WQT PLAN
Hollandale, WI



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1.0 – EXECUTIVE SUMMARY

The Village of Hollandale is under orders to meet a low effluent phosphorus limit in the current WPDES Permit and compliance schedule (Permit no. WI-0031330) found in **Appendix 1-1**. The Community of approximately 300 residents does not have the financial means or staffing capabilities required to meet (WQBEL) Water quality best effluent limits of 0.225 mg/l monthly average with a 0.075 mg/l 6-month rolling average, therefore will purse water quality trading (WQT) to offset phosphorus limits to a more reasonable effluent limit that is better in line for a lagoon treatment system.

The proposed Water Quality Trade (WQT) projects will consist of stream bank restorations along the Dodge Branch of the Pecatonica River. Two (2) property owners were identified and the banks surveyed and submitted to WDNR. Credits were calculated using soils information and other physical attributes of each section of streambank surveyed. WQT Agreements were drafted and sent to the property owners for review and feedback. All the agreements need to be signed and attested before any work can be designed and implemented.

If all the identified project sites are approved, agreements signed, projects designed, and implemented, the Village should have enough credits for a full water quality trade to offset treatment at the WWTP to somewhere between a 1.0-2.0 mg/l limit. The Village has submitted a facility plan for wastewater plant upgrades with the intent that offset credits will be obtained and the improvements at the lagoon treatment system will be able to treat to the new limits with the WQT in place.

Currently the Village is addressing some infiltration/inflow issues as required by DNR and will be addressing any comments from the department on the proposed improvements in the facility plan. If the Village cannot receive enough offset credits to continue using the lagoon system in some capacity, an amended facility plan will be necessary and the individual phosphorus variance or IPV may need to be revisited.

The estimated costs to complete all the WQT Projects is approximately $1,041,440 including engineering, legal, and administrative costs with DNR funding using the pilot projects from the clean water fund (CWF). If local funding and assistance from local County and watershed associations is used, costs could be somewhat less, maybe 30-40% less depending on the sources. The projected costs do NOT include any expenses for the improvements to the wastewater treatment system.

2.0 – INTRODUCTION

The WPDES Permit for the Hollandale Wastewater Treatment Plant (WWTP) proposes a future final water quality-based effluent limit (WQBEL) of 0.075 mg/L for phosphorus. The current permit has been issued with a multi-discharge variance (MDV) limit of 4.7 mg/L, with County payments on the total annual discharge in pounds per year over the 0.2 mg/L phosphorus threshold at a rate of **$58.85** per pound. This payment is submitted by March 1st of the following year. In the fourth year of the current permit, the MDV interim limit changes to 1.0 mg/L, and goes into effect on May 1, 2027. The Final Compliance/Facility Plan proposes complying with the permit by implementing Water Quality Trade(s) (WQT) to offset the phosphorus mass from 3.0 mg/L to the 0.075 mg/L limit with a full WQT trade. This report highlights the projects that have been found to date, with the intent of finding and implementing more projects before May 1, 2027.

The Existing WWTP is located on the east side of the Village of Hollandale. The discharge flows to Dodge Branch, which flows from Northwest to Southeast through the north end of the Village of Hollandale. A site map of the existing WWTP and discharge location can be found in **Appendix 2-1.**

The current WWTP design flow is 30,000 gallons per day (gpd), or 10.95 million gallons (MG)/year. From the years 2022-2023 effluent phosphorus concentration averaged 5.21 mg/L. The effluent phosphorus mass loading at 3.0 mg/L and the design flow of 0.030 MG is **273.97 lb/year**. At the same flow, the future 0.075 mg/L limit will reduce the phosphorus mass loading to **6.85 lb/year**, a reduction of **267.12 lb/year**, and the base trade amount. WQT will require a 2:1 or 3:1 Trade Ratio, which means Hollandale would need to secure somewhere between 534.24-801.36 lbs./year of phosphorus credit to meet the base trade amount via Water Quality Trade (WQT) with a 3.0 mg/L effluent. These credits would secure final compliance for the Village down to the final limit of 0.075 mg/L via water quality trading.

Sites were surveyed with the purpose of getting enough credits for a full WQT watershed plan, to offset the treatment at the WWTP to 3.0 mg/L. This watershed plan addresses streambank stabilization projects on different segments of land including sites on properties owned by:

1. Todd Leonard,
2. Prairie Enthusiast.

Appendix 2-2 shows the location of the above projects with the parcel lines.

3.0 – PURPOSE OF THE WATER QUALITY TRADING PLAN

The purpose of this Water Quality Trading Plan is to describe how the Hollandale WWTP will utilize WQT to comply with the phosphorus limits of WPDES permit WI-0031330-10-0, which will expire on September 30, 2027. The WQT sites are on various owners' properties and WQT agreements are required. All properties are within the same HUC 10 Watershed, upstream from the Village WWTP discharge. All sites are within the Town of Waldwick along the Dodge Branch of the Pecatonica River.

This report highlights the WQT projects found thus far. The total amount of proposed offset credits includes approximately 438 lb/yr of phosphorus. 438 lb/yr is enough credits to offset from 2.0 mg/l to 0.075 mg/L, at the current design flow with a 2:1 correction/trade ratio. This is also enough credits to offset the limits, if the plant is designed to treat to 2.0 mg/L at the actual flow, with a 2:1 correction/trade ratio. Habitat adjustments will hopefully be implemented at every site, if approved, the Village should be able to get a 2:1 trade ratio.

The offset credits will be developed pursuant to a Notice of Intent (form 3400-206) to conduct a WQT. The Notice of Intent (NOI) and the Presto Watershed Report are included in **Appendix 3-1 and Appendix 3-2, respectively,** of this plan. WQT agreements have been sent to the property Owners for review and signatures. Copies of draft agreements are found in **Appendix 7-1**. The final signed agreements between the Village and the property owners will be submitted after the plan has been approved.

4.0 – DESCRIPTION OF EXISTING LAND & USES

The projects consist of bank stabilization along the Dodge Branch. The existing lands were assessed as mainly Grassland, Forest, and Agricultural.

One property is owned by Todd Leonard at 1652 Banner Road, Hollandale, WI 53544. The location of these projects that are on Dodge Branch are about 6,200 feet south of the intersection of Sunny Ridge Road and State Highway 191, following the stream as it meanders east to west. **See appendix 4-1** - **Leonard**

Prairie Enthusiast is the owner of a property starting at PT SE1/4 of WN1/4, SE-NW, Sect. 23, T5N, R4E and ending on NE1/4 of SW1/4, Section 23, T5N, R4E. The location of these sites that are on Dodge Branch are about 3,200 feet southwest of the intersection of Squirrel Hill Road and State Highway 191, following the stream as it meanders east to west. **See appendix 4-1** – **Prairie Enthusiast**

Leonard. This project site is privately owned by the Leonard family. The project site has historically been cropland and pastureland. The streambanks have seen an exponential increase in erosion problems due to an increasing number of flood events and heavy rainfalls.

Prairie Enthusiast. This project site is owned by the Prairie Enthusiasts. The project site has historically been prairies and wetlands. The streambanks have seen an exponential increase in erosion problems due to an increasing number of flood events and heavy rainfalls.

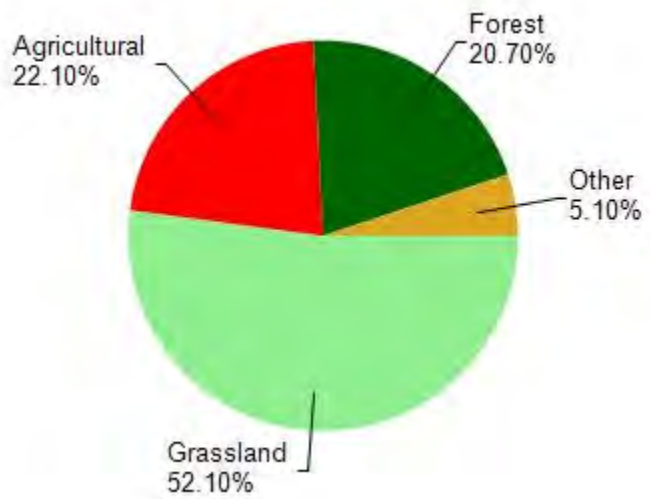
The total length of streambank stabilization proposed is 3,454 feet. The two (2) landowners' sites in the proposed streambank stabilization are in a rural setting with significant bank erosion.

4.1 BANK STABILIZATION ALONG DODGE BRANCH

Permission was obtained by the Property Owners to access the streambank and was observed by staff of the Village of Hollandale, and Davy Engineering Company. Nineteen (19) separate segments within these two (2) properties were identified as areas that would benefit from bank stabilization projects. Davy Staff collected soil samples at each identified streambank section and sent the samples into a lab for soil testing. One soil sample was taken at each segment of the streambank. The streambank segments can be seen in **Appendix 4-1**.

Per the DNR Surface Water Data Viewer website under Watershed Characteristics, "Dodge Branch is located in the Upper East Branch Pecatonica River watershed which is 140.18 mi². Land use in the watershed is primarily grassland (52.10%), agricultural (22.10%) and a mix of forest (20.70%) and other uses (5.10%). This watershed has 395.65 stream miles, 61.72 lake acres and 834.33 wetland acres."

Dodge Branch, Upper East Branch Pecatonica River Watershed (SP06) Watershed Characteristics



Per the DNR Surface Water Data Viewer website under Watershed Characteristics, "Conley Lewis Creek is located in the Upper East Branch Pecatonica River watershed which is 140.18 mi². Land use in the watershed is primarily grassland (52.10%), agricultural (22.10%) and a mix of forest (20.70%) and other uses (5.10%). This watershed has 395.65 stream miles, 61.72 lake acres and 834.33 wetland acres."

5.0 – MANAGEMENT PRACTICES USED TO GENERATE CREDITS

The project areas include streambank stabilization with consideration to fish habitat restoration. These areas were chosen because of significant erosion and because of benefits to the property owners, Iowa County residents, as well as generating phosphorus credits for the Village of Hollandale WWTP.

5.1 STREAMBANK STABILIZATION. The projects are streambank stabilization projects on Dodge Branch are upstream from the WWTP discharge.

The locations within the HUC 10 Watershed were chosen because they are located upstream from the wastewater facility, within the local community and with the purpose of obtaining offset Phosphorus credits for the municipal wastewater facility. These areas along Dodge Branch were targeted because of high erosion and recession rates in the area that would generate WQT credits through correcting using slope stabilization and improved channel flow. The water elevations, velocities, and resultant steep banks are driven by systemic causes as well as natural channel forming processes.

Streambank recession rates ranging from 0.25 – 0.50 feet per year were determined through analyzing the sites using the NRCS Erosion Severity Chart and discussing recessions rates with WDNR via meetings, emails, and onsite discussions. It was determined that stabilizing the creek banks to permanently armor the banks is the best solution to the erosion problems. Soil samples taken for phosphorus testing were described as silt loam at every site. NRCS maps and classification of the soils were used to determine the amount of phosphorus in pounds per year (lb/yr) at each segment tested. See **Appendix 5-1** for the NRCS Recession Rate Erosion Severity Charty.

5.1.1 DURATION OF MANAGEMENT PRACTICE. The duration of the management practice can be essentially many years if it is maintained properly. The practice can be constructed after winter thaw but is better to be constructed after the spring rains have subsided, with lower water levels in the creek. The construction will require shaping of the streambank and placement of properly sized rip rap or other form of stabilization. The Landowner(s) will enter into a contract with the Village of Hollandale, which will require each landowner to allow the Village to maintain the streambank restoration practices. The Village of Hollandale will be responsible for managing the practices following construction. The operation and maintenance are discussed in more detail in Section 12 of this plan.

5.1.2 DODGE BRANCH,. The Dodge Branch has agricultural and forest lands surrounding it as it flows towards the Hollandale WWTP. All properties are upstream of the Hollandale WWTP. The erosion on each of these properties is significant enough to warrant bank stabilization projects. Sites were identified by discussions with Iowa County, local landowners and the Village. Davy Engineering along with Village and NRCS Staff have visited the sites for recession measurements and soil sample collection.

The properties are located outside of the Village of Hollandale municipal limits. See **Appendix 5-2** for the Soils Map at each project location.

5.2 AMOUNT OF CREDITS GENERATED. To determine the number of credits, the NRCS Erosion tool spreadsheet was incorporated along with phosphorus test results from the soil samples. Recession rates were estimated based on the site visit and historic maps of the project location. Updates to the actual rates may occur as more information becomes available. Calculations show that an estimated **438 pounds** of phosphorus per year would be prevented from entering the Dodge Branch. See **Appendix 5-3** for the Phosphorus Loss Calculations of each project site.

6.0 – DESCRIPTION OF APPLICABLE TRADE RATIO PER AGREEMENT/MANAGEMENT PRACTICE

The trade ratios in the following section are preliminary estimates based on WDNR's *Guidance for Implementing Water Quality Trading in WPDES Permits, Edition 2, 6/1/2020*. Trade ratios are determined as outlined below and can be adjusted at each permit term as any of the criteria change. The estimated ratio is derived from the following formula:

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

This section of the report will discuss the trade ratio of the different projects. Most of the calculations will be the same for the different projects as all the project sites are in the same HUC 10 and are all upstream of the WWTP. The difference in the calculations will be the uncertainty factor, which varies depending upon the type of management practice used; therefore, the following discussions will discuss all the projects with similar practices together.

6.1 DISCUSSION OF IDENTICAL CHARACTERISTICS FOR ALL PROJECTS. All the projects will have the same Delivery Factor, Downstream factor, equivalency factor and in this case the habitat adjustment. The following is a discussion of these factors for all the projects.

6.1.1 DELIVERY FACTOR. The delivery factor is determined by the following equation:

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

The SPARROW delivery fraction is determined by a model developed for the USGS. The WDNR has implemented the Sparrow trade factors onto the Surface Data Viewer on their website. Upon review of the website the delivery factor was a 1:1 ratio (a zero in the trade ratio equation). The delivery factor for the credit user site at the WWTP is 0.97.

Dodge Branch, Conley Lewis Creek, and an Unnamed Stream. The credit user and credit generators are not in the same HUC 12 basin but are in the same HUC 10 basin. All the credit generators are upstream of the credit user. The furthest credit generator project site (Leonard) is approximately 5.8 miles along Dodge Branch away from the credit user discharge point. This is measured using DNR's Surface Water Data Viewer. Per the *Guidance for Implementing Water Quality Trading in WPDES Permits*, the Delivery Factor in section 2.11.1 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 6-1** for the HUC 12 Watershed Basin Map. Not all sites are within the same HUC 12 as the WWTP; however, they are in the same HUC 10 and still have the same delivery factors. See **Appendix 6-2** for the HUC 10 Watershed Basin Map. The discharge point of the user is downstream of the credit generator.

The delivery factor for each of the project sites is as follows:

Site	Delivery Fraction	Delivery Factor	HUC 12
WWTP (credit user)	0.97	0	070900030404
Leonard	0.97	0	070900030403
PE	0.97	0	070900030403

The credit user and every site have the same delivery fraction, 0.97, therefore the delivery factor is 0.

The Delivery Factor is zero (0) for all sites.

6.1.2 DOWNSTREAM FACTOR. **The DNR WQT Guidance (updated 2023) states**, "The downstream factor is used to help prevent a violation of water quality criteria in the receiving water between the credit user and generator." (pg. 27). The downstream factor is only measured when the credit generator is downstream of the credit user. If the credit generator is upstream of the user, then the downstream factor is zero. The credit generators are upstream of the credit user (WWTP); therefore, the downstream factor is dropped from the trade equation.

The Downstream Factor is zero (0) for all sites.

6.1.3 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).

6.1.4 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 management practices 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, on pages 148-152 in the *Guidance for Implementing Water Quality Trading in WPDES Permits* (Wisconsin Department of Natural Resources, 2013). For streambank stabilization and shoreline protection, WDNR has assigned a value of three (3). With aquatic habit adjustment, that ratio can be reduced to two (2); If WDNR with the County's approval do decide to implement an aquatic habitat improvement, then the uncertainty value of two (2), will be applied as part of the future overall water quality trade project.

With no Habitat Adjustment the uncertainty factor is three (3).

6.1.5 HABITAT ADJUSTMENT. The habitat adjustment factor results from the habitat restoration discussed in Section 6.1.4 above. To be eligible to claim credit for habitat restoration, the surface water where the project work is taking place must be listed by WDNR as an impaired water body due to the pollutant which the credit user is

attempting to mitigate. The streams qualify for the habitat adjustment as the surface water exceeds the applicable criterion of the traded pollutant.

Per the WDNR Surface Water Data View website, the Dodge Branch of Pecatonica is considered an impaired system due to phosphorus. The total phosphorus data for each stream exceeds the WisCALM listing criteria for Fish and Aquatic Life use. Because the total phosphorus exceeds the WisCALM criteria, these streams qualify for the Aquatic Habitat Adjustment.

To obtain the habitat adjustment, habitat best management practices must be implemented and established as part of the project. Per Appendix H of the *Guidance for Implementing Water Quality Trading in WPDES Permits*, the uncertainty factor for Dodge Branch, Conley Lewis Creek, and an Unnamed Stream can be reduced from a three (3) to a two (2) with aquatic habitat restoration. Modifications to restore aquatic restoration can come in many forms.

The following habitat structure alternatives are from the *NRCS Companion Document 580-15, EFH Notice 210-WI-119* (February 2009).

- **Random Boulder Placement.** This type of structure is placed within the streambed and will create micro habitat for several species of fish, but primarily it benefits trout. It will create mini scour holes, but care needs to be taken with the placement of the boulders, because if they are placed ineffectively then the currents can be deflected toward the streambanks causing erosion.
- **Cross-Channel Logs**. Logs and rock placed perpendicular to the stream flow create a pool area (scour holes) which provides habitat for all species of fish and can potentially provide for both snakes and turtles as well. This practice is best situated downstream of a riffle area and are the best fit for slow moving areas within the stream. One of the cons of these practices is the cost to install. The rock will need to be hauled to the site and the layout needs to be precise; therefore, the installation can be labor intensive which drives up the cost.
- **Trout Lunker & Mini-Trout Lunker.** This is a built habitat, which is unique to trout. It is essentially a shelter on the side of the stream bank. These structures are best suited for corners and stream bends but can be placed anywhere if there is enough stream velocity to prevent sedimentation build up within the structure. These structures need to be incorporated during the streambank stabilization work, as the habitat is incorporated into the bank.
- **Root Wads.** Root wads are a structure placed at the bank toe to provide additional microhabitat and cover for several specials including fish, amphibians, and reptiles. Root wads provide toe support for bank revegetation and collect sediment and debris that will enhance the streambank structure over time. Root wads are comprised of approximately 10' long tree trunks (boles) buried into the streambank with treetops removed. Boles are placed perpendicular to the flow channel with root fans still attached and oriented parallel to the channel. Due to their size, root wads typically require the use of heavy equipment for collection, transport, and installation.

Habitat structures will be included in both the proposed projects. Appendix 6-3 shows Preliminary Habitat Design Concepts for Leonard and Prairie Enthusiasts. The Leonard Concept includes three (3) log deflectors and one (1) cross channel log. This concept was made by NRCS. These items will create habitat for fish in the stream. The Prairie Enthusiast Concept map includes one set on instream boulder, a log deflector, and a v-shaped rock weir. This concept was created by Davy Engineering with input from Iowa County staff and Prairie Enthusiast individuals who did a site visit together.

These are preliminary designs, and further discussion will be had with Iowa County and other entities before finalizing the aquatic habitat design.

The Habitat Adjustment is one (1).

6.1.6 BANK STABILIZATION PROJECT SITES. All the projects are on Dodge Branch, located on privately owned property (Leonard) and public property (Prairie Enthusiasts). These locations are all upstream of the WWTP. See **Appendix 4-1** for project location maps.

6.1.7 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 upstream of the credit user. Based on the PRESTO Tool, there is a 1:99 ratio of point to nonpoint source pollutants in the Dodge Branch. 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 Appendix H of the *Guidance for Implementing Water Quality Trading in WPDES Permits,* without any Aquatic Habitat improvement. If the habitat adjustment is approved, then the overall ratio will drop to two (2). Based upon the factors discussed, the trade ratio equation with the values substituted becomes the following:

Trade Ratio$_1$ = 0+0+0+3 – 0: 1 = > 3:1 (without Aquatic Habitat Improvement)

Trade Ratio$_2$ = 0+0+0+3 – 1:1 = > 2:1 (with Aquatic Habitat Improvement)

Target a Trade Ratio = 2:1 using Habitat Improvement.

Assuming an Aquatic Habitat Improvement is constructed as part of the project, the trade ratio is 2:1.

7.0 – TIMELINES FOR CREDITS AND AGREEMENTS

Credit generation must occur before the credit user can claim the credit, per *Guidance for Implementing Water Quality Trading in WPDES Permits* (pg. 32). The WPDES permit expiration date is September 30, 2027. The Work is now planned for Spring of 2026; therefore, the available date for the credits will depend upon completion and acceptance of the Project, hopefully before the end of 2026. Since the stream bank sites will be modified and performing as designed, it will continue to generate credit on an annual basis if the riprap or stabilization practice is maintained. Draft Water Quality Trade Agreements for all property owners are in **Appendix 7-1**. All other agreements will use this Draft as the template for the individual agreements. Final signed agreements will be attached to this report when executed.

An anticipated timeline of the milestones can be seen below: (updated dates will be provided after WDNR approval and design completion)

Description	Date
Submission of WQT Report to WDNR	January 2025
Final Draft of WQT Report	July 2025
DNR Comments/Approval of Report	June 2025
Finalize WQT Agreements	July 2025
Contact County Zoning Staff for Floodplain requirements	July 2025
Contact DNR about the Leonard Project within DNR Easement	July 2025
Design and Chapter 30 Submittal	September 2025
Solicit Contractors for project work	Winter 2025-26
Begin Construction	Spring/Summer 2026
Completion of Construction	Summer/Fall 2026

8.0 – METHOD FOR QUANTIFYING CREDITS

STREAMBANK STABILIZATION. Existing phosphorus loss (PL) for this streambank project was produced using the equation of PL = (L) (H) (R) (Pc), where L = length of the bank, H is the height of the bank, R is the recession rate in feet/year, and Pc is the soil weight in pounds/cubic feet. A spreadsheet was used for these calculations and the results are shown in **Appendix 5-3**.

Davy Staff provided field data for the streambank in linear feet (L), the average stream bank height in feet (H), and the total soil phosphorus concentration in units of % P (Pc) (see **Appendix 8-1** soil test data from the Madison Soil and Forage Analysis Lab, for each streambank segment used to determine the phosphorus loss in pounds per year). Soil samples were taken by Davy Engineering Staff and witnessed by The Village. The methodology used to gather the soil samples involved a minimum of 10 probe pulls per soil sample, with each probe being at a varied height along the bank.

This included the encompassing samples to be from the ordinary high-water mark (OHWM) to the water level and all along the streambank site. The minimum of 10 pulls were put in a bucket, mixed, and put in a soil sample bag prior to being given to the lab. The average % P over the samples gathered can be seen in **Appendix 8-1**. Based on the test results and NRCS calculations it was determined that these projects would withhold at least **538** pounds of phosphorus each year from entering Dodge Branch due to the bank stabilization projects.

The recession rate (R) varies between each site, and each was determined based on visual observation of the severity of erosion and compared to the chart in in **Appendix 5-1**. The recession rates used were discussed with WDNR and some adjustments made based on DNR Staff recommendations. Correspondence with DNR regarding recession rates can be found in **Appendix 8-2**. Additional correspondence and site visits have been made with Davy Staff and DNR since this correspondence to come to the conclusions of recessions rates, lengths, and heights or each site.

A recession rate of 0.5 was determined for some of the sites which indicates a significant recession. These sites had bare banks with noticeable vegetation or tree roots overhanging and exposed. Some locations are also nearly vertical due to the high erosion. Other sites had recession rates ranging from 0.1-0.3 and were not as severe as other sites but still had evidence of predominantly bare banks with some vegetative overhang.

9.0 – TRACKING PROCEDURES

These projects will be tracked with photography before, during, and after project installations. The projects will also be monitored with inspections and documented in a logbook to ensure the preservation of the project sites and BMP installations. The Village (and/or County) will continually inspect the sites after flood events and will certify the annual inspection reports. The annual inspection report will document that the BMPs are stable, and phosphorus was prevented from entering the water each year. The inspection report should include the date of inspection as well as the name of the inspector. An annual report will be completed and submitted to DNR documenting the inspections. The following items will be inspected by the Village/County during the annual inspection:

1. Inspect for trash and unwanted debris.
2. Inspect for soil erosion and accumulation, especially at the top and bottom of the slope.
3. Inspect for invasive weeds.
4. Inspect for animal burrows, holes, and mounds.
5. Inspect for dislodged or unstable rock which could pose a safety hazard.
6. Inspect the site for unusual or unsafe conditions. (structural damage, dumping, tree establishment, etc.)

The above inspections will be evaluated in the annual report. The report will discuss the evaluation as well as any action taken. If more serious action is required, such as requiring a contractor to repair the damage, the report will identify this and the date the contractor repaired the site. The annual report will be submitted to DNR.

10.0 – CONDITIONS UNDER WHICH THE MANAGEMENT PRACTICES MAY BE INSPECTED

10.1 BANK STABILIZATION. The riprap or stabilization practice should be inspected at least once per year and immediately after flood events. The flow velocity of Dodge Branch and its' tributaries can increase during flood events. These portions of the streambank have been eroding at significant rates during heavy rains and high runoff events. The Village will work with the property owner to ensure that the sites are properly maintained and will discuss with the County if technical assistance if there is a concern regarding the projects. DNR personnel will have the ability to access the site for periodic inspections.

