Norwalk Public Noticed Permit Fact Sheet

General Information

Permit Number	WI-0024961-10-0
Permittee	Village of Norwalk, P O Box 230, Norwalk, WI 54648-0230
Permitted Facility	Norwalk Wastewater Treatment Facility, 509 Wisconsin St., Norwalk, WI
Permit Term	January 01, 2027 to December 31, 2031
Discharge Location	West bank of Moore Creek, approximately 790 feet downstream from S. Water St./County Hwy U
Receiving Water	Moore Creek in Upper Kickapoo River Watershed of Lower Wisconsin River Basin in Monroe County
Stream Flow ($Q_{7,10}$)	1.9 CFU
Stream Classification	Warm Water Sport Fish, Nonpublic Water Supply
Discharge Type	Existing, continuous
Annual Average Design Flow	0.138 MGD
Industrial or Commercial Contributors	None
Plant Classification	A1 - Suspended Growth Processes; A2 - Attached Growth Processes; B - Solids Separation; C - Biological Solids/Sludges; P - Total Phosphorus; D - Disinfection; SS - Sanitary Sewage Collection System
Approved Pretreatment Program?	N/A

Facility Description

The Norwalk Wastewater Treatment Facility treats domestic wastewater from the Village of Norwalk. The design flow of the facility is 0.138 million gallons per day (MGD). The actual annual average effluent flow in 2025 was 0.032 MGD. Treatment of the wastewater occurs via comminution, primary clarification, trickling filter, intermediate clarification, extended aeration activated sludge, final clarification, chlorine disinfection and de-chlorination. Ferric chloride is added for phosphorus removal. Sludge generated in primary clarification and excess biomass sludge from final clarification are treated in an aerobic and/or anaerobic digestor. Sludge from both the anaerobic digester and the aerobic digester is transferred to the sludge storage tank. Decant from the sludge storage tank is sent back to the head of the plant. Sludge from sludge storage tank is currently hauled to another permitted facility, however they can also land apply sludge. During the last permit term the permittee removed their sludge drying beds. The Department approved the water quality trading (WQT) plan (WQT-2026-0008) 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: Norwalk was issued a Notice of Noncompliance on August 1, 2024 for effluent limit violations occurring between March and June of 2024. The facility was undergoing upgrades and bypassed the final clarifier which resulted in incomplete treatment of the effluent. The upgrades have since been completed and no substantial violations have occurred since.

After a desktop review of all discharge monitoring reports, CMARs, land application reports and a site visit on 4/29/2026 Norwalk has been found to be in substantial compliance with their current permit.

Compliance determination entered by Logan Rubeck on 5/19/2026.

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)**
701	No influent flow monitoring	Representative influent samples shall be collected prior to the comminutor, prior to all recycle streams.
001	0.032 (2025)	Representative 24 hour flow proportional effluent samples are collected at the chlorine contact tank. Samples for BOD need to be "seeded" at the lab when chlorine is in use. Grab samples will be collected after dechlorination from the effluent manhole prior to discharge to Moore Creek.
002	80,000 gallons (2024)	Representative composite sludge samples of aerobically digested sludge shall be collected prior to disposal and monitored per the table below. Discharge is limited to aerobically digested sludge. Testing only required if sludge will be disposed of directly from the aerobic digester.
003	No discharge during previous permit term	Representative composite anaerobic digested sludge samples shall be collected from the digester prior to disposal and monitored per the table below. Discharge is limited to aerobically digested sludge. Testing only required if sludge will be disposed of directly from the anaerobic digester.
006	New outfall for the combined aerobic and anaerobic sludge from storage tank	Representative sludge samples shall be collected from the sludge storage tank prior to land application or any other method of disposal and monitored for Lists 1, 2, 3 & 4 and PFAS annually and once in 2028 for PCBs.

Permit Requirements

1 Influent – Monitoring Requirements

1.1 Sample Point Number: 701- INFLUENT TO PLANT

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
BOD5, Total		mg/L	3/Week	24-Hr Flow Prop Comp	
Suspended Solids, Total		mg/L	3/Week	24-Hr Flow Prop Comp	

Changes from Previous Permit:

Influent limitations and monitoring requirements were evaluated for this permit term and the only change is the switch in sample type from 24 hour composite to 24 hour flow proportional composites.

Explanation of Limits and Monitoring Requirements

Monitoring of influent 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.

2 Surface Water - Monitoring and Limitations

2.1 Sample Point Number: 001- EFFLUENT TO MOORE CREEK

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Flow Rate		MGD	Daily	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	5/Week	Grab	See pH section in permit
pH Field	Daily Max	9.0 su	5/Week	Grab	See pH section in permit

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Nitrogen, Ammonia (NH3-N) Total	Daily Max	12 mg/L	3/Week	24-Hr Flow Prop Comp	
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	12 mg/L	3/Week	24-Hr Flow Prop Comp	
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	12 mg/L	3/Week	24-Hr Flow Prop Comp	
Fecal Coliform	Geometric Mean - Monthly	400 #/100 ml	Weekly	Grab	Interim limit effective May through September annually until the final E. coli limit goes into effect per the Effluent Limitations for E. coli Schedule.
E. coli		#/100 ml	Weekly	Grab	Monitoring only May through September annually until the final limit goes into effect per the Effluent Limitations for E. coli Schedule.
E. coli	Geometric Mean - Monthly	126 #/100 ml	Weekly	Grab	Limit Effective May through September annually per the Effluent Limitations for E. coli Schedule.
E. coli	% Exceedance	10 Percent	Monthly	Calculated	Limit Effective May through September annually per the Effluent Limitations for E. coli Schedule. See the E. coli Percent Limit section in the permit. Enter the result in the DMR on the last day of the month.
Chlorine, Total Residual	Daily Max	38 ug/L	Daily	Grab	Limit & monitoring apply April - October
Chlorine, Total Residual	Weekly Avg	23 ug/L	Daily	Grab	Limit & monitoring apply April - October
Chlorine, Total Residual	Monthly Avg	23 ug/L	Daily	Grab	Limit & monitoring apply April - October
Phosphorus, Total	Monthly Avg	1.0 mg/L	3/Week	24-Hr Flow Prop Comp	Limit effective throughout the permit term, as it represents a minimum

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
					control level.
Phosphorus, Total		lbs/day	3/Week	Calculated	Report daily mass discharged using Equation 1a. in the WQT section in 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 Trading Plan.
WQT Computed Compliance (TP)	Monthly Avg	0.225 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	0.075 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	0.086 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	115 lbs/yr	Annual	Calculated	The sum of total monthly credits used may not exceed Table 2 values listed in permit.
Acute WET		TUa	See Listed Qtr(s)	24-Hr Flow Prop Comp	See WET test section in permit

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Chronic WET		TUc	See Listed Qtr(s)	24-Hr Flow Prop Comp	See WET test section in permit
Nitrogen, Total Kjeldahl		mg/L	See Listed Qtr(s)	24-Hr Flow Prop Comp	See Nitrogen Series Monitoring section in permit for specific quarters that monitoring is required.
Nitrogen, Nitrite + Nitrate Total		mg/L	See Listed Qtr(s)	24-Hr Flow Prop Comp	See Nitrogen Series Monitoring section in permit for specific quarters that monitoring is required.
Nitrogen, Total		mg/L	See Listed Qtr(s)	Calculated	See Nitrogen Series Monitoring section in permit. Total Nitrogen shall be calculated as the sum of reported values for Total Kjeldahl Nitrogen and Total Nitrite + Nitrate Nitrogen.

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 changed from "continuous" to "daily" for eDMR reporting purposes, 2) reduction in pH monitoring frequency from daily to 5/week, 3) replacement of the fecal coliform limits with E coli limits per the associated compliance schedule, 4) addition of acute and chronic WET testing twice during the permit term, and 5) removal of the MDV and inclusion of WQT requirements to meet the phosphorus limits.

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, using the criteria mentioned the only frequency change is the reduction in pH monitoring frequency from daily to 5/week.

Limits were determined for Norwalk's existing discharge to Moore Creek 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 September 18, 2026 memo from Ben Hartenbower to Holly Heldstab titled "Water Quality-Based Effluent Limitations for the Norwalk Wastewater Treatment Plant WPDES Permit No. WI-0024961".

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.

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 Moore Creek is 0.075 mg/L. In this case, the WQBEL is 0.225 mg/L (monthly average), 0.075 mg/L & 0.086 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 monthly average limit of 1.0 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-2026-0008) or approved amendments thereof. The total 'WQT TP Credits' available are designated in the approved WQT Plan. Norwalk is generating credits via streambank stabilization projects. The WQT Plan proposes the generation of 115 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 - Sludge

3.1 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)**
002	B	Liquid	Fecal Coliform & Aerobic Digestion	Incorporation	Land application or hauled	No discharge expected
003	B	Liquid	Fecal Coliform & Anaerobic Digestion	Incorporation	Land application or hauled	No discharge expected
006	B	Liquid	Fecal Coliform an Aerobic & anaerobic digestion	Incorporation	Land application or hauled	5 dry tons
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.						

3.2 Sample Point Number: 002- AEROBICALLY DIGESTED SLUDGE and 003- ANAEROBICALLY DIGESTED 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	

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
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	
PCB Total Dry Wt	High Quality	10 mg/kg	Once	Composite	
PFOA + PFOS		ug/kg	Annual	Calculated	Report the sum of PFOA and PFOS. See PFAS 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

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
					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: 1) Monitoring for PFAS has been added once during the permit term pursuant s. NR 204.06(2)(b)9., Wis. Adm. Code. 2) Language has been added to the sample descriptions clarifying that monitoring is only required when sludge is removed for direct disposal from the aerobic or anerobic digester and isn't mixed in the storage tank first.

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.

3.3 Sample Point Number: 006- SLUDGE STORAGE TANK

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	

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
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 2028
PCB Total Dry Wt	High Quality	10 mg/kg	Once	Composite	Once in 2028
PFOA + PFOS		ug/kg	Annual	Calculated	Report the sum of PFOA and PFOS. See PFAS 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: 1) this is a new Outfall number that will track sludge from the storage tank that is either land applied or hauled, and 2) Monitoring for PFAS has been added once during the permit term pursuant s. NR 204.06(2)(b)9., Wis. Adm. Code.

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 Effluent Limitations for E. coli

The permittee shall comply with surface water limitations for E. coli as specified. No later than 14 days following each compliance date, the permittee shall notify the Department in writing of its compliance or noncompliance. If a submittal is required, a timely submittal fulfills the notification

Required Action	Due Date
Status Update: The permittee shall submit information within the discharge monitoring report (DMR) comment section documenting the steps taken in preparation for properly monitoring and testing for E. coli including, but not limited to, selected test method and location of sampling.	02/21/2027
Operational Evaluation Report: The permittee shall prepare and submit an Operational Evaluation Report to the Department for review and approval. The report shall include an evaluation of collected effluent data and proposed operational improvements that will optimize efficacy of disinfection at the treatment plant during the period prior to complying with final E. coli limitations and, to the extent possible, enable compliance with the final E. coli limitations. The report shall include a plan and schedule for implementation of the operational improvements. These improvements shall occur as soon as possible, but not later than 04/30/2028. The report shall state whether the operational improvements are expected to result in compliance with the final E. coli limitations. The permittee shall implement the operational improvements in accordance with the approved plan and schedule specified in the Operational Evaluation Report and in no case later than 04/30/2028. If the Operational Evaluation Report concludes that the operational improvements are expected to result in compliance with the final E. coli limitations, the permittee shall comply with the final E. coli limitations by 04/30/2028 and the permittee is not required to comply with subsequent milestones identified below in this compliance schedule ('Submit Facility Plan', 'Final Plans and Specifications', 'Treatment Plant Upgrade to Meet Limitations', 'Construction Upgrade Progress Report', 'Complete Construction', 'Achieve Compliance'). FACILITY PLAN - If the Operational Evaluation Report concludes that operational improvements alone are not expected to result in compliance with the final E. coli limitations, the permittee shall initiate development of a facility plan for meeting final E. coli limitations and comply with the remaining required actions in this schedule of compliance. If the Department disagrees with the conclusion of the report and determines that the permittee can	11/30/2027

achieve final E. coli limitations using the existing treatment system with only operational improvements, the Department may reopen and modify the permit to include an implementation schedule for achieving the final E. coli limitations sooner than 04/30/2031.	
Submit Facility Plan: If the Operational Evaluation Report concluded that the permittee cannot achieve final E. coli limitations with operational improvements alone, the permittee shall submit a Facility Plan per s. NR 110.09, Wis. Adm. Code. The permittee may submit an abbreviated facility plan if the Department determines that the modifications are minor.	04/30/2028
Final Plans and Specifications: The permittee shall submit final construction plans to the Department for approval pursuant to ch. NR 108, Wis. Adm. Code, specifying treatment plant upgrades that must be constructed to achieve compliance with final E. coli limitations and a schedule for completing construction of the upgrades by the complete construction date specified below.	03/31/2029
Treatment Plant Upgrade to Meet Limitations: The permittee shall initiate bidding, procurement, and/or construction of the project. The permittee shall obtain approval of the final construction plans and schedule from the Department pursuant to s. 281.41. Stats., prior to initiating activities defined as construction under ch. NR 108, Wis. Adm. Code. Upon approval of the final construction plans and schedule by the Department pursuant to s. 281.41, Stats., the permittee shall construct the treatment plant upgrades in accordance with the approved plans and specifications.	09/30/2029
Construction Upgrade Progress Report: The permittee shall submit a progress report on construction upgrades.	09/30/2030
Complete Construction: The permittee shall complete construction of wastewater treatment system upgrades.	03/31/2031
Achieve Compliance: The permittee shall achieve compliance with final E. coli limitations.	04/30/2031

Explanation of Schedule: A compliance schedule is included in the permit to provide time for the permittee to investigate options for meeting new effluent E. coli water quality-based effluent limits while coming into compliance with the limits as soon as reasonably possible.

4.2 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	01/31/2028

respect to water quality trading that have not been reported in discharge monitoring reports.	
Annual WQT Report #2: Submit an annual WQT report that shall cover the previous year.	01/31/2029
Annual WQT Report #3: Submit an annual WQT report that shall cover the previous year.	01/31/2030
Annual WQT Report #4: Submit the 4th 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: 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

None

Attachments

- Water Quality Based Effluent Limits: September 18, 2026 memo from Ben Hartenbower to Holly Heldstab titled "Water Quality-Based Effluent Limitations for the Norwalk Wastewater Treatment Plant WPDES Permit No. WI-0024961".
- Water Quality Trading Plan, WQT-2026-0008
- Water Quality Trading Conditional Credit Certification letter dated May 1, 2026 from Jenna Monahan to Levi Helgren, 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:** 10/22/2026

CORRESPONDENCE/MEMORANDUM

State of Wisconsin

DATE: September 18, 2026

TO: Holly Heldstab – Eau Claire

FROM: Benjamin Hartenbower – Eau Claire

SUBJECT: Water Quality-Based Effluent Limitations for the Norwalk Wastewater Treatment Facility WPDES Permit No. WI-0024961

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 Norwalk Wastewater Treatment Facility in Monroe County. This municipal wastewater treatment facility (WWTF) discharges to Moore Creek, located in the Upper Kickapoo River 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 001:

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.				1,3
Ammonia Nitrogen	12 mg/L		**12 mg/L**	**12 mg/L**		4
Fecal Coliform May - September				400 #/100 mL geometric mean		5
E. coli May - September				126 #/100 mL geometric mean		5
Chlorine	38 ug/L		23 ug/L	**23 ug/L**		4
Phosphorus MCL WQT Computed (TP)				 1.0 mg/L 0.225 mg/L	 0.075 mg/L, 0.086 lbs/day	6
TKN, Nitrate+Nitrite, and Total Nitrogen						7
Acute WET						8,9
Chronic WET						8,9

Footnotes:

1. No changes from the current permit.
2. Monitoring only.
3. These limits are based on the Warm Water Sport Fish (WWSF) 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. Bacteria limits apply during the disinfection season of May through September. The fecal coliform interim limit will apply until the end of the compliance schedule when *E. coli* limits take

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effect. Additional final limit: No more than 10 percent of *E. coli* bacteria samples collected in any calendar month may exceed 410 count/100 mL.

6. WQT computed compliance limits also require a corresponding Minimum Control Level (MCL) of 1.0 mg/L to be met at the discharge.
7. 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 nitrite (NO_2), nitrate (NO_3), and total Kjeldahl nitrogen (TKN) (all expressed as N).
8. Two Acute and Chronic WET tests are recommended. Sampling WET concurrently with any chemical-specific toxic substances is recommended.
9. 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.
10. The Instream Waste Concentration (IWC) to assess chronic test results is 31%. According to the *State of Wisconsin Aquatic Life Toxicity Testing Methods Manual* (s. NR 219.04, Table A, Wis. Adm. Code), chronic testing shall be performed using a dilution series of 100%, 75%, 50%, 25% & 12.5% . The primary control water used in chronic WET tests conducted on Outfall 001 shall be a grab sample collected from Moore Creek.

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 (3) – Narrative, Thermal Table, & Map

PREPARED BY: _____ Date: 9/18/26

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Attachment #1

Water Quality-Based Effluent Limitations for the Norwalk Wastewater Treatment Facility

WPDES Permit No. WI-0024961

Prepared by: Benjamin P. Hartenbower

PART 1 – BACKGROUND INFORMATION

Facility Description

The Norwalk Wastewater Treatment Facility is a single stage trickling filter/activated sludge facility. Treatment of the wastewater occurs via comminutor, primary clarification, trickling filter, intermediate clarification, extended aeration activated sludge, final clarification, chlorine disinfection and de-chlorination. Sludge generated in primary clarification and excess biomass sludge from final clarification are treated in an aerobic and/or anaerobic digestor. Sludge from both the anaerobic digester and the aerobic digester is transferred to the sludge storage tank. Decant from the sludge storage tank is sent back to the head of the plant. Sludge from sludge storage tank is currently hauled to another permitted facility. Facility can also land apply sludge. The outfall is located on the West bank of Moore Creek, about 420 feet downstream from S. Water ST/County HWY U.

Attachment #3 is a map of the area showing the approximate location of Outfall 001.

Existing Permit Limitations

The current permit, which expired on 03/31/2025, 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		2,3
TSS			45 mg/L	30 mg/L		2,3
pH	9.0 s.u.	6.0 s.u.				2,3
Ammonia Nitrogen	12 mg/L		**12 mg/L**	**12 mg/L**		4
Fecal Coliform May - September			**656 #/100 mL** **geometric mean**	400 #/100 mL geometric mean		4
Chlorine	38 ug/L		23 ug/L	**23 ug/L**		4
Phosphorus Interim MDV Interim Final WQBEL				 3.9 mg/L 1.0 mg/L 0.225 mg/L	 0.075 mg/L, 0.086 lbs/day	5
TKN, Nitrate+Nitrite, and Total Nitrogen						1

Footnotes:

1. Monitoring only.

2. 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.
3. These limits are based on the Warm Water Sport Fish (WWSF) 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. A compliance schedule is in the current permit to meet the MDV Interim Limit by 03/31/2022.

Receiving Water Information

- Name: Moore Creek
- Waterbody Identification Code (WBIC): 1200000
- Classification used in accordance with chs. NR 102 and 104, Wis. Adm. Code:
  Warm Water Sport Fish (WWSF) community, non-public water supply.
- Low flows used in accordance with chs. NR 106 and 217, Wis. Adm. Code:
  The following 7-Q_{10} and 7-Q_2 values are from USGS for Station 05407411 at Norwalk, in Moore Creek where Outfall 001 is located.
  7-Q_{10} = 1.9 cubic feet per second (cfs)
  7-Q_2 = 3.0 cfs
  Harmonic Mean Flow = 6.2 cfs using a drainage area of 19.9 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: 284 mg/L as $CaCO_3$. This value represents the geometric mean of receiving water hardness collected for WET testing from 05/17/2005 to 02/16/2010 (n = 284).
- % of flow used to calculate limits in accordance with s. NR 106.06(4)(c)5., Wis. Adm. Code: 25%
- Source of background concentration data: Cadmium, Chromium, Copper, Lead, and Zinc data are from the Kickapoo River at Oil City because results were not available for Moore Creek. The Kickapoo River is within the same ecological landscape so ambient water quality characteristics are expected to be similar. 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: VPP Group LLC also discharges to Moore Creek, however it is not in the immediate vicinity and the mixing zones do not overlap. Therefore, the other discharge does not impact this evaluation.
- Impaired Water Status: Moore Creek is impaired for phosphorus (milepoints 0 to 14).

Effluent Information

- Design flow rates:
  Annual average = 0.138 million gallons per day (MGD)

For reference, the actual average flow from 04/01/2020 to 07/31/2026 was 0.035 MGD.

- Hardness: 269 mg/L as $CaCO_3$. This value represents the geometric mean of four sample results submitted with the permit application.
- 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 with no industrial contributors.
- Water supply: Norwalk Waterworks
- Fraction of the effluent flow withdrawn from receiving water : ("f" as described in s. NR 106.06, Wis. Adm. Code): 0
- Additives: one for phosphorus control (ferric chloride), one biocide (sodium hypochlorite), with sodium bisulfate for dechlorination.
- Effluent Characterization: This facility is categorized as a minor municipal discharger, 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 chloride and hardness.
- The permit-required monitoring for ammonia, chlorine, and phosphorus from April 2020 to July 2026 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.

Copper and Chloride Effluent Data at Outfall 001

Sample Date	Copper µg/L	Sample Date	Chloride mg/L
08/26/2024	14.3	08/26/2024	100
09/03/2024	12	09/03/2024	106
09/09/2024	10.2	09/09/2024	104
09/16/2024	13.8	09/16/2024	107
09/23/2024	10.7		
09/30/2024	17.9		
10/07/2024	24.5		
10/14/2024	18		
10/21/2024	11.3		
10/28/2024	12.1		
11/04/2024	6.65		
1-day P_{99}	29	mean	104
4-day P_{99}	20		

Attachment #1

Chlorine Effluent Data at Outfall 001

	Chlorine (µg/L)
1-day P_{99}	N/A
4-day P_{99}	N/A
30-day P_{99}	N/A
Mean	<100
Std	N/A
Sample size	1010
Range	<100

"<" means that the pollutant was not detected at the indicated limit of detection. The mean concentration was calculated using zero in place of the non-detected results.

The following table presents the average concentrations and loadings at Outfall 001 from April 2020 to July 2026 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 for Outfall 001

	Average Measurement
BOD_5	5.1 mg/L*
TSS	8.3 mg/L*
pH	7.5 s.u.
Ammonia Nitrogen	1.2 mg/L*
Fecal Coliform	4 #/100 ml**
Chlorine	<100 µg/L*
Phosphorus	1.3 mg/L

*Results below the limit of detection (LOD) were included as zeroes 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. Adm. 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 Norwalk 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 = 1.5 cfs, (1-Q_{10} (estimated as 80% of the 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.
Chlorine		19.0		38.1	7.62	<100		<100
Arsenic		340		680	136	1.16		
Cadmium	269	32.1	0.025	64.1	12.82	<0.084		
Chromium (+3)	269	4055	0.836	8110	1622	2.18		

Attachment #1

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.
Copper	269	39.5	1.093	78.9			28.78	24.50
Lead	269	278	0.9501	556	111.2	<1.08		
Nickel	268	1080		2161	432.2	4.97		
Zinc	269	286	2.935	572	114.4	<26		
Chloride (mg/L)		757		1514	302.8	104		107

*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 = 0.48 cfs, (¼ of the 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 EFFL. LIMIT	1/5 OF AVE. LIMIT	MEAN EFFL. CONC.	4-day P_{99}
Chlorine		7.28		23.5	4.7	<100	
Arsenic		152		491	98.2	1.16	
Cadmium	175	3.82	0.025	12.3	2.46	<0.084	
Chromium (+3)	284	311	0.836	1000	200	2.18	
Copper	284	25.3	1.093	79.1			20.36
Lead	284	76.8	0.9501	245	49	<1.08	
Nickel	269	121		389	77.8	4.97	
Zinc	284	300	2.935	961	192.2	<26	
Chloride (mg/L)		395		1274	254.8	104	

*The indicated hardness may differ from the receiving water hardness because the receiving water hardness exceeded the maximum range in ch. NR 105, Wis. Adm. Code, over which the chronic criteria are applicable. In that case, the maximum of the range is used to calculate the criterion.

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.

Attachment #1

Monthly Average Limits based on Human Threshold Criteria (HTC)

RECEIVING WATER FLOW = 1.5 cfs, (¼ of the Harmonic Mean), as specified in s. NR 106.06(4), Wis. Adm. Code.

SUBSTANCE	HTC	MEAN BACK-GRD.	MONTHLY AVE. LIMIT	1/5 OF EFFL. LIMIT	MEAN EFFL. CONC.	30-day P_{99}
Cadmium	370	0.025	3045	609	<0.084	
Chromium (+3)	3818000	0.836	31419968	6283994	2.18	
Lead	140	0.9501	1145	229	<1.08	
Nickel	43000		353866	70773	4.97	

Monthly Average Limits based on Human Cancer Criteria (HCC)

RECEIVING WATER FLOW = 1.5 cfs, (¼ of the Harmonic Mean), as specified in s. NR 106.06(4), Wis. Adm. Code.

SUBSTANCE	HCC	MEAN BACK-GRD.	MONTHLY AVE. LIMIT	1/5 OF EFFL. LIMIT	MEAN EFFL. CONC.	30-day P_{99}
Arsenic	13.3		109	21.8	1.16	

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 effluent data and calculated limitations, effluent limits are required for Chlorine. Limits and/or monitoring recommendations are made in the paragraphs below:

Chlorine-Because chlorine is added as a disinfectant, effluent limitations are recommended to assure proper dechlorination. Therefore, a daily maximum limit of 38 µg/L is required. Due to revisions to s. NR 106.07(2), Wis. Adm. Code, mass limitations are no longer required. The weekly average effluent limitation of 23 µg/L should be included in the permit because it is more restrictive than the daily maximum limit. Additional limits are discussed in the expression of limits section of this memo. **The daily maximum limit is 38 µg/L and the weekly average limit is 23 µg/L.**

Mercury– The permit application did not require monitoring for mercury because the Norwalk 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 five years of sludge characteristics data reveals that all the sample results are within expected analytical ranges and well below the 17 mg/kg level. The average concentration of sludge from 11/23/2020 to 07/26/2022 was 0.891 mg/kg, with a maximum reported concentration of 1.02 mg/kg. **Therefore, no mercury monitoring is recommended at Outfall 001.**

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

Water Supply PFAS Data

Sample Date	Sample ID	Well #	PFOS (ng/L)	PFOA (ng/L)
04/24/2023	674906001	BG483	<0.283	<0.389
04/24/2023	674892001	NO807	<0.297	<0.409
09/11/2023	699624001	NO807	<0.296	<0.407
09/11/2023	699623001	BG483	<0.288	<0.396
04/16/2026	841106001	BG483	<0.289	<0.398
04/16/2026	841107001	NO807	<0.287	<0.395
		Average =	ND	ND

The limited data above shows the municipal water supply is below 1/5 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.**

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.

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. The current permit has daily maximum, weekly average, and monthly average limits. These limits are re-evaluated due to the following changes:

- Subchapter IV of ch. NR 106, Wis. Adm. Code allows limits based on available dilution instead of limits set to twice the acute criteria.
- Section NR 106.07(3), Wis. Adm. Code requires weekly and monthly average limits for municipal treatment plants
- The maximum expected effluent pH has changed

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:

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

Where:

A = 0.411 and B = 58.4 for a Warm Water Sport fishery, and
pH (s.u.) = that characteristic of the effluent

The effluent pH data was examined as part of this evaluation. A total of 2313 sample results were reported from April 2020 to July 2026. The maximum reported value was 8.20 s.u. (Standard pH Units). The effluent pH was 8.00 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 8.16 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 8.14 s.u. Therefore, a value of 8.16 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 8.16 s.u. into the equation above yields an ATC = 6.19 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	12.38
1-Q_{10}	49.00

The 2×ATC method yields the most stringent limits for the Norwalk 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.

Attachment #1

Daily Maximum Ammonia Nitrogen Limits – WWSF

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	108	7.0 < pH ≤ 7.1	66	8.0 < pH ≤ 8.1	14
6.1 < pH ≤ 6.2	106	7.1 < pH ≤ 7.2	59	8.1 < pH ≤ 8.2	11
6.2 < pH ≤ 6.3	104	7.2 < pH ≤ 7.3	52	8.2 < pH ≤ 8.3	9.4
6.3 < pH ≤ 6.4	101	7.3 < pH ≤ 7.4	46	8.3 < pH ≤ 8.4	7.8
6.4 < pH ≤ 6.5	98	7.4 < pH ≤ 7.5	40	8.4 < pH ≤ 8.5	6.4
6.5 < pH ≤ 6.6	94	7.5 < pH ≤ 7.6	34	8.5 < pH ≤ 8.6	5.3
6.6 < pH ≤ 6.7	89	7.6 < pH ≤ 7.7	29	8.6 < pH ≤ 8.7	4.4
6.7 < pH ≤ 6.8	84	7.7 < pH ≤ 7.8	24	8.7 < pH ≤ 8.8	3.7
6.8 < pH ≤ 6.9	78	7.8 < pH ≤ 7.9	20	8.8 < pH ≤ 8.9	3.1
6.9 < pH ≤ 7.0	72	7.9 < pH ≤ 8.0	17	8.9 < pH ≤ 9.0	2.6

Weekly and Monthly Average Limits based on Chronic Toxicity Criteria (CTC)
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 Warm Water Sport Fish 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 $1.45 \times 10^{(0.028 \times (25 - T))}$ – (Early Life Stages Present), or
$C = 1.45 \times 10^{(0.028 \times (25 - T))}$– (Early Life Stages Absent), and
T = the temperature (°C) of the receiving water – (Early Life Stages Present), or
T = the maximum of the actual temperature (°C) and 7 - (Early Life Stages Absent)

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. 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.

Section NR 106.32 (3), Wis. Adm. Code, provides a mechanism for less stringent weekly average and monthly average effluent limitations when early life stages (ELS) of critical organisms are absent from the receiving water. This applies only when the water temperature is less than 14.5 ºC, during the winter and spring months. Burbot, an early spawning species, are not believed to be present in Moore Creek, based on raw fish data in the Fisheries Management Information System. So "ELS Absent" criteria apply from October through March, and "ELS Present" criteria will apply from April through September for a Warmwater classification.

The "default" basin assumed values are used for Temperature, pH, and background ammonia concentrations, because minimum ambient data is available. These values are shown in the table below, with the resulting criteria and effluent limitations.

Weekly and Monthly Ammonia Nitrogen Limits – WWSF

		April & May	June - September	October - March
Effluent Flow	Qe (MGD)	0.14	0.14	0.14
Background Information	7-Q_{10} (cfs)	1.9	1.9	1.9
	7-Q_2 (cfs)	3	3	3
	Ammonia (mg/L)	0.08	0.22	0.1
	Average Temperature (°C)	12	19	3.5
	Maximum Temperature (°C)	14	21	10
	pH (s.u.)	7.96	8.03	7.96
	% of Flow used	50	100	25
	Reference Weekly Flow (cfs)	0.95	1.9	0.475
	Reference Monthly Flow (cfs)	1.275	2.55	0.6375
Criteria mg/L	4-day Chronic			
	Early Life Stages Present	6.44	3.83	6.44
	Early Life Stages Absent	6.66	3.83	8.62
	30-day Chronic			
	Early Life Stages Present	2.58	1.53	2.58
	Early Life Stages Absent	2.66	1.53	3.45
Effluent Limitations mg/L	Weekly Average			
	Early Life Stages Present	35	36	
	Early Life Stages Absent			28
	Monthly Average			
	Early Life Stages Present	17	17	
	Early Life Stages Absent			13

Effluent Data

The following table evaluates the statistics based upon ammonia data reported from April 2020 to July 2026.

Attachment #1

Ammonia Nitrogen Effluent Data

Ammonia Nitrogen mg/L	April & May	June - September	October - March
1-day P_{99}	34.40	11.09	9.88
4-day P_{99}	19.16	8.01	6.84
30-day P_{99}	8.06	3.77	3.20
Mean	3.22	0.79	0.67
Std	8.04	4.19	3.55
Sample size	175	340	468
Range	0.06 - 37	0.06 - 36.2	0.06 - 37.7

Reasonable Potential
The need to include ammonia limits in the permit is determined by calculating 99th upper percentile (or P_{99}) values for ammonia during the month ranges and comparing those to the calculated limits. Based on this comparison, daily limits are required April & May. However, since the permit currently has daily, weekly, and monthly limits, **the limits must be retained regardless of reasonable potential**, consistent with s. NR 106.33(1)(b), Wis. Adm. Code:

> (b) If a permittee is subject to an ammonia limitation in an existing permit, the limitation shall be included in any reissued permit. Ammonia limitations shall be included in the permit if the permitted facility will be providing treatment for ammonia discharges.

Expression of Limits
Revisions to ch. NR 106, Wis. Adm. Code, in September 2016 aligned Wisconsin's WQBELs with 40 CFR § 122.45(d), which specifies that effluent limits for continuous dischargers must be expressed as weekly and monthly averages for publicly owned treatment works and as daily maximums and monthly averages for all other dischargers, unless shown to be impracticable. Because a daily maximum ammonia limit is necessary for [facility name], weekly and monthly average limits are also required under this code revision.

The methods for calculating limitations for municipal treatment facilities to conform to 40 CFR 122.45(d) are specified in s. NR 106.07(3), Wis. Adm. Code, and are as follows:

> Whenever a daily maximum limitation is determined necessary to protect water quality, a weekly and monthly average limitation shall also be included in the permit and set equal to the daily maximum limit unless a more restrictive limit is already determined necessary to protect water quality.

The daily maximum ammonia limitation is 12 mg/L, therefore, **monthly and weekly average limits of 12 mg/L** are recommended in the permit.

Conclusions and Recommendations
In summary, after rounding to two significant figures, the following ammonia nitrogen limitations are recommended. No mass limitations are recommended in accordance with s. NR 106.32(5), Wis. Adm Code.

Final Ammonia Nitrogen Limits

Daily Maximum mg/L	Weekly Average mg/L	Monthly Average mg/L
12	**12**	**12**

Additional limits to meet the requirements in s. NR 106.07, Wis. Adm Code, are denoted in bold text.

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

Effluent Data
The Norwalk Wastewater Treatment Facility has monitored effluent *E. coli* from May 2024 to September 2024 and a total of 20 results are available. A geometric mean of 126 counts/100 mL was exceeded in 2 of the last 5 months of disinfection, with a maximum geometric mean of 927 counts/100 mL. Effluent data has exceeded 410 counts/100 mL 4 times (which is 20% of the total sample results). The maximum reported value was 27550 counts/100 mL. Based on this effluent data it appears that the facility can't meet new *E. coli* limits and **a compliance schedule is needed in the reissued permit.**

Interim Limit
At this time, available *E. coli* data indicates that the new limitations are not readily attainable. The permit will include a compliance schedule to meet these limits. During the compliance schedule, an interim limit applies to prevent back-sliding from the current level of disinfection during the compliance schedule period. **Therefore, the current fecal coliform limit shall be included in the reissued permit as an interim limit of 400 counts/100 mL as a monthly geometric mean.** Any weekly geometric mean limit which was included in the current permit for expression of limits purposes does not need to be included in the permit as an interim limit.

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.

Since the Norwalk Wastewater Treatment Facility has a phosphorus limit equal to 1.0 mg/L, the need for a TBEL will not be considered further.
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 0.075 mg/L applies for Moore Creek.

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 = 0.075 mg/L for Moore Creek
Qs = 100% of the 7-Q_2 of 3.0 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 = 0.14 MGD = 0.21 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. Adm. 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

Total Phosphorus Background Data

SWIMS ID	423222	423219
	Moore Creek Tributary at Norwalk	Moore Creek at Cth T Near Norwalk
Station Name	WI	WI
Waterbody	Moore Creek	Moore Creek
Sample Count	5	6
First Sample	06/21/2001	05/22/2002
Last Sample	10/17/2001	10/15/2002
Mean	0.092	0.202
Median	0.099	0.198

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 0.075 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."

The impaired water listing of Moore Creek also indicates that effluent phosphorus limits equal to the water quality criterion are needed to prevent the discharge from contributing to further impairment of the receiving water. *The Guidance for Implementing Wisconsin's Phosphorus Water Quality Standards for Point Source Discharges (2020)* suggests setting effluent limits equal to the criterion in the absence of an EPA approved total maximum daily load for phosphorus discharges to phosphorus impaired waters.

Effluent Data

The following table summarizes effluent total phosphorus monitoring data from April 2020 to July 2026.

Total Phosphorus Effluent Data

	Phosphorus mg/L
1-day P_{99}	7.00
4-day P_{99}	3.79
30-day P_{99}	2.01
Mean	1.27
Std	1.45
Sample size	983
Range	0.183 - 11.2

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 0.075 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 0.225 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 phosphorus impaired water. **This final mass limit shall be 0.075 mg/L × 8.34 × 0.14 MGD = 0.086 lbs/day expressed as a six-month average.**

Water Quality Trading Minimum Control Level
The Norwalk 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 001 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 current monthly average interim limit of **1.0 mg/L 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.

In accordance with s. NR 106.53(2)(b), Wis. Adm. Code, the highest daily maximum flow rate for a calendar month is used to determine the acute (daily maximum) effluent limitation. In accordance with s. NR 106.53(2)(c), Wis. Adm. Code, the highest 7-day rolling average flow rate for a calendar month is used to determine the sub-lethal (weekly average) effluent limitation. These values were based off actual flow reported from April 2020 to July 2026.

Monthly Temperature Effluent Limits

Month	Representative Highest Monthly Effluent Temperature		Calculated Effluent Limit	
	Weekly Average (°F)	Daily Maximum (°F)	Weekly Average Effluent Limitation (°F)	Daily Maximum Effluent Limitation (°F)
JAN			NA	120
FEB			NA	120
MAR			119	120
APR			70	113
MAY			102	120
JUN			96	106
JUL			117	104
AUG			NA	114
SEP			NA	120
OCT			NA	120
NOV			106	120
DEC			NA	120

Reasonable Potential
Section NR 106.59(2)(b), Wis. Adm. Code, allows the use of temperature effluent data, on a case-by-case basis, from at least two other POTWs within a 100-mile radius that utilize similar wastewater treatment technology and have a similar ratio of domestic to industrial waste stream composition, or representative data of the POTW.

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 tests predict the concentration that interferes with the growth or reproduction of test organisms during a seven-day exposure. To assure that a discharge is not chronically toxic to organisms in the receiving water, WET tests must produce a statistically valid IC25 (Inhibition Concentration) greater than the instream waste concentration (IWC), according to s. NR 106.09(3)(b), Wis. Adm Code. The IWC is an estimate of the proportion of effluent to total volume of water (receiving water + effluent). The **IWC of 31%** shown in the WET Checklist summary below, was calculated according to the following equation, as specified in s. NR 106.03(6), Wis. Adm Code:

$$IWC\ (as\ \%) = Qe \div \{(1 - f)\ Qe + Qs\} \times 100$$

Where:

Qe = annual average flow = 0.14 MGD = 0.21 cfs
f = fraction of the Qe withdrawn from the receiving water = 0
Qs = ¼ of the 7-Q_{10} = 1.9 cfs ÷ 4 = 0.5 cfs

- 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 dilution water used in chronic WET tests conducted on Outfall 001 shall be a grab sample collected from the receiving water location, upstream and out of the influence of the mixing zone and any other known discharge. The specific receiving water location must be specified in the WPDES permit.

- Shown below is a tabulation of all available WET data for Outfall 001. Efforts are made to ensure that decisions about WET monitoring and limits are made based on representative data, as specified in s. NR 106.08(3), Wis. Adm Code. Data which is not believed to be representative of the discharge was not included in reasonable potential calculations. The table below differentiates between tests used and not used when making WET determinations.

WET Data History

Date Test Initiated	Acute Results LC50 %				Chronic Results IC25 %					Footnotes or Comments
	C. dubia	Fathead minnow	Pass or Fail?	Used in RP?	*C. dubia*	Fathead Minnow	Algae (IC50)	Pass or Fail?	Use in RP?	
05/17/2005	>100	>100	Pass	No	>100	>100			No	1
07/31/2007	>100	>100	Pass	Yes	>100	>100		Pass	Yes	
02/16/2010	>100			No	>100	>100			No	2

Footnotes:

1. *Data Not Representative.* Significant changes were made to WET test methods in 2004 and these changes were assumed to be fully implemented by certified labs by no later than June 2005.
2. Tests done by S-F Analytical, July 2008 – March 2011. The DNR has reason to believe that WET tests completed by SF Analytical Labs from July 2008 through March 31, 2011 were not performed using proper test methods. Therefore, WET data from this lab during this period has been disqualified and was not included in the analysis.

- According to s. NR 106.08, Wis. Adm. Code, WET reasonable potential is determined by multiplying the highest toxicity value that has been measured in the effluent by a safety factor, to predict the likelihood (95% probability) of toxicity occurring in the effluent above the applicable WET limit. The safety factor used in the equation changes based on the number of toxicity detects in the dataset. The fewer detects present, the higher the safety factor, because there is more uncertainty surrounding the predicted value. **WET limits must be given, according to s. NR 106.08(6), Wis. Adm. Code, whenever the applicable Reasonable Potential equation results in a value greater than 1.0.**

  Acute Reasonable Potential = [(TUa effluent) (B)]
  Chronic Reasonable Potential = [(TUc effluent) (B)(IWC)]

  According to s. NR 106.08(6)(d), Wis. Adm. Code, TUa and TUc effluent values are equal to zero whenever toxicity is not detected (i.e. when the LC_{50}, IC_{25} or $IC_{50} \geq 100\%$).

  Acute Reasonable Potential = 0 < 1.0, reasonable potential is not shown, and a limit is not required.
  Chronic Reasonable Potential = 0 < 1.0, reasonable potential is not shown, and a limit is not required.

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.

WET Checklist Summary

	Acute	Chronic
AMZ/IWC	Not Applicable. **0 Points**	IWC = 31% **0 Points**
Historical Data	No testing available within 5 years. **5 Points**	No testing available. **5 Points**
Effluent Variability	Little variability, no upsets, consistent WWTF operations. **0 Points**	Same as Acute. **0 Points**
Receiving Water Classification	Warm Water Sport Fish (5 pts) **5 Points**	Same as Acute. **5 Points**
Chemical-Specific Data	Reasonable potential for ammonia and chlorine limits based on ATC. (6 pts)	Reasonable potential for chlorine limits based on CTC. (5 pts)

Attachment #1

	Acute	Chronic
	Ammonia nitrogen limit carried over from the current permit. arsenic, chloride, chromium (+3), copper, and nickel detected. (3 pts) Additional Compounds of Concern: None. **9 Points**	Ammonia nitrogen limit carried over from the current permit. ammonia, arsenic, chloride, chromium (+3), copper, and nickel detected. (3 pts) Additional Compounds of Concern: None. **8 Points**
Additives	1 Biocide (3 pts) and 2 Water Quality Conditioners (2 pts) added. Permittee has proper P chemical SOPs in place. **5 Points**	All additives are used more frequently than once per 4 days. **5 Points**
Discharge Category	No Industrial Contributors. **0 Points**	Same as Acute. **0 Points**
Wastewater Treatment	Secondary or Better **0 Points**	Same as Acute. **0 Points**
Downstream Impacts	No impacts known. **0 Points**	Same as Acute. **0 Points**
Total Checklist Points:	**24 Points**	**23 Points**
Recommended Monitoring Frequency (from Checklist):	2 tests in permit term (rotating quarters)	2 tests in permit term (rotating quarters)
Limit Required?	No	No
TRE Recommended? (from Checklist)	No	No

- After consideration of the guidance provided in the Department's *WET Program Guidance Document* (2022) and other information described above, two acute and chronic 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.

Temperature limits for receiving waters with unidirectional flow

(calculation using default ambient temperature data)

							Temp Dates	Flow Dates
Facility:	Norwalk WWTF		**7-Q_{10}:**	1.90	cfs			
Outfall(s):	001		**Dilution:**	25%		**Start:**	N/A	04/01/20
Date Prepared:	09/11/2026		**f:**	0		**End:**	N/A	07/31/26
Design Flow (Qe):	0.14	MGD	**Stream type:**	Small warm water sport or forage fish community				
Storm Sewer Dist.	0	ft	**Qs:Qe ratio:**	2.2	:1			
			Calculation Needed?	YES				

Month	Water Quality Criteria			Receiving Water Flow Rate (Qs)	Representative Highest Effluent Flow Rate (Qe)		f	Representative Highest Monthly Effluent Temperature		Calculated Effluent Limit	
	Ta (default)	Sub-Lethal WQC	Acute WQC		7-day Rolling Average (Qesl)	Daily Maximum Flow Rate (Qea)		Weekly Average	Daily Maximum	Weekly Average Effluent Limitation	Daily Maximum Effluent Limitation
	(°F)	(°F)	(°F)	(cfs)	(MGD)	(MGD)		(°F)	(°F)	(°F)	(°F)
JAN	33	49	76	0.48	0.046	0.093	0			NA	120
FEB	34	50	76	0.48	0.049	0.087	0			NA	120
MAR	38	52	77	0.48	0.064	0.125	0			119	120
APR	48	55	79	0.48	0.143	0.282	0			70	113
MAY	58	65	82	0.48	0.058	0.098	0			102	120
JUN	66	76	84	0.48	0.157	0.252	0			96	106
JUL	69	81	85	0.48	0.101	0.263	0			117	104
AUG	67	81	84	0.48	0.110	0.175	0			NA	114
SEP	60	73	82	0.48	0.045	0.071	0			NA	120
OCT	50	61	80	0.48	0.037	0.058	0			NA	120
NOV	40	49	77	0.48	0.048	0.081	0			106	120
DEC	35	49	76	0.48	0.039	0.051	0			NA	120

WISCONSIN DEPARTMENT OF NATURAL RESOURCES

Norwalk WWTF



Legend:

- Surface Water Outfalls
- 24K Streams and Rivers
- Latest Leaf Off Index
- Latest Leaf Off Imagery

Notes:



Map projection: NAD 1983 HARN Wisconsin TM

N

Map: 0 110 220 Feet
0 30 60 Meters

Service Layer Credits:
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State of Wisconsin
DEPARTMENT OF NATURAL RESOURCES
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Eau Claire, WI 54701

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Karen Hyun, Ph.D., Secretary
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May 1, 2026

Levi Helgren, Village President
Norwalk Wastewater Treatment Plant
208 South Church St
Norwalk, WI 54648

Subject: Norwalk WWTF WPDES Permit #WI-0024961
Water Quality Trading Plan – CONDITIONAL CREDIT CERTIFICATION

Dear Mr. Helgren,

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 Norwalk Wastewater Treatment Facility (WWTF) on 04/16/2026 and the WQT agreement on 04/30/2026. 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-2026-0008

Year	Available TP Credits Total (lbs/yr)
2026	115
2027	115
2028	115
2029	115
2030	115
2031	115*

The department conditionally certifies the WQT Plan as a basis for water quality trading during the next WPDES permit term.

The department has assigned the WQT plan a tracking number of WQT-2026-0008 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. Subsequent permit terms of WQT will require updated plans and will be outlined in the WPDES permit.

If you have any questions or comments, please contact me at 715-492-4323 or at jenna.monahan@wisconsin.gov

Thank You,

Jenna Monahan

Jenna Monahan, P.E.
Wastewater Engineer - West Central Region
Wisconsin Department of Natural Resources

e-CC: Henry Vian, Operator
Janet Johnson, Cedar Corp
Dave Sauer, Cedar Corp
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Village of Norwalk
208 S. Church Street
Norwalk, WI 54648

Cedar Corporation
2820 Walton Commons West, Suite 142
Madison, WI 53718

Norwalk Water Quality Trading Project Plan - 2026

Norwalk, WI

April 2026

Project No. 5899-0002

Cedar CORPORATION
Community Infrastructure • Architecture • Environmental Services
2820 Walton Commons West Suite 142
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April 16, 2026

Wisconsin Department of Natural Resources
Attn: Jenna Monahan and Matt Claucherty
West Central Region – Eau Claire
1300 W. Clairemont Avenue
Eau Claire, WI 54701

Subject: Village of Norwalk WPDES Permit No. WI-0024961

Dear Ms. Monahan and Mr. Claucherty:

On behalf of the Village of Norwalk, we are submitting the final revised Water Quality Trading (WQT) Plan to achieve compliance with the permit required phosphorus limitations. This submittal follows our conference call on March 24, 2026.

The Village has decided to go to a water quality trading plan from the current MDV Approach plan since four large stream bank stabilization projects and the WWTF upgrades have been completed. Reference is made to the various Annual Watershed Report (MDV Reports) submitted since 2018 to present.

Please call or notify me with any questions you may have at dave.sauer@cedarcorp.com or 608-358-7140.
Sincerely,

CEDAR CORPORATION

David K. Sauer, P. E.
Director

cc: Henry Vian, Norwalk Utility
Kerry Vian, Norwalk Clerk
Levi Helgren, Norwalk President
Logan Rubeck, WDNR
Jenna Monahan, WDNR
Eric Martin, Cedar Corporation

Norwalk Water Quality Trading Plan - 2026

April 2026

Prepared for:

Village of Norwalk
208 S Church Street
Norwalk, WI 54648

Prepared by:

Cedar Corporation
2820 Walton Commons West, Suite 142
Madison, Wisconsin 53718

Cedar Corporation Project Number: 5899-0002

Norwalk Water Quality Trading Plan - 2026

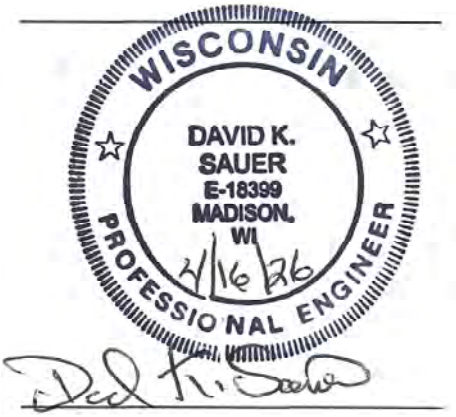
Project ID: 5899-0002

Prepared for
Village of Norwalk

208 S. Church Street
Norwalk, WI 5468

Prepared by
Cedar Corporation

April 2026



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Table of Contents

Table of Contents i
1 Water Quality Trading Plan 1
1.1 Water Quality Trade (WQT) Plan 1
1.2 Specific Information for Completed Projects 2
1.2.1 Ron Luethe 2
1.2.2 Mike Wiedl 2
1.2.3 Jon Muehlenkamp 2
1.2.4 Village Park Section/Tractor Pull 3
1.3 Streambank Stabilization 3
1.4 Water Quality Trading Calculations (2024 Data) 4
2 Standards, Plan Approvals, Easements, Inspections and O&M Plan 8
2.1 Standards and Plan Approvals 8
2.2 Easements, Inspections and O&M Plan 8
3 Trade Ratios for Proposed Projects 9
3.1 Streambank Stabilization Projects 9
4 WQT Agreement 10
4.1 General Information 10
List of Tables 1
List of Appendices 1
Appendix 1: MDV Water Shed Agreement Between WDNR and Village of Norwalk, August 2019 2
Appendix 2: Multi-Discharger Variance Application Evaluation Checklist, April 2019 3
Appendix 3: Location Map, HUC 12 Map, Sparrow Delivery Maps (2018 and 2025), and Trade Ratio(s) for Streambank Improvements Completed by Village of Norwalk 4
Appendix 4: Water Quality Trade Agreement Between Village of Norwalk and WDNR 5
Appendix 5: Water Quality Trading Checklist 6
Appendix 6: Notice of Intent to Conduct Water Quality Trading (Signed 2018 and 2025) 7
Appendix 7: Water Quality Trading Management Practice Registration Form 3400-207 (For All Completed Projects) 8
Appendix 8: Photos of Completed Streambank Improvements Taken June 2025 9
Appendix 9: Annual Watershed Reports 10
Appendix 10: Data and Calculations for Completed Streambank Improvements 11

Norwalk Water Quality Trading Plan – April 2026

Distribution

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1	Henry Vian, Norwalk Utility Village of Norwalk 208 S. Church Street Norwalk, WI 54648
1	Kerry Vian, Norwalk Clerk Village of Norwalk 208 S. Church Street Norwalk, WI 54648
1	Levi Helgren, Norwalk President Village of Norwalk 208 S. Church Street Norwalk, WI 54648
1	Eric Martin Cedar Corporation

1 Water Quality Trading Plan

1.1 Water Quality Trade (WQT) Plan

On behalf of the Village of Norwalk, we are submitting a water quality trade plan. The basis of this water quality plan is the conversion of the numerous watershed improvement projects completed by the Village and approved by the Wisconsin Department of Natural Resources (WDNR) under the Multi-Discharger Variance (MDV). The MDV Watershed Plan Agreement Between the WDNR and the Village of Norwalk was signed August 2019. See Appendix 1. This MDV Watershed Plan was based on several "potential" improvement projects that were identified in a December 2018 submittal to WDNR. The existing land uses for the areas of the streambank improvement include both agricultural and non-agricultural.

Cedar Corporation, on behalf of the Village of Norwalk, also submitted additional updated information for the proposed watershed improvement projects in March 2025. This additional information included signed and notarized Trade Agreements between the land- owners and the Village. It also included signed Operation and Maintenance plans between the landowners and the Monroe County Conservation Department (Bryce Richardson or Bob Micheel or Cristina Mulder). It is understood that the WDNR has the right to inspect the practices at any time upon giving reasonable notice to the landowner(s) to ensure the practices are in compliance with technical standards and the terms of this plan. At least annual checks and after severe floods are called for in the plan and these have been completed each year.

As a follow-up to this submittal, the WDNR (Matt Claucherty) signed the Multi-Discharger Variance Application Evaluation Checklist form on April 5, 2019. See Appendix 2.

The actual completed watershed improvements included four separate streambank stabilization projects, all located along Moore Creek and upstream from the location where the WWTF discharges to Moore Creek. These four projects were completed between September 2018 and October 2019 under the direction of Cedar Corporation staff and the Monroe County Land Conservation Department staff. A general location map and plat map for the locations of the streambank improvements are included in Appendix 3.

