

MEMORANDUM

TO: Mark Noble, Senior Planner

FROM: Kirby Templin, Water Resources Engineer, PE

SUBJECT: Windermere South – Stormwater Review Comments - 1

DATE: March 26, 2018

This memo summarizes the stormwater review comments for Windermere South.

The following documents were submitted for review:

- 0014194 Preliminary Stormwater Summary with Appendix, Dated 3-7-18
- 18-03008 PRELIM PLAN WINDERMERE SOUTH, Sheets 1-37, Dated 3-8-18
- 18-03-16 Sheets 6-10 Windermere South Prelim Set, Dated 3-16-18
- 18-03-06 0014194 SW Area TIME CONC COMP AND PIPE DESIGN9, Dated 3-6-18
- 18-03-06 0014194 NORTH TIME CONC COMP AND PIPE DESIGN9, Dated 3-6-18
- 18-03-06 0014194 DRAN AREA SOUTH, Dated 2-28-18
- 18-03-06 0014194 DRAN AREA NORTH, Dated 2-28-18

General

1. Provide a comment response memo.
2. There is a concern with the placement of Ponds/Infiltration Basins 3 and 4. The location could limit the development potential on adjacent properties. This must be addressed.
3. There is a concern that Pond/Infiltration Basin 2 is higher than the adjacent road. This must be addressed.
4. There are low floor separation concerns at the following areas. Adjust proposed structure elevations and/or provide additional analysis showing the proposed elevations meet separation requirements.
 - a. Block 9, Lots 33-38
 - b. Block 8, Lots 5-9
 - c. Block 5, Lots 18-25
 - d. Block 4, Lots 1-6
 - e. Block 3, Lots 1-3
 - f. Block 2 Lots 1-3
 - g. Block 1, Lots 1-11
5. Include finished grade at rear of all proposed structures for verification that low opening separation requirements are met.
6. Listed below are EOF Concerns. Adjust grading and/or proposed structure elevations at these areas.

- a. The EOF elevation of 976.5 for Lots 1 – 9 of Block 9 appears to be too high for this area. Adjust grading and lower the EOF elevation for primary EOF to south/Pond 4 to meet separation requirements.
 - b. There is an EOF between Lots 22 and 23 of Block 5, and at the rear of Lot 24 block 5. Verify the need for the EOF between Lots 22 and 23, and consider updating grading and the EOF at rear of Lot 24 Block 5 as the primary EOF for this area.
7. Label and show the EOFs at the following locations. All EOFs should be sized to convey and manage the 100-year inflow rate. If EOF paths discharge across adjacent private property, provide a drainage and utility easement over the flow path area.
 - a. Pond 1
 - b. Pond 2
 - c. Pond 3. The EOF is directed to an adjacent property. This must be addressed via drainage easement or redirecting the EOF.
 - d. Pond 4
 - e. Area at rear of Lot 36 of Block 9
 - f. Existing Pond near the label Outlet E
8. Verify that the EOF elevation labeled along Street 2 adjacent to Pond 1 is correct. Update as necessary.
9. Move the EOF Labels at the rear of Lots 4, 7, 11 of Block 12 so they are not outside of the view window.
10. There appears to be run-on from west of Street 8. It is not clear in the proposed plans how this run-on will be managed. Verify/review drainage in this area, update plans to accommodate as necessary, and provide additional information as needed.
11. There appears to be run-on to the intersection of Windermere Way and Street 2, coming from the west and directed offsite to the north. It is not clear in the proposed plans how this run-on will be managed. Verify/review drainage in this area, update plans to accommodate as necessary, and provide additional information as needed.
12. There is runoff from proposed Street 3 to the northwest and offsite. It is not clear how this runoff will be managed. This runoff will be concentrated flow and is a drainage/erosion concern. Provide additional information on the drainage plan at this location.
13. There are depression areas offsite that are adjacent to the rear of the lots of Block 6. Verify/review drainage in this area, update plans to accommodate as necessary, and provide additional information as needed.
14. There is a drainage concern at lots 7 and 8 of Block 6. All runoff from the rear of block 6 appears to be routed between these proposed structures to the street. Revisit drainage options at this location.
15. It is not clear from the grading at the rear of Lots 11, 12 of Block 9 if a swale routes the runoff to Pond 4. It appears that it is routed to roadside ditch of 130th Street West. Update grading in this area as necessary to route runoff to Pond 4 and separate/reduce potential for run-on from 130th Street West.
16. The soil borings show clay layers at the infiltration basins and proposed elevations. Add a soil correction note to the plans at all the infiltration areas. The soil correction note should

