Stormwater Management Filtration System Plan Review Checklist

Sediment Control Permit No. ____________________________

<table>
<thead>
<tr>
<th>SUPPORTING INFORMATION (One Copy)</th>
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<tr>
<td>____ ____ ____ Stormwater Management Easement and Maintenance Covenant</td>
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<tr>
<td>____ ____ ____ Itemized Stormwater Management Construction Estimate.</td>
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<td>____ ____ ____ Storm drain plans for any areas not draining directly to the facility (must show safe structural conveyance).</td>
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<tr>
<th>SOILS INVESTIGATION</th>
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<tr>
<td>____ ____ ____ Geotechnical report</td>
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<tr>
<td>____ ____ ____ Minimum boring locations: a minimum depth of 4 feet below proposed bottom of facility and for infiltration at least one every 50 linear feet</td>
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<td>____ ____ ____ USDA textural classification for various layers, with depth</td>
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<td>____ ____ ____ Depth to the seasonal high groundwater and bedrock (proposed bottom of facility to be a minimum of 4 feet above both)</td>
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<td>____ ____ ____ Fill areas identified</td>
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<td>____ ____ ____ In-place percolation test (for infiltration only)</td>
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<th>FILTRATION COMPUTATIONS</th>
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<td>____ ____ ____ Drainage area to the facility</td>
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<tr>
<td>____ ____ ____ Volume of storage required and provided</td>
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<tr>
<td>____ ____ ____ Submit flow splitter computations (if applicable)</td>
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<tr>
<td>____ ____ ____ Correct determination for compliance with MD-378. For facilities subject to MD-378, reference MCDPS Pond Plan checklist</td>
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For Infiltration

| ____ ____ ____ Use .40 void ratio for gravel             |
| ____ ____ ____ For rates that are exceedingly high (>10-inches/hour) investigate use of alternative filtration practice |
| ____ ____ ____ Maximum depth determination              |
| ____ ____ ____ Facility dimensions                      |

For Sand Filtration and Biofiltration

| ____ ____ ____ Minimum surface area of filter            |
STORMWATER MANAGEMENT PLAN

A. PLAN VIEW OF FILTRATION FACILITY

- Existing and final contours (1-foot or 2-foot interval)
- Existing and proposed improvements with elevations
- Location of test borings
- Existing and proposed utility location/protection
- Delineation of easement area around the filtration facility and filter devices/areas… Include flow splitters and outfalls. Minimum 10-foot clearance around the facility.
- Access to a public right-of-way (minimum 12-feet wide)
- Location and clear access to the observation well(s)
- Safe building locations and basements (minimum 20-feet away)
- Safe conveyance of filtration overflows …storm drain outlet(s) should be located away from overflow outlet
- Method for preventing construction sediment from entering the facility
- Method for permanent filtering of runoff prior to entry into the facility (ie. Outlet to a grass buffer or swale for pre-treatment)
- Inflow improvements (appropriate details required)
- Non erosive outfalls provided (appropriate details required)

For Stormfilters

- Show correct location and angle of incoming and outgoing pipes
- Show correct number of canisters
- Ladder must be shown with clear access to the floor
- Type of material in canisters

B. CROSS-SECTION AND PROFILE THROUGH FILTRATION FACILITY

- Existing and proposed grade specific to each facility
Observation well/cleanout location(s) (centered)

Watertight, removable cap on observation well/cleanout

**For Infiltration Trenches**

Trench depth – give elevations and inverts

Gravel size: 1 – ½ to 3 inch; clean, washed material

6-inches of clean, washed sand (ASTM C-33) on bottom of trenches

Provide 12-inch pea gravel surface layer. Use Mirafi 140-N or DPS approved equivalent between pea gravel and 1 ½ - 3 inch gravel

Filter cloth specifications (ie. Mirafi 140N or DPS approved equivalent) and location (top and sides of facility only)

Storm drain system connection (if applicable)

Top of trench open to surface

Embarkment side slopes labeled and top width clearly shown (3:1 side slopes, 4-foot minimum top width

Landscape plan prepared by a landscape architect registered in the state of Maryland.

