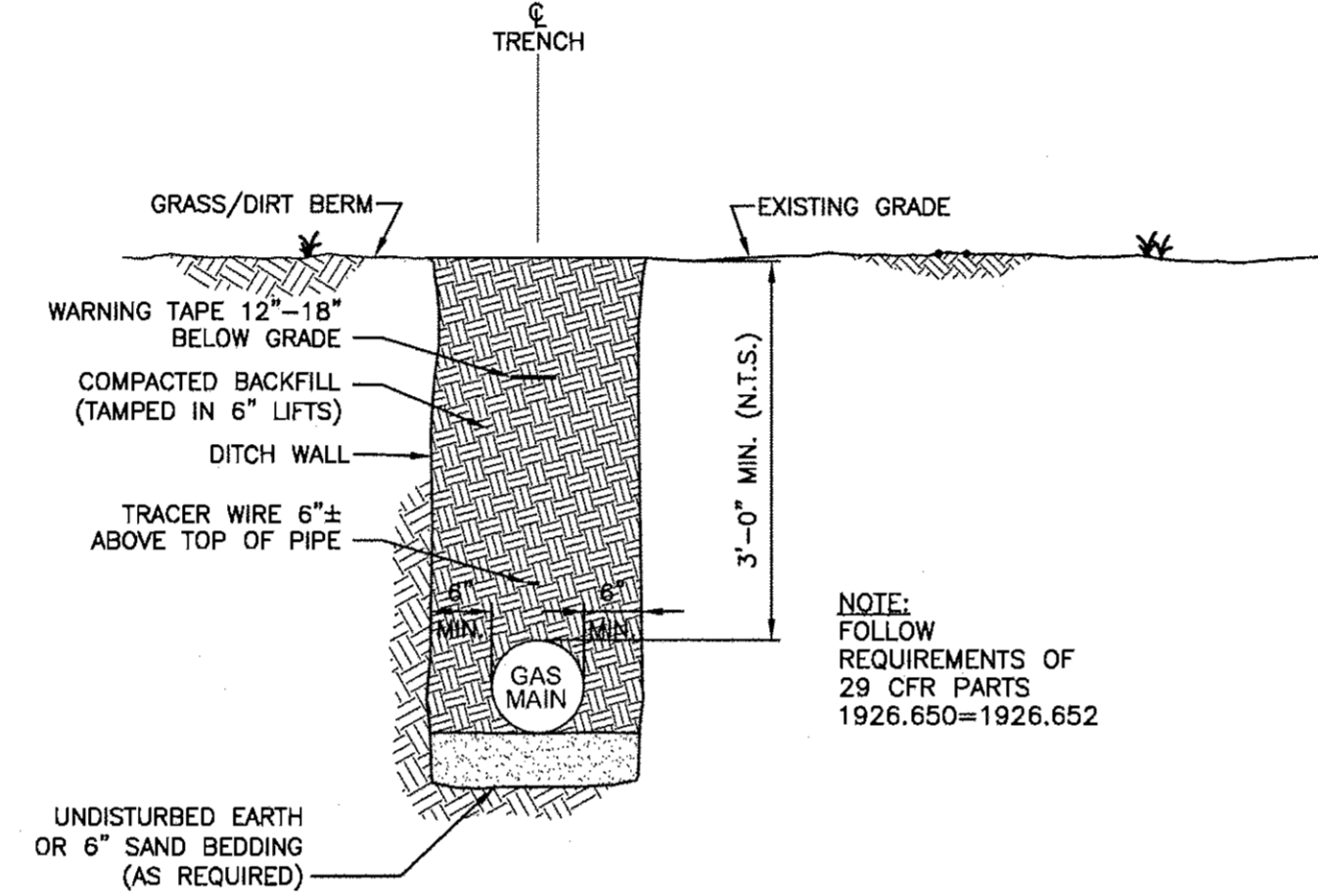
11 LIGHT PAVEMENT (DRIVEWAY)
N.T.S.



12 STONE ROAD OR DRIVEWAY
N.T.S.

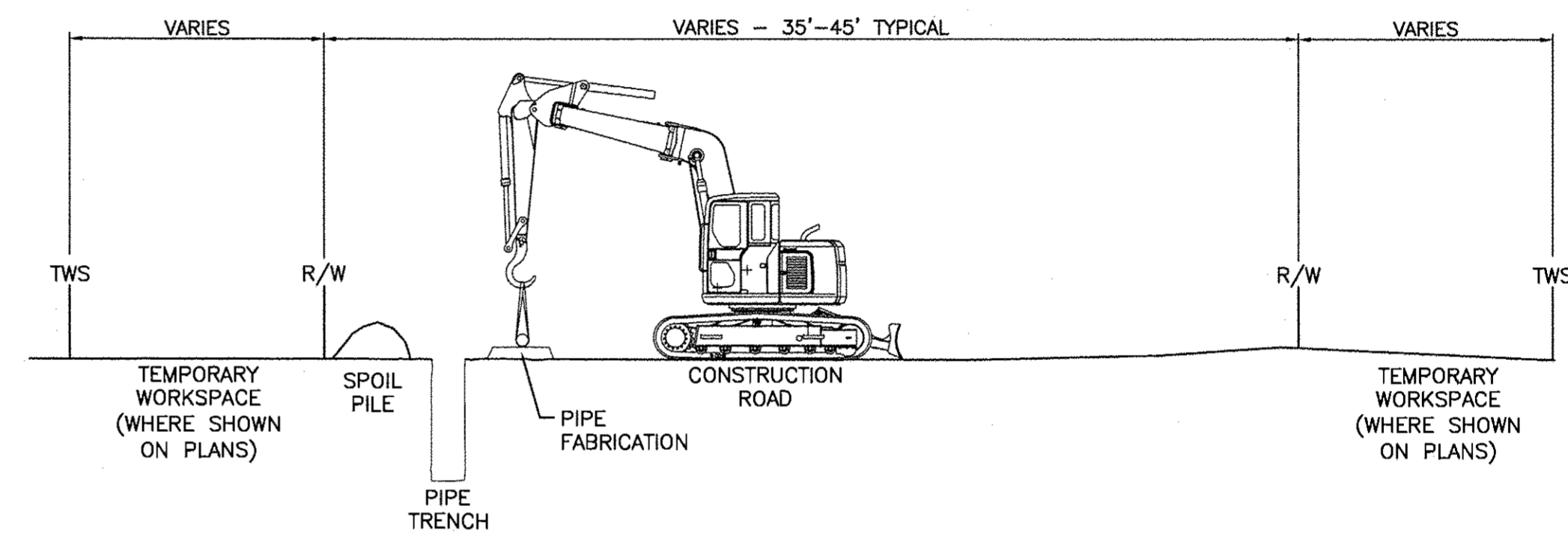


TYPICAL STEEL PIPE TRENCH INSTALLATION
N.T.S.

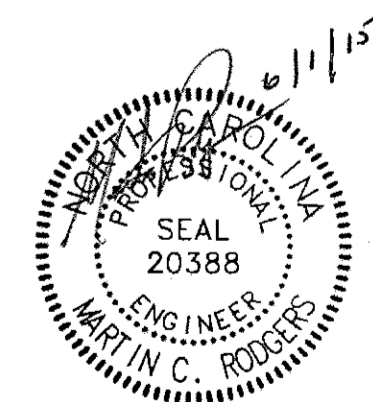


TYPICAL POLYETHYLENE (PE) PIPE TRENCH INSTALLATION
N.T.S.

NOTE:
FOLLOW
REQUIREMENTS OF
29 CFR PARTS
1926.650-1926.652

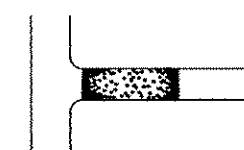


TYPICAL CONSTRUCTION PATH DETAIL
N.T.S.



SUMMARY OF MATERIALS		NOTES		APPROVAL			PROJECT						
ITEM	QUANTITY	DESCRIPTION	REV.	DESIGN	DRAFT	CHECK	PERMITS	BID	CONSTRUCTION				
							INITIALS	DATE	INITIALS	DATE	INITIALS	DATE	GCP89 - NORTHWESTERN LOOP HIGH-PRESSURE GAS MAIN EXTENSION GREENVILLE, NC
													ALIGNMENT SHEET
													SCALE
													PLAN AS NOTED
													PROFILE
													HOR. -
													VERT. -
													SHEET: D-3
													REVISION: 0





TEMPORARY GRAVEL CONSTRUCTION ENTRANCE
(DENR 6.06)

CE-1, CE-3, CE-4, CE-6

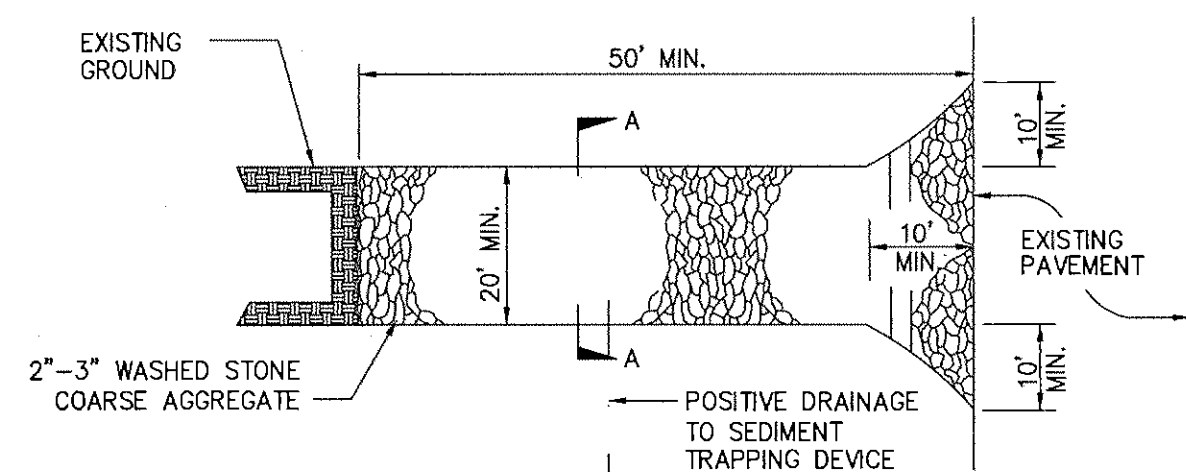
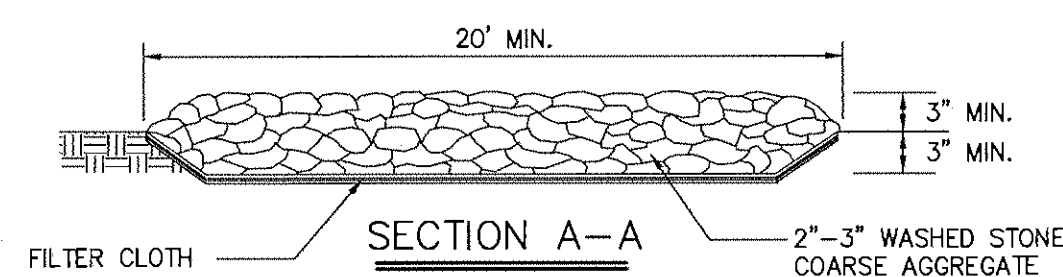
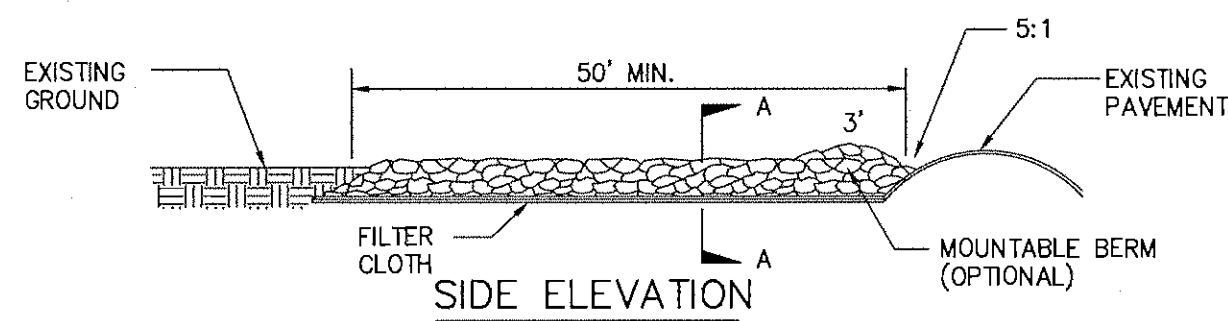
CONSTRUCTION SPECIFICATIONS

1. THE AREA OF THE ENTRANCE MUST BE EXCAVATED A MINIMUM OF 3 INCHES AND MUST BE CLEARED OF ALL VEGETATION, ROOTS, AND OTHER OBJECTIONABLE MATERIAL. THE FILTER FABRIC UNDERLAYER WILL THEN BE PLACED THE FULL WIDTH AND LENGTH OF THE ENTRANCE.
2. FOLLOWING THE INSTALLATION OF THE FILTER CLOTH, THE STONE SHALL BE PLACED TO THE SPECIFIED DIMENSIONS. IF WASH RACKS ARE USED, THEY SHOULD BE INSTALLED ACCORDING TO MANUFACTURER'S SPECIFICATIONS. ANY DRAINAGE FACILITIES REQUIRED BECAUSE OF WASHING SHOULD BE CONSTRUCTED ACCORDING TO SPECIFICATIONS. CONVEYANCE OF SURFACE WATER UNDER ENTRANCE, THROUGH CULVERTS, SHALL BE PROVIDED AS REQUIRED. IF SUCH CONVEYANCE IS IMPOSSIBLE, THE CONSTRUCTION OF A "MOUNTABLE" BERM WITH 5:1 SLOPES WILL BE PERMITTED.

3. THE FILTER CLOTH UTILIZED SHALL BE A WOVEN OR NONWOVEN FABRIC CONSISTING ONLY OF CONTINUOUS CHAIN POLYMERIC FILAMENTS OR YARNS OF POLYESTER. THE FABRIC SHALL BE INERT TO COMMONLY ENCOUNTERED CHEMICALS AND HYDROCARBONS AND BE MILDEW AND ROT RESISTANT.

MAINTENANCE

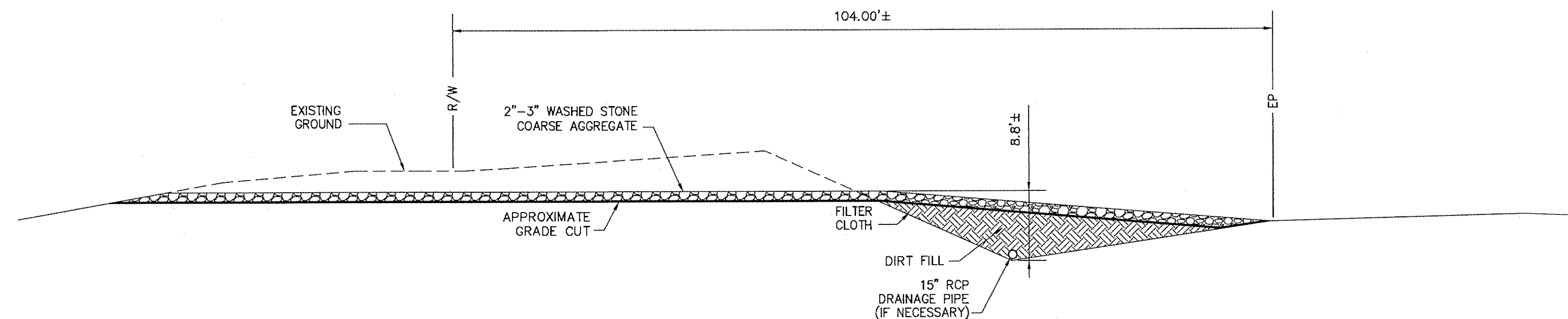
THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOW OF MUD ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE OR THE WASHING AND REWASHING OF EXISTING STONE AS CONDITIONS DEMAND, AND REPAIR AND/OR CLEANOUT OF ANY STRUCTURES USED TO TRAP SEDIMENT. ALL MATERIALS SPILLED, DROPPED, WASHED, OR TRACKED FROM VEHICLES ONTO ROADWAYS OR INTO STORM DRAINS MUST BE REMOVED IMMEDIATELY. THE USE OF WATER TRUCKS TO REMOVE MATERIALS DROPPED, WASHED, OR TRACKED ONTO ROADS WILL NOT BE PERMITTED UNDER ANY CIRCUMSTANCES. ALL STONE SHALL BE REMOVED FROM THE ROAD SURFACE IMMEDIATELY.



PLAN VIEW

TEMPORARY GRAVEL CONSTRUCTION ENTRANCE

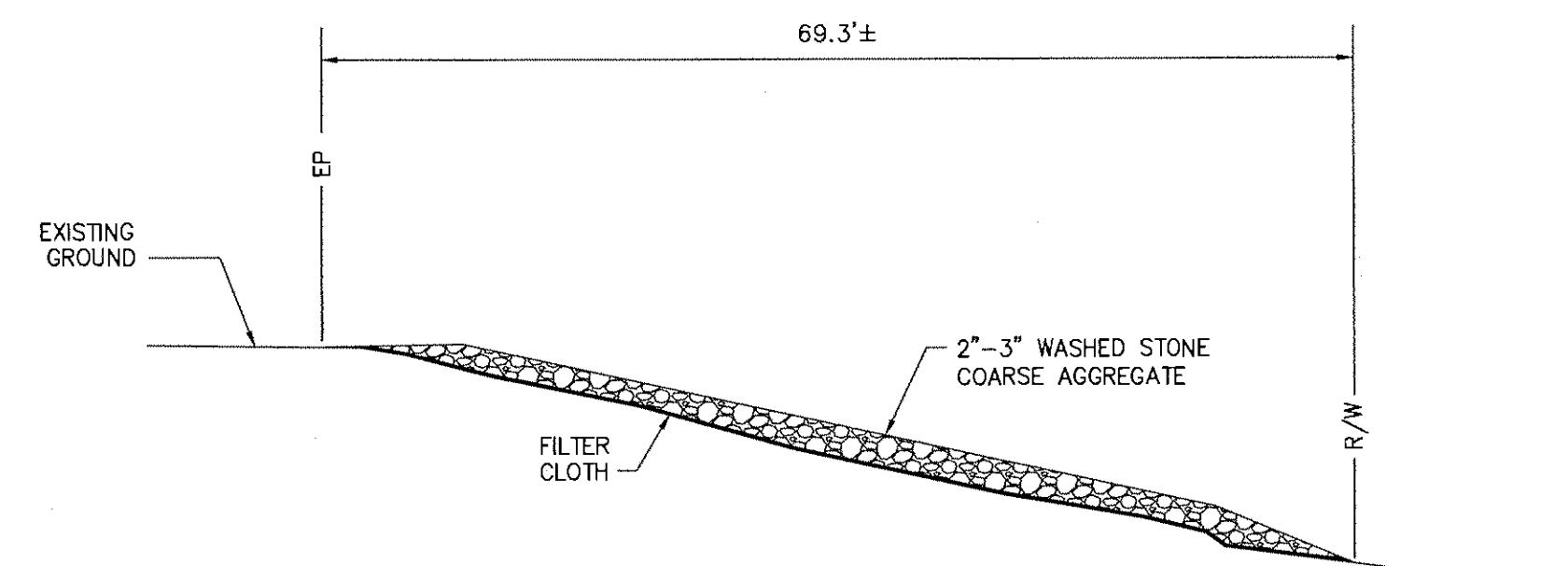
CE-2



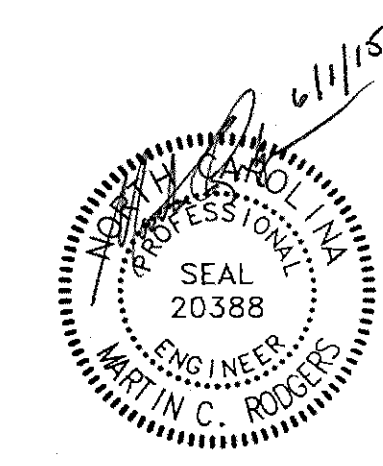
SIDE ELEVATION

TEMPORARY GRAVEL CONSTRUCTION ENTRANCE

CE-5

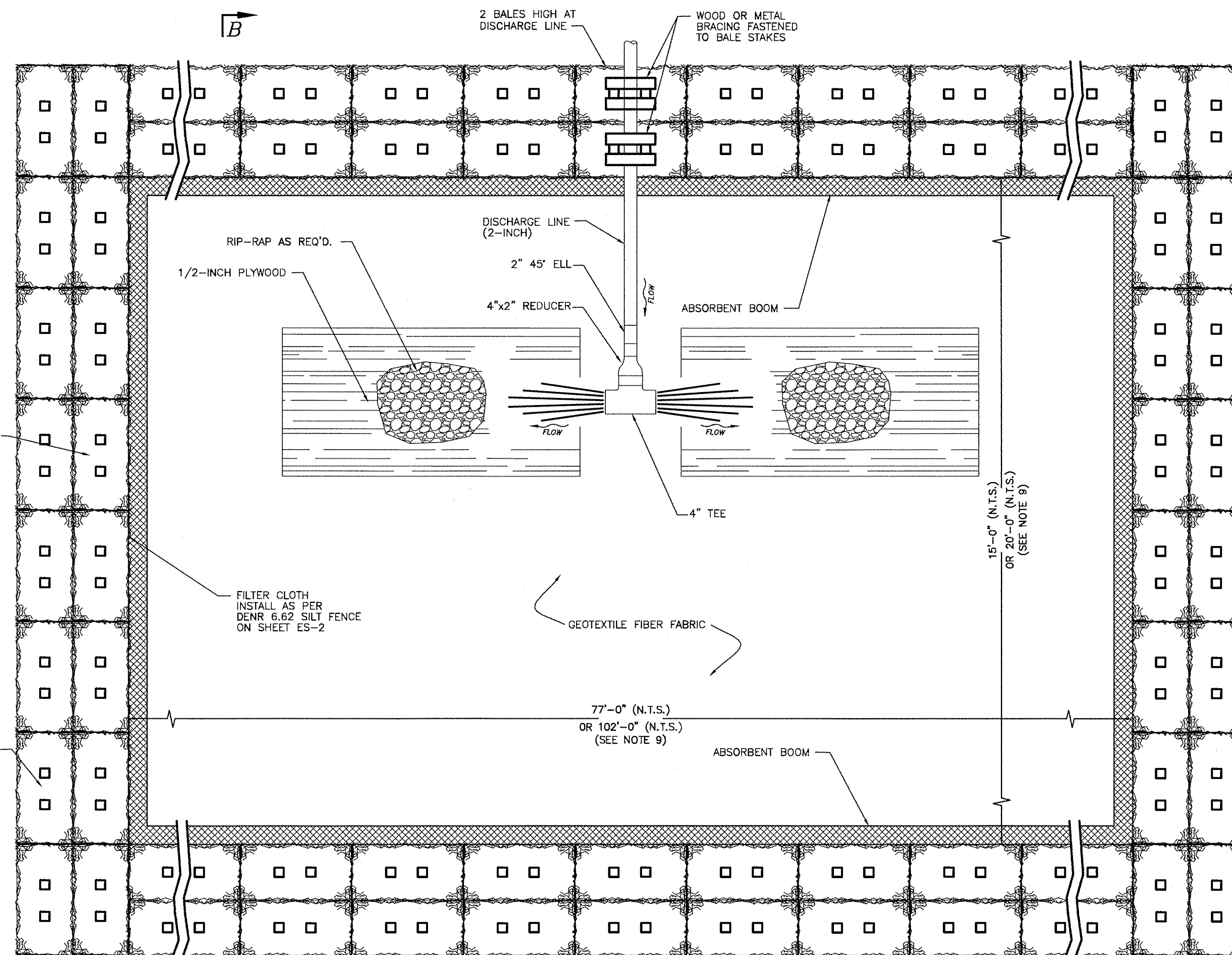


SIDE ELEVATION

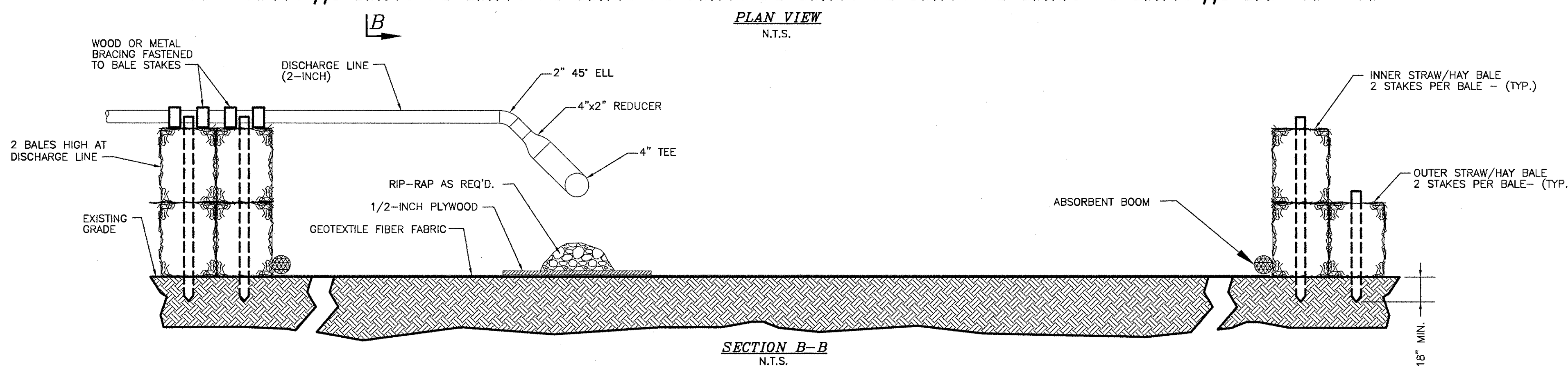


SUMMARY OF MATERIALS		NOTES	APPROVAL						PROJECT		
ITEM	QUANTITY		PERMITS	BID		CONSTRUCTION		GCP89 - NORTHWESTERN LOOP HIGH PRESSURE GAS MAIN EXTENSION GREENVILLE, NC			
			INITIALS	DATE	INITIALS	DATE	INITIALS	DATE	ALIGNMENT SHEET		
									SCALE		
									PLAN		
									PROFILE		
									HOR.		
									VERT.		
			TEST DATA						ENGINEERS CONSTRUCTION MANAGERS PLANNERS SCIENTISTS		
			TESTED FROM STATION: _____ TO STATION: _____						RK&K COMM. NO. 1214-011-A		
			MEDIUM: _____ RECORD TEST PRESSURE: _____ psig						SHEET: ES-3		
			DATE TEST COMPLETED: _____						REVISION: 0		

DEWATERING STRUCTURE (DS2)



PLAN VIEW
N.T.S.



SECTION B-B
N.T.S.

CONSTRUCTION SPECIFICATIONS

- BALES SHALL BE PLACED WITH ENDS OF ADJACENT BALES TIGHTLY ABUTTING ONE ANOTHER.
- ALL BALES SHALL BE EITHER WIRE-BOUND OR STRING-TIED. HAY BALES SHALL BE INSTALLED SO THAT BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES IN ORDER TO PREVENT DETERIORATION OF THE BINDINGS.
- GAPS BETWEEN BALES SHALL BE CHINKED (FILLED BY WEDGING) WITH HAY.
- EACH BALE SHALL BE SECURELY ANCHORED BY AT LEAST TWO STAKES (MINIMUM DIMENSIONS 2 INCHES x 2 INCHES x 60 INCHES) OR STANDARD "T" OR "U" STEEL POSTS (MINIMUM WEIGHT OF 1.33 POUNDS PER LINEAR FOOT AND SHALL HAVE A MINIMUM LENGTH OF 5 FEET) DRIVEN THROUGH THE BALE. THE FIRST STAKE OR STEEL POST IN EACH BALE SHALL BE DRIVEN TOWARD THE PREVIOUSLY LAID BALE TO FORCE THE BALES TOGETHER. STAKES OR STEEL PICKETS SHALL BE DRIVEN A MINIMUM 8 INCHES DEEP INTO THE GROUND TO SECURELY ANCHOR THE BALES.
- A FENCE MADE OF CHICKEN WIRE SHALL BE WRAPPED AROUND THE OUTSIDE OF THE HAY BALES TO STABILIZE THE FILTRATION POND.
- THE HAY BALES SHALL BE WATCHED CLOSELY DURING THE DEWATERING PROCESS.
- FOLLOWING COMPLETION OF THE DEWATERING PROCESS THE SITE SHALL BE RESTORED TO PRE-EXISTING CONDITIONS.
- ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE STRAW BALE BARRIER IS NO LONGER REQUIRED SHALL BE DRESSED TO CONFORM TO THE EXISTING GRADE, PREPARED AND SEED.
- DIMENSIONS SHOWN ALLOW FOR DEWATERING STRUCTURE TO FIT WITHIN EASEMENT AND AVOID INTERFERING WITH POWER POLES WHERE SHOWN ON PLANS SHEET A-13. A 15-FOOT WIDTH WOULD REQUIRE APPROXIMATELY 102 FEET OF LENGTH. A 20-FOOT WIDTH WOULD REQUIRE APPROXIMATELY 77 FEET OF LENGTH.

INNER STRAW/HAY BALE
2 BALES HIGH W/
2 STAKES EA. (TYP.)

OUTER STRAW/HAY BALE
1 BALE HIGH W/
2 STAKES EA. (TYP.)

SIZING NOTES:

- THE DIMENSIONS SHOWN ARE FOR PIPELINE DEWATERING STRUCTURE DS-2 SHOWN ON PLAN SHEET A-13. THE SIZING WILL ALLOW DS-2 TO HOLD 25,175 GALLONS ± OF WATER FOLLOWING THE HYDROSTATIC TEST; FIT WITHIN THE EASEMENT AND AVOID INTERFERENCE WITH POWER POLES AND GUY WIRES. A 15 FOOT WIDTH WOULD REQUIRE APPROXIMATELY 102 FEET OF LENGTH. A 20 FOOT WIDTH WOULD REQUIRE APPROXIMATELY 77 FEET OF LENGTH.
- DEWATERING STRUCTURE DS-1 SHOWN ON PLAN A-6A WILL ONLY HAVE TO HOLD 400 GALLONS OR 53 CUBIC FEET OF WATER. AN APPROXIMATELY 5 FOOT BY 10 FOOT DEWATERING STRUCTURE IS ALL THAT IS REQUIRED AT THIS LOCATION.

SUMMARY OF MATERIALS		DESCRIPTION	QUANTITY
ITEM	QUANTITY		

NOTES			

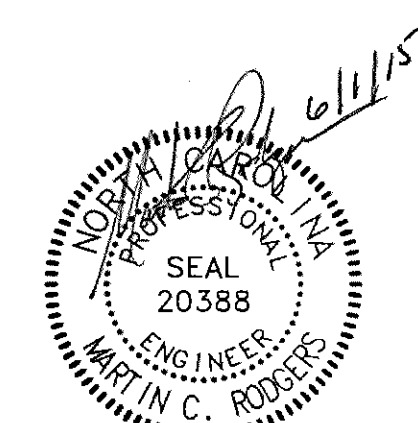
APPROVAL					
PERMITS		BID		CONSTRUCTION	
INITIALS	DATE	INITIALS	DATE	INITIALS	DATE

PROJECT	
GCP89 - NORTHWESTERN LOOP HIGH PRESSURE GAS MAIN EXTENSION GREENVILLE, NC	
ALIGNMENT SHEET	
SCALE	PLAN
PROFILE	HOR.
	VERT.

DISTRICT: PITT COUNTY
COUNTY: PITT COUNTY
STATE: NORTH CAROLINA

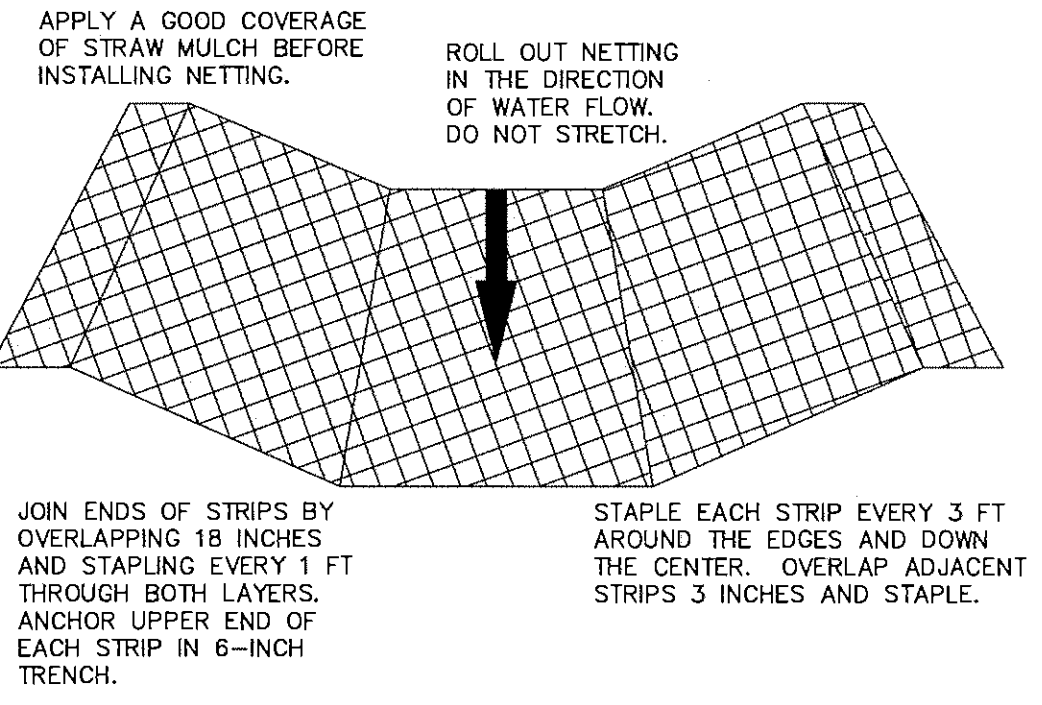
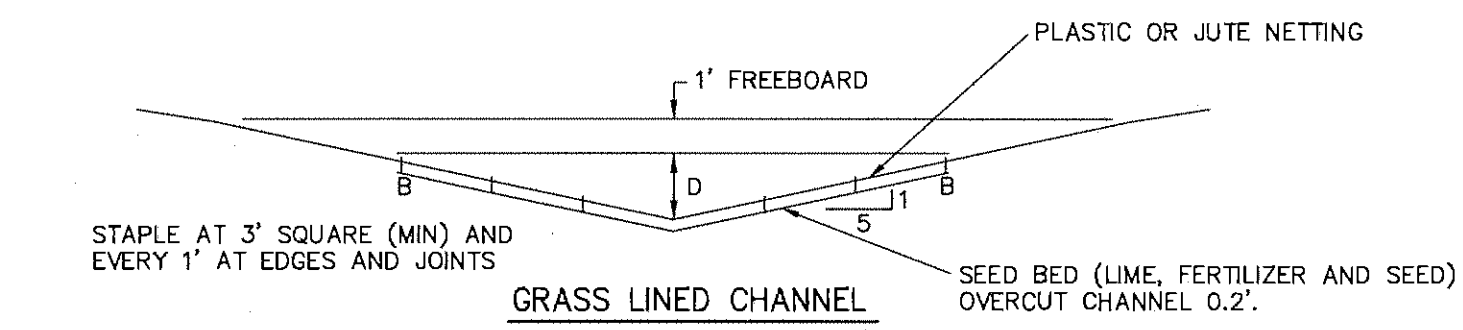
SHEET DESCRIPTION: EROSION AND SEDIMENT CONTROL DETAILS

SHEET: ES-4 REVISION: 0



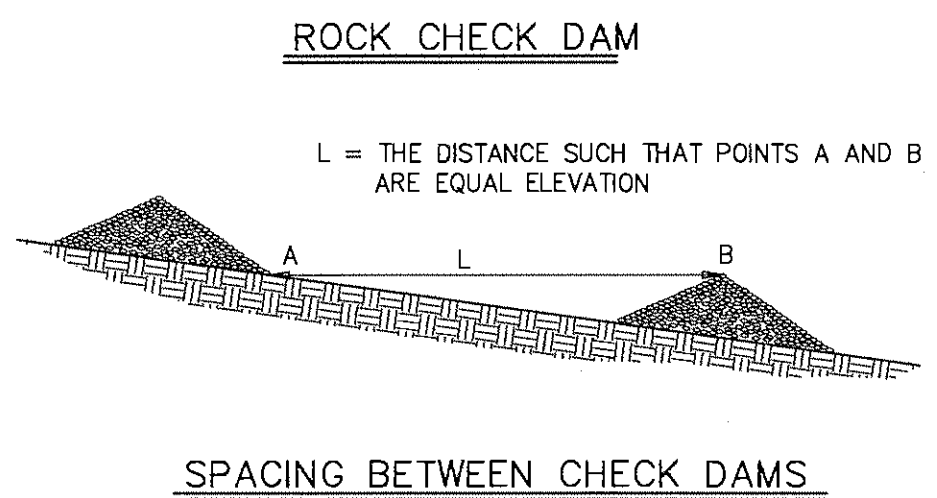
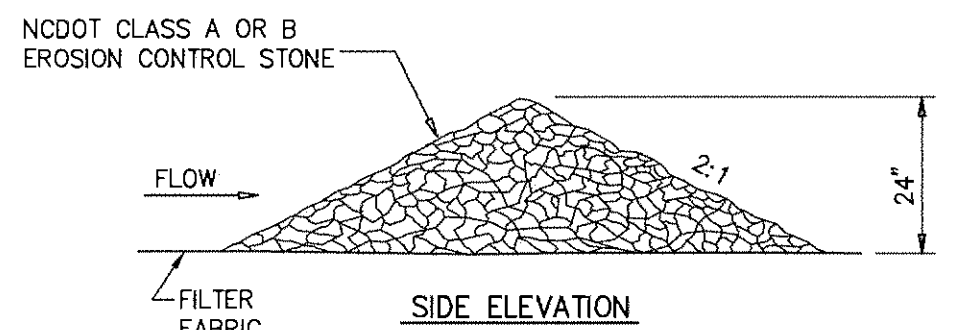
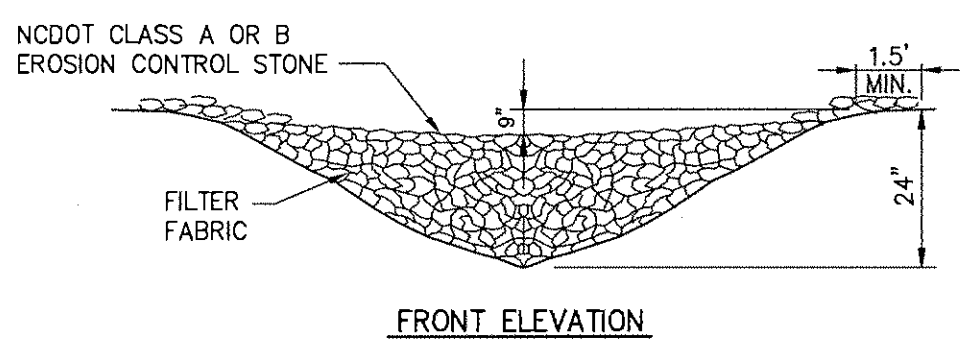
GRASS LINED CHANNEL DETAILS (DENR 6.30)
FOR CHANNELS OF 2% TO 5% SLOPE

GM



- NOTES**
- PROTECT ALL CONCENTRATED INFLOW POINTS ALONG CHANNEL BY INSTALLING A TEMPORARY LINER, RIPRAP, SOD, OR OTHER APPROPRIATE MEASURES.
 - VEGETATE THE CHANNEL IMMEDIATELY AFTER GRADING. SMOOTH SLOPES FACILITATE MAINTENANCE.
 - PROTECT SEEDING WITH WELL-ANCHORED MULCH OR A TEMPORARY LINER.
 - INSTALL SOD INSTEAD OF SEEDING IN CRITICAL AREAS, PARTICULARLY WHERE SLOPES APPROACH 5%.
 - ANCHOR NETTING OR MATTING IN A 6 INCH TRENCH AT UPPER AND OF CHANNEL. COMPACT SOIL FIRMLY STAPLE EVERY 1 FEET JUST BELOW ANCHOR SLOT.

CHECK DAM (CD)



- CONSTRUCTION SPECIFICATIONS**
1. PLACE STONE TO THE LINES AND DIMENSIONS SHOWN IN THE PLAN ON A FILTER FABRIC FOUNDATION.
 2. KEEP THE CENTER STONE SECTION AT LEAST 9 INCHES BELOW NATURAL GROUND LEVEL WHERE THE DAM ABUTS THE CHANNEL BANKS.
 3. EXTEND STONE AT LEAST 1.5 FT. BEYOND THE DITCH BANKS TO KEEP OVERFLOW WATER FROM UNDERCUTTING THE DAM AS IT RE-ENTERS THE CHANNEL.
 4. SET SPACING BETWEEN DAMS TO ASSURE THAT THE ELEVATION AT THE TOP OF THE LOWER DAM IS THE SAME AS THE TOE ELEVATION OF THE UPPER DAM.
 5. PROTECT THE CHANNEL DOWNSTREAM FROM THE LOWEST CHECK DAM, CONSIDERING THAT WATER WILL FLOW OVER AND AROUND THE DAM.
 6. MAKE SURE THAT THE CHANNEL REACH ABOVE THE MOST UPSTREAM DAM IS STABLE.
 7. ENSURE THAT CHANNEL APPURTENANCES, SUCH AS CULVERT ENTRANCES BELOW CHECK DAMS, ARE NOT SUBJECT TO DAMAGE OR BLOCKAGE FROM DISPLACED STONES.

- MAINTENANCE**
1. INSPECT CHECK DAMS AND CHANNELS FOR DAMAGE AFTER EACH RUNOFF EVENT.
 2. ANTICIPATE SUBMERGENCE AND DEPOSITION ABOVE THE CHECK DAM AND EROSION FROM HIGH FLOWS AROUND THE EDGES OF THE DAM. CORRECT ALL DAMAGE IMMEDIATELY. IF SIGNIFICANT EROSION OCCURS BETWEEN DAMS, INSTALL A PROTECTIVE RIPRAP LINER IN THAT PORTION OF THE CHANNEL.
 3. REMOVE SEDIMENT ACCUMULATED BEHIND THE DAMS AS NEEDED TO PREVENT DAMAGE TO CHANNEL VEGETATION, ALLOW THE CHANNEL TO DRAIN THROUGH THE STONE CHECK DAM, AND PREVENT LARGE FLOWS FROM CARRYING SEDIMENT OVER THE DAM. ADD STONES TO DAMS AS NEEDED TO MAINTAIN DESIGN HEIGHT AND CROSS SECTION.

RIGHT OF WAY DIVERSIONS/WATER BARS (WB)

DEFINITION:
A RIDGE OR RIDGE AND CHANNEL CONSTRUCTED DIAGONALLY ACROSS A SLOPING ROAD OR UTILITY RIGHT-OF-WAY THAT IS SUBJECT TO EROSION.

PURPOSE:
TO LIMIT THE ACCUMULATION OF EROSION VOLUMES OF WATER BY DIVERTING SURFACE RUNOFF AT PREDESIGNED INTERVALS.

CONDITIONS WHERE PRACTICE APPLIES:
WHERE RUNOFF PROTECTION IS NEEDED TO PREVENT EROSION ON SLOPING ACCESS RIGHTS-OF-WAY OR OTHER LONG, NARROW SLOPING AREAS GENERALLY LESS THAN 100 FEET IN WIDTH.

PLANNING CONSIDERATIONS:
CONSTRUCTION OF ACCESS ROADS, POWER LINES, PIPELINES, AND OTHER SIMILAR INSTALLATIONS OFTEN REQUIRES CLEARING LONG NARROW RIGHTS-OF-WAY OVER SLOPING TERRAIN (FIGURE 6.23A). DISTURBANCE AND COMPACTION PROMOTES GULLY FORMATION IN THESE CLEARED STRIPS BY INCREASING THE VOLUME AND VELOCITY OF RUNOFF. GULLY FORMATION MAY BE ESPECIALLY SEVERE IN TIRE TRACKS AND RUTS. TO PREVENT GULLYING, RUNOFF SHOULD BE DIVERTED ACROSS THE WIDTH OF THE RIGHT-OF-WAY TO UNDISTURBED AREAS BY USING SMALL PREDESIGNED DIVERSIONS. GIVE SPECIAL CONSIDERATION TO EACH INDIVIDUAL OUTLET AREA, AS WELL AS TO THE CUMULATIVE EFFECT OF ADDED DIVERSIONS. USE GRAVEL TO STABILIZE THE DIVERSION WHERE SIGNIFICANT VEHICULAR TRAFFIC IS ANTICIPATED.

DESIGN CRITERIA:
HEIGHT:
18-INCH MINIMUM MEASURED FROM THE CHANNEL BOTTOM TO THE RIDGE TOP.
SIDE SLOPE:
2:1 OR FLATTER
3:1 OR FLATTER WHERE VEHICLES CROSSBASE
WIDTH OF RIDGE:
6 FEET MINIMUM (FIGURE 6.23B). SPACING OF WATER BARS IS SHOWN IN TABLE 6.23c.

TABLE 6.23c:
SPACING OF WATER BARS ON RIGHT-OF-WAY LESS THAN 100 FT WIDE

SLOPE (%)	SPACING (FT)
<5	125
5 TO 10	100
10 TO 20	75
20 TO 35	50
>35	25

GRADE AND ANGLE:
A CROSSING ANGLE SHOULD BE SELECTED TO PROVIDE A POSITIVE GRADE NOT TO EXCEED 2%

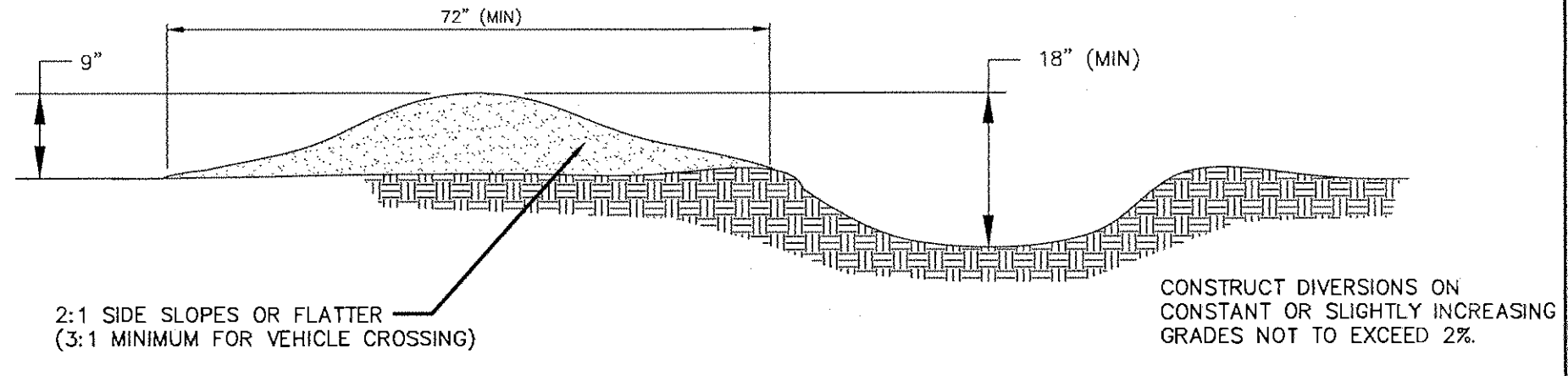
OUTLET:
DIVERSIONS SHOULD HAVE STABLE OUTLETS, EITHER NATURAL OR CONSTRUCTED. SITE SPACING MAY NEED TO BE ADJUSTED FOR FIELD CONDITIONS TO USE THE MOST SUITABLE AREAS FOR WATER DISPOSAL.

CONSTRUCTION SPECIFICATIONS:
1. INSTALL THE DIVERSION AS SOON AS THE RIGHT-OF-WAY HAS BEEN CLEARED AND GRADED.
2. DISK THE BASE FOR THE CONSTRUCTED RIDGE BEFORE PLACING FILL.
3. TRACK THE RIDGE TO COMPACT IT TO THE DESIGN CROSS SECTION.
4. LOCATE THE OUTLET ON AN UNDISTURBED AREA. ADJUST FIELD SPACING OF THE DIVERSION TO USE THE MOST STABLE OUTLET AREAS. WHEN NATURAL AREAS ARE NOT DEEMED SATISFACTORY, PROVIDE OUTLET PROTECTION (PRACTICES 6.40, LEVEL SPREADER, AND 6.41, OUTLET STABILIZATION STRUCTURE).
5. IMMEDIATELY SEED AND MULCH THE PORTIONS OF THE DIVERSIONS NOT SUBJECT TO CONSTRUCTION TRAFFIC. STABILIZE WITH GRAVEL AREAS TO BE CROSSED BY VEHICLES.

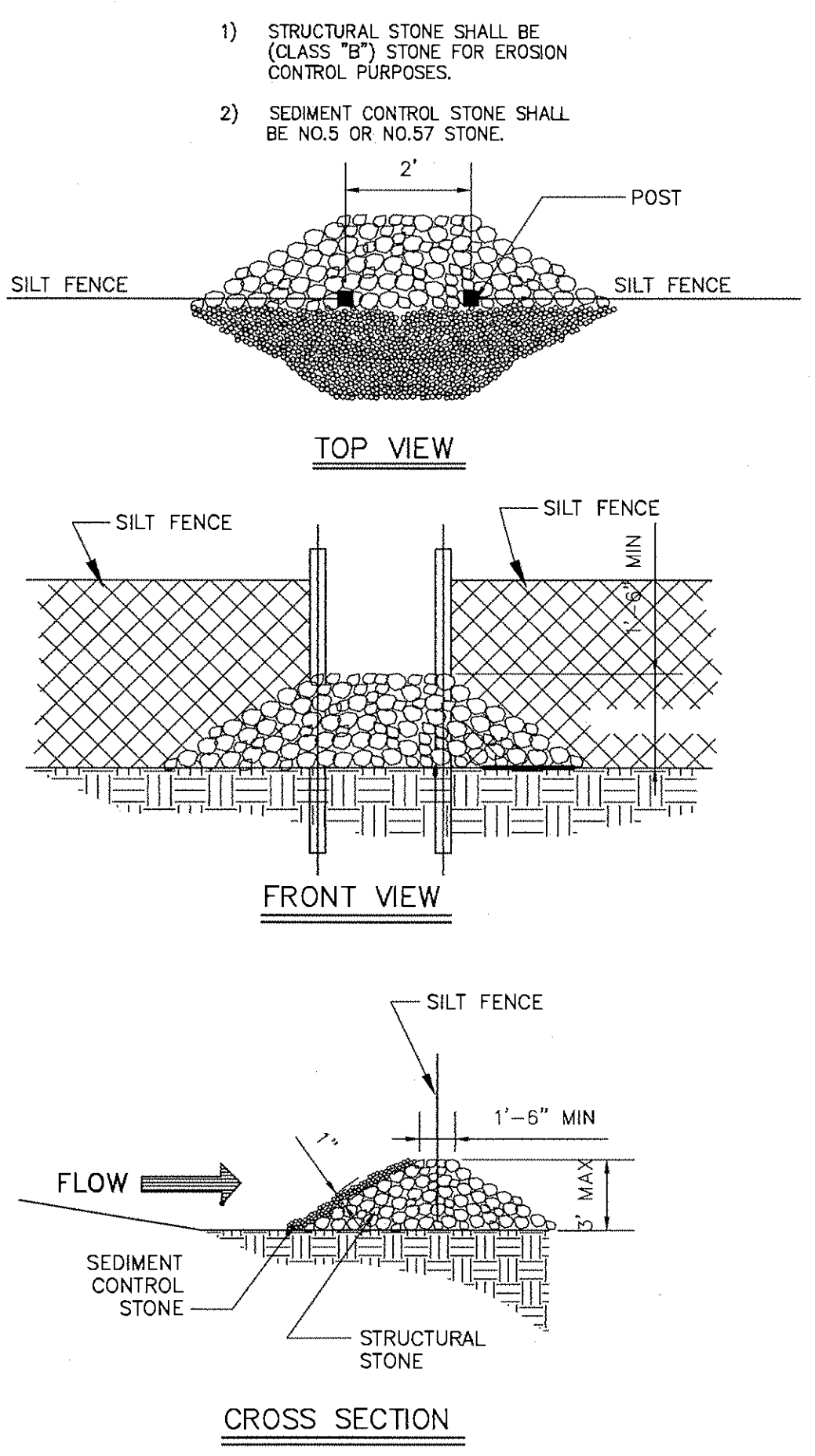
MAINTENANCE:
PERIODICALLY INSPECT RIGHT-OF-WAY DIVERSIONS FOR WEAR AND AFTER EVERY HEAVY RAINFALL FOR EROSION DAMAGE. IMMEDIATELY REMOVE SEDIMENT FROM THE FLOW AREA, AND REPAIR THE DIKE. CHECK OUTLET AREAS, AND MAKE TIMELY REPAIRS AS NEEDED. WHEN PERMANENT ROAD DRAINAGE IS ESTABLISHED AND THE AREA ABOVE THE TEMPORARY RIGHT-OF-WAY DIVERSIONS IS PERMANENTLY STABILIZED, REMOVE THE DIKE, AND FILL THE CHANNEL TO BLEND WITH THE NATURAL GROUND, AND APPROPRIATELY STABILIZE THE DISTURBED AREA.

