

Post-Construction Water Quality Best Management Practice Operation and Maintenance Plan

Project Name:

Project Address:

Site Contact:

Plan Prepared By:

Date:

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1.0 BEST MANAGEMENT PRACTICE OVERVIEW

Identify and discuss the Best Management Practices (BMPs) that will be used to manage the stormwater runoff from the site. Describe the location of the BMPs and associated treatment tributary areas. Identify the location of the BMPs on the site plan that is to be included on Exhibit B. Indicate any necessary legally binding maintenance easements and agreements that are necessary to adequately maintain the BMPs and provide copies within Appendix A.

2.0 INSPECTION & MAINTENANCE PROCEDURES

Discuss the frequency of which the BMPs will be inspected and provide an inspection. Inspections are to be conducted on a quarterly basis during the first year of operation and then, at a minimum, annually after the first year of operation. Identify the personnel responsible for conducting the site inspections and provide contact information. Include inspection and maintenance procedures for each BMP and indicate the means of which collected pollutants will be removed from the site and properly disposed of. Copies of inspection reports are to be submitted to (Community).

APPENDIX A:

Declaration of Covenants and Restrictions

DECLARATION OF COVENANTS AND RESTRICTIONS

This Declaration of Covenants and Restrictions (this "Declaration") is made on this ____ day of _____, 20__ by _____, an Ohio _____ (the "Declarant").

Recitals:

A. Declarant owns certain property located in the City of Fairfield, Ohio as more particularly described on the legal description attached hereto as Exhibit A and incorporated herein by reference (the "Property").

B. The Property is subject to Ohio EPA Permit No. OHCO00004, dated April 21, 2013, (hereinafter referred to as the "General Permit"), which General Permit requires Declarant to submit a post-construction operation and maintenance plan for storm water facilities and practices, and further requires implementation of the plan be ensured through recording of a legally binding easement, agreement and/or other document.

C. In accordance with the General Permit, Declarant hereby agrees to restrict the use of the Property as set forth in this Declaration, with the intent that such covenants and restrictions run with the land.

NOW, THEREFORE, for valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Declarant, for itself and its successors and assigns as owners of the Property, hereby agrees as follows:

§1. Covenants and Restrictions. Declarant hereby agrees, for itself and its successors and assigns as owners of the Property, that the Property shall be subject to the following covenants and restrictions:

1. Declarant has submitted, and the City of Fairfield has approved, a post-construction operation and maintenance for storm water facilities and practices (hereinafter referred to as the "Maintenance Plan"), a copy of which Maintenance Plan is attached hereto as Exhibit B and incorporated herein by reference. Declarant covenants that the owner of the Property shall be the designated entity for the storm water inspection and maintenance responsibilities set forth in the Maintenance Plan. The owner accordingly shall undertake any routine and/or non-routine inspection and maintenance tasks set forth in the Maintenance Plan in accordance with the schedule set forth in the Maintenance Plan.

2. Declarant hereby acknowledges that these covenants and restrictions run with the land and the declarant will note on the individual property deed that the subject parcel(s) have storm water management responsibilities as designated on the plat. Specific storm water management responsibilities for this subdivision are as follows _____

_____.

3. Declarant hereby acknowledges and agrees that neither the City of Fairfield nor the Ohio Environmental Protection Agency is or shall be responsible for the inspection and maintenance tasks set forth in the Maintenance Plan.

§2. Perpetual Restrictions. The covenants and restrictions set forth in this Declaration shall be perpetual and shall run with the land for the benefit of, and shall be enforceable by the City of Fairfield. This Declaration and the covenants and restrictions set forth herein shall not be amended, released, extinguished or otherwise modified without the prior written consent of the City of Fairfield, which consent may be withheld in its sole and absolute discretion.

§3. Enforcement. If Declarant, or its successors or assigns as owner of the Property, should fail to observe the covenants and restrictions set forth herein, the City of Fairfield shall have the right to enforce, by any proceedings at law or in equity, all restrictions, conditions and covenants set forth herein. Failure by the City of Fairfield to proceed with such enforcement shall in no event be deemed a waiver of the right to enforce at a later date the original violation or a subsequent violation.

