

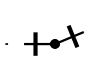
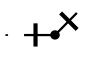
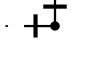


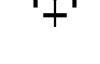
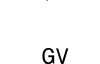


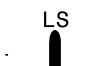

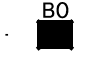












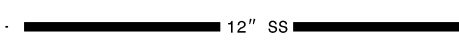

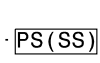
STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

UTILITIES PLAN SHEET SYMBOLS





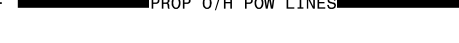
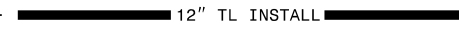
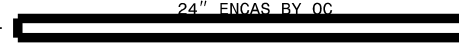
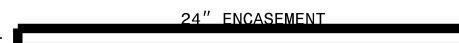
PROPOSED WATER SYMBOLS

Water Line (Sized as Shown)	
11¼ Degree Bend	
22½ Degree Bend	
45 Degree Bend	
90 Degree Bend	
Plug	
Tee	
Cross	
Reducer	
Gate Valve	
Butterfly Valve	
Tapping Valve	
Line Stop	
Line Stop with Bypass	
Blow Off	
Fire Hydrant	
Relocate Fire Hydrant	
Remove Fire Hydrant	REM FH
Water Meter	
Relocate Water Meter	
Remove Water Meter	REM WM
Water Pump Station	
RPZ Backflow Preventer	
DCV Backflow Preventer	
Relocate RPZ Backflow Preventer	
Relocate DCV Backflow Preventer	

PROPOSED SEWER SYMBOLS



















Gravity Sewer Line (Sized as Shown)	
Force Main Sewer Line (Sized as Shown)	
Manhole (Sized per Note)	
Sewer Pump Station	

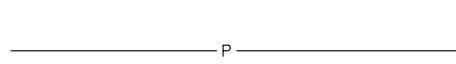
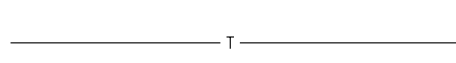
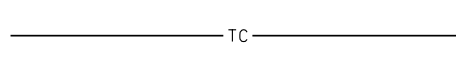
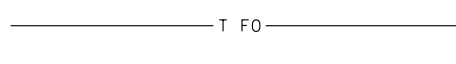
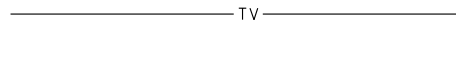
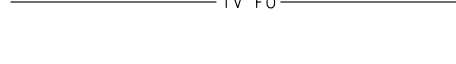





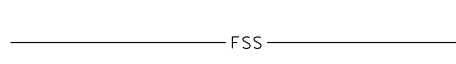
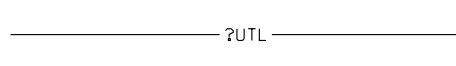






PROPOSED MISCELLANEOUS UTILITIES SYMBOLS

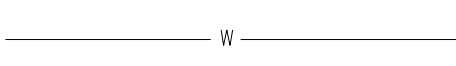
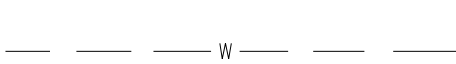
Power Pole	
Telephone Pole	
Joint Use Pole	
Telephone Pedestal	
Utility Line by Others (Type as Shown)	
Trenchless Installation	
Encasement by Open Cut	
Encasement	

Thrust Block	
Air Release Valve	
Utility Vault	
Concrete Pier	
Steel Pier	
Plan Note	
Pay Item Note	

EXISTING UTILITIES SYMBOLS

Power Pole	
Telephone Pole	
Joint Use Pole	
Utility Pole	
Utility Pole with Base	
H-Frame Pole	
Power Transmission Line Tower	
Water Manhole	
Power Manhole	
Telephone Manhole	
Sanitary Sewer Manhole	
Hand Hole for Cable	
Power Transformer	
Telephone Pedestal	
CATV Pedestal	
Gas Valve	
Gas Meter	
Located Miscellaneous Utility Object	
Abandoned According to Utility Records	AATUR
End of Information	E.O.I.

*Underground Power Line	
*Underground Telephone Cable	
*Underground Telephone Conduit	
*Underground Fiber Optics Telephone Cable	
*Underground TV Cable	
*Underground Fiber Optics TV Cable	
*Underground Gas Pipeline	
Aboveground Gas Pipeline	
*Underground Water Line	
Aboveground Water Line	
*Underground Gravity Sanitary Sewer Line	
Aboveground Gravity Sanitary Sewer Line	
*Underground SS Forced Main Line	
Underground Unknown Utility Line	
SUE Test Hole	
Water Meter	
Water Valve	
Fire Hydrant	
Sanitary Sewer Cleanout	

*For Existing Utilities
 Utility Line Drawn from Record (Type as Shown)  W
 Designated Utility Line (Type as Shown)  W

UTILITY CONSTRUCTION

HENDERSON COUNTY

GENERAL NOTES:

1. THE PROPOSED UTILITY CONSTRUCTION SHALL MEET THE APPLICABLE REQUIREMENTS OF THE NC DEPARTMENT OF TRANSPORTATION'S "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" DATED JANUARY 2018 OR LATEST EDITION AND CITY OF HENDERSONVILLE DESIGN STANDARDS AND SPECIFICATIONS.

2. THE EXISTING UTILITIES BELONG TO THE CITY OF HENDERSONVILLE. CONTACT: LEE SMITH, UTILITIES DIRECTOR 828-697-3060 LSMITH@HVLNC.GOV

3. ALL WATER LINES TO BE INSTALLED WITHIN COMPLIANCE OF THE RULES AND REGULATIONS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY, DIVISION OF WATER RESOURCES, PUBLIC WATER SUPPLY SECTION, ALL SEWER LINES TO BE INSTALLED WITHIN COMPLIANCE OF THE RULES AND REGULATIONS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY, DIVISION OF WATER RESOURCES, WATER QUALITY SECTION PERFORM ALL WORK IN ACCORDANCE WITH THE APPLICABLE PLUMBING CODES.

4. THE UTILITY OWNER OWNS THE EXISTING UTILITY FACILITIES AND WILL OWN THE NEW UTILITY FACILITIES AFTER ACCEPTANCE BY THE DEPARTMENT. THE DEPARTMENT OWNS THE CONSTRUCTION CONTRACT AND HAS ADMINISTRATIVE AUTHORITY. COMMUNICATIONS AND DECISIONS BETWEEN THE CONTRACTOR AND UTILITY OWNER ARE NOT BINDING UPON THE DEPARTMENT OR THIS CONTRACT UNLESS AUTHORIZED BY THE ENGINEER, AGREEMENTS BETWEEN THE UTILITY OWNER AND CONTRACTOR FOR THE WORK THAT IS NOT PART OF THIS CONTRACT OR IS SECONDARY TO THIS CONTRACT ARE ALLOWED, BUT ARE NOT BINDING UPON THE DEPARTMENT.

5. PROVIDE ACCESS FOR THE DEPARTMENT PERSONNEL AND THE OWNER'S REPRESENTATIVES TO ALL PHASES OF CONSTRUCTION. NOTIFY DEPARTMENT PERSONNEL AND THE UTILITY OWNER TWO WEEKS PRIOR TO COMMENCEMENT OF ANY WORK AND ONE WEEK PRIOR TO SERVICE INTERRUPTION. KEEP UTILITY OWNERS' REPRESENTATIVES INFORMED OF WORK PROGRESS AND PROVIDE OPPORTUNITY FOR INSPECTION OF CONSTRUCTION AND TESTING.

6. THE PLANS DEPICT THE BEST AVAILABLE INFORMATION FOR THE LOCATION, SIZE AND TYPE OF MATERIAL FOR ALL EXISTING UTILITIES. MAKE INVESTIGATIONS FOR DETERMINING THE EXACT LOCATION, SIZE, AND TYPE MATERIAL OF THE EXISTING FACILITIES AS NECESSARY FOR THE CONSTRUCTION OF THE PROPOSED UTILITIES AND FOR AVOIDING DAMAGE TO EXISTING FACILITIES. REPAIR ANY DAMAGE INCURRED TO EXISTING FACILITIES TO THE ORIGINAL OR BETTER CONDITION AT NO ADDITIONAL COST TO THE DEPARTMENT.

7. MAKE FINAL CONNECTIONS OF THE NEW WORK TO THE EXISTING SYSTEMS WHERE INDICATED ON THE PLANS, AS REQUIRED TO FIT THE ACTUAL CONDITIONS, OR AS DIRECTED.

8. MAKE CONNECTIONS BETWEEN EXISTING AND PROPOSED UTILITIES AT TIMES MOST CONVENIENT TO THE PUBLIC, WITHOUT ENDANGERING THE UTILITY SERVICE AND IN ACCORDANCE WITH THE UTILITY OWNER'S REQUIREMENTS. MAKE CONNECTIONS ON WEEKENDS, AT NIGHT, OR ON HOLIDAYS IF NECESSARY.

9. ALL UTILITY MATERIALS SHALL BE APPROVED PRIOR TO DELIVERY TO THE PROJECT SITE. SEE 1500-7, "SUBMITTALS AND RECORDS" IN SECTION 1500 OF THE NCDOT STANDARD SPECIFICATIONS.

PROJECT SPECIFIC NOTES

1. WATER CONSTRUCTION ON THIS SITE IS AUTHORIZED BY PERMITS ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY (NCDEQ) AND AUTHORIZED BY THE REPRESENTATIVES OF NCDEQ, THE CITY OF HENDERSONVILLE, THE OWNER OR THE ENGINEER. THE PERMITS REQUIRES CERTIFICATION OF COMPLETION OF THE WATER SYSTEMS BY THE ENGINEER AND THE APPLICANT PRIOR TO ISSUANCE OF FINAL OPERATION APPROVAL.

2. MATERIALS AND INSTALLATION FOR WATER CONSTRUCTION SHALL CONFORM TO THE LATEST VERSIONS OF CITY SPECIFICATION AND DETAILS AND AWWA STANDARDS AND REQUIREMENTS.

3. CONTRACTOR SHALL NOTIFY NC811 & APPROPRIATE UTILITIES AGENCIES PRIOR TO PERFORMING ANY WORK.

4. REGULAR WORKING HOURS SHALL BE FROM 7:00 A.M. TO 5:00 P.M. MONDAY THROUGH FRIDAY, EXCEPT IN CASES OF EMERGENCY OR OTHERWISE APPROVED IN WRITING BY THE CITY OF AUTHORIZED REPRESENTATIVES. THE CONTRACTOR SHALL ENSURE THE CONSTRUCTION SITE IS SAFE FOR ANY PERSONS WHO MAY BE ON SITE DURING NON-WORKING HOURS. SEE TRANSPORTAION MANAGEMENT PLANS FOR PORTION OF WATER LINE RELOCATION WORK IN NC 176/SPARTANBURG HIGHWAY.

5. ALL PERSONS SHALL BE COURTEOUS AND RESPECTFUL TO THE PUBLIC. CURSING OR FOUL LANGUAGE IS NOT PERMITTED AND WILL NOT BE TOLERATED.

6. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING TRAFFIC CONTROL ON ALL ROADWAYS DURING THE PROJECT. THE CONTRACTOR SHALL NOTIFY LOCAL EMERGENCY, SCHOOL AND OTHER NECESSARY AUTHORITIES PRIOR TO ANY STREET CLOSING OR TRAFFIC CHANGE.

7. THE CONTRACTOR AT HIS OWN EXPENSE SHALL KEEP THE CONSTRUCTION SITE AND ADJACENT PUBLIC AND PRIVATE ROADWAYS CLEAN DURING THE PROJECT. THE CONTRACTOR IS ALSO RESPONSIBLE FOR CONTROLLING DUST WITHIN THE PROJECT AREA.

8. THE CONTRACTOR IS RESPONSIBLE FOR ALL CONSTRUCTION IN ACCORDANCE WITH THE LINES, GRADES AND ELEVATIONS SHOWN ON THE PLANS OR AS GIVEN BY THE ENGINEER IN THE FIELD.

9. CONTRACTOR SHALL VERIFY THE EXACT LOCATION AND THE ELEVATION FOR ALL UTILITIES DRAINAGE AND OTHER UNDERGROUND FACILITIES BOTH EXISTING AND PROPOSED, AND SHALL NOTIFY THE UTILITIES & DRAINAGE ENGINEER OF ANY DISCREPANCIES OR CONFLICTS PRIOR TO CONSTRUCTION.

10. CONTRACTOR SHALL PROTECT EXISTING UTILITIES DURING CONSTRUCTION. REPAIRS SHALL BE MADE IN ACCORDANCE WITH APPLICABLE STANDARDS OF APPROPRIATE AGENCIES AT THE CONTRACTOR'S EXPENSE.

11. DURING CONSTRUCTION THE CONTRACTOR SHALL MAINTAIN THE OPERATION OF EXISTING UTILITIES WITH THE LEAST AMOUNT OF SERVICE INTERRUPTION POSSIBLE IN COORDINATION WITH THE CITY OF HENDERSONVILLE. CONTINUOUS SERVICE, PUBLIC HEALTH AND SAFETY CONSIDERATIONS SHALL EXCEED ALL OTHERS AND CONTRACTOR'S SCHEDULE, PLANS AND WORK SHALL AT ALL TIMES BE SUBJECT TO ALTERATION AND REVISION IF NECESSARY FOR THESE CONSIDERATIONS.

12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE TEMPORARY OR PERMANENT RELOCATION OF STRUCTURES AND UTILITIES, INCLUDING BUT NOT LIMITED TO POLES, SIGNS, FENCES, HYDRANTS, VALVES, PIPING, CONDUITS AND DRAINS THAT INTERFERE WITH THE POSITIONING OF THE WORK AS SHOWN ON THE DRAWINGS.

13. CONTRACTOR SHALL BE REQUIRED TO CONFORM AND COMPLY WITH ALL RESTRICTIONS AND EASEMENT CONDITIONS AND IS RESPONSIBLE FOR ALL RELATED INCIDENTAL COSTS INVOLVED.

14. EXISTING WATER SERVICES SHALL BE REPLACED TO THE EXISTING METER UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY. SPLICING OF THE WATER SERVICE ON THE DOWNSTREAM SIDE OF THE METER IS NOT PERMITTED.

PROJECT REFERENCE NO. U-5887	SHEET NO. UC-3
DESIGNED BY: SSD	
DRAWN BY: BAB	
CHECKED BY: JDN	
APPROVED BY: JDN	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	

DOCUMENT NOT CONSIDERED FINAL UNTIL ALL SIGNATURES ARE COMPLETED
UTILITY CONSTRUCTION

Tri-Cities, TN 423-467-8401
 Knoxville, TN 865-548-5800
 Spartanburg, SC 864-574-4775
 Charleston, SC 843-934-5650
 Middleboro, KY 606-248-6600
 Charlotte, NC 704-351-0488
 Boone, NC 828-355-9933
 Kennesaw, GA 770-421-3590

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UTILITY CONSTRUCTION

HENDERSON COUNTY

PROJECT SPECIFIC NOTES:

15. ALL DISTURBED AREAS, INCLUDING BUT NOT LIMITED TO ASPHALT, CONCRETE, DRIVEWAYS, ROADS, LANDSCAPING, SHALL BE REPAIRED TO EQUAL OR BETTER CONDITION THAN THE ORIGINAL SITE. GRASS AND LANDSCAPED AREAS FILL MATERIAL MUST BE REPLACED IN TRENCH TO GRADE AS SOON AS WATERLINE CONSTRUCTION ALLOWS. ADEQUATE SEEDING AND STRAW OR MULCH SHALL THEN BE APPLIED TO THE DISTURBED TRENCH AREA. ADDITIONAL FILL AND SITE RESTORATION MAY BE REQUIRED WITHIN THE WARRANTY PERIOD AT THE CITY'S DISCRETION.

16. CONTRACTOR SHALL PROVIDE EROSION CONTROL DEVICES TO CONTROL RUNOFF AS REQUIRED. THE CONTRACTOR IS RESPONSIBLE FOR ANY FINES THAT MAY BE LEVIED DUE TO RUNOFF FROM CONSTRUCTION.

17. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO FOLLOW ALL APPLICABLE FEDERAL, STATE AND LOCAL HEALTH AND SAFETY REGULATIONS PERTAINING TO CONSTRUCTION OPERATIONS.

18. ALL WATER MAINS SHALL HAVE 3 FEET MINIMUM COVER

19. INSTALL FERROUS PIPING FOR BOTH WATER AND SEWER WITHIN 10 FT. OF A CROSSING IF:

19.1. SEWER LINE CROSSES OVER WATER, OR

19.2. VERTICAL CLEARANCE BETWEEN WATER AND SEWER IS LESS THAN 18 INCHES.

19.3. MAINTAIN 10 FEET HORIZONTAL SEPARATION BETWEEN SEWER AND WATER MAINS UNLESS LAID IN SEPARATE TRENCHES WITH THE BOTTOM OF THE WATER LINE AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER LINE OR USE FERROUS MATERIAL FOR BOTH WATER AND SEWER.

20. MAINTAIN 18 INCHES VERTICAL SEPARATION BETWEEN STORM DRAIN AND WATER, OR INSTALL FERROUS MATERIAL WATER LINE WITHIN 10 FEET EACH SIDE OF CROSSING.

21. TAPS GREATER THAN ONE-INCH IN DIAMETER IN EXISTING, ACTIVE WATER MAIN ARE TO BE PERFORMED BY THE CITY UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY. TAPS IN NEW CONSTRUCTION ARE TO BE PERFORMED BY THE CONTRACTOR IN ACCORDANCE WITH CITY REQUIREMENTS.

22. ALL WATER METERS WILL BE SET BY CITY STAFF UNLESS THE CONTRACTOR IS GRANTED WRITTEN PERMISSION BY THE CITY.

22.1. THE CONTRACTOR WILL PROVIDE THE CITY NOTICE OF 10 WORKING DAYS MINIMUM PRIOR TO THE DATE OF METER INSTALLATION.

22.2. THE CONTRACTOR WILL PROVIDE A LICENSED PLUMBER DURING THE METER INSTALLATION TO VERIFY LINES SERVICES IN ALL MULTI-METER BOXES.

23. ALL PUBLIC WATER MAIN CONSTRUCTION SHALL BE PERFORMED BY A NORTH CAROLINA LICENSED UTILITY CONTRACTOR.

24. ALL WATER APPURTENANCES ARE TO BE MADE USING LEAD FREE MATERIALS. PIPE, FITTINGS, VALVES, HYDRANTS, PIPE CLAMPS, RESTRAINTS, FLANGES, CASTINGS, REBAR, HATCHES, INLETS, METER BOXES AND ALL OTHER CAST IRON COMPONENTS SHALL BE MANUFACTURED IN THE USA.

25. RESTRAINED JOINTS BY AN APPROVED PIPE MANUFACTURER ARE TO BE USED FOR ALL PUBLIC WATER LINES WHERE THRUST RESTRAINING IS REQUIRED IN ACCORDANCE WITH THE PLANS AND MANUFACTURER'S SPECIFICATION. CONCRETE THRUST BLOCKS ARE PERMITTED ONLY WHERE CONNECTIONS ARE MADE TO EXISTING WATER LINES OR WHERE THE USE OF MECHANICAL RESTRAINT IS NOT FEASIBLE.

26. ALL FIRE HYDRANTS, VAULTS, BACKFLOW PREVENTERS, HOT BOXES AND WATER METERS ARE TO BE INSTALLED ON RELATIVELY FLAT AREAS OUTSIDE OF PAVEMENT.

27. TAMPERING WITH OR ILLEGAL USE OF THE PUBLIC WATER SUPPLY WILL RESULT IN SUSPENSION OF WATER SERVICE, INCLUDING DOMESTIC AND COMMERCIAL, UNTIL FINAL APPROVAL BY THE CITY IS ISSUED. A PERSON FOUND TO BE USING WATER ILLEGALLY SHALL BE SUBJECT TO PENALTIES OR FINES, AS PRESCRIBED AND APPROVED BY CITY COUNCIL.

28. CONTRACTOR SHALL PHASE WATER LINE INSTALLATION AND ROUGH GRADE, IF NECESSARY, SO THAT PROPOSED WATER LINE WILL HAVE MINIMUM 3' OF COVER ONCE INSTALLED.

TESTING & INSPECTION:

1. NOTIFY THE CITY OF HENDERSONVILLE AND ENGINEER AT LEAST 5 WORKING DAYS BEFORE STARTING CONSTRUCTION OF WATER FACILITIES TO SCHEDULE A PRE-CONSTRUCTION CONFERENCE. THE ENGINEER SHALL PERIODICALLY INSPECT THE PROGRESS OF INSTALLATION AT A MINIMUM AND SHALL COMPLETE A FINAL WATER CERTIFICATION.

2. ALL CHANGES TO THE APPROVED CONSTRUCTION PLANS AND SUBMITTALS MUST BE APPROVED IN WRITING BY THE CITY PRIOR TO IMPLEMENTATION IN THE FIELD.

3. THE CONTRACTOR SHALL FURNISH SECURE AND PROVIDE ALL NECESSARY TESTING MATERIALS, EQUIPMENT, LABOR. THE CONTRACTOR SHALL COORDINATE TESTING, FLUSHING, DISINFECTION, AND BACTERIOLOGICAL SAMPLING WITH CITY INSPECTOR.

4. THE ENGINEER OF CONTRACTOR SHALL NOTIFY THE CITY CONSTRUCTION INSPECTORS 72 HOURS (MINIMUM) PRIOR TO ANY WATER MAIN OR TESTING OPERATIONS. AT A MINIMUM CITY STAFF SHALL BE NOTIFIED PRIOR TO TAPS, TESTING, FLUSHING, DISINFECTIONS, AND SAMPLING.

5. PRESSURE TEST WATER MAINS TO 200 PSI MIN. FOR A MINIMUM OF TWO HOURS IN ACCORDANCE WITH CITY REQUIREMENTS AND AWWA C600.

6. DISINFECT WATER LINES AND PROVIDE ACCEPTABLE BACTERIOLOGICAL TEST FROM A CERTIFIED TESTING LABORATORY IN ACCORDANCE WITH CITY REQUIREMENTS AND AWWA C651. THE CONTRACTOR MAY ELECT TO USE THE CITY'S CERTIFIED TESTING LABORATORY.

7. PRIVATELY OWNED FIRE SYSTEMS SHALL BE APPROVED BY THE APPROPRIATE LOCAL PERMITTING AUTHORITY. THE CITY ENGINEERING OR WATER SEWER DEPARTMENTS ARE NOT RESPONSIBLE FOR ENSURING COMPLIANCE WITH APPROPRIATE FIRE PROTECTION REGULATIONS. THE CITY DOES NOT PROVIDE ANY GUARANTEE OF ITS WATER SYSTEM'S CAPABILITY TO DELIVER WATER FLOW AND RESIDUAL PRESSURE THE FIRE PERMITTING AUTHORITY MAY REQUIRE.

