

UNIVERSITY OF MINNESOTA

Duluth Campus

Facilities Management

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DATE: 12/31/2019

TO: John Rashid, UMD Facilities Management – Director

FROM: Erik Larson, Facilities Management - Sr. Engineer

SUBJECT: Summary of 2016 - 2018 Inspections of Facilities Management's Structural Storm Water Devices, Outfalls, and Ponds (UMD SWPPP 6b-2 / 6b-3 / 6b-5)

I completed the annual inspections of the Facilities Management's storm water devices each fall per the MPCA's MS4's storm water permit MN R580000. However, due to workload issues I failed to complete and send out the annual summaries for 2016, 2017 and 2018. Below is a combined summary for all three year's inspections. There are also several places where FM discharges directly off UMD property, these are inspected once every four - five years. Inspections for these areas have been included if issues were found.

While generally your devices appear to be operating appropriately and there have been no serious issues, there are a few items that should be addressed. Some of these items were completed even though I failed to send out the formal yearly reports. A prioritized summary with recommendations follows. My recommendation is that those described as high priority be addressed as soon as possible, medium priority should be addressed as funding allows, and low priority items should be monitored to see if they become a larger problem.

HIGH PRIORITY

ST1585 Outlet by Field 5 (2017)

Sink hole by outlet / sediment in outlet. **Culvert replaced June 2018**

ST2913 ChPk Filtration Basin (2017 / 2018)

Damage by entry sign project. **I recommend removal/replacement of top 3-4 inches of filter surface. Area was sodded at completion of project but silt was not removed.**

ST5146 Lot M / RWBFGM Stormceptor (shared w/ Parking) (2018)

11" sediment in bottom of outlet structure, requires cleaning at 8". **I recommend this tank being cleaned the next time we have a vac truck on campus.**

ST6193 Lot B Rain Garden (shared w/ Parking) (2017 / 2018)

½" +/- of silt in rain garden around the pretreatment structure / filtration rock full of sedimentation. **I recommend cleaning out filtration rock and removal of top 4-6" of top soil (mulch) within about 25' of the pretreatment structure (exact area to be determined during the repair based on how much is contaminated). (Not completed in 2018 as HCAMS project was under construction)**

MEDIUM PRIORITY

ST2923 Chester Park Underground Tank (2017 / 2018)

5-6" sediment in bottom of outlet structure. **I recommend this tank being cleaned the next time we have a vac truck on campus.**

ST5145 Tischer Creek by Lot M (2017)

Streambank around pipe is receding around pipe. **I recommend having a discussion with MNDNR for recommendations on cutting the pipe back vs armoring the bank.**

ST5233 Woodland Walk RG – East (2017 / 2018)

Minor damage to rain garden from fiber optic install, cattails and missing cleanout cover. **I recommend replanting the areas damaged by the fiber optic installation, replacing the missing cleanout cover and installing additional drain tile to prevent cattails from growing in the section that doesn't have drain tile.**

ST6213 Chiller Plant Pervious Pavers (2018)

Paver area needs to be cleaned out and have additional rock in joints, inspection cover damaged. **Paver area removed 2019 as part of water main break repair.**

LOW PRIORITY

Misc Rain Gardens (2016 / 2017 / 2018)

In general our rain gardens seem to be having an issue with what I believe are invasive plants (Glensheen, CUB, Grounds material storage, and SCiv in particular). **I recommend having Shane look at them and determine if this is an issue and how we should proceed.**

ST2913 ChPk Filtration Basin (2016/ 2017 / 2018)

Culvert apron starting to collapse. **Apron removed – 2019**

ST4373 SCiv Pervious Pavers (2016 / 2017)

Paver area needs to be cleaned out and have additional rock in joints. **I recommend blowing out joints and adding additional rock chips.**

ST4933 LSBE Rain Garden3 (South) (2016 / 2017 / 2018)

The gate in the Agridrain is down but the water level is down. **I recommend investigating the water level in the summer for a leaking seal or a short circuit around control structure and/or camera as part of next televising contract.**

ST5283 SPHC Pervious Pavers (2016 / 2017 / 2018)

Paver area needs to be cleaned out and have additional rock in joints. **I recommend blowing out joints and adding additional rock chips.**

ST5630 Apron into WB Tischer Creek near Lot M (2017)

The last few sections of this major campus outlet pipe are separated (first noted in 2004 – see UMD 502-2) which could eventually cause a washout. **I recommend in the future looking at a redesign of how this system enters into the West Branch of Tischer Creek.**

ST5715 Culvert at W. Elizabeth & Waverly (2017)

The grass swale to this outlet is filling in with sediment (last cleaned 2014). **I recommend cleaning out this swale to maintain original line and grade.**

ST6213 Chiller Plant Pervious Pavers (2017)

Paver area needs to be cleaned out and have additional rock in joints. **Paver area removed 2019 as part of water main break repair.**

The rest of our structural storm water devices, the outfalls inspected, and the ponds appear to be functioning as intended. **Unless I am directed otherwise, I will continue to work on the high and medium priority issues with R&R Storm Water funds or work with Shane and Grounds**

general maintenance funds depending on what is most appropriate. I will take a look at the low priority issues if time and storm water funds allow.