address the need to remove unsuitable soils as needed to reach suitable soils based on the design.

17. Include a typical infiltration basin cross section detail. Also Include the soil correction note with the detail.
18. Include a runoff volume summary to compare existing and proposed conditions for the 2-, 10-, and 100-year events. Also include an area routing summary to compare existing and proposed area routing changes. There are changes in where water is routed in proposed condition, compared to existing condition.

Modeling

19. Update model as needed based on any comments that may impact the model inputs.
20. Change the routing calculation setting to Dyn-Stor-Ind.
21. Change the advanced calculation setting to calculate separate Pervious/Impervious runoff.
22. Include the full HydroCAD reports for the 2-, 10-, 100-year, and 100-year 10-Day Snowmelt Condition in the stormwater management plan resubmittal.
23. Include the Node Listing information in the HydroCAD report for all events.
24. Switch hydrographs to 2D in the HydroCAD report.
25. Provide justification that the selected CN for ¼ acre Residential which assumes 38% Impervious is appropriate for the proposed impervious at the site.

Storm Sewer

26. The submitted plans did not include the outlet control structures details and/or relevant outlet stormsewer information. Include outlet control structures details and associated storm sewer in the plans for review. Verify that outlet information (dimensions, elevations, etc) on the plans match the HydroCAD inputs.
27. Backyard storm sewer should be eliminated, to the extent possible. Lateral lines with backyard catch basins will be allowed but trunk lines should be located in public right-of-way.
28. There is a STMH and CB that appear to be in conflict adjacent to Block 8 lot 1. Adjust as necessary to cleanup storm sewer location/routing in this area.
29. Storm sewer sizing calculations. As needed update and resubmit storm sewer sizing calculations.
 - a. Verify the local contributing drainage area to CBMH-123. Update calcs as needed. Based on proposed pipe slope of CBMH-123 to FES 122, verify orifice capacity of pipe. Upsize as needed.
 - b. Update drainage boundary to CB-76. An additional CB may be needed near intersection of Street 5 and Street 6.
 - c. Based on proposed pipe slope of CBMH-52 to STMH-51, verify orifice capacity of pipe. Upsize as needed.
 - d. Based on proposed pipe slope of CBMH-136 to STMH-133, verify orifice capacity of pipe. Upsize as needed.
 - e. Verify the local contributing drainage area to CB-68. Update calcs as needed.
 - f. Verify the local contributing drainage area to CB-85. Update calcs as needed.
 - g. Verify the local contributing drainage area to CB-82. Update calcs as needed.

- h. Pond 3 outlet storm sewer. Verify the capacity of storm sewer at/downstream of tie-in at existing catch basin.
 - i. Pond 1 outlet storm sewer. Verify the capacity of storm sewer at/downstream of tie-in at existing Manhole.
 - j. Add a second catch basin inlet to DA-137. If DA-137 is reduced in size due to additional storm sewer and grading adjustments to rear of Block 6, A second catch basin may not be needed at Street 3. Verify if two catch basins are needed by reviewing inlet capacity.
30. Verify if there is offsite run-on at the following watersheds. Update storm sewer sizing as necessary to accommodate offsite run-on.
- a. DA-101
 - b. DA-103
 - c. DA-95A
 - d. DA-95
 - e. DA-137
31. Add a 3 ft sump to drop structures CBMH-83, and STMH-65