RAMSEY-WASHINGTON
METRO WATERSHED DISTRICT

October 2018
Board Packet

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Agenda

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RAMSEY-WASHINGTON
METRO WATERSHED DISTRICT

Regular Board Meeting Agenda

Wednesday, October 10, 2018
6:30 P.M.
District Office Board Room
2665 Noel Drive, Little Canada, MN

1. Call to Order – 6:30 PM
2. **Approval of Agenda**
3. **Consent Agenda**
    A. Approval of Minutes September 5, 2018
    B. City of Maplewood Local Water Management Plan – Resolution 18-07
    C. Change Order No. 7 – Beltline and Battle Creek Tunnel Repair Project
4. **Treasurer's Report and Bill List**
5. Visitor Presentations
6. Permit Program
    A. Applications - NONE
    B. Enforcement Action Report
7. Stewardship Grant Program
    A. Applications
        i. **18-21 CS McGuire, rain garden and native planting**
        ii. **18-22 CS Biga, rain gardens and native planting**
        iii. **18-23 CS Finsness, pervious driveway**
        iv. **18-24 CS Richardson Elementary Addition, filtration basins**
        v. **18-25 CS Adam's Food and Fuel, rain garden**
    B. Budget Status Update
8. Action Items - NONE
9. Administrator's Report
    A. Meetings Attended
    B. Upcoming Meetings and Dates
    C. MAWD Annual Meeting
    D. Spent Lime Pond Treatment Grant Proposal
10. Manager Swope Requested Board Item – Preservation and Restoration of Wetlands

(651) 792-7950
fax (651) 792-7951
office@rwmwd.org
rwmwd.org
2665 Noel Drive
Little Canada, MN 55117

11. Project and Program Status Reports
    A. Ongoing Project and Program Updates
        i. Owasso Park Stormwater Master Plan
        ii. Beltline Resiliency Study
        iii. At Risk Subwatershed Feasibility Studies
        iv. District Office Permeable Asphalt Parking Lot Retrofit
        v. Emergency Response Planning
        vi. FEMA Flood Mapping Updates
        vii. Snail Lake and Grass Lake Study and Berm Raise Project
        viii. Snail, Grass and West Vadnais Lakes Outlet Permitting
        ix. West to East Vadnais Gravity Flow Evaluation
        x. 500-Year Atlas 14 Modeling
        xi. Auto Lake Monitoring Systems
        xii. Maplewood Mall Monitoring
        xiii. 2018 Grant Applications
        xiv. Wakefield Lake Sediment Removal
        xv. Kohlman Weir Test System
        xvi. Wakefield Park/Frost Avenue Project
        xvii. Targeted Retrofit Projects
        xviii. Roseville High School Campus Retrofit Feasibility Study
        xix. BMP Design Assistance and Review
        xx. Willow Pond CMAC Project
        xxi. Beltline/Battle Creek Tunnel
        xxii. CIP Maintenance/Repair 2018
        xxiii. Natural Resources Program
        xxiv. Education Program
        xxv. Communications Program
12. Informational Items
13. Report of Managers
14. **Adjourn**

Items in **bold signify that an action needs to be taken by the Board.*

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Consent Agenda

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Ramsey-Washington Metro Watershed District
Minutes of Regular Board Meeting
September 5, 2018

The Regular Meeting of September 5, 2018, was held at the District Office Board Room, 2665 Noel Drive, Little Canada, Minnesota, at 6:30 p.m.

PRESENT:
Marj Ebensteiner, President
Cliff Aichinger, Vice President
Dianne Ward, Treasurer
Dr. Pam Skinner, Secretary
Lawrence Swope, Manager

ABSENT:

ALSO PRESENT:
Tina Carstens, District Administrator
Amanda Staple, Recording Secretary
Brad Lindaman, Barr Engineering
Sage Passi, Education Specialist
Chris O'Brien, Communications Coordinator
Paige Ahlborg, Project Manager
Viet-Hanh Winchell, Attorney for District
Nicole Soderholm, Permit Inspector
Bill Bartodziej, Natural Resource Specialist
Melissa King, Board of Water and Soil Resources

1. CALL TO ORDER
The meeting was called to order by President Ebensteiner at 6:30 p.m.

President Ebensteiner requested to move the 2019 Preliminary Budget and Levy Public Hearing (Item 8) and Action Items (Item 9) to be considered as Items 2 and 3 on the agenda.

Melissa King, Board of Water and Soil Resources, introduced herself and noted that she is the new BWSR representative that will be working with the District.

2. 2019 PRELIMINARY BUDGET AND LEVY PUBLIC HEARING
Motion: Cliff Aichinger moved, Lawrence Swope seconded, to open the public hearing at 6:34 p.m. Motion carried unanimously.

Tina Carstens noted that District staff did not receive any comments from the public. Viet-Hahn Winchell commented that the required notices were published on both August 22nd and August 29th.

Motion: Cliff Aichinger moved, Lawrence Swope seconded, to close the public hearing at 6: 35 p.m. Motion carried unanimously.

3. ACTION ITEMS

A. Approval of the 2019 Preliminary Budget and Levy Certification to Ramsey and Washington Counties – Resolution 18-06

Tina Carstens provided a brief overview of the proposed 2019 preliminary budget and levy noting that a majority of the budget remains to be the projects and programs.

Motion: Cliff Aichinger moved, Lawrence Swope seconded, to approve the draft budget for purposes of preliminary levy and adopt Resolution #18-06. Motion carried unanimously.

4. APPROVAL OF AGENDA

Manager Swope requested to add an item to the next meeting agenda related to the Board stewardship of wetlands.

Motion: Cliff Aichinger moved, Dianne Ward seconded, to approve the agenda as already amended. Motion carried unanimously.

5. CONSENT AGENDA

A. Approval of Minutes from August 1, 2018

Motion: Dianne Ward moved, Dr. Pam Skinner seconded, to approve the consent agenda as presented. Motion carried unanimously.

6. TREASURER'S REPORT AND BILL LIST

Motion: Cliff Aichinger moved, Lawrence Swope seconded, to approve the September 5, 2018, bill list as submitted. Motion carried unanimously.

7. VISITOR PRESENTATIONS

There were none.

8. PERMIT PROGRAM

A. Applications

Permit #18-23: Tamarack Hills Medical Office Building – Woodbury

Nicole Soderholm noted that this is the final phase of the common plan of development and advised that stormwater treatment was provided in earlier phases of the project and therefore this is simply an erosion control permit.

Motion: Cliff Aichinger moved, Lawrence Swope seconded, to approve Permit #18-23. Motion carried unanimously.

Permit #18-24: Roseville Luxury Apartments – Roseville

Nicole stated that this is an apartment building proposed in Roseville. She stated that filtration will be done onsite because of the poor soils. She stated that the applicant will be short of the permit requirements and therefore will submit a small amount to the stormwater impact fund. She stated that a variance request has been submitted for temporary impacts to the wetland buffer. She noted that redundant control will be required along the wetland border.

Motion: Dr. Pam Skinner moved, Dianne Ward seconded, to approve Permit #18-24. Motion carried unanimously.

Permit #18-25: Windwood Passage Park Improvements – Woodbury

Nicole Soderholm stated that this is a park improvement project in Woodbury. She stated that a very large basin will be constructed to help alleviate flooding issues.

Motion: Dr. Pam Skinner moved, Dianne Ward seconded, to approve Permit #18-25. Motion carried unanimously.

Permit #18-26: MnDOT I-694/I-494/I-94 Loop – Woodbury and Oakdale

Nicole stated that this is a large project area but noted that most of the project will be a mill and overlay which will not disturb the subgrade. She stated that about three acres throughout the project area will be disturbed and an iron enhanced filtration basin will be constructed. She noted that a variance has been submitted for temporary wetland buffer disturbance. Dr. Pam Skinner asked if staff has reviewed the application to determine if there are additional opportunities. Tina Carstens noted that there are some opportunities that can be further discussed. She stated that the project is moving at a faster pace and therefore recommended approval of the permit at this time. She stated that the applicant will meet the requirements of the permit at this time and staff will continue to discuss potential options for collaboration.

Motion: Dr. Pam Skinner moved, Cliff Aichinger seconded, to approve Permit #18-26. Motion carried unanimously.

B. Monthly Enforcement Report

During August, 19 notices were sent to address: install/maintain inlet protection (4), install/maintain perimeter control (7), install/maintain construction entrance (2), stabilize exposed soils (1), contain liquid/solid wastes (1), remove discharged sediment (1), protect/maintain permanent BMPs (2), and install/maintain energy dissipation (1).

9. STEWARDSHIP GRANT PROGRAM

A. Applications

Permit #18-20 CS: Hollow Ponds – Rain Garden

Motion: Cliff Aichinger moved, Lawrence Swope seconded, to approve Permit #18-20 CS. Motion carried unanimously.

B. Budget Status Update

Paige Ahlborg stated that after the approval of the last item there would be about $8,000 remaining in the available funds. She confirmed that there are carryover funds from the previous year. Tina Carstens explained that the balance would not show negative because even though funds have been allocated, the funds are typically not distributed until a later date.

10. PRESENTATION: COMMUNICATIONS AND EDUCATION PROGRAM PLANNING

Sage Passi provided a highlight of the past year which included completing Legacy grant funded rain gardens at three schools last fall in Woodbury and Roseville. She stated that four new Master Water Stewards were recruited bringing the total to 16. She stated that the Adopt-a-Drain program was launched in the Beaver Lake neighborhood and additional outreach was done to increase Lake Phalen area adoptions, estimating close to 100 drains adopted. She reported that 15 classrooms were engaged in planting native buffer along Keller Creek, noting that it was the fourth year of the program.

Chris O'Brien provided a highlight of communications from the past year noting that the website redesign was a big element, which launched in February of 2018. He reviewed some of the statistics from the website usage and highlighted the top pages accessed within the District website. He reviewed communication highlights from the past year including raising awareness of chloride pollution and outreach on carp management. He reviewed some of the goals for 2019, noting the intent to integrate communications and education efforts into priority topics and projects, partnering with key stakeholders to education the public, and working with the community leaders and organizational partners to reach new audiences. He highlighted the priority topics for the coming year, identifying outreach strategies for District projects and programs including the Wakefield Park renovation, the Bennett Lake improvements, Grass Lake and Snail Lake drainage optimization, Vadnais-Snail Lake Park habitat restoration, signage needs, the WaterFest 20th anniversary, and the Phalen Chain Water Trail.

Sage stated that the District will also attempt to increase school engagement through new partnerships, noting that the District currently provides hands-on watershed lessons for 13 partner schools. Chris continued to identify additional priorities and outreach strategies for 2019 including the stewardship grant program, climate change and resiliency planning, chloride awareness and training, and shallow lakes management. Sage provided information

on the priority and outreach strategies focused on native planting, rain gardens and turf alternatives as well as stormwater pollution.

11. ADMINISTRATOR'S REPORT

A. Meetings Attended No comments.

B. Upcoming Meetings and Dates

Tina Carstens noted that all five Managers are available on Monday, September 17, and stated that staff will schedule the tour for that afternoon.

C. MAWD Updates and Resolution Information

Tina stated that MAWD updates and MAWD resolution packet was included in the Board packet for review.

12. PROJECT AND PROGRAM STATUS REPORTS

A. New Project Memo: District Office Porous Pavement Retrofit

Brad Lindaman provided details on the range of options for the project that will be reviewed. He noted that additional information on the options will be provided to the Board along with estimated costs for the options.

B. Ongoing Project and Program Updates

i. Owasso Park Stormwater Master Plan
ii. Beltline Resiliency Study
iii. At Risk Subwatershed Feasibility Studies
iv. Emergency Response Planning
v. FEMA Flood Mapping Updates
vi. Snail Lake and Grass Lake Study and Berm Raise Project

Brad Lindaman referenced the Grass Lake berm project, noting that he received a text from the contractor today stating that the paver is scheduled for Saturday morning with touch-up grading to occur on Sunday. He noted that there are a few other items remaining for the contractor to complete on the West Vadnais outlet and the Battle Creek restoration.

Manager Ward asked for information on the contractor for the Grass Lake berm regarding potentially pumping the southwest basin. Brad stated that his comment was that if the District feels that it is valuable, perhaps that would be a good idea to have the contractor do that while he is there. He stated that staff will obtain a price from the contractor and discuss whether that would be a worthy investment.

vii. Snail, Grass and West Vadnais Lakes Outlet Permitting
viii. West to East Vadnais Gravity Flow Evaluation
ix. 500 Year Atlas 14 Modeling
x. Auto Lake Monitoring Systems
xi. Maplewood Mall Monitoring
xii. 2018 Grant Applications
xiii. Wakefield Lake Sediment Removal
xiv. Wakefield Park/Frost Avenue Project
xv. Frost/Kennard Spent Lime Project
xvi. Targeted Retrofit Projects
xvii. Roseville High School Campus Retrofit Feasibility Study
xviii. BMP Design Assistance and Review
xix. Willow Pond CMAC Project

xx. Beltline/Battle Creek Tunnel

Brad referenced the Beltline and stated that another request from the contractor was received for a reduced claim. He stated that staff reviewed that request thoroughly and could see justification for the $26,000 in the change order rather than the $40,000 requested, as some items listed by the contractor were included in the contract and have already been paid. He noted that the request will come before the Board for consideration at the next meeting.

xxi. CIP Maintenance/Repair 2018

xxii. Natural Resources Program

xxiii. Education Program

xxiv. Communications Program

13. INFORMATIONAL ITEMS

Tina Carstens noted that a bond from 1998 has been paid off. This bond was for a previous Beltline maintenance project.

14. REPORTS OF MANAGERS

Manager Swope stated that he attended a tour of Ramsey County Parks which also featured projects that the District completed and provided a brief update. Manager Ward noted that she also attended and found it very interesting to hear about the long-range planning for the parks.

Manager Ward asked the timing for the hiring of interns for the next year. Tina Carstens stated that interns are typically hired in February.

Manager Ward stated that perhaps in the future there could be an update on the Citizens Advisory Committee. Tina provided a quick update noting that the CAC completed a planting project last month.

15. ADJOURN

Motion: Dr. Pam Skinner moved, Cliff Aichinger seconded, to adjourn the meeting at 8:09 p.m. Motion carried unanimously.

Respectfully submitted,

Dr. Pam Skinner, Secretary

Consent Agenda Item

Board Meeting Date: October 10, 2018 **Agenda Item No:** 3B

Preparer: Tina Carstens, Administrator

Item Description: City of Maplewood Local Water Management Plan Approval

Background:
The City of Maplewood has completed their Local Water Management Plan and is seeking the District's approval on their plan. The City of Maplewood submitted their plans to the watershed districts and Metropolitan Council for review and comment and has addressed the comments received. Review of the proposed local water management plan has shown it is consistent with the District's plan and requirements for local water management plans. A public link to the plan is currently not available. I will send to the managers when I receive it.

Applicable District Goal and Action Item:

Goal: Manage effectively - The District will operate in a manner that achieves its mission while adhering to its core principles.

Action Items: Follow all legal requirements applicable to the watershed districts.

Staff Recommendation:
Approve Resolutions 18-07.

Financial Implications:
None.

Board Action Requested:
Approve Resolutions 18-07.

RESOLUTION 18-07

RESOLUTION PROVIDING APPROVAL OF THE CITY OF MAPLEWOOD LAKE LOCAL WATER MANAGEMENT PLAN.

WHEREAS, Ramsey-Washington Metro Watershed District (District) adopted its Watershed Management Plan, as required by the Metropolitan Surface Water Management Act (MS Chapter 103B); and

WHEREAS, the Metropolitan Surface Water Management Act requires the preparation of local water management plans by each city within the District; and

WHEREAS, the City of Maplewood has prepared its plan and requested review and approval; and

WHEREAS, the District has reviewed the plan for consistency with the watershed management plan and has determined that the plan is in conformance with the plan;

NOW, THEREFORE, BE IT RESOLVED by the Board of Managers of the Ramsey-Washington Metro Watershed District that the City of Maplewood Local Water Management Plan is hereby approved.

Adopted by the Board of Managers of the Ramsey-Washington Metro Watershed District this 10th day of October, 2018.

_____

Marj Ebensteiner, President

Attest:

_____

Dr. Pam Skinner, Secretary

Consent Agenda Item

Board Meeting Date: October 10, 2018 **Agenda Item No.:** 3C

Preparer: Tina Carstens, Administrator

Item Description: Change order No. 7 for Beltline/Battle Creek Tunnel Repair Project

Background:
Attached is change order no. 7 for the Beltline/Battle Creek Tunnel Repair Project. This change order is to cover the cost of additional work and repairs to the tunnel than was included in the original contract. District staff and engineers negotiated with the contractor to arrive at this final agreed upon change in the contract price. The attached documentation walks through that discussion. This is the same change order the board received at the September 5th meeting for review before approval at this meeting.

PCi completed the final closeout documentation and also provided a final pay application. The managers received a final change order at the September 5 meeting, and that change-order amount is reflected in the final pay application. Provided that the pay application and change order are executed, we anticipate closing out the project and completing the construction report in the next period.

Applicable District Goal and Action Item:

Goal: Manage risk of flooding: The District will reduce the public's risk to life and property from flooding through programs and projects that protect public safety and economic well-being.

Action Items: Maintain District flood storage facilities and storm sewer systems.

Staff Recommendation:
Approve Change Order No. 7.

Financial Implications:
There are adequate funds in the project fund for this change order.

Board Action Requested:
Approve Change Order No. 7.

CHANGE ORDER 7

DATE OF ISSUANCE: **September 4, 2018**
EFFECTIVE DATE: **September 4, 2018**

PROJECT: Beltline, Sta. 1+45 to 93+50 & 438+77 to 458+18, and Battle Creek, Sta. 0+00 to 45+00, Repair Project
OWNER: Ramsey-Washington Metro Watershed District
CONTRACTOR: PCiRoads, LLC

NOTIFICATION NAME and ADDRESS:
Mr. Nap Scott
PCiRoads, LLC
14123 42nd Street NE
St. Michael, MN 55376

ENGINEER:
Barr Engineering Co. (Barr)
4300 MarketPointe Drive, Suite 200
Minneapolis, Minnesota 55435
Attn: Nathan Campeau, P.E.

You are directed to make the following changes in the Contract Documents

7-1. Mississippi Branch Crack Sealing and Concrete Surface Repair

Description: The condition of the tunnel liner (concrete surface and cracks) in the Mississippi Branch of the Beltline from Stations 24+50 to 35+50 was more deteriorated than anticipated, requiring additional work and repairs not included in the original contract documents. The deteriorated condition of the tunnel liner was not known until repairs commenced, when concrete chipping and crack sealing activities exposed the porous nature of the tunnel liner. The deteriorated condition created extra work in the re-sealing of cracks near porous concrete (approximately 182 lineal feet of cracks) and rework of shotcreting to perform concrete surface repairs from Stations 24+50 to 35+50 in areas where the porous liner caused concrete to fall out and have to be re-applied by shotcreting.

The portion of the PCiRoads claim (attached) that the Owner has determined was incurred by PCi on concrete surface repairs and crack sealing in these areas, but not paid for previously, is $26,086.19.

Reason for Change Order: The condition of the tunnel liner was more degraded than had been anticipated requiring more rework than anticipated.

Change in Contract Price: This change results in a final increase to the contract price by $26,086.19. This price increase represents all remaining extra work associated with the project including the details of the claim in the attached letter.

Change in Contract Time: This work is complete. This change will not change contract time.

CHANGE ORDER 7

RECOMMENDED:	ACCEPTED:	APPROVED:
By	By	By
Date 9/4/2018	Date 9/4/18	Date
ENGINEER Barr Engineering Co.	CONTRACTOR PCiRoads, LLC	OWNER Ramsey-Washington Metro Watershed District

PCiRoads
14123 42nd Street NE
St. Michael, MN 55376-9564
Telephone: 763.497.6100 / Fax: 763.497.6101
pciroads.com

August 27, 2018

RE: Beltline and Battle Creek Repairs: Change Request for Extra Costs Related to Crack Sealing and Shotcrete

Nathan,

PCi requests a change order in the amount of $42,112.74. The breakdowns and reasonings are as follows:

Extra Costs to Shotcrete Fall Out Areas: $32,224.52

PCi asks for reconsideration on the matter of shotcreting the fallout areas from stations 24+50 to 35+50. In your letter dated July 12, 2018, you stated: *"The specifications state clearly that for all concrete surface repair it is up to the contractor to "[v]erify that surfaces are ready to receive work" (Section 039000.3.01.A) and that when the contractor begins the repairs the "installer accepts existing surfaces" (Section 039000.3.01.C)."* - Due to the magnitude of water infiltration and extremely poor condition of the existing tunnel liner, PCi was unable to completely prepare all repair areas for shotcrete with the crack repair method found in detail 5 and 6 on sheet D-01. The owner and engineer were made aware of this issue verbally in meetings and over the phone. PCi requested a meeting with the owner and engineer to view the troublesome areas and discuss options. I have attached that meeting request email. Nap Scott, Sam Redinger, David Vlasin, yourself and I walked the tunnel on February 14, 2018. I have attached a picture from that meeting. After the meeting, all parties agreed that the existing concrete conditions from stations 24+50 to 35+50 were very pourous; allowing an excess of infiltration that would hinder shotcrete placement. PCi raised concerns that the original crack repair method would not suffice to properly prep the surface to receive shotcrete and suggested the method of void grouting or installing dewatering wells to help control the infiltrating water. PCi never received an official response from the engineer. In retrospect, PCi should have halted work and waited for the engineer to provide advisement. Instead, PCi kept working in good faith and incurred additional costs.

In your letter dated July 12th, 2018 you stated: *"We observed that where concrete fallouts occurred, the surface was not ready to accept the shotcrete because water was still running through cracks in the tunnel. This was due to the order of repairs (first grouting, then chipping, finally shotcreting). We observed in many locations that the chipping of the concrete removed grout that allowed water to enter the tunnel liner in locations where fallouts occurred. PCiRoads then sealed the cracks (often getting paid to repair new cracks) and successfully performed the repairs. The District does not control nor dictate the means and methods and order of repairs. Given this information, we cannot recommend payment for this item."* - PCi disagrees with your analysis. Grouting activities had to take place before concrete repair activities. First of all, the engineer would not be able to locate the cracks within the removal limits after concrete repair activates are completed. Secondly, concrete removals open more pathways for infiltrating water and soil to migrate into the tunnel and possibly create a void behind the liner. The cracks must be sealed prior to removals to minimize this issue. Also, it would be impossible to shotcrete against the tunnel liner prior to reducing the water infiltration that was witnessed in this tunnel section. PCi has completed 25 tunnel repair projects over the past 5 years and has never performed concrete repair activities before crack repair activities. I have attached the additional costs.

PCiRoads
14123 42nd Street NE
St. Michael, MN 55376-9564
Telephone: 763.497.6100 / Fax: 763.497.6101
pciroads.com

Crack Sealing Grout Injection: $9,888.22

PCi was unable to efficiently seal all cracks on the first pass and had to make a second pass to seal 182 LF. This was due to the magnitude of water infiltration and the extremely poor condition of the existing tunnel liner. PCi was paid $11,830 for these cracks under the contact unit price. PCi requests compensation for the difference in this price versus the actual of costs of this work plus mark up (($20,428.45 - $11,830)*115%). PCi incurred costs of $20,428.45 to complete this 182 LF of crack sealing. I have attached the additional costs. Again, PCi worked in good faith to complete this difficult work with zero advisement from the engineer on this issue that clearly differed from the original contract documents.

Please let me know if you have any questions or need more information.

Sincerely,

Leo Flynn
PM, PCiRoads, LLC

Leo Flynn

From: Nathan Campeau <NCampeau@barr.com>
Sent: Friday, February 09, 2018 4:14 PM
To: 'Leo Flynn'
Cc: Samuel O. Redinger
Subject: RE: Concrete Surface Repair - Water Issues

Leo-

I spoke with Dave about this. We'll need to see the issue. Are you available to walk the tunnel Tuesday morning?

Thanks,

Nathan Campeau, ENV SP, CFM, PE

Senior Water Resources Engineer
Minneapolis, MN office: 952.832.2854
cell: 612.710.8140
ncampeau@barr.com
www.barr.com

From: Leo Flynn [mailto:lflynn@pciroads.com]
Sent: Friday, February 09, 2018 11:12 AM
To: Nathan Campeau <NCampeau@barr.com>
Cc: Samuel O. Redinger <SRedinger@barr.com>
Subject: Concrete Surface Repair - Water Issues

Nathan,

On Monday PCI started concrete removal activities at station 35+00. I inspected an exposed patch at station 34+00 and witnessed water on the entire surface of the patch. I attached two pictures of that patch. It appears to me the water is infiltrating the porous concrete or the water is traveling along the rebar into the patch. PCi has completed crack sealing activities in this section of tunnel per details 5 and 6 on sheet D-01. The infiltrating water will make concrete surface repair activities more costly and take longer to complete. PCI anticipates more "wet" patches will be exposed as more concrete is removed.

Please advise how to address this issue.

Thanks,

Leo Flynn

PCiRoads, LLC
14123 42nd Street NE

Leo Flynn

From: Nathan Campeau <NCampeau@barr.com>
Sent: Tuesday, March 20, 2018 2:26 PM
To: 'Leo Flynn'
Cc: Samuel O. Redinger
Subject: RE: Beltline - Extra Costs

Leo-

Thank you for the information. See you on Thursday.

Nathan Campeau, ENV SP, CFM, PE

Senior Water Resources Engineer
Minneapolis, MN office: 952.832.2854
cell: 612.710.8140
ncampeau@barr.com
www.barr.com

From: Leo Flynn [mailto:lflynn@pciroads.com]
Sent: Tuesday, March 20, 2018 12:09 PM
To: Nathan Campeau <NCampeau@barr.com>
Cc: Samuel O. Redinger <SRedinger@barr.com>
Subject: Beltline - Extra Costs

Nathan,

PCi started reinjecting chemical grout into fallout shotcrete patches today at station 35+50. I walked the tunnel where we have shotcreted (approx. station 24+50 to 35+50) and visually counted the wet fallout patches. For this tunnel section, I estimate 400 to 450 SF of patches will need additional grout injection in order to install the shotcrete. We will track the extra costs accordingly.

