

# ENGINEERING REPORT

## EARLY DEMO DRAINAGE MEMO

LMC Crown Hill  
8521 15<sup>th</sup> Avenue NW  
Seattle, WA  
August 2021

### PREPARED FOR:

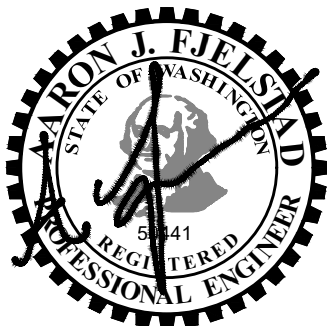
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August 4<sup>th</sup>, 2021

Department of Construction and Inspections  
700 Fifth Ave, Suite 2000  
P.O. Box 34019  
Seattle, WA 98124-4019

**RE**                      *LMC Crown Hill – 8521 15<sup>th</sup> Avenue NW*  
                             *Early Demo TESC Report and Calculations*

Dear Reviewer:

The following calculations are provided as design analysis supplementing the Demolition and Temporary Erosion and Sediment Control (TESC) plans for 8521 15<sup>th</sup> Avenue NW. The TESC measures for this project are based on requirements set forth in the 2016 City of Seattle Volume 2 – Construction Stormwater Control Manual. This TESC memo is for the early works construction stage of the project and is being submitted as part of the overall Technical Information Report (TIR).

The project site is located at 8521 15<sup>th</sup> Avenue NW, WA 98117. It is bound by private property to the north, 15th Avenue NW to the east, private property to the south, and an alley to the west. The site is located in Section 32, Township 26N, Range 4E, of the Willamette Meridian.

The site consists of approximately 13,596 square feet (0.31 acres). The project site slopes primarily from the north to the south with a total grade drop of approximately 2 feet over 85 feet. The project site is currently occupied by an existing building. The site will be a portion of a new multi-story residential building with subterranean parking and complementary landscaping. The following calculations are for the construction phase of the project. An overarching and complete Technical Information Report (TIR) will be submitted as part of the building permit.

Civil elements associated with this permit submittal include demolition of existing site features, temporary erosion and sediment control (TESC), and temporary site drainage. Temporary Erosion and Sediment Control (TESC) facilities will be installed to prevent the transport of sediment-laden runoff from entering adjacent right-of-way storm or combined sewer systems. TESC facilities will include interceptor swales, sump-pump basin(s), settling/treatment tank(s), silt fence, and catch basin/inlet sediment filter protection. The settling/treatment tank will treat and discharge the runoff to meet City requirements.

The project will discharge to an existing side sewer with drains to the sewer main and will not be required to obtain coverage under the National Pollutant Discharge Elimination System's (NPDES) State Construction Stormwater General Permit. At a minimum, the following Best Management Practices (BMPs) will be used:

1. Retain existing pavements as working surfaces and for vehicle access if practical.
2. Construction fencing will be placed along the exterior of the work site.
3. Sediment storage tank will be used to minimize sediment discharge.
4. Filter "Socks" will be installed in existing catch basins and inlets inside and adjacent to the site.
5. Tires and the undercarriage of vehicles will be cleaned before they leave the site.
6. Rock work pads will be installed over unpaved areas of the site where needed.

The Erosion and Sediment Control plan covers the following 19 elements set forth in Chapter 3 of the Construction Stormwater Control Technical Requirements Manual. In addition to the response below, please refer to the attached "Checklist for Select large Project Construction BMPs."

