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END PROJECT Brook Cove Rd. BEGIN (SR 1941) PROJECT OFFSITE DETOUR

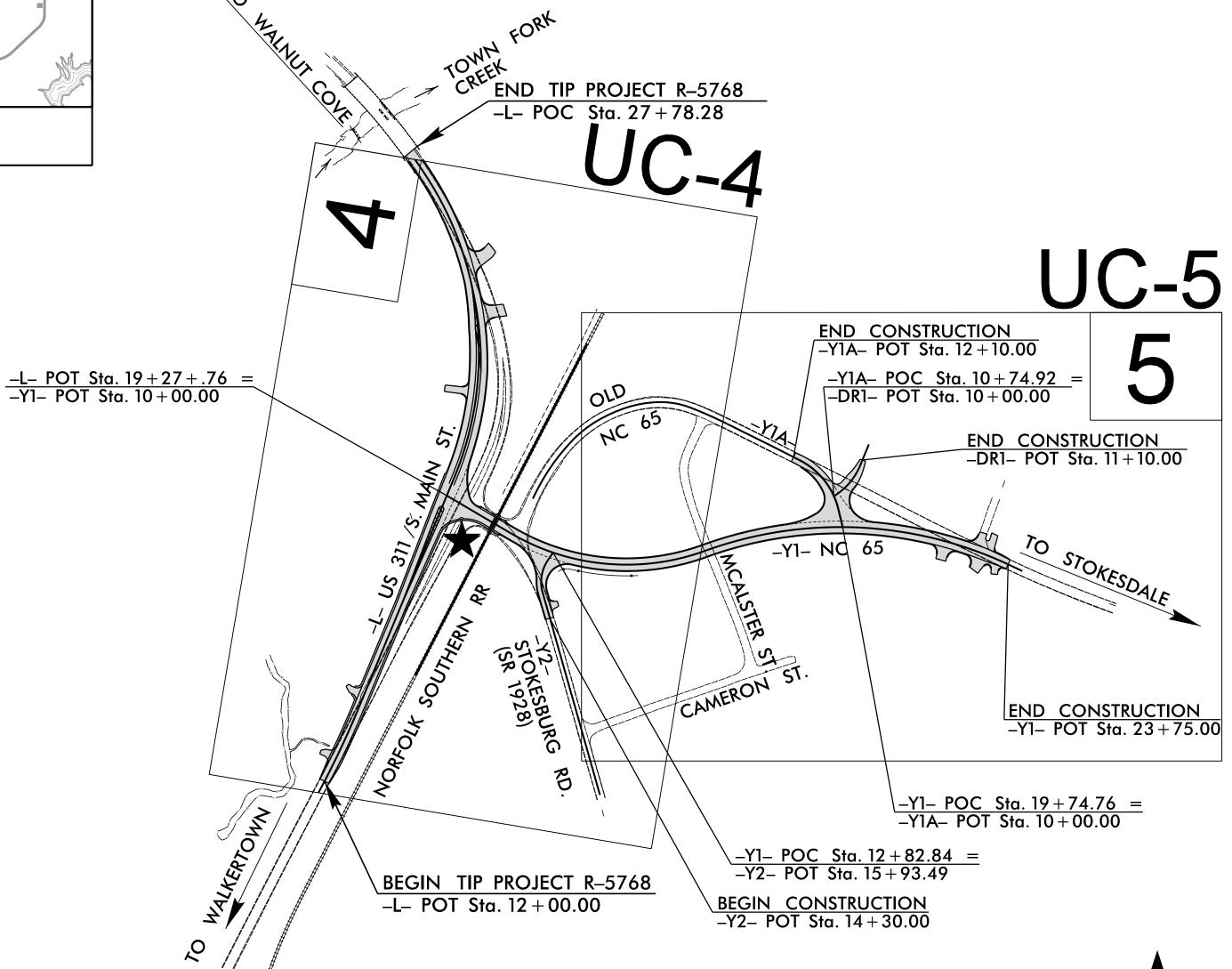
VICINITY MAP (NTS)

DIVISION OF HIGHWAYS

STATE OF NORTH CAROLINA

# UTILITY CONSTRUCTION PLANS STOKES COUNTY

LOCATION: US 311/NC 65 IN VICINITY OF SR 1928 (STOKESBURG RD.) IN WALNUT COVE TYPE OF WORK: WATER AND SANITARY SEWER RELOCATION



T.I.P. NO.