Thanks,

Leo Flynn

PCiRoads, LLC
14123 42nd Street NE
St. Michael, MN 55376

Cell: (952) 406-1134
Office: (763) 497-6205
Fax: (763) 497-6200
Email: lflynn@pciroads.com

Beltline Tunnel - Extra Costs to Shotcrete Fallout Areas										Estimate	1
	PCiRoads									Updated:	6/30/2018
Employee	Classification	Labor	Burden	Rate	3/26/2018	3/27/2018	3/28/2018	3/29/2018	3/30/2018	TOTAL	
										Units	Cost
Jacob Affeldt	Laborer - ST	$ 31.50	$ 18.64	$ 50.14						0.0	$ -
	Laborer - OT	$ 47.25	$ 19.79	$ 67.04						0.0	$ -
Manuel Diaz	Laborer - ST	$ 31.50	$ 18.64	$ 50.14		8.0		8.0	8.0	24.0	$ 1,203.36
	Laborer - OT	$ 47.25	$ 19.79	$ 67.04				2.0	0.5	2.5	$ 167.60
Ryan Lore	Laborer - ST	$ 31.50	$ 18.64	$ 50.14						0.0	$ -
	Laborer - OT	$ 47.25	$ 19.79	$ 67.04						0.0	$ -
Jeff Engstrom	Laborer - ST	$ 35.19	$ 18.64	$ 53.83	8.0	8.0	8.0	8.0	7.5	39.5	$ 2,126.29
	Laborer - OT	$ 52.79	$ 19.79	$ 72.58	1.0	2.0	1.5	2.0		6.5	$ 471.74
Thomas Johnson	Laborer - ST	$ 30.80	$ 16.64	$ 47.44	8.0	8.0	8.0	8.0	7.5	39.5	$ 1,873.88
	Laborer - OT	$ 46.20	$ 19.79	$ 65.99		3.5	2.5	2.5		8.5	$ 560.92
Jon Jeske	Laborer - ST	$ 31.50	$ 18.64	$ 50.14	8.0	8.0	8.0	8.0	8.0	40.0	$ 2,005.60
	Laborer - OT	$ 47.25	$ 19.79	$ 67.04		3.5	2.5	2.5	0.5	9.0	$ 603.36
Jake Smith	Laborer - ST	$ 26.80	$ 18.64	$ 45.44	7.0					7.0	$ 318.08
	Laborer - OT	$ 40.20	$ 19.79	$ 59.99						0.0	$ -
Xavier Howard	Laborer - ST	$ 24.64	$ 18.64	$ 43.28		8.0	8.0	6.0	8.0	30.0	$ 1,298.40
	Laborer - OT	$ 36.96	$ 19.79	$ 56.75		3.0	2.0		0.5	5.5	$ 312.13
Eric Fobbe	Laborer - ST	$ 32.50	$ 18.64	$ 51.14	8.0	8.0	8.0	8.0	8.0	40.0	$ 2,045.60
	Laborer - OT	$ 48.75	$ 19.79	$ 68.54		3.5	3.0	2.5	1.0	10.0	$ 685.40
Nick Smith	Laborer - ST	$ 31.50	$ 18.64	$ 50.14	7.0	8.0	8.0	6.0	8.0	37.0	$ 1,855.18
	Laborer - OT	$ 47.25	$ 19.79	$ 67.04		3.0	2.0		0.5	5.5	$ 368.72
Al-Sakan Bobo	Laborer - ST	$ 24.64	$ 18.64	$ 43.28	8.0	8.0	8.0	8.0	7.5	39.5	$ 1,709.56
	Laborer - OT	$ 36.96	$ 19.79	$ 56.75		3.5	2.5	2.5		8.5	$ 482.38
Gary Foster	Operator - ST	$ 36.38	$ 19.72	$ 56.10	8.0	8.0	8.0	8.0	7.0	39.0	$ 2,187.90
	Operator - OT	$ 54.57	$ 19.72	$ 74.29	1.0	1.5	0.5	0.5		3.5	$ 260.02
Shawden Sorenfrei	Laborer - ST	$ 26.80	$ 18.64	$ 45.44		8.0	8.0	6.0	8.0	30.0	$ 1,363.20
	Laborer - OT	$ 40.20	$ 19.79	$ 59.99		3.0	2.0		0.5	5.5	$ 329.95
Allen Vlasak	Laborer - ST	$ 31.50	$ 18.64	$ 50.14	8.0	8.0	8.0	6.0	8.0	38.0	$ 1,905.32
	Laborer - OT	$ 47.25	$ 19.79	$ 67.04		3.5	2.5		0.5	6.5	$ 435.76
	Labor Total									**475.00**	**24,570.32**
PCI Equipment				Rate							
18 Ram 2500 Jeff E				$ 20.00	2.0	8.0	6.0	8.0	7.5	31.5	$ 630.00
06 Multiquip DCA25				$ 10.00	8.0	8.0	8.0	6.0	7.5	37.5	$ 375.00
09 246 C Mark M.				$ 33.00	4.0	4.0	6.0	4.0	4.0	22.0	$ 726.00
IR P375WJD Janis J.				$ 25.00	8.0	8.0	8.0	8.0	8.0	40.0	$ 1,000.00
10 Sullair 260 G. Shonyo				$ 15.00	8.0	6.0	6.0	6.0	6.0	32.0	$ 480.00
Allentown Dry Shotcrete				$ 10.00			8.0	8.0	8.0	24.0	$ 240.00
	Equipment Total									**187.00**	**$ 3,451.00**
	Markup: 15%										**$ 4,203.20**
Total											**$ 32,224.52**

Beltline Tunnel - Extra Costs for Crack Sealing																			Estimate	1
	PCiRoads																		Updated:	8/27/2018
Employee	Classification	Labor	Burden	Rate	3/20/2018	3/21/2018	3/22/2018	3/23/2018	3/26/2018	3/27/2018	3/28/2018	3/29/2018	3/30/2018	4/2/2018	4/3/2018	4/4/2018	4/5/2018	4/6/2018	TOTAL	
																			Units	Cost
Jacob Affeldt	Laborer - ST	$ 31.50	$ 18.64	$ 50.14	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	112.0	$ 5,615.68
	Laborer - OT	$ 47.25	$ 19.79	$ 67.04	4.0	4.0	4.0	2.0	2.0	3.0	2.0	2.0		4.0	1.5	2.0	2.0	0.5	33.0	$ 2,212.32
Ryan Lore	Laborer - ST	$ 31.50	$ 18.64	$ 50.14	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	7.0	8.0	4.5	8.0	8.0	8.0	107.5	$ 5,390.05
	Laborer - OT	$ 47.25	$ 19.79	$ 67.04	4.0	4.0	3.5	2.0	2.0	3.0	2.0	2.0		4.0		2.5	2.0		31.0	$ 2,078.24
Jeff Engstrom	Laborer - ST	$ 35.19	$ 18.64	$ 53.83	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.0	2.0	2.0	2.0	2.0	2.0	27.0	$ 1,453.41
	Laborer - OT	$ 52.79	$ 19.79	$ 72.58															0.0	$ -
Gary Foster	Operator - ST	$ 36.38	$ 19.72	$ 56.10	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.5	2.0	2.0	2.0	2.0	2.0	27.5	$ 1,542.75
	Operator - OT	$ 54.57	$ 19.72	$ 74.29															0.0	$ -
	Labor Total																		**338.00**	**18,292.45**
PCI Equipment				Rate																
18 Ram 2500 Jeff E				$ 20.00	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.0	2.0	2.0	2.0	2.0	2.0	27.0	$ 540.00
09 246 C Mark M.				$ 33.00	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	28.0	$ 924.00
11 Honda EM5000				$ 6.00	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	112.0	$ 672.00
	Equipment Total																		**167.00**	**$ 2,136.00**
Total																				**$ 20,428.45**

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Bill List

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RWMWD BUDGET STATUS REPORT
Administrative & Program Budget
Fiscal Year 2018
9/30/2018

Budget Category	Budget Item	Account Number	Original Budget	Budget Transfers	Current Month Expenses	Year-to-Date Expenses	Current Budget Balance	Percent of Budget
Manager	Per diems	4355	$6,500.00	-	270.00	2,450.00	$4,050.00	37.69%
	Manager expenses	4360	3,500.00	-	53.41	782.59	2,717.41	22.36%
Committees	Committee/Bd Mtg. Exp.	4365	3,500.00	-	211.00	2,304.96	1,195.04	65.86%
Employees	Staff salary/taxes/benefits	4010	1,300,000.00	-	99,261.23	891,327.44	408,672.56	68.56%
	Employee expenses	4020	10,000.00	-	649.41	3,965.16	6,034.84	39.65%
	District training & education	4350	25,000.00	-	3,621.51	14,976.46	10,023.54	59.91%
Administration/	GIS system maint. & equip.	4170	15,000.00	-	120.00	3,759.02	11,240.98	25.06%
Office	Data Base/GIS Maintenance	4171	15,000.00	-	-	1,300.00	13,700.00	8.67%
	Equipment maintenance	4305	3,000.00	-	-	1,430.83	1,569.17	47.69%
	Telephone	4310	8,000.00	-	358.22	2,618.34	5,381.66	32.73%
	Office supplies	4320	5,000.00	-	494.88	3,576.73	1,423.27	71.53%
	IT/Internet/Web Site/Software Lic.	4325	42,000.00	-	2,350.12	24,483.27	17,516.73	58.29%
	Postage	4330	10,000.00	-	142.47	2,274.59	7,725.41	22.75%
	Printing/copying	4335	8,000.00	-	285.67	3,689.56	4,310.44	46.12%
	Dues & publications	4338	11,000.00	-	1,958.00	9,697.00	1,303.00	88.15%
	Janitorial/Trash Service	4341	17,000.00	-	2,950.24	10,452.44	6,547.56	61.48%
	Utilities/Bldg.Contracts	4342	18,000.00	-	992.55	13,005.60	4,994.40	72.25%
	Bldg/Site Maintenance	4343	70,000.00	-	702.01	27,213.28	42,786.72	38.88%
	Miscellaneous	4390	5,000.00	-	-	325.19	4,674.81	6.50%
	Insurance	4480	35,000.00	-	-	33,814.00	1,186.00	96.61%
	Office equipment	4703	40,000.00	-	2,727.72	14,465.63	25,534.37	36.16%
	Vehicle lease, maintenance	4810-40	43,000.00	-	514.97	32,649.13	10,350.87	75.93%
Consultants/	Auditor/Accounting	4110	50,000.00	-	1,937.45	43,056.39	6,943.61	86.11%
Outside Services	Engineering-administration	4121	93,000.00	-	8,893.00	52,918.84	40,081.16	56.90%
	Engineering-permit I&E	4122	15,000.00	-	-	3,155.00	11,845.00	21.03%
	Engineering-eng. review	4123	55,000.00	-	5,123.50	42,898.06	12,101.94	78.00%
	Engineering-permit review	4124	50,000.00	-	5,474.00	29,522.50	20,477.50	59.05%
	Project Feasibility Studies	4129	735,000.00	-	20,151.57	247,890.78	487,109.22	33.73%
	Attorney-permits	4130	10,000.00	-	-	1,161.28	8,838.72	11.61%
	Attorney-general	4131	40,000.00	-	457.00	9,988.00	30,012.00	24.97%
	Outside Consulting Services	4160	40,000.00	-	-	7,832.00	32,168.00	19.58%
Programs	Educational programming	4370	60,000.00	-	8,315.95	25,096.77	34,903.23	41.83%
	Communications & Marketing	4371	25,000.00		510.00	5,392.11	19,607.89	21.57%
	Events	4372	50,000.00	-	557.90	31,752.02	18,247.98	63.50%
	Water QM-Engineering	4520-30	513,000.00	-	12,704.65	81,598.29	431,401.71	15.91%
	Project operations	4650	140,000.00	-	205.86	89,339.68	50,660.32	63.81%
	SLMP/TMDL Studies	4661	115,000.00	-	3,330.50	18,283.17	96,716.83	15.90%
	Natural Resources/Keller Creek	4670-72	100,000.00	-	17,232.49	83,444.71	16,555.29	83.44%
	Outside Prog.Support/Weed Mgmt.	4683-84	70,000.00	-	663.66	32,965.57	37,034.43	47.09%
	Research Projects	4695	100,000.00	-	-	37,012.13	62,987.87	37.01%
	Health and Safety Program	4697	2,000.00	-	-	2,747.54	(747.54)	137.38%
	NPDES Phase II	4698	20,000.00	-	3,159.00	7,117.00	12,883.00	35.59%
	Atlas 14 Watershed Modeling	4732	-	-	-	-	-	0.00%
GENERAL FUND TOTAL			**$3,976,500.00**	**$0.00**	**$206,379.94**	**$1,953,733.06**	**$2,022,766.94**	49.13%
CIP's	CIP Project Repair & Maintenance	516	1,000,000.00	-	44,193.06	705,319.88	294,680.12	70.53%
	Targeted Retrofit Projects	518	800,000.00	-	11,226.48	62,416.91	737,583.09	7.80%
	District Office Building Solar Energy Retrofit	519	150,000.00	-	28,408.00	96,818.00	53,182.00	64.55%
	Flood Damage Reduction Fund	520	2,000,000.00	-	5,724.00	75,016.86	1,924,983.14	3.75%
	Debt Services-96-97 Beltline/MM/Battle Creek	526	448,951.00	-	-	387,618.43	61,332.57	86.34%
	Stewardship Grant Program Fund	528-529	800,000.00	-	9,518.14	397,259.89	402,740.11	49.66%
	Impervious Surface Volume Reduction Opportunity	531	1,500,000.00	-	-	-	1,500,000.00	0.00%
	Beltline & Battle Creek Tunnel Repair	549	-	-	58,217.49	1,626,783.08	(1,626,783.08)	---
	Frost/Kennard Enhanced WQ BMP	550	400,000.00	-	744.00	25,328.71	374,671.29	6.33%
	Markham Pond Dredging & Aeration	551	25,000.00	-	-	-	25,000.00	0.00%
	Wakefield Park Project	553	1,100,000.00	-	6,741.00	44,326.93	1,055,673.07	4.03%
	Willow Pond CMAC	554	400,000.00		71,063.30	176,578.53	223,421.47	44.14%
	District Office Bond Payment	585	194,885.00	-	-	196,983.53	(2,098.53)	101.08%
CIP BUDGET TOTAL			**$8,818,836.00**	**-**	**$235,835.47**	**$3,794,450.75**	**$5,024,385.25**	43.03%
TOTAL BUDGET			**$12,795,336.00**	**$0.00**	**$442,215.41**	**$5,748,183.81**	**$7,047,152.19**	**44.92%**

Current Fund Balances:

Fund:	Beginning Fund Balance @ 12/31/17	Fund Transfers	Year to date Revenue	Current Month Expenses	Year to Date Expense	Fund Balance @ 09/30/18
101 - General Fund	$4,329,903.56	-	1,525,545.80	206,379.94	1,953,733.06	3,901,716.30
516 - CIP Project Repair & Maintenance	615,041.00	-	576,098.50	44,193.06	705,319.88	485,819.62
518 - Targeted Retrofit Projects	836,989.00	-	171,505.91	11,226.48	62,416.91	946,078.00
519 - District Office Building Solar Energy Retrofit	129,623.00	-	-	28,408.00	96,818.00	32,805.00
520 - Flood Damage Reduction Fund	1,118,749.00	-	445,088.34	5,724.00	75,016.86	1,488,820.48
526 - Debt Services-96-97 Beltline/MM/Beltline-Battle Creek Tunnel Repair	359,578.00	-	234,211.69	-	387,618.43	206,171.26
528/529 - Stewardship Grant Program Fund	561,388.00	-	223,674.61	9,518.14	397,259.89	387,802.72
531 - Impervious Surface Volume Reduction Opportunity	1,484,215.00	-	-	-	-	1,484,215.00
549 - Beltline & Battle Creek Tunnel Repair	2,407,984.00	-	-	58,217.49	1,626,783.08	781,200.92
550 - Frost/Kennard Enhanced WQ BMP	119,513.00	-	13,042.17	744.00	25,328.71	107,226.46
551 - Markham Pond Dredging & Aeration	110,411.00	-	-	-	-	110,411.00
553 - Wakefield Park Project	351,874.00	-	391,264.88	6,741.00	44,326.93	698,811.95
554 - Willow Pond CMAC	-	-	208,674.61	71,063.30	176,578.53	32,096.08
580 - Contingency Fund	476,100.94	-	-	-	-	476,100.94
585 - Certificates of Participation	133,637.00	-	101,668.87	-	196,983.53	38,322.34
Total District Fund Balance	**$13,035,006.50**	**-**	**$ 3,890,775.38**	**$ 442,215.41**	**$5,748,183.81**	**$11,177,598.07**

Ramsey Washington Metro Watershed Dist.
Check Register
For the Period From Sep 1, 2018 to Sep 30, 2018

Check #	Date	Payee ID	Payee	Description	Amount
EFT	09/01/18	met008	MetLife-Group Benefits	Employee Benefits	$1,196.21
EFT	09/12/18	hea002	HealthPartners	Employee Benefits	10,094.01
66672	09/17/18	---	Mike Schreyer	Bus Driver Gratuity	70.00
70160V	09/13/18	hmo001	Hmong Village, Inc.	VOID	(8,040.00)
70203	09/06/18	blo001	Simba Blood	Employee Reimbursement	502.25
70204	09/13/18	all005	All Energy Solar, Inc.	District Office/Solar Energy	27,176.00
70205	09/13/18	aws001	AWS Service Center	Janitorial/Trash/Plowing	187.49
70206	09/13/18	car007	Carp Solutions, LLC	Natural Resources Project	6,406.10
70207	09/13/18	cro001	Nutrien Ag Solutions, Inc.	Natural Resources Project	54.02
70208	09/13/18	fir001	First Student, Inc. #22157	Educational Program	288.01
70209	09/13/18	gru001	Gruber's Power Equipment	Natural Resources Project	8.20
70210	09/13/18	hom001	Home Depot Credit Services	Water Quality/Natural Res.	394.46
70211	09/13/18	int003	Intereum, Inc.	Office Equipment	2,727.72
70212	09/13/18	min008	Minnesota Native Landscapes, Inc.	Construction-Maint. & Rep.	12,739.50
70213	09/13/18	min018	Minnesota Coaches	Events	474.60
70214	09/13/18	pit001	Pitney Bowes Global Financial Serv LLC	Postage	142.47
70215	09/13/18	pre003	Premium Waters, Inc.	Utilities/Bldg. Contracts	19.00
70216	09/13/18	ram002	Ramsey County	Natural Resources Project	288.00
70217	09/13/18	sch009	Schlomka Services, LLC	Construction-General	6,330.00
70218	09/13/18	str004	Warren's Striping	Bldg/Site Maintenance	200.00
70219	09/13/18	van001	Vanguard Cleaning Systems of Minnesota	Janitorial/Trash/Plowing	550.00
70220	09/13/18	van002	Yia Vang (Re-Issue)	Dev. Escrow - General	8,040.00
70221	10/03/18	ahl001	Paige Ahlborg	Employee Reimbursement	112.87
70222	10/03/18	aic001	Clifton Aichinger	Manager Expense	53.41
70223	10/03/18	all004	allstream	Project Operations	64.76
70224	10/03/18	att002	AT & T Mobility - ROC	IT/Website/Software	43.22
70225	10/03/18	bar001	Barr Engineering	Aug/Sept Engineering	122,798.24
70226	10/03/18	bar004	Deborah Barnes	Employee Reimbursement	37.47
70227	10/03/18	bei001	Anna D. Beining	Employee Reimbursement	88.68
70228	10/03/18	blo001	Simba Blood	Employee Reimbursement	90.90
70229	10/03/18	car007	Carp Solutions, LLC	Natural Resources Project	3,485.70
70230	10/03/18	cit011	City of Roseville	Phone/IT/Website/Software	2,513.82
70231	10/03/18	gal001	Galowitz Olson, PLLC	August Legal Fees	1,865.00
70232	10/03/18	geo002	George's Contracted Services, Inc.	Janitorial/Trash/Plowing	1,500.00
70233	10/03/18	gou001	Ryan J. Gould	Employee Reimbursement	222.91
70234	10/03/18	hom001	Home Depot Credit Services	Nat.Res./Water Qlty./Proj.Oper.	296.36
70235V	10/03/18	---	VOID	VOID	-
70236	10/03/18	inn002	Innovative Office Solutions LLC	Office Supplies	392.79
70237	10/03/18	int001	Office of MN, IT Services	Telephone Expense	55.40
70238	10/03/18	kin001	FedEx Office	Educational Program	2.24
70239	10/03/18	lak007	Lakes Aquatic Weed Removal	Natural Resources Project	4,807.50
70240	10/03/18	lan009	Landbridge Ecological	Construction-Maint. & Rep.	7,621.25
70241	10/03/18	lea002	League of Minnesota Cities	2019 Dues	1,878.00
70242	10/03/18	lea003	L. Tracy Leavenworth	Educational Program	3,221.54
70243	10/03/18	mel001	Michelle L. Melser	Employee Reimbursement	62.89
70244	10/03/18	min008	Minnesota Native Landscapes, Inc.	Project Operations	420.00

Ramsey Washington Metro Watershed Dist.
Check Register
For the Period From Sep 1, 2018 to Sep 30, 2018

Check #	Date	Payee ID	Payee	Description	Amount
70245	10/03/18	moo003	Jeff Moore	Dev. Escrow - General	8,340.00
70246	10/03/18	ncp001	NCPERS Minnesota	Employee Benefits	16.00
70247	10/03/18	nel001	Nelson Marine	Vehicle Maintenance	12.00
70248	10/03/18	nsp001	Xcel Energy	Utilities/Project Opeartions	1,087.65
70249	10/03/18	omo001	Nicholas D. Omodt	Employee Reimbursement	57.77
70250	10/03/18	out001	Outdoor Lab Landscape Design, Inc.	Construction/Stewardship Grant	5,642.23
70251	10/03/18	pac001	Pace Analytical Services, Inc.	Water Quality	1,669.00
70252	10/03/18	pac001	Pace Analytical Services, Inc.	Water Quality	2,670.00
70253	10/03/18	pci001	PCi Roads, LLC	Pay #15	46,231.99
70254	10/03/18	pet001	Peterson Companies, Inc.	Willow Pond-Pay #1	58,885.51
70255	10/03/18	ram002	Ramsey County	Natural Resources/Educational	969.00
70256	10/03/18	red002	Redpath & Company, Ltd	August Accounting Services	1,937.45
70257	10/03/18	sel001	Select Synthetics	Bldg/Site Maintenance	150.00
70258	10/03/18	sod001	Nicole Soderholm	Employee Reimbursement	62.89
70259	10/03/18	stu001	Studio Lola	Communications & Marketing	150.00
70260	10/03/18	tca001	TCA Real Estate, LLC	Dev. Escrow - General	28,940.00
70261	10/03/18	tim002	Timesaver Off-Site Secretarial, Inc.	Committee/Board Meeting Exp.	211.00
70262	10/03/18	tru002	Trustees of the Hamline University of MN	Educational Program	4,747.16
70263	10/03/18	usb002	U.S. Bank	Monthly Credit Card Expense	4,837.10
70264	10/03/18	usb005	US Bank Equipment Finance	Printing Expense	285.67
70265	10/03/18	van001	Vanguard Cleaning Systems of Minnesota	Janitorial/Trash/Plowing	712.75
70266	10/03/18	vla001	Dave Vlasin	Employee Reimbursement	200.33
70267	10/03/18	voy001	US Bank Voyager Fleet Sys.	Vehicle Fuel	480.97
70268	10/03/18	was007	Washington Conservation District	Stewardship Grant	816.00
70269	10/03/18	wil007	Patrick Williamson	Employee Reimbursement	58.86
70270	10/03/18	win002	Windmill Design Incorporated	Communications & Marketing	280.00
70271	10/03/18	hen002	Henriksen Ace Hardware	Natural Resources Project	2.80
70272	10/03/18	bre003	Bremer Bank	Employee Benefits	6,468.75
					$397,405.87

Ramsey Washington Metro Watershed Dist.
Cash Disbursements Journal
For the Period From Sep 1, 2018 - Sep 30, 2018

Date	Check #	Vendor ID	Name	Account ID	Account Description	Amount	Check Detail
09/01/18	EFT	met008	MetLife-Group Benefits			$1,196.21	
				4040-101-000	Employee Benefits-General		988.14
				2015-101-000	Employee Health-General		208.07
09/12/18	EFT	hea002	HealthPartners			10,094.01	
				4040-101-000	Employee Benefits-General		8,123.52
				2015-101-000	Employee Health-General		1,970.49
09/17/18	66672	---	Mike Schreyer	4372-101-000	Events	70.00	
09/13/18	70160V	hmo001	Hmong Village, Inc.	2024-101-000	Dev. Escrow - General	(8,040.00)	
09/06/18	70203	blo001	Simba Blood			502.25	
				4670-101-000	Natural Resources Project-General		479.90
				4020-101-000	Employee Expenses-General		9.05
				4372-101-000	Events		13.30
09/13/18	70204	all005	All Energy Solar, Inc.	4128-519-000	Eng.-District Office Solar Energy	27,176.00	
09/13/18	70205	aws001	AWS Service Center	4341-101-000	Janitorial/Trash Service	187.49	
09/13/18	70206	car007	Carp Solutions, LLC	4670-101-000	Natural Resources Project-General	6,406.10	
09/13/18	70207	cro001	Nutrien Ag Soltuions, Inc.	4670-101-000	Natural Resources Project-General	54.02	
09/13/18	70208	fir001	First Student, Inc. #22157	4370-101-000	Educational Program-General	288.01	
09/13/18	70209	gru001	Gruber's Power Equipment	4670-101-000	Natural Resources Project-General	8.20	
09/13/18	70210	hom001	Home Depot Credit Services			394.46	
				4530-101-000	Water QM Staff-General		3.96
				4530-101-000	Water QM Staff-General		13.88
				4670-101-000	Natural Resources Project-General		32.94
				4670-101-000	Natural Resources Project-General		343.68
09/13/18	70211	int003	Intereum, Inc.	4703-101-000	Office Equipment-General	2,727.72	
09/13/18	70212	min008	Minnesota Native Landscapes, Inc.			12,739.50	
				4630-516-000	Construction Imp-Maint. & Rep.		627.00
				4630-516-000	Construction Imp-Maint. & Rep.		12,112.50
09/13/18	70213	min018	Minnesota Coaches	4372-101-000	Events	474.60	
09/13/18	70214	pit001	Pitney Bowes Global Financial Services, LLC	4330-101-000	Postage-General	142.47	
09/13/18	70215	pre003	Premium Waters, Inc.	4342-101-000	Utilities/Bldg. Contracts	19.00	
09/13/18	70216	ram002	Ramsey County	4670-101-000	Natural Resources Project-General	288.00	
09/13/18	70217	sch009	Schlomka Services, LLC	4630-516-000	Construction Imp-Maint. & Rep.	6,330.00	
09/13/18	70218	str004	Warren's Striping	4343-101-000	Bldg./Site Maintenance	200.00	
09/13/18	70219	van001	Vanguard Cleaning Systems of Minnesota	4341-101-000	Janitorial/Trash Service	550.00	
09/13/18	70220	van002	Yia Vang - Re-Issue	2024-101-000	Dev. Escrow - General	8,040.00	
10/03/18	70221	ahl001	Paige Ahlborg			112.87	
				4040-101-000	Employee Benefits-General		28.20
				4020-101-000	Employee Expenses-General		84.67
10/03/18	70222	aic001	Clifton Aichinger	4360-101-000	Manager Expense-General	53.41	
10/03/18	70223	all004	allstream	4650-101-000	Project Operations-General	64.76	
10/03/18	70224	att002	AT & T Mobility - ROC	4325-101-000	IT/Website/Software	43.22	

Ramsey Washington Metro Watershed Dist.
Cash Disbursements Journal
For the Period From Sep 1, 2018 - Sep 30, 2018

Date	Check #	Vendor ID	Name	Account ID	Account Description	Amount	Check Detail
10/03/18	70225	bar001	Barr Engineering			122,798.24	
				4121-101-000	Engineering Admin-General Fund		8,893.00
				4698-101-000	Engineering-NPDES Phase II		3,159.00
				4123-101-000	Engineering-Review		5,123.50
				4129-101-000	Project Feasability-General		1,905.00
				4129-101-000	Project Feasability-General		3,865.00
				4129-101-000	Project Feasability-General		883.50
				4129-101-000	Project Feasability-General		1,723.00
				4129-101-000	Project Feasability-General		1,174.50
				4129-101-000	Project Feasability-General		339.50
				4129-101-000	Project Feasability-General		118.50
				4129-101-000	Project Feasability-General		171.00
				4129-101-000	Project Feasability-General		982.00
				4129-101-000	Project Feasability-General		3,838.50
				4129-101-000	Project Feasability-General		2,056.07
				4129-101-000	Project Feasability-General		3,095.00
				4170-101-000	GIS System Maint. & Equipment		120.00
				4520-101-000	Water QM-Engineering		640.00
				4520-101-000	Water QM-Engineering		1,068.65
				4520-101-000	Water QM-Engineering		6,335.77
				4124-101-000	Engineering-Permit Review		5,474.00
				4661-101-000	SLMP/TMDL Studies		858.00
				4661-101-000	SLMP/TMDL Studies		2,472.50
				4650-101-000	Project Operations-General		27.00
				4128-553-000	Engineering-Wakefield		6,741.00
				4128-550-000	Engineering-Frost/Kennard		744.00
				4128-518-000	Engineering-School/Commer Retrofit		4,933.48
				4128-518-000	Engineering-School/Commer Retrofit		2,060.00
				4128-518-000	Engineering-School/Commer Retrofit		1,975.00
				4128-518-000	Engineering-School/Commer Retrofit		4,318.00
				4682-529-000	Stewardship Grant Program		3,369.48
				4128-528-000	Engineering-Faith Based		35.43
				4128-554-000	Engineering-Willow Pond		11,897.79
				4128-520-000	Engineering-Flood Damage		5,724.00
				4128-519-000	Engineering-District Office Solar Energy		1,232.00
				4128-549-000	Engineering-Beltline/Battle Creek		11,985.50
				4128-516-000	Engineering-Projects Maint. & Repair		8,965.07
				4128-516-000	Engineering-Projects Maint. & Repair		4,494.50
10/03/18	70226	bar004	Deborah Barnes			37.47	
				4040-101-000	Employee Benefits-General		20.00
				4020-101-000	Employee Expenses-General		17.47

Ramsey Washington Metro Watershed Dist.
Cash Disbursements Journal
For the Period From Sep 1, 2018 - Sep 30, 2018

