Civil West Engineering Services, Inc.

South Coast Office
486 E Street
Coos Bay, OR 97420

Willamette Valley Office
213 Water Ave. NW, Suite 100
Albany, OR 97321

Rogue Valley Office
830 O'Hare Parkway, Suite 102
Medford, OR 97501

North Coast Office
609 SW Hurbert Street
Newport, OR 97365

July 9, 2020

City of Florence Public Works Department
2675 Kingwood Street
Florence, OR 97439

RE: Rhododendron Dr. & 35th Ave. Planned Unit Development
Preliminary Stormwater Management Report Review

Mike,

Civil West Engineering has reviewed the Preliminary Stormwater Management Report (the Report) for the Rhododendron Dr. and 35th Ave. Planned Unit Development (PUD) on behalf of the City of Florence. The report, prepared by 3J Consulting shows a submittal date on the cover page of April 29, 2020.

The report is well prepared and, for the most part, meets the requirements of the City of Florence – Stormwater Management Design Manual (FSWMDM). We did identify some areas of concern, however, which are identified below.

1. The Report should show a comparison table of the flow rates for pre and post construction. In particular, we would like to see the flow rates and volumes in each soakage trench, drywell, water quality basin, and infiltration basin to compare to the assumed runoff from the site currently.
2. The Post-Construction Conditions plan presented in the exhibits section of the report presents a color-coded map broken down by facility type. Please provide additional detail for each of the Soakage Trenches facilities so it is clear the "Basin" or buildings that each facility is associated with. The frontage area highlighted appears to only include the new improvements. Please verify if any of the adjacent existing road section drains toward the proposed improvements and if so, make sure to include that area in your drainage calculations.
3. The Report indicates that runoff from concrete and AC will be treated in a water quality basin before it enters the infiltration basin. Sheet C8 only shows an infiltration trench please clarify the configuration and or location of the water quality basins relative to the infiltration basin.
4. The Report, on page 5, discusses the infiltration rates as measured by the Geotechnical Engineer and states that the average infiltration rate is 73.76 in/hr. The Report then states that a factor of safety of 2 was used to size the infiltration basin. It further states that an infiltration rate of 20 in/hr was used to size the water quality basin according to the City of Portland PAC. Per the FSWMDM section 5.5 "*Design infiltration rate shall be demonstrated with testing certified by a professional Engineer or Geologist and shall not exceed 10 inches per hour".* Using this guide, infiltration should be no more than 10 in/hr.
5. For the Soakage Trenches, per the FSWMDM section 5.7.1 (16)(c) *"Regardless of methodology used, the measured infiltration rate shall be the lesser of 6 inches per hour or the measured infiltration rate divided by 2"* Using this guide, infiltration used should be 6" per hour.
6. Comments 2 and 3 above refer to design infiltration rates. The Report, and preliminary plans, seem to use the size (footprint) of the basins/trenches as the basis for allowable infiltration. The City's Standard Details demonstrate that the size of the facility is dependent on the area of impervious cover that the unit is collecting water from. As noted in Standard Detail SW-170, the size of the facility should be used as a minimum criteria only, and should be calculated by the design engineer based on maximum allowable (or measured) infiltration rates.
7. Groundwater measurements were done December 17, 2019. Looking back at rainfall measurements, this was a period of relatively dry weather, with little or no rainfall in the previous week. We are not confident that the

EXHIBIT O

geotechnical investigation provided a "high ground water" analysis, and We are not confident that ground water is not an issue.

8. Based on community comments, increasing flow to the groundwater is a concern. Although the FSWMDM directs developers to maximize infiltration, we recommend that in this instance, the City require flows to be released to match predeveloped conditions (both overland flows, and percolation flows). Per Florence City Code Title 9, Chapter 5, section 9-5-3-2-D *"The development of any land requiring a Drainage Plan shall address onsite and off-site drainage concerns, both up and down gradient (minimum of ¼-mile) of project…"* We interpret this to include groundwater drainage. The Report should address the potential impacts of increasing groundwater discharge.
9. The report indicates that all storm water will be retained on site except for the frontage improvements along Rhododendron Drive, 35th Street and Siano Loop. Sheet C8 presents the preliminary utility plan and it appears 35th Street and Siano Loop will utilize the existing drainage catch basins and collection system but please provide additional detail on how and where the development proposes to connect to and utilize the existing 14" storm drain line in Rhododendron Drive.
10. Although the system is sized per the Standard Details, with the concerns identified above, we recommend that the infiltration facilities all have an overflow connected to the surface water discharge pipe. If the overflow is directed to "Bud's Ravine" or another outfall, please provide detail on how the overflow will be conveyed and identify any impacts up and down gradient in accordance with City Code.

In addition to the above concerns regarding the preliminary stormwater design, we also noted that the other public utilities (water and sewer) in the site appear to be very tight to the proposed buildings. Please ensure that the utilities (particularly sewer) are installed in a location that facilitates future maintenance. In general, we recommend that no structures are closer to the sewer than the depth of the sewer. It was also noted that on Sheet C4 the street sections presented for Rhododendron Drive, 35th Street and Siano Loop all appear to present road widening sections that do not use a curb with a gutter and the sidewalks/paths are presented as asphalt concrete which does not appear to be in conformance with City Standards.

Sincerely,
Civil West Engineering Services, Inc.

Matt Wadlington, P.E.