§4. Severability. Each provision of this Declaration and the application thereof to the Property are hereby declared to be independent of and severable from the remainder of this Declaration. If any provision contained herein shall be held to be invalid or to be unenforceable or not to run with the land, such holding shall not affect the validity or enforceability of the remainder of this Declaration.

§5. Notices. Notices or other communication hereunder shall be in writing and shall be sent certified or registered mail, return receipt requested, or by other national overnight courier company, or personal delivery. Notice shall be deemed given upon receipt or refusal to accept such delivery. Each party may change from time to time their respective address for notice hereunder by like notice to the other party. The notice addresses of the parties are as follows:

Declarant: _____

City : City of Fairfield
[address - line 1]
[address - line 2]
ATTN: [City responsible person]

§7. Governing Law. This Declaration shall be governed by, and construed in accordance with the law of the State of Ohio.

IN WITNESS WHEREOF, the Declarant has caused this Declaration of Covenants and Restrictions to be executed this ___ day of _____, 20__.

DECLARANT:

By: _____

Name: _____

Title: _____

STATE OF OHIO)
) SS
COUNTY OF _____)

The foregoing instrument was acknowledged before me this ___ day of _____,
20___, by _____, the _____ of _____, a
_____, on behalf of the _____.

Notary Public

This instrument was prepared by:

APPENDIX B:

Inspection Reports

BMP example inspection reports are provided within this appendix. These reports can be adjusted based upon site specific BMPs or additional reports created. Reference the Ohio Department of Natural Resources (ODNR) "Rainwater and Land Development" manual for BMP inspection and maintenance guidelines.

ODNR Rainwater and Land Development Manual:

www.dnr.state.oh.us/soilandwater/water/rainwater/default/tabid/9186/Default.aspx

Inspection Report
Bioretention Basins, Rain Gardens

Facility Name and Address	
Date of Inspection	
Inspector Name and Phone Number	
No. of BMP's on the Site	

Inspection References:

ODNR Manual, Rainwater and Land Development, Third Edition 2006

Instructions:

One inspection report shall be prepared for each Best Management Practice. Please sign and date the inspection report and return the original to (Community). Please provide pictures of any noted deficiencies and attach to report.

PLANTINGS

- No additional maintenance is recommended at this time.
- Several of the plants provided with the original construction of the facility appear to have died. These plants should be removed and replaced.

Comments:

- The facility appears to have become overgrown. As such, the vegetation in the facility should be thinned out.

Comments:

- Additional items/comments:

BERM (SMALL DAM EMBANKMENT)

- No additional maintenance is recommended at this time.
- The berm was not constructed properly. The berm should be reconstructed to the required height and with the required material.

Comments:

- A portion of the berm has “blown out” (e.g., eroded). The berm should be repaired. Along with the repair, the installation of an armored spillway may require that the berm be constructed to a height approximately 6-inches above the height specified in the approved Construction Drawings.

Comments:

- Additional items/comments:

INFLOW CHANNELS/PIPES/SLOPES

- No additional maintenance is recommended at this time.
- The inlet areas have eroded. These eroded areas should be repaired.
Comments: _____

- Trash and debris are in the forebay/sediment basin. This material should be removed. If the facility is fed by concentrated inlets and there is not a forebay or sediment basin, one should be considered.
Comments: _____

- Approximately 50% (or more) of the forebay/sediment basin has been filled with sediment. This material should be removed.
Comments: _____

- It appears that the by-pass/diversion structure is malfunctioning. Any trash, sediment, or debris blocking the entry or passage of storm flows through the structure should be removed.
Comments: _____

- Additional items/comments:

PRINCIPAL SPILLWAY PIPE (PSP)

- No additional maintenance is recommended at this time.
- The PSP is blocked. The blockage should be removed.
Comments: _____

- One or more joints of the PSP are leaking.
Comments: _____

- One or more sections of pipe have settled to a point where the integrity of the dam may be threatened. These sections of pipe may need to be replaced.
Comments: _____

Additional items/comments:

OUTFALL

Not applicable.

No additional maintenance is recommended at this time.

The outfall area is eroding. The eroded area should be repaired.

