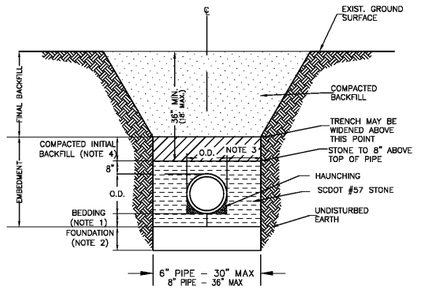
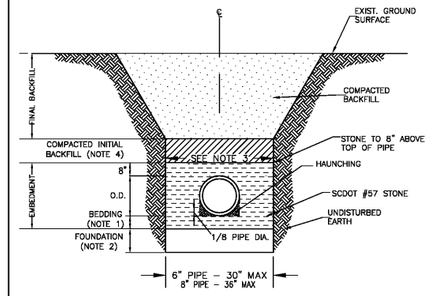


NOTES:

1. 8" MINIMUM.
2. FOUNDATION STONE REQUIRED WHEN SOIL CONDITIONS ARE UNSTABLE.
3. CLEAR DISTANCE NOT LESS THAN 6" EACH SIDE.
4. 18" MINIMUM VERTICAL TRENCH WALL ABOVE TOP OF PIPE. INITIAL BACKFILL SHALL BE PLACED IN 6" LIFTS AND COMPACTED. INITIAL BACKFILL SHALL CONTAIN NO MATERIAL OVER 1 1/2" IN DIAMETER, FROZEN LUMPS, OR DEBRIS.
5. BACKFILL SHALL BE COMPACTED TO 95% STANDARD PROCTOR DENSITY.

REHABILITATION PIPE EMBEDMENT – SHEET 1 OF 2 PVC PIPE

MetroConnects	Rev. Date	Rev. Date	Rev. Date	Scale
Metropolitan Sewer Subdistrict	01/29/14	02/24/14		N.T.S.
120 Augusta Arbor Way	02/03/14	03/14/14		Detail No.
Greenville, South Carolina				1

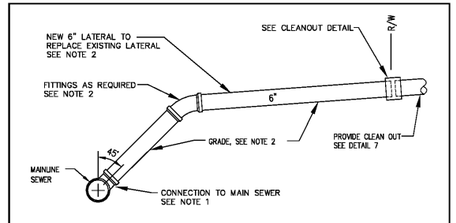


NOTES:

1. 8" MINIMUM.
2. FOUNDATION STONE REQUIRED WHEN SOIL CONDITIONS ARE UNSTABLE.
3. 18" MINIMUM VERTICAL TRENCH WALLS ABOVE TOP OF PIPE.
4. INITIAL BACKFILL SHALL BE PLACED IN 6" LIFTS AND COMPACTED. INITIAL BACKFILL SHALL CONTAIN NO MATERIAL OVER 1 1/2" IN DIAMETER, FROZEN LUMPS, OR DEBRIS.
5. BACKFILL SHALL BE COMPACTED TO 95% STANDARD PROCTOR DENSITY.

REHABILITATION PIPE EMBEDMENT – SHEET 2 OF 2 DUCTILE IRON PIPE

MetroConnects	Rev. Date	Rev. Date	Rev. Date	Scale
Metropolitan Sewer Subdistrict	01/29/14	02/24/14	03/18/14	N.T.S.
120 Augusta Arbor Way	02/03/14	03/14/14		Detail No.
Greenville, South Carolina				1



NOTES:

