



Low Impact Development Bioretention/Rain garden feasibility

Using low impact development techniques are strongly encouraged and in certain areas of the county, low impact development (LID) is required. Listed below are common feasibility criteria that must be considered when using LID measures such as those found in the Low Impact Development Technical Guidance Manual for Puget Sound: http://www.psp.wa.gov/downloads/LID/LID_manual2005.pdf Refer to the Stormwater Management Manual for Western Washington (SMMWW) for complete technical feasibility criteria along with design information at: <http://www.ecy.wa.gov/programs/wq/stormwater/manual.html>

The following criteria can be cited as reasons for a finding of infeasibility of bioretention or rain garden facilities without further justification (though some may require professional services):

- Within setbacks from structures as established by the local government with jurisdiction.
- Where they are not compatible with surrounding drainage system as determined by the local government with jurisdiction
- Where land for bioretention is within area designated as an erosion hazard, or landslide hazard.
- Where the site cannot be reasonably designed to locate bioretention facilities on slopes less than 8%.
- Within 50 feet from the top of slopes that are greater than 20% and over 10 feet of vertical relief.
- For properties with known soil or ground water contamination (typically federal Superfund sites or state cleanup sites under the Model Toxics Control Act (MTCA)):
 - a) Within 100 feet of an area known to have deep soil contamination;
 - b) Where ground water modeling indicates infiltration will likely increase or change the direction of the migration of pollutants in the ground water;
 - c) Wherever surface soils have been found to be contaminated unless those soils are removed within 10 horizontal feet from the infiltration area;
 - d) Any area where these facilities are prohibited by an approved cleanup plan under the state Model Toxics Control Act or Federal Superfund Law, or an environmental covenant under Chapter 64.70 RCW.
- Within 100 feet of a closed or active landfill.
- Within 100 feet of a drinking water well, or a spring used for drinking water supply.
- Within 10 feet of small on-site sewage disposal drainfields including reserve areas, and grey water reuse systems. For setbacks from a “large on-site sewage disposal system”, see Chapter 246-272B WAC.
- Within 10 feet of an underground storage tank and connecting underground pipes when the capacity of the tank and pipe system is 1100 gallons or less. (As used in these criteria, an underground storage tank means any tank used to store petroleum products, chemicals, or liquid hazardous wastes of which 10% or more of the storage volume (including volume in the connecting piping system) is beneath the ground surface.
- Within 100 feet of an underground storage tank and connecting underground pipes when the capacity of the tank and pipe system is greater than 1100 gallons.
- Where the minimum vertical separation of 1 foot to the seasonal high water table, bedrock, or other impervious layer would not be achieved below bioretention or rain gardens that would serve a drainage area that is:
 - a) less than 5,000 sq. ft. of pollution-generating impervious surface, and
 - b) less than 10,000 sq. ft. of impervious surface; and
 - c) less than ¼ acres of pervious surface.

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- Where the a minimum vertical separation of 3 feet to the seasonal high water table, bedrock or other impervious layer would not be achieved below bioretention that:
 - 1) Would serve a drainage area that meets or exceeds:
 - a) 5,000 square feet of pollution-generating impervious surface, or
 - b) 10,000 square feet of impervious surface, or
 - c) (3/4) acres of pervious surfaces; and
 - 2) Cannot reasonably be broken down into amounts smaller than indicated in (1).
- Where the field testing indicates potential bioretention/rain garden sites have a measured (a.k.a., initial) native soil saturated hydraulic conductivity less than 0.30 inches per hour. If the measured native soil infiltration rate is less than 0.30 in/hour, this option should not be used to meet the requirements of MR#5. In these slow draining soils, a bioretention facility with an underdrain may be used to treat pollution- generating surfaces to help meet Minimum Requirement #6, Runoff Treatment. If the underdrain is elevated within a base course of gravel, it will also provide some modest flow reduction benefit that will help achieve Minimum Requirement #7.

Citation of any of the following infeasibility criteria must be based on an evaluation of site-specific conditions and a written recommendation from an appropriate licensed professional (e.g., engineer, geologist, or hydrogeologist)

- Where professional geotechnical evaluation recommends infiltration not be used due to reasonable concerns about erosion, slope failure, or down gradient flooding.
- Within an area whose ground water drains into an erosion hazard, or landslide hazard area.
- Where the only area available for site location would threaten the safety or reliability of pre-existing underground utilities, pre-existing underground storage tanks, pre-existing structures, or pre-existing road or parking lot surfaces.
- Where the only area available for sit location does not allow for a safe overflow pathway to the municipal separate storm sewer system or private storm sewer system.
- Where there is a lack of usable space for rain garden/bioretention facilities at re-development sites, or where there is insufficient space within the existing public right-of-way on public road projects.
- Where infiltrating water would threaten existing below grade basements.
- Where infiltrating water would threaten shoreline structures such as bulkheads.