1.2 Specific Information for Completed Projects

1.2.1 Ron Luethe

The photos from preconstruction conditions from the December 2018 submittal to WDNR were also submitted in July 2025. They are also added, as requested, to this submittal. The plan was put together in 2018; however, construction was not completed until final soil samples were completed in October 2019. From the Monroe County LCD "As Built" drawings, bank heights ranged from 3.6' to 5.0' over the total completed construction length of 911 LF. The soil samples collected were taken over the entire length of the project, however, were not related to a specific location. The NRCS soil loss calculations were calculated for each reach number having a specific bank height. Each of three reaches were then added together. After several conversations with WDNR, it is understood that WDNR will only accept the original planned level of improvements to the streambanks. Total soil loss planned was 63.9 tons/yr. This soil loss provides a phosphorus credit at the WWTF of 31.2 lb. P/yr. Detail information along with data and calculations for completed work are located in Appendix 10.

1.2.2 Mike Wiedl

The photos for each of the streambanks were submitted to WDNR in July 2025. They are also added to this submittal, as requested. The plan was put together in December 2018; however, construction was not completed until August/October 2019. From the Monroe County LCD "As Built," the bank heights ranged from 3.8' to 9.2' over the total length of project of 1,120 LF. Each bank height was identified for a specific distance based on field measurements. The NRCS soil loss calculations were made for each specific bank length. Each of three reaches were identified separately. The soil samples collected were taken over the entire length of the project, however, were not related to specific locations.

After several conversations with WDNR, it is understood that WDNR will only accept the original planned level of improvements to the streambanks. Total soil loss planned was 45.8 tons/yr. This soil loss provides a phosphorus credit at the WWTF of 20.1 lb. P/yr. Detail information along with data and calculations for the completed work are located in Appendix 10.

1.2.3 Jon Muehlenkamp

The plan was put together and submitted in December 2018 and was completed in September 2018. A total of 310 LF of streambank improvements were completed with soil loss calculated at 46.1 tons/year resulting in a phosphorus credit for the Village of 18.2 lbs. P/year. Detail

information along with data and calculations for the completed work are located in Appendix 10.

1.2.4 Village Park Section/Tractor Pull

The plan was put together in April 2019 to May 2019 however the construction was completed in August 2019 to September 2019 as documented by dated photos and when the soil samples were tested. Additional photos are also submitted at this time with dates and location identification that documents these dates and the preconstruction conditions. The original plan had planned to complete Bank 1 (east side) and Bank 2 (west side). At the time of construction, however, additional erosion was discovered along with east bank (535') and it was decided that the most cost-effective solution was to extend construction along the east bank and not do any of the proposed upgrades along the west bank.

The completed "As Built" from Monroe County LCD has 535 LF of project. After several conversations with WDNR, it is understood the WDNR will accept:

- 350 LF at 11.2' height with a 0.5' recession/yr.
- 185 LF at 2.5' height with a 0.25' recession/yr.

This results in a calculated soil loss of 98.6 tons/yr. This soil loss provides a phosphorus credit at the WWTF of 45.0 lbs. P/yr.

1.3 Streambank Stabilization

The Village has chosen to improve and stabilize the streambanks of Moore Creek. These projects have been submitted to and approved by WDNR between 2018 – 2019. Land uses at these locations include commercial, residential, park & recreation. Soil types throughout the Village include largely granular, sandy and sandy loam soils which have fairly high erosion rates in places.

The following Table 1 is a detailed listing of the Village completed streambank improvements. The detailed information includes photos, maps, construction notes by Monroe County LCD staff, detailed cross sections, detailed soil loss calculations and soil test results from the UW Soil and Forage Analysis Laboratory. Each of the four streambank upgrade projects included several unique upgrades and features as dictated by the Monroe County LCD staff. These upgrades and features included stream material clearing, reshaping streambanks, rip rap, seeding and mulching, lunker structures and rock weirs/random boulders for habitat improvement if possible.

Table 1
Village of Norwalk
Non-Point Water Quality Phosphorus Improvement Projects (Summary)
Moore Creek Watershed
April 2026

These projects are located upstream from the WWTF and drain into tributaries of Moore Creek which flows through the Village of Norwalk. This list of projects was assembled in conjunction with Bob Micheel, Monroe County Land Conservation Department. All projects are located upstream from the point where the WWTF discharges into Moore Creek. Phosphorus credits were recalculated using the updated Sparrow model and new calculated trade ratio. Reference Appendix 3.

Project Name	Description	Phosphorus Offset (lbs./yr.)	Phosphorus Credit (lbs./yr.)	Completion Date
Jon Muehlenkamp	streambank stabilization, 310 LF	36.9	18.2	9/14/2018
Ron Luethe	streambank stabilization, 911 LF	63.9	31.2	8/13/2019
Mike Wiedl	streambank stabilization, 1,120 LF	41.2	20.1	8/13/2019
Village of Norwalk	streambank stabilization, 535 LF	94.6	45.0	9/17/2019
TOTAL	2,876 LF	236.6	114.5	

Note: The 114.5 lbs./yr. is more than 110 lbs./yr. phosphorus target value(s) at Design Flow (2036). The Muehlenkamp, Luethe, and Wiedl projects are on private property. WDNR has the right to inspect all projects upon receipt of the request by the Village.

1.4 Water Quality Trading Calculations (2024 Data)

Table 2 lists the 2024 phosphorus discharge(s) to Moore Creek. It is noted that there were several months in 2024 where the Village did not achieve a 1 mg/l phosphorus concentration. This was due to the on-going WWTF construction upgrades. Historically, the Village has demonstrated that with the addition of ferric chloride at the WWTF that effluent phosphorus concentrations are reduced to below 1.0 mg/l.

Table 2
Village of Norwalk
Norwalk WWTF
2024 Phosphorus Discharge to Moore Creek
April 2026

Date	Monthly Ave. Flow (MGD)	Total Flow (MG)	Monthly Ave. Phosphorus (mg/l)	Phosphorus Load (lbs./month)
January 2024	0.0325	1.007	0.920	7.73
February 2024	0.0305	0.884	0.319	2.35
March 2024	0.0328	1.016	1.239	10.50
April 2024	0.0370	1.110	1.608	14.88
May 2024	0.0364	1.128	1.789	16.83
June 2024	0.0344	1.032	1.314	11.30
July 2024	0.0412	1.277	0.957	10.19
August 2024	0.0276	0.855	0.603	4.30
September 2024	0.0261	0.783	0.698	4.55
October 2024	0.0219	0.678	0.552	3.12
November 2024	0.0274	0.822	0.411	2.81
December 2024	0.0239	0.740	0.311	1.92
Average	0.030	0.94	0.89	7.54
TOTAL	0.371	11.33	10.72	90.48

Note: 1.) Effective April 1, 2022, Phosphorus monthly average limit is 1.0 mg/l.

2.) Sum of the total Annual Phosphorus discharge for 2024 = 90.48 lbs./year

3.) At 1.0 mg/l Phosphorus and average flow of 0.030 MGD, the total annual Phosphorus discharge would be 91.3 lbs./year. The actual annual phosphorus discharge for 2024 was 90.48 lbs./year.

4.) Calculated Phosphorus target value(s) (required reductions) for 2024 assuming a 1 mg/l WWTF discharge and a P target of 0.2 mg/l. This is the amount of non-point phosphorus projects required at current flows.

A. 0.030 (8.34) (1.0 - 0.2) (365) = 73.05 lbs. P/year (6.08 lbs. P/month).

5.) Calculated Phosphorus target value(s) for Design Flow

A. 0.045 (8.34) (1.0 - 0.2) (365) = 110 lbs. P/year (9.17 lbs. P/month).

6.) The Village has completed streambank stabilization projects which has reduced phosphorus to the stream by 114.5 lbs./year. This is greater than the phosphorus target value at design flow of 110 lbs. P/year so compliance with the WPDES Permit is attained.

Village Phosphorus Load at Current Effluent Concentration and Ferric Chloride Addition:

Qdesign = 0.138 MGD, Q2036 = 0.045 MGD, Qcurrent = 0.030 MGD

Effluent TP = 0.89 mg/L (January 2024 – December 2024 average concentration)

P Load @ Qdesign = (0.138) * (0.89) * (8.34) * (365) = 374 lb-P/yr.

P Load @ Q2036 = (0.045) * (0.89) * (8.34) * (365) = 122 lb-P/yr.

P Load @ Qcurrent = (0.030) * (0.89) * (8.34) * (365) = 81.3 lb-P/yr.

Village Phosphorus Load at Discharge Limit of 0.075 mg/L:

P Load @ Qdesign = (0.138) * (0.075) * (8.34) * (365) = 32 lb-P/yr.

P Load @ Q2036 = (0.045) * (0.075) * (8.34) * (365) = 11 lb-P/yr.

P Load @ Qcurrent = (0.030) * (0.075) * (8.34) * (365) = 6.85 lb-P/yr.

Required Phosphorus Load Reduction at WWTF, WQT and Ferric Chloride Addition:

At Qdesign, P load reduction = 374 – 32 = 342 lb-P/yr.

At Q2036, P load reduction = 122 – 11 = 111 lb-P/yr.

At Qcurrent, P load reduction = 81.3 – 6.85 = 74.45 lb-P/yr.

Non-Point Phosphorus Reduction and Calculated Trading Credits

Flow Rate & Effluent Phosphorus	P Reduction at WWTF (lb-P/yr.)	Approved/Completed Phosphorus Credits (lbs./yr.)
Qdesign, EFF. TP = 0.89 mg/L	342	114.5
At Q2036, EFF. TP = 0.89 mg/L	111	114.5
At Qcurrent, EFF. TP = 0.89 mg/L	74.45	114.5

Summary

The Village has achieved compliance at both existing flow and at Q2036 flow with the addition of ferric chloride at the WWTF and the approved/completed non-point phosphorus streambank stabilization projects completed in 2018/2019.

2 Standards, Plan Approvals, Easements, Inspections and O&M Plan

2.1 Standards and Plan Approvals

For the proposed streambank stabilization improvements, NRCS 580 (Streambank and Shoreland Protection, NRCS 395 (Stream Habitat Improvement and Management), NRCS 500 (Obstruction Removal), NRCS 342 (Critical Area Planting), NRCS 484 (Mulching), were followed for applicable standards. Application to WDNR for approval under Section 30.12(3), Wisconsin Statutes, were completed through the joint efforts of the Monroe County Land Conservation Department (LCD) and the Village of Norwalk. Signed Trade Agreements for each of the streambank projects have been completed.

2.2 Easements, Inspections and O&M Plan

For the streambank stabilization projects, the Monroe County LCD staff and Village staff have completed routine inspections as they have in the past. Signed Operation and Maintenance Agreements for each completed streambank project have been completed. The actual maintenance of these improvements has been completed by Village staff. From past projects, a little maintenance is typically required for the first year or two after the improvement is constructed mainly addressing some settlement issues. No maintenance has been necessary since the projects were completed.

Easements have been secured for those improvements completed on land not owned by the Village. These easements were for both the construction and long maintenance of the improvements.

3 Trade Ratios for Proposed Projects

3.1 Streambank Stabilization Projects

Trade ratios were calculated for each streambank stabilization project. The trade ratio calculation takes in several factors as outlined in the WDNR Water Quality Trading Guidance Document dated August 2013 and June 2020, due to the several habitat enhancements that were completed with the streambank improvements. For Norwalk, a trade ratio of 2:1 was approved by WDNR prior to the construction of each project and has been used in the on-going approval(s) of the MDV plan by WDNR.

For Norwalk, the basis of the trading ratio is to meet non-TMDL water quality-based effluent limits. The trade ratio = (Delivery + Downstream + Equivalency + Uncertainty – Habitat Adjustment) : 1. For Moore Creek streambank improvements, the trade ratio is dependent upon the "Delivery Factor" since it is located in an upstream HUC 12 and the "Uncertainty Factor". Refer to Appendix 3 for the HUC 12 map. Using the SPARROW delivery map (Appendix 3), the delivery fraction is 1.01 and using the Delivery Factor formula of:

Delivery Factor = (1/SPARROW delivery fraction) – 1 = 0

For the Uncertainty Factor, reference is made is made to table 4 in the WDNR Guidance Document for streambank stabilization with aquatic habitat restoration. This table lists the Uncertainty Factor as 2. Since the improvements completed by the Village in 2018 and 2019 were all upstream from the location of the WWTF discharge to Moore Creek, the downstream factor is 0. The Equivalency Factor for phosphorus is also 0. The calculated trade ratio for these completed projects is therefore 2:1.

Note: Using the updated June 2020 Water Quality Trading Guidance and the new SPARROW model, the trade ratio changed slightly. See Appendix 3.

4 WQT Agreement

4.1 General Information

Pursuant to s.283.84, Wis Stats., a trade agreement is required between the credit user (Norwalk) and the WDNR when the credit user constructs a project that results in load reductions from sources other than that covered by the credit user's WPDES permit. The Village submitted a Watershed Project Plan in November 2018 that included a trade agreement and WQT checklist. Since projects were not completed at that time, it was agreed that the WDNR would proceed to approve a self-directed Multi Discharge Variance (MDV) plan for the Village and the Village would proceed to complete the watershed improvement projects which they did. The Village has also notified the WDNR that these watershed improvement projects have been completed in the 2018/2019 time period.

List of Tables

Table 1. Non-Point Water Quality Phosphorus Improvement Projects (Summary)…….Page 4

Table 2. Village of Norwalk, Norwalk WWTF, 2024 Phosphorus Discharge to Moore Creek.Page 5

List of Appendices

The following appendices are referenced in this plan and are included in this section, as follows:

- Appendix 1: MDV Water Shed Agreement Between WDNR and Village of Norwalk, August 2019
- Appendix 2: Multi-Discharger Variance Application Evaluation Checklist, April 2019
- Appendix 3: Location Map, HUC 12 Map, Sparrow Delivery Maps (2018 and 2025), and Trade Ratio(s) for Streambank Improvements Completed by Village of Norwalk
- Appendix 4: Water Quality Trade Agreement Between Village of Norwalk and WDNR
- Appendix 5: Water Quality Trading Checklist
- Appendix 6: Notice of Intent to Conduct Water Quality Trading (Signed 2018 and 2025)
- Appendix 7: Water Quality Trading Management Practice Registration Form 3400-207 (For All Completed Projects)
- Appendix 8: Photos of Completed Streambank Improvements Taken June 2025
- Appendix 9: Annual Watershed Reports
- Appendix 10: Data and Calculations for Completed Streambank Improvements

Appendix 1: MDV Water Shed Agreement Between WDNR and Village of Norwalk, August 2019

Multi-Discharger Variance Watershed Plan Agreement
Between
Wisconsin Department of Natural Resources
and
Village of Norwalk

THIS MULTI-DISCHARGER VARIANCE WATERSHED PLAN AGREEMENT (this "Agreement") is made by and between the Village of Norwalk and the WISCONSIN DEPARTMENT OF NATURAL RESOURCES ("Department").

RECITALS

A. The Village of Norwalk ("Permittee") is a municipal corporation in Monroe County, Wisconsin. Permittee manages and operates the wastewater treatment facility ("Facility") and has the authority to enter into this Agreement.

B. The Facility discharges effluent to the Moore Creek in Monroe County.

C. Permittee Contact. For purposes of this Agreement, Permittee's contact shall be:

Levi Helgren, Village President, 208 S. Church Street, Norwalk, WI 54648

D. Permittee's discharge is regulated under WPDES Permit WI-0024961 ("WPDES Permit"). The Department is proposing to reissue this WPDES Permit (WI-0024961) with a phosphorus water quality based effluent limitation.

E. In accordance with Wis. Stat. § 283.16, as part of its application for reissuance of Permittee's WPDES permit, Permittee applied to the Department for coverage under Wisconsin's multi-discharger variance for phosphorus ("phosphorus MDV").

F. In support of its request for coverage under Wisconsin's phosphorus MDV, Permittee submitted to the Department an application dated December 2018, a MDV Watershed Plan.

G. After reviewing Permittee's submittals, the Department determined that Permittee is eligible for coverage under the phosphorus MDV, and that the projects of the proposed Watershed Plan would be sufficient to reduce the amount of phosphorus entering the waters of the state to the levels required by Wis. Stat. § 283.16(6)(b)2.

H. Watershed Plan. In this Agreement, "Watershed Plan" means the Norwalk Watershed Project Plan, December 2018 Amendment, a copy of which is attached to this Agreement as Exhibit A.

AGREEMENT

Permittee and the Department enter into this Agreement whereby Permittee agrees to implement projects identified in their approved Watershed Plan to reduce the amount of phosphorus entering the waters of the state to the levels required by Wis. Stat. § 283.16(6)(b)2. Accordingly, Permittee and the Department (jointly the "Parties") agree as follows:

1. Phosphorus Reduction. In this Agreement, the term "Phosphorus Reduction" means the reduction in the amount of phosphorus entering the waters of the state that must be achieved by Permittee through implementation of projects identified in their Watershed Plan pursuant to Wis. Stat. § 283.16(6)(b)2. Wis. Stat. § 283.16(6)(b)2. requires the Phosphorus Reduction equal the difference between the annual amount of phosphorus discharged by the point source and the target value as defined in Wis. Stat. § 283.16(1)(h).

2. Watershed Projects. Permittee agrees to undertake and complete the projects described in the Watershed Plan during 2019. Implementation of the projects described in the Watershed Plan is estimated to result in a reduction of 271.5 pounds of phosphorus discharged from those sites on an annual basis.

3. Project Site Ownership and Maintenance. projects within city limits, as described in the Watershed Plan, are owned by the Permittee. As the site owner, Permittee is responsible for the continued maintenance of the projects described in the Watershed Plan.

4. Design Standards for Projects. The projects will be constructed and maintained as provided in the Watershed Plan. Design standards for projects will comply with NRCS Technical Standard 580 (Streambank Protection}, 395 (Streambank Habitat) and 638 (Water & Sediment Control Basin).

5. Annual Inspection and Repairs. Permittee, or the agent on the Permittee's behalf, shall conduct annual inspections of the projects. Annual inspections shall consist of site visits and photographic documentation. Any deficiencies in projects will be noted and corrected within thirty (30) days of the inspection. Maintenance and any necessary reconstruction shall be done in compliance with the design standards required by this Agreement. Any duly authorized officer, employee or representative of the Department shall have the right to access and inspect the projects described in the Watershed Plan pursuant to Wis. Stat. § 283.55(2) so long as this Agreement remains in effect.

6. Inspection after Flood Event. (Streamside Projects Only) If a flood event greater than or equal to a 10-year flood event occurs, Permittee, or the agent on Permittee's behalf, will conduct an additional inspection of the streambank stabilization projects within two (2) weeks of the flooding event. The inspection shall be performed like a regular annual inspection, and any deficiencies or failure in streambank stabilization will be corrected within thirty (30) days of the inspection, consistent with the design standard in this Agreement.

7. WPDES Permit. This Agreement is made on the understanding that the Department will propose to reissue Permittee's WPDES Permit and include in the proposed reissuance of WPDES Permit (permit no. WI-0024961) terms and conditions required for coverage under the phosphorus MDV. If the Department does not reissue Permittee's WPDES Permit and include coverage under the phosphorus MDV, this Agreement is null and void. If EPA objects to granting phosphorus MDV coverage to Permittee, then this agreement is null and void.

8. Effective Date and Term. (a) This Agreement shall become effective on the later date of the completion of the following conditions: (i) the Department approves a Watershed Plan that is consistent with this Agreement; and (ii) the WPDES permit is reissued and includes variance terms that are consistent with the approved Watershed Plan and the terms of this Agreement. The Agreement applies and is effective for the term of the reissued permit (WI-0024961) unless this permit is modified, terminated or revoked and reissued by the Department to eliminate coverage under the variance. (b) In accordance with Wis. Stat. § 227.51(2), if the variance has not been terminated, and if Permittee files a timely application for the reissuance of the permit and continues to maintain the project, the terms of the Agreement will continue until the later of the following: (i) the permit application has been finally acted upon by the Department, (ii) the last day for seeking review of the agency's decision, or (iii) a later date fixed by a reviewing court. If Permittee intends to apply for continuance of variance coverage in a subsequent reissued permit, a new variance application must be submitted in accordance with Wis. Stats. s. 283.16 and applicable requirements.

9. Termination. The Parties may terminate this Agreement by written agreement at any time. The Department may terminate this agreement and coverage under the phosphorus MDV if any one of the following occur:

   i. Permittee fails to implement or maintain the projects in the Watershed Plan as approved by the Department;

   ii. Permittee fails to comply with WPDES Permit terms and conditions related to phosphorus MDV, including failure to achieve the annual phosphorus load reduction required under Wis. Stat. § 283.16(6)(b)2.;

   iii. New information becomes available that causes the Department to determine that the coverage under the phosphorus MDV is no longer an acceptable option, including an objection or disapproval of the variance by EPA or results of litigation by a third party challenging the variance.

Any action by the Department to terminate this Agreement and coverage under the phosphorus MDV shall be implemented through a modification, revocation and reissuance or reissuance of the WPDES Permit. Prior to termination of this agreement, the Department shall notify Permittee of its intent to terminate the MDV coverage and shall provide an opportunity for Permittee to discuss the proposed termination with the Department.

10. Amendment. This Agreement may be amended only by a further written document signed by each of the Parties. The Watershed Plan, Agreement and permit terms may be revised as part of a future permit reissuance or modification or revocation and reissuance.

11. Recitals. The statements contained in the Recitals are incorporated and made a part of this Agreement.

12. Hold Harmless. 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, state or local laws.

Dated this 13 day of August, 2019

VILLAGE OF NORWALK

By:

Levi Helgren, Norwalk Village President

Dated this ____ day of _____, 2019

WISCONSIN DEPARTMENT OF NATURAL RESOURCES

By:

Adrian Stocks, Water Quality Bureau Director

Appendix 2: Multi-Discharger Variance Application Evaluation Checklist, April 2019

State of Wisconsin
Department of Natural Resources
Bureau of Water Quality
Permits Section - WQ/3

Multi-Discharger Variance Application Evaluation Checklist

Form 3200-145 (R 5/16)

Notice: This checklist is meant to be a tool to help Department of Natural Resources (DNR) staff review municipal and industrial multi-discharger variance (MDV) applications (Forms 3200-149 and 3200-150). 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.).

Permittee Name

Village of Norwalk

WPDES Permit Number	County
WI- 0 | 0 | 2 | 4 | 9 | 6 | 1	Monroe

1. Did the point source apply for the MDV at the appropriate time?	(●) Yes ( ) No. *STOP- facility not eligible at this time.*	*See Questions 1-3.*
2. This operation is (check one):	( ) New or relocated outfall. *STOP- facility not eligible.* (●) Existing outfall	*See Questions 5-6.*
3. Is the point source is located in an MDV eligible area?	(●) Yes ( ) No. *STOP- facility not eligible.*	*Apply County information to Appendix H. Additional information provided in Q7 on municipal form & Q7-8 on industrial form.*
4. The secondary indicator score for the county (counties) the discharge is located is:	2	*See Appendices A-F. If the score is less than 2, stop; the facility is not eligible. See Q23 on municipal form & Q28 on industrial form.*
5. Is a major facility upgrade required to comply with phosphorus limits?	(●) Yes ( ) No. *STOP- facility not eligible.*	*See Q8 on municipal form/Q9 on industrial form.*
6. List the months where phosphorus limits cannot be achieved during the permit term:	☒ All ☒ Jan ☒ Apr ☒ Jul ☒ Oct ☒ Feb ☒ May ☒ Aug ☒ Nov ☒ Mar ☒ Jun ☒ Sep ☒ Dec	*Consider checking with limit calculator. If this does not match information in application, the application should be updated prior to approval.*

7. What is the current effluent level achievable?

Outfall Number(s)	Conc. (mg/L)	Method for calculation:	Does this concur with application?	
001	3.92	(●) 30-day P99 ( ) Other, specify:	( ) Yes (●) No, why not: Application used slightly older and fewer data	*DNR staff should verify the effluent concentration value(s) provided. See Q11 on municipal form & Q12 on industrial form.*

8. What is the appropriate interim limitation(s) for the permit term?
1.0 mg/L as a monthly average, pursuant s. 283.16(6)(am), Wis. Stats
Target Value = 0.2 mg/L
Facility upgrades (proposed chemical addition) and a compliance schedule will be needed to meet the interim limit since there is currently no phosphorus treatment.
Provide Rationale:
The 30-day P99 value of 3.92 mg/L was obtained using the past three years of data for outfall 001 (August 2015 - August 2018, n=481). Values ranged from 0.26 - 10.4 mg/L and a monthly average limit of 1.0 mg/L would have been exceeded for 31 of the past 36 months. Proposed upgrades are expected to bring total phosphorus concentrations below 1.0 mg/L. After chemical treatment is installed and optimized, if the MDV is requested again, the HAC will be recalculated using new data.

Note: See description in Section 2.02 of the MDV implementation guidance. Interim limitations should reflect the "highest attainable condition" for the permittee in question pursuant to s. 283.16(7), Wis. Stat.

9. *For Industries Only*- Where does the phosphorus in the effluent come from? (check all that apply)	☐ Process ☐ Additive Usage ☐ Water supply *Can intake credits be given or can the facility use an alternative water supply?* ○ Not feasible ○ Possibly, but further analysis needed ○ Not evaluated at this time	*See Q14-15 & 19 on industrial form. If the answer is "possibly" or "not evaluated", the schedule section of the MDV permit should contain a requirement to perform this analysis.*
10. Has this facility optimized?	◉ Yes ○ In progress ○ No	*See Q14 on municipal form & Q16 & 20 on industrial form. Facility must optimize and operate at an optimize treatment level (s. 283.16(6)(a), Wis. Stat.)If no will need compliance schedule.*
11. Has a facility plan/compliance alternative plan been completed for the facility?	◉ Yes ○ In progress ○ No	*See Q15 on municipal form & Q17 on industrial form.*
12. What is the projected cost for complying with phosphorus? Source:	$ 3,694,000.00 Final Compliance Alternatives Plan - Amended April 2018	*Facility must submit site-specific compliance costs. If cost projections are used from EIA, the permittee must certify that these costs are reasonable for the facility in question. See "projected compliance costs" in Section 2.02 of the MDV Implementation Guidance for details.*

Comments on planning efforts:
The Final Compliance Alternatives Plan prepared by Cedar Corporation, dated April 2018, evaluated options for future compliance with the 0.075 mg/L WQBEL for total phosphorus. The plan evaluated the costs and feasibility of a major facility upgrade that would meet the WQBEL: Biological Phosphorus Removal pared with Filtration. Two cost estimates were produced (in 20-year net present value): one for upgrading the existing plant and one for demolition/complete rebuild. Upgrading the existing plant was the lower cost option, and was used in the economic demonstration below. The estimated cost of $3,694,000 is somewhat higher than the 20-year NPV cost listed in Appendix G of the EIA Addendum for Norwalk at $1,944,518. Some site specific factors, as well as a slighly dated statewide estimate help to explain this. Water Quality Trading was evaluated. The plan indicates that Norwalk intends to pursue compliance via water quality trading. However, it is not a feasible compliance alternative presently due to timing. Based on this, the Department expects Norwalk to pursue compliance via water quality trading during the next permit term.

13. Are adaptive management and water quality trading viable?	○ Yes ◉ Perhaps. Additional analysis required. ○ No	*See Q18-21 on municipal form & Q22-25 on industrial form. If additional analyses required, the applicant may need to complete this analysis during the MDV permit term.*

14. Has the point source met the appropriate primary screener?	◉ Yes ○ No. *STOP- facility not eligible.*	*See Q4 of this form in addition to the "eligibility" guidance in Section 2.01 of the MDV Implementation Guidance.*

Comments on economic demonstration:
The economic demonstration used the costs associated with installation and operation of biological phosphorus removal and effluent filtration at the WWTF. The site specific estimate for this upgrade was $2,716,000.00 capital costs, $71,000 annual O&M costs, and a 3.87% loan APR was factored in. A more appropriate rate of 1.76% (CWF interest rate) would put annual payments at 209,190.10 Residential use accounts for 98% of all use, making the residential portion of this project $205,006.30 annually. With 227 households, the annual average payment for the upgrades would amount to $903.11. With current user rates at $444/year, future rates would be $1347/year. The MHI for Norwalk listed on the MDV application is $44,167.00. The annual payment would be 3.04% of MHI, which is greater than the 2.0% MHI increase required given Monroe County's secondary indicator score of 2. Norwalk meets the primary economic screener for MDV eligibility.

15. What watershed option was selected?

- ○ County project option. *Complete Section 5.*
- ○ Binding, written agreement with the DNR to construct a project or implement a watershed plan. *Complete Section 4.*
- ◉ Binding, written agreement with another person that is approved by the DNR to construct a project or implement a watershed plan. *Complete Section 4.*

Section 4. Watershed Plan Review

16. MDV Plan Number: *Note: This is for tracking purposes. Contact Statewide Phosphorus Implementation Coordinator for the plan number.*	MDV-2018-003
17. Did the point source complete Form 3200-148?	◉ Yes ○ No
18. Is the project area in the same HUC 8 watershed as the point of discharge?	◉ Yes ○ No. *STOP- Watershed plan must be updated.*
19. What is the annual offset required? *See Section 2.03 of the MDV implementation guidance. If this value is different from the offset target provided in form 3200-148, the watershed plan should be amended.*	88 lbs/yr
20. Does the plan ensure that the annual load is offset annually?	◉ Yes ○ No. *STOP- Watershed plan must be updated.*

21. Are projects occurring on land owned/operated by a CAFO or within a permitted MS4 boundary?

- ○ Yes. *Work with appropriate DNR staff to ensure projects are not working towards other permit compliance.*
- ◉ No.

22. Are other funding sources being used as part of the MDV watershed project?

- ○ Yes. *Work with appropriate DNR staff to ensure that funding sources can be appropriately used in the plan area.*
- ◉ No.

23. Do you have any concerns about the watershed project? *Note: Coordinate with other DNR staff as appropriate.*	○ Yes. *STOP- Watershed plan must be updated.* ◉ No.

Comments:
The December 2018 Amendment to the originally submitted September 2018 MDV Watershed Project Plan for Norwalk outlines streambank stabilization projects. A March 20 letter to the Department from Cedar Corporation, on behalf of Norwalk, included agreements to execute the projects. These submissions together, as the watershed plan, serve to document the pollutant reductions occurring on behalf of Norwalk. The Department conditionally approves streambank stabilization projects contained therein as a means to satisfy MDV variance provisions under s. 283.16(6)(b) Wis. Stats. Other projects contained in these submissions may be viable water quality trading projects but are not yet approved by the department, pending documentation and quantification details.

Section 5. Payment to the County(ies)

24. At this time, the appropriate per pound payment is: $ _____

See "Payment Calculator" document at
\\centralwater\WQWT_PROJECTS\WY_CW_PhosphorusMDV.

Section 6. Determination

Based on the available information, the MDV application is:

- (●) Approved
- ( ) Request for more information
- ( ) Denied

Additional Justification (if needed):
Streambank stabilization projects to be implemented in 2019 to satisfy MDV watershed project requirements.

Certification

Preparer Name	Title
Matt Claucherty	Water Resource Management Specialist
Signature of Preparer: Matt Claucherty	Date: 4/5/2019

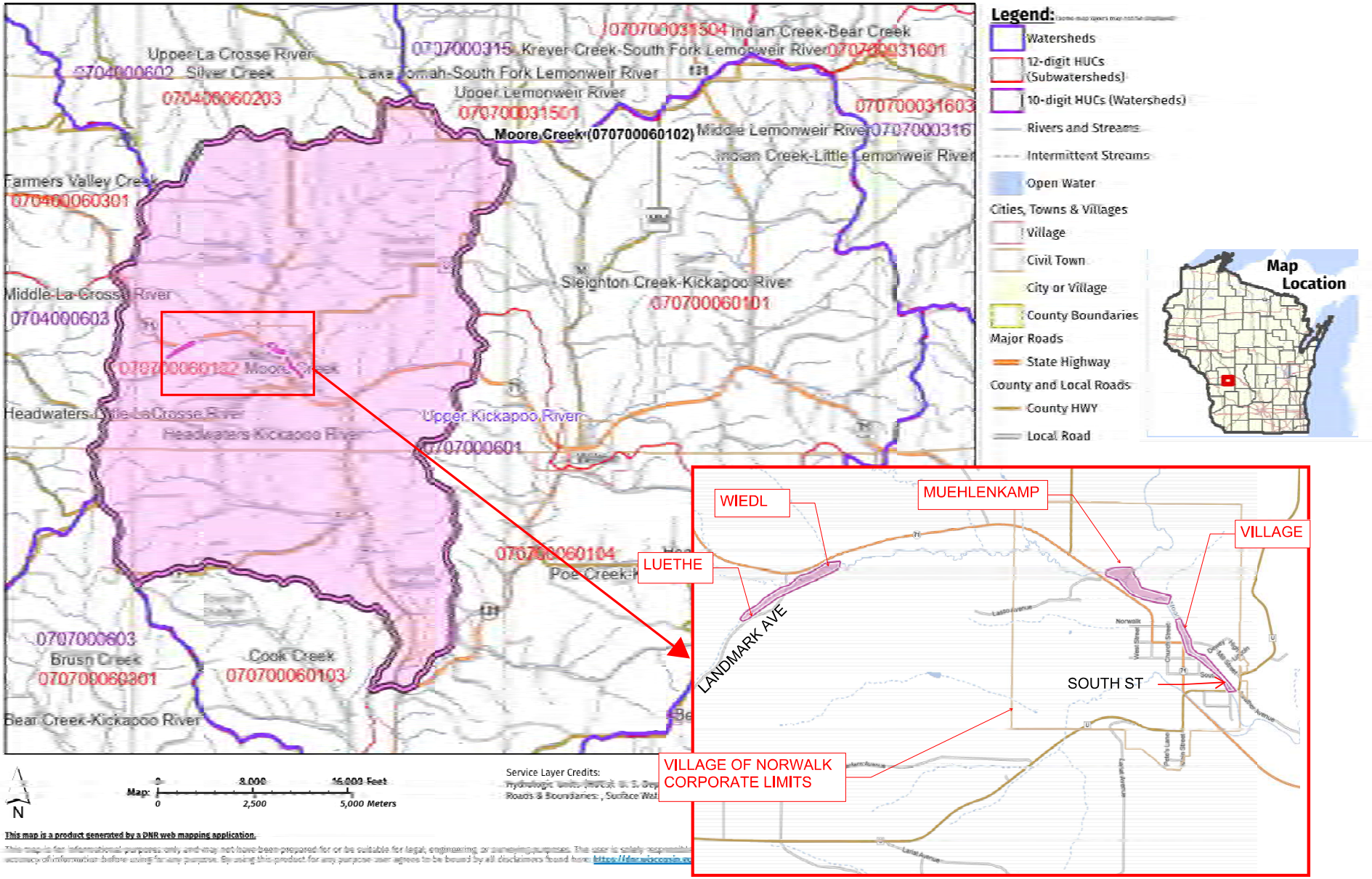
A copy of this completed checklist should be saved in SWAMP, and a notification of the decision should be sent to the Phosphorus Implementation Coordinator.

Appendix 3: Location Map, HUC 12 Map, Sparrow Delivery Maps (2018 and 2025), and Trade Ratio(s) for Streambank Improvements Completed by Village of Norwalk

WISCONSIN DEPARTMENT OF NATURAL RESOURCES

Village of Norwalk

Location Map for Stream Bank Improvements Completed by Village of Norwalk



Farmers & Merchants Bank of Kendall

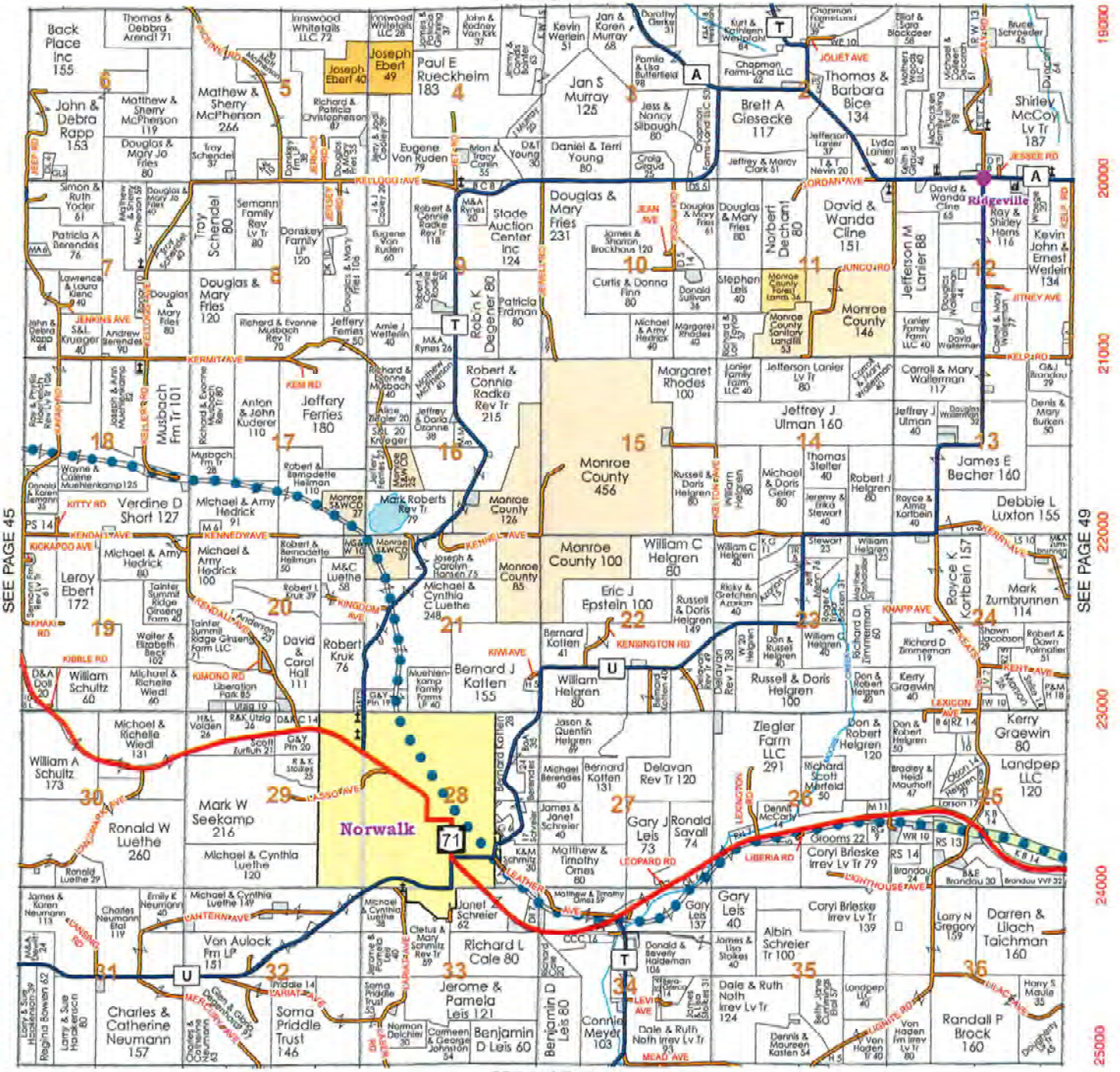
Kendall	Hustler	Norwalk	Wilton
608-463-7101	608-427-3354	608-823-7416	608-435-6426
102 E. South Railroad Street	111 East Main Street	108 Main Street	406 Main Street
P.O. Box 130	P.O. Box 236	P.O. Box 225	P.O. Box 6
Kendall, WI 54638	Hustler, WI 54637	Norwalk, WI 54648	Wilton, WI 54670

MEMBER FDIC • EQUAL HOUSING LENDER

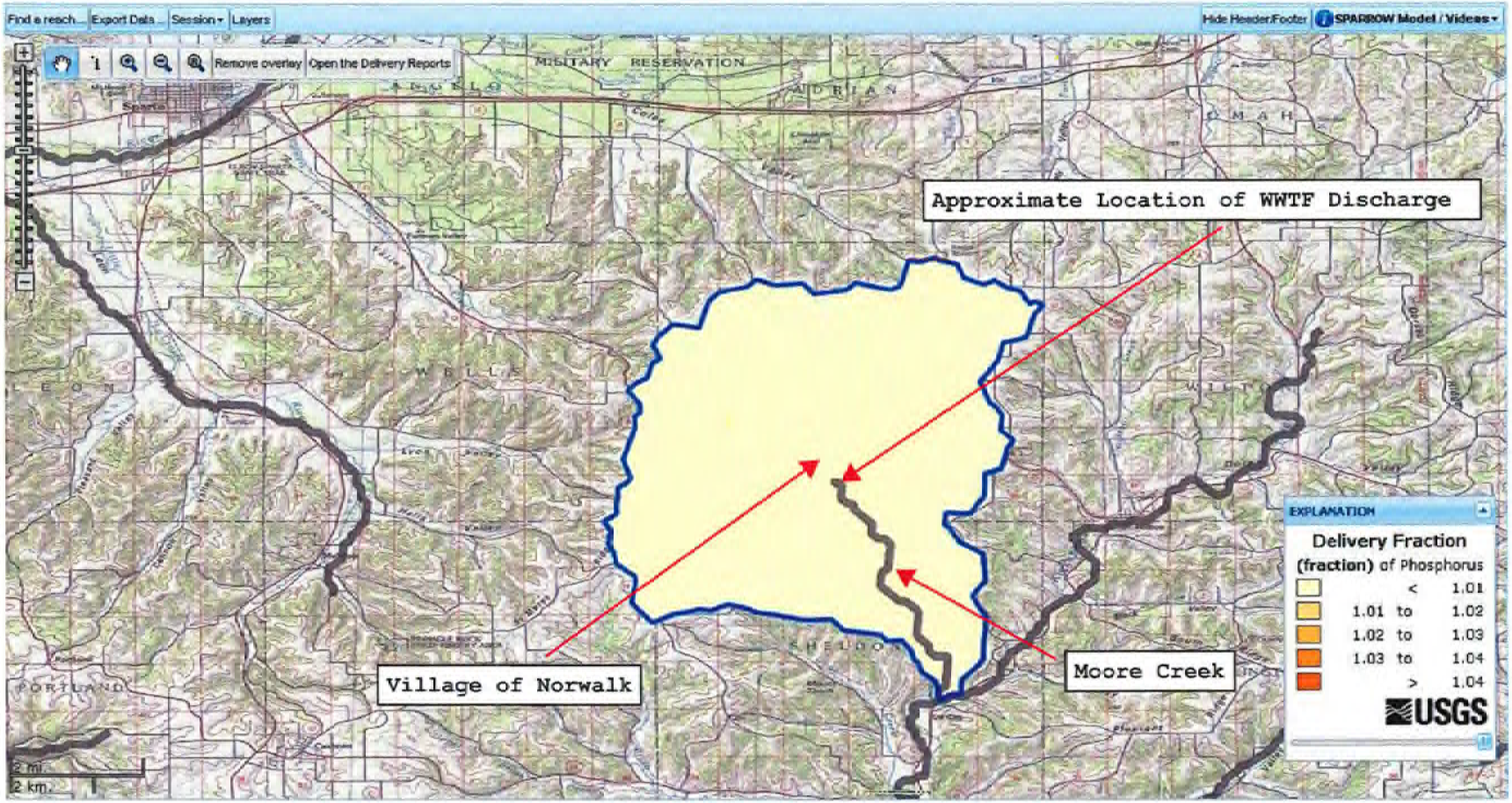
Ridgeville — Township 16N - Range 2W

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SEE PAGE 37

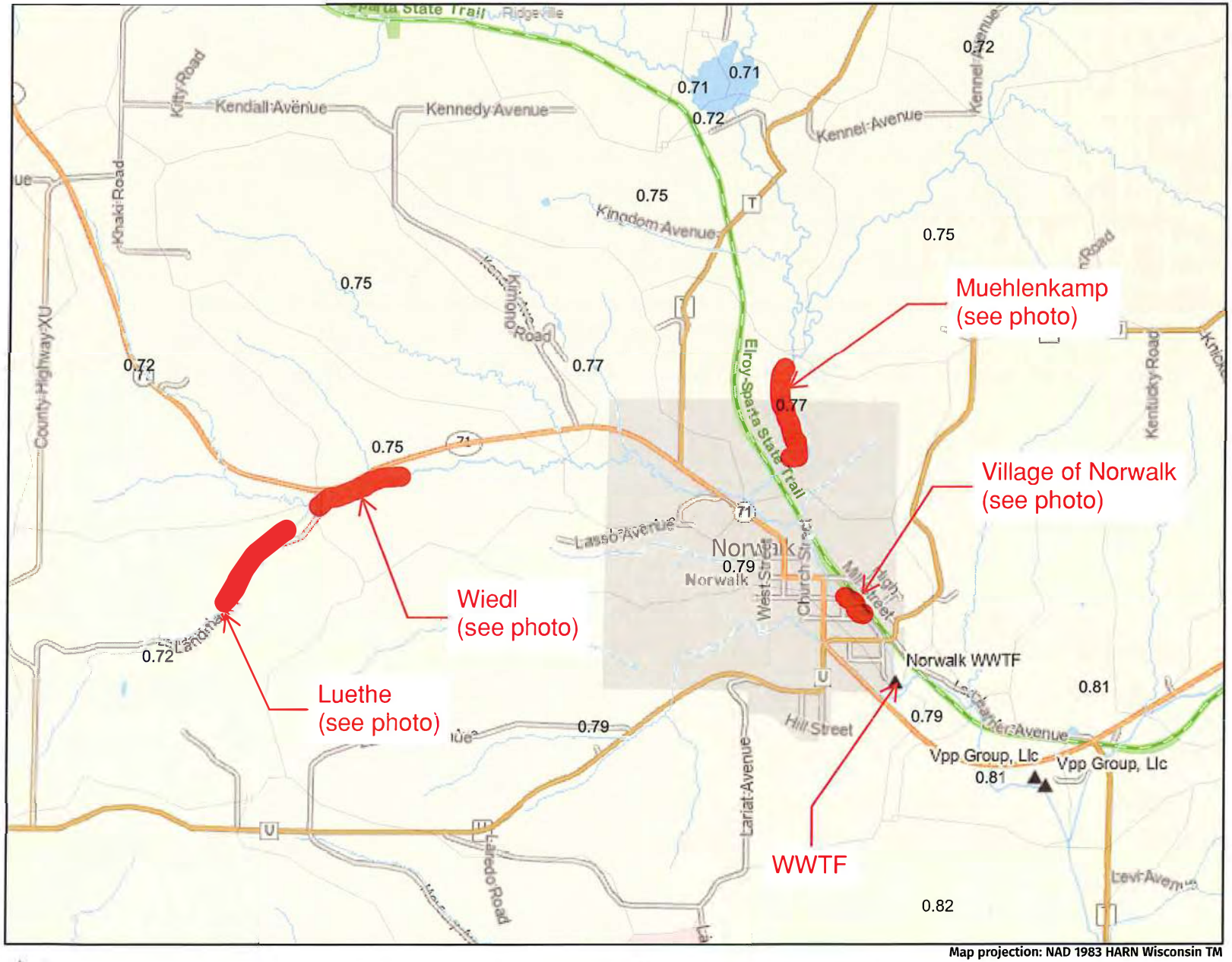

Ridgeville
Norwalk
Monroe County 456
Monroe County 146
Monroe County 100
Monroe County 126
Monroe County 85
Monroe County Sanitary Landfill
Monroe County Forest Lands
Jeffery Ferries 180
Jeffrey J Ulman 160
Jeffrey J Ulman 40
Robert & Connie Radke Rev Tr 215
Douglas & Mary Fries 231
Douglas & Mary Fries 120
Douglas & Mary Fries 80
Douglas & Mary Fries 61
Douglas & Mary Fries 108
Douglas & Mary Fries 35
Douglas & Mary Fries 20
Douglas & Mary Fries 118
Douglas & Mary Fries 106
Douglas & Mary Fries 83
Douglas & Mary Fries 40
Douglas & Mary Fries 80
Douglas & Mary Fries 100
Douglas & Mary Fries 120
Douglas & Mary Fries 80
Douglas & Mary Fries 60
Douglas & Mary Fries 80
Douglas & Mary Fries 80
Douglas & Mary Fries 80

USGS SPARROW Decision Support System -
Mississippi/Atchafalaya Basin Total Phosphorus Model - 2002



WISCONSIN DEPARTMENT OF NATURAL RESOURCES

VILLAGE OF NORWALK
WATER QUALITY TRADING PLAN
PROJECT LOCATION MAP (SPARROW MODEL)



Legend: (some map layers may not be displayed)

SPARROW*
- 0.621401 - 0.825600
- 0.825601 - 0.947100
- Surface Water Outfalls
- Rivers and Streams
- Intermittent Streams
- Open Water
- 24K Intermittent Streams
- 24K Lakes and Open Water
- City or Village
- County Boundaries

Major Roads
- State Highway

County and Local Roads
- County HWY
- Local Road

Notes:



Map projection: NAD 1983 HARN Wisconsin TM

N

Map: 0 2,000 4,000 Feet
0 720 1,440 Meters

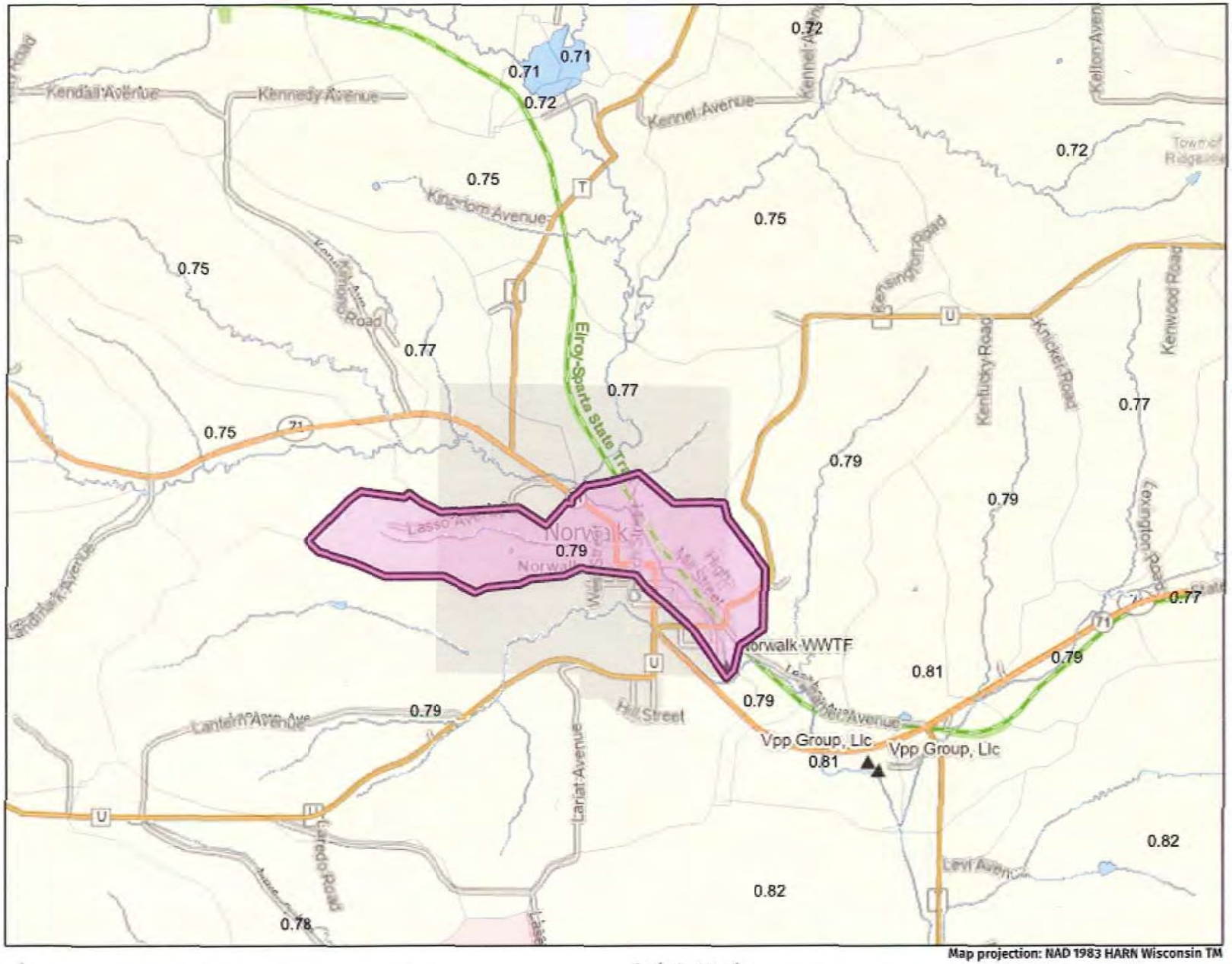
Service Layer Credits:
DNR: WI Lands Vector Tile Layer: , Permits & Determinations^: WI DNR Bureau of Watershed Management, Cities, Roads & Boundaries: , Surface Water (Cached): WiDNR, USGS, and other data

This map is a product generated by a DNR web mapping application.

