



DEPARTMENT OF PUBLIC UTILITIES
804.501.4517

COMMONWEALTH OF VIRGINIA
COUNTY OF HENRICO

March 8, 2023

Brian Mitchell, P.E.
Townes Site Engineering
1 Park West Circle, Suite 108
Midlothian, VA 23114

**RE: Avenlea
N. Gayton Rd & Bacova Dr
POD2023-00006**

Dear Mr. Mitchell:

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 January 9, 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. An Information Sheet for Preparation of Agreements for Water and/or Sewer Service has not been submitted. The Information Sheet allows the Department of Public Utilities to prepare the Water and Sewer Agreements which must then be executed by the Owner and the County prior to approval of building permits and/or prior to the utility pre-construction meeting and authorization to proceed with utility construction. It is recommended that the Information Sheet be submitted as soon as possible to avoid delays in either of these steps. Preparation of the Agreements may take up to 15 days after receipt of the Information Sheet and execution by the County after execution by the Owner may take up to 10 days. Conflicts between the completed Information Sheet and the plans may generate additional review comments.
2. Provide an overall utility plan that shows all phases of the full development.
3. Coordinate this project with Henrico DPU project "Tuckahoe Creek Trunk Sewer" and "West Ridge Subdivision Sewer Extension" that is currently under design.
4. Provide an updated Local Review Form to DPU review with changes per plan comments.

Cover Sheet:

5. Provide original signature and date on the engineer's seal.
6. Revise water and sewer material quantities in accordance with all comments.

Sheet C-3 (Demolition Plan):

7. Update all utility notes in the bottom right corner of the plan sheet to coordinate with the actual utility work proposed with this project.
8. Show the location of all existing wells and septic tanks/drainfields.
9. Provide a note indicating all existing well and septic tanks/drainfields will be abandoned in accordance with VDH requirements.

Sheet C-9 (Utility Plan):

10. Label all existing water and sanitary sewer size and material. See all utility plan sheets.
11. Use ductile iron pipe for 12" water mains or larger. See all utility plan sheets.
12. Provide a minimum of 10' separation between water and sanitary sewer pipes. See all utility plan sheets.
13. Label the distance from water main to either the face or back of curb. See all utility sheets.
14. Label the width of the grass strip between the back of curb and edge of sidewalk. See all utility sheets.
15. Fire hydrants must be installed every 500' for properties zoned multifamily and commercial.
16. Provide a note indicate all proposed water main stubs will be mechanically restrained.
17. Show the location of all water line adjustments by providing an oval or circle in the area of the adjustment in the water line. See all utility sheets.
18. Show the location of the existing fire hydrant in North Gayton Rd.
19. Provide water line stationing on the utility plan sheets.
20. Relocate the valve on the eastern side of the 12" x 12" tee to the southern side located east of MH 31.
21. The water line should terminate at the edge of the pavement.
22. The valves on the flushing hydrant should be installed near the tee in accordance with D-500. See all flushing hydrants on the utility plan sheets.
23. There are three (3) valves shown near the 12" x 12" cross but only two are referenced on the utility plan. Review and revise as necessary.
24. Clearly show and reference the 12" x 8" reducer on the water line near MH-30.
25. Callout the removal of the 16" plug in Bacova Drive.
26. Change the reference of the 12" x 16" reducer to a 16" x 12" reducer.
27. The 12" x 16" reducer and 12" GV should be installed near a tee branch or cross.
28. Provide details of the proposed retaining wall. Ensure no tieback will be located within the proposed 20' utility easement.
29. Portion of the retaining wall is located in the utility easement. Relocate the retaining wall out of the utility easement.
30. Relocate STR-5 out of the utility easement.
31. Provide the sheet number near the match lines for the continuation of the utilities on the next utility plan sheet.
32. Show the direction of flow arrows on the proposed and existing sanitary sewer mains. See all utility sheets.
33. Reference the GIS MH ID and surveyed MH rim and invert information for the existing manholes. See all utility sheets.
34. Be sure to provide benchmarks within 500' of the sanitary sewer mains.

Sheet C-9A (Utility Plan):

35. Use a cross versus two tees at road stationing 13+45 in Road D.

36. Provide a minimum of 4' separation between the water line and face of curb to ensure the proposed fittings on the water line will not be installed in the gutter pan.
37. Two valves are referenced at road stationing 17+00 but only one is shown on the plan.
38. Flip the fire hydrant at the intersection of Road C and B on the other side of the road to provide adequate separation between the fire hydrant and storm sewer.
39. Provide a 30' utility easement around the parallel water and sewer mains that extend outside of the ROW. The water and sewer mains should be centered in the easement with 10' separation between the two pipes.
40. DPU suggests relocating the water and sewer pipes out of the circle at the intersection of Road C and D. This will allow landscaping and any other decorative features to be placed in the circle.