Date	Check #	Vendor ID	Name	Account ID	Account Description	Amount	Check Detail
10/03/18	70227	bei001	Anna D. Beining	4020-101-000	Employee Expenses-General	88.68	
10/03/18	70228	blo001	Simba Blood			90.90	
				4040-101-000	Employee Benefits-General		40.00
				4020-101-000	Employee Expenses-General		26.07
				4670-101-000	Natural Resources Project-General		24.83
10/03/18	70229	car007	Carp Solutions, LLC	4670-101-000	Natural Resources Project-General	3,485.70	
10/03/18	70230	cit011	City of Roseville			2,513.82	
				4325-101-000	IT/Website/Software		2,211.00
				4310-101-000	Telephone-General		302.82
10/03/18	70231	gal001	Galowitz Olson, PLLC			1,865.00	
				4131-101-000	Attorney General-General Fund		457.00
				4131-516-000	Attorney General-Maint. & Repair		1,128.00
				4131-554-000	Attorney General-Willow Pond		280.00
10/03/18	70232	geo002	George's Contracted Services, Inc.	4341-101-000	Janitorial/Trash Service	1,500.00	
10/03/18	70233	gou001	Ryan J. Gould	4020-101-000	Employee Expenses-General	222.91	
10/03/18	70234	hom001	Home Depot Credit Services			296.36	
				4670-101-000	Natural Resources Project-General		46.62
				4670-101-000	Natural Resources Project-General		37.52
				4530-101-000	Water QM Staff-General		26.55
				4670-101-000	Natural Resources Project-General		36.77
				4670-101-000	Natural Resources Project-General		6.75
				4670-101-000	Natural Resources Project-General		17.94
				4650-516-000	Project Operations-Maint. & Repair		89.74
				4670-101-000	Natural Resources Project-General		17.26
				4670-101-000	Natural Resources Project-General		6.17
				4670-101-000	Natural Resources Project-General		22.98
				4670-101-000	Natural Resources Project-General		(11.94)
10/03/18	70235V	---	VOID	---	VOID	-	
10/03/18	70236	inn002	Innovative Office Solutions, LLC			392.79	
				4320-101-000	Office Supplies-General		173.34
				4320-101-000	Office Supplies-General		219.45
10/03/18	70237	int001	Office of MN, IT Services	4310-101-000	Telephone-General	55.40	
10/03/18	70238	kin001	FedEx Office	4370-101-000	Educational Program-General	2.24	
10/03/18	70239	lak007	Lakes Aquatic Weed Removal	4670-101-000	Natural Resources Project-General	4,807.50	
10/03/18	70240	lan009	Landbridge Ecological	4630-516-000	Construction Imp-Maint. & Rep.	7,621.25	
10/03/18	70241	lea002	League of Minnesota Cities	4338-101-000	Dues & Publications-General	1,878.00	
10/03/18	70242	lea003	L. Tracy Leavenworth	4370-101-000	Educational Program-General	3,221.54	
10/03/18	70243	mel001	Michelle Melser			62.89	
				4040-101-000	Employee Benefits-General		40.00
				4020-101-000	Employee Expense-General		22.89
10/03/18	70244	min008	Minnesota Native Landscape, Inc.			420.00	
				4650-516-000	Project Operations-Maint. & Repair		250.00
				4650-516-000	Project Operations-Maint. & Repair		170.00

Ramsey Washington Metro Watershed Dist.
Cash Disbursements Journal
For the Period From Sep 1, 2018 - Sep 30, 2018

Date	Check #	Vendor ID	Name	Account ID	Account Description	Amount	Check Detail
10/03/18	70245	moo003	Jeff Moore	2024-101-000	Dev. Escrow - General	8,340.00	
10/03/18	70246	ncp001	NCPERS Minnesota	2015-101-000	Employee Health-General	16.00	
10/03/18	70247	nel001	Nelson Marine	4820-101-000	Vehicle Maintenance	12.00	
10/03/18	70248	nsp001	Xcel Energy			1,087.65	
				4342-101-000	Utilities/Bldg. Contracts		973.55
				4650-101-000	Project Operations-General		114.10
10/03/18	70249	omo001	Nicholas Omodt	4020-101-000	Employee Expense-General	57.77	
10/03/18	70250	out001	Outdoor Lab Landscape Design, Inc.			5,642.23	
				4630-516-000	Construction Imp-Maint. & Rep.		345.00
				4682-529-000	Stewardship Grant Program		1,234.60
				4682-529-000	Stewardship Grant Program		4,062.63
10/03/18	70251	pac001	Pace Analytical Services, Inc.			1,669.00	
				4530-101-000	Water QM Staff-General		323.00
				4530-101-000	Water QM Staff-General		277.00
				4530-101-000	Water QM Staff-General		408.00
				4530-101-000	Water QM Staff-General		426.00
				4530-101-000	Water QM Staff-General		160.00
				4530-101-000	Water QM Staff-General		75.00
10/03/18	70252	pac001	Pace Analytical Services, Inc.			2,670.00	
				4530-101-000	Water QM Staff-General		770.00
				4530-101-000	Water QM Staff-General		323.00
				4530-101-000	Water QM Staff-General		324.00
				4530-101-000	Water QM Staff-General		408.00
				4530-101-000	Water QM Staff-General		426.00
				4530-101-000	Water QM Staff-General		182.00
				4530-101-000	Water QM Staff-General		237.00
10/03/18	70253	pci001	PCi Roads, LLC	4630-549-000	Construction-Beltline/Battle	46,231.99	
10/03/18	70254	pet001	Peterson Companies, Inc.	4630-554-000	Construction Imp.-Willow Pond CMAC	58,885.51	
10/03/18	70255	ram002	Ramsey County			969.00	
				4670-101-000	Natural Resources Project-General		540.00
				4670-101-000	Natural Resources Project-General		372.00
				4370-101-000	Educational Program-General		57.00
10/03/18	70256	red002	Redpath & Company, Ltd.	4110-101-000	Auditor/Accounting	1,937.45	
10/03/18	70257	sel001	Select Synthetics	4343-101-000	Bldg./Site Maintenance	150.00	
10/03/18	70258	sod001	Nichole Soderholm			62.89	
				4040-101-000	Employee Benefits-General		40.00
				4020-101-000	Employee Expenses-General		22.89
10/03/18	70259	stu001	Studio Lola	4371-101-000	Communications & Marketing	150.00	
10/03/18	70260	tca001	TCA Real Estate, LLC	2024-101-000	Dev Escrow-General	28,940.00	
10/03/18	70261	tim002	Timesaver Off-Site Secretarial, Inc.	4365-101-000	Committee/Board Meeting Expense	211.00	
10/03/18	70262	tru002	Trustees of the Hamline University of MN	4370-101-000	Educational Program-General	4,747.16	

Ramsey Washington Metro Watershed Dist.
Cash Disbursements Journal
For the Period From Sep 1, 2018 - Sep 30, 2018

Date	Check #	Vendor ID	Name	Account ID	Account Description	Amount	Check Detail
10/03/18	70263	usb002	U.S. Bancorp			4,837.10	
				4840-101-000	Vehicle-Misc.		22.00
				4320-101-000	Office Supplies-General		39.51
				4343-101-000	Bldg./Site Maintenance		25.36
				4325-101-000	IT/Website/Software		95.90
				4670-101-000	Natural Resources Project-General		(246.37)
				4670-101-000	Natural Resources Project-General		229.99
				4320-101-000	Office Supplies-General		41.02
				4320-101-000	Office Supplies-General		19.96
				4670-101-000	Natural Resources Project-General		107.85
				4530-101-000	Water QM Staff-General		45.98
				4530-101-000	Water QM Staff-General		230.86
				4343-101-000	Bldg./Site Maintenance		326.65
				4320-101-000	Office Supplies-General		1.60
				4350-101-000	Training & Education-General		4.30
				4670-101-000	Natural Resources Project-General		87.29
				4350-101-000	Training & Education-General		156.09
				4350-101-000	Training & Education-General		276.40
				4350-101-000	Training & Education-General		246.40
				4670-101-000	Natural Resources Project-General		27.99
				4338-101-000	Dues & Publications-General		80.00
				4350-101-000	Training & Education-General		2,163.32
				4350-101-000	Training & Education-General		425.00
				4350-101-000	Training & Education-General		250.00
				4371-101-000	Communications & Marketing		80.00
				4350-101-000	Training & Education-General		100.00
10/03/18	70264	usb005	US Bank Equipment Finance	4335-101-000	Printing-General	285.67	
10/03/18	70265	van001	Vanguard Cleaning Systems of Minnesota	4341-101-000	Janitorial/Trash Service	712.75	
10/03/18	70266	vla001	Peter Vesterhold			200.33	
				4040-101-000	Employee Benefits-General		162.18
				4020-101-000	Employee Expenses-General		38.15
10/03/18	70267	voy001	US Bank Voyager Fleet Sys.	4830-101-000	Vehicle Expense-Fuel	480.97	
10/03/18	70268	was007	Washington Conservation District	4682-529-000	Stewardship Grant Program	816.00	
10/03/18	70269	wil007	Patrick Williamson	4020-101-000	Employee Expense-General	58.86	
10/03/18	70270	win002	Windmill Design Incorporated	4371-101-000	Communications & Marketing	280.00	
10/03/18	70271	hen002	Henriksen Ace Hardware	4670-101-000	Natural Resources Project-General	2.80	
10/03/18	70272	bre003	Bremer Bank	4040-101-000	Employee Benefits-General	6,468.75	
						$397,405.87	

BARR

Summary of Professional Engineering Services During the Period
August 18, 2018 through September 21, 2018

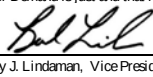
	Total Budget* (2018)	Total Fees to Date (2018)	Budget Balance (2018)	Fees During Period	District Accounting Code	Plan Implementation Task Number
Engineering Administration						
General Engineering Administration	$76,000.00	$52,918.84	$23,081.16	$8,893.00	**4121-101**	DW-13
RWMWD Health and Safety/ERTK Program	$2,000.00	$1,385.43	$614.57		**4697-101**	DW-13
Educational Program/Educational Forum Assistance	$20,000.00	$6,717.00	$13,283.00	$3,159.00	**4698-101**	DW-11
Engineering Review						
Engineering Review	$55,000.00	$42,898.06	$12,101.94	$5,123.50	**4123-101**	DW-13
Project Feasibility Studies						
Aquifer Recharge Site Search and Feasibility Study	$15,000.00	$0.00	$15,000.00		**4129-101**	DW-10
Owasso County Park Stormwater Master Plan and Detailed Design: Phase 1 and Phase 2	$75,000.00	$7,087.50	$67,912.50	$1,905.00	**4129-101**	DW-5
Beltline Resiliency and Phalen Chain Water Level Management	$250,000.00	$29,173.43	$220,826.57	$3,865.00	**4129-101**	BELT-3
Beaver Lake Subwatershed Feasibility Study	$15,000.00	$11,473.85	$3,526.15	$883.50	**4129-101**	BL-1
Owasso Lake Subwatershed Feasibility Study	$15,000.00	$14,001.85	$998.15	$1,723.00	**4129-101**	LO-3
Battle Creek Lake Subwatershed Feasibility Study	$15,000.00	$16,375.23	-$1,375.23	$1,174.50	**4129-101**	BCL-3
Create an Emergency Response Plan for Twin Lake	$15,000.00	$9,783.56	$5,216.44	$339.50	**4129-101**	DW-19
Create an Emergency Response Plan for Grass Lake	$15,000.00	$1,011.50	$13,988.50	$118.50	**4129-101**	DW-19
Create an Emergency Response Plan for Snail Lake	$15,000.00	$2,720.50	$12,279.50	$171.00	**4129-101**	DW-19
Create an Emergency Reponse Plan for Lake Owasso	$5,000.00	$5,198.50	-$198.50	$982.00	**4129-101**	LO-2
FEMA Flood Mapping Update	$100,000.00	$1,494.16	$98,505.84		**4129-101**	DW-9
West Vadnais Lake to East Vadnais Lake Water Quality Treatment	$24,400.00	$36,601.80	-$12,201.80		**4129-101**	DW-9
West Vadnais Lake to East Vadnais Lake Gravity Flow	$66,000.00	$11,319.50	$54,680.50	$3,838.50	**4129-101**	DW-9
Snail Lake to Sucker Lake Reverse Pumping Evaluation	$9,100.00	$9,715.50	-$615.50		**4129-101**	DW-9
Snail, Grass, and West Vadnais outlet permitting with the MnDNR	$10,000.00	$34,971.42	-$24,971.42	$2,056.07	**4129-101**	DW-9
Modeling of 95% Confidence Limit Atlas 14 District-wide (Climate Change Scenario); Flood Map Generation for Future Outreach	$129,500.00	$56,962.48	$72,537.52	$3,095.00	**4129-101**	DW-9
GIS Maintenance						
GIS Maintenance	$5,000.00	$1,222.00	$3,778.00	$120.00	**4170-101**	DW-13
Monitoring Water Quality/Project Monitoring						
Lake Water Quality Monitoring (Misc QA/QC)	$10,000.00	$878.50	$9,121.50	$640.00	**4520-101**	DW-2
Grass Lake WOMP station	$10,000.00	$0.00	$10,000.00		**4520-101**	DW-3
Battle Creek longitudinal monitoring of TSS	$15,000.00	$843.00	$14,157.00		**4520-101**	BC-3
Auto Lake monitoring systems (5)	$50,000.00	$12,602.58	$37,397.42	$1,068.65	**4520-101**	DW-18
Maplewood Mall Monitoring	$10,000.00	$15,144.97	-$5,144.97	$6,335.77	**4520-101**	DW-12
Permit Processing, Inspection and Enforcement						
Permit Application Inspection and Enforcement	$15,000.00	$3,155.00	$11,845.00		**4122-101**	DW-7
Permit Application Review	$50,000.00	$29,522.50	$20,477.50	$5,474.00	**4124-101**	DW-7
Lake Studies/WRPPs/TMDL Reports						
2018 Grant Applications	$30,000.00	$1,270.50	$28,729.50	$858.00	**4661-101**	--
Tanners Flood Response Tool Model Update	$3,000.00	$2,232.00	$768.00		**4661-101**	TaL-1
Evaluate water quality benefit of removing accumulated sediment from south end of Wakefield Lake to improve Lake Phalen water quality	$10,000.00	$14,780.67	-$4,780.67	$2,472.50	**4661-101**	WL-5
Research Projects						
New Technology Mini Case Studies (average 6 per year)	$12,000.00	$3,413.00	$8,587.00		**4695-101**	DW-12
Kohlman Permeable Weir Test System - Implement Monitoring Plan	$15,000.00	$8,972.13	$6,027.87		**4695-101**	DW-12
Project Operations						
2018 Tanners Alum Facility Monitoring	$15,000.00	$13,660.12	$1,339.88	$27.00	**4650-101**	TaL-3
Capital Improvements						
Wakefield Park/Frost Avenue Stormwater Project	$75,000.00	$44,326.93	$30,673.07	$6,741.00	**4128-553**	WL-1
Frost Kennard Spent Lime BMP	$24,000.00	$25,328.71	-$1,328.71	$744.00	**4128-550**	WL-1
Commercial Sites Retrofit Projects 2018	$55,000.00	$20,305.43	$34,694.57	$4,933.48	**4128-518**	DW-6
School Sites Retrofit Projects 2018	$55,000.00	$19,923.23	$35,076.77	$2,060.00	**4128-518**	DW-6
Church Sites Retrofit Projects 2018	$55,000.00	$16,422.25	$38,577.75	$1,975.00	**4128-518**	DW-6
Roseville High School Campus Stormwater Retrofit (Bennett Lake Subwatershed)	$30,000.00	$7,826.00	$22,174.00	$4,318.00	**4128-518**	DW-6
BMP Incentive Fund: General BMP Design Assistance and Review	$30,000.00	$41,474.88	-$11,474.88	$3,369.48	**4682-529**	DW-6
BMP Incentive Fund: Faith-Based Organizations	$20,000.00	$3,074.93	$16,925.07	$35.43	**4128-528**	DW-6
Willow Pond CMAC Implementation	$100,000.00	$116,413.02	-$16,413.02	$11,897.79	**4128-554**	BeL-4
Grass Lake Berm Construction Administration	$75,000.00	$55,464.94	$19,535.06	$5,724.00	**4128-520**	GrL-1
Phase 1 implementation from Owasso Basin Improvements Feasibility Study	$75,000.00	$9,420.00	$65,580.00		**4128-520**	GC-3
District Office Solar Energy Retrofit	$20,000.00	$12,899.00	$7,101.00	$1,232.00	**4128-519**	DW-13
CIP Project Repair & Maintenance						
2017-2018 Beltline Repairs Construction Services	$360,000.00	$446,272.57	-$86,272.57	$11,985.50	**4128-549**	BELT-2
Routine CIP Inspection and Unplanned Maintenance Identification	$75,000.00	$21,184.32	$53,815.68	$8,965.07	**4128-516**	DW-5
2018 CIP Maintenance and Repairs	$90,000.00	$83,832.30	$6,167.70	$4,494.50	**4128-516**	DW-5
2019 CIP Maintenance and Repairs	$150,000.00	$0.00	$150,000.00		**4128-516**	DW-5

*For projects carried over from previous years, the total budget reflects the total project budget, and not just the 2018 portion.

Subtotal **$122,798.24**

TOTAL PAYABLE FOR PERIOD 8/18/2018 - 9/21/2018 **$122,798.24**

Barr declares under the penalties of Law that this Account, Claim, or Demand is just and that no part has been paid.



Bradley J. Lindaman, Vice President

2017 Faith Based Sites BMP Retrofits North Height Christian Academy
Progress Payment Number 2
FINAL PAY APP

1 Completed to Date:	$0.00		
2 Less Previously Billed:		$0.00	
3 Amount Completed This Period:			$0.00
4 Amount Previously Retained:		$1,234.60	
5 Amount Retained This Period (See Note 1):		$0.00	
6 Total Amount Retained (See Note 2):		$1,234.60	
7 Retainage Released Through This Period:			$1,234.60
8 Less Total Retainage Remaining:			
9 Less Amounts Previously Paid:	$24,632.40		
10 Amount Due This Estimate:			$1,234.60

Note 1: At rate of 10% until Completed to Date equals 50% of current Contract Price and a rate of 0% thereafter.

Note 2: Maximum amount is 5% of current Contract Price

SUBMITTED BY:
Name: Chuck Hanna Date: 9/26/2019
Title: President
Contractor: Outdoor Lab

Signature: _____

RECOMMENDED BY:
Name: Matt Kumka Date: 9/26/2019
Title: Project Manager
Engineer: Barr Engineering Company

Signature: _____

APPROVED BY:
Name: Marj Ebensteiner Date: _____
Title: President
Owner: Ramsey-Washington Metro Watershed District

Signature: _____

North Heights Church
Roseville
Contract Amount

Base Bid Items				Invoice #1			Total Completed Through This Period Invoice #2		
Item	Description	Unit	Estimated Quantity	Unit Price	Actual Quantity	Extension	Unit Price	Actual Quantity	Extension
A	Mobilization/Demobilization/Traffic Control/Erosion Control	L.S.	1	$1,000.00	1	$1,000.00	$1,000.00	0	$0.00
B	Remove Sod	S.Y.	170	$5.50	170	$935.00	$5.50	0	$0.00
C	Remove Tree (Greater than 6" DBH)	Each	1	$600.00	1	$600.00	$600.00	0	$0.00
D	Inlet Protection	Each	49	$50.00	1	$50.00	$50.00	0	$0.00
E	Excavate, Haul, and Dispose	C.Y.	49	$50.00	138	$6,900.00	$50.00	0	$0.00
F	Grading	L.S.	1	$500.00	1	$500.00	$500.00	0	$0.00
G	Soil Loosening	S.Y.	88	$1.75	88	$154.00	$1.75	0	$0.00
H	Clean Sand	C.Y.	6	$75.00	16	$1,200.00	$75.00	0	$0.00
I	Planting Soil (12" depth- 75% Sand, 25% Leaf compost- MnDOT Grade II)	C.Y.	49	$60.00	49	$2,940.00	$60.00	0	$0.00
J	Twice-Shredded Hardwood Mulch (3" depth)	C.Y.	12	$60.00	12	$720.00	$60.00	0	$0.00
K	Dry Creek Bed Stone Type with Geotextile	Ton	5	$100.00	5	$500.00	$100.00	0	$0.00
L	Small Splash Block Assembly	Each	1	$1,500.00	1	$1,500.00	$1,500.00	0	$0.00
M	Ditch Grate (Neenah R-4342)	Each	1	$540.00	1	$540.00	$540.00	0	$0.00
N	Manhole Adjusting Ring (Neenah R-4353-0013)	Each	1	$125.00	2	$250.00	$125.00	0	$0.00
O	4" Perforated (CPEP) Draintile w/o sock (Underdrain)	L.F.	47	$12.00	47	$564.00	$12.00	0	$0.00
P	4" Solid (CPEP) Draintile (Underdrain)	L.F.	8	$12.00	8	$96.00	$12.00	0	$0.00
Q	Draintile Clean Out	Each	1	$500.00	1	$500.00	$500.00	0	$0.00
R	Connect Draintile to Catch Basin	Each	1	$600.00	1	$600.00	$600.00	0	$0.00
S	4" Black Powder Coated Landscape Edging	L.F.	170	$10.00	170	$1,700.00	$10.00	0	$0.00
T	Sod	S.Y.	119	$6.00	119	$714.00	$6.00	0	$0.00
U	#1 Cont. Perennial or Shrub (Furnish & Install)	Each	178	$18.00	178	$3,204.00	$18.00	0	$0.00
W	1.5" B&B Deciduous Tree (Furnish & Install)	Each	1	$700.00	1	$700.00	$700.00	0	$0.00
			SUBTOTAL	TOTAL		$25,867.00	TOTAL		$0.00

2017 Faith Based Sites BMP Retrofits
Progress Payment Number 3
FINAL PAY APP

1 Completed to Date:	$81,252.58		
2 Less Previously Billed:		$77,189.95	
3 Amount Completed This Period:			$0.00
4 Amount Previously Retained:		$4,062.63	
5 Amount Retained This Period (See Note 1):		$0.00	
6 Total Amount Retained (See Note 2):		$4,062.63	
7 Retainage Released Through This Period:			$4,062.63
8 Less Total Retainage Remaining:			
9 Less Amounts Previously Paid:	$77,189.95		
10 Amount Due This Estimate:			$4,062.63

Note 1: At rate of 10% until Completed to Date equals 50% of current Contract Price and a rate of 0% thereafter.

Note 2: Maximum amount is 5% of current Contract Price

SUBMITTED BY:
Name: Chuck Hanna Date: 9/26/2018
Title: President
Contractor: Outdoor Lab

Signature:

RECOMMENDED BY:
Name: Matt Kumka Date: 9/26/2018
Title: Project Manager
Engineer: Barr Engineering Company

Signature:

APPROVED BY:
Name: Marj Ebensteiner Date:
Title: President
Owner: Ramsey-Washington Metro Watershed District

Signature:

North Church
Roseville
Contract Amount

Base Bid Items				Total Completed Through This Period Invoice #1			Total Completed Through This Period Invoice #2			Total Completed Through This Period Invoice #3		
Item	Description	Unit	Estimated Quantity	Unit Price	Actual Quantity	Extension	Unit Price	Actual Quantity	Extension	Unit Price	Actual Quantity	Extension
A	Mobilization/Demobilization/Traffic Control/Erosion Control	L.S.	1	$1,000.00	1	$1,000.00	$2,000.00	0	$0.00	$2,000.00	0	$0.00
D	Remove Concrete Curb and Gutter	L.F.	43	$20.00	43	$860.00	$4.80	0	$0.00	$4.80	0	$0.00
H	Remove Sod	S.Y.	323	$5.00	323	$1,615.00	$1,800.00	0	$0.00	$1,800.00	0	$0.00
I	Remove Tree (Greater than 6" DBH)	Each	1	$600.00	2	$1,200.00	$3.00	0	$0.00	$3.00	0	$0.00
L	Excavate, Haul, and Dispose	C.Y.	99	$45.00	99	$4,455.00	$27.00	0	$0.00	$27.00	0	$0.00
M	Grading	L.S.	1	$300.00	1	$300.00	$1,900.00	0	$0.00	$1,900.00	0	$0.00
N	Soil Loosening	S.Y.	122	$1.00	122	$122.00	$5.00	0	$0.00	$5.00	0	$0.00
O	Clean Sand	C.Y.	22	$29.00	60	$1,740.00	$2,100.00	0	$0.00	$2,100.00	0	$0.00
P	Planting Soil (12" depth- 75% Sand, 25% Leaf compost- MnDOT Grade II)	C.Y.	69	$55.00	69	$3,795.00	$72.00	0	$0.00	$72.00	0	$0.00
Q	Twice-Shredded Hardwood Mulch (3" depth)	C.Y.	27	$60.00	30	$1,800.00	$11.00	0	$0.00	$11.00	0	$0.00
T	Concrete Curb & Gutter	L.F.	29	$32.00	35	$1,120.00	$11.00	0	$0.00	$11.00	0	$0.00
U.1	Concrete Curb Cut & Small Splash Block Assembly	Each	1	$1,470.00	1	$1,470.00	$500.00	0	$0.00	$500.00	0	$0.00
X	4" Perforated (CPEP) Draintile w/o sock (Underdrain)	L.F.	65	$65.00	6	$390.00	$60.00	0	$0.00	$60.00	0	$0.00
Y	4" Solid (CPEP) Draintile w/o sock (Underdrain)	L.F.	37	$37.00	6	$222.00	$66.00	0	$0.00	$66.00	0	$0.00
Z	Draintile Clean Out	Each	1	$500.00	1	$500.00	$11.00	0	$0.00	$11.00	0	$0.00
AA	Connect Draintile to Catch Basin	Each	1	$1.00	150	$150.00	$5.00	0	$0.00	$5.00	0	$0.00
BB	Edging	L.F.	115	$128.00	9	$1,152.00	$30.00	0	$0.00	$30.00	0	$0.00
DD	#1 Cont. Perennial or Shrub (Furnish & Install)	Each	272	$16.00	287	$4,592.00	$14.50	0	$0.00	$14.50	0	$0.00
EE	#2 Cont. Shrub (Furnish & Install)	Each	58	$40.00	58	$2,320.00	$250.00	0	$0.00	$250.00	0	$0.00
FF	1.5" B&B Deciduous Tree (Furnish & Install)	Each	2	$525.00	2	$1,050.00	$550.00	0	$0.00	$550.00	0	$0.00
GG	Gate Valve w/ assemble	Each	1	$335.00	1	$335.00	$335.00	0	$0.00	$335.00	0	$0.00
II	Stump Grinding	Each	1	$125.00	1	$125.00	$125.00	0	$0.00	$125.00	0	$0.00
			SUBTOTAL	TOTAL		$30,313.00	TOTAL		$0.00	TOTAL		$0.00

Trinity Lutheran Church
Pay App Progress

Base Bid Items				Total Completed Through this Period								
				Invoice #1			Invoice #2			Invoice #3		
Item	Description	Unit	Quantity	Unit Price	Actual Quantity	Extension	Unit Price	Actual Quantity	Extension	Unit Price	Actual Quantity	Extension
A	Mobilization/Demobilization/Traffic Control/Erosion Control	L.S.	1	$2,000.00	0.00	$0.00	$2,000.00	0.5	$1,000.00	$2,000.00	0.00	$0.00
B	6" Sediment Control Log	L.F.	246	$4.00	0	$0.00	$4.00	120.0	$480.00	$4.00	0	$0.00
D	Remove Concrete Curb and Gutter	L.F.	43	$20.00	0	$0.00	$20.00	24.0	$480.00	$20.00	0	$0.00
F	Remove Flared End Section	Each	1	$75.00	0	$0.00	$75.00	1.0	$75.00	$75.00	0	$0.00
H	Sod Removal	S.Y.	768	$5.00	0	$0.00	$5.00	719.0	$3,595.00	$5.00	0	$0.00
	Remove Tree (greater than 6" DBH)	Each	1	$800.00	0	$0.00	$800.00	1.0	$800.00	$800.00	0	$0.00
I	Disposal of Excavated Materials Off-Site	C.Y.	195	$45.00	0	$0.00	$45.00	146.0	$6,570.00	$45.00	0	$0.00
J	Grading	Each	2	$300.00	0	$0.00	$300.00	1.0	$300.00	$300.00	0	$0.00
K	Soil Loosening	S.Y.	110	$1.00	0	$0.00	$1.00	245.0	$245.00	$1.00	0	$0.00
L	Concrete Paver Splash Block Assembly	Each	2	$1,470.00	0	$0.00	$1,470.00	3.0	$4,410.00	$1,470.00	0	$0.00
M	Clean Sand (Sand Trench)	C.Y.	28	$60.00	0	$0.00	$60.00	27.0	$1,620.00	$60.00	0	$0.00
O	4" Perforated (CPEP) Draintile w/o sock (Underdrain)	L.F.	58	$6.00	0	$0.00	$6.00	80.0	$480.00	$6.00	0	$0.00
P	4" Solid (CPEP) Draintile w/o sock (Underdrain)	L.F.	153	$6.00	0	$0.00	$6.00	37.0	$222.00	$6.00	0	$0.00
R	4" Draintile Catch Basin Connection	Each	1	$480.00	0	$0.00	$480.00	1.0	$480.00	$480.00	0	$0.00
S	Planting Soil (12" depth- 75% Sand, 25% Leaf compost- MnDOT Grade II)	C.Y.	77	$55.00	0	$0.00	$55.00	125.0	$6,875.00	$55.00	0	$0.00
T	Twice-Shredded Hardwood Mulch (3" depth)	C.Y.	26	$60.00	0	$0.00	$60.00	68.0	$4,080.00	$60.00	0	$0.00
U	4" Black Powder Coated Landscape Edging	L.F.	210	$10.00	0	$0.00	$10.00	328.0	$3,280.00	$10.00	0	$0.00
	Nyloplast Drainbasin	Each	1	$3,712.88	0	$0.00	$3,712.88	1.0	$3,712.88	$3,712.88	0	$0.00
V	Sod	S.Y.	469	$9.00	0	$0.00	$9.00	25.0	$225.00	$9.00	0	$0.00
X	#1 Cont. Perennial or Shrub	Each	631	$10.85	0	$0.00	$10.85	730.0	$7,920.50	$10.85	0	$0.00
EE	#2 Cont. Shrub (Furnish & Install)	Each	118	$29.40	0	$0.00	$29.40	118.0	$3,469.20	$29.40	0	$0.00
	Drain Tile Clean-Out	Each	2	$150.00	0	$0.00	$150.00	2.0	$300.00	$150.00	0	$0.00
Y	Inlet Protection	Each	2	$160.00	0	$0.00	$160.00	2.0	$320.00	$160.00	0	$0.00
			SUBTOTAL									
				TOTAL		$0.00	TOTAL		$50,939.58	TOTAL		$0.00

Application for Payment No. 15 - FINAL

Beltline and Battle Creek Repairs
Ramsey-Washington Metro Watershed District

Owner: Ramsey-Washington Metro Watershed District
Contractor: PCi Roads, LLC **Engineer:** Barr Engineering, Co.

