STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

BP10-R013

T.I.P. NO.

UC-1

SHEET NO.

# UTILITY CONSTRUCTION PLANS MECKLENBURG COUNTY

LOCATION: BRIDGE #590165 COFFEY CREEK ON SR 5469 (SHOPTON RD) TYPE OF WORK: WATER LINE RELOCATION & SANITARY SEWER RELOCATION \( \sigma\_{\circ} \) NORTH CAROLINA

END STATE PROJECT TIP BP10-R013 -L-STA.30+43.05

BEGIN STATE PROJECT TIP BP10-R013 -L-STA. 13 + 81.76

VICINITY MAP

● ● DETOUR

BEGIN PROJECT

**UC-4** 

N.T.S.

**UC-5** BEGIN BRIDGE -L- STA. 20 + 91.75 END BRIDGE

SIZE 12-INCH 1307 LF TOTAL NO. OF FIRE HYDRANTS:

**SUMMARY OF SEWER MAINS & MANHOLES** 8-INCH

SUMMARY OF WATER MAINS & FIRE HYDRANTS

LENGTH

36-INCH 155 LF TOTAL NO. OF MANHOLES:

> DOCUMENT NOT CONSIDERED FINAL UNTIL ALL SIGNATURES ARE COMPLETED

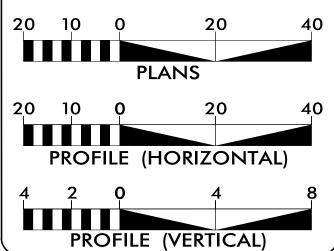
THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF THE CITY OF CHARLOTTE. CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.

UC-4 THRU UC-7

BEGIN CONSTRUCTION TIP BP10-R013

# **GRAPHIC SCALES**

-L-STA. 13 + 45.00



### INDEX OF SHEETS

**DESCRIPTION:** SHEET NO.: TITLE SHEET PERMIT SHEET UC-1A *UC*–2 UTILITY SYMBOLOGY **NOTES** UC-3A THRU UC-3H DETAILS

UC-8 THRU UC-10 UTILITY PROFILE SHEET

UTILITY CONSTRUCTION SHEET

(A) WATER - CHARLOTTE WATER (B) SEWER - CHARLOTTE WATER

## WATER AND SEWER OWNERS ON PROJECT



-L- STA. 22 + 26.75

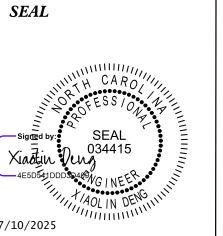
STANTEC CONSULTING Stantec SUITE 425
CHARLOTTE NC, 28202
(704) 329–0900 FAX: (704) 329–0905
License No.: F-0672 521 E. MOREHEAD ST

CONSULTANT CONTACT #3

-L-STA.31+17.00

XIAOLIN DENG, PE CONSULTANT CONTACT #1 TORIANNA KIRBY, PE CONSULTANT CONTACT #2

PREPARED IN THE OFFICE OF



END CONSTRUCTION TIP BP10-R013



**DIVISION OF HIGHWAYS** UTILITIES UNIT 716 W MAIN ST. ALBEMARLE NC 28001 PHONE (704) 983-4400 FAX (704) 982–3146

DIVISION UTILITY ENGINEER

YANWEI MA, P.E.

BRETT D. CANIPE, P.E. DIVISION ENGINEER ERIC "NAT" HUNTER, P.E. DIVISION CONSTRUCTION ENGR DIVISION BRIDGE PROGRAM MGR LYNN BASINGER

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CHARLOTTE
WOTTE

#### CHARLOTTE, NORTH CAROLINA

#### APPLICATION FOR NON-DISCHARGE PERMIT GRAVITY SEWER MAIN EXTENSION CHARLOTTE WATER

PROJECT NAME	BRIDGE #590165 COFFEY CREEK ON SR 5469 (SHOPTON RD)	CREEK BASIN	COFFEY
	30 LF OF 8-INCH SANITARY SEWER		
	155 LF OF 36-INCH SANITARY SEWER		
CLTWater PROJECT	NO.: CPM-40-25-213		
PROJECT TYPE: OTHER	NEW CONSTRUCTION RELOCATION MODIFICATION	OF PERMIT NO	
VOLUME OF WASTE ON 190 GAL/DAY/SI	EWATER GENERATED BY THIS PROJECT:* INGLE FAMILY HOUSEHOLD X* HOUSEH	GALLON	S PER DAY BASED
135 GAL/DAY/MULT	TI-FAMILY UNIT X* UNITS OR IS BASED ON	<b>I</b> :	
WASTEWATER TREA	ATMENT PLANT RECEIVING WASTEWATER:		
McALPINE CR	. (NC0024970) IRWIN CR. (NC0024945)	McDOWELL CR	(NC0036277)
SUGAR CR. (N	IC0024937) MALLARD CR. (NC0030210)	ROCKY CR. (NCC	036269)
NATURE OF WASTE	WATER <u>50</u> % DOMESTIC % INDUSTR		
	50% COMMERCIAL % OTHER _		
ORIGIN OF WASTEW	'ATER		
LIST ANY PARAMETE	R AND ITS CONCENTRATION THAT WILL BE GREATER THAN N	IORMAL DOMESTIC LEV	ELS:
IF WASTEWATER IS N	NON-DOMESTIC, DESCRIBE LEVEL OF PRETREATMENT:		
	DEDMIT IS DECLUDED THAS ONE DEEM ISSUEDS.		
	PERMIT IS REQUIRED, HAS ONE BEEN ISSUED? YES	∐NO	
PERMIT NO. FOR SEV	RMINED THAT DOWNSTREAM SEWERS ARE CAPABLE TO HA WERS IMMEDIATELY DOWNSTREAM* EWERS IMMEDIATELY DOWNSTREAM36-IN		YES NO
HAS ENGINEER DETE PROJECT? XYES	RMINED THAT NC DEM AND CLTWater MINIMUM DESIGN S	TANDARDS ARE MET BY	THIS
COMPLETE NAME AN	ND ADDRESS OF ENGINEERING DESIGN FIRM:		
	STANTEC CONSULTING SERVICES, INC. 521 E. MOREHEAD STREET, SUITE 425		
	CHARLOTTE, NC 28202		
TELEPHONE704	4 329 0900		
PROFESSIONAL ENGI	INEER'S CERTIFICATION:		
I,XIAOL	IN DENG, PE , ATTEST THAT THIS APPLICATION FOLLOWARD , AS BEEN REVIEWED BY ME AND		
	EDGE. I FURTHER ATTEST THAT TO THE BEST OF MY KNOWL		
	RDANCE WITH THE APPLICABLE REGULATIONS. ALTHOUGH C E BEEN DEVELOPED BY OTHER PROFESSIONALS, INCLUSION C		
	AL SIGNIFIES THAT I HAVE REVIEWED THIS MATERIAL AND HA		
THE PROPOSED DESI	GN. ROFESSIONAL ENGINEER'S SEAL, SIGNATURE, AND DATE:		
	WINTH CARO		
	S OF EDU ON THE		
	SEAL STANLIN DO34415		
	TE5D54 PDDD3D409		
	4/21/2025////////////////////////////////		
CLTWater PERMIT N	O ISSUED		
	ATION RECORDED BY:		
	BY:		
	JOSEPH C WILSON, P.E., CHIEF ENGINEER		



Stantec

Suite 425 Charlotte, NC 28202 Tel. (704) 329-0900 Fax. (704) 329-0905 www.stantec.com License No. F-0672

SHEET NO. PROJECT REFERENCE NO. BP10-R013 UC-1A DESIGNED BY: XMD Stantec Consulting Services Inc.

521 E. Morehead Street

CHECKED BY: YAAD CHECKED BY: XMD APPROVED BY: REVISED: NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC.
PHONE:(919)707-6690 UTILITY CONSTRUCTION
FAX:(919)250-4151 PLANS ONLY

#### UTILITY CONSTRUCTION



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

#### APPLICATION FOR PERMIT FOR WATER MAIN EXTENSION

CLTWater PROJECT No	O.:CPM-20-25-212
PROJECT DESCRIPTION	N: PROPOSED 1,307 L.F. OF 12" WATER MAIN WITH ASSOCIATED FITTINGS AT COFFEY CREEK ALONG SHOPTON ROAD IN CHARLOTTE, NC.
DESIGNED BY: FIRM:	STANTEC CONSULTING SERVICES, INC.
ENGINEER:	XIAOLIN DENG, PE
ADDRESS:	521 E. MOREHEAD STREET, SUITE 425 CHARLOTTE, NC 28202
PHONE:	(704) 372-1885
NORTH CAROLINA GE	NERAL STATUTES, AND SUCH OTHER STATUTES AS RELATED TO PUBLIC WATER SYSTEMS
NORTH CAROLINA GE CLTWater HAS BEEN O 15A NCAC 18C.1801. AND SPECIFICATIONS OF CLTWater OR ITS A STATE OF NORTH CAR AND UPON COMPLET	MADE UNDER AND IN FULL ACCORD WITH THE PROVISIONS OF CHAPTER 130A-317 OF TINERAL STATUTES, AND SUCH OTHER STATUTES AS RELATED TO PUBLIC WATER SYSTEMS GRANTED AUTHORITY TO ISSUE PERMITS FOR EXTENSION OF WATER MAINS PURSUANT THE APPLICANT AGREES THAT NO SIGNIFICANT CHANGE OR DEVIATION FROM THE PLAN APPROVED BY CLTWater WILL BE MADE WITHOUT THE WRITTEN CONSENT AND APPROVED BY CLTWATER WILL BE MADE WITHOUT THE WRITTEN CONSENT AND APPROVED IN TOUTHORIZED REPRESENTATIVE. A PROFESSIONAL ENGINEER LICENSED TO PRACTICE IN TOUTHOR SHALL SUBMIT A STATEMENT REFLECTING THAT ADEQUATE OBSERVATIONS DURING OF CONSTRUCTION INDICATES THAT CONSTRUCTION WAS COMPLETED IN ACCORDANS AND SPECIFICATIONS.
NORTH CAROLINA GE CLTWater HAS BEEN O 15A NCAC 18C.1801. AND SPECIFICATIONS OF CLTWater OR ITS A STATE OF NORTH CAR AND UPON COMPLET	NERAL STATUTES, AND SUCH OTHER STATUTES AS RELATED TO PUBLIC WATER SYSTEMS GRANTED AUTHORITY TO ISSUE PERMITS FOR EXTENSION OF WATER MAINS PURSUANT THE APPLICANT AGREES THAT NO SIGNIFICANT CHANGE OR DEVIATION FROM THE PLAN APPROVED BY CLTWater WILL BE MADE WITHOUT THE WRITTEN CONSENT AND APPROVED BY CLTWATER WILL BE MADE WITHOUT THE WRITTEN CONSENT AND APPROVED TO PRACTICE IN TAUTHORIZED REPRESENTATIVE. A PROFESSIONAL ENGINEER LICENSED TO PRACTICE IN TAUTHORIZED STATEMENT REFLECTING THAT ADEQUATE OBSERVATIONS DURING OF CONSTRUCTION INDICATES THAT CONSTRUCTION WAS COMPLETED IN ACCORDA
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NORTH CAROLINA GE CLTWater HAS BEEN OF 15A NCAC 18C.1801. AND SPECIFICATIONS OF CLTWater OR ITS ASTATE OF NORTH CARAND UPON COMPLET WITH APPROVED PLATE OF MORTH CARAND UPON COMPLET WITH APPROVED PLATE OF MORTH NO.	NERAL STATUTES, AND SUCH OTHER STATUTES AS RELATED TO PUBLIC WATER SYSTEMS GRANTED AUTHORITY TO ISSUE PERMITS FOR EXTENSION OF WATER MAINS PURSUANT THE APPLICANT AGREES THAT NO SIGNIFICANT CHANGE OR DEVIATION FROM THE PLAN APPROVED BY CLTWater WILL BE MADE WITHOUT THE WRITTEN CONSENT AND APPROVED BY CLTWATER WILL BE MADE WITHOUT THE WRITTEN CONSENT AND APPROVED TO PRACTICE IN TOLINA SHALL SUBMIT A STATEMENT REFLECTING THAT ADEQUATE OBSERVATIONS DURION OF CONSTRUCTION INDICATES THAT CONSTRUCTION WAS COMPLETED IN ACCORDANS AND SPECIFICATIONS.

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# STATE OF NORTH CAROLINA

**Stantec** 

PROJECT REFERENCE NO. SHEET NO. BP10-R013 UC-2 STV Engineers, Inc.
900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991

Stantec Consulting Services Inc. 521 E. Morehead Street Suite 425 Charlotte, NC 28202 Tel. (704) 329-0900 Fax. (704) 329-0905 www.stantec.com License No. F-0672

# UTILITIES PLAN SHEET SYMBOLS

## PROPOSED WATER SYMBOLS

# Water Line (Sized as Shown) 11⅓ 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	-12" SS-
Force Main Sewer Line(Sized as Shown)	<b>-</b> 12″ FSS
Manhole (Sized per Note)	
Sewer Pump Station PS(SS)	

### PROPOSED MISCELLANEOUS UTILITIES SYMBOLS

Power Pole ······ b	Thrust Block ·····
Telephone Pole	Air Release Valve
Joint Use Pole	Utility Vault
Telephone Pedestal	Concrete Pier
Utility Line by Others(Type as Shown)	Steel Pier
Trenchless Installation	Plan Note
Encasement by Open Cut	Pay Item Note
Encasement	PAY IIEM

#### EXISTING UTILITIES SYMBOLS

	EXISTING UTIL.	LITES SYMBULS
Power Pole ·····		*Underground Power Line
Telephone Pole	●-	*Underground Telephone Cable
Joint Use Pole		*Underground Telephone Conduit
Utility Pole		*Underground Fiber Optics Telephone Cable————————————————————————————————————
Utility Pole with Base	□	*Underground TV Cable
H-Frame Pole		*Underground Fiber Optics TV Cable
Power Transmission Line Tower	🔀	*Underground Gas Pipeline
Water Manhole	···· W	Aboveground Gas Pipeline
Power Manhole	··· • • •	*Underground Water Line
Telephone Manhole	···· ①	Aboveground Water Line
Sanitary Sewer Manhole	⊕	*Underground Gravity Sanitary Sewer Liness
Hand Hole for Cable	F <sub>H</sub>	Aboveground Gravity Sanitary Sewer Line A/G Sanitary Sewer
Power Transformer	··· 🗹	*Underground SS Force Main Line
Telephone Pedestal	··· T	Underground Unknown Utility Line
CATV Pedestal		SUE Test Hole
Gas Valve	···· <b>♦</b>	Water Meter
Gas Meter	···· • • • • • • • • • • • • • • • • •	Water Valve ····································
Located Miscellaneous Utility Object	⊙	Fire Hydrant
Abandoned According to Utility Records	AATUR	Sanitary Sewer Cleanout ⊕
End of Information	E.O.I.	

