DATE:  2/22/2016

TO:    Jeremy Leiferman, Housing and Residence Life – Director
       Pat Keenan, Student Life Operations – Director

FROM:  Erik Larson, Facilities Management - Sr. Engineer

SUBJECT:  Summary of 2015 Inspection of Housing Structural Storm Water Devices (UMD SWPPP 6b-2 / 6b-5)

I completed the annual inspections of the housings’ structural storm water devices last fall per the MPCA’s MS4’s storm water permit MN R580000. While generally your devices appear to be operating appropriately, there are a few items that should be addressed. A prioritized summary with recommendations follows. My recommendation is that those described as high priority should be addressed this summer and low priority items maybe deferred and reviewed again this fall to see if they continue to be a problem.

HIGH PRIORITY

ST1323 LAIH Grass Swale (SE)
The sod in this area is inhibited due to the area being too wet and pedestrian damage. The area is eroding and continues to deteriorate each year. Repair of this item has been looked at the last two summers. Grounds would like to realign the sidewalks in the area to better follow the pedestrian paths prior to planting. I recommend completing the landscape redesign from sod into a native planting area with moisture tolerant plants, erosion protection, and features to discourage pedestrians from cutting through the area and/or relocating the sidewalks to better follow current pedestrian routes.

ST1346 LAIH External Sump (shared w/ Parking)
The sediment build up in this sump basin exceeds the depth where it is required to be cleaned. The design requires the sump to be cleaned when the sediment is 2.5’ from the outlet. I recommend cleaning this sump.

ST1366 LAIH External Sump (shared w/ Parking)
The sediment build up in this sump basin exceeds the depth where it is required to be cleaned. The design requires the sump to be cleaned when the sediment is 2.5’ from the outlet. I recommend cleaning this sump.

MEDIUM PRIORITY

ST1313 LAIH Sand Filter
Minor erosion is occurring at the inlet to the filter. This is mainly a safety hazard, as the sand filter doubles as a volleyball court. I recommend that this inlet be redesigned to reduce the velocity of the incoming water. We can discuss options if you would like.

ST1338 LAIH External Sump (shared w/ Parking)
The sediment build up in this sump basin is near the depth where it is required to be cleaned. The design requires the sump to be cleaned when the sediment is 2.5’ from the outlet. I recommend cleaning this sump since we need to clean the adjacent sumps.
ST1354 GHFIRE Rain Garden / Grass Surface (South)
Per the design SWPPP long term maintenance plan, the area between GHFAR and the rain gardens are to be aerated each spring after the students move out. **I recommend aerating Griggs Beach per the GHFIRE project SWPPP long term maintenance plan.**

ST3253 GHFIRE Rain Garden / Grass Surface (North)
Per the design SWPPP long term maintenance plan, the area between GHFAR and the rain gardens are to be aerated each spring after the students move out. **I recommend aerating Griggs Beach per the GHFIRE project SWPPP long term maintenance plan.**

The rest of your structural storm water devices and materials handling areas appear to be functioning as intended. I have included a copy of all your inspection reports for your review.

**Update on last year’s issues:**
**High Priority:**
ST1323 LAIH Grass Swale (SE) – Plant to discourage pedestrians (sides) with wetland plants (bottom) – Design not completed, Grounds would like to discuss realignment of sidewalks prior to planting – On this year’s list again
ST1333 LAIH Grass Swale (SW) – Plant with wetland plants – Complete

**Medium Priority:**
ST1313 LAIH Sand Filter – Redesign inlet – Not Funded – On this year’s list again
ST1354 GHFIRE Rain Garden / Grass Surface (South) – Aerate per SWPPP – Complete
ST3253 GHFIRE Rain Garden / Grass Surface (North) – Aerate per SWPPP – Complete

**Low Priority:**
ST1303 LAIH Rain Garden) – Algae – Didn’t seem to get any worse
ST3253 GHFIRE Rain Garden / Grass Surface (North) – Minor erosion by basketball Court – Didn’t seem to get any worse

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

Please let me know how you would intend to respond to these inspection findings as I need to report our maintenance activities in our annual storm water report to the MPCA this spring. **If you would like me to oversee the repairs, please submit a work order describing which devices you would like repaired.**

Thanks.

