



May 14, 2021

Job No. 998-813-020

Mr. Cameron C. Curtis, EIT
Kittitas County, Dept. of Public Works
411 N Ruby St, Suite #1
Ellensburg, WA 98926

**Re: Suncadia Phase 2 Division 6 - Nelson Ridge
Engineering Plan Submittal**

Dear Mr. Curtis:

On behalf of New Suncadia, ESM Consulting Engineers, LLC is submitting this letter in response to your review letter we received on April 28, 2021 together with the revised construction plans. In an effort to provide concise and direct responses, we have copied the review comments below in *italics* and our responses are in **bold**.

ENGINEERING:

- 1. Within the plan set a number of pipes aren't labeled. Please be sure to label all pipes on sheets RD-01, RD-02, RD-05, and WS-02.*

The pipes have been labeled as requested.

- 2. The drainage report shows that Swale 1 seems to be under sized. For the design storm shown, the swale operates with 0 free board and still overflows into a dispersion device. The report claims that the existing Basin D discharges at a flow rate of 0.543 CFS, but existing conditions do not contain any conveyance systems so existing conditions aren't discharged through a single point. The plans do show a gravel dispersion trench and an overflow spillway, was there any analysis done to verify this solution.*

The existing basin flows are calculated for reference, to compare overall storm drainage flows and ensure that these are not exceeded for developed conditions. None of the existing basins have point discharges. For Basin D, the overall 100-year storm event flow rate is 0.543 cfs and the developed 100-year flow is 0.273 cfs (as generated by 0.36 acres of impervious area and 0.36 acres of landscaped area for a total of 0.72 acres).

The available infiltration rate for the location of Swale 1 is 1.08 inches per hour, which allows for the majority of the flows to be infiltrated in the bio-retention swale (0.273 - 0.105 = 0.168 infiltrated at peak flow). The remaining 0.105 cfs is discharged to a 20 feet wide dispersion trench which then has a 100 feet flow path. Dispersion

trenches typically allow for 0.10 cfs per 10 feet of dispersion trench width up to 0.5 cfs, so we believe the proposed design meets requirements with a factor of safety that would allow up to 0.2 cfs to be dispersed in the proposed dispersion trench.

The table in Section 3.1 has been corrected to reflect the calculated 0.27 cfs 100-year flow for Swale 1.

3. *In addition to the letter from the Suncadia Water Company, please provide an inventory of equivalent residential units, or the accounting method utilized in the general sewer plan, affirming sufficient capacity serving the plat.*

Following is the information provided by the Suncadia Water Company regarding the requested inventory, including the proposed Division 6:

- A) For water, there are currently 1,041 physical water connections. There are also water connections for Ready-to-Serve lots (573), the Winemaker's Cabins (26), Division 1 (36), and Division 6 (42) bringing the total to 1,718 possible connections.

The Washington Department of Health (DOH) originally approved 1,501 water connections in 2016. A connection is defined as an equivalent residential unit (ERU). For residential, water demand is considered a single ERU. For hotel, resort, commercial, and other non-residential users, average water demand is forecasted based on usage and then converted to ERUs. The Suncadia water system calculates ERUs based on the following assumptions:

- Average Daily Demand = 153 gal/day per person
- 3.75 people per residence
- Total Average Daily Demand/ERU = 574 gpd

Suncadia Water Company tracks the number of connections/ERUs added since 2016, by adding the total number of new physical single-family connections to the number of ERUs from other users (average daily use / 574 gal/ERU).

The Suncadia ERUs are calculated by taking total amount of potable water purchased from the City per year and applying this equation:

Total gallons purchased, divided by 574 gal/ERU, divided by 365 days.		
Consumption 2018	121,838,090	582 ERUs
Consumption 2019	121,740,052	581 ERUs
Consumption 2020	138,506,720	661 ERUs

This calculation provides an ERU count based on the actual amount of potable water purchased from the City and it is a much smaller number than what we are showing for physical connections.

In summary, the allowed DOH number of ERUs are 1,501 and while a total of possible connections is 1,718, the actual existing ERUs counted based on water purchase are 661. Therefore, adequate water capacity is provided.

B) For sewer, a Residential Customer Equivalent (RCE) report is provided to the City of Cle Elum annually. A residential lot is considered a single connection. As of October 31, 2020, the RCE count was residential (888) and commercial (30), for a total of 918. With the recent plants of Winemaker's Cabins (26), Division 1 (36), and Division 6 (42), the RCE report single connections adds up to 1,022. The total available sewer connections are 3,787 and adequate sewer capacity is provided.

4. *Please provide a cross section of the proposed roadway system.*

The cross-section has been added to sheet DT-03.

5. *The drainage report explains that SSC-6 will be met through amended soils. As in the previous submittal, please specify the approved soil on the plan set.*

Sheet DT-02 has been updated to reflect the engineered soil mix following the requirements of the SSC-6 in the Stormwater Manual. The engineered soil mix is proposed to contain compost and organic content as recommended in the WSDOT Highway Runoff Manual M31-16.05 Section 5-4.3.2 Soil Amendments.

6. *Please work with Public Works to schedule an inspection of the completed work or submit a bond for construction.*

A bond will be provided for construction.

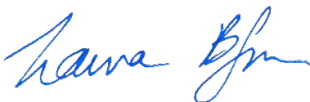
7. *Pursuant to the Suncadia letter dated October 9, 2019 responding to Public Works comments for Phase 3 Division 15 & 16, Suncadia requested a meeting to discuss the type and timing of needed traffic monitoring going forward. Traffic monitoring information is required and determination on type of monitoring and location is necessary. Please reach out to Public Works to schedule a time to meet.*

The meeting will be scheduled as requested.

If there are any questions or a need for further clarification, please feel free to contact me at (253) 838-6113 and I would be happy to discuss them with you.

Sincerely,

ESM CONSULTING ENGINEERS, LLC.



LAURA BARTENHAGEN, P.E., LEED AP
Principal