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VLAWMO
Vadnais Lake Area
Water Management Organization

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# VLAWMO TECHNICAL COMMISSION MEETING

## 8:30 AM - January 8, 2025

Vadnais Heights City Hall, Council Chambers, 800 County Road E East, Vadnais Heights, MN 55127

**Action items:**

I. Call to Order – 8:30 am – Chair Tessier

II. Approval of Agenda

III. Approval of Minutes (Dec. 11, 2024)

IV. Administration & Operations

A. January Financial Report and Consider Authorization for Payment (sent in a separate email on either 1/3 or 1/6 due to Holidays)– Phil

B. 2025 Technical Commission Officer Appointments – Phil

C. Confirmation of 2025 TEC Meeting Dates – Phil

D. 2024 Working Budget Overview – Phil

V. Projects –

A. Consider ongoing partnership effort with NOHOA for Deep Lake shoreline restoration pg. 8-10, 12-13

B. Wilkinson deep-water wetland update: HEI monitoring memo for 2024 pg. 10, 14-18

C. Update on WMP – TEC + (today at 9am)

VI. Commissioner Reports

VII. NOHOA

VIII. Ramsey Soil & Water Conservation Division

IX. St. Paul Regional Water Services

X. Public Comment

XI. Next meetings: TEC : February 12, 2025; Board Meeting: Feb. 26, 2025

XII. Adjourn

**Upcoming Events: Visit vlawmo.org/events**

**Vadnais Lake Area Water Management Organization**
**Technical Commission (TEC) Minutes**
**December 11, 2024**
**Vadnais Heights City Hall, Council Chambers**
**800 County Road E East, Vadnais Heights, MN 55127**

**Commission Members Present:**

| | |
|---|---|
| Gloria Tessier | Gem Lake (GL) |
| Nick Ousky | Vadnais Heights (VH) |
| Jami Philip | White Bear Township (WBT) |
| Susan Miller | North Oaks (NO) |
| Terry Huntrods | City of White Bear Lake (WBL) |
| Tom Hoffman | City of Lino Lakes (LL) |

**Others in attendance:** Phil Belfiori, Dawn Tanner, Lauren Sampedro, Brian Corcoran, Angela Hugunin (VLAWMO staff); Jeremy Erickson, SPRWS.

## I. Call to Order

Chair Tessier called the meeting to order at 8:15 am.

## II. Approval of Agenda

It was moved by Commissioner Huntrods and seconded by Commissioner Miller to approve the December 11, 2024, TEC agenda. Vote: all aye. Motion passed.

## III. Approval of Minutes (November 13, 2024)

It was moved by Commissioner Miller and seconded by Commissioner Philip to approve the November 13, 2024, meeting minutes as presented. Vote: all aye. Motion passed.

## IV. Administration & Operations

A. Introduce Angela Hugunin – New Communication and Outreach Coordinator

Administrator Belfiori said VLAWMO is excited to welcome new VLAWMO staff member Angela Hugunin as the Communication and Outreach Coordinator. Hugunin introduced herself, and the TEC also provided introductions and described their roles.

B. December Financial Report and Consider Authorization for Payment

Administrator Belfiori summarized the December financial statement as included in the packet. Notable items included payments for information systems, historic wetland escrow, watershed management planning, finalizing Phase 1 of the alum project, and engineering review for the gullies on Lambert Creek.

Staff recommended approval of the financial report and bills for December.

It was moved by Commissioner Ousky and seconded by Commissioners Huntrods and Miller to approve the December Financial Report and authorize for payment. Vote: all aye. Motion passed.

C. December TEC Report to the Board of Directors

Administrator Belfiori summarized the TEC Report to the Board as included in the packet. Notable items included submittal of MPCA grant applications, Rotary Park work with White Bear Lake, getting ready for the second phase of alum treatment at Tamarack Lake, carp management planning for next year, wrapping up the Elmwood Park raingarden and White Bear Lake curb cut raingardens for the season, finalizing the 2025 working budget, and continued watershed management plan work.

It was moved by Commissioner Huntrods and seconded by Commissioner Philip to approve the December TEC Report to the Board. Vote: all aye. Motion passed.

## V. Programs

A. Update on Water Conservation Partnership with City of Vadnais Heights

Sampedro summarized a new partnership with the City of Vadnais Heights to pursue a program to provide EPA WaterSense pre-rinse sprayers to businesses and institutions for more water conservation in the City. She identified that these practices can conserve up to 7,000 gallons per year. This program is also a way to provide outreach and build relationships with local businesses and institutions to implement other water conservation practices in the future.