Enclosures:
Inspection Reports:
**Housing Structural Storm Water Devices**
ST1303 LAIH Rain Garden
ST1313 LAIH Volleyball Sand Filter
ST1323 LAIH Grass Swale (SE)
ST1333 LAIH Grass Swale (SW)
ST1338 LAIH/Lot Q-4 Sump Manhole (South) (shared w/ Parking)
ST1346 LAIH/Lot Q-4 Sump Manhole (Middle) (shared w/ Parking)
ST1354 GHFAR Rain Garden / Grass Surface (South)
ST1366 LAIH/Lot Q-4 Sump Manhole (North) (shared w/ Parking)
ST3253 GHFAR Rain Garden / Grass Surface (North)

C: UMD Storm Water Steering Committee
John Rashid, UMD Facilities Management – Director
### STORM WATER INSPECTION FORM

**Outfall #**: Photograph Name: 15-ST1303  
**Inspection Date:** 10/12/2015  
**Pond Name:** Date of last inspection: 10/25/2014

**Mechanical Structure #**: ST1303  
**Type:** Rain Garden  
**Location:** LAIH-south side, Lower  
**Inspector:** Erik J. Larson  
**Weather:** Air Temperature: 55  
Rain: Y N  
Date of Last Rain: 10/12/2015  
Sunny Cloudy

**Describe drainage area:** *See Griggs plans*

**Shared Use:** Y N  
**Describe:** LAIH and Lot Q-4

### Physical Observations

**Condition of Device:** Good Average Poor  
Work Needed: Y N  
Describe Work Needed: N/A  
Any Materials Within Structure: Deteriorating: Y N  
Describe:  
Releasing Pollution: Y N  
Describe:

**Capacity of Pipe:** Size of pipe:  
Depth of Water:  
Has Source of Flow Been Determined: Y N  
Source of Water: N/A  
Describe Storage Capacity: Minimal Less Than Half Greater Than Half Full Amount Remaining: (empty)

**Flow:** Performing Properly Full Overloaded Clogged Other:

**Work Needed:** Y N  
Describe:

**Odor:** None Sewage Sulfide Oil Gas Rancid-Sour Other:

**Color:** Normal Dark Brown Light Brown Other:

**Turbidity:** None Cloudy Suspended Particles Other:

**Water Temperature:** F Not Available

### Accumulated Materials

**Floatables:** None Sheen Foam Sewage Litter Other:  
Oil in Oil Port: Y N N/A  
Describe Work Needed: N/A  
Measurement: Calculated:

**Deposits:** None Sediment Oily Describe: minimal  
Depth of Sediment: N/A  
Describe Work Needed: N/A  
Measurement: Remaining Capacity

**Stains:** Y N  
Work Needed: Y N  
Describe:

**Vegetation Conditions:** Normal Excessive Growth Inhibited Growth Describe:

**Erosion:** None Minor Erosion Major Erosion Erosion Protected Y N  
Describe Work Needed: N/A

**Immediate Work Needed:** Y N  
Describe:

**Next Anticipated Work Date:**

### Inspection Comments / Recommendations

#### Comments / Recommendations

---

N 46 49.000  
W 92 05.339

---

Completed Y N Date
STORM WATER INSPECTION FORM

Outfall #: Photograph Name: 51-ST1313 Inspection Date: 10/12/2015
Pond Name:  Date of Last Inspection: 10/25/2014
Mechanical Structure #: ST1313 Type: Sand filter
Location: LAIH - south side, Volleyball Ct.
Inspector: Erik J. Larson
Weather: Air Temperature: 55 Rain: N Date of Last Rain: 10/12/2015 Sunny Cloudy
Describe drainage area: LAIH and Lot Q-4
Shared Use: Y N Describe: LAIH and Lot Q-4

Physical Observations

Condition of Device: Good Average Poor Work Needed: Y N
Any Materials Within Structure: Deteriorating: Y N Describe:
Releasing Pollution: Y N Describe:

Capacity of Pipe: Size of pipe: Depth of Water: Has Source of Flow Been Determined: Y N
Source of Water: N/A
Describe Storage Capacity: Minimal Less Than Half Greater Than Half Full Amount Remaining:

Flow: Performing Properly Full Overloaded Clogged Other:
Work Needed: Y N Describe:

Odor: None Sewage Sulfide Oil Gas Rancid-Sour Other:
Color: Normal Dark Brown Light Brown Other:
Turbidity: None Cloudy Suspended Particles Other:
Water Temperature: F Not Available

Accumulated Materials

Floatables: None Sheen Foam Sewage Litter Other Sample Collected: Y N
Oil in Oil Port: Y N N/A Measurement: Calculated:
Describe Work Needed: N/A
Deposits: None Sediment Oily Describe: Sample Collected: Y N
Depth of Sediment: N/A Measurement: Remaining Capacity 100%
Describe Work Needed: N/A

Stains: Y N Work Needed: Y N Describe:
Vegetation Conditions: Normal Excessive Growth Inhibited Growth Describe:

Erosion: None Minor Erosion Major Erosion Erosion Protected Y N
Describe Work Needed: N/A

Immediate Work Needed: Y N Describe:
Next Anticipated Work Date:

Inspection Comments / Recommendations

Comments / Recommendations
Minor erosion around outlet

Completed Y N Date

N 46 49.016
W 92 05.355
**STORM WATER INSPECTION FORM**

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outfall #</td>
<td></td>
</tr>
<tr>
<td>Photograph Name</td>
<td>15-ST1323</td>
</tr>
<tr>
<td>Inspection Date</td>
<td>11/9/2015</td>
</tr>
<tr>
<td>Pond Name</td>
<td></td>
</tr>
<tr>
<td>Date of last inspection</td>
<td>10/25/2014</td>
</tr>
<tr>
<td>Mechanical Structure #</td>
<td>ST1323</td>
</tr>
<tr>
<td>Type</td>
<td>Grass swale</td>
</tr>
<tr>
<td>Location</td>
<td>Griggs G -south side, NE</td>
</tr>
<tr>
<td>Inspector</td>
<td>Erik J. Larson</td>
</tr>
<tr>
<td>Weather</td>
<td>Air Temperature: 60, Rain: Y N</td>
</tr>
<tr>
<td>Date of Last Rain</td>
<td>11/5/2015, Sunny, Cloudy</td>
</tr>
<tr>
<td>Describe drainage area</td>
<td>Griggs fire lane</td>
</tr>
<tr>
<td>Shared Use</td>
<td>Y N</td>
</tr>
<tr>
<td>Physical Observations</td>
<td></td>
</tr>
<tr>
<td>Condition of Device</td>
<td>Good</td>
</tr>
<tr>
<td>Work Needed</td>
<td>Y N</td>
</tr>
<tr>
<td>Any Materials Within Structure</td>
<td>Deteriorating: Y N</td>
</tr>
<tr>
<td>Describe</td>
<td>Bare soil / erosion</td>
</tr>
<tr>
<td>Source of Water</td>
<td>N/A</td>
</tr>
<tr>
<td>Flow</td>
<td>Performing Properly</td>
</tr>
<tr>
<td>Work Needed</td>
<td>Y N</td>
</tr>
<tr>
<td>Odor</td>
<td>None</td>
</tr>
<tr>
<td>Color</td>
<td>Normal</td>
</tr>
<tr>
<td>Turbidity</td>
<td>None</td>
</tr>
<tr>
<td>Water Temperature</td>
<td>F</td>
</tr>
<tr>
<td>Accumulated Materials</td>
<td></td>
</tr>
<tr>
<td>Floatables</td>
<td>None</td>
</tr>
<tr>
<td>Oil in Oil Port</td>
<td>Y N</td>
</tr>
<tr>
<td>Oil in Oil Port Measurement</td>
<td>Calculated</td>
</tr>
<tr>
<td>Deposits</td>
<td>None</td>
</tr>
<tr>
<td>Depth of Sediment</td>
<td>N/A</td>
</tr>
<tr>
<td>Depth of Sediment Measurement</td>
<td>Remaining Capacity</td>
</tr>
<tr>
<td>Stains</td>
<td>Y N</td>
</tr>
<tr>
<td>Work Needed</td>
<td>Y N</td>
</tr>
<tr>
<td>Vegetation Conditions</td>
<td>Normal</td>
</tr>
<tr>
<td>Describe Work Needed</td>
<td>N/A</td>
</tr>
<tr>
<td>Erosion</td>
<td>None</td>
</tr>
<tr>
<td>Erosion Protected</td>
<td>Y N</td>
</tr>
<tr>
<td>Immediate Work Needed</td>
<td>Y N</td>
</tr>
<tr>
<td>Next Anticipated Work Date</td>
<td>Summer 2016</td>
</tr>
<tr>
<td>Inspection Comments / Recommendations</td>
<td></td>
</tr>
<tr>
<td>Comments / Recommendations</td>
<td></td>
</tr>
<tr>
<td>Plant with wetland plants?</td>
<td></td>
</tr>
<tr>
<td>Relocate sidewalk to trail?</td>
<td></td>
</tr>
<tr>
<td>completed</td>
<td>Y N</td>
</tr>
<tr>
<td>Date</td>
<td></td>
</tr>
</tbody>
</table>

