

AMENDMENT #1 WQT WATERSHED PLAN PHOSPHORUS WASTEWATER TREATMENT ELEVA-STRUM SANITARY DISTRICT #1



JULY 2020

1304-004.016

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AMENDMENT #1 WQT WATERSHED PLAN PHOSPHORUS WASTEWATER TREATMENT ELEVA-STRUM SANITARY DISTRICT #1

DAVY ENGINEERING CO. CONSULTING ENGINEERS LA CROSSE, WISCONSIN PROJECT NO. 1304-004.016 JULY 2020 THIS PAGE HAS BEEN INTENTIONALLY LEFT BLANK

1.0 REASON FOR AMENDMENT #1

The WQT Watershed Plan for the Eleva-Strum Sanitary District was completed and approved by DNR in December 2019. At that time, all that was left was to submit was executed trade agreements. The project is broken up into several smaller projects. Many of the projects are on Village owned land and have been constructed already. The remaining projects to be constructed are both the Campground and the Hanson property. Both the Campground and the Hanson property was bid, though the trade agreement still needed to be executed. The property owner for the Hanson property has backed out of the arrangement prior to signing the agreement. Trempealeau County has been working with other landowners to find a replacement project to make up the credit difference from the Hanson Property. Another property was located along Buffalo River, which this amendment will discuss.

2.0 INTRODUCTION

The Eleva-Strum WQT Watershed Plan is a plan to achieve phosphorus credits through watershed improvements. Several projects are on Village owned land and have been constructed. The campground project has been bid and is in the process of being constructed over the summer. The remaining portion of this amendment will discuss the location, calculations to show the phosphorus credits, trade ratio, and overall credits of all projects. These project sites are all streambank restoration; therefore, the original report dated December 2019 covers the maintenance procedures for these projects as well.

3.0 PROJECT DESCRIPTION

The Kinville and Crawford project site is located northeast of Strum along highway 10 and Buffalo River. See **Appendix 3-1** for a location map.

3.1 Kinville & Crawford Site

The Project Site is mainly open space along the streambank, with a few trees that would need to be removed. The District's WWTF Outfall Pipe discharges downstream of the project site on Buffalo River. The streambank restoration project contains 300 linear feet with twelve (12) foot high banks. Buffalo River can experience high velocities during flood periods and a conservative recession rate of 0.40 was assigned to this project by the Trempealeau County Land Conservation Staff.

The NRCS Streambank Erosion Estimator (Direct Volume Method) spreadsheet was used to calculate the phosphorus credits. The percent phosphorus in the soil was collected by the Trempealeau County Land Conservation Staff and tested by the University of Wisconsin Soil and Forage Analysis Laboratory. The test results can be seen in **Appendix 3-2**. The percent phosphorus was shown to be 0.22%, which yields 325 pounds of phosphorus per year. The calculations can be seen in **Appendix 3-3**.

4.0 TRADE RATIO

The trade ratios in this section are preliminary estimates. The Wisconsin Department of Natural Resources will make the ultimate decision on the trade ratio to be applied to each project. The estimated ratio is derived from the following formula:

Trade Ratio = Delivery + Downstream + Equivalency + Uncertainty – Habitat Adjustment: 1

4.1 Delivery Factor

Per the *Guidance for Implementing Water Quality Trading in WPDES Permits*, the Delivery Factor in section 3.4 states "The delivery factor accounts for the distance between trading partners and the impact that this distance has on the fate and transport of the traded pollutant in surface waters." (pg. 26). The delivery factor is often zero when in the same HUC 12. See **Appendix 4-1** for the HUC 12 Watershed Basin Map. The user and generator are in different HUC 12 basins in this case. The sparrow model is the method used to determine the downstream factor. The sparrow model fractions can be found on the DNR Surface Data Viewer. Upon review of both the project site and discharge point for the WWTF, it was determined that both fractions were equal with a 0.9751 fraction. Since the factor is equal in both the project site and the WWTF discharge point, the delivery factor is zero. See **Appendix 4-2** for the Sparrow Model Map.

4.2 Downstream Factor

The credit generator (Project Site) is upstream of the credit user (WWTF); therefore, the downstream factor is dropped from the above equation. The downstream factor is zero (0).

