

**VLAWMO TECHNICAL COMMISSION MEETING**  
**7:30 AM April 10<sup>th</sup>, 2020**

Vadnais Heights City Hall, Lakes Room; Action items: ✎

- I. **Call to Order – 7:30am –Chair Gloria Tessier**
- II. **Approval of Agenda**
- III. **Approval of Minutes (March 13<sup>th</sup>, 2020)**
- IV. **Administration & Operations**
  - A. TEC Report to the Board, Financial Report for April & authorization for payment ✎
  - B. Admin update
- V. **Programs**
  - A. Education & Outreach – Nick
    1. Community Blue: Rainbarrel Outreach with Master Water Steward Katherine ✎
    2. Community Blue: White Bear Center for the Arts amendment ✎
    3. 2019 Annual report, annual report summary, and water monitoring summary
  - B. Cost Share – Landscape Level 1 2020-04: White Dry Creek Bed & Raingarden, NO ✎
- VI. **Projects**
  - A. East Goose Alum Grant Update & Next Steps – Stephanie
  - B. Lambert Lake Update – Dawn
  - C. Carp Project West Vadnais Lake Update – Dawn
  - D. Birch Lake 4<sup>th</sup> & Otter Update
  - E. Birch Lake SLMP Update
- VII. **Commissioner Reports**
- VIII. **NOHOA**
- IX. **Ramsey Soil & Water Conservation Division:**
- X. **St. Paul Regional Water Services**
- XI. **Public Comment**
- XII. **Next Meetings: TEC: May 8<sup>th</sup>, Board Meeting: April 22, 2020**
- XIII. **Adjourn**

**Upcoming Events:** [vlawmo.org/events](http://vlawmo.org/events)

Workshops switched to online:

- Aquatic Invasive Species: April 15
- Raingardens 101: May 6
- Native Plants Close to Home: May 13
- Resilient Yards: June 11



The Vadnais Lake Area Water Management Organization  
800 East County Road E, Vadnais Heights, 55127 651-204-6070  
Website: www.vlawmo.org; Email: office@vlawmo.org

Vadnais Lake Area Water Management Organization  
Technical Commission Minutes  
March 13, 2020  
Vadnais Heights City Hall, Lakes Room

**Commission Members Present:**

Gloria Tessier	Chair, Gem Lake (GL)
Jesse Farrell	Vice Chair, Vadnais Heights (VH)
Bob Larson	Treasurer, North Oaks (NO)
Paul Duxbury	White Bear Township (WBT)
Terry Huntrods	White Bear Lake (WBL)
Andy Nelson	Lino Lakes (LL)

**Commission Members Absent:** none.

**Others in attendance:** Stephanie McNamara, Brian Corcoran, Dawn Tanner, Tyler Thompson (VLAWMO); Jeremy Erickson (SPRWS); Brandon Block (RCSWCD); Connie Tailon (WBL); Kara Ries, Diane Gorder (NO); Katherine Kanne, Ed Shapland (CAC); Paul Gartzke (WBL resident); Melissa King (BWSR)

- I. **Call to Order** Chair Tessier called the meeting to order at 7:29 am.
- II. **Approval of Agenda**  
The agenda for the March 13, 2020 Technical Commission Meeting was presented for approval, as amended to include V. A. 2. Community Blue grant request.  
It was moved by Farrell and seconded by Larson to approve the March 13, 2020 TEC agenda, as amended. Vote: all aye. Motion passed.
- III. **Approval of Minutes**  
It was moved by Farrell and seconded by Larson to approve the February 14, 2020 meeting minutes, as presented. Vote: all aye; Motion passed.
- IV. **Administration & Operations**
  - A. **Financial Report for March & Authorization for Payment**  
McNamara presented the March 2020 Financial Report for review and authorization of payments.  
It was moved by Huntrods and seconded by Larson to approve the March Treasurer's Report and authorization of payments. Vote: all aye. Motion passed.
  - B. **Admin Update**  
McNamara updated that the selection committee is proceeding with the second round of interviews on March 14<sup>th</sup>, where three finalists will meet the Board search committee. It is hoped they will be able to bring a recommendation for Board approval at the Special Board Meeting on March 25<sup>th</sup>. Voss announced McNamara's retirement party March 26<sup>th</sup>.
- V. **Programs**
  - A. **Education & Outreach**
    1. Voss outlined a partial Community Blue application for rain barrels. Katherine Kanne explained that there is an opportunity to buy 15 recycled rain barrels and hold a workshop for implementation, drawing from her own installation experience, and water conservation that would give out the rain barrels, and ensure proper installation. Kanne & Voss are asking permission to purchase these 15 rain barrels, as quantities will not last. Voss is asking for a maximum of \$2,000 to make the rain barrel purchase, coming from the Community Blue grant program, and with any remaining funds, after purchase, going back into the CB grant fund. Voss noted the

application will be scored to the full extent, through the full Community Blue scoring chart.

It was moved by Duxbury and seconded by Farrell to approve up to \$2,000 for purchasing of rain barrels for implementation. Vote: all aye. Motion passed.

**2. Citizen Advisory, Master Water Steward, and Volunteer activities**

Voss presented upcoming 2020 events beginning this spring and going through this summer. Videos for carp management and an example of stream re-meanders were shown.

**B. SLMP – Birch Lake Update**

Staff has been integrating survey data completed in 2019 to update the Birch Lake Sustainable Lake Management Plan (SLMP), and should be completed in March 2020, ahead of its 2021 planned completion. Tanner presented the draft SLMP at the meeting.

**C. Monitoring – Frogs and Toads Story Map**

Tanner presented the Frogs and Toads Story Map, utilizing data and photos collected on amphibians collected in VLAWMO in 2019. A service-learning student is assisting Tanner with final testing, review, and additional elements. Work on a remote camera Story Map has begun and will be available soon. Voss added that that this will be found on the website under the Projects page.

**D. WCA – Weston Woods Mitigation & Escrow Return**

The Weston Woods townhome development, built in 2001, paid an escrow amount of \$8,622 to ensure the original wetland replacement plan and monitoring report. A monitoring report was never received, so the escrow was held. The developer asked for the escrow return in 2019, and VLAWMO hired Kjolhaug Environmental to complete a final completion report, determining that replacement requirements had met the 2001 standards. The developer is requesting the return of escrow funds, less the cost of the final report, totaling \$5,987.

**E. Cost Share – Landscape Level 1 2020-03: Biese Low-Grow Fescue & Filtration**

A Landscape Level 1 grant application was received from a homeowner in North Oaks that has been in consultation with staff for a project featuring grading, filtration and replacement of turf with a low grow fescue mix, for a total replanting area of 9,800 square feet. The proposed project property is on Teal Pond in North Oaks and is directly removing 109,000 gallons per year, .273 lbs TP, and 49.6 lbs of TSS annually, as estimated by MIDs modeling. The total applicable project cost towards grant funding is \$2885, and the applicant is requesting \$2,000.00 in LL1 grant funding. **Staff recommends approval of application LL1 2020-03 in the amount of \$2,000.00.**

It was moved by Huntrods and seconded by Larson for approval of application and funding in the amount of \$2,000.00 for the LL1 2020- 03 grant application. Vote: all aye. Motion passed.

**VI. Projects**

**A. Goose Lake**

**1. WBF Subwatershed BMP Implementation Options**

Barr Engineering has completed feasibility and proposed now 5 projects for an implementation BMP, as part of Watershed Based Funding (WBF) grant funds. The BMP chosen for implementation must achieve 3-6 lbs of TP reduction, annually, as identified in the grant work plan. Barr delivered the fifth BMP option, an iron-enhanced sand filter treating stormwater southwest of East Goose Lake. The cost of the first 4 BMPs exceeded VLAWMO's funding availability in the Goose Lake budget, but the new 5<sup>th</sup> option may be feasible, funding-wise, and will meet the TP removal criteria of the grant. Staff is asking the TEC to discuss and give direction on an implementation BMP.

## 2. East Goose Alum Grant Update & Recommendation for Next Steps

After receiving news that the BWSR Board had scored the East Goose Lake alum grant application the highest of any implementation project, BWSR staff had met with VLAWMO staff to outline newly developed concerns about accepting grant funding for an alum treatment. These concerns have arisen since the latest fish survey in 2019 revealed a dramatic increase in bullhead population, lack of boating restrictions moving forward on the Lake, and lack of community support for an alum treatment, among some homeowners on East Goose Lake. VLAWMO staff asked Barr Engineering to review modeling and provide a Technical Memo to reassess if an alum treatment was still likely to meet grant assurances that would need to be met, otherwise VLAWMO would be financially-liable for meeting these assurances. Barr delivered the Technical Memo the week of the March TEC meeting, giving clarification that an alum treatment will meet grant assurances.

**Discussion:** King overviewed the review committee and how the Goose Alum grant application was reviewed, and cannot consider any content outside the application. She also explained that the management outlook situation for East Goose Lake had changed since the application was written and submitted, including lack of boating restrictions and rough fish population. She outlined that the Board must be willing to sign-on for lake management. The last concern was ill-will of some landowners that make up the stakeholders that make up the Goose Lake area. McNamara stated that the conversation is now determining and having the conversation to figure if the assurances will be able to be met, based on the most recent modeling and technical memorandum provided by Barr Engineering. Farrell asked King if she could speculate on how the application would have ranked if the items that have changed would have been left out of the application. King addressed that it's speculation and about how the project would have scored, as there's no way to know how the application would have looked if submitted differently. She also addressed that grant applications are scored at face value. King outlined that if VLAWMO and its Board are going to choose to go forward with grant funding it will need to be ready to address these issues before a work plan is created. Erickson asked if it has happened in the past that a grantee has not been successful in meeting application goals. King explained that BWSR is concerned with grant funds achieving the goals approved applications have set and auditing requirements showing that CWF monies are achieving these goals. Duxbury asked if Barr will attend the meeting with BWSR to discuss new assurances, and McNamara confirmed this.

### B. Lambert Lake Update

Staff continues to work with SEH and the UMN on design components of the meander and biochar treatment cells. In a meeting with the DNR, it has been determined that an EAW (environmental assessment worksheet) will be required for the meander, but the sheet pile replacement is exempt from the EAW. Staff is beginning work on the EAW and coordinating with SEH.

### C. Carp Project West Vadnais Lake

Staff is working with the Ramsey Washington Metro WD (RWMWD) and Carp Solutions to collaborate on carp management in West Vadnais Lake. This is part of a larger, holistic effort already underway, giving VLAWMO the opportunity to partner with RWMWD without overextending our current budget, and future Watershed Based Funding grant funds may be applicable for funding management efforts. **Staff is requesting a recommendation from the TEC to the VLAWMO Board for funding support in the amount of \$12,500 for carp monitoring, removal, and contribution of a low-voltage fish barrier at the outlet of West Vadnais Lake.** It was moved by Duxbury and seconded by Huntrods for recommendation of the TEC to the VLAWMO Board for funding in the amount of \$12,500.00 for cooperative carp management on West Vadnais Lake. Vote: all aye. Motion passed.

**D. Birch Lake 4<sup>th</sup> & Otter Update**

The VLAWMO Board selected and approved the low-bid contractor, Blackstone, LLC, for construction of the Birch Lake iron-enhanced sand filter at their February meeting. Contract documents have been signed, a Notice to Proceed has been issued, and a pre-construction meeting is being scheduled to begin the project.

**VII. Commissioner Reports**

Farrell mentioned the flooding meeting on March 12<sup>th</sup> was cancelled and that he is proposing to the VH city council that the box culvert under Oak Crest Drive is replaced. Farrell also thanked Stephanie for her 30 years of service.

**VII. NOHOA**

Gorder thanked Tanner for her frog & toad work, story map, and for her education efforts.

**IX. St. Paul Regional Water Service (SPRWS) Report**

Erickson reported that with conventional water treatment implemented at SPRWS, staff is confident their processes are effective in neutralizing COVID-19.

**X. Ramsey Soil & Water Conservation Division (RSWCD) Report**

Block announced that the office has moved, the March Aquatic invasive species meeting has been cancelled, but the May training is still on. Tanner added that her and Justin Townsend have been working on invasive species ordinances.

**XI. Public Comment**

Tailon mentioned that the MS4 workshop on March 12<sup>th</sup> was a great event and had a good turnout.

**XII. Next Meetings**

TEC: April 10<sup>th</sup>, 2020; Board: March 25<sup>th</sup>, 2020

**XII. Adjourn**

It was moved by Farrell and seconded by Huntrods to adjourn at 9:06 am. Vote: All aye. Motion passed.

Minutes compiled and submitted by Tyler Thompson.

## TEC Staff Memo – April 2020

### IV. Administration & Operations

- A. TEC Report & Financial Report for April, see attached.
- B. **Admin update:** We are very excited to share the news. Phil Belfiori will be joining the VLAWMO staff as administrator on April 16<sup>th</sup>. Phil comes with a wealth of background including 9 years as administrator of Rice Creek Watershed District, four years with BWSR as a Board Conservationist, another four years with WSB Consulting as a water resource specialist and most recently with the State of MN where he worked on the state water plan and for the Dept. of Agriculture. The start will be a little challenging as we are all in remote mode. Please give Phil a warm TEC welcome and share background on any of the past or present projects.

### V. Programs

#### A. Education and Outreach:

1. Community Blue application: part two. The CB-2020-03 Community Blue application attached in the packet is the continuation of the application submitted in March, 2020. The March application was dedicated to the first component of the project, objective 1, to purchase the rainbarrels while they were still available from a bulk order through the Recycling Association of Minnesota. The rainbarrels have been purchased accordingly. The rest of the project is now outlined in objectives 2 and up, which include the outreach and education of the project.

**TEC involvement:** Please consider contributing to the scoring of this project by completing a scoring chart, included in the TEC packet, and referring to the project application to do so. Email completed score charts to [nick.voss@vlawmo.org](mailto:nick.voss@vlawmo.org) by Thursday, April 9<sup>th</sup>, at 2 pm. Part V. A. 1. of the TEC meeting will incorporate the score chart results. See Nick's completed score chart as an example.

Katherine Doll has completed the training for Watershed Stewards through the Freshwater Society, and is now pursuing her capstone project in that program in conjunction with Community Blue. As the host watershed for Katherine's Master Water Steward volunteering, VLAWMO is equipped and prepared to dedicate time and resources to her efforts, as laid out in the 2020 Education and Outreach Plan. The 2020 Education and Outreach Plan is posted here: <http://www.vlawmo.org/about/why-water-matters/>

Katherine will facilitate the distribution of 15 rainbarrels for 15 households in the watershed. To receive a rainbarrel, each participant will attend a training session to learn about home water conservation, rainbarrel installation, creative rainbarrel installation with an aesthetic touch, and doubling up rainbarrels. Outreach will be adapted to social distancing and use online formats as needed, and the project will

extend from May to Fall, 2020. Katherine will also be supporting VLAWMO's workshops and webinars as a residential consultant, helping other residents plan and be inspired to pursue their own projects in VLAWMO's cost-share program.

2. The Community Blue grant with White Bear Center for the Arts (CB-2020-02) faces challenges due to the coronavirus pandemic. VLAWMO staff and the project partners have come to a mutual agreement that the project be postponed until Jan, 2021. Upon that time staff and partners will resume with the original project as outlined, provided that global health concerns allow for in-person public gatherings. Should in-person gatherings be discouraged by the MN Department of Health at that time, staff and partners will re-assess whether to postpone the project further or cancel.

The amended project agreement is included in the TEC e-packet. This amendment is an action item to be voted on and brought to the April, 2020 BOD meeting.

3. Annual Report: The VLAWMO 2019 annual report will be complete and posted online by April 10<sup>th</sup>, 2020. The report is accompanied by a 2019 summary and a 2019 water monitoring summary. All three documents are found from the homepage under "blog". New info-graphics displaying cost-share spotlights are also posted under <http://www.vlawmo.org/grants/landscape/>

#### **Supplementary education:**

Carp management: Check out this funny video about carp management for a look at what the vision is for West Vadnais Lake.

[https://www.youtube.com/watch?v=1GKxy\\_I8svM&feature=youtu.be&fbclid=IwAR02x\\_nCD45tF2ggvAx9OPgQz50pPg9HzslxXRaC9Y6vAyM5KDuToYxMkhM](https://www.youtube.com/watch?v=1GKxy_I8svM&feature=youtu.be&fbclid=IwAR02x_nCD45tF2ggvAx9OPgQz50pPg9HzslxXRaC9Y6vAyM5KDuToYxMkhM)

Stream meanders: Example from Southeastern Minnesota

[https://www.youtube.com/watch?time\\_continue=12&v=0uKsefaQWN4&feature=emb\\_title](https://www.youtube.com/watch?time_continue=12&v=0uKsefaQWN4&feature=emb_title)

Free pollinator mini-webinars: Series of 20-minute webinars on habitat and environmental health every Tue/Thu in April

<https://www.pollinatorfriendly.org/events>

GIS web map tutorials: Brand new tutorials for how to navigate our GIS watershed data.

Part 1 - <https://www.youtube.com/watch?v=kvNCKxrepvI&t=9s>  
Part 2 - <https://www.youtube.com/watch?v=buv1u1Fb9zM>

**B. Cost Share – Landscape Level 1 2020-04: White Dry Creek Bed & Raingarden, NO**  
A Landscape Level 1 grant application was received from Ann & Bishop White, of North Oaks, for a runoff diversion, dry creek bed, raingarden and native plant stabilization project on their property. Their project will divert runoff flows, which currently drain into a retaining wall and

house foundation, to the west, through a dry creek bed, and all to be planted with native ferns, grasses & shrubs. The elaborate project plan was designed by the homeowners, major grading and French drains to be contracted out, and the rest of the project will be completed by the homeowners. This is a large-scale and ambitious project, showing efficient use of finances to solve drainage issues with a water resources-responsible approach.

**The total applicable project cost towards eligible grant funding is \$2,836, and the applicant is seeking \$2,000 in Landscape Level 1 cost share funding. Staff is recommending approval of LL1 2020-04 in the amount of \$2,000.**

## VI. Projects

### A. East Goose Alum Grant Update & Next Steps

At their Special March meeting, the Board moved to approve and accept the Board of Water & Soil Resource's Clean Water Funds Goose Lake Alum Treatment grant funds, totaling \$190,000 of grant funding, with \$47,500 in local match funding. There are several steps that must be taken before the first alum treatment may take place, which would ideally take place in fall 2020.

- Grant workplan and assurances with BWSR will need to be completed and executed before grant funds will be released.
- Staff will be working with the City of White Bear Lake to establish boat access on City easement for lake management of East Goose Lake, as soon as possible.
- Rough fish removal of yellow bullhead by commercial fishermen will need to be scheduled before an alum application can be completed, ideally late summer, early fall 2020.
- Stakeholder meetings are slated to be scheduled for summer 2020 to engage property owners and the public.
- Anticipated aquatic vegetation and management after alum treatment takes place.

### B. Lambert Lake Update

Staff are continuing permitting and EAW discussions with MN DNR and SEH. Dawn conducted an initial NHIS inventory and communicated results with MN DNR. She also used USFWS resources to select native wetland/shoreline flowering plants that could support Rusty-patched bumble bees, at the recommendation of MN DNR. Species of concern information has been communicated to USFWS and guidance requested as to how to best proceed and accommodate requirements in the construction planning and schedule.

### C. Carp Project West Vadnais Lake Update

The Board approved \$12,500 for partnering with RWMWS and working on Common carp in West Vadnais. Permitting is in place with MN DNR for spring efforts. Because of COVID-19 and travel restrictions, the electrified barrier will not be able to be completed and installed in 2020. A temporary barrier will be used instead. MN DNR has approved plans and decided that a permit is not needed for the temporary barrier, consistent with barrier designs used by Carp Solutions in other locations. Carp Solutions is not able to work until the COVID restriction is lifted. They are ready to continue as soon as they are able.





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#### **D. Birch Lake 4<sup>th</sup> & Otter Update**

Final contract documents have been signed with Blackstone Engineering, a pre-construction meeting took place on March 24<sup>th</sup> with Brooks Duesterhoeft (Project Manager, Blackstone), Connie Tailon (City of WBL), Greg Wilson & Greg Nelson (Barr Engineering), and Tyler Thompson. The site has been marked for tree removal and project extent, and Blackstone may begin working on-site as soon as the middle of April. Construction of the IESF and project is estimated to take about 2-3 weeks, depending on site conditions and weather.

April-20		Actual 4/1/20	Actual to Date	2020 Budget	2019 carry over/Grants	Remaining in Budget	2020 Available	Act vs. Budget
<b>BUDGET #</b>	<b>INCOME</b>							
<b>5.11</b>	Storm Water Ut	\$0	\$16,449	\$890,800	\$0	\$874,351	\$890,800	2%
<b>5.12</b>	Service Fees	\$0	\$0	\$200	\$0	\$200	\$200	0%
<b>5.13</b>	Interest + mitiga	\$762	\$3,607	\$5,000	\$0	\$1,393	\$5,000	72%
<b>5.14</b>	Misc. income - V	\$0	\$3,050	\$3,000	\$0	(\$50)	\$3,000	102%
<b>5.15</b>	Other Income G	\$3,497	\$26,054	\$0	\$0	(\$26,054)	\$0	
<b>5.16</b>	Transfer from re	\$0	\$100,000	\$0	\$0	(\$100,000)	\$0	
	<b>TOTAL</b>	<b>\$4,259</b>	<b>\$149,160</b>	<b>\$899,000</b>	<b>\$0</b>	<b>\$749,840</b>	<b>\$899,000</b>	<b>17%</b>
<b>EXPENSES</b>								
<b>3.1</b>	<b>Operations &amp; Administration</b>							
<b>3.110</b>	Office - rent, cop	\$0	\$6,093	\$25,200	\$0	\$19,107	\$25,200	24%
<b>3.120</b>	Information Sys	\$959	\$3,598	\$20,000	\$2,000	\$18,402	\$22,000	16%
<b>3.130</b>	Insurance	\$0	\$0	\$5,800	\$0	\$5,800	\$5,800	0%
<b>3.141</b>	Consulting - Aud	\$5,250	\$5,250	\$6,700	\$0	\$1,450	\$6,700	78%
<b>3.142</b>	Consulting - Bod	\$0	\$0	\$1,500	\$0	\$1,500	\$1,500	0%
<b>3.143</b>	Consulting - Leg	\$0	\$299	\$4,000	\$2,500	\$6,201	\$6,500	5%
<b>3.144</b>	Consulting - Eng	\$0	\$1,503	\$30,000	\$0	\$28,497	\$30,000	5%
<b>3.150</b>	Storm Sewer Ut	\$375	\$2,728	\$14,000	\$0	\$11,272	\$14,000	19%
<b>3.160</b>	Training (staff/t	\$0	\$0	\$4,500	\$1,500	\$6,000	\$6,000	0%
<b>3.170</b>	Misc. & mileage	\$213	\$1,947	\$5,500	\$800	\$4,353	\$6,300	31%
<b>3.191</b>	Administration -	\$26,058	\$105,109	\$347,200	\$50,000	\$292,091	\$397,200	26%
<b>3.192</b>	Employer Liabil	\$11,327	\$32,058	\$89,600	\$12,000	\$69,542	\$101,600	32%
<b>3.2</b>	<b>Monitoring and Studies</b>							
<b>3.210</b>	Lake and Creek	\$0	\$322	\$22,000	\$10,000	\$31,678	\$32,000	1%
<b>3.220</b>	Equipment	\$0	\$416	\$4,000	\$0	\$3,584	\$4,000	10%
<b>3.230</b>	Wetland assess	\$0	\$0	\$10,000	\$0	\$10,000	\$10,000	0%
<b>3.3</b>	<b>Education and Outreach</b>							
<b>3.310</b>	Public Educatio	\$82	\$2,143	\$8,500	\$1,000	\$7,357	\$9,500	23%
<b>3.320</b>	Marketing	\$0	\$550	\$7,500	\$0	\$6,950	\$7,500	7%
<b>3.330</b>	Community Blue	\$1,272	\$7,224	\$10,000	\$2,000	\$4,776	\$12,000	60%
	<i>Total Core functions: Ops, Monit</i>	<i>\$45,536</i>	<i>\$169,240</i>	<i>\$616,000</i>	<i>\$81,800</i>	<i>\$528,560</i>	<i>\$697,800</i>	<i>24%</i>
<b>Capital Improvement Projects and Programs</b>								
<b>3.4</b>	<b>Subwatershed Activity</b>							
<b>3.410</b>	Gem Lake	\$0	\$0	\$0	\$0	\$0	\$0	
<b>3.420</b>	Lambert Creek	\$10,101	\$25,133	\$120,000	\$63,275	\$158,142	\$183,275	14%
<b>3.425</b>	Goose Lake	\$4,745	\$16,515	\$60,000	\$150,316	\$193,801	\$210,316	8%
<b>3.430</b>	Birch Lake	\$1,448	\$15,689	\$10,000	\$39,067	\$33,378	\$49,067	32%
<b>3.440</b>	Gilf Black Tam	\$0	\$0	\$30,000	\$50,000	\$80,000	\$80,000	0%
<b>3.450</b>	Pleasant Charle	\$0	\$0	\$10,000	\$9,000	\$19,000	\$19,000	0%
<b>3.460</b>	Sucker Vadnais	\$0	\$3,164	\$12,000	\$10,000	\$18,836	\$22,000	14%
<b>3.48</b>	<b>Programs</b>							
<b>3.481</b>	Landscape 1	\$0	\$0	\$24,000	\$11,500	\$35,500	\$35,500	0%
<b>3.482</b>	Landscape 2	\$3,400	\$16,415	\$20,000	\$11,361	\$14,946	\$31,361	52%
<b>3.483</b>	Project Research	\$0	\$9,725	\$0	\$0	(\$9,725)	\$0	#DIV/0!
<b>3.470</b>	Facilities Maint	\$0	\$0	\$5,000	\$29,176	\$34,176	\$34,176	0%
<b>3.5</b>	<b>Regulatory</b>							
<b>3.510</b>	Engineer Plan r	\$0	\$0	\$2,000	\$0	\$2,000	\$2,000	0%
	<i>Total CIP &amp; Prog</i>	<i>\$19,694</i>	<i>\$86,641</i>	<i>\$293,000</i>	<i>\$373,695</i>	<i>\$580,054</i>	<i>\$666,695</i>	<i>13%</i>
	<b>Total of Core Op</b>	<b>\$65,230</b>	<b>\$255,881</b>	<b>\$909,000</b>	<b>\$455,495</b>	<b>\$1,108,614</b>	<b>\$1,364,495</b>	<b>19%</b>