8. ALL BACKFLOW PREVENTION ASSEMBLIES SHALL BE USC APPROVED AND REVIEWED BY THE CITY'S. PROTECTION OF THE PUBLIC WATER DISTRIBUTION SYSTEM SHALL BE ASSURED BY INSPECTION OF THE INSTALLATION AND TESTING OF BACKFLOW PREVENTION ASSEMBLY. THIS ASSEMBLY INSTALLATION MUST BE TESTED BY A LICENSED PLUMBER AND TEST RESULTS SUBMITTED TO THE CITY BEFORE USE OF CONSTRUCTION WATER.

9. CONSTRUCTION WATER SOURCING MUST BE APPROVED IN WRITING BY THE CITY. CONSTRUCTION WATER CONNECTIONS SHALL BE PAIRED WITH AN IRRIGATION METER AND APPROVED BACKFLOW PREVENTION ASSEMBLY. THIS ASSEMBLY INSTALLATION MUST BE TESTED BY A LICENSED PLUMBER AND TEST RESULTS SUBMITTED TO THE CITY BEFORE USE OF CONSTRUCTION WATER.

10. SECURE FINAL WRITTEN ACCEPTANCE FROM THE CITY OF HENDERSONVILLE PRIOR TO ACTIVATION OF THE SYSTEM. WATER SERVICE WILL NOT BE PROVIDED UNTIL WRITTEN ACCEPTANCE OF THE SYSTEM IS ISSUED BY THE CITY.

11. THE ENGINEER SHALL SUPPLY THE CITY WITH FINAL AS-BUILT DRAWINGS AND COMPLETE ALL PROJECT CLOSE OUT REQUIREMENTS.

PROJECT REFERENCE NO. U-5887	SHEET NO. UC-3A
DESIGNED BY: DCR	
DRAWN BY: DCR	
CHECKED BY: JDN	
APPROVED BY: JDN	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
UTILITY CONSTRUCTION PLANS ONLY	
DOCUMENT NOT CONSIDERED FINAL UNTIL ALL SIGNATURES ARE COMPLETED	
UTILITY CONSTRUCTION	

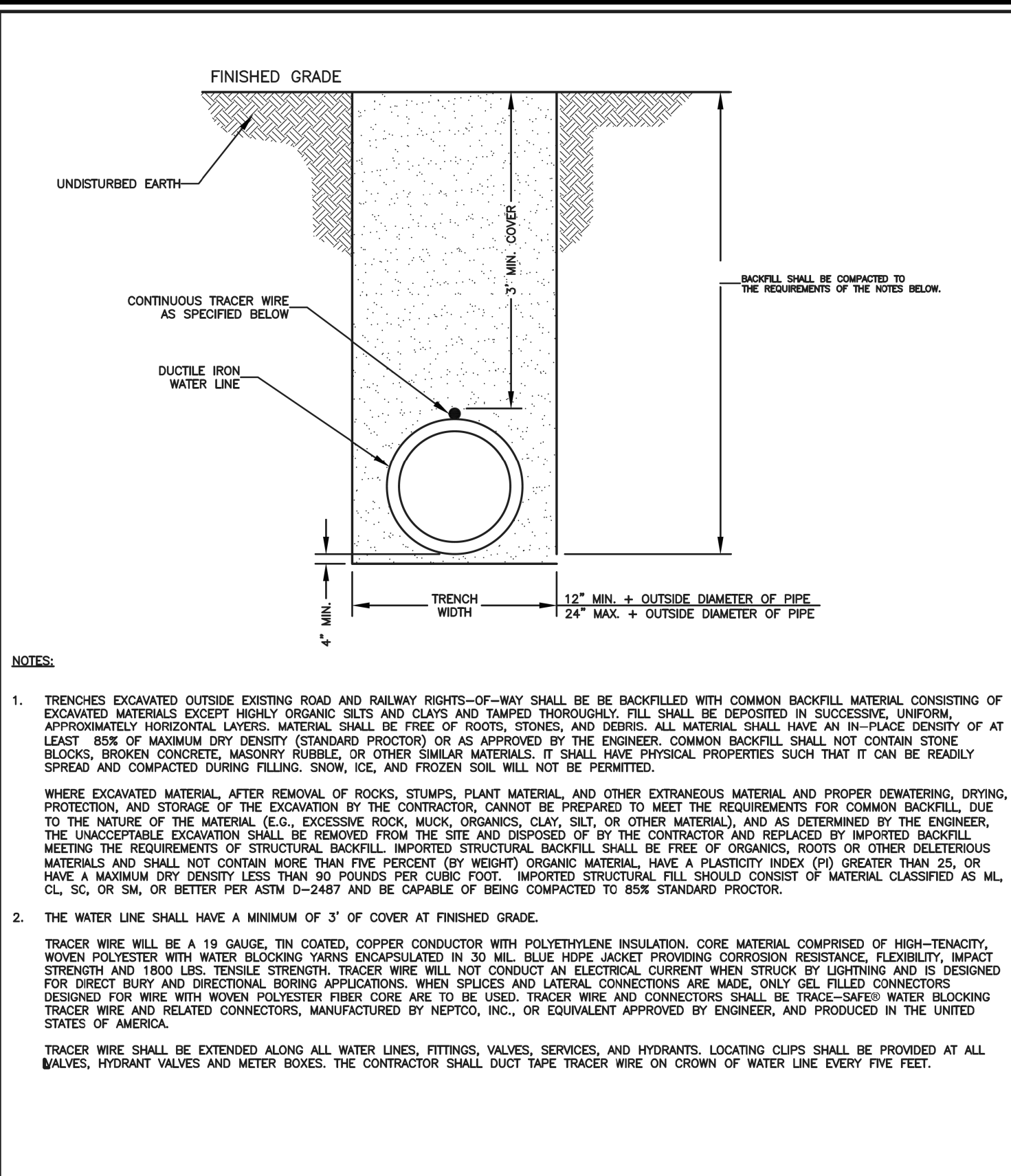
DISCLAIMER:

THE STANDARD WATER DETAILS ARE FOR THE SOLE USE OF PROJECTS DIRECTLY FOR, OR THOSE PROJECTS IN WHICH OWNERSHIP WILL BE TRANSFERRED TO THE CITY OF HENDERSONVILLE. THESE TYPICALS ARE INTENDED TO SHOW THE CITY OF HENDERSONVILLE'S EXPECTATIONS FOR THE GENERAL LAYOUT, ARRANGEMENT, AND THE QUALITY OF EQUIPMENT AND MATERIALS FOR WATER DISTRIBUTION SYSTEM ITEMS AND THEIR RELATED APPURTENANCES. IT REMAINS THE SOLE RESPONSIBILITY OF THE ENGINEER IN RESPONSIBLE CHARGE (ERC) OF EACH APPLICATION TO DETERMINE, DESIGN TO, AND CERTIFY TO THE DESIGN PARAMETERS FOR EACH INSTALLATION. THE ERC MUST ALSO ENSURE THE DESIGN COMPLIES WITH THE MINIMUM DESIGN CRITERIA OF NC DIVISION OF ENVIRONMENTAL QUALITY AND ALL LOCAL AND STATE LAWS AND REGULATIONS.

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 Spartanburg, SC 864-574-4775
 Charleston, SC 843-974-5650
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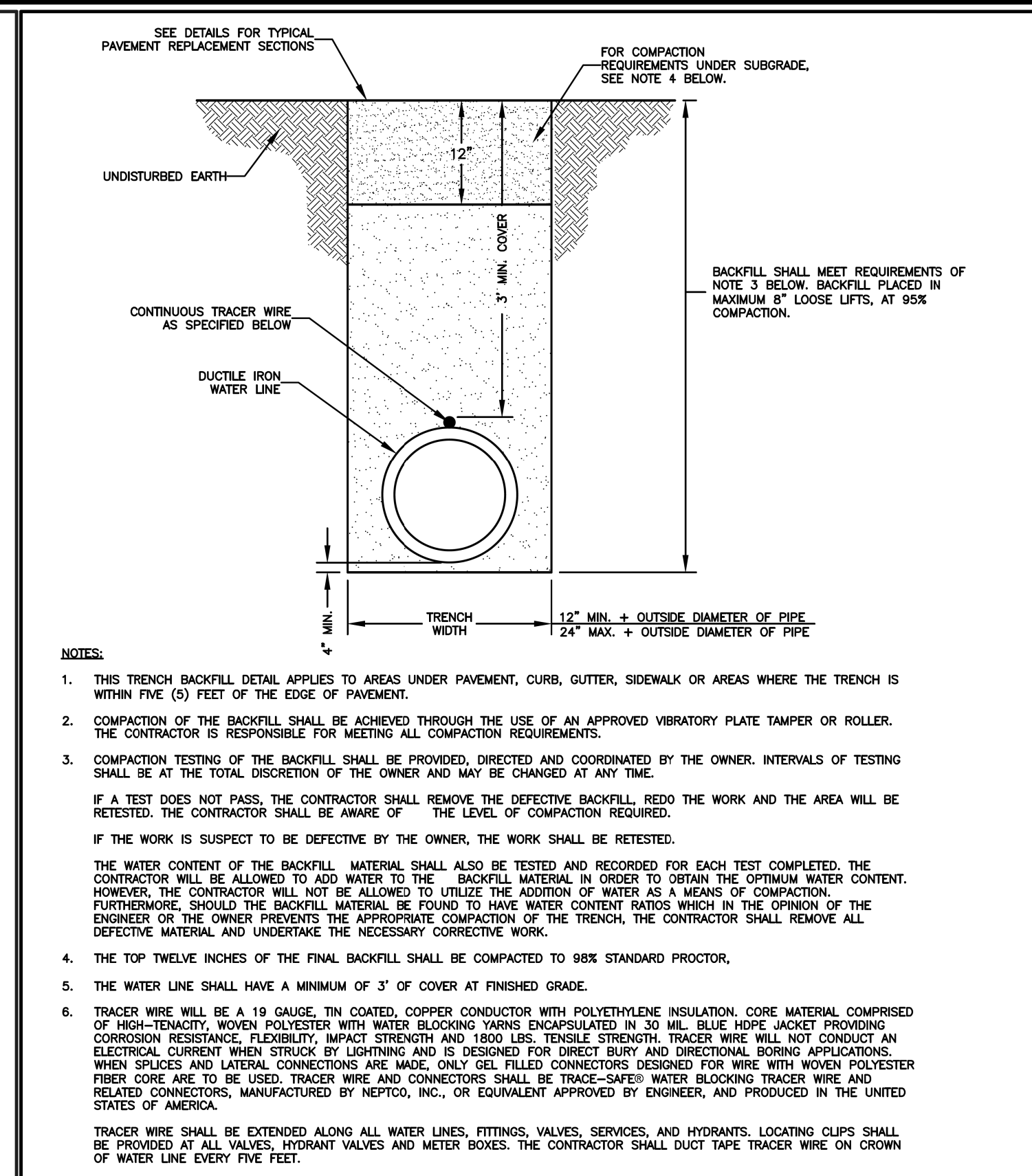
12/31/20



DATE: 01/12/2019 WD DWG. NO. 2
SCALE: NOT TO SCALE

WATER TRENCH CONSTRUCTION
OUTSIDE PAVEMENT

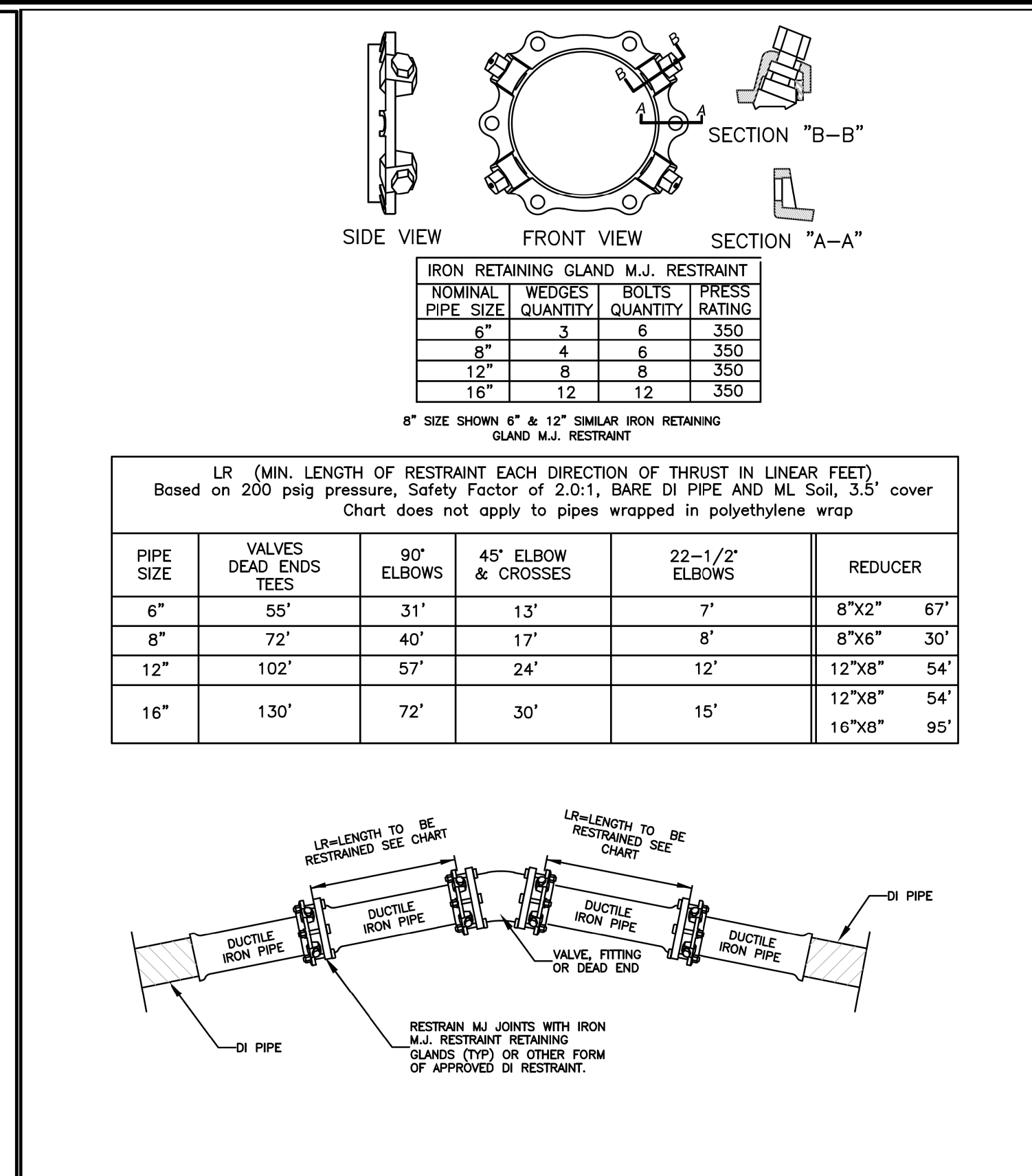
City of Hendersonville Engineering Department
305 Williams Street
Hendersonville, NC 28792
(828) 697-3000 (office)
www.cityofhendersonville.org



DATE: 06/10/2019 WD DWG. NO. 3
SCALE: NOT TO SCALE

WATER TRENCH CONSTRUCTION
UNDER PAVEMENT

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www.cityofhendersonville.org

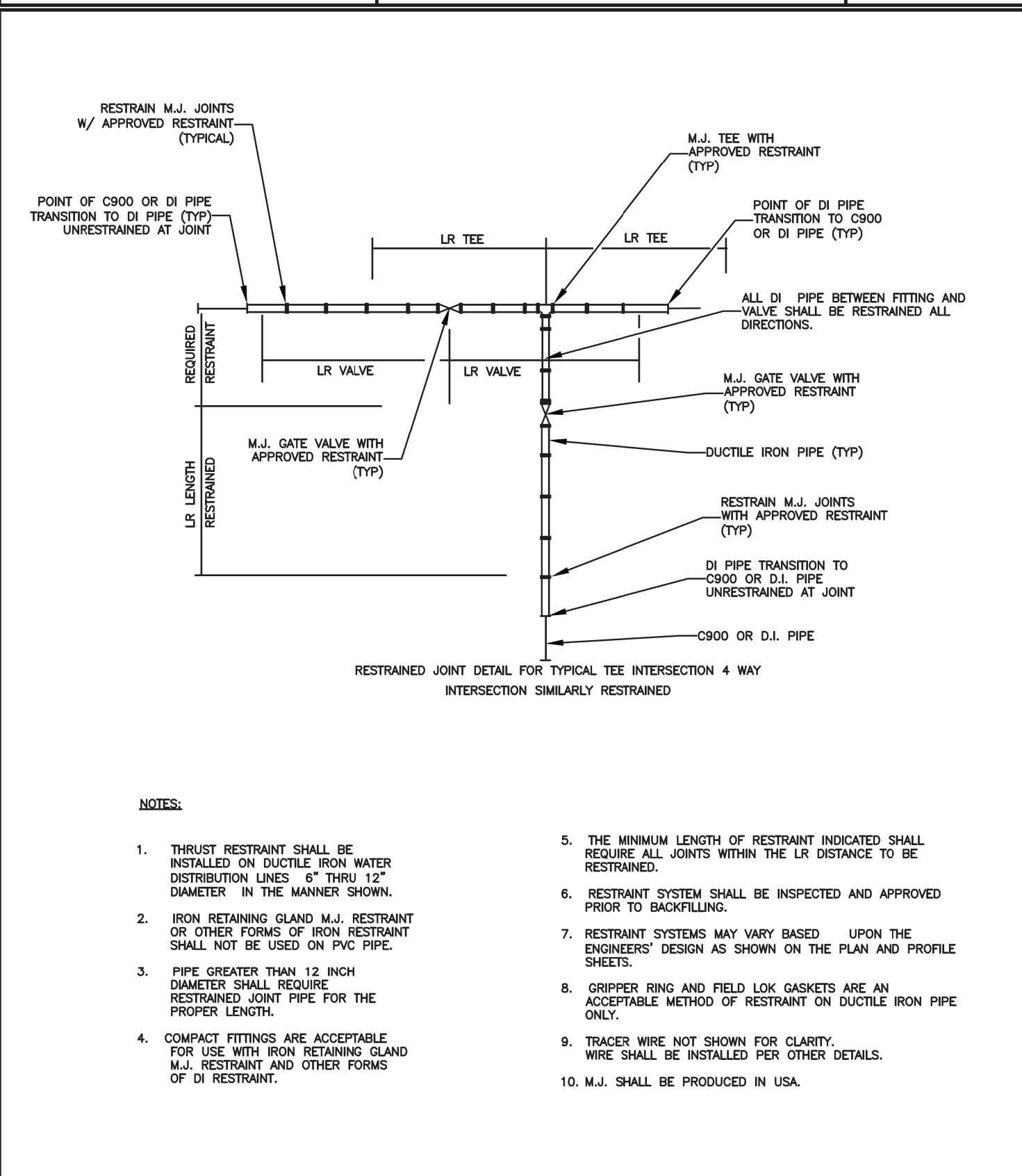


DATE: 07/07/2019 WD DWG. NO. 4-1
SCALE: NOT TO SCALE

DUCTILE IRON PIPE RESTRAINT DETAIL

SHEET 1 OF 2

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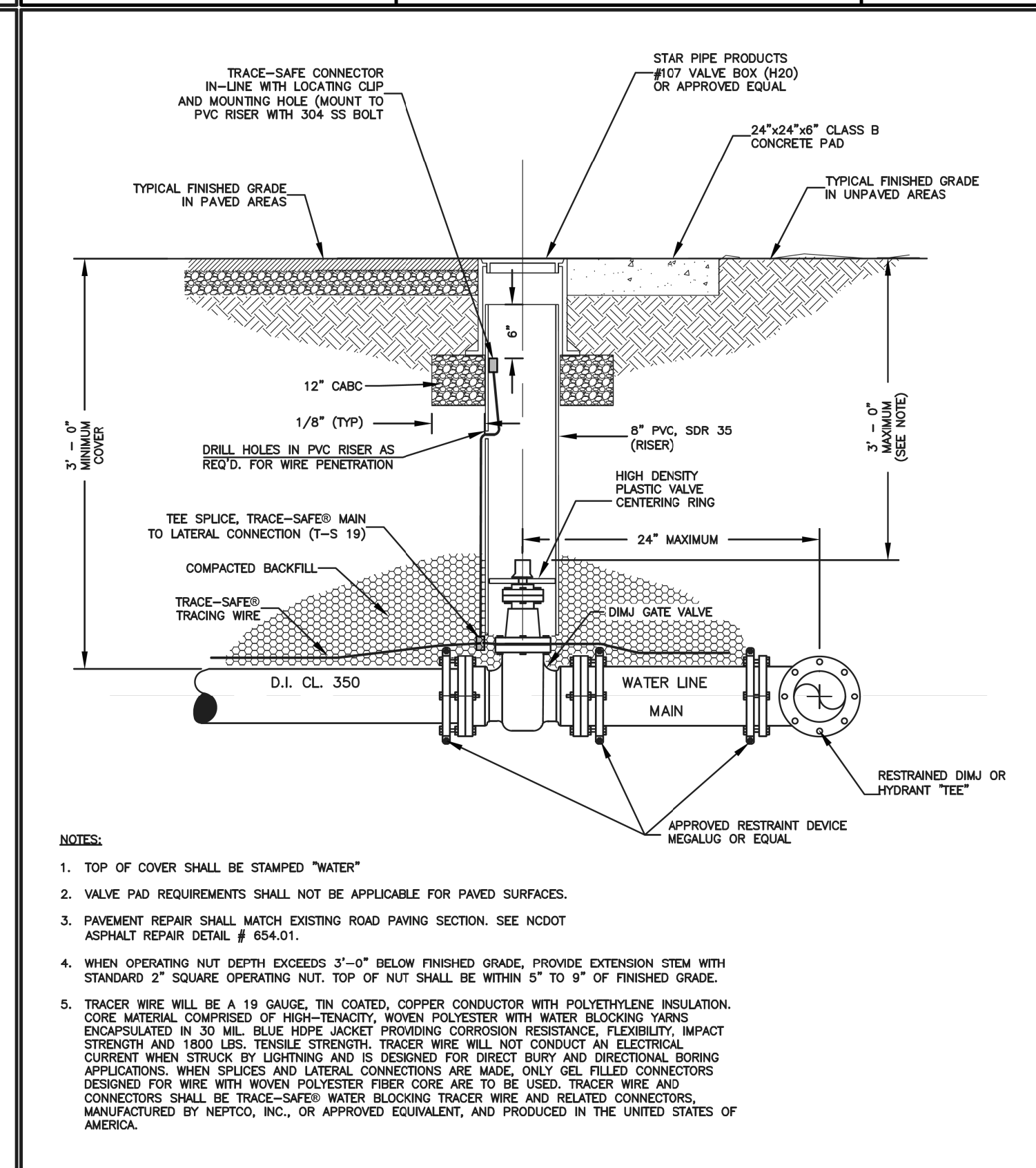


