RAMSEY-WASHINGTON
METRO WATERSHED DISTRICT

December 2018 Board Packet

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Agenda

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RAMSEY-WASHINGTON
METRO WATERSHED DISTRICT

Regular Board Meeting Agenda

Wednesday, December 5, 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 November 7, 2018
    B. 2019 BMP Program Service Agreement with Washington Conservation District
    C. 2019 BMP Program Service Agreement with Ramsey County Soil and Water Conservation Division
4. **Treasurer's Report and Bill List**
5. Visitor Presentations
6. Permit Program
    A. Applications
        i. **18-28 RWMWD 2019 Maintenance and Repair Project, various cities**
        ii. **18-29 Larpenteur-Prosperity Filtration BMP, St. Paul**
        iii. **18-30 Morrie's Mercedes Benz, Maplewood**
    B. Enforcement Action Report
7. Stewardship Grant Program
    A. Applications – None.
    B. Budget Status Update
    C. 2018 Program Overview and 2019 Program Review and Approval
8. Action Items
    A. 2019 CIP Maintenance and Repair Project Bid Review and Award
    B. 2019 Budget and Levy Final Approval – Resolution 18-08
9. Administrator's Report
    A. Meetings Attended
    B. Upcoming Meetings and Dates
    C. Upcoming Project Coordination Update

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10. Project and Program Status Reports
    A. Project Technical Report: West to East Vadnais Lake Gravity Flow Feasibility Evaluation
    B. Project Report: Lake Owasso Emergency Response Plan and Snail Lake/Grass Lake Area Flood Risk Reduction Projects
    C. Ongoing Project and Program Updates
        i. Owasso Park Stormwater Master Plan
        ii. Beltline Resiliency Study
        iii. At Risk Subwatershed Feasibility Studies
        iv. District Office Parking Lot Retrofit
        v. FEMA Flood Mapping
        vi. West Vadnais Lake Outlet Permitting
        vii. 500-Year Atlas 14 Modeling
        viii. Auto Lake Monitoring Systems
        ix. Maplewood Mall Monitoring
        x. Wakefield Park/Frost Avenue Project
        xi. Targeted Retrofit Projects
        xii. BMP Design Assistance and Review
        xiii. Beltline/Battle Creek Tunnel
        xiv. New Technology Case Study: NutrimaxTM Advanced Vegetated Bioretention
        xv. Natural Resources Program
        xvi. Education Program
        xvii. Communications Program
11. Informational Items
12. Report of Managers
13. **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
November 7, 2018

The Regular Meeting of November 7, 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
Erin Anderson Wenz, Barr Engineering
Bill Bartodziej, Natural Resource Specialist
Paige Ahlborg, Project Manager
Tracey Galowitz, Attorney for District
Nicole Soderholm, Permit Inspector
Keith Pilgrim, Barr Engineering
Lauren Grouws, M/I Homes

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

2. APPROVAL OF AGENDA
Tina Carstens requested to add Item 8B, Change Order for Grass Lake Berm Project.
Motion: Cliff Aichinger moved, Lawrence Swope seconded, to approve the agenda as amended. Motion carried unanimously.

3. CONSENT AGENDA
A. Approval of Minutes from October 10, 2018
Motion: Dianne Ward moved, Cliff Aichinger seconded, to approve the consent agenda as presented. Motion carried unanimously.

4. TREASURER'S REPORT AND BILL LIST
Motion: Cliff Aichinger moved, Lawrence Swope seconded, to approve the November 7, 2018, bill list as submitted. Motion carried unanimously.

5. VISITOR PRESENTATIONS
There were none.

6. PERMIT PROGRAM

A. Applications

Permit #18-27: McKnight Road Development – North St. Paul

Nicole Soderholm stated that this will be a townhome subdivision. She noted that there will be a slight revision to the plan which will eliminate the single-family home portion of the project. She stated that the stormwater elements will not change, there will just be less impervious surface.

Manager Aichinger asked and received confirmation that the change in plans was in response to comments made from neighboring property owners.

Motion: Dr. Pam Skinner moved, Cliff Aichinger seconded, to approve Permit #18-27. Motion carried unanimously.

B. Monthly Enforcement Report

During October, 28 notices were sent to address: install/maintain inlet protection (5), install/maintain perimeter control (8), install/maintain construction entrance (4), sweep streets (1), stabilize exposed soils (4), contain liquid/solid wastes (1), remove discharged sediment (1), and protect/maintain permanent BMPs (4).

7. STEWARDSHIP GRANT PROGRAM

A. Applications

Permit #18-26 CS: Kosobayashi – Rain Gardens and Native Planting

Paige Ahlborg provided details, noting that this project is intended to improve erosion issues and add additional native plantings.

Motion: Cliff Aichinger moved, Dianne Ward seconded, to approve Permit #18-26 CS. Motion carried unanimously.

Permit #18-05 CS: Lionsgate Academy – Budget Adjustment

Paige explained that changes were made upon the request of the District because of poor soils that were identified which increased the overall cost. She noted that these funds would come from the school retrofit funds.

Motion: Dianne Ward moved, Dr. Pam Skinner seconded, to approve the budget adjustment for Permit #18-05 CS. Motion carried unanimously.

B. Budget Status Update

No additional comments.

8. ACTION ITEMS

A. 2019 CIP Maintenance and Repair Project Approval of Plans and Authorization to Advertise for Bid

Tina Carstens stated that the packet of information was provided to the Board the previous day and is also available at the desk for the Managers. She confirmed that this is an annual project for the District which addresses annual maintenance and repair items.

Erin Anderson Wenz provided a highlight of the projects that will be included in the 2019 CIP Maintenance and Repair Project. She noted that the Maplewood Mall project, labeled C05, has been removed and will be included in a separate project. She noted that the majority of projects will include removal of sediment and provided details on the different projects. She provided specific details on the Snail and Grass Lake areas and the potential projects. She reviewed the estimated project cost for the entire 2019 CIP Maintenance and Repair Project, noting that total does not include reimbursements for pond sediment removal done for the communities.

President Ebensteiner stated that perhaps the District staff could reach out to the City of Shoreview in attempt to cost-share on the Snail Lake and Grass Lake items. Manager Aichinger suggested further discussion with Shoreview

on those elements to determine their ability/desire to cost-share. Tina stated that staff will be meeting with staff from Shoreview and Ramsey County Parks in the next few weeks to further discuss. It was the consensus of the Board to leave the items in the CIP as bid alternates with the understanding that those items could be pulled dependent upon the discussions with Shoreview and the county.

Motion: Cliff Aichinger moved, Dr. Pam Skinner seconded, to approve the preliminary design, estimated costs, and proposed project schedule, and direct staff to finalize the design and bidding documents and advertise the project for bid, listing the Snail Lake and Grass Lake Flooding Improvements (Items 12 and 13) as alternates.

Further discussion: Tracey Galowitz noted that the District has had difficulties with Fitzgerald with the past two CIP projects and therefore perhaps the District would like to alert the contractor that the Board may not select the contractor, even if they are the lowest bidder. It was the consensus of the Board to direct legal counsel to provide that communication to Fitzgerald.

Motion carried unanimously.

B. Change Order for Grass Lake Berm Project

Tina Carstens provided the final change order for the project, noting that additional work was completed as part of the project with a cost of approximately $6,000. She stated that it was a fair cost for the work performed.

Erin Anderson Wenz stated that there were woodchips discovered under the pipe at Gramsey Road and therefore corrective measures were needed. It was confirmed that it was not an error of the contractor.

Motion: Dianne Ward moved, Cliff Aichinger seconded, to approve Change Order No. 4 for the Grass Lake Berm Project. Motion carried unanimously.

9. ADMINISTRATOR'S REPORT

A. Meetings Attended

No comments.

B. Upcoming Meetings and Dates

Tina Carstens noted that the Watershed Excellence Awards will be held on November 14th.

C. 2019 Board Meeting Dates

Tina Carstens noted that both the January and July meeting dates fall around holidays and may need to be rescheduled. It was the consensus of the Board to leave the meeting dates as scheduled at this time.

D. MAWD Annual Meeting

It was noted that both Cliff Aichinger and President Ebensteiner will be attending the conference.

Motion: Dr. Pam Skinner moved, Lawrence Swope seconded, to appoint Cliff Aichinger and Marj Ebensteiner as the delegates for the MAWD Annual Meeting. Motion carried unanimously.

10. PROJECT AND PROGRAM STATUS REPORTS

A. Presentation: Preliminary Results for the Kohlman Basin Treatment Test Cells

Keith Pilgrim stated that he is present to share the results of the permeable reactive barrier test cells at Kohlman Basin. He provided examples of the different test materials that they have used during the study and the information that was gained to determine the long-term viability of that different materials. He stated that the study not only measured the amount of phosphorus reduction but also the amount of coliform bacteria that was removed using he different materials.

Manager Skinner asked if there would be an option to plant biological aquatic plants that could absorb the phosphorus and then could be harvested. Keith stated that Kohlman Lake is a success story for doing just that using the existing aquatic plant community to achieve phosphorus reduction. He stated that currently there is very low phosphorus concentration and algae levels, which have allowed the native vegetation to thrive. He stated that they have been doing a lot of monitoring to ensure that harvesting would not create an imbalance in the healthy lake. He provided information on the history of the aquatic plant coverage throughout the past ten years. He stated that he received a grant through Barr to continue to work on the data collected from Kohlman Lake to create a shallow lake model and reviewed the steps that will be a part of his process.

Manager Aichinger stated that the public response should also be a part of that. Bill Bartodziej replied that in response to the public comments, the District has offered a cost-share program for harvesting, as there is phosphorus being removed through the plants that are harvested as well. Tina noted that we have learned to also help set the appropriate expectations for residents on shallow lakes. Bill stated that this will be useful because of the monitoring data and will help to determine the amount of plant materials that can be harvested without negatively impacting the healthy lake system. Paige Ahlborg stated that the Kohlman Lake Association declined the opportunity to cost-share harvesting in 2018.

B. Project Memo: Wakefield Lake Sediment Management Analysis

Tina Carstens noted that the memorandum was provided for informational purposes.

Erin Anderson Wenz stated that there is a lot of sediment in the south end of Wakefield Lake. She stated that the study involved determining the amount of sediment, the type of contaminates, and the possible water quality improvement (which would be very small). She stated that there does not seem to be a great reason to remove the sediment. She stated that the recommendation would be to keep looking upstream of the inlet to the lake to look at water quality improvement projects. She stated that the District can speak with the City and County to communicate the amount of sediment, as technically the removal would be their responsibility.

C. Ongoing Project and Program Updates

i. Owasso Park Stormwater Master Plan
ii. Beltline Resiliency Study
iii. At Risk Subwatershed Feasibility Studies
iv. District Office Parking Lot Retrofit
v. Emergency Response Planning
vi. Snail, Grass and West Vadnais Lakes Outlet Permitting
vii. West to East Vadnais Gravity Flow Evaluation

Erin Anderson Wenz provided an update, noting that borings were done of the berm between East and West Vadnais Lakes and advised that piezometers were also installed. She stated that the lakes may be connected underground but the reversing the flow through the berm does not seem to be a viable option. She stated that water quality testing was also being done because of the high standards from St. Paul Regional Water Supply (SPRWS). She stated that there are a lot of concerns because of the high levels of contaminates compared to the standards that would need to be met from SPRWS. She stated that based on the early information there would need to be treatment done for water to go between the lakes. A technical memo outlining the results will be presented at the December board meeting.

viii. Auto Lake Monitoring Systems
ix. Maplewood Mall Monitoring
x. Wakefield Park/Frost Avenue Project
xi. Targeted Retrofit Projects
xii. Roseville High School Campus Retrofit Feasibility Study
xiii. BMP Design Assistance and Review

xiv. Willow Pond CMAC Project
Manager Aichinger noted that the Willow Pond project is almost completed and asked if that would be put online right away. Erin stated that it would come online in the spring. Manager Aichinger asked that regular updates be provided once that system is up and running.

xv. Frost/Kennard Spent Lime Project
xvi. Beltline/Battle Creek Tunnel
xvii. CIP Maintenance/Repair 2018
xviii. New Technology Case Study: ProCom NEPTUN System
xix. Natural Resources Program
xx. Education Program
xxi. Communications Program

11. INFORMATIONAL ITEMS
No comments.

12. REPORTS OF MANAGERS
Manager Ward provided information on an artist exhibit she visited that uses pond water and sediment.

13. ADJOURN
Motion: Dr. Pam Skinner moved, Cliff Aichinger seconded, to adjourn the meeting at 8:47 p.m. Motion carried unanimously.

Respectfully submitted,

Dr. Pam Skinner, Secretary

Consent Agenda Item

Board Meeting Date: December 5, 2018 **Consent Agenda Item No:** 3B

Preparer: Tina Carstens, Administrator

Item Description: Approval of the 2019 Service Agreement with Washington Conservation District (WCD) for BMP Incentive Program and Water Quality Monitoring.

Background:
This is a yearly agreement with WCD to provide technical services for the BMP Incentive Program and a small amount of water quality monitoring support in Washington County. The quality of support we receive from WCD in these two areas is economical and we have been happy with the work done by the staff. The staff meets with landowners in Washington County, provide education and potentially design BMPs for their properties. The total 2019 agreement is $20,000 for BMP work and $444 for water monitoring services. This is the same amount as previous years.

Applicable District Goal and Action Item:

Goal: Achieve quality surface water – the District will maintain or improve surface water quality to support healthy ecosystems and provide the public with a wide range of water-based benefits.

Action Items: Encourage and provide technical assistance to individuals to implement water quality improvement practices at their homes and businesses and in public places.

Staff Recommendation:
Approve the service agreement.

Financial Implications:
The costs incurred under this agreement are budgeted for through the BMP Incentive Program Fund.

Board Action Requested:
Approve the 2019 Service Agreement with Washington Conservation District.

Contract Number: 19-1 RWMWD

2019 SERVICE AGREEMENT
BETWEEN
WASHINGTON CONSERVATION DISTRICT
AND RAMSEY WASHINGTON METRO WATERSHED DISTRICT

A. PARTIES

This Agreement is made and entered into by Washington Conservation District, (WCD), and the Ramsey Washington Metro Watershed District (Watershed District).

B. PURPOSE

WHEREAS, the Watershed District has requested assistance from the WCD to implement the policies specified in MINN. STAT. §§ 103A.206 and 103D.201; and
WHEREAS, the WCD is authorized to enter agreements to provide such assistance pursuant to MINN. STAT. §§ 103C.331, SUBD. 3 and 7 and 103D.335, subd. 21.
NOW, THEREFORE, the parties agree as follows:

C. TERM OF AGREEMENT

The term of this agreement shall be from January 1, 2019 to December 31, 2019 unless extended or terminated earlier as provided herein.

D. SCOPE OF SERVICES

The WCD will perform all services and furnish and deliver work products generally described in the attached Exhibits.

E. COST

In full consideration for services under this agreement, the WCD shall charge the RWMWD for its services at the rate set forth in Section F. Costs for services for activities detailed in the attached Exhibits include:

Exhibit A: Technical Services for BMP Coast Share Program - $20,000
Exhibit B: Water Monitoring Services - $444

Total 2019 Agreement: $20,444

Any additional costs for special studies or capital projects must be set forth in a written amendment to this Agreement.

F. BILLING RATE AND PAYMENTS

1. Services in Exhibit A are billed on an hourly basis at the rate of $39.00 - $81.00 per hour, based on personnel and task.

Seasonal	$39.00
Technician	$57.00
Senior Technician/Specialist	$62.00
Senior Tech II /Specialist II	$68.00
Senior Specialist	$71.00
Manager/Administrator/Engineer	$81.00

   Services in Exhibit B are billed on a lump sum basis, and on an actual cost basis for lab and project expenses.

   Invoices for Exhibit A will be sent on a monthly basis, invoices for Exhibit B will be sent on a quarterly basis and both will list specifically the work performed.
2. Project expenses will be billed as they are accrued.
3. Invoices are payable by the RWMWD within 60 days.
4. Office supplies, normal office reproduction expenses, and transportation are included in the hourly rate. Other expenses are to be reimbursed at actual cost.

G. EQUAL EMPLOYMENT OPPORTUNITY- CIVIL RIGHTS

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

H. STANDARDS

The WCD shall comply with all applicable Federal and State statutes and regulations as well as local ordinances now in effect or hereafter adopted. Failure to meet the requirements of the above may be cause for cancellation of this contract effective the date of receipt of the Notice of Cancellation.

I. DATA PRIVACY

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

J. AUDITS, REPORTS, AND MONITORING PROCEDURES

The WCD will:

1. Maintain records that reflect all revenues, cost incurred and services provided in the performance of the Agreement.
2. Agree that the County, the State Auditor, or legislative authority, or any of their duly authorized representatives at any time during normal business hours, and as often as they may deem reasonably necessary, shall have access to the rights to examine audit, excerpt, and transcribe any books, documents, papers, records, etc., and accounting procedures and practices of the WCD which are relevant to the contract.

K. INDEMNITY

The WCD and the Watershed District mutually agree, to the fullest extent permitted by law, to indemnify and hold each other harmless for any and all damages, liability or cost (including reasonable attorneys' fees and costs of defense) arising from their own negligent acts, errors or omissions in the performance of their services under this agreement, to the extent each party is responsible for such damages and losses on a comparative basis of fault. Parties agree to provide proof of contractual liability insurance upon request. This paragraph does not diminish, with respect to any third party, any defense, immunity or liability limit that the WCD or the Watershed District may enjoy under law.

L. INDEPENDENT CONTRACTOR

It is agreed that nothing herein contained is intended or should be construed in any manner as creating or establishing the relationship of co-partners between the parties hereto or as constituting the WCD as the agent, representative, or employee of Watershed District for any purpose or in any manner whatsoever. The WCD is to be and shall remain an independent contractor with respect to all services performed under this Agreement.

The WCD represents that it has, or will secure at its own expense, all personnel required in performing services under this Agreement. Any and all personnel of the WCD or other person, while engaged in the performance of any work or services required by the WCD under this Agreement, shall have no contractual relationship with the Watershed District and shall not be considered employees of the Watershed District.

M. MODIFICATIONS

Any material alteration or variation shall be reduced to writing as an amendment and signed by the parties. Any alteration, modification, or variation deemed not to be material by written agreement of the WCD and the Watershed District shall not require written approval.

N. MERGER

It is understood and agreed that the entire agreement of the parties is contained here, except as modified during the term of the Agreement by a writing under Paragraph M above concerning a non-material change, and that this contract supersedes oral agreements and negotiations between the parties relating to this subject matter. All items referred to in this contract are incorporated or attached and deemed to be part of the contract.

O. TERMINATION

Either the WCD or the Watershed District may terminate this Agreement with or without cause by giving the other party ninety (90) days written notice prior to the effective date of such termination. If the Watershed District terminates this Agreement, it may specify work to be performed by the WCD before termination is effective and shall pay the WCD for services performed by the WCD up to the time specified for termination. If the WCD terminates the Agreement, it will not be compensated for part completion of a task except to the extent part completion has value to the Watershed District.

P. OWNERSHIP OF DOCUMENTS AND INTELLECTUAL PROPERTY

All property of the Watershed District used, acquired or created in the performance of work under this Agreement, including documents and records of any kind, shall remain the property of the Watershed District. The Watershed District shall have the sole right to use, sell, license, publish, or otherwise disseminate any product developed in whole or in part during the performance of work under this Agreement.

2019 SERVICE AGREEMENT
BETWEEN
WASHINGTON CONSERVATION DISTRICT
AND RAMSEY WASHINGTON METRO WATERSHED DISTRICT

RWMWD BMP COST-SHARE PROGRAM

IN TESTIMONY WHEREOF the parties have duly executed this agreement by their duly authorized officers.

APPROVED:

Watershed District WCD

BY: _____ BY:_____
Board President Date Board Chair Date

BY: _____ BY:_____
Secretary Date WCD Manager Date

Approval as to form and execution:

_____
Date

EXHIBIT A

2019 RWMWD BMP COST-SHARE PROGRAM

TASKS

1. **Project Oversight**
   All work performed by the WCD will be at the direction of the RWMWD staff.

2. **Landowner Outreach**
   Targeted and broad-based outreach techniques will be implemented through a coordinated effort of the RWMWD and WCD. Outreach will be coordinated with educational efforts by the RWMWD.

3. **Project Database**
   Project information will be maintained by the RWMWD. Information on assistance provided by the WCD will be regularly communicated to the RWMWD staff Coordinator.

4. **Respond to inquiries from the public**
   The RWMWD will act as the primary and first responder to inquiries from the public regarding the BMP Program. The WCD and the RWMWD will jointly provide responses to the public regarding general program information, program eligibility, best management practice information, and general watershed information.

5. **Site Reviews and Project Evaluation**
   Initial site visits will be provided by the WCD County-wide and are part of the standard WCD programs and not charged under this contract. Follow-up reviews and subsequent site visits of potential BMP implementation sites will be conducted under this contract. Other activities will include:, assessing BMP options which will adequately address the problem, discussing BMP alternatives with landowners, and promoting implementation of BMPs. WCD will assist program applicants with identification of supplemental funding sources if needed. Educational materials will be distributed during the site visit.

6. **BMP Design and Contractor Assistance**
   The WCD will coordinate BMP design assistance. Design support will be provided by WCD technical resources and/or obtaining assistance from an appropriate technical agency, organization, or the Watershed District. WCD will assist landowners with obtaining qualified contractors to install BMPs if requested.

7. **Construction Monitoring (Site inspections)**
   The WCD will monitor construction activities to verify proper implementation of BMPs.

8. **Miscellaneous Services**
   Other services may be provided as requested by the Watershed District to implement and carry out the Program.

EXHIBIT B

2019 WATER MONITORING SERVICES

Total Monitoring Cost Summary	Labor	Lab Expenses	Total Cost
Total RWMWD Lake Gage Monitoring Cost	$444	$0	$444
RWMWD Total	$444	$0	$444

Consent Agenda Item

Board Meeting Date: December 5, 2018 **Consent Agenda Item No:** 3C

Preparer: Tina Carstens, Administrator

Item Description: Approval of the 2019 Service Agreement with Ramsey County – Parks and Recreation Department – Soil & Water Conservation division (SWCD) for the BMP Incentive Program.

Background:
This is a yearly agreement with the Ramsey SWCD to provide technical services for the BMP Incentive Program in Ramsey County. The quality of support we receive from SWCD in this area is economical and we have been happy with the work done by the staff. The staff meets with landowners in Ramsey County, provide education and potentially design BMPs for their properties. The total 2018 agreement is a not to exceed of $60,000 for BMP work. This is the same amount as in previous years.

Applicable District Goal and Action Item:

Goal: Achieve quality surface water – the District will maintain or improve surface water quality to support healthy ecosystems and provide the public with a wide range of water-based benefits.

Action Items: Encourage and provide technical assistance to individuals to implement water quality improvement practices at their homes and businesses and in public places.

Staff Recommendation:
Approve the service agreement.

Financial Implications:
The costs incurred under this agreement are budgeted for through the BMP Incentive Program Fund.

Board Action Requested:
Approve the 2019 Service Agreement with Ramsey County – Parks and Recreation Department – Soil & Water Conservation division (SWCD) for the BMP Incentive Program.

2019 SERVICE AGREEMENT
BETWEEN
RAMSEY COUNTY
AND RAMSEY WASHINGTON METRO WATERSHED DISTRICT

RWMWD BMP COST-SHARE PROGRAM

A. PARTIES

This is an Agreement between Ramsey County, a political subdivision of the State of Minnesota, on behalf of its Parks & Recreation department – Soil & Water Conservation division (SWCD), 1425 Paul Kirkwold Drive, Arden Hills, MN 55112, and the Ramsey Washington Metro Watershed District (Watershed District), 2665 Noel Drive, Little Canada, MN 55117.

B. PURPOSE

WHEREAS, the Watershed District has requested assistance from the SWCD to implement the policies specified in MINN. STAT. §§ 103A.206 and 103D.201; and
WHEREAS, the SWCD is authorized to enter agreements to provide such assistance pursuant to MINN. STAT. §§ 103C.331, SUBD. 3 and 7 and 103D.335, subd. 21.
NOW, THEREFORE, the parties agree as follows:

C. TERM OF AGREEMENT

The term of this agreement shall be from January 1, 2019 to December 31, 2019 unless extended or terminated earlier as provided herein.

D. SCOPE OF SERVICES

The SWCD will perform all services and furnish and deliver work products generally described in the attached Exhibits.

E. COST

In full consideration for services under this agreement, the Watershed District will compensate the SWCD for providing the services listed in Exhibit A, on an hourly basis, not to exceed $60,000 during the term of this agreement.

Any additional costs must be set forth in a written amendment to this Agreement.

F. BILLING RATE AND PAYMENTS

The Watershed District will pay the SWCD the amount of the cost for services invoiced by the SWCD, within 30 days after receipt, based on the fee schedule listed in Exhibit 2 of this agreement. Project expenses will be billed as they are accrued. Office supplies, normal office reproduction expenses, and transportation are included in the hourly rate. Other expenses are to be reimbursed at actual cost.

G. EQUAL EMPLOYMENT OPPORTUNITY- CIVIL RIGHTS

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

H. STANDARDS

The SWCD shall comply with all applicable Federal and State statutes and regulations as well as local ordinances now in effect or hereafter adopted. Failure to meet the requirements of the above may be cause for cancellation of this contract effective the date of receipt of the Notice of Cancellation.

I. DATA PRIVACY

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

J. AUDITS, REPORTS, AND MONITORING PROCEDURES

The SWCD will:

1. Maintain records that reflect all revenues, cost incurred and services provided in the performance of the Agreement.
2. Agree that the SWCD, the State Auditor, or legislative authority, or any of their duly authorized representatives at any time during normal business hours, and as often as they may deem reasonably necessary, shall have access to the rights to examine audit, excerpt, and transcribe any books, documents, papers, records, etc., and accounting procedures and practices of the SWCD which are relevant to the contract.

K. INDEMNITY

The SWCD and the Watershed District mutually agree, to the fullest extent permitted by law, to indemnify and hold each other harmless for any and all damages, liability or cost (including reasonable attorneys' fees and costs of defense) arising from their own negligent acts, errors or omissions in the performance of their services under this agreement, to the extent each party is responsible for such damages and losses on a comparative basis of fault. Parties agree to provide proof of contractual liability insurance upon request. This paragraph does not diminish, with respect to any third party, any defense, immunity or liability limit that the SWCD or the Watershed District may enjoy under law.

L. INDEPENDENT CONTRACTOR

It is agreed that nothing herein contained is intended or should be construed in any manner as creating or establishing the relationship of co-partners between the parties hereto or as constituting the SWCD as the agent, representative, or employee of Watershed District for any purpose or in any manner whatsoever. The SWCD is to be and shall remain an independent contractor with respect to all services performed under this Agreement.

The SWCD represents that it has, or will secure at its own expense, all personnel required in performing services under this Agreement. Any and all personnel of the SWCD or other person, while engaged in the performance of any work or services required by the SWCD under this Agreement, shall have no contractual relationship with the Watershed District and shall not be considered employees of the Watershed District.

M. MODIFICATIONS

Any material alteration or variation shall be reduced to writing as an amendment and signed by the parties. Any alteration, modification, or variation deemed not to be material by written agreement of the SWCD and the Watershed District shall not require written approval.

N. MERGER

It is understood and agreed that the entire agreement of the parties is contained here, except as modified during the term of the Agreement by a writing under Paragraph M above concerning a non-material change, and that this contract supersedes oral agreements and negotiations between the parties relating to this subject matter. All items referred to in this contract are incorporated or attached and deemed to be part of the contract.

O. TERMINATION

Either the SWCD or the Watershed District may terminate this Agreement with or without cause by giving the other party ninety (90) days written notice prior to the effective date of such termination. If the Watershed District terminates this Agreement, it may specify work to be performed by the SWCD before termination is effective and shall pay the SWCD for services performed by the SWCD up to the time specified for termination. If the SWCD terminates the Agreement, it will not be compensated for part completion of a task except to the extent part completion has value to the Watershed District.

P. OWNERSHIP OF DOCUMENTS AND INTELLECTUAL PROPERTY

All property of the Watershed District used, acquired or created in the performance of work under this Agreement, including documents and records of any kind, shall remain the property of the Watershed District. The Watershed District shall have the sole right to use, sell, license, publish, or otherwise disseminate any product developed in whole or in part during the performance of work under this Agreement.

2019 SERVICE AGREEMENT
BETWEEN
RAMSEY COUNTY
AND RAMSEY WASHINGTON METRO WATERSHED DISTRICT

RWMWD BMP COST-SHARE PROGRAM

IN TESTIMONY WHEREOF the parties have duly executed this agreement by their duly authorized officers.

APPROVED:

Watershed District

BY: _____
Board President Date

BY: _____
RWMWD Administrator Date

Ramsey County

BY: _____
Parks & Recreation Director Date

BY: _____
SWCD Director Date

EXHIBIT A

2019 RWMWD BMP COST-SHARE PROGRAM

TASKS

1. **Project Oversight**
   All work performed by the SWCD will be at the direction of the RWMWD staff.

2. **Landowner Outreach**
   Targeted and broad-based outreach techniques will be implemented through a coordinated effort of the RWMWD and SWCD. Outreach will be coordinated with educational efforts by the RWMWD.

3. **Project Database**
   Project information will be maintained by the RWMWD. Information on assistance provided by the SWCD will be regularly communicated to the RWMWD staff Coordinator.

4. **Respond to inquiries from the public**
   The RWMWD will act as the primary and first responder to inquiries from the public regarding the BMP Program. The SWCD and the RWMWD will jointly provide responses to the public regarding general program information, program eligibility, best management practice information, and general watershed information.

5. **Site Reviews and Project Evaluation**
   Initial site visits, follow-up reviews and subsequent site visits of potential BMP implementation sites will be conducted under this contract. Other activities will include: assessing BMP options which will adequately address the problem, discussing BMP alternatives with landowners, and promoting implementation of BMPs. SWCD will assist program applicants with identification of supplemental funding sources if needed. Educational materials will be distributed during the site visit.

6. **BMP Design and Contractor Assistance**
   The SWCD will coordinate BMP design assistance. Design support will be provided by SWCD technical resources and/or obtaining assistance from an appropriate technical agency, organization, or the Watershed District. SWCD will assist landowners with obtaining qualified contractors to install BMPs if requested.

7. **Construction Monitoring (Site inspections)**
   The SWCD will monitor construction activities to verify proper implementation of BMPs.

8. **Miscellaneous Services**
   Other services may be provided as requested by the Watershed District to implement and carry out the Program.

EXHIBIT B

FEE SCHEDULE

Services in Exhibit A are billed on an hourly basis at the rate of $72.00 per hour, for all SWCD staff.

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Bill List

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RWMWD BUDGET STATUS REPORT
Administrative & Program Budget
Fiscal Year 2018
11/30/18

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	-	-	3,925.00	$2,575.00	60.38%
	Manager expenses	4360	3,500.00	-	-	782.59	2,717.41	22.36%
Committees	Committee/Bd Mtg. Exp.	4365	3,500.00	-	245.50	2,826.74	673.26	80.76%
Employees	Staff salary/taxes/benefits	4010	1,300,000.00	-	135,014.97	1,122,978.98	177,021.02	86.38%
	Employee expenses	4020	10,000.00	-	331.34	4,650.55	5,349.45	46.51%
	District training & education	4350	25,000.00	-	3,642.29	19,939.23	5,060.77	79.76%
Administration/	GIS system maint. & equip.	4170	15,000.00	-	-	4,101.02	10,898.98	27.34%
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	-	55.40	3,031.96	4,968.04	37.90%
	Office supplies	4320	5,000.00	-	150.95	3,966.58	1,033.42	79.33%
	IT/Internet/Web Site/Software Lic.	4325	42,000.00	-	199.51	27,032.57	14,967.43	64.36%
	Postage	4330	10,000.00	-	-	3,274.59	6,725.41	32.75%
	Printing/copying	4335	8,000.00	-	839.56	4,814.79	3,185.21	60.18%
	Dues & publications	4338	11,000.00	-	-	9,808.00	1,192.00	89.16%
	Janitorial/Trash Service	4341	17,000.00	-	738.83	11,929.29	5,070.71	70.17%
	Utilities/Bldg.Contracts	4342	18,000.00	-	1,076.18	14,584.02	3,415.98	81.02%
	Bldg/Site Maintenance	4343	70,000.00	-	792.87	28,461.76	41,538.24	40.66%
	Miscellaneous	4390	5,000.00	-	-	325.19	4,674.81	6.50%
	Insurance	4480	35,000.00	-	481.00	34,295.00	705.00	97.99%
	Office equipment	4703	40,000.00	-	314.70	14,892.97	25,107.03	37.23%
	Vehicle lease, maintenance	4810-40	43,000.00	-	578.68	33,570.41	9,429.59	78.07%
Consultants/	Auditor/Accounting	4110	50,000.00	-	3,749.18	46,938.12	3,061.88	93.88%
Outside Services	Engineering-administration	4121	93,000.00	-	5,995.00	64,486.07	28,513.93	69.34%
	Engineering-permit I&E	4122	15,000.00	-	-	3,155.00	11,845.00	21.03%
	Engineering-eng. review	4123	55,000.00	-	2,782.00	49,692.56	5,307.44	90.35%
	Engineering-permit review	4124	50,000.00	-	4,963.50	37,030.50	12,969.50	74.06%
	Project Feasibility Studies	4129	735,000.00	-	24,900.28	287,389.32	447,610.68	39.10%
	Attorney-permits	4130	10,000.00	-	-	1,161.28	8,838.72	11.61%
	Attorney-general	4131	40,000.00	-	1,749.00	13,802.47	26,197.53	34.51%
	Outside Consulting Services	4160	40,000.00	-	-	7,832.00	32,168.00	19.58%
Programs	Educational programming	4370	60,000.00	-	1,693.36	29,887.51	30,112.49	49.81%
	Communications & Marketing	4371	25,000.00		80.00	6,535.20	18,464.80	26.14%
	Events	4372	50,000.00	-	5,438.96	37,240.41	12,759.59	74.48%
	Water QM-Engineering	4520-30	513,000.00	-	6,947.67	138,760.36	374,239.64	27.05%
	Project operations	4650	140,000.00	-	537.14	91,308.94	48,691.06	65.22%
	SLMP/TMDL Studies	4661	115,000.00	-	82.50	18,725.17	96,274.83	16.28%
	Natural Resources/Keller Creek	4670-72	100,000.00	-	2,078.81	86,032.77	13,967.23	86.03%
	Outside Prog.Support/Weed Mgmt.	4683-84	70,000.00	-	1,249.81	38,516.27	31,483.73	55.02%
	Research Projects	4695	100,000.00	-	2,708.50	40,510.63	59,489.37	40.51%
	Health and Safety Program	4697	2,000.00	-	-	2,747.54	(747.54)	137.38%
	NPDES Phase II	4698	20,000.00	-	941.00	9,425.06	10,574.94	47.13%
	Atlas 14 Watershed Modeling	4732	-	-	-	-	-	0.00%
GENERAL FUND TOTAL			**$3,976,500.00**	**$0.00**	**$210,358.49**	**$2,363,099.25**	**$1,613,400.75**	59.43%
CIP's	CIP Project Repair & Maintenance	516	1,000,000.00	-	124,540.65	988,347.80	11,652.20	98.83%
	Targeted Retrofit Projects	518	800,000.00	-	17,411.86	88,599.20	711,400.80	11.07%
	District Office Building Solar Energy Retrofit	519	150,000.00	-	-	96,818.00	53,182.00	64.55%
	Flood Damage Reduction Fund	520	2,000,000.00	-	2,083.00	83,757.15	1,916,242.85	4.19%
	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	-	91,054.61	500,446.49	299,553.51	62.56%
	Impervious Surface Volume Reduction Opportunity	531	1,500,000.00	-	-	-	1,500,000.00	0.00%
	Beltline & Battle Creek Tunnel Repair	549	-	-	2,655.50	1,631,239.08	(1,631,239.08)	---
	Frost/Kennard Enhanced WQ BMP	550	400,000.00	-	-	33,665.71	366,334.29	8.42%
	Markham Pond Dredging & Aeration	551	25,000.00	-	-	-	25,000.00	0.00%
	Wakefield Park Project	553	1,100,000.00	-	1,241.00	49,965.93	1,050,034.07	4.54%
	Willow Pond CMAC	554	400,000.00		77,190.72	407,229.55	(7,229.55)	101.81%
	District Office Bond Payment	585	194,885.00	-	-	196,983.53	(2,098.53)	101.08%
CIP BUDGET TOTAL			**$8,818,836.00**	**-**	**$316,177.34**	**$4,464,670.87**	**$4,354,165.13**	50.63%
TOTAL BUDGET			**$12,795,336.00**	**$0.00**	**$526,535.83**	**$6,827,770.12**	**$5,967,565.88**	**53.36%**

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 @ 11/30/18
101 - General Fund	$4,329,903.56	-	1,558,192.40	210,358.49	2,363,099.25	3,524,996.71
516 - CIP Project Repair & Maintenance	615,041.00	-	576,098.50	124,540.65	988,347.80	202,791.70
518 - Targeted Retrofit Projects	836,989.00	-	171,505.91	17,411.86	88,599.20	919,895.71
519 - District Office Building Solar Energy Retrofit	129,623.00	-	-	-	96,818.00	32,805.00
520 - Flood Damage Reduction Fund	1,118,749.00	-	457,814.97	2,083.00	83,757.15	1,492,806.82
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	91,054.61	500,446.49	284,616.12
531 - Impervious Surface Volume Reduction Opportunity	1,484,215.00	-	-	-	-	1,484,215.00
549 - Beltline & Battle Creek Tunnel Repair	2,407,984.00	-	-	2,655.50	1,631,239.08	776,744.92
550 - Frost/Kennard Enhanced WQ BMP	119,513.00	-	13,042.17	-	33,665.71	98,889.46
551 - Markham Pond Dredging & Aeration	110,411.00	-	-	-	-	110,411.00
553 - Wakefield Park Project	351,874.00	-	391,264.88	1,241.00	49,965.93	693,172.95
554 - Willow Pond CMAC	-	-	208,674.61	77,190.72	407,229.55	(198,554.94)
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	**$13,035,006.50**	**-**	**$ 3,936,148.61**	**$ 526,535.83**	**$6,827,770.12**	**$10,143,384.99**