Fund Balance	3/1/2020	4/1/2020
4M Account	\$219,264	\$180,151
4M Plus Savings	\$512,475	\$513,027
Total	\$731,739	\$693,177

Restricted funds	4/1/2020
Mitigation Savings	\$26,572
Term Series (3/28/19)	\$0

**Vadnais Lake Area Water Management Organiz**  
**Profit & Loss**  
**March 14 through April 10, 2020**

12:40 PM

04/02/2020

Cash Basis

Mar 14 - Apr 10, 20

Ordinary Income/Expense

Income

Mitigation Interest 0.59

5.1 · Income

5.13 · Interest 761.89

Total 5.1 · Income 761.89

6.6.6 · Grants 3,496.97

Total Income 4,259.45

Gross Profit 4,259.45

Expense

3.1 · Administrative/Operations

3.120 · Information Systems

IT Support 959.00

Total 3.120 · Information Systems 959.00

3.141 · Audit 5,250.00

3.150 · Storm Sewer Utility 375.00

3.160 · Training (staff/board) 0.00

3.170 · Misc. & mileage 212.56

3.191 · Employee Payroll

payroll 26,057.60

Total 3.191 · Employee Payroll 26,057.60

3.192 · Employer Liabilities

Admin payroll processing 44.92

Administration FICA 1,926.72

Administration PERA 1,954.32

Insurance Benefit 2,963.58

3.192 · Employer Liabilities - Other 4,437.50

Total 3.192 · Employer Liabilities 11,327.04

Total 3.1 · Administrative/Operations 44,181.20

3.2 · Monitoring and Studies

3.220 · Equipment	0.00
Total 3.2 · Monitoring and Studies	0.00
3.3 · Education and Outreach	
3.310 · Public Education	82.44
3.330 · Community Blue Education Grant	1,272.45
Total 3.3 · Education and Outreach	1,354.89
3.4 · Capital Imp. Projects/Programs	
3.420 · Lambert Creek Restoration	
Whitaker Wetlands	6,604.44
3.420 · Lambert Creek Restoration - Other	3,496.97
Total 3.420 · Lambert Creek Restoration	10,101.41
3.425 · Goose Lake	
WB Funding - Goose subshed	4,744.50
Total 3.425 · Goose Lake	4,744.50
3.430 · Birch Lake	
4th & Otter project	1,448.38
Total 3.430 · Birch Lake	1,448.38
Total 3.4 · Capital Imp. Projects/Programs	16,294.29
3.48 · Programs	
3.482 · Landscape 2	3,400.00
Total 3.48 · Programs	3,400.00
Total Expense	65,230.38
Net Ordinary Income	-60,970.93
Net Income	<u><u>-60,970.93</u></u>

**Vadnais Lake Area Water Management Organization**  
**Check Detail**

12:36 PM

04/02/2020

March 14 through April 10, 2020

Type	Num	Date	Name	Item	Account	Paid Amount	Original Amount
Check	EFT	03/14/2020	further		Checking - 1987		<b>-4.00</b>
				Insurance Benefit		-4.00	4.00
TOTAL						<u>-4.00</u>	<u>4.00</u>
Check	EFT	03/14/2020	Reliance Standard		Checking - 1987		<b>-177.68</b>
				Insurance Benefit		-177.68	177.68
TOTAL						<u>-177.68</u>	<u>177.68</u>
Check	1011	04/02/2020	kjolhaug Environmental Services		Mitigation & Monitoring - 8355		<b>-450.00</b>
			kjolhaug Environmental Services	Wetland Mitigation Payable		-450.00	450.00
TOTAL						<u>-450.00</u>	<u>450.00</u>
Check	4903	04/10/2020	Stephanie Oliver McNamara		Checking - 1987		<b>-260.72</b>
				3.170 · Misc. & mileage		-26.22	26.22
				Insurance Benefit		-234.50	234.50
TOTAL						<u>-260.72</u>	<u>260.72</u>
Check	4904	04/10/2020	SEH		Checking - 1987		<b>-3,496.97</b>
				3.420 · Lambert Creek Restoration		-3,496.97	3,496.97
TOTAL						<u>-3,496.97</u>	<u>3,496.97</u>
Check	4905	04/10/2020	Barr Engineering Co		Checking - 1987		<b>-6,192.88</b>
				4th & Otter project		-1,448.38	1,448.38
				WB Funding - Goose subshed		-4,744.50	4,744.50
						<u>-4,744.50</u>	<u>4,744.50</u>

TOTAL		-6,192.88	6,192.88
<b>Check 4906 04/10/2020 Noah &amp; Associates, Inc</b>	<b>Checking - 1987</b>		<b>-3,468.75</b>
	3.192 · Employer Liabilities	-3,468.75	3,468.75
TOTAL		<u>-3,468.75</u>	<u>3,468.75</u>
<b>Check 4907 04/10/2020 Dawn Peterson</b>	<b>Checking - 1987</b>		<b>-3,400.00</b>
	3.482 · Landscape 2	-3,400.00	3,400.00
TOTAL		<u>-3,400.00</u>	<u>3,400.00</u>
<b>Check 4908 04/10/2020 Brian Corcoran</b>	<b>Checking - 1987</b>		<b>-51.04</b>
	3.170 · Misc. & mileage	-51.04	51.04
TOTAL		<u>-51.04</u>	<u>51.04</u>
<b>Check 4909 04/10/2020 City of White Bear Lake</b>	<b>Checking - 1987</b>		<b>-32,530.96</b>
	payroll	-26,057.60	26,057.60
	Administration FICA	-1,926.72	1,926.72
	Administration PERA	-1,954.32	1,954.32
	Insurance Benefit	-2,547.40	2,547.40
	Admin payroll processing	-44.92	44.92
TOTAL		<u>-32,530.96</u>	<u>32,530.96</u>
<b>Check 4910 04/10/2020 Tyler J Thompson</b>	<b>Checking - 1987</b>		<b>-26.34</b>
	3.170 · Misc. & mileage	-26.34	26.34
TOTAL		<u>-26.34</u>	<u>26.34</u>
<b>Check 4911 04/10/2020 Dawn Tanner</b>	<b>Checking - 1987</b>		<b>-108.96</b>
	3.170 · Misc. & mileage	-108.96	108.96
TOTAL		<u>-108.96</u>	<u>108.96</u>

	<b>Check 4912 04/10/2020 Ehlers &amp; Associates, Inc.</b>	<b>Checking - 1987</b>	<b>-375.00</b>
		3.150 · Storm Sewer Utility	-375.00      375.00
TOTAL			<u>-375.00      375.00</u>
	<b>Check 4913 04/10/2020 City Of Roseville</b>	<b>Checking - 1987</b>	<b>-959.00</b>
		IT Support	-959.00      959.00
TOTAL			<u>-959.00      959.00</u>
	<b>Check 4914 04/10/2020 Regents of the University of Minnesota</b>	<b>Checking - 1987</b>	<b>-6,604.44</b>
		Whitaker Wetlands	-6,604.44      6,604.44
TOTAL			<u>-6,604.44      6,604.44</u>
	<b>Check 4915 04/10/2020 CliftonLarsonAllen</b>	<b>Checking - 1987</b>	<b>-5,250.00</b>
		3.141 · Audit	-5,250.00      5,250.00
TOTAL			<u>-5,250.00      5,250.00</u>
	<b>Check 4916 04/10/2020 Noah &amp; Associates, Inc</b>	<b>Checking - 1987</b>	<b>-968.75</b>
		3.192 · Employer Liabilities	-968.75      968.75
TOTAL			<u>-968.75      968.75</u>





TEC Report to the Board  
April 2020

Programs & Projects	Effort Level	Completion Date	Comments
	LOW		
	MED		
	HIGH		
<b>Projects</b>			
Oak Knoll Pond		2020	With Barr's workplan approved by BWSR, Barr has been seeking an applicator with complications arising from COVID-19 delays. Updates will follow in April.
Goose Lk subshed project		2017-2020	Barr has produced plans for an alternate BMP (BMP14) as well as probable costs for an iron-enhanced sand filter near HWY 61 and Cedar Ave in White Bear Lake.
Lambert Creek - Ditch 14, branches		2020	S.E.H. has started the design work. This includes replacement of the sheet pile in the pond and design of the meander and treatment cells. MPCA loan was approved.
Birch Lake		2017-20	Pre-construction meeting complete and construction submittals being reviewed. VLAWMO & WBL staff marked site for construction for April.
Wetland Assessment - Vadnais Sucker		2018-20	S.EH contract signed and work beginning for 2020 wetland assessment. Grant through Great River Greening for AIS removal and habitat restoration in select areas of Vadnais Sucker park is moving forward to LCCMR.
Whitaker Wetlands		2020	Monitoring & pathogen sampling is complete, working on reports
<b>Programs</b>			
Outreach		April-June	Communications active for Birch Lake sand-iron filter, Lambert Lake Meander, and Goose Lake Alum treatment. Snail mail, website, press, email, and 1-1 communication. New lake factsheets complete, new water quality graphs and infographics created to convey water quality information. North Oaks News, VH Press article publications in March, April.
Education		April-July	Online resources being developed for stormwater calculation in schools and residential settings. MS4 flyers and posters being created to support City and Township stormwater responsibilities/SWPPP reports. Striving to create online video "tours" of the watershed.
Website		Ongoing	COVID-19 updates posted under "news" from the homepage. Swans and lead updates posted under "news." Birch Lake sand-iron filter, Goose Lake alum, and Lambert Meander project pages updated regularly. GIS web tutorial videos (part 1 + 2) created as a reference and outreach tool, encouraging residents to engage with our watershed data.
WAV		May-July	Volunteer activities are adapting to social distancing. Master Water Steward Katherine Doll is planning her capstone project, supported by Community Blue, focused on rainbarrels and water conservation at home. Volunteer AIS monitoring training online, April 15th. Raingarden maintenance to be conducted according to social distance.
Cost Share		ongoing	Staff is working with the 3 approved 2020 LL2 grantees, as well as LL1 approved projects and in-coming applications. Site visits on-going.
GIS		ongoing	Lambert Lake EAW, programs support
Monitoring		ongoing	2020 season has started
WCA		ongoing	2020 season beginning

TEC Report to the Board  
April 2020

Administration & Operation			
SLMPs		2020	Lake surveys and studies planned for 2020 on SLMP lakes.
Budget		April 2020	Audit preparation is underway with the auditors on site Feb. 11-12.
Administration		April 2020	VLAWMO has received a claim against our insurance from a resident on Twin Lake. A denial letter has been sent - no negligence on VLAWMOs part. The position for VLAWMO administrator is posted until Feb. 21st. There has been interest.
SSU		ongoing	Final divisions for 2020 SSU fees is complete for listing on May tax statements.
Water Plan		ongoing	The Water Plan Amendment was adopted by the Board. The last two Local Water Plans from North Oaks and White Bear Lake are remaining for approval Comments on NO submitted.

FINANCIAL SUMMARY as of 4/1/2020			CD's	4M Term Series	
				Maturity	Rate
4M Account (1.10)	4M Plus (1.23)	Total	Term series		
\$180,151	\$513,027	\$693,178			

Budget Summary	Actual Expense YTD	2020 Budget amended	Remaining in Budget	% YTD
Operations	\$169,240	\$697,800	\$528,560	24%
CIP	\$86,641	\$666,695	\$580,054	13%
Total	\$255,881	\$1,364,495	\$1,108,614	19%



## Vadnais Lake Area Water Management Organization

800 East County Rd E  
Vadnais Heights, MN 55127  
vlawmo.org  
(651) 204-6070

# COMMUNITY BLUE GRANT APPLICATION

Please submit form and required materials to: NICK VOSS  
Nick.Voss@vlawmo.org

### BASIC INFORMATION

PROJECT NAME	Rainbarrels and Home Water Conservation
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CONTACT PERSON	Katherine Doll Kanne
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ADDRESS	3696 Edgerton St	CITY ZIP	Vadnais Heights, MN 55127
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ORGANIZATION	Master W. St.	PHONE	(320) 905-3606	EMAIL ADDRESS	dollkanne@gmail.com
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WHAT GEOGRAPHIC AND/OR DEMOGRAPHIC AREA DO YOU SERVE?	Vadnais Heights
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HOW MUCH ARE YOU REQUESTING? (BETWEEN \$200 AND \$5,000)	\$2,000
--	---------

HOW MUCH ARE YOU PREPARED TO MATCH OR PROVIDE IN-KIND?	25%/\$500 (using in-kind volunteer hours)
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PROJECT BACKGROUND

### INTRODUCTION & GOAL

1. A: DESCRIBE THE MISSION AND GOALS OF YOUR ORGANIZATION/PROFESSION AND WAYS IT RELATES TO WATER RESOURCES.

B: IN 2-3 SENTENCES: WHAT DOES THE PROJECT DO (LIST HARD DETAILS OF #, PLACE, EVENT, ETC). AND WHAT'S THE GOAL?

*Feb, 2020 TEC Submission: This project is a Master Water Stewards Capstone, seeking pre-approval for a rain barrel bulk order while they're still available in March/early April (objective one only). Application will be brought back to TEC in April/May to request funds for additional objectives and in-kind hours will be prepared. This enables the project to get the rain barrel order before they're sold out, as the next April TEC meeting is likely too late. [April Update: 15 Rain barrels were ordered March 27, 2020, \$1200]*

The project itself will take place between June-August, and consist of an in-person workshop at City Hall and an educational video for long-term outreach. *Alternatively*, due to current COVID-19 Public Health circumstances, the workshop will be hosted online similar to other VLAWMO events this 2020 summer season and Katherine will then coordinate with workshop participants on a one-by-one basis to view best water management practice projects at her personal residence (rain gardens and rain barrels), and the workshop participant may pick-up his/her rain barrel at this time. Social distancing practices will be utilized for these interactions. Either the in-person or online workshop will occur in summer 2020 no later than August 7<sup>th</sup> with at least a 4 week notice to public of the event.

The goal is to educate watershed residents on how to attach and double-up rain barrels to downspouts, as well as creative approaches for mounting and connecting them. Downspout extensions will also be covered as a tool for reducing water exposure to basements and redirecting water away from impermeable pavement to reduce stormwater runoff. The workshop will accompany a home water conservation message encouraging residents to adopt water-friendly yard habits and behaviors.

2. DESCRIBE HOW YOUR PROJECT WILL PROTECT OR IMPROVE WATER QUALITY. FOR EDUCATIONAL COMPONENTS, DESCRIBE BEHAVIORS AND ACTIONS THAT WILL BE ENCOURAGED THROUGH THE PROJECT AS THEY RELATE TO WATER.

Residents and viewers of the workshop and final product video will learn about home water conservation strategies, gaining tangible tools and advice to apply the concepts at their home. Each home's applied skills and installed rainbarrels will reduce stormwater runoff by hundreds of gallons each year. Participants with skills and comfortability in stormwater management at home will be equipped to speak to neighbors and apply their leadership to spread the word, supporting new cultural norms for home water management that are beneficial to the watershed as a whole.

3. DESCRIBE ANY PROJECT PARTNERS, THEIR ROLE IN THE PROJECT, THEIR QUALIFICATIONS, AND THEIR ROLE IN YOUR PROJECT. FOR PROJECTS WITH INVOLVED PARTNERSHIPS, A SEPARATE CONFIRMATION LETTER MAY BE REQUESTED.  
*Please provide specifics (names, titles, email or phone #)*

This project is supported by Freshwater and MetCouncil, who both provide training for Katherine as a Master Water Steward. As a routine part of this program, Master Water Stewards approach the watershed organizations that coincide with where they live for guidance and support in implementing their projects.

## PROJECT OBJECTIVES

4. IN THE SPACE BELOW, PLEASE BREAK DOWN YOUR PROJECT INTO OBJECTIVES (**UP TO 5**). THESE SHOULD TELL THE STORY OF YOUR PROJECT FROM PREPARATION TO ACTION TO FOLLOW-UP MEASURES. INCLUDE AN ESTIMATED COMPLETION DATE (left box) AND COST (right box) TO EXPIDITE PROJECT BUDGETING AND FUND DISPERSAL.

1	OBJECTIVE	Order 15 rainbarrels at \$80/each	COMPLETION DATE (M/Y) COST (right box)	5/1/20	\$1,200
	DESCRIPTION	Order rainbarrels through the Recycling Association of Minnesota's annual bulk sale.			
	POSSIBLE BARRIERS	[April update - Order completed] Katherine will pick-up and store the barrels at her personal residence. Scheduled picked up is May 2 <sup>nd</sup> in Maplewood, MN. Possible barrier is if the supplier (Recycle Minnesota) delays or cancels the order due to current public health circumstances.			

2	OBJECTIVE	Order tools and/or supporting literature	COMPLETION DATE (D/M/Y) COST (right box)	6/1/20	\$500
	DESCRIPTION	Tools and education materials will accompany an in-person workshop at Vadnais Heights City Hall. Held June-August, TBD.			
	POSSIBLE BARRIERS	If workshop is held virtually due to public health circumstances, Katherine will distribute tools and educational materials on a 1-by-1 basis with workshop participants from her private residence.			

3	OBJECTIVE	Host workshop	COMPLETION DATE (D/M/Y) COST (right box)	8/07 (or earlier)	---
	DESCRIPTION	Gather registrations advertised through VLAMWO website, newsletter, and social media outlets. City advertising in Vadnais Heights.			
	POSSIBLE BARRIERS				

4	OBJECTIVE	Summary and education materials	COMPLETION DATE (D/M/Y) COST (right box)		\$300
	DESCRIPTION	Development of a video and written materials summarizing the points of the workshop.			
	POSSIBLE BARRIERS				

5	OBJECTIVE		COMPLETION DATE (D/M/Y): COSTS: (right box)		
	DESCRIPTION				
	POSSIBLE BARRIERS				

## MEASUREMENT AND EVALUATION

5. DESCRIBE HOW YOU WILL MEASURE THE SUCCESS OF YOUR PROJECT.  
Measurements should be phrased as a final result. What tangibles will prove that the objective was met?  
Example: Number of participants, number of installations, gallons of storm water infiltrated, etc. Effective measurables relate back to the goal and purpose of the project – VLAWMO will make recommendations as needed. If an objective doesn't need a measurable please indicate another objective that has a measurable that serves to measure both.

OBJECTIVE 1: Rainbarrels ordered and stored at Katherine's home. [April update – Barrels ordered.]

OBJECTIVE 2: Tools and supporting literature gathered.

OBJECTIVE 3: Attain 15 registrations for workshop. Gather pre-post survey on skills and behavior change, gather new commitments made as a result of the workshop.

OBJECTIVE 4: Develop video and written materials aired on local cable and shared in VLAWMO and City outlets.

OBJECTIVE 5:

PROJECT PLAN

## BUDGET DESCRIPTION

6. DESCRIBE THE BUDGET: List 1) materials and services that the requested funds will go towards and 2) description of Match funds that go with that objective/expense.

OBJECTIVE 1/EXPENSE 1: Rainbarrel purchase. [April update – Completed, \$1200; pick up on May 2<sup>nd</sup>, 2020]

OBJECTIVE 2: Tools and literature purchase.

OBJECTIVE 3: No budget required for registration and hosting workshop.

OBJECTIVE 4: Printing written materials professionally, purchasing any relatable props for video demonstration.

OBJECTIVE 5: N/A

## BUDGET

7. COMPLETE THE FOLLOWING TABLE FOR PROJECT COSTS. IF ADDITIONAL COSTS EXIST INDEPENDENT OF GRANT FUNDING LIST THEM AS FUNDING AS OTHER SOURCE. PLEASE SPECIFY AN AMMOUNT PER EXPENSE AND A TOTAL. THE GREEN BOX IN PART 7 MUST EQUAL THE GREEN BOX IN PART 8. USE WORK PLAN SPREADSHEET FOR MORE DETAIL. TIP: ALIGN EXPENSES ACCORDING TO OBJECTIVES IN PART 5.

EXPENSES Reflect objective #	PERSONNEL COSTS "N/A" if blank	MATERIALS / SUPPLIES "N/A" if blank	FUNDING FROM OTHER SOURCE "N/A" if blank	TOTAL
EXPENSE 1:		1200		1200
EXPENSE 2:		500		500
EXPENSE 3:				
EXPENSE 4:		300		300
EXPENSE 5:				
<b>TOTALS</b>				2000

Description of other source funding:

**TOTAL EXCLUDING MATCH FUNDS:**

2000

## GRANT FUNDING & MATCH FUNDS

8. PLEASE FILL IN THE TABLE BELOW WITH HOW YOU PLAN TO ALLOCATE YOUR FUNDING.  
 Match funds are required assets for the project that strive to support community investment and exposure. Match funds may be cash from other sources, mileage, pre-existing materials involved in the project, or provided in-kind (i.e. volunteer services). In-kind match hours may be volunteer service hours, voluntary presentations, etc. Consult with VLAWMO staff for discussion on what applies as match funds. THE BLUE BOX SHOULD BE AN ADDITIONAL 25-100% OF THE GREEN BOX. PROJECT APPLICATIONS ARE WEIGHED WITH A PREFERENCE FOR PROJECTS WITH HIGHER MATCH FUNDS, IN ADDITION AND ARE VOTED ON THROUGH THE VLAWMO TECHNICAL COMMISION.

VOLUNTEER HOURS ARE VALUED AT  
**\$25/HR**  
 MILEAGE IS VALUED AT  
**\$0.525/MI**

EXPENSES	REQUESTED VLAWMO FUNDING	MATCH FUNDS		TOTAL
		Cash	In-kind	
EXPENSE 1:	1200		400*	1,600
EXPENSE 2:	500		125*	625
EXPENSE 3:	---	---	----	
EXPENSE 4:	300		75*	375
EXPENSE 5:				
<b>TOTALS</b>	2000		600	2,600

\*In-kind volunteer hours at \$25/hour completed by Katherine Doll Kanne and Bryon Kanne



## BUDGET CONTINUED

9) DESCRIPTION OF MATCH FUNDS: CASH AND/OR IN-KIND HOURS. Briefly describe the nature, activity, or function of the match funds for each expense line. I.e. "volunteer hours", "honorarium", etc.

EXPENSE 1: In-kind volunteer hours for transportation and storage of rain barrels

EXPENSE 2: In-kind volunteer hours for research and workshop preparations, gathering of tools and physical set-up

EXPENSE 3: In-kind volunteer hours for workshop facilitation (and one-on-one scheduled visits with workshop participants at personal residence if workshop if conducted virtually due to public health circumstances).

EXPENSE 4: In-kind volunteer hours to develop educational materials and video

EXPENSE 5: N/A

## FUTURE POTENTIAL

10.) WILL YOU OR THE PROJECT PARTNERS BE ABLE TO REPEAT THIS PROJECT? EXPLAIN HOW THE PROJECT WILL BE CARRIED ON IF 1) THE PROJECT IS A SUCCESS AND 2) ADDITIONAL FUNDS WERE AVAILABLE

Project has future potential to be an annual rainbarrel info-session if deemed successful by VLAWMO and Master Water Stewards.

11.) HOW DID YOU HEAR ABOUT OUR GRANT PROGRAM?

