

August 18, 2016

Jared Andersen, PE
Weber County Engineer

SUBJECT: Horizon Village PRUD Stormwater

Dear Mr. Anderson:

The following is a description of the stormwater impacts due to the Horizon Village PRUD at Summit Powder Mountain. Please refer to the drawings that have been previously submitted for the current design information.

Site Description

The proposed Horizon Village PRUD at Powder Mountain Resort east of Eden Utah is a re-development of four single family lots that were previously platted along Horizon Run roadway, south of Summit Pass in the Phase 1A Subdivision Plat. Horizon Village PRUD combines the previously platted lots 19, 20, 22, and 23R into a single PRUD. The PRUD consists of 26 small cabins, 3 shared driveways with garages and 1 ski lodge. The cabins range in size between 1,000 to 1,700 square feet and are designed to stand above grade. The cabins are lifted above grade and stand on piers which reduces impacts to the natural stormwater conditions. The development includes a network of stairs and pathways throughout the site. All stairs and pathways are designed to allow stormwater to drain through to pervious surfaces. All storm drainage for the site has historically been conveyed overland in the southeasterly direction and ultimately flows into Lefty's Canyon. Average slopes across the existing parcels is approximately 22%.

Drainage Analysis

An analysis of runoff impacts due to the minor developments along Summit Pass in the initial 2013 study shows that runoff increase in volume and flow rate is negligible. Therefore, stormwater detention requirements for this portion of the development have been waived for Horizon Run and Heartwood Drive developments. This waiver for Horizon Run was made based on 24 lots in the development with a maximum building square footage of 4,500 square feet each. Assuming an average driveway length of 50' each lot will have about another 1000' square feet of impervious area. Therefore, the original Phase 1A development assumed 132,000 square feet of impervious area that is directly discharged overland to the natural drainage to the south. The result of replacing lots 19, 20, 22, and 23R with the Horizon Village PRUD is a reduction of 22,000 square feet of impervious area and an increase of 68,860 square feet for the overall increase of 46,860 square feet of impervious area. This is a negligible increase to the 715-acre drainage basin as identified in the May 2013 Drainage Study.

Due to low impact development techniques that have been adopted by the Horizon Village PRUD project the increase in runoff is mitigated. Those techniques include lifting the buildings above grade

and allowing stormwater to run off the drip edge of the buildings. The result of these techniques is increased infiltration due to reduced channelization. Rainwater will not consolidate into roof drains and it will not be channeled due to buildings in drainage paths. Therefore, runoff will be allowed to spread out and infiltrate or follow natural drainage paths. In addition, since cabins are lifted above grade and they will be accessed by porous boardwalks there is no concern of flooding individual units. Lastly, all paved driveways are designed to shed water with concentration of the runoff. This is achieved by tilting the driveways to the downhill side and utilizing ribbon curb (0" tall curb with no gutter). This allows the runoff to shed evenly and remain overland sheet flow. This slows runoff velocity, reducing erosion and sediment movement. This also results in higher rates of infiltration and reduced runoff.

Stormwater runoff from the ski lodge is anticipated to be collected from the hard surfaces and rooftop is anticipated to be collected and discharged to a channel along the east side of the development. This is used to convey stormwater around the development. It will terminate with a rip rap pad and stormwater will be discharged to the natural drainage in a manner similar to the other roadway culvert discharges throughout the development. This is the only location in the PRUD where stormwater will be concentrated or channelized. The design for the ski lodge is currently being finalized, however, as this design is finalized I will provide calculations for the sizing of the channel that will be utilized to convey runoff around the development.

Based on the conditions and techniques described above I request that we continue to proceed with the Horizon Village PRUD without stormwater detention as it was originally approved in the Phase 1A development.

Please let me know if you have any questions. Feel free to call at 801-743-1308.

Sincerely,



Ryan Cathey, PE