

# MIDDLE ST. CROIX WATERSHED MANAGEMENT ORGANIZATION

455 HAYWARD AVENUE, OAKDALE, MINNESOTA 55082  
Phone 651.330.8220 x22 fax 651.330.7747 www.mscwmo.org



## Regular Meeting of the Middle St. Croix Watershed Management Organization Bayport Public Library, Bayport, MN Thursday, April 13, 2017 6:00PM

1. Call to Order – 6:00PM
2. Approval of Minutes
  - a) Draft minutes- February 9 , 2017
3. Treasurer’s Report
  - a. Report of savings account, assets for April 13, 2017
  - b. Approve payment of bills for April 13, 2017
4. Public Comments
5. Old Business
  - a. WCD 2017 Maintenance Crew Agreement- *Action –Pages 1-3*
6. New Business
  - a. 2016 MSCWMO Water Monitoring Final Report- *Action –Pages 4-40*
  - b. 2015-2016 Lily Lake Targeted Monitoring Summary- *Action –Pages 41-47*
  - c. 2016 Perro Pond/Creek Targeted Monitoring Summary - *Action –Pages 48-50*
  - d. 2014 Clean Water Fund Grant- Integrating MIDS into Local Ordinance Final Financial Report - *Action –Pages 51*
  - e. Water Monitoring Equipment Replacement Purchase Proposal- *Action –Pages 52 & 53*
  - f. 2017 MSCWMO Board Managers Watershed Tour Date and Time- *Discussion –Pages 54*
  - g. St. Croix River Association Grant Award Contract- *Action –Pages 55*
7. Plan Reviews/Submittals
  - a. Cover Park Improvement Projects- Oak Park Heights- *Action –Pages 56-65*
  - b. 195 Lakeland Shores Rd., Lakeland- *Information –Pages 66-71*
  - c. St. Croix Preparatory Academy Athletic Fields, Baytown Township- *Action –Pages 72-82*
  - d. Bayport 2017 Infrastructure Improvements, Bayport- *Action –Not Attached*
8. Administrator’s Report- *Pages 83-84*
9. Adjourn

# MIDDLE ST. CROIX WATERSHED MANAGEMENT ORGANIZATION

455 Hayward Avenue N. Oakdale, MN 55128  
Phone 651.330.8220 x22 fax 651.330.7747 www.mscwmo.org



## MEMORANDUM

**TO:** Middle St. Croix WMO Board of Managers  
**FROM:** Mike Isensee, Administrator  
**DATE:** April 13, 2017  
**RE:** 5a) FY2017 Maintenance

At the November 10, 2016 board meeting the MSCWMO board approved the allocation of \$2,500 to the 2017 maintenance program to fulfill the MSCWMO contractual maintenance obligations to maintain the bioretention basins in Oak Park Heights installed as part of the Lake St. Croix Direct Phase I Clean Water Fund Grant. Attached is the final agreement for signature.

### FY2017 Maintenance Program Agreement

Motion by Board Member 1, seconded by Board Member 2, to approve the 2017 Agreement for Services with the Washington Conservation District for a maintenance crew.

## **Agreement Between the Washington Conservation District and the Middle St. Croix WMO**

**PARTIES:** This letter of agreement will set forth the work to be provided by the Washington Conservation District (WCD) to the Middle St. Croix WMO (MSCWMO) to perform maintenance of Best Management Practices (BMPs).

**TERM OF CONTRACT:** The effective date of the agreement is from April 1, 2017 to December 31, 2017.

**SCOPE OF SERVICES:** Work to be performed by the WCD includes the following tasks:

- a. Perform a minimum of two maintenance visits for ten (10) raingardens. Maintenance activities include inlet cleanout, weed removal, and litter removal.
- b. No material costs are anticipated.

**COST AND PAYMENTS:** Costs for services for these activities shall not exceed \$2,500.00. Services will be provided by the WCD Seasonal Maintenance Worker(s) @ \$38/hr. Invoices will be sent on a quarterly basis and will list specifically the work performed. Invoices are payable by the MSCWMO within 60 days. Office supplies, normal office reproduction expenses, and transportation are included in the hourly rate. Other expenses are to be reimbursed at actual cost.

**RELATIONSHIP:** This agreement in no way shall constitute, nor be construed in such a way to create an employment relationship between the MSCWMO and the WCD. WCD staff shall not be entitled to any rights, privileges, or benefits of employees of the MSCWMO.

**INDEMNIFICATION & INSURANCE:** The MSCWMO agrees it will defend, indemnify and hold harmless the WCD, its board members and employees against any and all liability, loss, costs, damages and expenses, including attorney's fees, which the MSCWMO its council members or employees may hereafter sustain, incur, or be required to pay arising out of the WCD performance or failure to adequately perform its obligations pursuant to this agreement. Likewise, the WCD agrees that it will defend, indemnify and hold harmless the MSCWMO, its council members and employees against any and all liability, loss, costs, damages and expenses, including attorneys' fees, which the WCD its board members or employees may hereafter sustain, incur, or be required to pay arising out of the actions of the MSCWMO. The parties acknowledge and agree that any exposure to liability of the MSCWMO or the WCD, or the acts or omissions of their respective officers, agents board members and employees will not exceed the limits provided for in is governed by Minn. Stat. section 466.

**EQUAL EMPLOYMENT OPPORTUNITY- CIVIL RIGHTS:** During the performance of this Agreement, the WCD agrees to the following: No person shall, on the grounds of race, color, religion, age, sex, disability, marital status, public assistance, criminal record, creed or national origin, be excluded from full employment rights in, be denied the benefits of, or be otherwise subjected to discrimination under any program, service, or activity under the provisions of and all applicable federal and state laws against discrimination including the Civil Rights Act of 1964.

**RECORDS:** Under Minn Stat. section 16C.05, the WCD's books, records, documents and accounting procedures and practices relevant to this grant are subject to examination by the State and/or the State Auditor or Legislative Auditor, as appropriate for a minimum of six years from the end of this agreement.

**DATA PRIVACY:** All data collected, created, received, maintained, or disseminated, or used for any purpose in the course of the WCD’s performance of the Agreement is governed by the Minnesota Government Data Practices Act, Minnesota 1984, Section 13.01, et seq. Or any other applicable state statutes and state rules adopted to implement the Act, as well as state statutes and federal regulations on data privacy. The WCD agrees to abide by these statutes, rules and regulations and as they may be amended.

**TERMINATION:** Either the WCD or MSCWMO may terminate this Agreement with or without cause by giving the other party thirty (30) days written notice prior to the effective date of such termination.

In Witness Whereof, the WCD and MSCWMO have duly executed this Agreement as of the date and year referenced herein.

\_\_\_\_\_  
Mike Isensee  
Administrator, Middle St. Croix WMO

\_\_\_\_\_  
Jay Riggs  
District Manager, Washington Conservation District

\_\_\_\_\_  
Date

\_\_\_\_\_  
Date



## LILY LAKE TARGETED MONITORING SUMMARY

Prepared for: Middle Saint Croix WMO  
 Prepared by: Washington Conservation District

### Introduction and Methods

The 2015 Middle St. Croix Watershed Management Organization (MSCWMO) Watershed Management Plan prioritized targeted monitoring protocols to more accurately identify sources of nutrients impairing Lily Lake. The goal of targeted protocol is improved placement and design of best management practices to reduce the nutrient load to the lake.

The MSCWMO worked closely with the Washington Conservation District to develop the following monitoring plan to achieve this goal:

- Year One-Identify all outfalls that directly discharge into Lily Lake. Install flow meters at all these locations and collect continuous discharge data for one season. Additionally, collect grab samples at each location during storm events to allow for a loading estimate to be generated.
- Year Two-Using data collected in year one, prioritize monitoring to the four catchments contributing the majority of the nutrient load to the lake. Increase sampling frequency at those sites where it is feasible to develop a more accurate loading estimate. Use data collected in year two to confirm trends observed in year one and more accurately identify nutrient sources

This plan was successfully implemented during the 2015 and 2016 growing seasons. In 2015, flow loggers were installed at seven outfalls to Lily Lake (see attached site map). An eighth outfall was identified after the initial location selection process, but no logger was installed at this site due to constraints for access of a logger. Observations of the flow occurring at this location were made while the other seven were visited during storm events and it was determined that negligible flow to the lake came from that catchment. Data collected in 2015 indicated that ~95% of the discharge to Lily Lake comes from four of the eight identified catchments.

In 2016 monitoring was focused on just these four catchments, with increased sampling frequency also

Measurement Period of Record

Site	Stage, Velocity, Discharge, Total Phosphorus and Total Suspended Solids
Greeley Street	4/18/2015 - 5/23/2015, 6/4/2015 - 6/10/2015, 7/1/2015 - 10/1/2015, 4/18/2016 - 5/6/2016, 6/23/2016 - 9/2/2016, 9/12/2016 - 11/1/2016
Lake Street	4/20/2015 - 10/29/2015, 4/18/2016 - 10/31/2016
Willard Street	5/6/2015 - 10/29/2015
Grove Street	4/22/2015 - 10/12/2015
Pump Station	4/20/2015 - 10/29/2015, 4/18/2016 - 5/24/2016, 6/23/2016 - 10/31/2016
Pine Tree	4/22/2015 - 10/29/2015, 4/18/2016 - 10/31/2016
Lily Beach	4/20/2016 - 10/26/2015

occurring at the Greeley Street location to better characterize the variety of flow regimes present at that site. Discharge was calculated using an area velocity relationship at each location. Site installation and water quality sampling were conducted per WCD standard operating procedures, which can be found on the WCD website <https://www.mnwcd.org/water-quality-water-monitoring/>. The period of record for each site can be found in the table to the left.

## Data

In 2015, 15-minute continuous stage, velocity and discharge measurements were collected at seven outfalls to Lily Lake. Storm event based grab sampling was conducted at six of the seven outfalls, the exception being the Lily Beach site due to no discharge being recorded during the monitoring season. In 2016, these same parameters were collected at four of the previous seven sites. Discharge and loading estimates by site for 2015 and 2016 can be found in Table 1 and Table 2 respectively. Water quality sample results by site from each year can be found in Table 3 and Table 4.