Master Water Stewards, Nick Voss

# Community Blue: Application Score Chart

**Scoring Criteria:** Evaluating the content and nature of the proposed project.

<b>Category</b>	<b>Points Possible</b>	<b>Points Assigned</b>
<b>Program fit (20%):</b> Project is compatible with the Community Blue goal or makes a strong case to relate to VLAWMO’s mission. SMART Goals and desired outcomes are clearly stated. Topic of interest is timely and appropriate, target audience(s) defined, outreach method, and connections are made to local water resources are defined. A minimum of 25% match-funds are outlined. Projects within VLAWMO cost-share target zones are weighed more.	1-20	
<b>Leadership (20%):</b> Project demonstrates watershed leadership and motivates participants to reflect on and improve their relationship to water. Project inspires water-related awareness, knowledge, attitude, skills, and behaviors, while outlining and committing to physical maintenance when needed.	1-20	
<b>Evaluation (20%)</b> Project has an evaluation component with goals that are specific and measurable. Evaluation provides meaningful information that can be used to assess results and provide comparison to future projects. Applicant has a plan for sharing and disseminating results.	1-20	
<b>Growth and replication (10%)</b> Project creates social and organizational networks to inspire future projects related to water resource improvement and education, or demonstrates an ability to be efficiently replicated.	1-10	
<b>Collaboration/Engagement (10%)</b> Project engages appropriate partners and local citizens in the planning, implementation and/or evaluation process. Partners demonstrate a high level of support for project proposal.	1-10	
<b>Budget (10%)</b> Funding request is detailed and appropriate. Sub-costs in objectives clearly add up to final cost.	1-10	
<b>Timeline (10%)</b> Timeline is clear and realistic given the scope of the project.	1-10	
<b>Total:</b>	100	

***Continued on reverse***

**Application Criteria:** Evaluating the application for clarity, reliability, and its ability to serve as a tool to guide VLAWMO, the applicant, and project partners over the course of the project's lifespan.

<b>Category</b>	<b>Points Possible</b>	<b>Points Assigned</b>
<b>Outlined objectives (40%):</b> The project is clearly outlined by up to 5 objectives serving as stages of the project. Each objective is a specific task within the project, accompanied by a measurable outcome, timeframe, and associated cost. Costs and timeframes of objectives clearly match the overall budget and timeframe.	<b>1-20</b>	
<b>SMART measurements (40%):</b> Objectives include front-end, middle, and back-end measurements. Exceptional applications seek not to just complete the project but to also collect information for evaluation (closing survey, etc.). If parts of the project are dependent on unknown variables at the time of the application, these are clearly defined and distinguished as a list of prospective directions and actions. Prospective actions are equipped with defined measurements should they occur.	<b>1-20</b>	
<b>Partnerships and Contacts (20%):</b> Project partners are listed in the application with names, titles, contact information, and role in the project. Maintenance responsibilities are defined with contacts and timeframe.	<b>1-10</b>	
<b>Total:</b>	<b>50</b>	
<b>Suggestions for application improvement:</b> Text, phrasing, outlining objectives, design of measurables, allocated budget, etc.		

**Grand Total: \_\_\_\_\_ / 150**

**Grant approval scale:**

1-49: Decline application citing scoring results and other reasons why.

50-79: Decline application, send back to applicant with suggestions for re-working and a new submission at a later time.

80-99: Approvable grant on the condition of outlined improvements and comments from TEC or BOD.

100-150: Approvable grant.

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# Community Blue: Application Score Chart

**Scoring Criteria:** Evaluating the content and nature of the proposed project.

<b>Category</b>	<b>Points Possible</b>	<b>Points Assigned</b>
<b>Program fit (20%):</b> Project is compatible with the Community Blue goal or makes a strong case to relate to VLAWMO’s mission. SMART Goals and desired outcomes are clearly stated. Topic of interest is timely and appropriate, target audience(s) defined, outreach method, and connections are made to local water resources are defined. A minimum of 25% match-funds are outlined. Projects within VLAWMO cost-share target zones are weighed more.	1-20	20
<b>Leadership (20%):</b> Project demonstrates watershed leadership and motivates participants to reflect on and improve their relationship to water. Project inspires water-related awareness, knowledge, attitude, skills, and behaviors, while outlining and committing to physical maintenance when needed.	1-20	20
<b>Evaluation (20%)</b> Project has an evaluation component with goals that are specific and measurable. Evaluation provides meaningful information that can be used to assess results and provide comparison to future projects. Applicant has a plan for sharing and disseminating results.	1-20	15
<b>Growth and replication (10%)</b> Project creates social and organizational networks to inspire future projects related to water resource improvement and education, or demonstrates an ability to be efficiently replicated.	1-10	10
<b>Collaboration/Engagement (10%)</b> Project engages appropriate partners and local citizens in the planning, implementation and/or evaluation process. Partners demonstrate a high level of support for project proposal.	1-10	10
<b>Budget (10%)</b> Funding request is detailed and appropriate. Sub-costs in objectives clearly add up to final cost.	1-10	10
<b>Timeline (10%)</b> Timeline is clear and realistic given the scope of the project.	1-10	10
<b>Total:</b>	100	95

## Comment:

In addition to the pre-post survey on skills and behaviors, I encourage outlining the goals for how these would ideally turn out. Designing the project according to the workshop content, what is a percentage increase for each water conservation strategy? For example, “80% of participants switched their sprinkler heads to a type that promotes better water conservation” or “50% of participants redirected their downspouts to reduce stormwater runoff onto driveways and pavement.” These can be basic and the percentages don’t have to be extraordinary, but it creates the structure that will make the evaluation easier and more accurate in the long run.

***Continued on reverse***

**Application Criteria:** Evaluating the application for clarity, reliability, and its ability to serve as a tool to guide VLAWMO, the applicant, and project partners over the course of the project's lifespan.

<b>Category</b>	<b>Points Possible</b>	<b>Points Assigned</b>
<b>Outlined objectives (40%):</b> The project is clearly outlined by up to 5 objectives serving as stages of the project. Each objective is a specific task within the project, accompanied by a measurable outcome, timeframe, and associated cost. Costs and timeframes of objectives clearly match the overall budget and timeframe.	<b>1-20</b>	<b>20</b>
<b>SMART measurements (40%):</b> Objectives include front-end, middle, and back-end measurements. Exceptional applications seek not to just complete the project but to also collect information for evaluation (closing survey, etc.). If parts of the project are dependent on unknown variables at the time of the application, these are clearly defined and distinguished as a list of prospective directions and actions. Prospective actions are equipped with defined measurements should they occur.	<b>1-20</b>	<b>16</b>
<b>Partnerships and Contacts (20%):</b> Project partners are listed in the application with names, titles, contact information, and role in the project. Maintenance responsibilities are defined with contacts and timeframe.	<b>1-10</b>	<b>10</b>
<b>Total:</b>	<b>50</b>	<b>46</b>
<b>Suggestions for application improvement:</b> SMART measurements rated 16 for same reasons as the comment on page one regarding evaluation. This will likely fall into place when the project and workshop is designed in more detail. Some relevant strategies to keep in mind for measurement include: sprinkler head type, irrigation time/duration/frequency, mowing height, fertilizing practices, redirecting downspouts, use of rainbarrel water, successful rain barrel install, number of rainbarrels in use on property, whether participant pursued a raingarden or similar cost-share project or not, and whether participant considered alternative lawn types or groundcovers. – Nick Voss		

**Grand Total: 141 / 150**

**Grant approval scale:**

1-49: Decline application citing scoring results and other reasons why.

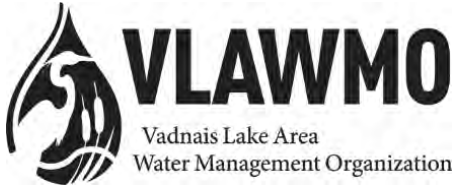
50-79: Decline application, send back to applicant with suggestions for re-working and a new submission at a later time.

80-99: Approvable grant on the condition of outlined improvements and comments from TEC or BOD.

100-150: Approvable grant.

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# COMMUNITY BLUE GRANT CONTRACT AGREEMENT

This agreement is made the \_\_\_\_ day of April 10<sup>th</sup>, 2020 \_\_\_\_, by and between the Vadnais Lake Area Water Management Organization, (hereinafter “WMO”) and the White Bear Center for the Arts, 4971 Long Ave, White Bear Lake, MN, 55110 (herein after “Grantee”).

This agreement and the Project “Upstream: Connecting and Collecting Stories About our Water” as it was recommended for approval at the Feb14<sup>th</sup>, 2020 Technical Commission meeting and approved at the February 26, 2020 Board meeting is amended by mutual agreement, as outlined in section 4.3 of the February 14<sup>th</sup> agreement. The Grantee and the WMO agree to postpone the Project as an adaptation to the COVID-19 global health pandemic. The Grantee and WMO will remain in contact with intentions to re-initiate the Project in January, 2021 with an extended completion date of December 31, 2021. Project funding will be dispersed upon VLAWMO approval at a consultation meeting in December, 2020. WMO and Grantee agree that Objective one in the original Project application (“assemble stakeholders and plan”) may proceed throughout 2020 without grant funding from the WMO.

Amendment approval: TEC: 4-10-2020 \_\_\_\_\_ Board: 4-22-2020 \_\_\_\_\_

## ORIGINAL AGREEMENT:

This agreement is made the \_\_\_\_ day of February 14<sup>th</sup>, 2020 \_\_\_\_, by and between the Vadnais Lake Area Water Management Organization, (hereinafter “WMO”) and the White Bear Center for the Arts, 4971 Long Ave, White Bear Lake, MN, 55110 (herein after “Grantee”).

### 1. BACKGROUND

- 1.1 The WMO has included in its annual budget funds to coordinate with organizations, businesses, and residents to provide watershed education and participation within the watershed boundaries.
- 1.2 Grantee has applied to the WMO for funds to help pay for the costs of materials and labor for “Upstream: Connecting and Collecting Stories About Our Water” (hereinafter “Project”) as described in the Community Blue Grant Application attached herein as “Exhibit A”.
- 1.3 The VLAWMO Board of Directors has concluded the project is viable and executable and approved the Grantee’s Application at their respective meeting on February 26<sup>th</sup>, 2020.
- 1.4 The Board of Directors has agreed to the Technical Commission’s approval of the project and therefore to award the grant in the amount of up to **\$7,566.80** for the Project described in Exhibit A.

### 2. GRANTEE’S DUTIES

- 2.1 The Project will be carried out per the list of objectives provided in the application attached as Exhibit A. Variations on the Work Plan will be discussed with the Grantor prior to implementation.
- 2.2 Grantee must obtain all permits required in conjunction with the Project, if necessary.
- 2.3 The Grantee will include VLAWMO and relevant information deemed by VLAWMO on any signs or outreach material created for this project. VLAWMO will submit their logo to the Grantee for use on those materials.
- 2.4 Grantee will coordinate the duties and activities of Project partners.

- 2.5 Grantee agrees to allow the WMO access and photograph the Project for Watershed purposes, including but not limited to, inspections, tours, workshops, and community outreach.
- 2.6 If property is involved in the project and is transferred to another party before expiration of the contract, it shall be the responsibility of the Grantee to advise the new owner that this contract is in force.
- 2.7 Participants involved, partners helping facilitate the project, in-kind hours, and photo permissions shall be documented and submitted with the final report/work plan (Exhibit B). If a third party entity such as a school is involved with the project and maintains photo permission slips, VLAWMO will defer to that entity to obtain and collect permissions as per their procedure, and are expected to verify the success of this with a WMO representative.
- 2.8 The Project shall be completed and final report (Exhibit B) submitted by **December 11<sup>th</sup>, 2020**, unless this Agreement is amended by mutual consent to reschedule work and funding.
- 2.9 A final report submitted by the project completion date (part 2.8) will include 1) a completed work plan spreadsheet (Exhibit B) containing results of specific project measurables, 2) photos of the project in action according to photo permissions of program participants and 3) a list of the final expenses for the “Upstream” project, along with proof of payment. Materials eligible for reimbursement shall be those that are used solely for the Project. Volunteer hours are to be used as an in-kind funds match. Pre-existing materials used for project shall be listed in an inventory with prices described within the work plan (Exhibit B).

### 3. FINANCIALS

- 3.1 Funding for all objectives (Exhibit A) (**\$7,566.80**) will be sent to the Grantee in two payments according to the nature of the objectives. The **first payment of \$5,407** will be sent upon completion of this grant agreement (providing funds outlined in objectives 1-3), and the **second payment of \$2,159.80** will be sent from the August 14, 2020 VLAWMO Technical Commission Meeting held at Vadnais Heights City Hall at 7:30 am. Grantee and WMO will convene with a project report in person or over the phone to ensure that project objectives have been sufficiently met up to that point in time.
- 3.2 Any grant funds remaining unspent after the Project has been completed will be returned to the WMO within one month of the date of the final objective or the objective with the last month indicated, as described in the application (Exhibit A). Grantee must inquire about reallocating funds in writing, and must obtain written permission from WMO.
- 3.3 Requests for additional or reallocated funds will be submitted in writing to the WMO to be included in a VLAWMO Technical Commission (TEC) meeting agenda and will be reviewed and voted on accordingly. TEC meetings are held monthly at the Vadnais Heights City Hall.
- 3.4 Upon cancellation of this agreement, if the Project primary partner is unable to complete the Project in its entirety, Grantee shall return all unused funds up to that point back to VLAWMO within one month of cancellation notice (see 4.6). VLAWMO reserves the right to determine if Project partners are equipped to carry out the remainder of the Project. In the case of cancelation with the Grantee but Project partners are continuing the Project, VLAWMO will disperse any remaining funds not yet dispersed to the Project partners according to negotiation and VLAWMO’s discretion.

### 4. GENERAL TERMS

- 4.1 Effective Date: The date the WMO obtains all required signatures on this Agreement.
- 4.2 Expiration Date: **December 12<sup>th</sup>, 2020**, or until all obligations have been satisfactorily fulfilled, whichever comes first.



- 4.3 This Agreement will remain in effect unless cancelled by mutual agreement, except where completion of Projects covered by this Agreement have not been substantially commenced as determined by the WMO within one (1) year of execution of this Agreement, in which case this Agreement will be automatically terminated on that date. If weather or other conditions beyond the control of the WMO do not permit the commencement of this Project within one year after approval, this Agreement may be amended by mutual written consent of the parties to reschedule the Project and its funding.
- 4.4 The WMO will not be an employer with or of the Grantee for any purpose. Nothing herein authorizes Grantee to act as an agent or representative of the WMO for any purpose.
- 4.5 Grantee shall indemnify, defend and hold the WMO and its agents, employees, officers and contractors harmless from all claims made by Grantee and/or third parties for damage or loss sustained or costs incurred, including but not limited to WMO staff, engineering and attorney's fees, in connection with or arising out of the issuance of and/or acceptance and payment by the WMO of funds pursuant to this agreement.
- 4.6 Cancellation of this Agreement may occur if 1) The terms outlined in section 4.3, and 2) Grantee is unable to complete the project due to unexpected emergency or health reasons. If Grantee is unable to complete the Project, the responsibility will be considered "cancelled". There is the option for Project partners to carry out the terms of the Project if the agreement with the Grantee is cancelled, in which VLAWMO will refer directly to the Project primary partner (section 5). Request for cancellation will be provided in writing from Grantee with the date of cancellation, an explanation, and a statement from Project partners describing 1) how they will continue the Project and 2) what support they need in order to complete the Project (see 3.3).

5. SIGNATURES

Date	Grantee Authorized Signature
Date	Grantee PRINTED NAME
Date	Project Primary Partner Authorized Signature
Date	Project Primary Partner PRINTED NAME
Date	VLAWMO Signature
	Title



Vadnais Lake Area Water  
 Management Organization  
 800 County Road E East  
 Vadnais Heights, MN 55127  
 www.vlawmo.org  
 (651) 204-6071

## LANDSCAPE LEVEL 1 GRANT APPLICATION FORM

Please submit form and required materials  
 to: TYLER THOMPSON  
[tyler.thompson@vlawmo.org](mailto:tyler.thompson@vlawmo.org)

Please fill in the application as best as possible and use additional pages if necessary. Refer to the Grant Guidance document for further information or contact Tyler Thompson with any questions.

### APPLICANT INFORMATION

NAME: Bishop and Ann White DATE: 3/20/2020  
 ADDRESS: 3 Long Marsh Lane CITY: North Oaks ZIP: 55127  
 PHONE: (360) 509-6447 EMAIL: abwhite42@gmail.com

### PROJECT SUMMARY

ESTIMATED TOTAL COST OF YOUR PROJECT: \$ 2836<sup>00</sup> AMOUNT OF GRANT REQUESTED: (\$2,000 MAXIMUM) \$ 2000<sup>00</sup>

WHEN DO YOU PLAN TO COMPLETE YOUR PROJECT? \_\_\_\_\_

#### TYPE OF PROJECT THAT WILL BE COMPLETED:

Raingarden/ Infiltration Basin      Shoreline Restoration       Native Plant Restoration       Other

If other, please describe proposed project: \_\_\_\_\_

### PROJECT BACKGROUND

Describe your property: Does your property connect to a lake, stream, ditch, or wetland? What issues are you hoping to address with your project?  
See Attachment A

Describe how your project will support the goals of the Landscape Grant Program (see guidance materials for more information).  
See Attachment A

## PROJECT SPECIFICATIONS

In order to determine the water quality benefit of your project (amount of stormwater and pollutants captured), specific information is required for VLAWMO staff to perform the calculations. If you are working with a professional landscaper, they should be able to provide you with this information.

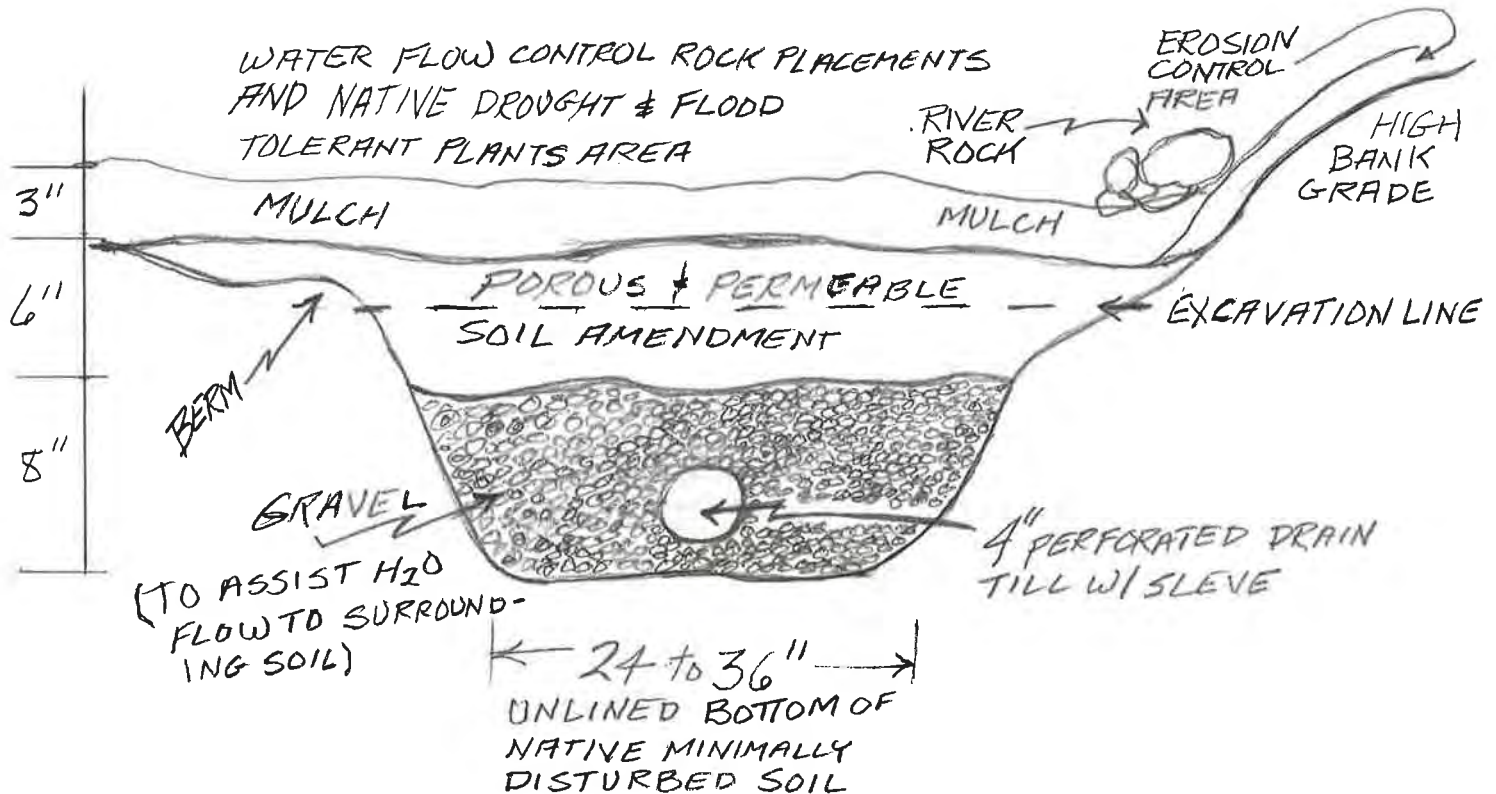
TOTAL PROPERTY AREA (SQ.FT.): <u>76,230 SQ FT</u>	PROJECT SIZE (SQ.FT.): <u>@ 490 SQ FT</u>
IMPERVIOUS AREA DRAINING TO PROJECT (SQ.FT.): <u>700 SQ FT</u>	PERVIOUS AREA DRAINING TO PROJECT (SQ.FT.): <u>4000 SQ FT</u>

IF YOUR PROJECT INCLUDES INFILTRATION, PLEASE PROVIDE THE FOLLOWING INFORMATION

SOIL INFILTRATION RATE (INCHES/HR): <u>1.76 IN/HR</u>	DEPTH OF RAINGARDEN (INCHES): <u>SEE DIAGRAM BELOW</u>
---	--

## ADDITIONAL REQUIRED MATERIALS

Include a detailed drawing and budget for your project compiled by either yourself or your contractor that provides information for how the project will be installed, lists the materials that will be purchased (see guidance regarding what can be included as part of the grant program) and a list of the plants that will be used. Native restoration projects are required to use ONLY plants that are native to this ecoregion. All other projects must include AT LEAST 50% native plants. Hybrids of native plants will not count towards this requirement. \*\*This information may be scanned and emailed to VLAWMO GIS Watershed Technician, Tyler Thompson (tyler.thompson@vlawmo.org)\*\*



**Attachment A**  
**VLAWMO Landscape Level 1 Grant Application**  
3 Long Marsh Lane, North Oaks  
3/20/2020

**PROPERTY DESCRIPTION**

This 1 ¼ acre parcel, located across the road from Charlie Lake, features one residential house, one detached garage, and a gravel driveway. For landscaping purposes it has been divided into five landscape zones plus the NE curving driveway (@260 ft. long). The accompanying hand-drawn site map, not to scale (Attachment B), shows these six areas as an orientation assist in visualizing the plan concept.

Area 1: This steep slope upland perimeter surrounds the house on three sides along the East, North, and West borders of the property. It is a deciduous forest that will be routinely but loosely managed to support a healthy native ecological system.

Area 2: This steep bank “house-garage surround” area has three parts each of which will have different landscaping requirements: (2a) A relatively narrow strip North, East, and South of the garage; (2b) North of the driveway between the house and garage and; (2c) Steep bank area immediately North and West of the house.

Area 3: This moderately sloped prairie and oak savannah area south of the East-West portion of the driveway, transitioning between areas two and four, provides on grade access to the lower level of the house.

Area 4: This mesic prairie area contains a small seasonally wet place with marsh like qualities part of the year but without standing water in the summer dry season.

Area 5: Currently a lawn, NOHOA maintained public pathway, and narrow roadside strip of a currently unmanaged amalgamation of volunteer plant life (except for thistle and buckthorn removal by the homeowner).

**PROJECT PLAN**

For the Vadnais Lake Area Water Management Organization (VLAWMO) Landscape Level 1 Grant Application, the areas included in the proposed Raingarden/Infiltration Basin project are area 1w, area 2c, and area 3.

The 3 Long Marsh Lane Raingarden/Infiltration Basin project will create a dry stream bed downflow system to redirect large amounts of rain water and snow melt, currently draining into the retaining wall behind the house and the house foundation, to the west and down the hill to the raingarden and infiltration basin and outflow in area 3 and area 4 (see Attachment B). The purpose of the project is to improve and extend the existing swale and berm and construct new swales and berms on the north and west side of the house to increase water diversion and erosion control provisions and accommodate a rain garden feature to augment dispersal of

captured water runoff along the border of areas 1w, 2c and into areas 3 and 4. Attachment C shows the contour elevations of the property with location of the proposed raingarden project.

### **PROJECT IMPLEMENTATION PLAN**

**Stage 1: Erosion control (retention and diversion) for the raingarden, including**

- a. Construct berms, swales, and installation of drain pipes to improve the capture and diversion provisions north and west of the house. This will produce an effective and systematic redirection of significant rain water and snow melt that super-saturates the soil and flows down the hill above the house.
- b. Identify and contract labor and equipment, and purchase materials required to construct new berms, swales, install drain pipes, bank retention provisions and extend and enhance same in place above the house.

