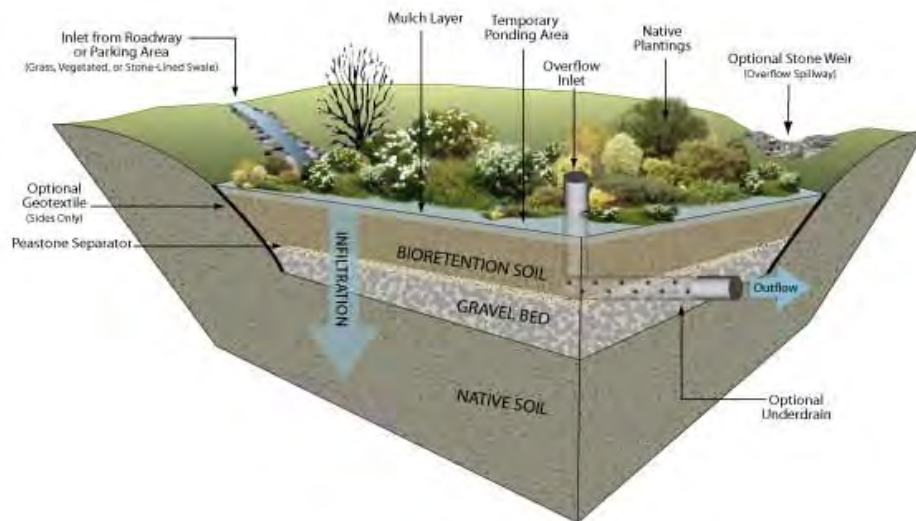




Operations & Maintenance Plan

Bioretention / Raingarden

BMP ID		Location	<u>Washburn High School</u>
Owner	Minneapolis Public Schools	Inspector	<u>Metro Blooms</u>
Date	xxxxx		



Overview of Bioretention / Raingardens

Raingarden Operations:

Bioretention works by routing stormwater runoff into shallow, landscaped depressions. These landscaped depressions are designed to hold and remove many of the pollutants in a manner similar to natural ecosystems. During storms, runoff ponds above the mulch and engineered soil mix in the system. Runoff from larger storms is generally diverted past the facility to the storm drain system. The runoff remaining in the bioretention facility filters through the Engineered Soil Mix. The filtered runoff can either be designed to enhance groundwater infiltration or can be collected in an under drain and discharged per local stormwater management requirements.

Raingarden Inspection:

Inspection of the rain garden is required after each major rain (more than 1" of rainfall) or at least 4 times per year during the growing season (March - November).

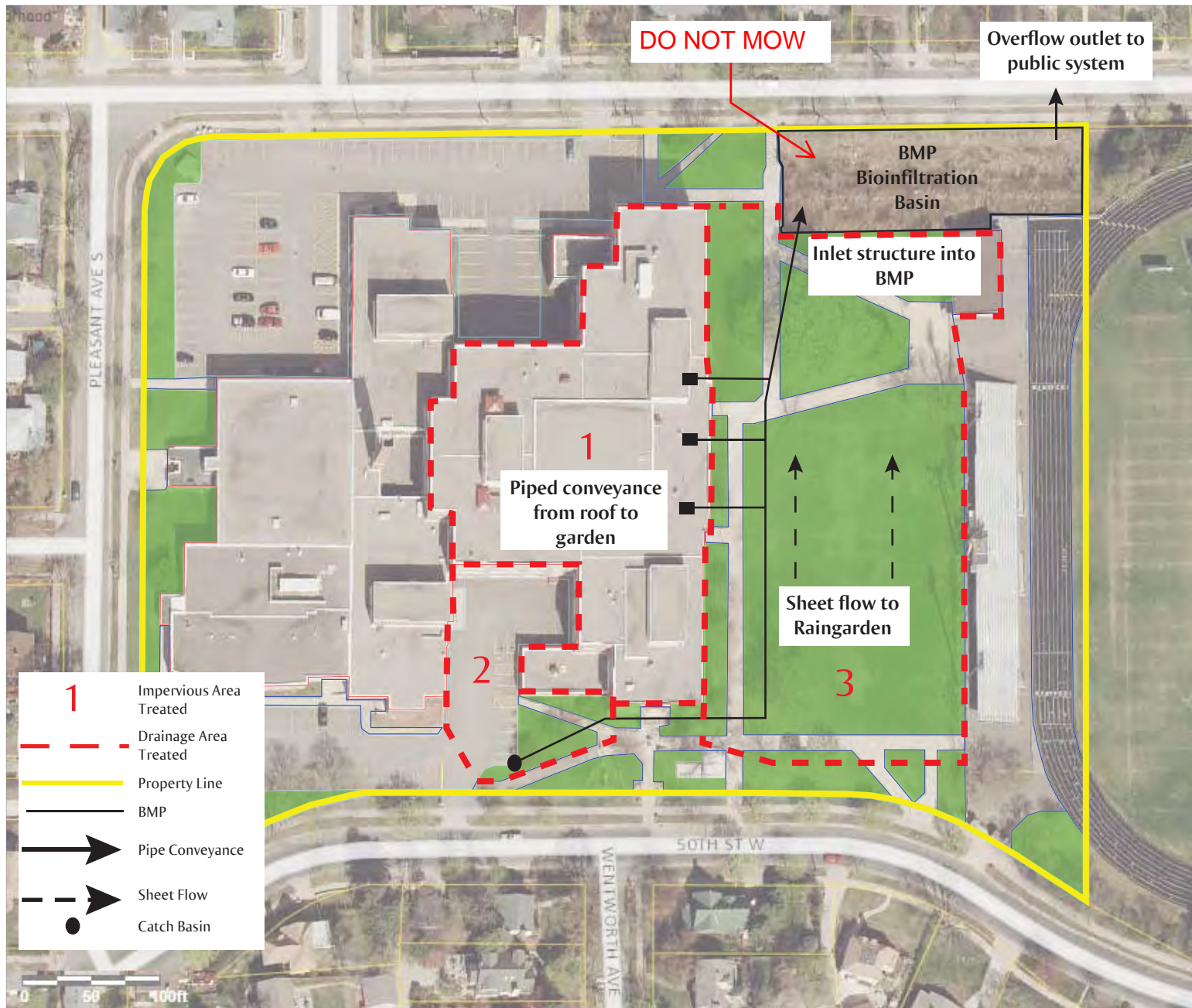
During inspection the following should be noted on the inspection form

