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VLAWMO
Vadnais Lake Area
Water Management Organization

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VLAWMO TECHNICAL COMMISSION MEETING
7:30 AM March 13th, 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 (February 13th, 2020)**
IV. **Administration & Operations**
  A. Financial Report for March & authorization for payment – Stephanie
  B. Admin update
V. **Programs**
  A. Education & Outreach – Nick
    1. Citizen Advisory, Master Water Steward, and Volunteer activities
  B. SLMP – Birch Lake Update – Dawn
  C. Monitoring – Frogs and Toads Story Map - Dawn
  D. WCA – Weston Woods Mitigation & Escrow Return
  E. Cost Share – Landscape Level 1 2020-03: Biese Low-Grow Fescue & Filtration
VI. **Projects**
  A. Goose Lake
    1. WBF Subwatershed BMP Implementation Options– Stephanie / Tyler / Dawn
    2. East Goose Alum Grant Update & Recommendation for Next Steps – Stephanie
  B. Lambert Lake Update – Dawn
  C. Carp Project West Vadnais Lake – Dawn
  D. Birch Lake 4th & Otter Update
VII. **Commisioner Reports**
VIII. **NOHOA**
IX. **Ramsey Soil & Water Conservation Division: Update City ordinances, AIS training for Public Works**
X. **St. Paul Regional Water Services**
XI. **Public Comment**
XII. **Next Meetings:** TEC: April 10th, Special Board Meeting: March 25, 2020
XIII. **Adjourn**

Upcoming Events: *vlawmo.org/events*

March 12th: MS4 Summit event
VH Fire Dept 10:30am-12:30pm

Stephanie McNamara's

Grand Watershed Retirement Party!

Celebrating 30 years of watershed leadership

Light refreshments provided - additional snacks welcome.
Bring a favorite story to share or write down!

Tuesday, March 31st

3 - 5:30 pm - open house
Vadnais Heights City Hall
800 E Co Rd E
Vadnais Heights, MN 55127

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
February 14, 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); Ed Prudhon (VLAWMO Board Director); Jeremy Erickson & Justine Roe (SPRWS); Justin Townsend (RCSWCD); Connie Tailon (WBL); Kara Ries, Diane Gorder, and Patricia Orvid (NO); Tim Grape, Michael Ginsbach (MPCA) Katherine Kanne (CAC)

I. **Call to Order** Chair Tessier called the meeting to order at 7:28 am.

II. **Approval of Agenda**
The agenda for the February 14, 2020 Technical Commission Meeting was presented for approval, as presented.
It was moved by Huntrods and seconded by Farrell to approve the February 14, 2020 TEC agenda, as presented. Vote: all aye. Motion passed.

III. **Approval of Minutes**
It was moved by Farrell and seconded by Huntrods to approve the January 10, 2020 meeting minutes, as presented. Vote: all aye; Motion passed.

IV. **Presentations: Water Gremlin monitoring results – current & planned, MPCA**
Staff from the MN Pollution Control Agency presented on current lead testing results on the Water Gremlin site, along with steps moving forward for future monitoring and mitigation. Outlined more further surface water sampling for VOCs, and deep aquifer sampling to ensure no contamination has taken place.

V. **Administration & Operations**

A. **TEC Report & February 2020 Financial Report for authorization for payment of checks.**
McNamara presented the February 2020 Financial Report for review and authorization of payments. The February TEC Report to the Board was also presented for review and comment for the February 26th meeting.
It was moved by Farrell and seconded by Larson to approve the February TEC Report & February Treasurer's Report. Vote: all aye. Motion passed.

B. **Admin Update**
The job posting for a Watershed Administrator has been posted on several spots and has a closing date of February 21st.

VI. Programs

A. Education & Outreach

1. Watershed Steward Award Nominations

Nominations for the Watershed Stewardship Award closed on February 11th. Voss reported that 2 nominations were received, and the TEC then voted on the nominations and then submitted for determination.

2. 2019 annual report and summary review

The 2019 VLAWMO Annual Report, summary, and water monitoring summary were included in the TEC packet in draft form for review and comment. The drafts will be brought to the February Board meeting for final approval, print, and submission to BWSR to fulfill annual reporting requirements.

3. E/O calendar overview

Voss outlined events, workshops and tours that are scheduled through the summer, including an MS4 summit event, which JPA member municipalities are encouraged to attend.

B. Cost Share

1. Landscape Level 1: 2020-01 Cloisters Shoreline Restoration

An application was received on behalf of the Cloisters HOA for a shoreline restoration, as part of a larger phased site restoration plan proposed by Natural Shore Technologies. The total for this "site B" is $3,552 and the project application asks for the full $2,000 in funding from VLAWMO. **Staff is recommending approval of application LL1 2020-01 for the funding amount of $2,000 to the Cloisters.**

It was moved by Duxbury and seconded by Tessier for approval of application and funding in the amount of $2,000.00 for the LL1 2020- 01 grant application. Vote: all aye, Huntrods abstained. Motion passed.

2. Landscape Level 1: 2020-02 Hisdahl's Reconstruction Raingarden

An application was received from Keith Hisdahl to implement a raingarden that would infiltrate roof runoff from the new Hisdahl's trophy redevelopment that is proposed in White Bear Lake. His site landscaper has an estimate of $4,440.45 for installation, and the application is asking for $2,000 in funding from LL1 funds. **Staff is recommending approval of application LL1 2020-02 for the funding amount of $2,000.**

It was moved by Huntrods and seconded by Farrell for approval of application and funding in the amount of $2,000.00 for the LL1 2020-02 grant application. Vote: all aye, Tessier abstained. Motion passed.

3. Landscape Level 2: 2020-02 Cty Rd F RG Retrofits

Ramsey County and the City of White Bear Lake have submitted a joint Landscape Level 2 grant application asking for funding to retrofit 6 County Road F raingardens with Rain Guardian & Foxhole devices for proper storm water input, as well as total vegetation replacement. This project applies as a priority project for VLAWMO, as it helps reduce stormwater input into East Goose Lake. Both the County & the City have an Operations & Maintenance agreement to maintain these projects. The total project cost is $72,269, and they are applying for $15,000 in funding from LL2 funds**. Staff is recommending the TEC recommend approval of application LL2 2020-02 for the funding amount of $15,000 to the VLAWMO Board of Directors.**

It was moved by Duxbury and seconded by Huntrods for recommendation of approval to the Board of Directors of application and funding in the amount of $15,000.00 for the LL2 2020-02 grant application. Vote: all aye. Motion passed.

4. Landscape Level 2: 2020-03 Peterson Native Restoration

A Landscape Level 2 application was received for a .26 acre native restoration in North Oaks for funding in the amount of $9,024. The private residence is on the shore of Sora Pond in North Oaks, and part of the restoration will take place on a steep hillside where buckthorn was cleared. Prairie Restorations has prepared a proposal for the restoration in the amount

of $12,032. **Staff recognizes the priority of stabilization projects due to recent large-scale erosion issues in North Oaks, and is recommending a 50% match for the application, or $4,000 in Landscape Level 2 funding for application LL2 2020-03.**

Discussion: TEC suggested possibly restructuring match amounts and stipulations for higher priority areas to dictate those matches. Staff will propose new LL2 structure for change in 2021.

It was moved by Huntrods and seconded by Duxbury for recommendation of approval to the Board of Directors of application and funding in the amount of $4,000.00 for the LL2 2020-03 grant application. Vote: all aye. Motion passed.

C. **SLMP – Pleasant Lake – tour of Fridley treatment**

Tanner gave a summary of the SPRWS tour of the Fridley intake facility on the Mississippi River. Staff from Carp Solutions attended the tour and inspected the river inlet screen and found it to have approximately 1.25" gaps that may allow carp fingerlings into the pipes. Tanner would like to tour the facility again in the spring with the lead engineer from Carp Solutions to explore the feasibility of an electric fish barrier on the intake.

VII. Projects

A. Goose Lake

1. WBF BMP options for subshed

Staff, along with partner input, has selected 3 project options for 60% design completion for BMPs in the Goose Lake subwatershed, including an iron-enhance sand filter, underground stormwater filtration and diverting County Rd F flows into an underground filtration and volume reduction BMP. One of these options will be selected for 100% designs and implementation, as part of the Watershed Based Funding grant. Staff recommended for further information and cost estimates for direction at the March meeting.

2. East Goose Alum Grant update and recommendation for next steps

The East Goose alum grant was approved for funding at the BWSR Board meeting on January 22nd, and the VLAWMO Board will consider entering into the grant agreement at their Feb. 26th meeting. As part of management to ensure the best results of a possible alum treatment, several management steps are proposed and recommended by staff: engage Barr Engineering for oversight on treatment, schedule a bullhead harvest for summer 2020, schedule a town meeting with neighbors and residents, with the possibility of hiring a neutral facilitator, and establish permanent access on a City of White Bear Lake parcel to enable lake management. Staff is seeking a recommendation from the TEC to the Board to enter into the alum grant, and to discuss and consider recommending some or all of the management steps proposed by staff.

Discussion: Duxbury voiced concern about what the recourse would be with the possibility of the alum grant failing, how would reduction amounts be attained if the initial alum treatment didn't work? McNamara outlined that the likelihood of alum not working is low, though management strategies and assurances must be undertaken to ensure continued success and meeting grant stipulations. Farrell addressed that there are a good amount of assurances that have and will be scrutinized by staff, oversight agencies, and the Board, and supports moving forward with the grant agreement and alum treatment.

B. Lambert Lake – agreement with U or M, outreach

Formal agreements and contracts are nearing completion for the Lambert Lake project, including an agreement with the UMN lab to design the biochar treatment component of the project. SEH has generated renditions of the LL meander and what it may look like. A project page on VLAWMO's website is live and illustrating the project and what is proposed, along with an article on the project that has been submitted to the Vadnais & WBL Press.

C. Carp project Pleasant Lake and West Vadnais Lake

VLAWMO and RWMWD staff has met to begin coordinating carp management on West Vadnais Lake, working with Carp Solutions. More is slated to come this spring.

D. Service-learning with UMN Students

Staff is coordinating 6 service-learning students for the spring semester from the UMN, and met at the Vadnais Heights City Hall on January 31st for a tour of work sites, including the City Hall backyard and 4th & Otter restoration sites. Each student will contribute 24 hours over the course of the semester working on invasive removal, restoration, telemetry testing, scat sampling and other projects, as they arise.

E. Birch Lake 4th & Otter: Bid results recommendation & restoration of WBL parcel

After the second round of bidding has closed for construction of the Birch Lake iron-enhanced sand filter, and with a bid opening on January 30th, 10 bids were received, with bids tabulated and a recommendation technical memo selecting the lowest responsible bidder, provided by Barr Engineering. The lowest responsible bidder was Blackstone Contractors LLC, with a bid price of $111,292.25 ($1,338.45 over Engineer's Estimate). Staff concurs with Barr's findings, and recommends the TEC recommend to the VLAWMO Board enter into a construction contract with Blackstone Construction LLC for construction of the Birch Lake iron-enhance sand filter.

It was moved by Huntrods and seconded by Larson for recommendation to the VLAWMO Board of Directors of entering into construction contract with Blackstone Contractors LLC for construction of the Birch Lake Iron-Enhance Sand Filter at their February 26, 2020 meeting. Vote: all aye. Motion passed.

VIII. Commissioner Reports

IX. NOHOA

X. St. Paul Regional Water Service (SPRWS) Report

Roe reported national water week is coming up and SPRWS is having an open house, which VLAWMO has participated in past years.

XI. Ramsey Soil & Water Conservation Division (RSWCD) Report

Townsend reported a new staff person has been hired to fill the open Technician position, and both grant applications, from the MDH & BWSR, have been approved for funding.

XII. Public Comment

Tailon announced the WBL spring newsletter goes out in April and to submit articles for publication.

XIII. Next Meetings

TEC: March 13th, 2020; Board: February 26th, 2020

XIX. Adjourn

It was moved by Larson and seconded by Huntrods to adjourn at 9:52 am. Vote: All aye. Motion passed.

Minutes compiled and submitted by Tyler Thompson.

March-20		Actual 3/1/20	Actual to Date	2020 Budget	2019 carry over/Grants	Remaining in Budget	2020 Available	Act vs. Budget
BUDGET #	**INCOME**							
5.11	Storm Water Uti	$0	$16,449	$890,800	$0	$874,351	$890,800	2%
5.12	Service Fees	$0	$0	$200	$0	$200	$200	0%
5.13	Interest + mitiga	$842	$2,845	$5,000	$0	$2,155	$5,000	57%
5.14	Misc. income - V	$1,495	$3,050	$3,000	$0	($50)	$3,000	102%
5.15	Other Income G	$22,545	$22,557	$0	$0	($22,557)	$0	
5.16	Transfer from re	$100,000	$100,000	$0	$0	($100,000)	$0	
	TOTAL	$124,882	$144,901	$899,000	$0	$754,099	$899,000	16%
	EXPENSES							
3.1	**Operations & Administration**							
3.110	Office - rent, cop	$2,078	$6,093	$25,200	$0	$19,107	$25,200	24%
3.120	Information Sys	$0	$2,639	$20,000	$2,000	$19,361	$22,000	12%
3.130	Insurance	$0	$0	$5,800	$0	$5,800	$5,800	0%
3.141	Consulting - Aud	$0	$0	$6,700	$0	$6,700	$6,700	0%
3.142	Consulting - Boo	$0	$0	$1,500	$0	$1,500	$1,500	0%
3.143	Consulting - Leg	$100	$299	$4,000	$2,500	$6,201	$6,500	5%
3.144	Consulting - Eng	$1,503	$1,503	$30,000	$0	$28,497	$30,000	5%
3.150	Storm Sewer Ut	$1,250	$2,353	$14,000	$0	$11,647	$14,000	17%
3.160	Training (staff/b	$0	$0	$4,500	$1,500	$6,000	$6,000	0%
3.170	Misc. & mileage	$366	$1,734	$5,500	$800	$4,566	$6,300	28%
3.191	Administration -	$26,058	$79,051	$347,200	$50,000	$318,149	$397,200	20%
3.192	Employer Liabili	$6,659	$20,731	$89,600	$12,000	$80,869	$101,600	20%
3.2	**Monitoring and Studies**							
3.210	Lake and Creek	$0	$322	$22,000	$10,000	$31,678	$32,000	1%
3.220	Equipment	$64	$416	$4,000	$0	$3,584	$4,000	10%
3.230	Wetland assess	$0	$0	$10,000	$0	$10,000	$10,000	0%
3.3	**Education and Outreach**							
3.310	Public Educatio	$57	$2,061	$8,500	$1,000	$7,439	$9,500	22%
3.320	Marketing	$41	$550	$7,500	$0	$6,950	$7,500	7%
3.330	Community Blue	$5,407	$5,952	$10,000	$2,000	$6,048	$12,000	50%
Total Core functions: Ops, Monit		*$43,582*	*$123,704*	*$616,000*	*$81,800*	*$574,096*	*$697,800*	*18%*
Capital Improvement Projects and Programs								
3.4	**Subwatershed Activity**							
3.410	Gem Lake	$0	$0	$0	$0	$0	$0	
3.420	Lambert Creek	$5,702	$15,032	$120,000	$63,275	$168,243	$183,275	8%
3.425	Goose Lake	$5,167	$11,770	$60,000	$150,316	$198,546	$210,316	6%
3.430	Birch Lake	$2,881	$14,241	$10,000	$39,067	$34,826	$49,067	29%
3.440	Gilf Black Tam V	$0	$0	$30,000	$50,000	$80,000	$80,000	0%
3.450	Pleasant Charle	$0	$0	$10,000	$9,000	$19,000	$19,000	0%
3.460	Sucker Vadnais	$0	$3,164	$12,000	$10,000	$18,836	$22,000	14%
3.48	**Programs**							
3.481	Landscape 1	$0	$0	$24,000	$11,500	$35,500	$35,500	0%
3.482	Landscape 2	$12,750	$13,015	$20,000	$11,361	$18,346	$31,361	42%
3.483	Project Researc	$0	$9,725	$0	$0	($9,725)	$0	#DIV/0!
3.470	Facilities Mainte	$0	$0	$5,000	$29,176	$34,176	$34,176	0%
3.5	**Regulatory**							
3.510	Engineer Plan re	$0	$0	$2,000	$0	$2,000	$2,000	0%
	Total CIP & Prog	*$26,499*	*$66,947*	$293,000	$373,695	*$599,748*	*$666,695*	*10%*
	Total of Core Op	**$70,082**	$190,651	$909,000	$455,495	**$1,173,844**	$1,364,495	**14%**