**Table 1: 2015 Discharge and Loading Estimates**

Site	Date range	Total Estimated		Proportion of Total Flow	Proportion of Storm Flow	Average Phosphorus Concentration (mg/L)	Phosphorus Range (mg/L)	Average TSS Concentration (mg/L)	TSS Range (mg/L)	TP Load (lbs.)	TSS Load (lbs.)
		Flow (CF)	Flow (ac-ft)								
Greeley Street Base	4/23 - 10/1*	4,641,079	106.60	0.6456	N/A	0.091	0.028 - 0.21	3.6	1 - 9	26.36	1043.01
Greeley Street Storm	4/23 - 10/1*	1,194,990	27.45	0.1662	0.4690	0.219	0.063 - 0.382	48	2 - 132	16.34	3580.73
Lake Street	4/20 - 10/29	429,834	9.87	0.0598	0.1687	0.213	0.124 - 0.329	12	8 - 16	5.72	321.99
Willard Street	5/6 - 10/29	29,965	0.69	0.0042	0.0118	0.201	0.14 - 0.315	11	4 - 24	0.38	20.58
Grove Street	4/22 - 10/12	34,733	0.80	0.0048	0.0136	0.449	0.074 - 2	36	4 - 91	0.97	78.06
Pump Station	4/20 - 10/29	497,872	11.44	0.0693	0.1954	0.274	0.183 - 0.376	24	8 - 45	8.52	745.93
Pine Tree	4/22 - 10/29	360,335	8.28	0.0501	0.1414	0.231	0.081 - 0.408	14	5 - 41	5.20	314.92
Lily Beach	4/20 - 10/26	0	0	0	0	0	0	0	0	0	0

\*Indicates that estimations of flow occur during period using similar logged flow conditions

**Table 2: 2016 Discharge and Loading Estimates**

Site	Date range	Total Estimated		Proportion of Total Flow	Proportion of Storm Flow	Average Phosphorus Concentration (mg/L)	Phosphorus Range (mg/L)	Average TSS Concentration (mg/L)	TSS Range (mg/L)	TP Load (lbs.)	TSS Load (lbs.)
		Flow (CF)	Flow (ac-ft)								
Greeley Street Base	4/18 - 11/1*	5,504,990	126.44	0.6476	N/A	0.07	0.029 - 0.122	2	1 - 6	24.06	687.31
Greeley Street Storm	4/18 - 11/1*	1,401,207	32.18	0.1648	0.4678	0.437	0.059 - 0.744	233	10 - 616	38.23	20380.96
Lake Street	4/18 - 10/31	576,466	13.24	0.0678	0.1925	0.615	0.107 - 1.91	83	7 - 259	22.13	2986.88
Pump Station	4/18 - 10/31*	603,613	13.86	0.0710	0.2015	0.422	<0.020 - 1.02	51	11 - 99	15.90	1921.74
Pine Tree	4/18 - 10/31	414,015	9.51	0.0487	0.1382	0.334	0.072 - 0.676	53	5 - 148	8.63	1369.80

\*Indicates that estimations of flow occur during period using similar logged flow conditions



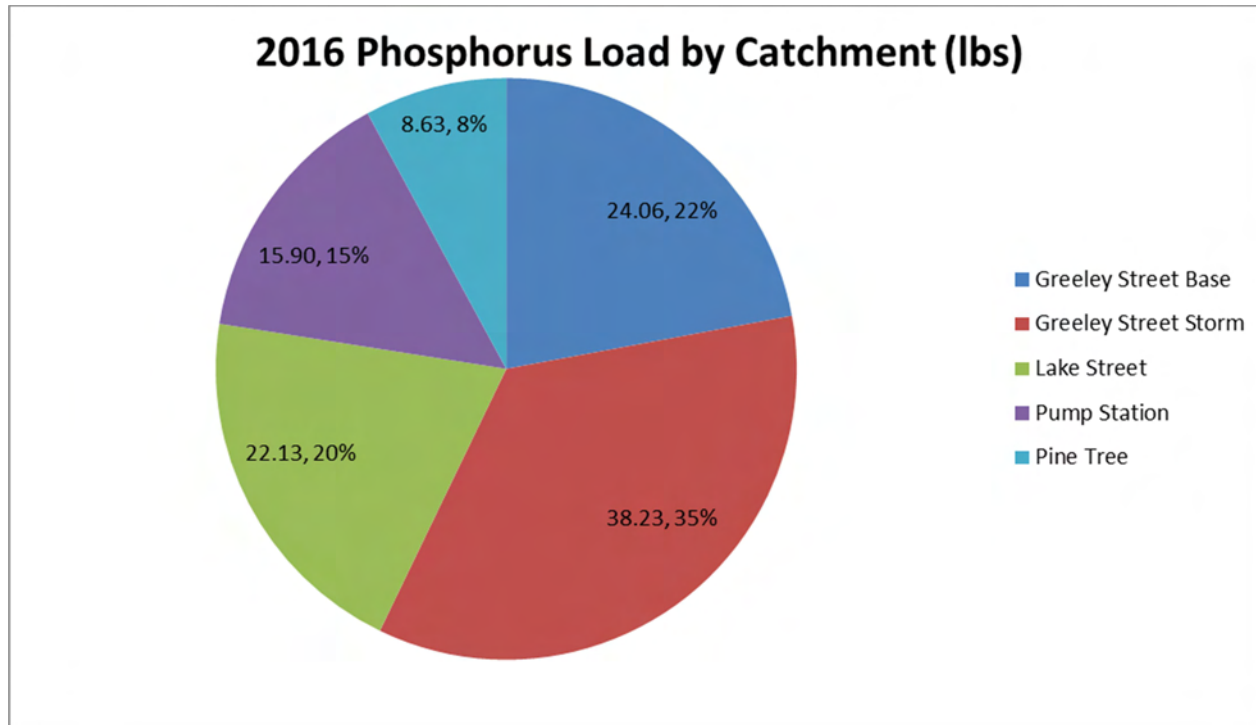
**Table 3: 2015 Sample Results**

	Greeley Street		Lake Street		Willard Street		Grove Street		Pump Station		Pine Tree		Lily Beach	
	TP (mg/L)	TSS (mg/L)	TP (mg/L)	TSS (mg/L)	TP (mg/L)	TSS (mg/L)	TP (mg/L)	TSS (mg/L)	TP (mg/L)	TSS (mg/L)	TP (mg/L)	TSS (mg/L)	TP (mg/L)	TSS (mg/L)
6/17/2015	0.382	84	0.329	8	0.196	4	0.092	4	0.376	29	0.188	7	N/A	N/A
6/22/2015	0.18	13	0.157	16	0.145	8	2	17	0.304	16	0.408	9	N/A	N/A
7/6/2015	0.063	~2			0.209	4	0.079	9	0.299	8	0.262	9	N/A	N/A
7/22/2015	0.21	9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7/28/2015	0.221	11	0.247	13	N/A	N/A	0.13	91	0.219	19	0.228	5	N/A	N/A
8/18/2015	0.27	132	0.21	14	0.315	24	0.318	90	0.265	45	0.218	41	N/A	N/A
8/25/2015	~0.035	~1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9/17/2015	0.196	46	0.124	8	0.14	14	0.074	7	0.183	26	0.081	12	N/A	N/A
9/22/2015	~0.028	~1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**Table 4: 2016 Sample Results**

	Greeley Street		Lake Street		Pump Station		Pine Tree	
	TP (mg/L)	TSS (mg/L)	TP (mg/L)	TSS (mg/L)	TP (mg/L)	TSS (mg/L)	TP (mg/L)	TSS (mg/L)
4/27/2016	~0.039	~1	N/A	N/A	N/A	N/A	N/A	N/A
5/13/2016	0.059	10	0.173	7	0.168	25	0.141	23
5/18/2016	~0.036	~1	N/A	N/A	N/A	N/A	N/A	N/A
5/25/2016	0.744	383	1.910	259	1.020	99	0.676	148
5/31/2016	0.285	141	0.745	105	0.748	64	0.563	26
6/22/2016	0.122	3	N/A	N/A	N/A	N/A	N/A	N/A
7/21/2016	0.115	6	N/A	N/A	N/A	N/A	N/A	N/A
8/4/2016	0.366	616	0.142	36	<0.020	55	0.219	62
9/6/2016	0.732	14	0.107	9	0.163	11	0.072	5
9/28/2016	~0.029	~1	N/A	N/A	N/A	N/A	N/A	N/A
10/17/2016	0.076	~1	N/A	N/A	N/A	N/A	N/A	N/A

Figure 1: Load Allocation







## Results and Conclusions

The targeted monitoring approach implemented in this investigation of Lily Lake had the goal of more accurately identifying the major sources of nutrients to the lake and to help steer targeting and design of stormwater management practices. Short term monitoring limits the number of conclusions that can be drawn. With only two years of monitoring data and relatively limited sample results seasonal variations have a greater impact on observed differences. However uncertainty can be reduced through the comparison of the proportion of flow observed at each site year over year. Proportional flow values presented in Table 1 and Table 2 demonstrate consistency between 2015 and 2016, indicating that relative discharge contribution by catchment to Lily Lake has been accurately assessed. This consistency supports the approach of focusing on the four sites monitored in 2016 as the primary contributors to Lily Lake. The following discussion of results will focus on 2016 data to reflect this fact. See Table 1 and Figure 1 for reference in the discussion following.

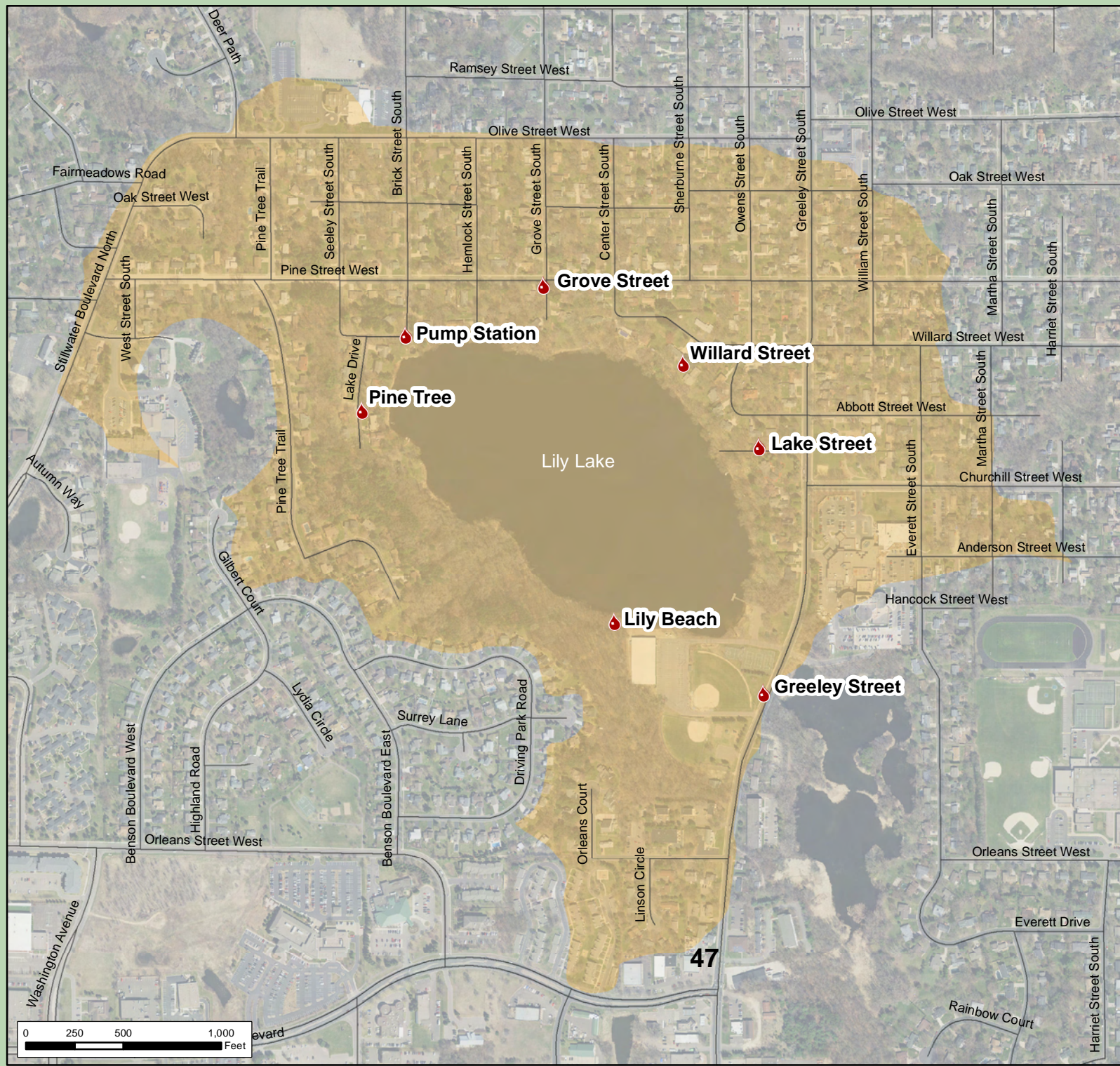
The average phosphorus concentration observed during storm events was 0.615 mg/L at Lake Street, 0.437 mg/L at Greeley Street, 0.422 mg/L at Pump Station and 0.334 mg/L at Pine Tree. The highest observed phosphorus value of 1.91 mg/L was recorded on 05/25/2016 at Lake Street. For comparison purposes, three similar stormwater sites located in South Washington Watershed District had phosphorus concentration averages between 0.124 – 0.254 mg/L in 2016, with a peak observed value of 0.347 mg/L.

