

December 30, 2021

Stig Owens, P.E.
Sekiv Solutions
14207 Pond Chase Place
Midlothian, VA 23113

**RE: Discovery Ridge Townhomes
13000 Gayton Road
FILE NO: 5553 POD2021-00469**

Dear Mr. Owens:

Enclosed are marked-up prints of the water and sewer plans that are part of the plan of development submitted to the Planning Department on December 13, 2021.

DPU recommends approval of these plans by the Planning Commission.

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. Revise the Project Summary Report (Form F-10) per the following and resubmit:
 - Use a peak factor of 1.7 for maximum day demand.
 - Revise the waterline pipe quantities in accordance within the Project Summary Report (Form F-10) to match the water material quantities on the plans. Include DI pipe in the table.
 - Revise accordingly both the flow and pressure information within the lower hydraulic evaluation table.
 - The fire flow estimate form shows a needed fire flow of 1,750 gpm, so there should be 2 fire hydrants instead of one required.
 - Answer yes or no whether the design flow acceptable to Fire official.
 - Do not sign the form.
3. Revise the water and sewer design calculations form as follows:
 - a. Revise the sewer peak flow and use formula $Q_p = 3.51 * (Q_a^{.8121})$ where Q_p is sewer peak flow in MGD and Q_a is the average design flow in MGD and revise the peaking factor as well. This formula is the basis for drawing F-2 in the DPU standards.
 - b. Provide downstream manhole GIS ID number.
4. Sewer Design Form and NOI Form are not required for this project and were not submitted with the Engineering Report. It should label as N/A.
5. DPU cannot recommend approve Landscaping and Lighting plan until the latest revision of the construction and utility plans are approved.

Cover Sheet:

6. Provide a contact person for the Owner in the Site Data.
7. Provide a developer address in the Site Data.
8. Provide original signature and date on the engineer's seal.
9. Remove the gray shaded background on the vicinity map. Do not darken the baseball field or the lakes. Only darken the proposed site.

Existing Survey Boundary & ROW Plat (C-003) and Parking Summary (C-100):

10. Either show all the existing utilities appurtenances or don't show any at all. There are many valves, hydrant, and waterline surrounding the site not shown on these sheets. Verify the number of valves on Lauderdale Drive. Why are there 2 water meters for the site? Verify the number of existing laterals connected to the existing manhole. The location of the lateral does not match with what is shown on the original church POD sheet.

Existing Conditions (C-101.1&C-101.2):

11. Verify the number of valves and location on Lauderdale Drive.
12. Show the existing manhole and all the 6" sewer laterals from the church.
13. Recommend reducing the size of the valve to show it more accurately which side of the tee is the valve on.
14. Recommend show all the utilities surrounding the site especially the water valves.

Demolition (C-102.1&C-102.2):

15. The existing fire hydrant should be remained in place until the proposed fire hydrant is installed unless an official from the Fire Department approve otherwise.
16. Label to remove the valve and plug it at the existing 12"x6" tee. Include a note on the demolition sheet stating, 'all utilities to be abandoned per DPU standards 10.3.10.'

Utility Plan (C-105.1&C-105.2):

17. Provide GIS manhole ID number for the existing manhole shown on the plan.
18. Provide the as-built elevations and field elevations for the existing manholes including the invert of all the 6" laterals shown on the plan.
19. Provide a short sequence of construction for the proposed sanitary sewer.
20. Is the existing sanitary sewer from the church going to be pump around into the manhole during the construction of the proposed sanitary sewer from the existing manhole to manhole 1?
21. Label to tie the existing 6" sanitary sewer lateral back into the proposed sanitary sewer manhole 1.
22. Label the proposed sanitary sewer to be public instead of private.
23. Revise the slope of the proposed sanitary sewer to match with the profile.
24. Provide bearing, slope, and length of the proposed sanitary sewer pipe.
25. 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)." Revise the profile if necessary.
26. Label the typical proposed sewer lateral to be 6" PVC @2.08% with clean-out.
27. Provide a note on plans stating "HOA will own and maintain all sanitary sewer laterals from the main to the building".