**Stage 2: Surface preparation and planting, including**

- c. Purchase materials, as needed, to prepare ground and soil, including sand, erosion control blankets, gravel, stones, and a few boulders
- d. Identify and contract labor, as needed
- e. Amend/enhance soil for planting

**Stage 3: Landscape planting**

- f. Purchase plants including
  - i. Native ferns
  - ii. Native grasses, wildflowers, and sedges
  - iii. Native water-tolerant flowering plants
  - iv. Native shrubs, beneficial to bees and birds (including thickets)
  - v. Ecological enhancement of the seasonal marsh in area 4 below the raingarden infiltration basin
- g. Apply gravel and add stones
- h. Install plants
- i. Obtain and distribute mulch and bark chips

### **See Additional attachments:**

Attachment B - Map showing landscape areas on the property related to the raingarden project

Attachment C - Overhead view of property contour elevations

Attachment D - Raingarden landscape planting

Attachment E - Preliminary cost estimates for construction of berms, swales, drain pipe installation, and planting for dry stream bed, and infiltration basin for raingarden project

### **References**

Steiner, Lynn M., *Landscaping with Native Plants of Minnesota*

Olsen, Sue, *Encyclopedia of Garden Ferns*

Greenlee, John, *The Encyclopedia of Ornamental Grasses*

Robinson, Peter, *The Practical Rock and Rain Garden*

Wasowski, Sally, *Gardening with Prairie Plants*

## **LANDSCAPING GUIDELINES**

**Keep to a residential scale**

**Eschew a commercial look**

**Avoid municipal looking planting**

**Non-native can be ok if non-invasive and fulfills other objectives.eg, bee and/or bird friendly**

**Support bee, butterfly, bird and soil friendly options and practices**

## **LANDSCAPING GUIDELINES**

**Keep to a residential scale**

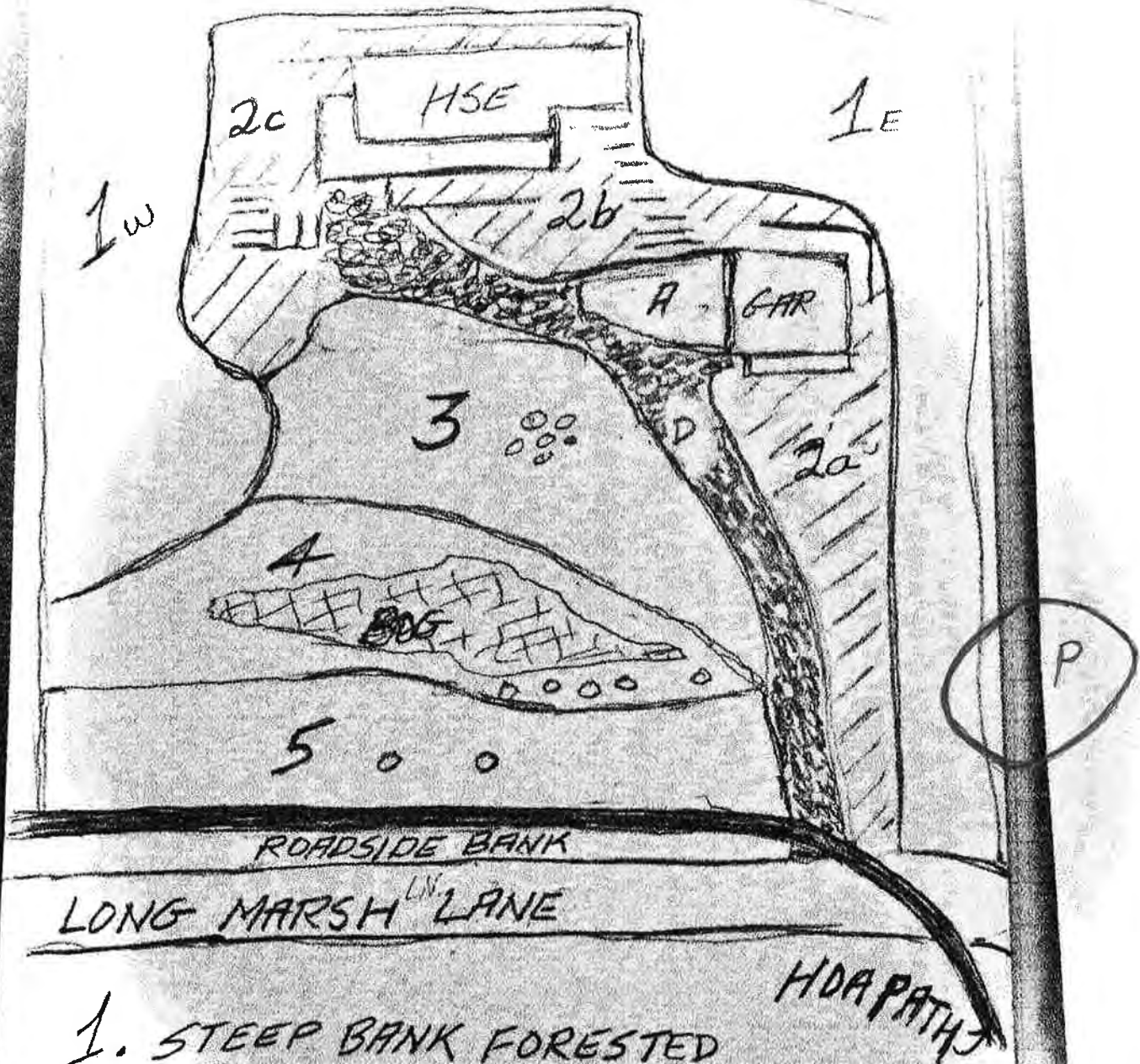
**Eschew a commercial look**

**Avoid municipal looking planting**

**Non-native can be ok if non-invasive and fulfills other objectives.eg, bee and/or bird friendly**

**Support bee, butterfly, bird and soil friendly options and practices**

ATTACHMENT B



1. STEEP BANK FORESTED
  2. HOUSE SURROUND
  3. SAVANNAH W/ BIRCH GROVE (SLOPED)
  4. PRARIE
  5. LAWN
- A. ASPHALT; D GRAVEL DRIVEWAY; P POND





**Attachment D**  
**Raingarden Landscape Planting**

**Raingarden Proper (@ 2½ ft X 36 ft. swale featured design)**

**A. Ferns**

Bracken  
Maidenhair

**B. Grasses**

Little bluestem  
Mountain blue eyed grass  
Flatstem bullrush

**C. Forbs**

Michigan lily  
Nodding ladies' tresses  
Scarlet globe mallow

**Raingarden Border Area (@ 3 ft. wide perimeter surround)**

**A. Ferns**

*Bracken*  
*Christmas*

**B. Grasses**

Prairie sedge

**C. Forbs**

Prairie dogbane  
Silvery Lupine

**Raingarden outward Perimeter Surrounding Area (original relatively undisturbed open Oak Savanna)**

**A. Ferns**

*Bracken*  
*Christmas*

**B. Grasses**

**C. Forbs**

Pasture rose  
Northern bedstraw

**D. Shrubs for a Bird Thicket**

Chock cherry  
Common snowberry  
Cockspur hawthorn

**E. Understory**

Gray dogwood

### Attachment E

Preliminary cost estimates for construction of berms, swales, drain pipe installation, and planting for dry stream bed, and infiltration basin for raingarden project

Item(s)	Details	Price
Erosion control blanket	14" X 122"	\$50.00
Burlap landscape fabric	3" X 24"	\$11.00
Metal landscape fabric anchor	#100	\$21.98
Drain pipe (perforated)	Pro 4 in. x 100 ft. HDPE Perforated Drain Pipe with Sock	\$60.72
Drain pipe (solid) (2)	4 in. x 10 ft. Corrugated HDPE Drain Pipe Solid with Bell-End (2)	\$8.60
Flexible Tee/Wye (2)	4 in. Polypropylene DWV Flexible Tee/Wye (2)	\$6.56
Elbow (4)	4 in. Polyethylene 90-Degree Barb x Female Elbow	\$22.72
Drain pipe caps (4)	4 in. Drain Cap	\$5.64
Sand	2 cu yd (54)	\$108
Gravel (1.5" river rock)	2 cu yd (78)	\$156
Gravel (pea)	2 cu yd (78)	\$156
Topsoil	2 cu yd (48)	\$96
Boulders	1 ton	\$100
Delivery - stone, gravel sand, topsoil	Kern, Fra-Dor	\$250
Planting plugs (6/7.50)	240 plants/wet area & 160 plants/ dry area	\$500
Planting 4" pots (4.50-7.50 each)	30 Specimen plants (average \$6 each)	\$180
<i>Material Subtotal</i>		<i>\$1733</i>
Sales tax		\$127
Labor (berms & French drains, planting)	\$18 X 32= 576	\$576
Bobcat rental & driver (4 hrs)	Woodland Restoration/Jared Culp	\$400
<i>Grand Total</i>		<i>\$2836.00</i>
Mulch	Ramsey County	free
Compost	Ramsey County	free

Soil, sand, gavel, rock estimates from Kern Landscaping Resources website

Drain pipe product prices from Home Depot

Plant cost estimate from Prairie Restorations catalog

Labor and Equipment rental - Woodland Restoration/Jared Culp



**VLAWMO**

**VADNAISS LAKE AREA WATER MANAGEMENT ORGANIZATION  
Sustainable Lake Management Plan  
Birch Lake, Ramsey County, MN**



**Prepared by Dawn Tanner and Tyler Thompson  
March 2020**

# VADNAIS LAKE AREA WATER MANAGEMENT ORGANIZATION

## SUSTAINABLE LAKE MANAGEMENT PLAN – BIRCH LAKE

### MARCH 2020

**SLMP Update:** The Birch Lake SLMP was originally prepared in 2009 by VLAWMO and Blue Water Science. Numerous surveys have been completed since that time. This SLMP includes prior data and incorporates new data collected since the last SLMP was completed. With data through time, we are able to look at trends in water quality and vegetation in this lake. We are also able to make new plans going forward to build on work that has been completed.

Our mission at VLAWMO is to protect and enhance water resources in the watershed through water quality monitoring, wetland protection, and water quality improvement projects. The cornerstone of our success is our partnerships. We appreciate all of our partners' work and assistance to help us fulfill our mission.

Figure 1: Original Birch Lake SLMP Image (2009).



Vadnais Lake Area Water Management Organization  
800 County Road E East  
Vadnais Heights, MN 55127  
651-204-6070  
[www.vlawmo.org](http://www.vlawmo.org)



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FULL REPORTS (BELOW) INDICATED IN APPENDIX AVAILABLE ON VLAWMO WEBSITE -> BIRCH LAKE

BIRCH LAKE CONTOUR (BATHYMETRY) SURVEY: 2019

BIRCH LAKE AQUATIC VEGETATION SURVEYS: 2007, 2013, 2015, AND 2019

BIRCH LAKE SEDIMENT SURVEY: 2008

BIRCH LAKE SHORELAND INVENTORY: 2007

BIRCH LAKE AQUATIC INVASIVE SPECIES ACTION PLAN: 2015

BIRCH LAKE FISH SURVEYS: 2011, 2014

BIRCH RETROFIT ANALYSIS: 2013

## 1.1 INTRODUCTION

Birch Lake is located in the City of White Bear Lake, Ramsey County, and is in the Vadnais Lake Area Watershed. Birch Lake is a shallow lake with a maximum depth of 7.4 feet. The 125-acre lake has clear water and abundant aquatic vegetation. The lake receives input from the surrounding 575-acre subcatchment (subwatershed). Birch Lake has excellent water quality. It is the highest quality lake in the Vadnais Lake Area Watershed. It is classified as mesotrophic according to the TSI (Trophic State Index, MPCA). Birch Lake receives chloride from nearby roads and neighborhoods and nutrients from developed areas. The lake receives inflow from its surrounding subcatchment, and outflows in the north of the lake through the Rotary Park stream. The stream connects with North Oaks Chain of Lakes and eventually flows into East Vadnais Lake.

Birch Lake has been targeted for a number of habitat and structural improvements to protect water quality. Shoreline restoration areas are abundant, neighbors have used VLAWMO cost-share funds to add raingardens and other native vegetation to their yards, and an iron-enhanced sand filter will be constructed during summer 2020 with Watershed-based Funding from the Board of Water and Soil Resources. Service-learning students worked with VLAWMO during 2019 to remove buckthorn on a parcel adjacent to the future site of the filter. As a result of that invasive species control effort, VLAWMO and the City of White Bear Lake were able to work together on a Conservation Partners Legacy grant through MN DNR. That was funded and completed in 2020. Maintenance and continued restoration of the site will be ongoing to prevent recolonization of buckthorn and optimize filter function.

The Birch Lake Improvement District (BLID) is active in protecting this lake. The BLID partners with VLAWMO to fund additional water quality monitoring (e.g., chlorides). They also conduct vegetation harvest in the lake, permitted through MN DNR. One of the major actions of the BLID was to purchase a lake harvester, which they use to keep open areas for recreation. Recent vegetation surveys show that invasive Eurasian watermilfoil has expanded. VLAWMO would like to increase involvement with the BLID to strategically harvest vegetation and limit invasive species spread. The BLID has also worked with VLAWMO to do fish stocking, although no efforts are currently underway. Many studies, including in-lake and shoreline vegetation, fish, sediment, and bathymetry have been conducted on this lake. All of those studies are available on the VLAWMO website -> Birch Lake.

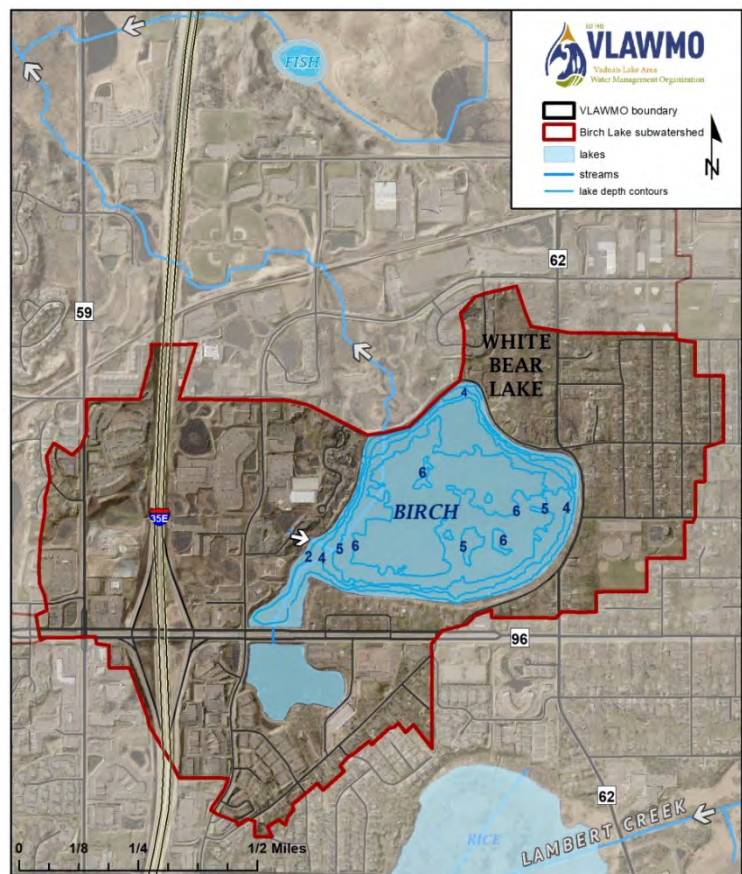


Figure 2: Birch Lake and Subcatchment Area.

### 2.1 AERIAL PHOTO HISTORY

Figure 3: 1940 aerial photo of Birch Lake



In 1940, aerial photos from Ramsey County show that the land surrounding Birch Lake was largely agricultural, and the road that is now Highway 96 was in place to the south of Birch Lake.

Figure 4: 1953 aerial photo of Birch Lake



By 1953, residential development is present around the lake. Vegetation is less dense on the surface water area on either side of Highway 96.



## 2 WATERSHED FEATURES

Figure 5: 1974 aerial photo of Birch Lake



By 1974, Interstate 35E is in place, and development east of Birch Lake has increased.

Figure 6: 1985 aerial photo of Birch Lake



By 1985, White Bear Parkway is constructed, and residential development has continued to grow east of Birch Lake as well as commercial development on the south.

## 2 WATERSHED FEATURES

Figure 7: 2006 aerial photo of Birch Lake



The 2006 aerial photo shows that commercial development has been built west and south of the lake along with townhome developments on the sides to the west and north. White Bear Parkway has been extended to cross Highway 96. It cuts through a portion of the southern basin of Birch Lake (colloquially known as Little Birch).

## 2 WATERSHED FEATURES

Figure 1: 2011 aerial photo of Birch Lake



In 2011, little has changed since 2006 at this scale.

## 2 WATERSHED FEATURES

Figure 2: 2018 aerial photo of Birch Lake



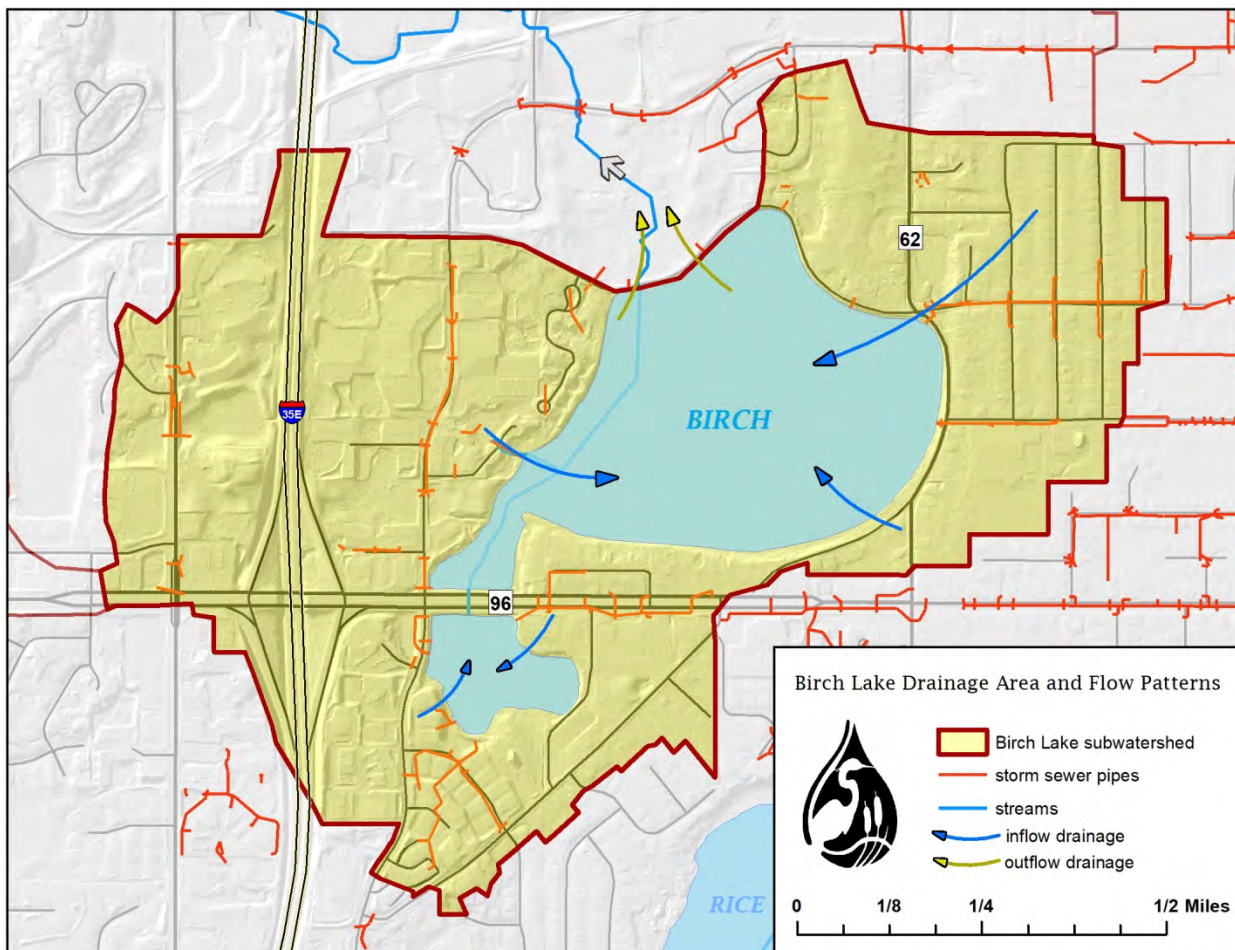
In 2018, little has changed since 2011, though several small residential lots have been developed near the Lake in recent years. An iron-enhanced sand filter will be constructed on the northeast corner of the Lake in 2020 to treat roughly 50 acres of stormwater input into Birch Lake. Note that additional years of aeriels are available on the VLAWMO GIS Map, linked on the website under Resources.

## 2 WATERSHED FEATURES

### 2.2 BIRCH LAKE DRAINAGE AREA

The drainage area (shaded area in Figure 2) into Birch Lake is approximately 575 acres and is about 5 times larger than the surface area of Birch Lake, which is 125 acres. This is a relatively small drainage area to Birch Lake. Lakes with a small drainage area (less than 10:1 ratio) tend to have better water quality.

Figure 10: Birch Lake Drainage Area and Flow Patterns



In 2007 and 2008, VLAWMO collected water samples from 3 areas around the lake where stormwater drains enter the lake to track the levels of nutrients and sediment. Results are shown in Table 1.

Table 1: Birch Lake Runoff Water Quality

	Avg TP		Avg NO <sub>3</sub> N		Avg TSS		Avg VSS	
Birch Lake - 4th St	0.282	44.2%	0.165	24.4%	12.7	27.9%	5.7	28.1%
Birch Lake - Birch Lk Blvd	0.091	14.2%	0.298	44.1%	17.0	37.3%	7.8	38.4%
Birch Lake - Bremer Bank	0.265	41.5%	0.213	31.5%	15.9	34.9%	6.8	33.5%