## VI. Projects

A. Consider Temporary Access Agreement for Continued Tamarack Alum Project

Tanner presented that staff received a renewed temporary access agreement with Ramsey County Parks and Tamarack Nature Center for the next season of the alum project at Tamarack Lake. She discussed that this agreement will allow for phase two work to begin in spring 2025. She added that this access agreement would cover the time range of ice out in the spring through the end of the growing season in fall 2025.

Tanner asked for the TEC's recommendation to the Board for signing the temporary access agreement.

It was moved by Commissioner Ousky and seconded by Commissioner Miller to recommend to the Board to sign the temporary access agreement and authorize VLAWMO

staff to return the fully executed agreement to Ramsey County. Vote: all aye. Motion passed.

B. Consider Agreement (MOU) for VLAWMO Support for Phase 3 of Rotary Park Restoration with the City of White Bear Lake

Tanner discussed that staff received a signed Memorandum of Understanding (MOU) with the City of White Bear Lake for ongoing work on the Rotary Park restoration project. She said that phase three is underway. VLAWMO will provide $5,000 towards the project, with the City providing a $5,000 match. She noted that there was a recent article in the Vadnais Heights and White Bear Press that covered the project.

Tanner asked for the TEC's recommendation to the Board to sign the MOU and request an invoice.

Commissioner Miller commented that this is a nice project that restores an area in the middle of development and noted that many people use the park. Tanner responded that there is also signage about the project for those using the park.

It was moved by Commissioner Huntrods and seconded by Commissioner Miller to recommend to the Board to sign the MOU with the City of White Bear Lake for ongoing Rotary Park restoration, and authorize staff to return the fully executed MOU to the City of WBL and request an invoice for 2024. Vote: all aye. Motion passed.

C. Consider Maintenance and Ongoing Program Contracts

Tanner presented that staff utilize consultants for assisting with maintenance activities and ongoing programs. VLAWMO develops contracts with them each fall to bring to the TEC in December. She described the contracts including one with the RCSWCD for $9,425-12,195 for activities such as Birch Lake pre- and post-invasive vegetation surveys, Tamarack Lake vegetation survey, and vegetation transplant work at the Wilkinson deep-water wetland; two contracts with Natural Shore Technologies for maintenance on projects like the 4th St and Otter Lake Rd iron enhanced sand filter, invasive yellow iris removal, and Wilkinson deep-water wetland; one with Sandstrom Land Management for maintenance of the biochar filter; and one contract with Carp Solutions for continued carp removal at Pleasant Lake.

Commissioner Miller asked if carp removals will be happening at the Charley Lake channel next year or if Carp Solutions will only be monitoring the channel. Tanner clarified they will only be monitoring at that location next year. She said that removal at Charley Lake could be added to the carp management planning in 2026, depending on what is learned from the monitoring work and biomass estimate.

Tanner asked for the TEC's recommended approval of the contracts to the Board. She noted that the contracts would be provided at the February Board meeting.

It was moved by Commissioner Huntrods and seconded by Commissioner Philip to recommend to the Board approval of the batch of contracts provided in the packet: RCSWCD, Natural Shore Technologies, Sandstrom Land Management, and Carp Solutions. Vote: all aye. Motion passed.

D. Update on WMP – TEC + Scheduled for Jan 8, 2025

Tanner provided an update that staff and HEI are working on the Watershed Management Plan sections one through four. She said section three will be provided for the TEC's review and discussion for the next TEC+ meeting. She added staff are hoping to provide the draft to the TEC the week of December 23rd.

She said the TEC+ meeting is scheduled for January 8, 2025 at 9:00 am. Staff are requesting section three comments to be submitted by January 15, 2025.

**VII. Commissioner Reports**

Commissioner Hoffman reported that the City of Lino Lakes has approved a resolution to partner with VLAWMO on a study for the Wilkinson Lake subwatershed area. He discussed there is a proposed development and the City has limited space for stormwater treatment in the area. He noted the partnership is a good opportunity to add more stormwater treatment in the subwatershed and make progress on the nutrient Total Maximum Daily Load (TMDL).

