

PRELIMINARY SITE AND UTILITY ENGINEERING SUMMARY

Part 1 - Introduction

Information presented in this document pertains to the proposed roads, illumination, drainage, water and sewer facilities, and solid waste management program to serve the proposed Winemaker's Cabins at Swiftwater Cellars plat as part of the Suncadia Phase 1 development.

Information on the proposed roads reflects the requirements of Exhibit J to the Development Agreement. Information on storm drainage reflects the requirements of the Washington Department of Ecology Stormwater Management Manuals, the 1999 Master Drainage Plan, and the preliminary stormwater engineering for Winemaker's Cabins at Swiftwater Cellars.

Information on the proposed water supply, storage, and distribution system is taken from the 2013 Water System Plan, revised January 2016. The development will be served by the Suncadia Water Company, a Class A water system regulated by the Washington Department of Health.

Information on the proposed sewage collection, treatment, and disposal system is taken from the preliminary engineering for Phase 1 and the March 2000 Site Engineering Technical Summary document for the MPR (Appendix A of the FEIS).

Part 2 – Roadway Plan

Discussed in this part are the classification of roads, proposed road sections, roadway illumination and emergency access for the Winemaker's Cabins at Swiftwater Cellars.

Roadway Classifications – The new roadway on the Site Development Plan within the proposed development is classified as Secondary Traffic Circulation.

Roadway Sections – The new primary access road on the Site Development Plan will utilize the typical Suncadia Minor Residential Roadway section as shown on Sheet 5 of the attached Preliminary Plat.

Access – Access to the new roadway will be from the existing Rope Rider Drive.

Illumination – Street lighting design will conform to the dark skies principle while providing minimum lighting levels appropriate for roadway and parking safety and security. Street lighting will conform to the following planning criteria:

- a. Use of full-cutoff shielding on outdoor light fixtures;
- b. Mounting of light fixture luminaires at a height of not greater than 30 feet;

- c. Establishment of roadway lighting standards based on needed light distribution and the luminance of roadway and parking surfaces;
- d. Use of LED street lights;
- e. Use of timer or photo-cell controls to regulate when and where lighting will occur;
and
- f. Avoiding unnecessary lighting of building facades.

Street lights will be located at intersections, pedestrian crossings, and other locations as needed. Alternative luminaire styles will be considered during detailed project design.

Part 3 – Stormwater Management Plan

The preliminary Stormwater Management Plan for the Winemaker's Cabins at Swiftwater Cellars of the Suncadia MPR is described in this part. The Stormwater Management Plan reflects the application of design principles detailed in the Washington Department of Ecology's Stormwater Management Manual as well as information presented in the April 1999 (Revised July 1999) Master Drainage Plan (MDP) prepared by W&H Pacific for the MPR. The MDP outlines stormwater design procedures, guidelines, and protocols for the development.

Updates to the MDP include:

- 1) Adoption of the drainage standards set forth in the Washington State Department of Ecology's Stormwater Management Manual for Eastern Washington (SMMEW), August 2019 version.
- 2) An addendum to the MDP dated August 2002 that provides (a) water quality protocol information for golf course areas that discharge to surface waters, and (b) revision of golf course water quality protocol summary information for infiltration to conform with the detailed protocol information.

Design specifics addressed in this part include:

- Runoff rate/volume estimation methodology
- Infiltration facility collection and conveyance
- Water quality treatment
- Overflow routing
- Conceptual Stormwater Plan

The proposed Winemakers Cabins at Swiftwater Cellars land use for the resort is shown on the General Site Plan for Phase 1. The property is located east of Phase 1 Division 10 and south of Phase 1 Division 3.

The stormwater system will be constructed, owned, operated, and maintained by Swiftwater Cellars Properties LLC.

Conceptual Drainage Plan

Stormwater runoff from the roadways and parking areas of the Winemakers Cabins at Swiftwater Cellars development will be collected in roadway catch basins and piped through the roadways and down a storm drain easement to discharge into the existing drainage system of the Rope Rider Golf Course, north of the project area. This golf course drainage system will provide flow control and water quality treatment.

For more information see the attached Conceptual Utility Exhibit.

Runoff from the individual homes and recreational facilities will typically be handled on the individual lots via dispersion and infiltration.

Infiltration and Detention Facilities

No specific detention facilities are planned with the project. Infiltration will be utilized primarily on the individual lots for runoff from the individual units.

