

September 6, 2023

Bradley P. Schurman, PE
Balzer & Associates
15871 City View Drive, Suite 200
Midlothian, VA 23113

RE: The Crossings at Mulberry Section 1
LOCATION: 5251 Chamberlayne Road
POD NO. 2023-00352

Dear Mr. Schurman:

The Department of Public Utilities has completed a review of the water and sewer plans that are part of the plan of development submitted to the Planning Department on August 17, 2023.

DPU recommends approval of these plans by the **Director of Planning**.

Please address the following comments before submitting the construction plans for signature.

General

1. Agreements have not been executed at this time. Agreements must be executed prior to the authorization to begin utility construction or approval of building permits. An Information Sheet for the Preparation of Utility Agreements has not been submitted for review. If the Information Sheet is incomplete when submitted, we will send you comments for correction and resubmittal. If the required Information Sheet is complete when submitted, an Agreement will be forwarded to the Owner for signature within 21 days.
2. Utility plans shall be submitted to DEQ for acceptance and a certificate to construct (CTC) obtained from DEQ prior to DPU approval.
3. Update and resubmit the engineering report to include the following;
 - Include total sewer flow from both sections 1 and 2 and existing offsite flow for the portions of sewer that are being replaced.
 - Revise downstream manhole number based on subsequent comment.
 - Include total units for sections 1 and 2 since water main is shown being installed for both sections. Section 2 units can be labeled as future.
 - Revise fire flow based on subsequent comment.
 - Show lowest residual pressure in system based on water model calculations.
4. Update and resubmit the Project Summary Report to reflect any revised pipe quantities and water model calculations. In addition, incorporate section 2 connections within this form and label as future.
5. All utilities outside of Section 1 shall have a recorded easement where located outside of right of way prior to recordation of the Section 1 subdivision plat.
6. The rezoning comments regarding waterline connection were not exactly meet. DPU will further assess when the water model is corrected and resubmitted.

C01 (Cover)

7. Revise water and sewer material quantities in accordance with all comments.

C01.2 (Overall Plan)

8. Provide a master utility plan sheet that shows both sections 1 and 2 with all offsite utilities proposed.
9. Revise sheet numbering to be C01.2 on the title block.

C02-C02.1 (Existing Conditions)

10. Show existing water and sewer services to the Family Dollar store on the Cara property.
11. Label existing manholes and fire hydrants with GIS ID on these sheets.
12. Label existing water and sewer main with pipe size and material where known.

C04-C04.1 (Utility Plan)

13. Replace sewer from manholes 151SW016-151SW017 within Brook Hill Road since this short run has an excessive slope that would return several feet in lost grade if lowered. This will also help with available depth needed upstream where sewer is less than 5.5 of cover or has less than 1 foot of separation where crossing under storm sewer or where laterals might conflict with storm sewer at crossings.
14. Provide the following for sanitary sewer relocation or replacement:
 - Provide sequence of construction for sanitary sewer relocation or replacement.
 - Submit temporary sanitary sewer bypass plan for each location. The contractor shall prepare a specified detailed description of each proposed pumping system.
 - Dimension the distance from the nearest upstream manhole to the new manhole, where relocation will start, on the plans. The same would apply for replacement of a line with distances and stationing shown on the plan.
 - Show existing sewer line that flows into this development, as well as other nearby sewer line that might be considered for the pump around of existing flows. Label remaining existing sewer line size and material.
 - Specify approximate calculated existing sewer flow that needs to be pumped around at each location.
 - Provide addresses of all affected existing sewer customers whose sewer connections will be relocated or adjusted.
 - Propose a method for notifying customers of service disruptions. All affected customers are to be notified well in advance of any service disruption for this work. The DPU Construction Engineer must approve all disruptions. Explain how service to existing sewer customers is to be maintained within the sequence of construction.
15. Provide connections of water and sewer services from the Family Dollar store to the proposed water and sewer mains as previously commented on the preliminary plat and final plan reviews.
16. Locate fire hydrant near lot 1 of block A to be 50 feet away.
17. Provide an exception request to the Director of Public Utilities for where hydrants are less than 50 feet from buildings and include the justification for the exception.
18. Reference county water and sewer book sheets on each of the plan view sheets.
19. Label all existing sewer manholes and fire hydrants with GIS ID.
20. Have the invert elevations for all downstream manholes been field verified?
21. Provide benchmarks every 500 feet for the sanitary sewer.
22. The following are for the waterline crossing of Chamberlayne Avenue:
 - Contact VDOT regarding acceptability of an open cut across this road. Typically, they have required boring under the road to our knowledge.