By using these average concentrations and recorded flow data, an estimate of phosphorus loading to the lake was developed. Results indicate 78% of the total phosphorus load to Lily Lake is occurring during storm runoff events. The remaining 22% of the phosphorus load is from base flow periods from Brick Pond to Lily Lake, as indicated by the monitoring station at Greeley Street. However, base flow from Brick Pond accounts for 65% of the total discharge to the lake. This low phosphorus load from the majority of the discharge to Lily Lake can be explained by the very low concentrations observed during base conditions. For the majority of the 2016 monitoring period, phosphorus concentrations coming out of Brick Pond were below 0.07 mg/L, and peaked just above 0.1 mg/L during the height of the growing season. While further reducing the phosphorus concentration discharging from Brick Pond is possible, it is not recommended due to the comparatively small reduction in phosphorus load to Lily Lake.

As stated above, 78% of the phosphorus load to Lily Lake is occurring during storm events. The highest contributing catchments during these events are Greeley Street and Lake Street, which combined account for 55% of the load. The phosphorus load from Greeley Street appears to be discharge driven, as the average phosphorus concentration during storm events was on the lower end of those observed yet the total flow was roughly triple that of the other sites. Also of note is that it appears the majority of this flow is coming from direct street runoff and not through Brick Pond. During the August 4<sup>th</sup> storm event a set of samples were collected at Greeley Street, one in the normal sampling location that combines all the street runoff and discharge from Brick Pond and one comprised of just street runoff. Table 4 shows the results from the combined sample of 0.366 mg/L for total phosphorus, the result for the street runoff only sample was 0.479 mg/L. Although this is only a single result and no definitive conclusions can be made, it does indicate that the water coming out of Brick Pond is actually serving to dilute the phosphorus entering the lake and supports field observations that street runoff is the primary component of storm discharge at this location. Therefore, it is recommended that steps be taken to implement best management practices in those areas of the Greeley Street catchment that are directly discharging to Lily Lake, with less of an emphasis being placed on water entering Brick Pond first.




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Loading estimates indicate the next priority would be the Lake Street catchment, which showed the highest average and discrete phosphorus concentrations. However, reducing the discharge and/or the phosphorus concentration at any of the four catchments identified as high contributors should have a

significant impact on improving the water quality in Lily Lake. Therefore, it is recommended that these results be used in conjunction with implementation factors of stormwater management practices for targeting improvements to the catchments.



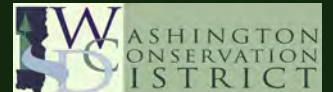
### KEY TO FEATURES

Lily Lake Monitoring Sites

-  Continuous Flow Monitoring and Water Quality Samples
-  Lily Lake Catchment
-  Streets



MSCWMO  
Lily Lake  
Targeted Monitoring





## MEMORANDUM

**TO:** Mike Isensee, MSCWMO  
**FROM:** Matt Downing, WCD  
**DATE:** 1/19/2017  
**RE:** **2016 Perro Pond/Creek Targeted Monitoring Summary**

In 2016 monitoring of Perro Creek was undertaken to identify where the greatest contribution to the Saint Croix River was occurring. Automated data loggers were installed at the outlets of Perro Pond to Perro Creek and the direct pipe to the Saint Croix, and at the Perro Creek diversion structure in the main channel and the overflow pipe. Grab samples were collected at these sites and analyzed for Total Phosphorus (TP), Total Kjeldhal Nitrogen (TKN), Total Suspended Solids (TSS) and *E. coli*. Additionally, samples were collected at the historic 6<sup>th</sup> Street monitoring location for *E. coli* only. While the data collected from this study is far from conclusive and an additional year should be conducted to make the results more robust, listed below are some of the observations that can be made to date:

- Water quality was confirmed to be similar from multiple outlets from Perro Pond. It can be assumed that future samples taken at one location are representative for both locations (Perro Pond Outlet and Perro Pond Outlet Direct)
- TP and TSS concentrations observed leaving Perro Pond were very low and are at acceptable levels for maintaining good water quality. Also, no storm pulses of any significance were recorded leaving Perro Pond. Considering that 2016 was the wettest year on record (according to the National Weather Service), it may be assumed that under no set of current conditions would Perro Pond be a source of significant nutrient loading to the St. Croix and would not benefit from retrofits (when talking about downstream water quality, not in-pond water quality as that was outside the scope of this study)
- Roughly three times as much discharge was logged at the diversion structure than the main outlet, which is likely under represented with much shorter logged data interval at the diversion. This information, coupled with no logged storm events at the main outlet, indicate that the vast majority of the contribution to the creek is occurring from sources in the town of Bayport. Field observations also indicate that in addition to storm runoff being a major source, some other non-event contribution occurs on a regular basis as no flow or dry conditions were observed at the outlet and 6<sup>th</sup> street locations but next to normal flow was occurring at the diversion site. Groundwater contribution is the most likely source, but water quality sample results do not necessarily support this theory.
  - *E. coli* results tended to be near impairment levels at the outlet site, generally dropped by the 6<sup>th</sup> street location and then increased again by the diversion site. These results seem to indicate that a source high in *E. coli* exists somewhere between 6<sup>th</sup> street and the diversion structure (unsupportive of groundwater contribution).
  - Average phosphorus concentration increases from the outlet to the diversion structure as expected, but the observed range of samples taken reaches lower values at this location during non-event periods (supportive of groundwater contribution)
- Table 1 and 2 summarize these findings:

Table 1. 2016 Water Quality and Discharge Summary

Site	Date Range (2016)	Estimated Discharge (CFS)	Estimated Discharge (ac-ft)	Average Phosphorus Concentration (mg/L)	Phosphorus Range (mg/L)	Average TSS Concentration (mg/L)	TSS Range
Perro Direct	5/24-8/20, 8/26-8/30, 9/7-11/3	6,166,950	141.65	0.074	0.044 - 0.097	5	1 - 13
Perro Out	4/28-10/16	32,534,800	747.29	0.074	0.020 - 0.259	6	1 - 24
Perro Diversion Main	5/5-5/14, 5/30-6/5, 6/9-7/10, 7/13-8/12, 9/12-9/27	99,341,000	2281.75	0.105	0.023 - 0.326	36	1 - 112
Perro Diversion Overflow	4/26-7/8, 7/29-8/20, 8/31-10/17, 10/12-11/3	2,162,030	49.66	Assume as main	Assume as main	Assume as main	Assume as main







Table 2. 2016 Perro Creek *E. coli* Sample Results Summary

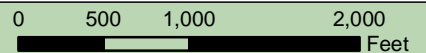
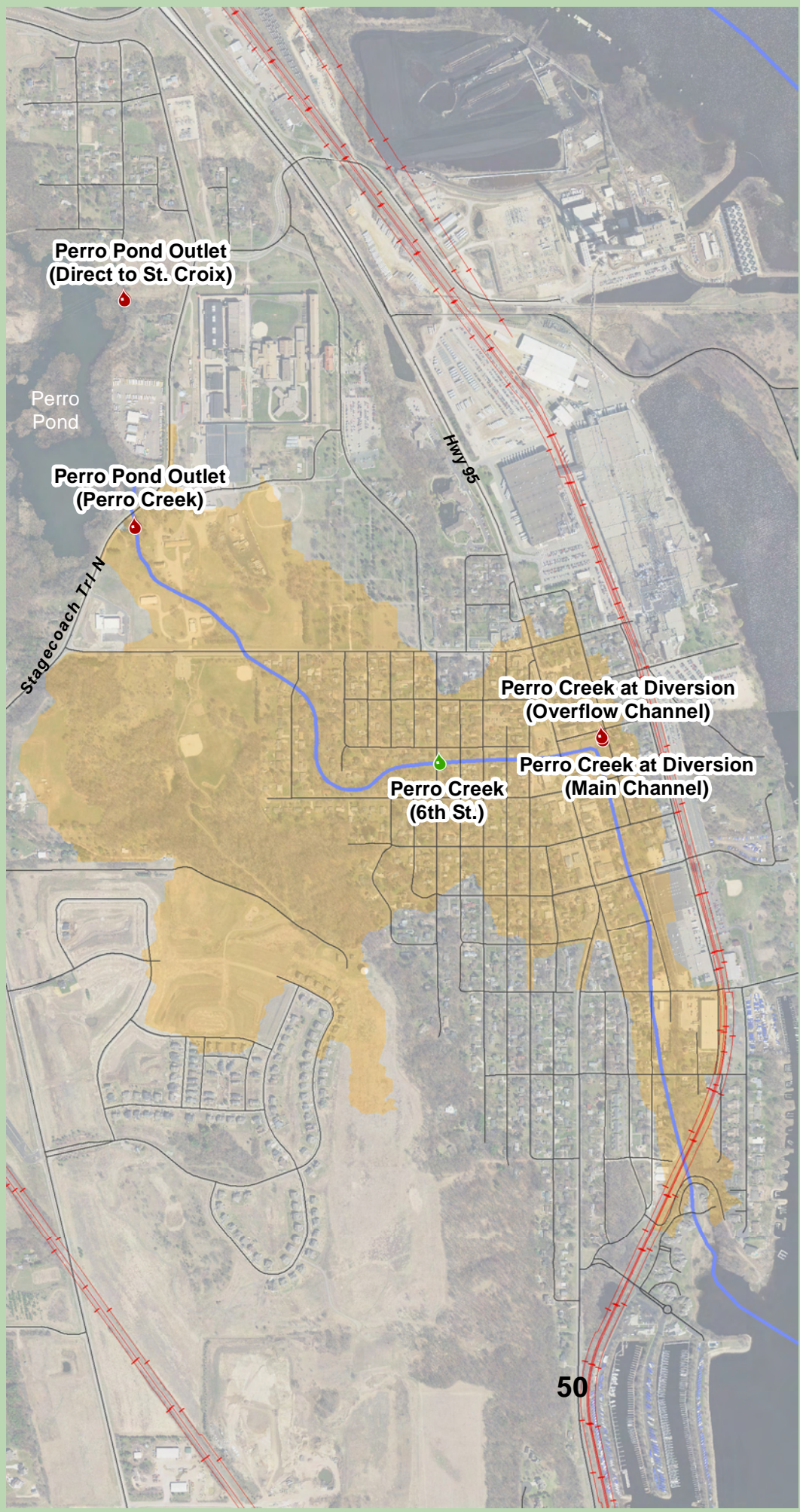
Site	<i>E. coli</i> Results						
	5/11/2016	6/2/2016	6/9/2016	7/21/2016	8/24/2016	9/6/2016	10/17/2016
<b>Outlet</b>	131	20	147	172	194	185	50
<b>6th street</b>	24	96	37	dry	185	>2420	40
<b>Diversion Structure</b>	32	62	816	1553	194	>2420	84

Additional monitoring is planned for 2017 to further refine these observations and correct a number of issues encountered in 2016. An unexpected frequency of undocumented manipulation of the outlet to the creek made analysis of flow data problematic and hindered automated sample collection. In 2017 we seek to establish a better working relationship with City of Bayport Public Works staff to address these issues. There were also many issues collecting reliable data at the main channel of the diversion structure due to the placement of the area velocity sensor and the propensity of the v-notch weir just upstream to become obstructed with debris. This condition hampered reliable data collection and flow estimation. In 2017 a new location for the sensor will be identified to attempt to address these issues. Finally, a number of issues with equipment reliability were encountered over the course of the season causing periods of missing data. Steps will be taken to remedy this issue in 2017.