REFERENCES:
OUTLET PROTECTION:
6.40, LEVEL SPREADER
6.41, OUTLET STABILIZATION STRUCTURE

APPENDIX
8.03, ESTIMATING RUNOFF



STONE OUTLET



SUMMARY OF MATERIALS

ITEM	QUANTITY	DESCRIPTION

NOTES

REVISED				
REV.	DESIGN	DRAFT	CHECK	DATE

APPROVAL

	PERMITS		BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY						
C.P.						
DRAFTING & DESIGN - RK&K	CSY	5/21	CSY	5/1/15		
ENGINEERING - RK&K	MCR	5/21	MCR	5/1/15		

TEST DATA

TESTED FROM STATION: _____ TO STATION: _____

MEDIUM: _____ RECORD TEST PRESSURE: _____ psig

DATE TEST COMPLETED: _____

PROJECT

GCP89 - NORTHWESTERN LOOP
HIGH PRESSURE GAS MAIN EXTENSION
GREENVILLE, NC

ALIGNMENT SHEET

SCALE _____

PLAN _____

PROFILE _____

HOR. _____

VERT. _____

ENGINEERS | CONSTRUCTION MANAGERS | PLANNERS | SCIENTISTS

RK&K COMM. NO. 1214-011-A

Greenville Utilities

DISTRICT _____ COUNTY _____ STATE _____

NORTH CAROLINA

SHEET DESCRIPTION
EROSION AND SEDIMENT CONTROL DETAILS

SHEET: ES-5

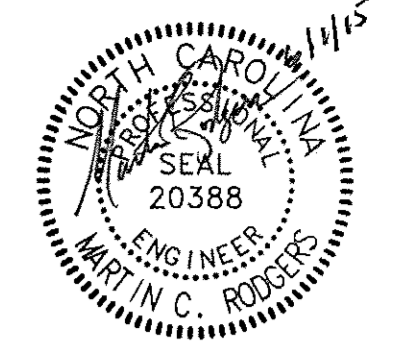
REVISION: 0

6/11/15

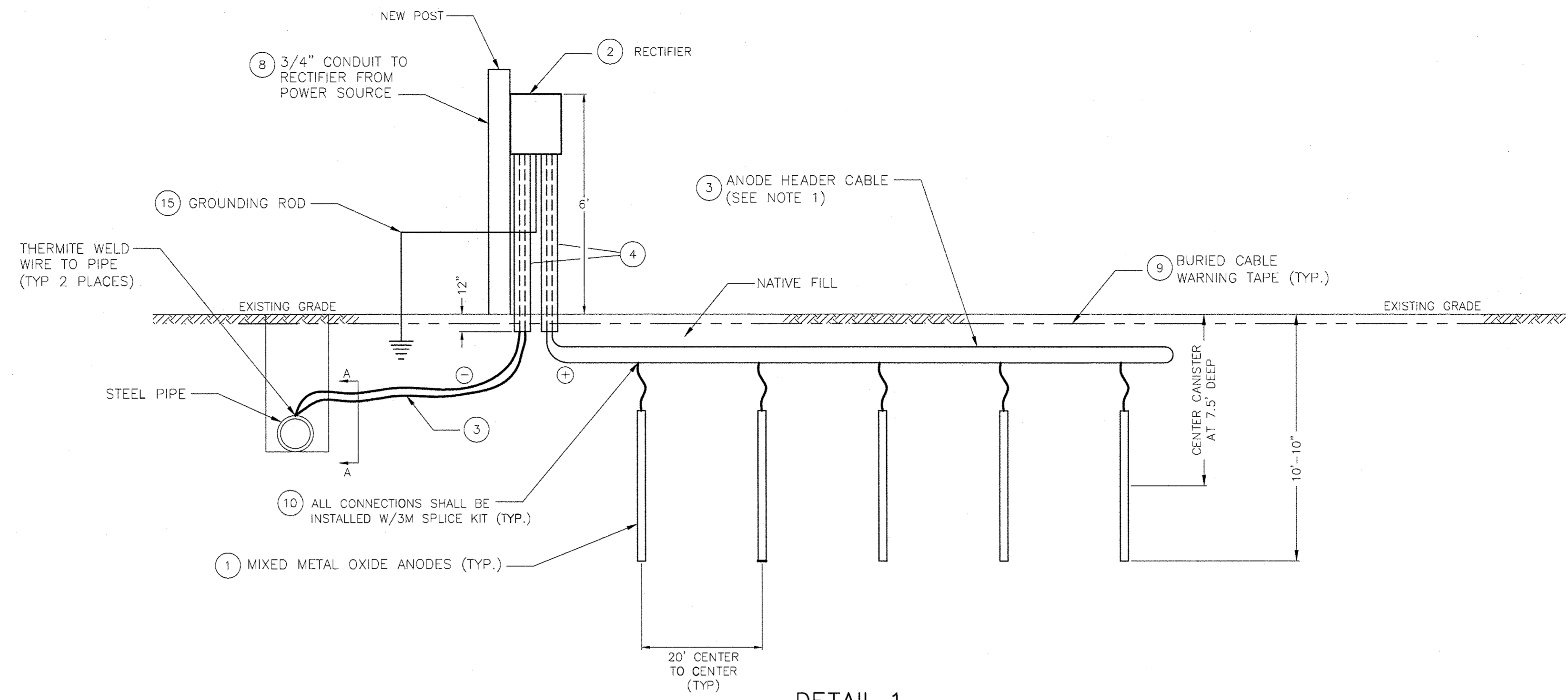
SEAL 20388

ENGINEER

MARVIN C. ROBERTS

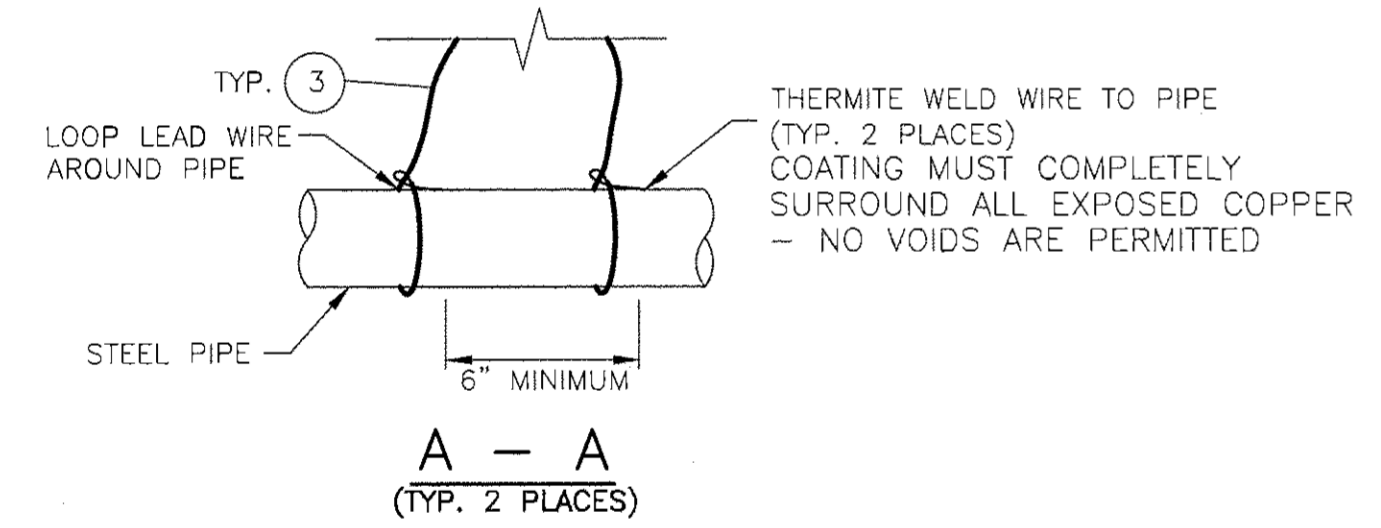


ITEM NO.	QUANTITY	DESCRIPTION
1	5	LIDA PACK CANISTER MIXED METAL OXIDE ANODES, MODEL# LP 3 x 80 H.
2	1	25V - 10A RECTIFIER - UNIVERSAL RECTIFIERS PART NO: ASAI-25-10-AACR
3	600± FEET	#4 AWG HMWPE CABLE
4	8 FEET	UV RESISTANT 2-INCH PVC CONDUIT
5	6	THERMITE WELD MOLD, CADWELD FLAT MOLD FOR #4 WIRE
6	6	THERMITE WELD MOLD, CADWELD 15g CHARGE
7	6	THERMITE WELD COATING REPAIR, ROYSTON HANDY CAP IP
8	5 FEET	3/4" FLEXIBLE LIQUIDTIGHT CONDUIT FOR RECTIFIER CABLES
9	300± FEET	CABLE MARKING TAPE
10	5	SCOTCHCAST WYE RESIN SPLICE KIT MODEL: 90-B1
11	100 FEET	#12 AWG THIN INSULATED SOLID COPPER WIRE (BLACK)
12	3	STANDARD TEST STATION COTT MODEL: COTT-BFTS
13	2	17 LB MAGNESIUM ANODE
14	XX FEET (TBD)	#3 AWG TWHN WIRE
15	1	3/4" X 6' GROUND ROD

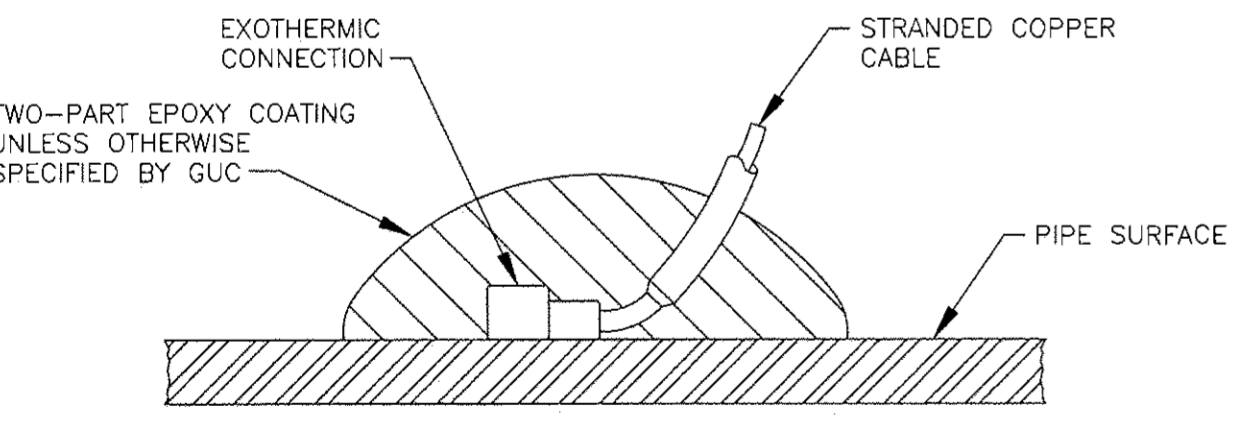


**DETAIL 1
ANODE INSTALLATION**

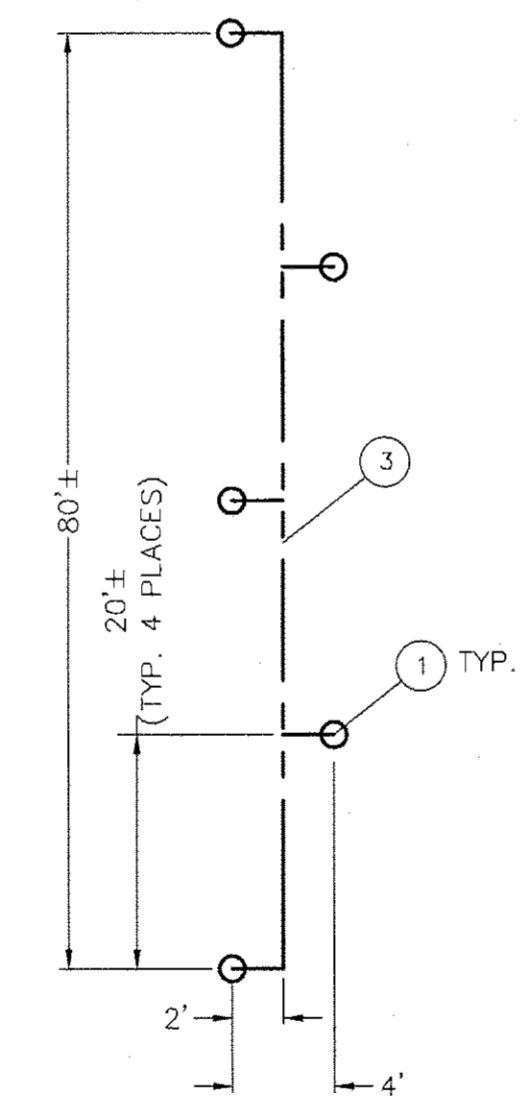
NOTES:
1. ALL BURIED CABLES AND WIRES SHALL HAVE 30" MINIMUM GROUND COVER AND WARNING TAPE INSTALLED 4-8" BELOW GRADE.



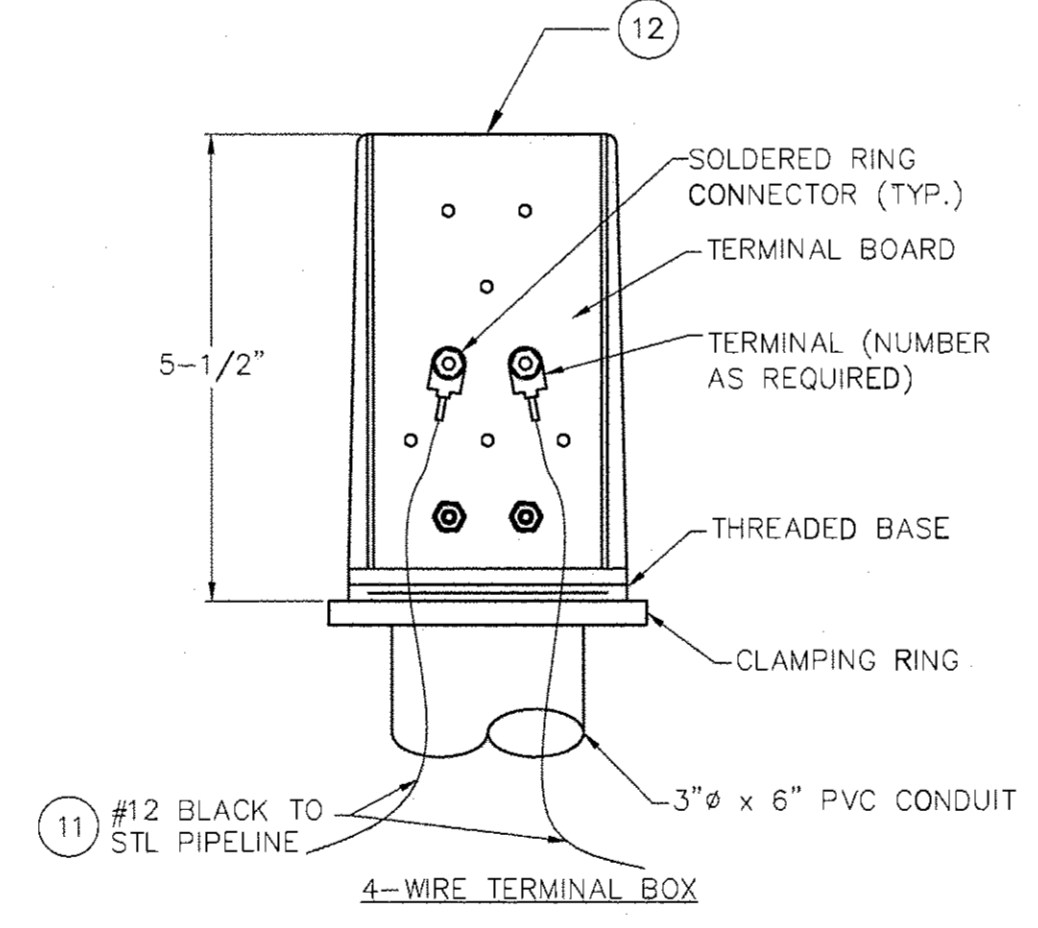
**THERMITE WELD DETAIL
N.T.S.**



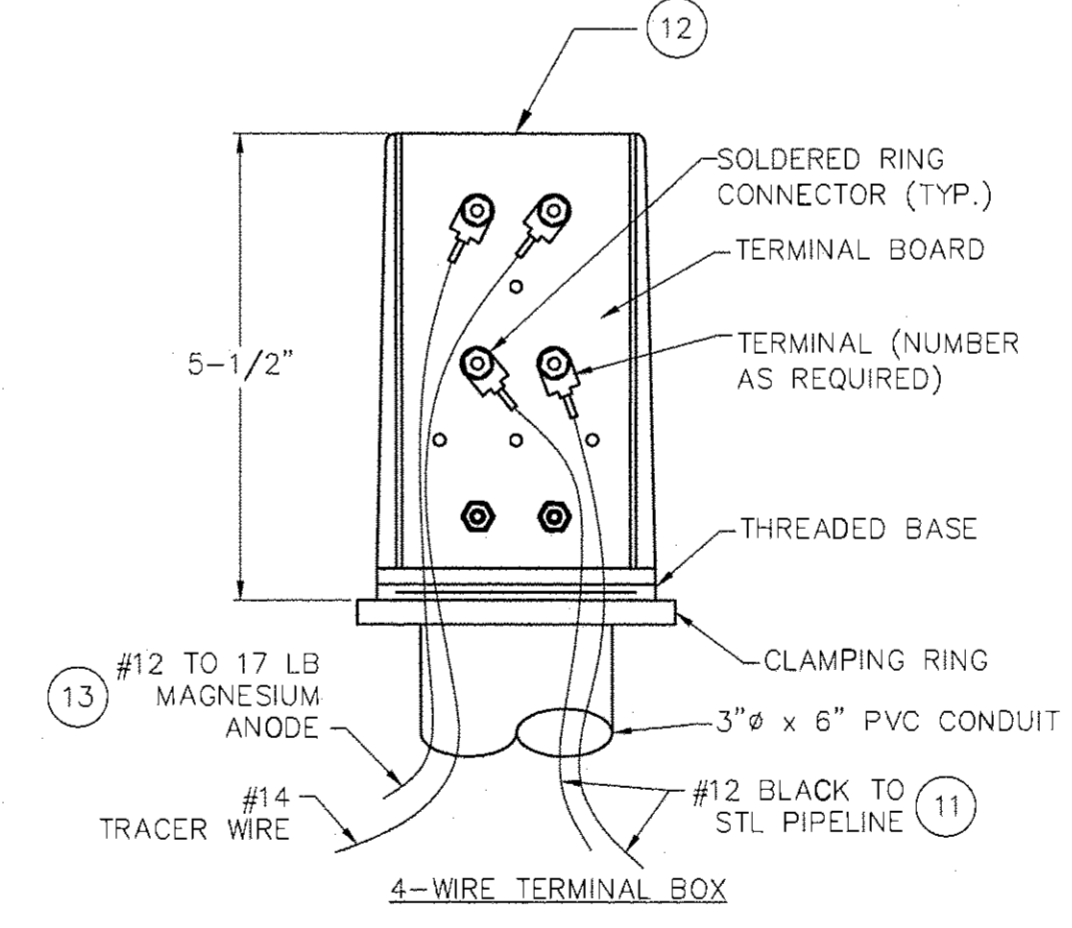
NOTES:
1. METAL SURFACE TO BE DRY AND FREE OF ALL FOREIGN MATERIAL.
2. CONNECTION AND EXPOSED METAL TO HAVE 1/2" INSULATION.



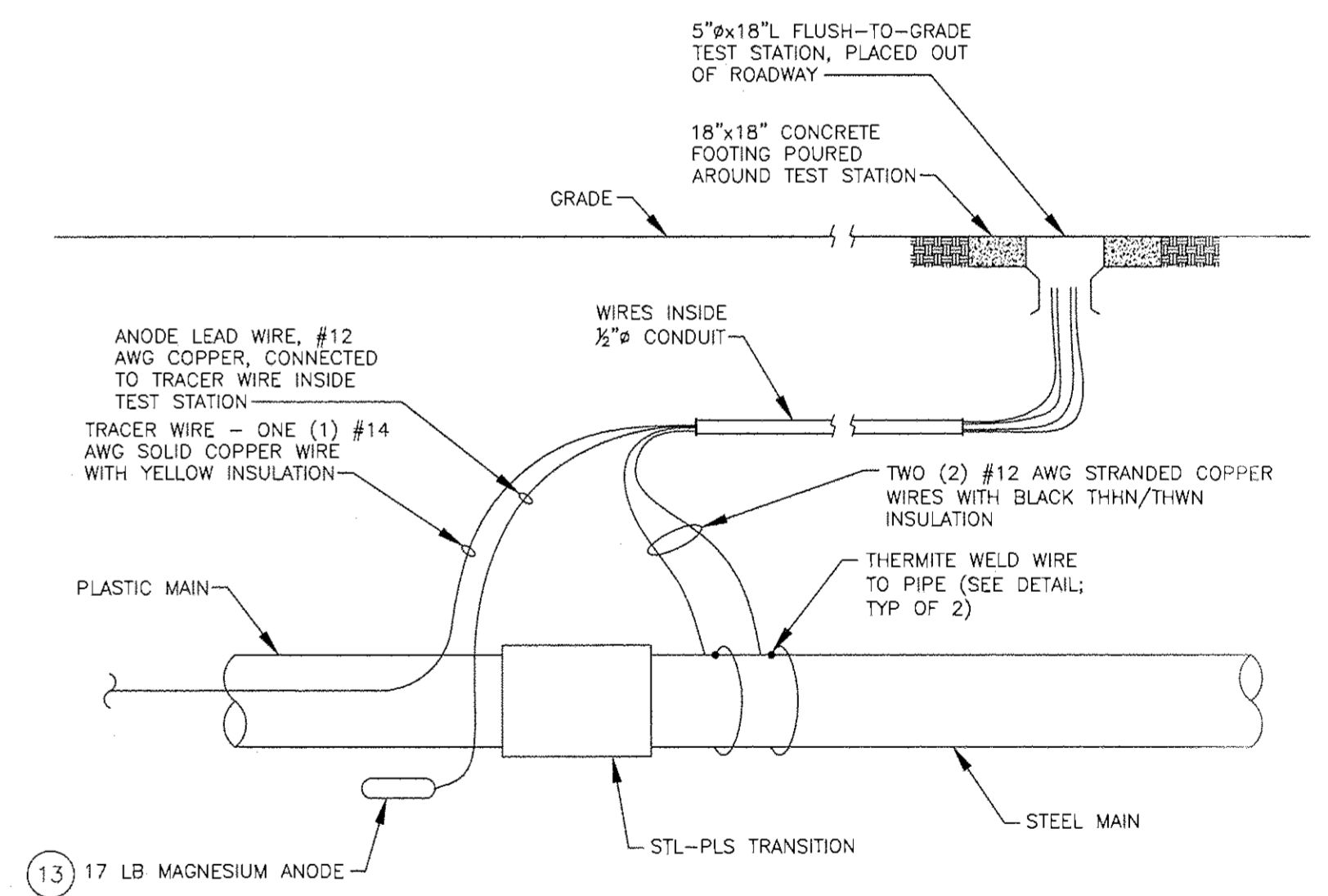
**DETAIL 1
PLAN VIEW**



**DETAIL 2
STANDARD TEST STATION**

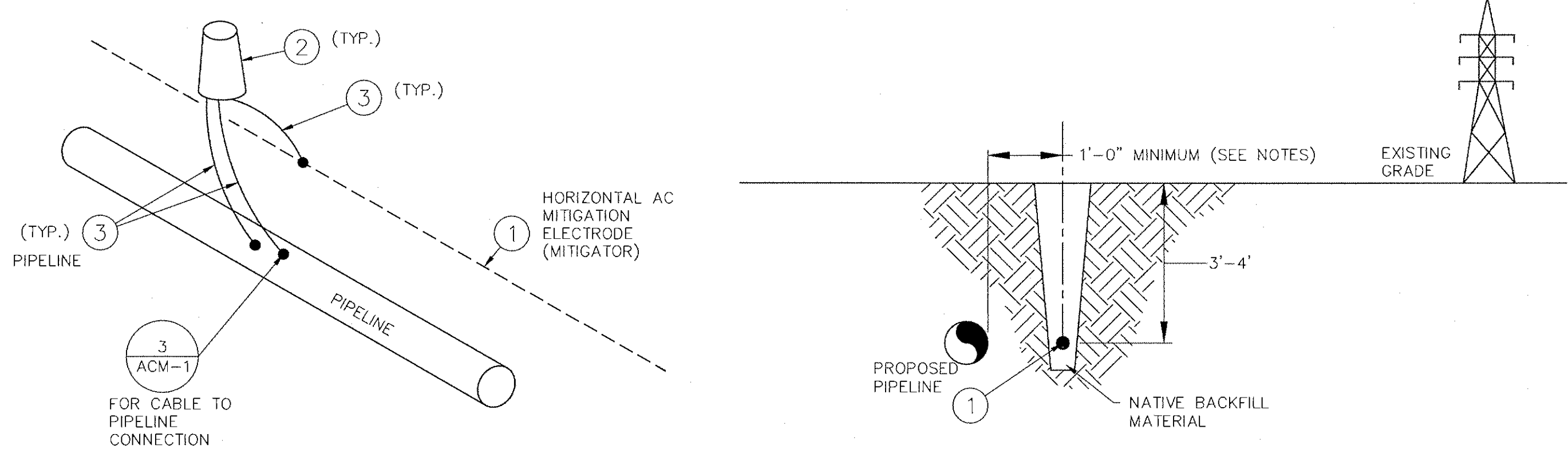


**DETAIL 3
TRANSITION TEST STATION**



**DETAIL - TRANSITION TEST STATION, FLUSH MOUNT,
W/ 17 LB ANODE - PROFILE VIEW
N.T.S.**

ITEM QUANTITY		DESCRIPTION	NOTES			APPROVAL			PROJECT		
			1. SEE SPECIFICATIONS BY RK&K.			PERMITS			GCP89 - NORTHWESTERN LOOP		
			2. THE ANODE GROUND BED AND RECTIFIER SHALL BE LOCATED PER PLAN ABOVE.			INITIALS DATE INITIALS DATE INITIALS DATE			HIGH-PRESSURE GAS MAIN EXTENSION		
			3. ALL BURIED CABLES AND WIRES SHALL HAVE 30" MINIMUM GROUND COVER AND WARNING TAPE INSTALLED 4-8" BELOW GRADE.			CONSTRUCTION			GREENVILLE, NC		
						SURVEY			ALIGNMENT SHEET		
						C.P.			SCALE		
						DRAFTING & DESIGN - RK&K			PLAN		
						ENGINEERING - RK&K			PROFILE		
						TEST DATA			SHEET: CP-1		
						TESTED FROM STATION: _____ TO STATION: _____			REVISION: 0		
						MEDIUM: _____ RECORD TEST PRESSURE: _____ psig					
						DATE TEST COMPLETED: _____					

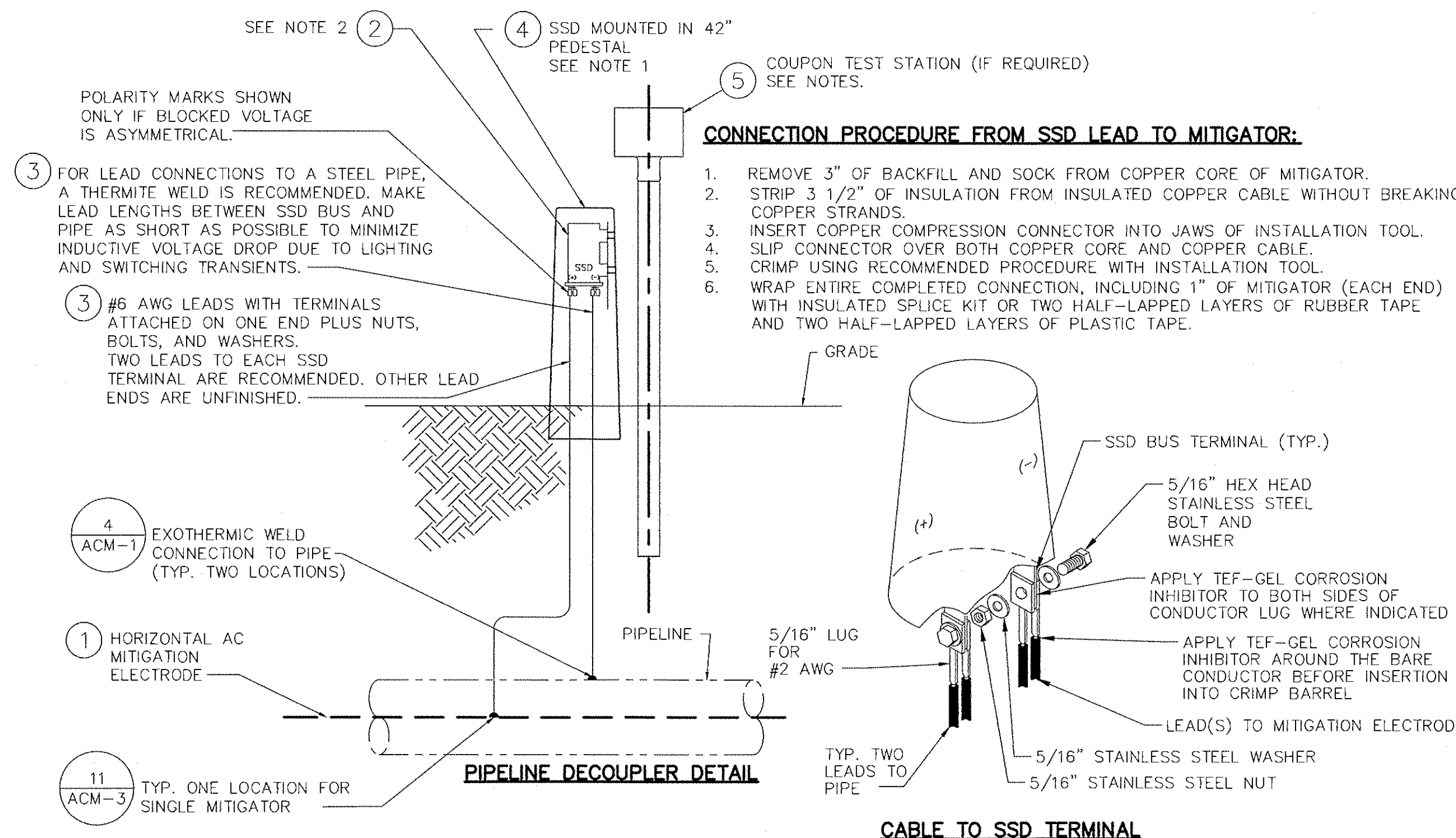


1 **INSTALLATION DETAIL**
(SINGLE WIRE)

2 **CROSS-SECTION DETAIL**
(SINGLE WIRE DETAIL)

WIRE PLACEMENT/INSTALLATION DETAIL

- NOTES:
1. ENSURE THAT THE CONNECTION TO THE PIPELINE IS MADE ONLY AFTER ALL GROUNDING INSTALLATION IS COMPLETE.
 2. HORIZONTAL AC MITIGATION ELECTRODE MUST NOT TOUCH PIPE. MINIMUM 1' SEPARATION.
 3. SEE INDIVIDUAL SHEETS FOR DECOUPLER SPACING REQUIREMENTS.
 4. INSTALL MITIGATION WIRES AT A DEPTH OF 3-4 FEET DEEP.



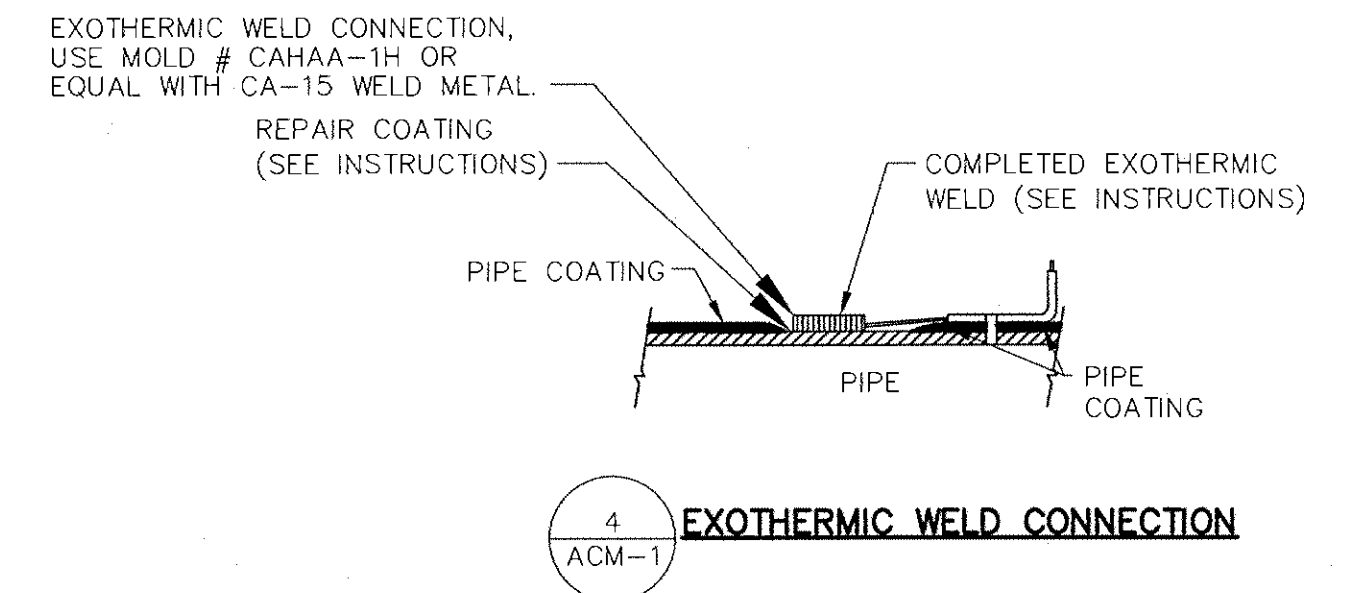
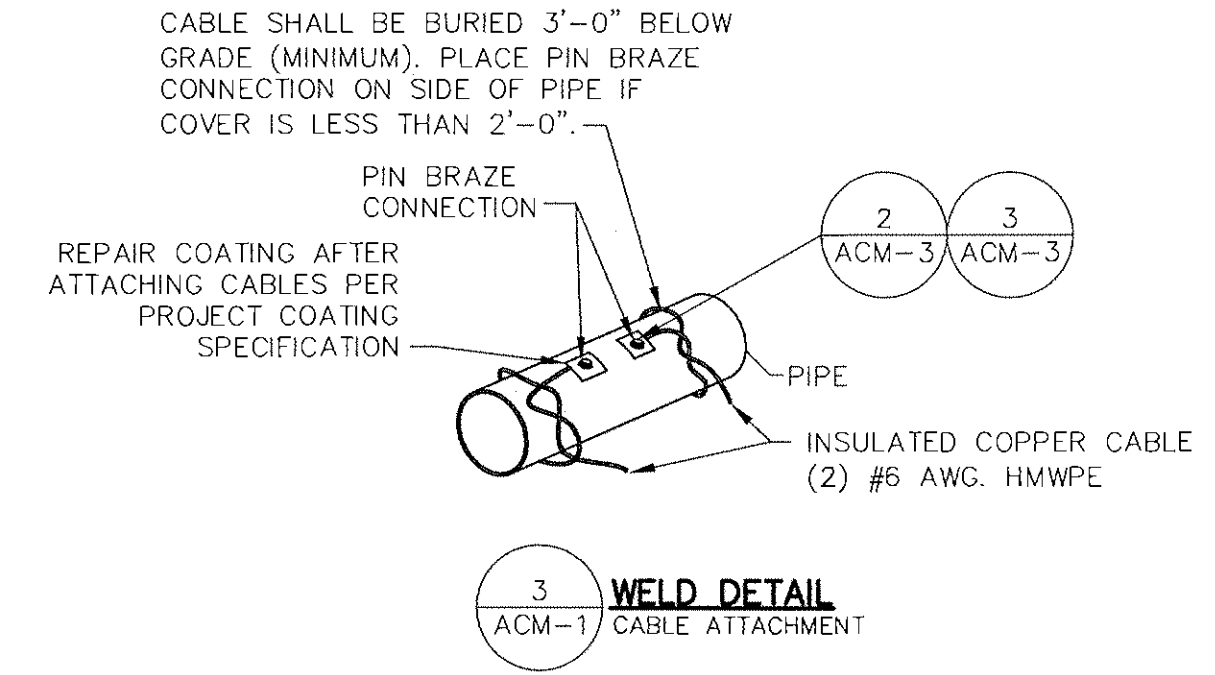
CONNECTION PROCEDURE FROM SSD LEAD TO MITIGATOR:

1. REMOVE 3" OF BACKFILL AND SOCK FROM COPPER CORE OF MITIGATOR.
2. STRIP 3 1/2" OF INSULATION FROM INSULATED COPPER CABLE WITHOUT BREAKING COPPER STRANDS.
3. INSERT COPPER COMPRESSION CONNECTOR INTO JAWS OF INSTALLATION TOOL.
4. SLIP CONNECTOR OVER BOTH COPPER CORE AND COPPER CABLE.
5. CRIMP USING RECOMMENDED PROCEDURE WITH INSTALLATION TOOL.
6. WRAP ENTIRE COMPLETED CONNECTION, INCLUDING 1" OF MITIGATOR (EACH END) WITH INSULATED SPLICE KIT OR TWO HALF-LAPPED LAYERS OF RUBBER TAPE AND TWO HALF-LAPPED LAYERS OF PLASTIC TAPE.

6 **DECOUPLER TO PIPELINE DETAIL**

7 **CABLE TO SSD TERMINAL CONNECTION DETAIL**

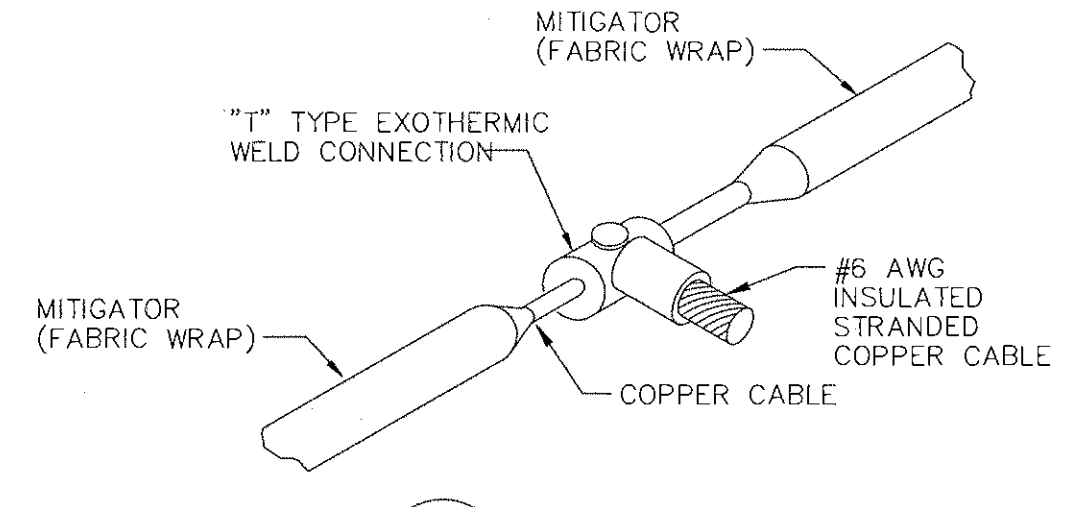
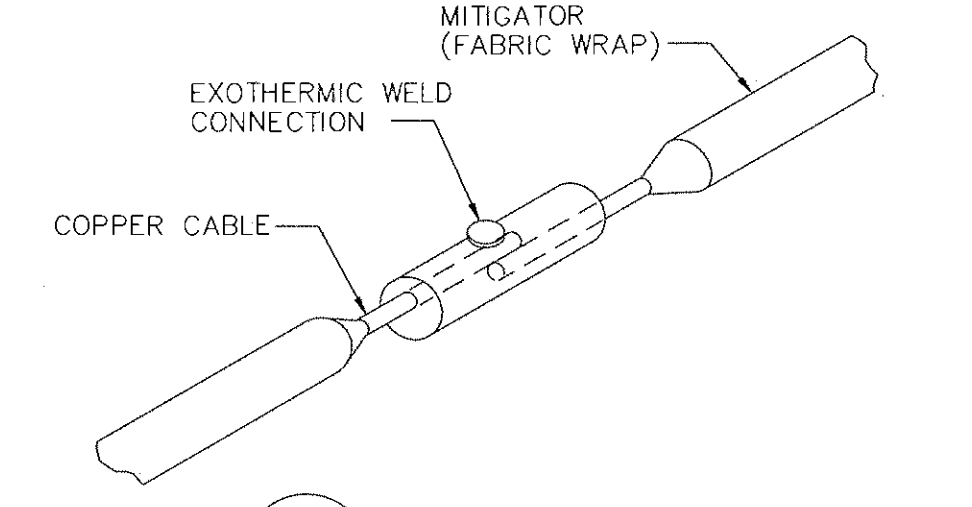
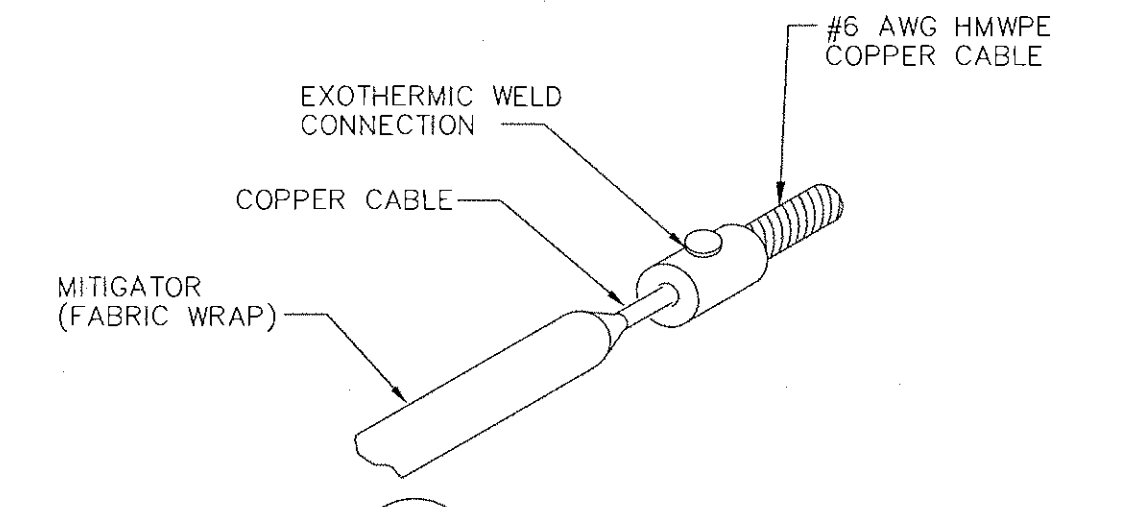
- NOTES:
1. MECHANICAL CONNECTION TO MITIGATION WIRE. CRIMP A "STAYCON" TYPE TERMINAL/LUG TO THE ENDS OF CABLES, LUGS ARE BOLTED TO SECURE CONNECTION.
 2. DECOUPLER CAN BE MOUNTED IN 42" FIBERGLASS PEDESTAL FREE STANDING ENCLOSURE IF REQUIRED.
 3. TERMINAL ADAPTER PLATE TO BE USED ONLY WHEN THREE (3) OR MORE LUGS TO THE POSITIVE TERMINAL ARE REQUIRED.
 4. COUPON TEST STATION AT OWNER'S DISCRETION.



INSTALLATION INSTRUCTIONS

1. REMOVE A MAXIMUM OF 1.57" X 1.57" OF COATING, WRE, BRUSH CLEAN AND FILE BRIGHT.
2. STRIP CABLE INSULATION BARE 1" AND CLAMP.
3. USE THE CHARGE RECOMMENDED BY THE EXOTHERMIC WELD MANUFACTURER.
4. PLACE METAL RETAINER DISK FLAT IN MOLD, DUMP (DO NOT POUR) POWDER ONTO DISK AND CLOSE MOLD LID. MAKE SURE ALL FINE STARTING POWDER IS IN THE MOLD. IF ANY CLINGS TO BOTTOM OF CARTRIDGE, SQUEEZE OUT INTO MOLD AND BREAK UP FINE.
5. REPLACE EMPTY CARTRIDGE IN THE BOX, END UP TO KEEP REMAINING CARTRIDGES UPRIGHT.
6. LAY CABLE ON BRIGHT PIPE SURFACE USING SPRING LOADED CHAIN CLAMP TO HOLD CRUCIBLE TIGHT. REMOVE HAND COMPLETELY AWAY FROM TOOL.
7. USING EYE PROTECTION, STAND ON OPPOSITE SIDE OF CRUCIBLE FROM TOUCH HOLE AND IGNITE POWDER WITH SPARK FROM FLINT GUN. USE CARE, POWDER WILL FLASH WHEN IGNITED.
8. WHEN WELD HAS SET, REMOVE MOLD AND TEST EXOTHERMIC WELD CONNECTION BY RAPPING SHARPLY WITH HAMMER. IN THE EVENT THERE IS ANY INDICATION THAT A COMPLETE WELD HAS NOT BEEN ACHIEVED, THE WELD SHALL BE REMOVED AND REPLACED WITH A PROPER WELD.
9. CLEAN SLAG FROM WELD AND PIPE.
10. ALL COATING DAMAGE SHALL BE REPAIRED USING THE PATCHING PROCEDURE AND MATERIALS AS SPECIFIED IN PROJECT COATING SPECIFICATIONS.

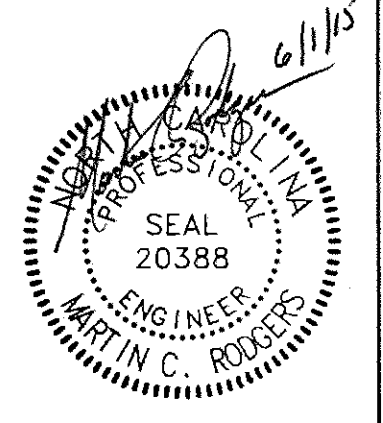
EXOTHERMIC WELD CONNECTION DETAILS



NOTES:

1. ALL EXOTHERMIC WELD CONNECTIONS ARE TO BE SEALED WITH ROYSTON "SPLICE RIGHT" SPLICE KIT, OR CLIENT APPROVED ALTERNATIVE.
2. FOR ALL T-SPLICE CONNECTIONS, USE A NONMETALLIC SPLINT TO REINFORCE WELD FOR ADDED SUPPORT. WRAP DUCT TAPE AROUND SPLINT AND COPPER CABLE TO HOLD IN PLACE.