## 2 WATERSHED FEATURES

Figure 11: Impervious Surfaces in the Birch Lake Drainage

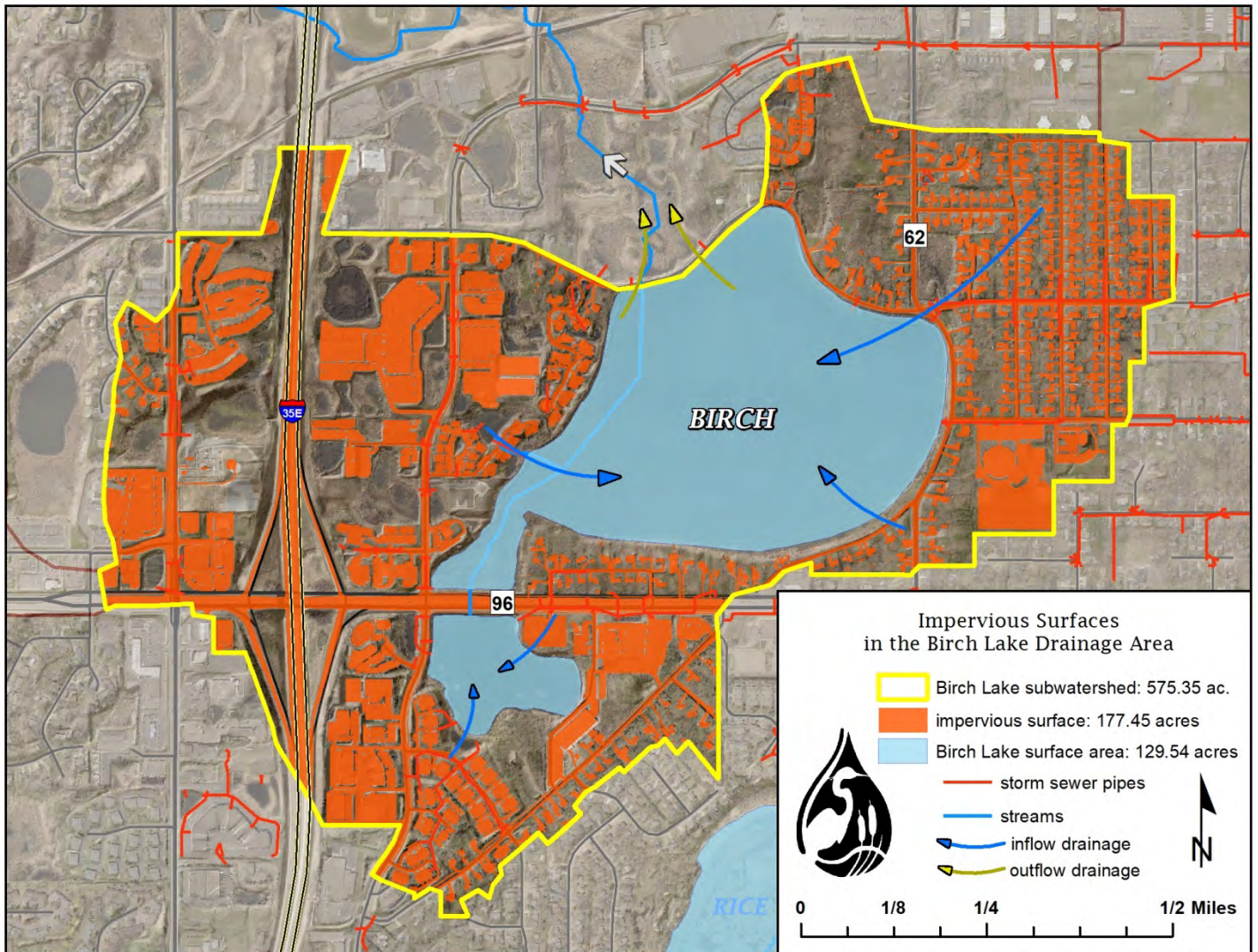


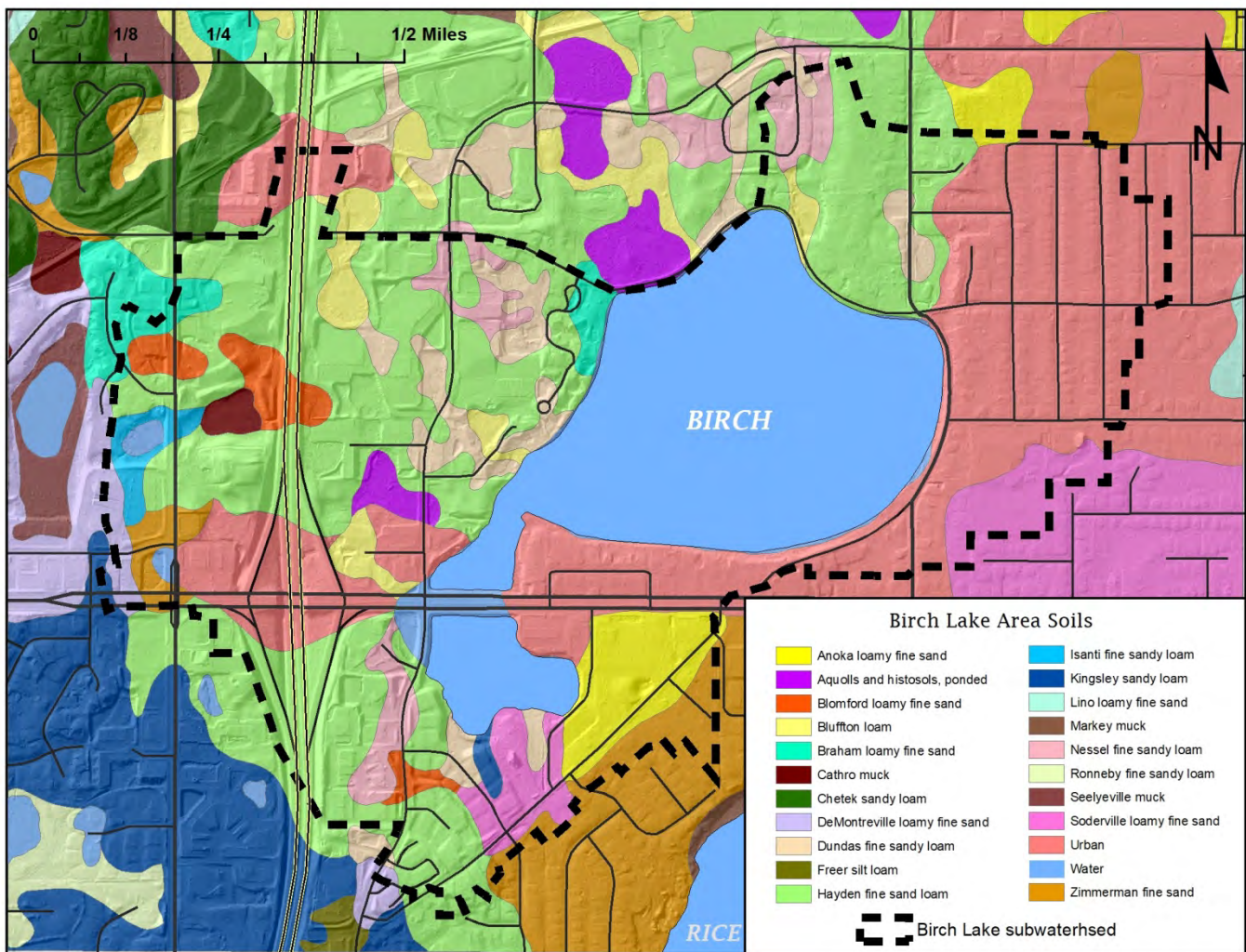
Figure 11 shows that a large amount of land cover in the Birch Lake Subwatershed is developed, and consists primarily of impervious surface (30.8% of total land cover, including water surface area and undeveloped surface area; not including Birch Lake's surface water area, impervious surface is 39.8% of the total land cover.). The majority of precipitation that falls on those surfaces moves rapidly into downstream lakes, wetlands, and streams.

## 2 WATERSHED FEATURES

### 2.3 BIRCH LAKE SOILS

Soils in the Birch Lake Subwatershed are dominated by Hayden fine sandy loam and Urban Land-Zimmerman Complex. Both soils are good for building and residential development. These soils tend to be well drained, allowing water to infiltrate. With development, much of the soil has been compacted, moved, and paved over. Retrofits such as raingardens are especially effective in these soil types and have been added over time.

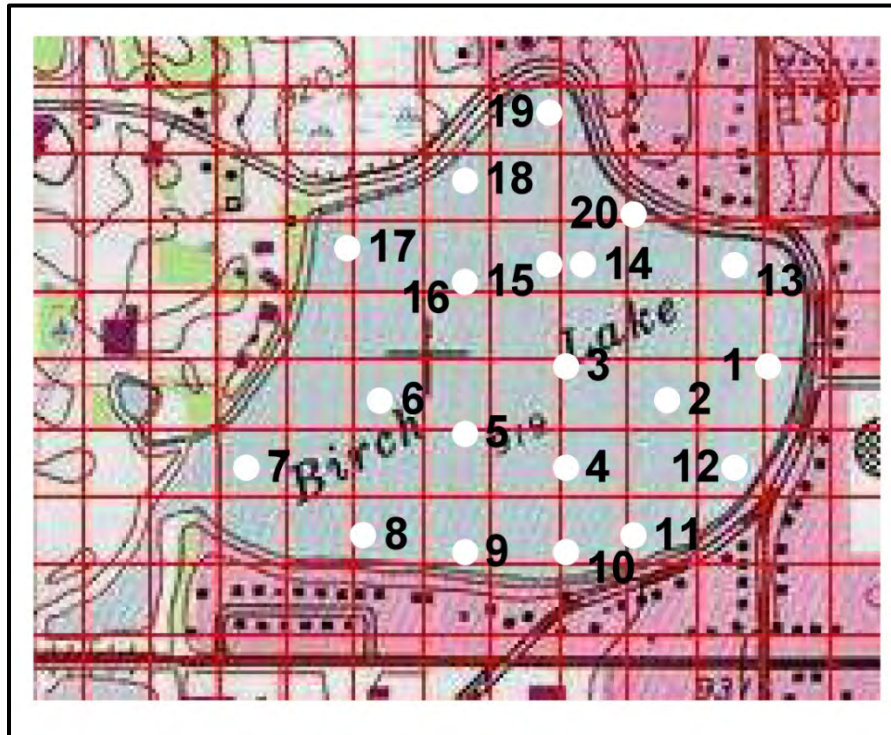
Figure 12: Birch Lake Area Soils



## 2 WATERSHED FEATURES

Soils in Birch Lake sediments have also been analyzed. A sediment study in the lake was conducted in 2008 to inform the Aquatic Invasive Species Action Plan that was completed in 2015. The lake sediment study was conducted with uniform sampling of the lake area. A total of 20 samples were collected and analyzed.

Figure 13: Birch Lake Sediment Sampling



A total of 15 parameters were analyzed for each sediment sample (see full list in the report included on the VLAWMO website -> Birch Lake). Lake sediments overall are soft and mucky. Typically high organic matter content is associated with the soft mucky sediments sample sites. Lake sediment phosphorus concentrations at all sites were low.

### Lake Sediments and Invasive Aquatic Plants

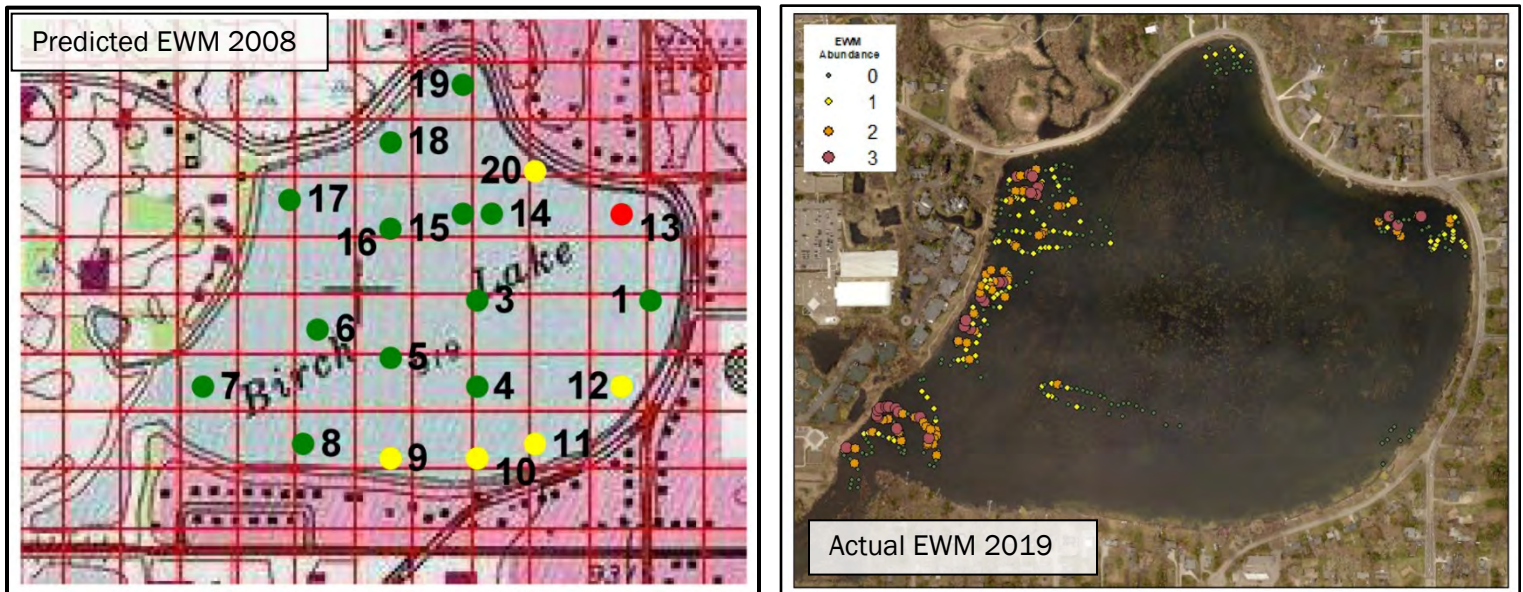
Lake sediment sampling results from 2008 were used to predict lake bottom areas with the potential to support nuisance (invasive) Curlyleaf pondweed growth. Based on sediment parameters of pH, sediment bulk density, organic matter, and the Fe:Mn ratio (McComas, unpublished), the predicted growth characteristics of Curlyleaf pondweed was investigated. Curlyleaf pondweed growth was not predicted to produce nuisance growth (where plants top out in a solid canopy) in Birch Lake, based on the low sediment pH and high Fe:Mn ratio.



## 2 WATERSHED FEATURES

Lake sediment sampling results were also used to predict lake bottom areas with the potential to support nuisance Eurasian watermilfoil (EWM) growth. EWM was first documented in Birch Lake in 2005. Based on the key sediment parameters of  $\text{NH}_4$  and organic matter (McComas, unpublished), the predicted growth characteristics of EWM were investigated and predicted. Sediment nitrogen conditions in Birch Lake are relatively high. However, because organic matter content is very high, nuisance milfoil growth was predicted to be rare. EWM may grow widely through Birch Lake, but it was not expected to produce extensive perennial nuisance matting conditions. Ramsey County Soil and Water Conservation Division conducted an aquatic vegetation survey and EWM delineation in 2019, so we are able to compare predicted versus actual growth of this invasive species. EWM has spread since 2008. Predicted areas for colonization of EWM do not closely match with actual colonization that has occurred over time.

Figure 14: Birch Lake Predicted EWM Growth (2008). Green = low, Yellow = medium, and Red = high predicted coverage by EWM versus Actual Colonization (2019)

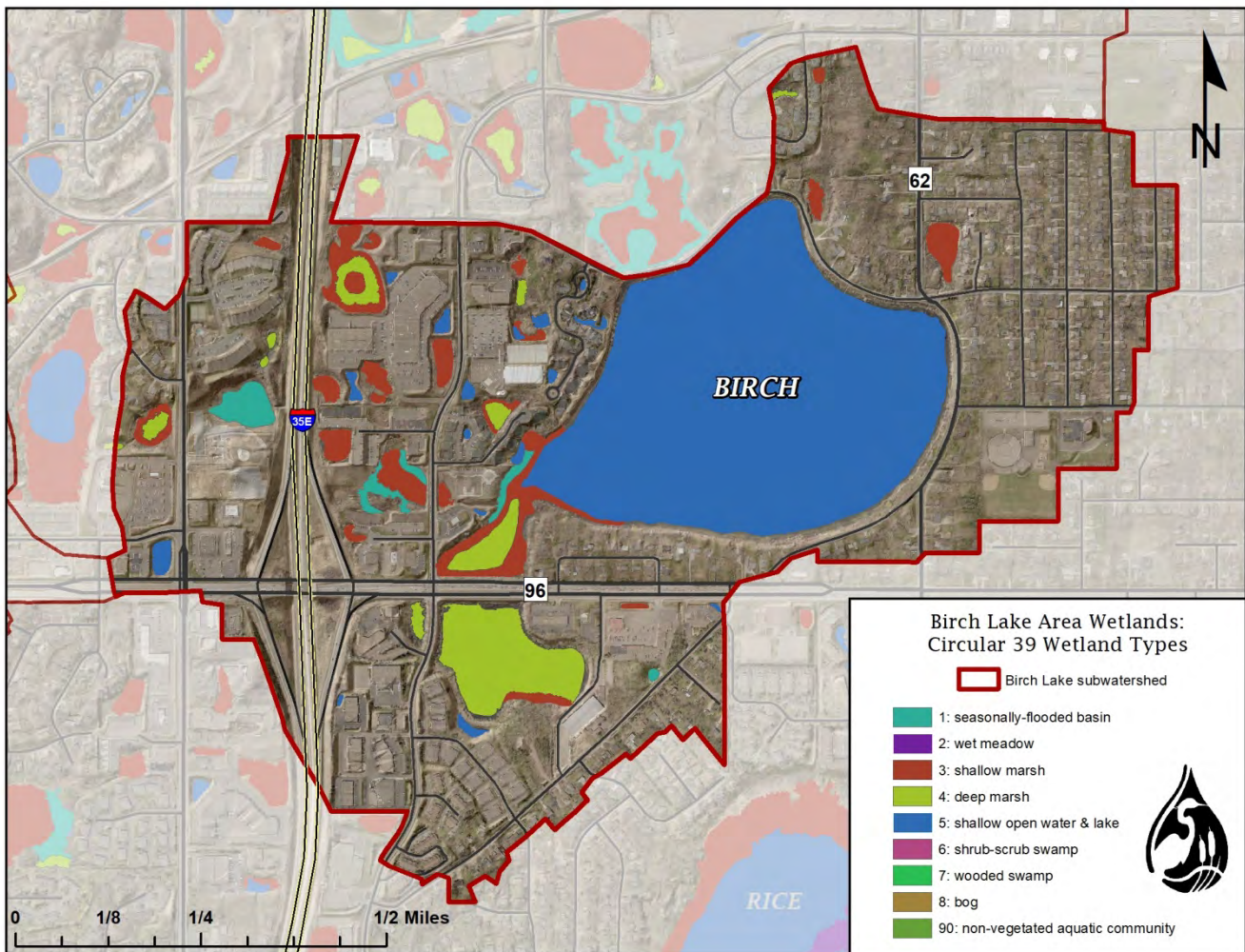


## 2 WATERSHED FEATURES

### 2.4 BIRCH LAKE WETLANDS

There are 40 delineated wetlands in the Birch Lake subwatershed totaling 46.6 acres or 8% of the watershed area, also considered “ponded” area. Ideally, a watershed should have at least 5% of the area ponded, so the subwatershed area of Birch Lake meets this criterion. The western third of the subwatershed contains the majority of the wetland area, and was also the last area to be developed. For new development or redevelopment, the creation of storm water mitigation or wetland area is advised, and in some cases is mandatory, according to Wetland Conservation Act (WCA) rules and/or the VLAWMO Water Management Policy.

Figure 15: Birch Lake Circular 39 Wetland Types

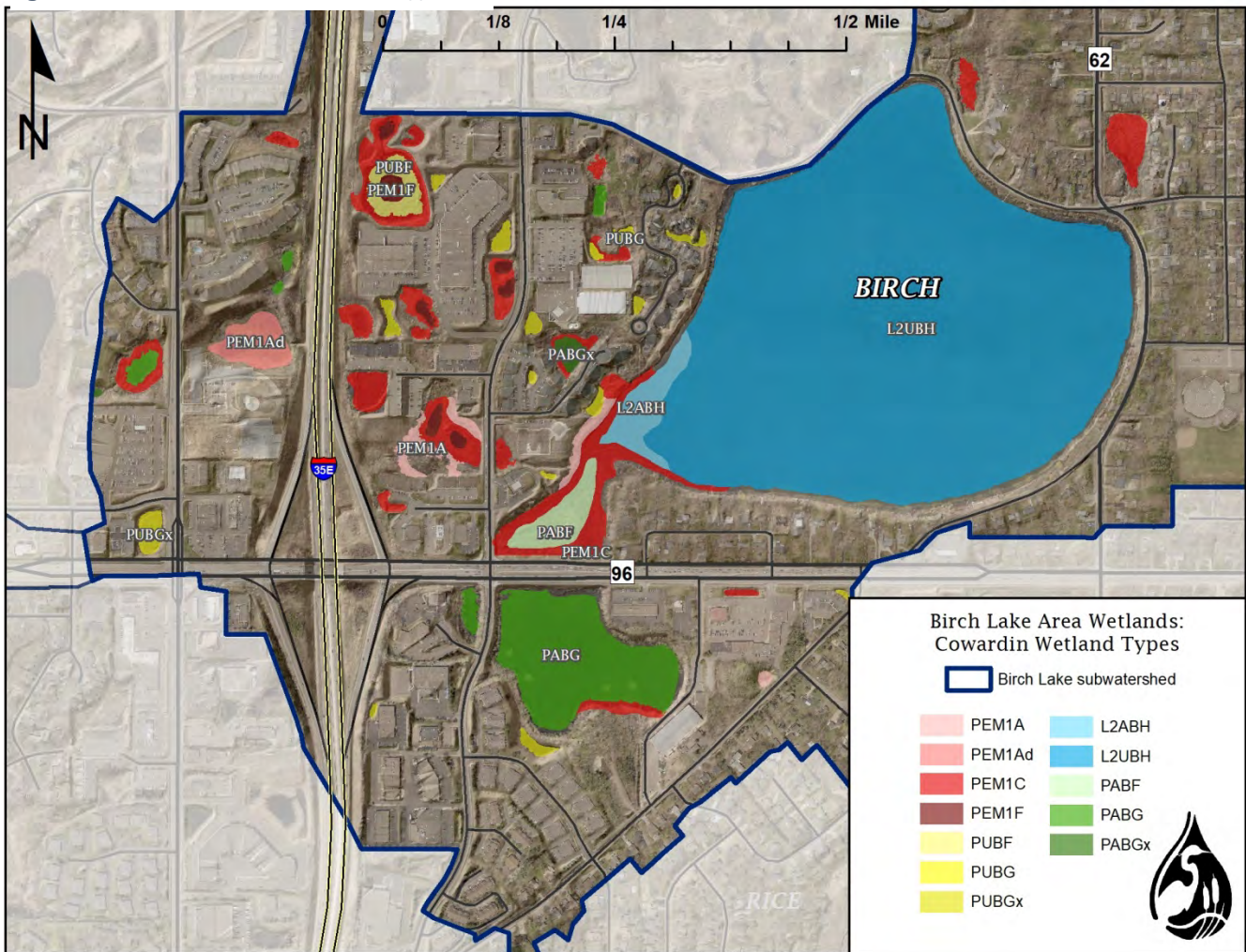


As Classified by the Circular 39 wetland classification system, the southwest bay of the Birch Lake and the lobe south of Highway 96 (South Birch) have mixed classification of deep and shallow marsh, while the greater area of Birch Lake is classified as shallow open water or lake, as the majority of the lake’s perimeter is surrounded by residential development. The southwest corner of the Lake exhibits the most shallow wetland characteristics with predominantly emergent vegetation, and the western shore has the most lightly-developed or altered shoreline habitat.

## 2 WATERSHED FEATURES

Within the US Fish & Wildlife Service's National Wetland Inventory (Cowardin Classification System), there are three predominant classifications around Birch Lake that are non-Lacustrine (lake): PEM1C, PABF, and PABG, which correspond to Shallow and Deep Marsh wetlands (Figure 16). PEM1C refers to palustrine, emergent, persistent marshes that are seasonally flooded (1C), whereas PABF is identified as a palustrine, aquatic bed, semi-permanently flooded. PEM1C surrounds the southwestern shoreline and PABF encompasses the middle of the southwest bay. PABG is identified as being palustrine, aquatic bed, and intermittently-exposed, and is identified as nearly the entire South Birch basin. These areas within the Birch Lake basin and along the shoreline add up to 19.8 acres.

Figure 16: Birch Lake Cowardin Wetland Types

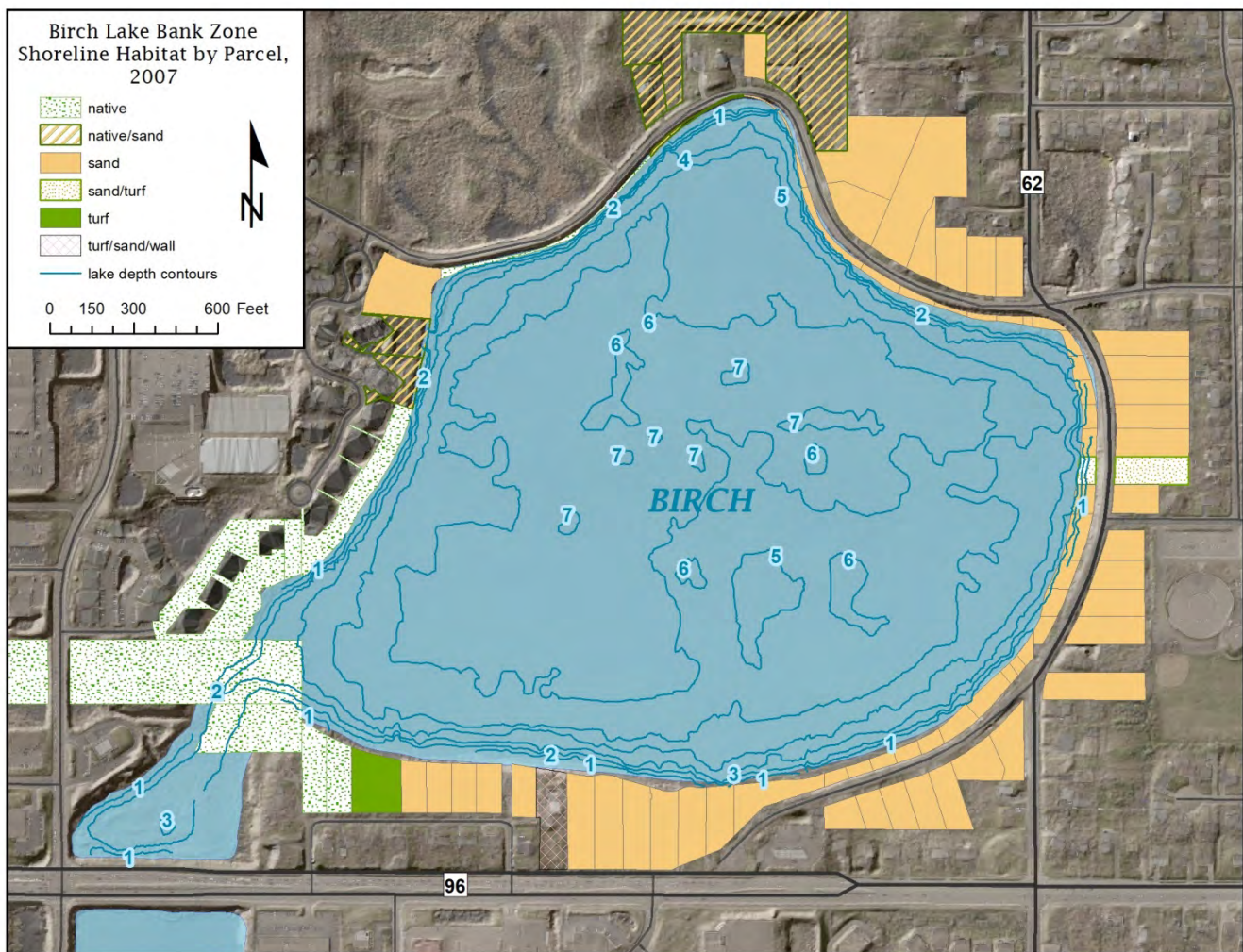


## 2 WATERSHED FEATURES

### 2.5 BIRCH LAKE SHORELINE VEGETATION

A shoreline survey was conducted by VLAWMO and Ramsey Conservation District (RCD) staff in 2007 (The report was published in 2008). Sixty parcels were evaluated for this effort. Based on our subjective criteria, approximately half of the sites were mostly natural or naturalized, while the other half of parcels were cleared to the shore. There were no signs of major erosion problems. Thirty parcels were deemed to have high potential for shoreline restoration. Nineteen of the properties that are cleared to the shore were determined to have good potential for restoration to a more natural shoreline. By creating a buffer of natural vegetation along the shoreline, there will be more filtering of chemicals from lawns and roads before it reaches the water. Homeowners on Birch Lake should be encouraged to implement these types of landscaping project. Grants and design assistance are available through VLAWMO and the Ramsey Soil & Water Conservation Division to help homeowners with these projects.

