January 10, 2022

Joshua Krolewski, P.E.
The Bay Companies
8500 Bell Creek Road
Mechanicsville, VA 23116

RE: Landmark Section 3
310 Clayman Road
File No. 5427; POD2021-00546

Dear Mr. Krolewski:

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 December 10, 2021 and received by DPU on December 16, 2021.

- ❑ 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. The Overall Water and Sewer Utility Plan shall be approved prior to the approval of the first section of the Landmark Development. Please note that we have not received a resubmittal in response to our second review comments on November 2, 2021.
3. Landmark Sections 1 & 2 and the offsite trunk Sewer Utility Plan must be approved prior to section 3.
4. A certificate to construct (CTC) from DEQ will be required for the sanitary sewer in this project since average design flows exceed 40,000 gpd.
5. Provide exception request for fire hydrants less than 50' from proposed building. Exception request is to be addressed to the DPU Director and must provide justification for the request.
6. Include the 8" waterline within Old Memorial Drive and the 12" waterline within Dry Bridge Road within the hydraulic water model. Also, omit the R-2 reservoir data as this section will not be connected at this point for now. In addition, revise the Project Summary Report and Engineering Report based on updated water model result.
7. Revise the Project Summary Report (Form F-10) per the following and resubmit:
    - Show the correct ISO calculated fire flow and include the maximum day demand instead of the peak hour demand for the maximum day +fire flow.
    - Revise the number of fire hydrants to match the utility plan and in accordance with the utility comments.
    - Revise pipe quantities to match the plans and utility plan comments.
8. Revise the Engineering Report form as follows:

- Include offsite sewer flow within the sanitary sewer design calculations.
- Revise the design fire flow, GPM based on the ISO fire flow calculations.
- Revise the total design peak flow, GPM for the water system design to use the maximum day demand instead of the peak hour flow.
- Revise lowest residual pressure in system based on revised hydraulic model. This value must reflect the modeled portion of system installed to just serve section 3.

C-1(Cover Sheet):

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

C-2 (Overall Plan):

10. Coordinate this sheet with the Overall Water and Sewer Plan and with sections 1, 2 and 3 utility plan comments.
11. Clearly show and label the proposed 8" PVC waterline within Old Memorial Drive.
12. Show existing 6" PVC private force main crossing this section from Sandston Woods wastewater pump station and coordinate with development layout and design on all impacted sheets.
13. Show how the property with GPIN 837-713-2057 will be served with sewer.

C7-8 (Layout & Utility Plan):

14. Route 12" waterline around north side of 2-48" culvert pipes using DIP with mechanical joints and 45-degree bends. Maintain 8' minimum separation from wing walls.
15. Use the term "vertical waterline adjustment" to more accurately describe the vertical bends per D-485 in these areas where waterline has to be vertically adjusted. Also, add DPU detail reference D-485 for the vertical waterline adjustment.
16. The 8" valve is in conflict with the storm pipe crossing and the vertical waterline adjustment near the intersection of Bright Lemon Court and Turtle Parkway. Please review and coordinate with subsequent profile comment in this area.
17. Show the symbol of the plugs and flushing hydrants at the end of the proposed waterlines.
18. Provide elevations for benchmark locations.
19. Provide an 8" valve at the end of the proposed 8" waterline within Old Time Road for future waterline extension.
20. Revise the callout notes for dual sewer laterals to indicate PVC material instead of DI for the dual sewer laterals serving lots 292/291, lots 302/303 and 241/242 since these laterals are connected to PVC sewer mains.
21. Provide at least 10' of horizontal separation between the waterline and sewer main near lot 289, within Bright Lemon Drive and at the intersection of Old Time Road and Old Time Place.
22. Provide 5' x 16'of utility easement around the back of the proposed fire hydrant across from blocks E and F.
23. Relocate dual sewer lateral for lots 275/276 to connect directly to the sewer main instead of the manhole.
24. Show the sewer lateral for lot 259 connected to the sewer main instead of the waterline.
25. Locate meter boxes within the 2'strip grass area between the sidewalk and the curb where there will not be any conflict with storm, underdrain piping, irrigation system piping, trees or any other features. Consequently, utility easements can be reduced to have just 5' behind each water meter.