Fund Balance		2/1/2020	3/1/2020
4M Account		$381,051	$219,264
4M Plus Savings		$411,939	$512,475
Total		$792,990	$731,739

Restricted funds	3/1/2020
Mitigation Savings	$27,021
Term Series (3/28/19)	$0

Vadnais Lake Area Water Management Orga

9:00 AM

Profit & Loss

03/05/2020

February 15 through March 13, 2020

Cash Basis

	Feb 15 - Mar 13, 20
Ordinary Income/Expense	
Income	
Mitigation Interest	1.38
5.1 · Income	
5.13 · Interest	840.97
5.15 · Other Income Grants	13,645.46
Total 5.1 · Income	14,486.43
6.6.6 · Grants	8,900.00
Total Income	23,387.81
Gross Profit	23,387.81
Expense	
3.1 · Administrative/Operations	
3.110 · Office	
Copies	49.79
Phone/Internet/Machine Overhead	275.00
Postage	16.00
Rent	1,540.00
Supplies	147.59
3.110 · Office - Other	50.00
Total 3.110 · Office	2,078.38
3.120 · Information Systems	
Hardware	0.00
Total 3.120 · Information Systems	0.00
3.143 · Legal	99.50
3.144 · Eng. & Tech.	1,502.87
3.150 · Storm Sewer Utility	1,250.00
3.160 · Training (staff/board)	0.00
3.170 · Misc. & mileage	366.05
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	1,926.71
Administration PERA	1,954.32
Insurance Benefit	2,733.08
Total 3.192 · Employer Liabilities	6,659.03
Total 3.1 · Administrative/Operations	38,013.43
3.2 · Monitoring and Studies	
3.220 · Equipment	63.92
Total 3.2 · Monitoring and Studies	63.92
3.3 · Education and Outreach	
3.310 · Public Education	57.13

3.320 · Marketing	40.96
3.330 · Community Blue Education Grant	5,407.00
Total 3.3 · Education and Outreach	5,505.09
3.4 · Capital Imp. Projects/Programs	
3.420 · Lambert Creek Restoration	5,701.89
3.425 · Goose Lake	
WB Funding - Goose subshed	1,567.00
3.425 · Goose Lake - Other	3,600.00
Total 3.425 · Goose Lake	5,167.00
3.430 · Birch Lake	
4th & Otter project	2,880.50
Total 3.430 · Birch Lake	2,880.50
Total 3.4 · Capital Imp. Projects/Programs	13,749.39
3.48 · Programs	
3.482 · Landscape 2	12,750.00
Total 3.48 · Programs	12,750.00
Total Expense	70,081.83
Net Ordinary Income	-46,694.02
Net Income	**-46,694.02**

Vadnais Lake Area Water Management Organization

8:48 AM

Check Detail

03/05/2020

February 15 through March 13, 2020

Type	Num	Date	Name	Item	Account	Paid Amount	Original Amount
Check	**eft**	**02/22/2020**	**Reliance Standard**		**Checking - 1987**		**-177.68**
					Insurance Benefit	-177.68	177.68
TOTAL						-177.68	177.68
Check	**EFT**	**02/20/2020**	**further**		**Checking - 1987**		**-8.00**
					Insurance Benefit	-8.00	8.00
TOTAL						-8.00	8.00
Check	**1010**	**03/13/2020**	**kjolhaug Environmental Services**		**Mitigation & Monitoring - 8355**		**-2,085.00**
			kjolhaug Environmental Services		Wetland Mitigation Payable	-2,085.00	2,085.00
TOTAL						-2,085.00	2,085.00
Check	**4886**	**03/13/2020**	**Nicholas Voss**		**Checking - 1987**		**-155.92**
					3.170 · Misc. & mileage	-129.96	129.96
					3.320 · Marketing	-25.96	25.96
TOTAL						-155.92	155.92
Check	**4887**	**03/13/2020**	**Tyler J Thompson**		**Checking - 1987**		**-108.35**
					3.170 · Misc. & mileage	-108.35	108.35
TOTAL						-108.35	108.35
Check	**4888**	**03/13/2020**	**Stephanie Oliver McNamara**		**Checking - 1987**		**-72.15**
					3.170 · Misc. & mileage	-72.15	72.15
TOTAL						-72.15	72.15
Check	**4889**	**03/13/2020**	**City of Vadnais Heights**		**Checking - 1987**		**-1,880.79**
					Rent	-1,540.00	1,540.00

				Phone/Internet/Machine Overhead	-200.00	200.00
				Phone/Internet/Machine Overhead	-75.00	75.00
				Postage	-16.00	16.00
				Copies	-49.79	49.79
TOTAL					-1,880.79	1,880.79
Check	**4890**	**03/13/2020**	**Barr Engineering Co**	**Checking - 1987**		**-1,567.00**
				WB Funding - Goose subshed	-1,567.00	1,567.00
TOTAL					-1,567.00	1,567.00
Check	**4891**	**03/13/2020**	**Dawn Tanner**	**Checking - 1987**		**-87.11**
				3.170 · Misc. & mileage	-87.11	87.11
TOTAL					-87.11	87.11
Check	**4892**	**03/13/2020**	**Barr Engineering Co**	**Checking - 1987**		**-2,880.50**
				4th & Otter project	-2,880.50	2,880.50
TOTAL					-2,880.50	2,880.50
Check	**4893**	**03/13/2020**	**Kennedy & Graven, Chartered**	**Checking - 1987**		**-99.50**
				3.143 · Legal	-99.50	99.50
TOTAL					-99.50	99.50
Check	**4894**	**03/13/2020**	**Innovative Office Solutions**	**Checking - 1987**		**-147.59**
				Supplies	-147.59	147.59
TOTAL					-147.59	147.59
Check	**4895**	**03/13/2020**	**SEH**	**Checking - 1987**		**-7,204.76**
				3.144 · Eng. & Tech.	-1,218.52	1,218.52
				3.420 · Lambert Creek Restoration	-5,701.89	5,701.89
				3.144 · Eng. & Tech.	-284.35	284.35
TOTAL					-7,204.76	7,204.76

Check	**4896**	**03/13/2020**	**City of White Bear Lake**	**Checking - 1987**	**-32,530.95**
			payroll	-26,057.60	26,057.60
			Administration FICA	-1,926.71	1,926.71
			Administration PERA	-1,954.32	1,954.32
			Insurance Benefit	-2,547.40	2,547.40
			Admin payroll processing	-44.92	44.92
TOTAL				-32,530.95	32,530.95
Check	**4897**	**03/13/2020**	**Hisdahl's Trophies**	**Checking - 1987**	**-15.00**
			3.320 · Marketing	-15.00	15.00
TOTAL				-15.00	15.00
Check	**4898**	**03/13/2020**	**FastSigns**	**Checking - 1987**	**-50.00**
			3.110 · Office	-50.00	50.00
TOTAL				-50.00	50.00
Check	**4899**	**03/13/2020**	**Blue Water Science**	**Checking - 1987**	**-3,600.00**
			3.425 · Goose Lake	-3,600.00	3,600.00
TOTAL				-3,600.00	3,600.00
Check	**4900**	**03/13/2020**	**Ehlers & Associates, Inc.**	**Checking - 1987**	**-1,250.00**
			3.150 · Storm Sewer Utility	-1,250.00	1,250.00
TOTAL				-1,250.00	1,250.00
Check	**4901**	**03/13/2020**	**Ramsey County PW**	**Checking - 1987**	**-12,750.00**
			3.482 · Landscape 2	-12,750.00	12,750.00
TOTAL				-12,750.00	12,750.00
Check	**4902**	**03/13/2020**	**White Bear Center for the Arts**	**Checking - 1987**	**-5,407.00**
			3.330 · Community Blue Education Grant	-5,407.00	5,407.00
TOTAL				-5,407.00	5,407.00

Vadnais Lake Area Water Management Organization

8:46 AM

Custom Transaction Detail Report

03/05/2020

February 1 through March 1, 2020

Accrual Basis

	Type	Date	Num	Name	Memo	Account	Clr	Split	Amount	Balance
Feb 1 - Mar 1, 20										
	Credit Card Charge	02/02/2020		Prairie Moon Nursery	seed for 4th & otter	US Bank CC	√	4th & Otter project	3,500.00	3,500.00
	Credit Card Charge	02/03/2020		Google*SVCAPPS_VLAWM		US Bank CC	√	WEB	20.83	3,520.83
	Credit Card Charge	02/06/2020		Panera Bread	Lady A's mtg food	US Bank CC		3.170 · Misc. & mileage	93.80	3,614.63
	Credit Card Charge	02/24/2020		Amazon.com	batteries remote cams	US Bank CC		3.220 · Equipment	63.92	3,678.55
	Credit Card Charge	02/28/2020		Mad Jacks	HR interviews	US Bank CC		3.170 · Misc. & mileage	30.77	3,709.32
Feb 1 - Mar 1, 20									**3,709.32**	**3,709.32**

VLAWMO
Vadnais Lake Area
Water Management Organization

800 County Road E East, Vadnais Heights, MN 55127
www.vlawmo.org; Office@vlawmo.org

TEC Staff Memo – March 2020

IV. Administration & Operations

A. **TEC Report & Financial Report for March,** see attached.

B. **Admin update.** The selection process is proceeding with the second round of interviews on March 14th. The 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 March 25th.

V. Programs

A. Education and Outreach:

1. 2020 Events:

March 25: Aquatic Invasive Species Training
May 1st: Wetland Bash Family event @ WBL Library
May 6: Raingardens 101
May 7: Blue Thumb: Resilient Yards
May 13: Native Plants Close to Home
June 6 (morning): Landscape Revival plant sale
June 6 (afternoon): VLAWMO plant swap
Mid-June: VH Ice Cream Social
June 20: Macroinvertebrates Pop-up at Sucker Channel
July 18: VLAWMO site tour
Late July: White Bear Lake MarketFest
August 13: Shoreline Teatime event (residential shoreline rest. Tour)
August 22: Neighborhood plant + garden tour (Master Water Stewards)
September 12: White Bear Township Day
September 24: Blue Thumb: Healthy Soils

TBD: Vadnais Lake trash pick-up, public raingarden maintenance x 2-3

2. 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

(Also note that an article about efforts going on in Rice Creek is included in packet attachments under VI. C. Carp Project W Vadnais)

Stream meanders: Example from Southeastern Minnesota
https://www.youtube.com/watch?time_continue=12&v=0uKsefaQWN4&feature=emb_title

Stormwater Seminars: Excellent hour-long seminars featuring experts on a variety of stormwater topics. This talk focuses on high water levels: https://www.youtube.com/watch?v=rcx_-07JqT8

B. SLMP – Birch Lake Update:

Staff have been using the survey data and reports compiled last year on Birch Lake to update the SLMP ahead of schedule. The SLMP is slated for an update in 2021 according to our Comprehensive Watershed Management Plan. We conducted vegetation and bathymetry surveys ahead of schedule last summer, so we are able to provide this updated document early. Dawn and Tyler have been working on the update. A preview will be provided at TEC. BLID is working to set up a meeting this summer. VLAWMO would like to be part of that to learn more about stakeholder perceptions and goals, and to share results of the surveys/SLMP.

C. Monitoring – Frogs and Toads Story Map:

Staff appreciate the support of TEC and Board to continue working to better understand wetland species in the watershed. A part of sharing results is making them readily available. Story Maps are visual, dynamic tools that can allow more complete sharing of results and the full experience of a technique, such as frog and toad call surveys. Story Maps are an ESRI (ArcGIS) tool available through our ArcGIS license. Dawn will share the new Story Map that will be linked and available on the VLAWMO website. Dawn built the Story Map and is working with a service-learning student to conduct final testing, review, and add final elements (e.g., inspirational quotes). A remote camera Story Map will be available soon.

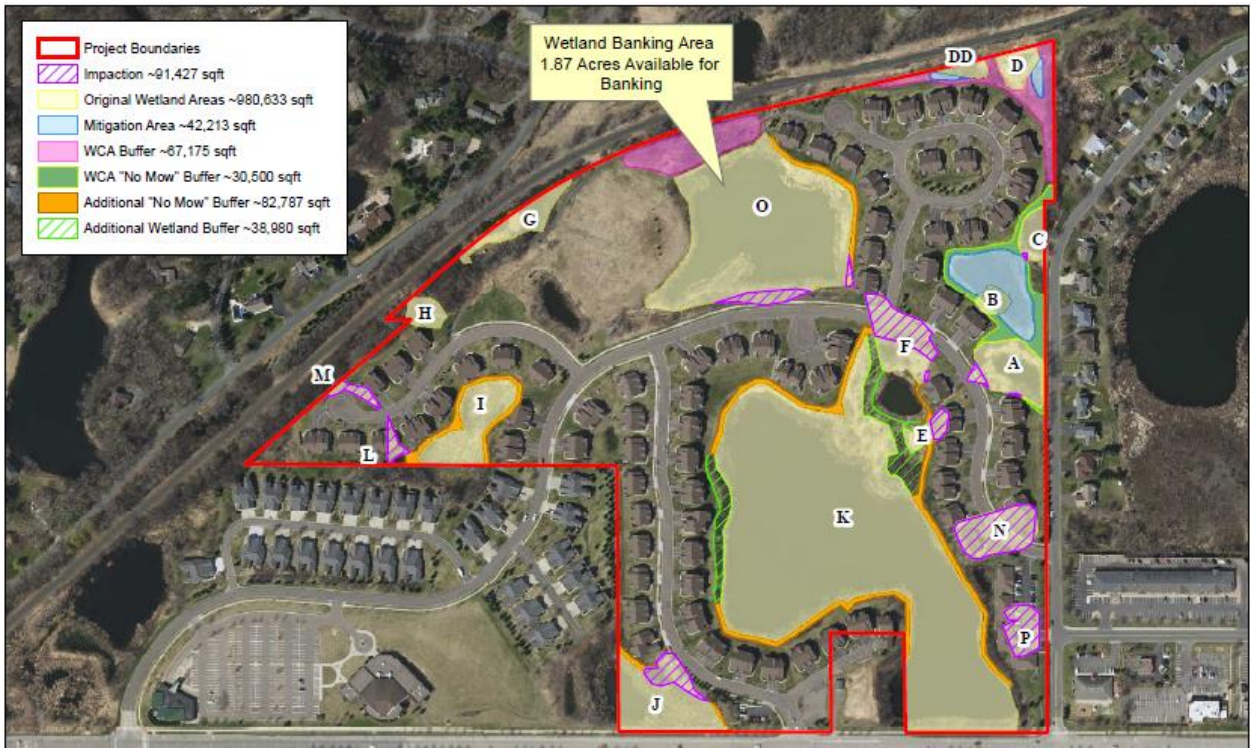
D. WCA – Weston Woods Mitigation & Escrow Return

The Weston Woods Townhome development in White Bear Township was built in 2001. The site is approximately 70 acres. 124,908 sf of onsite replacement was required for the project. VLAWMO received an escrow in the amount of $8,622. The developer has asked for the approval of the wetland mitigation and return of the escrow.