MITIGATOR SPLICE DETAILS



ITEM	QUANTITY	DESCRIPTION

NOTES					
REV.	DESIGN	DRAFT	CHECK	DESCRIPTION	DATE

APPROVAL					
PERMITS	BID	CONSTRUCTION			
INITIALS	DATE	INITIALS	DATE	INITIALS	DATE

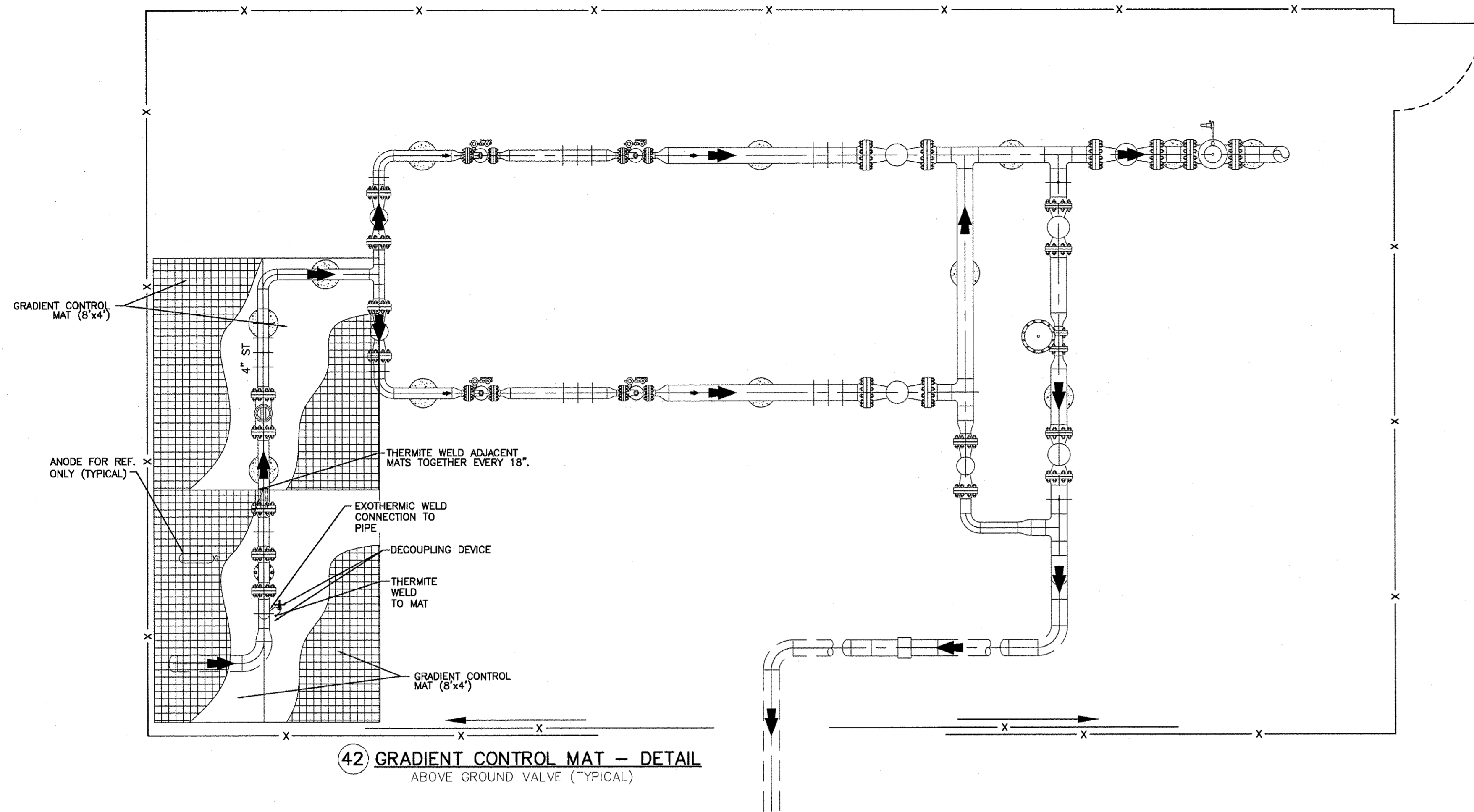
PROJECT		
GCP89 - NORTHWESTERN LOOP HIGH-PRESSURE GAS MAIN EXTENSION GREENVILLE, NC		
ALIGNMENT SHEET		
SCALE		

Greenville Utilities

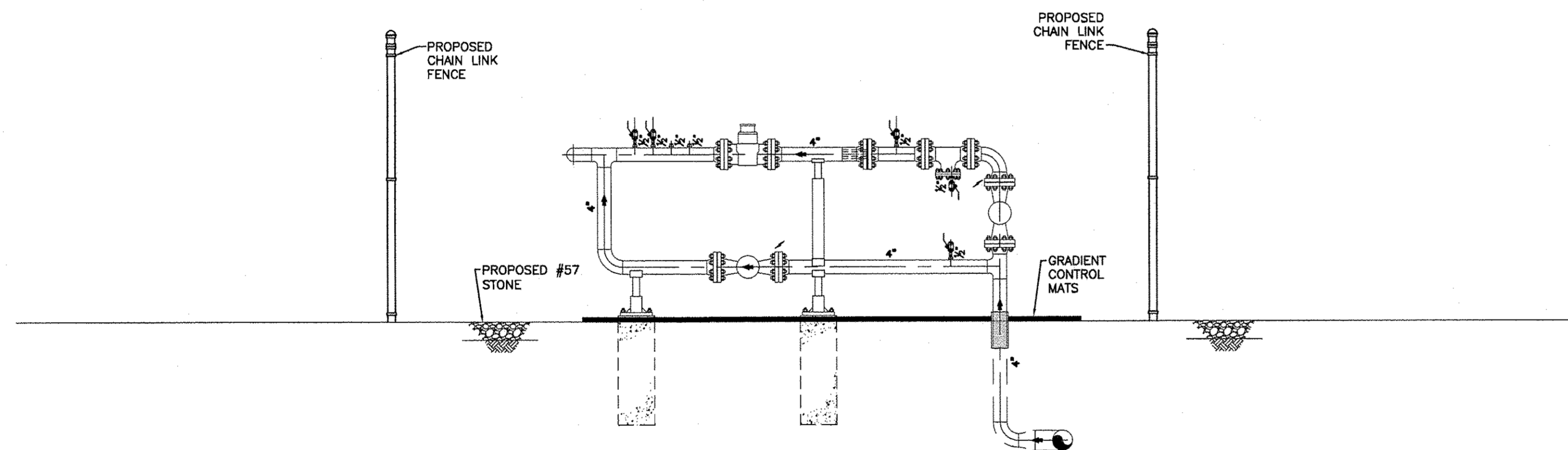
DISTRICT: _____ COUNTY: _____ STATE: NORTH CAROLINA

SHEET DESCRIPTION: AC MITIGATION DETAILS

SHEET: ACM-1 REVISION: 0



42 GRADIENT CONTROL MAT -- DETAIL
ABOVE GROUND VALVE (TYPICAL)



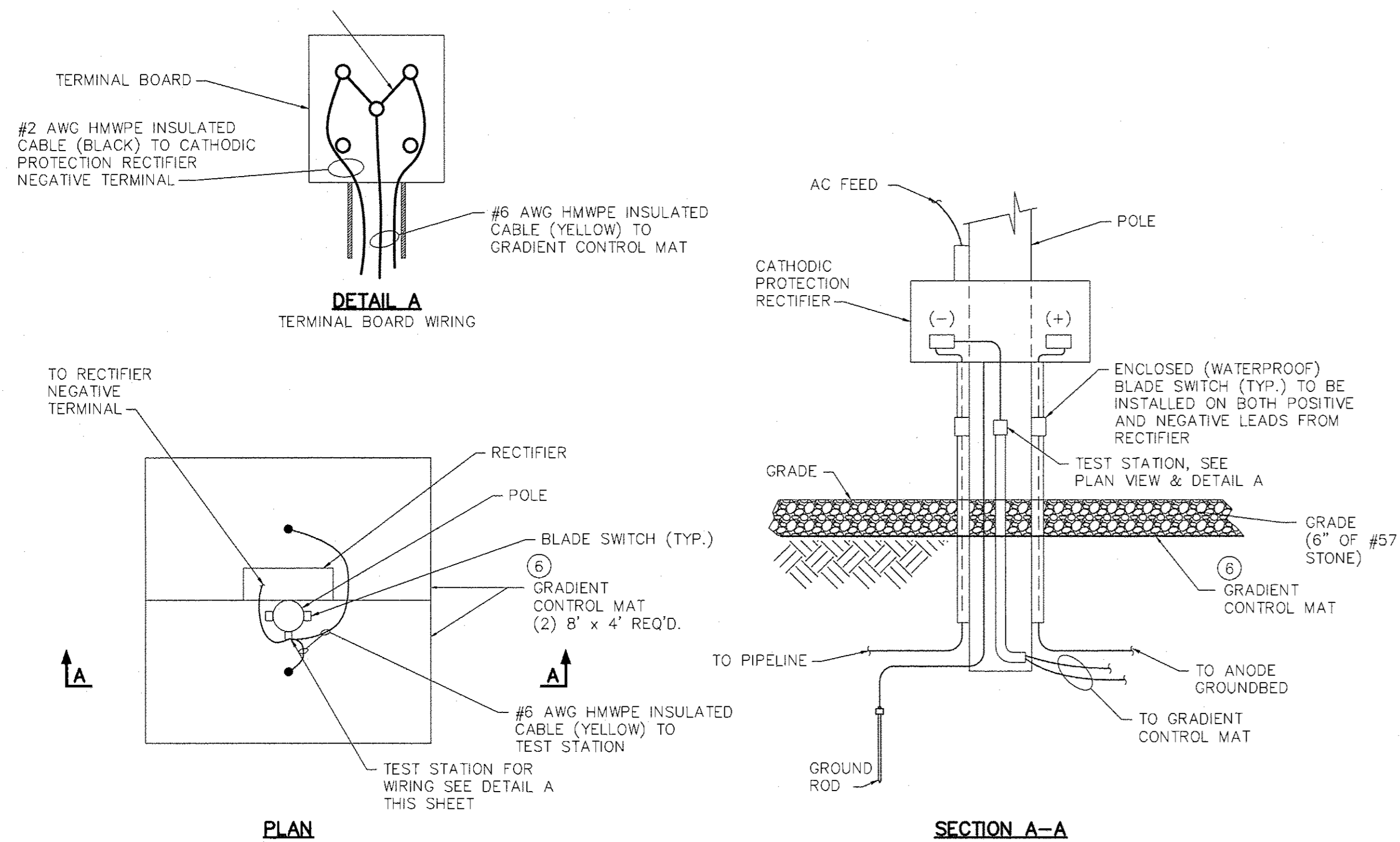
42 GRADIENT CONTROL MAT -- DETAIL
REGULATOR STATION (TYPICAL)

10
ACM-2
INSTALLATION OF GRADIENT CONTROL MAT
AT ABOVE GROUND REGULATOR STATIONS

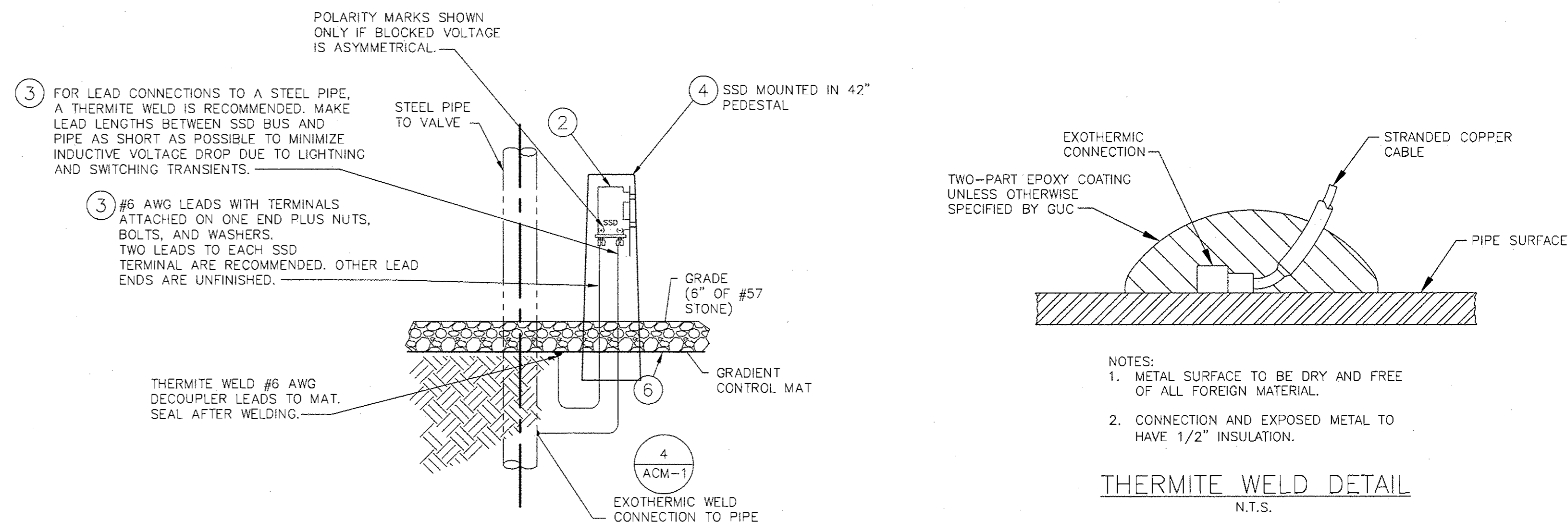


PIPING LEGEND	
	PROPOSED GAS PIPE ABOVE GRADE (DOUBLE LINE)
	PROPOSED GAS PIPE BELOW GRADE (DOUBLE LINE)
	INSULATING FLANGE LOCATION
	FLOW ARROW

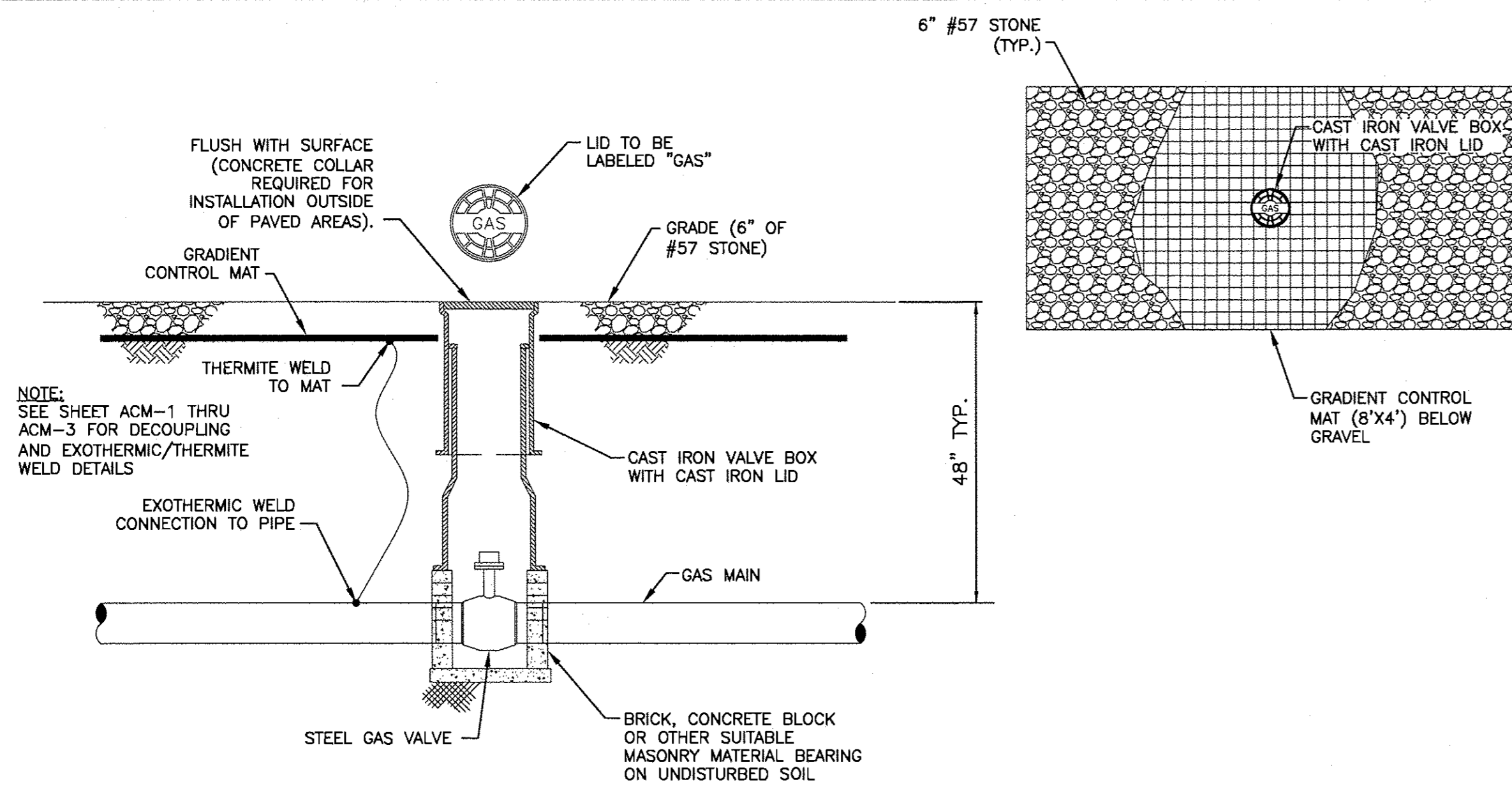
SUMMARY OF MATERIALS		NOTES		APPROVAL			PROJECT		
ITEM	QUANTITY	DESCRIPTION			PERMITS	BID	CONSTRUCTION		 Greenville Utilities
					INITIALS	DATE	INITIALS	DATE	
				REVISIONS			ALIGNMENT SHEET		
			REV.	DESIGN	DRAFT	CHECK	DESCRIPTION	DATE	 <small>RUMMEL, KLEPPER & KAH, LLP 2100 E. CARY ST. SUITE 209 RICHMOND, VIRGINIA 23223 T-804-782-1903 F-804-782-2142</small>
				TEST DATA			<small>ENGINEERS CONSTRUCTION MANAGERS PLANNERS SCIENTISTS</small> RK&K COMM. NO. 1214-011		
				TESTED FROM STATION: _____ TO STATION: _____			SCALE PLAN: _____ PROFILE: _____		
				MEDIUM: _____ RECORD TEST PRESSURE: _____ psig			HOR. _____ VERT. _____		
				DATE TEST COMPLETED: _____			SHEET: ACM-2 REVISION: 0		



11 **INSTALLATION OF GRADIENT CONTROL MAT AT CATHODIC PROTECTION RECTIFIERS**



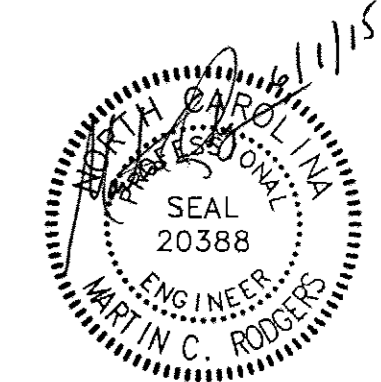
12 **ABOVE GROUND APPURTENANCE DECOUPLER DETAIL WITH GRADIENT CONTROL MAT**



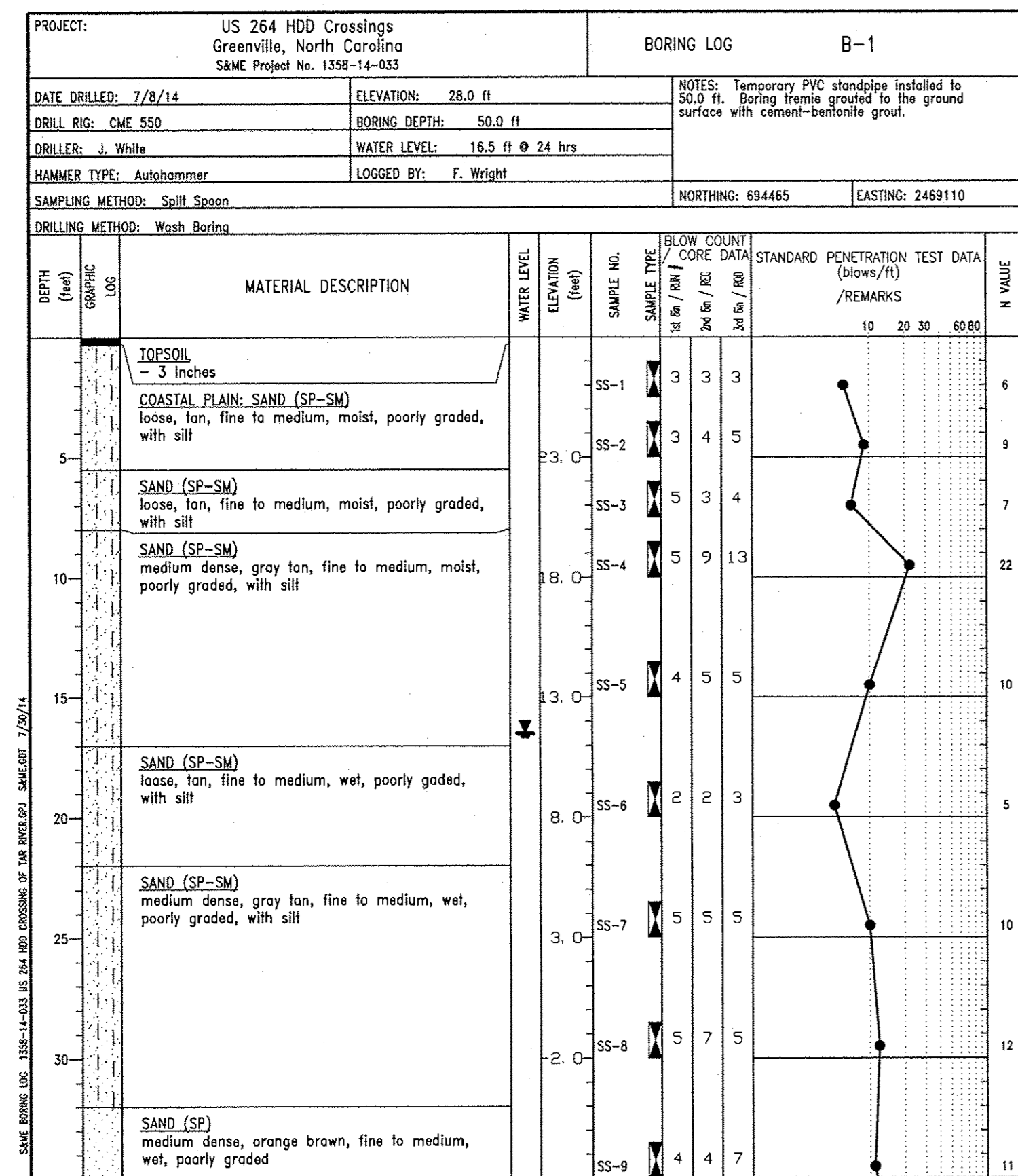
13 **GROUNDING STEEL GAS VALVE INSTALLATION**

ITEM NO.	TITLE	QTY	DESCRIPTION
1	GROUND ELECTRODE	1,900'	MATCOR MITIGATOR, 1.5" DIAMETER, 1.1 LBS/FT
2	SSD DECOUPLER	8	DEI MODEL # SSD-2/2-2.0-100-R STANDARD, STANDARD TERMINAL ARRANGEMENT, AC FAULT CURRENT RATING 2.0 kA (50/60 HZ) BLOCKING VOLTAGE -2.0V/+2V, LIGHTNING CURRENT RATING 100 kA. MAY BE MOUNTED IN 42" FIBERGLASS PEDESTAL.
3	DECOUPLER LEAD	SEE NOTE 1	#6 AWG HMWPE CABLE LEADS WITH COMPRESSION TERMINALS.
4	FIBERGLASS PEDESTAL	8	DEI, 42" FIBERGLASS FREE STANDING PEDESTAL, 3/16" FIBERGLASS THICKNESS, 14 MIL THICK UV STABILIZED GELCOAT, OR APPROVED EQUAL.
5	COUPON TEST STATION	TBD	COTT ZAPGARD TEST STATION AND AC CORROSION COUPON W/TWIN THHN WIRES (MCMILLER COU075 FAMILY) OR EQUAL.
6	GRADIENT CONTROL MAT	15	DEI MODEL GMC 4-8 (4'X8'), 3"X3" GRID SQUARES, .135 DIA STEEL WIRE (OR OWNER APPROVED EQUAL).

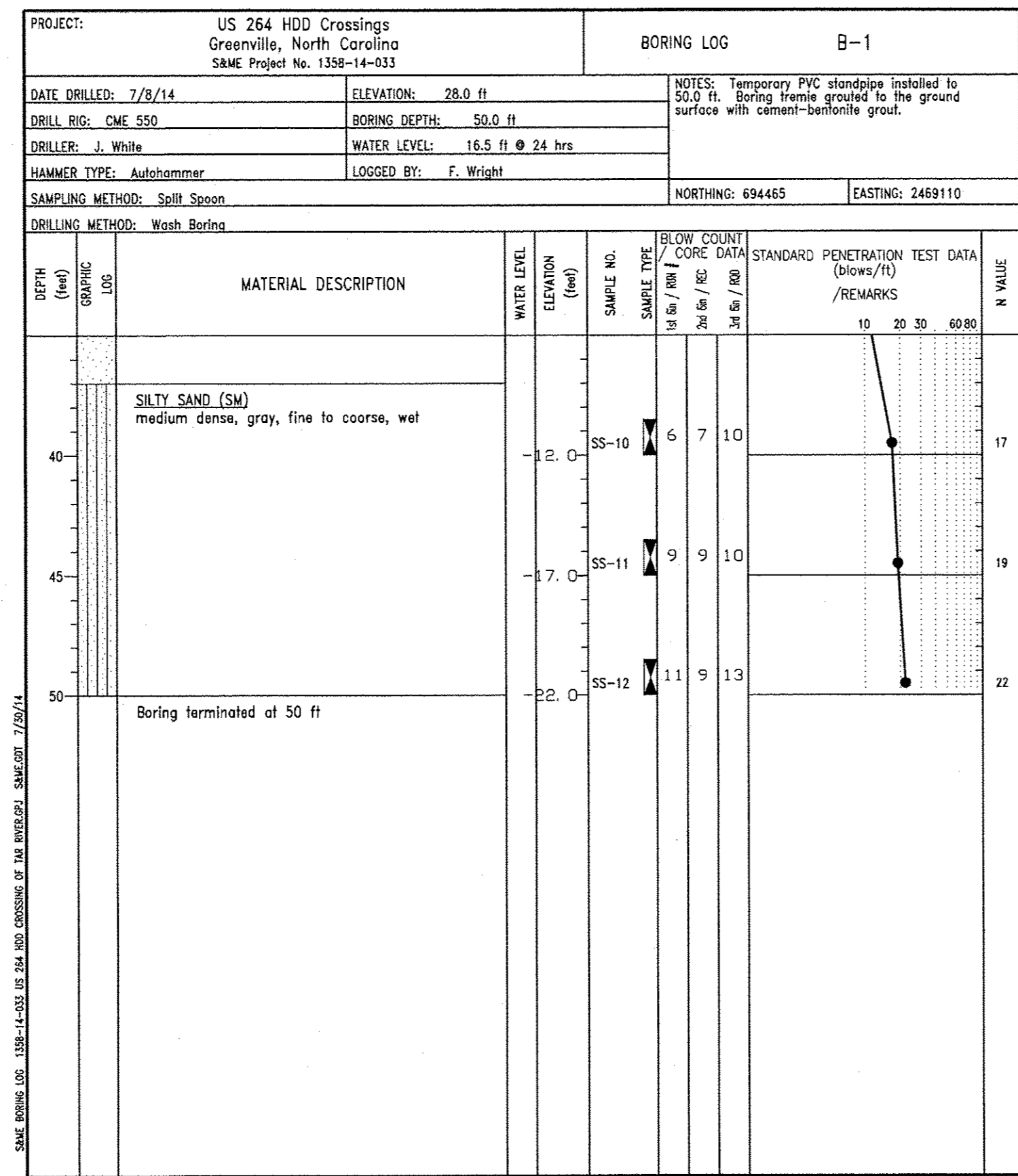
- NOTES:
- THREE DECOUPLER LEADS PER SSD FOR SINGLE MITIGATION WIRE INSTALLATIONS.



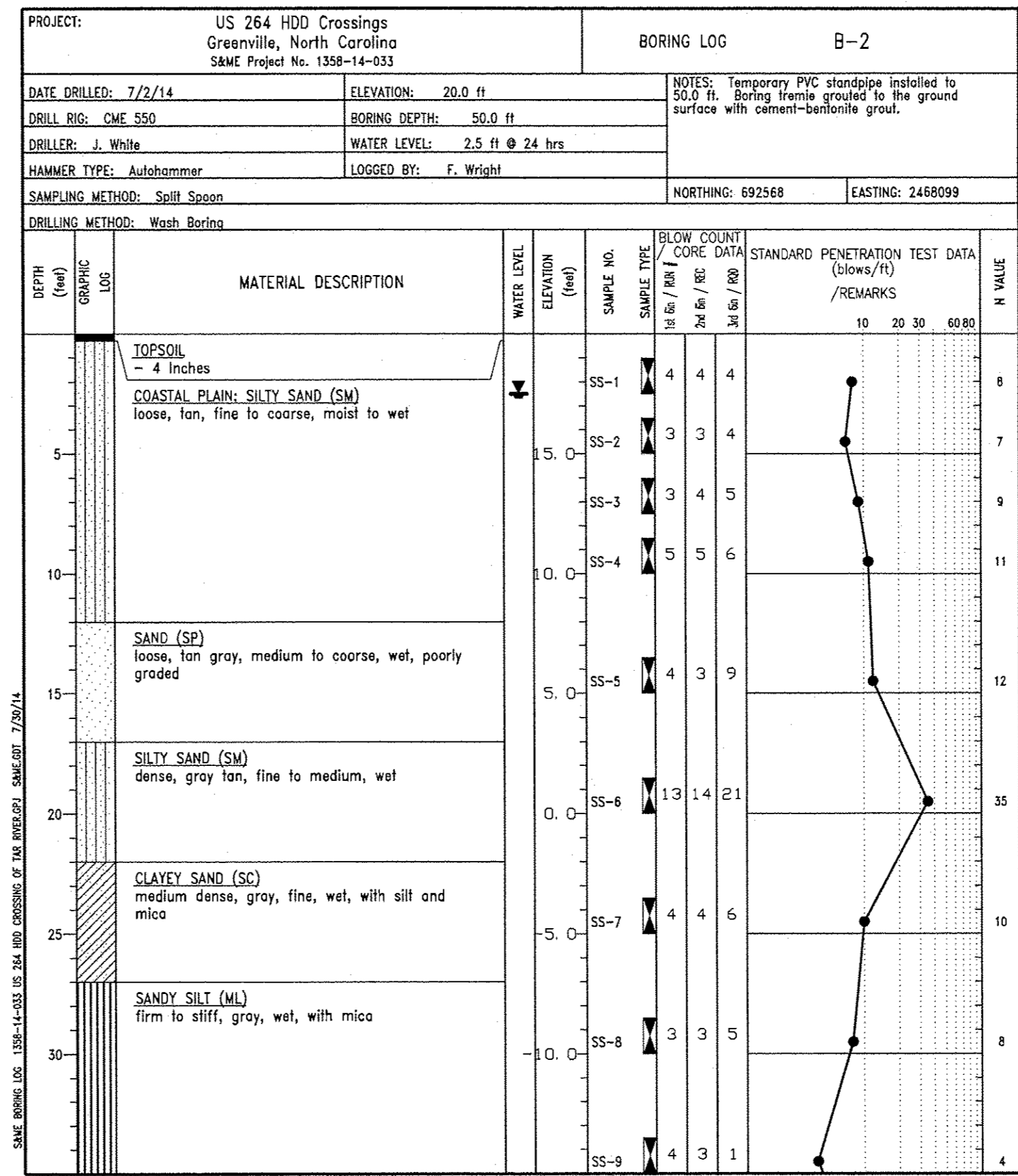
ITEM QUANTITY		SUMMARY OF MATERIALS DESCRIPTION		NOTES		APPROVAL				PROJECT			Greenville Utilities	
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						INITIALS	DATE	INITIALS	DATE	INITIALS	DATE	PITT	NORTH CAROLINA	
						REVISIONS				ALIGNMENT SHEET			SHEET DESCRIPTION	
						REV.	DESIGN	DRAFT	CHECK	DESCRIPTION			AC MITIGATION DETAILS AND BILL OF MATERIALS	
										DATE			SHEET: ACM-3	
										TEST DATA			REVISION: 0	
										TESTED FROM STATION: TO STATION:			SCALE	
										MEDIUM: RECORD TEST PRESSURE: psig			PLAN N.T.S.	
										DATE TEST COMPLETED:			PROFILE	
										DATE TEST COMPLETED:			HOR. N.T.S.	
										DATE TEST COMPLETED:			VERT. N.T.S.	



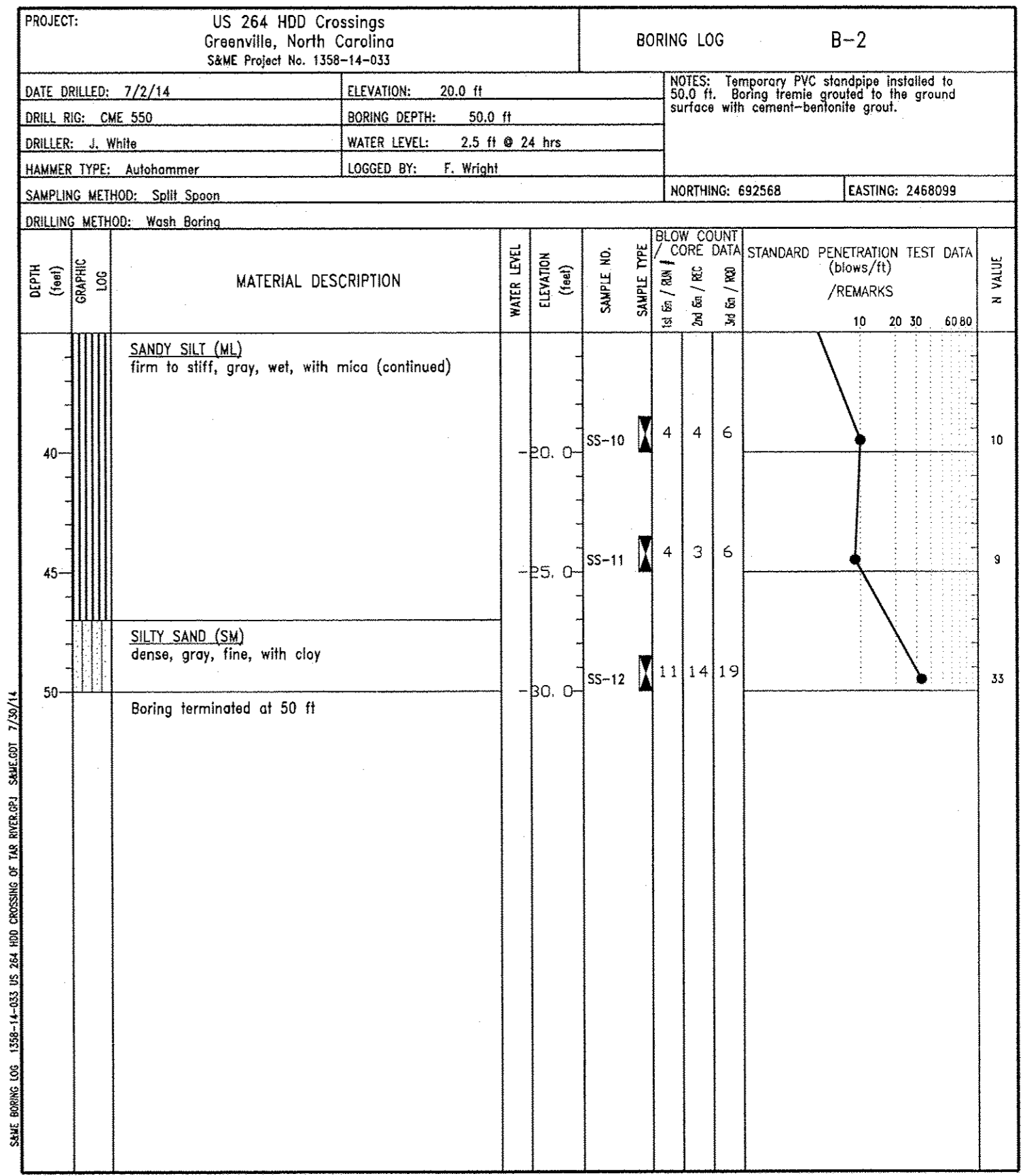
NOTES:
 1. THIS LOG IS ONLY A PORTION OF A REPORT PREPARED FOR THE NAMED PROJECT AND MUST ONLY BE USED TOGETHER WITH THAT REPORT.
 2. BORING, SAMPLING AND PENETRATION TEST DATA IN GENERAL ACCORDANCE WITH ASTM D-1586.
 3. STRATIFICATION AND GROUNDWATER DEPTHS ARE NOT EXACT.
 4. WATER LEVEL IS AT TIME OF EXPLORATION AND WILL VARY.



NOTES:
 1. THIS LOG IS ONLY A PORTION OF A REPORT PREPARED FOR THE NAMED PROJECT AND MUST ONLY BE USED TOGETHER WITH THAT REPORT.
 2. BORING, SAMPLING AND PENETRATION TEST DATA IN GENERAL ACCORDANCE WITH ASTM D-1586.
 3. STRATIFICATION AND GROUNDWATER DEPTHS ARE NOT EXACT.
 4. WATER LEVEL IS AT TIME OF EXPLORATION AND WILL VARY.

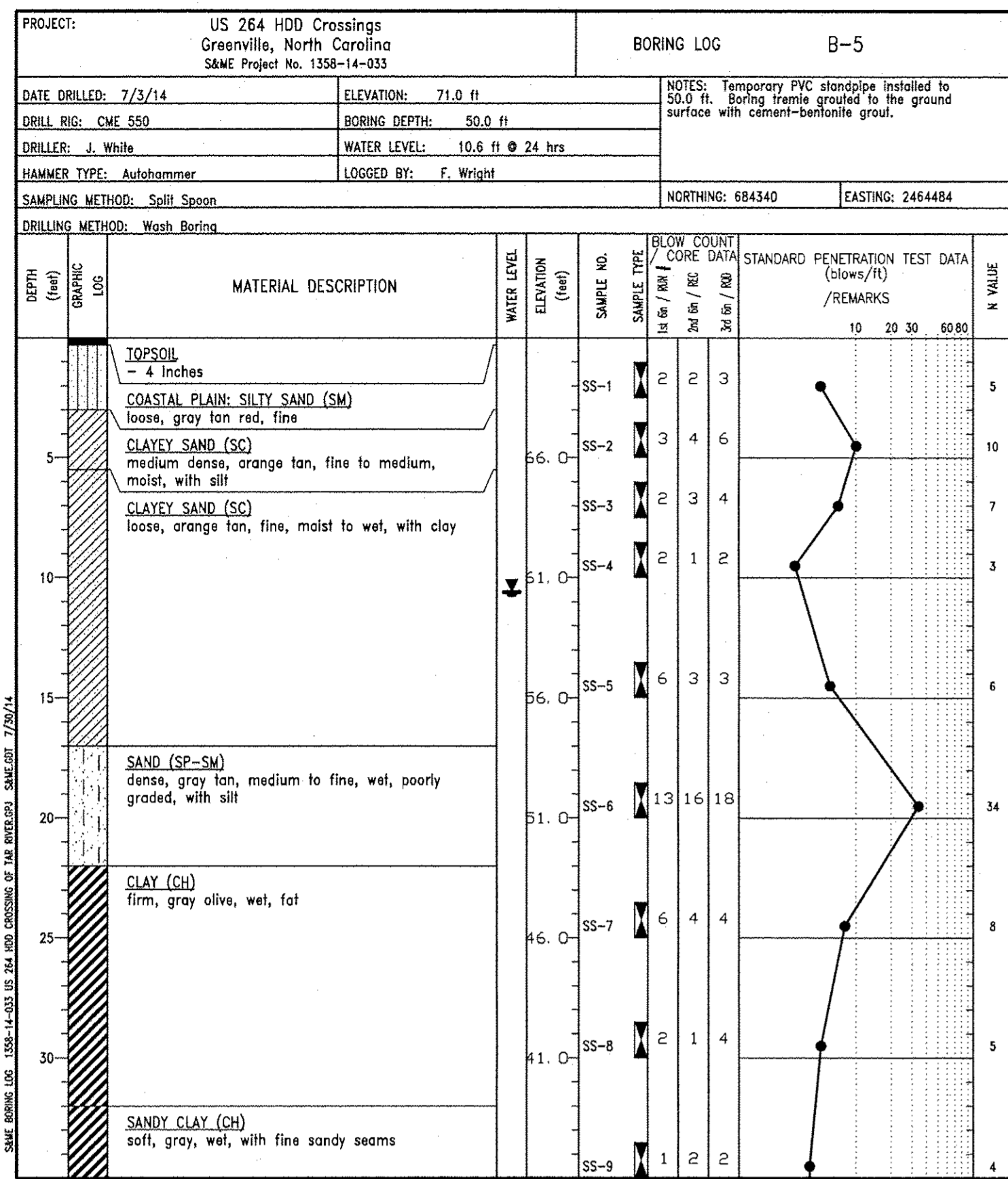


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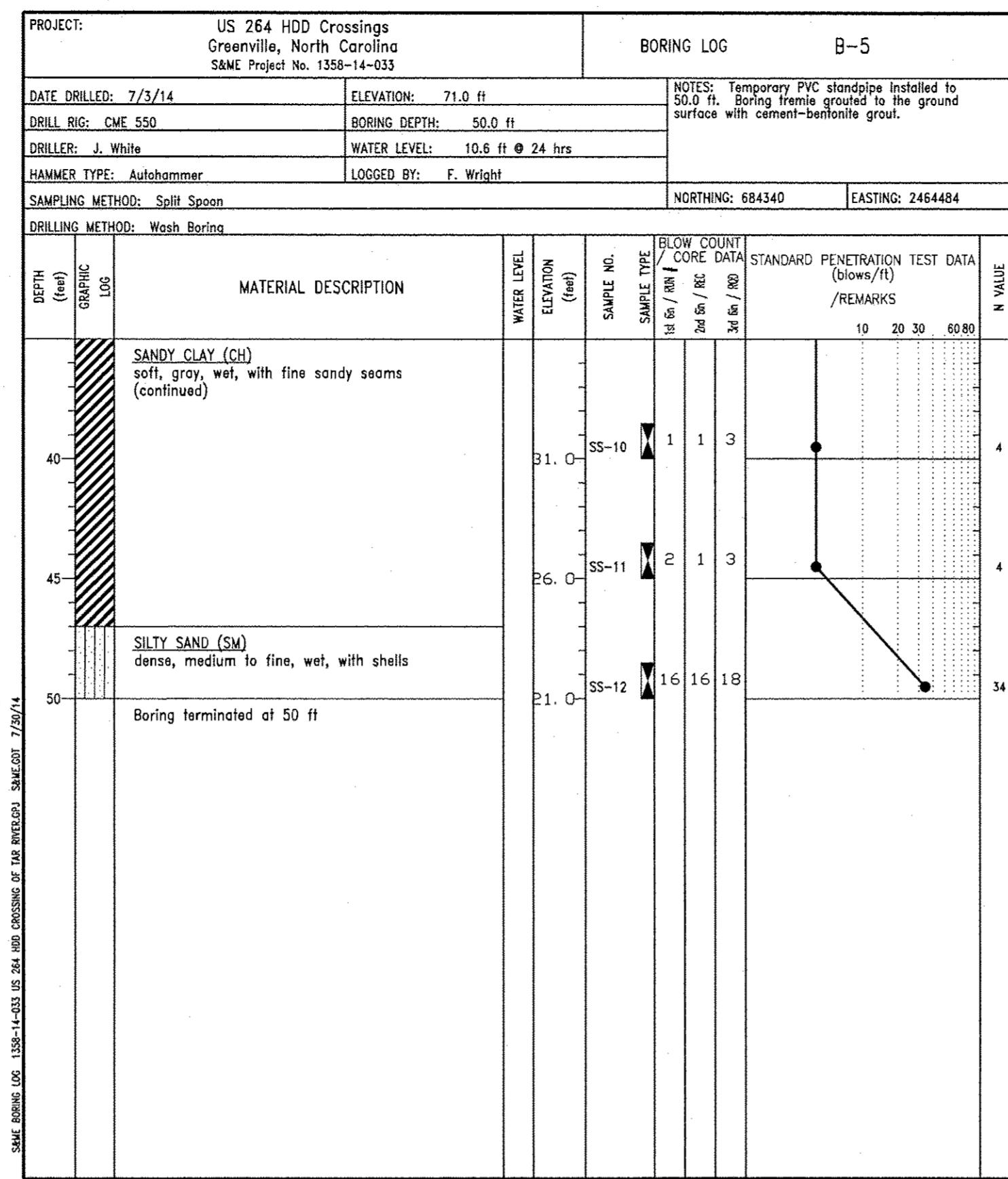


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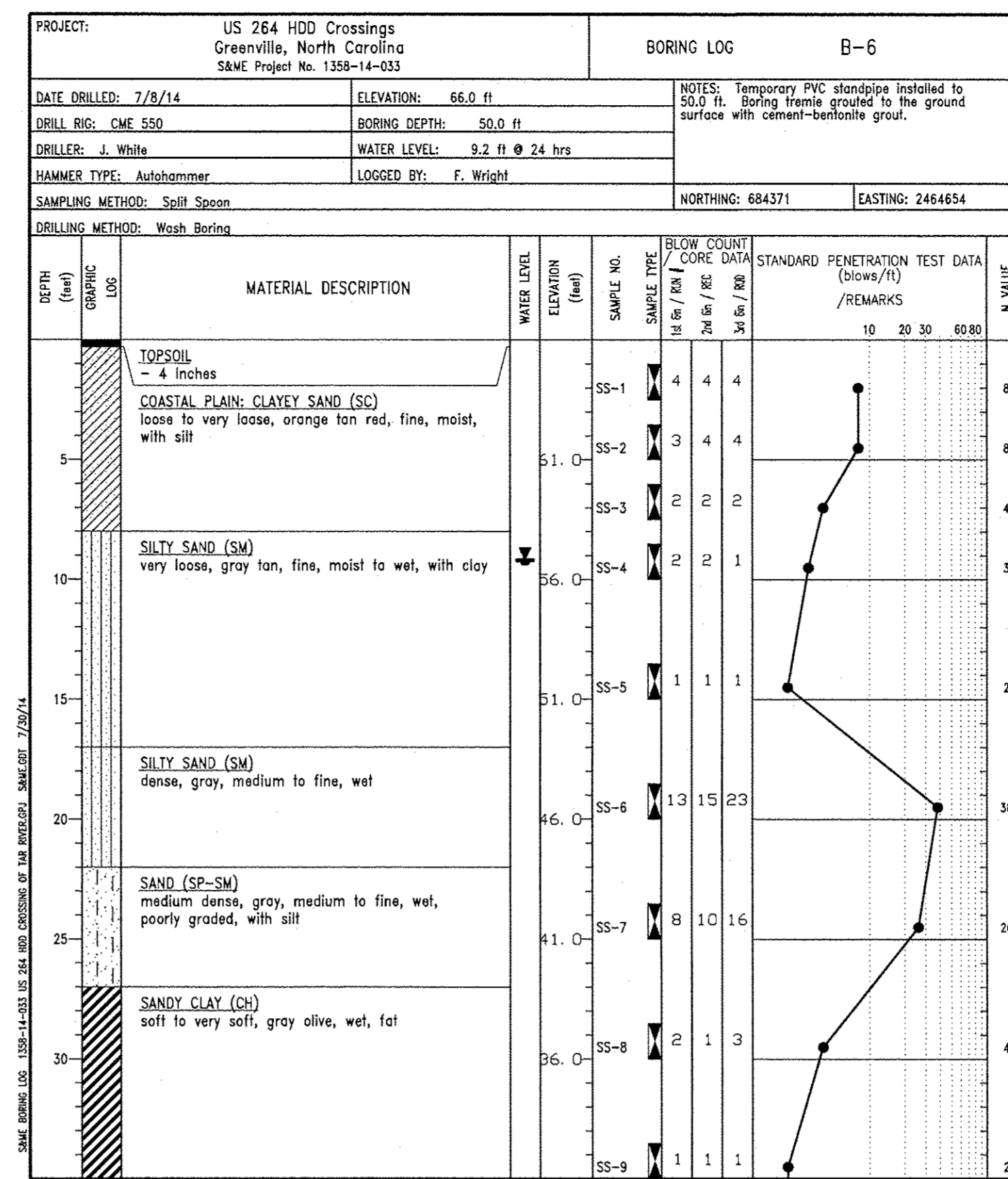
SUMMARY OF MATERIALS		NOTES				APPROVAL				PROJECT			 Greenville Utilities DISTRICT: _____ COUNTY: _____ STATE: NORTH CAROLINA SHEET DESCRIPTION: GEOTECHNICAL BORE DATA SHEET: GT-1 REVISION: 0
ITEM	QUANTITY	DESCRIPTION				REFER TO GEOTECHNICAL REPORT INCLUDED IN THE PROJECT SPECIFICATIONS FOR COMPLETE GEOTECHNICAL DETAILS.				GCP89 - NORTHWESTERN LOOP HIGH-PRESSURE GAS MAIN EXTENSION GREENVILLE, NC			
		REVISIONS				TEST DATA				ALIGNMENT SHEET			
		REV.	DESIGN	DRAFT	CHECK	DESCRIPTION				SCALE: AS NOTED PROFILE: _____ HOR. _____ VERT. _____			
		REV.	DESIGN	DRAFT	CHECK	DATE				TESTED FROM STATION: _____ TO STATION: _____ MEDIUM: _____ RECORD TEST PRESSURE: _____ psig DATE TEST COMPLETED: _____			
						ENGINEERING - RK&K				 ENGINEERS CONSTRUCTION MANAGERS PLANNERS SCIENTISTS 2100 E. GARY ST. SUITE 209 RICHMOND, VIRGINIA 23223 T-804.782.1903 F-804.782.2142 RK&K COMM. NO. 1214-011-A			



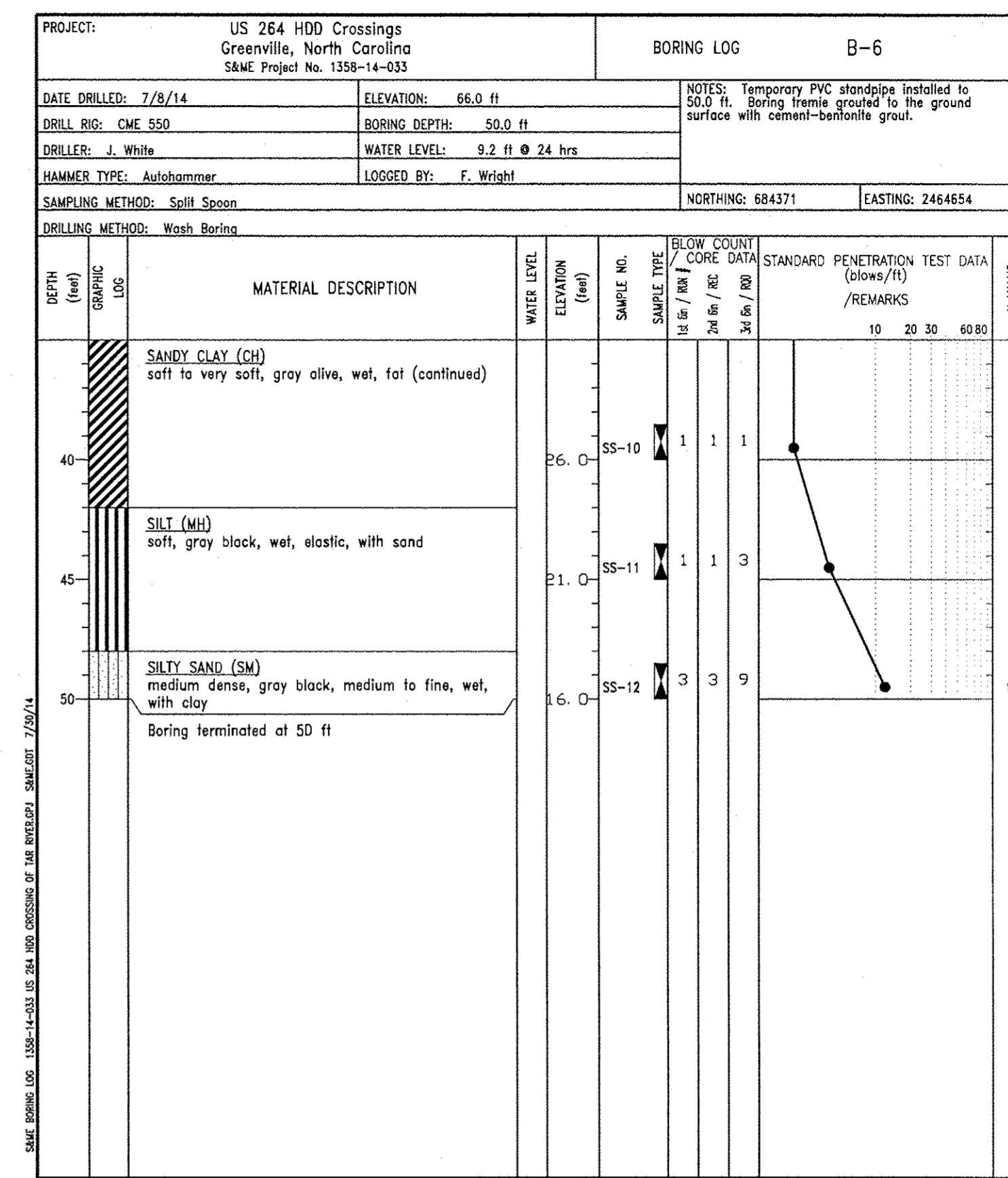
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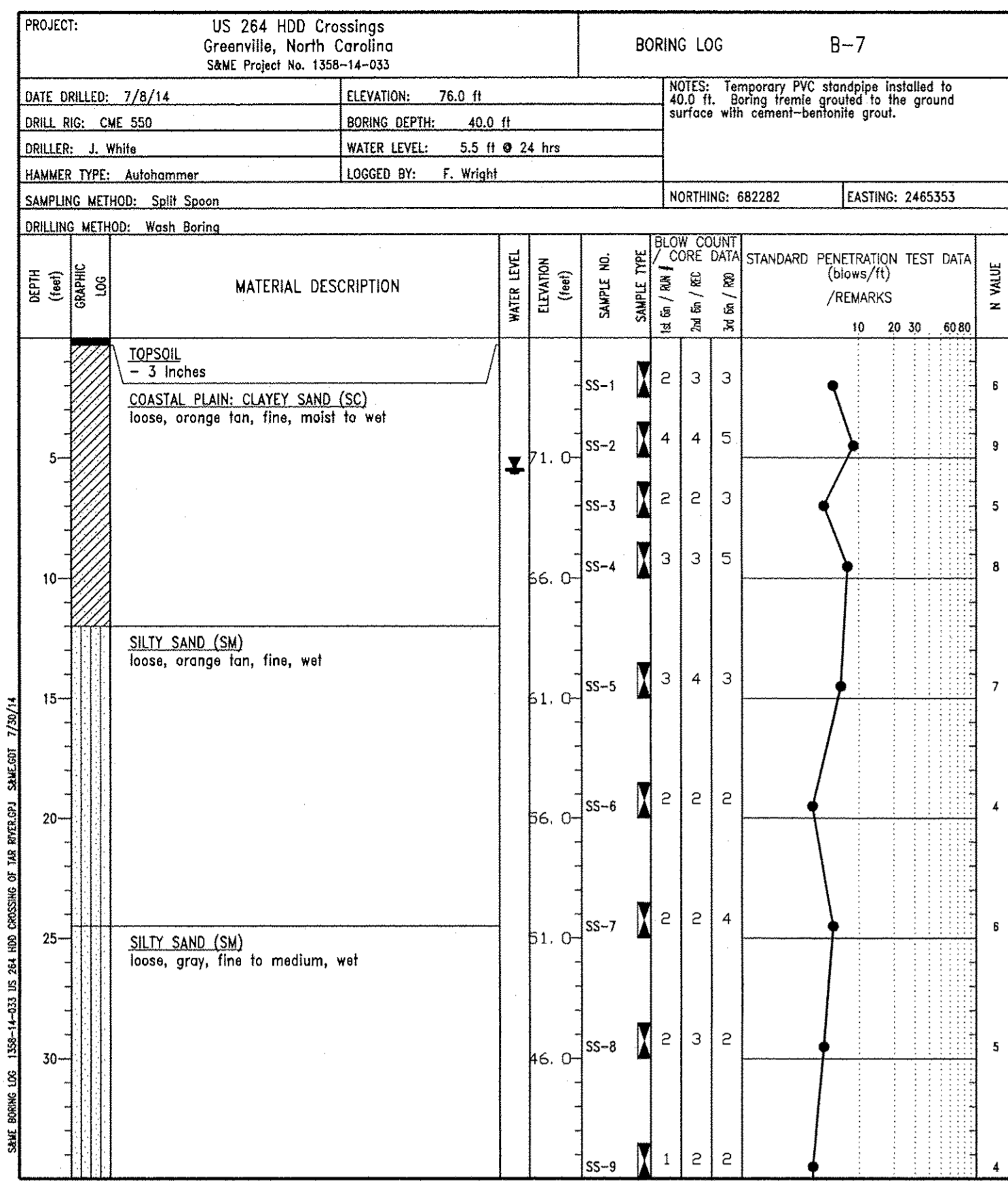


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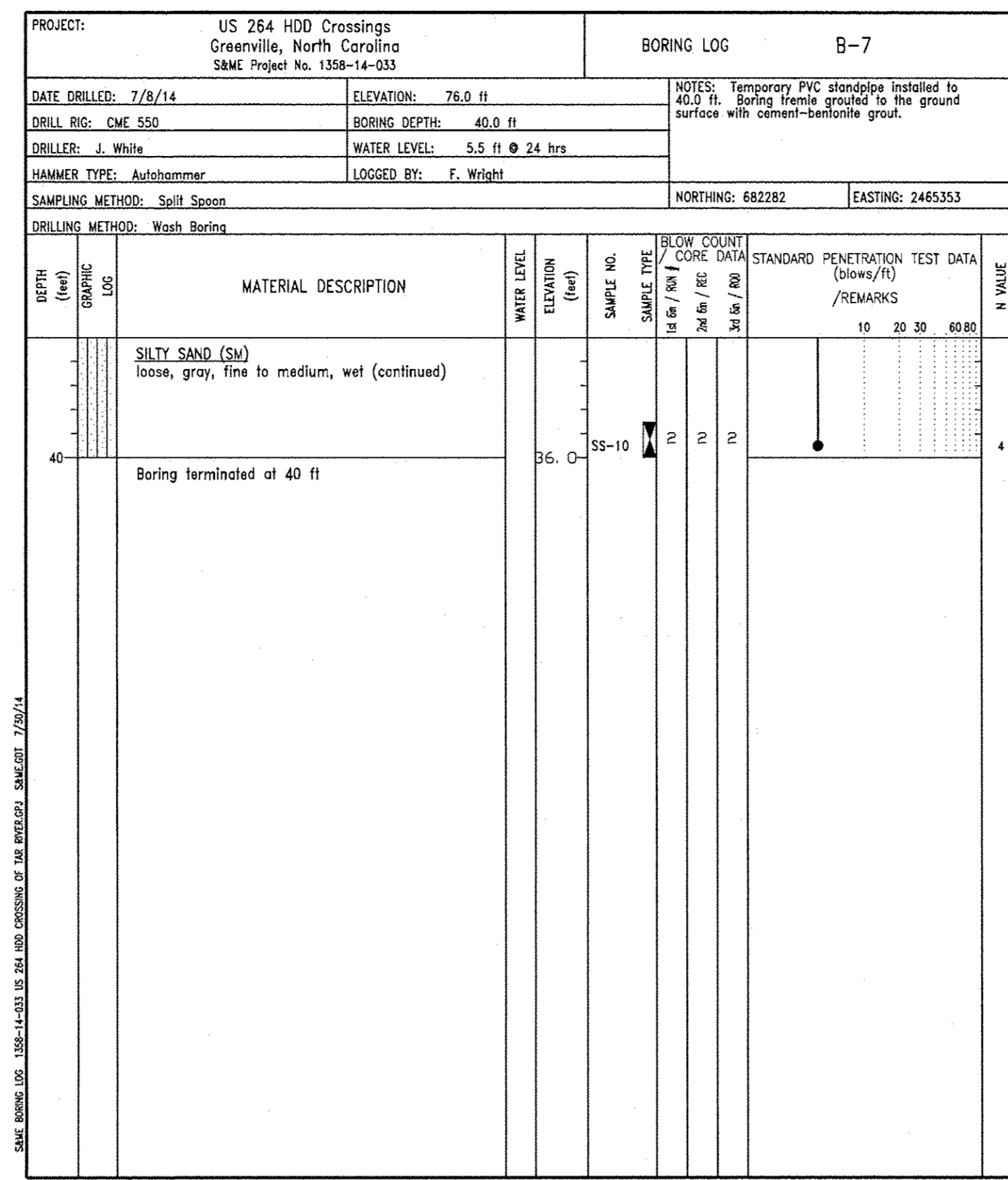
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SUMMARY OF MATERIALS		NOTES		APPROVAL			PROJECT					
ITEM	QUANTITY	DESCRIPTION		REFER TO GEOTECHNICAL REPORT INCLUDED IN THE PROJECT SPECIFICATIONS FOR COMPLETE GEOTECHNICAL DETAILS.		PERMITS	BID	CONSTRUCTION	GCP89 - NORTHWESTERN LOOP HIGH-PRESSURE GAS MAIN EXTENSION GREENVILLE, NC			
						INITIALS	DATE	INITIALS	DATE	ALIGNMENT SHEET		
										SCALE		
										PROFILE		
										SHEET: GT-3		
										REVISION: 0		