*For Existing Utilities
Utility Line Drawn from Record
Designated Utility Line

## **UTILITY CONSTRUCTION**

### **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.
- 2. THE EXISTING WATER AND SEWER
  UTILITIES BELONG TO CHARLOTTE WATER. THE
  CHARLOTTE WATER REPRESENTATIVE IS LOGAN
  HEDRICK. CONTACT LOGAN AT (980)
  253-4390.
- 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. 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 OF 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 SYSTEM 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, AND ON HOLIDAYS IF NECESSARY.
- 9. 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.

# GRAVITY SEWER SEQUENCE OF CONSTRUCTION

- INSTALL TEMPORARY BYPASS PUMPING FROM UPSTREAM MANHOLES TO DOWNSTREAM MANHOLES.
   PLUG EXISTING SANITARY GRAVITY SEWER LINES.
- 3. REMOVE EXISTING RCP SANITARY GRAVITY SEWER AND MANHOLES TO BE ABANDONED AS NECESSARY.
- 4. INSTALL NEW LINER PLATE TUNNEL AND RCP SANITARY GRAVITY SEWER AS INDICATED ON DRAWINGS WITH MANHOLES.
- 5. BACKFILL NEW SANITARY GRAVITY SEWERS.6. INSTALL CIPP LINER.
- 7. TEST NEW SANITARY GRAVITY SEWERS IN ACCORDANCE WITH CLTWATER STANDARDS.
  8. REMOVE TEMPORARY BYPASS PUMPING AND PLACE NEW GRAVITY SEWERS INTO OPERATION AFTER APPROVAL BY CLTWATER.

## PROJECT SPECIFIC NOTES:

- 1. IF THE PROPOSED WATER AND/OR SANITARY SEWER MAIN IS INSTALLED WITHIN 12" IN ANY DIRECTION (VERTICALLY OR HORIZONTALLY) OF A GAS MAIN, THEN THE CONTRACTOR SHALL CALL PIEDMONT NATURAL GAS COMPANY AT 704-525-5585 AND INFORM THEM.
- 2. WATER AND SEWER LINES ARE TO REMAIN ACTIVE DURING CONSTRUCTION. IF THIS IS NOT POSSIBLE, THEN THE CONTRACTOR SHALL FOLLOW THE SPECIAL PROVISIONS REGARDING OUTAGE, TEMPORARY SERVICE, AND BYPASS PUMPING.
- 3. ALL PROPOSED WATER LINES, UNLESS OTHERWISE INDICATED ON PLANS, ARE TO BE RESTRAINED JOINT DUCTILE IRON PIPE PRESSURE CLASS 350. ALL PROPOSED SEWER LINES, UNLESS OTHERWISE INDICATED ON PLANS, ARE TO BE DUCTILE IRON PIPE PRESSURE CLASS 250 WITH PROTECTO 401 LINING. RCP SEWER LINES SHALL BE MINIMUM CLASS IV WITH CIPP LINING.
- 4. CONTRACTOR TO MINIMIZE SHUTDOWN TIME OF 12" WATER LINE. COORDINATE SHUTDOWN WITH CHARLOTTE WATER AND LOCAL FIRE DEPARTMENT.



Stantec Consulting Services In 521 E. Morehead Street Suite 425 Charlotte, NC 28202 Tel. (704) 329-0900 Fax. (704) 329-0905 www.stantec.com License No. F-0672

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nc.	DRAWN BY: <b>TK</b>	III.W	CAROUNTH CAROUNT
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	UTILITIES ENGINEERING SEC. PHONE: (919)707-6690	7/10/202 UTIL	ITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION



## PROJECT TYPICAL DETAILS

Stantec Stantec Consulting Services Inc. | DRAWN BY:

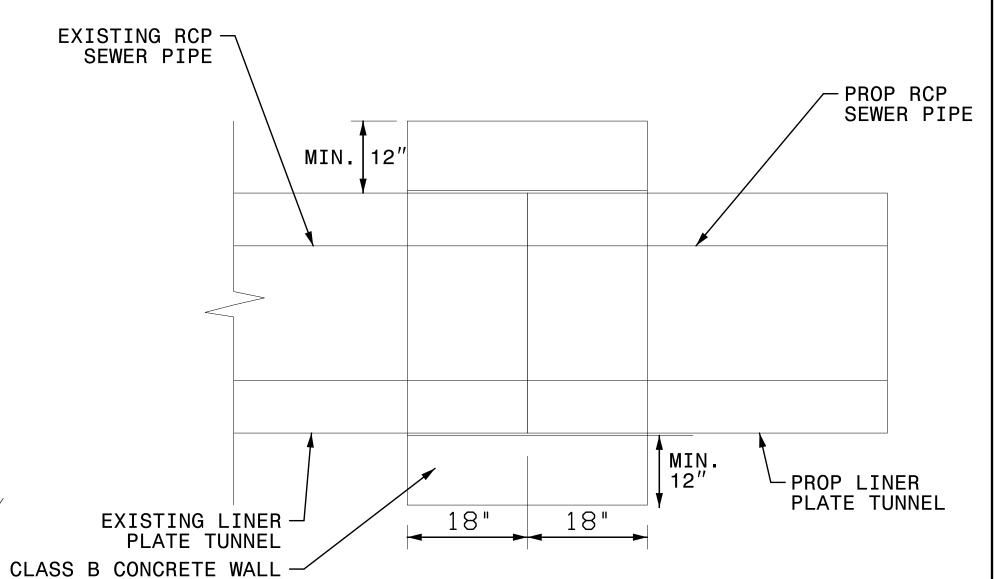
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PROJECT REFERENCE NO. SHEET NO. BP10-R013 UC-3A DESIGNED BY: XMD ΤK CHECKED BY: XMD APPROVED BY: REVISED: NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919)707-6690 UTILITY CONSTRUCTION FAX: (919)250-4151 PLANS ONLY

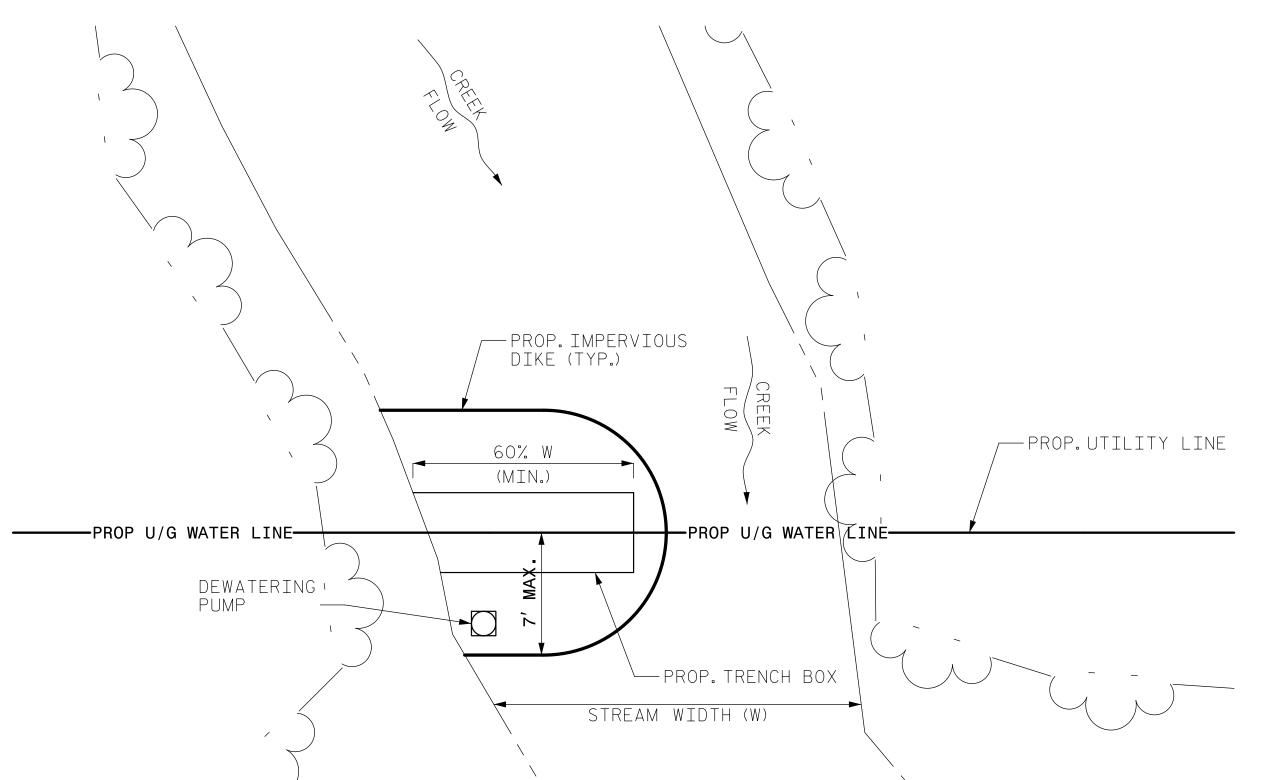
#### UTILITY CONSTRUCTION

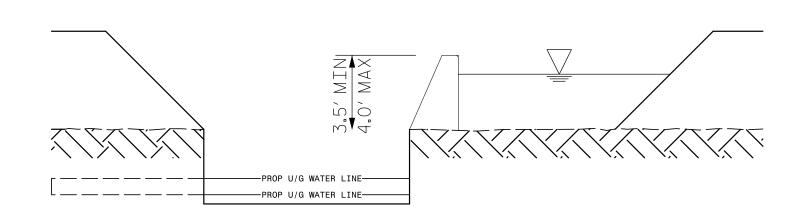


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900 West Trade St., Suite 715
Charlotte, NC 28202 **DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED** 



CONCRETE COLLAR FOR PROPOSED SEWER & TUNNEL CONNECTIONS





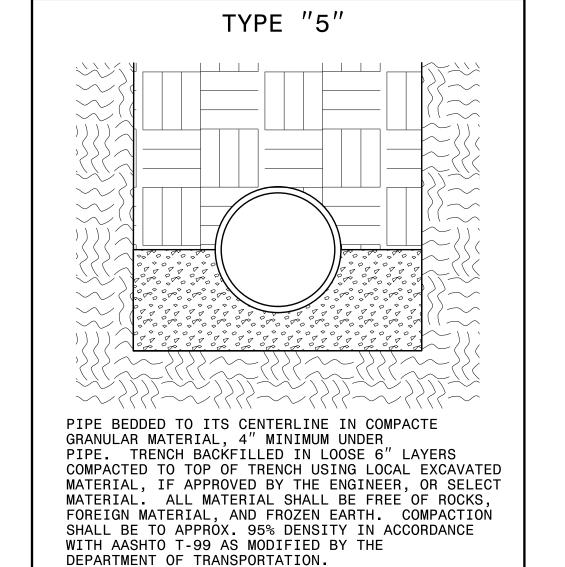
IMPERVIOUS DIKE SECTION

#### NOTES:

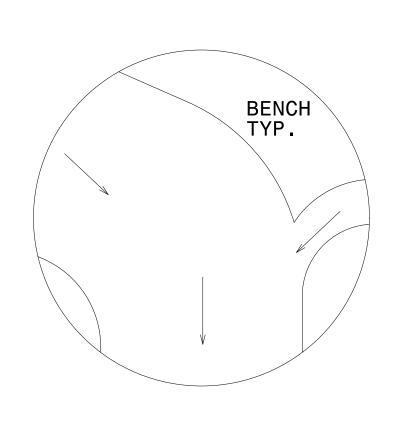
- 1. BASE FLOW OF STREAM WILL BE DIVERTED AROUND WORK AREA AND RELEASED BACK INTO EXISTING STREAM BELOW THE WORK AREA.
- 2. SANDBAG MATERIAL: SANDBAG SHALL BE WOVEN POLYPROPYLENE, POLYETHYLENE OR POLYAMIDE FABRIC, MINIMUM UNIT WEIGHT FOUR OUNCES PER SQUARE YARD, MULLEN BURST STRENGTH EXCEEDING 300 PSI IN CONFORMANCE WITH THE REQUIREMENTS IN ASTM DESIGNATION D3786, AND ULTRAVIOLET STABILITY EXCEEDING 70% IN CONFORMANCE WITH THE REQUIREMENTS IN ASTM DESIGNATION D4355. USE OF BURLAP IS NOT ACCEPTABLE.
- 3. SAND FOR SANDBAGS SHALL BE A MINIMUM 110LB/CU.FT MATERIAL.
- 4. THE CONTRACTOR SHALL TAKE WHATEVER PRECAUTIONS NECESSARY TO PROTECT THE EXISTING WATERLINE FROM LEAKS OR DAMAGE DURING THE EXCAVATION AND CONSTRUCTION OF THE PROPOSED WATERLINE.
- 5. IT IS THE CONTRACTORS RESPONSIBILITY TO FOLLOW ALL OSHA AND STATE SAFETY REQUIREMENTS PERTAINING TO THIS EXCAVATION.
- 6. ADDITIONAL EROSION CONTROL DEVICES MAY NEED TO BE INSTALLED AS DIRECTED BY THE ENGINEER.
- 7. PERFORM CROSSING DURING ANTICIPATED DRY WEATHER ONLY. INSTALL PROPOSED UTILITY IN A DRY TRENCH.
- 8. IMPERVIOUS DIKE TO BE APPROX 60% OF STREAM WIDTH.
- 9. ONCE PIPE IS INSTALLED, INSTALL IMPERVIOUS DIKE ON OPPOSITE SIDE OF CREEK AND INSTALL REMAINDER OF PIPE CROSSING.