This map is for informational purposes only and may not have been prepared for or be suitable for legal, engineering, or surveying purposes. The user is solely responsible for verifying the accuracy of information before using for any purpose. By using this product for any purpose user agrees to be bound by all disclaimers found here: https://dnr.wisconsin.gov/legal

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WISCONSIN DEPARTMENT OF NATURAL RESOURCES



Map projection: NAD 1983 HARN Wisconsin TM

Map: 0 2,000 4,000 Feet
0 720 1,440 Meters

N

Service Layer Credits:
DNR: WI Lands Vector Tile Layer: , Permits & Determinations^: WI DNR Bureau of Watershed Management, Cities, Roads & Boundaries: , Surface Water (Cached): WiDNR, USGS, and other data

Legend: (some map layers may not be displayed)

SPARROW*
- 0.621401 - 0.825600
- 0.825601 - 0.947100

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

Major Roads
- State Highway

County and Local Roads
- County HWY
- Local Road

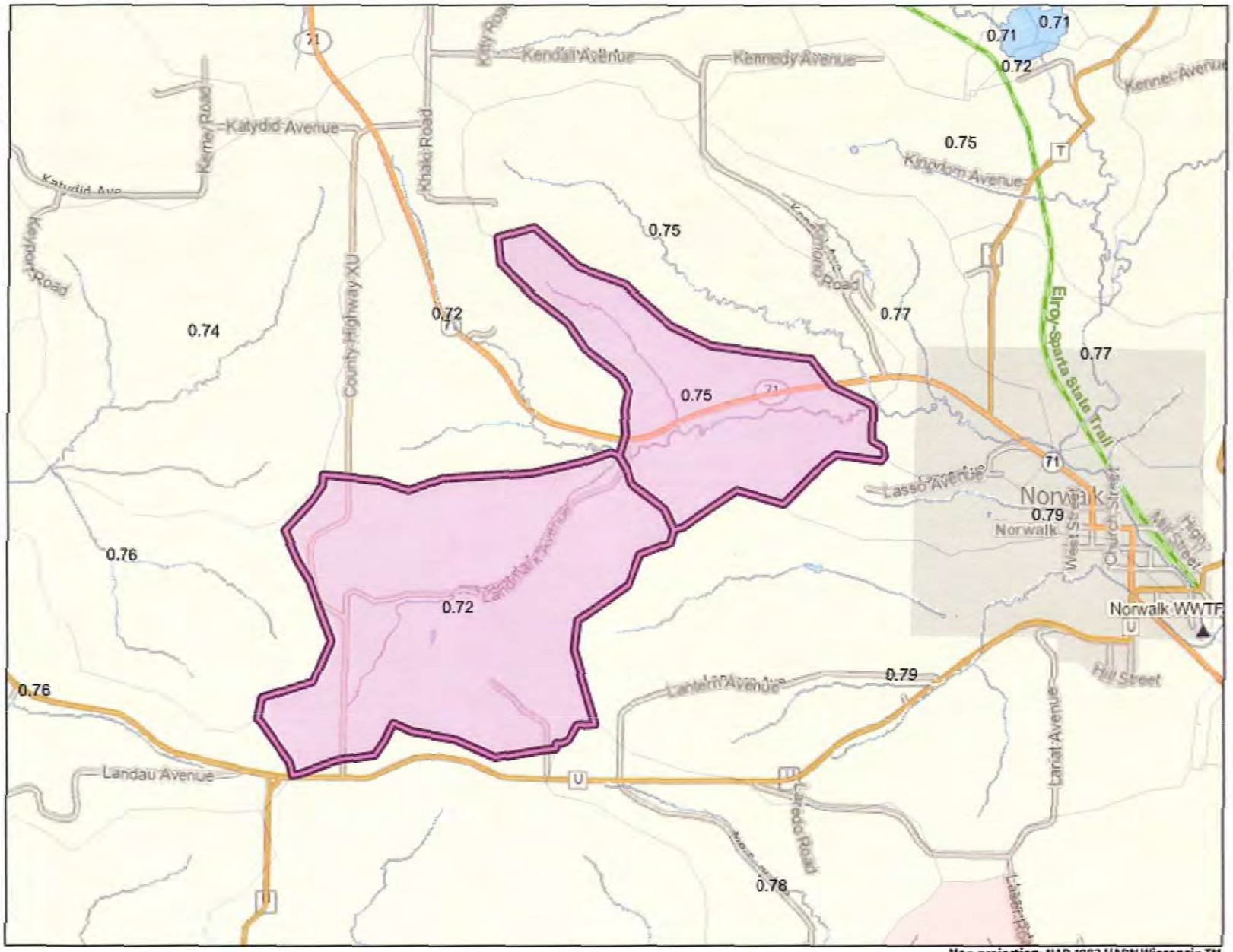
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WISCONSIN DEPARTMENT OF NATURAL RESOURCES



Legend: (some map layers may not be displayed)

*SPARROW**

- 0.621401 - 0.825600
- 0.825601 - 0.947100
- Surface Water Outfalls
- Rivers and Streams
- Intermittent Streams
- Open Water
- 24K Intermittent Streams
- 24K Lakes and Open Water
- City or Village
- County Boundaries

Major Roads

- State Highway

County and Local Roads

- County HWY
- Local Road

Notes:



Map projection: NAD 1983 HARN Wisconsin TM

N

Map: 0 2,000 4,000 Feet
0 720 1,440 Meters

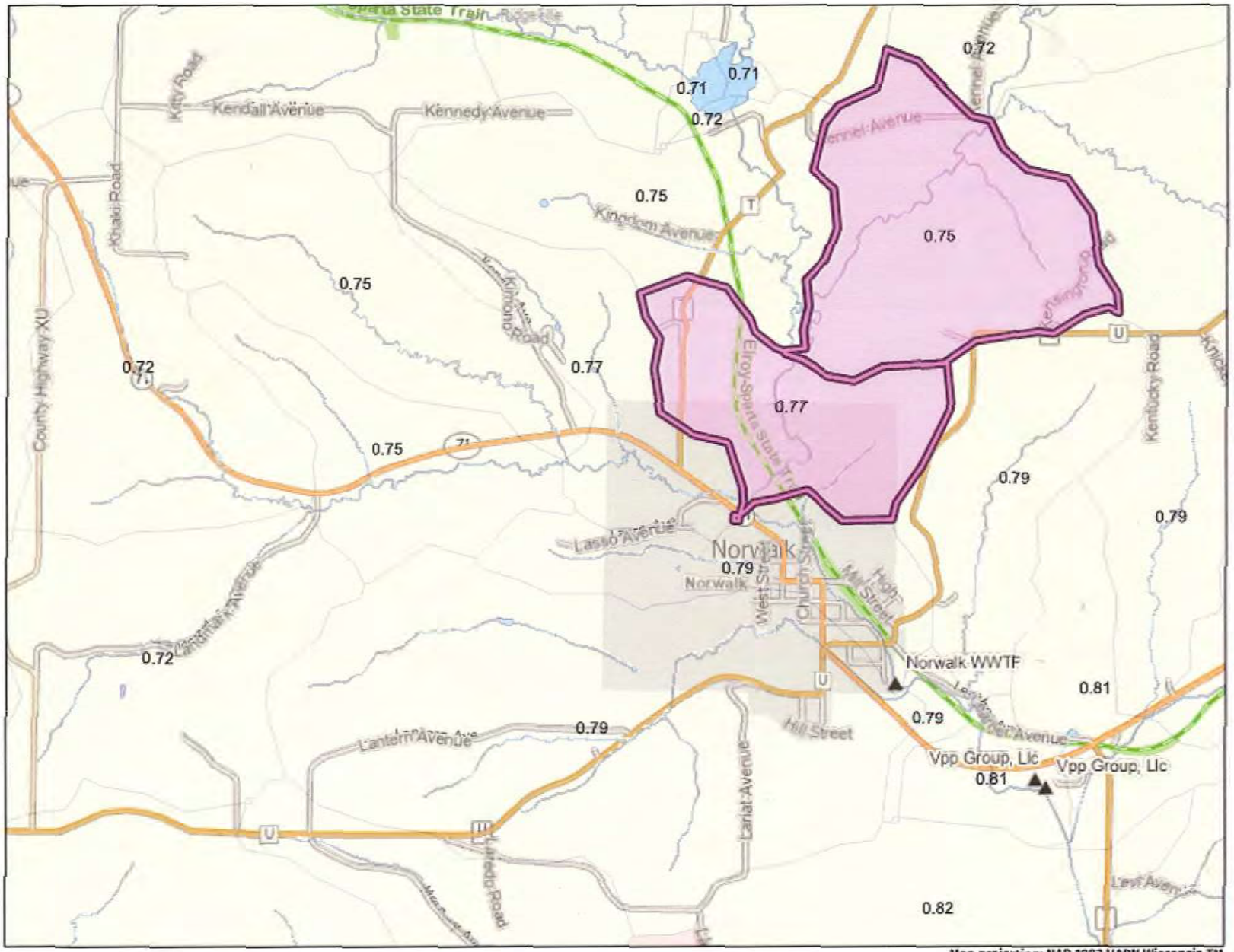
Service Layer Credits:
DNR: WI Lands Vector Tile Layer: , Permits & Determinations^: WI DNR Bureau of Watershed Management, Cities, Roads & Boundaries: , Surface Water (Cached): WIDNR, USGS, and other data

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WISCONSIN DEPARTMENT OF NATURAL RESOURCES



Map projection: NAD 1983 HARN Wisconsin TM

N

Map: 0 2,000 4,000 Feet
0 720 1,440 Meters

Service Layer Credits:
DNR: WI Lands Vector Tile Layer: , Permits & Determinations^: WI DNR Bureau of Watershed Management, Cities, Roads & Boundaries: , Surface Water (Cached): WiDNR, USGS, and other data

Legend: (some map layers may not be displayed)

SPARROW*
- 0.621401 - 0.825600
- 0.825601 - 0.947100

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

Major Roads
- State Highway

County and Local Roads
- County HWY
- Local Road

Notes:



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Village of Norwalk
Water Quality Trading Plan
Sparrow Model Delivery Factor Calculation

11/17/2025

Project	User Delivery Fraction	*Generator* Delivery Fraction	Delivery Fraction	Delivery Factor	Trade Ratio
Norwalk WWTF	0.79				
Luethe		*0.72*	*0.911*	*0.097*	*2.10:1*
Wiedl		0.75	0.949	0.053	2.05:1
Muehlenkamp		0.77	0.975	0.026	2.03:1
Village of Norwalk		0.79	1.000	0.000	2:1

$$Delivery\ Fraction = 1 - \frac{(user\ del_frac - generator\ del_frac)}{user\ del_frac}$$

$$Delivery\ Factor = \frac{1}{Delivery\ Fraction} - 1$$

Customer(s): STATE OF WI (VILLAGE NORWALK)
Legal Description: T16N, R2W, SEC28
Township: RIDGEVILLE

Plan Map

Field Office: SPARTA SERVICE CENTER
Agency: MONROE COUNTY LCD



Bank	Riprap
1	~~475'~~ 535
2	~~450'~~ 0
Total	~~925'~~ 535

Legend

- Riprap Bank
- Random Boulders
- Rock Weir

0 50 100 200 300 Feet

Date: 4/1/19

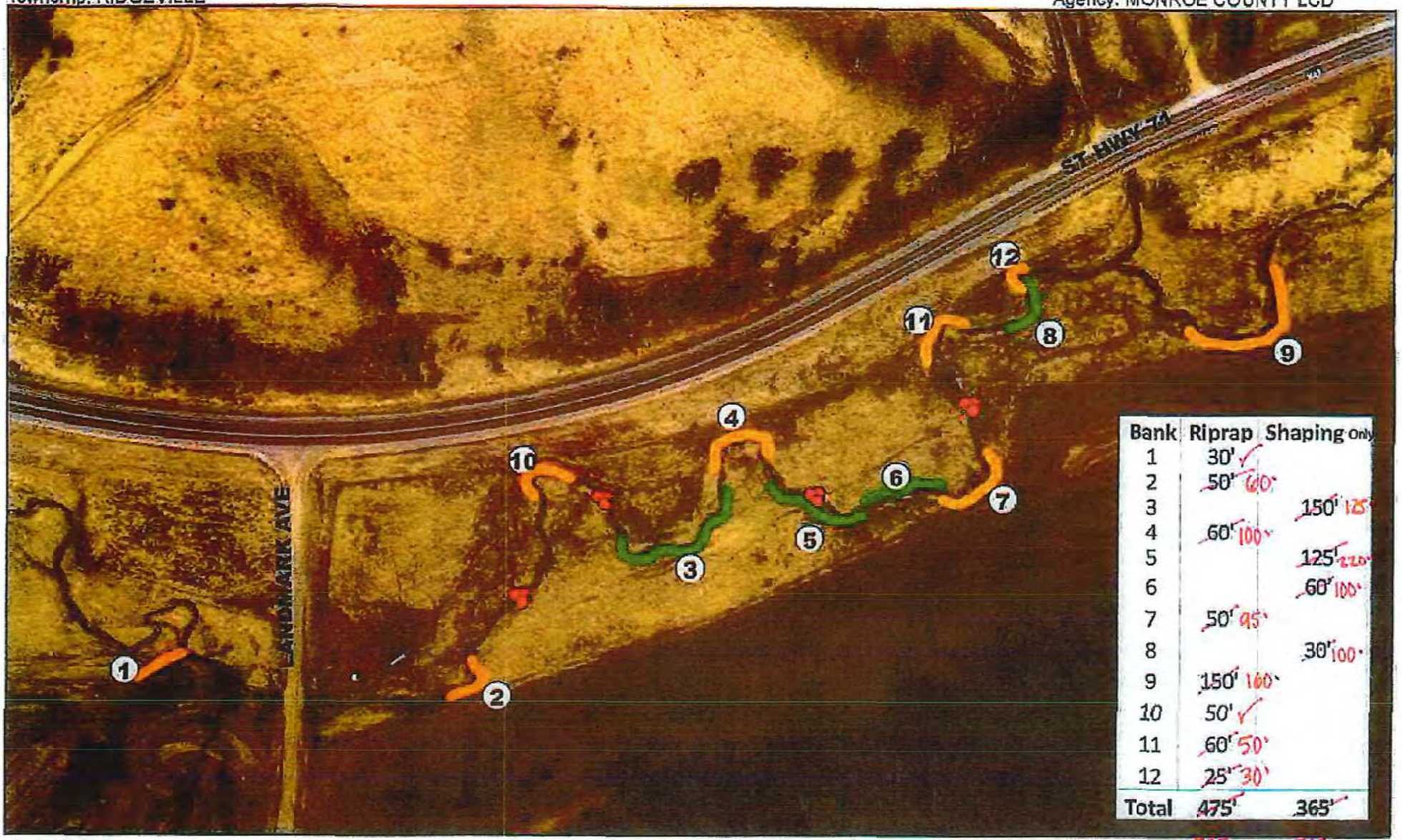
AS-BUILT

4 of 10

Customer(s): M WIEDL
Legal Description: T16N, R2W, SEC30
Township: RIDGEVILLE

Plan Map

Field Office: SPARTA SERVICE CENTER
Agency: MONROE COUNTY LCD



Bank	Riprap	Shaping Only
1	30' ✓	
2	50' ~~60'~~	
3		150' ~~125'~~
4	60' ~~100'~~	
5		125' ~~220'~~
6		60' ~~100'~~
7	50' ~~95'~~	
8		30' ~~100'~~
9	150' ~~160'~~	
10	50' ✓	
11	60' ~~50'~~	
12	25' ~~30'~~	
Total	~~475'~~ 515'	~~365'~~ 545'

Legend

- Shaping Bank
- Riprap Bank
- Random Boulders

0 100 200 400 Feet

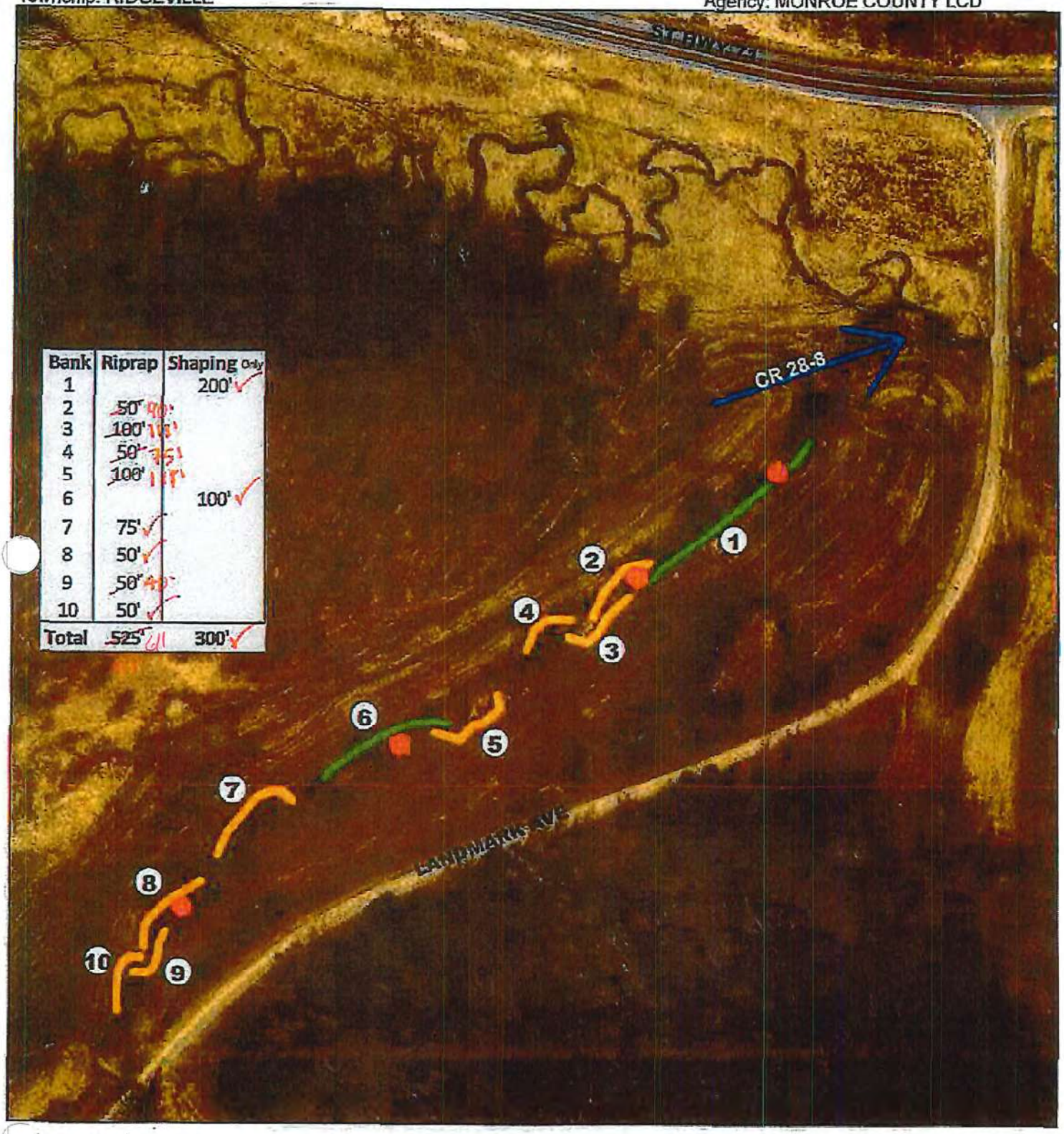
Date: 2/27/19

AS-BUILT

Plan Map

Customer(s): RON LUETHE
Legal Description: T16N, R2W, SEC30
Township: RIDGEVILLE

Field Office: SPARTA SERVICE CENTER
Agency: MONROE COUNTY LCD



Bank	Riprap	Shaping Only
1		200' ✓
2	~~50'~~ 40'	
3	~~100'~~ 110'	
4	~~50'~~ 35'	
5	~~100'~~ 117'	
6		100' ✓
7	75' ✓	
8	50' ✓	
9	~~50'~~ 40'	
10	50' ✓	
Total	~~525'~~ 611	300' ✓

Legend

- Shaping Bank
- Riprap Bank
- Random Boulders

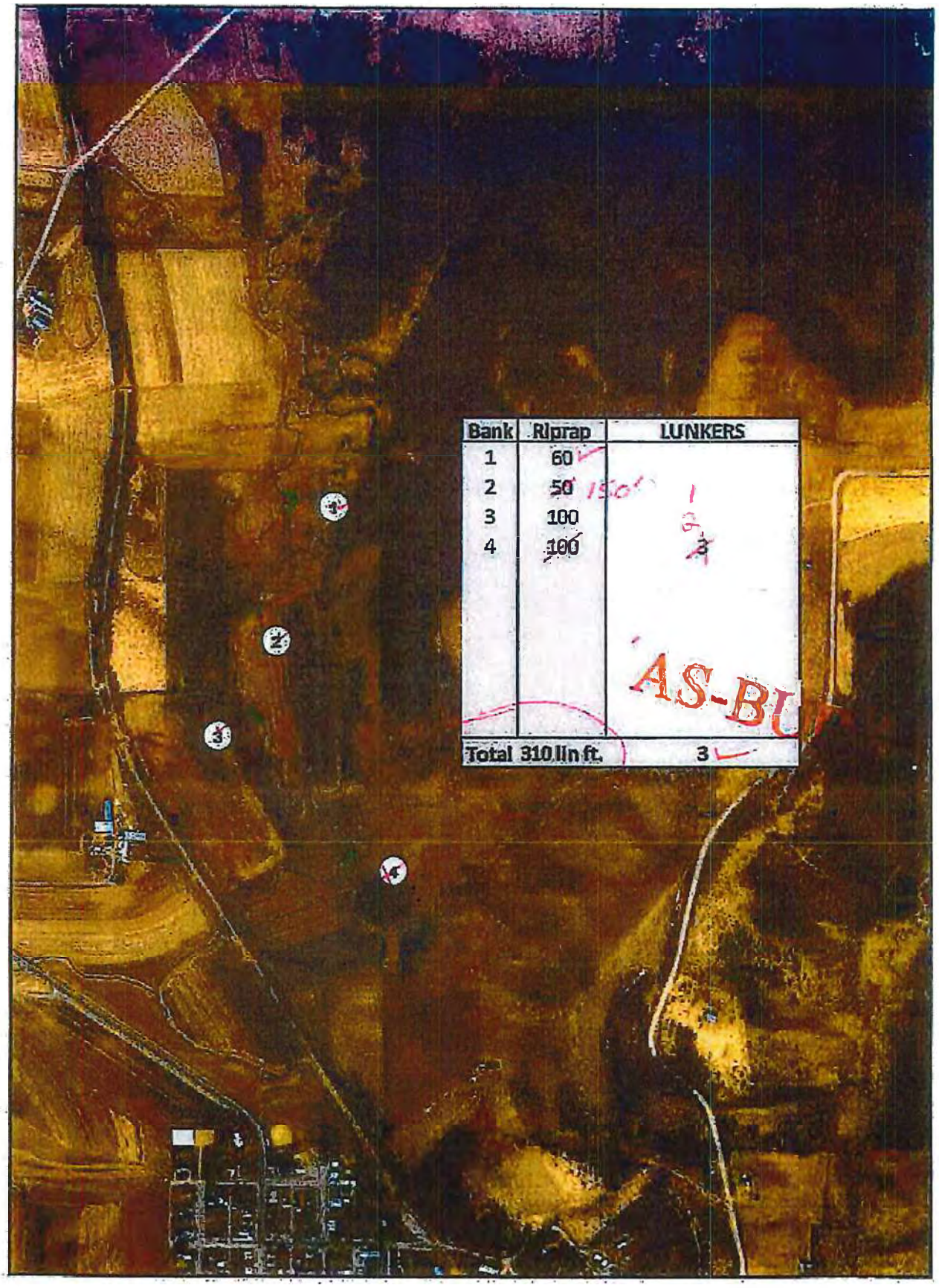
0 50 100 200 300 Feet

Date: 11/9/18

N W E S

AS-BUILT

Jon Muehlenkamp Riprap Location Map



Appendix 4: Water Quality Trade Agreement Between Village of Norwalk and WDNR

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

This Water Quality Trade Agreement (this "Agreement") is made by and between Village of Norwalk (Norwalk) 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. Norwalk submitted a Permit application for issuance of a WPDES Permit on December 2024. The Permit is for a wastewater discharge from its WWTF located in Norwalk, Wisconsin.

e. The WPDES Permit will contain phosphorus water quality based effluent limits ("WQBELs") for Outfall Number 001, which is located in HUC-12 subwatershed 070700060102.

f. Norwalk owns and will implement stream bank stabilization projects within the same hydrologic region as Outfall Number 001.

g. The descriptions of the lands that include stream bank stabilization practices are: Jon Muehlenkamp land, Monroe Co., Town of Ridgeville, parcel ____and Ron Luethe land, Town of Ridgeville, Monroe Co., parcel ___ and Mike Wiedl land, Town of Ridgeville, Monroe Co., parcel ____and Village of Norwalk land, Town of Ridgeville, Monroe Co., parcel ___.

Norwalk submitted to the Department a Water Quality Trading Plan (WQT Plan) under which Norwalk has installed practices to reduce pollution to surface waters of the State.

h. The management practices have been 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
NRCS Standards as identified by number	500, 580, 395, 342, 484

i. The WQT Plan includes an Establishment Plan and an Operation and Maintenance Plan for the practices

2. Agreement Terms

a. Norwalk shall establish practice 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 Norwalk 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 Norwalk, the Department shall allow Norwalk to utilize pollutant credits in the amount set forth in the approved WQT Plan to demonstrate compliance with phosphorus WQBELs in the WPDES Permit, provided Norwalk 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 practice 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 Norwalk 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. Norwalk may terminate this Agreement by providing at least sixty (60) days written notice to the Department of Norwalk's intent to terminate the Agreement.

i. In accordance with paragraph (h) 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) Norwalk fails to implement the WQT Plan as approved by the Department;
2) Norwalk 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 Norwalk of its intent to terminate the trading agreement and shall provide an opportunity for

Norwalk to discuss the proposed termination with the Department. If appropriate and feasible, the Department shall provide Norwalk 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 NORWALK	**WISCONSIN DEPARTMENT OF NATURAL RESOURCES**
By: Lee Helgren	By: _____
Title: President	Title: _____
Date: 6/3/25	Date: _____

Appendix 5: Water Quality Trading Checklist

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

Water Quality Trading Checklist

Form 3400-208 (1/14)

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 Norwalk	WI- 0024961	

Facility Address	City	State	ZIP Code
208 S. Church Street	Norwalk	WI	54648

Project Contact Name (if applicable)	Address	City	State	ZIP Code
Henry Vian	208 S. Church Street	Norwalk	WI	54648

Project Name
Norwalk Water Quality Trading Plan

Receiving Water Name	Parameter(s) being traded	HUC 12(s)
Moore Creek	Phosphorus	10-0707000602

Credit Generator Information

Credit generator type (select all that apply):

- ☒ Permitted Discharge (non-MS4CAFO)
- ☐ 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 to Point Trades (Traditional Municipal / Industrial, MS4, CAFO)

Are each of the point source credit generators identified in this section in compliance with their WDPES 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	Appendix
b. Amount of credit being generated	◉ Yes	○ No	Appendix
c. Timeline for credits and agreements	◉ Yes	○ No	Appendix
d. Method for quantifying credits	◉ Yes	○ No	Appendix
e. Tracking and verification procedures	◉ Yes	○ No	Appendix
f. Location of credit generator in proximity to receiving water and credit user	◉ Yes	○ No	Appendix
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	Stream bank stabilization	Soil loss, phosphorus content		◉ 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	1.1
b. Management practices used to generate credits	◉ Yes	○ No	1.2
c. Amount of credit being generated	◉ Yes	○ No	1.2
d. Description of applicable trade ratio per agreement/management practice	◉ Yes	○ No	Appendix,3.1
e. Location where credits will be generated	◉ Yes	○ No	Appendix
f. Timeline for credits and agreements	◉ Yes	○ No	1.2
g. Method for quantifying credits	◉ Yes	○ No	Appendix

Does plan have a narrative that describes:			Plan Section
h. Tracking procedures	◉ Yes	○ No	2.2
i. Conditions under which the management practices may be inspected	◉ Yes	○ No	2.2
j. Reporting requirements should the management practice fail	◉ Yes	○ No	2.2
k. Operation and maintenance plan for each management practice	◉ Yes	○ No	Appendix
l. Location of credit generator in proximity to receiving water and credit user	◉ Yes	○ No	Appendix
m. Practice registration documents, if available	◉ Yes	○ No	Appendix
n. History of project site(s)	◉ Yes	○ No	1.1
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
[signature]	5/20/2025

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
[signature] Levi Helgren	6/3/25

Appendix 6: Notice of Intent to Conduct Water Quality Trading (Signed 2018 and 2025)

State of Wisconsin
Department of Natural Resources
101 South Webster Street
Madison WI 53707-7921
dnr.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 Norwalk	WI- 0024961	

Facility Address	City	State	ZIP Code
208 S. Church Street	Norwalk	WI	54648

Project Contact Name (if applicable)	Address	City	State	ZIP Code
Henry Vian	208 S. Church Street	Norwalk	WI	54648

Project Name
Norwalk Water Quality Trading Plan

Receiving Water Name	Parameter(s) being traded	HUC 12(s)
Moore Creek	Phosphorus	10-0707000601

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:

Stream bank stabilization, stream material clearing, reshaping stream banks, rip rap, seeding, mulching, lunker structures, rock weirs/random boulders for habitat improvement where possible.

Method for quantifying credits generated:
- ☐ Monitoring
- ☐ Modeling, Names: _____
- ☒ Other: NRCS Erosion Calc. & Soil Testing

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
Dirk Scurr	5/20/2025

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
Levi Helgren	6/3/25

Appendix 2. Notice of Intent

State of Wisconsin
Department of Natural Resources
101 South Webster Street
Madison, WI 53707

Notice of Intent to Conduct Water Quality Trading
Form 8700-nnn (R10/12)

Notice: Any personally identifiable information submitted on this form will be used for program purposes only, but is available for inspection and copying under Wisconsin's public records laws. This form should be completed by any permittee that intends to pursue pollutant trading as a method for complying with a permit limitation. Failure to complete this form would not result in penalties.

Applicant Information

Permittee Name	Permit Number	Facility Site Number
Village of Norwalk	WI- 0024961-08-0	N/A

Facility Address	City	State	ZIP Code
509 Wisconsin Street	Norwalk	WI	54648

Project Contact Name(if applicable)	Address	City	State	Zip Code
Dave Sauer, Cedar Corp.	2820 Walton Commons West Suite 142	Madison	WI	53718

Project Name: WWTF Facility Plan Amendment

Receiving Water Name	Parameter(s) being traded	HUC 12
Moore Creek	Phosphorus	See Attached List and Map

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 (check all that apply):
- ☐ Permitted Discharge (non-MS4)
- ☐ Permitted MS4
- ☐ Permitted CAFO
- ☐ Non-permitted urban 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; Broker Name: _____
- ☒ No
- ☐ Unsure

Permitted Discharge Information (Traditional Municipal/Industrial Discharge, MS4, CAFO):

Discharge Type	Permit Number	Name	Contact Address	Is the PS currently in compliance with their permit requirements?
☒ Traditional ☐ MS4 ☐ CAFO	0024961	Village of Norwalk		☒ 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

Nonpoint Information (Agricultural, non-permitted urban, etc.):

Will other improvements be made to improve effluent quality towards permit compliance?

☐ Yes *(if yes, please attach a description of these improvements)*
☐ No
☐ Unsure

Practices that will be used to generate credits:

Grade Stabilization Structures
Stream Bank Stabilization Projects
Barn Yard Improvements

Note: Given the current status of the Village WPDES Permit, it is proposed to complete non-point source improvement projects under the Adaptive Management option with intent to switch the completed projects to Water Quality Trading options in the future.

Method for quantifying credits generated: ☐ Monitoring
☒ Modeling, Names: STEPL, Hydrocad, P8, RUSTL
☒ Other: Soil Loss Estimates, Soil Phosphorus Testing

Projected date credits will be available: 2018 through 2025

The preparer certify 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
Paul K. Sauer	5-14-18

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
	5/14/18

NOTE: The *Authorized Representative* is someone who is authorized to sign all applications, reports or other information submitted to the DNR. This person may be; for a corporation, a responsible corporate officer including a president, secretary, treasurer, vice president or manager; and for a municipality, a ranking elected official; for a corporation or a municipality, another person authorized by one of those officers or officials and who has responsibility for the overall operation of the facility or activity regulated by the permit. This is the person to whom we will send information regarding the application, the draft permit and permit reissuance.

Appendix 7: Water Quality Trading Management Practice Registration Form 3400-207 (For All Completed Projects)

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	Facility Site Number
Village of Norwalk	WI-0024961	1

Facility Address	City	State	ZIP Code
208 S. Church St.	Norwalk	WI	54648

Project Contact Name (if applicable)	Address	City	State	ZIP Code
Henry Vian	208 S. Church St	Norwalk	WI	54648

Project Name: Village Park | Tractor Pull Section

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	1	Stream Bank Stabilization + Habitat Improvement	68.15	2:1	NRCS 580 NRCS 395

County	Closest Receiving Water Name	Land Parcel ID(s)	Parameter(s) being traded
Monroe	Moore Creek	161-00047	Phosphorus

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
Dan K. Sauer	11/17/2025

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
[signature]	11-17-2025

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

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	Facility Site Number
Village of Norwalk	WI- 0024961	2

Facility Address	City	State	ZIP Code
208 S. Church St.	Norwalk	WI	54648

Project Contact Name (if applicable)	Address	City	State	ZIP Code
Henry Dian	208 S. Church St.	Norwalk	WI	54648

Project Name: Mike Wiedl

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	2	Stream Bank Restoration + Habitat Improvement	44.14	2:1	NRCS 580 NRCS 395

County	Closest Receiving Water Name	Land Parcel ID(s)	Parameter(s) being traded
Monroe	Moore Creek	034-00641-0000	Phosphorus

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
Dan K. Sauer	11/17/2025

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
[signature]	11-17-2025

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

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	Facility Site Number
Village of Norwalk	WI- 0024961	3

Facility Address	City	State	ZIP Code
208 S. Church Street	Norwalk	WI	54648

Project Contact Name (if applicable)	Address	City	State	ZIP Code
Henry Vian	208 S. Church St.	Norwalk	WI	54648

Project Name
Ron Luethe

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	3	Stream Bank Stabilization + Habitat Improvemts	38.45	2:1	NRCS 580 NRCS 395

County	Closest Receiving Water Name	Land Parcel ID(s)	Parameter(s) being traded
Monroe	Moore Creek	034-00646-2000	Phosphorus

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
David K. Saur	11/17/2025

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
[signature]	11-17-2025

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

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	Facility Site Number
Village of Norwalk	WI- 0024961	4

Facility Address	City	State	ZIP Code
208 S. Church St.	Norwalk	WI	54648

Project Contact Name (if applicable)	Address	City	State	ZIP Code
Henry Vian	208 S. Church St	Norwalk	WI	54648

Project Name: Jon Muehlenkamp

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	4	Stream Bank Stabilization + Habitat Improvements	18.40	2:1	NRCS 580 NRCS 395

County	Closest Receiving Water Name	Land Parcel ID(s)	Parameter(s) being traded
Monroe	Moore Creek	161-00256-0000 034-00453-0000	Phosphorus

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
David K. Sauer	11/17/2025

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
	11-17-2025

Leave Blank – For Department Use Only

Date Received		Trade Docket Number
Entered in Tracking System ☐ Yes	Date Entered	Name of Department Reviewer

Appendix 8: Photos of Completed Streambank Improvements Taken June 2025

Village of Norwalk - Moore Creek
Village Property
June 10, 2025



North Section - Looking north



North Section - Looking south



Village of Norwalk - Moore Creek
Village Property
June 10, 2025
North Section Looking South

Village of Norwalk - Moore Creek
Private Property
June 10, 2025

Wiedl



South of Landmark Ave Looking South

Luethe



North of Landmark - Looking Northwest

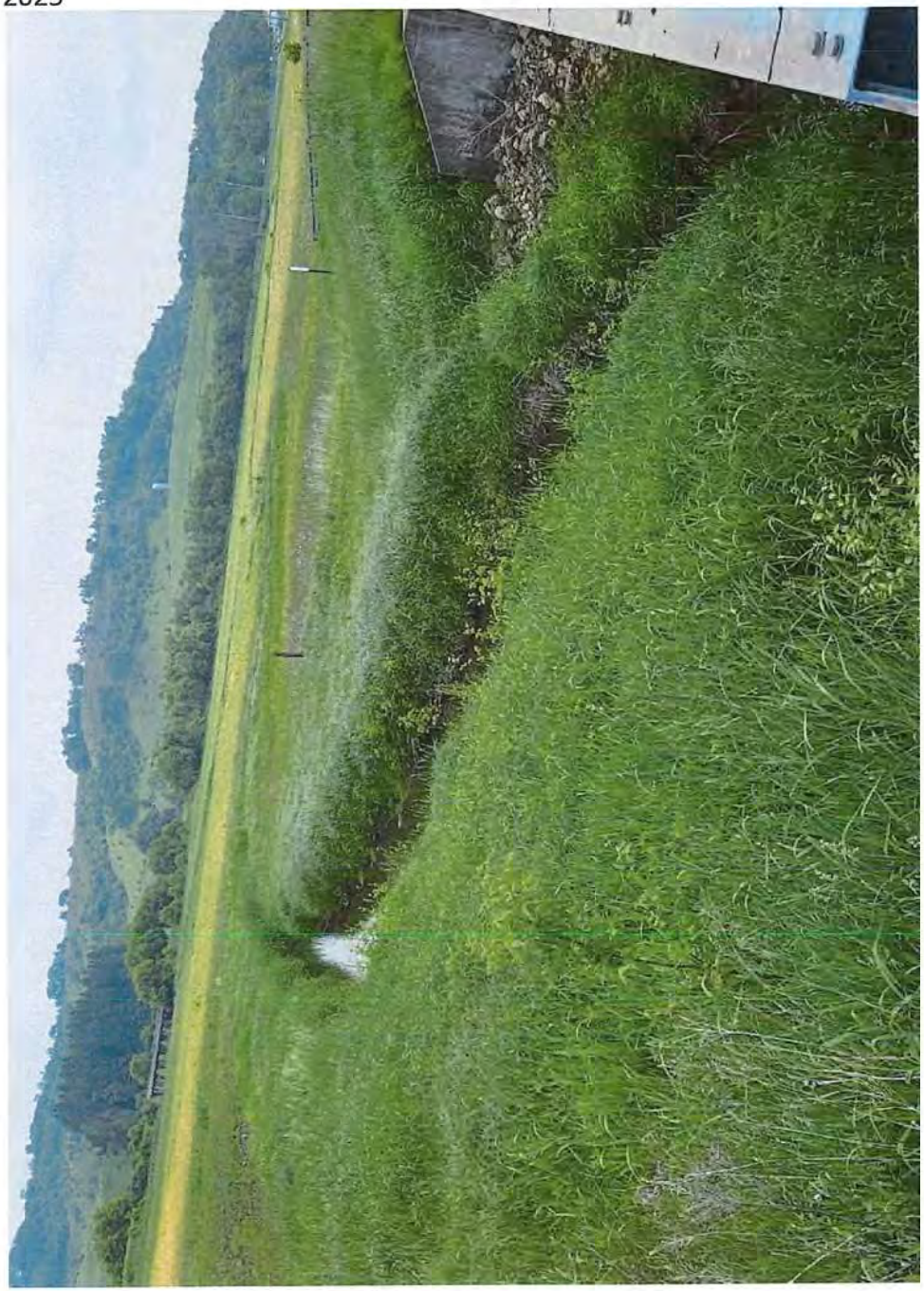
Village of Norwal[illegible] Moore Creek
Private [illegible]perty
June 10, 2025

Muehlenkamp



North Section - Looking south

Muehlenkamp



North Section - Looking south

Village of Norwalk - Moore Creek
Private Property
June 10, 2025

Muehlenkamp



South Section - Looking south

Muehlenkamp



South Section - Looking north

Appendix 9: Annual Watershed Reports

Cedar CORPORATION
Community Infrastructure • Architecture • Environmental Services
2820 Walton Commons West, Suite 142
Madison, WI 53718
608-249-5046
www.cedarcorp.com

May 1, 2025

Mr. Logan Rubeck
Wisconsin Department of Natural Resources
1300 W. Clairemont Avenue
Eau Claire, WI 54701

Subject: Village of Norwalk WPDES Permit WI- 0024961
Annual Watershed Report #5
Phosphorus Optimization and Phosphorus MDV Limit - Report #5

Dear Mr. Rubeck:

On behalf of the Village of Norwalk, we are submitting the annual watershed report and the phosphorus optimization and phosphorus MDV limit of 1.0 mg/l compliance report as required by the Village's WPDES Permit. Both reports address the steps which the Village has taken to comply with the proposed phosphorus limitations contained in the permit. This information was previously submitted to you March 5, 2025, as it was included in the Water Quality Trading Project Plan for Norwalk.

Please review these reports and let us know if you have any additional questions. My direct cell number is 608-358-7140.

Sincerely,

CEDAR CORPORATION

David K. Sauer, P.E.
Director

cc: Henry Vian, Norwalk
Levi Helgren, Norwalk
Kerry Vian, Norwalk

I:\Clients-Madsn\N\N5899 Norwalk Village of\001 WWTF - Facility Plan, Phosphorus Upgrades, Non-Point Phosphorus Work Scope\4000 regulatory\Watershed Report - May 2025\L-Rubeck, Annual Watershed Report #5.docx

Village of Norwalk
WPDES Permit WI-0024961
Annual Watershed Report (Multi Discharge Variance)
Report #5 for 2024
May 2025

Description

The current WPDES Permit for the discharge of treated wastewater to Moore Creek requires an annual watershed report to be submitted. The Village completed several watershed projects in 2018 and 2019. In addition, a new chemical feed system for phosphorus treatment at the WWTF was approved and started operation in June 2021 with the goal to reduce phosphorus concentrations to below 1.0 mg/l. For the period of January 2024 through December 2024, the average phosphorus was 0.89 mg/l.

Monthly and Annual Phosphorus Discharge for 2024

Attached is a summary of the phosphorus discharged from the WWTF for 2024. The average phosphorus discharge for 2024 was 0.89 mg/l. This is typical for the Village which has an entire residential user base with no industrial dischargers. Effective April 1, 2022, the phosphorus monthly average limit is 1.0 mg/l (in accordance with the approved MDV plan). The attached also shows the calculated target value for phosphorus reductions which is 110 lbs. P/year at the design flow of 0.045 MGD. For the 2024 average flow rate of 0.030 MGD, the calculated target value (required reductions) for phosphorus reductions is 73.05 lbs. P/year.

Wastewater Treatment Facility/Phosphorus Optimization Progress

The Village of Norwalk has signed contracts with Wapasha Construction, Co., on May 18, 2022, to complete various upgrades at the WWTF. These upgrades include new electrical/control, new mechanical equipment, new HVAC, new sludge storage tank and upgrades to the new phosphorus chemical feed treatment system. These are long-term, 20-year system upgrades. As of May 2025, WWTF upgrades are completed with only punch list work items being completed currently.

Moore Creek Watershed Projects and Annual Offset

The Annual Watershed Report dated July 2022 included the completed watershed projects by the Village of Norwalk. These projects were identified in the Multi-Discharger Variance (MDV) plan that was approved by the Wisconsin Department of Natural Resources (WDNR). A total of four projects were completed in 2018/2019 timeframe. Total phosphorus annual offset from these projects was calculated to be 169.14 lbs. P/year. This annual offset is greater than the required offset at the projected design flow rate of the WWTF (110 lbs. P/year). No additional watershed projects were completed in 2024 by the Village.

The Annual Watershed Report dated July 2021 also included a complete record of the as-built documentation of the four watershed projects completed by the Village of Norwalk. A summary listing each of the four completed projects is again submitted at this time.

Table 2
Village of Norwalk
Norwalk WWTF
2024 Phosphorus Discharge to Moore Creek
March 2025

Date	Monthly Ave. Flow (MGD)	Total Flow (MG)	Monthly Ave. Phosphorus (mg/l)	Phosphorus Load (lbs./month)
January 2024	0.0325	1.007	0.920	7.73
February 2024	0.0305	0.884	0.319	2.35
March 2024	0.0328	1.016	1.239	10.50
April 2024	0.0370	1.110	1.608	14.88
May 2024	0.0364	1.128	1.789	16.83
June 2024	0.0344	1.032	1.314	11.30
July 2024	0.0412	1.277	0.957	10.19
August 2024	0.0276	0.855	0.603	4.30
September 2024	0.0261	0.783	0.698	4.55
October 2024	0.0219	0.678	0.552	3.12
November 2024	0.0274	0.822	0.411	2.81
December 2024	0.0239	0.740	0.311	1.92
Average	0.030	0.94	0.89	7.54
TOTAL	0.371	11.33	10.72	90.48

Note: 1.) Effective April 1, 2022, Phosphorus monthly average limit is 1.0 mg/l.

2.) Sum of the total Annual Phosphorus discharge for 2024 = 90.48 lbs./year

3.) At 1.0 mg/l Phosphorus and average flow of 0.030 MGD, the total annual Phosphorus discharge would be 91.3 lbs./year. The actual annual phosphorus discharge for 2024 was 90.48 lbs./year.

4.) Calculated Phosphorus target value(s) (required reductions) for 2024 assuming a 1 mg/l WWTF discharge and a P target of 0.2 mg/l. This is the amount of non-point phosphorus projects required at current flows.

A. 0.030 (8.34) (1.0 - 0.2) (365) = 73.05 lbs. P/year (6.08 lbs. P/month).

5.) Calculated Phosphorus target value(s) for Design Flow

A. 0.045 (8.34) (1.0 - 0.2) (365) = 110 lbs. P/year (9.17 lbs. P/month).

6.) The Village has completed stream bank stabilization projects which has reduced phosphorus to the stream by 169.14 lbs./year. This is greater than the phosphorus target value at design flow of 110 lbs. P/year so compliance with the WPDES Permit is attained.

Village Phosphorus Load at Current Effluent Concentration and Ferric Chloride Addition:

Qdesign = 0.138 MGD, Q2036 = 0.045 MGD, Qcurrent = 0.030 MGD

Effluent TP = 0.89 mg/L (January 2024 – December 2024 average concentration)

P Load @ Qdesign = (0.138) * (0.89) * (8.34) * (365) = 374 lb-P/yr.

P Load @ Q2036 = (0.045) * (0.89) * (8.34) * (365) = 122 lb-P/yr.

P Load @ Qcurrent = (0.030) * (0.89) * (8.34) * (365) = 81.3 lb-P/yr.

Village Phosphorus Load at Discharge Limit of 0.075 mg/L:

P Load @ Qdesign = (0.138) * (0.075) * (8.34) * (365) = 32 lb-P/yr.

P Load @ Q2036 = (0.045) * (0.075) * (8.34) * (365) = 11 lb-P/yr.

P Load @ Qcurrent = (0.030) * (0.075) * (8.34) * (365) = 6.85 lb-P/yr.

Required Phosphorus Load Reduction at WWTF, WQT and Ferric Chloride Addition:

At Qdesign, P load reduction = 374 – 32 = 342 lb-P/yr.

At Q2036, P load reduction = 122 – 11 = 111 lb-P/yr.

At Qcurrent, P load reduction = 81.3 – 6.85 = 74.45 lb-P/yr.

Non-Point Phosphorus Reduction and Calculated Trading Credits

Flow Rate & Effluent Phosphorus	P Reduction at WWTF (lb-P/yr.)	Approved/Completed Phosphorus Credits (lbs./yr.)
Qdesign, EFF. TP = 0.89 mg/L	342	169.14
At Q2036, EFF. TP = 0.89 mg/L	111	169.14
At Qcurrent, EFF. TP = 0.89 mg/L	74.45	169.14

Village of Norwalk
Non-Point Water Quality Phosphorus Improvement Projects (Summary)
Moore Creek Watershed
May 2025

The following projects have been completed for sediment and phosphorus control. These projects are located upstream from the WWTF and drain into tributaries of Moore Creek which flows through the Village of Norwalk. This list of completed projects was assembled in conjunction with Bob Micheel, Monroe County Land Conservation Department. All projects are located upstream from the point where the WWTF discharges into Moore Creek.

Project Name	Description	Phosphorus Annual Offset at WWTF (lbs./yr.)	Completion Date
Jon Muehlenkamp	stream bank stabilization, 310 LF	18.40	September 14, 2018
Ron Luethe	stream bank stabilization, 911 LF	38.45	August 13, 2019
Mike Wiedl	stream bank stabilization, 1,120 LF	44.14	August 13, 2019
Village of Norwalk	stream bank stabilization, 535 LF	68.15	September 17, 2019
Total		**169.14**	

Note: The 169.14 lbs./yr. is more than 110 lbs./yr. phosphorus target value(s) at Design Flow (2036).

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May 1, 2024

Mr. Logan Rubeck
Wisconsin Department of Natural Resources
1300 W. Clairemont Avenue
Eau Claire, WI 54701

Subject: Village of Norwalk WPDES Permit WI- 0024961
Annual Watershed Report #4
Phosphorus Optimization and Phosphorus MDV Limit - Report #4

Dear Mr. Rubeck:

On behalf of the Village of Norwalk, we are submitting the annual watershed report and the phosphorus optimization and phosphorus MDV limit of 1.0 mg/l compliance report as required by the Village's WPDES Permit. Both reports address the steps which the Village has taken to comply with the proposed phosphorus limitations contained in the permit.

Please review these reports and let us know if you have any additional questions. My direct cell number is 608-358-7140.

Sincerely,

CEDAR CORPORATION

David K. Sauer, P.E.
Director

cc: Henry Vian, Norwalk
Levi Helgren, Norwalk
Kerry Vian, Norwalk

Village of Norwalk
WPDES Permit WI-0024961
Annual Watershed Report (Multi Discharge Variance)
Report #4 for 2023
April 2024

Description

The current WPDES Permit for the discharge of treated wastewater to Moore Creek requires an annual watershed report to be submitted. The Village completed several watershed projects in 2018 and 2019. In addition, a new chemical feed system for phosphorus treatment at the WWTF was approved and started operation in June 2021 with the goal to reduce phosphorus concentrations to below 1.0 mg/l. For the period of January 2023 through December 2023, the average phosphorus was 0.62 mg/l.

Monthly and Annual Phosphorus Discharge for 2023

Attached is a summary of the phosphorus discharged from the WWTF for 2023. The average phosphorus discharge for 2023 was 0.62 mg/l. This is typical for the Village which has an entire residential user base with no industrial dischargers. Effective April 1, 2022, the phosphorus monthly average limit is 1.0 mg/l (in accordance with the approved MDV plan). The attached also shows the calculated target value for phosphorus reductions which is 110 lbs. P/year at the design flow of 0.045 MGD. For the 2023 average flow rate of 0.0376 MGD, the calculated target value (required reductions) for phosphorus reductions is 91.56 lbs. P/year.

Wastewater Treatment Facility/Phosphorus Optimization Progress

The Village of Norwalk has signed contracts with Wapasha Construction, Co., on May 18, 2022, to complete various upgrades at the WWTF. These upgrades include new electrical/control, new mechanical equipment, new HVAC, new sludge storage tank and upgrades to the new phosphorus chemical feed treatment system. These are long-term, 20-year system upgrades. As of April 2024, WWTF upgrades are still on-going with completion to be August 15, 2024.

Moore Creek Watershed Projects and Annual Offset

The Annual Watershed Report dated July 2022 included the completed watershed projects by the Village of Norwalk. These projects were identified in the Multi-Discharger Variance (MDV) plan that was approved by the Wisconsin Department of Natural Resources (WDNR). A total of four projects were completed in 2018/2019 timeframe. Total phosphorus annual offset from these projects was calculated to be 169.29 lbs. P/year. This annual offset is greater than the required offset at the projected design flow rate of the WWTF (110 lbs. P/year). No additional watershed projects were completed in 2023 by the Village.

The Annual Watershed Report dated July 2021 also included a complete record of the as-built documentation of the four watershed projects completed by the Village of Norwalk. A summary listing each of the four completed projects is again submitted at this time.

Norwalk WWTF
Phosphorus Discharge to Moore Creek
April 2024

Date	Monthly Ave. Flow (MGD)	Total Flow (mg/l)	Monthly Ave. Phosphorus (mg/l)	Phosphorus Load (lbs./month)
January 2023	0.0328	1.016	0.388	3.28
February 2023	0.0376	1.052	0.475	4.16
March 2023	0.0551	1.708	0.504	7.17
April 2023	0.0751	2.253	0.321	6.03
May 2023	0.0437	1.354	0.460	5.19
June 2023	0.0295	0.885	0.881	6.50
July 2023	0.0250	0.775	0.885	5.72
August 2023	0.0254	0.787	1.220	8.00
September 2023	0.0289	0.867	0.898	6.49
October 2023	0.0321	0.995	0.695	5.76
November 2023	0.0340	1.054	0.414	3.63
December 2023	0.0330	1.023	0.382	3.25
Average	0.0376	1.14	0.62	5.43
TOTAL	0.452	13.77	7.52	65.18

Note:

1.) Effective April 1, 2022, Phosphorus monthly average limit is 1.0 mg/l.

2.) Sum of the total Annual Phosphorus discharge for 2023 = 65.18 lbs./year.

3.) At 1.0 mg/l Phosphorus and average flow of 0.0376 MGD, the total annual Phosphorus discharge would be 114.4 lbs./year. The actual annual phosphorus discharge for 2023 was 65.18 lbs./year.

4.) Calculated Phosphorus target value(s) (required reductions) for 2023 assuming a 1 mg/l WWTF discharge and a P target of 0.2 mg/l. This is the amount of non-point phosphorus projects required at current flows.

A. 0.0376 (8.34) (1.0 - 0.2) (365) = 91.56 lbs. P/year (7.63 lbs. P/month).

5.) Calculated Phosphorus target value(s) for Design Flow

A. 0.045 (8.34) (1.0 - 0.2) (365) = 110 lbs. P/year (9.17 lbs. P/month).

6.) The Village has completed stream bank stabilization projects which has reduced phosphorus to the stream by 169.29 lbs./year. This is greater than the phosphorus target value of 110 lbs. P/year so compliance with the WPDES Permit is attained.

Village of Norwalk
Non-Point Water Quality Phosphorus Improvement Projects (Summary)
Moore Creek Watershed
April 2024

The following projects have been completed for sediment and phosphorus control. These projects are located upstream from the WWTF and drain into tributaries of Moore Creek which flows through the Village of Norwalk. This list of completed projects was assembled in conjunction with Bob Micheel, Monroe County Land Conservation Department. All projects are located upstream from the point where the WWTF discharges into Moore Creek.

Project Name	Description	Phosphorus Annual Offset at WWTF (lbs./yr.)	Completion Date
Jon Muehlenkamp	stream bank stabilization, 310 LF	18.40	September 14, 2018
Ron Luethe	stream bank stabilization, 911 LF	38.45	August 13, 2019
Mike Wiedl	stream bank stabilization, 1,120 LF	44.14	August 13, 2019
Village of Norwalk	stream bank stabilization, 535 LF	68.30	September 17, 2019
Total		**169.29**	

Note: The 169.29 lbs./yr. is more than 110 lbs./yr. phosphorus target value(s) at Design Flow (2036).

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January 16, 2024

Mr. Logan Rubeck
Wisconsin Department of Natural Resources
1300 W. Clairemont Avenue
Eau Claire, WI 54701

Subject: Village of Norwalk WPDES Permit WI- 0024961
Annual Watershed Report #3
Phosphorus Optimization and Phosphorus MDV Limit - Report #3

Dear Mr. Rubeck:

On behalf of the Village of Norwalk, we are submitting the annual watershed report and the phosphorus optimization and phosphorus MDV limit of 1.0 mg/l compliance report as required by the Village's WPDES Permit. Both reports address the steps which the Village has taken to comply with the proposed phosphorus limitations contained in the permit.

Please review these reports and let us know if you have any additional questions. My direct cell number is 608-358-7140.

Sincerely,

CEDAR CORPORATION

David K. Sauer, P.E.
Director

cc: Henry Vian, Norwalk
Levi Helgren, Norwalk
Kerry Vian, Norwalk

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Village of Norwalk
WPDES Permit WI-0024961
Annual Watershed Report (Multi Discharge Variance)
Report #3 for 2022
January 2024

Description

The current WPDES Permit for the discharge of treated wastewater to Moore Creek requires an annual watershed report to be submitted. The Village completed several watershed projects in 2018 and 2019. In addition, a new chemical feed system for phosphorus treatment at the WWTF was approved and started operation in June 2021 with the goal to reduce phosphorus concentrations to below 1.0 mg/l. For the period of January 2022 through December 2022, the average phosphorus was 0.91 mg/l.