11.0 – REPORTING REQUIREMENTS SHOULD THE MANAGEMENT PRACTICE FAIL

If any of the bank stabilization projects were to fail at these sites, the landowners should immediately report the situation to the Iowa County LCD or the Village to develop a remediation action plan. Failure of the management practices would reduce the generating credits at site-specific locations. The Operation and Maintenance Plan discussed in the next

section will help minimize potential failures. In the event a failure does occur, the following procedure should be followed to remedy the situation.

1. The Village/County/landowner should immediately document by written report and photos the situation.
2. The Village will then notify Wisconsin DNR of the BMP failure within 5 days from when the Village was informed.
3. The Village with the County will assess the failed BMP and if it can be restored economically.
4. The Village with County will develop a remediation action plan.
5. The DNR will be contacted and informed of both the problem and the solution.
6. A cost estimate will be developed during the action plan.
7. The Village or County will coordinate with contractors to make the repairs.

12.0 – CONSTRUCTION, OPERATION AND MAINTENANCE PLAN FOR EACH MANAGEMENT PRACTICE

12.1 BANK STABILIZATION. The NRCS standards will need to be followed for construction as well as the operation and maintenance of the proposed projects. The bank stabilization projects will follow the NRCS Standard 580, which is streambank and shoreline protection. A copy of the NRCS 580 standard can be seen in **Appendix 12-1**. Perpetual operation & maintenance of the riprap or stabilization practice will be the responsibility of the Village of Hollandale with assistance from the County and/or Landowner. The operation & maintenance will consist of the following:

1. Inspect riprap or stabilization practice annually and after heavy storms for any erosion or displacement of rocks. Repairs will be completed as soon as possible.
2. Debris will be removed to prevent clogging or rerouting of water in the channel. 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.
3. Check for sloughing, erosion, or damage to vegetative cover. Damaged areas shall be graded, shaped, and re-vegetated as soon as possible.
4. Periodically cut or burn grass to control weeds and invading brush.

12.2 COST ESTIMATES. Cost estimates were done for each property site and can be seen in **Appendix 12-2.** The Dodge Branch, Conley Lewis Creek, and Unnamed Stream projects combined would be approximately $1,041,440, but individual stream segments could be broken into separate contracts based upon the individual segments.

The cost estimate does NOT include Hydrologic and Hydraulic (H & H) Analysis if it were required for any of the properties. Leonard and Prairie Enthusiast are in a floodway (Zone AE) and may require the H&H analysis to determine the effect on the regional flood elevation. Discussions with County Zoning and DNR have begun to review and determine what analysis is required. If the analysis shows the floodplain zoning standard will be met, the land use permit can be issued.

The cost estimates are done assuming State or Federal funding. If the Village does NOT use State or Federal funds, some savings of up to 30% or more could be realized. Also, if the County or NRCS provides design or construction services, some of the costs associated with those tasks could save money as well. In all cases if the project costs exceed the $25,000 threshold, then a public bid is necessary as stated in the Wisconsin Administrative Code 62.15.

13.0 – LOCATION OF CREDIT GENERATOR IN PROXIMITY TO RECEIVING WATER AND CREDIT USER

All the bank stabilization projects are located just outside the Village limits of Hollandale. All the projects are located upstream of the Hollandale WWTP discharge point and are all within the same HUC-10 (HUC 0709000304) watershed. See **Appendix 6-2** for a Location Map.

14.0 – PRACTICE REGISTRATION DOCUENTS, IF AVAILABLE

The project design has not yet begun, and registration documents will be completed and submitted to the DNR prior to the start of construction. Additional documents will be attached to this document when received and include the following documents:

- WDNR General Permit Approval Letter
- ACOE Permit
- Executed Trade Agreements for Village.

15.0 – HISTORY OF PROJECT SITE(S)

15.1 BANK STABILIZATION. The bank stabilization project parcels are just outside the Village limits. All the project sites have not changed in land use in 25 years based upon aerial photography from Google Earth imagery. This is true for all project sites.

16.0 – REQUIRED PHOSPHORUS CREDITS

The required phosphorus mass loadings were analyzed for both a potential future Average Annual Design Flow of **0.05 MGD**, the current daily flow of **0.0255 MGD**, and the current design flow of **0.03 MGD**. The phosphorus mass loadings and the required WQT are summarized in the following tables:

TABLE 16.1: REQUIRED PHOSPHORUS MASS OFFSET FOR 1.0 MG/L WWTP EFFLUENT

If the Village updates the WWTP to meet a **1.0 mg/l**, which is required by the WPDES Permit by 2027				
	1.00 mg/l	Q_D (0.05 MGD)	Q_{Act}	QD (0.03 MGD)
Annual Mass of Phosphorus		152.21 lb/yr	77.72 lb/yr	91.32 lb/yr
WQT Target Mass of Phosphorus		11.42 lb/yr	5.83 lb/yr	6.85 lb/yr
Phosphorus reduction for full WQT (@1.0 mg/l)		**140.79 lb/yr**	**71.89 lb/yr**	**84.47 lb/yr**
Using a WQT ratio of	3 :1	422.37 lb/yr	215.67 lb/yr	253.42 lb/yr
Using a WQT ratio of	2 :1	281.58 lb/yr	143.78 lb/yr	168.95 lb/yr

TABLE 16.1: REQUIRED PHOSPHORUS MASS OFFSET FOR 2.0 MG/L WWTP EFFLUENT

If the Village updates the WWTP to meet a **2.0 mg/l**				
	2.00 mg/l	Q_D	Q_{Act}	QD (0.03 MGD)
Annual Mass of Phosphorus		304.41 lb/yr	155.44 lb/yr	182.65 lb/yr
WQT Target Mass of Phosphorus		11.42 lb/yr	5.83 lb/yr	6.85 lb/yr
Phosphorus reduction for full WQT (@2.0 mg/l)		**292.99 lb/yr**	**149.61 lb/yr**	**175.80 lb/yr**
Using a WQT ratio of	3 :1	878.98 lb/yr	448.82 lb/yr	527.39 lb/yr
Using a WQT ratio of	2 :1	585.99 lb/yr	299.21 lb/yr	351.59 lb/yr

TABLE 16.2: REQUIRED PHOSPHORUS MASS OFFSET FOR 3.0 MG/L WWTP EFFLUENT

If the Village updates the WWTP to meet a **3.0 mg/l**				
	3.00 mg/l	Q_D	Q_{Act}	QD (0.03 MGD)
Annual Mass of Phosphorus		456.62 lb/yr	233.15 lb/yr	273.97 lb/yr
WQT Target Mass of Phosphorus		11.42 lb/yr	5.83 lb/yr	6.85 lb/yr
Phosphorus reduction for full WQT (@3.0 mg/l)		**445.20 lb/yr**	**227.33 lb/yr**	**267.12 lb/yr**
Using a WQT ratio of	3 :1	1335.60 lb/yr	681.98 lb/yr	801.36 lb/yr
Using a WQT ratio of	2 :1	890.40 lb/yr	454.65 lb/yr	534.24 lb/yr

The total credits generated from each site are summarized in the following table:

TABLE 16.3: PHOSPHORUS CREDITS

Project Description	BMP Type	Trade Ratio TR	P lbs/year	P/TR lbs/year
Todd Leonard (TL1)	Streambank Stabilization	2	48	24
Todd Leonard (TL2)	Streambank Stabilization	2	42	21
Todd Leonard (TL3)	Streambank Stabilization	2	11	5.5
Todd Leonard (TL4)	Streambank Stabilization	2	11	5.5
Todd Leonard (TL5)	Streambank Stabilization	2	20	10
Todd Leonard (TL6)	Streambank Stabilization	2	30	15
Todd Leonard (TL7)	Streambank Stabilization	2	61	30.5
Todd Leonard (TL8)	Streambank Stabilization	2	45	22.5
Todd Leonard (TL9)	Streambank Stabilization	2	11	5.5
Todd Leonard (TL10)	Streambank Stabilization	2	17	8.5
Prairie Enthusiast (PE2)	Streambank Stabilization	2	5	2.5
Prairie Enthusiast (PE3)	Streambank Stabilization	2	31	15.5
Prairie Enthusiast (PE4)	Streambank Stabilization	2	27	13.5
Prairie Enthusiast (PE5)	Streambank Stabilization	2	14	7
Prairie Enthusiast (PE6)	Streambank Stabilization	2	18	9
Prairie Enthusiast (PE8)	Streambank Stabilization	2	20	10
Prairie Enthusiast (PE9)	Streambank Stabilization	2	14	7
Prairie Enthusiast (PE12)	Streambank Stabilization	2	5	2.5
Prairie Enthusiast (PE14)	Streambank Stabilization	2	13	6.5
Total			**~438**	**~219**

The WQT Projects will generate 438 lbs/year in P credits, approximately 96 lbs./year less credits than necessary for a 2:1 trade ratio and the WWTP effluent at a 3.0 mg/L at the current design flow. The WQT Projects will generate 219 lbs/year in P credits, approximately 73 lbs./year less credits than necessary for a 3:1 trade ratio and the WWTP effluent at a 2.0 mg/L. However, habitat adjustment will be incorporated into the design, bringing the trade ratio down to 2:1. 438 credits is approximately 139 lbs./year more credits than necessary for a 2:1 trade ratio and the WWTP effluent at a 2.0 mg/L

Costs can vary for WQT Projects depending on the type, size, and scope of the work. Multiple sites require mobilization and site preparation. Trade ratios (TR) vary with the type of project and whether the project is upstream or downstream from the discharge location. Also, the distance from the desired credit location can have an influence on trade ratios. Projects done in Total Max Daily Load (TMDL) watersheds, lose credits after 10 years and may require additional work to maintain compliance. The total estimated construction cost is approximately $1,041,440 to complete all projects. Projects are expected to maintain the credit offsets for the duration of the WQT Agreements.

16.1 SUMMARY. Hollandale's WWTP cannot meet the new phosphorus limits with the technology currently employed at the WWTP, as discussed in the Facility Plan. Water quality trading is the most economical solution to meeting compliance with the new regulations. This watershed plan has reviewed the proposed projects along with the associated calculations to provide enough detail to show the compliance has been met by the Village. The estimates show the bank stabilization projects will cost approximately $1,041,440 for all the bank stabilization projects. The cost estimate, as discussed in Section 12, is included in **Appendix 12-2**. The project can develop credits for Hollandale under a number of funding scenarios but not if State funds are used.

16.2 SUPPORTING DOCUMENTATION. The bank stabilization projects will require a Chapter 30 permit prior to construction commencing. In order to obtain a Chapter 30 permit, full construction plans need to be in place and submitted

to DNR along with the permit application. The bank stabilization projects will require approved plans for a contractor to build the projects. The streambank stabilization projects will follow the NRCS 580 code.

The Leonard property does have a DNR streambank easement. So, eventually the project plans for this site will have to be reviewed and approved by DNR habitat biologists. The habitat concept in this report is preliminary.

17.0 – COMPLIANCE WITH WATER QUALITY TRADING CHECKLIST

This Water Quality Trading Plan was produced in accordance with the Wisconsin Department of Natural Resources, *Guidance for Implementing Water Quality Trading in WPDES Permits* based upon the requirements in Chapter 4, Table 5 (2020 p. 45). The Village of Hollandale will be potentially installing rip rap bank or other stabilization practices at multiple site locations on two (2) properties along the Dodge Branch to generate credits for the WWTP.

Below is a list of the requirements to be included in a WQT plan per column (e) of Table 5. This list includes a brief statement of where to find the information in this plan.

- Permittee's / credit user's WPDES Permit number. The Village of Hollandale WWTP WPDES permit number is WI-0031330-10-0 and is referenced in Section 3.
- Permittee's / credit user's contact information. The contact information is included in Section 18.
- Pollutants for which credits will be generated. Credits will be generated for total phosphorus, which is discussed in Section 5.
- Amounts of credits available from each location / management practice / local governmental unit when acting as a broker. The amount of credit available is discussed in Section 16.
- Certification that the content of the trading application is accurate and correct. The certification is included in Section 18.
- Signature and date of the permittee's / credit user's authorized representative. The signature of the authorized representative is included in Section 18.
- Location where credits will be generated (i.e. map of site where management practice will be applied including major drainage ways from the project). The location where credits are generated is discussed in Sections 4 and 13.
- Identification of method(s) including management practice(s) that will be used to generate credits at each location. Identifications of methods are discussed in Section 8.
- Duration of agreement (i.e. the design life of the management practice) with each credit generator. The duration of the agreement is discussed in Section 5.
- Schedule for installation / construction of each management practice. The schedule is discussed in Section 7.
- Operation and maintenance plan for each management practice used to generate credits. The operation and maintenance plan are discussed in Section 12.
- Date when credits become available for each management practice (i.e. when practice is established and effective). The date when the credits become effective is likely 2027 and this date is referenced in Section 7.
- Models used to derive the number of credits. The model used to derive the number of credits for bank stabilization is a scientific equation for phosphorus loss. This is discussed in Section 8.
- The applicable trade ratio for each management practice includes supporting technical basis (see Appendix H on p. 151 of the WQT Guidance). The applicable trade ratio along with the technical basis and calculation of the trade ratio is discussed in Section 5. This trade ratio will not take effect until after the next permit term at the earliest, as this self-directed watershed plan will earn the ratio of 1:1 during the first permit term and the trade ratio effective date will be determined by DNR.

18.0 – CERTIFICATION OF WATER QUALITY TRADING PLAN

This plan was prepared by Davy Engineering Co. with assistance from the Iowa County Department of Land Conservation. This Water Quality Trading Plan is complete, accurate and correct, to the best of our knowledge and belief.

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References

United States Department of Agriculture. (August 2011). *Stream Habitat Development, Companion Document 580-15.* Natural Resources Conservation Services. doi:EFH Notice 210-WI-122

Wisconsin Department of Natural Resources. (2013). *A Water Quality Trading How To Manual.* doi:Guidance Number: 3400-2013-03

Wisconsin Department of Natural Resources. (2020). *Guidance for Implementing Water Quality Trading in WPDES Permits.* doi:Guidance Number: 3800-2013-04

APPENDIX 1-1

WPDES PERMIT

STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES

PERMIT TO DISCHARGE UNDER THE WISCONSIN POLLUTANT DISCHARGE ELIMINATION SYSTEM

VILLAGE OF HOLLANDALE

is permitted, under the authority of Chapter 283, Wisconsin Statutes, to discharge from a facility located at
STH "39" EAST, HOLLANDALE, WISCONSIN
to
Dodge Branch (Upper East Branch Pecatonica River Watershed, SP06 – Sugar-Pecatonica River Basin) in Iowa County

in accordance with the effluent limitations, monitoring requirements and other conditions set forth in this permit.

The permittee shall not discharge after the date of expiration. If the permittee wishes to continue to discharge after this expiration date an application shall be filed for reissuance of this permit, according to Chapter NR 200, Wis. Adm. Code, at least 180 days prior to the expiration date given below.

State of Wisconsin Department of Natural Resources
For the Secretary

By _____
Thomas Bauman
Wastewater Field Supervisor

October 26, 2022
Date Permit Signed/Issued

PERMIT TERM: EFFECTIVE DATE – November 1, 2022 **EXPIRATION DATE – September 30, 2027**

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1 Influent Requirements

1.1 Sampling Point(s)

Sampling Point Designation	
Sampling Point Number	**Sampling Point Location, WasteType/Sample Contents and Treatment Description (as applicable)**
701	Influent: 24-Hr Flow Proportional samples collected at the influent manhole at the WWTF. Flow meter located at lift station number one.

1.2 Monitoring Requirements

The permittee shall comply with the following monitoring requirements.

1.2.1 Sampling Point 701 - INFLUENT

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Flow Rate		MGD	Daily	Continuous	
BOD_5, Total		mg/L	Weekly	24-Hr Flow Prop Comp	
Suspended Solids, Total		mg/L	Weekly	24-Hr Flow Prop Comp	

2 Surface Water Requirements

2.1 Sampling Point(s)

Sampling Point Designation	
Sampling Point Number	**Sampling Point Location, WasteType/Sample Contents and Treatment Description (as applicable)**
001	Effluent: 24-Hr Flow Proportional samples collected from the effluent manholes, prior to discharge to the Dodge Branch. Flow meter located at manhole G. Composite sample location at manhole D.

2.2 Monitoring Requirements and Effluent Limitations

The permittee shall comply with the following monitoring requirements and limitations.

2.2.1 Sampling Point (Outfall) 001 - EFFLUENT

Monitoring Requirements and Effluent Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Flow Rate		MGD	Daily	Continuous	
BOD_5, Total	Weekly Avg	45 mg/L	Weekly	24-Hr Flow Prop Comp	
BOD_5, Total	Monthly Avg	30 mg/L	Weekly	24-Hr Flow Prop Comp	
Suspended Solids, Total	Weekly Avg	45 mg/L	Weekly	24-Hr Flow Prop Comp	
Suspended Solids, Total	Monthly Avg	30 mg/L	Weekly	24-Hr Flow Prop Comp	
Nitrogen, Ammonia Variable Limit		mg/L	2/Week	Calculated	Using the daily effluent pH result, look up the daily maximum variable ammonia limit from the pH Dependent Table. Report the variable limit in the Nitrogen, Ammonia Variable Limit column of the eDMR.
Nitrogen, Ammonia (NH_3-N) Total	Daily Max - Variable	mg/L	2/Week	24-Hr Flow Prop Comp	Report the daily maximum Ammonia result in the Nitrogen, Ammonia Total column of the eDMR. Compare to daily maximum variable ammonia limit to determine compliance.
Nitrogen, Ammonia (NH_3-N) Total	Weekly Avg	108 mg/L	2/Week	24-Hr Flow Prop Comp	

Monitoring Requirements and Effluent Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Nitrogen, Ammonia (NH_3-N) Total	Monthly Avg	108 mg/L	2/Week	24-Hr Flow Prop Comp	
Chlorine, Total Residual	Daily Max	38 µg/L	Daily	Grab	May through September when chlorinating
Chlorine, Total Residual	Weekly Avg	38 µg/L	Daily	Grab	May through September when chlorinating
Chlorine, Total Residual	Monthly Avg	38 µg/L	Daily	Grab	May through September when chlorinating
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 below. Enter the result in the DMR on the last day of the month.
pH Field	Daily Max	9.0 su	5/Week	Grab	
pH Field	Daily Min	6.0 su	5/Week	Grab	
Phosphorus, Total	Monthly Avg	4.7 mg/L	Weekly	24-Hr Flow Prop Comp	This is an interim MDV limit effective through April 30, 2027. See the MDV/Phosphorus sections and phosphorus schedules.
Phosphorus, Total	Monthly Avg	1.0 mg/L	Weekly	24-Hr Flow Prop Comp	This is an interim MDV limit effective on May 1, 2027. See the MDV/Phosphorus sections and phosphorus schedules.

Monitoring Requirements and Effluent Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Phosphorus, Total		lbs/month	Monthly	Calculated	Report the total monthly phosphorus discharged in lbs/month on the last day of the month on the DMR. See Standard Requirements for 'Appropriate Formulas' to calculate the Total Monthly Discharge in lbs/month.
Phosphorus, Total		lbs/yr	Annual	Calculated	Report the sum of the total monthly discharges (for the months that the MDV is in effect) for the calendar year on the Annual report form.
Copper, Total Recoverable	Daily Max	70 µg/L	Weekly	24-Hr Flow Prop Comp	
Copper, Total Recoverable	Weekly Avg	70 µg/L	Weekly	24-Hr Flow Prop Comp	
Copper, Total Recoverable	Monthly Avg	70 µg/L	Weekly	24-Hr Flow Prop Comp	
Copper, Total Recoverable	Daily Max	0.059 lbs/day	Weekly	Calculated	
Nitrogen, Total Kjeldahl		mg/L	See Listed Qtr(s)	24-Hr Flow Prop Comp	Annual in rotating quarters. See Nitrogen Series Monitoring section below.
Nitrogen, Nitrite + Nitrate Total		mg/L	See Listed Qtr(s)	24-Hr Flow Prop Comp	Annual in rotating quarters. See Nitrogen Series Monitoring section below.
Nitrogen, Total		mg/L	See Listed Qtr(s)	Calculated	Annual in rotating quarters. See Nitrogen Series Monitoring section below. Total Nitrogen shall be calculated as the sum of reported values for Total Kjeldahl Nitrogen and Total Nitrite + Nitrate Nitrogen.
Acute WET		TU_a	See Listed Qtr(s)	24-Hr Flow Prop Comp	See WET Section.
Chloride		mg/L	See Permit Note	24-Hr Flow Prop Comp	Four (4) samples required in 2025
Arsenic, Total Recoverable		µg/L	See Permit Note	24-Hr Flow Prop Comp	Once in 2025
Cadmium, Total Recoverable		µg/L	See Permit Note	24-Hr Flow Prop Comp	Once in 2025
Chromium, Total Recoverable		µg/L	See Permit Note	24-Hr Flow Prop Comp	Once in 2025

Monitoring Requirements and Effluent Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Lead, Total Recoverable		µg/L	See Permit Note	24-Hr Flow Prop Comp	Once in 2025
Nickel, Total Recoverable		µg/L	See Permit Note	24-Hr Flow Prop Comp	Once in 2025
Zinc, Total Recoverable		µg/L	See Permit Note	24-Hr Flow Prop Comp	Once in 2025
Hardness, Total as $CaCO_3$		mg/L	See Permit Note	24-Hr Flow Prop Comp	Four (4) samples required in 2025

2.2.1.1 Annual Average Design Flow

The annual average design flow of the permittee's wastewater treatment facility is 0.030 MGD.

2.2.1.2 *E. coli* Percent Limit

No more than 10 percent of *E. coli* bacteria samples collected in any calendar month may exceed 410 #/100 ml. Bacteria samples may be collected more frequently than required. All samples shall be reported on the monthly discharge monitoring reports (DMRs). The following calculation should be used to calculate percent exceedances.

$$\frac{\#\ of\ Samples\ greater\ than\ 410\ \#/100}{Total\ \#\ of\ samples} \times 100 = \%\ Exceedance$$

2.2.1.3 Daily Maximum Ammonia Limits (pH Dependent)

The acute (daily maximum) limit may vary with effluent pH. The following table provides the daily maximum limits throughout the pH range.

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

2.2.1.4 MDV (Multi-Discharger Variance) Requirements

Optimization: The permittee shall optimize performance to control phosphorus discharges in accordance with s. 283.16(6), Wis. Stats. See the Schedules section for optimization requirements.

Watershed Provisions: The permittee is required to implement watershed measures to reduce the amount of phosphorus entering the receiving water. The permittee has selected the following approved watershed measure.

Payment to County for Phosphorus Reduction: The permittee shall make payments for phosphorus reduction to the county or counties approved by the Department per s. 283.16(8), Wis. Stats. The permittee shall make a total payment by March 1 of each year in the amount equal to the per pound amount of $58.85 times the number of pounds by which the effluent phosphorus discharged during the previous year exceeded the permittee's target value or $640,000, whichever is less. The target value is 0.2 mg/L per s. 283.16(1)(h), Wis. Stats., and is applicable during the months that the MDV is in effect. The MDV is in effect year-round. Refer to the Schedules section for the scheduled annual requirements.

Annual Payment Calculation: The annual payment is equal to the phosphorus load that exceeds the target value multiplied by $58.85 per pound. Use the steps shown below to calculate the annual payment. In addition, the Department shall send a statement to the permittee specifying total payment due to the participating counties each year in accordance with the Schedules section.

Annual Payment = [Annual Phosphorus Load – Annual Target Load] × Price Per Pound
Calculation Steps:
●Calculate pounds of phosphorus discharged for each month that the MDV is in effect:

Monthly Phosphorus Load (lbs/month) = Total Monthly Flow (MG) × Monthly Avg. TP effluent conc. (mg/L) × 8.34

●Sum the lbs/month discharged for the months that the MDV is in effect to calculate the annual phosphorus load:

Annual Phosphorus Load (lbs/year) = ∑ [Monthly Phosphorus Load (lbs/month)]

●Calculate the Target Load (lbs/month) for each month that the MDV is in effect.

Target Value = 0.2 mg/L:
Monthly Target Load (lbs/month) = Total Monthly Flow (MG) × 0.2 mg/L × 8.34

Monthly Target Load (lbs/month) = Monthly Average Phosphorus Limit (lbs/day) × Number of Days in the Month

●Sum the lbs/months for the months that the MDV is in effect to calculate the Annual Target Load:
Annual Target Load (lbs/year) = ∑ [Monthly Target Load (lbs/month)]

●Calculate the annual payment:
Annual Payment ($) = [Annual Phosphorus Load – Annual Target Load] × Price Per Pound

2.2.1.5 MDV Reopener Clause

Pursuant to ss. 283.16(7) and 283.16(9), Wis. Stats., the Department may modify or revoke and reissue this permit to modify or eliminate the terms and conditions related to the multi-discharger variance, under any one of the following conditions:
•The Department determines, as part of the highest attainable condition (HAC) review required under s.283.16(3m), Wis. Stats., the effluent limitations currently in effect are no longer consistent with the HAC for the point source or category of point sources applicable to the permittee's discharge.
•The Department submits to EPA a request to renew the MDV pursuant to s. 283.16(3)(g), Wis. Stats., and the MDV is subsequently renewed with variance requirements that differ from the current MDV requirements.
•The Department does not receive EPA approval to renew the current MDV, which is currently set to expire on February 6, 2027.

2.2.1.6 Nitrogen Series Monitoring

Monitoring for Total Kjeldahl Nitrogen (TKN), Nitrite + Nitrate Nitrogen, and Total Nitrogen shall be conducted once each year in rotating quarters in order to collect seasonal information about the discharge. Tests are required during the following quarters.

- **October – December 2023; January – March 2024; October – December 2025; January – March 2026; January – March 2027**

Nitrogen Series monitoring shall continue after the permit expiration date (until the permit is reissued) in accordance with the monitoring requirements specified in the last full calendar year of this permit. For example, the next test would be required in **January – March 2028**.

