

GENERAL SEWER SPECIFICATIONS

ALL CONNECTIONS TO THE TOWN OF RICHMOND SEWER SYSTEM MUST ADHERE TO SECTION 5, SANITARY SEWER STANDARDS, OF THE TOWN OF RICHMOND PUBLIC IMPROVEMENTS STANDARDS & SPECIFICATIONS. A REPRESENTATIVE OF THE TOWN OF RICHMOND PUBLIC WORKS DEPARTMENT SHALL WITNESS ALL CONNECTIONS AND WORK PERFORMED ON EXISTING SEWER INFRASTRUCTURE. THE FOLLOWING ARE APPLICABLE SUBSECTIONS OF SECTION 5.

5.2 MATERIALS

B. POLYVINYL CHLORIDE PIPE (PVC) FOR GRAVITY SEWERS

PVC SEWER PIPE SHALL CONFORM IN ALL RESPECTS TO THE LATEST REVISION OF ASTM SPECIFICATIONS D-3034 OR F679, TYPE PSM, POLYVINYL CHLORIDE (PVC) SEWER PIPE AND FITTINGS, SDR35. WALL THICKNESS OF ALL PVC PIPE SHALL MEET ASTM SPECIFICATIONS FOR SDR35 PIPE. ALL PIPE AND FITTINGS SHALL BE CLEARLY MARKED AS FOLLOWS:

MANUFACTURER'S NAME AND TRADEMARK
NOMINAL PIPE SIZE
MATERIAL DESIGNATION 12454C PVC OR 12364C PVC
LEGEND "TYPE PSM SDR35 PVC SEWER PIPE" OR
"PS 48 SEWER PIPE"
DESIGNATION ASTM D-3034 OR F679

JOINTS SHALL BE PUSH-ON TYPE USING ELASTOMERIC GASKETS AND SHALL CONFORM TO ASTM F-477 AND D-3212. THE GASKETS SHALL BE FACTORY INSTALLED.

THE PIPE SHALL BE FURNISHED IN NOMINAL 13-FOOT LENGTHS, SUFFICIENT NUMBERS OF SHORT LENGTHS AND FULL MACHINE FITTINGS SHALL BE PROVIDED FOR USE AT MANHOLES, CHIMNEYS, AND CONNECTIONS. ALL CONNECTIONS WILL REQUIRE THE USE OF MANUFACTURED FITTINGS. FIELD FABRICATED, SADDLE-TYPE CONNECTIONS WILL NOT BE CONSIDERED ACCEPTABLE.

ANY PIPE OR FITTING HAVING A CRACK OR OTHER DEFECT OR WHICH HAS RECEIVED A SEVERE BLOW SHALL BE MARKED REJECTED AND REMOVED AT ONCE FROM THE WORK SITE.

ALL FIELD CUTS ARE TO BE MADE WITH SAW AND 90 DEGREE MITER BOX. BEVEL THE CUT END TO THE SAME AS THE FACTORY BEVEL AND REMOVE ALL INTERIOR BURRS. MEASURE AND PLACE A HOMING MARK ON THE PIPE BEFORE ASSEMBLING. THE PIPE INSTALLED UNDER THIS SPECIFICATION SHALL BE INSTALLED SO THAT THE INITIAL DEFLECTION, MEASURED AS DESCRIBED BELOW, SHALL BE LESS THAN 5%.

DEFLECTION TESTS SHALL BE PERFORMED ON ALL FLEXIBLE PIPE AFTER THE FINAL BACKFILL HAS BEEN IN PLACE FOR AT LEAST 30 DAYS. THE DEFLECTION TEST SHALL BE USING A RIGID BALL OR MANDREL, WITH A DIAMETER EQUAL TO 95 PERCENT OF THE NOMINAL DIAMETER OF THE PIPE. NO MECHANICAL PULLING DEVICES SHALL BE USED DURING THE DEFLECTION TESTS. ALL PIPE NOT MEETING THE DEFLECTION TEST SHALL BE RE-EXCAVATED AND REPLACED AT THE CONTRACTOR'S EXPENSE.

THE MANHOLE WATER STOP GASKET AND STAINLESS STEEL CLAMP ASSEMBLY MUST BE APPROVED BY THE TOWN PRIOR TO THE INSTALLATION OF ANY PIPE.

THE CONTRACTOR WILL SUBMIT CERTIFICATION THAT THE MATERIALS OF CONSTRUCTION HAVE BEEN SAMPLED, TESTED, INSPECTED AND MEET ALL THE REQUIREMENTS INCLUDING WALL THICKNESS IN ACCORDANCE WITH ASTM D3034 OR ASTM F679 FOR ALL PIPE AND FITTINGS TO BE INCLUDED IN THE PROJECT WORK.

