

Engineering has reviewed the plans for the Masonboro Trace project submitted August 8, 2016 and have the following comments:

Wet Detention Basin Supplement:

1. Please review the entire supplement for accuracy once the comments regarding the calculations have been addressed.
2. Note only: Make sure the Depth used in the average depth equation (Option 2) is calculated based on the definition given in Figure 10-2b of the Wet Detention Basin Supplement. This can affect your average depth and the SA/DA ratio.
3. Once average depth is calculated, this number must be rounded down to the nearest 0.5' for SA/DA determination.
4. Please review the pre, post and storage volume discharge rate input values under Drawdown Calculations, they don't appear to match the calculations.

Calculations:

5. II. Design Information; Storage Volume: SA Waters: This project is within ½ mile and drains to SA waters, please demonstrate how the requirements of Section 18-763(b)(3) are being met. The water quality volume is the stormwater runoff generated by the 1.5" of rainfall or the difference in the runoff from the 1-year, 24-hour pre and post-development storm, whichever is greater. The calculations contained only the 1.5" treatment volume. The narrative only addresses a 1.5" storage requirement as well. Please address.
6. Note only: For future reference, acceptable runoff coefficients for woods-good in a pre-development condition is 0.15 for A & B soils and 0.20 for C& D soils.
7. Freeboard shall be a minimum of 1 foot above the maximum stage of the basin. Please demonstrate how this requirement is met.
8. Please provide calculations demonstrating the emergency spillway can handle the 50-year storm assuming the principle spillway is obstructed or not operating properly per the technical standards. The elevation of the dam shall be a minimum of 0.5 feet above the peak surface elevation for the 50-year storm.
9. Please provide calculations validating the length of the level spreader per the state bmp manual.

Plans:

10. Since the pond is used for S&EC during construction, please add a note to the plans stating that the pond must be cleaned out and returned to its design state.
11. Please provide a detailed landscaping plan for the wet detention pond per the state BMP manual. Vegetated shelf plantings must not be planted within 10 feet of the outlet structures.
12. The 6' vegetated shelf is not required around the forebay, only the perimeter of the main pond excluding the forebay berm. Removal of the vegetated shelf from around the forebay can aid in achieving a deeper average depth for SA/DA determination and a smaller required permanent pool surface area.
13. The emergency spillway doesn't appear to be shown in the correct area of the wet detention pond.
14. Please provide proposed contours from lot #8 to the edge of pavement for Masonboro Sound Road and from southeastern property line to northeastern property line. There is a lot of grading within this site area that is required to construct the pond, level spreader, vegetated

filter, sidewalk, swales, multiple culverts, pipe outlets, etc. It is not clear that all of these components can be constructed in such close proximity to one another and meet all of the elevation and grading requirements. An inset of this area at a larger scale with the proposed contours and elevation information added to the plan set would help to see how all of these components fit next to one another.

15. Provide plans that show the Masonboro Sound Road roadside ditch re-grading work. Show all necessary grading and spot elevations to ensure the roadside ditch meets the requirements of the technical standards.
16. Please demonstrate how the 15" RCP driveway pipe meets minimum cover requirements per the Technical Standards. The 15" RCP does not appear to have adequate cover.
17. Please provide a submerged orifice arrangement similar to Figure 10-4 in the wet detention basin section of the state bmp manual. Revise the detail for outlet structure #1.
18. Remove the orifice from the detail for outlet structure #2.
19. Please demonstrate how line items (g) and (h) of the wet detention pond section of the technical standards are being satisfied.
20. Please provide a detail for the level spreader.
21. Please show the aggregate stone (#57 stone on filter fabric) not exceeding one inch in diameter immediately downslope of the level spreader for stormwater dissipation.
22. Please add a length dimension to the plans to show the vegetated filter strip is greater than 50 feet (an SA requirement).
23. For engineered filter strips, the filter strip and any adjacent cut slopes must be covered with at least 6 inches of loose topsoil with appropriate soil amendments and appropriate turf grass species.