**VIII. NOHOA**

Commissioner Miller reported that NOHOA is moving forward with Deep Lake shoreline restoration work. She described that the eastern part of the lake is owned by NOC and NOHOA is continuing shoreline restoration work along this side of the lake. She said a significant amount of buckthorn removal has been completed, and they are starting to see more expansion native plant species including Red Osier Dogwood. She added that, with the considerable amount of work that NOC is contributing in the area that they own, NOHOA is hoping the restoration work will be completed around all of the lake next year. Tanner noted that VLAWMO is working with NOHOA and NOC on writing an article about this restoration work that will also incorporate the multi-year partnership work on invasive yellow iris removal around Deep Lake.

**IX. Ramsey Soil & Water Conservation Division**

None

**X. St. Paul Regional Water Services**

None

**XI. Public Comment:**

None

Administrator Belfiori thanked the TEC for attending the TEC meetings and for their great work in 2024. He said VLAWMO looks forward to the continued partnership with TEC members in 2025.

**XII. Next Meetings:**

TEC: January 8, 2025 at 8:15 a.m.; TEC+: January 8, 2025 at 9:00 a.m.; Board: February 26, 2025.

**XIII. Adjourn**

It was moved by Commissioner Hoffman and seconded by Commissioner Miller to adjourn the meeting at 8:43 am. Vote: all aye. Motion passed.

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# TEC Staff Memo – January 8, 2025

IV. Administration & Operations

A. January Financial Report and Consider Authorization for Payment (sent in separate email on either 1/3 or 1/6 due to Holidays)

Please find the January financial report and authorization to pay bills for consideration and approval.

B. 2025 Technical Commission Officer Appointments

With January comes the need to elect or confirm a slate of officers for the Technical Commission. Per usual, the Board will officially appoint the TEC Chair but they look to the TEC to recommend who they want as Chair for the year. Currently, officers from 2024 are:

- Gloria Tessier, Chair
- Nick Ousky, Vice Chair
- vacant, Financial Officer
- Terry Huntrods, Liaison to the Board

Recommended action item: Please confirm officer slate for 2025.

C. Confirmation of 2025 TEC Meeting Dates

Requesting confirmation from the TEC of the 2025 meeting schedule and location so this information can be shared with the Board of Directors and be included in the VLAWMO calendar. Current approved meeting schedule is 2nd Wednesday of the month at 8:15am at Vadnais Heights City Hall Council Chambers.

D. 2025 Working Budget Overview

At their December 11, 2024 meeting the VLAWMO Board approved the fund balance carry over "working budget" for 2025. As approved, the final "working" budgeted expenditures for 2025 will be $2,598,207.

To pay these expenditures the projected income within the approved working budget for 2023 is made up of: 1) $1,236,703 from the SSU and some small fees and 2) up to $1,361,504 in 2023 fund balance carry over. It is also estimated that $238,960 of grants/ other outside funding revenue sources will be utilized to implement some of the important projects and programs in the 2025 budget. These outside funding revenue grant amounts are anticipated to be revised based on project board action and project timing constraints and or other variables.

Summary of some of the key 2025 approved Budget project highlights include:

- Development of VLAWMO 10-year watershed management;
- Tamarack Lake alum project (pending Alum market and estimated costs);

- "Green" street partnership planning and possible implementation in partnership with the City of Vadnais Heights (pending feasibility, grant and partnerships);
- East Vadnais Lake Subshed Resiliency Project (pending feasibility, grant and partnerships);
- Polar Lakes Park Water Reuse Project (pending local partnership and grant application);
- Local match for 2nd 319 small watershed grant project design (feasibility and timing and partnership);
- Resiliency Study /Plan development timing in Partnership with the City of Vadnais Heights (pending feasibility, grant and partnerships);
- Level 2 cost-share partnership projects and other cost share activities/programs;
- NOC partnership on City of Lino Lks. Parcel (project timing, partnership and technical feasibility);
- Pleasant Lake (carp management) program;
- Public drainage inspection and maintenance program;
- Project communication and education/ outreach;
- Water quality monitoring;
- Lambert Pond project loan debt service;

## V. Projects

### A. Consider ongoing partnership effort with NOHOA for Deep Lake restoration

NOHOA would like to continue to partner with VLAWMO for ongoing restoration of the Deep Lake shoreline. VLAWMO has allocated up to $15,000 for an equally shared partnership in restoration costs to NOHOA from Natural Shore Technologies in 2025, consistent with the prioritization study that has guided this project to date. With support confirmed from NOHOA, VLAWMO prepared an MOU to formalize the partnership in 2025.

