Village of Readstown Public Noticed Permit Fact Sheet

General Information

Permit Number	WI-0021661-11-0
Permittee	Village of Readstown, 116 N 4th St./Hwy 131 PO Box 247, Readstown, WI 54652
Permitted Facility	Readstown Wastewater Treatment Facility, 623 West South Street, Readstown, WI
Permit Term	April 01, 2026 to March 31, 2031
Discharge Location	East bank of the Kickapoo River ¼ mile downstream of Second Street bridge. NE ¼ of SW ¼ of Section 8, T11N, R3W (Lat: 43.443652° N / 90.763385° W)
Receiving Water	the Kickapoo River in the Reads and Tainter Creeks Watershed of the Lower Wisconsin River Basin in Vernon County
Stream Flow ($Q_{7,10}$)	86 cfs
Stream Classification	Cold Water (Category 4), Class II trout stream, non-public water supply
Discharge Type	Existing, continuous
Annual Average Design Flow	0.094 MGD
Industrial or Commercial Contributors	None
Plant Classification	A1 - Suspended Growth Processes; B - Solids Separation; C - Biological Solids/Sludges; D - Disinfection; SS - Sanitary Sewage Collection System
Approved Pretreatment Program?	N/A

Facility Description

The Readstown Wastewater Treatment Plant treats domestic wastewater from the Village of Readstown and has an annual average design flow of 0.094 million gallons per day (MGD). The actual annual average effluent flow in 2025 was 0.029 MGD. The facility is a sequencing batch reactor (SBR) type treatment plant. Effluent treatment includes screenings & grit removal and aerated settling basins. Effluent is seasonally disinfected using ultraviolet (UV) light prior to discharge to the Kickapoo River. Sludge is digested aerobically and then hauled and land applied on Department approved fields by a hired hauler. No major operational changes occurred during the last permit term but chemical addition for phosphorus removal will begin sometime in 2026. Once the facility starts adding chemical, the Total Phosphorus subclass will apply. The Department approved the water quality trading (WQT) plan (WQT-2025-0014) submitted by the permittee as a way to demonstrate compliance with water quality based effluent limits (WQBELs) for total phosphorus. The plan provides calculations and a table that shows the amount of phosphorus credits that will be available each year. See specific sections of the fact sheet for details on limitation and monitoring changes for this permit term.

Substantial Compliance Determination

Enforcement During Last Permit: There have been several enforcement actions taken in the last permit term. A NON was issued in 2021 for fecal coliform exceedances caused by a burnt-out UV bulb. Two NONs were issued in 2023 and 2024 addressing phosphorus exceedances between February 2022 and March 2024. Two more NONs were issued in 2025 for phosphorus exceedances between September 2024 and March 2025. The last NON included a schedule to submit plans and specifications to the department, as well as complete a chemical feed upgrade by August 2026. The facility is completing the requested actions.

Phosphorus exceedances are still occurring, but the facility has an approved water quality trading plan and has submitted plans and specs for a chemical feed system. The facility is still investigating phosphorus exceedances and keeping their basin engineer informed.

Finally, a NOV was issued in 2024 for exceeding high quality and ceiling limits for lead and nickel. An enforcement conference was held and the facility has developed a land management plan. The facility will follow the approved land management plan for future sludge applications.

The facility has completed all previously required actions as part of the enforcement process with the exception of the latest phosphorus NON which has upcoming due dates (August 2026).

After a desk top review on January 5, 2026 of all discharge monitoring reports, CMARs, land app reports, compliance schedule items, and a site visit on May 29, 2024, this facility has been found to be in substantial compliance with their current permit.

Compliance determination entered by Katie Jo Jerzak, PE, Wastewater Engineer on January 5, 2026.

Sample Point Descriptions

Sample Point Designation		
Sample Point Number	**Discharge Flow, Units, and Averaging Period**	**Sample Point Location, Waste Type/Sample Contents and Treatment Description (as applicable)**
702	0.042 MGD (2025)	Representative influent samples shall be collected in the headworks room after grit removal in the sequencing batch reactor (SBR) splitter box. Permittee shall subtract the decant flow from the influent flow data before reporting.
006	0.029 MGD (2025)	Representative effluent samples (except those for E coli) shall be collected from the effluent weir box prior to disinfection. Grab samples for E coli shall be collected after UV disinfection.
004	1.9 dry metric tons (as reported by the permittee in their reissuance application)	Representative sludge samples shall be collected and monitored annually for Lists 1, 2, 3, 4 and PFAS, and once in 2027 for PCBs.

Permit Requirements

1 Influent – Monitoring Requirements

1.1 Sample Point Number: 702- INFLUENT TO PLANT

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Flow Rate		MGD	Daily	Continuous	Flow shall be reported without the decant flow included.
BOD5, Total		mg/L	3/Week	24-Hr Flow Prop Comp	
Suspended Solids, Total		mg/L	3/Week	24-Hr Flow Prop Comp	
Phosphorus, Total		mg/L	Weekly	24-Hr Flow Prop Comp	

Changes from Previous Permit:

Influent limitations and monitoring requirements were evaluated for this permit term and the following changes were made from the previous permit: 1) The sample frequency for flow has been changed from “continuous” to “daily” for eDMR reporting purposes, 2) Instructions have been included directing the permittee to remove decant flow from the influent flow numbers before reporting data, and 3) Phosphorus monitoring was added.

Explanation of Limits and Monitoring Requirements

Monitoring of influent flow, BOD5 and total suspended solids is required by s. NR 210.04(2), Wis. Adm. Code, to assess wastewater strengths and volumes and to demonstrate the percent removal requirements in s. NR 210.05, Wis. Adm. Code, and in the Standard Requirements section of the permit. Readstown has received high phosphorus loading from an unknown source. Investigations over the past three years have not shown a clear source or pattern. Influent monitoring of phosphorus may help the facility identify a pattern.

2 Surface Water - Monitoring and Limitations

2.1 Sample Point Number: 006- EFFLUENT TO KICKAPOO RIVER

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Flow Rate		MGD	Continuous	Continuous	
BOD5, Total	Weekly Avg	45 mg/L	3/Week	24-Hr Flow Prop Comp	
BOD5, Total	Monthly Avg	30 mg/L	3/Week	24-Hr Flow Prop Comp	
Suspended Solids, Total	Weekly Avg	45 mg/L	3/Week	24-Hr Flow Prop Comp	
Suspended Solids, Total	Monthly Avg	30 mg/L	3/Week	24-Hr Flow Prop Comp	
pH Field	Daily Min	6.0 su	Daily	Grab	
pH Field	Daily Max	9.0 su	Daily	Grab	
E. coli	Geometric Mean - Monthly	126 #/100 ml	Weekly	Grab	Limit effective May through September
E. coli	% Exceedance	10 Percent	Monthly	Calculated	Limit effective May through September. See the E. coli Percent Limit section in the permit. Enter the result in the DMR on the last day of the month.
Phosphorus, Total	Monthly Avg	2.0 mg/L	3/Week	24-Hr Flow Prop Comp	Limit effective throughout the permit term, as it represents a minimum control level.
Phosphorus, Total		lbs/day	3/Week	Calculated	Report daily mass discharged using Equation 1a. in the Water Quality Trading (WQT) section of the permit.
WQT Credits Used (TP)		lbs/month	Monthly	Calculated	Report WQT TP Credits used per month using Equation 2c. in the Water Quality Trading (WQT) section of the permit. Available TP Credits are specified in Table 2 and in the approved Water Quality

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
					Trading Plan.
WQT Computed Compliance (TP)	Monthly Avg	0.3 mg/L	Monthly	Calculated	Report the WQT TP Computed Compliance value using Equation 3a. in the Water Quality Trading (WQT) section of the permit. Value entered on the last day of the month.
WQT Computed Compliance (TP)	6-Month Avg	0.1 mg/L	Monthly	Calculated	Compliance with the six-month average limit is evaluated at the end of the six-month period on June 30 and Dec 31.
WQT Computed Compliance (TP)	6-Month Avg	0.078 lbs/day	Monthly	Calculated	Report the WQT TP Computed Compliance value using Equation 3b. in the Water Quality Trading (WQT) section of the permit. Compliance with the six-month average limit is evaluated at the end of the six-month period on June 30 and Dec 31.
WQT Credits Used (TP)	Annual Total	131 lbs/yr	Annual	Calculated	The sum of total monthly credits used may not exceed Table 2 values listed in the permit.
Nitrogen, Total Kjeldahl		mg/L	See Listed Qtr(s)	24-Hr Flow Prop Comp	Monitoring required annually in specific quarters. See Nitrogen Series Monitoring section in permit.
Nitrogen, Nitrite + Nitrate Total		mg/L	See Listed Qtr(s)	24-Hr Flow Prop Comp	
Nitrogen, Total		mg/L	See Listed Qtr(s)	Calculated	Monitoring required annually in specific quarters. See Nitrogen Series Monitoring section in the permit. Total Nitrogen shall be calculated as the sum of reported values for Total Kjeldahl Nitrogen and Total Nitrite + Nitrate Nitrogen.

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Acute WET		TUa	See Listed Qtr(s)	24-Hr Flow Prop Comp	See WET testing section in permit.

Changes from Previous Permit

Effluent limitations and monitoring requirements were evaluated for this permit term and the following changes were made from the previous permit: 1) The sample frequency for flow has been changed from "continuous" to "daily" for eDMR reporting purposes, 2) Fecal coliform monitoring and limits have been replaced with Escherichia coli (E. coli) monitoring and limits, 3) The department approved the Water Quality Trading Plan (WQT plan WQT-2025-0015) submitted by the permittee as a way to demonstrate compliance with water quality based effluent limits (WQBELs) for total phosphorus,

Explanation of Limits and Monitoring Requirements

Monitoring Frequencies- The *Monitoring Frequencies for Individual Wastewater Permits guidance* (April 12, 2021) recommends that standard monitoring frequencies be included in individual wastewater permits based on the size and type of the facility, in order to characterize effluent quality and variability, to detect events of noncompliance, and to ensure consistency in permits issued across the state. Guidance and requirements in administrative code were considered when determining the appropriate monitoring frequencies for pollutants that have final effluent limits in effect during this permit term. At this time, no effluent monitoring frequency changes are included in the permit.

Limits were determined for Readstown's existing discharge to the Kickapoo River using chs. NR 102, 104, 105, 106, 207, 210, 212 and 217 of the Wisconsin Administrative Code (where applicable). For additional information on any of the limits see the July 21, 2025 memo from Ben Hartenbower to Holly Heldstab titled "Water Quality-Based Effluent Limitations for the Readstown Wastewater Treatment Facility WPDES Permit No. WI-0021661".

MUNICIPAL EFFLUENT LIMITS – In accordance with the federal regulation 40 CFR 122.45(d), and to comply with the expression of limits requirements in ss. NR 106.07 and NR 205.065(7), Wis. Adm. Codes, limits in this permit are to be expressed as weekly average and monthly average limits whenever practicable.

BOD, TSS and pH: Categorical limits and WQBELs are included in the permit as outlined in ch. NR 210, Wis. Adm. Code. The effluent limitations for BOD5, Total Suspended Solids (TSS) and pH are carried over from the previous permit and are not subject to change at this time because the receiving water characteristics have not changed.

Disinfection/*E. Coli*: Fecal coliform monitoring and limits will be replaced with *Escherichia coli (E. coli*) monitoring and limits. Revisions to bacteria surface water quality criteria to protect recreational uses and accompanying *E. coli* WPDES permit implementation procedures became effective May 1, 2020. The new rule requires that WPDES permits for facilities with required disinfection include monitoring for E. coli while facilities are disinfecting during the recreation period and establish effluent limitations for *E. coli* established in s. NR 210.06 (2), Wis. Adm Code. The administrative code rule changes included the following actions: revised the bacteria water quality criteria from fecal coliform to *E. coli* to protect recreation in ch. NR 102, Wis. Adm. Code.; removed fecal coliform criteria for certain individual waters from ch. NR 104, Wis. Adm. Code.; revised permit requirements for publicly and privately owned sewage treatment works in ch. NR 210, Wis. Adm. Code.; and, updated approved analytical methods for bacteria in ch. NR 219, Wis. Adm. Code.

Phosphorus: Phosphorus requirements are based on the Phosphorus Rules that became effective December 1, 2010 as detailed in NR 102 Water Quality Standards and NR 217 Effluent Standards and Limitations for Phosphorus. Chapter NR 217 of the Wis. Adm. Code addresses point source dischargers of phosphorus to surface waters. Currently in NR 217 Wis. Adm. Code there are two methods used to determine if a phosphorus limit is needed: a technology based effluent limit (TBEL) and a water quality based effluent limit (WQBEL). Based on the size and classification of the stream, the water quality criteria for the Kickapoo River is 0.100 mg/L. In this case, the WQBEL is 0.300 mg/L (monthly average), 0.100

mg/L & 0.078 lbs/day (6-month average). For the reasons explained in the April 30, 2012 paper entitled 'Justification for Use of Monthly, Growing Season and Annual Average Periods for Expression of WPDES Permit Limits for Phosphorus Discharges in Wisconsin', WDNR has determined that it is impracticable to express the phosphorus WQBEL for the permittee as a maximum daily, weekly or monthly value. The final effluent limits were derived from and comply with the applicable water quality criterion. The phosphorus concentration limit is necessary to prevent backsliding during the term of the permit, therefore a limit of 2.0 mg/L will be retained in the permit.

The wastewater treatment facility is not able to meet the WQBEL. This permit authorizes the use of trading as a tool to demonstrate compliance with the phosphorus WQBELs. This permit includes terms and conditions related to the Water Quality Trading Plan (WQT-2025-0014) or approved amendments thereof. The total 'WQT TP Credits' available are designated in the approved WQT Plan. Readstown is generating credits via streambank stabilization projects. The WQT Plan proposes the generation of 131 lbs/yr of phosphorus credits for the next five years.

Additional WQT subsections in the permit provide information on compliance determinations, annual reporting and re-opening of the permit.

PFOS and PFOA: NR 106 Subchapter VIII – Permit Requirements for PFOS and PFOA Dischargers became effective on August 1, 2022. Pursuant to s. NR 106.98(3)(b), Wis. Adm. Code, the department evaluated the need for PFOS and PFOA monitoring taking into consideration the presence of potential PFOS or PFOA industrial wastes, remediation sites and other potential sources of PFOS or PFOA. Based on information available at the time the permit was drafted, the department has determined the permittee does not need to sample for PFOS or PFOA as part of this permit reissuance. The department may re-evaluate the need for sampling at the next permit reissuance if new information becomes available that suggests PFOS or PFOA may be present in the discharge.

3 Land Application - Monitoring and Limitations

Municipal Sludge Description						
Sample Point	**Sludge Class (A or B)**	**Sludge Type (Liquid or Cake)**	**Pathogen Reduction Method**	**Vector Attraction Method**	**Reuse Option**	**Amount Reused/Disposed (Dry Tons/Year)**
004	B	Liquid	Fecal Coliform	Incorporation	Land Application	1.9
Does sludge management demonstrate compliance? Yes						
Is additional sludge storage required? No						
Is Radium-226 present in the water supply at a level greater than 2 pCi/liter? No						
Is a priority pollutant scan required? No Priority pollutant scans are required once every 10 years at facilities with design flows between 5 MGD and 40 MGD, and once every 5 years if design flow is greater than 40 MGD.						

3.1 Sample Point Number: 004- SLUDGE

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Solids, Total		Percent	Annual	Composite	
Arsenic Dry Wt	Ceiling	75 mg/kg	Annual	Composite	
Arsenic Dry Wt	High Quality	41 mg/kg	Annual	Composite	
Cadmium Dry Wt	Ceiling	85 mg/kg	Annual	Composite	
Cadmium Dry Wt	High Quality	39 mg/kg	Annual	Composite	
Copper Dry Wt	Ceiling	4,300 mg/kg	Annual	Composite	
Copper Dry Wt	High Quality	1,500 mg/kg	Annual	Composite	
Lead Dry Wt	Ceiling	840 mg/kg	Annual	Composite	
Lead Dry Wt	High Quality	300 mg/kg	Annual	Composite	
Mercury Dry Wt	Ceiling	57 mg/kg	Annual	Composite	
Mercury Dry Wt	High Quality	17 mg/kg	Annual	Composite	
Molybdenum Dry Wt	Ceiling	75 mg/kg	Annual	Composite	
Nickel Dry Wt	Ceiling	420 mg/kg	Annual	Composite	
Nickel Dry Wt	High Quality	420 mg/kg	Annual	Composite	
Selenium Dry Wt	Ceiling	100 mg/kg	Annual	Composite	
Selenium Dry Wt	High Quality	100 mg/kg	Annual	Composite	
Zinc Dry Wt	Ceiling	7,500 mg/kg	Annual	Composite	
Zinc Dry Wt	High Quality	2,800 mg/kg	Annual	Composite	
Nitrogen, Total Kjeldahl		Percent	Annual	Composite	
Nitrogen, Ammonium (NH4-N) Total		Percent	Annual	Composite	
Phosphorus, Total		Percent	Annual	Composite	
Phosphorus, Water Extractable		% of Tot P	Annual	Composite	
Potassium, Total Recoverable		Percent	Annual	Composite	
PCB Total Dry Wt	Ceiling	50 mg/kg	Once	Composite	Once in 2027
PCB Total Dry Wt	High Quality	10 mg/kg	Once	Composite	Once in 2027
PFOA + PFOS		ug/kg	Annual	Calculated	Report the sum of PFOA and PFOS. See PFAS

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
					Permit Sections for more information.
PFAS Dry Wt			Annual	Grab	Perfluoroalkyl and Polyfluoroalkyl Substances based on updated DNR PFAS List. See PFAS Permit Sections for more information.

Changes from Previous Permit:

Sludge limitations and monitoring requirements were evaluated for this permit term and the following changes were made from the previous permit:

- PFAS – Monitoring for PFAS has been added once during the permit term pursuant s. NR 204.06(2)(b)9., Wis. Adm. Code.
- Radium 226 monitoring has been removed. Monitoring of contributing water supplies to the WWTF have not indicated levels of radium 226 above 2 pCi/L since 2014, and the water treatment plant is not treating the water supply for radium 226, therefore sludge monitoring at the WTTF for radium 226 has been deemed unnecessary at this time.

Explanation of Limits and Monitoring Requirements

Requirements for disposal, including land application of municipal sludge, are determined in accordance with ch. NR 204, Wis. Adm. Code. Ceiling and high-quality limits for metals in sludge are specified in s. NR 204.07(5). Requirements for pathogens are specified in s. NR 204.07(6) and in s. NR 204.07 (7) for vector attraction requirements. Limitations for PCBs are addressed in s. NR 204.07(3)(k).

PFAS- The presence and fate of PFAS in municipal and industrial sludges is an emerging public health concern. EPA has developed a draft risk assessment to determine future land application rates and released this risk assessment in January of 2025. The department is evaluating this new information. Until a decision is made, the "Interim Strategy for Land Application of Biosolids and Industrial Sludges Containing PFAS" should be followed

Collecting sludge data on PFAS concentrations from a wide range of wastewater treatment facilities will help protect public health from exposure to elevated levels of PFAS and determine the department's implementation of EPA's recommendations. To quantitate this risk, PFAS sampling has been included in this WPDES permit pursuant to ss. NR 214.18(5)(b) and NR 204.06(2)(b)9., Wis. Adm. Code.

4 Schedules

4.1 Water Quality Trading (WQT) Annual Report

Required Action	Due Date
Annual WQT Report: Submit an annual WQT report that shall cover the first year of the permit term. The WQT Report shall include: The number of pollutant reduction credits (lbs/month) used each month of the previous year to demonstrate compliance; The source of each month's pollutant reduction credits by identifying the approved water quality trading plan that details the source; A summary of the annual inspection of each nonpoint source management practice that generated any of the pollutant reduction credits used during the previous year; and Identification of noncompliance or failure to implement any terms or conditions of this permit with respect to water quality trading that have not been reported in discharge monitoring reports.	01/31/2027
Annual WQT Report #2: Submit an annual WQT report that shall cover the previous year.	01/31/2028
Annual WQT Report #3: Submit an annual WQT report that shall cover the previous year.	01/31/2029
Annual WQT Report #4: Submit an annual WQT report that shall cover the previous year.	01/31/2030
Annual WQT Report #5: Submit the 5th annual WQT report. If the permittee wishes to continue to comply with phosphorus limits through WQT in subsequent permit terms, the permittee shall submit a revised WQT plan including a demonstration of credit need, compliance record of the existing WQT, and any additional practices needed to maintain compliance over time.	01/31/2031
Annual WQT Report Required After Permit Expiration: In the event that this permit is not reissued by the expiration date, the permittee shall continue to submit annual WQT reports by January 31 each year covering the total number of pollutant credits used, the source of the pollution reduction credits, a summary of annual inspection reports performed, and identification of noncompliance or failure to implement any terms or conditions of the approved water quality trading plan for the previous calendar year.	

Explanation of Schedule: **Annual Water Quality Trading (WQT) Reports** - Reports are required that include the following information:

- Verification that site inspections occurred;
- Results of site inspection findings;
- Identification of noncompliance or failure to implement any terms or conditions of the permit or credit verification package that have not been reported in discharge monitoring reports;
- Any applicable notices of termination or management practice registration; and
- A summary of credits used each month over the calendar year

Other Comments

Publishing Newspaper: The County Line, 207 N Garden Street, PO Box 7, Ontario, WI, 54651-0007

Attachments

- Water Quality Based Effluent Limits: December 16, 2025 memo from Ben Hartenbower to Angela Parkhurst titled “Water Quality-Based Effluent Limitations for the Readstown Wastewater Treatment Facility WPDES Permit No. WI-0021661”
- Water Quality Trading Plan, WQT-2025-0014
- Water Quality Trading Conditional Credit Certification letter dated May 16, 2025 from Jenna Monahan to Brian Gander, Village President

Justification Of Any Waivers From Permit Application Requirements

No waivers requested or granted as part of this permit reissuance.

Prepared By: Holly Heldstab, Wastewater Specialist **Date:** February 3, 2026

CORRESPONDENCE/MEMORANDUM

State of Wisconsin

DATE: December 16, 2025

TO: Holly Heldstab – WCR/Eau Claire

FROM: Benjamin Hartenbower – WCR/Eau Claire

SUBJECT: Water Quality-Based Effluent Limitations for the Readstown Wastewater Treatment Facility WPDES Permit No. WI-0021661

This is in response to your request for an evaluation of the need for water quality-based effluent limitations (WQBELs) using chapters NR 102, 104, 105, 106, 207, 210, 212, and 217 of the Wisconsin Administrative Code (where applicable) for the discharge from the Readstown Wastewater Treatment Facility in Vernon County. This municipal wastewater treatment facility (WWTF) discharges to the Kickapoo River, located in the Reads and Tainter Creeks Watershed in the Lower Wisconsin River Basin. The evaluation of the permit recommendations is discussed in more detail in the attached report.

Based on our review, the following recommendations are made on a chemical-specific basis at Outfall 006:

Parameter	Daily Maximum	Daily Minimum	Weekly Average	Monthly Average	Six-Month Average	Footnotes
Flow Rate						1,2
BOD_5			45 mg/L	30 mg/L		1,3
TSS			45 mg/L	30 mg/L		1,3
pH	9.0 s.u.	6.0 s.u.				1
E. coli May - September				126 #/100 mL geometric mean		4
Phosphorus MCL WQT Computed (TP)				 2.0 mg/L 0.300 mg/L	 0.100 mg/L, 0.078 lbs/day	5
TKN, Nitrate+Nitrite, and Total Nitrogen						1,6
Acute WET						7,8

Footnotes:

1. No changes from the current permit.
2. Monitoring only.
3. These limits are based on the Cold Water (CW) community of the immediate receiving water as described in s. NR 210.05(1), Wis. Adm. Code.
4. Additional Limit: No more than 10 percent of *E. coli* bacteria samples collected in any calendar month may exceed 410 count/100 mL.
5. WQT computed compliance limits also require a corresponding Minimum Control Level (MCL) of 2.0 mg/L to be met at the discharge.
6. As recommended in the Department's October 1, 2019 *Guidance for Total Nitrogen Monitoring in Wastewater Permits*, annual total nitrogen monitoring is recommended for all minor municipal permittees. Sections 283.37(5) and 283.55(1)(e), Wis. Stats, and ss. NR 200.065(1)(g) and NR 200.065(1)(h), Wis. Adm. Codes, provide the authority to request this monitoring during the permit term. Total Nitrogen is the sum of nitrate (NO_3), nitrite (NO_2), and total Kjeldahl nitrogen (TKN) (all expressed as N).

7. Two Acute WET tests are recommended. Sampling WET concurrently with any chemical-specific toxic substances is recommended. Tests should be done in rotating quarters, to collect seasonal information about this discharge.
8. According to the *State of Wisconsin Aquatic Life Toxicity Testing Methods Manual* (s. NR 219.04, Table A, Wis. Adm. Code), a synthetic (standard) laboratory water may be used as the dilution water and primary control in acute WET tests.

Please consult the attached report for details regarding the above recommendations. If there are any questions or comments, please contact Benjamin Hartenbower at (715) 225-4705 or benjamin.hartenbower@wisconsin.gov or Diane Figiel at Diane.Figiel@wisconsin.gov.

Attachments (2) – Narrative & Map

PREPARED BY: _____ Date: 12/16/2025

Benjamin Hartenbower, PE,
Water Resources Engineer

E-cc: Katie Jo Jerzak, Wastewater Engineer – WCR/Eau Claire
Geisa Bittencourt, Regional Wastewater Supervisor – WCR/Eau Claire
Diane Figiel, Water Resources Engineer – WY/3
Nate Willis, Wastewater Engineer – WY/3
Kim Kuber, Water Quality Biologist – SCR/Dodgeville

Attachment #1

Water Quality-Based Effluent Limitations for
The Readstown Wastewater Treatment Facility

WPDES Permit No. WI-0021661

Prepared by: Benjamin P. Hartenbower

PART 1 – BACKGROUND INFORMATION

Facility Description

The Readstown Wastewater Treatment Plant treats domestic wastewater from the Village of Readstown and has an annual average design flow of 0.0937 million gallons per day (MGD). The facility is a sequencing batch reactor (SBR) type treatment plant. Effluent treatment includes screenings & grit removal and aerated settling basins. Effluent is seasonally disinfected using ultraviolet (UV) light prior to discharge to the Kickapoo River.

Attachment #2 is a map of the area showing the approximate location of Outfall 006.

Existing Permit Limitations

The current permit, which expired on March 31, 2025, includes the following effluent limitations and monitoring requirements.

Parameter	Daily Maximum	Daily Minimum	Weekly Average	Monthly Average	Six-Month Average	Footnotes
Flow Rate						1,2
BOD_5			45 mg/L	30 mg/L		1,3
TSS			45 mg/L	30 mg/L		1,3
pH	9.0 s.u.	6.0 s.u.				1
Fecal Coliform May - September			**656 #/100 mL geometric mean**	400 #/100 mL geometric mean		4
Phosphorus Interim Final WQBEL				2.0 mg/L 0.300 mg/L	0.100 mg/L, 0.078 lbs/day	5
TKN, Nitrate+Nitrite, and Total Nitrogen						2

Footnotes:

1. These limitations are not being evaluated as part of this review. Because the water quality criteria (WQC), reference effluent flow rates, and receiving water characteristics have not changed, limitations for these water quality characteristics do not need to be re-evaluated at this time.
2. Monitoring only.
3. These limits are based on the Cold Water (CW) community of the immediate receiving water as described in s. NR 210.05(1), Wis. Adm. Code.
4. Additional limits to comply with the expression of limits requirements in ss. NR 106.07 and NR 205.065(7), Wis. Adm. Codes, are included in bold.
5. Individual Phosphorus Variance limit of 2.0 mg/L.

Receiving Water Information

- Name: Kickapoo River
- Waterbody Identification Code (WBIC): 1182400
- Classification used in accordance with chs. NR 102 and 104, Wis. Adm. Code:
  Cold Water (Category 4), Class II trout stream, non-public water supply.
- Low flows used in accordance with chs. NR 106 and 217, Wis. Adm. Code: Conservative estimates of the low flow characteristics were developed by combining the 7-Q_2 and 7-Q_{10} data from USGS Stations 05408000 (Kickapoo River at La Farge) and 05409000 (West Fork Kickapoo River near Readstown).
  7-Q_{10} = 86 cubic feet per second (cfs)
  7-Q_2 = 106 cfs
  Harmonic Mean Flow = 95 cfs using a drainage area of 105 mi^2
  The Harmonic Mean has been estimated based on average flow and the 7-Q_{10} using an equation from U.S. EPA's *Technical Support Document for Water Quality-Based Toxics Control* (March 1991, EPA/505/2-90-001, pgs. 88-89).
- Hardness = 263 mg/L as $CaCO_3$. This value represents the geometric mean of hardness from the Kickapoo River from 08/07/1991 to 07/07/1992 (n = 10).
- % of low flow used to calculate limits in accordance with s. NR 106.06(4)(c)5., Wis. Adm. Code: 25%
- Source of background concentration data: Chloride data are from the Kickapoo River. Metals data from the Kickapoo River at Oil City are used in this evaluation. The numerical values are shown in the tables below. If no data is available, the background concentration is assumed to be negligible and a value of zero is used in the computations. Background data for calculating effluent limitations for ammonia nitrogen are described later.
- Multiple dischargers: There are several other dischargers to the Kickapoo River, however they are not in the immediate vicinity and the mixing zones do not overlap. Therefore, the other dischargers do not impact this evaluation.
- Impaired water status: The Kickapoo River is impaired for Mercury from mile 19.05 to 25.45 and Total Phosphorus (multiple segments between miles 19.05 and 119.4).

Effluent Information

- Flow Rate(s):
  Annual Average = 0.094 MGD (Million Gallons per Day)
  For reference, the actual average flow from April 2020 to September 2025 was 0.039 MGD.
- Hardness = 277 mg/L as $CaCO_3$. This value represents the geometric mean of data (n = 4) from February 2024 to March 2024.
- Acute dilution factor used in accordance with s. NR 106.06(3)(c), Wis. Adm. Code: Not applicable – this facility does not have an approved Zone of Initial Dilution (ZID).
- Wastewater source: Domestic wastewater.
- Water supply: Readstown Waterworks
- Additives: None.
- Effluent characterization: This facility is categorized as a minor municipality, so the permit application required effluent sample analyses for a limited number of common pollutants, as specified in s. NR 200.065, Table 1, Wis. Adm. Code, primarily metal substances plus ammonia, chloride, and hardness. The permit-required monitoring for Phosphorus from April 2020 to October 2025 is used in this evaluation.

- Effluent data for substances for which a single sample was analyzed is shown in the tables in Part 2, in the column titled "MEAN EFFL. CONC.". Otherwise, substances with multiple effluent data are shown in the tables below or in their respective parts in this evaluation.

Effluent Data for Outfall 006

Sample Date	Copper µg/L	Sample Date	Chloride mg/L
02/19/2024	10.6	02/19/2024	161
02/26/2024	8.98	02/26/2024	166
03/04/2024	10.0	03/04/2024	161
03/11/2024	10.8	03/11/2024	191
03/15/2024	9.71		
03/25/2024	6.79		
04/01/2024	5.30		
04/08/2024	3.70		
04/15/2024	6.18		
04/22/2024	6.07		
04/29/2024	5.43		
1-day P_{99}	15.1	mean	170
4-day P_{99}	10.9		

The following table presents the average concentrations and loadings at Outfall 006 from April 2020 to October 2025 for all parameters with limits in the current permit to meet the requirements of s. NR 201.03(6), Wis. Adm. Code:

Parameters with Effluent Limits

	Average Measurement
BOD_5	4 mg/L*
TSS	3 mg/L*
pH	7.3 s.u.
Fecal Coliform	1.4 #/100 mL**
Phosphorus	1.952 mg/L

*Results below the limit of detection (LOD) were included as zeros in calculation of average.
** The average measurement for bacteria is calculated as a geometric mean. Values reported below the LOD are replaced with a value of 1 for the calculation of the geometric mean.

PART 2 – WATER QUALITY-BASED EFFLUENT LIMITATIONS FOR TOXIC SUBSTANCES – EXCEPT AMMONIA NITROGEN

Permit limits for toxic substances are required whenever any of the following occur:

1. The maximum effluent concentration exceeds the calculated limit (s. NR 106.05(3), Wis. Adm. Code)
2. If 11 or more detected results are available in the effluent, the upper 99th percentile (or P_{99}) value exceeds the comparable calculated limit (s. NR 106.05(4), Wis. Adm. Code)
3. If fewer than 11 detected results are available, the mean effluent concentration exceeds 1/5 of the calculated limit (s. NR 106.05(6), Wis. Adm. Code)

Acute Limits based on 1-Q_{10}

Daily maximum effluent limitations for toxic substances are based on the acute toxicity criteria (ATC), listed in ch. NR 105, Wis. Adm. Code. Previously daily maximum limits for toxic substances were calculated as two times the ATC. However, changes to ch. NR 106, Wis. Code, (September 1, 2016) require the Department to calculate acute limitations using the same mass balance equation as used for other limits along with the 1-Q_{10} receiving water low flow to determine if more restrictive effluent limitations are needed to protect the receiving stream from discharges which may cause or contribute to an exceedance of the acute water quality standards. The mass balance equation is provided below.

$$\text{Limitation} = \frac{(WQC)\,(Qs + (1-f)\,Qe) - (Qs - f\,Qe)\,(Cs)}{Qe}$$

Where:

WQC =Acute toxicity criterion or secondary acute value according to ch. NR 105, Wis. Adm. Code.

Qs = average minimum 1-day flow which occurs once in 10 years (1-day Q_{10}) if the 1-day Q_{10} flow data is not available = 80% of the average minimum 7-day flow which occurs once in 10 years (7-day Q_{10}).

Qe = Effluent flow (in units of volume per unit time) as specified in s. NR 106.06(4)(d), Wis. Adm. Code.

f = Fraction of the effluent flow that is withdrawn from the receiving water, and

Cs = Background concentration of the substance (in units of mass per unit volume) as specified in s. NR 106.06(4)(e), Wis. Adm. Code.

If the receiving water is effluent dominated under low stream flow conditions, the 1-Q_{10} method of limit calculation produces the most stringent daily maximum limitations and should be used while making reasonable potential determinations. This is not the case for the Readstown Wastewater Treatment Facility, and the limits are set based on two times the acute toxicity criteria.

The following tables list the calculated WQBELs for this discharge along with the results of effluent sampling. All concentrations are expressed in terms of micrograms per Liter (µg/L), except for hardness and chloride (mg/L).

Daily Maximum Limits based on Acute Toxicity Criteria (ATC)
RECEIVING WATER FLOW = 69 cfs, (1-Q_{10} (estimated as 80% of 7-Q_{10})), as specified in s. NR 106.06(3)(bm), Wis. Adm. Code.

SUBSTANCE	REF. HARD.* mg/L	ATC	MEAN BACK-GRD.	MAX. EFFL. LIMIT**	1/5 OF EFFL. LIMIT	MEAN EFFL. CONC.	1-day P_{99}	1-day MAX. CONC.
Arsenic		339.8		680	136	1.14		
Cadmium	277	14.04	0.025	28	6	<0.084		
Chromium (+3)	277	4158.84	0.836	8318	1664	<0.7		
Copper	277	40.64	1.093	81			15.15	10.80
Lead	277	286.6	0.95	573	115	<1.08		
Nickel	268	1080.28		2161	432	<0.9		
Zinc	277	293.83	2.935	588	118	<26		
Chloride (mg/L)		757	9	1514	303	170		191

* The indicated hardness may differ from the effluent hardness because the effluent hardness exceeded the maximum range in ch. NR 105, Wis. Adm. Code, over which the acute criteria are applicable. In that case, the maximum of the range is used to calculate the criterion.
**The 2 × ATC method of limit calculation yields a more restrictive limit than consideration of ambient concentrations and 1-Q_{10} flow rates per the changes to s. NR 106.07(3), Wis. Adm. Code, effective 09/01/2016.

Weekly Average Limits based on Chronic Toxicity Criteria (CTC)
RECEIVING WATER FLOW = 22 cfs, (¼ of 7-Q_{10}), as specified in s. NR 106.06(4)(c), Wis. Adm. Code.

SUBSTANCE	REF. HARD.* mg/L	CTC	MEAN BACK-GRD.	WEEKLY AVE. LIMIT**	1/5 OF EFFL. LIMIT	MEAN EFFL. CONC.	4-day P_{99}
Arsenic		148		22026	4405	1.14	
Cadmium	175	3.82	0.025	565	113	<0.084	
Chromium (+3)	263	190.27	0.836	28193	5639	<0.7	
Copper	263	23.67	1.093	3361			10.94
Lead	263	71.27	0.95	10466	2093	<1.08	
Nickel	263	118.25		17598	3520	<0.9	
Zinc	263	280.34	2.935	41287	8257	<26	
Chloride (mg/L)		395	9	57455	11491	170	

Monthly Average Limits based on Wildlife Criteria (WC)
The effluent characterization did not include any effluent sampling results for substances for which Wildlife Criteria exist.

Monthly Average Limits based on Human Threshold Criteria (HTC)
RECEIVING WATER FLOW = 24 cfs, (¼ of Harmonic Mean), as specified in s. NR 106.06(4)(c), Wis. Adm. Code.

SUBSTANCE	HTC	MEAN BACK-GRD.	MO'LY AVE. LIMIT	1/5 OF EFFL. LIMIT	MEAN EFFL. CONC.	30-day P_{99}
Cadmium	370	0.025	61043	12209	<0.084	
Chromium (+3)	3818000	0.836	629936132	125987226	<0.7	
Lead	140	0.95	22943	4589	<1.08	
Nickel	43000		7094620	1418924	<0.9	

Monthly Average Limits based on Human Cancer Criteria (HCC)
RECEIVING WATER FLOW = 24 cfs, (¼ of Harmonic Mean), as specified in s. NR 106.06(4)(c), Wis. Adm. Code.

SUBSTANCE	HCC	MEAN BACK-GRD.	MO'LY AVE. LIMIT	1/5 OF EFFL. LIMIT	MEAN EFFL. CONC.	30-day P_{99}
Arsenic	13.3		2194.4	438.9	1.14	

In addition to evaluating the need for limits for each individual substance for which HCC exist, s. NR 106.06(8), Wis. Adm. Code, requires the evaluation of the cumulative cancer risk. Because no effluent limits are needed based on HCC, determination of the cumulative cancer risk is not needed per s. NR 106.06(8), Wis. Adm. Code.

Conclusions and Recommendations
Based on a comparison of the calculated limitations and effluent data, effluent limitations are not required for toxic substances.

Mercury– The permit application did not require monitoring for mercury because the Readstown Wastewater Treatment Facility is categorized as a minor facility as defined in s. NR 200.02(8), Wis. Adm. Code. In accordance with s. NR 106.145(3)(a)3, Wis. Adm. Code, a minor municipal discharger shall monitor, and report results of influent and effluent mercury monitoring once every three months if, "there are two or more exceedances in the last five years of the high-quality sludge mercury concentration of 17 mg/kg specified in s. NR 204.07(5), Wis. Adm. Code." A review of the past six years of sludge characteristics data reveals that all sample results are within expected analytical ranges and well below the 17 mg/kg level. The average concentration in the sludge from 2021 to 2024 was <0.083 mg/kg. **Therefore, no mercury monitoring is recommended at Outfall 006.**

PFOS and PFOA – The need for PFOS and PFOA monitoring is evaluated in accordance with s. NR 106.98(2), Wis. Adm. Code.

Available monitoring sample data from the Readstown Waterworks (PWS ID: 66302610) is provided in the table below:

Water Supply PFAS Data

Sample Date	Sample ID	Well #	PFOS (ng/L)	PFOA (ng/L)
06/26/2024	WC03877-05		<0.47	<0.46
05/01/2023	CB04387-01	BH105	<0.32	<0.5
02/11/2025	CD01598-01	ABY061	<0.48	<0.47
		Average =	ND	ND

The limited data above shows the municipal water supply is below 1/5th of the applicable PFOS and PFOA criteria.

Based on the annual design flow and lack of nondomestic contributions, it is unlikely that the effluent will contain PFOS or PFOA. Therefore, **PFOS and PFOA monitoring is not recommended.**

PART 3 – WATER QUALITY-BASED EFFLUENT LIMITATIONS FOR AMMONIA NITROGEN

The State of Wisconsin promulgated revised water quality standards for ammonia nitrogen in ch. NR 105, Wis. Adm. Code, effective March 1, 2004 which includes criteria based on both acute and chronic toxicity to aquatic life. Given the fact that the Readstown Wastewater Treatment Facility does not currently have ammonia nitrogen limits, the need for limits is evaluated at this time.

Daily Maximum Limits based on Acute Toxicity Criteria (ATC)

Daily maximum limitations are based on acute toxicity criteria in ch. NR 105, Wis. Adm. Code, which are a function of the effluent pH and the receiving water classification. The acute toxicity criterion (ATC) for ammonia is calculated using the following equation:

$$\text{ATC in mg/L} = [A \div (1 + 10^{(7.204 - \text{pH})})] + [B \div (1 + 10^{(\text{pH} - 7.204)})]$$

Where:

A = 0.275 and B = 39.0 for a Cold Water Category 4 fishery, and

pH (s.u.) = that characteristic of the effluent.

The effluent pH data was examined as part of this evaluation. A total of 2036 samples were reported from April 2020 to October 2025. The maximum reported value was 7.70 s.u. (Standard pH Units). The effluent pH was 7.50 s.u. or less 99% of the time. The 1-day P_{99}, calculated in accordance with s. NR 106.05(5), Wis. Adm. Code, is 7.57 s.u. The mean plus the standard deviation multiplied by a factor of 2.326, an estimate of the upper ninety ninth percentile for a normally distributed dataset, is 7.56 s.u. Therefore, a value of 7.57 s.u. is believed to represent the maximum reasonably expected pH, and therefore most appropriate for determining daily maximum limitations for ammonia nitrogen. Substituting a value of 7.57 s.u. into the equation above yields an ATC = 11.93 mg/L.

Daily Maximum Ammonia Nitrogen Effluent Limitations Calculation Method
In accordance with s. NR 106.32(2), Wis. Adm. Code daily maximum ammonia limitations are calculated using the 1-Q_{10} receiving water low flow if it is determined that the previous method of acute ammonia limit calculation (2×ATC) is not sufficiently protective of the fish and aquatic life. The more restrictive calculated limits shall apply.

The calculated daily maximum ammonia nitrogen effluent limits using the mass balance approach with the 1-Q_{10} (estimated as 80 % of 7-Q_{10}) and the 2×ATC approach are shown below.

Daily Maximum Ammonia Nitrogen Determination

	Ammonia Nitrogen Limit mg/L
2×ATC	23.86
1-Q_{10}	5643

The 2×ATC method yields the most stringent limits for the Readstown Wastewater Treatment Facility.

Presented below is a table of daily maximum limitations corresponding to various effluent pH values. Use of this table is not necessarily recommended in the permit, but it is presented herein for informational purposes.

Daily Maximum Ammonia Nitrogen Limits – CW4

Effluent pH s.u.	Limit mg/L	Effluent pH s.u.	Limit mg/L	Effluent pH s.u.	Limit mg/L
6.0 ≤ pH ≤ 6.1	72	7.0 < pH ≤ 7.1	44	8.0 < pH ≤ 8.1	9.3
6.1 < pH ≤ 6.2	71	7.1 < pH ≤ 7.2	39	8.1 < pH ≤ 8.2	7.7
6.2 < pH ≤ 6.3	69	7.2 < pH ≤ 7.3	35	8.2 < pH ≤ 8.3	6.3
6.3 < pH ≤ 6.4	67	7.3 < pH ≤ 7.4	31	8.3 < pH ≤ 8.4	5.2
6.4 < pH ≤ 6.5	65	7.4 < pH ≤ 7.5	27	8.4 < pH ≤ 8.5	4.3
6.5 < pH ≤ 6.6	63	7.5 < pH ≤ 7.6	23	8.5 < pH ≤ 8.6	3.5
6.6 < pH ≤ 6.7	60	7.6 < pH ≤ 7.7	19	8.6 < pH ≤ 8.7	2.9
6.7 < pH ≤ 6.8	56	7.7 < pH ≤ 7.8	16	8.7 < pH ≤ 8.8	2.5
6.8 < pH ≤ 6.9	52	7.8 < pH ≤ 7.9	14	8.8 < pH ≤ 8.9	2.1
6.9 < pH ≤ 7.0	48	7.9 < pH ≤ 8.0	11	8.9 < pH ≤ 9.0	1.8

Weekly and Monthly Average Limits based on Chronic Toxicity Criteria (CTC)
The ammonia limit calculation also warrants evaluation of weekly and monthly average limits based on chronic toxicity criteria for ammonia, because those limits relate to the assimilative capacity of the receiving water.

