

Engineering has reviewed the plans for the Riverlights Watercraft Ferry Extension project submitted May 5th, 2018 and have the following comments:

Stormwater Management Permit Application Form:

- 1) IV. Project Information; Line Item 1: Update stormwater summary.
- 2) IV. Project Information; Line Item 14: Update SCM#4 to include offsite impervious.

Narrative:

- 3) Assure all references to BUA match application.
- 4) Table 2 – Routing Summary: It looks like Table was cut off.
- 5) Please describe that Natural Infiltration (SCM#4) will catch offsite runoff while also being adequately sized for future build out of DA4. Any improvements to be made for a spillway? Outfall directly to Cape Fear River with no potential for downstream development? The more detailed the description the better.

Stormwater Calculations:

- 6) SCM#4 CN: It does not look like existing impervious from River Road was taken into consideration. 20% impervious seems low to include Future Development BUA allocation. Adjust routing if CN is updated.
- 7) Routing: It looks like outlet box weirs are inactive for both SCM#2 & SCM#3. Please clarify?
- 8) Catchment Table: Please clarify where internal (Future BUA) catchments are collected.

Supplement

- 9) SCM#4: Update supplement to include offsite impervious.

Plans:

- 10) Existing Conditions CX-101: Show 3.65 Ac. project boundary to show existing wetland areas are being avoided and are not part of this project.
- 11) Site Plan CS-100: Provide Site Data Table which corresponds with provided Application.
- 12) Site Plan CS-100: Coordinate Driveway Cuts with Middleburg Apartments.
- 13) Site Plan CS-100: Sidewalk along the North side of Watercraft Ferry and East of Olde Town Street (toward club house) has not been installed. Will sidewalk be constructed/coordinated as part of this project?
- 14) Site Plan CS-100: Confirm 28' dimensions are to FOC and not BOC.
- 15) Site Plan CS-100: Label and dimension Public Drainage Easements. All outfall pipes outside of the right-of-way need Public Drainage easements, this includes piping around SCM measures.
- 16) Drainage CG-100: Show existing pipe size and type tying to RR-MH-1 & MH-4-9.
- 17) Drainage CG-100: Have pipe stub outs been considered to assure future development drains to the correct SCM drainage basins and/or catch inlets?
- 18) P&P CU-702: Assure CB-1-3 & MH-1-5 are not to be constructed over existing forcemains. Contractor to field verify and notify City Inspections & Engineer if conflict exists.
- 19) P&P CU-703: At "Road A" Station 11+50 is this an existing storm pipe? Is it to remain or be removed? Please show on Profile. Will there be a conflict with 36" RCP bypass system?
- 20) P&P CU-703: There look to be vertical conflicts with CB-2-10 & CB-2-7 cross pipes with 36" RCP storm bypass system. Also assure there is adequate separation over proposed S/S system.
- 21) P&P CU-703: At "Road B" please identify pipes at 10+60 & 11+10.
- 22) CT-300 X-Sections: Add 51' Right-of-way section.

- 23) Details CN-501: Provide detail for natural infiltration area (SCM#4). Any improvements to be made for an emergency spillway? What does existing spillway look like? Routing calculations show it as a 36' Weir at elevation 10.04'.
- 24) Details CN-501: Show Emergency Spillway in Plan View for SCM#1.
- 25) Details CN-501: Show Design Storm stage elevations on Infiltration Basin Cross Section.
- 26) Details CN-501: Outlet Protection update Pipe Diameter for FES-4-0. Is this pipe a 36" or 42"? Rip-Rap Calculations show 36" & plans show 42".
- 27) Details CN-502: Show Profile view for both SCM-2 & SCM-3 Rain Tanks. Include depth of double tanks (33.85"), SHWT, 10 yr. storm elevation....ect.
- 28) Details CN-502: Overflow Structure Table: Update MH-2-Out label to match plan view JB-2-Out.
- 29) Details CN-502: Confirm # of Tanks corresponds with # of Tanks from R-Tank Worksheet.
- 30) DA-3: Internal Catchments for Future Build out do not seem to be associated with specific inlets? Many of them go to an Outflow Element designation of FF? Please clarify and assure pipe systems to SCM measure have been sized for full build out.
- 31) DA-3: Please increase text size and make sure outflow element labeling matches CG-100.

Please submit revised plan sheets, revised application pages, supplements, calculations, and any other documentation to Engineering for additional review. Please call or email if there are any questions.