# 2016 MSCWMO Perro Creek Targeted Monitoring

## KEY TO FEATURES

- Perro Creek Monitoring Sites**
-  Continuous Flow Monitoring and Water Quality Samples
  -  E. coli Grab Samples Only
  -  Perro Creek Catchment
  -  Perro Creek
  -  Streets
  -  Railroads





# Financial Report

Accelerated Implementation Grant 2014

**Grant Title:** Integrating MIDS into Local Ordinance and Zoning Code

**Grant ID:** C14-9221

**Organization:** Middle St. Croix River WMO

Grant Revenue	Amount
Total Awarded	\$127,000.00

## Grant Expenditures

Grant Activity Category	Amount
Education/Information	\$15,390.00
Administration/Coordination	\$2,500.00
Regulations/Ordinances/Enforcement	\$109,014.76
<b>Total Spent</b>	<b>\$126,904.76</b>
Returned Amount	\$0.00
Balance Remaining	\$95.24
Percent Spent	100%

*This is to certify that the information is a true and accurate representation of the grant program accounts for the Integrating MIDS into Local Ordinance and Zoning Code- Middle St. Croix River WMO. We believe our records are complete and subject to an audit.*

\_\_\_\_\_  
OFFICIAL SIGNATURE

\_\_\_\_\_  
DATE

***Please sign, scan, and upload this form to the attachments tab in eLINK.***

***If returning program funds, please use the Returned Check form.***

***Make checks payable and mail to:  
Board of Water and Soil Resources  
520 Lafayette Road N.  
St. Paul, MN 55155***

# MIDDLE ST. CROIX WATERSHED MANAGEMENT ORGANIZATION

455 Hayward Avenue N. Oakdale, MN 55128  
Phone 651.330.8220 x22 fax 651.330.7747 www.mscwmo.org



## MEMORANDUM

**TO:** Middle St. Croix WMO Board of Managers  
**FROM:** Mike Isensee, Administrator  
**DATE:** April 13, 2017  
**RE:** **6e) Water Monitoring Equipment Purchase**

The Washington Conservation District has a used automated water quality sampling equipment for sale. The equipment is 4 years old and has been installed and maintained by the WCD. The total purchase price of \$3,182.00 is approximately half the price of new equipment.

Since the MSCWMO automated water sampling equipment is currently 12 years old and the MSCWMO currently has budget in savings to upgrade and or repair equipment, staff recommends purchasing the used equipment.

### Used Automated Water Quality Sampling Equipment Purchase

Motion by Board Member 1, seconded by Board Member 2, to approve the purchase of used water quality sampling equipment from the Washington Conservation for a total amount not to exceed \$3,182.00.





**MEMORANDUM**

**TO:** MSCWMO Board of Managers

**FROM:** Erik Anderson, Washington Conservation District

**DATE:** March 29, 2017

**RE:** Available for Purchase – Used Water Monitoring Equipment

The MSCWMO currently owns one automated sampling station for water monitoring that is 12 years old and does not own any similar spare/backup equipment.

The WCD recently purchased used water monitoring equipment that has been used in 2013-16.

The equipment is available for 50% of the brand new value. This equipment is the same as what MSCWMO already owns and could be an option as backup equipment. If you want to have a complete backup set, the only equipment that isn't part of this set is an area-velocity sensor and battery, and these would need to be purchased new. The table below shows the equipment, equipment age, and prices.

Total price to purchase the used WCD equipment is \$3,182.

Equipment	Age (MSCWMO owns)	Age (WCD)	Price (WCD)	Price (New)
Isco 6712 Auto Sampler, 750 Flow Logger, and power cable	12 yrs	4 yrs	<b>\$2,907</b>	\$5,815
Isco Area-velocity Sensor	1 yr			
BP 20 Watt Regulated Solar Panel	4 yrs	4 yrs	<b>\$275</b>	\$475
12 Volt Deep Cycle Battery	NA			
<b>Total</b>			<b>\$3,182</b>	\$6,290
				(+tax/shipping)

# MIDDLE ST. CROIX WATERSHED MANAGEMENT ORGANIZATION

455 Hayward Avenue N. Oakdale, MN 55128  
Phone 651.330.8220 x22 fax 651.330.7747 www.mscwmo.org



## MEMORANDUM

**TO:** Middle St. Croix WMO Board of Managers  
**FROM:** Mike Isensee, Administrator  
**DATE:** April 13, 2017  
**RE:** 6f) MSCWMO Board Managers Watershed Tour

We have made a lot of progress planning and implementing water quality improvement projects in the MSCWMO since 2013. This tour is an opportunity for interested board members to see firsthand water quality projects that have been installed, projects that are currently being installed and prioritized future projects to improve water quality in the watershed.

Staff is seeking input on interest, potential dates, and duration of a tour.

# MIDDLE ST. CROIX WATERSHED MANAGEMENT ORGANIZATION

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## MEMORANDUM

**TO:** Middle St. Croix WMO Board of Managers  
**FROM:** Mike Isensee, Administrator  
**DATE:** April 13, 2017  
**RE:** 6g) St. Croix River Association Grant

The MSCWMO has been notified of a grant award of \$20,000.00 for the Lake St. Croix Direct Phase I and Phase grant. The funds will be applied to the Stillwater Junior High School Bioretention Basin and Iron Enhanced Sand Filter. The proposed project provides treatment of 10 acres of urban drainage directly discharging to the St. Croix. The annual load reduction is estimated at 15.1 pounds per year (per WinSLAMM V10.2 Urban Stormwater Quality Model). The biofiltration basin and iron enhanced sand filter will be constructed this summer. The total cost of the project is \$109,000.

Staff is seeking input on interest, potential dates, and duration of a tour.

### St. Croix River Association Grant

Motion by Board Member 1, seconded by Board Member 2, to sign the grant St. Croix River Association Grant Agreement for \$20,000.00.

# MIDDLE ST. CROIX WATERSHED MANAGEMENT ORGANIZATION

455 HAYWARD AVENUE OAKDALE, MINNESTOA 55128  
Phone 651.330.8220 x22 fax 651.330.7747 www.mscwmo.org



April 13, 2017

Eric Johnson, Administrator  
City of Oak Park Heights  
14168 Oak Park Blvd. N.  
Oak Park Heights, MN 55082

RE: Baytown Substation Review Results

Dear Mr. Johnson,

The Middle St. Croix Watershed Management Organization (MSCWMO) received required submittal items on March 2, 2017 for the proposed Cover Park Site Improvements project, located within MSCWMO boundaries and in the City of Oak Park Heights. The proposed project qualifies for full review under the MSCWMO 2015 Watershed Management Plan (WMP).

The project, as revised, meets applicable Policies and Performance Standards contained within Section 7.0 of the 2015 MSCWMO WMP. The MSCWMO recommends approval of the project with the following conditions.

1. Add method to decompact soils prior to seeding.
2. Add additional pollution prevention information to prohibit vehicle and equipment degreasing or washing and portable toilet location and securing.
3. Add tabulated erosion and sediment control quantities

The enclosed checklists contain detailed information on project review qualification and the policies and performance standards of the WMP. MSCWMO review process information can be downloaded from [www.mscwmo.org](http://www.mscwmo.org). Feel free to contact me at 651-330-8220 x22 or [misensee@mnwcd.org](mailto:misensee@mnwcd.org) if you have any questions regarding these comments.

Sincerely,

Mikael Isensee  
Administrator  
Middle St. Croix Watershed Management Organization

Cc: Mike Runk, MSCWMO Board Manager

Enclosures

# MIDDLE ST. CROIX WATERSHED MANAGEMENT ORGANIZATION

455 HAYWARD AVE. N.  
OAKDALE, MINNESOTA 55128  
Phone 651.330.8220 x22 fax 651.330.7747 www.mscwmo.org



## PROJECT REVIEW

**MSCWMO Project Review ID:** 17-005

**Project Name:** Cover Park Site Improvements

**Applicant:** City of Oak Park Heights

**Purpose:** Reconstruction and Parking Expansion

**Location:** 15366 58th St. N

**Review date:** 4/10/17

### Recommendation:

Approval conditional on the following modifications:

1. Add method to decompact soils prior to seeding.
2. Add additional pollution prevention information to prohibit vehicle and equipment degreasing or washing and portable toilet location and securing.
3. Add tabulated erosion and sediment control quantities.

### Applicability:

- Any project undertaking grading, filling, or other land alteration activities that involve movement of 100 cubic yards of earth or removal of vegetation on greater than 10,000 square feet of land
- Any project that creates or fully reconstructs 6,000 square feet or more of impervious surface
- All major subdivisions or minor subdivisions that are part of a common plan of development. Major subdivisions are defined as subdivisions with 4 or more lots.
- Any project with wetland impacts
- Any project with grading within public waters
- Any project with grading within buffers
- Any project with grading within 40-feet of the bluff line
- Development projects that impact 2 or more of the member communities

- New or redevelopment projects within the St. Croix Riverway that require a building permit that adds five hundred (500) square feet or more of additional impervious surface
- Any project requiring a variance from the current local impervious surface zoning requirements for the property
- Any land development activity, regardless of size, that the City determines is likely to cause an adverse impact to an environmentally sensitive area or other property, or may violate any other erosion and sediment control standard set by the member community.

**SUBMITTAL ITEMS:**

Electronic submittals are highly encouraged

- A completed and signed project review application form and review fee
- Evidence of ownership for the project site
- Grading Plan/Mapping Exhibits
  - a. Property lines and delineation of lands under ownership of the applicant.
  - b. Delineation of existing on-site wetlands, shoreland and/or floodplain areas (including any buffers).
  - c. Ordinary High Water (OHW) elevations and datum, as determined by the MDNR (if applicable).
  - d. Existing and proposed site contour elevations related to NAVD 1988 datum (preferred) or NGVD, 1929. Datum must be noted on exhibits.
  - e. Drainage easements covering land adjacent to ponding areas, wetlands, and waterways up to their 100-year flood levels and covering all ditches and storm sewers. Access easements to these drainage easements and to other stormwater management facilities shall also be shown.
  - f. Minimum building elevation for each lot.
  - g. Identification of downstream water body.
- NA Permanent Stormwater Management System in compliance with the requirements of the NPDES SDS Construction Stormwater Permit and MSCWMO Performance Standards.
  - a. Impervious areas (Pre- and Post-Construction).
  - b. Construction plans and specifications for all proposed stormwater management facilities.
  - c. Location(s) of past, current or future onsite well and septic systems (if applicable).
- Other exhibits required to show conformance to these Performance Standards
- NA A Stormwater Pollution Prevention Plan in compliance with the requirements of the NPDES SDS Construction Stormwater Permit
- Grading Plan/Mapping Exhibits:

- a. Delineation of the subwatersheds contributing runoff from off-site, proposed and existing on-site subwatersheds, and flow directions/patterns.
- b. Location, alignment, and elevation of proposed and existing stormwater facilities.
- c. Existing and proposed normal water elevations and the critical (the highest) water level produced from the 100-year 24-hour storms.
- d. Location of the 100-year flood elevation, natural overflow elevation, and lowest floor elevations.

Hydrologic/Hydraulic Design Exhibits:

- a. All hydrologic and hydraulic computations completed to design the proposed stormwater management facilities shall be submitted. Model summaries must be submitted. The summaries shall include a map that corresponds to the drainage areas in the model and all other information used to develop the model.
- b. A table (or tables) must be submitted showing the following:
  - i. A listing of all points where runoff leaves the site and the existing and proposed stormwater runoff rates and volumes.
  - ii. A listing of the normal water levels under existing and proposed conditions and the water levels produced from the storm and runoff events listed above for all on-site wetlands, ponds, depressions, lakes, streams, and creeks.

NA Dedications or easements for the portions of the property which are adjacent to the facility and which lie below the 100 year flood level. For sites within public right-of-way, no easement is required.

NA A proposed maintenance agreement, which may be in the format of Appendix K, or other form approved by the city or township.