Weekly average and monthly average limits for ammonia nitrogen are based on chronic toxicity criteria in ch. NR 105, Wis. Adm. Code.

The 30-day chronic toxicity criterion (CTC) for ammonia in waters classified as a Coldwater Community is calculated by the following equation, according to subchapter IV of NR 106, Wis. Adm. Code.

$$CTC = E \times \{[0.0676 \div (1 + 10^{(7.688 - pH)})] + [2.912 \div (1 + 10^{(pH - 7.688)})]\} \times C$$

Where:

pH = the pH (s.u.) of the receiving water,
E = 0.854,
C = the minimum of 2.85 or $1.45 \times 10^{(0.028 \times (25 - T))}$,
T = the temperature (°C) of the receiving water

The 4-day criterion is equal to the 30-day criterion multiplied by 2.5. The 4-day criteria are used in a mass-balance equation with the 7-Q_{10} (4-Q_3, if available) to derive weekly average limitations. And the 30-day criteria are used with the 30-Q_5 (estimated as 85% of the 7-Q_2 if the 30-Q_5 is not available) to derive monthly average limitations. The stream flow value is further adjusted to temperature; 100% of the flow is used if the Temperature ≥ 16 °C, 25% of the flow is used if the Temperature < 11°C, and 50% of the flow is used if the Temperature ≥ 11 °C but < 16 °C.

The default basin assumed values are used for temperature. The pH and background ammonia concentrations are from the Kickapoo River. These values are shown in the table below, with the resulting criteria and effluent limitations.

Weekly and Monthly Average Ammonia Nitrogen Limits – CW4

		April & May	June - September	October - March
Effluent Flow	Qe (MGD)	0.094	0.094	0.094
Background Information	7-Q_{10} (cfs)	86	86	86
	7-Q_2 (cfs)	106	106	106
	Ammonia (mg/L)	0.03	0.03	0.04
	Average Temperature (°C)	11	16	4.2
	Maximum Temperature (°C)	13	18	9.4
	pH (s.u.)	8.73	8.10	8.05
	% of Flow used	25	100	25
	Reference Weekly Flow (cfs)	21.50	86.00	21.50
	Reference Monthly Flow (cfs)	22.53	90.10	22.53
Criteria mg/L	4-day Chronic	1.85	4.25	5.65
	30-day Chronic	0.74	1.70	2.26
Effluent Limits mg/L	Weekly Average	272	2499	835
	Monthly Average	111	1036	346

Effluent Data

Four samples for ammonia nitrogen were taken February 2024 to March 2024.

Ammonia Nitrogen Effluent Data

Sample Date	Ammonia Nitrogen mg/L
02/19/2024	1.99
02/26/2024	0.11
03/04/2024	1.06
03/11/2024	0.18

Reasonable Potential
Based on this comparison, there is no reasonable potential for the discharge to exceed any of the calculated ammonia nitrogen limits.

Conclusions and Recommendations
In summary, ammonia nitrogen **limitations and monitoring are not recommended** in the reissued permit.

PART 4 – WATER QUALITY-BASED EFFLUENT LIMITATIONS FOR BACTERIA

On May 1, 2020, revisions to chs. NR 102 and NR 210, Wis. Adm. Codes, became effective which replace fecal coliform limits with new *Escherichia coli (E. coli)* limits for protection of recreational uses. Section NR 210.06(2)(a)1, Wis. Adm. Code, includes two limits which must be included in permits for facilities which are required to disinfect:

1. The geometric mean of *E. coli* bacteria in effluent samples collected in any calendar month may not exceed 126 counts/100 mL.
2. No more than 10 percent of *E. coli* bacteria samples collected in any calendar month may exceed 410 counts/100 mL.

E. coli monitoring is recommended at the same frequency that fecal coliform monitoring is required in the current permit. Because the Readstown Wastewater Treatment Facility permit requires weekly monitoring, the 410 counts/100 mL limit will effectively function as a daily maximum limit unless the facility performs additional monitoring. Any additional monitoring beyond what is required by the permit must also be reported on the DMR as required in the standard requirements section of the permit.

These limits are required May through September. No changes are recommended to the current recreational period and the required disinfection season.

Effluent Data
The Readstown Wastewater Treatment Facility has monitored effluent *E. coli* from May 2024 to September 2024 and a total of 22 results are available. A geometric mean of 126 counts/100 mL was never exceeded in the 5 months of disinfection, with a maximum monthly geometric mean of 3 counts/100 mL. Effluent data never exceeded 410 counts/100 mL. The maximum reported value was 15 counts/100 mL. Based on this effluent data it appears that the facility can meet new *E. coli* limits and a compliance schedule is not needed in the reissued permit.

PART 5 – PHOSPHORUS

Technology-Based Effluent Limit
Subchapter II of Chapter NR 217, Wis. Adm. Code, requires municipal wastewater treatment facilities that discharge greater than 150 pounds of total phosphorus per month to comply with a monthly average limit of 1.0 mg/L, or an approved alternative concentration limit.

Because the Readstown Wastewater Treatment Facility does not currently have an existing technology-based limit, the need for this limit in the reissued permit is evaluated. The data demonstrates that the annual monthly average phosphorus loading is less than 150 lbs/month, which is the threshold for municipalities in accordance to s. NR 217.04(1)(a)1, Wis. Adm. Code, and **therefore a technology-based limit is not required.**

Annual Average Mass Total Phosphorus Loading

Month	Phosphorus Concentration (mg/L)	Total Effluent Flow (Million Gallons)	Calculated Mass (lbs/month)
November 2024	2.48	0.952	19.67
December 2024	2.08	0.829	14.41
January 2025	2.01	0.747	12.51
February 2025	2.01	0.612	10.25
March 2025	2.38	0.763	15.13
April 2025	1.13	1.001	9.43
May 2025	0.97	1.106	8.90
June 2025	1.45	1.297	15.67
July 2025	1.77	1.175	17.38
August 2025	1.84	1.025	15.74
September 2025	2.46	0.761	15.59
		Average =	14.06

Total P (lbs/month) = monthly average (mg/L) × total flow (MG/month) × 8.34 (lbs/gallon)
Where total flow is the sum of the actual flow (Million Gallons) for that month.

In addition, the need for a WQBEL for phosphorus must be considered.

Water Quality-Based Effluent Limits (WQBEL)
Revisions to administrative rules regulating phosphorus took effect on December 1, 2010. These rule revisions include additions to s. NR 102.06, Wis. Adm. Code, which establish phosphorus standards for surface waters. Subchapter III of NR 217, Wis. Adm. Code, establishes procedures for determining WQBELs for phosphorus, based on the applicable standards in ch. NR 102, Wis. Adm. Code.

Section NR 102.06(3)(a), Wis. Adm. Code, specifically names river segments for which a phosphorus criterion of 0.100 mg/L applies. For other stream segments that are not specified in s. NR 102.06(3)(a), Wis. Adm. Code, s. NR 102.06(3)(b), Wis. Adm. Code, specifies a phosphorus criterion of 0.075 mg/L. The phosphorus criterion of 0.100 mg/L applies for The Kickapoo River.

The conservation of mass equation is described in s. NR 217.13(2)(a), Wis. Adm. Code, for phosphorus WQBELs and includes variables of water quality criterion (WQC), receiving water flow rate (Qs), effluent flow rate (Qe), and upstream phosphorus concentrations (Cs) provided below.

$$\text{Limitation} = [(WQC)(Qs+(1-f)\ Qe) - (Qs-f\ Qe)\ (Cs)]/Qe$$

Where:

WQC = 0.100 mg/L for the Kickapoo River
Qs = 100% of the 7-Q_2 of 106 cfs
Cs = background concentration of phosphorus in the receiving water pursuant to s. NR 217.13(2)(d), Wis. Adm. Code
Qe = effluent flow rate = 0.094 MGD = 0.145 cfs
f = the fraction of effluent withdrawn from the receiving water = 0

Section NR 217.13(2)(d), Wis. Adm. Code, specifies that the background phosphorus concentration used in the limit calculation formula shall be calculated as a median using the procedures specified in s. NR 102.07(1)(b) to (c), Wis. Code. All representative data from the most recent 5 years shall be used, but data from the most recent 10 years may be used if representative of current conditions.

The following data were considered in estimating the background phosphorus concentration:

In Stream Total Phosphorus Data

SWIMS ID	533027	10029649
Station Name	Kickapoo River - Banker Park In Viola	Kickapoo River 100ft N of Hwy 131 (St. 1)
Waterbody	Kickapoo River	Kickapoo River
Sample Count	6	12
First Sample	10/29/2009	05/18/2015
Last Sample	09/07/2010	10/17/2016
Mean	0.215	0.136
Median	0.186	0.119
NR 217 Median		0.170

Substituting a background concentration above criteria into the limit calculation equation above would result in a calculated limit that is less than the applicable criterion of 0.100 mg/L. However, s. NR 217.13(7), Wis. Adm. Code, specifies that "if the WQBEL calculated pursuant to the procedures in this section is less than the phosphorus criterion specified in s. NR 102.06, Wis. Adm. Code, for the water body, the effluent limit shall be set equal to the criterion."

Effluent Data

The following table summarizes effluent total phosphorus monitoring data from April 2020 to October 2025.

Total Phosphorus Effluent Data

	Phosphorus mg/L
1-day P_{99}	8.10
4-day P_{99}	4.56
30-day P_{99}	2.74
Mean	1.95
Std	1.62
Sample size	872
Range	0.017 - 19.5

Reasonable Potential Determination
The discharge has reasonable potential to cause or contribute to an exceedance of the water quality criterion because the 30-day P_{99} of reported effluent total phosphorus data is greater than the calculated WQBEL. Therefore, **a WQBEL is required.**

Limit Expression
According to s. NR 217.14(2), Wis. Adm. Code, because the calculated WQBEL is less than or equal to 0.3 mg/L, the effluent limit of 0.100 mg/L may be expressed as a six-month average. If a concentration limitation expressed as a six-month average is included in the permit, a monthly average concentration limitation of 0.300 mg/L, equal to three times the WQBEL calculated under s. NR 217.13, Wis. Adm. Code shall also be included in the permit. The six-month average should be averaged during the months of May – October and November – April.

Mass Limits
A mass limit is also required, pursuant to s. NR 217.14(1)(a), Wis. Adm. Code, because the discharge is to a surface water that is impaired for phosphorus. **This final mass limit shall be 0.100 mg/L × 8.34 × 0.094 MGD = 0.078 lbs/day expressed as a six-month average.**

Water Quality Trading Minimum Control Level
The Readstown Wastewater Treatment Facility has indicated interest in utilizing Water Quality Trading (WQT) as an alternative compliance option to offset any total phosphorus discharged from Outfall 006 that exceed the phosphorus WQBELs. The phosphorus WQBELs may be expressed as computed compliance limits, but a Minimum Control Level (MCL) must be set as a limit not to be exceeded at the outfall location. Therefore, the interim limit of **2.0 mg/L as a monthly average is recommended during the reissued permit term to serve as the MCL.**

PART 6 – WATER QUALITY-BASED EFFLUENT LIMITATIONS FOR THERMAL

Surface water quality standards for temperature took effect on October 1, 2010. These regulations are detailed in chs. NR 102 (Subchapter II – Water Quality Standards for Temperature) and NR 106 (Subchapter V – Effluent Limitations for Temperature) of the Wisconsin Administrative Code. Daily maximum and weekly average temperature criteria are available for the 12 different months of the year depending on the receiving water classification.

Due to the amount of upstream flow available for dilution in the limit calculation (Qs:Qe >30:1), the lowest calculated limitation is 120° F (s. NR 106.55(6)(a), Wis. Adm. Code). For treatment systems of domestic waste, there is no reasonable potential for the discharge to exceed this limit. **Therefore, temperature limits and monitoring are not recommended.**

PART 7 – WHOLE EFFLUENT TOXICITY (WET)

WET testing is used to measure, predict, and control the discharge of toxic materials that may be harmful to aquatic life. In WET tests, organisms are exposed to a series of effluent concentrations for a given time and effects are recorded. Decisions below related to the selection of representative data and the need for WET limits were made according to ss. NR 106.08 and 106.09, Wis. Adm. Code. WET monitoring frequency and toxicity reduction evaluation (TRE) recommendations were made using the best professional judgment of staff familiar with the discharge after consideration of the guidance in the *Whole Effluent Toxicity (WET) Program Guidance Document* (2022).

- Acute tests predict the concentration that causes lethality of aquatic organisms during a 48 to 96-hour exposure. To assure that a discharge is not acutely toxic to organisms in the receiving water, WET tests must produce a statistically valid LC50 (Lethal Concentration to 50% of the test organisms) greater than 100% effluent, according to s. NR 106.09(2)(b), Wis. Adm Code.

- Chronic testing is usually not recommended where the ratio of the 7-Q_{10} to the effluent flow exceeds 100:1. For the Readstown Wastewater Treatment Facility, that ratio is approximately 591:1. With this amount of dilution, there is believed to be little potential for acute or chronic toxicity effects in the Kickapoo River associated with the discharge from the Readstown Wastewater Treatment Facility, so the need for acute and chronic WET testing will not be considered further.

- According to the *State of Wisconsin Aquatic Life Toxicity Testing Methods Manual* (s. NR 219.04, Table A, Wis. Adm. Code), a synthetic (standard) laboratory water may be used as the dilution water and primary control in acute WET tests, unless the use of different dilution water is approved by the Department prior to use. The primary control water must be specified in the WPDES permit.

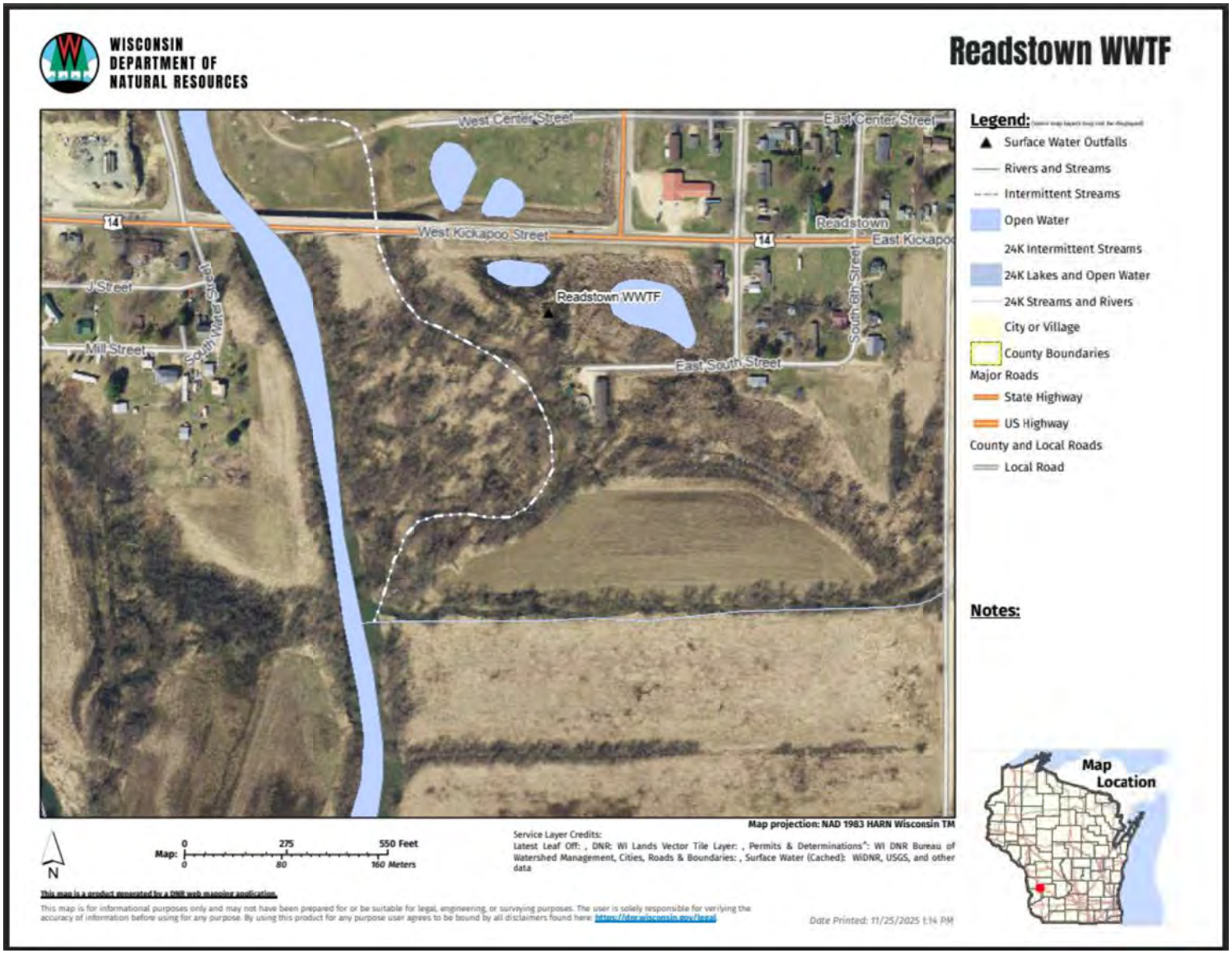
The WET checklist was developed to help DNR staff make recommendations regarding WET limits, monitoring, and other related permit conditions. The checklist indicates whether acute and chronic WET limits are needed, based on requirements specified in s. NR 106.08, Wis. Adm. Code. The checklist steps the user through a series of questions, assesses points based on the potential for effluent toxicity, and suggests monitoring frequencies based on points accumulated during the checklist analysis. As toxicity potential increases, more points accumulate, and more monitoring is recommended to ensure that toxicity is not occurring. A summary of the WET checklist analysis completed for this permittee is shown in the table below. Staff recommendations based on best professional judgment are provided below the summary table. For guidance related to reasonable potential and the WET checklist, see Chapter 1.3 of the WET Guidance Document: https://dnr.wisconsin.gov/topic/Wastewater/WET.html.

Attachment #1

WET Checklist Summary

	Acute	Chronic
AMZ/IWC	Not Applicable. **0 Points**	Chronic not evaluated.
Historical Data	No testing available. **5 Points**	
Effluent Variability	Little variability, no upsets. Fecal Coliform and Phosphorus exceedances, consistent WWTF operations. NONs sent 2021, 2023, 2024, and 2025. **5 Points**	
Receiving Water Classification	Cold Water (5 pts) **5 Points**	
Chemical-Specific Data	No reasonable potential for limits based on ATC. Ammonia, Arsenic, Chloride, and Copper detected. (3 pts) Additional Compounds of Concern: None. **3 Points**	
Additives	No additives in use. **0 Points**	
Discharge Category	No Industrial Contributors. **0 Points**	
Wastewater Treatment	Secondary or Better **0 Points**	
Downstream Impacts	No impacts known. **0 Points**	
Total Checklist Points:	**18 Points**	
Recommended Monitoring Frequency (from Checklist):	2 tests in permit term	
Limit Required?	No	
TRE Recommended? (from Checklist)	No	

- After consideration of the guidance provided in the Department's *WET Program Guidance Document* (2022) and other information described above, two acute WET tests are recommended in the reissued permit. Sampling WET concurrently with any chemical-specific toxic substances is recommended. Tests should be done in rotating quarters, to collect seasonal information about this discharge.


WISCONSIN
DEPARTMENT OF
NATURAL RESOURCES
Readstown WWTF
West Center Street
East Center Street
14
West Kickapoo Street
Readstown
East Kickapoo
J Street
South Water Street
Readstown WWTF
South 6th Street
Mill Street
East South Street
Legend:
Surface Water Outfalls
Rivers and Streams
Intermittent Streams
Open Water
24K Intermittent Streams
24K Lakes and Open Water
24K Streams and Rivers
City or Village
County Boundaries
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County and Local Roads
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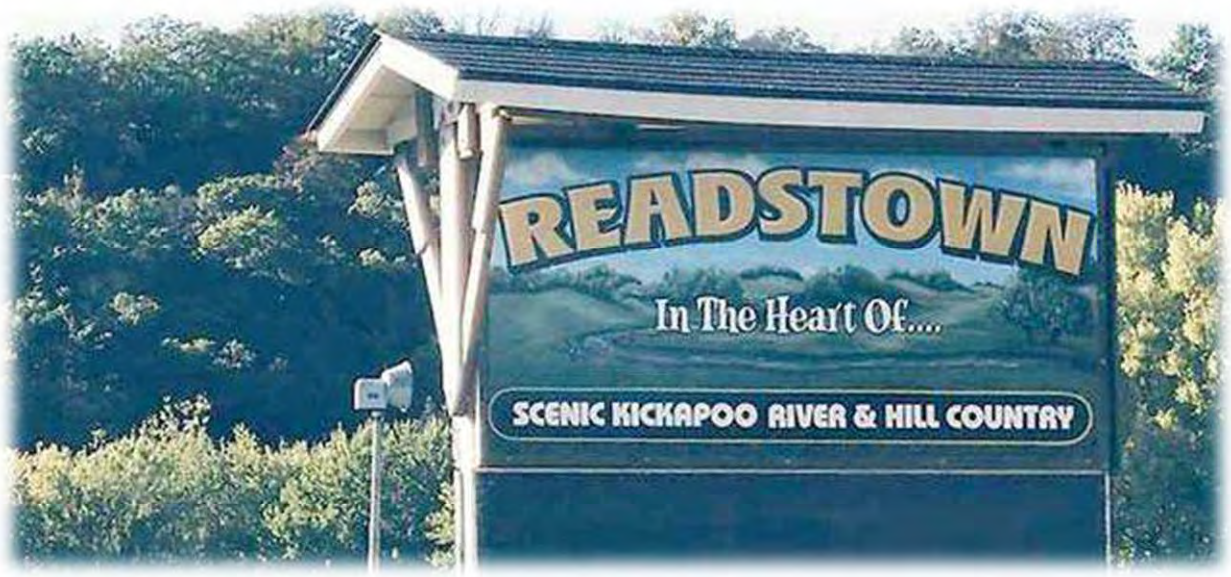
WATER QUALITY TRADING PLAN

May 2, 2025



Village of Readstown
Wastewater Treatment Facility

WPDES Permit No. WI-0021661-10-0
623 West South Street
Readstown, Wisconsin 54652

Prepared by:

Delta 3 Engineering, Inc.

875 S Chestnut St. | Platteville, WI 53818
Phone: (608) 348-5355
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www.delta3eng.biz

DELTA 3
EVERY ANGLE COVERED

Project Number: D22-138

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VI. Inspection Reporting 17
VII. Certification 19

Attachments

1) Notice of Intent to Conduct Water Quality Trading
2) Water Quality Trading Checklist
3) Location & Topography Map
4) Sanitary Sewer Map
5) Wastewater Treatment Facility Flow Schematic
6) HUC-12 Watershed Map
7) WQT Agreement
8) Wetland Map & Wetland Delineation Report
9) Soils Map and Testing Data
10) Current State of Eroding Streambanks Documentation
11) NRCS Streambank Erosion Estimator Report
12) Operation and Maintenance (O&M) Plan
13) WQT Plans and Specifications

I. Executive Summary

This Water Quality Trading Plan summarizes the Village of Readstown's (Village) plan to utilize Water Quality Trading (WQT) for compliance with the final total phosphorus limit as provided in the Wisconsin Pollutant Discharge Elimination System (WPDES) Permit #WI-0021661-10-0. The WQT Credit generation will include nonpoint source reduction of Total Phosphorus (TP) as modeled by the NRCS Streambank Erosion Estimator. Credits are then applied to the daily monitoring reports to demonstrate compliance. The Wastewater Treatment Facility (WWTF) currently treats approximately 0.0366 MGD and discharges effluent with an average Total Phosphorus (TP) concentration of approximately 2.20 mg/L. The WWTF plans to install chemical Phosphorus treatment and offset remaining TP with WQT Credits to consistently meet the final annual six-month average limit of 0.1 mg/L and a monthly average limit of 0.3 mg/L. A Chemical Addition Abbreviated Facility Plan shall be submitted to the DNR by June 30, 2025, Final Plans and Specifications by August 31, 2025, and Installation of the Chemical Addition Upgrade will be completed by December 31, 2025.

NRCS Streambank Erosion modeling methods were used to calculate the TP credits that would be generated based on the installation of best management practices (BMPs). These credits will be used to demonstrate compliance with the final total phosphorus limit as proposed in the WPDES Permit.

As demonstrated in modeling results from Table 1.1, the WWTF has the ability to register approximately **131 credits.** The implementation of this WQT Plan will result in compliance with the final TP limits. The WWTF intends to monitor TP credit usage and intends to perform construction of additional BMPs as needed for future effluent TP to comply with WPDES Permits Limits. A new Water Quality Trading Plan will be submitted at that time for new BMP practices and credit production.

Table 1.1 – Modeling Results

BMP ID	Lateral Recession Rate (ft/yr.)	Current Phosphorus Loading (lbs./yr.)	Proposed Phosphorus Loading (lbs./yr.)	Proposed Phosphorus Reductions (lbs./yr.)	Trade Ratio	Proposed Phosphorus Credits
A	0.50	47	0	47	3:1	16
B	0.30	52	0	52	3:1	17
C	0.40	143	0	143	3:1	48
D	0.50	132	0	132	3:1	44
E	0.30	6	0	6	3:1	2
F	0.30	11	0	11	3:1	4
					Total	**131**

NOTE:

Trade Ratio = (Delivery + Downstream + Equivalency + Uncertainty-Habitat Adjustment):1

Delivery = 0 (Credit generation and use are within same SPARROW catchment)

Downstream = 0 (For trades upstream of Outfall 001)

Equivalency = 0 (Not necessary of Total Phosphorus)

Uncertainty: *Streambank Stabilization without Habitat Restoration* = 3

II. **Background**

The purpose of this Water Quality Trading Plan (Plan) is to describe the Village's use of Water Quality Trading to comply with the total phosphorus limits as provided in the Village's WPDES Permit #WI-0021661-10-0. The Plan was developed following the Notice of Intent to Conduct Water Quality Trading, provided in Attachment #1. The Water Quality Trading Checklist Form 3400-208 is provided in Attachment #2.

The Village of Readstown (Village) is a small, rural community located in the southeastern portion of Vernon County at the intersection of United States Highway (U.S.H.) '14' and U.S.H. '61' in southwest Wisconsin. The Village owns and operates a Wastewater Treatment Facility (WWTF) which serves a population of approximately 376 residents and is comprised of primarily residential development. The topography of the area is shown in Attachment #3.

The existing sanitary sewer collection system consists of approximately 84 sanitary sewer manholes, 16,540 feet of eight-inch (8") sanitary sewer, and 35 feet of ten-inch (10") sanitary sewer. One (1) lift station is utilized throughout the system along with approximately 810 feet of four-inch (4") sanitary force main to assist with the delivery of wastewater to the WWTF. Please refer to Attachment #4 – Sanitary Sewer Map for location of sanitary sewer collection system components.

The Village of Readstown owns and operates a WWTF that utilizes an Intermittent Cycle Extended Aeration System (ICEAS) Sequencing Batch Reactor (SBR) treatment process. Preliminary treatment includes a mechanical screen and grit removal. After the mechanical screen and grit removal, the raw influent flows to the ICEAS SBR treatment process. The wastewater then enters an effluent pump station prior to ultraviolet disinfection. The effluent discharges to Outfall 001 Kickapoo River. Sludge from the treatment process is aerobically digested and stored prior to land spreading on DNR approved sites. No processes or chemicals are used at the WWTF for the removal of Phosphorus. The WWTF intends to begin treating phosphorus with the aid of chemical addition in conjunction with WQT in order to meet final TP limits. A Chemical Addition Abbreviated Facility Plan shall be submitted to the DNR by June 30, 2025, Final Plans and Specifications by August 31, 2025, and Installation of the Chemical Addition Upgrade will be completed by December 31, 2025. The current WWTF treats 0.0344 MGD on an annual average with a design flow of 0.0937 MGD. Please see Attachment #5 for the WWTF flow schematic.

The monthly average influent and effluent flows and loadings at the WWTF for 2022, 2023, and 2024 are provided in Table 2.1, Table 2.2, and Table 2.3, respectively. An annual average summary table is provided in Table 2.4.

Table 2.1 – 2022 Monthly Averages

Month	Flow	BOD_5		Suspended Solids		Total Phosphorus		Total Phosphorus
	(MGD)	(mg/L)		(mg/L)		(mg/L)		(lbs./day)
	Effluent	Influent	Effluent	Influent	Effluent	Influent	Effluent	Effluent
Jan. ('22)	0.0240	101	5	40	2	-	1.65	0.33
Feb. ('22)	0.0220	109	4	51	2	-	2.42	0.44
Mar. ('22)	0.0290	136	6	104	7	-	1.58	0.38
Apr. ('22)	0.0375	106	4	80	1	-	0.99	0.31
May ('22)	0.0358	103	3	86	2	-	1.36	0.41
June ('22)	0.0367	80	4	68	2	-	1.89	0.58
July ('22)	0.0371	90	6	78	6	-	2.41	0.75
Aug. ('22)	0.0395	89	6	86	7	-	1.92	0.63
Sept. ('22)	0.0330	92	5	70	3	-	2.50	0.69
Oct. ('22)	0.0253	125	6	91	6	-	2.05	0.43
Nov. ('22)	0.0265	130	7	88	5	-	2.95	0.65
Dec. ('22)	0.0275	103	7	66	6	-	1.95	0.45
Annual Average =	**0.0312**	**105**	**5**	**76**	**4**	**-**	**1.97**	**0.50**

Table 2.2 – 2023 Monthly Averages

Month	Flow	BOD_5		Suspended Solids		Total Phosphorus		Total Phosphorus
	(MGD)	(mg/L)		(mg/L)		(mg/L)		(lbs./day)
	Effluent	Influent	Effluent	Influent	Effluent	Influent	Effluent	Effluent
Jan. ('23)	0.0304	85	6	56	5	-	1.55	0.39
Feb. ('23)	0.0491	122	8	98	7	-	1.67	0.68
Mar. ('23)	0.0411	65	10	60	7	-	2.12	0.73
Apr. ('23)	0.0511	70	9	54	5	-	0.98	0.42
May ('23)	0.0673	76	3	59	2	-	2.02	1.13
June ('23)	0.0411	79	4	58	4	-	3.57	1.22
July ('23)	0.0259	156	4	144	3	-	3.03	0.65
Aug. ('23)	0.0229	161	4	151	2	-	2.43	0.46
Sept. ('23)	0.0206	156	4	114	3	-	4.45	0.76
Oct. ('23)	0.0245	164	6	135	6	-	3.85	0.79
Nov. ('23)	0.0204	167	4	125	3	-	2.62	0.45
Dec. ('23)	0.0182	168	5	112	3	-	2.89	0.44
Annual Average =	**0.0344**	**122**	**6**	**97**	**4**	-	**2.60**	**0.68**

Table 2.3 – 2024 Monthly Averages

Month	Flow	BOD_5		Suspended Solids		Total Phosphorus		Total Phosphorus
	(MGD)	(mg/L)		(mg/L)		(mg/L)		(lbs./day)
	Effluent	Influent	Effluent	Influent	Effluent	Influent	Effluent	Effluent
Jan. ('24)	0.0198	149	6	100	4	-	2.82	0.47
Feb. ('24)	0.0244	95	8	37	7	-	1.55	0.38
Mar. ('24)	0.0798	156	5	41	3	-	2.23	0.35
Apr. ('24)	0.0248	138	5	43	3	-	1.76	0.37
May ('24)	0.0355	111	5	90	4	-	2.49	0.66
June ('24)	0.0455	87	5	86	4	-	1.83	0.64
July ('24)	0.0589	92	7	97	7	-	1.52	0.69
Aug. ('24)	0.0372	111	6	100	6	-	1.40	0.42
Sept. ('24)	0.0302	137	6	170	3	-	3.28	0.81
Oct. ('24)	0.0241	228	4	213	2	-	2.96	0.55
Nov. ('24)	0.0317	147	4	140	3	-	2.48	0.65
Dec. ('24)	0.0267	142	5	115	3	-	2.08	0.44
Annual Average =	**0.0366**	**133**	**6**	**103**	**4**	**-**	**2.20**	**0.54**

Table 2.4 – Annual Averages

Year	Flow	Total Phosphorus	Total Phosphorus
	(MGD)	(mg/L)	(lbs./day)
	Effluent	Effluent	Effluent
2022	0.0312	1.97	0.50
2023	0.0344	2.60	0.68
2024	0.0366	2.20	0.54
Annual Average =	**0.0341**	**2.26**	**0.57**

Currently, the Village has been able to maintain an average Total Phosphorus effluent of 2.20 mg/L which exceeds the WPDES interim limit of 2.0 mg/L. The Village has also implemented source reduction measures such as investigating potential TP contributors. Village has discovered no major contributors and no other point sources have been identified. Furthermore, to reduce effluent TP, the Village is currently planning for a chemical addition upgrade to help meet low level effluent phosphorus limits.

Additionally, the Village has investigated watershed compliance alternatives such as Water Quality Trading (WQT) and Adaptive Management (AM). Background TP concentration on the Kickapoo River is monitored from Station #533027. As calculated in the Water Quality Based Effluent Limit (WQBEL) on December 1, 2010, the rolling median TP concentration was 0.22

mg/L. The median average was about 2x the applicable Water Quality Standard (WQS) of 0.10 mg/L. Following discussion with the DNR and initial investigation, the Village elected to move forward with WQT. Utilizing the results from PRESTO, the watershed of the WWTF has a nonpoint source ratio of 1:99 at the point of discharge and is considered to be nonpoint-source dominated. Therefore, the Village intends to perform WQT projects upstream of the outfall but within the Village's Hydrological Unit Code – 12 (HUC-12) watershed #070700060402 as provided in Attachment #6.

Flow and loading data from 2022 through 2024 was utilized to determine credits needed. Annual effluent TP was estimated at 235 lbs. The final limit would allow annual discharge of 10 lbs. The Village would be required to offset at least 93 lbs. of effluent TP. Calculations for required WQT reductions are provided below.

1) The current annual Phosphorus loading discharged at the WWTF is calculated as follows:

Seasonal Average Daily Flow (Q) = 0.0341 MGD
Average Phosphorus concentration = 2.26 mg/L

0.0341 MGD x 2.26 mg/L x 8.34 x 365 days/yr. = **235 lbs./yr.**

2) The proposed allowable annual Phosphorus mass limit at the WWTF is calculated as follows:

Seasonal Average Daily Flow (Q) = 0.0341 MGD
Proposed Seasonal Phosphorus Concentration Limit = 0.1 mg/L

0.0341 MGD x 0.1 mg/L x 8.34 x 365 days/yr. = **10 lbs./yr.**

3) Reduction of Total Phosphorus required at WWTF -

235 lbs./yr. – 10 lbs./yr. = **225 lbs./yr.**

However, the Village intends to add chemical to treat effluent TP. Based on similar treatment systems, the Village anticipates the WWTF will be able to reduce TP to a concentration below 1.0 mg/L on a regular basis. The expected required offset is as follows:

(1.0 - 0.1) mg/L x 0.0341 MGD x 8.34 x 365 days/yr = **93 lbs/yr**

To generate the required TP credits, the Village intends to perform streambank stabilization. The Village intends to generate additional credits as a factor of safety and for future growth.

III. Location and Description of Credit Generation Sites

The Village discharges to the Kickapoo River (Reads and Tainter Creek Watershed, Lower Wisconsin River Basin) at Outfall 001. As mentioned previously, the Village intends to perform WQT projects within the Village's HUC-12 #070700060402. The Village plans to perform streambank stabilization which will utilize grading and/or riprap to prevent the erosion of sediment from the streambanks. Projects will occur on Village-owned property. Streambank stabilization will not only prevent sediment from entering the stream, but will also prevent phosphorus, nitrogen, and other pollutants from discharging to the Kickapoo River. See Figure 3.1 for additional project location information.

Figure 3.1 – Project location in relation to Outfall 001

IV. Methods for Nonpoint Source Load Reduction

A. Methods Used to Generate Load Reductions

The Water Quality Trading Plan identifies streambank stabilization practices that will reduce TP runoff from nonpoint sources. The Village has the ability to generate TP load reductions through streambank grading and/or rip-rap of approximately 3,080 lineal feet of streambank.

Streambank Stabilization will be performed as per NR 328 *Shore Erosion Control Structures in Navigable Waterways and* NRCS 580 *Streambank and Shoreline Protection*. Streambank shaping will eliminate the discharge of sediment to the stream. The streambank stabilization project will occur within HUC-12 #070700060402 in order to generate TP credits. Standard Plans and Specifications for the Project Site will be provided by a Professional Engineer. The Village will also acquire all required permits and authorizations for the Projects.

To register credits, the Village has prepared a Water Quality Trade Agreement pursuant to *s. 283.84(1)(e), Wis. Stats.* between the Wisconsin DNR and Village of Readstown. The Water Quality Trade Agreement is provided in Attachment #7. The agreement shall be executed upon approval of this Water Quality Trading Plan and prior to use of Water Quality Trading Credits.

B. History of Project Site

The Project Site is planned on Village-owned property within the Tainter Creek Watershed along the Kickapoo River. Adjacent land use consists of a recreational park with vegetative cover composed of primarily grass with a few scattered and shrubs. Heartland Ecological Group identified one (1) wetland area, measuring approximately 0.50 acre adjacent to the project location. Wetland disturbance will be avoided during construction of the WQT Project. A wetland map and DNR Assured Wetland Delineator's report is provided in Attachment #8. No fill shall be deposited within floodplain or wetlands.

The Kickapoo River has experienced agricultural development within the watershed and has issues caused by sedimentation which was included in Wisconsin DNR evaluation for *Kickapoo River Region*. The watershed has also experienced reduction of large woody debris along the streambanks due to agricultural development which reduces available habitat and bank roughness. Streambank improvements will reduce sediment which was identified as the #1 reason for habitat degradation in the Kickapoo River.
The banks are bare with slumps, rills and severe vegetative overhang throughout. Severe erosion indicators such as undercuts, slumps, tree roots, and fallen trees are readily visible throughout the site. The erosion indicators demonstrate the lateral recession rate based on the NRCS Recession Rate Table.

C. Trade Ratio

The Plan identifies trading practices that will reduce TP runoff. However, the DNR requires a trade ratio to provide a safety factor for meeting water quality standards. Trade ratios consider pollutant reductions of varying certainty, location, and type. For the given WQT practice, a trade ratio of 3:1 was calculated. The trade ratio was derived in accordance with Section 3.4 of the Wisconsin Department of Natural Resources' *Guidance for Implementing Water Quality Trading in WPDES Permits (Edition 2)* as follows:

Trade Ratio = (Delivery + Downstream + Equivalency + Uncertainty-Habitat Adjustment):1

Delivery = 0 (Credit generation and use are within same SPARROW catchment)
Downstream = 0 (For trades upstream of Outfall 001)
Equivalency = 0 (Not necessary of Total Phosphorus)
Uncertainty: *Streambank Stabilization without Habitat Restoration* = 3

Delivery Factor was calculated using the equations below provided by the Wisconsin DNR.
Delivery Factor = (1 / Delivery Fraction) – 1 = 0
Delivery Fraction = 1 – ((user del_frac – generator del_frac) / user del_frac)
user del_frac = 0.96
generator del_frac = 0.96

The Uncertainty Factor was determined from Appendix H – Management Practices and Associated Information of the Wisconsin Department of Natural Resources' *Guidance for Implementing Water Quality Trading in WPDES Permits (Edition 2)*.

D. Model Used to Derive Load Reductions

NRCS Streambank Erosion modeling methods were used to calculate the total phosphorus credits that would be generated based on the installation of BMPs. These credits will be used to demonstrate compliance with the final total phosphorus limit as proposed in the WPDES Permit. Modeling results are provided in Table 4.1. If the Plan or model inputs change during construction, the Village will submit to the DNR the revised models and calculations to more accurately reflect the number of credits generated.

Table 4.1 – Modeling Results

BMP ID	Lateral Recession Rate (ft/yr.)	Current Phosphorus Loading (lbs./yr.)	Proposed Phosphorus Loading (lbs./yr.)	Proposed Phosphorus Reductions (lbs./yr.)	Trade Ratio	Proposed Phosphorus Credits
A	0.50	47	0	47	3:1	16
B	0.30	52	0	52	3:1	17
C	0.40	143	0	143	3:1	48
D	0.50	132	0	132	3:1	44
E	0.30	6	0	6	3:1	2
F	0.30	11	0	11	3:1	4
					Total	**131**

NOTE:

Trade Ratio = (Delivery + Downstream + Equivalency + Uncertainty-Habitat Adjustment):1

Delivery = 0 (Credit generation and use are within same SPARROW catchment)
Downstream = 0 (For trades upstream of Outfall 001)
Equivalency = 0 (Not necessary of Total Phosphorus)
Uncertainty: *Streambank Stabilization without Habitat Restoration* = 3

Soil testing has been completed to determine TP concentrations within the soil. Soil sampling was performed approximately every 200 feet and included the use of a soil sampler which pulled ¾" cores at 8" depth. Approximately six (6) cores were taken at each sampling location to provide a representative sample. Soils maps and soil testing data is provided in Attachment #9.

Streambank cross sections were surveyed every 100 to 200 feet with global position system (GPS) equipment. The site was also surveyed with an aerial drone. The bank height was calculated by using the horizontal distance and vertical difference of GPS survey points located at the water line and the top of eroded area. Bank heights were calculated using the Pythagorean Theorem:

$c = \sqrt{a^2 + b^2}$)
c = bank height (hypotenuse) (feet)
a = vertical bank (feet)
b = horizontal bank (feet)

Streambank heights were then calculated as per guidance for the NRCS Streambank Erosion Estimator. An average height was determined for each reach for input to the NRCS Streambank Erosion Estimator. An onsite evaluation has been conducted to estimate stream bank recession rate. The data, narrative, and photos documenting the current state of eroding stream banks are provided in Attachment #10.