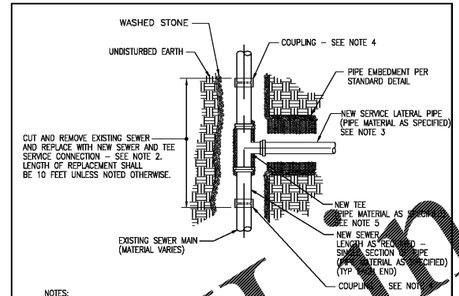
1. NEW SERVICE LATERALS SHALL BE CONNECTED TO THE EXISTING SEWER MAIN BY INSTALLING A NEW DIP OR PVC TEE, OR CONNECTING TO THE EXISTING TEE, AS SPECIFIED AND/OR DIRECTED BY METROCONNECTS. IF THE EXISTING TEE CAN BE REUSED, CAREFULLY EXCAVATE AROUND THE TEE, CAREFULLY REMOVE THE EXISTING LATERAL FROM THE TEE, AND CAREFULLY INSTALL THE NEW SERVICE LATERAL IN THE EXISTING TEE.
2. NEW LATERALS SHALL REPLACE THE EXISTING LATERALS WHERE SPECIFIED. ALL NEW LATERALS SHALL BE 6". THE NEW LATERALS SHALL BE INSTALLED IN THE SAME TRENCH AS THE EXISTING LATERAL AND AT THE SAME GENERAL ROUTE AND CONFIGURATION. CONTRACTOR SHALL IMPROVE THE ROUTE, CONFIGURATION AND SLOPE IF POSSIBLE AND SHALL MINIMIZE BENDS AND FITTINGS. CONTRACTOR SHALL PROVIDE MIN 1% SLOPE. 90-DEGREE BENDS ARE NOT ALLOWED FOR NEW LATERALS EVEN IF THEY HAVE BEEN USED ON THE EXISTING LATERAL. LATERAL SHALL BE EMBEDDED PER REHABILITATION EMBEDMENT DETAIL. SERVICE LATERAL PIPE AND FITTINGS SHALL BE PVC SDR-35 CONFORMING TO ASTM D-3034, CELL CLASSIFICATION 12454-B.

   A MINIMUM OF 3' OF COVER SHALL BE MAINTAINED WITHIN THE SEWER OR ROAD RIGHT OF WAY. ANY LATERAL WITH LESS THAN 5' OR MORE THAN 18' OF COVER OR CONNECTS TO A D.I.P. MAIN SHALL BE CONSTRUCTED WITH SPECIAL CLASS 50 D.I.P. TRANSITIONS FROM PVC MAINS TO D.I.P. LATERALS SHALL BE MADE USING C-900 DR18 X 3034 ADAPTER BUSHING AS MANUFACTURED BY MACON PLASTICS.

   ANY LATERALS INSTALLED UNDER STORM DRAINAGE PIPE WITH LESS THAN 18" SEPARATION SHALL BE CONSTRUCTED WITH SPECIAL CLASS 50 D.I.P. A MINIMUM 10' SECTION OF D.I.P. SHALL BE CENTERED UNDER THE STORM DRAINAGE PIPE.

SERVICE LATERAL REPLACEMENT

MetroConnects	Rev. Date	Rev. Date	Rev. Date	Rev. Date	Scale
Metropolitan Sewer Subdistrict	02/07/12	03/14/12	09/30/15		N.T.S.
120 Augusta Arbor Way	01/20/14	03/17/14			Detail No.
Greenville, South Carolina					2

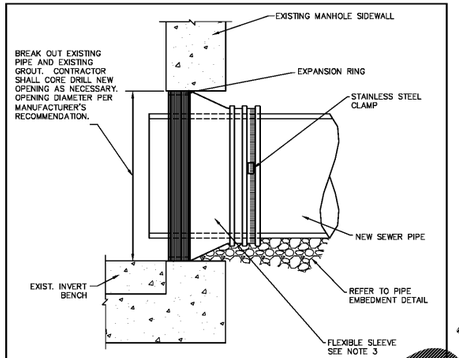


NOTES:

1. REFER TO THIS DETAIL WHEN CONNECTING NEW LATERALS OR RECONNECTING EXISTING SERVICE LATERALS TO EXISTING SEWERS WITH A TEE. TEE CONNECTIONS MAY BE REQUIRED WHEN CONNECTING LATERALS TO EXISTING SEWERS OF POOR STRUCTURAL CONDITION.
2. INSTALL THE NEW SEWER AT A CONSTANT SLOPE BETWEEN THE TWO EXISTING PIPE ENDS.
3. INSTALL FITTINGS, ADAPTERS, TRANSITION GASKETS (FOR CONNECTING PVC LATERAL TO DIP TEE), AND RUBBER COUPLINGS AS NECESSARY TO CONNECT NEW TEE AND SERVICE LATERAL. NEW LATERAL AND TEE BRANCHES SHALL BE 6" IN DIAMETER.
4. SEE STANDARD PIPE COUPLING DETAIL FOR SPECIFIC REQUIREMENTS, APPROVED MANUFACTURER(S) AND SPECIFIC PRODUCT NUMBERS.
5. IF GRADE IS AVAILABLE, ROTATE NEW TEE AT ANGLES FROM HORIZONTAL TO THE LEFT OR RIGHT AS APPROPRIATE. INSTALL FITTINGS AND BENDS AS NECESSARY TO RECONNECT TO EXISTING LATERAL OR TO ROUTE NEW LATERAL ALONG DESIRED ELEVATION. 90° BENDS ARE NOT ALLOWED. SERVICES SHALL NOT ENTER THE TOP OF THE SEWER PIPE. REVIEW ALL TEE CONNECTIONS AND PIPING CONFIGURATION IN THE FIELD WITH METROCONNECTS AFTER THE MAIN SEWER AND SERVICE LATERAL ARE EXPOSED AND PRIOR TO PERFORMING THE WORK. THE CONNECTION OF THE NEW TEE TO THE PIPE BEING LAID FOR THE POINT REPAIR SHALL BE MADE USING MECHANICAL JOINT FITTINGS. SPECIAL HARCO DUCTILE IRON CONNECTION OF NEW TEE WHICH LATERAL TO THE EXISTING LATERAL SHALL BE MADE USING THE SPECIFIED PIPE COUPLINGS. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL OTHER NECESSARY ADAPTERS, FITTINGS AND COUPLINGS TO COMPLETE THE INSTALLATION.
6. MAIN SEWER SHALL BE INSPECTED VIA CLOSED CIRCUIT TELEVISION (CCTV) AFTER INSTALLATION OF LATERAL TO VERIFY PROPER ALIGNMENT OF NEW SEWER AND PROPER CONNECTION TO EXISTING SEWER. ANY OFFSET JOINTS OR MISALIGNMENT SHALL BE CORRECTED PRIOR TO ACCEPTANCE BY METROCONNECTS.

SERVICE LATERAL TEE CONNECTION TO EXISTING SEWER

MetroConnects	Rev. Date	Rev. Date	Rev. Date	Scale
Metropolitan Sewer Subdistrict	01/20/14			N.T.S.
120 Augusta Arbor Way	03/14/14			Detail No.
Greenville, South Carolina	03/17/14			3

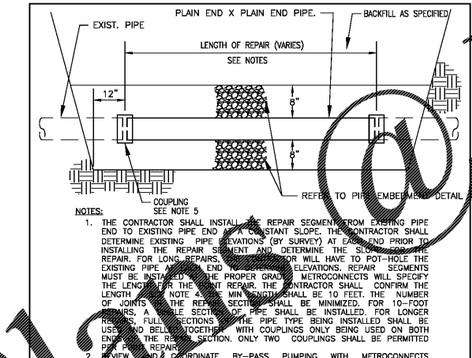


NOTES:

1. THIS DETAIL APPLIES WHENEVER A NEW SERVICE LATERAL OR SEWER MAIN CONNECTS TO AN EXISTING METROCONNECTS MANHOLE.
2. NEW SERVICE LATERALS SHALL TERMINATE IN MANHOLE TO MATCH EXISTING TERMINATION POINT.
3. FLEXIBLE MANHOLE SLEEVES SHALL CONFORM TO ASTM C-923. SLEEVES BY PRESS-SEAL GASKET CORPORATION, EPCO INC, OR NPC INC. OR EQUIVALENT ARE ACCEPTABLE. MAXIMUM DEFLECTION FOR SLEEVE IS 7° (12%). SLOPES GREATER THAN 12% MUST HAVE SLEEVES DESIGNED FOR HIGHER DEFLECTION.