Comments:

The outfall area is blocked. This blockage should be removed.

Comments:

Additional items/comments:

OUTLET STRUCTURE

No additional maintenance is recommended at this time.

The low-level orifice/inverted siphon is blocked. This blockage should be removed. A debris cage is/is not (highlighted) recommended [disregard comment if a trash-rack is already present].

Comments:

The outlet structure is filled with excess material (debris, trash, rock, etc.). This material should be removed. A top trashrack is/is not recommended [disregard comment if a trashrack is already present].

Comments:

The top trashrack/anti-vortex device is damaged. The trash-rack/anti –vortex device should be repaired or replaced.

Comments:

The outlet structure is damaged/deteriorated. The outlet structure should be repaired or replaced.

Comments:

Additional items/comments:

BIORETENTION AREA & UNDER DRAINS (PLANTINGS EXCLUDED)

- No additional maintenance is recommended at this time.
- The mulch layer has deteriorated or washed away. This mulch layer should be replaced with a 3-inch deep layer of durable hammered hardwood mulch and should be spread uniformly over the entire area or replaced every 3-years and touched up (raked) annually.

Comments:

- Areas of erosion were noted in the floor of the bioretention area. These areas should be repaired.

Comments:

BIORETENTION AREA & UNDER DRAINS (PLANTINGS EXCLUDED) CONTINUED

- The bioretention area is holding water (e.g., for more than 40-hours after a rain event).

Comments:

- It appears that the soil mix was not installed properly (e.g., either the required soil mix was not used or it was not installed to the correct depth). If it is determined that the soil mix was constructed improperly, the bioretention area will need to be reconstructed to the plan and specifications contained in the approved Construction Drawings.

Comments:

- It appears that the relief pipes (e.g., under drains) proposed in the approved construction drawings were not installed. If it is determined that these drains were not installed, the bioretention area may need to be reconstructed. The relief drains were proposed to mitigate the effects of the poorly draining soils anticipated under the subject facility. If it appears, however, that the facility is functioning adequately and infiltrating the treated drainage into the underlying soil, reconstruction will not be required. If relief drains were not proposed in the Construction Drawings, and the facility appears to have been functioning more like a wetland, official conversion of the facility from a bioretention area to a stormwater wetland may be appropriate. In such instances, consultation with the City of Fairfield Public Works Director is recommended.

Comments:

Additional items/comments:

Inspection Report Grass Filter Strip

Facility Name and Address	
Date of Inspection	
Inspector Name and Phone Number	
No. of BMP's on the Site	

Inspection References:

ODNR Manual, Rainwater and Land Development, Third Edition 2006

Instructions:

One inspection report shall be prepared for each Best Management Practice. Please sign and date the inspection report and return the original to _____ .
(Community) Please provide pictures of any noted deficiencies and attach to report.

VEGETATION

- No additional maintenance is recommended at this time.
- An adequate uniform vegetative cover is not provided within the filter and the height of the grass is less than 3 to 4 inches.
Comments: _____

- The outfall area is eroded. The eroded are should be repaired.
Comments: _____

- Bare areas were noted within the filter area. These areas should be re-planted with grass.
Comments: _____

- The outfall area is blocked. This blockage should be removed.
Comments: _____

- Sediment, trash, or debris are noticeable within the filter area, the material shall be removed and re-planted as necessary to ensure adequate vegetated cover.
Comments: _____

- Additional items/comments:

LEVEL SPREADER – WEIR/FOREBAY

- No additional maintenance is recommended at this time.
- The weir is blocked with accumulated sediment or debris.
Comments: _____

- Areas of concentrated flow from the weir into the filter are noticeable and erosion is present. The weir needs adjusted and the eroded areas repaired.
Comments: _____

- The forebay has filled with sediment/debris (approximately 25-30% by volume) and the material needs removed and properly disposed.
Comments: _____

Inspection Report Grassed Swale

Facility Name and Address	
Date of Inspection	
Inspector Name and Phone Number	
No. of BMP's on the Site	

Inspection References:

ODNR Manual, Rainwater and Land Development, Third Edition 2006

Instructions:

One inspection report shall be prepared for each Best Management Practice. Please sign and date the inspection report and return the original to _____ . (Community)

Please provide pictures of any noted deficiencies and attach to report.