## OPEN CUT CONSTRUCTION

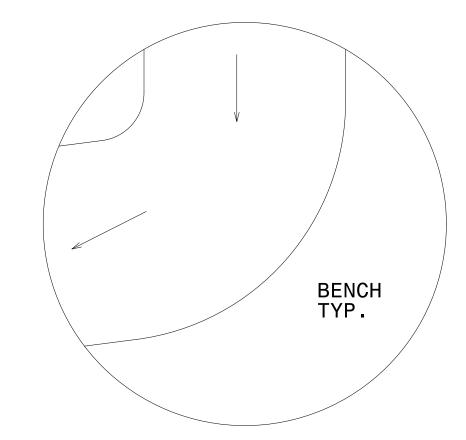
NOT TO SCALE



MAXIMUM TRENCH WIDTH AT TOP OF PIPE			
NOMINAL PIPE SIZE (INCHES)	TRENCH WIDTH (INCHES)	NOMINAL PIPE SIZE (INCHES)	TRENCH WIDTH (INCHES)
4 6 8 10 12 14 16 18	28 30 32 34 36 38 40 42	20 24 30 36 42 48 54	44 48 54 60 66 72 78



SSMH3 INVERT DETAIL



SSMH2 INVERT DETAIL

NOTE: FORM BENCH AND INVERTS TO CREATE SMOOTH TRANSITIONS

AROUND CONNECTION

## PROJECT TYPICAL DETAILS

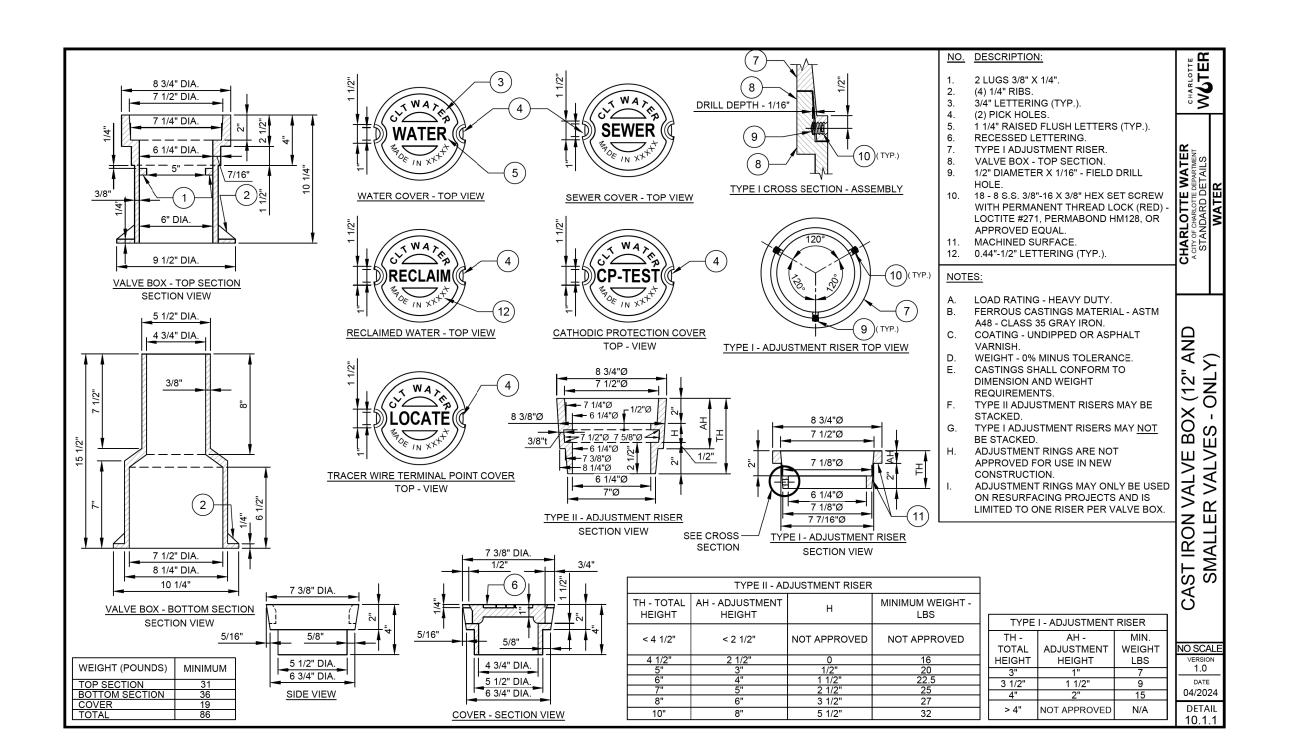
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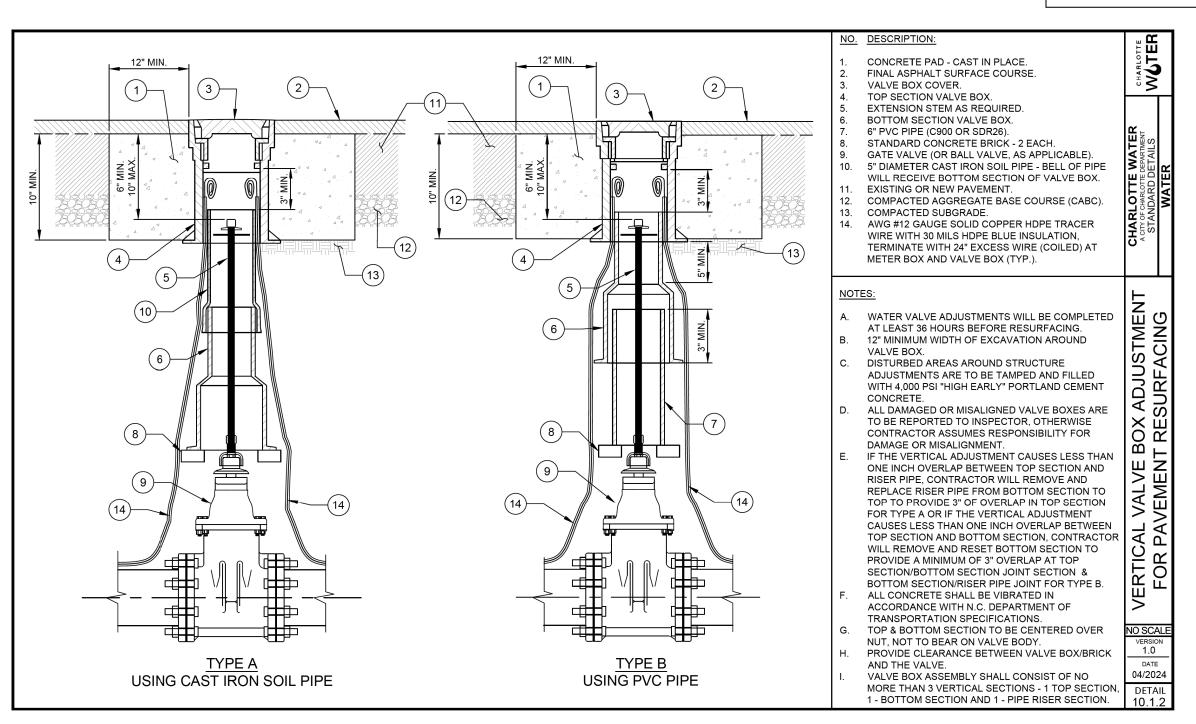
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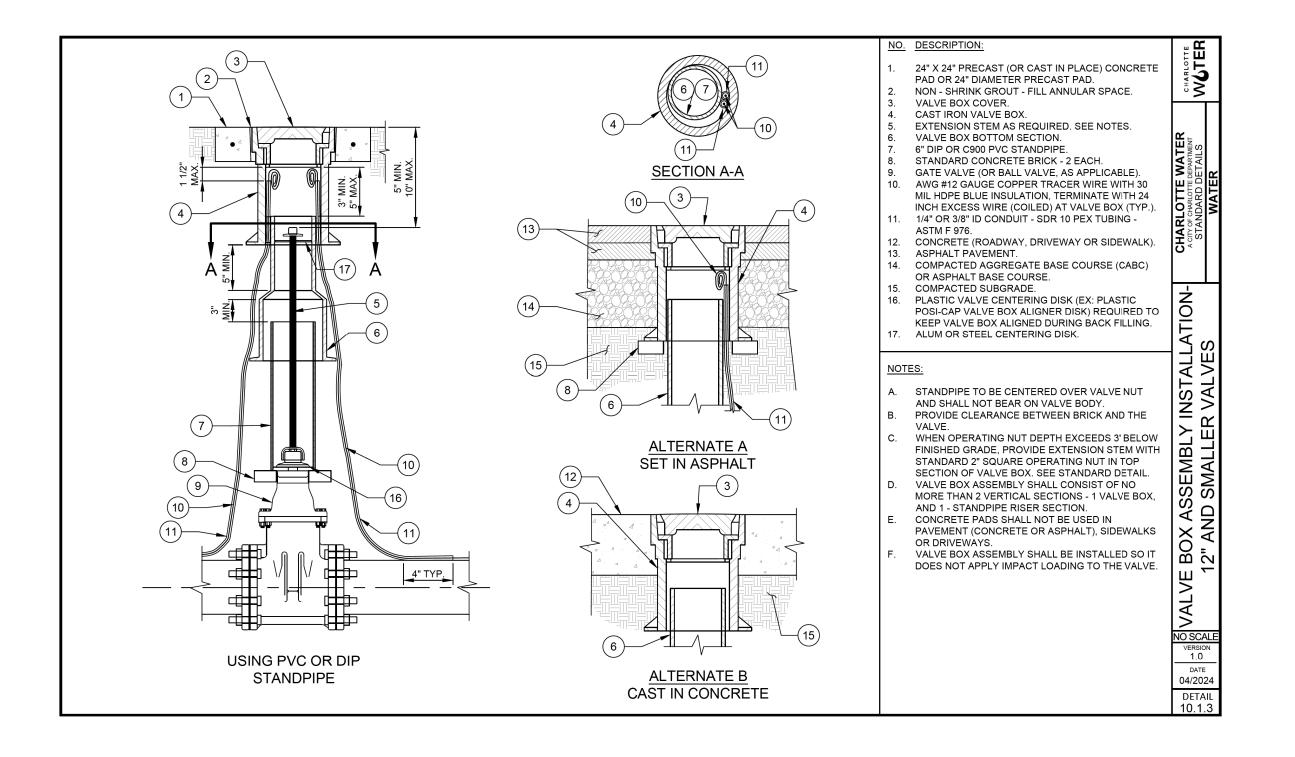
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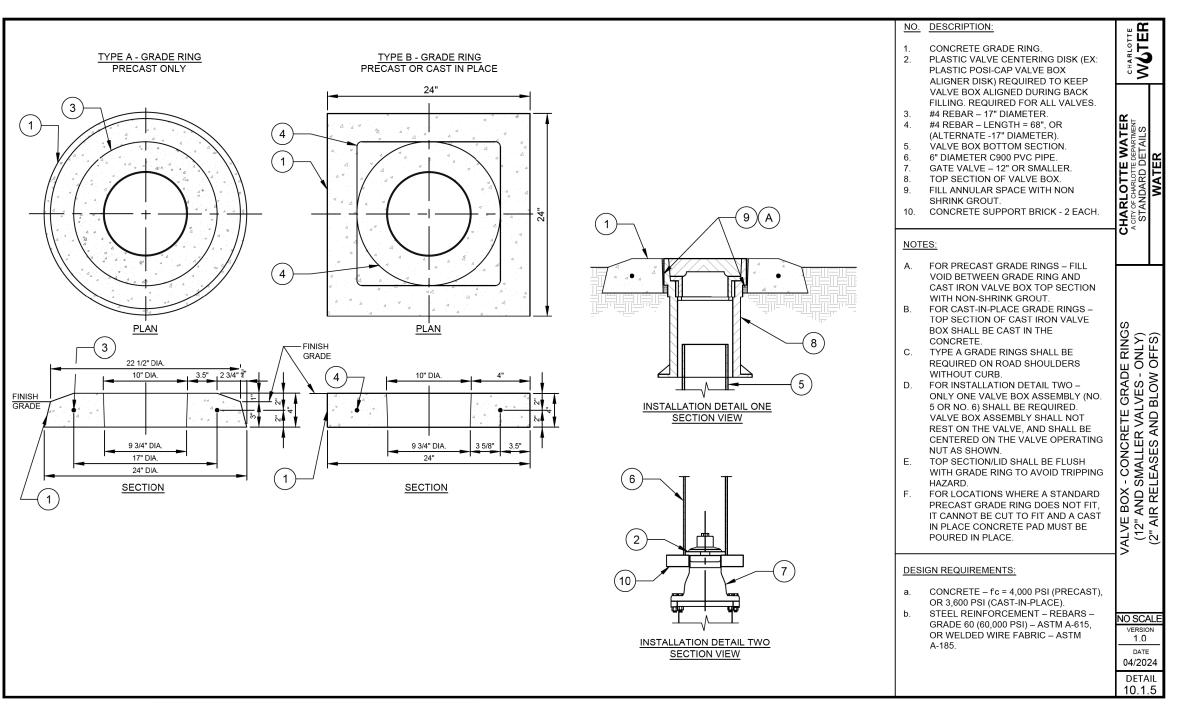
#### UTILITY CONSTRUCTION