As required by Board of Water & Soil Resources (BWSR) a wetland monitoring report is needed to show successful completion of the wetland mitigation. VLAWMO never received any from the developer.

In fall of 2019 Kjolhaug Environmental was hired by VLAWMO to determine the presence and extent of mitigation wetlands on site. It was determined onsite replacement activities have provided 132,454 sf of the required 124,908 sf of replacement requirements. The 2019 observed conditions of the replacement types meets the success standards of the WCA rules in effect at the time the development was permitted.

Developer is requesting replacement plan certification from the WCA Technical Evaluation Panel (TEP) and return of escrow minus cost of Kjolhaug Environmental report ($8,622 - $2,635 = **$5,987**).



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

A landscape level 1 cost share grant was received for a resident in North Oaks that is seeking to improve drainage issues and implementing a low-grow fescue planting of 9,800 sq ft. The applicant has shoreland property on Teal Pond, is looking to reduce the amount runoff that drains towards the pond. The resident currently has a large, untouched buffer along the pond, but project plans are to implement a drainage swale and filtration basin, planted with low-grow fescue for a deeper root structure and less maintenance and input than turf grass. MIDs results estimate a reduction of 109,000 gallons/year in runoff. **The total applicable project cost towards eligible grant funding is $2,885, and the applicant is seeking $2,000 in Landscape Level 1 cost share funding. Staff is recommending approval of LL1 2020-03 in the amount of $2,000.**

VI. Projects

A. Goose Lake

1. WBF Subwatershed BMP Implementation Options WBF BMP options for Goose subwatershed. As of this memo time, we have four options, their anticipated total annual phosphorus removals and costs. See attached memo from Barr for more details. A summary is below:

BMP Ref #	BMP	Annual reduction lbs. TP	Cost	$ Per lbs. TP /year
1.b.	20 new raingardens on Co. Rd. F	4.9	$343,000	$2,430
12. a. & b	Underground treatment vault & diversion	40.3	$785,000	$790
2b	School IESF	14.4	$322,000	$1,170
5	Church IESF	21.3	$817,000	$1,860

The WBF grant was to cover the modeling, feasibility study with at least 4 60% designed projects and one BMP installed. The BMP must deliver at least 3 – 6 lbs of TP reduction per year. The size of the BMP's above maximizes the reduction potential, however VLAWMO's budget will not stretch to any of these options. The Goose lake budget line addresses any expenses related to Goose Lake projects (alum, shoreline work, studies, subwatershed). With carry over funds this budget stood at $210,316 at the beginning of the year. Up to $150,000 from the VLAWMO budget could be available to install a BMP before Dec. 31, 2021. Staff has the engineer, Greg Wilson re-looking at some of the BMPs, particularly the school IESF along White Bear Ave. to see if it could be resized to see if the costs could be brought down to the available funds while keeping the annual TP reductions at a level required by the grant. I hope to have an update available for you by the TEC meeting.

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

VLAWMO received the highest score in the grant category, and in January had the grant award approved by the BWSR Board. The alum treatment hasn't been without controversy already. But when VLAWMO staff met with BWSR staff there was a new twist in the story. BWSR staff reviewed the VLAWMO application and felt that enough things had changed since the application was submitted last summer that it would not have scored as high. They assumed the boating restrictions would be in place when they were scoring our application. They are requesting that VLAWMO consider withdrawing the alum treatment grant request for this year with the assurance that a possible future application would not be faulted for withdrawing. **These are the three concerns BWSR staff mentioned:**

1. Bullhead population has again skyrocketed according to a fish survey done by Steve McComas last fall. Residents alerted VLAWMO that there were more bullheads. VLAWMO harvested bullheads in 2012 and the population was still in check in 2017 thanks to a healthy game fish population. Unfortunately, a partial fish kill after that left the population of game fish out of balance and unable to control the young bullhead numbers. Game fish are more vulnerable to low oxygen levels than bullheads. Response: another bullhead harvest with possible restocking of game fish could be considered to address the situation before any treatment of the lake. Staff feels there is a manageable way to address the bullheads in Goose Lake.
2. The lack of boating restriction for East Goose Lake is a little more complicated. VLAWMO Board and staff recommended this, of course, but implementing restrictions is not within VLAWMO's purview. The Board withdrew their recommendation for post alum treatment boating restrictions when it became evident that it wasn't going to pass the City council. BWSR is now concerned that the metrics we set out in our application are less attainable without the boating restrictions. Could we meet 800 pounds of phosphorus per year for 10 – 15 years without the boating restrictions?
3. The third concern is a lack of community support for the alum treatment. The current most pressing concern appears to be vegetation management. A vegetation management plan would need to be part of the picture.

Barr Eng. has been asked to review the modeling that supported the 800 lbs. of phosphorus removal per year for 10 – 15 years factoring in no waterskiing restrictions. If the numbers are still supportable with waterskiing on Goose Lake, the Board will need to decide if it wants to make the case to BWSR on taking the alum grant. If the numbers are different, it

may well make sense to not accept the grant funding as BWSR suggests and try again some other time. April 15th is the deadline to let BWSR know VLAWMO's decision on the grant. At the time of this memo, the updated modeling has not been received. I will forward the information to you when it comes in.

B. Lambert Lake Update:

Staff continue working with SEH and UMN. SEH is working steadily and adding detail to preliminary designs for the meander. SEH hosted a meeting with MN DNR on Feb. 19 to continue permit discussions. It was determined that VLAWMO is the RGU (Responsible Government Unit) for determining if an EAW (Environmental Assessment Worksheet) is needed, in partnership with MN DNR. According to staff understanding, through conversations with MN DNR and reviewing MEPA (Minnesota Environmental Policy Act), an EAW is required for the meander and is exempt for the sheetpile replacement (Subp. 21: Construction Projects: Restoration or reconstruction of a structure is exempt, provided that the structure is not of historical, cultural, architectural, archaeological, or recreational value.).

Staff are starting work on the EAW and will be coordinating with SEH.

C. Carp Project West Vadnais Lake:

We are preparing for the upcoming round of Watershed-based Funding and continuing to reference our Comprehensive Watershed Management Plan for projects that are scheduled to be starting in 2020-2021. Staff are also part of a Metro Carp Management Group. This is a new group that is being formed to coordinate carp management efforts across the metro area, and share successes and failures to make the process more effective and efficient.

As part of our effort to prepare for the West Vadnais TMDL, WBF second round, and SLMP for West Vadnais, we are working to collaborate with Ramsey Washington Metro Watershed District as part of their ongoing effort to remove Common carp. In RWMWD surveys and report, Common carp management in West Vadnais Lake were identified as a priority. Rough fish management, including carp, are also identified in our Plan. Our ability to contribute to RWMWD's ongoing project means that it is possible for us to conduct relevant efforts without overextending our current budget. We may also be able to leverage WBF funds with this approach when those meetings get underway.

Staff met with RWMWD and Carp Solutions at West Vadnais Lake to take measurements and better understand barrier placement to protect removals already conducted in the Phalen chain (downstream from West Vadnais). West Vadnais has the highest biomass of the waterbodies assessed in the analysis done by RWMWD in 2017-2018.

Lake Owasso also had high biomass reported as a result of this survey. Since the survey was done, Owasso has been the focus of mark-capture-recapture, carp removal, nursery surveys, ageing, radio transmitter implantation/radio telemetry, and commercial seining (See table below).

Table 1. Boat electrofishing surveys for common carp in the Owasso subwatershed. Emily Lake was also surveyed, with only goldfish and black bullhead present. * this is the more accurate biomass and abundance estimate derived using capture-mark-recapture surveys (see Phase 2 for details).

Lake Name	Owasso	Wabasso	Grass	Bennett	W. Vadnais	Owasso Basin
Lake Area (ha)	152	17	56	12	86	3.2
Length (mm)	475	470	419	511	482	456
CPUE (carp/h)	74.0	27.0	11.3	7.8	38.0	9.5
Mass (kg)	1.5	1.4	1.1	1.8	1.6	1.3
Density (carp/ha)	302	115	50	35	160	43
N	16,777*	1,959	2,807	422	13,739	136
Biomass (kg/ha)	218.3*	167.0	52.9	64.2	248.2	56.6

Please review the attached documents:

1. Natural Resources Update from RWMWD
2. Common carp management proposal and cost estimate for the full project (RWMWD and VLAWMO)
3. An article by BWSR about carp management in Rice Creek Watershed District (This project is referenced in other materials, and RCWD is a number of years ahead in the effort to remove Common carp to levels that allow improved water quality.) https://medium.com/@MnBWSR/the-potential-application-is-huge-3789a37fa190
4. Staff will share a webinar that was presented on Feb. 28 by the Minnesota Aquatic Invasive Species Research Center when it is available online.

*Staff request TEC support for $12,500, pending approval by the Board, to support monitoring and removal on West Vadnais Lake and contribute to the low-voltage electrified barrier at the outlet of West Vadnais.

D. Birch Lake 4th & Otter Update

The Board approved and selected the low bid contractor, Blackstone Contractors, LLC, for construction of the Birch Lake iron-enhanced sand filter (IESF) at their February meeting. Contract documents are being processed and signed, and work is slated to begin in March/April.

KJOLHAUG ENVIRONMENTAL SERVICES COMPANY

Providing Sound, Balanced, Comprehensive Natural Resource Solutions

Memorandum

Date: February 4, 2020

To: Brian Corcoran, Vadnais Lake Area Water Management Organization (VLAWMO)

CC: Mark Smith, Mark of Excellence Homes

From: Melissa Barrett, Kjolhaug Environmental Services Company (KES)
Kyle Uhler, Kjolhaug Environmental Services Company

Re: Site Assessment of Wetland Mitigation
Weston Woods of White Bear Township, MN (KES#2019-187)

The Weston Woods site was examined on October 9, 2019 for the presence and extent of mitigation wetlands. This memo presents observations of the onsite wetland creation areas and the wetland banking area. The site was located in Section 16 and 17, Township 30N, Range 22W, City of White Bear Lake, Ramsey County, Minnesota. More specifically, the site was located west of Interstate 35E and the north of Highway 96 E (**Figure 1**).

Wetland impacts for the townhome development are shown on **Figure 2** and **Appendix A** and were approved by Vadnais Lake Area Water Management Organization (VLAWMO) over 15 years ago (the available plan is dated 10/20/2000). Approved wetland impacts totaled 91,417 square feet (sf) of which 62,454 sf required 2:1 replacement, and 28,793 sf required 1:1 replacement (**Attachment B**). At the time this project was permitted, wetland creation provided credit at 100% of the area created, as did stormwater ponds and upland buffer areas.

Replacement was to be accomplished onsite via created wetland/mitigation areas, buffer preservation areas, and no mow buffers adjacent to the wetlands. The site also contains a created wetland banking area, and additional buffer preservation and no mow buffer areas not used for credit.

Table 1 on the following page summarizes the total wetland impacts and required replacement. **Table 2** summarizes approved credit amounts for the created wetland/mitigation areas, wetland buffer areas, and the wetland banking area. Wetland impacts and replacement features are also illustrated on **Figure 2**.

Table 1. Summary of Wetland Impacts and Required Replacement

Wetland "ID"	Wetland Impact (sf)	Replacement Ratio	Required Replacement
A (west impact)	2,743	2:1	5,486
A (south impact)	235	2:1	470
B	295	2:1	590
E	3,602	2:1	7,204
F (north impact)	18,990	2:1	37,980
F (east impact)	354	2:1	708
J	7,967	2:1	15,934
L	3,500	2:1	7,000
M	3,130	2:1	6,260
O (east impact)	1,025	2:1	2,050
O (west impact)	7,400	2:1	14,800
P	13,213	2:1	26,426
Total	**62,454**		**124,908**

Impacts to Wetland N (28,793 sf;0.67-ac) are to be replaced at a 1:1 ratio via onsite Wetland "O" banking area.

Table 2. Summary of Approved Replacement Area Credits

Replacement Type	Area (sf)
Wetland Creation	
Wetland B	36,330
Wetland D	3,163
Wetland DD	2,720
Total	42,213
WCA Buffer Preservation	
Wetlands D and DD	29,925
NW Banking Area	37,250
Total	67,175
WCA No Mow	
Wetlands A and B	30,500
Total for all areas	**139,888**
Wetland Banking Area	1.87-acres available

Monitoring Methods

For the 2019 delineation, wetland boundaries for the created wetland/mitigation areas were identified as the upper-most extent of wetland that met criteria for hydrophytic vegetation and wetland hydrology. Wetland-upland boundaries were located with a Trimble Juno GPS Unit. Soils were not examined during the site visit. The 2019 delineated wetland boundaries are illustrated on **Figure 3**.

Vegetation and hydrology were documented using a meander sample to capture all observed inundation, emergent species, and community types. All emergent vegetative community types were represented in the meander sample. Plant species dominance was estimated based on the percent aerial or basal coverage visually observed within the community type sampled.

Plants were identified using standard regional plant keys. Taxonomy and indicator status of plant species was taken from the 2018 National Wetland Plant List (http://wetland-plants.usace.army.mil/nwpl_static/v33/home/home.html). Wetland community types were identified using Eggers and Reed (2015) plant communities of Minnesota and Wisconsin.

Hydrology was characterized by aerial coverage of inundation during the 2019 site visit and is illustrated on **Figure 4**. The 30-day rolling precipitation total graph is included in **Attachment C.** Reference photographs were taken during the field visit and can be referenced in **Attachment D** with photo reference points shown on **Figure 4**.

Monitoring Observations

Wetland B Mitigation Area - Wetland B Mitigation Area is located in the northeastern portion of the project site. The created wetland has taken on hydrologic and vegetative characteristics of a shallow marsh, wet meadow, and wooded swamp complex. The wetland area was saturated within 12 inches of the soil surface to inundated with up to 12 inches of water in the center of the wetland (**Figure 4**) with two secondary indicators of wetland hydrology (geomorphic position and FAC-Neutral Test) up to the wetland boundary.