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

Check #	Date	Payee ID	Payee	Description	Amount
EFT	11/01/18	met003	MetLife	Employee Benefits	$1,404.28
EFT	11/14/18	hea002	HealthPartners	Employee Benefits	11,115.72
70364	11/14/18	aws001	AWS Service Center	Janitorial/Trash Service	188.83
70365	11/14/18	bls001	B & L Supply	Bldg/Site Maintenance	41.70
70366	11/14/18	cdw002	CDW Government	Office Equipment	184.81
70367	11/14/18	fol002	Marykate Foley	Events	100.00
70368	11/14/18	gil001	Gilbert Mechanical Contractors, Inc.	Bldg/Site Maintenance	644.88
70369	11/14/18	inn002	Innovative Office Solutions LLC	Events	134.75
70370	11/14/18	int003	Intereum, Inc.	Office Equipment	129.89
70371	11/14/18	lan009	Landbridge Ecological	Construction Imp.-Maint. & Rep.	11,116.50
70372	11/14/18	met004	Metro Sales, Inc.	Printing Expense	553.89
70373	11/14/18	ncp001	NCPERS Group Life Ins.	Employee Benefits	16.00
70374	11/14/18	red003	Red Wing Business Advantage Account	Employee Benefits	97.74
70375	11/14/18	som001	Eric Sommers	Events	950.00
70376	11/27/18	ada002	Adam's Pest Control, Inc.	Utilities/Bldg. Contracts	79.00
70377	11/27/18	all004	allstream	Project Operations	64.97
70378	11/27/18	app003	Applewood Pointe of Shoreview Sr.Co-Op	Stewardship Grant Fund	1,008.40
70379	11/27/18	att002	AT & T Mobility - ROC	IT/Website/Software	43.22
70380	11/27/18	bar001	Barr Engineering	October/November Engineering	120,398.15
70381	11/27/18	bar002	Bill Bartodziej	Employee Reimbursement	528.17
70382	11/27/18	bar004	Deborah Barnes	Employee Reimbursement	40.17
70383	11/27/18	blo001	Simba Blood	Employee Reimbursement	387.67
70384	11/27/18	cit006	City of Woodbury	Stewardship Grant Fund	26,816.80
70385	11/27/18	cit019	City of St. Paul-Parks & Rec.	Events	100.00
70386	11/27/18	emm001	Emmons & Olivier Resources, Inc.	Stewardship Grant Fund	2,841.75
70387	11/27/18	gal001	Galowitz Olson, PLLC	November Legal Expense	3,664.00
70388	11/27/18	inn002	Innovative Office Solutions LLC	Bldg/Site Maintenance/Office Supp.	164.73
70389	11/27/18	int001	Office of MN, IT Services	Telephone Expense	55.40
70390	11/27/18	joh006	Skip Johnson	Stewardship Grant Fund	915.16
70391	11/27/18	kin001	FedEx Office	Events	42.00
70392	11/27/18	kor001	Eric Korte	Employee Reimbursement	158.51
70393	11/27/18	lan003	Lancer Catering	Events	3,650.10
70394	11/27/18	lea001	League of MN Cities Ins. Trust WC	Insurance Expense	481.00
70395	11/27/18	lea003	L. Tracy Leavenworth	Educational Program	1,693.36
70396	11/27/18	min008	Minnesota Native Landscapes, Inc.	Natural Resources/Constr.Imp.	57,111.30
70397	11/27/18	ncp001	NCPERS Group Life Ins.	Employee Benefits	16.00
70398	11/27/18	nov001	Novaspect, Inc.	Construction-Willow Pond	3,454.95
70399	11/27/18	nsp001	Xcel Energy	Utilities/Bldg. Contracts/Proj.Oper.	1,161.32
70400	11/27/18	obr001	Christopher O'Brien	Employee Reimbursement	123.95
70401	11/27/18	omo001	Nicholas D. Omodt	Employee Reimbursement	4.91
70402	11/27/18	pac001	Pace Analytical Services, Inc.	Water QM Staff	1,832.00
70403	11/27/18	pet001	Peterson Companies, Inc.	Progress Payment #3	71,686.77
70404	11/27/18	pro003	Lyndsey R. Provos	Employee Reimbursement	166.95
70405	11/27/18	qwe001	CenturyLink	Project Operations	223.53
70406	11/27/18	red002	Redpath & Company, Ltd	October Accounting	3,749.18
70407	11/27/18	reg002	Regents of the University of Minnesota	Events	166.75
70408	11/27/18	rol001	Rolling Hills Homeowners Association	Stewardship Grant Fund	50,000.00
70409	11/27/18	sod001	Nicole Soderholm	Employee Reimbursement	51.99
70410	11/27/18	stp008	St. Paul Public Schools	BMP Cost Share Program	12,960.00
70411	11/27/18	tim002	Timesaver Off-Site Secretarial, Inc.	Committee/Board Meeting Expense	245.50
70412	11/27/18	urb001	Urban Roots	Stewardship Grant Fund	1,572.00
70413	11/27/18	usb002	U.S. Bank	Monthly Credit Card Expense	4,286.86
70414	11/27/18	usb005	US Bank Equipment Finance	Printing Expense	285.67
70415	11/27/18	van001	Vanguard Cleaning Systems of Minnesota	Janitorial/Trash Service	550.00
70416	11/27/18	ves001	Peter Vesterholt	Stewardship Grant Fund	200.00
70417	11/27/18	voy001	US Bank Voyager Fleet Sys.	Vehicle Expense	290.89
70418	11/27/18	was002	Washington Conservation District	Stewardship Grant Fund	1,726.00
70419	11/27/18	wes003	Westwood Village III Townhome Assoc.	Stewardship Grant Fund	1,000.00
70420	11/27/18	woo001	Woodland Hills Church	Stewardship Grant Fund	1,000.00
Total					**$403,678.07**

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

Date	Check #	Vendor ID	Name	Account ID	Account Description	Amount	Check Detail
11/01/18	EFT	met003	MetLife			1,404.28	
				4040-101-000	Employee Benefits-General		1,196.21
				2015-101-000	Employee Health-General		208.07
11/11/18	EFT	hea002	HealthPartners			11,115.72	
				4040-101-000	Employee Benefits-General		8,900.27
				2015-101-000	Employee Health-General		2,215.45
11/14/18	70364	aws001	AWS Service Center	4341-101-000	Janitorial/Trash Service	188.83	
11/14/18	70365	bls001	B & L Supply	4343-101-000	Bldg./Site Maintenance	41.70	
11/14/18	70366	cdw001	CDW Government	4703-101-000	Office Equipment	184.81	
11/14/18	70367	fol002	Marykate Foley	4372-101-000	Events	100.00	
11/14/18	70368	gil001	Gilbert Mechanical Contractors, Inc.	4343-101-000	Bldg./Site Maintenance	644.88	
11/14/18	70369	inn001	Innovative Office Solutions, LLC			134.75	
				4372-101-000	Events		8.60
				4372-101-000	Events		19.86
				4372-101-000	Events		106.29
11/14/18	70370	int003	Intereum, Inc.	4703-101-000	Office Equipment	129.89	
11/14/18	70371	lan009	Landbridge Ecological	4630-516-000	Construction Imp.-Maint. & Repair	11,116.50	
11/14/18	70372	met004	Metro Sales, Inc.	4335-101-000	Printing-General	553.89	
11/14/18	70373	ncp001	NCPERS Minnesota	2015-101-000	Employee Health-General	16.00	
11/14/18	70374	red003	Red Wing Business Advantage Account	4040-101-000	Employee Benefits-General	97.74	
11/14/18	70375	som001	Eric Sommers	4372-101-000	Events	950.00	
11/27/18	70376	ada002	Adam's Pest Control	4342-101-000	Utilities/Building Contracts	79.00	
11/27/18	70377	cad002	allstream	4650-101-000	Project Operations-General	64.97	
11/27/18	70378	app003	Applewood Pointe of Shoreview Senior Co-Op	4682-529-000	Stewardship Grant Program	1,008.40	
11/27/18	70379	att001	AT&T Mobility	4325-101-000	IT/Website/Software	43.22	
11/27/18	70380	bar001	Barr Engineering			120,398.15	
				4121-101-000	Engineering Admin-General Fund		5,995.00
				4698-101-000	Engineering-NPDES Phase II		941.00
				4123-101-000	Engineering-Review		2,782.00
				4129-101-000	Project Feasability-General		6,483.28
				4129-101-000	Project Feasability-General		342.00
				4129-101-000	Project Feasability-General		1,113.50
				4129-101-000	Project Feasability-General		1,043.00
				4129-101-000	Project Feasability-General		278.00
				4129-101-000	Project Feasability-General		421.00
				4129-101-000	Project Feasability-General		260.00
				4129-101-000	Project Feasability-General		503.00
				4129-101-000	Project Feasability-General		830.00
				4129-101-000	Project Feasability-General		10,802.00
				4129-101-000	Project Feasability-General		2,824.50
				4520-101-000	Water QM-Engineering		4,816.16
				4520-101-000	Water QM-Engineering		261.00

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

Date	Check #	Vendor ID	Name	Account ID	Account Description	Amount	Check Detail
				4124-101-000	Engineering-Permit Review		4,963.50
				4661-101-000	SLMP/TMDL Studies		82.50
				4695.101-000	Research Projects-General		148.50
				4695.101-000	Research Projects-General		2,560.00
				4650-101-000	Project Operations-General		40.50
				4128-553-000	Engineering-Wakefield		1,241.00
				4128-518-000	Engineering-School/Commer Retrofit		2,241.36
				4128-518-000	Engineering-School/Commer Retrofit		1,012.00
				4128-518-000	Engineering-School/Commer Retrofit		1,198.50
				4682-529-000	Stewardship Grant Program		3,974.50
				4128-554-000	Engineering-Willow Pond		2,049.00
				4128-520-000	Engineering-Flood Damage		2,083.00
				4128-549-000	Engineering-Beltline/Battle Creek		2,655.50
				4128-516-000	Engineering-Projects Maint. & Repair		31,694.96
				4128-516-000	Engineering-Projects Maint. & Repair		4,299.93
				4128-516-000	Engineering-Projects Maint. & Repair		20,457.96
11/27/18	70381	bar002	Bill Bartodziej			528.17	
				4040-101-000	Employee Benefits-General		120.00
				4020-101-000	Employee Expenses-General		260.97
				4350-101-000	Training & Education-General		147.20
11/27/18	70382	bar004	Deborah Barnes			40.17	
				4040-101-000	Employee Benefits-General		20.00
				4020-101-000	Employee Expenses-General		20.17
11/27/18	70383	blo001	Simba Blood			387.67	
				4040-101-000	Employee Benefits-General		334.38
				4020-101-000	Employee Expenses-General		29.48
				4670-101-000	Natural Resources Project-General		23.81
11/27/18	70384	cit006	City of Woodbury	4682-529-000	Stewardship Grant Program	26,816.80	
11/27/18	70385	cit019	City of St. Paul-Parks & Rec.	4372-101-000	Events	100.00	
11/27/18	70386	emm001	Emmons & Olivier Resources, Inc.	4682-529-000	Stewardship Grant Program	2,841.75	
11/27/18	70387	gal001	Galowitz Olson, PLLC			3,664.00	
				4131-101-000	Attorney General-General Fund		1,749.00
				4131-516-000	Attorney General-Maint. & Repair		1,915.00
11/27/18	70388	inn002	Innovative Office Solutions, LLC			164.73	
				4343-101-000	Bldg./Site Maintenance		106.29
				4320-101-000	Office Supplies-General		58.44
11/27/18	70389	int001	Office of MN, IT Services	4310-101-000	Telephone-General	55.40	
11/27/18	70390	joh006	Skip Johnson	4682-529-000	Stewardship Grant Program	915.16	
11/27/18	70391	kin001	FedEx Office	4372-101-000	Events	42.00	
11/27/18	70392	kor001	Eric Korte			158.51	
				4040-101-000	Employee Benefits-General		120.00
				4530-101-000	Water QM Staff		38.51
11/27/18	70393	lan003	Lancer Catering	4372-101-000	Events	3,650.10	
11/27/18	70394	lea001	League of MN Cities Insurance Trust WC	4480-101-000	Insurance Expense	481.00	

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

Date	Check #	Vendor ID	Name	Account ID	Account Description	Amount	Check Detail
11/27/18	70395	lea003	L. Tracy Leavenworth	4370-101-000	Educational Program-General	1,693.36	
11/27/18	70396	min008	Minnesota Native Landscape, Inc.			57,111.30	
				4370-101-000	Natural Resources Project-General		2,055.00
				4630-516-000	Construction Imp.-Maint. & Repair		55,056.30
11/27/18	70397	ncp001	NCPERS Minnesota	2015-101-000	Employee Health-General	16.00	
11/27/18	70398	nov001	Novaspect, Inc.	4630-554-000	Construction Imp.-Willow Pond	3,454.95	
11/27/18	70399	nsp001	Xcel Energy			1,161.32	
				4342-101-000	Utilities/Building Contracts		953.18
				4650-101-000	Project Operations-General		208.14
11/27/18	70400	obr001	Christopher O'Brien			123.95	
				4372-101-000	Events		80.13
				4040-101-000	Employee Benefits-General		40.00
				4020-101-000	Employee Expenses-General		3.82
11/27/18	70401	omo001	Nicholas Omodt	4020-101-000	Employee Expense-General	4.91	
11/27/18	70402	pac001	Pace Analytical Services, Inc.			1,832.00	
				4530-101-000	Water QM Staff-General		287.00
				4530-101-000	Water QM Staff-General		277.00
				4530-101-000	Water QM Staff-General		470.00
				4530-101-000	Water QM Staff-General		97.00
				4530-101-000	Water QM Staff-General		316.00
				4530-101-000	Water QM Staff-General		385.00
11/27/18	70403	pet001	Peterson Companies, Inc.	4630-554-000	Construction Imp.-Willow Pond	71,686.77	
11/27/18	70404	pro003	Lyndsey R. Provos	4350-101-000	Training & Education-General	166.95	
11/27/18	70405	qwe001	CenturyLink	4650-101-000	Project Operations-General	223.53	
11/27/18	70406	red002	Redpath & Company, Ltd.	4110-101-000	Accounting & Auditing	3,749.18	
11/27/18	70407	reg002	Regents of the University of MinnesotA	4372-101-000	Events	166.75	
11/27/18	70408	rol001	Rolling Hills Homeowners Association	4682-529-000	Stewardship Grant Program	50,000.00	
11/27/18	70409	sod001	Nichole Soderholm			51.99	
				4040-101-000	Employee Benefits-General		40.00
				4020-101-000	Employee Expenses-General		11.99
11/27/18	70410	stp008	St. Paul Public Schools	4682-518-000	BMP Cost Share Program	12,960.00	
11/27/18	70411	tim002	Timesaver Off-Site Secretarial, Inc.	4365-101-000	Committee/Board Meeting Expense	245.50	
11/27/18	70412	urb001	Urban Roots	4682-529-000	Stewardship Grant Program	1,572.00	
11/27/18	70413	usb002	U.S. Bancorp			4,286.86	
				4325-101-000	IT/Website/Software		93.09
				4350-101-000	Natural Resources Project-General		32.10
				4320-101-000	Office Supplies-General		22.49
				4350-101-000	Natural Resources Project-General		96.73
				4342-101-000	Utilities/Building Contracts		22.00
				4320-101-000	Office Supplies-General		24.99
				4320-101-000	Office Supplies-General		24.66

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

Date	Check #	Vendor ID	Name	Account ID	Account Description	Amount	Check Detail
				4320-101-000	Office Supplies-General		20.37
				4350-101-000	Natural Resources Project-General		14.97
				4350-101-000	Natural Resources Project-General		1,025.00
				4372-101-000	Events		50.70
				4372-101-000	Events		164.53
				4342-101-000	Utilities/Building Contracts		22.00
				4040-101-000	Employee Benefits-General		82.90
				4350-101-000	Natural Resources Project-General		291.30
				4350-101-000	Natural Resources Project-General		411.00
				4350-101-000	Natural Resources Project-General		728.52
				4350-101-000	Natural Resources Project-General		728.52
				4820-101-000	Vehicle Maintenance-General		287.79
				4325-101-000	IT/Website/Software		63.20
				4371-101-000	Communications & Marketing		80.00
11/27/18	70414	usb005	US Bank Equipment Finance	4335-101-000	Printing-General	285.67	
11/27/18	70415	van001	Vanguard Cleaning Systems of Minnesota	4341-101-000	Janitorial/Trash Service	550.00	
11/27/18	70416	ves001	Peter Vesterholt	4682-529-000	Stewardship Grant Program	200.00	
11/27/18	70417	voy001	US Bank Voyager Fleet Sys.	4830-101-000	Vehicle Expense-Fuel	290.89	
11/27/18	70418	was007	Washington Conservation District	4682-529-000	Stewardship Grant Program	1,726.00	
11/27/18	70419	wes003	Westwood Village III Townhome Assoc.	4682-529-000	Stewardship Grant Program	1,000.00	
11/27/18	70420	woo001	Woodland Hills Church	4682-529-000	Stewardship Grant Program	1,000.00	
						$403,678.07	

BARR

Summary of Professional Engineering Services During the Period October 20, 2018 through November 16, 2018

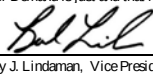
	Total Budget* (2018)	Total Fees to Date (2018)	Budget Balance (2018)	Fees During Period	District Accounting Code	Plan Implementation Task Number
Engineering Administration						
General Engineering Administration	$76,000.00	$64,486.07	$11,513.93	$5,995.00	**4121-101**	DW-13
RWMWD Health and Safety/ERTK Program	$2,000.00	$1,385.43	$614.57		**4697-101**	DW-13
Educational Program/Educational Forum Assistance	$20,000.00	$9,025.06	$10,974.94	$941.00	**4698-101**	DW-11
Engineering Review						
Engineering Review	$55,000.00	$49,692.56	$5,307.44	$2,782.00	**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	$13,570.78	$61,429.22	$6,483.28	**4129-101**	DW-5
Beltline Resiliency and Phalen Chain Water Level Management	$250,000.00	$32,401.23	$217,598.77		**4129-101**	BELT-3
Beaver Lake Subwatershed Feasibility Study	$15,000.00	$11,824.35	$3,175.65	$342.00	**4129-101**	BL-1
Owasso Lake Subwatershed Feasibility Study	$15,000.00	$15,115.35	-$115.35	$1,113.50	**4129-101**	LO-3
Battle Creek Lake Subwatershed Feasibility Study	$15,000.00	$18,538.23	-$3,538.23	$1,043.00	**4129-101**	BCL-3
Create an Emergency Response Plan for Twin Lake	$15,000.00	$12,356.56	$2,643.44	$278.00	**4129-101**	DW-19
Create an Emergency Response Plan for Grass Lake	$15,000.00	$2,439.00	$12,561.00	$421.00	**4129-101**	DW-19
Create an Emergency Response Plan for Snail Lake	$15,000.00	$3,001.21	$11,998.79	$260.00	**4129-101**	DW-19
Create an Emergency Reponse Plan for Lake Owasso	$5,000.00	$5,727.50	-$727.50	$503.00	**4129-101**	LO-2
MnDNR Floodplain Map Update	$109,720.00	$830.00	$108,890.00	$830.00	**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	$28,574.25	$37,425.75	$10,802.00	**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	$38,236.92	-$28,236.92	$2,824.50	**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	$58,456.64	$71,043.36		**4129-101**	DW-9
GIS Maintenance						
GIS Maintenance	$5,000.00	$1,564.00	$3,436.00		**4170-101**	DW-13
Monitoring Water Quality/Project Monitoring						
Lake Water Quality Monitoring (Misc QA/QC)	$10,000.00	$878.50	$9,121.50		**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	$17,585.74	$32,414.26	$4,816.16	**4520-101**	DW-18
Maplewood Mall Monitoring	$20,000.00	$18,349.95	$1,650.05	$261.00	**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	$37,030.50	$12,969.50	$4,963.50	**4124-101**	DW-7
Lake Studies/WRPPs/TMDL Reports						
2018 Grant Applications	$30,000.00	$1,270.50	$28,729.50		**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	$15,222.67	-$5,222.67	$82.50	**4661-101**	WL-5
Research Projects						
New Technology Mini Case Studies (average 6 per year)	$12,000.00	$4,239.50	$7,760.50	$148.50	**4695-101**	DW-12
Kohlman Permeable Weir Test System - Implement Monitoring Plan	$15,000.00	$11,644.13	$3,355.87	$2,560.00	**4695-101**	DW-12
Project Operations						
2018 Tanners Alum Facility Monitoring	$15,000.00	$14,378.12	$621.88	$40.50	**4650-101**	TaL-3
Capital Improvements						
Wakefield Park/Frost Avenue Stormwater Project	$75,000.00	$49,965.93	$25,034.07	$1,241.00	**4128-553**	WL-1
Frost Kennard Spent Lime BMP	$24,000.00	$25,328.71	-$1,328.71		**4128-550**	WL-1
Commercial Sites Retrofit Projects 2018	$55,000.00	$23,311.79	$31,688.21	$2,241.36	**4128-518**	DW-6
School Sites Retrofit Projects 2018	$55,000.00	$20,858.23	$34,141.77		**4128-518**	DW-6
Church Sites Retrofit Projects 2018	$55,000.00	$20,151.68	$34,848.32	$1,012.00	**4128-518**	DW-6
Roseville High School Campus Stormwater Retrofit (Bennett Lake Subwatershed)	$30,000.00	$13,377.50	$16,622.50	$1,198.50	**4128-518**	DW-6
BMP Incentive Fund: General BMP Design Assistance and Review	$30,000.00	$47,919.38	-$17,919.38	$3,974.50	**4682-529**	DW-6
BMP Incentive Fund: Faith-Based Organizations	$20,000.00	$3,074.93	$16,925.07		**4128-528**	DW-6
Willow Pond CMAC Implementation	$100,000.00	$126,635.11	-$26,635.11	$2,049.00	**4128-554**	BeL-4
Grass Lake Berm Construction Administration	$75,000.00	$60,096.37	$14,903.63	$2,083.00	**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		**4128-519**	DW-13
CIP Project Repair & Maintenance						
2017-2018 Beltline Repairs Construction Services	$360,000.00	$450,728.57	-$90,728.57	$2,655.50	**4128-549**	BELT-2
Routine CIP Inspection and Unplanned Maintenance Identification	$75,000.00	$67,818.64	$7,181.36	$31,694.96	**4128-516**	DW-5
2018 CIP Maintenance and Repairs	$90,000.00	$92,213.12	-$2,213.12	$4,299.93	**4128-516**	DW-5
2019 CIP Maintenance and Repairs	$150,000.00	$20,457.96	$129,542.04	$20,457.96	**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 **$120,398.15**

TOTAL PAYABLE FOR PERIOD 10/20/2018 - 11/16/2018 **$120,398.15**

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

CMAC FILTRATION BMP AT WILLOW POND
Progress Payment Number 3

1.0	Total Completed Through This Period:	$289,536.31		
2.0	Total Completed Previously Completed:		$214,076.55	
3.0	Total Completed This Period:			$75,459.76
4.0	Amount Previously Retained:		$4,160.99	
5.0	Amount Retained This Period (See Note 1):			$3,772.99
6.0	Total Amount Retained (See Note 2):		$7,933.98	
7.0	Retainage Released Through This Period:			$0.00
8.0	Total Retainage Remaining:		$7,933.98	
9.0	Amounts Previously Paid:	$58,885.51		
10.0	Amount Due This Estimate:			$71,686.77

Note 1: At rate of 5%.

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

SUBMITTED BY:

Name: Jake Sikora Date: _____

Title: Project Manager

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 November 19, 2018 for Progress Payment Number 3

						(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	1	$33,492.08	0.90	$33,492.08	0.0967638	$0.00
B	Erosion Control Construction Entrance	Each	1	2,500.00	2,500.00	1	$2,500.00	1	$2,500.00	0	$0.00
C	Erosion Control Silt Fence	L.F.	884	4.00	3,536.00	640	$2,560.00	640	$2,560.00	0	$0.00
D	Double Row Floatation Silt Curtain	L.F.	164	11.74	1,925.36	164	$1,925.36	164	$1,925.36	0	$0.00
E	Inlet Protection	Each	1	125.00	125.00	1	$125.00	1	$125.00	0	$0.00
F	Erosion Control Blanket	S.Y.	90	3.50	315.00	2048	$7,168.00	0	$0.00	2048	$7,168.00
G	Traffic Control	L.S.	1	2,000.00	2,000.00	1	$2,000.00	1	$2,000.00	0	$0.00
H	Control of Water	L.S.	1	23,666.12	23,666.12	1	$23,666.12	1	$23,666.12	0	$0.00
I	Tree Removal (8" diameter or greater)	Each	6	375.81	2,254.86	21	$7,892.01	21	$7,892.01	0	$0.00
J	Clear and Grub	S.Y.	1,003	6.17	6,188.51	1,003	$6,188.51	1,003	$6,188.51	0	$0.00
K	Remove & Salvage Topsoil (P)	S.Y.	673	4.14	2,786.22	673	$2,786.22	673	$2,786.22	0	$0.00
L	Remove and Dispose of 12" RCP	L.F.	9	48.67	438.03	9	$438.03	9	$438.03	0	$0.00
M	Sawcut, Remove and Dispose of Asphalt Trail	S.Y.	40	8.65	346.00	40	$346.00	40	$346.00	0	$0.00
N	60 inch Precast Manhole with Access Door	Each	1	10,041.00	10,041.00	1	$10,041.00	1	$10,041.00	0	$0.00
O	Precast Concrete Weir and FRP Stop Log	L.S.	1	8,291.00	8,291.00	1	$8,291.00	0	$0.00	1	$8,291.00
P	48 inch Precast Manholes with Casting and Frame (Neenah R-1537)	Each	2	4,570.50	9,141.00	2	$9,141.00	2	$9,141.00	0	$0.00
Q	48-inch Precast Manhole with Access Door	Each	1	6,386.00	6,386.00	1	$6,386.00	1	$6,386.00	0	$0.00
R	12 inch Corrugated Polyethylene Pipe (CPEP) Dual-Wall (Smooth Interior)	L.F.	176	32.74	5,762.24	179	$5,860.46	179	$5,860.46	0	$0.00
S	12" CMP FES	Each	1	760.00	760.00	2	$1,520.00	2	$1,520.00	0	$0.00
T	Trash Guard for 12" CMP FES	Each	1	66.00	66.00	1	$66.00	1	$66.00	0	$0.00
U	12 inch Ductile Iron Pipe (DIP)	L.F.	71	73.03	5,185.13	75	$5,477.25	75	$5,477.25	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	1	$4,896.00	0	$0.00	1	$4,896.00
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	1	$1,314.00	1	$1,314.00	0	$0.00
Y	Stormwater Filter Piping and Fittings, All Complete	L.S.	1	11,011.00	11,011.00	1	$11,011.00	1	$11,011.00	0	$0.00
Z	Insulate Existing Sanitary Sewer	Each	1	599.00	599.00	1	$599.00	1	$599.00	0	$0.00
AA	Common Excavation for Filter (P)	C.Y.	376	64.72	24,334.72	376	$24,334.72	376	$24,334.72	0	$0.00
AB	Off-site Disposal of Excavated Material (P)	C.Y.	284	16.27	4,620.68	284	$4,620.68	284	$4,620.68	0	$0.00
AC	Geosynthetic Clay Liner (P)	S.Y.	662	43.12	28,545.44	662	$28,545.44	662	$28,545.44	0	$0.00
AD	Drain Filter	Ton	93	60.18	5,596.74	95	$5,717.10	95	$5,717.10	0	$0.00
AE	Plastic Netting	S.Y.	275	3.11	855.25	275	$855.25	275	$855.25	0	$0.00
AF	Spent Lime	L.S.	1	7,206.00	7,206.00	1	$7,206.00	1	$7,206.00	0	$0.00
AG	Class III Riprap	Ton	5	302.99	1,514.95	18.5	$5,605.32	18.5	$5,605.32	0	$0.00
AH	Asphalt Trail Paving	S.Y.	40	78.00	3,120.00	40	$3,120.00	0	$0.00	40	$3,120.00
AI	Electrical installation	L.S.	1	12,500.00	12,500.00	1	$12,500.00	0	$0.00	1	$12,500.00
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 November 19, 2018 for Progress Payment Number 3

						(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	1	$8,127.00	0	$0.00	1	$8,127.00
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	41	$779.00	0	$0.00	41	$779.00
AN	Woodland Seed Mix (Furnish & Install)	S.Y.	1,355	3.00	4,065.00	2007	$6,021.00	0	$0.00	2007	$6,021.00
AO	Tree with Trunk Protection, #20 Container	Each	4	585.00	2,340.00	7	$4,095.00	0	$0.00	7	$4,095.00
AP	#2 Container Shrub	Each	30	65.00	1,950.00	60	$3,900.00	0	$0.00	60	$3,900.00
AQ	Shrub Protection Fencing	LF	320	5.40	1,728.00	506	$2,732.40	0	$0.00	506	$2,732.40
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	154	$770.00	0	$0.00
AT	Trail Protection	L.S.	1	13,830.36	13,830.36	1	$13,830.36	0	$0.00	1	$13,830.36
AU	15” CMP FES	Each	1	1,087.00	1,087.00	1	$1,087.00	1	$1,087.00	0	$0.00
			TOTAL BASE BID		**279,049.00**	**TOTAL EXT. =**	**$289,536.31**		**$214,076.55**		**$75,459.76**

2018 Faith Based and Commercial Sites BMP Retrofits
House of Prayer Lutheran Church and New Horizon Daycare
Progress Payment Number 1

1	Completed to Date:	$57,954.00		
2	Less Previously Billed:		$0.00	
3	Amount Completed This Period:			$57,954.00
4	Amount Previously Retained:		$0.00	
5	Amount Retained This Period (See Note 1):		$2,897.70	
6	Total Amount Retained (See Note 2):		$2,897.70	
7	Retainage Released Through This Period:			$0.00
8	Less Total Retainage Remaining:			
9	Less Amounts Previously Paid:	$0.00		
10	Amount Due This Estimate:			$55,056.30

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: Jeff Renier Date: 11/14/2018
Title: ~~President~~ PM
Contractor: ~~Outdoor Lab~~ Minnesota Native Landscapes Inc.

Signature:

RECOMMENDED BY:
Name: Matt Kumka Date: 11/14/2018
Title: Project Manager
Engineer: Barr Engineering Company

Signature:

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

Signature:

House of Prayer Lutheran Church
Oakdale, MN
Contract Amount

Base Bid Items				Bid Total		Total Completed Through This Period Invoice #1		
Item	Description	Unit	Estimated Quantity	Unit Price	Extension	Unit Price	Actual Quantity	Extension
A	Mobilization/Demobilization/Traffic Control/Erosion Control	L.S.	1	$2,000.00	$2,000.00	$2,000.00	1	$2,000.00
B	Remove Concrete Curb and Gutter	L.F.	20	$60.00	$1,200.00	$60.00	20	$1,200.00
C	Sod Removal (P)	S.Y.	378	$3.00	$1,134.00	$3.00	378	$1,134.00
D	Inlet Protection	Each	1	$500.00	$500.00	$500.00	1	$500.00
E	Excavate, Haul, and Dispose	C.Y.	87	$40.00	$3,480.00	$40.00	87	$3,480.00
F	Grading	L.S.	1	$2,300.00	$2,300.00	$2,300.00	1	$2,300.00
G	Soil Loosening	S.Y.	160	$10.00	$1,600.00	$10.00	160	$1,600.00
H	Clean Sand	C.Y.	15	$60.00	$900.00	$60.00	15	$900.00
I	Planting Soil (12" depth- 75% Sand, 25% Leaf compost- MnDOT Grade II)	C.Y.	86	$70.00	$6,020.00	$70.00	86	$6,020.00
J	Twice-Shredded Hardwood Mulch (3" depth)	C.Y.	32	$65.00	$2,080.00	$65.00	32	$2,080.00
K	Concrete Curb & Gutter	L.F.	20	$150.00	$3,000.00	$150.00	20	$3,000.00
L	Concrete Curb Cut & Small Splash Block Assembly (Small)	Each	2	$2,750.00	$5,500.00	$2,750.00	2	$5,500.00
M	4" Perforated (CPEP) Draintile w/o sock (Underdrain)	L.F.	85	$11.00	$935.00	$11.00	85	$935.00
N	4" Solid (CPEP) Draintile w/o sock (Underdrain)	L.F.	70	$11.00	$770.00	$11.00	70	$770.00
O	Draintile Clean Out	Each	1	$850.00	$850.00	$850.00	1	$850.00
P	Connect Draintile to Catch Basin	Each	1	$1,100.00	$1,100.00	$1,100.00	1	$1,100.00
Q	Edging	L.F.	180	$5.00	$900.00	$5.00	180	$900.00
R	Sod	S.Y.	15	$10.00	$150.00	$10.00	15	$150.00
S	#1 Cont. Perennial or Shrub (Furnish & Install)	Each	254	$25.00	$6,350.00	$25.00	0	$0.00
T	One-Year Establishment Maintenance Period	L.S.	1	$3,000.00	$3,000.00	$3,000.00	0	$0.00
U	#2 Cont. Shrub (Furnish & Install)	Each	66	$40.00	$2,640.00	$40.00	0	$0.00
V	1.5" B&B Deciduous Tree (Furnish & Install)	Each	2	$650.00	$1,300.00	$650.00	0	$0.00
W	6" Sediment Control Log	L.F.	190	$5.00	$950.00	$5.00	190	$950.00
			SUBTOTAL	TOTAL	$48,659.00		TOTAL	$35,369.00

New Horizon Daycare
Woodbury, MN
Contract Amount

Base Bid Items				Bid Total		Total Completed Through This Period: Invoice #1		
Item	Description	Unit	Estimated Quantity	Unit Price	Extension	Unit Price	Actual Quantity	Extension
A	Mobilization/Demobilization/Traffic Control/Erosion Control	L.S.	1	$2,000.00	$2,000.00	$2,000.00	1	$2,000.00
B	Remove Concrete Curb and Gutter	L.F.	10	$60.00	$600.00	$60.00	10	$600.00
C	Remove Sod	S.Y.	125	$3.00	$375.00	$3.00	125	$375.00
D	Inlet Protection	Each	1	$500.00	$500.00	$500.00	1	$500.00
E	Excavate, Haul, and Dispose	C.Y.	64	$40.00	$2,560.00	$40.00	64	$2,560.00
F	Grading	L.S.	1	$1,750.00	$1,750.00	$1,750.00	1	$1,750.00
G	Soil Loosening	S.Y.	31	$10.00	$310.00	$10.00	31	$310.00
H	Clean Sand	C.Y.	5	$60.00	$300.00	$60.00	5	$300.00
I	Planting Soil (12" depth- 75% Sand, 25% Leaf compost-MnDOT Grade II)	C.Y.	30	$70.00	$2,100.00	$70.00	30	$2,100.00
J	Twice-Shredded Hardwood Mulch (3" depth)	C.Y.	10	$65.00	$650.00	$65.00	10	$650.00
K	Concrete Curb & Gutter	L.F.	15	$150.00	$2,250.00	$150.00	15	$2,250.00
L	Concrete Curb Cut & Small Splash Block Assembly	Each	1	$2,750.00	$2,750.00	$2,750.00	1	$2,750.00
M	Manhole Cover	Each	1	$900.00	$900.00	$900.00	1	$900.00
N	4" Perforated (CPEP) Draintile w/o sock (Underdrain)	L.F.	20	$11.00	$220.00	$11.00	20	$220.00
O	4" Solid (CPEP) Draintile w/o sock (Underdrain)	L.F.	20	$11.00	$220.00	$11.00	20	$220.00
P	Draintile Clean Out	Each	1	$850.00	$850.00	$850.00	1	$850.00
Q	Connect Draintile to Catch Basin	Each	1	$1,100.00	$1,100.00	$1,100.00	1	$1,100.00
R	4" Black Powder Coated Landscape Edging	L.F.	90	$5.00	$450.00	$5.00	90	$450.00
S	Sod	S.Y.	15	$10.00	$150.00	$10.00	15	$150.00
T	#1 Cont. Perennial or Shrub (Furnish & Install)	Each	164	$25.00	$4,100.00	$25.00	0	$0.00
V	Inlet Structure Repair (Field Change Order)	L.S.	1	$2,550.00	$2,550.00	$2,550.00	1	$2,550.00
			SUBTOTAL	TOTAL	$26,685.00		TOTAL	$22,585.00

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

November 20, 2018
File No: 9M

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

	Balance
General Account	$1,749.00
2018 CIP	$1,915.00
	$3,664.00

****

Permit Program

****

Permit Application Coversheet

Date December 05, 2018

Project Name RWMWD 2019 CIP **Project Number** 18-28

Applicant Name Tina Carstens, Ramsey-Washington Metro Watershed District

Type of Development Maintenance

Property Description

This project is led by Ramsey-Washington Metro Watershed District (RWMWD) and is located at various identified areas throughout the District. See map included for site locations. The project includes maintenance activities relating to: sediment removal, paver cleaning, weir maintenance, filter maintenance, debris removal, inlet maintenance, and drainage improvements. Wetland Conservation Act (WCA) approval is needed for Sites #7 and 8 where proposed activities will temporarily disturb wetland areas. Site #9 involves a DNR-regulated Public Water. Site #10 includes four bid alternates and may require additional permitting and/or documentation. All required permits and access agreements must be obtained prior to start of construction. Disturbed areas will be restored with native vegetation.

Watershed District Policies or Standards Involved:

- ☑ ***Wetlands***
- ☑ ***Erosion and Sediment Control***
- ☐ ***Stormwater Management***
- ☐ ***Floodplain***

Water Quantity Considerations

There are no water quantity considerations.

Water Quality Considerations

Short Term

The proposed erosion and sediment control plan is sufficient to protect downstream water resources during construction.

Long Term

There are no long term water quality considerations.

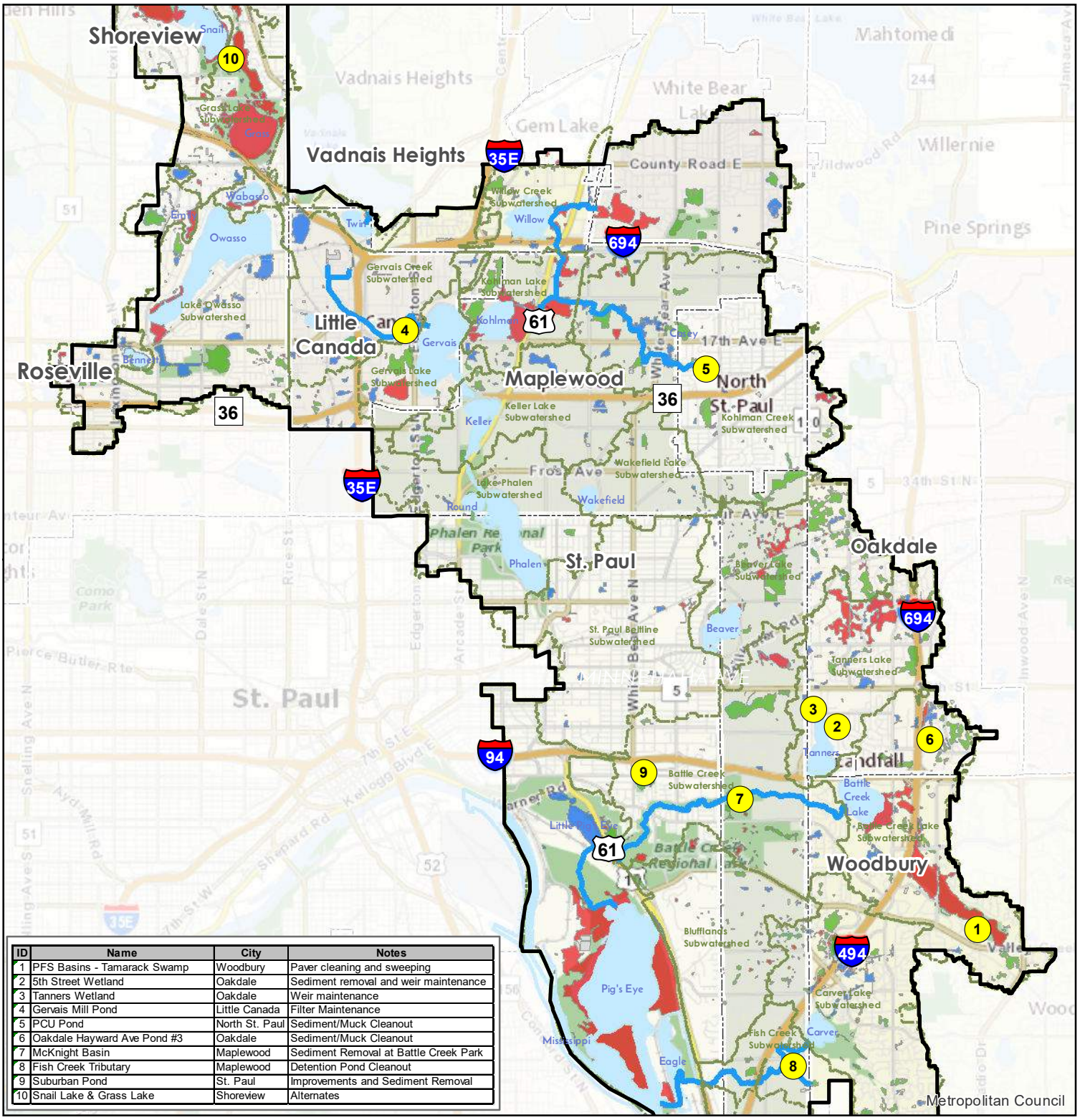
Staff Recommendation

Staff recommends approval of this permit with the special provisions.