DATE: 01/12/2019 WD DWG. NO. 4-2
SCALE: NOT TO SCALE

DUCTILE IRON PIPE RESTRAINT DETAIL

SHEET 2 OF 2

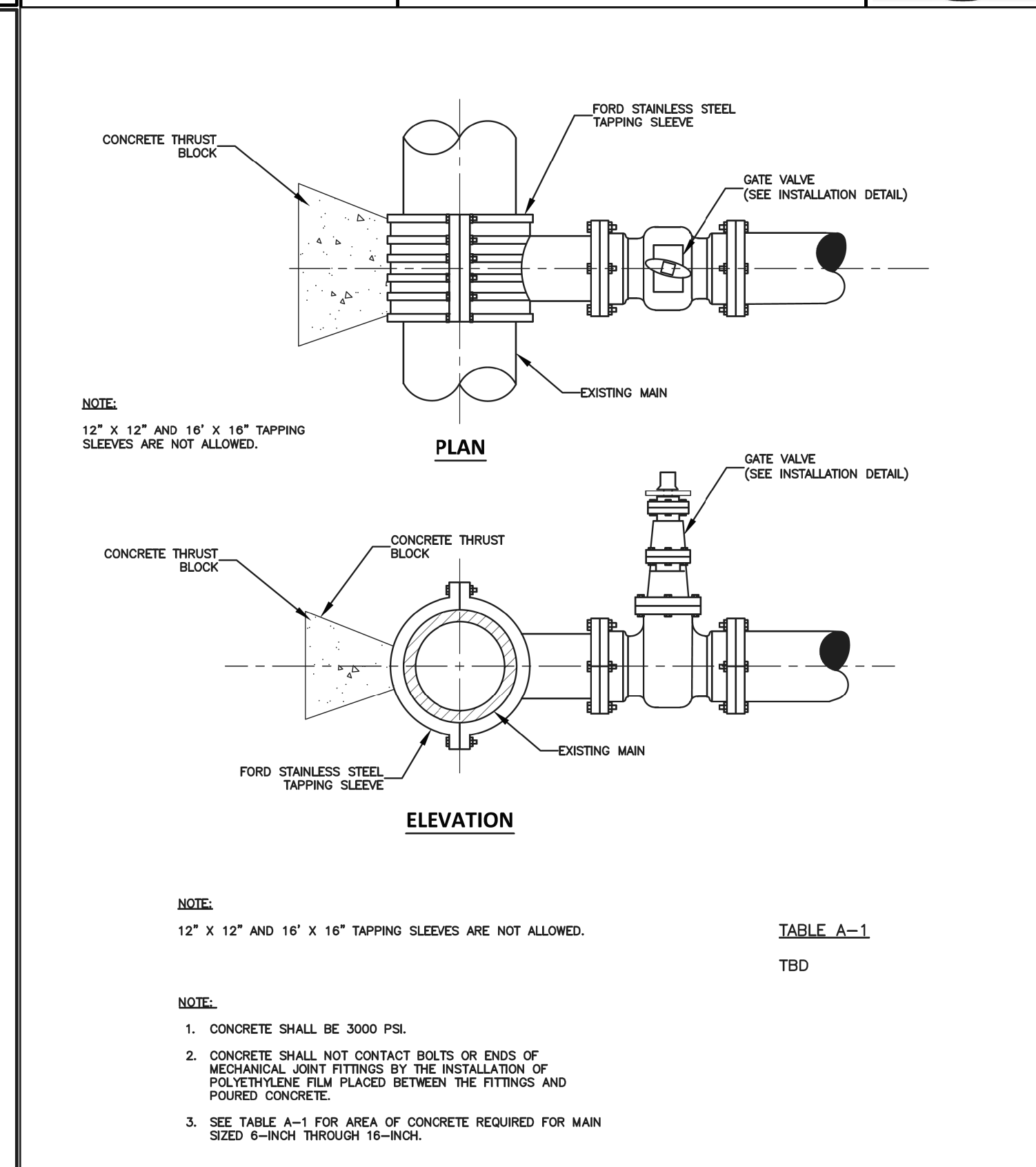
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DATE: 01/12/2019 WD DWG. NO. 5
SCALE: NOT TO SCALE

VALVE INSTALLATION DETAIL

City of Hendersonville Engineering Department
305 Williams Street
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(828) 697-3000 (office)
www.cityofhendersonville.org



DATE: 01/12/2019 WD DWG. NO. 6
SCALE: NOT TO SCALE

STANDARD TAPPING SLEEVE AND VALVE ASSEMBLY

City of Hendersonville Engineering Department
305 Williams Street
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(828) 697-3000 (office)
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HENDERSON COUNTY

PROJECT REFERENCE NO. U-5887
SHEET NO. UC-3B

DESIGNED BY: DCR
DRAWN BY: DCR
CHECKED BY: JDN
APPROVED BY: JDN

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 1250-4151
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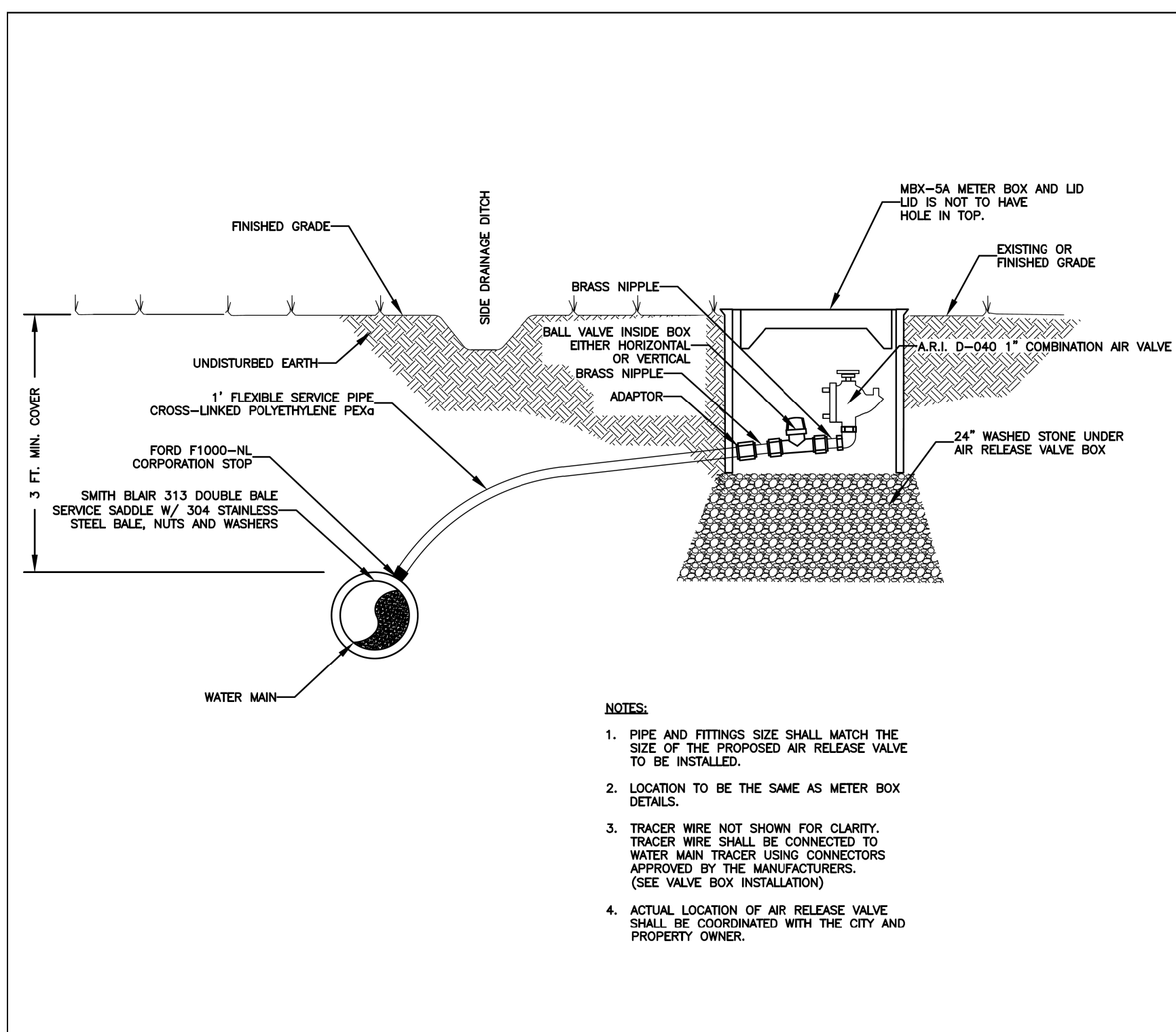
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Asheville, North Carolina

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PROJECT REFERENCE NO.	U-5887	SHEET NO.	UC-3C
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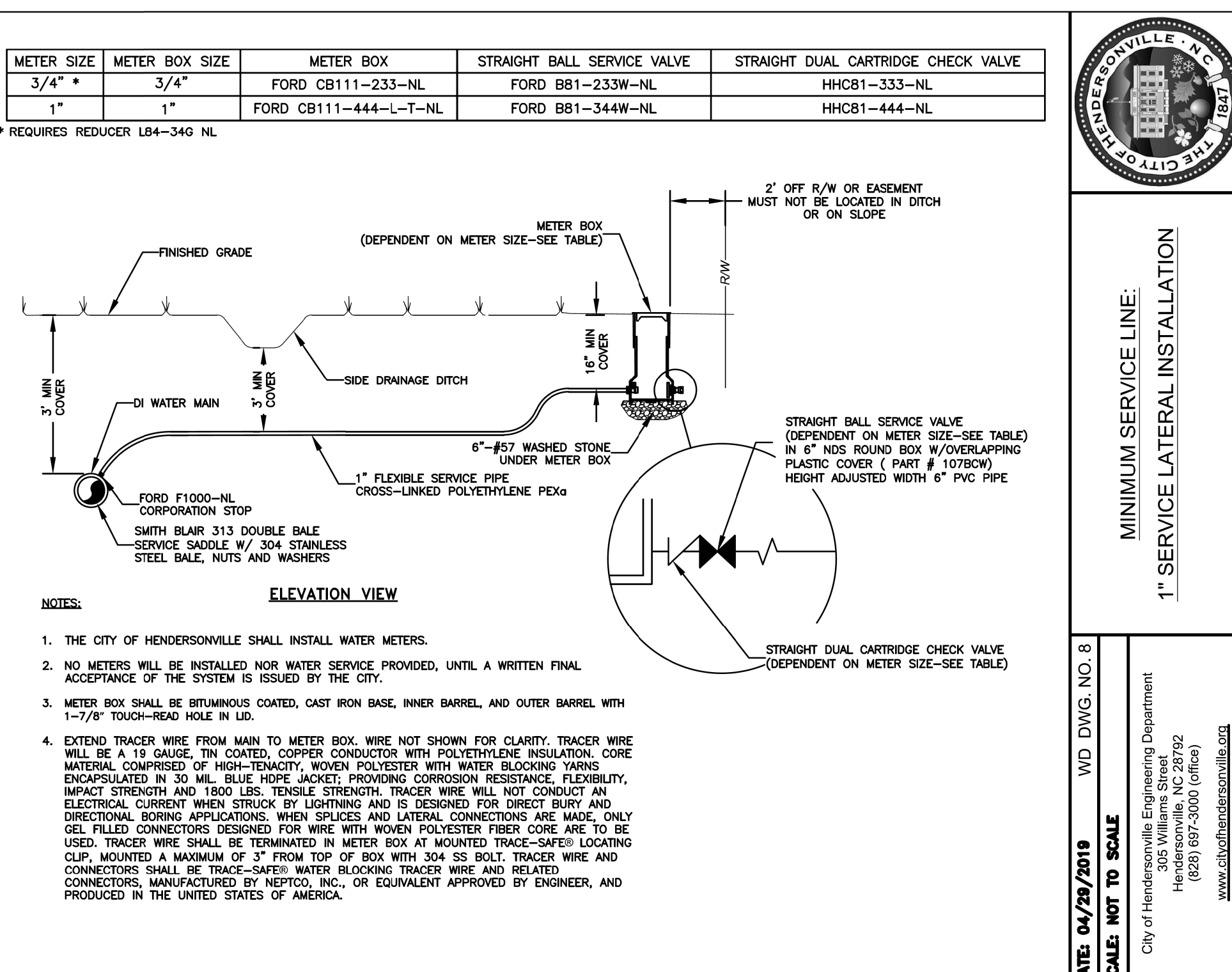


- NOTES:**
1. PIPE AND FITTINGS SIZE SHALL MATCH THE SIZE OF THE PROPOSED AIR RELEASE VALVE TO BE INSTALLED.
 2. LOCATION TO BE THE SAME AS METER BOX DETAILS.
 3. TRACER WIRE NOT SHOWN FOR CLARITY. TRACER WIRE SHALL BE CONNECTED TO WATER MAIN TRACER USING CONNECTORS APPROVED BY THE MANUFACTURERS. (SEE VALVE BOX INSTALLATION)
 4. ACTUAL LOCATION OF AIR RELEASE VALVE SHALL BE COORDINATED WITH THE CITY AND PROPERTY OWNER.

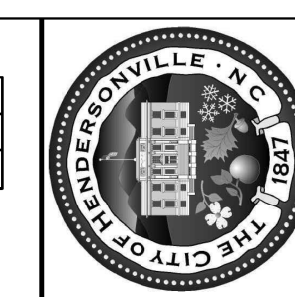


STANDARD AIR RELEASE VALVE INSTALLATION DETAIL

DATE: 04/08/2019
 SCALE: NOT TO SCALE
 W.D. DWG. NO. 7
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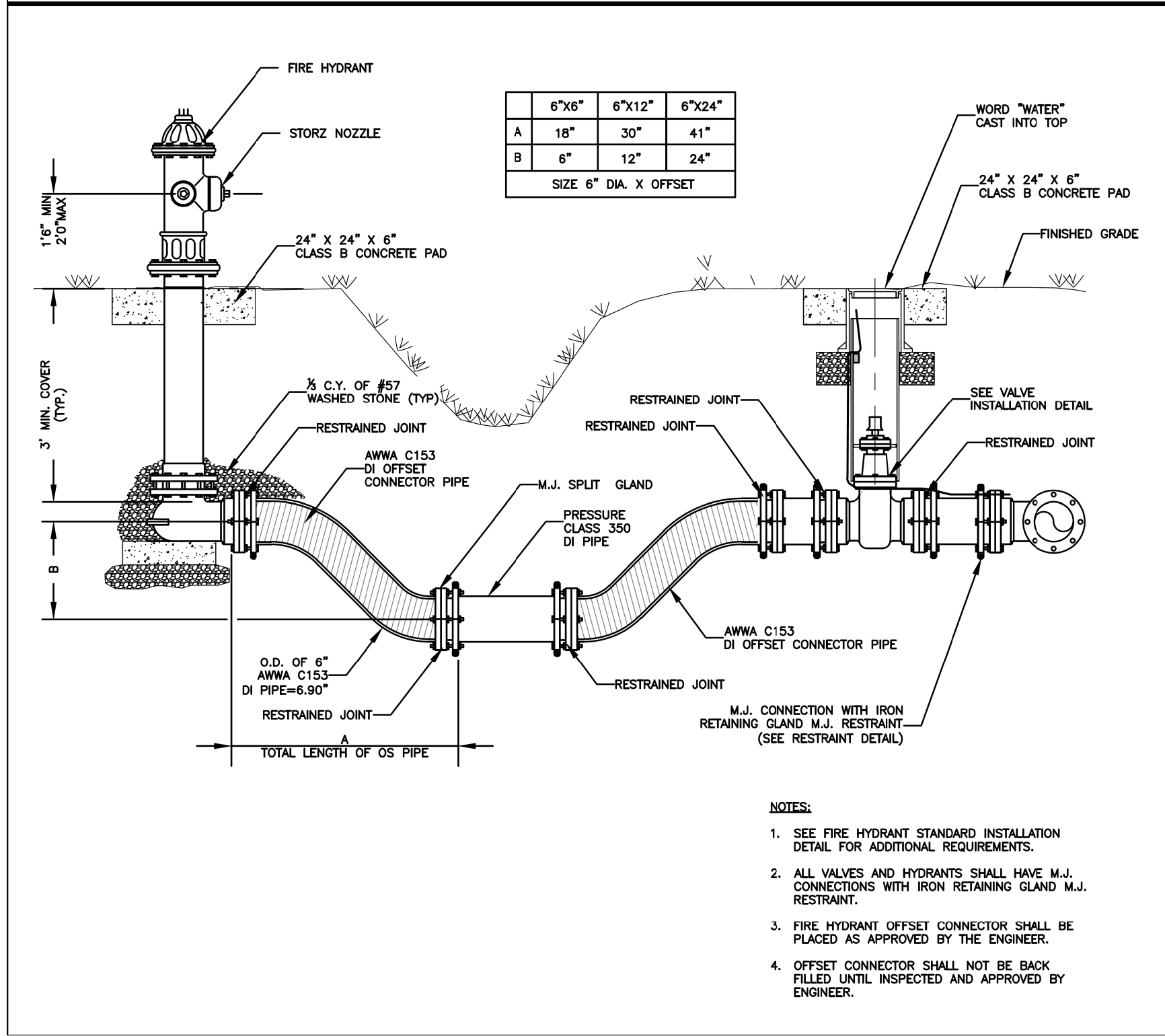


- NOTES:**
1. THE CITY OF HENDERSONVILLE SHALL INSTALL WATER METERS.
 2. NO METERS WILL BE INSTALLED NOR WATER SERVICE PROVIDED, UNTIL A WRITTEN FINAL ACCEPTANCE OF THE SYSTEM IS ISSUED BY THE CITY.
 3. METER BOX SHALL BE BITUMINOUS COATED, CAST IRON BASE, INNER BARREL, AND OUTER BARREL WITH 1-7/8\"/>

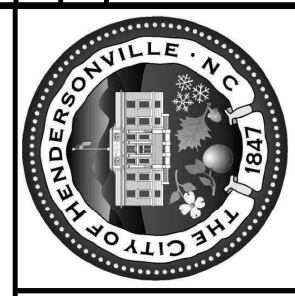


MINIMUM SERVICE LINE: 1\"/>

DATE: 04/29/2019
 SCALE: NOT TO SCALE
 W.D. DWG. NO. 8
 City of Hendersonville Engineering Department
 305 Williams Street
 Hendersonville, NC 27032
 (828) 897-3000 (office)
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- NOTES:**
1. SEE FIRE HYDRANT STANDARD INSTALLATION DETAIL FOR ADDITIONAL REQUIREMENTS.
 2. ALL VALVES AND HYDRANTS SHALL HAVE M.J. CONNECTIONS WITH IRON RETAINING GLAND M.J. RESTRAINT.
 3. FIRE HYDRANT OFFSET CONNECTOR SHALL BE PLACED AS APPROVED BY THE ENGINEER.
 4. OFFSET CONNECTOR SHALL NOT BE BACK FILLED UNTIL INSPECTED AND APPROVED BY ENGINEER.



