



Appendix C

Checklists for Raleigh Water Plans



Raleigh
Water

General Submission requirements for ASR, SUB, and SPR plans in Raleigh and corresponding plans for Merger towns

1. A vicinity sketch or key map at a scale of not more than one thousand (1000) feet to the inch (1"=200' is preferred on cover sheet and is REQUIRED on as-built drawings per Raleigh Water specifications), showing the position of the project with its relation to surrounding streets and properties, and oriented in the same direction as the site plan.
2. True north arrow, with north being at the top of the map.
3. Scale of the map using engineer's scale (1"=10', 1"=50', etc.) both graphic and numeric and date of preparation, including all revision dates (1"=50' horizontal and 1"=5' vertical preferred on site plan reviews, REQUIRED on as-built drawings per Raleigh Water specifications).
4. Date of preparation, including all revision dates
5. Each plan sheet shall be signed AND sealed by a NC registered Professional Engineer, Surveyor, or design professional.
6. Plans shall demonstrate overall conformance with all Local, State, and Federal requirements.
7. A legend and notes sheet shall be included with all line types and symbols clearly shown for interpretation.

Title Block/Site Data

1. The name of the development, name of the owner and agent, name, address, telephone number and email of the designer who prepared the plan
2. Project address, PIN number, and project name.
3. Planned number of bedrooms, along with their anticipated water and sewer flow requirements in gallons per day (gpd).
4. Infrastructure Inspections Quantities Table
5. Appendix D notes
 - a. Contractor Note – required on all plans that show water and/or sewer main extensions (Public or Private)
 - b. Signature Blocks – required on cover page, utility pages, plan and profile sheets
 - c. Standard Utility Notes – required on the utility page(s)
6. Calculations for anticipated flow shown on the utility plan sheet or cover page.

General plan information

1. An accurate and complete legend is required on each plan sheet (detail sheets do not require a legend).
2. Names of property owners of adjacent properties or subdivisions of record.
3. Proposed streets, existing and platted streets on adjoining properties and in the proposed development with right-of-way widths (and NCDOT SR numbers if applicable).
4. Existing or proposed sidewalks, both on public rights-of-way and on-site.
5. Dry underground utilities location for gas, fiber, phone, electric.
6. All proposed and existing easements, widths, purposes noted, public or private and book and page numbers.

7. Water and sewer lines shall be color coded and labeled for better distinction.
8. Location, material, and size of any existing utilities (water, sanitary sewer, septic, storm water, etc.) along with their owners' names, and inverts on all sanitary sewer and storm water facilities.
9. Stations are shown on all plan views and correspond to plan and profile sheets.
10. Location of all existing and proposed buildings (with their water and sewer services), as well as buildings to be removed, along with any water and sewer taps to be abandoned.
11. Floodplain information, including base flood elevation, 100-year flood boundary, floodway and floodway fringe areas, indicating source of information.
12. Any overlay districts and watershed districts.
13. Wetlands on the site.

General Gravity sewer information

1. All existing gravity sanitary sewer lines are shown and accurately described (slope and material shown), as well as existing manholes, clean-outs or pump stations.
2. All existing and proposed potable water wells are clearly shown.
3. All sanitary sewer lines and manholes shown on plans match existing and proposed line types shown in the legend.
4. All gravity sanitary sewer lines meet the requirements of the Public Utilities Handbook.
5. All proposed sanitary sewer manholes are properly shown on the plans along with rim and invert elevations called out.
6. All proposed utility crossings have the required vertical separation and are shown both on the plan sheet and plan/profile sheet.
7. If pipe sizes change, profile matches to top of pipe.
8. Sewer must be extended and sized to extend to adjacent properties for sanitary sewer service potential.
9. All pertinent Public Utilities sewer detail sheets are printed on the plans.

General Force Main and Pump Station information

1. All existing sanitary sewer force-mains are shown and accurately described, as well as existing manholes, air release valves, and pump stations.
2. All existing and proposed potable water wells are clearly shown.
3. All force-mains, valves, and fittings shown match the proposed and existing line types in the legend.
4. All sanitary sewer force-mains must be proposed only using materials approved for Raleigh Water
5. All sanitary sewer force-mains shown to have a minimum three (3) feet of cover.
6. All proposed sanitary sewer manholes are properly shown on the plans along with rim and invert elevations called out.
7. All proposed utility crossings have the required vertical separation and are shown accurately both on the plan sheet and plan/profile sheet.
8. All sanitary sewer plan sheets (including plan & profiles) have the General Utility Notes.
9. All valves, fittings, and changes in line size are clearly shown and noted on the plans.

10. All pump stations must meet the guidelines set forth in the Raleigh Water handbook and the most recent version of Minimum Design Criteria for the Fast-Track Permitting of Pump Stations and Force Mains as published by NCDENR; whichever is most stringent.
11. The calculation package submitted with the pump station construction plans should include a minimum of:
 - a. Peak and average daily flow calculations.
 - b. Total dynamic head calculations.
 - c. System curve and pump curve analysis with operation point.
 - d. Pump station cycle and run times.
 - e. Pump station flotation/buoyancy.
 - f. Minimum force main velocity.
 - g. Pump station and force main detention times.
 - h. NPSH calculations.
12. Plan and elevation drawings of all access roads shall be shown on the plans.
13. Pump Station driveways must be a minimum 12 feet wide with gravel 12 inches thick for the first 20 feet off the roadway and 6 inches thereafter, with curb cut and apron if on curbed street, and not greater than 10 % slope. A vehicle turnaround area at the pump station shall be provided. The City reserves the right to require concrete or asphalt paving of driveways. Sites with odor control chemical tanks must be accessible by 18 wheel tanker trucks.
14. All pertinent Public Utilities sewer detail sheets are printed on the plans.

General water information

1. Show existing water mains, wells, water meters, valves and other appurtenances.
2. All mains are to be within dedicated street rights-of-way except major transmission mains not affording direct service connection. Mains within the street right-of-way shall be a minimum of 5 feet from the outside of the pipe to the edge of the right-of-way.
3. Proposed water lines are properly shown on plan and profile sheets, along with their size, material, and class.
4. No permanent structures or impoundments shall be constructed on water mains, water transmission mains or within water easements.
5. All water lines, hydrants and valves shown match line types in legend for existing and proposed features.
6. All water valves and fittings are properly shown on the plans and called out.
7. All proposed utility crossings have the required vertical separation and are shown both on the plan sheet and plan/profile sheet.
8. All existing and proposed fire hydrants are shown and labeled.
9. Water mains are extended to all extents of a project.
10. Proposed water meter(s) and/or irrigation is shown on plan.
11. All water meters and backflow prevention assemblies are correctly placed and adequately sized for the service.
12. The device and installation shall meet the guidelines of Appendix A – Guidelines and Requirements for the Cross Connection Program in Raleigh's Service Area.

13. Grease Interceptor / Oil Water Separator sizing calculations & installation specifications shall be approved by the Raleigh Water FOG(Fats, Oil and Grease) Program Coordinator prior to issuance of a Utility Connection and/or Building Permit.
14. All pertinent Public Utilities water detail sheets are printed on the plans.