N 46 49.035  
W 92 05.318
University of Minnesota Duluth

STORM WATER INSPECTION FORM

Outfall #: Photograph Name: 15-ST1333 Inspection Date: 11/9/2015
Pond Name: Photograph Name: 15-ST1333 Inspection Date: 11/9/2015
Mechanical Structure #: ST1333 Type: Grass swale
Location: LAIH-south side, Upper
Inspector: Erik J. Larson
Weather: Air Temperature: 60 Rain: Y N Date of Last Rain: 11/5/2015 Sunny Cloudy

Describe drainage area: Griggs Hall Fire Lane, WDSE, Field 5, LAIH
Shared Use: Y N
Describe: Griggs Hall Fire Lane, WDSE, Field 5

Physical Observations

Condition of Device: Good Average Poor Work Needed: Y N
Any Materials Within Structure: Deteriorating: Y N Describe: Releasing Pollution: Y N Describe:

Capacity of Pipe: Size of pipe: _______ Depth of Water: _______ Has Source of Flow Been Determined: Y N
Source of Water: N/A
Describe Storage Capacity: Minimal Less Than Half Greater Than Half Full Amount Remaining: _______
Flow: Performing Properly Full Overloaded Clogged Other: 
Work Needed: Y N Describe:

Odor: None Sewage Sulfide Oil Gas Rancid-Sour Other: 
Color: Normal Dark Brown Light Brown Other: 
Turbidity: None Cloudy Suspended Particles Other: 
Water Temperature: _______ F Not Available

Accumulated Materials

Floatables: None Sheen Foam Sewage Litter Other: Leaves Sample Collected: Y N
Oil in Oil Port: Y N N/A Describe Work Needed: N/A Measurement: 

Deposits: None Sediment Oily Describe: Sample Collected: Y N
Depth of Sediment: N/A Measurement: Remaining Capacity 
Describe Work Needed: N/A

Stains: Y N Work Needed: Y N Describe:
Vegetation Conditions: Normal Excessive Growth Inhibited Growth Describe: 
Describe Work Needed: N/A

Erosion: None Minor Erosion Major Erosion Erosion Protected Y N
Describe Work Needed: N/A Ruts forming

Immediate Work Needed: Y N Describe:
Next Anticipated Work Date: 

Inspection Comments / Recommendations

Comments / Recommendations

Area replanted [ ] Completed [ ] Date [ ]