During 2024, the shared partnership on this project demonstrated success. Buckthorn was removed/treated and seed/plants were added to most of the NOHOA land around the lake. NOC is also working with NST to conduct restoration of the shoreline areas within their property. See photos of buckthorn removal work below.

Buckthorn removal area: Piles staged for removal

Removal areas opened up with buckthorn stumps visible

Contrast on either side of the trail: non-removal area vs. removal area

**Requested action**: VLAWMO staff request a recommendation to the Board to partner with NOHOA for ongoing Deep Lake shoreline restoration work in 2025 as described above and authorize the updated MOU for 2025.

**Attachment**: Draft MOU for Deep Lake shoreline restoration partnership in 2025. An updated version may be walked up at the TEC meeting (if ready).

## B. Wilkinson deep-water wetland update: HEI monitoring memo for 2025

VLAWMO received the summary memo of project monitoring for the deep-water wetland in 2024. The project is functioning and removing percentages of pollutants consistent with expectations and project design. Ongoing enhancement and native plant establishment, including native aquatic plants, are expected to continue to improve project function. Recommendations are included for VLAWMO to consider for possible future monitoring.

**Attachment:** Wilkinson Lake Water Quality Monitoring & Sampling Progress Summary Memo by HEI

C. WMP TEC+ meeting

The TEC+ meeting materials were provided on December 23, 2024. The TEC+ meeting will follow today's TEC meeting (starting at 9:00 am). The meeting is focused on the Section 3 draft. Completed comment tables are requested by January 15 (emailed to dawn.tanner@vlawmo.org).

**Memorandum of Understanding Between**
**Vadnais Lake Area Watershed Management Organization**
**and the North Oaks Home Owners' Association**

This Memorandum of Understanding ("**MOU**") is made and entered into by and between the Vadnais Lake Area Watershed Management Organization ("**VLAWMO**") and the North Oaks Home Owners' Association ("**NOHOA**") each acting by and through its duly authorized governing bodies.

Whereas, VLAWMO and NOHOA mutually desire to improve and protect shoreline areas and water quality;

Whereas, the Deep Lake Shore and Restoration Plan was completed by Natural Shore Technologies (NST) in 2022 at the request of and funded by NOHOA;

Whereas, Deep Lake restoration efforts included in priority wetland segments are consistent with other ongoing Deep Lake restoration efforts between VLAWMO and NOHOA (i.e., yellow iris removal to support rare plants and water quality);

Whereas, VLAWMO included partner support for this Deep Lake restoration effort in its approved 2025, and work requested is consistent with that approved budget item;

Whereas, NST provided a general scope to complete buckthorn control on the NOHOA property and conduct additional wet meadow restoration (controlling reed canary grass) off of the pathway in strategic areas;

Whereas, healthy native plant communities offer increased resilience and ability to buffer against climate variability and disturbance;

Whereas, the parties wish to clearly define their respective roles and financial support for invasive plant removal and shoreline restoration in 2025 for the ongoing Deep Lake shoreline restoration effort;

Now, therefore, the parties hereby agree to enter into this MOU:

1. NOHOA. NOHOA agrees to do the following:

    a. Obtain a specific cost estimate and detailed scope of work with NST to complete buckthorn control on the NOHOA property and conduct additional wet meadow restoration (controlling reed canary grass) off of the pathway in strategic areas.
    b. Provide for management and oversight of the Deep Lake Buffer—Buckthorn Control/Ecological Restoration scope of work and activities included therein with NST.
    c. Pay the overall contract with NST at the end of the 2025 growing season that includes a NOHOA (or private contribution facilitated by NOHOA) contribution.
    d. Invoice VLAWMO for its portion of completed restoration work after the invoice for 2025 work has been received from NST by NOHOA.

2. VLAWMO Responsibilities. VLAWMO agrees to do each of the following:

    a. Reimburse NOHOA for 50% of documented costs up to but not to exceed $15,000 of the costs in the scope of work between NOHOA and NST for invasive plant removal and shoreline restoration on Deep Lake as described above for the 2025 growing season. All reimbursement requests shall include final receipts of payment. VLAWMO reserves the right to inspect the areas of completed work and withhold any or all reimbursement until work is deemed satisfactory by VLAWMO staff.