Testing: Monitoring shall be performed during normal operating conditions. Permittees are not allowed to turn off or otherwise modify treatment systems, production processes, or change other operating or treatment conditions during testing.

2.2.1.7 Whole Effluent Toxicity (WET) Testing

Primary Control Water: Dodge Branch upstream of the WWTP discharge.

Dilution series: At least five effluent concentrations and dual controls must be included in each test.

- **Acute:** 100, 50, 25, 12.5, 6.25% and any additional selected by the permittee.

WET Testing Frequency:

Acute tests are required during the following quarters:

- **Acute: October - December 2024 and January – March 2026**

  Acute WET testing shall continue after the permit expiration date (until the permit is reissued) in accordance with the WET requirements specified for the last full calendar year of this permit. For example, the next test would be required in **January – March 2028.**

Testing: WET testing shall be performed during normal operating conditions. Permittees are not allowed to turn off or otherwise modify treatment systems, production processes, or change other operating or treatment conditions during WET tests.

Reporting: The permittee shall report test results on the Discharge Monitoring Report form, and also complete the "Whole Effluent Toxicity Test Report Form" (Section 6, "*State of Wisconsin Aquatic Life Toxicity Testing Methods Manual, 2nd Edition*"), for each test. The original, complete, signed version of the Whole Effluent Toxicity Test Report Form shall be sent to the Biomonitoring Coordinator, Bureau of Water Quality, 101 S. Webster St., P.O. Box 7921, Madison, WI 53707-7921, within 45 days of test completion. The Discharge Monitoring Report (DMR) form shall be submitted electronically by the required deadline.

Determination of Positive Results: An acute toxicity test shall be considered positive if the Toxic Unit - Acute (TU_a) is greater than 1.0 for either species. The TU_a shall be calculated as follows: $TU_a = 100 \div LC_{50}$.

Additional Testing Requirements: Within 90 days of a test which showed positive results, the permittee shall submit the results of at least 2 retests to the Biomonitoring Coordinator on "Whole Effluent Toxicity Test Report Forms". The 90-day reporting period shall begin the day after the test which showed a positive result. The retests shall be completed using the same species and test methods specified for the original test (see the Standard Requirements section herein).

3 Land Application Requirements

3.1 Sampling Point(s)

The discharge(s) shall be limited to land application of the waste type(s) designated for the listed sampling point(s) on Department approved land spreading sites or by hauling to another facility.

Sampling Point Designation	
Sampling Point Number	**Sampling Point Location, WasteType/Sample Contents and Treatment Description (as applicable)**
002	Representative sludge composite sample taken from the lagoon(s). Additional nutrient sampling may be required prior to land application. The department recommends nutrient sampling the year prior and year of land application for planning purposes.

3.2 Monitoring Requirements and Limitations

The permittee shall comply with the following monitoring requirements and limitations.

3.2.1 Sampling Point (Outfall) 002 - LAGOON SLUDGE

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Solids, Total		Percent	Once	Composite	
Arsenic Dry Wt	Ceiling	75 mg/kg	Once	Composite	
Arsenic Dry Wt	High Quality	41 mg/kg	Once	Composite	
Cadmium Dry Wt	Ceiling	85 mg/kg	Once	Composite	
Cadmium Dry Wt	High Quality	39 mg/kg	Once	Composite	
Copper Dry Wt	Ceiling	4,300 mg/kg	Once	Composite	
Copper Dry Wt	High Quality	1,500 mg/kg	Once	Composite	
Lead Dry Wt	Ceiling	840 mg/kg	Once	Composite	
Lead Dry Wt	High Quality	300 mg/kg	Once	Composite	
Mercury Dry Wt	Ceiling	57 mg/kg	Once	Composite	
Mercury Dry Wt	High Quality	17 mg/kg	Once	Composite	
Molybdenum Dry Wt	Ceiling	75 mg/kg	Once	Composite	
Nickel Dry Wt	Ceiling	420 mg/kg	Once	Composite	
Nickel Dry Wt	High Quality	420 mg/kg	Once	Composite	
Selenium Dry Wt	Ceiling	100 mg/kg	Once	Composite	
Selenium Dry Wt	High Quality	100 mg/kg	Once	Composite	
Zinc Dry Wt	Ceiling	7,500 mg/kg	Once	Composite	
Zinc Dry Wt	High Quality	2,800 mg/kg	Once	Composite	
PCB Total Dry Wt	Ceiling	50 mg/kg	Once	Composite	Once in 2024
PCB Total Dry Wt	High Quality	10 mg/kg	Once	Composite	Once in 2024
Nitrogen, Total Kjeldahl		Percent	Per Occurrence	Composite	Monitoring only required if land application is proposed during the calendar year.

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Nitrogen, Ammonium (NH_4-N) Total		Percent	Per Occurrence	Composite	Monitoring only required if land application is proposed during the calendar year.
Phosphorus, Total		Percent	Per Occurrence	Composite	Monitoring only required if land application is proposed during the calendar year.
Phosphorus, Water Extractable		% of Tot P	Per Occurrence	Composite	Monitoring only required if land application is proposed during the calendar year.
Potassium, Total Recoverable		Percent	Per Occurrence	Composite	Monitoring only required if land application is proposed during the calendar year.

Other Sludge Requirements	
Sludge Requirements	**Sample Frequency**
List 3 Requirements – Pathogen Control: The requirements in List 3 shall be met prior to land application of sludge.	**Once**
List 4 Requirements – Vector Attraction Reduction: The vector attraction reduction shall be satisfied prior to, or at the time of land application as specified in List 4.	**Once**

3.2.1.1 Requirements for Potential and/or Unscheduled Land Application of Sludge

Monitoring for List 1 and PCBs shall occur in the second calendar year of the permit (**2024**), unless a sludge removal date has been established which would occur within the permit term, but in a different year. In that case, monitoring for Lists 1, 2, 3 & 4 and PCBs shall occur in the year of, but prior to, land application of the removed sludge. Monitoring must be done and compliance assured prior to land application, in addition to all other requirements specified herein and in ch. NR 204, Wis. Adm. Code. The permittee shall notify the Department prior to such land application. If sludge removal and land application are necessary after the monitoring for List 1 in year 2 of the permit, monitoring for Lists 1, 2, 3, & 4 shall be done in the year of and prior to land application

3.2.1.2 List 2 Analysis

If the monitoring frequency for List 2 parameters is more frequent than "Annual" then the sludge may be analyzed for the List 2 parameters just prior to each land application season rather than at the more frequent interval specified.

3.2.1.3 Changes in Feed Sludge Characteristics

If a change in feed sludge characteristics, treatment process, or operational procedures occurs which may result in a significant shift in sludge characteristics, the permittee shall reanalyze the sludge for List 1, 2, 3 and 4 parameters each time such change occurs.

3.2.1.4 Multiple Sludge Sample Points (Outfalls)

If there are multiple sludge sample points (outfalls), but the sludges are not subject to different sludge treatment processes, then a separate List 2 analysis shall be conducted for each sludge type which is land applied, just prior to

land application, and the application rate shall be calculated for each sludge type. In this case, List 1, 3, and 4 and PCBs need only be analyzed on a single sludge type, at the specified frequency. If there are multiple sludge sample points (outfalls), due to multiple treatment processes, List 1, 2, 3 and 4 and PCBs shall be analyzed for each sludge type at the specified frequency.

3.2.1.5 Sludge Which Exceeds the High Quality Limit

Cumulative pollutant loading records shall be kept for all bulk land application of sludge which does not meet the high quality limit for any parameter. This requirement applies for the entire calendar year in which any exceedance of Table 3 of s. NR 204.07(5)(c), is experienced. Such loading records shall be kept for all List 1 parameters for each site land applied in that calendar year. The formula to be used for calculating cumulative loading is as follows:

[(Pollutant concentration (mg/kg) x dry tons applied/ac) ÷ 500] + previous loading (lbs/acre) = cumulative lbs pollutant per acre

When a site reaches 90% of the allowable cumulative loading for any metal established in Table 2 of s. NR 204.07(5)(b), the Department shall be so notified through letter or in the comment section of the annual land application report (3400-55).

3.2.1.6 Sludge Analysis for PCBs

The permittee shall analyze the sludge for Total PCBs one time during **2024**. The results shall be reported as "PCB Total Dry Wt". Either congener-specific analysis or Aroclor analysis shall be used to determine the PCB concentration. The permittee may determine whether Aroclor or congener specific analysis is performed. Analyses shall be performed in accordance with Table EM in s. NR 219.04, Wis. Adm. Code and the conditions specified in Standard Requirements of this permit. PCB results shall be submitted by January 31, following the specified year of analysis.

3.2.1.7 Lists 1, 2, 3, and 4

List 1 **TOTAL SOLIDS AND METALS** See the Monitoring Requirements and Limitations table above for monitoring frequency and limitations for the List 1 parameters
Solids, Total (percent)
Arsenic, mg/kg (dry weight)
Cadmium, mg/kg (dry weight)
Copper, mg/kg (dry weight)
Lead, mg/kg (dry weight)
Mercury, mg/kg (dry weight)
Molybdenum, mg/kg (dry weight)
Nickel, mg/kg (dry weight)
Selenium, mg/kg (dry weight)
Zinc, mg/kg (dry weight)

List 2 **NUTRIENTS** See the Monitoring Requirements and Limitations table above for monitoring frequency for the List 2 parameters
Solids, Total (percent)
Nitrogen Total Kjeldahl (percent)
Nitrogen Ammonium (NH4-N) Total (percent)

List 2 NUTRIENTS See the Monitoring Requirements and Limitations table above for monitoring frequency for the List 2 parameters
Phosphorus Total as P (percent)
Phosphorus, Water Extractable (as percent of Total P)
Potassium Total Recoverable (percent)

List 3
PATHOGEN CONTROL FOR CLASS B SLUDGE

The permittee shall implement pathogen control as listed in List 3. The Department shall be notified of the pathogen control utilized and shall be notified when the permittee decides to utilize alternative pathogen control.

The following requirements shall be met prior to land application of sludge.

Parameter	Unit	Limit
Fecal Coliform*	MPN/gTS or CFU/gTS	2,000,000
OR, ONE OF THE FOLLOWING PROCESS OPTIONS		
Aerobic Digestion	Air Drying	
Anaerobic Digestion	Composting	
Alkaline Stabilization	PSRP Equivalent Process	
* The Fecal Coliform limit shall be reported as the geometric mean of 7 discrete samples on a dry weight basis.		

List 4
VECTOR ATTRACTION REDUCTION

The permittee shall implement any one of the vector attraction reduction options specified in List 4. The Department shall be notified of the option utilized and shall be notified when the permittee decides to utilize an alternative option.

One of the following shall be satisfied prior to, or at the time of land application as specified in List 4.

Option	Limit	Where/When it Shall be Met
Volatile Solids Reduction	≥38%	Across the process
Specific Oxygen Uptake Rate	≤1.5 mg O_2/hr/g TS	On aerobic stabilized sludge
Anaerobic bench-scale test	<17 % VS reduction	On anaerobic digested sludge
Aerobic bench-scale test	<15 % VS reduction	On aerobic digested sludge
Aerobic Process	>14 days, Temp >40°C and Avg. Temp > 45°C	On composted sludge
pH adjustment	>12 S.U. (for 2 hours) and >11.5 (for an additional 22 hours)	During the process
Drying without primary solids	>75 % TS	When applied or bagged
Drying with primary solids	>90 % TS	When applied or bagged
Equivalent Process	Approved by the Department	Varies with process
Injection	-	When applied
Incorporation	-	Within 6 hours of application

3.2.1.8 Daily Land Application Log

Daily Land Application Log		
Discharge Monitoring Requirements and Limitations The permittee shall maintain a daily land application log for biosolids land applied each day when land application occurs. The following minimum records must be kept, in addition to all analytical results for the biosolids land applied. The log book records shall form the basis for the annual land application report requirements**.**		
Parameters	**Units**	**Sample Frequency**
DNR Site Number(s)	Number	Daily as used
Outfall number applied	Number	Daily as used
Acres applied	Acres	Daily as used
Amount applied	As appropriate * /day	Daily as used
Application rate per acre	unit */acre	Daily as used
Nitrogen applied per acre	lb/acre	Daily as used
Method of Application	Injection, Incorporation, or surface applied	Daily as used

*gallons, cubic yards, dry US Tons or dry Metric Tons

4 Schedules

4.1 Operation and Needs Review (ONR) & Facility Plan

The permittee shall submit an Operation and Needs Review (ONR) that complies with Wis. Admin. Code § NR 208.03(7) to evaluate the ability of the treatment works to maintain effluent limits and meet permit conditions.

Required Action	Due Date
Submit ONR Report: The ONR shall evaluate operation and maintenance procedures; existing equipment; unit process design capacities relative to current flows and loads; influent sources; operator certification; excessive infiltration/inflow; CMOM program implementation; and shall recommend actions such as operational changes, lagoon leakage, disinfection system operations, or minor/major upgrades of the treatment works. An implementation schedule shall be submitted as a part of the ONR. A facilities plan shall be recommended by the permittee or the department if the ONR indicates the existing treatment works is not capable of providing adequate wastewater conveyance and treatment any time within the next 5 years.	09/30/2023
Facility Plan: A Comprehensive Facility Plan shall be required if the department determines that consistent future compliance with permit limitations and conditions will not result from improved system operation and maintenance as part of the ONR. The permittee shall submit a Comprehensive Facility Plan to the department for approval in compliance with Wis. Admin. Code ch. NR 110. The Comprehensive Facility Plan must evaluate alternatives for compliance with limits and actions identified by the ONR and shall identify if further actions are needed for upgrades or equipment replacement.	04/30/2024
Plans and Specifications (P&Ss): The permittee shall submit final construction plans and specifications for review in accordance with s. 281.41, Wis. Stats., for compliance with Ch. NR 108 and 110, Wis. Adm. Code, if reviewable projects, pursuit to Ch. NR 108, Wis. Adm. Code, and s. 281.41, Wis. Stats., are identified in the approved Comprehensive Facility Plan.	03/31/2025
Plant Upgrade: The permittee shall initiate construction of the upgrades. The permittee shall obtain approval of the final construction plans and schedule from the Department pursuant to s. 281.41. Stats. 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.	09/30/2025
Construction Upgrade Progress Report: The permittee shall submit a progress report on construction upgrades.	09/30/2026
Achieve Compliance: The permittee shall complete construction of wastewater treatment system upgrades per the ONR Report, Facility Plan and/or Plans and Specifications. The permittee shall provide confirmation that construction of the wastewater treatment system upgrades has been substantially completed within 90 days of construction completion.	04/30/2027

4.2 Phosphorus Schedule - Optimization Plan

The permittee is required to optimize performance to control phosphorus discharges per the following schedule.

Required Action	Due Date
Optimization Plan: The permittee shall prepare an Optimization Plan and submit it for Department approval. The plan shall include an evaluation of collected effluent data, possible source reduction	09/30/2023

measures and operational improvements to optimize performance to control phosphorus discharges. The plan shall contain a schedule for implementation of the measures and improvements. Once the plan is approved by the Department, the permittee shall take the steps called for in the Optimization Plan and follow the schedule of implementation as approved.	
Progress Report #1: Submit a progress report on optimizing removal of phosphorus.	09/30/2024
Progress Report #2: Submit a progress report on optimizing removal of phosphorus.	09/30/2025
Progress Report #3: Submit a progress report on optimizing removal of phosphorus.	09/30/2026
Progress Report #4: Submit a progress report on optimizing removal of phosphorus. This schedule item is contingent upon continued federal authorization of the MDV. See "MDV Reopener Clause" in the Surface Water section of this permit.	09/30/2027

4.3 Phosphorus Payment per Pound to County

The permittee is required to make annual payments for phosphorus reductions to the participating county or counties in accordance with s. 283.16(8), Wis. Stats, and the following schedule. The price per pound will be set at the time of permit reissuance and will apply for the duration of the permit.

Required Action	Due Date
Annual Verification of Phosphorus Payment to County: The permittee shall make a total payment to the participating county or counties approved by the Department by March 1 of each calendar year. The amount due is equal to the following: [(lbs of phosphorus discharged minus the permittee's target value) times ($58.85 per pound)] or $640,000, whichever is less. See the payment calculation steps in the Surface Water section. The permittee shall submit Form 3200-151 to the Department by March 1 of each calendar year indicating total amount remitted to the participating counties to verify that the correct payment was made. The first payment verification form is due by the specified Due Date. Note: The applicable Target Value is 0.2 mg/L as defined by s. 283.16(1)(h), Wis. Stats. The "per pound" value is $50.00 adjusted for CPI.	03/01/2023
Annual Verification of Payment #2: Submit Form 3200-151 to the Department indicating total amount remitted to the participating counties.	03/01/2024
Annual Verification of Payment #3: Submit Form 3200-151 to the Department indicating total amount remitted to the participating counties.	03/01/2025
Annual Verification of Payment #4: Submit Form 3200-151 to the Department indicating total amount remitted to the participating counties.	03/01/2026
Annual Verification of Payment #5: Submit Form 3200-151 to the Department indicating total amount remitted to the participating counties. This schedule item is contingent upon continued federal authorization of the MDV. See "MDV Reopener Clause" in the Surface Water section of this permit.	03/01/2027
Continued Coverage: If the permittee intends to seek a renewed variance, an application for the MDV (Multi Discharger Variance) shall be submitted as part of the application for permit reissuance in accordance with s. 283.16(4)(b), Wis. Stats.	
Annual Verification of Payment After Permit Expiration: In the event that this permit is not reissued prior to the expiration date, the permittee shall continue to submit Form 3200-151 to the Department indicating total amount remitted to the participating counties by March 1 each year.	

4.4 Phosphorus Multi-Discharger Variance Interim Limit (1.0 mg/L)

The permittee shall comply with the 1.0 mg/L MDV interim effluent limit by the end of this compliance schedule.

Required Action	Due Date
Progress Report: The permittee shall submit a progress update on Compliance Plan.	09/30/2023
Submit Final Compliance Plan: 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 modifications are determined to be minor according to the Department.	04/30/2024
Submit Plans & Specifications: The permittee shall submit final construction plans to the Department for approval pursuant to s. 281.41, Wis. Stats., specifying treatment plant upgrades that must be constructed to achieve compliance with the interim phosphorus effluent limit and a schedule for completing construction of the upgrades by the 'Complete Construction' date specified below.	03/31/2025
Treatment Plant Upgrade: Upon approval of the final construction plans and schedule by the Department and pursuant to s. 281.41, Wis. Stats., the permittee shall initiate construction of the treatment plant upgrades in accordance with the approved plans and specifications.	09/30/2025
Construction Upgrade Progress Report: The permittee shall submit a progress report on construction upgrades.	09/30/2026
Complete Construction and Achieve Compliance: The permittee shall complete construction and achieve compliance with the phosphorus interim effluent limit of 1.0 mg/L. This schedule item is contingent upon continued federal authorization of the MDV. See "MDV Reopener Clause" in the Surface Water section of this permit.	04/30/2027

4.5 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.	11/21/2022
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 4/30/2024. 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 4/30/2024. 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 4/30/2024 and the permittee is not required to comply with subsequent milestones identified below in this compliance schedule (‘Submit Facility Plan’, 'Final Plans and Specifications',	10/31/2023

'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 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 than04/30/2027	
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.	04/30/2024
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.	03/31/2025
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.	09/30/2025
Construction Upgrade Progress Report: The permittee shall submit a progress report on construction upgrades.	09/30/2026
Complete Construction: The permittee shall complete construction of wastewater treatment system upgrades.	03/31/2027
Achieve Compliance: The permittee shall achieve compliance with final E. coli limitations.	04/30/2027

4.6 Land Application Management Plan

A management plan is required for the land application system.

Required Action	Due Date
Land Application Management Plan Submittal: Submit a management plan to optimize the land application system performance and demonstrate compliance with ch. NR 204, Wis. Adm. Code. This management plan shall 1) specify information on pretreatment processes (if any); 2) identify land application sites; 3) describe site limitations; 4) address vegetative cover management and removal; 5) specify availability of storage; 6) describe the type of transporting and spreading vehicle(s); 7) specify monitoring procedures; 8) track site loading; 9) address contingency plans for adverse weather and odor/nuisance abatement; and 10) include any other pertinent information. Once approved, all landspreading activities shall be conducted in accordance with the plan. Any changes to the plan must be approved by the Department prior to implementing the changes. This plan is due 60 days prior to land application.	

4.7 Desludging Management Plan

Required Action	Due Date
Submit Desludge Management Plan: The permittee shall submit a management plan if removal of sludge will occur during the permit term. At a minimum, the plan shall address how the sludge will be samples, removed, transported, and disposed of. No desludging may occur unless approval from the Department is obtained. Daily logs shall be kept that record where the sludge has been disposed. The plan is due a minimum of 60 days prior to desludging.	

4.8 Permit Application Submittal

The permittee shall file an application for permit reissuance in accordance with NR 200, Wis. Adm. Code.

Required Action	Due Date
Permit Application Submittal: Submit a complete permit application to the Department no later than 180 days prior to permit expiration. The permit application includes required monitoring outside of sampling required through the permit term.	03/31/2027

5 Standard Requirements

NR 205, Wisconsin Administrative Code: The conditions in ss. NR 205.07(1) and NR 205.07(2), Wis. Adm. Code, are included by reference in this permit. The permittee shall comply with all of these requirements. Some of these requirements are outlined in the Standard Requirements section of this permit. Requirements not specifically outlined in the Standard Requirement section of this permit can be found in ss. NR 205.07(1) and NR 205.07(2).

5.1 Reporting and Monitoring Requirements

5.1.1 Monitoring Results

Monitoring results obtained during the previous month shall be summarized and reported on a Department Wastewater Discharge Monitoring Report. The report may require reporting of any or all of the information specified below under 'Recording of Results'. This report is to be returned to the Department no later than the date indicated on the form. A copy of the Wastewater Discharge Monitoring Report Form or an electronic file of the report shall be retained by the permittee.

Monitoring results shall be reported on an electronic discharge monitoring report (eDMR). The eDMR shall be certified electronically by a responsible executive or municipal officer, manager, partner or proprietor as specified in s. 283.37(3), Wis. Stats., or a duly authorized representative of the officer, manager, partner or proprietor that has been delegated signature authority pursuant to s. NR 205.07(1)(g)2, Wis. Adm. Code. The 'eReport Certify' page certifies that the electronic report form is true, accurate and complete.

If the permittee monitors any pollutant more frequently than required by this permit, the results of such monitoring shall be included on the Wastewater Discharge Monitoring Report.

The permittee shall comply with all limits for each parameter regardless of monitoring frequency. For example, monthly, weekly, and/or daily limits shall be met even with monthly monitoring. The permittee may monitor more frequently than required for any parameter.

5.1.2 Sampling and Testing Procedures

Sampling and laboratory testing procedures shall be performed in accordance with Chapters NR 218 and NR 219, Wis. Adm. Code and shall be performed by a laboratory certified or registered in accordance with the requirements of ch. NR 149, Wis. Adm. Code. Groundwater sample collection and analysis shall be performed in accordance with ch. NR 140, Wis. Adm. Code. The analytical methodologies used shall enable the laboratory to quantitate all substances for which monitoring is required at levels below the effluent limitation. If the required level cannot be met by any of the methods available in NR 219, Wis. Adm. Code, then the method with the lowest limit of detection shall be selected. Additional test procedures may be specified in this permit.

5.1.3 Recording of Results

The permittee shall maintain records which provide the following information for each effluent measurement or sample taken:

- the date, exact place, method and time of sampling or measurements;
- the individual who performed the sampling or measurements;
- the date the analysis was performed;
- the individual who performed the analysis;
- the analytical techniques or methods used; and
- the results of the analysis.

5.1.4 Reporting of Monitoring Results

The permittee shall use the following conventions when reporting effluent monitoring results:

- Pollutant concentrations less than the limit of detection shall be reported as < (less than) the value of the limit of detection. For example, if a substance is not detected at a detection limit of 0.1 mg/L, report the pollutant concentration as < 0.1 mg/L.
- Pollutant concentrations equal to or greater than the limit of detection, but less than the limit of quantitation, shall be reported and the limit of quantitation shall be specified.
- For purposes of calculating NR 101 fees, the 2 mg/l lower reporting limits for BOD5 and Total Suspended Solids shall be considered to be limits of quantitation
- For the purposes of reporting a calculated result, average or a mass discharge value, the permittee may substitute a "0" (zero) for any pollutant concentration that is less than the limit of detection. However, if the effluent limitation is less than the limit of detection, the department may substitute a value other than zero for results less than the limit of detection, after considering the number of monitoring results that are greater than the limit of detection and if warranted when applying appropriate statistical techniques.
- If no discharge occurs through an outfall, flow related parameters (e.g. flow rate, hydraulic application rate, volume, etc.) should be reported as "0" (zero) at the required sample frequency specified for the outfall. For example: if the sample frequency is daily, "0" would be reported for any day during the month that no discharge occurred.

5.1.5 Compliance Maintenance Annual Reports

Compliance Maintenance Annual Reports (CMAR) shall be completed using information obtained over each calendar year regarding the wastewater conveyance and treatment system. The CMAR shall be submitted and certified by the permittee in accordance with ch. NR 208, Wis. Adm. Code, by June 30, each year on an electronic report form provided by the Department.

In the case of a publicly owned treatment works, a resolution shall be passed by the governing body and submitted as part of the CMAR, verifying its review of the report and providing responses as required. Private owners of wastewater treatment works are not required to pass a resolution; but they must provide an Owner Statement and responses as required, as part of the CMAR submittal.

The CMAR shall be certified electronically by a responsible executive or municipal officer, manager, partner or proprietor as specified in s. 283.37(3), Wis. Stats., or a duly authorized representative of the officer, manager, partner or proprietor that has been delegated signature authority pursuant to s. NR 205.07(1)(g)2, Wis. Adm. Code. The certification verifies that the electronic report is true, accurate and complete.