PVC PIPE SHALL NOT BE INSTALLED WHEN THE TEMPERATURE DROPS BELOW 32 DEGREES FAHRENHEIT OR GOES ABOVE 100 DEGREES FAHRENHEIT. DURING COLD WEATHER, THE FLEXIBILITY AND IMPACT RESISTANCE OF PVC PIPE IS REDUCED. EXTRA CARE IS REQUIRED WHEN HANDLING PVC PIPE DURING COLD WEATHER.

PVC PIPE SHALL NOT BE STORED OUTSIDE AND EXPOSED TO PROLONGED PERIODS OF SUNLIGHT, AS PIPE DISCOLORATION AND REDUCTION IN PIPE IMPACT STRENGTH WILL OCCUR. CANVAS OR OTHER OPAQUE MATERIAL SHALL BE USED TO COVER PVC PIPE STORED OUTSIDE.

5.3 CONSTRUCTION METHODS

A. EXCAVATIONS

EXCAVATIONS SHALL BE MADE TO A POINT AT LEAST 6" BELOW THE PIPE INVERT TO ACCOMMODATE THE BEDDING MATERIAL. EXCAVATIONS ARE TO BE KEPT DRY WHILE PIPE IS BEING LAID AND UNTIL EACH JOINT AND PIPE HAS BEEN INSPECTED BY THE TOWN AND APPROVAL GIVEN TO COMMENCE BACKFILLING OPERATIONS.

GENERAL WATER SPECIFICATIONS

ALL CONNECTIONS TO THE TOWN OF RICHMOND WATER SYSTEM MUST ADHERE TO SECTION 4, WATER DISTRIBUTION STANDARDS, OF THE TOWN OF RICHMOND PUBLIC IMPROVEMENTS STANDARDS & SPECIFICATIONS. A REPRESENTATIVE OF THE TOWN OF RICHMOND PUBLIC WORKS DEPARTMENT SHALL WITNESS ALL CONNECTIONS AND WORK PERFORMED ON EXISTING WATER INFRASTRUCTURE. THE FOLLOWING ARE APPLICABLE SUBSECTIONS OF SECTION 4.

4.4 WATER SERVICE CONNECTION

A. GENERAL REQUIREMENTS:

THE CONTRACTOR SHALL INSTALL 3/4" - 2" COPPER SERVICES AS INDICATED ON THE CONTRACT DRAWINGS OR AS DIRECTED BY THE TOWN. EACH SERVICE SHALL CONSIST OF A CORPORATION, CURBSTOP, COPPER TUBING, AND A CURB BOX WITH SERVICE ROD. CORPORATION SHALL BE ATTACHED TO THE DUCTILE IRON PIPE BY MEANS OF A DIRECT TAP AND TO PVC PIPE THROUGH THE USE OF AN APPROVED SADDLE.

B. CORPORATIONS:

CORPORATIONS SHALL BE WATERWORKS BRASS AND MANUFACTURED IN ACCORDANCE WITH APPLICABLE AWWA STANDARDS. CORPORATIONS SHALL HAVE MUELLER THREADS, ADOPTED AS AWWA FIGURE 1, AT THE INLET AND A COMPRESSION-TYPE FITTING AT THE OUTLET. BOTH INLET AND OUTLET SHALL BE OF THE SAME SIZE.

CORPORATIONS SHALL BE DIRECTLY TAPPED INTO DUCTILE IRON PIPE LARGER THAN 2" IN DIAMETER. IN NO OTHER INSTANCE, EXCEPT WHEN A TAPPING SLEEVE AND VALVE IS USED, SHALL A TAP BE MADE WITHOUT A CORPORATION. CORPORATIONS SHALL BE MUELLER H15009 OR EQUAL. CORPORATIONS SHALL BE INSTALLED ON PVC PIPE WITH THE USE OF AN APPROVED STAINLESS STEEL BAND SADDLE.

C. CURBSTOP:

CURBSTOP SHALL BE A QUARTER-TURN, PLUG-TYPE VALVE WITH AN 18" MIN. LENGTH OF PIPE OVER SEWER. THE CURBSTOP SHALL OPEN LEFT AND HAVE A POSITIVE STOP. NO CURBSTOP SHALL HAVE THE ABILITY TO DRAIN THE SERVICE LINE. BOTH INLET AND OUTLET OF THE CURBSTOP SHALL HAVE COMPRESSION-TYPE FITTINGS. THE TEE HEAD OF THE CURBSTOP SHALL HAVE PROVISION FOR THE CONNECTION OF A SERVICE ROD. CURBSTOP SHALL BE MUELLER H-1504-2 OR EQUAL.

AN 18" MIN. LENGTH OF PIPE OVER SEWER SHALL BE PROVIDED. A CURBSTOP SHALL BE CONSTRUCTED FOR A MIN. DISTANCE OF 18" FROM THE OTHER SIDE OF THE CROSSING.

