

Stormwater Standards
Clackamas County Service District No. 1

APPENDIX H

*Stormwater Quality
Facility Design Criteria*

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VEGETATED STORMWATER QUALITY FACILITY DESIGN CRITERIA

H.1 Table: VEGETATED STORMWATER QUALITY FACILITY DESIGN CRITERIA

Stormwater Facility	Contributing Drainage Area	CHAPTER 3. DESIGN CRITERIA
Vegetated Filter Strip	Up to 3 acres	<ul style="list-style-type: none"> • Minimum width is 20 feet • Minimum length is 50 feet • Minimum residence time is 20 minutes • Slopes from 1 to 6 % • Maximum water quality sheet flow velocity = 0.5 fps • Manning's n = 0.10 • Line with Kentucky bluegrass, tall fescue, or western wheatgrass
Vegetated Swale	Up to 10 acres	<ul style="list-style-type: none"> • Maximum water quality flow depth is 6 inches • Minimum swale depth is 1 foot • Minimum bottom width is 2 feet • Maximum side slope is 3:1 • Minimum length is 100 feet • Minimum residence time is 9 minutes • Minimum longitudinal slope is 1%; maximum longitudinal slope is 6%; use check dams for larger slopes • Maximum flow velocity = 1.5 fps • Manning's n = 0.25 • Appropriate vegetation (see section detail)
Constructed Wetland/ Wet Pond	Between 5 and 150 acres	<ul style="list-style-type: none"> • See Technical Guidance Handbook • Demonstrate adequate base flow • Drawdown time = 24 hrs for live storage (water quality) volume • Vegetation types determined by depth, frequency, and duration of inundation • Design Wet Pond dead storage for removal of 80% of sediment • Maximum Constructed Wetland permanent pool depth = 2.5 feet
Extended Dry Detention Pond	Up to 150 acres	<ul style="list-style-type: none"> • Detain water quality storm for minimum of 24 hours <ul style="list-style-type: none"> • Calculate total runoff volume using Santa Barbara Unit Hydrograph (SBUH) • Divide runoff volume by 24 hours to determine discharge • Size orifice for maximum water quality depth • Minimum length to width ratio of pond shall be 3:1 • Appropriate vegetation (see section detail)
Infiltration Facilities	Varies with site conditions	<ul style="list-style-type: none"> • Not allowed in most industrial zones or other high-risk areas (gas stations, etc.) • Subsurface facilities require 3' minimum vertical separation from maximum seasonal groundwater elevation • Generate hydrograph from ½-inch, 24-hour rainfall in developed conditions using SBUH • Estimate dimensions of infiltration facility • Create stage-storage curve for facility using the King County "HYD" Data Routine <ul style="list-style-type: none"> • Use site-specific infiltration test results or the lowest infiltration rate from the County Soil Survey • For backfilled trenches, assume 25% void space with side infiltration only • Route the hydrograph through the facility using the "HYD" program • Resize the facility and repeat above steps as needed to provide complete infiltration • Entire runoff volume must infiltrate within 96 hours