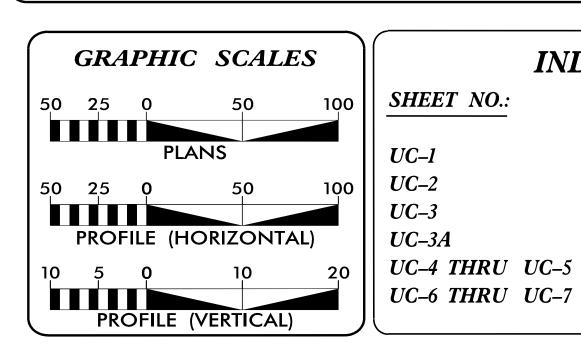
R-5768

SHEET NO.

UC-1

SIGNALIZED INTERSECTION

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



### INDEX OF SHEETS

**DESCRIPTION:** SHEET NO.:

2. CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED  $^{\#}$ BY METHOD III.

1. THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARY OF WALNUT COVE.

TITLE SHEET UTILITY SYMBOLOGY **NOTES** *UC-3A* **DETAILS** 

UTILITY CONSTRUCTION SHEETS PROFILE SHEETS

# WATER AND SEWER OWNERS ON PROJECT

WATER & SEWER - TOWN OF WALNUT COVE



PREPARED IN THE OFFICE OF

HOWARD WOODALL, P.E. CONSULTANT CONTACT #1 BRYAN BADEY, P.E. CONSULTANT CONTACT #2

MARIKO PYATT, 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

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CONNIE JAMES, P.E. UTILITIES REGIONAL ENGINEER UTILITIES ENGINEER UTILITIES AREA COORDINATOR

UTILITIES COORDINATOR

# STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

# UTILITIES PLAN SHEET SYMBOLS

## PROPOSED WATER SYMBOLS

# Water Line (Sized as Shown) -----11<sup>1</sup>/<sub>4</sub> Degree Bend ······· 22½ Degree Bend ······ 90 Degree Bend ······· Gate Valve Gov Tapping Valve ..... Line Stop Line Stop with Bypass..... Relocate Fire Hydrant ..... Remove Fire Hydrant ······ Water Meter ····· PWM Relocate Water Meter ..... Water Pump Station PS(W) RPZ Backflow Preventer ..... DCV Backflow Preventer ..... Relocate RPZ Backflow Preventer RPZ Relocate DCV Backflow Preventer ..... PROPOSED SEWER SYMBOLS Gravity Sewer Line (Sized as Shown) Force Main Sewer Line (Sized as Shown) (Sized per Note)

Sewer Pump Station ·····

PS(SS)

REV: 2/1/2012

## PROPOSED MISCELLANOUS UTILITIES SYMBOLS

Power Pole ····································	Thrust Block ·····
Telephone Pole ····································	Air Release Valv
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	

Thrust Block ·····	·····	
Air Release Valve ·····	AR •	
Utility Vault	UV	
Concrete Pier ·····	CP	
Steel Pier ·····	SP	
Plan Note ·····		
Pay Item Note ·····		NOTE  PAY ITEM

# EXISTING UTILITIES SYMBOLS

Power Pole ·····	•
Telephone Pole	•
Joint Use Pole	<b>-</b>
Utility Pole ·····	•
Utility Pole with Base ·····	
H-Frame Pole·····	••
Power Transmission Line Tower ·····	$\boxtimes$
Water Manhole ·····	<b>③</b>
Power Manhole ·····	<b>©</b>
Telephone Manhole ·····	8
Sanitary Sewer Manhole ·····	8
Hand Hole for Cable ·····	H <sub>H</sub>
Power Transformer ·····	$\square$
Telephone Pedestal	Ī
CATV Pedestal ······	C
Gas Valve·····	$\Diamond$
Gas Meter	$\Diamond$
Located Miscellaneous Utility Object	$\odot$
Abandoned According to Utility Records	AATUR
End of Information ·····	E.O.I.

onder ground rower Eine	
*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	A/G Gas
*Underground Water Line ······	
Aboveground Water Line	A/G Water
*Underground Gravity Sanitary Sewer Line	22
Aboveground Gravity Sanitary Sewer Line	A/G Sanitary Sewer
*Underground SS Forced Main Line	
*Underground SS Forced Main Line	
Underground Unknown Utility Line ······	•
Underground Unknown Utility Line	•
Underground Unknown Utility Line  SUE Test Hole  Water Meter	<ul><li>●</li><li>●</li></ul>
Underground Unknown Utility Line  SUE Test Hole  Water Meter  Water Valve	<ul><li>◆</li><li>◆</li><li>◆</li></ul>

\*For Existing Utilities

Utility Line Drawn from Record
(Type as Shown)

Designated Utility Line
(Type as Shown)

# 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 2018.
- 2. THE EXISTING UTILITIES BELONG TO TOWN OF WALNUT COVE.
- 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 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.