3. Use of Any Related Documentation. Reports or documents produced in whole or in part under this MOU will be subject to fair use and may not be the subject of an application for copyright by or on behalf of VLAWMO nor NOHOA. VLAWMO and NOHOA may use, without restriction, products of the invasive plant removal and shoreline restoration work including, but not limited to, any associated reports and documents.

4. Term. This MOU is effective on the date of the last party to execute it. This MOU shall terminate upon completion of invasive plant removal and shoreline restoration with NST in 2025 and reimbursement for the professional services costs incurred as provided herein.

5. Termination. Each party has the right to terminate this MOU at any time and for any reason by submitting written notice of the intention to do so to the other party at least thirty (30) days prior to the specified effective date of such termination. VLAWMO shall remain responsible for reimbursing NOHOA for the professional costs it incurs prior to the effective date of the termination.

6. Entire Agreement; Amendments. This MOU constitutes the entire agreement between the parties regarding this matter. No amendments to this MOU are valid unless they are in writing and signed by both parties.

IN WITNESS WHEREOF, the parties have caused this MOU to be executed by their duly authorized representatives and is effective as of the date of the last party to execute it.

**Vadnais Lake Area Watershed Management Organization**

_____
Chairperson

_____
Administrator

Date:_____

**North Oaks Home Owners' Association**

_____
Authorized Representative

Date:_____

# Technical Memorandum

**To:** Dawn Tanner and Phil Belfiori
VLAWMO

**From:** Christina Traner
Adam N. Nies PE, CFM
Scott Kronholm PhD

**Through:** Chris Otterness PE
Houston Engineering, Inc.

**Subject:** Wilkinson Lake Water Quality Monitoring & Sampling Progress Summary

**Date:** December 11, 2024

**Project:** 7057-0022

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

Adam N. Nies 12/11/2024
Reg. No. 53358

The project was funded as part of the Small, Priority Watershed grant program that is administered by the Minnesota Pollution Control Agency (MPCA) with funds from the Environmental Protection Agency (EPA).

## INTRODUCTION

Wilkinson Lake is an impaired lake located within the Vadnais Lake Area Water Management Organization (VLAWMO) watershed. The area immediately upstream of Wilkinson Lake is located on property owned by the North Oaks Company (NOC) which includes a relatively flat ditch system that drains north to the lake. Further upstream, multiple large waterbodies are within the drainage area of Wilkinson Lake. Most immediately upstream are Black Lake, which is a high-quality lake to the south, and Fish Lake, which is a small lake to the southeast. The direct drainage area, as well as the areas that contribute water through Gilfillan, Tamarack, and Birch Lakes and on to Wilkinson Lake contribute to the total phosphorus (TP) loading to Wilkinson Lake. The Wilkinson Lake Deepwater Wetland Restoration completed in the fall of 2023 is one component of an overall watershed strategy for improving water quality by decreasing the TP load entering Wilkinson Lake. Full details of the condition of the upstream lakes are contained within the March 2021 VLAWMO Nine Key Element Document for Birch, Tamarack, and Wilkinson Lakes.

Following the completion of the Wilkinson Lake Deepwater Wetland Restoration in fall 2023, water quality monitoring and sampling was pursued for the 2024 growing season. This technical memorandum summarizes the findings of the water quality sampling data collected to date.

# WATER QUALITY SAMPLING

Locations

Three primary ditches enter the deepwater wetland (Inlet A, Inlet B, and Inlet C), each contributing a fraction of the overall sediment and phosphorus loading to the wetland (see **Figure 1**). Using hydrologic model data for the area, the fractional volume contribution from each inlet was estimated as the percentage of water volume from each inlet (based on drainage area) compared to the total volume received at the wetland. Inlet A contributes 10% of the total volume delivered to the wetland, Inlet B contributes 85%, and Inlet C contributes 5%. There is one main outlet channel from the wetland that flows north towards Wilkinson Lake. A stream gauge was set up just downstream of the outlet to measure total water depth, water surface elevation, and water velocity at the time of water sample collection. Monitoring locations were set up to capture physical and chemical data from the three inlets and from the outlet, as displayed in **Figure 1**. Water quality samples were collected at each inlet and at the outlet of the wetland.