5.1.6 Records Retention

The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings or electronic data records for continuous monitoring instrumentation, copies of all reports required by the permit, and records of all data used to complete the application for the permit for a period of at least 3 years from the date of the sample, measurement, report or application. All pertinent sludge information, including permit application information and other documents specified in this permit or s. NR 204.06(9), Wis. Adm. Code shall be retained for a minimum of 5 years.

5.1.7 Other Information

Where the permittee becomes aware that it failed to submit any relevant facts in a permit application or submitted incorrect information in a permit application or in any report to the Department, it shall promptly submit such facts or correct information to the Department.

5.1.8 Reporting Requirements – Alterations or Additions

The permittee shall give notice to the Department as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is only required when:

- The alteration or addition to the permitted facility may meet one of the criteria for determining whether a facility is a new source.
- The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification requirement applies to pollutants which are not subject to effluent limitations in the existing permit.
- The alteration or addition results in a significant change in the permittee's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use of disposal sites not reported during the permit application process nor reported pursuant to an approved land application plan. Additional sites may not be used for the land application of sludge until department approval is received.

5.2 System Operating Requirements

5.2.1 Noncompliance Reporting

Sanitary sewer overflows and sewage treatment facility overflows shall be reported according to the 'Sanitary Sewer Overflows and Sewage Treatment Facility Overflows' section of this permit.
The permittee shall report the following types of noncompliance by a telephone call to the Department's regional office within 24 hours after becoming aware of the noncompliance:

- any noncompliance which may endanger health or the environment;
- any violation of an effluent limitation resulting from a bypass;
- any violation of an effluent limitation resulting from an upset; and
- any violation of a maximum discharge limitation for any of the pollutants listed by the Department in the permit, either for effluent or sludge.

A written report describing the noncompliance shall also be submitted to the Department's regional office within 5 days after the permittee becomes aware of the noncompliance. On a case-by-case basis, the Department may waive the requirement for submittal of a written report within 5 days and instruct the permittee to submit the written report with the next regularly scheduled monitoring report. In either case, the written report shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times; the steps taken or planned to reduce, eliminate and prevent reoccurrence of the noncompliance; and if the noncompliance has not been corrected, the length of time it is expected to continue.
A scheduled bypass approved by the Department under the 'Scheduled Bypass' section of this permit shall not be subject to the reporting required under this section.
NOTE: Section 292.11(2)(a), Wisconsin Statutes, requires any person who possesses or controls a hazardous substance or who causes the discharge of a hazardous substance to notify the Department of Natural Resources immediately of any discharge not authorized by the permit. **The discharge of a hazardous substance that is not authorized by this permit or that violates this permit may be a hazardous substance spill. To report a hazardous substance spill, call DNR's 24-hour HOTLINE at 1-800-943-0003.**

5.2.2 Flow Meters

Flow meters shall be calibrated annually, as per s. NR 218.06, Wis. Adm. Code.

5.2.3 Raw Grit and Screenings

All raw grit and screenings shall be disposed of at a properly licensed solid waste facility or picked up by a licensed waste hauler. If the facility or hauler are located in Wisconsin, then they shall be licensed under chs. NR 500-555, Wis. Adm. Code.

5.2.4 Sludge Management

All sludge management activities shall be conducted in compliance with ch. NR 204 "Domestic Sewage Sludge Management", Wis. Adm. Code.

5.2.5 Prohibited Wastes

Under no circumstances may the introduction of wastes prohibited by s. NR 211.10, Wis. Adm. Code, be allowed into the waste treatment system. Prohibited wastes include those:

- which create a fire or explosion hazard in the treatment work;
- which will cause corrosive structural damage to the treatment work;
- solid or viscous substances in amounts which cause obstructions to the flow in sewers or interference with the proper operation of the treatment work;
- wastewaters at a flow rate or pollutant loading which are excessive over relatively short time periods so as to cause a loss of treatment efficiency; and
- changes in discharge volume or composition from contributing industries which overload the treatment works or cause a loss of treatment efficiency.

5.2.6 Bypass

This condition applies only to bypassing at a sewage treatment facility that is not a scheduled bypass, approved blending as a specific condition of this permit, a sewage treatment facility overflow or a controlled diversion as provided in the sections titled 'Scheduled Bypass', 'Blending' (if approved), 'SSO's and Sewage Treatment Facility Overflows' and 'Controlled Diversions' of this permit. Any other bypass at the sewage treatment facility is prohibited and the Department may take enforcement action against a permittee for such occurrences under s. 283.89, Wis. Stats. The Department may approve a bypass if the permittee demonstrates all the following conditions apply:

- The bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
- There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities or adequate back-up equipment, retention of untreated wastes, reduction of inflow and infiltration, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventative maintenance. When evaluating feasibility of alternatives, the department may consider factors such as technical achievability, costs and affordability of implementation and risks to public health, the environment and, where the permittee is a municipality, the welfare of the community served; and
- The bypass was reported in accordance with the Noncompliance Reporting section of this permit.

5.2.7 Scheduled Bypass

Whenever the permittee anticipates the need to bypass for purposes of efficient operations and maintenance and the permittee may not meet the conditions for controlled diversions in the 'Controlled Diversions' section of this permit, the permittee shall obtain prior written approval from the Department for the scheduled bypass. A permittee's written request for Department approval of a scheduled bypass shall demonstrate that the conditions for bypassing specified in the above section titled 'Bypass' are met and include the proposed date and reason for the bypass, estimated volume and duration of the bypass, alternatives to bypassing and measures to mitigate environmental harm caused by the bypass. The department may require the permittee to provide public notification for a scheduled bypass if it is determined there is significant public interest in the proposed action and may recommend mitigation measures to minimize the impact of such bypass.

5.2.8 Controlled Diversions

Controlled diversions are allowed only when necessary for essential maintenance to assure efficient operation. Sewage treatment facilities that have multiple treatment units to treat variable or seasonal loading conditions may shut down redundant treatment units when necessary for efficient operation. The following requirements shall be met during controlled diversions:

- Effluent from the sewage treatment facility shall meet the effluent limitations established in the permit. Wastewater that is diverted around a treatment unit or treatment process during a controlled diversion shall be recombined with wastewater that is not diverted prior to the effluent sampling location and prior to effluent discharge;
- A controlled diversion does not include blending as defined in s. NR 210.03(2e), Wis. Adm. Code, and as may only be approved under s. NR 210.12. A controlled diversion may not occur during periods of excessive flow or other abnormal wastewater characteristics;
- A controlled diversion may not result in a wastewater treatment facility overflow; and
- All instances of controlled diversions shall be documented in sewage treatment facility records and such records shall be available to the department on request.

5.2.9 Proper Operation and Maintenance

The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training as required in ch. NR 114, Wis. Adm. Code, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of the permit.

5.2.10 Operator Certification

The wastewater treatment facility shall be under the direct supervision of a state certified operator. In accordance with s. NR 114.53, Wis. Adm. Code, every WPDES permitted treatment plant shall have a designated operator-in-charge holding a current and valid certificate. The designated operator-in-charge shall be certified at the level and in all subclasses of the treatment plant, except laboratory. Treatment plant owners shall notify the department of any changes in the operator-in-charge within 30 days. Note that s. NR 114.52(22), Wis. Adm. Code, lists types of facilities that are excluded from operator certification requirements (i.e. private sewage systems, pretreatment facilities discharging to public sewers, industrial wastewater treatment that consists solely of land disposal, agricultural digesters and concentrated aquatic production facilities with no biological treatment).

5.3 Sewage Collection Systems

5.3.1 Sanitary Sewage Overflows and Sewage Treatment Facility Overflows

5.3.1.1 Overflows Prohibited

Any overflow or discharge of wastewater from the sewage collection system or at the sewage treatment facility, other than from permitted outfalls, is prohibited. The permittee shall provide information on whether any of the following conditions existed when an overflow occurred:

- The sanitary sewer overflow or sewage treatment facility overflow was unavoidable to prevent loss of life, personal injury or severe property damage;
- There were no feasible alternatives to the sanitary sewer overflow or sewage treatment facility overflow such as the use of auxiliary treatment facilities or adequate back-up equipment, retention of untreated wastes, reduction of inflow and infiltration, or preventative maintenance activities;
- The sanitary sewer overflow or the sewage treatment facility overflow was caused by unusual or severe weather related conditions such as large or successive precipitation events, snowmelt, saturated soil

conditions, or severe weather occurring in the area served by the sewage collection system or sewage treatment facility; and

- The sanitary sewer overflow or the sewage treatment facility overflow was unintentional, temporary, and caused by an accident or other factors beyond the reasonable control of the permittee.

5.3.1.2 Permittee Response to Overflows

Whenever a sanitary sewer overflow or sewage treatment facility overflow occurs, the permittee shall take all feasible steps to control or limit the volume of untreated or partially treated wastewater discharged, and terminate the discharge as soon as practicable. Remedial actions, including those in NR 210.21 (3), Wis. Adm. Code, shall be implemented consistent with an emergency response plan developed under the CMOM program.

5.3.1.3 Permittee Reporting

Permittees shall report all sanitary sewer overflows and sewage treatment overflows as follows:

- The permittee shall notify the department by telephone, fax or email as soon as practicable, but no later than 24 hours from the time the permittee becomes aware of the overflow;
- The permittee shall, no later than five days from the time the permittee becomes aware of the overflow, provide to the department the information identified in this paragraph using department form number 3400-184. If an overflow lasts for more than five days, an initial report shall be submitted within 5 days as required in this paragraph and an updated report submitted following cessation of the overflow. At a minimum, the following information shall be included in the report:
    - The date and location of the overflow;
    - The surface water to which the discharge occurred, if any;
    - The duration of the overflow and an estimate of the volume of the overflow;
    - A description of the sewer system or treatment facility component from which the discharge occurred such as manhole, lift station, constructed overflow pipe, or crack or other opening in a pipe;
    - The estimated date and time when the overflow began and stopped or will be stopped;
    - The cause or suspected cause of the overflow including, if appropriate, precipitation, runoff conditions, areas of flooding, soil moisture and other relevant information;
    - Steps taken or planned to reduce, eliminate and prevent reoccurrence of the overflow and a schedule of major milestones for those steps;
    - A description of the actual or potential for human exposure and contact with the wastewater from the overflow;
    - Steps taken or planned to mitigate the impacts of the overflow and a schedule of major milestones for those steps;
    - To the extent known at the time of reporting, the number and location of building backups caused by excessive flow or other hydraulic constraints in the sewage collection system that occurred concurrently with the sanitary sewer overflow and that were within the same area of the sewage collection system as the sanitary sewer overflow; and
    - The reason the overflow occurred or explanation of other contributing circumstances that resulted in the overflow event. This includes any information available including whether the overflow was unavoidable to prevent loss of life, personal injury, or severe property damage and whether there were feasible alternatives to the overflow.

  NOTE: A copy of form 3400-184 for reporting sanitary sewer overflows and sewage treatment facility overflows may be obtained from the department or accessed on the department's web site at http://dnr.wi.gov/topic/wastewater/SSOreport.html. As indicated on the form, additional information may be submitted to supplement the information required by the form.

- The permittee shall identify each specific location and each day on which a sanitary sewer overflow or sewage treatment facility overflow occurs as a discrete sanitary sewer overflow or sewage treatment facility overflow occurrence. An occurrence may be more than one day if the circumstances causing the sanitary sewer overflow or sewage treatment facility overflow results in a discharge duration of greater than 24 hours. If there is a stop and restart of the overflow at the same location within 24 hours and the overflow is caused by the same circumstance, it may be reported as one occurrence. Sanitary sewer overflow occurrences at a specific location that are separated by more than 24 hours shall be reported as separate occurrences; and
- A permittee that is required to submit wastewater discharge monitoring reports under NR 205.07 (1) (r) shall also report all sanitary sewer overflows and sewage treatment facility overflows on that report.

5.3.1.4 Public Notification

The permittee shall notify the public of any sanitary sewer and sewage treatment facility overflows consistent with its emergency response plan required under the CMOM (Capacity, Management, Operation and Maintenance) section of this permit and s. NR 210.23 (4) (f), Wis. Adm. Code. Such public notification shall occur promptly following any overflow event using the most effective and efficient communications available in the community. At minimum, a daily newspaper of general circulation in the county(s) and municipality whose waters may be affected by the overflow shall be notified by written or electronic communication.

5.3.2 Capacity, Management, Operation and Maintenance (CMOM) Program

- The permittee shall have written documentation of the Capacity, Management, Operation and Maintenance (CMOM) program components in accordance with s. NR 210.23(4), Wis. Adm. Code. Such documentation shall be available for Department review upon request. The Department may request that the permittee provide this documentation or prepare a summary of the permittee's CMOM program at the time of application for reissuance of the WPDES permit.
- The permittee shall implement a CMOM program in accordance with s. NR 210.23, Wis. Adm. Code.
- The permittee shall at least annually conduct a self-audit of activities conducted under the permittee's CMOM program to ensure CMOM components are being implemented as necessary to meet the general standards of s. NR 210.23(3), Wis. Adm. Code.

5.3.3 Sewer Cleaning Debris and Materials

All debris and material removed from cleaning sanitary sewers shall be managed to prevent nuisances, run-off, ground infiltration or prohibited discharges.

- Debris and solid waste shall be dewatered, dried and then disposed of at a licensed solid waste facility.
- Liquid waste from the cleaning and dewatering operations shall be collected and disposed of at a permitted wastewater treatment facility.
- Combination waste including liquid waste along with debris and solid waste may be disposed of at a licensed solid waste facility or wastewater treatment facility willing to accept the waste.

5.4 Surface Water Requirements

5.4.1 Permittee-Determined Limit of Quantitation Incorporated into this Permit

For pollutants with water quality-based effluent limits below the Limit of Quantitation (LOQ) in this permit, the LOQ calculated by the permittee and reported on the Discharge Monitoring Reports (DMRs) is incorporated by reference into this permit. The LOQ shall be reported on the DMRs, shall be the lowest quantifiable level practicable, and shall be no greater than the minimum level (ML) specified in or approved under 40 CFR Part 136 for the pollutant at the time this permit was issued, unless this permit specifies a higher LOQ.

5.4.2 Appropriate Formulas for Effluent Calculations

The permittee shall use the following formulas for calculating effluent results to determine compliance with average concentration limits and mass limits and total load limits:

Weekly/Monthly/Six-Month/Annual Average Concentration = the sum of all daily results for that week/month/six-month/year, divided by the number of results during that time period. [Note: When a six-month average effluent limit is specified for Total Phosphorus the applicable periods are May through October and November through April.]

Weekly Average Mass Discharge (lbs/day): Daily mass = daily concentration (mg/L) x daily flow (MGD) x 8.34, then average the daily mass values for the week.

Monthly Average Mass Discharge (lbs/day): Daily mass = daily concentration (mg/L) x daily flow (MGD) x 8.34, then average the daily mass values for the month.

Six-Month Average Mass Discharge (lbs/day): Daily mass = daily concentration (mg/L) x daily flow (MGD) x 8.34, then average the daily mass values for the six-month period. [Note: When a six-month average effluent limit is specified for Total Phosphorus the applicable periods are May through October and November through April.]

Annual Average Mass Discharge (lbs/day): Daily mass = daily concentration (mg/L) x daily flow (MGD) x 8.34, then average the daily mass values for the entire year.

Total Monthly Discharge: = monthly average concentration (mg/L) x total flow for the month (MG/month) x 8.34.

Total Annual Discharge: = sum of total monthly discharges for the calendar year.

12-Month Rolling Sum of Total Monthly Discharge: = the sum of the most recent 12 consecutive months of Total Monthly Discharges.

5.4.3 Effluent Temperature Requirements

Weekly Average Temperature – If temperature limits are included in this permit, Weekly Average Temperature shall be calculated as the sum of all daily maximum results for that week divided by the number of daily maximum results during that time period.

Cold Shock Standard – Water temperatures of the discharge shall be controlled in a manner as to protect fish and aquatic life uses from the deleterious effects of cold shock pursuant to Wis. Adm. Code, s. NR 102.28. 'Cold Shock' means exposure of aquatic organisms to a rapid decrease in temperature and a sustained exposure to low temperature that induces abnormal behavior or physiological performance and may lead to death.

Rate of Temperature Change Standard – Temperature of a water of the state or discharge to a water of the state may not be artificially raised or lowered at such a rate that it causes detrimental health or reproductive effects to fish or aquatic life of the water of the state pursuant to Wis. Adm. Code, s. NR 102.29.

5.4.4 Fill and Draw Systems

The permittee shall notify the Department at least 7 days prior to an anticipated discharge from a fill and draw system. The pond contents shall be sampled prior to any discharge to assure that adequate stabilization has taken place.

5.4.5 Visible Foam or Floating Solids

There shall be no discharge of floating solids or visible foam in other than trace amounts.

5.4.6 Surface Water Uses and Criteria

In accordance with NR 102.04, Wis. Adm. Code, surface water uses and criteria are established to govern water management decisions. Practices attributable to municipal, industrial, commercial, domestic, agricultural, land development or other activities shall be controlled so that all surface waters including the mixing zone meet the following conditions at all times and under all flow and water level conditions:

a) Substances that will cause objectionable deposits on the shore or in the bed of a body of water, shall not be present in such amounts as to interfere with public rights in waters of the state.

b) Floating or submerged debris, oil, scum or other material shall not be present in such amounts as to interfere with public rights in waters of the state.

c) Materials producing color, odor, taste or unsightliness shall not be present in such amounts as to interfere with public rights in waters of the state.

d) Substances in concentrations or in combinations which are toxic or harmful to humans shall not be present in amounts found to be of public health significance, nor shall substances be present in amounts which are acutely harmful to animal, plant or aquatic life.

5.4.7 Percent Removal

During any 30 consecutive days, the average effluent concentrations of BOD_5 and of total suspended solids shall not exceed 15% of the average influent concentrations, respectively. This requirement does not apply to removal of total suspended solids if the permittee operates a lagoon system and has received a variance for suspended solids granted under NR 210.07(2), Wis. Adm. Code.

5.4.8 Fecal Coliform

The monthly limit for fecal coliform shall be expressed as a geometric mean. In calculating the geometric mean, a value of 1 is used for any result of 0.

5.4.9 *E. coli*

The monthly limit for *E. coli* shall be expressed as a geometric mean. In calculating the geometric mean, a value of 1 is used for any result of 0.

5.4.10 Seasonal Disinfection

Disinfection shall be provided from May 1 through September 30 of each year. Monitoring requirements and the limitations for Fecal Coliform (interim) and *E. coli* apply only during the period in which disinfection is required. Whenever chlorine is used for disinfection or other uses, the limitations and monitoring requirements for residual chlorine shall apply. A dechlorination process shall be in operation whenever chlorine is used.

5.4.11 Total Residual Chlorine Requirements (When De-Chlorinating Effluent)

Test methods for total residual chlorine, approved in ch. NR 219 - Table B, Wis. Adm. Code, normally achieve a limit of detection of about 20 to 50 micrograms per liter and a limit of quantitation of about 100 micrograms per liter. Reporting of test results and compliance with effluent limitations for chlorine residual and total residual halogens shall be as follows:

- Sample results which show no detectable levels are in compliance with the limit. These test results shall be reported on Wastewater Discharge Monitoring Report Forms as "< 100 µg/L". (Note: 0.1 mg/L converts to 100 µg/L)
- Samples showing detectable traces of chlorine are in compliance if measured at less than 100 µg/L, unless there is a consistent pattern of detectable values in this range. These values shall also be reported on Wastewater Discharge Monitoring Report Forms as "<100 µg/L." The facility operating staff shall record actual readings on logs maintained at the plant, shall take action to determine the reliability of detected results (such as re sampling and/or calculating dosages), and shall adjust the chemical feed system if necessary to reduce the chances of detects.
- Samples showing detectable levels greater than 100 µg/L shall be considered as exceedances, and shall be reported as measured.

- To calculate average or mass discharge values, a "0" (zero) may be substituted for any test result less than 100 µg/L. Calculated values shall then be compared directly to the average or mass limitations to determine compliance.

5.4.12 Whole Effluent Toxicity (WET) Monitoring Requirements

In order to determine the potential impact of the discharge on aquatic organisms, static-renewal toxicity tests shall be performed on the effluent in accordance with the procedures specified in the *"State of Wisconsin Aquatic Life Toxicity Testing Methods Manual, 2nd Edition" (PUB-WT-797*, November 2004) as required by NR 219.04, Table A, Wis. Adm. Code). All of the WET tests required in this permit, including any required retests, shall be conducted on the *Ceriodaphnia dubia* and fathead minnow species. Receiving water samples shall not be collected from any point in contact with the permittee's mixing zone and every attempt shall be made to avoid contact with any other discharge's mixing zone.

5.4.13 Whole Effluent Toxicity (WET) Identification and Reduction

Within 60 days of a retest which showed positive results, the permittee shall submit a written report to the Biomonitoring Coordinator, Bureau of Water Quality, 101 S. Webster St., PO Box 7921, Madison, WI 53707-7921, which details the following:

- A description of actions the permittee has taken or will take to remove toxicity and to prevent the recurrence of toxicity;
- A description of toxicity reduction evaluation (TRE) investigations that have been or will be done to identify potential sources of toxicity, including the following actions:
    a) Evaluate the performance of the treatment system to identify deficiencies contributing to effluent toxicity (e.g., operational problems, chemical additives, incomplete treatment)
    b) Identify the compound(s) causing toxicity. Conduct toxicity screening tests on the effluent at a minimum of once per month for six months to determine if toxicity recurs. Screening tests are WET tests using fewer effluent concentrations conducted on the most sensitive species. If any of the screening tests contain toxicity, conduct a toxicity identification evaluation (TIE) to determine the cause. TIE methods are available from USEPA "Methods for Aquatic Toxicity Identification Evaluations: Phase I Toxicity Characterization Procedures (EPA/600/6-91/003) and "Toxicity Identification Evaluation: Characterization of Chronically Toxic Effluents, Phase I" (EPA/600/6-91/005F).
    c) Trace the compound(s) causing toxicity to their sources (e.g., industrial, commercial, domestic)
    d) Evaluate, select, and implement methods or technologies to control effluent toxicity (e.g., in-plant or pretreatment controls, source reduction or removal)
- Where corrective actions including a TRE have not been completed, an expeditious schedule under which corrective actions will be implemented;
- If no actions have been taken, the reason for not taking action.

The permittee may also request approval from the Department to postpone additional retests in order to investigate the source(s) of toxicity. Postponed retests must be completed after toxicity is believed to have been removed.

5.4.14 Reopener Clause

Pursuant to s. 283.15(11), Wis. Stat. and 40 CFR 131.20, the Department may modify or revoke and reissue this permit if, through the triennial standard review process, the Department determines that the terms and conditions of this permit need to be updated to reflect the highest attainable condition of the receiving water.

5.5 Land Application Requirements

5.5.1 Sludge Management Program Standards And Requirements Based Upon Federally Promulgated Regulations

In the event that new federal sludge standards or regulations are promulgated, the permittee shall comply with the new sludge requirements by the dates established in the regulations, if required by federal law, even if the permit has not yet been modified to incorporate the new federal regulations.

5.5.2 General Sludge Management Information

The General Sludge Management Form 3400-48 shall be completed and submitted prior to any significant sludge management changes.

5.5.3 Sludge Samples

All sludge samples shall be collected at a point and in a manner which will yield sample results which are representative of the sludge being tested, and collected at the time which is appropriate for the specific test.

5.5.4 Land Application Characteristic Report

Each report shall consist of a Characteristic Form 3400-49 and Lab Report. The Characteristic Report Form 3400-49 shall be submitted electronically by January 31 following each year of analysis.

Following submittal of the electronic Characteristic Report Form 3400-49, this form shall be certified electronically via the 'eReport Certify' page by a responsible executive or municipal officer, manager, partner or proprietor as specified in s. 283.37(3), Wis. Stats., or a duly authorized representative of the officer, manager, partner or proprietor that has been delegated signature authority pursuant to s. NR 205.07(1)(g)2, Wis. Adm. Code. The 'eReport Certify' page certifies that the electronic report is true, accurate and complete. The Lab Report must be sent directly to the facility's DNR sludge representative or basin engineer unless approval for not submitting the lab reports has been given.

The permittee shall use the following convention when reporting sludge monitoring results: Pollutant concentrations less than the limit of detection shall be reported as < (less than) the value of the limit of detection. For example, if a substance is not detected at a detection limit of 1.0 mg/kg, report the pollutant concentration as < 1.0 mg/kg .

All results shall be reported on a dry weight basis.

5.5.5 Calculation of Water Extractable Phosphorus

When sludge analysis for Water Extractable Phosphorus is required by this permit, the permittee shall use the following formula to calculate and report Water Extractable Phosphorus:
Water Extractable Phosphorus (% of Total P) =
[Water Extractable Phosphorus (mg/kg, dry wt) ÷ Total Phosphorus (mg/kg, dry wt)] x 100

5.5.6 Monitoring and Calculating PCB Concentrations in Sludge

When sludge analysis for "PCB, Total Dry Wt" is required by this permit, the PCB concentration in the sludge shall be determined using either congener-specific analysis or Aroclor analysis. The permittee may decide which of these analyses is performed. Analyses shall be performed in accordance with the following provisions and Table EM in s. NR 219.04, Wis. Adm. Code:

- If congener-specific analysis is employed: All PCB congeners shall be delineated. Non-detects shall be treated as zero. The values that are between the limit of detection (LOD) and the limit of quantitation shall be used when calculating the total value of all congeners. All results shall be added together and the total PCB concentration by dry weight reported.
- If Aroclor analysis is employed, reporting protocols, consistent with s. NR 106.07(6)(e), should be as follows: If all Aroclors are less than the LOD, then the Total PCB Dry Wt result should be reported as less than the highest LOD. If a single Aroclor is detected, then that is what should be reported for the Total PCB result. If

multiple Aroclors are detected, they should be summed and reported as Total PCBs. If the LOD cannot be achieved after using the appropriate clean up techniques, a reporting limit that is achievable for the Aroclors or each congener for the sample shall be determined. This reporting limit shall be reported and qualified indicating the presence of an interference.