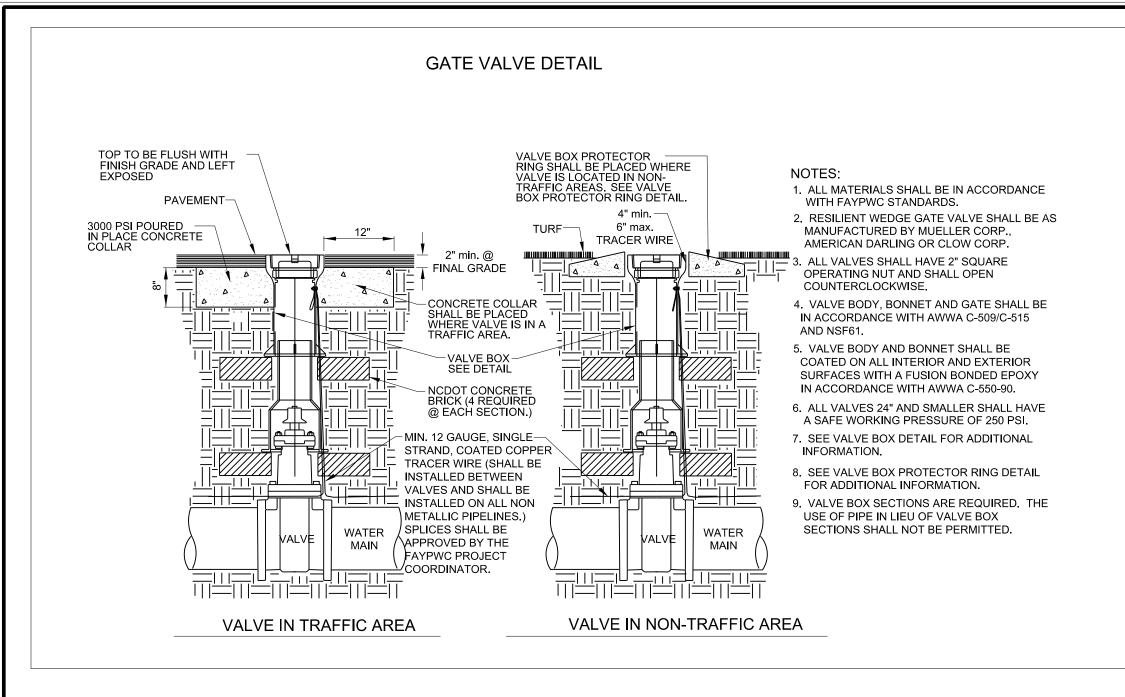
PROJECT REFERENCE	NO.	SHEET NO.
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APPROVED BY: BMB		Docusigned by:
REVISED:	ľ	ryan Badey:
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	******	984677CMEPA 9074N M. BA ••••••••••••••••••••••••••••••••••••
UTILITIES ENGINEERING SEC. PHONE: (919)707-6690 FAX: (919)250-4151	UTILI	TY CONSTRUCTIO