Attachments:

- ☑ **Project Location Map**
- ☐ **Project Grading Plan**

#18-28 RWMWD 2019 CIP Maintenance/Repairs



ID	Name	City	Notes
1	PFS Basins - Tamarack Swamp	Woodbury	Paver cleaning and sweeping
2	5th Street Wetland	Oakdale	Sediment removal and weir maintenance
3	Tanners Wetland	Oakdale	Weir maintenance
4	Gervais Mill Pond	Little Canada	Filter Maintenance
5	PCU Pond	North St. Paul	Sediment/Muck Cleanout
6	Oakdale Hayward Ave Pond #3	Oakdale	Sediment/Muck Cleanout
7	McKnight Basin	Maplewood	Sediment Removal at Battle Creek Park
8	Fish Creek Tributary	Maplewood	Detention Pond Cleanout
9	Suburban Pond	St. Paul	Improvements and Sediment Removal
10	Snail Lake & Grass Lake	Shoreview	Alternates

Note: Shaded area is outside RWMWD

Wetlands
- Manage A
- Manage B
- Manage C
- Lake
- Sediment Pond
- Not Assessed

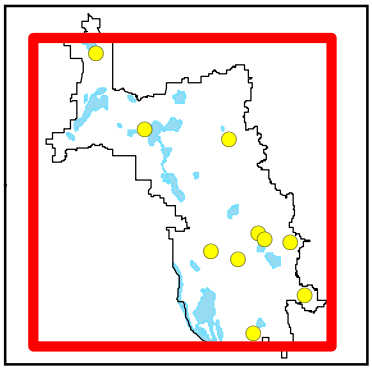
- Maintenance Sites
- Subwatersheds
- Creeks
- City Boundaries
- RWMWD Boundary

Highlighted Areas Represent Active Permit

0 5,500 11,000
Feet

0 1.25 2.5
Miles

N



18-28

Special Provisions

1. The applicant shall provide contact information for the trained erosion control coordinator responsible for implementing the Stormwater Pollution Prevention Plan (SWPPP).

2. The applicant shall obtain final wetland permits and access agreements prior to commencement of construction.

Permit Application Coversheet

Date December 05, 2018

Project Name Larpenteur-Prosperity Filtration BMP **Project Number** 18-29

Applicant Name Molly Churchich, Ramsey County Public Works

Type of Development Park/Green Space/BMP

Property Description

This project is located southeast of Larpenteur Ave East and Prosperity Road, south of Wakefield Lake in the City of St. Paul. The applicant is proposing to construct a regional filtration basin enhanced with spent lime. Pretreatment will include a sumped manhole inlet, baffle, and skimmer. 248 square feet of impervious will be constructed for a concrete maintenance access with the rest of the site remaining pervious surface. The applicant is requesting to bank the excess 36,534 cubic feet for future projects. The total site area is 1.06 acres.

Watershed District Policies or Standards Involved:

- ☐ ***Wetlands***
- ☑ ***Erosion and Sediment Control***
- ☑ ***Stormwater Management***
- ☐ ***Floodplain***

Water Quantity Considerations

The proposed stormwater management plan is sufficient to handle the runoff from the site.

Water Quality Considerations

Short Term

The proposed erosion and sediment control plan is sufficient to protect downstream water resources during construction.

Long Term

The proposed stormwater management plan is sufficient to protect the long term quality of downstream water resources.

Staff Recommendation

Staff recommends approval of this permit with the special provisions.

Attachments:

- ☑ **Project Location Map**
- ☑ **Project Grading Plan**

#18-29 Larpenteur - Prosperity Filtration BMP

Wetlands
- Manage A
- Manage B
- Manage C
- Lake
- Sediment Pond
- Not Assessed

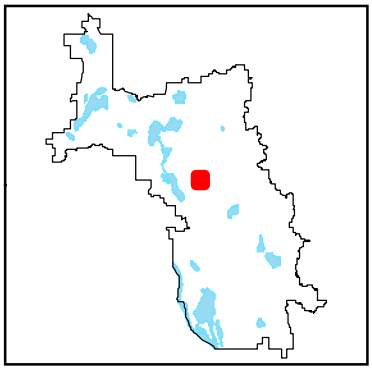
- RWMWD Boundary
- Subwatersheds
- Creeks
- Permits
- City Boundaries

Highlighted Areas Represent Active Permit

0 200 400
Feet

0 0.0425 0.085
Miles

N



18-29

Special Provisions

1. The applicant shall include calculations for the time of concentration values used in the model.

2. The applicant shall clarify specifications for spent lime as described in the maintenance section of the narrative.

3. The applicant shall ensure the spent lime mixture specification is shown on the plans.

4. The applicant shall submit a final copy of the signed construction plans.

5. The applicant shall provide contact information for the trained erosion control coordinator responsible for implementing the Stormwater Pollution Prevention Plan (SWPPP).

6. The applicant shall submit a copy of the approved Minnesota Pollution Control Agency's NPDES Construction Permit.

SITE NOTES

1. DIMENSIONS SHOWN ON THIS PLAN ARE TO THE PROPERTY LINE, EDGE OF PAVEMENT AND FACE OF CURB.
2. THE CONTRACTOR SHALL CONSTRUCT ALL PAVEMENTS TO CONFORM WITH THE CORRECT LINES AND FINISHED GRADES ON THE PLANS. NO PONDING OF WATER WILL BE ALLOWED.
3. THE CONTRACTOR SHALL CONSTRUCT ALL PAVEMENTS TO MATCH EXISTING PAVEMENT GRADES AT TIE-IN POINTS. CUT CONTRACTION JOINTS AT EXISTING JOINT LOCATIONS AND PROVIDE TRANSITIONS AS NECESSARY.
4. CONTINUE ALL JOINTS THROUGH THE CURB.
5. SAW ALL CONCRETE CONSTRUCTION JOINTS, CLEAN DEBRIS, BLOW DRY AND IMMEDIATELY SEAL WITH JOINT SEALANT.
6. REINFORCE ODD SHAPED PAVING PANELS WITH REBARS AT 24" EACH WAY. AN ODD SHAPED PANEL IS CONSIDERED TO BE ONE IN WHICH THE SLAB TAPERS TO A SHARP ANGLE WHEN THE LENGTH TO WIDTH RATIO EXCEEDS 3 TO 1 OR WHEN A SLAB IS NEITHER SQUARE NOR RECTANGULAR.

GRADING AND EROSION CONTROL NOTES

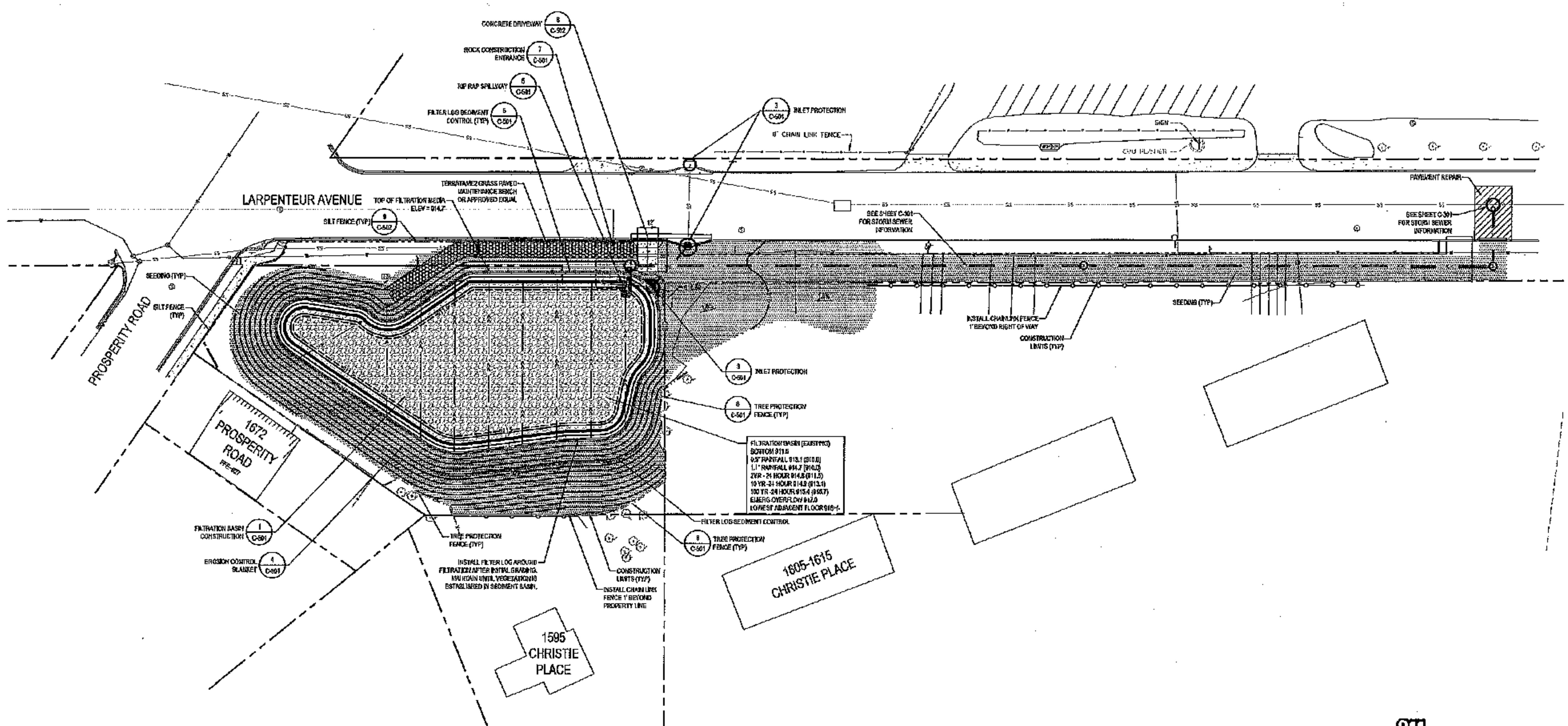
1. ALL WORK TO COMPLY WITH CURRENT MINNESOTA DEPARTMENT OF TRANSPORTATION (MNDOT) STANDARD SPECIFICATIONS FOR CONSTRUCTION UNLESS NOTED.
2. CONTRACTOR SHALL PERFORM FINAL STABILIZATION OF FILTRATION BASIN SLOPES UPON COMPLETION OF FINAL GRADING. SPECIAL CARE SHALL BE TAKEN TO MINIMIZE SILTATION FROM SLOPES AND UPSTREAM AREAS (URBAN), AND UPON COMPLETION OF FILTRATION BASIN CONSTRUCTION. TRIBUTARY STORM SEWER SHALL BE KEPT OFFLINE UNTIL INSTALLATION IS COMPLETE AND UPSTREAM TRIBUTARY AREAS HAVE BEEN STABILIZED.
3. A GEOTECHNICAL ENGINEER OR THEIR DESIGNATED REPRESENTATIVE SHALL OBSERVE THE PROJECT EXCAVATIONS TO VERIFY THAT UNSUITABLE MATERIALS HAVE BEEN PROPERLY REMOVED FROM PROPOSED PAVED AREAS, THAT ADEQUATE BEARING SUPPORT IS PROVIDED BY THE EXPOSED SOILS AND THAT STRUCTURAL FILL IS PLACED APPROPRIATELY.
4. SIDEWALLS SHALL BE BENCHED OR SLOPED TO PROVIDE SAFE WORKING CONDITIONS AND STABILITY FOR ENGINEERED FILL PLACEMENT. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ASSESSING THE STABILITY OF AND EXECUTING PROJECT EXCAVATIONS USING SAFE METHODS. THE CONTRACTOR IS ALSO RESPONSIBLE FOR NAMING THE "COMPETENT INDIVIDUAL" AS PER SUBPART P OF 29 CFR 1926 (FEDERAL REGISTER - OSHA). IF SOIL CORRECTION IS REQUIRED IT SHALL EXTEND 4 FEET OUTSIDE OF THE PAVEMENT LIMITS PLUS ONE FOOT HORIZONTAL FOR EVERY VERTICAL FOOT OF CORRECTION.
5. THE CONTRACTOR SHALL PROTECT THE SUBGRADE FROM INCLEMENT WEATHER TO MAINTAIN STABILITY. FOLLOWING REMOVAL OF TOPSOIL, PAVEMENT, AND ANY UNSUITABLE SOILS, THE RESULTING SUBGRADE SHOULD BE SCARIFIED AND RE-COMPACTED TO A DEPTH OF 12 INCHES. SOFT AND UNSTABLE AREAS SHOULD BE SUBCUT, MOISTURE-CONDITIONED, AND RE-COMPACTED OR REMOVED TO A STABLE DEPTH.
6. AGGREGATE BASE FINAL SHAPING AND COMPACTION OF THE AGGREGATE BASE SHALL BE DONE JUST PRIOR TO INSTALLATION OF THE PLANT MIX BITUMINOUS SURFACE.
7. PRIOR TO CONSTRUCTING THE BITUMINOUS BINDER AND/OR WEARING COURSES, THE CONTRACTOR SHALL REMOVE ALL DIRT AND DEBRIS FROM THE SURFACE.
8. CONTRACTOR, SUB-CONTRACTORS, SUPERVISORY PERSONNEL AND OPERATORS MUST ALL READ, UNDERSTAND AND FOLLOW THE TEXT OF THE STORMWATER POLLUTION PREVENTION PLAN. THERE IS CRITICAL INFORMATION ON THAT PLAN THAT EFFECTS GRADING CONSTRUCTION. SEE SHEET C-301.
9. SPECIFIED EROSION AND SEDIMENT CONTROL SHOWN ON THIS SHEET ARE THE MINIMUM REQUIRED PRACTICES. ADDITIONAL MEASURES MAY BE REQUIRED DURING THE COURSE OF CONSTRUCTION.
10. SUFFICIENT HIGH QUALITY TOPSOIL SHALL BE PRESERVED TO INSTALL 12 INCHES OVER ALL DISTURBED GREENSPACES OF THE SITE OUTSIDE OF THE FILTRATION BASIN PERIMETER.
11. INGRESS AND EGRESS TO THE SITE SHALL AT ALL TIMES BE LIMITED TO THE CONSTRUCTION ENTRANCE.
12. SEE DETAIL X/C-501 FOR PIPE BEDDING DETAILS.
13. ALL RIM ELEVATIONS ARE TO TOP OF CASTING UNLESS OTHERWISE NOTED.
14. NO WORK SHALL OCCUR OUTSIDE THE LIMITS OF CONSTRUCTION.

NPDES AREA SUMMARY

DISTURBED AREA	EXISTING (ACRE)	PROPOSED (ACRE)
IMPERVIOUS		
BUILDING	0.000 ACRES	0.000 ACRES
PAVEMENT	0.021 ACRES	0.027 ACRES
TOTAL IMPV	0.021 ACRES	0.027 ACRES
PERVIOUS	1.052 ACRES	1.046 ACRES
TOTAL	1.073 ACRES	1.073 ACRES

LEGEND

- SILT FENCE
- TREE PROTECTION FENCE
- FILTER LOG SEDIMENT CONTROL
- STORM STRUCTURE INLET PROTECTION
- MNDOT MIXTURE 25-241 MESIC PRAIRIE GENERAL BROADCAST SEEDING; TEMPORARY - MIXTURE 21-111 OATS COVER CROP SEEDING RATE PLS 35.5 LBS/AC.
- FIBER BLANKET (ALL SEEDED SLOPE >3:1)
- COARSE AGGREGATE FILTRATION BASIN SURFACE TREATMENT WITH SPENT LIME MIXED INTO MEDIA.
- MAINTENANCE BENCH (REINFORCED TURF)



Know what's below. Call before you dig.

SCALE IN FEET

1 GRADING & EROSION CONTROL PLAN
1" = 30'

RAMSEY COUNTY PUBLIC WORKS DEPARTMENT
1425 PAUL KIRKWOLD DRIVE, ARDEN HILLS, MN 55112

RAMSEY COUNTY

PROJECT
RAMSEY COUNTY DRAINAGE STUDY
ST. PAUL, MINNESOTA

SHEET INDEX
WATERSHED SUBMITTAL
11/14/18

ISSUE	DATE
REVISED WATERSHED SUBMITTAL	

Élan DESIGN LAB
901 N 3rd STREET, SUITE 120
MINNEAPOLIS, MN 55401
www.elanlab.com

CERTIFICATION
I hereby certify that this plan 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.
NOT FOR CONSTRUCTION
Marcella J. Weckerk — DATE 11/14/18
REGISTRATION NO. 42323

SHEET
GRADING & EROSION CONTROL PLAN
C-201
PROJECT NO.
RAM18001

Permit Application Coversheet

Date December 05, 2018

Project Name Morrie's Mercedes-Benz **Project Number** 18-30

Applicant Name Philip Branson, Morrie's Maplewood MRE, LLC

Type of Development Commercial/Retail

Property Description

This project is located at 2780 Highway 61 at the existing Morrie's car dealership in the City of Maplewood. The applicant is proposing to demolish the existing building in order to construct a new building and parking lot. The applicant is proposing to construct two underground detention systems with ecoStorm filtration cartidge manholes. Pretreatment will include hooded sumped inlets and isolator rows. The proposed facilities meet water quality treatment standards and are sized to capture the required volume but differ from standard filtration systems. The applicant has submitted a variance request for District Rule C for board approval of an alternative filtration media. The variance request also addresses District Rule E for temporary and permanent wetland buffer impacts. Existing pavement is located 22' from the wetland boundary. The applicant is proposing to remove the existing pavement and replace at a distance of 32' from the boundary, which is within the minimum 37.5' buffer required by the District. The proposed average buffer is 131.6', which exceeds the District's average requirement. The applicant obtained the required Wetland Conservation Act (WCA) boundary approval by the District on 6/11/18 (#18-05 WCA). Fill is proposed within the wetland's 100-year floodplain elevation, but compensatory storage will be provided prior to or concurrently with the proposed fill.

Watershed District Policies or Standards Involved:

- ☑ ***Wetlands***
- ☑ ***Erosion and Sediment Control***
- ☑ ***Stormwater Management***
- ☑ ***Floodplain***

Water Quantity Considerations

The proposed stormwater management plan is sufficient to handle the runoff from the site.

Water Quality Considerations

Short Term

The proposed erosion and sediment control plan is sufficient to protect downstream water resources during construction.

Long Term

The proposed stormwater management plan is sufficient to protect the long term quality of downstream water resources.

Staff Recommendation

Staff recommends approval of the permit with the special provisions and variance request.

Attachments:

- [x] **Project Location Map**
- [x] **Project Grading Plan**

#18-30 Morrie's Mercedes - Benz

Wetlands
- Manage A
- Manage B
- Manage C
- Lake
- Sediment Pond
- Not Assessed

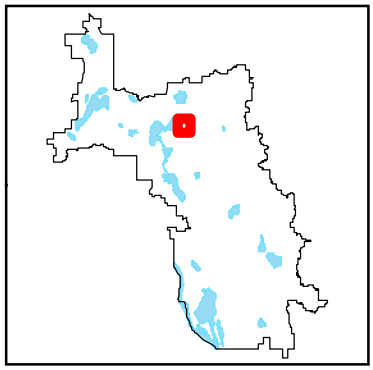
- RWMWD Boundary
- Subwatersheds
- Creeks
- Permits
- Ramsey Co Parcels
- City Boundaries

Highlighted Areas Represent Active Permit

0 275 550
Feet

0 0.05 0.1
Miles

N



18-30

Special Provisions

1. The applicant shall submit a revised narrative that provides a discussion and supporting calculations to demonstrate the proposed filtration manholes will have sufficient discharge capacity such that the bypass pipe will not be activated if the water surface elevation in the underground storage structures is below the overflow weir elevation for OCS-1 and OCS-2.

2. The applicant shall submit the escrow fee of $30,000.

3. The applicant shall submit the executed stormwater joint maintenance agreement with the City of Maplewood.

4. The applicant shall submit a final version of the geotechnical report.

5. The applicant shall make the following changes to the plans:
   A. Provide direction to the contractor on construction of the underground filtration systems. Systems should remain offline and protected from construction sediment until all contributing areas are restored.
   B. Add a note to notify Nicole Soderholm, Ramsey-Washington Metro Watershed District, at 651-792-7976 prior to beginning any and all construction activity in order to schedule an initial SWPPP inspection.
   C. Add a note to notify Nicole Soderholm, Ramsey-Washington Metro Watershed District, at 651-792-7976 at least 48 hours prior to construction of the underground stormwater facilities.
   D. Revise Note 18 on Grading Plan to specify and describe wetland buffer restoration.
   E. Revise delineated wetland boundary symbology such that it is easier to see.
   F. Add redundant perimeter control where a 50' no-disturb wetland buffer cannot be maintained per Section 2.2 of the SWPPP.
   G. Label the District's minimum wetland buffer setback of 37.5'.
   H. Label the District's 100-year water surface elevation of the adjacent wetland.

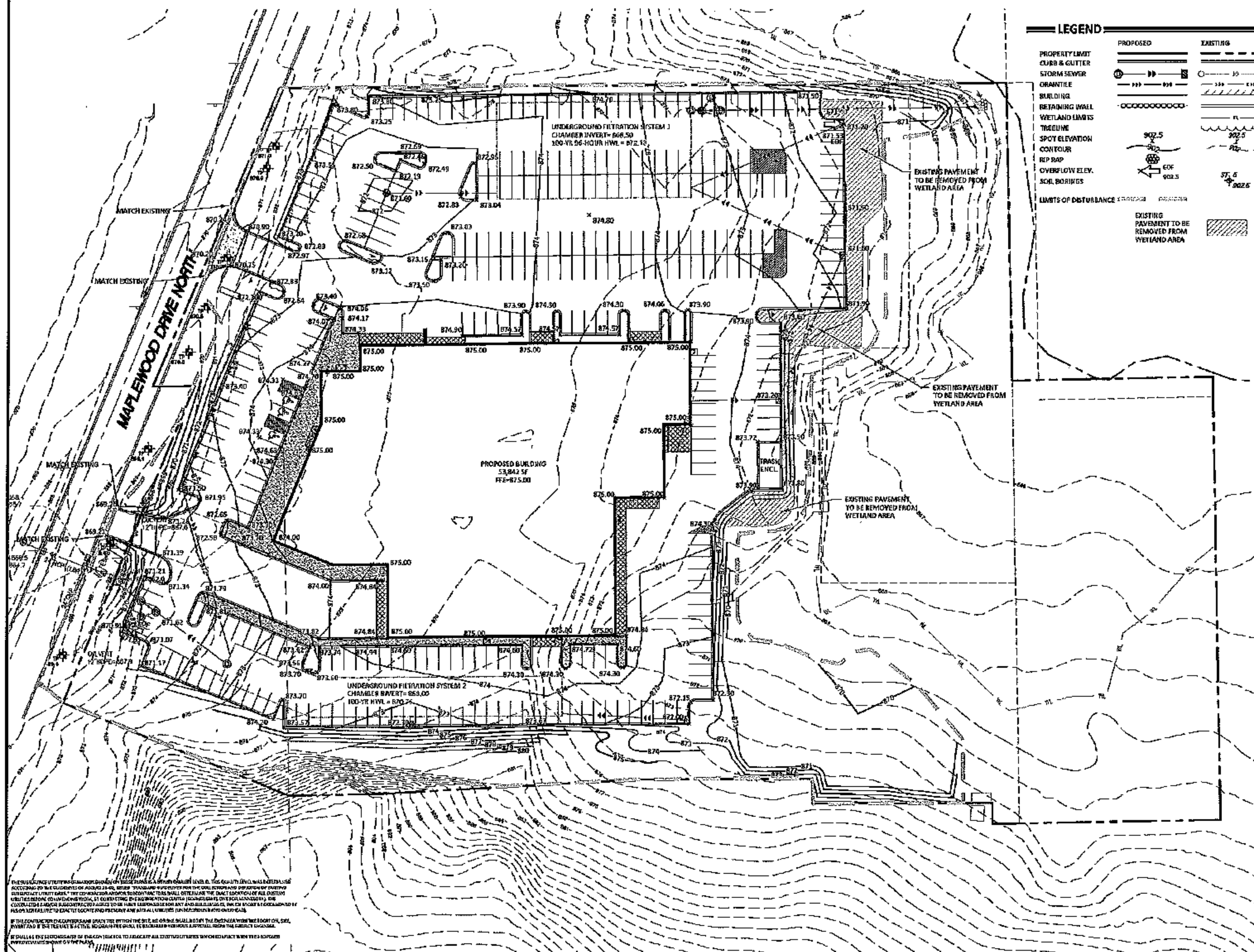
6. The applicant shall submit a final copy of the signed construction plans.

7. The applicant shall provide contact information for the trained erosion control coordinator responsible for implementing the SWPPP.

8. The applicant shall submit a copy of the Minnesota Pollution Control Agency's NPDES Construction Permit.

Special Provisions

9. The applicant shall submit a detailed, site-specific Operations and Maintenance Plan that includes processes for visual inspection, maintenance locations/methods/frequencies, etc.



GRADING NOTES

1. PROPOSED CONTOURS ARE TO FINISHED SURFACE ELEVATION. SPOT ELEVATIONS ALONG PROPOSED CURB DENOTE GUTTER GRADE.
2. CONTRACTOR SHALL REVIEW PAVEMENT GRADIENT AND CONSTRUCT "GUTTER OUT" WHERE WATER DRAINS AWAY FROM CURB. ALL OTHER AREAS SHALL BE CONSTRUCTED AS "GUTTER IN" CURB.
3. ALL GRADIENT ON SIDEWALKS ALONG THE ADA ROUTE SHALL HAVE A MAXIMUM LONGITUDINAL SLOPE OF 5% (1:20), EXCEPT AT CURB RAMPS (1:12), AND A MAXIMUM CROSS SLOPE OF 2.08% (1:48). MAXIMUM SLOPE IN ANY DIRECTION ON AN ADA PARKING STALL OR ACCESS AISLE SHALL BE 2.08% (1:48). CONTRACTOR SHALL REVIEW AND VERIFY THE GRADIENT IN THE FIELD ALONG THE ADA ROUTES PRIOR TO PLACING CONCRETE OR BITUMINOUS. CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY IF THERE IS A DISCREPANCY BETWEEN THE GRADIENT IN THE FIELD VERSUS THE DESIGN GRADIENT. COORDINATE ALL WORK WITH PAVING CONTRACTOR.
4. CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO AVOID PROPERTY DAMAGE TO ADJACENT PROPERTIES DURING THE CONSTRUCTION PHASES OF THIS PROJECT. CONTRACTOR WILL BE HELD SOLELY RESPONSIBLE FOR ANY DAMAGES TO THE ADJACENT PROPERTIES OCCURRING DURING THE CONSTRUCTION PHASES OF THIS PROJECT.
5. SAFETY NOTICE TO CONTRACTORS: IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, CONTRACTOR WILL BE SOLELY AND COMPLETELY RESPONSIBLE FOR CONDITIONS ON THE JOB SITE, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING PERFORMANCE OF THE WORK. THIS REQUIREMENT WILL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS. THE DUTY OF THE ENGINEER OR THE DEVELOPER TO CONDUCT CONSTRUCTION REVIEW OF THE CONTRACTOR'S PERFORMANCE IS NOT INTENDED TO INCLUDE REVIEW OF THE ADEQUACY OF THE CONTRACTOR'S SAFETY MEASURES IN, ON OR NEAR THE CONSTRUCTION SITE.
6. CONTRACTOR SHALL COMPLETE THE SITE GRADING CONSTRUCTION IN ACCORDANCE WITH THE REQUIREMENTS OF THE OWNER'S SOILS ENGINEER. ALL SOIL TESTING SHALL BE COMPLETED BY THE OWNER'S SOILS ENGINEER. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL REQUIRED SOIL TESTS AND INSPECTIONS WITH THE SOILS ENGINEER.

   A GEOTECHNICAL ENGINEERING SOILS REPORT HAS BEEN COMPLETED BY:

   COMPANY: BRAUN INTERTEC CORP.
   ADDRESS: 11001 HAMPSHIRE AVE. S, MINNEAPOLIS, MN 55438
   PHONE: 952-995-2000
   DATED: 6/20/18

   CONTRACTOR SHALL OBTAIN A COPY OF THE SOILS REPORT.
7. CONTRACTOR SHALL COMPLETE DEWATERING AS REQUIRED TO COMPLETE THE SITE GRADING CONSTRUCTION.
8. PRIOR TO PLACEMENT OF THE AGGREGATE BASE, A TEST ROLL SHALL BE PERFORMED ON THE STREET AND PARKING AREA SUBGRADE. CONTRACTOR SHALL PROVIDE A LOADED TANDEM AXLE TRUCK WITH A GROSS WEIGHT OF 25 TONS. THE TEST ROLLING SHALL BE AT THE DIRECTION OF THE SOILS ENGINEER AND SHALL BE COMPLETED IN AREAS AS DIRECTED BY THE SOILS ENGINEER. CORRECTION OF THE SUBGRADE SOILS SHALL BE COMPLETED IN ACCORDANCE WITH THE REQUIREMENTS OF THE SOILS ENGINEER.
9. REPLACE ALL SUBGRADE SOIL DISTURBED DURING THE CONSTRUCTION THAT HAVE BECOME UNSUITABLE AND WILL NOT PASS A TEST ROLL. REMOVE UNSUITABLE SOIL FROM THE SITE AND IMPORT SUITABLE SOIL AT NO ADDITIONAL COST TO THE OWNER.
10. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND MAINTAINING VEHICULAR AND PEDESTRIAN TRAFFIC CONTROL DEVICES SUCH AS BARRICADES, WARNING SIGNS, DIRECTIONAL SIGNS, FLAGMEN AND LIGHTS TO CONTROL THE MOVEMENT OF TRAFFIC WHERE NECESSARY. TRAFFIC CONTROL DEVICES SHALL CONFORM TO APPROPRIATE MINNESOTA DEPARTMENT OF TRANSPORTATION STANDARDS.
11. EXISTING TREES AND OTHER NATURAL VEGETATION WITHIN THE PROJECT AND/OR ADJACENT TO THE PROJECT ARE OF PRIME CONCERN TO THE CONTRACTOR'S OPERATIONS AND SHALL BE A RESTRICTED AREA. CONTRACTOR SHALL PROTECT TREES TO REMAIN AT ALL TIMES. EQUIPMENT SHALL NOT NEEDLESSLY BE OPERATED UNDER NEARBY TREES AND EXTREME CAUTION SHALL BE EXERCISED WHEN WORKING ADJACENT TO TREES. SHOULD ANY PORTION OF THE TREE BRANCHES REQUIRE REMOVAL TO PERMIT OPERATION OF THE CONTRACTOR'S EQUIPMENT, CONTRACTOR SHALL OBTAIN THE SERVICES OF A PROFESSIONAL TREE TRIMMING SERVICE TO TRIM THE TREES PRIOR TO THE BEGINNING OF OPERATION. SHOULD CONTRACTOR'S OPERATIONS RESULT IN THE BREAKING OF ANY LIMBS, THE BROKEN LIMBS SHOULD BE REMOVED IMMEDIATELY AND CUTS SHALL BE PROPERLY PROTECTED TO MINIMIZE ANY LASTING DAMAGE TO THE TREE. NO TREES SHALL BE REMOVED WITHOUT AUTHORIZATION BY THE ENGINEER. COSTS FOR TRIMMING SERVICES SHALL BE CONSIDERED INCIDENTAL TO THE GRADING CONSTRUCTION AND NO SPECIAL PAYMENT WILL BE MADE.
    - 11.a. RESTRICTED AREAS SHALL INCLUDE ALL DESIGNATED TREED AREAS OUTSIDE OF THE DESIGNATED CONSTRUCTION ZONE. ALL VEGETATION WITHIN THE RESTRICTED AREAS SHALL REMAIN.
    - 11.b. CONTRACTOR SHALL RESTRICT ALL GRADING AND CONSTRUCTION ACTIVITIES TO AREAS DESIGNATED ON THE PLANS. ACTIVITIES WITHIN THE CONSTRUCTION MAY BE RESTRICTED TO A NARROWER WIDTH IN THE FIELD TO SAVE ADDITIONAL TREES AS DIRECTED BY THE OWNER.
    - 11.c. ACTIVITIES PROHIBITED OUTSIDE OF THE CONSTRUCTION BOUNDARIES WOULD INCLUDE, BUT NOT BE LIMITED TO: SOIL AND OTHER MATERIAL STOCKPILING, EQUIPMENT OR MACHINERY STORAGE, PARKING OF ANY VEHICLE, LEAKAGE OR SPILLAGE OF ANY "WASHOUT" OR OTHER TOXIC MATERIAL. THE COLLECTION OF OTHER DEBRIS AND SOIL STOCKPILING WILL BE IN AN AREA DETERMINED ON-SITE BY THE ENGINEER.
    - 11.d. ALL RESTRICTED AREAS SHALL BE FENCED OFF WITH BRIGHT ORANGE POLYETHYLENE SAFETY NETTING AND STEEL STAKES AS SHOWN ON THE TREE PROTECTION DETAIL. AT NO TIME SHALL THIS FENCING BE REMOVED OR ACTIVITY OF ANY KIND TAKE PLACE WITHIN IT. FINAL PLACEMENT OF ALL PROTECTIVE FENCING SHALL BE CONFIRMED BEFORE ANY WORK COMMENCES ON-SITE.
    - 11.e. BEFORE COMMENCING WITH ANY EXCAVATION CONTRACTOR SHALL COMPLETE ALL PREPARATORY WORK REGARDING TREE REMOVAL, ROOT PRUNING, TREE PRUNING AND STUMP REMOVAL TO THE SATISFACTION OF THE OWNER.
    - 11.f. PREPARATORY WORK SHALL INCLUDE THE FOLLOWING AND SHALL BE COMPLETED UNDER THE DIRECT SUPERVISION OF THE OWNER'S REPRESENTATIVE:
        - 11.f.a. TREE REMOVAL: CONTRACTOR SHALL FELL THE TREES. AT NO TIME SHALL TREES BE BULLDOZED OUT, BUT SHALL BE CUT DOWN AND STUMPS REMOVED SEPARATELY. PRIOR TO THE FELLING OF ALL TREES, PROPER REMOVAL OF A PORTION OR ALL OF THE CANOPY SHALL BE COMPLETED SO THAT TREES IN THE RESTRICTED AREAS SHALL NOT BE INJURED IN THE PROCESS.
        - 11.f.b. ROOT PRUNING: BEFORE ANY STUMPS ARE TO BE REMOVED, ALL ROOTS SHALL BE SEVERED FROM ROOTS IN THE RESTRICTED AREAS BY SAW CUTTING WITH A VERMEER DESIGNED FOR ROOT PRUNING, BY HAND, OR WITH A CHAINSAW. TREE ROOTS PROJECTING INTO THE CONSTRUCTION ZONE SHALL BE EXPOSED PRIOR TO ROOT PRUNING WITH SMALL MACHINERY, I.E., BOBCAT.
        - 11.f.c. STUMP REMOVAL: AT SUCH TIME THAT ROOTS HAVE BEEN PROPERLY SEVERED, STUMPS MAY BE REMOVED. WHERE REMOVAL OF CERTAIN STUMPS COULD CAUSE DAMAGE TO EXISTING PROTECTED TREES, TREE STUMPS SHALL BE GROUND OUT. ALL STUMP REMOVAL SHALL BE UNDER THE DIRECT SUPERVISION OF THE OWNER'S REPRESENTATIVE.
        - 11.f.d. TREE PRUNING: PROPER PRUNING OF TREES IN THE RESTRICTED ZONE SHALL BE DIRECTED BY AND SUPERVISION AT ALL TIMES BY THE OWNER'S REPRESENTATIVE.
    - 11.g. AN OWNER'S REPRESENTATIVE WILL BE AVAILABLE AT ALL TIMES DURING THE PREPARATORY AND CONSTRUCTION PERIOD.
    - 11.h. MULCH RATHER THAN SEED OR SOD WILL BE USED AT THE BASE OF QUALITY TREES TO A PERIMETER DETERMINED BY THE OWNER'S REPRESENTATIVE. AREAS TO BE SEEDED FOR EROSION CONTROL PURPOSES WITHIN THE CONSTRUCTION ZONE ARE TO BE DETERMINED BY THE OWNER'S REPRESENTATIVE. NATURAL GROUND COVER WILL BE MAINTAINED WHENEVER POSSIBLE.
    - 11.i. THE USE OF RETAINING WALLS NEAR TREES, IN ADDITION TO THOSE REQUIRED ON THE PLANS SHALL BE DETERMINED IN THE FIELD, BASED ON TREE LOCATIONS AND TOPOGRAPHY.
12. EXCAVATE TOPSOIL FROM AREAS TO BE FURTHER EXCAVATED OR REGRADED AND STOCKPILE IN AREAS DESIGNATED ON THE SITE. CONTRACTOR SHALL SALVAGE ENOUGH TOPSOIL FOR RESPREADING ON THE SITE AS SPECIFIED. EXCESS TOPSOIL SHALL BE PLACED IN EMBANKMENT AREAS, OUTSIDE OF BUILDING PADS, ROADWAYS AND PARKING AREAS. CONTRACTOR SHALL SUBCUT CUT AREAS, WHERE TURF IS TO BE ESTABLISHED, TO A DEPTH OF 6 INCHES. RESPREAD TOPSOIL IN AREAS WHERE TURF IS TO BE ESTABLISHED TO A MINIMUM DEPTH OF 6 INCHES.
13. TRENCH BORROW CONSTRUCTION: IF ALLOWED BY THE OWNER, CONTRACTOR SHALL COMPLETE "TRENCH BORROW" EXCAVATION IN AREAS DIRECTED BY THE ENGINEER IN ORDER TO OBTAIN STRUCTURAL MATERIAL. TREES SHALL NOT BE REMOVED OR DAMAGED AS A RESULT OF THE EXCAVATION, UNLESS APPROVED BY THE ENGINEER. THE EXCAVATION SHALL COMMENCE A MINIMUM OF 10 FEET FROM THE LIMIT OF THE BUILDING PAD. THE EXCAVATION FROM THIS LIMIT SHALL EXTEND AT A MINIMUM SLOPE OF 1 FOOT HORIZONTAL TO 1 FOOT VERTICAL (1:1) DOWNWARD AND OUTWARD FROM THE FINISHED SURFACE GRADE ELEVATION. THE TRENCH BORROW EXCAVATION SHALL BE BACKFILLED TO THE PROPOSED FINISHED GRADE ELEVATION, AND SHALL BE COMPACTED IN ACCORDANCE WITH REQUIREMENTS OF THE QUALITY COMPACTION METHOD AS OUTLINED IN MNDOT SPECIFICATION 2105.3F2. SNOW FENCE SHALL BE FURNISHED AND PLACED ALONG THE PERIMETER OF THE TRENCH BORROW AREA WHERE THE SLOPES EXCEED 2 FOOT HORIZONTAL TO 1 FOOT VERTICAL (2:1).
14. FINISHED GRADING SHALL BE COMPLETED. CONTRACTOR SHALL UNIFORMLY GRADE AREAS WITHIN LIMITS OF GRADING, INCLUDING ADJACENT TRANSITION AREAS. PROVIDE A SMOOTH FINISHED SURFACE WITHIN SPECIFIED TOLERANCES, WITH UNIFORM LEVELS OR SLOPES BETWEEN POINTS WHERE ELEVATIONS ARE SHOWN, OR BETWEEN SUCH POINTS AND EXISTING GRADES. AREAS THAT HAVE BEEN FINISHED GRADED SHALL BE PROTECTED FROM SUBSEQUENT CONSTRUCTION OPERATIONS, TRAFFIC AND EROSION. REPAIR ALL AREAS THAT HAVE BECOME RUTTED, ERODED OR HAS SETTLED BELOW THE CORRECT GRADE. ALL AREAS DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED TO EQUAL OR BETTER THAN ORIGINAL CONDITION OR TO THE REQUIREMENTS OF THE NEW WORK.
15. TOLERANCES
    - 15.a. THE RESIDENTIAL BUILDING SUBGRADE FINISHED SURFACE ELEVATION SHALL NOT VARY BY MORE THAN 0.30 FOOT ABOVE, OR 0.30 FOOT BELOW, THE PRESCRIBED ELEVATION AT ANY POINT WHERE MEASUREMENT IS MADE.
    - 15.b. THE COMMERCIAL BUILDING SUBGRADE FINISHED SURFACE ELEVATION SHALL NOT VARY BY MORE THAN 0.10 FOOT ABOVE, OR 0.10 FOOT BELOW, THE PRESCRIBED ELEVATION AT ANY POINT WHERE MEASUREMENT IS MADE.
    - 15.c. THE STREET OR PARKING AREA SUBGRADE FINISHED SURFACE ELEVATION SHALL NOT VARY BY MORE THAN 0.05 FOOT ABOVE, OR 0.10 FOOT BELOW, THE PRESCRIBED ELEVATION OF ANY POINT WHERE MEASUREMENT IS MADE.
    - 15.d. AREAS WHICH ARE TO RECEIVE TOPSOIL SHALL BE GRADED TO WITHIN 0.30 FOOT ABOVE OR BELOW THE REQUIRED ELEVATION, UNLESS DIRECTED OTHERWISE BY THE ENGINEER.
    - 15.e. TOPSOIL SHALL BE GRADED TO PLUS OR MINUS 1/2 INCH OF THE SPECIFIED THICKNESS.
16. AFTER THE SITE GRADING IS COMPLETED, IF EXCESS OR SHORTAGE OF SOIL MATERIAL EXISTS, CONTRACTOR SHALL TRANSPORT ALL EXCESS SOIL MATERIAL OFF THE SITE TO AN AREA SELECTED BY THE CONTRACTOR, OR IMPORT SUITABLE MATERIAL TO THE SITE.
17. CONTRACTOR SHALL DETERMINE THE LOCATION OF ANY HAUL ROADS THAT MAY BE REQUIRED TO COMPLETE THE SITE GRADING CONSTRUCTION AND SHALL INDICATE HAUL ROADS ON EROSION AND SEDIMENT CONTROL "SITE MAP". CONTRACTOR SHALL COMPLY WITH THE REQUIREMENTS OF THE GOVERNING AUTHORITY OF EACH ROADWAY. CONTRACTOR SHALL POST WHATEVER SECURITY, AND COMPLY WITH ALL CONDITIONS WHICH ARE REQUIRED BY EACH GOVERNING AUTHORITY OF EACH ROADWAY.
18. DISTURBED AREAS WITHIN WETLAND MITIGATION SITE AND ANY DISTURBED AREAS WITHIN THE WETLAND SHALL BE RESTORED WITH 6 TO 12 INCHES OF ORGANIC SOILS, PREFERABLY SOILS THAT WERE PREVIOUSLY REMOVED FROM WETLAND AREAS. SEEDING IN THE WETLAND MITIGATION AREAS ABOVE THE NORMAL WATER LEVEL SHALL BE MN STATE SEED MIX 34-271, WET MEADOW SOUTH AND WEST, OR APPROVED EQUAL. FOR STATE SEED MIXES, OATS AND WINTER WHEAT SHOULD BE SELECTED BASED ON THE TIME OF YEAR THAT THE MIX IS BEING USED. OATS SHOULD BE INCLUDED IN MIXES IF BEING USED BETWEEN OCTOBER 15TH AND AUGUST 1ST. WINTER WHEAT SHOULD BE USED BETWEEN AUGUST 1ST AND OCTOBER 15TH. THE SEEDING RATE IS THE SAME FOR OATS AND WINTER WHEAT. MIX 34-271 SHOULD BE APPLIED AT 12 POUNDS PER ACRE. SEED SHALL BE WATERED UNTIL A HEALTHY STAND OF VEGETATION IS OBTAINED.
19. FILL PLACED WITHIN THE BUILDING PAD AREAS SHALL BE IN CONFORMANCE WITH FHA/HUD PROCEDURES AND DATA SHEET 79G.
20. RETAINING WALL(S) SHALL BE CONSTRUCTED OF MODULAR BLOCK MATERIAL. CONTRACTOR SHALL SUBMIT TO THE ENGINEER AND LOCAL AUTHORITY CERTIFIED ENGINEERING DRAWINGS, DESIGN CALCULATIONS AND SOIL BORINGS. THE CERTIFIED ENGINEER FOR THE RETAINING WALL(S) SHALL PROVIDE CONSTRUCTION OBSERVATIONS OF THE RETAINING WALL IMPROVEMENT, AND A LETTER CERTIFYING THE INSTALLATION OF THE WALL(S) WAS CONSTRUCTED IN CONFORMANCE WITH THE PLANS AND SPECIFICATIONS.