5.5.7 Annual Land Application Report

Land Application Report Form 3400-55 shall be submitted electronically by January 31, each year whether or not non-exceptional quality sludge is land applied. Non-exceptional quality sludge is defined in s. NR 204.07(4), Wis. Adm. Code. Following submittal of the electronic Annual Land Application Report Form 3400-55, this form shall be certified electronically via the 'eReport Certify' page by a responsible executive or municipal officer, manager, partner or proprietor as specified in s. 283.37(3), Wis. Stats., or a duly authorized representative of the officer, manager, partner or proprietor that has been delegated signature authority pursuant to s. NR 205.07(1)(g)2, Wis. Adm. Code. The 'eReport Certify' page certifies that the electronic report form is true, accurate and complete.

5.5.8 Other Methods of Disposal or Distribution Report

The permittee shall submit electronically the Other Methods of Disposal or Distribution Report Form 3400-52 by January 31, each year whether or not sludge is hauled, landfilled, incinerated, or exceptional quality sludge is distributed or land applied. Following submittal of the electronic Report Form 3400-52, this form shall be certified electronically via the 'eReport Certify' page by a responsible executive or municipal officer, manager, partner or proprietor as specified in s. 283.37(3), Wis. Stats., or a duly authorized representative of the officer, manager, partner or proprietor that has been delegated signature authority pursuant to s. NR 205.07(1)(g)2, Wis. Adm. Code. The 'eReport Certify' page certifies that the electronic report form is true, accurate and complete.

5.5.9 Approval to Land Apply

Bulk non-exceptional quality sludge as defined in s. NR 204.07(4), Wis. Adm. Code, may not be applied to land without a written approval letter or Form 3400-122 from the Department unless the Permittee has obtained permission from the Department to self approve sites in accordance with s. NR 204.06 (6), Wis. Adm. Code. Analysis of sludge characteristics is required prior to land application. Application on frozen or snow covered ground is restricted to the extent specified in s. NR 204.07(3) (l), Wis. Adm. Code.

5.5.10 Soil Analysis Requirements

Each site requested for approval for land application must have the soil tested prior to use. Each approved site used for land application must subsequently be soil tested such that there is at least one valid soil test in the four years prior to land application. All soil sampling and submittal of information to the testing laboratory shall be done in accordance with UW Extension Bulletin A-2100. The testing shall be done by the UW Soils Lab in Madison or Marshfield, WI or at a lab approved by UW. The test results including the crop recommendations shall be submitted to the DNR contact listed for this permit, as they are available. Application rates shall be determined based on the crop nitrogen recommendations and with consideration for other sources of nitrogen applied to the site.

5.5.11 Land Application Site Evaluation

For non-exceptional quality sludge, as defined in s. NR 204.07(4), Wis. Adm. Code, a Land Application Site Request Form 3400-053 shall be submitted to the Department for the proposed land application site. The Department will evaluate the proposed site for acceptability and will either approve or deny use of the proposed site. The permittee may obtain permission to approve their own sites in accordance with s. NR 204.06(6), Wis. Adm. Code.

5.5.12 Class B Sludge: Fecal Coliform Limitation

Compliance with the fecal coliform limitation for Class B sludge shall be demonstrated by calculating the geometric mean of at least 7 separate samples. (Note that a Total Solids analysis must be done on each sample). The geometric

mean shall be less than 2,000,000 MPN or CFU/g TS. Calculation of the geometric mean can be done using one of the following 2 methods.

Method 1:

Geometric Mean = $(X_1 \times X_2 \times X_3 \ldots \times X_n)^{1/n}$

Where X = Coliform Density value of the sludge sample, and where n = number of samples (at least 7)

Method 2:

Geometric Mean = antilog$[(X_1 + X_2 + X_3 \ldots + X_n) \div n]$

Where X = $\log_{10}$ of Coliform Density value of the sludge sample, and where n = number of samples (at least 7)

Example for Method 2

Sample Number	Coliform Density of Sludge Sample	$\log_{10}$
1	6.0×10^5	5.78
2	4.2×10^6	6.62
3	1.6×10^6	6.20
4	9.0×10^5	5.95
5	4.0×10^5	5.60
6	1.0×10^6	6.00
7	5.1×10^5	5.71

The geometric mean for the seven samples is determined by averaging the $\log_{10}$ values of the coliform density and taking the antilog of that value.

$(5.78 + 6.62 + 6.20 + 5.95 + 5.60 + 6.00 + 5.71) \div 7 = 5.98$

The antilog of $5.98 = 9.5 \times 10^5$

5.5.13 Class B Sludge - Vector Control: Injection

No significant amount of the sewage sludge shall be present on the land surface within one hour after the sludge is injected.

5.5.14 Class B Sludge - Vector Control: Incorporation

Class B sludge shall be incorporated within 6 hours of surface application, or as approved by the Department.

6 Summary of Reports Due

FOR INFORMATIONAL PURPOSES ONLY

Description	Date	Page
Operation and Needs Review (ONR) & Facility Plan -Submit ONR Report	September 30, 2023	13
Operation and Needs Review (ONR) & Facility Plan -Facility Plan	April 30, 2024	13
Operation and Needs Review (ONR) & Facility Plan -Plans and Specifications (P&Ss)	March 31, 2025	13
Operation and Needs Review (ONR) & Facility Plan -Plant Upgrade	September 30, 2025	13
Operation and Needs Review (ONR) & Facility Plan -Construction Upgrade Progress Report	September 30, 2026	13
Operation and Needs Review (ONR) & Facility Plan -Achieve Compliance	April 30, 2027	13
Phosphorus Schedule - Optimization Plan -Optimization Plan	September 30, 2023	14
Phosphorus Schedule - Optimization Plan -Progress Report #1	September 30, 2024	14
Phosphorus Schedule - Optimization Plan -Progress Report #2	September 30, 2025	14
Phosphorus Schedule - Optimization Plan -Progress Report #3	September 30, 2026	14
Phosphorus Schedule - Optimization Plan -Progress Report #4	September 30, 2027	14
Phosphorus Payment per Pound to County -Annual Verification of Phosphorus Payment to County	March 1, 2023	14
Phosphorus Payment per Pound to County -Annual Verification of Payment #2	March 1, 2024	14
Phosphorus Payment per Pound to County -Annual Verification of Payment #3	March 1, 2025	14
Phosphorus Payment per Pound to County -Annual Verification of Payment #4	March 1, 2026	14
Phosphorus Payment per Pound to County -Annual Verification of Payment #5	March 1, 2027	14
Phosphorus Payment per Pound to County -Continued Coverage	See Permit	14
Phosphorus Payment per Pound to County -Annual Verification of Payment After Permit Expiration	See Permit	14
Phosphorus Multi-Discharger Variance Interim Limit (1.0 mg/L) -Progress Report	September 30, 2023	15
Phosphorus Multi-Discharger Variance Interim Limit (1.0 mg/L) -Submit Final Compliance Plan	April 30, 2024	15
Phosphorus Multi-Discharger Variance Interim Limit (1.0 mg/L) -Submit Plans & Specifications	March 31, 2025	15
Phosphorus Multi-Discharger Variance Interim Limit (1.0 mg/L) - Treatment Plant Upgrade	September 30, 2025	15
Phosphorus Multi-Discharger Variance Interim Limit (1.0 mg/L) - Construction Upgrade Progress Report	September 30, 2026	15

Phosphorus Multi-Discharger Variance Interim Limit (1.0 mg/L) -Complete Construction and Achieve Compliance	April 30, 2027	15
Effluent Limitations for E. coli -Status Update	November 21, 2022	15
Effluent Limitations for E. coli -Operational Evaluation Report	October 31, 2023	15
Effluent Limitations for E. coli -Submit Facility Plan	April 30, 2024	16
Effluent Limitations for E. coli -Final Plans and Specifications	March 31, 2025	16
Effluent Limitations for E. coli -Treatment Plant Upgrade to Meet Limitations	September 30, 2025	16
Effluent Limitations for E. coli -Construction Upgrade Progress Report	September 30, 2026	16
Effluent Limitations for E. coli -Complete Construction	March 31, 2027	16
Effluent Limitations for E. coli -Achieve Compliance	April 30, 2027	16
Land Application Management Plan -Land Application Management Plan Submittal	See Permit	16
Desludging Management Plan -Submit Desludge Management Plan	See Permit	17
Permit Application Submittal -Permit Application Submittal	March 31, 2027	17
Compliance Maintenance Annual Reports (CMAR)	by June 30, each year	19
General Sludge Management Form 3400-48	prior to any significant sludge management changes	28
Characteristic Form 3400-49 and Lab Report	by January 31 following each year of analysis	28
Land Application Report Form 3400-55	by January 31, each year whether or not non-exceptional quality sludge is land applied	29
Other Methods of Disposal or Distribution Report Form 3400-52	by January 31, each year whether or not sludge is hauled, landfilled, incinerated, or exceptional quality sludge is distributed or land applied	29
Wastewater Discharge Monitoring Report	no later than the date indicated on the form	18

Report forms shall be submitted electronically in accordance with the reporting requirements herein. Any facility plans or plans and specifications for municipal, industrial, industrial pretreatment and non industrial wastewater systems shall be submitted to the Bureau of Water Quality, P.O. Box 7921, Madison, WI 53707-7921. All other submittals required by this permit shall be submitted to:
South Central Region, 3911 Fish Hatchery Road, Fitchburg, WI 53711-5397

APPENDIX 2-1



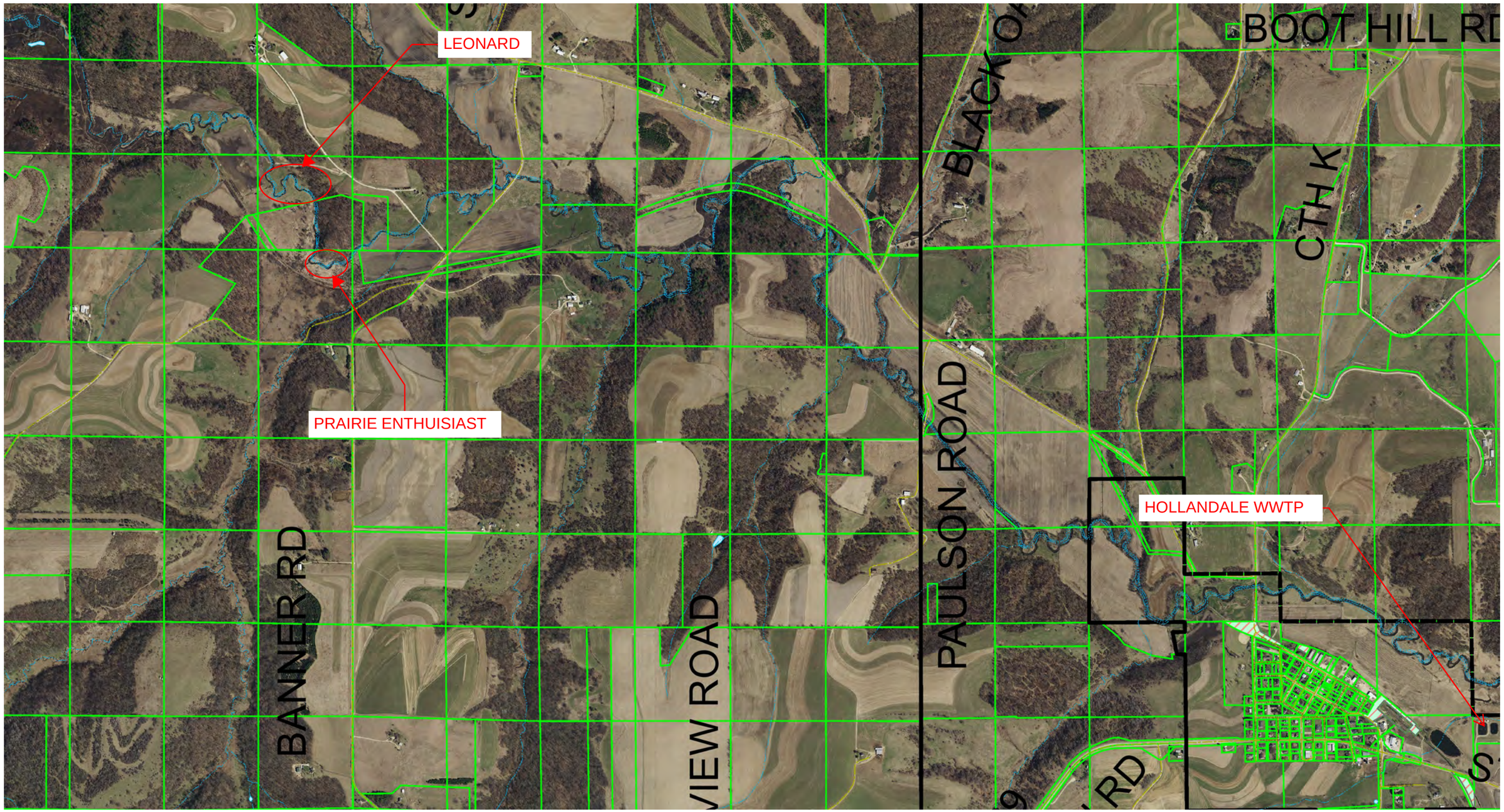
SW WI GIS

DISCLAIMER: No guarantee in the accuracy of the material contained here in and is not responsible for any misuse or misrepresentation of this information or its derivatives.

SCALE: 1" = 1333 '

Print Date: 4/24/2024

APPENDIX 2-2



SW WI GIS

Project Locations

DISCLAIMER: No guarantee in the accuracy of the material contained here in and is not responsible for any misuse or misrepresentation of this information or its derivatives.

SCALE: 1" = 1333 '

Print Date: 1/13/2025

APPENDIX 3-1

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 Hollandale	WI- WI-0031330-10-0	

Facility Address	City	State	ZIP Code
STH "39" EAST	HOLLANDALE,	WI	53544

Project Contact Name (if applicable)	Address	City	State	ZIP Code
Holly DeWitt	200 5th Ave	Hollandale	WI	53544

Project Name
Village of Hollandale Water Quality Trading

Receiving Water Name	Parameter(s) being traded	HUC 12(s)
Dodge Branch	Phosphorus	070900030404, 070900030403, 07090003

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: 070900030403, 07090003
- ○ No
- ○ Unsure

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

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

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

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

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

List the practices that will be used to generate credits:

streambank stabilization

Method for quantifying credits generated:
- ☐ Monitoring
- ☒ Modeling, Names: NRCS streambank stabilization
- ☐ Other: _____

Projected date credits will be available: 12/31/2025

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
Jim Stahlman	12/31/2024

Authorized Representative Signature

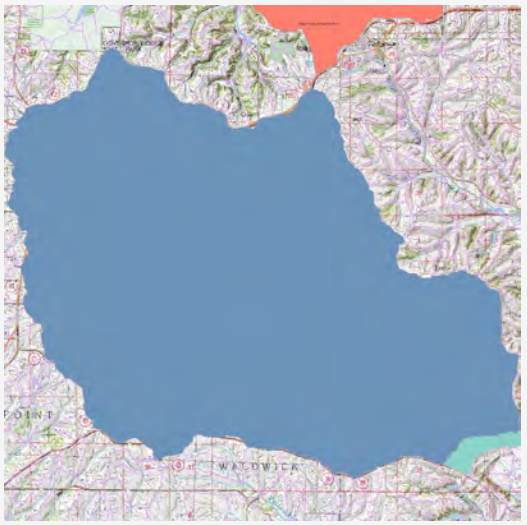
I certify under penalty of law that this document and all attachments were prepared under my direction or supervision. Based on my inquiry of those persons directly responsible for gathering and entering the information, the information is, to the best of my knowledge and belief, accurate and complete. 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
Holly Dewitt	1/6/2025

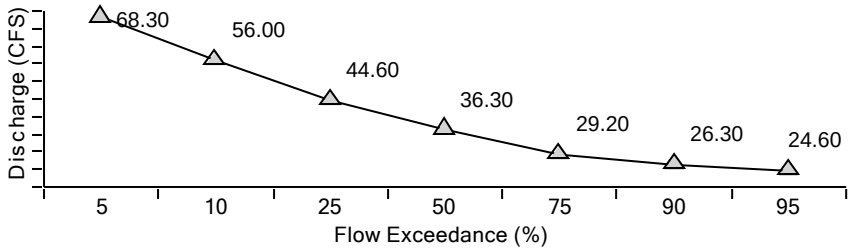
APPENDIX 3-2

PRESTO-Lite Watershed Delineation Report

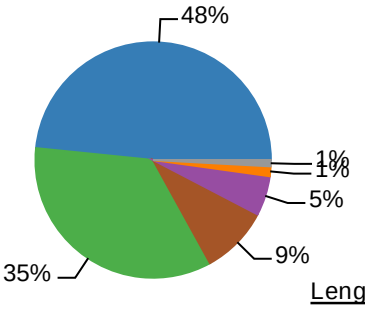
Reach ID: 200016517
Watershed Name: Dodge Branch
Waterbody Name: Dodge Br
HUC08: Pecatonica
Watershed Area: 67.21 mi²
Average Annual Precipitation: 35.20in



Stream Flow

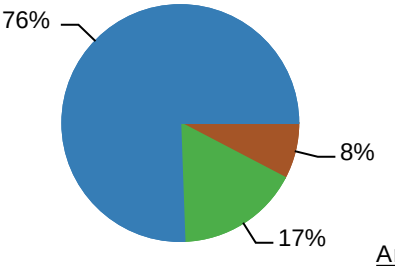


Tributary Stream Type



Type	Length
Cool-Cold Headwater	143291 ft
Coldwater	102594 ft
Cool-Cold Mainstem	27673 ft
Macroinvertebrates	16150 ft
Cold Headwater	3942 ft
Cold Mainstem	2550 ft
Large River	0 ft
Warm Headwater	0 ft
Warm Mainstem	0 ft

Landcover



Type	Area
Agriculture	50.12 mi²
Forest	11.13 mi²
Urban	5.08 mi²
Grassland	0.38 mi²
Wetland	0.27 mi²
Barren	0.19 mi²

PRESTO Phosphorus Load Estimate

Avg. Annual Nonpoint Phosphorous Load (80% Confidence Interval)	131,315 (54,939 - 313,867) lbs
Number of Facilities (Individual Facility Information below)	1
Avg. Annual Point-source Phosphorous Load (2010 - 2012 total of all facilities)	870lbs
Most Likely Point : Nonpoint Phosphorous Ratio	1% : 99%
Low Estimate Point : Nonpoint Phosphorous Ratio (Adaptive Management)	0% : 100%

Adaptive Management Results

Facilities Discharging to the Dodge Branch Watershed:

Facility Name	Permit #	Outfall #	Waste Type	Receiving Water	Avg. Phosphorus Load (lbs.) (2010 - 2012)
DODGEVILLE WASTEWATER TREATMENT FACILITY	0026913	001	Municipal	Dodge Branch	870

Watershed Analysis Limitations

- This analysis relies on pre-defined catchments from the Wisconsin Hydrography Data-Plus and may not delineate from the exact location required. When assessing phosphorus loads for specific facility in support of efforts such as adaptive management, care should be taken to ensure that additional downstream point sources do not exist. For adaptive management information related to specific facilities please reference the PRESTO website http://dnr.wi.gov/topic/surfacewater/presto.html
- Delineation of watersheds is based on a topographic assessment and therefore do not account for modified drainage networks such as stormwater sewer systems and ditched agriculture.
- If a watershed requires delineation from an exact location the user may use the desktop version of PRESTO that requires ESRI ArcGIS. The PRESTO tool and default datasets can be downloaded at http://dnr.wi.gov/topic/surfacewater/presto.html
- Data sources for this report originate from the WDNR's Wisconsin Hydrography Data-Plus value-added dataset and the point and non-point source loading information including in the WDNR's PRESTO model.
- If you have questions about the report generated from the PRESTO-Lite application please contact: DNRWATERQUALITYMODELING@wisconsin.gov

APPENDIX 4-1

Prairie Enthusiast





Legend

- Municipality
- State Boundaries
- County Boundaries
- Major Roads
  - Interstate Highway
  - State Highway
  - US Highway
- County and Local Roads
  - County HWY
  - Local Road
- Railroads
- Tribal Lands
- Railroads

0.1 0 0.06 0.1 Miles

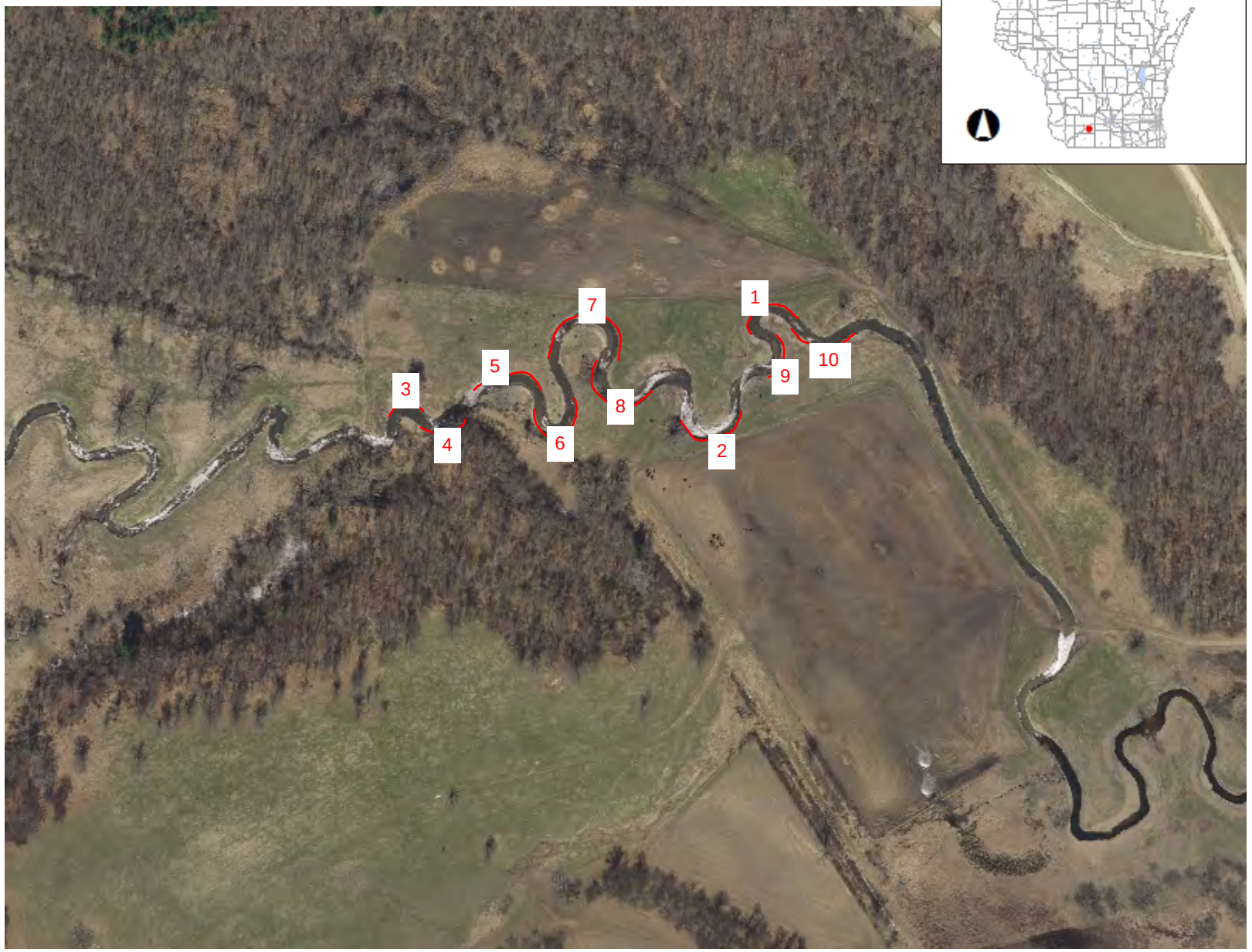
1: 3,960

NAD_1983_HARN_Wisconsin_TM

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Notes

Leonard



Legend

- Municipality
- State Boundaries
- County Boundaries
- Major Roads
  - Interstate Highway
  - State Highway
  - US Highway
- County and Local Roads
  - County HWY
  - Local Road
- Railroads
- Tribal Lands
- Railroads

Notes

0.1 0 0.06 0.1 Miles

NAD_1983_HARN_Wisconsin_TM

1: 3,960

DISCLAIMER: The information shown on these maps has been obtained from various sources, and are of varying age, reliability and resolution. These maps are not intended to be used for navigation, nor are these maps an authoritative source of information about legal land ownership or public access. No warranty, expressed or implied, is made regarding accuracy, applicability for a particular use, completeness, or legality of the information depicted on this map. For more information, see the DNR Legal Notices web page: http://dnr.wi.gov/legal/