Table 4.3 - Reach Summary

Reach	BMP ID	Length	Number of Cross Sections	Average Vertical Bank	Average Horizontal Bank	Average Bank Height
1	A	621'	3	5.52'	6.60'	8.64'
1	B	316'	2	5.54'	8.10'	9.85'
2	C	1,219'	6	7.21'	10.90'	13.17'
2	D	704'	4	8.25'	10.05'	13.05'
2	E	122'	2	6.22'	8.25'	10.38'
2	F	97'	1	6.11'	6.10'	8.63'

An example of the bank height calculation is provided below:

$c = \sqrt{a^2 + b^2}$)

c = bank height (hypotenuse) (feet)
a = vertical bank (feet)
b = horizontal bank (feet)

a = 105.00' – 100.00' = 5.00'
b = 2.50' (horizontal difference from AutoCAD Civil3D)

$c = \sqrt{5.00^2 + 2.50^2}$) = 5.59'

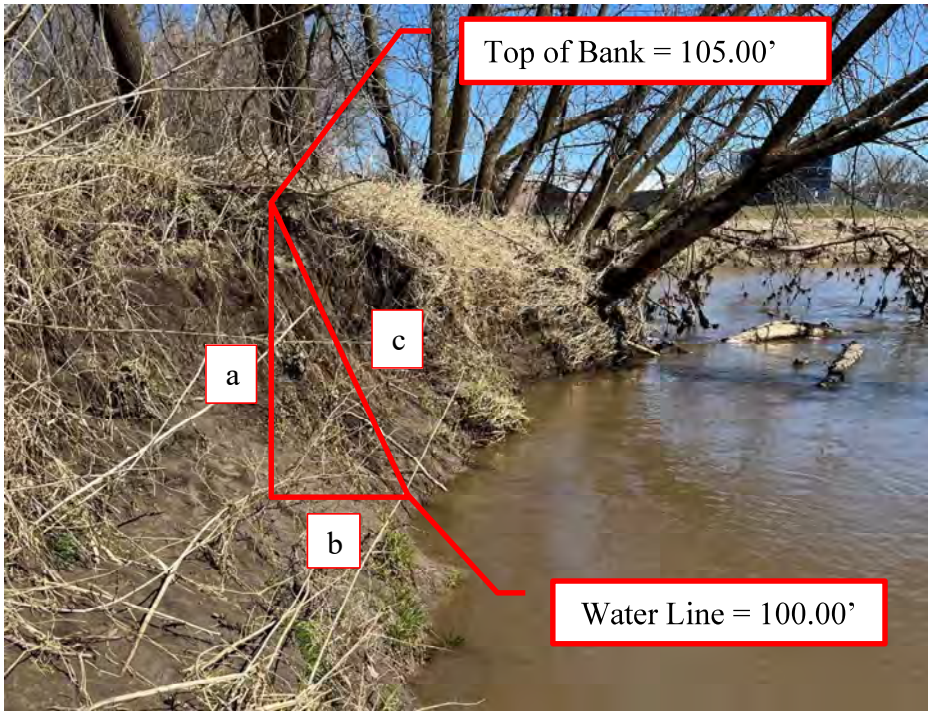


Figure 4.1 – Bank Hight Calculation Example

With the collected data, the NRCS Streambank Erosion Estimator was used to calculate TP loss from each reach of the eroding streambank. The modeling data for the NRCS Streambank Erosion Estimator is available in Attachment #11. The streambank grading and riprap design will eliminate streambank recession thus eliminating TP inputs within the Project areas.

E. Operation and Maintenance

An Operation and Maintenance (O&M) Plan is provided in Attachment #12. The O&M plan describes how the Stream Stabilization Practices will be operated and maintained. The O&M Plan also addresses response procedures for Practice Registration, BMP Inspection, Noncompliance Notification, and Notification of Trade Agreement Termination.

As previously mentioned, the Village is planning to perform streambank stabilization by implementing BMPs along the Kickapoo River streambanks. The stabilization practices will be installed and maintained per the Plans and Specifications as provided in Attachment #13. BMPs are to follow NR 328 Shore Erosion Control Structures in Navigable Waterways and NRCS 580 Streambank and Shoreline Protection. Restoration landscaping and seeding will be installed following construction and will be closely monitored for a minimum of two (2) growing seasons to ensure the new seeding grows and erosion is not prevalent. Weeds and invasive vegetation growth will be addressed if present. The BMP will be inspected following heavy rain events at a minimum. Inspection will be used to determine appropriate actions in order to maintain the BMP for continuous and ongoing streambank stabilization and TP credit generation.

The BMPs will be inspected annually by a licensed Professional Engineer to ensure that the BMPs are functioning as intended in order to meet the requirements of this WQT Plan.

V. Trade Timeline

Schedule for Installation of the above mentioned trading practices for Total Phosphorus Credit Generation for TP compliance is provided in Table 5.1 below.

Table 5.1 – Trade Timeline

Item	Completion Timeline
Site Investigation	Summer 2023
Conceptual Design	Fall 2023
Final Design	Winter/Spring 2024
Construction Permits	Spring 2025
DNR Review of Final Design	Spring 2025
Construction of BMPs	Summer/Fall 2025
Phosphorus Credit Registration	December 31, 2025
Use of Phosphorus Credits (Ongoing for Permit Compliance)	January 1, 2026

Credits will be used by the Village following DNR reissuance of the WPDES Permit. Credits will continue as long as the trading practices are maintained as outlined in this WQT Plan.

VI. Inspection Reporting

A. Tracking Procedures

The Village will track credits used monthly. The Village will report credit usage to the DNR on a monthly basis in the Discharge Monitoring Reports (DMRs). The annual report will summarize the 12 months of credit usage and credit generation. The Village will report to DNR any concern that they have that may result in a need to modify the trade agreement and/or this trade plan. For example, a need to generate additional credits based on discharge.

B. Inspection

Inspection of the BMPs shall occur during construction phase to ensure they are installed per the design and meet all applicable codes and permits. Once completed, inspections of the established BMPs shall occur each month at a minimum or following heavy rain events. A licensed Professional Engineer will perform an annual certification to ensure the practice is performing as designed and the Village remains in compliance.

The inspection reports will include:

i. Name and contact information of the inspector
ii. Inspection Date
iii. Relevant standards set forth in the Design Plan or Operation and Maintenance Plan
iv. Issues identified
v. When and how any issues identified were addressed
vi. When and how any issues identified will be addressed in the future

Inspection reports generated during each routine or after rain event inspection will be included with the Annual Water Quality Trading Report submitted by the Village to the DNR. Annual inspections by a Professional Engineer will typically occur in Spring. This time of year is ideal for evaluating the condition of BMPs as it follows the freeze/thaw which poses the greatest potential for changes to the BMPs. Minimal vegetation cover will allow for adequate visual inspection.

C. Management Practice Registration Form

The Village will file a completed registration form 3400-207 for Water Quality Trading Management Practice Registration separately from this Plan.

D. Annual Water Quality Trading Report Submittal

The following shall be submitted to the DNR by January 31 of each year:

i. The number of pollutant reduction credits (lbs./month) used each month of the previous year to demonstrate compliance;
ii. A summary of the annual inspection of the practice that generated any of the pollutant reduction credits used during the previous year, this inspection shall be completed by a licensed Professional Engineer;
iii. All monthly inspection reports and site photos for each BMP;
iv. Identification of noncompliance or failure to implement any terms or conditions of

this permit with respect to water quality trading that have not been reported in discharge monitoring reports;

v. A list of all noncompliance and the correction measures and timing to address the issues throughout the year; and
vi. An updated WQT plan if management practices have or will change.

E. Monthly Certification of Management Practices

Each month, the Village will certify that the BMPs are maintained and operating in a manner consistent with this Water Quality Trading Plan or provide a statement noting noncompliance with this Plan. The monthly Discharge Monitoring Report (DMR) will include the following statement as a certification of compliance when the Credit Generating Practice is operating in a manner consistent with the Plan:

> "I certify that to the best of my knowledge that the management practices identified in the approved water quality trading plan as the source of phosphorus credits is installed, established and properly maintained."

F. Notification of Failure to Generate Credits

The Village will notify DNR by telephone call to DNR's regional wastewater compliance engineer within 24 hours or next business day of becoming aware that phosphorus credits used or intended for use by Village are not being generated as outlined in this Water Quality Trading Plan.

The Village will submit a written notification within five days after the Village recognizes that the phosphorus credits are not being generated as outlined in the Trading Plan. DNR may waive the requirement for submittal for a written notice within five days and instruct the Village to submit the written notice with the next regularly scheduled monitoring report required by Village's WPDES Permit.

The written notice will contain a description of how and why the TP credits are not being generated as outlined in the Water Quality Trading Plan, the steps taken or planned to prevent reoccurrence of the identified problems and the length of time anticipated it will take to address the issue.

The Village will work to rectify the problem as laid out in the Operation and Maintenance Plans.

G. Conditions under which Management Practices May Be Inspected

Any DNR authorized officer, employee, or representative has the right to access and inspect the credit generating practice so long as the Village's trade agreement with the property owner(s) and this Water Quality Trading Plan remain in effect. Notification to the property owner prior to access is required.

VII. Certification

The undersigned hereby certifies that this Water Quality Trading Plan is accurate and correct to the best of his knowledge.

Village of Readstown Wastewater Treatment Facility

By: _____

Charlie Strait
Public Works Director
116 N. 4th Street
P.O. Box 247
Readstown, WI 54652
Telephone: (608) 629-5627
Email: publicworks@vi.readstown.wi.gov

Attachment #1

State of WisconsinDepartment of Natural Resources101 South Webster Street
Madison WI 53707-7921dnr.wi.gov

Notice of Intent to Conduct Water Quality Trading

Form 3400-206 (1/14)

Notice: Pursuant to s. 283.84, Wis. Stats., and ch. NR 217 Wis. Adm. Code, this form must be completed by any WPDES permittee that is using water quality trading as a method of complying with a permit limitation. Failure to complete this form would not result in penalties. Personal information collected will be used for administrative purposes and may be provided to requesters to the extent required by Wisconsin's Open Records Law (ss. 19.31 - 19.39, Wis. Stats.).

Applicant Information

Permittee Name	Permit Number	Facility Site Number
Village of Readstown	WI- 0021661	

Facility Address	City	State	ZIP Code
623 West South Street	Readstown	WI	54652

Project Contact Name (if applicable)	Address	City	State	ZIP Code
Jordan Fure (Delta 3 Eng.)	875 South Chestnut Street	Platteville	WI	53818

Project Name
Proposed 2022 Stream Improvements - Kickapoo River

Receiving Water Name	Parameter(s) being traded	HUC 12(s)
Kickapoo River	Total Phosphorus	070700060402

Is the permittee in a point or nonpoint source dominated watershed? (See PRESTO results - http://dnr.wi.gov/topic/surfacewater/presto.html)
- ○ Point source dominated
- ◉ Nonpoint source dominated

Credit Generator Information

Credit generator type (select all that apply):
- ☐ Permitted Discharge (non-MS4/CAFO)
- ☐ Permitted MS4
- ☐ Permitted CAFO
- ☑ Urban nonpoint source discharge
- ☑ Agricultural nonpoint source discharge
- ☐ Other - Specify:

Are any of the credit generators in a different HUC 12 than the applicant?
- ○ Yes; HUC 12:
- ◉ No
- ○ Unsure

Are any of the credit generators downstream of the applicant?
- ○ Yes
- ◉ No
- ○ Unsure

Will a broker/exchange be used to facilitate trade?
- ○ Yes; Name:
- ◉ No
- ○ Unsure

Point to Point Trades (Traditional Municipal / Industrial Discharge, MS4, CAFO)

Discharge Type	Permit Number	Name	Contact Address	Is the point source credit generator currently in compliance with their permit requirements?
○ Traditional ○ MS4 ○ CAFO				○ Yes ○ No ○ Unsure
○ Traditional ○ MS4 ○ CAFO				○ Yes ○ No ○ Unsure
○ Traditional ○ MS4 ○ CAFO				○ Yes ○ No ○ Unsure
○ Traditional ○ MS4 ○ CAFO				○ Yes ○ No ○ Unsure
○ Traditional ○ MS4 ○ CAFO				○ Yes ○ No ○ Unsure

Point to Nonpoint Trades (Non-permitted Agricultural, Non-Permitted Urban, etc.)

List the practices that will be used to generate credits:
Streambank Stabilization

Method for quantifying credits generated: ☐ Monitoring
☑ Modeling, Names: NRCS Streambank Erosion Estimator
☐ Other: _____

Projected date credits will be available:

The preparer certifies all of the following:

- I am familiar with the specifications submitted for this application, and I believe all applicable items in this checklist have been addressed.
- I have completed this document to the best of my knowledge and have not excluded pertinent information.

Signature of Preparer	Date Signed
John Fine	11/7/2022

Authorized Representative Signature

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision. Based on my inquiry of those persons directly responsible for gathering and entering the information, the information is, to the best of my knowledge and belief, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature of Authorized Representative	Date Signed
Rachel Yadencik	11-10-2022

Attachment #2

State of Wisconsin
Department of Natural Resources
101 South Webster Street
Madison WI 53707-7921
dnr.wi.gov

Water Quality Trading Checklist

Notice: Pursuant to s. 283.84, Wis. Stats., this form must be completed by any WPDES permittee that intends to pursue pollutant trading as a method of complying with a permit limitation. Failure to complete this form would not result in penalties. Personal information collected will be used for administrative purposes and may be provided to requesters to the extent required by Wisconsin's Open Records Law (ss. 19.31 - 19.39, Wis. Stats.).

Applicant Information

Permittee Name	Permit Number	Facility Site Number
Village of Readstown	WI- 0021661	

Facility Address	City	State	ZIP Code
623 West South Street	Readstown	WI	54652

Project Contact Name (if applicable)	Address	City	State	ZIP Code
Jordan Furc (Delta 3 Eng.)	875 South Chestnut Street	Platteville	WI	53818

Project Name
Proposed 2022 Stream Improvements - Kickapoo River

Receiving Water Name	Parameter(s) being traded	HUC 12(s)
Kickapoo River	Total Phosphorus	070700060402

Credit Generator Information

Credit generator type (select all that apply):
- ☐ Permitted Discharge (non-MS4/CAFO)
- ☐ Permitted MS4
- ☐ Permitted CAFO
- ☐ Urban nonpoint source discharge
- ☒ Agricultural nonpoint source discharge
- ☐ Other - Specify:

Are any of the credit generators in a different HUC 12 than the applicant?
- ○ Yes; HUC 12:
- ◉ No

Are any of the credit generators downstream of the applicant?
- ○ Yes
- ◉ No

Will a broker/exchange be used to facilitate trade?
- ○ Yes *(include description and contact information in WQT plan)*
- ◉ No

Point Source Credit Generator Identification (if applicable)

Are each of the point source credit generators identified in this section in compliance with their WPDES permit requirements?
- ○ Yes
- ○ No

Discharge Type	Permit Number	Name	Contact Information	Trade Agreement Number
○ Traditional ○ MS4 ○ CAFO				
○ Traditional ○ MS4 ○ CAFO				
○ Traditional ○ MS4 ○ CAFO				
○ Traditional ○ MS4 ○ CAFO				
○ Traditional ○ MS4 ○ CAFO				

Point to Point Trades (Traditional Municipal / Industrial, MS4, CAFO) cont.

Does plan have a narrative that describes:		Plan Section
a. Summary of discharge and existing treatment including optimization	◯ Yes ◯ No	
b. Amount of credit being generated	◯ Yes ◯ No	
c. Timeline for credits and agreements	◯ Yes ◯ No	
d. Method for quantifying credits	◯ Yes ◯ No	
e. Tracking and verification procedures	◯ Yes ◯ No	
f. Location of credit generator in proximity to receiving water and credit user	◯ Yes ◯ No	
g. Other: ______	◯ Yes ◯ No	

Point to Nonpoint Trades (Non-Permitted Urban, Agricultural, Other)

Discharge Type	Practices Used to Generate Credits	Method of Quantification	Trade Agreement Number	Have the practice(s) been formally registered?
◯ Urban NPS ◉ Agricultural NPS ◯ Other	Streambank Stabilization	NRCS Streambank Erosion Estimator		◯ Yes ◉ No ◯ Only in part
◯ Urban NPS ◯ Agricultural NPS ◯ Other				◯ Yes ◯ No ◯ Only in part
◯ Urban NPS ◯ Agricultural NPS ◯ Other				◯ Yes ◯ No ◯ Only in part
◯ Urban NPS ◯ Agricultural NPS ◯ Other				◯ Yes ◯ No ◯ Only in part
◯ Urban NPS ◯ Agricultural NPS ◯ Other				◯ Yes ◯ No ◯ Only in part
◯ Urban NPS ◯ Agricultural NPS ◯ Other				◯ Yes ◯ No ◯ Only in part
◯ Urban NPS ◯ Agricultural NPS ◯ Other				◯ Yes ◯ No ◯ Only in part
◯ Urban NPS ◯ Agricultural NPS ◯ Other				◯ Yes ◯ No ◯ Only in part

Does plan have a narrative that describes:		*Plan Section*
a. Description of existing land uses	◉ Yes ◯ No	Section IV
b. Management practices used to generate credits	◉ Yes ◯ No	Section IV
c. Amount of credit being generated	◉ Yes ◯ No	Section IV
d. Description of applicable trade ratio per agreement/management practice	◉ Yes ◯ No	Section IV
e. Location where credits will be generated	◉ Yes ◯ No	Section III
f. Timeline for credits and agreements	◉ Yes ◯ No	Section V
g. Method for quantifying credits	◉ Yes ◯ No	Section IV

Does plan have a narrative that describes:			Plan Section
h. Tracking procedures	(●) Yes	( ) No	Section IV
i. Conditions under which the management practices may be inspected	(●) Yes	( ) No	Section VI
j. Reporting requirements should the management practice fail	(●) Yes	( ) No	Section VI
k. Operation and maintenance plan for each management practice	(●) Yes	( ) No	Section IV
l. Location of credit generator in proximity to receiving water and credit user	(●) Yes	( ) No	Section III
m. Practice registration documents, if available	( ) Yes	(●) No	
n. History of project site(s)	(●) Yes	( ) No	Section IV
o. Other: _____	( ) Yes	(●) No	

The preparer certifies all of the following:

- I am familiar with the specifications submitted for this application, and I believe all applicable items in this checklist have been addressed.
- I have completed this document to the best of my knowledge and have not excluded pertinent information.
- I certify that the information in this document is true to the best of my knowledge.

Signature of Preparer	Date Signed
Logan Hoppman	3/31/2025

Authorized Representative Signature

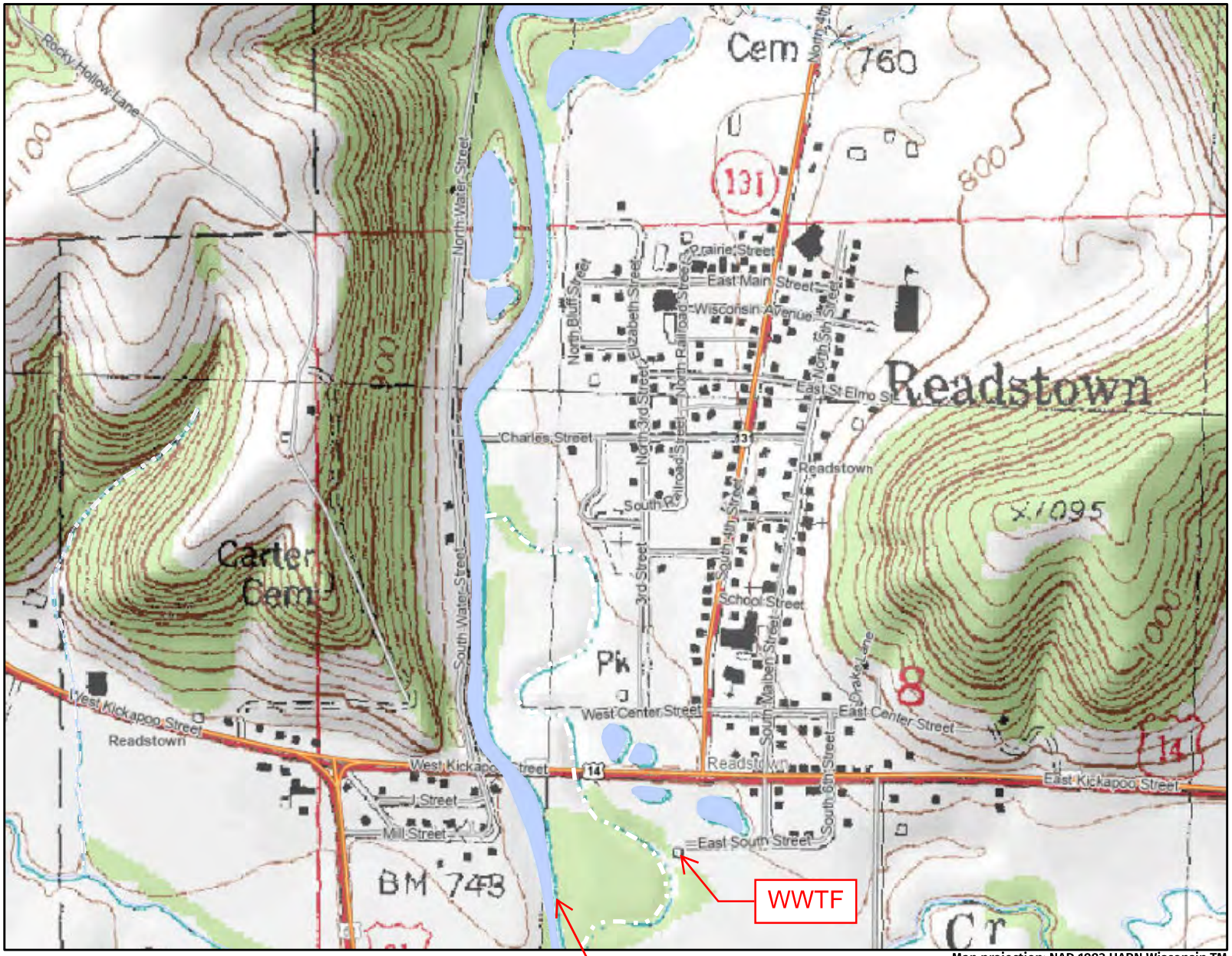
I certify under penalty of law that this document and all attachments were prepared under my direction or supervision. Based on my inquiry of those persons directly responsible for gathering and entering the information, the information is, to the best of my knowledge and belief, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature of Authorized Representative	Date Signed
Chadi Stitt	4-1-2025

Attachment #3

WISCONSIN DEPARTMENT OF NATURAL RESOURCES

Topography Map



Map projection: NAD 1983 HARN Wisconsin TM

N

Map: 0 690 1,380 Feet
0 200 400 Meters

Service Layer Credits:
Cities, Roads & Boundaries: , Topographic Maps: , Surface Water (Cached): WiDNR, USGS, and other data

Legend: (some map layers may not be displayed)

- Rivers and Streams
- Intermittent Streams
- Open Water
- 24K Intermittent Streams
- 24K Lakes and Open Water
- City or Village
- County Boundaries

Major Roads

- State Highway
- US Highway

County and Local Roads

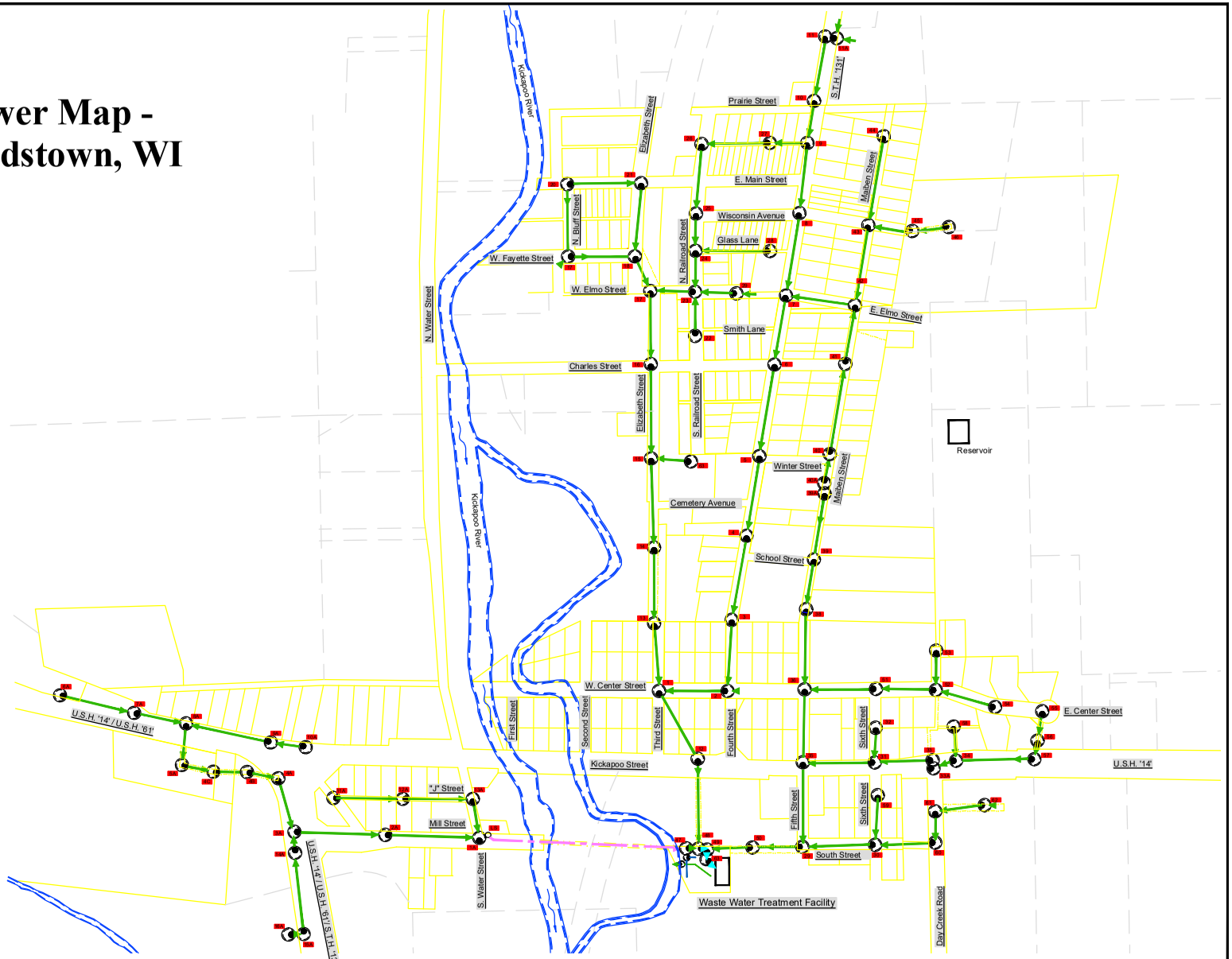
- Local Road

Notes:

Date Printed: 3/30/2025 5:25 PM

Attachment #4

Sanitary Sewer Map - Village of Readstown, WI



LEGEND

- Sanitary Manhole (Manhole Number)
- Lift Station
- 6" Sanitary Sewer
- 8" Sanitary Sewer
- 10" Sanitary Sewer
- 4" Sanitary Forcemain

SCALE: 1"=200'

DELTA 3 ENGINEERING INC

Professional Civil-Municipal & Structural Engineering
Grant Writing Land Development Planning & CADD Services
875 South Chestnut Street Phone: (608) 348-5355
Platteville, Wisconsin 53818 Fax: (608) 348-5455

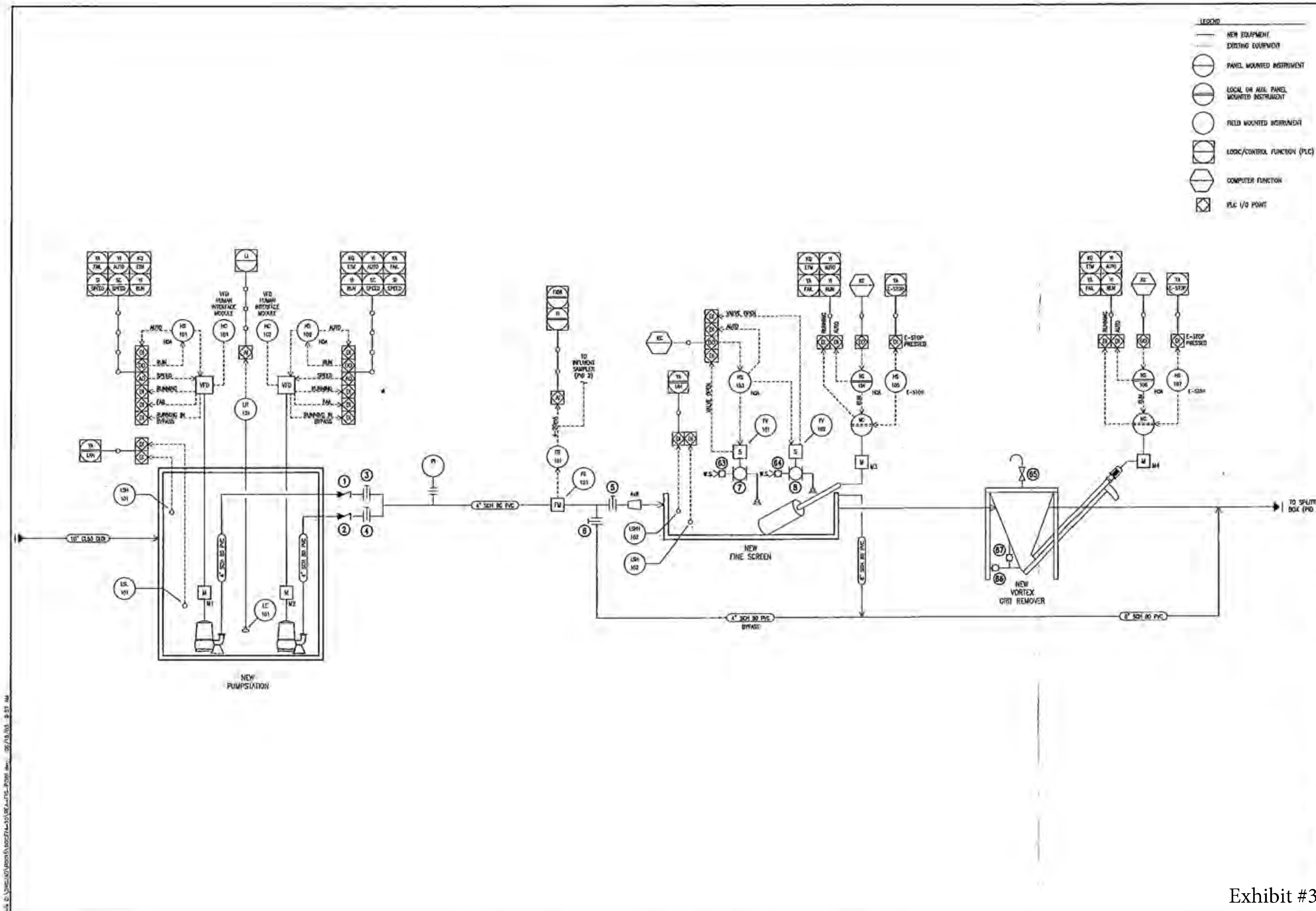
Drawn By: C.Coyier
Date: July, 2011

Revised By: C.Coyier
Rev. Date: November, 2013

File: G:\Projects\Readstown\Utilities.dwg(Sanitary)

Exhibit #2

Attachment #5



WASTEWATER TREATMENT FACILITIES IMPROVEMENTS
READSTOWN, WISCONSIN
PROCESS & INSTRUMENTATION DIAGRAM

DESIGNED	TJK
DRAWN	RWC
CHECKED	
SCALE	NONE
DATE	SEPT., 2003
PROJECT NO.	R015-9027A.04
SHEET NO.	PID1
FILE NO.	CAD

Exhibit #3

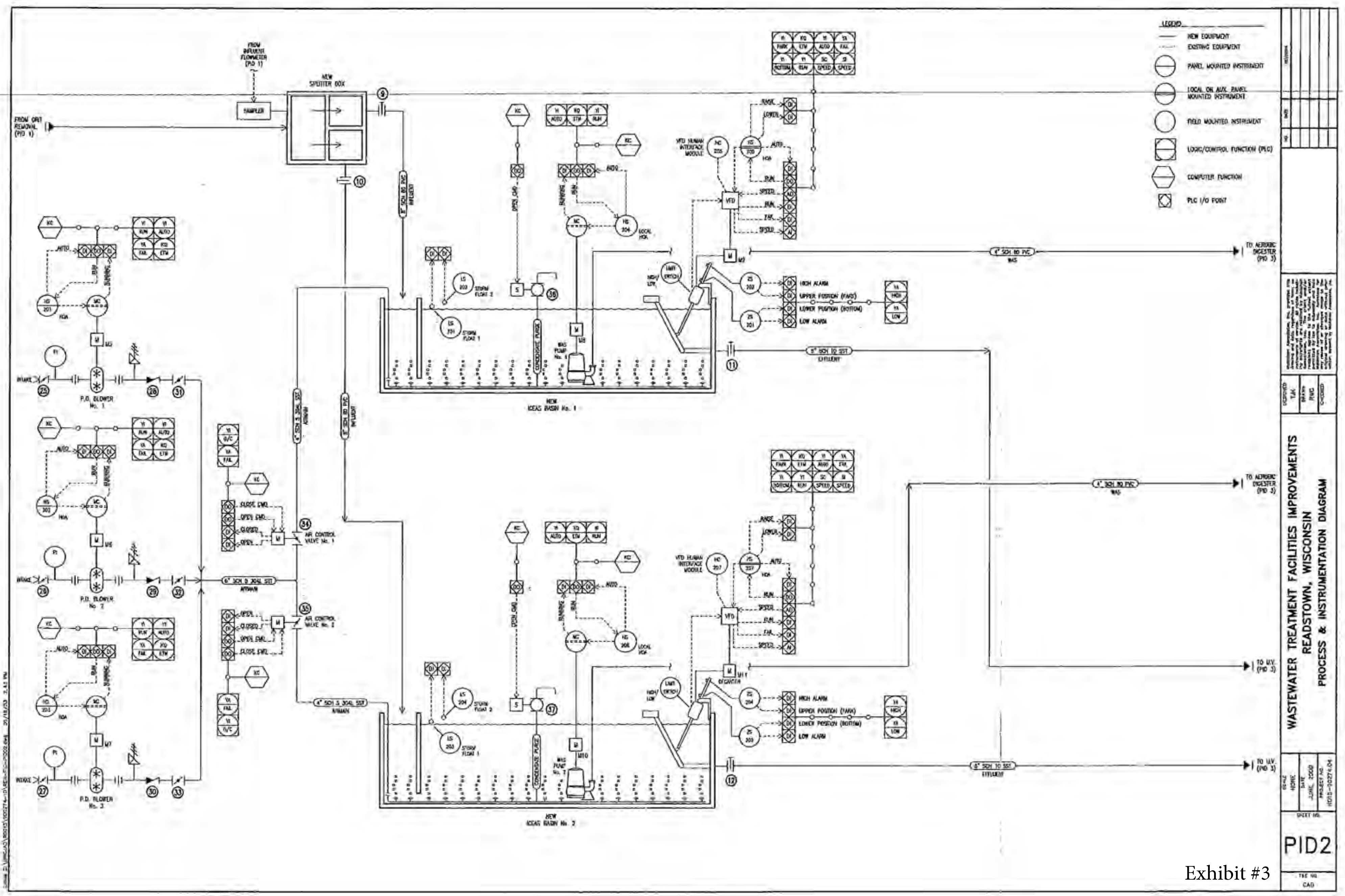

LEGEND
NEW EQUIPMENT
EXISTING EQUIPMENT
PANEL MOUNTED INSTRUMENT
LOCAL OR AUX. PANEL MOUNTED INSTRUMENT
FIELD MOUNTED INSTRUMENT
LOGIC/CONTROL FUNCTION (PLC)
COMPUTER FUNCTION
PLC I/O POINT
NEW SPLITTER BOX
SAMPLER
FROM INFLUENT FLOWMETER (PID 1)
FROM GRIT REMOVAL (PID 1)
NEW ICEAS BASIN No. 1
NEW ICEAS BASIN No. 2
P.D. BLOWER No. 1
P.D. BLOWER No. 2
P.D. BLOWER No. 3
AIR CONTROL VALVE No. 1
AIR CONTROL VALVE No. 2
VFD HUMAN INTERFACE MODULE
HIGH ALARM
UPPER POSITION (PARK)
LOWER POSITION (BOTTOM)
LOW ALARM
CONDENSATE PURGE
TO AEROBIC DIGESTER (PID 3)
TO U.V. (PID 3)
EFFLUENT
INFLUENT
WAS
WASTEWATER TREATMENT FACILITIES IMPROVEMENTS
READSTOWN, WISCONSIN
PROCESS & INSTRUMENTATION DIAGRAM
JUNE, 2009
PID2

Exhibit #3

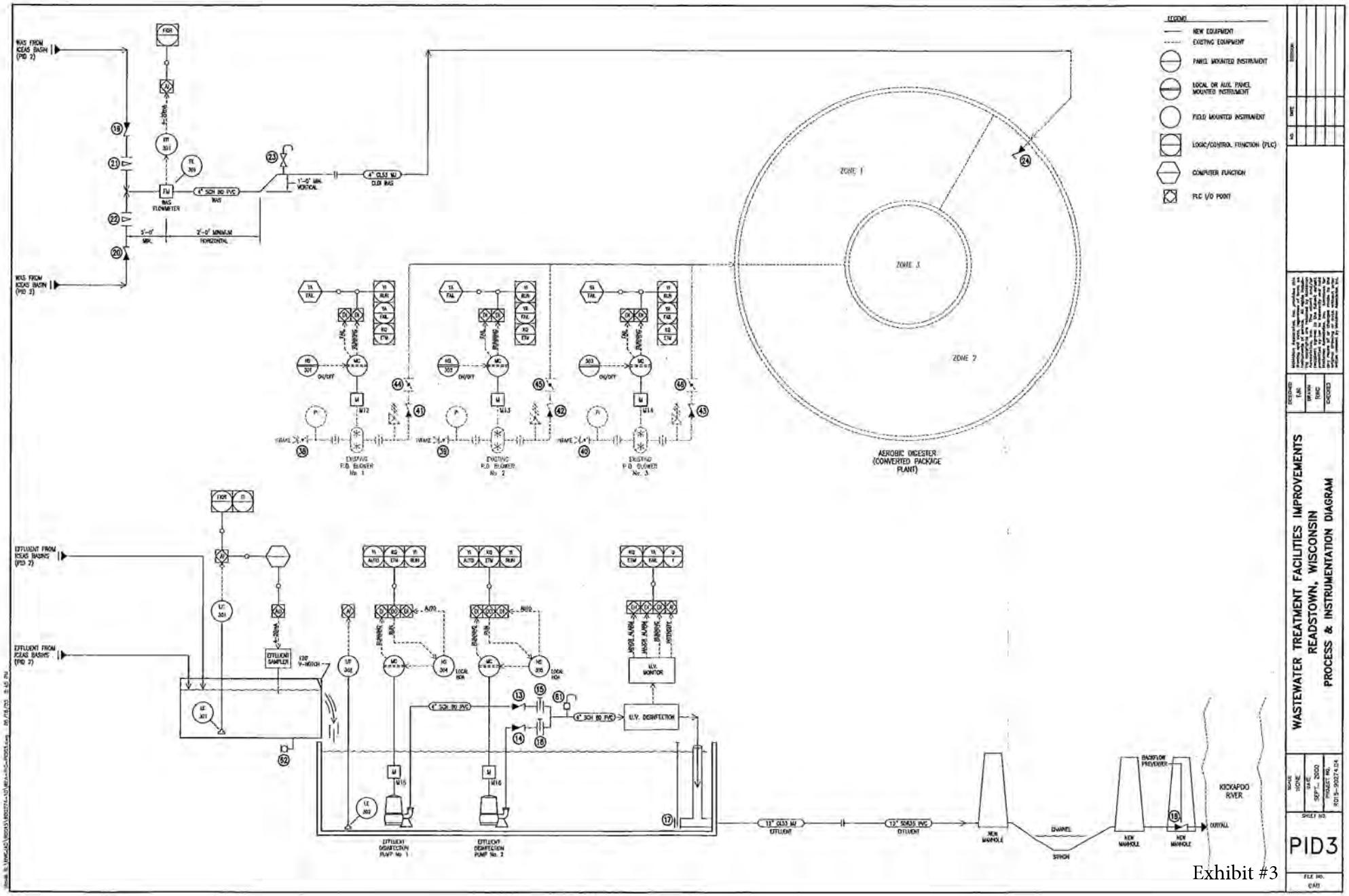
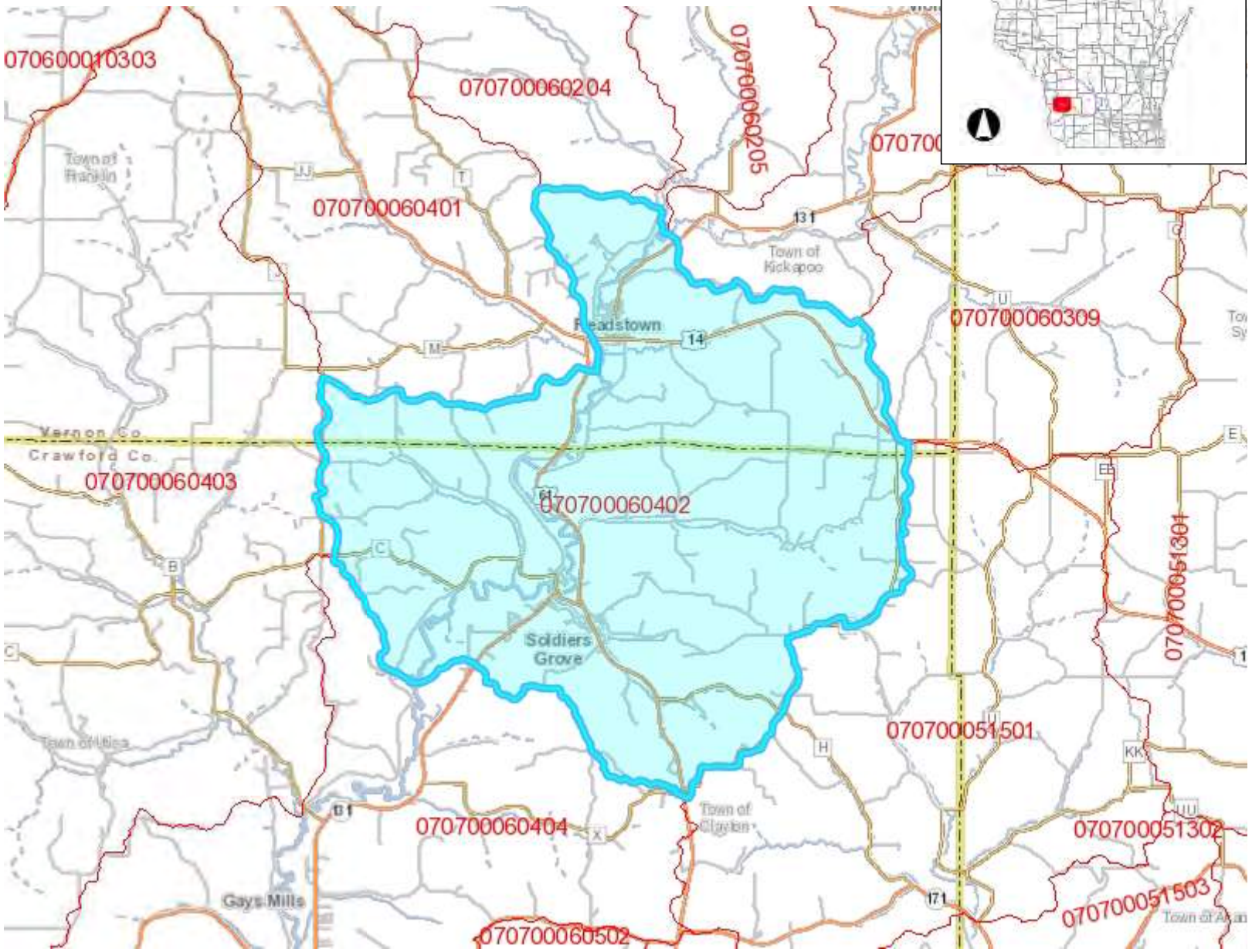

WAS FROM ICEAS BASIN (PID 2)
WAS FROM ICEAS BASIN (PID 2)
4" SCH 80 PVC WAS
4" CL52 MJ OLDI WAS
WAS FLOWMETER
5'-0" MIN.
2'-0" MINIMUM HORIZONTAL
1'-0" MIN. VERTICAL
ZONE 1
ZONE 2
ZONE 3
AEROBIC DIGESTER (CONVERTED PACKAGE PLANT)
EXISTING P.D. BLOWER No. 1
EXISTING P.D. BLOWER No. 2
EXISTING P.D. BLOWER No. 3
EFFLUENT FROM ICEAS BASINS (PID 2)
EFFLUENT FROM ICEAS BASINS (PID 2)
EFFLUENT SAMPLER
120° V-NOTCH
4" SCH 80 PVC
U.V. DISINFECTION
U.V. MONITOR
EFFLUENT DISINFECTION PUMP No. 1
EFFLUENT DISINFECTION PUMP No. 2
12" CL53 MJ EFFLUENT
12" SDR35 PVC EFFLUENT
NEW MANHOLE
STREAM
SYPHON
NEW MANHOLE
BACKFLOW PREVENTER
NEW MANHOLE
OUTFALL
KICKAPOO RIVER
LEGEND
NEW EQUIPMENT
EXISTING EQUIPMENT
PANEL MOUNTED INSTRUMENT
LOCAL OR AUX. PANEL MOUNTED INSTRUMENT
FIELD MOUNTED INSTRUMENT
LOGIC/CONTROL FUNCTION (PLC)
COMPUTER FUNCTION
PLC I/O POINT
WASTEWATER TREATMENT FACILITIES IMPROVEMENTS
READSTOWN, WISCONSIN
PROCESS & INSTRUMENTATION DIAGRAM
PID3

Exhibit #3

Attachment #6

HUC-12 Watershed Map



Legend

- 12-digit HUCs (Subwatersheds)
- Municipality
- State Boundaries
- County Boundaries
- Major Roads
  - Interstate Highway
  - State Highway
  - US Highway
- County and Local Roads
  - County HWY
  - Local Road
- Railroads
- Tribal Lands
- Rivers and Streams
- Intermittent Streams
- Lakes and Open water

Notes

4.0 0 2.00 4.0 Miles

NAD_1983_HARN_Wisconsin_TM

1: 126,720

Attachment #7

Water Quality Trade Agreement between
Village of Readstown and Wisconsin Department of Natural Resources

This Water Quality Trade Agreement (this "Agreement") is made by and between Village of Readstown ("Village") and the Wisconsin Department of Natural Resources ("the Department") and together "the Parties".

