

Plan Review Submission Guidelines

Gravity, Low Pressure Force Main, and As-Builts

Annex A - Design of Sewers

Approval Process - Section 1.28, pg. 4

Before the final approval of any sewer system, the engineer or developer shall submit two (2) sets of plans on 24" x 36" with a scale of 1 inch = 40 feet Horizontal for the plan view and 1 inch = 10 feet Vertical for the profile view for the sewer plan design with the following criteria specified below:

The design review shall meet the following requirements:

1. Provide discharge calculations for the proposed development based upon occupancy and type of business.
2. The proposed sewer pipe shall be delineated in thick bold lines on the plan and the other utilities are to be drawing lighter to distinguish the separation.
3. The plan should indicate if the development is to be privately owned or public owned. If the development is to be privately owned add a note in upper left quadrant that states: **"The sanitary sewer system is to be privately owned, operated, and maintained. A sewer operation and maintenance plan and agreement, including an emergency action plan, is to be developed and recorded in the land evidence records as part of the development condominium document."**
4. The elevations shall be based on the City of Cranston's Mean High Water (MHW) datum. The most common conversion is NAVD 88 - 1.52 = CMHW
5. The plan shall be drawn so the north arrow is in the upper quadrant right quadrant.
6. A title block with the project name, address, plat and lot, and revision date is required on all plans. Plans shall be stamped and signed by either a P.E. or a P.L.S. Two copies. For the final as-built two (2) copies will need to be printed in Mylar.
7. Provide station numbers on all manhole structures and service tees on the plan view.
8. Specify the type of manhole (dog house or precast) on the plan and profile.
9. A profile shall be included with station numbers labeled on all manhole structures and service tees. Ledge, utilities, and any known obstruction shall be delineated on the profile.
10. The distance of sewer service lines shall be shown between segments and from the main to the clean out. In addition, the depth of the cleanout or curb stop shall be indicated on the plan.
11. The clean out or curb stop shall be delineated on the map and be located on the private property outside, but in close proximity to, the City or State ROW.

12. Label the size, type, slope, and length of all sewer pipes on the sewer plan and profile. Indicate locations where pipe sizes change and provide station numbers where needed.
13. Add details for gravity sewer main including: Lateral Diagram, Sewer Manhole Detail, Gravity Trench Detail, and Utility Crossings, if any.
14. Provide the City of Cranston's Sewer Construction Notes on plan.
15. If an air release is required, provide a detail, specifications, and calculations. The air release shall be delineated on the plan and profile.
16. For Low Pressure Force Mains: Flushing Connections, Terminal Flushing Connections, E-One Pump manholes shall be indicated on a separate details sheet. In addition, the alarm panel, LPFM Trench Detail, and LPFM diagram shall also be indicated on the details sheet.
17. The elevation of each pump should be indicated on the plan with the pressure rating.
18. For low pressure force main designs, provide e-one specifications for the type of pump used and provided supporting calculations based on the type of occupancy and intended use of the proposed development.
19. Gravity sewer pipe laterals to individual building or homes shall be 6" PVC SDR-35 and the Low Pressure Force Main laterals to individual buildings or homes shall be 1.5" or 2" Green Sewer Service Tubing (CTS) ASTM D2737 rated at 200 psi or greater (SDR 9, 11, OR 21 type). Gravity sewer connections to developments shall be 8-inch PVC SDR-35 type. In a case where lateral cannot meet a minimum velocity of 3 ft/s, then it is may be sized to 6-inch diameter with approval from the City of Cranston Public Works Director.
20. If the developer intends to use a duplex, triplex, or quadraplex pump, provide ballast specifications for that type of pump with the corresponding calculations in accordance with manufacturer specification.
21. For developments using a privately owned pumped system, a documented maintenance agreement shall be submitted prior to project closeout with the final as-built. The developer shall provide an O&M agreement with an emergency response plan procedure and response plan in accordance with state requirements prior to project close out.
22. On the final as-built, manholes shall have X and Y coordinate (using NAD 83 RI State Plane Feet Coordinates) within 1 ft. NAD 83 refers to the North American Datum of 1983 which is a horizontal or geometric datum. The X and Y Coordinates are to be labeled at each manhole on both the plan and profile view. The table should be on each as-built sheet.
23. For the final as-built, swing ties to the manholes and at the end of service lines at curb stops and cleanouts are to be shown from permanent structures.

The guidelines indicated above are intended to provide the engineer with information as to what is expected by Veolia Water and the City of Cranston's procedure for project approval. The guidelines are subject to change and additional content may be required based upon the design.

A design review fee of \$500 shall be paid to Veolia Water prior to reviewing the preliminary design submission for the City of Cranston.