- Provide a valve after the hydrant on the west side of Chamberlayne where connecting to the existing 6" waterline so that the businesses to the west can be isolated from the new main and remain in service. Also, clearly show this existing fire hydrant and label it's GIS ID.
 - After the aforementioned valve, provide an 8"x6" increaser and install 8" pipe across Chamberlayne Avenue which is the minimum size allowed by DPU standards for this development.
 - The water main must come straight across Chamberlayne Avenue and directly cross the 30" transmission main. A test pit shall be done to find the location and elevation of this main where the 8" line will cross. This will impact whether the proposed line can cross under or over the transmission main and will impact the bore depth if a bore is required. In addition, this may impact the existing waterline on the west side and require a relocation to line up with this crossing.
23. Add a note that any shutdown of the area west of Chamberlayne (to install the aforementioned valve) shall be coordinated with impacted customers and scheduled to minimize any service disruption or disruption in fire protection to the fullest extent possible. In addition, add notes for the following:
- Propose a method for notifying customers of service disruptions. All affected customers are to be notified well in advance of any service disruption for this work. The DPU Construction Engineer must approve all disruptions. Explain how service to existing water customers is to be maintained within the sequence of construction.
 - Waterline valves will only be operated by DPU personnel or under DPU supervision.
 - The Division of Fire will need to be notified prior to any disruption of fire protection.
24. Provide valved stubs for where hydrants will be located within section 2.
25. Locate water meter boxes outside of driveways where possible. Otherwise, meter boxes shall be placed outside of the wheel path and approximately 4 feet from the edge of the driveway using traffic rated meter boxes.
26. Where proposed water main is installed outside of paved roads, provide a gravel access drive along the easement for DPU access until roads within section 2 are constructed.
27. The portion of water main crossing from the northeast corner of Fashion Loop to the southern end of Dayspring Lane shall be zinc coated DIP from fitting to fitting.
28. Label typical distance from waterline to the curbface for each street.
29. Provide county monumentation used for site survey.
30. Provide at least 3 minimum GIS northing/easting reference points on each utility plan sheet.
31. Label manhole 22 on the plan view.
32. Add a prominent reference note on sheet C04 that sanitary sewer design data are located on sheet C04.1.
33. Show storm pipe on the utility plan sheets using a darker font and label structure numbers. This will help with coordination of locations.
34. Specify distance from existing upstream manhole to manhole 3.
35. Label size and material of existing sewer and water main where connections and replacements will occur.
36. Provide a matchline between both utility plan sheets.

C06-C06.1 (ESC plans ph1&2)

37. Verify whether a conflict exists between the temporary stockpile and proposed water and sewer utilities.

C07-C07.5 (Profiles)

38. Add the following note, "Where possible in unpaved areas, manhole castings shall be approximately 12 inches above final grade using appropriate covers (i.e. - vandalproof, watertight)."

39. Specify the method of waterline and sewerline installation within existing roads. If jack and bore, provide the stationed amount of casing pipe on the plan and profile, show the bore and receiving pits, and include the standard VDOT encasement pipe detail without the leak detector. If open cut, show the extent of pavement disturbance on the plan view and include the DPW pavement restoration detail.
40. For all sanitary sewer profiles, provide separate sewer stationing starting at the most downstream connection and proceeding upgradient with equalities at each junction manhole. Minimize stationing changes by using the longest chain of sewerline runs in the same stationing sequence. Locate sewer stationing away from road stationing to provide clarity.
41. Sewer profile is missing for short run of sewer from manholes 14 to 19.
42. Provide 0.1' drop across manhole E2 in invert elevations.
43. Provide an internal angle of 90 degrees at manhole 2.
44. Provide lower dropstack invert elevations where dropstacks are being proposed.
45. Label all manholes outside of pavement as having a combined vandal proof/watertight frame and cover per DPU standards.
46. Ductile iron will be required for any sewer main that has less than 5.5 feet of cover or crosses under storm sewer with less than 1 foot of separation.
47. Where possible, locate sanitary laterals outside of driveways. Otherwise, locate within driveway using DIP and traffic rated cleanouts so that these are outside of the wheelpath. Provide a detail in the plans for this cleanout type.
48. Specify sanitary lateral type where DI.
49. Provide profiles of sanitary laterals for block A where crossing storm sewer.
50. Label on profile all sanitary laterals that are deeper than 12 feet and identify with lot and block numbers.
51. The separate profiles for sanitary 5-12 and sanitary 6-16 can be combined with Encore Autumn Lane and Formosa Way profiles respectively to simplify the presentation and eliminate duplication of the profiles.
52. On Dayspring Lane profile, locate manhole 5 labeling on top consistent with the other sewer manholes since there is room.
53. Add labeled matchlines between profiles to help with understanding how the waterline profiles on sheet C07.5 coordinate with the other profiles and with each other.
54. Please move waterline profiles on sheet C07.5 to be right after the other utility profiles and not following the storm profiles.
55. The Chamberlayne Road waterline profile on C07.5 appears to be incomplete and needs to show all crossings and fittings/appurtenances.
56. Provide matchlines on the waterline A, B, and C profiles referencing where these profiles connect to other profiles.

C12.1 (Details)

57. For the ISO fire flow calculations, adjust the total floor area to include just 50% of the floors above the ground floor. This should lower both of the fire flow calculations to 1250 gpm.
58. Include water and sewer construction notes and standard material notes on the plans.
59. Include detail D-410 for backflow preventer on an irrigation meter. D-415 can be omitted since there is not a exclusion meter proposed.
60. Include the standard detail for thrust blocking.

C14 (Water Model Calculations)

61. Use a C value of 120 for the model.
62. Adjust fire flow for corrected ISO values.

L01 (Lighting Plan)

63. Locate all light poles at least 10 feet from utility mains and so that services can extend to the individual lots without direct conflict on the private side. There should be at least 3-5 feet of spacing provided where services go by these light poles depending on depth.

L03-L04 (Landscaping)

64. Tree plantings must be located outside of all utility easements or at least 10 feet away from utilities within right of ways. All other proposed landscaping must not obscure visibility or hinder maintenance of above grade or at grade utilities. Any non-tree landscaping within utility easements requires the following statement on the landscaping plan: "The owner is responsible for replacement of any planting (i.e. shrubs, etc.) damaged or removed by DPU, or its agent, as required for maintenance of county owned water and/or sewer facilities."
65. Locate trees so that services can extend to individual lots without direct conflict on the private side and with at least 5 feet of spacing.

If you have any questions concerning the above noted comments or the plans, please contact me at 501-4501.

Sincerely,

John L. Clark

John L. Clark PE
Utilities Engineer

cc: Darin Smouse, RDK Land Holdings, LLC (6225 Lakeside Ave, Richmond, VA 23228)
bc: Marchelle Sossong
Daniel Ivy
Christina Goggin, Planning
JLC/mab