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Client
MORRIE'S AUTOMOTIVE GROUP

Project
MORRIE'S MERCEDES-BENZ

Location
MAPLEWOOD, MN

Certification
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.

PRELIMINARY

Peter S. Moreno
Registration No. 45735 Date: 08/28/2018
If applicable, contact us for a wet signed copy of this plan which is available upon request at Sambatek's, Minnetonka, MN office.

Summary
Designed: JEB Drawn: JEB
Approved: PSM Book / Page:
Phase: PERMIT Initial Issued: 08/28/2018

Revision History

No.	Date	By	Submittal / Revision
1	11-25-18		WATERSHED COMMENTS

Sheet Title
GRADING PLAN

Sheet No. Revision
C4.01

Project No. 21020.02

November 25, 2018

RWMWD District Board of Managers
Ramsey-Washington Metro Watershed District
2665 Noel Drive
Little Canada, MN 55117

SUBJECT: Variance Request to Rules C & E (Stormwater Management & Wetland Buffer)
Morrie's Maplewood Mercedes-Benz
Maplewood, MN

This letter is regarding the Morrie's Mercedes-Benz dealership reconstruction project located at 2780 Maplewood Drive, east of Highway 61 and south of Beam Avenue in Maplewood, MN. The project consists of demolishing the existing car dealership facility and smaller collision center building in the southwest corner of the site along with all existing bituminous pavement. Proposed improvements consist of constructing a new dealership building with showroom, service area, car wash, and related parking areas.

There are two variance requests necessary for the proposed improvement plans.

1. Wetland Buffer Distance: Variance needed for disturbance within the minimum buffer of 37.5 feet. (Rule E)
2. Stormwater Management Runoff Volume Reduction Alternative Compliance: Per Rule C, Section 3.c.2.i, we are requesting an alternative filtration media be considered at the discretion of the District for satisfying the onsite volume reduction requirement.

<u>Request #1 Wetland Buffer Distance:</u>
The District requires a minimum no disturbance buffer of 37.5' and a minimum average restored buffer of 75' for the site's Manage A classified wetland. The existing pavement onsite is currently non-compliant with the minimum disturbance buffer requirement. Existing pavement is 22' from the wetland boundary at its closest point. The reason for the variance request is to disturb within the 37.5' no disturbance zone for removal of the existing non-compliant pavement areas (variance of 15.5' to reach the full removal limits). The minimum buffer distance proposed for post-development conditions is 32' and is necessary to meet City of Maplewood setbacks for positioning of the new facility and function of the perimeter drive lane. The proposed development will improve wetland buffer conditions because 7,590 SF of existing pavement area is proposed to be removed from the buffer area. The proposed average buffer width is 131.6' which will also exceed both RWMWD's average buffer requirement (75') and the City of Maplewood's (100'). The duration of disturbance will be temporary and will result in an increase of permanent buffer area. The restoration proposed will comply with all the District's restoration requirements. Disturbance areas are proposed to be planted with native species and maintained as a native habitat. Please see attached Exhibit A for a figure identifying the location and amount of buffer area.

Request #2 Stormwater Management Volume Reduction Alternative Compliance:
Stormwater filtration is deemed necessary for this site through alternative compliance sequencing due to the restrictive low permeability (Type D) soils (physical limitation in Table 2 of District Rule C).

The first alternative compliance method for volume reduction is to provide a storage volume below the low overflow outlet of a detention facility that is sized to provide the required reduction volume multiplied by 1.82 (i.e. at 55% credit for filtration in lieu of infiltration). The storage volume below the detention facility is typically a 12"-24" sand section with drain tile that serves as the filter media. A variation of this method is requested that would exceed the respective design standards of this rule.

The proposed variation is to construct a subsurface detention BMP (with storage exceeding 1.82 x required reduction volume) that outlets to a proprietary filtration system (ecoStorm Plus) prior to releasing runoff downstream. The ecoStorm Plus is a manhole with an internal filtration system that includes an adsorptive filter for removing fine silts and pollutants that can be routinely maintained by vacuuming and rinsing the filter and related sump. The variation is requested because to provide sufficient cover over the subsurface detention system, there is not enough depth below the detention facility to provide a sand section and maintain positive drainage to receiving waters. We're seeking approval of the proprietary filtration manhole through treatment train approach described above in lieu of a sand section beneath the detention facility.

We ran an analysis in MIDS software to compare pollutant removals (which is the ultimate goal) of the sand filter and ecoStorm approaches. Both methods achieve >90% TSS efficiency in combination with the upstream ADS isolator row (first row of the ADS StormTech detention system). The adsorptive properties of the EcoStorm filter provides dissolved phosphorous (P) removal in addition to the particulate P removals (City of Maplewood requires 60% TP removal). Greater than 90% TSS & 60% TP revmoal can be achieved with the ecoStorm filtration BMP.

Pollutant Load Reduction Summary							
	Pre	Post-Sand Filter			Post-EcoStorm Plus		
	Load	Load	Reduction	Red. (%)	Load	Reduction	Red. (%)
Volume (ac.-ft.)	11.54	13.07			13.07		
Part. P (lbs)	5.18	5.87	4.87		5.87	4.89	
Diss. P (lbs)	4.24	4.80	0.00		4.80	0.93	
Total P (lbs)	9.42	10.67	4.87	51.7%	10.67	5.82	61.8%
TSS (lbs)	1710.90	1937.60	1585.20	92.7%	1937.60	1568.80	91.7%

We recognize concerns for maintenance and will work with district staff to prepare a maintenance agreement acceptable to the district.

We find our proposed approach more suitable for improving water quality based on the site limitations and to minimize disturbance to the adjacent wetland.

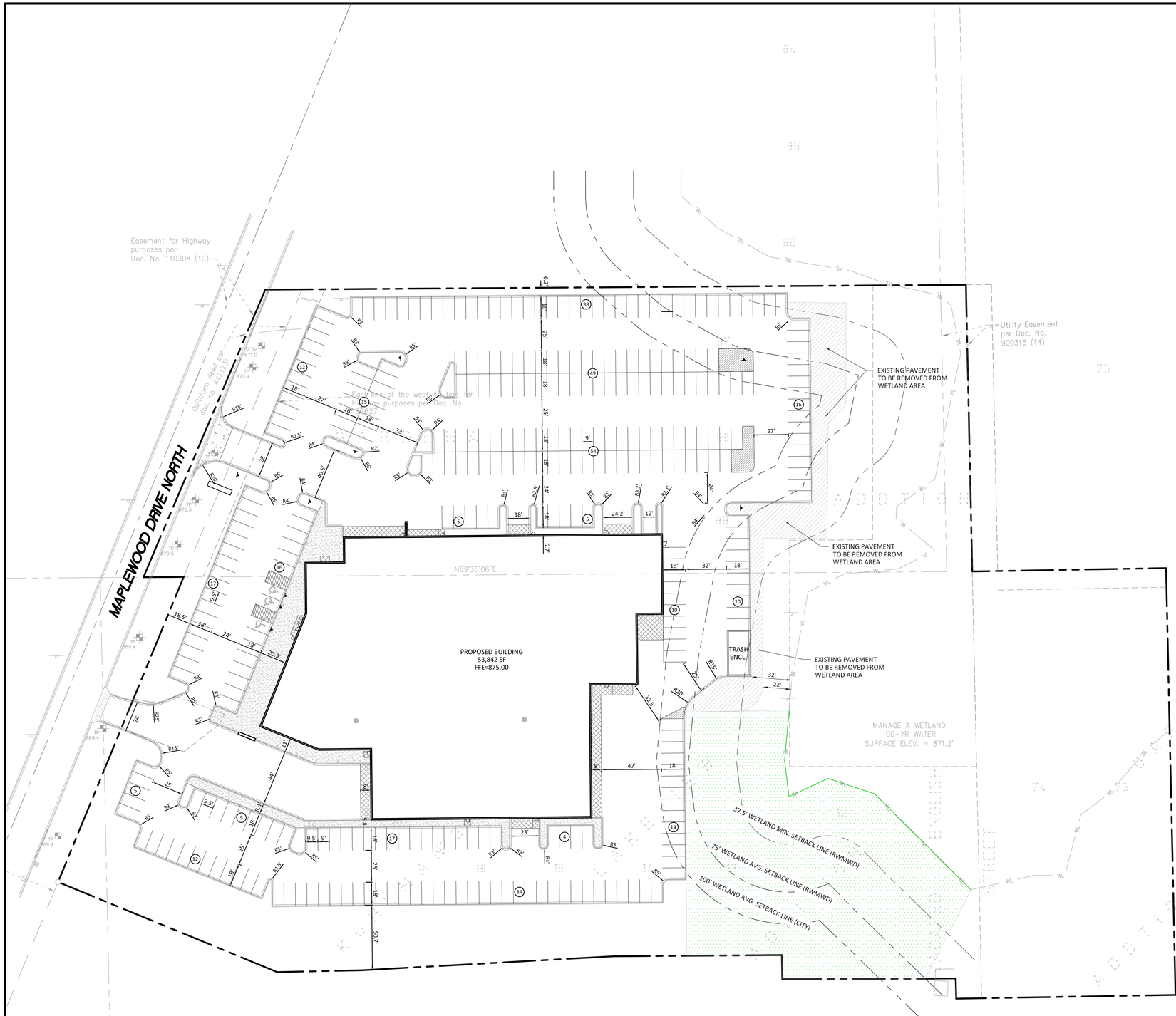
The proposed Morrie's Mercedes-Benz project will meet the requirements of the City of Maplewood and Ramsey-Washington Metro Watershed District through construction of an ADS StormTech subsurface detention system and EcoStorm Plus filtration system with related pretreatment devices. The BMPs will provide the required rate control and water quality improvements prior to discharging stormwater runoff from the site to downstream receiving waters.

If you have any questions, comments, or need additional information please contact pmoreau@sambatek.com or call 763-476-6010. We greatly appreciate your consideration of the proposed treatment approach.

Sincerely,

Pete Moreau, P.E. (MN)
Project Manager

Enclosures
Exhibit A – Wetland Buffer Exhibit



THE SUBSURFACE UTILITY INFORMATION SHOWN ON THESE PLANS IS A UTILITY QUALITY LEVEL D. THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF ASCE/CI 38-02, TITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA." THE CONTRACTOR AND/OR SUBCONTRACTORS SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, BY CONTACTING THE NOTIFICATION CENTER (GOPHER STATE ONE FOR MINNESOTA). THE CONTRACTOR AND/OR SUBCONTRACTOR AGREE TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES, WHICH MIGHT BE OCCASIONED BY HIS OR HER FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UTILITIES (UNDERGROUND AND OVERHEAD).

IF THE CONTRACTOR ENCOUNTERS ANY DRAIN TILE WITHIN THE SITE, HE OR SHE SHALL NOTIFY THE ENGINEER WITH THE LOCATION, SIZE, INVERT AND IF THE TILE LINE IS ACTIVE. NO DRAIN TILE SHALL BE BACKFILLED WITHOUT APPROVAL FROM THE PROJECT ENGINEER.

IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.

LEGEND

	PROPOSED	EXISTING
PROPERTY LIMIT		
CURB & GUTTER		
EASEMENT		
BUILDING		
RETAINING WALL		
WETLAND LIMITS		WL
TREELINE		
SAWCUT LINE		
SIGN		
PIPE BOLLARD		
NUMBER OF PARKING STALLS PER ROW	XX	
KEY NOTE	XX	

STANDARD DUTY ASPHALT PAVING	
HEAVY DUTY ASPHALT PAVING	
CONCRETE PAVING	
CONCRETE SIDEWALK	
EXISTING PAVEMENT TO BE REMOVED FROM WETLAND AREA	
PROPOSED WETLAND BUFFER AREA	

DEVELOPMENT SUMMARY

AREA		
TOTAL SITE AREA	390,513 SF	8.96 AC
EXISTING IMPERVIOUS COVERAGE	3.67 AC	41%
PROPOSED IMPERVIOUS COVERAGE	4.58 AC	51%
5 STALLS PER 1,000 SF SALES ARES:		
• SALES AREA PARKING = (5) (8,500 SF /1000) = 43 STALLS REQUIRED		43 STALLS PROVIDED
SERVICE AREA PARKING = 2 STALLS PER SERVICE BAY+(1) PER EMPLOYEE		
• 31 BAYS X 2 = 62 STALLS REQUIRED		
• 75 SERVICE EMPLOYEE = 75 STALLS REQUIRED		
• TOTAL SERVICE STALLS REQUIRED = 62+75 = 137 STALLS (NOTE THIS IS TOTAL EMPLOYEES FOR FACILITY)		137 STALLS PROVIDED
GRAND TOTAL PARKING INCLUDING INVENTORY SPACES:		342 STALLS

WETLAND BUFFER SUMMARY

PROPOSED BUFFER AREA	32,496 SF
RESPECTIVE WETLAND BOUNDARY LENGTH	247 LF
PROPOSED AVERAGE BUFFER WIDTH (32,496 / 247)	131.6 LF
REQUIRED AVERAGE BUFFER WIDTH	100 LF
EXISTING PAVEMENT TO BE REMOVED FROM THE BUFFER AREA	7,590 SF

NORTH

0 40 80

SCALE IN FEET

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Engineering | Surveying | Planning | Environmental

Client
MORRIE'S AUTOMOTIVE GROUP

Project
MORRIE'S MERCEDES-BENZ

Location
MAPLEWOOD, MN

Certification

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.

PRELIMINARY

Peter S. Moreau
Registration No. 47735 Date: 08/28/2018

If applicable, contact us for a wet signed copy of this plan which is available upon request at Sambatek's, Minnetonka, MN office.

Summary

Designed: JEB Drawn: JEB
Approved: PSM Book / Page:
Phase: PERMIT Initial Issued: 08/28/2018

Revision History

No.	Date	By	Submittal / Revision
1	11-23-18		WATERSHED COMMENTS

Sheet Title
WETLAND BUFFER EXHIBIT

Sheet No. Revision
EX. A

Project No. 21020.02

RAMSEY-WASHINGTON
METRO WATERSHED DISTRICT

MEMORANDUM

Date: December 5, 2018

To: Board of Managers and Staff

From: Nicole Soderholm, Permit Coordinator

Subject: November Enforcement Action Report

During November 2018:

Number of Violations:	**16**
Install/Maintain Inlet Protection	4
Install/Maintain Perimeter Control	3
Install/Maintain Construction Entrance	3
Sweep Streets	1
Stabilize Exposed Soils	1
Contain Liquid/Solid Wastes	1
Remove Discharged Sediment	1
Protect/Maintain Permanent BMPs	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 site visits and administration, Met Council Maplewood Mall tour

Project Updates:

Permit #17-31 Met Council Beltline Sanitary Sewer Rehab, St. Paul

Work began this fall on the Met Council's Beltline sanitary sewer project near Highway 61 and Warner Road in the City of St. Paul. The applicant has submitted a dewatering permit to the DNR to allow for some pipe work. District staff provided comments to the application last month with concerns about movement or settling of the District's Betline storm interceptor due to the proximity of the proposed dewatering. The DNR permit will include language to the effect that the Met Council and their contractor will be responsible for repairing any damage that may occur to the Beltline as a result of the dewatering. A pre-dewatering walk-through

of the potentially affected section of tunnel is expected to occur in early December with District staff, Barr, Met Council, and the general contractor. The Met Council and their contractor will be responsible for documenting any existing defects to the tunnel prior to the start of dewatering. A post-dewatering walk-through will occur afterward with the same staff to assess any potential changes and/or damage to the tunnel.

Permit #16-31 NorthPoint Development Storage Facility, Maplewood

District staff completed an inspection of the self-storage facility at Hwy 61 and English St in June. A punchlist was developed and sent to the contractor that included energy dissipation, erosion repair, and regrading. The repairs have been complete, and as-built plans were submitted to the District in late November. Upon receipt of two additional outstanding items, the permit can be closed out and the escrow refunded.

Permit #17-23 Rose Place Townhomes, Roseville

Despite repeated notices of violation, the Rose Place Townhomes site on Chatsworth St near Hwy 36 remains non-compliant. District and city staff have collaborated on regular inspections and enforcement throughout the field season. As of November 28th, a 48-hour notice given by the city had expired, and items remained incomplete on the site. The city is working with a contractor to perform the necessary work on November 30th and will bill the owner for work completed.

Permit #16-34 Glen at Valley Creek, Woodbury

Work continues at the Glen at Valley Creek housing development off Afton Rd. A routine inspection was completed on November 15th. The site was in compliance, but maintenance of the rock construction entrance was requested to prevent sediment tracking on the adjacent roadway. The contractor completed the requested maintenance the following day.

Permit #17-33 Aris Clinic, Woodbury

The Aris Clinic project off Century Ave S and Pouliot Pkwy is underway. Staff completed an initial site inspection and met with the contractor on November 19th. The site is compliant, but items like perimeter control maintenance and soil stabilization were requested. Upon completion of the foundation and temporary stabilization of the site, construction activity will cease until the spring.

Permit #18-11 Whistler Pines, Shoreview

The Whistler Pines housing development off Hodgson Rd is underway. Staff completed an initial site inspection and met with the contractor on November 8th. The site is compliant, but soil stabilization was requested. Inactive areas have been temporarily stabilized with wood mulch.

Permits Closed in November 2018:

17-14 John Glenn Middle School Tennis Courts, Maplewood

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Stewardship Grant Program

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Stewardship Grant Program Budget Status Update

December 5, 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	6	$61,748
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			$105,892
Total Allocated			**$926,548.14**

2018 Stewardship Grant Program Budget	
Budget	$800,000.00
2017 Carryover	$200,000.00
Total Funds Allocated	$926,548.14
Total Available Funds	**$73,451.86**

RAMSEY-WASHINGTON
METRO WATERSHED DISTRICT

MEMORANDUM

DATE: December 5, 2018

TO: Board of Managers and Staff

FROM: Paige Ahlborg, Watershed Project Manager

SUBJECT: 2019 Stewardship Grant Program

At this meeting, staff will review the 2018 Stewardship Grant Program and discuss upcoming projects in 2019. Staff are not proposing any changes to the 2019 program.

Discussion Items

- Priority Areas: Staff recommend maintaining the 2018 water quality priority areas for 2019. Large-scale projects in these areas are eligible for 100% funding. Projects located in a non-priority area but within flood reduction, groundwater recharge, and certain demographic areas may be eligible for additional funding.

- Residential Project Coverage: Staff recommend continuing the maximum coverage amounts for residential and large-scale projects. See Table 1 for coverage amounts.

- Watershed Maintenance Grants: Staff recommend continuing the maintenance cost share grant which can be used by cost share recipients to assist with routine BMP maintenance. Applicants can receive up to 50% of the annual maintenance costs for a maximum of 5 years after project completion up to $5,000.

- Equity Initiative: Staff will continue to identify projects in areas of concentrated poverty and people of color. These projects are eligible for 100% funding and will be constructed and maintained for two years by a District hired contractor.

- Aquatic Plant Harvesting: 2018 was used as a pilot program year to develop criteria for an aquatic plant harvesting program. Staff recommend continuing this program for 2019.

Action Items

Staff is requesting action from the Board on the following items:

- Approve the 2018 priority areas as the following subwatersheds: Battle Creek Lake, Battle Creek, Beaver Lake, Bennett Lake, Carver Lake, Fish Creek, Gervais Creek, Kohlman Creek, Kohlman Lake, Lake Emily, Lake Owasso, Shoreview Pond, Wakefield Lake, and Willow Creek.
- Approve 2019 coverage amounts as shown in Table 1.

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

- Approve staff to continue watershed maintenance, equity initiative, and aquatic plant harvesting grants.

Table 1. Proposed 2019 Cost Share Coverage

	Type of Projects	Cost Share %	Maximum $*
Homeowner Projects	Habitat Restoration & raingarden w/o hard surface drainage	50%	$15,000
	Raingarden w/ hard surface drainage, pervious pavement	75%	$15,000
	Shoreland Restoration (below 100 yr flood elevation w/ actively eroding banks)	100%	$15,000
Large Scale Projects: Commercial, Church, School, Government, Associations, etc.	Habitat Restoration	50%	$15,000
	Shoreland Restoration	100% below 100 yr flood elev. with actively eroding banks	$100,000
	Water Quality BMPs	75% in non-priority drainage areas	$50,000
		100% in priority drainage areas*	$100,000

*Projects located within RWMWD priority subwatersheds, flood reduction, groundwater recharge, and certain demographic areas may be eligible for additional funding. Contact us with your project location to determine maximum coverage amount.

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Action Items

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Request for Board Action

Board Meeting Date: December 5, 2018 **Agenda Item No.:** 8A

Preparer: Tina Carstens, Administrator

Item Description: 2019 CIP Maintenance and Repair Project Bid Award

Background:
Annually, the District completes a project to maintain the existing infrastructure owned and operated by the District, and to assist and facilitate stormwater pond cleanouts to allow other public entities to meet their municipal separate storm sewer system (MS4) requirements.

At the November meeting, staff presented the plans and cost estimate. The Board directed Barr to finalize design, prepare the bidding package, and advertise the project for bid. As you will recall the Board requested that the Snail Lake/Grass Lake area items be placed as bid alternates. Staff met with the city and county to review those items and the update can be found in the packet item, Snail Lake/Grass Lake Area Flood Risk Reduction Projects (10B).

The project was advertised, and the bids are scheduled to be received on November 30th. We will review the bids shortly thereafter and present them to the board for consideration at the December 5th meeting. If awarded, the contracting process will occur during December and construction will begin soon thereafter.

Applicable District Goal and Action Item:

Goal: Achieve quality surface water – The District will maintain or improve surface water quality to support healthy ecosystems and provide the public with a wide range of water-based benefits.

Action Items: Maintain District projects and consider opportunities to support the maintenance activities of others.

Staff Recommendation:
Staff recommends that the Board award the project to the responsive bidder whose bid was the lowest and whose involvement would be in the best interest of the District. Staff also recommends the Board direct staff to prepare and mail the Notice of Award, prepare the draft agreement and request and review the required submittals.

Financial Implications:
The CIP Maintenance and Repair project is included in the 2019 budget.

Board Action Requested:
Accept the bids and award the 2019 CIP Maintenance and Repair Project to _____. Direct staff to prepare and mail the notice of award, prepare the draft agreements and review the required submittals.

Request for Board Action

Board Meeting Date: December 5, 2018 **Agenda Item No.:** 8B

Preparer: Tina Carstens, Administrator

Item Description: Adopt Final FY 2019 Budget and Certify Final Levy.

Background:
The District Board of Managers adopted the draft budget at the September Board meeting for review and comment by the cities and counties. No written or verbal comment have been received.

The Board held its required public hearing on September 5, 2018. No comments were received at the public hearing or after the hearing. The preliminary budget was placed on the website and the final will also be placed there for public information.

Since the approval of the preliminary budget in September, I have made a few changes in the budget based on additional information and further analysis of carry over needs. The following is a list of changes in the line items that are colored purple in the budget table. The changes are also asterisked in the Budget Program Line Item Breakout tables.

Budget ID No. 5 – Project Feasibility Studies

This budget has decreased from $814,000 in the preliminary budget to $790,000 due to the decrease in carry over funds needed from 2018 to 2019.

Budget ID No. 42 – Water Monitoring – Lab Costs and Equipment

This budget has increased from $200,000 in the preliminary budget to $300,000 due to the need to carry over more funds to complete the installation of the lake level monitors in 2019.

Budget ID No. 55 – Targeted Retrofit Projects

This budget has increased from $878,760 to $978,750 due to a number of big projects being planned and potentially constructed in 2019. The potential list of projects in shown on the Budget Program Line Item Breakouts. At this time the Aldrich Arena, Motel 6 and Target Stores are a rough estimate of potential projects. Much of this budget for 2019 is carry over funds from 2018.

Budget ID No. 56 – BMP Incentive Fund

This budget has increased from $800,000 to $1,250,000 due to further refinement of costs for a number of known projects in 2019 that will go through our Stewardship Grant Program. The largest known projects is the Snail Lake Shoreline Restorations. There are also 3-4 other projects that will most likely ask for our $100,000 maximum. These projects

alone could deplete the original $800,000 planned for this fund. Adding this additional $450,000 allows for other projects to be funded in 2019 as well as pay for BMP design assistance from the conservation district and Barr Engineering. We also have set aside a portion of this budget for our BMP maintenance grants.

Budget ID No. 57 – Project Repair and Maintenance

This budget item didn't change in value although there was shifting of funds. As was discussed last month, we are not recommending the removal of sediment on the south side of Wakefield Lake and therefore will shift that planned budget to the higher than typical Project Repair and Maintenance contract budget item.

Budget ID No. 59 – Markham Pond Dredging and Aeration

In the preliminary budget this was set at zero as we didn't think that we would complete the aeration part of this project. In further review of the data we have determined that aeration is needed on Markham Pond. We still have an open 319 grant for this project that expires in August of 2019. A small amount of match budget is needed for the planning and administration of the completion of this project and the grant close-out.

Budget ID No. 61 – 694/494/94 Water Quality Treatment

As was updated to the board at previous meetings, conversations with MnDOT on this project did not lead to the possibility of completing a project at this time. Also further review of the MnDOT project area as it relates to the best placement of BMPs in this intersection, showed that they weren't compatible. MnDOT is planning another project in the Battle Creek Lake area in the next several years that may provide a better opportunity. I used the planned $575,000 to cover the increases of other CIP budget items as discussed above.

With those changes as well as accounting for a proper amount of carry over both in dedicated budget line items as well as in general fund reserves, I am proposing a levy increase of 3.01% which is slightly less than what was proposed in September. See the attached table for more information.

Applicable District Goal and Action Item:

The District budget relates to all facets of the District operations, since it provides the funds for staff and project activities.

Staff Recommendation:

Approve the Final General Fund and CIP budgets and approve certification of the final levy as indicated in the budget table and on the attached Resolution 18-08.

Financial Implications:

This year's levy reflects an increase from the 2018 levy of 3.01%.

Board Action Requested:

Approve the proposed FY 2019 General Fund and CIP budgets and adopt resolution 18-08.

`

Fiscal Year 2019 Budget V4
Final Budget and Levy 12/05/2018

Budget ID Number	Budget Item		FY 2018 Budget	FY 2019 Budget Fund Source				Total Proposed 2019 Budget	Increase (decrease) from 2018 Budget
				General Fund	Capital Improvements	Carry-over Funds	Grant Funds		
1	**Engineering**	Administration	**93,000**	**93,000**				**93,000**	0
2		Engineering Review	**55,000**	**55,000**				**55,000**	0
3		Permit Application Review	**50,000**	**55,000**				**55,000**	5,000
4		Permit Inspection and Enforcement	**15,000**	**10,000**				**10,000**	(5,000)
5		Project Feasibility Studies	**735,000**	**420,000**		**290,000**	**80,000**	**790,000**	55,000
6		GIS Maintenance	**5,000**	**5,000**				**5,000**	0
7									
8	**Attorney**	General	**40,000**	**40,000**				**40,000**	0
9		Permit Enforcement	**10,000**	**10,000**				**10,000**	0
10									
11	**Managers**	Meeting Per diems	**6,500**	**6,500**				**6,500**	0
12		Managers Expenses	**3,500**	**3,500**				**3,500**	0
13									
14	**Auditor/Accounting**	Auditor/Accounting	**50,000**	**55,000**				**55,000**	5,000
15									
16	**Miscellaneous**	Dues & Publications	**11,000**	**11,000**				**11,000**	0
17		Insurance	**35,000**	**35,000**				**35,000**	0
18		Committee & Board Meeting Expenses	**3,500**	**3,500**				**3,500**	0
19		Miscellaneous	**5,000**	**5,000**				**5,000**	0
20									
21	**Administrative**	Salary & Benefits	**1,300,000**	**1,385,000**				**1,385,000**	85,000
22		Employee Expenses	**10,000**	**10,000**				**10,000**	0
23		Janitorial/Trash Services/Snow Plowing	**17,000**	**17,000**				**17,000**	0
24		Building Maintenance	**70,000**	**300,000**				**300,000**	230,000
25		Utilities (gas,electric, water, sewer, maintenance)	**18,000**	**20,000**				**20,000**	2,000
26		Office Supplies	**5,000**	**5,000**				**5,000**	0
27		Copying/Printing	**8,000**	**8,000**				**8,000**	0
28		Postage/Delivery	**10,000**	**10,000**				**10,000**	0
29		Office Furniture & Computer Equipment	**40,000**	**40,000**				**40,000**	0
30		Office Equipment Maintenance	**3,000**	**3,000**				**3,000**	0
31		Training/Education	**25,000**	**25,000**				**25,000**	0
32		Telephone	**8,000**	**8,000**				**8,000**	0
33		District Vehicles/Maintenance	**43,000**	**43,000**				**43,000**	0
34		GIS System Maintenance & Equip.	**15,000**	**10,000**				**10,000**	(5,000)
35		Data Base Improvements	**10,000**	**5,000**				**5,000**	(5,000)
36		IT Services/Internet/Website/Software Licenses	**42,000**	**45,000**				**45,000**	3,000
37		Outside Program Support	**60,000**	**57,000**				**57,000**	(3,000)
38		Outside Consulting Services	**40,000**	**40,000**				**40,000**	0
39									
40	**Program**	Lake Studies/WRPPs/TMDL Reports	**115,000**	**68,000**				**68,000**	(47,000)
41	**Activities**	Natural Resources Program	**100,000**	**115,000**				**115,000**	15,000
42		Water Monitoring-Lab Costs & Equip.	**513,000**	**200,000**		**100,000**		**300,000**	(213,000)
43		Lake Macrophyte Monitoring	**10,000**	**10,000**				**10,000**	0
44		Research Projects	**100,000**	**115,000**				**115,000**	15,000
45		Project Operations	**140,000**	**160,000**				**160,000**	20,000
46		Education Program	**60,000**	**60,000**				**60,000**	0
47		Communications and Marketing	**25,000**	**25,000**				**25,000**	0
48		Events	**50,000**	**50,000**				**50,000**	0
49		NPDES Phase II	**20,000**	**10,000**				**10,000**	(10,000)
50		Health & Safety Program/Staff In-House Training	**2,000**	**3,000**				**3,000**	1,000
51									
52	**Capital Improvements**	Maplewood Mall SRF Loan Debt Service	**92,272**		**91,950**			**91,950**	(322)
53	**Summary**	Beltline and Battle Creek Tunnel Repair Debt Service	**306,763**		**307,163**			**307,163**	400
54		District Office Building Bond Payment	**194,885**		**194,885**			**194,885**	0
55		Targeted Retrofit Projects	**800,000**		**200,000**	**700,000**	**78,760**	**978,760**	178,760
56		BMP Incentive Fund	**800,000**		**1,250,000**			**1,250,000**	450,000
57		Project Repair & Maintenance	**1,000,000**		**1,120,000**			**1,120,000**	120,000
58		Wakefield Park Project	**1,100,000**		**0**	**973,154**	**126,846**	**1,100,000**	0
59		Markham Pond Dredging and Aeration	**25,000**		**0**	**25,000**	**40,000**	**65,000**	40,000
60		Willow Pond CMAC	**400,000**		**0**	**300,000**		**300,000**	(100,000)
61		694/494/94 Water Quality Treatment	**0**		**0**			**0**	0
62		Impervious Surface Volume Reduction Opportunity Fund	**1,500,000**		**0**	**1,500,000**		**1,500,000**	0
63		Flood Damage Reduction Fund	**2,000,000**		**1,000,000**	**1,500,000**		**2,500,000**	500,000
		Totals	12,195,420	3,654,500	4,163,998	5,388,154	325,606	13,532,258	1,336,838

	Budget Total	Budget Total By Fund		Proposed Final Levy
		General Fund	CIB	
2019 Budget Total and totals by fund	13,532,258	4,124,500	9,407,758	6,763,498
2018 Budget Total and totals by fund	12,795,336	3,976,500	8,818,836	6,565,860
2019 Budget Increase or (Decrease) from 2018 Budget	736,922	148,000	588,922	197,638
2019 Budget % change from 2018 Budget	5.76%	3.72%	6.68%	3.01%

2019 Budget Program Line Item Breakouts

Project Feasibility Studies (Line 5)	
Owasso County Park Stormwater Master Plan and Detailed Design: Phase 1 and Phase 2	$50,000
Beltline Resiliency Study (2018 carry over)*	$220,000
Emergency Response Planning for top priority areas	$50,000
FEMA Flood Mapping Update Assitance ($80K grant)	$90,000
Climate Adaptation Workshops with Cities	$100,000
95% Confidence Limit Atlas 14 Modeling (2018 carry over)*	$70,000
Snail, Grass, West Vadnais Outlet Permitting	$100,000
Hillcrest Golf Course & Gold Line BRT Planning	$45,000
Wetland Restoration Planning and Site Search	$25,000
Priority Pond Assessment	$20,000
Contingency	$20,000
Total =	$790,000

Outside Program Support (Line 37)	
Watershed Partners	$10,000
Blue Thumb	$3,000
East Metro Education	$13,000
Cooperative Weed Management Program	$10,000
GIS Users Group	$1,000
Contingency	$20,000
Total =	$57,000

Lake Studies (Line 40)	
Grant Applications	$30,000
Tanners Flood Response Tool Model Update	$3,000
Internal Load Management Discussions	$10,000
Contingency	$25,000
Total =	$68,000

NR Program (Line 41)	
Ongoing Site Maintenance	$25,000
Owasso Carp Management	$40,000
Phalen Chain Carp Management	$10,000
Keller Creek Phase 4	$20,000
New Equipment (4x4 and trailer)	$15,000
Contingency	$5,000
Total =	$115,000

Water Monitoring (Line 42)	
WQ Equipment Replacement and Repair	$40,000
Lab Costs	$90,000
Engineering Stats Assistance	$15,000

Special Project Monitoring: Maplewood Mall, Battle Creek	$40,000
New Lake Level Monitoring*	$15,000
Total =	$200,000

Research (Line 44)	
Minnesota Stormwater Research Council	$25,000
Kohlman Test Weirs	$15,000
Spent Lime Pond Application	$20,000
Iron Aggregate Pond Application	$20,000
Internal Research/Contingency	$35,000
Total =	$115,000

Education/Events/Communications (Lines 46-48)	
Master Water Stewards	$10,000
Adopt a Drain Program	$5,000
Rain Barrel Program	$5,000
Tracy L School Work	$25,000
Education Contingency	$15,000
Communications and Marketing	$25,000
WaterFest	$34,000
Watershed Excellence Awards	$6,000
Events Contingency	$10,000
Total =	$135,000

Targeted Retrofits (Line 55)*	
Boys and Girls Club	$120,000
Cornerstone Montessori	$50,000
Redeemer Lutheran	$50,000
Aldrich Arena	$500,000
Motel 6 and Catering Center and/or Target Stores	$250,000
Total =	$970,000

Project Repair and Maintenance (Line 57)	
2019 Project Repair and Maintnenance Contract*	$800,000
Routine Inspections and Unplanned Maintenance ID	$75,000
BMP Maintnenance Program	$100,000
Lake Macrophyte Management	$45,000
~~Wakefield Lake South End Dredging *~~	~~$250,000~~
Contingency	$100,000
Total =	$1,120,000

RESOLUTION 18-08

RESOLUTION APPROVING THE 2019 BUDGET AND FINAL PAYABLE 2019 TAX LEVY

WHEREAS, the Ramsey-Washington Metro Watershed District Board of Managers adopted a proposed budget and payable 2019 levy on September 5, 2018; and

WHEREAS, the Ramsey-Washington Metro Watershed District distributed the proposed budget and levy for review and comment to all Cities and Counties; and

WHEREAS, The District held a public hearing on the budget, Capital Improvements Program and proposed levy on September 5, 2018;

NOW, THEREFORE, BE IT RESOLVED by the Board of Managers of the Ramsey-Washington Metro Watershed District that the General Fund and Capital Improvements Budget be approved and the following final levy be certified to Ramsey and Washington Counties.