## **HISTORY & CONSIDERATIONS:**

## **SPECIAL OR IMPAIRED WATER**

- This site drains to, and is within one mile of special or impaired water and complies with enhanced protections.
  - a. Scenic or Recreational river C.1., C.2., C.3.
  - b. Scientific and Natural area C.1., C.2., C.3.
  - c. Waterbody with a TMDL C.1., C.2.
    - C.1. Stabilization initiated immediately and all soils protected in seven days/provide temp basin for five acres draining to common location.
    - C.2. Treat water quality volume of one inch of runoff by retaining on site unless not feasible due to site conditions (See Part III.D.1. design requirements).
    - C.3. Maintain buffer zone of 100 linear feet from Special Water.

**EROSION AND SEDIMENT CONTROL** [*A checked box indicates compliance*]

- A Stormwater Pollution Prevention Plan (SWPPP) that meets the National Pollutant Discharge Elimination System (NPDES) requirements.

*Narrative*

- Identify the person knowledgeable and experienced who will oversee the implementation of the SWPPP; the installation, inspection, and maintenance of the BMPs.
- a. Identifies the person who will oversee the BMP inspection and maintenance.
  - b. Identify the training requirements are satisfied.
  - c. Inspections performed once every 7 days.
  - d. Inspections performed within 24 hours of a rain event greater than 0.5 in/24 hours.
  - e. Inspection and Maintenance records include:
    - i. Date and time of inspection.
    - ii. Name of person(s) conducting inspections.
    - iii. Finding of inspections, including the specific location where corrective actions are needed.
    - iv. Corrective actions taken (including dates, times, and party completing maintenance activities).
    - v. Date and amount of rainfall events greater than 0.5 in/24 hours.
    - vi. Rainfall amounts must be obtained by a properly maintained rain gauge installed onsite, or by a weather station that is within one mile or by a weather reporting system.
    - vii. Requirements to observe, describe, and photograph any discharge that may be occurring during the inspection.
    - viii. All discovered nonfunctional BMPs must be repaired, replaced, or supplemented with functional BMPs within 24 hours after discovery, or as soon as field conditions allow.
- Describes procedures to amend the SWPPP and establish additional temporary ESC BMPs as necessary for site conditions.
- Describes the installation timing for all Erosion Sediment Control (ESC) Best Management Practices (BMPs).
- Describes final stabilization methods for all exposed areas.
- Methods used to minimize soil compaction and preserve topsoil must be described.**
- Describes dewatering technique to prevent nuisance conditions, erosion, or inundation of wetlands?
- Identifies any specific chemicals and the chemical treatment systems that may be used for enhancing the sedimentation process on the site, and how compliance will be achieved with the permit requirements.
- Describes pollution prevention management measures;
  - a. Storage, handling, and disposal of construction products, materials, and wastes.



- b. Fueling and maintenance of equipment or vehicles; spill prevention and response.
- c. Vehicle and equipment washing.
- d. No engine degreasing allowed on site.
- e. Containment of Concrete and other washout waste.
- f. Portable toilets are positioned so that they are secure.

*Plan sheets*

**NA Temporary Sediment Basins required (10 acres draining to common location or 5 acres App. A)**  
**Basin design meets the following criteria: NA**

- a. Adequately sized – 2-year, 24-hour storm, minimum 1,800 feet/acre; or no calculative minimum 3,600ft<sup>3</sup>/acre.
- b. Designed to prevent short circuiting.
- c. Outlets designed to remove floating debris.
- d. Outlets designed to allow complete drawdown.
- e. Outlets designed to withdraw water from the surface
- f. Outlets have energy dissipation.
- g. Have a stabilized emergency spillway.
- h. Situated outside of surface waters and any natural buffers.
- Locations and types of all temporary and permanent Erosion Control BMPs.
  - a. Exposed soils have erosion protection/cover initiated immediately and finished within 14 days (or 7 days Appendix A).
  - b. Wetted perimeters of ditches stabilized within 200 feet of surface water within 24 hours.
  - c. Pipe outlets have energy dissipation within 24 hours of connecting.
- Locations and types of all temporary and permanent Sediment Control BMPs.
  - a. Sediment control practices established on down gradient perimeters and upgradient of any buffer zones.
  - b. All inlets are protected.
  - c. Stockpiles have sediment control and placed in areas away from surface waters or natural buffers.
  - d. Construction site entrances minimize street tracking?
  - e. Plans minimize soil compaction and, unless infeasible to preserve topsoil.
  - f. 50 foot natural buffers preserved or (if not feasible) provide redundant sediment controls when a surface water is located within 50 feet of the project's earth disturbances and drains to the surface water.

**Middle St. Croix Watershed Management Organization**

MEMBER COMMUNITIES:

Afton, Bayport, Baytown Township, Lakeland, Lakeland Shores, Lake St. Croix Beach, Oak Park Heights, St. Mary's Point, Stillwater and West Lakeland Township

- Tabulated quantities of all erosion prevention and sediment control BMPs.**
- Stormwater flow directions and surface water divides for all pre- and post-construction drainage areas.
- NA Locations of areas not to be disturbed (buffer zones).
- NA Location of areas where construction will be phased to minimize duration of exposed soil areas.

**NA** *Blufflines are protected from construction activities in urban (40 foot buffer) areas and rural areas (100-foot buffer).*

### **LAKE, STREAM AND WETLAND BUFFERS**

- A buffer zone of unmowed natural vegetation is maintained or created upslope of all water bodies (wetlands, streams, lakes). **NA**
- A 50 foot natural buffer or (if a buffer is infeasible) provide redundant sediment controls when a surface water is located within 50 feet of the project's earth disturbances and stormwater flows to the surface water. **NA**
- If adjacent to a Special or Impaired Water an undisturbed buffer zone of not less than 100 linear feet from the special water is maintained both during construction and as a permanent feature post construction. **NA**

### **STORMWATER MANAGEMENT** *[A checked box indicates compliance]*

- Water quality treatment is provided prior to direct discharge of stormwater to wetlands and all other water bodies.

### ***Rate and Flood Control Standards***

- The peak rate of stormwater runoff from a newly developed or redeveloped site shall not exceed the 2-, 10-, and 100-year 24-hour storms with respective 2.8, 4.2, and 7.3-inch rainfall depths with MSCWMO approved time distribution based on Atlas 14 for existing and proposed conditions. The runoff curve number for existing agriculture areas shall be less than or equal to the developed condition curve number. The newly developed or redeveloped peak rate shall not exceed the existing peak rate of runoff for all critical duration events, up to and including the 100-year return frequency storm event for all points where discharges leave a site during all phases of development.
- Predevelopment conditions assume "good hydrologic conditions" for appropriate land covers as identified in TR-55 or an equivalent methodology. Runoff curve numbers have been increased where predevelopment land cover is cropland:
  - Hydrologic Soil Group A: Runoff Curve Number 56
  - Hydrologic Soil Group B: Runoff Curve Number 70
  - Hydrologic Soil Group C: Runoff Curve Number 79
  - Hydrologic Soil Group D: Runoff Curve Number 83

Computer modeling analyses includes secondary overflows for events exceeding the storm sewer systems level-of-service up through the critical 100-year event.

**NA** In sub-areas of a landlocked watershed, the proposed project does not increase the predevelopment volume or rate of discharge from the sub-area for the 10-year return period event. **NA**

**NA** Flowage easements up to the 100-yr flood level have been secured for stormwater management facilities (such as ditches and storm sewers).

**NA** Lowest floor elevations of structures built adjacent to stormwater management features and other water bodies are a minimum of two feet above the 100-year flood elevation and a minimum of two feet above the natural overflow of landlocked basins.

***Volume Control Standards***

Calculations/computer model results indicate stormwater volume is controlled for new development and redevelopment requirements per the MSCWMO Design Standards.

1. New Nonlinear Development 1.1" \* new impervious surfaces
2. Reconstruction/Redevelopment Projects 1.1" \* reconstructed impervious surfaces
3. Linear Projects 0.55" \* new and/or fully reconstructed impervious surface and 1.1" from net increase in impervious area
4. Sites with Restrictions- flexible treatment options documentation has been provided.

Volume Retention Required (cu. ft.)		Volume Retention Provided (cu. ft.)	
10,454 sf * 1.1 = 958 cu. ft.		Depression 2,000 cf	
<b>Total Required</b>	<b>958 cu. ft.</b>	<b>Total Provided</b>	<b>2,000 cu. ft.</b>

***Flexible Treatment Options (when applicable)***

**NA** Applicant demonstrated qualifying restrictions as defined in Section 7.2.2 (4) of the 2015 MSCWMO Watershed Management Plan that prohibits the infiltration of the entire required volume.

**NA** MIDS calculator submission demonstrates removal of 60% of the annual total phosphorous.

***Infiltration/Filtration Design Standards***

Proposed stormwater management features meet or exceed NPDES General Construction Permit requirements are designed in conformance with the most recent edition of the State of Minnesota Stormwater Manual.

None of the following conditions exist that prohibit infiltration of stormwater on the site  
 a. Areas where vehicle fueling and maintenance occur.

- b. Areas with less than three (3) feet of separation distance from the bottom of the infiltration system to the elevation of the seasonally saturated soils or the top of bedrock.
- c. Areas where industrial facilities are not authorized to infiltrate industrial stormwater under an National Pollutant Discharge Elimination System (NPDES)/State Disposal System (SDS) Industrial Stormwater Permit issued by the MPCA.
- d. Areas where contaminants in soil or groundwater will be mobilized by infiltrating stormwater.
- e. Areas of Hydrologic Soil Group D (clay) soils
- f. Areas within 1,000 feet up-gradient, or 100 feet down-gradient of active karst features unless allowed by a local unit of government with a current MS4 permit.

Minimum setbacks from the Minnesota Department of Health for infiltration practices are met

Setback	Minimum Distance (ft.)
Property line	10
Building foundation*	10
Private well	35
Public water supply well	50
Septic system tank/leach field	35
*Minimum with slopes directed away from the building	

Pretreatment device(s) remove at least 50% of sediment loads. If downstream from a potential hot spot, a skimmer is in place to facilitate cleanup.

Water quality volume will be discharged through infiltration or filtration media in 48 hours or less.

- a. For bioretention (biofiltration and bioinfiltration) volume control management facilities above ground with vegetation the period of inundation shall be calculated using the maximum water depth below the surface discharge elevation and the soil infiltration rate. The maximum water depth for bioretention stormwater volume is 1.5”
- b. For infiltration basin volume control management facilities the period of inundation shall be calculated using the maximum water depth below the surface discharge elevation and the soil infiltration rate. The maximum water depth for infiltration basin volume control management facilities above ground with vegetation is 4.0 feet.

Appropriate soil borings have been conducted that meet the minimum standards.

- a. A minimum of one boring was conducted at the location of the infiltration facility for facilities up to 1,000 ft<sup>2</sup>; between 1,000 and 5,000 ft<sup>2</sup>, two borings, between 5,000 and 10,000 ft<sup>2</sup>, three borings and greater than 10,000 ft<sup>2</sup> 4 borings plus an additional boring for every 2,500 ft<sup>2</sup> beyond 12,500 ft<sup>2</sup>
- b. Soil borings extend a minimum of five feet below the bottom of the infiltration practice. If fractured bedrock is suspected, the soil boring goes to a depth of at least ten feet below the proposed bottom of the volume control facility.
- c. A minimum of three feet of separation to the seasonal water table and/or bedrock.
- d. Identify unified soil classification.

The least permeable soils horizon identified in the soil boring dictated the infiltration rate. **Soil map indicated d soil, soil boring lists fill**

Additional flows are bypassed and are routed through stabilized discharge points.