B) SEWER PIPE SECTION CONSTRUCTION. THE APPROVED CURBSTOP MUST BE PRESSURE TESTED TO 50 PS FOR 15 MINUTES WITHIN 24 HRS.

C) ADEQUATE STRUCTURAL SUPPORT SHALL BE PROVIDED FOR THE CURBSTOP TO PREVENT DAMAGE TO THE WATER MAIN.

SEWER/WATER SEPARATION DETAIL FOR CROSSINGS

GENERAL WATER SPECIFICATIONS

B. LAYING SEWER PIPE

THE BELL END OF THE PIPE SHALL FACE UPGRADE AT ALL TIMES AND BE PLACED IN SUCH A POSITION AS TO MAKE THE INVERT EVEN WHEN THE SUCCEEDING SECTION IS INSERTED. WHERE REQUIRED BY ADVERSE GRADING CONDITIONS, THE CONTRACTOR SHALL FILL IN A GULLY TO MAKE THE GULLY BEDDING FIRM. SEWER PIPE JOINTS SHALL BE MECHANICALLY COMPACTED TO A 95% DRY DENSITY BY THE AASHTO-T-99, METHOD A (STANDARD PROCTOR) TEST, UPON WHICH THE 6" OF BEDDING MATERIAL SHALL BE PLACED.

ANY PIPE WHICH IS NOT LAID TO GRADE AND ALIGNMENT SHALL BE RE-LAID TO THE SATISFACTION OF THE TOWN. THE BEDDING MATERIAL SHALL BE PLACED AND COMPACTED ON EACH SIDE OF THE PIPE TO A HEIGHT EQUAL TO ONE-HALF THE PIPE DIAMETER AND FOR THE FULL WIDTH OF THE EXCAVATED TRENCH AND AS SHOWN ON THE ACCEPTED PLANS.

BEDDING MATERIALS SHALL BE AS FOLLOWS:

PVC GRAVITY PIPE - 1/4" - 1 1/2" CRUSHED STONE
PVC FORCE MAIN - SAND OR GRAVEL

C. BACKFILL

BACKFILL SHALL CONSIST OF APPROVED MATERIAL PLACED IN 6" LAYERS WITH EACH LAYER BEING THOROUGHLY COMPACTED TO NOT LESS THAN 95% PERCENT OF MAXIMUM DRY DENSITY AS DETERMINED BY THE AASHTO-T-99 STANDARD PROCTOR BY MEANS APPROVED BY THE TOWN. NO STONES IN EXCESS OF 1" IN DIAMETER SHALL BE PLACED WITHIN 1' OF THE INVERT OF THE PIPE. PARTICULAR PRECAUTIONS SHALL BE TAKEN IN PLACEMENT AND COMPACTION OF THE BACKFILL MATERIAL IN ORDER NOT TO DAMAGE AND/OR BREAK THE PIPE. THE BACKFILL SHALL BE BROUGHT UP EVENLY ON BOTH SIDES OF THE PIPE FOR ITS FULL LENGTH.

WALKING OR WORKING ON THE COMPLETED PIPELINE, EXCEPT AS MAY BE NECESSARY IN TAMPING OR BACKFILLING, SHALL NOT BE PERMITTED UNTIL THE TRENCH HAS BEEN BACKFILLED TO A HEIGHT OF AT LEAST 2' ON THE TOP OF THE PIPES. DURING CONSTRUCTION, ALL OPENINGS TO THE PIPELINES SHALL BE PROTECTED FROM THE ENTERING OF EARTH OR OTHER MATERIALS.

I. SEWER SERVICE CONNECTIONS

WHERE REQUIRED ON THE PLANS, SEWER SERVICE CONNECTIONS FOR ONE HOUSE SHALL BE CONSTRUCTED IN 6" PIPE FROM THE MAIN TO THE EXCAVATED RISE OF THE TOWN AND A MINIMUM 10' OF PIPE TOWARD THE RIGHT-OF-WAY TO THE HOUSE. THE TYPE OF MATERIAL SPECIFIED IN THIS SECTION, THE PIPE SHALL BE LAID AND ITS JOINTS MADE AS REQUIRED FOR SEWER CONSTRUCTION IN THIS SPECIFICATION.