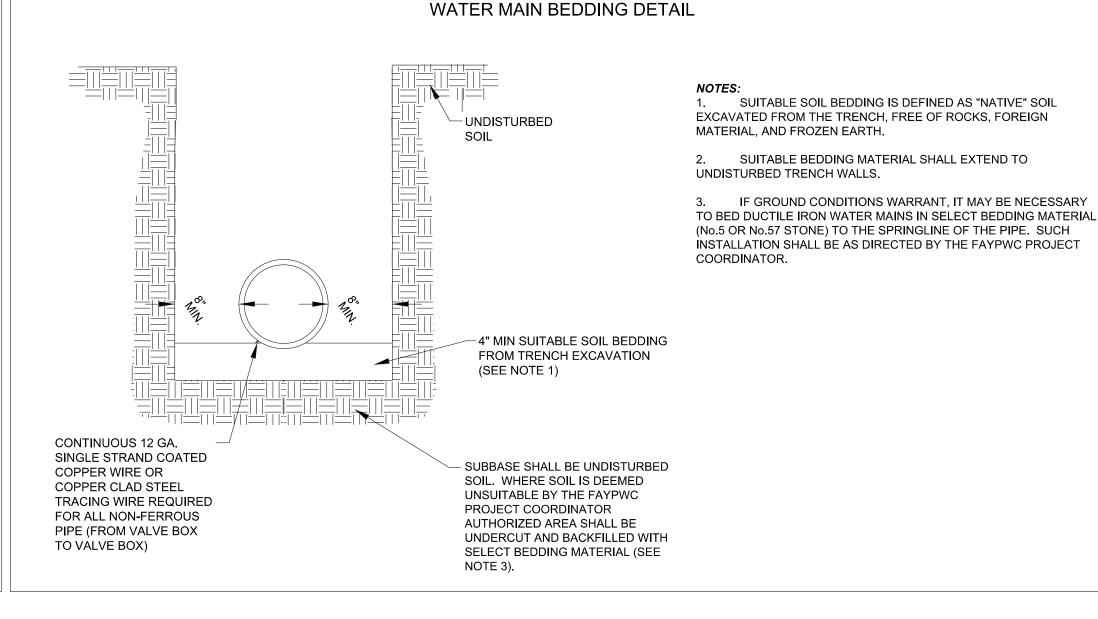
UTILITY CONSTRUCTION

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> RKK 8601 Six Forks Road, Forum 1, Suite 700 Raleigh, North Carolina 27615-3960 NC License No. F-0112 Engineers | Construction Managers | Planners | Scientists