- *Element 1* - Mark clearing Limits and Environmentally Critical Areas: Existing vegetation to be removed as On-site Stormwater Management measures are to be put in place with the new building. Buffer Zones are to be implemented.
- *Element 2* - Retain Top Layer: Existing site will be demolished and therefore unable to retain top layer.
- *Element 3* - Establish Construction Access: A stabilized construction entrance, tire wash, and construction road stabilization shall be implemented as necessary.
- *Element 4* - Protect Downstream Properties and Receiving Waters: Interceptor swales, check dams, and moveable sump pumps shall be implemented within the project site. The pumps shall route runoff to a Baker tank(s) to reduce the discharge of sediment from the site.
- *Element 5* - Prevent Erosion and Sediment Transport from the Site: Silt fencing, sediment traps and straw wattles shall be appropriated as needed during construction.
- *Element 6* - Prevent Erosion and Sediment Transport from the Site by Vehicles: Inlets and catch basin shall be cleaned through construction. Street sweeping and vacuuming shall be completed as needed through construction. A stabilized construction entrance, tire wash, and construction road stabilization shall be also implemented.
- *Element 7* - Stabilize Soils: Dust control and other soil stabilization BMPs shall be used as needed.
- *Element 8* - Protect Slopes: For areas of extensive slopes, check dams shall be implemented.
- *Element 9* - Protect Storm Drains: Inlet protection and street sweeping shall be implemented.
- *Element 10* - Stabilize Channels and Outlets: Check dams shall be implemented.
- *Element 11* - Control Pollutants: The necessary BMPs for material delivery, storage, containments, demolition of buildings, and saw cutting and surface pollution prevention shall be implemented. The contractor shall phase construction such that minimal materials are stored onsite.
- *Element 12* - Control Dewatering: Temporary dewatering shall be implemented as needed.
- *Element 13* - Maintain BMPs: All temporary and permanent erosion and sediment control BMPs shall be maintained and repaired as needed to assure continued performance of their intended function.
- *Element 14* - Inspect BMPs: All BMPs shall be inspected, maintained, and repaired as needed to assure continued performance of their intended function.
- *Element 15* - Execute Construction Stormwater Control Plan: The Large Project Construction Stormwater Control Plan shall be retained on-site or within reasonable access to the site, and shall be modified as needed. All temporary erosion and sediment control BMPs will be removed within 5 business days after final site stabilization, or after they are no longer needed, whichever is longer.
- *Element 16* - Minimize Open Trenches: Trenching will be minimized during construction.
- *Element 17* - Phase the Project: The project will be phased to prevent soil erosion where possible.
- *Element 18* - Install Permanent Flow Control and Water Quality Facilities: Flow control and water quality facilities shall be installed per this report and the Civil Site Plans.
- *Element 19* - Protect Stormwater BMPs: Contractor to protect on-site stormwater infrastructure during construction and restore to fully functioning condition upon completion of construction.

The following documents are included as part of the calculations package:

1. *Sediment Storage Tank Sizing Calculations*
2. *Peak Flow Calculations (MGS Flood Report)*
3. *Large Project BMP Checklist*

The project is proposing to use an above ground sediment storage tank to minimize sediment discharge. The settling tank volume was calculated per Seattle Stormwater Manual Volume 2. The TESC basin area is 0.31 acres and is defined by the property line. MGS Flood was used to calculate the peak runoff rate for the TESC basin 2-year design storm event, which was calculated at 0.138 cfs. Per Seattle Stormwater Manual Volume 2, Section 4.3.7, this peak flow rate was used to determine the minimum required settling tank storage volume of

7,421 gallons. Calculations for the sediment tanks are based off site discharge rates. The sediment tanks will be treating stormwater and construction runoff before discharging to the combined sewer in 15<sup>th</sup> Avenue NW.

The actual dimensions and size are dependent upon contractor selection. We trust the following calculations will satisfy the requirements of the Department of Construction and Inspections.

The project will not be performing excavation under this permit and therefore will not be encountering groundwater during construction.

Sincerely,  
Coughlin Porter Lundeen, Inc.

