

Bioretention Area Inspection and Maintenance Checklist

Facility: <u>Centric Apartment</u>			
Location/Address: <u>1999 Circle DR.</u>			
Date:	Time:	Weather Conditions: <u>Good</u>	Date of Last Inspection: <u>6/17/21</u>
Inspector: <u>Clifford Townsend</u>		Title: <u>Supervisor</u>	
Rain in Last 48 Hours <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, list amount and timing:			
Pretreatment: <input type="checkbox"/> vegetated filter strip <input type="checkbox"/> swale <input type="checkbox"/> turf grass <input type="checkbox"/> forebay <input type="checkbox"/> other, specify: <u>none</u>			
Site Plan or As-Built Plan Available: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			

Inspection Item	Comment	Action Needed
1. PRETREATMENT		
Sediment has accumulated.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Trash and debris have accumulated.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
2. DEWATERING		
Standing water is present after 24 hours. If yes, describe sheen, color, or smell.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
3. INLETS		
Inlets are in poor structural condition.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Sediment has accumulated and/or is blocking the inlets.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Erosion is occurring around the inlets.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
3. VEGETATION		
Vegetation is wilting, discolored, or dying due to disease or stress.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Vegetation needs to be controlled through mowing or manual removal.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
4. BIORETENTION MAIN INFILTRATION AREA		
Trash and debris have accumulated.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No
Sediment has accumulated at the surface.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Topmost layer is caked or crusted over with sediment.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Erosion is evident.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Mulch is compacted.	<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Sinkholes or animal borrows are present.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
5. SIDE SLOPES AND EMBANKMENT		
Erosion is evident.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Sinkholes or instability is evident.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
6. OUTLETS AND OVERFLOW STRUCTURE (i.e., catch basin)		
Outlets or overflow structures in poor structural condition.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Sediment, trash or debris is blocking the outlets or overflow structure.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Erosion is occurring around the outlets or overflow structure.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Height from surface of practice to top of overflow structure is insufficient to allow for ponding during rain events.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

Additional Notes

Inlet structural need repair all around.

Wet weather inspection needed ☐ Yes ☐ No

Site Sketch:

Underground Detention System Inspection and Maintenance Checklist

Facility: <u>Centric Apartments</u>			
Location/Address: <u>1999 Circle Dr</u>			
Date: _____	Time: _____	Weather Conditions: <u>Good/Clear</u>	Date of Last Inspection: <u>6/25/21</u>
Inspector: <u>Ryan Fair</u>		Title: <u>CM</u>	
Rain in Last 48 Hours <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If yes, list amount and timing: <u>Minor lasted 20 min</u>			
Pretreatment: <input type="checkbox"/> vegetated filter strip <input type="checkbox"/> swale <input type="checkbox"/> turf grass <input type="checkbox"/> forebay <input type="checkbox"/> other, specify: _____ <input checked="" type="checkbox"/> none			
Site Plan or As-Built Plan Available: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			

*Do not enter underground detention chambers to inspect system unless Occupational Safety & Health Administration (OSHA) regulations for confined space entry are followed.

*Follow inspection and maintenance instructions and schedules provided by system manufacturer and installer.

* Properly dispose of all wastes.

Inspection Item	Comment	Action Needed
1. PRETREATMENT		
Sediment has accumulated. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Trash and debris have accumulated. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
2. INLETS		
Inlets are in poor structural condition. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Sediment, trash, or debris have accumulated and/or is blocking the inlets. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
3. CHAMBERS		
Sediment accumulation threshold has been reached. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Trash and debris have accumulated in chambers. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
4. OTHER SYSTEM COMPONENTS		
Structural deterioration is evident. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
5. OUTLETS		
Outlets in poor structural condition. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Sediment, trash or debris are blocking outlets. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Erosion is occurring around outlets. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
6. OTHER		
Evidence of ponding water on area draining to system. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Evidence that water is not being conveyed through the system. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Additional Notes		
<p><u>Kelly Parker performed her annual SWPPP inspection that covered this aspect of the underground inspection. The inspection report did not require any action needed nor did they find any sediment or damages.</u></p>		
Wet weather inspection needed <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		

Site Sketch:

Non-Structural Stormwater Control Measure Inspection and Maintenance Checklist

Facility: Centric Apartments			
Location/Address: 1999 Circle Dr			
Date:	Time:	Weather Conditions: Good / Clear	Date of Last Inspection: 6/25/21
Inspector: Ryan Sear		Title: CM	
Rain in Last 48 Hours: <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, list amount and timing: Minor tested 20min			
Non-structural SCM Type: <input type="checkbox"/> riparian setback <input type="checkbox"/> wetland setback <input type="checkbox"/> conservation area <input type="checkbox"/> other, specify:			
Pretreatment: <input type="checkbox"/> vegetated filter strip <input type="checkbox"/> level spreader <input type="checkbox"/> gravel verge <input type="checkbox"/> other, specify:			
Site Plan or As-Built Plan Available: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			

Inspection Item	Comment	Action Needed
1. PRETREATMENT		
Sediment has accumulated.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No
Trash and debris have accumulated.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No
Erosion or scouring is visible	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No
2. UNAUTHORIZED ACTIVITY		
There is unauthorized dumping of yard waste, litter or debris.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No
There are unauthorized structures or construction activity.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No
There is unauthorized removal of vegetation or trees.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No
There are unauthorized recreational activities or motorized vehicles.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No
3. VEGETATION		
Vegetation is dying or diseased.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No
Invasive vegetation is present.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No
4. NON-STRUCTURAL AREA		
The boundaries are clearly marked.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No
Signage is visible and intact.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No
Other:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No
Additional Notes		
This is N/A for Centric Apartments		
Wet weather inspection needed <input type="checkbox"/> Yes <input type="checkbox"/> No		

Site Sketch:

Field Review

Technical Advisory Report

Long-Term Operation & Maintenance

Report Delivered: ☒

Site Name:	Centric - Site Improvements	Report Date:	2021-06-15
Location:	Cleveland (East)	Inspection Date:	2021-06-15
Permit Holder:	Midwest Development Partners-Centric	Reviewed By:	Kelly Parker, CPESC, CESSWI
Contact:	Ryan Fair	Site NPDES Number:	N/A
Address:	2191 Murray Hill Road Cleveland, Ohio 44106, Cuyahoga	Application No:	B16004430

Field Review of Site Conditions and Compliance Activities performed through a Memorandum of Understanding in accordance with Ohio Revised Code, Chapter 940 and Cleveland Codified Ordinances

Site Condition Summary



Overall view of the location of the underground detention system area (facing north). The underground detention system is maintained with routine maintenance. Ensure that the filter sock with Osorb Media is in place at the inflows from the garage and the eastern portion of the site.



Overall view of the bioretention cell (facing southwest). The bioretention cell is maintained with regular landscaping. Exposed soil was observed throughout the area. Erosion of the embankment has resulted in accumulation of sediment in several areas of the bioretention cell, especially at the north end.

Needed Maintenance Activity Details:

As a stormwater control measure (SCM) owner/operator in the Northeast Ohio Regional Sewer District's (NEORS) stormwater service area, you may be eligible for a stormwater fee credit. The credit is a conditional reduction in the NEORS stormwater fee if an account holder takes measures to reduce the stormwater rate or volume and/or protect the water quality of runoff flowing from their property to the regional stormwater system. The credit can be obtained through continued use, operation, and maintenance of approved SCMs. To find out more details about the credit program and to apply for credit you can find details online at: <https://www.neorsd.org/fee-credit/>, or contact Chris Hartman with NEORS at 216-881-6600 X6656.

See needed maintenance activity details below.

Additional Information:

Stormwater control measures (SCMs) are manmade structures that help reduce flooding and clean pollutants from water. They include man-made retention ponds, dry detention basins, green infrastructure, and underground treatment devices. Sites with a constructed SCM are responsible for maintaining the structure. A guidance document has been compiled by local stormwater experts to assist private owners with inspection and maintenance and is available online at the following link: http://www.neohiostormwater.com/uploads/3/0/9/8/3098302/compressed_scm_om_manual_final_8-21-15.pdf

Underground Detention and Water Quality Units



View of the interior of the underground detention outlet structure.



View of the interior of the manhole with water control valve for rainwater harvesting.

Needed Maintenance Activity Details:

Stormtech Isolator Rows are designed to capture sediment and prevent it from entering the storm sewer system. The units should be inspected at least once a year. Once 3 inches of sediment have accumulated in the isolator row, maintenance should occur. Isolator rows should be cleaned with a JetVac process that scours the sediment with a water nozzle and retrieves the sediment with a vacuum. An inspection and maintenance manual for the isolator rows can be found online: http://www.stormtech.com/download_files/pdf/manual_iso_row.pdf.

