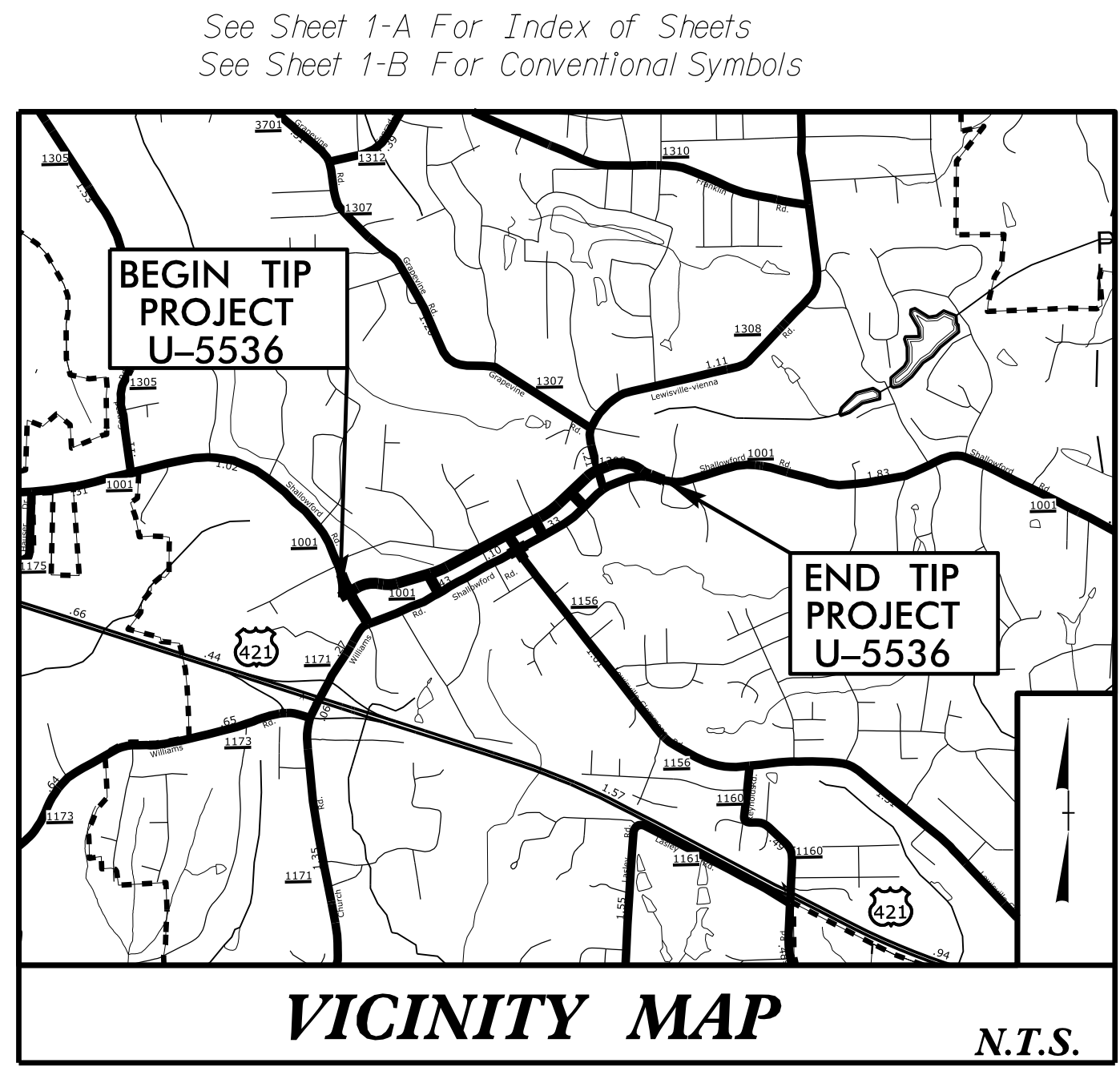


09/05/2019

TIP PROJECT: U-5536

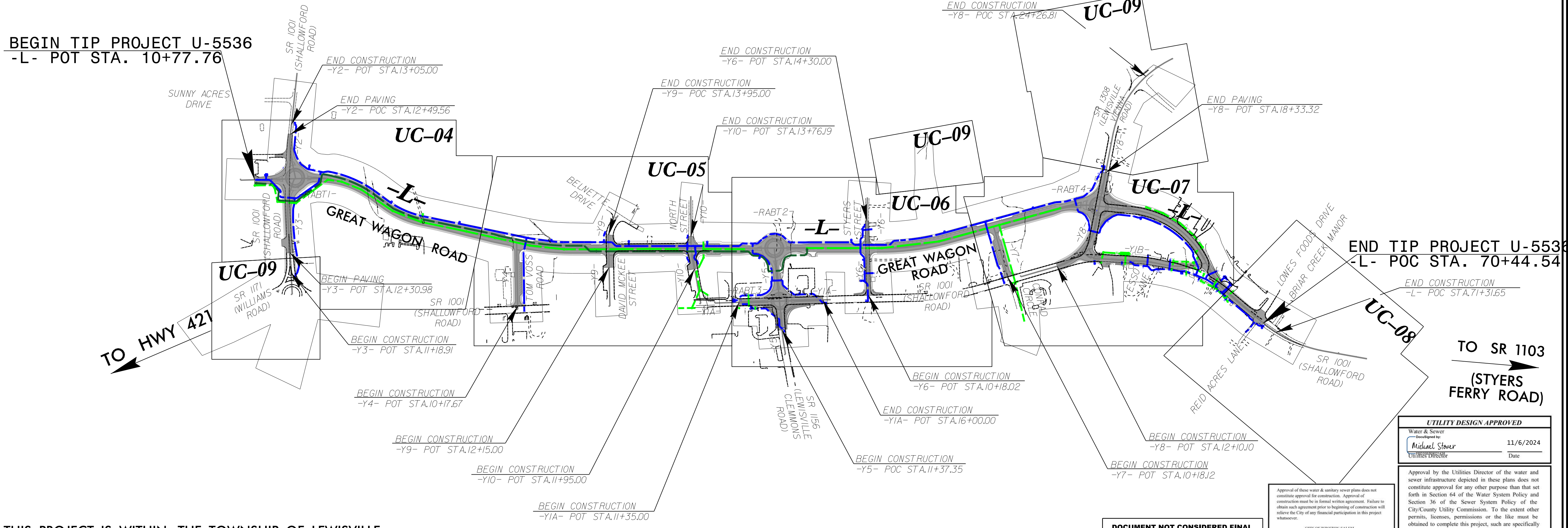
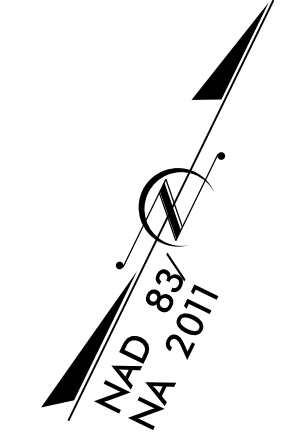


STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**UTILITY CONSTRUCTION PLANS  
FORSYTH COUNTY**

100% UC PLANS

**LOCATION:  
PROPOSED GREAT WAGON ROAD FROM SR 1001  
(SHALLOWFORD ROAD) TO SR 1308 (LEWISVILLE-  
VIENNA ROAD) IN LEWISVILLE  
TYPE OF WORK: WATER AND SEWER RELOCATION**

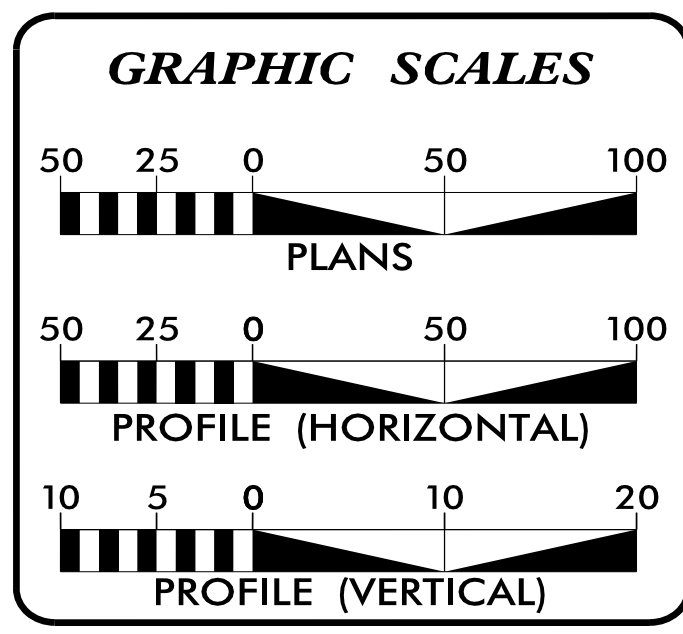


THIS PROJECT IS WITHIN THE TOWNSHIP OF LEWISVILLE.

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

UTILITY DESIGN APPROVED	
Water & Sewer Designed by: <b>Michael Steier</b> DATE: 11/6/2024	Date

Approval by the Utilities Director of the water and sewer infrastructure depicted in these plans does not constitute approval for any other purpose than that set forth in Section 64 of the Water System Policy and Section 36 of the Sewer System Policy of the City/County Utility Commission. To the extent other permits, licenses, permissions or the like must be obtained to complete this project, such are specifically not granted by this approval and must be obtained by the Developer and/or his designee.