Caleb Slater

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## MGS FLOOD PROJECT REPORT

Program Version: MGSFlood 4.46  
Program License Number: 200610002  
Project Simulation Performed on: 08/04/2021 10:27 AM  
Report Generation Date: 08/04/2021 10:27 AM

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Input File Name: 2021-8-4 CH - Early Demo Baker Tank sizing (8521).fld  
Project Name: LMC CH - Early Demo  
Analysis Title: Baker Tank Sizing  
Comments: 8-4-21 CPS

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### PRECIPITATION INPUT

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Computational Time Step (Minutes): 5

Extended Precipitation Time Series Selected  
Climatic Region Number: 1

Full Period of Record Available used for Routing  
Precipitation Station : 95003205 Puget West 32 in\_5min 10/01/1939-10/01/2097  
Evaporation Station : 951032 Puget West 32 in MAP  
Evaporation Scale Factor : 0.750

HSPF Parameter Region Number: 1  
HSPF Parameter Region Name : USGS Default

\*\*\*\*\* Default HSPF Parameters Used (Not Modified by User) \*\*\*\*\*

### \*\*\*\*\* WATERSHED DEFINITION \*\*\*\*\*

#### Predevelopment/Post Development Tributary Area Summary

		Predeveloped	Post Developed
Total Subbasin Area (acres)	0.310	0.310	
Area of Links that Include Precip/Evap (acres)	0.000	0.000	
Total (acres)	0.310	0.310	

#### -----SCENARIO: PREDEVELOPED

Number of Subbasins: 1

----- Subbasin : Predeveloped -----  
-----Area (Acres) -----  
Impervious 0.310  
-----  
Subbasin Total 0.310

-----SCENARIO: POSTDEVELOPED

Number of Subbasins: 1

----- Subbasin : Developed -----  
-----Area (Acres) -----  
Impervious 0.310  
-----  
Subbasin Total 0.310

\*\*\*\*\* LINK DATA \*\*\*\*\*

-----SCENARIO: PREDEVELOPED

Number of Links: 0

\*\*\*\*\* LINK DATA \*\*\*\*\*

-----SCENARIO: POSTDEVELOPED

Number of Links: 0

\*\*\*\*\*FLOOD FREQUENCY AND DURATION STATISTICS\*\*\*\*\*

-----SCENARIO: PREDEVELOPED

Number of Subbasins: 1

Number of Links: 0

-----SCENARIO: POSTDEVELOPED

Number of Subbasins: 1

Number of Links: 0

\*\*\*\*\*Groundwater Recharge Summary\*\*\*\*\*

Recharge is computed as input to PerInd Groundwater Plus Infiltration in Structures

Model Element	Total Predeveloped Recharge During Simulation Recharge Amount (ac-ft)
Subbasin: Predeveloped	0.000
Total:	0.000

Model Element	Total Post Developed Recharge During Simulation Recharge Amount (ac-ft)
Subbasin: Developed	0.000
Total:	0.000

**Total Predevelopment Recharge Equals Post Developed**

**Average Recharge Per Year, (Number of Years= 158)**

**Predeveloped: 0.000 ac-ft/year, Post Developed: 0.000 ac-ft/year**

\*\*\*\*\***Water Quality Facility Data**\*\*\*\*\*

-----**SCENARIO: PREDEVELOPED**

Number of Links: 0

-----**SCENARIO: POSTDEVELOPED**

Number of Links: 0

\*\*\*\*\***Compliance Point Results**\*\*\*\*\*

Scenario Predeveloped Compliance Subbasin: Predeveloped

Scenario Postdeveloped Compliance Subbasin: Developed

**\*\*\* Point of Compliance Flow Frequency Data \*\*\***

Recurrence Interval Computed Using Gringorten Plotting Position

Predevelopment Runoff		Postdevelopment Runoff	
Tr (Years)	Discharge (cfs)	Tr (Years)	Discharge (cfs)
2-Year	0.138	2-Year	0.138
5-Year	0.175	5-Year	0.175
10-Year	0.211	10-Year	0.211
25-Year	0.231	25-Year	0.231
50-Year	0.341	50-Year	0.341
100-Year	0.391	100-Year	0.391
200-Year	0.426	200-Year	0.426

\*\* Record too Short to Compute Peak Discharge for These Recurrence Intervals

Per Section 4.3.7 BMP E3.50: Portable Sediment Tank of City of Seattle Stormwater Management Manual Volume 2 - Construction Stormwater Control Requirements Manual:

Required Volume:

Pump Discharge in gallons per minute (gpm) x 16 = cubic feet storage (Page 4-68)

Q = 2-year runoff event (from MGS Flood Model)

Q = 0.138-cfs or 61.94 gpm

Pump Discharge = 62 gpm

Volume = 62 gpm x 16  
Volume = 992 cubic feet

*Required Volume = 992 cubic feet = 7,421 gallons*

Contractor to provide portable sediment tank(s) with  
a minimum volume of 992 cubic feet or 7,421 gallons



Table 1b. Checklist to Select Large Project Construction BMPs.