4.3 Equivalency Factor

The WQT for the credit user is based upon total phosphorus (TP). According to the *Guidance for Implementing Water Quality Trading in WPDES Permits* from the Wisconsin Department of Natural Resources (2020), when accounting for the equivalency factor for TP, the equivalency factor is zero. This is because the differences between the soluble and sediment-bound P have been accounted for in the delivery factor (pg. 28). The equivalency factor is zero (0).

4.4 Uncertainty Factor

The uncertainty factor is used to compensate for the uncertainty of the effectiveness of the WQT project/plan. The uncertainty, especially with non-point discharges, is because many factors (which are not controllable), determine the effectiveness of the implementation, such as climate, potential inaccuracies from field testing, or the reliability of the management practice to perform under various hydrological conditions. The WDNR has established a table to help assign values to the uncertainty variable of the equation. The table can be seen in Appendix H of the *Guidance for Implementing Water Quality Trading in WPDES Permits* pages 148-152 (Wisconsin Department of Natural Resources, 2020). For bank stabilization, WDNR has assigned a value of three (3); therefore, these projects have an uncertainty value of three (3).

4.5 Habitat Adjustment

The habitat adjustment factor is the factor given for implementing fishery habitat within a stream. In order to qualify for the Habitat Adjustment, the river must be 303d-listed to be impaired due to total phosphorus. The Buffalo River meets this criterion. The Buffalo River Impaired Water documentation can be seen in **Appendix 4-3**. Since this site qualifies for the habitat adjustment factor, the District will construct fish habitat to meet with NRCS. The habitat adjustment factor for this project is one (1).

4.6 Summary

In summary, the delivery factor was determined to be a zero (0) due to the proximity of the water quality trading to the discharge point of the credit user. The downstream factor was also determined to be zero (0) because the credit generator is at the outfall of the credit user. The equivalency factor is zero (0) because the differences between the soluble and sediment-bound P have been accounted for in the delivery factor. The uncertainty factor was determined to be a three (3) based upon bank stabilizations in Appendix H of the *Guidance for Implementing Water Quality Trading in WPDES Permits*. The habitat adjustment was found to be a one (1) since the impaired waters for total phosphorus exists. Based upon the discussed factors, the trade ratio equation with the values substituted becomes the following:

Trade Ratio = 0 + 0 + 0 + 3 - 1 : 1 = > 2:1

5.0 METHOD FOR QUANTIFYING CREDITS

The NRCS has developed a spreadsheet to calculate soil loss on streambanks. The spreadsheet was designed for just the soil and did not take into account the amount of phosphorus. The spreadsheet was modified to account for the percent phosphorus in the soil, and the units were converted to pounds per year. The DNR has accepted this spreadsheet as a viable way to calculate the amount of phosphorus that will be prevented from entering the stream. The calculations can be seen in **Appendix 3-3**, as previously discussed in Section 3.1 of this report.

6.0 TRADE AGREEMENTS

The phosphorus credit project will be completed on private property. As discussed in Section 1.0 of this report, the reason for the amendment was due to the previous planned project landowners decided the agreement was not in their best interest.

The new planned project landowners have agreed with the terms and have signed a Trade Agreement for the project. Please see **Appendix 6-1** for the Trade Agreement for John Kinville and Tristi Crawford.

7.0 REQUIRED PHOSPHORUS CREDITS

The phosphorus mass loadings and the required WQT from the approved WQT plan are summarized in the following table:

TABLE 7.1. PROJECTED 2020 DATA - REGOIRED PHOSPHOROS MASS OFFSET						
Description	Units	Amount				
Annual Average Daily Existing Flow	MGD	0.141				
Effluent Phosphorus Concentration	mg/L	0.300				
Target P Concentration	mg/L	0.075				
Annual Mass of Phosphorus	lbs/year	129				
WQT Target Mass of Phosphorus	lbs/year	32				
Baseline Mass (Existing - Target)	lbs/year	97				

TABLE 7.1: PROJECTED 2020 DATA - REQUIRED PHOSPHORUS MASS OFFSET

Since the time the WQT Plan was approved, additional data has been available for review. The WWTP has been achieving extremely low limits of phosphorus in 2020, which has been meeting the 0.075 criteria. If both 2019 and 2020 data are combined together, the following phosphorus mass loading requirements would be parameters to be met for the WQT credits:

Description	Units	Amount
Annual Average Daily Existing Flow	MGD	0.097
Effluent Phosphorus Concentration	mg/L	0.176
Target P Concentration	mg/L	0.075
Annual Mass of Phosphorus	lbs/year	52
WQT Target Mass of Phosphorus	lbs/year	22
Baseline Mass (Existing - Target)	lbs/year	30

TABLE 7.2: 2019 & 2020 DATA TO 2/29/2020 - REQUIRED PHOSPHORUS MASS OFFSET

The following table includes the projects discussed in the WQT Watershed Plan dated December 2019 and has replaced the Hanson project with the project discussed in this Amendment #1.

