From: Rob Gordon
To: Weston Boles; Edwin Suddreth
Cc: Genna Porter; Jeff Walton
Subject: Eng Review - Embassy Suites
Date: Wednesday, February 24, 2016 10:09:23 PM
Attachments: Major Encraochment Application.pdf
image003.png

Engineering has reviewed the submittal for the Embassy Suites and have the following comments:

1. Please submit a full copy of the approved State Stormwater permit modification for the City Convention Center, once approved. It is my understanding that the State will review the modifications to the City permitted sand systems, including the portion of the chamber property that is being directed to these systems, but the State is NOT reviewing the Stormfilter system on the Chamber property. Please confirm.
2. By code, we still have to issue a permit for the hotel. So we will need to process two permits for this project. One for the Hotel and one for the Chamber.
3. Please submit an application for the hotel property.
    a. For the purposes of impervious area accounting, only impervious area being constructed within the property boundary of the hotel will be considered on-site. All improvements on City property should be documented as offsite. All improvements within the Chamber property should be documented on the Chamber permit.
    b. Section II (1 & 2) – both "high density" and "drains to offsite system" should be checked on both the Hotel and Chamber applications. The City permit # is 2008010. The State permit # is SW8071016.
    c. The hotel property appears to split between BMP 2 & 3. Please document both on Section IV (14) of the Hotel application. The Chamber property appears to split between BMP 2 & the stormfilter. Please document both on Section IV (14) of the Chamber application.
    d. The stormfilter O&M agreement not signed. Please have the applicant sign the document.
4. Technically, I am supposed to charge a full fee for the hotel, but since there is not much of a review and it is more of a mod to the existing City permit, I can charge $500 instead of $1000. Only $200 was submitted, so please remit an additional $300 to cover the review fee for the modification.
5. The BUA and DA exhibits that were submitted were excellent. We need these exhibits for the file, but they do not necessarily need to be included with the construction release drawings. Please include PE sealed maps and we will include them with the final calcs.
6. Normally with stormfilter systems there are detail sheets provided by the manufacturer detail the system being installed. Please incorporate those sheets into the set, they contain critical design data that is not currently included on the plans.
7. Please provide elevations of the underground detention system. I do not see them provided.
8. The entire stormfilter system is almost completely below mean high water level. Please describe in your narrative how this system will function under high tide conditions. I am not completely sure how these systems work - would water not have the ability to backflow through the cartridges – or do the cartridges have a mechanism to prevent backflow? The

concern is if backflow can get into the system - at any given time, some portion of the storage volume will be tidally influenced and not available for treatment volume. Please clarify.

9. Why is the ½" orifice being utilized? The cartridges have a built in 7.5 gpm flow restriction as required by the BMP manual (based on the annular loading rate). If there are a lot of cartridges, it is not uncommon to further restrict flow at the outlet to meet a pre/post requirement. However, if each of the 4 cartridges draw down at 7.5 gpm, the total discharge would only be .067 cfs – well below the calculated predevelopment rate for the 1 yr storm. ½" is very, very small and would almost certainly present a maintenance concern – and again, I'm not sure it is necessary.
10. The bottom of the storage volume appears to be at elev 1.0, the invert in and out of the stormfilter system is only elev 0.94. All of the systems I have permitted have had a hydraulic drop below the storage volume. At what depth does the float valve in the cartridges activate to allow the system to draw down? If we get a small storm that is not substantial enough to activate the float valve, the that volume will not draw down and then that portion of the storage volume is not available for the next storm. The system must be able to completely draw down the storage volume for all storm events.
11. Please address the following issues with the model:
    a. We are in an area with type III rainfall. Please adjust the model.
    b. The hydroCAD output does not seem to make sense. The 1-yr post-development flow is 2.16 cfs, but the outflow from the Stormfilter is 3.61 cfs? That is not possible. All the inputs look right, I think because you don't have any storage above the weir the model becomes unstable. I don't have hydroCAD, but in hydraflow, you have to build in extra storage above the weir to make it work. The system must meet 1-yr pre/post per 18-750 of code. Also, until it is corrected, we don't know the true WSE of the outflow. Please correct the model.
    c. Please remember to adjust the drawdown mechanism. There should be a way to input a constant outflow (rather than an orifice) to account for the discharge from the cartridges.
12. The sand filters must be protected from sediment at all times. The erosion control plan is not phased. The existing stormwater system needs to be protected if not being demo'd immediately. Notes to that effect should be added if they are not already there. The contractor will be responsible for any sediment or structural damage to the filters.
13. Note Only – We will need to process 2 separate encroachment agreements. One for Hotel Encroachments on to city property and one for Chamber Encroachments on to City property. We can process multiple encroachments on one agreement. As discussed, please identify all major encroachments on each site and submit the required documents for review.

The construction manager may provide additional comments. Please submit one complete set of revised plans and sealed calcs along with any revised forms to Engineering for additional review. Please provide a digital copy of all items submitted if possible. Please call or email if there are any questions. Thank you.

Robert Gordon, PE

Plan Review Engineer

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