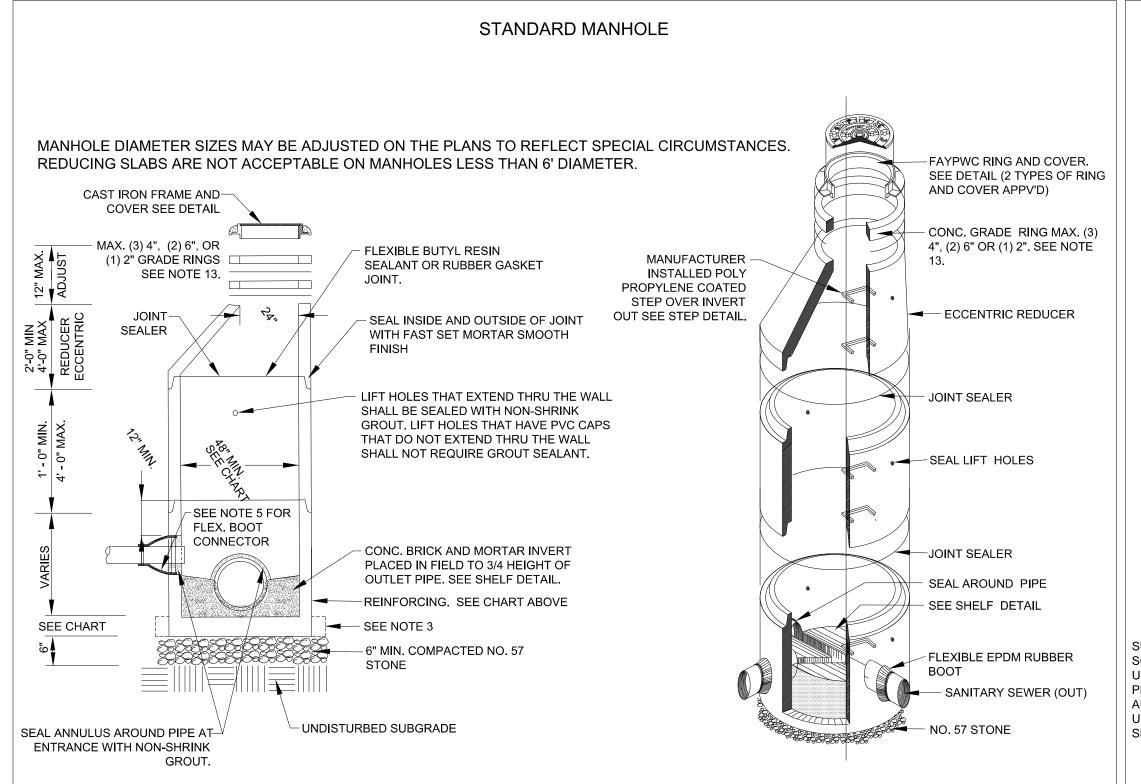
Responsive People | Creative Solutions

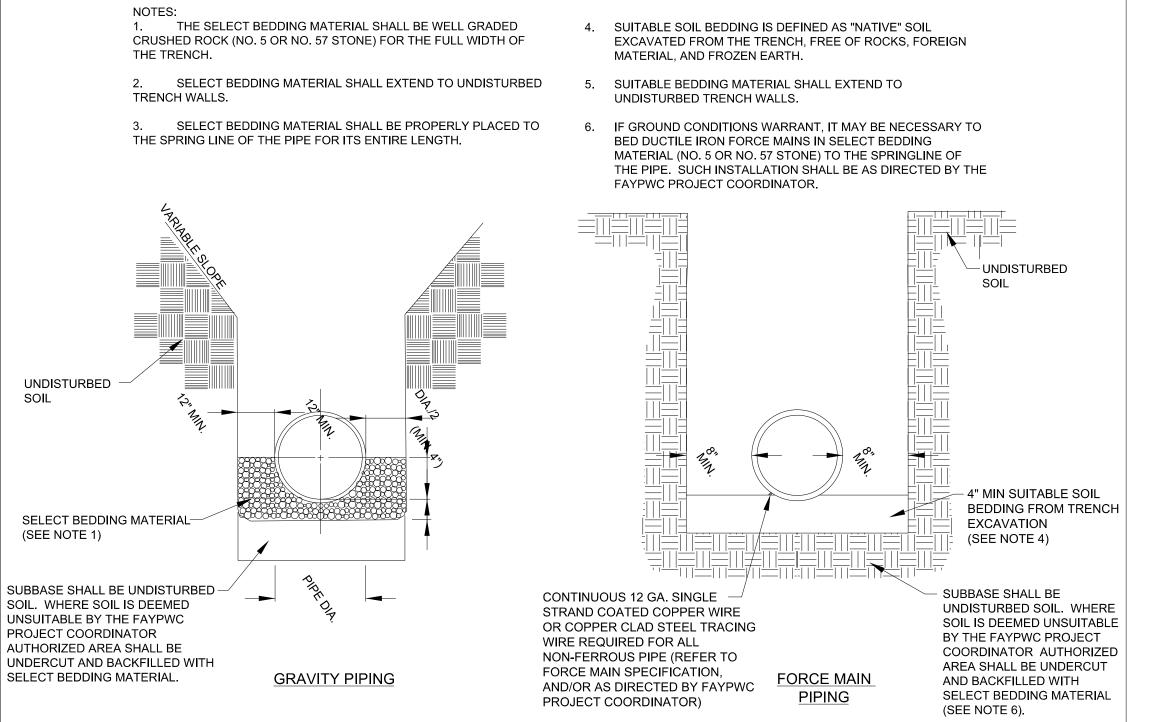




PROJECT REFERENCE NO. SHEET NO. R-5768 UC-3A DESIGNED BY: MSS DRAWN BY: MSS CHECKED BY: BMB APPROVED BY: BMB REVISED: NORTH CAROLINA DEPARTMENT OF TRANSPORTATION JTILITIES ENGINEERING SEC UTILITY CONSTRUCTION PHONE:(919)707-6690| FAX:(919)250-4151 PLANS ONLY

UTILITY CONSTRUCTION
DOCUMENT NOT CONSIDERED
FINAL UNLESS
ALL SIGNATURES COMPLETED





SEWER BEDDING DETAIL

### STANDARD MANHOLE NOTES

NOTES:
1. PRECAST REINFORCED CONCRETE MANHOLES SHALL BE IN ACCORDANCE WITH ASTM C-478.

- 2. MINIMUM CONCRETE COMPRESSIVE STRENGTH SHALL BE 4,000PSI.
- 3. MANHOLES GREATER THAN 12' DEPTH SHALL HAVE MINIMUM 6" EXTENDED BASE.
- 4. FLEXIBLE BUTYL RESIN JOINT SEALANT SHALL BE IN ACCORDANCE WITH ASTM C990. RUBBER GASKET JOINTS SHALL BE IN ACCORDANCE WITH ASTM C-443.
- 5. FLEXIBLE EPDM RUBBER BOOT CONNECTORS SHALL BE IN ACCORDANCE WITH ASTM C923, INSTALLED BY MANUFACTURER WITH STAINLESS STEEL COMPRESSION RING AND TAKE-UP CLAMP. CONNECTION TO MAIN SHALL BE BY CONTRACTOR WITH STAINLESS STEEL PIPE CLAMP.
- 6. CONNECTIONS TO EXISTING MANHOLES SHALL BE BY CORING MANHOLE AND FIELD INSTALLING A FLEXIBLE EPDM RUBBER BOOT CONNECTOR. DO NOT ALLOW DEBRIS TO ENTER SYSTEM.
- 7. MORTAR SHALL BE QUICK SETTING, NON-SHRINK GROUT MIXED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- 8. MANHOLE STEPS SHALL BE IN ACCORDANCE WITH ASTM C478 AND OSHA REGULATIONS. ALIGN STEPS WITH INVERT OUT.
- 9. PRECAST INVERTS ARE NOT ALLOWED.
- 10. VERTICAL DROPS BETWEEN THE INFLOW PIPES AND OUTFLOW PIPES SHALL REQUIRE THE FOLLOWING:
  - A. GREATER THAN 2.5' SEE DROP STRUCTURE DETAIL (MIN. 5' DIAMETER MH REQUIRED).
  - DETAIL (MIN. 5' DIAMETER MH REQUIRED).