Figure 17: Birch Lake Bank Zone Shoreline Habitat by Parcel



A 25-50 foot buffer of natural vegetation that extends both onto land and into water and covers at least 75% of a property's frontage is ideal for the a lake ecosystem. Twenty-five percent of the lake frontage can be mowed and/or used as a beach area. For some people, this requires a change in their idea of what a nice shoreline looks like. Reestablishing natural conditions improves water quality by limiting the amount of

## 2 WATERSHED FEATURES

stormwater runoff, reducing the amount of lawn fertilizer that would wash into the lake. Native prairie grasses, shrubs, or other perennials are deep-rooted and hold a shoreline in place. Naturalized plantings also discourage nuisance wildlife and waterfowl such as Canada geese and muskrats while attracting desirable ones such as loons, otters, frogs, hummingbirds, and ducks.

These issues were identified in 2007. Although shoreline restoration has been conducted and maintained with the City of White Bear Lake, there are still large areas that are mowed to the shoreline. Additional restoration and minimizing clearing remains a recommendation for Birch Lake.

Table 2: Birch Lake Shoreline Inventory Summary

Shoreline Material %		
Grass	42.50%	Approximately half of the parcels are grass all the way to the shore; the other half is mainly woody and natural vegetation.
Rip Rap	1%	
Woody Vegetation	53.50%	
Retaining Wall	1%	
Sand	2%	
Shoreline Conditions		
0-25% Natural	28 (45.16%)	Approximately half of the parcels are cleared to the shore; the other half are kept very natural.
25-50% Natural	4 (6.45%)	
50-75% Natural	1 (1.61%)	
75-100% Natural	29 (46.77%)	
Upland Conditions		
0-25% Natural	45 (72.58%)	Most of the properties have homes or businesses on site and therefore the majority of the upland area are developed and mowed.
25-50% Natural	7 (11.29%)	
50-75% Natural	6 (9.67%)	
75-100% Natural	4 (6.45%)	

Figure 18: Example of a Birch Lake shoreline parcel. This parcel was rated as having good natural conditions.

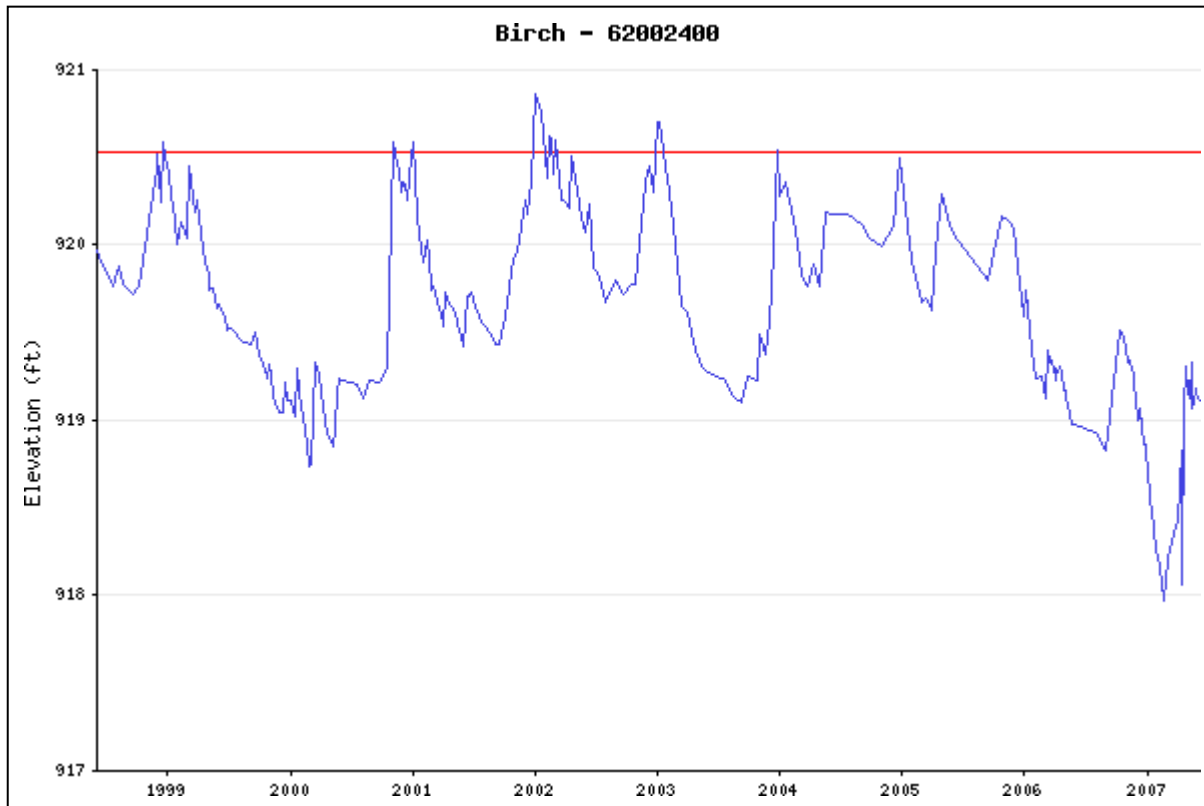


## 2 WATERSHED FEATURES

### 2.6 BIRCH LAKE LEVELS

Water levels have fluctuated in Birch Lake since records were taken starting in June 1930 when the lake was dry. The highest recorded level was in 1952 when the lake was 7 feet deep. Water levels from 1998 through 2007 are shown in Figure 19. Birch Lake was approximately 2 feet below its historical average when the original SLMP was developed in 2007. After an especially wet period in 2018-2019, the maximum lake depth exceeded 1952 levels and was 7.4 feet deep. This shows that lakes are dynamic systems that vary over time.

Figure 19: 10-year Hydrograph of Birch Lake



When looking at the lake level data from 1930 to present, there have been other times when the lake level was lower than it was in 2007. The lake was lower in the late 1930s, 1948–1949, 1959, and 1989–1990. In 2007, it was predicted that Birch Lake levels would once again rise to its historical average. That has indeed occurred. As of, 2019, the lake was 7.4 feet deep.

## 3.1 BIRCH LAKE DEPTH

A bathymetry survey was completed by Ramsey County Soil and Water Conservation Division on April 16, 2019, to develop a map of the bottom of Birch Lake and determine depths. The survey was conducted early (about 1-week post ice out) to capture depths before aquatic vegetation became too thick. Thick vegetation could register as lake bottom and give erroneously shallow readings. Birch Lake has a maximum depth of 7.4 feet. It follows a typical lake bottom shape, with shallower areas along the outer areas and deeper sections towards the middle. Birch Lake has small pockets that are 7-feet deep in the middle of the lake.

Figure 20: Birch Lake Depth with 1-foot Contours

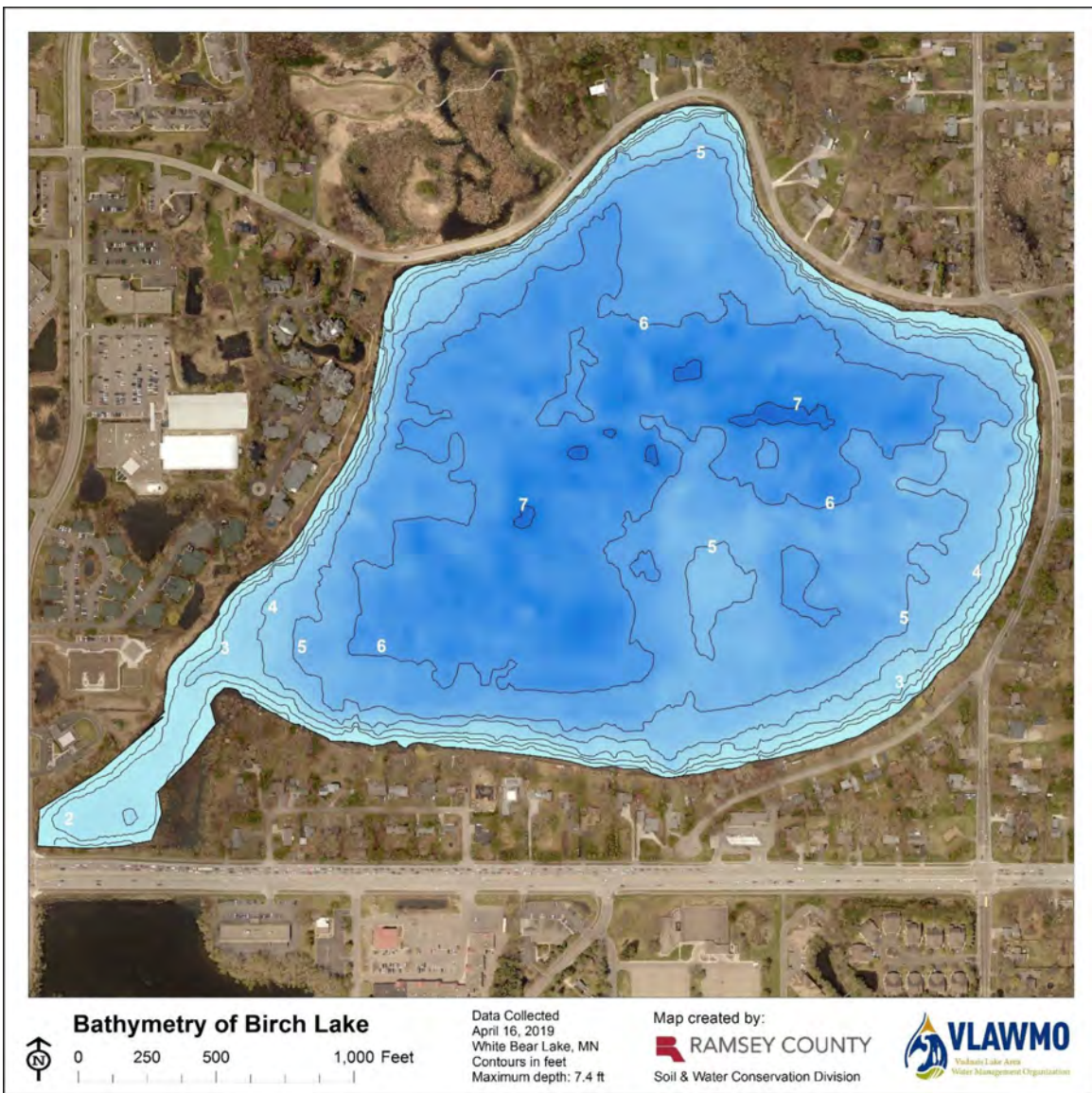


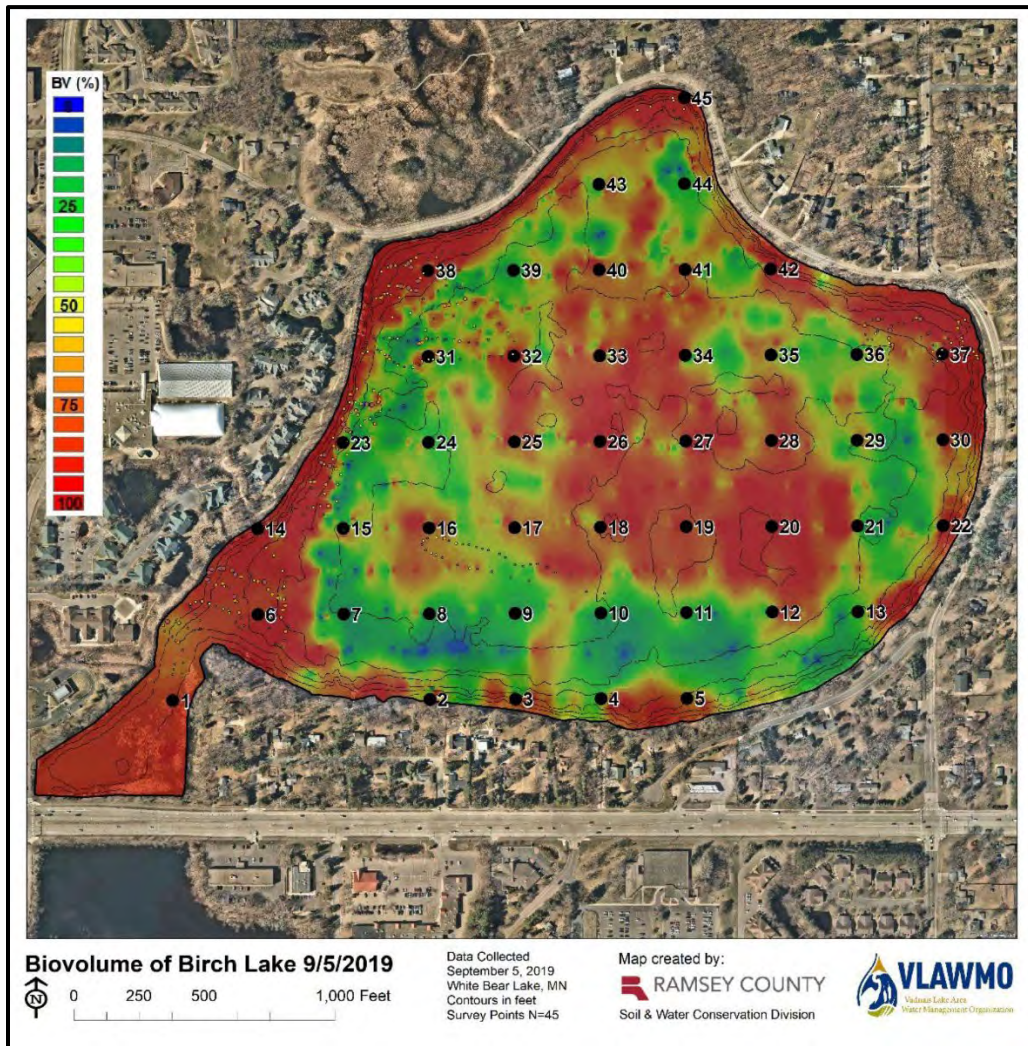
Figure 3. Depth of Birch Lake with 1-ft contours

## 3.2 BIRCH LAKE BIOVOLUME AND AQUATIC VEGETATION

### Biovolume

Ramsey Soil and Water Conservation Division conducted a biovolume and aquatic vegetation survey on September 5, 2019. Biovolume measures the density of plant life within the lake. Blue signifies 0% plant life, and red signifies 100% plant life. At depths greater than 4-6 feet, there is commonly no plant life in Minnesota lakes. Plant growth is limited because the sun does not penetrate the water column below those depths enough to allow photosynthesis to occur. Birch Lake has abundant plant life throughout the lake, even in its deepest pockets (Figure 21).

Figure 21: Birch Lake Biovolume





### 3 LAKE FEATURES

#### Aquatic Vegetation

Blue Water Science conducted previous vegetation surveys (2007, 2013, and 2015). Ramsey County Soil and Water Conservation Division (RCSWCD) conducted the most recent vegetation survey (September 2019). Because of previous efforts, we can look at vegetation trends through time and see that the extent of Eurasian watermilfoil (EWM) has expanded. Because of suspected expansion of this invasive species, RCSWCD included a delineation for EWM in 2019.

In 2007, early summer and fall surveys were completed. In early summer, there was 100% coverage of the lake with aquatic plants. The most abundant plant in Birch Lake was Fern pondweed. It was found at 96% of the 54 stations. Overall aquatic plants grew to a depth of 5 feet in 2007. Eurasian watermilfoil (EWM) was found at 2 sites and a possible hybrid milfoil was found at 16 additional sites. In fall, the dominant plant species was also Fern pondweed. EWM was documented in this late summer survey. Overall, aquatic plants grew out to a depth of 5 feet, and were found throughout the entire lake. Species documented through these surveys are shown in the table below.

Table 3: Aquatic Plant Survey Results from 2007

Common Name	Scientific Name	Percent Occurrence		Native to MN?
		Summer	Fall	
Olney's Three-square Bulrush	<i>Scirpus americanus</i>	2%	2%	Yes
Arrowhead	<i>Sagittaria spp.</i>	4%	0%	Yes
Watershield	<i>Brasenia scheberi</i>	4%	4%	Yes
Spatterdock	<i>Nuphar variegatum</i>	15%	2%	Yes
White Water Lily	<i>Nymphaea odorata</i>	2%	2%	Yes
Chara	<i>Chara spp.</i>	13%	0%	Yes
Needle Spikerush	<i>Eleocharis acicularis</i>	2%	0%	Yes
Canada Waterweed	<i>Elodea canadensis</i>	26%	6%	Yes
Filamentous Algae	<i>Spirogyra/Cladophora sp</i>	6%	0%	Yes
Northern Watermilfoil	<i>Myriophyllum sibiricum</i>	2%	0%	Yes
Hybrid and Eurasian Watermilfoil	<i>Myriophyllum spicatum (EU)</i>	34%	34%	No
Large-leaf Pondweed	<i>Potamogeton amplifolius</i>	31%	43%	Yes
Illinois Pondweed	<i>Potamogeton illinoensis</i>	2%	0%	Yes
Fern Pondweed	<i>Potamogeton robinsii</i>	96%	100%	Yes
Coontail	<i>Ceratophyllum demersum</i>	0%	2%	Yes
Naiad	<i>Najas spp.</i>	0%	2%	Yes
Water Celery	<i>Vallisneria Americana</i>	0%	26%	Yes

In 2013, 1 aquatic plant point-intercept survey was conducted. The September 5, 2013 survey was done to characterize the aquatic plants community of Birch Lake. Fern pondweed was again the dominant plant and was found at 26 out of 45 sample sites (58% of the sites). Plants grew out to about 6 feet of water, which was also about the deepest depth in the lake.

The aquatic plant community in 2013 had 10 species of submerged plants in late summer (See full report on VLAWMO's website -> Birch Lake). This is a good plant diversity condition. Eurasian watermilfoil was the only non-native plant present. EWM covers about 8 acres in late summer but was found to have mostly light growth. EWM control was not deemed necessary at this time by Blue Water Science.

# 3 LAKE FEATURES

Figure 22: Birch Lake Vegetation Sampling Locations 2013



Figure 23 : Birch Lake Native Plant and EWM Locations 2013

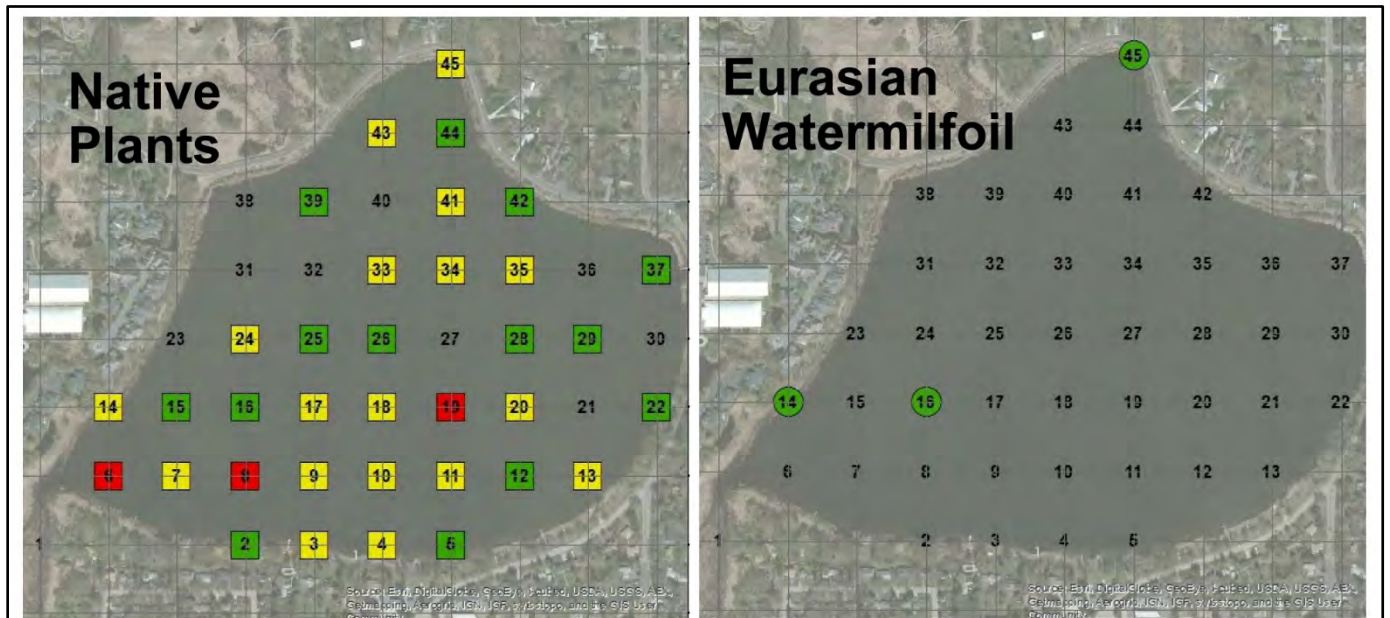


Figure 4. Aquatic plant coverage maps for September 5, 2013.

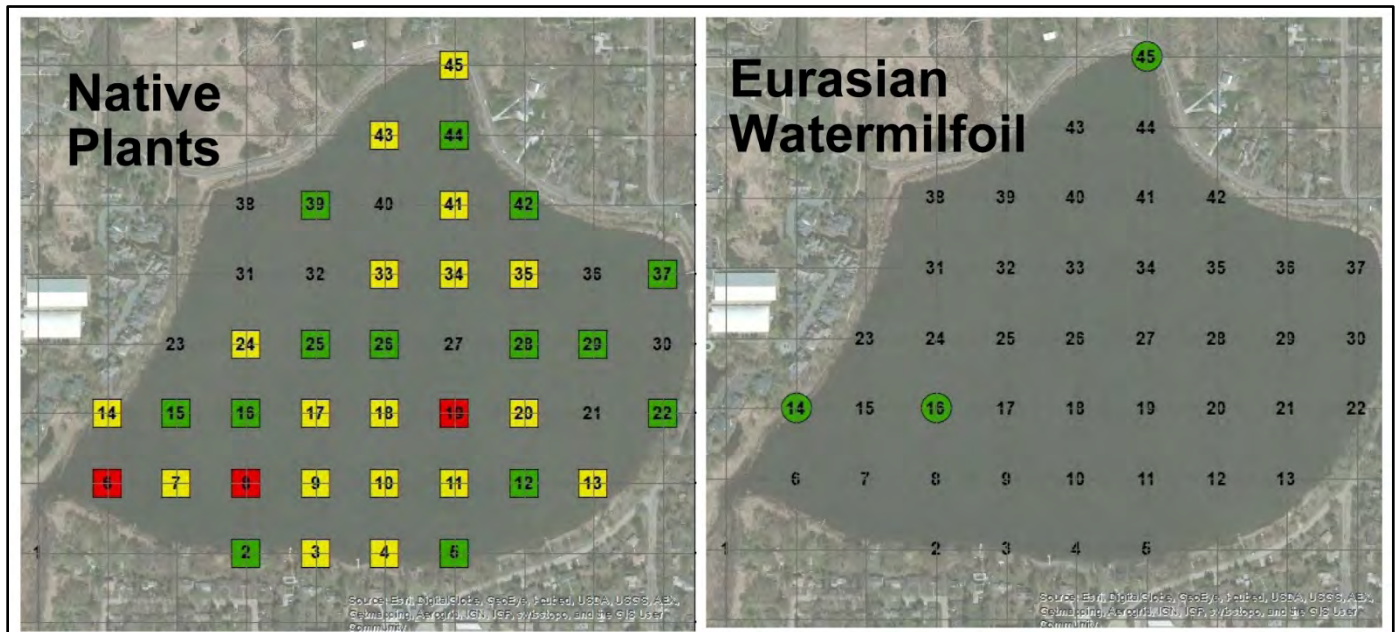
[top] Native plant coverage was about 95 acres.

[bottom] Eurasian watermilfoil, a non-native species, coverage was about 8 acres.

### 3 LAKE FEATURES

In 2015, aquatic plants in Birch Lake were checked at 13 points on September 8, 2015 using the same sites that were sampled in 2013. Results of the 2015 plant check indicated that aquatic plants were similar in abundance compared to the 2013 survey. In 2015, Fern pondweed and Water celery were the dominant plants, which was also the case in 2013. The plant community in Birch Lake in 2015 was similar to conditions in 2013. In 2013, the lake was about 1 foot lower in depth, and plants may have been closer to the surface. Plant distribution and coverage indicated that the lake remained in a healthy condition.

