

**SUMMIT AT POWDER MOUNTAIN  
SUBDIVISION PHASE 1C AND D1  
SUPPLIMENT TO MAY 2013 DRAINAGE SUMMARY**

**POWDER MOUNTAIN RESORT  
EDEN, UTAH**

**DECEMBER 2013**

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### Site Description

The proposed development at Powder Mountain Resort east of Eden Utah is an extension of the planned communities that branch off of Summit Pass. These developments include Summit Pass, Copper Crest Road, Spring Park Road, Meridian Avenue, Rolling Drive, and Daybreak Ridge. Phase 1C Subdivision includes 17 single family lots along the south and west side of Summit Pass, 19 single family lots along the south and west side of Copper Crest Road, and 24 single family lots on Spring Park. Phase 1D subdivision includes 20 single family lots along Rolling Drive and 1 nest cabin parcel on Daybreak Ridge. The nest parcel will contain approximately 20 small cabins, approximately 400 square feet each. The majority of storm drainage for the site has historically been conveyed overland in the southwesterly direction into Lefty's Canyon. With the usage of curb and gutter, roadside ditches, catch basins, and culverts drainage will be conveyed through the site.

### Drainage Analysis

Analysis of the proposed developments has been carried out with the same method as was used for the Summit Pass and Spring Park Study dated May 2013. This analysis is intended as a supplement and update to that study, and in this report the hydrology will not be repeated. In summary of the May 2013 report, the hydrology for the proposed development was calculated using the SCS Method. This methodology was input into Haestad Method's PondPack to calculate storm discharge rates. Landuse consists of pavement, grass, meadows, forestry and gravel roads. Time of Concentration was calculated using the Technical Release 55 Method. Rainfall depths were determined using the National Oceanic and Atmospheric Administration (NOAA) website. Weber County requires drainage infrastructure to convey 10-year 2 hour storm events and discharge stormwater at a release rate such that post development discharge is less than pre development discharge. Soil maps for SCS Methodology have been provided by the *United States Department of Agriculture (USDA) Natural Resources Conservation Service (NCRS) Web Soil Survey*.

All hydrology for Phase 1C and 1D has been considered in the Summit Pass and Spring Park Drainage Study. The storm drain line from Summit Pass, which passes through Copper Crest Road, in Phase 1C, and connects to the middle of Spring Park from the initial study is intended to be utilized for Copper Crest Road. Copper Crest Road traverses the hill side between the two roads and although some of the runoff flows overland through the development it is either captured on Copper Crest Road or Spring Park. Two catch basins will be installed in the sag and approximate middle of Copper Crest Road and will tie into the existing connection which was already size to carry the existing flow of Copper Crest Road. The new nodes are noted in exhibits and tables as CB-Sub2-1 and CB-Sub2-2. The inlets were analyzed and it was determined that CB-Sub2-2 should be a double inlet. There is no other stormwater management infrastructure needed for Copper Crest Road.

Phase 1D has three locations of catchments the first being the south end of Rolling Drive as it intersects Summit Pass. There is an existing connection for the two catch basins, CB-Sub3-1 and CB-Sub4-1, for which the hydrology was previously analyzed in the May 2013 Study. In this analysis the size of the grates were analyzed for adequate capacity and to minimize spread. The inlets were analyzed and it

was determined that CB-Sub4-1 should be a double inlet. There is no other stormwater management infrastructure needed for Rolling Drive.

Daybreak Ridge has a sag in the roadway roughly the middle of this phase of the road. There is an existing connection for the two catch basins, CB-Sub4-2 and CB-Sub4-3, for which the hydrology was previously analyzed in the May 2013 Study. The inlets were analyzed and it was determined that a single inlet is adequate for both catch basins. There is no other stormwater management infrastructure needed for Daybreak Ridge.

Meridian Ave is a short road leading off to the northeast from Summit Pass. There is an existing connection for the two catch basins however it is not part of this model since they were analyzed in the May 2013 report. These two inlets are shown on Sheet 2.00 of the Phase 1D Construction Plans in the appendix. The inlets were analyzed and it was determined that inlet F-1 should be a double inlet and F-2 could remain a single. There is no other stormwater management infrastructure needed for Rolling Drive.

Pipe networks and culverts were sized using Haestad Method's StormCAD and FlowMaster. In the May 2013 report detention ponds 1 and 2 were sized and designed to accommodate all area tributary to Phase 1C and Phase 1D. The results of this analysis identified the Detention Pond 2 required a small volume and orifice to meet discharge requirements. The development team and Weber County Engineering agreed that this condition is problematic due to the remoteness of the site and high probability of problems with the small orifice. Therefore, it was agreed that Pond 2 will have no volume and Pond 1 will over detain to compensate for the free release of the area tributary to Pond 2. See the May 2013 report for all design calculations associated with Pond 1 and Pond 2 (no volume). Since the initial study shows that runoff volumes for all of this phase, there will be no need for any increased stormwater detention for the improvements of Summit Pass, Copper Crest Road, Spring Park Road, Meridian Avenue, Rolling Drive, and Daybreak Ridge.

# **APPENDICES**

## **1. Network Calculations**

- a. Village Subareas (From May Report)**
- b. Sheet 2.00 of the Phase 1C Construction Plans**
- c. Sheet 2.00 through 2.01 of the Phase 1D Construction Plans**
- d. Haestad Method's StormCAD Summary Report**
- e. Haestad Method's StormCAD Network Layout (3 pages)**
- f. Haestad Method's StormCAD Catch Basin Table**
- g. Haestad Method's StormCAD Conduit Table**
- h. Haestad Method's StormCAD Manhole Table**
- i. Haestad Method's FlowMaster calculations for each inlet**