N 46 49.043
W 92 05.338
### University of Minnesota Duluth

#### STORM WATER INSPECTION FORM

<table>
<thead>
<tr>
<th>Outfall #</th>
<th>Photograph Name</th>
<th>Inspection Date</th>
<th>Date of last inspection</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>11/3/2015</td>
<td>8/26/2014</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pond Name</th>
<th>Mechanical Structure #</th>
<th>Type</th>
<th>Location</th>
<th>Inspector</th>
<th>Weather</th>
<th>Date of Last Rain</th>
<th>Describe drainage area</th>
<th>Shared Use</th>
<th>Describe</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ST1338</td>
<td>Manhole Sump</td>
<td>Lot Q-4 Drive - South</td>
<td>Erik Larson</td>
<td>Air Temperature: 55</td>
<td>Y</td>
<td>Lot Q-4 / LAIH / Niagara Ct. Turn Around</td>
<td>Y</td>
<td>Lot Q-4 / LAIH / Niagara Ct. Turn Around</td>
</tr>
</tbody>
</table>

#### Physical Observations

<table>
<thead>
<tr>
<th>Condition of Device</th>
<th>Work Needed</th>
<th>Describe Work Needed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good</td>
<td>Y</td>
<td>N/A</td>
</tr>
<tr>
<td>Average</td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>Poor</td>
<td>N</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Any Materials Within Structure</th>
<th>Deteriorating</th>
<th>Describe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Releasing Pollution</th>
<th>Describe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Capacity of Pipe</th>
<th>Size of pipe</th>
<th>Depth of Water</th>
<th>Has Source of Flow Been Determined</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Y</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>N</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Source of Water</th>
<th>Describe Storage Capacity</th>
<th>Minimal</th>
<th>Less Than Half</th>
<th>Greater Than Half</th>
<th>Full</th>
<th>Amount Remaining</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Flow | Describe
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Work Needed</th>
<th>Describe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Odor</th>
<th>Describe</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td></td>
</tr>
<tr>
<td>Sewage</td>
<td></td>
</tr>
<tr>
<td>Sulfide</td>
<td></td>
</tr>
<tr>
<td>Oil</td>
<td></td>
</tr>
<tr>
<td>Gas</td>
<td></td>
</tr>
<tr>
<td>Rancid-Sour</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Color</th>
<th>Describe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td></td>
</tr>
<tr>
<td>Dark Brown</td>
<td></td>
</tr>
<tr>
<td>Light Brown</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Turbidity</th>
<th>Describe</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td></td>
</tr>
<tr>
<td>Cloudy</td>
<td></td>
</tr>
<tr>
<td>Suspended Particles</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Water Temperature</th>
<th>Describe</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td></td>
</tr>
<tr>
<td>Not Available</td>
<td></td>
</tr>
</tbody>
</table>

#### Accumulated Materials

<table>
<thead>
<tr>
<th>Floatables</th>
<th>Oil in Oil Port</th>
<th>Describe Work Needed</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>Y</td>
<td>N/A</td>
</tr>
<tr>
<td>Sheen</td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>Foam</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sewage Litter</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other: Leaves</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sample Collected</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Oil in Oil Port Measurement</th>
<th>Calculated</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Deposits</th>
<th>Oil</th>
<th>Sediment</th>
<th>Describe</th>
<th>Sample Collected</th>
<th>Y</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oily</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Describe</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sample Collected</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Depth of Sediment</th>
<th>Measurement</th>
<th>Remaining Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td></td>
<td>.25&quot;</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Describe Work Needed</th>
<th>Should be cleaned</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Stains</th>
<th>Work Needed</th>
<th>Describe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y</td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>Work Needed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Y</td>
<td>N</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Vegetation Conditions</th>
<th>Describe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td></td>
</tr>
<tr>
<td>Excessive Growth</td>
<td></td>
</tr>
<tr>
<td>Inhibited Growth</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Erosion</th>
<th>Describe</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td></td>
</tr>
<tr>
<td>Minor Erosion</td>
<td></td>
</tr>
<tr>
<td>Major Erosion</td>
<td></td>
</tr>
<tr>
<td>Erosion Protected</td>
<td></td>
</tr>
<tr>
<td>Y</td>
<td>N</td>
</tr>
</tbody>
</table>

| Describe Work Needed | |
|----------------------||
| N/A                  | |

<table>
<thead>
<tr>
<th>Immediate Work Needed</th>
<th>Describe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td></td>
</tr>
</tbody>
</table>