Figure 24: Birch Lake Native Plant and EWM Locations 2015



In 2019, 45 points were surveyed, replicating the study design of previous vegetation efforts. Aquatic macrophytes were found at all 45 points. 25 total macrophyte species were identified, 11 of which occurred at more than one point and 3 of which (Flat-stem Pondweed, Watermeal, and Northern Watermilfoil) were observed between designated points. The previous survey of 45 points in 2013 identified 12 species, all of which were detected in the 2019 survey, although Flat-stem pondweed, which had been found in four points in 2013, was only observed between points in 2019. The most prevalent species were Fern Pondweed (*Potamogeton robbinsii*) and Large-leaf Pondweed (*Potamogeton amplifolius*), both above 50% occurrence. Water Celery (*Vallisneria americana*) and Canada Waterweed (*Elodea canadensis*) were also prevalent at 29% and 27% occurrence, respectively. Present between 7% and 18% occurrence in the lake were Coontail (*Ceratophyllum demersum*), Slender Naiad (*Najas flexilis*), Eurasian Watermilfoil (*Myriophyllum spicatum*), Small Pondweed (*Potamogeton pusillus*), White Water Lily (*Nymphaea odorata*), Filamentous Algae (*Spirogyra* sp./*Cladophora*), and Muskgrass (*Chara*). Remaining species were found at one point only in the survey. The secchi disk reading was limited due to the shallowness of the lake. The disk was visible resting at the bottom at 6 ft, and so the official reading was not taken – the measurement was thus greater than 6 feet (or greater than 1.8 meters). Water temperature was 69.5 degrees. For full distribution information, refer the the report posted on the VLAWMO website -> Birch Lake.

### 3 LAKE FEATURES

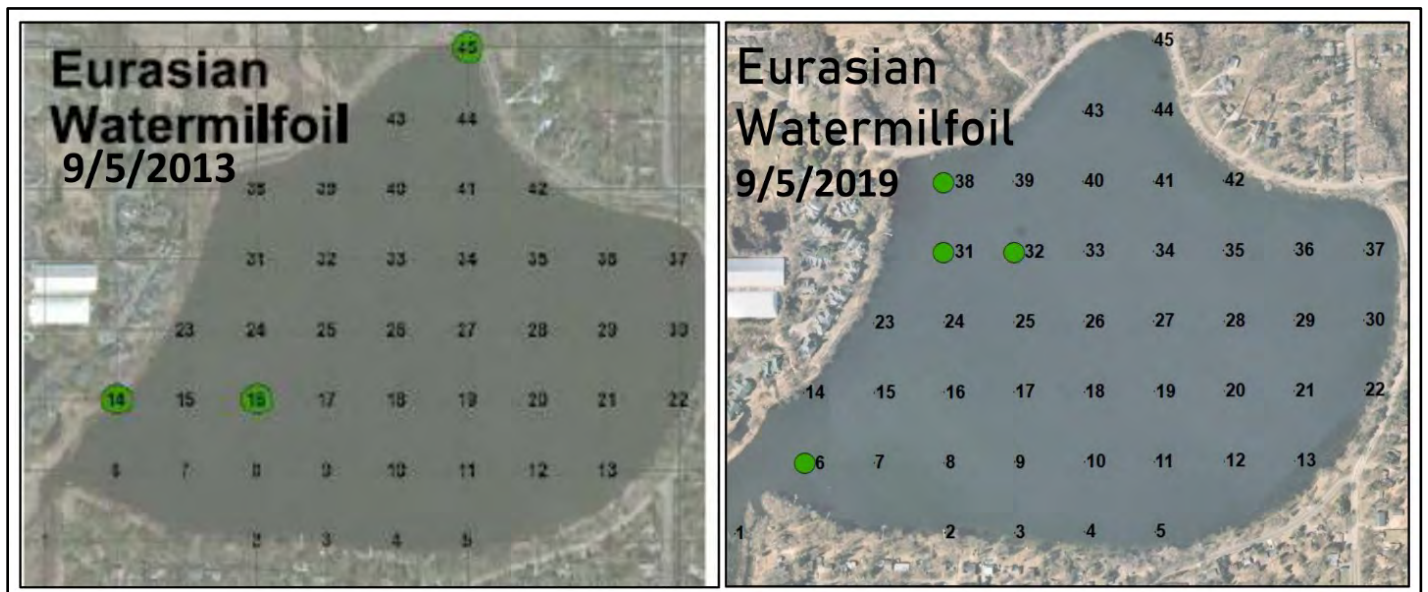
This vegetation survey was conducted in anticipation of updating the SLMP and to observe if Eurasian watermilfoil was expanding in extent in the lake.

The aquatic invasive species Eurasian watermilfoil (*Myriophyllum spicatum*) was detected in previous surveys of Birch Lake. To inform future management efforts of this species, a delineation of the species's current extent was conducted. Native Northern Watermilfoil (*Myriophyllum sibiricum*) was also detected in the lake, and it is suspected that hybrid watermilfoil (*M. spicatum* x *M. sibiricum*) is also present due to the collection of samples with traits of both species. For the purposes of delineation, hybrid watermilfoil was included, as it is also considered invasive.

The first step of the delineation was the 2019 point intercept survey, in which field staff noted the locations of all points throughout the lake where Eurasian watermilfoil was found, as well as areas between points where it was detected. Next, staff returned to each location where it had been found to conduct a more in-depth vegetation survey in the interest of quantifying the present extent of Eurasian watermilfoil.

Figures show the sections of Birch Lake where Eurasian watermilfoil had been detected in the 2013 survey (points 14, 16, and 45) as well as where it had been observed in the 2019 survey (points 6, 31, 32, 38). The northeast was also re-visited due to an EWM sighting between points 36 and 37 on 9/5/2019.

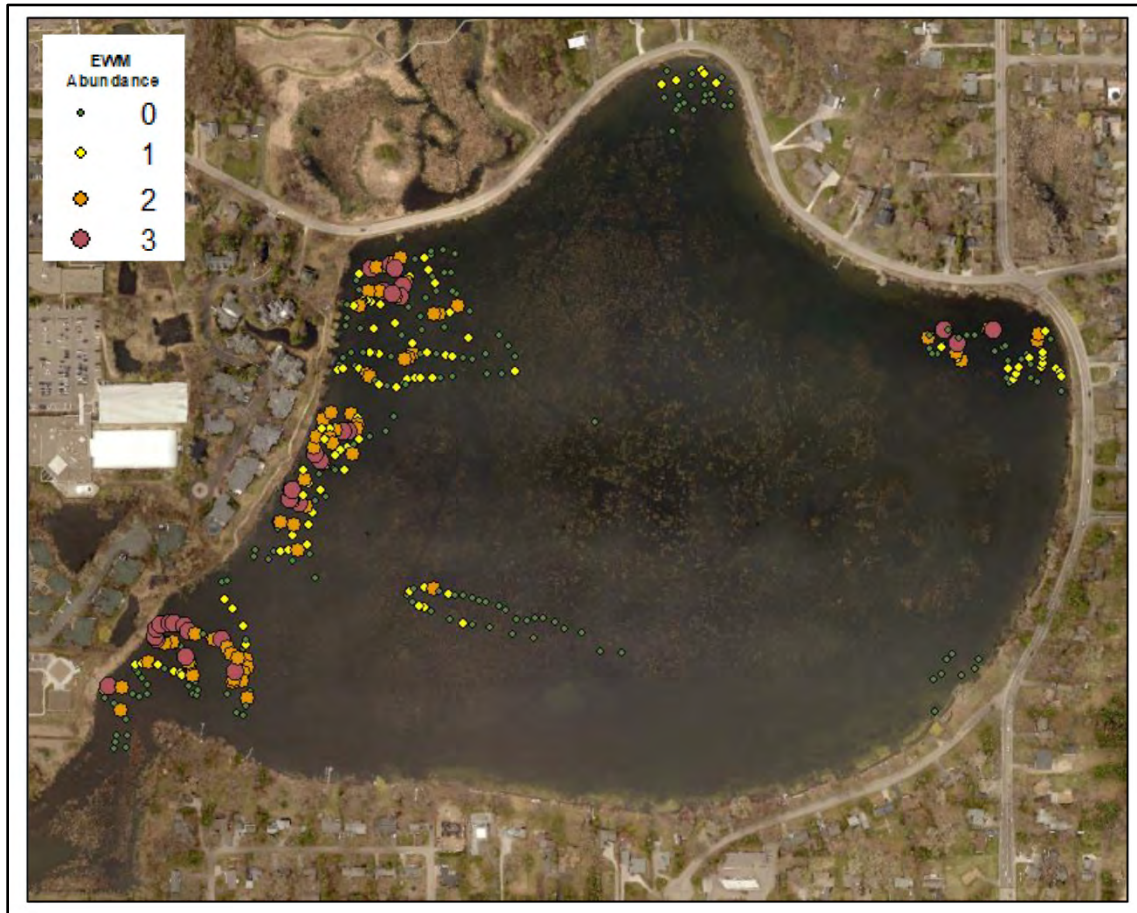
Figure 25: Birch Lake Native Plant and EWM Locations 2015 compared to 2019



### 3 LAKE FEATURES

Consistent with the MNDNR's manual *Guidance for Delineating Invasive Aquatic Plants for Management*, the target areas were transected in a zig-zag pattern while staff took GPS points to note observation locations and results. Observation points are indicated in the figure below for each target area identified.

Figure 26: Birch Lake EWM Delineation 2019

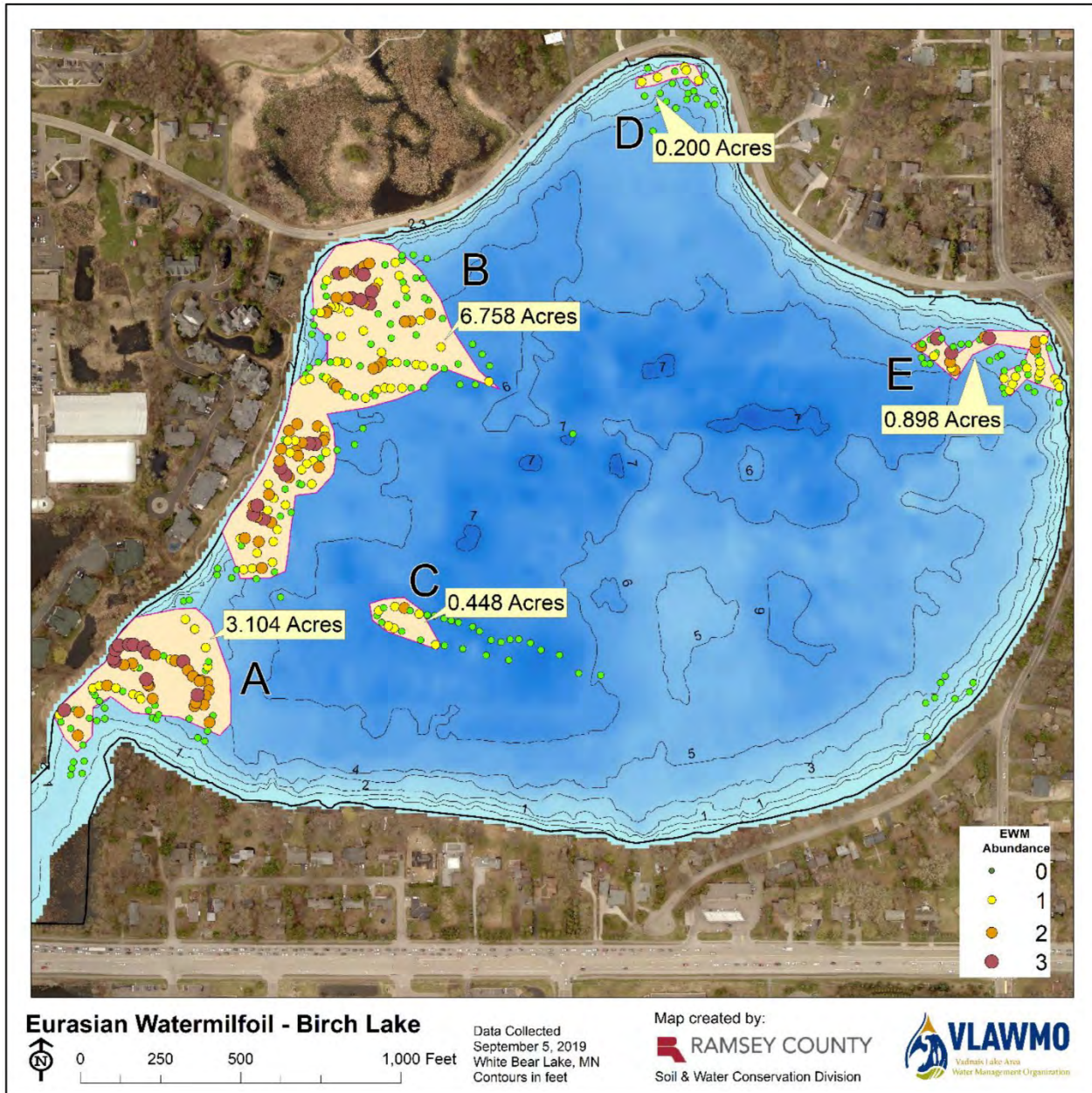


Eurasian watermilfoil is widespread in Birch Lake, primarily along the western shoreline and the northeast corner of the lake. Due to the shallow littoral nature of Birch Lake, EWM is not restricted to the shore areas, although it is currently most prevalent in the 3-5 foot depth range. **Total acreage for Eurasian watermilfoil is about 11.4 acres, a rise from the 8 acres found in the 2013 survey.**

**This is a 42.5% increase in EWM on Birch Lake.**

# 3 LAKE FEATURES

Figure 27: Birch Lake EWM Extent in 2019. Total coverage is 11.4 acres.



## 3.3 FISH SURVEYS AND WILDLIFE MONITORING

### Fish Surveys

Fish surveys were conducted partly to investigate the effectiveness of previous stocking efforts. Fish have been stocked in Birch Lake, in coordination with MN DNR.

Table 4: Birch Lake Fish Stocking Compared to 2011 Trapnet Captures.

	Largemouth Bass	Walleye	Yellow Perch	Crappie	Bluegill
April 2007	700 (4-7")	300 (3")			
April 2010	500 (4-7")	500 (4-7")	75 (2-3")		
July 2011	1,000 (3-5")		800 (3-4")	300 (4-7")	800 (3-5")
Fish Survey Results (Fish/trapnet) (August 2011)	1.0	0	0	0.6	15

Fish surveys were conducted on Birch Lake in August 2011 and September 2014. Full results of those surveys can be found on the VLAWMO website under Birch Lake.

**In 2011**, 6 standard trapnets were used to sample fish diversity for 2 days, for a total of 12 lifts. The trapnet was a MN DNR-style with a 4 x 6 feet square frame with two funnel mouth openings and 50-foot lead. Net mesh size was either 3/8 inch or 1/2 inch. Trapnets were set on August 22, 2011. Six nets were fished for the following 2 days (August 23, 24). Trapnet locations are shown in the full report.

A total of six fish species were sampled in Birch Lake on August 23 and 24, 2011. Bluegill sunfish were the most abundant species followed by pumpkinseed sunfish. The average number of Bluegills caught per net was moderate with the average haul of 15 fish per net. Pumpkinseed sunfish were found at moderate numbers and within a typical range for a lake like Birch, as defined by the MN DNR. Black crappie and Black bullhead abundance was low based on standard ranges compiled by the MN DNR. Northern pike had a moderate population with an average of 1.3 fish per net.

**In 2014**, 6 standard trapnets were sampled for 2 days for a total of 12 lifts. Net dimensions were unchanged from 2011. Six nets were fished for the following 2 days (September 5 and 6).

A total of 8 fish species were sampled in Birch Lake on September 5 and 6, 2014. Bluegill sunfish were the most abundant species followed by Pumpkinseed sunfish. The average number of bluegills caught per net was moderate with the average haul of 19 fish per net. Pumpkinseed sunfish were found at moderate numbers and within a typical range. Black crappie and Black bullhead abundance was low. Northern pike had a moderate population with an average of 1.2 fish per net.

## 3 LAKE FEATURES

Figure 28: Birch Lake Fish Survey: Adult summaries for fish species detected

2011			2014	
Common Name	Fish per net	MN DNR ave per net	Fish per net	MN DNR ave per net (if new)
Black Bullhead	0.6	2-61	1.4	
Bluegill Sunfish	15	6-60	19	
Pumpkinseed Sunfish	3.4	1-8	4.6	
Black Crappie	0.6	2-18	4.3	
Largemouth Bass	1.0	0.3-1	0	
Northern Pike	1.3	NA	1.2	
Green Sunfish			0.3	0.3-2.8
Hybrid Sunfish			0.3	NA
Yellow Perch			0.1	0.3-1.5

### Summary

The fish community in Birch Lake changed from 2011 to 2014. A winterkill over the 2013-14 winter was suspected based on finding dead bullheads after ice-out in the spring of 2014. The winterkill may have impacted the fish community. Black bullheads increased slightly from 2011 to 2014. Black crappies also increased. Fish lengths have a wide distribution and indicate several year classes are present. In addition, Bluegill sunfish were at regional abundances with a good length distribution, indicating a balanced condition. The winterkill did not appear to impact Bullheads and Bluegills. However, it appears Largemouth bass may have been impacted. No largemouth bass were netted in 2014, while they were present in 2011. Northern pike numbers were similar for both surveys, but the lengths in 2014 were dominated by young fish up to 9 inches. It appears stocking Largemouth bass would reestablish the bass community. Other fish species in Birch Lake should continue to do well.

### Recommendations

Recommendations and future considerations include the following:

- In Birch Lake, northern pike are the dominant gamefish, although their average length is relatively small. Walleye and perch have been stocked in the past and have not become established. Future stocking of walleyes and perch are unnecessary at this time.
- Stocking 2,000 largemouth bass in 2014 should reestablish the bass population and add another predator to the fish community.
- Because sunfish currently spawn in the lake, the young fish should produce a forage base on an annual basis. The fish carrying capacity of Birch Lake will be established naturally, which is a good long-term management strategy.
- The winter aeration system is essential to maintain the existing fish community. It is recommended that efforts continue to insure proper operation of the winter aeration system.
- Water quality remains good in Birch Lake, and fishing has the potential to be very good for panfish and Largemouth bass. In 3-4 years, another fish survey should be conducted to evaluate conditions and re-evaluate recommendations.



## 3 LAKE FEATURES

### Wildlife Monitoring

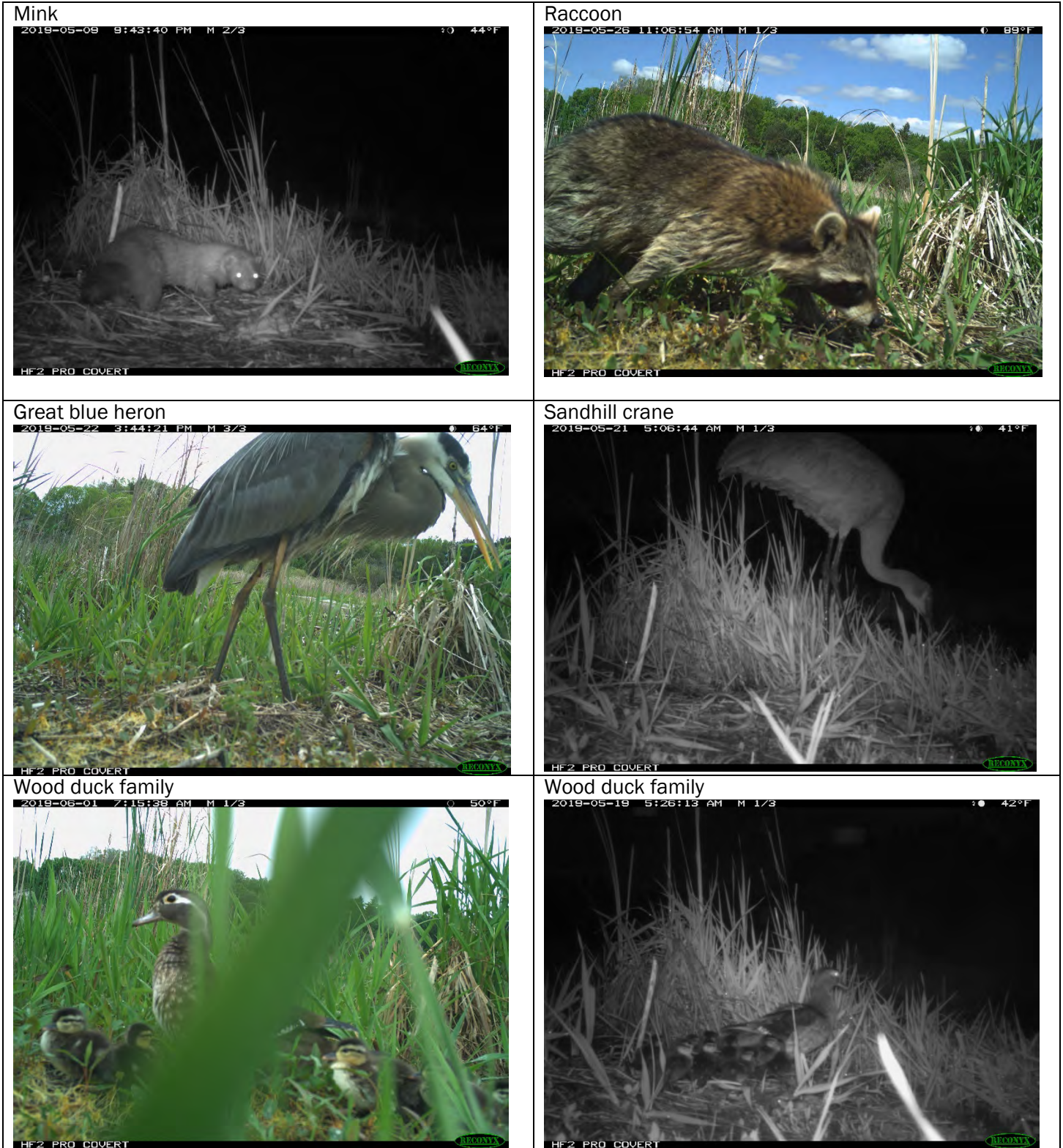
During 2019, VLAWMO made it a priority to better understand our wetlands in a variety of ways. One way we did that was by conducting initial phases of a remote-camera survey. The survey allows us to focus on areas near waterways and in wetlands to better understand mammal diversity in these areas. Birds are also photographed at remote-camera sites. They are not included in this monitoring report because birds are better sampled by other methods (e.g., point-count call surveys, visual detection, mist netting). Some mammal species are indicators of habitat health and water quality (e.g., River otters). These species are of particular interest to us as we work to learn more about wildlife diversity in our watershed. These data provide baseline information about species present in our watershed and help VLAWMO identify priorities for future monitoring efforts.

Full details of the survey can be found in the VLAWMO Remote-camera survey monitoring results, posted on the VLAWMO website.

Bird Rotary Nature Preserve was included in this survey effort. One location was monitored from May 7-June 12, 2019, for a total of 36 trapnights. This site is among the smaller habitat areas included in the camera study. The nature preserve is ~31 acres, and much of the area is wetland. There are high densities of frogs and toads and many interesting plant species. The camera location was located south of the boardwalk and accessible by kayak. A small, natural, muddy platform was found that was kept clear by geese grazing. The camera was aimed at this open area and mounted on a metal post sunk into the peat. Mammal diversity was low at this camera site. There were interesting avian visits including a family of Wood ducks, Great blue heron, and Sandhill cranes. **Mammals included: Mink and Raccoon.**

# 3 LAKE FEATURES

Figure 29: Birch Rotary Sample Photos



## 3.4 WATER QUALITY SUMMARY

VLAWMO has collected water quality (WQ) data on Birch Lake since 1997. Regular, long-term uniform sampling was implemented in 2009 (Table 1). VLAWMO staff collects WQ data and water samples biweekly, May-September, for water clarity (secchi disk), nutrients (TP, Chl-a, SRP, nitrogens), and chemistry (temperature, conductivity, dissolved oxygen, and potential hydrogen [pH]). Total Phosphorus (TP) and Chlorophyll A (Chl-a) analyses are conducted by a contracted lab.

- TP is the primary cause of excessive plant and algae growth in lake systems. Phosphorus originates from a variety of sources, many of which are human related. Major sources include human and animal waste, soil erosion, detergents, septic systems, and stormwater runoff. Internal loading can also be present in a lake. Internal loading can result from P becoming re-suspended into the water column from the sediment. High amounts of P in sediments may occur as a result of historical land uses including, but not limited to, waste disposal into the lake.
- Chl-a is a green pigment in algae. Measuring Chl-a concentration gives an indication of algae abundance.
- The MN Pollution Control Agency (MPCA) has impairment standards for the levels of TP and Chl-a. For shallow lakes in Minnesota, the impaired water quality standard levels are: <60µg/L for TP, <20µg/L for Chl-a, and <230 mg/L for Chloride.

