

# Field Review

## Technical Advisory Report

### Long-Term Operation & Maintenance

Report Delivered:

<b>Site Name:</b>	Tinkham Veale University Center	<b>Report Date:</b>	2023-07-21
<b>Location:</b>	Cleveland (East)	<b>Inspection Date:</b>	2023-07-13
<b>Permit Holder:</b>	Case Western Reserve University	<b>Reviewed By:</b>	Kelly Parker, CPESC, CESSWI
<b>Contact:</b>	Nicholas Christie	<b>Site NPDES Number:</b>	N/A
<b>Address:</b>	10900 Euclid Avenue Cleveland OH 44106	<b>Application No:</b>	B12009323

Stormwater Control Measure Field Review of 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 south section of the green roof (facing





Overall view of the green roof (facing north).



Overall view of the location of the sand filter (facing west).



Overall view of the northwest section of the green roof (facing east).

### **Needed Maintenance Activity Details:**

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: [https://epa.ohio.gov/static/Portals/35/documents/SCM\\_OM\\_Manual\\_Final\\_7-30-15.pdf](https://epa.ohio.gov/static/Portals/35/documents/SCM_OM_Manual_Final_7-30-15.pdf)



# Outlet Structure



View of accumulated soil media in a roof drain on the south end of the green roof.



View of a minor amount of accumulated sediment in a roof drain on the north end of the green roof.





View of accumulated sediment in a roof drain on the northeast end of the green roof.

#### **Needed Maintenance Activity Details:**

Monitor and remove accumulated debris from the outlet structure on a regular basis to ensure proper function.

#### ***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.



Green Roof



View of weeds growing on the south end of the green roof.



View of woody vegetation growing on the south end of the green roof.





View of exposed soil media on the south end of the green roof.



View of dead vegetation on the southwest side of the green roof due to past maintenance activity.





View of grass growing on the north side of the green roof.



View of dead vegetation on the northwest section of the green roof (facing west).





View of uneven pavers on the northwest section of the green roof (facing southeast).

#### **Needed Maintenance Activity Details:**

Nothing should be stored on top of the green roof to prevent vegetation distress.

Replace dead/dying green roof vegetation. , Vegetate bare soil areas of the green roof.

Hand pull weeds on a bi-weekly basis (or as-needed) during growing season (March until late Fall).

#### ***Additional Information:***

A green roof is a plant and soil system layered over a waterproof membrane, built on a building in place of a conventional rooftop. While relatively low maintenance is required for green roofs, time should be budgeted for bi-weekly weeding and inspection. In addition to weeding, green roofs will require periodic fertilization and watering to ensure healthy plant growth.



# Underground Detention and Water Quality Units



View of accumulated sediment in the east side of the sand filter.



View of accumulated sediment in the west side of the sand filter.



### Needed Maintenance Activity Details:

Inspect and maintain the sand filter on a regular basis.

Maintenance items should include:

Floating debris should be cleaned out of the filter as needed.

Annually the crusty top layer of sand should be skimmed with a rake to break it up.

Depending on the rate of grit accumulation the grit should be pumped out of the sedimentation chamber on an annual to tri-annual basis.

When the sand media gets clogged, replace sand media (typically every 3-5 years).

The outlet structure chamber was not observed. Ensure that any accumulated sediment or debris is removed and that the water quality orifice remains free of any obstructions. Note: The sand filter was cleaned out on Wednesday, July 19, 2023 after the inspection the previous week.

### *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.

### Trash and Debris



View of trash on the northwest section of the green roof.

### Needed Maintenance Activity Details:

Remove trash from the stormwater control measure as needed to ensure proper function and aesthetic quality.

### *Additional Information:*

Excessive amounts of trash and plant debris can clog stormwater control measures and should be removed on a routine basis for proper function, safety, and aesthetic quality.



**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. Routine maintenance listed above should be performed to maintain stormwater control measure function.

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

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