General Revenue Levy	$6,364,385
Debt Service Levy	$399,113
Total Levy	$6,763,498

Adopted by the Board of Managers of the Ramsey-Washington Metro Watershed District this 5th day of December, 2018.

_____

Marj Ebensteiner, President

Attest:

_____

Dr. Pam Skinner, Secretary

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Administrator's Report

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MEMO

TO: Board of Managers and Staff

FROM: Tina Carstens, Administrator

SUBJECT: December Administrator's Report

DATE: November 27, 2018

A. Meetings Attended

Wednesday, November 7	11:00 AM	Gold Line Bus Rapid Transit Meeting
Tuesday, November 13	9:00 AM	Benefits Staff Meeting
	10:00 AM	Cost Share Team Meeting
Wednesday, November 14	5:30 PM	Watershed Excellence Awards
Thursday, November 15	9:00 AM	Audit Planning Meeting
Monday, November 19	11:00 AM	Meet with Roseville re: Lake Owasso
	1:00 PM	Meet with VLAWMO re: West Vadnais Lake
Wednesday, November 21	8:30 AM	Snail and Grass Lake Emergency Response
Tuesday, November 27	8:30 AM	Aldrich Arena Meeting

B. Upcoming Meetings and Dates

December Board Meeting	Wednesday, December 5, 2018
Office Christmas Party (Please join us!)	**Thursday, December 20, 2018**
January Board Meeting	Wednesday, January 2, 2019

C. Upcoming Project Coordination Update

There are a couple of big projects in the planning stages that staff have been involved in lately that I wanted to update you on.

Aldrich Arena

Ramsey County Parks and Recreation approached us earlier this year and notified us of a project being proposed at Aldrich Arena in the city of Maplewood. While the county's project wouldn't trigger a permit from the District, we expressed interest in using the site to do a project through our Targeted Retrofit program. Aldrich Arena is in the Wakefield Lake subwatershed and therefore in a priority area due to the completed TMDL for the lake. The county's portion of the project includes pavement rehab and restriping of the parking lot as well as some changes internal to the building. Barr Engineering has been working with staff

and Ramsey County to design rain gardens and porous pavements to achieve water quality goals. We will be completing the stormwater design in the first quarter 2019 and the county will be bidding it all out through their contractor. We are just starting to put together an agreement between us for this arrangement. It is anticipated to be constructed late summer and into fall of 2019. You'll see funds planned in the targeted retrofits budget for this project.

Gold Line Bus Rapid Transit

This project includes the construction of a dedicated bus rapid transit lane and stations going from downtown St. Paul to Woodbury. Much of this project is within our District. Staff have been involved in several stormwater issue meetings and has also participated in a wetland review meeting. The last meeting attended, laid out a number of possible treatment locations that will move on to the next step of evaluation. As you can imagine, a project of this size is complicated and there are many partners involved. It has been a very positive process thus far and a good sign that they are bringing us into the process very early on. There are a couple of locations that we have also identified as a higher priority to look at for targeted retrofit project such as SunRay Shopping Center. We will be working closely with the projects leads as those sites are evaluated and reviewed for possible above and beyond treatment.

There is a lot of information about this project on their website if you'd like to read more about it. https://www.metrotransit.org/gold-line-project

Rush Line Bus Rapid Transit

Another bus rapid transit project in the District will run from downtown St. Paul to downtown White Bear Lake. This line will also be a dedicated lane built along with stations. We have only had a preliminary meeting with the stormwater consultant on this project but expect to be more involved in the planning as the project progresses. Here is the website for this project which includes an interactive map.
https://www.ramseycounty.us/residents/roads-transit/transit-corridors-studies/rush-line-brt-project

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Project and Program Status Reports

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December 5, 2018 Board Meeting
Agenda Item 10A

resourceful. naturally.
engineering and environmental consultants

BARR

Memorandum

To: Ramsey-Washington Metro Watershed District (RWMWD) board of managers and staff

From: Tyler Olsen, Evan Christianson, Matt Metzger, Bryan Oakley, Erin Anderson Wenz, and Brad Lindaman

Subject: West Vadnais Lake to East Vadnais Lake gravity flow—feasibility evaluation

Date: November 27, 2018

Project team

RWMWD:	Project manager:	Tina Carstens
Barr staff:	Principal in charge:	Brad Lindaman
	Project manager:	Erin Anderson Wenz
	Project team:	Evan Christianson, Tyler Olsen, Matt Metzger, and Bryan Oakley

Scope of work

The purpose of this study was to understand the feasibility of lowering East Vadnais Lake levels and encouraging subsurface flow by gravity from West Vadnais Lake into East Vadnais Lake. This study required the team to conduct geotechnical field investigations, obtain baseline West Vadnais Lake water-quality parameters, quantify seepage through the berm, and identify the study's future feasibility. In general, the RWMWD proposed that St. Paul Regional Water Services (SPRWS) could operate East Vadnais Lake at a lower level that would accommodate subsurface flows from West Vadnais Lake in order to reduce flooding concerns in the Grass Lake area.

East Vadnais Lake is part of the SPRWS's chain of lakes that delivers water from the Mississippi River to the McCarrons water treatment plant in Maplewood, just south of Little Canada and just north of St. Paul. If water is to be moved into East Vadnais Lake, it will need to meet certain water-quality standards so that it does not disrupt SPRWS's treatment process. The level of total phosphorus in unfiltered West Vadnais Lake is not currently acceptable for use as a SPRWS drinking-water source. Additional water-quality characterization of West Vadnais Lake was unknown prior to this study. This study was intended to better understand if this approach is viable and feasible.

Background information

West Vadnais Lake has an outlet elevation of 881.8 feet, although it typically fluctuates around a higher elevation of approximately 882.6 feet (its ordinary high water elevation as defined by the Minnesota Department of Natural Resources). At this elevation, the lake's surface area covers 221 acres, with an average depth of 7 feet and a maximum depth of 9 feet. Eurasian watermilfoil is present in West Vadnais Lake, which is within the Vadnais Lake Area Watershed Management Organization (VLAWMO) and the city of Vadnais Heights.

East Vadnais Lake covers 389 acres, with a maximum depth of 58 feet. Zebra mussels and Eurasian watermilfoil are present. East Vadnais Lake is within the VLAWMO in Vadnais Heights, and is part of the

SPRWS chain of lakes that delivers water from the Mississippi River to the McCarrons water treatment plant in Maplewood, just south of Little Canada and just north of St. Paul. West Vadnais Lake is separated from East Vadnais Lake by a narrow earthen berm and a paved bicycle path.

Grass Lake and West Vadnais Lake are connected via a culvert that effectively equilibrates the surface elevation of the two lakes. West Vadnais Lake drains to the south via a 15-inch culvert under Interstate 694. However, the size of this culvert and its invert elevation limit its capacity to prevent flooding from large storm events in the Grass Lake and West Vadnais Lake areas.

West Vadnais Lake is physically separated from East Vadnais Lake by an earthen berm; there is currently no surface flow between the two lakes. The connection of these two lakes via seepage through the berm is unknown. Historically, East Vadnais Lake has maintained a surface stage elevation of 1 to 2 feet above West Vadnais Lake, creating potential for seepage flow through the berm from East Vadnais Lake to West Vadnais Lake—an undesired condition, particularly during flood events. The stage of East Vadnais Lake is controlled as part of SPRWS's operations. Water enters East Vadnais Lake via a channel from Sucker Lake on the north and Lambert Creek on the east. In 2016, SPRWS pumped an average of 38.2 million gallons a day (59 cubic feet per second) from the lake for water supply. Previous studies have considered pumping water from upstream of Grass Lake (Snail Lake) to Sucker Lake, pumping water from West Vadnais Lake into East Vadnais Lake, and lowering the outlet of West Vadnais Lake. The first two of these studies have not proven to be cost effective or impactful enough to reduce flooding. The RWMWD is still considering lowering West Vadnais Lake's outlet as a flood mitigation strategy.

The next option considered in this study was lowering the operating level of East Vadnais Lake to allow for passive movement of water through the earthen berm separating West Vadnais Lake and East Vadnais Lake to reduce the water level in West Vadnais Lake. The two main components of this study were understanding the groundwater and seepage dynamics of the earthen berm, and characterizing the water quality of West Vadnais Lake to understand how it would affect drinking-water quality from East Vadnais Lake and SPRWS's treatment process.

Task 1: Geotechnical investigations

A geotechnical investigation was conducted on the earthen berm separating West Vadnais Lake and East Vadnais Lake to evaluate existing hydrogeologic properties of the materials that make up the berm, as well as the current groundwater conditions.

Soil borings were conducted at five locations along the berm, as shown in figure 1. Each boring was completed to a depth of 32 feet below ground surface using direct-push drilling methods. Continuous core was collected at each boring, and the soil stratigraphy was logged in the field. Boring logs for the five borings at presented in attachment A.

Soil stratigraphy of the earthen berm consisted primarily of 5 to 15 feet of silty sand with cohesive and non-plastic fines. Below the berm, sediments transitioned to finer-grained sandy silt with 2- to 5-foot lenses of clay. Prior to this investigation, Ramsey County indicated that portions of the berm may have been constructed with extremely course-grained material, including recycled concrete rubble. There was no indication of this material in any of the five borings conducted for this investigation.


PZ-12
PZ-11
East Vadnais Lake
SB-2
PZ-10
West Vadnais Lake
SB-1
Soil Boring
Piezometer/Boring
N
0
500
Feet
BORINGS AND PIEZOMETERS
Ramsey Washington Metro Watershed District
FIGURE 1
BARR

At three of the boring locations, piezometers were installed using hollow-stem-auger drilling methods. Each piezometers was installed to a depth of 8 feet, with a screened interval ranging from 3 to 8 feet below ground surface. The screened intervals intersect the water table, which varied from 3.1 feet to 3.6 feet below ground surface. Piezometer construction logs are presented in attachment A.

Slug tests were conducted at each of the piezometers to estimate hydraulic conductivity of the sediments within the berm. Each slug test was analyzed using the Bower and Rice straight-line method. Slug test plots and solutions are presented in attachment B. The hydraulic conductivity values ranged from 2.1 feet per day to 7.3 feet per day and are presented in table 1 below.

Table 1. Hydraulic conductivity of berm

Piezometer	Hydraulic conductivity (feet/day)
PZ-10	7.3
PZ-11	2.1
PZ-12	4.1

Task 2: Baseline water-quality characterization

A wide-ranging baseline set of water-quality data was obtained for West Vadnais Lake to identify the feasibility of using this water in the SPRWS drinking-water system. The water-quality parameters that were analyzed are comprised of parameters from drinking-water standards, unregulated contaminant monitoring rules, nutrients, and algae speciation.

Two rounds of water-quality sampling in West Vadnais Lake were conducted in October 2018. The second round was necessary because the laboratory did not preserve a sample, and SPRWS requested additional parameters to be tested. A composite sample was taken from three different locations on the surface (0 to 2 meters) of West Vadnais Lake and submitted for laboratory testing to Eurofins Laboratory. Analysis of the samples took place immediately after collection. SePRO conducted algae speciation on West Vadnais Lake.

The final list of parameters that were analyzed is in table 2.

Preliminary water-quality results have been received from the laboratories for algae speciation and bacteria presence. The algae speciation showed presence of blue-green algae *Dolichospermum* sp. at a density indicating moderate exposure risk (17,750 cells per milliliter). Other blue-green algae species were present in lower densities, and do not pose an exposure risk. *E. coli* is present above the maximum contaminant level in the West Vadnais Lake samples that were taken.

The remaining water-quality data has been received from the laboratory, and is being processed for distribution to the stakeholders. The majority of these tested constituents were below detection limits, and did not give any cause for concern. A final summary table will be forwarded as attachment C to this technical memorandum.

Task 3: Berm seepage analysis

Hydraulic conductivity estimates determined from the slug tests conducted at each piezometer (table 1) were used to estimate water flux across the berm for a range of stage differences between East Vadnais Lake and West Vadnais Lake. Darcy's Law was used to estimate the flux across the berm, where:

$$Q = KiA$$

Q = discharge across the berm
K = hydraulic conductivity of the berm; the low and high estimates from the slug test were used (2.1 feet per day and 7.3 feet per day)
i = hydraulic gradient across the berm; an approximate mean berm width of 150 feet and a range in stage differences between the two lakes were used
A = area of cross-sectional flow; an assumed effective depth of 15 feet and berm length of 4500 feet were used

Results of the seepage analysis are presented in figure 2 below. Due to the relatively low hydraulic conductivity of the berm sediments, the seepage across the berm is estimated to be low. With a stage difference of 2 feet between the two lakes, seepage across the berm is estimated to be between 0.02 and 0.04 cubic feet per second. With a stage difference of 7 feet across the berm, seepage is estimated to be between 0.07 and 0.26 cubic feet per second. These low seepage rates indicate that adjusting the difference in stage between the two lakes has little effect on the flow of water into or out of the lakes across the berm. To allow seepage of any significance through the berm from West Vadnais Lake to East Vadnais Lake, the berm would have to be reconstructed with more permeable material.

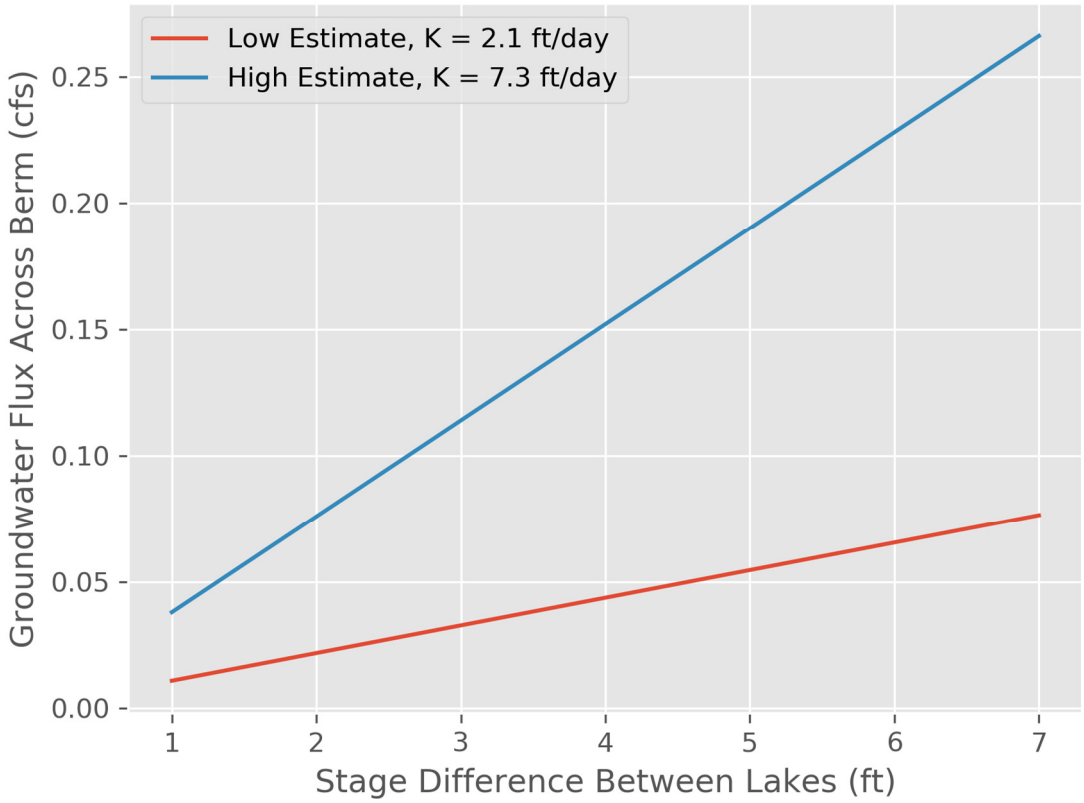

Figure 2. Seepage across berm at different lake stages

Summary of implementation strategies and next steps

Results of the analysis of seepage potential across the berm indicate that it is not possible to achieve sufficient seepage through the existing berm to help alleviate flooding concerns. To alleviate flooding concerns for the 100-year, 96-hour critical event, an additional 10 to 20 cubic feet per second leaving West Vadnais Lake are needed, based on modeling conducted by Barr in March 2018. Even with a difference in lake stage of 7 feet between the two lakes, seepage across the berm is estimated to be less than 1 cubic foot per second. To achieve sufficient seepage rates, the berm would have to be reconstructed. Due to the sensitivity of East Vadnais Lake water used for municipal water supply and the berm's current use as a popular park and recreation area, reconstruction of the berm is not considered a viable option.

Results of the seepage analysis also indicate that maintaining East Vadnais Lake at a slightly higher stage than West Vadnais Lake does not significantly affect flooding concerns for West Vadnais Lake. The seepage from East Vadnais Lake to West Vadnais Lake under these conditions is small.

Water-quality data will be provided once available from the laboratory and processed. However, this data does not change the results of the seepage modeling and next-steps recommendation.

After discussions with the RWMWD and VLAWMO, it was decided that using seepage through the berm to control flooding in the Grass Lake and West Vadnais Lake areas will not be pursued. However, lowering the outlet elevation of West Vadnais Lake will continue to be pursued as an option for flood mitigation.

Table 2. Water-quality parameters tested

1, 1, 1, 2-Tetrachloroethane	Betazon (bentazon assumed)	Methyl ethyl ketone
1, 1, 1-Trichloroethane	Bromobenzene	Methyl isobutyl ketone
1, 1, 2, 2-Tetrachloroethane	Bromochloromethane	Methyl tertiary butyl ether
1, 1, 2-Trichloroethane	Bromomethane	Methylene chloride
1, 1, 2-Trichlorotrifluoroethane	Butachlor	Metolachlor
1, 1-Dichloroethane	Carbaryl	Metribuzin
1, 1-Dichloroethene	Carbofuran	Microcystin-LA
1, 1-Dichloropropene	Carbon tetrachloride	Microcystin-LF
1, 2, 3-Trichlorobenzene	Chloramben	Microcystin-LR
1, 2, 3-Trichloropropane	Chlorobenzene	Microcystin-LY
1, 2, 4-Trichlorobenzene	Chlorodifluoromethane (Freon 22/HCFC-22)	Microcystin-RR
1, 2, 4-Trimethylbenzene	Chloroethane	Microcystin-YR
1, 2-Dibromo-3-chloropropane	Chloromethane	Molybdenum
1, 2-Dibromoethane	Chromium, total	Naphthalene
1, 2-Dichlorobenzene	Chromium-6	n-Butylbenzene
1, 2-Dichloroethane	cis-1, 2-Dichloroethene	Nickel
1, 2-Dichloropropane	cis-1, 3-Dichloropropene	Nitrate+Nitrite Nitrogen, Total (SDWA NO3 as N)
1, 3, 5-Trimethylbenzene	Cobalt	Nitrobenzene (Assessment and Screening)
1, 3-Dichlorobenzene	Cryptosporidium	N-nitrosodimethylamine
1, 3-Dichloropropane	Cyanazine	Nodularin
1, 4-Dichlorobenzene	Cyanide (free per SDWA, lab runs total cyanide)	n-Propylbenzene
1,3-Butadiene	Cylindrospermopsin	Oxamyl
1,4-Dioxane	Dalapon	o-Xylene
17a-Ethynylestradiol (ethinyl estradiol)	DCPA diacid metabolite	p&m-Xylene
17ß-Estradiol	Di (2-ethylhexyl) adipate	Pentachlorophenol (PCP)
2, 2-Dichloropropane	Di (2-ethylhexyl) phthalate	Perfluorobutanesulfonate (PFBS)
2, 4, 5-T	Diazinon	Perfluoroheptanoic acid (PFHpA)
2, 4, 5-TP (Silvex)	Dicamba	Perfluorohexanesulfonate (PFHxS)
2, 4-D	Dichlorodifluoromethane	Perfluorononanoic acid (PFNA)
2, 4-DB	Dichlorofluormethane	Perfluorooctanesulfonate (PFOS)
2,2',4,4',5,5'-hexabromobiphenyl (245-HBB)	Dichlorprop	Perfluorooctanoic acid (PFOA)
2,2',4,4',5,5'-hexabromodiphenyl ether (BDE-153)	Dieldrin	Picloram
2,2',4,4',5-pentabromodiphenyl ether (BDE-99)	Dimethoate	p-Isopropyltoluene
2,2',4,4',6-pentabromodiphenyl ether (BDE-100)	Dinoseb	Prometon
2,2',4,4'-tetrabromodiphenyl ether (BDE-47)	Disulfoton	Propachlor
2,4,6-Trichlorophenol	Diuron	Radon-222
2,4-Dichlorophenol	Endrin	sec-Butylbenzene
2,4-Dinitrophenol	Escherichia coli (w/Total coliforms)	Simazine
2-Chlorotoluene	Estriol (16a-Hydroxy-17ß-estradiol)	Sodium
2-Methylphenol	Estrone	Strontium
3-Hydroxycarbofuran	Ethyl ether	Styrene
4-Chlorotoluene	Ethylbenzene	Terbufos
4-Nitrophenol	Fluoride	Terbufos sulfone
Acetochlor	Fonofon (Fonofos)	tert-Butylbenzene
Acetone	gamma-Chlordane	Testosterone (cis and trans)
Aciflurofen	g-BHC (lindane)	Tetrachloroethene
Alachlor	Giardia	Tetrahydrofuran
Aldicarb	Glyphosate	Thallium
Aldicarb sulfone	Heptachlor	Toluene
Aldicarb sulfoxide	Heptachlor epoxide	Toxaphene
Aldrin	Hexachlorobenzene	trans-1, 2-Dichloroethene
Allyl chloride	Hexachlorobutadiene	trans-1, 3-Dichloropropene
alpha-Chlordane	Hexachlorocyclopetadiene	trans-Nonachlor
Anatoxin-a	Iron	TCE
Antimony	Isopropylbenzene	Trichlorofluoromethane
Arsenic	Linuron	Turbidity
Atrazine	MCPA	Vanadium
Benzene	MCPP	Vinyl chloride
Benzo (a) pyrene	Methomyl	
Beryllium	Methoxychlor	

Attachment A: Soil Boring Logs

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4300 MarketPointe Drive Suite 200
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Telephone: 952-832-2600

LOG OF BORING PZ-10

DRAFT

Project: West Vadnais Lake to East Vadnais Lake
Project No.: 23621200
Location: Vadnais Heights, MN
Coordinates:
Datum:

Surface Elevation:
Drilling Method: Geoprobe
Sampling Method: Geoprobe
Completion Depth: 32.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
0.0						TOPSOIL (SM): moist.		
				SM			PRO. CASING Diameter: **6 in** Type: **Black Steel** Interval: **0-2 ft bgs**	
2.5			**PID:**0.1 **D/O/S:**None/ None/ None **G/S/F:**0%/ 80%/ 20%			SILTY SAND (SM): 10 YR 4/1 (brownish gray); moist to wet; f-m gr. sand; cohesive; non-plastic fines. From 3-4 ft, black mottling (10YR 2/1).	RISER CASING Diameter: **2 in** Type: **PVC** Interval: **0-3.1 ft bgs**	
5.0						At 5 ft, wet/saturated.	GROUT Type: **Neat Cement** Interval: **0-1 ft bgs**	
7.5			**PID:**0 **D/O/S:**None/ None/ None **G/S/F:**0%/ 80%/ 20%				SEAL Type: **Bentonite** Interval: **1-2 ft bgs**	
10.0			**PID:**0 **D/O/S:**None/ None/ None **G/S/F:**0%/ 70%/ 30%	SM			SANDPACK Type: **Red Flint #40** Interval: **2-8.5 ft bgs**	
12.5							SCREEN Diameter: **2 in** Type: **SPVC NO. 10** Interval: **3.1-8.1 ft bgs**	
15.0			**PID:**0 **D/O/S:**None/ None/ None **G/S/F:**0%/ 40%/ 60%			SANDY SILT (ML): 10 YR 6/1 (brownish gray); wet; vf-f gr. sand; cohesive; low-plasticity.		
17.5			**PID:**0 **D/O/S:**None/ None/ None **G/S/F:**0%/ 40%/ 60%	ML				
20.0								

Date Boring Started: 10/8/18
Date Boring Completed: 10/8/18
Logged By: EMC
Drilling Contractor: Stevens Drilling and Environmental
Drill Rig: Geoprobe

Remarks:

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

Barr Engineering Company
4300 MarketPointe Drive Suite 200
Minneapolis, MN 55435
Telephone: 952-832-2600

LOG OF BORING PZ-10

DRAFT

Project: West Vadnais Lake to East Vadnais Lake
Project No.: 23621200
Location: Vadnais Heights, MN
Coordinates:
Datum:

Surface Elevation:
Drilling Method: Geoprobe
Sampling Method: Geoprobe
Completion Depth: 32.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
20.0						SANDY SILT (ML): 10 YR 6/1 (brownish gray); wet; vf-f gr. sand; cohesive; low-plasticity. *(continued)*	PRO. CASING Diameter: **6 in** Type: **Black Steel** Interval: **0-2 ft bgs** RISER CASING Diameter: **2 in** Type: **PVC** Interval: **0-3.1 ft bgs** GROUT Type: **Neat Cement** Interval: **0-1 ft bgs** SEAL Type: **Bentonite** Interval: **1-2 ft bgs** SANDPACK Type: **Red Flint #40** Interval: **2-8.5 ft bgs** SCREEN Diameter: **2 in** Type: **PVC, No. 10** Interval: **3.1-8.1 ft bgs**	
22.5			**PID**:0 **D/O/S:**None/ None/ None **G/S/F:**0%/ 40%/ 60%	ML				
25.0			**PID**:0 **D/O/S:**None/ None/ None **G/S/F:**0%/ 40%/ 60%					
27.5						PLASTIC SILT (MH): 10 YR 6/1 (brownish gray); wet; vf-f gr. sand; cohesive; med plastic; tr. veins of v. c. gr. sand.		
30.0			**PID**:0 **D/O/S:**None/ None/ None **G/S/F:**0%/ 70%/ 30%	MH				
32.5						End of boring 32.0 feet		
35.0								
37.5								
40.0								

Date Boring Started: 10/8/18
Date Boring Completed: 10/8/18
Logged By: EMC
Drilling Contractor: Stevens Drilling and Environmental
Drill Rig: Geoprobe

Remarks:

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

Barr Engineering Company
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LOG OF BORING PZ-11

DRAFT

Project: West Vadnais Lake to East Vadnais Lake
Project No.: 23621200
Location: Vadnais Heights, MN
Coordinates:
Datum:

Surface Elevation:
Drilling Method: Geoprobe
Sampling Method: Geoprobe
Completion Depth: 32.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
0.0				SM		TOPSOIL (SM): moist.		
						SILTY SAND (SM): 10YR 4/4 (brown); moist to wet; f-c gr. sand; cohesive; non-plastic.	PRO. CASING Diameter: **6 in** Type: **Black Steel** Interval: **0-2 ft bgs**	
2.5			**PID:**0.1 **D/O/S:**None/ None/ None **G/S/F:**0%/ 70%/ 30%				RISER CASING Diameter: **2 in** Type: **PVC** Interval: **0-3 ft bgs**	
5.0				SM		From 4.5-6 ft, black (10 YR 2/1).		
			PID:0.1 **D/O/S:**None/ None/ None **G/S/F:**0%/ 70%/ 30%			At 6 ft, wet/saturated, color change to gray (5Y 4/1).	GROUT Type: **Neat Cement** Interval: **0-1 ft bgs**	
7.5							SEAL Type: **Bentonite** Interval: **1-2 ft bgs**	
			G/S/F:0%/ 70%/ 30%					
10.0			**PID:**0.1 **D/O/S:**None/ None/ None				SANDPACK Type: **Red Flint #40** Interval: **2-8.5 ft bgs**	
			G/S/F:0%/ 10%/ 90%			SANDY SILT (ML): 5Y 4/1 (gray); wet; vf-f gr. sand; cohesive; low plastic.	SCREEN Diameter: **2 in** Type: **PVC, No. 10** Interval: **3-8 ft bgs**	
12.5								
			PID:0.1 **D/O/S:**None/ None/ None **G/S/F:**0%/ 10%/ 90%					
15.0				ML		At 15 ft, 1/2 in sand lens c. gr. (0/70/30).		
17.5						At 18 ft, 1 in red/brown (5YR 4/3) sand m. gr. (0/70/30).		
			PID:0 **D/O/S:**None/ None/ None **G/S/F:**0%/ 10%/ 90%					
20.0								

Date Boring Started: 10/8/18
Date Boring Completed: 10/8/18
Logged By: KMJ2
Drilling Contractor: Stevens Drilling and Environmental
Drill Rig: Geoprobe

Remarks:

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

\\EDI-CAD\CAD\GINT\PROJECTS\23621200 VADNAIS LAKE SOIL BORINGS\VADNAIS LAKE SOIL BORINGS.GPJ BARRLIBRARY.GLB ENVIRO LOG BARR TEMPLATE.GDT

Barr Engineering Company
4300 MarketPointe Drive Suite 200
Minneapolis, MN 55435
Telephone: 952-832-2600

LOG OF BORING PZ-11

DRAFT

Project: West Vadnais Lake to East Vadnais Lake
Project No.: 23621200
Location: Vadnais Heights, MN
Coordinates:
Datum:

Surface Elevation:
Drilling Method: Geoprobe
Sampling Method: Geoprobe
Completion Depth: 32.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
20.0				ML		SANDY SILT (ML): 5Y 4/1 (gray); wet; vf-f gr. sand; cohesive; low plastic. *(continued)*	PRO. CASING Diameter: **6 in** Type: **Black Steel** Interval: **0-2 ft bgs** RISER CASING Diameter: **2 in** Type: **PVC** Interval: **0-3 ft bgs** GROUT Type: **Neat Cement** Interval: **0-1 ft bgs** SEAL Type: **Bentonite** Interval: **1-2 ft bgs** SANDPACK Type: **Red Flint #40** Interval: **2-8.5 ft bgs** SCREEN Diameter: **2 in** Type: **Schedule 40** Interval: **PVC, No. 10 Slot 3-8 ft bgs**	
22.5			**PID:**0 **D/O/S:**None/ None/ None **G/S/F:**0%/ 10%/ 90%					
25.0			**G/S/F:**0%/ 10%/ 90% **PID:**0 **D/O/S:**None/ None/ None					
27.5			**G/S/F:**0%/ 5%/ 95%	CL		LEAN CLAY (CL): 5Y 4/1 (gray); wet; med. plastic. At 27.5 ft, 1 in c. gr. sand lens (0/95/5).		
30.0			**G/S/F:**0%/ 5%/ 95% **PID:**0 **D/O/S:**None/ None/ None **G/S/F:**0%/ 85%/ 15%	SM		SILTY SAND (SM): 5Y 4/1 (gray); wet; f-c gr. sand; cohesive; non-plastic.		
32.5						End of boring 32.0 feet		
35.0								
37.5								
40.0								

Date Boring Started: 10/8/18
Date Boring Completed: 10/8/18
Logged By: KMJ2
Drilling Contractor: Stevens Drilling and Environmental
Drill Rig: Geoprobe

Remarks:

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

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LOG OF BORING PZ-12

DRAFT

Project: West Vadnais Lake to East Vadnais Lake
Project No.: 23621200
Location: Vadnais Heights, MN
Coordinates:
Datum:

Surface Elevation:
Drilling Method: Geoprobe
Sampling Method: Geoprobe
Completion Depth: 32.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
0.0				SM		TOPSOIL (SM): moist.		
			PID:0 **D/O/S:**None/ None/ None **G/S/F:**0%/ 80%/ 20%	SM		SILTY SAND (SM): 10YR 3/4 (dark brown); moist to wet; f-c gr. sand; cohesive; non-plastic.	PRO. CASING Diameter: **6 in** Type: **Black Steel** Interval: **0-2 ft bgs**	
2.5						At 3.5 ft, black lamination (10YR 2/1).	RISER CASING Diameter: **2 in** Type: **PVC** Interval: **0-3.1 ft bgs**	
5.0						At 4.5 ft, 6 in black (10 YR 2/1).	GROUT Type: **Neat Cement** Interval: **0-1 ft bgs**	
			PID:0.2 **D/O/S:**None/ None/ None **G/S/F:**0%/ 80%/ 20%				SEAL Type: **Bentonite** Interval: **1-2 ft bgs**	
7.5			**G/S/F:**0%/ 80%/ 20%				SANDPACK Type: **Red Flint #40** Interval: **2-8.5 ft bgs**	
10.0			**PID:**0 **D/O/S:**None/ None/ None	ML		SANDY SILT (ML): 10YR 4/1 (brownish gray); wet; vf-f gr. sand; low plastic.	SCREEN Diameter: **2 in** Type: **Schedule 40** Interval: **PVC, No. 10 Slot 3.1-8.1 ft bgs**	
			G/S/F:0%/ 40%/ 60%					
12.5			**G/S/F:**0%/ 40%/ 60%	CL		LEAN CLAY WITH SAND (CL): 10YR 4/1 (brownish gray); wet; vf-f gr. sand; med plastic.		
			PID:0 **D/O/S:**None/ None/ None					
15.0			**G/S/F:**0%/ 10%/ 90%					
17.5			**G/S/F:**0%/ 10%/ 90%			At 17 ft, red vf-f gr. sand lens (0/80/20).		
			PID:0 **D/O/S:**None/ None/ None					
20.0			**G/S/F:**0%/ 70%/ 30%	SM		SILTY SAND (SM): 10YR 4/1 (brownish gray); wet; vf-f gr. sand.		