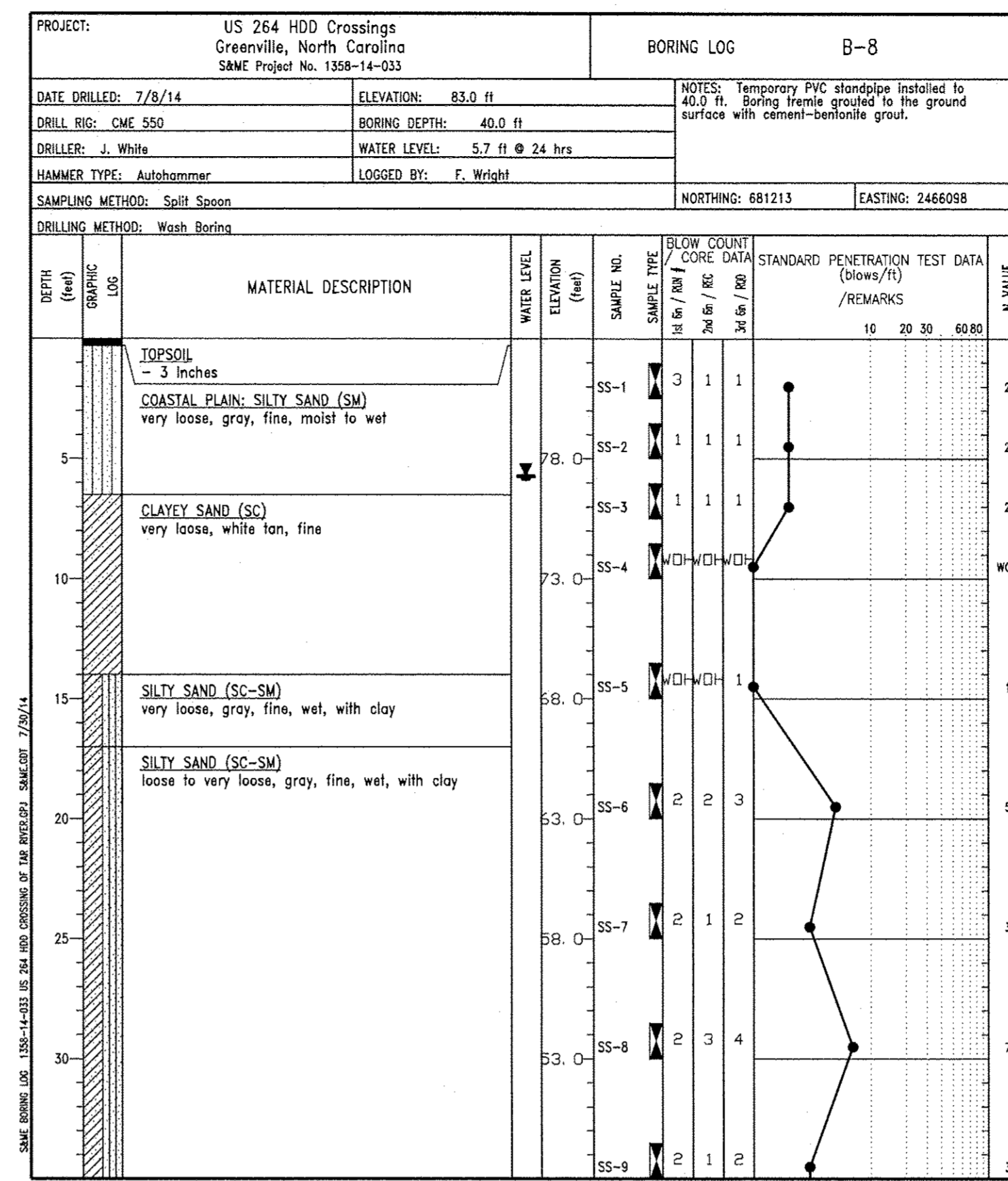
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Page 1 of 2



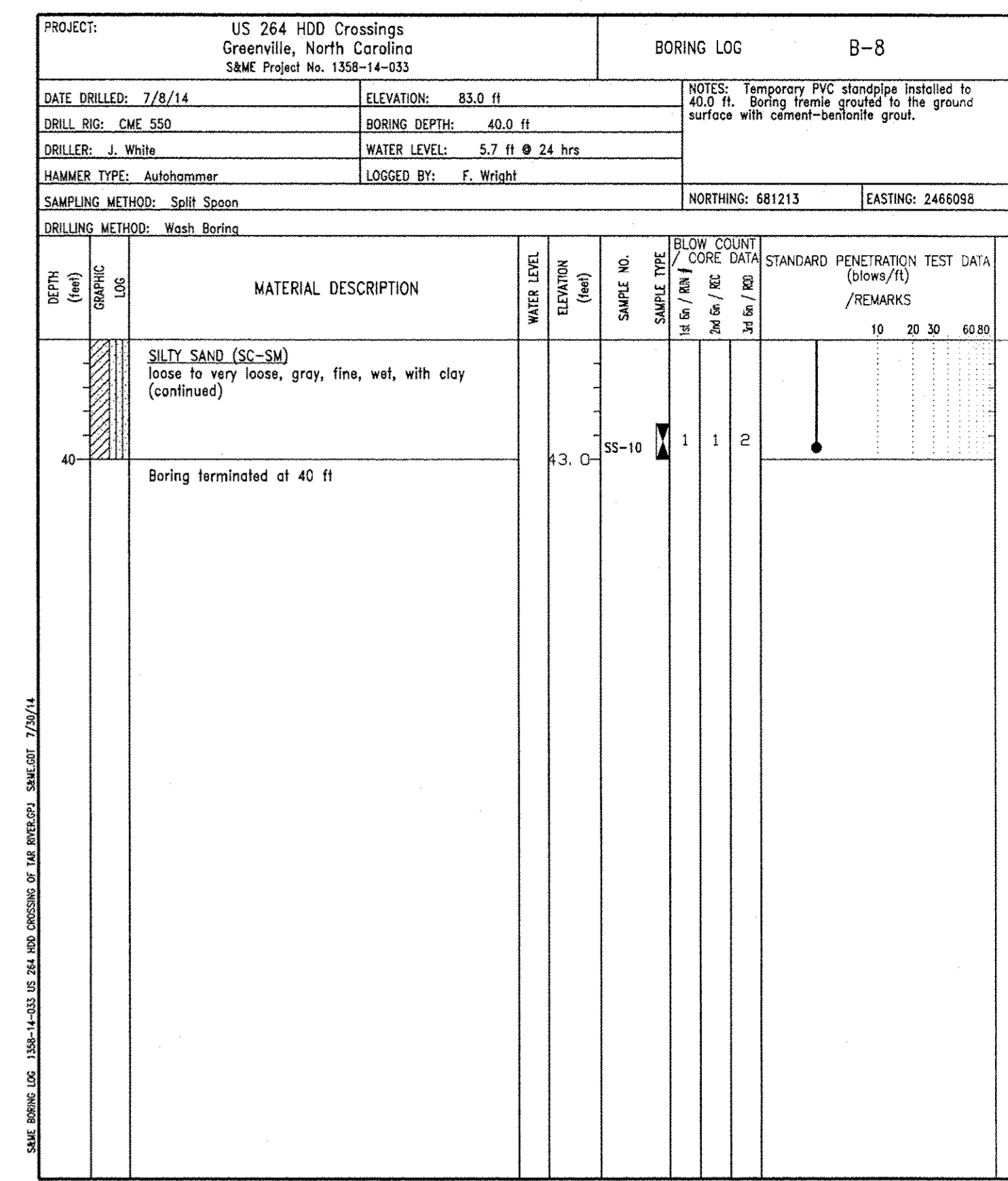
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Page 2 of 2



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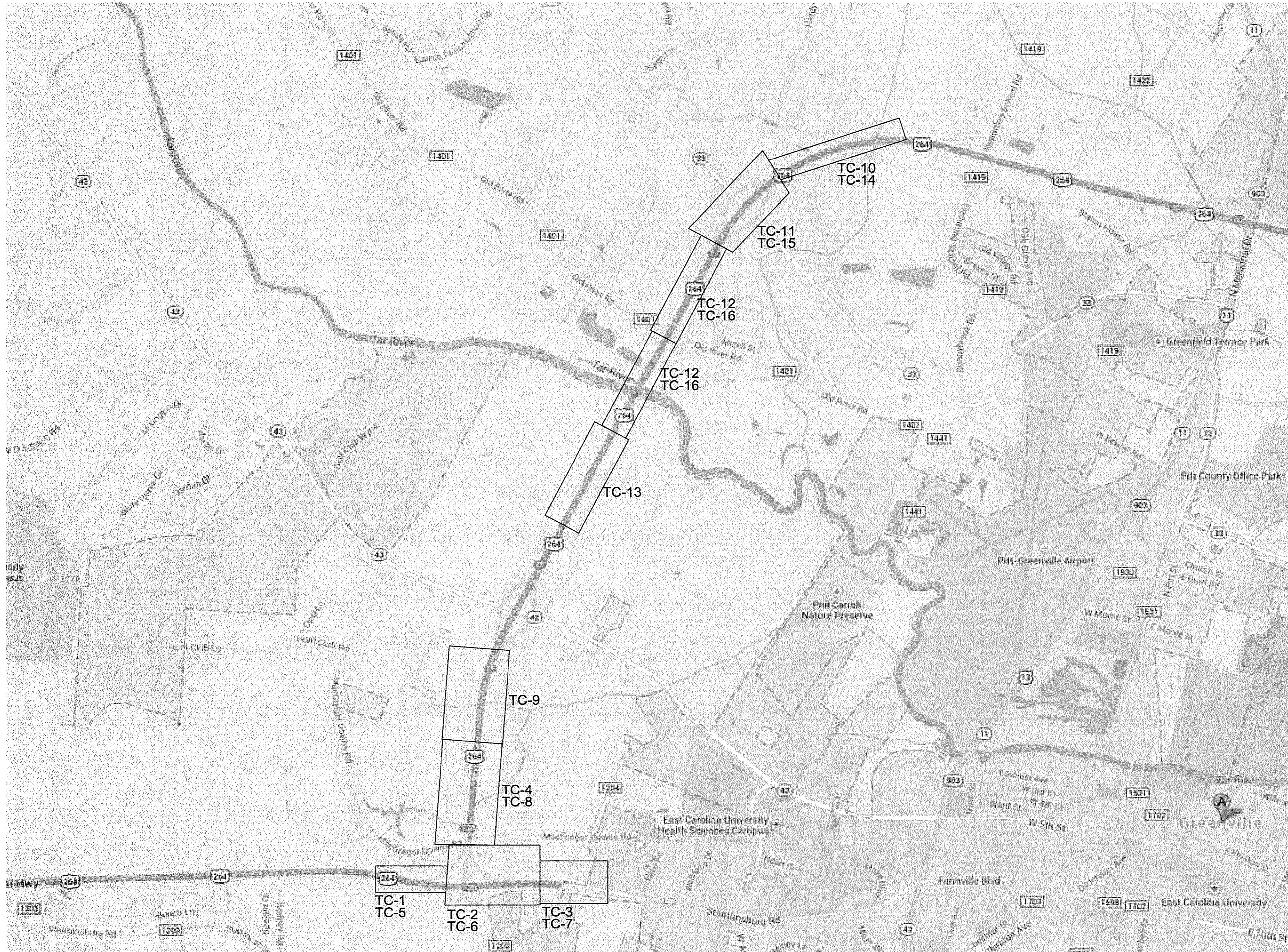
Page 1 of 2



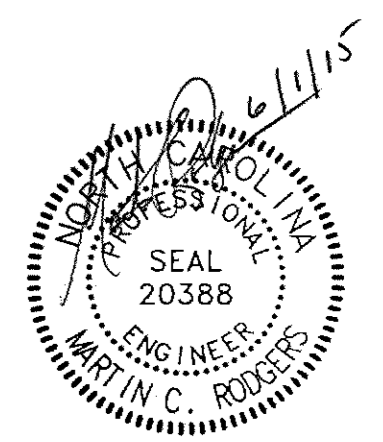
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Page 2 of 2

SUMMARY OF MATERIALS		NOTES		APPROVAL		PROJECT		
ITEM	QUANTITY	DESCRIPTION	REFER TO GEOTECHNICAL REPORT INCLUDED IN THE PROJECT SPECIFICATIONS FOR COMPLETE GEOTECHNICAL DETAILS.	PERMITS	BID	CONSTRUCTION	<p>GCP89 - NORTHWESTERN LOOP HIGH-PRESSURE GAS MAIN EXTENSION GREENVILLE, NC</p> <p>ALIGNMENT SHEET</p> <p>RK&K RUMMEL KLEPPER & KAHL, LLP 2100 E. CARY ST. SUITE 300 RICHMOND, VIRGINIA 23223 T-804.782.1903 F-804.782.2142</p> <p>ENGINEERS CONSTRUCTION MANAGERS PLANNERS SCIENTISTS RK&K COMM. NO. 1214-011-A</p>	
				INITIALS	DATE	INITIALS		DATE
REVISIONS				TEST DATA		SCALE		
REV.	DESIGN	DRAFT	CHECK	TESTED FROM STATION: _____ TO STATION: _____		AS NOTED		
				MEDIUM: _____ RECORD TEST PRESSURE: _____ psig		PROFILE		
				DATE TEST COMPLETED: _____		HOR. _____		
						VERT. _____		
						SHEET: GT-4		
						REVISION: 0		



KEY PLAN
NOT TO SCALE



ITEM		QUANTITY	SUMMARY OF MATERIALS		NOTES	APPROVAL			PROJECT		Greenville Utilities DISTRICT: _____ COUNTY: PIT STATE: NORTH CAROLINA SHEET DESCRIPTION: _____
			DESCRIPTION						GCP89 - NORTHWESTERN LOOP HIGH-PRESSURE GAS MAIN EXTENSION GREENVILLE, NC		
										ALIGNMENT SHEET	
										RK&K <small>ROMMEL, KLEPPER & KAHN, LLP</small> 2100 E. CARY ST. SUITE 309 RICHMOND, VIRGINIA 23262 T-804.782.1903 F-804.782.2142 ENGINEERS CONSTRUCTION MANAGERS PLANNERS SCIENTISTS RK&K COMM. NO. 1214-011-A	
										SCALE _____ PLAN _____ PROFILE _____ HOR. _____ VERT. _____	
										TESTED FROM STATION: _____ TO STATION: _____ MEDIUM: _____ RECORD TEST PRESSURE: _____ psig DATE TEST COMPLETED: _____	
										SHEET: TC-0 REVISION: 0	

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2012 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1101.02	TEMPORARY LANE CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.02	PORTABLE WORK ZONE SIGNS
1115.01	FLASHING ARROW BOARDS
1130.01	DRUM
1135.01	CONES
1150.01	FLAGGING DEVICES
1165.01	WORK VEHICLE LIGHTING SYSTEMS AND TMA DELINEATION

LEGEND

GENERAL

- DIRECTION OF TRAFFIC FLOW
- DIRECTION OF PEDESTRIAN TRAFFIC FLOW
- EXIST. PVMT.
- WORK AREA
- REMOVAL
- FLASHING ARROW PANEL
- FLASHING ARROW PANEL - CAUTION

SIGNALS

- EXISTING
- PROPOSED
- TEMPORARY

PAVEMENT MARKINGS

- EXISTING LINES

TRAFFIC CONTROL DEVICES

- DRUM
- FLASHING ARROW BOARD
- FLAGGER
- LAW ENFORCEMENT
- TRUCK MOUNTED ATTENUATOR (TMA)
- CHANGEABLE MESSAGE SIGN

TEMPORARY SIGNING

- PORTABLE SIGN
- STATIONARY SIGN
- STATIONARY OR PORTABLE SIGN

PAVEMENT MARKERS

- CRYSTAL/CRYSTAL
- CRYSTAL/RED
- YELLOW/YELLOW

PAVEMENT MARKING SYMBOLS

- PAVEMENT MARKING SYMBOLS

CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWINGS, STANDARD DETAILS, AND ROADWAY DETAILS ARE NOT ATTAINABLE TO MEET FIELD CONDITIONS OR RESULT IN DUPLICATE OR UNDESIRABLE OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING, OR REMOVAL OF DEVICES AS DIRECTED BY THE ENGINEER.

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT EXCEPT WHEN OTHERWISE NOTED IN THE PLAN OR DIRECTED BY THE ENGINEER.

TIME RESTRICTIONS

A) DO NOT CLOSE OR NARROW TRAVEL LANES AS FOLLOWS:

ROAD NAME	DAY AND TIME RESTRICTIONS
US 264	3:30 PM TO 9:00 AM
	MONDAY THRU SATURDAY
LANE CLOSURES WILL BE ALLOWED ON SUNDAY DURING DAYLIGHT HOURS ONLY	

B) DO NOT CLOSE OR NARROW TRAVEL LANES DURING HOLIDAYS AND SPECIAL EVENTS AS FOLLOWS:

NC HWY 264 BYPASS

HOLIDAY

- FOR ANY UNEXPECTED OCCURRENCE THAT CREATES UNUSUALLY HIGH TRAFFIC VOLUMES, AS DIRECTED BY THE ENGINEER.
- FOR NEW YEAR'S, BETWEEN THE HOURS OF 3:30 PM DECEMBER 31ST TO 9:00 AM JANUARY 2ND. IF NEW YEAR'S DAY IS ON A FRIDAY, SATURDAY, SUNDAY, OR MONDAY, THEN UNTIL 9:00 AM THE FOLLOWING TUESDAY.
- FOR EASTER, BETWEEN THE HOURS OF 3:30 PM THURSDAY AND (TIME) MONDAY.
- FOR MEMORIAL DAY, BETWEEN THE HOURS OF 3:30 PM FRIDAY TO (TIME) TUESDAY.
- FOR INDEPENDENCE DAY, BETWEEN THE HOURS OF 3:30 PM THE DAY BEFORE INDEPENDENCE DAY AND (TIME) THE DAY AFTER INDEPENDENCE DAY. IF INDEPENDENCE DAY IS ON A FRIDAY, SATURDAY, SUNDAY, OR MONDAY, THEN BETWEEN THE HOURS OF 3:30 PM THE THURSDAY BEFORE INDEPENDENCE DAY AND (TIME) THE TUESDAY AFTER INDEPENDENCE DAY.
- THE DAY OF THE SPRING ECU FOOTBALL GAME.

LANE AND SHOULDER CLOSURE REQUIREMENTS

C) REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED, OR AS DIRECTED BY THE ENGINEER.

D) WHEN PERSONNEL OR EQUIPMENT ARE WORKING WITHIN 15 FT. OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN SHOULDER USING RDWY. STD. 1101.04 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL, OR A LANE CLOSURE IS INSTALLED.

E) WHEN PERSONNEL OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO A DIVIDED FACILITY AND WITHIN 10 FT. OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING RDWY. STD. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

F) WHEN PERSONNEL OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF AN UNDIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRAFFIC CONTROL PLANS, ROADWAY STANDARD DRAWINGS, OR AS DIRECTED BY THE ENGINEER. CONDUCT THE WORK SO THAT ALL PERSONNEL AND EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.

G) DO NOT INSTALL MORE THAN ONE LANE CLOSURE IN ANY ONE DIRECTION ON US 264.

PAVEMENT EDGE DROP-OFF REQUIREMENTS

H) BACKFILL AT A 6:1 SLOPE UP TO THE EDGE AND ELEVATION OF EXISTING PAVEMENT IN AREAS ADJACENT TO AN OPENED TRAVEL LANE THAT HAS AN EDGE OF PAVEMENT DROP-OFF AS FOLLOWS:

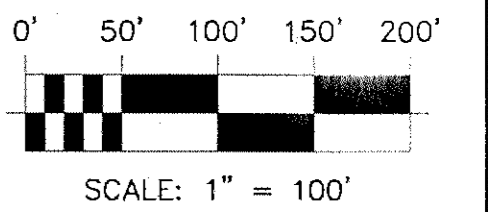
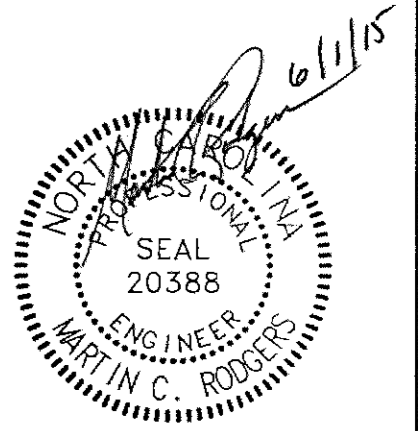
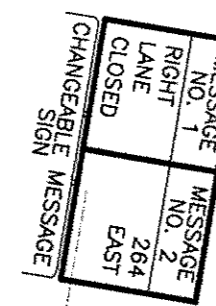
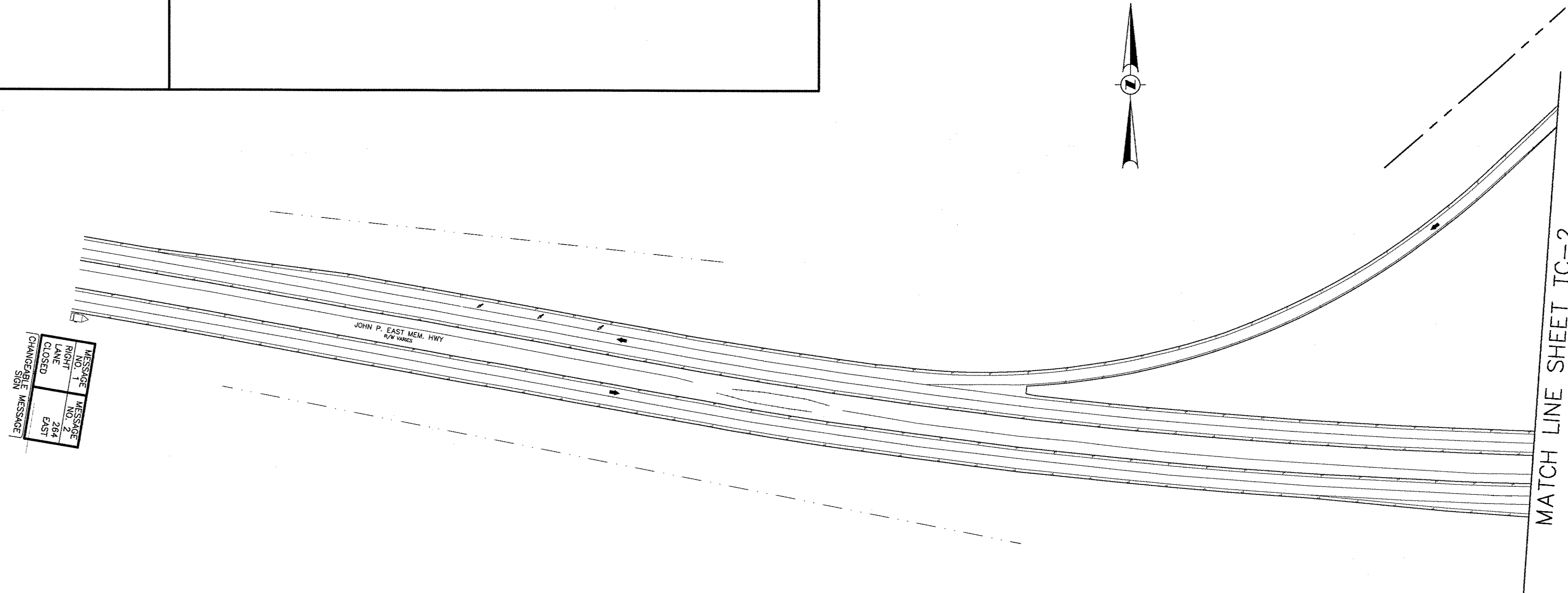
BACKFILL DROP-OFFS THAT EXCEED 2 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS OF 45 MPH OR GREATER.

BACKFILL DROP-OFFS THAT EXCEED 3 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS LESS THAN 45 MPH.

BACKFILL WITH SUITABLE COMPACTED MATERIAL, AS APPROVED BY THE ENGINEER AT NO EXPENSE TO THE DEPARTMENT.

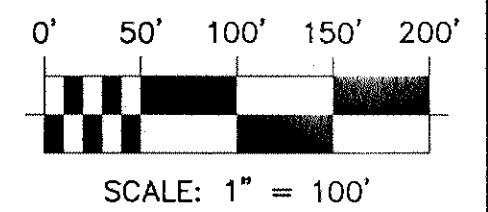
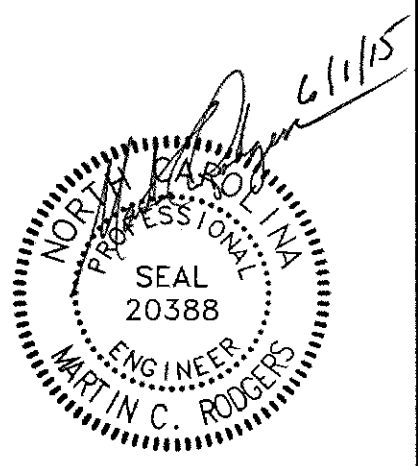
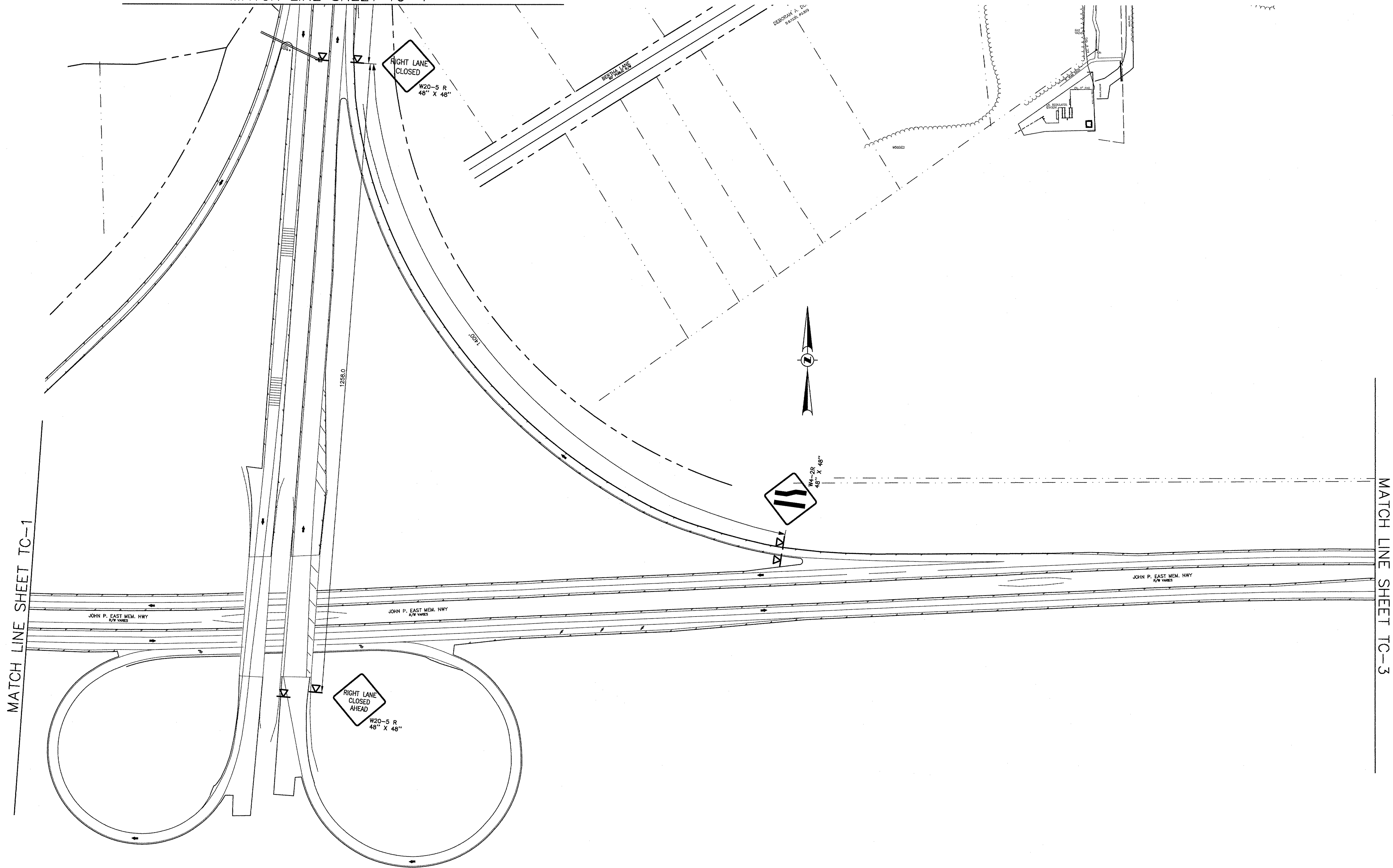
TRAFFIC CONTROL DEVICES

I) WHEN LANE CLOSURES ARE NOT IN EFFECT SPACE CHANNELIZING DEVICES IN WORK AREA NO GREATER IN FEET THAN TWICE THE POSTED SPEED LIMIT (MPH) EXCEPT, 10 FT. ON-CENTER IN RADIUS, AND 3 FT. OFF THE EDGE OF AN OPEN TRAVEL WAY. REFER TO STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES SECTION 1130 (DRUMS), 1135 (CONES) AND 1180 (SKINNY DRUMS) FOR ADDITIONAL REQUIREMENTS.



ITEM QUANTITY		SUMMARY OF MATERIALS	NOTES	APPROVAL	PROJECT	Greenville Utilities
DESCRIPTION	DESCRIPTION	DESCRIPTION	PERMITS	BID	CONSTRUCTION	
				INITIALS	DATE	GCP89 - NORTHWESTERN LOOP HIGH-PRESSURE GAS MAIN EXTENSION GREENVILLE, NC
				INITIALS	DATE	
				INITIALS	DATE	ALIGNMENT SHEET
				INITIALS	DATE	
						SCALE PLAN NTS PROFILE HOR. - VERT. -
						DISTRICT COUNTY STATE NORTH CAROLINA
						SHEET DESCRIPTION TRAFFIC CONTROL NOTES, DRAWING LEGEND, PLAN AT CE-1 SHEET: TC-1 REVISION: 0

MATCH LINE SHEET TC-4



SUMMARY OF MATERIALS		DESCRIPTION
ITEM	QUANTITY	

NOTES				
REVISIONS				
REV.	DESIGN	DRAFT	CHECK	DATE

APPROVAL						
	PERMITS		BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY						
C.P.						
DRAFTING & DESIGN - RK&K	CSY	5/21	CSY	5/1/15		
ENGINEERING - RK&K	MCR	5/21	MCR	5/1/15		

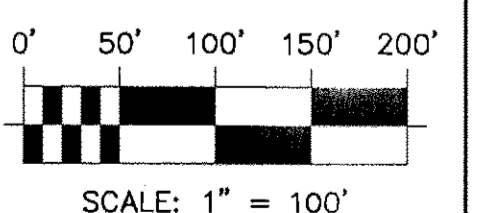
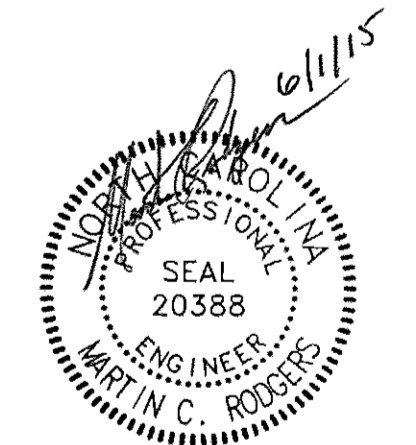
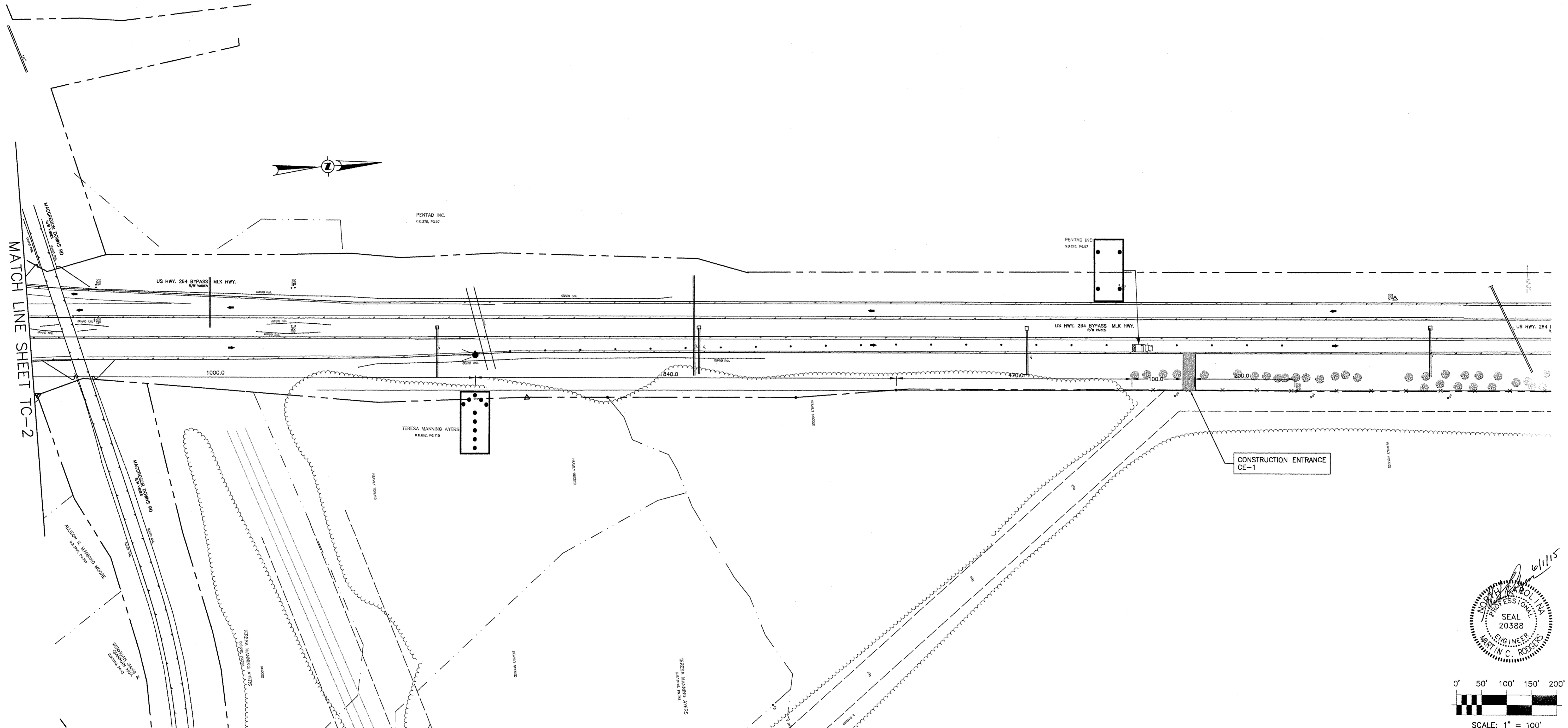
PROJECT	
GCP89 - NORTHWESTERN LOOP HIGH-PRESSURE GAS MAIN EXTENSION GREENVILLE, NC	
ALIGNMENT SHEET	
SCALE	1" = 100'
PLAN	
PROFILE	
HOR.	
VERT.	

Greenville Utilities

DISTRICT: PITT COUNTY: NORTH CAROLINA STATE: NORTH CAROLINA

SHEET DESCRIPTION: TRAFFIC CONTROL PLAN AT CONSTRUCTION ENTRANCE CE-1

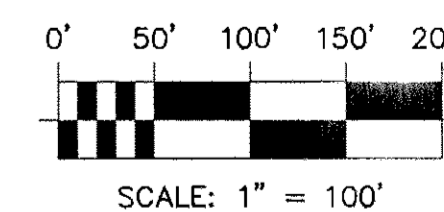
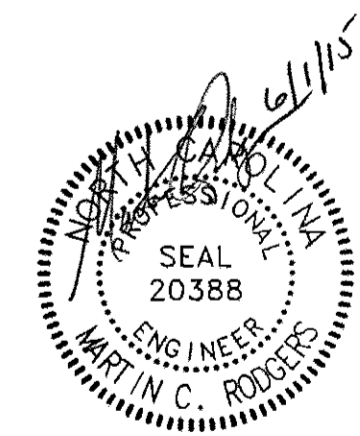
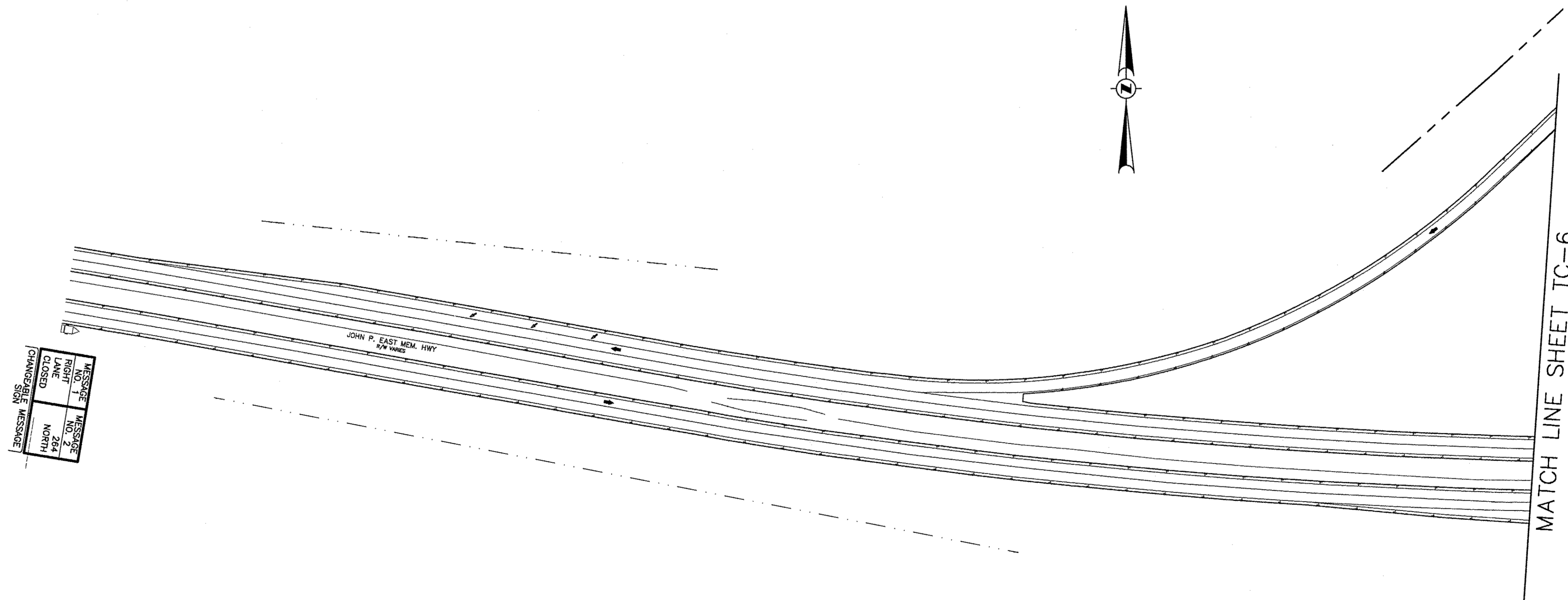
SHEET: TC-2 REVISION: 0



SUMMARY OF MATERIALS		NOTES			APPROVAL				PROJECT		
ITEM	QUANTITY	DESCRIPTION							GCP89 - NORTHWESTERN LOOP HIGH-PRESSURE GAS MAIN EXTENSION GREENVILLE, NC		
									ALIGNMENT SHEET		
									DISTRICT: _____ COUNTY: _____ STATE: NORTH CAROLINA SHEET DESCRIPTION: TRAFFIC CONTROL PLAN AT CONSTRUCTION ENTRANCE CE-1		
									SCALE: 1" = 100' PLAN: _____ PROFILE: _____ HOR: _____ VERT: _____		
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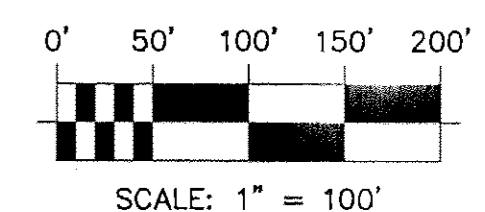
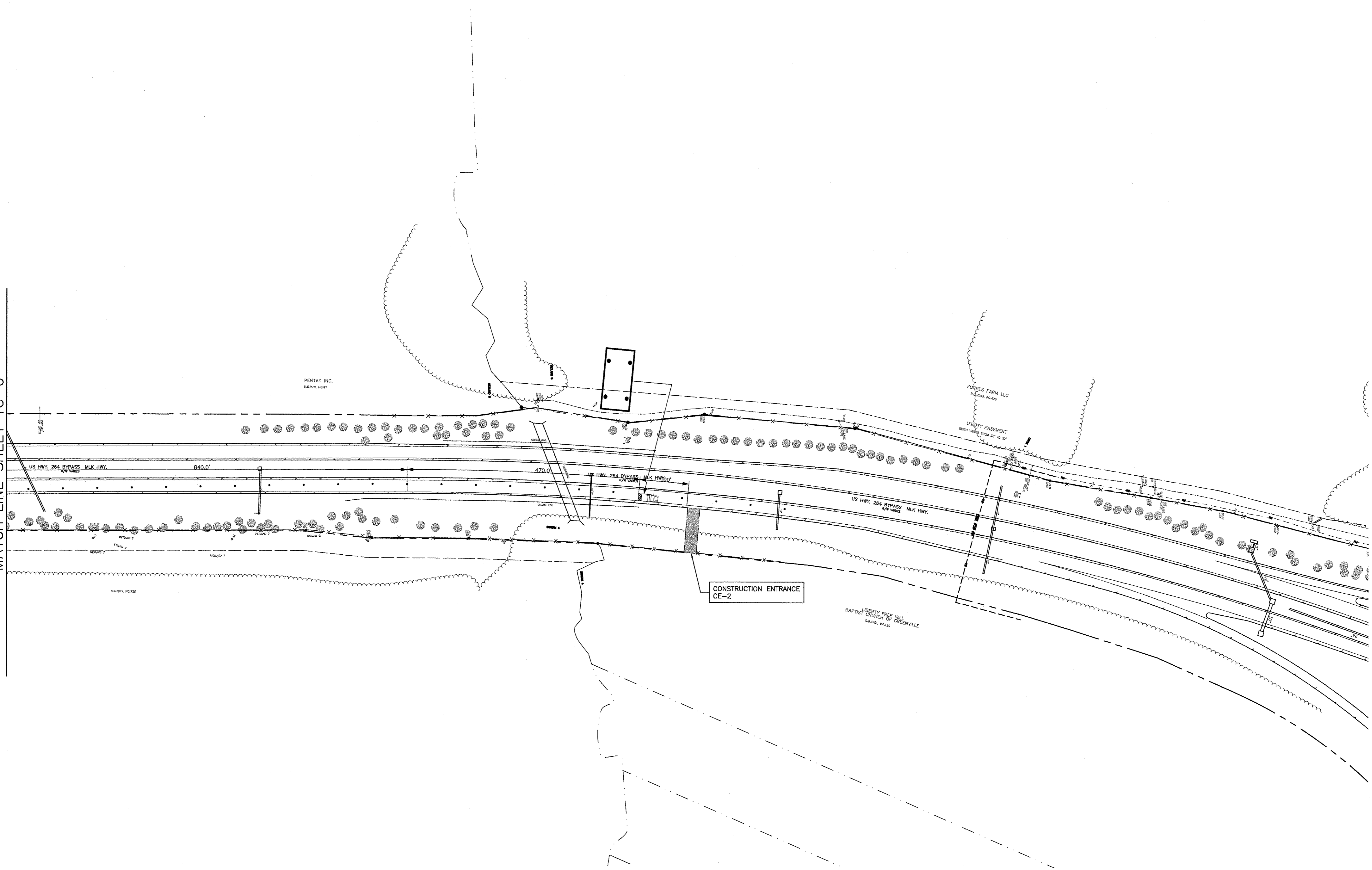
REVISIONS				
REV.	DESIGN	DRAFT	CHECK	DATE

TEST DATA	
TESTED FROM STATION: _____ TO STATION: _____	
MEDIUM: _____ RECORD TEST PRESSURE: _____ psig	
DATE TEST COMPLETED: _____	

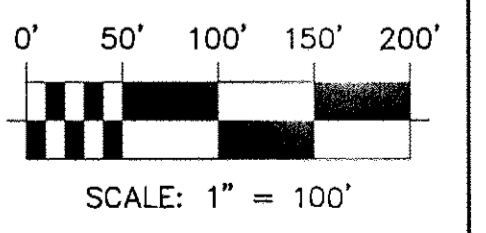
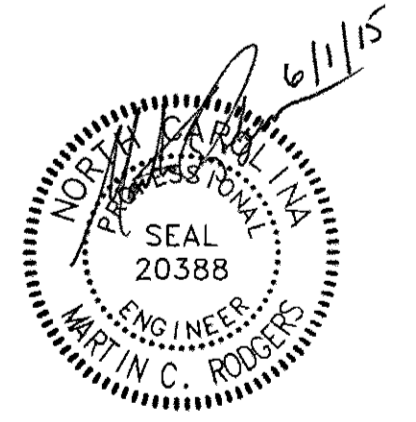
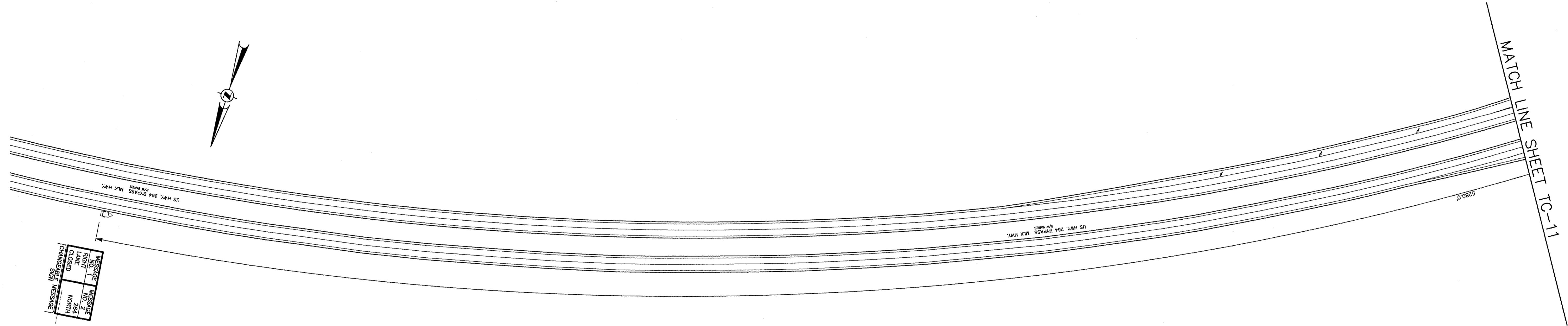


SUMMARY OF MATERIALS		NOTES				APPROVAL						PROJECT					
ITEM	QUANTITY					DESCRIPTION		PERMITS		BID		CONSTRUCTION		GCP89 - NORTHWESTERN LOOP HIGH-PRESSURE GAS MAIN EXTENSION GREENVILLE, NC			
								INITIALS	DATE	INITIALS	DATE	INITIALS	DATE	ALIGNMENT SHEET			
				REVISIONS								DISTRICT: _____ COUNTY: _____ STATE: _____ CITY: _____ DISTRICT: _____ COUNTY: _____ STATE: _____ SHEET DESCRIPTION: TRAFFIC CONTROL PLAN AT CONSTRUCTION ENTRANCE CE-2 SHEET: TC-5 REVISION: 0					
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										TESTED FROM STATION: _____ TO STATION: _____ MEDIUM: _____ RECORD TEST PRESSURE: _____ psig DATE TEST COMPLETED: _____			RK&K RUMMEL, KLEPPER & KAHL, LLP 2100 E. CARY ST. SUITE 209 RICHMOND, VIRGINIA 23223 T-804.762.1503 F-804.762.2142 ENGINEERS CONSTRUCTION MANAGERS PLANNERS SCIENTISTS RK&K COMM. NO. 1214-011-A				

MATCH LINE SHEET TC-6



ITEM		QUANTITY	SUMMARY OF MATERIALS		NOTES		APPROVAL				PROJECT		GREENVILLE UTILITIES	
			DESCRIPTION				PERMITS		BID		CONSTRUCTION		DISTRICT COUNTY STATE	
							INITIALS	DATE	INITIALS	DATE	INITIALS	DATE	SHEET DESCRIPTION	
													GCP89 - NORTHWESTERN LOOP HIGH-PRESSURE GAS MAIN EXTENSION GREENVILLE, NC	
													ALIGNMENT SHEET	
													TRAFFIC CONTROL PLAN AT CONSTRUCTION ENTRANCE CE-2	
													SHEET: TC-9 REVISION: 0	



SUMMARY OF MATERIALS	
ITEM	DESCRIPTION

NOTES			
REVISIONS			
REV.	DESCRIPTION	DRAFT	CHECK

APPROVAL						
	PERMITS		BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY						
C.P.						
DRAFTING & DESIGN - RK&K	CSY	5/21	CSY	5/1/15		
ENGINEERING - RK&K	MCR	5/21	MCR	5/1/15		

PROJECT	
GCP89 - NORTHWESTERN LOOP HIGH-PRESSURE GAS MAIN EXTENSION GREENVILLE, NC	
ALIGNMENT SHEET	

Greenville Utilities

DISTRICT: _____ COUNTY: _____ STATE: NORTH CAROLINA

SHEET DESCRIPTION: TRAFFIC CONTROL PLAN AT CONSTRUCTION ENTRANCE CE-4

SHEET: TC-10 REVISION: 0

TEST DATA	
TESTED FROM STATION: _____ TO STATION: _____	
MEDIUM: _____ RECORD TEST PRESSURE: _____ psig	
DATE TEST COMPLETED: _____	

RK&K RUMMEL, KLEPPER & KAHL, LLP
2100 E. CARY ST. SUITE 309
ROANOKE, VIRGINIA 24013
T-804.782.1903 F-804.782.2142

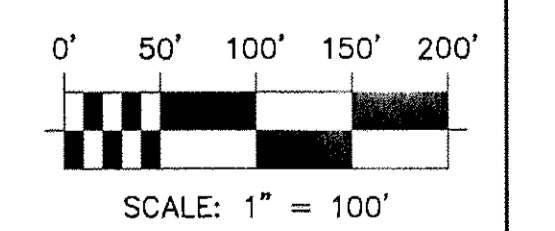
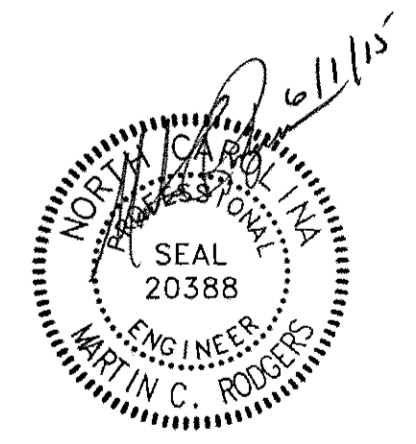
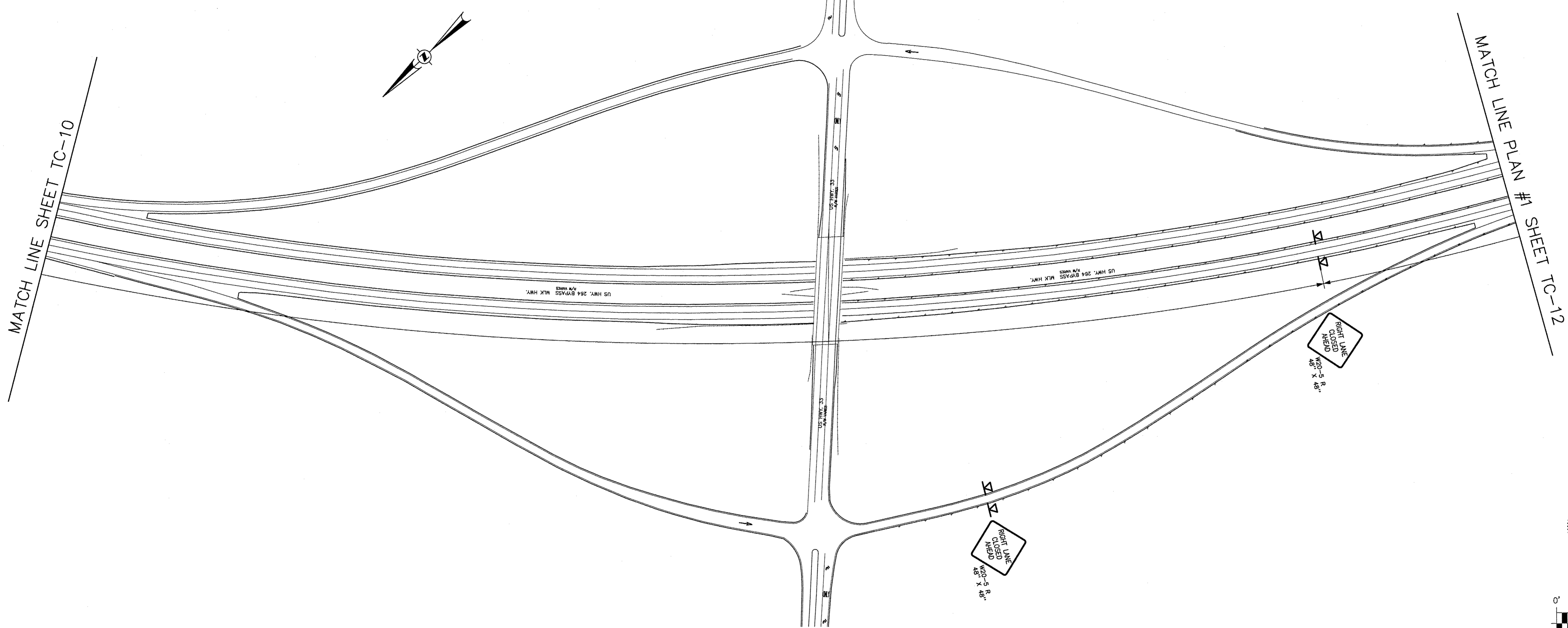
ENGINEERS | CONSTRUCTION MANAGERS | PLANNERS | SCIENTISTS