Todd Leonard Site 1







Todd Leonard Site 2













Todd Leonard Site 3











Todd Leonard Site 4









Todd Leonard Site 5









Todd Leonard Site 6















Todd Leonard Site 7









Todd Leonard Site 8

















Todd Leonard Site 9



Todd Leonard Site 10



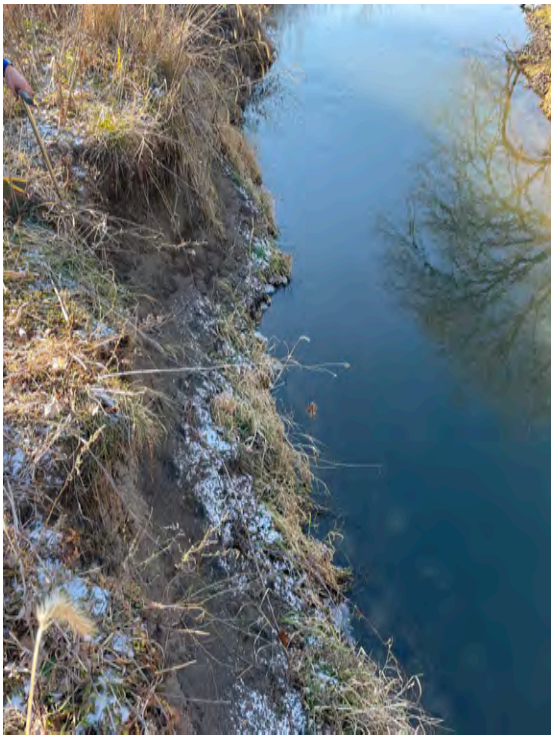
Prairie Enthusiast 1(not using)

Prairie Enthusiast 2





Prairie Enthusiast 3























Prairie Enthusiast 4









Prairie Enthusiast 5







Prairie Enthusiast 6







Prairie Enthusiast 7 (not using)

Prairie Enthusiast 8













Prairie Enthusiast 9







Prairie Enthusiast 10 (not using)

Prairie Enthusiast 11 (not using)

Prairie Enthusiast 12







Prairie Enthusiast 13 (not using)

Prairie Enthusiast 14





APPENDIX 5-1

-Figure 8-

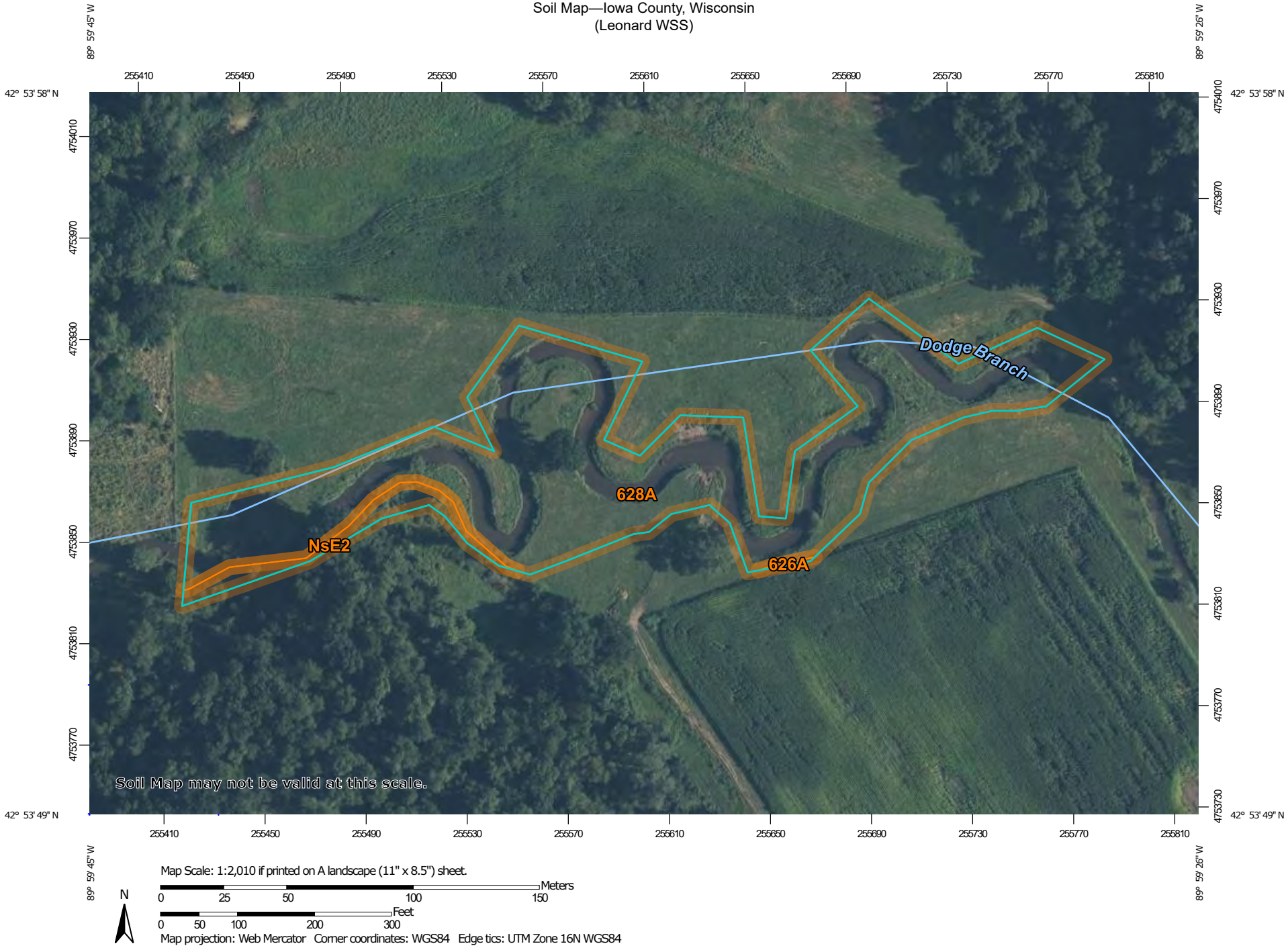
R. D. Windhorn 6/99

Lateral Recession Rates

Streambank Erosion

Lateral Recession Rate (ft/yr)	Ave. (ft/yr)	Category	Description
0.01 - 0.05	0.03	Slight	Some bare bank but active erosion not readily apparent. No vegetative overhang. No exposed tree roots. Bank height minimal.
0.06 - 0.2	0.13	Moderate	Bank is predominantly bare with some vegetative overhang. Some exposed tree roots. No slumping evident.
0.3 - 0.5	0.40	Severe	Bank is bare with very noticeable vegetative overhang. Many tree roots exposed and some fallen trees. Slumping or rotational slips are present. Some changes in cultural features, such as missing fence posts and realignment of roads.
0.5 - 2.0	1.5	Very Severe	Bank is bare and vertical or nearly vertical. Soil material has accumulated at base of slope or in water. Many fallen trees and/or extensive vegetative overhang. Cultural features exposed or removed or extensively alterered. Numerous slumps or rotational slips present. Generally silty or sandy bank material, NOT glacial till or exposed shale bedrock.
2.0 - 5.0	3.5	Extremely Severe	Bank is bare and vertical. Soil material has accumulated at base of slope and oftentimes still contains living grass or other vegetative material. Extensive cracking of the earth parallel to the exposed face above the bank. Generally evidence of "block-size" material that has either recently fallen in or is about to fall in. Can be "pillars" of soil materials that have already been loosened by stream and indicate imminent failure into the stream. Trees have been undercut and lie in stream, often with root balls intact. Silty or sandy bank material, NOT glacial till or exposed shale bedrock. (These rates should be verified with several observations or with actual streambank monitoring.)

APPENDIX 5-2



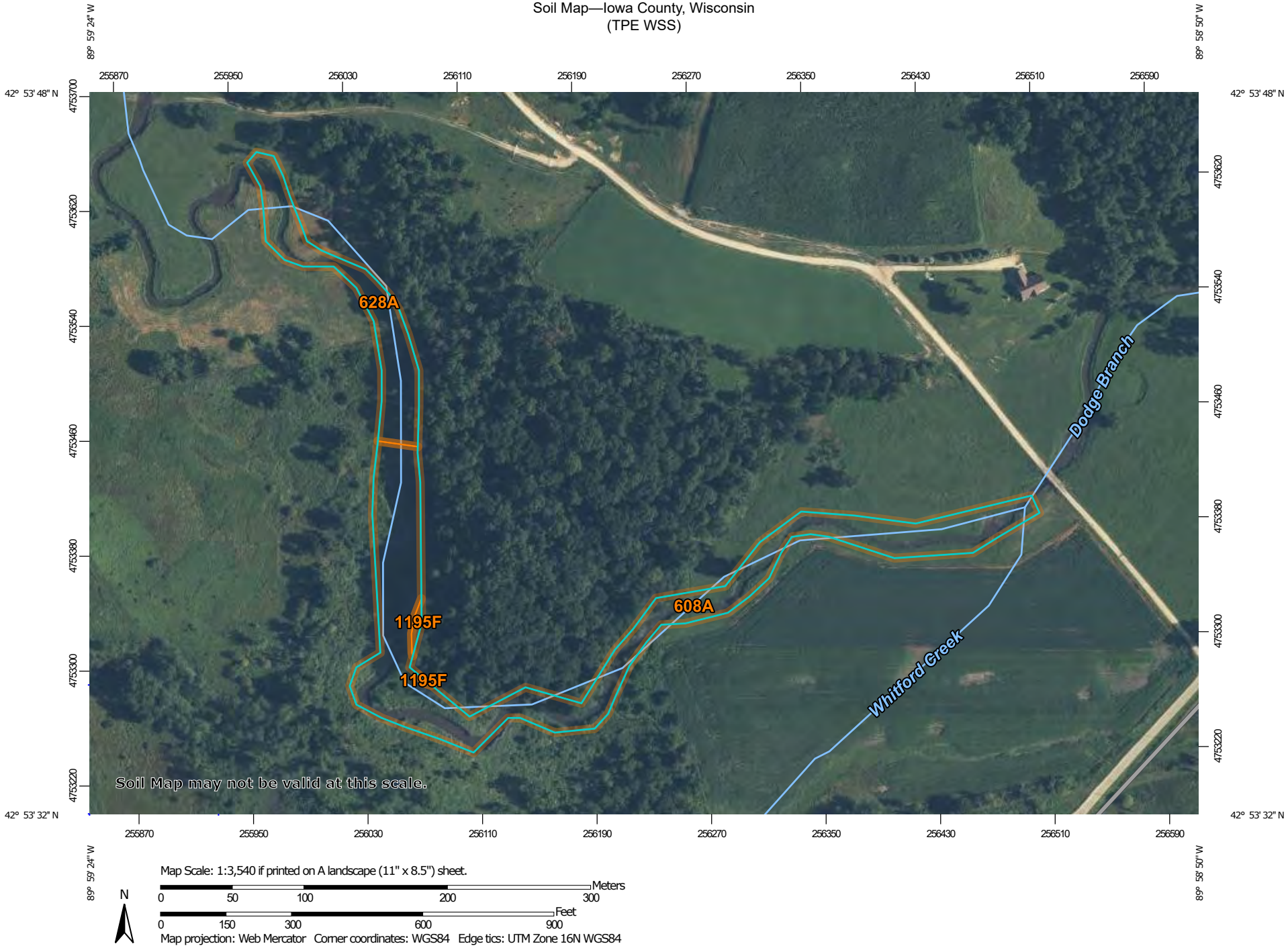
Map Scale: 1:2,010 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 25 50 100 150

Feet
0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84



Map Scale: 1:3,540 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 150 300 600 900

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

MAP LEGEND

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

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

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

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

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

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

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

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

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

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

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

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

Date(s) aerial images were photographed: Aug 12, 2020—Aug 14, 2020

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
608A	Lawson silt loam, 0 to 3 percent slopes, occasionally flooded	4.1	76.5%
628A	Orion silt loam, 0 to 3 percent slopes, occasionally flooded	1.2	22.8%
1195F	Elkmound-Northfield complex, 30 to 60 percent slopes, very rocky	0.0	0.7%
Totals for Area of Interest		**5.3**	**100.0%**

MAP LEGEND

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

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

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

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

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

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

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

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

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

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

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

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

Date(s) aerial images were photographed: Aug 12, 2020—Aug 14, 2020

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
626A	Arenzville silt loam, 0 to 3 percent slopes, occasionally flooded	0.0	0.1%
628A	Orion silt loam, 0 to 3 percent slopes, occasionally flooded	3.7	94.8%
NsE2	Northfield stony loam, 20 to 30 percent slopes, moderately eroded	0.2	5.1%
Totals for Area of Interest		**3.9**	**100.0%**

APPENDIX 5-3

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

Farmer / Cooperator Name: Village of Hollandale Water Quality Trade
Tract Number:
Evaluated By: RAJ
Evaluation Date: 1/24/2024 updated 5/23/2025

Field Number	Eroding Strmbnk Reach #; or Ditch Side/Bottom	Eroding Bank or Ditch Length (Feet)	Eroding Bank Height; or Ditch Bottom Width* (Feet)	Area of Eroding Strmbank or Ditch (FT^2)	Lateral or Ditch Bottom Recession Rate (Estimated) (FT / Year)	Estimated Volume (FT^3) Eroded Annually	Soil Texture	Approximate Pounds of Soil per FT^3	Estimated Soil Loss (Tons/Year)
Todd Leonard (TL)	1	250.0	7.0	1,750	0.40	700.0	Silt Loam	85	29.8
	2	240	8.5	2,040	0.40	816.0	Silt Loam	85	34.7
	3	90	8	720	0.25	180.0	Silt Loam	85	7.7
	4	60	10.5	630	0.40	252.0	Silt Loam	85	10.7
	5	240	8	1,920	0.25	480.0	Silt Loam	85	20.4
	6	220	10	2,200	0.40	880.0	Silt Loam	85	37.4
	7	300	10	3,000	0.40	1,200.0	Silt Loam	85	51.0
	8	264	10	2,640	0.40	1,056.0	Silt Loam	85	44.9
	9	180	6	1,080	0.30	324.0	Silt Loam	85	13.8
	10	180	7	1,260	0.40	504.0	Silt Loam	85	21.4

*banks USDA may fix

2,024.0	Total Estimated Annual Streambank or Ditch Erosion Soil Loss (Tons):							271.7	29.8	34.7	7.7	10.7	20.4	37.4	51.0	44.9	13.8	21.4	
	Percent Leachable Phosphorus in the Soil (nitric/peroxide):							0.05%	0.080%	0.060%	0.070%	0.050%	0.050%	0.040%	0.060%	0.050%	0.040%	0.040%	
	Total Estimated Annual Streambank or Ditch Erosion Phosphorus Loss (Tons):							0.147	0.024	0.021	0.005	0.005	0.010	0.015	0.031	0.022	0.006	0.009	
	Total Estimated Annual Streambank or Ditch Erosion Phosphorus Loss (lbs):							**293**	**48**	**42**	**11**	**11**	**20**	**30**	**61**	**45**	**11**	**17**	295
									1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	

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)
Prairie Enthusiast (PE) - Tom Hunt	2	60	7	420	0.30	126.0	Silt Loam	85	5.4
	3	225	8	1,800	0.40	720.0	Silt Loam	85	30.6
	4	150	7	1,050	0.50	525.0	Silt Loam	85	22.3
	5	240	5	1,200	0.20	240.0	Silt Loam	85	10.2
	6	210	8	1,680	0.25	420.0	Silt Loam	85	17.9
	8	120	8	960	0.40	384.0	Silt Loam	85	16.3
	9	150	6	900	0.30	270.0	Silt Loam	85	11.5
	12	125	6	750	0.20	150.0	Silt Loam	85	6.4
	14	150	8	1,200	0.25	300.0	Silt Loam	85	12.8

2,171.0	Total Estimated Annual Streambank or Ditch Erosion Soil Loss (Tons):							133.2	0.0	5.4	30.6	22.3	10.2	17.9	0.0	16.3	11.5	0.0	0.0	6.4	0.0	12.8	
	Percent Leachable Phosphorus in the Soil (nitric/peroxide):							0.05%	0.050%	0.050%	0.050%	0.060%	0.070%	0.050%	0.050%	0.060%	0.060%	0.050%	0.060%	0.040%	0.060%	0.050%	
	Total Estimated Annual Streambank or Ditch Erosion Phosphorus Loss (Tons):							0.073	0.000	0.003	0.015	0.013	0.007	0.009	0.000	0.010	0.007	0.000	0.000	0.003	0.000	0.006	
	Total Estimated Annual Streambank or Ditch Erosion Phosphorus Loss (lbs):							**145.1**	**0**	**5**	**31**	**27**	**14**	**18**	**0**	**20**	**14**	**0**	**0**	**5**	**0**	**13**	146
									1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	

Total Phosphorus Loss for sum of reaches (lbs/yr):	**438**	219
		w TR of 2

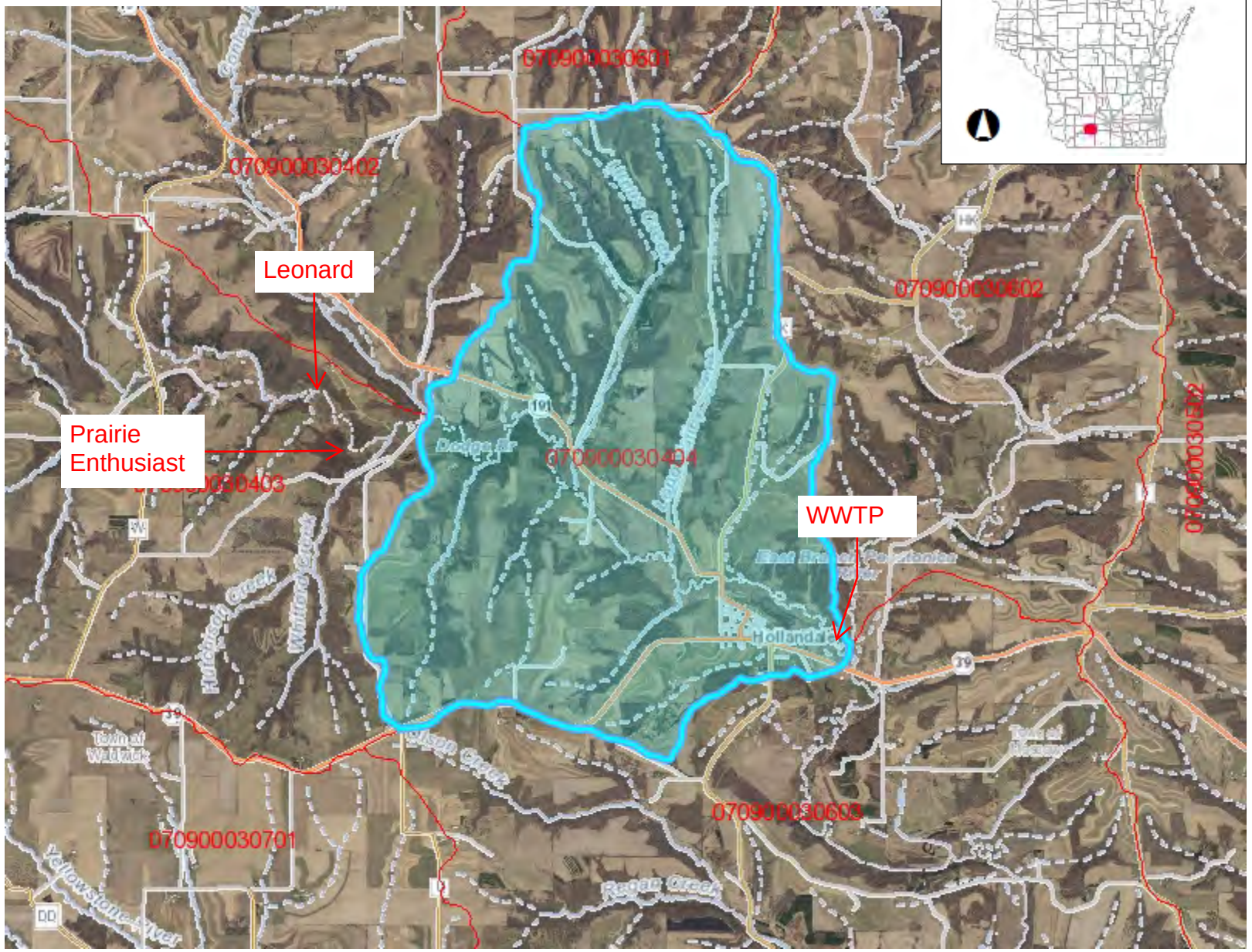
* Eroding bank height is measured along the bank, not the vertical height of bank.

Streambank or Ditch Erosion Calculation Formula:

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

APPENDIX 6-1

Surface Water Data Viewer Map



Legend

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

Notes

2.0 0 1.00 2.0 Miles

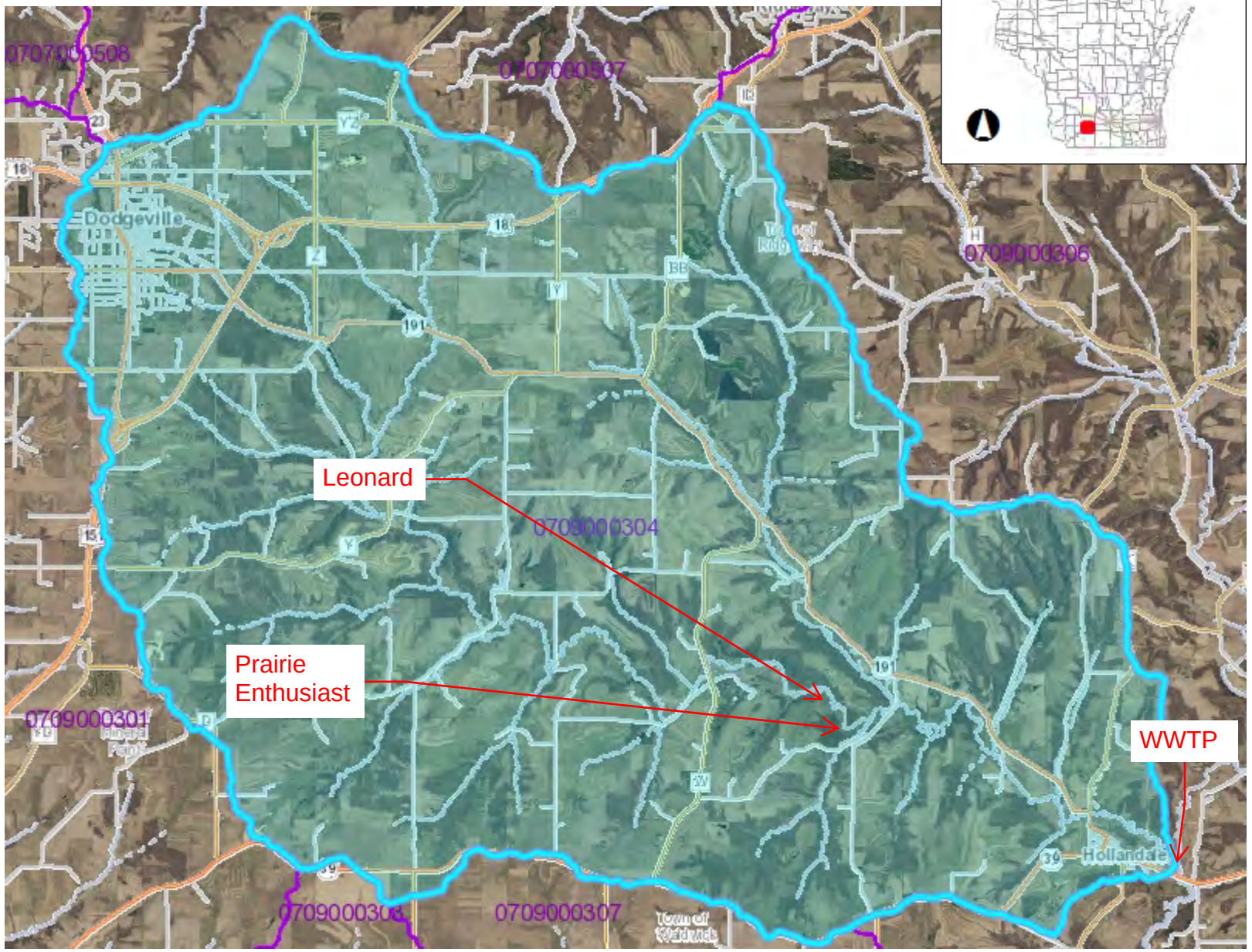
NAD_1983_HARN_Wisconsin_TM

1: 63,360

DISCLAIMER: The information shown on these maps has been obtained from various sources, and are of varying age, reliability and resolution. These maps are not intended to be used for navigation, nor are these maps an authoritative source of information about legal land ownership or public access. No warranty, expressed or implied, is made regarding accuracy, applicability for a particular use, completeness, or legality of the information depicted on this map. For more information, see the DNR Legal Notices web page: http://dnr.wi.gov/legal/

APPENDIX 6-2

Surface Water Data Viewer Map



Legend

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

Notes

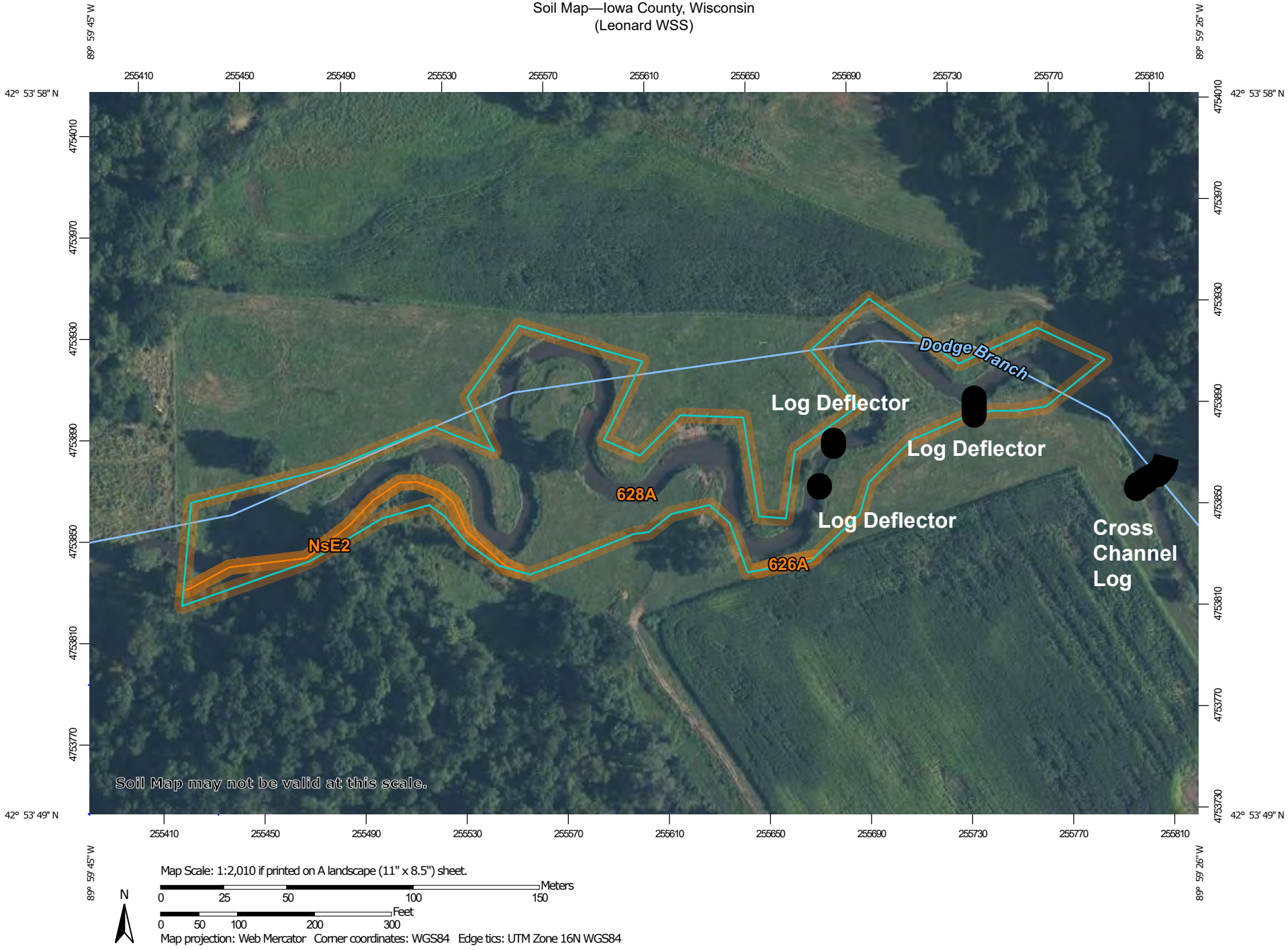
3.0 0 1.50 3.0 Miles

NAD_1983_HARN_Wisconsin_TM

1: 95,040

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APPENDIX 6-3



Map Scale: 1:2,010 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 25 50 100 150

Feet: 0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

MAP LEGEND

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

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

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

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

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

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

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

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

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

Date(s) aerial images were photographed: Aug 12, 2020—Aug 14, 2020

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
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NsE2	Northfield stony loam, 20 to 30 percent slopes, moderately eroded	0.2	5.1%
Totals for Area of Interest		**3.9**	**100.0%**

WISCONSIN DEPARTMENT OF NATURAL RESOURCES

PRAIRIE ENTHUSIASTS

Habitat Features



Legend: (some map layers may not be displayed)

County Boundaries

Latest Leaf Off Imagery

Notes:



Map projection: NAD 1983 HARN Wisconsin TM

N

Map: 0 150 300 Feet
0 40 80 Meters

Service Layer Credits:
Latest Leaf Off: , Cities, Roads & Boundaries:

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.