VEGETATION

- No additional maintenance is recommended at this time.
- An adequate uniform vegetative cover is not provided within the swale and the height of the grass is less than 3 to 4 inches.

Comments:

- The outfall area is eroded. The eroded are should be repaired.

Comments:

- Bare areas were noted within the swale area. These areas should be re-planted with grass.

Comments:

- The outfall area is blocked. This blockage should be removed.

Comments:

- Sediment, trash, or debris are noticeable within the swale area, the material shall be removed and re-planted as necessary to ensure adequate vegetated cover.

Comments:

- Additional items/comments:

Inspection Report
Underground Proprietary Devices

Facility Name and Address	
Date of Inspection	
Inspector Name and Phone Number	
No. of BMP's on the Site	

Inspection References:

ODNR Manual, Rainwater and Land Development, Third Edition 2006

Instructions:

One inspection report shall be prepared for each Best Management Practice. Please sign and date the inspection report and return the original to _____ .
(Community) Please provide pictures of any noted deficiencies and attach to report.

OUTFALL

- No additional maintenance is recommended at this time.
- The outfall area is eroded. The eroded are should be repaired.
Comments: _____

- The outfall area is blocked. This blockage should be removed.
Comments: _____

- Sediment, trash, or floatables are noticeable downstream of the BMP, the material shall be removed and the BMP further evaluated for deficiencies.
Comments: _____

- Additional items/comments:

HYDRODYNAMIC DEVICES/PROPRIETARY DEVICES/PRETREATMENT CELLS

- Not applicable.
- No additional maintenance is recommended at this time.
- Sediment levels exceed manufacturer's recommendations, removal of sediment is required.
Comments: _____

- Depth of floatables such as oils, greases, and trash and determine if the depth exceeds manufacturer's recommendations, removal of floatables is required.
Comments: _____

- The filters are clogged and shall be removed and replaced.
Comments: _____

- Additional items/comments:

UNDERGROUND STORAGE

- Not applicable.
- No additional maintenance is recommended at this time.
- The sediment volume in the storage pipes/vessels exceeds 10% of the storage volume, removal of accumulated sediment required.

Comments:

- The underground storage cell is supposed to infiltrate runoff, but standing water is observed, the storage cell may need to be cleaned.

Comments:

- The underground storage cell is holding water, the blockage shall be removed.

Comments:

- Additional items/comments:

INFLOW CHANNELS/PIPES/SLOPES

- No additional maintenance is recommended at this time.
- Trash and debris noticeable at inlet to BMP, the material shall be removed.

Comments:

- Additional items/comments:

Inspection Report
Wet Basin, Dry Basin, or Wetland

Facility Name and Address	
Date of Inspection	
Inspector Name and Phone Number	
No. of BMP's on the Site	

Inspection References:

ODNR Manual, Rainwater and Land Development, Third Edition 2006

Instructions:

One inspection report shall be prepared for each Best Management Practice. Please sign and date the inspection report and return the original to _____.(Community)
Please provide pictures of any noted deficiencies and attach to report.

WETLAND AND RIPARIAN PLANTINGS

- No additional maintenance is recommended at this time.
- It appears that some of the plantings installed during construction may have died, did not colonize as intended, and/or have been overtaken by invasive plant species. This condition needs to be corrected to achieve a minimum 90% coverage in the planting zone a minimum of 2 years after initial construction.

Comments: _____

BASIN/DAM EMBANKMENT

- No additional maintenance is recommended at this time.
- At the time of the inspection, the dam was over grown. The dam should be mowed so that a more thorough inspection can be provided.

Comments: _____

- Bare areas were noted on the dam. These areas should be planted with grass.

Comments: _____

- Trees were noted on the dam. These trees should be removed and replaced with grass.

Comments: _____

- Shrubby and other types of landscaping were noted on the dam. This material should be removed and replaced with grass.

Comments: _____

- The compaction of the dam, in the area around the outlet structure and the connection of the principal spillway pipe to the riser, seemed inadequate (e.g., the dam provided little resistance to soil probing). This condition should be monitored as it may lead to piping or excessive settlement.