For work accomplished through the date of September 4, 2018

1.0	Completed to Date:	$3,169,692.47
2.0	Less Previously Billed:	$3,140,106.28
3.0	Amount Completed This Period:	$29,586.19
4.0	Amount Previously Retained:	$16,645.80
5.0	Amount Retained This Period (See Note 1):	$0.00
6.0	Total Amount Retained:	$16,645.80
7.0	Retainage Released Through This Period:	$16,645.80
8.0	Less Total Retainage Remaining:	$0.00
9.0	Less Amounts Previously Paid:	$3,123,460.48
10.0	Amount Due This Estimate:	$46,231.99

Note 1: The specifications require 10% to be retained up to 50% of the project costs.

CONTRACTOR's Certification

The undersigned CONTRACTOR certifies that: (1) all previous progress payments received from OWNER on account of Work done under the Contract referred to above have been applied to discharge in full all obligations of CONTRACTOR incurred in connection with Work covered by prior Applications for Payment numbered 1 through 14 inclusive; (2) title to all Work, materials and equipment incorporated in said Work or otherwise listed in or covered by this Application for Payment will pass to OWNER at time of payment free and clear of all liens, claims, security interest and encumbrances (except such as are covered by Bond acceptable to OWNER indemnifying OWNER against any such lien, claim, security interest or encumbrance); and (3) all Work covered by this Application for Payment is in accordance with the Contract Documents and not defective as that term is defined in the Contract Documents.

SUBMITTED BY:
Name: Leo Flynn Date: 9/14/18
Title: Project Coordinator
Contractor: PCi Roads, LLC
Signature: Leo B. Flynn

RECOMMENDED BY:
Name: Nathan Campeau Date: 9/17/18
Title: Project Engineer
Engineer: Barr Engineering Co.
Signature:

APPROVED BY:
Name: Mari Ebensteiner Date:
Title: President
Owner: Ramsey-Washington Metro Watershed District
Signature:

Beltline and Battle Creek Repairs
Ramsey-Washington Metro Watershed District
Summary of Work Completed Through September 4, 2018 for Progress Payment No. 15

				PCi Roads, LLC		(1) Total Completed This Period		(2) Total Completed Previous Periods		(3) Total Completed To Date	
Item	ITEM DESCRIPTION	UNIT	ESTIMATED QUANTITY	UNIT COST	EXTENSION	Quantity		Quantity		Quantity	
A	Mobilization	LS	1	$ 280,000.00	$ 280,000.00	0	$0.00	1	$280,000.00	1	$280,000.00
B	Water Management	LS	1	$ 5,000.00	$ 5,000.00	0	$0.00	1	$5,000.00	1	$5,000.00
C	Erosion Control	LS	1	$ 35,000.00	$ 35,000.00	0	$0.00	1	$35,000.00	1	$35,000.00
D	Traffic Control	LS	1	$ 25,000.00	$ 25,000.00	0	$0.00	1	$25,000.00	1	$25,000.00
E	Cold Joint Orientation Core Hole	EA	90	$ 440.00	$ 39,600.00	0	$0.00	0	$0.00	0	$0.00
F	Crack Repair - Hydrophobic	LF	12500	$ 65.00	$ 812,500.00	0	$0.00	13440.85	$873,655.25	13440.85	$873,655.25
F	Crack Repair - Hydrophilic	LF	5000	$ 65.00	$ 325,000.00	0	$0.00	3448.25	$224,136.25	3448.25	$224,136.25
G	Chemical Grout – Hydrophobic	GAL	3000	$ 50.00	$ 150,000.00	0	$0.00	2193	$109,650.00	2193	$109,650.00
G	Chemical Grout – Hydrophilic	GAL	1200	$ 50.00	$ 60,000.00	0	$0.00	638	$31,900.00	638	$31,900.00
H	Concrete Surface Repair*	SF	13000	$ 63.00	$ 819,000.00	0	$0.00	10098.25	$636,189.75	10098.25	$636,189.75
I	Cementitious Mortar Patch	EA	20	$ 1,000.00	$ 20,000.00	0	$0.00	15	$15,000.00	15	$15,000.00
J	Manhole Steps	EA	391	$ 84.00	$ 32,844.00	0	$0.00	316	$26,544.00	316	$26,544.00
K	Root Removal	LS	1	$ 5,000.00	$ 5,000.00	0	$0.00	0.95	$4,750.00	0.95	$4,750.00
L	Encrustation Demolition and Disposal	LS	1	$ 35,000.00	$ 35,000.00	0	$0.00	1	$35,000.00	1	$35,000.00
M	Precast Joint Repairs	LF	200	$ 56.00	$ 11,200.00	0	$0.00	440.3	$24,656.80	440.3	$24,656.80
N	Rubble Removal (Station 14+94)	LS	1	$ 5,000.00	$ 5,000.00	0	$0.00	1	$5,000.00	1	$5,000.00
N	Rubble Removal (Station 15+87)	LS	1	$ 2,000.00	$ 2,000.00	0	$0.00	1	$2,000.00	1	$2,000.00
N	Rubble Removal (Station 89+76)	LS	1	$ 2,000.00	$ 2,000.00	0	$0.00	0	$0.00	0	$0.00
N	Rubble Removal (Station 454+65)	LS	1	$ 2,000.00	$ 2,000.00	0	$0.00	1	$2,000.00	1	$2,000.00
N	Rubble Removal (Station 454+94)	LS	1	$ 2,000.00	$ 2,000.00	0	$0.00	1	$2,000.00	1	$2,000.00
O	Point Repair	EA	27	$ 900.00	$ 24,300.00	0	$0.00	22	$19,800.00	22	$19,800.00
O	Point Repair (Station 50+61)	EA	1	$ 1,585.00	$ 1,585.00	0	$0.00	1	$1,585.00	1	$1,585.00
O	Point Repair (Station 79+65)	EA	1	$ 1,585.00	$ 1,585.00	0	$0.00	1	$1,585.00	1	$1,585.00
O	Point Repair (Station 446+15)	EA	1	$ 1,585.00	$ 1,585.00	0	$0.00	1	$1,585.00	1	$1,585.00
O	Point Repair (Station 449+12)	EA	1	$ 1,585.00	$ 1,585.00	0	$0.00	1	$1,585.00	1	$1,585.00
O	Point Repair (Station 44+97)	EA	1	$ 1,585.00	$ 1,585.00	0	$0.00	1	$1,585.00	1	$1,585.00
P	Invert Repair (Station 63+92)	SF	15	$ 1,000.00	$ 15,000.00	0	$0.00	15	$15,000.00	15	$15,000.00
P	Invert Repair (Station 450+94)	SF	64	$ 500.00	$ 32,000.00	0	$0.00	78	$39,000.00	78	$39,000.00
Q	Uncover Manhole	EA	4	$ 1,800.00	$ 7,200.00	0	$0.00	4	$7,200.00	4	$7,200.00
R	Adjust Manhole Height	EA	4	$ 1,800.00	$ 7,200.00	0	$0.00	2	$3,600.00	2	$3,600.00
S	CCTV Inspection	LS	1	$ 35,000.00	$ 35,000.00	0.1	$3,500.00	0.9	$31,500.00	1	$35,000.00
BASE BID TOTAL					**$ 2,796,769.00**		**$3,500.00**		**$2,461,507.05**		**$2,465,007.05**

Beltline and Battle Creek Repairs
Ramsey-Washington Metro Watershed District
Summary of Work Completed Through September 4, 2018 for Progress Payment No. 15

				PCi Roads, LLC		(1) Total Completed This Period		(2) Total Completed Previous Periods		(3) Total Completed To Date	
Item	**ITEM DESCRIPTION**	**UNIT**	**ESTIMATED QUANTITY**	**UNIT COST**	**EXTENSION**	**Quantity**		**Quantity**		**Quantity**	
BID ALTERNATE #1: REINFORCEMENT STEEL											
Item	**ITEM DESCRIPTION**	**UNIT**	**ESTIMATED QUANTITY**	**UNIT COST**	**EXTENSION**						
T	Reinforcement Seal - 6 in.	EA	264	$ 12.00	$ 3,168.00	0	$0.00	1692	$20,304.00	1692	$20,304.00
T	Reinforcement Seal - 12 in.	EA	2197	$ 24.00	$ 52,728.00	0	$0.00	1750	$42,000.00	1750	$42,000.00
T	Reinforcement Seal - 24 in.	EA	882	$ 48.00	$ 42,336.00	0	$0.00	995	$47,760.00	995	$47,760.00
T	Reinforcement Seal - 36 in.	EA	252	$ 70.00	$ 17,640.00	0	$0.00	538	$37,660.00	538	$37,660.00
	BID ALTERNATE #1				**$ 115,872.00**		**$0.00**		**$147,724.00**		**$147,724.00**
	TOTAL BASE BID PLUS BID ALTERNATE #1				**$ 2,912,641.00**		**$3,500.00**		**$2,609,231.05**		**$2,612,731.05**
CHANGE ORDER - ADDITIONAL ITEMS											
1-2	Deep Concrete Surface Repair*	SF	3,000	$ 87.00	$ 261,000.00	0	$0.00	3000	$261,000.00	3000	$261,000.00
2-2	Beaver Lake Branch Deep Concrete Surface Repair Exceeding 3,000 SF	SF	0	$ 63.00	$ -	0	$0.00	1831.75	$115,400.25	1831.75	$115,400.25
2-3	Repair a Void at Station 440+95	LS	1	$ 14,600.00	$ 14,600.00	0	$0.00	1	$14,600.00	1	$14,600.00
3-1	Beaver Lake Branch Crack Sealing	LS	1	$ 119,724.98	$ 119,724.98	0	$0.00	1	$119,724.98	1	$119,724.98
4-2	Additional Battle Creek Point Repairs	EA	23	$ 650.00	$ 14,950.00	0	$0.00	31	$20,150.00	31	$20,150.00
7-1	Mississippi Branch Crack Sealing and Concrete Surface Repair	EA	1	$ 26,086.19	$ 26,086.19	1	$26,086.19	0	$0.00	1	$26,086.19
	SUBTOTAL CHANGE ORDERS				**$ 436,361.17**		**$26,086.19**		**$530,875.23**		**$556,961.42**
	TOTAL BASE BID PLUS BID ALTERNATE #1, PLUS CHANGE ORDERS				**$ 3,349,002.17**		**$29,586.19**		**$3,140,106.28**		**$3,169,692.47**
	RETAINAGE (10% Retainage, up to 50% of Work Completion)				**$ 167,450.11**		**-$16,645.80**		**$16,645.80**		**$0.00**
	TOTAL AMOUNT DUE:						**$46,231.99**		**$3,123,460.48**		**$3,169,692.47**

*Change Order 1-2 results in an estimated reduction of Item H of 3,000 SF, for an estimated reduction of $189,000. This results in an estimated net increase of $72,000.

CMAC FILTRATION BMP AT WILLOW POND
Progress Payment Number 1

1.0	Total Completed Through This Period:	$65,428.35		
2.0	Total Completed Previously Completed:		$0.00	
3.0	Total Completed This Period:			$65,428.35
4.0	Amount Previously Retained:		$0.00	
5.0	Amount Retained This Period (See Note 1):			$6,542.84
6.0	Total Amount Retained (See Note 2):		$6,542.84	
7.0	Retainage Released Through This Period:			$0.00
8.0	Total Retainage Remaining:		$6,542.84	
9.0	Amounts Previously Paid:	$0.00		
10.0	Amount Due This Estimate:			$58,885.51

Note 1: At rate of 10% until Completed to Date equals 50% of current Contract Price and a rate of 0% thereafter.

Note 2: Maximum amount is 5% of current Contract Price ($279,049.00)

SUBMITTED BY:

Name: Jonathan M. Peterson Date: _____

Title: President

Contractor: Peterson Companies, Inc.

Signature: _____

RECOMMENDED BY:

Name: Brad Lindaman Date: _____

Title: District Engineer

Engineer: Barr Engineering Company

Signature: _____

APPROVED BY:

Name: Marj Ebensteiner Date: _____

Title: President

Owner: Ramsey-Washington Metro Watershed District

Signature: _____

CMAC FILTRATION BMP AT WILLOW POND
RAMSEY-WASHINGTON METRO WATERSHED DISTRICT
Summary of Work Completed Through September 25, 2018 for Progress Payment Number 1

						(1) Total Completed Through This Period		(2) Total Completed Previous Period		(3) Total Completed This Period	
Item	Description	Unit	Estimated Quantity	Unit Price	Extension	Quantity	Amount	Quantity	Amount	Quantity	Amount
A	Mobilization/Demobilization	L.S.	1	37,080.09	37,080.09	0.38	$14,086.55	0	$0.00	0.3798952	$14,086.55
B	Erosion Control Construction Entrance	Each	1	2,500.00	2,500.00	1	$2,500.00	0	$0.00	1	$2,500.00
C	Erosion Control Silt Fence	L.F.	884	4.00	3,536.00	640	$2,560.00	0	$0.00	640	$2,560.00
D	Double Row Floatation Silt Curtain	L.F.	164	11.74	1,925.36	0	$0.00	0	$0.00	0	$0.00
E	Inlet Protection	Each	1	125.00	125.00	0	$0.00	0	$0.00	0	$0.00
F	Erosion Control Blanket	S.Y.	90	3.50	315.00	0	$0.00	0	$0.00	0	$0.00
G	Traffic Control	L.S.	1	2,000.00	2,000.00	1	$2,000.00	0	$0.00	1	$2,000.00
H	Control of Water	L.S.	1	23,666.12	23,666.12	0	$0.00	0	$0.00	0	$0.00
I	Tree Removal (8" diameter or greater)	Each	6	375.81	2,254.86	21	$7,892.01	0	$0.00	21	$7,892.01
J	Clear and Grub	S.Y.	1,003	6.17	6,188.51	1,003	$6,188.51	0	$0.00	1003	$6,188.51
K	Remove & Salvage Topsoil (P)	S.Y.	673	4.14	2,786.22	673	$2,786.22	0	$0.00	673	$2,786.22
L	Remove and Dispose of 12" RCP	L.F.	9	48.67	438.03	0	$0.00	0	$0.00	0	$0.00
M	Sawcut, Remove and Dispose of Asphalt Trail	S.Y.	40	8.65	346.00	0	$0.00	0	$0.00	0	$0.00
N	60 inch Precast Manhole with Access Door	Each	1	10,041.00	10,041.00	0	$0.00	0	$0.00	0	$0.00
O	Precast Concrete Weir and FRP Stop Log	L.S.	1	8,291.00	8,291.00	0	$0.00	0	$0.00	0	$0.00
P	48 inch Precast Manholes with Casting and Frame (Neenah R-1537)	Each	2	4,570.50	9,141.00	0	$0.00	0	$0.00	0	$0.00
Q	48-inch Precast Manhole with Access Door	Each	1	6,386.00	6,386.00	0	$0.00	0	$0.00	0	$0.00
R	12 inch Corrugated Polyethylene Pipe (CPEP) Dual-Wall (Smooth Interior)	L.F.	176	32.74	5,762.24	0	$0.00	0	$0.00	0	$0.00
S	12" CMP FES	Each	1	760.00	760.00	0	$0.00	0	$0.00	0	$0.00
T	Trash Guard for 12" CMP FES	Each	1	66.00	66.00	0	$0.00	0	$0.00	0	$0.00
U	12 inch Ductile Iron Pipe (DIP)	L.F.	71	73.03	5,185.13	0	$0.00	0	$0.00	0	$0.00
V	12 inch Cast Iron Plug Valve with Epoxy Lining & Coating w/Box ASM	Each	1	4,896.00	4,896.00	0	$0.00	0	$0.00	0	$0.00
W	Install 12 inch Butterfly Valve and Electrical Actuator (provided by others)	L.S.	1	1,576.00	1,576.00	0	$0.00	0	$0.00	0	$0.00
X	Existing Pipe Connection	Each	1	1,314.00	1,314.00	0	$0.00	0	$0.00	0	$0.00
Y	Stormwater Filter Piping and Fittings, All Complete	L.S.	1	11,011.00	11,011.00	0	$0.00	0	$0.00	0	$0.00
Z	Insulate Existing Sanitary Sewer	Each	1	599.00	599.00	0	$0.00	0	$0.00	0	$0.00
AA	Common Excavation for Filter (P)	C.Y.	376	64.72	24,334.72	376	$24,334.72	0	$0.00	376	$24,334.72
AB	Off-site Disposal of Excavated Material (P)	C.Y.	284	16.27	4,620.68	142	$2,310.34	0	$0.00	142	$2,310.34
AC	Geosynthetic Clay Liner (P)	S.Y.	662	43.12	28,545.44	0	$0.00	0	$0.00	0	$0.00
AD	Drain Filter	Ton	93	60.18	5,596.74	0	$0.00	0	$0.00	0	$0.00
AE	Plastic Netting	S.Y.	275	3.11	855.25	0	$0.00	0	$0.00	0	$0.00
AF	Spent Lime	L.S.	1	7,206.00	7,206.00	0	$0.00	0	$0.00	0	$0.00
AG	Class III Riprap	Ton	5	302.99	1,514.95	0	$0.00	0	$0.00	0	$0.00
AH	Asphalt Trail Paving	S.Y.	40	78.00	3,120.00	0	$0.00	0	$0.00	0	$0.00
AI	Electrical installation	L.S.	1	12,500.00	12,500.00	0	$0.00	0	$0.00	0	$0.00
AJ	Instrumentation Installation and Controls	L.S.	1	5,144.00	5,144.00	0	$0.00	0	$0.00	0	$0.00

CMAC FILTRATION BMP AT WILLOW POND
RAMSEY-WASHINGTON METRO WATERSHED DISTRICT
Summary of Work Completed Through September 25, 2018 for Progress Payment Number 1

						(1) Total Completed Through This Period		(2) Total Completed Previous Period		(3) Total Completed This Period	
Item	**Description**	**Unit**	**Estimated Quantity**	**Unit Price**	**Extension**	**Quantity**	**Amount**	**Quantity**	**Amount**	**Quantity**	**Amount**
AK	Helical Piles with Void Filling Material	L.S.	1	8,127.00	8,127.00	0	$0.00	0	$0.00	0	$0.00
AL	Import Common Topsoil Borrow	C.Y.	45	23.94	1,077.30	0	$0.00	0	$0.00	0	$0.00
AM	Shoreline Seed Mix (Furnish & Install)	S.Y.	41	19.00	779.00	0	$0.00	0	$0.00	0	$0.00
AN	Woodland Seed Mix (Furnish & Install)	S.Y.	1,355	3.00	4,065.00	0	$0.00	0	$0.00	0	$0.00
AO	Tree with Trunk Protection, #20 Container	Each	4	585.00	2,340.00	0	$0.00	0	$0.00	0	$0.00
AP	#2 Container Shrub	Each	30	65.00	1,950.00	0	$0.00	0	$0.00	0	$0.00
AQ	Shrub Protection Fencing	LF	320	5.40	1,728.00	0	$0.00	0	$0.00	0	$0.00
AR	12 inch Backflow Preventer	Each	1	2,138.00	2,138.00	0	$0.00	0	$0.00	0	$0.00
AS	Sedimentation Log	LF	60	5.00	300.00	154	$770.00	0	$0.00	154	$770.00
AT	Trail Protection	L.S.	1	13,830.36	13,830.36	0	$0.00	0	$0.00	0	$0.00
AU	15” CMP FES	Each	1	1,087.00	1,087.00	0	$0.00	0	$0.00	0	$0.00
			TOTAL BASE BID		**279,049.00**	**TOTAL EXT. =**	**$65,428.35**		**$0.00**		**$65,428.35**

Galowitz Olson, PLLC
10390 39th Street North
Lake Elmo, Minnesota 55042
Office: (651) 777-6960
Fax: (651) 777-8937

Ramsey-Washington Metro Watershed District
C/O Tina Carstens
2665 Noel Drive
Little Canada MN 55117

September 25, 2018
File No: 9M

	Balance
General Account	$457.00
RWMWD CAPITAL IMPROVEMENTS PROGRAM	$408.00
Beltline Project	$720.00
Willow Pond	$280.00
	$1,865.00

****

Permit Program

****

RAMSEY-WASHINGTON
METRO WATERSHED DISTRICT

MEMORANDUM

Date: October 10, 2018

To: Board of Managers and Staff

From: Nicole Soderholm, Permit Coordinator

Subject: September Enforcement Action Report

During September 2018:

Number of Violations:	**12**
Install/Maintain Inlet Protection	3
Install/Maintain Perimeter Control	3
Install/Maintain Construction Entrance	2
Sweep Streets	1
Contain Liquid/Solid Wastes	1
Remove Discharged Sediment	2

Ongoing Activities:

Erosion/sediment control inspections and enforcement, permitting assistance to private developers and public entities, permit review with Barr Engineering, miscellaneous inquiries, WCA administration, collaboration with CRWD for proposed permit rule changes, permit close-outs, joint TAC meeting, ESC Advisory Board meeting, BWSR wetland bank stakeholder meeting

Project Updates:

Permit #17-08 Met Council Interceptors 7122 & 8151 Rehabilitation, Maplewood/Vadnais Heights/White Bear Lake

Work continues on the Met Council's sanitary sewer rehab project. The majority of disturbance is along the east side of Keller Lake along southbound Hwy 61. District staff met with the contractor and Met Council's inspector on September 27th to assess erosion control. The contractor has started to remove jersey barriers in order to restore sections of the project area that are complete. Restoration will continue this fall. Weather-dependent, the

project will be substantially complete and permanently stabilized before the winter. A final check of the restoration will take place in 2019 when vegetation is established.

Permit #17-24 Artis Senior Living, Woodbury

The permit for the proposed Artis senior living facility in Woodbury was issued on September 26th. District staff met with the contractor on September 28th to inspect silt fence, erosion control, and to discuss the stormwater permit requirements for the project. The site was in compliance.

Permit #15-39 Conifer Ridge, Maplewood

A final punchlist was generated from a September 24th site visit to the substantially complete apartment project off Hazelwood Street and County Road D. The contractor will need to monitor newly seeded areas for 70% vegetation establishment before a final inspection can be scheduled. In addition, as-built plans and BMP maintenance information was requested. The project involved construction of 3 filtration basins. Plants within one of the basins looked unhealthy, so District staff will assess this again during the final inspection of the site.

Permit #16-22 Woodbury Medical Office Building

Phase 2 of the Woodbury Medical Office Building development is expected to begin this fall. District staff completed a final inspection of the Phase 1 area on July 31st. Two filtration basins and one underground filtration system were constructed for Phase 1. An additional underground filtration system will be constructed for Phase 2 and will be covered under the same #16-22 permit as intended. District staff have reviewed the final Phase 2 plans and confirmed the design continues to meet District permit requirements.

Permit #17-23 Rose Place Townhomes, Roseville

Work continues on the Rose Place townhomes project near Hwy 36 & Lexington Ave N. Repeat violations have occurred on the site including lack of adequate perimeter control, inlet protection, and anti-sediment tracking practices. District staff completed a number of inspections in September with minimal response from the contractor. On September 28th, the City of Roseville threatened to make the site repairs and bill the permit holder for the work if corrective actions were not completed in 48 hours. District staff will continue to work with the City of Roseville on additional enforcement if the site continues to be a problem.

Permit #18-19 Roseville Area High School Remodel

The permit for the proposed Roseville Area High School improvements was issued on September 20th. District staff met with the contractor on September 27th to inspect silt fence, inlet protection, and to discuss the stormwater permit requirements for the project. The site was in compliance. Barr continues to look at additional stormwater treatment possibilities that could be covered under a District grant. The site is within the Bennett Lake subwatershed.

Permits Closed in September 2018:

15-14 Whispering Pines, Little Canada
17-13 Shoreview 2017 SIP

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Stewardship Grant Program

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BMP Incentive Application Summary

Project Name: McGuire **Application Number:** 18-21 CS

Board Meeting Date: 10/10/2018

Applicant Name: Kara McGuire

Residential ☑ **Commercial/Government** ☐

Project Overview:

This project is located just west of Keller Lake in the City of Maplewood. The applicant is interested in installing two projects. The first would be a rain garden to collect roof and driveway runoff. The second project would be a habitat restoration project in a steep area of the yard. The project would eliminate some erosion issues on the slope as well as decrease the need for the applicant to mow the steep slope. The applicant plans to hire the same contractor to do at least two years of maintenance on the projects.

The rain garden is eligible for 75% coverage and the habitat restoration area is eligible for 50% coverage up to $15,000.

BMP type(s):

Native Buffer(1), Rain Garden(1)

Grant Request:

$8,841.00

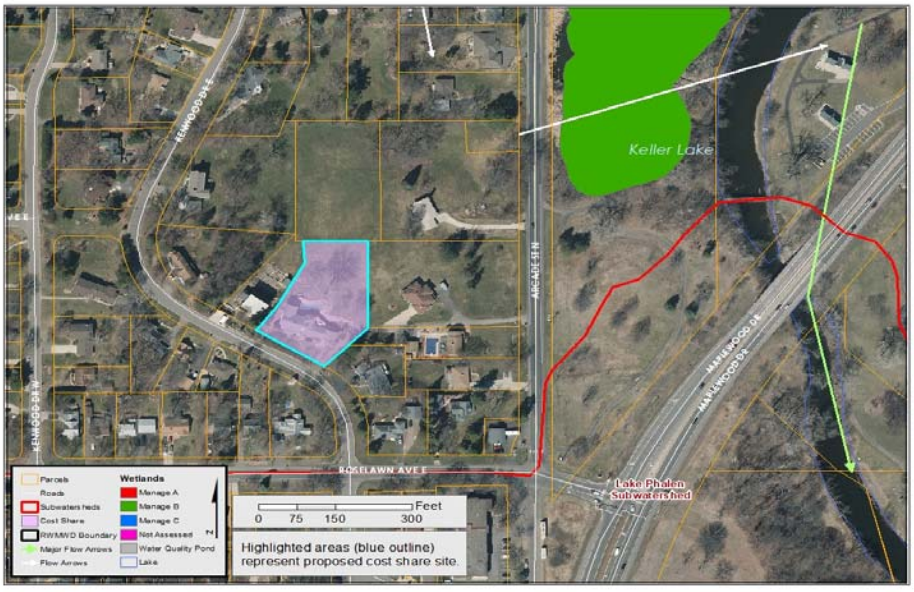
Recommendation:

Staff recommends approval of this application.