**For Surface Sand Filters**

Facility depth – give elevations and inverts

Filter media specification – ASTM C-33 fine aggregate concrete sand (washed), MSHA #7 gravel

Location(s) of 6-inch PVC underdrain and associated cleanouts with perforated vs non-perforated sections clearly shown along with length, spacing and slope

Underdrain to be Sch. 40 PVC with a minimum of 6-inches of gravel above the pipe, 3-inches of gravel below the pipe

Underdrain perforated with 3/8-inch diameter holes at 4-inches on center every 90 degrees. Perforated sections within gravel layer only

Embarkment side slopes labeled and top width clearly shown (3:1 maximum side slopes, 4-foot minimum top width

Core trench around underdrain and underneath embankment fill clearly labeled (bottom width 2-feet minimum, side slopes 1:1 maximum, depth 2-feet minimum

Anti-seep collar location shown for the underdrain (if required). Anti-seep collar not required for underdrains ≤ 6-inch diameter

Outfall protection shown, including dimensions, slope (0.00%), and median rip rap size (d50), thickness, approved filter fabric or geotextile as appropriate

Elevations (including required freeboard) for top of dam, 10-year WSEL, water quality storage, riser/weir crest and top of sand filter. Weir crest to be located at existing ground or in cut

Freeboard: top of dam minimum 1-foot above 10-year WSEL with overflow weir or 1-foot above 10-year HGL at flow splitter when no weir is provided

Storm drain system connection shown (flow splitter and main line connections)
For surface sand filters subject to MD-378 – reference MCDPS Pond Plan Checklist

Landscape plan prepared by a landscape architect registered in the state of Maryland.

Storage depth may not exceed 4-feet. Safety signage is required when storage depth is 2-feet or more.

**For Structural Sand Filters**

Facility depth – give elevations and inverts

Filter media specification: clean ASTM C-33 fine aggregate concrete sand, MSHA #7 gravel

Location(s) of 6-inch PVC underdrain and associated cleanouts with perforated vs non-perforated sections clearly shown along with the length and spacing

Underdrain to be Schedule 40 PVC with a minimum of 6-inches gravel cover above the pipe

Underdrain perforated with 3/8-inch diameter holes at 4-inches on center every 90 degrees. Perforated sections within gravel layer only

Geotextile fabric provided between the top gravel layer and the sand layer. Use Tensar TM-3000, Enkamat 7020 or DPS approved equivalent.

Length and width of settling area, filter area, and clearwell area

Storm drain system connection shown (flow splitter and main line connections)

Safe bypass of overflows

Elevations of 10-year WSEL, water quality storage and top of filter

Facility must be designed by a licensed structural engineer. Copy of structural computations provided and signed structural certification on plan

Facility provides adequate accessibility and headroom for maintenance (personnel access manholes, removable grates or doors, and steps provided)

**For Biofiltration**

Maximum drainage area to a single facility between 0.25 and 1 acre. Multiple facilities required for drainage areas greater than 1 acre

Facility depth – give elevations and inverts

Filter media: mulch layer, planting media, sand windows, with appropriate dimensions noted

Planting soil noted as 1/3 perlite or solite, 1/3 compost, 1/3 onsite soil

Location(s) of 6-inch SCH 40 PVC underdrain and associated cleanouts with perforated vs non-perforated sections clearly shown along the length with a minimum of 6-inches of gravel above the pipe, 3-inches of gravel below the pipe

12-inch maximum ponding depth

Storm drain system connection shown

Safe bypass of overflows

Embankment side slopes labeled and top width clearly shown (3:1 maximum side slopes, 4-foot minimum top width)

Elevations for top of berm (provide minimum 6-inches freeboard between water quality storage elevation
Landscape plan prepared by a landscape architect registered in the state of Maryland.

For Stormfilters

Provide all elevations and dimensions

C. MISCELLANEOUS ITEMS

Appropriate construction specifications

Inspector checkoff list (specific to each facility)

Seepage analysis if required

Sealed by P.E. (structural P.E. also where required) with signature and date.

MCDPS Turf Reinforcement detail on plan

MCDPS Shallow Facilities Specifications on plan