

Introduction

The preliminary Stormwater Management Plan for The Phase 3 Division 17 of the Suncadia Master Planned Resort (MPR) is described in this part. The Stormwater Management Plan reflects application of design guidelines detailed in the Department of Ecology Stormwater Management Manuals as well as information presented in the April 1999 (Rev. July 1999) Master Drainage Plan (MDP) that was 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 Washington State Department of Ecology's Stormwater Management Manual for Western Washington August 2001 (DOE SMM),
- (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 land use for the resort is shown in the General Site Plan for Phase 3. Phase 3 Division 17 is located at the west end of Tumble Creek Drive and west of Divisions 15 & 16. The Suncadia stormwater system will be owned, operated, and maintained by either the Suncadia Residential Owners Association, or the Suncadia Community Council, depending on the location within the resort. Construction of facilities will be by Suncadia Resort LLC.

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Phase 3 Division 17 Engineering Summary

Conceptual Drainage Plan

Stormwater runoff from the Phase 3 Division 17 proposed roadways impervious surface will be collected in catch basins or roadside water quality and infiltration swales and directed to water quality and infiltration facilities.

Stormwater runoff from the lots will be handled separately on each lot using dispersion and infiltration.

The majority of the project area consists of glacial outwash with some glacial moraine deposits. For additional information regarding the existing geology and soils information, see the EIS Technical Report for Geology, Groundwater and Soils prepared by AESI and dated February 10, 2006.

Infiltration Facilities

Infiltration facilities will be designed based on infiltration rates recommended by the project Geotechnical Engineer.

Water Quality Treatment

Water quality treatment will be provided for runoff from impervious road 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 3, the water quality design storm is 1.96 inches in 24-hours. Proposed water quality facilities are described below.

Sheet Flow Dispersion

Sheet flow dispersion is an approved Department of Ecology water quality and quantity control method for areas that preserve the existing forest duff. D.O.E. allows this treatment when the impervious area is less than 10 percent of the basin and 65 percent or more of the forest duff is retained.

This method will be used for flow control for the 105 detached resort residential units.

Biofiltration Swales

Biofiltration swales are another approved DOE water quality treatment facility. This facility is also designed to treat the water quality storm. The design criterion for a

biofiltration swale is residence time in the swale. For a given flow rate, the required residence time is a duration equal to that which would be provided by a 200 ft long swale, flow depth of 4 inches, and maximum velocity of 1.5 feet-per-second, or about two and one-half minutes.

Biofiltration swales on the Suncadia project will not be irrigated and, therefore, must be seeded with drought resistant vegetation suitable for the upper Kittitas County climate. The typical seed mixture used for the Suncadia biofiltration swales is as follows:

Seed Mixture Type	Percentage
Sherman Big Blue Grass	10
Joseph Idaho Fescue	30
Sodar Streambank Bunch Grass	30
Secar Blue Bunch Wheat Grass	30

(Source: Wildland, Inc., Richland, WA, October 2000.)

This mixture may be changed to accommodate site conditions or recommendations from design professionals.

Overflow Routes

Each existing stormwater facility in Phase 3 has a controlled overflow structure. The overflow discharges to an overflow drainage swale or enclosed pipe where it is conveyed to a downstream facility or controlled dispersion area. In the case of infiltration ponds, overflow routes are provided to the next downstream infiltration facility where feasible. This provides for the infiltration of stormwater even if one facility is partially clogged or out of operation.