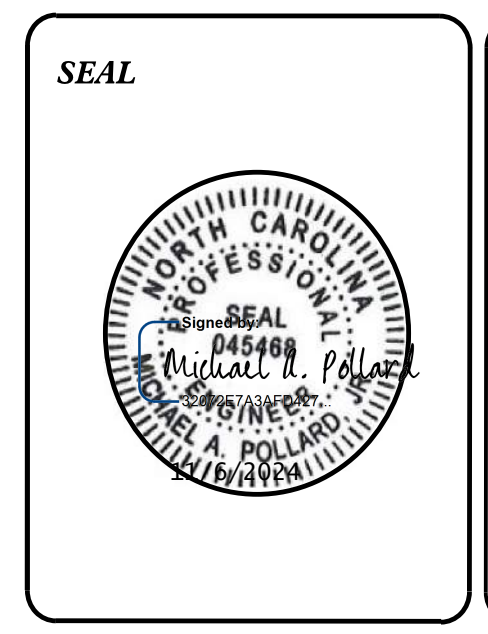
SHEET NO.:	DESCRIPTION:
UC-01	TITLE SHEET
UC-02	UTILITY SYMBOLOGY
UC-03	NOTES
UC-03A THRU UC-03D	DETAILS
UC-04 THRU UC-09	UTILITY CONSTRUCTION SHEETS
UC-10 THRU UC-21	PROFILE SHEETS

**WATER AND SEWER OWNERS ON PROJECT**

(A) WATER - WINSTON-SALEM/FORSYTH COUNTY UTILITIES  
(B) SANITARY SEWER - WINSTON-SALEM/FORSYTH COUNTY UTILITIES

PREPARED IN THE OFFICE OF  
**CDM Smith**  
CDM Smith Inc.  
5400 Glenwood Avenue  
Suite 400  
Raleigh, NC 27612-3228  
NC COA No. F-1255

DAVID Z. KEISER, P.E. CONSULTANT CONTACT #1  
ADAM M. CONRAD, P.E. CONSULTANT CONTACT #2  
MICHAEL A. POLLARD, P.E. CONSULTANT CONTACT #3



**DIVISION OF HIGHWAYS UTILITIES UNIT**  
1555 MAIL SERVICES CENTER  
RALEIGH, NC 27699-1555  
PHONE (919) 707-6690  
FAX (919) 250-4151

AMY DUPREE YORK CENTRAL REGION UTILITY MANAGER  
ALI KOUCHEKI SENIOR UTILITY ENGINEER  
JOSH MCMAHAN SENIOR UTILITY COORDINATOR  
LOU PORTER UTILITIES COORDINATOR

-SYSTEME\_U5536-ut-fsh\_UC01\_psh.dgn  
USER: MILLERS

# 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	
Water Meter	
Relocate Water Meter	
Remove Water Meter	
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	
End of Information	

*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)  
 Designated Utility Line (Type as Shown)

5/14/09 SYSTEMS 36 Ut.-sym-UC02-psh.dgn REV: 2/1/2012

# UTILITY CONSTRUCTION

PROJECT REFERENCE NO. U-5536		SHEET NO. UC-03	
DESIGNED BY: PRJ	Drawn by: <i>Michael Pollard</i>		
DRAWN BY: SSM			
CHECKED BY: MAP			
APPROVED BY:			
REVISED:			
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION		UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
		UTILITY CONSTRUCTION PLANS ONLY	

## 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 2024 AND THE PROJECT SPECIAL PROVISIONS.

2. THE EXISTING UTILITIES BELONG TO WINSTON-SALEM / FORSYTH COUNTY UTILITIES.

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 ENVIRONMENT 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. ALL PROPOSED SERVICES TO BE ASSUMED AS 1" SERVICE WITH 5/8" METER UNLESS OTHER NOTED

7. 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.

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

9. 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, AND ON HOLIDAYS IF NECESSARY.

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

11. ALL EROSION CONTROL DEVICES SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE MOST CURRENT STANDARDS OF THE LAND QUALITY SECTION OF THE NCDEQ.

12. ALL WORK MUST CARRY ONE-YEAR WARRANTY TO COVER ALL DEFECTIVE MATERIALS AND WORKMANSHIP.

13. CROSS-CONNECTION CONTROL PROTECTION DEVICES ARE REQUIRED BASED ON DEGREE OF HEALTH HAZARD INVOLVED AS LISTED IN APPENDIX B OF THE RULES GOVERNING PUBLIC WATER SYSTEMS OF NORTH CAROLINA. THESE GUIDELINES ARE THE MINIMUM REQUIREMENTS. THE DEVICES SHALL MEET AMERICAN SOCIETY OF SANITARY ENGINEERING (ASSE) STANDARDS OR BE ON THE UNIVERSITY OF SOUTHERN CALIFORNIA APPROVAL LIST. THE DEVICES SHALL BE INSTALLED AND TESTED (BOTH INITIAL AND PERIODIC TESTING THEREAFTER) IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS OR THE LOCAL CROSS-SECTION CONTROL PROGRAM, WHICH EVER IS MORE STRINGENT

## PROJECT SPECIFIC NOTES:

1. PROPOSED RESTRAINED DIP WATER LINE:

#	STA	STA
WL1:	10+00	- 10+50
WL1:	11+50	- 14+30
WL1:	30+00	- 31+70
WL1:	34+80	- 36+20
WL1:	37+50	- 41+50
WL1:	44+00	- 45+25
WL1:	46+25	- 47+25
WL1:	56+00	- 60+00
WL2:	10+00	- 15+18
WL3:	10+00	- 11+00
WL3:	13+50	- 14+09
WL4:	10+00	- 11+60
WL5:	10+00	- 14+55
WL6:	10+00	- 10+30
WL6:	12+40	- 12+80
WL6:	13+30	- 13+60
WL7:	10+00	- 15+70
WL7:	18+60	- 20+33
WL8:	10+00	- 15+30
WL9:	10+00	- 10+70
WL9:	13+50	- 14+50
WL10:	10+00	- 12+62
WL11:	10+00	- 10+61
WL13:	10+00	- 16+39
WL14:	10+00	- 13+18
WL16:	10+00	- 10+72

2. CONTRACTOR'S ATTENTION IS DIRECTED TO SECTIONS 102, 107, AND 1550 OF THE STANDARD SPECIFICATIONS CONCERNING TRENCHLESS INSTALLATION. IT IS CONTRACTOR'S RESPONSIBILITY TO HAVE BORE DESIGNED AND SEALED BY A LICENSED NORTH CAROLINA PROFESSIONAL ENGINEER. NO DAMAGE IS ALLOWED TO RIVER, WETLANDS, OR BUFFER ZONES.

3. UNLESS OTHERWISE NOTED: PIPE FOR PROPOSED WATER MAINS 4" THRU 16" DIAMETER SHALL BE DUCTILE IRON, PC 350. PIPE FOR PROPOSED WATER MAINS 18" THRU 36" DIAMETER SHALL BE DUCTILE IRON, PC 250. PIPE FOR PROPOSED SANITARY SEWER WITH DEPTH OF COVER 3' - 22' SHALL BE VCP. ALL OTHER GRAVITY SEWER SHALL BE DUCTILE IRON, MINIMUM THICKNESS CLASS 50.

4. WATER LINE VALVES SHALL BE RESILIENT - SEAT GATE VALVES CONFORMING TO ANSI/AWWA C509 OR ANSI/AWWA C515, AND SHALL BE RATED FOR A MINIMUM WORKING PRESSURE OF 250 PSI.

5. THE INTERIOR OF PROPOSED SANITARY SEWER LINES <3' COVER OR >22' COVER SHALL BE LINED WITH A MINIMUM OF 40 MILS OF CORROSION - RESISTANT CERAMIC EPOXY COATING AS DESCRIBED IN THE UC PROJECT SPECIAL PROVISIONS. ALL BELLS AND SPIGOTS FOR SANITARY SEWER PIPE MUST BE LINED WITH A MINIMUM OF 8 MILS OF JOINT COMPOUND.

6. PROVIDE CONCRETE THRUST BLOCKS AT ALL WATER MAIN BENDS, TEES, AND CAP UNLESS OTHERWISE NOTED.

7. STABILIZATION STONE UNDER PIPING TO BE PLACED AS REQUIRED BY CITY INSPECTOR WHEN CONDITIONS WARRANT.

8. PRIOR TO REQUESTING A FINAL INSPECTION, THE CONTACTOR MUST SUBMIT RECORD DRAWINGS AND ENGINEER'S CERTIFICATION TO THE ENGINEERING DIVISIONS RECORD CENTER. THE OWNER MUST ALSO SUBMIT THE CONSTRUCTION CHECKLIST TO THE CITY INSPECTOR.

9. CONTACT UTILITIES FIELD OPERATIONS AT 336-462-2199 TO ARRANGE FOR CONSTRUCTION INSPECTION. A CITY INSPECTOR WILL APPROVE BACKFLOW PREVENTER TYPE, VAULT, EXACT LOCATION, AND INSPECTION REQUIREMENTS PRIOR TO INSTALLATION. A CITY INSPECTOR SHALL BE PRESENT WHEN MAKING OR TERMINATING WATER AND SEWER CONNECTIONS INTO NEW OR EXISTING WATER AND SEWER LINE.

10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING THE ENGINEER WITH A SET OF SURVEY RECORD (AS-BUILT) DRAWINGS PREPARED BY A NORTH CAROLINA REGISTERED LAND SURVEYOR CERTIFYING THE ACCURACY OF THE SURVEY HORIZONTAL AND VERTICAL LOCATIONS TO ONE TENTH (.10) OF A FOOT, SURVEY SHALL BE TIED TO THE NORTH CAROLINA STATE PLANS COORDINATE SYSTEM (NAD83 FEET) HORIZONTALLY, AND ELEVATIONS SHALL BE NORTH AMERICAN VERTICAL DATUM (NAVD88). SURVEY POINT INFORMATION SHALL BE PROVIDED IN AN ELECTRONIC FORMAT FILE OR AN ASCII POINT TEXT FILE [X-Y COORDINATES].

## UTILITY CONSTRUCTION

**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**

PROJECT REFERENCE NO.	SHEET NO.
U-5536	UC-03A
DESIGNED BY: PRJ	
DRAWN BY: SSM	
CHECKED BY: MAP	
APPROVED BY:	
REVISOR:	ENGINEER
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SECTION	
PHONE: (919) 707-6690	UTILITY CONSTRUCTION PLANS ONLY
FAX: (919) 250-4151	

# PROJECT TYPICAL DETAILS

### TRENCH DETAIL

PLACE FOUNDATION CONDITIONING MATERIAL BELOW BEDDING IF REQUIRED, AS DIRECTED BY ENGINEER. PIPE BEDDED IN SELECT MATERIAL, CLASS II (TYPE 1) OR CLASS III. TRENCH BACKFILLED IN LOOSE 6" LAYERS COMPACTED TO TOP OF TRENCH USING LOCAL EXCAVATED MATERIAL IF APPROVED BY THE ENGINEER, OR SELECT MATERIAL. ALL MATERIAL SHALL BE FREE OF ROCKS, FOREIGN MATERIAL, AND FROZEN EARTH. COMPACTION SHALL BE TO APPROXIMATELY 95% DENSITY IN ACCORDANCE WITH AASHTO T-99 AS MODIFIED BY THE DEPARTMENT OF TRANSPORTATION.