Next Anticipated Work Date: Summer 2016

### Inspection Comments / Recommendations

<table>
<thead>
<tr>
<th>Comments / Recommendations</th>
<th>Completed</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remove Sediment when it is within 2.5' of outlet per page 9 project SWPPP</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>93&quot; from casting to sediment - Should be Cleaned</td>
<td>Y</td>
<td>N</td>
</tr>
</tbody>
</table>

N 46 49.069
W 92 05.336

Sump Design: Rim:541.0
Inv: 535.77
Sump:531.77
Clean at 533.27 Depth to sediment less than 92.75"

Printed - 2/18/2016
## STORM WATER INSPECTION FORM

**Outfall #:**  

**Photograph Name:**  

**Inspection Date:** 11/3/2015

**Pond Name:**  

**Date of last inspection:** 8/26/2014

**Mechanical Structure #:** ST1346  

**Type:** Manhole Sump

**Location:** Lot Q-4 - Middle MH

**Inspector:** Erik Larson

**Weather:**  

- **Air Temperature:** 55  
- **Rain:** Y N  
- **Date of Last Rain:** 11/1/2015  
- **Sunny** Cloudy

**Describe drainage area:** Lot Q-4 / LAIH / Niagara Ct. Turn Around

**Shared Use:** Y N  

**Describe:** Lot Q-4 / LAIH / Niagara Ct. Turn Around

### Physical Observations

**Condition of Device:**  

- Good  
- Average  
- Poor  
- Work Needed: Y N  
- N/A  

**Any Materials Within Structure:**  

- Deteriorating: Y N  
- Describe:

**Releasing Pollution:**  

- Y N  
- Describe:

**Capacity of Pipe:**  

- Size of pipe:  
- Depth of Water:  
- Has Source of Flow Been Determined: Y N

**Source of Water:** N/A

**Describe Storage Capacity:**  

- Minimal  
- Less Than Half  
- Greater Than Half  
- Full  
- Amount Remaining: Unknown

**Flow:**  

- Performing Properly
- Full  
- Overloaded  
- Clogged  
- Other:

**Work Needed:**  

- Y N  
- Describe:

**Odor:**  

- None  
- Sewage  
- Sulfide  
- Oil  
- Gas  
- Rancid-Sour  
- Other:

**Color:**  

- Normal  
- Dark Brown  
- Light Brown  
- Other:

**Turbidity:**  

- None  
- Cloudy  
- Suspended Particles  
- Other:

**Water Temperature:**  

- F  
- Not Available

**Accumulated Materials**

**Floatables:**  

- None  
- Sheen  
- Foam  
- Sewage  
- Litter  
- Other:  
- Oil in Oil Port: Y N N/A

**Measure:**  

- Sample Collected: Y N  
- Calculated:

**Deposits:**  

- None  
- Sediment  
- Oily  
- Describe:

**Depth of Sediment:** N/A  

**Measurement:**  

- Remaining Capacity: 0  
- Describe Work Needed: N/A

**Stains:**  

- Y N  
- Work Needed: Y N  
- Describe:

**Vegetation Conditions:**  

- Normal  
- Excessive Growth  
- Inhibited Growth  
- Describe:

**Erosion:**  

- None  
- Minor Erosion  
- Major Erosion  
- Erosion Protected: Y N

**Describe Work Needed: N/A

**Immediate Work Needed:**  

- Y N  
- Describe:

**Next Anticipated Work Date:** Summer 2016

### Inspection Comments / Recommendations

**Comments / Recommendations**

- Remove Sediment when it is within 2.5' of outlet per page 9 project SWPPP
- 60" from casting to water
- 82" from casting to sediment - Needs to be Cleaned