PIPE REPLACEMENT CONNECTION TO EXISTING MANHOLE

MetroConnects	Rev. Date	Rev. Date	Rev. Date	Scale
Metropolitan Sewer Subdistrict	01/26/12			N.T.S.
120 Augusta Arbor Way	06/20/14			Detail No.
Greenville, South Carolina				4



NOTES:

1. THE CONTRACTOR SHALL INSTALL THE REPAIR SEGMENT FROM EXISTING PIPE END TO EXISTING PIPE END AT A CONSTANT SLOPE. THE CONTRACTOR SHALL DETERMINE EXISTING PIPE ELEVATIONS (BY SURVEY) AT EACH END PRIOR TO INSTALLING THE REPAIR SEGMENT AND DETERMINE THE SLOPE OF THE REPAIR. FOR LONG REPAIRS, THE CONTRACTOR WILL HAVE TO POT-HOLE THE EXISTING PIPE AT EACH END TO DETERMINE ELEVATIONS. REPAIR SEGMENTS MUST BE INSTALLED TO THE PROPER GRADE. METROCONNECTS WILL SPECIFY THE LENGTH OF THE POINT REPAIR. THE CONTRACTOR SHALL CONFIRM THE LENGTH AND NOTE ANY SAG. MIN LENGTH SHALL BE 10 FEET. THE NUMBER OF JOINTS IN THE REPAIR SECTION SHALL BE MINIMIZED. FOR 10-FOOT REPAIRS, A SINGLE SECTION OF PIPE SHALL BE INSTALLED. FOR LONGER REPAIRS, FULL SECTIONS OF THE PIPE TYPE BEING INSTALLED SHALL BE USED AND BELLED TOGETHER WITH COUPLINGS ONLY BEING USED ON BOTH ENDS OF THE FINAL SECTION. ONLY TWO COUPLINGS SHALL BE PERMITTED PER POINT REPAIR.
2. REVIEW AND COORDINATE BY-PASS PUMPING WITH METROCONNECTS PERSONNEL PRIOR TO EXCAVATION.
3. FOR EXISTING CLAY PIPE. UPSTREAM – REMOVE DAMAGED PIPE TO NEAREST SOUND DOWNSTREAM – SAWCUT AND COMPLETELY REMOVE BELL END OF FIRST GOOD SECTION OF PIPE.
4. LOOK UP THE EXISTING PIPE ON EACH END TO MAKE SURE THAT THE REPAIR IS EXTENDED FAR ENOUGH TO COMPLETELY REPAIR THE DEFECT. REVIEW REMOVAL LIMITS OF DAMAGED PIPE WITH METROCONNECTS PERSONNEL PRIOR TO REMOVAL.
5. SEE STANARD PIPE COUPLING DETAIL FOR SPECIFIC REQUIREMENTS, APPROVED MANUFACTURER(S) AND SPECIFIC PRODUCT NUMBERS.
6. FOR LINES DAMAGED BY OTHER UTILITIES, RELOCATE OR HAVE THE UTILITY RELOCATED BY THE UTILITY COMPANY TO PROVIDE A MINIMUM 6" SEPARATION BELOW OR ABOVE SEWER LINE.
7. SERVICE LATERALS LOCATED WITHIN REPAIR SEGMENTS SHALL BE CONNECTED TO THE NEW SEWER WITH A TEE. SEE STANDARD DETAIL FOR TEE CONNECTION.
8. THE COMPLETED POINT REPAIR SHALL BE INSPECTED VIA CLOSED CIRCUIT TELEVISION, BY OWNER, FOR FINAL ACCEPTANCE. THE REPAIR MUST BE STRAIGHT AND ON CONSTANT GRADE WITH NO MISALIGNED/OFFSET JOINTS. THE CONTRACTOR SHALL REPAIR ANY DEFECTS TO THE SATISFACTION OF METROCONNECTS. MAX ALLOWABLE GAP BETWEEN EXISTING AND NEW PIPE SHALL BE 1/2".