Water Quality Treatment

Water quality treatment will be provided for runoff from impervious road and parking surfaces requiring Stormwater treatment. Treatment will be provided in one of several Department of Ecology recommended treatment facility types. Water quality treatment options available for Suncadia are wetponds/lakes, stormfilter systems, biofiltration swales, bio-infiltration and sheet-flow dispersion. All water quality facilities are sized to treat the water quality storm. The water quality storm is that storm for which all storms equal or smaller in size account for 90 percent of the average annual runoff. For Phase 1, including the proposed Winemakers Cabins at Swiftwater Cellars project area, the water quality design storm is 1.68 inches in 24 hours.

Sheet Flow Dispersion: Sheet flow dispersion is an approved Washington Department of Ecology water quality and quantity control method for areas with less than 10 percent impervious area in the drainage basin and where 65 percent or more of the existing forest duff is retained. This water quality treatment method may be used for runoff from individual lots.

Bio-Infiltration: Bio-Infiltration can be provided by routing runoff for the water quality storm through a 6-inch bed of filtration medium with specific characteristics for infiltration rate, cation exchange capacity, and total organics that establish suitability for water quality treatment, as described in Washington Department of Ecology's Stormwater Management Manual for Eastern Washington. This method of providing water quality treatment can be provided by lining roadside ditches or tops of infiltration facilities with a 6-inch bed of filtration medium that meets or exceeds the soil characteristics as follows:

- Infiltration Rate: Less than 2.4 inches/hour
- Cation Exchange Capacity: At least 5 meq/100 grams of dry soil
- Organic Content: At least 1%

Water quality treatment can also be provided by routing runoff through native soils with infiltration rates greater than 2.4 inches per hour as long as the bed thickness is increased to provide an equivalent residence time.

This water quality treatment and flow control method will be used for the eastern development area of the project.

Overflow Routes

Each infiltration facility will include a planned overflow route or controlled overflow structure. The overflow will discharge through a gravel dispersion trench or bioswale to collect overflow and convey it downstream as overland sheet flow or infiltrate where soil conditions are favorable. This will provide for the safe conveyance, infiltration, and dispersion of stormwater even if the primary system is partially clogged or out of operation.

Part 4 – Project Water Plan

Source of Water Supply

The Winemakers Cabins at Swiftwater Cellars development will be served by an extension of the existing Suncadia water distribution system. Suncadia Water Company operates this Class A water system regulated by the Washington Department of Health. Suncadia Water Company has indicated they have the capacity available and intend to serve this project, and has provided the attached Water Availability Letter.

Water System Description

The preliminary water distribution system for Winemakers Cabins at Swiftwater Cellars is depicted on the attached Conceptual Utility Exhibit, connecting to the existing MPR distribution system at the existing 8" diameter water main in Rope Rider Drive. The water supply for the distribution system is provided by the MPR water reservoirs located in the northeast section of the MPR.

The development area of the Winemakers Cabins at Swiftwater Cellars will be served by a dead-end 8" diameter water main extended in the access road to serve fire hydrants and individual water services for each lot. The main is located such that it cannot be looped back to existing water mains.

All homes are planned for individual residential fire sprinkler systems. Fire hydrants will be placed a maximum of 500 foot spacing along the access road. Fire flow calculations were analyzed to size the proposed water distribution mains, utilizing a required flow of 1,500 gallons per minute (gpm) at 20 pounds per square inch (psi) minimum residual pressure.

Part 5 – Sewer System Plan

General Description

Winemakers Cabins at Swiftwater Cellars will be served by 8” diameter gravity sewer main extensions of the existing Suncadia MPR system as indicated on the attached Conceptual Utility Exhibit. Extensions of the sewer system will utilize 8” diameter gravity sewer mains with manholes at each change of direction, pipe intersections, and at intervals of not more than 400 feet in accordance with Washington Department of Ecology standards. This wastewater system is operated by the Suncadia Environmental Company who has confirmed available capacity and intent to serve this project and has provided the attached Sewer Availability Letter. Flow from the Suncadia MPR wastewater system ultimately flows off-site to the Upper Kittitas County Regional Wastewater Treatment Facility (WWTF) owned by the City of Cle Elum and operated by Veolia Water.

Part 6 – Solid Waste Management Plan

Suncadia Solid Waste Management Policy

Solid waste collection within the Suncadia MPR is currently provided by Waste Management.