Based on the 2019 delineation, created Wetland B Mitigation Area totals 30,556-sf. Vegetation observed within each community type are presented in the **Table 3 below** and their extents are illustrated in **Figure 5**.

Table 3. Observed vegetation by plant community type – Wetland B Mitigation Area

Shallow Marsh Vegetation (23,236 sf)			
Common Name	**Scientific Name**	**Wetland Indicator**	**Aerial Coverage (%)**
Broad-leaf Arrowhead	*Sagittaria latifolia*	OBL	2
Common Beggarticks	*Bidens vulgata*	FAC	3
Lake Sedge	*Carex lacustris*	OBL	2
Narrow-leaf Cattail	*Typha angustifolia*	OBL	8
Soft-stem Bulrush	*Schoenoplectus tabernaemontani*	OBL	10
Woolgrass	*Scirpus cyperinus*	OBL	5

Table 3 (cont). Observed vegetation by plant community type – Wetland B Mitigation Area

Wet Meadow Vegetation (4,069 sf)			
Common Name	**Scientific Name**	**Wetland Indicator**	**Aerial Coverage (%)**
American Bugleweed	Lycopus americanus	OBL	2
Black Willow	*Salix nigra*	OBL	20
Common Beggarticks	*Bidens vulgata*	FAC	3
Common Spikerush	*Eleocharis palustris*	OBL	3
Giant Goldenrod	*Solidago gigantea*	FACW	5
Jewelweed	*Impatiens capensis*	FACW	1
Kentucky Bluegrass	*Poa pratensis*	FACU	10
Narrow-leaf Cattail	*Typha angustifolia*	OBL	5
Pennsylvania Smartweed	*Persicaria pensylvanica*	FACW	5
Red-osier Dogwood	*Cornus sericea*	None	3
Reed Canary Grass	*Phalaris arundinacea*	FACW	5
Sandbar Willow	*Salix interior*	FACW	15
Sensitive Fern	*Onoclea sensibilis*	FACW	1
Tall Scouring Rush	*Equisetum hyemale*	FAC	1
Velvety Goldenrod	*Solidago mollis*	None	1
Woolgrass	*Scirpus cyperinus*	OBL	2
Wooded Swamp Vegetation (3,251 sf)			
Common Name	**Scientific Name**	**Wetland Indicator**	**Aerial Coverage (%)**
Big Bluestem	*Andropogon gerardii*	FACU	1
Eastern Cottonwood	*Populus deltoides*	FAC	15
Giant Goldenrod	*Solidago gigantea*	FACW	5
Green Ash	*Fraxinus pennsylvanica*	FACW	8
Jewelweed	*Impatiens capensis*	FACW	1
Kentucky Bluegrass	*Poa pratensis*	FACU	2
Quaking Aspen	*Populus tremuloides*	FACU	4
Red-osier Dogwood	*Cornus sericea*	None	4
Red Raspberry	*Rubus idaeus*	FAC	5
Reed Canary Grass	*Phalaris arundinacea*	FACW	10
Riverbank Grape	*Vitis riparia*	FAC	3
Sandbar Willow	*Salix interior*	FACW	10
Staghorn Sumac	*Rhus typhina*	None	2
Tall Scouring Rush	*Equisetum hyemale*	FAC	3

Wetland D Mitigation Area - Wetland D Mitigation Area is located in the northeastern corner of the project site. The created wetland has taken on hydrologic and vegetative characteristics of shallow marsh and wet meadow wetland community types. The wetland area was saturated within 12 inches of the soil surface to inundated with up to 6 inches of water in the center portion of the wetland (**Figure 4**). with two secondary indicators of wetland hydrology (geomorphic position and FAC-Neutral Test) up to the wetland boundary.

Based on the 2019 delineation, created Wetland D Mitigation Area totals 4,223-sf. Vegetation observed within each community type are presented in the **Table 4 below** and their extents are illustrated in **Figure 5**.

Table 4. Observed vegetation by plant community type – Wetland D Mitigation Area

Shallow Marsh Vegetation (1,540 sf)			
Common Name	**Scientific Name**	**Wetland Indicator**	**Aerial Coverage (%)**
Narrow-leaf Cattail	*Typha angustifolia*	OBL	60
Reed Canary Grass	*Phalaris arundinacea*	FACW	6
Woolgrass	*Scirpus cyperinus*	OBL	20
Wet Meadow Vegetation (2,683-sf)			
Common Name	**Scientific Name**	**Wetland Indicator**	**Aerial Coverage (%)**
Barnyard Grass	*Echinochloa crus-galli*	FAC	4
Black Willow	*Salix nigra*	OBL	2
Canada Bluejoint	*Calamagrotis canadensis*	OBL	8
Common Boneset	*Eupatorium perfoliatum*	FACW	2
Giant Goldenrod	*Solidago gigantea*	FACW	10
Jewelweed	*Impatiens capensis*	FACW	2
Kentucky Bluegrass	*Poa pratensis*	FACU	25
Narrow-leaf Cattail	*Typha angustifolia*	OBL	3
Pennsylvania Smartweed	*Persicaria pensylvanica*	FACW	5
Red-osier Dogwood	*Cornus sericea*	None	4
Reed Canary Grass	*Phalaris arundinacea*	FACW	15
Sandbar Willow	*Salix interior*	FACW	8
Staghorn Sumac	*Rhus typhina*	None	1
Woolgrass	*Scirpus cyperinus*	OBL	10

Wetland DD Mitigation Area - Wetland DD Mitigation Area is located in the northeastern portion of the project site (**Figure 3**). During the 2019 site visit no wetland was observed in the area of planned Wetland DD Mitigation Area. Instead, the area nearest the wetland was dominated by buckthorn shrubs on what appeared to be a previously graded slope.

Wetland O Banking Area - Wetland O Banking Area is located in the northcentral portion of the project site. The created wetland has taken on hydrologic and vegetative characteristics of a deep marsh, shallow marsh, wet meadow, and wooded swamp complex. The wetland area was saturated within 12 inches of the soil surface to inundated with more than 12 inches of water in much of the center portion of the wetland (**Figure 4**). with two secondary indicators of wetland hydrology (geomorphic position and FAC-Neutral Test) up to the wetland boundary.

Based on the 2019 delineation, created Wetland O Banking Area totals 178,931-sf. Vegetation observed within each community type are presented in the **Table 5 below** and their extents are

illustrated in **Figure 5**. Due to inaccessibility, the deep marsh plant community (102,321-sf) was not sampled.

Table 5. Observed vegetation by plant community type – Wetland O Banking Area

Shallow Marsh Vegetation (44,902 sf)			
Common Name	**Scientific Name**	**Wetland Indicator**	**Aerial Coverage (%)**
Broad-leaf Arrowhead	*Sagittaria latifolia*	OBL	2
Common Beggarticks	*Bidens vulgata*	FAC	2
Common Duckweed	*Lemna minor*	OBL	10
Lake Sedge	*Carex lacustris*	OBL	2
Narrow-leaf Cattail	*Typha angustifolia*	OBL	25
Soft-stem Bulrush	*Schoenoplectus tabernaemontani*	OBL	5
Woolgrass	*Scirpus cyperinus*	OBL	5
Wooded Swamp (13,147 sf) & Wet Meadow Vegetation (18,534 sf)			
Common Name	**Scientific Name**	**Wetland Indicator**	**Aerial Coverage (%)**
Black Willow	*Salix nigra*	OBL	5
Common Beggarticks	*Bidens vulgata*	FAC	2
Common Spikerush	*Eleocharis palustris*	OBL	2
Giant Goldenrod	*Solidago gigantea*	FACW	5
Indian Hemp	*Apocynum cannabinum*	FAC	2
Jewelweed	*Impatiens capensis*	FACW	2
Narrow-leaf Cattail	*Typha angustifolia*	OBL	5
New England Aster	*Symphyotrichum novae-angliae*	FACW	1
Pennsylvania Smartweed	*Persicaria pensylvanica*	FACW	4
Red-osier Dogwood	*Cornus sericea*	None	6
Reed Canary Grass	*Phalaris arundinacea*	FACW	25
Riverbank Grape	*Vitis riparia*	FAC	5
Sandbar Willow	*Salix interior*	FACW	5
Spotted Joe-pye Weed	*Eutrochium maculatum*	OBL	8
Stinging Nettle	*Urtica dioica*	FAC	3
Wild Cucumber	*Echinocystis lobata*	FACW	6
Woolgrass	*Scirpus cyperinus*	OBL	8
Black Willow	*Salix nigra*	OBL	30
Common Burdock	*Arctium minus*	FACU	2
Common Violet	*Viola sororia*	FAC	2
Eastern Cottonwood	*Populus deltoides*	FAC	8
Quaking Aspen	*Populus tremuloides*	FACU	5
Red-osier Dogwood	*Cornus sericea*	N/A	5
Red Raspberry	*Rubus idaeus*	FAC	4
Reed Canary Grass	*Phalaris arundinacea*	FACW	5
Riverbank Grape	*Vitis riparia*	FAC	8
Sandbar Willow	*Salix interior*	FACW	25
Staghorn Sumac	*Rhus typhina*	N/A	2

Summary and Requested Approval

A summary of credits generated by the onsite replacement types is provided in **Table 6 below**.

Table 6. Summary of Generated Credits

Replacement Type	Area (sf)
Wetland Creation	
Wetland B	30,556
Wetland D	4,223
Wetland DD	0
Total	34,779
WCA Buffer Preservation	
Wetlands D and DD	29,925
NW Banking Area	37,250
Total	67,175
WCA No Mow	
Wetlands A and B	30,500
Total for all areas	**132,454**
Wetland Banking Area	1.87-acres available

Onsite replacement activities have provided 132,454 sf of the required 124,908 sf, with impacts to Wetland N (28;973 sf; 0.67-ac) replaced via onsite Wetland "O" banking area (1.87-ac of available credit). Although Wetland DD Mitigation Area was not created, sufficient credit was generated to meet replacement requirements.

The 2019 observed conditions of the replacement types meets the success standards of the WCA rules in effect at the time the project was permitted, which were the presence of wetland hydrology and a predominance of native vegetation.

With submission of this report, the Applicant requests replacement plan certification from the WCA LGU (VLAWMO)**.**

Thank you.

Weston Woods of White Bear Township

2019 Monitoring Memo

Figures

1. Site Location
2. Approved Replacement Plan
3. Approved Versus Existing Conditions
4. Photo Reference Points and Hydrology
5. Wetland Community Types

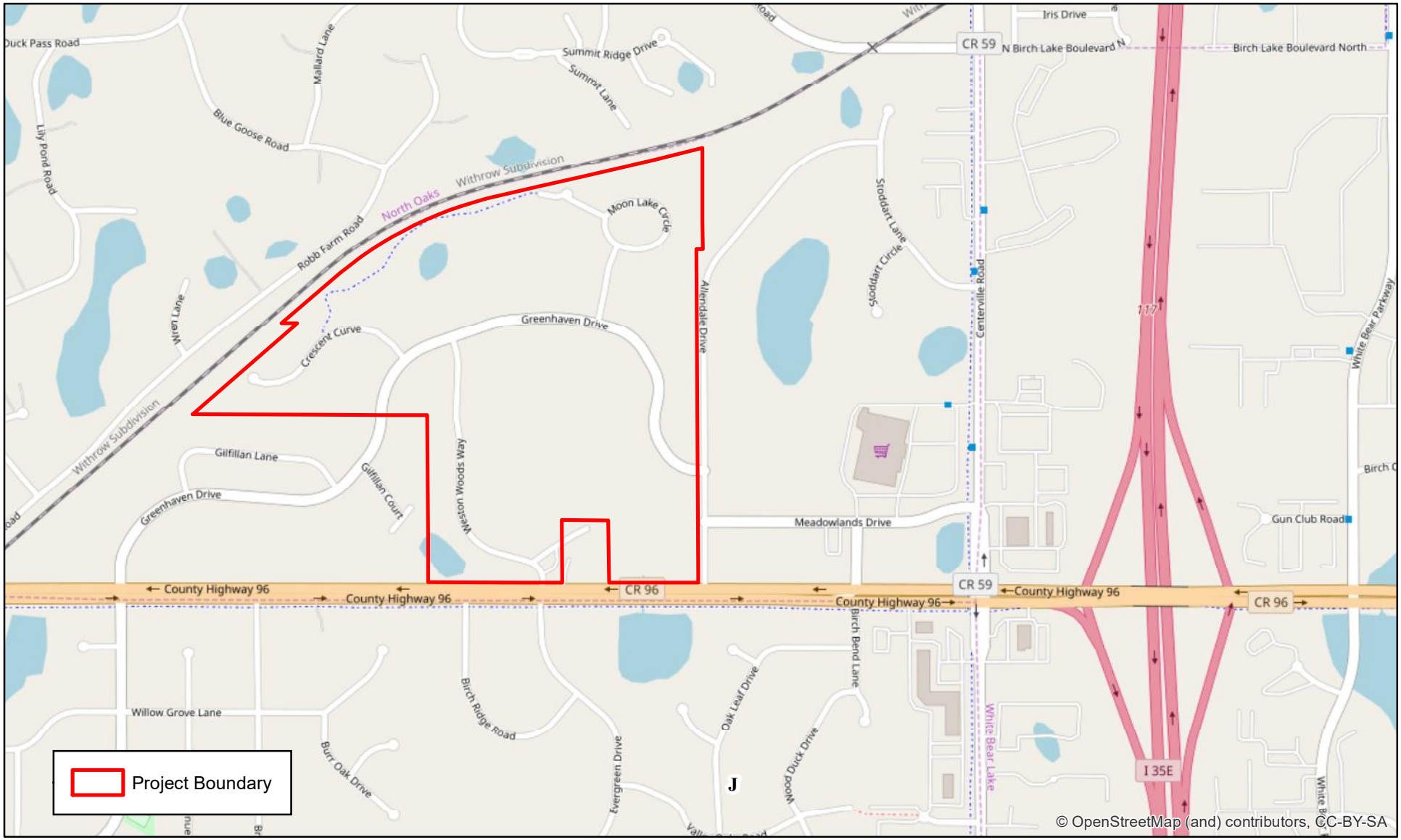


Figure 1 - Site Location

N

0 600 Feet

KJOLHAUG ENVIRONMENTAL SERVICES COMPANY

Source: MNGEO Spatial Commons, Hedlund Engineering

Weston Woods (KES 2019-187)
White Bear Twp, Minnesota

Note: Boundaries indicated on this figure are approximate and do not constitute an official survey product.