FIRE HYDRANT DITCH INSTALLATION DETAIL

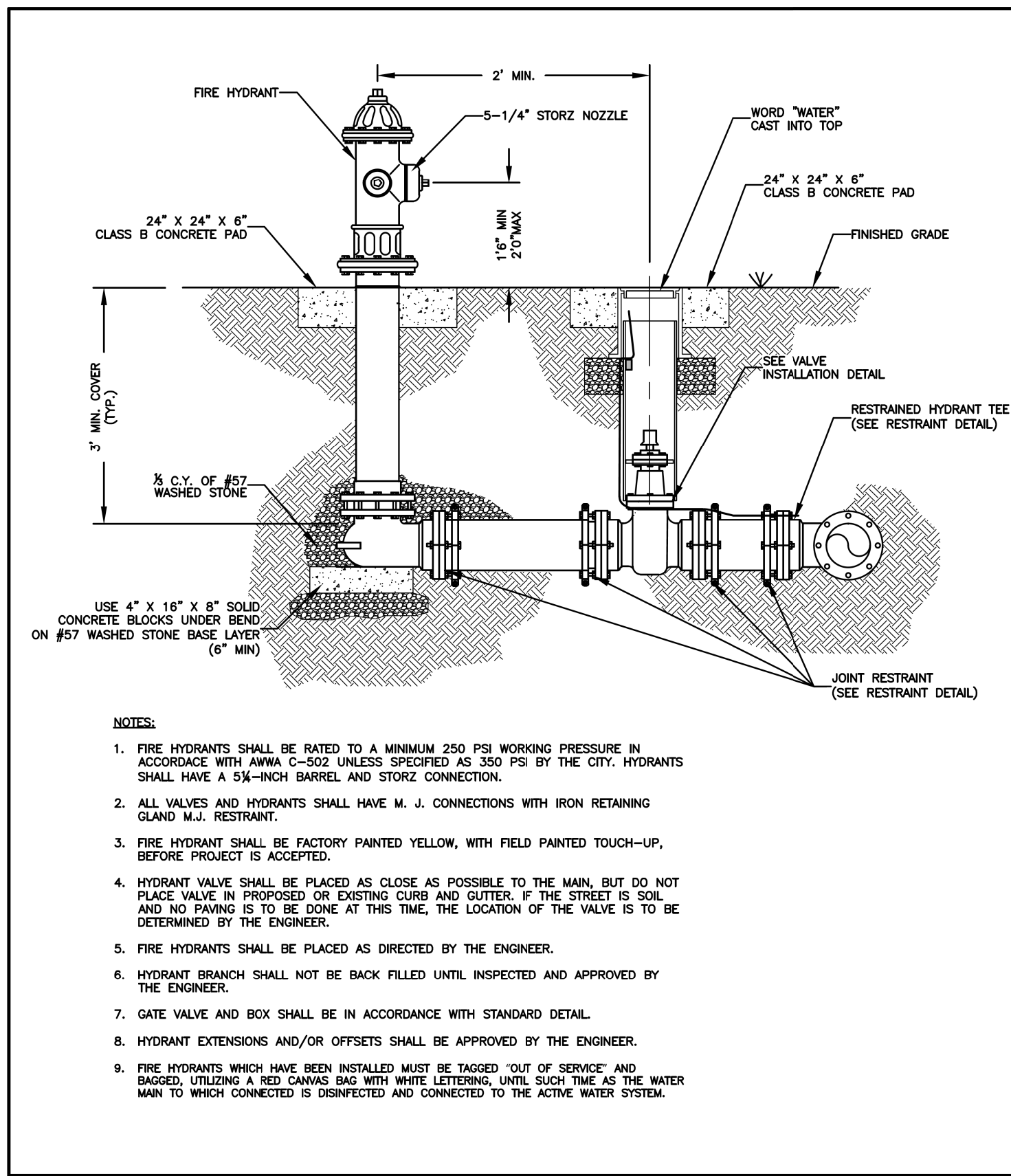
DATE: 01/12/2019
 SCALE: NOT TO SCALE
 W.D. DWG. NO. 13
 City of Hendersonville Engineering Department
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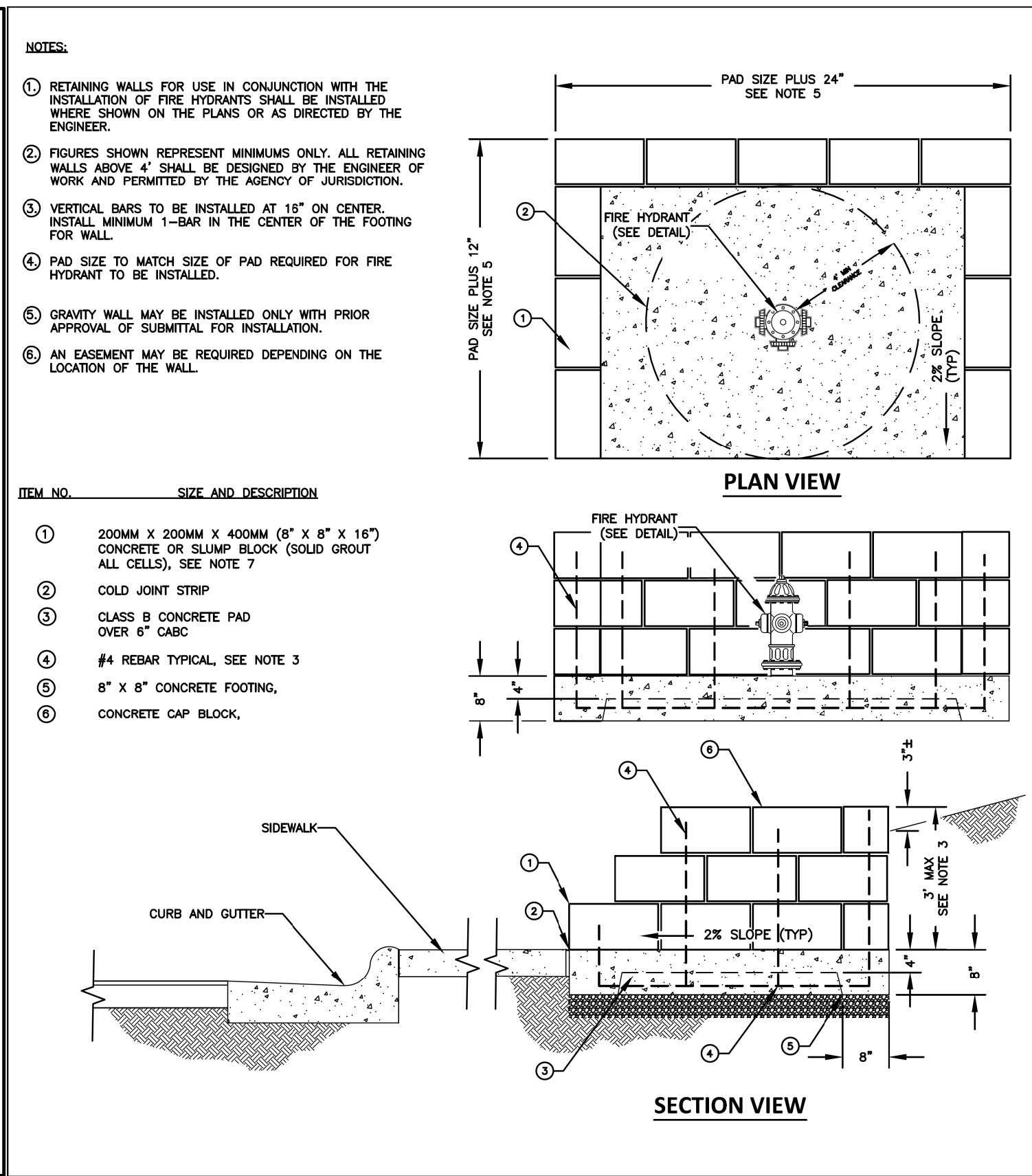
- NOTES:**
- FIRE HYDRANTS SHALL BE RATED TO A MINIMUM 250 PSI WORKING PRESSURE IN ACCORDANCE WITH AWWA C-502 UNLESS SPECIFIED AS 300 PSI BY THE CITY. HYDRANTS SHALL HAVE A 5X-INCH BARREL AND STORZ CONNECTION.
 - ALL VALVES AND HYDRANTS SHALL HAVE M. J. CONNECTIONS WITH IRON RETAINING GLAND M.J. RESTRAINT.
 - FIRE HYDRANT SHALL BE FACTORY PAINTED YELLOW, WITH FIELD PAINTED TOUCH-UP, BEFORE PROJECT IS ACCEPTED.
 - HYDRANT VALVE SHALL BE PLACED AS CLOSE AS POSSIBLE TO THE MAIN, BUT DO NOT PLACE VALVE IN PROPOSED OR EXISTING CURB AND GUTTER, IF THE STREET IS SOIL AND NO PAVING IS TO BE DONE AT THIS TIME, THE LOCATION OF THE VALVE IS TO BE DETERMINED BY THE ENGINEER.
 - FIRE HYDRANTS SHALL BE PLACED AS DIRECTED BY THE ENGINEER.
 - HYDRANT BRANCH SHALL NOT BE BACK FILLED UNTIL INSPECTED AND APPROVED BY THE ENGINEER.
 - GATE VALVE AND BOX SHALL BE IN ACCORDANCE WITH STANDARD DETAIL.
 - HYDRANT EXTENSIONS AND/OR OFFSETS SHALL BE APPROVED BY THE ENGINEER.
 - FIRE HYDRANTS WHICH HAVE BEEN INSTALLED MUST BE TAGGED "OUT OF SERVICE" AND BAGGED, UTILIZING A RED CANVAS BAG WITH WHITE LETTERING, UNTIL SUCH TIME AS THE WATER MAIN TO WHICH CONNECTED IS INSPECTED AND CONNECTED TO THE ACTIVE WATER SYSTEM.

DATE: 04/24/2019 WD DWG. NO. 12

SCALE: NOT TO SCALE

City of Hendersonville Engineering Department
305 Williams Street
Hendersonville, NC 28792
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**FIRE HYDRANT
STANDARD INSTALLATION
DETAIL**

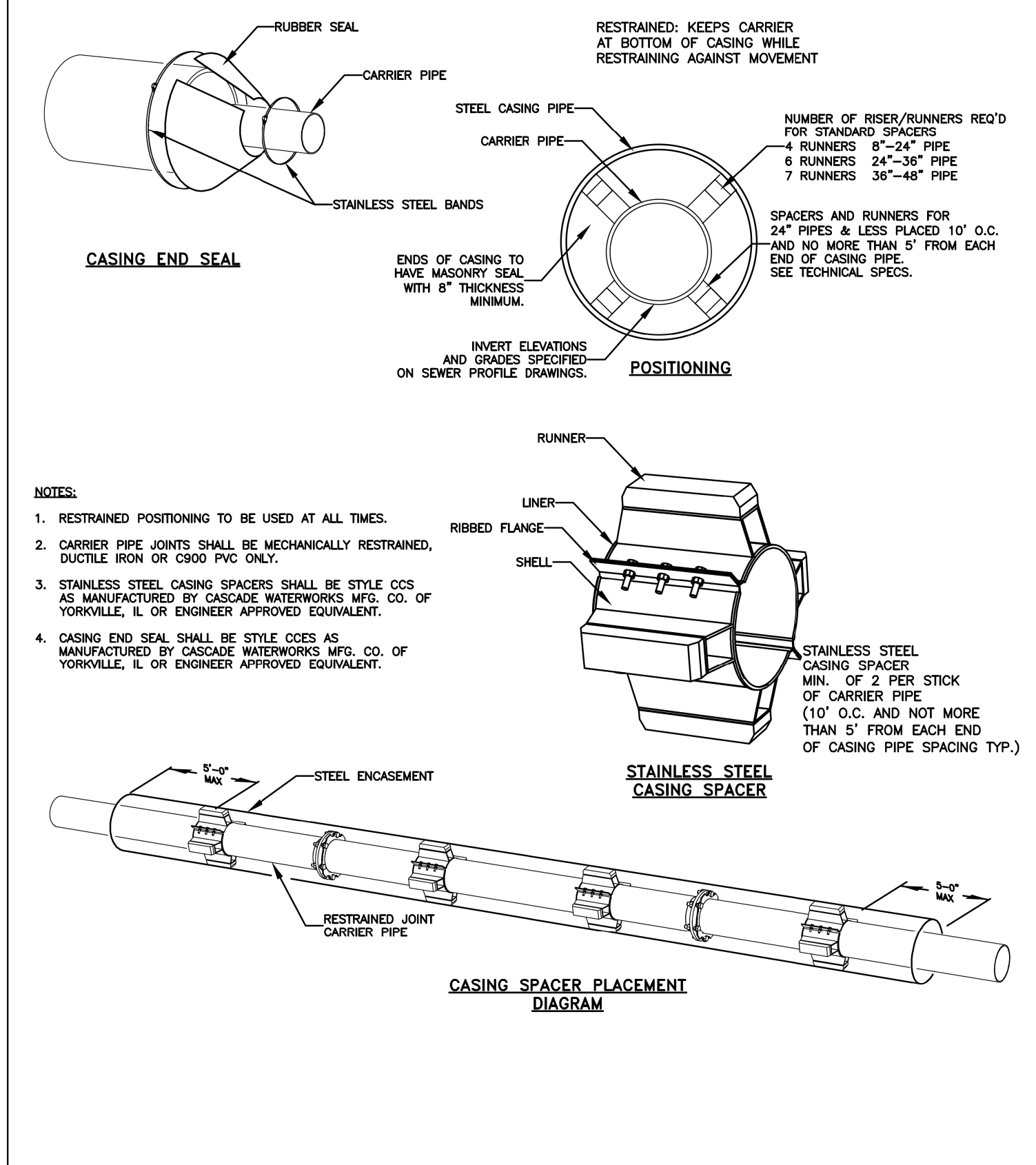
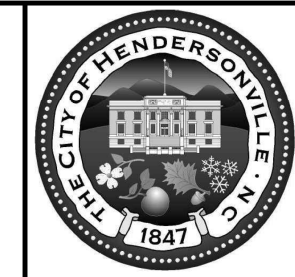


DATE: 01/12/2019

SCALE: NOT TO SCALE WD DWG. NO. 14

City of Hendersonville Engineering Department
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**FIRE HYDRANT SLOPE INSTALLATION
DETAIL**

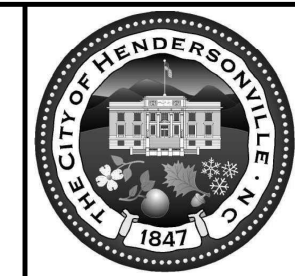


DATE: 01/12/2019 WD DWG. NO. 16

SCALE: NOT TO SCALE

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**CARRIER PIPE IN STEEL ENCASEMENT
DETAIL**



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828-253-2796

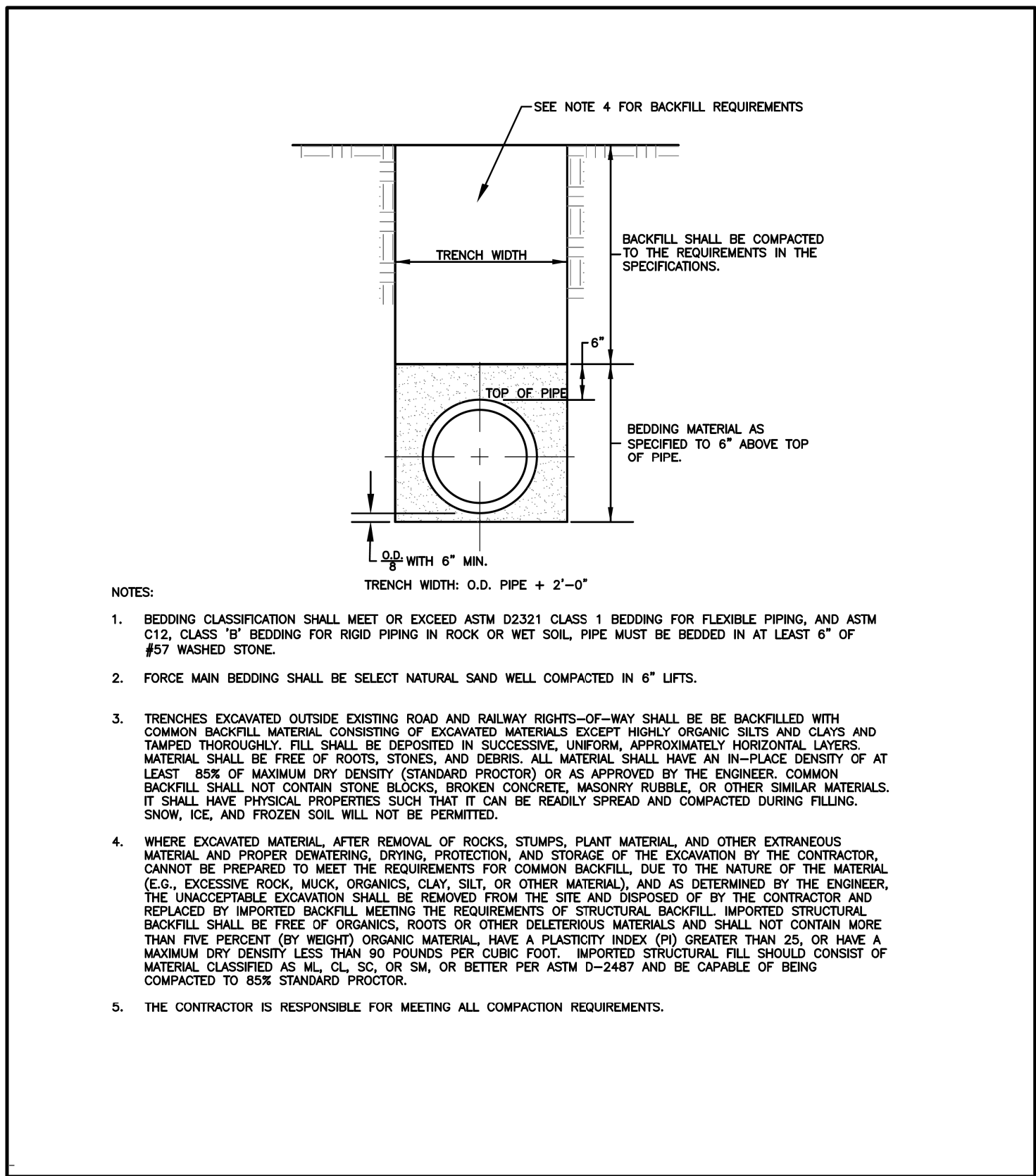
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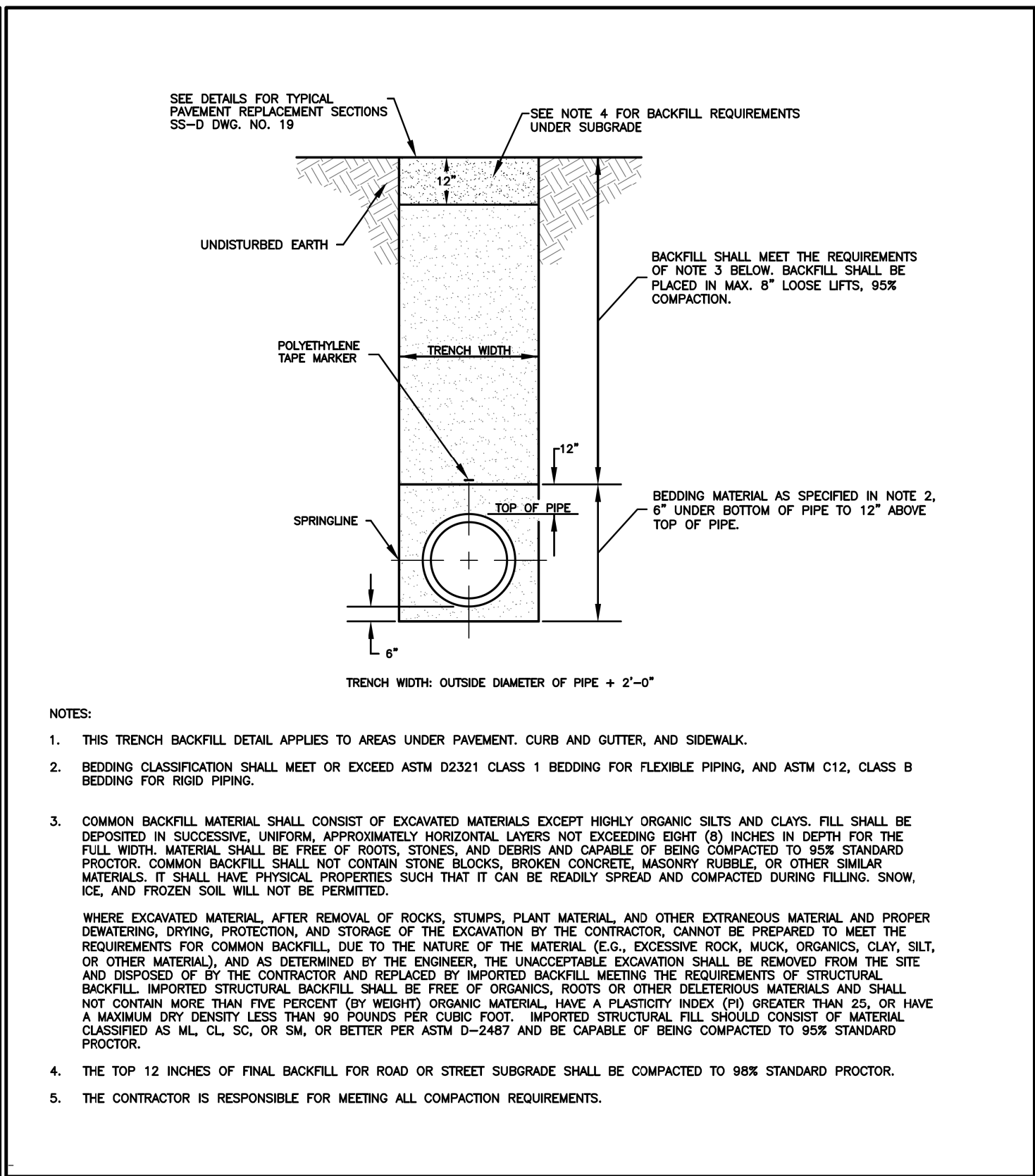
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HENDERSON COUNTY

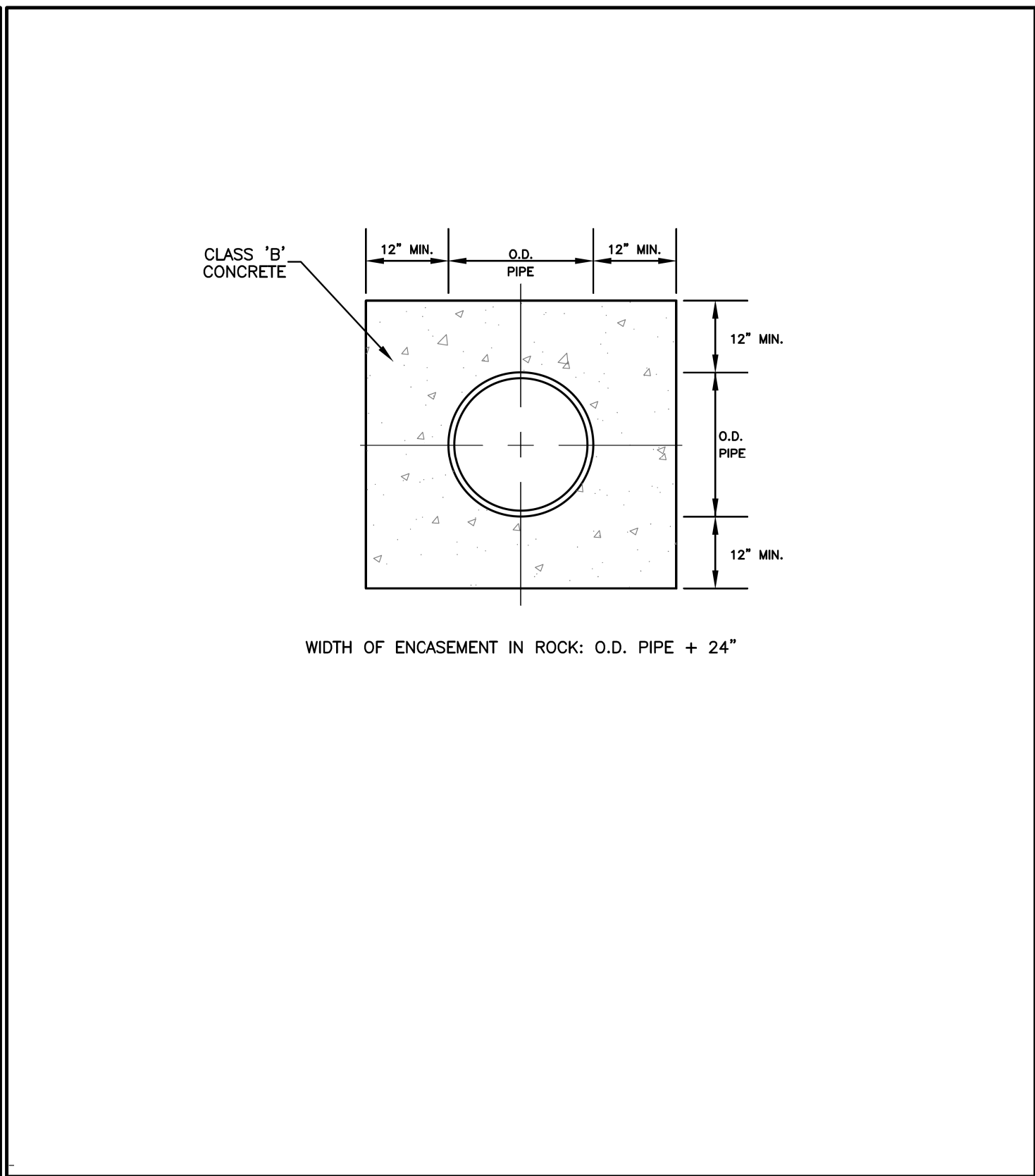
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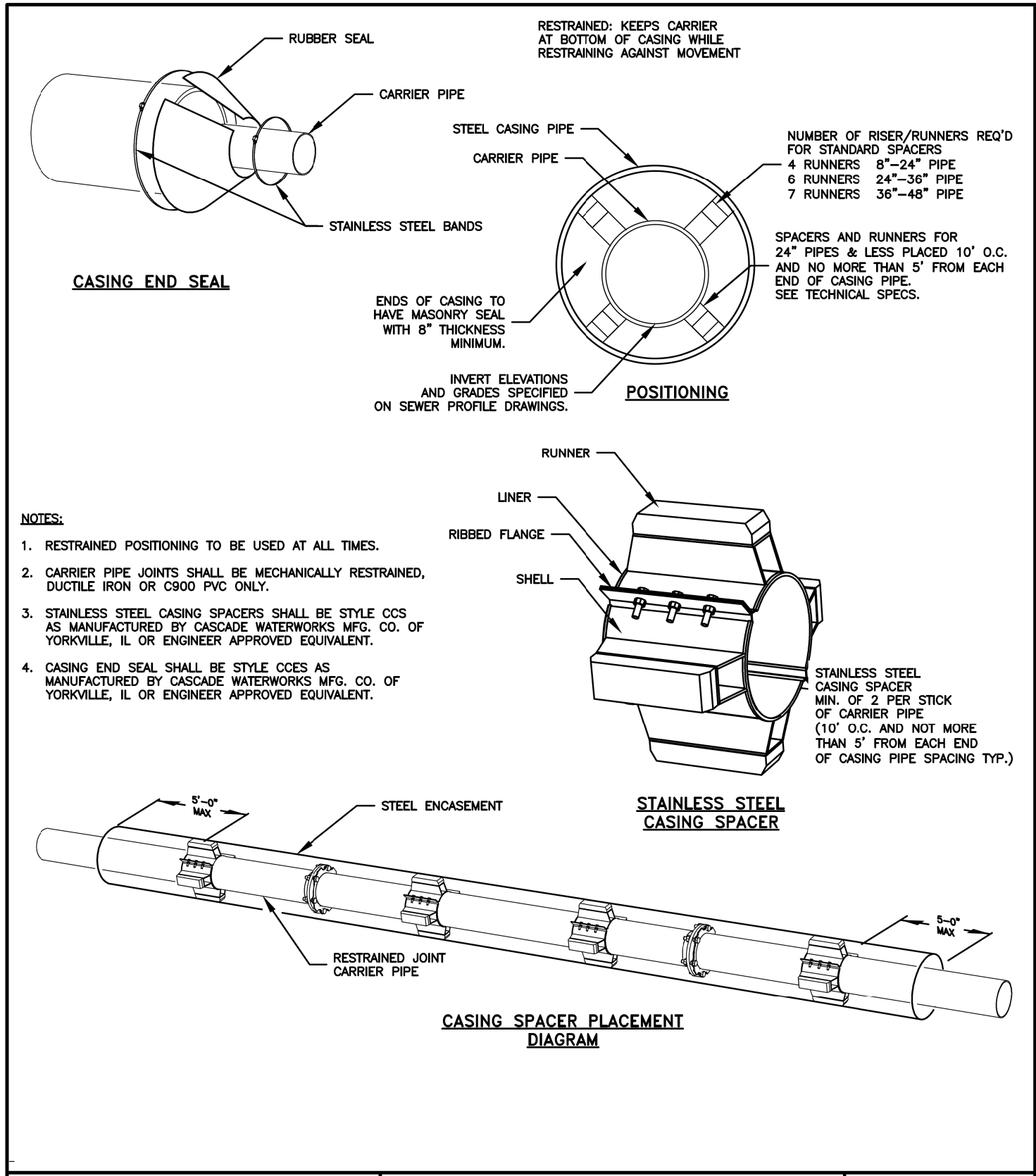
DATE: 06/19/2019 SS-D DWG. NO. 1	GRAVITY SEWER TRENCH CONSTRUCTION OUTSIDE PAVEMENT	
SCALE: NOT TO SCALE		
City of Hendersonville Engineering Department 305 Williams Street Hendersonville, NC 28792 (828) 697-3000 (office) www.cityofhendersonville.org		