26. Provide at least 3’ of separation between the meter box and the storm pipe for lot 251.
27. In accordance with the profile, show the waterline adjustment location where waterline crosses storm pipe # 338 within Bright Lemon Drive.
28. Provide 3’ of separation between the SIP for lot 250 and the storm pipe.
29. Profile the proposed 8” waterline within Old Memorial Drive.
30. Locate the water meter boxes at least 2’ away from the edge of the driveways, where possible, to prevent damaging the meter boxes from vehicular load.
31. Provide vandal proof/watertight frame and cover for manholes 304, 309 and 310.
32. Relocate the water service connection for lot 300 so that it is not within the vertical waterline adjustment portion.
33. Provide an adequate number of fire hydrants to meet DPU Standards in regard to location and to provide 350 feet maximum hose lay to all buildable areas and meet ISO required fire flow hydrant requirements. Consequently, locate a hydrant between block I and H. In addition, provide hydrants at the following entrances per DPU Standards:
    - Turtle Parkway and Bright Lemon Court.
    - Turtle Parkway and Bright Lemon Trace.
    - Old Time Road and Old Memorial Drive.
34. Adjust fire hydrant near unit 265 to the Turtle Parkway side to maximize setback.
35. Provide 5-6 feet O.D. to O.D. horizontally between water main and storm piping structures.
36. Reference county monumentation used for site survey.
37. Provide a standard utility easement for the waterline that will be routed around the storm culvert structure # 600 in Turtle Parkway.

C11-15 (Road, Storm and Utility Profiles):

38. 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 sewer line runs in the same stationing sequence. Locate sewer stationing away from road stationing to provide clarity.
39. Show invert elevations for laterals entering manholes so that crowns match with the sewer main.
40. Provide 4’-0” minimum depth for 12” waterline to accommodate 12” valve operator length.
41. The following comments pertain to Turtle Parkway profile:
    - The utility plan does not show the waterline crossing under the two (2) 48” storm pipes near STA 30+50. Please review and revise.
    - Coordinate the existing manhole 201 rim elevation with that shown in Landmark Section 2. Also, review the elevation of the existing waterline at the tie-in location as this information does not match the information shown on Landmark Section 2. In addition, coordinate storm sewer locations on profiles shown in both plans.
    - Extend vertical adjustment of 12” waterline within STA 32+50-33+00 to incorporate adjustment for 8” waterline into Bright Lemon Court.
42. The following comments pertain to Bright Lemon Court profile:
    - Coordinate sewer main length between manholes 317 and 318 with the utility plans.
    - Waterline in front of block B can be reduced to 6” or 4” since no fire hydrant.
    - Show the 8” valve near STA 11+60 west of the 8”X8” tee to match the utility plan.
    - Show storm pipe crossing between manholes 320 and 319.
43. The following comments pertain to Old Time Place profile:

- Eliminate the vertical waterline adjustment near STA 13+45 if the waterline can cross over the storm pipe with at least 6" of vertical separation.
- Provide mechanical joint restraint for the 11.25-degree bend near STA 13+45.
- Provide at least 0.1' invert elevation drops across manhole 305 for sewer pipe downstream of manhole 304.
- Show elliptical pipe out symbol at manhole 308.

44. Revise the bend near STA 14+80 to 11.25-degree instead of 22.5-degree bend within Bright Lemon Drive profile.
45. The following comments pertain to Bright Lemon Trace profile:
    - Eliminate the vertical waterline adjustment near STA 10+50 if the waterline can cross over the storm pipe with at least 6" of vertical separation while maintaining the minimum 3.5' of cover.
    - Revise the bend near STA 10+80 to 11.25-degree instead of 22.5-degree bend
    - Show available separation between the dual sewer lateral for lot 266/267 and water main with a separate cross section.
    - The waterline in front of block G can be reduced to 6" or 4" since no fire hydrant.
46. Show available separation between the dual sewer lateral for lot 250 and water main with a separate cross section within Old Time Road profile.
47. Coordinate sewer main length between manholes 310 and 321 with the utility plans within Sanitary Sewer 321 to 308 profile.
48. Show storm pipe crossing the sewer main between manholes 304 and 305 within Sanitary Sewer 305 to 304 profile. Also, provide at least 0.1' invert elevation drops across manhole 305 for sewer pipe downstream of manhole 304.
49. For the shallow sewer from station 12+00 to 12+50 on the profile for "Sanitary sewer 321 to 308" encase the sewer in concrete per D-205 and extend rip-rap from BMP outfall over the sewer main to provide erosion protection.
50. On C12, provide a road equality between Turtle Parkway/Bright Lemon Trace and Turtle Parkway/Old Time Place and show both profiles to help coordinate view of waterline utilities which are shown overlapping in both profiles for Bright Lemon Trace and Old Time Place.

.

C-45 (Utility Details):

51. Revise ISO fire flow estimate form as follows:
    - Resolve discrepancy where the effective area calcs have two different values. There is information provided at the bottom of the form that does not match the information on the top of the form.
    - Include exposure within 40 feet of subject building using exposure factors found in most recent version of "ISO guide for Determination of Needed Fire Flow."

L01-L02 (Conceptual Landscape and lighting Plan:

52. Tree plantings and light poles 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."
53. Relocate proposed light poles at least 8' away from the SIPs and meter boxes.

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: Doug Godsey, Godsey Properties

bc: R. Claytor, M. Sossong
I. Botros
Christina Goggin, Planner
Magan Gallagher, Daniel Ivy

INB/vr