**CITY OF WINSTON-SALEM**  
DEPARTMENT OF PUBLIC WORKS  
ENGINEERING DIVISION

N.T.S. REVISED 2-11-20  
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### Asphalt Pavement Repair (For Non-State Maintained Roads)

THE SUITABLE BACKFILL SHALL BE MADE IN 6" LAYERS AND SHALL BE COMPACTED TO AT LEAST 95% OF STANDARD DENSITY (AASHTO METHOD T-99). EACH LAYER MUST BE THOROUGHLY TAMPED BY A MECHANICAL TAMP BEFORE THE NEXT LAYER IS PLACED. ALL ASPHALT PAVEMENT REPLACED SHALL BE IN ACCORDANCE WITH THE MOST CURRENT N.C.D.O.T. STANDARD SPECIFICATIONS. SUBGRADE DENSITY SHALL BE 100%.

**CITY OF WINSTON-SALEM**  
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ENGINEERING DIVISION

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### Mill and Patch Method - Option D (For State Maintained Roads)

NOTE: THE SUITABLE BACKFILL SHALL BE MADE IN 6" LAYERS AND SHALL BE COMPACTED TO AT LEAST 95% OF STANDARD DENSITY (AASHTO METHOD T-99). EACH LAYER MUST BE THOROUGHLY TAMPED BY A MECHANICAL TAMP BEFORE THE NEXT LAYER IS PLACED. ALL ASPHALT PAVEMENT REPLACED SHALL BE IN ACCORDANCE WITH THE MOST CURRENT N.C.D.O.T. STANDARD SPECIFICATIONS.

**CITY OF WINSTON-SALEM**  
DEPARTMENT OF PUBLIC WORKS  
ENGINEERING DIVISION

N.T.S. REVISED 2-11-20  
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### 4' Precast Reinforced Concrete Manhole

FLAT TOP SECTIONS USED SHALL BE DESIGNED TO SUPPORT AN H-20 WHEEL LOAD. USE OF A FLAT TOP MUST BE APPROVED BY THE ENGINEER.

PRECAST CONCRETE MANHOLES SHALL CONFORM TO ASTM C-478. MANHOLES MUST BE ALLOWED TO CURE A MINIMUM OF 3 DAYS PRIOR TO SHIPMENT. THE DATE OF MANUFACTURE AND NAME OF MANUFACTURER SHALL BE ON ALL MANHOLE SECTIONS. CONCRETE SHALL BE 4,000 PSI. CIRCUMFERENTIAL REINFORCEMENT WILL BE PLACED AT A MINIMUM OF 0.12 SQ. INS. PER LINEAL FOOT.

NOTE: DO NOT BOLT RING TO CONE IF DIRT OR CONCRETE SURROUNDS THE RING (EX: YARD, SHOULDER, ETC.)

**CITY OF WINSTON-SALEM**  
DEPARTMENT OF PUBLIC WORKS  
ENGINEERING DIVISION

N.T.S. REVISED 3-1-17  
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## UTILITY CONSTRUCTION

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UNLESS ALL SIGNATURES COMPLETED

### Manhole Ring and Cover (Type 1)

NOTE: TWO HOLES TO BE SPACED OPPOSITE TO EACH OTHER IN THE OUTER RING AS SHOWN. (HOLES TO BE 1" DIAMETER)

NOTE: RING AND COVER WILL HAVE MACHINED SEAT AND WILL CONFORM TO ASTM A48, CLASS 35B. RING AND COVER WILL BE DESIGNED TO SUPPORT AN H-20 WHEEL LOAD.

MINIMUM AVERAGE WEIGHTS	
RING	190 LBS.
COVER	120 LBS.
	310 LBS.

**CITY OF WINSTON-SALEM**  
DEPARTMENT OF PUBLIC WORKS  
ENGINEERING DIVISION

N.T.S. REVISED 3-1-17  
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### Manhole Ring and Cover (Type 2)

NOTE: TWO HOLES TO BE SPACED OPPOSITE TO EACH OTHER IN THE OUTER RING AS SHOWN. (HOLES TO BE 1" DIAMETER).

NOTE: RING AND COVER WILL HAVE MACHINED SEAT AND WILL CONFORM TO ASTM A48, CLASS 35B. RING AND COVER WILL BE DESIGNED TO SUPPORT AN H-20 WHEEL LOAD.

MINIMUM AVERAGE WEIGHTS	
RING	190 LBS.
COVER	120 LBS.
	310 LBS.

**CITY OF WINSTON-SALEM**  
DEPARTMENT OF PUBLIC WORKS  
ENGINEERING DIVISION

N.T.S. REVISED 3-1-17  
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### Manhole Ring and Cover (Type 3)

NOTE: RING AND COVER WILL HAVE MACHINED SEAT AND WILL CONFORM TO ASTM A48, CLASS 35B.

NOTE: RING AND COVER WILL HAVE MACHINED SEAT AND WILL CONFORM TO ASTM A48, CLASS 35B.

MINIMUM AVERAGE WEIGHTS	
RING	136 LBS.
COVER	120 LBS.
	256 LBS.

**CITY OF WINSTON-SALEM**  
DEPARTMENT OF PUBLIC WORKS  
ENGINEERING DIVISION

N.T.S. REVISED 3-1-17  
R:\Data\Utility\Utility Spec Drawings\mh ring & cover type 3.dwg