1. Recitals

a. Water quality trading is an alternative compliance option for Wisconsin Permit Discharge Elimination System ("WPDES") Permit holders and is authorized by Wis. Stat. § 283.84.

b. Wis. Stat. § 283.84(l)(e) provides that, "the [the Department] may authorize a person required to obtain a permit to increase the discharge of pollutants above levels that would otherwise be authorized in the permit if the person . . . reaches a binding, written agreement with [the Department] under which the person constructs a project or implements a plan that results in reducing the amount of water pollution from sources other than the source covered by the permit."

c. The Department has issued guidance regarding water quality trading, including:

1) Guidance for Implementing Wisconsin's Phosphorus Water Quality Standards for Point Source Discharges, No. 3400-2020-12, (Edition 3, June 1, 2020);

2) Guidance for Implementing Water Quality Trading in WPDES Permits, No. 3200-3400-3800-2020-03 (June 1, 2020).

d. The Village submitted a Permit application for issuance of a WPDES Permit on July 23, 2024. The Permit is for a wastewater discharge from its facility located in Readstown, Wisconsin.

e. The WPDES Permit will contain phosphorus water quality based effluent limits ("WQBELs") for Outfall 001, which is located in HUC-12 subwatershed 070700060402.

f. The Village owns and will implement streambank stabilization practices within the same hydrologic region as Outfall 001.

g. The descriptions of the lands that include streambank stabilization are on Village owned Property at the following locations:

- Kickapoo River
  - Parcel #176001240000
  - Parcel #176001190000

The Village submitted to the Department a Water Quality Trading Plan (WQT Plan) under which the Village will install streambank stabilization to reduce pollution to surface waters of the State.

h. The management practices will be installed and maintained relative to the NRCS Conservation Practice Standard listed below in Table One:

Table One – Conservation Practice Standards

NRCS Conservation Practice Standard	Number
Streambank and Shoreline Protection	580

l. The WQT Plan includes an Establishment Plan and an Operation and Maintenance Plan for the streambank stabilization.

2. Agreement Terms

a. The Village shall establish streambank stabilization consistent with the requirements in the approved WQT Plan (including the Establishment Plan, and the Operation and Maintenance Plan).

b. The Department will propose to reissue the WPDES Permit to allow the Village to use water quality trading as a compliance option, in accordance with the WQT Plan as approved by the Department.

c. Subject to the terms of this Agreement and the terms of the WPDES Permit issued to the Village, the Department shall allow the Village to utilize Total Phosphorus credits in the amount set forth in the approved WQT Plan to demonstrate compliance with phosphorus WQBELs in the WPDES Permit, provided the Village implements the approved WQT Plan and complies with the related trading terms of the Permit.

d. Any duly authorized officer, employee or representative of the Department shall have the right to access and inspect the streambank stabilization locations pursuant to Wis. Stat. § 283.55(2) so long as this Agreement remains in effect.

e. The Agreement shall become effective on the later date of the completion of the following conditions: i.) the Department approves a WQT plan that is consistent with this Agreement; and ii.) The WPDES Permit includes trading terms that are consistent with both the approved WQT Plan and the terms of this Agreement.

f. The Agreement applies and is effective for the term of the issued Permit unless,

subject to this section the Permit is modified, terminated or revoked and reissued by the Department to eliminate the trade or to revise the trading terms in a manner that is inconsistent with this Agreement. If the trade is removed or revised through a Permit action, this Agreement is terminated. In accordance with Wis. Stat. § 227.51(2), if the trade has not been eliminated or modified through a Permit action, and if the Village files a timely application for the reissuance of the Permit, the terms of the Agreement will continue until the later of the following: 1.) the application has been finally acted upon by the Department, 2.) the last day for seeking review of the agency's decision or 3.) a later date fixed by a reviewing court. The Agreement may extend into a subsequent reissued Permit upon approval of the Department.

g. The Parties may terminate this Agreement by written mutual agreement at any time.

h. The Village may terminate this Agreement by providing at least sixty (60) days written notice to the Department of the Village's intent to terminate the Agreement.

i. In accordance with paragraph (2j) and the procedures and requirements of Wis. Stat. § 283.53(2) and Wis. Admin. Code §§ NR 203.135 and 203.136, the Department may terminate this Agreement and modify or remove the terms of the Permit related to the trade if any one of the following occur:

1) The Village fails to implement the WQT Plan as approved by the Department;

2) The Village fails to comply with WPDES Permit terms and conditions related to water quality trading;

3) New information becomes available that causes the Department to determine that water quality trading is no longer an acceptable option, including an objection or disapproval of the trade by USEPA.

j. Any action by the Department to terminate this Agreement or otherwise to reduce or eliminate the number of phosphorus credits in the reissued WPDES Permit and approved WQT Plan shall be implemented through a modification, revocation and reissuance or reissuance of the W PDES Permit. Prior to termination of this agreement, the Department shall notify the Village of its intent to terminate the trading agreement and shall provide an opportunity for the Village to discuss the proposed termination with the Department. If appropriate and feasible, the Department shall provide the Village with a reasonable time period to correct the grounds for the proposed termination.

k. This Agreement may be amended only by a further written document signed by each of the Parties. The WQT Plan, Agreement and Permit terms may be revised as part of a future Permit reissuance or modification.

l. This Agreement shall be interpreted pursuant to the laws of the State of Wisconsin.

m. This Agreement may be executed in one or more counterparts, and all such executed counterparts shall constitute the same agreement. A signed copy of this Agreement transmitted by facsimile or email shall be treated as an original and shall be binding against the party whose signature appears on such copy.

n. If any provision of this Agreement is held invalid or unenforceable, the invalidity or unenforceability shall be limited to the particular provision involved and shall not affect the validity or enforceability of the remaining provisions. The Parties shall work together in good faith to modify this Agreement if necessary to preserve its original intent.

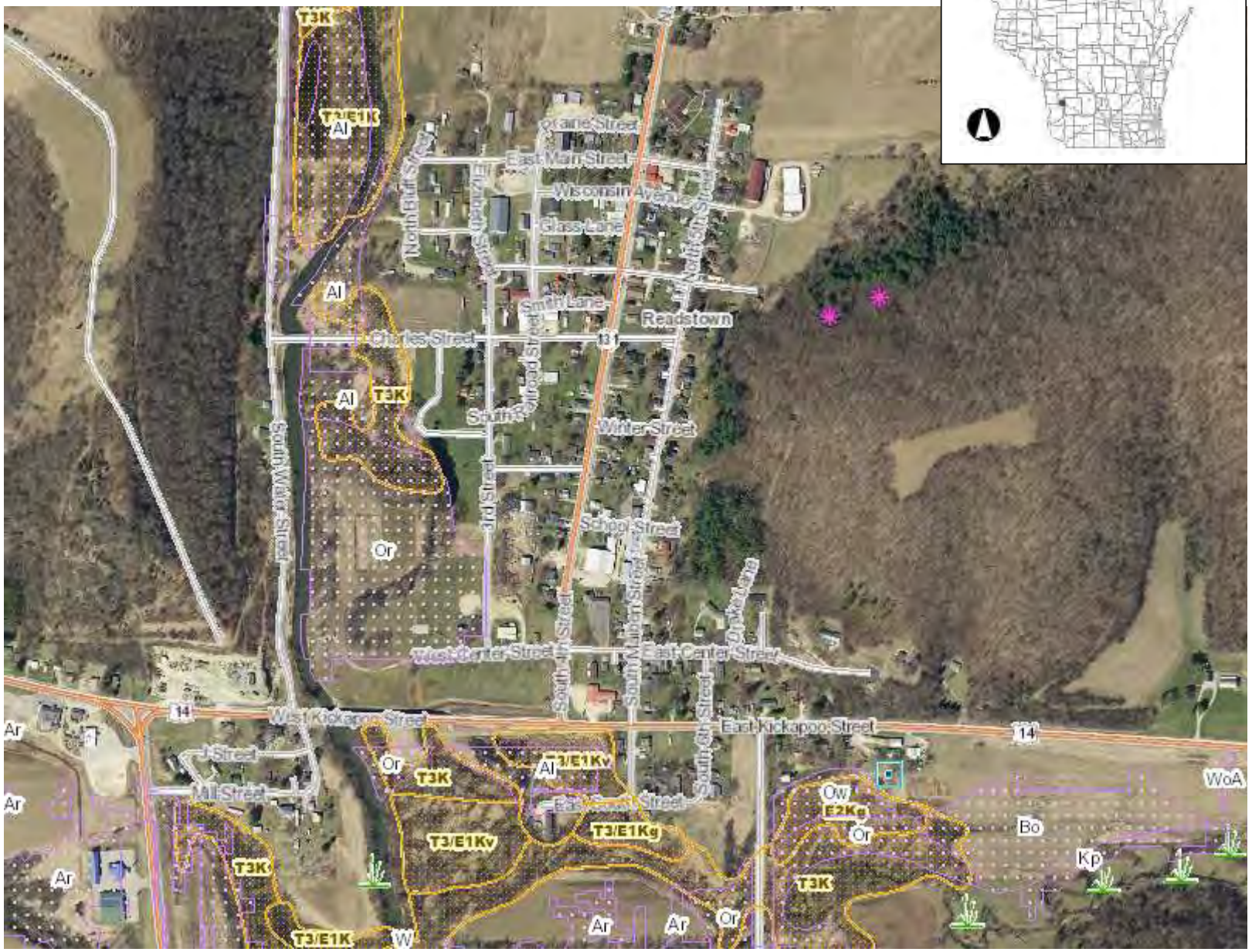
o. In no event shall the Department be liable to any party under this Agreement or to any third party in contract, tort or otherwise for incidental or consequential damages of any kind, including, without limitation, punitive or economic damages or lost profits, except as provided under federal or state laws.

IN WITNESS WHEREOF, the Parties have executed this Agreement as of the day and year entered below.

VILLAGE OF READSTOWN	**WISCONSIN DEPARTMENT OF NATURAL RESOURCES**
By: _____	By: _____
Title: Village President	Title: _____
Date: _____	Date: _____

Attachment #8

Wetland Map



Legend

- Wetland Indicators
- Wetland Class Areas
- Wetland Class Points
  - Dammed pond
  - Excavated pond
  - Filled/drained wetland
  - Wetland too small to delineate
  - Filled excavated pond
- Filled Points
- Wetland Class Areas
- Filled Areas
- Wetland Class Areas
- Wetland Class Points
  - Dammed pond
  - Excavated pond
  - Filled/drained wetland
  - Wetland too small to delineate
  - Filled excavated pond
- Filled Points
- Wetland Class Areas
- Filled Areas
- Wetland Identifications and Confirmations
- NRCS Wetspots
- Municipality
- State Boundaries
- County Boundaries
- Major Roads
  - Interstate Highway
  - State Highway
  - US Highway
- County and Local Roads
  - County HWY
  - Local Road
- Railroads

Notes

0.3 0 0.13 0.3 Miles

NAD_1983_HARN_Wisconsin_TM

1: 7,920

Assured Wetland Delineation Report

Readstown Streambank Stabilization

Village of Readstown, Vernon County, Wisconsin

January 25, 2024

Project Number: 20230956

506 Springdale Street | Mount Horeb, WI 53572 | www.heartlandecological.com

Readstown Streambank Stabilization

Village of Readstown, Vernon County, Wisconsin

January 25, 2024

Prepared for:

Rachel Gordinier

Village of Readstown

P.O. Box 247

116 N 4th St.

Readstown WI, 54652

Prepared by:

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506 Springdale Street

Mount Horeb, WI 53572

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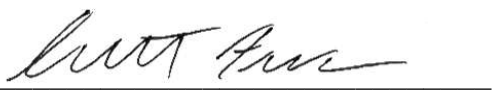

Prepared by: Scott Fuchs, Environmental Scientist

Reviewed by: Eric C. Parker, SPWS Principal Scientist

Solutions for people, projects, and ecological resources.

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1.0 Introduction

Heartland Ecological Group, Inc. ("Heartland") completed an assured wetland determination and delineation on the Readstown Streambank Stabilization site on September 22, 2023 at the request of the Village of Readstown. Fieldwork was completed by Scott Fuchs, Environmental Scientist, an assured delineator qualified via the Wisconsin Department of Natural Resources' (WDNR's) Wetland Delineation Assurance Program (Appendix E, Qualifications). The 9.71-acre site (the "Study Area") is centered on the Kickapoo River, north of the intersection of State Trunk Highway (STH) 131 / United States Highway (USH) 14 and South Water Street, in the northwest ¼ of Section 8 and southwest ¼ of Section 5, T11N, R3W, Village of Readstown, Vernon County, WI (Figure 1, Appendix A). The purpose of the wetland delineation was to determine the location and extent of wetlands within the Study Area.

One (1) wetland area measuring approximately 0.50 acre was delineated and mapped within the Study Area (Figure 7, Appendix A). One (1) waterway, the Kickapoo River, was also observed within the Study Area. Wetlands, waterways, and water bodies discussed in this report may be subject to federal regulation under the jurisdiction of the U.S. Army Corps of Engineers (USACE), state regulation under the jurisdiction of the WDNR, and local zoning authorities. Heartland recommends this report be submitted to local authorities, the WDNR, and USACE for final jurisdictional review and concurrence.

2.0 Methods

2.1 Wetlands

Wetlands were determined and delineated using the criteria and methods described in the USACE Wetland Delineation Manual, T.R. Y-87-1 ("1987 Corps Manual") and the applicable *Regional Supplement to the Corps of Engineers Wetland Delineation Manual*. In addition, the *Guidance for Submittal of Delineation Reports to the St. Paul District USACE and the WDNR* (WDNR, 2015) was followed in completing the wetland delineation and report.

Determinations and delineations utilized available resources including the U.S. Geological Survey's (USGS) *WI 7.5 Minute Series (Topographic) Map* (Figure 2, Appendix A), the U.S. Department of Agriculture (USDA) Natural Resource Conservation Service's (NRCS) Soil Survey Geographic Database (SSURGO) *Web Soil Survey* (Figure 3, Appendix A), the WDNR's *Wetland Indicator* data layer (Figure 4, Appendix A), the WDNR's *Wisconsin Wetland Inventory* data layer (Figure 5, Appendix A), the WNDR's *24k Hydro Flowlines (Rivers and Streams)* data layer (Figure 2 and 5, Appendix A), the WDNR's *Color-Stretch LiDAR and Hillshade Image Service Layer* (Figure 6, Appendix A), and aerial imagery available through the USDA Farm Service Agency's (FSA) National Agriculture Imagery Program (NAIP) and the WDNR.

Wetland determinations were completed on-site at sample points, often along transects, using the three (3) criteria (vegetation, soil, and hydrology) approach per the 1987 Corps Manual and the Regional Supplement. Procedures in these sources were followed to demonstrate that, under normal circumstances, wetlands were present or not present based on a predominance of hydrophytic vegetation, hydric soils, and wetland hydrology.

Recent weather conditions influence the visibility or presence of certain wetland hydrology indicators. An assessment of recent precipitation patterns helps to determine if climatic/hydrologic conditions were typical when the field investigation was completed. Therefore, a review of antecedent precipitation in the 90 days leading up to the field investigation was completed. Using an Antecedent Precipitation Tool (APT) analysis developed by the USACE (Deters & Gutenson 2021), the amount of precipitation over these 90 days was compared to averages and standard deviation thresholds observed over the past 30 years to generally represent if conditions encountered during the investigation were

normal, wet, or dry. Recent precipitation events in the weeks prior to the investigation were also considered while interpreting wetland hydrology indicators. Additionally, the Palmer Drought Severity Index was checked for long-term drought or moist conditions (NOAA, 2018).

The uppermost wetland boundary and sample points were identified and marked with wetland flagging and located with a Global Navigation Satellite System (GNSS) receiver capable of sub-meter accuracy. In some cases, wetland flagging was not utilized to mark the boundary and the location was only recorded with a GNSS receiver, particularly in active agricultural areas. The GNSS data was then used to map the wetlands using ESRI ArcGIS Pro™ software.

3.0 Results and Discussion

3.1 Desktop Review

Climatic Conditions

According to the APT analysis using the previous 90 days of precipitation data, conditions encountered at the time of the fieldwork were expected to be drier than normal for the time of year (Appendix B). The Palmer Drought Severity Index was checked as part of the APT analysis, and the long-term conditions at the time of the fieldwork were in the moderate drought range. Fieldwork was completed outside the dry season based on long-term regional hydrology data utilized in the WebWIMP Climatic Water Balance and computed as part of the APT analysis.

General Topography and Land Use

The topography within the Study Area consisted of the channel of the Kickapoo River in its center, which was flanked by steep banks and generally flat stream terraces above the banks. A topographic high of approximately 744 feet above mean sea level (msl) is present along the southwestern boundary of the Study Area, and a topographic low of approximately 730 feet above msl is present along the approximate ordinary high water mark (OHWM) of the Kickapoo River at several locations throughout the Study Area (Figures 2, 6, and 7 Appendix A). Land use and/or cover within the Study Area consists of the

Kickapoo River, partially wooded river terraces, South Water Street, and a park at the southeastern end of the Study Area. General drainage is to the south.

Soil Mapping

Soils mapped by the NRCS Soil Survey within the Study Area and their hydric status are summarized in Table 1. Wetlands identified during the field investigation are located primarily within areas mapped as partially hydric soils including wetland indicator soils (Figures 3 and 4, Appendix A).

Table 1. Summary of NRCS Mapped Soils within the Study Area

Soil symbol: Soil Unit Name	Soil Unit Component	Soil Unit Component Percentage	Landform	Hydric status
116D2: Churchtown silt loam, 12 to 20 percent slopes, moderately eroded	Churchtown	90-100	Valley sides	No
	La Farge	0-5	Valley sides	No
	Beavercreek	0-2	Valley sides	No
	Brownchurch	0-3	Valley sides	No
116E2: Churchtown silt loam, 20 to 30 percent slopes, moderately eroded	Churchtown	90-100	Valley sides	No
	Elbaville	0-4	Valley sides	No
	Brownchurch	0-3	Valley sides	No
	Norden	0-3	Knolls	No
628A: Orion silt loam, 0 to 3 percent slopes, occasionally flooded	Orion-Occasionally flooded	80-95	Drainageways, flood plains	No
	Arenzville-Occasionally flooded	3-10	Flood plains, drainageways	No
	Ettrick-Frequently flooded	1-5	Depressions on flood plains	Yes
	Bearpen-Rarely flooded	1-5	Flood plains	No
1648A: Northbend-Ettrick silt loams, 0 to 3 percent slopes, frequently flooded	Northbend	55-65	Flood plains	No
	Ettrick	25-35	Swales on flood plains	Yes

Soil symbol: Soil Unit Name	Soil Unit Component	Soil Unit Component Percentage	Landform	Hydric status
	Kerston-River valleys	1-10	Flood plains	Yes
	Dunnbot	1-5	Natural levees on flood plains	No
	Water	1-5	—	—
W: Water	Water	100	—	No

Wetland Mapping

The Wisconsin Wetlands Inventory (WWI) mapping (Figure 5, Appendix A) depicts two (2) wetland areas within the Study Area. One (1) forested, emergent/wet meadow (T3/E1K) wetland is depicted within the northern portion of the Study Area and one (1) forested (T3K) wetland is depicted along the east-central boundary of the Study Area.

Waterway Mapping

The WDNR's Rivers and Streams data layer (Figure 5, Appendix A) depicts one (1) waterway, the Kickapoo River, within the Study Area.

Aerial Photography

Available NAIP imagery of the Study Area from the period of 2004-2022 (Appendix F) was reviewed for evidence of wetland signatures and to gain insight into the site's recent history. No changes in land use are evident over this period. In some year's imagery wetland signatures (inundation) are visible to the west of the northern portion of the Study Area.

3.2 Field Review

One (1) wetland was identified and delineated within the Study Area. Wetland determination data sheets (Appendix C) were completed at eight (8) sample points that were representative of the wetland and upland conditions near the boundary and where potential wetlands may be present based on the desktop review and field reconnaissance. Appendix D provides photographs, typically at the sample point locations of the wetlands and adjacent uplands. The wetland boundary and sample point locations are shown on Figure 7 (Appendix A) and the wetland is summarized in Table 2 and detailed in the following sections.

Table 2. Summary of Wetlands Identified within the Study Area

Wetland ID	Wetland Description	*Surface Water Connections	*NR151 Protective Area	Acreage (on-site)
W-1	Wet Meadow	Contiguous with the Kickapoo River	Moderately susceptible, 50 feet	0.50
*Classification based on Heartland's professional opinion. Jurisdictional authority of wetland and waterway protective areas under NR 151 lies with the WDNR. Local zoning authorities may have additional restrictions. USACE has authority for determining federal jurisdiction of wetlands and waterways.				**0.50**

Wetland 1 (W-1)

Wetland 1 (W-1) is a 0.50-acre wet meadow located in the northern portion of the Study Area, near the intersection of South Water Street and Charles Street. The wetland area continues outside of the Study Area to the north and west.

Dominant vegetation observed in W-1 included reed canary grass (*Phalaris arundinacea,* FACW), giant chickweed (*Myosoton aquaticum,* FACW), green ash (*Fraxinus pennsylvanica,* FACW), sandbar willow (*Salix interior,* FACW), and silver maple (*Acer saccharinum,* FACW). Therefore, the wetland vegetation parameter was met.

The Depleted Below Dark Surface (A11), Depleted Matrix (F3), and Redox Dark Surface (F6) hydric soil indicators were noted in W-1. Thus, the hydric soil parameter was met.

The wetland hydrology indicator of Inundation Visible on Aerial Imagery (B7) was the only primary hydrology indicator observed within W-1, while secondary indicators included Geomorphic Position (D2) and a positive FAC-Neutral Test (D5). Therefore, the wetland hydrology parameter was met.

Wetland W-1 is contiguous with the Kickapoo River and continues outside of the Study Area. The boundary of W-1 generally followed a moderately-defined topographic break present at the toe of a convex rise situated on the western shoulder of the Kickapoo River channel.

Waterways

One (1) waterway, the Kickapoo River, was observed within the Study Area. The approximate OHWM of the waterway is mapped on Figure 7, Appendix A.

3.3 Other Considerations

This report is limited to the identification and delineation of wetlands within the Study Area. Other regulated environmental resources that result in land use restrictions may be present within the Study Area that were not evaluated by Heartland (e.g. navigable waterways, floodplains, cultural resources, and threatened or endangered species).

Wisconsin Act 183 provides exemptions to permitting requirements for certain nonfederal wetlands. Nonfederal wetlands are wetlands that are not subject to federal jurisdiction. Exemptions apply to projects in urban areas with wetland impacts up to 1-acre per parcel. An urban area is defined as an incorporated area; an area within ½ mile of an incorporated area; or an area served by a sewerage system. Exemptions for nonfederal wetlands also apply to projects in rural areas with wetland impacts up to three (3) acres per parcel. Exemptions in rural areas only apply to structures with an agricultural purpose such as buildings, roads, and driveways. The determination of federal and nonfederal wetlands MUST be made by the USACE through an Approved Jurisdictional Determination (AJD). This report may be submitted to the USACE to assist with their determination.

Wis. Adm. Code NR 151 ("NR 151") requires that a "protective area" (buffer) be determined from the Ordinary High-Water Mark (OHWM) of lakes, streams and rivers, or at the delineated boundary of wetlands. Per NR 151.12, the protective area width for "less susceptible" wetlands is determined by using 10% of the average wetland width, no less than 10 feet or more than 30 feet. "Moderately susceptible" wetlands, lakes, and perennial and intermittent streams identified on recent mapping require a protective area width of 50 feet; while "highly susceptible wetlands" are associated with outstanding or exceptional resource waters in areas of special natural resource interest and require a protective area width of 75 feet. Table 2 above lists the potential wetland buffers per NR 151 for each wetland identified based on Heartland's professional opinion. Please note that jurisdictional authority on wetland and waterway protective areas under NR 151 lies with the WDNR. Local zoning authorities and regional planning organizations may have additional land use restrictions within or adjacent to wetlands.

4.0 Conclusion

Heartland completed an assured wetland determination and delineation at the Readstown Streambank Stabilization site on September 22, 2023 at the request of the Village of Readstown. Fieldwork was completed by Scott Fuchs, Environmental Scientist, an assured delineator qualified via the WDNR's Wetland Delineation Assurance Program (Appendix E). The Study Area lies in Sections 5 and 8, T11N, R3W, Village of Readstown, Vernon County, WI (Figure 1, Appendix A).

One (1) wetland area was delineated and mapped within the 9.71-acre Study Area (Figure 7, Appendix A). The wetland, which may be classified as a wet meadow, measures 0.50 acre within the Study Area. The approximate OHWM of the Kickapoo River was also recorded and mapped.

Wetlands, waterways, and water bodies discussed in this report may be subject to federal regulation under the jurisdiction of the USACE, state regulation under the jurisdiction of the WDNR, and the local zoning authority. Heartland recommends this report be submitted to the USACE for final jurisdictional review and concurrence. Review by local authorities may be necessary for determination of any applicable zoning and setback restrictions.

Heartland recommends that all applicable regulatory agency reviews and permits are obtained prior to beginning work within the Study Area or within or adjacent to wetlands or waterways. Heartland can assist with evaluating the need for additional environmental reviews, surveys, or regulatory agency coordination in consideration of the proposed activity and land use as requested but is outside of the scope of the wetland delineation.

Experienced and qualified professionals completed the wetland determination and delineation using standard practices and professional judgment. Wetland boundaries may be affected by conditions present within the Study Area at the time of the fieldwork. All final decisions on wetlands and their boundaries are made by the USACE, the WDNR, and/or sometimes a local unit of government. Wetland determination and boundary reviews by regulatory agencies may result in modifications to the findings presented to the Client. These modifications may result from varying conditions between the time the wetland delineation was completed and the time of the review. Factors that may influence the findings may include but are not limited to precipitation patterns, drainage modifications, changes or modification to vegetation, and the time of year.

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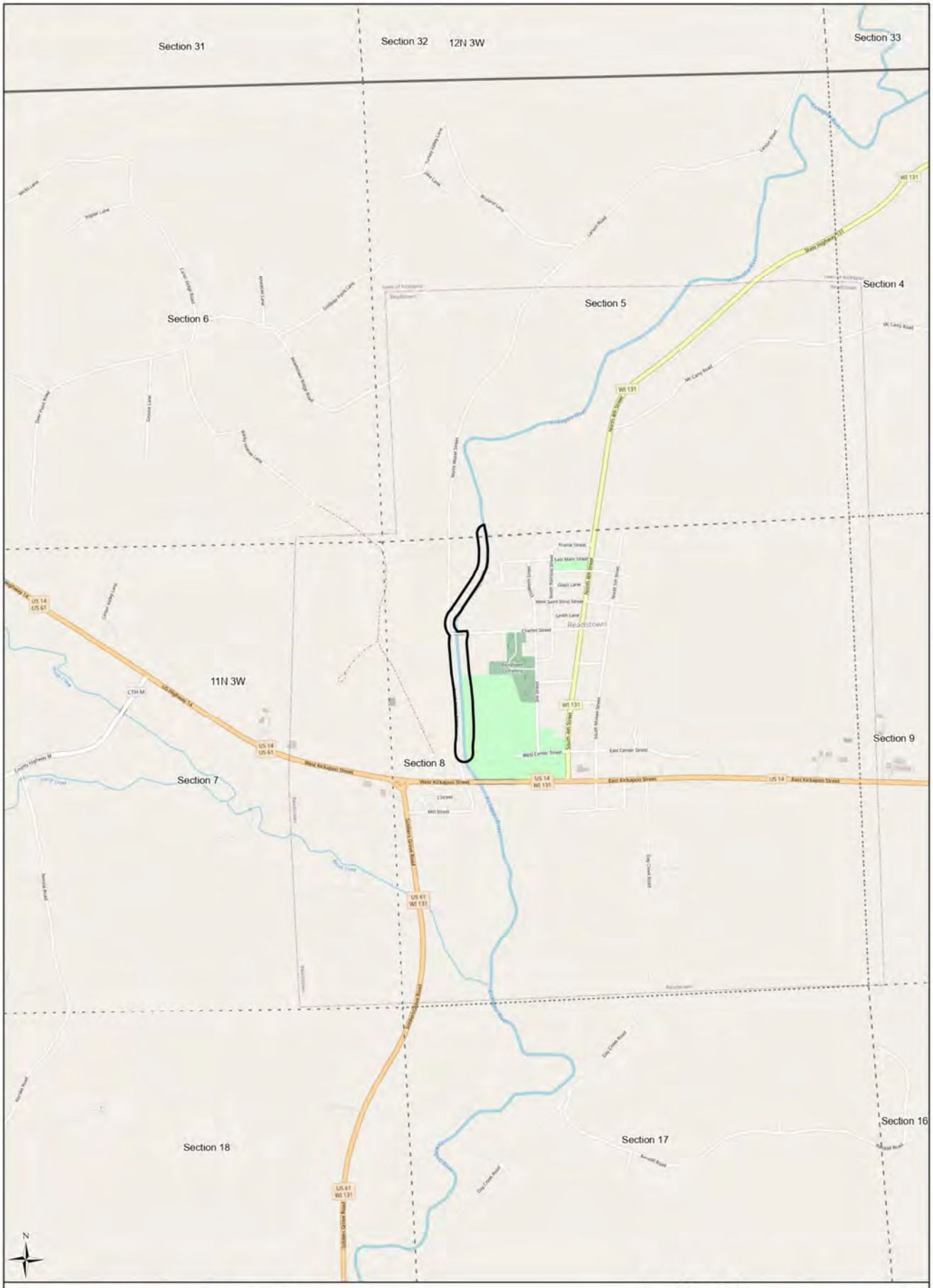
Appendix A | Figures



Heartland ECOLOGICAL GROUP INC

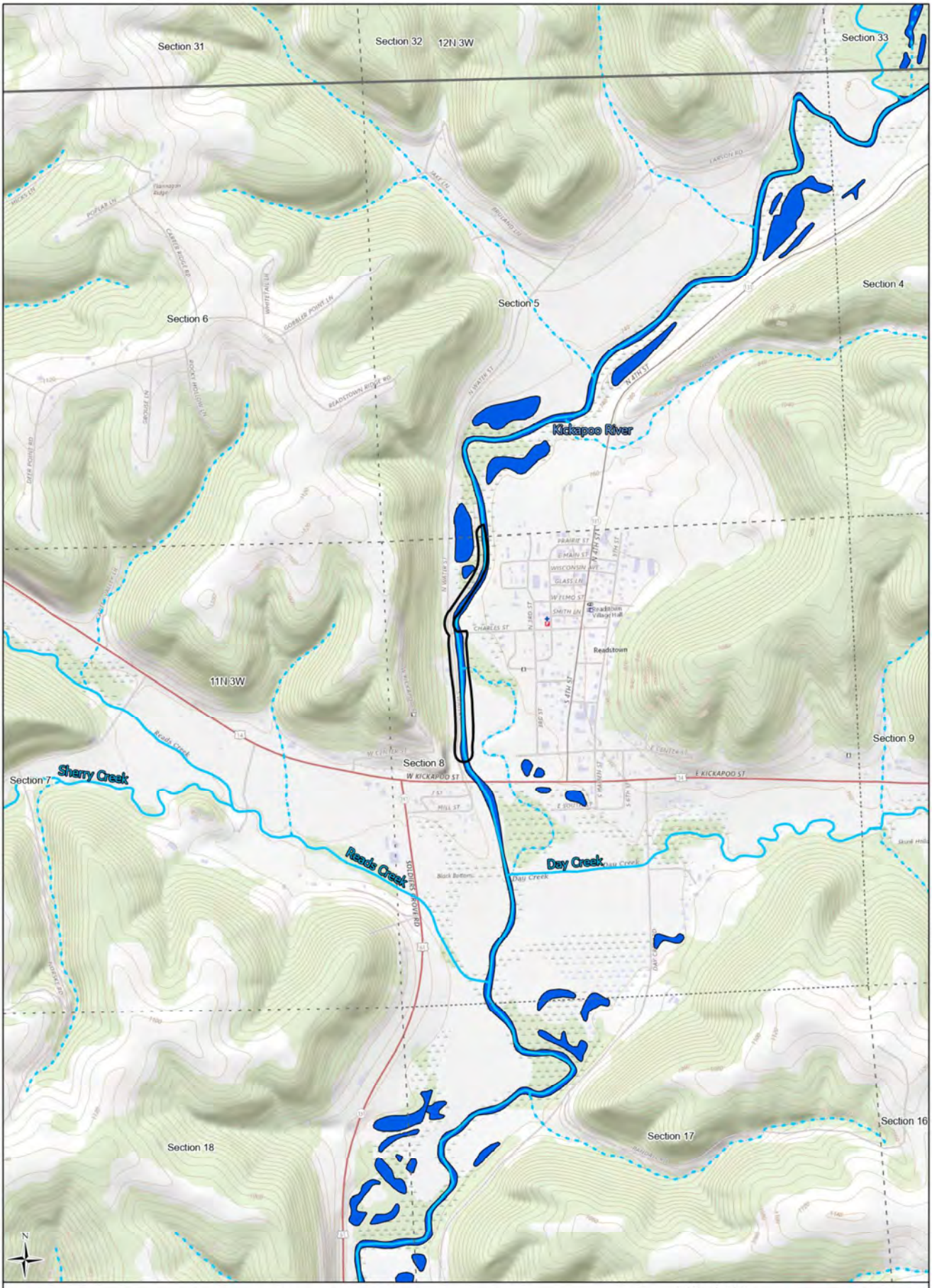
Figure 1. Project Location

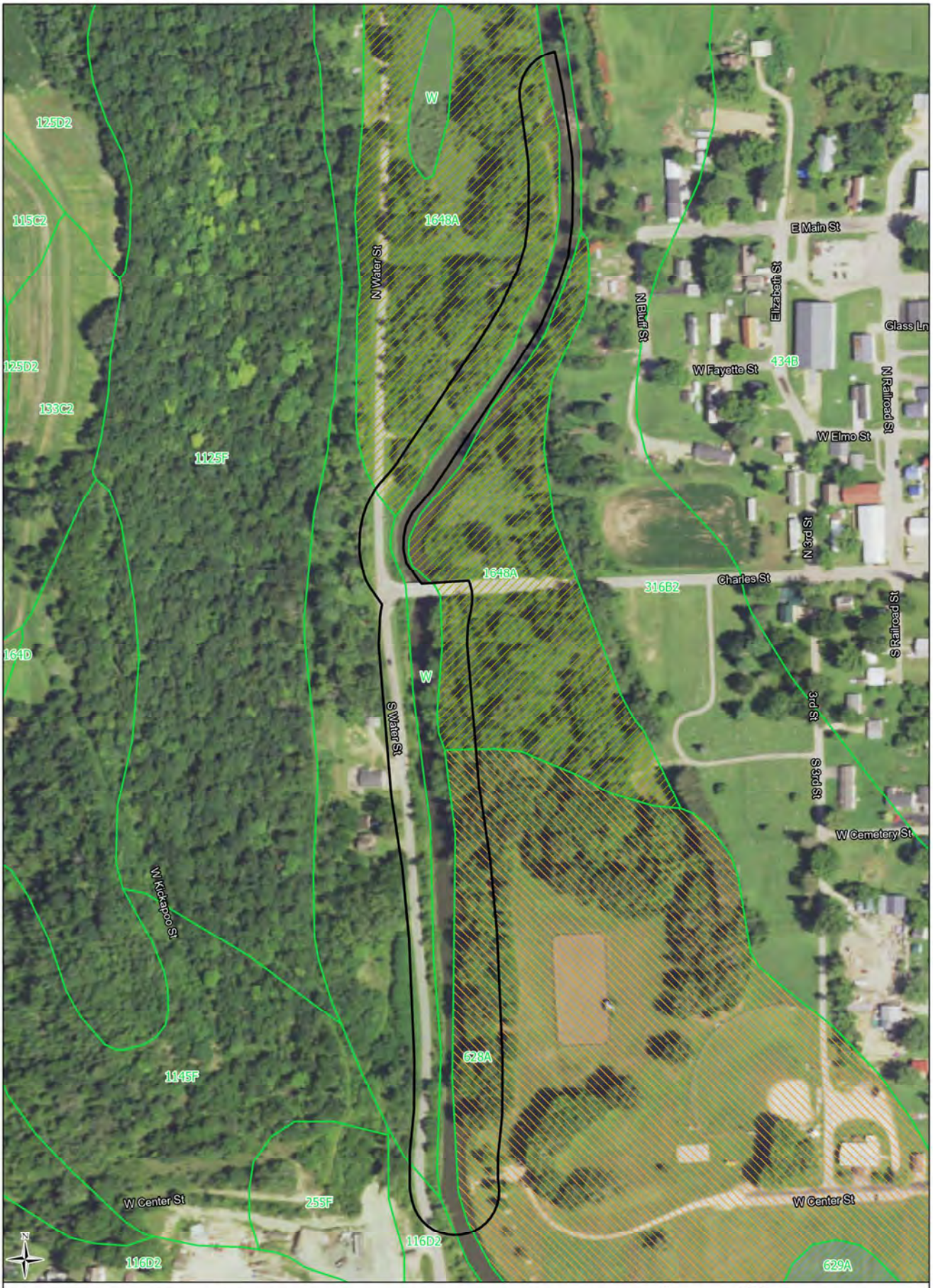
Readstown Streambank
Project #20230956
T11N, R3W, S05 & 08
V Readstown, Vernon Co

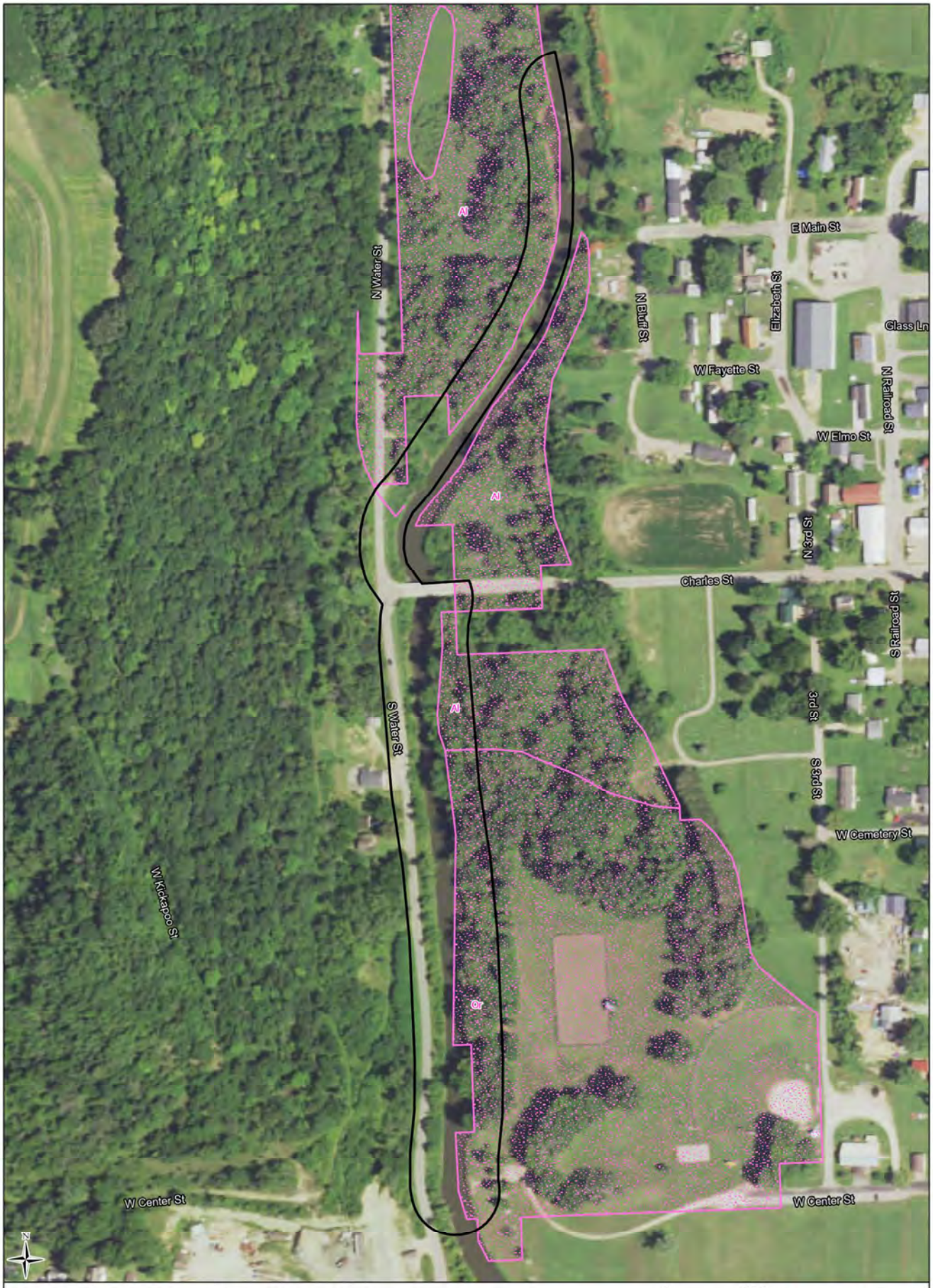
OpenStreetMap
ESRI

LRR: MW

Figure Created: 9/20/2023


Section 31
Section 32
12N 3W
Section 33
Section 4
Section 5
Section 6
Kickapoo River
11N 3W
Section 7
Sherry Creek
Section 8
Section 9
Reads Creek
Day Creek
Section 16
Section 17
Section 18
Readstown
W KICKAPOO ST
E KICKAPOO ST
N
Study Area (9.71 ac)
Township
Section
Perennial Streams
Intermittent Streams
Waterbodies
0 500 1,000 Ft
Heartland ECOLOGICAL GROUP INC
Figure 2. USGS Topography
Readstown Streambank
Project #20230956
T11N, R3W, S05 & 08
V Readstown, Vernon Co
USGSTopo
USGS
LRR: MW
Figure Created: 9/20/2023