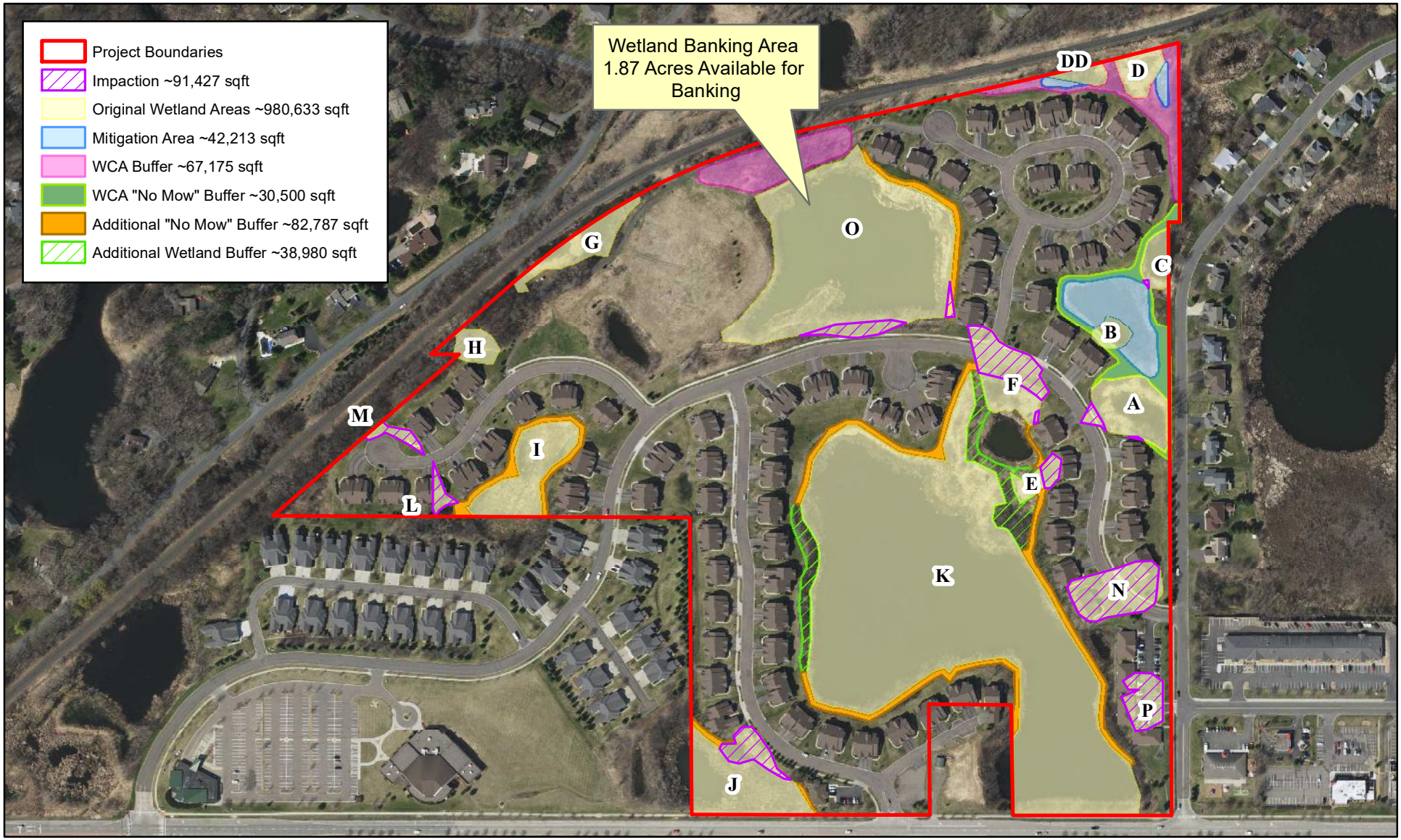


Figure 2 - Approved Replacement Plan (2016 MnGEO Photo)

N

0 375 Feet

KJOLHAUG ENVIRONMENTAL SERVICES COMPANY

Source: MNGEO Spatial Commons, Hedlund Engineering

Weston Woods (KES 2019-187)
White Bear Twp, Minnesota

Note: Boundaries indicated on this figure are approximate and do not constitute an official survey product.

Figure 3 - Approved Versus Existing Conditions (2016 MnGEO Photo)

N

0 375 Feet

KJOLHAUG ENVIRONMENTAL SERVICES COMPANY

Source: MNGEO Spatial Commons, Hedlund Engineering

Weston Woods (KES 2019-187)
White Bear Twp, Minnesota

Note: Boundaries indicated on this figure are approximate and do not constitute an official survey product.

Figure 4 - Photo Reference Points and Hydrology

N

0 165 Feet

KJOLHAUG ENVIRONMENTAL SERVICES COMPANY

Source: MNGEO Spatial Commons, Hedlund Engineering

Weston Woods (KES 2019-187)
White Bear Twp, Minnesota

Note: Boundaries indicated on this figure are approximate and do not constitute an official survey product.

Figure 5 - Wetland Community Types 10/9/2019

N

0 165 Feet

KJOLHAUG ENVIRONMENTAL SERVICES COMPANY

Source: MNGEO Spatial Commons, Hedlund Engineering

Weston Woods (KES 2019-187)
White Bear Twp, Minnesota

Note: Boundaries indicated on this figure are approximate and do not constitute an official survey product.

Weston Woods of White Bear Township

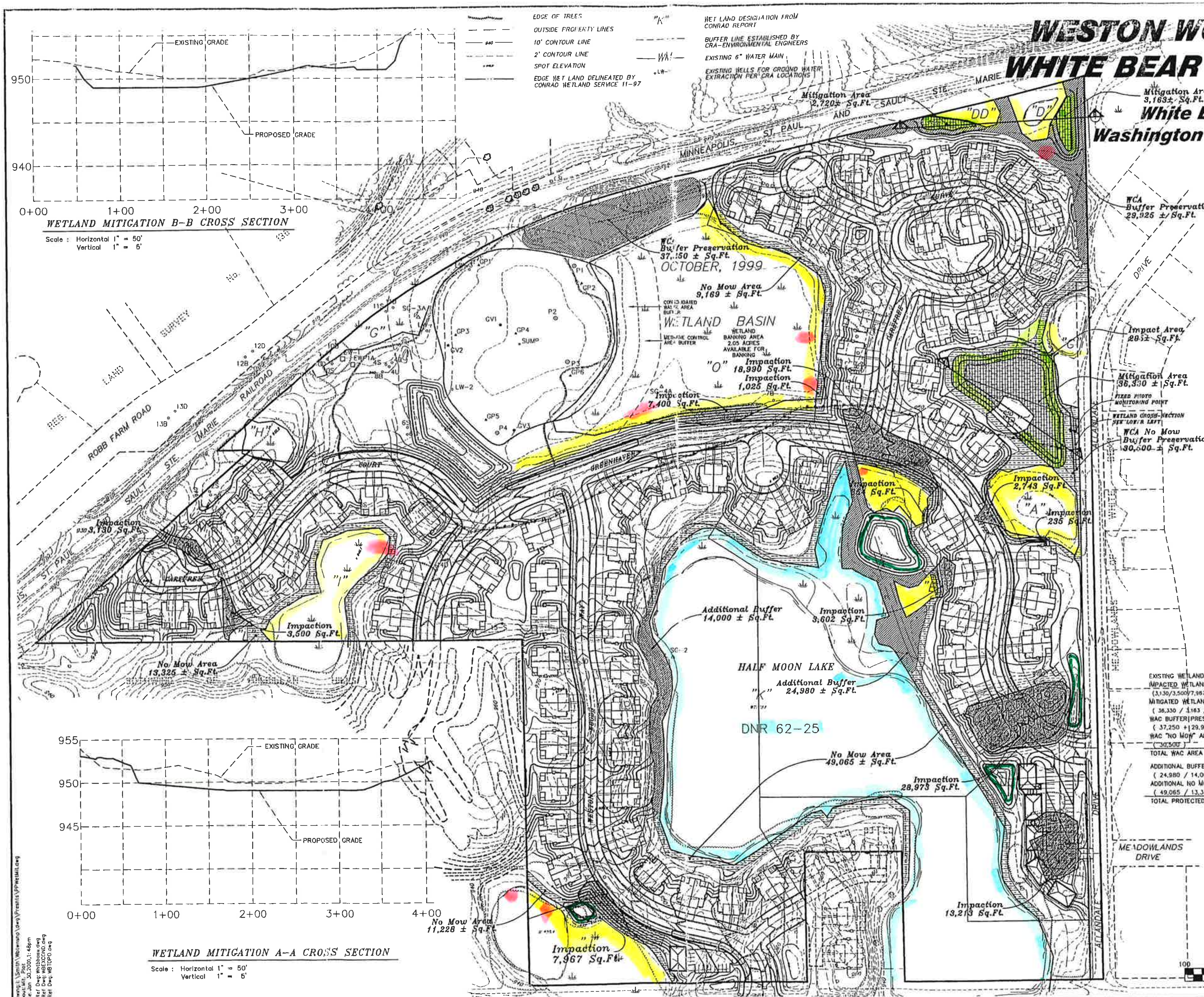
2019 Monitoring Memo

Attachment A

Approved Wetland Replacement Plan

WESTON WOODS OF WHITE BEAR TOWNSHIP

White Bear Township
Washington County, Minnesota



EDGE OF TREES
OUTSIDE PROPERTY LINES
10' CONTOUR LINE
2' CONTOUR LINE
SPOT ELEVATION
EDGE WET LAND DELINEATED BY CONRAD WETLAND SERVICE 11-97
WET LAND DESIGNATION FROM CONRAD REPORT
BUFFER LINE ESTABLISHED BY CRA-ENVIRONMENTAL ENGINEERS
EXISTING 6" WATER MAIN
EXISTING WELLS FOR GROUND WATER EXTRACTION PER CRA LOCATIONS
WETLAND MITIGATION B-B CROSS SECTION
Scale : Horizontal 1" = 50' Vertical 1" = 5'
EXISTING GRADE
PROPOSED GRADE
WETLAND MITIGATION A-A CROSS SECTION
Scale : Horizontal 1" = 50' Vertical 1" = 5'
MINNEAPOLIS ST. PAUL AND SAULT STE. MARIE
ROBB FARM ROAD
Mitigation Area 2,720± Sq.Ft.
Mitigation Area 3,163± Sq.Ft.
WCA Buffer Preservation 37,250 ± Sq.Ft. OCTOBER, 1999
No Mow Area 9,169 ± Sq.Ft.
WETLAND BASIN
Impaction 18,990 Sq.Ft.
Impaction 1,025 Sq.Ft.
Impaction 7,400 Sq.Ft.
WCA Buffer Preservation 29,925 ±/Sq.Ft.
Impact Area 295± Sq.Ft.
Mitigation Area 36,330 ± Sq.Ft.
WCA No Mow Buffer Preservation 30,500 ± Sq.Ft.
Impaction 2,743 Sq.Ft.
Impaction 235 Sq.Ft.
Impaction 354 Sq.Ft.
Impaction 3,130 Sq.Ft.
Impaction 3,500 Sq.Ft.
No Mow Area 13,325 ± Sq.Ft.
Additional Buffer 14,000 ± Sq.Ft.
Impaction 3,602 Sq.Ft.
HALF MOON LAKE
Additional Buffer 24,980 ± Sq.Ft.
DNR 62-25
No Mow Area 49,065 ± Sq.Ft.
Impaction 28,973 Sq.Ft.
No Mow Area 11,228 ± Sq.Ft.
Impaction 7,967 Sq.Ft.
Impaction 13,213 Sq.Ft.
GREENHAVEN
MEADOWLANDS DRIVE
ALLANDALE DRIVE
Scale 1" = 100'

DENOTES WETLAND IMPACT AREA

DENOTES WETLAND MITIGATION AREA

DENOTES WETLAND BUFFER AREA

DENOTES "NO MOW" AREA

DELINEATED WET LAND AREAS

BASIN	SQ.FT.	ACRES
"A"	31,800	0.73
"B"	6,170	0.14
*"C"	15,100	0.35*
*"D"	11,050	0.25*
"E"	8,550	0.20
"F"	32,600	0.75
*"G"	17,500	0.40*
*"H"	8,750	0.20*
"I"	36,300	0.83
"J"	52,700	1.21
*"K"	490,550	11.26*
*"L"	3,500	0.08
*"M"	3,130	0.07*
*"DD"	4,900	0.11*
TOTAL	722,600	16.59

* MEASURED TO BOUNDARY OR RIGHT OF WAY LINE

DELINEATED WET LAND AREAS OCTOBER 25, 1999

BASIN	SQ.FT.	ACRES
"N"	29,000	0.67
"O"	215,820	4.95
TOTAL	244,820	5.62

DELINEATED WET LAND AREAS FALL , 2000

BASIN	SQ.FT.	ACRES
"P" (SE Corner)	13,213	0.30
TOTAL	13,213	0.30

EXISTING WETLAND AREA	= 980,633 Sq.Ft. or 22.51 Ac.	
IMPACTED WETLAND AREA (3,130/3,500/7,967/13,213/28,973/3,602/235/2,743/354/18,990/1,025/7,400/295)	= 91,427 Sq.Ft. or 2.10 Ac.	= 9.3%
MITIGATED WETLAND AREA (36,330 / 3,163 / 2,720)	= 42,213 Sq.Ft. or 0.97 Ac.	
WAC BUFFER/PRESERVATION AREA (37,250 + 29,925)	= 67,175 Sq.Ft. or 1.54 Ac.	
WAC "NO MOW" AREA (30,500)	= 30,500 Sq.Ft. or 0.70 Ac.	
TOTAL WAC AREA	= 97,675 Sq.Ft. or 2.24 Ac.	
ADDITIONAL BUFFER PRESERVATION (24,980 / 14,000)	= 38,980 Sq.Ft. or 0.90 Ac.	
ADDITIONAL NO MOW AREA (49,065 / 13,325 / 9,169 / 11,228)	= 82,787 Sq.Ft. or 1.90 Ac.	
TOTAL PROTECTED AREA	= 219,442 Sq.Ft. or 5.04 Ac.	

PROJECT NUMBER 001016

REVISIONS

REMARKS	DATE	BY
Impaction/Mitigation Areas	10/20/00	gbh
Impaction/Mitigation Areas By Basins & & C	11/27/00	gbh
Adjust Layout	12/18/00	gbh
Defined Wetland "L"& "P", Corrected #s	01/03/01	gbh
Increased Mitigation Area, Added Mitigation	01/18/01	gbh
Adjust along west, Reduced impact on "I"	01/30/01	gbh

CERTIFICATION: I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the Laws of the State of Minnesota.

Randall C. Hedlund, Minn. No. 19576

PREPARED BY: **HEDLUND**
PLANNING ENGINEERING SURVEYING
2005 PIN OAK DRIVE
EAGAN, MINNESOTA 55122
PHONE: (651) 405-6600
FAX: (651) 405-6606

SHEET TITLE: WESTON WOOD OF WHITE BEAR TOWNSHIP WETLAND IMPACT

PREPARED FOR: *Mark of Excellence Homes*
527 Coon Rapids Blvd.
Coon Rapids, MN 55433
Phone:(612) 785-0935

WESTON WOODS TOWNHOMES

DRAWN	CHECKED	DESIGN
JJS		

SHEET NUMBER C-1.6

DATE 10/20/00

Weston Woods of White Bear Township

Monitoring Memo

Appendix B

October 2000 Wetland Relocation Memo

KJOLHAUG ENVIRONMENTAL SERVICES COMPANY
Providing Sound, Balanced, Comprehensive Natural Resource Solutions

MEMORANDUM

DATE: October 4, 2000

TO: Stephanie McNamara, VLAWMO
4701 Highway 61, White Bear Lake, MN 55110

CC: Mark Smith, Mark of Excellence Homes, Inc.
527 Coon Rapids Blvd., Coon Rapids, MN 55433

Richard Krawczewski, Kraft 96, Inc.
44 East Acker St., St. Paul, MN 55117

FROM: Ken Powell & Mark Kjolhaug, Kjolhaug Environmental Services Company, Inc.