### Polypropylene Manhole Step

**CITY OF WINSTON-SALEM**  
DEPARTMENT OF PUBLIC WORKS  
ENGINEERING DIVISION

N.T.S. REVISED 3-1-17  
R:\Data\Utility\Utility Spec Drawings\mh step.dwg

**CITY OF WINSTON-SALEM**  
DEPARTMENT OF PUBLIC WORKS  
ENGINEERING DIVISION

N.T.S. REVISED 3-1-17  
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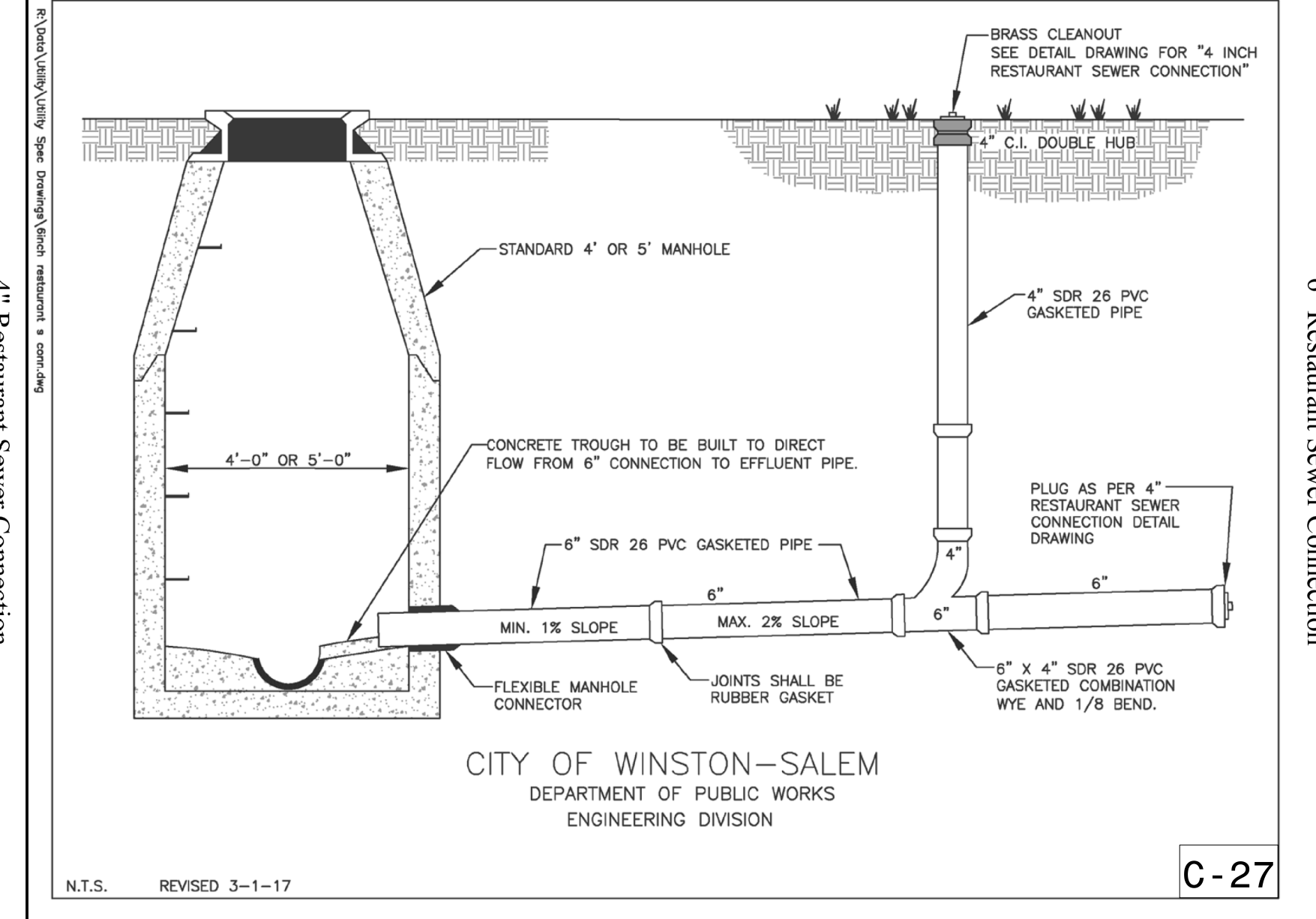
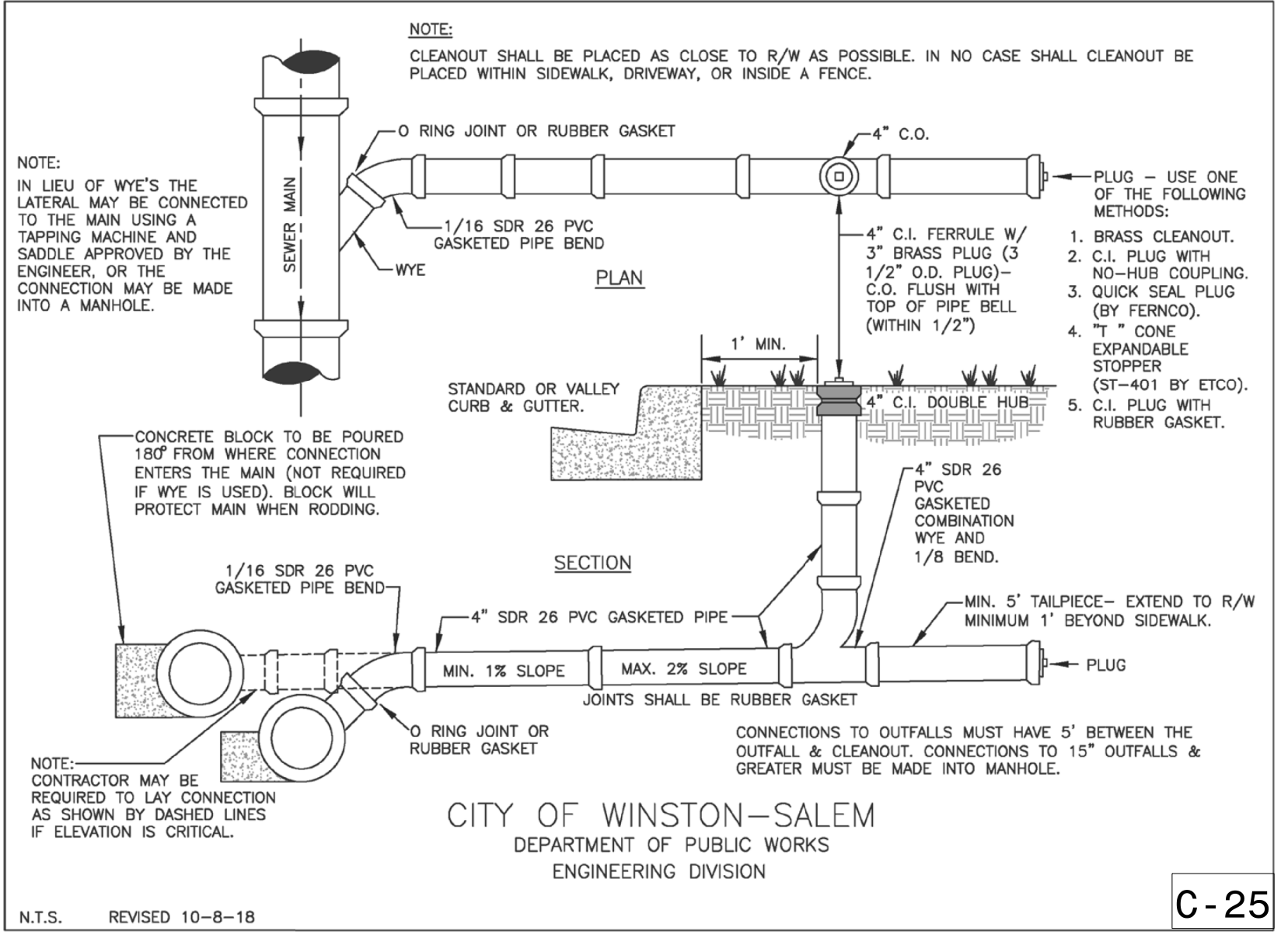
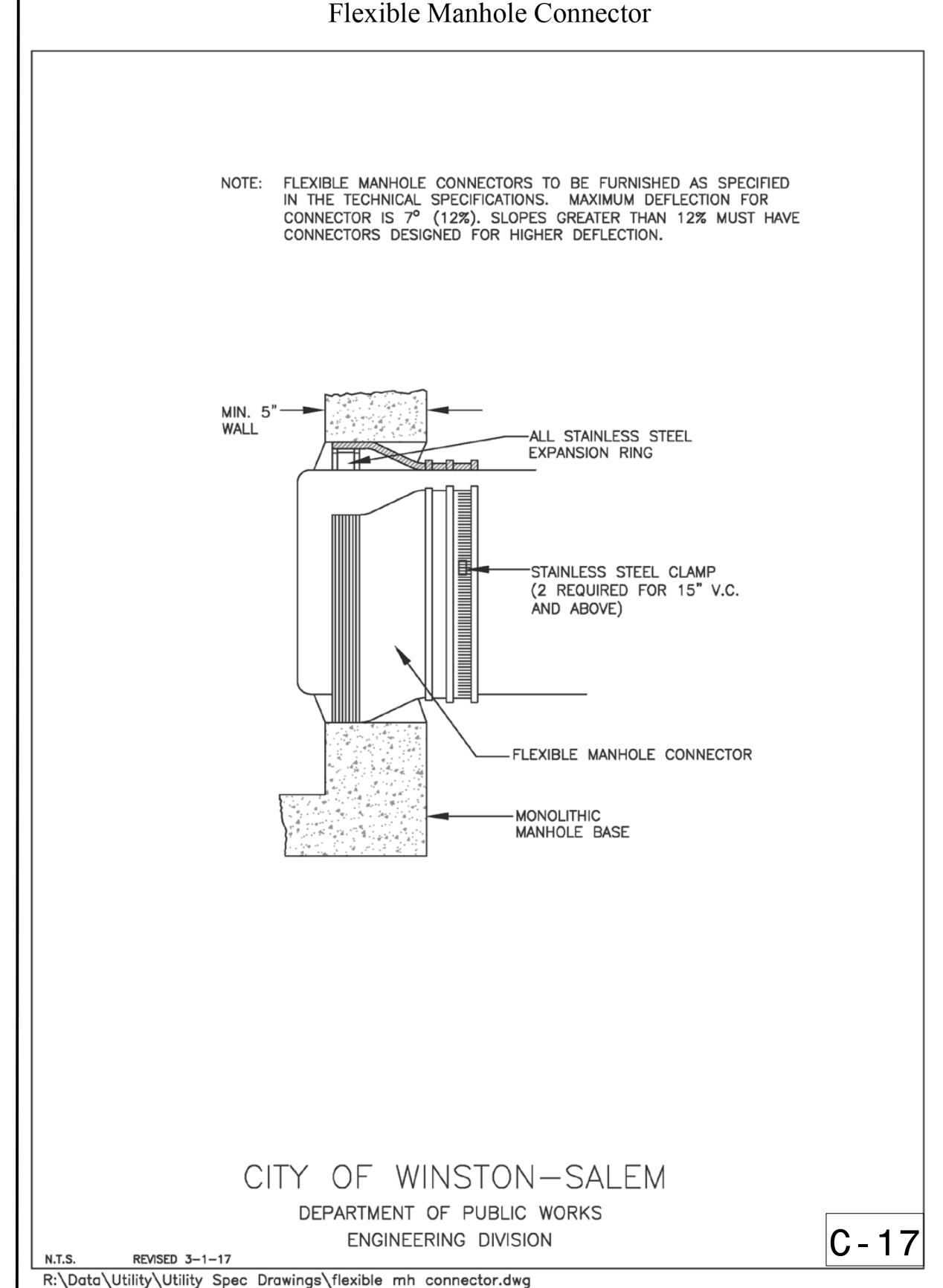
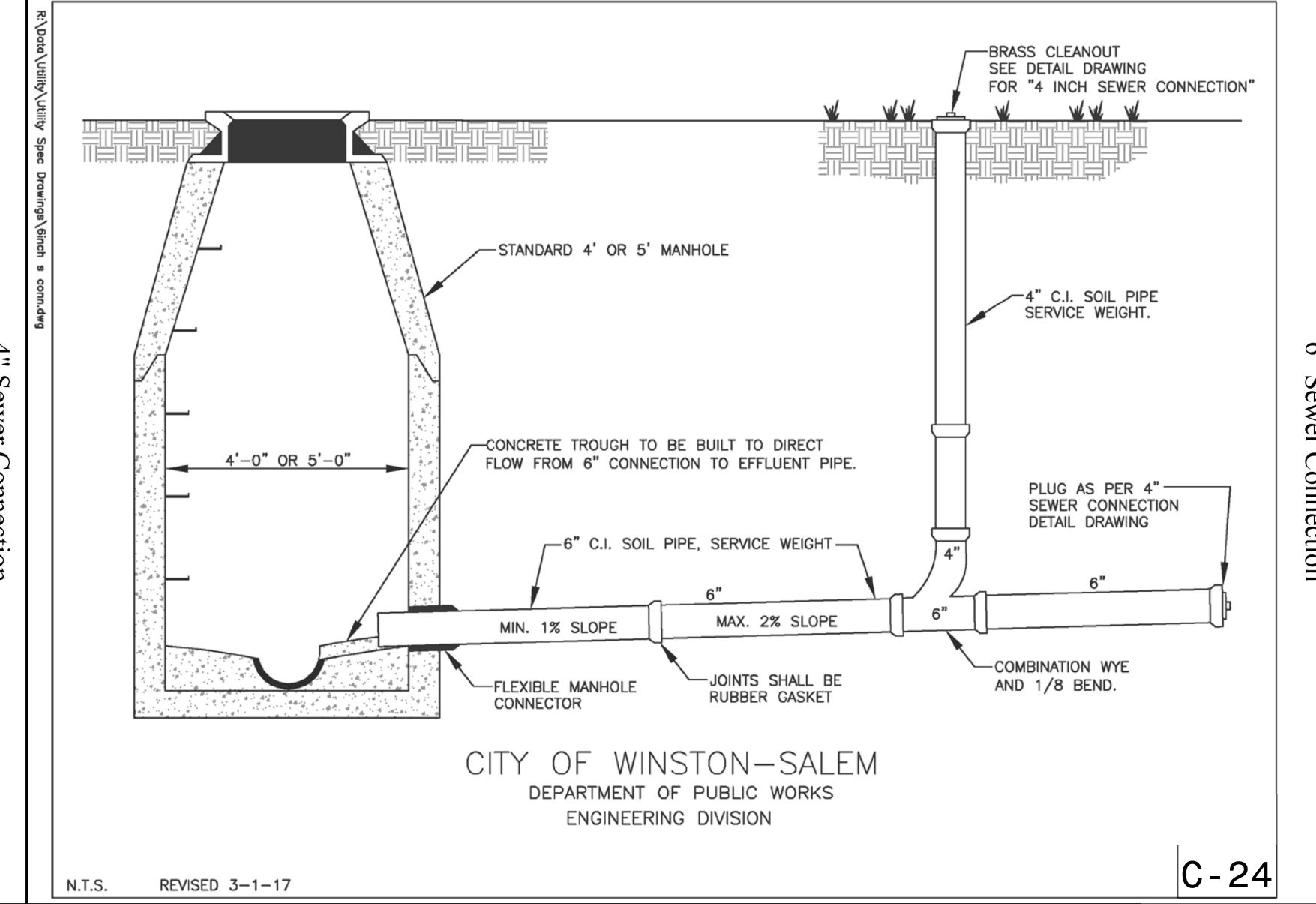
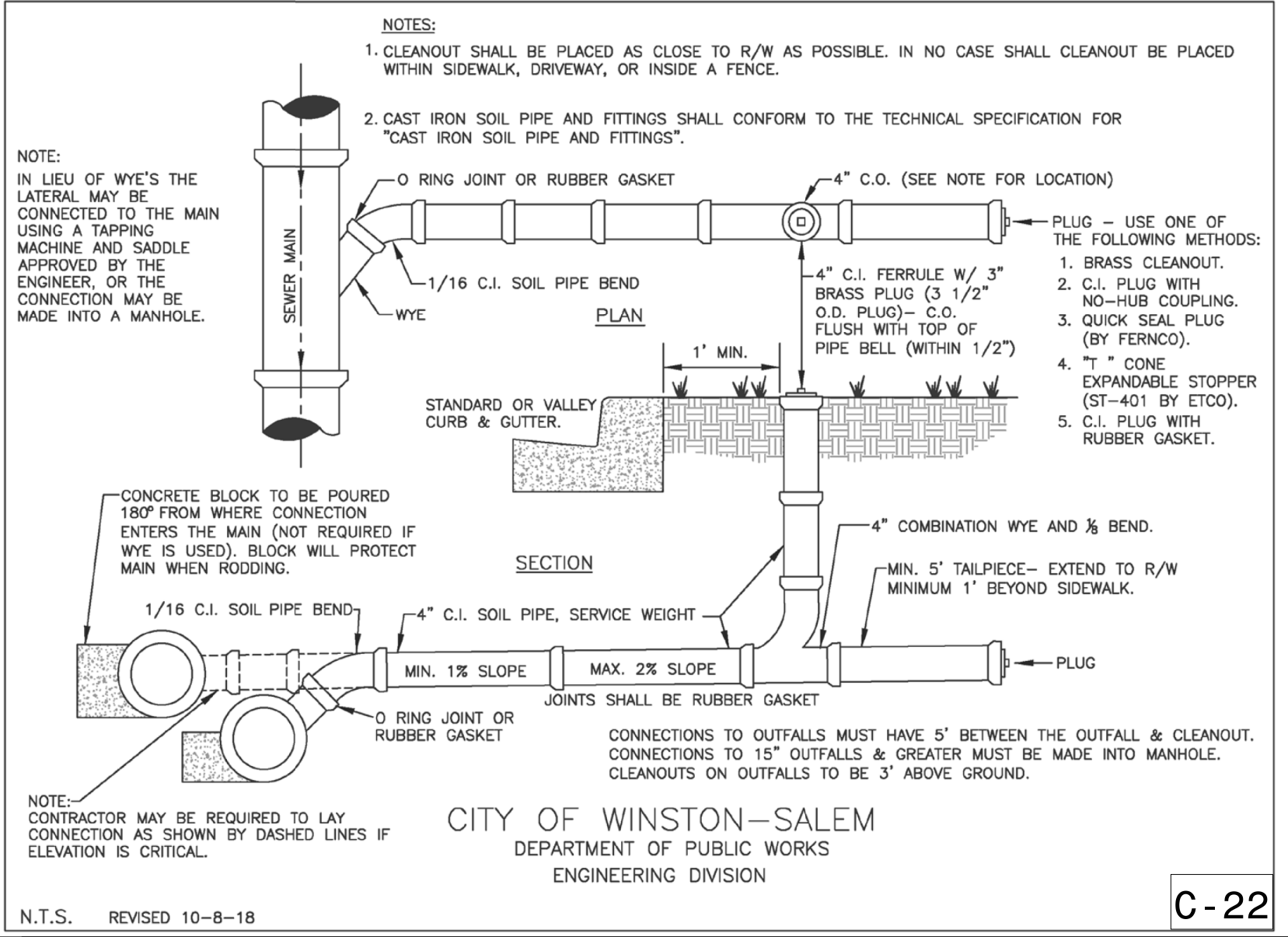
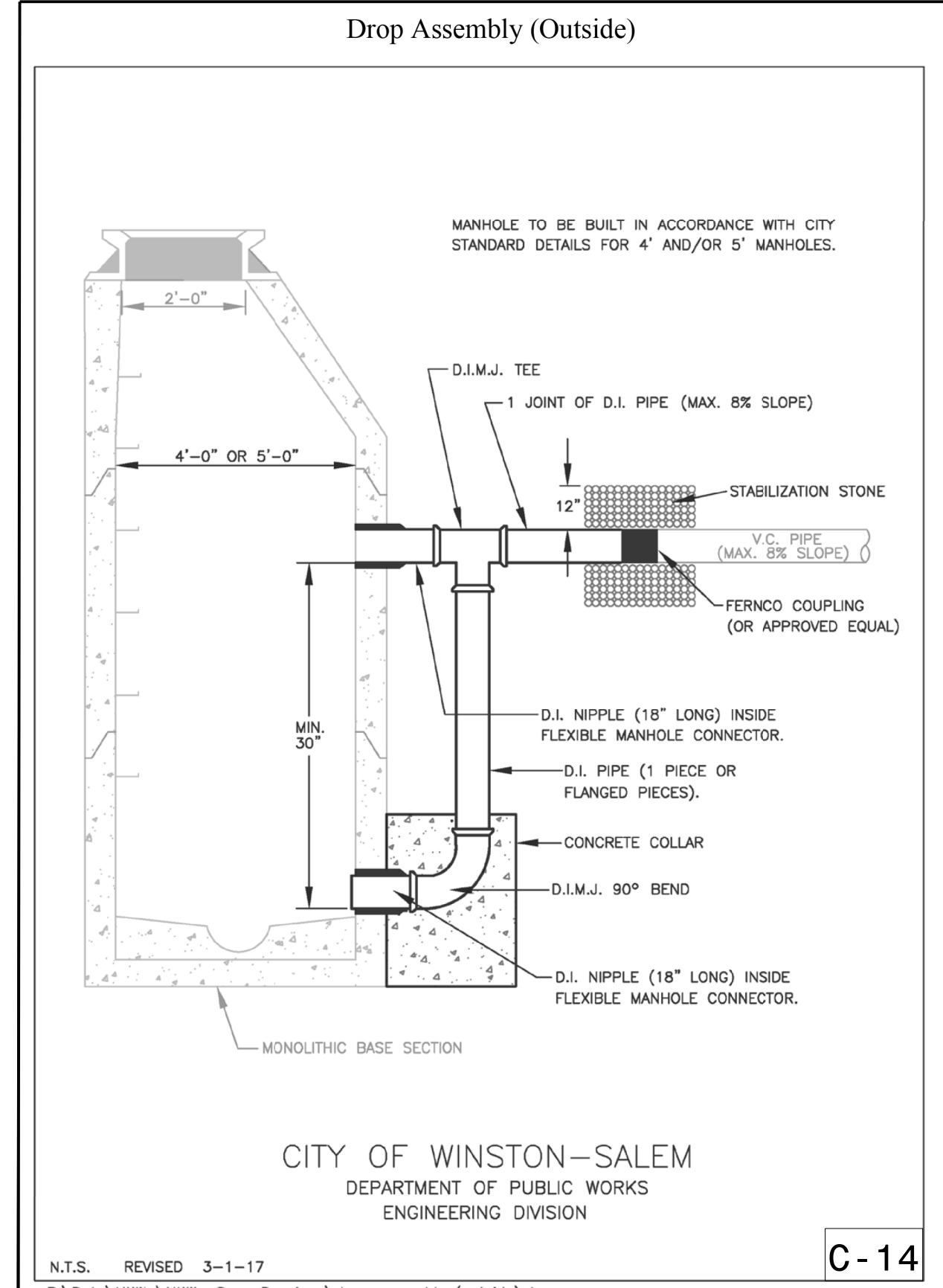
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USER: MICHAEK