Plans call for a 6 inch pipe with a 9/16 inch orifice at the bottom. Ensure this water quality orifice is in place. Regularly inspect this small orifice to ensure it does not get clogged. Also plans call for a filter sock filled with Osorb Media to be placed at the inflow from the garage and the east. Ensure this is in place and functioning as designed.

Additional Information:

Underground stormwater control measures are manmade structures that help reduce flooding and remove pollutants from stormwater runoff. Each structure needs to be maintained in accordance with the manufacturers guidelines. Accumulation of sediment and debris needs to be monitored and cleaned as necessary to maintain the intended function. In general, sediment should be removed once 3 inches have accumulated. Solids removed, including absorbent filters, will need to be treated as a solid waste.

Permanent Stabilization



View of exposed soil along the east side of the bioretention cell (facing north).



View of erosion and exposed liner on the west embankment of the bioretention cell (facing southwest).



View of erosion and accumulated sediment on the north end of the bioretention cell (facing east).

Needed Maintenance Activity Details:

Stabilize eroding areas to prevent further erosion and sedimentation of the stormwater control measure.

Provide stabilization as needed in areas with exposed soil to prevent erosion from clogging the stormwater control measure. Use rock along inflows and add mulch or vegetation around edges, and within the stormwater control measure to prevent erosion.

Reminder: Any sediment and/or fine materials that settle between the rocks within the basin must be cleaned out and removed from the basin.

Additional Information:

Permanent uniform plant cover and other protective measures (e.g. landscape mulching, turf reinforcement matting, rocks, etc.) stabilize soil and prevent soil loss. The land on site should be monitored to ensure there is always at least 70% uniform coverage of soil with plants or protective measures. In places where soil is bare and exposed to accelerated soil loss, steps should be taken to repair and/or re-seed and re-mulch. If plant cover is patchy and in need of repair, identify the cause of failure and take corrective actions (e.g. a soil fertility analysis and apply necessary lime and fertilizer while preparing the seedbed).

Porous Soil



View of a large of accumulated sediment on the north end of the bioretention cell due to erosion of the embankments and other areas of exposed soil (facing west).



View of accumulated sediment on the west side of the bioretention cell due to erosion of the embankments and other areas of exposed soil (facing north).

Needed Maintenance Activity Details:

Remove accumulated fine sediment (clay/silt) as necessary for proper function of the stormwater control measure.
Replenish mulch to stabilize areas after sediment removal is completed.

Additional Information:

Porous soils are designed to soak water into the ground and filter, trap, and remove contaminants. Over time, small soil particles can clog the porous soil and compaction can reduce infiltration capabilities. To continue to provide infiltration and filtering, fine sediment (clay) removal and aeration are sometimes needed. Plants can also help the soil to infiltrate water into the soil and remove pollutants.

Outlet Structure



View of the interior of the bioretention cell outlet structure.



View of the bioretention cell outlet structure in the background (facing north).

Needed Maintenance Activity Details:

The outlet overflow grate should be 6-12 inches above the top of the mulch/basin to allow for ponding during rain events. Pre-cast risers can be purchased at a store like HD Supply. (The overflow grate height should not be above the surrounding parking lot.)

Additional Information:

Outlets provide a path for water from stormwater control measures to the storm sewer or stream. The outlet structure is designed to slow down water and hold it back within the stormwater control measure during rain events. These outlets can become clogged by accumulation of sediment, floating trash and debris. A clogged outlet can result in loss of storage and flooding of unintended areas. Unclogging the outlet is relatively simple. Remove accumulated sediment and debris with a shovel, rake, a pole or your hand. Inspect the outlet regularly, it can become clogged at any time.

Other Observations



View of the cleanout pipe in the bioretention cell (facing north).

Additional Details and Recommendations:

Clean out pipe within the bioretention area can be cut down to about 1 foot tall.

Comments:

Well planned, designed and constructed stormwater control measures remove pollutants, protect stream channels, and mitigate floods. To accomplish these goals and keep these features safe, aesthetic, and mosquito free, they must be maintained. Maintenance items listed above are needed to achieve permit compliance.

Please feel free to contact Carla Regener (cregener@cuyahogawcd.org), Natural Resource Program Manager, at the Cuyahoga SWCD if you have any questions.

CC:

Thomas Vanover, City of Cleveland - Building and Housing
Ramona Lowery, City of Cleveland/ Water Pollution Control
Yoni Gorman, Five Forty Investments
Clifford Townsend, NRP Group