Monthly and Annual Phosphorus Discharge for 2022

Attached is a summary of the phosphorus discharged from the WWTF for 2022. The average phosphorus discharge for 2022 was 0.91 mg/l. This is typical for the Village which has an entire residential user base with no industrial dischargers. Effective April 1, 2022, the phosphorus monthly average limit is 1.0 mg/l (in accordance with the approved MDV plan). The attached also shows the calculated target value for phosphorus reductions which is 110 lbs. P/year at the design flow of 0.045 MGD. For the 2022 average flow rate of 0.0335 MGD, the calculated target value (required reductions) for phosphorus reductions is 81.58 lbs. P/year.

Wastewater Treatment Facility/Phosphorus Optimization Progress

The Village of Norwalk has signed contracts with Wapasha Construction, Co., on May 18, 2022, to complete various upgrades at the WWTF. These upgrades include new electrical/control, new mechanical equipment, new HVAC, new sludge storage tank and upgrades to the new phosphorus chemical feed treatment system. These are long-term, 20-year system upgrades. As of January 2024, WWTF upgrades are still on-going with completion to be August 15, 2024.

Moore Creek Watershed Projects and Annual Offset

The Annual Watershed Report dated July 2022 included the completed watershed projects by the Village of Norwalk. These projects were identified in the Multi-Discharger Variance (MDV) plan that was approved by the Wisconsin Department of Natural Resources (WDNR). A total of four projects were completed in 2018/2019 timeframe. Total phosphorus annual offset from these projects was calculated to be 169.29 lbs. P/year. This annual offset is greater than the required offset at the projected design flow rate of the WWTF (110 lbs. P/year). No additional watershed projects were completed in 2022 by the Village.

The Annual Watershed Report dated July 2021 also included a complete record of the as-built documentation of the four watershed projects completed by the Village of Norwalk. A summary listing each of the four completed projects is again submitted at this time.

Norwalk WWTF
Phosphorus Discharge to Moore Creek
January 2024

Date	Flow Monthly Ave. (MGD)	Total Phosphorus Monthly Ave. (mg/l)	Total Phosphorus Monthly Total (lbs./month)
January 2022	0.030	0.90	7.01
February 2022	0.030	0.66	4.72
March 2022	0.037	1.00	9.61
April 2022	0.039	0.83	8.21
May 2022	0.044	1.12	12.81
June 2022	0.041	0.93	9.79
July 2022	0.027	1.78	12.83
August 2022	0.031	1.19	9.66
September 2022	0.030	0.76	5.80
October 2022	0.028	0.79	5.80
November 2022	0.032	0.63	5.37
December 2022	0.033	0.41	3.62
Average	0.0335	0.92	7.94
TOTAL	0.402		95.23

Note:

1.) Effective April 1, 2022, Phosphorus monthly average limit is 1.0 mg/l.

2.) Sum of the total Annual Phosphorus discharge for 2022 = 95.23 lbs./year.

3.) At 1.0 mg/l Phosphorus and average flow of 0.0335 MGD, the total annual Phosphorus discharge would be 101.9 lbs./year. The actual annual phosphorus discharge for 2022 was 95.23 lbs./year.

4.) Calculated Phosphorus target value(s) (required reductions) for 2022 assuming a 1 mg/l WWTF discharge and a P target of 0.2 mg/l. This is the amount of non-point phosphorus projects required at current flows.

A. 0.0335 (8.34) (1.0 - 0.2) (365) = 81.58 lbs. P/year (6.79 lbs. P/month).

5.) Calculated Phosphorus target value(s) for Design Flow

A. 0.045 (8.34) (1.0 - 0.2) (365) = 110 lbs. P/year (9.17 lbs. P/month).

6.) The Village has completed stream bank stabilization projects which has reduced phosphorus to the stream by 169.29 lbs./year. This is greater than the phosphorus target value of 110 lbs. P/year so compliance with the WPDES Permit is attained.

Village of Norwalk
Non-Point Water Quality Phosphorus Improvement Projects (Summary)
Moore Creek Watershed
January 2024

The following projects have been completed for sediment and phosphorus control. These projects are located upstream from the WWTF and drain into tributaries of Moore Creek which flows through the Village of Norwalk. This list of completed projects was assembled in conjunction with Bob Micheel, Monroe County Land Conservation Department. All projects are located upstream from the point where the WWTF discharges into Moore Creek.

Project Name	Description	Phosphorus Annual Offset at WWTF (lbs./yr.)	Completion Date
Jon Muehlenkamp	stream bank stabilization, 310 LF	18.40	September 14, 2018
Ron Luethe	stream bank stabilization, 911 LF	38.45	August 13, 2019
Mike Wiedl	stream bank stabilization, 1,120 LF	44.14	August 13, 2019
Village of Norwalk	stream bank stabilization, 535 LF	68.30	September 17, 2019
Total		**169.29**	

Note: The 169.29 lbs./yr. is more than 110 lbs./yr. phosphorus target value(s) at Design Flow (2036).

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July 12, 2022

Mr. Peter Pfefferkorn
Wisconsin Department of Natural Resources
473 Griffith Avenue
Wisconsin Rapids, WI 54494-7859

Dear Peter:

RE: Village of Norwalk WPDES Permit WI- 0024961
Annual Watershed Report #2
Phosphorus Optimization and Phosphorus MDV Limit of 1.0 mg/l Compliance

On behalf of the Village of Norwalk, we are submitting the annual watershed report and the phosphorus optimization and phosphorus MDV limit of 1.0 mg/l compliance report as required by the Village's WPDES Permit. Both reports address the steps which the Village has taken to comply with the proposed phosphorus limitations contained in the permit.

Please review these reports and let us know if you have any additional questions. My direct cell number is 608-358-7140.

Sincerely,

David K. Sauer, P.E. Cedar Corporation
Director

CC: Henry Vian, Norwalk
Levi Helgren, Norwalk
Kerry Vian, Norwalk
Joe Martirano, Cedar Corporation

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Village of Norwalk
WPDES Permit WI-0024961
Annual Watershed Report
July 2022

Description

The current WPDES Permit for the discharge of treated wastewater to Moore Creek requires an annual watershed report to be submitted. The Village completed several watershed projects in 2018 and 2019. In addition, a new chemical feed system for phosphorus treatment at the WWTF was approved and started operation in June 2021 with the goal to reduce phosphorus concentrations to below 1.0 mg/l. For the period of July 2021 through December 2021, the average phosphorus was below 1.0 mg/l except for July 2021.

Monthly and Annual Phosphorus Discharge for 2021

Attached is a summary of the phosphorus discharged from the WWTF for 2021. The average phosphorus discharge for 2021 was 1.99 mg/l. This is typical for the Village which has an entire residential user base with no industrial dischargers. The monthly average phosphorus limit for 2021 is 3.9 mg/l. Effective April 1, 2022, the phosphorus monthly average limit is 1.0 mg/l (in accordance with the approved MDV plan). The attached also shows the calculated target value for phosphorus reductions which is 110 lbs. P/year at the design flow of 0.045 MGD. For the 2021 average flow rate of 0.0352 MGD, the calculated target value for phosphorus reductions is 85.72 lbs. P/year.

Wastewater Treatment Facility/Phosphorus Optimization Progress

The Village of Norwalk has signed contracts with Wapasha Construction, Co., on May 18, 2022, to complete various upgrades at the WWTF. These upgrades include new electrical/control, new mechanical equipment, new HVAC, new sludge storage tank and upgrades to the new phosphorus chemical feed treatment system. These are long-term, 20-year system upgrades.

Moore Creek Watershed Projects and Annual Offset

The Annual Watershed Report dated July 2021 included the completed watershed projects by the Village of Norwalk. These projects were identified in the Multi-Discharger Variance (MDV) plan that was approved by the Wisconsin Department of Natural Resources (WDNR). A total of four projects were completed in 2018/2019 timeframe. Total phosphorus annual offset from these projects was calculated to be 169.29 lbs. P/year. This annual offset is greater than the required offset at the projected design flow rate of the WWTF. No additional watershed projects were completed in 2021 by the Village.

The Annual Watershed Report dated July 2021 also included a complete record of the as-built documentation of the four watershed projects completed by the Village of Norwalk. A summary listing each of the four completed projects is again submitted at this time.

Norwalk WWTF
Phosphorus Discharge to Moore Creek
July 2022

Date	Flow Monthly Ave. (MGD)	Total Phosphorus Monthly Ave. (mg/l)	Total Phosphorus Monthly Ave. (lbs./day)	Total Phosphorus Monthly Total (lbs./month)
January 2021	0.031	1.89	0.48	15.14
February 2021	0.033	7.04	1.93	54.04
March 2021	0.039	6.14	1.99	61.69
April 2021	0.037	1.67	0.51	15.30
May 2021	0.033	1.02	0.28	8.70
June 2021	0.030	1.02	0.25	7.50
July 2021	0.038	1.16	0.36	11.39
August 2021	0.061	0.74	0.37	11.47
September 2021	0.034	0.79	0.22	6.72
October 2021	0.030	0.92	0.23	7.13
November 2021	0.029	0.77	0.18	5.40
December 2021	0.028	0.74	0.17	5.27
Average	0.0353	1.99	0.58	17.48

Note:

1.) Current Phosphorus monthly average limit is 3.9 mg/l.

2.) Effective April 1, 2022, Phosphorus monthly average limit is 1.0 mg/l.

3.) Sum of the total Annual Phosphorus discharge for 2021 = 209.75 lbs./year.

4.) At 1.0 mg/l Phosphorus and average flow of 0.0352 MGD, the total annual Phosphorus discharge would be 107.15 lbs./year.

5.) Calculated Phosphorus target value(s) for 2020 assuming a 1 mg/l WWTF discharge and a P target of 0.2 mg/l.

A. 0.0352 (8.34) (1.0 - 0.2) (365) = 85.72 lbs. P/year (7.1 lbs. P/month).

6.) Calculated Phosphorus target value(s) for Design Flow (2036), assuming a 1 mg/l WWTF discharge and a P target of 0.2 mg/l.

A. 0.045 (8.34) (1.0 - 0.2) (365) = 110 lbs. P/year (9.17 lbs. P/month).

Village of Norwalk
Non-Point Water Quality Phosphorus Improvement Projects (Summary)
Moore Creek Watershed
July 2022

The following projects have been completed for sediment and phosphorus control. These projects are located upstream from the WWTF and drain into tributaries of Moore Creek which flows through the Village of Norwalk. This list of completed projects was assembled in conjunction with Bob Micheel, Monroe County Land Conservation Department. All projects are located upstream from the point where the WWTF discharges into Moore Creek.

Project Name	Description	Phosphorus Annual Offset at WWTF (lbs/yr.)	Completion Date
Jon Muehlenkamp	stream bank stabilization, 310 LF	18.40	September 14, 2018
Ron Luethe	stream bank stabilization, 911 LF	38.45	August 13, 2019
Mike Wiedl	stream bank stabilization, 1,120 LF	44.14	August 13, 2019
Village of Norwalk	stream bank stabilization, 535 LF	68.30	September 17, 2019
Total		**169.29**	

Note: The 169.29 lbs./yr. is more than 110 lbs./yr. phosphorus target value(s) at Design Flow (2036).

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July 13, 2021

Mr. Peter Pfefferkorn
Wisconsin Department of Natural Resources
473 Griffith Avenue
Wisconsin Rapids, WI 54494-7859

Dear Peter:

RE: Village of Norwalk WPDES Permit WI- 0024961
Annual Watershed Report
Phosphorus Optimization and Phosphorus MDV Limit of 1.0 mg/l Compliance

On behalf of the Village of Norwalk, we are submitting the annual watershed report and the phosphorus optimization and phosphorus MDV limit of 1.0 mg/l compliance report as required by the Village's WPDES Permit. Both reports address the steps which the Village has taken to comply with the proposed phosphorus limitations contained in the permit.

Please review these reports and let us know if you have any additional questions. My direct cell number is 608-358-7140.

Sincerely,

David K. Sauer, P.E. Cedar Corporation
Director

CC: Henry Vian, Norwalk
Levi Helgren, Norwalk
Kerry Vian, Norwalk
Joe Martirano, Cedar Corporation

Village of Norwalk
WPDES Permit WI-0024961
Annual Watershed Report
July 2021

Description

The current WPDES Permit for the discharge of treated wastewater to Moore Creek requires an annual watershed report to be submitted. The Village completed several watershed projects in 2018 and 2019. In addition, a new chemical feed system for phosphorus treatment at the WWTF was approved and started operation in June 2021 with the goal to reduce phosphorus concentrations to below 1.0 mg/l.

Monthly and Annual Phosphorus Discharge for 2020

Attached is a summary of the phosphorus discharged from the WWTF for 2020. The average phosphorus discharge for 2020 was 3.34 mg/l. This is typical for the Village which has an entire residential user base with no industrial dischargers. The current monthly average phosphorus limit is 3.9 mg/l. Effective April 1, 2022, the phosphorus monthly average limit is 1.0 mg/l (in accordance with the approved MDV plan). The attached also shows the calculated target value for phosphorus reductions which is 110 lbs. P/year at the design flow of 0.045 MGD. For the 2020 average flow rate of 0.0419 MGD, the calculated target value for phosphorus reductions is 102 lbs. P/year.

Moore Creek Watershed Projects and Annual Offset

Attached is a summary of the completed watershed projects by the Village of Norwalk. These projects were identified in the Multi-Discharger Variance (MDV) plan that was approved by the Wisconsin Department of Natural Resources (WDNR). A total of four projects were completed in 2018/2019 timeframe. Total phosphorus annual offset from these projects is calculated to be 169.29 lbs. P/year. This annual offset is greater than the required offset at the projected design flow rate of the WWTF.

Included in this submittal is a complete record of the as-built documentation of the four watershed projects completed by the Village of Norwalk.

Norwalk WWTF
Phosphorus Discharge to Moore Creek
July 2021

Date	Flow Monthly Ave. (MGD)	Total Phosphorus Monthly Ave. (mg/l)	Total Phosphorus Monthly Ave. (lbs./day)	Total Phosphorus Monthly Total (lbs./month)
January 2020	0.0420	2.97	1.04	32.25
February 2020	0.0383	3.78	1.20	40.32
March 2020	0.0647	2.78	1.50	46.50
April 2020	0.0525	3.37	1.47	44.10
May 2020	0.0409	4.49	1.53	47.43
June 2020	0.0538	3.35	1.50	45.00
July 2020	0.0409	3.89	1.32	40.92
August 2020	0.0319	4.48	1.19	36.89
September 2020	0.0357	4.06	1.20	36.00
October 2020	0.0318	2.91	0.77	23.92
November 2020	0.0385	2.59	0.83	24.90
December 2020	0.0313	1.38	0.36	11.16
Average	0.0419	3.34	1.16	35.78

Note:

1.) Current Phosphorus monthly average limit is 3.9 mg/l.

2.) Effective April 1, 2022, Phosphorus monthly average limit is 1.0 mg/l.

3.) Sum of the total Annual Phosphorus discharge for 2020 = 429.39 $\frac{\text{lbs.}}{\text{year}}$

4.) At 1.0 mg/l Phosphorus and average flow of 0.0419 MGD, the total annual Phosphorus discharge would be 127.54 $\frac{\text{lbs.}}{\text{year}}$

5.) Calculated Phosphorus target value(s) for 2020 assuming a 1 mg/l WWTF discharge and a P target of 0.2 mg/l.

A. 0.0419 (8.34) (1.0 - 0.2) (365) = 102 lbs. P/year (8.5 lbs. P/month).

6.) Calculated Phosphorus target value(s) for Design Flow (2036), assuming a 1 mg/l WWTF discharge and a P target of 0.2 mg/l.

A. 0.045 (8.34) (1.0 - 0.2) (365) = 110 lbs. P/year (9.17 lbs. P/month).

Village of Norwalk
Non-Point Water Quality Phosphorus Improvement Projects (Summary)
Moore Creek Watershed
July 2021

The following projects have been completed for sediment and phosphorus control. These projects are located upstream from the WWTF and drain into tributaries of Moore Creek which flows through the Village of Norwalk. This list of completed projects was assembled in conjunction with Bob Micheel, Monroe County Land Conservation Department. All projects are located upstream from the point where the WWTF discharges into Moore Creek.

Project Name	Description	Phosphorus Annual Offset at WWTF (lbs/yr.)	Completion Date
Jon Muehlenkamp	stream bank stabilization, 310 LF	18.40	September 14, 2018
Ron Luethe	stream bank stabilization, 911 LF	38.45	August 13, 2019
Mike Wiedl	stream bank stabilization, 1,120 LF	44.14	August 13, 2019
Village of Norwalk	stream bank stabilization, 535 LF	68.30	September 17, 2019
Total		**169.29**	

Note: The 169.29 lbs./yr. is more than 110 lbs./yr. phosphorus target value(s) at Design Flow (2036).

Appendix 10: Data and Calculations for Completed Streambank Improvements

Moore Creek – Norwalk
Village Park/Tractor Pull Section
Calculation of Soil Loss, Phosphorus Loss, Phosphorus Credit
October 2019 (As-Built)
April 2026 (Revised per WDNR Comments)

A. Reference Information

1. DNR formula for streambank loss in tons/year:

$$\frac{\text{Length x height x annual lateral recession rate}}{20}$$

2. UW Soil and Plant Analysis Lab - Soil Test Results

   Using the average soil Phosphorus content of the 25 samples taken in 2018 and 2019.

   Soil samples taken November 2018 and 2019

   Total Phosphorus – 0.048% based on 25 soil samples at 25 locations

3. Calculated Trade Ratio: 2:1 (assuming Moore Creek is non-compliant)

4. Streambank Length = 535 LF total (535 LF rip rap); 350 LF @ 11.2' high x 0.5'/yr. recession

B. Soil Loss and Phosphorus Credit at WWTF (See Attached Map)

350' x 11.2' x 0.5'/yr. = 1,960 CF/yr.

185' x 2.5' x 0.25'/yr. = 115.6 CF/yr.

Total Soil Loss – 2,075.6 CF/yr.

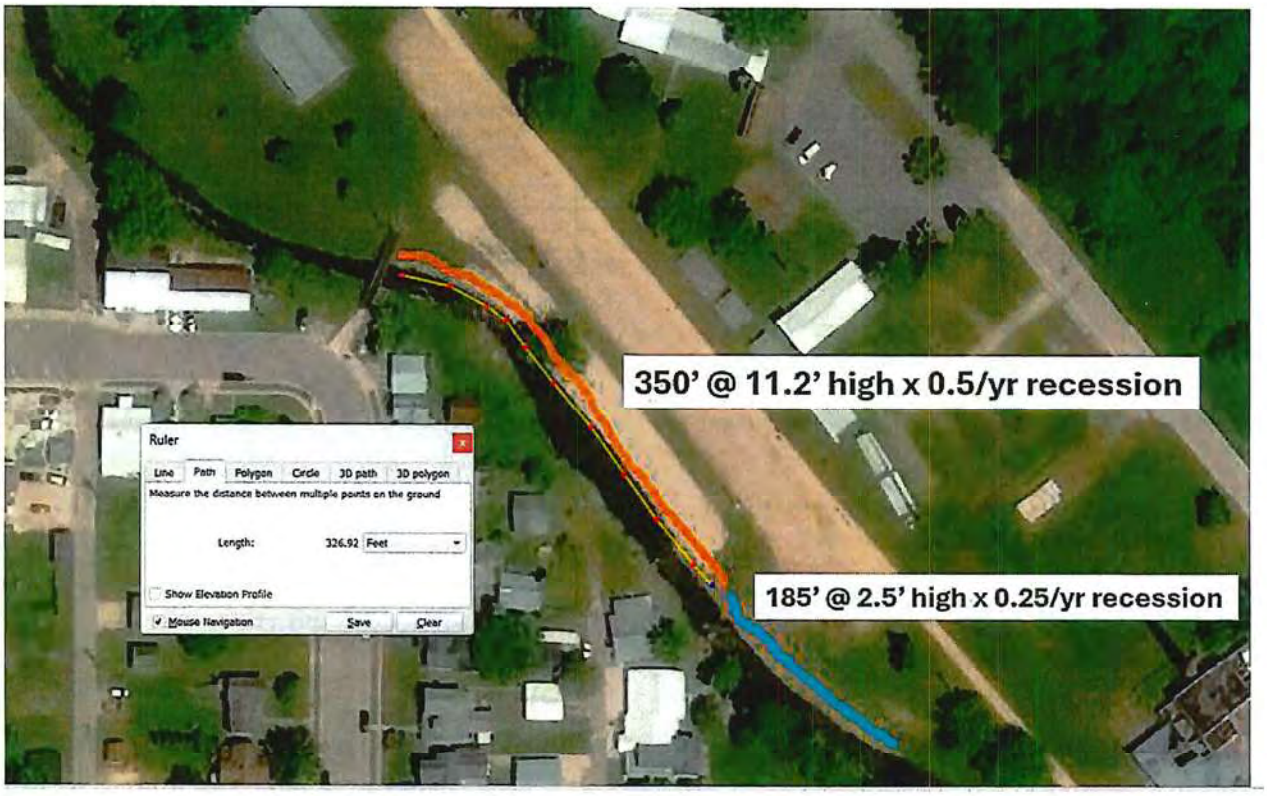
Assume 95 lbs./CF soil weight

Soil Loss = 2,075.6 CF x 95 lbs./CF = 197,187 lb. (98.6 tons)

Phosphorus Loss = 197,187 lbs. x 0.00048 = 94.6 lbs. P/yr.

Phosphorus Credit at WWTF = $\frac{94.6}{2.1}$ = 45.0 lb. P/yr.

To move forward with documentation for the Grandstand / Tractor Pull site, the equations need to be updated to reflect the above observations. A total of 535' is acceptable, but these need to be delineated as shown in the map below. Update sites based on differing bank dimensions and lateral recession rates and recalculate credit quantities.



Soil and Forage Analysis Laboratory
2611 Yellowstone Dr, Marshfield, WI 54449
Phone 715-387-2523

University of Wisconsin
Madison/Extension

Dave Sauer - Cedar Corporation
2820 Walton Commons West, Suite 142
Madison, WI 53718
Project 3680-0006

Date 9/19/18
Acct # 558202
Lab # **4526**

Location: Village of Norwalk

Soil - Sieve Analysis - dry method

	% by weight retained on Sieve #					Cummulative % by weight passing Sieves				P nitric/peroxide	P Bray-1	TN
Sample	on 10	on 30	on 60	on 200	< 200	>10	>30	>60	<200	%	ppm	ppm
1	28	24	9	13	27	72	49	40	27	0.04	29	1389.1
2	6	7	16	47	23	94	87	71	23	0.03	25	1449.5
3	5	10	16	44	25	95	85	69	25	0.04	10	1005.3
4	13	12	16	36	22	87	75	59	22	0.05	49	1733.6

Soil - Sieve Analysis - wet method

	% by weight retained on Sieve #					Cummulative % by weight passing Sieves			
Sample	on 10	on 30	on 60	on 200	< 200	>10	>30	>60	<200
1	0	1	4	28	67	100	99	95	67
2									
3									
4									

No soil clumping observed on samples 2-4.

USDA United States Department of Agriculture
Natural Resources Conservation Service

WISCONSIN STANDARD
DRAWING NO. WI-001C 03/16

CONSTRUCTION PLAN

PRACTICE(S) STREAMBANK AND SHORELINE PROTECTION (580)
STREAMBANK HABITAT IMPROVEMENT (395)

LANDOWNER STATE OF WISCONSIN (ATTN. JOHN RAATZ); Village of Norwalk

ADDRESS 3550 MORMON COULEE RD, LACROSSE, WI 54601

LANDOWNER PHONE NO. (608) 789-4852 COUNTY Monroe

TOWNSHIP RIDGEVILLE T 16 N, R 2W E/W, Sec. 28

FIELD OFFICE SPARTA TELEPHONE NO. (608) 269-8974 EX. 3

DIGGERS HOTLINE

Call 3 Work Days
Before You Dig!

Nationwide
811

Toll Free
1-800-242-8511

TDD
1-800-542-2289

Website
www.diggershotline.com



AS-BUILT

N

Not to Scale

LOCATION MAP

NOTICE TO LANDOWNERS AND EXCAVATORS

Any representation made by the USDA, Natural Resources Conservation Service, or the Monroe County LCD, as to the approximate location or nonexistence of above or under ground hazards does not relieve the owner of the property or the excavator that is hired to complete construction, from notifying Diggers Hotline of the pending construction. You will be liable for damages resulting from construction activities.
Call Diggers Hotline! Ticket Number 2019-312-108

CONSTRUCTION DRAWINGS AND SPECIFICATIONS ACCEPTANCE

I have reviewed and understand the construction plans and specifications and agree to complete the work accordingly. Failure to meet these plans and specifications may jeopardize any continued NRCS technical assistance or program cost sharing applied for. I understand that it is my responsibility to secure all necessary permits and licenses, and to complete the work in accordance with all local, state, and federal laws. Modification of these construction plans or specifications must be approved by the NRCS before installation. I assume all responsibility for negotiations and contract agreements with the construction contractors.

Landowner Signature: [signature] Date: 5/17/19

Designed by: CHRISTINA MULDER Date: 3/26/19

Checked by: [signature] Date: 4/16/19

Approved by: [signature] Date: 4/16/19

The installed practices comply with applicable NRCS technical standards and specifications. The "redlined" construction plans (as-built drawings) reflect changes made during construction.

Construction Approved by: [signature] Date: 9/17/19

Job Approval Class (580)- IV (395)- I

Sheet 1 of 10

ESTIMATED QUANTITIES

ITEM	UNIT	QUANTITY	SHEET NUMBER	WI. CONSTRUCTION SPEC. OR JOB SHEET NUMBER
OBSTRUCTION REMOVAL	JOB	1 ✓	3,4	WI SPEC 1, 2
ROCK RIPRAP D50=8"	LN FT	~~925~~ ~~535~~	3-5	WI SPEC 2, 9
ROCK WEIR	EA	~~4~~ 0	3, 4, 6	WI SPEC 9
RANDOM BOULDERS	EA	~~4~~ 2	3, 4, 7	WI SPEC 9
SEED/MULCH	AC	~~0.5~~ 0	3, 4, 8, 9	WI SPEC 710

Quantities are estimated to the neat lines and grades of in-place materials shown on the construction plan unless otherwise stated. Truck yardage, loose fill, shrinkage, etc., must be calculated and compensated for by the contractor preparing a bid or constructing the project.

AS-BUILT

NRCS
Natural Resources Conservation Service
United States Department of Agriculture

ESTIMATED QUANTITIES

CLIENT: ST WI (VILLAGE NORWALK)

COUNTY: MONROE

Designed CLM Date 3/19

Drawn

Checked DRG 4/5/19

Approved

Drawing Name WI-005

Date 5/09

Sheet 2 of 10

CONSTRUCTION NOTES

1. A preconstruction meeting shall be scheduled with Monroe County LCD personal, the contractor, and the landowner prior to construction start-up. Contractor shall notify the Sparta LCD Field Office (608-269-8975) at least one week prior to the start of construction.

2. Contact County Planning and Zoning Department and Local Township for possible permits. Landowner must receive the DNR and all other required permits prior to start of construction.

3. **Contact Diggers Hotline at least 3 days prior to start of construction. (800) 242-8511 (811)** or DiggersHotline.com. Notification of affected utility companies is the responsibility of the contractor. 2019-3607-1086

4. All estimated quantities are based on neat lines and grades unless otherwise stated. Technician will stake the project prior to construction.

5. Trees and other debris located along streambanks will be removed as directed by technician throughout length of project area. Trees and debris will be disposed of in an area agreed upon by the landowner and technician and then hauled off site or safely burned.

6. Rock riprap must be from a tested and approved quarry. Contractor must provide the technician with the proposed rock source quarry name prior to the start of construction to verify its approval. Menn Quarry

7. Key in upstream and downstream ends of the rip rap. Provide smooth transition from bank slope face to rock face.

8. Bank slopes are designed at a 2:1 slope. If space allows, shape banks to a 3:1 slope.

9. Any remaining spoil from shaping streambanks will be spread evenly on adjacent land in a manner that allows water to drain freely. **Spoil shall not enter a wetland depression.**

10. All disturbed areas will be mulched and seeded according to seeding plan.

11. LCD personal will be on site regularly to ensure proper construction is being completed.

12. Contractor will be responsible for correcting problems which occur as the result of not following proper construction procedures.

AS-BUILT

Streambank Habitat (395)
Streambank Protection (580)

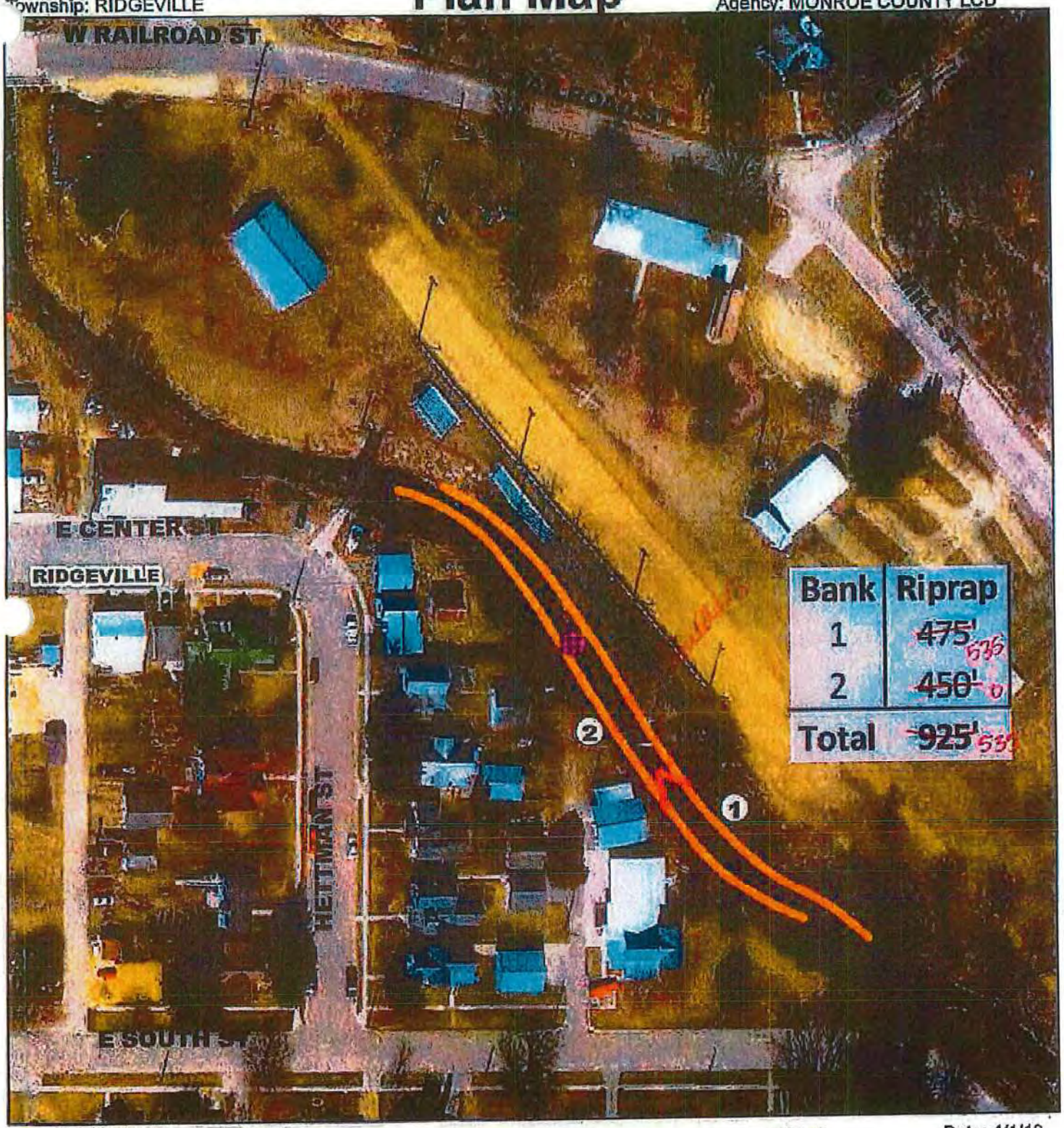
Designed: CLM Checked: DKG

Sheet 3 of 10

Customer(s): STATE OF WI (VILLAGE NORWALK)
Legal Description: T16N, R2W, SEC28
Township: RIDGEVILLE

Plan Map

Field Office: SPARTA SERVICE CENTER
Agency: MONROE COUNTY LCD



Bank	Riprap
1	~~475'~~ 536
2	~~450'~~ 0
Total	~~925'~~ 536

Legend

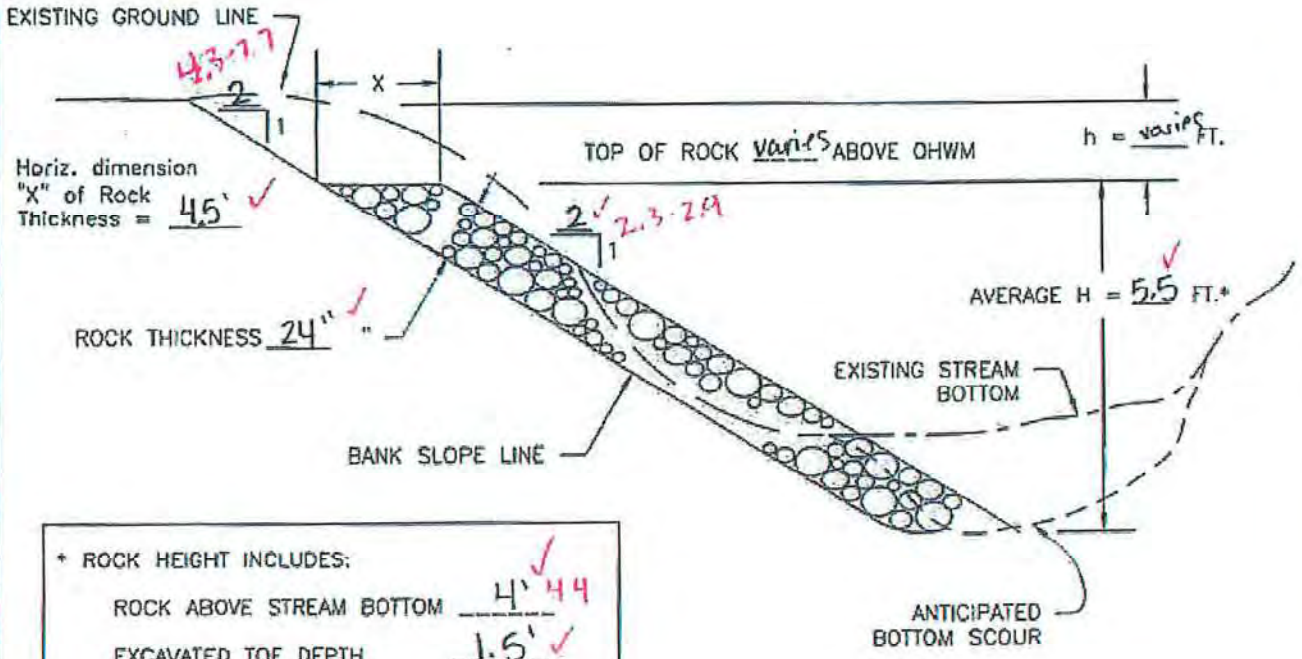
- Riprap Bank
- Random Boulders
- Rock Weir

0 50 100 200 300 Feet

Date: 4/1/19

AS-BUILT

4 of 10



* ROCK HEIGHT INCLUDES:

ROCK ABOVE STREAM BOTTOM	4' 44
EXCAVATED TOE DEPTH	1.5'
TOTAL ROCK HEIGHT	5.5'

TYPICAL CROSS SECTION

GRADATION OF ROCK

PERCENT PASSING BY WEIGHT	SIZE (INCHES)
100	16
60–85	12
25–50	8
5–20	4
0–5	2

QUANTITY ESTIMATE *

BANK SLOPING FOR RIPRAP	475 ~~515~~	LIN. FT.
BANK SLOPING (SEEDING ONLY)	—	LIN. FT.
ROCK FOR RIPRAP (WI CONST. SPEC. 9)	440	CU. YD.
SEEDING	~~0.25~~ 0	ACRES

* ESTIMATED TO THE NEAT LINES AND GRADE

NOTES:

1. DOUBLE THE ROCK THICKNESS FOR A DISTANCE OF 4 FEET AT THE UPSTREAM AND DOWNSTREAM ENDS OF THE RIPRAP. BLEND THE ROCK SURFACE TO MATCH THE EXISTING STABLE BANK SURFACE.
2. TOE PROTECTION SHALL BE PROVIDED TO A MINIMUM DEPTH OF THE ANTICIPATED BOTTOM SCOUR, WHICH WILL BE BELOW THE EXISTING STREAM BOTTOM.
3. TRACK BANKS PERPENDICULAR TO STREAM WITHIN 1' OF WATERLINE PRIOR TO SEEDING

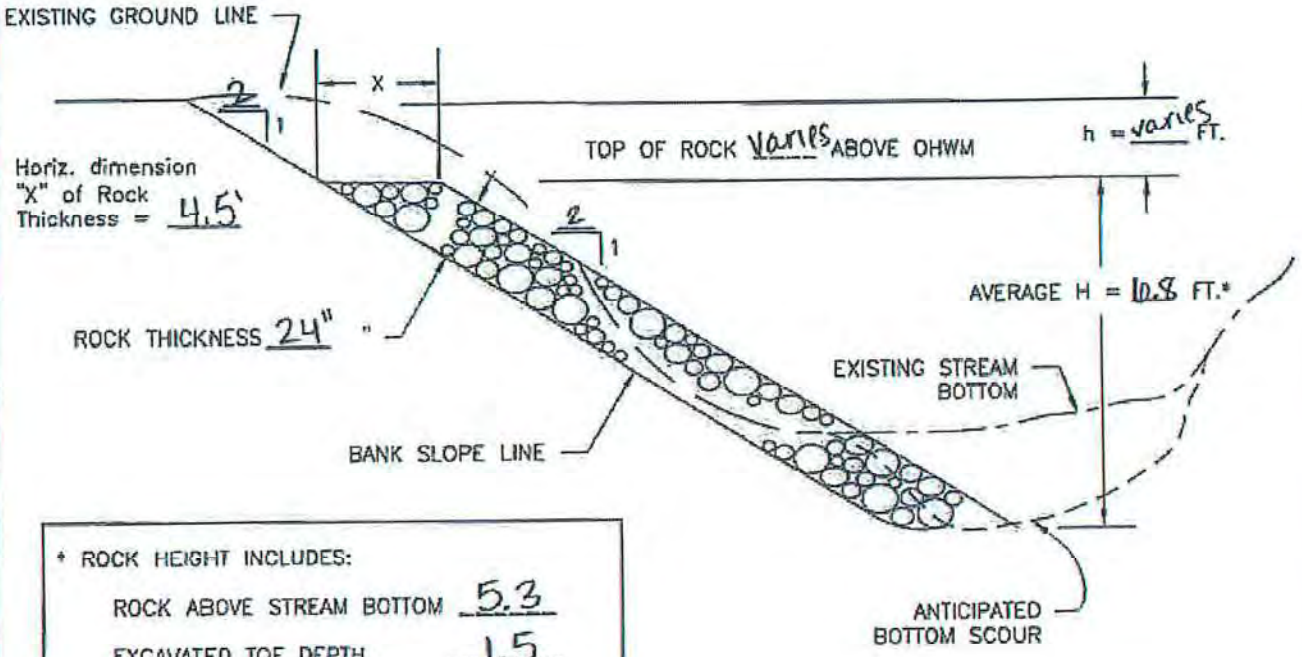
AS-BUILT

By Bleachers

EXCAVATED TOE

SITE BANK 1

USDA United States Department of Agriculture Natural Resources Conservation Service	STREAMBANK PROTECTION NO FILTER OR GEOTEXTILE (PARTIAL BANK HEIGHT) CLIENT: STATE WI (VILLAGE NORW COUNTY: MONROE	Designed CLM Date 4/19 Drawn Checked ALK ORG 4/16/19 Approved	File Name Date 11/2015 Sheet 5 of 10



TYPICAL CROSS SECTION

* ROCK HEIGHT INCLUDES:

ROCK ABOVE STREAM BOTTOM	5.3
EXCAVATED TOE DEPTH	1.5
TOTAL ROCK HEIGHT	6.8

GRADATION OF ROCK

PERCENT PASSING BY WEIGHT	SIZE (INCHES)
100	16
60-85	12
25-50	8
5-20	4
0-5	2

QUANTITY ESTIMATE *

BANK SLOPING FOR RIPRAP	450	LIN. FT.
BANK SLOPING (SEEDING ONLY)	—	LIN. FT.
ROCK FOR RIPRAP (WI CONST. SPEC. 9)	516	CU. YD.
SEEDING	0.25	ACRES

* ESTIMATED TO THE NEAT LINES AND GRADE

Bank # 2 not constructed. See Job Book for further description

NOTES:

1. DOUBLE THE ROCK THICKNESS FOR A DISTANCE OF 4 FEET AT THE UPSTREAM AND DOWNSTREAM ENDS OF THE RIPRAP. BLEND THE ROCK SURFACE TO MATCH THE EXISTING STABLE BANK SURFACE.
2. TOE PROTECTION SHALL BE PROVIDED TO A MINIMUM DEPTH OF THE ANTICIPATED BOTTOM SCOUR, WHICH WILL BE BELOW THE EXISTING STREAM BOTTOM.
3. TRACK BANKS PERPENDICULAR TO STREAM WITHIN 1' OF WATERLINE PRIOR TO SEEDING

AS-BUILT

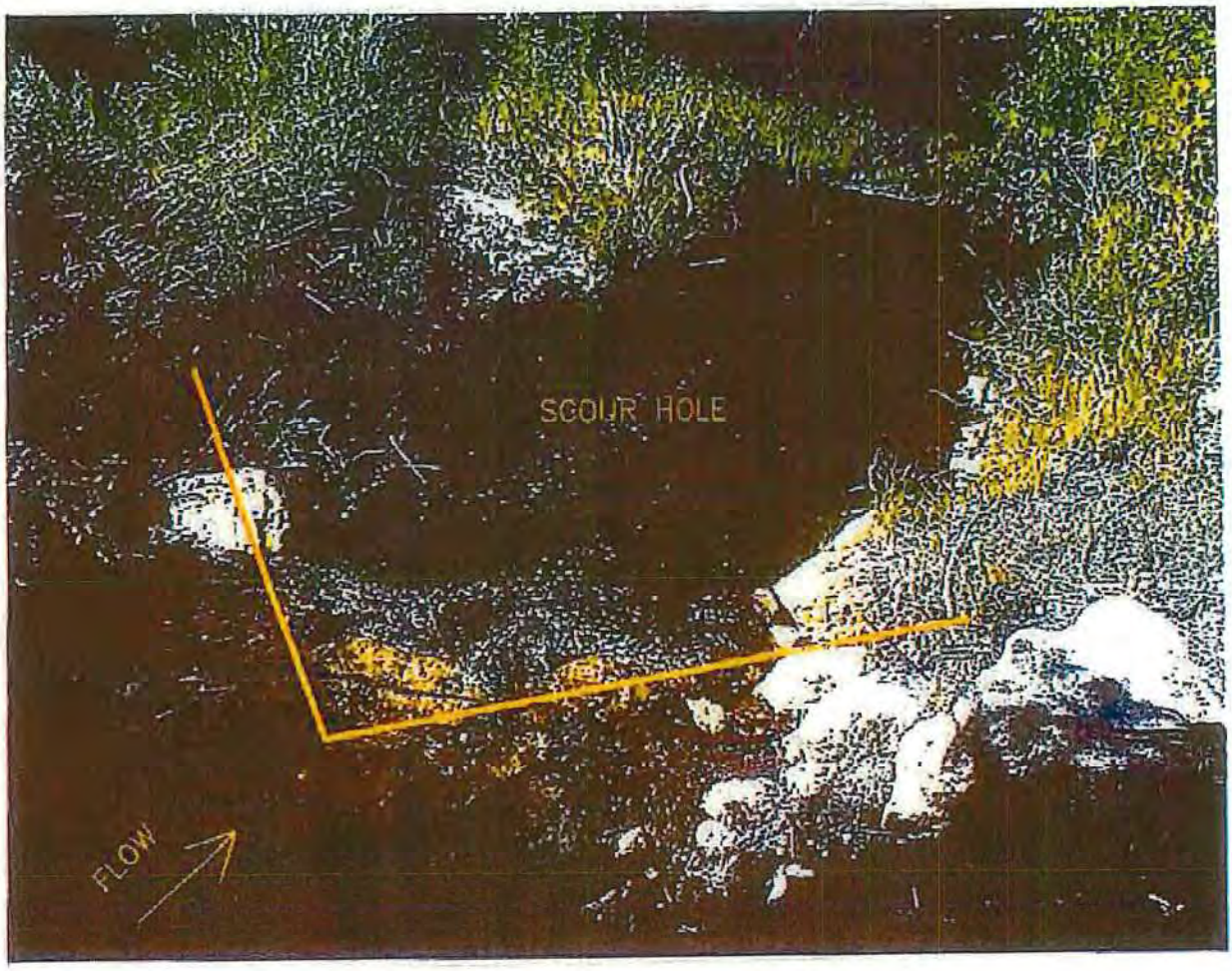
By Houses

EXCAVATED TOE

SITE BANK 2

USDA United States Department of Agriculture Natural Resources Conservation Service	STREAMBANK PROTECTION NO FILTER OR GEOTEXTILE (PARTIAL BANK HEIGHT) CLIENT: ST WI (VILLAGE NORWALK) COUNTY: MONROE	Designed CLM Date 4/1/19 Drawn Checked DMG 4/16/19 Approved	File Name Date 11/2016 Sheet 6 of 10

Rock Weir Design



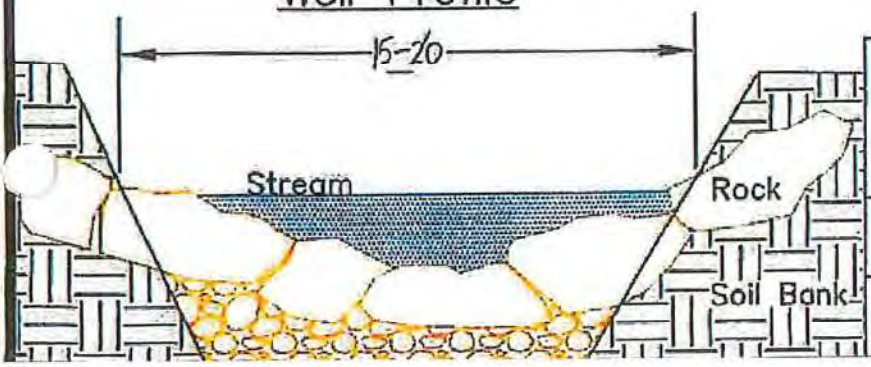
Notes:

1.)Technician will locate 0 ~~+~~ (rock)/~~log~~ weir(s).

2.)Install rock/log weir as shown. Key rock into banks a min. of 3'. Rock shall be somewhat flat with a min. 24" diameter.

3.) Large rock (cover) can be added to the plunge pool below the weir.

Weir Profile



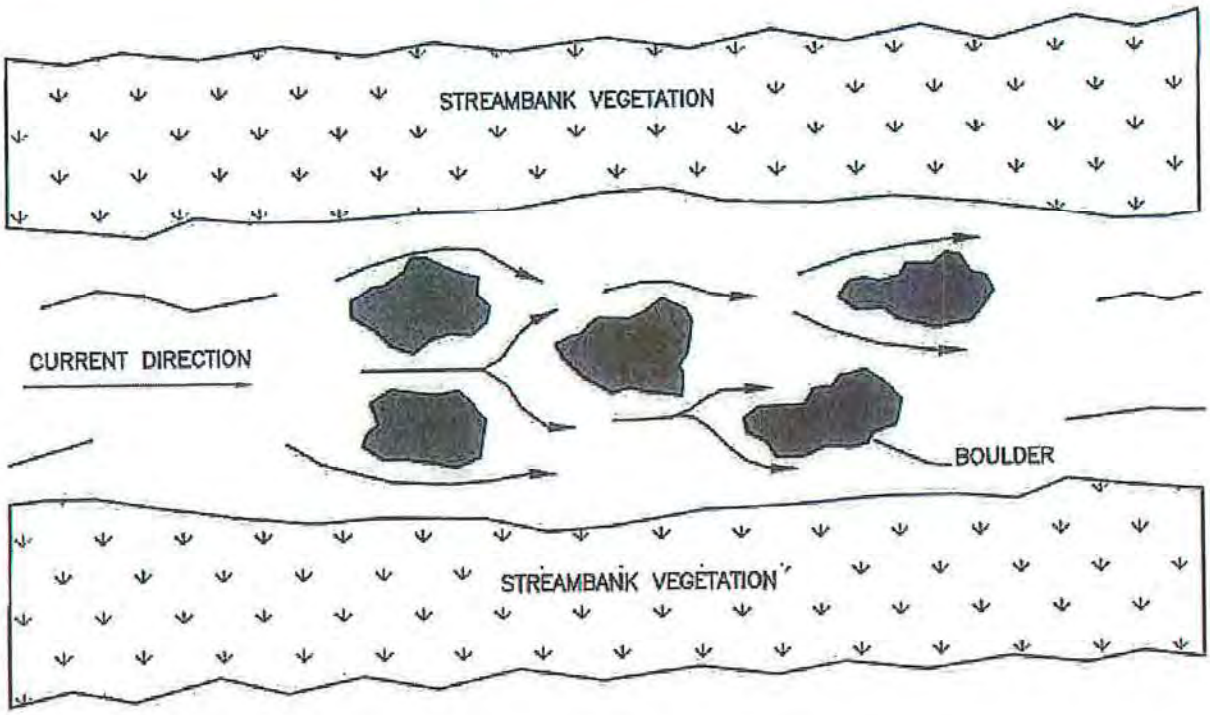
AS-BUILT

State of WI
(Village of Norwalk)
OWNER

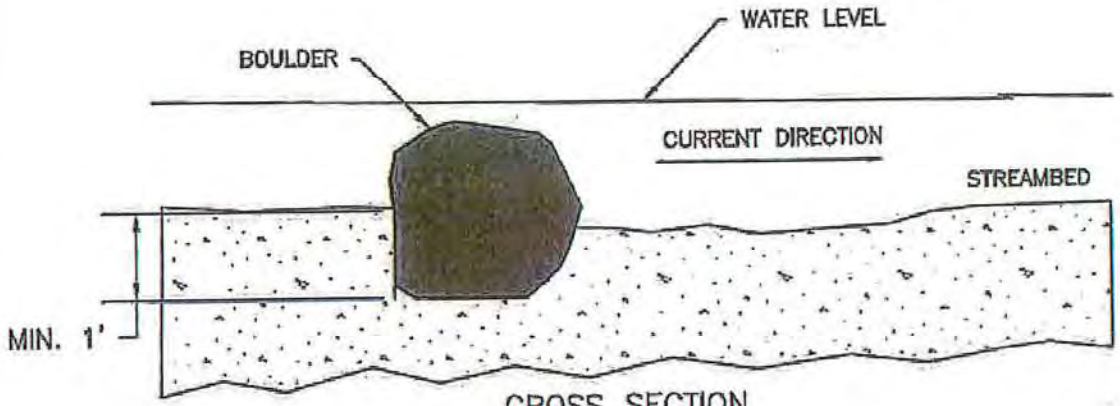
MONROE
COUNTY
LCC, WI

DESIGNED BY: CLM CHECKED BY: MG

SHEET 1 OF 10



PLAN VIEW



CROSS SECTION

- AVERAGE ROCK SIZE– 1.5'–3.5' DIA.–ROCK, SIZE IS SITE DEPENDENT.
- A MINIMUM OF ONE BOULDER PER SET OF BOULDERS SHOULD PROTRUDE FROM WATER SURFACE DURING TIMES OF ORDINARY FLOW TO ACT AS MID–STREAM PERCHING/LOAFING SITES.
- USE BOULDERS WITH IRREGULARITIES OR MULTIPLE BOULDERS TOGETHER TO PROVIDE SLIGHT OVERHANGING COVER.
- PLACE BOULDERS SO CURRENT WILL NOT BE DEFLECTED INTO UNPROTECTED STREAM BANKS.

2 sets of Boulders

AS-BUILT

USDA United States Department of Agriculture Natural Resources Conservation Service	RANDOM BOULDER PLACEMENT CLIENT: ST WI (VILLAGE NORWAY) COUNTY: MONROE	Designed CLM Date 4/19 Drawn Checked DNG 4/5/19 Approved	File Name WI-937 Date 08/14 Sheet 8 of 10

SEEDING DATES

TIME PERIOD	CENTRAL	DATES		TYPE OF SEEDING
Spring	April 15	through	June 1	Permanent
Summer	June 2	through	see WI-710 pg 2	Temporary *
Late Summer	August 1	through	August 21	Permanent
Fall	August 22	through	see WI-710 pg 2	Temporary *
Late Fall	November 1	through	snow cover	Dormant
Winter	snow cover	through	Spring Seeding	Frost Seed Not Allowed

MATERIALS

If no soil test is available, apply a minimum of 150 pounds of 20–10–10 fertilizer per acre. This is equivalent to 30 pounds nitrogen (N), 15 pounds phosphate (P205), and 15 pounds potash (K20) per acre. Apply two tons/ac of 80–89 lime or equivalent. (see page 2 for equivalent)

* Seed a temporary cover crop of Oats at a rate of 64 pounds/acre. (2 Bushels/acre)
A permanent seeding shall be completed during the next acceptable time period following a temporary seeding.

MINIMUM PURE LIVE SEED (PLS)[1] RATE PER ACRE AND TOTAL POUNDS OF SEED NEEDED

SEEDING MIX #9 C retardance	LOCATION ACRES DISTURBED 0.5 D		SEEDING MIX	LOCATION ACRES	
SPECIES	RATE	POUNDS	SPECIES	RATE	POUNDS
Kentucky Bluegrass	3	1.5			0
Creeping Red Fescue	4	2			0
Perennial Ryegrass	10	5			0
		0			0
		0			0
		0			0
** Oats	64	32			0

1. PLS = (% Germination X % Purity)
** Companion Crop

Additional Seed Percentage 0% (input decimal value)

* Rock wire placed to top of bank.

