

UTILITY CONSTRUCTION



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UTILITY CONSTRUCTION

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13. SANITARY SEWER FLUSHING AT COMPLETION OF WORK, LINES SHALL BE THOROUGHLY CLEANED BY FLUSHING WITH WATER TO REMOVE ALL DIRT AND DEBRIS. PIPELINE SHALL BE FLUSHED AT A RATE OF AT LEAST 2.5 FEET PER SECOND FOR A DURATION SUITABLE TO THE NCDOT/SRU INSPECTOR. CITY WATER MAY BE USED (WHEN AVAILABLE AND A BULK WATER PERMIT IS PURCHASED) TO FLUSH SEWER LINES OR AN APPROVED SOURCE OF NON-POTABLE WATER (WATER MUST BE FREE OF ANY CHEMICALS, SILT, OR DEBRIS) MY BE USED TO FLUSH SEWER LINES. ALL FLUSH WATER MUST BE COLLECTED IN A PLEGGED MANHOLE AND PUMPED OUT. SEWER FLUSH WATER SHALL NOT BE ALLOWED TO ENTER THE CITY'S SEWER SYSTEM.

14. SANITARY SEWER OBSTRUCTIONS/VISUAL INSPECTION. THE PIPE SHALL BE VISUALLY INSPECTED FROM MANHOLE TO MANHOLE USING LIGHTS, MIRRORS, OR OTHER DEVICES (CCTV) FOR VISUAL INSPECTION. ALL OBSTRUCTIONS SHALL BE REMOVED, AND THE LINES FROM ONE MANHOLE TO THE NEXT SHALL EXHIBIT A FULLY CIRCULAR PATTERN. LINES WHICH DO NOT EXHIBIT A TRUE LINE AND GRADE OR HAVE STRUCTURAL DEFECTS SHALL BE CORRECTED TO MEET SPECIFICATIONS. THE NCDOT/SRU INSPECTOR MAY REQUIRE INSPECTION BY TELEVISION CAMERA (CCTV) OF ANY SEWER LINES OR LATERALS.

THE CCTV EQUIPMENT MUST PROVIDE ADEQUATE LIGHT FOR THE CAMERA AND BE OF HIGH VIDEO QUALITY (INCLUDING THE VIDEO TAPES OR DVD) TO PROPERLY SHOW THE INSIDE OF THE PIPE. EACH LINE AND LATERAL MUST BE MARKED WITH AN IDENTIFYING NUMBER AND SHOWN ON THE VIDEO TAPE OR DVD AND A LOG OF ANY PROBLEMS FOUND, ALONG WITH THE LINE NUMBER AND FOOTAGE AND/OR LATERAL NUMBER MUST BE INCLUDED WITH THE VIDEO TAPES OR DVD. ALL TESTING SHALL BE DONE AT NO COST TO THE NCDOT, SRU NOR CITY OF SALISBURY.

15. SANITARY SEWER LEAKAGE LEAKAGE TESTS SHALL BE CONDUCTED ON A SCHEDULE AGREED UPON BY THE NCDOT/SRU INSPECTOR, ENGINEER, AND THE CONTRACTOR. ENGINEER OR THE ENGINEER'S DESIGNATED REPRESENTATIVE MUST BE ON SITE FOR ALL REQUIRED TESTING. NCDOT/SRU INSPECTION IS REQUIRED DURING LEAKAGE TESTS. LOW PRESSURE AIR TESTING SHALL BE USED TO TEST FOR LEAKAGE IN SEWER LINES AND LATERALS. THE TEST SHALL BE IN ACCORDANCE WITH ASTM F 1417 AS MODIFIED HEREIN. THE PIPELINE IS CONSIDERED ACCEPTABLE IF WHEN TESTED AT A PRESSURE OF 4.0 PSI (OR GREATER THAN THE AVERAGE BACK PRESSURE OF ANY GROUND WATER THAT MAY SUBMERGE THE PIPE) THE SECTION UNDER TEST DOES NOT LOSE MORE THAN 0.5 PSIG WITHIN THE ALLOTTED TEST TIME (SEE APPENDIX B). NCDOT/SRU INSPECTION OF THE TEST IS REQUIRED.

16. SANITARY SEWER DEFLECTION TEST NO SOONER THAN THIRTY(30) DAYS AFTER FINAL BACK FILL INSTALLATION, EACH SECTION OF PVC PIPE SHALL BE CHECKED FOR VERTICAL DEFLECTION USING A RIGID "GO-NO/GO" (MANDREL) DEVICE. THE MANDREL USED FOR THE DEFLECTION TEST SHALL HAVE A DIAMETER NOT LESS THAN 95 PERCENT OF THE BASE INSIDE DIAMETER OR AVERAGE INSIDE DIAMETER OF PIPE DEPENDING ON WHICH IS SPECIFIED IN THE ASTM SPECIFICATION, TO WHICH THE PIPE IS MANUFACTURED. THE PIPE SHALL BE MEASURED IN COMPLIANCE WITH ASTM D2122 STANDARD TEST METHOD OF DETERMINING DIMENSIONS OF THERMOPLASTIC PIPE AND FITTINGS. THE TEST SHALL BE PERFORMED WITHOUT MECHANICAL PULLING DEVICES. VERTICAL DEFLECTION SHALL NOT EXCEED 5% OF THE INSIDE PIPE DIAMETER. PIPE EXCEEDING THE ALLOWABLE LIMIT SHALL BE REPAIRED AND RE TESTED. ENGINEER OR THE ENGINEER'S DESIGNATED REPRESENTATIVE MUST BE ON SITE FOR ALL REQUIRED TESTING. NCDOT/SRU INSPECTION OF THE TEST IS REQUIRED.