Date Printed: 6/20/2025 11:09 AM

APPENDIX 7-1

Water Quality Trading Agreement: Village of Hollandale and Prairie Enthusiast

Permittee Information

Credit User Name (Permittee)	Permit Number
Village of Hollandale	WI-0031330-10-0

Credit User Address

Sect. 29, T5N, R5E, Hollandale, 53544 (650 feet north of Waldwick Street and 2,230 feet west of Star Valley Rd)

Project Name

Prairie Enthusiast Bank Stabilization

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

The Prairie Enthusiast Inc

Street Address	City	State	ZIP Code
3220 feet southwest of the intersection of HWY191 and Squirrel Hill RD	Hollandale	WI	53544

Property Information

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

The Prairie Enthusiast Inc

Street Address	City	State	ZIP Code
3220 feet southwest of the intersection of HWY191 and Squirrel Hill RD	Hollandale	WI	53544

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

Parcel Identification Numbers (PIN): 01080.A, 0181

Parcel ID(s):

0180.A, 0181

Site Locator for Construction Projects

County	Township	Range E/ W	Section	Quarter/Quarter (e.g., NW ¼ of the NE ¼)
Hollandale	5N	4E	23	SE ¼ of the NW ¼
Hollandale	5N	4E	23	NE ¼ of the SW ¼

Agreement

The property described above is enrolled in a Water Quality Trading Agreement. Funding is provided by the credit user to pay for the installation of best management practices (BMPs) on the described property which are designed to reduce phosphorous, a nonpoint source of pollution. This agreement commits the landowner/operator, their heirs or successors and assigns to maintain the BMPs and fulfill the trade agreement in perpetuity or release is filed by the credit user, whichever occurs first.

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

Landowner/Operator

Signed this_____day of_____, 20 24.

Signature of Operator

Typed Name of Operator

Signature of Landowner/Operator

The Prairie Enthusiast Inc, Landowner

Typed Name of Landowner/Operator

STATE OF WISCONSIN)
)
_____ County) ss.
)
)

Personally, came before me this_____day of_____, 20 24.

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_____).

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 24.

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)
)
_____ County) ss.
)
)

Personally came before me this_____day of_____, 20 24.

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

Signed this_____day of_____, 2024.

Signature of credit user

Village of Hollandale

Typed Name of credit user/Credit User/exchange

STATE OF WISCONSIN

Iowa County)
)
) ss.
)
)

Personally came before me this_____day of_____, 20 24.

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

Signature of Notary Public

Notary Public Iowa County, Wisconsin

My commission (is permanent) (expires_____).

Section A – General Requirements

1. The following relationship has been established for this Water Quality Trading Agreement:
   - The **Village of Hollandale** will hereby be known as the **Credit User.**
   - **The Prairie Enthusiast** will be known as the **Landowner/Operator.**
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 Credit User 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. The Village of Hollandale reserves the right to terminate this agreement if the Wisconsin Department of Natural Resources (DNR) does NOT approve the Water Quality Trading Plan (WQT). The WQT identifies this project for phosphorus credits to help the Village of Hollandale's wastewater treatment facility (WWTF). These credits are established in the WQT and have been analyzed as a cost-effective project. Should the DNR either deny or reduce the project credits which results in a higher cost per pound of phosphorus credit, then the Village of Hollandale may terminate the agreement.
4. The Village of Hollandale reserves the right to terminate this agreement if the Village is unable to procure funding to cover the cost of the project, which would provide reasonable terms to the Village and their users.
5. The Credit User reserves the right to enter the property to verify the information on the inspection report is accurate.
6. 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 – Credit User

1. The Credit User is responsible for all monetary costs incurred with the BMP practice installation, which includes but is not limited to site preparation, clearing, ensuring planned grades; stream shaping; rock riprap and installation; liming, fertilizing, seeding, and mulching.
2. The Credit User shall have the right to access the property for inspection or maintenance. If a natural disaster impacts the BMPs and causes damage that reduces phosphorus credits, the credit user has the option of paying the cost of repairs or releasing this agreement.
3. The Credit User will be responsible for the oversight of BMP practice design, project bidding, contractor construction agreements, inspection of site preparation, project design, BMP installation oversight, regulation of applicable performance standards, annual inspections, and monitoring of landowners' obligations in the form of performing on-site checks as needed. The Credit User shall not have any financial obligation for this project except as expressly stated in this agreement.
4. The Credit User will ensure the contract is recorded in the Iowa County Register of Deeds office.
5. The Credit User agrees to complete annual inspections and provide any reports to Credit User and Landowner.

Section C – Landowner/Operator Shall:

1. If any land covered by this agreement is transferred or otherwise changes ownership, this agreement will be held in obligation with the land in perpetuity 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 Credit User, if the Landowner fails to comply with the terms of this agreement. Repayment shall not be required if a practice(s) is rendered ineffective due to circumstances which are beyond the control of the Landowner.
3. The Landowner/Operator shall inspect riprap and streambank at least annually and after heavy storms. Any erosion or displacement of rocks shall be repaired at the cost of the landowner. If the damage occurred due to no fault of the Landowner, the Credit User will cover costs that exceed $1500, with the Landowner covering the initial $1500. The Credit User should be contacted immediately and directly if any damage has occurred."
4. The Operator shall develop and implement a Rotational Grazing Plan to control and limit livestock access to the restored streambanks. 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.

5. Check for sloughing, erosion, or damage to vegetative cover. Damaged areas shall be graded, shaped, and replanted by the Landowner as soon as possible with a seed mix pre-approved by the Credit User.
6. Periodically mow the vegetative buffer to control weeds and invading brush.
7. Eliminate all burrowing rodents and repair damage caused by them.
8. Maintain the project consistent with NRCS technical standard 580.
9. Installation of these practices brings the Landowner into compliance with the applicable state and local performance standards listed below. Compliance with these performance standards shall be in perpetuity. These practices must be maintained or replaced with a practice which ensures continued compliance with the following N.R. 151 performance standards:
    - N.R. 151.03 Tillage Setback
    - N.R. 151.06 Clean Water Diversion
    - N.R. 151.08 Manure Management Prohibitions

TA Number	Typed Name of Landowner/Operator **The Prairie Enthusiast Inc**	Initials of Landowner/Operator	Date

Water Quality Trading Agreement: Village of Hollandale and Todd Leonard

Permittee Information

Credit User Name (Permittee)	Permit Number
Village of Hollandale	WI-0031330-10-0

Credit User Address

Sect. 29, T5N, R5E, Hollandale, 53544 (650 feet north of Waldwick Street and 2,230 feet west of Star Valley Rd)

Project Name

Leonard Bank Stabilization

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

Leonard, Todd M and Gina R

Street Address	City	State	ZIP Code
1652 Banner Rd	Hollandale	WI	53544

Property Information

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

Leonard, Todd M and Gina R

Street Address	City	State	ZIP Code
1652 Banner Rd	Hollandale	WI	53544

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

Parcel Identification Numbers (PIN): 026-0177

Parcel ID(s):

026-0177

Site Locator for Construction Projects

County	Township	Range E/ W	Section	Quarter/Quarter (e.g., NW ¼ of the NE ¼)
Hollandale	5N	4E	23	NW ¼ of the NW ¼

Agreement

The property described above is enrolled in a Water Quality Trading Agreement. Funding is provided by the credit user to pay for the installation of best management practices (BMPs) on the described property which are designed to reduce phosphorous, a nonpoint source of pollution. This agreement commits the landowner/operator, their heirs or successors and assigns to maintain the BMPs and fulfill the trade agreement in perpetuity or release is filed by the credit user, whichever occurs first.

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

Landowner/Operator

Signed this _____ day of _____, 20 24.

Signature of Operator

Signature of Landowner/Operator

Typed Name of Operator

Leonard, Todd M and Gina R, Landowner
Typed Name of Landowner/Operator

STATE OF WISCONSIN)
) ss.
_____ County)

_____ day of _____, 20 24.

Personally, came before me this

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 _____)

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 24.

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 24.

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

Signed this _____ day of _____, 20 24.

Signature of credit user

Village of Hollandale
Typed Name of credit user/broker/exchange

STATE OF WISCONSIN)
)
Iowa County) ss.
)

Personally, came before me this _____ day of _____, 20 24.

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

Signature of Notary Public

Notary Public Iowa County, Wisconsin

My commission (is permanent) (expires_____).

Section A – General Requirements

1. The following relationship has been established for this Water Quality Trading Agreement:
   - The **Village of Hollandale** will hereby be known as the **Credit User.**
   - **Leonard, Todd M and Gina R** will be known as the **Landowner/Operator.**
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 broker 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. The Village of Hollandale reserves the right to terminate this agreement if the Wisconsin Department of Natural Resources (DNR) does NOT approve the Water Quality Trading Plan (WQT). The WQT identifies this project for phosphorus credits to help the Village of Hollandale's wastewater treatment facility (WWTF). These credits are established in the WQT and have been analyzed as a cost-effective project. Should the DNR either deny or reduce the project credits which results in a higher cost per pound of phosphorus credit, then the Village of Hollandale may terminate the agreement.
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5. The **Village of Hollandale** reserves the right to enter the property to verify the information on the inspection report is accurate.
6. 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 – Credit User

1. The **Credit User** is responsible for all monetary costs incurred with the BMP practice installation, which includes but is not limited to site preparation, clearing, ensuring planned grades; stream shaping; rock riprap and installation; liming, fertilizing, seeding, and mulching.
2. The **Credit User** shall have the right to access the property for inspection or maintenance. If a natural disaster impacts the BMPs and causes damage that reduces phosphorus credits, the **credit user** has the option of paying the cost of repairs or releasing this agreement.
3. The Credit User will be responsible for the oversight of BMP practice design, project bidding, contractor construction agreements, inspection of site preparation, BMP installation oversight, regulation of applicable performance standards, annual inspections and monitoring of landowners' obligations in the form of performing on-site checks as needed.
4. The Credit User will ensure this contract is recorded in the Iowa County Register of Deeds office.
5. The Credit User agrees to complete annual inspections.

Section C – Landowner/Operator Shall:

1. If any land covered by this agreement is transferred or otherwise changes ownership, this agreement will be held in obligation with the land in perpetuity 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 **Credit User**, if the **Landowner** fails to comply with the terms of this agreement. Repayment shall not be required if a practice(s) is rendered ineffective due to circumstances which are beyond the control of the **Landowner**.
3. The **Landowner/**Operator shall inspect riprap and streambank at least annually and after heavy storms. Any minor erosion or displacement of rocks shall be repaired at the cost of the **Credit User**. The **Credit User** should be contacted immediately and directly if any damage has occurred and will determine the cause of the damage.
4. If the **Landowner/Operator** have livestock, the Operator shall develop and implement a Rotational Grazing Plan to control and limit livestock access to the restored streambanks. 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.

5. Check for sloughing, erosion, or damage to vegetative cover. Damaged areas shall be graded, shaped, and replanted by the **Landowner** as soon as possible with a seed mix pre-approved by the **Credit User.**
6. Periodically mow the vegetative buffer to control weeds and invading brush.
7. Eliminate all burrowing rodents and repair damage caused by them.
8. Maintain the project consistent with NRCS technical standard 580.
9. Installation of these practices brings the Landowner into compliance with the applicable state and local performance standards listed below. Compliance with these performance standards shall be in perpetuity. These practices must be maintained or replaced with a practice which ensures continued compliance with the following N.R. 151 performance standards:
   - N.R. 151.03 Tillage Setback
   - N.R. 151.06 Clean Water Diversion
   - N.R. 151.08 Manure Management Prohibitions

TA Number	Typed Name of Landowner/Operator **Todd & Gina Leonard**	Initials of Landowner/Operator	Date

APPENDIX 8-1

Soil and Forage Analysis Lab
WISCONSIN STATE LABORATORY OF HYGIENE
UNIVERSITY OF WISCONSIN–MADISON

4702 University Avenue
Madison, WI 53705
608-262-4364
soil-lab@mailplus.wisc.edu
https://uwlab.soils.wisc.edu

Rachel Jaeger / Davy Engineering
115 6th St S
LaCrosse, WI 54601

Date 1/24/2024
Account # 559762
Lab # 4370

COMMENTS:
Hollandale WQT Samples (2) 12-20-23

Soil Total Leachable P

Sample #	Sample ID	Total Leachable P %
1	2 TL	0.06
2	3 TL	0.07
3	4 TL	0.05
4	5 TL	0.05
5	6 TL	0.04
6	7 TL	0.06
7	8 TL	0.05
8	9 TL	0.04
9	TL 10	0.04
10	PE 1	0.05
11	PE 2	0.05
12	PE 3	0.05
13	PE 4	0.06
14	PE 5	0.07
15	PE 6	0.05
16	PE 7	0.05
17	PE 8	0.06
18	PE 9	0.06
19	PE 10	0.05

Soil and Forage Analysis Lab
WISCONSIN STATE LABORATORY OF HYGIENE
UNIVERSITY OF WISCONSIN–MADISON

4702 University Avenue
Madison, WI 53705
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https://uwlab.soils.wisc.edu

Rachel Jaeger / Davy Engineering
115 6th St S
LaCrosse, WI 54601

Date 1/24/2024
Account # 559762
Lab # 4370

COMMENTS:
Hollandale WQT Samples (2) 12-20-23

Soil Total Leachable P

Sample #	Sample ID	Total Leachable P %
20	**PE 11**	0.06
21	**PE 12**	0.04
22	**PE 13**	0.06
23	**PE 14**	0.05

APPENDIX 8-2

Stockman, Tim

From: Howe, Betsyjo M - DNR <betsyjo.howe@wisconsin.gov>
Sent: Monday, May 20, 2024 9:24 AM
To: Jaeger, Rachel; Claucherty, Matthew L - DNR
Cc: Hackett, Carson; Stockman, Tim
Subject: RE: Hollandale Recession Rates and Questions

Hello Rachel,

I have answered your questions below in red. Please reach out if you have more questions or would like to discuss further.

Best,

We are committed to service excellence.
Visit our survey at http://dnr.wi.gov/customersurvey to evaluate how I did.

BetsyJo Howe
(she/her)
Phone: 608-419-4155
betsyjo.howe@wisconsin.gov

From: Jaeger, Rachel <rjaeger@davyinc.com>
Sent: Monday, May 6, 2024 3:49 PM
To: Howe, Betsyjo M - DNR <betsyjo.howe@wisconsin.gov>; Claucherty, Matthew L - DNR <Matthew.Claucherty@wisconsin.gov>
Cc: Hackett, Carson <chackett@davyinc.com>; Stockman, Tim <tstockman@davyinc.com>
Subject: RE: Hollandale Recession Rates and Questions

CAUTION: This email originated from outside the organization.
Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hello Betsyjo and Matt,

The other day I met with Brett Wunderlin with USDA and Tony Pillow with Iowa County on Todd Leonard's (landowner) land. Todd is planning to be a part of the WQT for the Village of Hollandale. A variety of questions came up during our time there. Please see the following:

1. Recession rates: From our conference call a couple weeks ago, I know the recession rates for Leonard's property. It would still be great to get some input from you both on the other property owner's land. Knowing how many credits we have is essential right now in how we progress with Hollandale's Facility Plan (due June 30th).

Michael Ryan:

- Site 1: Difficult to see much of the erosion with the vegetation, some areas of erosion clear. Averaging the whole bank, a moderate category is appropriate, 0.25 as proposed.
- Site 2: Averaging the whole bank, low severe category, 0.25.
- Site 3: Averaging the whole bank, low severe category, 0.25.

Prairie Enthusiast:

- Site 1: Do not think this is a cost-effective project site.
- Site 2: For only the area circled in bottom right picture, the proposed 0.30 is appropriate.

- Site 3: Bare, loose soil is apparent, some banks are more vertical than others, 0.40
- Site 4: The proposed 0.50 is appropriate.
- Site 5: The banks do appear to be slightly vertical, yet vegetated, 0.20
- Site 6: Little exposed bank, vegetated, yet vertical, 0.20 averaging area in all pictures. If delineate the small portions of bare bank, maybe 0.30
- Site 7: This does not fit into the sever category, do not think this is a cost-effective project site, 0.10
- Site 8: Delineate the sites further, 0.50 appropriate for some banks, but not overall
- Site 9: The site overall is more appropriate as 0.30, site delineated further possibly could have some banks at 0.40
- Site 10: Do not think this is a cost-effective project site.
- Site 11: Do not think this is a cost-effective project site.
- Site 12: Little bare soil spots could possibly be as proposed, 0.20
- Site 13: Do not think this is a cost-effective project site.
- Site 14: Portion of the site could be 0.30

David Jensen:

- Site 1: The pictures of the area with the fence post is appropriate as proposed, 0.50. The blue circled area seems mostly vegetated. This area could be removed from the delineation or delineated to include the small bare soil site.
- Site 2: Delineating further the site could be 0.30

2. When thinking about the trade ratio for the WQT projects, how do I know if habitat adjustments are applicable? Who would be the correct contact to reach out to about adding habitat on Todd Leonard, Michael Ryan, Prairie Enthusiast, and David Jensen's streams? Would a DNR biologist need to come out and assess? Some guidance on habitat implementation and feasibility would be very helpful to us knowing how many credits we would need for a full trade using these sites.

To qualify for the habitat adjustment, the stream must be exceeding the applicable criterion for the traded pollutant and the habitat feature must help to alleviate the impacts of the pollutant. The habitat features must be appropriate for the stream in which they are installed as to provide substantial gains in aquatic habitat. This will all need to be detailed in the WQT Plan. The DNR contact would be Fisheries Biologist, Justin Haglund, justinm.haglund@wisconsin.gov . The biologist may be familiar enough with the stream that an on-site assessment is not necessary.
Habitat features will need to follow criteria outlined in NRCS 395 Technical Standard and installment details will need to be submitted as part of the WQT Plan.
Appendix F of the WQT Guidance contains more information on the Habitat Adjustment.

3. When discussing the projects with the county, it was mentioned sometimes in the area a search for cricket frogs is necessary before construction. The county was not sure when this is necessary or not. I did a quick search on IPaC USFWS, and there are no potential effects to critical habitat in the proposed locations for WQT. Would that mean the cricket frogs are not of concern? Or is this maybe something different?

The Natural Heritage Conservation is a resource you could contact about an Endangered Resource Review. DNR Endangered Resources Review Program Contacts may help identify the process for identifying concerns. See Endangered Resources Review Program contacts | | Wisconsin DNR

4. Are creek crossings something that can generate credits? Any credits for channeling/diverting livestock to defined crossing locations? The county plans to construct two or three on Leonard's property for machinery and animals crossings. If so, I do not know much about SWRM money, but it sounds like that is what the county plans to use for the construction of the crossings. Streambank stabilization projects must follow NRCS Technical Standard 580. For livestock producers, streambank stabilization must be accompanied by riparian fencing or other controls to prevent destruction of streambanks. The crossings should already be incorporated and will not generate additional credits.
    a. If creek crossings do generate credits, can the Village get the credits if the project is funded by SWRM money? SWRM funding is not eligible for trading projects.
    b. If the county will be paying for 90% of the construction, cane the remaining 10% be funded by the landowner or the village? IF we can get credits from the crossings, does the Village need to have some money towards the project and should pay the 10%? Assuming the project is already slated to occur (without funding from the Village), it is not eligible for trading. Additionally, it is difficult to make the case that crossings themselves generate a pollutant load reduction.

6. USDA plans to design and construct 100% of three sites on Leonard's property. If USDA does the design and construction, can the Village get the credits? Or does Hollandale need to contribute money to the sites in order to get the credits? If they need to contribute is there a minimum percentage?

The agreement between the landowner and the Village must be what causes the pollutant reduction to occur. USDA may be a partner in the trade, yet the Village should be an active participant in the activities causing the pollutant reduction to occur. If the Landowner-USDA agreement is executed prior to the Landowner-Village agreement, the project is clearly ineligible for trading regardless of the share paid by the Village. If sufficient Village resources are offered to cause the project to occur, that supports eligibility as a trade.

7. A Hydraulic and Hydrology (H&H) analysis with HEC RAS modeling was discussed briefly. Is this required for Todd Leonard's and prairie enthusiast's properties because they're located in the FEMA floodplain? (FEMA map attached)

For doing streambank stabilization work, typically if the modifications are restoring the bank to the streambank conditions depicted in the regulatory hydraulic model we would not require a full-blown hydraulic study to be done. There would need to be some level of proof/data associated with the bank restoration proposal to show that the bank has indeed been eroded and that the restoration work will be bringing it back to the original modeled cross-section geometry.
For a DNR Ch. 30 streambank stabilization permit (stabilizing eroding banks under current stats. and admin. code), there is not a requirement from the DNR for an H&H. If in a floodplain, the local/county zoning MAY require an H&H. We defer to the local/county zoning as they are the ultimate regulator and administrator of the floodplain ordinance. When projects are proposed in regulated floodplains, we often tell potential applicants to check with local zoning first as their floodplain and/or shoreland ordinances may be more restricting.

Thank you for the time and I appreciate the help with these questions. Please let me know if there anything else you need from me inorder to answer these.

Thank you,
Rachel

Rachel Jaeger, EIT
Davy Engineering Co.
115 6th St. S
La Crosse, WI 54601
Office: (608) 782-3130
Direct: (608) 620-7225
RJaeger@davyinc.com
www.davyinc.com

From: Jaeger, Rachel
Sent: Monday, April 22, 2024 4:04 PM
To: Howe, Betsyjo M - DNR <betsyjo.howe@wisconsin.gov>; Claucherty, Matthew L - DNR <Matthew.Claucherty@wisconsin.gov>
Cc: Hackett, Carson <chackett@davyinc.com>; Stockman, Tim <tstockman@davyinc.com>
Subject: RE: Hollandale Recession Rates

Hi Betsyjo and Matt,

Thank you for meeting with us last week to discuss recession rates for WQT. As you mentioned, it would be great if you could please send an email touching on the Hollandale sites we did not get to cover, if possible. It would be very appreciated!

Thank you again,
Rachel

Rachel Jaeger, EIT
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115 6th St. S
La Crosse, WI 54601
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Direct: (608) 620-7225
RJaeger@davyinc.com
www.davyinc.com

From: Howe, Betsyjo M - DNR <betsyjo.howe@wisconsin.gov>
Sent: Friday, April 12, 2024 10:40 AM
To: Jaeger, Rachel <rjaeger@davyinc.com>
Cc: Hackett, Carson <chackett@davyinc.com>; Stockman, Tim <tstockman@davyinc.com>; Claucherty, Matthew L - DNR <Matthew.Claucherty@wisconsin.gov>
Subject: RE: Hollandale Recession Rates

Hi Rachel,

I think it would be easiest to schedule a meeting to talk about the photos and proposed recession rates for Hollandale and Cazenovia. If you would like to provide me with some of your availability, I can send out a meeting invitation.