- *Presence of any trash, debris and soil accumulation*
- *Presence of weeds*
- *Depth of mulch material present*
- *Condition of plants (note any plants that appear to be dead or dying)*
- *Condition of rain garden overflow structure.*
- *Visible indication of rain garden clogging or overtopping.*

Raingarden Maintenance:

Routine rain garden maintenance shall be done as prescribed in the approved plan, and when an inspection reveals any of the following conditions:

- *Trash, debris and soil accumulation*
- *Soil accumulation*
- *Rain Garden Design depth is not sufficient*
- *Presence of weeds*
- *Presence of invasive plants or weeds (Canada Thistle, Garlic Mustard and any tree seedlings)*
- *Mulch depth less than 3 inches (Use only shredded hardwood mulch material)*
- *Overflow structure in need of cleaning (ex: grate covered with grass/leaves)*
- *Any damage to the inlet structure exists.*
- *Any indication that rain garden has insufficient capacity (debris on pavement surrounding the rain garden, etc.).*



TOTAL PROPERTY - 346,943 sq ft / 7.96 acre	
TOTAL IMPERVIOUS: 167,760 / 2.26 acre	IMPERVIOUS to BMP: 90,022 / 2.07 acre
building - 96,075 sq ft / 2.21 acre	building - 59,860 sq ft / 1.37 acre
parking / drive - 51,872 sq ft / 1.19 acre	parking / drive - 12,786 sq ft / .29 acre
sidewalk - 19,813 sq ft / .45 acre	sidewalk - 17,376 sq ft / .4 acre
TOTAL PERVIOUS:	TOTAL IMPERVIOUS TREATED: 53.66%
landscaping - 25,478 sq ft / .58 acre	
turf - 127,639 sq ft / 2.93 acre	26.83% Quality Credit Reduction

Washburn High School

Stormwater Drainage Map
 prepared by: Metro Blooms
 for: Minneapolis Public Schools



City of Minneapolis Surface Waters and Sewers Stormwater Operation and Maintenance Plan

