

March 9, 2022

William A. Browning, P.E.
Youngblood, Tyler & Associates, P.C.,
7309 Hanover Green Drive
Mechanicsville, VA 23111

**RE: Greenhouse Section 1
2500 Mountain Road
File No. 5566 POD2022-00047**

Dear Mr. Browning:

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 February 4, 2022 and received by DPU on February 11, 2022.

DPU recommends approval of these plans by the Planning Commission.

Please address the attached 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 or prior to subdivision plat approval. 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. Given the presence of vacant or underdeveloped acreage adjacent to this project, provide a topographic sewer shed map that shows the entire drainage area involved and locations of existing and proposed sewer lines, points of entry of flows, including flows received from other areas. Map shall be keyed to a computation sheet (form F-4) that summarizes the acreage and flows served by this proposed sewer. Parcel owner and address information and necessary easement corridors shall be included on the sewer-shed map too.
3. Revise the Project Summary Report (Form F-10) per the following and resubmit:
 - Revise the number of fire hydrants in accordance with the utility comments.
 - Revise pipe quantities to match the plans and utility plan comments.
 - Use a peak factor of 2.7 for peak hour demand.
 - Exclude the peak irrigation demand from the peak hour flow.

4. Revise the Engineering Report form as follows:
 - Include offsite sewer flow within the sanitary sewer design calculations.
 - Use a peak factor of 2.7 for peak hour water demand.
 - Exclude the peak irrigation demand from the peak hour flow.
 - Revise the total design peak flow, GPM for the water system design to use the maximum day demand.
 - Revise lowest residual pressure in system based on revised hydraulic model.
5. Update hydraulic water model based on plan review comments.
6. There was a 2021 rezoning of the land across the street thru which the offsite sewer will pass where townhouses/homes will be built. Coordinate with this developer as to the needed sewer corridor to serve both projects.
7. P.E. seal shall be signed and dated on all sheets. Original is required for cover sheet and a facsimile is acceptable for all subsequent sheets.

C-1(Cover Sheet):

8. Revise water and sewer material quantities in accordance with all comments.
9. Provide developer contact person on the plan.

C-3 (Overall Plan):

10. Coordinate this sheet with the utility plan comments.

C7, 8 and 11 (Layout & Utility Plan):

11. Revise offsite sewer alignment where sewer tie in will occur to connect directly at manhole 493SE011 in lieu of installing a doghouse manhole.
12. Locate manhole 8 approximately 50' to the east and extend the utility easement up the property line to serve adjacent property (GPIN 775-767-3045).
13. Relocate existing 16" water main within Mountain Road to go around the proposed multiple box culvert installation with 8-foot separation from wingwalls and stream crossing depth of at least 3 feet. Provide a profile of this crossing. Show adjacent valves (near hydrant and in Woodman Rd and Mountain Rd intersection) and include the following notes and information on the plans for the shutdown:
 - Disruption to domestic water service and fire protection shall be minimized to the fullest extent possible.
 - 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. Show 5/8" water meter for 2490 Mountain Road and include property owner information.
 - 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.