125D2
115C2
125D2
133C2
1125F
164D
1145F
255F
116D2
116D2
W
1648A
1648A
W
628A
316B2
434B
629A
N Water St
S Water St
N Bluff St
Elizabeth St
E Main St
Glass Ln
W Fayette St
N Railroad St
W Elmo St
N 3rd St
Charles St
S Railroad St
3rd St
S 3rd St
W Cemetery St
W Kickapoo St
W Center St
W Center St
N
Study Area (9.71 ac)
NRCS Soil Survey Data
Hydric (100%)
Predominantly Hydric (85-99%)
Partially Hydric (16-84%)
Predominantly Non-Hydric (1-15%)
Non-Hydric (0%)
Readstown
0
200
Ft
Heartland
ECOLOGICAL GROUP INC
Figure 3. NRCS
Hydric Soils
Readstown Streambank
Project #20230956
T11N, R3W, S05 & 08
V Readstown, Vernon Co
2022 NAIP
NRCS
LRR: MW
Figure Created: 1/23/2024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Elizabeth St
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Glass Ln
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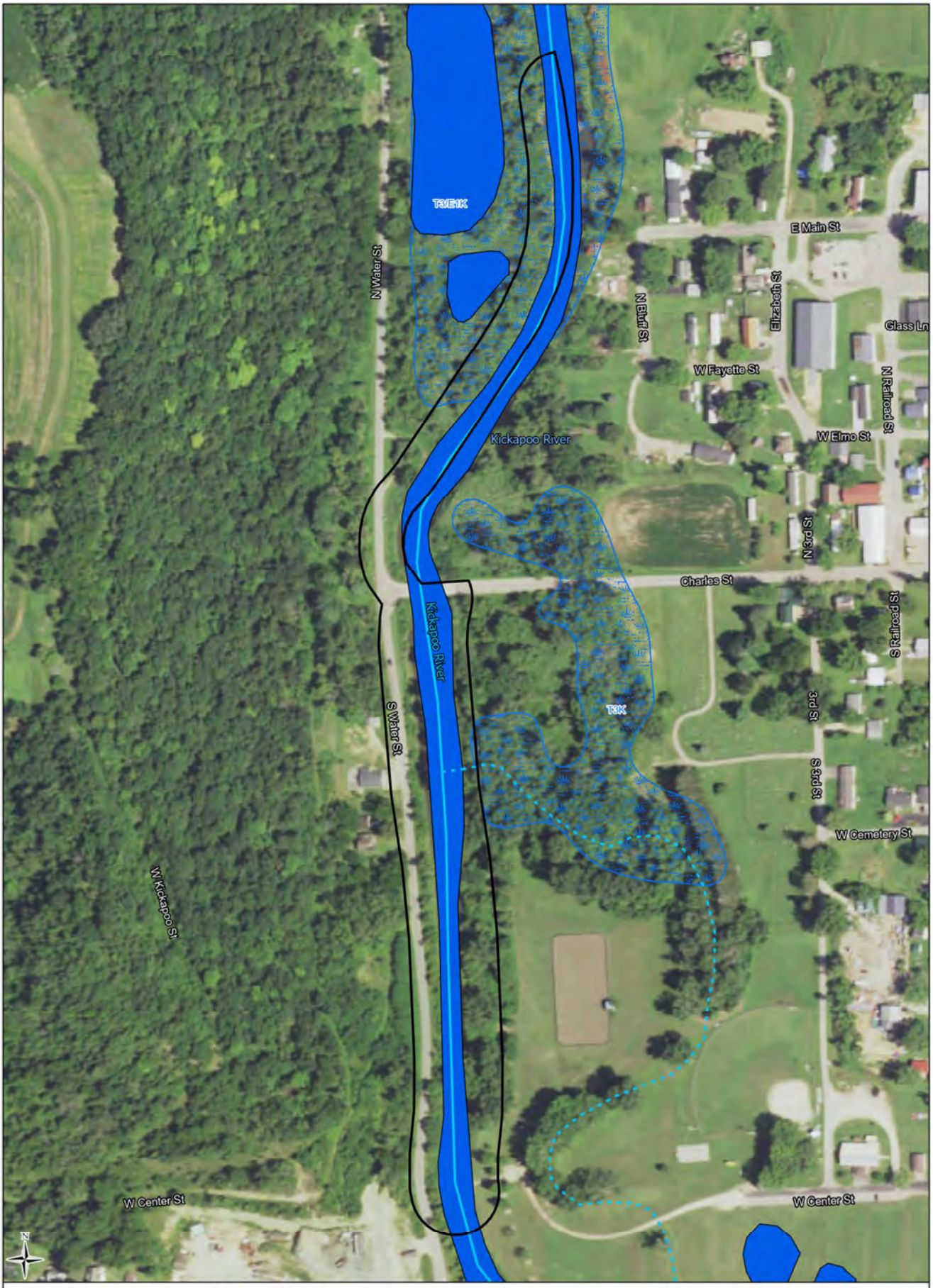
N 3rd St
Charles St
S Railroad St
3rd St
S 3rd St
W Cemetery St
W Kickapoo St
W Center St
W Center St
N
Readstown
North 4th Street
Study Area (9.71 ac)
SWDV Wetland Indicators
0
200
Ft
Heartland
ECOLOGICAL GROUP INC
Figure 4. SWDV Wetland Indicators
Readstown Streambank
Project #20230956
T11N, R3W, S05 & 08
V Readstown, Vernon Co
2022 NAIP
WDNR
LRR: MW
Figure Created: 9/20/2023



Study Area (9.71 ac)
WWI Wetland Polygons
WWI Wetland Points (None in Map Extent)
Perennial Streams
Intermittent Streams
Waterbodies

0 200 Ft

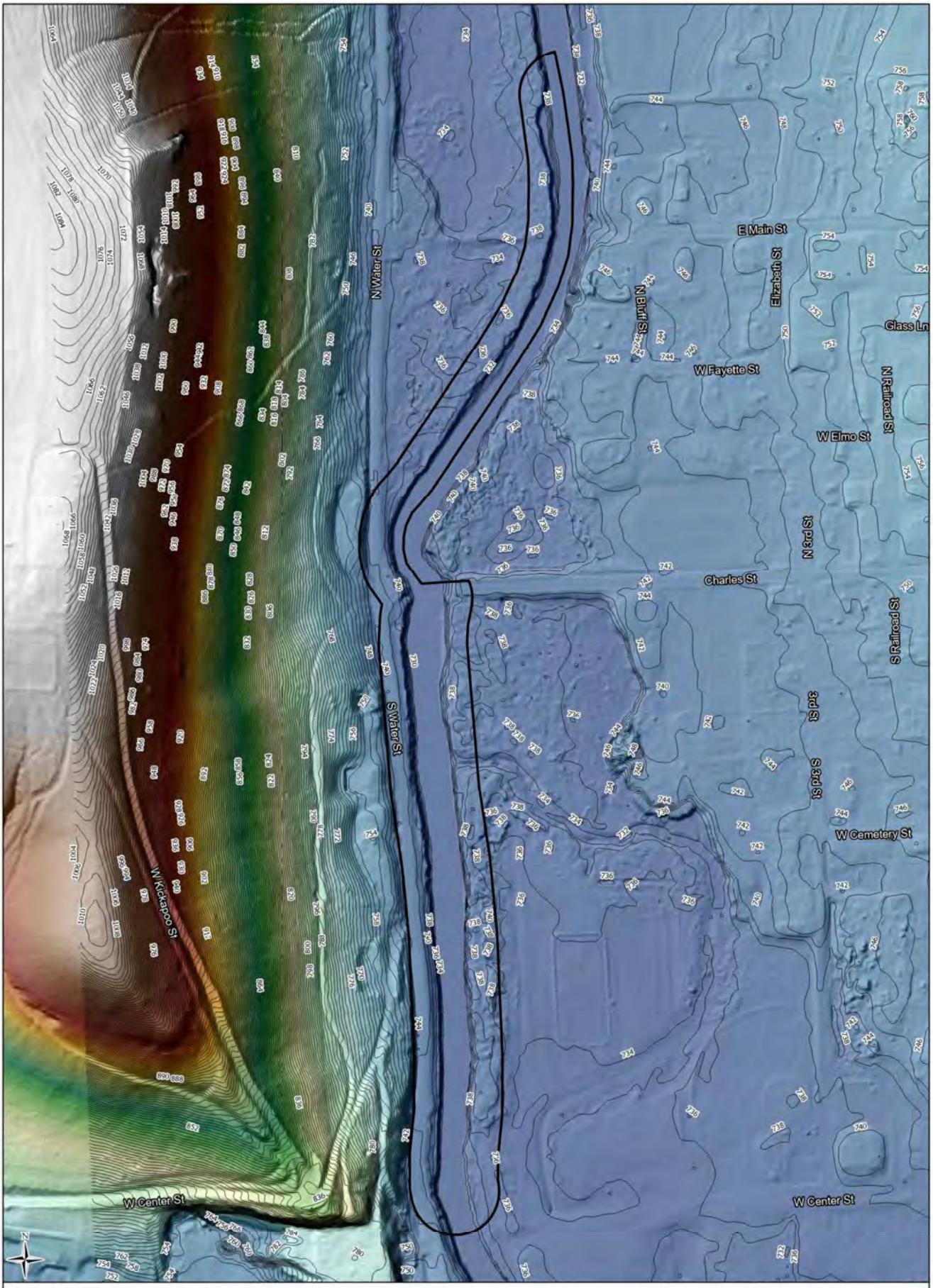
Heartland ECOLOGICAL GROUP INC

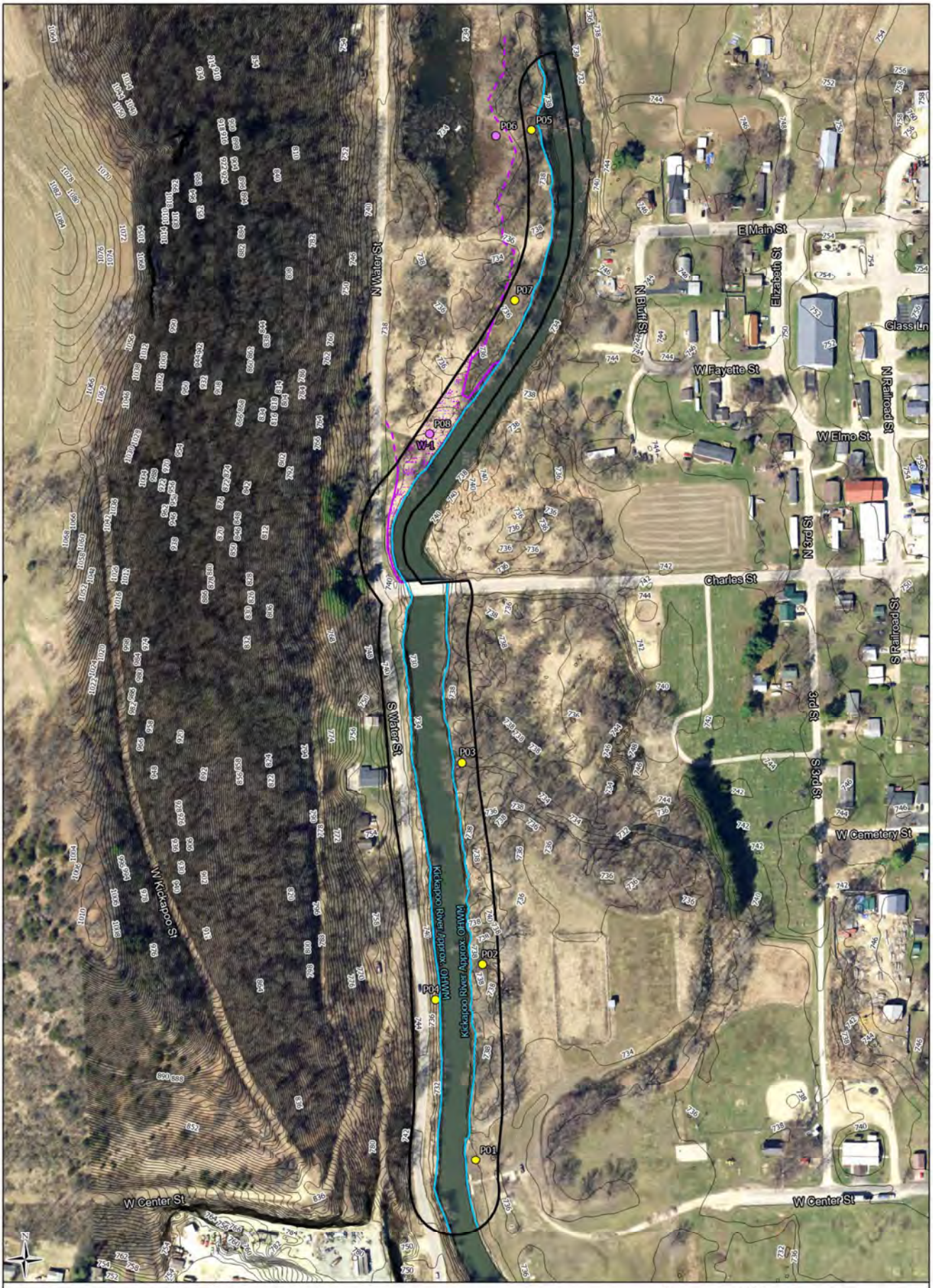
Figure 5. Wisconsin Wetland Inventory

Readstown Streambank
Project #20230956
T11N, R3W, S05 & 08
V Readstown, Vernon Co

2022 NAIP
WDNR, USGS
LRR: MW

Figure Created: 9/20/2023


E Main St
N Water St
N Bluff St
Elizabeth St
Glass Ln
W Fayette St
N Railroad St
W Elmo St
N 3rd St
Charles St
S Railroad St
S Water St
S 3rd St
W Cemetery St
W Kickapoo St
W Center St
W Center St
N
Study Area (9.71 ac)
Vernon Co 2' Contours
Readstown
0
200
Ft
Heartland
ECOLOGICAL GROUP INC
Figure 6. Color-Stretch Digital Elevation Model
Readstown Streambank
Project #20230956
T11N, R3W, S05 & 08
V Readstown, Vernon Co
2020 NAIP
County Co, HEG
LRR: MW
Figure Created: 9/20/2023



Study Area (9.71 ac)
Vernon Co 2' Contours
Kickapoo River Approx. OHWM
Offsite Wetland Boundaries
Field Delineated Wetlands (0.50 ac)

Sample Points

Upland
Wetland

0 200 Ft

Heartland ECOLOGICAL GROUP INC

Figure 7. Field Delineated Wetlands

Readstown Streambank
Project #20230956
T11N, R3W, S05 & 08
V Readstown, Vernon Co

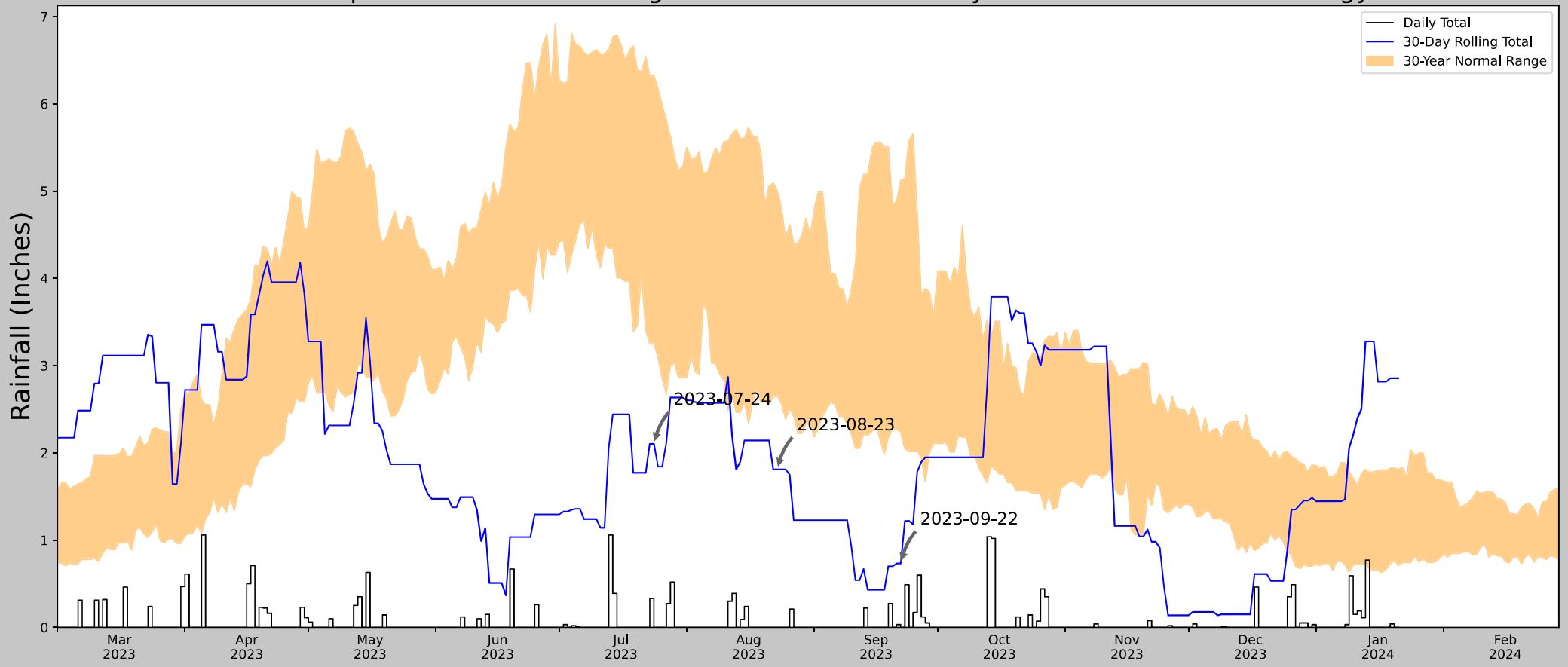
2020 Orthophoto
Vernon Co, HEG
LRR: MW

Figure Created: 11/8/2023

Village of Readstown
Readstown Streambank Stabilization
Project #: 20230956
January 25, 2024

Appendix B | APT Analysis

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	43.44822, -90.76478
Observation Date	2023-09-22
Elevation (ft)	731.113
Drought Index (PDSI)	Moderate 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
2023-09-22	2.237795	5.11811	0.732283	Dry	1	3	3
2023-08-23	2.651575	5.001969	1.811024	Dry	1	2	2
2023-07-24	3.247244	6.324016	2.102362	Dry	1	1	1
Result							Drier than Normal - 6

US Army Corps of Engineers

ERDC

Figures and tables made by the Antecedent Precipitation Tool Version 2.0

Developed by U.S. Army Corps of Engineers and U.S. Army Engineer Research and Development Center

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
GAYS MILLS	43.3144, -90.8486	688.976	10.159	42.137	5.0	10987	89
GAYS MILLS 0.3 SE	43.3167, -90.8453	708.99	0.23	20.014	0.108	16	0
GAYS MILLS 1.0 NE	43.3312, -90.8362	745.079	1.318	56.103	0.667	56	1
SOLDIERS GROVE	43.3942, -90.7758	709.974	6.616	20.998	3.116	11	0
FERRYVILLE 1.0 SE	43.3334, -91.069	688.976	11.156	0.0	5.02	11	0
GAYS MILLS 6.1 SE	43.2648, -90.7557	1108.924	5.794	419.948	5.04	50	0
READSTOWN	43.4494, -90.765	740.158	10.229	51.182	5.127	165	0
BOSCOBEL AP	43.1561, -90.6775	666.011	13.922	22.965	6.585	51	0
LYNXVILLE DAM 9	43.2117, -91.0986	632.874	14.442	56.102	7.309	6	0

Village of Readstown
Readstown Streambank Stabilization
Project #: 20230956
January 25, 2024

Appendix C | Wetland Determination Data Sheets

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Readstown Streambank Stabilization City/County: Vernon County Sampling Date: 2023-09-22

Applicant/Owner: Village of Readstown State: Wisconsin Sampling Point: P01

Investigator(s): Scott Fuchs Section, Township, Range: sec 08 T011N R003W

Landform (hillslope, terrace, etc.): Stream Shoulder Local relief (concave, convex, none): None

Slope (%): 3-7 Lat: 43.445695 Long: -90.764513 Datum: WGS84

Soil Map Unit Name: Orion silt loam, 0 to 3 percent slopes, occasionally flooded NWI classification: None (WWI)

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No ✓ (If no, explain in Remarks.)

Are Vegetation ✓, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ____ No ✓

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No ✓	**Is the Sampled Area within a Wetland?** Yes ____ No ✓
Hydric Soil Present?	Yes ____	No ✓	
Wetland Hydrology Present?	Yes ____	No ✓	

Remarks:
Sample point recorded within weedy turf vegetation present on the eastern stream shoulder in the southern portion of the study area approx. 20 feet from Kickapoo River. This area is a park with managed turf vegetation - not normal circumstances. Stream is significantly down cut from the banks. An analysis of antecedent precipitation was performed with the USACE APT tool, which indicates that conditions are drier than normal for the time of year.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5)			
1. *Trifolium repens*	50	Y	FACU
2. *Taraxacum officinale*	15	Y	FACU
3. *Plantago major*	3	N	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	68.0 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0.00	x 1 =	0.00
FACW species	0.00	x 2 =	0.00
FAC species	3.00	x 3 =	9.00
FACU species	65.00	x 4 =	260.00
UPL species	0.00	x 5 =	0.00
Column Totals:	68.00 (A)		269.00 (B)

Prevalence Index = B/A = 3.96

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No ✓

Remarks: (Include photo numbers here or on a separate sheet.)

Weedy regularly mowed turf vegetation, more weeds than turf. Poa pra cover is 20%.

SOIL

Sampling Point: P01

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 4/3	100					SIL	
12-20	10YR 4/3	93	10YR 5/3	5	D	M	SI	Very silty
			10YR 3/6	2	C	M	SI	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

No hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No wetland hydrology indicators observed.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Readstown Streambank Stabilization City/County: Vernon County Sampling Date: 2023-09-22

Applicant/Owner: Village of Readstown State: Wisconsin Sampling Point: P02

Investigator(s): Scott Fuchs Section, Township, Range: sec 08 T011N R003W

Landform (hillslope, terrace, etc.): Stream Shoulder Local relief (concave, convex, none): None

Slope (%): 3-7 Lat: 43.446919 Long: -90.764406 Datum: WGS84

Soil Map Unit Name: Orion silt loam, 0 to 3 percent slopes, occasionally flooded NWI classification: None (WWI)

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No ✓ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ____	**Is the Sampled Area within a Wetland?** Yes ____ No ✓
Hydric Soil Present?	Yes ____	No ✓	
Wetland Hydrology Present?	Yes ____	No ✓	

Remarks:
Sample point recorded within partially wooded area on the eastern bank of the Kickapoo River. Hydrophytic vegetation is present, but no indicators of wetland hydrology or hydric soils were observed. Kickapoo River is significantly down cut from the banks, topography not conducive to wetlands. An analysis of antecedent precipitation was performed with the USACE APT tool, which indicates that conditions are drier than normal for the time of year.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer negundo*	50	Y	FAC
2. *Populus deltoides*	10	N	FAC
3.			
4.			
5.			
	60.0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 5)			
1. *Phalaris arundinacea*	25	Y	FACW
2. *Apios americana*	15	Y	FACW
3. *Rudbeckia laciniata*	15	Y	FACW
4. *Glechoma hederacea*	10	N	FACU
5. *Urtica dioica*	10	N	FACW
6. *Viola sororia*	10	N	FAC
7. *Persicaria virginiana*	5	N	FAC
8. *Solidago gigantea*	3	N	FACW
9.			
10.			
	93.0	= Total Cover	
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0.00	x 1 =	0.00
FACW species	68.00	x 2 =	136.00
FAC species	75.00	x 3 =	225.00
FACU species	10.00	x 4 =	40.00
UPL species	0.00	x 5 =	0.00
Column Totals:	153.00 (A)		401.00 (B)

Prevalence Index = B/A = 2.62

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ✓ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks: (Include photo numbers here or on a separate sheet.)
Vegetation at this sample point is representative of the eastern bank of the Kickapoo River.

SOIL

Sampling Point: P02

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 3/2	70					LS	
	10YR 5/3	30					LS	
10-15	10YR 4/3	100					LS	
15-24	10YR 4/3	100					SIL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

Several alternating/mixed layers of 3/2 and 5/3 material, potentially due to historic alluvial action. Transition to a solid 4/3 at 10 inches which continues to 24 inches. No redox features observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No hydrology indicators observed aside from a positive FAC-Neutral Test.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Readstown Streambank Stabilization City/County: Vernon County Sampling Date: 2023-09-22

Applicant/Owner: Village of Readstown State: Wisconsin Sampling Point: P03

Investigator(s): Scott Fuchs Section, Township, Range: sec 08 T011N R003W

Landform (hillslope, terrace, etc.): Old River Oxbow/Meander Local relief (concave, convex, none): Concave

Slope (%): 0-2 Lat: 43.448194 Long: -90.764528 Datum: WGS84

Soil Map Unit Name: Orion silt loam, 0 to 3 percent slopes, occasionally flooded NWI classification: T3K (WWI) Mapped To The East

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✓ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:
Sample point recorded within an old oxbow/meander of the Kickapoo River along the current eastern bank. Hydrophytic vegetation and secondary wetland hydrology indicators observed, but professional judgement used to make upland determination based on lack of a hydric soil indicators and the Kickapoo River being significantly down cut from the banks approximately 20 feet to the west. An analysis of antecedent precipitation was performed with the USACE APT tool, which indicates that conditions are drier than normal for the time of year.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer saccharinum*	70	Y	FACW
2. *Ulmus americana*	10	N	FACW
3. *Acer negundo*	10	N	FAC
4.			
5.			
	90.0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 5)			
1. *Elymus virginicus*	50	Y	FACW
2. *Rudbeckia laciniata*	15	N	FACW
3. *Laportea canadensis*	10	N	FACW
4. *Viola sororia*	5	N	FAC
5.			
6.			
7.			
8.			
9.			
10.			
	80.0	= Total Cover	
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0.00	x 1 =	0.00
FACW species	155.00	x 2 =	310.00
FAC species	15.00	x 3 =	45.00
FACU species	0.00	x 4 =	0.00
UPL species	0.00	x 5 =	0.00
Column Totals:	170.00 (A)		355.00 (B)

Prevalence Index = B/A = 2.09

Hydrophytic Vegetation Indicators:

✓ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks: (Include photo numbers here or on a separate sheet.)

Large silver maples are dominant in this location.

SOIL

Sampling Point: P03

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-11	10YR 3/3	60					SL	
	10YR 5/4	40					SL	
11-14	2.5Y 6/3	100					S	
14-20	10YR 3/3	100					SIL	
20-24	10YR 5/3	97	10YR 4/6	3	C	M	FS	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

0-11 layer features intermixed/stratified 3/3 and 5/4 soil material, potentially resulting from historic alluvial action. No redox features observed. No hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes ✓ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Secondary hydrology indicators only observed. Geomorphic position noted due to old meander scar on otherwise level stream shoulder.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Readstown Streambank Stabilization City/County: Vernon County Sampling Date: 2023-09-22

Applicant/Owner: Village of Readstown State: Wisconsin Sampling Point: P04

Investigator(s): Scott Fuchs Section, Township, Range: sec 08 T011N R003W

Landform (hillslope, terrace, etc.): River Shoulder Local relief (concave, convex, none): None

Slope (%): 8-15 Lat: 43.446714 Long: -90.764811 Datum: WGS84

Soil Map Unit Name: Churchtown silt loam, 20 to 30 percent slopes, moderately eroded NWI classification: None (WWI)

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No ✓ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ____	**Is the Sampled Area within a Wetland?** Yes ____ No ✓
Hydric Soil Present?	Yes ____	No ✓	
Wetland Hydrology Present?	Yes ____	No ✓	

Remarks:
Sample point recorded on the stream shoulder along the western bank of the Kickapoo River. This sample point is representative of conditions present along the western bank from the southern end of the Study Area up to the Charles St bridge. The Kickapoo River is significantly down cut and banks are a 15-20% slope. Hydrophytic vegetation is present, but no indicators of hydric soils or wetland hydrology observed. An analysis of antecedent precipitation was performed with the USACE APT tool, which indicates that conditions are drier than normal for the time of year.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer saccharinum*	15	Y	FACW
2. *Acer negundo*	5	Y	FAC
3.			
4.			
5.			
	20.0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1. *Rhus aromatica*	10	Y	UPL
2.			
3.			
4.			
5.			
	10.0	= Total Cover	
Herb Stratum (Plot size: 5)			
1. *Phalaris arundinacea*	20	Y	FACW
2. *Monarda fistulosa*	20	Y	FACU
3. *Poa pratensis*	20	Y	FAC
4. *Symphyotrichum lanceolatum*	15	N	FAC
5. *Helianthus hirsutus*	10	N	UPL
6. *Solidago canadensis*	5	N	FACU
7. *Solidago gigantea*	5	N	FACW
8.			
9.			
10.			
	95.0	= Total Cover	
Woody Vine Stratum (Plot size: 30)			
1. ***Vitis riparia***	10	Y	FACW
2. ***Parthenocissus quinquefolia***	5	Y	FACU
	15.0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 62.50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0.00	x 1 =	0.00
FACW species	50.00	x 2 =	100.00
FAC species	40.00	x 3 =	120.00
FACU species	30.00	x 4 =	120.00
UPL species	20.00	x 5 =	100.00
Column Totals:	140.00 (A)		440.00 (B)

Prevalence Index = B/A = 3.14

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks: (Include photo numbers here or on a separate sheet.)

Mix of hydrophytic and non-hydrophytic vegetation present. Hydrophytic vegetation parameter satisfied by dominance test.

SOIL

Sampling Point: P04

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 3/2	100					SL	
5-14	10YR 4/3	100					SL	
14-20	10YR 4/3	95	10YR 5/6	5	C	M	SL	
20-24	10YR 4/2	95	10YR 5/6	5	C	M	SL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

No hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No wetland hydrology indicators observed.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Readstown Streambank Stabilization City/County: Vernon County Sampling Date: 2023-09-22

Applicant/Owner: Village of Readstown State: Wisconsin Sampling Point: P05

Investigator(s): Scott Fuchs Section, Township, Range: sec 08 T011N R003W

Landform (hillslope, terrace, etc.): Riverbank Shoulder Local relief (concave, convex, none): Convex

Slope (%): 0-2 Lat: 43.452122 Long: -90.763798 Datum: WGS84

Soil Map Unit Name: Northbend-Ettrick silt loams, 0 to 3 percent slopes, frequently flooded NWI classification: T3/E1K (WWI)

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✓ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:
Sample point recorded on the streambank shoulder of the Kickapoo River within the northern portion of the study area. Convex landscape position present in this location, Streambank of the Kickapoo River is significantly down cut, wetlands are present at the toe of the convex area, just west of the study area boundary. Hydrophytic vegetation was observed, but no indicators of wetland hydrology or hydric soils were observed. An analysis of antecedent precipitation was performed with the USACE APT tool, which indicates that conditions are drier than normal for the time of year.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer saccharinum*	70	Y	FACW
2. *Juglans nigra*	10	N	FACU
3.			
4.			
5.			
	80.0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 5)			
1. *Phalaris arundinacea*	50	Y	FACW
2. *Viola sororia*	20	Y	FAC
3. *Rudbeckia laciniata*	15	N	FACW
4. *Apios americana*	10	N	FACW
5. *Persicaria virginiana*	5	N	FAC
6. *Pilea pumila*	5	N	FACW
7. *Elymus virginicus*	5	N	FACW
8. *Oxalis stricta*	2	N	FACU
9. *Symphyotrichum lanceolatum*	2	N	FAC
10.			
	114.0	= Total Cover	
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0.00	x 1 =	0.00
FACW species	155.00	x 2 =	310.00
FAC species	27.00	x 3 =	81.00
FACU species	12.00	x 4 =	48.00
UPL species	0.00	x 5 =	0.00
Column Totals:	194.00 (A)		439.00 (B)

Prevalence Index = B/A = 2.26

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: P05

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-17	10YR 3/3	100					SL	
17-24	10YR 4/3	60					SL	
	10YR 5/3	40					SL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

No hydric soil indicators observed. No redox features observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No wetland hydrology indicators observed aside from a positive FAC-Neutral Test.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Readstown Streambank Stabilization City/County: Vernon County Sampling Date: 2023-09-22

Applicant/Owner: Village of Readstown State: Wisconsin Sampling Point: P06

Investigator(s): Scott Fuchs Section, Township, Range: sec 08 T011N R003W

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave

Slope (%): 0-2 Lat: 43.452079 Long: -90.764103 Datum: WGS84

Soil Map Unit Name: Northbend-Ettrick silt loams, 0 to 3 percent slopes, frequently flooded NWI classification: T3/E1K (WWI)

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No ✓ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ____	**Is the Sampled Area within a Wetland?** Yes ✓ No ____
Hydric Soil Present?	Yes ✓	No ____	
Wetland Hydrology Present?	Yes ✓	No ____	

Remarks:
Sample point recorded within a wetland depression located just west of the northernmost portion of the study area boundary. An analysis of antecedent precipitation was performed with the USACE APT tool, which indicates that conditions are drier than normal for the time of year.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer saccharinum*	15	Y	FACW
2.			
3.			
4.			
5.			
	15.0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1. *Salix interior*	10	Y	FACW
2.			
3.			
4.			
5.			
	10.0 = Total Cover		
Herb Stratum (Plot size: 5)			
1. *Myosoton aquaticum*	60	Y	FACW
2. *Phalaris arundinacea*	30	Y	FACW
3. *Persicaria hydropiper*	15	N	OBL
4. *Persicaria pensylvanica*	10	N	FACW
5.			
6.			
7.			
8.			
9.			
10.			
	115.0 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	15.00	x 1 =	15.00
FACW species	125.00	x 2 =	250.00
FAC species	0.00	x 3 =	0.00
FACU species	0.00	x 4 =	0.00
UPL species	0.00	x 5 =	0.00
Column Totals:	140.00 (A)		265.00 (B)

Prevalence Index = B/A = 1.89

Hydrophytic Vegetation Indicators:

✓ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks: (Include photo numbers here or on a separate sheet.)

RCG dominated wet meadow with sparse Salix shrubs and silver maples present.

SOIL

Sampling Point: P06

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/2	92	10YR 5/6	8	C	M/PL	SIL	
8-20	10YR 4/1	95	10YR 3/6	5	C	M	SICL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ✓ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ✓ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): _____

Water Table Present? Yes ___ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No primary wetland hydrology indicators observed during the field investigation; however, Inundation is visible on aerial imagery west of sample point location.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Readstown Streambank Stabilization City/County: Vernon County Sampling Date: 2023-09-22

Applicant/Owner: Village of Readstown State: Wisconsin Sampling Point: P07

Investigator(s): Scott Fuchs Section, Township, Range: sec 08 T011N R003W

Landform (hillslope, terrace, etc.): Stream Shoulder Local relief (concave, convex, none): Convex

Slope (%): 0-2 Lat: 43.451053 Long: -90.763969 Datum: WGS84

Soil Map Unit Name: Northbend-Ettrick silt loams, 0 to 3 percent slopes, frequently flooded NWI classification: T3/E1K (WWI)

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✓ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:
Sample point recorded on a convex ridge present on the river shoulder between a wetland area that straddles the western boundary of the study area and the Kickapoo River. Hydrophytic vegetation present, but no indicators of wetland hydrology or hydric soils observed. An analysis of antecedent precipitation was performed with the USACE APT tool, which indicates that conditions are drier than normal for the time of year.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer saccharinum*	70	Y	FACW
2. *Acer negundo*	28	Y	FAC
3.			
4.			
5.			
	98.0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 5)			
1. *Rudbeckia laciniata*	50	Y	FACW
2. *Persicaria virginiana*	20	Y	FAC
3. *Viola sororia*	10	N	FAC
4. *Symphyotrichum lanceolatum*	5	N	FAC
5. *Solidago gigantea*	3	N	FACW
6. *Elymus virginicus*	3	N	FACW
7.			
8.			
9.			
10.			
	91.0	= Total Cover	
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0.00	x 1 =	0.00
FACW species	126.00	x 2 =	252.00
FAC species	63.00	x 3 =	189.00
FACU species	0.00	x 4 =	0.00
UPL species	0.00	x 5 =	0.00
Column Totals:	189.00 (A)		441.00 (B)

Prevalence Index = B/A = 2.33

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: P07

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-15	10YR 3/3	100					SL	
15-24	10YR 4/3	50					SL	
	10YR 5/3	50					SL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

No hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No wetland hydrology indicators observed aside from a positive FAC-Neutral Test.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Readstown Streambank Stabilization City/County: Vernon County Sampling Date: 2023-09-22

Applicant/Owner: Village of Readstown State: Wisconsin Sampling Point: P08

Investigator(s): Scott Fuchs Section, Township, Range:

Landform (hillslope, terrace, etc.): River Shoulder Local relief (concave, convex, none): None

Slope (%): 0-2 Lat: 43.450232 Long: -90.764733 Datum: WGS84

Soil Map Unit Name: Northbend-Ettrick silt loams, 0 to 3 percent slopes, frequently flooded NWI classification: None (WWI)

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No ✓ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ____	**Is the Sampled Area within a Wetland?** Yes ✓ No ____
Hydric Soil Present?	Yes ✓	No ____	
Wetland Hydrology Present?	Yes ✓	No ____	

Remarks:
Sample point recorded in a low lying area present on the western shoulder of the Kickapoo River. This area is a contiguous connection between off-site wetlands located to the northwest and the Kickapoo River located to the east. An analysis of antecedent precipitation was performed with the USACE APT tool, which indicates that conditions are drier than normal for the time of year.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1. *Fraxinus pennsylvanica*	5	Y	FACW
2.			
3.			
4.			
5.			
	5.0	= Total Cover	
Herb Stratum (Plot size: 5)			
1. *Phalaris arundinacea*	100	Y	FACW
2. *Urtica dioica*	10	N	FACW
3. *Carex trichocarpa*	10	N	OBL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	120.0	= Total Cover	
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	10.00	x 1 =	10.00
FACW species	115.00	x 2 =	230.00
FAC species	0.00	x 3 =	0.00
FACU species	0.00	x 4 =	0.00
UPL species	0.00	x 5 =	0.00
Column Totals:	125.00 (A)		240.00 (B)

Prevalence Index = B/A = 1.92

Hydrophytic Vegetation Indicators:

✓ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks: (Include photo numbers here or on a separate sheet.)

Wet meadow vegetation present dominated by RCG.

SOIL

Sampling Point: P08

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/2	100					SIL	
6-12	10YR 3/2	92	10YR 4/6	8	C	M	SIL	
12-20	10YR 4/2	95	10YR 4/6	5	C	M	SICL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ✓ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): _____

Water Table Present? Yes ___ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No primary hydrology indicators observed.

Appendix D | Site Photographs

Photo #1 Sample point P01

Photo #2 Sample point P01

Photo #3 Sample point P01

Photo #4 Sample point P01

Photo #5 Sample point P02

Photo #6 Sample point P02

Photo #7 Sample point P02

Photo #8 Sample point P02

Photo #9 Sample point P03

Photo #10 Sample point P03

Photo #11 Sample point P03

Photo #12 Sample point P03

Photo #13 Sample point P04

Photo #14 Sample point P04

Photo #15 Sample point P04

Photo #16 Sample point P04 (photo missing)

Photo #17 Sample point P05

Photo #18 Sample point P05

Photo #19 Sample point P05

Photo #20 Sample point P05

Photo #21 Sample point P06

Photo #22 Sample point P06

Photo #23 Sample point P06

Photo #24 Sample point P06

Photo #25 Sample point P07

Photo #26 Sample point P07

Photo #27 Sample point P07

Photo #28 Sample point P07

Photo #29 Sample point P08

Photo #30 Sample point P08

Photo #31 Sample point P08

Photo #32 Sample point P08

Photo #33 Eastern bank of Kickapoo River, banks typically significantly down-cut

Photo #34 Eastern bank of Kickapoo River, banks typically significantly down-cut

Photo #35 Western bank of Kickapoo River, banks typically significantly down-cut

Photo #36 Western bank of Kickapoo River, banks typically significantly down-cut

Photo #37 Offsite wetland area west of P05

Appendix E | Delineator Qualifications

Scott Fuchs, Environmental Scientist

506 Springdale Street, Mount Horeb, WI 53572
scott@heartlandecological.com
(608) 490-2450 ext. 4

Heartland
ECOLOGICAL GROUP, INC

Scott is a WDNR-assured wetland delineator and environmental scientist with expertise in wetland assessment and delineation, native plant communities of Wisconsin, botany, geographic information systems (GIS), and state/federal wetland regulations and permitting. Scott has been involved in the field of ecological conservation and restoration for over eight years working as a wetland delineator, environmental consultant, field restoration ecologist and crew leader, ecology research assistant, and GIS administrator. Since joining Heartland, Scott has completed tens of wetland delineations throughout Wisconsin, prepared wetland and waterway permit applications and obtained approval from the DNR and USACE, and performed vegetation and hydrology monitoring for wetland mitigation projects. Scott also provides technical support by assisting with natural area restoration planning, monitoring and management, developing GIS-based project mapping, collecting and interpreting historic aerial imagery, and performing analysis of GIS data sets. Scott implemented Heartland's current GIS workflow, which utilizes ArcGIS Pro, ArcGIS Online, sub-foot EOS Arrow GNSS receivers, and tablet devices to accurately record and view environmental data in the field. Scott achieved his professionally assured wetland delineator certification from the DNR in February 2022.

His experience includes: wetland determination and delineation, long-term vegetation and wildlife monitoring and reporting, collecting and processing monitoring well hydrology data, wetland mitigation bank viability analysis and planning, preparing state artificial and non-federal wetland exemption requests, preparing wetland and waterway permit applications, writing wetland delineation reports, rare species surveys, invasive species control, conducting prescribed burns, and invasive herbaceous, shrub, and tree removal.

Education

BS, Biology (Emphasis in Ecology), University of Wisconsin – Whitewater, Whitewater, WI, 2015

Basic Wetland Delineation Training, Continuing Education and Extension, UW – La Crosse, La Crosse, WI, 2019

Advanced Wetland Delineation Training, Continuing Education and Extension, UW – La Crosse, La Crosse, WI, 2019

Critical Methods in Wetland Delineation, Continuing Education and Extension, UW – La Crosse, 2019, 2020, 2021, 2022

Sedges: Identification and Ecology, UW – Milwaukee Field Station Workshop, Cedarburg, WI, 2022

Certifications and Training

Professionally Assured Wetland Delineator, Wisconsin Department of Natural Resources, 2022

Wildlife Fire Fighter Type 2, National Wildlife Coordinating Group, Incident Management Specialists, LLC, Madison, WI, 2017

Level One Chainsaw Safety Training, Forest Industry Safety & Training Alliance, Eau Claire, WI, 2016

Certified Pesticide Applicator (Category 6), Wisconsin Department of Trade and Consumer Protection, Madison, WI, 2016

Project Experience

Wetland Determinations and Delineations

Harmony Valley Farm, Vernon County, WI
Performed a wetland delineation within a 161-acre property containing organic vegetable farms fields, the Bad Axe River floodplain, old fields, woodlands, and coulees within Wisconsin's picturesque driftless area.

Morey Solar Field Wetland Delineation and Restoration, Dane County, WI
Assisted in the delineation of wetlands present on a 104-acre airport property, which was a proposed site for a solar field on the west side of Madison, WI. Following construction of the solar field, assisted in creating a native species planting and management plan.

Mallard Ridge and Glacier Ridge Landfill Pipelines: Walworth and Dodge Counties, WI
Performed wetland delineation along separate 1.5-mile and 3.6-mile corridors passing through savanna, upland prairie, wet prairie, hardwood swamps, agricultural fields, stream crossings, and highway right-of-way. Wetland delineation was necessary for construction of methane pipelines linking to nearby regional pipelines.

Nuemann Development: Port Washington Road Subdivision, Ozaukee County, WI
Performed a wetland determination and delineation within a 50-acre agricultural field. Compiled historic information to support an approved WI Act 183 artificial wetland exemption for wetlands located on site.

1520 LLC: Port Washington Road Commercial Development, Ozaukee County, WI
Performed a wetland determination and delineation within a highly disturbed 3-acre parcel containing clayey soils that was subsequently confirmed by WI DNR wetland regulatory staff. Compiled historic information to support an approved WI Act 183 artificial wetland exemption for wetlands located on site.

Private Landowner: Bear Creek Wetland Delineation and Driveway Crossing Permitting, Monroe County,
WI Performed a wetland determination and delineation along a section of Bear Creek with several old oxbows to support culvert installation and minor wetland disturbance permitting for the purposes of installation of a ruraldriveway. This wetland delineation was subsequently confirmed by WI DNR wetland regulatory staff and was utilized in obtaining necessary state and federal permits. Prepared and obtained culvert installation and generalwetland disturbance permits from the WI DNR and USACE.