BMP ID: 1201 Washburn High School		Rain Garden/Bioretenion		
Inspection Date -- / -- / 20--		Inspector: Metro Blooms Design+Build		
Inspection Activity	Observations/ Measurements	Maintenance	Maint. Required	Actions Required
Inlets & Contributing Areas Inspect scupper pipes, vegetated swale inlet and contributing areas for dirt, trash, leaves, sediment buildup, erosion and cracks or damage.		Sweep or remove litter/debris and sediment. Seed, mulch, replant, sod or repair any bare or eroded areas contributing to the BMP. Determine repair work needed or who to notify if concrete or piping is damaged.	Yes No Yes No Yes No	Date Completed: / / Responsible Party:
Basin Check for sediment buildup and any erosion or bare spots in the basin.		Remove accumulated sediment and debris. Seed, plant, mulch or blanket and stabilize any bare or denuded areas.	Yes No Yes No	Date Completed: / / Responsible Party:
Outlet Structure Inspect outlet structure for debris or trash and to verify if operating as designed.		Remove debris or vegetation impeding outlet flow of water	Yes No	Date Completed: / / Responsible Party:
Vegetation Visual inspection of edge, basin bottom and all landscaping adjacent to or contributing to the basin for dead or diseased plants, weeds and open areas.		Remove dead plants. Remove cat tails, invasive plants, weeds and volunteer woody vegetation. Prevent soil loss by protecting bare soils after weeding. Replace dead plants and vegetate open areas.	Yes No Yes No Yes No	Date Completed: / / Responsible Party:
Mulch Inspect mulch condition and depth.		Add mulch whenever mulch levels are less than 3" using only a double-shredded hardwood mulch.	Yes No	Date Completed: / / Responsible Party:
Dewatering Visual inspection for any standing water present in the basin.		<i>If standing water present 72-hours after storm event notify maintenance contractor. If unable to drain basin contact City of Minneapolis 612-673-2406.</i> Maintenance Contractor: Metro Blooms	Yes No	Date Completed: / / Responsible Party:



Basin condition in April - no major erosion or damage observed



Condition of inlet that conveys stormwater from school roof in April, clear of sediment and debris



Basin condition in August - vegetation in excellent condition, volunteer trees and trash removed