					-
	Project	BMP Type	TR	P Ibs/year	TRxP Ibs/year
1	Below Dam - South Side	Streambank Stabilization	3	17	6
2	Below Dam - North Side	Streambank Stabilization	3	48	16
3	Parking Lot	Streambank Stabilization	3	14	5
4	Crystal Lake Campground	Streambank Stabilization	3	127	42
5	Kinville & Crawford - Hwy 10	Streambank Stabilization	2	325	163
	Total			531	231

TABLE 7.3: WATER QUALITY TRADING PROJECT PHOSPHORUS MASS CREDITS

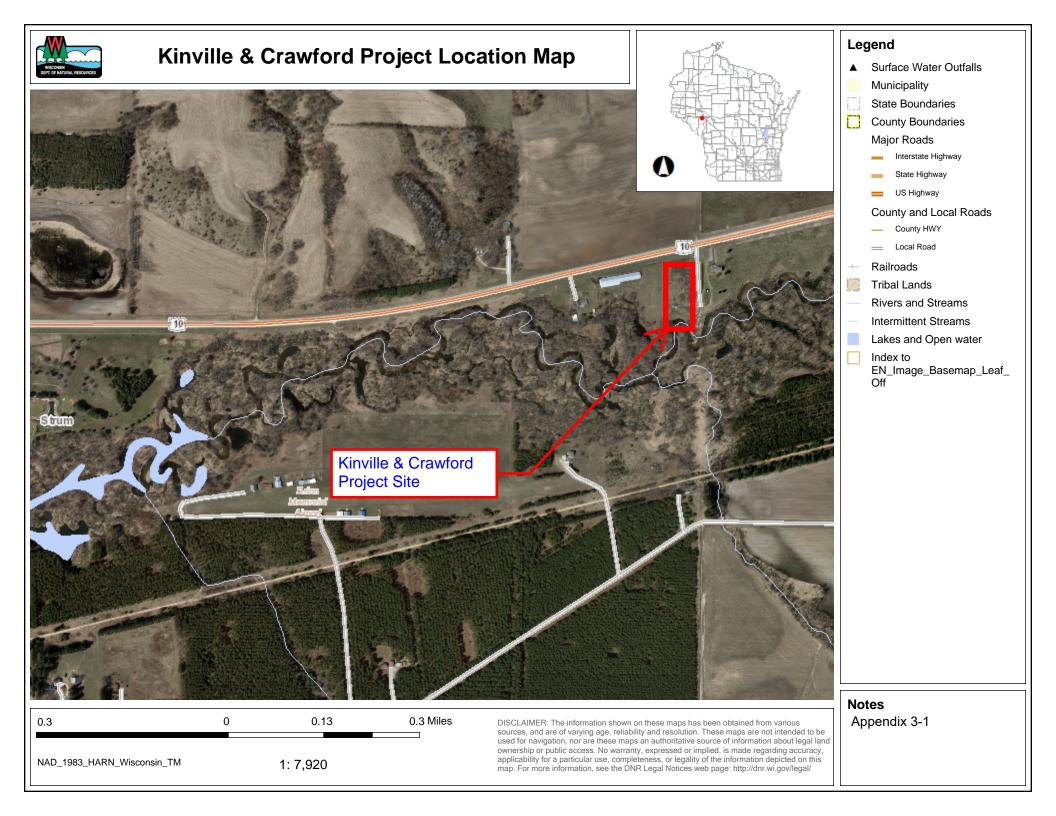
The required phosphorus credits needed to satisfy the WQT Watershed Plan is 97 pounds of phosphorus per year based upon the data used in the approved WQT plan, and 30 pounds per year with the most recent data. The amount of phosphorus prevented from entering the waterways due to the projects is 231 pounds per year with the trade ratio applied; therefore, the District far exceeds the required facility regulations.