Additional native seeds may be required by permitting agencies. These additions are allowed.
Seed mixture shall meet all requirements of the WI weed laws.
Species identified as restricted or prohibited by law shall not be planted.
Certified seed shall be used, and the seeding rates will be based on pure live seed.
For dormant seedings, increase the seeds per square foot by 15%.

SEEDBED PREPARATION

Seedbed preparation shall immediately follow construction activities.
Prepare a fine, firm seedbed to a minimum depth of three inches. A seedbed is considered firm when a footprint penetrates 1/4 to 1/2 inch deep.

SEEDING

Inoculate legumes with the specific inoculum for the species in accordance with the manufacturer's recommendations. When using a hydroseeder, five times the recommended rate of inoculant shall be added to the hydroseeder. Inoculant shall not be mixed with liquid fertilizer.

Seed may be broadcast or drilled as appropriate to the site.
Seed, fertilize, and lime as soon as possible after construction.
Seeding perpendicular to direction of flow is required to limit erosion.
Seed grasses and legumes no more than 1/4 inch deep.
Consider seeding at a lower rate and making 2 passes to ensure more uniform distribution.

AS-BUILT

USDA United States Department of Agriculture
Natural Resources Conservation Service

INTRODUCED SPECIES SEEDING ESTABLISHMENT

CLIENT: STATE WI (VILLAGE NORWALK)
COUNTY: MONROE

Designed CLM Date 4/19
Drawn
Checked PAG 4/5/19
Approved

File Name WI-710
Date 12/2016
Sheet 9 of 10

TEMPORARY SEEDING OPTIONS

Select one of the following species for temporary cover if:

1) The required seeds or plant stock are not available or the normal permanent seeding period for the species has passed
   - Forage Sorghum – 1/2 bushel per acre (May 15–July 15)
   - Sorghum – Sudangrass Hybrid – 1 bushel per acre (May 15–July 15)
   - Sudangrass – 1 bushel per acre (May 15–July 15)
   - Winter Wheat – 2 bushels per acre (Aug 1–Oct 1)
   - Winter Cereal Rye – 2 bushels per acre (Aug 1–Oct 15)
   - Oats – 2 bushels per acre (Apr 1–Sept 1)
   - Annual Ryegrass – 20 Pounds per acre (Apr 1–Sept 1)

2) Triazine herbicide carryover will not allow establishment of permanent cover immediately.
   - Forage Sorghum – 1/2 Bushel per acre (May 15–July 15)
   - Sorghum – Sudangrass Hybrid – 1 Bushel per acre (May 15–July 15)
   - Sudangrass – 1 Bushel per acre (May 15–July 15)

DORMANT SEEDING

Seed is broadcast and incorporated, no–tilled, or drilled into the seedbed.
Seedbed preparations and conditions are similar to conventional seeding.

MULCHING ☑ (Mulching is required.) ☐ (Mulching is not required.)

Mulching shall be done immediately after seedbed preparation and seeding.
Mulch shall be applied immediately after final grading for areas seeded at a later date.

Mulch material shall be relatively free of disease, pesticides, chemicals, noxious weed seeds, and other pests and pathogens.

Spread straw and hay mulch uniformly and at the rate of 1.5–2.0 tons per acre (60–70 bales). This application results in a layer of 6 to 7 stems, 1 to 2 inches thick, and provides a minimum 70% ground cover. Some soil surface can be seen after the application. Crimping (disking), wood cellulose fiber, tackifiers, netting, pinning, or other acceptable methods of anchoring will be used if needed to hold the mulch in place.

If other mulch materials are used, the rate of application shall meet the manufacturer's recommendations.

Two (2) tons/ac of 80–89 lime or equivalent from UW–EXT A3671

Lime Quality	Tons/AC.
40–49	3.9
50–59	3.2
60–69	2.7
70–79	2.3
90–99	1.9
100+	1.6

AS-BUILT

NRCS Streambank Erosion Estimator (Direct Volume Method)

Farmer / Cooperator Name: Village of Norwalk - ASBUILT
Tract Number: Tractor Pull Bleacher site

Evaluated By: CLM
Evaluation Date: September 17, 2019

Field Number	Eroding Streambank Reach Number	Eroding Bank Length (Feet)	Eroding Bank Height * (Feet)	Area of Eroding Streambank (FT^2)	Lateral 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)
	1	535.0	11.2	5,992	0.50	2,996.0	Silt Loam	95	142.3
	2								
	3								
				Total Estimated Annual Streambank Erosion Soil Loss (Tons):					142.3

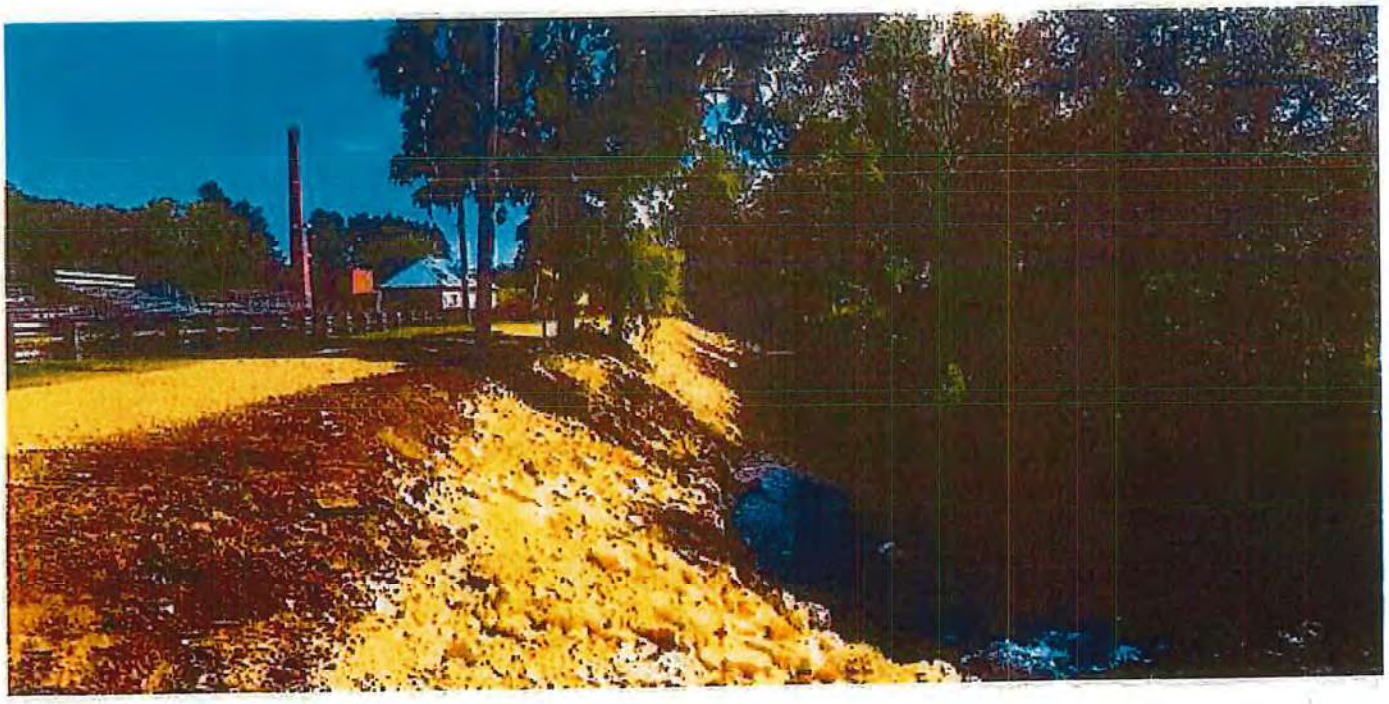
Field Number	Eroding Streambank Reach Number	Eroding Bank Length (Feet)	Eroding Bank Height * (Feet)	Area of Eroding Streambank (FT^2)	Lateral Recession Rate (Estimated) (FT / Year)	Estimated Volume (FT^3) Eroded Annually	Soil Texture	Approximate Pounds of Soil per FT^3	Estimated Soil Loss (Tons/Year)
	1								
	2								
	3								
				Total Estimated Annual Streambank Erosion Soil Loss (Tons):					

Field Number	Eroding Streambank Reach Number	Eroding Bank Length (Feet)	Eroding Bank Height * (Feet)	Area of Eroding Streambank (FT^2)	Lateral 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)
	1								
	2								
	3								
				Total Estimated Annual Streambank Erosion Soil Loss (Tons):					

Total Estimated Annual Streambank Erosion Soil Loss (Tons):	142.3

* Eroding bank height is measured along the bank, not the vertical height of bank.





Soil and Forage Analysis Laboratory
2611 Yellowstone Dr, Marshfield, WI 54449
Phone 715-387-2523

University of Wisconsin
Madison/Extension

Dave Sauer - Cedar Corporation
2820 Walton Commons West, Suite 142
Madison, WI 53718
Project 5899-0001

Date 11/29/18
Acct # 558202
Lab # 6310

Location: Village of Norwalk

Soil - Sieve Analysis - dry method

	% by weight retained on Sieve #					Cummulative % by weight passing Sieves				P nitric/peroxide	P Bray-1	TN
Sample	on 10	on 30	on 60	on 200	< 200	>10	>30	>60	<200	%	ppm	ppm
1	14	7	28	33	17	85	78	50	17	0.05	41	1935.6
2	20	13	22	25	20	80	66	45	20	0.03	50	1494.3
3	55	8	12	12	13	45	37	25	13	0.03	34	1743.6
4	46	9	14	12	18	54	45	30	18	0.05	37	2186.3
5	36	13	15	17	19	64	51	35	19	0.05	41	2596.6
6	57	15	9	8	10	43	28	19	10	0.07	17	4997.0
7	26	18	30	16	9	74	56	26	9	0.03	38	2365.4
8	20	21	30	16	14	80	59	29	14	0.03	21	1297.9
9	70	10	4	5	10	29	19	15	10	0.04	11	2863.5
10	42	25	9	8	15	58	32	23	15	0.07	29	3272.8
11	41	28	7	5	19	59	31	24	19	0.05	17	2922.1
12	50	22	6	4	17	50	27	21	17	0.07	56	3259.8
13	80	5	2	3	9	20	14	12	9	0.07	15	3072.9
14	5	23	27	22	22	95	72	45	22	0.07	11	1739.9
15	75	3	5	7	9	25	21	17	9	< 0.03	8	522.5
16	71	6	4	5	13	29	23	19	13	0.04	31	806.4
17	31	6	18	23	22	69	63	44	22	0.03	9	751.1
18	5	8	25	36	26	95	87	62	26	0.03	34	1363.0
19	5	10	32	32	21	95	85	53	21	0.06	85	1498.9
20	13	6	21	32	26	86	80	59	26	< 0.03	17	819.1
21	1	5	32	38	24	98	94	62	24	0.04	47	1415.2

Soil - Texture Analysis - hydrometer method

Sample	Sand %	Silt %	Clay %	Texture Name
3	56	32	13	sandy loam
9	30	54	17	silt loam
11	16	66	19	silt loam
12	16	66	19	silt loam
15	50	36	15	loam
21	68	26	7	sandy loam

Appendix F. Example Trade Agreement for Point to Nonpoint Source Trades

Notice

This is an example agreement and should be amended to meet the needs and conditions of the specific agreement. The Department does not require final trade agreements to be submitted with the trading plan. However, these documents must be presented upon request by the Department.

Permittee Information

Credit User Name (Permittee)	Permit Number
Village of Norwalk	WI-0024961

Credit User Address

509 Wisconsin Street, Norwalk, WI 54648

Permittee/Broker/Exchange Name (if applicable)	Trade Agreement Number
Village of Norwalk	4

Permittee/Broker/Exchange Address (if applicable)

Street Address	City	State	ZIP Code
208 S. Church Street	Norwalk	WI	54648

Project Name

Moore Creek Stream Bank Stabilization - Village Section

Name of Credit Generator (Landowner/Operator) (Last, First, M.I.)

Village of Norwalk

Street Address	City	State	ZIP Code
208 S. Church Street	Norwalk	WI	54648

Property Information

Name of Landowner(s) (if not Operator) (Last, First, M.I.) same

Street Address	City	State	ZIP Code
	Norwalk	WI	54648

Legal Description of Property - Contiguous sites under the same ownership: (add additional sheets if necessary)

350 linear feet of stream bank on Moore Creek by the Village Park located upstream from the WWTF discharge in Norwalk.

Parcel ID(s):

Site Locator for Construction Projects

County	Township	Range E / W	Section	Quarter/Quarter (e.g., NW ¼ of the NE ¼)
Monroe	16 N	2W	28	SE 1/4, SE 1/4 28
	N			
	N			
	N			

Agreement

The property described above is enrolled in a Water Quality Trade Agreement. Funds are provided to the landowner/ operator in return for the installation, operation and maintenance of best management practices (BMPs) designed to enhance water quality. This agreement commits the landowner/operator, their heirs, successors and assigns to fulfill the trade agreement until a satisfaction or release is filed by the grantee.

Addenda which describe the BMPs, costs, installation schedule, and conditions are hereby incorporated into this agreement and are on file with the grantee and may be given to Wisconsin DNR upon request by the Department.

Landowner/Operator

Signed this 15th day of Feb, 20 19.

Signature of Landowner/Operator

Mike Wiedl

Typed Name of Landowner/Operator

Signature of Landowner/Operator

Typed Name of Landowner/Operator

STATE OF WISCONSIN)
) ss.
Monroe County)

Personally came before me this 15 day of Feb, 20 19.

The above named Mike Wiedl to me known to be the person(s) who executed the foregoing instrument and acknowledge the same.

Christina L Mulder
Signature of Notary Public

Christina L Mulder
Typed Name of Notary Public

Notary Public Monroe County, Wisconsin

My commission (is permanent) (expires March 7, 2022.

CHRISTINA L MULDER NOTARY PUBLIC STATE OF WISCONSIN

Landowners (if not operator)

If the landowner section is not completed, check (X) one or both of the following that apply

☐ Landowner is also operator

☐ Trade agreement contains only high residue management, nutrient management, pesticide management, cropland protection cover (green manure)

Signed this _____ day of _____, 20 ____.

Signature of Landowner (if not operator)

Typed Name of Landowner (if not operator)

Signature of Landowner (if not operator)

Typed Name of Landowner (if not operator)

STATE OF WISCONSIN)
) ss.
_____ County)

Personally came before me this _____ day of _____, 20 ____.

The above named _____ to me known to be the person(s) who executed the foregoing instrument and acknowledge the same.

Signature of Notary Public

Typed Name of Notary Public

Notary Public _____ County, Wisconsin

My commission (is permanent) (expires _____).

Credit user/broker/exchange

Signed this 15th day of Feb, 20 19.

Signature of credit user/broker/exchange

Mike Wiedl - Village Pres Norwalk

Typed Name of credit user/broker/exchange

STATE OF WISCONSIN)
) ss.
Monroe County)

Personally came before me this 15 day of Feb, 20 19.

The above named Mike Wiedl to me known to be the person(s) who executed the foregoing instrument and acknowledge the same.

Christina L Mulder
Signature of Notary Public

Notary Public Monroe County, Wisconsin

My commission (is permanent) (expires March 7, 2022

CHRISTINA L MULDER NOTARY PUBLIC STATE OF WISCONSIN

Other Signer- Specify title or relationship: Engineer Responsible for Trade

Signed this 15th day of Feb, 20 19.

Dale K. Sauer
Signature

David K. Sauer, P.E., Cedar Corporation
Typed Name

Signature

Typed Name

STATE OF WISCONSIN)
Monroe County) ss.
)

Personally came before me this 15 day of Feb, 20 19.

The above named David Sauer to me known to be the person(s) who executed the foregoing instrument and acknowledge the same.

Christina L Mulder
Signature of Notary Public

christina L Mulder
Typed Name of Notary Public

Notary Public Monroe County, Wisconsin

My commission (is permanent) (expires March 7, 2022

CHRISTINA L MULDER NOTARY PUBLIC STATE OF WISCONSIN

Other Signer- Specify title or relationship: _____

Signed this _____ day of _____, 20 ____.

Signature

Typed Name

Signature

Typed Name

STATE OF WISCONSIN)
_____ County) ss.
)

Personally came before me this _____ day of _____, 20 ____.

The above named _____ to me known to be the person(s) who executed the foregoing instrument and acknowledge the same.

Signature of Notary Public

Typed Name of Notary Public

Notary Public _____ County, Wisconsin

My commission (is permanent) (expires _____).

Other Signer- Specify title or relationship: _____

Signed this _____ day of _____, 20 ____.

Signature

Typed Name

Signature

Typed Name

STATE OF WISCONSIN)
_____ County) ss.
)

Personally came before me this _____ day of _____, 20 ____.

The above named _____ to me known to be the person(s) who executed the foregoing instrument and acknowledge the same.

Signature of Notary Public

Typed Name of Notary Public

Notary Public _____ County, Wisconsin

My commission (is permanent) (expires _____).

☐ Check this box if this page is purposely left blank.

Section A – General Requirements

Example:

A 1. This agreement may be amended by mutual agreement of either party, so long as the agreement has not yet expired.

A 2. If a significant archeological or historical site is found, construction is to cease immediately and the BMP will be relocated, redesigned, or deleted to prevent damage to the archeological or historical site. The BMP may be deleted only if approved in writing by the Department of Natural Resources.

Section B – Landowner/Operator Shall:

Example:

B 1. Design, install, operate and maintain BMPs listed in Addendum 2 of this agreement.

B 2. Allow access to the installed BMP by the grantee, or an authorized representative of the grantee for site inspection of the BMP for installation, operation and maintenance.

Section C – Grantee Shall:

Example:

C 1. Provide cost sharing to the landowner/operator consistent with Addendum 2.

C 2. Make cost-share payments to the landowner/operator after payment is requested and evidence of contractor payment by the landowner/operator has been received, and the grantee verifies proper BMP installation.

TA Number	Typed Name of Landowner/Operator	Initials of Landowner/Operator	Date
4	Mike Wiedl, Village President		2-15-19

The cost-share recipient shall implement and maintain all best management practices listed in this Addendum, unless otherwise amended in accordance with this agreement.

							Installation Period			
							From (MM/YY) 11/18		To (MM/YY) 09/19	
Field #	DNR BMP Code	Practice Name	Quantity	Unit	Unit Cost	Estimated Total Cost	Reimburs-ement Rate (%)	Estimated Cost-Share Amt.	Cost-Share Amt. From Other Programs*	Estimated Year to be Installed
		Stream Bank Stabilization	350	LF	25	8,750	0	0	0	2019

Operation and Maintenance Plan
Streambank and Shoreline Protection

Cooperator: Village of Norwalk Date: 2/14/19

By: Mike Wiedl Title: Village President

Project Location: Moore Creek - Village Section (350 LF)

I agree to the following for the full service life of the streambank or shoreline improvements:

1. Check the riprap, plantings, and/or tree revetments at least once each year and immediately after severe floods. Rock removed or displaced shall be replaced as needed. Replant any dead of damaged tree plantings. Repair or replace any damaged or missing revetments. Repair work shall take place during periods of low stream flow.

2. Logs, trees, driftwood, and other debris lodged in or near the riprap shall be removed.

3. Check for sloughing, erosion, or damage to vegetative cover. Damaged areas shall be graded, shaped, and re-vegetated as soon as possible.

4. If fences are installed, they shall be maintained to prevent unauthorized human or animal access.

5. Immediately repair any vandalism, vehicle, or animal damage.

6. Eliminate access of foot traffic to the streambank within the buffer area with the exception of any designated pathway areas.

7. Eliminate all burrowing rodents and repair damage caused by them.

8. Additional recommendations:

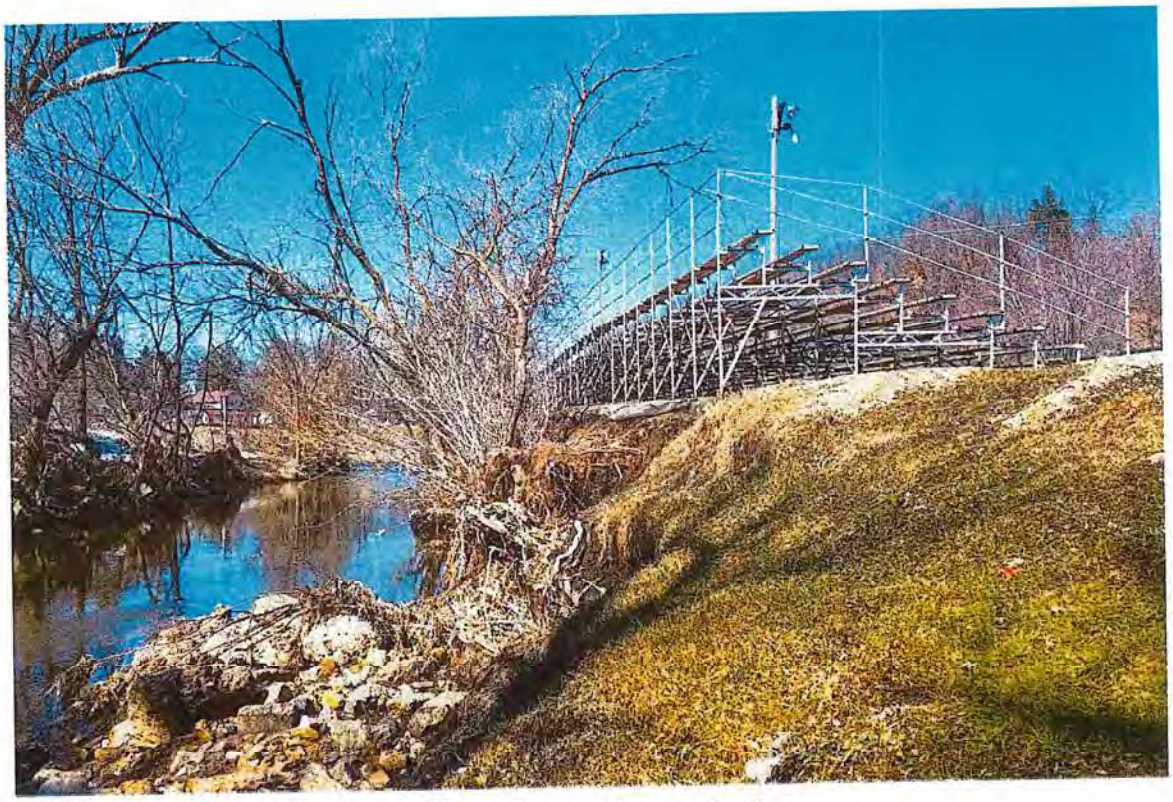
Cooperator's signature: Date: 2-15-19

I have discussed the maintenance guidelines with the above cooperator.

Conservationist's signature: Date: 2-15-19

Village Section Construction Progress
Bank Perspective



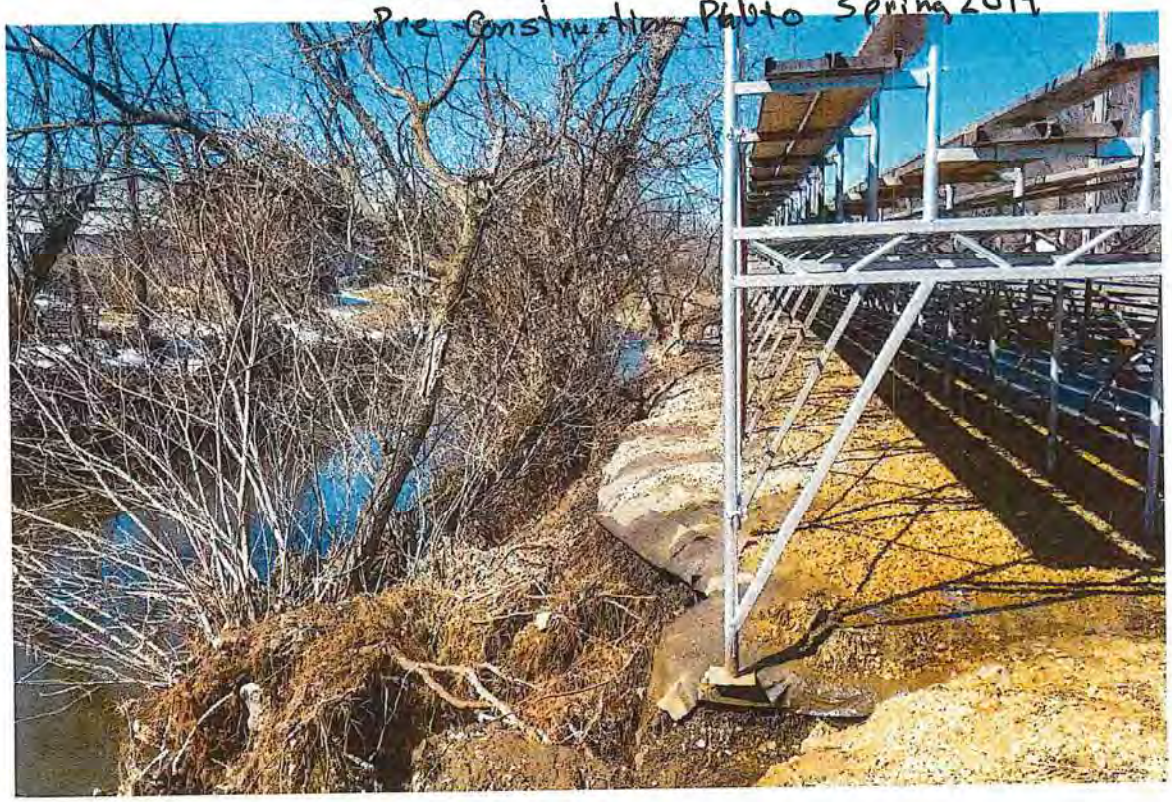


Village Section Stream Bank
Moore Creek by Grandstand
Pre-Construction Spring 2019
Photo Location A - See map.

A

Photo Location B - See map.

Village Section Stream Bank
Moore Creek by Grandstand Erosion
Pre-Construction Photo Spring 2019





Village Section Stream Bank
Moore Creek with Removed Grandstand
Post-Construction Spring Sept 2019
Photo Location A - See map

Photo Location C - See MAP.
Pre-Construction Spring 2019
Village Section Stream Bank
Moore Creek Upstream Grandstand





Village Section Stream Bank
Moore Creek Downstream from Grandstand
Pre-Construction Spring 2019
Photo Location A - See map

Customer(s): STATE OF WI (VILLAGE NORWALK)
Legal Description: T16N, R2W, SEC28
Township: RIDGEVILLE

Plan Map

Field Office: SPARTA SERVICE CENTER
Agency: MONROE COUNTY LCD



Bank	Riprap
1	475' 535
2	450' 0
Total	925' 53

Legend

- Riprap Bank
- Random Boulders
- Rock Weir

0 50 100 200 300 Feet

Date: 4/1/19

Photo Location Key
A, B, C

AS-BUILT

Tributary of Moore Creek – Norwalk
Ron Luethe Section
Calculation of Soil Loss, Phosphorus Loss, Phosphorus Credit
October 2019 (As-Built)
April 2026 (Revised per WDNR Comments)

A. Reference Information

1. DNR formula for streambank loss in tons/year:

$$\text{Length} \times \text{height} \times \frac{\text{annual lateral recession rate}}{20}$$

2. UW Soil and Plant Analysis Lab - Soil Test Results

Sample 1	-P = 0.05%	Sample 5	-P = 0.06%
Sample 2	-P = 0.03%	Sample 5	-P = 0.07%
Sample 3	-P = 0.03%	Sample 7	-P = 0.08%
Sample 4	-P = 0.05%		
Sample 5	-P = 0.05%	Soil tested October 2019	
Sample 6	-P = 0.07%		
Sample 7	-P = 0.03%		
Sample 8	-P = 0.03%		
Sample 9	-P = 0.04%		
Sample 10	-P = 0.07%		

Soil samples taken November 2018

Total Phosphorus – 0.050% based on 13 soil samples at 13 locations

3. Calculated Trade Ratio: 2:1 (assuming Moore Creek is non-compliant)

4. Streambank Length = 911 LF total (611 LF rip rap and 300 LF shaping)

B. Soil Loss and Phosphorus Credit at WWTF

After several conversations with WDNR, it is understood that WDNR will only accept the original planned level of improvements to the streambanks. Total soil loss planned was 63.9 tons/yr.

Phosphorus Loss = 63.9 tons/yr. x 2,000 lbs./ton x .0005 = 63.9 lb. P/yr.

$$\text{Phosphorus Credit at WWTF} = \frac{63.9}{2.05} = 31.2 \text{ lb. P/yr.}$$

The current proposal has coalesced 10 streambank bank measurements (original documentation) into just three (proposed documentation). Current WQT guidance explicitly states this approach is not approvable. A lateral recession rate of 0.7 ft/year has been assigned to segment one, which is higher than any of the individual segments in the original documentation. The proposed values overcalculate credit quantities.

Original documentation (accepted by DNR):

NRCS Streambank Erosion Estimator (Direct Volume Method)

Farmer / Cooperator Name: Ron Luethe
Tract Number:
Evaluated By: CLM
Evaluation Date: November 20, 2018

Field Number	Eroding Streambank Reach Number	Eroding Bank Length (Feet)	Eroding Bank Height * (Feet)	Area of Eroding Streambank (FT^2)	Lateral 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)
	1	200.0	3.6	720	0.20	144.0	Silt Loam	95	6.8
	2	50.0	5.0	250	0.30	75.0	Silt Loam	95	3.6
	3	100.0	5.5	550	0.50	275.0	Silt Loam	95	13.1
				Total Estimated Annual Streambank Erosion Soil Loss (Tons):					23.5

Field Number	Eroding Streambank Reach Number	Eroding Bank Length (Feet)	Eroding Bank Height * (Feet)	Area of Eroding Streambank (FT^2)	Lateral 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)
	4	50.0	3.6	180	0.20	36.0	Silt Loam	95	1.7
	5	100.0	5.0	500	0.20	100.0	Silt Loam	95	4.8
	6	100.0	3.6	360	0.20	72.0	Silt Loam	95	3.4
				Total Estimated Annual Streambank Erosion Soil Loss (Tons):					9.9

Field Number	Eroding Streambank Reach Number	Eroding Bank Length (Feet)	Eroding Bank Height * (Feet)	Area of Eroding Streambank (FT^2)	Lateral 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)
	7	75.0	7.2	540	0.50	270.0	Silt Loam	95	12.8
	8	50.0	5.0	250	0.20	50.0	Silt Loam	95	2.4
	9	50.0	7.2	360	0.50	180.0	Silt Loam	95	8.6
				Total Estimated Annual Streambank Erosion Soil Loss (Tons):					23.8

Total Estimated Annual Streambank Erosion Soil Loss (Tons):	57.1

NRCS Streambank Erosion Estimator (Direct Volume Method)

Farmer / Cooperator Name:
Tract Number:
Evaluated By: CLM
Evaluation Date:

Field Number	Eroding Streambank Reach Number	Eroding Bank Length (Feet)	Eroding Bank Height * (Feet)	Area of Eroding Streambank (FT^2)	Lateral 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)
	10	50.0	7.2	360	0.40	144.0	Silt Loam	95	6.8
	2								
	3								
				Total Estimated Annual Streambank Erosion Soil Loss (Tons):					6.8

Soil and Forage Analysis Laboratory
2611 Yellowstone Dr, Marshfield, WI 54449
Phone 715-387-2523

University of Wisconsin
Madison/Extension

Dave Sauer - Cedar Corporation
2820 Walton Commons West, Suite 142
Madison, WI 53718
Project 5899-0001

Date 11/29/18
Acct # 558202
Lab # 6310

Location: Village of Norwalk

Soil - Sieve Analysis - dry method

	% by weight retained on Sieve #					Cummulative % by weight passing Sieves				P nitric/peroxide	P Bray-1	TN
Sample	on 10	on 30	on 60	on 200	< 200	>10	>30	>60	<200	%	ppm	ppm
1	14	7	28	33	17	85	78	50	17	0.05	41	1935.6
2	20	13	22	25	20	80	66	45	20	0.03	50	1494.3
3	55	8	12	12	13	45	37	25	13	0.03	34	1743.6
4	46	9	14	12	18	54	45	30	18	0.05	37	2186.3
5	36	13	15	17	19	64	51	35	19	0.05	41	2596.6
6	57	15	9	8	10	43	28	19	10	0.07	17	4997.0
7	26	18	30	16	9	74	56	26	9	0.03	38	2365.4
8	20	21	30	16	14	80	59	29	14	0.03	21	1297.9
9	70	10	4	5	10	29	19	15	10	0.04	11	2863.5
10	42	25	9	8	15	58	32	23	15	0.07	29	3272.8
11	41	28	7	5	19	59	31	24	19	0.05	17	2922.1
12	50	22	6	4	17	50	27	21	17	0.07	56	3259.8
13	80	5	2	3	9	20	14	12	9	0.07	15	3072.9
14	5	23	27	22	22	95	72	45	22	0.07	11	1739.9
15	75	3	5	7	9	25	21	17	9	< 0.03	8	522.5
16	71	6	4	5	13	29	23	19	13	0.04	31	806.4
17	31	6	18	23	22	69	63	44	22	0.03	9	751.1
18	5	8	25	36	26	95	87	62	26	0.03	34	1363.0
19	5	10	32	32	21	95	85	53	21	0.06	85	1498.9
20	13	6	21	32	26	86	80	59	26	< 0.03	17	819.1
21	1	5	32	38	24	98	94	62	24	0.04	47	1415.2

Soil - Texture Analysis - hydrometer method

Sample	Sand %	Silt %	Clay %	Texture Name
3	56	32	13	sandy loam
9	30	54	17	silt loam
11	16	66	19	silt loam
12	16	66	19	silt loam
15	50	36	15	loam
21	68	26	7	sandy loam

Soil and Forage Analysis Laboratory
2611 Yellowstone Dr, Marshfield, WI 54449
Phone 715-387-2523

University of Wisconsin
Madison/Extension

Dave Sauer - Cedar Corporation
2820 Walton Commons West, Suite 142
Madison, WI 53718
Project 5899-0001

Date 10/4/19
Acct # 558202
Lab # 4268

Location: Norwalk Area, Ron Luethe

Soil - Sieve Analysis

	% by weight retained on Sieve #							Cummulative % by weight passing Sieves					
Sample	on 4	on 10	on 20	on 40	on 60	on 200	< 200	>4	>10	>20	>40	>60	<200
Bank 3	3	14	17	14	16	22	14	97	83	66	52	36	14
Bank 5	15	20	21	12	9	10	13	85	65	44	32	23	13
Bank 7	5	13	20	15	14	19	14	95	82	62	47	33	14

Soil - Total Minerals

nitric/peroxide method	P	K	Ca	Mg	S	Zn	Mn	B	Fe	Cu
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Sample	%	%	%	%	%	DM	DM	DM	DM	DM
Bank 3	0.06									
Bank 5	0.07									
Bank 7	0.08									

Other Soil Analysis

	P						
	Bray-1	TN	Sand	Silt	Clay		
Sample	ppm	ppm	%	%	%	**Texture Name**	
Bank 3	46	3182.4	56	32	12	Sandy Loam	
Bank 5	62	2076.4	38	46	16	Loam	
Bank 7	91	3450.8	48	38	14	Loam	

USDA United States Department of Agriculture
Natural Resources Conservation Service

WISCONSIN STANDARD
DRAWING NO. WI–001C 03/16

CONSTRUCTION PLAN

PRACTICE(S) OBSTRUCTION REMOVAL (500); STREAMBANK PROTECTION (580); FISH HABITAT (395); CRITICAL AREA PLANTING (342); MULCHING (484)

LANDOWNER RON LUETHE

ADDRESS 16273 LANDMARK AVE, NORWALK, WI 54648

LANDOWNER PHONE NO. (608) 823-7329 COUNTY MONROE

TOWNSHIP RIDGEVILLE T 16 N, R 2W E/W, Sec. 30

FIELD OFFICE SPARTA TELEPHONE NO. 269-8974

DIGGERS HOTLINE

Call 3 Work Days Before You Dig!

Nationwide 811

Toll Free 1–800–242–8511

TDD 1–800–542–2289

Website www.diggershotline.com



N

Not to Scale

LOCATION MAP

AS-BUILT

NOTICE TO LANDOWNERS AND EXCAVATORS

Any representation made by the USDA, Natural Resources Conservation Service, or the MONROE County LCD, as to the approximate location or nonexistence of above or under ground hazards does not relieve the owner of the property or the excavator that is hired to complete construction, from notifying Diggers Hotline of the pending construction. You will be liable for damages resulting from construction activities. Call Diggers Hotline! Ticket Number 193-[illegible]

CONSTRUCTION DRAWINGS AND SPECIFICATIONS ACCEPTANCE

I have reviewed and understand the construction plans and specifications and agree to complete the work accordingly. Failure to meet these plans and specifications may jeopardize any continued NRCS technical assistance or program cost sharing applied for. I understand that it is my responsibility to secure all necessary permits and licenses, and to complete the work in accordance with all local, state, and federal laws. Modification of these construction plans or specifications must be approved by the NRCS before installation. I assume all responsibility for negotiations and contract agreements with the construction contractors.

Landowner Signature: Ronald W. Luethe Date: 2-21-2019

Designed by: Christina Mulder Date: 2/21/19

Checked by: Bryce Richardson Date: 2/21/19

Approved by: Christina Mulder Date: 2/22/19

The installed practices comply with applicable NRCS technical standards and specifications. The "redlined" construction plans (as–built drawings) reflect changes made during construction.

Construction Approved by: Christina Mulder Date: 8/13/19

Job Approval Class 580 (II) 395 (I) 500 (V) 342 (V) 484 (I)

ESTIMATED QUANTITIES

ITEM	UNIT	QUANTITY	SHEET NUMBER	WI. CONSTRUCTION SPEC. OR JOB SHEET NUMBER
OBSTRUCTION REMOVAL	AC	0.2 ✓	3,4	WI SPEC 1 & 2
STREAMBANK PROTECTION	LN FT	~~525~~ 601	3-5	WI SPEC 1, 2, & 9
SHAPING BANKS	LN FT	300 ✓	3,4	WI SPEC 2
RANDOM BOULDERS	NO	4 ✓	3,4,6	WI SPEC 9
SEEDING & MULCH	AC	0.3 ✓	3,4,7,8	WI SPEC 710
				AS-BUILT

Quantities are estimated to the neat lines and grades of in-place materials shown on the construction plan unless otherwise stated. Truck yardage, loose fill, shrinkage, etc., must be calculated and compensated for by the contractor preparing a bid or constructing the project.

USDA United States Department of Agriculture
Natural Resources Conservation Service

ESTIMATED QUANTITIES

CLIENT: RON LUETHE
COUNTY: MONROE

Designed CLM Date 2/19
Drawn
Checked BR 2/19
Approved

Drawing Name WI-005
Date 05/14
Sheet 2 of 8

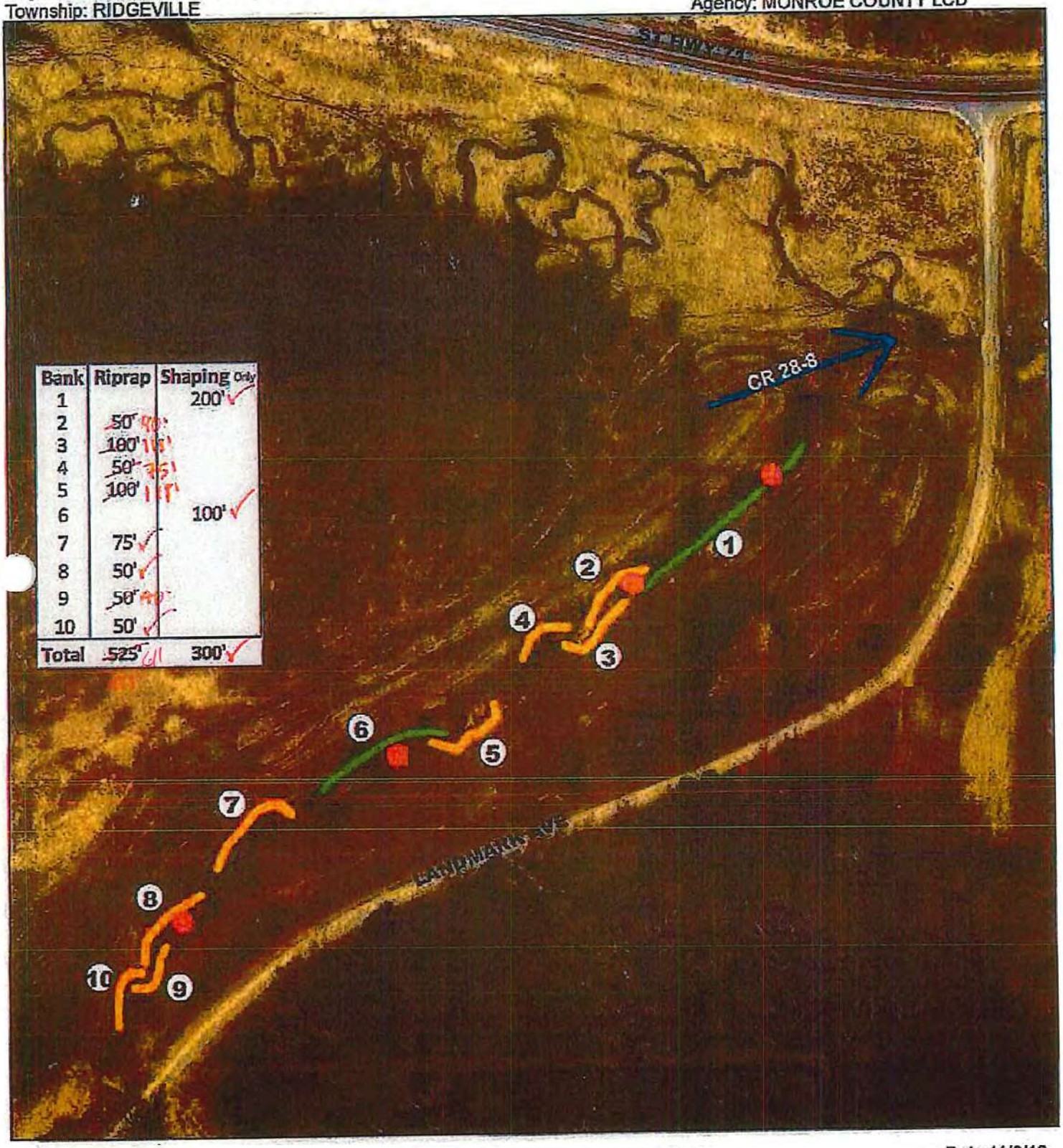
CONSTRUCTION NOTES

1. A preconstruction meeting shall be scheduled with Monroe County LCD personal, the contractor, and the landowner prior to construction start-up. Contractor shall notify the Sparta LCD Field Office (608-269-8975) at least one week prior to the start of construction. ✓
2. Contact County Planning and Zoning Department and Local Township for possible permits. Landowner must receive the DNR and all other required permits prior to start of construction. ✓
3. **Contact Diggers Hotline at least 3 days prior to start of construction. (800) 242-8511 (811)** or DiggersHotline.com. Notification of affected utility companies is the responsibility of the contractor. ✓
4. All estimated quantities are based on neat lines and grades unless otherwise stated. Technician will stake the project prior to construction. ✓
5. Trees and other debris located along streambanks will be removed as directed by technician throughout length of project area. Trees and debris will be disposed of in an area agreed upon by the landowner and technician and then hauled off site or safely burned. ✓
   Piled out of floodway, planned to burn
6. Rock riprap must be from a tested and approved quarry. Contractor must provide the technician with the proposed rock source quarry name prior to the start of construction to verify its approval. Menn Quarry ✓
7. Key in upstream and downstream ends of the rip rap. Provide smooth transition from bank slope face to rock face. ✓
8. Any remaining spoil from shaping streambanks will be spread evenly on adjacent land in a manner that allows water to drain freely. **Spoil shall not enter a wetland depression.** ✓
9. All disturbed areas will be mulched and seeded according to seeding plan. ✓
10. LCD personal will be on site regularly to ensure proper construction is being completed. ✓
11. Contractor will be responsible for correcting problems which occur as the result of not following proper construction procedures. ✓

Plan Map

Customer(s): RON LUETHE
Legal Description: T16N, R2W, SEC30
Township: RIDGEVILLE

Field Office: SPARTA SERVICE CENTER
Agency: MONROE COUNTY LCD



Bank	Riprap	Shaping Only
1		200' ✓
2	50' ~~90'~~	
3	100' ~~115'~~	
4	50' ~~75'~~	
5	100' ~~117'~~	
6		100' ✓
7	75' ✓	
8	50' ✓	
9	50' ~~90'~~	
10	50' ✓	
Total	525' ~~611~~	300' ✓

Legend

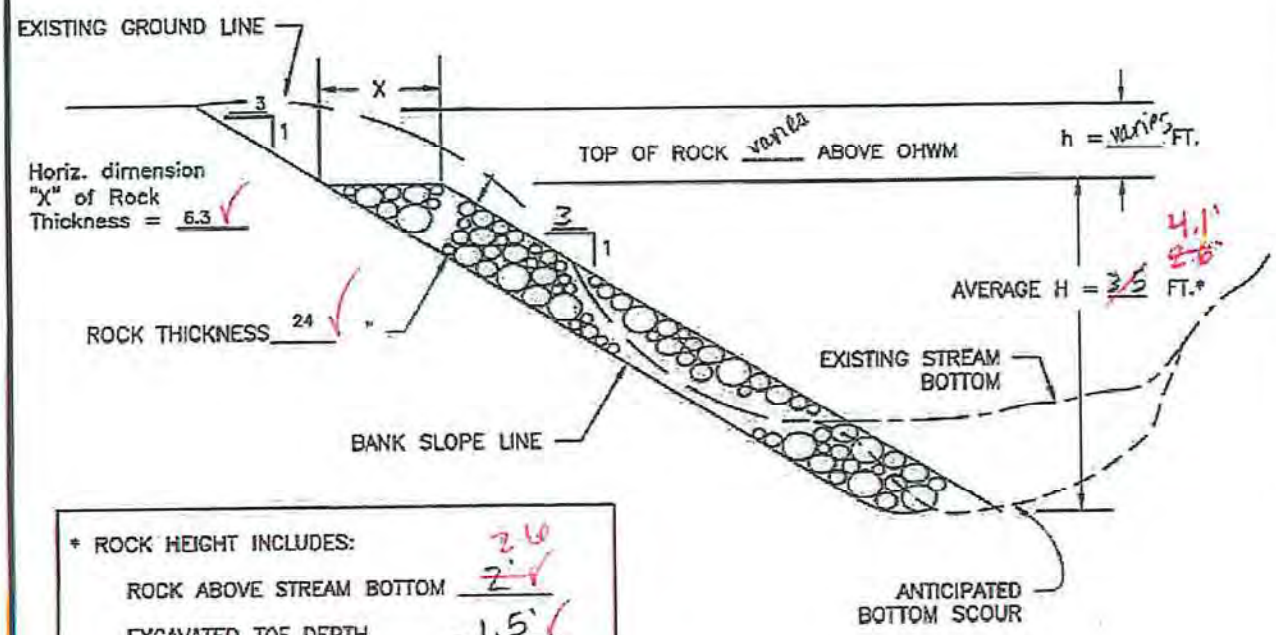
- Shaping Bank
- Riprap Bank
- Random Boulders

0 50 100 200 300 Feet

Date: 11/9/18

N W E S

AS-BUILT



* ROCK HEIGHT INCLUDES:

ROCK ABOVE STREAM BOTTOM	2.6 2'
EXCAVATED TOE DEPTH	1.5'
TOTAL ROCK HEIGHT	3.5' 2.6' 4.1'

TYPICAL CROSS SECTION

GRADATION OF ROCK

PERCENT PASSING BY WEIGHT	SIZE (INCHES)
100	16
60–85	12
25–50	8
5–20	4
0–5	2

QUANTITY ESTIMATE *

BANK SLOPING FOR RIPRAP	525 511	LIN. FT.
BANK SLOPING (SEEDING ONLY)	300	LIN. FT. ← Banks ① &
ROCK FOR RIPRAP (WI CONST. SPEC. 9)	716	CU. YD.
SEEDING	0.3	ACRES

* ESTIMATED TO THE NEAT LINES AND GRADE

AS-BUILT

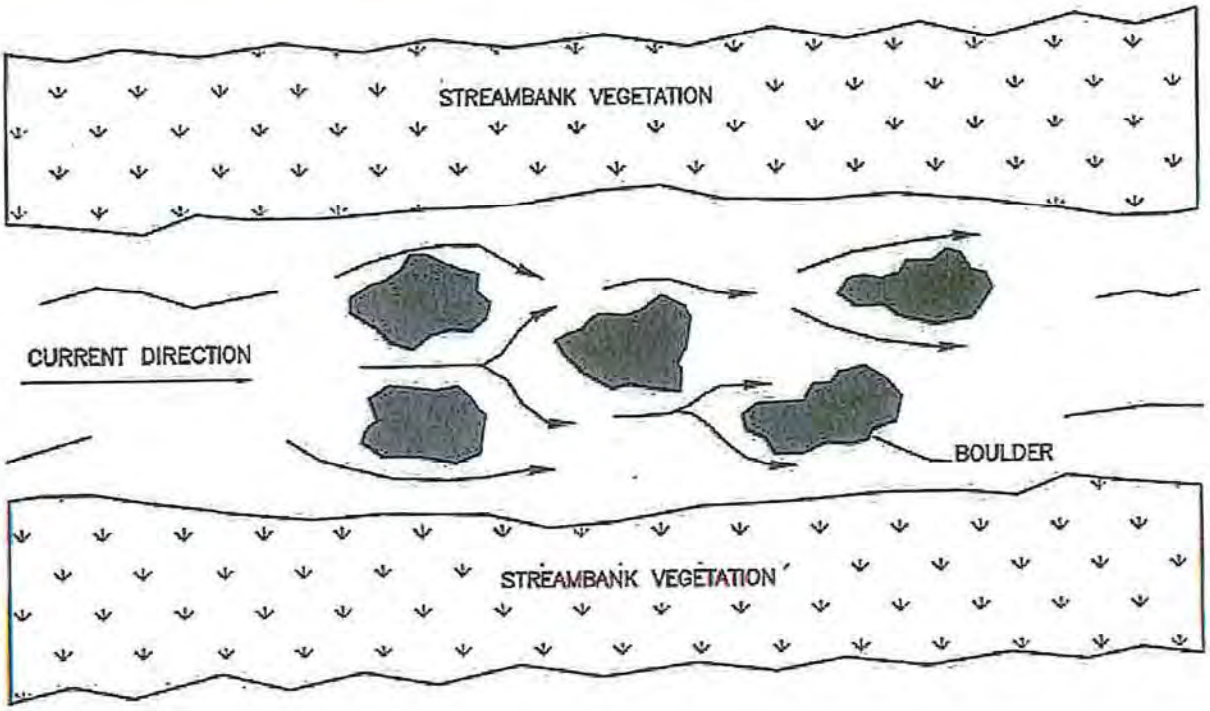
NOTES:

1. DOUBLE THE ROCK THICKNESS FOR A DISTANCE OF 4 FEET AT THE UPSTREAM AND DOWNSTREAM ENDS OF THE RIPRAP. BLEND THE ROCK SURFACE TO MATCH THE EXISTING STABLE BANK SURFACE.
2. TOE PROTECTION SHALL BE PROVIDED TO A MINIMUM DEPTH OF THE ANTICIPATED BOTTOM SCOUR, WHICH WILL BE BELOW THE EXISTING STREAM BOTTOM.
3. TRACK BANKS PERPENDICULAR TO STREAM WITHIN 1' OF WATERLINE PRIOR TO SEEDING

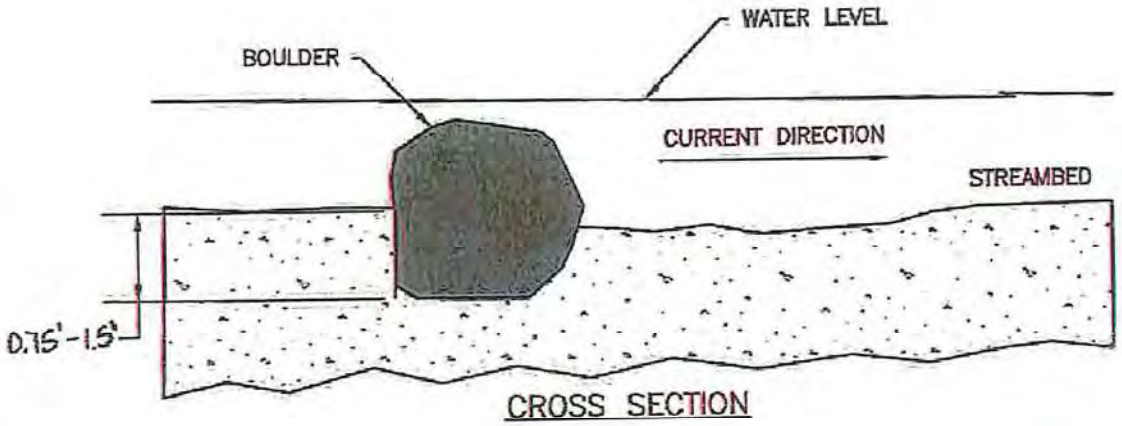
EXCAVATED TOE

SITE 2,3,4,5,7,8,9,10

USDA United States Department of Agriculture Natural Resources Conservation Service	STREAMBANK PROTECTION NO FILTER OR GEOTEXTILE (PARTIAL BANK HEIGHT) CLIENT: RON LUETHE COUNTY: Monroe	Designed CJM Date 2/19 Drawn Checked BAR 2/19 Approved	File Name Date 11/2016 Sheet 5 of 8



PLAN VIEW



CROSS SECTION

- AVERAGE ROCK SIZE– 1.0'-2.0' DIA.–ROCK, SIZE IS SITE DEPENDENT.
- A MINIMUM OF ONE BOULDER PER SET OF BOULDERS SHOULD PROTRUDE FROM WATER SURFACE DURING TIMES OF ORDINARY FLOW TO ACT AS MID–STREAM PERCHING/LOAFING SITES.
- USE BOULDERS WITH IRREGULARITIES OR MULTIPLE BOULDERS TOGETHER TO PROVIDE SLIGHT OVERHANGING COVER.
- PLACE BOULDERS SO CURRENT WILL NOT BE DEFLECTED INTO UNPROTECTED STREAM BANKS.