28. Proposed sewer lateral should not be in the utility easement.
29. Remove all the trees in the path of the proposed sanitary sewer or in the proposed utility easement.
30. Proposed sanitary sewer alignment must be 10 feet from the proposed waterline horizontally.
31. Loop the proposed waterline back to the existing 8" waterline in Lauderdale Drive.
32. Add a proposed 8" valve at station 64+75.
33. Label the size and angle of the bend in the 8" water line.
34. Label the size and material of the water line on C-105.1.
35. Provide the size of the tee and gate valve used for both of fire hydrants.
36. Provide within typical callout for fire hydrants a reference to county details D-495.
37. The proposed fire hydrant should be no more than 7' behind the curb.
38. All fire hydrant gate valves to be located on the pavement and not on the gutter pan or grass area.
39. Provide 8' of easement on each side of the fire hydrant and 5' in the back of the hydrant.
40. Delete the existing valve shown in Gayton Road if it is already removed with the demolition plan.
41. Label the proposed 12" valve and 8" valve next to the proposed 12"x8" tee.
42. Eliminate the cross, two 8" valve, and reducer. Replace it with 8"x6" tee to the fire hydrant. The irrigation line can tap in to the 8" water line with a corporation stop.
43. Label the meter near the site entrance as irrigation meter not exclusion meter.
44. Relocate the irrigation meter and backflow preventer closer to the curb.
45. Provide the demand for the irrigation system.
46. Label the size of the corporation stop, copper pipe, irrigation meter and backflow preventer.
47. Label to install the backflow preventer per detail D-410.
48. Label the irrigation line as private.
49. Show the proposed storm sewer as well as the existing in the utility plan to identify and resolve potential conflict. Profile and resolve any conflict between the storm sewer and the irrigation line.
50. Label the type of fire wall or separation wall between each unit.
51. Add the following note, "The Engineer shall certify that all proposed sites will be served by gravity with sewer service connections installed at a slope of 1/4 inch per 1 foot except where shown otherwise on the plans. The depth of service connections shall be in accordance with Paragraph 13.3.7D."
52. Reference CWB/CSB sheets in the bottom right corner of the plan sheet (482 SE&482SW) on the utility plan.
53. Provide electronic marker placement detail D-750 and D740 on the plans as well. Add the following note: "Electronic markers (ball type) shall be installed on all water mains and sewer gravity mains in accordance with specification 2.2.05N and 4.2.02E of the 2014 DPU Design and Construction Standards."
54. Add the following notes to the plan:
 - a. Waterline valves will only be operated by DPU personnel or under DPU supervision.
 - b. The division of fire will need to be notified prior to any disruption of fire protection.
 - c. Disruption to fire protection shall be minimized to the fullest extent possible.
 - d. Contractor performing any work on the fire system or the water mains that provide the water supply to the fire protection system or the dedicated fire hydrant must notify the Henrico Fire Marshal's Office prior to any impairment to these systems. The effected property must be placed on a "Fire Watch" according to the Virginia Statewide Fire Prevention Code and the procedures identified by the Henrico Fire Marshal's Office.

Profile (C-201):

55. See comments on the utility plan and update the profile.
56. Use dash line to show existing pipe and manhole.
57. Label the type of manhole frame and cover at each manhole.
58. Review for potential of hydraulic jump in the manhole per section 2.2.04K.
59. Revise the water line crossing at station 44+75 to go above the sanitary sewer.
60. Show the 8"x6" tee to the fire hydrant in the profile. Label the storm crossing at station 62+00 to be proposed pipe6 instead of existing pipe2B.

Utility Notes & Details (C503.1-503.4):

61. Clarify how the ground floor area was calculated. Is there fire wall or fire separation wall between each unit?
62. The fire flow estimate form shows a needed fire flow of 1,750 gpm, so there should be 2 fire hydrants required.
63. Eliminate the Domestic meter Sizing Form since it is not required.
64. The drawings D-530, D-476, and D-435 are not needed.
65. Include the drawings D-410 and D-520.
66. Provide the utility quantities list.

Landscape Plan (L-101):

67. Remove all landscaping located inside of the utility easements.
68. Provide a minimum of 10 feet separation between fire hydrants and trees.
69. 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 it's agent, as required for maintenance of county owned water and/or sewer facilities."

Lighting Plan (LI-101):

70. Relocate the lighting "A" out of the utility easement for the sanitary sewer between manhole 2 and manhole 3.

If you have any questions concerning the above noted comments or the plans, please contact me at 501-4601.

Sincerely,



Bob Dao
Utilities Engineer

Stig Owens, P.E.
December 30, 2021
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Discovery Ridge Townhomes

cc: W.E. Sterling, Discovery United Methodist Church
Rob Lanphear, Pivot Development

bc: Ralph Claytor
D. Ivy; M. Gallagher
Mike Kennedy, Planning

BQD/vr