    B. LESS THAN 2.5' SEE PIPE SLIDE DETAIL.
- 11. AN ECCENTRIC CONE SHALL BE UTILIZED ON ALL MANHOLES, UNLESS OTHERWISE APPROVED BY FAYPWC.
- 12. INVERT ON PLANS IS TO MANHOLE CENTERLINE.
- 13. CONCRETE GRADE RINGS SHALL NOT BE USED FOR ABOVE GRADE ADJUSTMENTS (IE: OUTFALL AREAS). USE OF GRADE RINGS ARE ALLOWABLE IN YARD AREAS AND PAVEMENT, WHERE THE RING AND COVER ARE AT GROUND LEVEL.

14. THE MINIMUM SLOPE ACROSS THE INVERT OF THE MANHOLE SHALL BE 1%, UNLESS OTHERWISE APPROVED BY FAYPWC. STANDING WATER IN INVERT OF MANHOLE IS NOT ACCEPTABLE.

MANUFACTURER. NO OTHER TYPE BANDS OR METHOD OF SECURING THE BOOT TO THE MANHOLE SHALL BE ACCEPTED.

- 15. THE EXTERIOR MANHOLE RISER JOINTS, INCLUDING THE JOINT AT THE CONE, SHALL BE SEALED ON THE OUTSIDE BY AN APPROVED JOINT WRAP. THE WRAP SHALL BE IN ACCORDANCE WITH FAYPWC SPECIFICATIONS.
- 16. MANHOLE BOOT FOR 4-INCH LATERALS. SHOULD IT BE NECESSARY TO INSTALL A 4-INCH LATERAL INTO A MANHOLE, THE RUBBER BOOT THAT THE LATERAL IS INSERTED INTO SHALL BE SECURELY FASTENED TO THE CORE HOLE BY UTILIZING A STAINLESS STEEL BAND THAT IS TIGHTENED USING A JACK OR A TORQUE WRENCH (DIRECT DRIVE). BOTH STANDARD SIZE AND STEP DOWN BOOTS ARE ALLOWED. THE TORQUE WRENCH SHALL BE SUPPLIED BY THE

FOR FOUR (4) INCH SDR 26 LATERALS, THE PIPE OUTSIDE DIAMETER RANGE OF THE BOOT SHALL BE 3.5 INCHES TO 4.25

FOR FOUR (4) INCH DUCTILE IRON LATERALS, THE PIPE OUTSIDE DIAMETER RANGE OF THE BOOT SHALL EITHER BE AS FOR VC OR 4.25 INCHES TO 4.81 INCHES.

IN ALL CASES, THE BOOT SHALL BE TIGHTENED ON THE LATERAL BY MEANS OF A SINGLE STAINLESS STEEL STRAP.

THE LATERAL INVERT SHALL BE AT THE TOP OF THE SHELF.

- 17. NO MORE THAN 4, FOUR INCH LATERALS OR 3, SIX INCH LATERALS SHALL ENTER A 4' DIAMETER TERMINAL MANHOLE. NO MORE THAN 2 LATERALS (REGARDLESS OF SIZE) SHALL ENTER ALL OTHER 4' DIAMETER MANHOLES. ALL LATERALS SHALL HAVE AN INDIVIDUAL TROUGH. 5' DIAMETER MANHOLES SHALL BE USED IF THE ABOVE CONDITIONS ARE NOT MET.
- 18. NO MORE THAN 5 LATERALS SHALL ENTER A 5' DIAMETER MANHOLE.
- 19. USE OF TEE-WYES ON LATERALS IS NOT ALLOWED.
- 20. ALL MANHOLES SHALL BE VACUUM TESTED IN ACCORDANCE WITH FAYPWC STANDARDS.

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