Wetland and Waterway Permitting

TPC Wisconsin (Formerly Cherokee Country Club): TPC Wisconsin Golf Course Improvements, Dane County, WI
Performed a wetland delineation throughout the 153-acre golf course. Assisted senior Heartland staff in preparing and obtaining an individual permit application for wetland and waterway disturbance associated with course improvements. Assisted the Heartland team in planning ecological restoration of the course's 36 acres of wetland. Prepared GIS tools to guide ecological restoration crews in the field.

KL Engineering/Dane County Parks: Phase 2 Lower Yahara River Trail, Dane County, WI
Assisted senior Heartland staff in performing a wetland delineation along an unimproved recreational trail on the northern shore of Lake Kegonsa. Supported KL Engineering in their design of a boardwalk built on the footprint of the unimproved trail by recommending efforts to reduce impacts to wetlands. Drafted an individual wetland disturbance permit application for temporary and minor permanent impacts involved with the project. Facilitated the purchase of mitigation credits required by the permit approval to offset wetland impacts.

D'Onofrio, Kottke & Associates: Creek Crossing Development, Dane County, WI
Assisted residential developer and engineering firm by writing an application for, and obtaining, an individual permit needed for road crossings, culvert placement, and pedestrian bridge associated with a 32-acre residential development.

Epic: Epic Campus Expansion, Dane County, WI
Assisted in writing application materials for, and obtaining and individual permit for impacts to wetlands associated with an expansion of the Epic campus. Developed practicable alternatives analysis to minimize wetland impacts to the greatest extent practicable.

Hydrology Monitoring Well Data Analysis

Wisconsin DNR: Soik ILF Mitigation Site, Portage County, WI
Performed collection and processing of data from 14 monitoring wells present on a 60-acre ILF mitigation site. Performed analysis of hydrology data to determine if the site's wetland hydrology standard was met. Summarized results and created graphical representations of hydrology monitoring for end-of-year reporting tothe WDNR and USACE.

Wisconsin DNR: Evansville ILF Mitigation Site, Rock County, WI
Performed baseline hydrology monitoring of a proposed wetland mitigation site to guide restoration activities. Performed analysis of historic aerial imagery to determine the location and extent of drain tile within the proposed mitigation site. Following ditch filling and tile breaking associated with the restoration project, performed monitoring and analysis of hydrology data collected from 12 on-site hydrology monitoring wells. Summarized results and created graphical representations of hydrology monitoring for end-of-year reporting tothe WDNR and USACE.

Bear Development: Barnes Prairie Mitigation Bank Site, Kenosha County, WI
Performed collection and processing of data from 46 hydrology monitoring wells located throughout a 230-acre agricultural field. Analyzed data to determine if wetland hydrology was present in the location of the sampling wells. Produced graphical representations of precipitation and ground water level data.

Wisconsin DNR: Evansville ILF Mitigation Bank Site, Rock County, WI
Performed collection and processing of data from 9 hydrology monitoring wells within agricultural fields, disturbed wet meadow, and shrub-carr communities across a 40-acre site. Analyzed data to determine if wetland hydrology was present in the location of the sampling wells and to compile baseline information prior to wetland restoration work. Produced graphical representations of precipitation and ground water level data.

Vegetation, Wildlife, and Rare Species Monitoring

Wisconsin DNR: Soik ILF Mitigation Site, Portage County, WI
Established quantitative vegetation monitoring plots and performed vegetation monitoring of a 60-acre wetland mitigation bank in Wisconsin's central sands region. Vegetation monitoring was completed to assess progression of the site towards meeting regulatory performance standards. Vegetation monitoring including sample plot surveys and timed meander surveys. The results were summarized to assess the various performance metrics across a variety of wetland vegetative community and compensation types.

Kreyer Creek Compensatory Wetland Mitigation Bank Site, Monroe County, WI
Conducted quantitative vegetation monitoring of this 200+ acre compensatory wetland mitigation site. Vegetation monitoring was completed to assess progression of the site towards meeting regulatory performance standards. Vegetation monitoring including sample plot surveys and timed meander surveys. The results were summarized to assess the various performance metrics including florist quality assessments and diversity, invasive and noninvasive species relative cover, and prevalence indices of hydrophytic vegetation. The vegetation data and results were incorporate into the annual monitoring report required by the U.S. Army Corps of Engineers and Interagency Review Team.

Nantucket Conservation Foundation: Head of the Plains, Nantucket County, MA
Conducted vegetation monitoring, small mammal live-trapping, and insect pitfall trapping to collect data that is being used in a longitudinal study exploring the viability of different ecological management and restoration techniques in sandplain grassland habitat, a globally rare ecological community.

Nantucket Conservation Foundation: Head of the Plains, Nantucket County, MA
Installed acoustic bat monitoring devices and regularly downloaded the recorded data to determine the presence of different bat species. Assisted in mist-netting and radio telemetry tracking of federally threatened northern long-eared bats. Performed emergence counts of bat roosting locations discovered via radio telemetry tracking.

Nantucket Conservation Foundation: Coatue, Nantucket County, MA
Conducted vegetation monitoring for a graduate level study investigating the effects of cormorant nesting on plant communities in remote sand dune/shoal habitats.

Ecological Restoration and Invasive Species Management

Big Hollow Compensatory Wetland Mitigation Bank, Sauk County, WI
Assisted with the development of a Compensation Site Plan (CSP) for a nearly 200-acre compensatory wetland mitigation bank site as part of the Mitigation Banking Instrument (MBI). Completed various technical components of the CSP including assessment of the overall site characteristics and history, vegetation restoration plan, development of regulatory performance standards, and monitoring and management plan. Completed all site mapping and plans utilizing GIS.

Good Oak Ecological Services, Numerous Locations Throughout Dane County and Surrounding Areas, WI
Performed invasive species management and ecological restoration activities in prairie, oak savanna, and oak woodland habitats throughout Dane County and surrounding areas. Activities included chemical and mechanical control of invasive species, invasive brush and tree removal with chainsaws and brush cutters, prescribed burns on small to medium (1-15 acres) sized prairies and oak woodlands, native vegetation seeding, and erosion control installation.

UW-Madison, UW-Madison Lakeshore Preserve, Dane County, WI
Performed invasive species management on thistle, garlic mustard, dame's rocket, and porcelain berry via chemical spraying and cut-and-treat methods.

Nantucket Conservation Foundation: Head of the Plains, Sanford Farm / Ram Pasture, Madequecham Valley, Nantucket County, MA
Performed cut-and-treat management of invasive Phragmites in salt marsh habitats.

State of Wisconsin
DEPARTMENT OF NATURAL RESOURCES
1027 W St Paul Ave
Milwaukee WI, WI, 53233

Tony Evers, Governor
Adam N. Payne, Secretary
Telephone 608-266-2621
Toll Free 1-888-936-7463
TTY Access via relay - 711

April 3, 2023

Scott Fuchs
Heartland Ecological Group, Inc.
506 Springdale Street
Mt. Horeb, WI 53572

Subject: 2023 Assured Wetland Delineator Confirmation

Dear Mr. Fuchs:

This letter provides Wisconsin Department of Natural Resources (WDNR) confirmation for the wetland delineations you conduct during the 2023 growing season. You and your clients will not need to wait for the WDNR to review your wetland delineations before moving forward with project planning. This will help expedite the review process for WDNR's wetland regulatory program. Your name and contact information will continue to be listed on our website at: http://dnr.wi.gov/topic/wetlands/assurance.html.

In the instance where a municipality may require a letter of confirmation for your work prior to moving forward in the local regulatory process, this letter shall serve as that confirmation. Although your wetland delineations do not require WDNR field review, inclusion of a Wetland Delineation Report is required for projects needing State authorized wetland, waterway and/or storm water permit approvals.

To comply with Chapter 23.321, State Statutes, please supply the department with a polygon shapefile of the wetland boundaries delineated within the project area. Please do not include data such as parcel boundaries, project limits, wetland graphic representation symbols, etc. If internal upland polygons are found within a wetland polygon, then please label as UPLAND. The shapefile should utilize a State Plane Projection and be overlain onto recent aerial photography. If a different projection system is used, please indicate in which system the data are projected. In the correspondence sent with the shapefile, please supply a brief description of each wetland's plant community (eg: wet meadow, floodplain forest, etc.). Please send these data to Calvin Lawrence (608-266-0756 or email at calvin.lawrence@wisconsin.gov).

If you or any client has a question regarding your status in the Wetland Delineation Professional Assurance Program, contact me by email at kara.brooks@wisconsin.gov or phone at 414-308-6780. Thank you for all your hard work and best wishes for the upcoming field season.

Sincerely,

Kara Brooks
Wetland Identification Coordinator
Bureau of Watershed Management

Appendix F | NAIP Imagery

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Appendix: 2004-07-08
NAIP Aerial Imagery

Readstown Streambank
Project #20230956
T11N, R3W, S05 & 08
V Readstown, Vernon Co

2004 NAIP
USDA
LRR: MW

Figure Created: 1/24/2024


Study Area (9.71 ac)
0
200
Ft
Readstown
Heartland
ECOLOGICAL GROUP INC
Appendix: 2005-07-19
NAIP Aerial Imagery
Readstown Streambank
Project #20230956
T11N, R3W, S05 & 08
V Readstown, Vernon Co
2005 NAIP
USDA
LRR: MW
Figure Created: 1/23/2024

Study Area (9.71 ac)

0 200 Ft

Heartland
ECOLOGICAL GROUP INC

Appendix: 2006-07-31
NAIP Aerial Imagery

Readstown Streambank
Project #20230956
T11N, R3W, S05 & 08
V Readstown, Vernon Co

2006 NAIP
USDA
LRR: MW

Figure Created: 1/23/2024


Readstown
North 4th Street
Study Area (9.71 ac)
0
200
Ft
Heartland
ECOLOGICAL GROUP INC
Appendix: 2008-07-09
NAIP Aerial Imagery
Readstown Streambank
Project #20230956
T11N, R3W, S05 & 08
V Readstown, Vernon Co
2008 NAIP
USDA
LRR: MW
Figure Created: 1/23/2024


Readstown
North 8th Street
Study Area (9.71 ac)
0
200
Ft
Heartland
ECOLOGICAL GROUP INC
Appendix: 2010-07-02
NAIP Aerial Imagery
Readstown Streambank
Project #20230956
T11N, R3W, S05 & 08
V Readstown, Vernon Co
2010 NAIP
USDA
LRR: MW
Figure Created: 1/23/2024

Heartland
ECOLOGICAL GROUP INC

Appendix: 2013-07-05
NAIP Aerial Imagery

Readstown Streambank
Project #20230956
T11N, R3W, S05 & 08
V Readstown, Vernon Co

2013 NAIP
USDA
LRR: MW

Figure Created: 1/23/2024

Study Area (9.71 ac)

0 200 Ft

Heartland
ECOLOGICAL GROUP INC

Appendix: 2015-10-11
NAIP Aerial Imagery

Readstown Streambank
Project #20230956
T11N, R3W, S05 & 08
V Readstown, Vernon Co

2015 NAIP
USDA

LRR: MW

Figure Created: 1/23/2024

Study Area (9.71 ac)

0 200 Ft

Heartland
ECOLOGICAL GROUP INC

Appendix: 2017-07-04
NAIP Aerial Imagery

Readstown Streambank
Project #20230956
T11N, R3W, S05 & 08
V Readstown, Vernon Co

2017 NAIP
USDA

LRR: MW

Figure Created: 1/24/2024

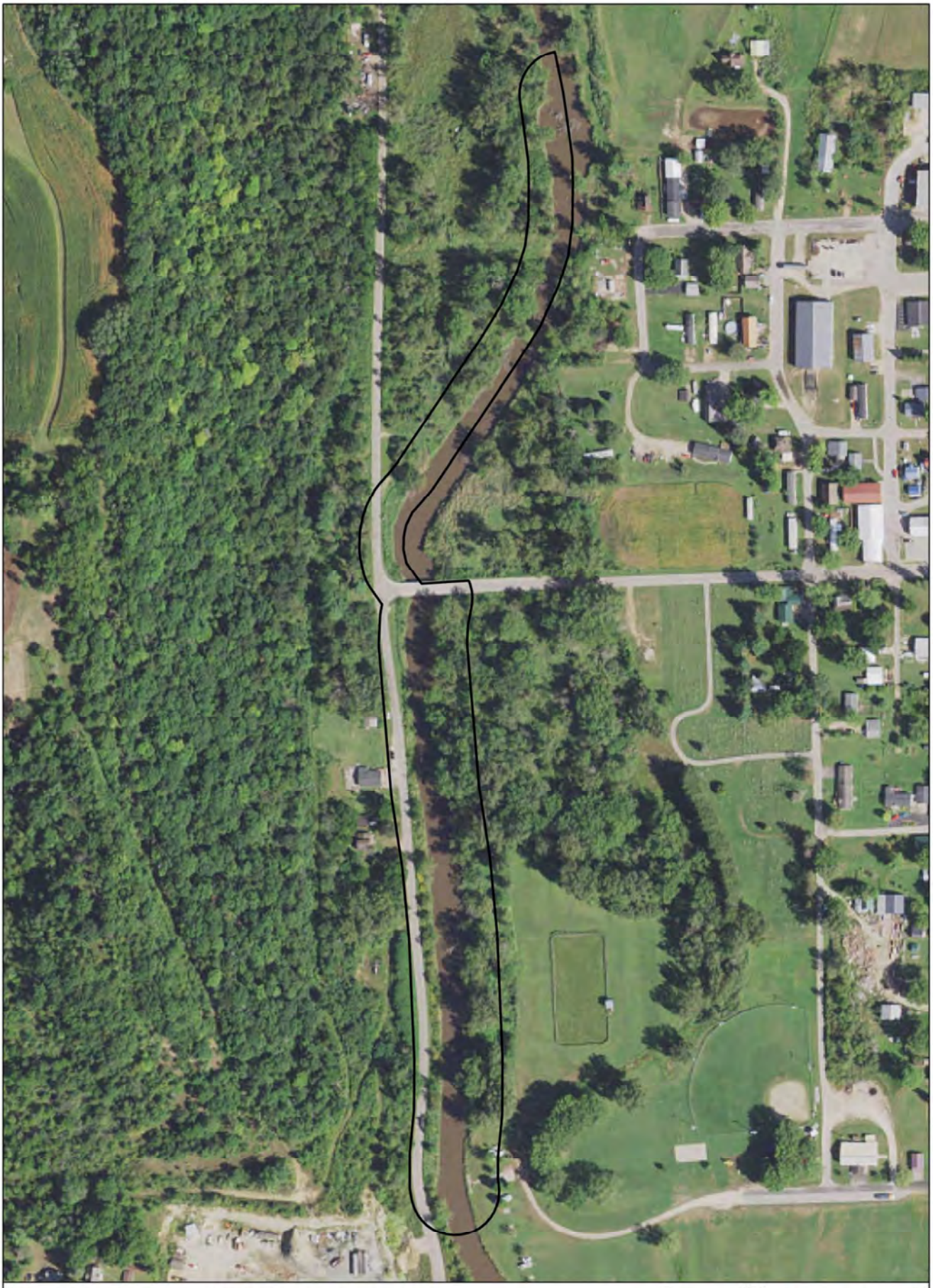
Heartland
ECOLOGICAL GROUP INC

Appendix: 2018-09-09
NAIP Aerial Imagery

Readstown Streambank
Project #20230956
T11N, R3W, S05 & 08
V Readstown, Vernon Co

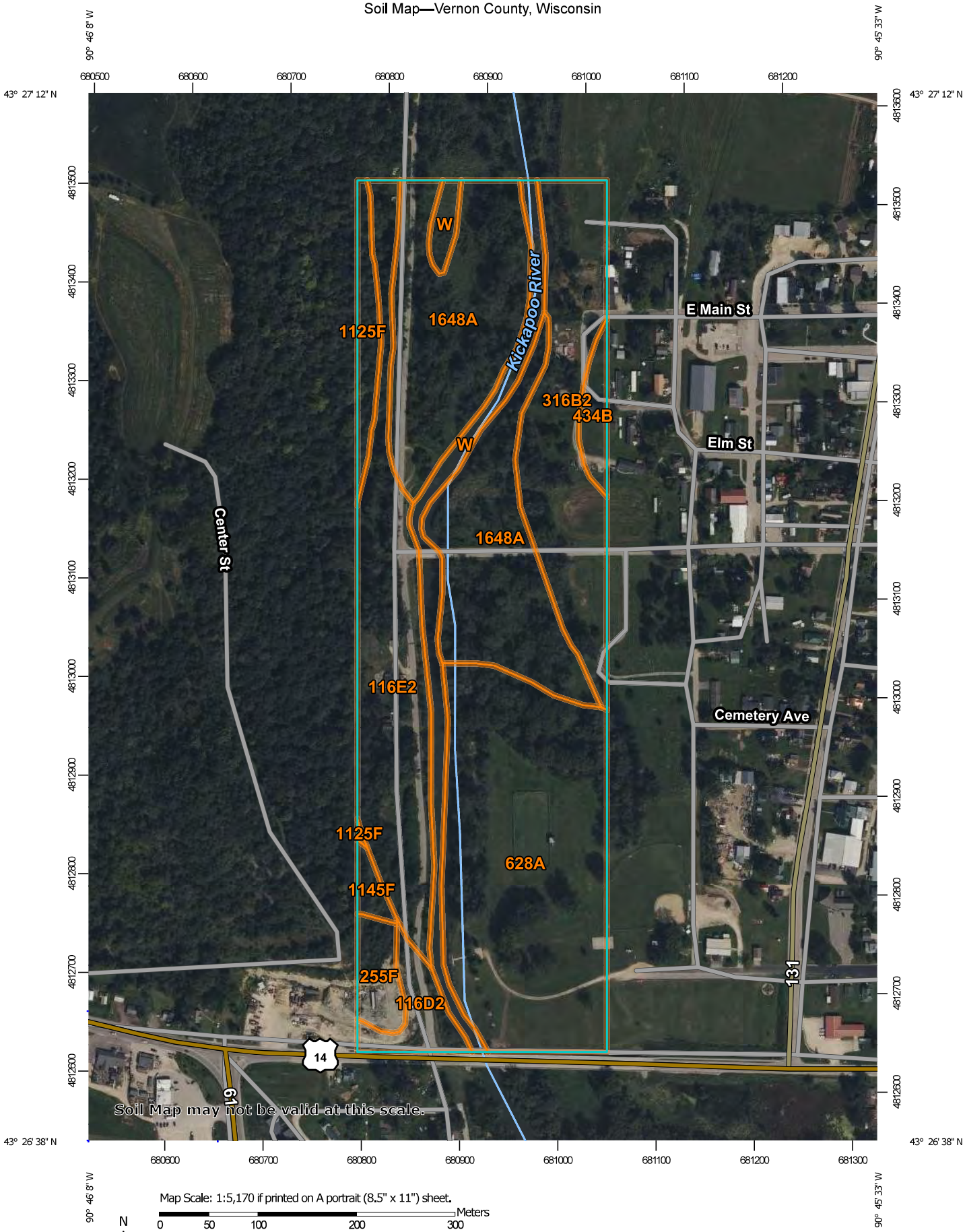
2018 NAIP
USDA
LRR: MW

Figure Created: 1/24/2024


Study Area (9.71 ac)
0
200
Ft
Readstown
Heartland
ECOLOGICAL GROUP INC
Appendix: 2020-09-02
NAIP Aerial Imagery
Readstown Streambank
Project #20230956
T11N, R3W, S05 & 08
V Readstown, Vernon Co
2020 NAIP
USDA
LRR: MW
Figure Created: 1/24/2024


Study Area (9.71 ac)
0
200
Ft
Readstown
Heartland
ECOLOGICAL GROUP INC
Appendix: 2022-08-05
NAIP Aerial Imagery
Readstown Streambank
Project #20230956
T11N, R3W, S05 & 08
V Readstown, Vernon Co
2022 NAIP
USDA
LRR: MW
Figure Created: 1/23/2024

Attachment #9



Map Scale: 1:5,170 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 250 500 1000 1500

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 15N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Vernon County, Wisconsin
Survey Area Data: Version 18, Sep 8, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Aug 2, 2022—Sep 28, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
116D2	Churchtown silt loam, 12 to 20 percent slopes, moderately eroded	1.5	2.7%
116E2	Churchtown silt loam, 20 to 30 percent slopes, moderately eroded	8.8	15.9%
255F	Urne fine sandy loam, 30 to 45 percent slopes	1.2	2.1%
316B2	Ella silt loam, 1 to 6 percent slopes, moderately eroded	7.6	13.7%
434B	Bilson sandy loam, 1 to 6 percent slopes	0.9	1.6%
628A	Orion silt loam, 0 to 3 percent slopes, occasionally flooded	15.0	26.9%
1125F	Dorerton, very stony-Elbaville complex, 30 to 60 percent slopes	1.3	2.4%
1145F	Gaphill-Rockbluff complex, 30 to 60 percent slopes	0.4	0.8%
1648A	Northbend-Ettrick silt loams, 0 to 3 percent slopes, frequently flooded	15.0	26.9%
W	Water	3.9	7.0%
Totals for Area of Interest		**55.7**	**100.0%**

ROCK RIVER LABORATORY, INC.
AGRICULTURAL ANALYSIS

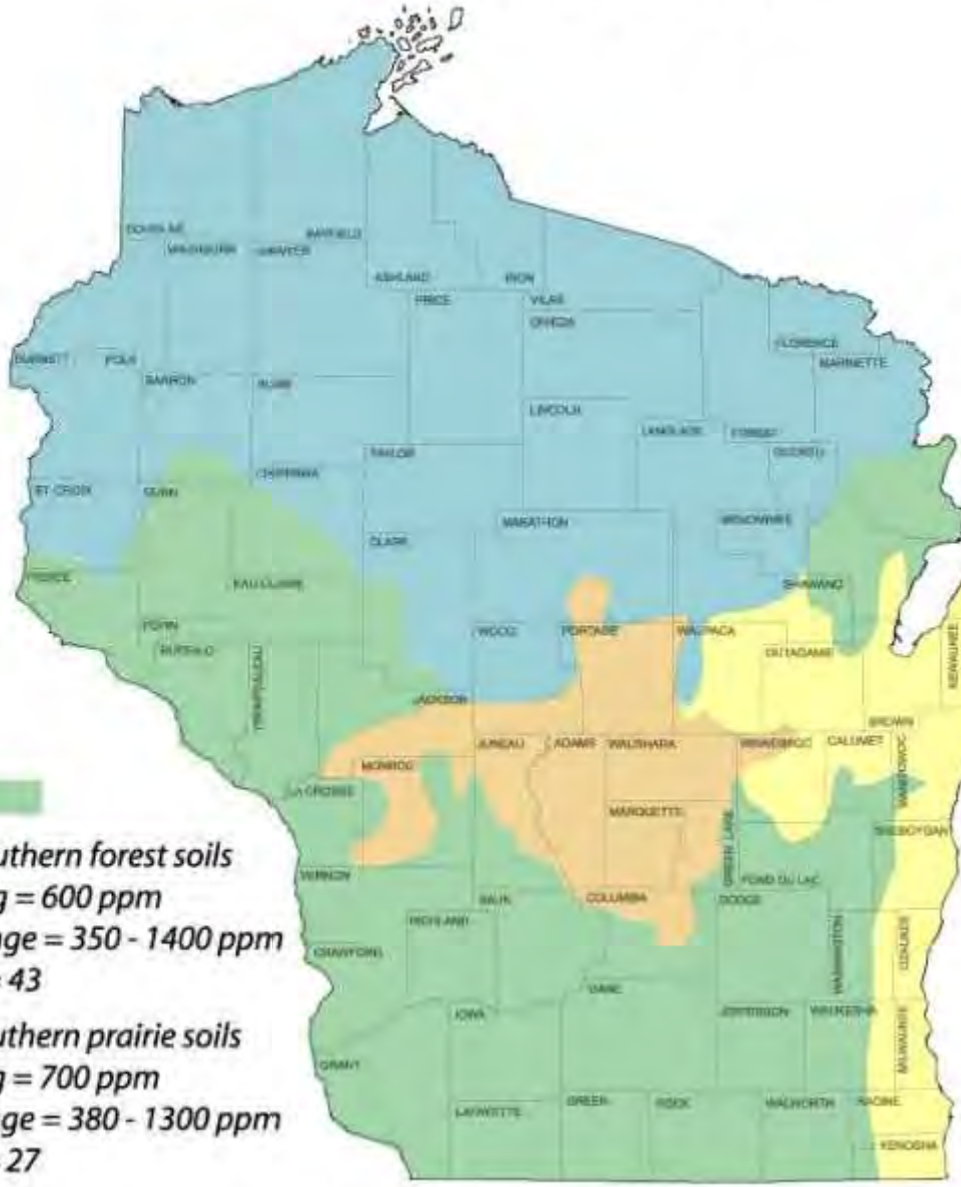
710 Commerce Drive
PO Box 169
Watertown, WI 53094

920-261-0446 phone
920-261-1365 fax
www.rockriverlab.com

Insight FS Darlington, WI- Total Phosphorus Analysis 08/22/2022

Field ID	Sample ID	Total P (ppm)
Readstown	W1	521.4
Readstown	W2	195
Readstown	W3	392.2
Readstown	W4	284.8
Readstown	W5	651.5
Readstown	W6	206.8
Readstown	W7	209
Readstown	E8	177.3
Readstown	E9	246.6
Readstown	E10	268.7
Readstown	E11	271.6

Soil Total P



Northern loamy soils
avg = 540 ppm
range = 480-580 ppm
n = 4

Southern forest soils
avg = 600 ppm
range = 350 - 1400 ppm
n = 43

Southern prairie soils
avg = 700 ppm
range = 380 - 1300 ppm
n = 27

Eastern red soils
avg = 950 ppm
range = 430 - 2820 ppm
n = 12

Sandy soils
range = 250 - 400 ppm
n = 2

Organic soils: range = 1330 - 1350 ppm, n = 2

Attachment #10

Project Photos
Water Quality Trading Plan
Village of Readstown

Photo #1

ID: C - STA 127+50

Viewing Direction: East

Evidence of Erosion:

☒Severe Undercut with Slump
☒Vegetative Overhang
☒Bare Soil Visible
☒Vertical or Near Vertical Banks
☒Exposed Tree Roots
☒Fallen Trees
☐Gullies or Rills
☐Other:

Project Photos
Water Quality Trading Plan
Village of Readstown

Photo #2

ID: C - STA 125+50

Viewing Direction: East

Evidence of Erosion:

☒Severe Undercut with Slump
☒Vegetative Overhang
☒Bare Soil Visible
☐Vertical or Near Vertical Banks
☒Exposed Tree Roots
☒Fallen Trees
☐Gullies or Rills
☐Other:

Project Photos
Water Quality Trading Plan
Village of Readstown

Photo #3

ID: C - STA 125+00

Viewing Direction: East

Evidence of Erosion:

☒Severe Undercut with Slump
☒Vegetative Overhang
☒Bare Soil Visible
☐Vertical or Near Vertical Banks
☒Exposed Tree Roots
☒Fallen Trees
☐Gullies or Rills
☐Other:

Project Photos
Water Quality Trading Plan
Village of Readstown

Photo #4

ID: C - STA 123+00

Viewing Direction: East

Evidence of Erosion:

☒Severe Undercut with Slump
☒Vegetative Overhang
☒Bare Soil Visible
☒Vertical or Near Vertical Banks
☒Exposed Tree Roots
☒Fallen Trees
☐Gullies or Rills
☐Other:

Project Photos
Water Quality Trading Plan
Village of Readstown

Photo #5

ID: C – STA 121+00

Viewing Direction: Downstream

Evidence of Erosion:

☒Severe Undercut with Slump
☒Vegetative Overhang
☒Bare Soil Visible
☐Vertical or Near Vertical Banks
☒Exposed Tree Roots
☐Fallen Trees
☐Gullies or Rills
☐Other:

Project Photos
Water Quality Trading Plan
Village of Readstown

Photo #6

ID: C - STA 120+00

Viewing Direction: East

Evidence of Erosion:

☒Severe Undercut with Slump
☒Vegetative Overhang
☒Bare Soil Visible
☐Vertical or Near Vertical Banks
☒Exposed Tree Roots
☐Fallen Trees
☐Gullies or Rills
☐Other:

Project Photos
Water Quality Trading Plan
Village of Readstown

Photo #7

Reach 2 – STA 116+25

Viewing Direction: Downstream

Evidence of Erosion:

☒Severe Undercut with Slump
☒Vegetative Overhang
☒Bare Soil Visible
☒Vertical or Near Vertical Banks
☒Exposed Tree Roots
☒Fallen Trees
☒Gullies or Rills
☒Other: Erosion encroaching on S. Water Street

Project Photos
Water Quality Trading Plan
Village of Readstown

Photo #8

ID: D - STA 117+00

Viewing Direction: West

Evidence of Erosion:

☒Severe Undercut with Slump
☒Vegetative Overhang
☒Bare Soil Visible
☒Vertical or Near Vertical Banks
☒Exposed Tree Roots
☐Fallen Trees
☐Gullies or Rills
☒Other: Erosion encroaching on S. Water Street

Project Photos
Water Quality Trading Plan
Village of Readstown

Photo #9

ID: D - STA 118+00

Viewing Direction: West

Evidence of Erosion:

☒Severe Undercut with Slump
☒Vegetative Overhang
☒Bare Soil Visible
☒Vertical or Near Vertical Banks
☒Exposed Tree Roots
☐Fallen Trees
☒Gullies or Rills
☒Other: Erosion encroaching on S. Water Street

Project Photos
Water Quality Trading Plan
Village of Readstown

Photo #10

ID: D - STA 119+00

Viewing Direction: Upstream

Evidence of Erosion:

☒Severe Undercut with Slump
☒Vegetative Overhang
☒Bare Soil Visible
☒Vertical or Near Vertical Banks
☐Exposed Tree Roots
☐Fallen Trees
☐Gullies or Rills
☒Other: Erosion encroaching on S. Water Street

Project Photos
Water Quality Trading Plan
Village of Readstown

Photo #11

ID: D - STA 119+00

Viewing Direction: West

Evidence of Erosion:

☒Severe Undercut with Slump
☒Vegetative Overhang
☒Bare Soil Visible
☒Vertical or Near Vertical Banks
☒Exposed Tree Roots
☐Fallen Trees
☒Gullies or Rills
☒Other: Erosion encroaching on S. Water Street and guy wire/utility pole

Project Photos
Water Quality Trading Plan
Village of Readstown

Photo #12

ID: D - STA 120+00

Viewing Direction: West

Evidence of Erosion:

☒Severe Undercut with Slump
☒Vegetative Overhang
☒Bare Soil Visible
☐Vertical or Near Vertical Banks
☐Exposed Tree Roots
☐Fallen Trees
☒Gullies or Rills
☒Other: Erosion encroaching on S. Water Street

Project Photos
Water Quality Trading Plan
Village of Readstown

Photo #13

ID: D - STA 122+00

Viewing Direction: West

Evidence of Erosion:

☒Severe Undercut with Slump
☒Vegetative Overhang
☒Bare Soil Visible
☒Vertical or Near Vertical Banks
☒Exposed Tree Roots
☐Fallen Trees
☒Gullies or Rills
☒Other: Erosion encroaching on S. Water Street

Project Photos
Water Quality Trading Plan
Village of Readstown

Photo #14

ID: D - STA 123+00

Viewing Direction: West

Evidence of Erosion:

☒Severe Undercut with Slump
☒Vegetative Overhang
☒Bare Soil Visible
☐Vertical or Near Vertical Banks
☒Exposed Tree Roots
☐Fallen Trees
☐Gullies or Rills
☐Other: Erosion encroaching on S. Water Street

Project Photos
Water Quality Trading Plan
Village of Readstown

Photo #15

ID: E - STA 125+50

Viewing Direction: West

Evidence of Erosion:

☒Severe Undercut with Slump
☒Vegetative Overhang
☒Bare Soil Visible
☐Vertical or Near Vertical Banks
☒Exposed Tree Roots
☐Fallen Trees
☒Gullies or Rills
☐Other: Erosion encroaching on S. Water Street

Project Photos
Water Quality Trading Plan
Village of Readstown

Photo #16

ID: F - STA 130+00

Viewing Direction: West

Evidence of Erosion:

☒Severe Undercut with Slump
☒Vegetative Overhang
☒Bare Soil Visible
☐Vertical or Near Vertical Banks
☒Exposed Tree Roots
☐Fallen Trees
☒Gullies or Rills
☒Other: Erosion encroaching on S. Water Street

Project Photos
Water Quality Trading Plan
Village of Readstown

Photo #17

ID: B - STA 114+75

Viewing Direction: West

Evidence of Erosion:

☒Severe Undercut with Slump
☒Vegetative Overhang
☒Bare Soil Visible
☐Vertical or Near Vertical Banks
☒Exposed Tree Roots
☒Fallen Trees
☐Gullies or Rills
☒Other: Erosion encroaching on existing driveway/path

Project Photos
Water Quality Trading Plan
Village of Readstown

Photo #18

ID: B - STA 113+25

Viewing Direction: West

Evidence of Erosion:

☒Severe Undercut with Slump
☐Vegetative Overhang
☒Bare Soil Visible
☐Vertical or Near Vertical Banks
☐Exposed Tree Roots
☐Fallen Trees
☒Gullies or Rills
☒Other: Erosion encroaching on existing driveway/path

Project Photos
Water Quality Trading Plan
Village of Readstown

Photo #19

ID: A - STA 110+00

Viewing Direction: West

Evidence of Erosion:

☒Severe Undercut with Slump
☒Vegetative Overhang
☒Bare Soil Visible
☒Vertical or Near Vertical Banks
☒Exposed Tree Roots
☒Fallen Trees
☒Gullies or Rills
☐Other:

Project Photos
Water Quality Trading Plan
Village of Readstown

Photo #20

ID: A - STA 108+00

Viewing Direction: West

Evidence of Erosion:

☒Severe Undercut with Slump
☒Vegetative Overhang
☒Bare Soil Visible
☒Vertical or Near Vertical Banks
☒Exposed Tree Roots
☒Fallen Trees
☐Gullies or Rills
☐Other:

Project Photos
Water Quality Trading Plan
Village of Readstown

Photo #21

ID: A - STA 107+00

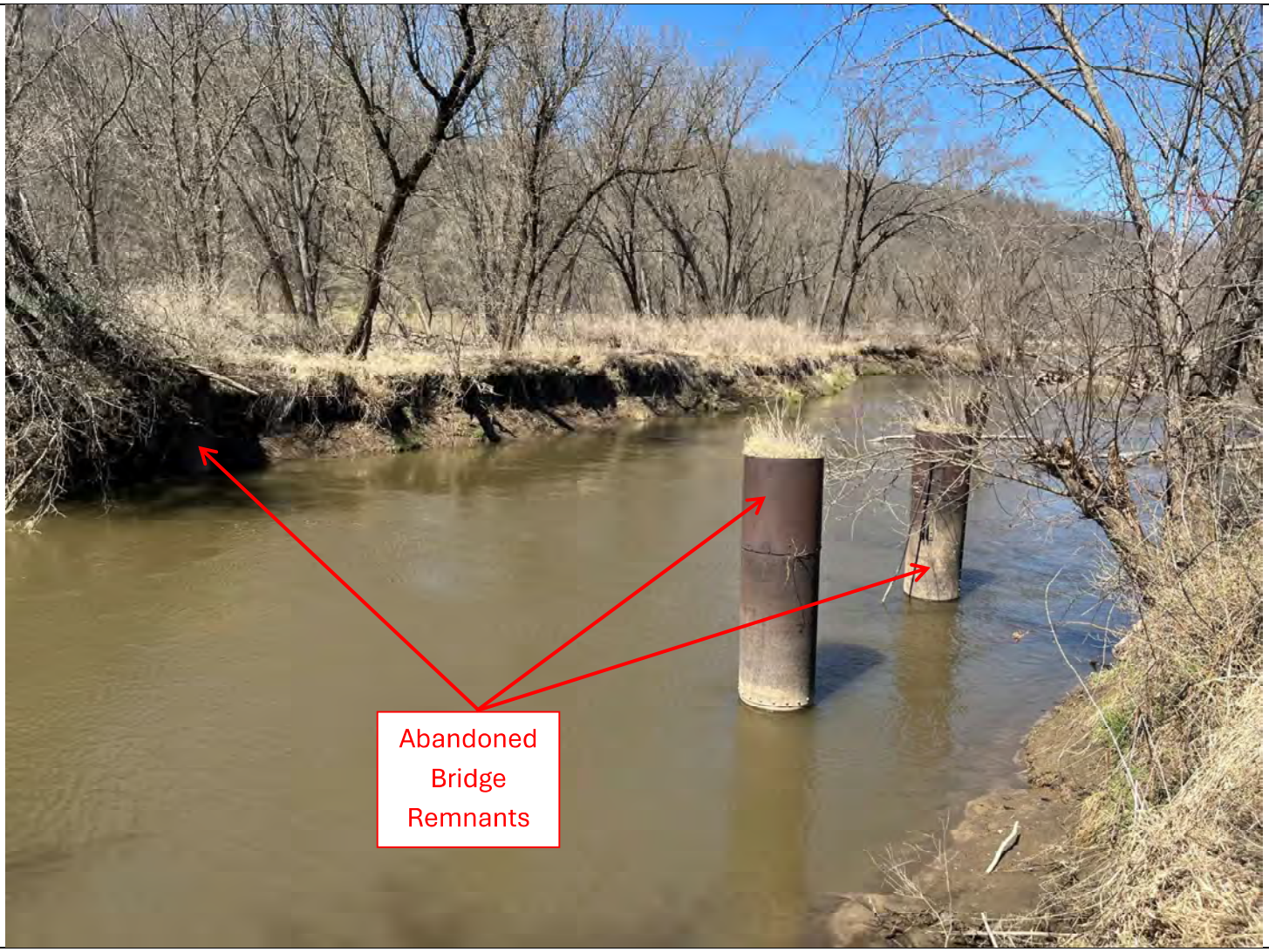
Viewing Direction: West

Evidence of Erosion:

☒Severe Undercut with Slump
☒Vegetative Overhang
☒Bare Soil Visible
☒Vertical or Near Vertical Banks
☒Exposed Tree Roots
☒Fallen Trees
☐Gullies or Rills
☐Other:

Project Photos
Water Quality Trading Plan
Village of Readstown

Photo #22



ID: A - STA 107+00

Viewing Direction: Upstream

Evidence of Erosion:

☒Severe Undercut with Slump
☒Vegetative Overhang
☒Bare Soil Visible
☒Vertical or Near Vertical Banks
☒Exposed Tree Roots
☐Fallen Trees
☒Gullies or Rills
☐Other:

Project Photos
Water Quality Trading Plan
Village of Readstown

Photo #23

ID: A - STA 107+00

Viewing Direction: Upstream

Evidence of Erosion:

☒Severe Undercut with Slump
☒Vegetative Overhang
☒Bare Soil Visible
☒Vertical or Near Vertical Banks
☒Exposed Tree Roots
☒Fallen Trees
☐Gullies or Rills
☐Other:

Project Photos
Water Quality Trading Plan
Village of Readstown

Photo #24

ID: A - STA 106+00

Viewing Direction: West

Evidence of Erosion:

☒Severe Undercut with Slump
☒Vegetative Overhang
☒Bare Soil Visible
☒Vertical or Near Vertical Banks
☒Exposed Tree Roots
☒Fallen Trees
☐Gullies or Rills
☐Other:

Project Photos
Water Quality Trading Plan
Village of Readstown

Photo #25

ID: A - STA 105+00

Viewing Direction: West

Evidence of Erosion:

☒Severe Undercut with Slump
☒Vegetative Overhang
☒Bare Soil Visible
☒Vertical or Near Vertical Banks
☒Exposed Tree Roots
☒Fallen Trees
☒Gullies or Rills
☒Other: Underground fiber optic utility has become exposed due to severe erosion

Project Photos
Water Quality Trading Plan
Village of Readstown

Photo #26

ID: A - STA 104+00

Viewing Direction: West

Evidence of Erosion:

☒Severe Undercut with Slump
☒Vegetative Overhang
☒Bare Soil Visible
☒Vertical or Near Vertical Banks
☒Exposed Tree Roots
☒Fallen Trees
☒Gullies or Rills
☒Other: Underground fiber optic utility has become exposed due to severe erosion

Project Photos
Water Quality Trading Plan
Village of Readstown

Photo #27

ID: A - STA 104+00

Viewing Direction: West

Evidence of Erosion:

☒Severe Undercut with Slump
☒Vegetative Overhang
☒Bare Soil Visible
☒Vertical or Near Vertical Banks
☒Exposed Tree Roots
☐Fallen Trees
☐Gullies or Rills
☒Other: Underground fiber optic utility has become exposed due to severe erosion

Reach	BMP ID	Cross Section ID	STA	Vertical Bank	Horizontal Bank	Bank Height	Soil Sample ID	Soil Sample ppm
1	A	3 R	106+00	8.6	8.5	12.13	W7	209.00
		4 R	107+75	6.2	8.8	10.78	W6	206.80
		5 R	110+00	1.7	2.5	3.02		
AVERAGE				**5.52**	**6.60**	**8.64**		**207.90**
1	B	7 R	113+50	5.2	6.3	8.18	W5	651.50
		8 R	114+75	5.9	9.9	11.51		
AVERAGE				**5.54**	**8.10**	**9.85**		**651.50**
2	D	9 R	117+00	8.4	8.2	11.75	W4	284.80
		10 R	119+00	9.1	10.0	13.54		
		11 R	121+00	8.0	10.4	13.14	W3	392.20
		12 R	123+25	7.4	11.6	13.77		
AVERAGE				**8.25**	**10.05**	**13.05**		**338.50**
2	E	13 R	125+50	6.3	6.7	9.19	W2	195.00
		14 R	126+50	6.1	9.8	11.56		
AVERAGE				**6.22**	**8.25**	**10.38**		**195.00**
2	F	15 R	129+75	6.1	6.1	8.63	W1	521.40
AVERAGE				**6.11**	**6.10**	**8.63**		**521.40**

Reach	BMP ID	Cross Section ID	STA	Vertical Bank	Horizontal Bank	Bank Height	Soil Sample ID	Soil Sample ppm
2	C	9 L	117+00	8.57	12.8	15.40		
		10 L	119+00	8.42	7.8	11.48	E11	271.60
		11 L	121+00	6.9	10.0	12.15		
		12 L	123+25	8.42	14.3	16.59	E10	268.70
		13 L	125+00	8.08	12.4	14.80		
		14 L	127+00	2.87	8.1	8.59	E9	246.60
AVERAGE				**7.21**	**10.90**	**13.17**		**262.30**

Attachment #11

NRCS Excel Workbook Estimating 'Other' Erosion Types June 2006

Annual soil loss predictions for conservation planning purposes are made with current soil loss prediction technology (RUSLE2). RUSLE2 estimates sheet, rill and interrill erosion. Erosion that is seasonal in nature and caused by concentrated flow, however, is not predicted by RUSLE2.

This workbook provides conservation planners with simple tools and processes to help estimate the amount of erosion occurring in ephemeral gullies, classic gullies and on streambank erosion sites.

Definitions:

Rill Erosion: consists of the removal of soil by concentrated water running through little streamlets, or headcuts. Detachment in a rill occurs if the sediment in the flow is below the amount the load can transport and if the flow exceeds the soil's resistance to detachment. As detachment continues or flow increases, rills will become wider and deeper. Rills may be of any size but are usually less than four inches deep. Rills are:

<> generally parallel on the slope, but may converge,
<> generally of uniform spacing and dimension,
<> generally appear at different locations on the landscape from year to year,
<> generally shorter than ephemeral cropland gullies,
<> usually end at a concentrated flow channel, or an area where the slope flattens and deposition occurs,
<> are on the same portion of the slope that is used to determine the length of slope (L) for RUSLE2,
<> many small, but conspicuous channels running in the direction of slope gradient

Rill erosion is considered in the RUSLE2 calculations.