Conditions

The sampling area was in a drought from 2021-2023, but rainfall patterns changed during the 2024 growing season. The sampling area experienced a wet start to the growing season, so much so that mid-summer flooding occurred. Conditions became drier in the latter portion of the season, and the area ended the season back under drought conditions. However, sampling conditions were ideal during the 2024 growing season, as there was ample opportunity for samples to be taken during high, moderate, and low flow events. This is the first growing season following construction, and there is expected to be continued vegetation growth within the wetland from the native plantings and plugs that have been placed that may require several growing seasons to mature and fully establish. It is expected that as vegetation continues to grow, the filtering of TP and TSS will be enhanced.

Timing

Twelve water quality samples were collected from each of the water quality monitoring locations. Samples were able to be collected under a variety of conditions: relatively low flow conditions, moderate flow conditions, and high flow conditions. Having a defined sampling frequency was significantly less important than having samples collected across the full range of expected streamflow conditions. This allows the performance of the wetland to be assessed under multiple environmental conditions. Due to the high quantity of rainfall events early in the growing season, the samples were able to be collected primarily in the early months, and a significant data gap in the sampling occurred during the months of July and August, with low flow sampling resuming in September when the region experienced drought conditions. Generally speaking, mid-, to late-summer is traditionally a time when TP levels are expected to be elevated in watersheds of similar makeup as this one.

## RESULTS

Water quality samples were collected by VLAWMO staff between mid-April and late-September of 2024 and analyzed by RMB Environmental Laboratories, Inc. for Total Suspended Solids (TSS) and Total Phosphorus (TP). VLAWMO staff also collected physical observations on site during each sampling visit, including staff gauge measurements and flow velocity. HEI used field measurements and lab data to calculate and compare the TSS and TP concentrations and loads at the inlets and the outlet of the project area.

A total of twelve sampling trips were made to the site over a range of flow conditions. There was a period of time between the end of June and the beginning of September when water quality samples were not taken, which creates a sizable gap in concentration and load estimation. While there was sufficient data collected to evaluate the efficiency of the site for a variety of hydrologic conditions, projecting long-term removals on an annual basis is not able to be completed at this time with this small sample set. Based on the sampling data collected during 2024, the data show that the deepwater wetland restoration provided on average a 39% reduction in TSS concentration and a 13% reduction in TP concentrations. Total load reduction during the sampling period was estimated at a 69% reduction in TSS and a 39% reduction in TP from incoming flows to outgoing flows.

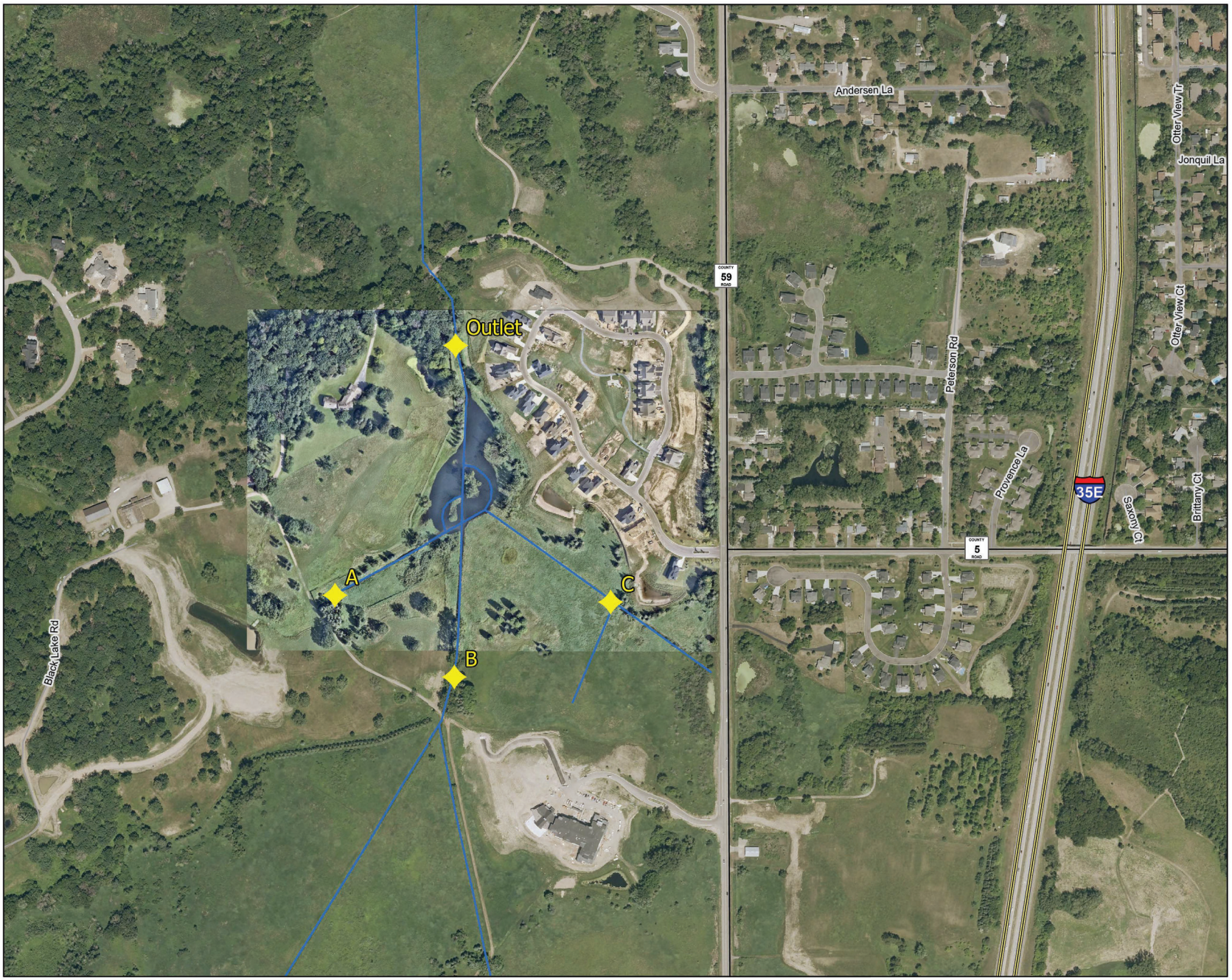
Looking deeper into the function of the project for varying hydrology conditions, it appears that the project is more effective at sediment and phosphorus removal under high-flow conditions than low flow conditions. This could be due to the lack of vegetation established along the project in its first growing season post-construction. Overall, the amount of sediment and phosphorus being removed from the system is trending in a positive direction, meaning the amounts of sediment and phosphorus are decreasing from the inlet to the outlet.