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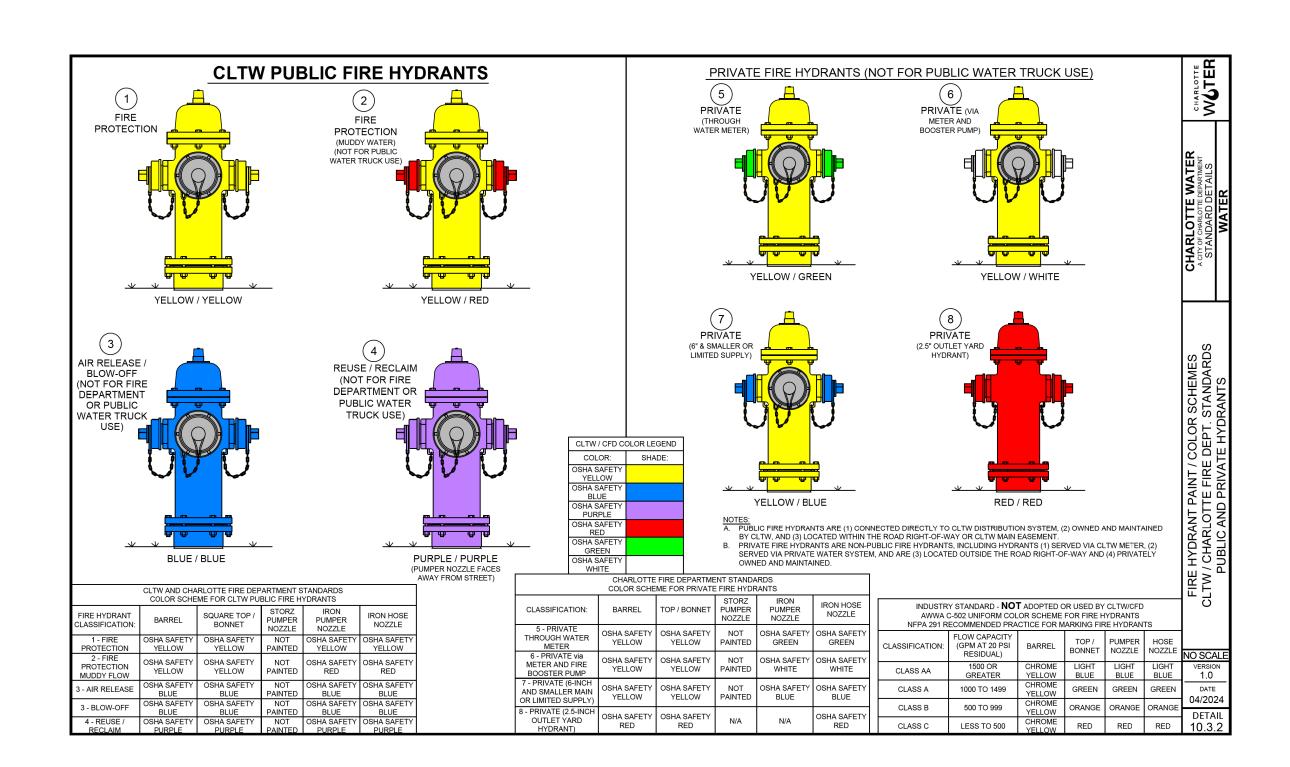
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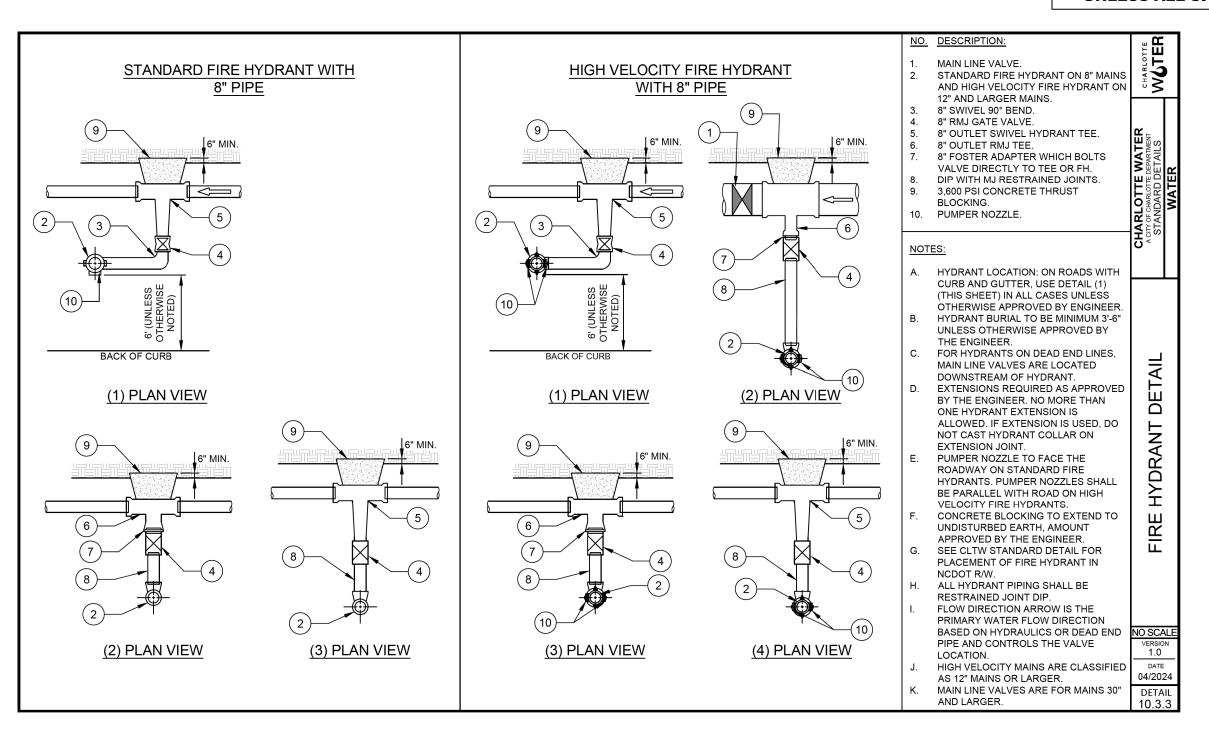
Stantec Consulting Services 521 E. Morehead Street Suite 425 Charlotte, NC 28202 Tel. (704) 329-0900 Fax. (704) 329-0905 www.stantec.com License No. F-0672

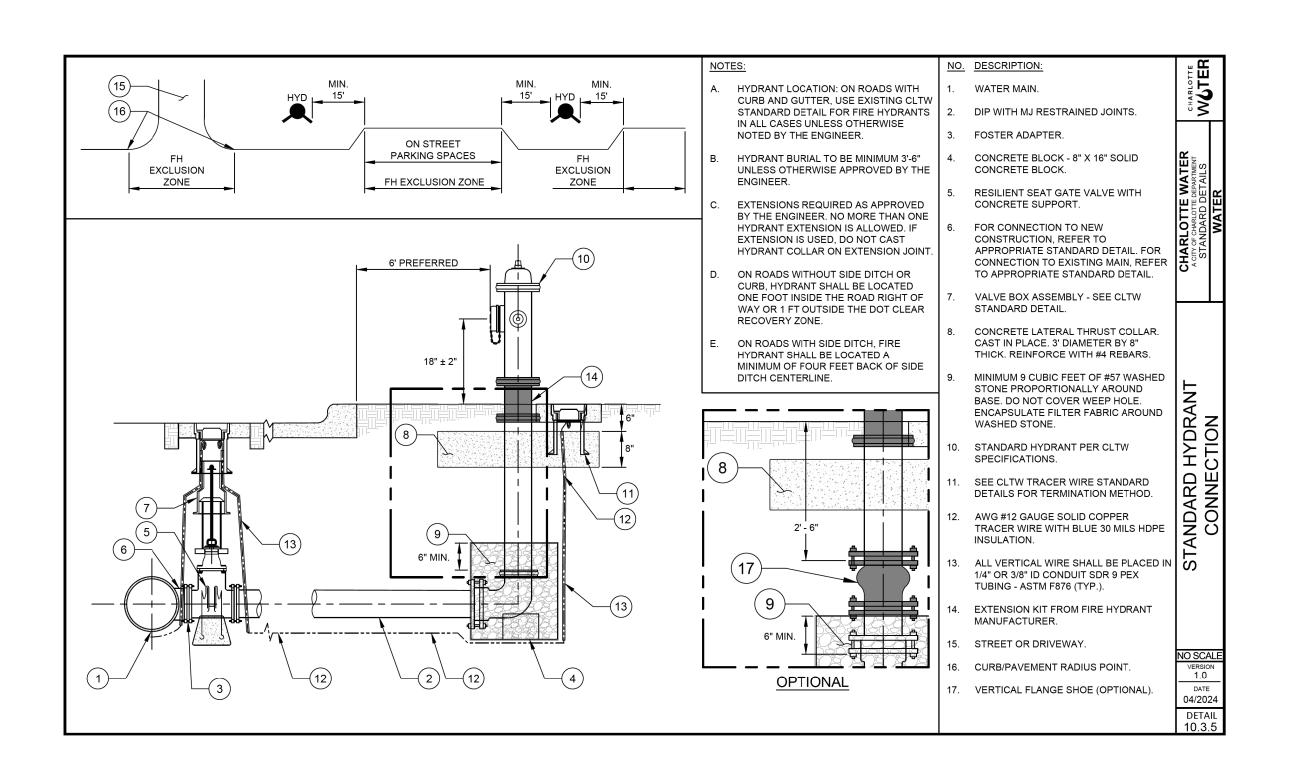
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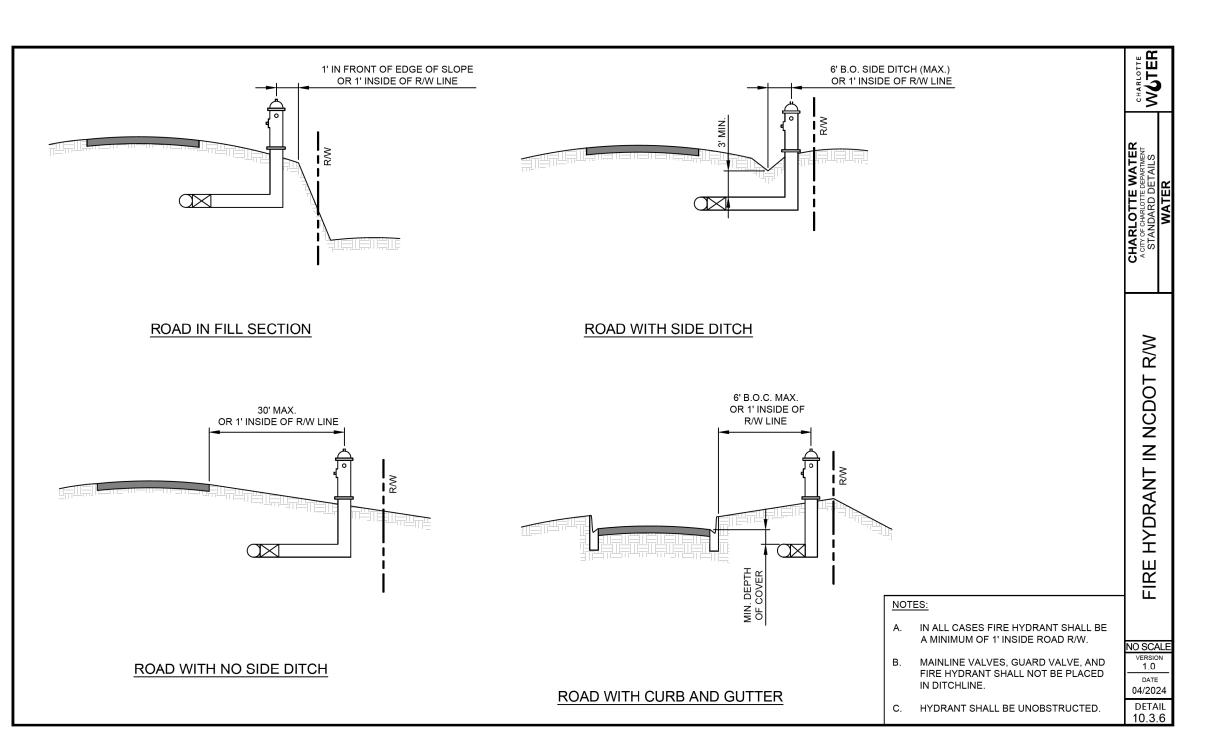
#### UTILITY CONSTRUCTION











