Dana Nichols

From: Megan Lawrence <southcoastconsultingllc@gmail.com> on behalf of Megan Lawrence
Sent: Monday, December 5, 2022 4:54 PM
To: Dana Nichols; GDARNIELLE@lcog.org
Cc: Bill Kloos; Eric Oberbeck; Tim Coan (coantpc@gmail.com); citymanager@cityofbandon.org; info waywardrstudio.com; publicworks@cityofbandon.org
Subject: 0 Beach Loop - GAR Appeal - 12.5.22 Response to 11/18/22 Requests
Attachments: Coan - Infiltration system site plan & cut sheets 12-5-22 (1).pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Dana,

Please see the attached file and forwarded email from Eric Oberbeck below, regarding the Coan application for 0 Beach Loop Drive. These items are the applicant teams response to the Hearings Official's 11/18/22 requests.

Thanks!
Megan

---------- Forwarded message ---------
From: **Eric Oberbeck** <Eric@cascadiageotechnical.com>
Date: Mon, Dec 5, 2022 at 4:41 PM
Subject: Coan's Proposed Onsite Infiltration System
To: Kloos Bill <billkloos@landuseoregon.com>, info waywardrstudio.com <info@waywardrstudio.com>, megan@southcoastconsultingllc.com <megan@southcoastconsultingllc.com> <megan@southcoastconsultingllc.com>, tim coan <coantpc@gmail.com>

Bill, given the issues raised about dry well size, infiltration rates, and potential impacts on the Lively property adjacent to the south, we have redesigned the system completely to avoid using a dry well. We have replaced the drywell with an onsite infiltration system. This system consists of three components – an underground storage tank, a gravity flow tightline, and an infiltration field in the northwest corner of the subject property. The attached graphics show how this system will be located on the property. The attached graphics also show the specifications for the system provided by Infiltrator Water Technologies.

On-site infiltration systems have become common in recent years as counties and cities require hillside residences to not allow stormwater runoff onto downslope neighbors. The advantages are that the systems, unlike a dry well, are self-contained and independent of groundwater levels and can direct discharge onto a specific area. It also allows, as is the case here, to increase storage capacity to meet or exceed stormwater runoff from a design storm. The topography of the site will allow discharge to the west end of the lot where the sandy soils have a higher infiltration rate and where there will be no runoff onto the neighbor's property.

In response to questions presented by the Hearings Official on 11/18/22:

1. A definitive explanation of the chart on page 5 of the March 18, 2022 submission by Scott Kent of Residential Engineering. Some of the columns on the chart are self–explanatory but others are not. I would like a description of how they relate and exactly what the “Delta” column represents.

Applicant’s Response: No longer relevant; the drywell system has been withdrawn.

2. The chart in the March 18, 2022 submission is based upon drywall dimensions of 25’ (L), 30’ (W) and 3’ (D), which result in a storage capacity of 900 cubic feet. Subsequently the applicant’s engineer has suggested that the drywall system would only be 2’ deep. I cannot determine from the chart what effect the one–third reduction in depth has on the storage capacity of the system or how that relates to the loading from a 25–year storm event. Is the storage capacity of the system also reduced by one–third? If the system is not adequate during a 25–year storm event, is it nevertheless adequate during a 20–year storm event?

Applicant’s Response: The original and revised drywell system has been eliminated from this proposal, however, both the storage tank and outfall of the new proposed system are independent of groundwater levels. The system is designed to handle a design storm capacity of 8 inches in 24 hours (25-year storm event).

3. At what point does the drywall system fail, i.e. not be able to handle a 20–year storm event? It is presumed that if the system is designed appropriately, it will function well (during a 20–year storm event) when the groundwater level is two feet or lower than the surface and that it will fail when the groundwater is at surface level. How will it function in between those two extremes? Or said another way, at what point (in terms of the height of the groundwater) will the system not be able to store all of the anticipated runoff?

Applicant’s Response: See 2 above. The proposed system will function the same, whether the groundwater is at the surface, two feet below the surface, or somewhere in between.

4. How, as a practical matter, will the effect of enlarging the surface area (length and width) of the system affect its capacity and extend the time before it cannot store the anticipated runoff? Enlarging the size of the drywell will increase the capacity.

Applicant's Response: The infiltration area will be designed to handle the calculated runoff from a 25-year storm event.

5. Where does stormwater runoff currently go when it lands on the area proposed to be occupied by the dwelling and driveway? Describe the path of the runoff that is channeled by the drywall system. When the drywall system is overwhelmed by a storm does the runoff follow its normal course?

Applicant's Response: Stormwater drainage follows topography and drains to the south and west. While onsite, I saw no evidence of channeling or erosional rills which indicates that stormwater is being absorbed into the ground at all times when the groundwater level is below the surface.

6. There has been some suggestion that the infiltration rate (2 inches per hour) in the design of the drywall system is too generous. What is the evidence/argument that supports the contention that this rate is more likely than not correct.

Applicant's Response: I was onsite on November 27th, 2022, and determined that the soils present in the infiltration area are open-graded sands. These soils are well drained and will have a higher infiltration rate than the clay loam soils on the east side of the site. Based on my onsite observations, the soils in the area of the proposed infiltration field will have an infiltration rate of 2 inches per hour. Using that figure for the design, an infiltration field of 400 feet as shown on the Site Plan will far exceed the rate needed to service the holding tank. It may be the case that further onsite investigation and measurement of infiltration rates at multiple locations in the infiltration field will allow shortening the size of the field somewhat.

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