

BIORETENTION CELL (ENGINEERED RAIN GARDEN) CONSTRUCTION REQUIREMENTS

LAST REVISED: 03/31/2016

Inspection #1 - TESC and Grading

1. Bioretention areas shall not be used as sediment control facilities and shall be protected from siltation and compaction during construction. All drainage should be directed away from bioretention areas after initial rough grading; block cell inlets with temporary concrete or sand bags during construction. If site constraints require bioretention areas to be used for sediment control, initially excavate to 6" above final grade, and when other earth disturbing work is done then excavate down to final grade and install the bioretention facilities as designed.
2. TESC is correctly installed.
3. Rough grading (verify construction staking) and bioretention dimensions are to plan.
4. Curb cut openings are blocked.
5. A special inspection will be required for rain gardens that are used to meet an exemption to flow control, reduce the size of a detention facility, or as a flow control facility. Additional information for what's required in a special inspection can be found in policy D-8.

Inspection #2 - Bioretention Soil Mix (BSM) and Bioretention

1. Prior to inspection, applicant must submit soil test verification (lab report within past 30 days) to PW inspector prior to soil installation. Soil test verification should include infiltration rate (must match design infiltration rate), sieve analysis (less than 5% fines), and organic matter content (4-8% by dry weight).
2. Subgrade soil has been scarified at least 3 inches (required only if cell is used for infiltration).
3. Subgrade soil is free of construction runoff fines. If sediment has entered the bioretention area, remove enough subgrade soil to remove the fines and replace with BSM.
4. Overflows and under-drains (if installed) are at proper locations and elevations.
5. Excavated cell subgrade is not over-saturated, and BSM is not saturated when placed.
6. Aggregate backfill for underdrains (if installed) is free of fines. If fines are present, remove top 6 inches of backfill and replace.

Inspection #3 - BSM Placement and pre-planting

1. Verify the BSM soil delivered meets soil test verification (lab report from Inspection #2) with a truckload ticket or other documentation.
2. BSM depth and cell side slopes are per plan.
3. Verify placement & plants prior to plant installation. Plants shall not be installed next to water meters.
4. If planting will be more than 30 days out, mulch must be placed immediately after BSM placement (prevents weed establishment).

Inspection #4 - Post Planting and Mulch

1. Plant quantities are per plan.
2. Mulch & Coarse Compost type and depth (2-3 inches). Verify ESC is adequate, and no sediment has accumulated on the mulch.
3. Finished cell elevation (including mulch) is below sidewalks, curbs, driveways, and other pavement per plan.
4. No excessive weed or other invasive plant establishment.
5. All pipes, culverts, conveyance systems, flow control structures, inlet spillways (2-3' drop) and outlet overflows are free and clear of debris.
6. Temporary watering plan is in place (either on-site irrigation or other plan).

Inspection #5 - Final (starts maintenance bond period)

1. Final grade per plan, including letter of approval from design engineer for final survey of cell volume and contributing area size.
2. BSM is not clogged and infiltration rate is adequate through visual assessment. No ponding following precipitation events.
3. Removal of TESC
4. Installation of additional soil will be needed along the edge of cells 1 to 2 months after cell construction (due to settling).
5. 1 year verification walk through is required during maintenance bond period.
6. Due to plant survival rate required, Developer/Contractor must make provisions for a water truck or temporary irrigation from existing service on site for the first 2 years after final.

Inspection #6 - End of Maintenance Bond Period

1. No sediment on top of mulch and coarse compost.
2. BSM is not clogged and infiltration rate is adequate through visual assessment
Drains in 24 to 48 hours.
3. Aerial plant cover must be at least 80% within 2 years after plant installation.
Owner responsible for continued irrigation, and plant replacement if needed.

CITY OF KIRKLAND

PLAN NO. CK-L.03



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