## PROJECT TYPICAL DETAILS

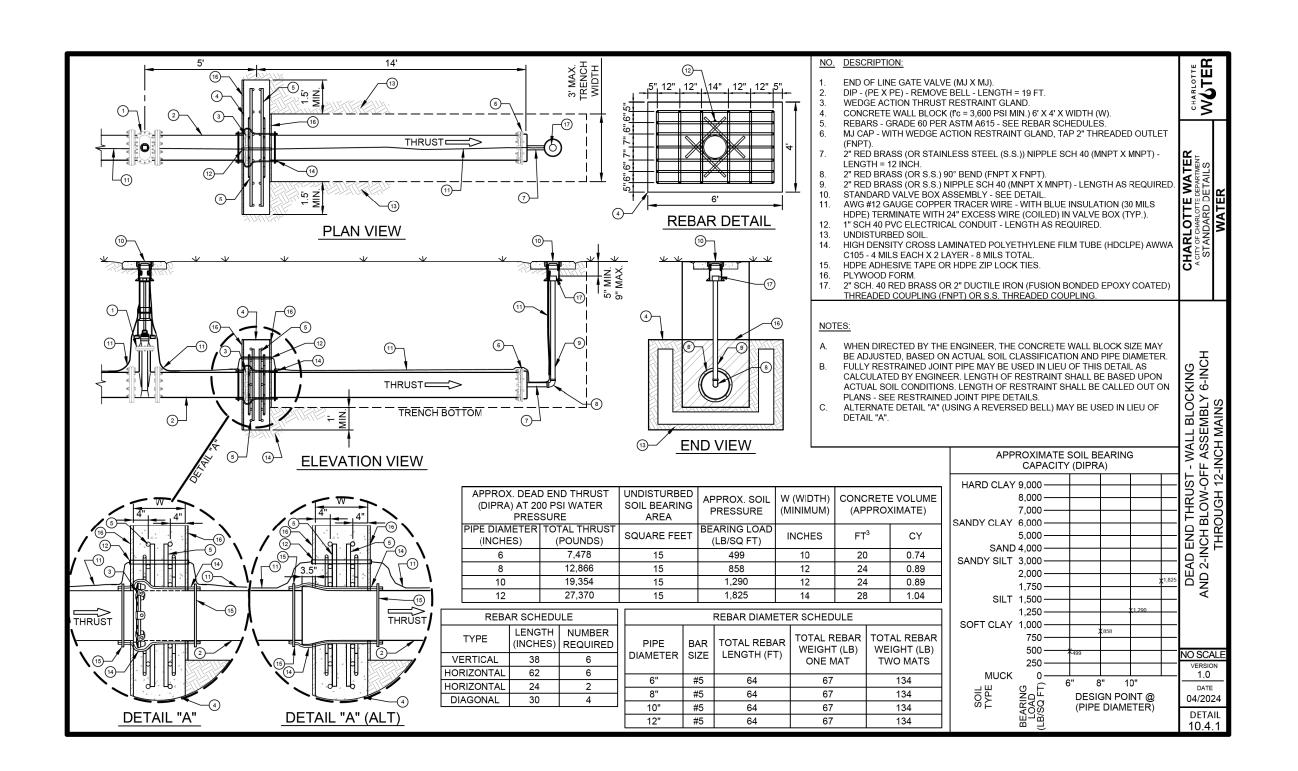
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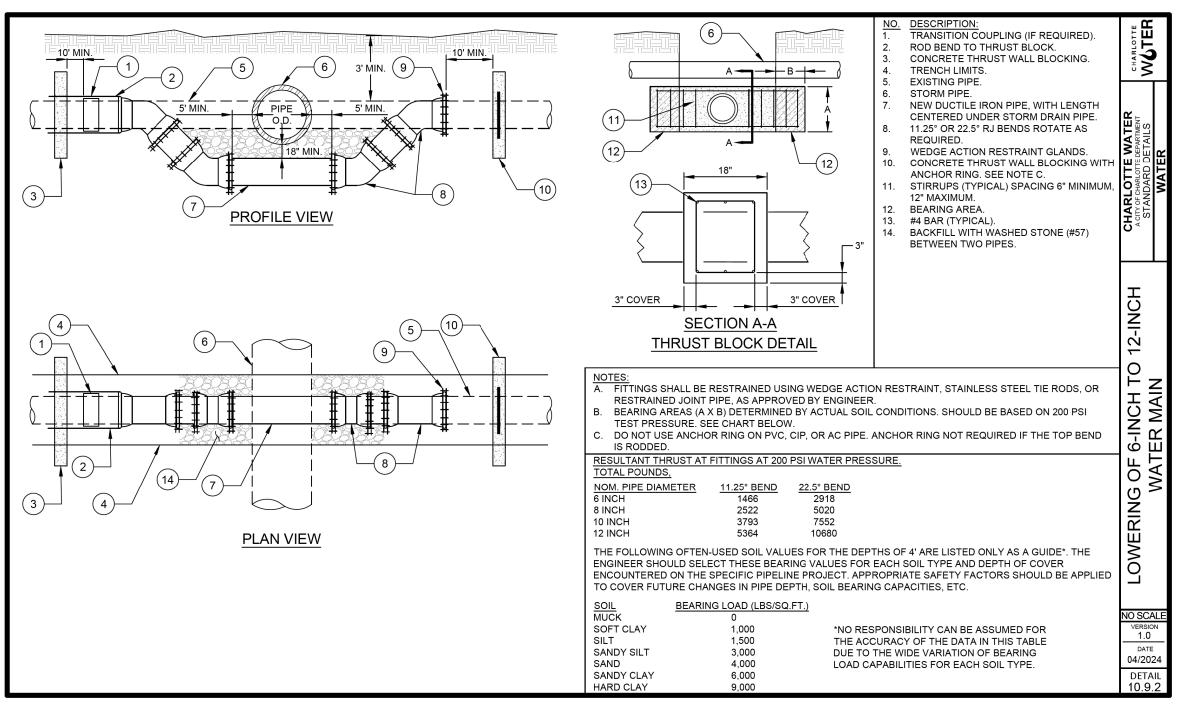
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Suite 425
Charlotte, NC 28202
Tel. (704) 329-0900
Fax. (704) 329-0905
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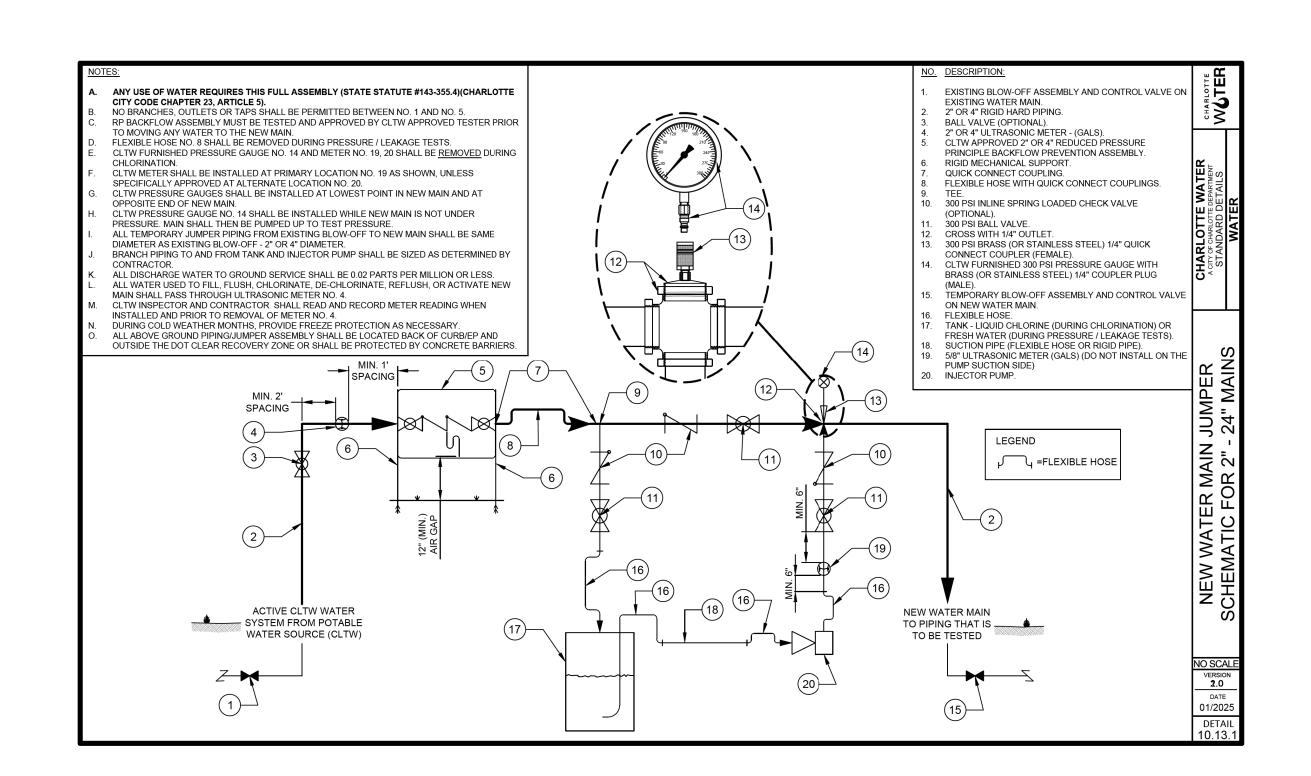
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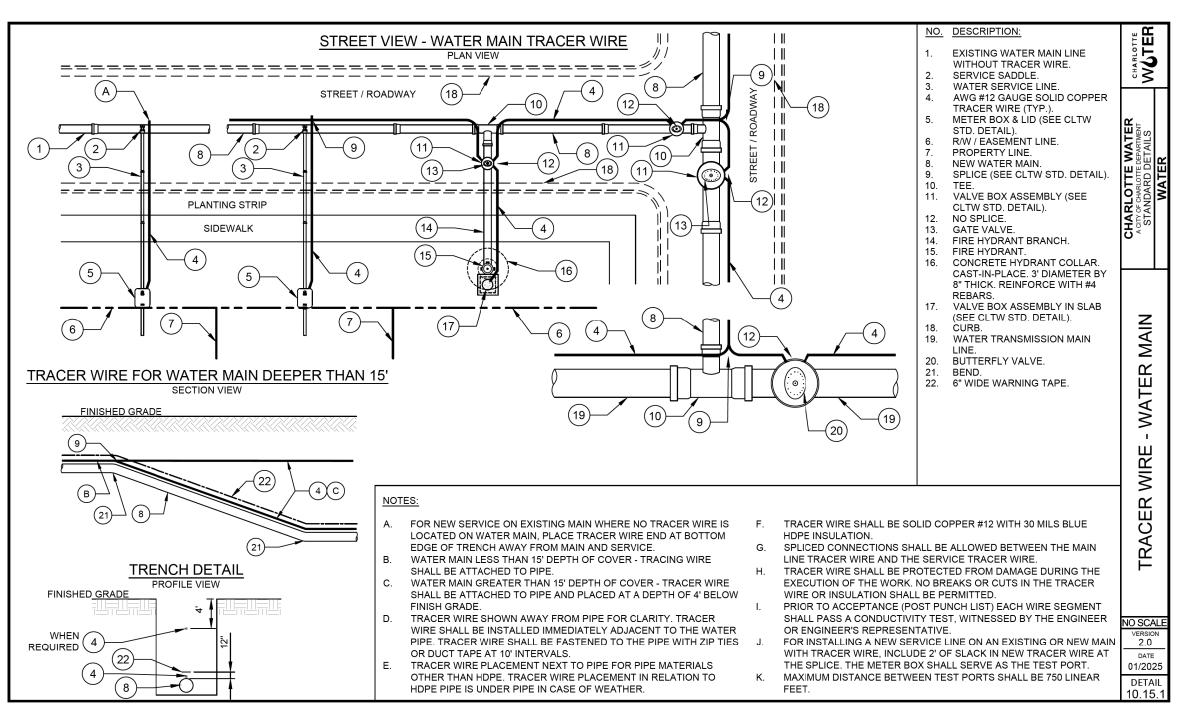
#### UTILITY CONSTRUCTION











## PROJECT TYPICAL DETAILS

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Charlotte, NC 28202
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Fax. (704) 329-0905
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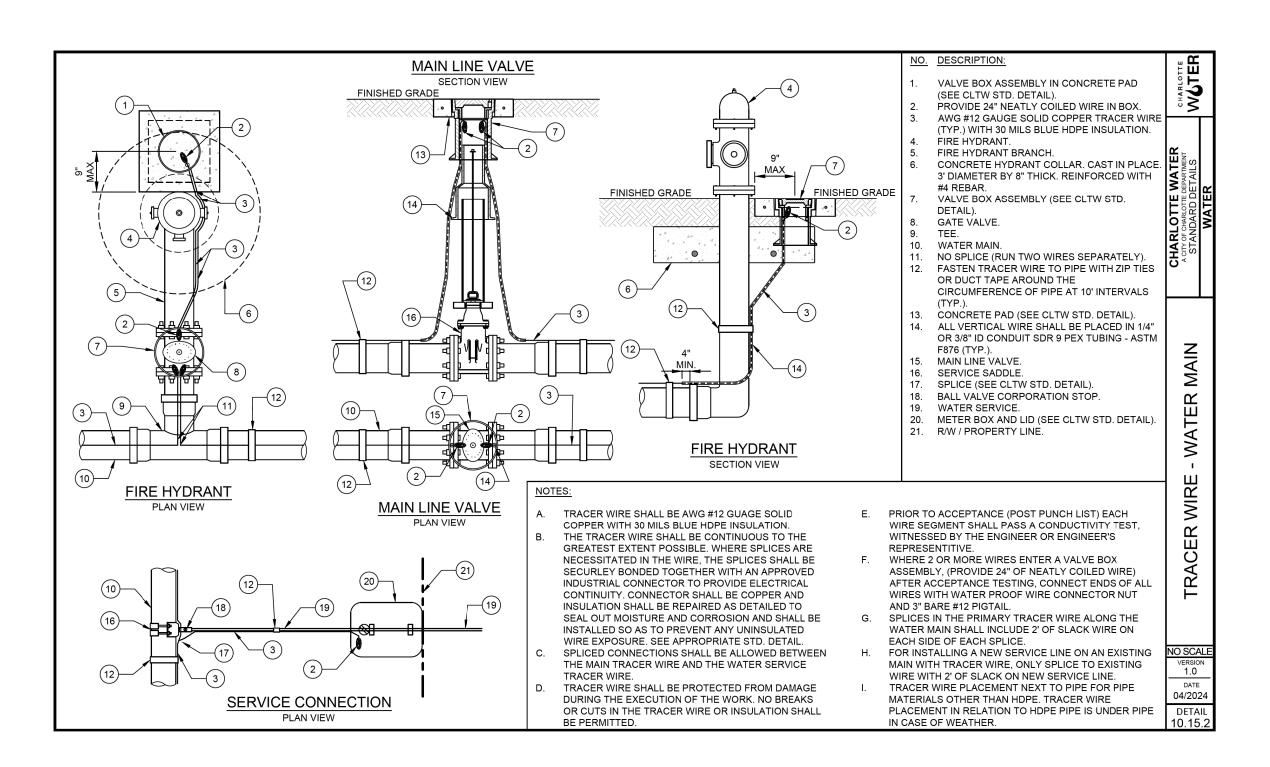
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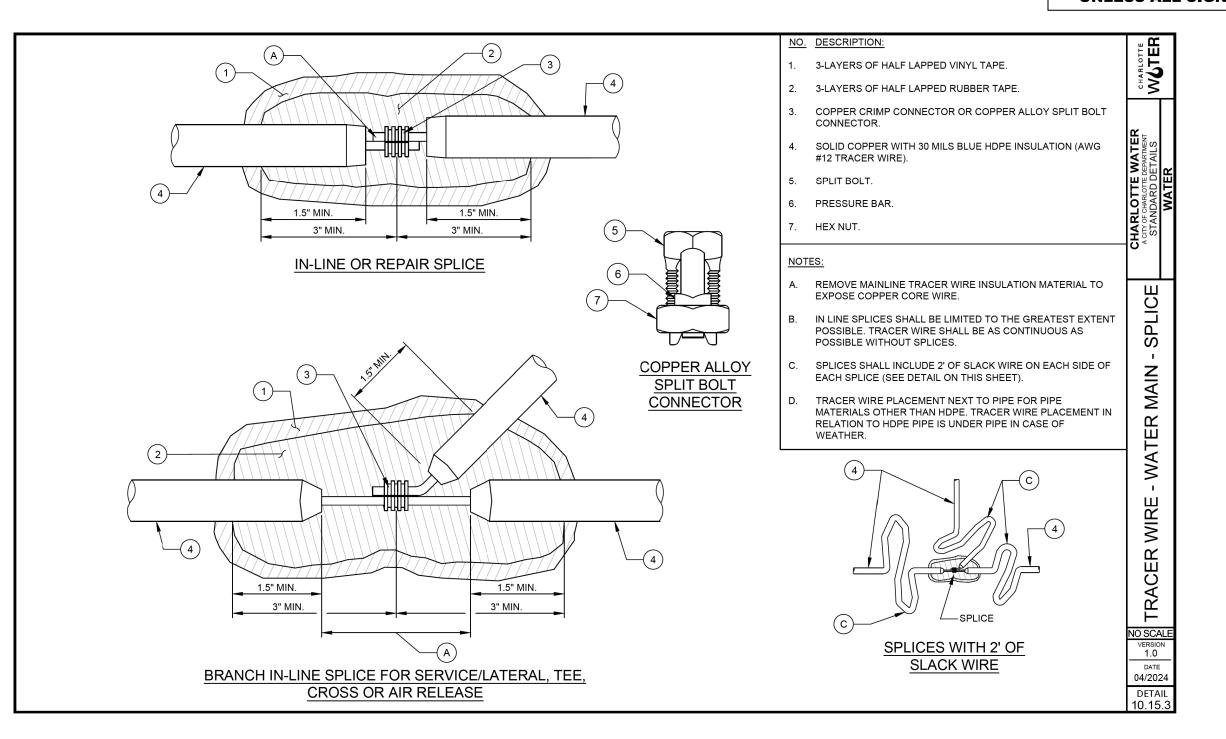
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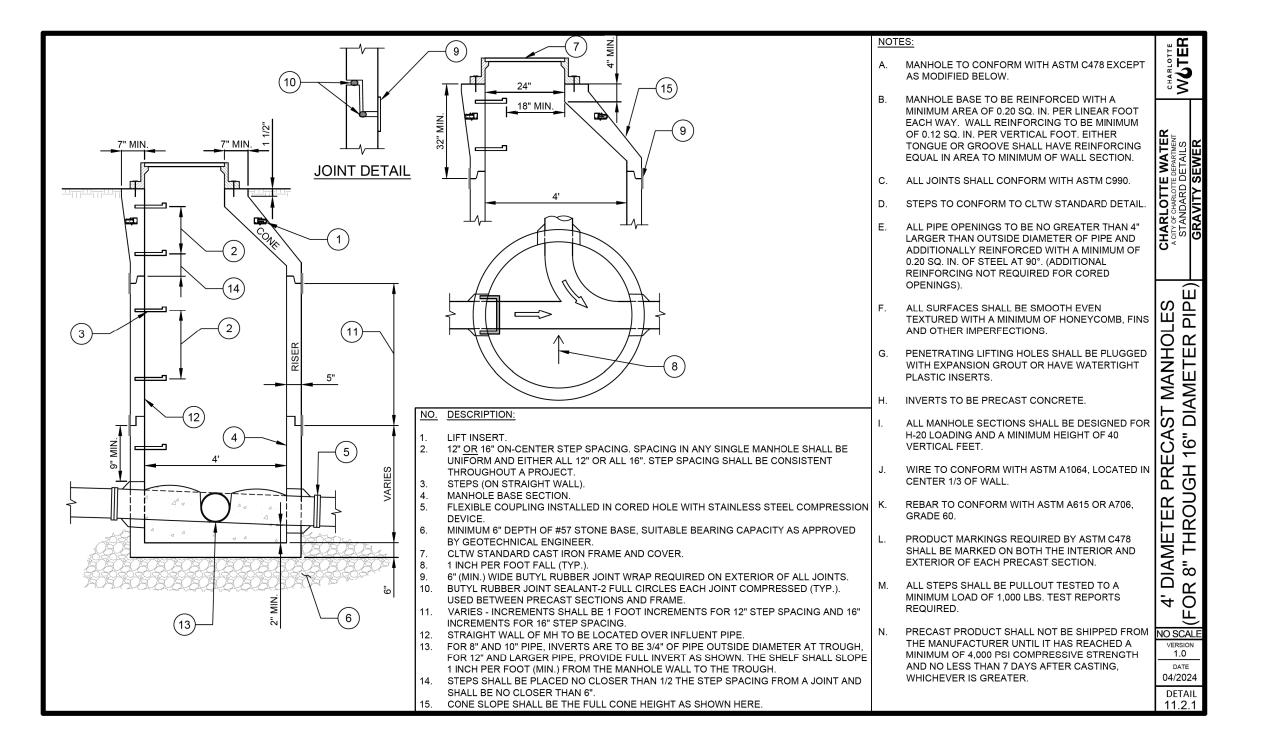
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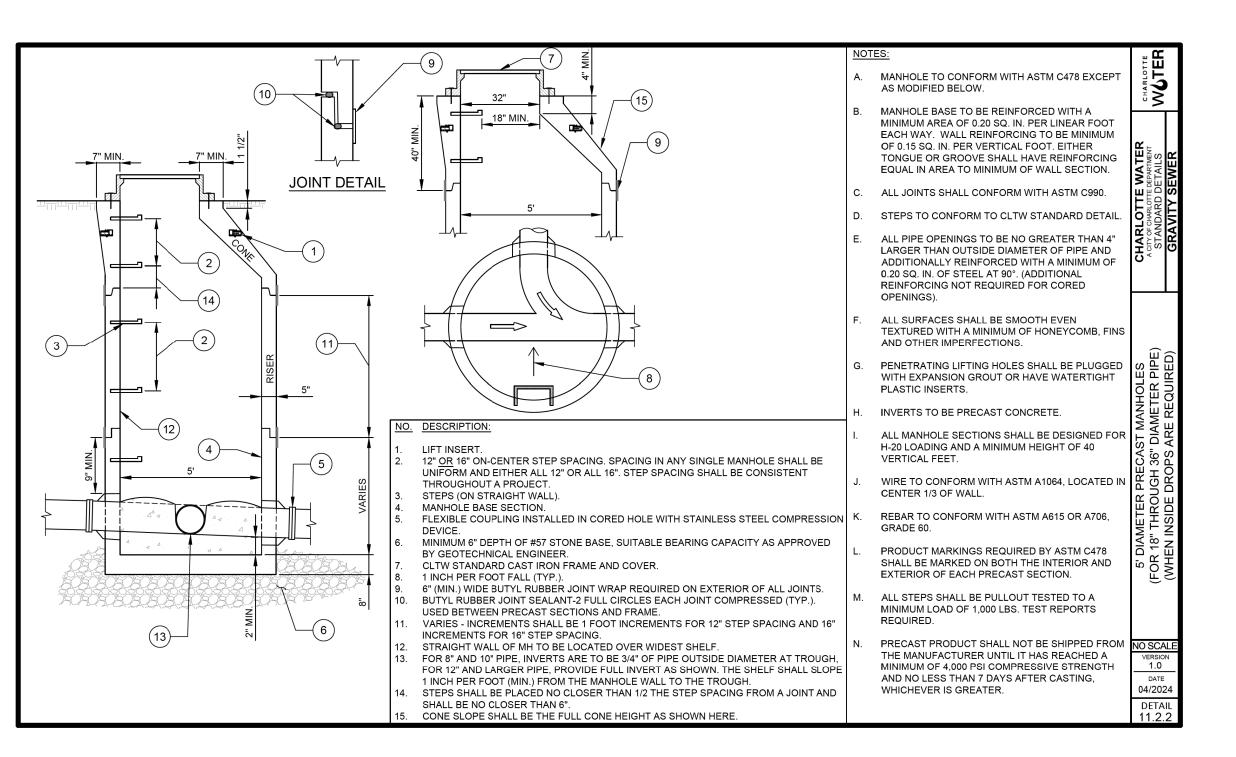


