Engineering has reviewed the plans for the Shipyard Village project submitted September 9, 2016 and have the following comments:

Stormwater Management Permit Application Form

1. Please make sure drainage areas and impervious numbers are consistent throughout application-line items #9 and #14 don't seem to agree.

Stormwater Management Design Narrative

2. Provide a cover sheet with an updated engineer's seal date.
3. Please review Table 1 – Proposed BUA – Onsite for consistency.
4. Update the summary to show how the post-development flows are equal to or less than the pre-development flows. What you have provided is the pre/post for the SCM drainage areas only. The summary needs to address the pre/post development flows for the entire parcel as outlined in DA-1.
5. Post-development Curve Numbers calculations for IB #1-#4 don't match the post-development curve numbers used in the HH models.
6. Drainage area #2 and #3 for post-development CN doesn't match the drainage areas in the application (pg. 4).
7. Basin #1 Retention Requirements: Check the drainage area, temporary pool elevation and the SHWT separation.
8. Basin #2 Retention Requirements: Check that the drainage area, impervious square footages and impervious cover are consistent with other documentation.
9. Basin #3 Retention Requirements: Check that the drainage area, impervious square footages, impervious cover and SHWT separation are consistent with other documentation.
10. The HH for drainage area doesn't seem to fit in with the pre/post determination. It looks as if the drainage area is too large and the pre-development CN is incorrect.
11. VI. Storm Pipe/Structures: The CB#3 – IT #1 pipe system comes in below the bottom of the infiltration trench elevation…50.00' versus 51.00'. Please revise the pipe system inverts for both the 10 and 50 year storms
12. VI. Storm Pipe/Structures: The invert of the pipe coming into IB #1(54.00') should be lowered to match the elevation of the bottom of the basin (53.25'). Change for both storms.
13. Inlet spread analysis: Make sure the rims for the three structures are correct.
14. It appears there is only one rip rap outlet energy dissipater (O-1 now…used to be O-4). Please make sure the number of design worksheets is correct.

Infiltration Basin Supplements

15. All Supplements - Drainage areas and impervious look to have changed since last submittal, please check the maximum runoff to each inlet calculation under Additional Information.
16. IB #1 Supp.: Storage Surface area looks to be incorrect.
17. IB #3 Supp.: Check storage elevation under Basin Design Parameters.
18. IT #4 Supp.: Has the bypass been removed from the design for IT #1? The plans still show an outlet pipe from the trench. Please clarify.

General

19. Please make sure drainage areas and impervious numbers are consistent throughout application, supplements, calculations and plans.
20. Variance Request: A variance was requested for only IB #2. It would appear that more than just IB #2 meets the requirements of the requested variance. IB #1, #2 and #3 all appear to contain the 100-year runoff volume using half the infiltration rate. Please clarify. If the variance request will include more than just IB #2, the variance request letter will need to be updated and resubmitted.

Plans

21. Please resubmit DA-2 (Inlet Drainage Area Map). I believe it required some revisions from the last review, but I did not receive an updated plan.
22. CS101: Please review the Impervious Area (Proposed) for accuracy.
23. CG101: Has the bypass for IT #1 been removed?
24. CG101: Please add rip rap (splash pad) at the basin inlets to prevent the formation of scour holes.
25. CG101: Please make sure the storm drainage pipe and structure tables are consistent with the calculations.
26. CN501: Lower downstream invert of inlet pipe to match bottom elevation of basin and add a rip rap apron to prevent scour hole.
27. CN-501: IB #1 still shows an emergency spillway. It appears this basin meets the 100-year requirements to waive the spillway. Please clarify. If the spillway is to remain, it must drain to an approved outfall.
28. CN502: If bypass pipe is to remain, please add downstream invert elevation label.
29. CN502: Check the invert elevations of the pipe system into the trench.
30. DA-1: The parcel is 7.19 acres, but the sum of pre-development DA-1 thru DA-6 does not equal that. Please revise.
31. DA-1: Pre-development side: Revise the tables to have one pre-development flow for each of the design storms (2, 10 and 25) for the 7.19 acre parcel. The DA 5 table confuses things and is not needed.
32. DA-1: Drainage Area Summary-Post Development Table: The drainage areas listed here do not match the areas labeled in the Post-development plan view and they don't equal 7.19 acres. Check that the drainage areas are all accurately labeled in the plan view, something seems off there.
33. DA-1: Post-development: Revise the tables to have one post-development flow for each of the design storms (2, 10 and 25) for the 7.19 acre parcel. The DA 5 table confuses things and is not needed.
34. DA-1: Post-development: Any area outside of the parcel boundary should not be used to determine the post-development flows, i.e. the DA-5 drainage area includes area within the r/w.
35. DA-1: DA-4 impervious: Check that 0.59 acres is accurate. Calculations show 0.57 acres.

Call me or we can meet to discuss any or all of these comments.

Please submit one complete set of plans, full set of calculations, any revised supporting documentation and a **$500 resubmittal fee** to Engineering for additional review. Please call or email if there are any questions. Thank you.