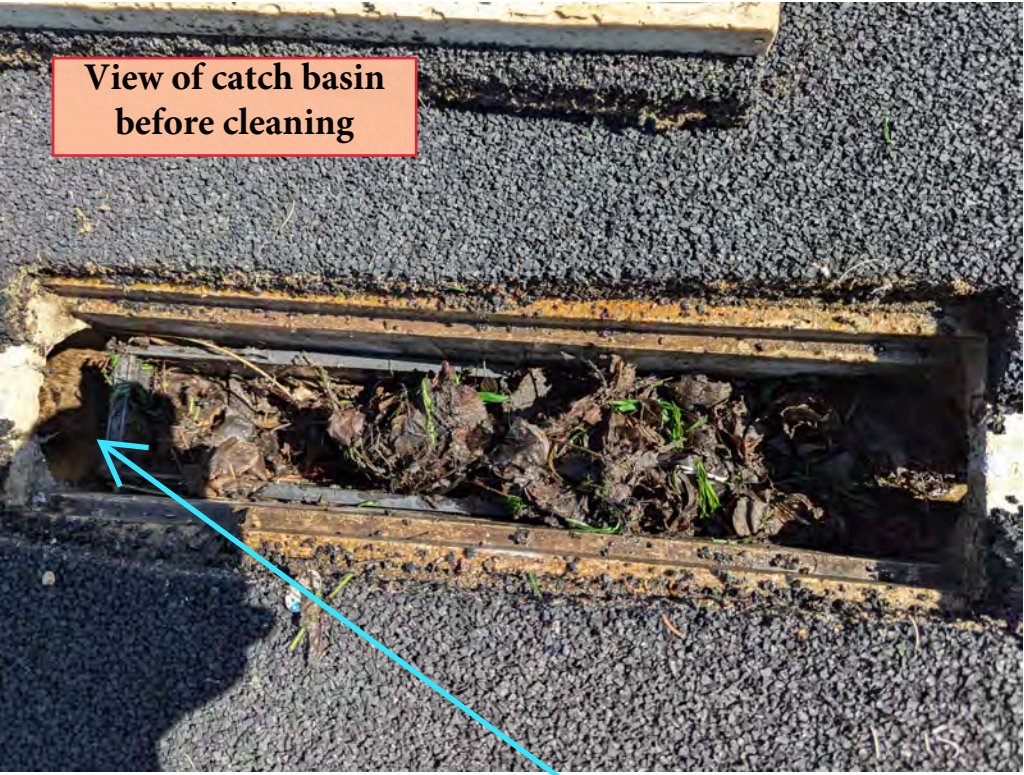


**CHANNEL DRAIN CLEAN OUT
REPORT**

Washburn High Stormwater Operations and Maintenance Plan

Site ID 9859		Stormtech Underground Infiltration Device		
Inspection Date N/A		Inspector: Metro Blooms Design+Build		
Inspection Activity	Observations Measurements	Maintenance	Maint. Required	Actions Required/Date Completed/Responsible Foreman
<p>Regular Maintenance</p> <p>Trash and Debris Visual inspection of UGS 1, and MH 105, MH 106, and TD CB 1- 5, and track trench drain catch basins (6) for trash and debris. Visual inspection of the track and turf for trash and debris</p>		Remove trash, litter and other debris from areas draining to the structures	Yes No	
<p>Bi-annual Maintenance</p> <p>Sediment depth and ponding water Visually inspect and measure sediment depth in UGS. Record measurements. Check for ponding water after storms in Turf Field.</p> <p>Structural components Visually inspect MH 105 AND MH 106 and TD CB 1- 5 to check structural integrity and connecting pipes.</p> <p>Surfaces around structures Visually inspect ground surface above and adjacent to UGS 1 and Turf Field for sinkholes or other unusual depression areas.</p>	Record measurements. Check for ponding water after storms.	<p>Remove sediment when depth exceeds 3 inches or if ponding water is observed more than 48 hrs. after a storm.</p> <p>Notify maintenance staff of any blockages or damaged parts.</p> <p>Sinkholes should be filled and monitored for any further depressions. Continued depressions or holes forming are indicator of device failure and internal inspection is warranted. If a damaged fabric, chamber or pipe is encountered, notify maintenance staff and project engineer (AJA) for repairs.</p>	<p>Yes No</p> <p>Yes No</p> <p>Yes No</p>	

View of catch basin before cleaning

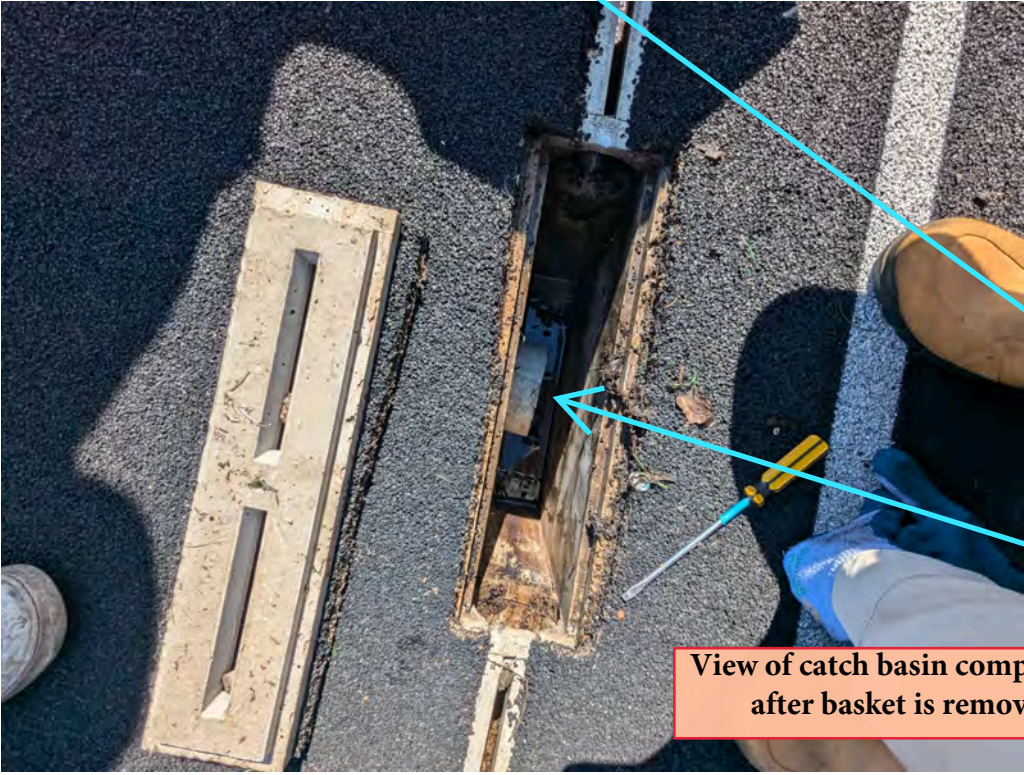


2024



Note how basket sits on top of jutting PVC pipe, causing gaps and disconnection between channel and catch basin

View of catch basin components after basket is removed





View into channel drain after debris removal with pressure washer



Maintenance Method:
Baskets were pulled out, emptied into trash bags (debris contained leaves, plastic and rubber from track & field), replaced, and channel drains were flushed repeatedly with pressure washer (2 flushes was adequate) until baskets remained clear

Note: these photos are representative of all (8) catch basins that were cleaned out.