

Engineering has reviewed the plans for the COW Fire Station 5 project submitted August 24, 2016 and have the following comments:

Stormwater Management Permit Application Form

- 1) Provide the total property area in square feet. Line item #2 and #5 on page 3 of the application.
- 2) The impervious breakdown in line item #14 on page 4 of the application does not appear to agree with the Post-Developed Basin and Sub-basin Information provided in the calculations section of the Narrative. Please verify. Please note that any changes may also affect the Supplement.
- 3) Sub-6 is not draining to a BMP, so it should not be listed in this table. As long as information for sub-6 is in the Narrative, it doesn't need to be included in the application.
- 4) Note only – Taking numbers to two decimal places isn't necessary or required. Whole numbers are acceptable. Not a requirement, just a suggestion to possibly make things simpler and easier.

Stormwater/Erosion Control Narrative

- 5) Sign/Seal the cover sheet to cover the body of work contained within.
- 6) The city considers the pre-development state to be woods in good condition for the purposes of determining runoff coefficients. The curve number for woods in good condition with A soils is 30, but the city has allowed the curve number to be as high as 39. For the rational c-value, the maximum allowed for sandy soils is 0.15. Please revise your calculations. Also, change the title from Proposed to Existing above the weighted CN and C for the pre-development condition.
- 7) There is a future allocation of 983.49sf for the infiltration basin. Is this amount of impervious accounted for in the sub-basin calculations? Please clarify.
- 8) 727sf of the proposed building is listed as part of Basin 6 A&B in the sub-basin information. Basin 6 A&B does not drain to the infiltration basin according to the DA map and the sub-basin information. However, the 727sf is included in the building BUA that drains to the infiltration basin. Please revise. Is there a particular reason the 727sf is not being collected and treated in the infiltration basin?
- 9) Please check that the BMP "A" calculations are still accurate due to previous comments regarding impervious surface areas.
- 10) SHWT elevation in BMP "A" stage storage calculations is 40.2. Infiltration Basin Section in plans lists SHWT at 40.50'. Please clarify.
- 11) Watershed Model Schematic :
 - a) Pre-development Curve Number needs to be a 39 max.
 - b) Shape factor should be revised to 484 or provide documentation to support the use of 256.
 - c) Please provide the 25-year model for pre/post determination.
 - d) Please use 2.15 in/hr for the infiltration rate as this is the rate determined by LMG at a depth closest to the elevation of the bottom of the basin.
 - e) It appears that post-development peak flow rates are greater than the pre-development peak flow rates in the 2 and 10-yr design events. The 25-yr was not submitted so it's unclear if post is less than pre for that design storm. Please revise design to meet pre/post requirements.
- 12) Was an appropriate tailwater condition used to analyze the pipe system during the 10 and 50-year design storms? Please explain.

Infiltration Basin Supplement

- 13) Please verify the infiltration rate and SHWT elevation under the Soils Report Summary.

- 14) Please verify the bottom surface area under Basin Bottom Dimensions.
- 15) Please complete the section under Additional Information for Maximum runoff to each inlet to the basin.
- 16) Please verify the last three items under Additional Information...Captures all runoff at ultimate build-out, bypass provided and pretreatment device provided (pretreatment is required, see state bmp manual).

Plans

- 17) **CS-101:**
 - a) Remove the Designer's and Owner's/Developer's Certifications. These are obsolete.
 - b) A public access easement will be required for any portion of the existing or proposed sidewalk that is outside of the Shipyard Boulevard right-of-way.
 - c) Make sure that impervious areas (existing/proposed; onsite/offsite) listed in the Site Data agree with the application and calculations.
- 18) **CG-101:**
 - a) Please address the construction of the permeable pavers in the construction sequence to prevent subgrade compaction and clogging of the pavement surface (Chapter 18 of the bmp manual).
 - b) Please verify the top elevation of the overflow riser structure.
 - c) Please verify the bottom elevation of the infiltration basin.
 - d) The infiltration basin appears to be graded to allow for a spillway. Please label and provide all necessary information and detail(s). See Chapter 5 of the bmp manual for proper lining of the spillway.
 - e) Please explain why the western portion of the building is not being collected and directed to the infiltration basin? This portion of the building cannot be allowed to drain onto the adjacent property.
- 19) **C-501:** The use of a geotextile found in the pervious paver detail creates more of a detention system more so than an infiltration system. Please remove the geotextile from the detail. Is the pervious paver detail to be used for both the proposed median crossover and the parking stalls?
- 20) **C-503:** Add the spillway to the Infiltration Basin Section detail.
- 21) **Note only:** The CFPUA utility plans can be omitted from the engineering submittal plan set. These are not needed.
- 22) Please add the stormwater approval blocks to all drawings in the plan set.

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