RK&K COMM. NO. 1214-011-A

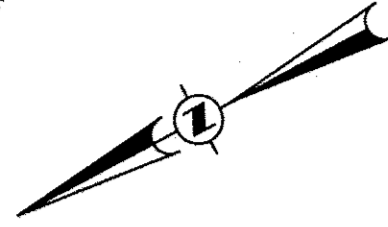
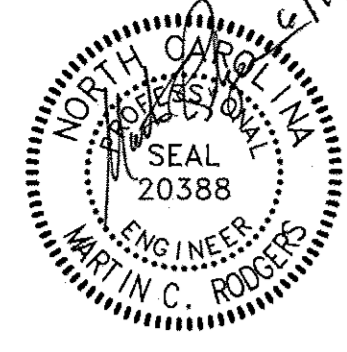
SCALE: 1" = 100'

PLAN: _____ PROFILE: _____

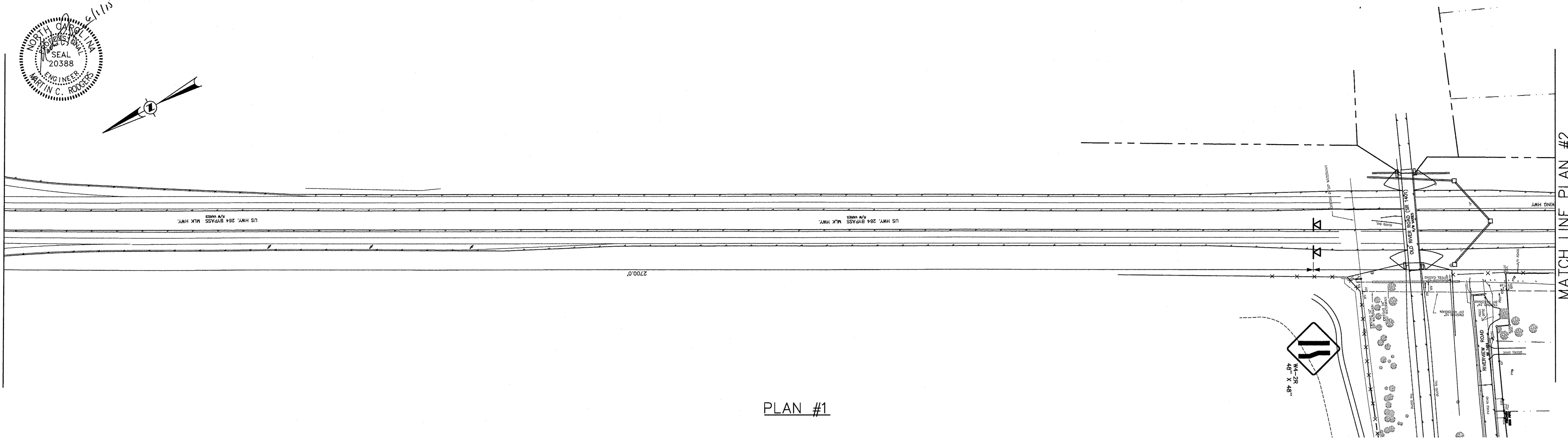
HOR.: _____ VERT.: _____



SUMMARY OF MATERIALS				NOTES				APPROVAL						PROJECT				Greenville Utilities		
ITEM	QUANTITY	DESCRIPTION						PERMITS		BID		CONSTRUCTION		GCP89 - NORTHWESTERN LOOP HIGH-PRESSURE GAS MAIN EXTENSION GREENVILLE, NC ALIGNMENT SHEET RK&K RUNNEL, KLEPPER & KAHL, LLP 2100 S. DART ST. SUITE 300 RICHMOND, VIRGINIA 23223 T-804.782.1922 F-804.782.2142 ENGINEERS CONSTRUCTION MANAGERS PLANNERS SCIENTISTS RK&K COMM. NO. 1214-011-A				DISTRICT COUNTY STATE		
								REVISIONS REV. DESIGN DRAFT CHECK DATE DESCRIPTION		INITIALS	DATE	INITIALS	DATE					INITIALS	DATE	SHEET DESCRIPTION TRAFFIC CONTROL PLAN AT CONSTRUCTION ENTRANCE CE-4 SHEET:TC-11 REVISION: 0
								TEST DATA TESTED FROM STATION: _____ TO STATION: _____ MEDIUM: _____ RECORD TEST PRESSURE: _____ psig DATE TEST COMPLETED: _____				SCALE PLAN 1" = 100' PROFILE HOR. _____ VERT. _____								



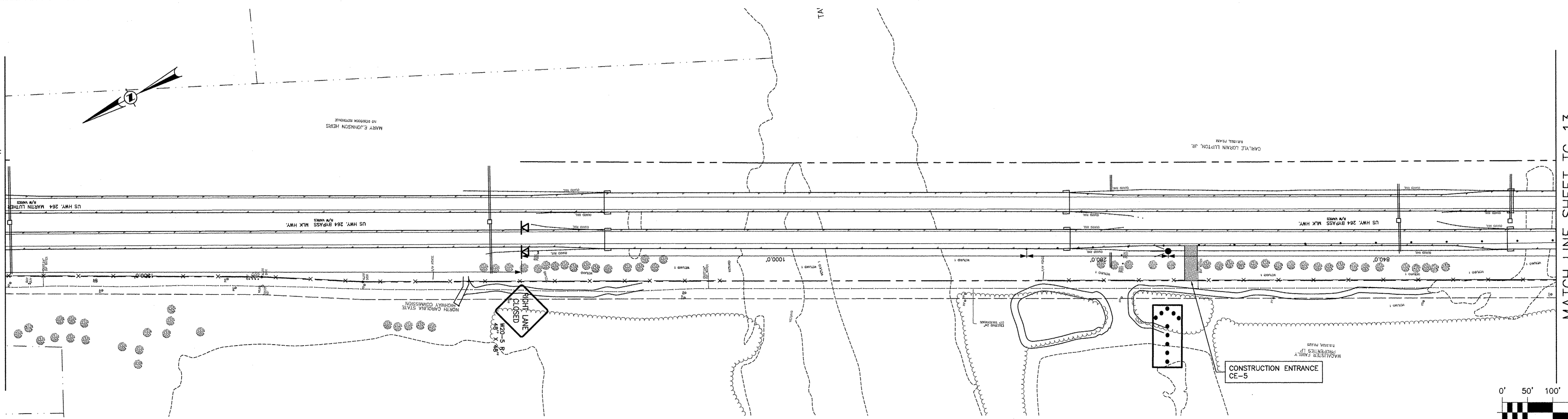
MATCH LINE SHEET TC-11



MATCH LINE PLAN #2

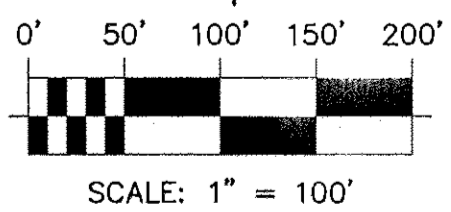
PLAN #1

MATCH LINE PLAN #1



MATCH LINE SHEET TC-13

PLAN #2



SUMMARY OF MATERIALS	
ITEM	DESCRIPTION

NOTES			
REVISIONS			
REV.	DESCRIPTION	DATE	

APPROVAL					
PERMITS		BID		CONSTRUCTION	
INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY					
C.P.					
DRAWING & DESIGN - RK&K		CSY	5/21	CSY	5/1/15
ENGINEERING - RK&K		MCR	5/21	MCR	5/1/15

PROJECT
 GCP89 - NORTHWESTERN LOOP
 HIGH-PRESSURE GAS MAIN EXTENSION
 GREENVILLE, NC

ALIGNMENT SHEET

TEST DATA
 TESTED FROM STATION: _____ TO STATION: _____
 MEDIUM: _____ RECORD TEST PRESSURE: _____ psig
 DATE TEST COMPLETED: _____

RK&K
 RICHMOND, VIRGINIA 23225
 T-804.792.1903 F-804.792.2142
 ENGINEERS | CONSTRUCTION MANAGERS | PLANNERS | SCIENTISTS
 RK&K COMM. NO. 1214-011-A

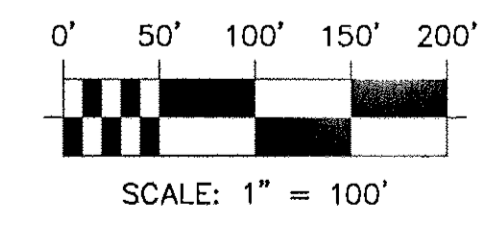
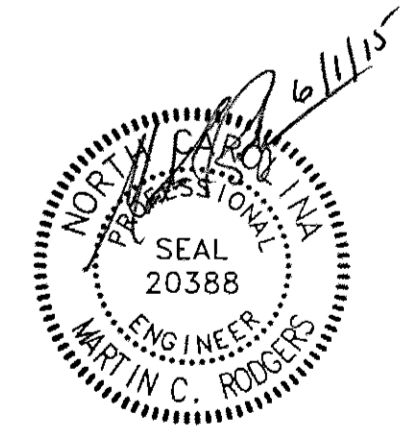
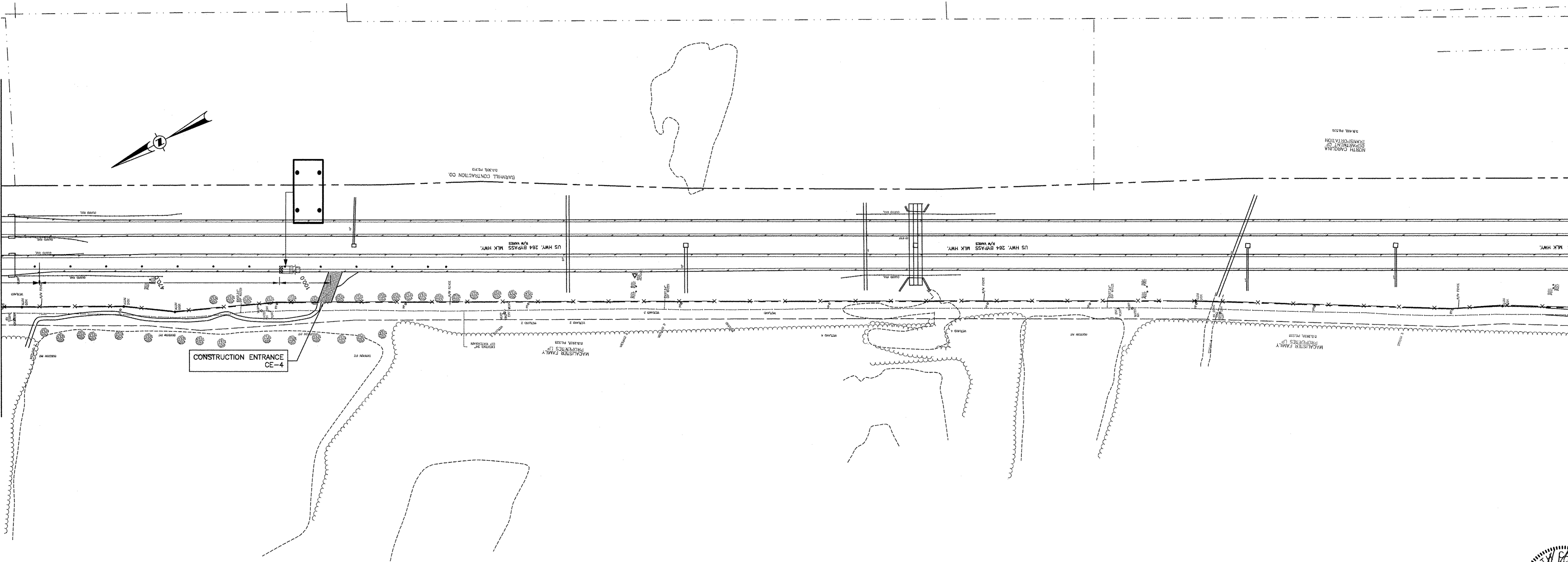
Greenville Utilities

DISTRICT: _____ COUNTY: _____ STATE: NORTH CAROLINA

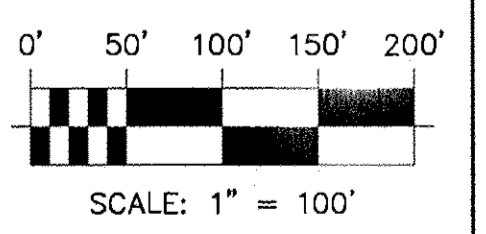
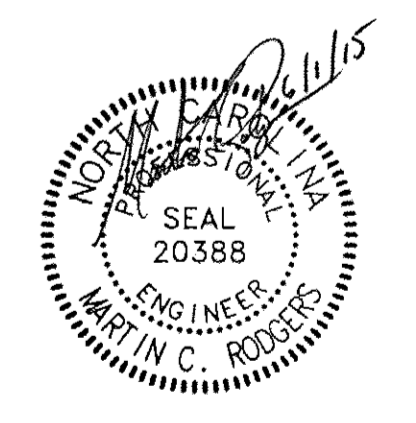
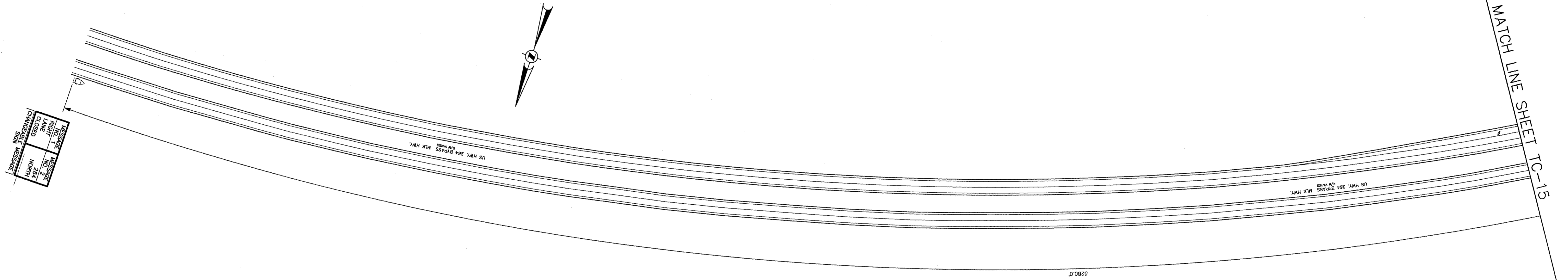
SHEET DESCRIPTION: TRAFFIC CONTROL PLAN AT CONSTRUCTION ENTRANCE CE-4

SHEET: TC-12 REVISION: 0

MATCH LINE PLAN #2 SHEET TC-12

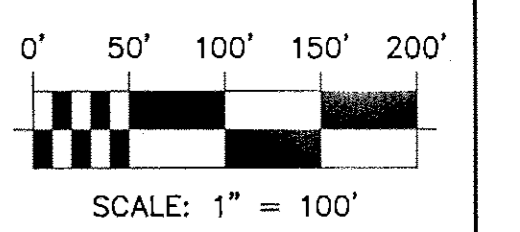
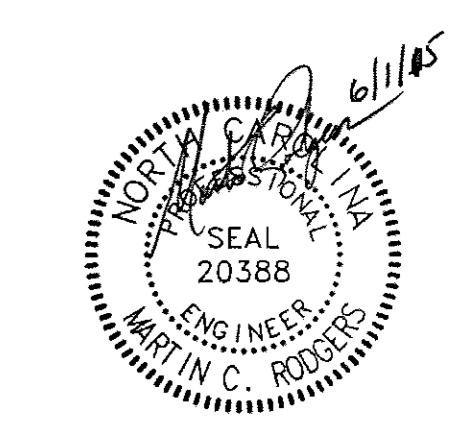
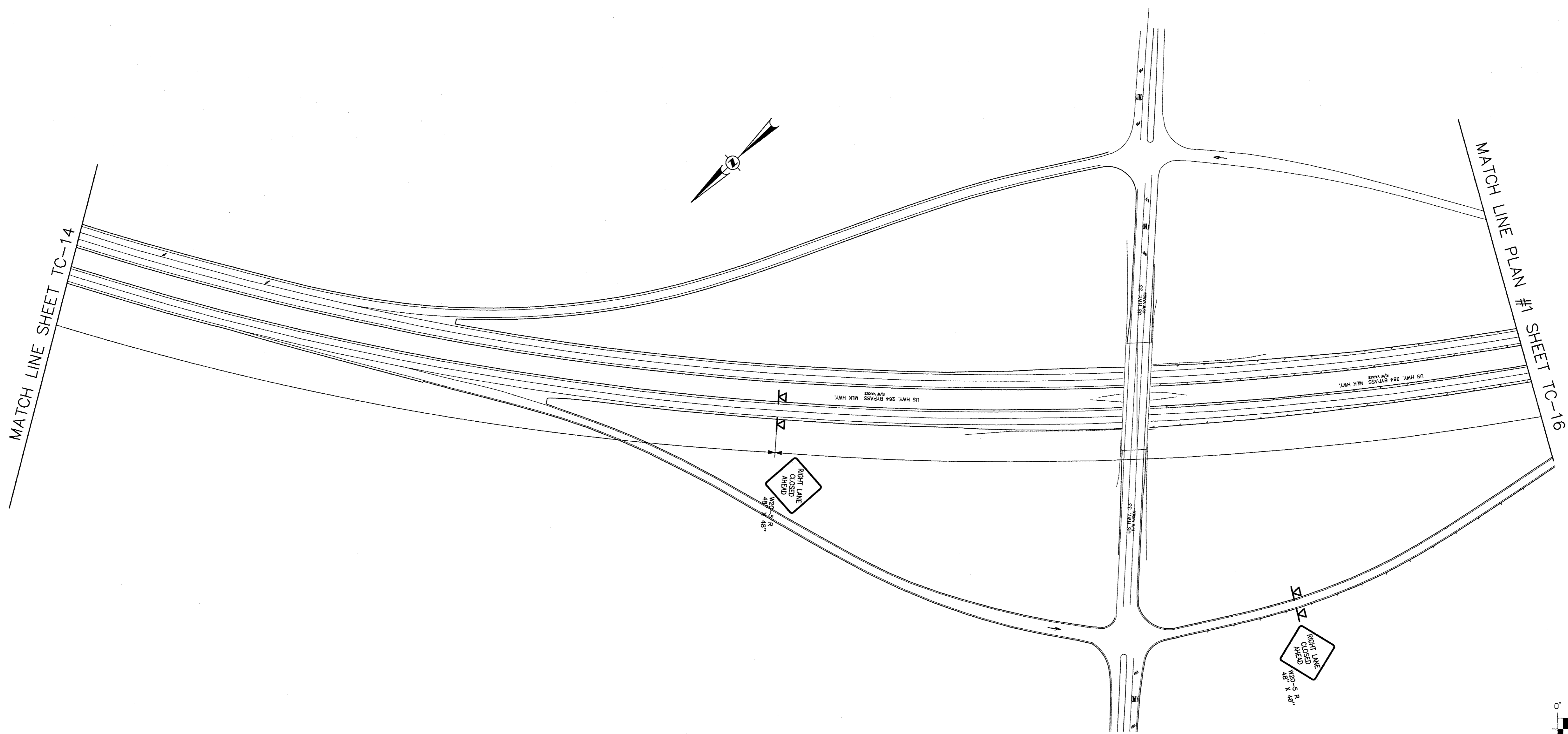


SUMMARY OF MATERIALS		NOTES				APPROVAL				PROJECT			Greenville Utilities			
ITEM	QUANTITY					PERMITS	BID		CONSTRUCTION		GCP89 - NORTHWESTERN LOOP HIGH-PRESSURE GAS MAIN EXTENSION GREENVILLE, NC			DISTRICT	COUNTY	STATE
DESCRIPTION						INITIALS	DATE	INITIALS	DATE	INITIALS	DATE	ALIGNMENT SHEET			SCALE	
												TRAFFIC CONTROL PLAN AT CONSTRUCTION ENTRANCE CE-4			PLAN 1" = 100'	
REVISIONS						TEST DATA				ALIGNMENT SHEET			PROFILE	SHEET DESCRIPTION		
		REV.	DESIGN	DRAFT	CHECK	DESCRIPTION	DATE	TESTED FROM STATION: _____ TO STATION: _____			SCALE			HORIZ. _____	VERT. _____	REVISION: 0
								MEDIUM: _____ RECORD TEST PRESSURE: _____ psig			ENGINEERS CONSTRUCTION MANAGERS PLANNERS SCIENTISTS					
								DATE TEST COMPLETED: _____			RK&K COMM. NO. 1214-011-A					



SUMMARY OF MATERIALS		NOTES				APPROVAL						PROJECT			Greenville Utilities				
ITEM	QUANTITY	DESCRIPTION				REVISIONS						GCP89 - NORTHWESTERN LOOP HIGH-PRESSURE GAS MAIN EXTENSION GREENVILLE, NC			DISTRICT	COUNTY	STATE		
		REV.	DESIGN	DRAFT	CHECK	DESCRIPTION				DATE	PERMITS	BID	CONSTRUCTION	ALIGNMENT SHEET					
											INITIALS	DATE	INITIALS	DATE	INITIALS	DATE	SHEET DESCRIPTION		
																	TRAFFIC CONTROL PLAN AT CONSTRUCTION ENTRANCE CE-5		
																	SHEET: TC-14 REVISION: 0		
																	TEST DATA		
																	TESTED FROM STATION: _____ TO STATION: _____		
																	MEDIUM: _____ RECORD TEST PRESSURE: _____ psig		
																	DATE TEST COMPLETED: _____		
																	SCALE: 1" = 100'		
																	PLAN PROFILE		
																	HOR. VERT.		






SUMMARY OF MATERIALS		NOTES	
ITEM	QUANTITY	DESCRIPTION	

REVISIONS			
REV.	DESIGN	DRAFT	CHECK

APPROVAL					
PERMITS		BID		CONSTRUCTION	
INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY					
C.P.					
DRAFTING & DESIGN - RK&K		CSY	5/21	CSY	5/1/15
ENGINEERING - RK&K		MCR	5/21	MCR	5/1/15

PROJECT	
GCP89 - NORTHWESTERN LOOP HIGH-PRESSURE GAS MAIN EXTENSION GREENVILLE, NC	
ALIGNMENT SHEET	



Greenville Utilities

DISTRICT	COUNTY	STATE
		NORTH CAROLINA

SHEET DESCRIPTION

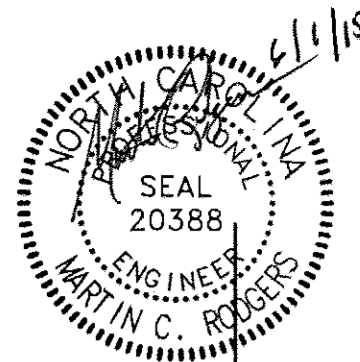
TRAFFIC CONTROL
PLAN AT CONSTRUCTION ENTRANCE CE-5

SHEET: TC-15 REVISION: 0

TEST DATA	
TESTED FROM STATION:	TO STATION:
MEDIUM:	RECORD TEST PRESSURE: psig
DATE TEST COMPLETED:	

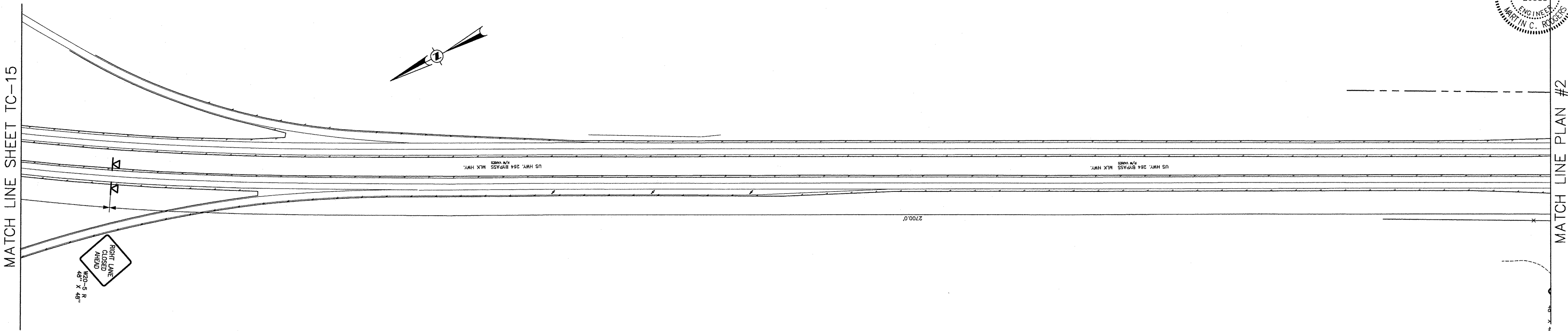
SCALE
PLAN 1" = 100'
PROFILE
HOR. -
VERT. -

RK&K RUMMEL, KEEPPERT & KYLE, LLP
2100 E. CARY ST. SUITE 300
ROANOKE, VIRGINIA 24063
1-804-782-1900 F-804-782-2142
ENGINEERS | CONSTRUCTION MANAGERS | PLANNERS | SCIENTISTS
RK&K COMM. NO. 1214-011-A



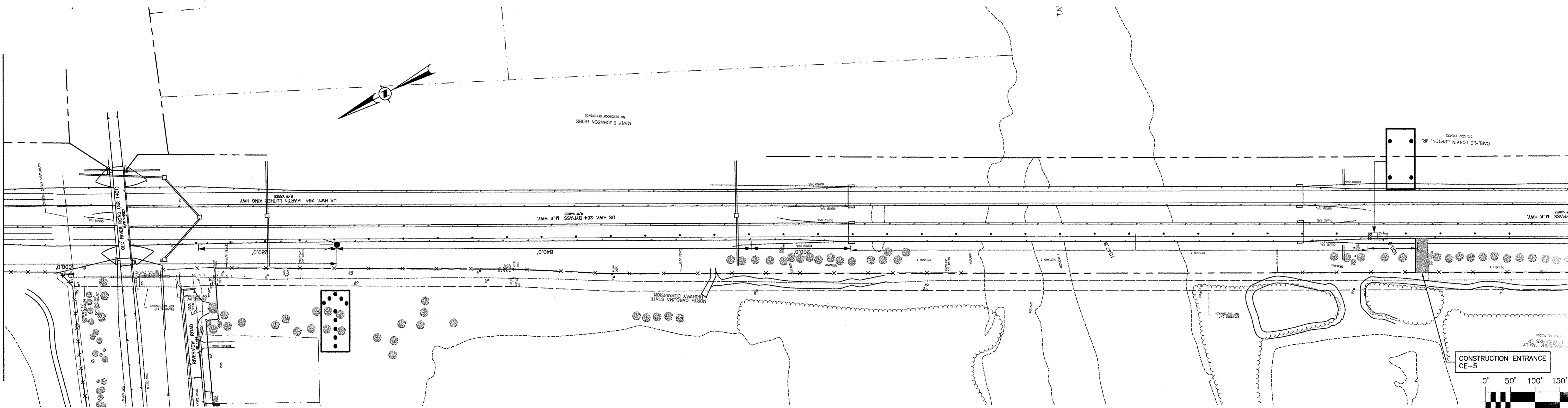
MATCH LINE SHEET TC-15

MATCH LINE PLAN #2



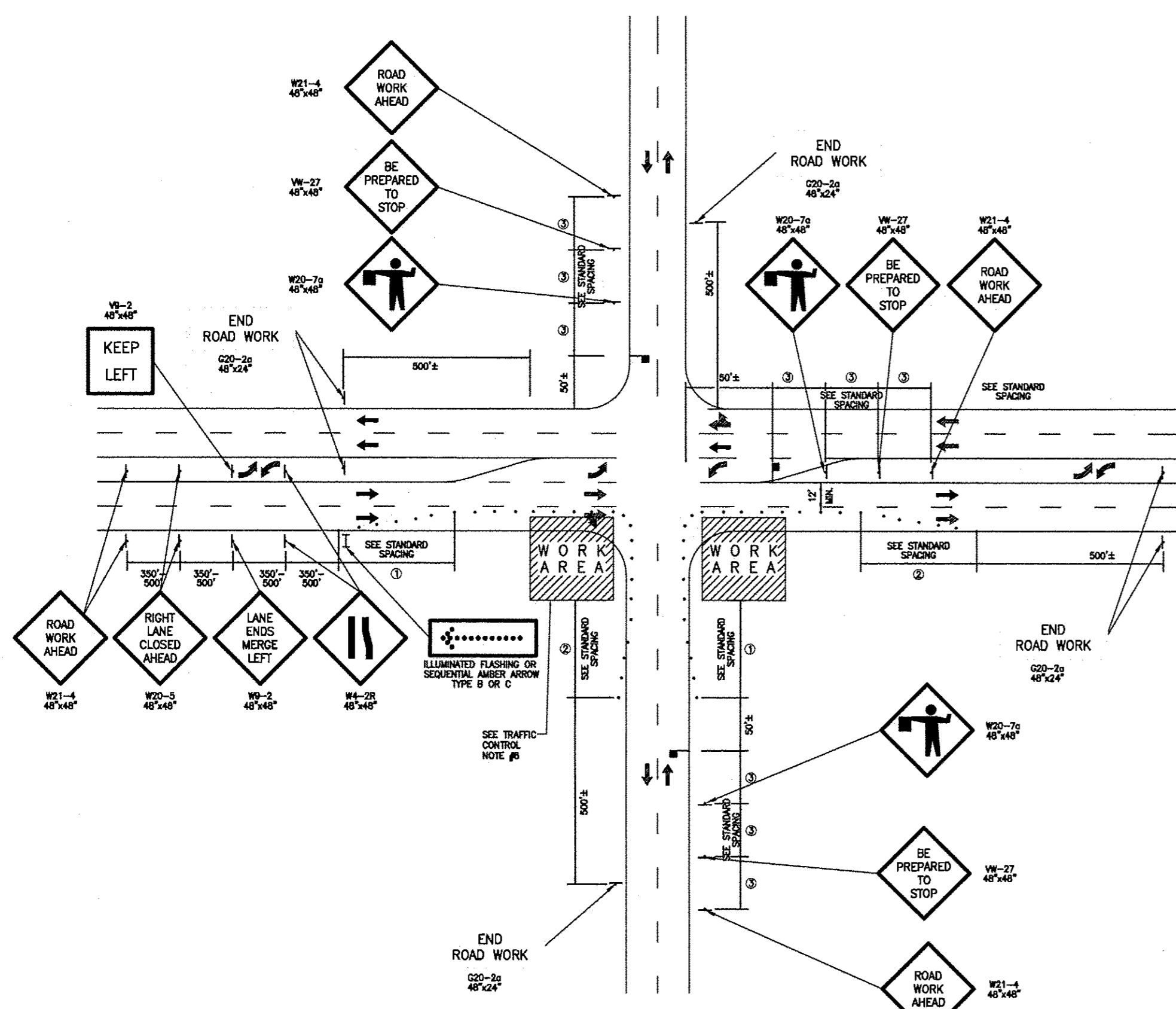
PLAN #1

MATCH LINE PLAN #1

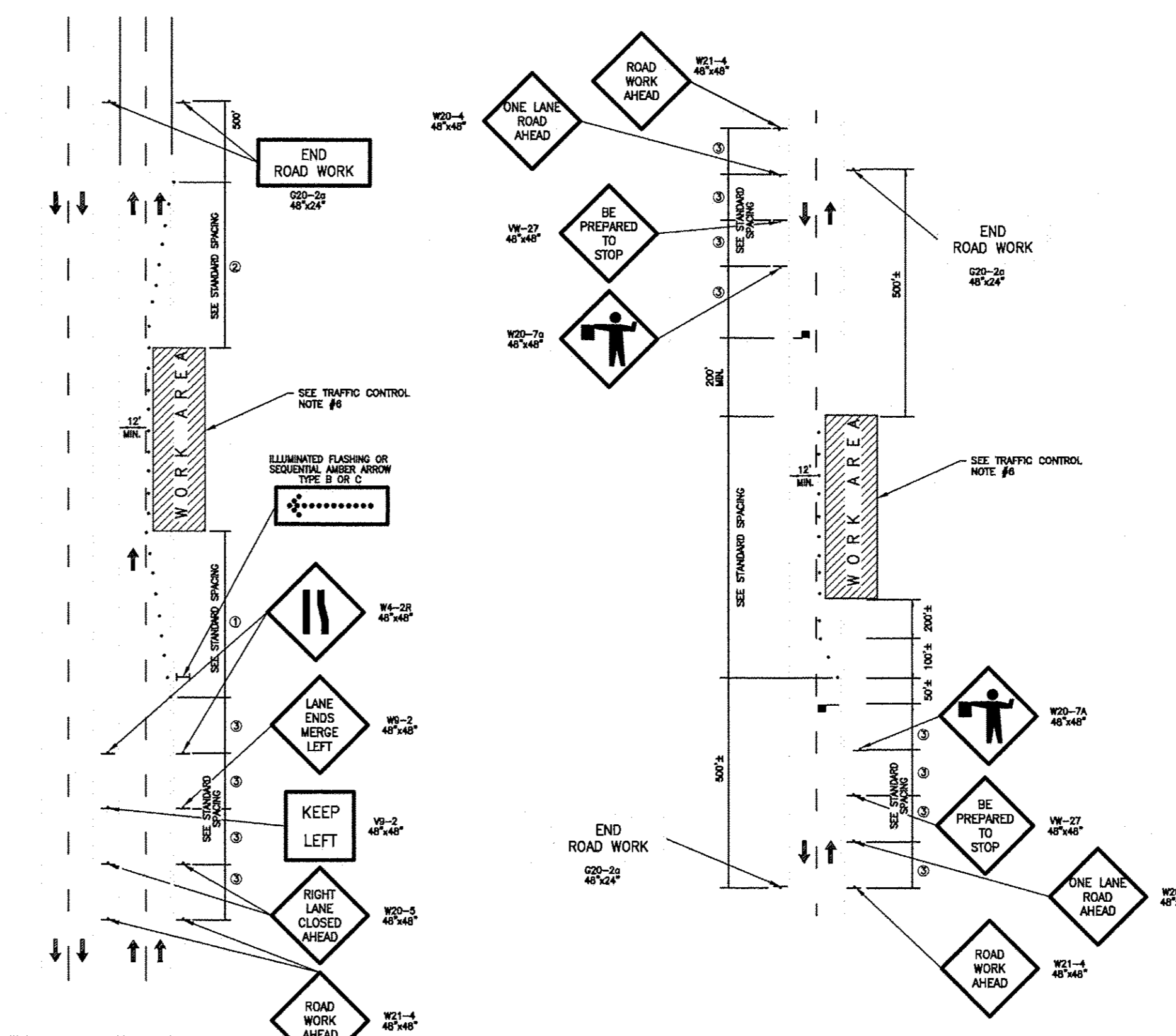


PLAN #2

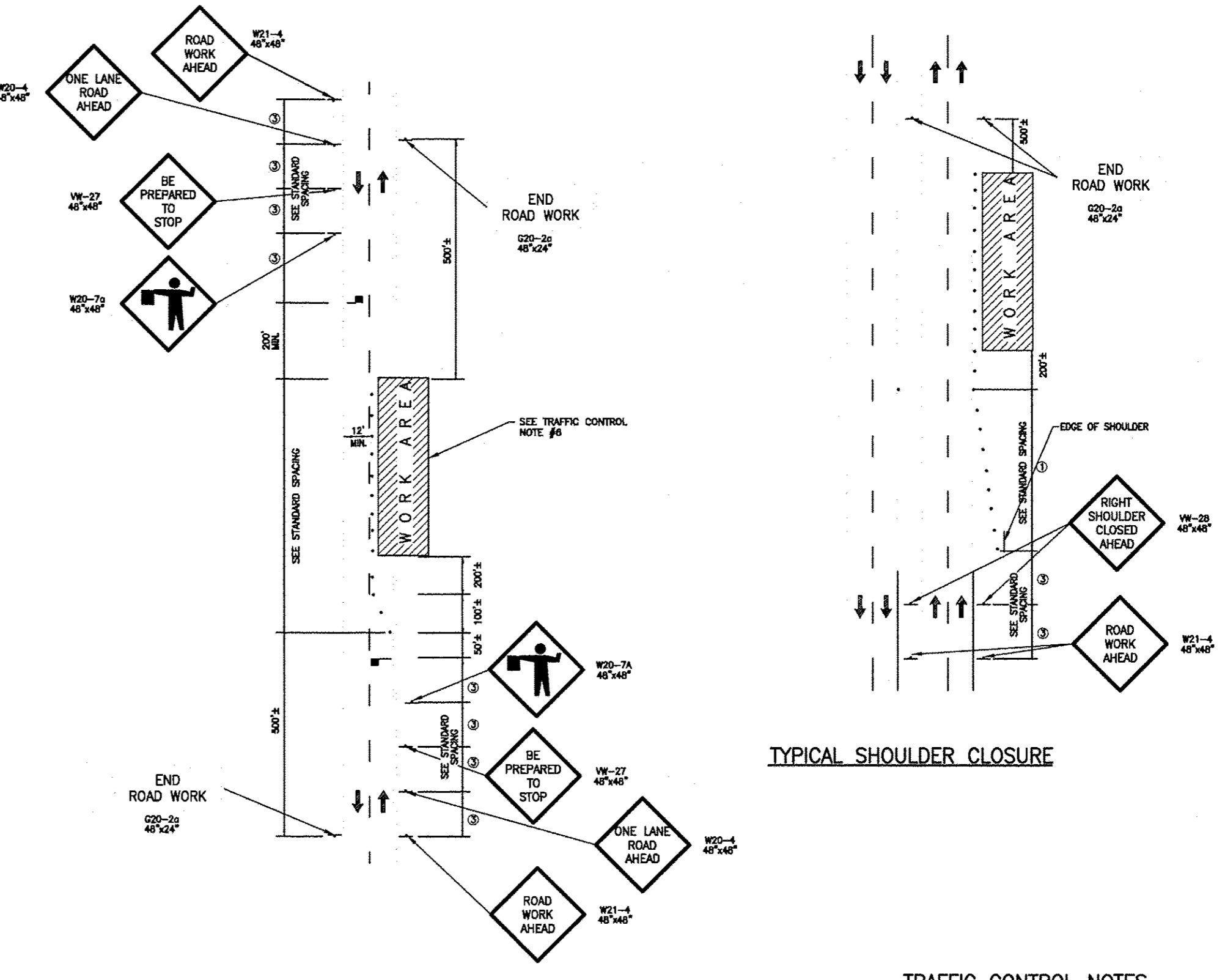
SUMMARY OF MATERIALS		NOTES			APPROVAL						PROJECT				
ITEM	QUANTITY	DESCRIPTION			PERMITS	BID		CONSTRUCTION			GCP89 - NORTHWESTERN LOOP HIGH-PRESSURE GAS MAIN EXTENSION GREENVILLE, NC				
REV.	DESIGN	DRAFT	CHECK	DATE	INITIALS	DATE	INITIALS	DATE	INITIALS	DATE	ALIGNMENT SHEET		DISTRICT	COUNTY	STATE
											SCALE: 1" = 100'		TRAFFIC CONTROL PLAN AT CONSTRUCTION ENTRANCE CE-5		
											 <small>ENGINEERS CONSTRUCTION MANAGERS PLANNERS SCIENTISTS</small>		SHEET: TC-16 REVISION: 0		
TEST DATA TESTED FROM STATION: _____ TO STATION: _____ MEDIUM: _____ RECORD TEST PRESSURE: _____ psig DATE TEST COMPLETED: _____					<small>RK&K COMM. NO. 1214-011-A</small>										



TYPICAL LANE CLOSURE THROUGH INTERSECTION

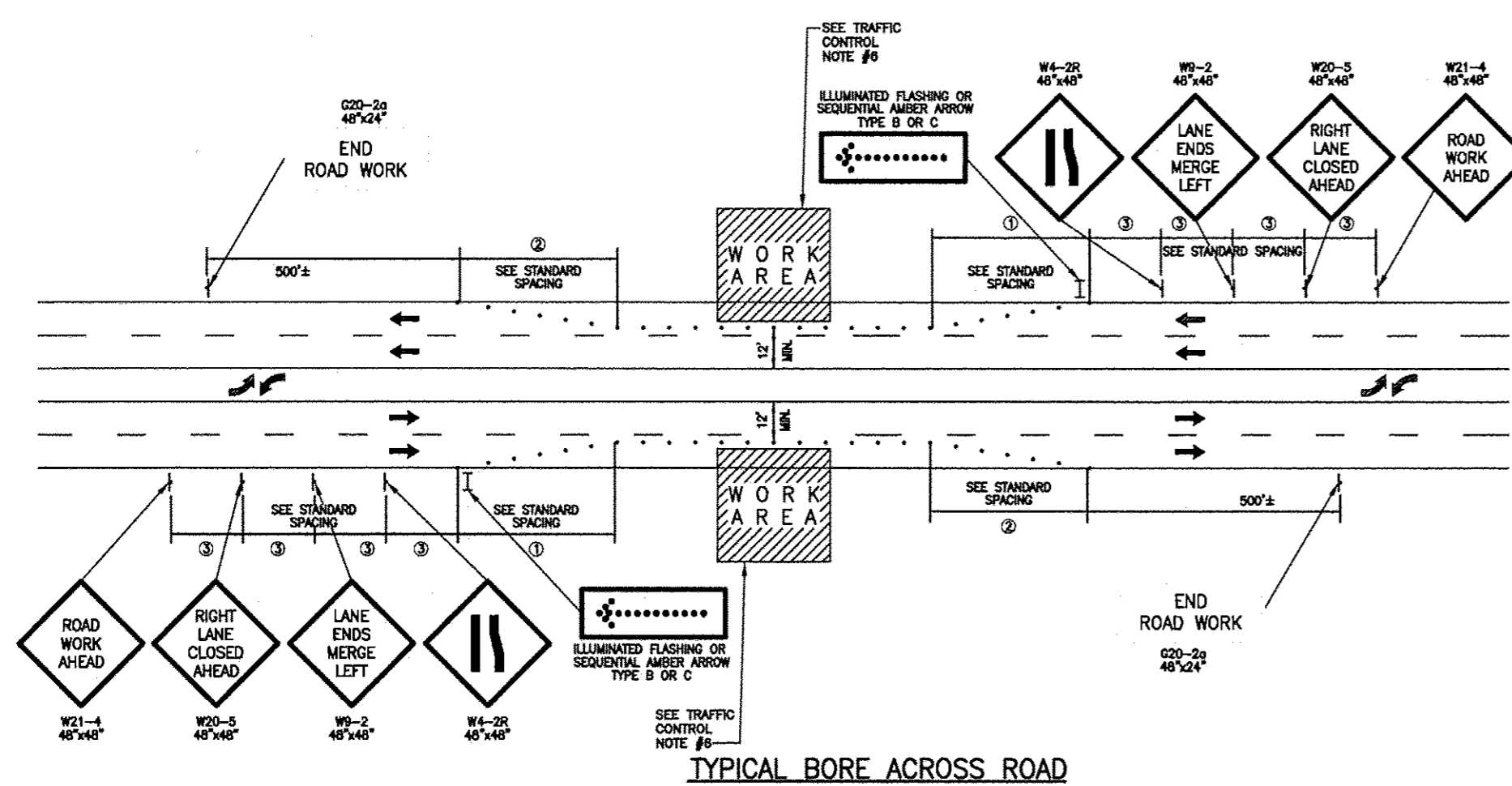


TYPICAL LANE CLOSURE MULTI-LANE TRAFFIC



TYPICAL LANE CLOSURE SINGLE LANE TRAFFIC

TYPICAL SHOULDER CLOSURE



TYPICAL BORE ACROSS ROAD

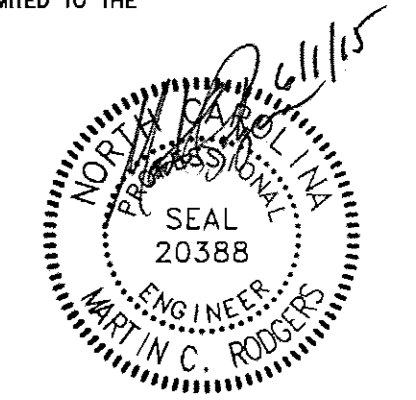
- LEGEND**
- WORK AREA
 - DIRECTION OF TRAFFIC
 - TEMPORARY WARNING SIGN
 - CHANNELING DEVICE (BARREL OR CONE)
 - FLAGGER STATION
 - LT. & RT. SIGNS REQ'D. WHERE MEDIAN EXCEEDS 8 FT.

STANDARD SPACING

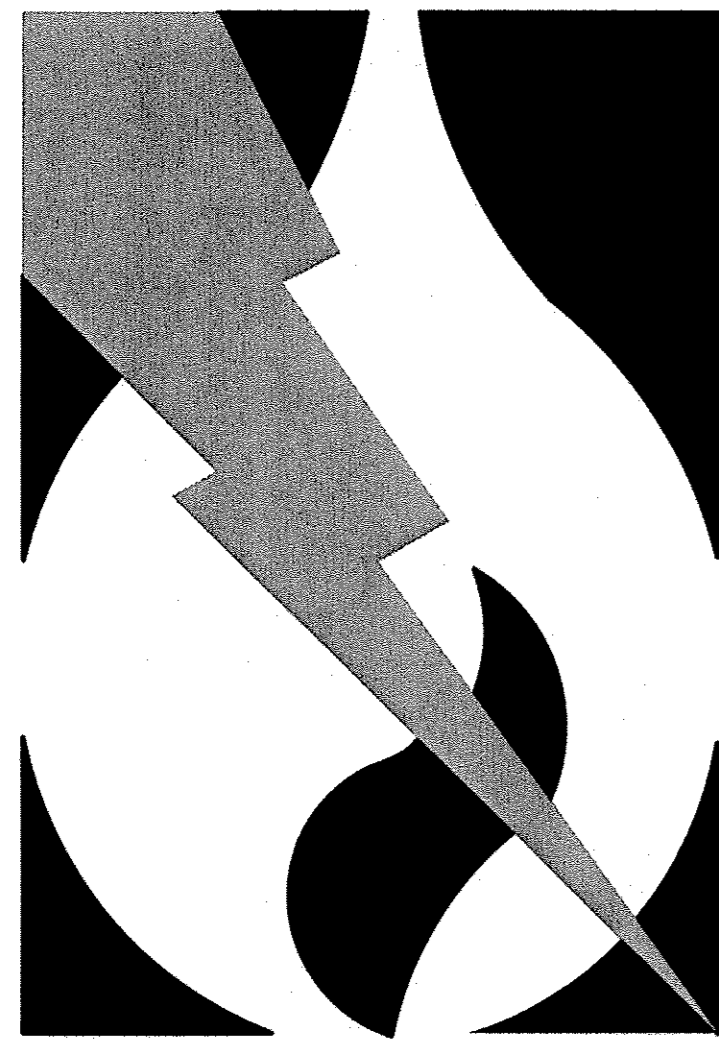
SPACE TYPE	35 MPH	45 MPH
BARRELS - TRAVELWAY SPACING	40'	80'
BARRELS - TRAVELWAY SPACING	20'	40'
① ENTRANCE TAPER	245'	540'
② EXIT TAPER	80'	80'
③ SIGN SPACING	350'-500'	350'-500'

TRAFFIC CONTROL NOTES

1. NO WORK SHALL BE DONE WITHIN 300 FEET OF PRIMARY ROAD INTERSECTIONS BETWEEN THE HOURS OF 7:00 A.M. - 9:00 A.M. AND 4:00 P.M. - 6:00 P.M.
2. UNLESS SPECIAL PERMISSION HAS BEEN GRANTED BY ANY AND ALL CONTROLLING AUTHORITIES, ALL LANES MUST BE RESTORED TO NORMAL WIDTHS AT THE OCCUSION OF EACH CONSTRUCTION DAY.
3. CHANNELIZING DEVICES MUST SEPARATE THE WORK AREA FROM THE TRAVELED WAY AND BE EXTENDED TO WHERE THEY ARE VISIBLE TO ONCOMING TRAFFIC.
4. SHOULD SPECIAL PERMISSION BE GRANTED TO EXTEND WORKING HOURS SUCH THAT CONSTRUCTION IS CARRIED ON AFTER SUNSET OR BEFORE SUNRISE, THE CONTRACTOR SHALL PROVIDE: A) FLOODLIGHTS TO MARK FLAGGER STATIONS, AND B) STEADY-BURN WARNING LIGHTS ON CHANNELIZING DEVICES AND BLINKING LIGHTS ON WARNING SIGNS.
5. ALL TRAFFIC CONTROL METHODS AND DEVICES SHALL CONFORM TO THE MOST CURRENT MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREET AND HIGHWAYS ISSUED BY THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION AND THE MOST CURRENT NORTH CAROLINA WORK AREA PROTECTION MANUAL.
6. A TRUCK WITH EITHER AN ARROW BOARD OPERATING IN THE CAUTION MODE, OR AT LEAST ONE ROTATING AMBER LIGHT OR HIGH INTENSITY AMBER STROBE LIGHT SHALL BE PARKED 50'-100' IN ADVANCE OF THE FIRST WORK CREW. WHEN POSTED SPEED LIMIT IS 45 MPH OR GREATER, A TRUCK MOUNTED ATTENUATOR SHALL BE USED.
7. THE CONTRACTOR IS RESPONSIBLE FOR REPLACEMENT OF ANY PAVEMENT MARKINGS DAMAGED BY CONSTRUCTION.
8. ACCESS TO ALL PARCELS AFFECTED BY CONSTRUCTION SHALL BE MAINTAINED AT ALL TIMES.
9. THE CONTRACTOR SHALL OBTAIN WRITTEN CONSENT FROM THE CONTROLLING AUTHORITY PRIOR TO CLOSING ONE LANE OF A TWO LANE ROADWAY.
10. THIS PLAN IS PROVIDED BY GREENVILLE UTILITIES COMMISSION IN AN EFFORT TO PROVIDE THE CONTRACTOR WITH AN UNDERSTANDING OF THE MINIMUM REQUIREMENTS FOR TRAFFIC CONTROL WHICH MUST BE MET AND TO AID IN THE INCLUSION OF THOSE COSTS IN THE PREPARATION OF HIS BID. THIS PLAN AND THE USE THEREOF DOES NOT IN ANY WAY RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITIES OF PROTECTION OF THE WORK AND THE PUBLIC'S SAFETY. IT IS A SPECIFIC CONTRACT REQUIREMENT THAT THE CONTRACTOR INDEMNIFY AND HOLD HARMLESS THE OWNER AND THE ENGINEER AGAINST ALL LOSSES INCURRED IN THE EXECUTION OF THE WORK AND IN THE GUARDING OF IT. THIS REQUIREMENT INCLUDES BUT IS NOT LIMITED TO THE USE OF THIS PLAN.