5/14/17

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PROJECT REFERENCE NO.	SHEET NO.
U-5536	UC-03B
DESIGNED BY: PRJ	
DRAWN BY: SSM	
CHECKED BY: MAP	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
UTILITY CONSTRUCTION PLANS ONLY	

# PROJECT TYPICAL DETAILS



SYSTEME Ut dt1 LUC03a\_psh.dgn  
LISEF, MTDPEK



5/14/19

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PROJECT REFERENCE NO. U-5536	SHEET NO. UC-03D
DESIGNED BY: PRJ	
DRAWN BY: SSM	
CHECKED BY: MAP	
APPROVED BY:	
REVISED:	NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151

# PROJECT TYPICAL DETAILS

### Cast Iron Meter Box for 5/8" and 1" Meters

**NOTES:**

- MINIMUM WEIGHTS:  
A- 5/8" BOX w/COVER...103 LBS.  
B- 1" BOX w/COVER...120 LBS.
- METER BOX WILL CONFORM TO ASTM A48, CLASS 30B.
- 5/8" BOX DIMENSIONS ARE SHOWN
- 1" METER BOX IS 6" LONGER THAN 5/8" BOX. ALL OTHER DIMENSIONS ARE SAME AS SHOWN.

**CITY OF WINSTON-SALEM**  
DEPARTMENT OF PUBLIC WORKS  
ENGINEERING DIVISION

N.T.S. REVISED 6-19-20  
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**C-49**

### Cast Iron Valve Box

**NOTES:**

- VALVE BOX WILL CONFORM TO ASTM A48, CLASS 30 B
- MINIMUM WEIGHTS:  
COVER..... 29 LBS.  
TOP SECTION..... 60 LBS.  
BOTTOM SECTION..... 49 LBS.  
TOTAL..... 138 LBS.

**CITY OF WINSTON-SALEM**  
DEPARTMENT OF PUBLIC WORKS  
ENGINEERING DIVISION

N.T.S. REVISED 3-1-17  
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**C-39**

### Concrete Thrust Blocks for Horizontal Bends

FITTING	PIPE SIZE (INCHES)									
	2	4	6	8	12	16	20	24	30	36
90° BEND	1.0	2.0	2.5	3.5	5.0	6.5	8.0	10.0	12.0	14.5
45° BEND	1.0	1.5	2.0	2.5	4.0	5.0	6.0	7.0	9.0	10.5
22 1/2° BEND	0.5	1.0	1.5	2.0	3.0	3.5	4.5	5.0	6.5	7.5
11 1/4° BEND	0.5	1.0	1.0	1.5	2.0	2.5	3.0	4.0	4.5	5.5
PLUG/TEE	1.0	1.5	2.5	3.0	4.5	5.5	7.0	8.0	10.0	12.0

**CITY OF WINSTON-SALEM**  
DEPARTMENT OF PUBLIC WORKS  
ENGINEERING DIVISION

N.T.S. REVISED 3-1-17  
R:\Data\Utility\Utility Spec Drawings\concrete thrust block horizontal.dwg

**C-43**

### Concrete Thrust Blocks w/ Anchors for Top Vertical Bends

FITTING	PIPE SIZE (INCHES)				
	4	6	8	12	16
90° BEND	2.0	3.5	6.0	12.0	21.0
45° BEND	1.0	2.0	3.0	6.5	11.5
22 1/2° BEND	0.5	1.0	1.5	3.5	6.0
11 1/4° BEND	0.2	0.5	1.0	2.0	3.0

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ENGINEERING DIVISION

N.T.S. 3-1-17  
R:\Data\Utility\Utility Spec Drawings\concrete thrust block vertical.dwg

**C-44**

## UTILITY CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

### Hydrant and Valve Installation

**NOTES:**

- HYDRANTS, VALVES AND THEIR ACCESSORIES ARE TO BE FURNISHED AS SPECIFIED IN THE TECHNICAL SPECIFICATIONS OF THE ENGINEERING DIVISION OF THE CITY OF WINSTON-SALEM, N.C.
- ANY JOINTS BETWEEN THE VALVE AND HYDRANT MUST HAVE RETAINER GLANDS.

■ = PAY LIMITS FOR "HYDRANT".

**CITY OF WINSTON-SALEM**  
DEPARTMENT OF PUBLIC WORKS  
ENGINEERING DIVISION

N.T.S. REVISED 3-1-17  
R:\Data\Utility\Utility Spec Drawings\hydrant & valve installation.dwg

**C-41**

### Polymer Concrete Meter Box for 1 1/2" and 2" Meters

**CITY OF WINSTON-SALEM**  
DEPARTMENT OF PUBLIC WORKS  
ENGINEERING DIVISION

N.T.S. REVISED 3-1-17  
R:\Data\Utility\Utility Spec Drawings\concrete meter box.dwg

**C-50**

### Valve Box Installation

**CITY OF WINSTON-SALEM**  
DEPARTMENT OF PUBLIC WORKS  
ENGINEERING DIVISION

N.T.S. REVISED 3-1-17  
R:\Data\Utility\Utility Spec Drawings\valve box installation.dwg

**C-40**

### Typical 3/4" Thru 2" Backflow Preventer Installations

Subject to Approval by Plumbing Code Enforcement Official

Size	Qty	Plastic Box	Size	Qty	Quartzite Box
3/4" thru 1"	(2)	13x24x12	3/4" thru 1"	(2)	17x30x12
1-1/2" thru 2"	(2)	17x30x18	1-1/2" thru 2"	(2)	24x36x18

*Pavement installation not recommended*

Size	Slab Size
3/4" thru 1"	19x34x4
1-1/2" thru 2"	24x48x4
2" Detector Check	30x48x4

- Use #57 stone in bottom of box
- Extend drain to 2" above stone
- Install perforated or slotted cover over drain
- Protect mouse holes from erosion
- Provide minimum 2" drain for double check (detector) assemblies
- Provide adequate drainage for reduced pressure (detector) assemblies

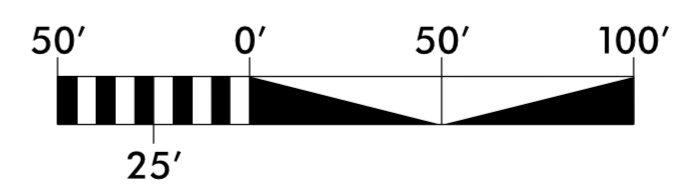
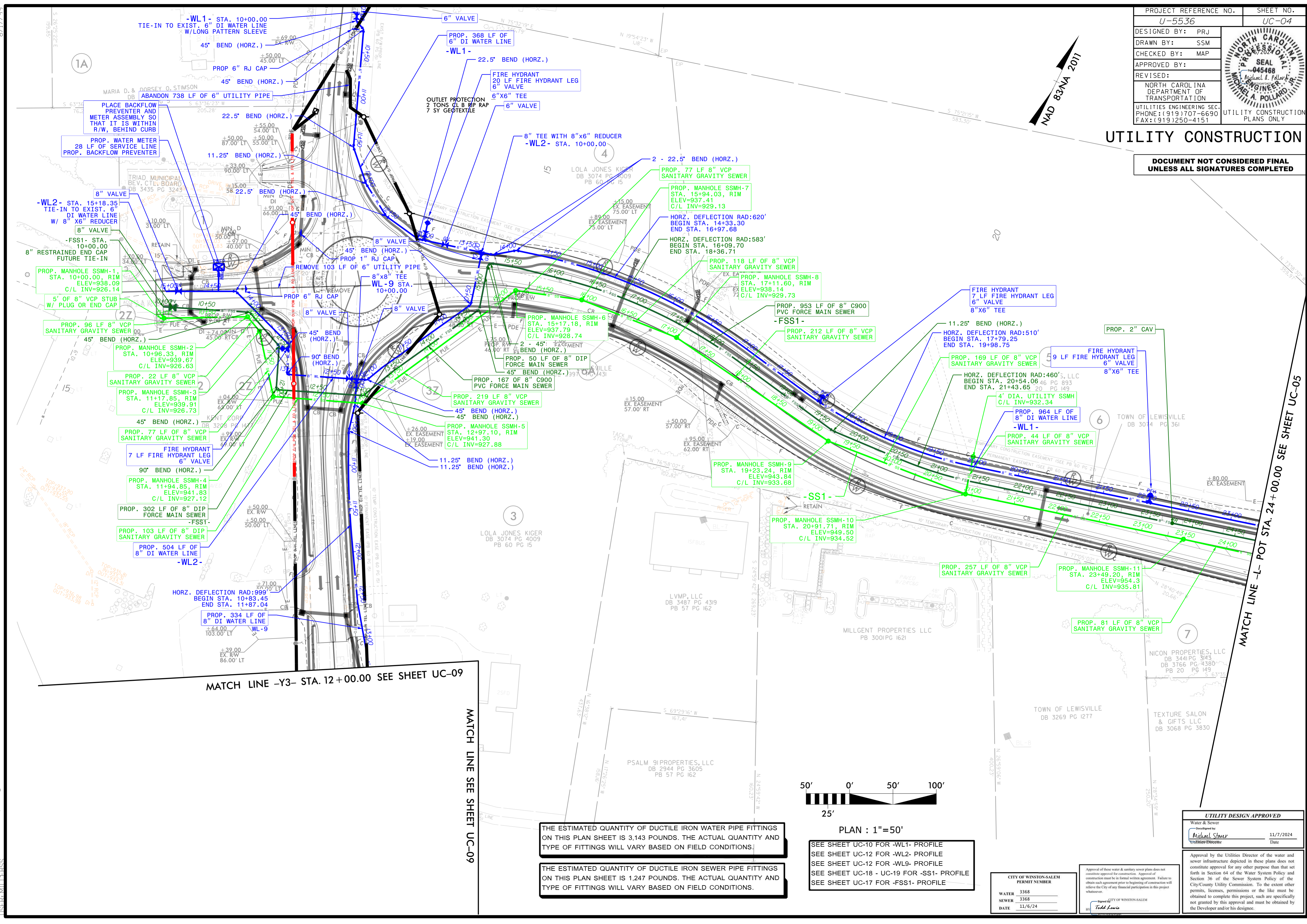
**NOTE:** Drain size for reduced pressure (detector) assemblies should be determined by a design professional or in accordance with manufacture recommendations.

**NOTE:** It is not recommended to alter enclosure or insulation to achieve a closing fit.

PROJECT REFERENCE NO. U-5536	SHEET NO. UC-04
DESIGNED BY: PRJ	
DRAWN BY: SSM	
CHECKED BY: MAP	
APPROVED BY:	
REVISID:	UTILITY CONSTRUCTION PLANS ONLY
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	

# UTILITY CONSTRUCTION

**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**



PLAN : 1"=50'

THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 3,143 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

THE ESTIMATED QUANTITY OF DUCTILE IRON SEWER PIPE FITTINGS ON THIS PLAN SHEET IS 1,247 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

SEE SHEET UC-10 FOR -WL1- PROFILE  
 SEE SHEET UC-12 FOR -WL2- PROFILE  
 SEE SHEET UC-12 FOR -WL9- PROFILE  
 SEE SHEET UC-18 - UC-19 FOR -SS1- PROFILE  
 SEE SHEET UC-17 FOR -FSS1- PROFILE

CITY OF WINSTON-SALEM PERMIT NUMBER	3368
SEWER	3368
DATE	11/6/24

Approval of these water & sanitary sewer plans does not constitute approval for construction. Approval of construction must be in formal written agreement. Failure to obtain such agreement prior to beginning of construction will relieve the City of any financial participation in this project whatsoever.