- Relocation of existing hydrants is not permitted. Where existing hydrants are disturbed, new hydrant materials are required, and the old hydrants are to be returned to DPU Operations Division.
 - Existing water mains are to be left in service until the new main is placed in service.
14. Provide benchmarks every 500 feet for the offsite sewer.
 15. Provide an adequate number of fire hydrants to provide 350 feet maximum hose lay to all buildable areas since this development is zoned R-5AC and not single family residential. Hydrant placement shall be made at all intersections and so that fire truck doesn't have to back up to respond given the long dead-end roads for this development.
 16. Reference DPU details D-495 for the proposed fire hydrants and D-485 for the proposed vertical waterline adjustments.
 17. Provide 5' of separation between the fire hydrant and storm pipe #26 near lot 1 and provide 5' of utility easement from the back of the fire hydrant.
 18. Locate all meter boxes at least 3' away from the driveway entrance where possible. In any case, DPU doesn't want meter boxes within the driveways.
 19. Provide peak irrigation demand on the utility sheet. If the irrigation demand is 20 gpm as it was mentioned on the Engineering Report, then a 1" irrigation meter will be required instead of 5/8".
 20. Label the size of the backflow preventer of the irrigation system and reference DPU detail D-410.
 21. Add a valve northwest of the tee near manhole 18 as two valves minimum are required at each mainline tee.
 22. Relocate lot 15-meter box to other corner of property frontage to avoid driveway and provide a straight service line.
 23. Relocate the laterals for lots 28, 29 and 33 outside the driveway if possible. Otherwise, provide traffic rated SIPs and include a detail for these.
 24. The offsite sewer utility easement shall be recorded prior to DPU plan approval with the recordation information shown on the utility plan.
 25. Offsite sewer credits toward sewer connection fees will be applicable in accordance with the county code.
 26. Reference on the plans and use county survey monuments.
 27. Provide 5' of separation between the flushing hydrant tees and adjacent water service connections for lots 17 and 28.
 28. Label DI lateral when connecting to DI sewer main for lot 1.
 29. Locate sanitary sewer lateral for lot 1 further away from the house location to allow for cleanout location between SIP and building.
 30. There is a hydraulic jump condition present at manhole 9 with supercritical flow on upstream side and subcritical flow on downstream side. In accordance with DPU Standards 2.2.04K, look at reducing the slope, reducing the deflection angle, or installing a 60" diameter manhole at MH9.

31. Provide 30' utility easement for sewer pipe deeper than 10' near lot 1.
32. Provide GIS ID number for the existing manhole where sewer tie-in will occur.
33. Reference county water and sewer book (CWB/CSB) in lower right corner of each utility plan sheet.
34. For the proposed 8" valve (as part of the tapping sleeve and valve), provide additional pavement or concrete pad to protect the valve if it is not fully within the existing pavement.
35. Provide exception request for fire hydrant less than 50' from proposed houses. Exception request is to be addressed to the DPU Director and must provide justification for the request.
36. 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)."
37. Adjust the following manholes:
 - Locate manhole 18 closer to center of travel lane.
 - Eliminate manhole 17 and go straight from 18 to 13.
 - Eliminate either manhole 14 or 15 by adjusting sewer alignment and manhole location.
38. Provide at least 6" core hole separation (34 degrees minimum separation) between laterals for lots 37/38, 28/29, and 15/16.
39. Provide soil sampling per DPU Standard 4.2.02G to verify whether corrosive soils exist in this area.
40. For note 11, add reference to DPU Standard 4.2.02E for electronic marker balls on water facilities.
41. Show property line between the Dukic and Woodman West properties.

C11, C13 and C14(profiles):

42. Provide missing inverts for the offsite sewer profile on sheet C11.
43. Show inverts to match crowns between the 8" sewer and 27" trunk sewer at manhole 493SE011.
44. Show inverts to match crowns between sewer main and laterals connection to manholes.
45. Verify adequate sewer depth to serve any lots with basements at the end of the northeastern cul-de-sac where run from manholes 15 to 16 rises sharply in slope.
46. Eliminate 11.25-degree horizontal bend near station 10+75, on road A profile, and add a note to rotate a vertical bend by 11.25 degrees horizontally. Remove from plan view as well.
47. Show and label 8" gate valve near station 13+60 on road B profile.

C12(Offsite Sewer Access Plan):

48. Add note to omit the leak detector shown on VDOT encasement pipe detail.

C24(details):

49. Include details for backflow preventer(irrigation), flushing hydrant, house connection(lateral), and traffic rated SIPs (if applicable).

If you have any questions concerning the above noted comments or the plans, please contact me at 501- 4501 or Ireini Botros at 501-4512.

Sincerely,

John L. Clark
John L. Clark, P.E.
Utility Engineer

cc: RJM Land, LLC

bc: M. Sossong
R. Claytor
I. Botros
M. Gallagher, D. Ivy
Christina Goggin, Planning

INB/tt