Reduction efficiencies (% reduction) align well with modeled estimates of concentration and load reductions; however, magnitude of reductions were lower than expected comparing modeled and measured values. At this time, reporting the total magnitudes of reductions is premature, as there is not sufficient data available yet to determine long-term performance of the site, and the large gap in data from the single season of sampling may skew the overall performance outcome of the site and the subsequent annualized reductions. Modeled values from the P8 model found in the feasibility study represent long-term averages which may or may not align with a single year or isolated season.

## CONSIDERATIONS

The monitoring data and analysis completed in 2024 demonstrates the success of the Wilkinson Lake Deep Water Wetland Project in capturing sediment and nutrients that would otherwise be transported downstream. Continued monitoring could provide further insight into the resiliency of the

project in achieving sediment and nutrient removals under a wider variety of hydrologic conditions, as well as assumed vegetation establishment in the coming years. If additional monitoring is desired, we recommend continuing data collection with focus on collecting additional data under low, medium, and high flow conditions in the ditch. Additional sampling, with less time between samples would allow for increased accuracy in TSS and TP load estimation. A well-developed wetland outlet rating curve and more accurate partitioning of inlet contributions to overall flow under multiple flow conditions would also increase the overall accuracy of load estimates and may allow for more accurate depiction of upstream and downstream load concentration.

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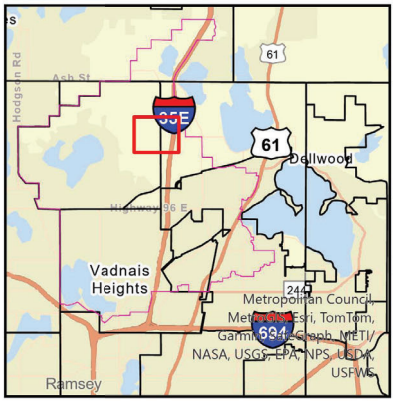
# Wilkinson Lake Monitoring




Monitoring Locations
Ditch Centerline

N
W
E
S
0 375 750 Feet

| Monitoring Locations | | | | | |
|---|---|---|---|---|---|
| Scale: AS SHOWN | Drawn by: KZS | Checked by: ANN | Project No.: 7057-0022 | Date: 12/11/2024 | Sheet: 1 of 1 |

HOUSTON engineering, inc.