APPENDICES

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APPENDIX 3-1

PROJECT LOCATION MAP



APPENDIX 3-2

SOIL SAMPLE TEST RESULTS



Trempealeau County Land Management PO Box 67 Whitehall WI 54773 **Eleva-Strum WQT Project**

Soil Nutrient Analysis

Date6/19/2020Acct #558613Lab #2047

	Total Leachable P nitric/peroxide	
Sample	%	
1	0.22	
2	0.21	
Average	0.22	

APPENDIX 3-3

PHOSPHORUS STREAMBANK CALCULATIONS

Farmer	/ Cooperator Name: Tract Number:		Eleva-S n Kinville_US F	trum WQT Iwy 10 - Buffa	alo River		Evaluated By: Evaluation Date:		leidenreich 10, 2020
Field Number	Eroding Strmbnk Reach #; or Ditch Side/Bottom	Eroding Bank or Ditch Length (Feet)	Eroding Bank Height; or Ditch Bottom Width* (Feet)	Area of Eroding Strmbank or Ditch (FT ²)	Lateral or Ditch Bottom Recession Rate (Estimated) (FT / Year)	Estimated Volume (FT ³) Eroded Annually	Soil Texture	Approximate Pounds of Soil per FT ³	Estimated Soil Loss (Tons/Year
	1	300.0	12.0	3,600	0.40	1,440.0	Sand	105	75.6
						ch Erosion Soil Los	ss (Tons):		75.6 0.22%
			Total Estimate	ed Annual Str	eambank or Dite	(nitric/peroxide): ch Erosion Phosph Ditch Erosion Pho		1	0.22% 0.163 325

Total Phosphorus Loss for sum of reaches (lbs/yr):	325
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* Eroding bank height is measured along the bank, not the vertical height of bank.

Streambank or Ditch Erosion Calculation Formula:

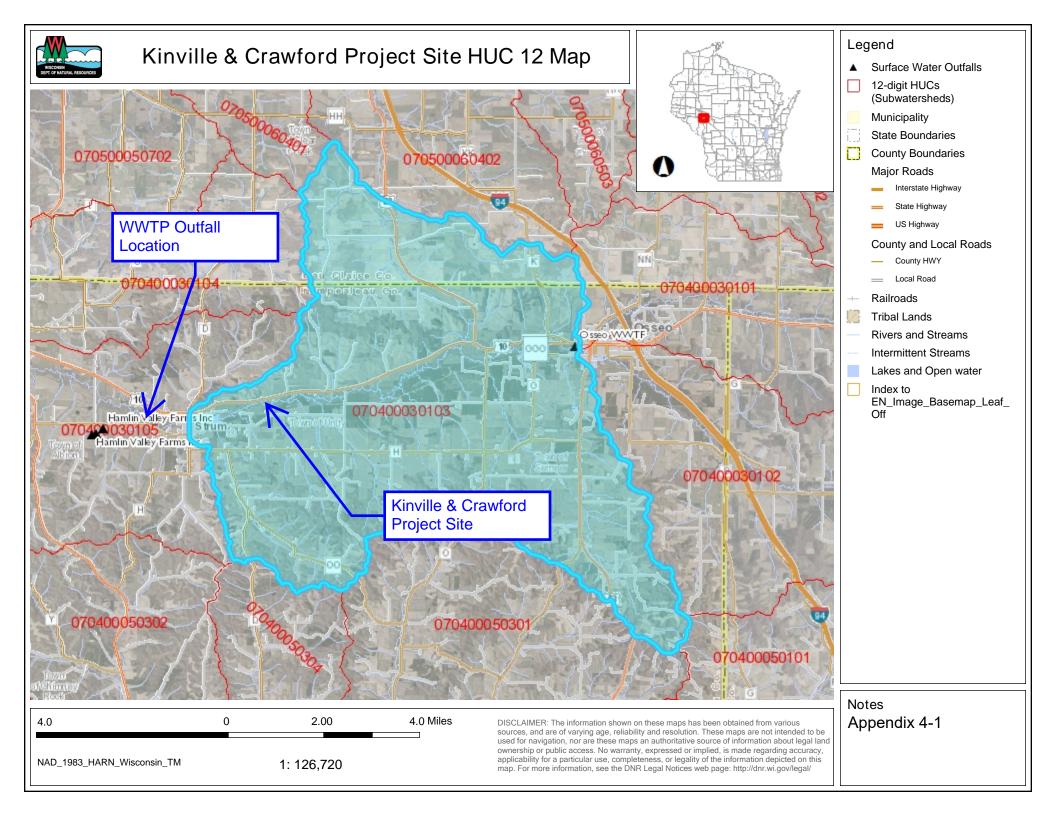
Eroding Bank/Ditch Length X Eroding Bank Ht or Ditch Bottom Width X Lateral or Ditch Bottom Recession Rate (FT/YR) X Soil Weight (lbs/ft³)