City of Winston-Salem  
 Todd Lewis

**UTILITY DESIGN APPROVED**

Water & Sewer  
 Designed by: Michael Stover  
 Verified by: Michael Stover  
 Date: 11/7/2024

Approval by the Utilities Director of the water and sewer infrastructure depicted in these plans does not constitute approval for any other purpose than that set forth in Section 64 of the Water System Policy and Section 36 of the Sewer System Policy of the City/County Utility Commission. To the extent other permits, licenses, permissions or the like must be obtained to complete this project, such are specifically not granted by this approval and must be obtained by the Developer and/or his designee.

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11/16/24 10:55:33 AM  
USER: MTP-EGG

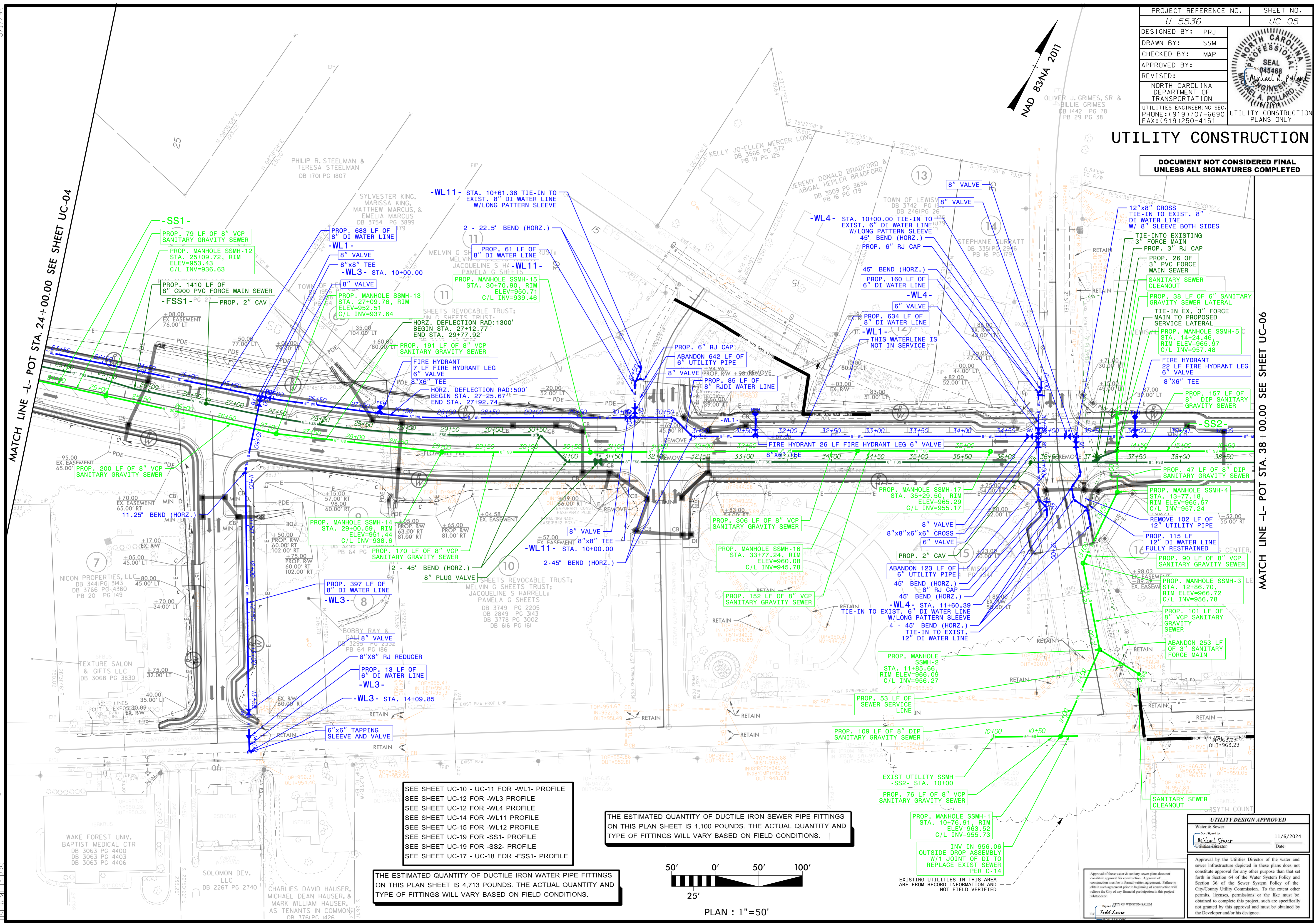
8/17/2019



PROJECT REFERENCE NO. U-5536	SHEET NO. UC-05
DESIGNED BY: PRJ	
DRAWN BY: SSM	
CHECKED BY: MAP	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
UTILITY CONSTRUCTION PLANS ONLY	

# UTILITY CONSTRUCTION

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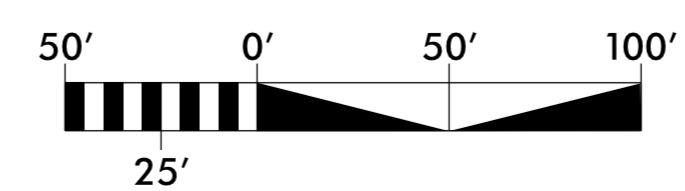
MATCH LINE -L- POT STA. 24+00.00 SEE SHEET UC-04

MATCH LINE -L- POT STA. 38+00.00 SEE SHEET UC-06

SEE SHEET UC-10 - UC-11 FOR -WL1- PROFILE  
 SEE SHEET UC-12 FOR -WL3 PROFILE  
 SEE SHEET UC-12 FOR -WL4 PROFILE  
 SEE SHEET UC-14 FOR -WL11 PROFILE  
 SEE SHEET UC-19 FOR -SS1- PROFILE  
 SEE SHEET UC-19 FOR -SS2- PROFILE  
 SEE SHEET UC-17 - UC-18 FOR -FSS1- PROFILE

THE ESTIMATED QUANTITY OF DUCTILE IRON SEWER PIPE FITTINGS ON THIS PLAN SHEET IS 1,100 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 4,713 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.



PLAN : 1"=50'

Approval of these water & sanitary sewer plans does not constitute approval for construction. Approval of construction must be in formal written agreement. Failure to obtain such agreement prior to beginning of construction will relieve the City of any financial participation in this project whatsoever.

City of Winston-Salem  
 Michael R. Pollard  
 11/6/2024  
 Date

UTILITY DESIGN APPROVED

Water & Sewer  
 Michael R. Pollard  
 11/6/2024  
 Date

Approval by the Utilities Director of the water and sewer infrastructure depicted in these plans does not constitute approval for any other purpose than that set forth in Section 64 of the Water System Policy and Section 36 of the Sewer System Policy of the City/City/County Utility Commission. To the extent other permits, licenses, permissions or the like must be obtained to complete this project, such are specifically not granted by this approval and must be obtained by the Developer and/or his designee.

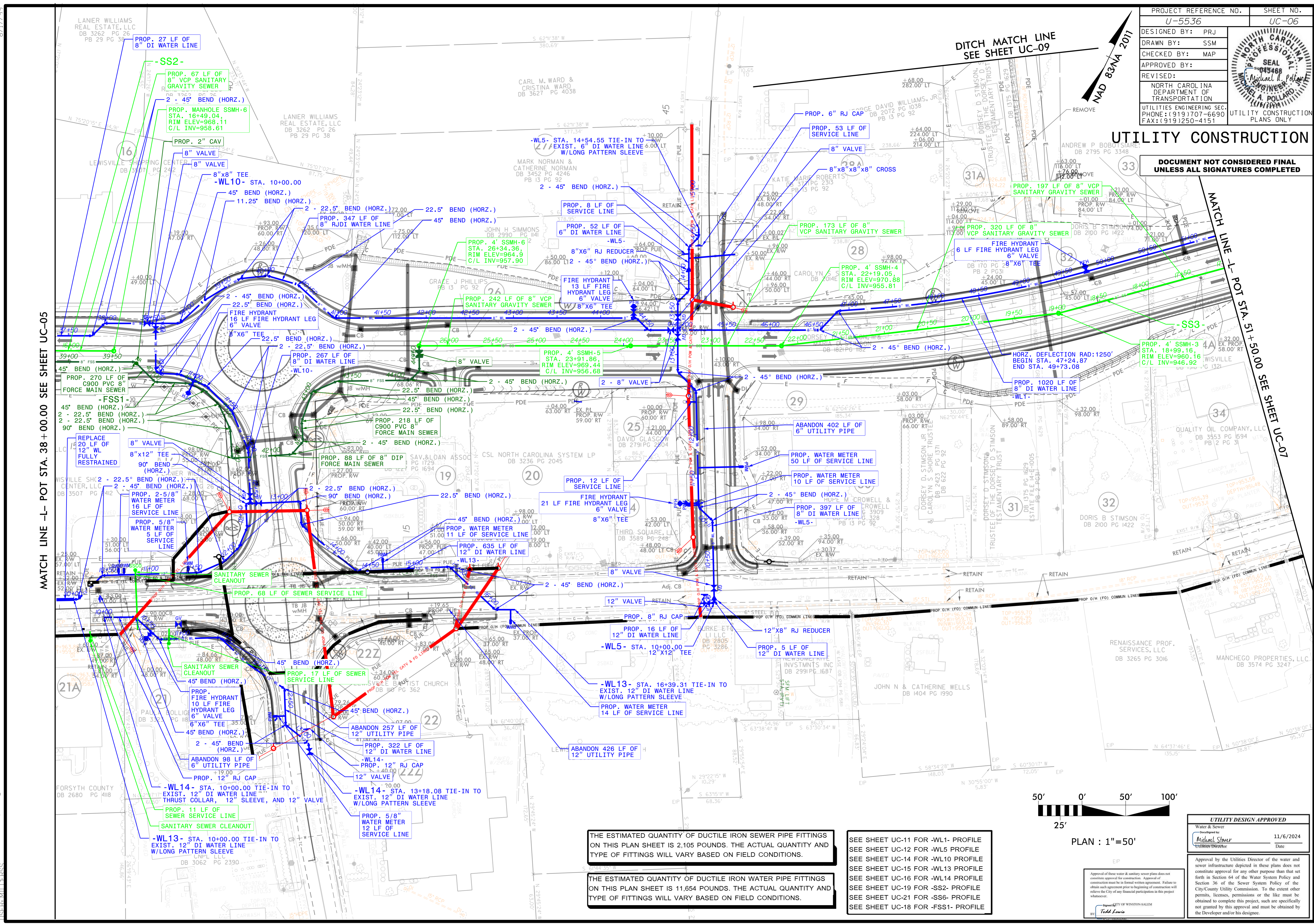
8/17/2019

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PROJECT REFERENCE NO.	SHEET NO.
U-5536	UC-06
DESIGNED BY: PRJ	
DRAWN BY: SSM	
CHECKED BY: MAP	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151 UTILITY CONSTRUCTION PLANS ONLY	