**NA** Filtration basin demonstrates a basin draw down between 24 hours and 48 hours.

**NA** Filtration system designed to remove at least 80% of total suspended solids **NA**

**NA** Filtration system Iron Enhanced Sand Filter is sized to bind soluble phosphorous removal for 30 year functional life of the system using the published value of 17lbs.phosphorous removal per 20 yards of 5% by weight iron filings to 95% sand. **NA**

Construction plans provide adequate construction guidance to prevent clogging or compaction and demonstrate performance.

- a. Excavation within 2.0 feet of final grade for infiltration/filtration systems is prohibited until contributing drainage areas are constructed and fully stabilized.
- b. Rigorous sediment and erosion controls planned to divert runoff away from the system.
- c. Installation of volume control facilities must occur in dry soil conditions. Excavation, soil placement and rapid stabilization of perimeter slopes must be accomplished prior to the next precipitation event.
- d. Excavation shall be performed by an excavator with a toothed bucket. Use excavator bucket to place materials. Construction equipment shall not be allowed into the basin.
- e. Prior to the release of any remaining fee or security, the permit holder must provide documentation that constructed volume control facilities perform as designed.

There is a way to visually verify the system is operating as designed.

A minimum 8.0' maintenance access is provided to all stormwater facilities.

## **WETLAND PERFORMANCE STANDARDS**

**NA** Direct discharge of stormwater to wetlands and all other water bodies without water quality treatment is prohibited. **NA**

**NA** Any potential changes to the hydrology of the wetland (i.e. changes to the outlet elevation or contributing drainage area) must be reviewed to evaluate the impact of both the existing and proposed wetland conditions and approved by the MSCWMO. **NA**

**NA** Land-altering activities shall not increase the bounce in water level or duration of inundation from a 2.0-inch 24-hour storm for any downstream wetland beyond the limit specified in Table 7.2 for the individual wetland susceptibility class. **NA**

**RECOMMENDATION:** Approve

**65**

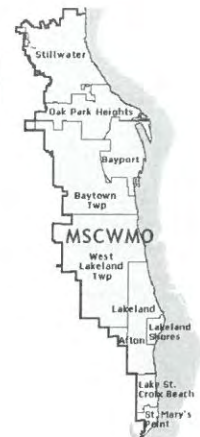
**Middle St. Croix Watershed Management Organization**

MEMBER COMMUNITIES:

Afton, Bayport, Baytown Township, Lakeland, Lakeland Shores, Lake St. Croix Beach, Oak Park Heights, St. Mary's Point, Stillwater and West Lakeland Township

# MIDDLE ST. CROIX WATERSHED MANAGEMENT ORGANIZATION

455 HAYWARD AVENUE OAKDALE, MINNESOTA 55128  
Phone 651.330.8220 x22 fax 651.330.7747 www.mscwmo.org



March 14, 2017

Sandie Thone, City Administrator  
Lakeland Shores  
P.O. Box 246  
Lakeland, MN 55043

RE: 195 Lakeland Shores Rd. N.

Dear Ms. Thone,

The Middle St. Croix Watershed Management Organization (MSCWMO) received required submittal items on March 14, 2017 for the proposed 195 Lakeland Shores Rd. N., located within MSCWMO boundaries and in the City of Lakeland Shores. The proposed project qualifies for full review under the MSCWMO 2015 Watershed Management Plan (WMP).

The project, as proposed, contains sufficient information to determine conformance with the Policies and Performance Standards contained within Section 7.0 of the 2015 MSCWMO Watershed Management Plan.

The MSCWMO staff recommends approval of this project with the following two conditions:

1. Submit confirmation for the infiltration area bottom separation from bedrock or groundwater table with a soil boring or test pit.
2. Amend plans to add a note to install the infiltration basin in dry soil conditions.

The MSCWMO Board will consider this application at the April 13, 2017 regular meeting.

The enclosed checklists contain detailed information on project review qualification and the policies and performance standards of the WMP. MSCWMO review process information can be downloaded from [www.mscwmo.org](http://www.mscwmo.org). Feel free to contact me at 651-330-8220 x21 or [jlandini@mnwcd.org](mailto:jlandini@mnwcd.org) if you have any questions regarding these comments.

Sincerely,

James Landini  
Watershed Engineer  
Middle St. Croix Watershed Management Organization C/O Washington Conservation District

Cc: John Parotti, City Engineer  
Brian Zeller, MSCWMO Board Manager  
Kelly Meyer, JG Hause Construction, Inc.

Enclosures

# MIDDLE ST. CROIX WATERSHED MANAGEMENT ORGANIZATION

455 Hayward Avenue, Oakdale, MN 55128  
Phone 651.330.8220 x22 fax 651.330.7747 www.mscwmo.org



## MSCWMO PROJECT REVIEW

**MSCWMO Project Review ID:** 17-003

**Project Name:** 195 Lakeland Shores

**Applicant:** Tom Brockman

**Purpose:** Residential Construction

**Location:** 195 Lakeland Shores Rd. N.

**Review date:** 3/14/2017

**Recommendation:** Approval with 2 Conditions.

Conditions:

1. Provide a soil sample or dig a test pit to verify 3' separation from infiltration bottom to bedrock or water table.
2. Add a note install the infiltration basin in dry soil conditions.

### **Applicability:**

- Any project undertaking grading, filling, or other land alteration activities that involve movement of 100 cubic yards of earth or removal of vegetation on greater than 10,000 square feet of land
- Any project that creates or fully reconstructs 6,000 square feet or more of impervious surface
- All major subdivisions or minor subdivisions that are part of a common plan of development. Major subdivisions are defined as subdivisions with 4 or more lots.
- Any project with wetland impacts
- Any project with grading within public waters
- Any project with grading within buffers
- Any project with grading within 40-feet ~~67~~ of the bluff line

# MIDDLE ST. CROIX WATERSHED MANAGEMENT ORGANIZATION

4 5 5 H a y w a r d A v e n u e , O a k d a l e , M N 5 5 1 2 8  
P h o n e 6 5 1 . 3 3 0 . 8 2 2 0 x 2 2 f a x 6 5 1 . 3 3 0 . 7 7 4 7 w w w . m s c w m o . o r g



- Development projects that impact 2 or more of the member communities
- New or redevelopment projects within the St. Croix Riverway that require a building permit that adds five hundred (500) square feet or more of additional impervious surface
- Any project requiring a variance from the current local impervious surface zoning requirements for the property
- Any land development activity, regardless of size, that the City determines is likely to cause an adverse impact to an environmentally sensitive area or other property, or may violate any other erosion and sediment control standard set by the member community.

## Required Submittals:

- 1. Review Fee: Single lot residential \$350 fee.
- 2. Grading plan showing grading limits, existing and proposed contours related to NAVD 1988 datum (preferred) or NGVD 1929.
- 3. Location of existing and proposed permanent structures.
- 4. Ordinary High Water (OHW) elevations and location of all existing water bodies.
- 5. Location of all bluff lines.
- 6. Lowest floor elevations of structures built adjacent to stormwater management features and other water bodies must be a minimum of two feet above the 100-year flood elevation.
- 7. Delineation of existing wetland, shoreland, ordinary high water levels, drain tiling, and floodplain areas.
- 8. Details of proposed buffer upslope of water resources including size and vegetation characteristics (when applicable). **Not Applicable - existing 100' buffer preserved**
- 9. Erosion/sediment control plan demonstrating locations, specifications, and details of the following items:
  - A. Erosion Prevention
    - i. Stabilize all exposed soil areas (including stockpiles) with temporary erosion control (seed and mulch or blanket) within 7 days after





construction activities in the area have temporarily or permanently ceased.

- ii. Identify location, type and quantity of temporary erosion prevention practices.
- iii. Identify permanent vegetation.

## B. Sediment Control

- i. Sediment control practices will be placed down-gradient before up-gradient land disturbing activities begin.
- ii. Identify the location, type and quantity of sediment control practices.
- iii. Vehicle tracking practices must be in place to minimize track out of sediment from the construction site. Streets must be cleaned if tracking practices are not adequate to prevent sediment from being tracked onto the street.

## C. Inspections and Maintenance

- i. Applicant must inspect all erosion prevention and sediment control practices once every 7 days or after a ½" rain event to ensure integrity and effectiveness. All nonfunctional practices must be repaired, replaced or enhanced the next business day after discovery.
- ii. Plans shall include contact information including email and a phone number of the person responsible for inspection and compliance with erosion and sediment control.

## D. Pollution Prevention

- i. Solid waste must be stored, collected and disposed of in accordance with state law.
- ii. Provide effective containment for all liquid and solid wastes generated by washout operations (concrete, stucco, paint, form release oils, curing compounds).
- iii. Hazardous materials that have potential to leach pollutants must be under cover to minimize contact with stormwater.

## E. Final Stabilization

- i. For residential construction only, individual lots are considered final stabilized if the structures are finished and temporary erosion protection and downgradient sediment control has been completed.
- ii. Grading and landscape plans shall include soil tillage and soil bed preparation methods that are employed prior to landscape installation to a minimum depth of 8" and incorporate amendments to meet Minnesota State Stormwater Manual predevelopment soil type bulk densities.

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- iii. Observe minimum setbacks for areas within the dripline of existing trees over utilities within 30 in of the surface, where compaction is required by design and inaccessible slopes.

10. Details of proposed structural stormwater practices (Meets Minnesota Stormwater Manual guidelines) **Address underlined items.**

- A. Stormwater flows are diverted away from bluffs whenever feasible.
- B. Volume control facilities must drain down within 48 hours, as required by the MPCA NPDES Construction Stormwater Permit.
  - i. The period of inundation shall be calculated using the maximum water depth below the surface discharge elevation and the soil infiltration rate.
- C. The maximum water depth for volume control facilities is 1.5 feet.
- D. Planting plan identified vegetation suitable for the hydrology of the basin.
- E. Separation from seasonally saturated soils or bedrock is 3 feet or more for bioretention and infiltration practices.
- F. Volume control facilities meet the following setback requirements:

<b>Setback</b>	<b>Minimum Distance (ft)</b>
<i>Property line</i>	10
<i>Building foundation*</i>	10
<i>Private well</i>	50
<i>Public water supply well</i>	50
<i>Septic system tank/leach field</i>	35
<i>*Minimum with slopes directed away from the building</i>	

- G. Volume control is provided for the first 1.1" inch of runoff for all new & reconstructed impervious:

Volume Retention Required (cu. ft.)	Volume Retention Provided (cu. ft.)
4400 sf * 1.1" = 403 cf 403 cf total required	<b>BMP #1 Volume = 518</b>  <b>Total = 518</b>

H. Construction Standards

- i. To prevent soil compaction, the proposed volume control facility must be staked off and marked during construction to prevent heavy equipment and traffic from traveling over it.
- ii. Facilities may not be excavated within 2.0 feet of final grade until the contributing drainage area has been constructed and fully stabilized.

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4 5 5 H a y w a r d A v e n u e , O a k d a l e , M N 5 5 1 2 8  
P h o n e 6 5 1 . 3 3 0 . 8 2 2 0 x 2 2 f a x 6 5 1 . 3 3 0 . 7 7 4 7 w w w . m s c w m o . o r g



- iii. Facilities are in-place during construction activities, all sediment and runoff must be diverted away the facility, using practices such as pipe capping or diversions.
- iv. Facilities installation must occur in dry soil conditions. Excavation, soil placement and rapid stabilization of perimeter slopes must be accomplished prior to the next precipitation event.
- v. Excavation shall be performed by an excavator with a toothed bucket. Use excavator bucket to place materials. Construction equipment shall not be allowed into the basin.
- vi. Prior to the release of any remaining fee or security, the owner must provide documentation that constructed volume control facilities perform as designed.

