



TO: Snohomish County Council
FROM: Terri Strandberg, Principal Planner
DATE: May 25, 2021
SUBJECT: Council Questions re: Bioretention

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Dave Somers
County Executive

The purpose of this memo is to respond to questions asked by Councilmember Dunn at the Planning and Community Development Committee briefing on May 4th. Councilmember Dunn asked two questions:

- Is active recreation allowed over bioretention cells? and
- Are pesticides allowed to be used around drainage facilities covered with grass?

1. Snohomish County code (SCC) does not allow active recreation in bioretention cells. However, open space credit is given for areas dedicated to drainage facilities and credit for passive recreation is also allowed. The relevant code language in the Urban Residential Design Standards in SCC 30.23A.080 says the following:

SCC 30.23A.080(4)(f)

Passive uses include critical areas that cannot be developed, nature interpretive areas, bird watching facilities, unimproved trails, and similar uses approved by the director;

SCC 30.23A.080(4)(g)

The following drainage facilities may be counted as on-site passive recreation space:

- (i) Unfenced detention, retention and wet ponds;
- (ii) Stormwater treatment wetlands;
- (iii) Stormwater infiltration trenches and bioswales that serve more than one dwelling;
and
- (iv) Vegetated areas located above underground detention facilities;

This provision to allow open space and passive recreation credits for drainage facilities is included in the code for three reasons:

- So as not to disincentivize, or create a barrier for the use of low impact stormwater facilities consistent with Phase I Permit requirements;

- To preserve development density within the Urban Growth Area consistent with Growth Management Act goals; and
 - To address property rights and “takings” concerns.
2. Pesticide use within and around grass-covered drainage facilities is discouraged but is not prohibited outright, since it is needed in some cases such as control of noxious weeds. Proper use of pesticides, including herbicides, is addressed by three BMPs in Volume IV of the drainage manual:
- BMPs for Landscaping and Lawn/Vegetation Management at Commercial Sites or Performed Commercially at Other Sites (Chapter 3.10)
 - BMPs for Pesticides and Pest Management (Chapter 3.34); and
 - BMPs for the Storage of Dry Pesticides and Fertilizers (Chapter 3.35)

Chapters 3.34 and 3.35 are new and included along with 14 others which, as a group, are identified as one of the “9 significant changes” required by Ecology in the current update. *(Note also that Volume IV Chapter 3.42 BMPs for Pet Waste is also part of the group of new BMPs.)*

BMP T7.10 Infiltration Basins, BMP T7.20 Infiltration Trenches and BMP T9.10 Basic Biofiltration Swale are examples of grass-covered drainage facilities where turf grasses are the preferred plant species to use. To prevent or minimize the need to use fertilizers, herbicides or pesticides, implementation of these BMPs suggests careful selection of grass species most suitable to soil and growing conditions. Mowing is an expected maintenance action. When needed, use of fertilizers, herbicides and pesticides must follow the appropriate BMPs.

With respect to bioretention cells specifically (BMP T7.30), where turf grass is *not* one of the recommended plants, Ecology’s stormwater manual says the following:

The soil mix and plants are selected for optimum fertility, plant establishment, and growth. Nutrient and pesticide inputs *should not be required* and may degrade the pollutant processing capability of the bioretention area, as well as contribute pollutant loads to receiving waters. (2019 SWMMWW, pg. 802, emphasis added).

While use of nutrients and pesticides is not expressly prohibited in bioretention cells, and assumed to be unnecessary, contribution of contaminants into receiving waters would be a prohibited outcome. Use of turf grass within bioretention cells increases the likelihood that nutrients and/or pesticides may be necessary because turf grass is not entirely suitable to the cycle of wet/dry conditions occurring within bioretention cells. Ecology’s 2019 *Stormwater Management Manual for Western Washington* (2019 SWMMWW) references two recommended plant lists for bioretention facilities:

Site growing characteristics and plant selection: Appropriate plants should be selected for sun exposure, soil moisture, and adjacent plant communities. Native species or hardy cultivars are recommended and can flourish in the properly designed and placed bioretention soil mix with no nutrient or pesticide inputs and 2-3 years irrigation for

establishment. Invasive species and noxious weed control will be required as typical with all planted landscape areas. (2019 SWMMWW, pg. 784)

Note that the *Low Impact Development Technical Guidance Manual for Puget Sound* (Hinman and Wulkan, 2012) is for additional information purposes only. You must follow the guidance within this manual if there are any discrepancies between this manual and the *Low Impact Development Technical Guidance Manual for Puget Sound* (Hinman and Wulkan, 2012). (2019 SWMMWW, pg. 785)

In general, the predominant plant material utilized in bioretention areas are species adapted to stresses associated with wet and dry conditions. Soil moisture conditions will vary within the facility from saturated (bottom of cell) to relatively dry (rim of cell). Accordingly, wetland plants may be used in the lower areas, if saturated soil conditions exist for appropriate periods, and drought-tolerant species planted on the perimeter of the facility or on mounded areas. See the *Low Impact Development Technical Guidance Manual for Puget Sound* (Hinman and Wulkan, 2012) for additional guidance and recommended plant species. See also City of Seattle's ROW bioretention plant lists found in Seattle's GSI Manual, Appendix G, ... (2019 SWMMWW, pg. 797-798)

Ecology's SWMMWW (2019 and earlier editions) clearly states that the two cited plant lists are "recommendations" and "guidance" when designing bioretention facilities. Since use of these lists is not a requirement, turf grass has, on occasion, been used as an alternative in bioretention cells. If the recommended plant list was not consulted, it may have been assumed based on the description of bioretention cells in Ecology's SWMMWW that use of turf grass is acceptable:

Bioretention cells: Shallow depressions with a designed planting soil mix and a variety of plant material, including trees, shrubs, grasses, and/or other herbaceous plants. Bioretention cells may or may not have an underdrain and are not designed as a conveyance system. (2019 SWMMWW pg. 774).

The recommended plant lists do include a few grass species, but they are fescue-types, not turf grasses.

Regardless, while use of turf grass is not expressly prohibited, it can create an attractive nuisance in the form of unanticipated use by humans and pets, and presents an unanticipated degree of maintenance when compared to the maintenance standards for bioretention facilities when using the recommended plant lists (i.e., frequent mowing during the growing season as compared to bi-annual weeding). To discourage excessive intrusion into bioretention facilities and the subsequent compaction of the soils, the County Executive recommends revising BMP T7.30 in the county's 2021 drainage manual, Volume V, to require use of the cited plant lists.

Please note that the county's drainage manual is adopted via the rulemaking process in chapter 30.82 SCC. As such, it will not be necessary for the County Council to address this revision through a formal amendment sheet. The County Executive has directed staff to make this revision and proceed with the rule making process.

CC: Ken Klein, Executive Director
Josh Dugan, Chief of Staff
Mike McCrary, PDS Director
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