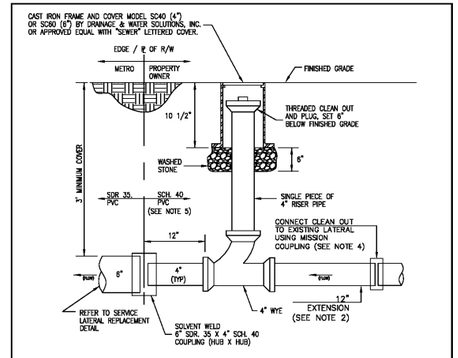
SEWER MAIN REPAIR

MetroConnects	Rev. Date	Rev. Date	Rev. Date	Scale
Metropolitan Sewer Subdistrict	01/26/12	03/17/14		N.T.S.
120 Augusta Arbor Way	01/20/14			Detail No.
Greenville, South Carolina				5

New Pipe Material	Existing Pipe Material	Mission Part No. or Ferncо Part No.	Comments
6" DIP	4" PVC	1051-46RC	Manufactured by Ferncо
	4" DIP	MR55 64	Not Available in ARC
	4" CIP	1051-46RC	Manufactured by Ferncо
	4" VCP	MR51 65	Not Available in ARC
	5" PVC	MR51 66 ARC	
	5" DIP	MR55 66 ARC	
	5" CIP	MR51 66 ARC	
	5" VCP	MR03 66 ARC	
6" PVC	4" PVC	MR56 64 ARC	
	4" DIP	MR03 54 ARC	ARC may be a special order item
	4" CIP	MR56 64 ARC	
	4" VCP	MR02 46 ARC	ARC may be a special order item
	6" PVC	MR56 66 ARC	
	6" DIP	MR51 66 ARC	
	6" CIP	MR56 66 ARC	
	6" VCP	MR02 66 ARC	

PIPE COUPLINGS FOR SERVICE LATERALS

MetroConnects	Rev. Date	Rev. Date	Rev. Date	Scale
Metropolitan Sewer Subdistrict	01/23/14			N.T.S.
120 Augusta Arbor Way	02/24/14			Detail No.
Greenville, South Carolina				6



NOTES:

1. ALL REPLACEMENT SERVICE LATERALS SHALL INCLUDE A NEW CLEAN OUT AS SHOWN. MINIMUM GRADE OF 1% REQUIRED.
2. FOR COMMERCIAL PROPERTIES REQUIRING 6" SERVICE, PROVIDE 6" DIAMETER CLEAN OUT AND PIPING.
3. CONSTRUCTION OF CLEAN OUT AND APPURTENANCES SHALL BE IN ACCORDANCE WITH COUNTY BUILDING CODES.
4. CONTRACTOR SHALL CONNECT THE NEW 6" LATERAL TO THE EXISTING LATERAL AT THE EDGE OF THE PERMANENT SEWER R/W OR ROAD R/W. EXISTING LATERALS MAY BE 4" OR 6" AND MAY BE VCP, PVC, CIP, OR DIP. THE CONNECTION SHALL BE MADE USING THE APPROPRIATE COUPLING – REFER TO STANDARD DETAIL NO. 6 FOR REQUIREMENTS. NOTE THAT SPECIAL TRANSITION COUPLINGS ARE REQUIRED FOR 6" TO 4" CONNECTIONS. THE CONNECTION SHALL BE WATERTIGHT.

SANITARY SEWER SERVICE CLEANOUT

MetroConnects	Rev. Date	Rev. Date	Rev. Date	Scale
Metropolitan Sewer Subdistrict	09/30/15			N.T.S.
120 Augusta Arbor Way				Detail No.
Greenville, South Carolina				7

SOUTH CAROLINA PROFESSIONAL ENGINEER No. 20596 JOHN LIAM DORN
01/29/2018

SOUTH CAROLINA GAVEL & DORN ENGINEERING, PLLC C03734 CERTIFICATE OF AUTHORIZATION

METROPOLITAN SEWER SUBDISTRICT
120 Augusta Arbor Way
Greenville, SC 29605
864-277-5212

PREPARED BY:
Gavel & Dorn Engineering, PLLC
License No. C-3734
6730 Freedom Dr.
Charlotte, NC 28214

PROJECT: SOUTH GREENVILLE POINT REPAIR PROJECT

SHEET TITLE: DETAILS

MARK	DATE	DESCRIPTION

Apprvd.

Date: 01-29-18

Chkd: JLD

Drwn: MBL

Scale: NTS

Project Number 16-4005

Sheet D-1

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