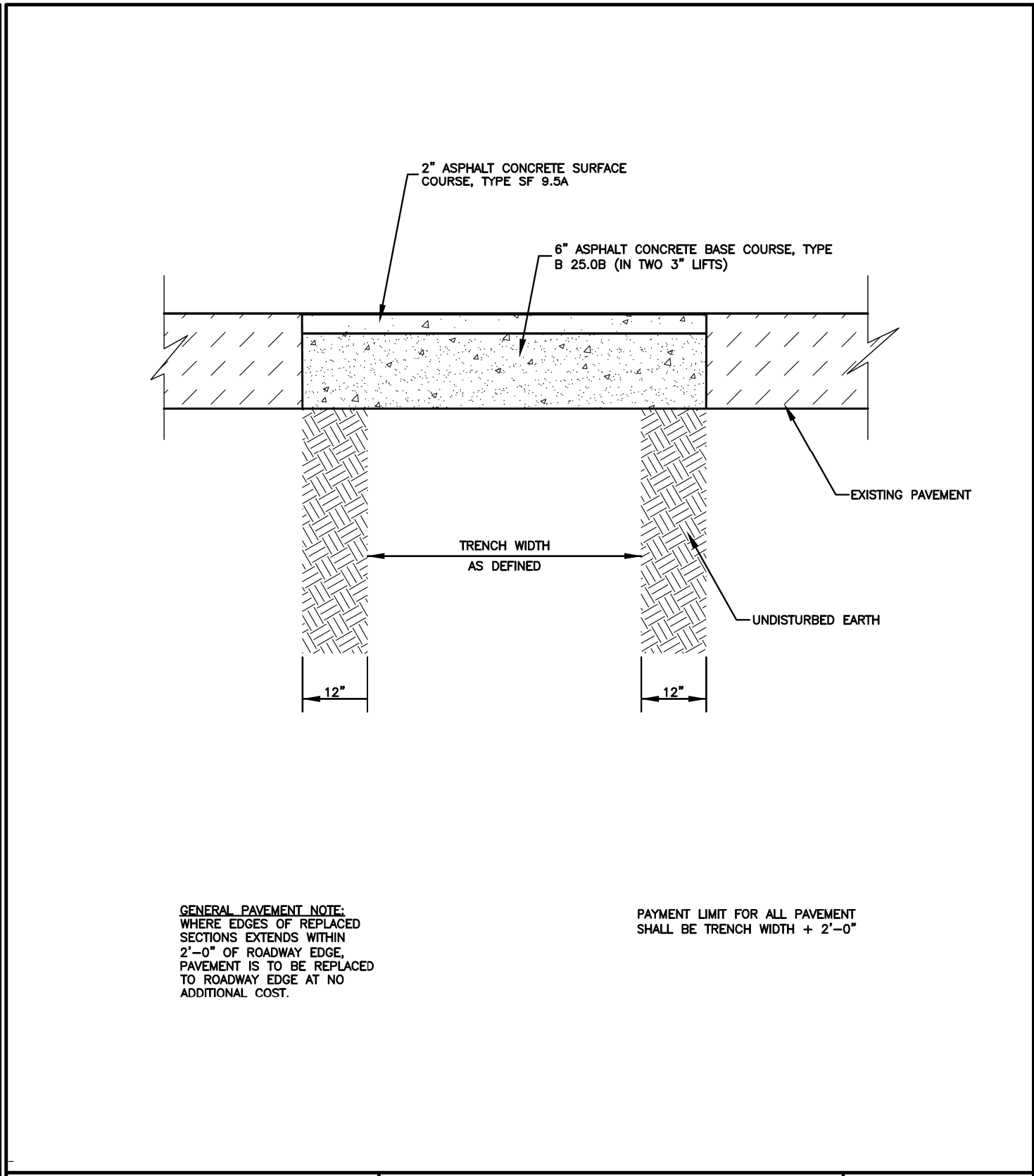
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SCALE: NOT TO SCALE		
City of Hendersonville Engineering Department 305 Williams Street Hendersonville, NC 28792 (828) 697-3000 (office) www.cityofhendersonville.org		



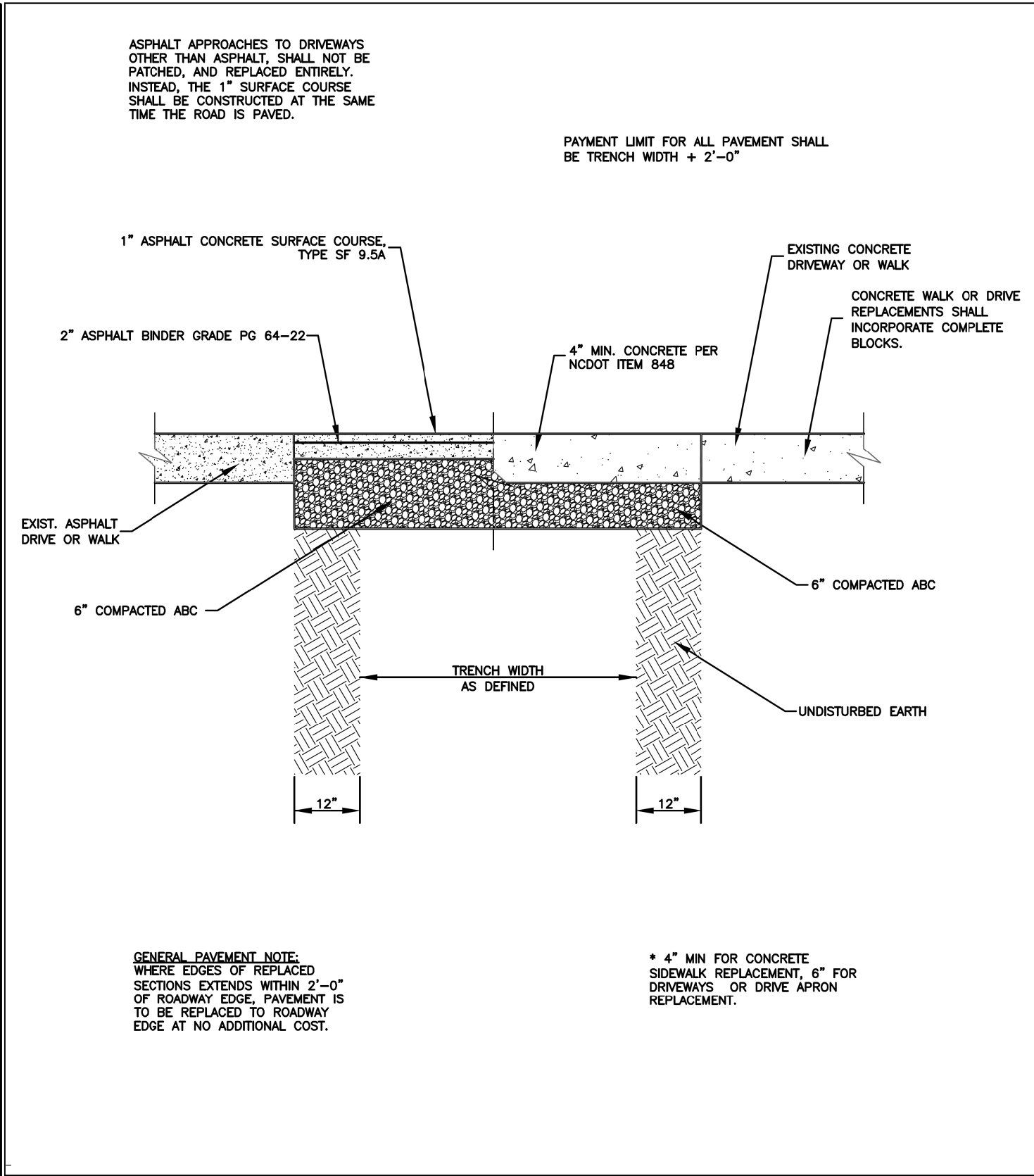
DATE: 01/12/2019 SS-D DWG. NO. 3	CONCRETE PIPE ENCASEMENT	
SCALE: NOT TO SCALE		
City of Hendersonville Engineering Department 305 Williams Street Hendersonville, NC 28792 (828) 697-3000 (office) www.cityofhendersonville.org		



DATE: 01/12/2019 SS-D DWG. NO. 14	PIPE BORING AND ENCASEMENT	
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DATE: 01/12/2019 SS-D DWG. NO. 17	ASPHALT CONCRETE REPLACEMENT	
SCALE: NOT TO SCALE		
City of Hendersonville Engineering Department 305 Williams Street Hendersonville, NC 28792 (828) 697-3000 (office) www.cityofhendersonville.org		



DATE: 01/12/2019 SS-D DWG. NO. 18	ASPHALT OR CONCRETE DRIVEWAY AND WALKWAY	
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City of Hendersonville Engineering Department 305 Williams Street Hendersonville, NC 28792 (828) 697-3000 (office) www.cityofhendersonville.org		

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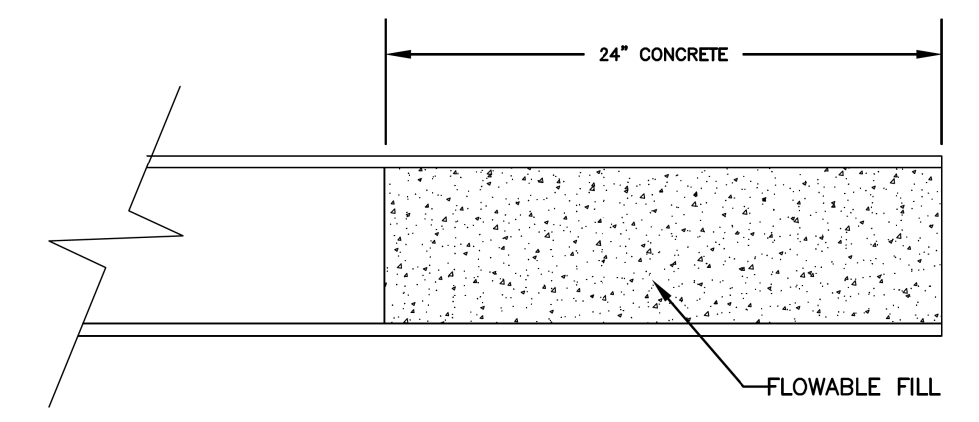
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**HENDERSON
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PROJECT REFERENCE NO. U-5887		SHEET NO. UC-3F
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SECTION PIPE ABANDONMENT

- NOTE:**
1. PIPE PLUGS SHALL BE INSTALLED TO THE SATISFACTION OF THE ENGINEER.
 2. ABANDONED PIPES, 12" AND LARGER, SHALL BE BROKEN INTO EVERY 50' AND SHALL BE FILLED COMPLETELY WITH SAND SLURRY.

DATE: 01/12/2019 SS-D DWG. NO. 24	PIPE ABANDONMENT	
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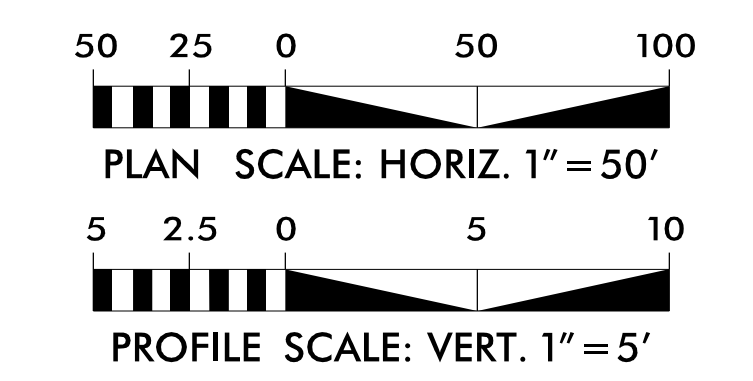
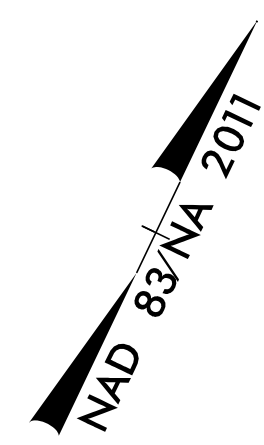
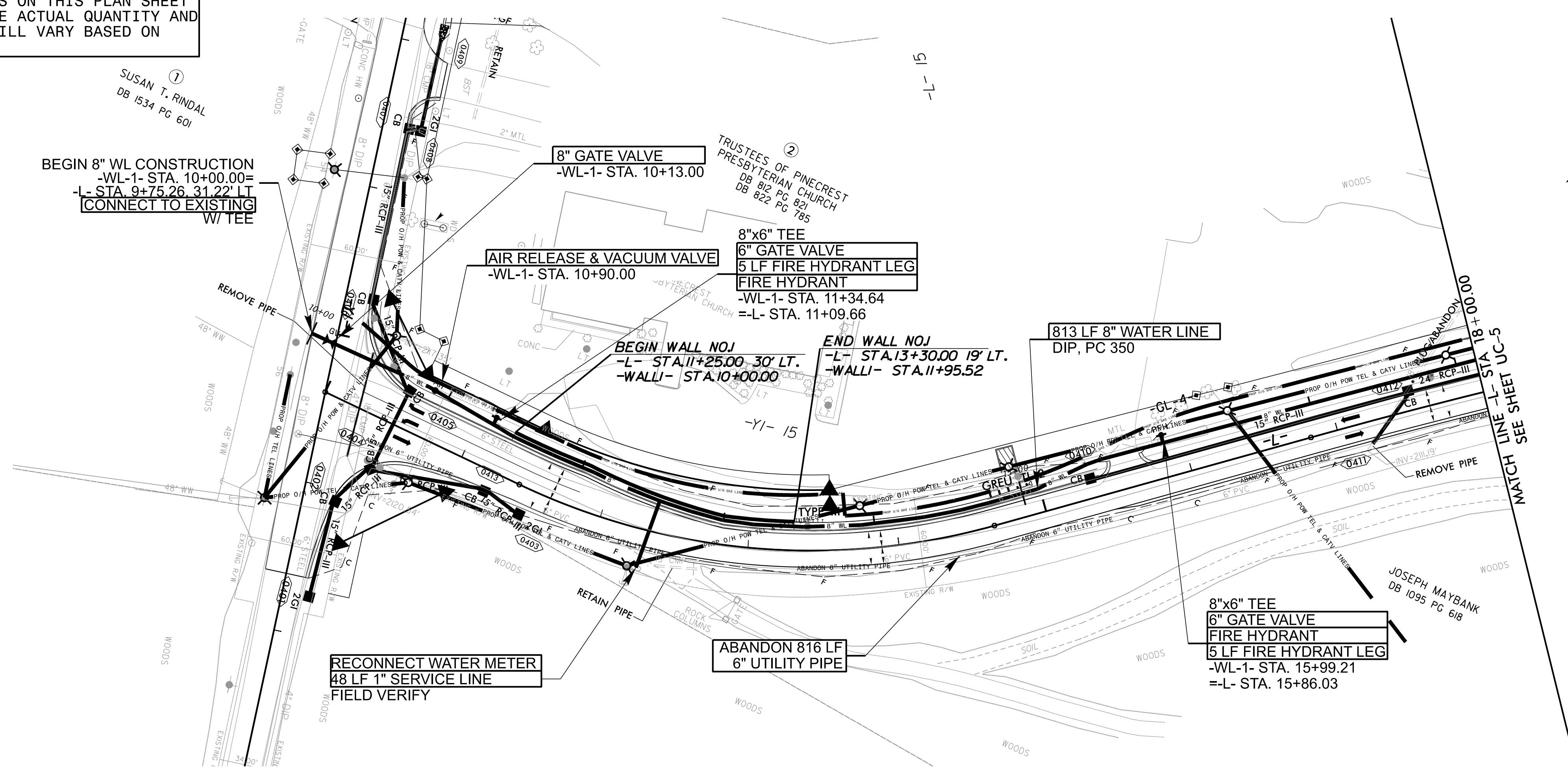
Asheville, North Carolina
828-253-2796

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<input type="checkbox"/> Charlotte, NC	<input type="checkbox"/> Kennesaw, GA 770-621-3590	<input type="checkbox"/> Charleston, KY 606-248-6600

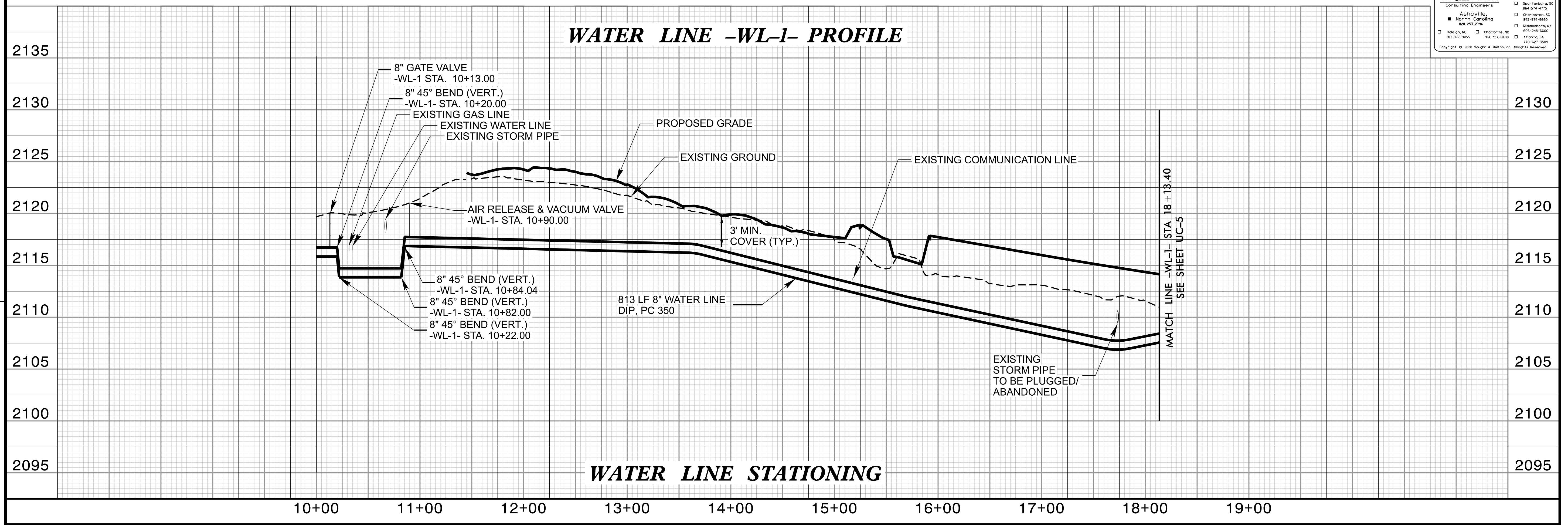
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THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 1060 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.