### I. Details

- i. Include a standard cross section of the infiltration device similar to those identified in the Minnesota Stormwater Manual  
[http://stormwater.pca.state.mn.us/index.php/Bioretention\\_plan\\_and\\_section\\_drawings](http://stormwater.pca.state.mn.us/index.php/Bioretention_plan_and_section_drawings)
- ii. The cross section must detail the infiltration media used in the device. Typically, devices use Mix B as described in the Minnesota Stormwater Manual: A well-blended, homogenous mixture of 70 to 85 percent washed construction sand; and 15 to 30 percent [MnDOT Grade 2 compost](#) .

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April 13, 2017

Nancy Healey  
Baytown Township  
4020 McDonald Dr.  
Stillwater, MN 55082

RE: St. Croix Preparatory Academy Athletic Fields Construction

Dear Ms. Healey,

The Middle St. Croix Watershed Management Organization (MSCWMO) received required submittal items on March 23, 2017 and revised submittals on February 24, 2017 for the proposed St. Croix Preparatory Academy Athletic Fields Construction, located at 4260 Stagecoach Trail North, within MSCWMO boundaries and in the Township of Baytown. The proposed project qualifies for full review under the MSCWMO 2015 Watershed Management Plan (WMP).

The project, as revised, provides sufficient information to determine compliance with applicable Performance Standards contained within Section 7.0 of the 2015 MSCWMO WMP.

The MSCWMO recommends approval with the following conditions:

1. Add the following components to the SWPPP
  - a. Identify the knowledgeable person to oversee the implementation of the SWPPP including inspections and certification.
  - b. Identify the location and specify the securing of portable toilets.
  - c. Describe the procedure to amend the SWPPP.
2. Add methods to reduce the risk of infiltration basin impacts during construction
3. Add infiltration basin testing and restoration procedures at the end of construction to ensure the basin still functions or guidance to restore infiltration prior to final acceptance.
4. Identify the natural overflow elevation of the basin.
5. Submit dedications and maintenance agreement.

The enclosed checklist contains detailed information on project review qualification and the policies and performance standards of the WMP. MSCWMO review process information can be downloaded from [www.mscwmo.org](http://www.mscwmo.org). Feel free to contact me at 651-330-8220 x22 or [misensee@mnwcd.org](mailto:misensee@mnwcd.org) if you have any questions regarding these comments.

Sincerely,

Mikael Isensee  
Administrator  
Middle St. Croix Watershed Management Organization

CC:  
John Fellego, Baytown Township MSCWMO Board Member  
Sherri Buss, Baytown Township Planner, TKDA, 444 Cedar St. Suite 1500, St. Paul, MN 55101-2140

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## PROJECT REVIEW

**MSCWMO Project Review ID:** 17-04

**Project Name:** St. Croix Preparatory Academy Athletic Fields Construction

**Applicant:** Friends of St. Croix Preparatory Academy

**Purpose:** Construction of 3 athletic fields, a building and a courtyard

**Location:** 4250 Stagecoach Trail North, Baytown Township

**Review date:** 4/2/2017

**Recommendation:** Conditional Approval

### Additional Notes:

1. Add the following components to the SWPPP
  - a. Identify the knowledgeable person to oversee the implementation of the SWPPP including inspections and certification.
  - b. Identify the location and specify the securing of portable toilets.
  - c. Describe the procedure to amend the SWPPP.
2. Add methods to reduce the risk of infiltration basin impacts during construction
3. Add infiltration basin testing and restoration procedures at the end of construction to ensure the basin still functions or guidance to restore infiltration prior to final acceptance.
4. Identify the natural overflow elevation of the basin.
5. Submit dedications and maintenance agreement.

### Applicability:

- Any project undertaking grading, filling, or other land alteration activities that involve movement of 100 cubic yards of earth or removal of vegetation on greater than 10,000 square feet of land
- Any project that creates or fully reconstructs 6,000 square feet or more of impervious surface
- All major subdivisions or minor subdivisions that are part of a common plan of development. Major subdivisions are defined as subdivisions with 4 or more lots.
- Any project with wetland impacts
- Any project with grading within public waters
- Any project with grading within buffers

- Any project with grading within 40-feet of the bluff line
- Development projects that impact 2 or more of the member communities
- New or redevelopment projects within the St. Croix Riverway that require a building permit that adds five hundred (500) square feet or more of additional impervious surface
- Any project requiring a variance from the current local impervious surface zoning requirements for the property
- Any land development activity, regardless of size, that the City determines is likely to cause an adverse impact to an environmentally sensitive area or other property, or may violate any other erosion and sediment control standard set by the member community.

**SUBMITTAL ITEMS:**

Electronic submittals are highly encouraged

- A completed and signed project review application form and review fee
- Grading Plan/Mapping Exhibits
  - a. Property lines and delineation of lands under ownership of the applicant.
  - b. Delineation of existing on-site wetlands, shoreland and/or floodplain areas (including any buffers).
  - c. Ordinary High Water (OHW) elevations and datum, as determined by the MDNR (if applicable).
  - d. Existing and proposed site contour elevations related to NAVD 1988 datum (preferred) or NGVD, 1929. Datum must be noted on exhibits.
  - e. Drainage easements covering land adjacent to ponding areas, wetlands, and waterways up to their 100-year flood levels and covering all ditches and storm sewers. Access easements to these drainage easements and to other stormwater management facilities shall also be shown.
  - f. Minimum building elevation for each lot.
  - g. Identification of downstream water body.
- Permanent Stormwater Management System in compliance with the requirements of the NPDES SDS Construction Stormwater Permit and MSCWMO Performance Standards.
  - a. Impervious areas (Pre- and Post-Construction).
  - b. Construction plans and specifications for all proposed stormwater management facilities.
  - c. Location(s) of past, current or future onsite well and septic systems (if applicable).
- Other exhibits required to show conformance to these Performance Standards
- A Stormwater Pollution Prevention Plan in **compliance** with the requirements of the NPDES SDS Construction Stormwater Permit

- Grading Plan/Mapping Exhibits:
  - a. Delineation of the subwatersheds contributing runoff from off-site, proposed and existing on-site subwatersheds, and flow directions/patterns.
  - b. Location, alignment, and elevation of proposed and existing stormwater facilities.
  - c. Existing and proposed normal water elevations and the critical (the highest) water level produced from the 100-year 24-hour storms.
  - d. Location of the 100-year flood elevation, **natural overflow elevation**, and lowest floor elevations.
  
- Hydrologic/Hydraulic Design Exhibits:
  - a. All hydrologic and hydraulic computations completed to design the proposed stormwater management facilities shall be submitted. Model summaries must be submitted. The summaries shall include a map that corresponds to the drainage areas in the model and all other information used to develop the model.
  - b. A table (or tables) must be submitted showing the following:
    - i. A listing of all points where runoff leaves the site and the existing and proposed stormwater runoff rates and volumes.
    - ii. A listing of the normal water levels under existing and proposed conditions and the water levels produced from the storm and runoff events listed above for all on-site wetlands, ponds, depressions, lakes, streams, and creeks.
  
- Dedications or easements for the portions of the** property which are adjacent to the facility and which lie below the 100 year flood level. For sites within public right-of-way, no easement is required.
  
- A proposed **maintenance agreement**, which may be in the format of Appendix K, or other form approved by the city or township.

## HISTORY & CONSIDERATIONS:

## SPECIAL OR IMPAIRED WATER

- This site drains to, and is within one mile of special or impaired water and complies with enhanced protections.
  - a. Scenic or Recreational river C.1., C.2., C.3.
  - b. Scientific and Natural area C.1., C.2., C.3.
  - c. Waterbody with a TMDL C.1., C.2.
    - C.1. Stabilization initiated immediately and all soils protected in seven days/provide temp basin for five acres draining to common location.
    - C.2. Treat water quality volume of one inch of runoff by retaining on site unless not feasible due to site conditions (See Part III.D.1. design requirements).

C.3. Maintain buffer zone of 100 linear feet from Special Water. *3700 ft ecoli tmdl*

**EROSION AND SEDIMENT CONTROL** [*A checked box indicates compliance*]

- A Stormwater Pollution Prevention Plan (SWPPP) that meets the National Pollutant Discharge Elimination System (NPDES) requirements.

*Narrative*

- Identify the person knowledgeable and experienced who will oversee the implementation of the SWPPP; the installation, inspection, and maintenance of the BMPs.
- a. Identifies the person who will oversee the BMP inspection and maintenance.
  - b. Identify the training requirements are satisfied.
  - c. Inspections performed once every 7 days.
  - d. Inspections performed within 24 hours of a rain event greater than 0.5 in/24 hours.
  - e. Inspection and Maintenance records include:
    - i. Date and time of inspection.
    - ii. Name of person(s) conducting inspections.
    - iii. Finding of inspections, including the specific location where corrective actions are needed.
    - iv. Corrective actions taken (including dates, times, and party completing maintenance activities).
    - v. Date and amount of rainfall events greater than 0.5 in/24 hours.
    - vi. Rainfall amounts must be obtained by a properly maintained rain gauge installed onsite, or by a weather station that is within one mile or by a weather reporting system.
    - vii. Requirements to observe, describe, and photograph any discharge that may be occurring during the inspection.
    - viii. All discovered nonfunctional BMPs must be repaired, replaced, or supplemented with functional BMPs within 24 hours after discovery, or as soon as field conditions allow.
- Describes procedures to amend the SWPPP and establish additional temporary ESC BMPs as necessary for site conditions.
- Describes the installation timing for all Erosion Sediment Control (ESC) Best Management Practices (BMPs).
- Describes final stabilization methods for all exposed areas.
- Methods used to minimize soil compaction and preserve topsoil must be described.
- NA Describes dewatering technique to prevent nuisance conditions, erosion, or inundation of wetlands?
- NA Identifies any specific chemicals and the chemical treatment systems that may be used for enhancing the sedimentation process on the site, and how compliance will be achieved with the permit requirements.
- Describes pollution prevention management measures



- a. Storage, handling, and disposal of construction products, materials, and wastes.
- b. Fueling and maintenance of equipment or vehicles; spill prevention and response.
- c. Vehicle and equipment washing.
- d. No engine degreasing allowed on site.
- e. Containment of Concrete and other washout waste.
- f. **Portable toilets are positioned so that they are secure.**

*Plan sheets*

*NA Temporary Sediment Basins required (10 acres draining to common location or 5 acres App. A)  
Basin design meets the following criteria:*

- a. Adequately sized – 2-year, 24-hour storm, minimum 1,800 feet/acre; or no calculative minimum 3,600ft<sup>3</sup>/acre.
- b. Designed to prevent short circuiting.
- c. Outlets designed to remove floating debris.
- d. Outlets designed to allow complete drawdown.
- e. Outlets designed to withdraw water from the surface
- f. Outlets have energy dissipation.
- g. Have a stabilized emergency spillway.
- h. Situated outside of surface waters and any natural buffers.
- Locations and types of all temporary and permanent Erosion Control BMPs.
  - a. Exposed soils have erosion protection/cover initiated immediately and finished within 7 days.
  - b. Wetted perimeters of ditches stabilized within 200 feet of surface water within 24 hours.
  - c. Pipe outlets have energy dissipation within 24 hours of connecting.
- Locations and types of all temporary and permanent Sediment Control BMPs.
  - a. Sediment control practices established on down gradient perimeters and upgradient of any buffer zones.
  - b. All inlets are protected.
  - c. Stockpiles have sediment control and placed in areas away from surface waters or natural buffers.
  - d. Construction site entrances minimize street tracking?
  - e. Plans minimize soil compaction and, unless infeasible to preserve topsoil.

f. 50 foot natural buffers preserved or (if not feasible) provide redundant sediment controls when a surface water is located within 50 feet of the project's earth disturbances and drains to the surface water.