17. SANITARY SEWER MANHOLE VACUUM TEST ALL TESTING SHALL BE PERFORMED IN THE PRESENCE OF THE ENGINEER OR DESIGNATED REPRESENTATIVE. EVERY MANHOLE SHALL BE CHECKED FOR AIR TIGHTNESS PRIOR TO SETTING OF THE MANHOLE RING AND COVER. ALL MANHOLES, WHETHER WITH PRECAST BASE SECTIONS OR Poured-IN-PLACE BASE, SHALL BE VACUUM TESTED. ALL LIFT HOLES SHALL BE PLUGGED WITH A NON-SHRINK GROUT. ALL PIPES ENTERING OR LEAVING THE MANHOLE SHALL BE PLUGGED, TAKING CARE TO SECURELY BRACE THE PLUG FROM BEING DRAWN INTO THE MANHOLE DURING THE TEST. CITY INSPECTION OF THE TEST IS REQUIRED WITH A 48 HOUR MINIMUM NOTICE. ALL MANHOLES REGARDLESS OF SEWER LINE SIZE (PUBLIC OR PRIVATE) SHALL BE TESTED AND INSPECTED TO NCDOT/SRU UNIFORM CONSTRUCTION STANDARDS AND SPECIFICATIONS REQUIREMENTS.

1. THE VACUUM EQUIPMENT TEST HEAD SHALL BE PLACED AT THE INSIDE OF THE TOP OF THE CONE SECTION, THE SEAL INFLATED IN ACCORDANCE WITH THE MANUFACTURE'S RECOMMENDATIONS.

2. A VACUUM OF 10-INCHES OF MERCURY SHALL BE DRAWN AND THE VACUUM PUMP SHUT OFF.

3. WITH THE VALVES CLOSED, THE TIME SHALL BE MEASURED FOR THE VACUUM TO DROP TO 9-INCHES OF MERCURY.

4. THE TEST TIME SHALL BE CORRELATED TO THE MANHOLE AS FOLLOWS:
48" = 60 SECONDS, 60" = 75 SECONDS
72" = 97 SECONDS, 96" = 133 SECONDS
120" = 170 SECONDS

5. IF THE MANHOLE FAILS THE INITIAL TEST, NECESSARY REPAIRS SHALL BE MADE AT THE CONTRACTOR'S EXPENSE WITH AN APPROVED NON-SHRINK GROUT ON THE OUTSIDE OF THE MANHOLE WHILE THE MANHOLE IS BEING DRAWN.

6. THE RE-TESTING AND REPAIRING SCHEDULE CYCLE SHALL CONTINUE UNTIL THE MANHOLE PASSES THE TEST.

WATER LINES - GENERAL NOTES:

1. Concrete blocking (3000 psi) to be placed at all bends or as required unless Mega Lugs or restrained joints are used.

2. Standard depth of cover to be 3 feet except at valve or hydrant locations or other special situations. Cover is based on elevation below edge or pavement or as indicated on the plans.

3. Provide poured in place concrete pads (18" x 18" x 6") (or concrete "donuts" may be used as an alternative at the discretion of the Utilities Inspector) at all valve boxes.

4. Extensions for valve boxes, when required, are to be valve boxes or DIP (no PVC or C900).

5. All pavement cuts, concrete or asphalt, are to be replaced according to the standard details or as required by the North Carolina Department of Transportation.

6. Pavement cuts are to be replaced immediately after backfilling of initial cut either with permanent replacement or a temporary replacement of 10" of base if approved by the City (for City maintained streets) or DOT (for state maintained streets).

7. Repairs to main breaks:
(a) Solid sleeves to be used for connecting spigot ends shall be of the long body type.
(b) All repairs shall be inspected by City before backfilling.

8. In any instance where it will be necessary to have the water shut off on existing mains in order to make a tie-in, the work must be done by City forces or a contractor working for the City, scheduled 48 hours to 7 days in advance depending on the location and types of businesses that will be affected.

9. When a water main crosses an existing sewer main, the contractor is to replace the sewer pipe spanning the ditch with ductile pipe when the following conditions occur:

(a) Anytime a water main is installed under a sewer main.
(b) When a water main is over a sewer main and the vertical distance between the two mains is 18" or less (minimum 12" clearance between water and sewer lines).

10. Water mains shall be installed with a minimum of 10' horizontal separation from sewer lines. Where this is not possible, both the water line and sewer line shall be ductile iron pipe.

11. Water lines shall be disinfected and hydrostatically tested in accordance with all State and City of Salisbury requirements.

12. All plans shall meet all Federal, State, City of Salisbury, and Salisbury-Rowan Utilities regulations, design criteria, and construction standards.