

Engineering has reviewed the plans for the Bradley Creek Station project submitted December 27, 2018 and have the following comments:

Stormwater Management Permit Application Form

1. IV. Project information; #14: Since the pervious concrete is to receive pervious credit, it should be listed separately in the table as its own SCM (BMP). See the attachment.

Bradley Creek Station Drainage Area Calculations

DA1

2. *Previous Comment:* Provided Storage Volume (42,304cf) and Surface Area of Infiltration (29,378sf) are not consistent with the routing calculations. For Infiltration No.1, elevation 19.40' (surface area) has a contour area of 28,412sf. The storage volume provided at elevation 20.84' is 40,913cf. The routing values do not match the Drawdown rate values in the DA Calculations. I have attached the sheet that requires revising.

DA2

3. *Previous Comment:* Provided Storage Volume (48,766cf) and Surface Area of Infiltration (17,293sf) are not consistent with the routing calculations. For Infiltration No.2, elevation 17.38' (surface area) has a contour area of 17,943sf. The storage volume provided at elevation 20.20' is 50,599cf. The routing values do not match the Drawdown rate values in the DA Calculations. I have attached the sheet that requires revising. Verify that the weir lengths, weir elevations, outlet pipe sizes and inverts match the plans.

Stormwater Infiltration No.1 Routing

4. Infiltration No.1 Routing for the 2, 10, 25 and 50-year 24-hr storms was not part of the resubmittal package, therefore I cannot verify your responses. The 10-year 24-hr storm with no infiltration was resubmitted, but it does not appear to have been revised adequately. Please verify and resubmit all routings for No. 1. Make sure all previous review comments have been addressed.

Stormwater infiltration No.2 Routing

5. The 12-inch pipe with an invert of 19.90' does not appear to be correct. Please clarify.

Permeable Pavement Calculations (submitted 10/29/18)

6. 2.7 in/hr is recommended by RFTS at a depth of 30 inches to 41 inches below the existing ground surface elevation. Acceptable infiltration rates range from 0.74 to 2.70 in/hr. Based on the existing topo and the proposed elevations of the PC, the 30-inch depth is not achieved. Consider using 0.74 in/hr (worst case scenario) as the infiltration rate to determine the drawdown time.
7. Minimum Aggregate Depth to Infiltrate the 10-year, 24-hour Storm Event is no longer a requirement. This calculation can be discarded.

10- and 50-year HGL Calculations

8. The tailwater elevations for Infiltration No. 1 and No. 2 in the 10 and 50 Year Storm Pipe and HGL Calculations ideally need to be the peak stage elevation in the R-tanks for the respective design storm. However, I would allow the tailwater to be at the same elevation of the weirs in each system, 20.84' and 20.20'.
9. Outfall pipe system YI No. 3 to FES does not appear to account for outflow from Inf. No. 1 in the calculations.
10. Add pipe run CI No. 21 to the ex. DI in the turn lane to the HGL Calculations. Demonstrate that the Oleander Drive pipe system can handle the new flow from Inf. No. 2. Include appropriate tailwater elevation at the Ex. DI.

Supplements

11. Infiltration Systems-DA #1: see attachment.

12. Pervious Pavement:

- a. Correct the percent BUA of the drainage area.
- b. Provide the minimum volume required and the design volume of the permeable pavement.

Plans

13. C3:

- a. MUP PIL amount is currently being reviewed by Construction Management. Comments to be forwarded ASAP. Amount needs to be agreed upon before construction release. PIL payment must be received before issuance of CO.
- b. *Previous comment: The 58th Street cross-section can be reduced to match the City's Local Street Section (SD 3-01.3) past the Marguerite Drive intersection. Proposed 5-foot wide sidewalk along 58th Street could remain in proposed location and a City standard driveway could be constructed (see attachment). I spoke with Traffic Engineering and Long-range Planning and all are good with a reduction in pavement width past Marguerite Drive. Please revise design based on the provided attachment.*

14. C4:

- a. Provide a typical detail to show how curb inlets (CI 1, 6, 8, 9, 10, 13, 16, 19, 20) will be constructed in conjunction with the R-tank systems. The curb inlets appear to be placed over top of the R-tank systems.
- b. Provide construction details for curb inlets 5, 7 and 21. Detail need to outline how the R-tanks will be connected to the curb inlets. Details also need to show the weir wall inside each drainage structure as well. Provide all pertinent length and elevation information.

15. C5:

- a. Placeholder only: Has NCDOT now approved the storm drain connection to the existing Oleander Drive system? Please submit approval documentation from NCDOT.
- b. Ex. DIs in the proposed Oleander Drive turn lane need to be converted to SDMHs.

16. The downloaded City standard sidewalk detail does not appear to have been added to the plan set. It must have the city titleblock.

Please submit one complete set of plans, application, calculations, supplement and any other supporting documentation to Engineering for additional review. Please call or email if there are any questions.
Thank you.