REVISIONS



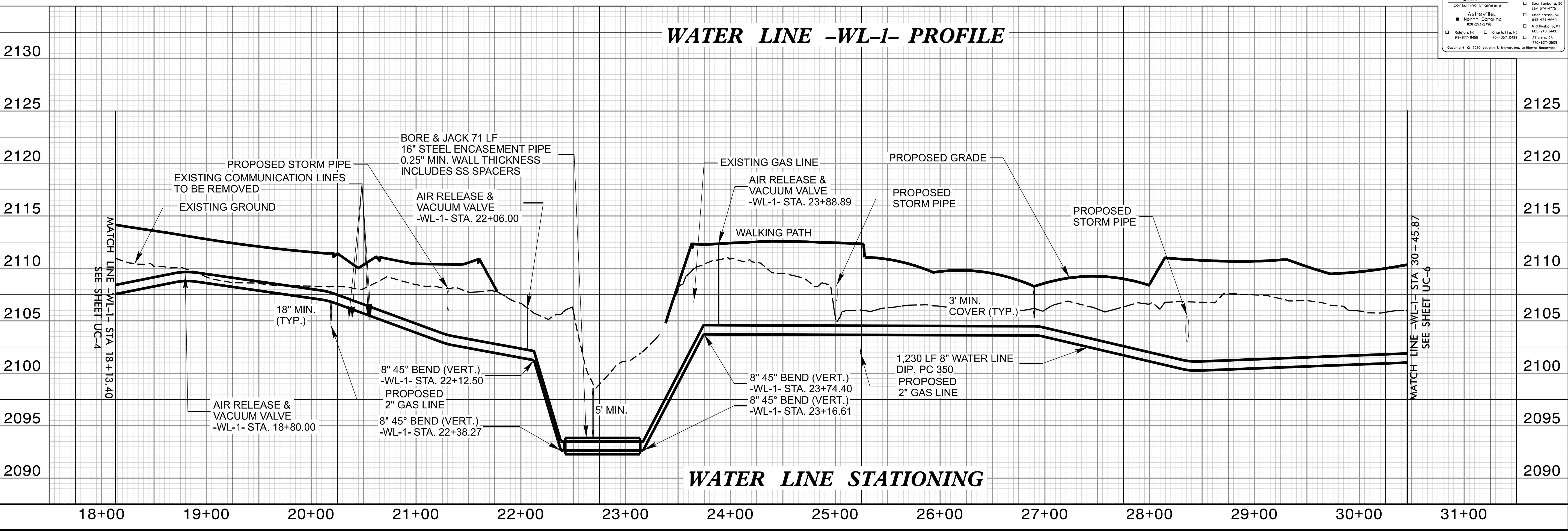
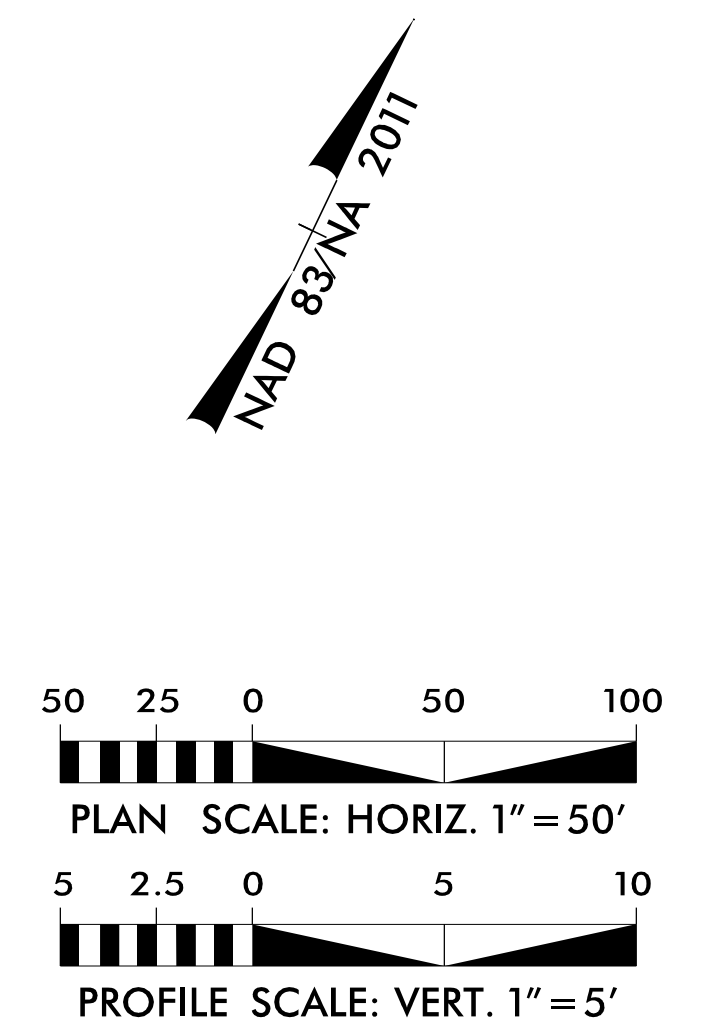
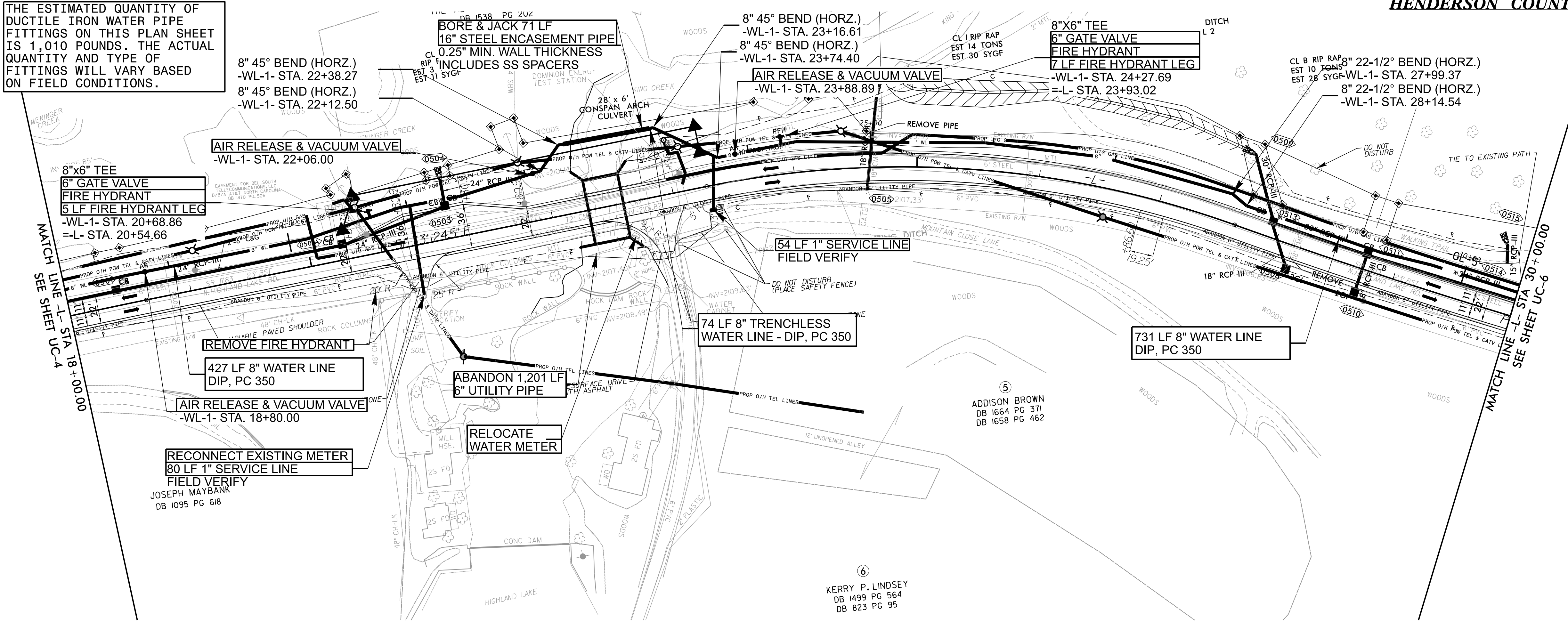
WATER LINE -WL-1- PROFILE

WATER LINE STATIONING

PROJECT REFERENCE NO.	SHEET NO.
U-5887	UC-5
DESIGNED BY: SSD	
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THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 1,010 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.



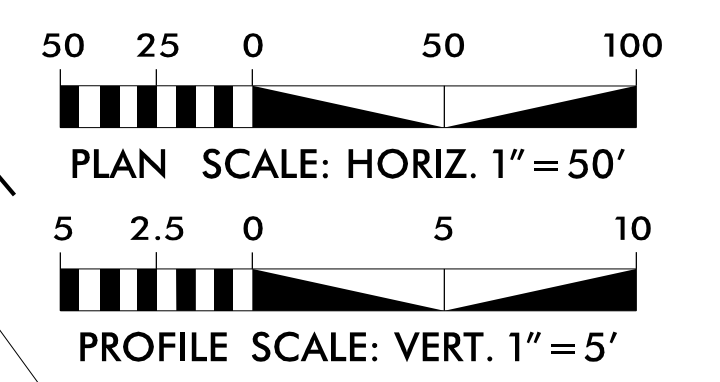
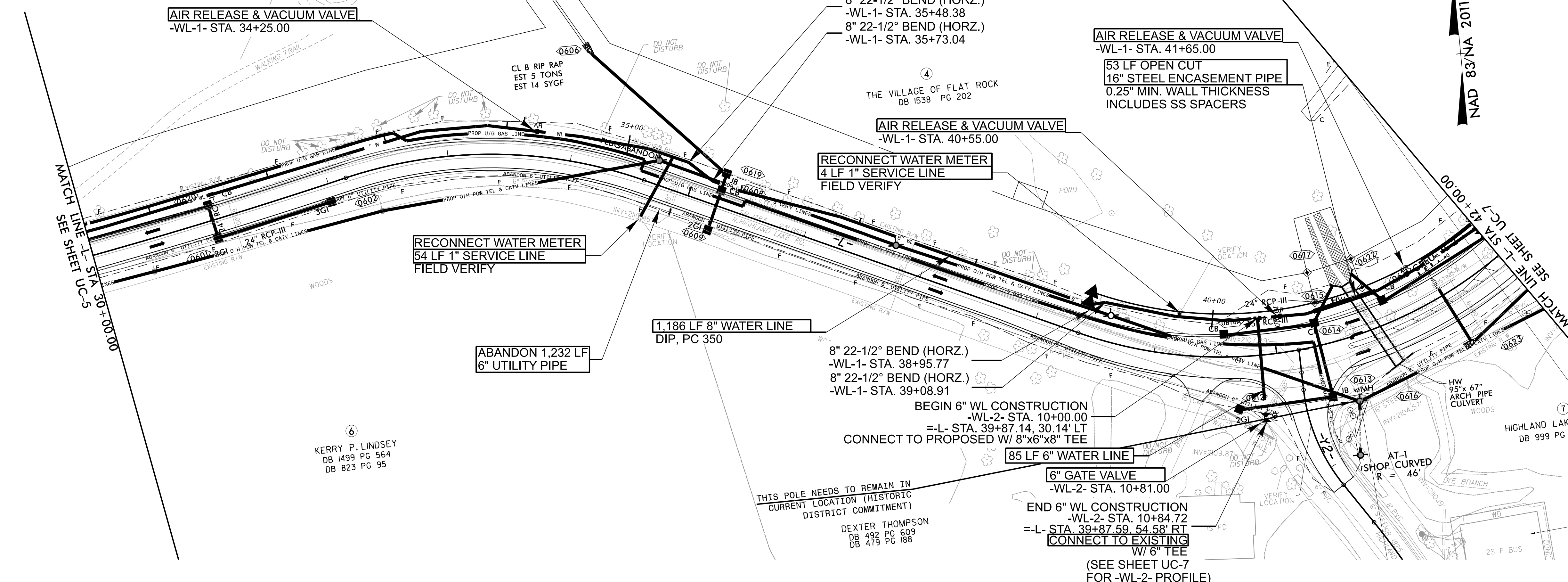
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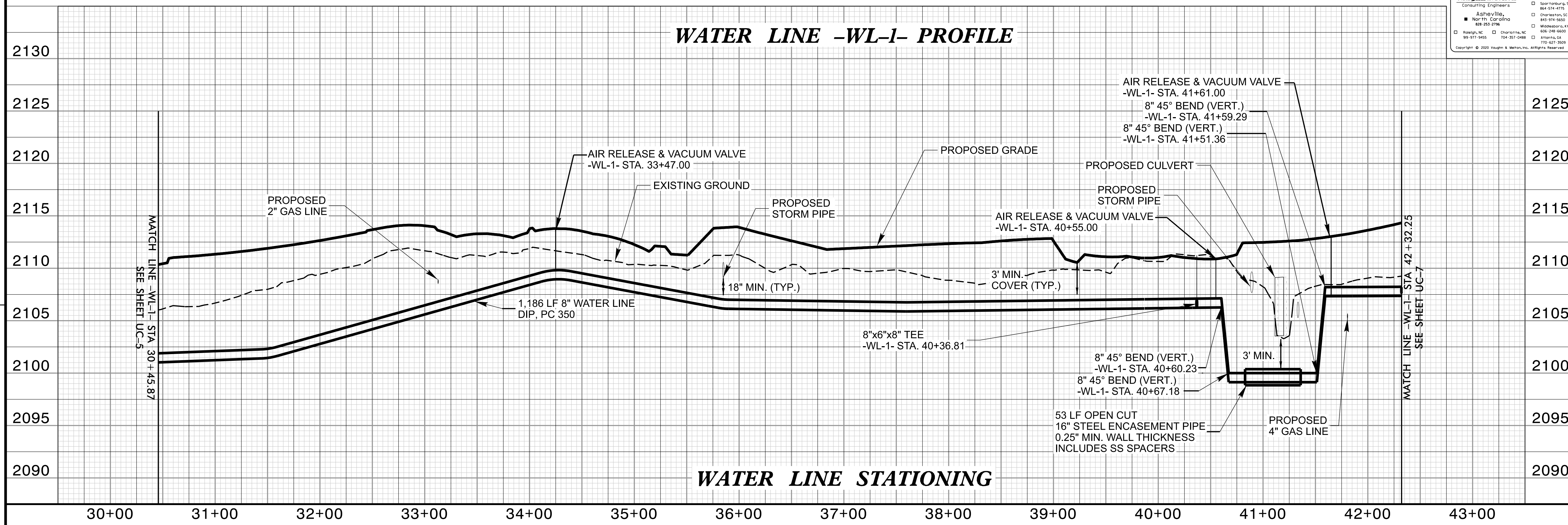
UTILITY CONSTRUCTION

THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 1,180 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.



REVISIONS

WATER LINE -WL-1- PROFILE



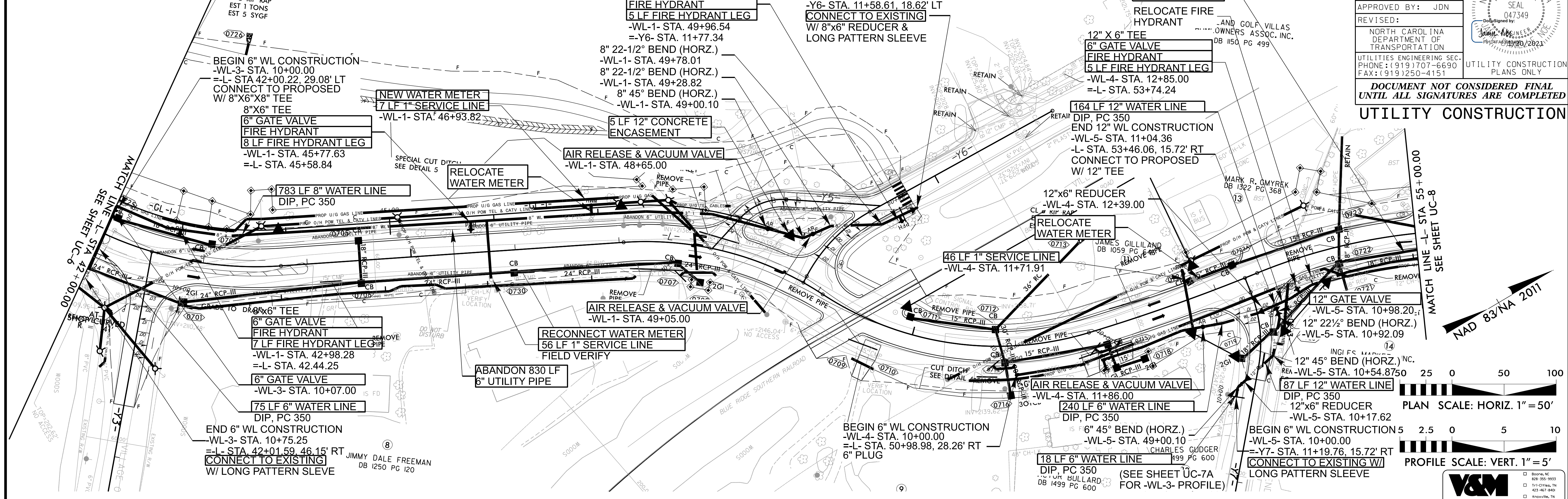
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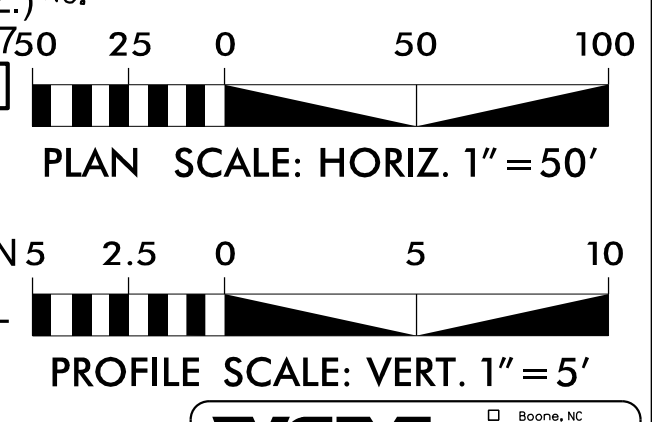
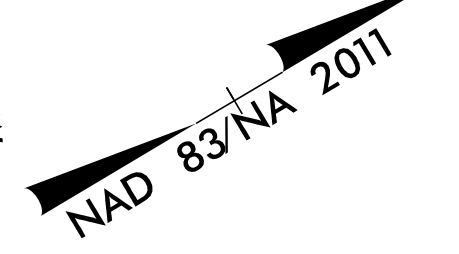
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U-5887	UC-7
DESIGNED BY: SSD	
DRAWN BY: BAB	
CHECKED BY: JDN	
APPROVED BY: JDN	
REVISED:	NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SECTION PHONE: (919) 707-6690 FAX: (919) 1250-4151
DOCUMENT NOT CONSIDERED FINAL UNTIL ALL SIGNATURES ARE COMPLETED	

THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 3,305 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.



REVISIONS

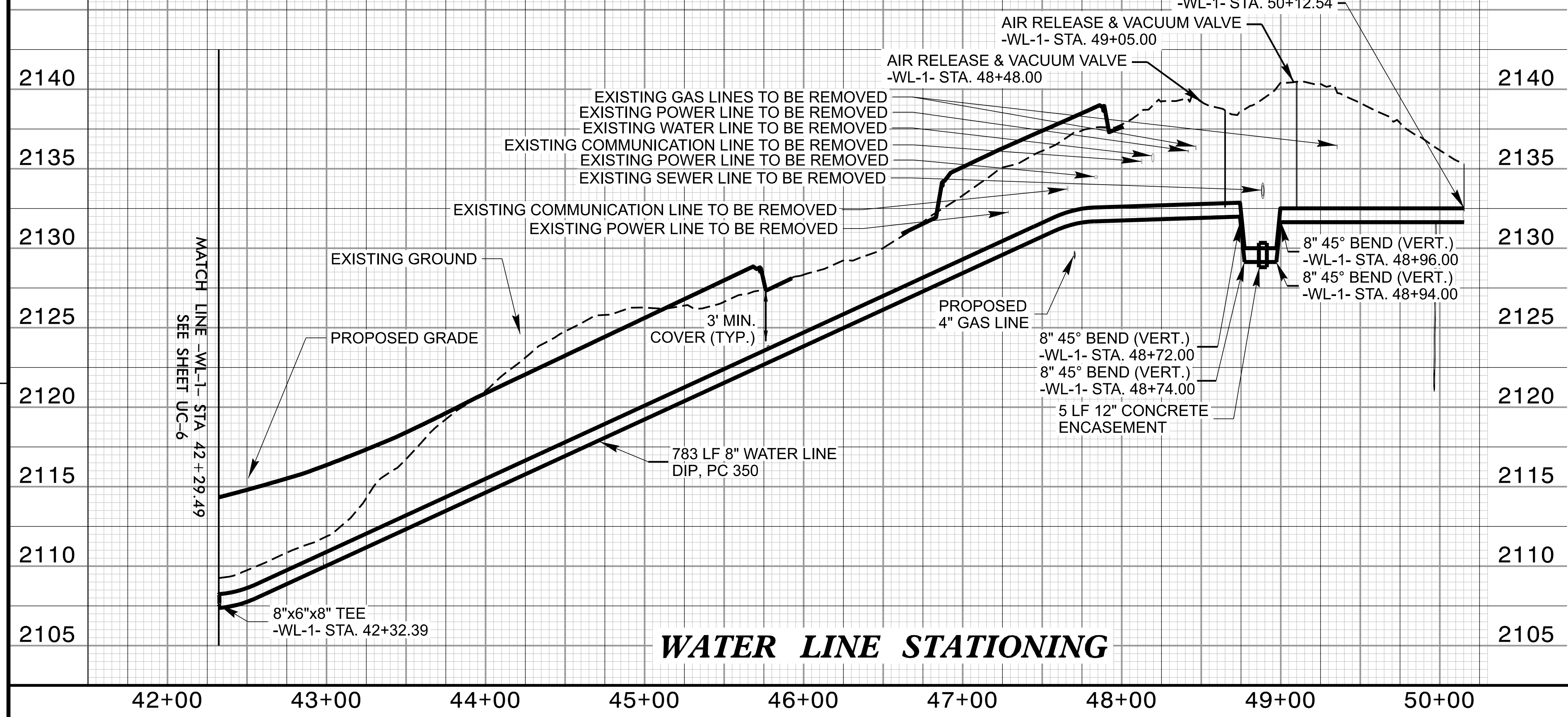


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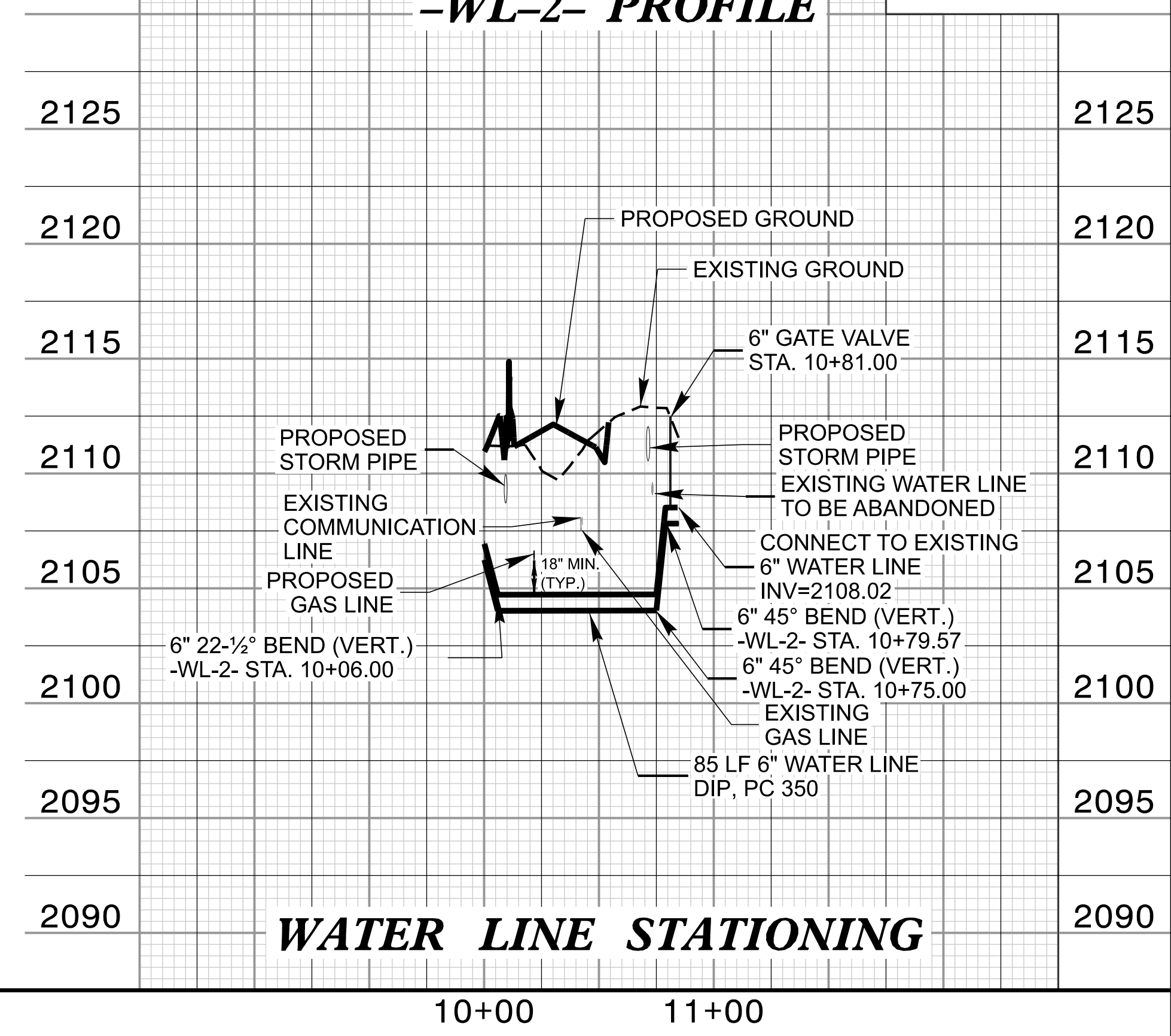
- Boone, NC 888-355-9933
- Ft. Collins, CO 970-221-9400
- Greenville, SC 864-574-4775
- Charlotte, NC 704-298-6600
- Asheville, NC 828-253-2796
- North Carolina 919-977-9455
- Chapel Hill, NC 919-977-9455
- Charlotte, NC 704-351-0488
- Atlanta, GA 770-427-3009