Element Number	Required Element	Project Name: <b>LMC Crown Hill - 8521 15th Ave NW</b>	
		Large Project <sup>a</sup> (check selection)	If not applicable, describe why in the space below.
1	Mark Clearing Limits and Environmentally Critical Areas	Required BMPs: <input type="checkbox"/> E1.30 Preserving Natural Vegetation (refer to <i>Section 4.1.2.1</i> ) <input type="checkbox"/> E1.35 Buffer Zones (refer to <i>Section 4.1.2.2</i> ) <input checked="" type="checkbox"/> E1.50 High Visibility Fencing (refer to <i>Section 4.1.2.5</i> )	
2	Retain Top Layer	Required BMP: Within the boundaries of the project site, retain the duff layer, top soil, and native vegetation, if there is any, in an undisturbed state to the maximum extent feasible. If it is not feasible to retain the top layer in place, stockpile on site, cover to prevent erosion, and replace immediately upon completion of the ground disturbing activities to the maximum extent feasible.	Existing top soil will be hauled off during excavation.
3	Establish Construction Access	Required BMPs: <input type="checkbox"/> E2.10 Stabilized Construction Entrance (refer to <i>Section 4.2.1.1</i> ) <input type="checkbox"/> E2.15 Tire Wash (refer to <i>Section 4.2.1.2</i> ) <input checked="" type="checkbox"/> E2.20 Construction Road Stabilization (refer to <i>Section 4.2.1.3</i> )	
4	Protect Downstream Properties and Receiving Waters	Required BMP for contributing area of 3 acres or greater: <input checked="" type="checkbox"/> Ecology BMP C241 Temporary Sediment Pond (or Basin)	Baker tank to be used.
5	Prevent Erosion and Sediment Transport from the Site	Required BMPs: <input checked="" type="checkbox"/> E3.10 Filter Fence (refer to <i>Section 4.3.1</i> ) <input type="checkbox"/> Ecology BMP C231 Brush Barrier <input type="checkbox"/> E3.20 Gravel Filter Berm (refer to <i>Section 4.3.2</i> ) AND <input type="checkbox"/> E3.40 Sediment Trap (refer to <i>Section 4.3.6</i> ) OR <input checked="" type="checkbox"/> Ecology BMP C241 Temporary Sediment Pond (or Basin) OR <input checked="" type="checkbox"/> E3.50 Portable Sediment Tank (refer to <i>Section 4.3.7</i> ) Additional recommended BMPs: <input type="checkbox"/> E3.30 Vegetated Strip (refer to <i>Section 4.3.4</i> ) <input type="checkbox"/> E3.35 Straw Wattles, Compost Socks, and Compost Berms (refer to <i>Section 4.3.5</i> ) <input type="checkbox"/> E3.60 Construction Stormwater Filtration (refer to <i>Section 4.3.8</i> ) <input type="checkbox"/> Ecology BMP C250 Construction Stormwater Chemical Treatment	Contractor to install filter fence as needed.

Table 1b (continued). Checklist to Select Large Project Construction BMPs.