Date Boring Started: 10/8/18
Date Boring Completed: 10/8/18
Logged By: EMC
Drilling Contractor: Stevens Drilling and Environmental
Drill Rig: Geoprobe

Remarks:

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

Barr Engineering Company
4300 MarketPointe Drive Suite 200
Minneapolis, MN 55435
Telephone: 952-832-2600

LOG OF BORING PZ-12

DRAFT

Project: West Vadnais Lake to East Vadnais Lake
Project No.: 23621200
Location: Vadnais Heights, MN
Coordinates:
Datum:

Surface Elevation:
Drilling Method: Geoprobe
Sampling Method: Geoprobe
Completion Depth: 32.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL	Elevation, feet
20.0				SM		SILTY SAND (SM): 10YR 4/1 (brownish gray); wet; vf-f gr. sand. *(continued)*		
				CL		LEAN CLAY WITH SAND (CL): 10YR 4/1 (brownish gray); wet; med. plastic; vf-f gr. sand.	PRO. CASING Diameter: **6 in** Type: **Black Steel** Interval: **0-2 ft bgs**	
22.5			**PID**:0 **D/O/S**:None/ None/ None **G/S/F**:0%/ 10%/ 90%				RISER CASING Diameter: **2 in** Type: **PVC** Interval: **0-3.1 ft bgs**	
25.0			**G/S/F**:0%/ 70%/ 30%	SM		SILTY SAND (SM): 10YR 4/1 (brownish gray); wet; vf-f gr. sand.		
			PID:0 **D/O/S**:None/ None/ None **G/S/F**:0%/ 10%/ 90%	CL		LEAN CLAY WITH SAND (CL): 10YR 4/1 (brownish gray); wet; med. plastic; vf-f gr. sand.	GROUT Type: **Neat Cement** Interval: **0-1 ft bgs** SEAL Type: **Bentonite** Interval: **1-2 ft bgs** SANDPACK Type: **Red Flint #40** Interval: **2-8.5 ft bgs** SCREEN Diameter: **2 in** Type: **Schedule 40** Interval: **PVC, No. 10 Slot 3.1-8.1 ft bgs**	
27.5								
30.0			**PID**:0 **D/O/S**:None/ None/ None **G/S/F**:0%/ 10%/ 90%					
32.5						End of boring 32.0 feet		
35.0								
37.5								
40.0								

Date Boring Started: 10/8/18
Date Boring Completed: 10/8/18
Logged By: EMC
Drilling Contractor: Stevens Drilling and Environmental
Drill Rig: Geoprobe

Remarks:

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

Barr Engineering Company
4300 MarketPointe Drive Suite 200
Minneapolis, MN 55435
Telephone: 952-832-2600

LOG OF BORING SB-1

DRAFT

Project: West Vadnais Lake to East Vadnais Lake
Project No.: 23621200
Location: Vadnais Heights, MN
Coordinates:
Datum:

Surface Elevation:
Drilling Method: Geoprobe
Sampling Method: Geoprobe
Completion Depth: 32.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation, feet
0.0				SM		TOPSOIL (SM): moist.	
2.5			**PID**:0 **D/O/S**:None/ None/ None **G/S/F**:0%/ 70%/ 30%	SM		SILTY SAND (SM): 10YR 4/4 (brown); moist; f-c gr. sand; cohesive; non-plastic fines; organics (roots).	
5.0			**PID**:0 **D/O/S**:None/ None/ None **G/S/F**:0%/ 65%/ 35%	SM		SILTY SAND (SM): 5Y 4/1 (gray); moist to wet; vf-f gr. sand; cohesive; non-plastic fines. At 5.5 ft, wet/saturated.	
7.5							
10.0			**PID**:0 **D/O/S**:None/ None/ None **G/S/F**:0%/ 80%/ 20%	SM		SILTY SAND (SM): 5Y 4/1 (gray); wet; f-c gr. sand; cohesive; non-plastic fines.	
12.5							
15.0			**PID**:0 **D/O/S**:None/ None/ None **G/S/F**:0%/ 80%/ 20%				
17.5			**PID**:0 **D/O/S**:None/ None/ None **G/S/F**:0%/ 80%/ 20%				
20.0							

Date Boring Started: 10/8/18
Date Boring Completed: 10/8/18
Logged By: KMJ2
Drilling Contractor: Stevens Drilling and Environmental
Drill Rig: Geoprobe

Remarks:

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

Barr Engineering Company
4300 MarketPointe Drive Suite 200
Minneapolis, MN 55435
Telephone: 952-832-2600

LOG OF BORING SB-1

DRAFT

Project: West Vadnais Lake to East Vadnais Lake
Project No.: 23621200
Location: Vadnais Heights, MN
Coordinates:
Datum:

Surface Elevation:
Drilling Method: Geoprobe
Sampling Method: Geoprobe
Completion Depth: 32.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation, feet
20.0			**G/S/F:**0%/ 80%/ 20%	SM		SILTY SAND (SM): 5Y 4/1 (gray); wet; f-c gr. sand; cohesive; non-plastic fines. *(continued)*	
22.5			**PID:**0 **D/O/S:**None/ None/ None **G/S/F:**0%/ 95%/ 5%	SP		POORLY GRADED SAND (SP): 5Y 4/1 (gray); wet; f-c gr. sand.	
25.0							
27.5			**PID:**0 **D/O/S:**None/ None/ None **G/S/F:**0%/ 95%/ 5%			At 28.5 ft, 2 in gravel piece.	
30.0			**PID:**0 **D/O/S:**None/ None/ None **G/S/F:**0%/ 95%/ 5%				
32.5						End of boring 32.0 feet	
35.0							
37.5							
40.0							

Date Boring Started: 10/8/18
Date Boring Completed: 10/8/18
Logged By: KMJ2
Drilling Contractor: Stevens Drilling and Environmental
Drill Rig: Geoprobe

Remarks:

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

Barr Engineering Company
4300 MarketPointe Drive Suite 200
Minneapolis, MN 55435
Telephone: 952-832-2600

LOG OF BORING SB-2

DRAFT

Project: West Vadnais Lake to East Vadnais Lake
Project No.: 23621200
Location: Vadnais Heights, MN
Coordinates:
Datum:

Surface Elevation:
Drilling Method: Geoprobe
Sampling Method: Geoprobe
Completion Depth: 32.0 ft

Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation, feet
0.0				SM		TOPSOIL (SM): moist.	
2.5			**PID**:0 **D/O/S**:None/ None/ None **G/S/F**:0%/ 70%/ 30%	SM		SILTY SAND (SM): 10YR 4/4 (brown); moist; f-c gr. sand; cohesive; non-plastic; orange/brown laminations (7.5 YR 5/8); black mottling (10YR 2/1).	
5.0			**PID**:0 **D/O/S**:None/ None/ None **G/S/F**:0%/ 70%/ 30%	SM		SILTY SAND (SM): 5Y 4/1 (gray); moist to wet; vf-f gr. sand; cohesive; non-plastic. At 5 ft, wet/saturated.	
7.5			**G/S/F**:0%/ 70%/ 30%				
10.0			**PID**:0 **D/O/S**:None/ None/ None				
12.5			**G/S/F**:0%/ 40%/ 60%	ML		SANDY SILT (ML): 5Y 4/1 (gray); wet; vf-m gr. sand; cohesive; low plastic.	
15.0			**PID**:0 **D/O/S**:None/ None/ None **G/S/F**:0%/ 40%/ 60%				
17.5			**PID**:0 **D/O/S**:None/ None/ None **G/S/F**:0%/ 40%/ 60%				
20.0							

Date Boring Started: 10/8/18
Date Boring Completed: 10/8/18
Logged By: KMJ2
Drilling Contractor: Stevens Drilling and Environmental
Drill Rig: Geoprobe

Remarks: Water level measured after drilling at 4.5' bgs

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

Barr Engineering Company
4300 MarketPointe Drive Suite 200
Minneapolis, MN 55435
Telephone: 952-832-2600

LOG OF BORING SB-2

DRAFT

Project: West Vadnais Lake to East Vadnais Lake
Project No.: 23621200
Location: Vadnais Heights, MN
Coordinates:
Datum:

Surface Elevation:
Drilling Method: Geoprobe
Sampling Method: Geoprobe
Completion Depth: 32.0 ft

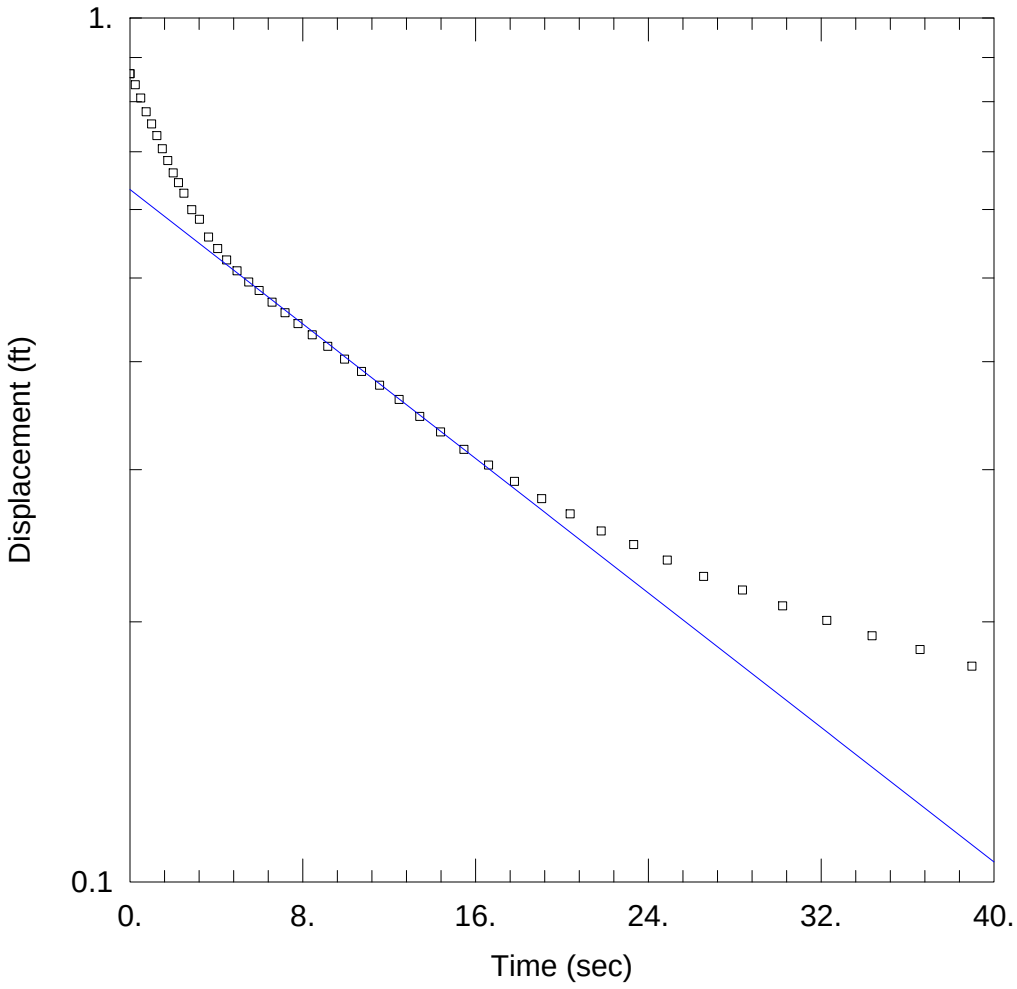
Depth, feet	Sample Type & Recovery	Sample No.	ENVIRONMENTAL DATA	USCS	Graphic Log	LITHOLOGIC DESCRIPTION	Elevation, feet
20.0			**G/S/F:**0%/ 40%/ 60%	ML		SANDY SILT (ML): 5Y 4/1 (gray); wet; vf-m gr. sand; cohesive; low plastic. *(continued)*	
22.5			**PID:**0 **D/O/S:**None/ None/ None **G/S/F:**0%/ 20%/ 80%	MH		PLASTIC SILT (MH): 5Y 4/1 (gray); wet; vf-f gr. sand; med plastic.	
25.0							
27.5			**PID:**0 **D/O/S:**None/ None/ None **G/S/F:**0%/ 20%/ 80%			At 28.5 ft, 2 in seam v. c. gr. sand.	
30.0			**PID:**0 **D/O/S:**None/ None/ None **G/S/F:**0%/ 20%/ 80%			At 29.5 ft, 1 in seam v. c. gr. sand.	
32.5						End of boring 32.0 feet	
35.0							
37.5							
40.0							

Date Boring Started: 10/8/18
Date Boring Completed: 10/8/18
Logged By: KMJ2
Drilling Contractor: Stevens Drilling and Environmental
Drill Rig: Geoprobe

Remarks: Water level measured after drilling at 4.5' bgs

PID = Headspace; D/O/S = Discoloration/Odor/Sheen; FID/MC = FID/Methane Corrected; G/S/F = Gravel/Sand/Fines
Additional data may have been collected in the field which is not included on this log.

Attachment B: Slug Test Plots



WEST TO EAST VADNAIS SEEPAGE ANALYSIS

Data Set: P:\...\PZ-10_FULLOUT_1.aqt
Date: 11/18/18 Time: 10:52:16

PROJECT INFORMATION

Company: Barr Engineering
Client: RWMWD
Project: 23621200
Location: Vadnais Heights, MN
Test Well: PZ-10
Test Date: 10/19/2018

AQUIFER DATA

Saturated Thickness: 30. ft Anisotropy Ratio (Kz/Kr): 0.1

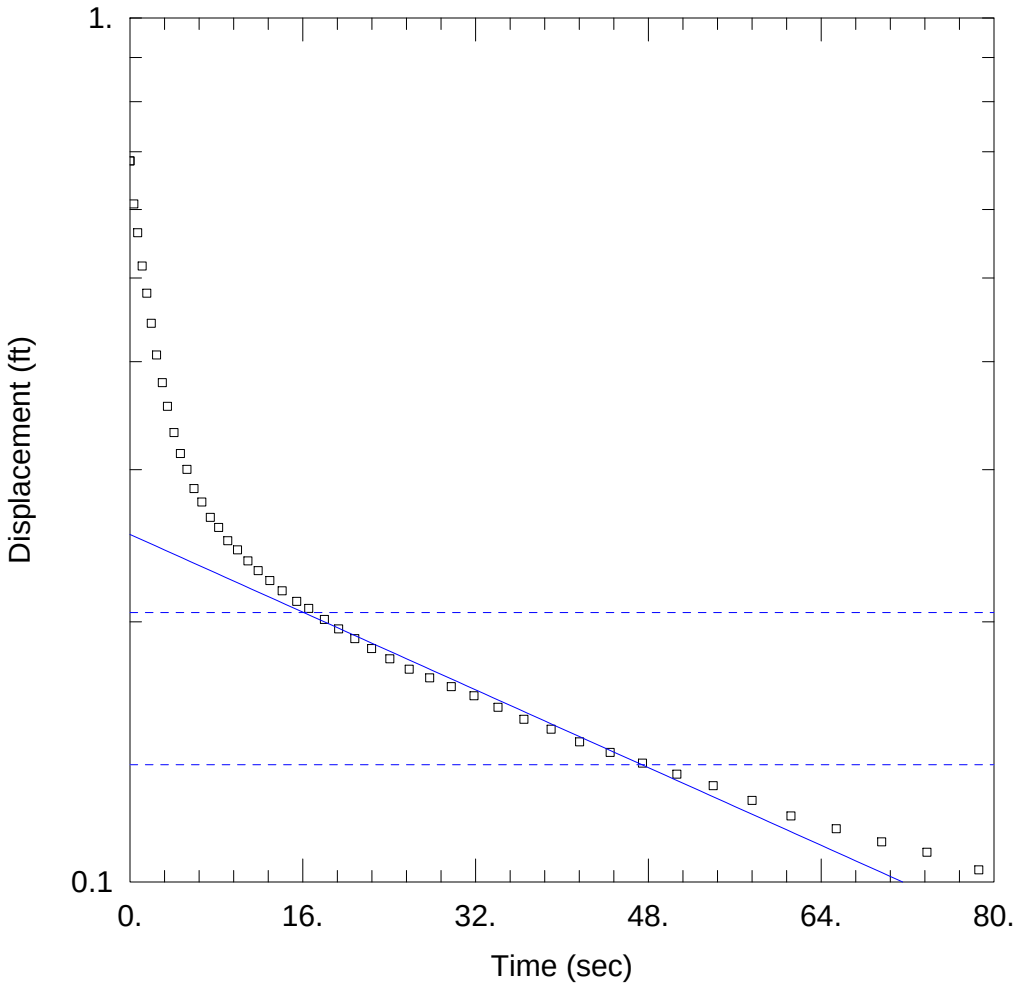
WELL DATA (PZ-10)

Initial Displacement: 0.8618 ft
Total Well Penetration Depth: 5.193 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 5.61 ft
Screen Length: 5. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 7.301 ft/day y0 = 0.633 ft



WEST TO EAST VADNAIS SEEPAGE ANALYSIS

Data Set: P:\...\PZ-11_FULLOUT_1.aqt
Date: 11/18/18 Time: 10:55:26

PROJECT INFORMATION

Company: Barr Engineering
Client: RWMWD
Project: 23621200
Location: Vadnais Heights, MN
Test Well: PZ-11
Test Date: 10/19/2018

AQUIFER DATA

Saturated Thickness: 30. ft Anisotropy Ratio (Kz/Kr): 0.1

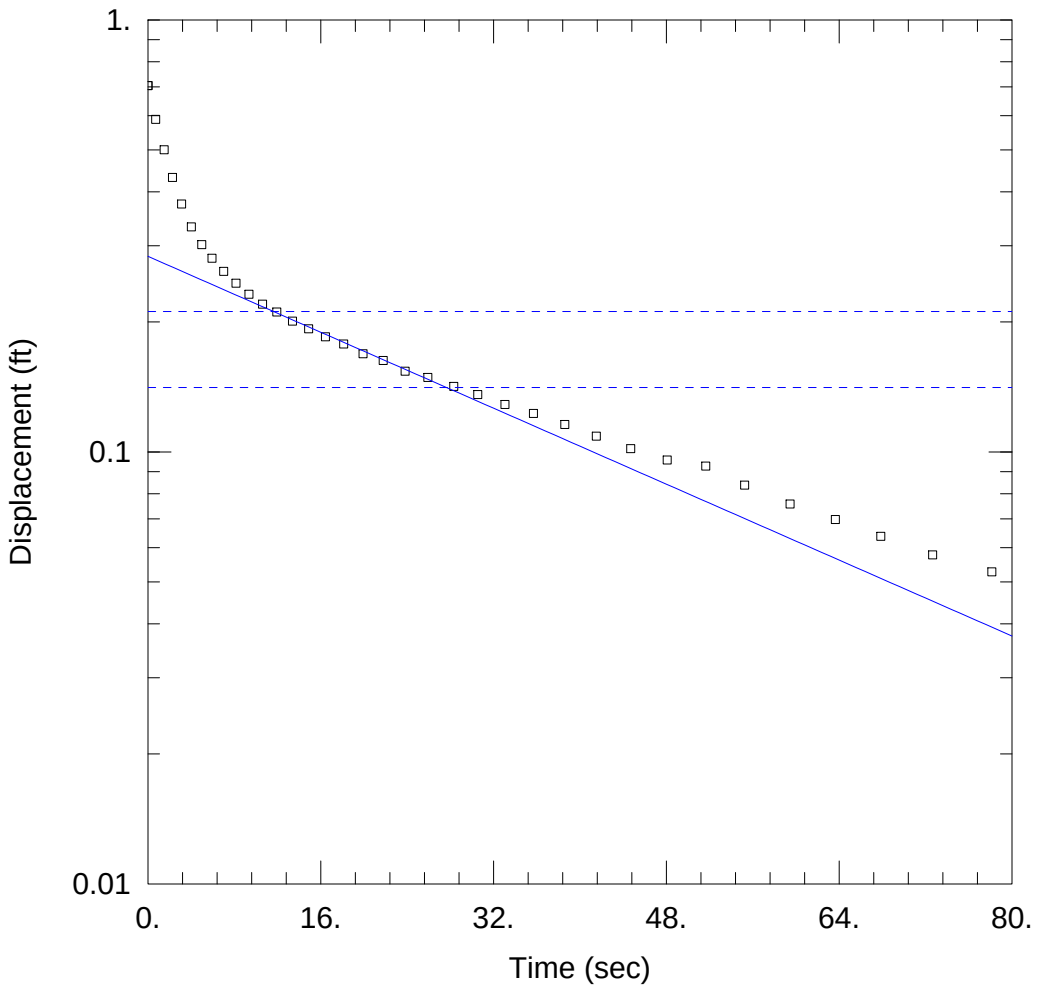
WELL DATA (PZ-11)

Initial Displacement: 0.6833 ft
Total Well Penetration Depth: 5. ft
Casing Radius: 0.08333 ft
Static Water Column Height: 4.85 ft
Screen Length: 5. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 2.096 ft/day y0 = 0.2525 ft



WEST TO EAST VADNAIS SEEPAGE ANALYSIS

Data Set: P:\...\PZ-12_FULLOUT_2.aqt
Date: 11/18/18 Time: 10:54:58

PROJECT INFORMATION

Company: Barr Engineering
Client: RWMWD
Project: 23621200
Location: Vadnais Heights, MN
Test Well: PZ-12
Test Date: 10/19/2018

AQUIFER DATA

Saturated Thickness: 30. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (PZ-12)

Initial Displacement: 0.7047 ft
Total Well Penetration Depth: 5. ft
Casing Radius: 0.08333 ft
Static Water Column Height: 5.09 ft
Screen Length: 5. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 4.095 ft/day y0 = 0.2836 ft

RAMSEY-WASHINGTON METRO WATERSHED DISTRICT

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December 5, 2018 Board Meeting
Agenda Item 10B

Memorandum

To: Board of Managers and Staff

From: Tina Carstens, Brad Lindaman, and Erin Anderson Wenz

Subject: Lake Owasso Emergency Response Plan and Snail/Grass Lakes Flood Risk Reduction Projects

Date: November 27, 2018

Lake Owasso Draft Emergency Response Plan

Attached for your information is a draft emergency response plan (ERP) for Lake Owasso. There are five homes that have been found to likely need flood protection during a 100-year storm event. As we have done in the past with other ERPs, the District collects the technical information and prepares a report that this then taken by the responsible city for review and approval by their city council. The city is responsible for implementation of the plan with assistance from the District. One of the ways the District assists is through the placement of lake level monitoring stations that automatically notify the District and city when levels reach a height that would put the ERP into place. We can also use our hydrologic model to predict the change in levels over time with different storm events.

We presented the draft plan to city of Roseville staff (Ryan Johnson, Marc Culver, and Jesse Freihammer) at a meeting on November 19. The city staff discussed the results of the survey work that has been completed for the low entry locations of homes on the southeast side of the lake, indicating that five homes have low entry elevations below the anticipated peak Lake Owasso elevation (889.3) during the 100-year, 96-hour storm (as modeled in XP-SWMM). The remaining steps involve asking permission from the five affected homeowners to verify whether any removals (trees or other obstacles) would be needed to place sandbags along the proposed alignments shown in the ERP's. We'll make any changes to the ERP based on this field verification and then turn the plan over to the city for consideration with its commissioners and other stakeholders, including the affected homeowners. The RWMWD's portion of this work will be completed by the end of the year.

Snail Lake and Grass Lake Area Flood Risk Reduction Projects

The plans for Snail and Grass lakes differ from the Lake Owasso ERP in that they do not contain prescribed emergency actions to be taken on a house-by-house basis (other than suggesting actions to protect the lowest home on Snail Lake). Rather, they contain the elements discussed at the last board meeting, while walking through the CIP maintenance and repair plans that help reduce the risk of flooding in those two areas. At the last board meeting, we discussed bidding the items proposed for the

Grass Lake and Snail Lake areas as alternates in the plan set, and then meeting with city and county staff to confirm that these elements are consistent with city and county plans for the area, as well as to discuss who would be responsible for implementing each item, who would be involved in cost-share arrangements to pay for each item, and who would ultimately be responsible for maintaining and operating each item.

The yellow line shown in the figure represents elevation 886, which is a closed contour around the area, according to LIDAR data. At this elevation, Grass Lake, wetland A, Suzanne Pond, and the ponds between these water bodies would be equalized if not for the pump in Suzanne Pond, which continually draws down that area. If Grass Lake and West Vadnais Lake were at an elevation of 884 at the start of a 100-year, 96-hour event, the peak elevation of the Grass Lake/wetland A area would be approximately 885.5. (Again, this is only if Grass Lake and West Vadnais Lake started at the Grass Lake overflow elevation of 884.0.) The Suzanne Pond area, however, only peaks at 877.1 during this storm event, as the model assumes that it will be continually pumped during and after the storm event. This prediction does assume that a low spot on the north side of Gramsie Road just north of Grass Lake is blocked by the city, not allowing Grass Lake overflow to travel into the Crestview Addition. The city is aware of this low spot, and is considering different alternatives for addressing it in the future.

Though not shown on this figure, LIDAR data also indicates that West Vadnais Lake would flow over the berm into East Vadnais Lake starting at an elevation of 886.8 (low point in the berm).

On November 21, Tina, Brad and Erin met with staff from the City of Shoreview (Mark Maloney and Tom Wesolowski), Ramsey County (Molly Churchich), and Ramsey County Parks and Recreation (Gus Blumer and Mike Goodnature). The discussion was productive and resulted in the following proposed conclusions regarding the aspects of the proposed work in the Grass Lake and Snail Lake areas.

Implementation item	Implementing entity	Implementation funding	Responsible maintainer/operator
Changes to overflow route from Snail Lake (sheet C-11, details 1 and 2)	RWMWD	RWMWD, City of Shoreview	City of Shoreview, Ramsey County Parks
Changes to low trail areas on south end of wetland A[1] (sheet C-12, details 3 and 4)	City of Shoreview, Ramsey County Parks	City of Shoreview, Ramsey County Parks	City of Shoreview, Ramsey County Parks
Berm on north side of Gramsie Road (sheet C-13, detail 1)	RWMWD	RWMWD	RWMWD
Stop-log structure at pedestrian tunnel (sheet C-12, details 1 and 2)	RWMWD	RWMWD, City of Shoreview	City of Shoreview
Suzanne Pond pump station	City of Shoreview	City of Shoreview	City of Shoreview
Protection for Crestview Addition from low point in Gramsie Road	City of Shoreview	City of Shoreview	City of Shoreview

[1]The design in the plan set for detail 4 will not be pursued as shown. Rather, the city and county plan to build a boardwalk trail over the low spot in this area, which will allow passage of Grass Lake emergency overflow north to wetland A while also avoiding wetland impacts and providing a dry pedestrian path under most conditions.

Lastly, attached is a plan sheet that shows the low home on Snail Lake that is at risk of flooding in a 100 year event. Additional survey work is needed to verify obstacles similar to the work on Lake Owasso. A draft plan will also be prepared for the city of Shoreview to consider for approval and implementation.

PRELIMINARY DRAFT

Flood-warning emergency response plan

Lake Owasso
Roseville, Minnesota

Prepared for
Ramsey-Washington Metro Watershed District and City of Roseville, Minnesota

November 2018

BARR

4300MarketPoint Drive, Suite 200
Minneapolis, MN 55435-4803
Phone: (952) 832-2600
Fax: (952) 832-2601

Flood-warning emergency response plan
Lake Owasso, Minnesota

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Purpose

The purpose of this flood-warning emergency response plan (ERP) is to describe the responsibilities for operation and emergency procedures to provide flood protection in the area of Lake Owasso for extreme flooding events. Five homes around Lake Owasso will likely need emergency flood-protection measures during a 100-year flooding event. This ERP addresses only those five homes that are adjacent to Lake Owasso and are at risk of flooding from surface water exceeding the low entry of the homes when the water level of Lake Owasso approaches the 100-year flood level. This ERP does not address flood protection of homes in the area when the lake level exceeds the 100-year flood elevation or from wind action. The ERP also does not address homes that may have less than 2 feet of freeboard during the 100-year flood level; only homes with low entry elevations at or below the 100-year flood level of Lake Owasso are addressed in this ERP.

Implementation and update

Emergency response measures outlined in this plan are subject to a right-of-entry agreement between the individual homeowners and City of Roseville.

The City of Roseville will review and update, at least annually, the names and contact information of individuals listed in this plan. Additionally, the city, in cooperation with the Ramsey-Washington Metro Watershed District (RWMWD), will annually review and update emergency response measures and flood prediction tools discussed in this plan after the city adopts and implements it.

Authority and responsible agency

This ERP was prepared by the RWMWD as an emergency action measure for an extreme rainfall event in the Lake Owasso subwatershed and its tributary areas

The RWMWD will provide assistance in identifying hydrologic conditions in the area of concern. The City of Roseville emergency services director is responsible for all decisions regarding emergency operations and is the sole authority in implementation of this plan.

Correspondence regarding the availability of equipment and materials and the preparedness for a potential emergency response should be addressed to:

(contact)
Roseville Emergency Services Department
2660 Civic Center Drive
Roseville, MN 55113

Copies should be mailed to:

Tina Carstens, Administrator
District Administrator
Ramsey-Washington Metro Watershed District
2665 Noel Drive
Little Canada, MN 55117

Brad Lindaman
District Engineer
Barr Engineering Co.
4300 MarketPointe Drive, Suite 200
Minneapolis, MN 55435

Responsible persons during emergency

In the event of an emergency or operational problems, the following persons may need to be contacted:

1. **City of Roseville**

   Emergency services director:
   Sheriff:
   Public works pager:

2. **Ramsey-Washington Metro Watershed District**

   Tina Carstens, Administrator: (651) 792-7961
   Brad Lindaman, District Engineer: (952) 832-2808

3. **Ramsey County**

   Sheriff's Department: (651) 266-9333 or (651) 266-7300
   Emergency Management: (651) 266-1020
   Public Works: (651) 266-7100

Affected homeowners

Five homes have been identified as being at risk of flooding during the 100-year, 96-hour storm event at Lake Owasso.

Name(s) (313 South Owasso Boulevard West): (phone number)
Name(s) (317 South Owasso Boulevard West): (phone number)
Name(s) (341/337 South Owasso Boulevard West): (phone number)
Name(s) (515 Heinel Drive): (phone number)
Name(s) (3115 Sandy Hook Drive): (phone number)

The location of these homes, along with the low entry elevations that have been surveyed at each home, are shown in figure 1 and figure 2.

(The City of Roseville is to review and update, at least annually, the names and telephone numbers of individuals to contact.)

- Survey Requested by the City
- Previously Surveyed Structures
- Low Structures Surveyed in 2018
- Low Entry Lower Than 889.3
- Ramsey County Park Boundary
- Inundation Mapping Extent
- Potential Inundation Area
- Parcel Boundaries

N

Feet

150 0 150

RAMSEY-WASHINGTON METRO WATERSHED DISTRICT

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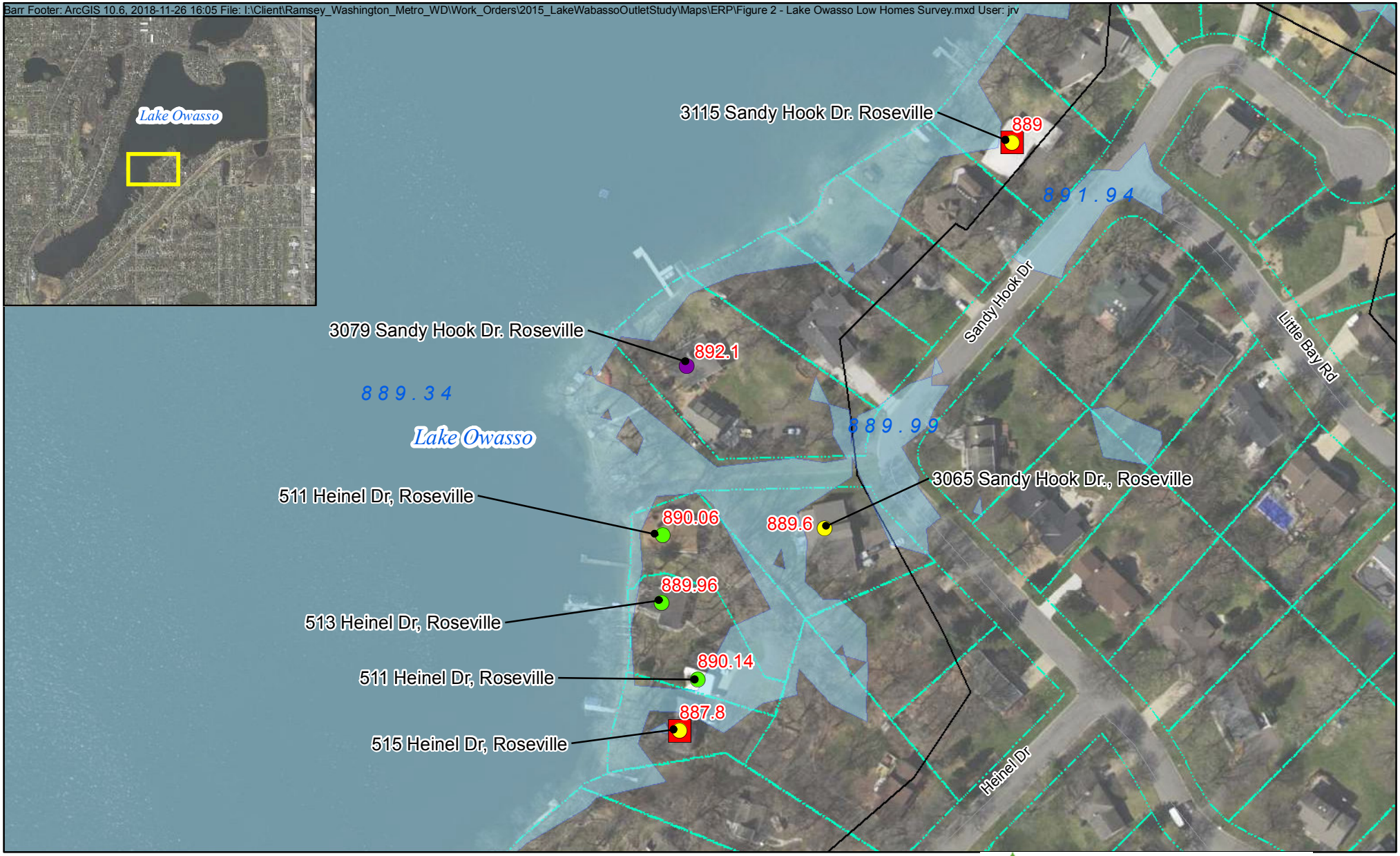
Figure 1

Lake Owasso
Potential Inundation Area
Low Homes Survey



- Survey Requested by the City
- Previously Surveyed Structures
- Low Structures Surveyed in 2018
- Low Entry LowerThan 889.3
- Ramsey County Park Boundary
- Inundation Mapping Extent
- Potential Inundation Area
- Parcel Boundaries

N

Feet

150 0 150

RAMSEY-WASHINGTON METRO WATERSHED DISTRICT

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Figure 2

Lake Owasso
Potential Inundation Area
Low Homes Survey

Determining if there is an emergency

Based on hydrologic modeling (XP-SWMM using precipitation depths from the National Oceanic and Atmospheric Association's Atlas 14), it has been determined that extreme rainfall events having a 1-percent chance of occurring in any given year (100-year event) could cause stages in Lake Owasso to rise and cause flooding at five lakeside homes. This event is displayed as a hydrograph in figure 4 below. The 100-year event is the typical design event used for flood protection. It should be noted that this modeling is based on a theoretically determined potential rainfall event, coupled with runoff characteristics of historic events. The actual situation would vary from the modeled scenario; however, the modeling has shown that lake stages with potential to cause flooding are possible. The RWMWD has established the 100-year rainfall level as elevation 889.3, which is above the elevation of the low entry of the five homes).

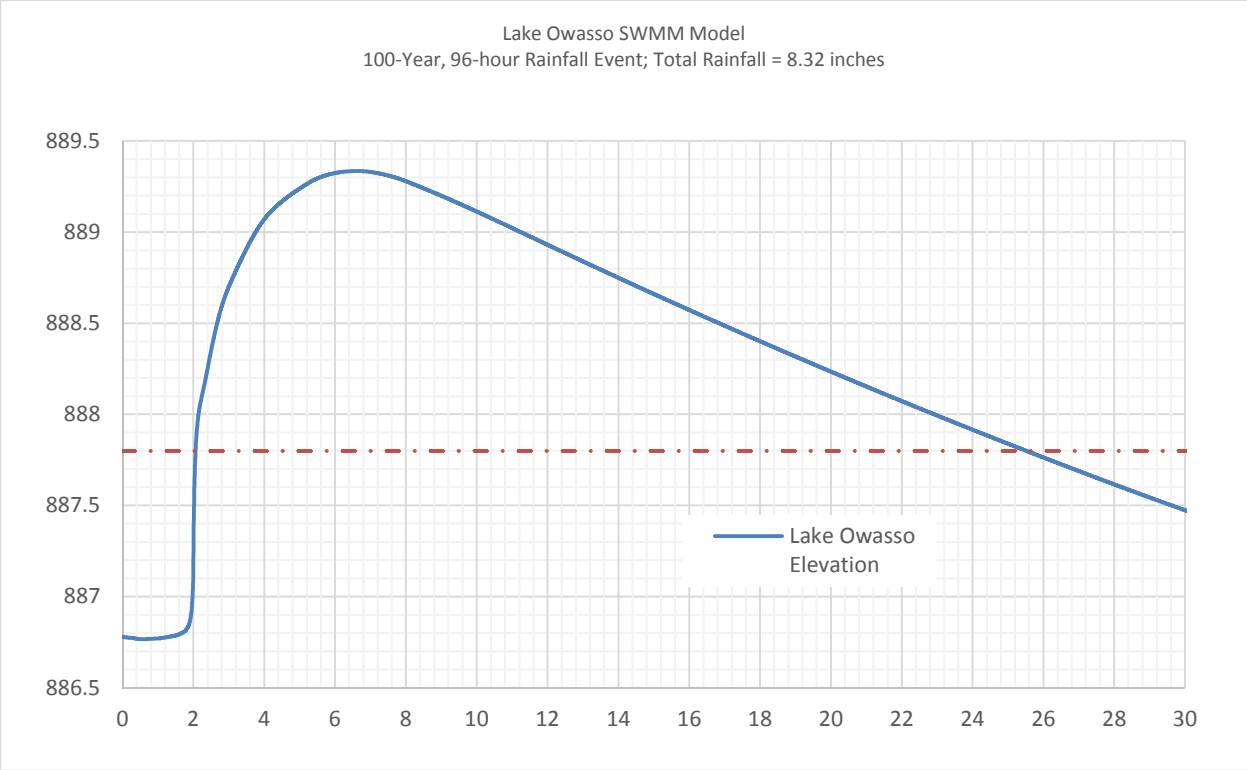


Figure 3: Lake Owasso elevations during 100-year, 96-hour storm event. Red dashed line indicates lowest low-entry elevation of the five houses deemed to be at risk of flooding during this event.

The RWMWD will provide lake-level data through a lake-level monitoring station that will relay hourly data to the emergency management director on a routine basis via an auto-level monitoring station that will be installed on the lake in 2019. RWMWD staff will own and operate the station will. This information may be used to aid the emergency management director in deciding when to begin sandbagging and flood-protection operations. The emergency management director will be responsible for notifying the flood-prone property owners of the potential for flooding. This station will be equipped with a voice-synthesized phone modem, which will allow someone to call the station (phone number: *) to determine the lake level. In addition, the RWMWD plans to have the lake-level data continuously available on the RWMWD website.

Figures 4 through 8 provide a plan view and photographs of each of the homes needing protection, as well as the alignment of sandbags that would be needed to protect each home during the 100-year flood event. The normal (outlet weir) lake level for Lake Owasso is elevation 886.78, and there is potential for the lake to reach an elevation 889.3 during a 100-year rainfall event. The lowest low entry of the four homes is near elevation 887.8. The decision to implement flood emergency measures will require monitoring weather forecasts to best anticipate the risk of the lake. The time to peak elevation in Lake Owasso is approximately two to three days.

Emergency response procedures

When Lake Owasso rises to an elevation of *, city staff, at the direction of the emergency management director, will begin to closely monitor lake elevations in Lake Owasso and weather forecasts, and will notify emergency response personnel of the potential for a flood emergency. When the lake elevation in Lake Owasso reaches *, the emergency response director will implement the flood emergency operations identified in this plan and discussed below.

The Lake Owasso monitoring station will have the capability to make outgoing phone calls when an alarm is triggered. The alarm is triggered when Lake Owasso rises to a predetermined elevation of *. At this point, the station will call the City of Roseville on-call public works pager (*). Then, if the water elevation continues to rise past elevation *, the station will place calls to the Ramsey County Sheriff's Department (*) and Ramsey County Emergency Management Department (*).