Ephemeral Gully Erosion: Small erosion channels formed on crop fields as a result of concentrated flow of runoff water. These channels are routinely eliminated by tillage of the field but return following subsequent runoff events. Ephemeral Gullies are small enough to be eliminated (temporarily) with the use of typical farm tillage equipment and they:

<> recur in the same area of concentrated flow each time they form,
<> frequently form in well-defined depressions in natural drainage ways,
<> are generally wider, deeper, and longer than the rills in the field,

Ephemeral Gullies are **not** calculated by the RUSLE2 program.

Gully Erosion: Permanent gullies are formed when channel development has progressed to the point where the gully is too wide and too deep to be tilled across. These channels carry large amounts of water after rains and deposit eroded material at the foot of the gully. They disfigure landscape and make the land unfit for growing crops. Gullies:

<> may grow or enlarge from year to year by head cutting and lateral enlarging,
<> often occur in depressions or natural drainage ways,
<> may begin as ephemeral gullies that were left in the field untreated,
<> may, over time, become partially stabilized by grass, weeds or woody vegetation,

Gully erosion is not calculated by the RUSLE2 program.

Streambank Erosion: The wearing away of streambanks by flowing water. The removal of soil from streambanks is typically caused by the direct action of stream flow and/or wind/wave action, typically occurring during periods of high flow. Streambank erosion:

<> is a natural process that generally increases when unprotected streambanks (e.g. no woody vegetation) are subject to the actions of flowing water and ice damage.

<> is a common occurrence on many Vermont river channels that are experiencing geomorphic adjustments

---

The soil loss from ephemeral gullies, gullies and streambank erosion areas can be estimated by calculating the volume of soil removed by erosion processes. The volume of soil loss can be multiplied by the typical unit weight of the soil (based on soil texture) which is eroded. Approximate soil unit weights are expressed below[1]:

Soil Texture	Estimated Dry Density lb/ft^3
Gravel	110
Sand	105
Loamy Sand	100
Sandy Loam	100
Fine Sandy Loam	100
Sandy Clay Loam	90
Silt Loam	85
Silty Clay Loam	85
Silty Clay	85
Clay Loam	85
Organic	22

Procedure for estimating Ephemeral Soil Erosion:

The following formula will be used to calculate annual estimated ephemeral gully erosion:

$$\frac{\text{Ephemeral Gully } \mathbf{Length} \times \text{Gully Average } \mathbf{Width} \times \text{Gully Average } \mathbf{Depth}}{2000} \times \text{Soil Weight (lbs/ft}^3\text{)} \times \text{Occurrences per Year} = \mathbf{Estimated} \text{ Soil Loss (Tons per Year)}$$

* Ephemeral gully erosion may reform multiple times per year, and under certain conditions it may not form in a given year. The voided volume which would be calculated after a runoff event is not necessarily representative of an annual rate, but is representative of only the specific event. This erosion can be calculated for individual storms and can be summed for a yearly estimate.

1 Data from published soil surveys, laboratory data, and soil interpretation record are to be used where available. Parent materials, soil consistency, soil structure, pore space, soil texture, and coarse fragments all influence unit weight.

Procedure for estimating Gully Soil Erosion:

The following formula will be used to calculate annual estimated classic gully erosion:

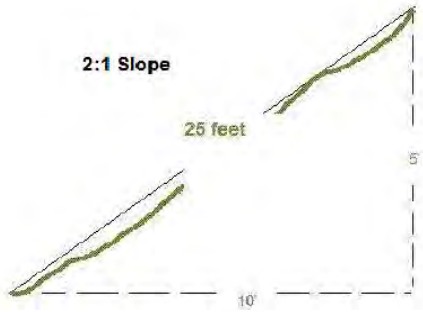
$$\frac{\text{Gully } \textbf{Length} \text{ X (Average } \textbf{Width} \text{ X Average } \textbf{Depth} \text{ X 0.5) X } \textbf{Soil Weight} \text{ (lbs/ft3)}}{2000} \Big/ \text{ Formation Years} = \textbf{Estimated} \text{ Soil Loss Per Year (Tons)}$$

Procedure for estimating Streambank Soil Erosion (Direct Volume Method):

The following formula will be used to calculate annual estimated streambank erosion unless a field measurement procedure[2] is used:

$$\frac{\text{ing Bank } \textbf{Length} \text{ X Eroding Bank Height X Lateral Recession Rate (FT/YR) X Soil Weight (lb}}{2000} = \textbf{Estimated} \text{ Soil Loss Per Year (Tons)}$$

** Eroding bank height is measured along the bank, not the vertical height of bank. Example: if vertical height of an eroding streambank is 5 feet, and the bank is on a 2:1 slope, the total eroding bank distance is 25 feet -- 1/2 (Base X Height).



***The average annual recession rate is the thickness of soil eroded from a bank surface (perpendicular to the face) in an average year.

Stream bank erosion sometimes presents itself as a major occurance in a given year, whereas the same bank may not erode significantly for a period of years if no major runoff events occur. Recession rates need to be calculated as an average of years when erosion does and does not occur. Recession rate is not calculated as the erosion occurring after a single event.

Use available resources to assist in the estimation of recession rate: use past and present aerial photography, old survey records, and any other information that helps to determine the bank condition at known times in the past. When such information is lacking or insufficient, field observations and professional judgement are needed to estimate recession rates.
It is often not possible to directly measure recession rates in the field. Therefore, the following table has been included which relates recession rates to narrative descriptions of banks eroding at different rates (Table from NRCS Wisconsin guidance).

Lateral Recession Rate (ft/yr)	Category	Description
0.01-0.05	Slight	Some bare bank but active erosion not readily apparent. Some rills but no vegetative overhang. No exposed tree roots.
0.06-0.2	Moderate	Bank is predominantly bare with some rills and vegetative overhang. Some exposed tree roots but no slumps or slips.
0.3-0.5	Severe	Bank is bare with rills and severe vegetative overhang. Many exposed tree roots and some fallen trees and slumps or slips. Some changes in cultural features such as fence corners missing and realignment of roads or trails. Channel cross section becomes U-shaped as opposed to V-shaped.
0.5+	Very Severe	Bank is bare with gullies and severe vegetative overhang. Many fallen trees, drains and culverts eroding out and changes in cultural features as above. Massive slips or washouts common. Channel cross section is U-shaped and stream course may be meandering.

2 The best way to quantify streambank erosion is to measure it directly in the field. The basic procedure in measuring streambank erosion is to survey, flag, or in some way fix a "before" image of the channel you are evaluating in order to establish the baseline condition. Changes due to erosion can then be monitored over time by going back to the study area and re-measuring from the fixed reference points.
Channel cross-sections can be surveyed and plotted on a periodic basis to monitor change. Stakes or pins can be driven into channel banks flush with the surface. The amount of stake or pin exposed due to erosion is the amount of change at the streambank erosion site between your times of observation.
The time required to monitor a site often precludes this method of data collection. The Direct Volume Method can be used to estimate streambank erosion at your site.

Acknowledgements: This Excel workbook was created as a planning tool for use by conservation planners. The basic format and content of the tool is a compilation of various similar tools, processes and procedures employed by NRCS in several states including: Indiana, Iowa, Kansas, Maryland, Michigan, Missouri, Nebraska, Oklahoma, South Dakota and Wisconsin. Some of the terminology in the 'Definitions' section of this Readme document closely mirrors these sources.

NRCS Streambank and Irrigation Ditch Erosion Estimator (Direct Volume Method)

Farmer / Cooperator Name: Village of Readstown
Tract Number: Varies
Evaluated By: L. Hoppman
Evaluation Date: March 31, 2025

Field Number	Eroding Strmbnk Reach #; or Ditch Side/Bottom	Eroding Bank or Ditch Length (Feet)	Eroding Bank Height; or Ditch Bottom Width* (Feet)	Area of Eroding Strmbank or Ditch (FT^2)	Lateral or Ditch Bottom Recession Rate (Estimated) (FT / Year)	Estimated Volume (FT^3) Eroded Annually	Soil Texture	Approximate Pounds of Soil per FT^3	Estimated Soil Loss (Tons/Year)	Soil Total Phosphorus (ppm)	Estimated Phosphorus Loss (Pounds/Year)	Trade Ratio	WQT Credits
Village Property	A	621	8.6	5,365	0.50	2,683	Silt Loam	85	114.0	208	47	3:1	16
	B	316	9.9	3,113	0.30	934	Silt Loam	85	39.7	652	52	3:1	17
	C	1,219	13.2	16,054	0.40	6,422	Silt Loam	85	272.9	262	143	3:1	48
	D	704	13.1	9,187	0.50	4,594	Silt Loam	85	195.2	339	132	3:1	44
	E	122	10.4	1,266	0.30	380	Silt Loam	85	16.1	195	6	3:1	2
	F	97	8.6	837	0.30	251	Silt Loam	85	10.7	521	11	3:1	4
	TOTAL	3,079		TOTAL		15,263			648.7		**392**		**131**

Streambank or Ditch Erosion Calculation Formula:

$$\frac{\text{Eroding Bank/Ditch Length} \times \text{Eroding Bank Ht or Ditch Bottom Width} \times \text{Lateral or Ditch Bottom Recession Rate (FT/YR)} \times \text{Soil Weight (lbs/ft}^3\text{)}}{2000} = \text{Estimated Soil Loss Per Year (Tons)}$$

$$\text{Soil Total Phosphorus (ppm)} \times 10^{-6} \times \text{Estimated Soil Loss (Tons/Year)} \times 2000 \text{ Pounds/Ton} = \text{Estimated Phosphorus Loss Per Year (Pounds)}$$

Attachment #12

Water Quality Trading
Operation and Maintenance Plan

Introduction:
The Water Quality Trading (WQT) Operation and Maintenance (O&M) Plan is meant to be a working document and should be updated as new trading practices are implemented. Currently, the Operation and Maintenance Plan revolves around the Best Management Practice (BMP) construction along a stream/river. The attached *BMP Inspection Form* should be completed during annual inspections of BMPs and following major storm events. Inspection forms shall be retained for at least five (5) years to ensure compliance with the WQT Plan.

Publicly Owned BMP:
Village representative to complete inspection form annually and following major storm events. The form will then be provided to the Maintenance Supervisor following inspection. The Village will address maintenance issues identified during inspection within 30 days. Substantial maintenance issues may require an extended timeframe for generation of plans, specifications, and a public bid process to perform the work. Inspections and O&M activities shall be reported in the annual WQT Report sent to the DNR.

Privately Owned BMP:
Village representative to complete inspection form annually and following major storm events. The form will then be provided to the Maintenance Supervisor following inspection. The Village will address maintenance issues identified during inspection within 30 days. Substantial maintenance issues may require an extended timeframe for generation of plans, specifications, and a public bid process to perform the work. Maintenance expenses will be incurred by either by the Village or Private Property Owner depending on agreement with the Village. The Private Property Owner will be allowed to perform maintenance activities at the expense of the Private Property Owner. Inspections and O&M activities shall be reported in the annual WQT Report sent to the DNR.

Quality Assurance:
Riprap gradation and composition shall be provided for each source of material. Streambank shaping and riprap shall be installed per the Vernon County Land Conservation Department and NRCS Standards. Contractors to supply rock that is approved by the NRCS and meets criteria in Wisconsin Construction Spec.9.

Installation:
- Staking provided by the Engineer.
- Do not place riprap over frozen or spongy subgrade surfaces.
- Place riprap as indicated on Construction Plans. Do not dump rip-rap over the bank.
- Blend riprap with existing bank.
- Spread soil out in a layer of less than 4” and seed down. Do not spread soil in wetlands.
- All disturbed areas and soil must be seeded and mulched.
- Install habitat structures per Plans and Specifications (if applicable).

Practice Registration:
The purpose of the "Water Quality Trading Management Practice Registration" form is to report to DNR that a management practice identified in the trading plan has been properly installed and is established and effective. This information will be used to track implementation progress, verify compliance and perform audits, as necessary. A registration form should be submitted for every management practice that has been identified in the trading plan. If practices are established prior to trading plan submittal, registration forms may be submitted with the trading plan. Otherwise, registration forms should be submitted during the permit term as practices become effective or with the annual report. A blank *Water Quality Trading Management Practice Registration Form 3400-207* is attached and should be submitted following implementation of the trading practice.

Tracking Procedures:
The Village will track credits used monthly. The Village will report credit usage to the DNR on a monthly basis in the Discharge Monitoring Reports (DMRs). The annual report will summarize the 12 months of credit usage and credit generation. The Village will report to DNR any concern that they have that may result in a need to modify the trade agreement and/or this trade plan. For example, a need to generate additional credits based on discharge.

Inspections/Maintenance Considerations:

- A *BMP Inspection Form* is attached.
    - ID: As noted on Construction Plans
    - Condition of BMP: Excellent; Good; Fair; or Poor
    - Required Maintenance: Provide a description of maintenance required for the BMP.
    - Maintenance Estimate: Provide an estimate for how long the maintenance will take to complete or a dollar value for completion. This will help determine if the Village will perform the work or if the Village will hire another entity to perform the work.
    - Date Completed: Following completion of the required maintenance, input the date of completion.
    - Comments: Provide the required maintenance activity along with any other useful information. If the cell provided is not large enough for Comments, write "See Back of Sheet" and provide comments on the reverse side of the Form.
    - Photos Taken: The inspector shall take photographic evidence to represent and archive the condition of each BMP.
- Following installation, inspect the disturbed areas closely over the next few months to ensure that seeding grows.
- BMPs may settle or shift especially after flooding events or freeze/thaw.
- May need to control weed and brush growth.
- Inspect stabilized areas as needed.
- At a minimum, inspect after major storm events.
- If a BMP has been damaged, repair it promptly to prevent a progressive failure.
- If repairs are needed repeatedly at a location, evaluate the site to determine if the original design conditions have changed.

Routine Maintenance Items that can be performed by Village:

- Evaluate BMP condition
    - Reconstruct/replace BMPs that have settled, shifted, or washed out.
- Manage Vegetation
    - Remove invasive/noxious plants.
    - Reseed areas as necessary.
- Manage Garbage
    - Remove garbage and other debris that could otherwise impair the streambank stability.

Monthly Certification:

Each month, the Village will certify that the BMPs are maintained and operating in a manner consistent with this Water Quality Trading Plan or provide a statement noting noncompliance with this Plan. The monthly Discharge Monitoring Report (DMR) will include the following statement as a certification of compliance when the Credit Generating Practice is operating in a manner consistent with the Plan:

> "I certify that to the best of my knowledge that the management practices identified in the approved water quality trading plan as the source of phosphorus credits is installed, established and properly maintained."

Annual Inspection:

An annual inspection of the BMPs will be performed by a licensed Professional Engineer to ensure that the BMPs are functioning as intended in order to meet the requirements of the WQT Plan.

Noncompliance:

The Village will notify DNR by telephone call to DNR's regional wastewater compliance engineer within 24 hours or next business day of becoming aware that phosphorus credits used or intended for use by Village are not being generated as outlined in this Water Quality Trading Plan.

The Village will submit a written notification within five days after the Village recognizes that the phosphorus credits are not being generated as outlined in the Trading Plan. DNR may waive the requirement for submittal for a written notice within five days and instruct the Village to submit the written notice with the next regularly scheduled monitoring report required by Village's WPDES Permit.

The written notification should include:

- Description of noncompliance and cause.
- Period of noncompliance including dates and times.
- Schedule for attaining compliance including time and steps toward compliance.
- Plan to prevent reoccurrence of the noncompliance.

Notification of Trade Agreement Termination:

If a trade agreement or the trading plan needs to be terminated during the permit term, the permittee should submit a Notice of Termination to the wastewater engineer/specialist to inform DNR of the termination. DNR staff should use this information to determine if a permit modification is required due to the termination, the termination will result in non-compliance, or other permit actions are required due to the termination. When credits are reduced or eliminated for any reason, the permittee is still required to meet their WQBELs without any grace period. To prevent noncompliance with WQBELs, changes to trading plans must be addressed before credits are lost. Modifying the permit/trading plan will require at least 180 days. A blank *Notification of Water Trade Agreement Termination Form 3400-209* is attached and should be submitted to DNR prior to practice termination, no later than the submittal date of the annual report.

DELTA 3
Platteville, Wisconsin
Dubuque, Iowa
P 608.348.5355
P 563.542.9005
E mail@delta3eng.biz
W www.delta3eng.biz

Streambank BMP Inspection Form

Date & Time:	
Inspector/Title:	
Weather:	
Reason for Inspection:	Monthly ☐ Precipitation Event ☐ Annual P.E. ☐ Other ☐:
Last Inspection Photos Date*:	

* inspection photos should be taken annually at minimum

ID	Vegetative Condition	Structural Condition	Required Maintenance	Maintenance Estimate (Time and/or Cost)	Date Maintenance Completed	Comments

Photos Taken? ☐ Yes ☐ No

EVERY ANGLE COVERED

State of Wisconsin
Department of Natural Resources
101 South Webster Street
Madison WI 53707-7921
dnr.wi.gov

Water Quality Trading Management Practice Registration

Form 3400-207 (R 1/14)

Notice: Pursuant to s. 283.84, Wis. Stats., this form must be completed by any WPDES permittee that is using water quality trading as a method of complying with a permit limitation. Failure to complete this form would not result in penalties. Personal information collected will be used for administrative purposes and may be provided to requesters to the extent required by Wisconsin's Open Records Law (ss. 19.31 - 19.39, Wis. Stats.).

Applicant Information

Permittee Name	Permit Number WI-	Facility Site Number

Facility Address	City	State	ZIP Code

Project Contact Name (if applicable)	Address	City	State	ZIP Code

Project Name

Broker/Exchange Information (if applicable)

Was a broker/exchange be used to facilitate trade? ◯ Yes ◯ No

Broker/Exchange Organization Name	Contact Name

Address	Phone Number	Email

Trade Registration Information (Use a separate form for each trade agreement)

Type	Trade Agreement Number	Practices Used to Generate Credits	Anticipated Load Reduction	Trade Ratio	Method of Quantification
◯ Urban NPS ◯ Agricultural NPS ◯ Other					

County	Closest Receiving Water Name	Land Parcel ID(s)	Parameter(s) being traded

The preparer certifies all of the following:

- I have completed this document to the best of my knowledge and have not excluded pertinent information.
- I certify that the information in this document is true to the best of my knowledge.

Signature of Preparer	Date Signed

Authorized Representative Signature

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision. Based on my inquiry of those persons directly responsible for gathering and entering the information, the information is, to the best of my knowledge and belief, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature of Authorized Representative	Date Signed

Leave Blank – For Department Use Only

Date Received		Trade Docket Number
Entered in Tracking System ☐ Yes	Date Entered	Name of Department Reviewer

State of Wisconsin
Department of Natural Resources
101 South Webster Street
Madison WI 53707-7921
dnr.wi.gov

Notification of Water Trade Agreement Termination

Form 3400-209 (1/14)

Notice: Pursuant to s. 283.84, Wis. Stats., and ch. NR 217 Wis. Adm. Code, this form must be completed by any WPDES permittee that is using water quality trading as a method of complying with a permit limitation. Failure to complete this form would not result in penalties. Personal information collected will be used for administrative purposes and may be provided to requesters to the extent required by Wisconsin's Open Records Law (ss. 19.31 - 19.39, Wis. Stats.).

Applicant Information

Permittee Name	Permit Number WI-	Facility Site Number

Facility Address	City	State	ZIP Code

Project Contact Name (if applicable)	Address	City	State	ZIP Code

Project Name

Credit Generator Information

Credit generator type (select all that apply):

- ☐ Permitted Discharge (non-MS4/CAFO)
- ☐ Permitted MS4
- ☐ Permitted CAFO
- ☐ Urban nonpoint source discharge
- ☐ Agricultural nonpoint source discharge
- ☐ Other - Specify:

Trade Agreement number(s) to be terminated including affected land parcel ID(s):

Amount of trading credit being terminated	Effective date of termination

Reason for termination

Is this agreement being updated or replaced?

- ◯ Yes
- ◯ No
- ◯ Unsure

Will this termination result in non-compliance with the effective limit or other permit requirements?

- ◯ Yes; Name: _____
- ◯ No
- ◯ Unsure

The preparer certifies all of the following:

- I am familiar with the specifications submitted for this application, and I believe all applicable items in this checklist have been addressed.
- I have completed this document to the best of my knowledge and have not excluded pertinent information.

Signature of Preparer	Date Signed

Authorized Representative Signature

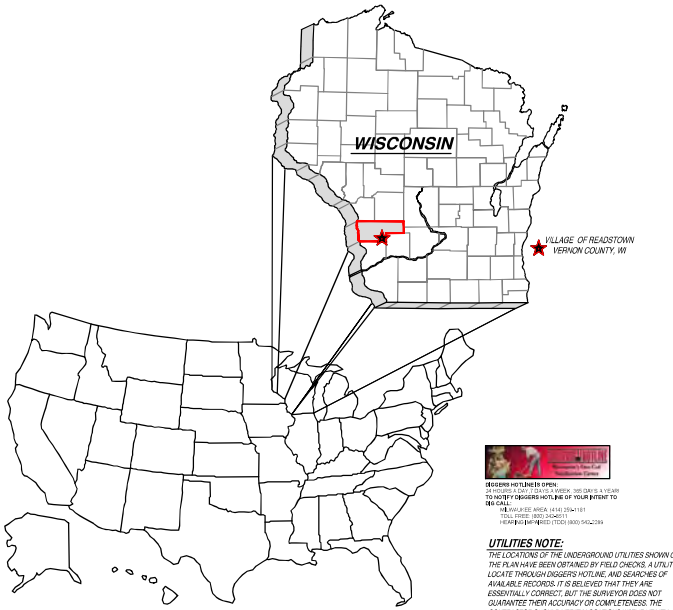
I certify under penalty of law that this document and all attachments were prepared under my direction or supervision. Based on my inquiry of those persons directly responsible for gathering and entering the information, the information is, to the best of my knowledge and belief, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature of Authorized Representative	Date Signed

Attachment #13

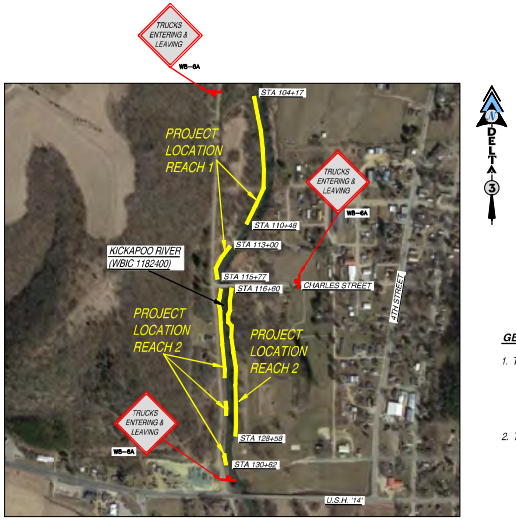
PROPOSED 2024 STREAM IMPROVEMENTS - KICKAPOO RIVER

OWNER:VILLAGE OF READSTOWN



DIGGERS HOTLINE IS OPEN:
48 HOURS A DAY / 5 DAYS A WEEK, 365 DAYS A YEAR
TO NOTIFY DIGGERS HOTLINE OF YOUR INTENT TO DIG CALL:
811
MILWAUKEE AREA (414) 259-4181
TOLL FREE: (800) 242-8511
HEARING IMPAIRED (TDD) (800) 542-2289

UTILITIES NOTE:
THE LOCATIONS OF THE UNDERGROUND UTILITIES SHOWN ON THE PLAN HAVE BEEN OBTAINED BY FIELD CHECKS, A UTILITY LOCATE THROUGH DIGGERS HOTLINE, AND SEARCHES OF AVAILABLE RECORDS. IT IS BELIEVED THAT THEY ARE ESSENTIALLY CORRECT, BUT THE SURVEYOR DOES NOT GUARANTEE THEIR ACCURACY OR COMPLETENESS. THE CONTRACTOR SHOULD VERIFY LOCATIONS W/ THE UTILITY COMPANIES AND THE "VILLAGE OF READSTOWN" PRIOR TO STARTING ANY EXCAVATION.



PROJECT LOCATION MAP
SCALE: N.T.S.

GENERAL NOTES - TRAFFIC CONTROL

1. *THE SIGN LOCATIONS SHOWN ARE APPROXIMATE LOCATIONS. CONTRACTOR SHALL INSTALL TRAFFIC CONTROL SIGNS PER WISCONSIN DEPARTMENT OF TRANSPORTATION (DOT) STANDARDS AND THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).*
2. *THE SIGNS SHOWN ARE THE MINIMUM TRAFFIC CONTROL THAT WILL BE REQUIRED FOR THE PROJECT. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ADDITIONAL TRAFFIC CONTROL MEASURES DURING CONSTRUCTION TO MEET THE STANDARDS OF THE WISCONSIN DOT AND THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, AND AS DIRECTED BY THE PROJECT ENGINEER.*

SHEET INDEX:

SHEET TITLE:	SHEET DESCRIPTION:	DATE OF ISSUE:	DATE OF REVISION:
G000	TITLE SHEET & PROJECT LOCATION MAP	MARCH 31, 2025	-
G001	LEGEND & GENERAL NOTES	MARCH 31, 2025	-
C101	PLAN VIEW - REACH 1	MARCH 31, 2025	-
C102	PLAN VIEW - REACHES 1 & 2	MARCH 31, 2025	-
C201	DETAILS - EROSION CONTROL & NOTES	MARCH 31, 2025	-
C202	DETAILS - STREAM BANK	MARCH 31, 2025	-

PROJECT INFORMATION:

OWNER:
VILLAGE OF READSTOWN
CHELSEY HOFFMAN
VILLAGE CLERK
116 NORTH 4TH STREET
READSTOWN, WI 54652
(608) 629-3627

STREET AND PUBLIC UTILITIES:
VILLAGE OF READSTOWN
CHARLIE STRAIT
116 NORTH 4TH STREET
READSTOWN, WI 54652
(608) 629-5627

ELECTRIC UTILITY:
VERNON ELECTRIC COOPERATIVE
MARK SEE
110 SAUGSTAD ROAD
WESTBY, WI 54667
(800) 447- 5051

NATURAL GAS UTILITY:
MADISON GAS & ELECTRIC COMPANY
MARK OLSON
526 E. DECKER STREET
VIROQUA, WI 54665
(608) 637- 3139

TELEPHONE
VERNON COMMUNICATIONS
REGGIE NELSON
103 N. MAIN ST.
P.O. BOX 20
WESTBY, WI 54667
(608) 632- 0615

CABLE TELEVISION UTILITY:
MEDIACOM, LLC
115 S. MARQUETTE ROAD
PRAIRIE DU CHIEN, WI 53821
(608) 326-7180

MEDIACOM, LLC
ATTN: TIM CIRCUTT
3033 ASBURY RD
DUBUQUE, IA 5201
TCRCUTT@MEDIACOMCC.COM

ENGINEER:
DELTA 3
(DEP ANZ COMPANIES)
PROFESSIONAL CIVIL, MUNICIPAL, & STRUCTURAL ENGINEERING
CIVIL WORKS • LAND DEVELOPMENT • PLANNING & CAD SERVICES
575 SOUTH CHESTNUT STREET
PLATTEVILLE, WISCONSIN 53818
PHONE: (608) 348-5355
1199 JACKSON STREET
DUBUQUE, IOWA 52001
PHONE: (563) 542-4085

FOR QUESTIONS REGARDING THIS PROJECT, PLEASE CONTACT:
MR. JORDAN FURE, P.E.
DELTA 3 ENGINEERING, INC.
TELEPHONE: (608) 348-5355

PROPOSED 2025 STREAM IMPROVEMENTS - KICKAPOO RIVER
READSTOWN, WISCONSIN
PROJECT LOCATION: KICKAPOO RIVER
OWNER: VILLAGE OF READSTOWN; 116 N 4TH ST READSTOWN, WI 54652

REVISIONS:		
NO.	DATE	DESCRIPTION
AS-BUILT:		BY:
-/-/----		------

FOR BID	
PROJECT NUMBER	D23-138
SHEET SCALE	NOT TO SCALE
DRAWN BY	C.COYIER
DATE ISSUED	MARCH 31, 2025
SHEET DESC.	TITLE SHEET & PROJECT LOCATION MAP

SHEET TITLE:
G000

LEGEND

EX. CON. MANHOLE
EX. ECC. MANHOLE
EX. LIFT STATION
EX. CLEAN OUT
EX. FIRE HYDRANT
EX. WATER SERVICE
EX. WATER VALVE
EX. YARD HYDRANT
EX. CATCH BASIN
EX. STORM INLET
EX. NATURAL GAS VALVE
EX. NATURAL GAS METER
EX. POWER POLE
EX. LIGHT POLE
EX. WARNING SIREN
EX. TEL. PEDESTAL
EX. MAILBOX
EX. LP TANK
EX. SATELLITE DISH
Ex. POST OR POLE
EX. STREET SIGN
EX. EVERGREEN TREE
EX. DECIDUOUS TREE
EX. TREE STUMP
EX. BUSH/SHRUB
EX. TREE/BRUSH LINE
EX. WINDMILL
EX. PARK BENCH
EX. BENCHMARK
SURVEY CONTROL POINT
EX. PROPERTY PIN
RIGHT-OF-WAY
PROPERTY LINE
EASEMENT
EX. SAN. S. LATERAL
EX. 6" SAN. S. MAIN
EX. 8" SAN. S. MAIN
EX. 10" SAN. S. MAIN
EX. 12" SAN. S. MAIN
EX. 15" SAN. S. MAIN
EX. FLOW DIRECTION
EX. CAPPED SERVICE
EX. WATER SERVICE
EX. 4" WATER MAIN
EX. 6" WATER MAIN
EX. 8" WATER MAIN
EX. 10" WATER MAIN
EX. 12" WATER MAIN
EX. <12" STORM SEWER
EX. 12" STORM SEWER
EX. 15" STORM SEWER
EX. 18" STORM SEWER
EX. 24" STORM SEWER
EX. 27" STORM SEWER
EX. 30" STORM SEWER
EX. 36" STORM SEWER
EX. 42" STORM SEWER
EX. 48" STORM SEWER
EX. CURB AND GUTTER
EX. U.GRD N. GAS UTILITY
EX. U.GRD ELECTRIC UTILITY
EX. U.GRD CABLE TV UTILITY
EX. U.GRD TELEPHONE UTILITY
EX. U.GRD FIBER OPTIC UTILITY
EX. OVERHEAD ELECTRIC
EX. FENCE
EX. RAILROAD TRACKS
EX. CONTOUR
EX. DRAINAGE SWALE

PROP. SANITARY SEWER LATERAL
PROP. <6" SANITARY SEWER MAIN
PROP. 6" SANITARY SEWER MAIN
PROP. 8" SANITARY SEWER MAIN
PROP. 10" SANITARY SEWER MAIN
PROP. 12" SANITARY SEWER MAIN
PROP. 15" SANITARY SEWER MAIN
PROP. 18" SANITARY SEWER MAIN
PROP. CIPP LINER
PROP. FLOW DIRECTION
PROP. WATER SERVICE
PROP. <4" WATER MAIN
PROP. 4" WATER MAIN
PROP. 6" WATER MAIN
PROP. 8" WATER MAIN
PROP. 10" WATER MAIN
PROP. 12" WATER MAIN
PROP. 15" WATER MAIN
PROP. <12" STORM SEWER
PROP. 12" STORM SEWER
PROP. 15" STORM SEWER
PROP. 18" STORM SEWER
PROP. 24" STORM SEWER
PROP. 30" STORM SEWER
PROP. 36" STORM SEWER
PROP. 48" STORM SEWER
PROP. CURB AND GUTTER
PROP. CURB BACK OPENING
PROP. U.GRD GAS UTILITY
PROP. U.GRD ELECTRIC UTILITY
PROP. U.GRD CABLE TV UTILITY
PROP. U.GRD TELEPHONE UTILITY
PROP. U.GRD FIBER OPTIC UTILITY
PROP. OVERHEAD ELECTRIC
PROP. CROSSING OF N. GAS UTILITY
PROP. UTILITY POLE
PROP. LIGHT POLE
PROP. FENCE
TEMPORARY EASEMENT
CONSTRUCTION EASEMENT
ESTIMATED DISTURBANCE LIMITS
PROP. CONTOUR
PROP. DRAINAGE SWALE
PROP. SILT FENCE
PROP. EROSION CONTROL SEDIMENT LOG
PROP. PAVEMENT MARKING
PAINTED TRAFFIC ARROW
ADA PARKING DESIGNATION
PARKING STALL COUNT
RADIUS POINT/SIZE STA. ON CENTERLINE
PROP. HANDICAP RAMP WITH DETECTABLE WARNING FIELD
SOIL BORING LOCATION
RIVER FLOW DIRECTION
PROP. 4' DIA. SANITARY MANHOLE
PROP. 5' DIA. SANITARY MANHOLE
PROP. MANHOLE CHIMNEY REHABILITATION / TOP ADJUSTMENT
PROP. SANITARY LIFT STATION

PROP. TYPE "X" CURB & GUTTER
PROP. REVERSE-PITCH CURB & GUTTER
PROP. HOT MIX ASPHALT PAVEMENT (DRIVEWAY)
PROP. 4" CONCRETE SIDEWALK
PROP. 6" CONCRETE PAVEMENT
PROP. 8" CONCRETE PAVEMENT
PROP. GRAVEL SHOULDER / DRIVEWAY
EROSION MATTING (MILD SLOPES)
EROSION MATTING (STEEP SLOPES)
PROP. STREAM BANK GRADING (6:1 SLOPES)
PROP. STREAM BANK GRADING W/RIP-RAP (2:1 SLOPES)
PROP. BACKWATER REFUGE
PROP. STORM STRUCTURES - PROFILE
PROP. STORM PIPE(RCP) - PROFILE
PROP. STORM PIPE(CMP OR HDPE) - PROFILE
PROP. SANITARY STRUCTURE - PROFILE
PROP. WATER MAIN PIPE - PROFILE
PROP. CLAY LINER - PROFILE
PROP. SANITARY SEWER FORCE MAIN - PROFILE
PROP. SPOT REPAIR - PROFILE / PLAN VIEW
PROP. CASING PIPE - PROFILE
PROP. CLEARING AND GRUBBING
PROP. BUILDING REMOVAL
PROP. SIDEWALK REMOVAL
PROP. PRESSURE-REDUCING VALVE STATION
PROP. FIRE HYDRANT
PROP. WATER SERVICE
PROP. WATER SERVICE WITH VALVE BOX SLEEVE
PROP. WATER VALVE
PROP. WATER BEND - HORIZONTAL
PROP. WATER BEND - VERTICAL
PROP. WATER BEND <5°
PROP. WATER TEE
PROP. WATER CROSS
PROP. WATER REDUCER
PROP. MJ PLUG
PROP. 4' DIA. STORM MANHOLE
PROP. 5' DIA. STORM MANHOLE
PROP. INLET
PROP. 4' DIA. INLET
PROP. 6' DIA. INLET
PROP. 4' DIA. CATCH BASIN- W/ 2'X3' CASTING
PROP. 5' DIA. CATCH BASIN- W/ 2'X3' CASTING
PROP. 6' DIA. CATCH BASIN- W/ 2'X3' CASTING
PROP. 4'X6' CATCH BASIN W/2'X3' CASTING
PROP. CURB OPENING CASTING
PROP. 2'X3' CATCH BASIN
PROP. ADJUSTED CATCH BASIN TOP
PROP. WISDOT TYPE 8 INLET
PROP. WISDOT TYPE 9 INLET
PROP. CMP ENDWALL
PROP. RCP ENDWALL

KEY NOTES [100] :

100 PROPOSED SILT FENCE FOR EROSION CONTROL.
101 PROPOSED SEDIMENT LOG FOR EROSION CONTROL.
102 PROPOSED TRACKING PAD FOR EROSION CONTROL.
103 RE-GRADE YARD/DITCH LINE (MIN. SLOPE 1.0%).
104 PROPOSED EROSION MAT CLASS I, TYPE 'B'.
105 INSTALL TYPE 'D' INLET PROTECTION.
106 PROPOSED MAIL BOX RELOCATION.
107 ITEM TO REMAIN.
108 CONTRACTOR TO REMOVE ITEM.
109 PROPOSED TURBIDITY BARRIER (TYP.) (SEE DETAIL - SHEET C203).
110 PROPOSED EROSION CONTROL REVEGETATIVE MAT (ECRM).
111 REMOVE AND SALVAGE TO OWNER IN PRE-CONSTRUCTION CONDITION.
112 REINSTALL STREET SIGN AS PER OWNER/WISDOT REQUIREMENTS.
113 PROPOSED STREAM BANK GRADING (2:1 SLOPE) WITH RIP-RAP TO TOP OF BANK (SEE DETAIL - SHEET C202).
114 PROPOSED STREAM BANK GRADING (6:1 SLOPE)(SEE DETAIL - SHEET C202).
115 PROPOSED BED LOG IN STREAM HABITAT STRUCTURE (SEE DETAIL - SHEET C202).
200 PROPOSED SANITARY SEWER [SIZE].
201 NEW SANITARY SEWER LATERAL [SIZE].
202 REPLACE EXISTING SANITARY SEWER LATERAL.
203 RECONNECT EXISTING SANITARY SEWER LATERAL.
204 CONNECTION TO EXISTING SANITARY SEWER PIPE/STRUCTURE.
205 REMOVE EXISTING SANITARY SEWER PIPE /STRUCTURE.
206 REHABILITATE SANITARY MANHOLE; SEE TABLE 'B'.
207 SANITARY SEWER SPOT REPAIR.
208 ABANDON AND CAP EXISTING SANITARY SEWER.
209 ABANDON EXISTING SANITARY SEWER LATERAL.
210 CONTRACTOR TO FIELD VERIFY SANITARY SEWER LATERAL LOCATION/ACTIVITY AND REPLACE ACCORDING TO ENGINEER.
300 PROPOSED WATER MAIN [SIZE].
301 NEW WATER SERVICE [SIZE].
302 REPLACE EXISTING WATER SERVICE WITH 1" WATER SERVICE.
303 RECONNECT EXISTING WATER SERVICE.
304 DIRECTIONAL DRILL PROPOSED WATER SERVICE.
305 CONNECTION TO EXISTING WATER MAIN.
306 EXISTING HYDRANT TO BE REMOVED AND SALVAGED TO OWNER.
307 REMOVE EXISTING WATER MAIN VALVE BOX/STRUCTURE.
308 ADJUST EXISTING WATER MAIN VALVE BOX.
309 ABANDON, DRAIN, & CAP EXISTING WATER MAIN.
310 ABANDON EXISTING WATER SERVICE.
311 CONTRACTOR TO FIELD VERIFY WATER SERVICE LOCATION/ACTIVITY AND REPLACE ACCORDING TO ENGINEER.
400 PROPOSED STORM SEWER [SIZE].
401 CONNECT EXISTING ROOF DRAIN TO CURB OPENING
402 CONNECTION TO EXISTING STORM SEWER PIPE/STRUCTURE.
403 REMOVE EXISTING STORM SEWER PIPE/STRUCTURE.
404 ABANDON & CAP EXISTING STORM SEWER.
405 ADJUST EXISTING STORM STRUCTURE.
500 TREE & STUMP TO BE REMOVED (LESS THEN 12")
501 TREE & STUMP TO BE REMOVED (12" & GREATER)
502 SHRUB TO BE REMOVED.
503 CLEAR AND GRUB BRUSH LINE AS NECESSARY TO COMPLETE CONSTRUCTION. ALL CLEARING TO BE VERIFIED BY PROJECT ENGINEER.
504 REMOVE AND REINSTALL/REPLACE EXISTING LANDSCAPING, FENCE, RETAINING WALL, ETC. (IF NECESSARY).
505 REMOVE EXISTING LANDSCAPING, FENCE, RETAINING WALL, ETC.
506 POLE/PEDESTAL TO BE SECURED BY UTILITY COMPANY DURING CONSTRUCTION.
507 POLE TO BE RELOCATED BY UTILITY COMPANY.
508 GUY WIRE TO BE RELOCATED BY UTILITY COMPANY.
509 PEDESTAL TO BE RELOCATED BY UTILITY COMPANY.
510 UTILITY CONFLICT - TO BE RELOCATED/ADJUSTED BY UTILITY COMPANY.
511 POTENTIAL UTILITY CONFLICT - VERIFY WITH UTILITY COMPANY.
512 **CAUTION!** - UTILITY CROSSING.
600 REMOVE EXISTING CURB & GUTTER.
601 PROPOSED 24" CONCRETE CURB & GUTTER.
602 PROPOSED 30" CONCRETE CURB & GUTTER.
603 PROPOSED 36" CONCRETE CURB & GUTTER.
604 MATCH TO EXISTING CURB & GUTTER.
605 PROVIDE TYPE 'X' CURB.
606 PROVIDE REVERSE-PITCH CURB & GUTTER.
607 PROVIDE CURB TAPER.
608 REMOVE ASPHALT/CONCRETE/WALL/STEPS.
609 PROPOSED 4" CONCRETE SIDEWALK.
610 PROPOSED 6" CONCRETE SIDEWALK/DRIVEWAY.
611 PROPOSED 6" CONCRETE PAVEMENT.
612 PROPOSED 8" CONCRETE PAVEMENT.
613 PROPOSED CONCRETE STEPS. STEP RISE HEIGHT AND STEP TREAD DEPTH SHALL MEET APPLICABLE BUILDING CODES. CONTRACTOR SHALL CONFIRM REQUIRED NUMBER OF STEPS WITH PROJECT ENGINEER PRIOR TO INSTALL.
614 PROPOSED 2' GRAVEL SHOULDER.
615 REGRADE EXISTING GRAVEL.
616 PROPOSED GRAVEL DRIVEWAY.
617 REMOVE & REPLACE GRAVEL DRIVEWAY.
618 REMOVE GRAVEL DRIVEWAY & REPLACE WITH BITUMINOUS DRIVEWAY/APRON.
619 REMOVE & REPLACE HMA PAVEMENT.
620 REMOVE & REPLACE HMA PAVEMENT DRIVEWAY.
621 PROPOSED HMA PAVEMENT.
622 MATCH TO EXISTING EDGE PAVEMENT.
623 PROPOSED RESIDENTIAL HMA PAVEMENT DRIVEWAY.
624 PROPOSED COMMERCIAL HMA PAVEMENT DRIVEWAY.
625 REMOVE & REPLACE 4" CONCRETE SIDEWALK.
626 REMOVE & REPLACE 6" CONCRETE SIDEWALK/DRIVEWAY.
627 PROPOSED HANDICAP RAMP WITH - D. WARN. FIELD [S.F].
628 SAW CUT PCC PAVEMENT.
629 SAW CUT HMA PAVEMENT.
630 PROPOSED BITUMINOUS WEDGE CURB.

NOTES:

TRAFFIC CONTROL NOTE:
ALL CONTRACTORS MUST CONFORM TO THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND THE REQUIREMENTS OF THE WISCONSIN DEPARTMENT OF TRANSPORTATION. ONE LANE OF TRAFFIC MUST REMAIN OPEN DURING AND AFTER ALL CONSTRUCTION ACTIVITIES FOR EMERGENCY VEHICLE ACCESS.

STREET SIGN NOTE:
CONTRACTOR WILL BE RESPONSIBLE FOR REMOVING, STORING, AND RESETTING ALL PERMANENT SIGNS. CONTRACTOR IS RESPONSIBLE FOR PROTECTING ALL EXISTING SIGNS UNTIL REMOVED. CONTRACTOR IS RESPONSIBLE FOR ANY AND ALL TEMPORARY SIGNS THAT MAY BE REQUIRED.

TRAFFIC SIGN NOTE:
CONTRACTOR TO PROVIDE TEMPORARY TRAFFIC SIGNS FOR ANY TRAFFIC SIGNS DISTURBED DURING CONSTRUCTION. ALL DISTURBED TRAFFIC SIGNS MUST BE REPLACED AND INSTALLED AS PER LOCAL REGULATIONS AT THE COMPLETION OF THE PROJECT.

EROSION CONTROL NOTE:
CONTRACTOR TO INSTALL BACKFILL MATERIAL INTO THE EXCAVATED TRENCH AS SOON AS POSSIBLE TO IMPLEMENT EROSION CONTROL.