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WATER LINE -WL-1- PROFILE



WATER LINE -WL-2- PROFILE



WATER LINE STATIONING

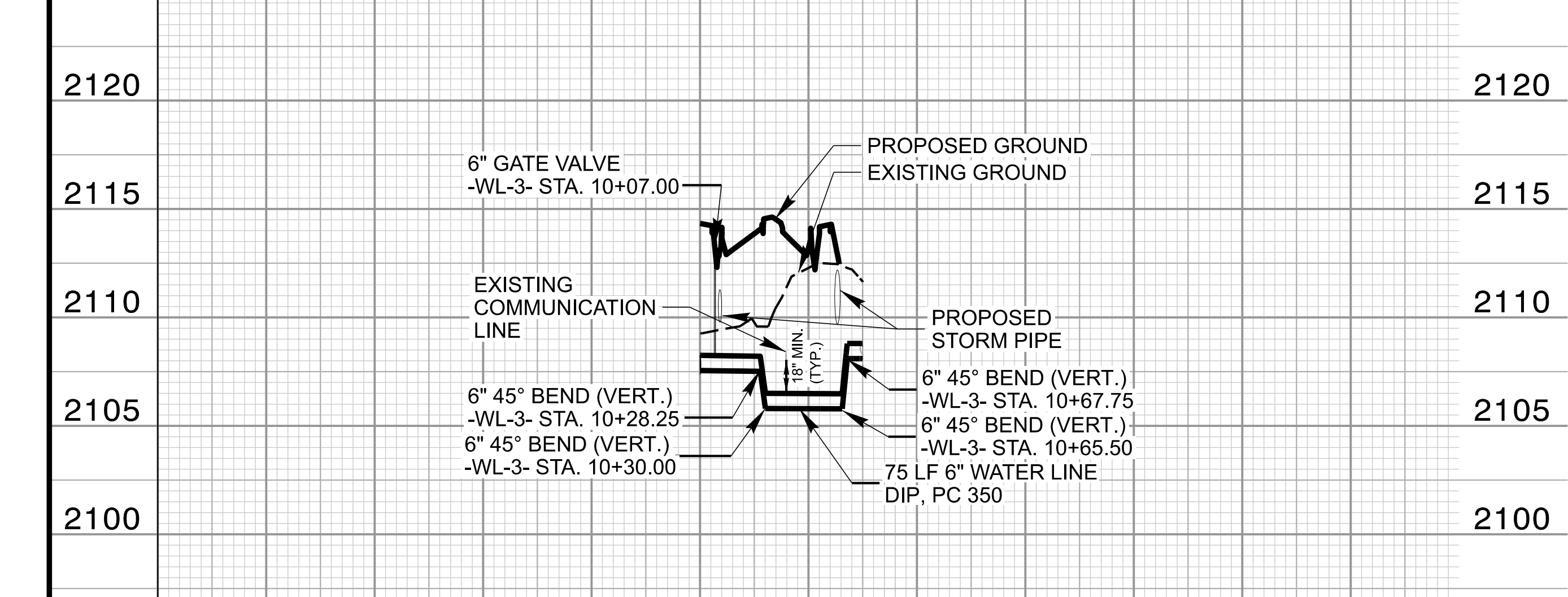
WATER LINE STATIONING

1/4/21

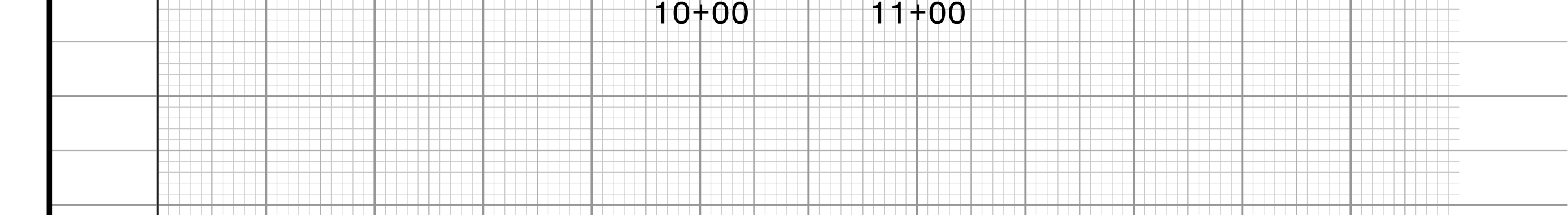
THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS SHEET IS 475 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

PROJECT REFERENCE NO. U-5887	SHEET NO. UC-7A
DESIGNED BY: SSD	
DRAWN BY: BAB	
CHECKED BY: JDN	
APPROVED BY: JDN	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
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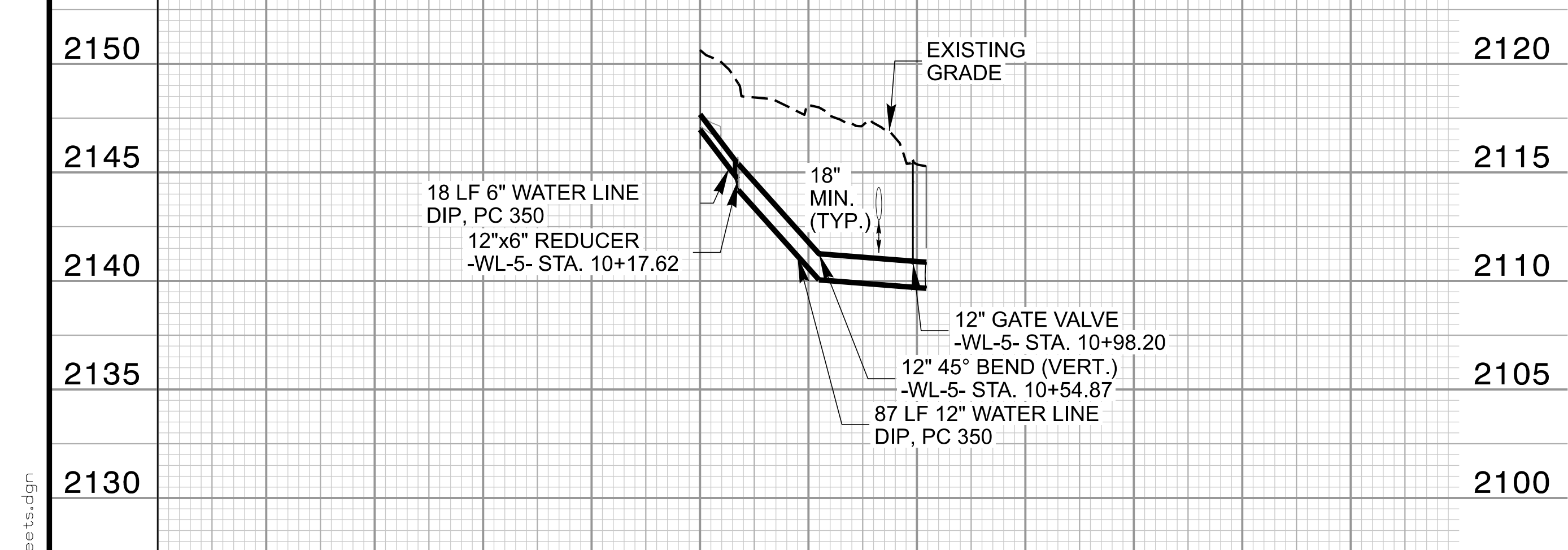
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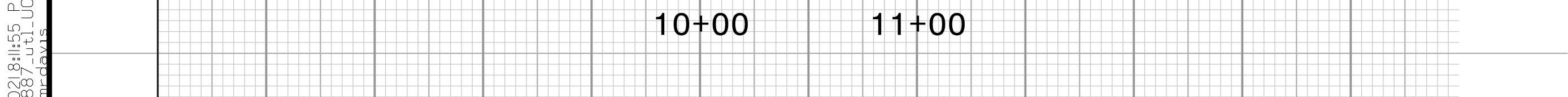
WATER LINE STATIONING



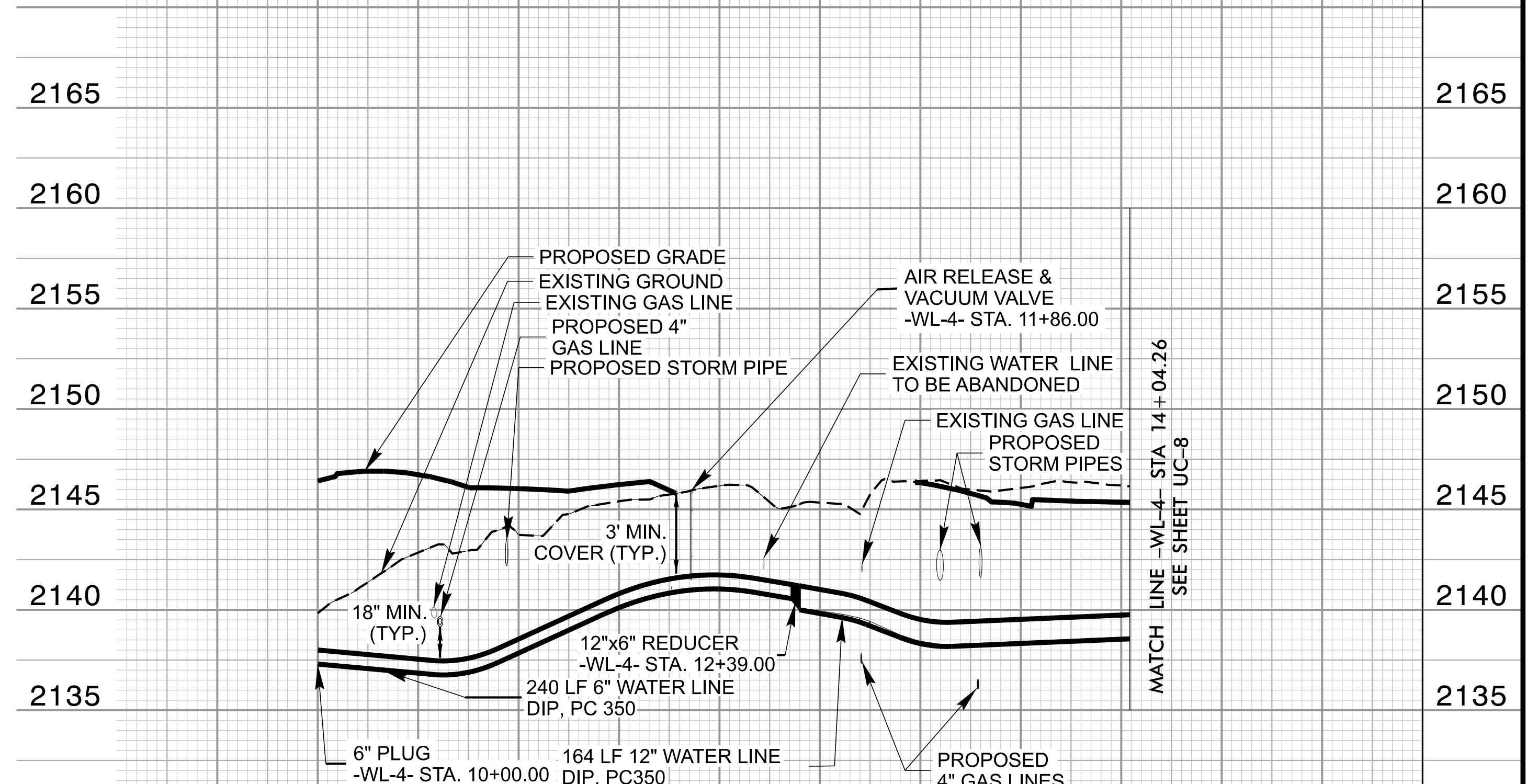
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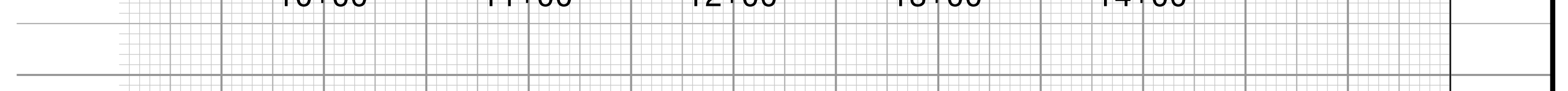
WATER LINE STATIONING



WATER LINE -WL-4- PROFILE



WATER LINE STATIONING

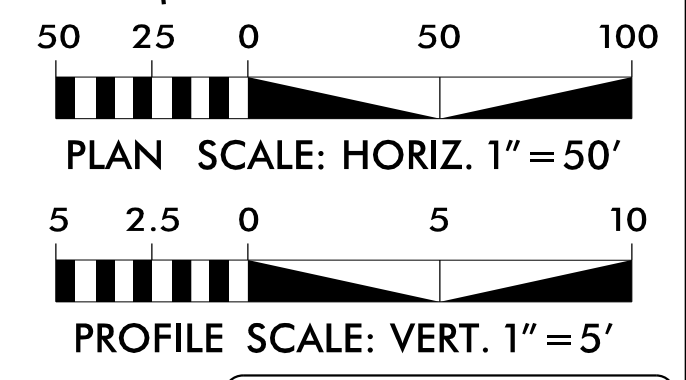
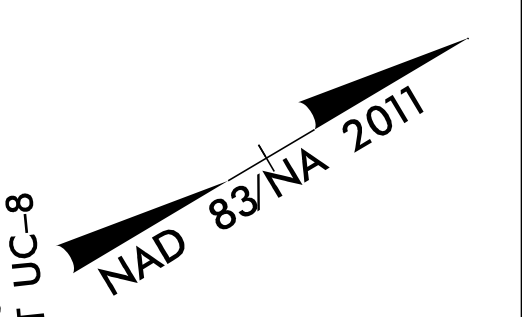
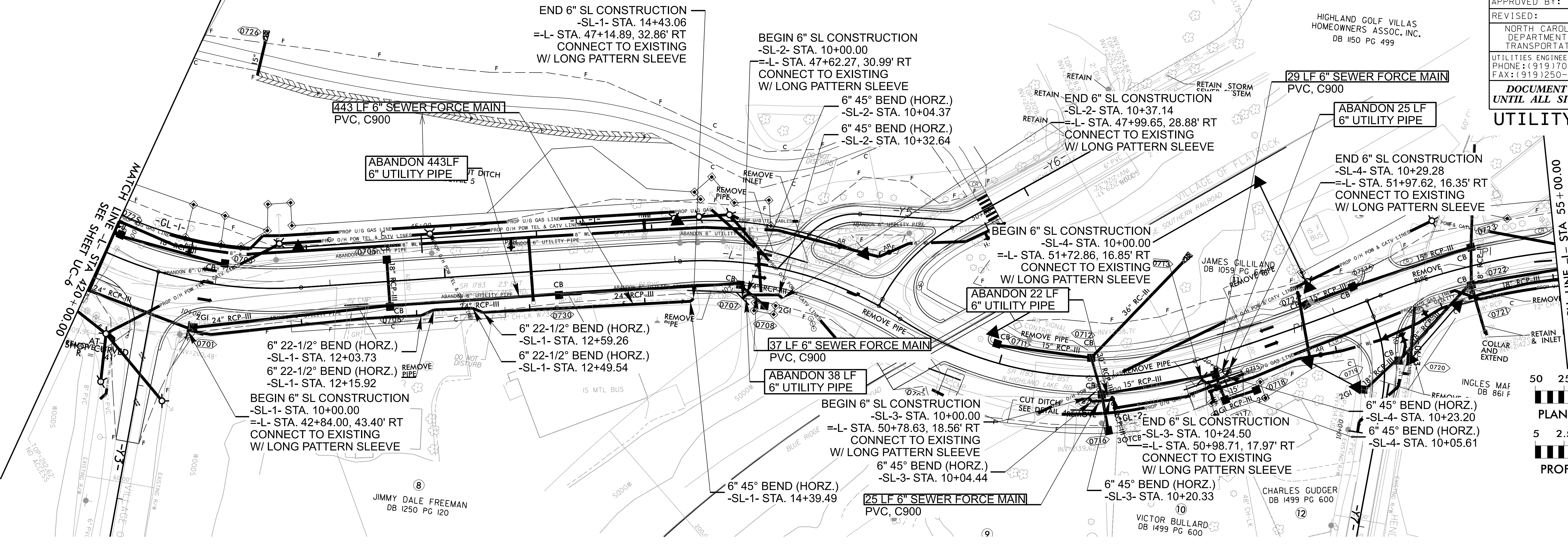


1/20/2021 4:15 PM Water_Sewer_Sheets.dgn

PROFILE SCALE: VERT. 1" = 5'

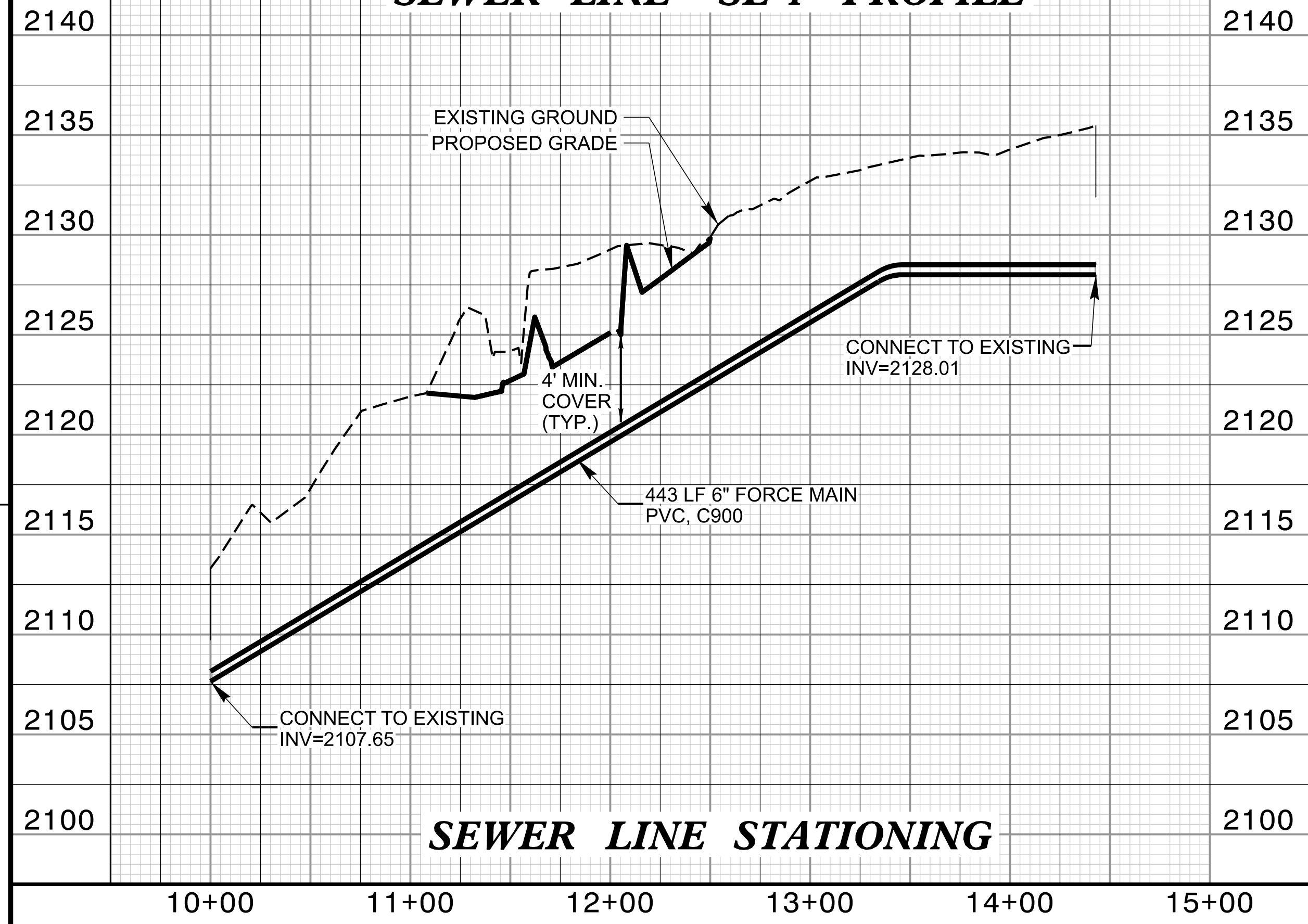
PROJECT REFERENCE NO.	SHEET NO.
U-5887	UC-7B
DESIGNED BY: SSD	
DRAWN BY: BAB	
CHECKED BY: JDN	
APPROVED BY: JDN	
REVISED:	
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UTILITY CONSTRUCTION PLANS ONLY DOCUMENT NOT CONSIDERED FINAL UNTIL ALL SIGNATURES ARE COMPLETED	

THE ESTIMATED QUANTITY OF DUCTILE IRON SEWER PIPE FITTINGS ON THIS PLAN SHEET IS 1,345 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