Emergency operations

Actions recommended if conditions trigger the lake-level station alarm and flooding seems likely:

A. Contact the five property owners (names and phone numbers above).

B. At 313 South Owasso Boulevard West, deliver the following:

1. 69 cubic yards of sand (estimated)[1]
2. 6,900 filled sandbags (estimated)[1]
3. Shovels[2]
4. Crew size: 25 to 29 people[3]

C. At 317 South Owasso Boulevard West, deliver the following:

1. 12 cubic yards of sand (estimated)[1]
2. 1,200 filled sandbags (estimated)[1]
3. Shovels[2]
4. Crew of at least five people[3]

C. At 341/337 South Owasso Boulevard West, deliver the following:

1. 25 cubic yards of sand (estimated)[1]
2. 2,500 filled sandbags (estimated)[1]
3. Shovels[2]
4. Crew of at least 11 people[3]

D. At 515 Heinel Drive, deliver the following:

1. 24 cubic yards of sand (estimated)[1]
2. 2,400 filled sandbags (estimated)[1]
3. Shovels[2]
4. Crew of at least 10 people[3]

E. At 3115 Sandy Hook Drive, deliver the following:

1. 2 cubic yards of sand (estimated)[1]
2. 200 filled sandbags (estimated)[1]
3. Shovels[2]
4. Crew of at least 2 people[3]

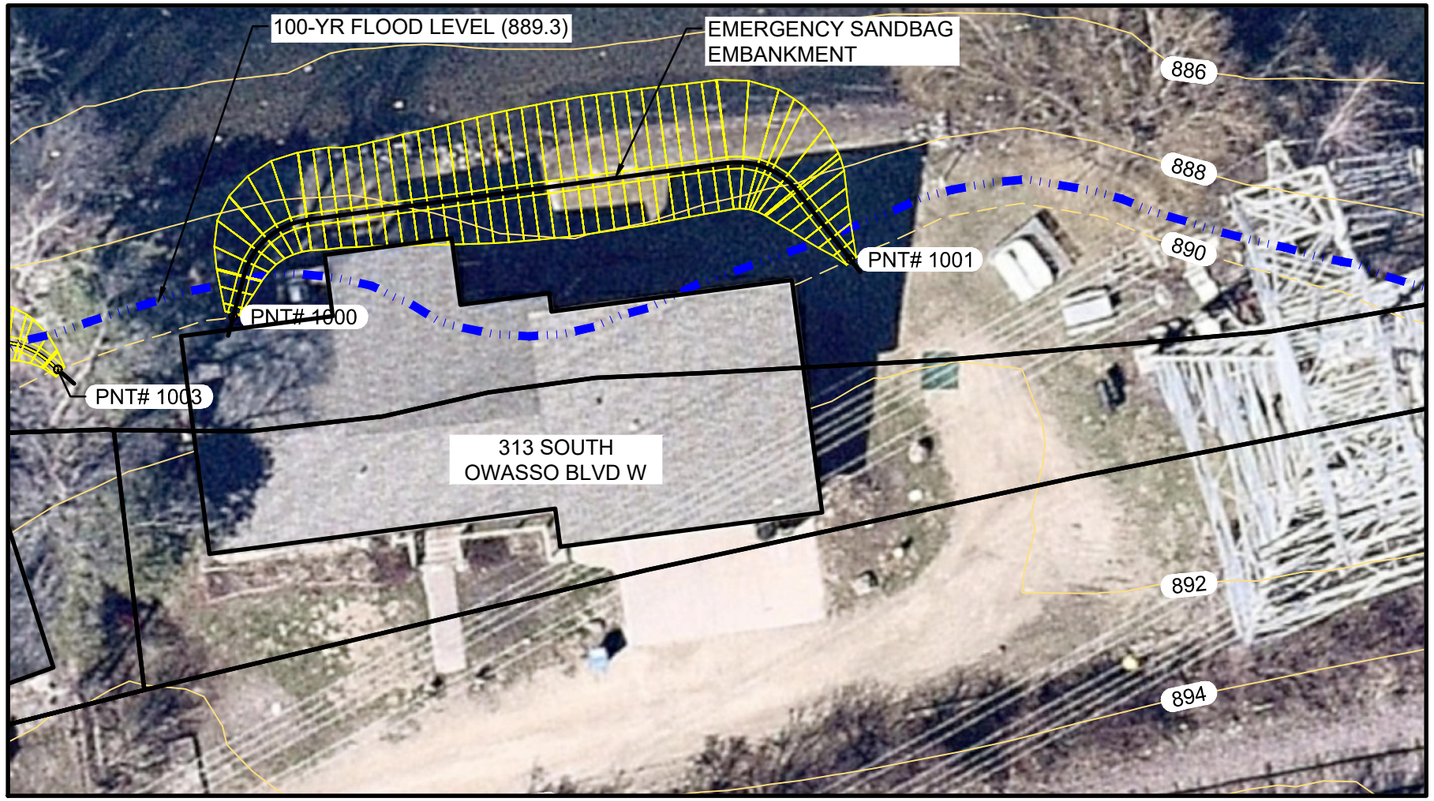
F. Assign city staff (and seek volunteer help, if necessary) to each address to fill and place sandbags. (See typical section of a sandbag levee, as shown in plate 1 in the appendix of this plan. In plate 1, “riverside” should be replaced with “lakeside.”)[3]

[1] Filled sandbags may be obtained from *. The RWMWD will reimburse the city for the cost of sandbags and sandbag materials used during implementation of this ERP. Sand quantity was estimated as the amount of fill needed to reach the proper height, plus 20-percent surplus. The number of 30-pound sandbags was estimated assuming a unit weight for sand of approximately 110 pounds/cubic foot.

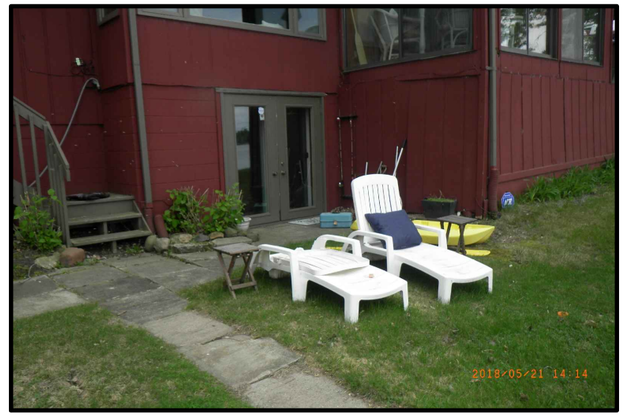
[2] Coordination of clearing and obtaining shovels and other miscellaneous materials may be done with the homeowners, neighbors, or other volunteers.

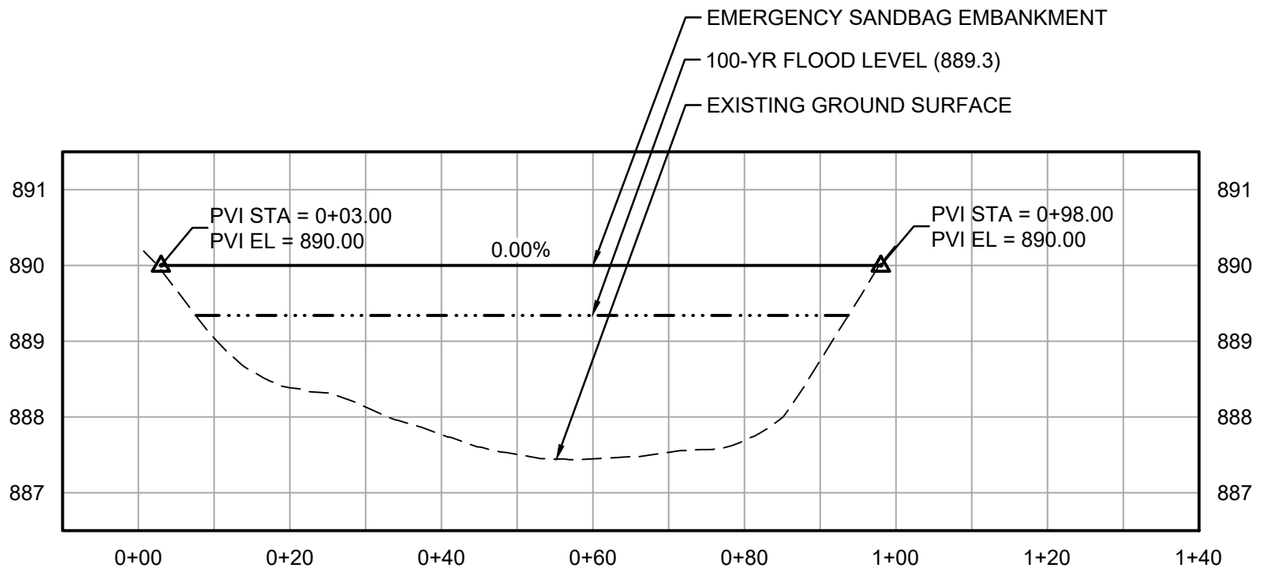
[3] Emergency response personnel may consist of, but is not limited to, city staff, RWMWD staff, Ramsey County emergency response personnel, Ramsey County Sheriff's Department staff, homeowners, or neighbors. Crew size was estimated assuming a four-hour work project with an output of approximately 60 sandbags per hour per person.

It is important to note that the placement of sandbags will only assist to prevent entry of water through the low entry points of doors or windows. This action does nothing to prevent entry of water through any cracks in the basement wall or relieve hydrostatic soil pressures on the basement walls. The property owner should be informed of these potential basement problems.



CONTROL POINTS				
PNT#	DESCRIPTION	ELEVATION	NORTHING	EASTING
1000	313 S. OWASSO, 0+03 END	890.0	189203.3	569917.9
1001	313 S. OWASSO, 0+98 END	890.0	189210.9	569999.4





Estimated Number of Sandbags Per Linear Foot of Levee

Height in Feet	Bags Required
1	6
2	21
3	45

PLAN & PROFILE: 313 SOUTH OWASSO BLVD. W

0 20 40

SCALE IN FEET

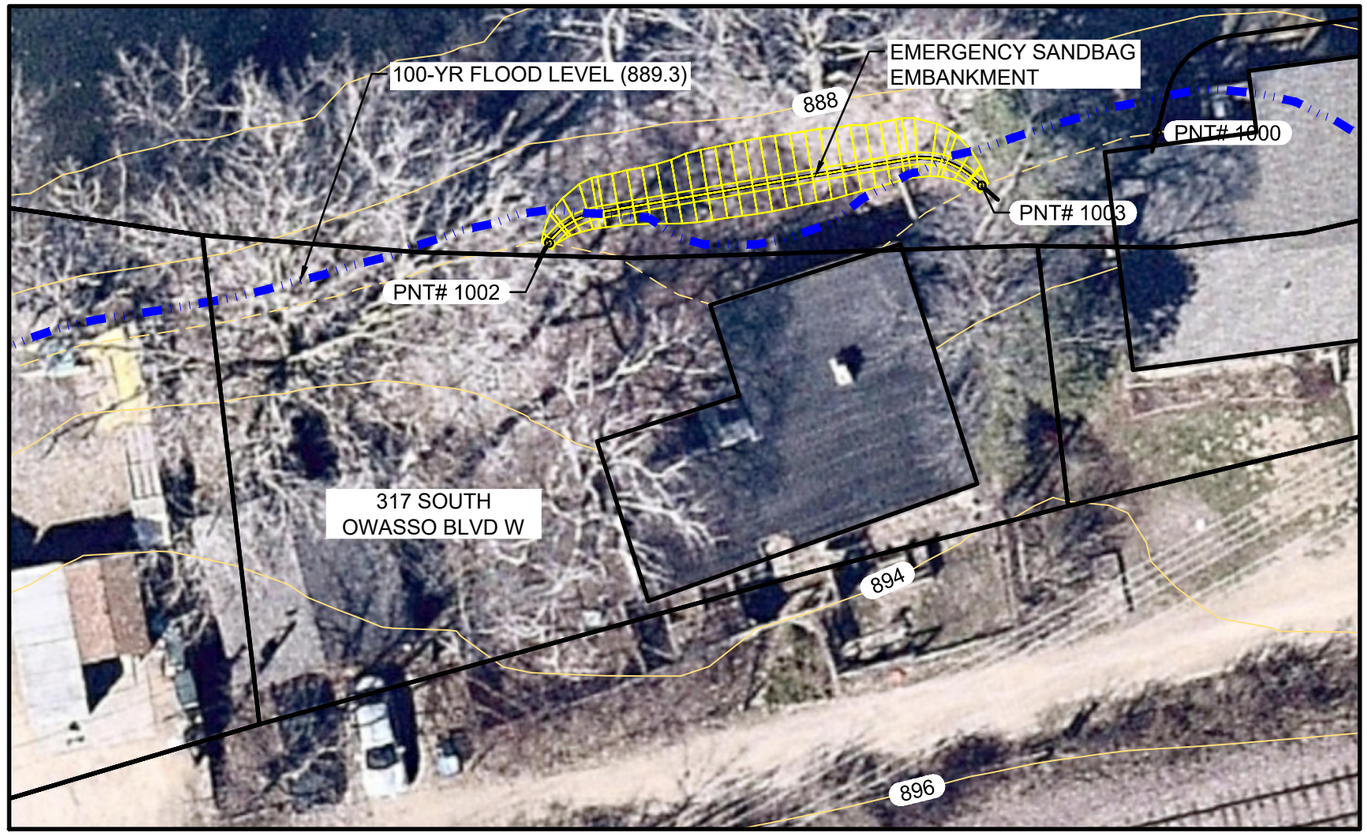
N

FIGURE 4

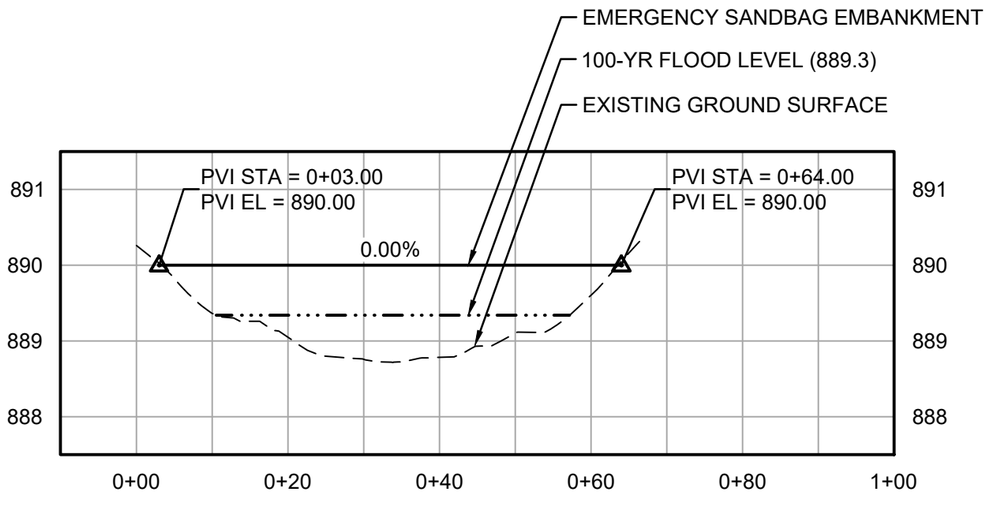
FLOOD WARNING EMERGENCY RESPONSE PLAN

Lake Owasso, Minnesota
Prepared by RWMWD

CADD USER: Greg Nelson FILE: M:\DESIGN\23621200.17\23621200.17_C3D_SNAIL LAKE AND LAKE OWASSO ERP.DWG PLOT SCALE: 1:1 PLOT DATE: 11/26/2018 2:03 PM



CONTROL POINTS				
PNT#	DESCRIPTION	ELEVATION	NORTHING	EASTING
1002	317 S. OWASSO, 0+03 END	890.0	189188.8	569837.7
1003	317 S. OWASSO, 0+64 END	890.0	189196.3	569894.8



Estimated Number of Sandbags Per Linear Foot of Levee	
Height in Feet	Bags Required
1	6
2	21
3	45

317 SOUTH OWASSO BLVD. W

0 20 40

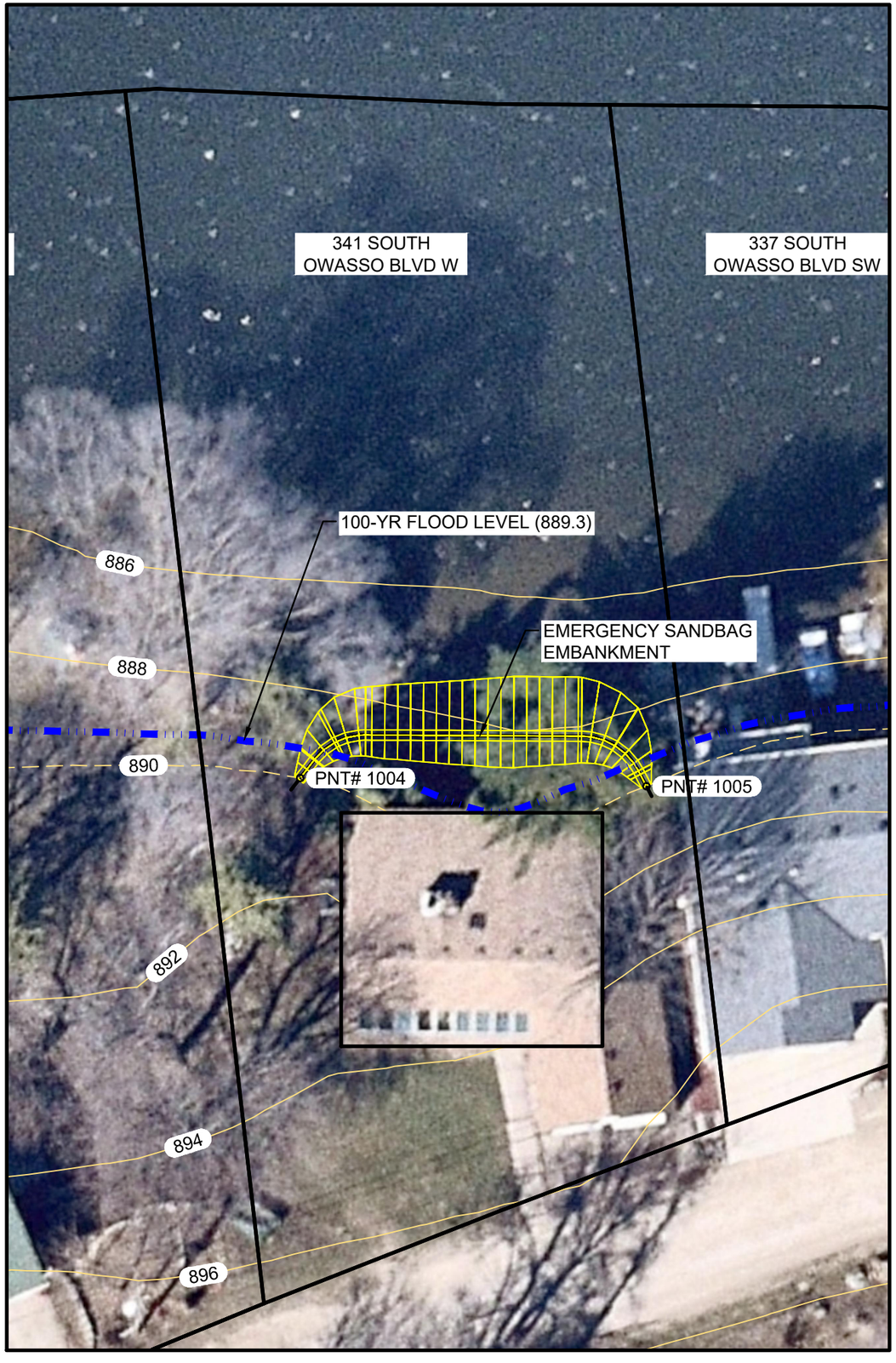
SCALE IN FEET

N

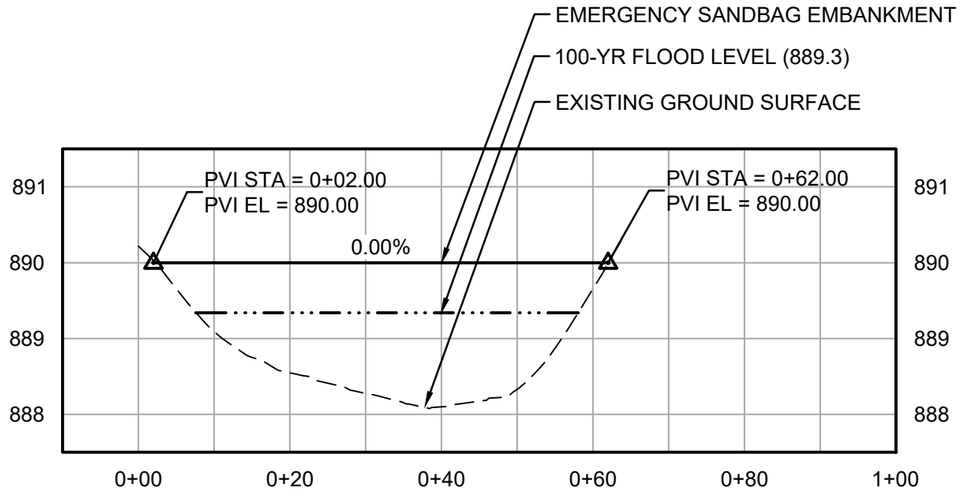
FIGURE 5

FLOOD WARNING EMERGENCY RESPONSE PLAN

Lake Owasso, Minnesota
Prepared by RWMWD



CONTROL POINTS				
PNT#	DESCRIPTION	ELEVATION	NORTHING	EASTING
1004	341 S. OWASSO, 0+02 END	890.0	189110.4	569526.1
1005	341 S. OWASSO, 0+62 END	890.0	189109.1	569579.8



Estimated Number of Sandbags Per Linear Foot of Levee	
Height in Feet	Bags Required
1	6
2	21
3	45

341/337 SOUTH OWASSO BLVD. W

0 20 40

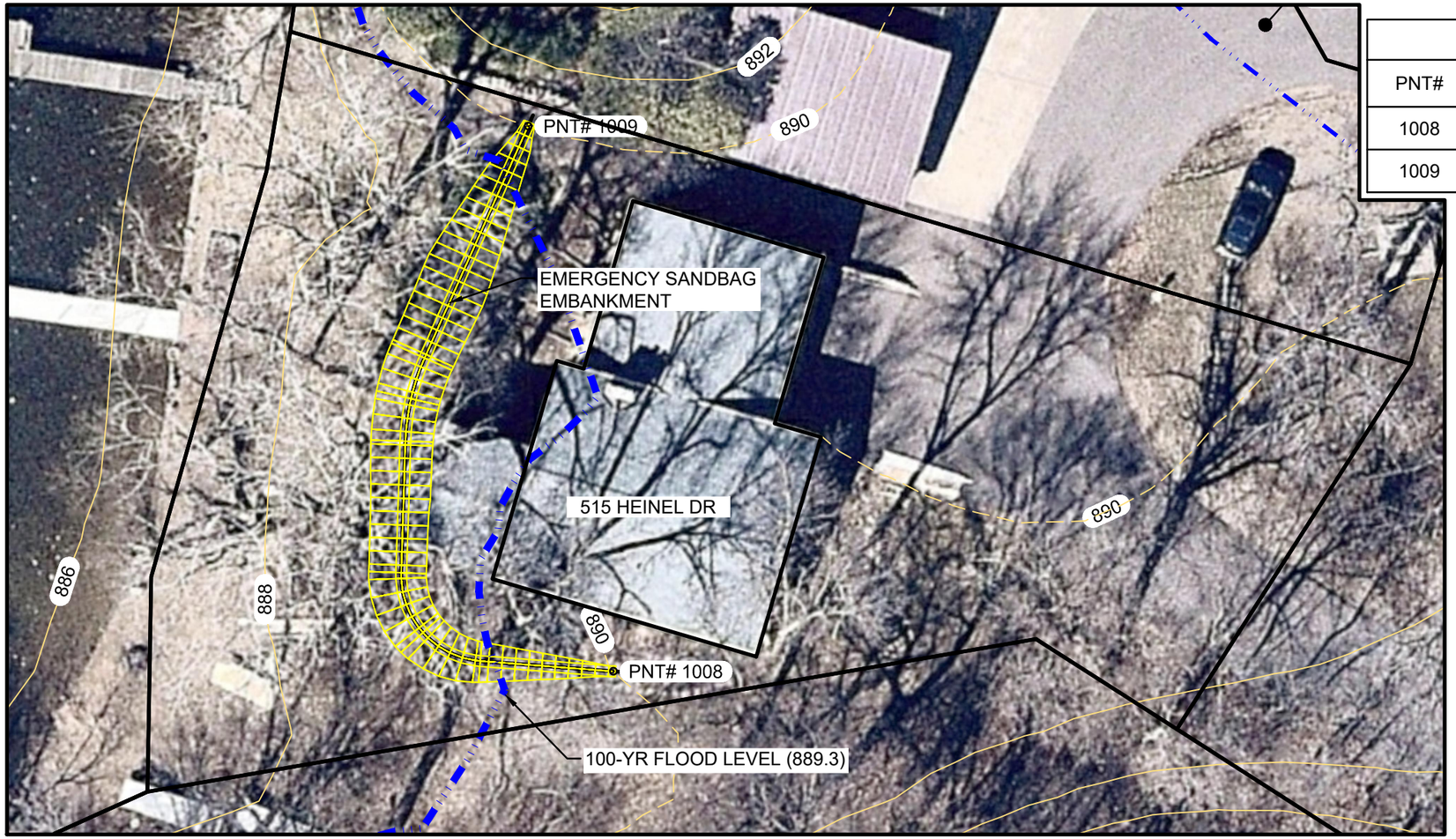
SCALE IN FEET

N

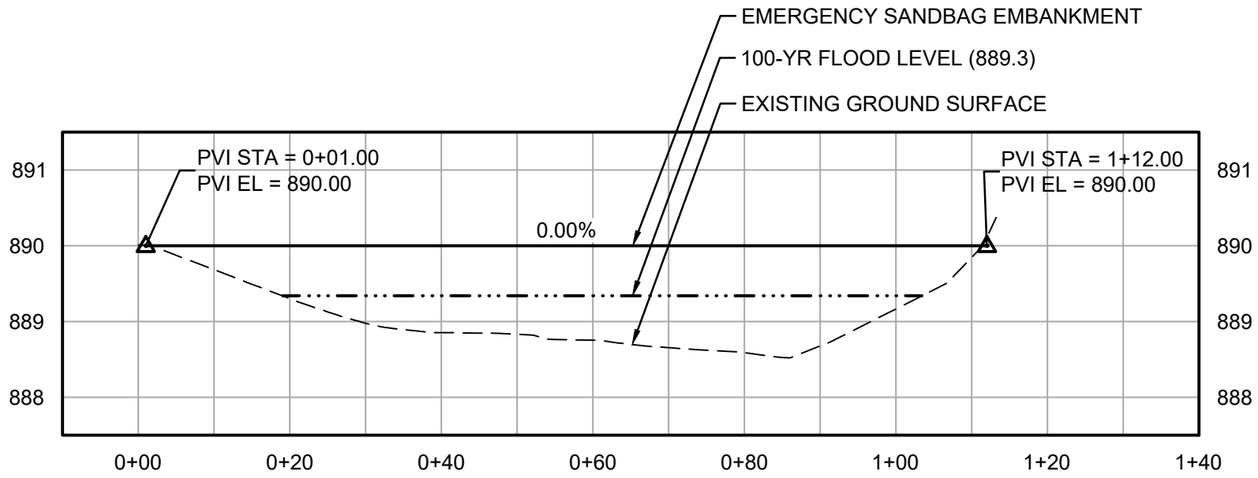
FIGURE 6

FLOOD WARNING EMERGENCY RESPONSE PLAN

Lake Owasso, Minnesota
Prepared by RWMWD



CONTROL POINTS				
PNT#	DESCRIPTION	ELEVATION	NORTHING	EASTING
1008	515 HEINEL, 0+01 END	890.0	187901.4	566964.0
1009	515 HEINEL, 1+12 END	890.0	187983.0	566951.3



Estimated Number of Sandbags Per Linear Foot of Levee	
Height in Feet	Bags Required
1	6
2	21
3	45

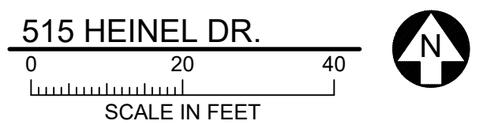
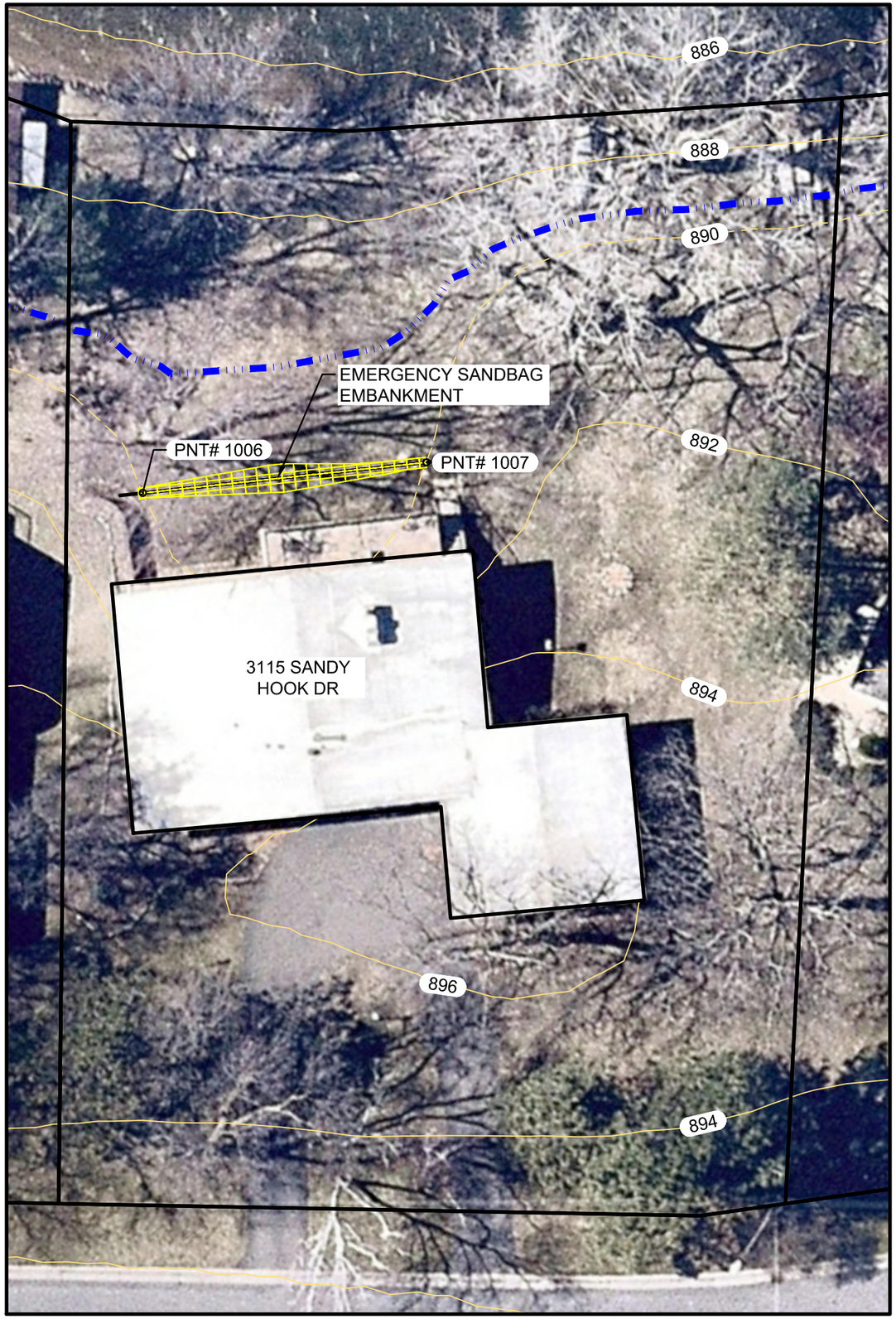


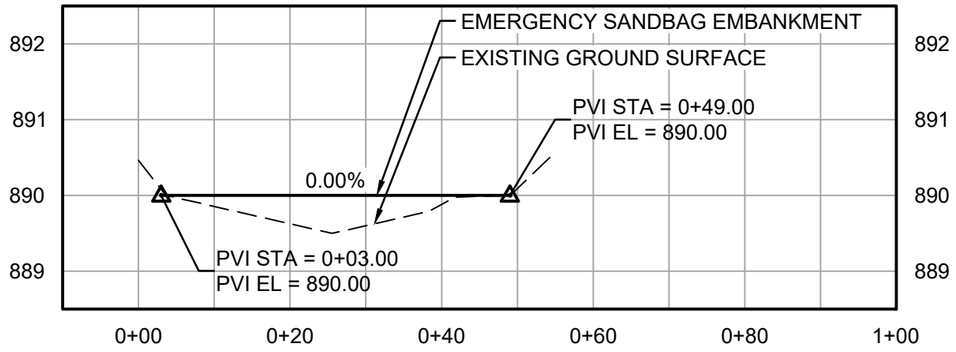
FIGURE 7

FLOOD WARNING EMERGENCY RESPONSE PLAN

Lake Owasso, Minnesota
Prepared by RWMWD



CONTROL POINTS				
PNT#	DESCRIPTION	ELEVATION	NORTHING	EASTING
1006	3115 SAND HOOK, 0+03 END	890.0	188592.3	567306.2
1007	3115 SAND HOOK, 0+49 END	890.0	188630.1	567331.5



Estimated Number of Sandbags Per Linear Foot of Levee	
Height in Feet	Bags Required
1	6
2	21
3	45

3115 SANDY HOOK DR.

0 20 40

SCALE IN FEET

FIGURE 8

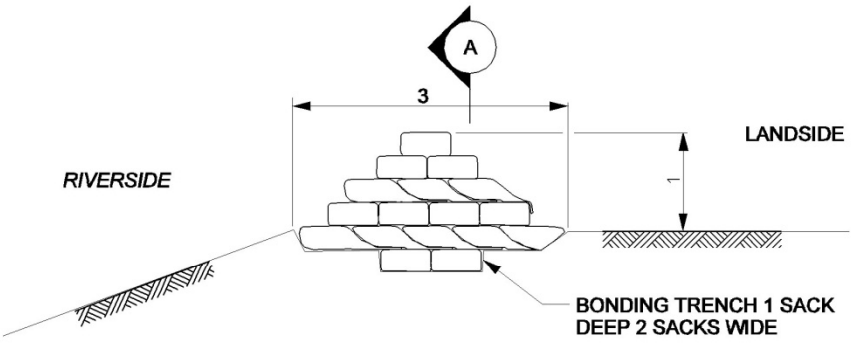
FLOOD WARNING EMERGENCY RESPONSE PLAN

Lake Owasso, Minnesota

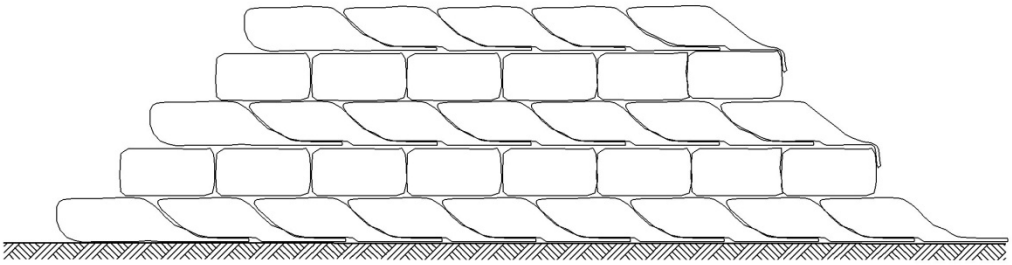
Prepared by RWMWD

U.S. Army Corps of Engineers sandbag levee construction
plate 1

DIKE HEIGHT	NUMBER OF SAND BAGS REQUIRED FOR LENGTH OF DIKE									
	50 FT	100 FT	150 FT	200 FT	250 FT	300 FT	350 FT	400 FT	450 FT	500 FT
1 FT	250	500	750	1,000	1,250	1,500	1,750	2,000	2,250	2,500
2 FT	850	1,700	2,550	3,400	4,250	5,100	5,950	6,800	7,650	8,500
3 FT	1,800	3,600	5,400	7,200	9,000	10,800	12,600	14,400	16,200	18,000
4 FT	3,100	6,200	9,300	12,400	15,500	18,600	21,700	24,800	27,900	31,000



RIVER BANK DIKE SECTION



ELEVATION (A)

METHOD OF LAPPING SAND BAGS

NOTES:

1. START UPSTREAM.
2. STRIP SOD BEFORE LAYING.
3. ALTERNATE DIRCTION OF BAGS WITH BOTTOM LAYER PARALLEL TO FLOW,
4. NEXT LAYER PERPENDICULAR TO FLOW ETC.
5. LAP UNFILLED PORTION UNDER NEXT BAG.
6. TYING OR SEWING BAGS NOT NECESSARY.
7. TAMP THOROUGHLY IN PLACE. SAND BAGS SHOULD BE APPROXIMATELY 1/2 FULL OF SAND.

US Army Corps of Engineers
St. Paul District

EMERGENCY FLOOD CONTROL ACTIVITIES
RECOMMENDED METHOD FOR

SAND BAG LEVEE CONSTRUCTION

PLATE 1

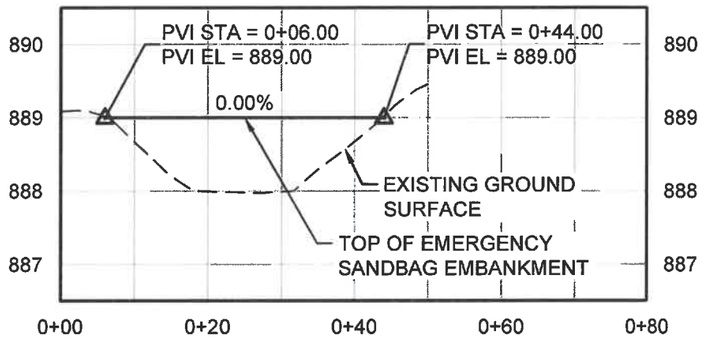
4380 REILAND LN.

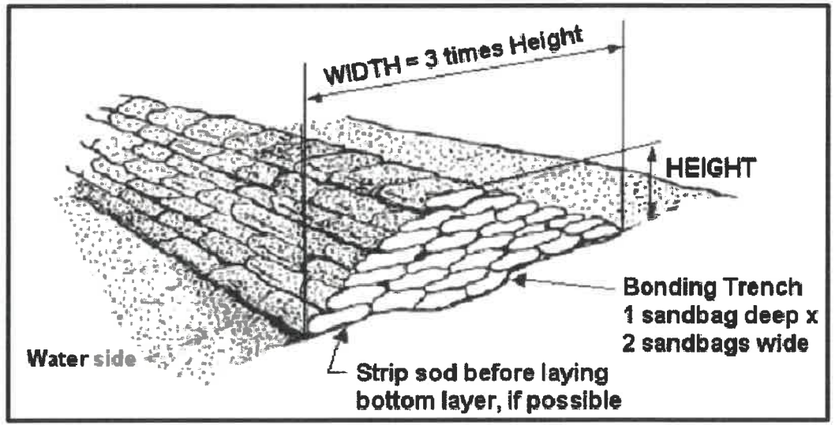
0 20 40

SCALE IN FEET

N

CONTROL POINTS				
PNT#	DESCRIPTION	ELEVATION	NORTHING	EASTING
1010	4380 REILAND, 0+06 END	889.0	203253.2	564576.6
1011	4380 REILAND, 0+44 END	889.0	203261.9	564613.1





Estimated Number of Sandbags Per Linear Foot of Levee	
Height in Feet	Bags Required
1	6
2	21
3	45

DRAFT

PLATE 7

FLOOD WARNING EMERGENCY RESPONSE PLAN

Snail Lake, Minnesota

Prepared by RWMWD

RAMSEY-WASHINGTON METRO WATERSHED DISTRICT

resourceful. naturally. engineering and environmental consultants BARR

Memorandum

To:	Board of Managers and Staff
From:	Tina Carstens and Brad Lindaman
Subject:	Project and Program Status Report – December 2018
Date:	November 27, 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 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 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 in November. Barr attended a November 14 public meeting on behalf of RWMWD. The team is developing accounting of the estimated project costs, runoff generation, and stormwater management by jurisdiction (city versus county). This accounting will inform development of a memorandum of understanding between the RWMWD, city, and county documenting the collaborative approach to stormwater management on the site, cost sharing, and identification of operation and maintenance responsibilities going forward.