Sheet C-9B (Utility Plan):

41. Relocate the water line out of the parking spaces. The water line should be always accessible for maintenance. Review the location of the water line near road STA 38+00.
42. A 12" x 8" reducer is referenced at the intersection of Road B and C; however, no reducer is shown on the water line between road STA 13+00 and 14+00.
43. The water line is referenced as 8" in Road C between Bacova Dr and Road B; however, all of the fittings connected to the water line is referenced as 12 inches.
44. Remove the flushing hydrant at the end of the water line in Road C near Bacova Dr. Terminate the water line after the fire hydrant. There is no need for a fire and flushing hydrant at the end of the water main.
45. Relocate the valve on the northern side of the cross between STA 11+00 and 12+00 to the southern side (near STA 11+00).
46. Provide a utility easement around all flushing hydrants not located within the ROW.
47. Several of the water line easements around flushing hydrants are referenced as 16' utility easements but are measured as 10' easements.
48. Change the easement references from "water line easement" to "utility easement". See the sewer easement references as well.
49. Use ductile iron pipe for sanitary sewer located in inaccessible locations.
50. Show the limits of pavement in Bacova Drive.
51. Provide the parcel numbers for each parcel shown on the construction plans.
52. Relocate the rip rap (STR-119) out of the utility easement.
53. DPU suggests relocating the hydrant at the intersection of Road C and Bacova Dr on the opposite side of the provide adequate separation between the storm sewer and hydrant.

Sheet C-9C (Utility Plan – Offsite Sanitary Sewer):

54. Coordinate the sanitary sewer design for this project with the DPU CIP project "Tuckahoe Creek Sanitary Sewer" currently under design.
55. Provide internal angles at the manhole connections.
56. Label the material of the proposed sanitary sewer.
57. Provide the following core drill note on the plans, *"Connections to existing manholes without stubs or bricked-up openings shall be the equal of either Kor-N-Seal w/stainless steel expander ring or Press-Seal w/nylon expander sleeve installed by core drilling manhole and in strict accordance with manufacturer's specifications."*
58. Two manholes are labeled as "MH-5" on the utility plans.
59. Watertight manholes are required on manholes to be installed in the floodplains.
60. A 30' utility easement is required for sanitary sewer with a depth of 10' or greater.

Sheet C-13 to C-13I (Profiles):

61. Revise profiles per plan view comments. Water main profile should have some fittings where there will be vertical changes that will be beyond limits of ductile iron pipe joint deflection.
62. Show the gas line crossings on the water line profile/
63. Change the 12" x 12" tee & 12" GV reference at STA 9+40 to tapping sleeve & valve as referenced on the construction plans.

Sheet C-13A (Profile):

64. Why did the sanitary sewer pipe reduce from a 12" to an 8" then increased to a 10" pipe? It is not common practice to reduce the sanitary sewer pipe size on downstream sanitary sewer. Check the needed pipe size based on the sanitary sewer capacity needs and increase downstream pipe size or reduce upstream pipe size from MH 30.
65. All water appurtenances/fittings must be shown and referenced on the water line profile.
66. Sanitary sewer stationing should be provided on the profile. The stationing should begin at the most downstream manhole and increase upstream with equalities at each junction manhole. Minimize stationing changes by using the longest chain of sanitary sewer line run in the same stationing sequence. Road stationing is not adequate to provide stationing for sanitary sewer and should be located away from the sanitary sewer stationing to provide clarity.
67. Sanitary sewer that has a depth of 18' or greater is required to be ductile iron.
68. Clearly label the existing and final grade lines on the profiles.
69. Sewer manholes not installed in pavement and is inaccessible must be installed 12" above the final grade.

Sheet C-13A (Profile):

70. Why is the sanitary sewer so deep? Adjust grade to reduce depth of sanitary sewer.

Sheet C-13E (Profile):

71. Provide a fire hydrant near STA 16+00 at the high point of the water line to relieve air from the pipe.
72. Provide a minimum of 18" vertical separation between the bottom of the storm sewer and top of water line pipe.
73. Remove the vertical deflection at STA 11+25 and gradually raise the pipe to STA 13+00.

Sheet C-13G (Profile):

74. Show the Culvert and storm pipe crossing in Offsite Waterline Profile.
75. The water line profile does not match up with the stationing on the utility plan sheet.
76. Water line with 100% fill is required to be ductile iron.

Sheet C-13H (Profile):

77. Check and correct the match line references.
78. Reference "Tuckahoe Creek Trunk Sewer" and/or "West Ridge Subdivision Sewer Extension" for the outfall of the sanitary sewer.
79. Provide more cover over sanitary sewer pipe between M/H 05 and M/H 05B by lowering the pipe.
80. Will there be fill over pipe between M/H 05B and M/H 06? If not, the pipe needs to be installed deeper.

Sheet C-13I (Profile):

81. Provide select back fill 21A or 21B between sanitary sewer pipe and storm pipe 94.
82. Fix the overlapping profile title.
83. Provide pier supports on the 42" storm sewer between MH-8 and MH-9.

Sheet C-14A (Utility Details):

84. Remove all details that do not pertain to this project and add all detail that are relevant to this project.

Sheet C-15 (Calculations):

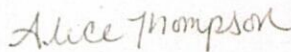
85. Update the sheet title to "Storm and Utility Calculations".
86. The flow per the acre on the sanitary sewer analysis is incorrect. Review the Henrico Sewer Flow Rates provided in DPU Standards.

Sheet C-18 (Sanitary Sewer Master Plan Sheet):

87. Label the manholes numbers and pipe sizes on the plan sheet and make sure it coordinates with the sanitary sewer analysis.
88. Show the existing sanitary sewer on the plan sheet.
89. Why is there parallel sewer shown on the master plan?

If you have any questions concerning the above noted comments or the plans, please contact me at 501-4508 or John Yi 501-4511.

Sincerely,



Alice Thompson
Utilities Engineer

cc: Chris Simons, Markel/Eagle Advisor, LLC
Nancy Jean Grandis White, Thompson & Triple J Farms, LLC