Element Number	Required Element	Project Name: LMC Crown Hill - 8521 15th Ave NW	
		Large Project <sup>a</sup> (check selection)	If not applicable, describe why in the space below.
6	Prevent Erosion and Sediment Transport From the Site by Vehicles	Required BMPs: <input checked="" type="checkbox"/> E3.65 Cleaning Inlets and Catch Basins (refer to <i>Section 4.3.9</i> ) <input checked="" type="checkbox"/> E3.70 Street Sweeping and Vacuuming (refer to <i>Section 4.3.10</i> )	Extent of street sweeping to be determined by contractor in the field and as necessary.
7	Stabilize Soils	Required BMPs for all exposed soils and stockpiles – one or more of the following: <input type="checkbox"/> E1.10 Temporary Seeding (refer to <i>Section 4.1.1.1</i> ) <input type="checkbox"/> E1.15 Mulching, Matting, and Compost Blankets (refer to <i>Section 4.1.1.2</i> ) <input checked="" type="checkbox"/> E1.20 Clear Plastic Covering (refer to <i>Section 4.1.1.3</i> ) <input type="checkbox"/> E1.40 Permanent Seeding and Planting (refer to <i>Section 4.1.2.3</i> ) <input type="checkbox"/> E1.45 Sodding (refer to <i>Section 4.1.2.4</i> ) <input checked="" type="checkbox"/> E2.45 Dust Control (refer to <i>Section 4.2.1.6</i> ) <input type="checkbox"/> Ecology BMP C130 Surface Roughening <input type="checkbox"/> Ecology BMP C131 Gradient Terracing <input type="checkbox"/> Ecology BMP C126 Polyacrylamide for Soil Erosion Protection	Shoring will be installed along each side of the project site.
8	Protect Slopes (refer to the Environmentally Critical Areas ordinance [SMC 25.09.180] for additional requirements and development standards for steep slopes)	Required BMPs – one or more of the following: <input type="checkbox"/> Level Spreader (refer to <i>Appendix E</i> ) <input checked="" type="checkbox"/> E2.35 Check Dams (refer to <i>Section 4.2.1.4</i> ) <input type="checkbox"/> E2.40 Triangular Silt Dike (Geotextile-encased Check Dam) (refer to <i>Section 4.2.1.5</i> ) <input type="checkbox"/> Pipe Slope Drains (refer to <i>Appendix E</i> ) <input type="checkbox"/> E2.70 Subsurface Drains (refer to <i>Section 4.2.3.1</i> ) <input type="checkbox"/> E2.80 Earth Dike and Drainage Swale (refer to <i>Section 4.2.3.2</i> ) <input type="checkbox"/> Ecology BMP C130 Surface Roughening <input type="checkbox"/> Ecology BMP C131 Gradient Terracing <input type="checkbox"/> Ecology BMP C201 Grass-lined Channels	Shoring will be installed along the perimeter.  There will be some slope grading required at the bottom of the showing to allow for several differ bottom of excavation elevations. Slopes will be protected in these areas

Table 1b (continued). Checklist to Select Large Project Construction BMPs.

Element Number	Required Element	Project Name: <b>LMC Crown Hill - 8521 15th Ave NW</b>	
		Large Project <sup>a</sup> (check selection)	If not applicable, describe why in the space below.
9	Protect Storm Drains	Required BMPs: <input checked="" type="checkbox"/> E3.25 Storm Drain Inlet Protection (refer to <i>Section 4.3.3</i> ) <input checked="" type="checkbox"/> E3.65 Cleaning Inlets and Catch Basins (refer to <i>Section 4.3.9</i> ) <input checked="" type="checkbox"/> E3.70 Street Sweeping and Vacuuming (refer to <i>Section 4.3.10</i> )	
10	Stabilize Channels and Outlets	Required BMPs – one or more of the following: <input type="checkbox"/> Level Spreader (refer to <i>Appendix E</i> ) <input checked="" type="checkbox"/> E2.35 Check Dams (refer to <i>Section 4.2.1.4</i> ) <input type="checkbox"/> E2.80 Earth Dike and Drainage Swale (refer to <i>Section 4.2.3.2</i> ) <input type="checkbox"/> Outlet Protection (refer to <i>Appendix E</i> ) <input type="checkbox"/> Ecology BMP C201 Grass-lined Channels <input type="checkbox"/> Ecology BMP C202 Channel Lining <input type="checkbox"/> Ecology BMP C203 Water Bars	
11	Control Pollutants (also refer to <i>Volume 4 – Source Control</i> )	Required BMPs: <input checked="" type="checkbox"/> C1.15 Material Delivery, Storage, and Containment (refer to <i>Section 5.1.1</i> ) <input type="checkbox"/> C1.20 Use of Chemicals During Construction (refer to <i>Section 5.1.2</i> ) <input checked="" type="checkbox"/> C1.25 Demolition of Buildings (refer to <i>Section 5.1.3</i> ) <input type="checkbox"/> C1.30 Building Repair, Remodeling, and Construction (refer to <i>Section 5.1.4</i> ) <input checked="" type="checkbox"/> C1.35 Sawcutting and Surfacing Pollution Prevention (refer to <i>Section 5.1.5</i> ) <input checked="" type="checkbox"/> C1.45 Solid Waste Handling and Disposal (refer to <i>Section 5.1.7</i> ) <input type="checkbox"/> C1.50 Disposal of Asbestos and Polychlorinated Biphenyls (PCBs) (refer to <i>Section 5.1.8</i> ) <input type="checkbox"/> C1.55 Airborne Debris Curtain (refer to <i>Section 5.1.9</i> ) <input checked="" type="checkbox"/> C1.56 Concrete Handling and Disposal (refer to <i>Section 5.1.10</i> ) <input type="checkbox"/> C1.59 High pH Neutralization Using CO <sub>2</sub> (refer to <i>Section 5.1.11</i> )	