SUMMARY OF MATERIALS		NOTES	APPROVAL			PROJECT	
ITEM	QUANTITY		PERMITS	BID	CONSTRUCTION		
DESCRIPTION		REV. DESIGN DRAFT CHECK DESCRIPTION DATE	INITIALS	DATE	INITIALS	DATE	GCP89 - NORTHWESTERN LOOP HIGH-PRESSURE GAS MAIN EXTENSION GREENVILLE, NC
			SURVEY C.P. DRAFTING & DESIGN - RK&K ENGINEERING - RK&K	CSY 5/21 MCR 5/21	CSY 5/1/15 MCR 5/1/15	- - -	
			TEST DATA TESTED FROM STATION: _____ TO STATION: _____ MEDIUM: _____ RECORD TEST PRESSURE: _____ psig DATE TEST COMPLETED: _____			SCALE _____ PLAN _____ PROFILE _____ HOR. _____ VERT. _____	DISTRICT _____ COUNTY _____ STATE _____ SHEET DESCRIPTION STANDARD TRAFFIC CONTROL DETAILS SHEET: TC-17 REVISION: 0



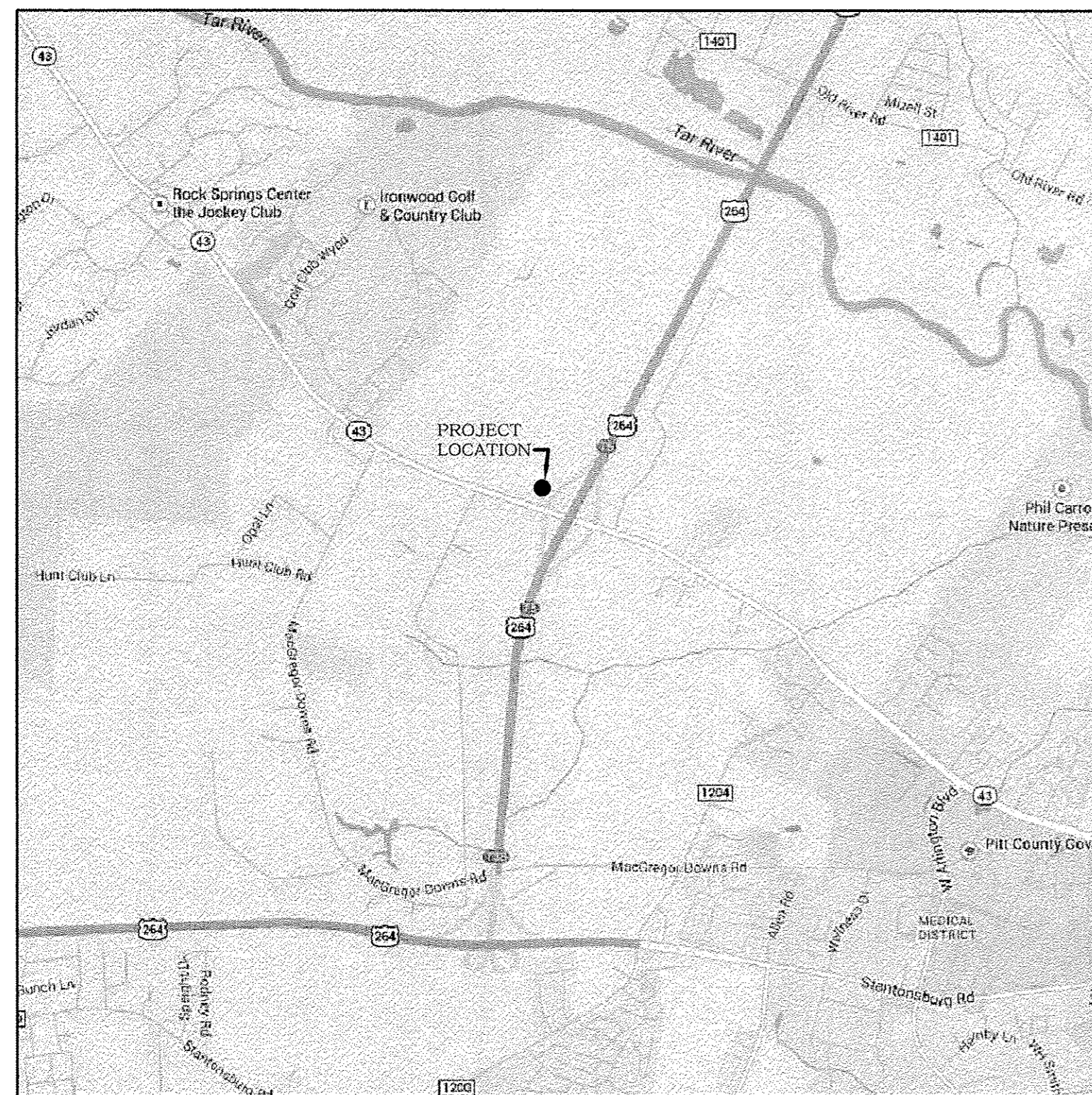
Greenville Utilities

GCP89 - Highway 43

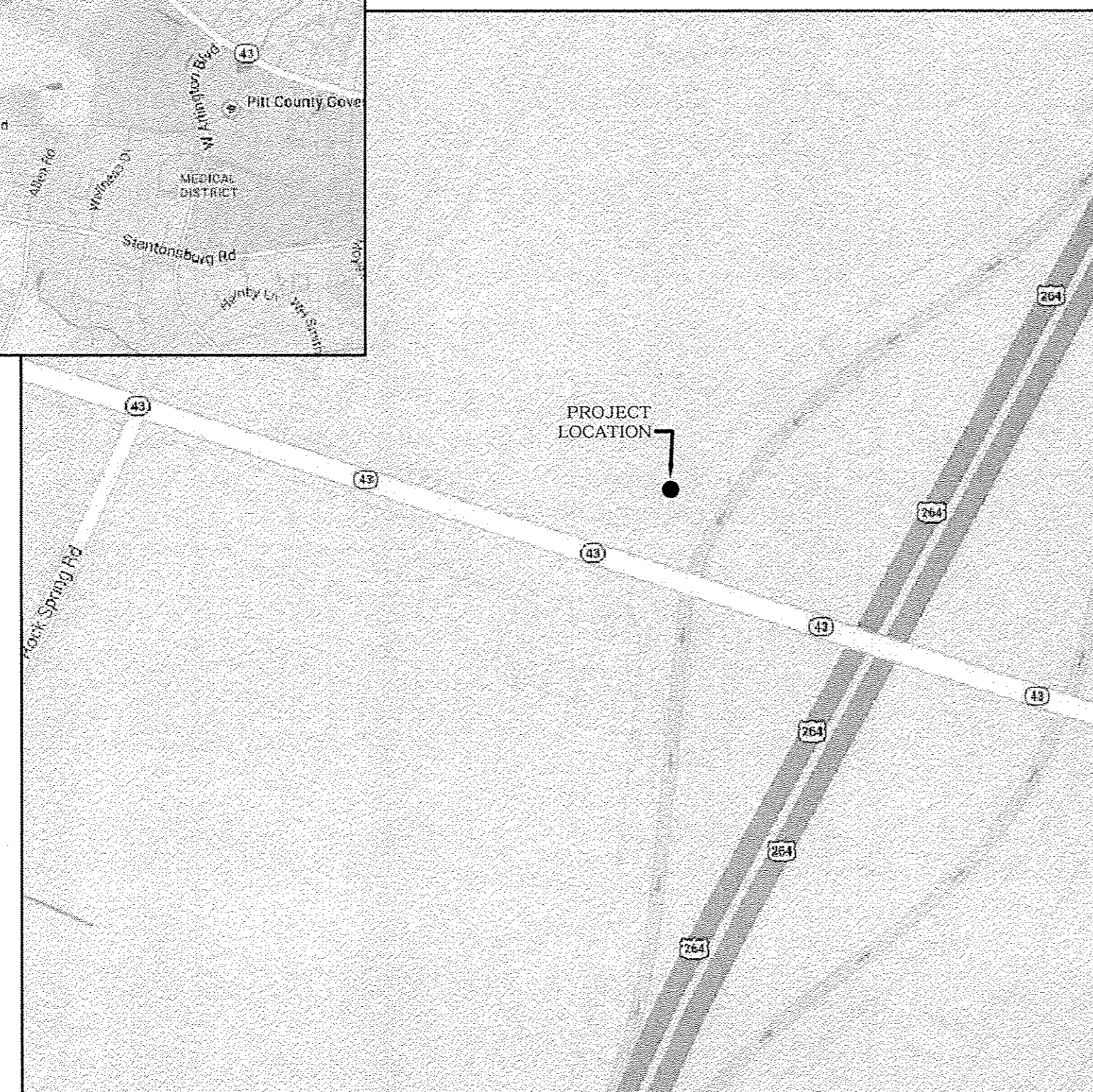
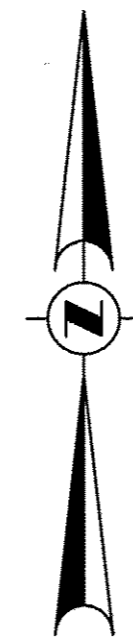
District Regulator Station

City of Greenville, North Carolina

June 1, 2015



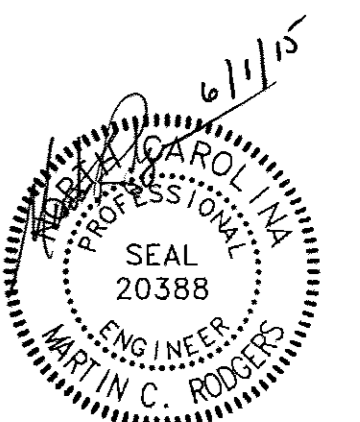
VICINITY MAP
NOT TO SCALE



LOCATION MAP
NOT TO SCALE

SHEET INDEX

<u>SHEET DESCRIPTION</u>	<u>SHEET NUMBER</u>
COVER SHEET	-
BILL OF MATERIALS, DRAWING LEGEND AND GENERAL NOTES	1 OF 11
EXISTING CONDITIONS PLAN	2 OF 11
EXISTING SITE CONDITIONS PLAN	3 OF 11
PROPOSED SITE PLAN	4 OF 11
PROPOSED SITE GRADING PLAN	5 OF 11
PROPOSED SITE PLAN DETAIL	6 OF 11
PROPOSED PIPING PLAN	7 OF 11
PIPING SECTION AND DETAILS	8 OF 11
PIPING SECTION AND TIE-IN DETAIL	9 OF 11
PIPING SECTION AND DETAILS	10 OF 11
PIPING SECTION AND DETAIL	11 OF 11



Issued for Bids



RUMMEL · KLEPPER and KAHL, LLP
ENGINEERS | CONSTRUCTION MANAGERS | PLANNERS | SCIENTISTS
RICHMOND, VIRGINIA

DRAWING LEGEND

SYMBOL	DESCRIPTION
	CENTERLINE
	HYDRO
	EXISTING FENCE
	EXISTING GUARD RAIL
	EXISTING EDGE-OF-PAVEMENT
	EXISTING DRIVEWAY/PATH
	EXISTING GAS TO REMAIN
	EXISTING UTILITY EASEMENT
	EXISTING PROPERTY LINE
	EXISTING RIGHT-OF-WAY (R/W)
	EXISTING SANITARY SEWER
	EXISTING STORM DRAINAGE
	EXISTING UNDERGROUND ELECTRIC LINE
	EXISTING UNDERGROUND TELEPHONE CABLE
	EXISTING UNDERGROUND FIBER OPTIC
	EXISTING WATER
	BORROW PIT
	WETLAND BOUNDARY
	RIPARIAN BARRIER
	AE FLOODWAY
	AE FLOODZONE
	PROPOSED TEMPORARY WORKSPACE
	PROPOSED UTILITY EASEMENT
	PROPOSED FENCE
	PROPOSED GAS PIPE ABOVE GRADE (DOUBLE LINE)
	PROPOSED GAS PIPE BELOW GRADE (DOUBLE LINE)

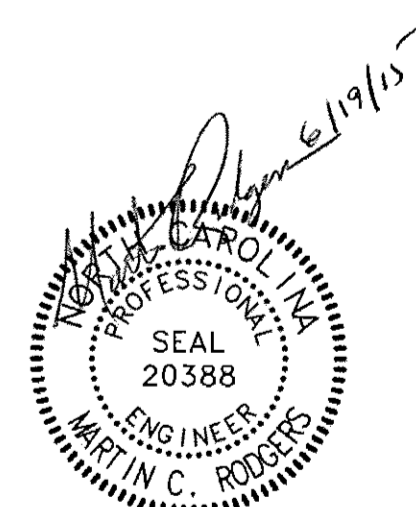
- NOTES:
- ALL DIMENSIONS TO BE VERIFIED PRIOR TO FABRICATION AND INSTALLATION.
 - ALL PIPING TO BE FABRICATED & TESTED IN ACCORDANCE WITH 49 CFR 192 AND PROJECT SPECIFICATIONS.
 - ALL PIPE WELDING TO BE PERFORMED PER GUC WELD STANDARDS AND PROJECT SPECIFICATIONS.
 - ALL PIPING SHALL BE THOROUGHLY CLEANED OF MILL SCALE, WELD SLAG, & RUST PRIOR TO ASSEMBLY.
 - ALL PIPING SHALL BE VISUALLY INSPECTED BY ENGINEER/OWNER PRIOR TO FABRICATION OF ASSEMBLY.

DRAWING LEGEND

SYMBOL	DESCRIPTION
EX.	EXISTING
ST	STEEL
PE	POLYETHYLENE
POS	PROPOSED GAS SERVICE
PROP.	PROPOSED
RCP	REINFORCED CONCRETE PIPE
STA	STATION
	INSULATING FLANGE LOCATION
①	PROPOSED ITEM NUMBER
	FLOW ARROW
	EARTH
	GRAVEL
	CONCRETE
① 4	DETAIL IDENTIFICATION SHEET NUMBER
A 4	SECTION IDENTIFICATION SHEET NUMBER

Item	Quantity	Unit	Size	Description of Station Materials
4	3	EA	6"	Elbow, 90°, LR, Y-52, SCH 40, 0.280" w.t.
15	2	EA	6"	Cap, Y-52, 0.280" w.t.
25	10	LF	4"	Steel Pipe, 0.237" w.t., X-52, Coated, ERW, BE, Spec API-5L
42	4	EA	8' x 4'	Gradient Control Mat
44	70	LF	6"	Steel Pipe, 0.280" w.t., X-52, Coated, ERW, BE, Spec API-5L
45	100	LF	4"	Steel Pipe, 0.237" w.t., X-52, Bare, ERW, BE, Spec API-5L
46	9	EA	4"	Elbow, 90°, LR, Y-52, SCH 40, 0.237" w.t.
49	2	EA	6"x4"	Reducer, Weld End, Concentric, Y-52, WT = 0.280" x 0.237"
51	1	EA	4"	Weather Cap
52	8	EA	4"x2"	Reducer, Weld End, Concentric, Y-52, WT = 0.237" x 0.154"
53	2	EA	4"x3"	Reducer, Weld End, Concentric, Y-52, WT = 0.280" x 0.216"
54	1	EA	6"	Tee, Weld End, Straight, Y-52, WT = 0.280" x 0.280"
55	7	EA	4"	Tee, Weld End, Straight, Y-52, WT = 0.237" x 0.237"
56	1	EA	6"	Valve, Ball, Weld End, ANSI 300, Kerotest Weldball or equivalent
58	8	EA	4"	Valve, Ball, Flanged End, ANSI 300, Kerotest Weldball or equivalent
59	1	EA	3"	Valve, Ball, Flanged End, ANSI 150, Fisher Vee-Ball V150 w/ Fisher 2052 Diaphragm Rotary Actuator
60	2	EA	4"	Valve, Ball, Flanged End, ANSI 150, Kerotest Weldball or equivalent
61	1	EA	4"	Meter, Flanged End, ANSI 300, Equimeter Model No. AAT18/27
62	1	EA	4"	Valve, Relief, Flanged End, ANSI 300, Fisher 63EG w/ 6458 series pilot
63	1	EA	4"	Strainer, Tee Style, Flanged End, ANSI 300, Apollo Engineering Model TSF
64	4	EA	2"x1"	Regulator, Pressure Reducing, Flanged End, ANSI 300, Fisher Type EZR
65	1	EA	4"	Pipe Support, EZ-Line, Model 204, Figure F w/ Neoprene Liner, Part No. 204-F, 4" P.S., D-1'-4" (*)
67	27	EA	36"-4" x 1/2"	Threolet, 3000#
68	26	EA	1/2" x 2"	Pipe Nipple, Extra Strong, Grade B, Seamless C.S., thread both ends
69	26	EA	1/2"	Valve, Ball, Class 3000, NFPT X NFPT, lockable, Swagelok Series 60 or equivalent
70	28	EA	1/2"	Pipe plug, Hex Head, Extra Strong, F.S., screwed
72	28	EA	4"	Weld Neck Flange, RF, ANSI 300, WT = 0.237", Bore = 4.020"
73	2	EA	3"	Weld Neck Flange, RF, ANSI 150, WT = 0.216", BORE = 3.068"
74	8	EA	2"	Weld Neck Flange, RF, ANSI 300, WT = 0.154", Bore = 2.067"
75	4	EA	4"	Weld Neck Flange, RF, ANSI 150, WT = 0.237", Bore = 4.020"
77	23	EA	4"	Gasket, Spiral Wound, Flexitallic, ANSI 300
78	2	EA	3"	Gasket, Spiral Wound, Flexitallic, ANSI 150
79	8	EA	2"	Gasket, Spiral Wound, Flexitallic, ANSI 300
80	4	EA	4"	Gasket, Spiral Wound, Flexitallic, ANSI 150
81	1	EA	4"	Straightening Vanes, Flanged, Apollo Engineering, Model No. 04F30-90-00
82	3	EA	4"	Flange Insulation Kit, ANSI 300, Type E, Linebacker, Double Washer Set, w/Full Length Phenolic Sleeves
84	192	EA	(4") ANSI 300	Stud Bolts, All Thread, 3/4" Diameter x 4 1/2" Long, Grade B-7, ASTM A-194, w/2 A-194, Grade 2H Heavy Hex Nuts (8 bolts per connection)
85	8	EA	(3") ANSI 150	Stud Bolts, All Thread, 5/8" Diameter x 3 3/4" Long, Grade B-7, ASTM A-194, w/2 A-194, Grade 2H Heavy Hex Nuts (4 bolts per connection)
86	64	EA	(2") ANSI 300	Stud Bolts, All Thread, 5/8" Diameter x 3 1/2" Long, Grade B-7, ASTM A-194, w/2 A-194, Grade 2H Heavy Hex Nuts (8 bolts per connection)
87	32	EA	(4") ANSI 150	Stud Bolts, All Thread, 5/8" Diameter x 4" Long, Grade B-7, ASTM A-194, w/2 A-194, Grade 2H Heavy Hex Nuts (8 bolts per connection)
89	11	EA	4"	Pipe Support, EZ-Line, Model 204, Figure F w/ Neoprene Liner, Part No. 204-F, 4" P.S., D-4'-5" (*)
90	48	EA	5/8" x 5 1/2"	Expansion Bolt, HILTI HVA, Adhesive System w. Carbon Steel Threaded Rods
91	1 ROLL	NA	NA	Rock Shield
92	1	EA	4"	Double Pipe Support, EZ-Line, Model DPS-4
93	2	EA	3/4" Dia. x 10'L	Copperclad Steel Ground Rod
94	20	LF	NA	#3/0 THWN Stranded Copper Wire
95	2	EA	NA	Grounding Mold
96	8	EA	NA	Cable to Rod/Tube Ground Connector
97	150	LF	3/4"	PVC Conduit
98	5	EA	3/4"	Rigid Galvanized Conduit Riser

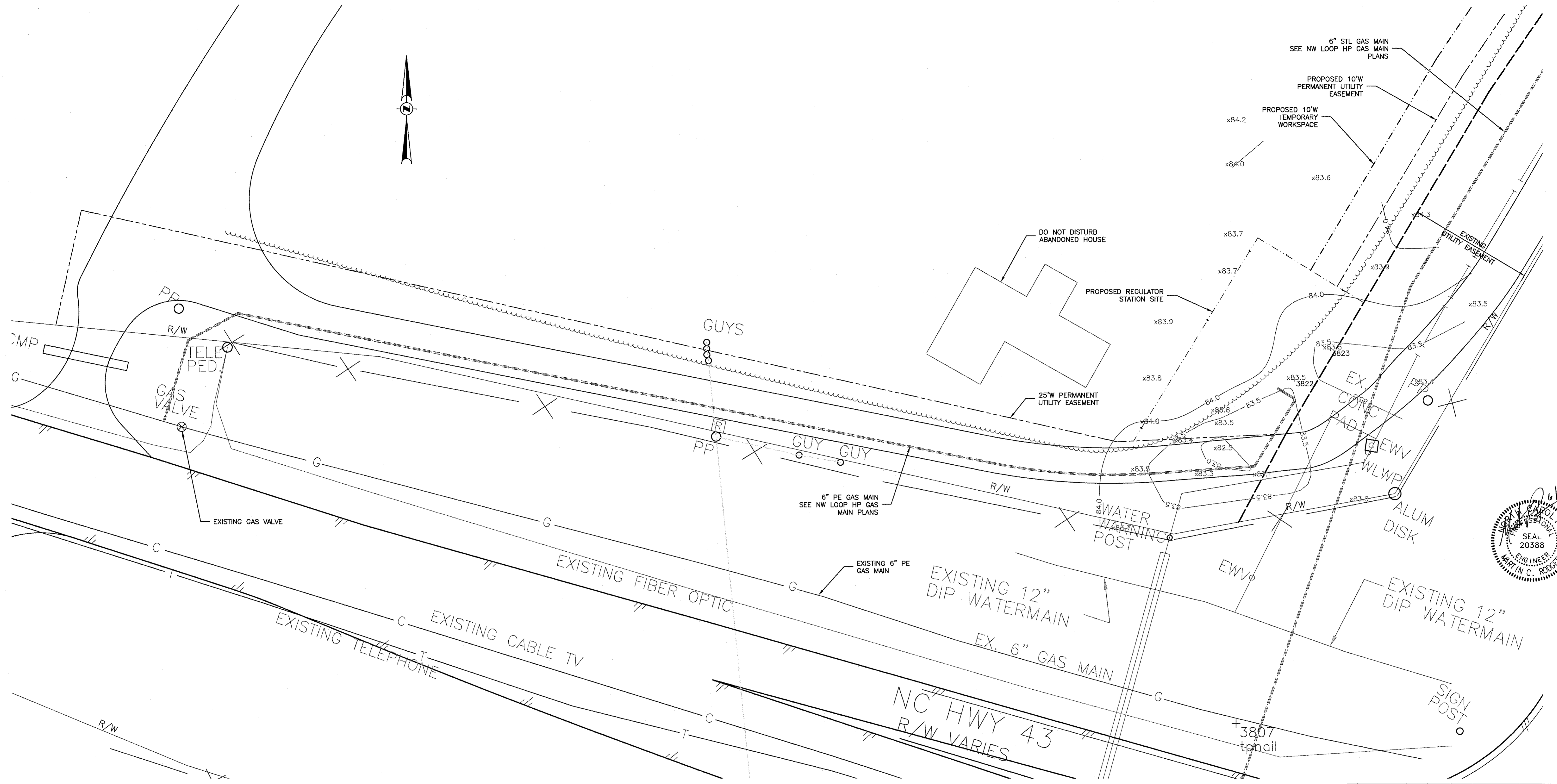
*BASE PLATE OF PIPE STAND SHALL HAVE 3/4"x1/2" SLOTTED HOLES TO ACCOMMODATE 5/8" BOLTS.



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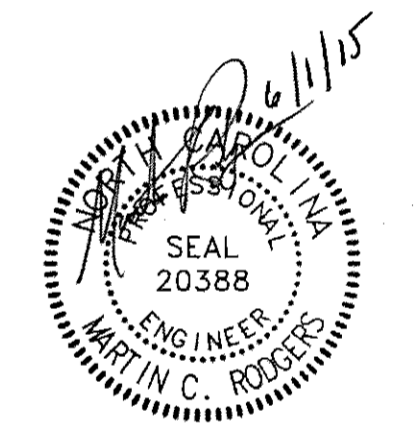
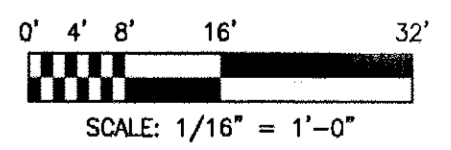
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							INITIALS	DATE	INITIALS	DATE	INITIALS	DATE	PITT	NORTH CAROLINA																																		
REVISIONS							TEST DATA				ALIGNMENT SHEET		BILL OF MATERIALS, DRAWING LEGEND, AND GENERAL NOTES																																			
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SCALE	PLAN	PROFILE																																														
HOR.																																																
VERT.																																																



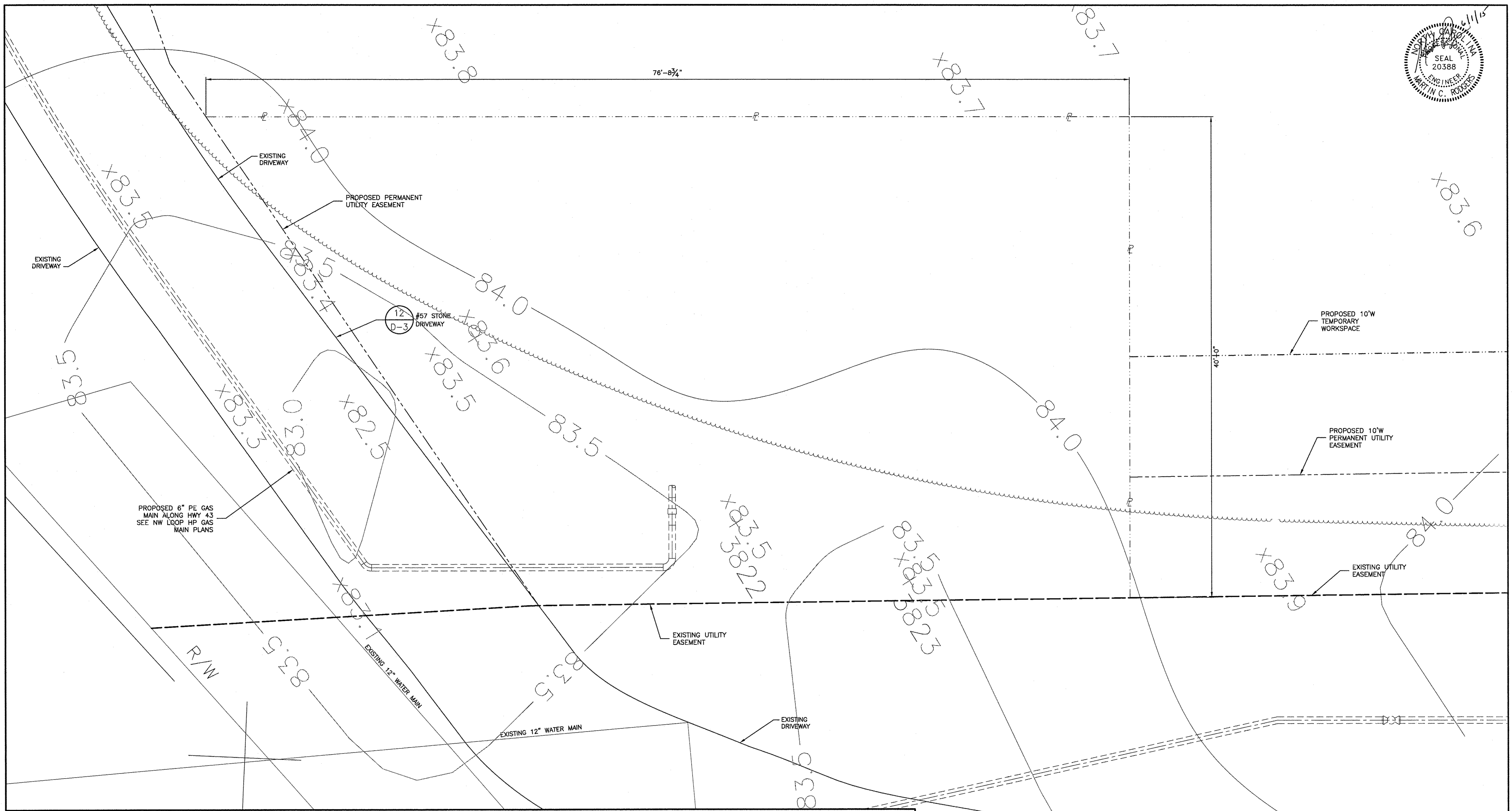


EXISTING CONDITIONS PLAN
SCALE: 1/16" = 1'-0"

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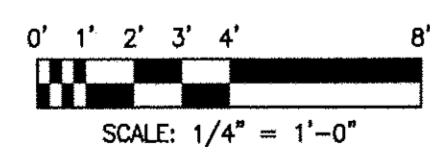
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ITEM	QUANTITY		PERMITS	BID	CONSTRUCTION		
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							ALIGNMENT SHEET
							SCALE PLAN AS SHOWN PROFILE HOR. _____ VERT. _____
							SHEET DESCRIPTION EXISTING CONDITIONS PLAN SHEET: DR1-2 REVISION: 0



EXISTING SITE CONDITIONS PLAN

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

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(X) REFER TO SHEET 1 FOR BILL OF MATERIALS

SUMMARY OF MATERIALS		NOTES
ITEM	QUANTITY	

REVISIONS		DESCRIPTION	DATE
REV.	DESIGN DRAFT CHECK		

APPROVAL					
SURVEY	INITIALS	DATE	INITIALS	DATE	DATE
TEST DATA					
TESTED FROM STATION:			TO STATION:		
MEDIUM:			RECORD TEST PRESSURE:		
DATE TEST COMPLETED:					

PROJECT		
GCP89 - HIGHWAY 43 DISTRICT REGULATOR STATION		
ALIGNMENT SHEET		

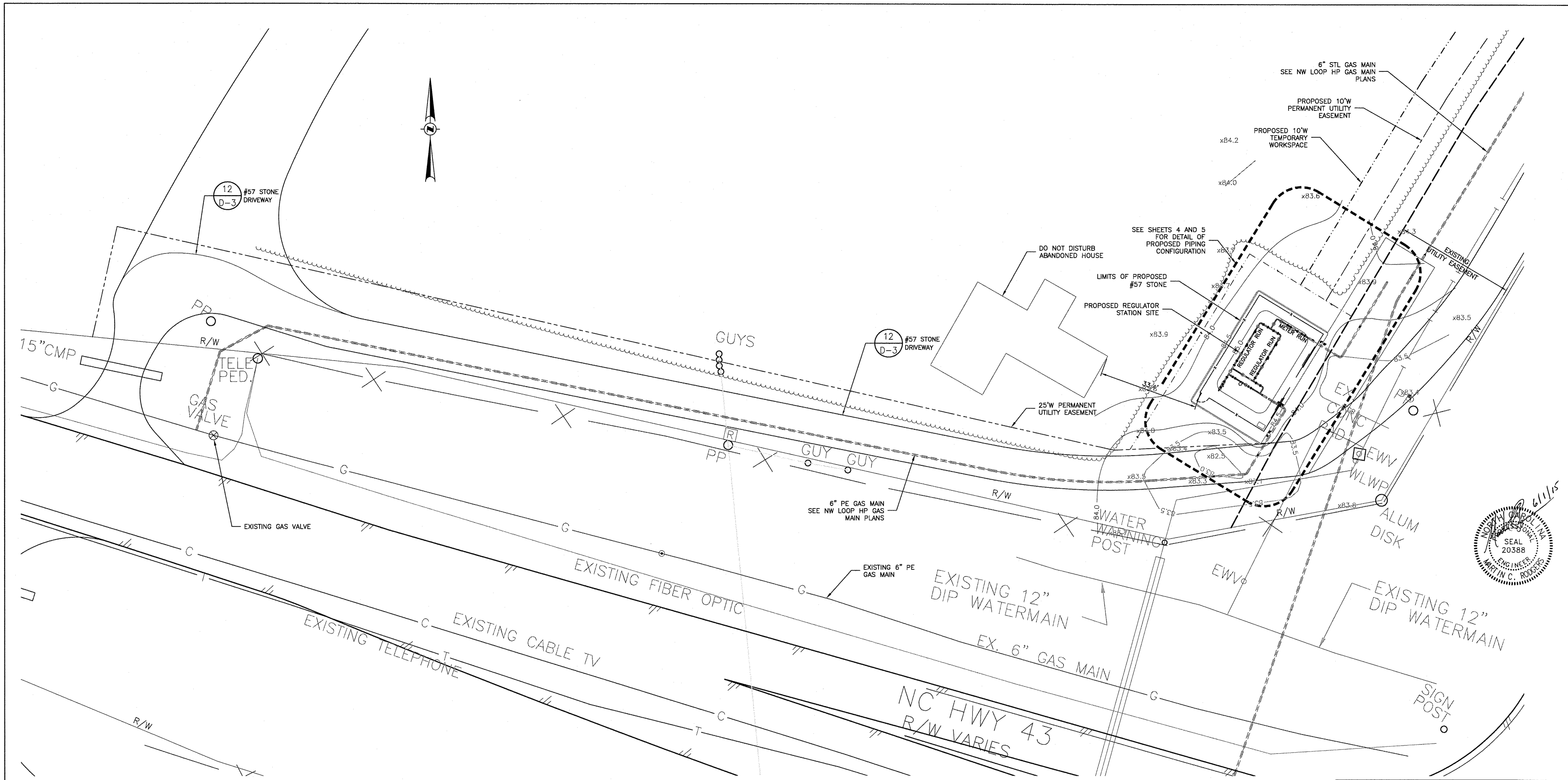
Greenville Utilities

DISTRICT: PITT COUNTY STATE: NORTH CAROLINA

EXISTING SITE CONDITIONS PLAN

SHEET: DR1-3 REVISION: 0

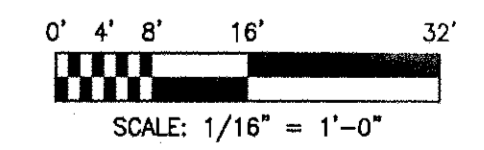
RK&K ENGINEERS | CONSTRUCTION MANAGERS | PLANNERS | SCIENTISTS
 2100 E. CARY ST. SUITE 309 RICHMOND, VIRGINIA 23223
 1-804-782-1903 F-804-782-2142
 RK&K COMM. NO. 1214-011-D



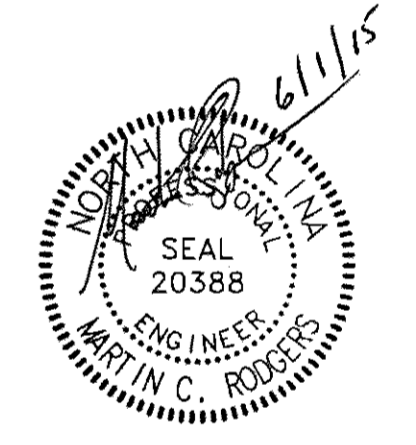
PROPOSED SITE CONDITIONS PLAN

SCALE: 1/16" = 1'-0"

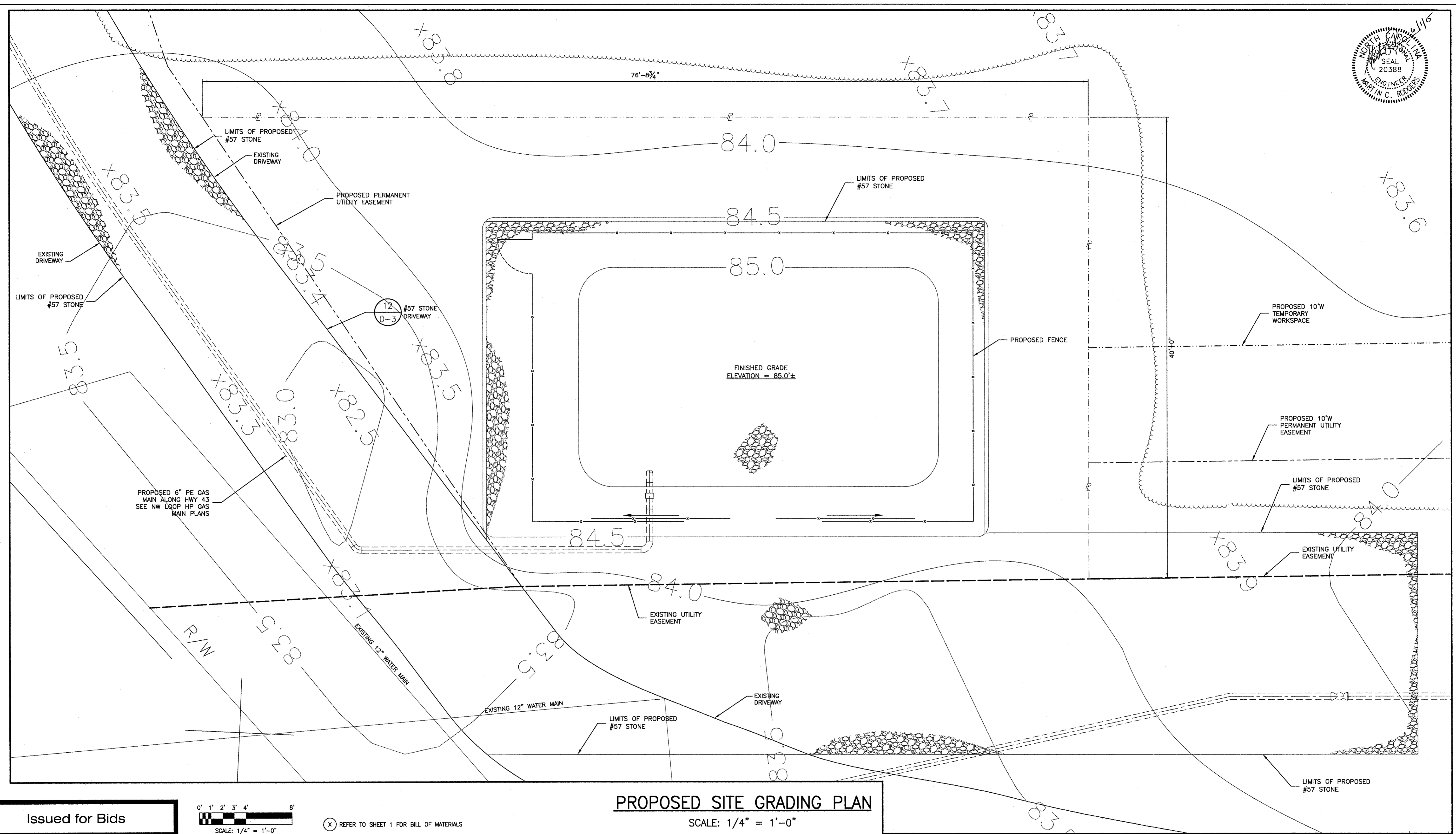
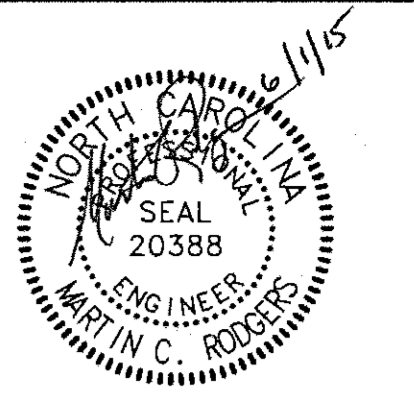
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SUMMARY OF MATERIALS		NOTES		APPROVAL		PROJECT	
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				SURVEY		ALIGNMENT SHEET	
				C.P.		SCALE	
				DRAFTING & DESIGN - RK&K		PLAN AS SHOWN	
				ENGINEERING - RK&K		PROFILE	
				TEST DATA		HOR. -	
				TESTED FROM STATION: _____ TO STATION: _____		VERT. -	
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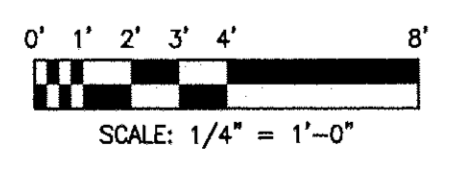
RK&K RUNNEL, KLEPPER & KAHN, LLP
2100 E. CARY ST. SUITE 309
RICHMOND, VIRGINIA 23223
T-804.782.1903 F-804.782.1142
ENGINEERS | CONSTRUCTION MANAGERS | PLANNERS | SCIENTISTS
RK&K COMM. NO. 1214-011-D



PROPOSED SITE GRADING PLAN

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

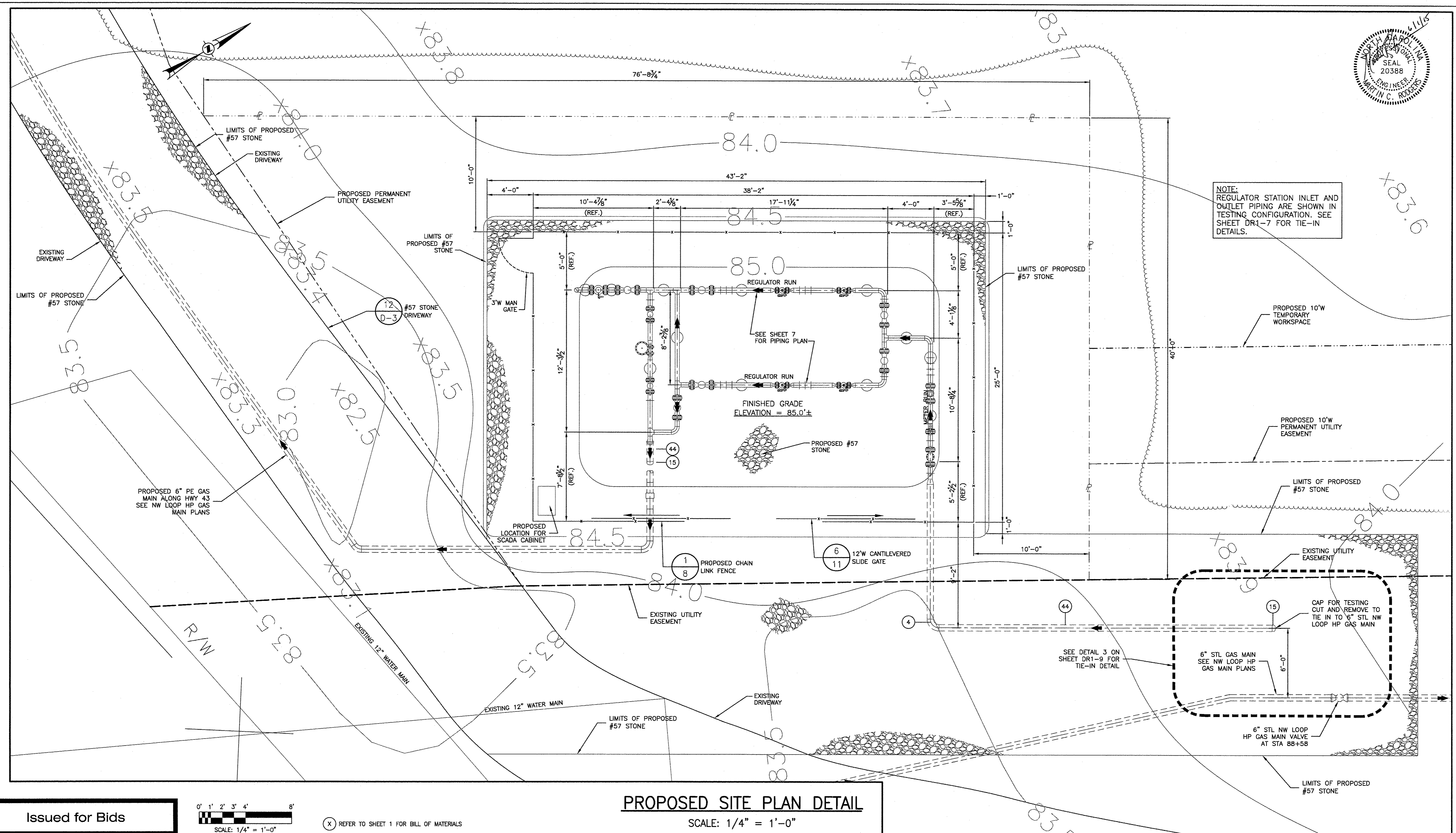
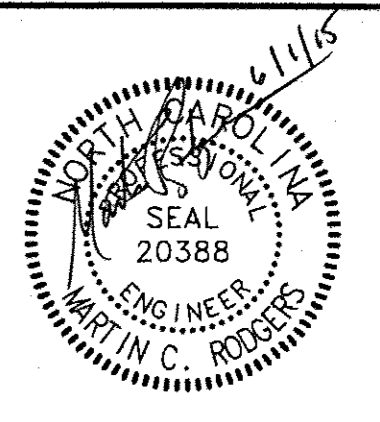
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(X) REFER TO SHEET 1 FOR BILL OF MATERIALS

SUMMARY OF MATERIALS			NOTES			APPROVAL						PROJECT			Greenville Utilities			
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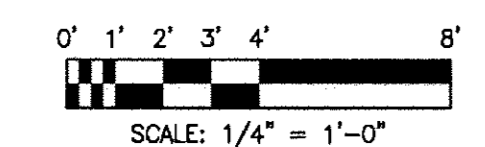


NOTE:
REGULATOR STATION INLET AND
OUTLET PIPING ARE SHOWN IN
TESTING CONFIGURATION. SEE
SHEET DR1-7 FOR TIE-IN
DETAILS.

PROPOSED SITE PLAN DETAIL

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

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(X) REFER TO SHEET 1 FOR BILL OF MATERIALS

SUMMARY OF MATERIALS		NOTES	
ITEM	QUANTITY	DESCRIPTION	

REVISIONS				DESCRIPTION	DATE
REV.	DESIGN	DRAFT	CHECK		

APPROVAL					
PERMITS		BID		CONSTRUCTION	
INITIALS	DATE	INITIALS	DATE	INITIALS	DATE

PROJECT	
GCP89 - HIGHWAY 43 DISTRICT REGULATOR STATION	
ALIGNMENT SHEET	
SCALE: PLAN AS SHOWN	
PROFILE: HOR. - VERT. -	

DISTRICT: PITTS COUNTY STATE: NORTH CAROLINA

SHEET DESCRIPTION: PROPOSED SITE PLAN DETAIL

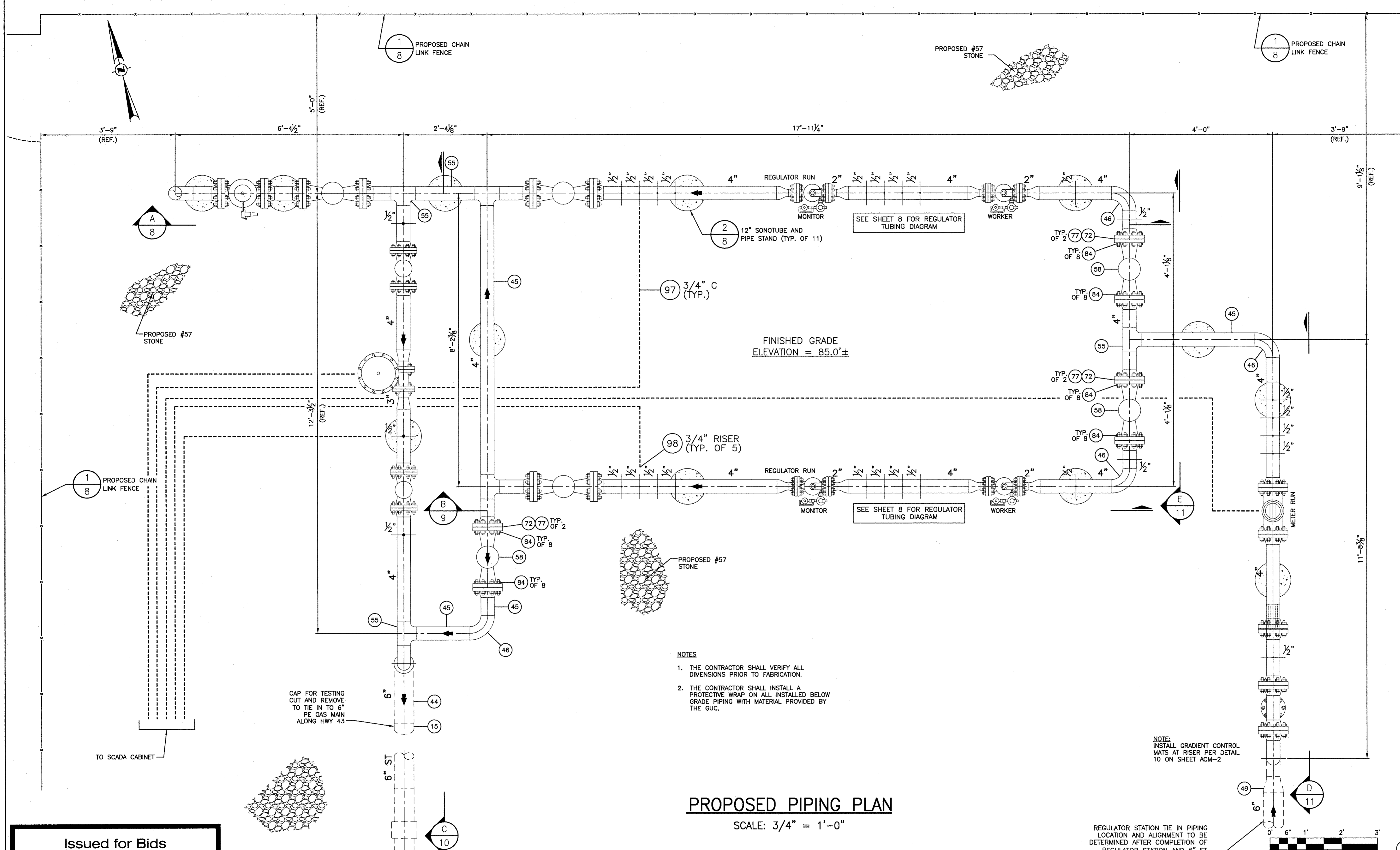
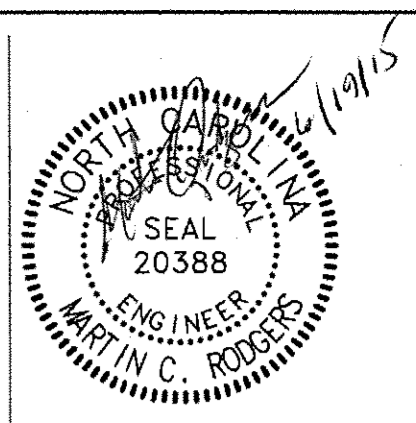
SHEET: DR1-6 REVISION: 0

RK&K
RUMMEL, KLEPPER & KAY, LLP
2100 E. OAK ST. SUITE 300
ROANOKE, VIRGINIA 24013
1-804-782-1030 F-804-782-2142

ENGINEERS | CONSTRUCTION MANAGERS | PLANNERS | SCIENTISTS

RK&K COMM. NO. 1214-011-D

TEST DATA			
TESTED FROM STATION:	TO STATION:		
MEDIUM:	RECORD TEST PRESSURE:		psig
DATE TEST COMPLETED:			



PROPOSED PIPING PLAN
SCALE: 3/4" = 1'-0"

- NOTES**
1. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS PRIOR TO FABRICATION.
 2. THE CONTRACTOR SHALL INSTALL A PROTECTIVE WRAP ON ALL INSTALLED BELOW GRADE PIPING WITH MATERIAL PROVIDED BY THE GUC.