Subwatershed:

Keller Lake

Location Maps:



#18-21CS

Ramsey Conservation District

RAMSEY CONSERVATION DISTRICT
1425 PAUL KIRKWOLD DR
ARDEN HILLS, MN 55112
651-266-7274
www.ramseyconservation.org

PROJECT: MCGUIRE RESIDENCE
LOCATION:
1946 E. KENWOOD DR.
MAPLEWOOD, MN 55117
WATERSHED DISTRICT:

RAMSEY-WASHINGTON
METRO WATERSHED DISTRICT

DESIGNER: BTO
DATE: 09/07/18
REVISION:
REVISION:
REVISION:
REVISION:
REVISION:
CHECKED BY: MPS
TAA:

NOTES:
-ELEVATIONS ARE APPROXIMATE
-SIZE AND SHAPE OF RAINGARDEN MAY VARY
-MAINTAIN SQUARE FEET AND PONDING DEPTH
-UTILITY LOCATIONS ARE APPROXIMATE, CONFIRM UTILITY LOCATIONS PRIOR TO WORK
-EXCAVATE WITH TRACKED EQUIPMENT ONLY
-ORIGINAL SHEET SIZE: 11"x17"

SCALE: 1"=20'-0"

SITE PLAN

N

L1.1

BMP Incentive Application Summary

Project Name: Biga **Application Number:** 18-22 CS

Board Meeting Date: 10/10/2018

Applicant Name: Richard Biga

Residential ☑ **Commercial/Government** ☐

Project Overview:

This project is located off White Bear Avenue and Upper Afton Road in the City of St. Paul. The applicant is proposing to install three rain gardens and some native planting areas. One rain garden will have a curb cut to collect street runoff from White Bear Avenue. The other rain gardens will capture roof drainage, which normally runs straight to the storm sewer. The native planting areas will also help filter the roof runoff and will help stabilize areas of erosion on the property. The applicant plans to hire the same contractor to do maintenance for the first few years after the project is complete.
The rain gardens are eligible for 75% coverage and the habitat restoration area is eligible for 50% coverage up to $15,000. The cost of the curb cut is eligible for 100% coverage.

BMP type(s):

Native Buffer(1), Rain Garden(3)

Grant Request:

$15,000.00

Recommendation:

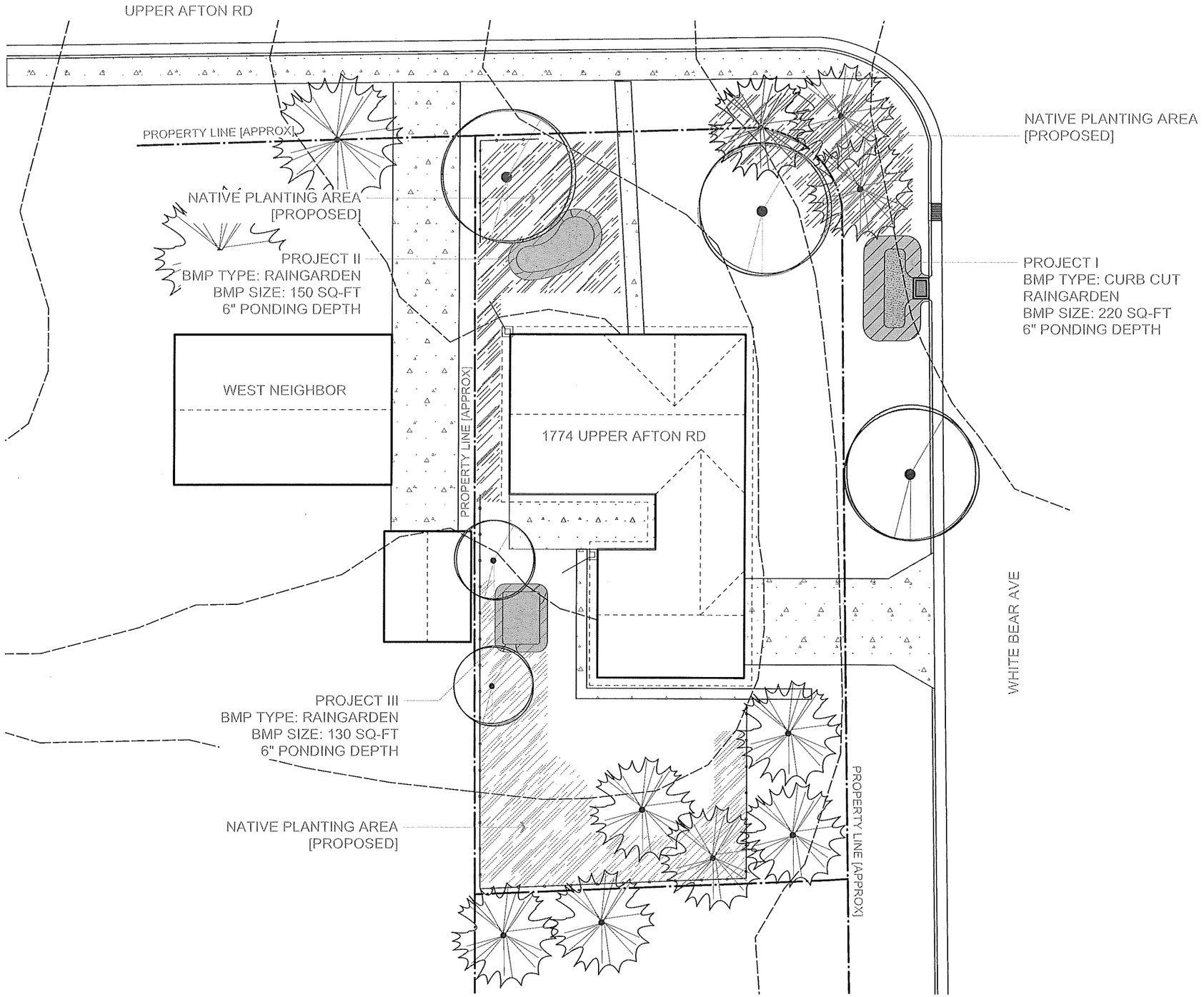
Staff recommends approval of this application.

Subwatershed:

Battle Creek

Location Maps:

#118-22CS



Ramsey Conservation District

RAMSEY CONSERVATION DISTRICT
1425 PAUL KIRKWOLD DR
ARDEN HILLS, MN 55112
651-266-7274
www.ramseyconservation.org

PROJECT: CURCI RESIDENCE
LOCATION:
1774 UPPER AFTON RD
ST PAUL, MN 55106

WATERSHED DISTRICT:

RAMSEY-WASHINGTON
METRO WATERSHED DISTRICT

DESIGNER: MPS
DATE: 07/23/18
REVISION:
REVISION:
REVISION:
REVISION:
REVISION:
CHECKED BY:
TAA:

NOTES:
LANDOWNER TO AQCUIRE ALL NECESSARY PERMITS FROM CITY PRIOR TO START

UTILITIES WITHIN OR NEAR CONSTRUCTION AREA SHALL BE POTHOLED TO FIND EXACT LOCATION

TRACK EQUIPMENT ONLY WITHIN PROJECT AREA.

11" x 17" SHEET SIZE

SCALE: 1"=20'0"

SITE PLAN

N

L1.1

BMP Incentive Application Summary

Project Name: Finsness **Application Number:** 18-23 CS

Board Meeting Date: 10/10/2018

Applicant Name: Paul Finsness

Residential ☑ **Commercial/Government** ☐

Project Overview:

This project is located just west of Lake Phalen in the City of St. Paul. The applicant has a degrading 36 year old bituminous driveway and is interested in replacing it with a permeable driveway system to help treat runoff which would normally drain straight to Lake Phalen. The applicant is proposing to use permeable pavers for this project and plans to have the contractor perform maintenance for at least two years after installation.

This project is eligible for 75% coverage up to $15,000.

BMP type(s):

Porous Pavers(1)

Grant Request:

$9,057.00

Recommendation:

Staff recommends approval of this application.

Subwatershed:

Lake Phalen

Location Maps:

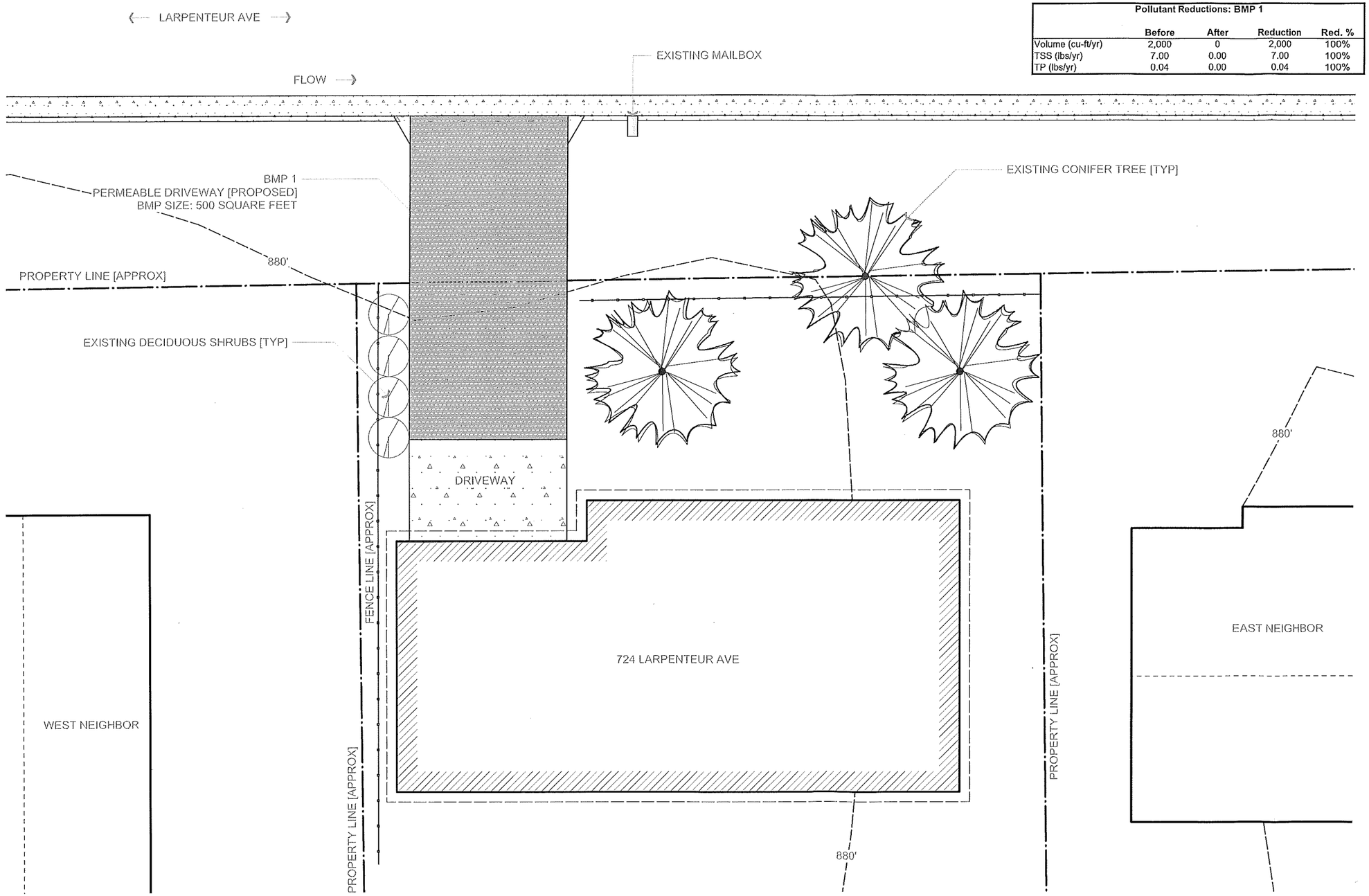
#18-23 CS

Watershed Data	BMP 1		
Target Rainfall		2.5	in
Soil Type:		A	HSG:
Soil IR		1.00	in/hr

Surface	Sq-ft	Acre	CN
Roof	230	0.005	98
Driveway	660	0.015	98
Total	890	0.020	
% Imp	100%		

Pollutant Reductions: BMP 1

	Before	After	Reduction	Red. %
Volume (cu-ft/yr)	2,000	0	2,000	100%
TSS (lbs/yr)	7.00	0.00	7.00	100%
TP (lbs/yr)	0.04	0.00	0.04	100%



Ramsey Conservation District

RAMSEY CONSERVATION DISTRICT
1425 PAUL KIRKWOLD DR
ARDEN HILLS, MN 55112
651-266-7274
www.ramseyconservation.org

PROJECT: FINSNESS RESIDENCE
LOCATION:
734 LARPENTEUR AVE E
SAINT PAUL, MN 55117

WATERSHED DISTRICT:

RAMSEY-WASHINGTON METRO WATERSHED DISTRICT

DESIGNER: MPS
DATE: 08/13/2018
REVISION:
REVISION:
REVISION:
REVISION:
REVISION:
CHECKED BY:
TAA:

NOTES:
CONTRACTOR TO ACQUIRE ALL NECESSARY PERMITS PRIOR TO START

CONTRACTOR TO LOCATE AND VERIFY UTILITIES ONSITE PRIOR TO CONSTRUCTION.

ALL UTILITIES PRESENT WITHIN WORK AREA SHALL BE POTHOLED TO VERIFY LOCATION AND DEPTH

ORIGINAL SHEET SIZE: 11" x 17"

SCALE: 1"=10'0"

SITE PLAN

N

L1.1

BMP Incentive Application Summary

Project Name: Richardson Elementary Addition **Application Number:** 18-24 CS

Board Meeting Date: 10/10/2018

Applicant Name: Randy Anderson

Residential ☐ **Commercial/Government** ☑

Project Overview:

This project is located off 17th Avenue East and 1st Street North in the City of St. Paul. Richardson Elementary will be undergoing a major renovation. The stormwater management system for the renovation includes two filtration basins that were previously approved as part of Permit #18-22. To supplement the stormwater management, the applicant is proposing to install a stormwater reuse system. The collected runoff will be used to irrigate existing landscape areas on the property.

This project is a school in a priority area and is eligible for 100% funding through our school retrofit grants.

BMP type(s):

Stormwater Reuse Irrigation(1)

Grant Request:

$200,000.00

Recommendation:

Staff recommends approval of this application.

Subwatershed:

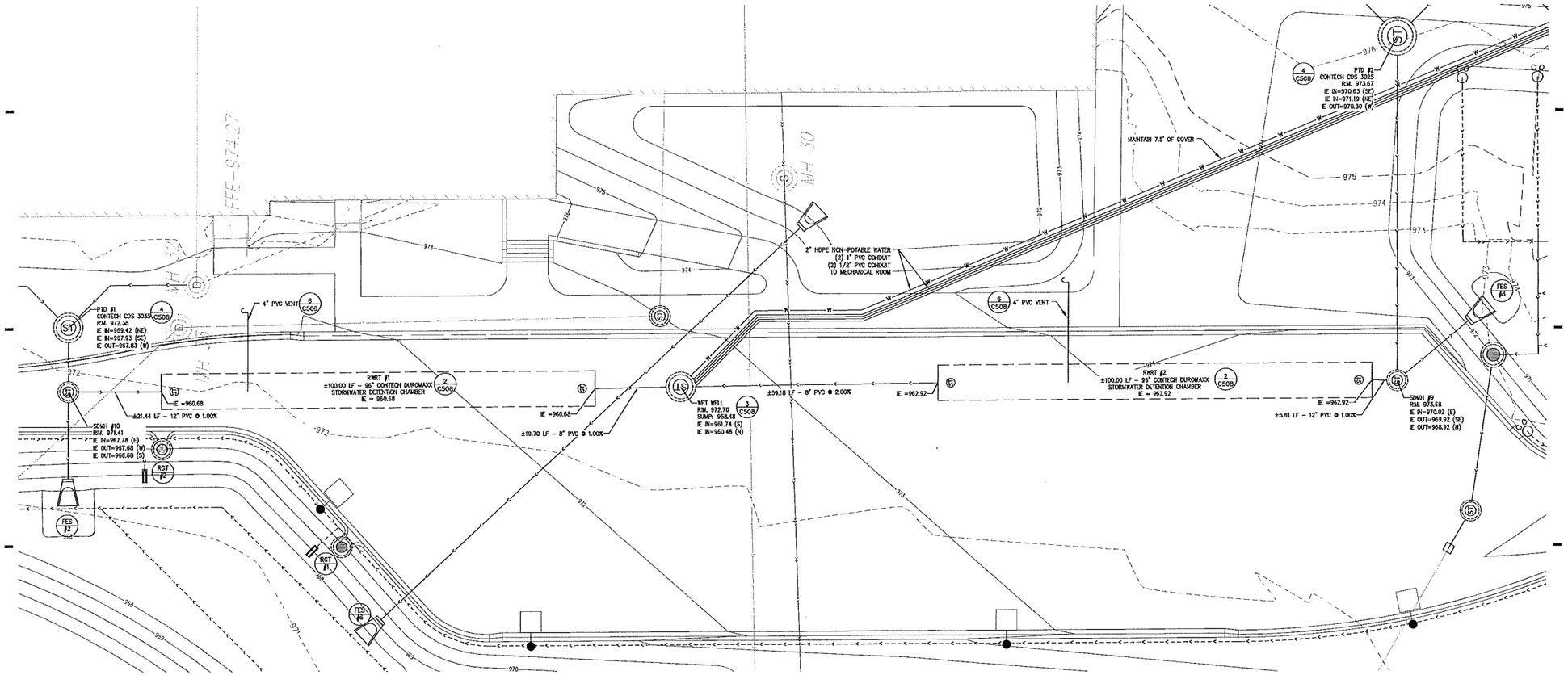
Kohlman Creek

Location Maps:

#18-24 CS

SHEET NOTES

1. NOT ALL PIPE FITTINGS ARE SHOWN ON THIS DRAWING. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY PIPE FITTINGS TO COMPLETE THE WORK.



1 RE-USE SYSTEM

WARNING

LOCATION OF ALL UNDERGROUND UTILITIES SHALL BE VERIFIED BY THE CONTRACTOR.
CALL BEFORE DIGGING

MINNESOTA ONE-CALL SYSTEM
1-800-252-1166
REQUIRED BY MN STATUTE 216D

N

0 5' 10' 20'

LHB
PERFORMANCE DRIVEN DESIGN.
LHBcorp.com
701 Washington Ave. N, Ste 200 | Minneapolis, MN 55401 | 612.338.2029

MECHANICAL AND FIRE PROTECTION ENGINEERS

HALLBERG ENGINEERING
Mechanical/Electrical Consulting Engineers
1750 Commerce Court
White Bear Lake, MN 55110
(651) 748-1160 / Fax: (651) 748-4370

LJG DESIGN, LLC
FOODSERVICE FACILITIES CONSULTING & DESIGN

Adolfson & Peterson Construction
6701 West 23rd Street | Minneapolis, MN 55426

CLIENT:
NORTH ST. PAUL - MAPLEWOOD - OAKDALE ISD 622

2520 EAST 12TH AVENUE
NORTH ST. PAUL MN 55109

THIS SQUARE APPEARS 1/2" x 1/2" ON FULL SIZE SHEETS.

NO	DATE	ISSUED FOR
1	09/13/2018	BID PACKAGE #1 ADDENDUM #1

NO	DATE	REVISION

I HEREBY CERTIFY that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

SIGNATURE:

TYPED OR PRINTED NAME: ADAM BESSE

DATE: 09/13/2018 REG. NO.: 52597

PROJECT NAME:
RICHARDSON ELEMENTARY SCHOOL ADDITION AND RENOVATION

2615 1ST STREET N
NORTH ST. PAUL MN 55109

DRAWING TITLE:
REUSE SYSTEM PLAN

FILE: J:\170756\030\Drawing\C\170756 C312 ReUse System.dwg
DRAWN BY: DPG
CHECKED BY: AFB
PROJ. NO: 170756
DRAWING NO.

C312

BMP Incentive Application Summary

Project Name: Adam's Food and Fuel **Application Number:** 18-25 CS

Board Meeting Date: 10/10/2018

Applicant Name: Hussein Khatib

Residential ☐ **Commercial/Government** ☑

Project Overview:

This project is located off 3rd Street East and Etna Avenue in the City of St. Paul. The applicant is proposing an addition to an existing building. The project is under one acre of disturbance so will not trigger a District grading permit. The applicant plans to install a rain garden to treat roof runoff. The property has a gas station onsite, but runoff from the fueling area does not flow towards the rain garden. RWMWD will provide two years of maintenance for the rain garden.

This project is in a priority area for our equity initiative and is eligible for 100% funding.

BMP type(s):

Rain Garden(1)

Grant Request:

$25,000.00

Recommendation:

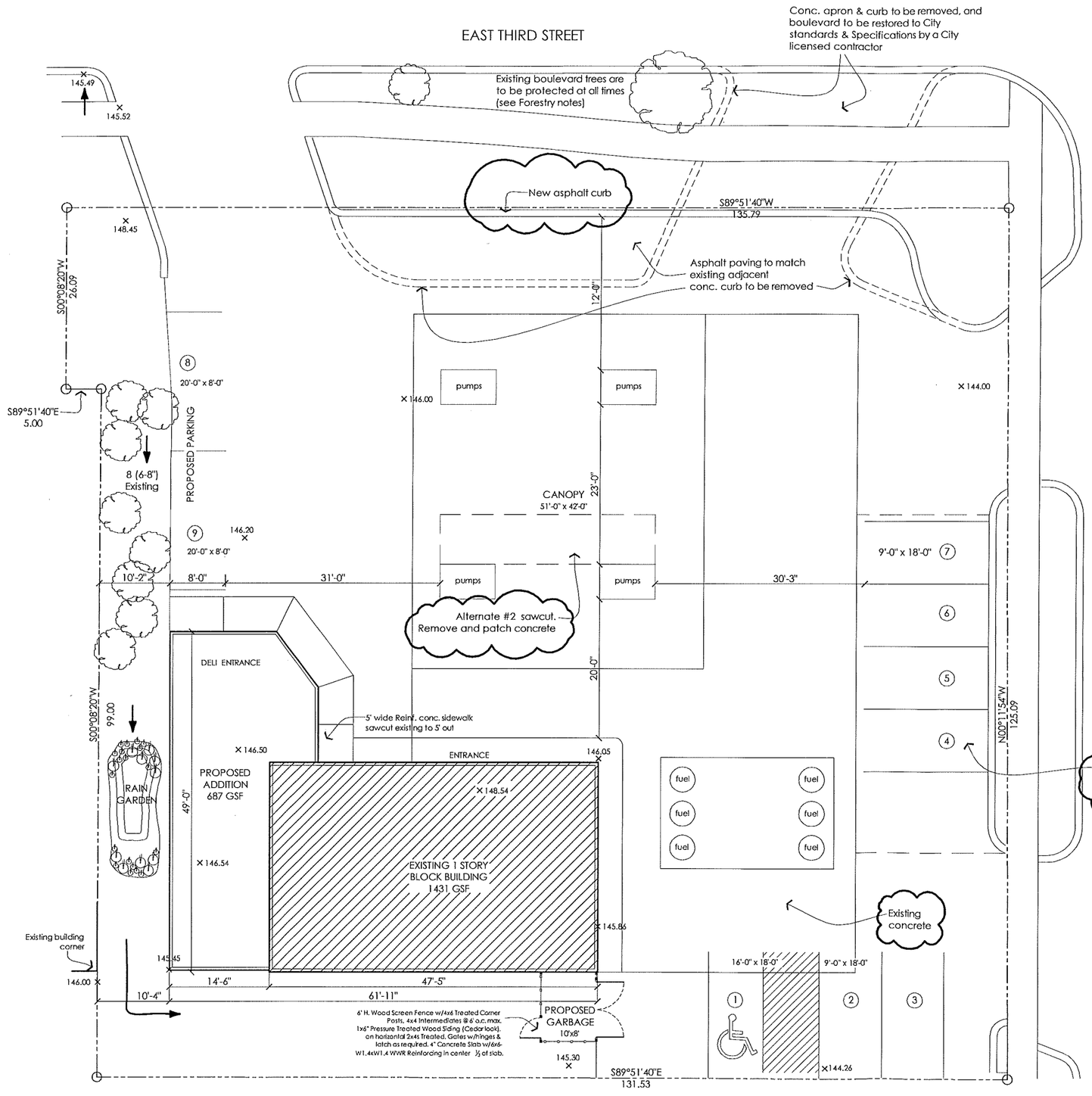
Staff recommends approval of this application.

Subwatershed:

St. Paul Beltline

Location Maps:

#18-25CS



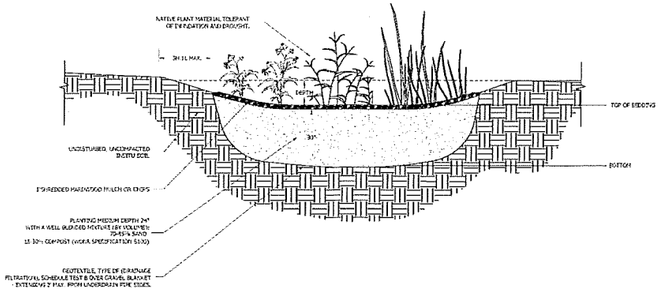
SITE / STORMWATER PLAN 16,537 SF

SCALE:1/16"=1'-0"

Seed Mix Number	Area of Use	Species	Mixture Proportions	Seeding Rate
20	Light, dry, well-drained, sandy, or gravelly soils and high cut & fill slopes	Kentucky Bluegrass Hard Fescue Tall Fescue Perennial Ryegrass	6 24 40 30	3 lbs/ 1,000 sq. ft. OR 130 lbs/acre

SEED MIXTURES

Note: See Minnesota Department of Transportation standard specification section 630-seeding for additional information



1 A1.0 RAIN GARDEN DETAIL

SCALE:NTS

NOTE:
1. For Site Plan notes see T1.0
2. Stripe all parking areas

Kroll & Associates Architecture, LLC
720 First Street
Hudson, Wisconsin 54016
715.381.1600 / 612.925.3830

DATE	
06.14.18	
Rev. 07.10.18	
Rev. 09.04.18	

Dennis R. Kroll

DATE 06.14.18 REG. NO. 17389

PROJECT

ADAM'S FOOD & FUEL

1390 3rd St E
St Paul, MN 55106

SHEET

A1.0

Stewardship Grant Program Budget Status Update

October 10, 2018

Homeowner	Coverage	Number of Projects	Funds Allocated
Habitat Restoration and rain garden w/o hard surface drainage	50% Cost Share $15,000 Max	4	$9,959.41
Rain garden w/hard surface drainage, pervious pavement, green roof	75% Cost Share $15,000 Max	2	$9,650
Shoreland Restoration (below 100-year flood elevation w/actively eroding banks)	100% Cost Share $15,000 Max	1	$14,000

Commercial, School, Government, Church, Associations, etc.	Coverage	Number of Projects	Funds Allocated
Habitat Restoration	50% Cost Share $15,000 Max	4	$19,240
Shoreland Restoration (below 100-year flood elevation w/actively eroding banks)	100% Cost Share $100,000 Max	0	$0
PRIORITY AREAS:	100% Cost Share $100,000 Max	7	$586,378.73
NON-PRIORITY AREAS:	75% Cost Share $50,000 Max	2	$64,830
Aquatic Veg Harvest	50% Cost Share $15,000 Max	1	$8,500
Maintenance	50% Cost Share $5,000 Max for 5 Years	9	$8,000
Consultant Fees			$70,907
Total Allocated			**$791,465.14**

2018 Stewardship Grant Program Budget	
Budget	$800,000.00
2017 Carryover	$200,000.00
Total Funds Allocated	$791,465.14
Total Available Funds	**$208,534.86**

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Administrator's Report

****

MEMO

TO: Board of Managers and Staff

FROM: Tina Carstens, Administrator

SUBJECT: October Administrator's Report

DATE: September 28, 2018

A. Meetings Attended

Tuesday, September 4	1:30 PM	Meet with new BWSR BC – Melissa King
Wednesday, September 5	8:30 AM	Metro Watershed Based Funding Meeting
	10:00 AM	MAWD Annual Convention Planning
	1:30 PM	Solar System Monitoring Information
	5:00 PM	Wakefield Park Tour
	6:30 PM	Board Meeting
Monday, September 10	12:00 PM	Staff Training Meeting
Tuesday, September 11	8:30 AM	BWSR Watershed Focus Group for WBF
Friday, September 14	9:30 AM	National O&M Conference Planning
Monday, September 17	2:00 PM	District Tour
Tuesday, September 18	11:30 AM	Metro Administrator Meeting
Wednesday, September 19	9:00 AM	CRWD/RWMWD TAC Meeting
Tuesday, September 25	10:00 AM	MAWA Meeting
Wednesday, September 26	9:30 AM	Water Resources Conference Meeting

B. Upcoming Meetings and Dates

Metro MAWD Meeting	Tuesday, October 16, 2018
November Board Meeting	Wednesday, November 7, 2018
Watershed Excellence Awards	Wednesday, November 14, 2018
MAWD Annual Meeting	November 29 – December 1, 2018
December Board Meeting	Wednesday, December 5, 2018

C. MAWD Annual Meeting Update

The full conference booklet isn't out yet but MAWD did open up the hotel for reservations. We have reserved enough rooms for each manager but if you know for sure that you will not be able to attend, please let me know so we can free up the room. The meeting is being held on Thursday, November 29th through Saturday, December 1st. There will be workshops during the day on Thursday including a manager training session. Thursday evening kicks off the convention with a "Night at the Movies" event as well as the social time in the vendor area. There are sessions on Friday as well as the MAWD business meetings. On Friday evening, the banquet is held which includes awards. The MAWD Board of Directors meeting is the only event on Saturday before the event ends. There are a number of changes to the annual meeting this year that I believe will make it an even better event.