AS-BUILT

USDA United States Department of Agriculture Natural Resources Conservation Service	RANDOM BOULDER PLACEMENT CLIENT: RON LUETHE COUNTY: MONROE	Designed CLM Date 2/19 Drawn Checked BAB 2/19 Approved	File Name WI-937 Date 08/14 Sheet 6 of 8

SEEDING DATES

TIME PERIOD	CENTRAL	DATES		TYPE OF SEEDING
Spring	April 15	through	June 1	Permanent
Summer	June 2	through	see WI-710 pg 2	Temporary *
Late Summer	August 1	through	August 21	Permanent
Fall	August 22	through	see WI-710 pg 2	Temporary *
Late Fall	November 1	through	snow cover	Dormant
Winter	snow cover	through	Spring Seeding	Frost Seed Not Allowed

MATERIALS

If no soil test is available, apply a minimum of 150 pounds of 20-10-10 fertilizer per acre. This is equivalent to 30 pounds nitrogen (N), 15 pounds phosphate (P205), and 15 pounds potash (K20) per acre. Apply two tons/ac of 80-89 lime or equivalent. (see page 2 for equivalent)

* Seed a temporary cover crop of Oats at a rate of 64 pounds/acre. (2 Bushels/acre)
A permanent seeding shall be completed during the next acceptable time period following a temporary seeding.

MINIMUM PURE LIVE SEED (PLS)[1] RATE PER ACRE AND TOTAL POUNDS OF SEED NEEDED

SEEDING MIX #9 C retardance	LOCATION ACRES DISTURBED 0.3		SEEDING MIX _____	LOCATION ACRES _____	
SPECIES	RATE	POUNDS	SPECIES	RATE	POUNDS
Kentucky Bluegrass	3	0.9			0
Creeping Red Fescue	4	1.2			0
Perennial Ryegrass	10	3			0
		0			0
		0			0
		0			0
** Oats 1-1-16	64	19.2			0

1. PLS = (% Germination X % Purity)
** Companion Crop

Additional Seed Percentage 0%
(input decimal value)

Additional native seeds may be required by permitting agencies. These additions are allowed.
Seed mixture shall meet all requirements of the WI weed laws.
Species identified as restricted or prohibited by law shall not be planted.
Certified seed shall be used, and the seeding rates will be based on pure live seed.
For dormant seedings, increase the seeds per square foot by 15%.

SEEDBED PREPARATION

Seedbed preparation shall immediately follow construction activities.
Prepare a fine, firm seedbed to a minimum depth of three inches. A seedbed is considered firm when a footprint penetrates 1/4 to 1/2 inch deep.

SEEDING

Inoculate legumes with the specific inoculum for the species in accordance with the manufacturer's recommendations. When using a hydroseeder, five times the recommended rate of inoculant shall be added to the hydroseeder. Inoculant shall not be mixed with liquid fertilizer.

AS-BUILT

Seed may be broadcast or drilled as appropriate to the site.
Seed, fertilize, and lime as soon as possible after construction.
Seeding perpendicular to direction of flow is required to limit erosion.
Seed grasses and legumes no more than 1/4 inch deep.
Consider seeding at a lower rate and making 2 passes to ensure more uniform distribution.

USDA United States Department of Agriculture
Natural Resources Conservation Service

INTRODUCED SPECIES SEEDING ESTABLISHMENT

CLIENT: RON LUETHE
COUNTY: MONROE

Designed CLM Date 2/19
Drawn
Checked BAC 2/19
Approved

File Name WI-710
Date 12/2016
Sheet 7 of 9

TEMPORARY SEEDING OPTIONS

Select one of the following species for temporary cover if:

1) The required seeds or plant stock are not available or the normal permanent seeding period for the species has passed
   - Forage Sorghum – 1/2 bushel per acre (May 15–July 15)
   - Sorghum – Sudangrass Hybrid – 1 bushel per acre (May 15–July 15)
   - Sudangrass – 1 bushel per acre (May 15–July 15)
   - Winter Wheat – 2 bushels per acre (Aug 1–Oct 1)
   - Winter Cereal Rye – 2 bushels per acre (Aug 1–Oct 15)
   - Oats – 2 bushels per acre (Apr 1–Sept 1)
   - Annual Ryegrass – 20 Pounds per acre (Apr 1–Sept 1)

2) Triazine herbicide carryover will not allow establishment of permanent cover immediately.
   - Forage Sorghum – 1/2 Bushel per acre (May 15–July 15)
   - Sorghum – Sudangrass Hybrid – 1 Bushel per acre (May 15–July 15)
   - Sudangrass – 1 Bushel per acre (May 15–July 15)

DORMANT SEEDING

Seed is broadcast and incorporated, no-tilled, or drilled into the seedbed.
Seedbed preparations and conditions are similar to conventional seeding.

MULCHING ☑ (Mulching is required.) ☐ (Mulching is not required.)

Mulching shall be done immediately after seedbed preparation and seeding.
Mulch shall be applied immediately after final grading for areas seeded at a later date.

Mulch material shall be relatively free of disease, pesticides, chemicals, noxious weed seeds, and other pests and pathogens.

Spread straw and hay mulch uniformly and at the rate of 1.5–2.0 tons per acre (60–70 bales). This application results in a layer of 6 to 7 stems, 1 to 2 inches thick, and provides a minimum 70% ground cover. Some soil surface can be seen after the application. Crimping (disking), wood cellulose fiber, tackifiers, netting, pinning, or other acceptable methods of anchoring will be used if needed to hold the mulch in place.

If other mulch materials are used, the rate of application shall meet the manufacturer's recommendations.

Two (2) tons/ac of 80–89 lime or equivalent from UW–EXT A3671

Lime Quality	Tons/AC.
40–49	3.9
50–59	3.2
60–69	2.7
70–79	2.3
90–99	1.9
100+	1.6

AS-BUILT

BAP ✓

NRCS Streambank Erosion Estimator (Direct Volume Method)

Farmer / Cooperator Name: Ron Luethe
Tract Number:

Evaluated By: CLM
Evaluation Date: February 19, 2018

Field Number	Eroding Streambank Reach Number	Eroding Bank Length (Feet)	Eroding Bank Height * (Feet)	Area of Eroding Streambank (FT^2)	Lateral 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)
	1	225.0	5.0	1,125	0.70	787.5	Silt Loam	95	37.4
	2	386.0	3.6	1,390	0.30	416.9	Silt Loam	95	19.8
	3	300.0	4.6	1,380	0.30	414.0	Silt Loam	95	19.7
				Total Estimated Annual Streambank Erosion Soil Loss (Tons):					76.9

Field Number	Eroding Streambank Reach Number	Eroding Bank Length (Feet)	Eroding Bank Height * (Feet)	Area of Eroding Streambank (FT^2)	Lateral 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)
	1								
	2								
	3								
				Total Estimated Annual Streambank Erosion Soil Loss (Tons):					

Field Number	Eroding Streambank Reach Number	Eroding Bank Length (Feet)	Eroding Bank Height * (Feet)	Area of Eroding Streambank (FT^2)	Lateral 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)
	1								
	2								
	3								
				Total Estimated Annual Streambank Erosion Soil Loss (Tons):					

Total Estimated Annual Streambank Erosion Soil Loss (Tons):	76.9

* Eroding bank height is measured along the bank, not the vertical height of bank.

Streambank Erosion Calculation Formula:

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

Appendix F. Example Trade Agreement for Point to Nonpoint Source Trades

Notice

This is an example agreement and should be amended to meet the needs and conditions of the specific agreement. The Department does not require final trade agreements to be submitted with the trading plan. However, these documents must be presented upon request by the Department.

Permittee Information

Credit User Name (Permittee)	Permit Number
Village of Norwalk	WI-0024961

Credit User Address

509 Wisconsin Street, Norwalk, WI 54648

Permittee/Broker/Exchange Name (if applicable)	Trade Agreement Number
Village of Norwalk	2

Permittee/Broker/Exchange Address (if applicable)

Street Address	City	State	ZIP Code
208 S. Church Street	Norwalk	WI	54648

Project Name

Moore Creek Tributary Stream Bank Stabilization - Luethe Section

Name of Credit Generator (Landowner/Operator) (Last, First, M.I.)

Luethe, Ron

Street Address	City	State	ZIP Code
16324 Landmark Avenue	Norwalk	WI	54648

Property Information

Name of Landowner(s) (if not Operator) (Last, First, M.I.) same

Street Address	City	State	ZIP Code
West of Landmark Avenue	Norwalk	WI	54648

Legal Description of Property - Contiguous sites under the same ownership: (add additional sheets if necessary)

825 linear feet of stream bank (525 LF rip rap and 300 LF shaping) on tributary of Moore Creek located upstream of WWTF discharge on Ron Luethe land, Town of Ridgeville.

Parcel ID(s):

034-00646-2000

Site Locator for Construction Projects

County	Township	Range E / W	Section	Quarter/Quarter (e.g., NW ¼ of the NE ¼)
Monroe	16 N	2W	30	SW 1/4, NE 1/4 30
	N			
	N			
	N			

Agreement

The property described above is enrolled in a Water Quality Trade Agreement. Funds are provided to the landowner/ operator in return for the installation, operation and maintenance of best management practices (BMPs) designed to enhance water quality. This agreement commits the landowner/operator, their heirs, successors and assigns to fulfill the trade agreement until a satisfaction or release is filed by the grantee.

Addenda which describe the BMPs, costs, installation schedule, and conditions are hereby incorporated into this agreement and are on file with the grantee and may be given to Wisconsin DNR upon request by the Department.

Landowner/Operator

Signed this 21st day of Feb, 20 19.

Ron Luethe
Signature of Landowner/Operator

Signature of Landowner/Operator

Ron Luethe
Typed Name of Landowner/Operator

Typed Name of Landowner/Operator

STATE OF WISCONSIN)
Monroe County) ss.
)

Personally came before me this 21st day of Feb, 20 19.

The above named Ron Luethe to me known to be the person(s) who executed the foregoing instrument and acknowledge the same.

Christina L Mulder
Signature of Notary Public

Christina L Mulder
Typed Name of Notary Public

Notary Public Monroe County, Wisconsin

My commission (is permanent) (expires March 7, 2022).

CHRISTINA L MULDER NOTARY PUBLIC STATE OF WISCONSIN

Landowners (if not operator)

If the landowner section is not completed, check (X) one or both of the following that apply

☐ Landowner is also operator

☐ Trade agreement contains only high residue management, nutrient management, pesticide management, cropland protection cover (green manure)

Signed this _____ day of _____, 20 ____.

Signature of Landowner (if not operator)

Signature of Landowner (if not operator)

Typed Name of Landowner (if not operator)

Typed Name of Landowner (if not operator)

STATE OF WISCONSIN)
_____ County) ss.
)

Personally came before me this _____ day of _____, 20 ____.

The above named _____ to me known to be the person(s) who executed the foregoing instrument and acknowledge the same.

Signature of Notary Public

Typed Name of Notary Public

Notary Public _____ County, Wisconsin

My commission (is permanent) (expires _____).

Credit user/broker/exchange

Signed this 15th day of Feb, 20 19.

Signature of credit user/broker/exchange

Mike Wiedl, Village Pres Norwalk
Typed Name of credit user/broker/exchange

STATE OF WISCONSIN)
Monroe County) ss.
)

Personally came before me this 15 day of Feb, 20 19.

The above named Mike Wiedl to me known to be the person(s) who executed the foregoing instrument and acknowledge the same.

Christina L Mulder
Signature of Notary Public

Notary Public Monroe County, Wisconsin

My commission (is permanent) (expires March 7, 2022

CHRISTINA L MULDER NOTARY PUBLIC STATE OF WISCONSIN

Other Signer- Specify title or relationship: Engineer Responsible for Trade

Signed this 15th day of Feb, 20 19.

Dal K. Sauer
Signature

David K. Sauer, P.E., Cedar Corporation
Typed Name

Signature

Typed Name

STATE OF WISCONSIN)
Monroe County) ss.
)

Personally came before me this 15 day of Feb, 20 19.

The above named David Sauer to me known to be the person(s) who executed the foregoing instrument and acknowledge the same.

Christina L Mulder
Signature of Notary Public

Christina L Mulder
Typed Name of Notary Public

Notary Public Monroe County, Wisconsin

My commission (is permanent) (expires March 7, 2022.

Other Signer- Specify title or relationship: _____

Signed this _____ day of _____, 20 ____.

Signature

Typed Name

Signature

Typed Name

STATE OF WISCONSIN)
_____ County) ss.
)

Personally came before me this _____ day of _____, 20 ____.

The above named _____ to me known to be the person(s) who executed the foregoing instrument and acknowledge the same.

Signature of Notary Public

Typed Name of Notary Public

Notary Public _____ County, Wisconsin

My commission (is permanent) (expires _____).

Other Signer- Specify title or relationship: _____

Signed this _____ day of _____, 20 ____.

Signature

Typed Name

Signature

Typed Name

STATE OF WISCONSIN)
_____ County) ss.
)

Personally came before me this _____ day of _____, 20 ____.

The above named _____ to me known to be the person(s) who executed the foregoing instrument and acknowledge the same.

Signature of Notary Public

Typed Name of Notary Public

Notary Public _____ County, Wisconsin

My commission (is permanent) (expires _____).

☐ Check this box if this page is purposely left blank.

Section A – General Requirements

Example:

A 1. This agreement may be amended by mutual agreement of either party, so long as the agreement has not yet expired.

A 2. If a significant archeological or historical site is found, construction is to cease immediately and the BMP will be relocated, redesigned, or deleted to prevent damage to the archeological or historical site. The BMP may be deleted only if approved in writing by the Department of Natural Resources.

Section B – Landowner/Operator Shall:

Example:

B 1. Design, install, operate and maintain BMPs listed in Addendum 2 of this agreement.

B 2. Allow access to the installed BMP by the grantee, or an authorized representative of the grantee for site inspection of the BMP for installation, operation and maintenance.

Section C – Grantee Shall:

Example:

C 1. Provide cost sharing to the landowner/operator consistent with Addendum 2.

C 2. Make cost-share payments to the landowner/operator after payment is requested and evidence of contractor payment by the landowner/operator has been received, and the grantee verifies proper BMP installation.

TA Number	Typed Name of Landowner/Operator	Initials of Landowner/Operator	Date
2	Ron Luethe		2/21/19

The cost-share recipient shall implement and maintain all best management practices listed in this Addendum, unless otherwise amended in accordance with this agreement.

							Installation Period		
							From (MM/YY) 11/18	To (MM/YY) 09/19	
Field #	DNR BMP Code	Practice Name	Quantity	Unit	Unit Cost	Estimated Total Cost	Reimburs-ement Rate (%)	Estimated Cost-Share Amt.	Cost-Share Amt. From Other Programs*	Estimated Year to be Installed
		Stream Bank Rip Rap	525	LF	22	11,550	90	10,395	0	2019
		Stream Bank Shaping	300	LF	3	900	90	810	0	2019
					TOTALS	12,450		11,205	0	

* Identify Program Names: _____

CSA Number	Typed Name of Landowner/Operator	Initials of Landowner/Operator	Date
	Ron Luethe		2/21/19

Operation and Maintenance Plan
Streambank and Shoreline Protection

Cooperator: Ron Luethe Date: 2/14/19

By: Ron Luethe Title: Landowner

Project Location: Tributary to Moore Creek - Luethe Section (825 LF)

I agree to the following for the full service life of the streambank or shoreline improvements:

1. Check the riprap, plantings, and/or tree revetments at least once each year and immediately after severe floods. Rock removed or displaced shall be replaced as needed. Replant any dead of damaged tree plantings. Repair or replace any damaged or missing revetments. Repair work shall take place during periods of low stream flow.

2. Logs, trees, driftwood, and other debris lodged in or near the riprap shall be removed.

3. Check for sloughing, erosion, or damage to vegetative cover. Damaged areas shall be graded, shaped, and re-vegetated as soon as possible.

4. If fences are installed, they shall be maintained to prevent unauthorized human or animal access.

5. Immediately repair any vandalism, vehicle, or animal damage.

6. Eliminate access of foot traffic to the streambank within the buffer area with the exception of any designated pathway areas.

7. Eliminate all burrowing rodents and repair damage caused by them.

8. Additional recommendations:

Cooperator's signature: Ronald W. Luethe Date: 2-21-2019

I have discussed the maintenance guidelines with the above cooperator.

Conservationist's signature: Christina Mulder Date: 2/21/19

Ron Luethe Streambank Pre-Construction Photos



Photo 1 - Bank1



Photo 2 – Bank 2



Photo 3 – Bank 3



Photo 4 – Bank 4

Run Luethe Pre Construction Photos



Photo 5– Bank 5

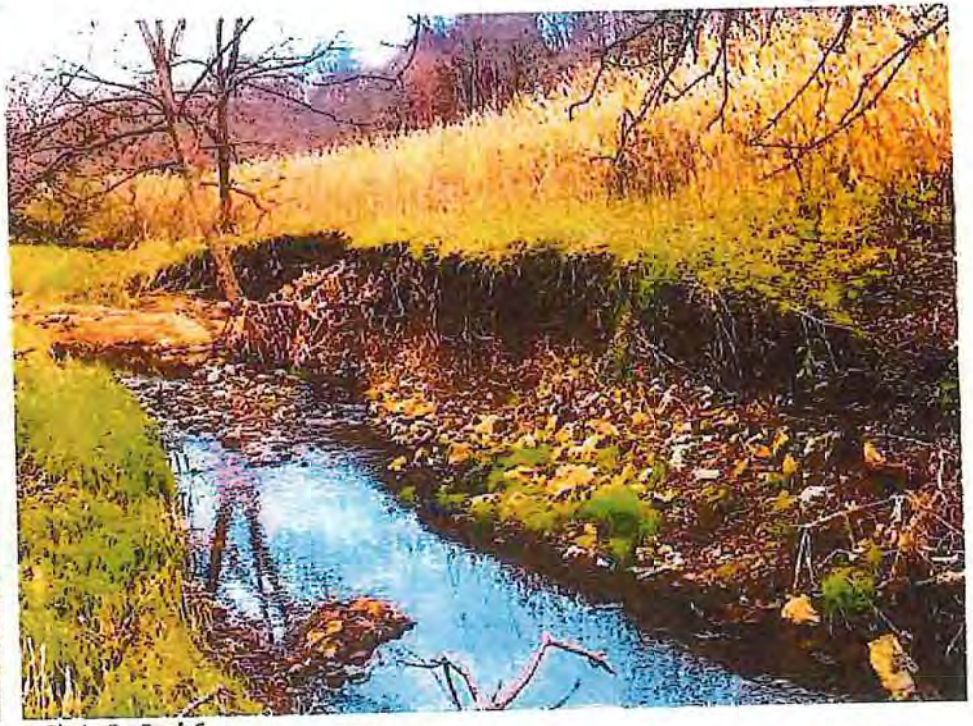


Photo 6 – Bank 6



Photo 7 – Bank 7



Photo 8 – Bank 8



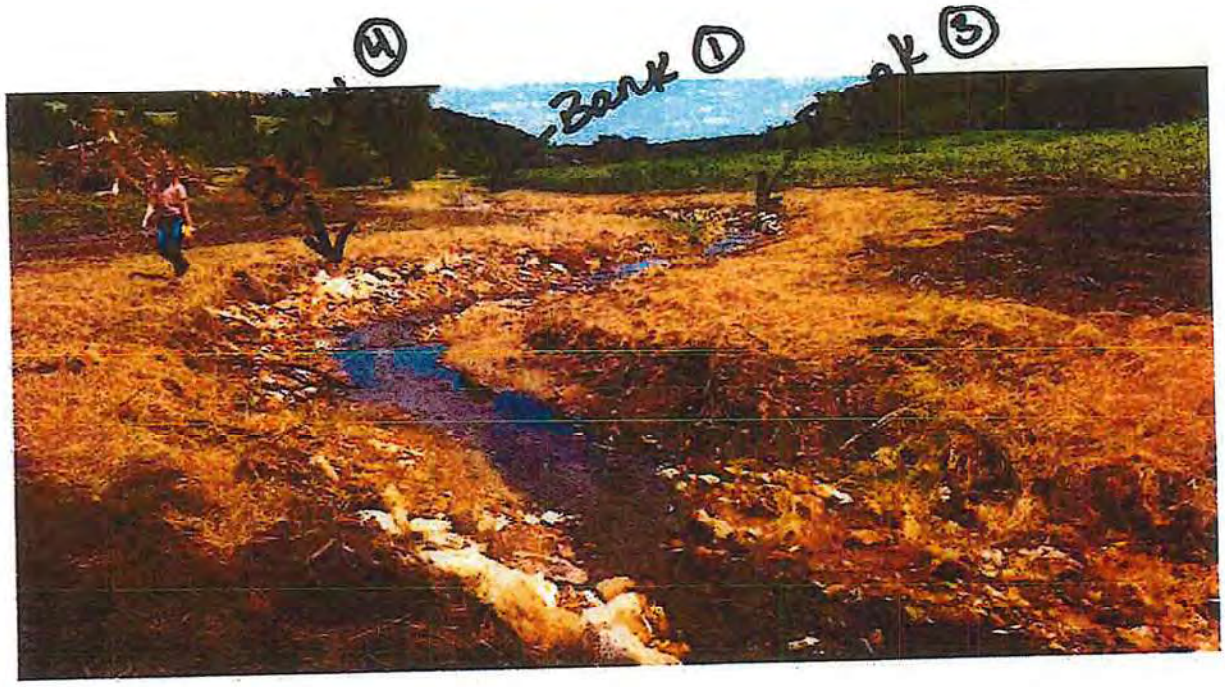
Photo 9 – Bank 9



Photo 10 – Bank 10

Ron Luethe Pre Construction Photos


Bank
3


4
Bank 1
3


Bank
5


Bank
16

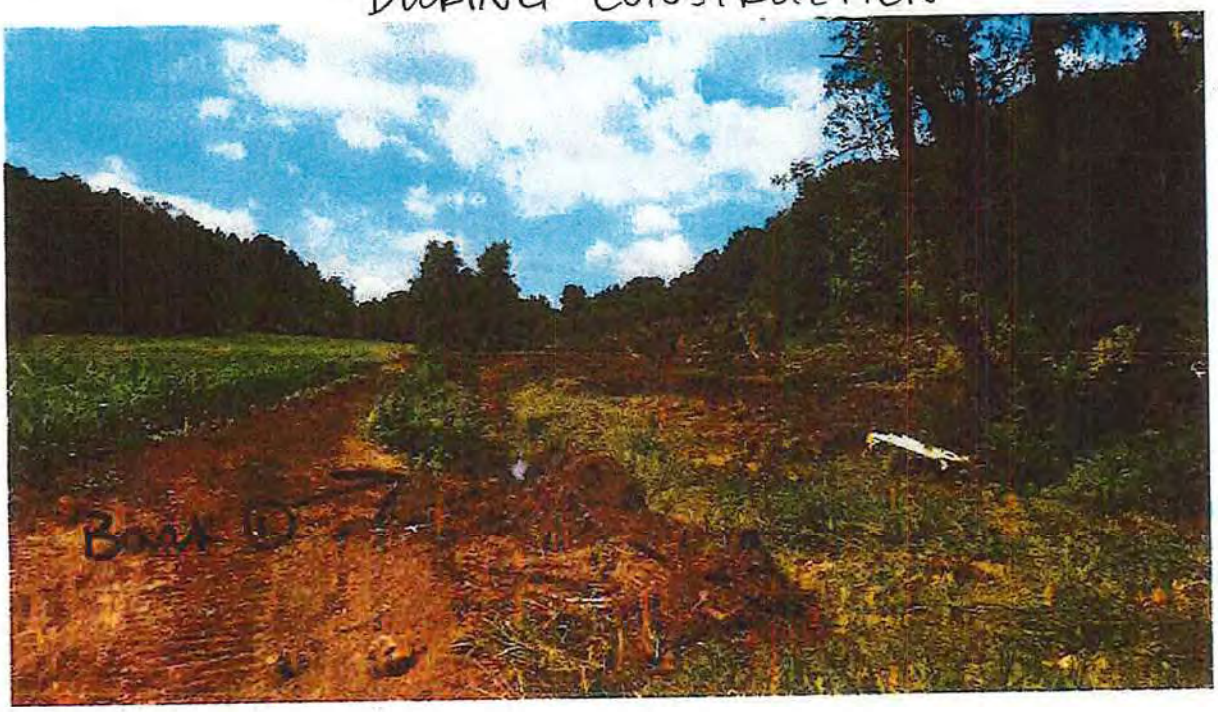

Bank
5


Bank
10

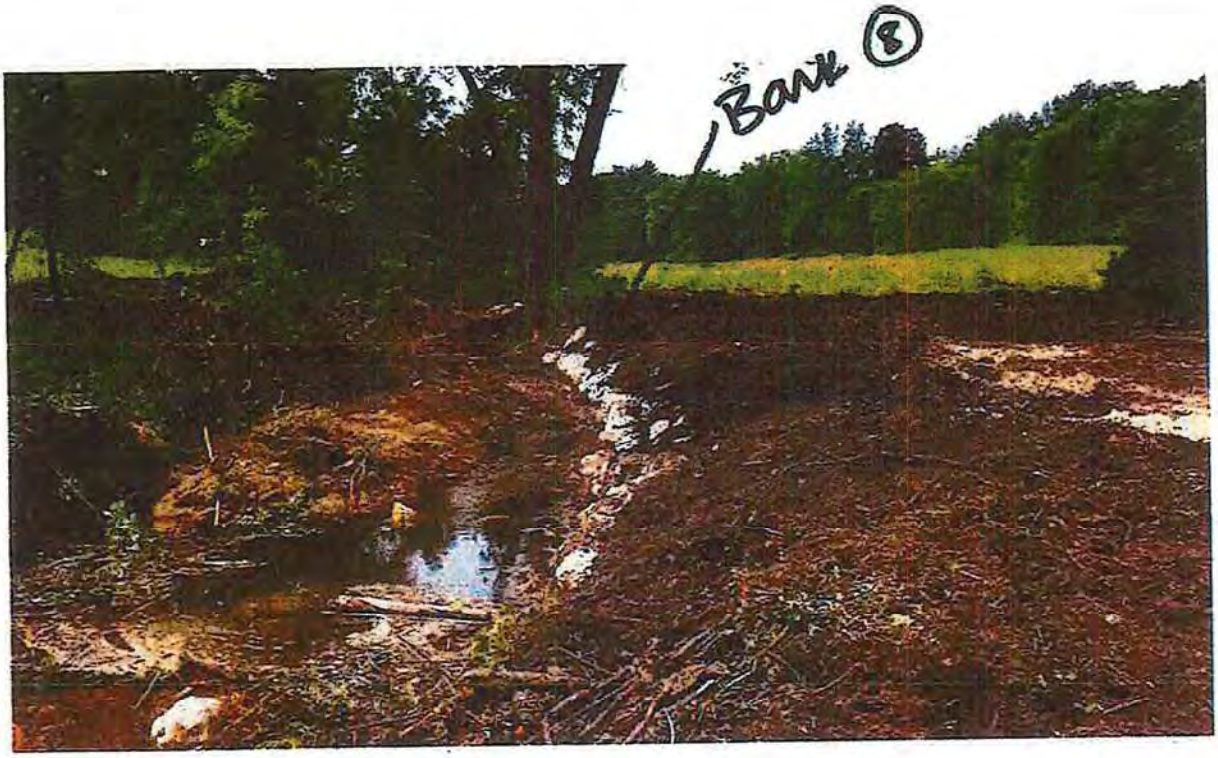

Bank

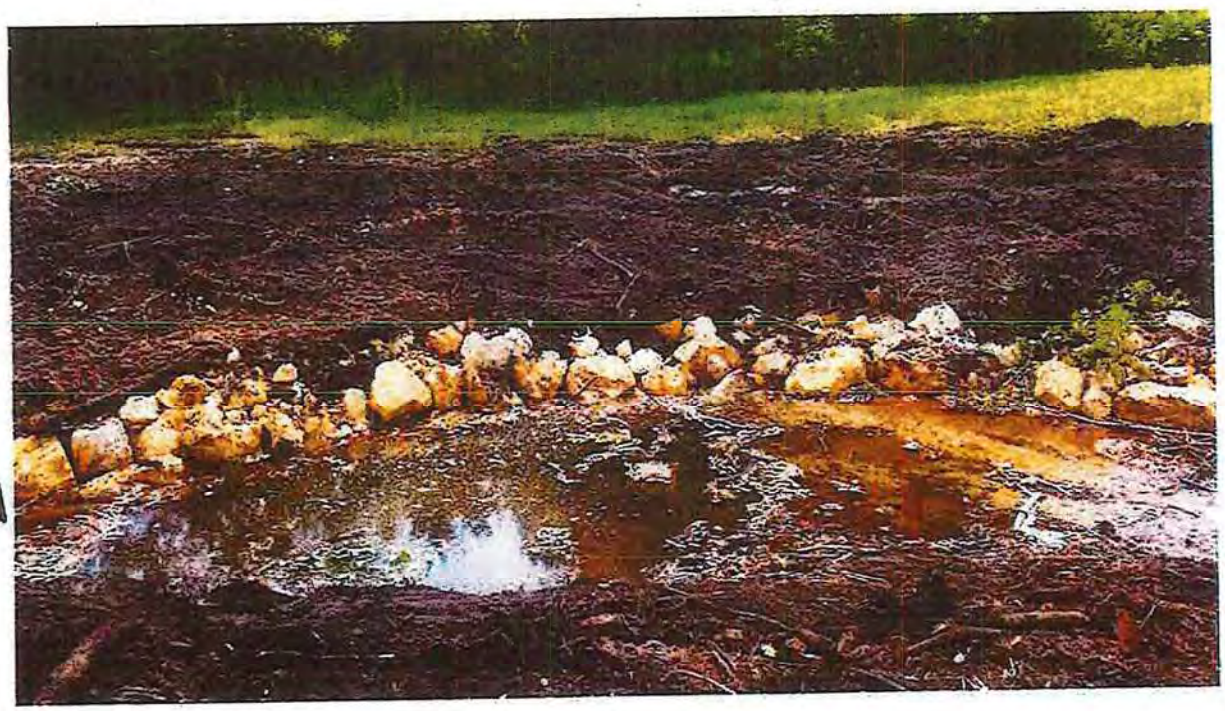


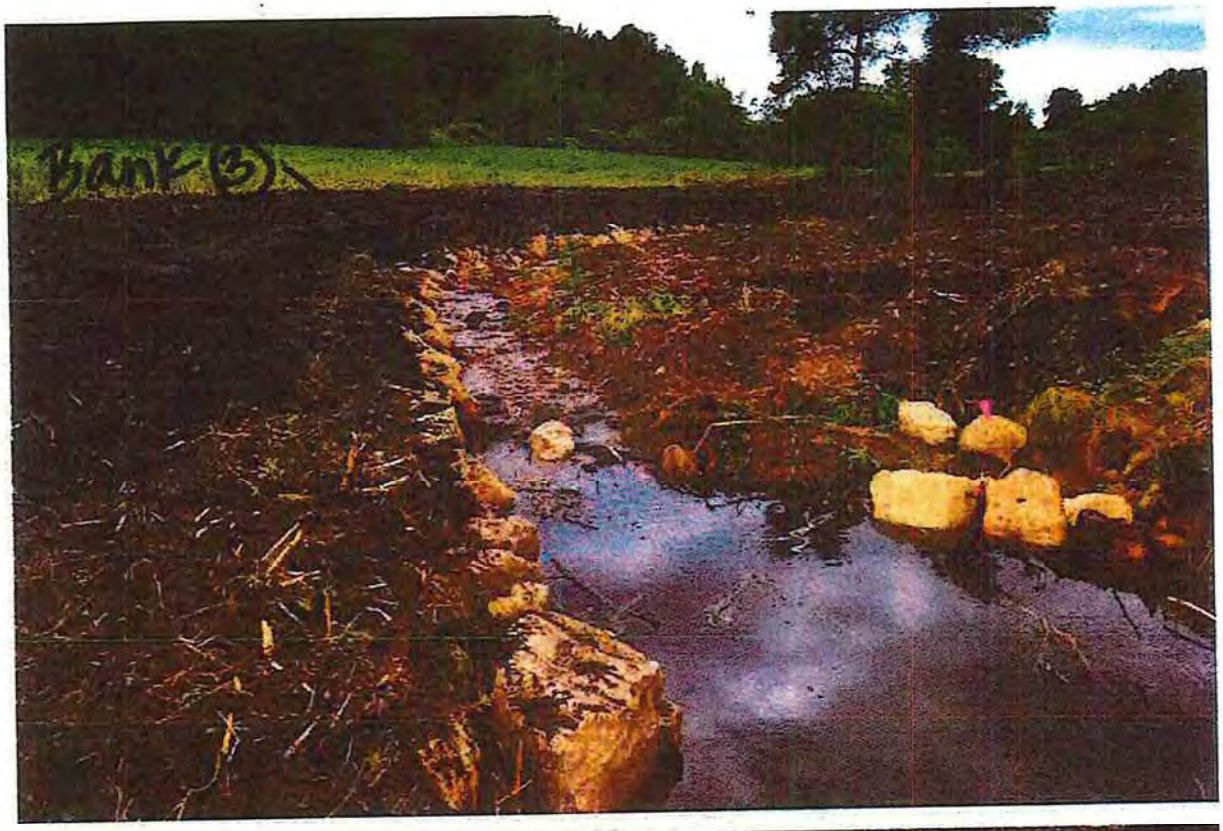
DURING CONSTRUCTION






Bank ⑧


Bank ⑦


Bank 5


Bank 6
Random Boulders


Bank ④


Bank ①
Random Boulders



VNS Winter Rye

Purity: 99.81
Other Crop: 0.0%
Weed Seed: 0.0%
Inert Matter: 0.19%

Lot: NS912017
Germination: 95%
Origin: WI
Tested: 9-17
Net Wt.: 50#

Moore Creek – Norwalk
Mike Wiedl Section
Calculation of Soil Loss, Phosphorus Loss, Phosphorus Credit
October 2019 (As-Built)
April 2026 (Revised per WDNR Comments)

A. Reference Information

1. DNR formula for streambank loss in tons/year:

$$\text{Length} \times \text{height} \times \frac{\text{annual lateral recession rate}}{20}$$

2. UW Soil and Plant Analysis Lab - Soil Test Results

Sample 13	-P = 0.07%	Sample 10	-P = 0.04%
Sample 14	-P = 0.07%	Sample 11	-P = 0.06%
Sample 15	-P = 0.03%	Sample 12	-P = 0.05%
Sample 16	-P = 0.04%		
Sample 17	-P = 0.03%	Soil tested August 2019	
Sample 18	-P = 0.03%		
Sample 19	-P = 0.06%		
Sample 20	-P = 0.03%		
Sample 21	-P = 0.04%		

Soil samples taken November 2018

Total Phosphorus – 0.045% based on 12 soil samples at 12 locations

3. Calculated Trade Ratio: 2:1 (assuming Moore Creek is non-compliant)

4. Streambank Length = 1,120 LF total (575 LF rip rap and 545 LF shaping)

B. Soil Loss and Phosphorus Credit at WWTF

After several conversations with WDNR, it is understood that WDNR will only accept the original planned level of improvements to the streambanks. Total soil loss planned was 45.8 tons/yr.

Phosphorus Loss = 45.8 tons/yr. x 2,000 lbs./ton x .00045 = 41.2 lb. P/yr.

$$\text{Phosphorus Credit at WWTF} = \frac{41.2}{2.05} = 20.1 \text{ lb. P/yr.}$$

Wiedl:

Same as above, the November 2025 WQT plan has combined multiple sites (9) into few (3). The new data includes 210 linear feet at 9.2 feet high. Nowhere in the original documentation or current photos are there banks shown to be 9 feet high. For recession rates of 0.5 ft/yr we're typically seeing vertical or near-vertical banks, so 9' vertical is expected to be visible in the photos. The currently proposed values in the November 2025 WQT plan overcalculate credit quantities.

Original documentation (accepted by DNR):

NRCS Streambank Erosion Estimator (Direct Volume Method)

Farmer / Cooperator Name: Mike Wiedl
Tract Number:
Evaluated By: CLM
Evaluation Date: November 20, 2018

Field Number	Eroding Streambank Reach Number	Eroding Bank Length (Feet)	Eroding Bank Height * (Feet)	Area of Eroding Streambank (FT^2)	Lateral 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)
	1	30.0	3.6	108	0.20	21.6	Silt Loam	95	1.0
	2	50.0	5.0	250	0.50	125.0	Silt Loam	95	5.9
	3	150.0	3.6	540	0.20	108.0	Silt Loam	95	5.1
				Total Estimated Annual Streambank Erosion Soil Loss (Tons):					12.1

Field Number	Eroding Streambank Reach Number	Eroding Bank Length (Feet)	Eroding Bank Height * (Feet)	Area of Eroding Streambank (FT^2)	Lateral 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)
	4	60.0	5.0	300	0.20	60.0	Silt Loam	95	2.9
	5	125.0	3.6	450	0.20	90.0	Silt Loam	95	4.3
	6	60.0	3.6	216	0.20	43.2	Silt Loam	95	2.1
				Total Estimated Annual Streambank Erosion Soil Loss (Tons):					9.2

Field Number	Eroding Streambank Reach Number	Eroding Bank Length (Feet)	Eroding Bank Height * (Feet)	Area of Eroding Streambank (FT^2)	Lateral 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)
	7	50.0	5.5	275	0.30	82.5	Silt Loam	95	3.9
	8	30.0	3.6	108	0.20	21.6	Silt Loam	95	1.0
	9	150.0	5.5	825	0.50	412.5	Silt Loam	95	19.6
				Total Estimated Annual Streambank Erosion Soil Loss (Tons):					24.5

Total Estimated Annual Streambank Erosion Soil Loss (Tons):	45.8

* Eroding bank height is measured along the bank, not the vertical height of bank.

Proposed documentation (November 2025 WQT Plan, not accepted by DNR):

NRCS Streambank Erosion Estimator (Direct Volume Method)

Farmer / Cooperator Name: Mike Wiedl
Tract Number:
Evaluated By: CLM
Evaluation Date: January 7, 2019

Field Number	Eroding Streambank Reach Number	Eroding Bank Length (Feet)	Eroding Bank Height * (Feet)	Area of Eroding Streambank (FT^2)	Lateral 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)
	1	210.0	9.2	1,932	0.50	966.0	Sandy Loam	100	48.3
	2	365.0	4.2	1,533	0.30	459.9	Silt Loam	95	21.8
	3	540.0	3.6	1,952	0.30	585.6	Silt Loam	95	28.0
				Total Estimated Annual Streambank Erosion Soil Loss (Tons):					98.1

Soil and Forage Analysis Laboratory
2611 Yellowstone Dr, Marshfield, WI 54449
Phone 715-387-2523

University of Wisconsin
Madison/Extension

Dave Sauer - Cedar Corporation
2820 Walton Commons West, Suite 142
Madison, WI 53718
Project 5899-0001

Date 11/29/18
Acct # 558202
Lab # 6310

Location: Village of Norwalk

Soil - Sieve Analysis - dry method

	% by weight retained on Sieve #					Cummulative % by weight passing Sieves				P nitric/peroxide	P Bray-1	TN
Sample	on 10	on 30	on 60	on 200	< 200	>10	>30	>60	<200	%	ppm	ppm
1	14	7	28	33	17	85	78	50	17	0.05	41	1935.6
2	20	13	22	25	20	80	66	45	20	0.03	50	1494.3
3	55	8	12	12	13	45	37	25	13	0.03	34	1743.6
4	46	9	14	12	18	54	45	30	18	0.05	37	2186.3
5	36	13	15	17	19	64	51	35	19	0.05	41	2596.6
6	57	15	9	8	10	43	28	19	10	0.07	17	4997.0
7	26	18	30	16	9	74	56	26	9	0.03	38	2365.4
8	20	21	30	16	14	80	59	29	14	0.03	21	1297.9
9	70	10	4	5	10	29	19	15	10	0.04	11	2863.5
10	42	25	9	8	15	58	32	23	15	0.07	29	3272.8
11	41	28	7	5	19	59	31	24	19	0.05	17	2922.1
12	50	22	6	4	17	50	27	21	17	0.07	56	3259.8
13	80	5	2	3	9	20	14	12	9	0.07	15	3072.9
14	5	23	27	22	22	95	72	45	22	0.07	11	1739.9
15	75	3	5	7	9	25	21	17	9	< 0.03	8	522.5
16	71	6	4	5	13	29	23	19	13	0.04	31	806.4
17	31	6	18	23	22	69	63	44	22	0.03	9	751.1
18	5	8	25	36	26	95	87	62	26	0.03	34	1363.0
19	5	10	32	32	21	95	85	53	21	0.06	85	1498.9
20	13	6	21	32	26	86	80	59	26	< 0.03	17	819.1
21	1	5	32	38	24	98	94	62	24	0.04	47	1415.2

Soil - Texture Analysis - hydrometer method

Sample	Sand %	Silt %	Clay %	Texture Name
3	56	32	13	sandy loam
9	30	54	17	silt loam
11	16	66	19	silt loam
12	16	66	19	silt loam
15	50	36	15	loam
21	68	26	7	sandy loam

Soil and Forage Analysis Laboratory
2611 Yellowstone Dr, Marshfield, WI 54449
Phone 715-387-2523

University of Wisconsin
Madison/Extension

Dave Sauer - Cedar Corporation
2820 Walton Commons West, Suite 142
Madison, WI 53718
Project 5899-0001

Date 8/2/19
Acct # 558202
Lab # **3663**

Location: Village of Norwalk, Mike W

Soil - Sieve Analysis

	% by weight retained on Sieve #							Cummulative % by weight passing Sieves					
Sample	on 4	on 10	on 20	on 40	on 60	on 200	< 200	>4	>10	>20	>40	>60	<200
Bank 10	59	2	3	3	5	9	19	41	39	36	33	28	19
Bank 11	11	17	23	15	7	6	21	88	71	48	33	27	21
Bank 12	27	13	22	8	3	5	23	73	60	39	31	28	23

Soil - Total Minerals

nitric/peroxide method	P	K	Ca	Mg	S	Zn	Mn	B	Fe	Cu
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Sample	%	%	%	%	%	DM	DM	DM	DM	DM
Bank 10	0.04									
Bank 11	0.06									
Bank 12	0.05									

Other Soil Analysis

	P	
	Bray-1	TN
Sample	ppm	ppm
Bank 10	32	1119.3
Bank 11	42	1544.6
Bank 12	26	1357.0

CONSTRUCTION PLAN

PRACTICE - STREAMBANK PROTECTION (580); STREAM HABITAT (395)

LANDOWNER - MIKE WIEDL

LANDOWNER ADDRESS - 108 N CHRUCH ST, NORWALK, WI 54648

LANDOWNER PHONE - 608-487-1490 **COUNTY -** MONROE

TOWNSHIP - RIDGEVILLE **T** 16 **N, R** 2 **W, SEC.** 30

FIELD OFFICE - SPARTA **TELEPHONE NO. -** 608-269-8974

LOCATION MAP



N

Not to Scale

DIGGERS HOTLINE

Call 3 Work Days
Before You Dig!
Toll Free
1-800-242-8511

Internet
http://www.diggershotline.com

AS-BUILT

Utilities: Any representation made by the USDA, Natural Resources Conservation Service, or the Monroe County LCD, as to the approximate location or nonexistence of above or underground hazards does not relieve the owner of the property or the excavator that is hired to complete construction, from notifying Digger's Hotline of the pending construction. You will be liable for damages resulting from construction activities. **(Call Diggers Hotline.)** Ticket # 7019-190991

Landowner Agreement: I have reviewed and understand the construction plans and specifications and agree to complete the work accordingly. Failure to meet these plans and specifications may jeopardize any continued NRCS technical assistance or program cost sharing applied for. I understand that it is my responsibility to secure all necessary permits and licenses, and to complete the work in accordance with all local, state, and federal laws. Modification of these construction plans or specifications must be approved by the NRCS before installation. I assume all responsibility for negotiations and contract agreements with the construction contractors.

Estimated Quantities and Cost Estimate: Quantities are estimated to the neat lines and grades of in-place materials shown on the construction plan unless otherwise stated. Truck yardage, loose fill, shrinkage, etc., must be calculated and compensated for by the contractor preparing a bid or constructing the project. Agency cost estimates are based on costs of similar projects and cost of materials at the time of the estimate. Costs do not reflect spikes in material or fuel costs. NRCS highly recommends you, as the owner of the project, obtain multiple bids for a comparison to the agency cost estimate.

Signed: _____ Date: 2/15/19

Designed by: Christina Mulder Date: 1/8/19

Checked by: Bryce Richards Date: 1/7/19

Approved by: Bryce Richards Date: 1/7/19

The installed practices comply with applicable NRCS technical standards and specifications. The "redlined" construction plans (as-built drawings) reflect changes made during construction.

Construction Approved by: Christina Mulder Date: 8/13/19

Job Approval Class 580-II 395-I

ESTIMATED QUANTITIES

ITEM	UNIT	QUANTITY	SHEET NUMBER	WI. CONSTRUCTION SPEC. OR JOB SHEET NUMBER
ROCK RIPRAP D50=8"	LN FT	~~475~~ 515	3-5	WI SPEC 1, 2, 9
SHAPING BANKS	LN FT	~~365~~ 545	3, 4	WI SPEC 2
RANDOM BOULDERS	NO	4 ✓	3, 4, 6	WI SPEC 9
SEED/MULCH	AC	0.5 ✓	3, 4, 7, 8	WI SPEC 710
				AS-BUILT

Quantities are estimated to the neat lines and grades of in-place materials shown on the construction plan unless otherwise stated. Truck yardage, loose fill, shrinkage, etc., must be calculated and compensated for by the contractor preparing a bid or constructing the project.

NRCS
Natural Resources Conservation Service
United States Department of Agriculture

ESTIMATED QUANTITIES

CLIENT: MIKE WIEDL
COUNTY: MONROE

Designed CLM Date 1/19
Drawn
Checked
Approved

Drawing Name WI-005
Date 5/09
Sheet 2 of 4

CONSTRUCTION NOTES

1. A preconstruction meeting shall be scheduled with Monroe County LCD personal, the contractor, and the landowner prior to construction start-up. Contractor shall notify the Sparta LCD Field Office (608-269-8975) at least one week prior to the start of construction. ✓
2. Contact County Planning and Zoning Department and Local Township for possible permits. Landowner must receive the DNR and all other required permits prior to start of construction. ✓
3. **Contact Diggers Hotline at least 3 days prior to start of construction. (800) 242-8511 (811)** or DiggersHotline.com. Notification of affected utility companies is the responsibility of the contractor. ✓
4. All estimated quantities are based on neat lines and grades unless otherwise stated. Technician will stake the project prior to construction. ✓
5. Trees and other debris located along streambanks will be removed as directed by technician throughout length of project area. Trees and debris will be disposed of in an area agreed upon by the landowner and technician and then hauled off site or safely burned. ✓
   ~~debris burned at this site. Piled outside of work plan~~ no debris
6. Rock riprap must be from a tested and approved quarry. Contractor must provide the technician with the proposed rock source quarry name prior to the start of construction to verify its approval. Menn Quarry ✓
7. Key in upstream and downstream ends of the rip rap. Provide smooth transition from bank slope face to rock face. ✓
8. Any remaining spoil from shaping streambanks will be spread evenly on adjacent land in a manner that allows water to drain freely. **Spoil shall not enter a wetland depression.** ✓
9. All disturbed areas will be mulched and seeded according to seeding plan. ✓
10. LCD personal will be on site regularly to ensure proper construction is being completed. ✓
11. Contractor will be responsible for correcting problems which occur as the result of not following proper construction procedures. ✓
12. Received an approved application from Wisconsin DOT (Jarrod Turk) to work within the highway right-of-way. See form in technicians engineering folder. ✓

AS-BUILT

Streambank Protection (580)

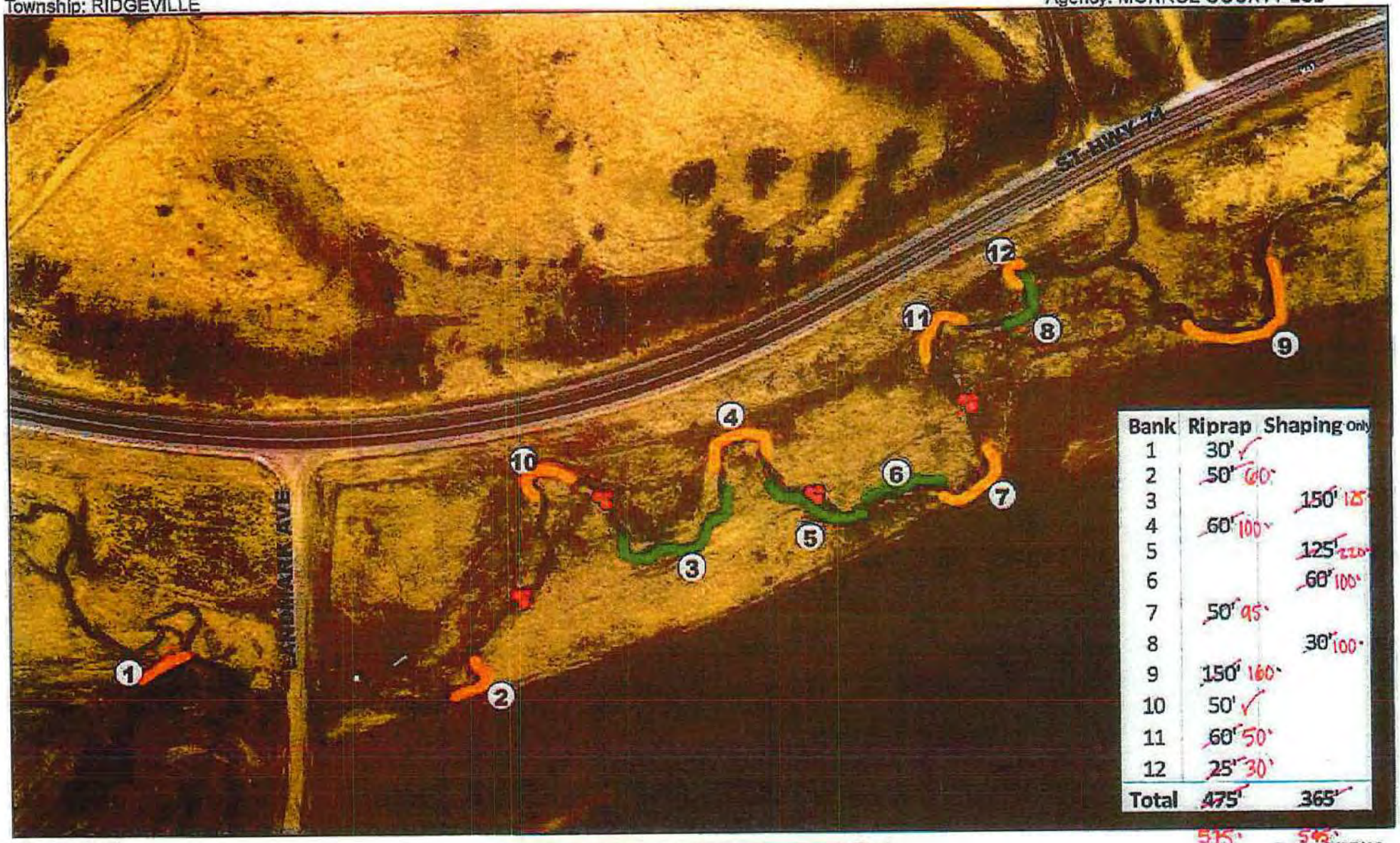
Designed: CLM Checked:

Sheet 3 of 6

Customer(s): M WIEDL
Legal Description: T16N, R2W, SEC30
Township: RIDGEVILLE

Plan Map

Field Office: SPARTA SERVICE CENTER
Agency: MONROE COUNTY LCD



Bank	Riprap	Shaping Only
1	30' ✓	
2	50' 60'	
3		150' 125'
4	60' 100'	
5		125' 220'
6		60' 100'
7	50' 95'	
8		30' 100'
9	150' 160'	
10	50' ✓	
11	60' 50'	
12	25' 30'	
Total	475' 515'	365' 545'

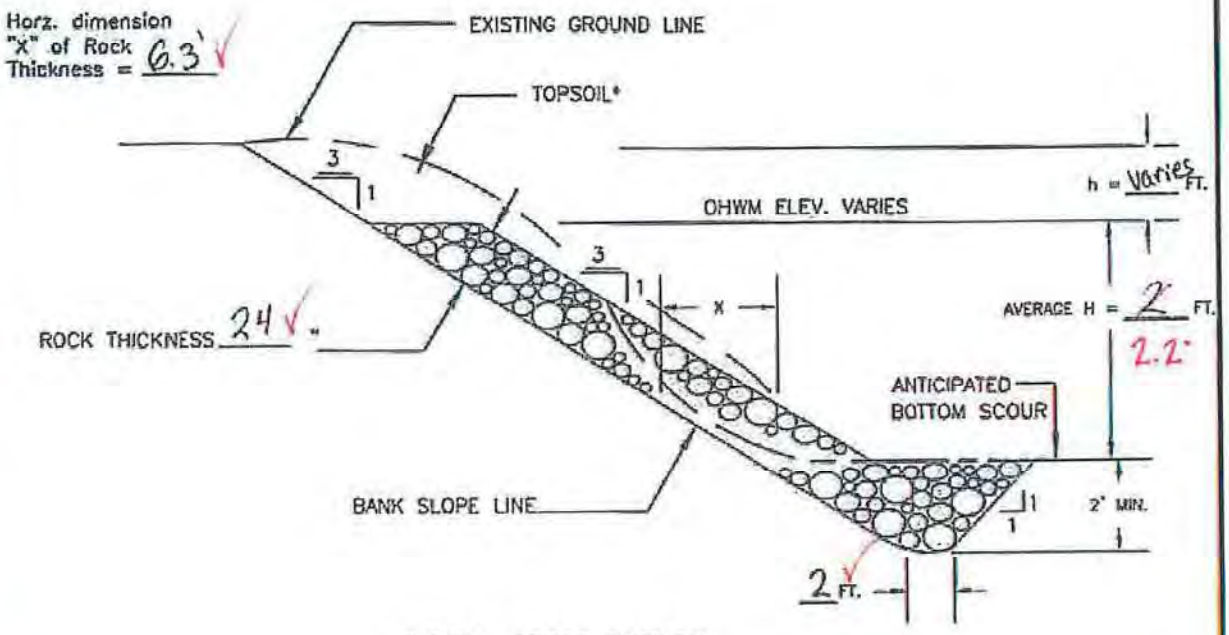
Legend

- Shaping Bank
- Riprap Bank
- Random Boulders

0 100 200 400 Feet

Date: 2/27/19

AS-BUILT



TYPICAL CROSS SECTION

GRADATION OF ROCK

PERCENT PASSING BY WEIGHT	SIZE (INCHES)
100	16
60–85	12
25–50	8 ✓
5–20	4
0–5	2

QUANTITY ESTIMATE*

BANK SLOPING FOR RIPRAP	~~475~~ 575	LIN. FT.
BANK SLOPING (SEEDING ONLY)	365 545	LIN. FT.
ROCK FOR RIPRAP (WI CONST. SPEC. 9)	410 ✓	CU. YD.
SEEDING	0.5 ✓	ACRES

*ESTIMATED TO THE NEAT LINES AND GRADE

NOTES:

1. DOUBLE THE ROCK THICKNESS FOR A DISTANCE OF 4 FEET AT THE UPSTREAM AND DOWNSTREAM ENDS OF THE RIPRAP. BLEND THE ROCK SURFACE TO MATCH THE EXISTING STABLE BANK SURFACE.
2. * SPREAD TOPSOIL TO WITHIN 1' OF STREAM EDGE. TRACK ALL TOPSOIL PERPENDICULAR TO STREAM TO REDUCE EROSION.