Table 5: Birch Lake Monitoring Data 2010-2019

Birch Lake Historical Avg TP/Chl A/SDT/Cl				
Year	TP (µg/L)	Chl A (mg/m <sup>3</sup> )	Secchi (m)	Chloride (mg/l)
2010	31	5	1	95
2011	29	3	2	100
2012	30	3	2	89
2013	30	3	2	89
2014	26	3	1.7	80
2015	21	1	1.7	89
2016	14	7	1.8	78
2017	28	8	1.8	83
2018	25	5	1.8	95
2019	18	3	2	110

### 3 LAKE FEATURES

Figure 30: Historical Water Quality Averages in Birch Lake 2010-2019

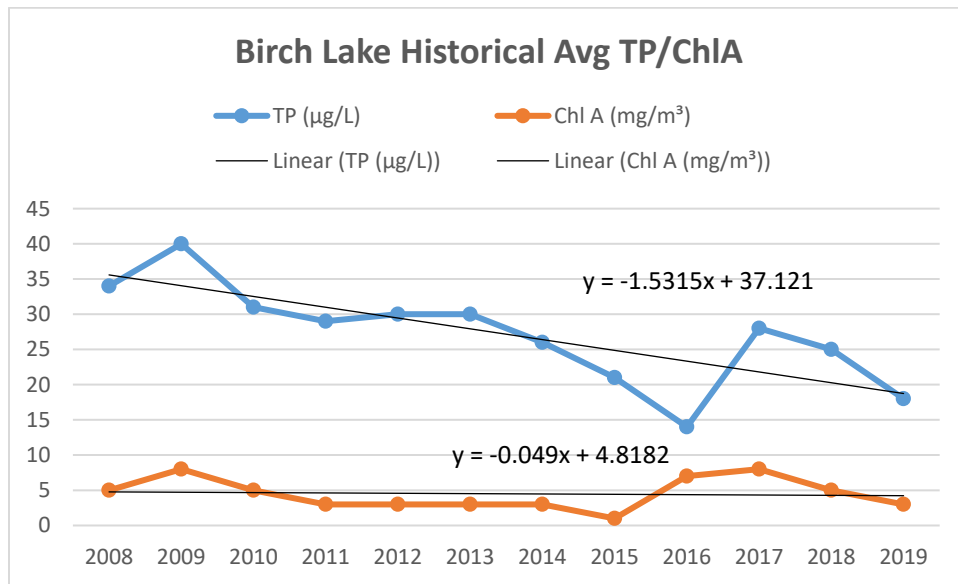
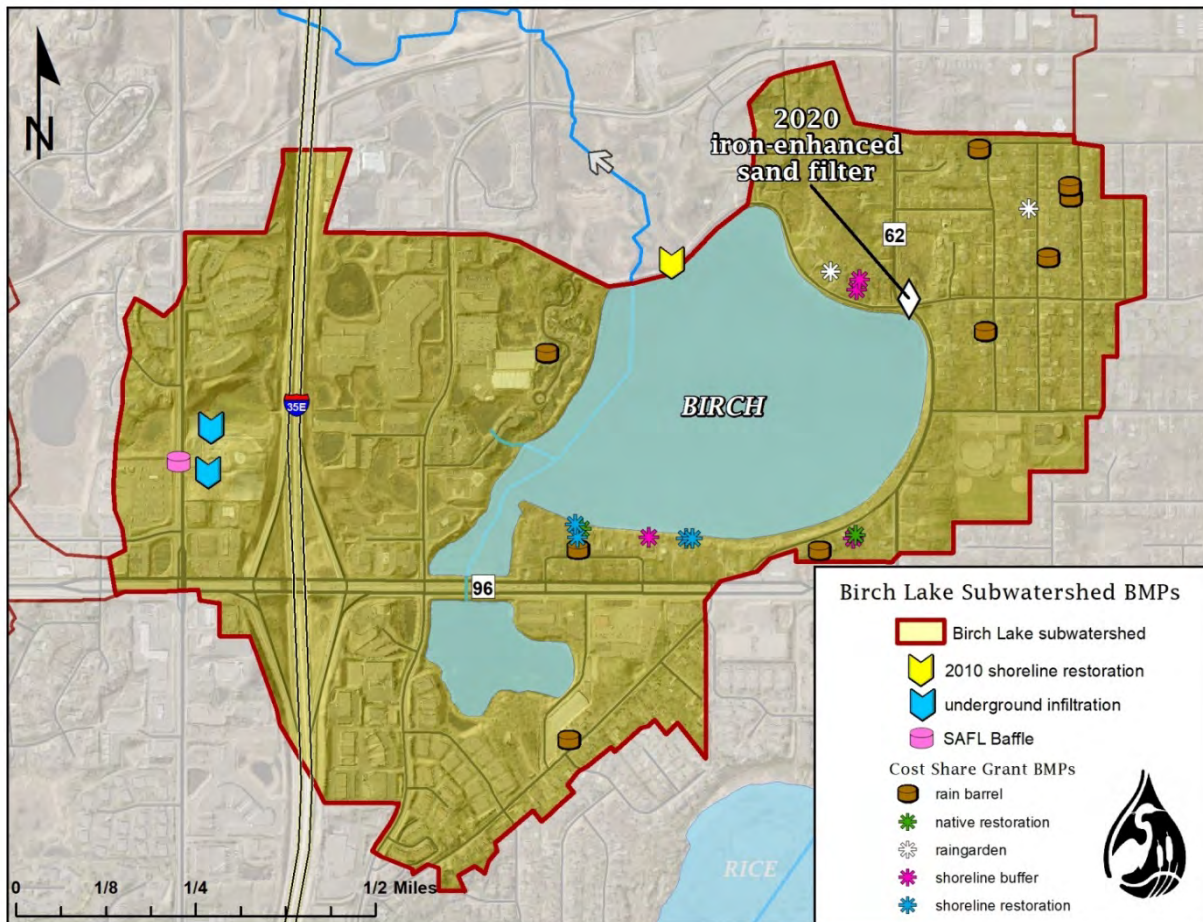


Figure 30: The graph shows results of TP/Chl-a with a linear trend through time. TP levels are below the State Standard (60 µg/L). Chl-a hovers around the value of 5 mg/m³.

## 4.1 COMPLETED BMPs IN THE SUBWATERSHED

Best Management Practices (BMPs) are implemented to improve and protect water quality. Common small-scale examples of BMPs include raingardens, infiltration basins, shoreline restorations, rain barrels, and native plantings. Larger BMPs include stormwater retention basins, iron-enhanced sand filters, weirs and stormwater conveyance retrofits, and in-lake treatments such as an alum treatment, rough fish management, or aquatic vegetation management. Many smaller-scale BMPs have been implemented in the subwatershed area. An iron-enhanced sand filter is being constructed on the northeast corner of the lake in 2020 to treat stormwater and reduce nutrient loading input into Birch Lake. This filter is being constructed at a hotspot nutrient input location identified by retrofit analysis.

Figure 31: Birch Lake Subwatershed Implemented BMPs



### Summary of BMPs implemented:

- Large shoreline restoration on the north shore of Birch Lake, completed in 2010.
- Development of the Pillars senior living facility in 2017, Lunds & Byerlys grocery store in 2018, and subsequent reconstruction of Centerville Road prompted installation of underground infiltration cells and SAFL Baffle stormwater treatment.

## 4 MANAGEMENT PLAN

- 21 VLAWMO Cost Share grant BMPs: 2 native restorations, 2 raingardens, 8 shoreline restorations/buffers, and 9 rain barrels.
- A 2-acre restoration is underway. It was begun during fall 2019 by removing buckthorn with assistance from volunteers and University of Minnesota service-learning students. The area was seeded with native, shady plants using funds provided from a Conservation Partners Legacy grant from MN DNR during winter 2020. Ongoing maintenance will be important to ensure successful establishment of the native plants and complete the restoration initiative.

### 4.2 RESULTS OF STAKEHOLDER SURVEY AND SLMP UPDATE MEETING

VLAWMO conducted a lake resident survey in 2007. Half of the residents responded. A topic that was shown to be of high concern to residents is excessive aquatic plant growth.

Table 6: Lake Resident Questionnaire Results

How important to you are the following items? (1=low; 5=high); averages shown							
excessive plant growth	algae control	odor	access to the lake	poor fishing	mucky lake bottom	wildlife nuisance	exotic plant control
4.6	4.3	3.9	2	3	3.8	2.5	4.5

Answers that received high scores included excessive plant growth, exotic plant control, and algae growth. Residents are concerned with aquatic-plant management issues.

What are your primary activities on the lake?					
viewing water & wildlife	fishing	boating	swimming	walking around the lake	socializing
87%	33%	46%	28%	82%	46%
How do you feel about the following aspects of your lake? (1=poor; 5=excellent)					
water quality	fishing	swimming	boating	wildlife viewing	other (please describe)
3.5	3.2	1.8	2.4	4	2 added that lake depth was poor; 1 stated that privacy was excellent.
Responses showed that overall residents felt that swimming and boating were poor, and that wildlife viewing was excellent.					

If you were to control plants, what method would you prefer?		
herbicide/chemical	harvest/mechanical	other (please describe)
46%	36%	Combination of both - 13%
		Do nothing - 0.5%
		Other responses included trying other things such as carp, Asian grass, or dredging

### 4.3 MANAGEMENT PLAN FOR BIRCH LAKE

#### **Retrofit Report and Management Plan (2013)**

In 2013, the Ramsey Conservation District completed a Retrofit Report for the Birch Lake subwatershed. This was part of a larger effort to assess the full watershed and subwatershed scales and identify optimal locations for BMPs. For these retrofit reports, 3 types of bioretention were considered. The full report is available on the VLAWMO website -> Birch Lake.

Bioretention was defined as curb-cut raingardens. These raingardens take stormwater runoff offline for treatment and utilize the current stormwater conveyance system for overflow. Depending on the soil type at the location being constructed, bioretention basins consist of a depression utilizing native soils for infiltration or replacing current soil with an engineered soil and native vegetation plantings more conducive to infiltration. At some sites, an underdrain with connection to the existing storm sewer system may be needed if infiltration capability is limited by underlying soils or if infiltration cannot be allowed due to soil compaction or other conditions. Bioretention basins fell within categories listed below:

- Simple Bioretention: Native vegetation, a curb cut and forebay, but no engineered soils or underdrains. May include a retaining wall if grade is steep.
- Moderately Complex Bioretention: Native vegetation, engineered soils, a curb cut, forebay and underdrain, and no retaining walls.
- Complex Bioretention: The same as the MCB, but with 1.5-2.5 ft partial perimeter walls.

# 4 MANAGEMENT PLAN

Retrofit locations were identified for the east, west, and south subcatchment areas of Birch Lake.

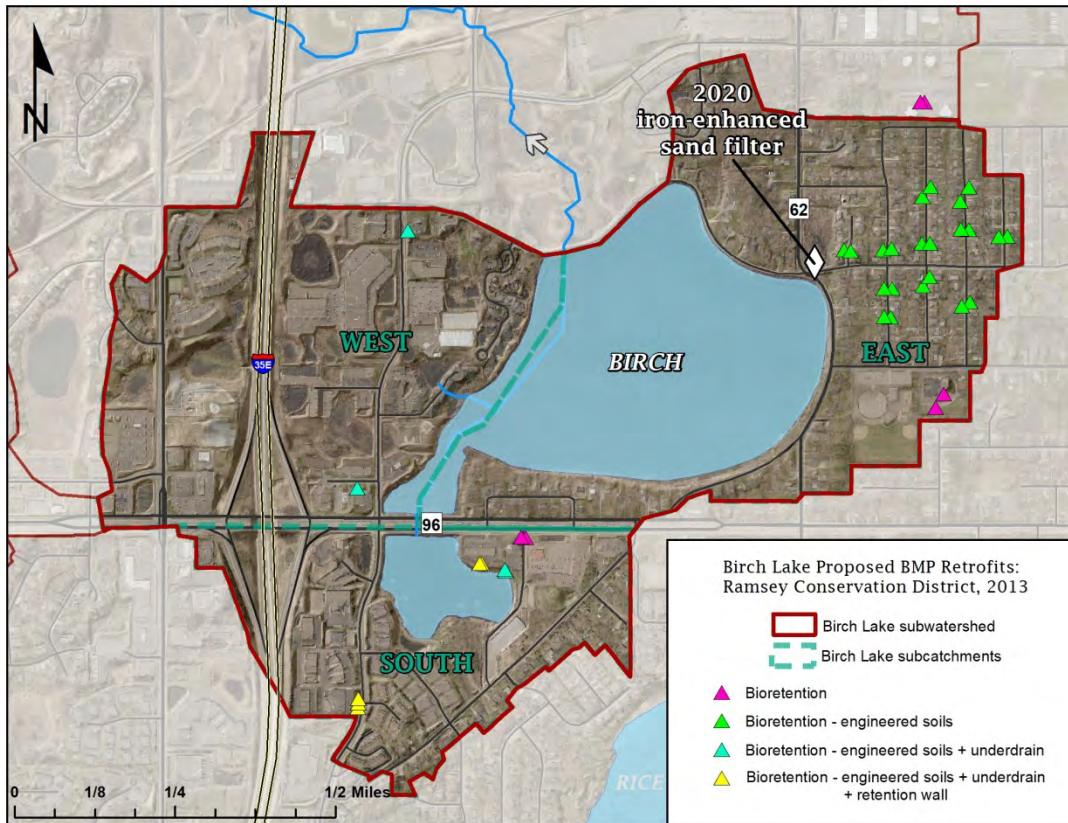


Figure 32: Retrofits identified for the Birch Lake subwatershed. The east side of the subwatershed had the most options. The iron-enhanced sand filter project (for construction in 2020) was selected for implementation for large-scale treatment of the storm sewer system, rather than individual residential raingardens.



# 4 MANAGEMENT PLAN

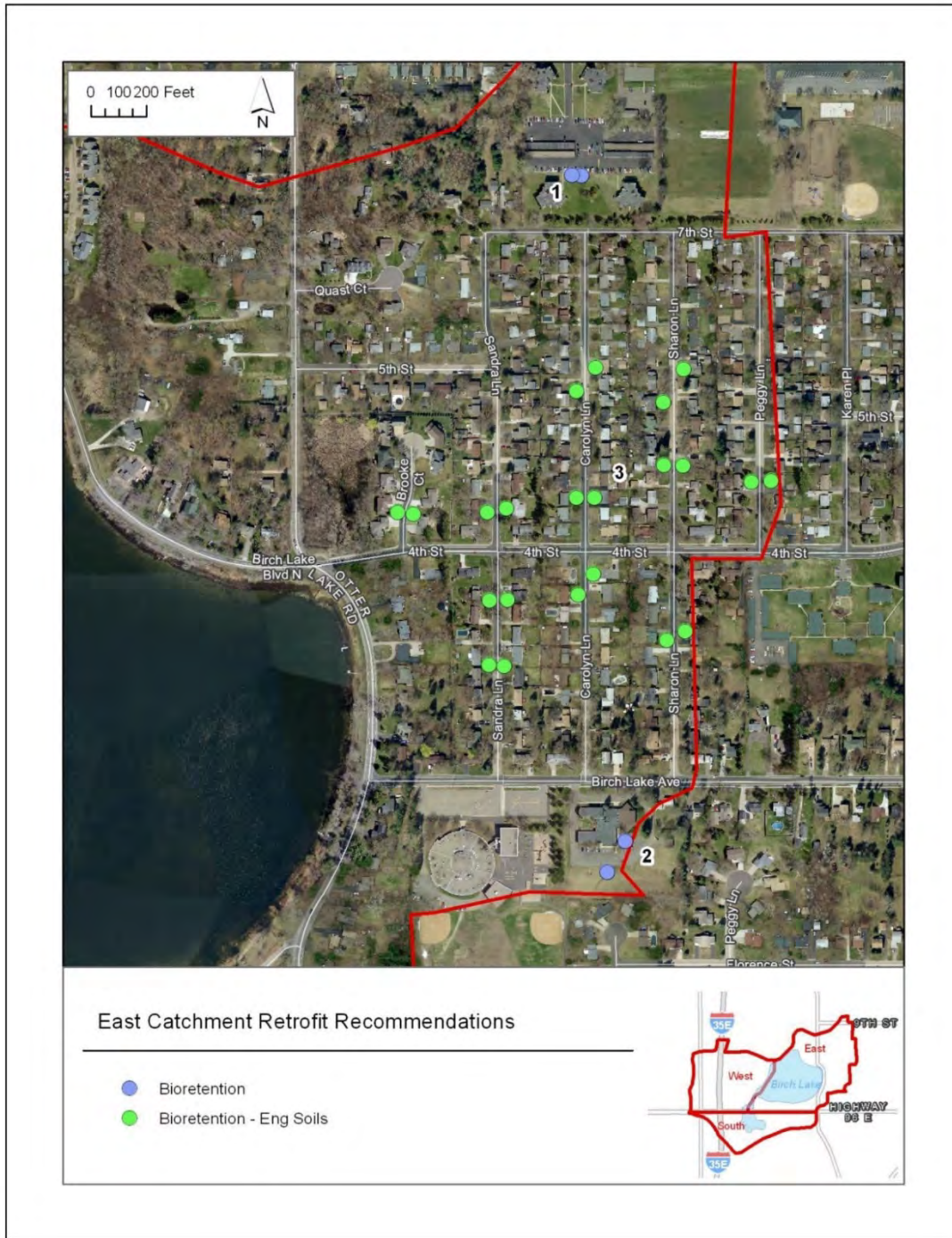


Figure 33: Retrofits identified for the east side of Birch Lake.

# 4 MANAGEMENT PLAN



Figure 34: Retrofits identified for the south side of Birch Lake. Nine locations were identified for this side of the lake.

# 4 MANAGEMENT PLAN

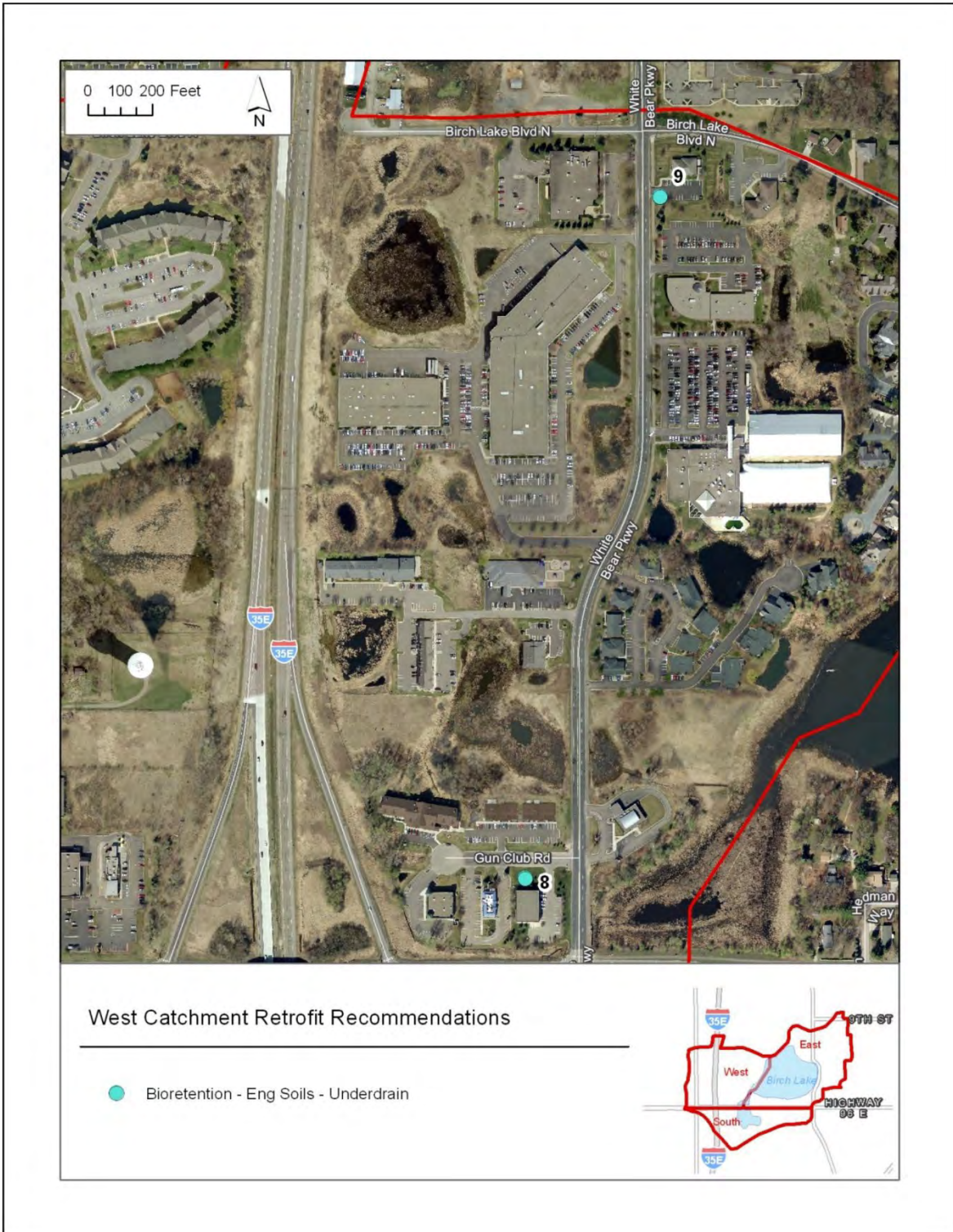


Figure 35: Retrofits identified for the west side of Birch Lake. Only 2 locations were identified for this side of the lake.

## 4 MANAGEMENT PLAN

Total costs were included for 9 retrofit options identified in the report. The table below shows retrofit opportunities ranked from lowest to highest in terms of cost for the 3 subcatchments.

Table 7: Summary of pollutant-load reductions and costs.

Catchment	Site ID	TP (lb/yr)	TSS (lb/yr)	Volume (cubic-feet/yr)	Size (sq ft)	BMP Type	Materials/Labor/Design	Unit Promotion & Admin Costs*	Total Project Cost**	Annual O&M	Term Cost/lb/yr (30 yr)
East	3	18.66	7216.00	10.20	4750	Simple Bioretention	\$57,210.00	\$109.43	\$62,408.01	\$3,562.50	\$302.45
South	4	1.68	1034.80	1.69	750	Complex Bioretention	\$13,710.00	\$420.27	\$16,862.06	\$562.50	\$669.78
East	1	0.60	377.70	0.91	500	Simple Bioretention	\$6,210.00	\$564.81	\$9,034.06	\$375.00	\$1,124.83
South	7	0.56	426.73	0.46	500	Simple Bioretention	\$6,210.00	\$564.81	\$9,034.06	\$375.00	\$1,215.13
East	2	0.46	283.31	0.69	500	Simple Bioretention	\$6,210.00	\$564.81	\$9,034.06	\$375.00	\$1,465.11
South	5	0.49	341.40	0.79	500	Complex Bioretention	\$9,210.00	\$564.81	\$12,034.06	\$375.00	\$1,583.95
West	9	0.22	147.82	0.34	250	Moderately Complex Bioretention	\$3,960.00	\$936.17	\$6,300.43	\$187.50	\$1,820.29
West	8	0.19	103.27	0.25	250	Moderately Complex Bioretention	\$3,960.00	\$936.17	\$6,300.43	\$187.50	\$2,076.99
South	6	0.31	234.99	0.49	500	Moderately Complex Bioretention	\$7,710.00	\$564.81	\$10,534.06	\$375.00	\$2,329.60

### Options for Future Management Strategies

The 2017-2026 VLAWMO Comprehensive Watershed Management Plan assessed lakes and water resources within its jurisdiction and set management classifications for each of the subwatersheds. Birch Lake is part of the Birch Lake Subwatershed which was given a classification of “Protect”. Updating this SLMP is a step towards determining if additional restoration activities are warranted. VLAWMO will continue to monitor water quality and consider adding BMPs to the landscape to reduce TP contributed to the system.

Table 8: Action Items for Birch Lake

Action Item	Description	Leader	Potential Costs \$ = \$0-\$5,000 \$\$ = \$5,000-\$25,000 \$\$\$ = >\$25,000
Continued Lake Monitoring	Continue current lake monitoring program to measure nutrient levels, dissolved oxygen, and temperature.	VLAWMO	\$
Promote Landscape Grant Program	Reach out to property owners to promote the VLAWMO Landscape Grant Program to help reduce stormwater runoff into Birch Lake.	VLAWMO, BLID	\$
Enhanced Studies	Partner and provide support with the City of White Bear Lake on possible future studies. Consider control efforts for EWM and reduced vegetation removal in infested areas.	VLAWMO, City, BLID	\$\$
Water Quality Improvement Projects	Use 2013 Retrofit Analysis Report to aid in determining best opportunities. Iron-enhanced sand filter currently being implemented at the hotspot location (4 <sup>th</sup> Street and Otter Lake Road) (2020)	VLAWMO, City, BLID	\$ - \$\$\$

BIRCH LAKE CONTOUR (BATHYMETRY) SURVEY: 2019

BIRCH LAKE AQUATIC VEGETATION SURVEYS: 2007, 2013, 2015, AND 2019

BIRCH LAKE SEDIMENT SURVEY: 2008

BIRCH LAKE SHORELAND INVENTORY: 2007

BIRCH LAKE AQUATIC INVASIVE SPECIES ACTION PLAN: 2015

BIRCH LAKE FISH SURVEYS: 2011, 2014

BIRCH RETROFIT ANALYSIS: 2013