D. Spent Lime Pond Treatment Grant Proposal

Attached is a grant proposal that Barr Engineering submitted to the Minnesota Stormwater Research Council for consideration for funding. This is just for your information. We are coordinating with the Vadnais Lake Area Watershed Management Organization (VLAWMO) on this proposal to test the use of spent lime to control phosphorus release from sediments. Two ponds, one in each district, will be used as part of this research, if funded.

Title: Pond Treatment with Spent Lime to Control Phosphorus Release from Sediments

Track: 1

Project Team:

Project Lead: Greg Wilson
Barr Engineering Company
4300 MarketPointe Dr, Minneapolis, MN 55435
gwilson@barr.com; 952-832-2672

Co-Investigators: Keith Pilgrim, Erin Anderson-Wenz, Kevin Menken and Tyler Olsen
Barr Engineering Company
4300 MarketPointe Dr, Minneapolis, MN 55435

Field Staff: Eric Korte and Lyndsey
Ramsey Washington Metro Watershed District (RWMWD)
2665 Noel Drive, Little Canada, MN 55117

Tyler Thompson and Brian Corcoran
Vadnais Lake Area Watershed Management Organization (VLAWMO)
800 County Road E East, Vadnais Heights, MN 55127

Spent Lime/Lab Coordinator: Jeremy Erickson
St. Paul Regional Water Services (SPRWS)
1900 Rice Street, St. Paul, MN 55113

Project Summary

Sedimentation ponds that accumulate particles and phosphorus in stormwater runoff are a standard and widely applied storm water best management practice. However, just as internal loading occurs in lakes during warm summer periods when the potential for oxygen depletion is greatest, aging ponds have the potential to release more phosphorus than is captured during summer months (Watershed Protection Techniques, Technical Note 102). Dredging is a potential, but expensive, option to improve pond performance, but phosphorus release may occur long before a pond is filled with sediment. Areal applications of alum and iron can control phosphorus release, but incur raw material production costs.

In cooperation with SPRWS, City of White Bear Lake, RWMWD, and VLAWMO staff, Barr Engineering proposes this study to evaluate the application of spent lime (amorphous calcium carbonate from drinking water treatment) to pond sediments to reduce phosphorus release during warm summer months. Spent lime can reduce phosphorus release by forming calcium phosphate and potentially by increasing the pH of the treated sediments to facilitate iron and aluminum phosphate binding. This study includes a laboratory and a field component and is intended to validate large-scale applications. The laboratory component includes the addition of spent lime at a range of doses to phosphorus rich pond sediment to determine optimal spent lime dosing. The field component involves the addition of spent lime to two ponds and monitoring to determine the magnitude of reduced phosphorus release, evaluate cost-effective methods for areal application and quantify the benefits of this water treatment byproduct.

Project Description

I. Need For Study and Rationale

Sedimentation ponds that settle particles and phosphorus in stormwater runoff are a widely applied storm water best management practice. After years of accumulating sediment, aging ponds have the potential to release more phosphorus than is captured during summer months. In addition, a review of a representative sample of completed TMDLs, indicated that internal phosphorus loading was a significant source in 95% of the impaired lakes, with alum treatments recommended for approximately half of them. Dredging is a potential, but expensive, option to improve pond performance, but phosphorus release may occur long before a pond is filled with sediment. Areal applications of alum and iron can control phosphorus release, but incur raw material production costs. A lower cost alternative is needed to increase the capacity and improve the phosphorus removal performance of stormwater ponds. Enhancing phosphorus removal performance of stormwater ponds may be a critical step in getting impaired lakes off of the impaired waters list. In addition, spent lime may also represent a viable alternative for controlling the internal phosphorus load in lakes.

As part of a US EPA 319 grant, spent lime was evaluated as a media applied in a filtration-type BMP (see Barr Engineering, 2014). In this application, removal averaged 64% for total phosphorus and 74% for ortho-phosphate for stormwater treated by the spent lime treatment cell. This study demonstrates that spent lime actively removes dissolved (ortho) phosphorus. Hence, it can be expected that spent lime applied to pond bottom sediments will adsorb ortho-phosphorus in the sediment and prevent it from releasing into the pond water column during anaerobic summer months.

In the early 1990s, Barr Engineering worked with SPRWS to collect sediment cores from four lakes (Goose, Sucker, Rice and Grass Lakes) and subject them to microcosm experiments that measured the anoxic sediment phosphorus release rates with and without spent lime applied to the sediment-water interface. The results of this work confirmed that there is a strong rationale and expectation that spent lime applications to ponds (see Figure 1) will control sediment phosphorus release since as little as 25% of our target dose rate for field applications successfully limited the release rate to negligible levels for the sediment samples collected from all four lakes.

The use of spent lime to improve stormwater pond performance is also an opportunity to put to good use a waste material that is generated by drinking water treatment facilities throughout Minnesota.

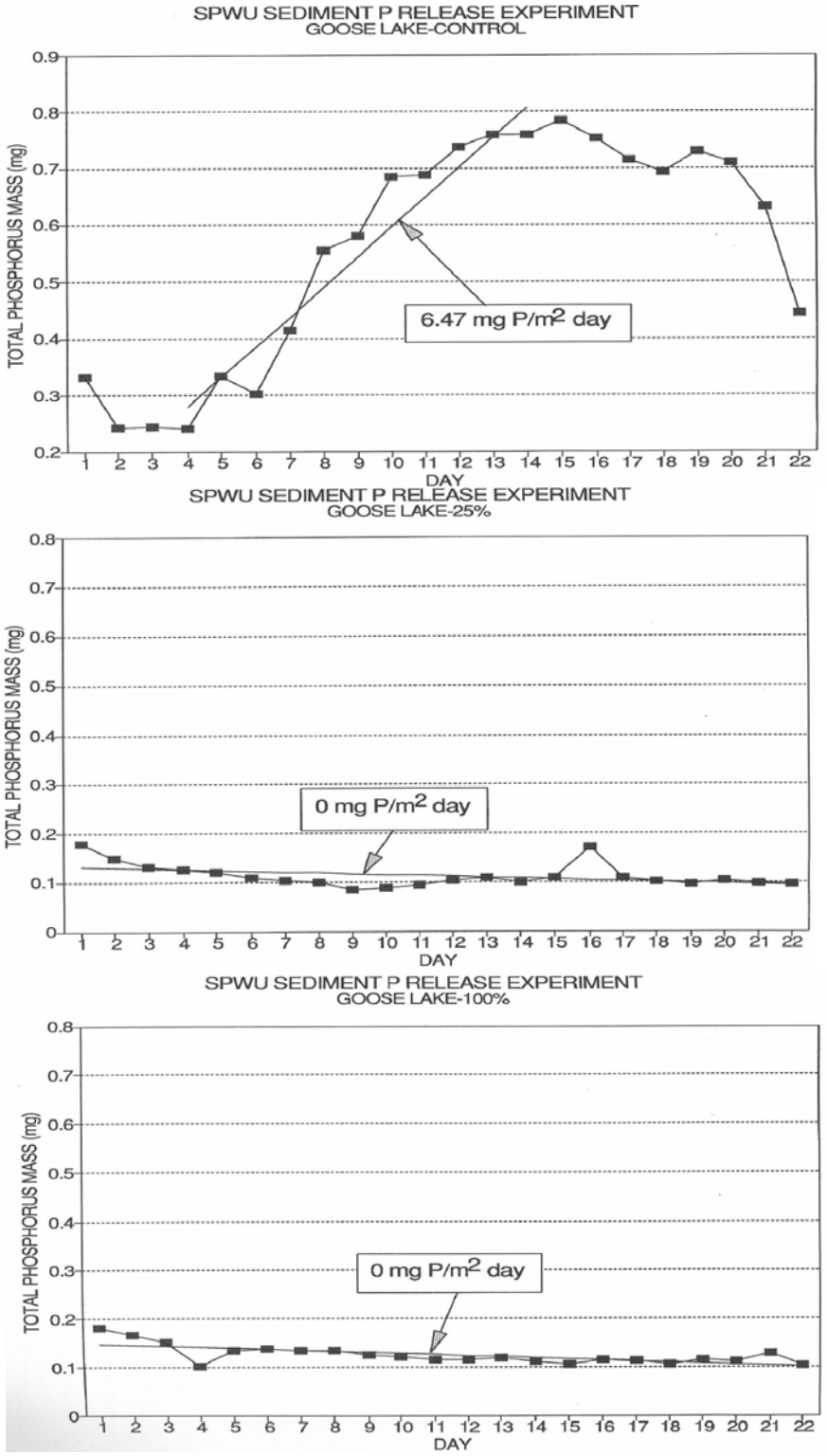

Figure 1. Pre-treatment monitoring results for Wakefield Pond in 2011.

II. Objectives and Chosen Study Sites

Since baseline water quality and some sediment monitoring has been previously been completed for each pond, the objectives for this study are as follows:

1. Collect sediment cores and develop baseline sediment phosphorus data and spent lime dosing recommendations for each pond
2. Conduct spent lime application to each pond to validate its efficacy and track the costs for large-scale applications
3. Conduct field monitoring of each pond to determine the magnitude of reduced phosphorus release
4. Quantify the expected benefits and summarize the results of this study, including the cost-benefit of substituting this water treatment byproduct for other chemicals with known application costs and associated water quality benefits.

Two study sites have been chosen: (1) Oak Knoll Pond in White Bear Lake (Vadnais Lake Area WMO), and (2) Wakefield Pond in Maplewood (Ramsey Washington Metro WD). A net export of phosphorus from each of these ponds has been observed for various periods and storm events during summer months. Figure 2 shows some of the preliminary (baseline) monitoring data collected from the inflow and outflow of Wakefield Pond. Each of these ponds are readily accessible and can be accessed for spent lime application as well as monitoring. Both ponds are upstream of impaired lakes.

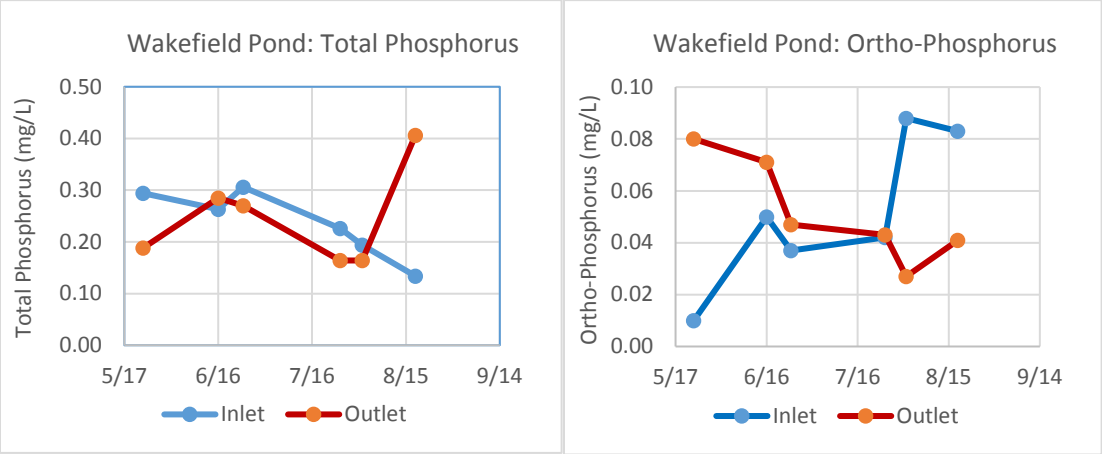

Figure 2. Pre-treatment monitoring results for Wakefield Pond in 2011.

III. Study Design Procedures

The study design includes both a field and a laboratory component.

Laboratory Study

A total of six cores of sediment from two ponds will be collected and used for the laboratory component of this study. The top 6 cm of each core will be composited. Six doses of spent lime will be added to the sediment samples followed by fractionation to determine the mass of phosphorus in the sediment converted to calcium bound phosphorus and aluminum bound phosphorus. The results of the

laboratory study will be used to identify the optimal spent lime dose for application to the selected study ponds.

Field Study: *Pre-treatment and treatment*

Pre-treatment monitoring data are already available for all three ponds and hence pre-treatment monitoring will not be necessary. The pre-treatment sediment cores will have been taken in the fall of 2018 or the winter 2018/2019 as part of the laboratory study. These cores will be sliced in 2 cm increments and fractionated (loosely sorbed + iron-bound P, aluminum bound P, organic P, and calcium bound P).

In the spring of 2019, each pond will be treated with a liquid slurry of spent lime from either the City of White Bear Lake or from SPRWS. The dose of spent lime applied to each pond will be based upon the results of the laboratory study. The slurry will be pumped into the pond with delivery of the slurry managed by moving a raft with the hose terminus across the pond surface. Our costs assume that an independent contractor will be hired to conduct this portion of the work.

Field Study: *Monitoring*

Both storm event, in-pond profile and sediment core sampling will be conducted.

Profile sampling will be conducted eight times from May through August, 2019. Data collected for each profile will include:

- Multimeter probe measurements of temperature, dissolved oxygen, specific conductance, and pH at 0.25 meter increments from the pond bottom to the pond surface.
- Total and dissolved phosphorus measurements near the pond bottom, halfway between the pond bottom and mid depth, mid depth, and at the pond surface.

Continuous sampling will be conducted from May through August, 2019. Data collected will include:

- Continuous monitoring of temperature, dissolved oxygen and specific conductance, temperature and conductivity sensors (continuous monitoring) will be placed in the pond to determine when the pond bottom sediments become low in oxygen and hence have the potential to release phosphorus. The oxygen sensors will be placed at the bottom of the pond and at mid-depth. They will be attached to a pole or buoy in the middle of the pond.
- Continuous flow and pond level measurements.

Stormwater event sampling will be conducted for 8 events between May and August, 2019 using autosamplers and area-velocity meters at the primary inlet and the outlet of each pond. A total of 8 storm events will be targeted for collection from May through August, 2019. Data collected for each stormwater event will include:

- Samples collected as composites (event mean concentrations) and analyzed for total phosphorus, total dissolved phosphorus, and ortho-phosphorus.

Sediment cores: (6) will be collected in the fall of 2019 and sectioned into 2 cm slices and fractionated as previously described. Total calcium will also be analyzed in the core slices.

IV. Timeline

Sediment cores for the pre-treatment condition will be collected in the winter of 2018/2019. Laboratory work for spent lime dosing determination will be completed by February 2019. Stormwater monitoring will be conducted from May through September, 2019. Data analysis will begin in October, 2019 and reporting will be completed by December, 2019.

V. Analysis/Study Outcome/Deliverables

Analysis will consist of a comparison of the treatment performance of the ponds pre and post-spent lime treatment. Specifically:

- Pond profile data, combined with the sediment chemistry information will be used to determine whether the spent lime prevented phosphorus release from the sediment. The potential for phosphorus release will be evaluated using the relationships developed by Pilgrim et. al., 2007, between mobile phosphorus and maximum potential phosphorus release rate. Dissolved oxygen in the pond will be used to calculate the release potential using Michaelis-Menten kinetics.
- The pre and post treatment sediment phosphorus fractionation data will be used to determine how much phosphorus was converted to calcium- and aluminum-bound phosphorus.
- The stormwater data will be used to determine if there is a significant difference between the pond performance (as total P, total dissolve P, and ortho-P) before and after spent lime treatment.

The study outcome will present a clear conclusion regarding the potential of spent lime to prevent phosphorus export from ponds (and lakes), and to also improve the phosphorus removal performance of ponds treatment with spent lime. The sediment core data will also provide and understanding of how the spent becomes integrated into sediment in the presence of carp and not in the present of carp. Clear design parameters will provided that delineate the spent lime dose that is needed to prevent internal phosphorus release.

The project deliverables will include a report of all the results and analysis conducted for this study. A section on design guidelines and recommended design approaches will be included. It is envisioned that this section of the report will be directly applicable to and can be incorporated into the MN Stormwater Manual and can also be further disseminated through an online webinar.

VI. Roles/Responsibilities

Barr's staff members have had extensive experience with academic research in stormwater issues prior to joining Barr and/or have had ongoing linkages with applied research throughout their careers. Innovative pollutant- or volume-reduction BMPs and techniques that our staff have developed, tested, demonstrated, or re-engineered include ponds, bioretention systems, Stockholm tree-trench methods, hydrodynamic separators, deicers, alum, iron-enhanced sand, spent lime, and low-impact development design. Monitoring of applied research projects has included continuous flow and water quality equipment probes and bench-scale laboratory testing as well as monitoring/construction design that allows for the evaluation of the removal efficiencies of individual BMPs/BMP treatment trains. Specific roles and responsibilities of each project team member are identified on the first page of this proposal.

Assurances

Barr has established procedures for Quality Assurance and Quality Control. Field data collected by Barr are considered with respect to measurement quality objectives (MQOs) and data quality objectives which contain specific units of measure that are directly compared to data. Barr uses six data quality indicators (precision, accuracy, representativeness, completeness, comparability, and sensitivity), along with the means by which they are measured to monitor compliance with the project needs. Field blanks and duplicates will be collected and well as laboratory data on blanks, duplicates, and matrix spikes to conduct this analysis.

Budget and Budget Justification

The requested budget and justification for the individual levels of staff time and expenses are described on the following page for each of the specific activities (described above).

Project title: Pond Treatment with Spent Lime to Control Phosphorus Release from Sediments
Primary contact: Greg Wilson

Item	Explanation		
Personnel (salaries/wages and fringe costs)			
Name or type of position	*Detail hours*		
Greg Wilson	80		
Keith Pilgrim	50		
Kevin Menken	120		
Erin Anderson-Wenz	10		
Staff: Ramsey Washington Metro Watershed District	150 (In-Kind Contribution)		
Staff: Vadnais Lake Watershed Management Organization	150 (In-Kind Contribution)		
Tyler Olsen	80		
Total Personnel	640		
Supplies			
General laboratory supplies	for sediment analysis		$200
Batteries	For autosamplers		$600
Monitoring Probes	For in-situ probes		$230
Total Supplies			$1,030
Equipment			
Autosamplers	Stormwater collection		$4,320
Area-Velocity Meters	Flow monitoring and sample collection		$5,040
Total Equipment			$9,360
Services and Consultants			
Barr Engineering Consulting Fee			$44,000
Barr Engineering Sediment Lab Analytical Costs			$500
Contractor: Spent Lime Application to Ponds			$20,000
Total Services and Consultants			$64,500
Travel			
Travel to the monitoring sites	200	miles	$110
Total Travel			$110
Other Direct Costs			
			$ -
Total Other			$ -
TOTAL			$75,000

Funds from other sources also being used to support this project
(Describe funds leveraged; amount & source)
In addition to the following in-kind contributions, this project will leverage research funds previously spent by Barr Engineering and the St. Paul Regional Water Services to evaluate the efficacy of spent lime for stormwater and in-lake treatment.

In-kind contributions
(Describe in-kind contributions being dedicated to this project)

I. Monitoring by the Ramsey Washington Metro Watershed District	
Monitoring equipment cost	$9,360
Staff time (using BWSR payroll guidance of $38.92/hr)	$7,200
II. Monitoring by the Vadnais Lake Watershed Management Organization	
Staff time (using BWSR payroll guidance of $38.92/hr)	$5,838
III. Donated Laboratory Sample Analysis Costs by St. Paul Regional Water Services	
Analytical Laboratory Costs	$7,200
Total In-Kind Contributions	$29,598

Experience

Greg Wilson has 28 years of experience and expertise in the areas of hydrology and hydraulics, water-quality modeling, TMDL/WRAPS studies, geographic information systems (GIS), wetland and NPDES permitting, and design applications in water resources, including several in-lake treatment projects. His work has included water-quality and water-quantity monitoring and modeling for diagnostic-feasibility and/or TMDL/WRAPS studies for nearly 100 lakes, including 55 shallow lakes. Current projects and research interests include stormwater and drainage treatment with spent lime and flocculents, monitoring and statistical analysis for pollutant source determination, and watershed-scale monitoring/modeling of BMPs. Examples of Greg's project work include:

- Completing pond water quality assessments, including feasibility reports for internal phosphorus loading from ponds in the Vadnais Lake Area (VLAWMO), Black Dog (BDWMO) and Bassett Creek (BCWMC) watersheds, along with alum treatments of ponds in the City of Burnsville.
- Served as project manager, technical resource, and author of updated sections for infiltration practices in the *Minnesota Stormwater Manual*, prepared for the Minnesota Pollution Control Agency (MPCA). Created new content and updates to the infiltration overview, types of infiltration, design criteria, cold climate suitability, understanding and interpreting soils and soil boring reports, case study summaries of infiltration project examples, construction specifications and O&M for infiltration practices.
- Completing a diagnostic study and management plan for Lake Harriet, on behalf of the Minneapolis Park and Recreation Board. Examined historical water-quality, water-quantity, and biological data to determine annual and seasonal water-quality trends. Completed daily water and phosphorus mass-balance modeling which indicated that sediment phosphorus release was the primary contributor of nutrients to Lake Harriet, with increasing rates increasing over the latest 11-year period. Developed improvement options within a management plan that will protect and improve lake conditions as well as prevent future impairments due to nutrient pollution.
- Currently managing projects with the Riley-Purgatory-Bluff Creek Watershed District, Nine Mile Creek Watershed District, and MPCA to complete a diagnostic-feasibility study for the water bodies in each watershed, including TMDLs for the impaired/threatened lakes and streams. This involves calibrated daily water and phosphorus mass-balance modeling to identify the primary phosphorus sources for each lake. Implementation strategies are being identified for all water bodies, and an implementation plan was developed based on detailed cost-benefit analyses.
- Completed a Legislative-Citizen Commission on Minnesota Resources (LCCMR)-funded project for the Zumbro Watershed Partnership that was used to develop priority management zone (PMZ) protocols for identifying critical source areas.
- Served as project manager, technical resource, and primary author of *Detailed Assessment of Phosphorus Sources to Minnesota Watersheds*, prepared for the MPCA.
- Providing water-quality data analysis and lake management assistance to the Prior Lake-Spring Lake Watershed District, including a feasibility analysis of the potential

options for controlling internal phosphorus loads in Spring Lake and in-lake water-quality modeling/evaluation of phosphorus loadings for Spring and Upper Prior Lakes.

- Managing stormwater-runoff water-quality-monitoring study of Gervais Mill Pond and Owasso Basin in Little Canada, Minnesota, to evaluate effectiveness of phosphorus and suspended sediment removal in smaller detention ponds. Monitoring showed that the outlet TSS and total phosphorus (TP) concentrations were generally higher than the concentrations observed at the primary inlet, and that runoff is likely being short-circuited through Owasso Basin. As a follow-up to this study, the P8 Model was calibrated to observed monitoring data and an assessment of potential improvements to the water-quality treatment performance of Owasso Basin included a discussion of the benefits, limitations, and feasibility of potential treatment improvements.
- Developed the project monitoring and assessment program using a paired watershed approach to determine the statistical difference in treatment effectiveness before and after rainwater garden construction. A follow-up study was completed five years after construction to verify the long-term efficacy of the treatment system and develop guidance for optimizing the BMP design and cost-effectiveness.
- As a part of graduate work completed at the University of Minnesota, incorporated the water-quality results from the Minneapolis Chain of Lakes stormwater monitoring program into a thesis. The monitoring program included sampling 16 storm sewer outlets to the Minneapolis Chain of Lakes, using automatic flow monitoring and sampling equipment. The thesis used advanced statistical techniques to evaluate the sources of various constituents in the stormwater runoff.

Education
MS, Civil Engineering, University of Minnesota, 1993
BS, Civil Engineering, University of Minnesota, 1990

Registration
Civil Engineer: Minnesota

Affiliations
Minnesota Water Resources Conference Planning Committee
North American Lake Management Society

Select Publications/Training

Presentations

"P8 Training for Reviewers and Modelers." Stormwater U. University of Minnesota, Extension. 2010, 2011, 2012, 2014, 2016, 2017 and 2018.

"An Analysis of Urban Stormwater Quality from the Minneapolis Chain of Lakes Watershed." Sixteenth Annual International Symposium on Lake, Reservoir and Watershed Management, North American Lake Management Society. November, 1996.

"Addressing the Water Quality Benefits of Smaller Wet Detention Ponds." Water Resources Conference, American Society of Civil Engineers, Minnesota. 1995.

"Stormwater Issues." 2002/2004. ISE 5201/ISE 5402—Stormwater Management. Masters in Infrastructure Systems Engineering. University of Minnesota.

"Assessment of Phosphorus Sources to Minnesota Surface Waters." 2004. Minnesota Water Conference. March, 2004.

KEITH PILGRIM, PhD
Senior Water Resources Scientist

Experience

Keith Pilgrim has 15 years of experience on projects involving surface water quality, including monitoring and analysis of a wide range of systems. Examples of Keith's relevant experience include:

- Invention of a stormwater treatment method that uses spent lime to remove phosphorus and metals. Study was completed as part of a US EPA Section 319-10 Nonpoint Source Grant (project ID #7132). Study included bench scale testing, full scale system design and construction, and monitoring. Full scale system is still in operation in St. Paul, Minnesota and has high rates of phosphorus removal.
- Part of the team that developed a sand filter that is augmented with elemental iron to remove dissolved phosphorus from stormwater. This system has proven to be effective at phosphorus as well as metals removal.
- As part of a National Academies Sciences National Cooperative Highway Research Program, Keith is currently investigating the use of iron-sand filters to remove metals from highway runoff. This study includes a bench-scale laboratory investigation and a field component that includes storm event monitoring, flow monitoring, in-situ pH and dissolved oxygen monitoring (continuous), and water level monitoring. Data are still being collected and analyzed, however, the intended outcome is a determination if ferric oxide can be used to effectively treat metals in highway runoff and to develop design guidance.
- Sediment sampling of dozens of Minnesota lakes to identify the phosphorus content and speciation of lake sediment.
- Extensive experimental design experience: Have developed numerous experiments for a wide range of studies involving wetland sediments (e.g., for Douglas County Soil and Water District), lake sediments to examine the phosphorus binding capacity of a lake sediment treated with alum (e.g., Three Rivers Park District), aquatic toxicity of industrial dischargers (several industrial clients), and media for stormwater treatment (for the Ramsey Washington Metro Watershed District).
- Developing a comprehensive monitoring program for Essar to generate a large and comprehensive database of surface and lake water quality in northern Minnesota. The focus of this program was monitoring around Swan Lake to understand the effect of dissolved solids loading to the lake on lake water quality.
- Designing a monitoring program and performing analyses for PolyMet Mining to determine the potential effect of sulfate discharges from a proposed copper mine on methyl-mercury generation on downstream waters. The overall program included more than 20 monitoring sites.
- Developing a comprehensive monitoring program for Twin Metals, LLC to generate a large and comprehensive database of surface and lake water quality in northern Minnesota. The program consisted of approximately 30 monitoring sites and included nutrients, standard parameters for lakes, low level metals, mercury, methyl mercury, cations and anions, stream flow, and climatic data.

Education

PhD, Water Resources Science, University of Minnesota, 2002
Masters of Environmental Management, Duke School of Environment, 1995
BA, Biology, Gustavus Adolphus College, 1992
BA, Financial Economics, Gustavus Adolphus College, 1991

Publications

Hockett, D.; D.J. Lober; and K. Pilgrim. 1995. Determinants of per capita municipal solid waste generation in the Southeastern United States. J. Env. Manag. Vol. 45: 205-217.

Pilgrim, K. and P. Brezonik. 2005. Treatment of lake inflows with alum for phosphorus removal. Lake and Res. Manag. Vol. 21(1):1-9.

Pilgrim, K. and P. Brezonik. 2005. Evaluation of the potential adverse effects of lake inflow treatment with alum. Lake and Res. Manag. Vol. 21(1):78-89.

Pilgrim, K.; Huser, B.; and P. Brezonik. 2007. A method for comparative evaluation of whole-lake and inflow alum treatment. Wat. Res. Vol. 41: 1215-1224.

Huser, B. and K. Pilgrim. 2014. A simple model for predicting aluminum bound phosphorus formation and internal loading reduction in lakes after aluminum addition to lake sediment. Wat. Res. Vol. 53: 378-385.