**N 46 49.072**  

**W 92 05.330**

**Sump Design:**  

- Rim: 540.5  
- Inv: 535.94  
- Sump: 531.93  
- Clean at 533.44

**Depth to sediment less than 84.75"**
### University of Minnesota Duluth

**STORM WATER INSPECTION FORM**

<table>
<thead>
<tr>
<th>Outfall #</th>
<th>Photograph Name</th>
<th>Inspection Date</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>15-ST1354</td>
<td>10/12/2015</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pond Name</th>
<th>Date of last inspection</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10/25/2014</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mechanical Structure #</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>ST1354</td>
<td>Rain Garden</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Location</th>
<th>Inspector</th>
</tr>
</thead>
<tbody>
<tr>
<td>Griggs Fire Access Road (South Side)</td>
<td>Erik J. Larson</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Weather</th>
<th>Date of Last Rain</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10/12/2015</td>
<td>Sunny Cloudy</td>
</tr>
</tbody>
</table>

#### Describe drainage area:
Drains off south side of Griggs beach and overflow off Vermillion Hall

#### Shared Use:
Y N

### Physical Observations

#### Condition of Device:
- Good
- Average
- Poor

#### Work Needed: Y N

#### Any Materials Within Structure:
- Deteriorating: Y N

#### Describing Work Needed:

#### Releasing Pollution: Y N

#### Capacity of Pipe:
- Size of pipe: 
- Depth of Water: 
- Has Source of Flow Been Determined: Y N

#### Source of Water:
N/A

#### Describe Storage Capacity:
- Minimal
- Less Than Half
- Greater Than Half
- Full
- Amount Remaining: 

#### Flow:
- Performing Properly
- Full
- Overloaded
- Clogged
- Other: 

#### Work Needed: Y N

#### Odor:
- None
- Sewage
- Sulfide
- Oil
- Gas
- Rancid-Sour
- Other: 

#### Color:
- Normal
- Dark Brown
- Light Brown
- Other: 

#### Turbidity:
- None
- Cloudy
- Suspended Particles
- Other: 

#### Water Temperature:
F Not Available

### Accumulated Materials

#### Floatables:
- None
- Sheen
- Foam
- Sewage
- Litter
- Other: 

#### Oil in Oil Port:
- Y N

#### Description:
N/A

#### Measurement:

#### Sample Collected:
Y N

#### Deposits:
- None
- Sediment
- Oily
- Describe: 

#### Depth of Sediment:
N/A

#### Description:
N/A

#### Remaining Capacity:

#### Work Needed:

#### Erosion:
- None
- Minor Erosion
- Major Erosion
- Erosion Protected
- Y N

#### Immediate Work Needed:
- Y N

#### Next Anticipated Work Date:
Summer 2016

### Inspection Comments / Recommendations

<table>
<thead>
<tr>
<th>Comments / Recommendations</th>
<th>Completed</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>New 2011</td>
<td>Y N</td>
<td></td>
</tr>
<tr>
<td>Annual Aerating Required by SWPPP</td>
<td>Y N</td>
<td></td>
</tr>
<tr>
<td>Minor weeds</td>
<td>Y N</td>
<td></td>
</tr>
</tbody>
</table>

N 46 49.065
W 92 5.264

---

Printed - 2/22/2016
University of Minnesota Duluth

STORM WATER INSPECTION FORM

Outfall #: ___________________________  Photograph Name: ___________________________  Inspection Date: 11/3/2015

Pond Name: ___________________________  Date of last inspection: 8/26/2014

Mechanical Structure #: ST1366  Type: Manhole Sump

Location: Lot Q-4 - North East Corner

Inspector: Erik Larson

Weather:  Air Temperature: 55  Rain: Y  Date of Last Rain: 11/1/2015  Sunny  Cloudy

Describe drainage area: Lot Q-4 / Niagara Ct. Turn Around

Shared Use: Y  N  Describe: Lot Q-4 / Niagara Ct. Turn Around

Physical Observations

Condition of Device: Good  Average  Poor  Work Needed: Y  N

Describe Work Needed: N/A

Any Materials Within Structure: Deteriorating: Y  N  Describe:

Releasing Pollution: Y  N  Describe:

Capacity of Pipe: Size of pipe: ________ Depth of Water: ________ Has Source of Flow Been Determined: Y  N

Source of Water: N/A

Describe Storage Capacity: Minimal  Less Than Half  Greater Than Half  Full  Amount Remaining: Unknown

