

Andrew Port

From: Phil Christiansen <phil@csi-engr.com>
Sent: Wednesday, October 04, 2017 3:46 PM
To: Andrew Port; jimmccarthy
Cc: Stephen Sawyer
Subject: Evergreen - Definitive Plan

Andy/Jim

So that the record is complete I am providing herewith answers to the questions Jim raised in July

OSRD Definitive Plan

1. Does the submitted definitive plan meet the requirements of the OSRD SP issued by the Board? **Yes the plan meets the requirements of the OSRD Special Permit**
2. Are there specific design requirements for stormwater handling in the Zone II? **Zone II standards restrict certain type of fertilizer uses, industrial and commercial enterprises but allow residential development. State Stormwater Standards require a 44% removal of "suspended solids" before infiltrating runoff water. The project provides that degree of protection.**
Does applicant meet these Zone II standards? **The standards are met by the design**
Are there any improvements to the design stormwater design possible? **Improvements are always possible but the project as proposed meets rules, regulations and standards**
3. I am concerned about the capacity for major flood events and the "bottom of the bowl" filling up and overwhelming the system. Does the ILSF have sufficient capacity? **The ILSF does have sufficient capacity**
4. Are the basement elevations set appropriately given the SP requirements and the depicted ILSF and seasonal high water? **The basement floors are above the seasonal high ground water and above the ILSF maximum elevation**
5. Are there different grades of wastewater sewer pipe? What grade do we have? What can you recommend? **Sewer pipe comes in different strengths. PVC sewer pipe is proposed and for depth less than 12 ft SDR 35 pipe can be used and greater than 12 feet SDR 26 should be used.**

WRPD Special Permit

1. XIX-I (6) requires "Any use that will render impervious more than five thousand (5,000) square feet of a residential lot or ten thousand (10,000) square feet of a nonresidential lot.

A system for groundwater recharge shall be provided which does not degrade ground or surface water quality."

Does the applicant's design meet this requirement? **The applicant meets the requirement for infiltration because all of the water generated on site hasn't any other outlet but to infiltrate into the soil. The stormwater systems proposed provide the necessary pollutant removals to allow for infiltration without degradation of ground water,**

2. XIX-I (8) requires "Any new stormwater runoff shall be set back from the receiving water a minimum of one hundred (100) feet, and shall include best management practices appropriate to the site. Existing and replacement discharges shall be set back from the receiving water when either the site stormwater drainage system is changed or the discharge is increased. The best management practices shall be designed so as to maximize infiltration and minimize erosion, and to mitigate water quality impacts, including those due to total suspended solids and oil and grease. This applies to stormwater runoff from all impervious surfaces, including roads and parking lots.

Does the applicant's design meet this requirement? **The applicant meets the requirements of XIX-1 (8). All water is infiltrated, stormwater design provides for reducing total suspended solids and oil and grease from roadways and parking areas.**

Other issues

In my email to Jim of 9/2/17 I explained my opinion regarding ground water levels. In my opinion the applicant has accurately defined the ground water level.

The project as designed will not degrade the ground water quality.

There are some corrections that have to be made to the design as I outlined in my email yesterday. The corrections will not change the plan concept but will only refine the design for construction.

Philip Christiansen P.E.

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