Updates will continue through the duration of second-phase design as well as through the implementation phase in 2019. The city anticipates submitting the roadway project feasibility study to the city council in December 2018 or January 2019 and beginning 100-percent design in February 2019. Utility construction may begin in 2019, with the majority of roadway and stormwater management feature construction occurring in 2020. 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.

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 continued 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. We also updated the geographic information system (GIS) files in the Willow Lake and Kohlman Creek watersheds to show system modifications to address potentially flood-prone structures. Several structures upstream and downstream of the outlet control structures and the Phalen Chain of Lakes may be prone to flooding, so identifying a feasible operation plan is an iterative process. 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.

Barr recently finalized the reports and is currently preparing to present these studies to the RWMWD at the January 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.

Barr is discussing with paving contractors the feasibility of lightly milling the top layers of pavement away to expose more free draining materials. Two paving contractors have agreed to look at the pavement in the coming weeks to provide feedback and recommendations on the effectiveness of this approach, timing of the work, and likely costs. Barr will report its findings and a recommendation in a summary memo after receiving feedback from the contractors.

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

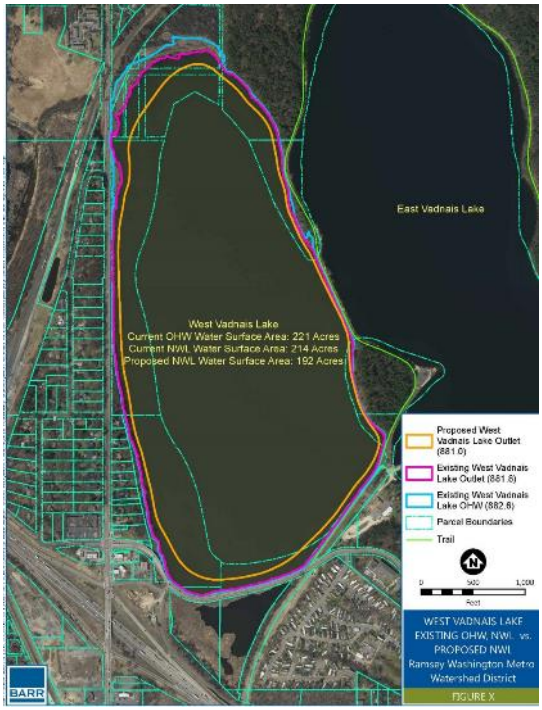
The purpose of this project is to apply Minnesota Department of Natural Resources (DNR) grant funding to use the RWMWD's updated stormwater model to develop information required to update the FEMA floodplain maps.

Barr reviewed the survey data provided by the DNR, and started to update the RWMWD's stormwater model with the new information. Model updates will continue over the next few months, and results will be summarized for DNR review in early 2019. The process for updating the FEMA floodplain maps will continue through April 2020.

West Vadnais Lakes outlet permitting with the DNR (Barr project manager: Erin Anderson Wenz; RWMWD project manager: Tina Carstens)

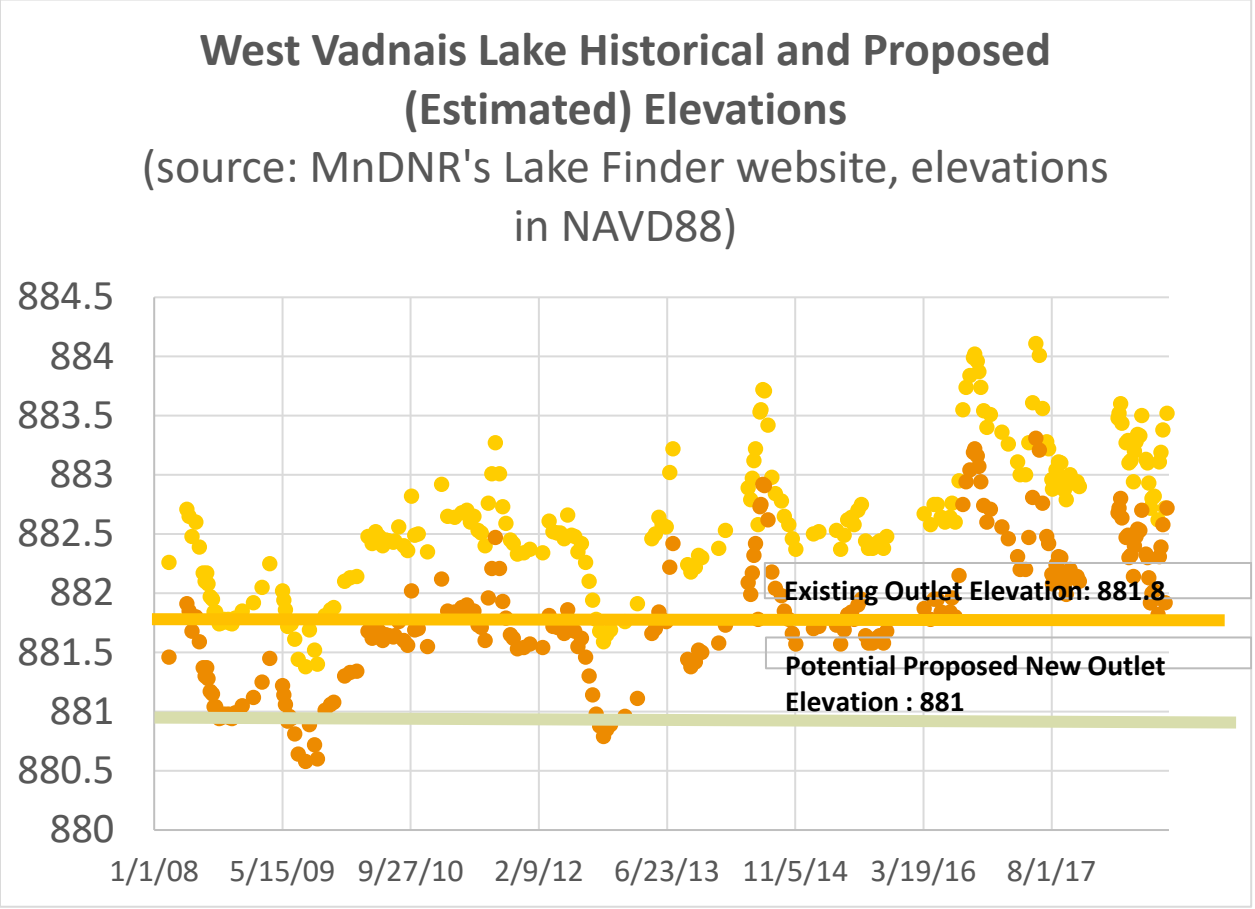
The purpose of this project is to coordinate permitting efforts for the proposed Snail, Grass, and West Vadnais lakes outlets with the DNR.

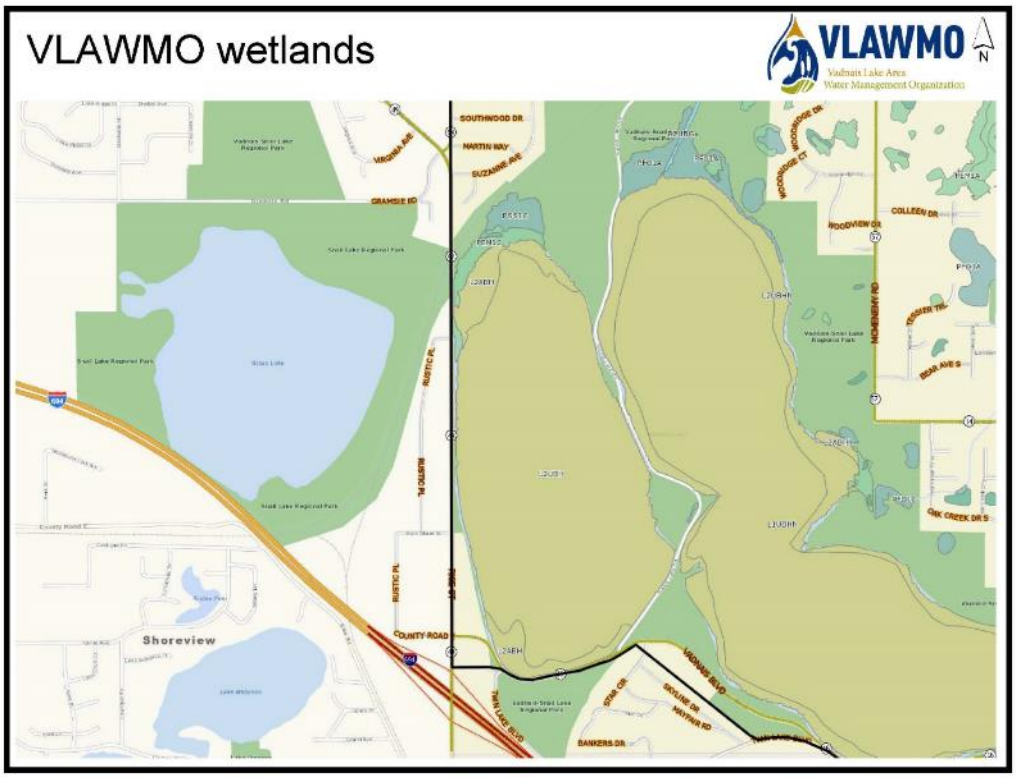
This period, RWMWD staff met with the Vadnais Lake Area Watershed Management Organization (VLAWMO) administrator, Stephanie McNamara, to discuss next steps in evaluating the impacts of lowering the outlet of West Vadnais Lake to an elevation of 881.0. (The current outlet elevation is 881.8.) RWMWD staff explained that the RWMWD is no longer planning to pursue the lowering of East Vadnais Lake due to the expectation, based on recent field investigations, that the changes in seepage through the berm from lowering East Vadnais Lake would not be significant enough to affect levels in West Vadnais Lake. Instead, the RWMWD would like to focus on lowering West Vadnais Lake. The following map, which was presented at the meeting, shows potential changes to the lake's footprint with changes to the lake's outlet elevation.



While discussing the map, staff explained to Stephanie McNamara that the expected change in West Vadnais Lake's ordinary high water level is indicated by the difference in the blue line (West Vadnais Lake's existing ordinary-high-water-level elevation of 882.6) and the pink line (existing West Vadnais Lake's outlet elevation of 881.8). Note that the orange line (proposed West Vadnais Lake's outlet elevation of 881.0) may not be the best representation of future lake-level conditions, as the lake typically sits above its outlet elevation (as shown in the graph of historical lake elevations, below). The change in West Vadnais Lake's shoreline inundation between 882.6 and 881.8 is approximately 7 acres (as indicated on the map). When more than 1 acre of change is involved in a proposed lake project, the DNR typically

requires more evaluation of impacts but defers to the regulatory governmental unit to decide whether that should be formally pursued through the creation of an Environmental Assessment Worksheet (EAW). Staff discussed this possibility with Stephanie McNamara, and all agreed that the next logical step is to learn more about the wetlands at the north end of the lake (shown below) through a delineation next spring, in order to better understand how changes to the lake's ordinary high water level could change the wetlands. Stephanie asked RWMWD staff to present at the VLAWMO's technical advisory committee meeting in early 2019 to share the need for the project, as well as for her (and RWMWD staff) to hear members' concerns and plan for the next steps of evaluation. What we learn from both the wetland delineation work and the meeting with the VLAWMO technical advisory committee in 2019 will determine whether an EAW (and its formal review process) is ultimately needed to move forward with the lowering of the outlet.





This figure was created from an interactive GIS application on the VLAWMO's website. The wetlands on the north side of West Vadnais Lake are classified as "L2ABH" (lake), "PEM1C" (freshwater emergent wetland) and "PSS1C" (freshwater forested/shrub wetland).

It is important to remember that lowering the outlet, should it occur, would provide additional flood storage in West Vadnais and in Grass Lake only when the lake level eventually drains to the outlet elevation. This will occur over time, however, will depend on an extended drier weather patterns than has occurred over recent years.

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.

As mentioned last month, Barr will run other recurrence interval storms through the updated models before the end of the year to understand how lesser storms other than the 100-year and 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.

Property-owner approvals are at various stages of completion. The City of Saint Paul has approved the monitoring station to be located on Lake Phalen. Paperwork documenting approval is awaiting comment from the city's lawyer. A subcontractor for installing the concrete pad, shelter, and electrical power has been lined up and will begin work after the paperwork is complete. We anticipate this to occur before the end of this year. The equipment for this site has been ordered.

The City of Shoreview and Metropolitan Council Environmental Services have given verbal approval for the stations on Lake Wabasso and Lake Owasso. We plan to order equipment for these sites in November. Site-specific plan drawings have been provided to the cities of St. Paul and Shoreview.

Ramsey County Parks is still considering the proposed monitoring stations on Grass and Snail lakes. We anticipate these stations to be approved, but likely not until 2019.

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.

Inspections are now substantially complete, and Barr is reviewing the findings internally and processing them for usefulness. We are creating GIS map figures to visualize the data and inform the findings and recommendations memorandum. A draft memorandum is being prepared that describes current conditions and outlines recommendations for site improvements, including structure repairs and tree replacements. In 2019, Barr is planning to scope the underdrains within several tree trenches to look for root penetration and sediment deposition.

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.

The conceptual design phase of the project is complete. The proposed basins design has been presented to the City of Maplewood Parks Commission, which voted to move to the next phase of design. The project has yet to be approved by the city council. This past month, Barr refined the conceptual plan and ran final stormwater improvement models. The water-quality model shows 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. We anticipate that the project will go out for bid in early 2019.

Targeted 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 at the New Horizon Day Care in Woodbury and House of Prayer Lutheran Church in Oakdale is now complete. The new gardens have been mulched, and filtration has been confirmed after recent rains. Plantings are to occur in spring 2019.

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 has been coordinating with Loeffler, the county's design/build contractor for the Aldrich Arena parking-lot reconstruction in Maplewood. Ramsey County is currently working on a design master plan for upgrades to the ice arena. The county is interested in a full parking-lot reconstruction that incorporates stormwater management features. Barr, RWMWD, and Ramsey County staff have recently discussed coordinating scoping and schedule. Design work is set to begin shortly, with preliminary design expected for City of Maplewood review in early 2019.

Construction at Maplewood City Hall has begun. Barr is observing construction of two rain gardens and helping coordinate installation of a custom sculpture near the entrance of the building.

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 increase the service life of the tunnel.

RWMWD staff completed review of the draft construction report. Barr anticipates issuing the final construction report and completing project closeout in the next period after district staff's review.

New technology review

NutrimaxTM advanced vegetated bioretention

Innovative technology	Nutrimax is a modular engineered wetland designed to capture runoff from highly urbanized areas with limited space for BMP retrofit projects. The system is designed to act like a wetland and improve both rate and water quality of runoff. The compartmentalized systems are designed to be space efficient, with intended installations in compact, highly urban areas such as downtowns, parking lots, and pedestrian boulevards.
Use	Nutrimax can be used to treat runoff from areas with high impervious area, similar to other common BMPs such as rain gardens, swales, or stormwater ponds. However, Nutrimax is engineered to provide the same performance with a much smaller footprint. Application areas include: ▪ Industrial ▪ Residential development ▪ Commercial ▪ Roof runoff ▪ Parking lots
Benefits of technology	▪ Treats stormwater runoff (both rate control and water quality) ▪ Small footprint ▪ Variably sized ▪ Easy maintenance ▪ No pretreatment necessary ▪ LEED credit applicable
Drawbacks	▪ Not as natural of an aesthetic ▪ Still can clog if not maintained properly ▪ Unsure if cold weather affects media performance ▪ Expensive if many are needed
Case studies/applications	▪ North Carolina State University ▪ Florida Department of Transportation ▪ City of Casselberry
Suppliers/contacts	Suntree Technologies Inc. 798 Clearlake Road Cocoa, Florida 32922 Phone: 321-637-7552 Fax: 321-637-7554 http://www.suntreetech.com
Conclusion	The Nutrimax wetland system offers a unique way to treat stormwater runoff in areas where space is limited for BMP retrofit options. The design of the Nutrimax allows for efficient treatment of runoff, showing high nutrient removal efficiencies in testing. However, more application results would help compare how Nutrimax performs against other BMP retrofit options.

Technology description

Nutrimax is an engineered wetland designed specifically for installation in highly urban areas or areas where only a small footprint is available for BMP retrofits. The Nutrimax wetland incorporates a biosorption activated media (BAM) called Bold & Gold that adds water-quality improvement to the treatment system, removing phosphorus, nitrogen, metals, bacteria, and total suspended solids.

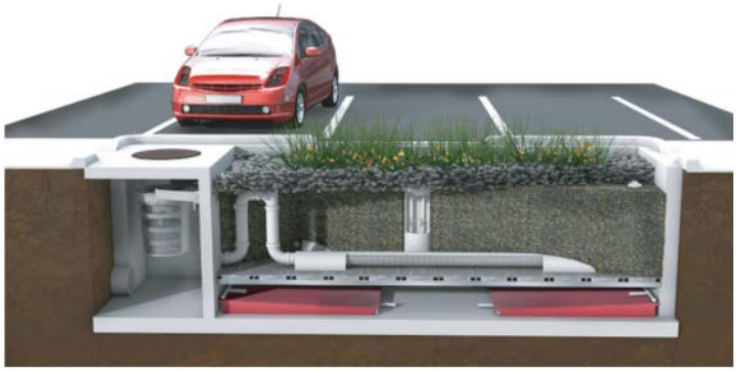


Figure 1. Example Nutrimax parking-lot application

Bold & Gold filtration media was patented at the University of Central Florida. It is comprised of natural and recycled products including clay, sand, and recycled tire.

Design and performance

The Nutrimax wetland works similarly to other engineered runoff treatment systems. Sheet flow enters from the impervious area surrounding the BMP, and filters through the surface where runoff maintains contact with plants; large, coarse media for filtering larger debris; and the engineered media. Maximum contact with the engineered media allows for passive filtration and biofiltration. The system integrates a high-flow bypass to allow for the wetland to handle larger storms, where water bypasses the media and goes through a small trash-can filter and back into the storm sewer. Nutrimax does not utilize a pretreatment system, as the Bold & Gold media does not clog as easily as traditional engineered filters (i.e., iron-enhanced sand), and large debris are filtered through coarse media at the surface of the filter.

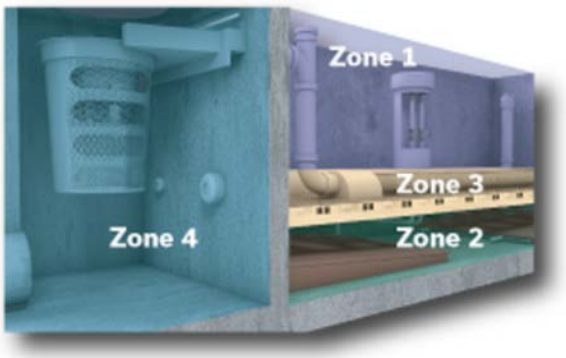


Figure 2. Nutrimax treatment zones

Nutrimax utilizes Suntree Technologies HydroSlideTM system, which allows for easy system maintenance. The HydroSlides can be easily accessed and emptied and the media back-flushed during maintenance.

Model	Inside Dimensions
NMAX 04-08	04′ x 08′
NMAX 05-10	05′ x 10′
NMAX 06-12	06′ x 12′

Figure 3. Nutrimax size options

Suntree Technologies reports that Nutrimax can remove up to 57 percent phosphorus, 48 percent nitrogen, 83 percent total suspended solids, 82 percent copper, and 24 percent zinc.

Applications and case studies

North Carolina State University and Florida Department of Transportation

North Carolina State University has tested the Bold & Gold filtration media extensively to assess its performance efficiency in applications such as Nutrimax. Results show removals of 0.25 milligram orthophosphate (dissolved form of phosphorus) per gram of media with over 15 minutes of contact time. Research also shows that the media promotes anoxic conditions, increasing nitrate removal and allowing for an "unlimited life expectancy of biological removal." These results are based on laboratory experiments of the media alone.

Florida Department of Transportation testing of the media and filter (an average of two systems) showed that total nitrogen removal ranged from 67 to 76 percent, total phosphorus removal ranged from 75 to 77 percent, copper removal was 35 percent, and zinc removal was 31 percent. Removals improved when the systems were maintained properly (cleaning clogs, back-flush, etc.).

Casseton Drive improvements (Casselberry, Florida)

A recently proposed improvements project in Casselberry, Florida, is using Nutrimax along a corridor in the city, adding more green infrastructure and stormwater runoff treatment.

Figure 4. Casseton Drive improvements in Casselberry, Florida

Indian River Lagoon restoration project

Cities along the eastern coast of Florida that border the Indian River are looking for ways to reduce total nitrogen and phosphorus loads to the river and estuarian ecosystem. Many improvement projects have been constructed, including the installation of Nutrimax and Bold & Gold systems in more urban areas of the watershed. The improvements and installations are ongoing in 2018.

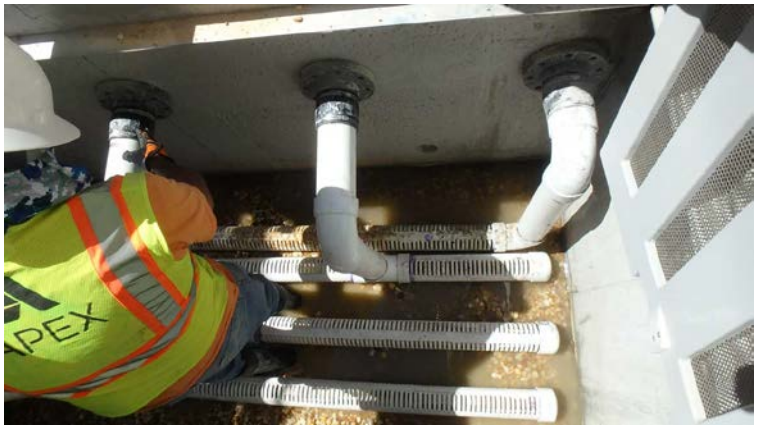


Figure 5. System installation in Cocoa Village (Cocoa, Florida)

Other applications

Nutrimax lists other projects that have been installed across the country, including in Florida, Iowa, Ilinois, Louisiana, Maine, Missouri, North Carolina, Ohio, Pennsylvania, and Texas. For more of these project details, see https://www.suntreetech.com/projects.html.

Figure 5. Nutrimax display system

Maintenance

Regular system maintenance is recommended and required for consistent nutrient removal. The wetland compartment has an easily accessible portal for vacuum truck servicing from the top. Additionally, the HydroSlide technology allows for easy media maintenance and cleaning, or replacement.

Conclusion

The Nutrimax wetland system offers a unique way to treat stormwater runoff in areas where space is limited for BMP retrofit options. Nutrimax's design allows for efficient treatment of runoff, showing high nutrient removal efficiencies in testing. Additionally, Nutrimax has lower maintenance requirements than other large BMPs, and has been designed to reduce maintenance efforts. One drawback of Nutrimax is that there are few published cases of its performance after installation in a real setting—but perhaps some of the applications presented here will provide insight into its field performance after the projects have been completed.

Natural Resources Update – Bill Bartodziej and Simba Blood

Owasso Chain Carp Management

Our second season of common carp management on the Owasso Chain of Lakes is now completed. We are very pleased that the hard work put forth by NR staff and Carp Solutions, Inc. paid off. We were successful in removing a good number of adult carp from the main lakes, and also inhibited migration into desirable spawning areas. Below are a few key findings and preliminary data.

Adult Carp Removal

Baited Box Nets - The most effective method for adult carp removal was the baited box net. Through 11 net pulls, between June and October, we were able to capture and remove 2,079 adult carp. A preliminary and fairly dynamic overall population estimate for Owasso and Wabasso is around 7,000 adults. Thus, through this baited netting effort, we were able to reduce the population by roughly 30%.

A respectable haul of carp from the baited box nets in Owasso and Wabasso.

Carp end up at the Wildlife Science Center, where they quickly enter the food web.

Seining - In early November, just before ice-up, we worked with a commercial fisherman to pull a large seine net through the northwest portion of Owasso. The setup was pretty close to ideal. We had a majority of the radio-tagged carp in an area where the fishermen thought they could effectively pull the net.

Although blustery, intern Nick was excited to track carp in the seine net.

Over 2,000 feet of net was deployed and encircled a large school of carp.

Well, to make a long fishing story short, the net was effectively set around the carp, but the fisherman hit several snags on the lake bottom as they were pulling the net into shore. It is very likely that as the net was being lifted and freed from the bottom, large hoards of crafty and cunning carp found their way out of the net. In total, 21 large carp were harvested from the effort. This was considered a failure, and the commercial fishermen were outwardly disgusted with the result. They put a great deal of effort and resources into the operation, so it is understandable why the frustration levels were so high.

From our experience, the results from commercial netting is sort of a boom or bust. It is really difficult to pull a large net on the bottom of a metro area lake and not run into formidable obstructions. Unfortunately, there is a certain amount of chance involved, and it is truly fishing. A good haul happens when the net moves over obstructions and net maneuvering and lifting is kept to a minimum.

On a couple of occasions on Lake Gervais, we were very successful in harvesting carp with this method. Thus, we know it can be effective in our lakes, and it could result in very substantial carp hauls. Our plan is to keep tracking carp over winter and continue to look for opportunities to try another seining effort. We will be in contact with the fishermen to determine their interest level in making another attempt.

Twenty-one large adult carp were harvested via the fall netting.

Physical Barriers

Overall, the temporary PVC barriers that were placed in five key locations throughout the Chain did a great job in prevented carp from reaching shallow spawning grounds. Another substantial benefit was that, at times, we were able to shock and net carp that were schooled up close to the barriers. In total, we netted 415 carp that were around the barriers. This is roughly 6% of the population in Owasso and Wabasso. We are extremely pleased with this result, and look at the harvest as an added bonus.

The biggest downside to the barriers was the daily maintenance. Branches, filamentous algae, leaves, and other debris would clog the barriers, and needed to be removed frequently. NR interns would make a morning barrier run each day to look for carp and clear the barriers.

In the spring of 2019, our plan is to re-install the barriers, but also look at more permanent barrier options. We are in discussions with the U of MN on research opportunities that may include electric barriers in the Owasso Chain.

In front of a barrier at the Wabasso outlet, a backpack electro-shocker is used to stun carp so they can be easily scooped out of the water.

Public Involvement and Education Program – Sage Passi

Recognition 2018: Celebrating Landscape Ecology, Watershed Excellence and Community!

On the evening of November 14, at Keller Golf Clubhouse in Maplewood, 106 guests gathered at the Annual Recognition Dinner to celebrate, make new connections, renew ties and honor the contributions and achievements of our large community of watershed stewards and partners. This is always a rich opportunity to thank everyone for working diligently and creatively to protect and improve our water, enhance habitats, infiltrate run-off, build and strengthen our networks, provide education and professional support and participate in a broad spectrum of water activism, technical support and volunteerism. We want to thank everyone across our district for an awesome 2018!!!

Dana Larsen-Ramsay with
Eric Sommers, glass artist

Two award ceremonies are integral to this evening's celebration; the Watershed Excellence Awards and the Landscape Ecology Award Program. (LEAP). The Citizen Advisory Committee submits, collects and reviews nominations, then recommends awardees for the Watershed Excellence Awards.

Each year the CAC engages glass artist Eric Sommers who designs a glass award for the Watershed Excellence Award winners. You can see a larger photo of this year's awards on page 21 of this report. The team also writes award speeches for the event, provides photos for the slide show, acts as presenters and participates in the award ceremony.

The 2018 Watershed Excellence Award Winners

For a detailed description of their accomplishments go to this link on our website: https://www.rwmwd.org/excellence-awards-recognize-important-partners-in-watershed-conservation/

Dana Larsen-Ramsay – Roger Lake Stewardship Excellence Award: *Recognizes an individual who has played a significant and long term role in watershed management and demonstrated leadership in natural resources and water stewardship during his or her lifetime.*

Randee Edmundson – Outstanding Educator Award: *Recognizes an educator who has demonstrated exceptional commitment and capacity in watershed education and stewardship initiatives.*

Karen Eckman – Community Leadership Award: *Recognizes an individual or organization that has played a significant community leadership role in promoting good watershed practices and stewardship.*

Carol Gernes – Conservation Champion: *Recognizes an individual or organization that works to improve and protect the natural environment, enthusiastically advocates for conservation and improved water quality while promoting the Ramsey-Washington Metro Watershed District and its programs.*

Vicki Pream – Rain Garden Champion: *Recognizes an individual, organization or business that demonstrates exceptional leadership in the promotion and support of rain gardens in Ramsey-Washington Metro Watershed District.*

Chuck Hanna – Outstanding Partner: *Recognizes an individual, group or business that effectively collaborates to achieve exceptional results in water resources management in Ramsey-Washington Metro Watershed District.*

District Administrator Tina Carsten, Randee Edmundson and Jill Danner, CAC presenter

The 2018 LEAP Awards

The District's citizen-volunteer LEAP Team manages this award program. The team visits nominated sites in the summer and conducts the judging. They also prepare a slide show and narrative for the ceremony, gather gifts for the winners and craft bird baths made from large leaf molds to honor these award-winners. Each of these award-winning properties feature Minnesota native plants, which provide important habitat for pollinators and other wildlife. They often incorporate the use of rain gardens and deep-rooted vegetation which helps water infiltrate the soil instead of running off into lakes and streams. Since 2002, the program has awarded 102 sites including 74 private residences, five schools, seven businesses, five churches and eleven public properties.

The 2018 LEAP Award Winners

Jan Arleth and KateLynn Hibbard (St. Paul) Jan and KateLynn began replacing their lawn with native plants about seven years ago. The result is a lush landscape that's great for pollinators and requires little watering. About 80 percent of the plantings are "native Lake Phalen" plants, and a rain barrel adds to the conservation ethic on display at this Saint Paul home. Not only are they helping the environment, they are also helping to increase neighborhood awareness around the impact of landscaping choices.

Rosemary Slowiak and Bill Zajicek (St. Paul) With a steeply sloping yard overlooking the east shore of Lake Phalen, these east shore residents across from Lake Phalen have gone to great lengths to prevent runoff and protect their local watershed. Innovative water management practices on their property include restored prairie, a dry creek-bed channel, rain garden to collect driveway runoff, and grass-pave sidewalk. By incorporating native plants into formal landscaping features, they have created a yard that is both beautiful and ecologically sound.

Candyce Osterkampe (St. Paul) Her entire yard features a wealth of diversity from native plants to organic vegetable gardens. A rain garden on the east side of the property filters runoff and contains pollinator-friendly wildflowers like purple coneflower. This welcoming, manicured site is testament to lots of hard work since Candyce began converting the lawn to gardens ten years ago.

Monica and Terrance Garrity (Maplewood) have three lovely large rain gardens installed at their home by the City of Maplewood. The rain gardens capture stormwater runoff from their roof and the street, and feature a variety of flowering plants that provide great habitat for pollinators. Before the project, storms would cause large puddles to form in the driveway, backyard and neighbor's yard. Now, the puddles are gone as water is directed to the rain gardens where it can soak into the ground.

Communications Update – Chris O'Brien

Fall e-newsletter

The fall edition of the Ripple Effect e-newsletter went out November 20 with stories on the Watershed Excellence and LEAP awards, new Master Water Stewards, Vadnais-Snail Lakes Park restoration, and an upcoming storm drain mural project at Lake Phalen.

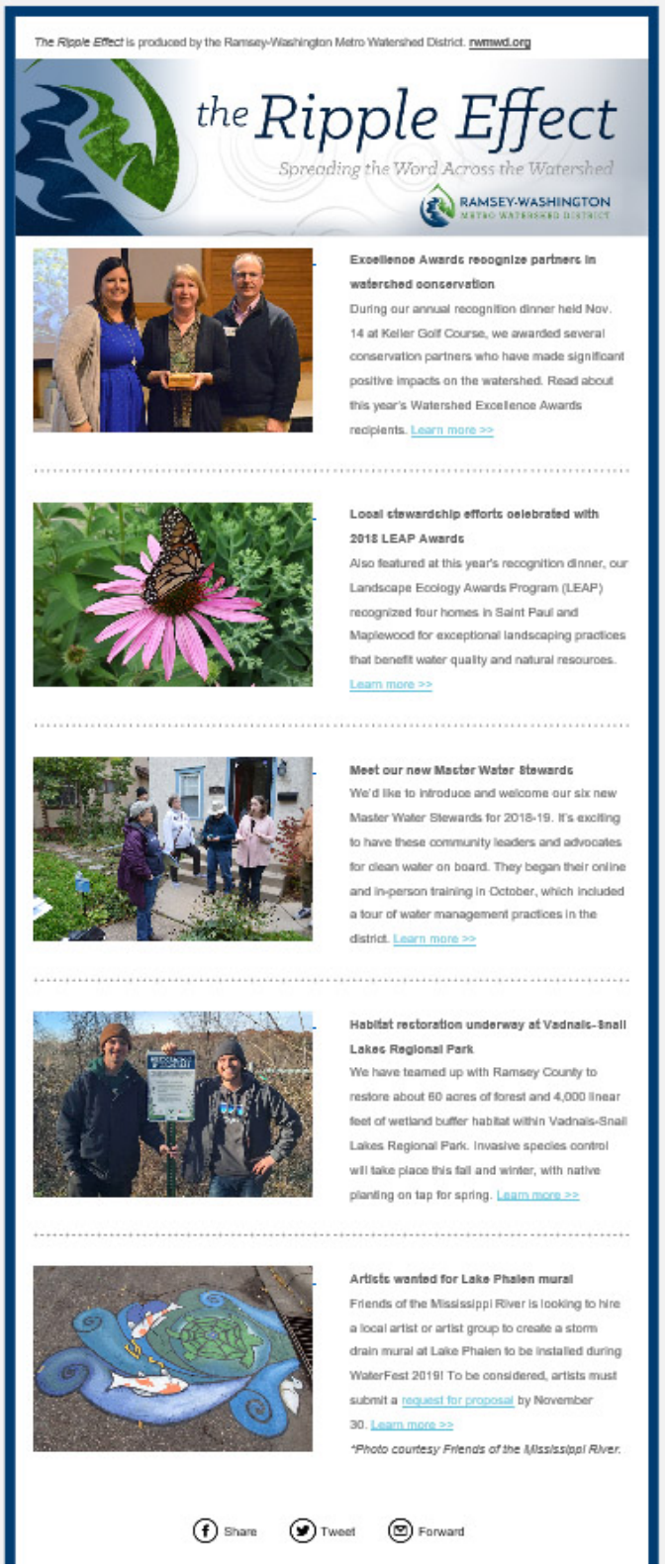
Newsletters vs. single-topic emails

We recently shifted from sending regular monthly newsletters to sending mainly single-topic emails like Keller Creek, for example. This focuses measurable engagement (clicks and opens) on key watershed topics.

Newsletters with multiple topics will go out seasonally, and while these emails generate a similar open rate of about 36 percent (a high rate by industry standards), the number of clicks on each individual story tends to be lower than that of single-topic emails. In other words, readers are less likely to read the full story if an article is part of a larger newsletter.

Most read (clicked) stories in the latest newsletter were:

1) Watershed Excellence Awards (72 clicks)
2) Vadnais-Snail Restoration (51 clicks)
3) New Master Water Stewards (46 clicks)
4) LEAP Awards (28 clicks)
5) RWMWD website (16 clicks)



The Ripple Effect is produced by the Ramsey-Washington Metro Watershed District. rwmwd.org

the Ripple Effect

Spreading the Word Across the Watershed

RAMSEY-WASHINGTON METRO WATERSHED DISTRICT

Excellence Awards recognize partners in watershed conservation

During our annual recognition dinner held Nov. 14 at Keller Golf Course, we awarded several conservation partners who have made significant positive impacts on the watershed. Read about this year's Watershed Excellence Awards recipients. Learn more >>

Local stewardship efforts celebrated with 2018 LEAP Awards

Also featured at this year's recognition dinner, our Landscape Ecology Awards Program (LEAP) recognized four homes in Saint Paul and Maplewood for exceptional landscaping practices that benefit water quality and natural resources. Learn more >>

Meet our new Master Water Stewards

We'd like to introduce and welcome our six new Master Water Stewards for 2018-19. It's exciting to have these community leaders and advocates for clean water on board. They began their online and in-person training in October, which included a tour of water management practices in the district. Learn more >>

Habitat restoration underway at Vadnais-Snail Lakes Regional Park

We have teamed up with Ramsey County to restore about 60 acres of forest and 4,000 linear feet of wetland buffer habitat within Vadnais-Snail Lakes Regional Park. Invasive species control will take place this fall and winter, with native planting on tap for spring. Learn more >>

Artists wanted for Lake Phalen mural

Friends of the Mississippi River is looking to hire a local artist or artist group to create a storm drain mural at Lake Phalen to be installed during WaterFest 2019! To be considered, artists must submit a request for proposal by November 30. Learn more >>

*Photo courtesy Friends of the Mississippi River.

Share Tweet Forward

Recognition dinner comes together nicely

The days leading up to our November 14th annual recognition dinner were busy coordinating materials for the event, including the awards program, door prizes and on-screen presentations. Deciding on photos and talking points for each Watershed Excellence Award recipient is a collaborative back-and-forth process with the award presenters. This year's presenters put a lot of time and thought into their presentations.

Special thanks goes to Debbie Barnes for skillfully managing a long list of logistics, and to Carrie Magnuson for photographing the event since our normal photographer, Anita Jader, was unable to attend. Carrie also took some nice shots of the award sculptures created by glass artist Eric Sommers.

With the goal of spreading the good news quickly, we shared photos of the Watershed Excellence and LEAP awards the following day on social media, and posted blog articles on our website November 19. In their December newsletter, the City of Maplewood plans to include photos of several award recipients who live or work in Maplewood: Carol Gernes (Conservation Champion, Maplewood Nature Center employee), Randee Edmundson (Outstanding Educator, Maplewood resident), Chuck Hanna (Outstanding Partner, contractor for Maplewood City Hall rain gardens) and Monica Garrity (LEAP winner, Maplewood resident).

In addition, the *East Side Review* plans to run a story on this year's Lake Phalen area LEAP winners.

Gervais Lake Association update

The Gervais Lake Association requested an update for their fall newsletter, so we provided an article with current water quality data, commentary about the lake, and a brief recap of carp management efforts on the Phalen Chain.

In 2018, Gervais Lake levels for phosphorus, chlorophyll and secchi transparency were each consistent with the lake's 10-year average, which meets state standards based on that timeframe.

Salt legislation in the works for next session

The citizen group *Stop Over Salting* is interested in pursuing legislation in the 2019 session that would incentivize private salt applicators to take MPCA Smart Salt training, and to secure state funding for the training. A similar bill received significant support in the 2018 session, but was not voted on.

The group has begun reaching out to coalition members, including our district, and plans to organize a strategy meeting in the coming weeks. They also provided a list of new Minnesota House committee chairs, which include Rep. Peter Fischer (D-Maplewood) who will chair an Environment and Natural Resources subcommittee on water.

Education and outreach display for MAWD conference

A new feature at this year's Minnesota Association of Watershed Districts (MAWD) annual conference was an opportunity for districts to showcase an education and outreach project or program.

We created a tabletop display about our Keller Creek restoration, which involved nearly 2,000 students and other volunteers during the four-year project that wrapped up this fall.

Featured elements of the Keller Creek project included classroom learning sessions, volunteer planting days on the creek, the Phalen Chain Water Trail Map (Keller Creek is a prominent paddling destination), and student seed packet artwork.