PROPERTY LINE AND RIGHT-OF-WAY NOTE:
ALL RIGHT-OF-WAYS AND PROPERTY LINES SHOWN ARE APPROXIMATE AND FOR ILLUSTRATIVE PURPOSES ONLY. A PROPERTY SURVEY PERFORMED BY A PROFESSIONAL LAND SURVEYOR SHOULD BE COMPLETED TO DETERMINE THE ACTUAL PROPERTY LINE AND RIGHT-OF-WAY LOCATIONS.

MAILBOX RELOCATION NOTE:
CONTRACTOR TO RELOCATE EXISTING MAILBOXES DURING CONSTRUCTION (COORDINATE AND VERIFY WITH LOCAL POSTAL SERVICE ON LOCATION). RESET BEHIND CURB AND GUTTER OR SHOULDER ACCORDING TO THE REQUIREMENTS OF THE LOCAL POSTMASTER UPON COMPLETION OF STREET CONSTRUCTION.

TREE TRIMMING NOTE:
CONTRACTOR TO PROPERLY TRIM ALL TREE BRANCHES, ROOTS, AND BUSHES DISTURBED DUE TO CONSTRUCTION.

TREE REMOVAL NOTE:
CONTRACTOR TO CONTACT ENGINEER OR ***VILLAGE OF READSTOWN*** FOR VERIFICATION PRIOR TO ANY TREE REMOVAL.

SAW CUT NOTE:
CONTRACTOR TO PROVIDE FULL DEPTH SAW CUTS AND REPLACE PAVEMENT.

UTILITIES' NOTE:
THE LOCATIONS OF THE UNDERGROUND UTILITIES SHOWN ON THE PLAN HAVE BEEN OBTAINED BY FIELD CHECKS, A UTILITY LOCATE, AND SEARCHES OF AVAILABLE RECORDS. IT IS BELIEVED THAT THEY ARE ESSENTIALLY CORRECT, BUT THE SURVEYOR DOES NOT GUARANTEE THEIR ACCURACY OR COMPLETENESS. THE CONTRACTOR SHOULD VERIFY LOCATIONS W/ THE UTILITY COMPANIES AND ***VILLAGE OF READSTOWN*** PRIOR TO STARTING ANY EXCAVATION.

SITE RESTORATION NOTE:
CONTRACTOR WILL BE RESPONSIBLE FOR REPLACEMENT OF ALL DISTURBED PROJECT AREA COMPONENTS INCLUDING, BUT NOT LIMITED TO, EXISTING CONCRETE, BITUMINOUS PAVEMENT, GRAVEL, CULVERTS, WATER AND SANITARY SEWER SYSTEM COMPONENTS, STORM SEWER SYSTEM COMPONENTS, TREES, LAWN ORNAMENTS, FENCING, YARD LANDSCAPING, RETAINING WALLS, MAILBOXES, AND LANDSCAPE AREAS.

PROPERTY DAMAGES:
THE CONTRACTOR IS RESPONSIBLE FOR THE PRESERVATION OF ADJACENT PROPERTY AND FOR ANY DAMAGE TO THE SITE OR TO ADJACENT PROPERTY INCIDENTAL TO THE CONSTRUCTION ACTIVITIES. AFTER THE COMPLETION OF CONSTRUCTION, ANY AREAS ADJACENT TO THE CONSTRUCTION SITE DAMAGED BY THE CONTRACTOR DURING EXECUTION OF THE CONTRACT SHALL BE RESTORED TO MATCH THE PRECONSTRUCTION CONDITIONS.

DISCIPLINE	DESIGNATION
REMOVAL	R
GENERAL	G
CIVIL	C
LANDSCAPE	L
AQUATIC	AQ
ARCHITECTURAL	A
STRUCTURAL	S
ELECTRICAL	E
INSTRUMENTATION/CONTROLS	N
PROCESS	D
PLUMBING	P
HVAC /MECHANICAL	M

DISCIPLINE DESIGNATORS

TYPE	DESIGNATION
NOTES & SCHEDULES	0
PLANS	1
ELEVATIONS & DETAILS	2
CROSS-SECTIONS	3
DIAGRAMS	4

DRAWING SHEET DESIGNATION

C102
DRAWING NUMBER
DRAWING SHEET DESIGNATION
DISCIPLINE DESIGNATION (MAY HAVE MULTIPLE)

SHEET NUMBER IDENTIFICATION

ENGINEER:
DELTA 3
ENGINEERING, LLC
PROFESSIONAL CIVIL, MUNICIPAL, & STRUCTURAL ENGINEERING
CIVIL SITE DESIGN • LAND DEVELOPMENT • PLANNING & CAD SERVICES
875 SOUTH CHESTNUT STREET, PLATTEVILLE, WISCONSIN 53818 — PHONE: (608) 348-5355
300 JACKSON STREET, SUITE 200, DUBUQUE, IOWA 52001 — PHONE: (563) 542-4085
FOR QUESTIONS REGARDING THIS PROJECT, PLEASE CONTACT:
MR. JORDAN FURE, P.E.
DELTA 3 ENGINEERING, INC.
TELEPHONE: (608) 348-5355

PROPOSED 2025 STREAM IMPROVEMENTS - KICKAPOO RIVER

READSTOWN, WISCONSIN

PROJECT LOCATION: KICKAPOO RIVER
OWNER: VILLAGE OF READSTOWN; 116 N 4TH ST READSTOWN, WI 54652

REVISIONS:		
NO.	DATE	DESCRIPTION
AS-BUILT:		BY:

FOR BID

PROJECT NUMBER	D23-138
SHEET SCALE	NOT TO SCALE
DRAWN BY	C.COYIER
DATE ISSUED	MARCH 31, 2025
SHEET DESC.	LEGEND & GENERAL NOTES

SHEET TITLE:
G001

SHEET NUMBER # **2 of 6**

ENGINEER:
DELTA 3
EVERY ANGLE COVERED
PROFESSIONAL CIVIL, MUNICIPAL, & STRUCTURAL ENGINEERING
GRANT WRITING • LAND DEVELOPMENT • PLANNING & CADD SERVICES
875 SOUTH CHESTNUT STREET PLATTEVILLE, WISCONSIN 53818 PHONE: (608) 348-5355
898 JACKSON STREET DUBUQUE, IOWA 52001 PHONE: (563) 542-9005

FOR QUESTIONS REGARDING THIS PROJECT, PLEASE CONTACT:
MR. JORDAN FURE, P.E.
DELTA 3 ENGINEERING, INC.
TELEPHONE: (608) 348-5355

PROPOSED 2025 STREAM IMPROVEMENTS - KICKAPOO RIVER

READSTOWN, WISCONSIN

PROJECT LOCATION: KICKAPOO RIVER
OWNER: VILLAGE OF READSTOWN: 116 N 4TH ST READSTOWN, WI 54652

SCALE: 1"=80' (11"x17")
0 20 40 60

GENERAL NOTES:

1. CONTRACTOR SHALL REPAIR ALL DRIVEWAYS AND ACCESS ROADS DAMAGED DUE TO CONSTRUCTION ACTIVITIES.
2. CONTRACTOR TO INSTALL EROSION CONTROL AND TURBIDITY BARRIER PRIOR TO COMMENCING CONSTRUCTION.
3. CONTRACTOR TO CLEAR AND GRUB ALL PROPOSED GRADING LOCATIONS.
4. EXCAVATED MATERIAL SHALL NOT BE DEPOSITED WITHIN THE FLOODPLAIN AREA OR WETLANDS .
5. CONTRACTOR SHALL NOT REMOVE TREES, SOIL, ROCK, AND THE LIKE FROM THE SITE WITHOUT CONSENT OF THE OWNER.
6. CONTRACTOR TO INSTALL EXISTING DRAIN TILES THROUGH PROPOSED GRADING AND RIP-RAP.
7. CONTRACTOR TO RESTORE/LANDSCAPE ALL DISTURBED AREAS.

KEY NOTES 100 :

102 PROPOSED TRACKING PAD FOR EROSION CONTROL.
107 ITEM TO REMAIN.
109 PROPOSED TURBIDITY BARRIER (TYP.); SEE DETAIL - SHEET C202.
113 PROPOSED STREAM BANK GRADING (2:1 SLOPE) WITH RIP-RAP TO TOP OF BANK (SEE DETAIL - SHEET C202).
114 PROPOSED STREAM BANK GRADING (6:1 SLOPE); SEE DETAIL - SHEET C202.
503 CLEAR AND GRUB BRUSH LINE AS NECESSARY TO COMPLETE CONSTRUCTION. ALL CLEARING TO BE VERIFIED BY PROJECT ENGINEER.

REVISIONS:		
NO.	DATE	DESCRIPTION

AS-BUILT: --/--/---- BY: -.-----

FOR BID

PROJECT NUMBER	D22-138
SHEET SCALE	SEE BAR SCALE
DRAWN BY	C. COYIER
DATE ISSUED	MARCH 31, 2025
SHEET DESC.	PLAN VIEW - REACH 1

SHEET TITLE: C101

GENERAL NOTES:

1. CONTRACTOR SHALL REPAIR ALL DRIVEWAYS AND ACCESS ROADS DAMAGED DUE TO CONSTRUCTION ACTIVITIES.
2. CONTRACTOR TO INSTALL EROSION CONTROL AND TURBIDITY BARRIER PRIOR TO COMMENCING CONSTRUCTION.
3. CONTRACTOR TO CLEAR AND GRUB ALL PROPOSED GRADING LOCATIONS.
4. EXCAVATED MATERIAL SHALL NOT BE DEPOSITED WITHIN THE FLOODPLAIN AREA OR WETLANDS .
5. CONTRACTOR SHALL NOT REMOVE TREES, SOIL, ROCK, AND THE LIKE FROM THE SITE WITHOUT CONSENT OF THE OWNER.
6. CONTRACTOR TO INSTALL EXISTING DRAIN TILES THROUGH PROPOSED GRADING AND RIP-RAP.
7. CONTRACTOR TO RESTORE/LANDSCAPE ALL DISTURBED AREAS.

KEY NOTES [100] :

102 PROPOSED TRACKING PAD FOR EROSION CONTROL.
107 ITEM TO REMAIN.
109 PROPOSED TURBIDITY BARRIER (TYP.); SEE DETAIL - SHEET C202.
113 PROPOSED STREAM BANK GRADING (2:1 SLOPE) WITH RIP-RAP TO TOP OF BANK; SEE DETAIL - SHEET C202.
114 PROPOSED STREAM BANK GRADING (6:1 SLOPE); SEE DETAIL - SHEET C202.
503 CLEAR AND GRUB BRUSH LINE AS NECESSARY TO COMPLETE CONSTRUCTION. ALL CLEARING TO BE VERIFIED BY PROJECT ENGINEER.

ENGINEER:
DELTA 3
ENGINEERING, LLC
PROFESSIONAL CIVIL, MUNICIPAL, & STRUCTURAL ENGINEERING
LAND SURVEYING • LAND DEVELOPMENT PLANNING & CADD SERVICES
375 SOUTH CHESTNUT STREET PHONE: (608) 348-5355
PLATTEVILLE, WISCONSIN 53818
999 JACKSON STREET PHONE: (563) 582-9005
DUBUQUE, IOWA 52001

FOR QUESTIONS REGARDING THIS PROJECT, PLEASE CONTACT:
MR. JORDAN FURE, P.E.
DELTA 3 ENGINEERING, INC.
TELEPHONE: (608) 348-5355

PROPOSED 2025 STREAM IMPROVEMENTS - KICKAPOO RIVER

READSTOWN, WISCONSIN

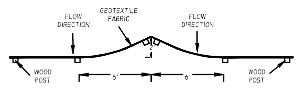
PROJECT LOCATION: KICKAPOO RIVER
OWNER: VILLAGE OF READSTOWN; 116 N 4TH ST READSTOWN, WI 54652

REVISIONS:		
NO.	DATE	DESCRIPTION
AS-BUILT:		BY:
-/-/----		-----

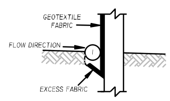
FOR BID	
PROJECT NUMBER	D23-138
SHEET SCALE	SEE BAR SCALE
DRAWN BY	C. COYIER
DATE ISSUED	MARCH 31, 2025
SHEET DESC.	PLAN VIEW - REACHES 1 & 2

SHEET TITLE:
C102

SHEET NUMBER # 4 of 6



SILT FENCE - JOINING TWO LENGTHS DETAIL
SCALE: N.T.S.



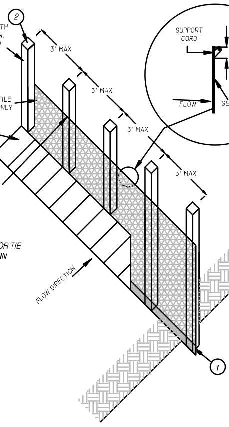
SILT FENCE - TRENCH DETAIL
SCALE: N.T.S.

GENERAL NOTES- SILT FENCE:

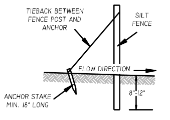
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE WISDOT STANDARD SPECIFICATIONS FOR HIGHWAY AND STRUCTURE CONSTRUCTION (MOST CURRENT EDITION) AND THE APPLICABLE SPECIAL PROVISIONS.

(1) TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.

(2) WOOD POST SHALL BE A MINIMUM SIZE OF 1-1/8" X 1-1/8" OF OAK OR HICKORY.



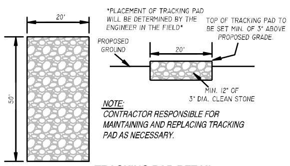
NOTE:
ADDITIONAL POST DEPTH OR TIE BACKS MAY BE REQUIRED IN UNSTABLE SOILS.



SILT FENCE - TIE BACK DETAIL
SCALE: N.T.S.

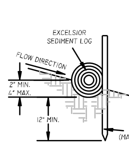
SILT FENCE INSTALLATION DETAIL
SCALE: N.T.S.

SILT FENCE DETAILS
SCALE: N.T.S.

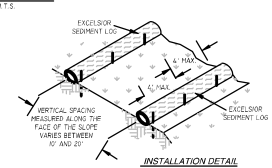


NOTE:
CONTRACTOR RESPONSIBLE FOR MAINTAINING AND REPLACING TRACKING PAD AS NECESSARY.

TRACKING PAD DETAIL
SCALE: N.T.S.



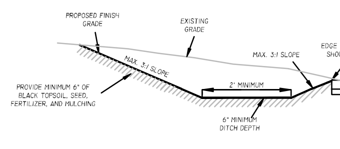
TRENCH DETAIL
SCALE: N.T.S.



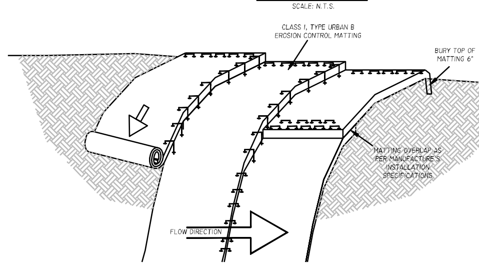
INSTALLATION DETAIL
SCALE: N.T.S.

TYPE 1 = 20" ROLL (HEAVY DUTY CONCENTRATED FLOW)
TYPE 2 = 12" ROLL (HEAVY CONCENTRATED FLOW)
TYPE 3 = 9" ROLL (MILD CONCENTRATED FLOW)
TYPE 4 = 6" ROLL (LOW CONCENTRATED FLOW)

EROSION CONTROL SEDIMENT LOG
SCALE: N.T.S.



REGRADED DITCH DETAIL
SCALE: N.T.S.



EROSION MATTING NOTES:

1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING APPLICATION OF FERTILIZER AND MULCH AND SEED.
2. BEGIN AT THE TOP OF THE SHOULDER (OR CHANNEL) BY ANCHORING THE BLANKET IN A 6" DEEP X 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
3. ROLL THE BLANKETS DOWN (STARTING AT DOWNSTREAM PROCEEDING UPSTREAM) HORIZONTALLY ACROSS THE SLOPE.
4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH MANUFACTURE'S RECOMENDED OVERLAP.
5. WHEN BLANKETS MUST BE SPLICED DOWN THE SLOPE, PLACE BLANKETS END OVER END (SHINGLE STYLE) WITH AN OVERLAP. USE A DOUBLE ROW OF STAGGERED STAPLES 4" APART TO SECURE BLANKETS.
6. IN HIGH CHANNEL APPLICATIONS, A STAPLE SLOT IS RECOMMENDED AT 30 TO 40 FOOT INTERVALS. USE A ROW OF STAPLES 4" APART OVER THE ENTIRE WIDTH OF THE CHANNEL. PLACE A SECOND ROW 4" BELOW THE FIRST ROW IN A STAGERED PATTERN.
7. THE TERMINAL END OF THE BLANKETS MUST BE ANCHORED IN A 6" DEEP X 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.

EROSION MATTING - SLOPE INSTALLATION DETAIL
SCALE: N.T.S.

EROSION CONTROL NOTES:

1. GENERAL EROSION NOTES AND MAINTENANCE MEASURES ARE ILLUSTRATED ON THE PLAN SHEETS. AFTER AWARD OF THE CONTRACT, THE GENERAL CONTRACTOR SHALL INSTALL ALL BEST MANAGEMENT PRACTICES AS SHOWN ON THE PLAN SHEETS. ONCE INSTALLED, THE GENERAL CONTRACTOR SHALL CONTACT DELTA 3 ENGINEERING, INC. (608-348-5355). ONCE NOTIFIED DELTA 3 ENGINEERING INC. WILL VISIT THE SITE WITHIN 5 DAYS TO REVIEW THE SITE WITH THE GENERAL CONTRACTORS SUPERINTENDENT. UPON VISITING THE SITE, THE CONSULTING ENGINEER AND THE GENERAL CONTRACTORS SUPERINTENDENT WILL REVIEW THE SITE FOR COMPLIANCE WITH THE EROSION CONTROL MEASURES. IF AND WHEN ALL BEST MANAGEMENT PRACTICES REQUIRED TO COMMENCE SITE CONSTRUCTION ARE IN PLACE, THE CONSULTING ENGINEER AND PROJECT SUPERINTENDENT WILL SIGN AND CERTIFY THIS FACT. THIS REVIEW AND CERTIFICATION SHALL TAKE PLACE PRIOR TO THE REQUIRED PRE-CONSTRUCTION MEETING. THE SITE SUPERINTENDENT SHALL MAINTAIN AN AS-BUILT COPY OF THE EROSION CONTROL MEASURES ON SITE AT ALL TIMES. ANY ACTIVITIES INVOLVING INSTALLATION OF BEST MANAGEMENT PRACTICES SHALL BE INDICATED ON THE AS-BUILT PLAN WITH AN INSTALLED TIME AND DATE. RECORDED INFORMATION SHALL BE PERMANENTLY PLACED ON THE SITE MAP INCLUDING ANY CHANGES MADE TO THE BEST MANAGEMENT PRACTICES. IF THE SITE MAP BECOMES HARD TO READ, THE INITIAL DRAWING SHALL BE SAVED AND A CLEAN COPY SHALL BE ISSUED IN ORDER TO CONTINUE RECORDING ANY ON-SITE EROSION CONTROL ACTIVITY.

2. A COMPLETE COPY OF ALL INSPECTION REPORTS, PLAN REVISIONS, ETC., MUST BE RETAINED AT THE PROJECT SITE AT ALL TIMES DURING DURATION OF THE PROJECT AND KEPT IN THE PERMANENT PROJECT RECORDS FOR AT LEAST FIVE YEARS FOLLOWING SUBMISSION OF THE NOTICE OF TERMINATION (NOT).

3. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR INSURING THAT ALL SUB-CONTRACTORS INVOLVED IN GROUND DISTURBING ACTIVITY COMPLY WITH THE EROSION CONTROL REQUIREMENTS.

4. DAILY INSPECTIONS BY THE PROJECT SUPERINTENDENT AND MONTHLY INSPECTIONS BY THE OWNER'S CONSTRUCTION MANAGER MUST BE MADE TO DETERMINE THE EFFECTIVENESS OF THE EROSION CONTROL MEASURES. THE GENERAL CONTRACTOR IS TO INSPECT EROSION AND SEDIMENT CONTROLS WITHIN 24 HOURS AFTER A RAINFALL EVENT OF 0.5 INCHES OR GREATER. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE TO REPAIR OR REPLACE EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES AS NECESSARY WITHIN 24 HOURS OF INSPECTION.

5. ONCE THE SITE REACHES FINAL STABILIZATION, ALL PERMANENT EROSION AND SEDIMENTATION CONTROLS ARE INSTALLED AND ALL TEMPORARY EROSION AND SEDIMENTATION CONTROLS ARE REMOVED, THE GENERAL CONTRACTOR AND OWNER MUST COMPLETE A FINAL SITE INSPECTION. UPON APPROVAL BY OWNER, THE OWNER AND GENERAL CONTRACTOR, AS APPLICABLE, MUST COMPLETE AND SUBMIT A NOTICE OF TERMINATION (NOT) FORM TO BE SUBMITTED TO THE WISCONSIN DEPARTMENT OF NATURAL RESOURCES.

6. A RECORD OF THE DATES WHEN MAJOR GROUND-DISTURBING ACTIVITIES OCCUR, WHEN CONSTRUCTION ACTIVITIES TEMPORARILY OR PERMANENTLY CEASE ON A PORTION OF THE SITE, AND WHEN STABILIZATION MEASURES ARE INITIATED MUST BE MAINTAINED UNTIL THE NOT IS FILED. CONTROLS MUST BE IN PLACE DOWN GRADIENT OF GROUND-DISTURBING ACTIVITIES PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.

7. A LOG OF ALL INSPECTIONS BY FEDERAL, STATE, OR LOCAL STORM WATER OR OTHER ENVIRONMENTAL AGENCIES SHALL BE KEPT BY THE GENERAL CONTRACTOR. THE LOG SHALL INCLUDE THE DATE AND TIME OF VISIT AND WHETHER A REPORT WAS ISSUED OR WILL BE ISSUED AS A RESULT OF THE INSPECTION. ANY REPORTS ISSUED SHALL BE FAXED TO THE DELTA 3 ENGINEERING INC. 608-348-5455 (FAX).

8. SOIL STABILIZATION - THE PURPOSE OF SOIL STABILIZATION IS TO PREVENT SOIL FROM LEAVING THE SITE. IN THE NATURAL CONDITION, SOIL IS STABILIZED BY NATIVE VEGETATION. THE PRIMARY TECHNIQUE TO BE USED AT THIS PROJECT FOR STABILIZING SITE SOIL WILL BE TO PROVIDE A PROTECTIVE COVER OF TURF GRASS OR PAVEMENT.

   (A) TEMPORARY SEEDING OR STABILIZATION - AREAS MAY BE STABILIZED TEMPORARILY WITH THE USE OF FAST-GERMINATING ANNUAL SEED, STRAW MULCH, WOOD CELLULOSE FIBERS, TACKIFIERS, NETTING OR BLANKET. WHERE CONDITIONS ARE FAVORABLE, AREAS SHALL BE TEMPORARILY STABILIZED WITHIN 7 DAYS AFTER CONSTRUCTION ACTIVITY CEASES. ALL DISTURBED GROUND WHERE THERE WILL NOT BE CONSTRUCTION FOR LONGER THAN 14 DAYS MUST BE SEEDED OR OTHERWISE STABILIZED.

   (B) PERMANENT SEEDING OR SOD - ALL AREAS AT FINAL GRADE MUST BE SEEDED OR SODDED WITHIN 3 DAYS AFTER COMPLETION OF THE MAJOR CONSTRUCTION ACTIVITY. EXCEPT FOR SMALL LEVEL SPOTS, SEEDED AREAS SHOULD GENERALLY BE PROTECTED WITH MULCH. ALL AREAS TO BE SEEDED WILL ALSO HAVE TOPSOIL AND OTHER AMENDMENTS AS STATED IN WISDOT SPECIFICATION SECTION 02900-PLANTING.

   (C) MULCHING - ALL AREAS THAT ARE TEMPORARY OR PERMANENT SEEDED SHALL BE MULCHED ACCORDING TO SECTION 627 - MULCHING OF THE WISDOT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION. ALL MULCH IS TO BE ANCHORED UTILIZING METHOD A, B, OR C.

   (D) EROSION CONTROL MATTING - FOR ANY SLOPES GREATER THAN 3:1, EROSION MATTING IS REQUIRED.

9. STRUCTURAL CONTROLS - BEFORE ANY MAJOR GRADING ACTIVITIES, THE FOLLOWING BEST MANAGEMENT PRACTICES SHALL BE INSTALLED ON THE PROPOSED SITE - SILT FENCE, TEMPORARY TRACKING PAD, AND STORM SEWER INLET PROTECTION.

   (A) SILT FENCE - SILT FENCE IS A SYNTHETIC PERMEABLE WOVEN OR NON-WOVEN FABRIC TYPICALLY INCORPORATING WOODEN OR METAL SUPPORT STAKES AT INTERVALS SUFFICIENT TO SUPPORT THE FENCE, WATER, AND SEDIMENT RETAINED BY THE FENCE. SILT FENCE CAN ALSO BE INSTALLED WITH A WIRE FENCE BACKING. THE FENCE IS DESIGNED TO RETAIN SEDIMENT-LADEN WATER AND ALLOW SETTLEMENT OF SUSPENDED SOILS BEFORE THE STORM WATER FLOWS THROUGH THE FABRIC FOR DISCHARGE DOWNSTREAM. SILT FENCE SHALL BE LOCATED AS SHOWN ON THE PLAN SHEETS. THE SILT FENCE TO BE INCLUDED FOR THIS PROJECT SHALL BE CONSTRUCTED PER WISCONSIN DNR TECHNICAL STANDARDS FOR SILT FENCE (CODE 1056).

   (B) TEMPORARY TRACKING PAD - ALL ACCESS POINTS FROM THE PUBLIC STREET INTO THE CONSTRUCTION SITE SHALL INCLUDE A TRACKING PAD COMPOSED OF COURSE STONE TO THE DIMENSIONS SHOWN ON DETAIL SHEET (C201). ANY SEDIMENT REACHING A PUBLIC OR PRIVATE ROAD SHALL BE REMOVED BY STREET CLEANING (NOT FLUSHING) BEFORE THE END OF EACH WORKDAY.

   (C) STORM SEWER INLET PROTECTION - CURB AND GRATED INLETS ARE PROTECTED FROM THE INTRUSION OF SILT AND SEDIMENT THROUGH A VARIETY OF SEDIMENT CONTROL PRACTICES TO ALLOW SETTLEMENT OF SUSPENDED SOILS BEFORE DISCHARGING INTO THE STORM SEWER. GRATED INLETS TYPICALLY INCLUDE A STURDY FRAME WRAPPED IN GEOTEXTILE FABRIC OR SEDIMENT LOG PERIMETER TO SLOW THE FLOW OF WATER AND ALLOW PONDING WHERE SEDIMENT MAY SETTLE OUT. CURB INLETS TYPICALLY INCLUDE SEDIMENT LOG BARRIERS HELD IN PLACE WITH GEOTEXTILE FABRIC. OTHER MANUFACTURED PRODUCTS ARE ALSO AVAILABLE. ALL STORM DRAINS SHALL BE PROTECTED BY USING STRAW BALES, SEDIMENT LOGS, FABRIC, OR EQUIVALENT BARRIER.

   FINAL SITE STABILIZATION IS ACHIEVED WHEN TURF GRASS COVER PROVIDES PERMANENT STABILIZATION FOR AT LEAST 70 PERCENT OF THE DISTURBED SOIL SURFACE, EXCLUSIVE OF AREAS THAT HAVE BEEN PAVED.

10. OTHER POLLUTANT CONTROLS

   (A) DUST CONTROL - CONSTRUCTION TRAFFIC MUST ENTER AND EXIT THE SITE AT THE STABILIZED CONSTRUCTION EXIT. THE PURPOSE IS TO TRAP DUST AND MUD THAT WOULD OTHERWISE BE CARRIED OFF-SITE BY CONSTRUCTION EQUIPMENT.

   WATER TRUCKS OR OTHER DUST CONTROL AGENTS WILL BE USED AS NEEDED DURING CONSTRUCTION TO REDUCE DUST GENERATED ON THE SITE. DUST CONTROL MUST BE PROVIDED BY THE GENERAL CONTRACTOR TO A DEGREE THAT IS ACCEPTABLE TO THE OWNER'S CONSTRUCTION MANAGER, AND IN COMPLIANCE WITH APPLICABLE LOCAL AND STATE DUST CONTROL REGULATIONS. AFTER CONSTRUCTION, THE SITE WILL BE STABILIZED (AS DESCRIBED ELSEWHERE), WHICH WILL REDUCE THE POTENTIAL FOR DUST GENERATION.

   (B) SOLID WASTE DISPOSAL - NO SOLID MATERIALS, INCLUDING BUILDING MATERIALS, ARE ALLOWED TO BE DISCHARGED FROM THE SITE WITH STORM WATER. ALL SOLID WASTE, INCLUDING DISPOSABLE MATERIALS INCIDENTAL TO THE MAJOR CONSTRUCTION ACTIVITIES, MUST BE COLLECTED AND PLACED IN CONTAINERS. THE CONTAINERS WILL BE EMPTIED AS NECESSARY BY A CONTRACT TRASH DISPOSAL SERVICE AND HAULED AWAY FROM THE SITE. THE LOCATION OF SOLID WASTE RECEPTACLES SHALL BE SHOWN AND APPROVED BY THE OWNER.

   SUBSTANCES THAT HAVE THE POTENTIAL FOR POLLUTING SURFACE AND/OR GROUNDWATER MUST BE CONTROLLED BY WHATEVER MEANS NECESSARY IN ORDER TO ENSURE THAT THEY DO NOT DISCHARGE FROM THE SITE. FOR EXAMPLE, SPECIAL CARE MUST BE EXERCISED DURING EQUIPMENT FUELING AND SERVICING OPERATIONS. IF A SPILL OCCURS, IT MUST BE CONTAINED AND DISPOSED SO THAT IT WILL NOT FLOW FROM THE SITE OR ENTER GROUNDWATER, EVEN IF THIS REQUIRES REMOVAL, TREATMENT, AND DISPOSAL OF SOIL. IN THIS REGARD, POTENTIALLY POLLUTING SUBSTANCES SHOULD BE HANDLED IN A MANNER CONSISTENT WITH THE IMPACT THEY REPRESENT.

   (C) SANITARY FACILITIES - ALL PERSONNEL INVOLVED WITH CONSTRUCTION ACTIVITIES MUST COMPLY WITH STATE AND LOCAL SANITARY OR SEPTIC SYSTEM REGULATIONS. TEMPORARY SANITARY FACILITIES MUST BE PROVIDED AT THE SITE THROUGHOUT THE CONSTRUCTION PHASE. THEY MUST BE UTILIZED BY ALL CONSTRUCTION PERSONNEL AND MUST BE SERVICED BY A COMMERCIAL OPERATOR.

   (D) WATER SOURCE - NON-STORM WATER COMPONENTS OF SITE DISCHARGE MUST BE CLEAN WATER. WATER USED FOR CONSTRUCTION WHICH DISCHARGES FROM THE SITE MUST ORIGINATE FROM A PUBLIC WATER SUPPLIER, OR PRIVATE WELL APPROVED BY THE STATE HEALTH DEPARTMENT. WATER USED FOR CONSTRUCTION THAT DOES NOT ORIGINATE FROM AN APPROVED PUBLIC SUPPLY MUST NOT DISCHARGE FROM THE SITE. IT CAN BE RETAINED IN THE PONDS UNTIL IT INFILTRATES AND EVAPORATES.

   (E) CONCRETE WASTE FROM CONCRETE READY-MIX TRUCKS - DISCHARGE OF EXCESS OR WASTE CONCRETE AND/OR WASH WATER FROM CONCRETE TRUCKS WILL BE ALLOWED ON THE CONSTRUCTION SITE, BUT ONLY IN SPECIFICALLY DESIGNATED DIKED AREAS PREPARED TO PREVENT CONTACT BETWEEN THE CONCRETE AND/OR WASH WATER AND STORM WATER THAT WILL BE DISCHARGED FROM THE SITE. ALTERNATIVELY, WASTE CONCRETE CAN BE PLACED INTO FORMS TO MAKE RIP-RAP OR OTHER USEFUL CONCRETE PRODUCTS. THE CURED RESIDUE FROM THE CONCRETE WASHOUT DIKED AREAS SHALL BE DISPOSED IN ACCORDANCE WITH APPLICABLE STATE AND FEDERAL REGULATIONS. THE JOB SITE SUPERINTENDENT IS RESPONSIBLE FOR ASSURING THAT THESE PROCEDURES ARE FOLLOWED.

   (F) FUEL TANKS - TEMPORARY ON-SITE FUEL TANKS FOR CONSTRUCTION VEHICLES SHALL MEET ALL STATE AND FEDERAL REGULATIONS. TANKS SHALL HAVE APPROVED SPILL CONTAINMENT WITH THE CAPACITY REQUIRED BY THE APPLICABLE REGULATIONS. THE TANK SHALL BE IN SOUND CONDITION FREE OF RUST OR OTHER DAMAGE WHICH MIGHT COMPROMISE CONTAINMENT. HOSES, VALVES, FITTINGS, CAPS, FILLER NOZZLES, AND ASSOCIATED HARDWARE SHALL BE MAINTAINED IN PROPER WORKING CONDITION AT ALL TIMES.

11. MINIMIZING EROSION AND RUNOFF DURING TRENCH OPERATIONS

   (A) EXCAVATED TRENCH MATERIALS SHALL BE PLACED ON THE UPPER SIDE OF THE TRENCH WHILE THE TRENCH IS OPEN.

   (B) EXCAVATED TRENCH MATERIAL, UPON COMPLETING WORK IN TRENCH, SHALL BE PLACED BACK IN THE TRENCH OR HAULED AWAY TO A PROPER SPOIL SITE. THE TRENCH SHALL BE BACKFILLED AND STABILIZED AT THE END OF EACH WORKING DAY.

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898 JACKSON STREET DUBUQUE, IOWA 52001 PHONE: (563) 542-9005

FOR QUESTIONS REGARDING THIS PROJECT, PLEASE CONTACT:

MR. JORDAN FURE, P.E.
DELTA 3 ENGINEERING, INC.
TELEPHONE: (608) 348-5355

PROPOSED 2025 STREAM IMPROVEMENTS - KICKAPOO RIVER

READSTOWN, WISCONSIN

PROJECT LOCATION: KICKAPOO RIVER
OWNER: VILLAGE OF READSTOWN, 116 N 4TH ST READSTOWN, WI 54652

REVISIONS:

NO.	DATE	DESCRIPTION

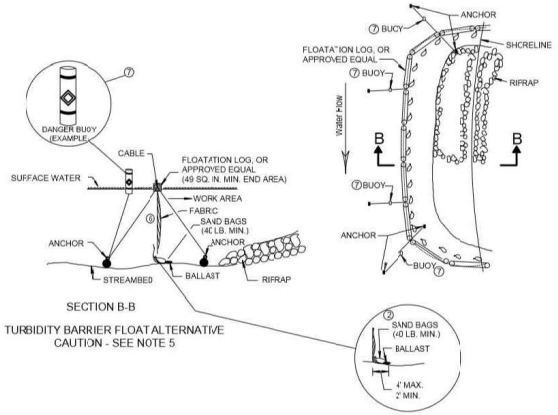
AS-BUILT: --/--/---- BY: -.-----

FOR BID

PROJECT NUMBER	D22-138
SHEET SCALE	NOT TO SCALE
DRAWN BY	C.COYIER
DATE ISSUED	MARCH 31, 2025
SHEET DESC.	DETAILS - EROSION CONTROL & NOTES

SHEET TITLE:
C201

Figure 1. Turbidity Barrier Placement Details

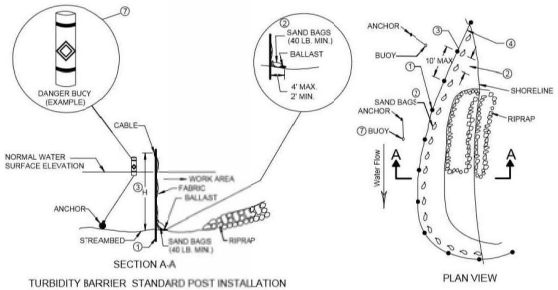


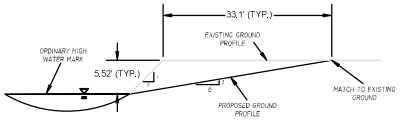
GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TC THE PERTINENT REQUIREMENTS OF THE STANDARD AND THE APPLICABLE SPICIAL PROVISIONS

TURBIDITY BARRIERMAY BE REMOVED AT THE ENGINEERS OR PROJECT MANAGERS DISCRETION, WHEN PERMANENT EROSION CONTRIOL MEASURES HAVE BEEN ESTABLISHED.

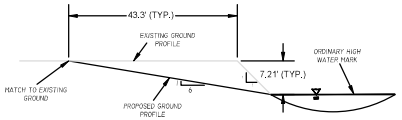
1. DRIVEN STEEL POSTS, PIPES, OR CHANNELS. LENGTH SHALL BE SUFFICIENT "O SECURELY SUPPORT BARRIER AT HIGH WA"ER ELEVATIONS.
2. SANDBAGS TO BE USED AS ADDITIONAL BALLAST WHEN ORDERED BY THE ENGINEER OR PROJECT MANAGER TO MEET ADVERSE FIELD CONDITIONS. SPACE AS APPROPRIATE FOR SITE CONDITIONS.
3. WHEN BARRIER HEIGHT, H, EXCIEDS 8 FT., POST SPACING MAY NEED TO BE DECREASED.
4. IN WATERWAYS SUBJECT TO FLUCTUATING WATER ELEVATIONS, PROVISIONS SHOULD BE MADE TO ALLOW THE WATER TO EQUALIZE ON EACH SIDE OF THE BARRIER. THIS MAY BE ACCOMPLISHED BY LEAVING A PORTION OF THE BARRIER OPEN ON THE UPSTREAM END.
5. FLOAT ALTERNATIVE WILL ONLY BE ALLOWED WITH WRITTEN APPROVAL OF THE ENGINEER OR PROJECT MANAGER, AND IS MEANT FOR LOCATIONS WHERE BED ROCK PREVENTS THE INSTALLATION OF POSTS.
6. ALLOW SUFFICIENT SLACK VERTICALLY AND HORIZONTALLY SO THAT SEDIMENT BUILD UP WILL NOT SEPARATE OR LOWER THE TURBIDITY BARRIER.
7. JSE AS DIRECTED BY COAST GJARD OR DNR FERMIT WHEN WORKING IN NAVIGABLE WATERWAYS.





TYPICAL CROSS SECTION DETAIL - I.D. A

SCALE: N.T.S.



TYPICAL CROSS SECTION DETAIL - I.D. - C

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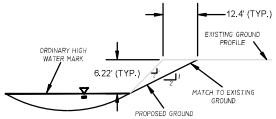
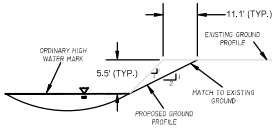


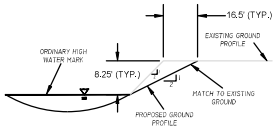
TYPICAL CROSS SECTION DETAIL - I.D. - E

SCALE: N.T.S.



TYPICAL CROSS SECTION DETAIL - I.D. B

SCALE: N.T.S.



TYPICAL CROSS SECTION DETAIL - I.D. - D

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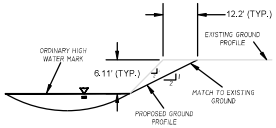
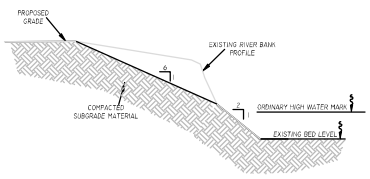


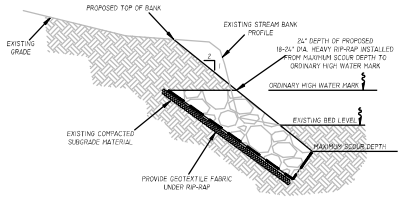
TYPICAL CROSS SECTION DETAIL - I.D. - F

SCALE: N.T.S.



STREAM BANK GRADING (6:1 SLOPES) DETAIL

SCALE: N.T.S.



STREAM BANK GRADING (2:1 SLOPES) WITH RIP-RAP TO TOP OF BANK DETAIL

SCALE: N.T.S.

ENGINEER:

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FOR QUESTIONS REGARDING THIS PROJECT, PLEASE CONTACT:

MR. JORDAN FURE, P.E.
DELTA 3 ENGINEERING, INC.
TELEPHONE: (608) 348-5355

PROPOSED 2025 STREAM IMPROVEMENTS - KICKAPOO RIVER

READSTOWN, WISCONSIN

PROJECT LOCATION: KICKAPOO RIVER

OWNER: VILLAGE OF READSTOWN, 116 N 4TH ST READSTOWN, WI 54652

REVISIONS:		
NO.	DATE	DESCRIPTION
AS-BUILT:		BY:
-/-/-		-.---

FOR BID	
PROJECT NUMBER	D23-138
SHEET SCALE	NOT TO SCALE
DRAWN BY	C.COYIER
DATE ISSUED	MARCH 31, 2025
SHEET DESC.	DETAILS - STREAM BANK

SHEET TITLE:

C202

SHEET NUMBER # 6 of 6

State of Wisconsin
DEPARTMENT OF NATURAL RESOURCES
1300 W. Clairemont Avenue
Eau Claire, WI 54701

Tony Evers, Governor
Karen Hyun, Ph.D., Secretary
Telephone 608-266-2621
Toll Free 1-888-936-7463
TTY Access via relay - 711

May 16, 2025

Brian Gander, Village President
Village of Readstown
126 W St Elmo St
Readstown, WI 54652

Subject: Readstown WWTF WPDES Permit #WI-0021661
Water Quality Trading Plan – CONDITIONAL CREDIT CERTIFICATION

Dear Mr. Gander,

The Wisconsin Department of Natural Resources (department) received a final draft of the updated water quality trading plan (WQT Plan) for compliance with phosphorus effluent limits at Readstown Wastewater Treatment Facility (WWTF) on 05/02/2025. Based on department review, the final WQT Plan is in general conformance with the department Water Quality Trading Guidance and Section 283.84 of the Wisconsin Statutes. The WQT plan proposes generation of phosphorus credits via streambank stabilization. Credits generated from approved practices result in available credit quantities shown in Table 1. These credits will be incorporated into the WPDES permit and will be used to demonstrate compliance with final phosphorus effluent limits in the reissued permit.

*In the event that the permit is not reissued prior to the expiration date, annual available TP credits listed below will be available in the subsequent year(s).

Table 1: Total Phosphorus Credits Available per WQT-2025-0014

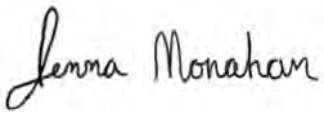
Year	Available TP Credits Total (lbs/yr)
2025	131
2026	131
2027	131
2028	131
2029	131
2030	131*

The department conditionally certifies the WQT Plan as a basis for water quality trading during the next WPDES permit term. A condition of this certification is that prior to being implemented into the WPDES permit Readstown must enter into a signed, written legal agreement with the department. Additionally, the facility should ensure with any funding agencies being used that the funding is eligible for use on WQT projects.

The department has assigned the WQT plan a tracking number of WQT-2025-0014 and will be referenced as such in the draft WPDES permit. The final WQT plan will be included as part of the public notice package for permit reissuance. The draft WPDES permit will include a requirement for an annual trading report and effluent monitoring for total phosphorus. Any modifications to the WQT plan within the permit term will also require a modification to the permit and a public notification period.

If you have any questions or comments, please contact me at 715-492-4323 or at jenna.monahan@wisconsin.gov

Thank You,



Jenna Monahan, P.E.
Wastewater Engineer - West Central Region
Wisconsin Department of Natural Resources

e-CC: Charlie Strait, Operator
Bart Nies, Delta 3
Logan Hoppman, Delta 3
Jordan Fure, Delta 3
Katherine Jerzak, WDNR
Matthew Claucherty, WDNR
Geisa Bittencourt, WDNR
Holly Heldstab, WDNR