RE: **Weston Woods of White Bear Township**

As has been discussed during previous meetings with VLAWMO regarding the proposed Weston Woods project, we are requesting approval to relocate a created wetland used to fulfill WCA replacement requirements.

As you are aware, the subject site is located in the SW ¼ of Section 16 and the SE ¼ of Section 17, Township 30 North, Range 22 West, White Bear Township, Ramsey County, Minnesota. The site lies on the north side of County State Aide Highway (CSAH) 96, east of Allandale Drive, and southeast of Robb Farm Road and the Soo Line Railway.

In 1995 Rani Engineering submitted a plan to satisfy wetland replacement requirements for wetland drainage that occurred in 1994 on the site in accordance with the Minnesota Superfund Process. The plan involved creating a 0.67-acre isolated wetland (Basin N) on the east side of Half Moon Lake as well as additional new wetland creation adjacent to the landfill along the northern boundary of the site.

Currently, Mark of Excellence Homes is proposing to develop the site for residential and commercial uses. The attached plans show the current layout. Unfortunately, the layout involves impacts to the 0.67-acre replacement wetland. This impact is due to the location of the proposed access road on the east side of the property off of Allandale Drive. This is the preferred entrance (by the Township) to the site from Allandale Drive due to the presence of residential homes along

26105 Wild Rose Lane, Shorewood, Minnesota 55331 • Phone: 612-401-8757 • Fax: 612-401-8798

most of the east side of Allandale. Due to residence concerns and township requirements, the entrance road cannot be shifted north of the replacement wetland.

We are proposing to have the 0.67-acre replacement area relocated to the established wetland bank in the northern portion of the site. Currently, there are 2.05 acres of new wetland credit available in the wetland bank. This will be reduced to 1.87 acres based on a revised banking application to be submitted in conjunction with site plan applications.

In addition to the entrance road alignment, there are several other compelling reasons to relocate this replacement wetland area. They are as follows:

- The replacement wetland does not appear to meet WCA design standards. Wetland sideslopes are approximately 3:1 on the north and east sides, 4:1 on the south side, and 5:1 on the west side. WCA design standards require sideslopes to be no steeper than 5:1 averaged around the wetland. Bottom contours of the wetland appear flat providing a uniform water depth. WCA standards require undulating bottom contours to provide a variety of water depths. The wetland has a very regular shape resembling a stormwater pond. WCA standards require an irregular edge to create points and bays.

- No restrictive covenant or easement has been placed around the replacement wetland. The wetland banking area where the relocation of credits is proposed has a restrictive easement.

- Consolidation of the wetland mitigation into one area maximizes ecological benefit in a developed landscape as is being proposed.

Trying to save even a portion of this wetland becomes impracticable given the width of the impact and the presence of Half Moon Lake to the west. The proposed road crossing would require the placement of fill within over 1/3 of Basin N and leave a small, isolated wetland with steep sideslopes.

Due to the reasons stated above and the required location of the entrance road into the development, we are requesting approval to relocate the 0.67-acre replacement wetland by utilizing an equivalent amount of wetland banking credit available on the site.

Weston Woods of White Bear Township

Monitoring Memo

Appendix C

Precipitation Summary

Minnesota State Climatology Office

State Climatology Office - DNR Division of Ecological and Water Resources

Precipitation Worksheet Using Gridded Database

Precipitation data for target wetland location:

county: **Ramsey** township number: **30N**
township name: **White Bear** range number: **22W**
nearest community: **North Oaks** section number: **16**

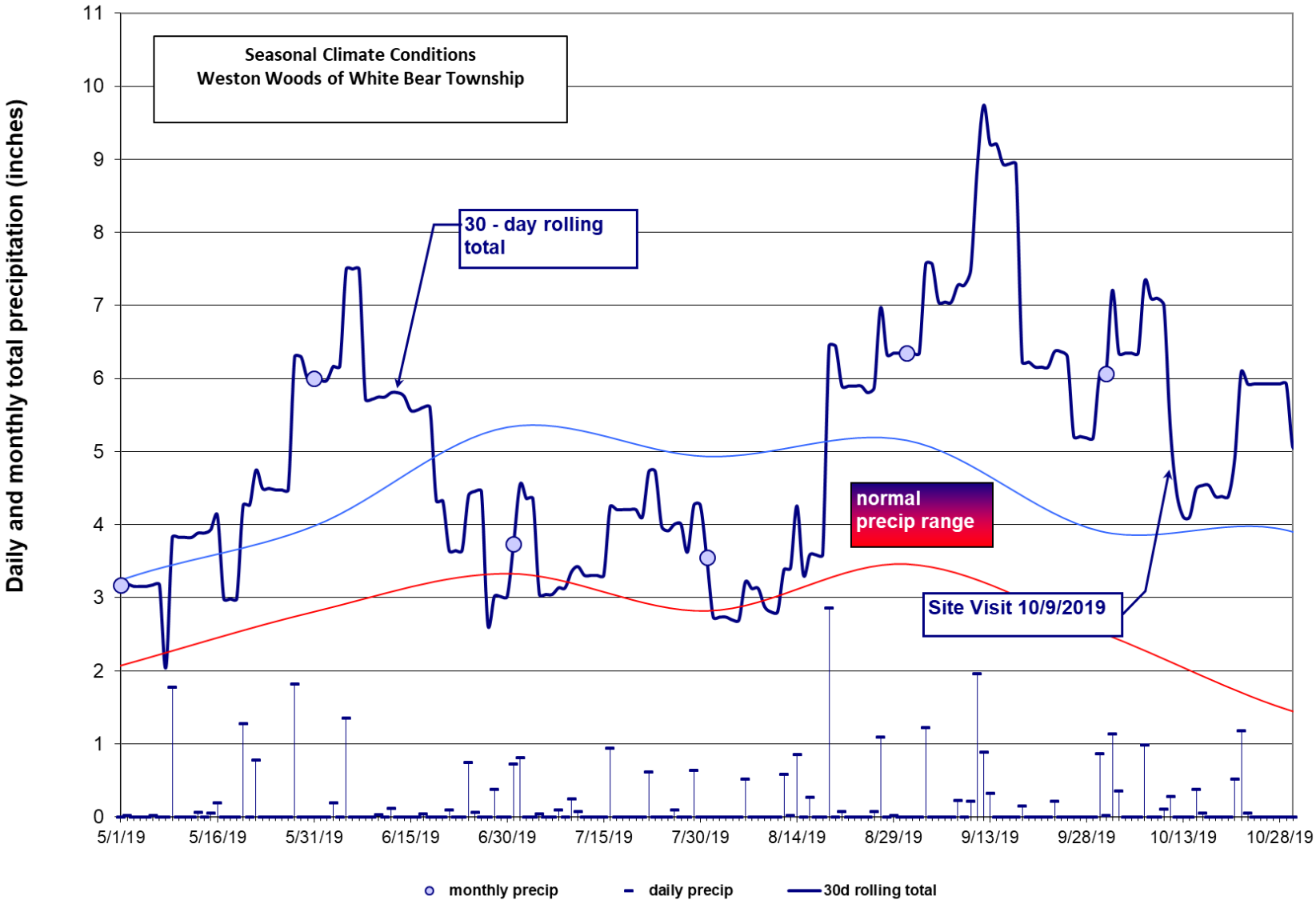
Aerial photograph or site visit date:
Wednesday, October 9, 2019

Score using 1981-2010 normal period

values are in inches A 'R' following a monthly total indicates a provisional value derived from radar-based estimates.	first prior month: **September 2019**	second prior month: **August 2019**	third prior month: **July 2019**
estimated precipitation total for this location:	**4.88**	**5.78**	**4.67**
there is a 30% chance this location will have less than:	2.53	3.46	2.82
there is a 30% chance this location will have more than:	3.91	5.15	4.93
type of month: dry normal wet	**wet**	**wet**	**normal**
monthly score	**3 * 3 = 9**	**2 * 3 = 6**	**1 * 2 = 2**
multi-month score: 6 to 9 (dry) 10 to 14 (normal) 15 to 18 (wet)	**17 (Wet)**		

Other Resources:

- retrieve daily precipitation data
- view radar-based precipitation estimates
- view weekly precipitation maps
- *Evaluating Antecedent Precipitation Conditions* (BWSR)


Seasonal Climate Conditions
Weston Woods of White Bear Township
Daily and monthly total precipitation (inches)
30 - day rolling total
normal precip range
Site Visit 10/9/2019
11
10
9
8
7
6
5
4
3
2
1
0
5/1/19
5/16/19
5/31/19
6/15/19
6/30/19
7/15/19
7/30/19
8/14/19
8/29/19
9/13/19
9/28/19
10/13/19
10/28/19
monthly precip
daily precip
30d rolling total

Weston Woods of White Bear Township

Monitoring Memo

Appendix D

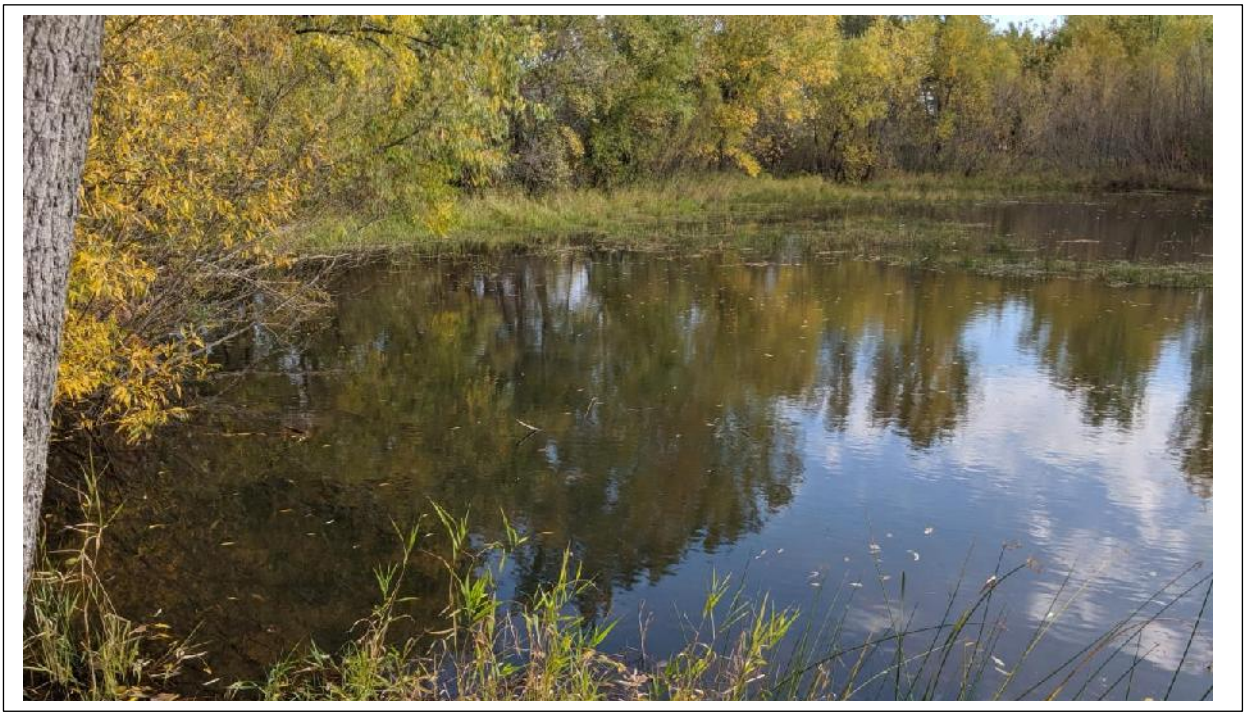
Site Photos

PRP#1 - Looking to northeast

PRP#2 - Looking to east

PRP#3 - Looking to northeast

PRP#4 - Looking to south



PRP#5 - Looking to southeast

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

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: Eric Biese DATE: 3-5-2020

ADDRESS: 13 Duck Pass Road CITY: North Oaks ZIP: 55127

PHONE: 612-481-0331 EMAIL: ebiese@yahoo.com

PROJECT SUMMARY

ESTIMATED TOTAL COST OF YOUR PROJECT: $ 12,500

AMOUNT OF GRANT REQUESTED: ($2,000 MAXIMUM) $ 2000.00

WHEN DO YOU PLAN TO COMPLETE YOUR PROJECT? Spring 2020

TYPE OF PROJECT THAT WILL BE COMPLETED:

Raingarden/ Infiltration Basin ☐ Shoreline Restoration ☐ Native Plant Restoration ☐ Other X

If other, please describe proposed project: Turf replacement with low grow fescue & filtration drainage improvements

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?

13 Duck Pass Rd connects to Teal Pond. We are mitigating current drainage and ponding issues by implementing filtration swales, planted with a low fescue mix. The grass mix will provide for long term stabalization and protection of Teal Pond.

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

The overall emphasis of the project is to protect Teal Pond and reduce runoff of rainwater to the pond. Replacement of turf grass with low fescue will provide a deeper root structure and increased infiltration.

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 thisinformation.

TOTAL PROPERTY AREA (SQ.FT): 1.7 acres

PROJECT SIZE (SQ.FT.): 9,800 sq ft

IMPERVIOUS AREA DRAINING TO PROJECT (SQ.FT.): 4,850 sq ft

PERVIOUS AREA DRAINING TO PROJECT (SQ.FT.): 19,000 sq ft

IF YOUR PROJECT **INCLUDES INFILTRATION,** PLEASE PROVIDE THE FOLLOWING INFORMATION

SOIL INFILTRATION RATE (INCHES/HR): _____

DEPTH OF RAINGARDEN (INCHES): _____

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)**

Shaded areas to receive new Low Grow Fescue seed mix and straw seed blanket. Also add dirt, seed, and blanket in low area along edge of road on right side of drive to get water to drain across road.