Estimated Soil Loss = Per Year (Tons)

2000

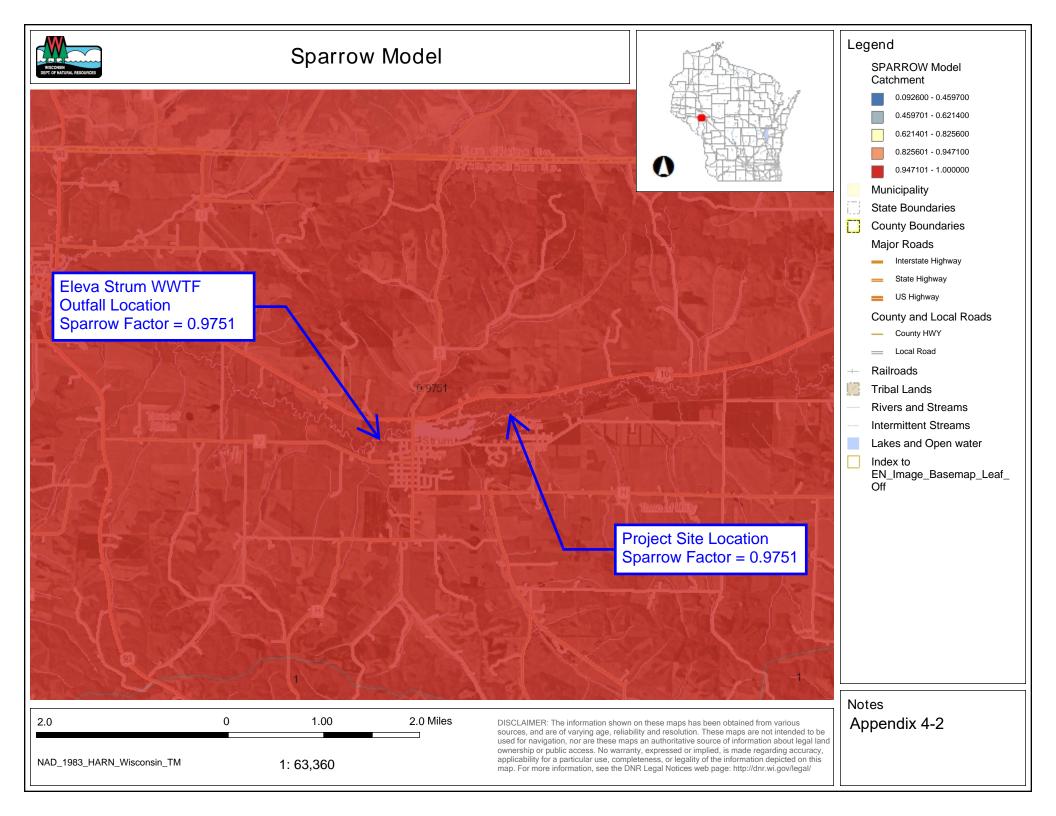
APPENDIX 4-1

KINVILLE & CRAWFORD PROJECT SITE HUC 12 MAP



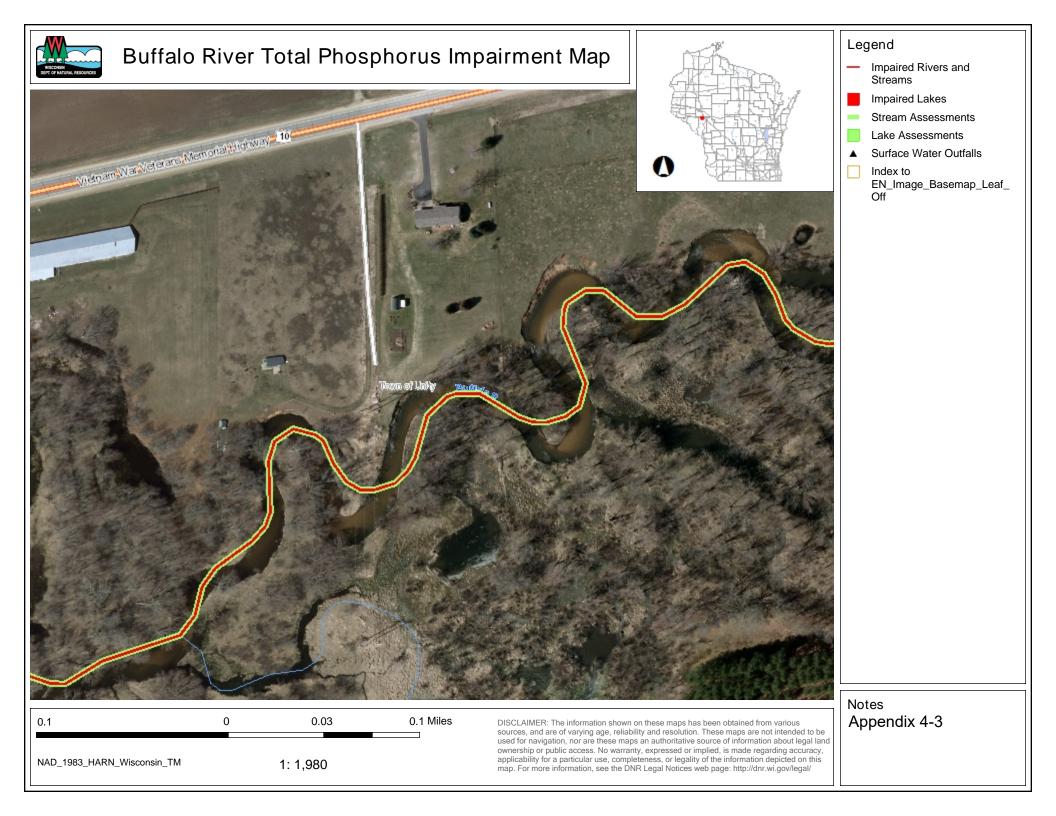
APPENDIX 4-2

SPARROW MODEL



APPENDIX 4-3

IMPAIRED WATERS MAP BUFFALO RIVER



APPENDIX 6-1

TRADE AGREEMENT JOHN KINVILLE & TRISTI CRAWFORD

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Water Quality Trading Agreement: Eleva-Strum Joint Sewerage Commission and John Kinville, Tristi Crawford

Permittee Information					energian di tratiti Al comencia		
Credit User Name (Permittee)		Permit Nur	mber				
Eleva-Strum Joint Sewerage Co	ommission	WI-0064	1998-02-0				
Credit User Address							
202 5 th Ave S., Strum, WI 54	4770						
Broker Name			eement Numbe	er			
Trempealeau County Dept. of Land	d Manageme	nt WQT-64	1998020-02				
Broker Address							
Street Address			City	8		State	ZIP Code
36245 Main St.			Wh	itehall		WI	54773
Project Name							
Kinville & Crawford Buffalo R	and the second distance of the second s						
Name of Credit Generator (Landowr	ner/Operator)	(Last, First, M.I.	.)				
Kinville. John E. and Crawford	l. Tristi L.						
Street Address			City			State	ZIP Code
7375 203 RD			Ch	ppewa Falls		WI	54729
Property Information							
Name of Landowner(s) (if not Opera	itor) (Last, F	First, M.I.)					
Street Address			City			State	ZIP Code
W20511 US HWY 10			Stru	m		WI	54770
Legal Description of Property - Cont	iguous sites	under the same o	wnership: (add	additional sheets if	necessary)		
				z.			
Parcel 030-00333-0005	014/						
PT SE NW Sec 16, T24N, R0	81						
Parcel ID(s): 030003330005							
Site Locator for Construction F	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			-			
County	Township	Range E/W			rter/Quarter (e.g.,	NW ¼ of	the NE 1/4)
Trempealeau	24N	08W	16	SE1/4 of the NV	W 1/4		
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	N						

Agreement

The property described above is enrolled in a Water Quality Trade Agreement. Funds are provided by the credit user in return for the installation (by the broker), operation and maintenance (by the landowner) 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 credit user.