Flow: Performing Properly  Full  Overloaded  Clogged  Other:

Work Needed: Y  N  Describe:

Odor: None  Sewage  Sulfide  Oil  Gas  Rancid-Sour  Other:

Color: Normal  Dark Brown  Light Brown  Other:

Turbidity: None  Cloudy  Suspended Particles  Other:

Water Temperature: F  Not Available

Accumulated Materials

Floatables: None  Sheen  Foam  Sewage  Litter  Other: Leaves  Sample Collected: Y  N

Oil in Oil Port: Y  N  N/A  Measurement: Calculated:

Describe Work Needed: N/A

Deposits: None  Sediment  Oily  Describe:  Sample Collected: Y  N

Depth of Sediment: N/A  Measurement: 22" (Calculated)  Remaining Capacity 0

Describe Work Needed: N/A  Clean Sump

Stains: Y  N  Work Needed: Y  N  Describe:

Vegetation Conditions: Normal  Excessive Growth  Inhibited Growth  Describe:

Describe Work Needed: N/A

Erosion: None  Minor Erosion  Major Erosion  Erosion Protected  Y  N

Describe Work Needed: N/A

Immediate Work Needed: Y  N  Describe:

Next Anticipated Work Date: Summer 2016

Inspection Comments / Recommendations

Comments / Recommendations

Completed  Date

Remove Sediment when it is within 2.5' of outlet per page 9 project SWPPP

Depth to water 50"  Y  N

Depth to sediment 74" - Needs to be Cleaned  Y  N

N 46 49.080
W 92 05.309

Sump Design: Rim:540.5
Inv: 536.48
Sump:532.48
Clean at 534.00  Depth to sediment less than 78"

Printed - 2/18/2016
University of Minnesota Duluth

STORM WATER INSPECTION FORM

Outfall #: __________________________ Photograph Name: 15-ST3253 Inspection Date: 10/12/2015

Pond Name: __________________________ Date of last inspection: 10/25/2015

Mechanical Structure #: ST3253 Type: Rain Garden

Location: Griggs firelane

Inspector: Erik J. Larson

Weather: Air Temperature: 55 Rain: Y N Date of Last Rain: 10/12/2015 Sunny Cloudy

Describe drainage area: North side of Griggs Beach / Griggs Fire Access Road / Burntside overflow

Shared Use: Y N Describe:

Physical Observations

Condition of Device: Good Average Poor Work Needed: Y N

Describe Work Needed: N/A

Any Materials Within Structure: Deteriorating: Y N Describe:

Releasing Pollution: Y N Describe:

Capacity of Pipe: Size of pipe: __________ Depth of Water: __________ Has Source of Flow Been Determined: Y N

Source of Water: N/A

Describe Storage Capacity: Minimal Less Than Half Greater Than Half Full Amount Remaining: __________

Flow: Performing Properly Full Overloaded Clogged Other: __________

Work Needed: Y N Describe:

Odor: None Sewage Sulfide Oil Gas Rancid-Sour Other: __________

Color: Normal Dark Brown Light Brown Other: __________

Turbidity: None Cloudy Suspended Particles Other: __________

Water Temperature: F Not Available

Accumulated Materials

Floatables: None Sheen Foam Sewage Litter Other: __________ Sample Collected: Y N

Oil in Oil Port: Y N N/A Measurement: __________ Calculated: __________

Describe Work Needed: N/A

Deposits: None Sediment Oily Describe: __________ Sample Collected: Y N

Depth of Sediment: N/A Measurement: __________ Remaining Capacity __________

Describe Work Needed: N/A

Stains: Y N Work Needed: Y N Describe:

Vegetation Conditions: Normal Excessive Growth Inhibited Growth Describe:

Describe Work Needed: N/A

Erosion: None Minor Erosion Major Erosion Erosion Protected Y N

Describe Work Needed: N/A

Immediate Work Needed: Y N Describe:

Next Anticipated Work Date: Summer 2016

Inspection Comments / Recommendations

Comments / Recommendations Completed Date

New 2011

Annual Aerating Required by SWPPP Y N

Minor weeds Y N

Printed - 2/22/2016