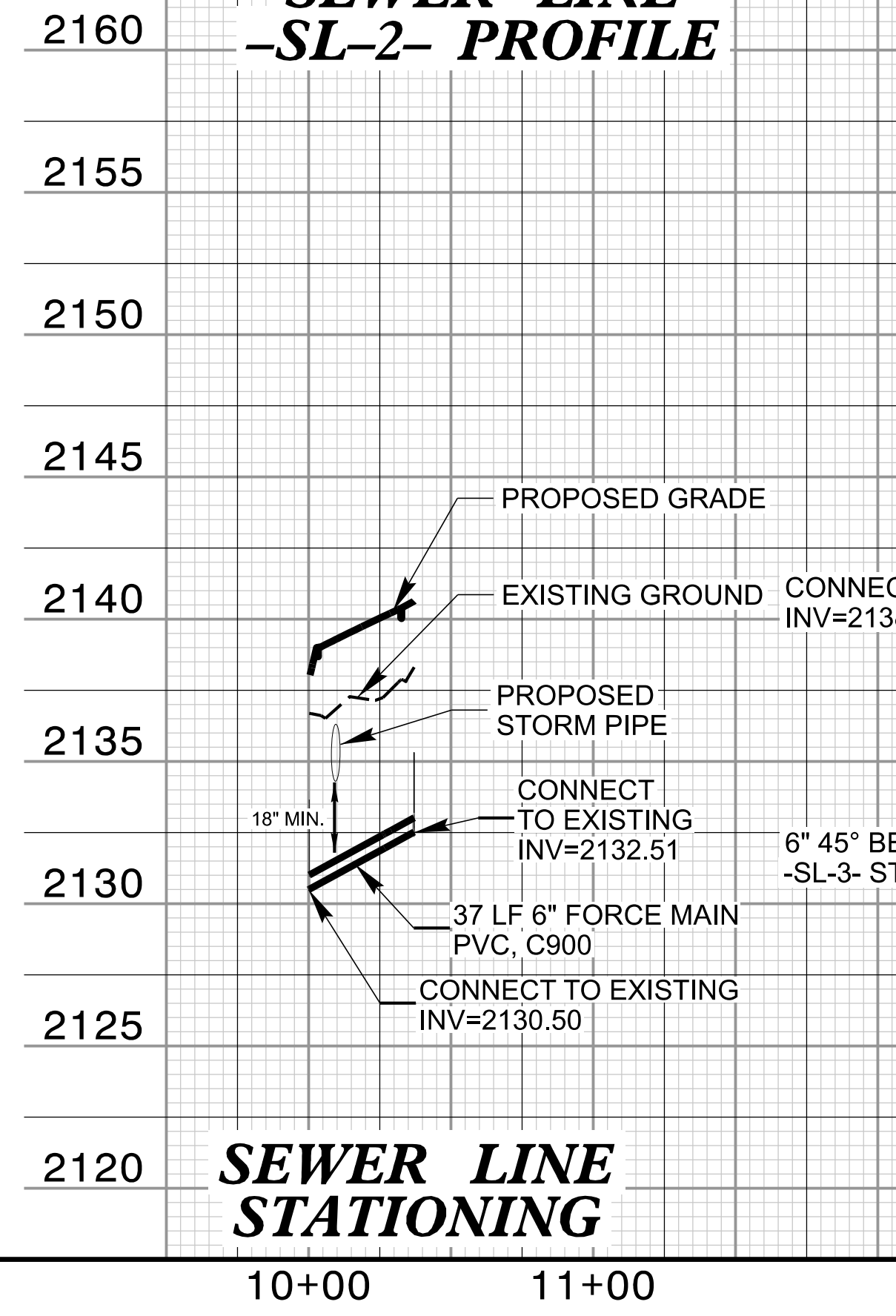


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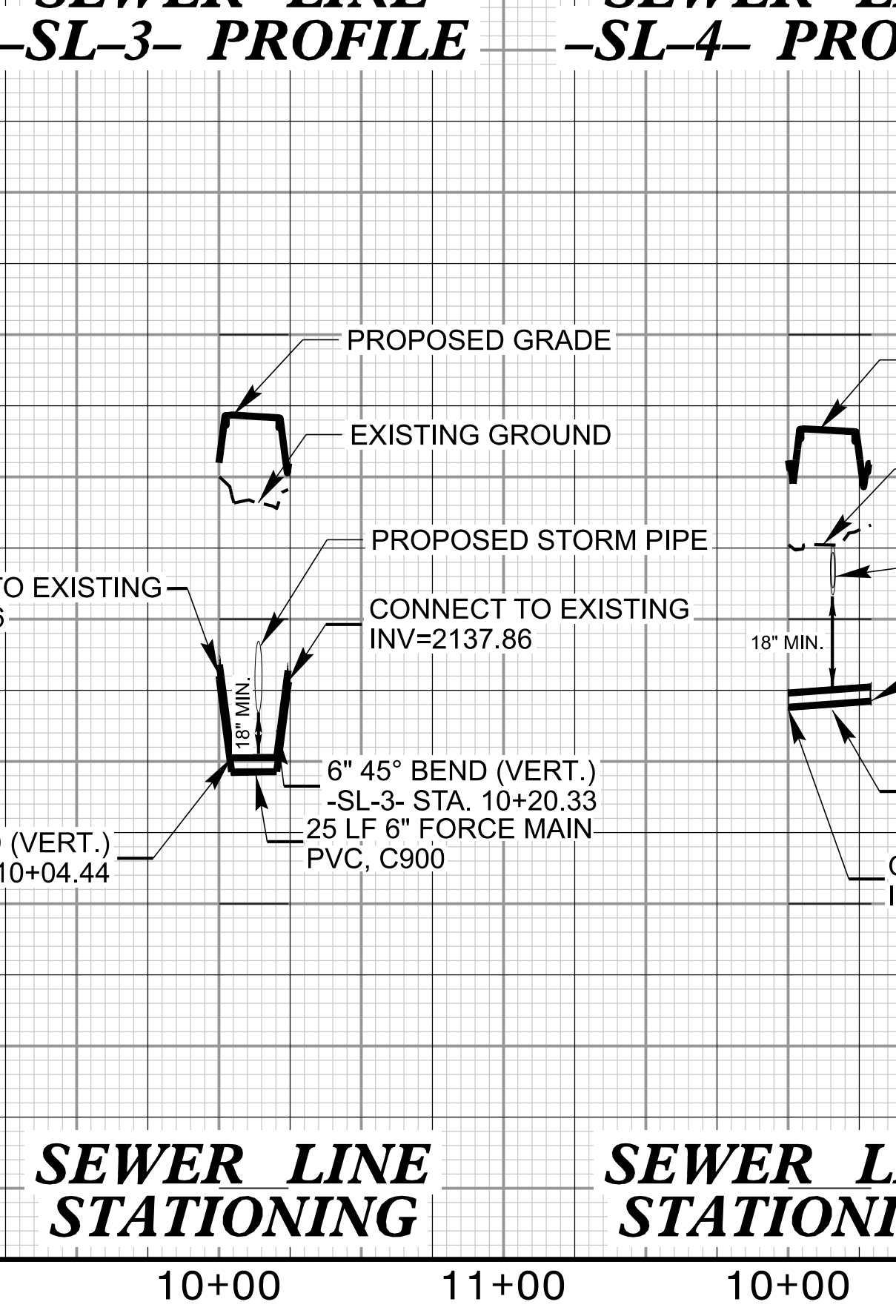
SEWER LINE -SL-1- PROFILE



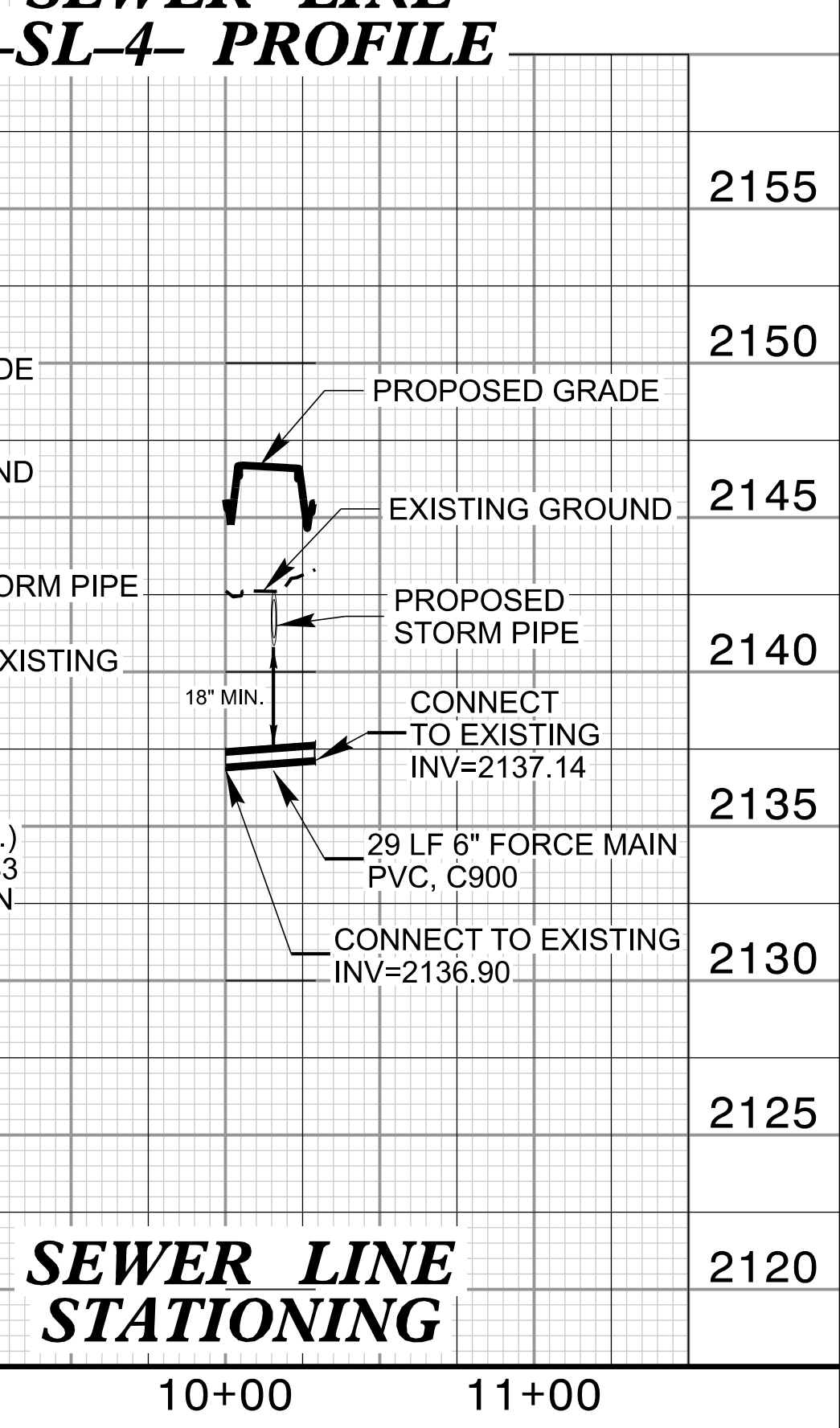
SEWER LINE -SL-2- PROFILE



SEWER LINE -SL-3- PROFILE



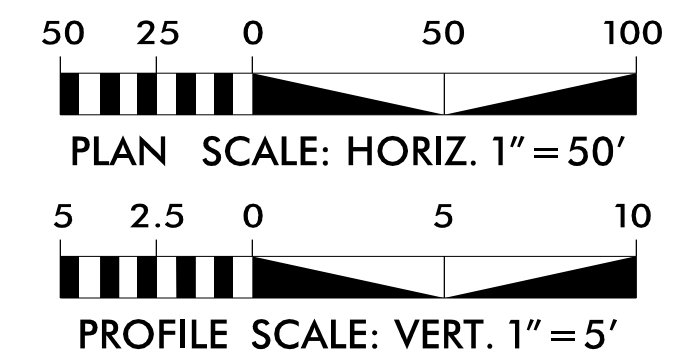
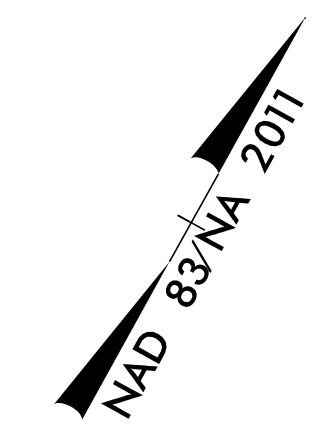
SEWER LINE -SL-4- PROFILE



PROJECT REFERENCE NO.	SHEET NO.
U-5887	UC-8
DESIGNED BY: SSD	
DRAWN BY: BAB	
CHECKED BY: JDN	
APPROVED BY: JDN	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
UTILITY CONSTRUCTION PLANS ONLY	

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UTILITY CONSTRUCTION

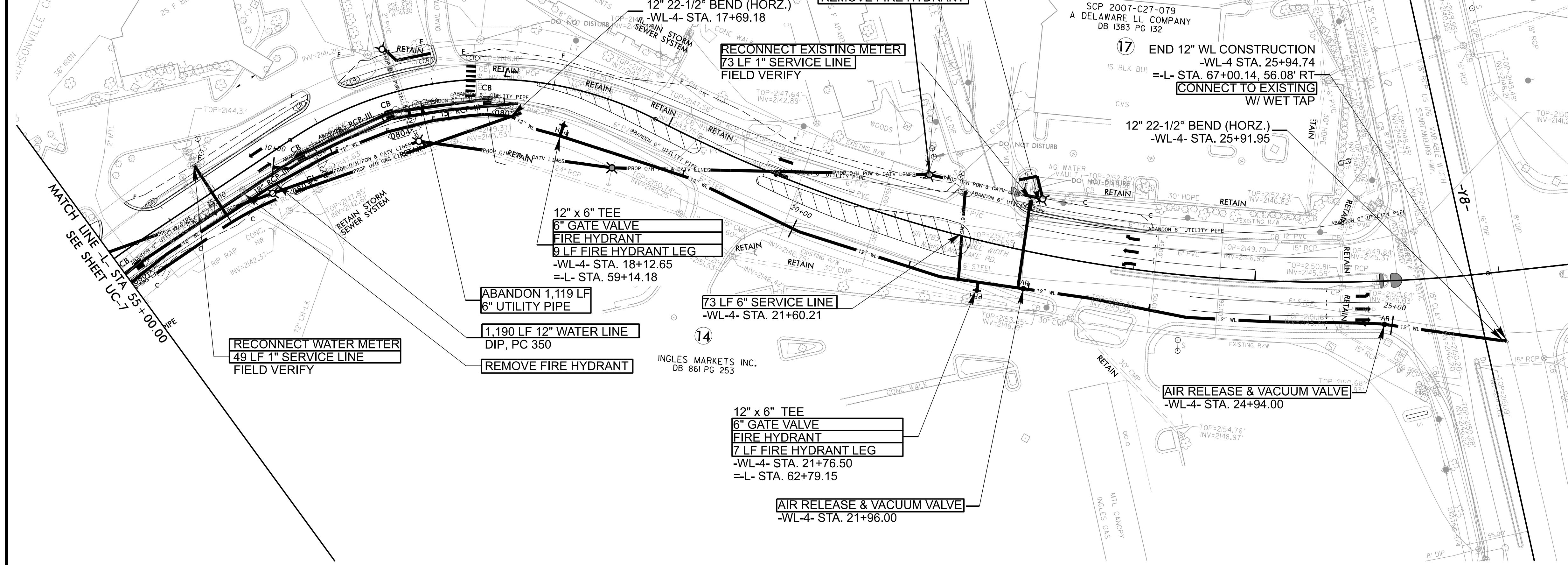


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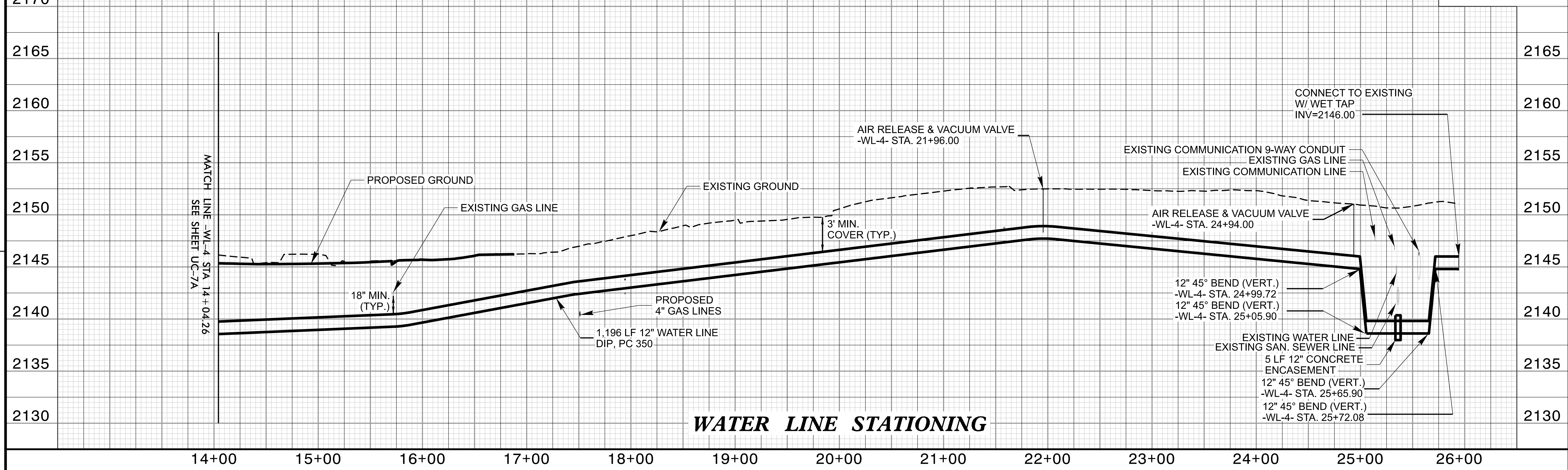
- Boone, NC 800-355-9933
- Fayetteville, NC 437-627-9400
- Charlotte, NC 844-574-4775
- Asheville, NC 828-253-2796
- Wilmington, NC 910-337-9405
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- Wilmington, NC 843-914-5650
- Charlotte, NC 843-914-5650
- Atlanta, GA 770-421-3509

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THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 1,950 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.



WATER LINE -WL-4- PROFILE



WATER LINE STATIONING

REVISIONS

14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00 25+00 26+00

PROJECT REFERENCE NO.	SHEET NO.
U-5887	UC-8A
DESIGNED BY: SSD	
DRAWN BY: BAB	
CHECKED BY: JDN	
APPROVED BY: JDN	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
UTILITY CONSTRUCTION PLANS ONLY	

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UTILITY CONSTRUCTION

THE ESTIMATED QUANTITY OF DUCTILE IRON SEWER PIPE FITTINGS ON THIS PLAN SHEET IS 205 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

6 LF 2" SERVICE LINE
-SL-5- STA. 11+21.64

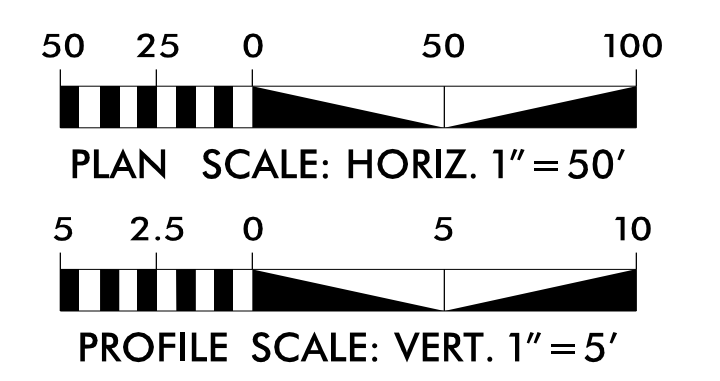
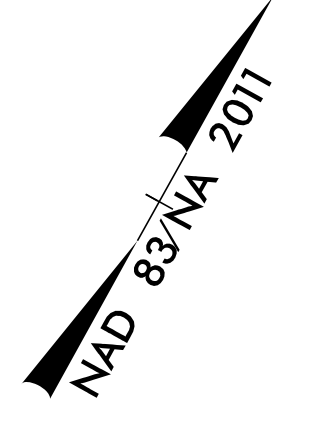
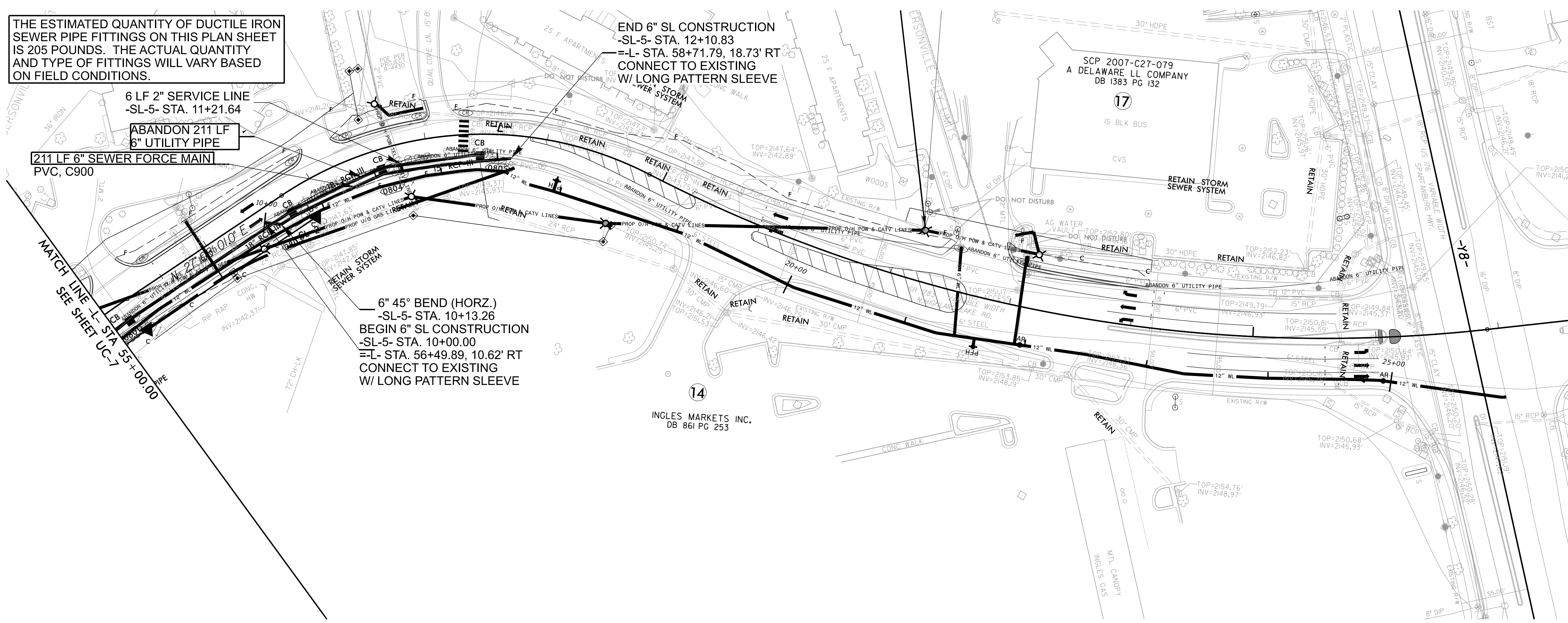
ABANDON 211 LF
6" UTILITY PIPE

211 LF 6" SEWER FORCE MAIN
PVC, C900

END 6" SL CONSTRUCTION
-SL-5- STA. 12+10.83
=L- STA. 58+71.79, 18.73' RT
CONNECT TO EXISTING
W/ LONG PATTERN SLEEVE

6" 45° BEND (HORZ.)
-SL-5- STA. 10+13.26
BEGIN 6" SL CONSTRUCTION
-SL-5- STA. 10+00.00
=L- STA. 56+49.89, 10.62' RT
CONNECT TO EXISTING
W/ LONG PATTERN SLEEVE

MATCH LINE - STA 55+00.00
SEE SHEET UC-7



REVISIONS

SEWER LINE -SL-5- PROFILE