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

Landowner/Operator		
Signed this 13th	aver thulis 20 20	
Signature of Operator	Signature of Landowner/Operator	
John E. Kinville, Operator/Landowner		
Signedinis 341 day of		
STATE OF WISCONSIN RY P) Personally came before me this 13th day of TWU 2020	
Trempeder Sta County	ss Trichi I Ciraunford + John E. Kin	Alle
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LOKEN	IN MULLIUM MULLE H. Loken	
M H	Signature of Notary Public Typed Name of Notary Public	
MINING WISCO	Notary PublicCounty, Wisconsin	
Landowners (if not operator)	My commission (is permanent) (expires 1717 (Control of Control o	
	check (X) one or both of the following that apply	
	sidue management nutrient management pesticide management cropland protection cover (green	
Signed thisda	ay 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 ILLINOIS) Personally came before me this day of . 20 20	0.
County)) SS	
	the person(s) who executed the foregoing instrument and acknowledge thesame.	be
	, Signature of Natani Dublia	
Credit User	My commission (is permanent) (expires).	
	20	
Signed thisda		
Signature of credit user	Eleva-Strum Joint Sewerage Commission Typed Name of credit user/broker/exchange	
STATE OF WISCONSHA	mis	0.
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Kuste Aun		
Signature	Signature	
Kirstie Heidenreich, Planning & Con	nservation Coordinator	
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Mon	Signature of Notary Public Typed Name of Notary Public	
MINTE OF W	Notary Public TrempealeauCounty, Wisconsin	
Mannunerne.	My commission (is permanent) (expires).	
Other Signer- Specify title or relationship:	:	
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STATE OF WISCONSIN		
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Section A – General Requirements

1. The following relationship has been established for this Water Quality Trading Agreement:

A. The Eleva-Strum Joint Sewerage Commission will hereby be known as the Credit User. They will hereby be responsible for all monetary costs incurred with the BMP practice installation, which includes but is not limited to: site preparation, clearing, and finished to planned grades; stream shaping; limestone rock riprap and installation; liming, fertilizing, seeding and mulching. The Credit User shall have the right to access the property for inspection or maintenance.

B. The Trempealeau County Department of Land Management will be known as the Broker. The Broker will be responsible for the oversight of the BMP practice design, contractor bidding process and signed agreements, inspection of site preparation and design installation, regulation of applicable performance standards, and monitoring of landowners' obligations in the form of performing onsite checks as needed and as stated in Section B. The Broker shall not have any financial obligation for this project except as expressly stated in this agreement.

C. John E. Kinville and Tristi L. Crawford will be known as the Landowners/Operators. Landowners will be responsible for all aspects of the operation and maintenance of BMP practices as outlined in Section B below.

1. If any land covered by this agreement is transferred or otherwise changes ownership, this agreement will be held in obligation with the land for the full 20 years and the new owners will be obligated to comply with this agreement. Landowners are obligated to notify any prospective buyers of this agreement and their responsibilities under this agreement and applicable law.

2. The Landowners agree to repay all project costs to the credit user, upon demand by the Broker, if the Landowner fails to comply with the terms of this agreement. Repayment shall not be required if a practice(s) is rendered ineffective by circumstances which are beyond the control of the Landowner.

3. This contract will be recorded in the Trempealeau County Register of Deeds office.

2. This contract may be amended, by written mutual agreement of the parties, during the installation or maintenance period, if the proposed changes will provide equal or greater control of water pollution. For any changes in practice components or costs, the County will determine eligibility and whether to approve such changes. Any increases to the project cost shall be approved in advance in writing by the Credit User.

3. By request of the landowners/operators, the Eleva-Strum Joint Sewerage Commission agrees to fully remediate the driveway (leading up to the cabin) and parkway (mowed area in front of the cabin and shed) after completion of the project, ensuring that no gullies or ruts remain from construction equipment.

4. The Broker reserves the right to enter the property to verify the information on the inspection report is accurate.

5. Any duly authorized officer, employee or representative of WDNR shall have the right to access and inspect the practices pursuant to Wis. Stat. 283.55(2) so long as this Agreement remains in effect.