GRADING LIMIT

8" DRAIN

WELL

4" SEWER PIPE

GRADE SWALE, ADD SEED & BLANKET

12" CATCH BASIN

GRADING LIMIT

ADD SOIL & SEED

REMOVE OLD DECK FOOTINGS

18" SIGNATURE PAVERS

MULCH

24" BOULDER WALL

GRADING LIMIT

GRADE SWALE, ADD SEED & BLANKET

GRADING LIMIT

CONNECT DRAIN TILES

PROBABLE SEPTIC

EXISTING SHED

GRADE, SEED, BLANKET

GRADING LIMIT

OUTLET DRAIN

REMOVE PLANT BED, GRADE & SEED

REMOVE BOULDERS

3/4" TRAP ROCK PATH ON FABRIC WEED BARRIER

LAKE

PLAN VIEW

DRAWN FOR: ERIC BIESE

13 DUCK PASS RD

NORTH OAKS, MN 55127

DATE: 6/7/18 DRAWN BY: ALAN S. SCALE: 1/16" = 1'-0"

PETERSON Companies

8326 Wyoming Trail, Chisago City, MN 55013

PROPOSAL
6812

PETERSON Companies

8326 WYOMING TRAIL | CHISAGO CITY, MN 55013
(P) 651-257-6864 | (F) 651-257-3393
www.petersoncompanies.net

TO Eric Biese
13 Duck Pass Road
North Oaks, MN 55127

QUOTE DATE	VALID THRU	FOR	SALES REP
2/14/2020	3/14/2020	Drainage Improvements	DAN

NOTE: Estimates include travel, equipment, material, delivery, tax, disposal, & labor.
NOTE: Included in first item estimate, Back Yard, is irrigation modification/re-installing main lines & heads after grading is complete.

Grading, drainage, boulders, and pathway scope:
**Back Yard: Cut a level terrace above existing wall, build 24" boulder wall on corner, add mulch in terrace, cut down center of yard for positive drainage from house to edge of slope, spread black dirt, broadcast seed, cover w/ straw blanket. Install 12" drain boxes for 2 downspouts, connect to tile & drains.*
**Back Yard Add on: Install half circle boulder wall w/ fabric behind bouders around Black Cherry tree to allow for fill soil, remove portion of Hosta bed, grade area to lessen steepness of slope, add black dirt over roots on side of house, broadcast seed & cover w/ erosion blanket, remove old conc. footings.*
**Front Swale: In front yard, remove sod, cut swale from center of front yard to edge of hosta bed along property line, spread black dirt, broadcast seed, cover with straw blanket. Remove existing drain tile, install 12" catch basin for downspout, 25' 4" thin wall sewer pipe, & 6" outlet drain at end of tile.*
**Edge of road: Add black dirt along in low area along edge of road on right side of drive to get water to drain across road, broadcast seed, cover w/ straw blanket.*
**Back Yard left side: At end of driveway, remove existing river rock, grade area, add black dirt, seed, & erosion blanket, place bio log at edge of driveway. Excavate 3" soil for 4' path & small landing at edge of pond, install fabric & 3" layer 3/4" gray trap rock, grade along sides of path, seed & blanket.*

Low Grow Fescue mix:
25% Blue Mesa Sheep Fescue
25% Nanook Hard Fescue
25% Intrigue Chewings Fescue
25% Boreal Creeping Red Fescue

ITEM NO	QUANTITY	DESCRIPTION	UNIT PRICE	EXTENDED
	1	Grading, drainage, boulders, and pathway scope noted above. This line item does not include the seed blanket or Low Grow Fescue seed mix. This line item does not include the labor to install seed and seed blanket.	9,335.00	9,335.00*
	1	This line item is only for the seed, seed blanket, and labor to install seed and blanket for the scope listed above. This also includes a $200.00 upcharge from previous proposal 6812 dated 9/17/2019. The upcharge is for switching the seed mix from bluegrass/ryegrass/fescue mix to a Low Grow Fescue mix.	2,885.00	2,885.00*

* means item is non-taxable

TOTAL AMOUNT $12,220.00

PROPERTY IMPROVEMENT AGREEMENT

(PROPOSAL 6812)

Owner: **Eric Biese**
13 Duck Pass Road
North Oaks, MN 55127

Agreement Issue Date: _____

Improvement Price: **$12,220.00**

Thank you for choosing Peterson Companies, Inc. to complete your upcoming project. We look forward to building a positive working relationship with you. ***PLEASE READ THIS CONTRACT CAREFULLY!*** *It contains information that may need to be addressed* ***BEFORE*** *the start of your project.*

In accordance with the Terms and Conditions of this Agreement, Peterson Companies, Inc. agrees to provide the scope of services as indicated on the previously accepted Proposal for the amount shown which includes all applicable taxes for providing all labor, material, equipment, services and superintendence necessary.

Work Performed: Work will be performed as specified in the previously accepted Proposal. Peterson Companies, Inc. agrees to complete work in a professional, workmanlike manner, and according to industry standards. Quantity of materials listed are estimated as accurately as possible; however, final quantity of material may vary depending on the needs of the project. Until completion of the project, all materials are the property of Peterson Companies, Inc. and any uninstalled materials which remain following completion of a project remain the property of Peterson Companies, Inc.

Pricing & Changes: Pricing of this project will be as provided in the previously accepted Proposal. Changes to the scope of work will result in addition and/or reduction of charges. Alteration or deviation from the Proposal involving costs greater than 10% of the total cost of the project requires written approval from the owner. Any changes to the scope of work will be billed at rates consistent with the accepted Proposal, or as quoted by an authorized Peterson Companies, Inc. representative.

Exclusions: Some items shown on the landscape design or contemplated earlier in the proposal process may not be included in this Agreement. Confirm all items included in your Proposal with your authorized Peterson Companies, Inc. representative.

Utilities: Peterson Companies, Inc. will contact Gopher State One Call (for projects in MN) at least 48 hours prior to the start of any project that requires digging or dirt removal. All public utilities will be marked in accordance to standard marking practices by Gopher State One Call (or other applicable utility). It is the responsibility of the owner to notify Peterson Companies, Inc. of any private utilities, including but not limited to: irrigation systems, invisible pet fencing, security systems and any other privately installed utilities. Owner must mark any private utilities at least 24 hours prior to project start. Peterson Companies, Inc. is not responsible for damage to, or resulting from, unmarked or mismarked utilities. Any damage to Peterson Companies, Inc., its' employees, equipment or materials as the result of an unmarked or mismarked utility shall be the responsibility of the owner or any applicable insurance coverage carried by the owner.

Additional Permits: Many local governments require fees, permits, or inspections on projects such as irrigation, retaining walls, excavations, significant grade changes, lakeshore restoration, wetland and infiltration areas, fill work or pond installations. Peterson Companies, Inc. does not include any of these costs in our Proposals due to the additions, alterations and inconsistency between jurisdictions. We will bill for these charges, and any applicable fees, if these issues are not handled by the owner. We strongly recommend researching your area's rules and regulations relating to any site improvements prior to the start of any project.

Irrigation: If your project involves irrigation, the first step will be completing the plumbing. If you have a special request for the piping and backflow placement, please let us know; otherwise, it will be placed in the most economical location. A yellow sticker will be provided to owner to attach to the garage wall to indicate owner's preference for location of the irrigation controller. If owner does not attach the yellow sticker prior to project start, our representative will choose the most economical location for the controller.

Timing: The project start date will be agreed upon by the parties following the acceptance of the Proposal. Installation will be done as swiftly as possible; however, weather conditions, soil conditions and other factors may lengthen the installation process or postpone the estimated project start or completion date. Due to factors outside the control of Peterson Companies, Inc., no starting or completion dates are implied or expressly guaranteed.

Terms: **A 30% deposit is required with signed Agreement**. Upon receipt of deposit and signed Agreement, owner's project may be scheduled. Projects will not be assigned to schedule without receipt of deposit and signed Agreement. Payments shall be due thirty (30) days from invoice date. Final invoice, including any additions to the project, will be issued upon substantial completion of the project. A 1.5% finance charge per month will be applied to all past due accounts. Additional fees and collection costs may apply to past due accounts. Fees and collection costs include, but are not limited to, reasonable attorney's fees, lien processing fees, court costs, and any other related costs incurred.

Insurance: Peterson Companies, Inc. will carry General Liability insurance for all periods work is performed on this project. Additionally, Liability insurance will be carried for all equipment and vehicles used in the project. All persons working on this project will be covered by Workers Compensation insurance. After reasonable research, all employees have been deemed to have the legal right to work in the United States.

Warranty: Peterson Companies, Inc. shall, unless otherwise specified, provide a one-year warranty from date of invoice for materials and workmanship excluding neglected maintenance, misuse, vandalism, or damage from acts of God. Where applicable, manufacturers' warranty shall apply. Warranty will be voided in cases of physical and/or chemical damage, neglect in watering or pest control, or in accounts over 60 days past due from date of invoice. Plants will only be replaced one time at no charge for materials and labor. Replacement plants are not warranted. Liability not to exceed plant value. The following are expressively excluded from coverage by this warranty: annuals, tropicals, other non-hardy plants, bare root plants, plants in containers above ground, client-supplied plants, transplants, grass seed and sod.

Subcontractors: Owner grants Peterson Companies, Inc. the right to subcontract portions of the work according to their needs. Subcontractors will carry all applicable Liability insurance and Workers Compensation insurance coverage.

Promotional Use: Owner grants Peterson Companies, Inc. the right to take pictures, video and make written accounts of this project for promotional purposes. Owner also grants Peterson Companies, Inc. the right to place a yard sign at the front of the property for the duration of the work.

Pre-Lien Notice: This notice is to advise you of your rights under Minnesota law (Minn. Stat. §514.011) in connection with the improvement to your property.

Peterson Companies, Inc., supplying labor or materials for your property improvement, may file a lien against your property for the price of our services if not paid for the contributions by the contractor (you). If payment is not received 120 days after completion of project, a lien will be filed. However, upon proper payment, we will issue a lien waiver and waive our rights to file a lien against your property immediately.

Cancellation: Owner must give Peterson Companies, Inc. fourteen (14) days' notice, in writing, of intent to cancel any Property Improvement Agreement. Failure to give proper cancellation notice will result in a charge of 15% of the total project proposal plus any costs incurred in preparation for execution and installation of the project. Products which have been custom ordered for a project must be paid in full regardless of cancellation notice. Damages for failure to complete the project as ordered shall not exceed the original cost of the goods.

Severability: Should any part of this agreement be deemed unlawful, the remainder of the agreement shall remain in effect and be fully binding on the parties.

Choice of Law: This agreement will be governed by the laws of Minnesota. The parties agree to make a good faith effort to resolve any disputes which arise from this agreement in an informal manner. If good faith efforts fail, and disputes remain, the parties may seek any remedies available to them under Minnesota law.

Merger: The Proposal, this Property Improvement Agreement and any attachments constitute the entire agreement between the parties, all prior negotiations and commitments being merged herein. Attachments include, but are not limited to, the Warranty Information, Landscape Design, and Description of Materials & Work to Be Performed.

Acceptance of Agreement: Peterson Companies, Inc., hereby agrees to furnish materials and labor and perform the described work as specified according to the pricing and specifications as stated in the previously accepted Proposal. By signing this Property Improvement Agreement, owner agrees that the above and attached specifications are satisfactory. Further, owner signifies that they have the authority to order the work to be performed at the property listed and authorizes that Peterson Companies, Inc., may begin installation of the work for which owner will pay the agreed upon price as stated above.

Date:

_____

Signature:

_____

Owner Printed Name and Address:

_____

_____

_____

Project Information

Calculator Version:	Version 3: January 2017
Project Name:	LL1 2020-03 Biese drainage and low grow fescue planting
User Name / Company Name:	VLAWMO
Date:	3/2/20
Project Description:	Drainage re-routing and low grow fescue planting for filtration/infiltration.
Construction Permit?:	No

Site Information

Retention Requirement (inches):	1.1
Site's Zip Code:	55127
Annual Rainfall (inches):	31.8
Phosphorus EMC (mg/l):	0.3
TSS EMC (mg/l):	54.5

Total Site Area

Land Cover	A Soils (acres)	B Soils (acres)	C Soils (acres)	D Soils (acres)	Total (acres)
Forest/Open Space - Undisturbed, protected forest/open space or reforested land			.62		0.62
Managed Turf - disturbed, graded for yards or other turf to be mowed/managed			.89		0.89
				Impervious Area (acres)	.19
				Total Area (acres)	1.7

Site Areas Routed to BMPs

Land Cover	A Soils (acres)	B Soils (acres)	C Soils (acres)	D Soils (acres)	Total (acres)
Forest/Open Space - Undisturbed, protected forest/open space or reforested land					0
Managed Turf - disturbed, graded for yards or other turf to be mowed/managed			0.4362		0.4362
				Impervious Area (acres)	0.1113
				Total Area (acres)	0.5475

Summary Information

Performance Goal Requirement

Performance goal volume retention requirement:	759	ft3
Volume removed by BMPs towards performance goal:	438	ft^3
Percent volume removed towards performance goal	**58**	**%**

Annual Volume and Pollutant Load Reductions

Post development annual runoff volume	0.9566	acre-ft
Annual runoff volume removed by BMPs:	0.3346	acre-ft
Percent annual runoff volume removed:	**35**	**%**
Post development annual particulate P load:	0.429	lbs
Annual particulate P removed by BMPs:	0.15	lbs
Post development annual dissolved P load:	0.351	lbs
Annual dissolved P removed by BMPs:	0.123	lbs
Percent annual total phosphorus removed:	**35**	**%**
Post development annual TSS load:	141.8	lbs
Annual TSS removed by BMPs:	49.6	lbs
Percent annual TSS removed:	**35**	**%**

BMP Summary

Performance Goal Summary

BMP Name	BMP Volume Capacity (ft3)	Volume Recieved (ft3)	Volume Retained (ft3)	Volume Outflow (ft3)	Percent Retained (%)
1 - Bioretention basin (w/o underdrain)	438	444	438	6	99

Annual Volume Summary

BMP Name	Volume From Direct Watershed (acre-ft)	Volume From Upstream BMPs (acre-ft)	Volume Retained (acre-ft)	Volume outflow (acre-ft)	Percent Retained (%)
1 - Bioretention basin (w/o underdrain)	0.4811	0	0.3346	0.1465	70

Particulate Phosphorus Summary

BMP Name	Load From Direct Watershed (lbs)	Load From Upstream BMPs (lbs)	Load Retained (lbs)	Outflow Load (lbs)	Percent Retained (%)
1 - Bioretention basin (w/o underdrain)	0.2159	0	0.1502	0.0657	70

Dissolved Phosphorus Summary

BMP Name	Load From Direct Watershed (lbs)	Load From Upstream BMPs (lbs)	Load Retained (lbs)	Outflow Load (lbs)	Percent Retained (%)
1 - Bioretention basin (w/o underdrain)	0.1766	0	0.1228	0.0538	70

TSS Summary

BMP Name	Load From Direct Watershed (lbs)	Load From Upstream BMPs (lbs)	Load Retained (lbs)	Outflow Load (lbs)	Percent Retained (%)
1 - Bioretention basin (w/o underdrain)	71.31	0	49.6	21.71	70

BMP Schematic

Natural Resources Update – March 2020

Bill Bartodziej and Simba Blood

Carp Management - Researching the Feasibility of a Low Voltage Electric Barrier at the West Vadnais Outlet

The problems:

1) A 2017 survey by Carp Solutions, Inc. found carp biomass at approximately 220 lbs/acre in West Vadnais. The carp biomass threshold for water quality impacts is 100 lbs/acre. West Vadnais is a shallow lake and it is likely that the high carp density is negatively affecting water quality. This lake is on the state's impaired waters list. It has had consistently high phosphorus levels and severe algal blooms (Figure 1).