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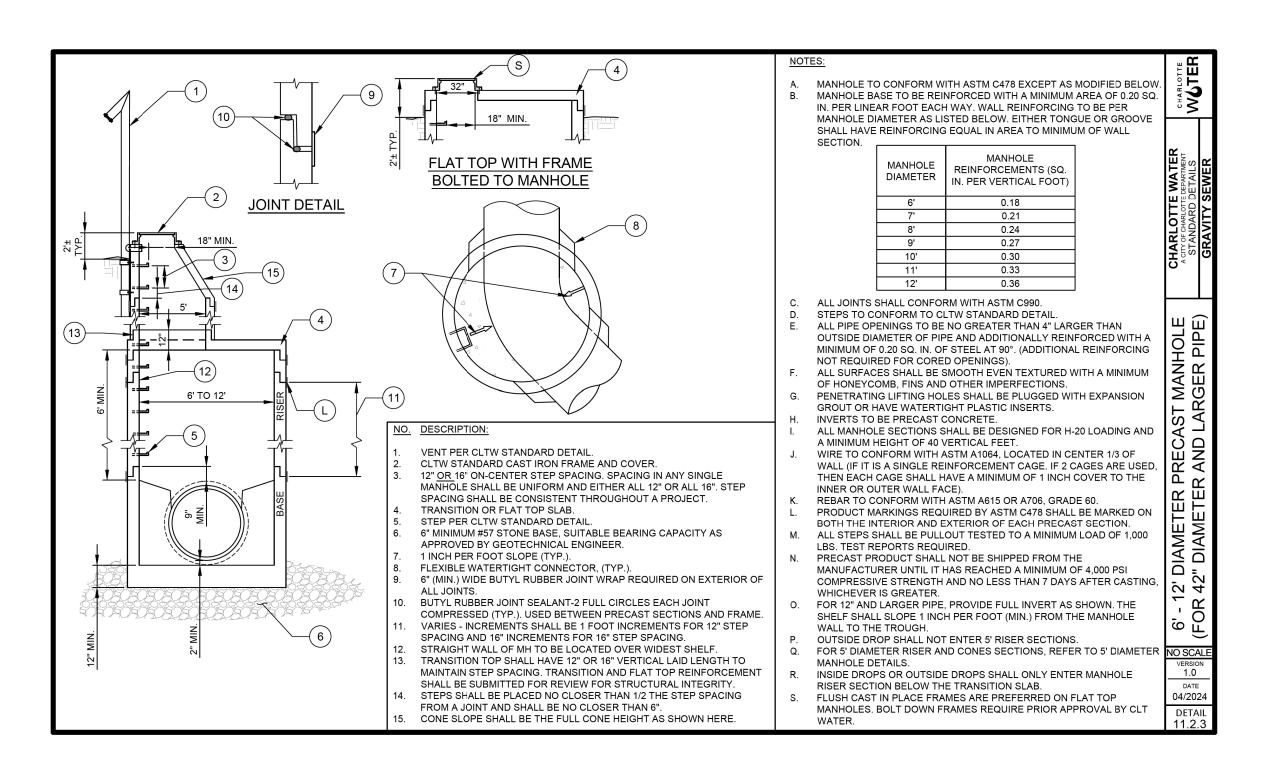
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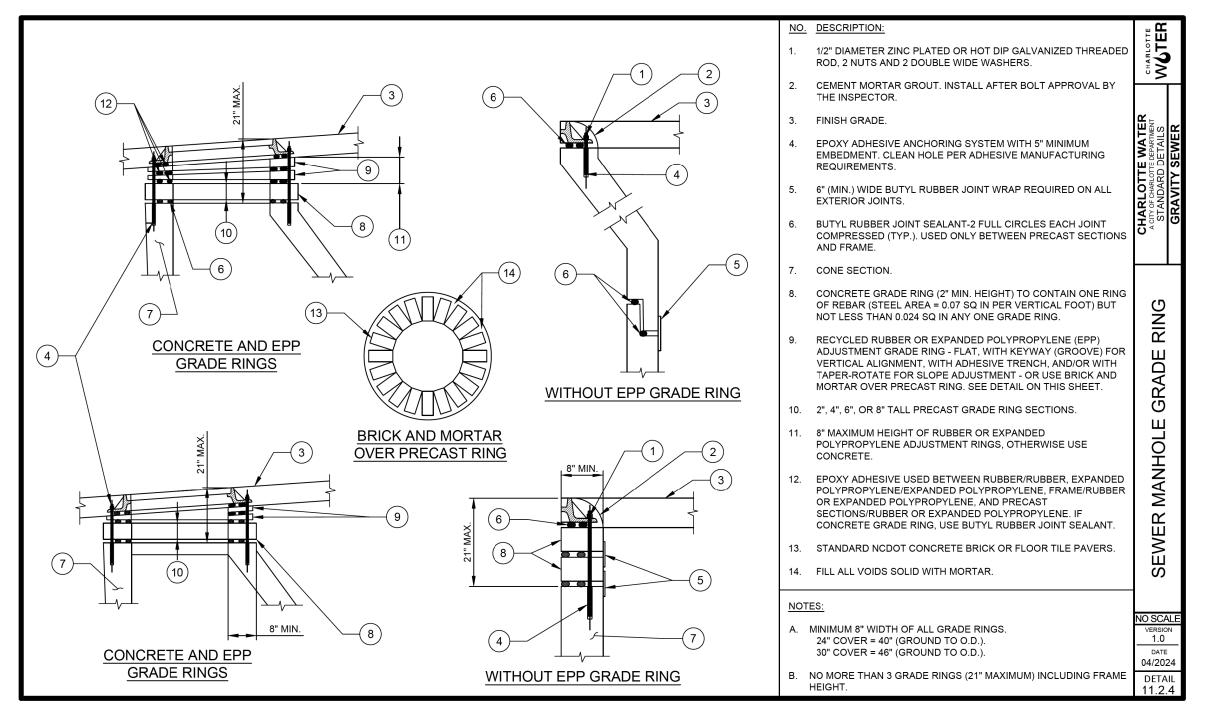
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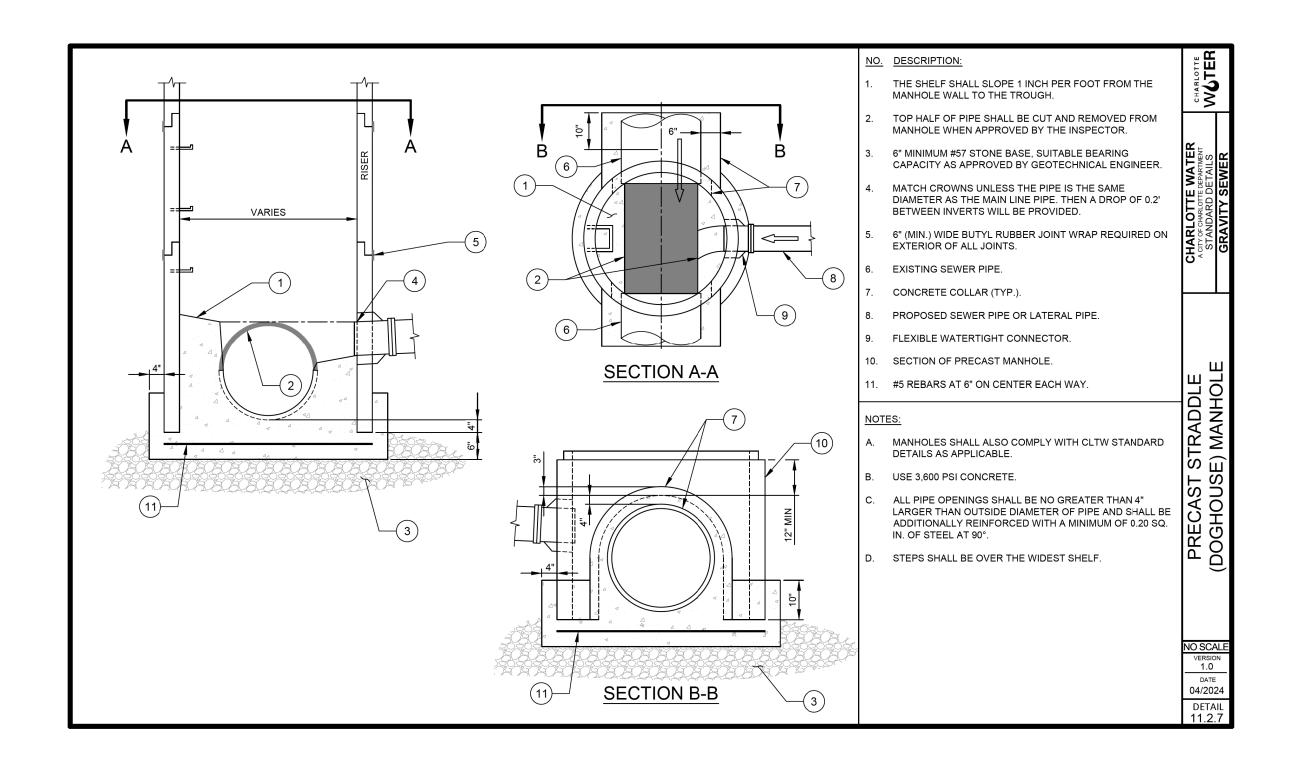
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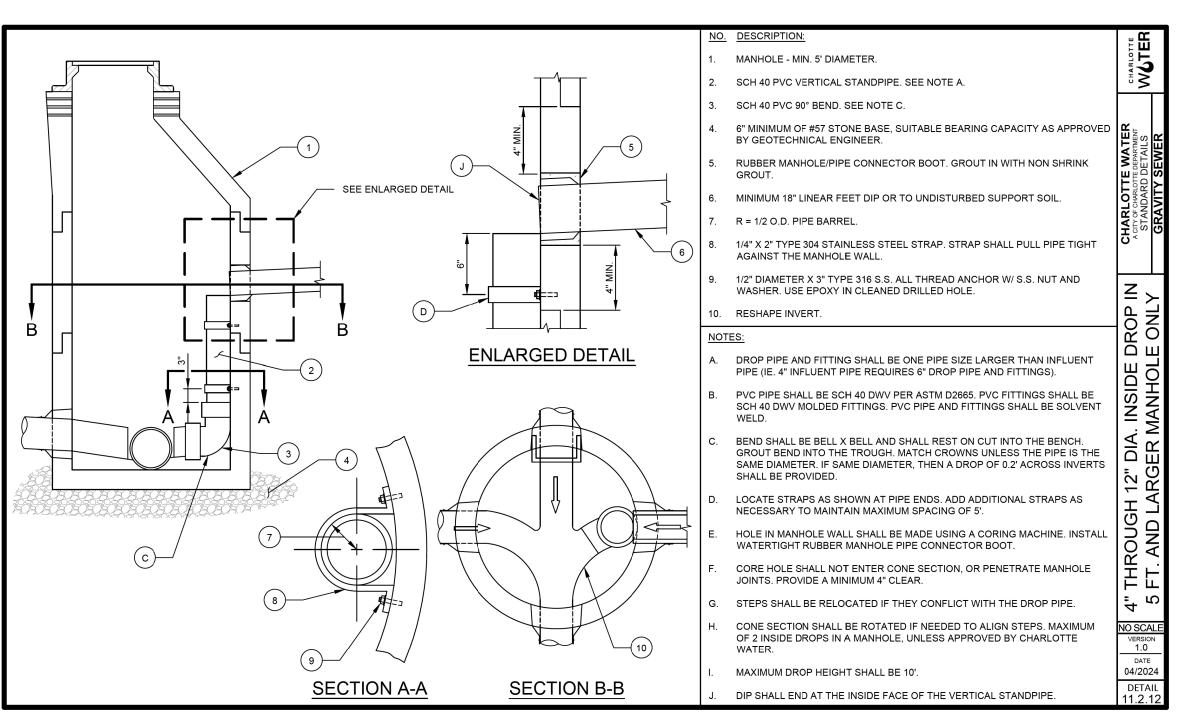
#### UTILITY CONSTRUCTION