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ITEM QUANTITY		SUMMARY OF MATERIALS DESCRIPTION	NOTES			APPROVAL			PROJECT					
						PERMITS	BID	CONSTRUCTION	GCP89 - HIGHWAY 43 DISTRICT REGULATOR STATION					
						INITIALS	DATE	INITIALS	DATE	INITIALS	DATE	ALIGNMENT SHEET		
												SCALE		
												PLAN	AS SHOWN	PROPOSED PIPING PLAN
												HOR.		SHEET: DR1-7
												VERT.		REVISION: 0

Greenville Utilities

DISTRICT: PITTS COUNTY STATE: NORTH CAROLINA

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REGULATOR STATION TIE IN PIPING LOCATION AND ALIGNMENT TO BE DETERMINED AFTER COMPLETION OF REGULATOR STATION AND 6" ST REGULATOR STATION LATERAL

SCALE: 3/4" = 1'-0"

PLAN: AS SHOWN

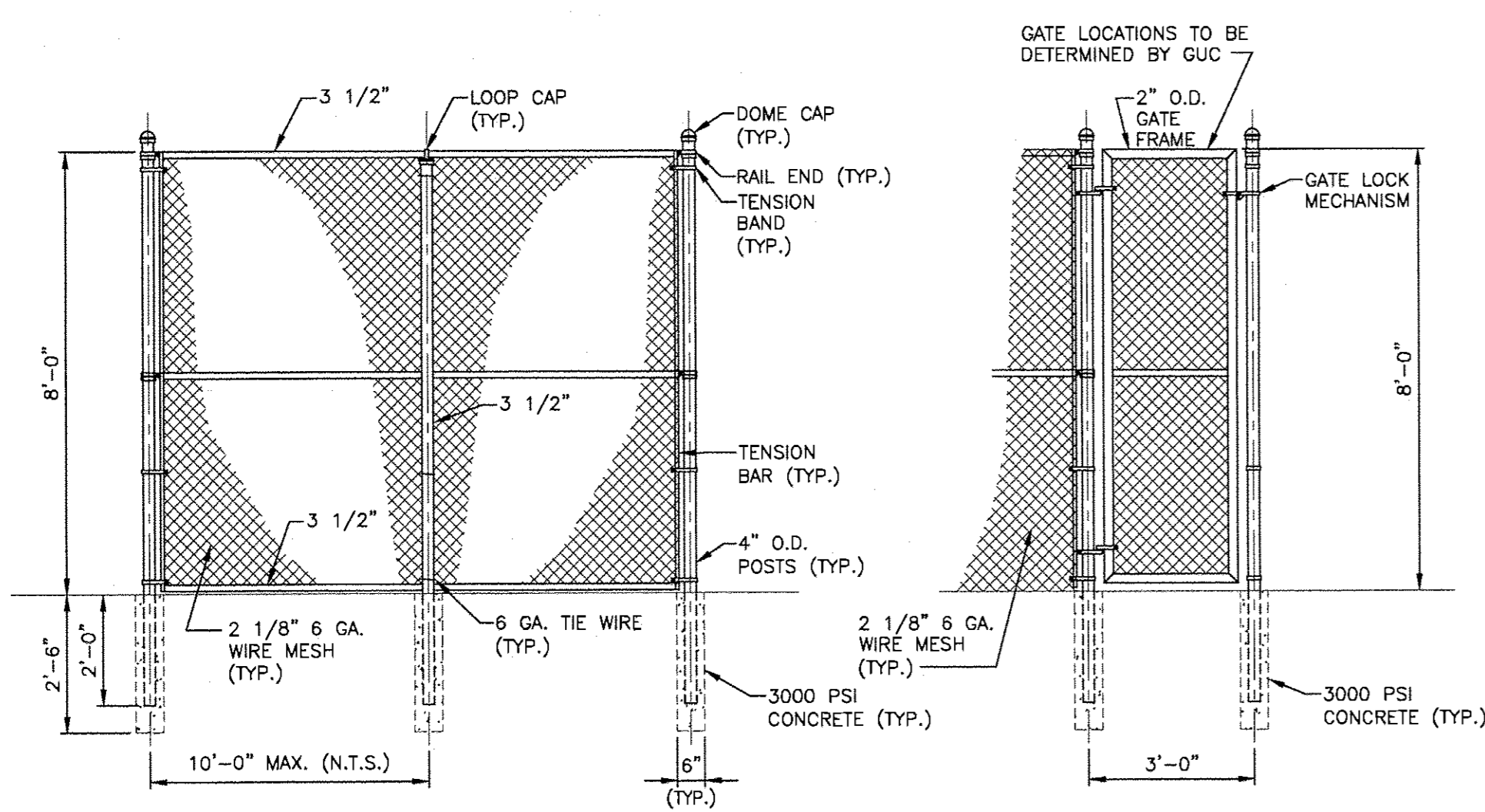
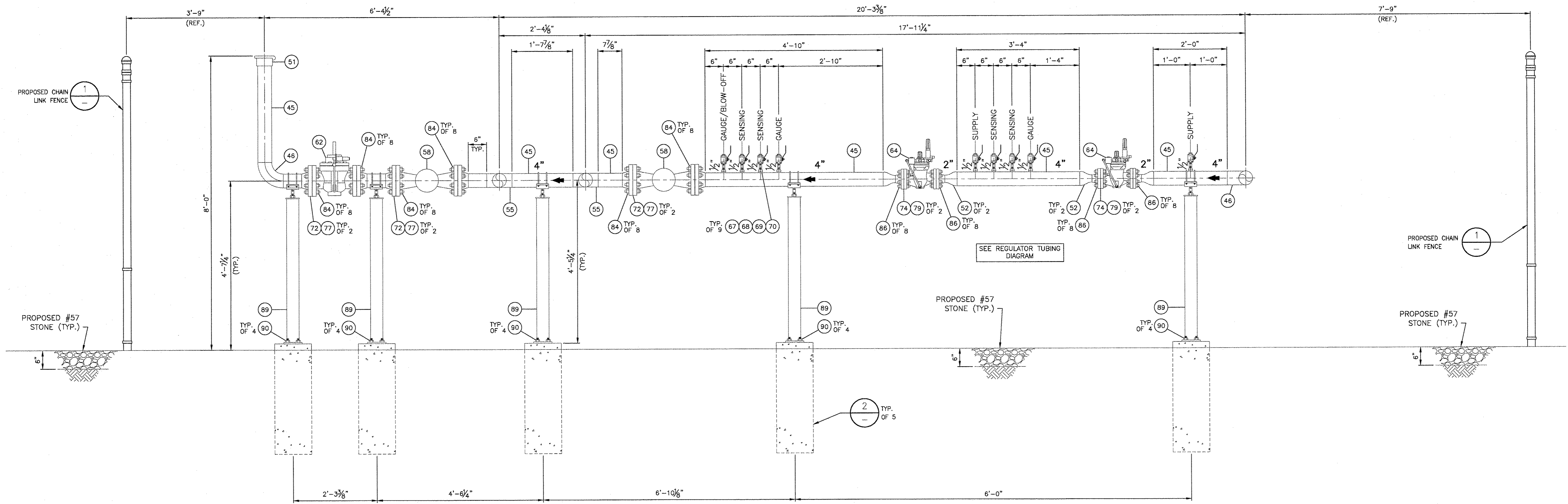
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HOR.: _____

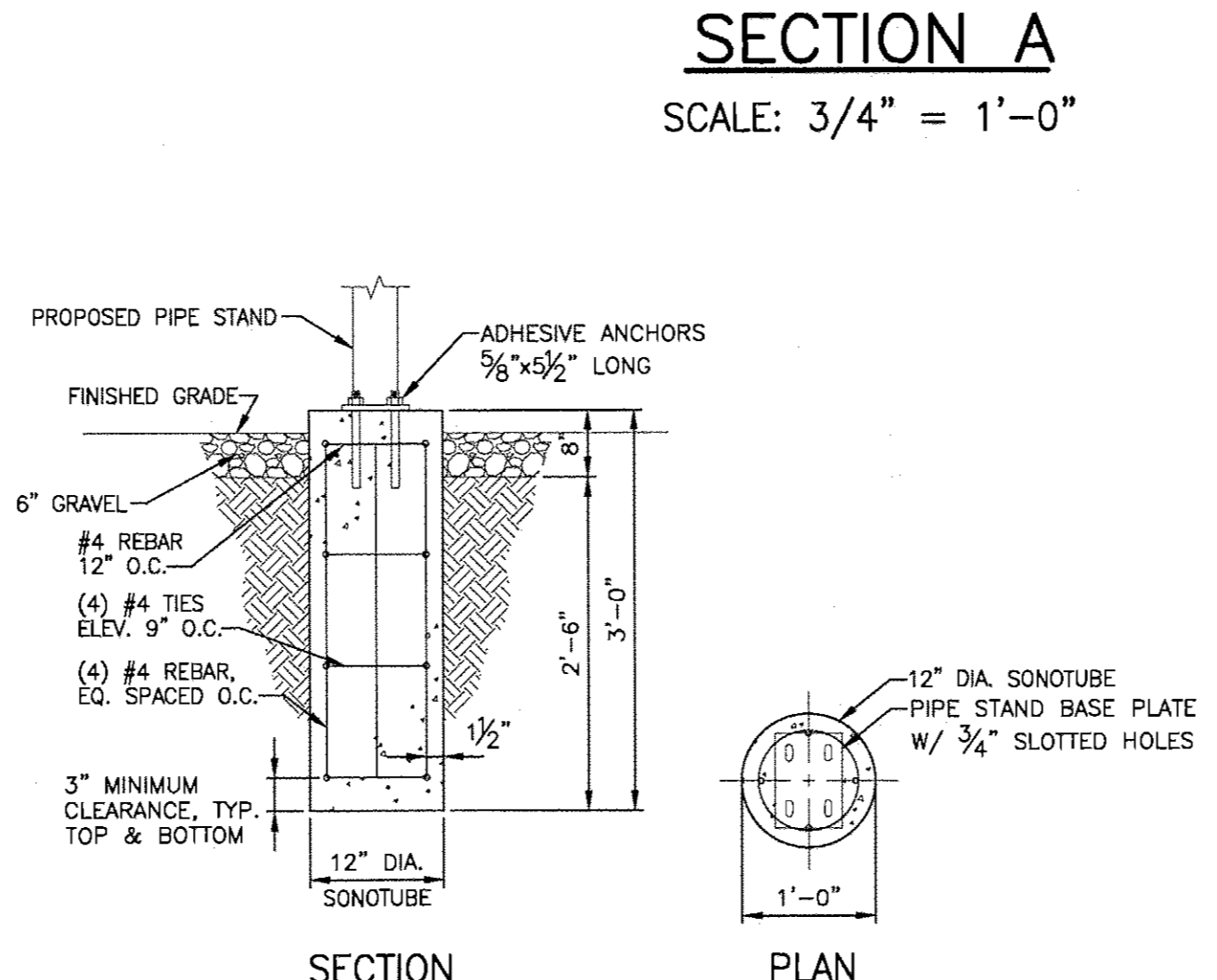
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SHEET: DR1-7

REVISION: 0

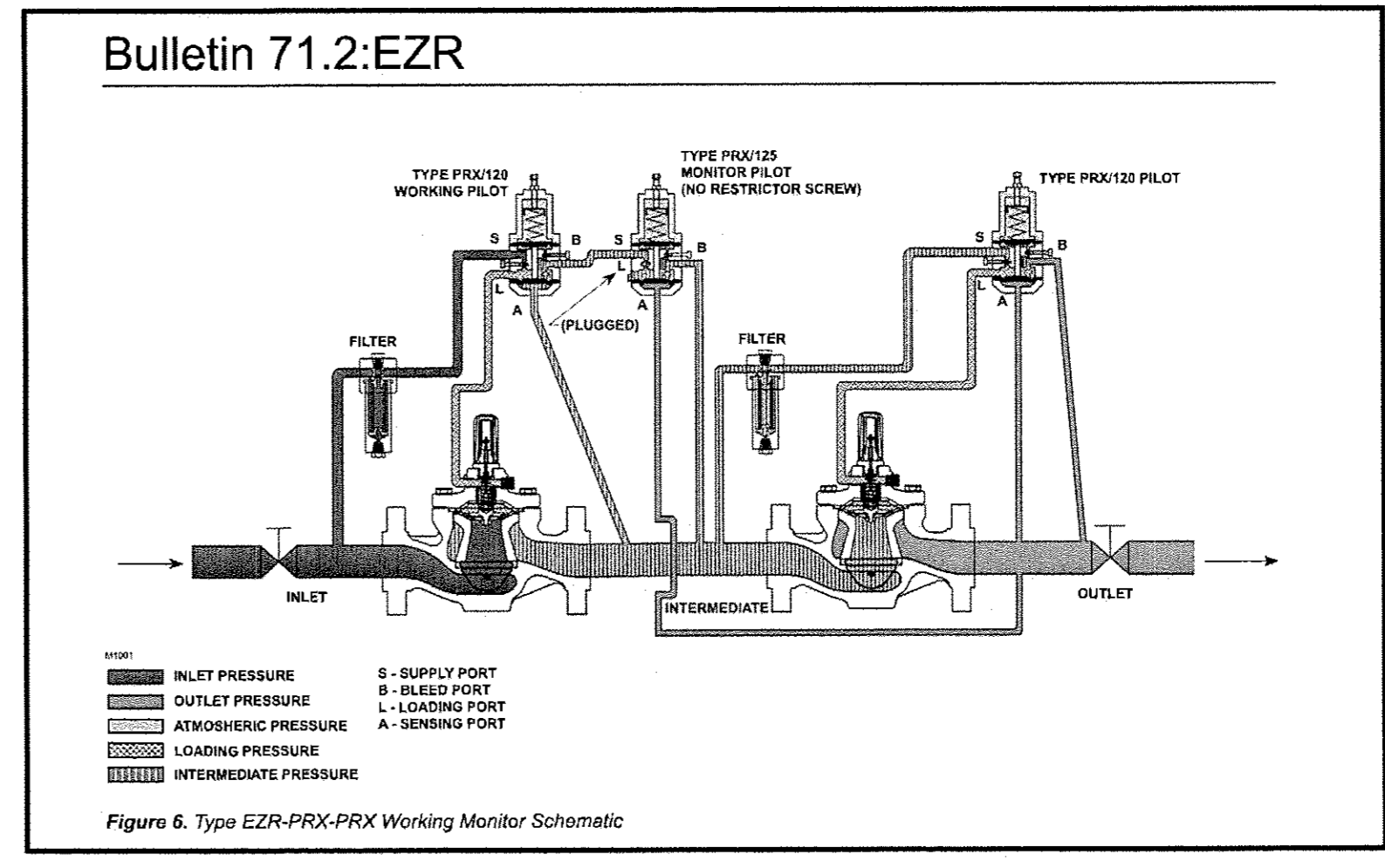


**PROPOSED FENCE DETAILS
DETAIL 1**
SCALE: 3/8" = 1'-0"



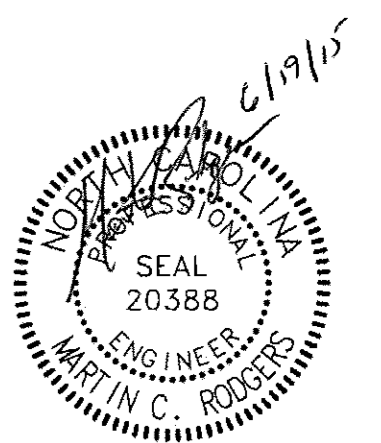
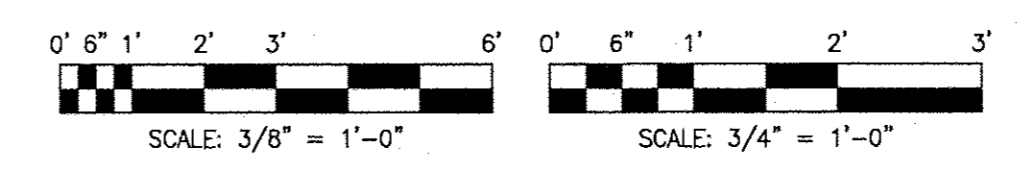
**PIPE STAND FOUNDATION DETAILS
DETAIL 2**
SCALE: 3/4" = 1'-0"

SECTION A
SCALE: 3/4" = 1'-0"

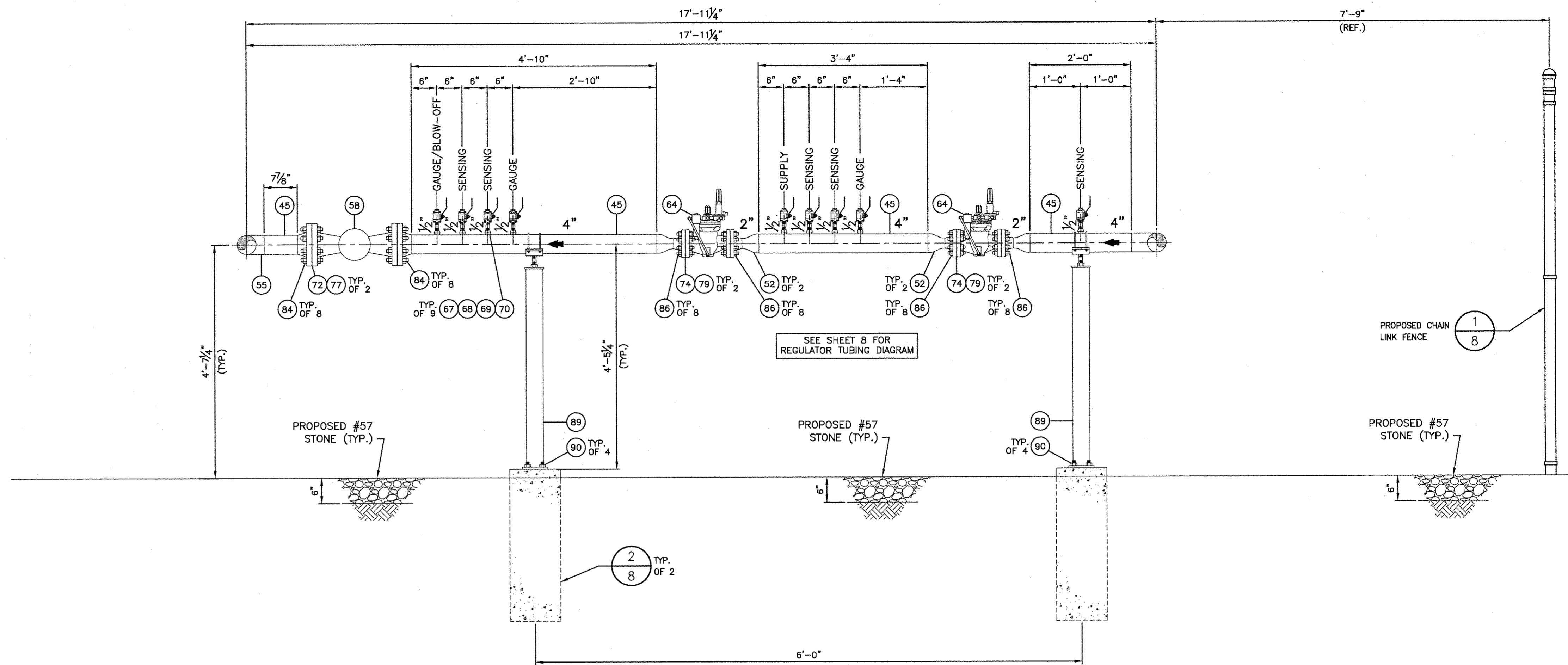


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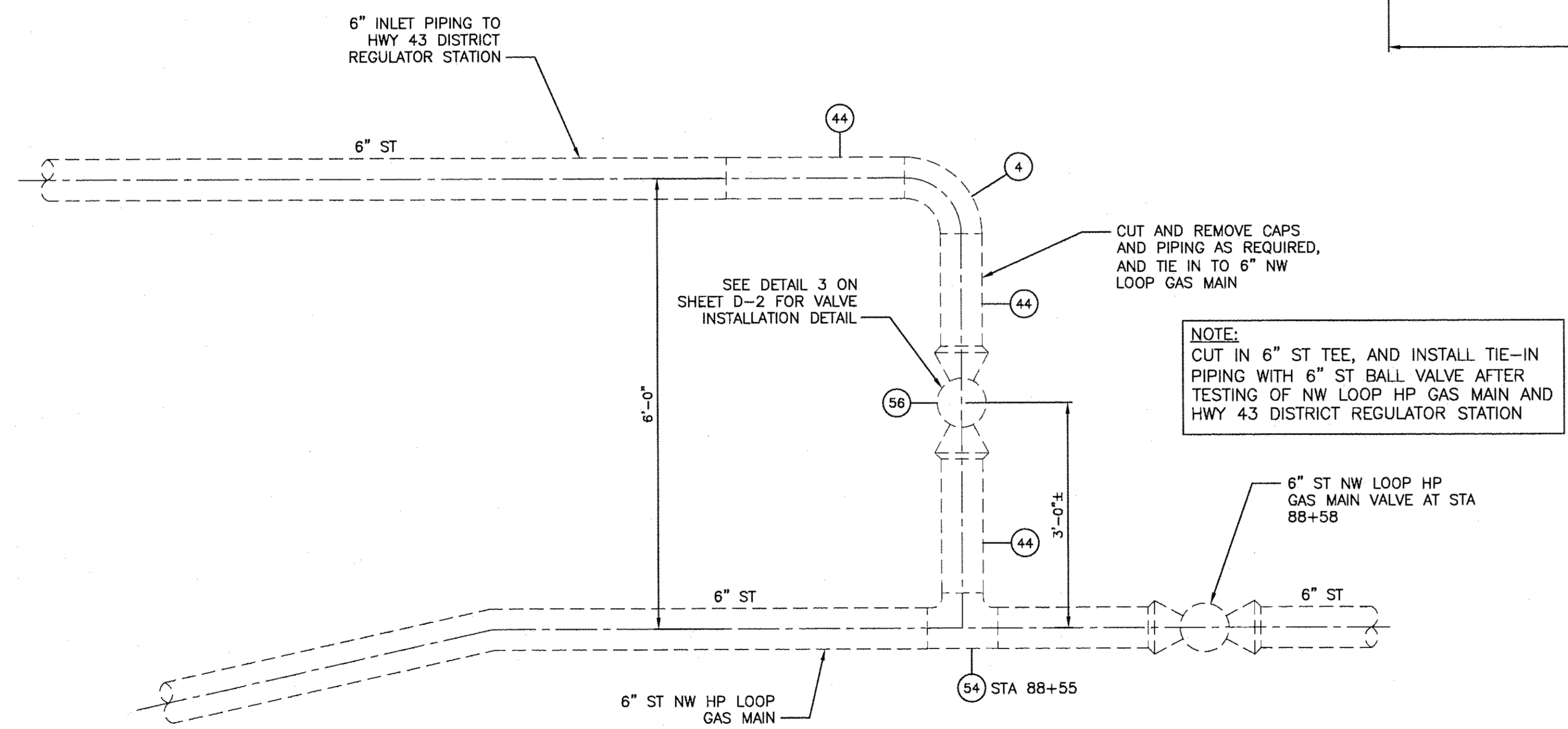
- NOTES**
- THE CONTRACTOR SHALL INSTALL A PROTECTIVE WRAP ON ALL INSTALLED BELOW GRADE PIPING WITH MATERIAL PROVIDED BY THE GUC.
 - ALL TAPS FOR WELDOLETS AND THREDOLETS SHALL BE FULL BORE.
 - SITE SHALL BE GRADED AS TO ALLOW FOR PROPER DRAINAGE AWAY FROM REGULATOR PIPING.



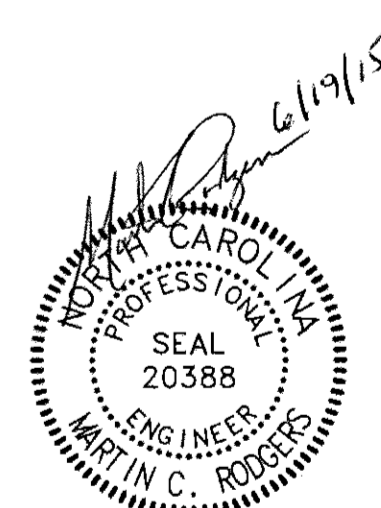
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							TEST DATA			
							TESTED FROM STATION: _____ TO STATION: _____			
							MEDIUM: _____ RECORD TEST PRESSURE: _____ psig			
							DATE TEST COMPLETED: _____			
							RK&K RUMMEL, KLEPPER & KAHN, LLP 2100 E. CARY ST., SUITE 309 RICHMOND, VIRGINIA 23223 1-804-782-1303 F-804-782-2142 ENGINEERS CONSTRUCTION MANAGERS PLANNERS SCIENTISTS RK&K COMM. NO. 1214-011-D			
							SCALE: AS SHOWN PROFILE: _____ HOR.: _____ VERT.: _____			
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SECTION B
SCALE: 3/4" = 1'-0"

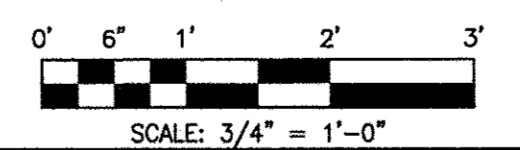


HWY 43 TIE IN DETAIL
DETAIL 3
SCALE: 3/4" = 1'-0"



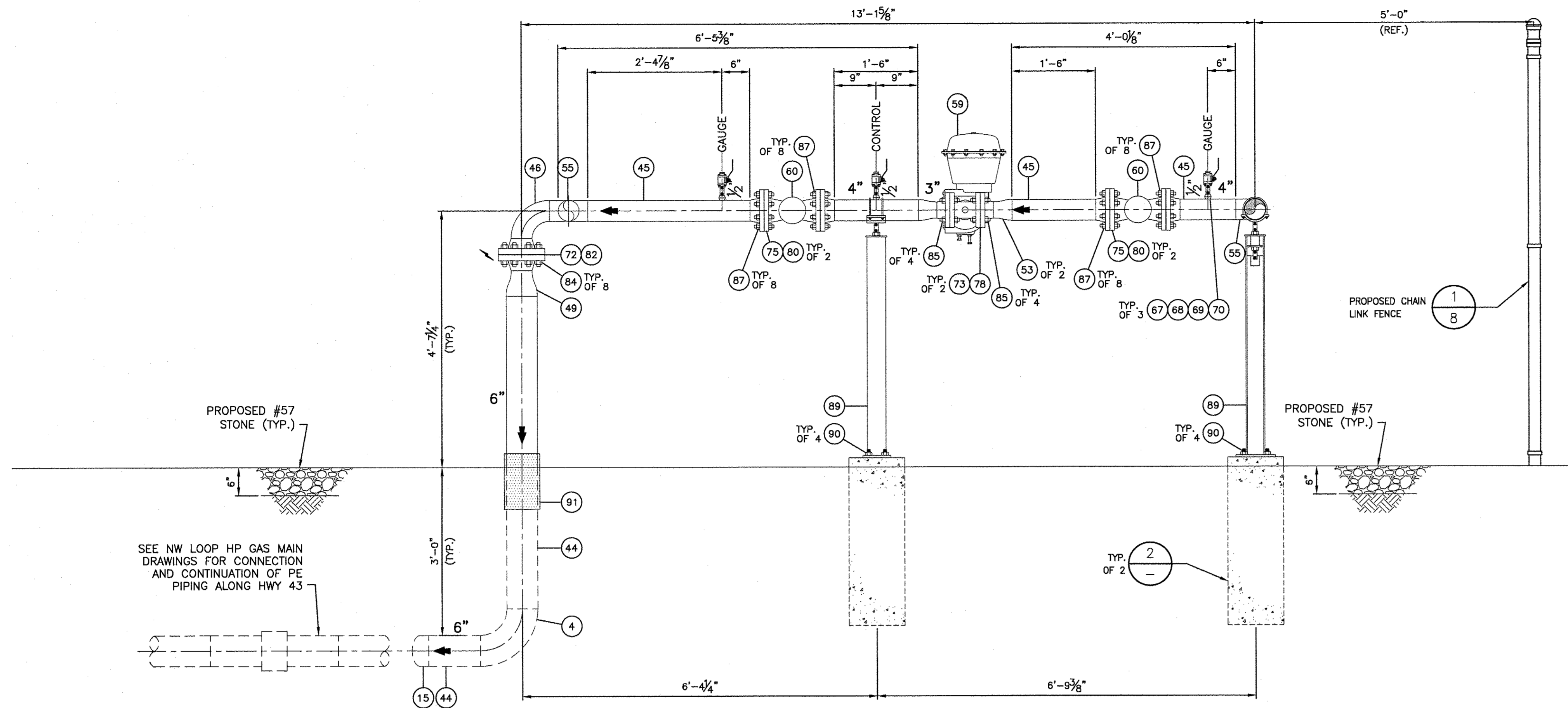
Issued for Bids

- NOTES**
1. THE CONTRACTOR SHALL INSTALL A PROTECTIVE WRAP ON ALL INSTALLED BELOW GRADE PIPING WITH MATERIAL PROVIDED BY THE GUC.
 2. ALL TAPS FOR WELDOLETS AND THREDOLETS SHALL BE FULL BORE.
 3. SITE SHALL BE GRADED AS TO ALLOW FOR PROPER DRAINAGE AWAY FROM REGULATOR PIPING.

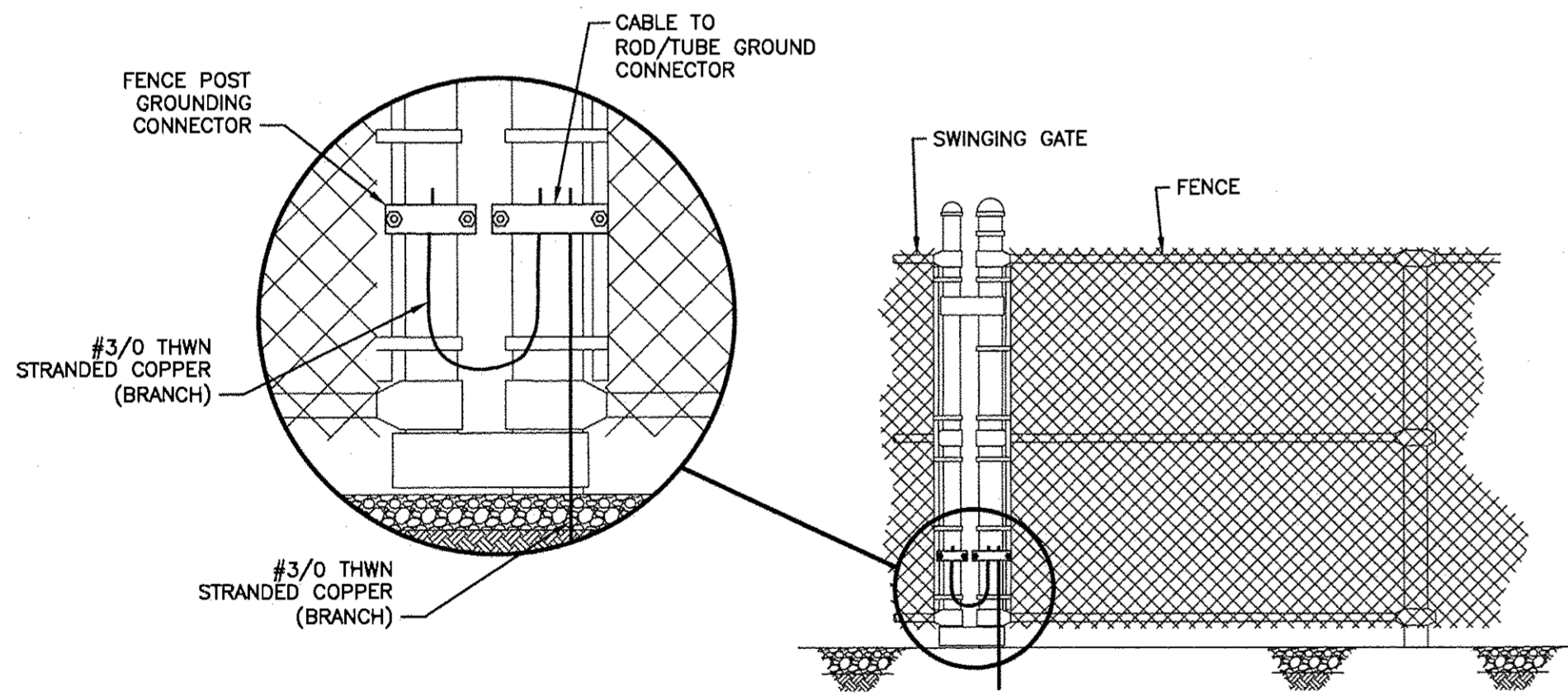


(X) REFER TO SHEET 1 FOR BILL OF MATERIALS

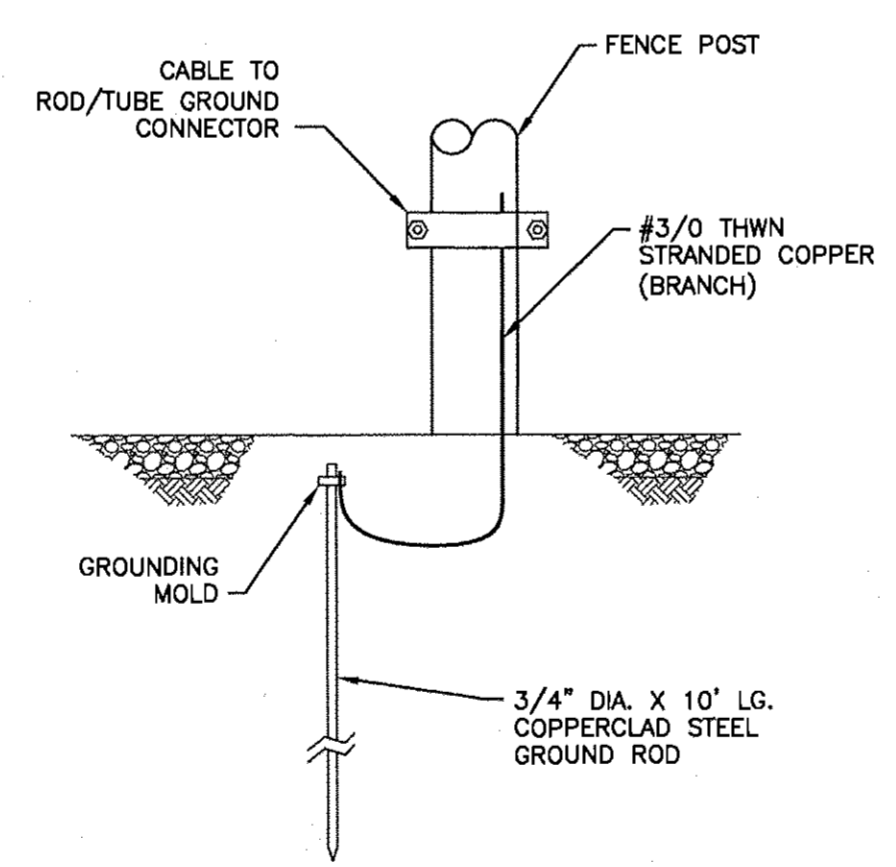
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ITEM	QUANTITY	DESCRIPTION			PERMITS	BID	CONSTRUCTION	GCP89 - HIGHWAY 43 DISTRICT REGULATOR STATION			
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									SCALE: AS SHOWN PROFILE: - HOR.: - VERT.: -		
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SECTION C
SCALE: 3/4" = 1'-0"

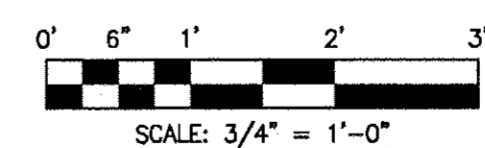


FENCE GROUNDING DETAIL
DETAIL 4
SCALE: 3/4" = 1'-0"



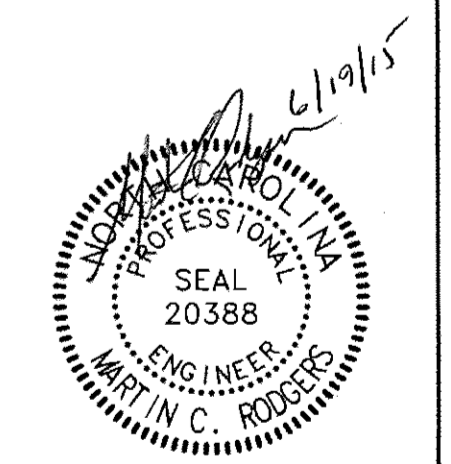
GROUNDING ROD DETAIL
DETAIL 5
SCALE: 3/4" = 1'-0"

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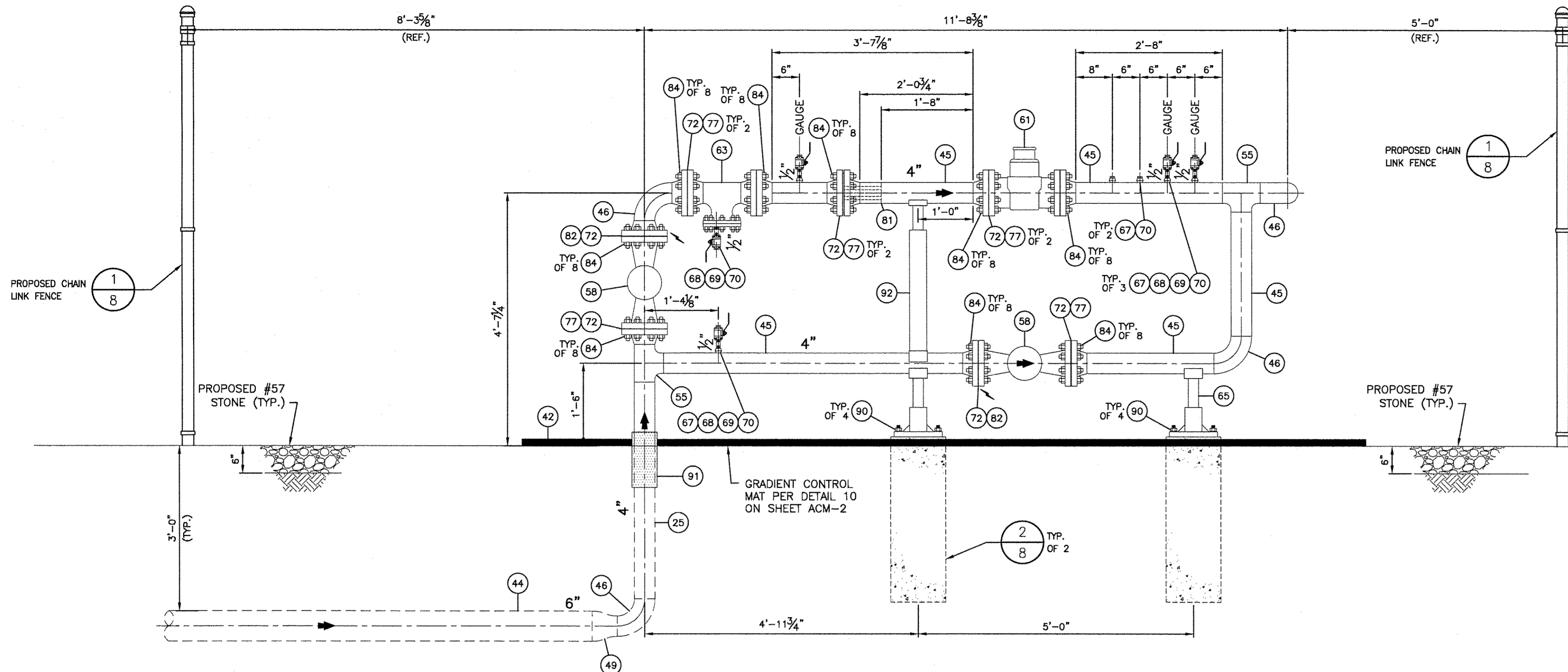


(X) REFER TO SHEET 1 FOR BILL OF MATERIALS

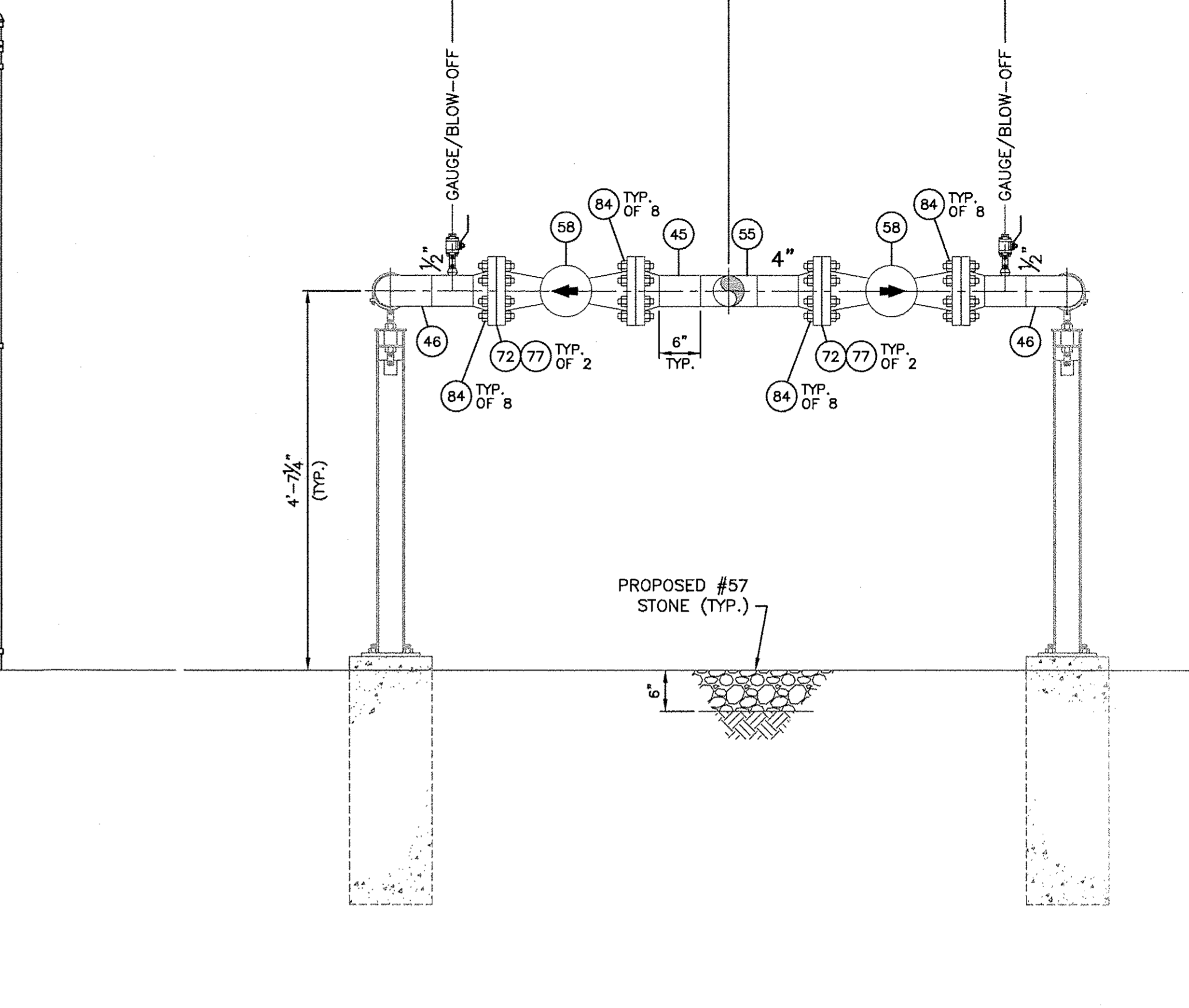
- NOTES**
1. THE CONTRACTOR SHALL INSTALL A PROTECTIVE WRAP ON ALL INSTALLED BELOW GRADE PIPING WITH MATERIAL PROVIDED BY THE GUC.
 2. ALL TAPS FOR WELDOLETS AND THREDOLETS SHALL BE FULL BORE.
 3. SITE SHALL BE GRADED AS TO ALLOW FOR PROPER DRAINAGE AWAY FROM REGULATOR PIPING.



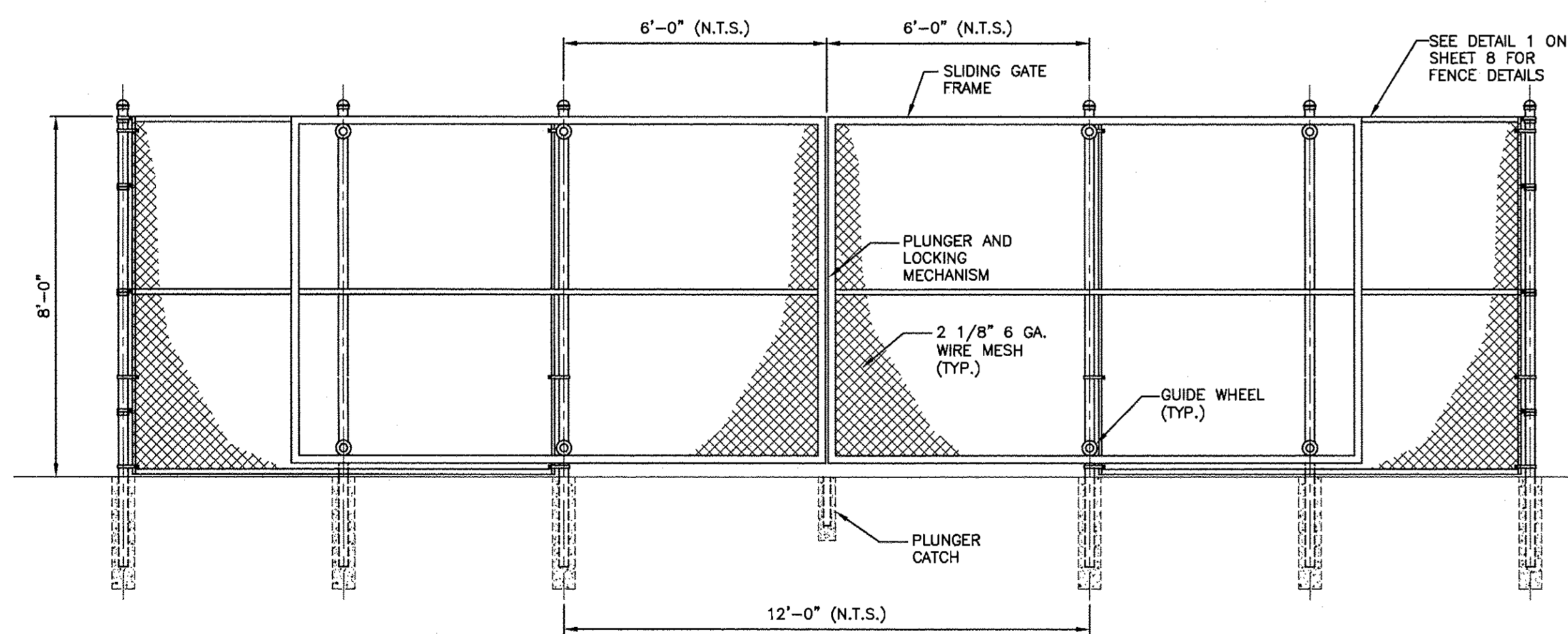
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ITEM	QUANTITY	DESCRIPTION		PERMITS		BID		CONSTRUCTION		GCP89 - HIGHWAY 43 DISTRICT REGULATOR STATION		
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										 <small>ENGINEERS CONSTRUCTION MANAGERS PLANNERS SCIENTISTS</small> <small>2100 E. DARY ST. SUITE 209 RICHMOND, VIRGINIA 23223</small> <small>1-804-782-1903 F-804-782-2142</small> <small>RK&K COMM. NO. 1214-011-D</small>		



SECTION D
SCALE: 3/4" = 1'-0"

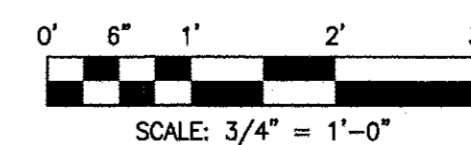


SECTION E
SCALE: 3/4" = 1'-0"



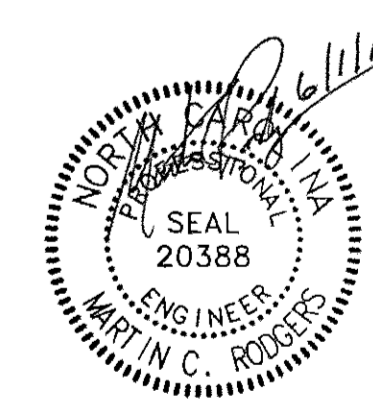
PROPOSED CANTILEVERED SLIDING GATE DETAILS
DETAIL 6
SCALE: 3/8" = 1'-0"

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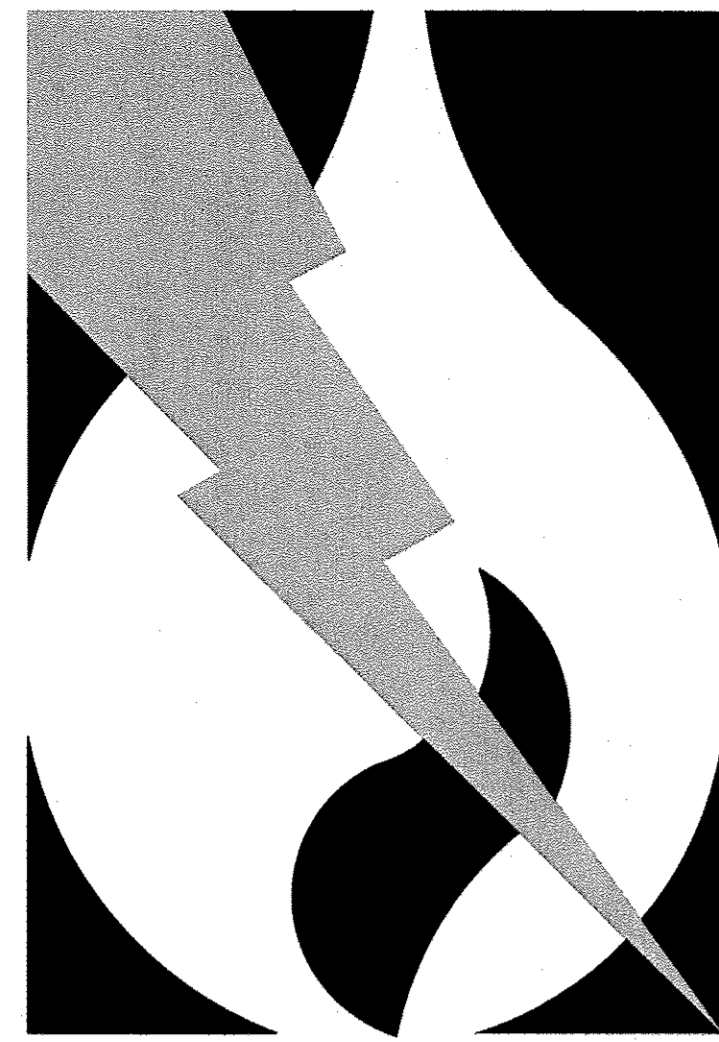


(X) REFER TO SHEET 1 FOR BILL OF MATERIALS

- NOTES**
1. THE CONTRACTOR SHALL INSTALL A PROTECTIVE WRAP ON ALL INSTALLED BELOW GRADE PIPING WITH MATERIAL PROVIDED BY THE GUC.
 2. ALL TAPS FOR WELDOLETS AND THREDOLETS SHALL BE FULL BORE.
 3. SITE SHALL BE GRADED AS TO ALLOW FOR PROPER DRAINAGE AWAY FROM REGULATOR PIPING.



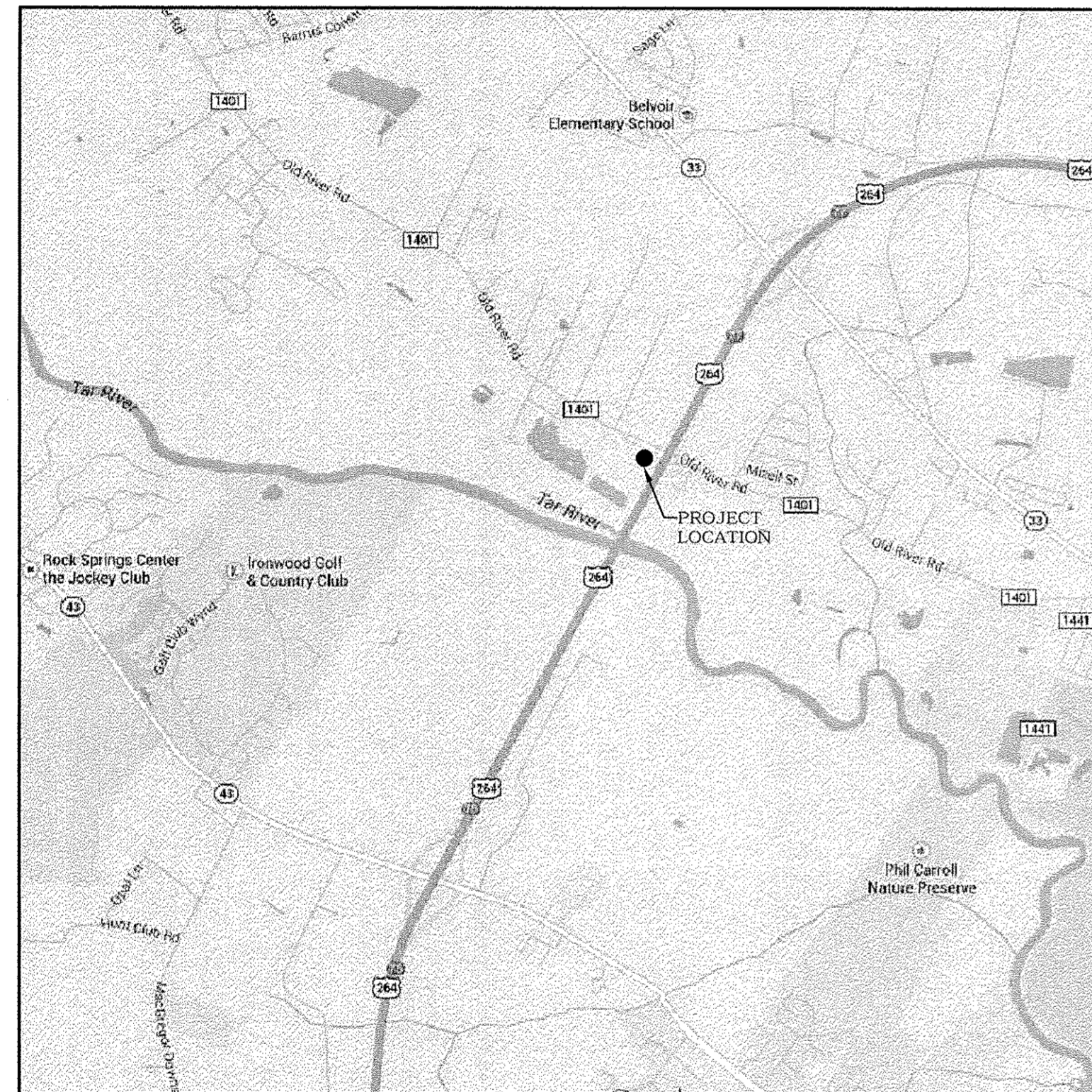
SUMMARY OF MATERIALS		NOTES		APPROVAL			PROJECT			
ITEM	QUANTITY	DESCRIPTION			PERMITS	BID	CONSTRUCTION	GCP89 - HIGHWAY 43 DISTRICT REGULATOR STATION		
					INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
								ALIGNMENT SHEET		
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								SHEET: DR1-11 REVISION: 0		



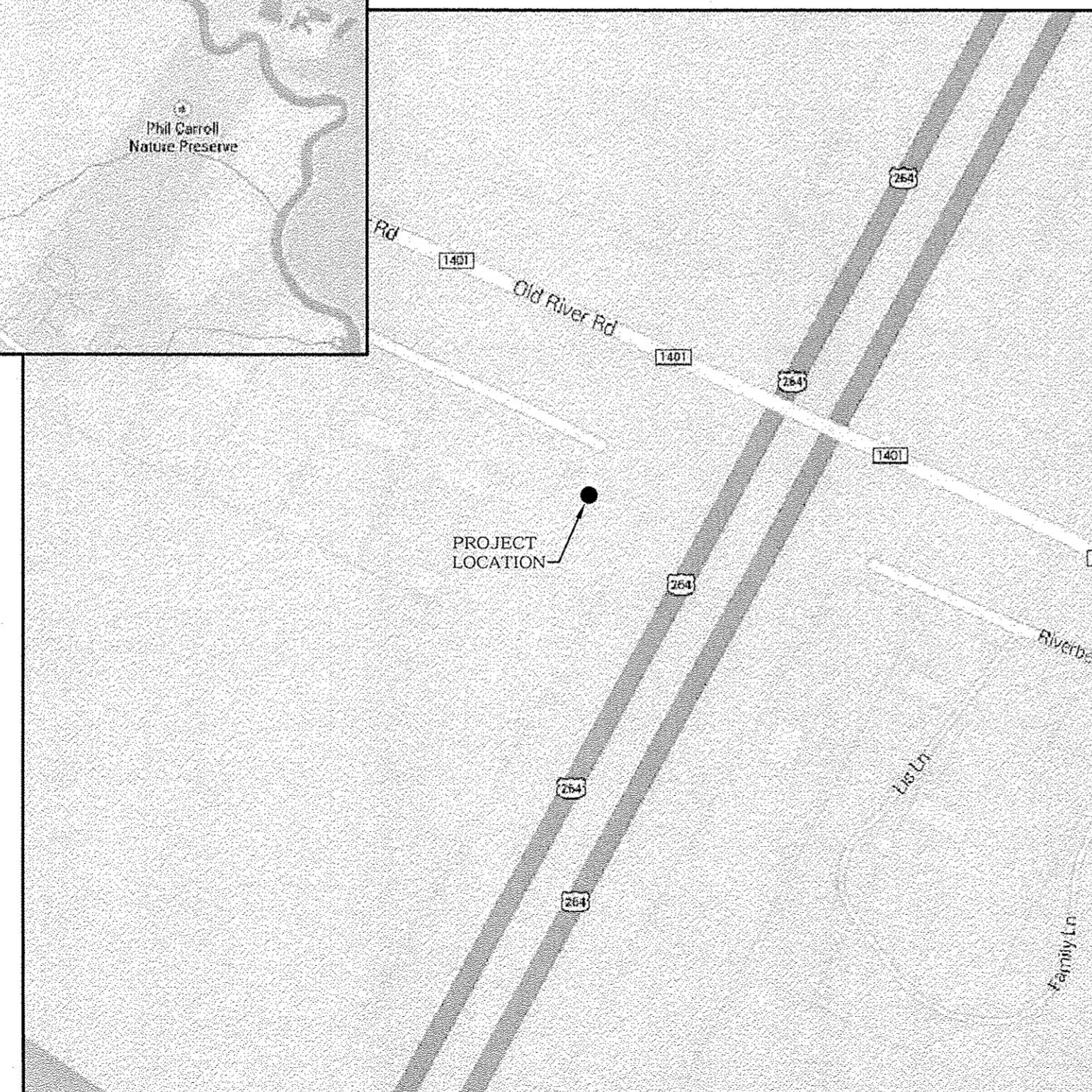
Greenville Utilities

GCP89 - Old River Road District Regulator Station City of Greenville, North Carolina

June 1, 2015



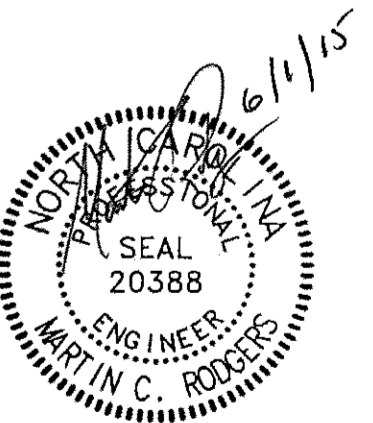
VICINITY MAP
NOT TO SCALE



LOCATION MAP
NOT TO SCALE

SHEET INDEX

<u>SHEET DESCRIPTION</u>	<u>SHEET NUMBER</u>
COVER SHEET	-
BILL OF MATERIALS, DRAWING LEGEND AND GENERAL NOTES	1 OF 10
EXISTING CONDITIONS PLAN	2 OF 10
PROPOSED SITE GRADING PLAN	3 OF 10
PROPOSED SITE PLAN	4 OF 10
PROPOSED SITE PLAN DETAIL	5 OF 10
PROPOSED PIPING PLAN	6 OF 10
PIPING SECTION AND DETAILS	7 OF 10
PIPING SECTION AND DETAILS	8 OF 10
PIPING SECTION	9 OF 10
PIPING SECTION AND DETAIL	10 OF 10



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RUMMEL • KLEPPER and KAHL, LLP
ENGINEERS | CONSTRUCTION MANAGERS | PLANNERS | SCIENTISTS
RICHMOND, VIRGINIA

DRAWING LEGEND

SYMBOL DESCRIPTION

Table with 2 columns: SYMBOL and DESCRIPTION. Lists various symbols for centerlines, hydro, fences, guard rails, pavements, driveways, utility easements, property lines, right-of-way, sanitary sewer, storm drainage, underground electric and telephone cables, fiber optic, water, borrow pits, wetland boundaries, riparian barriers, floodways, flood zones, temporary workspace, utility easement, fence, gas pipes above and below grade.