Bartodziej, W., Blood, S., and K. Pilgrim. 2017. Aquatic plant harvesting: an economical phosphorus removal tool in an urban shallow lake. J. Aquat. Plant Manage. 55: 26–34.

ERIN ANDERSON WENZ, PE, ENV SP
Vice President, Senior Water Resources Engineer

Experience

Erin Anderson Wenz has over 20 years of experience working on projects involving hydraulics and hydrology, including both stormwater and lake water quality modeling for watershed districts and municipalities. She has managed strategic lake management plans as well as total maximum daily load (TMDL) studies for several Minnesota lakes. Her project work also includes the creation of watershed and municipal stormwater management plans and the design and construction of low-impact development features such as rain gardens, biofiltration basins, porous pavement, and tree trenches for both large and small retrofit sites. Erin is also trained in applying the Envision™ Sustainable Infrastructure Rating System to projects.

Her experience at Barr includes:

- Creating and giving presentations for a variety of local, regional and international conferences including: Minnesota Association of Watershed Districts annual conference, American Public Works Association annual conference, Minnesota Shade Tree Short Course, Minnesota Clean Water Summit, Minnesota Erosion Control Association annual conference, Minnesota City Engineers Association annual conference, Minnesota Water Resources conference, International Low Impact Development conference. Presentations have covered a variety of stormwater management topics including green infrastructure, planning, public-private partnerships for water reuse projects, and climate-change adaptation.
- Managing the design and preparation of construction plans and specifications for a system of tree trenches (Stockholm Tree Trenches for Management of Stormwater, or "STTeMS") for the redesign of the Arlington Community Center site for the City of St. Paul's Parks and Recreation Department.
- Managing a project at Maplewood Mall that involved the design and construction of low-impact development features such as rain gardens, porous pavement, 200 trees planted in tree trenches (STTeMS) as well as public education features (art and interpretive signage) across a 35-acre parking lot for the Ramsey-Washington Metro Watershed District. This project has been presented at many local conferences and won "Project of the Year" at the 2012 Minnesota Association of Watershed Districts conference. The project also won a 2012 "Grand Award" at the Minnesota Chapter's American Consulting Engineer's Council annual event.
- Managing the design of a spent lime filter at Willow Pond in Roseville, Minnesota, for the Ramsey-Washington Metro Watershed District. Project involves continuous monitoring and adaptive control (CMAC) technology to interactively open and close a pipe between the pond and the spent lime filter to optimize water quality treatment while mitigating impacts on Willow Pond's water levels.
- Co-leading client workshops on the topics of climate-change adaptation (in 2015) and water reuse (in 2017) with the Freshwater Society. Workshops involved expert presentations as well as a facilitated brainstorming event aimed at helping clients solve their problems surrounding each topic.
- Participating in agency focus-group discussions surrounding the use of alternative filtration media in stormwater management (e.g., iron-enhanced sand and spent lime).

- Assisting in the design and construction of an innovative iron-enhanced sand filter and a spent lime filter that treat stormwater runoff for the Ramsey-Washington Metro Watershed District.
- Managing local surface water management plan updates for the cities of Bloomington and Farmington. Revisions reflect updated hydrologic and hydraulic modeling and the implications for future development-management of water bodies in these municipalities.
- Evaluating the "triple bottom line" (environmental, social and economic) differences between two Northwood Lake stormwater improvement project options (water reuse system versus stormwater pond) for the Bassett Creek Watershed Management Commission. Both options were scored using the Envision™ rating system. In addition, a screening-level life cycle analysis (LCA) of each option was performed using GaBi™ software. This information was used in helping guide the managers' decision as to whether to help fund the water reuse project option, which was more expensive, but was ultimately the chosen option.
  - Managing the creation of a stormwater feasibility study for the Lafayette Park Campus in St. Paul, Minnesota, for the Capitol Region Watershed District and the Minnesota Pollution Control Agency. This project involves designing green infrastructure features that can be retrofit into a corporate site that is a former rail yard and warehouse district.
  - Managing the creation of a stormwater management plan for Miller Hill Mall in Duluth, Minnesota, for the South St. Louis Soil and Water Conservation District. This project involves designing green infrastructure features across a 50-acre parking lot that can lower the temperature of stormwater runoff to Miller Creek, which is currently impaired for brook trout habitat. This project also includes facilitation of stakeholder involvement, bringing together mall management representatives and agency representatives to brainstorm ideas for implementation and funding.
  - Performing a literature review for the *Minnesota Urban Small Sites BMP Manual* for Metropolitan Council Environmental Services. Compiled the results of the literature review into fact sheets, outlining design recommendations, advantages, and limitations. Best management practices include infiltration basins, wet ponds, extended detention basins, rainwater gardens, and permeable weirs.

Education

MS, Environmental Engineering and Science, University of Washington, 1997

BS, Civil and Environmental Engineering, University of Wisconsin–Madison, 1995

Registration

Professional Engineer: Minnesota, Utah, Michigan

Certification

Envision™ Sustainability Professional, Institute for Sustainable Infrastructure

Experience

Kevin Menken has 14 years of experience in water resources engineering and environmental investigation, remediation, and restoration. He manages, coordinates, and conducts sediment-sampling field investigations and water-quality monitoring studies of lakes, rivers, and streams. He also manages Barr's aquatic invasive species prevention program, conducts sediment phosphorus and wild rice and vegetation studies, models pollutant runoff from watersheds, and assists with total maximum daily load (TMDL) development. In addition, Kevin writes stormwater pollution prevention plans (SWPPPs) and calculates discharge limits for industrial facilities in accordance with National Pollutant Discharge Elimination System (NPDES) standards. Examples of his experience at Barr include:

- Managing, coordinating, and conducting many sediment sampling and survey field investigations of numerous lakes, rivers, and stormwater ponds throughout Minnesota as part of larger stream restoration/stabilization and dam removal and modification projects. Projects include the Minnesota Falls dam removal in Granite Falls, Minnesota; Fountain Lake restoration in Albert Lea, Minnesota; and maintenance and dredging work at Hi-Line Beach along the St. Croix River in Wisconsin.
- Managing and conducting long-term water-quality monitoring studies and aquatic biota surveys for numerous Minnesota lakes and streams.
- Managing Barr's aquatic invasive species prevention program.
- Performing water-quality modeling of lakes and reservoirs, including modeling nutrient, phytoplankton, and zooplankton dynamics.
- Utilizing the DYRESM-CAEDYM one-dimensional lake and reservoir model to model a Minnesota lake with internal phosphorus loading from lake sediments.
- Using the ELCOM-CAEDYM three-dimensional lake and reservoir model to model a Michigan reservoir that experiences problematic algal blooms. Used model output to design an artificial de-stratification system to improve reservoir water quality.
- Modeling pollutant runoff from watersheds, including utilizing the P8 watershed model to model phosphorus runoff to a stream.
- Calculating discharge limits for industrial facilities in accordance with NPDES standards.
- Assisting with development of TMDLs.
- Writing SWPPPs for construction activities.

Prior to Barr, Kevin served as an environmental engineer for a firm in Newtown, Pennsylvania, where he worked in a variety of roles for environmental remediation projects, including:

- Serving as field manager during decommissioning, decontamination, demolition, investigation, and remediation of a New Jersey industrial site. Oversaw the characterization and disposal of solid and liquid wastes; facility decontamination and demolition; investigation of contaminated soil, concrete, and groundwater; excavation

and disposal of contaminated soil and concrete; and preparation of investigation and remediation reports to the state environmental agency.

- Serving as field manager for installation of a permeable reactive barrier for treatment of groundwater contamination at a U.S. Army facility in New Jersey. Installed a granular iron barrier to treat groundwater contaminated with chlorinated solvents.
- Assisting in design and implementation of a groundwater tracer study for a groundwater remediation project.
- Overseeing the installation of a groundwater pump-and-treat system for the remediation of arsenic-contaminated groundwater.
- Performing routine operation and maintenance of an air sparge system for the remediation of contaminated groundwater.

Kevin's experience also includes:

- Performing aquatic biota surveys for the purpose of assessing stream water quality.
- Conducting field research, including field sampling of lake water and sediment cores, laboratory analysis of water quality (such as chlorophyll *a*, phosphorus, turbidity, and characterization of organic compounds), and laboratory analysis of phosphorus in sediments.
- Conducting computer analysis of satellite imagery for the assessment of water quality in Minnesota lakes.
- Performing routine air quality monitoring (ozone, visibility, NOx, CO, and SO_2) at remote air-monitoring stations in the Great Smoky Mountains of Tennessee as a research assistant for the National Park Service.

Education

MS, Civil Engineering (Emphasis: Environmental Engineering), University of Minnesota, 2002

BS, Engineering Physics (Environmental Science Minor), Hope College, 1999

Training

OSHA 40-hour HAZWOPER

OSHA 10-hour Construction

Publications

K.D. Menken, P.L. Brezonik and M.E. Bauer (2006). "Influence of Chlorophyll and Colored Dissolved Organic Matter (CDOM) on Lake Reflectance Spectra: Implications for Measuring Lake Properties by Remote Sensing." *Lake and Reservoir Management*, 22:179-190.

P.L. Brezonik, K.D. Menken and M.E. Bauer (2005). "Landsat-based Remote Sensing of Lake Water Quality Characteristics, Including Chlorophyll and Colored Dissolved Organic Matter (CDOM)". *Lake and Reservoir Management*, 21:373-382.

TYLER OLSEN, EIT
Water Resources Engineer

Experience

Tyler Olsen recently joined Barr after earning a master's degree in civil engineering from the University of Minnesota-Twin Cities. At Barr, he works on projects involving stormwater planning, hydraulic and hydrologic analysis, and surface water quality. In the field, Tyler observes construction, collects water quality measurements, and conducts surveys and materials testing. He also provides geographic information systems (GIS) services and develops reports for permitting agencies and public officials.

Prior to Barr, Tyler founded Monsūn, a company that provides rainwater harvesting systems to consumers in Bangalore, India, through a lease-to-own model, offering a sustainable water source and protecting the water resources of Karnataka. His specific responsibilities included:

- Coordinating with international partners.
- Applying for funding.
- Conducting on-the-ground research to validate business model assumptions.

Tyler was also a research assistant during graduate school at the University of Minnesota's St. Anthony Falls Laboratory, where his work involved:

- Designing a laboratory experiment to determine phosphorus cycling in stormwater pond sediments.
- Organizing fieldwork efforts to gather sediment cores and water samples.
- Performing data analysis and interpreting results.
- Presenting research to colleagues and other stakeholders through thesis, papers, and presentations.

As an intern with an environmental engineering firm, Tyler's responsibilities included:

- Collaborating closely with environmental engineers and scientists to design solutions to environmental problems.
- Using hydrologic models, including HEC-HMS, HEC-RAS, and LOADEST, to develop a scientific understanding of hydrologic behavior.
- Contributing to numerous projects, including the City of Woodbury (Minnesota) groundwater study; Lac Courte Orielles total maximum daily load (TMDL); Superior (Minnesota) combined sewer system; Austin (Texas) Waller Creek renovation; Pilgrim's Pride (Texas) wastewater permitting; Metropolitan (Minnesota) chloride TMDL; and San Clemente Island weather database.

As an undergraduate student, Tyler served as a project lead for Engineers Without Borders in Uganda, where he led a team of students working on water supply projects.

Education

MS, Civil Engineering (Water Resources), University of Minnesota-Twin Cities, 2017

BS, Environmental Engineering, University of Minnesota-Twin Cities, 2016

Discussion Topic: The RWMWD Board position on the preservation and restoration of wetlands

Background: In recent RWMWD Board meetings there have been discussions regarding the preservation of wetlands in the watershed and the role they play in the RWMWD ecosystem. Concern has been expressed about the possible effects on the flora and fauna in the area as wetlands are modified, impacted or reduced and their acreage transferred to another location via the state watershed bank. However, there have not been recent discussions by the current Board on further defining the role of the District in restoration of impacted wetlands to further improve our wetlands systems.

Current RWMWD policy, goals and action items for stewardship of wetlands:

Background and Purpose:

7. Protect and enhance fish and wildlife habitat and water recreational facilities.

Goals:

2. Achieve healthy ecosystems- Manage water and related natural resources to create and preserve healthy ecosystems.

5. Inform and empower communities-Inform and empower communities to become partners in improving and protecting the watershed through our efforts.

Issues and focus areas:

Achieve Healthy Ecosystems

- Partnering with agencies , organizations and residents on ecological restoration
- Recognizing natural resource elements in all District projects.

2.19.5 Achieve Healthy Ecosystems

Natural resources management has become an important component of RWMWD flood control and water quality projects, as well as an overall watershed management strategy. Specifically stated, it is the goal of the RWMWD to manage water and related natural resources to create and preserve healthy ecosystems. This involves focusing on preserving and restoring aquatic, wetland and associated upland habitats and is typically accomplished through partnerships with both public and private entities.

Discussion: What is the RWMWD Board's position on the District's role in the preservation and restoration of negatively impacted wetlands? For example: ameliorating the effect of water from storm sewers and other engineered sources on the normal state of the wetlands, restoration of wetlands which have had their historical natural functional state compromised, or restoring the vegetation and water conditions for wetlands which have been impacted by human intervention?

Background:

A survey is planned to identify wetlands in the District which have high potential for restoration.

Generally, wetlands are part of the natural water control system and are regarded as appropriate places to store or direct water from storm related events. This is necessary as a part of responsible flood control.

In his April 22 Star Tribune article on the State's Wetland Bank, Dennis Anderson observed:

"Even state wildlife management areas and federal waterfowl production areas purchased and curated specifically for wildlife values are part of this rejiggered water-ridding system, serving as they often do as receptacles for drained farmlands and cities' storm water.

As a result, water levels of many remaining wetlands are too high, or too highly variable, to support plants and insects needed by wildlife."

Although wetlands in the RWMWD District will always have a role in urban storm water and flood management, there are often negative effects of this on the biodiversity of these areas if they are significantly impacted by manmade water sources. Successfully dealing with this potential is built into the current District permit process, but there are wetlands where older design criteria have changed the historical state of the wetlands and the flora and fauna that benefited from the previous status.

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Project and Program Status Reports

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RAMSEY-WASHINGTON METRO WATERSHED DISTRICT

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Memorandum

To:	Board of Managers and Staff
From:	Tina Carstens and Brad Lindaman
Subject:	Project and Program Status Report – October 2018
Date:	September 28, 2018

Project feasibility studies

Owasso County Park stormwater master plan and detailed design: phases I and II (Barr project manager: Matt Metzger; RWMWD project manager: Paige Ahlborg)

The purpose of this study is to assist the City of Shoreview Public Works and Ramsey County Parks with creating a holistic "living streets" retrofit design for North Owasso Road and best management practice (BMP) design for new parking lots in Owasso County Park.

The second phase of this collaborative effort began in July with meetings among the RWMWD, Barr, the county, the city, and the city's engineering consultant for the reconstruction of Owasso Boulevard from Soo Street to Victoria Avenue. Recently, Barr further developed the conceptual design, which includes approximately 800 linear feet of permeable pavers at the park, a district-scale rain garden to manage stormwater from the park and roadway, and a network of pipes and pretreatment features to convey stormwater to the management features and large-event overflows to the lakes. The 60-percent design phase is ongoing and will transition into the final stages of design starting in November

Updates will continue through the duration of second-phase design as well as through the implementation phase in 2019. Barr and RWMWD staff will be engaged in the construction portion of the project to verify that the design implementation meets RWMMD standards and expectations.

Below are photos of the porous bituminous pavement constructed as a part of Phase 1. The photos were taken after a recent rainfall. The county designed and constructed more permeable bituminous pavement than was originally planned with their permit application to RWMWD. RWMWD, via Barr, provided engineering for the overall stormwater master plan, the pavement underdrain system and the large event storm sewer. The pavement performed well during the one day 3" to 4" rainfall event we recently experienced recently (see pictures).

System-wide evaluation of flood control options/Beltline resiliency study (Barr project manager: Erin Anderson Wenz; RWMWD project manager: Tina Carstens)

The purpose of this study is to evaluate system-level flood-damage-reduction options, including real-time mechanical alteration of Lake Phalen and Keller Lake channel outlet structures, as well as other critical system infrastructure, to actively manage stormwater runoff from flood-prone areas tributary to the Beltline storm sewer in an effort to reduce flood levels that would otherwise impact homes. The evaluation will use the RWMWD stormwater model to simulate system-level modifications to evaluate how adjustments to outlet structures during a flood event may be able to optimize the existing system performance to reduce flooding impacts to homes adjacent to RWMWD-managed water bodies.

This period, Barr prepared documentation summarizing potential modifications to the stormwater system within the Willow Lake and Kohlman Creek subwatersheds to remove existing structures from the floodplain. We estimated the low structure elevation based on available topographic information and evaluated modifications to the system model that could potentially lower 100-year flood levels below those that impact habitable structures (i.e., homes and businesses). We began evaluating modifications to the outlet control structures on Keller Creek and Lake Phalen to identify a feasible operational plan to reduce upstream flood risk without adversely impacting downstream structures. In the next few months, Barr will continue evaluating operational plans for the outlet structures on the Phalen Chain of Lakes to identify whether operation of those structures could further mitigate flood risk. The study is phased so that flood-prone areas in the upstream portion of the watershed are addressed first, working downstream.

If the study proves successful, recommendations for actual field modifications will be offered for future capital improvement programming.

Beaver Lake, Battle Creek Lake, and Lake Owasso subwatershed feasibility studies (Barr project manager: Josh Phillips; RWMWD project manager: Paige Ahlborg)

The purpose of this project is to evaluate BMP opportunities throughout the Beaver Lake, Battle Creek Lake, and Lake Owasso subwatersheds. These lakes are all considered to be "at risk" for nutrient impairment.

The reports for the Beaver Lake, Battle Creek Lake, and Lake Owasso subwatersheds are nearly complete. For the Beaver Lake study and Lake Owasso study, Barr is finalizing the report and preparing for a presentation of these studies to the RWMWD in the coming weeks. For the Battle Creek Lake study, Barr is assessing the water-quality benefit and public educational opportunity associated with a potential BMP project in the Interstate 94/494/694 interchange. A presentation of this study is expected at the November or December board meeting.

District office permeable asphalt parking lot retrofit (Barr project manager: Matt Kumka; RWMWD project managers: Tina Carstens and Paige Ahlborg)

The purpose of this project is to assess the performance of the permeable asphalt parking lot at the watershed district office and create a range of retrofit options for the board and staff to consider.

Information regarding all of the past maintenance and revitalization efforts was gathered from RWMWD staff as well as anecdotal evidence of where the parking lot's permeability has failed and/or significantly decreased. Barr is conversing with paving contractors to understand the feasibility of lightly milling the top layers of pavement away to expose more free draining materials. We are awaiting some cost considerations and potential timing for a test mill spot this fall.

Emergency response plan for Twin Lake, Grass Lake, and Snail Lake (Barr project manager: Erin Anderson Wenz; RWMWD project manager: Tina Carstens)

The purpose of this project is to evaluate the level of flood risk that Twin Lake's elevated water elevation poses to habitable structures and to verify the RWMWD's assumptions about the way that stormwater reaches the lake to better communicate risk (or non-risk) to area residents.

As described last month, the RWMWD and City of Little Canada are scheduling a meeting for Twin Lake residents to discuss the lake's subwatershed and the recent high water levels. The meeting is planned for October 8th. At this point, we believe that an emergency response plan for this lake is unnecessary, as habitable structures do not appear to be at risk, even if the 100-year event were to happen while the lake is still elevated.

Emergency response plans for Snail Lake (involving protecting its lowest home and rerouting the emergency overflow when Snail Lake reaches 886.0) and Grass Lake (involving blocking any Grass Lake overflows from entering the pedestrian tunnel and instead routing them to wetland A) are underway and are expected to be completed by the end of October and sent to the City of Shoreview for review.

Federal Emergency Management Agency (FEMA) flood mapping updates (Barr project manager: Brandon Barnes; RWMWD project manager: Tina Carstens)

The purpose of this project is to apply Minnesota Department of Natural Resources (DNR) grant funding to use the RWMWD's updated stormwater model to develop information required to update the FEMA floodplain maps.

No work was completed on this project this month. Barr is waiting for survey data from the DNR before updates can be made to the RWMWD's stormwater model.

Once we receive the DNR data, the first step towards updating the FEMA floodplain maps is to compile survey information to demonstrate that the stormwater model accurately characterizes the existing stormwater system. To accomplish this, we will compare model input parameters to DNR survey information, which the DNR began collecting within the RWMWD in August. We anticipate that the DNR survey will continue for one more month. Later this fall, Barr will review the survey data and begin

preparing the necessary documentation to update the FEMA maps. This process will continue over the next two years. The grant with the DNR runs through April 2020.

Snail Lake/Grass Lake berm raise project (Barr project manager: Brad Lindaman; RWMWD project manager: Tina Carstens)

The purpose of this study is to evaluate the potential for optimization of the existing Snail Lake/Grass Lake system (from Snail Lake to Grass Lake to Highway 694), with the goal of lowering flood levels in the system's water bodies to reduce flood risk to habitable structures and lessen impacts to surrounding properties.

During September, the contractor substantially completed the berm raise project, as well as seeding and restoration efforts. Unfortunately, heavy rains during the week of September 17th caused erosion in a number of areas. The eroded areas are being addressed as weather and conditions allow. The project is expected to be complete by the October 10th board meeting, where an oral update will be provided.

Snail, Grass, and West Vadnais lakes outlet permitting with the DNR (Barr project manager: Erin Anderson Wenz; RWMWD project manager: Tina Carstens)

The purpose of this project is to coordinate permitting efforts for the proposed Snail, Grass, and West Vadnais lakes outlets with the DNR.

As described last month, Barr's next step is to reach out to the Minnesota Environmental Quality Board in the near future. We will have an update at the October meeting about what permitting the lowering of Grass Lake, West Vadnais Lake, and East Vadnais Lake will entail.

West Vadnais Lake to East Vadnais Lake gravity flow feasibility evaluation (Barr project manager: Erin Anderson Wenz; RWMWD project manager: Tina Carstens)

The purpose of this study is to understand the feasibility of lowering East Vadnais Lake levels and encouraging subsurface flow by gravity from West Vadnais Lake to East Vadnais Lake to reduce flooding in the Grass Lake area of the RWMWD. The scope of the study will give a better understanding of hydrologic dynamics between the connected water bodies and whether lowering East Vadnais Lake is a sufficient measure to reduce flooding while meeting the requirements of all involved stakeholders.

During the second week of October, geotechnical soil borings and piezometer installations will occur on the berm separating West Vadnais and East Vadnais lakes. Agreements with Ramsey County and St. Paul Regional Water Service have been obtained, and locations for borings and piezometers have been staked. RWMWD staff will conduct water-quality sampling of West Vadnais Lake during this time as well, and samples will be shipped to Eurofins Laboratory and SePro Laboratory for analysis. Following these field investigations, Barr will begin groundwater and surface-water modeling to determine how the two lakes are hydraulically connected, and how lake mixing will affect water quality in East Vadnais Lake. The geotechnical investigations will provide information on the quantity and rate at which water could flow through the berm based on lake levels. The water-quality analysis will determine if there are any additional pollutants in West Vadnais Lake that East Vadnais Lake does not have, or if West Vadnais Lake has higher concentrations of certain pollutants. Modeling results will be communicated with all

stakeholders (RWMWD board members and staff, Vadnais Lake Area Water Management Organization staff, and St. Paul Regional Water Service) to determine the next steps of the study.

Modeling of 500-year Atlas 14 district-wide (climate change scenario): flood map generation for future outreach efforts (Barr project manager: Erin Anderson Wenz; RWMWD project manager: Tina Carstens)

The purpose of this project is to use measured water-surface elevations to verify and fine-tune water surface elevations calculated by the RWMWD stormwater model. Following validation, the model will be used to simulate larger rainfall events, including the 500-year rainfall depth. The confidence limit (or uncertainty) associated with the 500-year flood elevation will be used to develop inundation maps that will allow for evaluation of how future climate change may affect flood inundation areas within the RWMWD and will be used for discussion with stakeholders when evaluating future flood-risk reduction projects within the RWMWD.

Barr completed initial simulations of design rainfall events. We used simulation results for the 100-year event to identify potentially flood-prone structures within the RWMWD. We are currently updating the model so that it can be used to simulate large rainfall events such as the 500-year event or estimates for future extreme rainfall events.

Before the end of the year, we will also run other recurrence interval storms through the models to get a sense of how lesser storms other than the 100-year and the 500-year events affect (or do not affect) low-lying structures to help prioritize projects in areas that flood during more frequent events.

Water-quality/project monitoring

Auto Lake monitoring systems (Barr project manager: Chris Bonick; RWMWD project manager: Eric Korte)

The purpose of this project is to install an automated system to monitor lake levels throughout the RWMWD and allow real-time transfer of data to the RWMWD's website for public consumption.

All land-owning entities now have PowerPoint presentations that show each station's location, appearance, and capabilities. Barr is waiting for feedback/approval from those entities and will follow up at the end of this week. We hope to order the equipment in the next week or two, depending on landowner approval.

Maplewood Mall monitoring (Barr project manager: Matt Kumka; RWMWD project manager: Paige Ahlborg)

The purpose of this project is to assess the functionality of the Maplewood Mall stormwater retrofit project as it enters its fifth year of total completion. Features that will be inspected include all stormwater infrastructure, plantings, and tree growth. The findings, including site improvement and maintenance recommendations, will be summarized and presented to the board.

During September, Barr created a field data collection application using ArcGIS Collector and populated it with all pertinent information for field inspections. Inspections are now substantially complete, and we are reviewing the findings internally and processing them for usefulness. We are creating geographic

information system (GIS) map figures to visualize the data and inform the findings and recommendations memorandum, to be presented to the board in the coming months.

Lake studies/watershed restoration and protection strategies (WRAPS)/total maximum daily load (TMDL) reports

2018 grant applications (Barr project manager: Erin Anderson Wenz; RWMWD project manager: Tina Carstens)

The purpose of this project is to track grant opportunities and submit grant applications to help fund RWMWD projects.

This period, Barr completed a grant application to be submitted to the Minnesota Stormwater Research Council. The study involves a (potential) application of spent lime from St. Paul Regional Water Service to a pond immediately south of Wakefield Lake ("Wakefield Pond") in the RWMWD that is known to have a significant internal load of phosphorus. The project would involve both lab and field testing (perhaps analogous to the approach being taken at the Shoreview Pond with the iron-aggregate application, but without St. Anthony Falls Laboratory involvement). This project would be in partnership with St. Paul Regional Water Services and the Vadnais Lake Area Water Management Organization (which is also considering a pond application). The application was submitted on September 7; we expect to hear whether or not the application is approved by the end of November.

Evaluation of the water-quality benefit of removing accumulated sediment from the south end of Wakefield Lake to improve Lake Phalen water quality (Barr project manager: Erin Anderson Wenz; RWMWD project manager: Tina Carstens)

The purpose of this project is to determine the effect of removing accumulated sediment in the south end of Wakefield Lake and to assess the related water-quality benefit to the lake and downstream water bodies.

This summer, Barr collected bathymetric data and sediment cores from Wakefield Lake in 12 locations to estimate the total volume of accumulated sediment from historic conditions and determine disposal requirements for the dredged sediment. We conducted P8 modeling to evaluate the water-quality impact of managing the dredged sediments. We then developed a planning-level cost estimate and quantified a cost-benefit analysis for the dredging activities. Barr has drafted and is internally reviewing a memorandum that summarizes the findings and recommendations. It will be sent to RWMWD staff for review soon.

Research projects

Kohlman weir test system (Barr project manager: Keith Pilgrim; RWMWD project manager: Bill Bartodziej)

The purpose of this project is to test new filtration media on a routine basis.

No further monitoring or testing was completed. We will conduct testing again in the fall to evaluate if continuous treatment from May through October has impacted treatment performance. Keith Pilgrim plans to present the data at the November board meeting.

Capital improvements

Wakefield Park/Frost Avenue stormwater project (Barr project managers: Erin Anderson Wenz and Fred Rozumalski; RWMWD project manager: Paige Ahlborg)

The purpose of this project is to work with the City of Maplewood and its consultants to develop a site plan that involves stormwater management features with associated educational elements for the northern portion of Wakefield Park.

In early July, Barr completed the concept plan for Wakefield Park BMPs. Last week, the City of Maplewood requested changes to the shape of the large eastern park basin. The city prefers to maintain play field space and to have the basin wrap around the stormwater treatment facility. Barr is currently redesigning this basin and will run the stormwater quality model to predict effectiveness. The last time the model was run, it showed a 41.5-pound reduction in total phosphorus from the new treatment facilities at Wakefield Park (including the Frost-Kennard spent lime filter). The TMDL-desired treatment reduction has been set at 51.8 pounds of total phosphorus. The revised concept plan will be presented to the Maplewood Parks Commission and Maplewood City Council for approval in mid-October. We anticipate that the project will go out for bid late this year.