Table 1b (continued). Checklist to Select Large Project Construction BMPs.

Element Number	Required Element	Project Name: <b>LMC Crown Hill - 8521 15th Ave NW</b>	
		Large Project <sup>a</sup> (check selection)	If not applicable, describe why in the space below.
12	Control Dewatering	Required BMP: <input checked="" type="checkbox"/> C1.40 Temporary Dewatering (refer to <i>Section 5.1.6</i> )	Minimal dewatering is anticipated
13	Maintain BMPs	Required BMP: <input checked="" type="checkbox"/> Maintain and repair all temporary and permanent erosion and sediment control BMPs as needed to assure continued performance of their intended function.	
14	Inspect BMPs	Required BMP: <input checked="" type="checkbox"/> Inspect, maintain, and repair all BMPs as needed to assure continued performance of their intended function. <input checked="" type="checkbox"/> Certified Erosion and Sediment Control Lead (refer to <i>Section 2.3</i> ): For projects over one (1) acre; inspections should be conducted by the Certified Erosion and Sediment Control Lead identified in the Large Project Construction Stormwater and Erosion Control Plan.	
15	Execute Construction Stormwater and Erosion Control Plan	Required BMPs: Implement and maintain an updated Construction Stormwater and Erosion Control Plan beginning with initial land disturbance. <input checked="" type="checkbox"/> Retain the Large Project Construction Stormwater and Erosion Control Plan on site or within reasonable access to the site. Modify the plan as needed. Coordination with Utilities, Contractors, and Others <input checked="" type="checkbox"/> The primary project proponent should evaluate, with input from utilities and other contractors, the stormwater management requirements for the entire project, including the utilities, when preparing the Small Project Construction Stormwater and Erosion Control Plan. Project Close-out <input checked="" type="checkbox"/> Remove all temporary erosion and sediment control BMPs within 5 business days after final site stabilization is achieved, or after they are no longer needed, whichever is later.	

Table 1b (continued). Checklist to Select Large Project Construction BMPs.

