

Field Checklist

for

Bioretention Areas

Date of Certification Assessment: _____

Assessing and Certifying NCPE: _____ Seal:

SCM Facility Name: _____

Access Address: _____

PIN/s of Parcel/s Where the Facility is Sited: _____

CHECKLIST

All items in this checklist must be compliant.

If an item is not applicable, write "N/A" next to the item.

If the engineer believes the non-compliant item still meets its intended purpose and is therefore acceptable, he/she must include the following in the "Additional Comments" box at the end of this form:

- *A description of how the non-compliant item deviates from the standards and/or approved construction drawings, and*
- *An explanation of why this deviation is acceptable and how the deviation still meets the intended purpose behind the requirement.*

A. Drainage Area

- The drainage area to the facility is as per the design documents, or if there are deviations from the design drainage area, these deviations do not render the SCM undersized or result in insufficient on-site treatment to meet regulatory requirements.
- The drainage area to the facility is completely stabilized, and no excess sediment is discharging into the forebay/sediment basin or bioretention area.

B. Easements and Accessibility

- The SCM access way as constructed matches what is shown on the recorded final plat and is fully contained in the SCM Access and Maintenance Easement. The SCM Access and Maintenance Easement is clear of obstructions and traversable by anticipated maintenance equipment.
- Unobstructed maintenance vehicle access has been provided to the control structure and all inlets, and access to the facility and top of the dam meets the following conditions per field observation and survey spot shot data:
 - It is a minimum of 10 feet wide.
 - It has a maximum centerline grade of fifteen percent (15%).
 - It has a maximum cross-slope of ten percent (10%).

- Unless it has been surfaced with gravel, asphalt, concrete, etc., in accordance with approved construction drawings, 85% of the SCM Access and Maintenance Easement has achieved a healthy stand of grass.

C. Inlet/Flow Distribution Area

- A pre-treatment device or area has been provided at each inlet in accordance with the construction drawings.
- All accumulated sediment and other debris in the pre-treatment areas has been removed.
- Any flow splitters or bypass systems have been constructed in accordance with the approved construction drawings.
- The flow into the bioretention cell is evenly distributed across the cell in accordance with the construction drawings, and there is no scour at the inlets or within the bioretention cell.
- All inlet pipes have been installed with curtain walls and appropriate end treatments in accordance with the approved construction drawings.

D. Bioretention Cell

- For bioretention areas with an internal water storage (IWS) zone, the depth of the IWS zone is as shown in the approved construction drawings.
- The surface area of the bioretention cell is in accordance with the approved construction drawings.
- The required bioretention mulch, soil mix, choking stone and gravel layers have been installed in accordance with the approved construction drawings, and there is no sediment in the bioretention cell.
- The underdrain system has been installed in accordance with the approved construction drawings. All underdrain joints have glued watertight connections.
- Solid underdrain cleanouts have been installed in accordance with the approved construction drawings. Screw-on type (or otherwise approved) cleanout caps have been provided for all cleanout pipes.
- All vegetated side slopes leading to the bioretention cell are no steeper than 3:1.
- 85% of the plantings or grass sod specified in the approved construction drawings is thriving/established.
- The bioretention cell has been observed on _____ [fill in date] by the certifying engineer to draw down the runoff from the first inch of rainfall (minimum) in a manner consistent with that specified in the approved construction drawings.

E. Dam Embankment

- The narrowest top of dam width is _____.
- The steepest slope on the upstream face of the dam is _____.
- The steepest slope on the downstream face of the dam is _____.
- Based on manual rod probings of the dam, particularly in the zones over and around the principal spillway pipe, the dam appears to have been well compacted.
- The dam and dam foundation, groin, toe, and abutment areas are completely free of trees, landscaping, and other woody growth.

- The dam has been fine graded and is free of ruts, erosion, etc.
- 85% of the SCM slopes (cut slopes and dam embankment) and dam foundation, groin, toe, and abutment areas have achieved a healthy stand of grass. The dam is not overgrown and there is no undesirable vegetation.
- No evidence of seepage was noted on the downstream face of the dam.

F. Emergency Spillway

- The narrowest width of the control section is _____.
- The side slopes of the control section are [Left] _____ and [Right] _____.
- The size, shape, and alignment of the exit channel are in accordance with the construction drawings.
- Armoring has been installed in accordance with the construction drawings.
- The spillway has been fine graded and is free of ruts, erosion, etc.
- Excluding the hard-surfaced armored area, 85% of the spillway has achieved a healthy stand of grass. The spillway is not overgrown and there is no undesirable vegetation.

G. Riser/Control Structure and Principal Spillway Pipe

- The riser/control structure is reinforced concrete.
- The diameter or opening dimensions of the riser/control structure is/are _____.
- A top, peak-roofed trash rack has been provided and bolted down to the riser, or, if the riser is of a different configuration, it has been constructed in accordance with the construction drawings.
- The riser/control structure and all appurtenant devices appear to be sound.
- The riser/control structure is free of debris or obstructions.
- For precast structures, the barrel sections were installed with gasketed joints, adjacent riser barrel sections have been bolted together with stainless steel strapping, and there is no evidence of leakage at the joints.
- All orifices, siphons, ports, and weirs were installed in accordance with the construction drawings.
- The anti-flotation ballast has been provided in accordance with the construction drawings.
- A placed concrete invert to the invert out of the principal spillway pipe (PSP) has been provided.
- The PSP is reinforced concrete with a minimum pipe strength conforming to ASTM C-76 Class III standards.
- The diameter of the PSP is _____.
- An access hatch (minimum 2' x 3') and steps down the inside of the riser/control structure have been provided in accordance with the construction drawings.
- The principal spillway pipe was wrapped with a layer of geotextile filter fabric on the outside of each pipe joint.
- Based on a visual inspection, it appears that the joints of the PSP were “homed” reasonably well, and it appears that no joints are leaking.

H. Outfall Structure and Outfall Area

- The control structure has been installed in accordance with the construction drawings.
- The principal spillway pipe is securely attached/grouted to the headwall or downstream manhole, and this joint is smoothly finished with no evidence of gaps, cracks, and spalling.
- If not discharging to a storm sewer system:
 - The outfall structure has been installed in accordance with the construction drawings and there is no evidence of stability issues.
 - Energy dissipation has been provided in accordance with the construction drawings.
 - The outfall area and downstream channel(s)/receiving area appear stable, and all accumulated silt and debris has been removed.
- If discharging to a storm sewer system, the receiving manhole appears stable and all accumulated silt and debris has been removed.

Additional Comments by Certifying Engineer: