SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION
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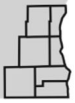


August 22, 2024

Mr. Tim Asplund
Natural Resources Program Manager
Wisconsin Department of Natural Resources
P.O. Box 7921
Madison, WI 53707-7921

Dear Mr. Asplund:

Pursuant to the provisions of the cooperative agreement signed July 30, 2024, between the Southeastern Wisconsin Regional Planning Commission and the Wisconsin Department of Natural Resources governing the conduct of continuing areawide water quality management planning in southeastern Wisconsin during 2024, we are providing to you this report of work completed under that agreement for the period from January 1, 2024, through June 30, 2024. The work completed is summarized in the two attached tables.

Table 1 indicates the work products specified to be provided under each work element of the cooperative agreement, as well as a summary listing of the work products completed during the first half of the year. Table 2 provides additional detail as to the specific work products completed and indicates the status of the delivery of those work products to you. The tabular data are also being submitted electronically to the Department SWIMS database, as is the agreed-upon procedure.

Should you have any questions concerning this matter, please do not hesitate to contact me directly at (262) 953-3224, or lherrick@sewrpc.org.

Sincerely,

Laura K. Herrick

Laura K. Herrick, PE, CFM
Chief Environmental Engineer

JED/TMS/LKH/mid
WDNR 2024 1ST HALF WQ PLAN STATUS REPORT (00274011).DOCX

Enclosures

cc: Ms. Ruth Person, Natural Resources Program Specialist, WDNR-Madison

Table 1
2024 Continuing Water Quality Planning Program Project Output Summary: January 1, 2024 Through June 30, 2024

Work Project and Project Output Anticipated from January 1, Through December 31, 2024, per 2024 Agreement	Project Outputs Completed during January 1 Through June 30, 2024 (see Table 2 for details)
Project 300-1000: Water Quality Management Plan Coordination and Extension of Implementation Activities	
1. Two letter reports or memoranda	1. Four Memorandum Reports completed: Lower Nemahbin, Big Cedar and Little Cedar Lakes, and the Town of Ottawa (Hunters, Pretty, and School Section Lakes)

2. Assistance and Data Provision to WDNR, County Land and Water Conservation Committees, and Other Designated Management Agencies for Watershed and other Water Quality-Related WDNR Advisory Committees, Including Statewide Activities	2.
	• Attendance and material review for two meetings of MMSD Technical Advisory Team (TAT)
	• Continue to serve on the following MMSD project committees:
	  ○ Milwaukee River rehabilitation project associated with Estabrook Park falls and Kletzsch Park dam fish passage, along with channel improvements in the general reach
	  ○ Reforestation & Wetland Restoration Program and Green Seams Program coordination meetings
	• Continued to participate in the Mukwonago River Initiative
	• Commission staff continued to assist the WDNR State Wildlife Grant to implement a Comprehensive Watershed Approach to Identify Distribution and Status of Mussel Species of Greatest Conservation Need and Conservation Opportunities for Declining Mussel Populations in the Fox (Illinois) River Watershed of Illinois and Wisconsin.
	• Continued to assist UW-Extension and WDNR in the WI Lakes and Rivers Convention planning and moderating sessions at the event.
	• Commission staff serves on the Board as a non-voting advisor, Secretary, and project coordinator for their Mitigation Plan update for the Southeastern Wisconsin Fox River Commission.
	• Participated in the Southeastern Wisconsin Watersheds Trust, Inc. Commission staff serves on the Board of Directors as a non-voting advisor.
	• Provided letters of support to Milwaukee Metropolitan Sewerage District, Ozaukee County Planning and Parks, and Root Pike WIN for various grant initiatives.
	• Serving on the University of Wisconsin-Milwaukee School Freshwater Sciences Academic Programs Advisory Board.
	• Commission staff continues to serve as a non-voting member of the Southeastern Wisconsin Fox River Commission. As part of this role the Commission staff organized and led the 12th Annual Fox River Summit held in Burlington Wisconsin.
	• Helped host southern Wisconsin aquatic plant identification workshop with WDNR and UW-Extension.
	• Served on Advisory Committee for Waukesha County AIS Strategic Plan.

Table 1 (Continued)

Work Project and Project Output Anticipated from January 1, Through December 31, 2024, per 2024 Agreement	Project Outputs Completed during January 1 Through June 30, 2024 (see Table 2 for details)
3. Assistance to 35 Established Waterbody Organizations and Participation with WDNR and Others in Statewide Lake Planning	• Assisted 20 waterbody–related and conservation themed non-governmental organizations (including land trusts, water-body associations, conservancies, homeowner associations, universities, and conservation themed groups).
	• Assisted 20 waterbody–related and conservation themed non-governmental organizations (including land trusts, water-body associations, conservancies, homeowner associations, universities, and conservation themed groups). • Assisted 32 local units of government (e.g., municipalities, counties, and Lake Districts) • Developed or in the process of developing technical scopes of work, budgets, and schedules addressing multiple topics for 9 different lake entities. • Awarded and began work on 4 WDNR Educational grant applications to fund public outreach efforts of high-quality water lakes in Walworth and Waukesha Counties. • Assisted the Southeast Fox River Partnership in participating in the Fabulous Fox! Water Trail Core Development Team to continue to promote the National Water Trail status among both states WI and IL.
4. 30 Public Informational Reports or Presentations	3. 15 presentations on water quality issues and/or environmental issues.
5. WDNR-SEWRPC Program Coordination	4. Coordination with WDNR, including contract and work program development, meetings, and submittal of work products. Assisted lake and stream groups to better understand funding opportunities.
6. Attendance at 150 Meetings Related to Water Quality	5. Attended 138 meetings related to water quality planning
7. Special subwatershed or County Land and Water Management Plan assistance	6. Many of the activities listed elsewhere in this summary report also relate to land and water resource management in the counties of the Region. See specifically 300-1000, Items 2, 3, and 8 and 300-4000, Item 2
8. Miscellaneous Plan Implementation Activities	7. Maintain permit and data files; provision of information on a walk-in or telephone basis (464 meetings/phone calls/e-mails) (see Project 300-2000, Item 3)
Project 300-2000: Sanitary Sewer Extension Reviews and Assistance	
1. 150 Public and Private Sewer Extension Reviews	1. 71 public and private sewer extension reviews and letter reports
2. 10-20 Letter Reports Documenting In-Field Delineations of Environmentally Sensitive Lands	2. 6 letter reports
3. 250 Meetings/Phone Calls/E-mails to Review Environmentally Sensitive Areas and Related Matters Concerning Sewer Extensions and Sewer Service Areas	3. About 464 meetings/phone calls/e-mails with landowners, developers, and local officials
Project 300-3000: Sewer Service Area Plan Refinements	
1. Two Sewer Service Area Plan	1. No sewer service area plan updates were completed – 2 continue (Germantown, Menomonee Falls)
2. Revisions to Twelve Previous Sewer Service Area Plans	2. No amendment to a previous sewer service area plans were completed – 8 continue (Dousman, Grafton, Sussex-Lisbon, Salem Lakes, Bristol, Kewaskum, Bloomfield/Pell Lake, Jackson) and 3 were initiated (Burlington, Port Washington, Yorkville)
3. 25 Special Letter Reports on Environmentally Sensitive Areas	3. 22 letter reports

Table 1 (Continued)

Work Project and Project Output Anticipated from January 1, Through December 31, 2024, per 2024 Agreement	Project Outputs Completed during January 1 Through June 30, 2024 (see Table 2 for details)
4. Provision of Data for WDNR Environmental Assessments	4. Provision of data for environmental assessments is now routinely provided
5. Meetings and Miscellaneous Activities	5. As needed
6. Development of Procedures for Environmentally Sensitive Lands Recommendations	6. Continued refinement of procedures and provision of additional mapping within each sewer service area
Project 300-4000: Regional Water Quality Management Plan Update	
1. Continue to Support Subregional Plan Amendment Activities	1. Provided technical support for two facility plans in progress – Fox River Commission (Brookfield) and Waterford Sanitary District
Project 300-5000: Regional Water Quality Management Plan Update—Groundwater Management Studies	
1. Miscellaneous activities	• None

Table 2
Summary of 2024 Work Program Project Outputs and Status of Documentation: January 1, 2024 Through June 30, 2024

Work Products	Status of Documentation[a]
Project 300-1000: Water Quality Management Plan Coordination and Extension and Implementation Activities	
1. Four Letter Reports or Memoranda	
• Memoranda include the Lower Nemahbin, Big Cedar Lake, Little Cedar Lake, and Town of Ottowa (Hunters, Pretty, and School Section Lakes) reports	1
2. Assistance and Data Provision for WDNR and Major Water Quality Management Plan Designated Management Agency Programs	
• Participation as member of MMSD TAT, Including meetings and material reviews. During the reporting period, attended two meetings	2
• Served on two MMSD project committees related to stream rehabilitation, fish passage, reforestation and wetland restoration	2
• Participated in Mukwonago River Initiative	2
• Support the Comprehensive Mussel study for the Fox River	2
• Continue to assist UW-Extension and WDNR in the WI Lakes and Rivers Convention planning	2
• Participation as a technical advisor to the Southeastern Wisconsin Fox River Commission (SEWFRC)	2
• Participation as a nonvoting Director and technical advisor to the Southeastern Wisconsin Watersheds Trust, Inc.	2
• Provided 3 letters of support for grant initiatives	2
• Serve on the UWM School of Freshwater Sciences Advisory Board	2
• As part of role with SEWFRC, led the Fox River Summit	2
• Hosted aquatic plant identification workshop with WDNR and UW-Extension	2
• Served on the advisory committee for the Waukesha County AIS Strategic Plan	2
3. Assistance to Lake and River Organizations	
• Provision of Assistance to a Total of 20 Lake or River Organizations See Item 3, 300-1000 table (attached)	3
4. Public Information—Education Reports or Presentations	
• 15 presentations on Water Quality Topics	3 (one example provided)
5. WDNR Project Coordination and Work Program Development	
• General Coordination with WDNR	2
• Preparation of Annual Work Plans	2
• Submittal of Work Products	2
6. Attendance at 138 Meetings Related to Water Quality Planning	2
7. County Land and Water Resource Management Plan Assistance	2
8. Miscellaneous Plan Activities	
• Maintenance and Review of Water Quality Related File Data, Including WPDES Permits for Public Sewage Treatment Plants	2
Project 300-2000: Sanitary Sewer Extension Reviews	
1. 37 Public and 34 Private Sewer Extension Reviews (see listings)	3
2. 6 Letter Reports on Field Delineation of Environmentally Sensitive Lands for Sewer Extension Projects	3 (one example provided)
3. About 464 Meetings/Phone Calls/E-mails Related to Environmentally Sensitive Lands Data and Related Matters Concerning Sewer Extensions, Service Areas, and Other Development or Preservation Projects (also relates to Projects 300-1000 and 300-3000)	2
Project 300-3000: Sewer Service Area Plan Refinements	
1. No Sewer Service Area Plans were completed	4
• Continued to work on sanitary sewer service area plan updates for Menomonee Falls and Germantown.	
2. No Amendment Documents for a Previous Sewer Service Area Plan were completed - previous efforts can be found at *www.sewrpc.org/SEWRPC/LandUse/SanitarySewerandWaterSupplySer.htm)*	4
• Continued or began SSSA amendments for Dousman, Grafton, Lisbon-Sussex, Salem Lakes, Bristol, Kewaskum, Bloomfield/Pell Lake, Jackson, Burlington, Port Washington, Yorkville.	
3. 22 Special Letter Reports	3 (one example provided)

Table 2 (Continued)

Work Products	Status of Documentation[a]
4. Provision of Data for Environmental Assessments is Routinely Provided as Part of Submittal to WDNR	2
5. Meetings and Other Miscellaneous Activities	2
6. Procedures for Adding Detail to Sewer Service Area Plans Regarding Environmentally Sensitive Lands Changes Are Incorporated into New Reports and Routine Submittal of Supplementary Data with Report Submittal. Will Continue to Refine Procedure	2
Project 300-4000: Regional Water Quality Management Plan Updating and Extension	
1. Continue to Support Subregional Plan Amendment Activities • Provided data/comments for the upcoming Fox River Commission (Brookfield) and Waterford Sanitary District plans	2
Project 300-5000: Regional Water Quality Management Plan Update—Groundwater Management Studies	
1. Miscellaneous Activities Related to Water Conservation and the Regional Water Supply Plan - none	2

[a] *Status of documentation Categories:*

1—Previously provided to Wisconsin Department of Natural Resources.

2—No specific documentation required.

3—Provided to Wisconsin Department of Natural Resources with this report.

4—See SEWRPC website.

2024 Lake and River Water Quality Management Activities (300-1000–ITEM 3): January 1, 2024 Through June 30, 2024

Lake or River	Activity
Ashippun Lake	Assisted the Ashippun Lake Management District in wake boat related issues and wave monitoring project.
Comus Lake	Continued work on the Comus Lake 9-Key Element Watershed plan.
Pewaukee River	Assisted Lake Pewaukee Sanitary District with enhanced wake boating issues
North Lake	Completed draft on the North Lake Wave Study report.
Fox (Illinois) River	SEWRPC staff continued to work on the report detailing streambank erosion assessment and nonpoint source pollutant loading prioritization in the Fox River watershed for the SEWFRC. This work is based on field inspection of the lower 26 miles (from state line to the Waterford Impoundment). In addition to this data, the report includes factors influencing pollutant load and delivery to the river (e.g., watershed size and characteristics). Also working on mussel survey and hazard mitigation plan.
Southeastern Wisconsin Lakes and Rivers	Presented preliminary findings and significance of chloride study at two regional events: Annual Fox River Summit, Healthy Lakes Conference
Twin Lakes (Lake Mary and Elizabeth Lakes)	Completed draft lake management plan report.
Comus Lake/Turtle Creek	Hosted public comment period for comprehensive lake plan. Worked on creek data inventory and nine key element plan.
Walworth County Lakes	Coordinated AIS sampling meander surveys and summary report on two lakes for summer 2024 for Walworth County.
Ozaukee County Lakes	Coordinated AIS sampling meander surveys and summary report on several lakes for summer 2024 for Ozaukee County.
Milwaukee Estuary Area of Concern	SEWRPC staff continued to serve on the Milwaukee Estuary Area of Concern (AOC) Fish and Wildlife Technical Advisory Committee.
Delavan Lake and Jackson, Swan, and Browns Channel Creeks	Continued to work on the draft comprehensive lake management plan.
Geneva Lake	Hosted two stakeholder group meetings. Conducted water quality and pollutant source evaluation on Big Foot Creek. Continued to work on plan.
Big Cedar Lake	Published Memorandum Report No. 269, *Aquatic Plant Management Plan for Big Cedar Lake, Washington County, Wisconsin,* 2024-06 Established new project Big Cedar Comp Plan-Phase One
Little Cedar Lake	Published Memorandum Report No. 146, *An Aquatic Plant Management Plan for Little Cedar Lake, Washington County, Wisconsin (2nd Edition)*, 2024-05 Established new project 2024 Little Cedar PI Survey
Friess and Little Friess Lakes	Established new project-Friess and Little Friess Lakes Aquatic Plant Management Plan updates.
Nagawicka Lake	Established new project-Nagawicka Lake Aquatic Plant Management Plan update.
Lorraine Lake	Established new project-Lake Lorraine Aquatic Plant Management Plan update.
Cravath and Trippe Lakes	Established new project-Trippe and Cravath Lakes Aquatic Plant Management Plan
Lac La Belle	Established new project-Lac La Belle Hydrologic Study
Lauderdale Lakes	Discussed aquatic plant management plan approaches and enhanced wake boat issues
Lower Nemahbin Lake	Published Staff Memorandum *Aquatic Plant Management Plan For Lower Nemahbin Lake, Waukesha County, Wisconsin*, February 29, 2024
Hunters, Pretty, and School Section Lakes	Published SEWRPC Staff Memorandum, *Considerations Regarding The Use Of Enhanced Wakes On Hunters, Pretty, And School Section Lakes Within The Town Of Ottawa, Waukesha County, Wisconsin,* June 7, 2024

300-1000
ITEM 4

Southeastern Wisconsin
Regional Planning Commission

Exploring Water Quality Data with New WDNR Tools

Fox River Summit
Burlington, WI
March 14, 2024

Overview

Wisconsin Water Quality Data
What, why, and challenges to using it

WDNR Water Quality Explorer (WEX)
Making water quality data more accessible

Aquatic Plant Data
What, why, and challenges to using it

WDNR Aquatic Plant Data Explorer (APEX)
Making aquatic plant data more accessible

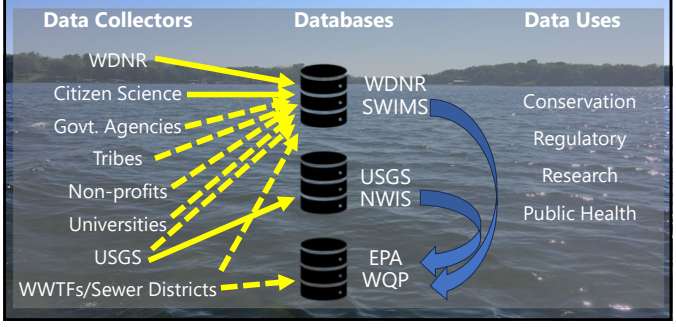
What do we mean by water quality?

- **Are lakes and rivers meeting their designated uses?**
  - **Supporting fish and aquatic life**
  - **Suitable for recreational use**
  - **Safe for incidental contact and ingestion**
  - **Protective of wildlife use**

What water quality parameters are we measuring?

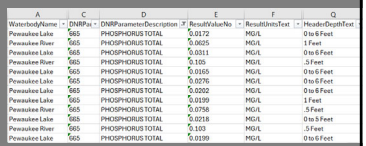
- **Physical**
  - **Temperature, clarity, color, conductivity**
- **Chemical**
  - **Nutrients (phosphorus, nitrogen), salts, metals (arsenic, iron, calcium), emerging contaminants (PCBs, pesticides, hormones)**
- **Biological**
  - **Indices: Fish, macroinvertebrates, aquatic plants**
  - **Amounts: Algae, bacteria**

Who is measuring water quality and why?



Challenges to Accessing Water Quality Data

- Finding data in SWIMS
  - Need WAMS identification to access
  - Using Waterbody Identification Code
  - May need to specify parameter code
  - Repeat queries for multiple parameters



A	C	D	E	F	Q
WaterbodyName	DNRPar	DNRParameterDescription	ResultValueNo	ResultUnitsText	HeaderDepthText
Pewaukee Lake	665	PHOSPHORUS TOTAL	0.0172	MG/L	0 to 6 Feet
Pewaukee River	665	PHOSPHORUS TOTAL	0.0625	MG/L	1 Feet
Pewaukee Lake	665	PHOSPHORUS TOTAL	0.0311	MG/L	0 to 6 Feet
Pewaukee River	665	PHOSPHORUS TOTAL	0.105	MG/L	.5 Feet
Pewaukee Lake	665	PHOSPHORUS TOTAL	0.0165	MG/L	0 to 6 Feet
Pewaukee Lake	665	PHOSPHORUS TOTAL	0.0276	MG/L	0 to 6 Feet
Pewaukee Lake	665	PHOSPHORUS TOTAL	0.0202	MG/L	0 to 6 Feet
Pewaukee Lake	665	PHOSPHORUS TOTAL	0.0199	MG/L	1 Feet
Pewaukee River	665	PHOSPHORUS TOTAL	0.0758	MG/L	.5 Feet
Pewaukee Lake	665	PHOSPHORUS TOTAL	0.0218	MG/L	0 to 5 Feet
Pewaukee River	665	PHOSPHORUS TOTAL	0.103	MG/L	.5 Feet
Pewaukee Lake	665	PHOSPHORUS TOTAL	0.0199	MG/L	0 to 6 Feet

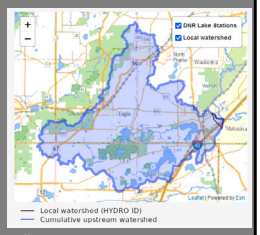
- Working with SWIMS data
  - Handling non-detects/limit of detection
  - Formatting and handling water depths
- Requires software and some technical skill to format, plot, and analyze data
- Answering questions like "is the water quality in my lake changing?" or "how does this river reach compare to other reaches?" can be time-consuming

WDNR Water Explorer (WEx)

- Makes water quality accessible using simple point-and-click interface
- Delineates and characterizes watershed for selected waterbody
- Provides interface for pollutant load modeling

WEx Components

- Watershed characterization
  - Land use
  - Geology and soils
- Lake tools
  - Water quality graphs
  - Citizen Lake Monitoring Network (CLMN) reports
- Stream tools
  - Modeled streamflow
  - Reach characteristics (sinuosity, stream order, average gradient)
- Pollutant load modeling
  - Pollutant Load Ratio Estimation Tool (PRESTO)
  - Wisconsin Lake Modeling Suite (WiLMS)



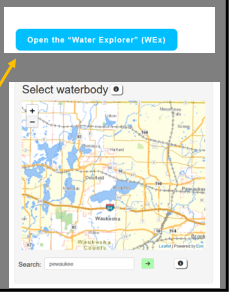
Considerations When Using WEx

- Intended for Wisconsin lakes and rivers
  - Produce limited output only for very northern IL lakes and streams
- Being actively developed
  - Limited number of lake water quality parameters currently available
  - No stream water quality data currently available
- Watershed delineation is set using pre-made catchments from national dataset
  - Only accounts for topography and has no information on stormwater or other hydrologic modifications
- May not include all available data for waterbody of interest
  - Only water quality data submitted to SWIMS will be included
- Pre-set pollutant load models should be evaluated before use
  - Refine with available ground-truth data

How to View Your Waterbody on WEx

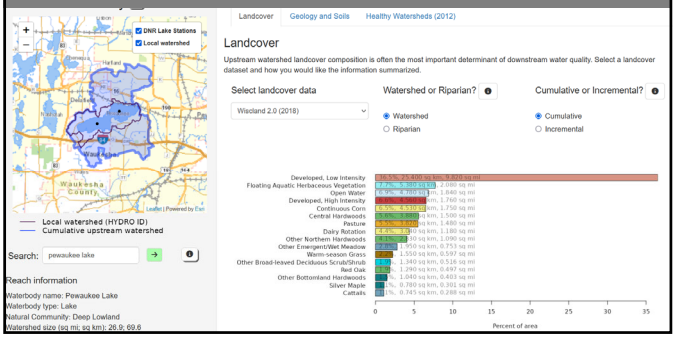
- Lakes Only: find monitoring station on WDNR Lake Monitoring Reports webpage
  - Visit **https://apps.dnr.wi.gov/lakes/waterquality/**
  - Select your County
  - Scroll down to the monitoring station for your lake and click Details
  - Then click "Open the Water Explorer" (WEx) button

Okauchee Lake - Deep Hole	683142	Map	2023	Details
Ottawa Lake - Deep Hole	683202	Map	2023	Details
Pewaukee Lake - Deep Hole	683143	Map	2023	Details
Pewaukee Lake - East Basin	10033632	Map	2023	Details
Pine Lake - Deep Hole	683201	Map	2023	Details
Pretty Lake - Deep Hole Near Dousman WI	683325	Map	2023	Details
School Section Lake - Deep Hole	683251	Map	2023	Details

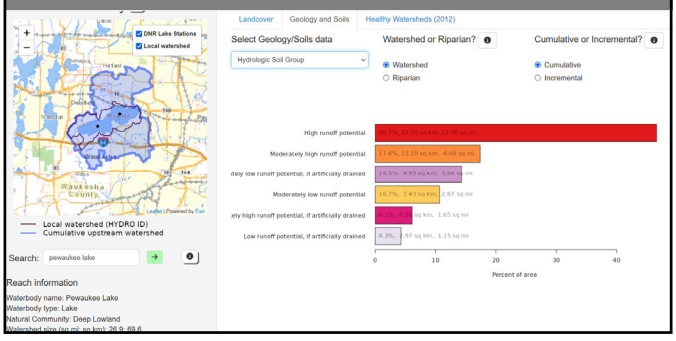


- Lakes or Rivers
  - Visit **https://dnr-wisconsin.shinyapps.io/WaterExplorer/**
  - Type waterbody name into search bar or click on waterbody on map

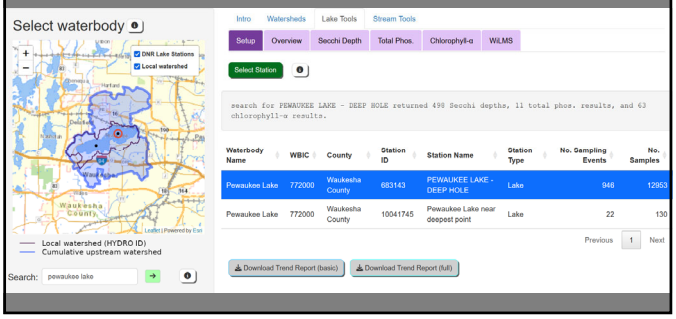
WEx Watersheds: Land Use



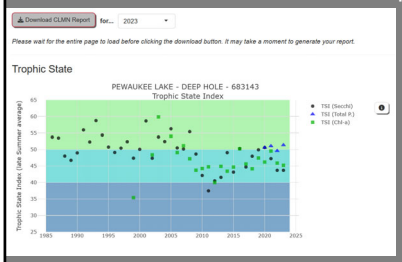
WEx Watersheds: Soils and Geology



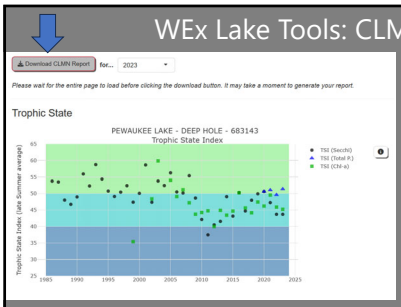
WEx Lake Tools: Select Monitoring Stations



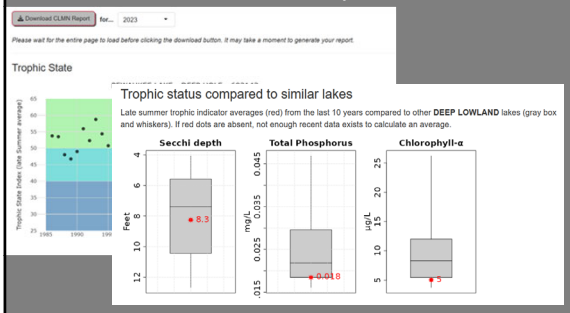
WEx Lake Tools: Trophic State



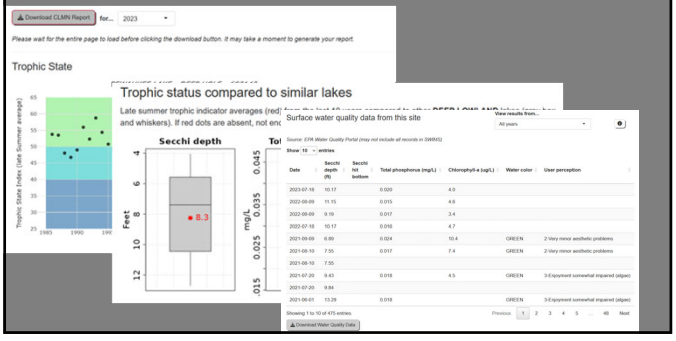
WEx Lake Tools: CLMN Report



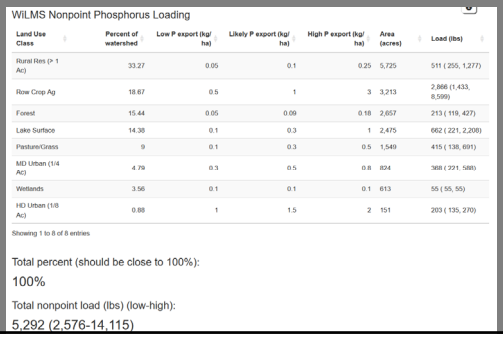
WEx Lake Tools: Compare to Similar Lakes



WEx Lake Tools: Download Data



WEx Pollutant Loading: WiLMS



WEx Pollutant Loading: PRESTO

Presto Phosphorus Load Estimates

Avg. Annual Nonpoint Phosphorous Load (80% Confidence Interval)	3,553 (1,822 - 6,927) lbs
Number of Facilities (Individual Facility Information below)	0
Avg. Annual Point-source Phosphorous Load (2010 - 2012 total of all facilities)	0 lbs
Most Likely Point : Nonpoint Phosphorous Ratio	0% : 100%
Low Estimate Point : Nonpoint Phosphorous Ratio (Adaptive Management)	0% : 100%

Adaptive Management Results

Facilities discharging to the Pewaukee Lake watershed:

Show 10 entries Search:

Facility Name	Permit No.	Outfall No.	Waste Type	Receiving Water	Annual load (lbs), 2010-2012
No data available in table					

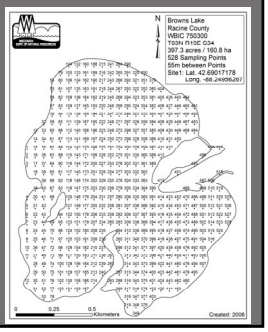
Showing 0 to 0 of 0 entries Previous Next

Why survey aquatic plants?

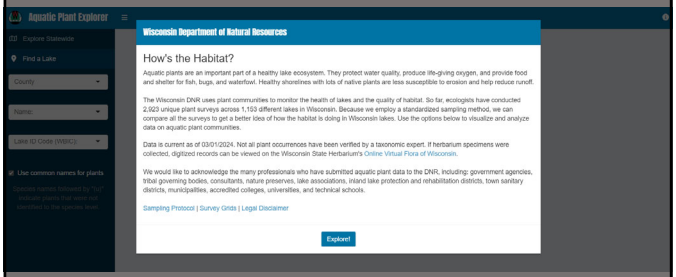
- Integral part of aquatic ecosystems
  - Food and shelter for aquatic fauna
  - Enhance water quality
  - Stabilize bottom sediment and shorelines
- Useful indicator for aquatic ecosystem health
  - Integrate conditions over long time periods
  - Species composition and known tolerances can indicate stressors
- Essential for managing populations
  - Aquatic plant management
  - Reducing spread of invasive species
  - Protecting rare species and communities

Aquatic Plant Data

- Surveyed using point-intercept grids
  - Grids created by WDNR using standard algorithm
  - Comparing surveys much more straightforward
  - Better illustrates spatial distribution of species
- Aquatic plant data maintained in central database by WDNR
  - Available upon request to WDNR staff
- Requires technical skill and GIS software to format data and map results

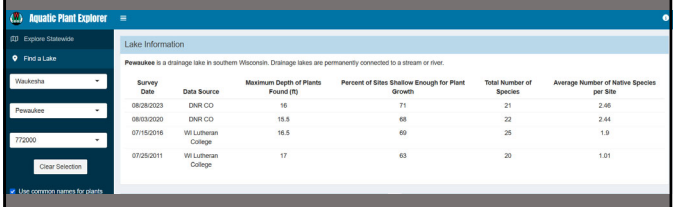


WDNR Aquatic Plant Explorer (APEX)



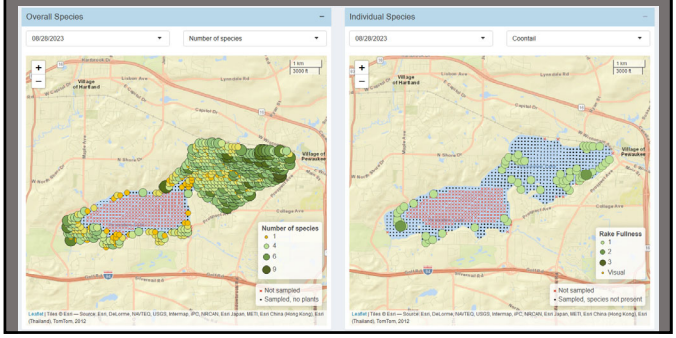
- APEX includes all surveys in WDNR aquatic plant database
- Makes aquatic plant data tables and maps readily accessible

APEX Survey Summary Table

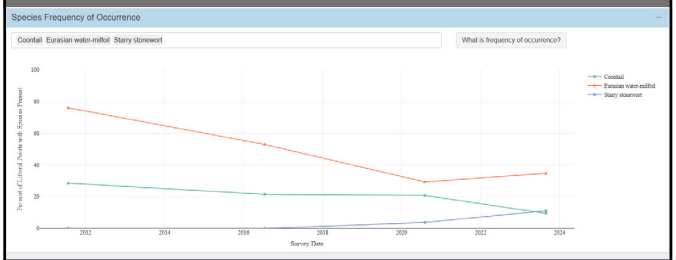


- Summary table shows survey dates, data sources, and statistics for selected lake
- Maximum depth of plant colonization, littoral frequency of occurrence, total species richness, and average number of native species per point

APEX Survey Maps

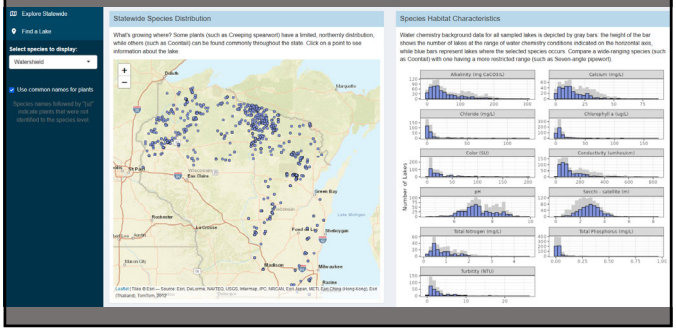


APEX Species Frequency Over Time



- Can plot single or multiple species by their frequency of occurrence over all surveys for selected lake

APEX Statewide Species Distribution



Exploring Water Data with WEx and APEX

- WEx and APEX make water data much easier to access
  - Water quality, watershed characteristics, pollutant loading, aquatic plant data, and more
  - Easy to view, download, and share latest data for your waterbody of interest
- Useful for watershed planning
  - See where water quality data is and isn't being collected
  - Keep on track of water quality trends
  - Identify important habitat areas within lakes
  - Evaluate major pollutant loading sources and source areas
- Important to recognize limitations as tools still being developed
  - WEx only includes a few commonly monitored parameters
  - May not include all data for waterbody – only data that was submitted to WDNR
  - Watersheds and pollutant load models may need to be refined
  - Only provide limited data interpretation at this time

Want to find out more?

- Water Explorer (WEx)
  - Link to tool: **https://dnr-wisconsin.shinyapps.io/WaterExplorer/**
  - WEx Instructions:
    - **https://apps.dnr.wi.gov/swims/Documents/DownloadDocument?id=351001216**
  - WEx Demo YouTube: **https://www.youtube.com/watch?v=_pnzD_eWSlU**
- Aquatic Plant Explorer (APEX)
  - Link to tool: **https://dnr-wisconsin.shinyapps.io/AquaticPlantExplorer/**
- Workshop at Wisconsin Lakes & Rivers Convention
  - 9 AM – 12 PM Wednesday, April 10th, Stevens Point
  - **https://wisconsinwaterweek.org/fullagenda/**

2024 Wisconsin Lakes & Rivers Convention

300-2000
ITEM 1

SSE NO.	WORLDOX NO.	CIVIL DIVISION	COUNTY	PROJECT DESCRIPTION	LETTER ANSWERED
002-24	271314	C/Elkhorn	Walworth	NE Water Treatment Plant Sewer	1/5/2024
003-24	271378	V/Shorewood	Milwaukee	SE Area Combined Sewer Improvements Phase 2	1/8/2024
004-24	271574	C/Milwaukee	Milwaukee	NS12 Collector System Improvements	2/15/2024
005-24	271384	C/Oconomowoc	Waukesha	Oconomowoc Parkway Sewer Relay	1/9/2024
006-24	271381	V/Dousman	Waukesha	Talbot's Woods (SF,MF,Commercial)	1/31/2024
008-24	273207	V/Grafton	Ozaukee	Green Bay Road (12) Residential Buildings	5/28/2024
009-24	272533	V/Kewaskum	Washington	Blue Door Industrial Park	4/23/2024
010-24	271886	V/Dousman	Waukesha	Three Pillars	2/12/2024
011-24	271839	C/Delafield	Waukesha	Divine Redeemer Early Childhood Dev. Center	2/7/2024
012-24	271810	C/Franklin	Milwaukee	Carma Laboratories (1) Building	2/6/2024
013-24	271880	C/Elkhorn	Walworth	Creekside Community MF/Senior Living	2/14/2024
015-24	272023	C/Franklin	Milwaukee	Lake Grove/(38) Townhomes	3/12/2024
016-24	272052	T/Norway	Racine	Sandy Point Drive	4/10/2024
017-24	272307	V/Pleasant Prairie	Kenosha	LogistiCenter at Pleasant Prairie (4) Future Bldgs	3/25/2024
019-24	272137	V/East Troy	Walworth	Coffee Shop and (3) Future Outlots	3/1/2024
020-24	272287	V/Caledonia	Racine	South Hills Commerce Ctr (10) Ind Bldgs	5/21/2024
021-24	272549	V/Sussex	Waukesha	Vista Run Phase3/4/5 (67) SF Lots (1) Clubhouse	3/28/2024
022-24	272647	V/Pleasant Prairie	Kenosha	Cooper Road Sanitary Sewer Relay	4/4/2024
023-24	272673	C/Glendale	Milwaukee	PPII Program Lateral Rehab	4/9/2024
024-24	272744	C/Oconomowoc	Waukesha	Pabst 59 (4)Tech/(5)MF/(6)Retail Bldgs	4/15/2024
025-24	272706	V/Kewaskum	Washington	TID 4 Utility Extension	4/23/2024
026-24	272751	C/Greenfield	Waukesha	Layton Preserve (1) Apt/(1)Townhome	4/15/2024
027-24	272838	V/Dousman	Waukesha	Public FM/LS for Talbot's Woods	6/3/2024
028-24	273192	V/Caledonia	Racine	TID4 Phase 4 Sanitary Sewer	5/23/2024
029-24	272993	C/West Bend	Washington	Sand Drive Expansion	5/2/2024
030-24	273046	V/Menomonee Falls	Waukehsa	Quietwood Cranes Crossing North	5/7/2024
031-24	273059	V/Fredonia	Ozaukee	Buisness Park Expansion	5/16/2024
032-24	273317	C/New Berlin	Waukesha	Theofila Estates (14) SF Lot Subd	6/4/2024
033-24	273126	T/Oconomowoc	Waukesha	Low Pressure Sewer Expansion (Jaeckles Blvd)	5/23/2024
034-24	273307	C/Franklin	Milwaukee	Poth's Mixed Use Development	6/3/2024
035-24	273240	C/Pewaukee	Waukesha	Blue Mound Road Sanitary Sewer	5/21/2024
036-24	273266	C/Franklin	Milwaukee	DPW Campus Utilites - Phase 1	6/3/2024
037-24	273397	C/Greenfield	Milwaukee	Spring Mall Redevelopment (MF)	6/7/2024
038-24	273413	V/Dousman	Waukesha	Settlement at Utica Lake - Addition 2 (11) SF Lots	6/12/2024
039-24	273454	C/Kenosha	Kenosha	7th Ave_56th-55th St Sewer Relay for Residential	6/19/2024
040-24	273470	C/Milwaukee	Milwaukee	Mt. Vernon Ave/Force Main Extension	6/19/2024
041-24	273428	C/Pewaukee	Waukesha	Balmer Park Public Sewer Ext/Lindsay Rd WM	6/12/2024

PSC NO.	WORLDOX NO.	CIVIL DIVISION	COUNTY	PROJECT NAME	LETTER ANSWERED
24-001	271377	C/Racine	Racine	Woodman's Food Market & Gas Station	1/5/2024
24-002	271383	C/Brookfield	Waukesha	Guhring B1 Facility	1/10/2024
24-003	271854	V/Mt. Pleasant	Racine	Microsoft Data Center	2/9/2024
24-005	271569	V/Hartland	Waukesha	Hartland Apts (11) Apt Bldgs/(1) Club House-Pool	2/20/2024
24-006	272198	V/Menomonee Falls	Waukesha	Menmonee Falls Ford (Gordie Boucher Ford)	3/12/2024
24-007	273133	C/Waukesha	Waukesha	MetalTek (1) Building	5/16/2024
24-008	271755	C/Franklin	Milwaukee	Carma Laboratories (1) Building	2/6/2024
24-009	271783	V/Kewaskum	Washington	Blue Door District (1) Building	4/23/2024
24-010	271803	V/Dousman	Waukesha	Three Pillars	2/12/2024
24-011	271840	C/Delafield	Waukesha	Divine Redeemer Early Childhood Dev. Center	2/7/2024
24-012	271884	C/Elkhorn	Walworth	Creekside Community MF/Senior Living	2/14/2024
24-013	272056	T/Norway	Racine	Sandy Point Drive	4/10/2024
24-015	272029	C/Franklin	Milwaukee	Lake Grove/(38) Townhomes	3/12/2024
24-016	272404	V/Pleasant Prairie	Kenosha	LogistiCenter at Pleasant Prairie (4) Future Bldgs	3/25/2024
24-018	272162	V/East Troy	Walworth	Coffee Shop and (3) Future Outlots	3/1/2024
24-019	272182	V/Germantown	Washington	Crew Carwash	3/1/2024
24-020	272293	V/Caledonia	Racine	South Hills Commerce Ctr (10) Ind Bldgs	5/21/2024
24-021	272357	V/Caledonia	Racine	Central Storage & Warehouse Expansion Phase 3.5	5/21/2024
24-022	272504	V/Pleasant Prairie	Kenosha	Westrock (1) Building (part of LogistiCenter)	3/25/2024
24-023	272653	C/Waukesha	Waukesha	Delafield Street Multi-family (2) Bldgs	4/9/2024
24-024	272766	C/Oconomowoc	Waukesha	Pabst 59 (4)Tech/(5)MF/(6)Retail Bldgs	4/15/2024
24-025	272756	C/Greenfield	Waukesha	Layton Preserve (1) Apt/(1)Townhome	4/15/2024
24-027	273140	V/Pleasant Prairie	Kenosha	ULINE H4 HQ - Prairie Highlands	5/16/2024
24-028	273167	C/Milwaukee	Milwaukee	R + L Carriers expasnsion	5/16/2024
24-029	273337	C/Oconomowoc-V/Lac La Belle	Waukesha/Jefferson	OSRUI Camp	6/17/2024
24-030	273310	C/Franklin	Milwaukee	Poths Mixed Use Development	6/3/2024
24-031	273379	V_Pleasant Prairie	Kenosha	RUST-OLEUM (1) Building	6/7/2024
24-032	273401	C/Greenfield	Milwaukee	Spring Mall Redevelopment (MF)	6/7/2024
24-033	273465	C/Kenosha	Kenosha	7th Ave_56th-55th St 24" Sanitary sewer Relay	6/19/2024
24-035	273446	V/Menomonee Falls	Waukesha	Menomonee Falls Industrial (1) Bldg	6/19/2024
24-036	273483	V/Jackson	Washington	Glacier Hills Credit Union	6/19/2024
24-039	273551	C/Brookfield	Waukesha	18550 Bluemound LLC/Chapter Aesthetic	6/24/2024
23-037	269341	V/Sussex	Waukesha	Mr. D's Car Wash	5/16/2024
23-046	270297	V/East Troy	Walworth	Overlook Ridge (2) Multi-family Bldgs	2/27/2024

300-2000
ITEM 2

COPY

SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION
W239 N1812 ROCKWOOD DRIVE • PO BOX 1607 • WAUKESHA, WI 53187-1607• **TELEPHONE (262) 547-6721**

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WAUKESHA

March 5, 2024

Mr. Jason Fruth
Planning & Zoning Manager
Waukesha County Department of Parks & Land Use
515 W. Moreland Boulevard, Room AC 230
Waukesha, WI 53188-3878

Re: SEWRPC No. CA-707-73

Dear Mr. Fruth:

This will respond to your email message of December 20, 2022, requesting that the Commission staff review and comment on a primary environmental corridor (PEC) and wetland delineation performed by Mr. Eric Parker, SPWS, Principal Scientist with Heartland Ecological Group, Inc., at the Thomas property (Tax Key Numbers DELT 0809995, 0809996, 0811999) on June 17 and 30, 2022. The property is bounded by Golf Road to the south, Glen Cove Road to the west, Oakton Road to the north, and Elmhurst Road (CTH G) to the west, and is located in parts of the Northeast, Southwest, and Southeast one-quarters of U.S. Public Land Survey Section 23, Township 7 North, Range 18 East, Town of Delafield, Waukesha County, Wisconsin.

Pursuant to your request, Commission staff conducted a field review of Mr. Parker's PEC and wetland delineation on April 13, 2023. Based upon this field inspection, and a review of a copy of the PEC and wetland delineation report prepared by Mr. Parker, the Commission staff concurred with the subject PEC delineation. However, Commission staff observed wetland along a drainage way contained within the northern part of the PEC that had not been delineated. Commission staff met Mr. Parker at the site on April 21, 2023, at which time Mr. Parker identified and staked the additional wetland along the drainage way. Based upon these revisions, please be advised that the Commission concurs with Mr. Parker's wetland delineation (see attached aerial map). Should you have any questions regarding this information, please do not hesitate to contact Mr. Christopher J. Jors, Principal Specialist-Biologist (cjors@sewrpc.org or 262-953-3246).

Sincerely,

Thomas Slawski, PhD
Chief Biologist

TMS/CJJ/nkk
#272007 – CA707-73 Thomas Property PEC/Wetland Review Letter

Enclosure (#272252)

cc: Mr. Eric Parker, SPWS, Heartland Ecological Group, Inc. (w/enclosure by email)
Mr. Bryan Lindgren, Neumann Developments, Inc. (w/enclosure by email)
Mr. Dan Green, Town of Delafield (w/enclosure by email)

PEC Delineation Map

Thomas Property
NE, SW, and SE Quarters, Section 23, T7N-R18E
Town of Delafield, Waukesha County

Legend

- Project Area
- Heartland Ecological-Delineated PEC Reviewed and Concurred with by SEWRPC on 4/13/23
- Primary Environmental Corridor (PEC)
- Heartland Ecological-Delineated and Revised Wetland Reviewed and Concurred with by SEWRPC on 4/21/23
- Wetland
- Natural Area
- Surface Water

N

0 150 300
Feet

Source: SEWRPC

Date of Photography: 2022
CA#707-73

Pewaukee Lake
East Glen Cove Road
Oakton Road
Lake Country Trail
Crooked Creek Road
Prairie Rd
Court
Golf Ridge North
CTH G Elmhurst Road
Golf Ridge South
Golf Cliff Ridge and Woods NA-3
Glen Cove Road
Brrokstone Circle
Brrokstone Circle
Thomas Road
Golf Road
IH - 94

300-3000
ITEM 3

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WALWORTH
WASHINGTON
WAUKESHA

April 30, 2024

Mr. Thad Noel
Project Engineer
Strand Associates, Inc.
910 W. Wingra Drive
Madison, WI 53715

Re: SEWRPC No. CA-618-145

Dear Mr. Noel:

This will respond to your email message of August 31, 2023, requesting that the Commission staff conduct a field inspection of the GAC Treatment Facility property (Tax Parcel Number 11191110019). The subject property is located at 1153 North Main Street in part of the Northeast one-quarter of U.S. Public Land Survey Section 11, Township 11 North, Range 19 East, City of West Bend, Washington County, Wisconsin. The purpose of the field inspection was to identify and stake any wetlands contained on the property.

Pursuant to your request, Commission staff identified and staked the wetland boundary contained on the subject property on October 12, 2023. A copy of the wetland delineation report is attached for your reference. Should you have any questions regarding this information, please do not hesitate to contact Mr. Christopher J. Jors, Principal Specialist-Biologist (cjors@sewrpc.org or 262-953-3246).

Sincerely,

Thomas Slawski, PhD
Chief Biologist

TMS/CJJ/nkk
#272629 – CA618-145 GAC Treatment Facility Letter

Enclosure (#272992)

cc: Mr. Steve Kluesner, Strand Associates, Inc. (w/ enclosure by email)
Mr. Travis Thull, City of West Bend (w/ enclosure by email)
Ms. Erin Cox, Wisconsin Department of Natural Resources (w/enclosure by email)
Ms. Kara Brooks, Wisconsin Department of Natural Resources (w/enclosure by email)
Mr. Anthony Kitchen, U.S. Army Corps of Engineers (w/enclosure by email)

WETLAND DELINEATION REPORT

GAC TREATMENT FACILITY
1153 NORTH MAIN STREET

NE Quarter, Section 11, T11N, R19E
CITY OF WEST BEND
WASHINGTON COUNTY
WISCONSIN

Lead Investigator:
Christopher J. Jors
Principal Specialist-Biologist
Southeastern Wisconsin Regional Planning Commission
W239 N1812 Rockwood Drive
P.O. Box 1607
Waukesha, WI 53187-1607
(262)953-3246
cjors@sewrpc.org

Report completed: April 2, 2024

WETLAND DELINEATION REPORT OVERVIEW

(Based upon WDNR WETLAND Delineation Confirmation Request Check List)

INTRODUCTION

- Who requested the delineation – **Thad Noel, Strand & Associates Inc., (on behalf of the City of West Bend)**
- Why the delineation was undertaken – **Proposed GAC Treatment Facility Improvements**
- Field inspection date(s) – **October 12, 2023**
- Who conducted field work – **Christopher Jors, Jennifer Dietl, and Shane Heyel**
- Statement of Qualifications
- GIS Support – **Bradley Subotnik**

METHODS

- Description of Methods
- Sources Reviewed
  - Washington County Topographic Mapping – **Exhibit 1A**
  - Wisconsin Department of Natural Resources (WDNR) LiDAR Mapping – **Exhibit 1B**
  - WDNR Surface Water Data Viewer - Wisconsin Wetland Inventory (WWI) Mapping – **Exhibit 2**
  - Natural Resources Conservation Service (NRCS) Soil Survey and Federal Emergency Management Agency (FEMA) Floodplain Mapping – **Exhibit 3**
  - SEWRPC Historical Aerial Photos – **Exhibit 4 (2022, 2020, 2015, 2010, 2005, 2000, 1995, 1990, 1980, 1970, 1963, 1950, and 1941)**
  - SEWRPC Sanitary Sewer Service Area Mapping – **Exhibit 5**
  - Advanced Identification (ADID) Wetland Mapping – **Exhibit 6**
  - NRCS Draft Wetland Inventory Mapping – **Exhibit 7**
  - National Agriculture Imagery Program (NAIP)/Farm Service Agency (FSA) Images – **Not Applicable (N/A)**
- Description of any site-specific agency guidance (site meetings, etc.) – **None**

RESULTS AND DISCUSSION

- Antecedent hydrologic condition analysis – **Normal (APT = 13); Abnormally Dry (D0) per U.S. Drought Monitor map**
- Previous wetland delineation mapping – **SEWRPC; May 14, 1996**
- Existing environmental mapping (WWI mapping, Soil survey, etc.)
- Amount and types of wetlands located within the project area
- Wetland/upland boundary explanation
- Disturbed and problematic areas encountered
- Other considerations

LITERATURE CITED

Wetland Delineation Map – **Exhibit 8**

Vegetation Survey, Wetland Delineation Data Forms, and Site Photos

- Preliminary Vegetation Survey – **Exhibit 9**
- Wetland Determination Data Forms – NC/NE Region – **Exhibit 10**
- Site Photos – **Exhibit 11**

INTRODUCTION

This wetland delineation report responds to an August 31, 2023, email request from Thad Noel, Strand & Associates Inc., (on behalf of the City of West Bend), to identify the boundaries of any wetlands on the City's GAC Treatment Facility property. The property includes WWI-mapped wetland along the western edge of Barton Pond, an impoundment on the Milwaukee River. Improvements requiring demolition and reconstruction of infrastructure are proposed on the site. The project area is located at 1153 North Main Street in part of the Northeast one-quarter of U.S. Public Land Survey Section 11, Township 11 North, Range 19 East, in the City of West Bend, Washington County, Wisconsin.

Statement of Qualifications

Lead Investigator: Christopher Jors, Principal Specialist-Biologist, has worked at SEWRPC since 1993, and has been part of the wetland delineation team since 1994. He received a Bachelor's degree in Biological Aspects of Conservation from the University of Wisconsin – Milwaukee in 1992. Prior to working at SEWRPC, Chris worked at the UWM Field Station at the Cedarburg Bog in Saukville, WI, where he learned methods of sampling wetland plant communities within the Bog. Chris has attended various wetland training workshops including the annual UW-La Crosse Critical Methods Workshop, most recently on March 6, 2024; the UW-La Crosse Basic and Advanced Wetland Delineation Workshops on August 10-15, 2015; a WDNR Wetland Delineation & Wetland Rapid Assessment Methodology Workshop on April 23, 2014; and a U.S. Army Corps of Engineers Workshop on the Midwest Supplement to the 1987 Wetland Delineation Manual on February 3, 2009.

Jennifer Dietl, Principal Specialist-Biologist, earned Bachelor's degrees in Biology and Environmental Science from Carroll University in 1992. Jennifer has worked at the Commission from 1992 to 1997 and from 2006 to the present conducting wetland delineations, primary environmental corridor delineations, and vegetation surveys. In between years of service at the Commission, she worked for the Wisconsin Department of Transportation – Green Bay as an LTE Environmental Analysis and Review Specialist – and the Wisconsin Department of Natural Resources – Green Bay as an LTE Hydrologist. Jennifer has attended the annual UW-La Crosse Critical Methods Workshop, most recently on March 6, 2024; the UW-La Crosse Hydric Soils Workshop on July 19-21, 2017; the UW-La Crosse Basic and Advanced Wetland Delineation Workshops on August 10-15, 2015; and a WDNR Wetland Delineation & Wetland Rapid Assessment Methodology Workshop on April 23, 2014.

Shane Heyel, Senior Specialist-Biologist, joined the wetland delineation team at SEWRPC in June 2016. He holds a Bachelor's degree in Land Use Planning from the University of Wisconsin-Stevens Point and a Master's degree in Hydrology & Water Quality from Lancaster University (United Kingdom). Shane worked for the Wisconsin Department of Natural Resources for seven years, including four years regulating waterways and wetlands. With Atkins Limited, U.K. from 2005-2009, he delivered pollution and flood risk assessments to the English Highways Agency and modeled sewer networks to report flood alleviation options for major British water companies. As an independent consultant in Wisconsin, Shane helped develop a site restoration plan for a proposed wetland mitigation bank. His recent wetland training includes UW-La Crosse Workshops in Basic Wetland Delineation (August 2015), Advanced Wetland Delineation (August (2016), Basic Plant ID (July 2017), Hydric Soils (July 2018), and the annual Critical Methods Workshops (most recently, March 2024).

METHODS

Description of Methods

The wetland boundary determinations were based upon the criteria and methodologies set forth in the 1987 *Corps of Engineers Wetlands Delineation Manual*; the January 2012 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region* (Version 2.0); the March 4, 2015, *Guidance for Submittal of Delineation Reports to the St. Paul District Army Corps of Engineers and the*

Wisconsin Department of Natural Resources; and the 2022 National Wetland Plant List (NWPL) for the Northcentral and Northeast region.

Sources Reviewed

Prior to conducting field work, Commission staff reviewed the following data sources that were available and applicable to the project area:

- Washington County's topographic mapping (Exhibit 1A)
- WDNR LiDAR mapping (Exhibit 1B)
- WDNR Surface Water Data Viewer - WWI mapping (Exhibit 2)
- NRCS soil survey and FEMA floodplain mapping (Exhibit 3)
- SEWRPC historical aerial photography (Exhibit 4)
- SEWRPC sanitary sewer service area mapping (Exhibit 5)
- ADID Wetland mapping (Exhibit 6)
- NRCS Draft Wetland Inventory mapping (Exhibit 7)
- SEWRPC Wetland Delineation Report dated June 26, 1996
- Army Corps of Engineers' Antecedent Precipitation Tool (APT), Version 2.

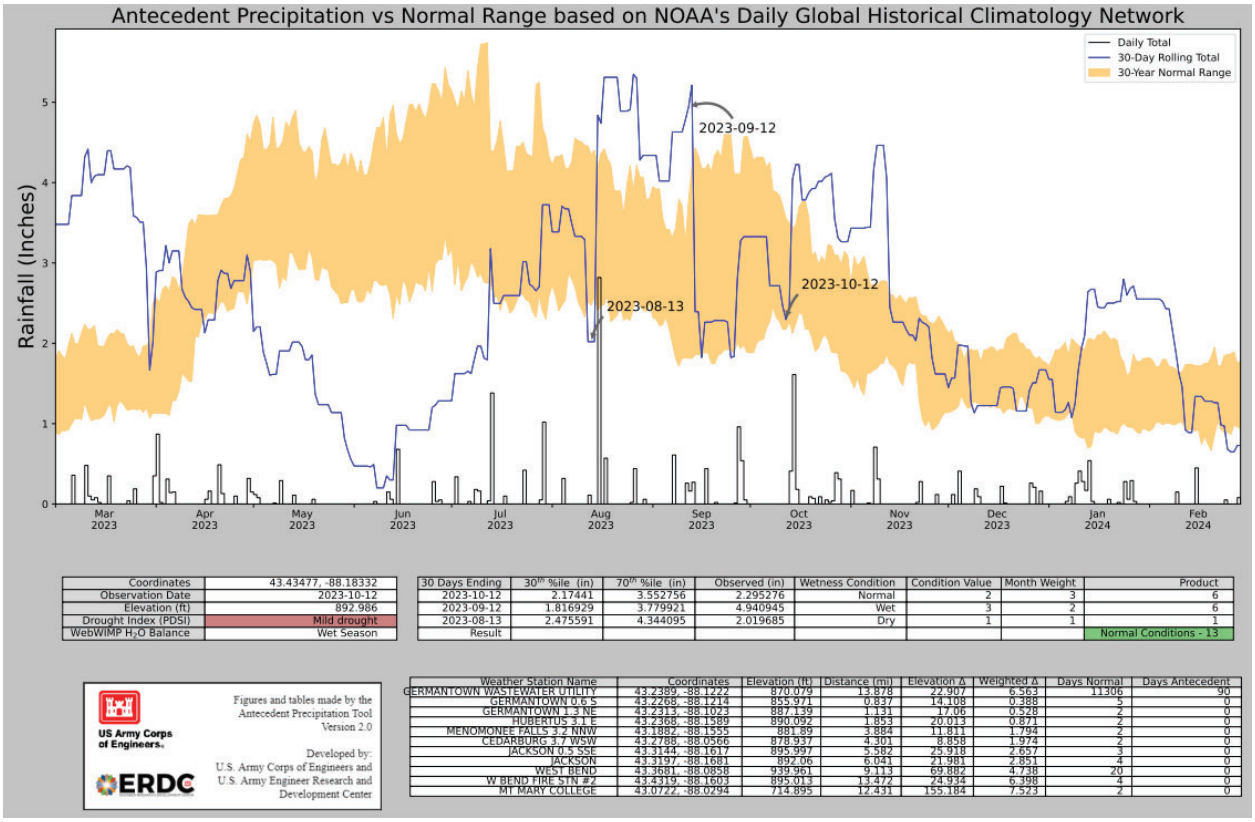
RESULTS AND DISCUSSION

Christopher Jors, as lead field investigator and report author, supervised and approved all aspects of the wetland delineation in the field, data compilation and analysis, and preparation of this report. A wetland boundary in the eastern part of the project area near the Barton Pond impoundment on the Milwaukee River was marked with orange wire flags and ribbon on October 12, 2023. Commission biologists used a sub-meter-accuracy global positioning system (GPS) device to record the locations of the wetland boundary markers and two representative sample sites that were utilized to inform the staked wetland boundary.

The results of the wetland delineation field inspection for this project area are shown on Exhibit 8, which includes the field staked and GPS-located wetland boundary and the GPS-located sample sites. The map also indicates the staked wetland and a small area of upland floodplain forest are part of the primary environmental corridor (PEC) associated with Barton Pond/Milwaukee River.

Antecedent Hydrologic Conditions

The 90-day antecedent precipitation condition is determined utilizing the Antecedent Precipitation Tool (APT), Version 2, developed by the U.S. Army Corps of Engineers. The APT runs an algorithm that compares WETS station data for the 1991-2020 climate period with the available data covering the previous 90 days. The analysis is specific to a single geo-referenced point (latitude/longitude) within the project area and draws from and prioritizes available data from WETS stations up to 30 miles away. Results are presented in the following graph and indicate 90-day antecedent precipitation in the "Normal Conditions" range for the October 12, 2023, site inspection. In addition, the U.S. Drought Monitor map indicates the project area was Abnormally Dry (D0) during the site inspection.



Coordinates	43.43477, -88.18332
Observation Date	2023-10-12
Elevation (ft)	892.986
Drought Index (PDSI)	Mild drought
WebWIMP H_2O Balance	Wet Season

30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2023-10-12	2.17441	3.552756	2.295276	Normal	2	3	6
2023-09-12	1.816929	3.779921	4.940945	Wet	3	2	6
2023-08-13	2.475591	4.344095	2.019685	Dry	1	1	1
Result							Normal Conditions - 13

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
GERMANTOWN WASTEWATER UTILITY	43.2389, -88.1222	870.079	13.878	22.907	6.563	11306	90
GERMANTOWN 0.6 S	43.2268, -88.1214	855.971	0.837	14.108	0.388	5	0
GERMANTOWN 1.3 NE	43.2313, -88.1023	887.139	1.131	17.06	0.528	2	0
HUBERTUS 3.1 E	43.2368, -88.1589	890.092	1.853	20.013	0.871	2	0
MENOMONEE FALLS 3.2 NNW	43.1882, -88.1555	881.89	3.884	11.811	1.794	2	0
CEDARBURG 3.7 WSW	43.2788, -88.0566	878.937	4.301	8.858	1.974	2	0
JACKSON 0.5 SSE	43.3144, -88.1617	895.997	5.582	25.918	2.657	3	0
JACKSON	43.3197, -88.1681	892.06	6.041	21.981	2.851	4	0
WEST BEND	43.3681, -88.0858	939.961	9.113	69.882	4.738	20	0
W BEND FIRE STN #2	43.4319, -88.1603	895.013	13.472	24.934	6.398	4	0
MT MARY COLLEGE	43.0722, -88.0294	714.895	12.431	155.184	7.523	2	0

Previous Wetland Delineation Mapping

At the request of the City of West Bend, the Commission identified and staked the wetland boundary along much of the western Barton Pond shoreline on May 14, 1996, including the wetland boundary within the current project area. While the Commission staff reviewed the 1996 wetland delineation report, it was determined that a full new wetland delineation was warranted given the time that has passed since the original wetland delineation.

Existing Environmental Mapping

The Washington County topographic mapping (Exhibit 1A) depicts a project area within a broader area of rolling glacial topography and adjacent to an impounded section of the Milwaukee River known as Barton Pond. Low-lying riparian land remains apparent in the east end of the project area, alongside the waterway. Steep, modified slopes are present particularly in the west end along North Main Street and around the existing GAC Treatment Facility and along part of a berm that surrounds a smaller constructed pond that is directly south of the project area. An outlet from the small pond to Barton Pond is evident, effectively making the small pond a connected enlargement of the waterway. Elevations in the project area range from a high of 922 feet above the North American Vertical Datum of 1988 (NAVD 88) at the northwest corner, to a low of approximately 890 feet along the edge of Barton Pond.

WDNR LiDAR mapping (Exhibit 1B) identifies higher ground to the north and northwest with white, gray, and brown shading. Within the project area, a modified and very steep slope is illustrated on two sides of the elevated building pad, and along the road shoulder, with narrow bands of dark red, orange, yellow, and dark green. Moving eastward across the project area, the landscape undulates as indicated by the presence of a light blue-green shade changing back to dark green again. Following this rise the landscape falls again as illustrated by pale yellow and finally the low-lying riparian area shown as light blue at the east end. The LiDAR image shows microtopography within the riparian lowland by way of the hillshade effect. By comparison, the open water of the ponds appears as a pure light blue.

The WDNR Surface Water Data Viewer - WWI mapping (Exhibit 2) indicates scrub-shrub (S3K) wetland in the southeastern portion of the project area with the aquatic bed (A3H) of Barton Pond in the far southeastern edges. An excavated pond (W0Hx) is shown directly south of the project area and adjacent to the S3K wetland which continues southward along the waterway. Wetland indicators, shown as Colwood silt loam (Cw) and Lamartine silt loam (LmA) soils, cover approximately two-thirds of the project area including the mapped wetlands. WDNR describes Barton Pond as part of the Milwaukee River with a lake natural community within impounded flowing water, but the monitoring data specific to the Pond is either not collected or was not available. Barton Pond comprises the upstream end of the Lime Kiln Dam (Grafton) to Gadow Mill Dam (West Bend) reach of the Milwaukee River (mile 29.33 to 68.5). The reach is classified by WDNR as a 5th order river with a cool-warm mainstem community in poor condition. Historically the reach was on the State's Section 303(d) list of "impaired waters" due to PCB contamination but was de-listed for that contaminant in 2006. The waterway returned to the list of impaired waters due to elevated phosphorus levels and elevated temperature impairment in 2014 and 2016, respectively, and remains listed accordingly. The reach has been covered under the Milwaukee River Watershed TMDL since 2018 relative to addressing the phosphorus levels.

The NRCS Soil Survey map (Exhibit 3) shows the following soils in the project area:

Map Unit Name and Symbol	Slope (%)	Hydric Category	Hydric Percent of Map Unit	Hydric Minor Component, Percent, and landform	Project Area (%)
Colwood silt loam (Cw)	0-2	Hydric	100	Not Applicable (N/A)	41.2
Lamartine silt loam (LmA)	0-3	Predominantly Non-hydric	15	Pella, 8%, drainageways Ossian, 7%, depressions	35.2
Sisson-Casco-Hochheim complex (SvC2)	6-12, eroded	Non-hydric	0	N/A	20.4
Water (W)	--	Non-hydric	0	N/A	3.2

Exhibit 3 also indicates the FEMA-mapped 1-percent-annual-probability (100-year recurrence interval) floodplain of Barton Pond/Milwaukee River covers much of the eastern portion of the project area with floodway shown in the eastern edge.

Historical aerial photos were reviewed going back to 1941. Orthophotographs (2022, 2020, 2015, 2010, 2005, 2000, and 1995) and aerial photographs (1990, 1980, 1970, 1963, 1950, and 1941) were reviewed as summarized in the following table and are attached (see Exhibit 4).

Year	Changes in Land Use Observed on Aerial Photography from 1941 to 2022
1941	The vacant project area appears at the outer edge of urban West Bend on the west shore of Barton Pond. The project area is idle and mostly mowed landscape and smaller shrubby areas in the eastern and southeastern edges. Land to the west and directly to the south is also idle with the parcel to the south showing a wetness signature (un-mowed area) that appears to drain into Barton Pond. North Main Street is a minor road where it passes by the project area. Mixed urban development is present to the south along Park Avenue and North Main Street. A smaller, isolated development is present directly north of the project area.
1950	North Main Street has been, or is being, widened into a 4-lane roadway resulting in additional fill in the west end of the project area. City expansion including the construction of High Street and Vern Street has occurred west of the project area. Associated housing appears largely completed while commercial/industrial site development immediately to the west is just underway. Additional homes have also been built to the south near Barton Pond.
1963	A small building has been built on the formerly vacant parcel to the south with land disturbance including filling/stockpiled material to the east and northeast of this building, including in the southwest part of the project area, is present. The filling is raised enough that it casts a shadow at the edge of the filled area. As the surface water of Barton Pond appears in the eastern part of this parcel, directly south of the project area, it stands to reason that filling and grading is occurring to keep the surface water from encroaching any further.
1970	The land disturbance described above now appears as a larger filling/grading operation. The graded/filled area is larger both in the project area and on the property to the south and substantial fill piles are present on both as well. This indeed limits the area that will be prone to flooding. Two smaller areas of filling/grading are evident in the northwest and northeast parts of the project area. Commercial/industrial site development to the west has progressed.

Year	Changes in Land Use Observed on Aerial Photography from 1941 to 2022
1980	Fill piles seen in the previous image have been spread. The project area is idle as compared to the surrounding urban area.
1990	The GAC Treatment Facility has been built. Woody vegetation is established in the eastern end of the project area.
1995	No significant changes noted.
2000	North Main Street has been reconstructed as a 4-lane divided road. The small building has been razed and the present-day pond built on the property to the south.
2005	The present-day paved path has been installed across the project area. Several conifers were planted in place of trees that were removed in the central/southern part of the project area.
2010	No significant changes noted.
2015	No significant changes noted.
2020	No significant changes noted.
2022	No significant changes noted.

SEWRPC's sanitary sewer service area mapping (Exhibit 5) indicates the project area is in the planned sewer service area for the City of West Bend and Environs. In addition, the eastern portion of the project area is mapped as part of the primary environmental corridor (PEC) associated Barton Pond and the Milwaukee River.

The ADID wetland mapping (Exhibit 6) indicates the WWI-mapped S3K and A3H wetlands within the project area are part of the Barton Pond/Milwaukee River PEC. Accordingly, these wetlands are classified as ADID wetlands and deemed unsuitable for the discharge of fill material by the U.S. Environmental Protection Agency under Section 404 of the Clean Water Act. During the field inspection, Commission biologists identified necessary changes to the mapped wetland boundaries. If the ADID wetland mapping is updated in the future, the changes shown on Exhibit 8 will be reflected.

The NRCS draft wetland inventory mapping (Exhibit 7) indicates wetlands (W) in the central and eastern portions of the project area and upland in the western portion.

Amount and Types of Wetland within the Project Areas

One wetland plant community area (PCA) was identified and inventoried in the project areas (Exhibit 8). A list of vascular plant species observed during the field inspection was prepared for the plant community area as well as plant community type(s), dominant plant species, disturbances, and any critical plant and animal species (Exhibit 9). The following table summarizes characteristics of the PCA.

PCA Number	Acreage	PCA Type	Dominant Species	Critical Species
1	0.57	Shallow marsh and shrub-carr (willow and buckthorn thicket) in the Barton Pond/Milwaukee River floodplain-wetland complex.	*Rhamnus cathartica*--Common buckthorn *Typha angustifolia*--Narrow-leaved cat-tail	None

Wetland/Upland Boundary Explanation

Two representative sample sites were identified within the project area. The Wetland Determination Data Forms describing the findings at each sample site are attached as Exhibit 10. The locations of the sample sites are shown on Exhibit 8. Generally, wetland boundaries are determined using breaks in topography, changes in vegetation composition, visual identification of wetland hydrology, and presence of hydric soils.

In this case, the wetland delineation fieldwork began with a walk through the western and central parts of the project area where mowed hillslopes with scattered planted conifers were observed and previous grading/filling was evident. In addition to the non-hydrophytic plant communities, the elevated landscape also lacked any of the wetland hydrology indicators typically evident on the surface. (See Exhibit 11, Photos 3-6, and 8).

Moving to the eastern part of the project area, a small floodplain forest which had lost its once-dominant green ash (*Fraxinus pennsylvanica*) trees was encountered. While the wooded area showed evidence of past dumping (uneven terrain), a natural gradient toward Barton Pond was observed (See Exhibit 11, Photo 7). Paired Sample Sites 1 (Wetland) and 2 (Upland) helped inform the wetland boundary where a topographic break was evident (Exhibit 11, Photo 1). Both sample sites had hydrophytic vegetation due to the dominance of FAC species such as buckthorn (*Rhamnus cathartica*), and cottonwood (*Populus deltoides*) following the die-off of FACW green ash. Wetland Sample Site 1 contained dead ash trees, had hydric soil, and met three secondary wetland hydrology indicators. Conversely, Sample site 2 did not have hydric soil and only met one secondary wetland hydrology indicator.

Disturbed and Problematic Areas Encountered

While no "naturally problematic" or "significantly disturbed" areas were encountered within the project areas that obscured wetland delineation parameters (vegetation, soils, and hydrology), past disturbances were evident. These included past filling as shown on the 1963 and 1970 aerial photos (Exhibit 4), construction of the GAC Treatment Facility, the paved path through the project area, and the berm along the north side of the constructed pond just south of the project area. Finally, as mentioned in the previous Section, instances of past dumping were also observed within the wooded eastern end of the project area.

Other Considerations

For projects that will disturb one acre or more, the nonagricultural performance standards set forth in Section NR 151.125 of the *Wisconsin Statutes*, require establishment of a 75-foot impervious surface protective area to protect "highly susceptible" wetlands (fens, sedge meadows, ephemeral ponds, etc.). "Moderately susceptible" wetland types (USGS-mapped waterways and waterbodies, shrub-carr, forested wetlands with early successional species, shallow marsh, and fresh (wet) meadow) should have a 50-foot impervious surface protective area. Degraded portions of wetlands with 90 percent or greater cover by non-native species (Reed canary grass, Narrow-leaved cattail, etc.) are considered "less susceptible" requiring establishment of a 10- to 30- foot protective area depending on average width of the wetland. The designated protective area boundaries are measured horizontally from the delineated wetland boundary to the closest impervious surface. Stormwater management facilities which are designed, constructed, and maintained for conveyance or treatment purposes are not subject to protective area performance standards as indicated in the WDNR Guidance for the Establishment of Protective Areas for Wetlands in Runoff Management Rules, *Wisconsin Administrative Code* NR 151.

The wetlands delineated in the project area consist of shallow marsh and shrub-carr (willow and buckthorn thicket), the latter of which was likely a floodplain forest dominated by green ash prior to an Emerald ash-borer infestation. In any event, the wetland types in the project area are each considered moderately susceptible and are therefore typically assigned a 50-foot protective area.

NR 151 specifies placement of new impervious surfaces (structures, paved paths, etc.) shall avoid the specified protective area as the 1st option. Where this cannot be avoided, the code allows for designed best management practices (BMPs) such as filter strips, bioswales, rain gardens, etc. in and around the protective area to provide adequate water quality treatment prior to discharge to a wetland.

The protective area requirements should be taken into consideration for any planned improvements within the project area. It is recommended that the City of West Bend or their representative contact WDNR regarding approaches to meet the requirements. Finally, please be advised that no Federal or State regulatory jurisdiction determinations relative to any wetland permits or certifications are made under this report.

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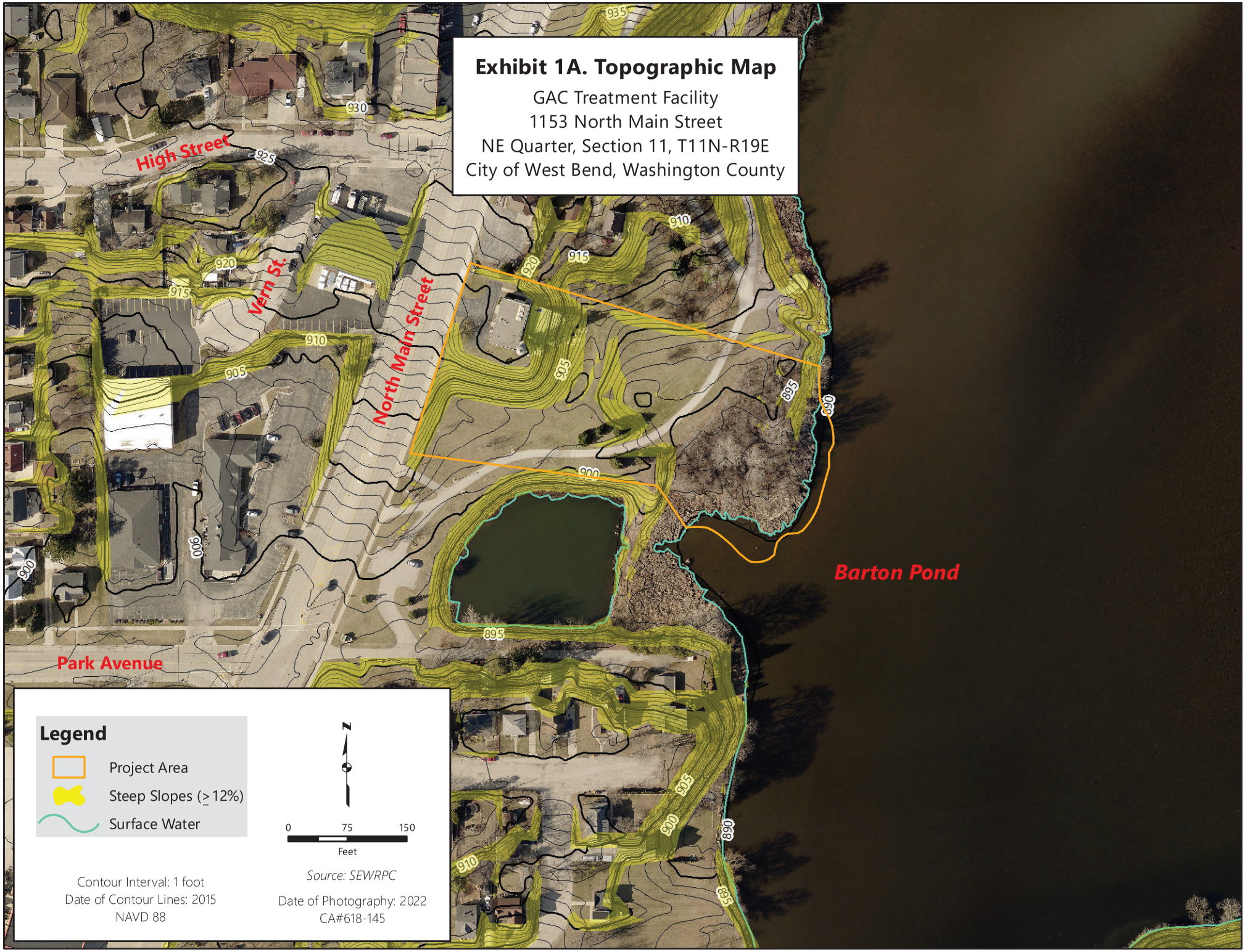
Exhibit 1A. Topographic Map
GAC Treatment Facility
1153 North Main Street
NE Quarter, Section 11, T11N-R19E
City of West Bend, Washington County
High Street
Vern St.
North Main Street
Park Avenue
Barton Pond
935
930
925
920
915
910
905
900
895
890
Legend
Project Area
Steep Slopes (≥ 12%)
Surface Water
N
0
75
150
Feet
Source: SEWRPC
Contour Interval: 1 foot
Date of Contour Lines: 2015
NAVD 88
Date of Photography: 2022
CA#618-145