AS-BUILT

THIS STANDARDIZED DESIGN MUST BE ADAPTED TO THE SPECIFIC SITE.

10,11,12

SITE 1,2,4,7,9

EXCAVATED KEYWAY

NRCS
Natural Resources Conservation Service
United States Department of Agriculture

STREAMBANK PROTECTION NO FILTER OR GEOTEXTILE (PARTIAL BANK HEIGHT)

CLIENT: MIKE WIEDL

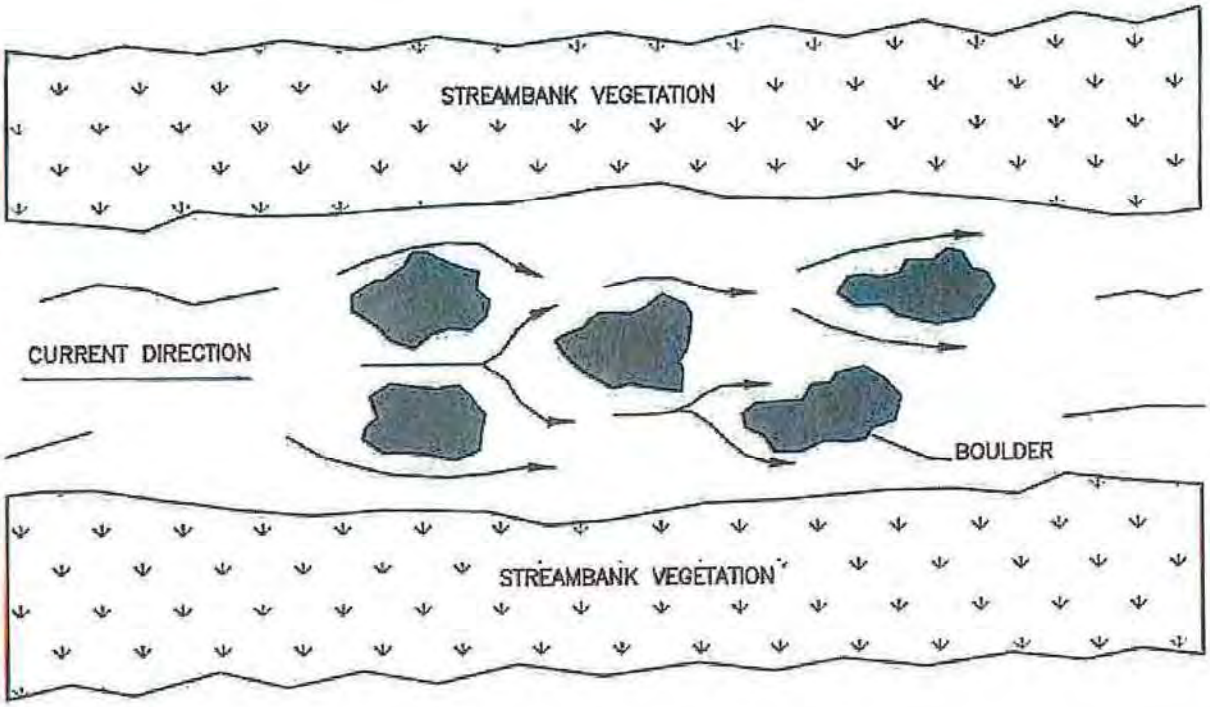
COUNTY: Monroe

		Date
Designed	CLM	1/19
Drawn		
Checked	BAR	1/19
Approved	BAR	1/19

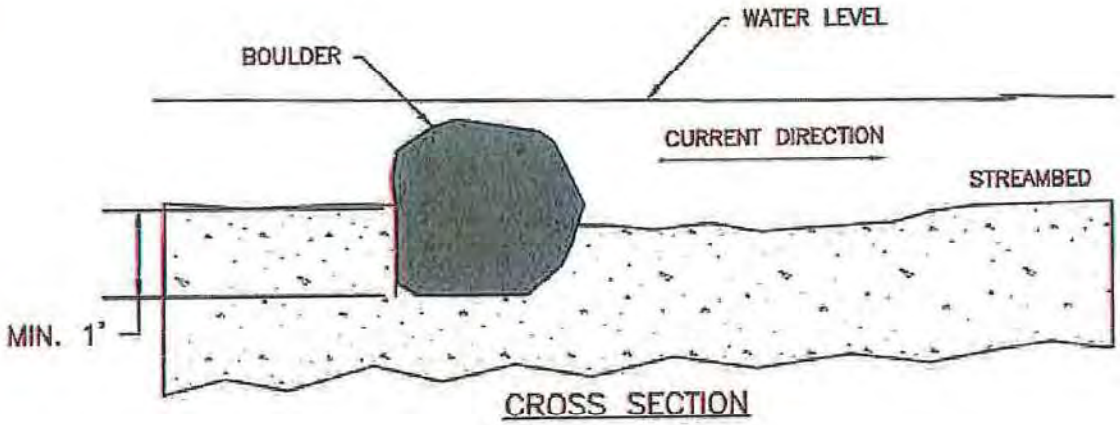
File Name: WI-404E

Date: 6/07

Sheet 5 of 8



PLAN VIEW



CROSS SECTION

- AVERAGE ROCK SIZE– 1.5'–3.5' DIA.–ROCK, SIZE IS SITE DEPENDENT.
- A MINIMUM OF ONE BOULDER PER SET OF BOULDERS SHOULD PROTRUDE FROM WATER SURFACE DURING TIMES OF ORDINARY FLOW TO ACT AS MID–STREAM PERCHING/LOAFING SITES.
- USE BOULDERS WITH IRREGULARITIES OR MULTIPLE BOULDERS TOGETHER TO PROVIDE SLIGHT OVERHANGING COVER.
- PLACE BOULDERS SO CURRENT WILL NOT BE DEFLECTED INTO UNPROTECTED STREAM BANKS.

AS-BUILT

USDA United States Department of Agriculture Natural Resources Conservation Service	RANDOM BOULDER PLACEMENT CLIENT: MIKE WIEDL COUNTY: MONROE	Designed J.J.M Date 1/19 Drawn Checked BAR 1/19 Approved BAR 1/19	File Name WI–937 Date 08/14 Sheet 6 of 8

SEEDING DATES — CENTRAL

TIME PERIOD	DATES			TYPE OF SEEDING
Spring	April 15	through	June 1	Permanent
Summer	June 2	through	see WI-710ss pg 2	Temporary *
Late Summer	August 1	through	August 21	Permanent
Fall	August 22	through	see WI-710ss pg 2	Temporary *
Late Fall	November 1	through	Snow Cover	Dormant
Winter	Snow Cover	through	April 14	Not Allowed

MATERIALS

If no soil test is available, apply a minimum of 150 pounds of 20-10-10 fertilizer per acre. This is equivalent to 30 pounds nitrogen (N), 15 pounds phosphate (P205), and 15 pounds potash (K2O) per acre. Apply two tons of 80-89 lime or equivalent.

* Seed a temporary cover crop of Oats at 64 #/ac (2 bu/ac)
A permanent seeding shall be completed during the next acceptable time period following a temporary seeding.

MINIMUM PURE LIVE SEED (PLS) [1] RATE PER ACRE AND TOTAL POUNDS OF SEED NEEDED

SEEDING MIX (DESIGN) 9	LOCATION: Disturbed	
	ACRES: 0.50	
SPECIES	RATE	POUNDS
Kentucky Bluegrass	3.0	1.5
Creeping Red Fescue	4.0	2.0
Perennial Ryegrass	10.0	5.0
** Oats	64.0	32.0

SEEDING MIX (AS-BUILT)	LOCATION ACRES	
SPECIES	RATE	POUNDS

ADDITIONAL SEED PERCENT: ____ %

[1] PLS lbs. = (total % Germination / 100 * % Purity / 100) * Net Weight (lbs.)

Mulching Required Yes

** Companion Crop

Total % Germination may also be termed *Total %* Viable Seed on a tag. If a tag only shows % Germination, the user must *include percentage of the seed that germinated during the lab test* (% Germination) **plus** the *percentage of hard and/or dormant seed.* Hard seed and dormant seed are seeds that are still capable of germinating and producing a plant but did not germinate under the conditions of the test in the lab.

Additional native seeds may be required by permitting agencies. These addition are allowed.
Seed mixture shall meet all requirements of the WI weed laws.
Species identified as restricted or prohibited by law shall not be planted.
Certified seed shall be used, and the seeding rates will be based on pure live seed.
For dormant seedings, increase the seeds per square foot by 15%.

AS-BUILT

SEEDBED PREPARATION

Seedbed preparation shall immediately follow construction activities.
Prepare a fine, firm seedbed to a minimum depth of three inches. A seedbed is considered firm when a footprint penetrates 1/4 to 1/2 inch deep.

SEEDING

Inoculate legumes with the specific inoculum for the species in accordance with the manufacturer's recommendations. When using a hydroseeder, five times the recommended rate of inoculant shall be added to the hydroseeder. Inoculant shall not be mixed with liquid fertilizer.

Seed may be broadcast or drilled as appropriate to the site.
Seed, fertilize, and lime as soon as possible after construction.
Seeding perpendicular to direction of flow is required to limit erosion.

Seed grasses and legumes no more than 1/4 inch deep.

Consider seeding at a lower rate and making 2 passes to ensure more uniform distribution.

TEMPORARY SEEDING OPTIONS

Select one of the following species for temporary cover if:

1) The required seeds or plant stock are not available or
   the normal permanent seeding period for the species has passed
   - Forage Sorghum - 1/2 bushel per acre (May 15-July 15)
   - Sorghum - Sudangrass Hybrid - 1 bushel per acre (May 15-July 15)
   - Sudangrass - 1 bushel per acre (May 15-July 15)
   - Winter Wheat - 2 bushels per acre (Aug 1-Oct 1)
   - Winter Cereal Rye - 2 bushels per acre (Aug 1-Oct 15)
   - Oats - 2 bushels per acre (Apr 1-Sept 1)
   - Annual Ryegrass - 20 Pounds per acre (Apr 1-Sept 1)

2) Triazine herbicide carryover will not allow establishment of permanent cover immediately.
   - Forage Sorghum - 1/2 Bushel per acre (May 15-July 15)
   - Sorghum - Sudangrass Hybrid - 1 Bushel per acre (May 15-July 15)
   - Sudangrass - 1 Bushel per acre (May 15-July 15)

DORMANT SEEDING

Seed is broadcast and incorporated, no-tilled, or drilled into the seedbed .
Seedbed preparations and conditions are similar to conventional seeding.

MULCHING

Mulching shall be done immediately after seedbed preparation and seeding.
Mulch shall be applied immediately after final grading for areas seeded at a later date.
Mulch material shall be relatively free of disease, pesticides, chemicals, noxious weed seeds, and other pests and pathogens.

Spread straw and hay mulch uniformly and at the rate of 1.5-2.0 tons per acre (60-70 bales). This application results in a layer of 6 to 7 stems, 1 to 2 inches thick, and provides a minimum 70% ground cover. Some soil surface can be seen after the application. Crimping (disking), wood cellulose fiber, tackifiers, netting, pinning, or other acceptable methods of anchoring will be used if needed to hold the mulch in place.

If other mulch materials are used, the rate of application shall meet the manufacturer's recommendations.

NRCS Natural Resources Conservation Service United States Department of Agriculture	INTRODUCED SPECIES SEEDING ESTABLISHMENT	Designed CLM Dat 12/12/18	File Name
		Drawn	WI-710SS Pg 2 of 2 12-2016
	COOPERATOR Mike Wiedl	Checked RAE 1/19	
	COUNTY MONROE	Approved BAK 1/19	Sheet 8 of 8

AS-BUILT

NRCS Streambank Erosion Estimator (Direct Volume Method)

Farmer / Cooperator Name: Mike Wiedl
Tract Number:

Evaluated By: CLM
Evaluation Date: January 7, 2019

Field Number	Eroding Streambank Reach Number	Eroding Bank Length (Feet)	Eroding Bank Height * (Feet)	Area of Eroding Streambank (FT^2)	Lateral 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)
	1	210.0	9.2	1,932	0.50	966.0	Sandy Loam	100	48.3
	2	365.0	4.2	1,533	0.30	459.9	Silt Loam	95	21.8
	3	545.0	3.6	1,962	0.30	588.6	Silt Loam	95	28.0
				Total Estimated Annual Streambank Erosion Soil Loss (Tons):					98.1

Field Number	Eroding Streambank Reach Number	Eroding Bank Length (Feet)	Eroding Bank Height * (Feet)	Area of Eroding Streambank (FT^2)	Lateral 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)
	1								
	2								
	3								
				Total Estimated Annual Streambank Erosion Soil Loss (Tons):					

Field Number	Eroding Streambank Reach Number	Eroding Bank Length (Feet)	Eroding Bank Height * (Feet)	Area of Eroding Streambank (FT^2)	Lateral 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)
	1								
	2								
	3								
				Total Estimated Annual Streambank Erosion Soil Loss (Tons):					

Total Estimated Annual Streambank Erosion Soil Loss (Tons):	98.1

* Eroding bank height is measured along the bank, not the vertical height of bank.

Streambank Erosion Calculation Formula:

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

Appendix F. Example Trade Agreement for Point to Nonpoint Source Trades

Notice

This is an example agreement and should be amended to meet the needs and conditions of the specific agreement. The Department does not require final trade agreements to be submitted with the trading plan. However, these documents must be presented upon request by the Department.

Permittee Information

Credit User Name (Permittee)	Permit Number
Village of Norwalk	WI-0024961

Credit User Address

509 Wisconsin Street, Norwalk, WI 54648

Permittee/Broker/Exchange Name (if applicable)	Trade Agreement Number
Village of Norwalk	3

Permittee/Broker/Exchange Address (if applicable)

Street Address	City	State	ZIP Code
208 S. Church Street	Norwalk	WI	54648

Project Name

Moore Creek Tributary Stream Bank Stabilization - Wiedl Section

Name of Credit Generator (Landowner/Operator) (Last, First, M.I.)

Wiedl, Mike

Street Address	City	State	ZIP Code
108 N. Church Street	Norwalk	WI	54648

Property Information

Name of Landowner(s) (if not Operator) (Last, First, M.I.) same

Street Address	City	State	ZIP Code
South of STH 71 and East of Landmark Avenue	Norwalk	WI	54648

Legal Description of Property - Contiguous sites under the same ownership: (add additional sheets if necessary)

705 linear feet of stream bank (340 LF rip rap and 365 LF shaping) on tributary of Moore Creek located upstream of WWTF discharge on Mike Wiedl land, Town of Ridgeville.

Parcel ID(s):

034-00641-0000

Site Locator for Construction Projects

County	Township	Range E / W	Section	Quarter/Quarter (e.g., NW ¼ of the NE ¼)
Monroe	16 N	2W	30	SE 1/4, NE 1/4 30
	N			
	N			
	N			

Agreement

The property described above is enrolled in a Water Quality Trade Agreement. Funds are provided to the landowner/ operator in return for the installation, operation and maintenance of best management practices (BMPs) designed to enhance water quality. This agreement commits the landowner/operator, their heirs, successors and assigns to fulfill the trade agreement until a satisfaction or release is filed by the grantee.

Addenda which describe the BMPs, costs, installation schedule, and conditions are hereby incorporated into this agreement and are on file with the grantee and may be given to Wisconsin DNR upon request by the Department.

Landowner/Operator

Signed this 15th day of Feb, 20 19.

Signature of Landowner/Operator

Signature of Landowner/Operator

Mike Wiedl

Typed Name of Landowner/Operator

Typed Name of Landowner/Operator

STATE OF WISCONSIN)
Monroe County) ss.
)

Personally came before me this 15 day of Feb, 20 19.

The above named Mike Wiedl to me known to be the person(s) who executed the foregoing instrument and acknowledge the same.

Christina L Mulder
Signature of Notary Public

Christina L Mulder
Typed Name of Notary Public

Notary Public Monroe County, Wisconsin

My commission (is permanent) (expires March 7, 2022

Landowners (if not operator)

If the landowner section is not completed, check (X) one or both of the following that apply

☐ Landowner is also operator

☐ Trade agreement contains only high residue management, nutrient management, pesticide management, cropland protection cover (green manure)

Signed this _____ day of _____, 20 ____.

Signature of Landowner (if not operator)

Signature of Landowner (if not operator)

Typed Name of Landowner (if not operator)

Typed Name of Landowner (if not operator)

STATE OF WISCONSIN)
_____ County) ss.
)

Personally came before me this _____ day of _____, 20 ____.

The above named _____ to me known to be the person(s) who executed the foregoing instrument and acknowledge the same.

Signature of Notary Public

Typed Name of Notary Public

Notary Public _____ County, Wisconsin

My commission (is permanent) (expires _____).

Credit user/broker/exchange

Signed this 15th day of Feb, 20 19.

Signature of credit user/broker/exchange

Mike Wiedl - Wilke Pics Norwalk

Typed Name of credit user/broker/exchange

STATE OF WISCONSIN)
Monroe County) ss.
)

Personally came before me this 15 day of Feb, 20 19.

The above named Mike Wiedl to me known to be the person(s) who executed the foregoing instrument and acknowledge the same.

Christina L Mulder
Signature of Notary Public

Notary Public Monroe County, Wisconsin

My commission (is permanent) (expires March 7, 2022).

Other Signer- Specify title or relationship: Engineer Responsible for Trade

Signed this 15th day of Feb, 20 19.

Dark K. Sauer
Signature

Signature

David K. Sauer, P.E., Cedar Corporation
Typed Name

Typed Name

STATE OF WISCONSIN)
) ss.
Monroe County)

Personally came before me this 15 day of Feb, 20 19.

The above named David Sauer to me known to be the person(s) who executed the foregoing instrument and acknowledge the same.

Christina L Mulder
Signature of Notary Public

Christina L Mulder
Typed Name of Notary Public

Notary Public Monroe County, Wisconsin

My commission (is permanent) (expires March 7, 2022).

Other Signer- Specify title or relationship: _____

Signed this _____ day of _____, 20 ____.

Signature

Signature

Typed Name

Typed Name

STATE OF WISCONSIN)
) ss.
_____ County)

Personally came before me this _____ day of _____, 20 ____.

The above named _____ to me known to be the person(s) who executed the foregoing instrument and acknowledge the same.

Signature of Notary Public

Typed Name of Notary Public

Notary Public _____ County, Wisconsin

My commission (is permanent) (expires _____).

Other Signer- Specify title or relationship: _____

Signed this _____ day of _____, 20 ____.

Signature

Signature

Typed Name

Typed Name

STATE OF WISCONSIN)
) ss.
_____ County)

Personally came before me this _____ day of _____, 20 ____.

The above named _____ to me known to be the person(s) who executed the foregoing instrument and acknowledge the same.

Signature of Notary Public

Typed Name of Notary Public

Notary Public _____ County, Wisconsin

My commission (is permanent) (expires _____).

☐ Check this box if this page is purposely left blank.

Section A – General Requirements

Example:

A 1. This agreement may be amended by mutual agreement of either party, so long as the agreement has not yet expired.

A 2. If a significant archeological or historical site is found, construction is to cease immediately and the BMP will be relocated, redesigned, or deleted to prevent damage to the archeological or historical site. The BMP may be deleted only if approved in writing by the Department of Natural Resources.

Section B – Landowner/Operator Shall:

Example:

B 1. Design, install, operate and maintain BMPs listed in Addendum 2 of this agreement.

B 2. Allow access to the installed BMP by the grantee, or an authorized representative of the grantee for site inspection of the BMP for installation, operation and maintenance.

Section C – Grantee Shall:

Example:

C 1. Provide cost sharing to the landowner/operator consistent with Addendum 2.

C 2. Make cost-share payments to the landowner/operator after payment is requested and evidence of contractor payment by the landowner/operator has been received, and the grantee verifies proper BMP installation.

TA Number	Typed Name of Landowner/Operator	Initials of Landowner/Operator	Date
3	Mike Wiedl		2-15-19

The cost-share recipient shall implement and maintain all best management practices listed in this Addendum, unless otherwise amended in accordance with this agreement.

							Installation Period			
							From (MM/YY) 11/18		To (MM/YY) 09/19	
Field #	DNR BMP Code	Practice Name	Quantity	Unit	Unit Cost	Estimated Total Cost	Reimburs-ement Rate (%)	Estimated Cost-Share Amt.	Cost-Share Amt. From Other Programs*	Estimated Year to be Installed
		Stream Bank Rip Rap	340	LF	22	7,480	90	6,732	0	2019
		Stream Bank Shaping	365	LF	3	1,095	90	985	0	2019
					TOTALS	8,575		7,717	0	

* Identify Program Names: _____

CSA Number	Typed Name of Landowner/Operator	Initials of Landowner/Operator	Date
	Mike Wiedl		2-15-19

Operation and Maintenance Plan
Streambank and Shoreline Protection

Cooperator: Mike Wiedl Date: 2/14/19

By: Mike Wiedl Title: Landowner

Project Location: Tributary to Moore Creek - Wiedl Section (705 LF)

I agree to the following for the full service life of the streambank or shoreline improvements:

1. Check the riprap, plantings, and/or tree revetments at least once each year and immediately after severe floods. Rock removed or displaced shall be replaced as needed. Replant any dead of damaged tree plantings. Repair or replace any damaged or missing revetments. Repair work shall take place during periods of low stream flow.

2. Logs, trees, driftwood, and other debris lodged in or near the riprap shall be removed.

3. Check for sloughing, erosion, or damage to vegetative cover. Damaged areas shall be graded, shaped, and re-vegetated as soon as possible.

4. If fences are installed, they shall be maintained to prevent unauthorized human or animal access.

5. Immediately repair any vandalism, vehicle, or animal damage.

6. Eliminate access of foot traffic to the streambank within the buffer area with the exception of any designated pathway areas.

7. Eliminate all burrowing rodents and repair damage caused by them.

8. Additional recommendations:

Cooperator's signature: Date: 2-15-19

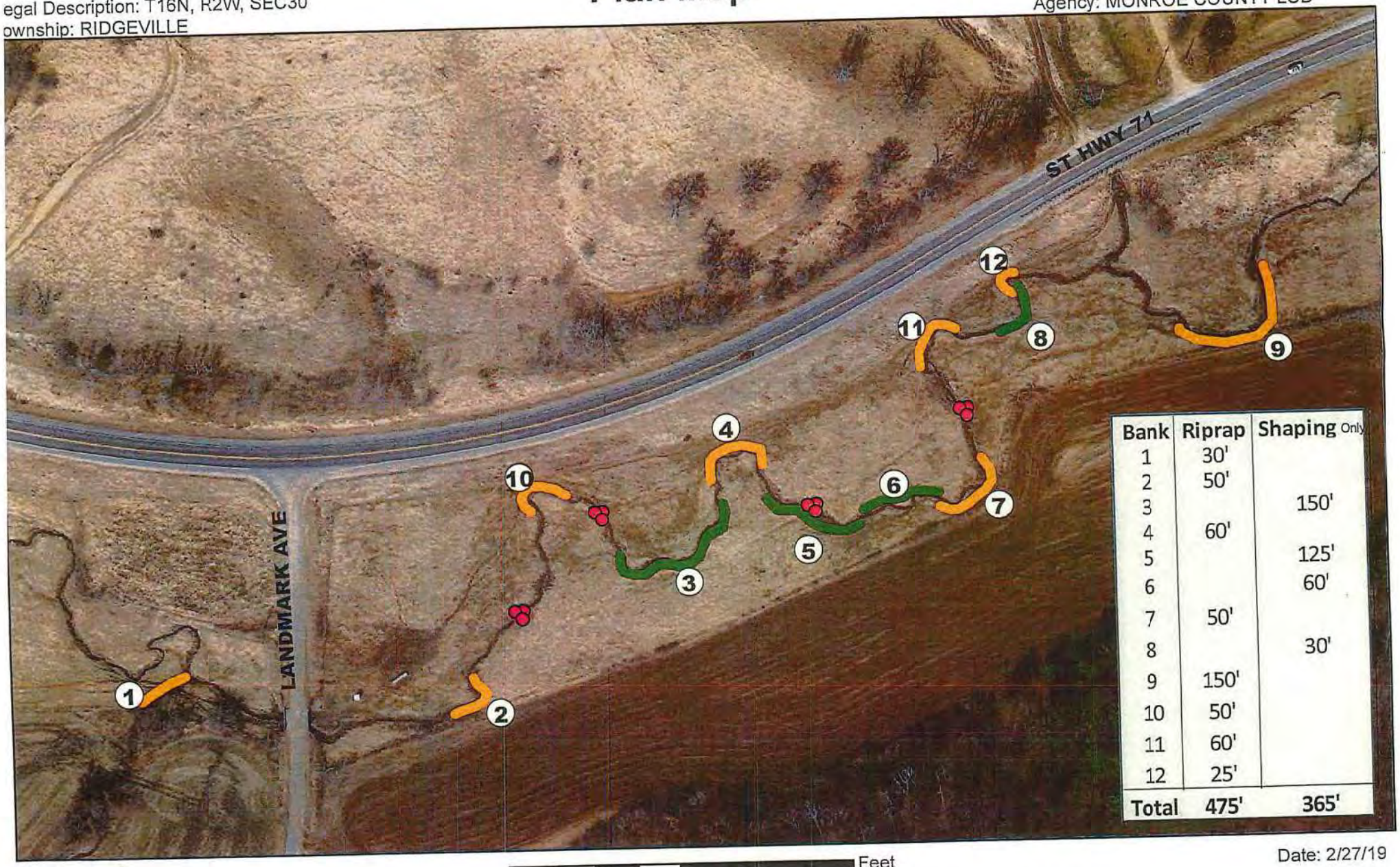
I have discussed the maintenance guidelines with the above cooperator.

Conservationist's signature: Date: 2-15-19

:ustomer(s): MIKE WIEDL
egal Description: T16N, R2W, SEC30
ownship: RIDGEVILLE

Plan Map

Field Office: SPARTA SERVICE CENTER
Agency: MONROE COUNTY LCD



Bank	Riprap	Shaping Only
1	30'	
2	50'	
3		150'
4	60'	
5		125'
6		60'
7	50'	
8		30'
9	150'	
10	50'	
11	60'	
12	25'	
Total	**475'**	**365'**

Legend

- Shaping Bank
- Riprap Bank
- Random Boulders

0 100 200 400 Feet

Date: 2/27/19

N W E S

Pre-Construction Photo(s) + Map



Photo 1 - Bank 1



Photo 2 - Bank 2



Photo 3 - Bank 3

Mike Wiedl

11/8/18



Photo 4 - Bank 4



Photo 5 - Bank 5



Photo 6 - Bank 6

Mike Wiedl

11/8/18



Photo 7 - Bank 7



Photo 8 - Bank 8



Photo 9 - Bank 9

Mike Wiedl

11/8/18

Mike Wiedl

Streambank Protection & Habitat

8/1/19

DURING CONSTRUCTION Photos





Mike Wiedl Streambank Protection & Habitat 8/1/19








Bank 12
Bank 1



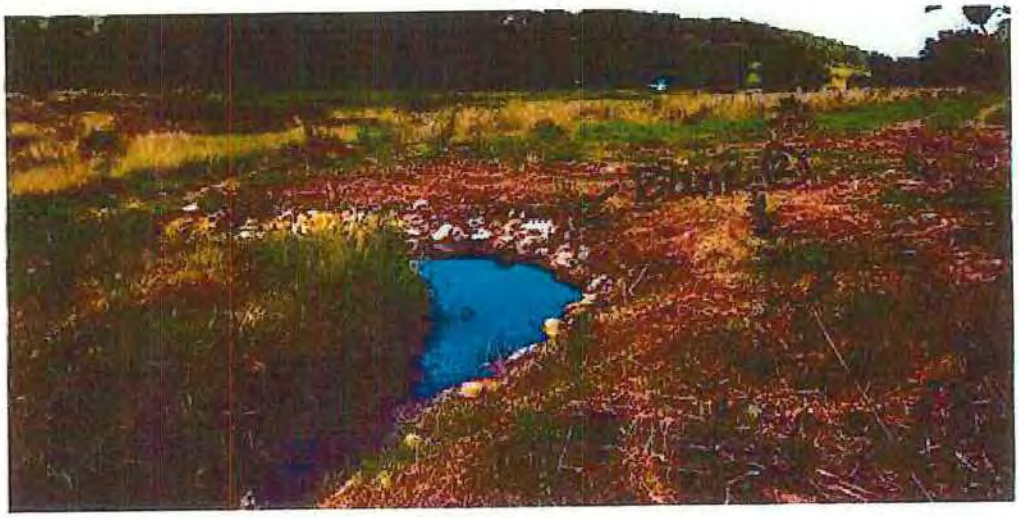







Bank 3


Bank 4





Moore Creek – Norwalk
Jon Muehlenkamp Section
Calculation of Soil Loss, Phosphorus Loss, Phosphorus Credit
October 2019 (As-Built)
April 2026 (WDNR Accepted)

A. Reference Information

1. DNR formula for streambank loss in tons/year:

$$\text{Length} \times \text{height} \times \frac{\text{annual lateral recession rate}}{20}$$

2. UW Soil and Plant Analysis Lab - Soil Test Results dated September 19, 2018

Sample 1	-P = 0.04%
Sample 2	-P = 0.03%
Sample 3	-P = 0.04%
Sample 4	-P = 0.05%

Soil samples taken August 2018

Total Phosphorus – 0.04% based on 4 soil samples at 4 locations

3. Calculated Trade Ratio: 2:1 (assuming Moore Creek is non-compliant)

4. Streambank Length = 310 LF

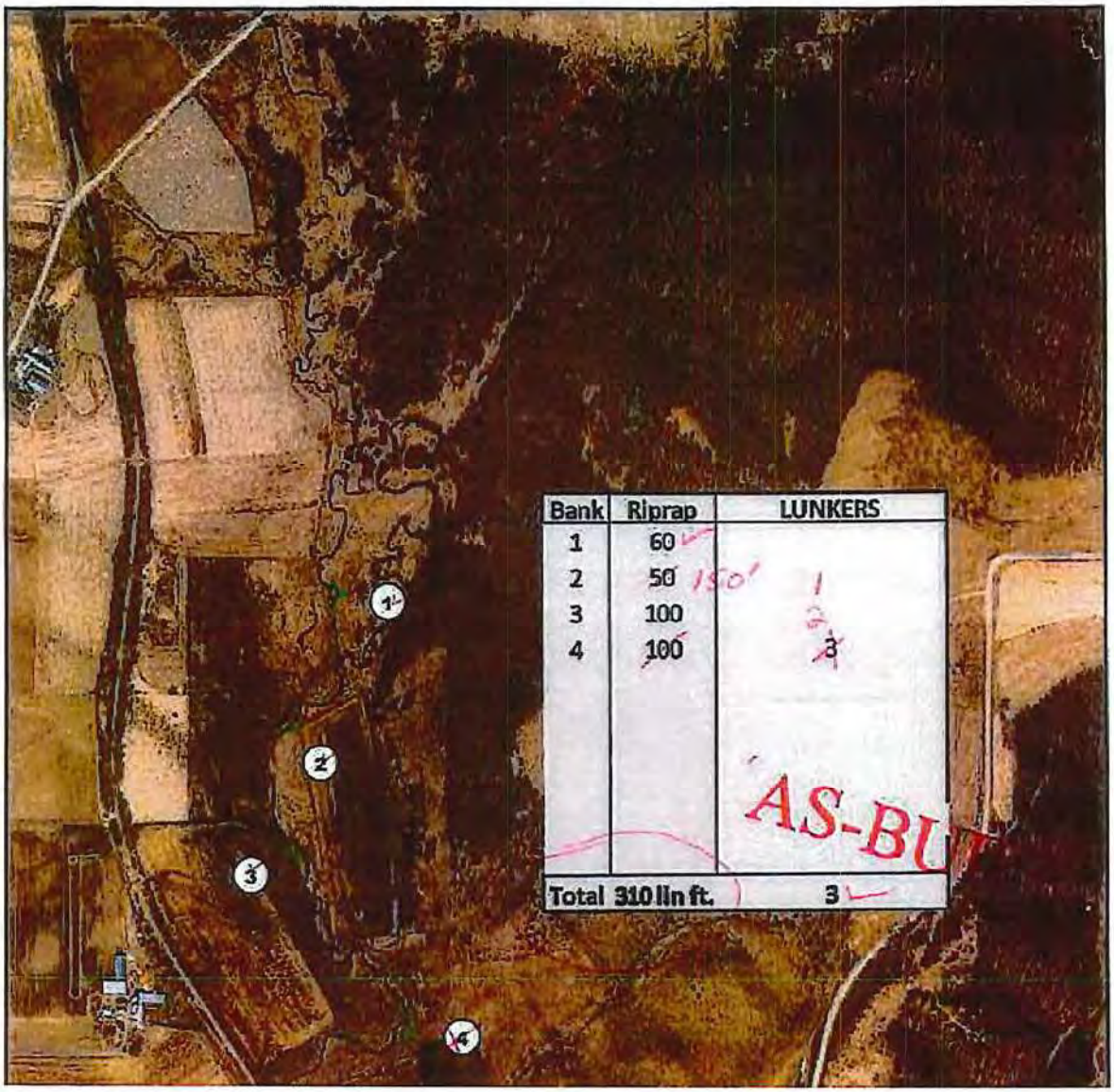
B. Soil Loss = 46.1 ton/yr. (see attached NRCS document)

(assumes 85 lbs./CF for soil)

Phosphorus Loss – 92,200 x 0.0004 = 36.88 lb. P/yr.

$$\text{Phosphorus Point Credit at WWTF} = \frac{36.88}{2.03} = 18.2 \text{ lb. P/yr.}$$

Jon Muehlenkamp Riprap Location Map



Proposed documentation (November 2025 WQT Plan, same as prior accepted documentation)

NRCS Streambank Erosion Estimator (Direct Volume Method)

Farmer / Cooperator Name:	Jon Muehlenkamp	Evaluated By:	BAR
Tract Number:		Evaluation Date:	November 20, 2017

Field Number	Eroding Streambank Reach Number	Eroding Bank Length (Feet)	Eroding Bank Height * (Feet)	Area of Eroding Streambank (FT^2)	Lateral 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)
	1	310.0	7.0	2,170	0.50	1,085.0	Silt Loam	85	46.1
	2								
	3								
				Total Estimated Annual Streambank Erosion Soil Loss (Tons):					46.1

NRCS Streambank Erosion Estimator (Direct Volume Method)

Farmer / Cooperator Name: Jon Muehlenkamp
Tract Number:

Evaluated By: BAR
Evaluation Date: November 20, 2017

Field Number	Eroding Streambank Reach Number	Eroding Bank Length (Feet)	Eroding Bank Height * (Feet)	Area of Eroding Streambank (FT^2)	Lateral 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)
	1	310.0	7.0	2,170	0.50	1,085.0	Silt Loam	85	46.1
	2								
	3								
				Total Estimated Annual Streambank Erosion Soil Loss (Tons):					46.1

Field Number	Eroding Streambank Reach Number	Eroding Bank Length (Feet)	Eroding Bank Height * (Feet)	Area of Eroding Streambank (FT^2)	Lateral 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)
	1								
	2								
	3								
				Total Estimated Annual Streambank Erosion Soil Loss (Tons):					

Field Number	Eroding Streambank Reach Number	Eroding Bank Length (Feet)	Eroding Bank Height * (Feet)	Area of Eroding Streambank (FT^2)	Lateral 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)
	1								
	2								
	3								
				Total Estimated Annual Streambank Erosion Soil Loss (Tons):					

* Eroding bank height is measured along the bank, not the vertical height of bank.

Streambank Erosion Calculation Formula:

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

Soil and Forage Analysis Laboratory
2611 Yellowstone Dr, Marshfield, WI 54449
Phone 715-387-2523

University of Wisconsin
Madison/Extension

Dave Sauer - Cedar Corporation
2820 Walton Commons West, Suite 142
Madison, WI 53718
Project 3680-0006

Date 9/19/18
Acct # 558202
Lab # **4526**

Location: Village of Norwalk

Soil - Sieve Analysis - dry method

	% by weight retained on Sieve #					Cummulative % by weight passing Sieves				P	P	
										nitric/peroxide	Bray-1	TN
Sample	on 10	on 30	on 60	on 200	< 200	>10	>30	>60	<200	%	ppm	ppm
1	28	24	9	13	27	72	49	40	27	0.04	29	1389.1
2	6	7	16	47	23	94	87	71	23	0.03	25	1449.5
3	5	10	16	44	25	95	85	69	25	0.04	10	1005.3
4	13	12	16	36	22	87	75	59	22	0.05	49	1733.6

Soil - Sieve Analysis - wet method

	% by weight retained on Sieve #					Cummulative % by weight passing Sieves			
Sample	on 10	on 30	on 60	on 200	< 200	>10	>30	>60	<200
1	0	1	4	28	67	100	99	95	67
2									
3									
4									

No soil clumping observed on samples 2-4.

CONSTRUCTION PLAN

PRACTICE - Streambank Protection (580) Habitat (395)

LANDOWNER - Jon Muehlenkamp

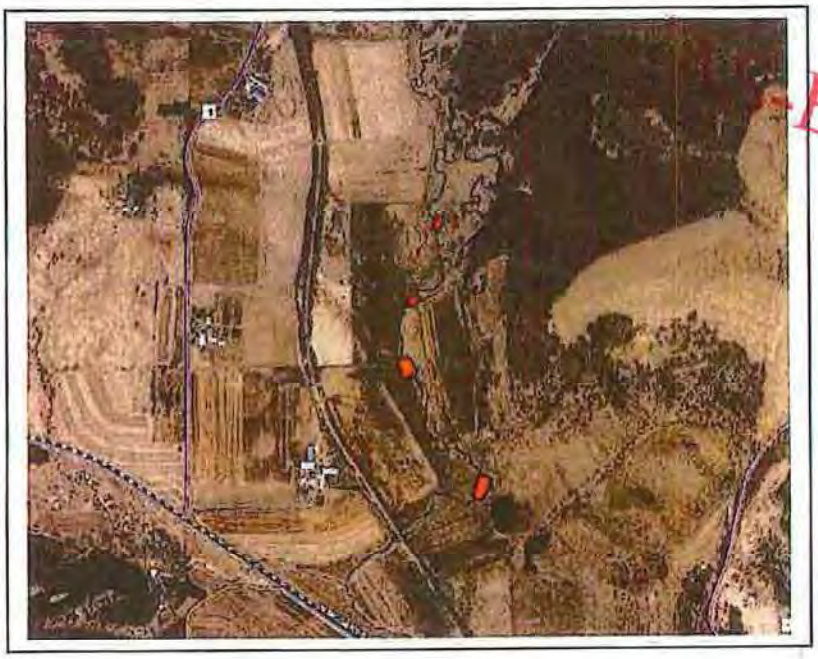
LANDOWNER ADDRESS - 18001 Lasso Ave. Norwalk, WI 54648 (site 23230 Co. Hwy T.)

LANDOWNER PHONE - 608-792-3563 **COUNTY -** Monroe

TOWNSHIP - Ridgeville **T** 16 **N, R** 2 **W, SEC.** 21,28

FIELD OFFICE - Sparta **TELEPHONE NO. -** 608-269-8976

LOCATION MAP



AS-BUILT

N

Not to Scale

DIGGERS HOTLINE

Call 3 Work Days Before You Dig!
Toll Free
1-800-242-8511

Internet
http://www.diggershotline.com

Utilities: Any representation made by the USDA, Natural Resources Conservation Service, or the Monroe County LCD, as to the approximate location or nonexistence of above or underground hazards does not relieve the owner of the property or the excavator that is hired to complete construction, from notifying Digger's Hotline of the pending construction. You will be liable for damages resulting from construction activities. **(Call Diggers Hotline.)** Ticket # 2018-2202-254

Landowner Agreement: I have reviewed and understand the construction plans and specifications and agree to complete the work accordingly. Failure to meet these plans and specifications may jeopardize any continued NRCS technical assistance or program cost sharing applied for. I understand that it is my responsibility to secure all necessary permits and licenses, and to complete the work in accordance with all local, state, and federal laws. Modification of these construction plans or specifications must be approved by the NRCS before installation. I assume all responsibility for negotiations and contract agreements with the construction contractors.

Estimated Quantities and Cost Estimate: Quantities are estimated to the neat lines and grades of in-place materials shown on the construction plan unless otherwise stated. Truck yardage, loose fill, shrinkage, etc., must be calculated and compensated for by the contractor preparing a bid or constructing the project. Agency cost estimates are based on costs of similar projects and cost of materials at the time of the estimate. Costs do not reflect spikes in material or fuel costs. NRCS highly recommends you, as the owner of the project, obtain multiple bids for a comparison to the agency cost estimate.

Signed: Jon Muehlenkamp Date: 11/28/17

Designed by: Bryce Richardson Date: 11/21/17

Checked by: Christina Mulder Date: 11/28/17

Approved by: Bryce Richardson Date: 11/28/17

The installed practices comply with applicable NRCS technical standards and specifications. The "redlined" construction plans (as-built drawings) reflect changes made during construction.

Construction Approved by: Bryce Richardson Date: 7/17/18

Job Approval Class IV

ESTIMATED QUANTITIES

ITEM	UNIT	QUANTITY	SHEET NUMBER	WI CONSTRUCTION SPEC. OR JOB SHEET NUMBER
Streambank Protection (580)				
4' to 7' Banks	Lin Ft	310	3,4,5,8,9	9-Rock Riprap
Seeding	Ac.	0.21	8,9	WI-710 SEEDING
Mulching	Sq. Ft.	9300	8,9	WI-710 SEEDING
Lunker Structures	No.	3	3,4,6,7	9-Rock Riprap

AS-BUILT

QUANTITIES ARE ESTIMATED TO THE NEAT LINES AND GRADES OF IN-PLACE MATERIALS SHOWN ON THE CONSTRUCION PLAN UNLESS OTHERWISE STATED. TRUCK YARDAGE, LOOSEFILL, SHRINKAGE, ETC..., MUST BE CALCULATED AND COMPENSATED FOR BY THE CONTRACTOR PREPARING A BID OR CONSTRUCTING.

ver. 2/2012

NRCS
Natural Resources Conservation Service
United States Department of Agriculture

ESTIMATED QUANTITIES

CLIENT: John Muehlenkamp
COUNTY: Monroe

		Date
Designed	BAR	15-Nov
Drawn		
Checked	CM	11/17
Approved		

Drawing Name: WI-005 5/09

Date:

Sheet 2 of 9

CONSTRUCTION NOTES

1. A preconstruction meeting shall be scheduled with Monroe County LCD personnel, the contractor, and the landowner prior to construction start-up. Contractor shall notify the Sparta LCD office (608-269-8976) at least one week prior to the start of construction.

2. Contact County Planning and Zoning Department and Local Township for possible permits. Landowner must receive the DNR and all other required permits prior to start of construction.

3. **Contact Diggers Hotline at least 3 days prior to start of construction. (800) 242-8511** Notification of affected utility companies is the responsibility of the contractor.

4. All estimated quantities are based on neat lines and grades unless otherwise stated. Technician will stake the project prior to construction.

5. Trees and other debris located along streambanks will be removed as directed by technician throughout length of project area. Trees and debris will be disposed of in an area agreed upon by the landowner and technician outside of the floodplain.

6. Bank shaping and/or placement of toe rock may be needed after tree removal in areas not protected with riprap to ensure adequate bank stabilization.

7. Rock riprap must be from a tested and approved quarry. Contractor must provide the technician with the proposed rock source quarry name prior to the start of construction to verify its approval. Meeh Quarry

8. Technician must be on site during placement of LUNKERS and Weirs.

9. All disturbed areas will be mulched and seeded according to seeding plan.

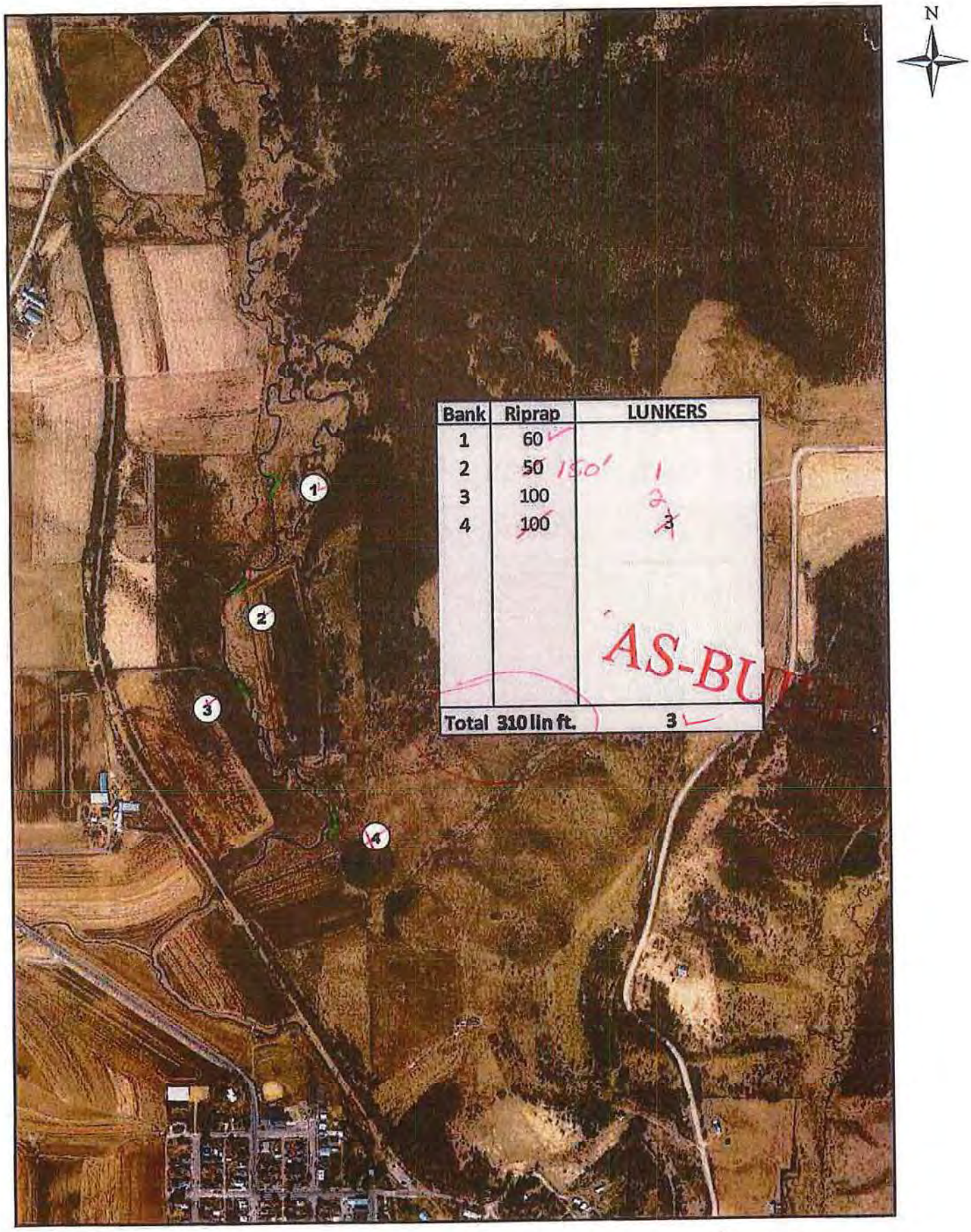
10. Contractor will be responsible for correcting problems which occur as the result of not following proper construction procedures.

AS-BUILT

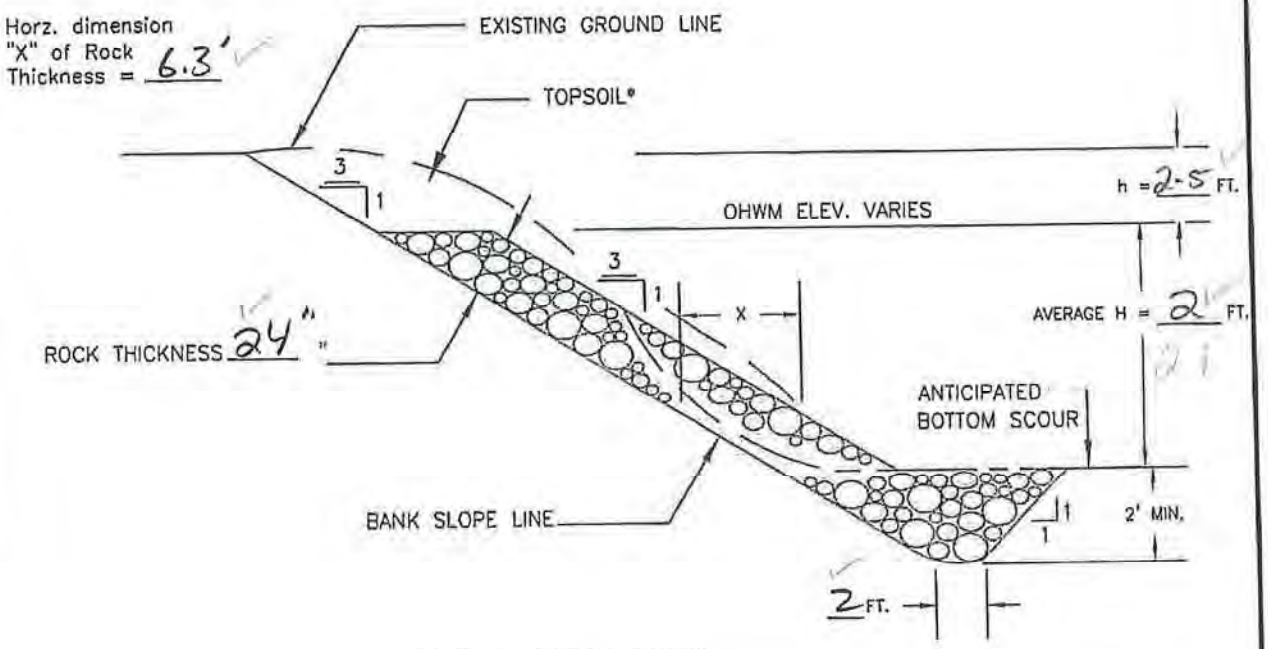
Streambank Protection (580)

Designed :BAR Checked:

Jon Muehlenkamp Riprap Location Map



Bank	Riprap	LUNKERS
1	60	
2	50 150'	1
3	100	2
4	100	3
		AS-BU
Total	310 lin ft.	3



TYPICAL CROSS SECTION

GRADATION OF ROCK

PERCENT PASSING BY WEIGHT	SIZE (INCHES)
100	16
60–85	12
25–50	8
5–20	4
0–5	2

QUANTITY ESTIMATE*

BANK SLOPING FOR RIPRAP	310	LIN. FT.
BANK SLOPING (SEEDING ONLY)		LIN. FT.
ROCK FOR RIPRAP (WI CONST. SPEC. 9)	300	CU. YD.
SEEDING	.81	ACRES

*ESTIMATED TO THE NEAT LINES AND GRADE

NOTES:

1. DOUBLE THE ROCK THICKNESS FOR A DISTANCE OF 4 FEET AT THE UPSTREAM AND DOWNSTREAM ENDS OF THE RIPRAP. BLEND THE ROCK SURFACE TO MATCH THE EXISTING STABLE BANK SURFACE.
2. * SPREAD TOPSOIL TO WITHIN 1' OF STREAM EDGE. TRACK ALL TOPSOIL PERPENDICULAR TO STREAM TO REDUCE EROSION.

AS-BUILT

THIS STANDARDIZED DESIGN MUST BE ADAPTED TO THE SPECIFIC SITE.