Section B – Landowner/Operator Shall: 1. Inspect riprap annually and after heavy storms for any erosion or displacement of rocks. The Broker should be contacted immediately and directly if any damage has occurred. Repairs should be done immediately by Landowner, at Landowner's cost. And 2. Ensure that no grazing of animals will occur within 30 feet of the stream channel to prevent clogging or rerouting of water in the channel channel

3. Ensure that debris is removed from the channel and that vegetation is controlled around the channel only when the vegetation or obstructions are threatening stream function. Invasive vegetation should be controlled and channel obstructions deemed harmful may be removed. Channel clearing to remove stumps, fallen trees, debris, and sediment bars shall only be performed when they are causing or could cause unacceptable bank erosion, flow restriction, or damage to structures. Habitat forming elements that provide cover, food, pools, and water turbulence shall be retained or replaced to the extent possible.

4. Check for sloughing, erosion, or damage to vegetative cover. Damaged areas shall be graded, shaped, and replanted by Landowner as soon as possible with a seed mix pre-approved by the broker.

5. If cattle are introduced to the stream corridor, fencing must be installed to prevent unlimited access of cattle to waters of the State. If fences are installed, they shall be maintained to prevent unauthorized human or livestock access. Fencing shall be set back to allow for a 30-foot vegetative buffer along the stream corridor.

6. Periodically, mow vegetative buffer to control weeds and invading brush. All farm equipment and row crops must remain outside

of the agreed upon 30-foot vegetated buffer from the top of the bank.

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

8. Maintain the project consistent with NRCS technical standard 580.

9. Installation of this practice allows the Landowner to comply with the applicable state/local performance standard. Compliance with this performance standard shall be for a period of 20 years. This practice must be maintained or replaced with a practice which ensures continued compliance with the applicable performance standard.

10. The landowner agrees that the annual inspections are to be performed on inspection forms, which will be provided by the Broker. The landowner will be required to take pictures of the BMP for the annual report, which will be submitted with the inspection form to the Broker. The landowner agrees to submit the annual inspection and pictures by September 30th each year. Should the landowner fail to submit the annual inspection to the Broker within 30 days of the due date, then the Broker may enter the Landowner's property to perform the inspection. Should the Broker need to perform the inspection due to failure of the Landowner to submit the inspection, then the Landowner will be responsible for a \$250 inspection fee payable to the Broker.

TA Number	Typed Name of Landowner/Operator John E. Kinville and Tristi L. Crawford		Initials of Landowner/Operator	Date 7/13/2120
		in Birnstein	Control	13/2020 Page4

	are recipient shall ir with this agreemer	nplement and maintain all best management practices li it.	isted in this Add	lendum, ur	nless o	therwise an	nended in	From (MM/YY) 08/20	Installation	To (MM/YY) 10/20	
Field #	DNR BMP Code	Practice Name	Quantity	Unit	υ	Init Cost	Estimated Total Cost	Reimbursement Rate (%)	Estimated Cost-Share Amount	Cost-Share Amt. From Other Programs*	Estimated Year to be Installed
	NRCS 580	Mobilization	1	L.S.	\$	500.00	\$ 500.00				2020
	NRCS 580	Site Preparation, clearing, and grading	1	L.S.	\$	1556.00	\$ 1556.00				2020
	NRCS 580	Limestone rock riprap D50 size 10" Diameter	699	cu. yd.	\$	40.00	\$ 27,960.00				2020
	NRCS 580	Geotextile Fabric, Type SAS	922	sq. yd.	\$	2.50	\$ 2,305.00				2020
	NRCS 580	Liming, fertilizing, seeding and mulching	0.8	Acre	Ś	1500.00	\$ 1,200.00				2020
	NRCS 395	Root Wads	3	Each	\$ 5	500.00	\$ 1,500.00				2020
		Sub-Total					\$ 35,021.00				
		Contingencies (10%)			-		\$ 38,523.10				
		contingencies (1970)					<i>v</i> 50,525.10				
					-						
						÷					
		ed on an overall project of three parcels of land. The esti					****				
		percentage of land. The exact values in the field may di	ffer from above	e.	1		\$ 38,523.10				
Identify Pr	ogram Names:				Тот	ALS	\$ 56,523.10	Ś -	ś-	\$ -	
SA Numbe	r	Typed Name of Landowner / Operator					Initials of Landow		· ·	Date	11
		John E. Kinville and Tristi L. Crawford					H.M	n 15	ID		07/13/8
							C 7/1	3/2020	~	1	

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