NOTES:

- 1. ALL DIMENSIONS TO BE VERIFIED PRIOR TO FABRICATION AND INSTALLATION.
2. ALL PIPING TO BE FABRICATED & TESTED IN ACCORDANCE WITH 49 CFR 192 AND PROJECT SPECIFICATIONS.
3. ALL PIPE WELDING TO BE PERFORMED PER GUC WELD STANDARDS AND PROJECT SPECIFICATIONS.
4. ALL PIPING SHALL BE THOROUGHLY CLEANED OF MILL SCALE, WELD SLAG, & RUST PRIOR TO ASSEMBLY.
5. ALL PIPING SHALL BE VISUALLY INSPECTED BY ENGINEER/OWNER PRIOR TO FABRICATION OF ASSEMBLY.

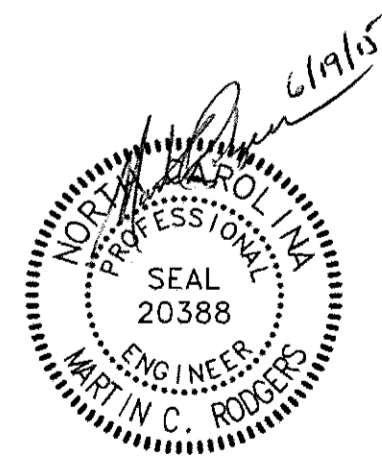
DRAWING LEGEND

SYMBOL DESCRIPTION

Table with 2 columns: SYMBOL and DESCRIPTION. Lists symbols for existing steel, polyethylene, proposed gas service, reinforced concrete pipe, station, insulating flange location, proposed item number, flow arrow, earth, gravel, concrete, detail identification sheet number, and section identification sheet number.

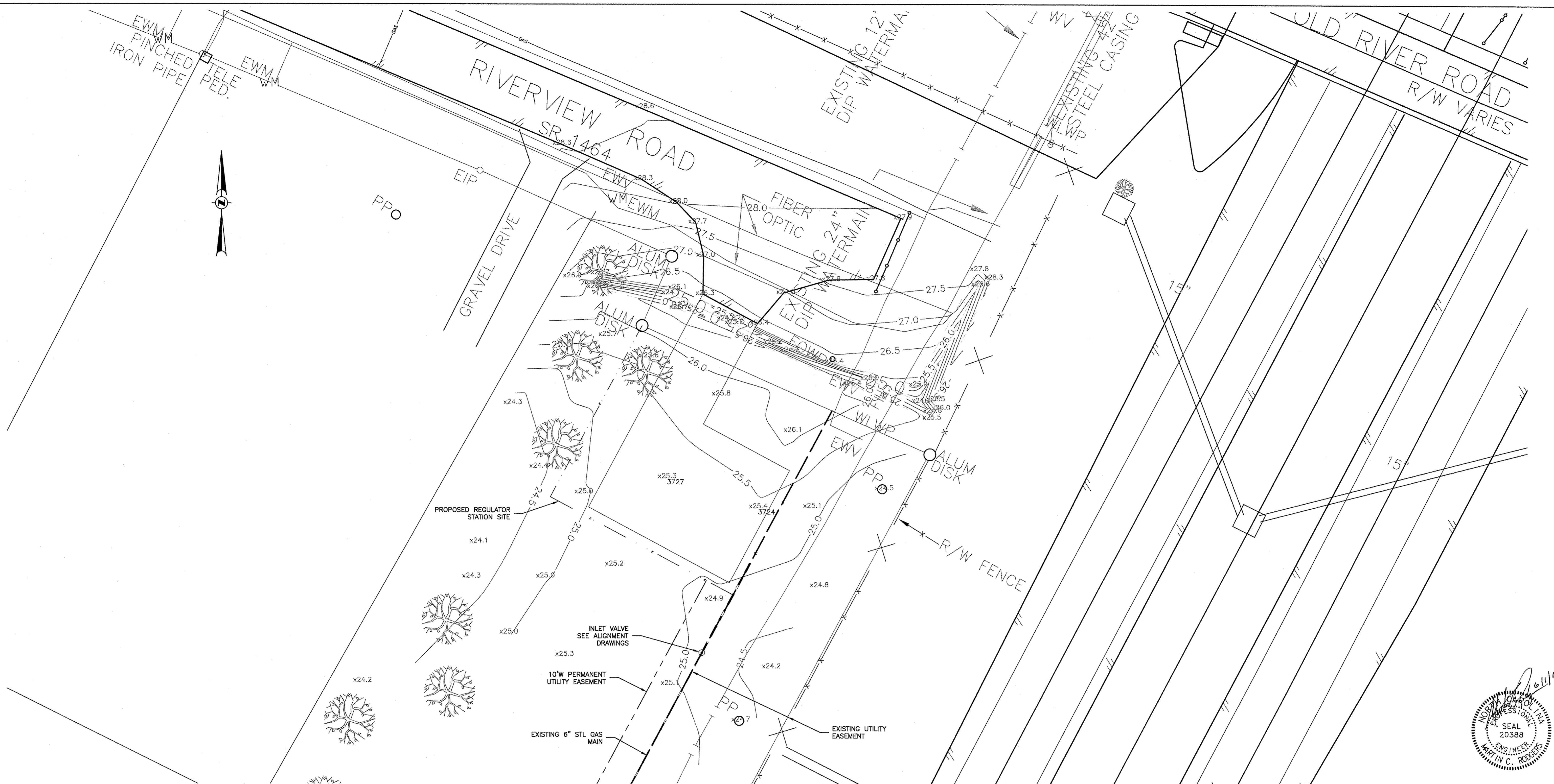
Main materials table with columns: Item, Quantity, Unit, Size, and Description of Station Materials. Lists 98 items including elbows, caps, valves, weather caps, steel pipes, polyethylene pipes, reducers, tees, valves, meters, regulators, pipe supports, studs, bolts, gaskets, straightening vanes, flange insulation kits, expansion bolts, rock shields, copper rods, copper wire, grounding mold, cable connectors, PVC conduit, and rigid galvanized conduit.

*BASE PLATE OF PIPE STAND SHALL HAVE 3/4"x1/2" SLOTTED HOLES TO ACCOMMODATE 5/8" EXPANSION BOLTS.



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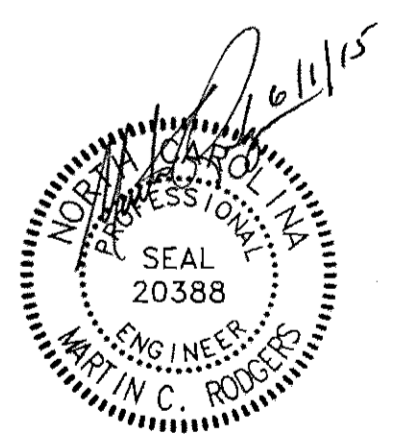
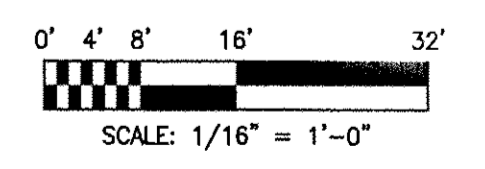
Summary of Materials, Notes, Approvals, and Project Information. Includes columns for item, quantity, description, revisions, approvals (permits, bid, construction), project name (GCP89 - OLD RIVER ROAD DISTRICT REGULATOR STATION), scale, and sheet description (BILL OF MATERIALS, DRAWING LEGEND, AND GENERAL NOTES). Includes RK&K logo and sheet number DR2-1.



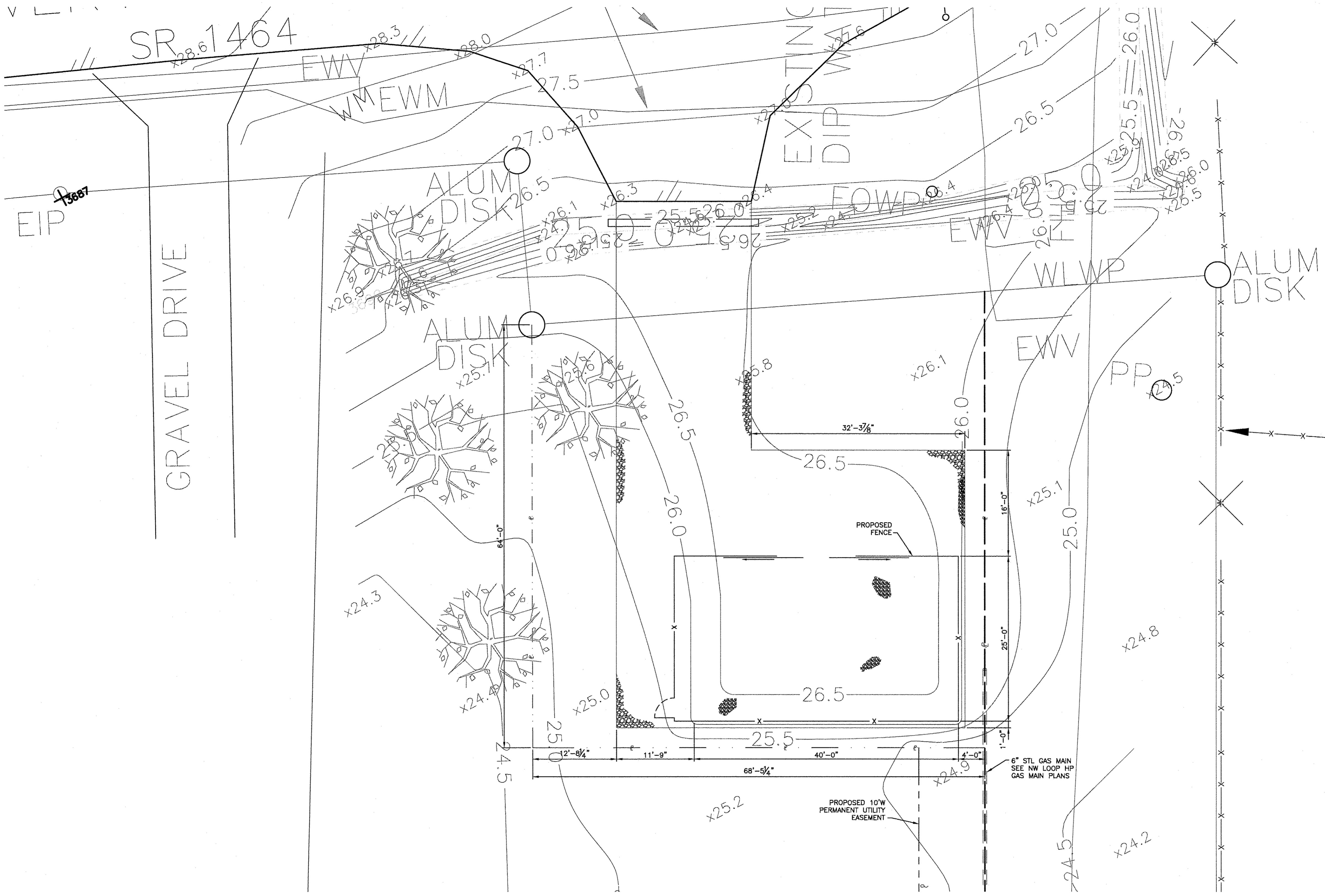
EXISTING CONDITIONS PLAN

SCALE: 1/16" = 1'-0"

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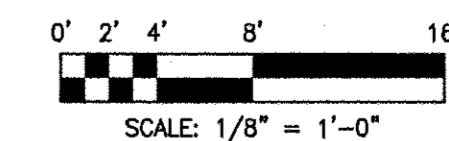


SUMMARY OF MATERIALS		NOTES		APPROVAL				PROJECT				
ITEM	QUANTITY	DESCRIPTION		PERMITS		BID		CONSTRUCTION		GCP89 - OLD RIVER ROAD DISTRICT REGULATOR STATION		
				INITIALS	DATE	INITIALS	DATE	INITIALS	DATE	ALIGNMENT SHEET		
		TOTAL ACRES DISTURBED: 0.10 ACRES								RK&K RUMMEL, KLEPPER & KAY, LLP 2100 E. CARY ST. SUITE 300 RICHMOND, VIRGINIA 23223 T-804.762.1100 F-804.762.2142 ENGINEERS CONSTRUCTION MANAGERS PLANNERS SCIENTISTS RK&K COMM. NO. 1214-011-C		
		TOTAL ACRES TO BE CLEARED: 0 ACRES (2 TREES)										
		TOTAL WETLAND CONSTRUCTION: 0 ACRES		TEST DATA				SCALE				
				TESTED FROM STATION: _____ TO STATION: _____				PLAN AS SHOWN				
				MEDIUM: _____ RECORD TEST PRESSURE: _____ psig				PROFILE				
				DATE TEST COMPLETED: _____				HOR. _____				
								VERT. _____				
REVISIONS REV. DESIGN DRAFT CHECK DESCRIPTION DATE								SHEET DESCRIPTION EXISTING CONDITIONS PLAN				
								SHEET: DR2-2 REVISION: 0				

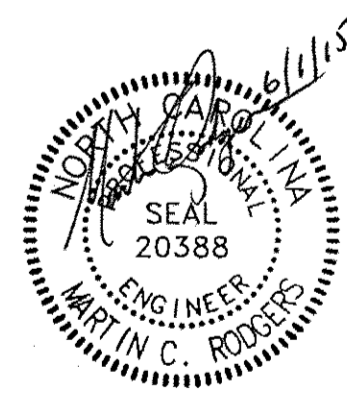


PROPOSED SITE GRADING PLAN

SCALE: 1/8" = 1'-0"

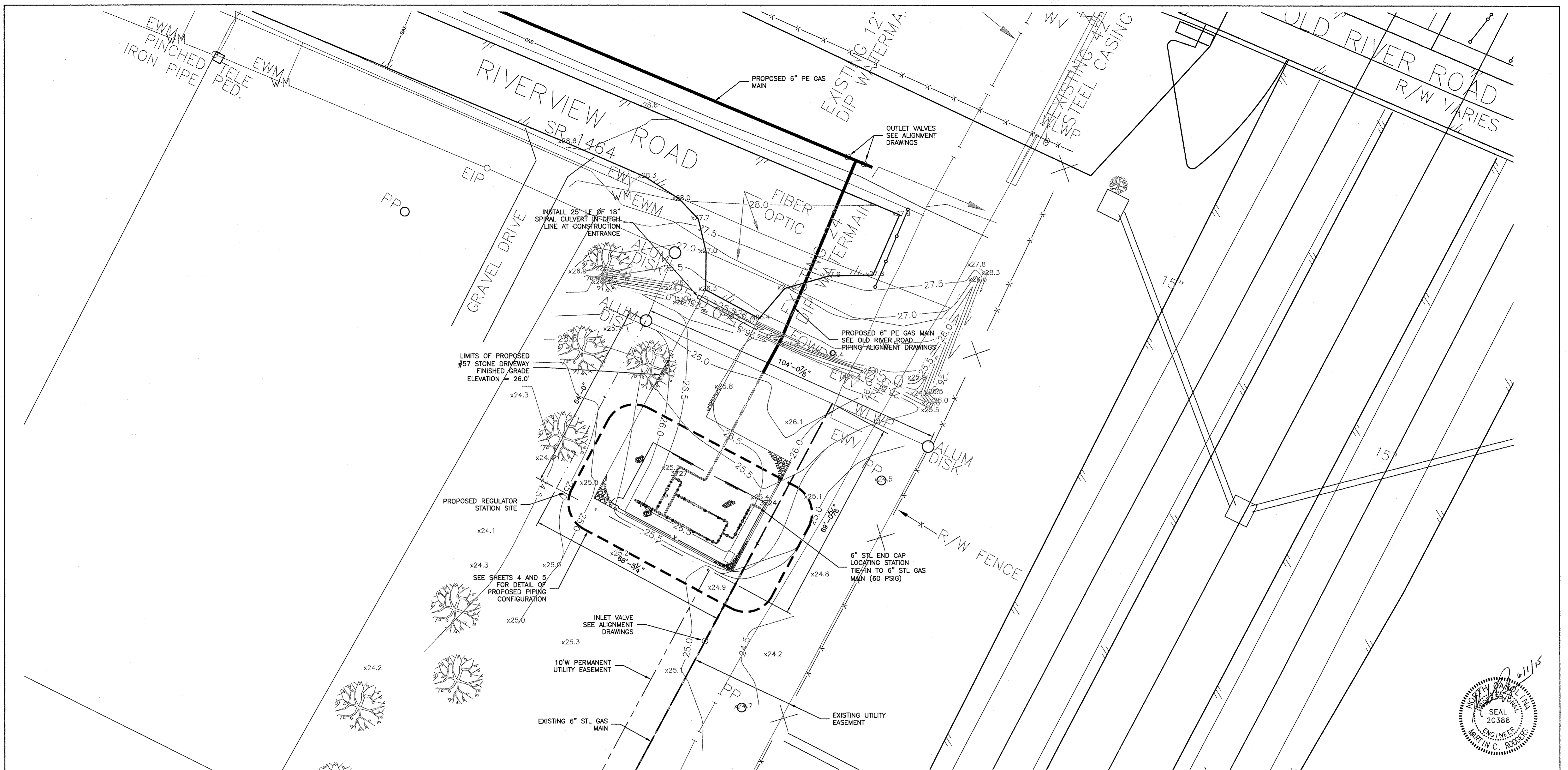


Issued for Bids



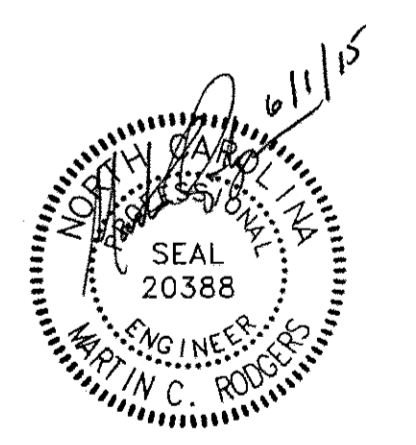
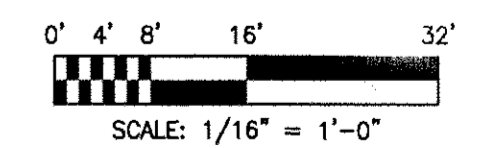
(X) REFER TO SHEET 1 FOR BILL OF MATERIALS

SUMMARY OF MATERIALS		NOTES	APPROVAL			PROJECT	
ITEM	QUANTITY		PERMITS	BID	CONSTRUCTION		
DESCRIPTION		REVISIONS REV. DESIGN DRAFT CHECK DESCRIPTION DATE	INITIALS	DATE	INITIALS	DATE	GCP89 - OLD RIVER ROAD DISTRICT REGULATOR STATION ALIGNMENT SHEET RK&K <small>RUMMEL, KLEPPER & KAY, LLP 2100 E. CARY ST. SUITE 309 ROANOKE, VIRGINIA 24013 1-804-782-1900 F-804-782-2142</small> ENGINEERS CONSTRUCTION MANAGERS PLANNERS SCIENTISTS RK&K COMM. NO. 1214-011-C
			DATE	DATE	DATE	DATE	
							SCALE PLAN AS SHOWN PROFILE HOR. - VERT. -
			TESTED FROM STATION: _____ TO STATION: _____ MEDIUM: _____ RECORD TEST PRESSURE: _____ psi DATE TEST COMPLETED: _____				DISTRICT _____ COUNTY PITTS STATE NORTH CAROLINA SHEET DESCRIPTION PROPOSED SITE GRADING PLAN SHEET: DR2-3 REVISION: 0



PROPOSED SITE PLAN
SCALE: 1/16" = 1'-0"

Issued for Bids



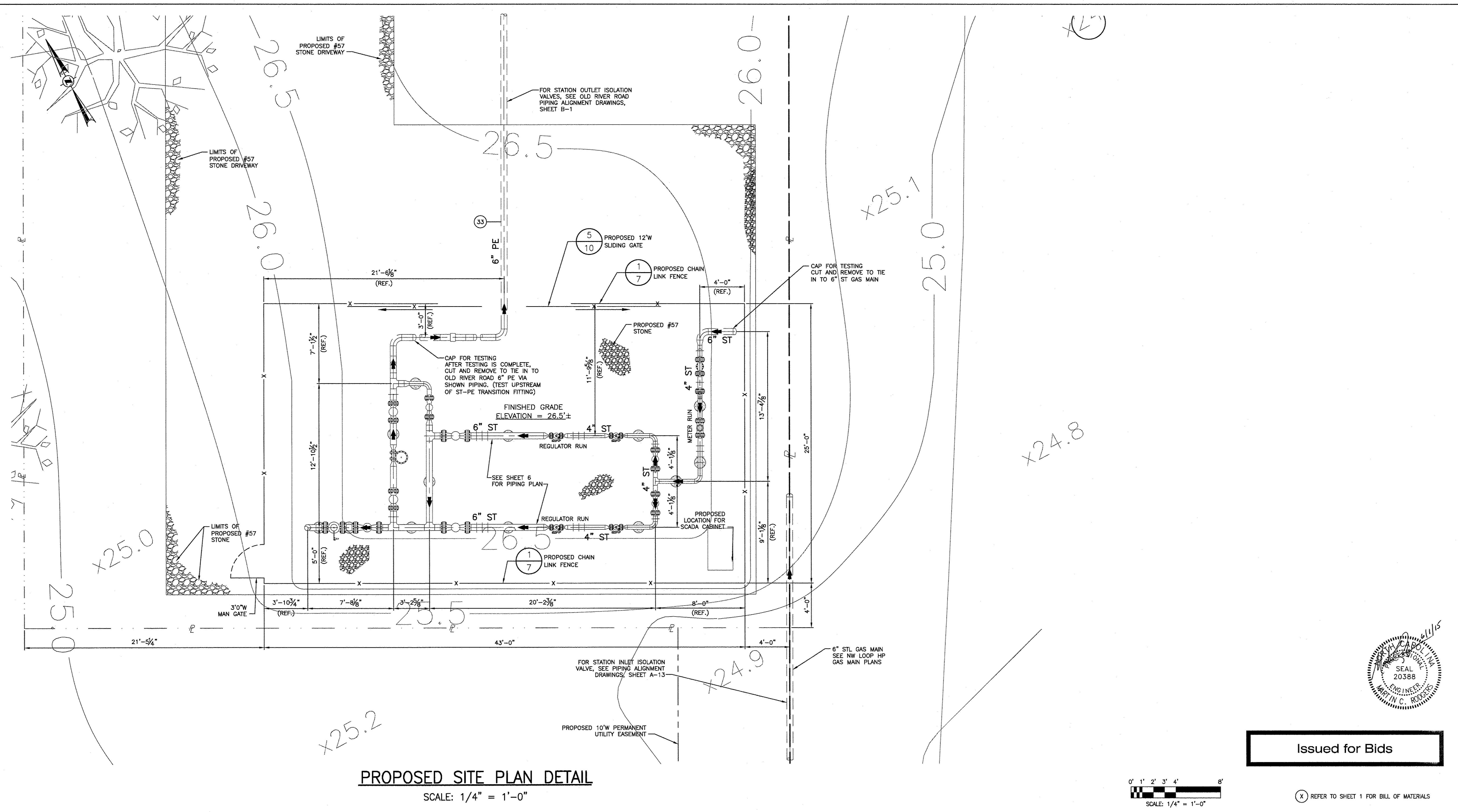
SUMMARY OF MATERIALS		
ITEM	QUANTITY	DESCRIPTION

NOTES			
TOTAL ACRES DISTURBED: 0.10 ACRES			
TOTAL ACRES TO BE CLEARED: 0 ACRES (2 TREES)			
TOTAL WETLAND CONSTRUCTION: 0 ACRES			
REVISIONS			
REV.	DESIGN	DRAFT	CHECK

APPROVAL							
PERMITS				BID		CONSTRUCTION	
INITIALS	DATE	INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY							
C.P.							
DRAFTING & DESIGN - RK&K							
	CSY	5/20	CSY	6/1/15			
ENGINEERING - RK&K							
	MCR	5/20	MCR	6/1/15			
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TESTED FROM STATION: _____ TO STATION: _____							
MEDIUM: _____ RECORD TEST PRESSURE: _____ psig							
DATE TEST COMPLETED: _____							

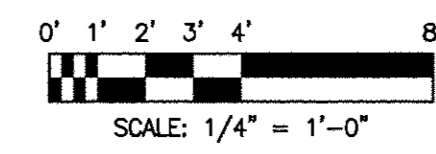
PROJECT		
GCP89 - OLD RIVER ROAD DISTRICT REGULATOR STATION		
ALIGNMENT SHEET		
<small>RICHARD KLIPPER & KEHL, LLP 2100 E. GARY ST. SUITE 309 RICHMOND, VIRGINIA 23223 T-804-782-1933 F-804-782-2142</small>		
<small>ENGINEERS CONSTRUCTION MANAGERS PLANNERS SCIENTISTS</small>		
<small>RK&K COMM. NO. 1214-011-C</small>		

Greenville Utilities		
DISTRICT	COUNTY	STATE
	PITT	NORTH CAROLINA
SHEET DESCRIPTION		
PROPOSED SITE PLAN		
SHEET: DR2-4	REVISION: 0	

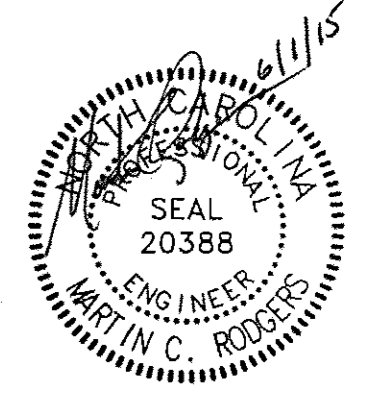


PROPOSED SITE PLAN DETAIL

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

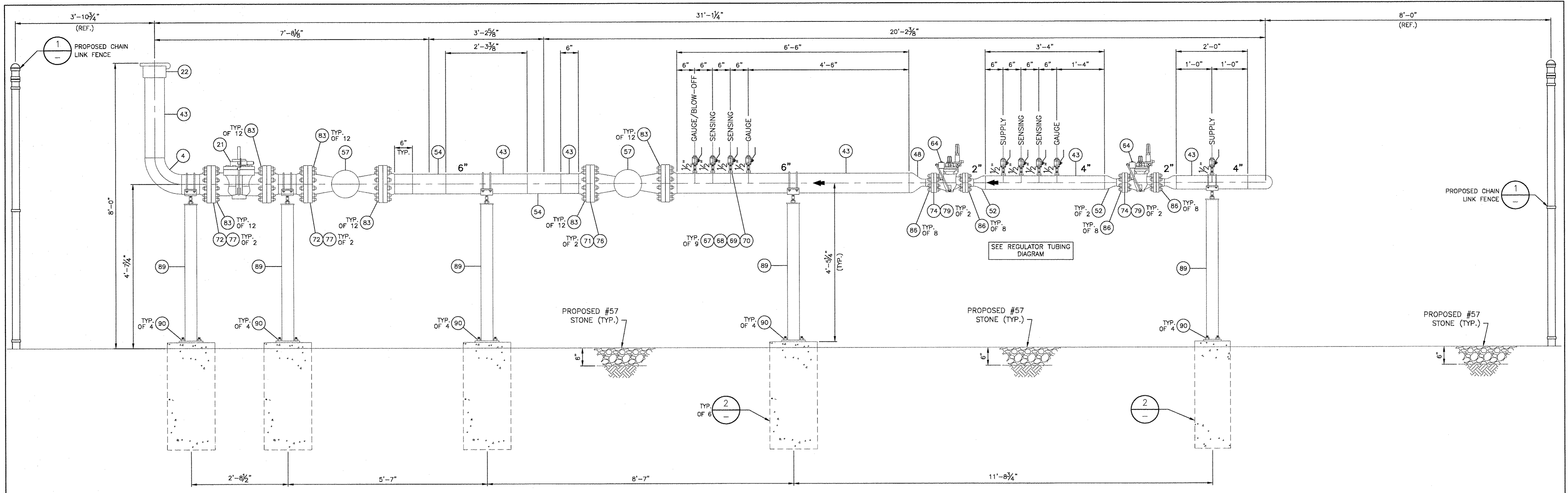


(X) REFER TO SHEET 1 FOR BILL OF MATERIALS

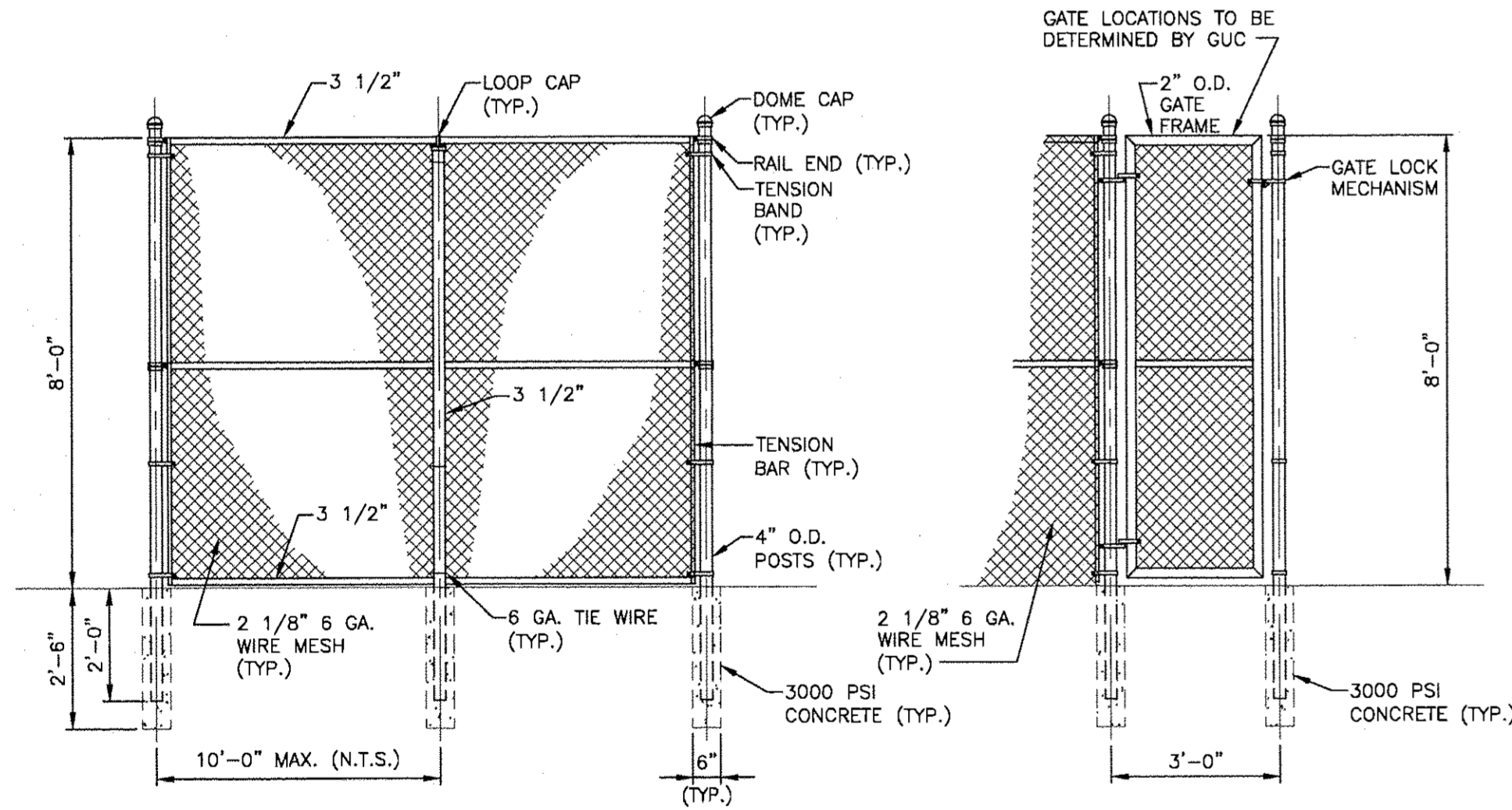


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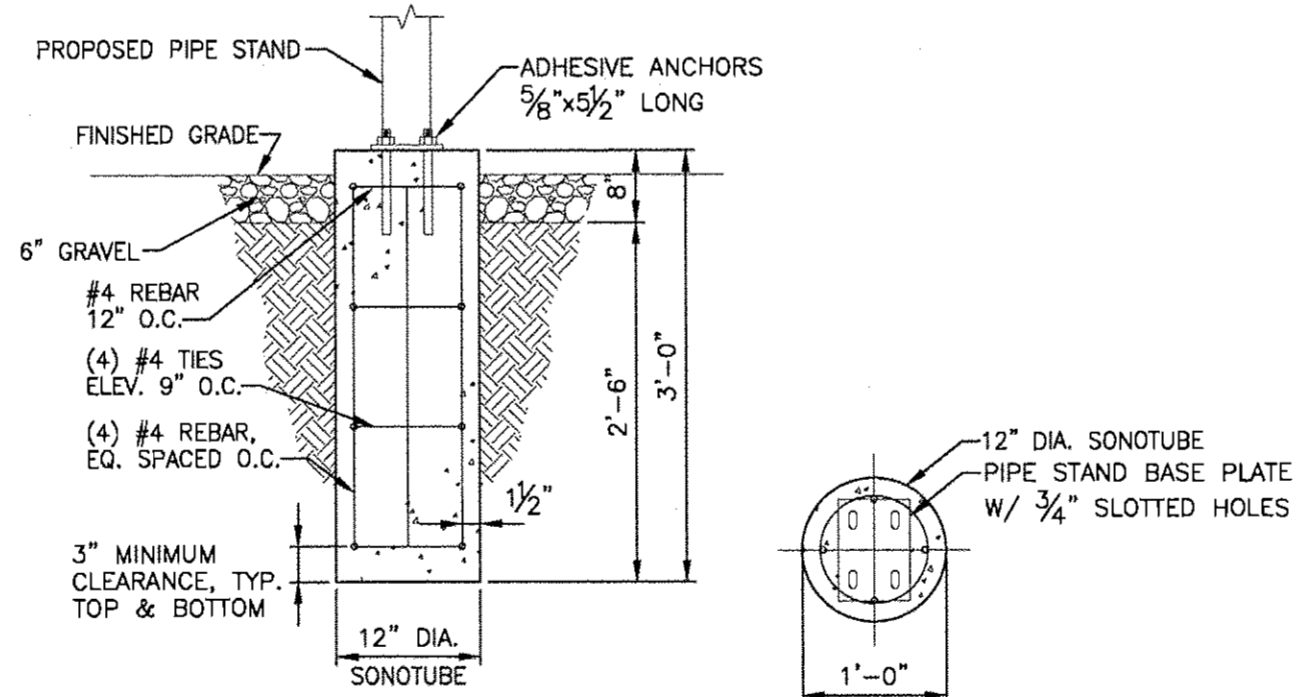
SUMMARY OF MATERIALS		NOTES	APPROVAL			PROJECT	 Greenville Utilities
ITEM	QUANTITY		DESCRIPTION	PERMITS	BID		
			INITIALS	DATE	INITIALS	DATE	DISTRICT: _____ COUNTY: _____ STATE: _____ NORTH CAROLINA
REVISIONS			TEST DATA			ALIGNMENT SHEET	
REV.	DESIGN	DRAFT	CHECK	DESCRIPTION	DATE	SCALE: _____ PLAN: AS SHOWN PROFILE: _____ HOR.: _____ VERT.: _____	
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						SHEET: DR2-5 REVISION: 0	



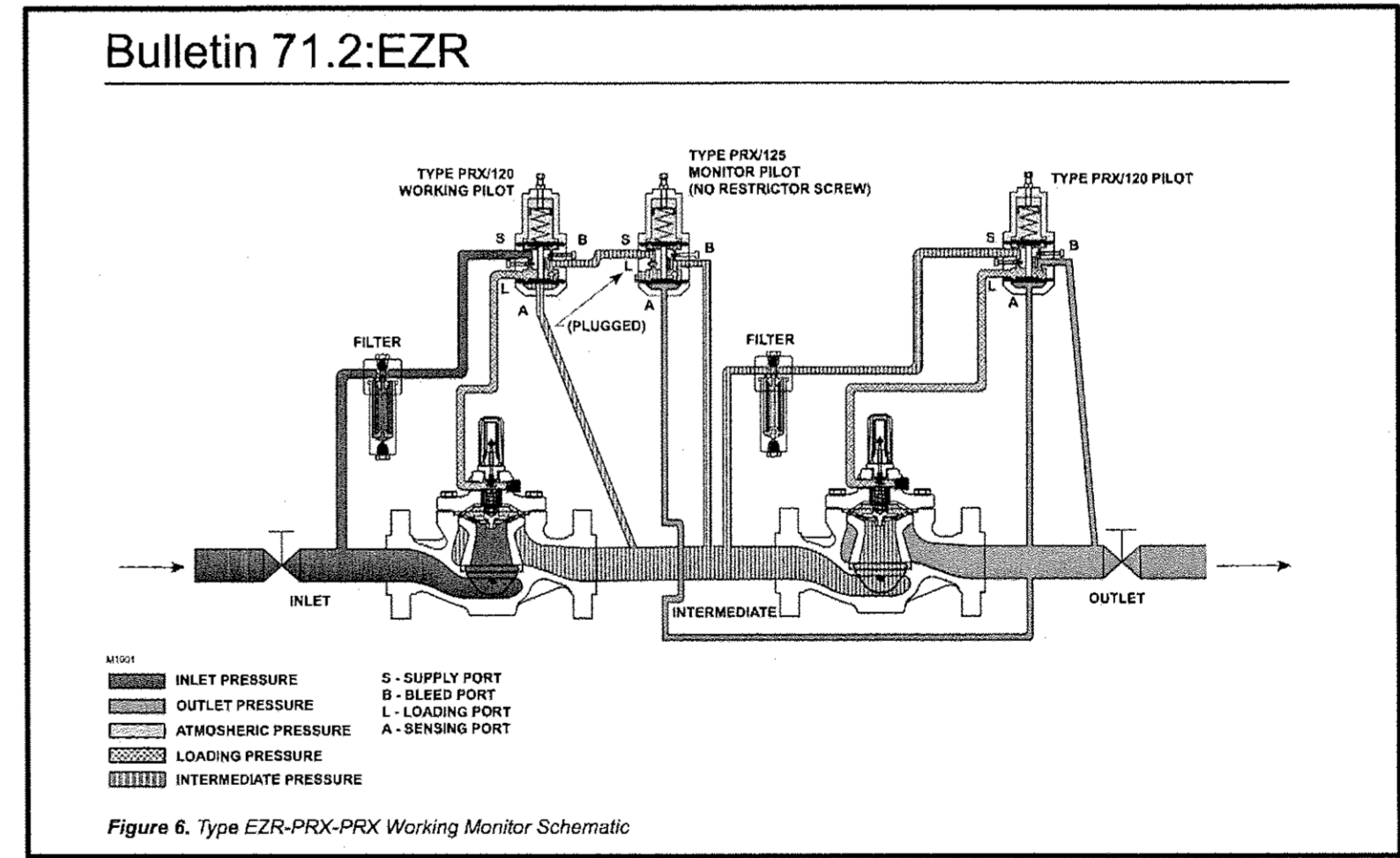
SECTION A
SCALE: 3/4" = 1'-0"



PROPOSED FENCE DETAILS
DETAIL 1
SCALE: 3/8" = 1'-0"

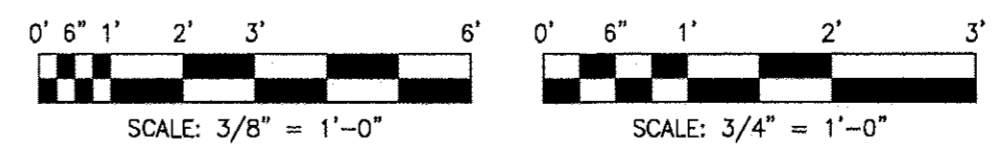


SECTION
PIPE STAND FOUNDATION DETAILS
DETAIL 2



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- NOTES**
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SUMMARY OF MATERIALS		DESCRIPTION	
ITEM	QUANTITY		

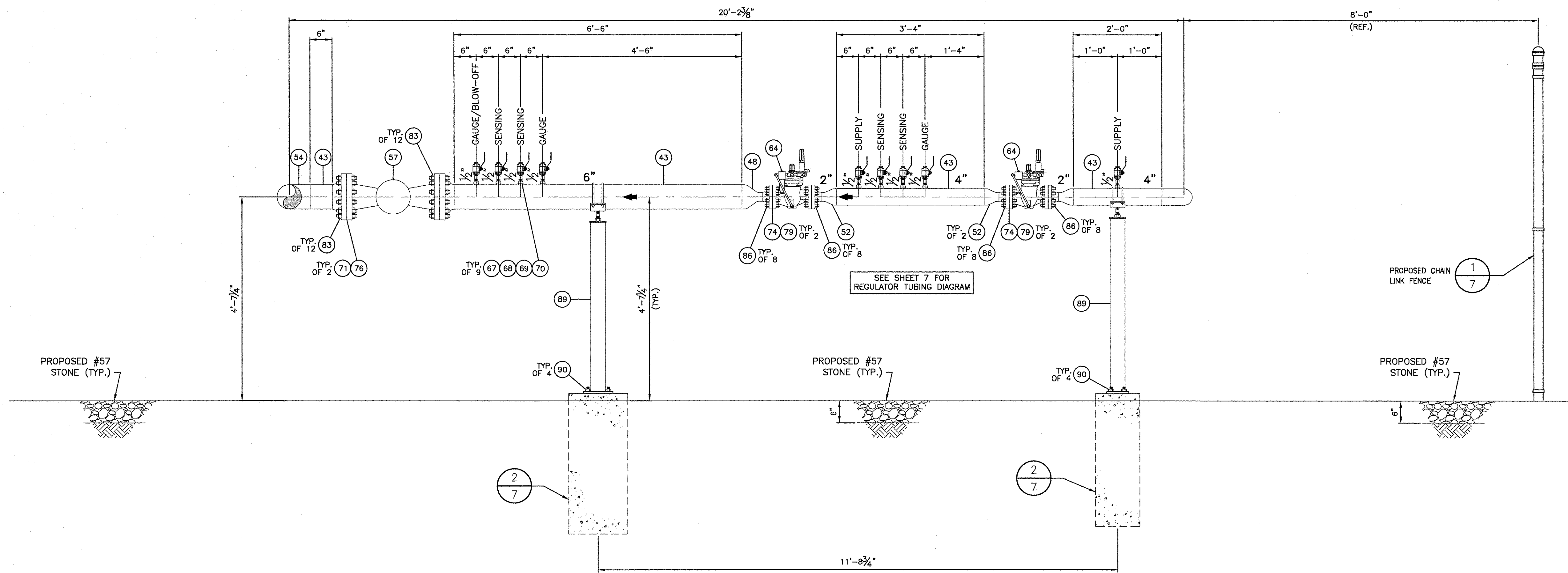
NOTES				

APPROVAL					
PERMITS		BID		CONSTRUCTION	
INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY					
C.P.					
DRAFTING & DESIGN - RK&K		GSY	5/20	GSY	6/19
ENGINEERING - RK&K		MCR	5/20	MCR	6/19

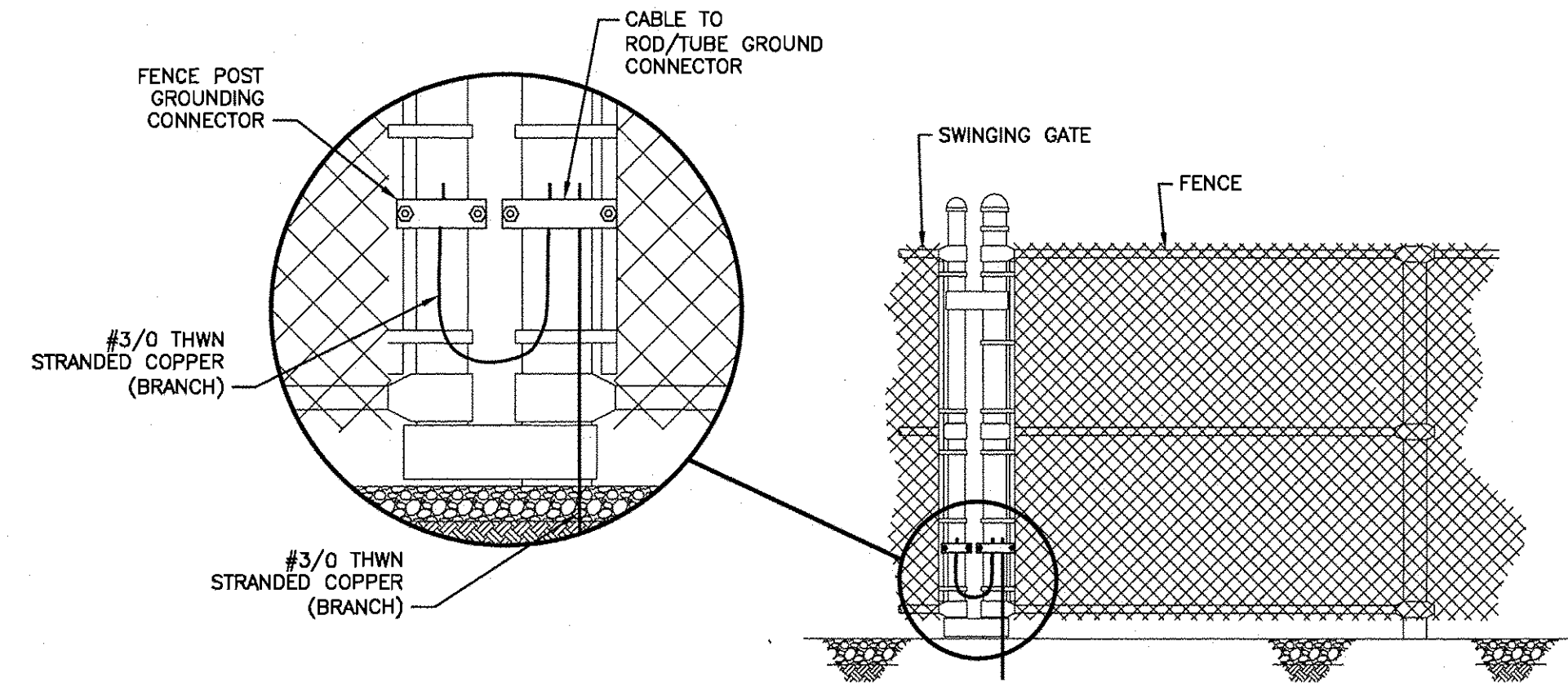
PROJECT		
GCP89 - OLD RIVER ROAD DISTRICT REGULATOR STATION		
ALIGNMENT SHEET		
<small>ENGINEERS CONSTRUCTION MANAGERS PLANNERS SCIENTISTS</small> <small>RK&K COMM. NO. 1214-011-C</small>		

DISTRICT	COUNTY	STATE
		NORTH CAROLINA
SHEET DESCRIPTION		
PIPING SECTION AND DETAILS		
SHEET: DR2-7		
REVISION: 0		

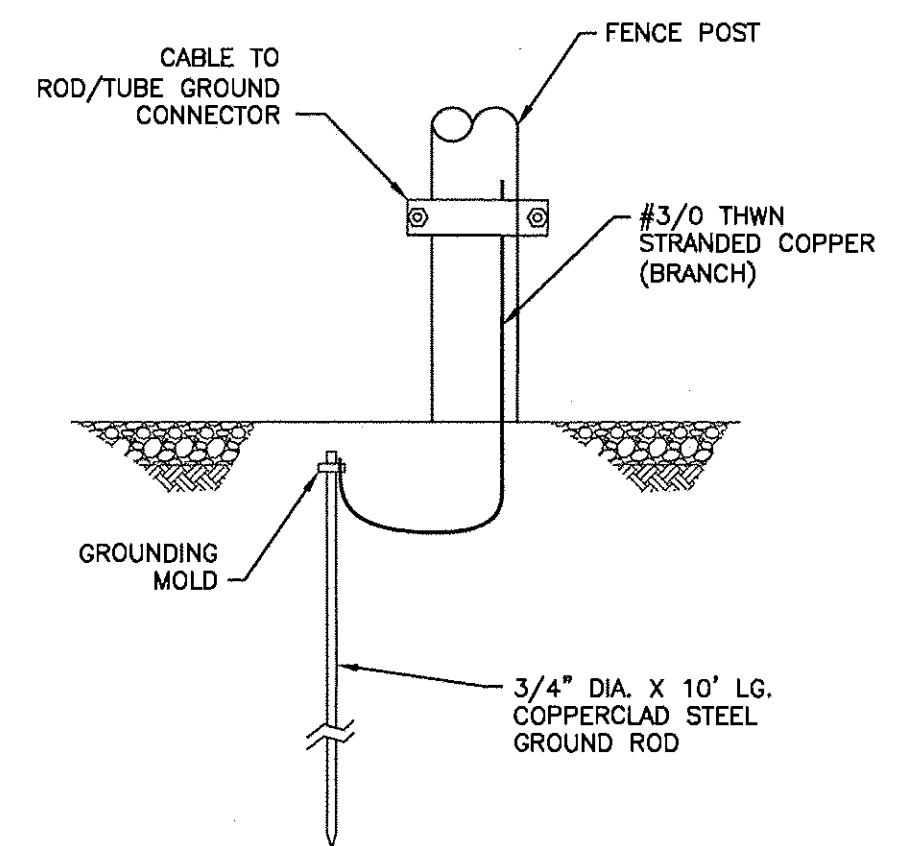




SECTION B
SCALE: 3/4" = 1'-0"



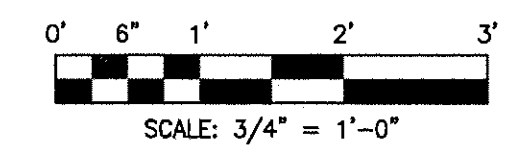
FENCE GROUNDING DETAIL 3
SCALE: 3/4" = 1'-0"



GROUNDING ROD DETAIL 4
SCALE: 3/4" = 1'-0"

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(X) REFER TO SHEET 1 FOR BILL OF MATERIALS



ITEM QUANTITY		DESCRIPTION	NOTES				APPROVAL			PROJECT			SHEET DESCRIPTION														
		SUMMARY OF MATERIALS					<table border="1"> <tr> <th>PERMITS</th> <th>BID</th> <th>CONSTRUCTION</th> </tr> <tr> <td>INITIALS</td> <td>DATE</td> <td>INITIALS</td> <td>DATE</td> <td>INITIALS</td> <td>DATE</td> </tr> </table>			PERMITS	BID	CONSTRUCTION	INITIALS	DATE	INITIALS	DATE	INITIALS	DATE	<p>GCP89 - OLD RIVER ROAD DISTRICT REGULATOR STATION</p>			<p>Greenville Utilities</p>					
PERMITS	BID	CONSTRUCTION																									
INITIALS	DATE	INITIALS	DATE	INITIALS	DATE																						
			REVISIONS				<table border="1"> <tr> <th>REV.</th> <th>DESIGN</th> <th>DRAFT</th> <th>CHECK</th> <th>DESCRIPTION</th> <th>DATE</th> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </table>			REV.	DESIGN	DRAFT	CHECK	DESCRIPTION	DATE							<p>ALIGNMENT SHEET</p>			<p>DISTRICT: COUNTY: STATE: NORTH CAROLINA</p>		
REV.	DESIGN	DRAFT	CHECK	DESCRIPTION	DATE																						
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TESTED FROM STATION:	TO STATION:																										
MEDIUM:	RECORD TEST PRESSURE:																										
DATE TEST COMPLETED:																											
							<p>TEST DATA</p>			<p>ENGINEERS CONSTRUCTION MANAGERS PLANNERS SCIENTISTS</p> <p>RK&K COMM. NO. 1214-011-C</p>			<p>SHEET: DR2-8</p>														
										<p>REVISION: 0</p>																	