# UTILITY CONSTRUCTION

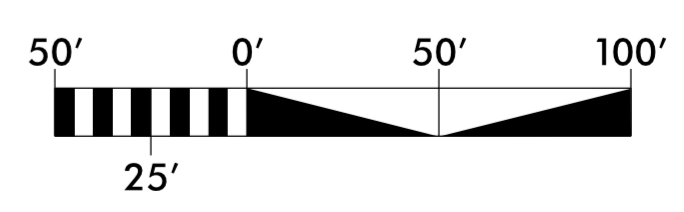
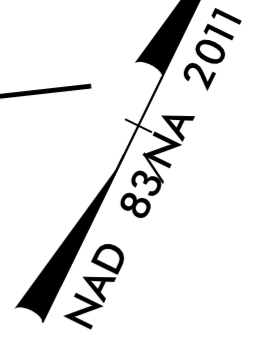
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MATCH LINE -L- POT STA. 38 + 00.00 SEE SHEET UC-05

MATCH LINE 1 - POT STA. 51 + 50.00 SEE SHEET UC-07

DITCH MATCH LINE SEE SHEET UC-09



PLAN : 1"=50'

THE ESTIMATED QUANTITY OF DUCTILE IRON SEWER PIPE FITTINGS ON THIS PLAN SHEET IS 2,105 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 11,654 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

SEE SHEET UC-11 FOR -WL1- PROFILE  
 SEE SHEET UC-12 FOR -WL5 PROFILE  
 SEE SHEET UC-14 FOR -WL10 PROFILE  
 SEE SHEET UC-15 FOR -WL13 PROFILE  
 SEE SHEET UC-16 FOR -WL14 PROFILE  
 SEE SHEET UC-19 FOR -SS2- PROFILE  
 SEE SHEET UC-21 FOR -SS6- PROFILE  
 SEE SHEET UC-18 FOR -FSS1- PROFILE

<b>UTILITY DESIGN APPROVED</b>	
Water & Sewer	11/6/2024
Michael Stover Utilities Director	Date
Approval by the Utilities Director of the water and sewer infrastructure depicted in these plans does not constitute approval for any other purpose than that set forth in Section 64 of the Water System Policy and Section 36 of the Sewer System Policy of the City/County Utility Commission. To the extent other permits, licenses, permissions or the like must be obtained to complete this project, such are specifically not granted by this approval and must be obtained by the Developer and/or his designee.	

Approval of these water & sewer plans does not constitute approval for construction. Approval of construction must be in formal written agreement. Failure to obtain such agreement prior to beginning of construction will relieve the City of any financial participation in this project whatsoever.

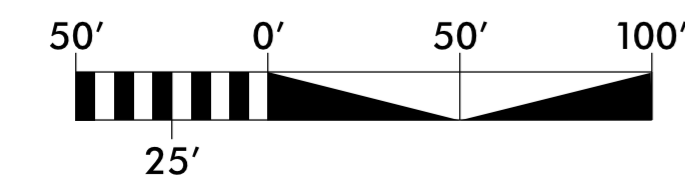
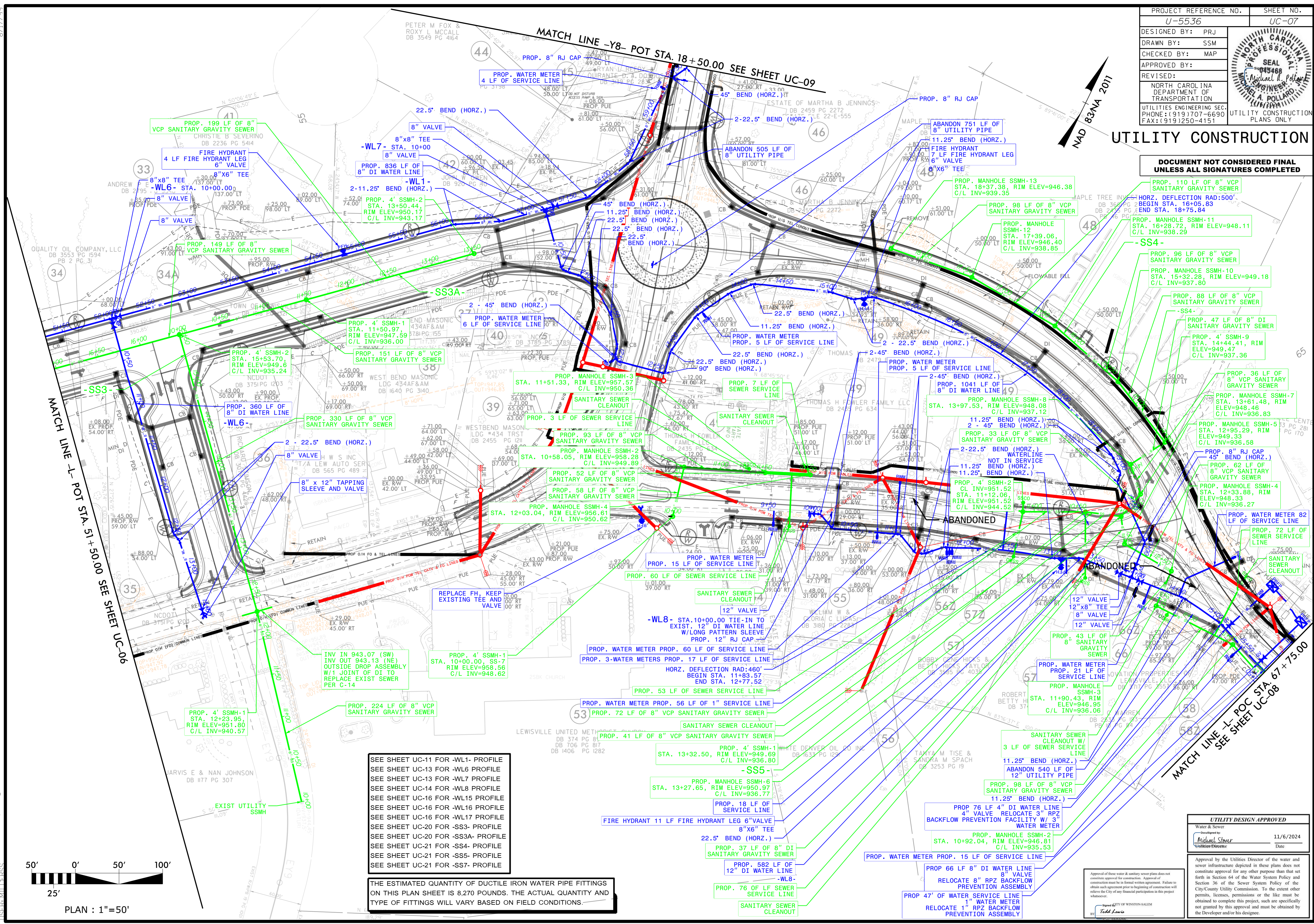
THOMAS COUNTY  
 T. Lewis

8/17/19  
 S:\T\ME\N\U5536-ut-UC06.psd.dgn  
 REVISIONS:

PROJECT REFERENCE NO. U-5536	SHEET NO. UC-07
DESIGNED BY: PRJ	
DRAWN BY: SSM	
CHECKED BY: MAP	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	

# UTILITY CONSTRUCTION

**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**



PLAN : 1"=50'

SEE SHEET UC-11 FOR -WL1- PROFILE  
 SEE SHEET UC-13 FOR -WL6 PROFILE  
 SEE SHEET UC-13 FOR -WL7 PROFILE  
 SEE SHEET UC-14 FOR -WL8 PROFILE  
 SEE SHEET UC-16 FOR -WL15 PROFILE  
 SEE SHEET UC-16 FOR -WL16 PROFILE  
 SEE SHEET UC-16 FOR -WL17 PROFILE  
 SEE SHEET UC-20 FOR -SS3- PROFILE  
 SEE SHEET UC-20 FOR -SS3A- PROFILE  
 SEE SHEET UC-21 FOR -SS4- PROFILE  
 SEE SHEET UC-21 FOR -SS5- PROFILE  
 SEE SHEET UC-21 FOR -SS7- PROFILE

THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 8,270 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

**UTILITY DESIGN APPROVED**  
 Water & Sewer  
 Michael R. Pollard  
 11/6/2024  
 Date

Approval of these water & sewer plans does not constitute approval for construction. Approval of construction must be in formal written agreement. Failure to obtain such agreement prior to beginning of construction will relieve the City of any financial participation in this project whatsoever.  
 T. Louis  
 CITY OF WINSTON-SALEM

8/17/2019  
 S:\D\ME\N\U5536-ut-UC07\_psh.dgn  
 TERRY MITCHELL