- Tabulated quantities of all erosion prevention and sediment control BMPs.**
- Stormwater flow directions and surface water divides for all pre- and post-construction drainage areas.
- NA Locations of areas not to be disturbed (buffer zones).
- NA Location of areas where construction will be phased to minimize duration of exposed soil areas.
- NA *Blufflines are protected from construction activities in urban (40 foot buffer) areas and rural areas (100-foot buffer).*

### **LAKE, STREAM AND WETLAND BUFFERS**

- NA A buffer zone of unmowed natural vegetation is maintained or created upslope of all water bodies (wetlands, streams, lakes).
- NA A 50 foot natural buffer or (if a buffer is infeasible) provide redundant sediment controls when a surface water is located within 50 feet of the project's earth disturbances and stormwater flows to the surface water.
- NA If adjacent to a Special or Impaired Water an undisturbed buffer zone of not less than 100 linear feet from the special water is maintained both during construction and as a permanent feature post construction.

### **STORMWATER MANAGEMENT** [A checked box indicates compliance]

- Water quality treatment is provided prior to direct discharge of stormwater to wetlands and all other water bodies.

### ***Rate and Flood Control Standards***

- The peak rate of stormwater runoff from a newly developed or redeveloped site shall not exceed the 2-, 10-, and 100-year 24-hour storms with respective 2.8, 4.2, and 7.3-inch rainfall depths with MSCWMO approved time distribution based on Atlas 14 for existing and proposed conditions. The runoff curve number for existing agriculture areas shall be less than or equal to the developed condition curve number. The newly developed or redeveloped peak rate shall not exceed the existing peak rate of runoff for all critical duration events, up to and including the 100-year return frequency storm event for all points where discharges leave a site during all phases of development.
- Predevelopment conditions assume "good hydrologic conditions" for appropriate land covers as identified in TR-55 or an equivalent methodology. Runoff curve numbers have been increased where predevelopment land cover is cropland:
  - Hydrologic Soil Group A: Runoff Curve Number 56
  - Hydrologic Soil Group B: Runoff Curve Number 70
  - Hydrologic Soil Group C: Runoff Curve Number 79
  - Hydrologic Soil Group D: Runoff Curve Number 83

Computer modeling analyses includes secondary overflows for events exceeding the storm sewer systems level-of-service up through the critical 100-year event.

NA In sub-areas of a landlocked watershed, the proposed project does not increase the predevelopment volume or rate of discharge from the sub-area for the 10-year return period event.

Flowage easements up to the 100-yr flood level have been secured for stormwater management facilities (such as ditches and storm sewers).

Lowest floor elevations of structures built adjacent to stormwater management features and other water bodies are a minimum of two feet above the 100-year flood elevation and a minimum of two feet above the natural overflow of landlocked basins.

**Volume Control Standards**

Calculations/computer model results indicate stormwater volume is controlled for new development and redevelopment requirements per the MSCWMO Design Standards.

1. New Nonlinear Development 1.1" \* new impervious surfaces
2. Reconstruction/Redevelopment Projects 1.1" \* reconstructed impervious surfaces
3. Linear Projects 0.55" \* new and/or fully reconstructed impervious surface and 1.1" from net increase in impervious area
4. Sites with Restrictions- flexible treatment options documentation has been provided.

E=259766, f=129321, P=429786 new 170020 all sf  
E=23811, P=39397, new 15585 all cf  
Provided 47210 cf

Volume Retention Required (cu. ft.)		Volume Retention Provided (cu. ft.)	
Previous		<b>BMP</b>	<b>Volume</b>
New 170,020 sf *1.1" = 15,585 cu. ft.		Inf 1	47,210
<b>Total Required</b>	<b>15,585 cu. ft.</b>	2008 permit used 23,811 2017 permit uses 15,585 Future capacity 7,814 cf	
		<b>Total Proposed</b>	<b>0 cu.ft.</b>

**Flexible Treatment Options (when applicable)**

NA Applicant demonstrated qualifying restrictions as defined in Section 7.2.2 (4) of the 2015 MSCWMO Watershed Management Plan that prohibits the infiltration of the entire required volume.

NA MIDS calculator submission demonstrates retention of 0.55" of runoff from the proposed impervious surfaces and removes 75% of the annual total phosphorous.

**Infiltration/Filtration Design Standards**

- Proposed stormwater management features meet or exceed NPDES General Construction Permit requirements are designed in conformance with the most recent edition of the State of Minnesota Stormwater Manual.
- None of the following conditions exist that prohibit infiltration of stormwater on the site
  - a. Areas where vehicle fueling and maintenance occur.
  - b. Areas with less than three (3) feet of separation distance from the bottom of the infiltration system to the elevation of the seasonally saturated soils or the top of bedrock.
  - c. Areas where industrial facilities are not authorized to infiltrate industrial stormwater under an National Pollutant Discharge Elimination System (NPDES)/State Disposal System (SDS) Industrial Stormwater Permit issued by the MPCA.
  - d. Areas where contaminants in soil or groundwater will be mobilized by infiltrating stormwater.
  - e. Areas of Hydrologic Soil Group D (clay) soils
  - f. Areas within 1,000 feet up-gradient, or 100 feet down-gradient of active karst features unless allowed by a local unit of government with a current MS4 permit.

Minimum setbacks from the Minnesota Department of Health for infiltration practices are met

<b>Setback</b>	<b>Minimum Distance (ft)</b>
Property line	10
Building foundation*	10
Private well	35
Public water supply well	50
Septic system tank/leach field	35
*Minimum with slopes directed away from the building	

- Pretreatment devices(s) remove at least 50% of sediment loads. If downstream from a potential hot spot, a skimmer is in place to facilitate cleanup.
- Water quality volume will be discharged through infiltration or filtration media in 48 hours or less.
  - a. For bioretention (biofiltration and bioinfiltration) volume control management facilities above ground with vegetation the period of inundation shall be calculated using the maximum water depth below the surface discharge elevation and the soil infiltration rate.
  - b. For infiltration basin volume control management facilities the period of inundation shall be calculated using the maximum water depth below the surface discharge elevation and the soil infiltration rate.
- Appropriate soil borings have been conducted that meet the minimum standards.
  - a. A minimum of one boring was conducted at the location of the infiltration facility for facilities up to 1,000 ft<sup>2</sup>; between 1,000 and 5,000 ft<sup>2</sup>, two borings, between 5,000 and 10,000 ft<sup>2</sup>, three borings and greater than 10,000 ft<sup>2</sup> 4 borings plus an additional boring for every 2,500 ft<sup>2</sup> beyond 12,500 ft<sup>2</sup>

- b. Soil borings extend a minimum of five feet below the bottom of the infiltration practice. If fractured bedrock is suspected, the soil boring goes to a depth of at least ten feet below the proposed bottom of the volume control facility.
- c. A minimum of three feet of separation to the seasonal water table and/or bedrock.
- d. Identify unified soil classification.

The least permeable soils horizon identified in the soil boring dictated the infiltration rate.

Additional flows are bypassed and are routed through stabilized discharge points.

NA Filtration basin demonstrates a basin draw down between 24 hours and 48 hours.

NA Filtration system designed to remove at least 80% of total suspended solids

NA Filtration system Iron Enhanced Sand Filter is sized to bind soluble phosphorous removal for 30 year functional life of the system using the published value of 17lbs.phosphorous removal per 20 yards of 5% by weight iron filings to 95% sand.

Construction plans provide adequate construction guidance to prevent clogging or compaction and demonstrate performance.

- a. Excavation within 2.0 feet of final grade for infiltration/filtration systems is prohibited until contributing drainage areas are constructed and fully stabilized.
- b. Rigorous sediment and erosion controls planned to divert runoff away from the system.
- c. Installation of volume control facilities must occur in dry soil conditions. Excavation, soil placement and rapid stabilization of perimeter slopes must be accomplished prior to the next precipitation event.
- d. Excavation shall be performed by an excavator with a toothed bucket. Use excavator bucket to place materials. Construction equipment shall not be allowed into the basin.
- e. Prior to the release of any remaining fee or security, the permit holder must provide documentation that constructed volume control facilities perform as designed.

There is a way to visually verify the system is operating as designed.

A minimum 8.0' maintenance access is provided to all stormwater facilities.

## **WETLAND PERFORMANCE STANDARDS**

NA Direct discharge of stormwater to wetlands and all other water bodies without water quality treatment is prohibited.

NA Any potential changes to the hydrology of the wetland (i.e. changes to the outlet elevation or contributing drainage area) must be reviewed to evaluate the impact of both the existing and proposed wetland conditions and approved by the MSCWMO.

NA Land-altering activities shall not increase the bounce in water level or duration of inundation from a 2.0-inch 24-hour storm for any downstream wetland beyond the limit specified in Table 7.2 for the individual wetland susceptibility class.

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## Administrator's Report- April 2017

### Project Applications

- 195 Lakeland Shores, Lakeland
- St. Croix Prep Athletic Fields, Bayport
- Cover Park Improvements, Oak Park Heights
- 2017 Bayport Street Improvements, Bayport

### MSCWMO Community Technical Assistance

- Stillwater 2017 Streets Water Quality Practices
- Bayport 2017 Streets Water Quality Practices
- Lakeland Grant Administration Assistance
- Lake St. Croix Beach Grant Administration Assistance

### Landowner Technical Assistance

- Andersen Windows Water Quality Improvement Retrofit Project Planning

### Administration

- 2016 Audit
- Clean Water Fund Work Plans and Annual Reporting
- 2016 Water Monitoring Report
- 2017 Day at the Legislature

### Managing Existing Projects

#### **COMPLETING IN 2017! St. Croix Watershed Improvement St. Croix River Assoc. Grant**

**Description:** \$40,000 grant from St. Croix River Association with a goal to monitor phosphorous discharge to target the location for future phosphorous reduction best management practices (2015-2017).

**Activities This Month:** Monitoring Equipment Installation

#### **COMPLETING IN 2017! Lake St. Croix Direct Discharge Clean Water Fund Grant**

**Description:** \$142,000 grant for stormwater quality improvements in Oak Park Heights, Stillwater and Bayport (2014-2017).

**Activities This Month:** Stillwater School District awarded the Junior High Schools Bioretention Basin project to Miller Excavating for \$108,XXX. Installation will begin in July 2017.

#### **COMPLETING IN 2017! Lily Lake Phase III Clean Water Fund Grant**

**Description:** \$109,000 for stormwater quality improvements for areas discharging to Lily Lake (2014-2017)

**Activities This Month:** Stillwater School District awarded the Greeley Gully Stabilization project to Miller excavating for \$99,XX83 Installation will begin in May, 2017.

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### **South Lake St. Croix Direct Discharge Subwatershed Analysis Grant**

**Description:** \$10,000 grant to investigate and prioritize water quality improvement projects in the South MSCWMO (2016).

**Activities This Month:** None.

### **Lake St. Croix Direct Discharge Phase II Clean Water Fund Grant**

**Description:** \$151,000 grant for stormwater quality improvements in Oak Park Heights, Stillwater and Bayport (2015-2018).

**Activities This Month:** Completed plans for cub cut raingardens at St. Mary's Church and Stillwater Junior High School. Conducted initial planning meeting for stormwater quality project designs at Andersen Windows in Bayport.

### **NEW! Lily Final 45 Clean Water Fund Grant**

**Description:** \$58,000 grant to investigate, prioritize, and design stormwater quality improvement projects to achieve the final 45 lbs. annual phosphorous load reduction required to restore Lily Lake.

**Activities This Month:** Completed work plan.

### **NEW! Perro Creek Water Quality Improvement Clean Water Fund Grant**

**Description:** \$63,000 grant to implement the Perro Creek water quality improvement projects identified in the Perro Creek Subwatershed Assessment.

**Activities This Month:** Completed work plan.

### **Meetings**

- Board of Soil and Water Resources Performance Based Watershed Funding
- Minnesota Stormwater Research Council
- St. Croix River Association Zoning Administration Riverway Resources Meeting