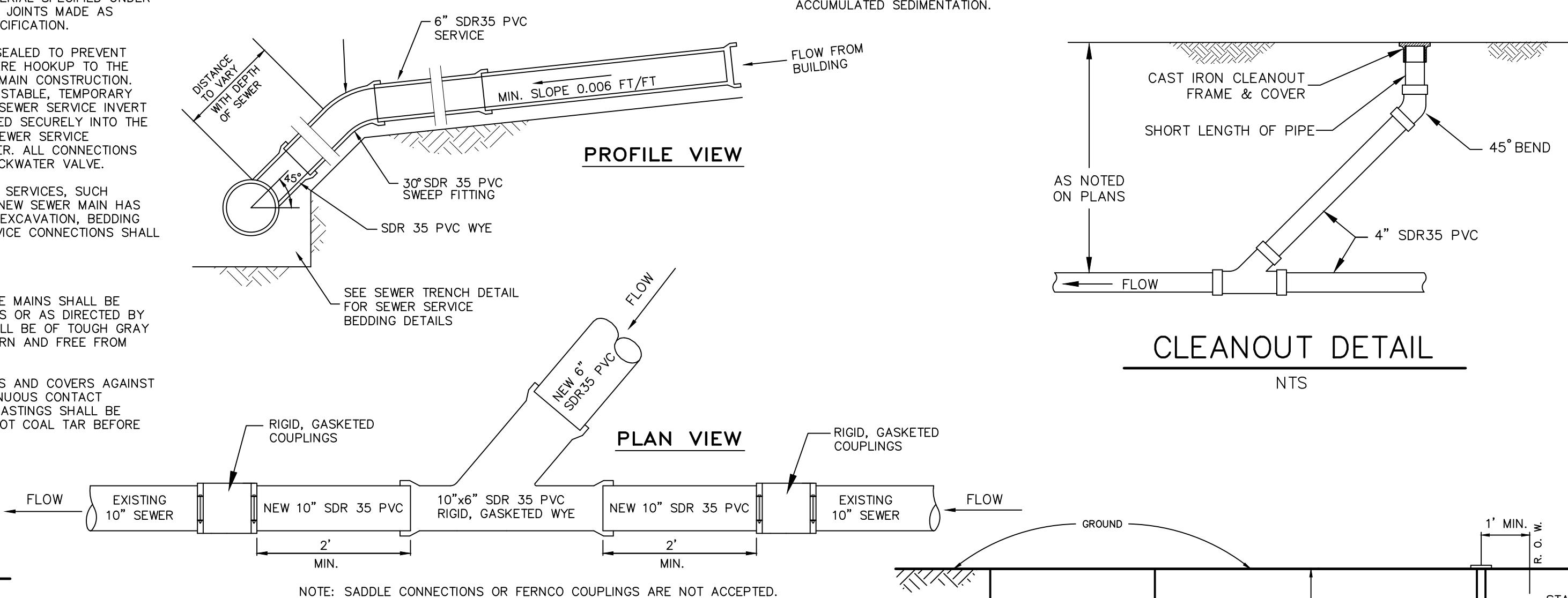
OPEN ENDS OF PIPES SHALL BE PROPERLY SEALED TO PREVENT DAMAGE AND INTRUSION OF FOREIGN MATERIAL WHERE HOOKUP TO THE BUILDING SEWER IS NOT COINCIDENT WITH SEWER MAIN CONSTRUCTION. ADDITIONALLY, THE CONTRACTOR WILL PROVIDE A STABLE, TEMPORARY MARKER APPROVED BY THE ENGINEER FROM THE SEWER SERVICE INVERT UP TO 6" ABOVE THE FINISHED GRADE AND SEALED SECURELY INTO THE GROUND FOR EASE IN RELOCATING THE END OF SEWER SERVICE CONNECTION FOR HOOKING UP THE BUILDING SEWER. ALL CONNECTIONS WITH SUBSURFACE FIXTURES, MUST INSTALL A BACKWATER VALVE.

IN THE CASE OF RECONNECTION OF EXISTING SERVICES, SUCH RECONNECTIONS WILL BE MADE ONLY AFTER THE NEW SEWER MAIN HAS BEEN CONSTRUCTED, TESTED AND ACCEPTED. THE EXCAVATION, BEDDING MATERIAL, INSTALLATION, AND BACKFILL FOR SERVICE CONNECTIONS SHALL BE SAME AS FOR SEWER MAINS.

J. SEWER PIPE INSTALLATION

CLEANOUTS FOR GRAVITY SEWERS AND FORCE MAINS SHALL BE PROVIDED AT LOCATIONS INDICATED ON THE PLANS OR AS DIRECTED BY THE TOWN. CLEANOUT FRAMES AND COVERS SHALL BE OF TOUGH GRAY CAST IRON. CASTINGS SHALL BE TRUE TO PATTERN AND FREE FROM FLAWS.

THE BEARING SURFACE OF CLEANOUT FRAMES AND COVERS AGAINST EACH OTHER SHALL BE MACHINED TO GIVE CONTINUOUS CONTACT THROUGHOUT THEIR CIRCUMFERENCE. ALL IRON CASTINGS SHALL BE THOROUGHLY CLEANED AND THEN COATED WITH HOT COAL TAR BEFORE BEING DELIVERED.



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