School, commercial, and faith-based sites BMP retrofit projects (Barr project manager: Matt Kumka; RWMWD project manager: Paige Ahlborg)

The purpose of this project is to design, provide bid assistance for, and oversee construction of BMP retrofits on previously identified commercial, school, and faith-based properties throughout the RWMWD.

Rain garden construction of the New Horizon Day Care in Woodbury and House of Prayer Lutheran Church in Oakdale is set to begin as contracting is concluding. A pre-construction meeting is scheduled for September 25. The gardens will be substantially completed this fall, with plantings likely to occur in the spring.

Roseville High School campus stormwater retrofit feasibility study (Barr project manager: Leslie DellAngelo; RWMWD project manager: Paige Ahlborg)

The purpose of this project is to evaluate the feasibility of a regional stormwater infiltration or filtration project and other local stormwater infiltration projects at Roseville High School. The school is designing

an addition to the southeast end of the building, so the project will also include coordination with Roseville High School and its design engineers to place stormwater BMP retrofits.

Barr has reviewed the information provided by the high school to better understand the existing stormwater system and site drainage patterns and infrastructure. We are evaluating a regional underground filtration BMP by analyzing the hydraulic capacity of the existing storm sewer in the area using the RWMWD's XP-SWMM model.

BMP incentive fund: general BMP design assistance and review (Barr project manager: Matt Kumka; RWMWD project manager: Paige Ahlborg)

The purpose of this project is to respond to requests for assistance to find cost-share opportunities from RWMWD partners and to seek opportunities for cost-share projects throughout the RWMWD.

Barr continues to update the mobile GIS mapping program that focuses on underserved communities within the watershed. After recent meetings with local business community leaders, we are currently scheduling additional site visits with property owners in St. Paul.

Barr has identified two sites for further consideration (Culvers Restaurant and Motel 6, both in North St. Paul) and have begun a high-level BMP feasibility assessment at each site. This work includes field visits and sketching of potential BMPs for implementation.

Willow Pond CMAC Project (Barr project manager: Erin Anderson Wenz; RWMWD project manager: Tina Carstens)

The purpose of this study is to evaluate the feasibility of using CMAC technology in a project that involves diverting flows from Willow Pond to a filter that will remove dissolved and particulate phosphorus to benefit Bennett Lake.

Construction began during the second week of September with clearing and grubbing and tree removal. City and Barr staff approved all clearing limits and trees marked for removal prior to clearing activities. Peterson Companies will remove additional trees at the city's request. The city will pay the RWMWD for the additional trees removed beyond the scope of the project.

Peterson Companies has submitted and Barr has reviewed the majority of the material and product submittals required by the contract documents. We have obtained all required construction permits.

CIP project repair and maintenance

Beltline and Battle Creek tunnel repair construction services (Barr project manager: Nathan Campeau; RWMWD project manager: Dave Vlasin)

The purpose of this project is to perform ongoing maintenance and repairs of the Beltline tunnel system to significantly increase the service life of the tunnel.

PCi completed the final closeout documentation and provided a final pay application. The managers received a final change order at the September 5 meeting, and that change-order amount is reflected in

the final pay application. Provided that the pay application and change order are executed, we anticipate closing out the project and completing the construction report in the next period.

CIP maintenance/repairs 2018 project (Barr project manager: Greg Nelson; RWMWD project manager: Dave Vlasin)

The purpose of this project is to maintain the existing systems and infrastructure owned and operated by the RWMWD and to assist and facilitate stormwater pond cleanouts to allow other public entities to meet their MS4 requirements.

Barr recently completed work at Battle Creek Lower Ravine Park, and we expect to complete work at the West Vadnais Lake outlet trash rack in early October. Only a few punch-list items remain, which we anticipate will be addressed soon.

Natural Resources Update – Bill Bartodziej and Simba Blood

Phalen Chain of Lakes – DNR White Bass Stocking Update

This summer, the Minnesota DNR stocked 14,000 white bass fingerlings into Lake Phalen, the third year of an attempt to establish a self-sustaining population of the fish. We are watching this project closely as it aims to provide a new recreational opportunity on the Phalen Chain, particularly for the Hmong community.

Habitat

The white bass (Morone chrysops) is most commonly found in larger rivers, like the St. Croix and the Mississippi, and adjoining lakes and tributaries. There are populations of white bass in Pleasant and Vadnais Lakes, because of their strong connection to the Mississippi River. In 2016, the state record white bass was caught by Kanchic Yang from the shores of Vadnais Lake. It is very likely that white bass are native to the Phalen Chain due to its connection to the Mississippi. In the winter of 2010, while netting carp out of Gervais, we captured two adult white bass. This was somewhat surprising since there wasn't a modern record of white bass being present in the Chain; but this netting certainly supports the thesis that this species is a native resident.

Kanchic Yang of St. Paul caught the state record white bass, by weight, when he snared the fish on Oct. 10, 2016, in Vadnais Lake in Vadnais Heights. (Minnesota Department of Natural Resources)

Reproduction and Growth

The white bass spawns in the spring and early summer, when the water temperature reaches 61 degrees (F). A sexually mature female will broadcast one-half of one million eggs over near shore sand and gravel bars. They do not build nests like bluegill and crappie. In larger lakes, this species will move upstream to spawn in shallow moving water. There is some of this habitat available in the Chain, mainly in Keller Creek and at the inlet of Lake Gervais from Kohlman, yet it is unclear if the white bass has or will successfully reproduce in this system. This species grows quickly, reaching 10-12" in 3 years.

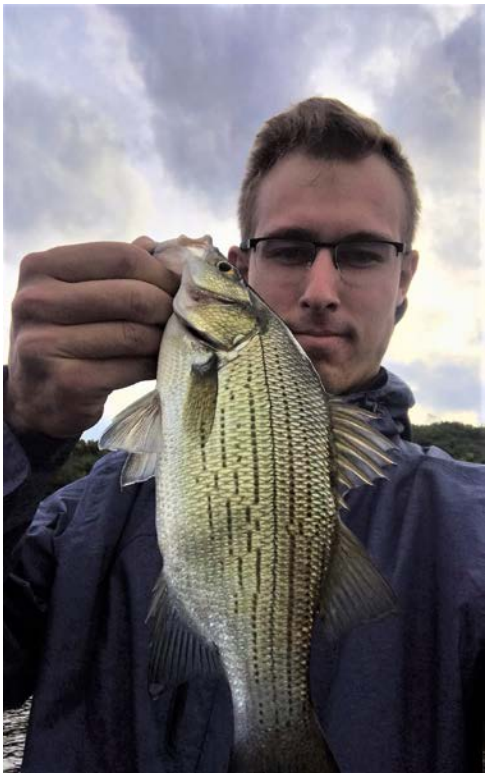
Cultural significance

The white bass has been typically ignored by Minnesota anglers steeped in the tradition of catching and eating walleye. However, over the last decade, the infusion of Hmong immigrants to the east side of St. Paul has expanded traditional fishing views. In 2007, a Southeast Asian sportsman's group started working with DNR to create white bass fishing opportunities. In addition to being fun to catch, the white bass is considered excellent table fare that resembles a white fish found in northern Laos. The white bass is also easily caught from shore. Fishing in the Hmong community is very important, and the DNR believes that it is critical to work with its constituents to shape regional management goals.

DNR's Stocking Plan

TJ DeBates, Regional Fisheries Manager for the East Metro area, is in charge of this white bass stocking project. Over the last 3 years, 29,000 white bass fingerlings have been stocked into Lake Phalen by the DNR. Their goal is to create a new quality fishing opportunity in the St. Paul area. Over the next few years, TJ's team plans to conduct fish surveys in order to gauge the success of the stocking, and to determine if the white bass is successfully reproducing in the Chain. Additional stocking efforts may also take place.

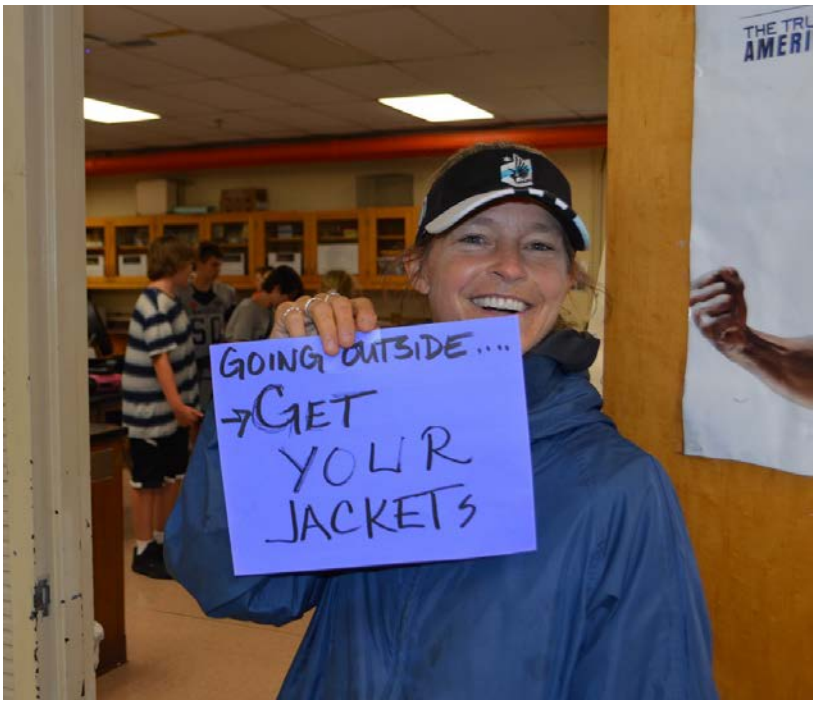
DNR releasing white bass fingerlings in Lake Phalen – 2018



A 12" – 3 year old white bass (Tippecanoe Outdoors)

Public Involvement and Education Program – Sage Passi

Fall watershed education season kicks in gear at schools



Tracy Leavenworth cues 7th graders at Roseville Middle School to prepare for work in the school's rain garden.

L'Etoile du Nord, Weaver, St. John School of Little Canada and Central Park prepare for tours

Sage Passi and Tracy Leavenworth (K-12 Consultant) launched this fall season's school watershed activities by meeting with teachers at L'Etoile du Nord French Immersion, Weaver Elementary, St. John School and Central Park to make plans for field trips, classroom lessons and other activities throughout the year. Walking field trips to the Beaver Lake neighborhood and the lake for three L'Etoile du Nord fourth grade classes are scheduled for October 9th, an October 12th walk to the Watershed District office and Gervais Millpond by St. John's seventh graders and a Weaver walking field trip to Wakefield Lake by four fifth grade classes on October 23.

Depending on their destination, classes will have the opportunity to explore rain gardens along the way to Wakefield and Beaver Lakes, test the water clarity at the Wakefield Lake boardwalk, view the watershed features at the District office, test water in Gervais Creek and Mill Pond, clean a storm drain, discover an inlet and outlet at Beaver Lake and visit a LEAP award winning garden.

Battle Creek Middle School

Each fall ESL science classes from this school do storm drain stenciling in the neighborhood with support from Friends of the Mississippi River and Tracy. This year this activity is scheduled for mid-October. An introduction to watershed and water quality was provided for each of the classes in mid-September.

Roseville and Maplewood middle schools tend their rain gardens this fall

Landbridge Ecological staff helped us plant with Roseville Middle School students.

We worked with three Roseville Middle School seventh grade classes to fill in their large rain garden with additional shrubs, grasses and flowering plants on September 21st and did some weeding. Students also engaged in a reflection activity and documented their observations about their garden in their science journals. Maplewood Middle School students also did a supplemental planting in their rain gardens and spent a couple hours doing some maintenance in their newly created terraced native habitat garden.

Welcoming Lionsgate Academy to the Watershed

Sage initiated our partnership with this new school in Shoreview the week of September 24 by providing hands-on activities about watersheds and water quality and gave a slideshow highlighting the variety of activities we have done over the years with schools. This was a fun opportunity to work with four biology classes. We also have plans to provide similar sessions with three earth science classes later this fall.

RWMWD is excited about working with this school. Their new rain garden and habitat area will be planted in the spring by students. We also hope to involve classes in some tours and other related outdoor activities. Welcome to the circle, science teachers, Patrick Kosher and Dustin Suggs!

Eagle Scout rain garden project completed by Ben Belin and his Little Canada troop

Ben Belin, a student from Roseville High School developed an Eagle Scout project in Little Canada to revamp an overgrown and neglected rain garden.

In mid-summer, high school student Ben Belin visited our Watershed District office and inquired about doing an Eagle Scout project at the Little Canada City Hall rain garden across the street that had been overtaken by many invasive plants. After meeting with RWMWD and Little Canada park staff, Ben was advised to choose another site because the city hall's garden is overgrown by a non-native species leafy spurge which is very challenging to remove and can only be successfully treated by an herbicide, Tordon, that our Watershed District doesn't use. Ben consulted with the city and eventually found another city rain garden site on Sextant Avenue in Little Canada, built many years ago that was in need of remediation due to the lack of maintenance.

Ben and Sage Passi met at the site and "mapped" the rain garden by dividing it into sections using stakes and tape to define quadrants and determine where the desirable and non-desirable plants were located. An estimate was made of the number of plants needed to fill in the space that would be opened up by removing the extensive weeds in the garden.

Ben created a rain garden planting template online and worked with the Watershed District to put together a plant list. Some additional species were chosen to add to the rain garden. He developed a budget, a work plan and then presented his final plan to the Little Canada City Council who agreed to fund his project. As a last step he organized a work day on September 8th when volunteers from his troop, his family and friends (13 volunteers in total) worked together to remove weeds, clean the inlet, re-mulch the garden, plant additional plants, water the rain garden and celebrate their success!

Ben directed volunteers to remove invasive plants in a Little Canada's curb cut rain garden.

Volunteers revitalized a Little Canada curb-cut rain garden with a variety of plants once the extensive weeds were removed.

Watershed staff visited Gladstone Savanna in Maplewood

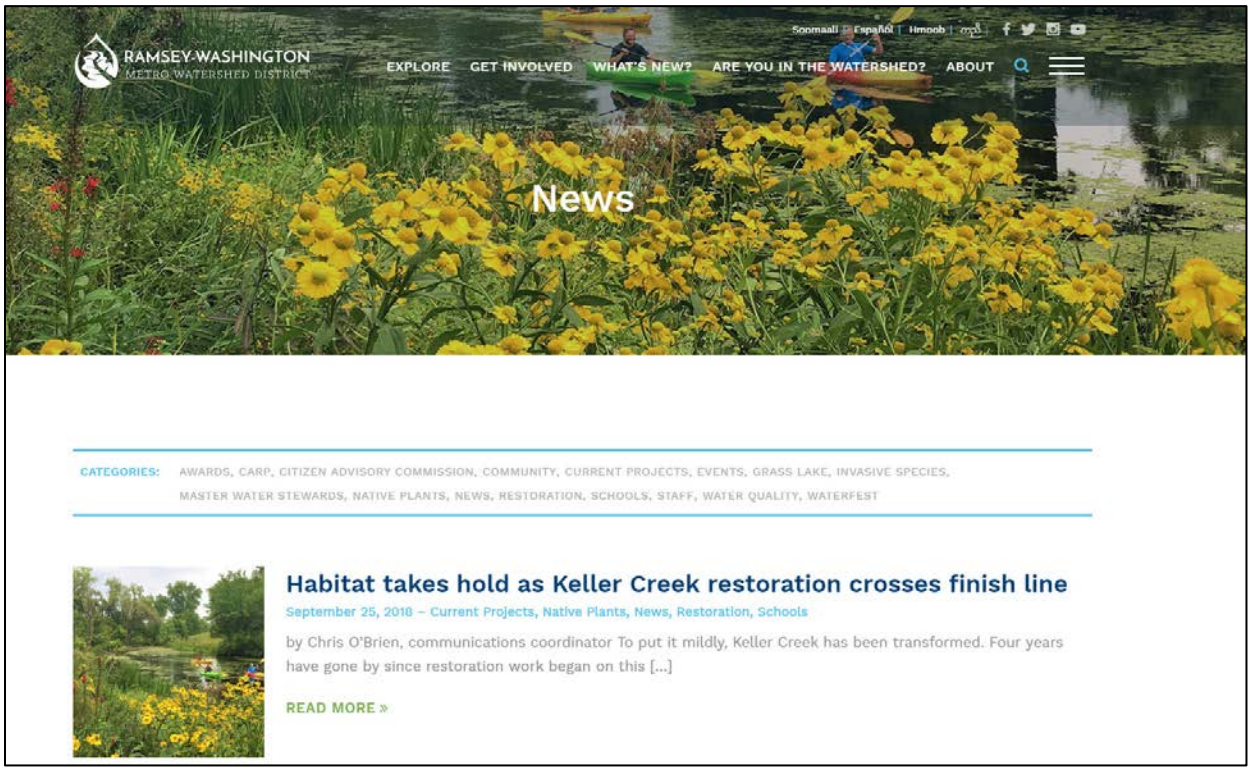
Ginny Gaynor, Maplewood Natural Resources Manager, led a tour in the Gladstone Savanna on September 10th for Watershed District staff. Gladstone Savanna is one of fourteen Maplewood Neighborhood Preserves built on the site of historic railroad repair shops and the City of Gladstone. RWMWD provided a $265,000 BMP cost-share grant to the city to help cover costs of the stormwater system on site.

In 2011, Maplewood staff, consultants, and residents developed a master plan for Gladstone Savanna. The railroad history of the site was a driving force in the plan and is quite evident in many design elements. Our tour accentuated those historical elements and highlighted the restoration's progress, successes and challenges in reclaiming this large area in the middle of the city.

Communications Update – Chris O'Brien

Keller Creek communications

With the Keller Creek restoration project complete, we published an article through our blog, email and social media on September 25th. The article includes some dramatic before and after shots with a focus on the return of wetland edge habitat that had been gone from the creek for 100 years. The Maplewood-Ramsey County Review is planning to publish a story on the project, and we will pitch it to other media outlets as well.

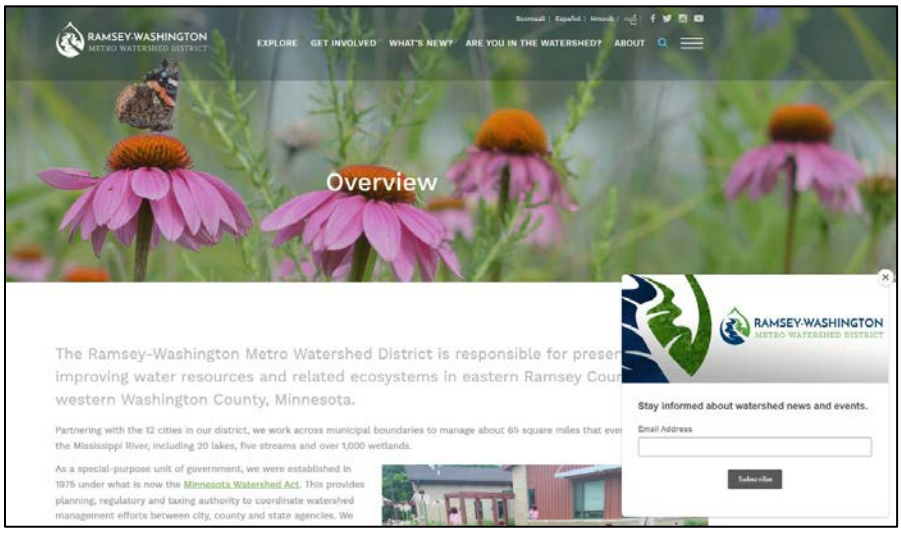


Willow Pond spent lime filter

A blog article on September 6th announced the beginning of construction on the new spent lime filter at Willow Pond in Roseville. Work should be completed this fall, including excavation of the treatment basin and installation of new storm sewer and electrical lines. A follow-up Facebook post on September 18 showed construction progress with a link to the blog article for more information.

Email popup for website

To help build our email list, we added a pop-up box to our website where visitors can easily sign up. The automated box is set to appear after five seconds of visiting the site, and once a user interacts with it by either signing up or clicking the "X" to close, the browser remembers not to show the pop-up again, unless internet history/cookies are cleared.



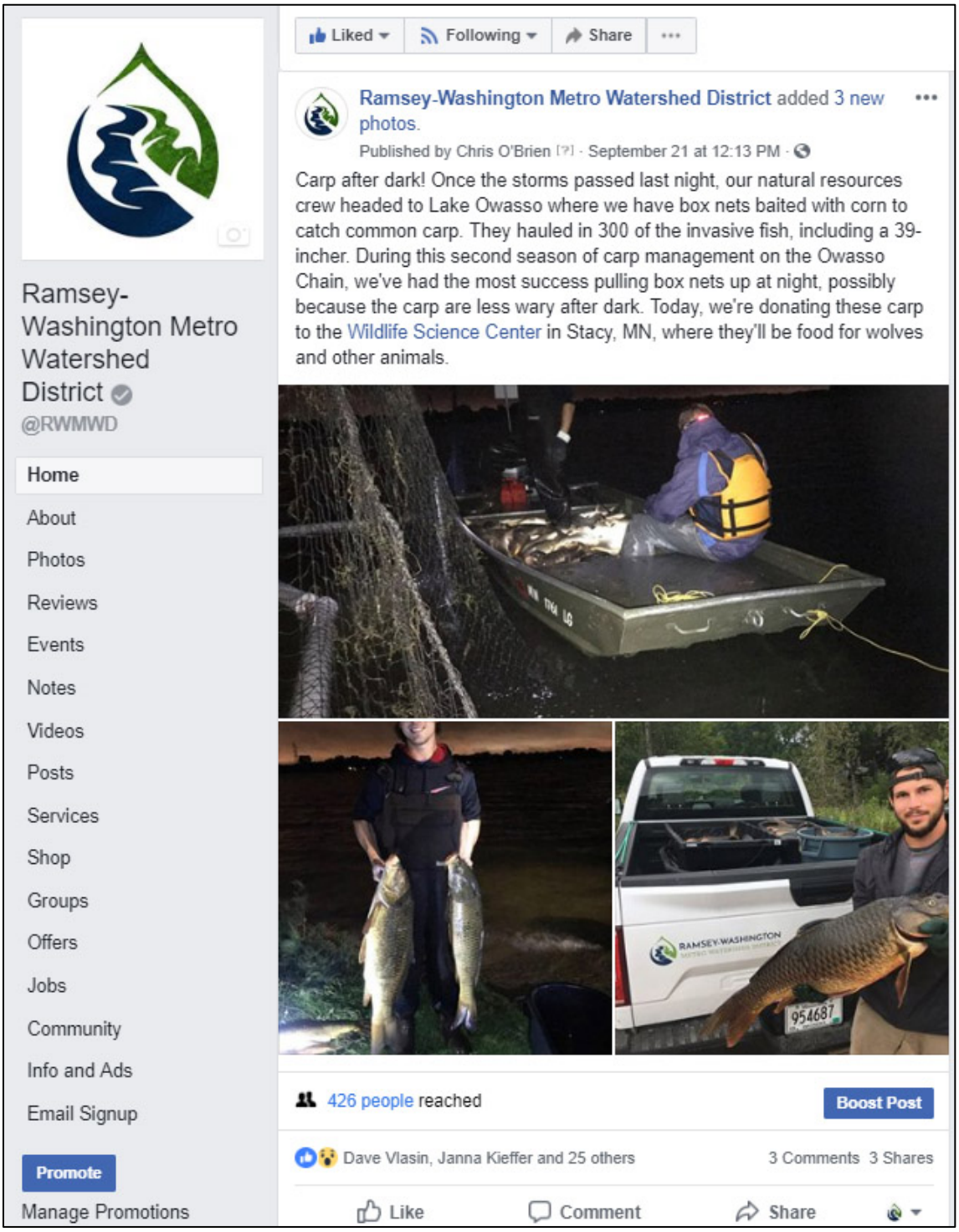
Vadnais and Snail Lakes restoration signage

We ordered four "Restoration in Progress" signs for the Conservation Partners Legacy grant-funded habitat restoration in Vadnais-Snail Lakes Regional Park. District efforts will focus on wetland buffer habitat with Ramsey County Parks and Recreation restoring the surrounding upland forest.

Signs will be installed along the walking path and include a web address to find more information about the project as it progresses over the next two years. The website page is almost ready to launch; we are waiting for Ramsey County to bid the project and determine their scope/timing for the upland restoration piece.

Top social media post for September: Carp after dark!

The natural resources team brought in a late night haul of 300 common carp from box nets on Lake Owasso, prompting several Facebook comments including the obligatory, “Holy carp!”.



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Informational Items

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Shallow lake restoration balances water quality and recreation

Keller Lake in Ramsey County is one of more than 5,000 shallow lakes in Minnesota. **Photo Credit:** Ramsey-Washington Metro Watershed District

Shallow lakes are abundant across Minnesota, making up nearly half of the state's total lakes. According to the Minnesota Department of Natural Resources (DNR), a shallow lake is defined as any lake with a maximum depth of 15 feet or with 80 percent or more of the lake area shallow enough to support emergent and submerged rooted aquatic plants. They provide critical habitat for wildlife, and offer a range of angling and recreational opportunities.

The unique ecological makeup of shallow lakes requires different management and restoration practices. To maintain a shallow lake, conservationists must balance efforts to sustain clean water, aquatic plant life and recreational activities.

The Ramsey-Washington Metro Watershed District (RWMWD) recently produced an educational video, *Getting to Know Shallow Lakes*, to explain the characteristics and needs of urban shallow lakes in Minnesota. This video serves as a primer on shallow lakes ecology and includes perspectives on the value of clean water and healthy habitat.

The idea for the video came from RWMWD Natural Resource Specialist Bill Bartodziej, who recognized that some lake users may not have understood shallow lakes' unique ecology.

"By explaining how shallow lakes are inherently different from deep lakes, we can help folks appreciate these important ecosystems," Bartodziej said.

Shallow lakes exist in one of two states: turbid (clouded) or clear-water.

Lakes in a turbid state tend to be dominated by algae and are often home to large populations of common carp, which can have a detrimental effect on water quality. Water quality tends to be poorer in

turbid lakes.

Shallow lakes in a clear-water state mostly contain rooted aquatic plants. A shallow lake that is in a clear-water state may have abundant aquatic plants from shore-to-shore, providing habitat for fish and aquatic insects.

When it comes to restoring a shallow lake, lake managers generally need to take the following steps to balance water quality, fish and aquatic plants and recreation.

Identify phosphorus sources. Lake managers gather water-monitoring data to identify potential sources of excess phosphorus, a key nutrient that influences algae growth. Identifying phosphorus sources helps in the selection of best management practices needed to address watershed runoff and internal nutrient loading within the lake.

> **“By explaining how shallow lakes are inherently different from deep lakes, we can help folks appreciate these important ecosystems.”**
>
> – Bill Bartodziej, Natural Resource Specialist, Ramsey-Washington Metro Watershed District

Reduce phosphorus entering the lake. Best management practices vary based on whether the lake is urban or rural. To reduce phosphorus entering a lake, practices can include limiting the use of fertilizers, planting raingardens or native vegetation

Kohlman Lake in Ramsey County is a 74-acre shallow lake in the Phalen Chain of Lakes. Over the past 10 years, water quality has improved thanks to conservation efforts. **Photo Credit:** Ramsey-Washington Metro Watershed District

to filter nutrients, or constructing stormwater retention ponds or water and sediment control basins to settle out nutrient-rich sediments. Choosing the right practice may also depend on whether most of the phosphorus is dissolved in the water or attached to sediment.

Immobilize phosphorus in the lake sediments. Once the amount of phosphorus coming into the lake is reduced, lake managers may need to reduce in-lake phosphorus loads. One best management practice used is reducing common carp populations because these fish stir up lake sediments (releasing phosphorus) and destroy lake plants. Another practice used is adding aluminum sulfate to the lake, which binds to phosphorus in the lake sediments and keeps it from being released and contributing to algae blooms.

Manage expectations. Once the lake water is cleaned up, managing the expectations of those who use shallow lakes for recreation can be challenging. A healthy shallow lake in a clear-water state should have abundant aquatic plant life throughout most of the lake. But thick beds of plants can make it challenging to swim, water-ski and boat.

Bartodziej recommends sharing straightforward information to help lake users understand what types of recreation a given lake can reasonably support.

A significant challenge in restoring and maintaining shallow lakes remains balancing healthy aquatic plant life with water quality and recreation. The best way to ensure a smooth restoration process is to ensure everyone involved at the local level is well informed of the challenges and trade-offs that come with managing shallow lakes.