Element Number	Required Element	Project Name: <b>LMC Crown Hill - 8521 15th Ave NW</b>	
		Large Project <sup>a</sup> (check selection)	If not applicable, describe why in the space below.
16	Minimize Open Trenches	<p>Required BMP:</p> <p>In the construction of underground utility lines, where feasible, no more than one hundred and fifty (150) feet of trench should be opened at one time, unless soil is replaced within the same working day. Where consistent with safety and space considerations, place excavated material on the uphill side of trenches. Trench dewatering devices should discharge into a sediment trap or sediment pond.</p>	
17	Phase the Project	<p>Required BMPs:</p> <p>Construction Phasing</p> <ul style="list-style-type: none"> <li>■ Phase development projects where feasible in order to prevent soil erosion and, to the maximum extent practicable, the transport of sediment from the site during construction.</li> </ul> <p>Seasonal Work Limitations</p> <ul style="list-style-type: none"> <li>■ From October 31 through April 1, clearing, grading, and other soil disturbing activities will be subject to additional limitations.</li> </ul>	
18	Install Permanent Flow Control and Water Quality Facilities	<ul style="list-style-type: none"> <li>• Refer to <i>Volume 1</i> for applicable minimum requirements and <i>Volume 3</i> for BMP design.</li> </ul>	
19	Protect Stormwater BMPs	<p>General: Protect all stormwater BMPs from sedimentation through installation and maintenance of erosion and sediment control BMPs. Restore the BMPs to their fully functioning condition if they accumulate sediment during construction. Restoring the stormwater BMP must include removal of sediment and any sediment-laden soils, and replacing the removed soils with soils meeting the design specification.</p> <ul style="list-style-type: none"> <li>■ The approved plan sheets provide construction sequencing that protect the infiltration facility during construction.</li> </ul> <p>Sediment Control: Protect infiltration BMPs from sedimentation that can clog the facility and reduce infiltration capacity.</p> <ul style="list-style-type: none"> <li>■ Minimize site disturbance at the location of the infiltration BMPs and in up-gradient areas.</li> <li>■ Do not use infiltration BMPs as sediment control facilities.</li> <li>■ Direct all drainage away from the facility location after initial rough grading.</li> </ul>	Contractor to protect on-site stormwater infrastructure during construction and restore to fully functioning condition upon completion of construction.

Table 1b (continued). Checklist to Select Large Project Construction BMPs.

Element Number	Required Element	Project Name: <u>LMC Crown Hill - 8521 15th Ave NW</u>	
		Large Project <sup>a</sup> (check selection)	If not applicable, describe why in the space below.
19	Protect Stormwater BMPs (continued)	<ul style="list-style-type: none"> <li><input type="checkbox"/> Flow can be directed away from the facility with temporary diversion swales or other approved protection.</li> <li><input type="checkbox"/> Do not construct infiltration BMPs until all contributing drainage areas are stabilized with appropriate erosion and sediment control BMPs and to the satisfaction of the engineer.</li> <li><input type="checkbox"/> Inspect and maintain erosion and sediment control practices on a regular basis. If deposition of sediment occurs in the infiltration area, remove material and scarify the surface to a minimum depth of 3 inches.</li> <li><input type="checkbox"/> Control erosion and avoid introducing sediment from surrounding land uses onto permeable pavements. Do not allow muddy construction equipment on the base material or pavement. Do not allow sediment-laden runoff onto permeable pavements or base materials.</li> <li><input type="checkbox"/> Permeable pavement fouled with sediments or no longer passing an initial infiltration test must be cleaned until infiltrating per design or replaced.</li> </ul> <p>Compaction Prevention: Soil compaction can lead to a reduction of infiltration rates and facility failure; accordingly, minimizing compaction of the base and sidewalls of the infiltration area is critical.</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Before the development site is graded, rope/fence the area of the infiltration BMP to restrict access and flag to prevent soil compaction by heavy equipment and foot traffic.</li> <li><input type="checkbox"/> Perform excavation with machinery operating adjacent to the infiltration BMP and do not allow heavy equipment with narrow tracks, narrow tires, or large lugged, high pressure tires on the bottom of the infiltration BMP footprint.</li> <li><input type="checkbox"/> Protect established completed lawn and landscaped areas from compaction due to construction equipment.</li> <li><input type="checkbox"/> Do not excavate during wet or saturated conditions.</li> </ul>	Contractor to protect on-site stormwater infrastructure during construction and restore to fully functioning condition upon completion of construction.

<sup>a</sup> A large project is one with greater than or equal to 5,000 square feet of new plus replaced hard surface, or greater than or equal to 1 acre of land-disturbing activity.

<sup>b</sup> Recommended BMPs provide further guidance for minimizing potential stormwater pollution resulting from activities.