# PROJECT TYPICAL DETAILS

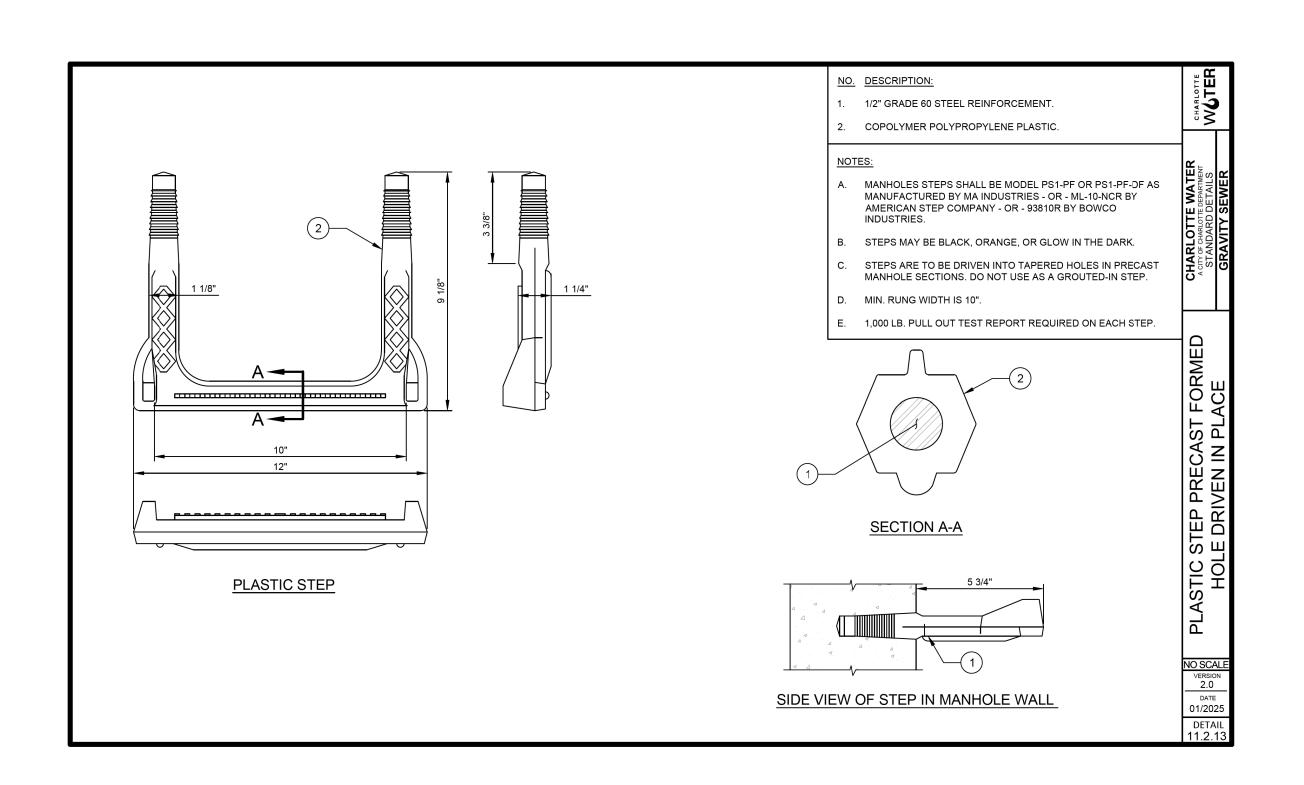
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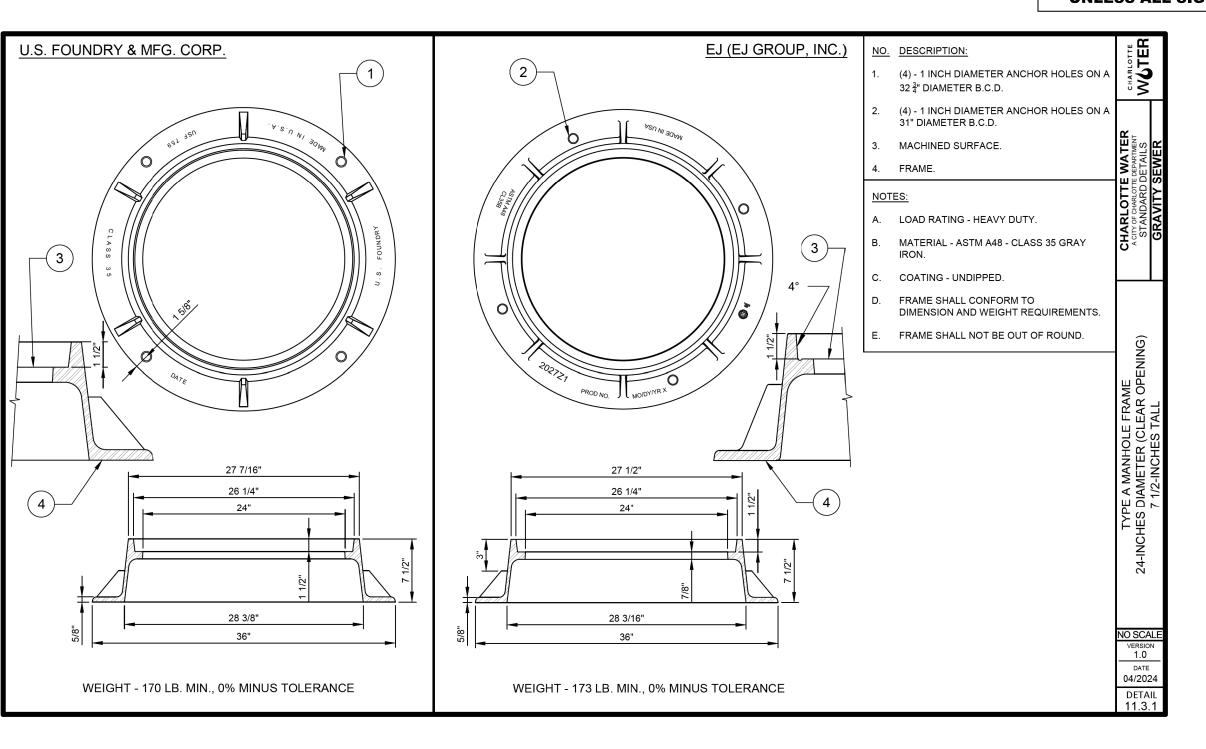
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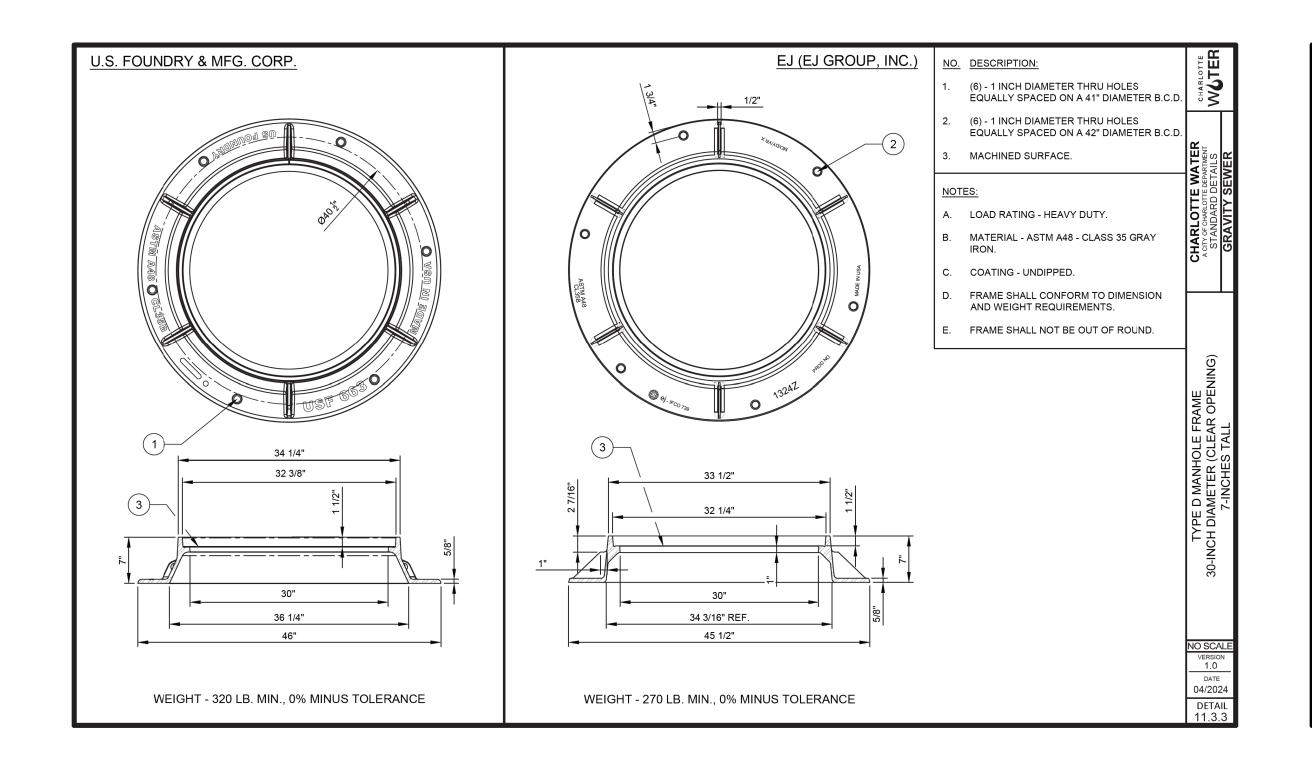
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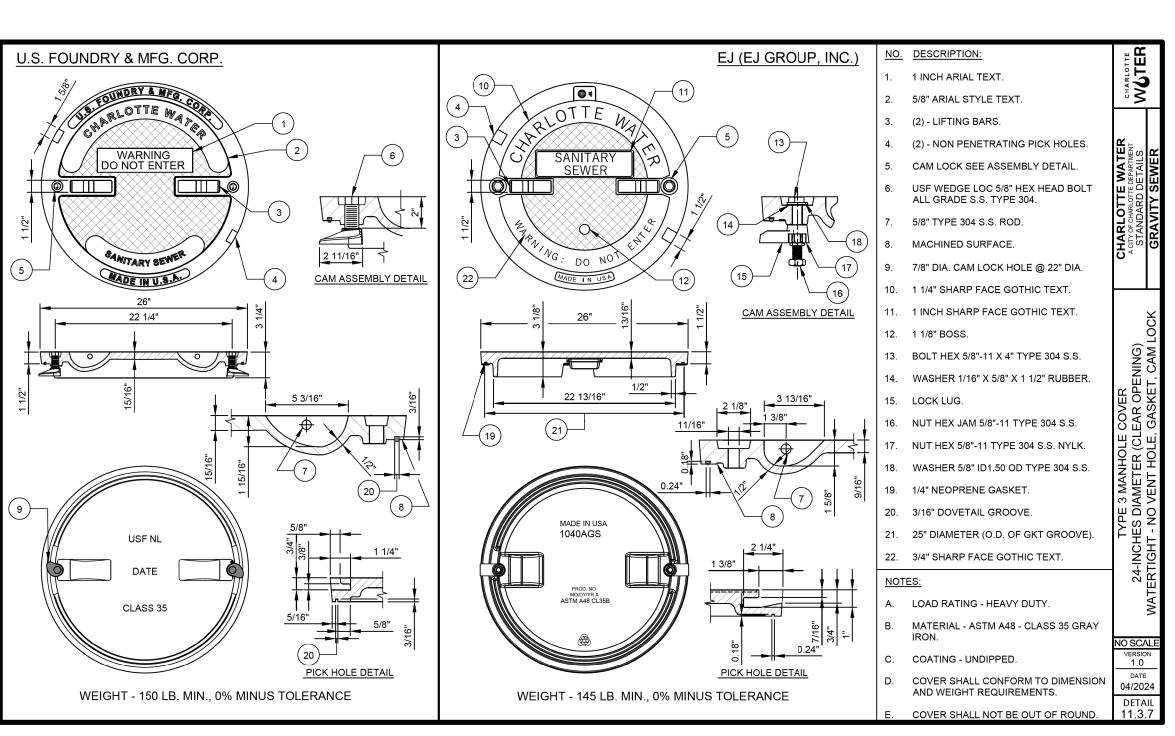
#### UTILITY CONSTRUCTION