Update on previous issues:

High Priority

ST3113 Erik Clarke Pond (2015) – **Beaver removed in 2016**

Medium Priority

ST3963 Bagley Classroom Green Roof (2015) – **Weeded 2016**

ST6193 Lot B Rain Garden (shared w/ Parking) (2015) – **Wall Repaired by FM Nov 2016**

Low Priority

ST2020 Chester Park Manhole (2015) – **Sanitary cover changed to storm 2016**

ST3143 CUB Rain Garden (2015) – Weed removal – **Low Priority – Not Done**

ST4933 LSBE South Rain Garden (2015) – Leaking structure – **Low Priority – Not Done**

ST5665 WBTC Outfall from Water Vault (2015) – Mostly plugged line – **Low Priority – Not Done**

If you have any questions regarding these inspections please contact me at (218) 726-6915 or elarson@d.umn.edu.

Thanks.

Enclosures:

Inspection Reports:

C: UMD Storm Water Management Team
Shane Peterson, UMD Facilities Management
Andrew Kimball, UMD Environmental Health and Safety
Mindy Granley, UMD Office of Sustainability

Facilities Management Inspections:

2016

Structural Devices & Ponds

ST1123 Swenson Pond
ST1293 Fire Hall Pond & Outlet Structure
ST2023 Sand filter west of Chester Park
ST2913 Chester Park Filtration Basin
ST2923 Chester Park Underground Tank
ST3113 Eric Clarke Pond & Outlet Structure
ST3143 CUB Rain Garden
ST3963 Bagley Classroom Green Roof
ST3993 Rock Pond & Outlet Structure
ST4363 SCiv Tank
ST4373 SCiv Pervious Pavers
ST4413 SCiv Rain gardens
ST4423 SCiv Green roof
ST4903 LSBE Rain Garden1 (North)
ST4913 LSBE Rain Garden2 (Middle)
ST4933 LSBE Rain Garden3 (South)
ST5023 Woodland Walk RG – West
ST5146 Lot M / RWBFGM Stormceptor
ST5223 Woodland Walk RG – Middle
ST5233 Woodland Walk RG - East
ST5253 Grounds bulk material storage area
ST5283 SPHC Pervious Pavers
ST5286 SPHC Underground Tank
ST5713 Fleet/Grounds Pond

ST6193 Lot B Rain Garden
ST6213 Chiller Plant Pervious Pavers
ST6583 Med Court Yard Pervious Concrete

2017

Outlet Structures

ST1585 Field 5/Junction Culvert
ST3953 Ditch West of Lot U area near Buffalo Street
ST5145 Tischer Creek by Lot M
ST5495 South side of WB Tischer Creek by Lot M
ST5630 Apron into WB Tischer Creek near Lot M
ST5645 Pipe End at University & W. St. Marie
ST5665 Pipe End at University & W. St. Marie
ST5673 Swale from Carver Ave (Mounds Area)
ST5705 North side of WB Tischer Creek under path
ST5715 Culvert at W. Elizabeth & Waverly

Structural Devices & Ponds

ST1123 Swenson Pond
ST1293 Fire Hall Pond & Outlet Structure
ST2023 Sand filter west of Chester Park
ST2913 Chester Park Filtration Basin
ST2923 Chester Park Underground Tank
ST3113 Eric Clarke Pond & Outlet Structure
ST3143 CUB Rain Garden
ST3963 Bagley Classroom Green Roof
ST3993 Rock Pond & Outlet Structure
ST4363 SCiv Tank
ST4373 SCiv Pervious Pavers
ST4413 SCiv Rain gardens
ST4423 SCiv Green roof
ST4903 LSBE Rain Garden1 (North)
ST4913 LSBE Rain Garden2 (Middle)
ST4933 LSBE Rain Garden3 (South)
ST5023 Woodland Walk RG – West
ST5146 Lot M / RWBFGM Stormceptor
ST5223 Woodland Walk RG – Middle
ST5233 Woodland Walk RG - East
ST5253 Grounds bulk material storage area
ST5283 SPHC Pervious Pavers
ST5286 SPHC Underground Tank
ST5713 Fleet/Grounds Pond
ST6193 Lot B Rain Garden
ST6213 Chiller Plant Pervious Pavers
ST6583 Med Court Yard Pervious Concrete

2018

Outlet Structures

ST3953 Ditch Lot U and Buffalo Street
ST3987 Culvert Bagley Nature Area
ST3989 Culvert Bagley Nature Area
ST3991 Overflow Rock Pond
ST6090 Manhole College & Lund Lot
ST6330 Manhole Lot A/ College Street
ST6400 Manhole 300 Block W College

Structural Devices & Ponds

ST1123 Swenson Pond

ST1293 Fire Hall Pond & Outlet Structure
ST2023 Sand filter west of Chester Park
ST2913 Chester Park Filtration Basin
ST2923 Chester Park Underground Tank
ST3113 Eric Clarke Pond & Outlet Structure
ST3143 CUB Rain Garden
ST3963 Bagley Classroom Green Roof
ST3993 Rock Pond & Outlet Structure
ST4363 SCiv Tank
ST4373 SCiv Pervious Pavers
ST4413 SCiv Rain gardens
ST4423 SCiv Green roof
ST4903 LSBE Rain Garden1 (North)
ST4913 LSBE Rain Garden2 (Middle)
ST4933 LSBE Rain Garden3 (South)
ST5023 Woodland Walk RG – West
ST5146 Lot M / RWBFGM Stormceptor
ST5223 Woodland Walk RG – Middle
ST5233 Woodland Walk RG - East
ST5253 Grounds bulk material storage area
ST5283 SPHC Pervious Pavers
ST5286 SPHC Underground Tank
ST5713 Fleet/Grounds Pond
ST6193 Lot B Rain Garden
ST6213 Chiller Plant Pervious Pavers
ST6283 HCAMS Rain Garden – Under Construction
ST6293 HCAMS Pavers – Under Construction
ST6583 Med Court Yard Pervious Concrete