Comments: _____

- Piping (loss of soil) around the outlet structure/principal spillway pipe was noted. These areas should be repaired.

Comments: _____

- Erosion/sloughing is noted on the dam. These areas should be repaired.

Comments: _____

- Areas of slope slippage, bulging, and/or excessive settlement were noted on the dam. These areas should be repaired.

Comments:

- Fractures were noted in the dam. These areas should be repaired.

Comments:

- Animal burrows were noted in the dam. These burrow holes should be filled in.

Comments:

OUTLET STRUCTURE

- No additional maintenance is recommended at this time.

- The normal pool orifice/inverted siphon is blocked. This blockage should be removed.

Comments:

- The outlet structure is filled with excess material (debris, trash, rock, etc.). This material should be removed. A top trashrack is/is not recommended [disregard comment if a trashrack is already present].

Comments:

- The top trashrack/anti-vortex device is damaged. The trash-rack/anti –vortex device should be repaired or replaced.

Comments:

- The outlet structure is damaged/deteriorated. The outlet structure should be repaired or replaced.

Comments:

- Additional items/comments:

EMERGENCY SPILLWAY

- No additional maintenance is recommended at this time.
- At the time of the inspection, the emergency spillway was overgrown. The spillway should be mowed so that a more thorough inspection can be provided.
- It appears that the emergency spillway was not installed in accordance with the approved construction drawings. The spillway should be installed.

Comments:

- Bare areas were noted on the emergency spillway. These areas should be planted with grass.

Comments:

- Trees were noted on the emergency Spillway. These trees should be removed and replaced with grass.

Comments:

- Shrubby and other types of landscaping were noted on the emergency spillway. This material should be removed and replaced with grass.

Comments:

- Erosion was noted on the emergency spillway. These areas should be repaired.

Comments:

- Additional items/comments:

PRINCIPAL SPILLWAY PIPE (PSP)

- No additional maintenance is recommended at this time.
- The PSP is blocked. The blockage should be removed.
Comments: _____

- One or more joints of the PSP are leaking.
Comments: _____

- One or more sections of pipe have settled to a point where the integrity of the dam may be threatened. These sections of pipe may need to be replaced.
Comments: _____

- Additional items/comments:

OUTFALL

- No additional maintenance is recommended at this time.
- The outfall structure is undermined and/or is rusting/deteriorating. This structure should be repaired or replaced.
Comments: _____

- The outfall structure has separated from the PSP by more than three inches. This structure should be reattached to the PSP.
Comments: _____

- The outfall area is eroding. The outfall area should be repaired and stabilized with additional riprap (e.g., irregularly shaped stone) or a permanent soil liner (i.e., turf reinforcing mat, articulated concrete block, etc.).
Comments: _____

- The outfall area is blocked. This blockage should be removed.
Comments: _____

- Additional items/comments:

IMPOUNDMENT AREA

- No additional maintenance is recommended at this time.
- The water level is more than 6" below the normal pool elevation.
Comments: _____

- The forebay/sediment basin/impoundment areas have silted in. These areas should be cleaned out.
Comments: _____

- The forebay berm has eroded. The berm should be repaired.
Comments: _____

- Bare areas were noted on the pond side slopes. These areas should be stabilized.
Comments: _____

- Eroded areas (rills, channels, etc.) were noted on the pond side slopes. These areas should be repaired and stabilized.
Comments: _____

- Algae has covered over 50% of the deep pool and shallow water areas, the algae growth shall be removed and controlled.
Comments: _____

- Additional items/comments:

EXHIBIT A:
Legal Description

Insert the project area legal description, such as an ALTA survey

EXHIBIT B:

Maintenance Plan

Provide a site plan to scale indicating the proposed site features and locations of the Best Management Practices. Indicated the site boundary and any necessary easements that are required to access the site and properly maintain the BMPs.

Provide BMP details and specifications identifying the various components that are to be inspected, maintained or replaced, such as:

- *Planting plans*
- *Seed mixes and application rates*
- *Manufactured structures*
- *Engineered soil mixes*
- *BMP cross sections*
- *Basin outlet structures*