# PROJECT TYPICAL DETAILS

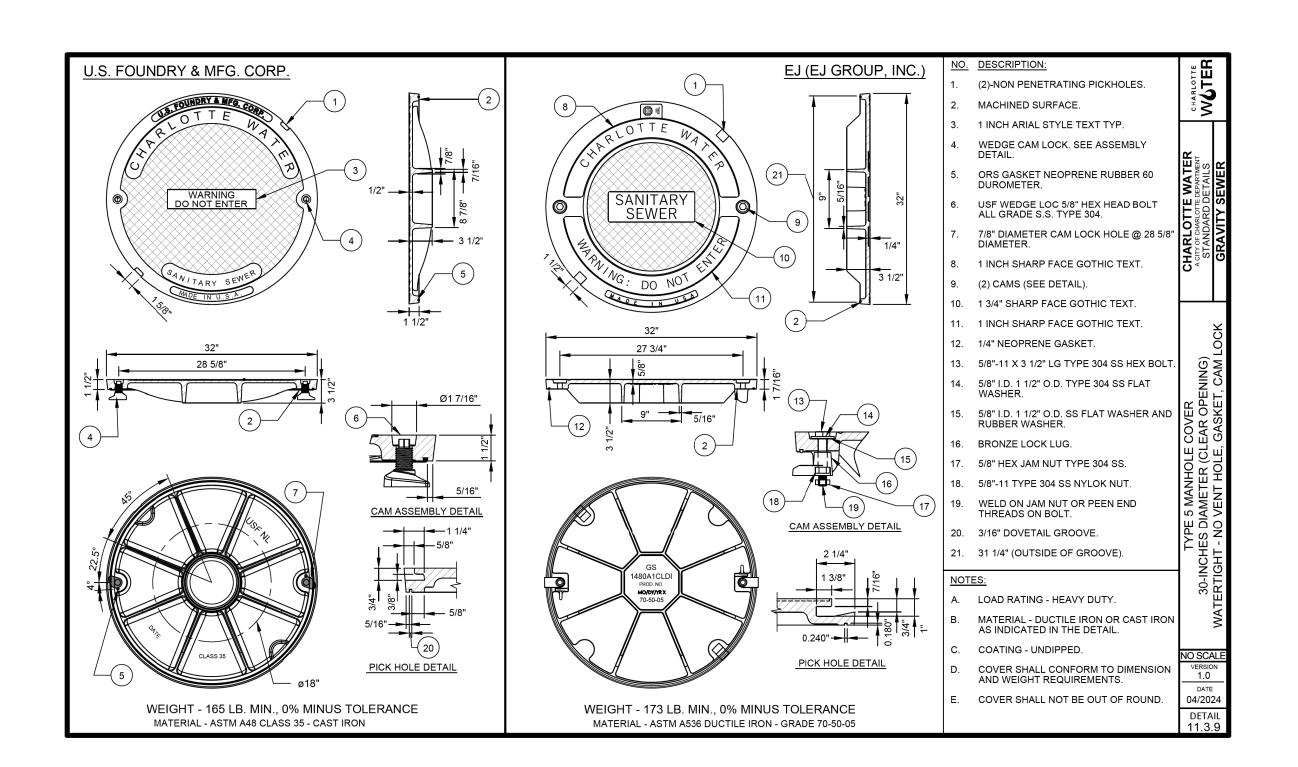


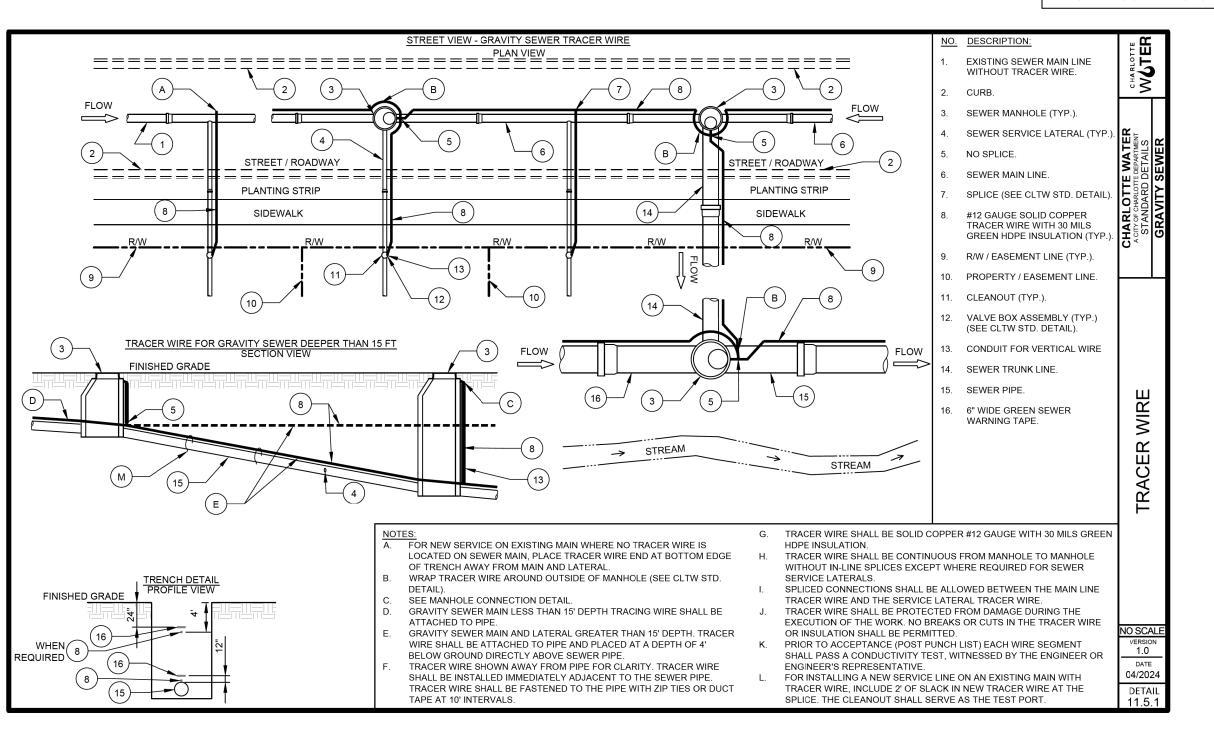
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Suite 425
Charlotte, NC 28202
Tel. (704) 329-0900
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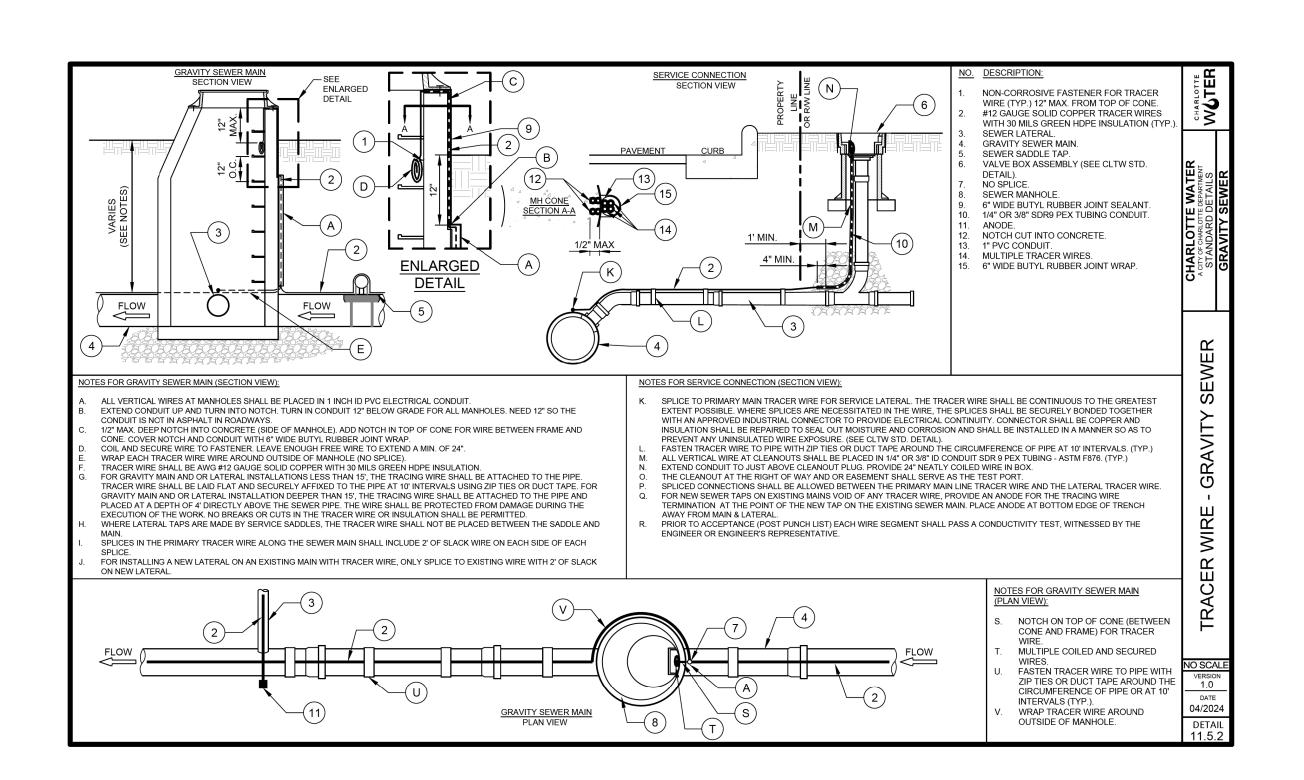
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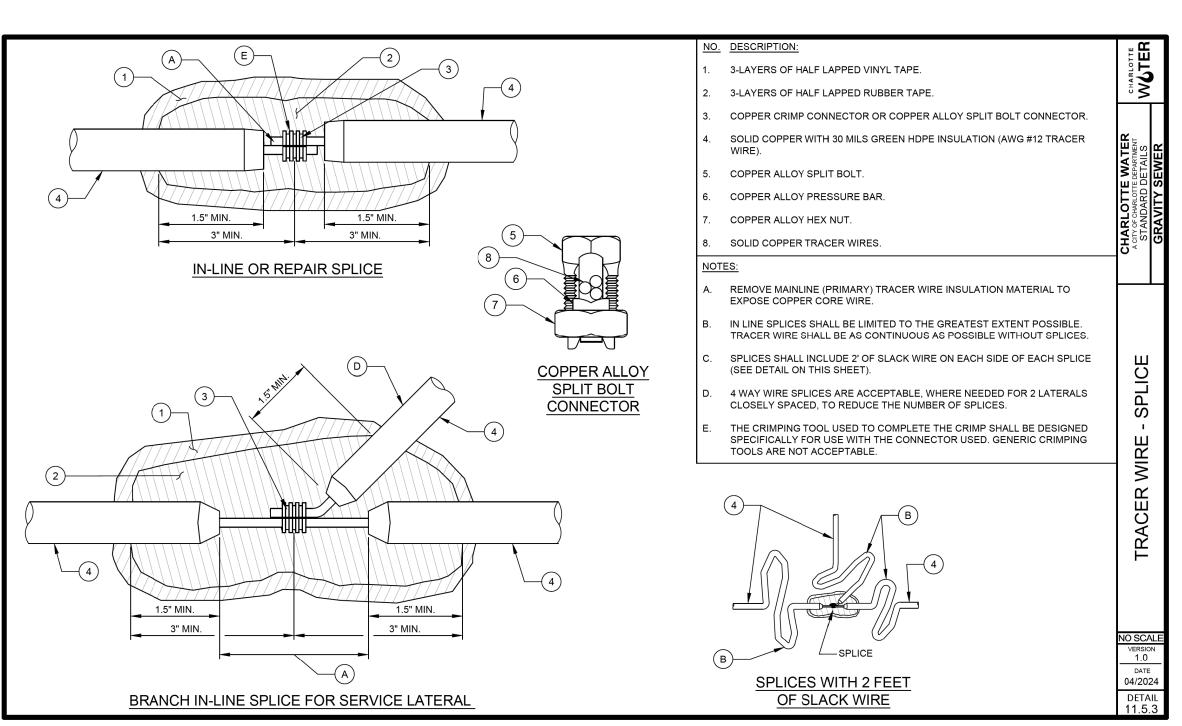
#### UTILITY CONSTRUCTION





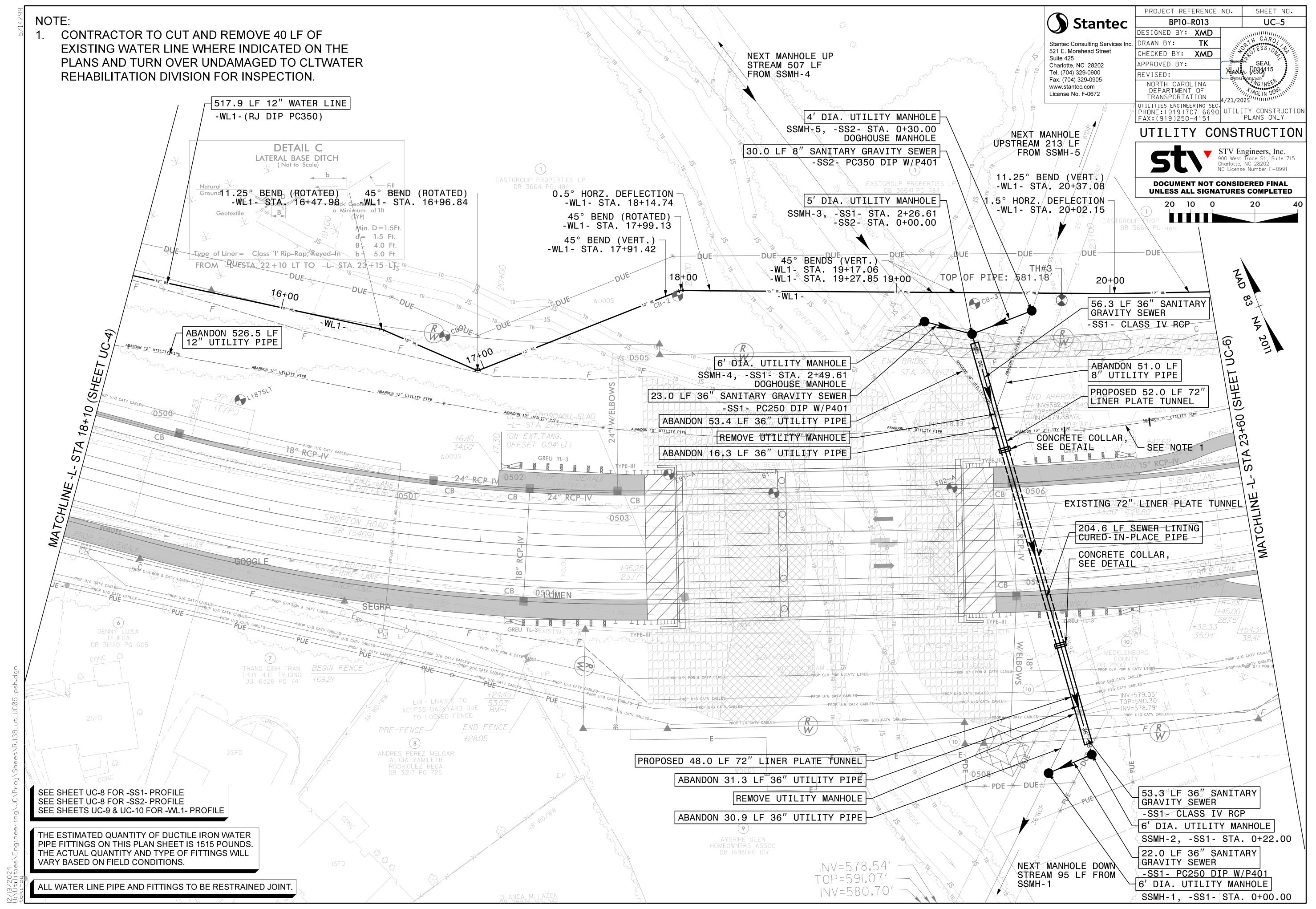






INV=628.80'-

ALL WATER LINE PIPE AND FITTINGS TO BE RESTRAINED JOINT.



60.00′

AMERICAN HOMES 4 RENT