2) In 2019, we captured 57 adult carp at a PVC pipe barrier south of the West Vadnais outlet (Figure 2). This is evidence that carp are moving out of this lake and making their way into the Phalen Chain of Lakes system. This barrier was simple and not failsafe, so there is a good chance that some of carp moved around the barrier. These adult carp can get into small ponds, spawn and migrate into the Phalen Chain, via Gervais Creek and Gervais Mill Pond.

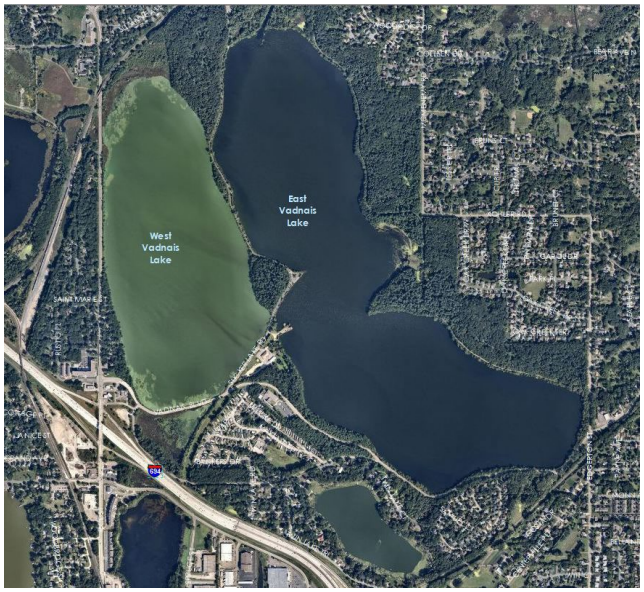


Figure 1: A severe algal bloom was obvious from the air – September 2018.

Figure 2: A simple PVC barrier was used to detect carp migration out of West Vadnais.

Possible solution:

We are researching the possibility of installing a low voltage electric barrier just upstream of the West Vadnais outlet. The barrier unit that we are looking at is being used in Rice Creek by the Watershed, and results have been very promising. Carp Solutions would supervise the installation of the unit.

If conditions around the outlet are favorable for the installation (i.e., elevations and access are adequate), we will rent the unit for a year and assess its effectiveness. We will also look at the feasibility of harvesting carp in the outlet channel. If we see a large number of carp aggregate in the outlet channel during the spawning migration, this may be a great location to set up a harvesting station. We could use the barrier setup to direct the carp in a corral and then harvest.

We are partnering with VALAMO on this project and plan to share the expense. Both organizations will benefit greatly from this carp management effort. We have budgeted for this work already (NR program).

Two strips of low voltage electrodes on the bottom substrate compose the barrier on Rice Creek.

Carp were stacked up on the downstream side of the positive strip of electrodes (red line). The watershed used this opportunity to harvest the carp through a corral type system on the side of the creek. We might be able to do the same at the West Vadnais outlet.

Common carp management in 2020 proposal and cost estimate

February 25, 2020

Prepared for:
Prepared for Bill Bartodziej, RWMWD
Dawn Tanner, VLAWMO

Objective 1. Electric carp barrier at outlet of West Vadnais Lake

The aim of this objective is to install a low-voltage electric barrier for carp at the outlet of West Vadnais Lake and test its performance using PIT technology for one year. The barrier will be designed and installed in April 2020. Two rows of electrodes will be placed across the stream and connected to a control unit on shore. RWMWD will arrange site preparation and power supply as needed.

Two PIT antennas will be installed near the barrier, one upstream and one downstream. The antennas will be connected to a reader box placed on shore. A solar panel will be used to provide power to the reader box throughout the year. RWMWD will supply a field box to house the equipment.

At least 100 carp will be tagged in West Vadnais Lake with PIT tags by conducting boat electrofishing surveys (2 days). These fish will be tagged shortly after ice out and will be used to determine what percentage of carp attempt to migrate through the barrier, when the migrations occur and whether the barrier is effective. The PIT system will be checked up to 5 times a month during the peak of migration season (April - June) and then up to two times a month through the rest of the year.

*PIT systems with remote online data access would be $1,500 more per site.

Cost for Objective 1

Barrier design and rent	22000
Barrier install	1280
PIT antenna build and install	1500
PIT system monthly check and rental (300/month rental with monthly check, 9 months)	2700
Implanting carp with PIT tags, 2 days of electrofishing	4000
Cost of PIT tags	600
Overall Obj 1	32080

Objective 2. Documenting movement of carp through Owasso Subwatershed

We will install 4 PIT antenna systems: one between Owasso and Wabasso near the existing barrier, one between Owasso and Victoria Ponds, one between Wabasso and Grass Lake and one between Grass and West Vadnais. The installs will occur in April. At each site we will instal a single antenna (two antennas at Owasso/Wabasso one on each side of the barrier) connected to a data logger, batteries and solar panels. RWMWD and VLAMWO will provide appropriate sites for these systems, ideally in a sunny spot, protected from flooding and vandalism.

The PIT systems will continuously monitor carp migration at each site. Once migrations occur, we will attempt to capture the migrating fish using nets placed by the physical barriers. PIT systems will be in place between April 1 and June 30, 2020 and each will be checked on up to 6 occasions per month to ensure the systems are working, and to download the data. This period could be expended as needed.

*PIT systems with remote online data access would be $1,500 more per site.

Objective 2 (4 PIT systems)	
PIT antenna build and install, 4 sites	6000
PIT system monthly check and rental April - June (300/month per site rent + 10 checks $400 each)	7600
Removal of carp around barriers and disposal, backpack EF (3 people, $80/h each, 5 days)	9600
Overall Objective 2	23200

Objective 3. Installation of physical barriers
Carp Solutions will assist as needed with installations of physical carp barriers in RWMWD. We will also provide one gas post-pounder.

Objective 3	
Installation of physical barriers (5 days, crew of 2, $80/h, post pounder included)	6400

Objective 4. Automated carp net in Phalen chain

We will conduct a demonstration project where a remotely controlled box net and automated programmable feeder will be installed in one location in the Phalen chain during August and September 2020. Carp Solutions will construct and install one 30’ x 60’ net equipped with

remotely controlled trigger mechanisms. We will also install one feeder and program it accordingly. RWMWD will take care of purchasing the bait and re-filling the feeder (~ once every 4 days) and maintaining the net in good order. Carp solutions will assist with carp removal and disposal on 3 occasions.
The net will be named “Curly” in reference to the most dedicated carp removal enthusiast in the chain of lakes - Curly.

Objective 4	
"Curly" net put together and install (2 people, 5 h, $80.h)	800
Net and feeder rental (60 days, $30/day)	1800
setting net, tripping net, carp removal, disposal - 3 times, $1,500 each	4500
Net removal and cleanup	500
Overall Obj 4	7600

Data analysis, report, coordination $2,000

Total Budget: $71,280

The potential application is huge

Minnesota Board of Water and Soil Resources
May 4, 2018 · 6 min read

Minnesota is watching as the Rice Creek Watershed District tests a new way to remove carp. Designed to improve water quality in Long Lake, the techniques used here could be applied throughout the state where carp migrate to spawn.

From left: Post-doctoral researcher Peter Hundt and University of Minnesota technician Kao Vang work with Emil Kukulski, director of Poland-based ProCom System's hydro-ecological department, on April 30 in Rice Creek to reposition a chute through which carp will pass when they migrate upstream from Long Lake to spawn in the Lino Chain of Lakes. The Rice Lake Watershed District is testing a low-voltage electrical guidance system. Paired with a Whooshh System (AKA carp cannon), it is designed to remove about 75 percent of migrating carp. Carp removal is one part of RCWD's $7.3 million plan to improve water quality in Long Lake. Photo Credits: Ann Wessel, BWSR

NEW BRIGHTON — An experimental carp removal system being tested this month on Rice Creek could change the way Minnesota deals with the invasive fish that degrade lakes' water quality and habitat.

If it works, the system could be used where invasive common carp migrate to spawn.

“The potential application is huge, because carp show these spawning migrations in many, many different lake systems,” said lead project researcher Przemek Bajer of the Minnesota Aquatic Invasive Species Research Center. “If you could create a device that removes them from the stream without a lot of physical labor — that would basically revolutionize carp management. You could remove 50 to 80 percent of the population with one or two people with very little effort.”

The system combines technology used in Poland to keep fish out of hydroelectric plants with technology developed in the U.S. to pick fruit.

Carp removal is just one element of Rice Creek Watershed District’s four-part, $7.3 million Long Lake Targeted Watershed Demonstration Project, a comprehensive approach to improve water quality in nutrient-impaired Long Lake. A $3 million Targeted Watershed Demonstration Program grant from the Minnesota Board of Water and Soil Resources was awarded to assist that effort.

Matt Kocian, Rice Creek Watershed District’s lake and stream specialist, and Przemek Bajer of the Minnesota Aquatic Invasive Species Research Center discuss progress of the carp removal system being installed April 30 on Rice Creek in New Brighton. A second system would stop juvenile carp from migrating downstream from the Lino Chain of Lakes.

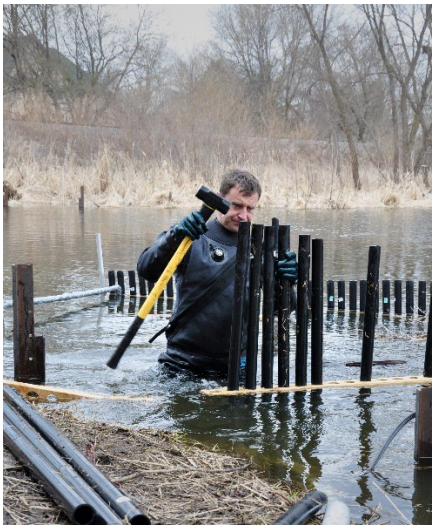
“Algae blooms are frequent; they can be intense,” said Matt Kocian, RCWD lake and stream specialist. “Common carp exacerbate that problem big time. We know in Long Lake and in some of our other lakes we’re not going to meet water-quality standards without addressing carp.”

Carp stir up the lake bottom in search of food, which increases turbidity and frees nutrients that feed algae growth.

To make a noticeable difference in Long Lake, the RCWD estimates the carp population must drop from 800 kilograms per hectare to 100 kg/ha. A single female can produce 1 million eggs a year.

Each spring, approximately 20,000 carp that over-winter in New Brighton’s Long Lake swim up Rice Creek to spawn in the shallow Lino Chain of Lakes.

The experimental system would remove about 75 percent of adult carp leaving Long Lake; a second installation would deter about 75 percent of juvenile carp leaving the Lino Chain of Lakes.



Emil Kukulski, director of Poland-based ProCom System's hydro-ecological department, was on site for a week to test the electrical guidance system. It was developed to keep native fish out of hydroelectric plants' water intake systems. In Michigan, it was adapted to control invasive sea lampreys.

On Day 5 of a seven-day site visit to test the electrical guidance system, Emil Kukulski stood waist-deep in Rice Creek. The hydro-ecological department director of Poland-based Procom System, Kukulski was reconfiguring the chute through which the carp will pass.

The system is designed like this: Lines of positive and negative electrodes produce a low-voltage current that carp will not pass. The electrodes are attached to buoys anchored to a track on the creek bottom. Angled across the creek, the electric guidance system funnels carp to a gate. The only upstream route, it leads to a fish ladder — "steps" built on a floating wood platform. When carp reach the metal chute at the top, they'll drop into the so-called carp cannon.

The Whooshh System, which was developed to pick fruit, and then modified to safely move salmon over dams, will pneumatically propel carp through a plastic tube and into a holding bin on shore.

On April 30 the carp were migrating. The electric barrier was working. But the fish refused to enter the gate.

A similar project worked on invasive sea lampreys in Michigan. The electrical guidance system keeps native fish out of hydroelectric plants' water intakes at 20 sites in Poland, Switzerland and Brazil.

This is the first time it's being tried in Minnesota.

Kukulski — along with post-doctoral student Peter Hundt and University of Minnesota technicians Kao Vang and Cameron Swanson — pounded black PVC pipes into a collar that will hold the repositioned chute in place.

MAISRC adapted the electric barrier and pneumatic removal technologies with funds from RCWD, the BWSR Clean Water Fund grant and the Environment and Natural Resources Trust Fund.

RCWD will lease and test the ProCom equipment for two years (at a cost of $120,000) before deciding whether to purchase for an additional $30,000. RCWD will pay $80,000, part of the cost to lease the Whooshh System for two years; the University of Minnesota will pay the balance.

If the fish don't cooperate soon, Bajer said experiments would resume in the summer when carp migrate in lesser numbers. The average spring migration runs 10 to 14 days.

"There are fish trying to cross the barrier every day. They have been really trying aggressively to cross it," Bajer said two days after the reconfiguration. "However, they do not want to swim through our fish ladder. So we keep adjusting, changing one thing at a time trying to figure out what they don't like about our design."

Przemek Bajer of the Minnesota Aquatic Invasive Species Research Center, the lead project researcher, was on site April 30 to help make adjustments to the carp removal system in Rice Creek.

The crew tried enlarging the entrance, positioning the fish ladder deeper in the water, adding branches to naturalize the approach, increasing water flow with a second pump. Next, Bajer planned to disconnect everything but the entrance.

Once the carp do move, they'll be tracked.

Employees of Bajer's company, Carp Solutions, tagged about 1,000 carp last year. They installed five antennae — near the approach, at the gate, at the start and exit of the fish ladder, and about a mile upstream — to monitor carp movements. Data will help determine the best management strategy.


Five antennae will monitor the movements of about 1,000 carp tagged last year.

"We're learning how sensitive they are to structures that we're putting in the stream," Bajer said. "They seem to be very cautious. The fish ladder is a good example. Even though they could easily cross it, they just don't want to."

Watershed districts throughout the state are paying attention. Two Minnehaha Creek Watershed District employees were on site recently to see the testing.

"If it works, it's a big deal. It could be a game-changer for how we manage carp," Kocian said. "What we're testing here absolutely could be modified and implemented in other locations."

The Minnesota Board of Water and Soil Resources' mission is to improve and protect Minnesota's water and soil resources by working in partnership with local organizations and private landowners. Website: [www.bwsr.state.mn.us.](www.bwsr.state.mn.us)

A remeandered stretch of Rice Creek will be more apparent when the water levels recede. The creek project is one part of Rice Lake Watershed District's plan to improve water quality in Long Lake.

Four-part Long Lake plan: Rice Creek Watershed District's Long Lake Targeted Watershed Demonstration Project addresses phosphorus- and nutrient-loading from the 100,000 acres that flow into Long Lake. The project has 4 elements:

· Hansen Park stormwater retrofits in New Brighton, where a $4 million iron-enhanced filter is slated to go online this summer;

· Mirror Lake stormwater retrofits in Saint Anthony Village;

· Middle Rice Creek restoration, where a remeandering added a half-mile in creek length and will help to reduce erosion and sediment-loading;

· Invasive common carp management.

Who's involved

Rice Creek Watershed District's project partners include the Minnesota Aquatic Invasive Species Research Center, the Environment and Natural Resources Trust Fund, the Clean Water Land & Legacy Amendment, Minnesota Board of Water and Soil Resources, Ramsey and Anoka county parks.