EXCAVATED KEYWAY

SITE ALL

NRCS
Natural Resources Conservation Service
United States Department of Agriculture

STREAMBANK PROTECTION NO FILTER OR GEOTEXTILE (PARTIAL BANK HEIGHT)

CLIENT: Jon Muehlenkamp

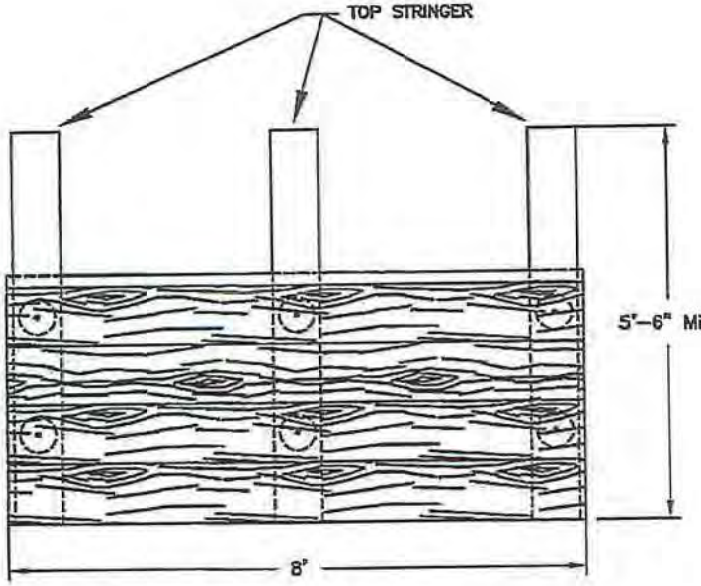
COUNTY: Monroe

	Date
Designed BAR	11/17
Drawn	
Checked CM	11/17
Approved	

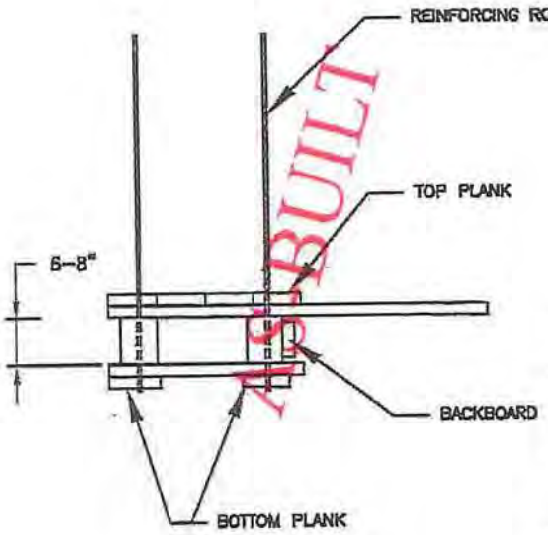
File Name WI-404E

Date 6/07

Sheet 5 of 9



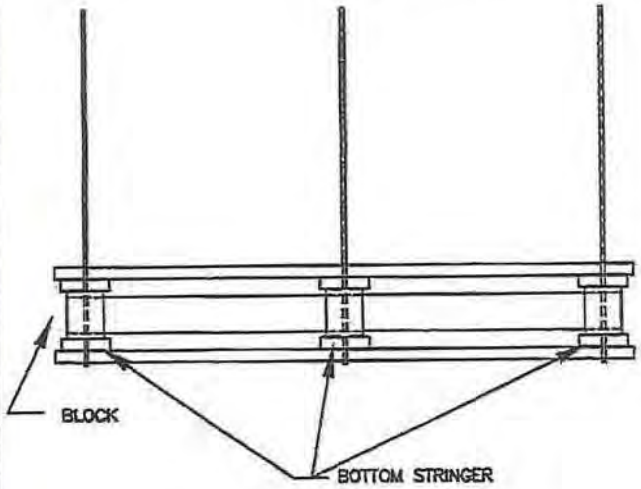
TOP VIEW



SIDE VIEW

AS-BUILT

18 Rebar Needed
3 LUNKERS Needed w/ Bunks 8/3



FRONT VIEW

BILL OF MATERIALS
LUNKER STRUCTURE

ITEM	SIZE	QUANTITY
TOP PLANK	2" X 8" X 8' OAK BOARD	4
TOP STRINGER	2" X 8" X 5-6' Min OAK BOARD	3
BLOCK	6" DIA. X 8" OAK BLOCK	6
BOTTOM STRINGER	2" X 8" X 30" BOARD	3
BOTTOM PLANK	2" X 8" X 8' OAK BOARD	2
BACKBOARD	2" X 6"(or 8") X 8' OAK BOARD	1
#5 REINFORCING ROD	$\frac{5}{8}$" X 5' DEFORMED STEEL	6
NAILS	20D GALVANIZED	60

10 Total Boards 2" X 8" X 8 Feet Long

Drawing Name

Date 10/2006

Sheet 2 of 9

Designed BAE Date 11/28

Drawn

Checked CM 11/17

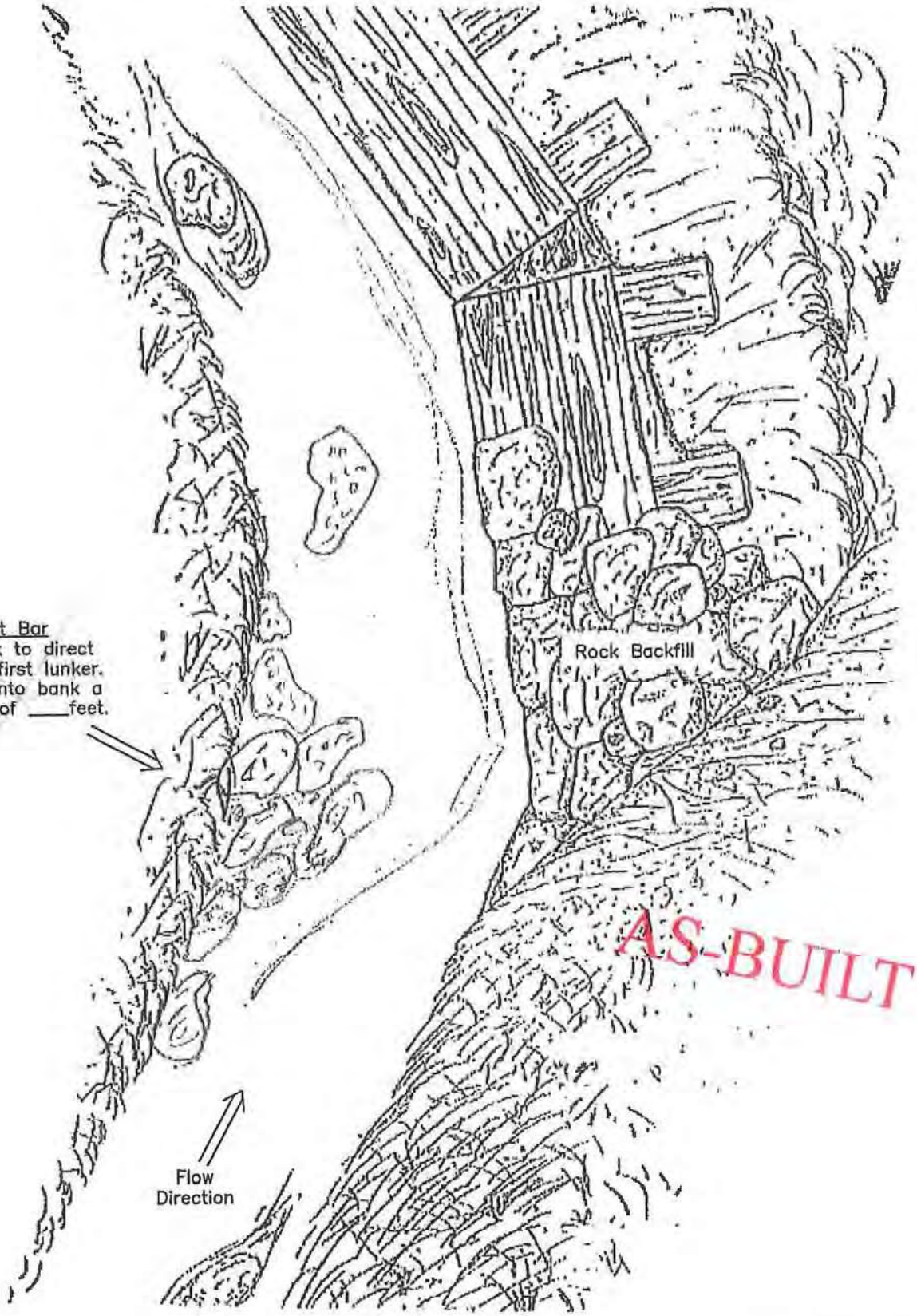
Approved

LUNKER STRUCTURE DETAIL

CLIENT: J Meshlenkamp

COUNTY: MONROE

NRCS
Natural Resources Conservation Service
United States Department of Agriculture



AS-BUILT

NRCS
Natural Resources Conservation Service

LUNKER PLAN VIEW

CLIENT: J Muehlenkamp

Designed BAR Date 11/28

Drawn

Checked CM 11/17

Drawing Name

Date 12/2012

SEEDING DATES — CENTRAL

TIME PERIOD	DATES			TYPE OF SEEDING
Spring	April 15	through	June 1	Permanent
Summer	June 2	through	see WI-710ss pg 2	Temporary *
Late Summer	August 1	through	August 21	Permanent
Fall	August 22	through	see WI-710ss pg 2	Temporary *
Late Fall	November 1	through	Snow Cover	Dormant
Winter	Snow Cover	through	April 14	Not Allowed

MATERIALS

If no soil test is available, apply a minimum of 150 pounds of 20-10-10 fertilizer per acre. This is equivalent to 30 pounds nitrogen (N), 15 pounds phosphate (P205), and 15 pounds potash (K2O) per acre. Apply two tons of 80-89 lime or equivalent.

* Seed a temporary cover crop of Oats at 64 # /ac (2 bu/ac)
A permanent seeding shall be completed during the next acceptable time period following a temporary seeding.

MINIMUM PURE LIVE SEED (PLS)[1] RATE PER ACRE AND TOTAL POUNDS OF SEED NEEDED

SEEDING MIX (DESIGN) 9	LOCATION:	slopes
	ACRES:	0.21
SPECIES	RATE	POUNDS
Kentucky Bluegrass	3.0	0.6
Creeping Red Fescue	4.0	0.8
Perennial Ryegrass	10.0	2.1
** Oats	64.0	13.4

SEEDING MIX (AS-BUILT)	LOCATION	
	ACRES	
SPECIES	RATE	POUNDS

[1] PLS = (% Germination x % Purity)

ADDITIONAL SEED PERCENTAGE: _____ %

** Companion Crop

Mulching Required Yes

Additional native seeds may be required by permitting agencies. These addition are allowed.
Seed mixture shall meet all requirements of the WI weed laws.
Species identified as restricted or prohibited by law shall not be planted.
Certified seed shall be used, and the seeding rates will be based on pure live seed.
For dormant seedings, increase the seeds per square foot by 15%.

AS-BUILT

SEEDBED PREPARATION

Seedbed preparation shall immediately follow construction activities.
Prepare a fine, firm seedbed to a minimum depth of three inches. A seedbed is considered firm when a footprint penetrates 1/4 to 1/2 inch deep.

SEEDING

Inoculate legumes with the specific inoculum for the species in accordance with the manufacturer's recommendations. When using a hydroseeder, five times the recommended rate of inoculant shall be added to the hydroseeder. Inoculant shall not be mixed with liquid fertilizer.

Seed may be broadcast or drilled as appropriate to the site.
Seed, fertilize, and lime as soon as possible after construction.
Seeding perpendicular to direction of flow is required to limit erosion.

SEEDING CONTINUED

Seed grasses and legumes no more than 1/4 inch deep.

Consider seeding at a lower rate and making 2 passes to ensure more uniform distribution.

TEMPORARY SEEDING OPTIONS

Select one of the following species for temporary cover if:

1) The required seeds or plant stock are not available or the normal permanent seeding period for the species has passed
   - Forage Sorghum - 1/2 bushel per acre (May 15-July 15)
   - Sorghum - Sudangrass Hybrid - 1 bushel per acre (May 15-July 15)
   - Sudangrass - 1 bushel per acre (May 15-July 15)
   - Winter Wheat - 2 bushels per acre (Aug 1-Oct 1)
   - Winter Cereal Rye - 2 bushels per acre (Aug 1-Oct 15)
   - Oats - 2 bushels per acre (Apr 1-Sept 1)
   - Annual Ryegrass - 20 Pounds per acre (Apr 1-Sept 1)

2) Triazine herbicide carryover will not allow establishment of permanent cover immediately.
   - Forage Sorghum - 1/2 Bushel per acre (May 15-July 15)
   - Sorghum - Sudangrass Hybrid - 1 Bushel per acre (May 15-July 15)
   - Sudangrass - 1 Bushel per acre (May 15-July 15)

DORMANT SEEDING

Seed is broadcast and incorporated, no-tilled, or drilled into the seedbed .
Seedbed preparations and conditions are similar to conventional seeding.

AS-BUILT

MULCHING

Mulching shall be done immediately after seedbed preparation and seeding.
Mulch shall be applied immediately after final grading for areas seeded at a later date.
Mulch material shall be relatively free of disease, pesticides, chemicals, noxious weed seeds, and other pests and pathogens.
Spread straw and hay mulch uniformly and at the rate of 1.5-2.0 tons per acre (60-70 bales). This application results in a layer of 6 to 7 stems, 1 to 2 inches thick, and provides a minimum 70% ground cover. Some soil surface can be seen after the application. Crimping (disking), wood cellulose fiber, tackifiers, netting, pinning, or other acceptable methods of anchoring will be used if needed to hold the mulch in place.

If other mulch materials are used, the rate of application shall meet the manufacturer's recommendations.



Moore Creek - Muehlenkamp Rip Rap Location 2

Moore Creek – Norwalk
Jon Muehlenkamp Section
Calculation of Soil Loss, Phosphorus Loss, Phosphorus Credit
September 2018 (As Built)

A. Reference Information

1. DNR formula for stream bank loss in tons/year:
   Length x height x annual lateral recession rate
   20

2. UW Soil and Plant Analysis Lab – Soil Test Results dated September 19, 2018

   Sample 1 - P = 0.04%
   Sample 2 - P = 0.03%
   Sample 3 - P = 0.04%
   Sample 4 - P = 0.05%

   Soil samples taken August 2018

   Total Phosphorus – 0.04% based on 4 soil samples at 4 locations

3. Calculated trade ratio: 2:1 (assuming Moore Creek is non-compliant)

4. Stream Bank Length = 310 LF

B. Soil loss = 46.1 Ton/Year (see attached NRCS document)

(assumes 85 lbs./CF for soil)

Phosphorus Loss – 92,200 x 0.0004 = 36.88 lbs. P/year

Phosphorus Point Credit at WWTF = 36.88 = 18.4 lbs./year
2

Soil and Forage Analysis Laboratory
2611 Yellowstone Dr, Marshfield, WI 54449
Phone 715-387-2523

University of Wisconsin
Madison/Extension

Dave Sauer - Cedar Corporation
2820 Walton Commons West, Suite 142
Madison, WI 53718
Project 3680-0006

Date 9/19/18
Acct # 558202
Lab # **4526**

Location: Village of Norwalk

Soil - Sieve Analysis - dry method

	% by weight retained on Sieve #					Cummulative % by weight passing Sieves				P nitric/peroxide	P Bray-1	TN
Sample	on 10	on 30	on 60	on 200	< 200	>10	>30	>60	<200	%	ppm	ppm
1	28	24	9	13	27	72	49	40	27	0.04	29	1389.1
2	6	7	16	47	23	94	87	71	23	0.03	25	1449.5
3	5	10	16	44	25	95	85	69	25	0.04	10	1005.3
4	13	12	16	36	22	87	75	59	22	0.05	49	1733.6

Soil - Sieve Analysis - wet method

	% by weight retained on Sieve #					Cummulative % by weight passing Sieves			
Sample	on 10	on 30	on 60	on 200	< 200	>10	>30	>60	<200
1	0	1	4	28	67	100	99	95	67
2									
3	No soil clumping observed on samples 2-4.								
4									

CONSTRUCTION PLAN

PRACTICE - Streambank Protection (580) Habitat (395)

LANDOWNER - Jon Muehlenkamp

LANDOWNER ADDRESS - 18001 Lasso Ave. Norwalk, WI 54648 (site 23230 Co. Hwy T.)

LANDOWNER PHONE - 608-792-3563 **COUNTY -** Monroe

TOWNSHIP - Ridgeville **T** 16 **N, R** 2 **W, SEC.** 21,28

FIELD OFFICE - Sparta **TELEPHONE NO. -** 608-269-8976

LOCATION MAP



AS-BUILT

N

Not to Scale



DIGGERS HOTLINE

Call 3 Work Days Before You Dig!
Toll Free
1-800-242-8511

Internet
http://www.diggershotline.com

Utilities: Any representation made by the USDA, Natural Resources Conservation Service, or the Monroe County LCD, as to the approximate location or nonexistence of above or underground hazards does not relieve the owner of the property or the excavator that is hired to complete construction, from notifying Digger's Hotline of the pending construction. You will be liable for damages resulting from construction activities. [Call Diggers Hotline.] Ticket # 2018-2202-254

Landowner Agreement: I have reviewed and understand the construction plans and specifications and agree to complete the work accordingly. Failure to meet these plans and specifications may jeopardize any continued NRCS technical assistance or program cost sharing applied for. I understand that it is my responsibility to secure all necessary permits and licenses, and to complete the work in accordance with all local, state, and federal laws. Modification of these construction plans or specifications must be approved by the NRCS before installation. I assume all responsibility for negotiations and contract agreements with the construction contractors.

Estimated Quantities and Cost Estimate: Quantities are estimated to the neat lines and grades of in-place materials shown on the construction plan unless otherwise stated. Truck yardage, loose fill, shrinkage, etc., must be calculated and compensated for by the contractor preparing a bid or constructing the project. Agency cost estimates are based on costs of similar projects and cost of materials at the time of the estimate. Costs do not reflect spikes in material or fuel costs. NRCS highly recommends you, as the owner of the project, obtain multiple bids for a comparison to the agency cost estimate.

Signed: Jon Muehlenkamp Date: 11/28/17

Designed by: Bryce Richardson Date: 11/21/17

Checked by: Christina Mulder Date: 11/28/17

Approved by: Bryce Richardson Date: 11/28/17

The installed practices comply with applicable NRCS technical standards and specifications. The "redlined" construction plans (as-built drawings) reflect changes made during construction.

Construction Approved by: _____ Date: _____

Job Approval Class IV

ESTIMATED QUANTITIES

ITEM	UNIT	QUANTITY	SHEET NUMBER	WI CONSTRUCTION SPEC. OR JOB SHEET NUMBER
Streambank Protection (580)				
4' to 7' Banks	Lin Ft	310	3,4,5,8,9	9-Rock Riprap
Seeding	Ac.	0.21	8,9	WI-710 SEEDING
Mulching	Sq. Ft.	9300	8,9	WI-710 SEEDING
Lunker Structures	No.	3	3,4,6,7	9-Rock Riprap

AS-BUILT

QUANTITIES ARE ESTIMATED TO THE NEAT LINES AND GRADES OF IN-PLACE MATERIALS SHOWN ON THE CONSTRUCION PLAN UNLESS OTHERWISE STATED. TRUCK YARDAGE, LOOSEFILL, SHRINKAGE, ETC..., MUST BE CALCULATED AND COMPENSATED FOR BY THE CONTRACTOR PREPARING A BID OR CONSTRUCTING.

ver. 2/2012

NRCS
Natural Resources Conservation Service
United States Department of Agriculture

ESTIMATED QUANTITIES

CLIENT: John Muehlenkamp
COUNTY: Monroe

		Date
Designed	BAR	15-Nov
Drawn		
Checked	CM	11/17
Approved		

Drawing Name: WI-005 5/09
Date:
Sheet 2 of 9

CONSTRUCTION NOTES

1. A preconstruction meeting shall be scheduled with Monroe County LCD personnel, the contractor, and the landowner prior to construction start-up. Contractor shall notify the Sparta LCD office (608-269-8976) at least one week prior to the start of construction.

2. Contact County Planning and Zoning Department and Local Township for possible permits. Landowner must receive the DNR and all other required permits prior to start of construction.

3. **Contact Diggers Hotline at least 3 days prior to start of construction. (800) 242-8511** Notification of affected utility companies is the responsibility of the contractor.

4. All estimated quantities are based on neat lines and grades unless otherwise stated. Technician will stake the project prior to construction.

5. Trees and other debris located along streambanks will be removed as directed by technician throughout length of project area. Trees and debris will be disposed of in an area agreed upon by the landowner and technician outside of the floodplain.

6. Bank shaping and/or placement of toe rock may be needed after tree removal in areas not protected with riprap to ensure adequate bank stabilization.

7. Rock riprap must be from a tested and approved quarry. Contractor must provide the technician with the proposed rock source quarry name prior to the start of construction to verify its approval.

8. Technician must be on site during placement of LUNKERS and Weirs.

9. All disturbed areas will be mulched and seeded according to seeding plan.

10. Contractor will be responsible for correcting problems which occur as the result of not following proper construction procedures.

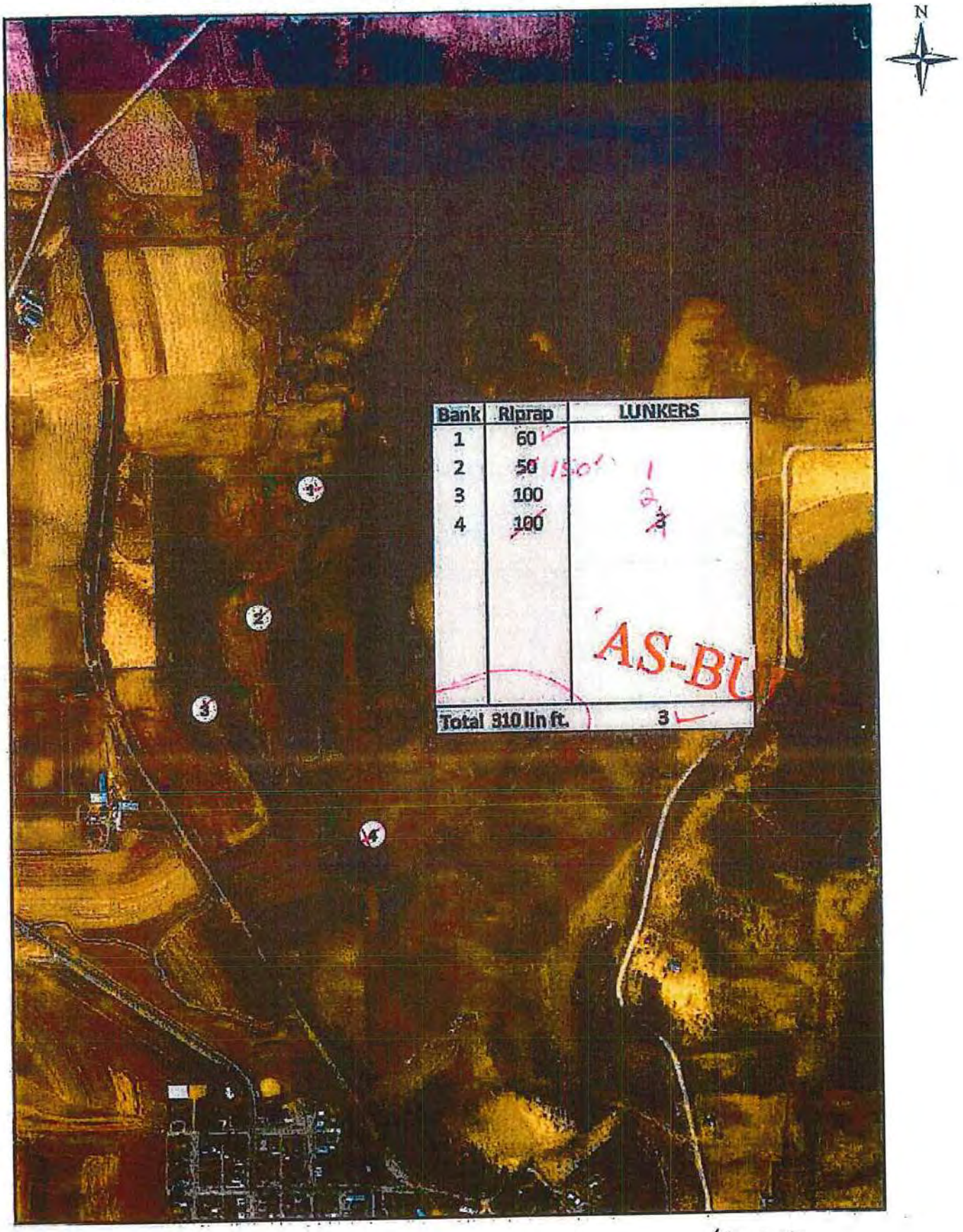
AS-BUILT

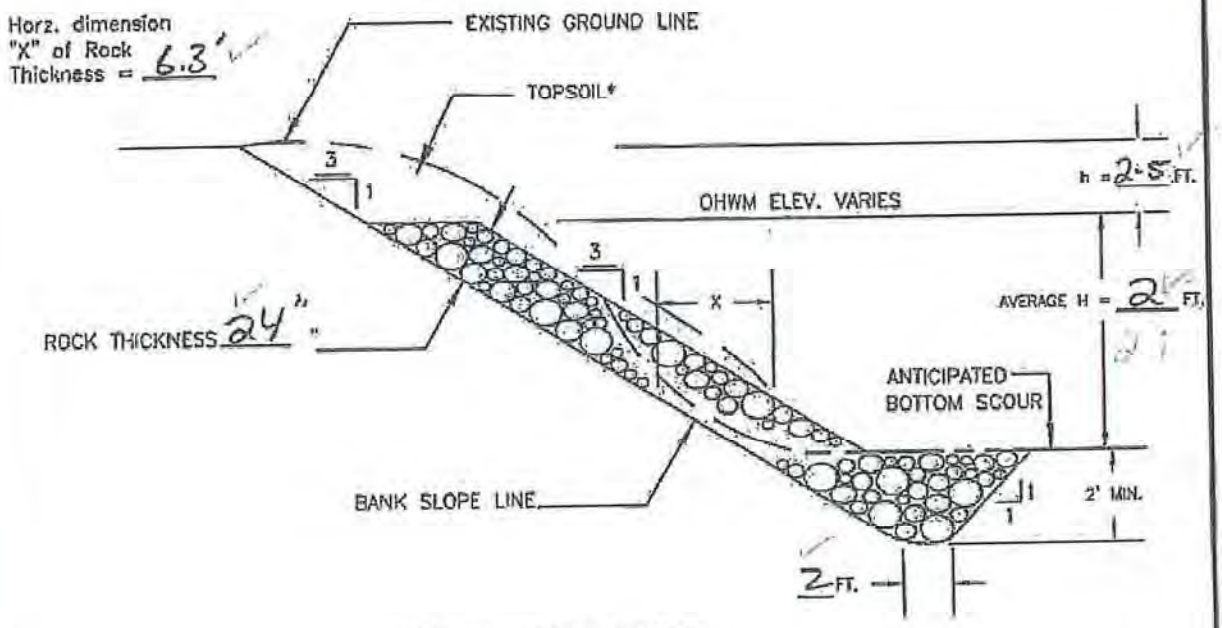
Streambank Protection (580)

Designed :BAR Checked:

Sheet 3 of 9

Jon Muehlenkamp Riprap Location Map





TYPICAL CROSS SECTION

GRADATION OF ROCK

PERCENT PASSING BY WEIGHT	SIZE (INCHES)
100	16
60–85	12
25–50	8
5–20	4
0–5	2

QUANTITY ESTIMATE*

BANK SLOPING FOR RIPRAP	310	LIN. FT.
BANK SLOPING (SEEDING ONLY)		LIN. FT.
ROCK FOR RIPRAP (WI CONST. SPEC. 9)	300	CU. YD.
SEEDING	.81	ACRES

*ESTIMATED TO THE NEAT LINES AND GRADE

NOTES:

1. DOUBLE THE ROCK THICKNESS FOR A DISTANCE OF 4 FEET AT THE UPSTREAM AND DOWNSTREAM ENDS OF THE RIPRAP. BLEND THE ROCK SURFACE TO MATCH THE EXISTING STABLE BANK SURFACE.
2. * SPREAD TOPSOIL TO WITHIN 1' OF STREAM EDGE. TRACK ALL TOPSOIL PERPENDICULAR TO STREAM TO REDUCE EROSION.

AS-BUILT

THIS STANDARDIZED DESIGN MUST BE ADAPTED TO THE SPECIFIC SITE.

EXCAVATED KEYWAY

SITE ALL

NRCS Natural Resources Conservation Service United States Department of Agriculture

STREAMBANK PROTECTION NO FILTER OR GEOTEXTILE (PARTIAL BANK HEIGHT)

CLIENT: Jon Muehlenkamp

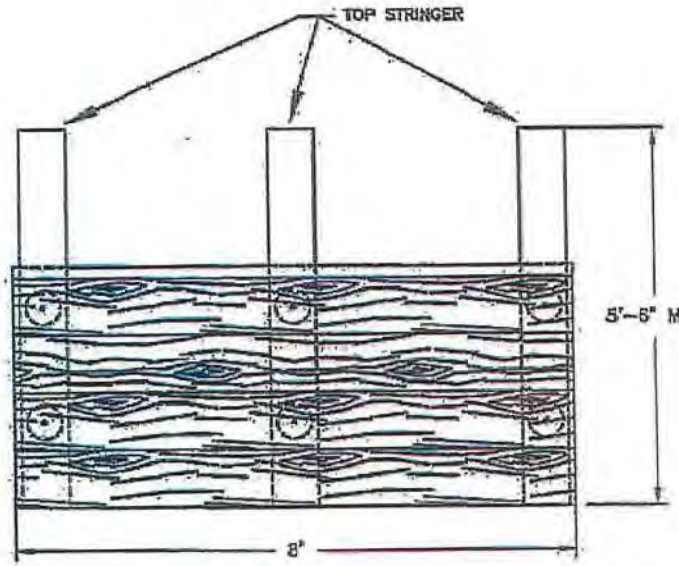
COUNTY: Monroe

		Date
Designed	BAR	11/17
Drawn		
Checked	CM	11/17
Approved		

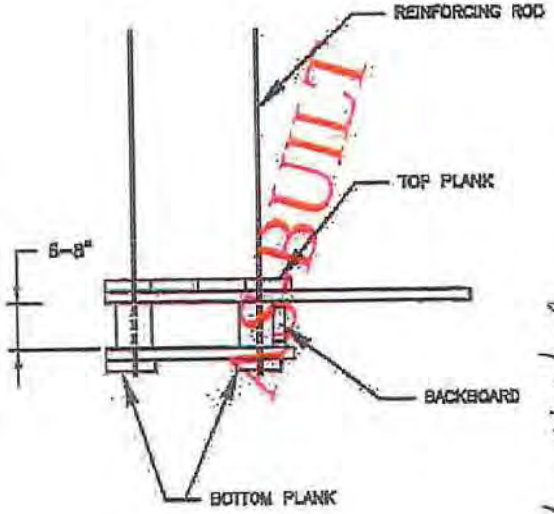
File Name WI-404E

Date 6/07

Sheet 5 of 9



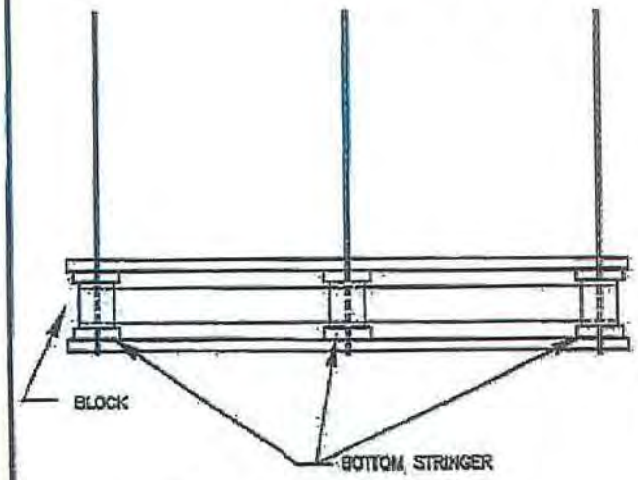
TOP VIEW



SIDE VIEW

AS-BUILT

18 Rebar Needed
3 LUNKERS Needed



FRONT VIEW

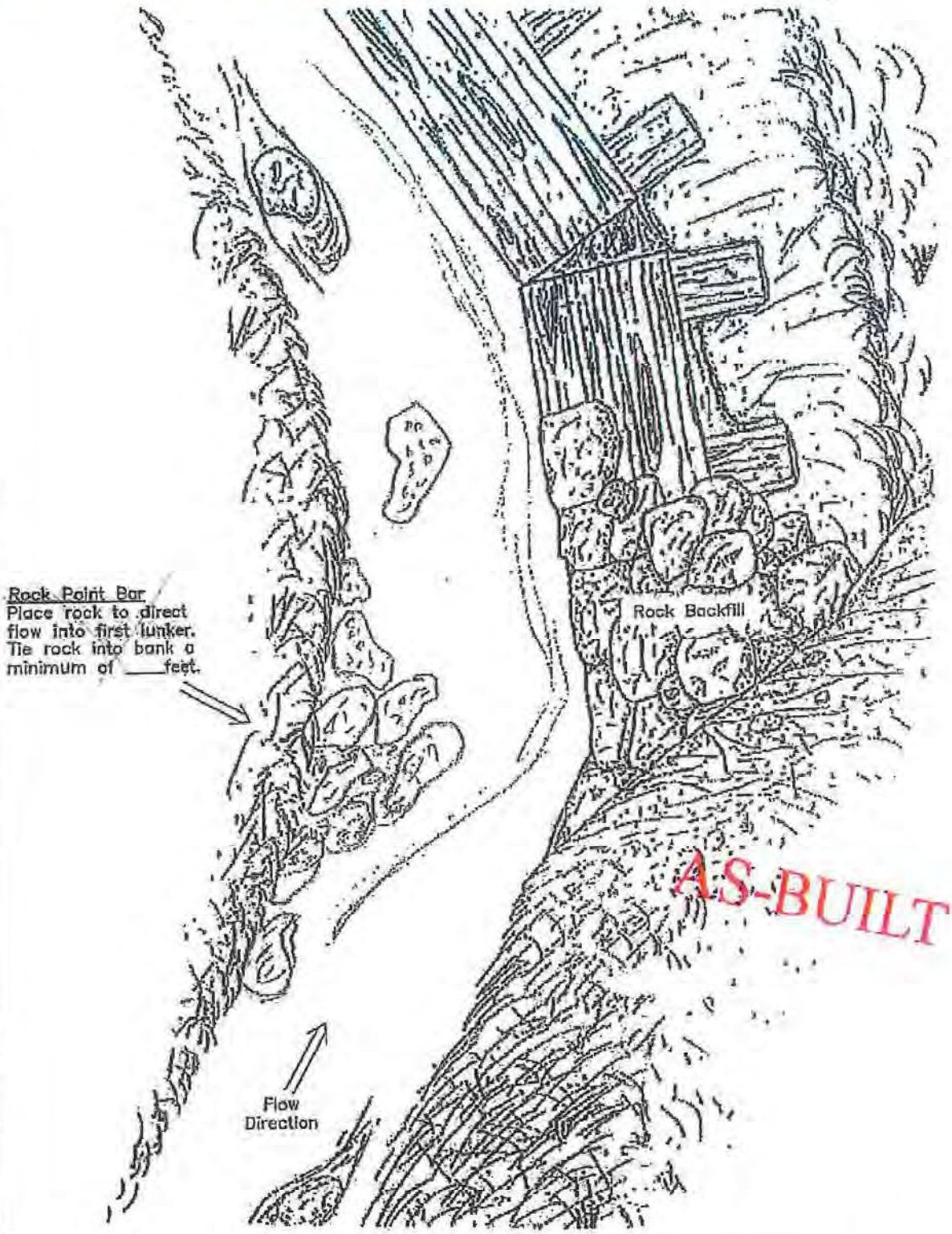
BILL OF MATERIALS
LUNKER STRUCTURE

ITEM	SIZE	QUANTITY
TOP PLANK	2" X 8" X 8' OAK BOARD	4
TOP STRINGER	2" X 8" X 5-6' Min OAK BOARD	3
BLOCK	6" DIA. X 8" OAK BLOCK	6
BOTTOM STRINGER	2" X 8" X 30" BOARD	3
BOTTOM PLANK	2" X 8" X 8' OAK BOARD	2
BACKBOARD	2" X 6"(or 8") X 8' OAK BOARD	1
#5 REINFORCING ROD	5/8" X 5' DEFORMED STEEL	6
NAILS	20D GALVANIZED	60

10 Total Boards 2" X 8" X 8 Feet Long

Drawing Name: LUNKER STRUCTURE DETAIL
Date: 10/2006
Sheet 6 of 9
Designed: BAE 11/28
Drawn: CAM 11/17
Checked:
Approved:
CLIENT: J. Mitchell-Lankford
COUNTY: MONROE

NRCS
Natural Resources Conservation Service
United States Department of Agriculture



AS-BUILT

NRCS
Natural Resources Conservation Service
United States Department of Agriculture

LUNKER PLAN VIEW

CLIENT: J Muehlenkamp
COUNTY: Monroe

	Date	Drawing Name
Designed BAR	11/28	
Drawn		Date 12/2012
Checked CM	11/17	
Approved		Sheet 7 of 9

SEEDING DATES — CENTRAL

TIME PERIOD	DATES			TYPE OF SEEDING
Spring	April 15	through	June 1	Permanent
Summer	June 2	through	see WI-710ss pg 2	Temporary *
Late Summer	August 1	through	August 21	Permanent
Fall	August 22	through	see WI-710ss pg 2	Temporary *
Late Fall	November 1	through	Snow Cover	Dormant
Winter	Snow Cover	through	April 14	Not Allowed

MATERIALS

If no soil test is available, apply a minimum of 150 pounds of 20-10-10 fertilizer per acre. This is equivalent to 30 pounds nitrogen (N), 15 pounds phosphate (P205), and 15 pounds potash (K2O) per acre. Apply two tons of 80-89 lime or equivalent.

* Seed a temporary cover crop of Oats at 64 # /ac (2 bu/ac)
A permanent seeding shall be completed during the next acceptable time period following a temporary seeding.

MINIMUM PURE LIVE SEED (PLS)[1] RATE PER ACRE AND TOTAL POUNDS OF SEED NEEDED

SEEDING MIX (DESIGN) 9	LOCATION: slopes ACRES: 0.21	
SPECIES	RATE	POUNDS
Kentucky Bluegrass	3.0	0.6
Creeping Red Fescue	4.0	0.8
Perennial Ryegrass	10.0	2.1
** Oats	64.0	13.4

SEEDING MIX (AS-BUILT)	LOCATION ACRES	
SPECIES	RATE	POUNDS

[1] PLS = (% Germination x % Purity)

ADDITIONAL SEED PERCENTAGE: ____ %

** Companion Crop

Mulching Required Yes

Additional native seeds may be required by permitting agencies. These addition are allowed.
Seed mixture shall meet all requirements of the WI weed laws.
Species identified as restricted or prohibited by law shall not be planted.
Certified seed shall be used, and the seeding rates will be based on pure live seed.
For dormant seedings, increase the seeds per square foot by 15%.

AS-BUILT

SEEDBED PREPARATION

Seedbed preparation shall immediately follow construction activities.
Prepare a fine, firm seedbed to a minimum depth of three inches. A seedbed is considered firm when a footprint penetrates 1/4 to 1/2 inch deep.

SEEDING

Inoculate legumes with the specific inoculum for the species in accordance with the manufacturer's recommendations. When using a hydroseeder, five times the recommended rate of inoculant shall be added to the hydroseeder. Inoculant shall not be mixed with liquid fertilizer.

Seed may be broadcast or drilled as appropriate to the site.
Seed, fertilize, and lime as soon as possible after construction.
Seeding perpendicular to direction of flow is required to limit erosion.

SEEDING CONTINUED

Seed grasses and legumes no more than 1/4 inch deep.

Consider seeding at a lower rate and making 2 passes to ensure more uniform distribution.

TEMPORARY SEEDING OPTIONS

Select one of the following species for temporary cover if:

1) The required seeds or plant stock are not available or the normal permanent seeding period for the species has passed
   - Forage Sorghum - 1/2 bushel per acre (May 15-July 15)
   - Sorghum - Sudangrass Hybrid - 1 bushel per acre (May 15-July 15)
   - Sudangrass - 1 bushel per acre (May 15-July 15)
   - Winter Wheat - 2 bushels per acre (Aug 1-Oct 1)
   - Winter Cereal Rye - 2 bushels per acre (Aug 1-Oct 15)
   - Oats - 2 bushels per acre (Apr 1-Sept 1)
   - Annual Ryegrass - 20 Pounds per acre (Apr 1-Sept 1)

2) Triazine herbicide carryover will not allow establishment of permanent cover immediately.
   - Forage Sorghum - 1/2 Bushel per acre (May 15-July 15)
   - Sorghum - Sudangrass Hybrid - 1 Bushel per acre (May 15-July 15)
   - Sudangrass - 1 Bushel per acre (May 15-July 15)

DORMANT SEEDING

Seed is broadcast and incorporated, no-tilled, or drilled into the seedbed. Seedbed preparations and conditions are similar to conventional seeding.

AS-BUILT

MULCHING

Mulching shall be done immediately after seedbed preparation and seeding.
Mulch shall be applied immediately after final grading for areas seeded at a later date.
Mulch material shall be relatively free of disease, pesticides, chemicals, noxious weed seeds, and other pests and pathogens.
Spread straw and hay mulch uniformly and at the rate of 1.5-2.0 tons per acre (60-70 bales). This application results in a layer of 6 to 7 stems, 1 to 2 inches thick, and provides a minimum 70% ground cover. Some soil surface can be seen after the application. Crimping (disking), wood cellulose fiber, tackifiers, netting, pinning, or other acceptable methods of anchoring will be used if needed to hold the mulch in place.

If other mulch materials are used, the rate of application shall meet the manufacturer's recommendations.

NRCS Natural Resources Conservation Service United States Department of Agriculture	INTRODUCED SPECIES SEEDING ESTABLISHMENT	Designed BAR	Date 11/28/17	File Name
	COOPERATOR Jon Muehlenkamp	Drawn		WI-710SS Pg 2 of 2 12-2016
	COUNTY MONROE	Checked CM	11/17	
		Approved		Sheet X of X 9 of 9

NRCS Streambank Erosion Estimator (Direct Volume Method)

Farmer / Cooperator Name: Jon Muehlenkamp
Tract Number:

Evaluated By: BAR
Evaluation Date: November 20, 2017

Field Number	Eroding Streambank Reach Number	Eroding Bank Length (Feet)	Eroding Bank Height * (Feet)	Area of Eroding Streambank (FT^2)	Lateral 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)
	1	310.0	7.0	2,170	0.50	1,085.0	Silt Loam	85	46.1
	2								
	3								
				Total Estimated Annual Streambank Erosion Soil Loss (Tons):					46.1

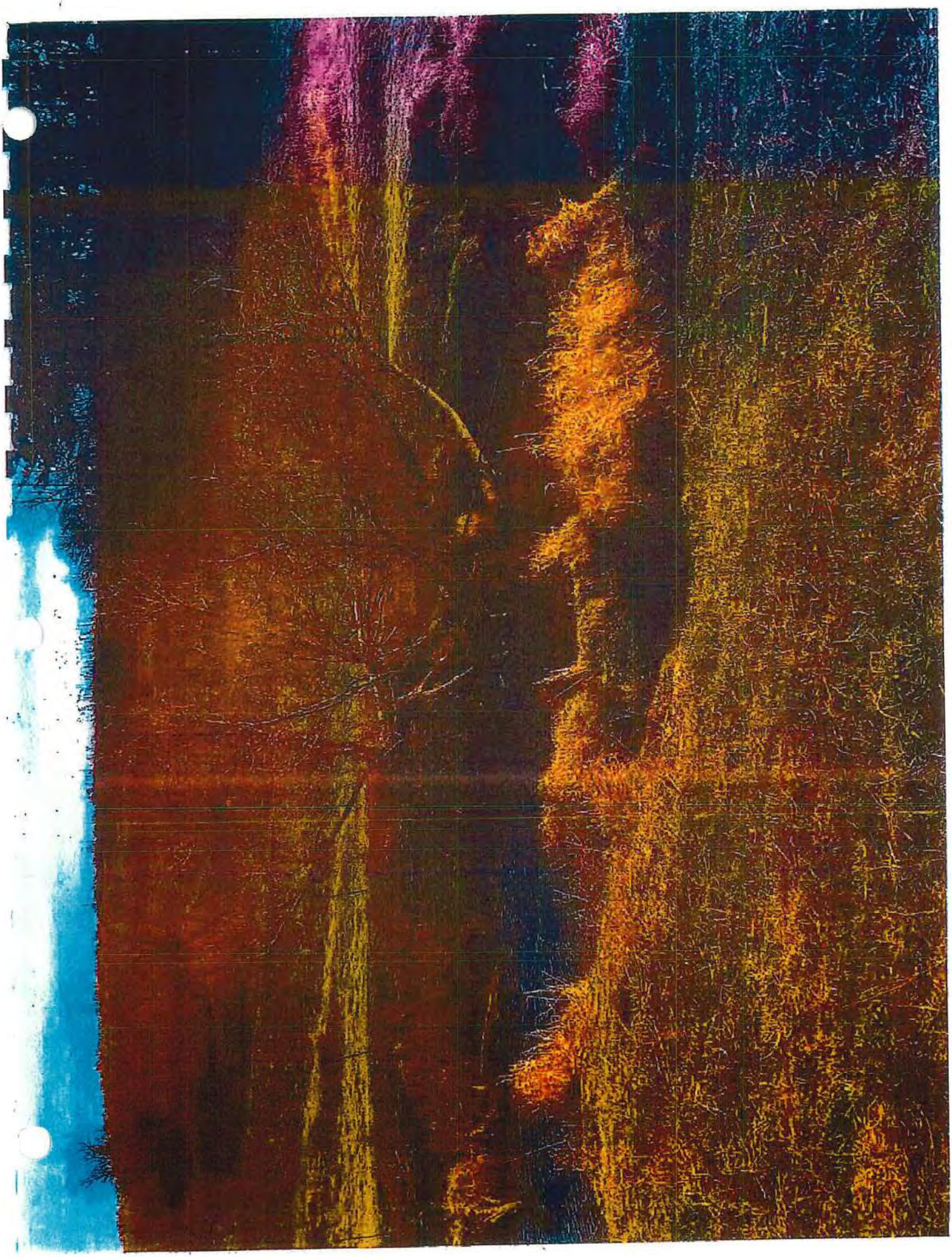
Field Number	Eroding Streambank Reach Number	Eroding Bank Length (Feet)	Eroding Bank Height * (Feet)	Area of Eroding Streambank (FT^2)	Lateral Recession Rate (Estimated) (FT / Year)	Estimated Volume (FT^3) Eroded Annually	Soil Texture	Approximate Pounds of Soil per FT^3	Estimated Soil Loss (Tons/Year)
	1								
	2								
	3								
				Total Estimated Annual Streambank Erosion Soil Loss (Tons):					

Field Number	Eroding Streambank Reach Number	Eroding Bank Length (Feet)	Eroding Bank Height * (Feet)	Area of Eroding Streambank (FT^2)	Lateral 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)
	1								
	2								
	3								
				Total Estimated Annual Streambank Erosion Soil Loss (Tons):					

* Eroding bank height is measured along the bank, not the vertical height of bank.

Streambank Erosion Calculation Formula:

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



Appendix F. Example Trade Agreement for Point to Nonpoint Source Trades

Notice

This is an example agreement and should be amended to meet the needs and conditions of the specific agreement. The Department does not require final trade agreements to be submitted with the trading plan. However, these documents must be presented upon request by the Department.

Permittee Information

Credit User Name (Permittee)	Permit Number
Village of Norwalk	WI-0024961

Credit User Address

509 Wisconsin Street, Norwalk, WI 54648

Permittee/Broker/Exchange Name (if applicable)	Trade Agreement Number
Village of Norwalk	1

Permittee/Broker/Exchange Address (if applicable)

Street Address	City	State	ZIP Code
208 S. Church Street	Norwalk	WI	54648

Project Name

Moore Creek Stream Bank Stabilization - Muehlenkamp Section

Name of Credit Generator (Landowner/Operator) (Last, First, M.I.)

Muehlenkamp, Jon

Street Address	City	State	ZIP Code
18001 Lasso Avenue	Norwalk	WI	54648

Property Information

Name of Landowner(s) (if not Operator) (Last, First, M.I.) same

Street Address	City	State	ZIP Code
Site 23230 Co. Hwy T	Norwalk	WI	54648

Legal Description of Property - Contiguous sites under the same ownership: (add additional sheets if necessary)

474 linear feet of stream bank on Moore Creek located upstream from the WWTF discharge located on Jon Muehlenkamp land, Town of Ridgeville.

Parcel ID(s):

161-00258-1800

Site Locator for Construction Projects

County	Township	Range E / W	Section	Quarter/Quarter (e.g., NW ¼ of the NE ¼)
Monroe	16 N	2W	21,28	SE 1/4 SW 1/4 21, NW 1/4 NE 1/4 28
	N			
	N			
	N			

Agreement

The property described above is enrolled in a Water Quality Trade Agreement. Funds are provided to the landowner/ operator in return for the installation, operation and maintenance of best management practices (BMPs) designed to enhance water quality. This agreement commits the landowner/operator, their heirs, successors and assigns to fulfill the trade agreement until a satisfaction or release is filed by the grantee.

Addenda which describe the BMPs, costs, installation schedule, and conditions are hereby incorporated into this agreement and are on file with the grantee and may be given to Wisconsin DNR upon request by the Department.

Landowner/Operator

Signed this 19th day of Feb, 20 19.

Signature of Landowner/Operator

Jon Muehlenkamp

Typed Name of Landowner/Operator

Signature of Landowner/Operator

Typed Name of Landowner/Operator

STATE OF WISCONSIN)
) ss.
Monroe County)

Personally came before me this 19th day of Feb, 20 19.

The above named Jon Muehlenkamp to me known to be the person(s) who executed the foregoing instrument and acknowledge the same.

Christina L Mulder
Signature of Notary Public

Christina L Mulder
Typed Name of Notary Public

Notary Public Monroe County, Wisconsin

My commission (is permanent) (expires March 7, 2022).

Landowners (if not operator)

If the landowner section is not completed, check (X) one or both of the following that apply

☐ Landowner is also operator

☐ Trade agreement contains only high residue management, nutrient management, pesticide management, cropland protection cover (green manure)

Signed this _____ day of _____, 20 ____.

Signature of Landowner (if not operator)

Signature of Landowner (if not operator)

Typed Name of Landowner (if not operator)

Typed Name of Landowner (if not operator)

STATE OF WISCONSIN)
) ss.
_____ County)

Personally came before me this _____ day of _____, 20 ____.

The above named _____ to me known to be the person(s) who executed the foregoing instrument and acknowledge the same.

Signature of Notary Public

Typed Name of Notary Public

Notary Public _____ County, Wisconsin

My commission (is permanent) (expires _____).

Credit user/broker/exchange

Signed this 15th day of Feb, 20 19.

Signature of credit user/broker/exchange

Mike Wiedl - Villa Pres Norwalk

Typed Name of credit user/broker/exchange

STATE OF WISCONSIN)
) ss.
Monroe County)

Personally came before me this 15 day of Feb, 20 19.

The above named Mike Wiedl to me known to be the person(s) who executed the foregoing instrument and acknowledge the same.

Christina L Mulder
Signature of Notary Public

Notary Public Monroe County, Wisconsin

My commission (is permanent) (expires March 7, 2022).

Other Signer- Specify title or relationship: Engineer Responsible for Trade

Signed this 15th day of Feb, 20 19.

Dal K. Sauer
Signature

David K. Sauer, P.E., Cedar Corporation
Typed Name

Signature

Typed Name

STATE OF WISCONSIN)
Monroe County) ss.
)

Personally came before me this 15 day of Feb, 20 19.

The above named David Sauer to me known to be the person(s) who executed the foregoing instrument and acknowledge the same.

Christina L Mulder
Signature of Notary Public

Christina L. Mulder
Typed Name of Notary Public

Notary Public Monroe County, Wisconsin

My commission (is permanent) (expires March 7, 2021)

CHRISTINA L MULDER NOTARY PUBLIC STATE OF WISCONSIN

Other Signer- Specify title or relationship: _____

Signed this _____ day of _____, 20 ____.

Signature

Typed Name

Signature

Typed Name

STATE OF WISCONSIN)
_____ County) ss.
)

Personally came before me this _____ day of _____, 20 ____.

The above named _____ to me known to be the person(s) who executed the foregoing instrument and acknowledge the same.

Signature of Notary Public

Typed Name of Notary Public

Notary Public _____ County, Wisconsin

My commission (is permanent) (expires _____).

Other Signer- Specify title or relationship: _____

Signed this _____ day of _____, 20 ____.

Signature

Typed Name

Signature

Typed Name

STATE OF WISCONSIN)
_____ County) ss.
)

Personally came before me this _____ day of _____, 20 ____.

The above named _____ to me known to be the person(s) who executed the foregoing instrument and acknowledge the same.

Signature of Notary Public

Typed Name of Notary Public

Notary Public _____ County, Wisconsin

My commission (is permanent) (expires _____).

☐ Check this box if this page is purposely left blank.

Section A – General Requirements

Example:

A 1. This agreement may be amended by mutual agreement of either party, so long as the agreement has not yet expired.

A 2. If a significant archeological or historical site is found, construction is to cease immediately and the BMP will be relocated, redesigned, or deleted to prevent damage to the archeological or historical site. The BMP may be deleted only if approved in writing by the Department of Natural Resources.

Section B – Landowner/Operator Shall:

Example:

B 1. Design, install, operate and maintain BMPs listed in Addendum 2 of this agreement.

B 2. Allow access to the installed BMP by the grantee, or an authorized representative of the grantee for site inspection of the BMP for installation, operation and maintenance.

Section C – Grantee Shall:

Example:

C 1. Provide cost sharing to the landowner/operator consistent with Addendum 2.

C 2. Make cost-share payments to the landowner/operator after payment is requested and evidence of contractor payment by the landowner/operator has been received, and the grantee verifies proper BMP installation.

TA Number	Typed Name of Landowner/Operator	Initials of Landowner/Operator	Date
1	Jon Muehlenkamp	JM	2/19/19

The cost-share recipient shall implement and maintain all best management practices listed in this Addendum, unless otherwise amended in accordance with this agreement.

							Installation Period			
							From (MM/YY) 11/17		To (MM/YY) 09/18	
Field #	DNR BMP Code	Practice Name	Quantity	Unit	Unit Cost.	Estimated Total Cost	Reimburs-ement Rate (%)	Estimated Cost-Share Amt.	Cost-Share Amt. From Other Programs*	Estimated Year to be Installed
		Stream Bank Stabilization	474	LF	22.76	10,790.00	100	10,790.00		2018
					TOTALS	10,790.00	100	10,790.00		

* Identify Program Names: _____

CSA Number	Typed Name of Landowner/Operator	Initials of Landowner/Operator	Date
	Jon Muehlenkamp	JM	2/19/19

Operation and Maintenance Plan
Streambank and Shoreline Protection

Cooperator: Jon Muehlenkamp Date: 2/14/19

By: Jon Muehlenkamp Title: Landowner

Project Location: Moore Creek - Muehlenkamp Section (474 LF)

I agree to the following for the full service life of the streambank or shoreline improvements:

1. Check the riprap, plantings, and/or tree revetments at least once each year and immediately after severe floods. Rock removed or displaced shall be replaced as needed. Replant any dead of damaged tree plantings. Repair or replace any damaged or missing revetments. Repair work shall take place during periods of low stream flow.

2. Logs, trees, driftwood, and other debris lodged in or near the riprap shall be removed.

3. Check for sloughing, erosion, or damage to vegetative cover. Damaged areas shall be graded, shaped, and re-vegetated as soon as possible.

4. If fences are installed, they shall be maintained to prevent unauthorized human or animal access.

5. Immediately repair any vandalism, vehicle, or animal damage.

6. Eliminate access of foot traffic to the streambank within the buffer area with the exception of any designated pathway areas.

7. Eliminate all burrowing rodents and repair damage caused by them.

8. Additional recommendations:

Cooperator's signature: Jon Muehlenkamp Date: Feb 19/19

I have discussed the maintenance guidelines with the above cooperator.

Conservationist's signature: Bryce Richardson Date: 2/21/19

Cedar
CORPORATION

BUILDING TRUST

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