Best,
BetsyJo

We are committed to service excellence.
Visit our survey at http://dnr.wi.gov/customersurvey to evaluate how I did.

BetsyJo Howe (she/her)
Phone: 608-419-4155
betsyjo.howe@wisconsin.gov

From: Jaeger, Rachel <rjaeger@davyinc.com>
Sent: Wednesday, April 10, 2024 12:44 PM
To: Howe, Betsyjo M - DNR <betsyjo.howe@wisconsin.gov>
Cc: Hackett, Carson <chackett@davyinc.com>; Stockman, Tim <tstockman@davyinc.com>
Subject: Hollandale Recession Rates

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Hi Betsyjo,

As I have mentioned I am working on WQT credit calculations for Hollandale, WI. I would appreciate your preliminary approval of the recession rates I have determined before moving forward with calculations. I have linked images and brief explanations to the recession rates I chose for four locations, with various numbers of sites. I used the NRCS chart for determination. Could you please let me know your thoughts? Please let me know if you have any questions or troubles with the links. It's greatly appreciated!

todd leonard recession rate.pdf
michael ryan recession rates.pdf
prairie enthusiast recession rates.pdf

APPENDIX 12-1

Natural Resources Conservation Service

CONSERVATION PRACTICE STANDARD

STREAMBANK AND SHORELINE PROTECTION

CODE 580

(ft)

DEFINITION

Treatment(s) used to stabilize and protect banks of streams or constructed channels and shorelines of lakes, reservoirs, or estuaries.

PURPOSE

This practice is used to accomplish one or more of the following purposes:

- Prevent the loss of land or damage to land uses or facilities adjacent to the banks of streams or constructed channels and shorelines of lakes, reservoirs, or estuaries. This includes the protection of known historical, archaeological, and traditional cultural properties.
- Maintain the flow capacity of streams or channels.
- Reduce the offsite or downstream effects of sediment resulting from bank erosion.
- Improve or enhance the stream corridor or shoreline for fish and wildlife habitat, aesthetics, or recreation.

CONDITIONS WHERE PRACTICE APPLIES

This practice applies to streambanks of natural or constructed channels and shorelines of lakes, reservoirs, or estuaries susceptible to erosion. It does not apply to erosion problems on main ocean fronts, beaches, or similar areas of complexity.

CRITERIA

General Criteria Applicable to All Purposes

Plan, design, and construct this practice to comply with all Federal, State, and local laws, rules, and regulations. The landowner must obtain all necessary permissions from regulatory agencies, or document that no permits are required. The landowner and/or contractor is responsible for locating all buried utilities in the project area, including drainage tile and other structural measures.

Assess unstable streambank or shoreline sites in enough detail to identify the causes contributing to the instability. The assessment should provide details necessary for design of the treatments and convey reasonable confidence that the treatments will perform adequately for the design life of the measure. If the failure mechanism for a streambank is a result of the degradation or removal of riparian vegetation, if possible, implement stream corridor restoration, along with bank treatment.

Causes of instability include—

- Livestock access;
- Watershed alterations resulting in significant modifications of discharge or sediment production;
- In-channel modifications such as gravel mining;

NRCS reviews and periodically updates conservation practice standards. To obtain the current version of this standard, contact your Natural Resources Conservation Service State office or visit the Field Office Technical Guide online by going to the NRCS website at https://www.nrcs.usda.gov/ and type FOTG in the search field.

USDA is an equal opportunity provider, employer, and lender.

- Head cutting;
- Water level fluctuations; and
- Boat-generated waves.

Design streambank and shoreline treatments that are compatible with—

- Existing bank or shoreline materials;
- Planned improvements or improvements installed by others;
- Water chemistry;
- Channel or lake hydraulics; and
- Slope characteristics above and below the water line.

Avoid adverse effects on—

- Endangered, threatened, and candidate species and their habitats;
- Archaeological, historical, structural, and traditional cultural properties; and
- Existing wetland functions and values.

Design treatments that result in stable slopes based on the bank or shoreline materials and the type of measure proposed. Account for anticipated ice action, wave action, and fluctuating water levels. Ensure that installations are protected from overbank flows from upslope runoff and flooding. Include internal drainage where bank seepage is a problem. Use geotextiles, designed filters, or bedding to prevent piping or erosion of material from behind the treatment. Anchor end sections into existing treatments or existing stable areas.

Revegetate all areas disturbed during construction in accordance with NRCS Conservation Practice Standard (CPS) Critical Area Planting (Code 342). If climatic conditions preclude the use of vegetation, use NRCS CPS Mulching (Code 484) to install inorganic cover materials such as gravel. Protect the area from livestock and human traffic until the site is fully stabilized.

Additional Criteria for Streambanks

Classify stream segments requiring protection according to a system deemed appropriate by the State. Evaluate incised segments or segments that contain the 5-year return period (20 percent probability) or greater flows for further degradation or aggradation.

Do not realign the channel without an assessment of upstream and downstream fluvial geomorphology that evaluates the impacts of the proposed alignment. Determine the current and future discharge-sediment regime using an assessment of the watershed upstream of the proposed channel alignment.

Do not install bank protection treatment in channel systems undergoing rapid and extensive changes in bottom grade and/or alignment unless designing the treatments to control or accommodate the changes. Construct bank treatment to a depth at or below the anticipated lowest depth of streambed scour.

Stabilize toe erosion by treatments that redirect the stream flow away from the toe or by structural treatments that armor the toe. Where toe protection alone is inadequate to stabilize the bank, shape the upper bank to a stable slope and establish vegetation, or stabilize with structural or soil bioengineering treatments.

To the extent possible, retain or replace habitat-forming elements that provide cover, food, pools, and water turbulence. This includes stumps, fallen trees, debris, and sediment bars. Only remove these stream habitat elements when they cause unacceptable bank erosion, flow restriction, or damage to structures.

Design treatments to remain functional and stable for the design flow and sustainable for higher flow conditions. Evaluate the effects of changes to flow levels compared with the preinstallation flow levels, for low and high flow conditions. Ensure treatments do not limit stream flow access to the floodplain. Do not design treatments that result in negative offsite impacts such as increased channel or bank erosion downstream.

Additional Criteria for Shorelines

For the design of structural treatments, evaluate the site characteristics below the waterline for a minimum of 50 feet horizontally from the shoreline measured at the design water surface. Base the height of the protection on the design water surface plus the computed wave height and freeboard. Use mean high tide as the design water surface in tidal areas. Limit revetments, bulkheads, or groins to no higher than 3 feet above mean high tide, or mean high water in nontidal areas. Key-in structural shoreline protective treatments to a depth that prevents scour during low water.

When using vegetation as the protective treatment, include a temporary breakwater during establishment when wave run-up could damage the vegetation.

Additional Criteria for Stream Corridor Improvement

Establish stream corridor vegetative components as necessary for ecosystem function and stability. The appropriate composition of vegetative components is a key element in preventing excess long-term channel migration in reestablished stream corridors. Establish vegetation on channel banks and associated areas according to NRCS CPS Critical Area Planting (Code 342).

Design treatments to achieve habitat and population objectives for fish and wildlife species or communities of concern as determined by a site-specific assessment or management plan. Establish objectives on the survival and reproductive needs of populations and communities, including habitat diversity, habitat linkages, daily and seasonal habitat ranges, limiting factors, and native plant communities. Develop the requirements for the type, amount, and distribution of vegetation using the requirements of the fish and wildlife species or communities of concern.

Design treatments to meet aesthetic objectives as determined by a site-specific assessment or management plan. Establish aesthetic objectives based on human needs, including visual quality, noise control, and microclimate control. Use construction materials, grading practices, and other site development elements compatible with adjacent land uses.

CONSIDERATIONS

When designing protective treatments, consider changes that may occur in the watershed hydrology and sedimentation over the design life of the treatments.

Incorporate debris removed from the channel or streambank into the treatment design when it is compatible with the intended purpose to improve benefits for fish, wildlife, and aquatic systems.

Use construction materials, grading practices, vegetation, and other site development elements that minimize visual impacts and maintain or complement existing landscape uses such as pedestrian paths, climate controls, buffers, etc. Avoid excessive disturbance and compaction of the site during installation.

Use vegetative species that are native and/or compatible with local ecosystems. Avoid introduced species that could become nuisances. Consider species that have multiple values such as those suited for biomass, nuts, fruit, browse, nesting, aesthetics, and tolerance to locally used herbicides. Avoid species that may be alternate hosts to disease or undesirable pests. Consider species diversity to avoid loss of function due to species-specific pests.

Select plant materials that provide habitat requirements for desirable wildlife and pollinators. The addition of native forbs and legumes to grass mixes will increase the value of plantings for both wildlife and pollinators. Consider and refer to NRCS CPS Wetland Wildlife Habitat Management (Code 644).

Use treatments that promote beneficial sediment deposition and the filtering of sediment and sediment-attached and dissolved substances.

Maintain or improve fish and wildlife habitat by including treatments that provide aquatic habitat in the treatment design and that may lower or moderate water temperature and improve water quality.

Stabilize side channel inlets and outlets, and outlets of tributary streams from erosion.

Maximize adjacent wetland functions and values with the project design to the extent practicable.

To maintain plant community integrity, exclude livestock during establishment of vegetative treatments and apply appropriate grazing practices after establishment.

Control wildlife during establishment of vegetative treatments. Use temporary and local population control methods with caution and within applicable regulations.

When appropriate, consider establishing a buffer strip and/or diversion at the top of the bank or shoreline protection zone to help maintain and protect installed treatments, improve their function, filter out sediments, nutrients, and pollutants from runoff, and provide additional wildlife habitat.

Consider safety hazards to boaters, swimmers, or people using the shoreline or streambank when designing treatments. Place warning signs as necessary.

Consider installing self-sustaining or minimal maintenance treatments.

PLANS AND SPECIFICATIONS

Prepare plans and specifications that describe the requirements for applying the practice according to this standard. Include provisions to minimize erosion and sediment production during construction and provisions necessary to comply with conditions of any environmental agreements, biological opinions, or other terms of applicable permits. At a minimum, include—

- A plan view of the layout of the streambank and shoreline protection.
- Typical profiles and cross sections of the streambank and shoreline protection.
- Structural drawings adequate to describe the construction requirements.
- Requirements for vegetative establishment and mulching, as needed.
- Safety features.
- Site-specific construction and material requirements.

OPERATION AND MAINTENANCE

Prepare an operation and maintenance plan for the operator.

At a minimum, include—

- Instructions for operating and maintaining the system to ensure it functions properly.
- Periodic inspections and prompt repair or replacement of damaged components.
- Periodic inspections and prompt repair of erosion.
- Instructions for maintaining healthy vegetation, when required.
- Instructions for controlling undesirable vegetation.

REFERENCES

USDA NRCS. 1996. National Engineering Handbook (Title 210), Part 650, Chapter 16, Streambank and Shoreline Protection. Washington, D.C. https://directives.sc.egov.usda.gov/

USDA NRCS. 2008. National Engineering Handbook (Title 210), Part 654, Stream Restoration Design. Washington, D.C. https://directives.sc.egov.usda.gov/

USDA NRCS. 2010. National Engineering Handbook (Title 210), Part 653, Stream Corridor Restoration: Principles, Processes, and Practices. Washington, D.C. https://directives.sc.egov.usda.gov/

USDA NRCS. 2017. National Engineering Manual (Title 210). Washington, D.C. https://directives.sc.egov.usda.gov/

APPENDIX 12-2

PRELIMINARY COST ESTIMATE
WATER QUALITY TRADE PROJECTS
for the VILLAGE OF HOLLANDALE, WI

all habitat pending

****not designing sites 1, 7, 10, 11, and 13**

SITE 2 - Prairie Enthusiast

Site 2 PE **0.05% Phos**

Quantity	Unit	Item	Unit Price	Total
1	L.S.	Mobilization & Cleanup	$ 3,000.00	$ 3,000.00
1	L.S.	Site Preparation, clearing, and grading	$ 2,500.00	$ 2,500.00
80	cu. yd.	Limestone rock riprap D50 size 8" Diameter	$ 110.00	$ 8,800.00
150	sq. yd.	Geotexile Fabric, Type SAS	$ 6.50	$ 980.00
70	sq. yd.	Liming, fertilizing, seeding and mulching	$ 10.00	$ 700.00
1	ea	Streambank habitat structure	$ 2,000.00	$ 2,000.00
1	L.S.	Erosion Control	$ 3,000.00	$ 3,000.00
1	EA	Tracking Pad	$ 3,000.00	$ 3,000.00
		Subtotal		**$ 23,980.00**
		Contingency (20%)	$ 4,800.00	
		Total Estimated Construction Cost		**$ 28,780.00**

Rip Rap Calcs		
Length of bank	60	feet
slope length	22.14	feet
Depth	18	inches
Bank Height	7	feet
Volume	**74**	**CY**

Geotextile Calcs		
Length	60	feet
slope length	22.14	feet
Area	**148**	**SY**

SITE 3 - Prairie Enthusiast

Site 3 PE **0.05% Phos**

Quantity	Unit	Item	Unit Price	Total
-	L.S.	Mobilization & Cleanup	$ 3,000.00	$ -
1	L.S.	Site Preparation, clearing, and grading	$ 2,500.00	$ 2,500.00
320	cu. yd.	Limestone rock riprap D50 size 8" Diameter	$ 110.00	$ 35,200.00
640	sq. yd.	Geotexile Fabric, Type SAS	$ 6.50	$ 4,160.00
250	sq. yd.	Liming, fertilizing, seeding and mulching	$ 10.00	$ 2,500.00
1	ea	Streambank habitat structure	$ 2,000.00	$ 2,000.00
1	L.S.	Erosion Control	$ 3,000.00	$ 3,000.00
-	L.S.	Tracking Pad	$ 3,000.00	$ -
		Subtotal		**$ 49,360.00**
		Contingency (20%)	$ 9,870.00	
		Total Estimated Construction Cost		**$ 59,230.00**

Rip Rap Calcs		
Length	225	feet
slope length	25.30	feet
Depth	18	inches
Bank Height	8	feet
Volume	**316**	**CY**

Geotextile Calcs		
Length	225	feet
slope length	25.30	feet
Area	**632**	**SY**

SITE 4 - Prairie Enthusiast — Site 4 - PE — 0.05% Phos

Quantity	Unit	Item	Unit Price	Total
-	L.S.	Mobilization & Cleanup	$ 3,000.00	-
1	L.S.	Site Preparation, clearing, and grading	$ 2,500.00	$ 2,500.00
190	cu. yd.	Limestone rock riprap D50 size 8" Diameter	$ 110.00	$ 20,900.00
370	sq. yd.	Geotexile Fabric, Type SAS	$ 6.50	$ 2,410.00
170	sq. yd.	Liming, fertilizing, seeding and mulching	$ 10.00	$ 1,700.00
1	ea	Streambank habitat structure	$ 2,000.00	$ 2,000.00
1	L.S.	Erosion Control	$ 3,000.00	$ 3,000.00
-	L.S.	Tracking Pad	$ 3,000.00	-
		Subtotal		**$ 32,510.00**
		Contingency (20%)	$ 6,500.00	
		Total Estimated Construction Cost		**$ 39,010.00**

Rip Rap Calcs		
Length	150	feet
slope length	22.14	feet
Depth	18	inches
Bank Height	7	feet
Volume	**184**	**CY**

Geotextile Calcs		
Length	150	feet
slope length	22.14	feet
Area	**369**	**SY**

SITE 5 - Prairie Enthusiast — Site 5 PE — 0.07% Phos

Quantity	Unit	Item	Unit Price	Total
-	L.S.	Mobilization & Cleanup	$ 3,000.00	-
1	L.S.	Site Preparation, clearing, and grading	$ 2,500.00	$ 2,500.00
430	cu. yd.	Limestone rock riprap D50 size 8" Diameter	$ 110.00	$ 47,300.00
850	sq. yd.	Geotexile Fabric, Type SAS	$ 6.50	$ 5,530.00
270	sq. yd.	Liming, fertilizing, seeding and mulching	$ 10.00	$ 2,700.00
1	ea	Streambank habitat structure	$ 2,000.00	$ 2,000.00
1	L.S.	Erosion Control	$ 3,000.00	$ 3,000.00
-	L.S.	Tracking Pad	$ 3,000.00	-
		Subtotal		**$ 63,030.00**
		Contingency (20%)	$ 12,610.00	
		Total Estimated Construction Cost		**$ 75,640.00**

Rip Rap Calcs		
Length	240	feet
slope length	31.62	feet
Depth	18	inches
Bank Height	10	feet
Volume	**422**	**CY**

Geotextile Calcs		
Length	240	feet
slope length	31.62	feet
Area	**843**	**SY**

SITE 6 - Prairie Enthusiast

Site 6 PE **0.05% Phos**

Quantity	Unit	Item	Unit Price	Total
-	L.S.	Mobilization & Cleanup	$ 3,000.00	-
1	L.S.	Site Preparation, clearing, and grading	$ 2,500.00	$ 2,500.00
300	cu. yd.	Limestone rock riprap D50 size 8" Diameter	$ 110.00	$ 33,000.00
600	sq. yd.	Geotexile Fabric, Type SAS	$ 6.50	$ 3,900.00
240	sq. yd.	Liming, fertilizing, seeding and mulching	$ 10.00	$ 2,400.00
1	ea	Streambank habitat structure	$ 2,000.00	$ 2,000.00
1	L.S.	Erosion Control	$ 3,000.00	$ 3,000.00
-	L.S.	Tracking Pad	$ 3,000.00	-
		Subtotal		**$ 46,800.00**
		Contingency (20%)	$ 9,360.00	
		Total Estimated Construction Cost		**$ 56,160.00**

Rip Rap Calcs		
Length	210	feet
slope length	25.30	feet
Depth	18	inches
Bank Height	8	feet
Volume	**295**	**CY**

Geotextile Calcs		
Length	210	feet
slope length	25.30	feet
Area	**590**	**SY**

SITE 8 - Prairie Enthusiast — Site 8 PE — 0.06% Phos

Quantity	Unit	Item	Unit Price	Total
-	L.S.	Mobilization & Cleanup	$ 3,000.00	-
1	L.S.	Site Preparation, clearing, and grading	$ 2,500.00	$ 2,500.00
170	cu. yd.	Limestone rock riprap D50 size 8" Diameter	$ 110.00	$ 18,700.00
340	sq. yd.	Geotexile Fabric, Type SAS	$ 6.50	$ 2,210.00
140	sq. yd.	Liming, fertilizing, seeding and mulching	$ 10.00	$ 1,400.00
1	ea	Streambank habitat structure	$ 2,000.00	$ 2,000.00
1	L.S.	Erosion Control	$ 3,000.00	$ 3,000.00
-	L.S.	Tracking Pad	$ 3,000.00	-
		Subtotal		**$ 29,810.00**
		Contingency (20%)	$ 5,960.00	
		Total Estimated Construction Cost		**$ 35,770.00**

Rip Rap Calcs		
Bank Length	120	feet
slope length	25.30	feet
Depth	18	inches
Bank Height	8	feet
Volume	**169**	**CY**

Geotextile Calcs		
Bank Length	120	feet
slope length	25.30	feet
Area	**337**	**SY**

SITE 9 - Prairie Enthusiast — Site 9 PE — 0.06% Phos

Quantity	Unit	Item	Unit Price	Total
-	L.S.	Mobilization & Cleanup	$ 3,000.00	-
1	L.S.	Site Preparation, clearing, and grading	$ 2,500.00	$ 2,500.00
160	cu. yd.	Limestone rock riprap D50 size 8" Diameter	$ 110.00	$ 17,600.00
320	sq. yd.	Geotexile Fabric, Type SAS	$ 6.50	$ 2,080.00
170	sq. yd.	Liming, fertilizing, seeding and mulching	$ 10.00	$ 1,700.00
1	ea	Streambank habitat structure	$ 2,000.00	$ 2,000.00
1	EA	Erosion Control	$ 3,000.00	$ 3,000.00
-	EA	Tracking Pad	$ 3,000.00	-
		Subtotal		**$ 28,880.00**
		Contingency (20%)	$ 5,780.00	
		Total Estimated Construction Cost		**$ 34,660.00**

Rip Rap Calcs		
Bank Length	150	feet
slope length	18.97	feet
Depth	18.0	inches
Bank Height	6	feet
Volume	**158**	**CY**

Geotextile Calcs		
Bank Length	150	feet
slope length	18.97	feet
Area	**316**	**SY**

SITE 12 - Prairie Enthusiast — Site 12 PE — 0.04% Phos

Quantity	Unit	Item	Unit Price	Total
-	L.S.	Mobilization & Cleanup	$ 3,000.00	-
1	L.S.	Site Preparation, clearing, and grading	$ 2,500.00	$ 2,500.00
140	cu. yd.	Limestone rock riprap D50 size 8" Diameter	$ 110.00	$ 15,400.00
270	sq. yd.	Geotexile Fabric, Type SAS	$ 6.50	$ 1,760.00
140	sq. yd.	Liming, fertilizing, seeding and mulching	$ 10.00	$ 1,400.00
1	ea	Streambank habitat structure	$ 2,000.00	$ 2,000.00
1	EA	Erosion Control	$ 3,000.00	$ 3,000.00
-	EA	Tracking Pad	$ 3,000.00	$ -
		Subtotal		**$ 26,060.00**
		Contingency (20%)	$ 5,210.00	
		Total Estimated Construction Cost		**$ 31,270.00**

Rip Rap Calcs		
Bank Length	125	feet
slope length	18.97	feet
Depth	18	inches
Bank Height	6	feet
Volume	**132**	**CY**

Geotextile Calcs		
Bank Length	125	feet
slope length	18.97	feet
Area	**264**	**SY**

SITE 14 - Prairie Enthusiast — Site 14 PE — 0.05% Phos

Quantity	Unit	Item	Unit Price	Total
-	L.S.	Mobilization & Cleanup	$ 3,000.00	-
1	L.S.	Site Preparation, clearing, and grading	$ 2,500.00	$ 2,500.00
220	cu. yd.	Limestone rock riprap D50 size 8" Diameter	$ 110.00	$ 24,200.00
430	sq. yd.	Geotexile Fabric, Type SAS	$ 6.50	$ 2,800.00
170	sq. yd.	Liming, fertilizing, seeding and mulching	$ 10.00	$ 1,700.00
1	ea	Streambank habitat structure	$ 2,000.00	$ 2,000.00
1	EA	Erosion Control	$ 3,000.00	$ 3,000.00
-	EA	Tracking Pad	$ 3,000.00	$ -
1	LS	H and H analysis	$ 25,000.00	$ 25,000.00
		Subtotal		**$ 61,200.00**
		Contingency (20%)	$ 12,240.00	
		Total Estimated Construction Cost		**$ 73,440.00**

Rip Rap Calcs		
Bank Length	150	feet
slope length	25.30	feet
Depth	18	inches
Bank Height	8	feet
Volume	**211**	**CY**

Geotextile Calcs		
Bank Length	150	feet
slope length	25.30	feet
Area	**422**	**SY**

PRAIRIE ENTHUSIAST TOTAL COSTS — $ 433,960.00

PRELIMINARY COST ESTIMATE
WATER QUALITY TRADE PROJECTS
for the VILLAGE OF HOLLANDALE, WI

all habitat pending but likely will have

USDA may design

Rip Rap wt: 1.5-2.0 tons/yd3

SITE 1 - Todd Leonard — Site 1TL — 0.08% Phos

Quantity	Unit	Item	Unit Price	Total
1	L.S.	Mobilization	$ 3,000.00	$ 3,000.00
1	L.S.	Site Preparation, clearing, and grading	$ 2,500.00	$ 2,500.00
310	cu. yd.	Limestone rock riprap D50 size 8" Diameter	$ 110.00	$ 34,100.00
620	sq. yd.	Geotexile Fabric, Type SAS	$ 6.50	$ 4,030.00
280	sq. yd.	Liming, fertilizing, seeding and mulching	$ 10.00	$ 2,800.00
1	ea	Streambank habitat structure	$ 2,000.00	$ 2,000.00
1	L.S.	Erosion Control	$ 3,000.00	$ 3,000.00
1	L.S.	Tracking Pad	$ 3,000.00	$ 3,000.00
		Subtotal		**$ 54,430.00**
		Contingency (20%)	$ 10,890.00	
		Total Estimated Construction Cost		**$ 65,320.00**

Rip Rap Calcs		
Length of bank	250	feet
slope length	22.14	feet
Depth	18	inches
Bank Height	7	feet
Volume	**307**	**CY**

Geotextile Calcs		
Length	250	feet
slope length	22.14	feet
Area	**615**	**SY**

Mulching Calcs		
Length	250	feet
Width	10	feet
Area	**277.8**	**SY**

POUNDS OF PHOSPHORUS

48 lb/yr

SITE 2 - Todd Leonard — Site 2 TL — 0.06% Phos

Quantity	Unit	Item	Unit Price	Total
-	L.S.	Mobilization & Cleanup	$ 3,000.00	$ -
1	L.S.	Site Preparation, clearing, and grading	$ 2,500.00	$ 2,500.00
360	cu. yd.	Limestone rock riprap D50 size 8" Diameter	$ 110.00	$ 39,600.00
720	sq. yd.	Geotexile Fabric, Type SAS	$ 6.50	$ 4,680.00
270	sq. yd.	Liming, fertilizing, seeding and mulching	$ 10.00	$ 2,700.00
1	ea	Streambank habitat structure	$ 2,000.00	$ 2,000.00
1	L.S.	Erosion Control	$ 3,000.00	$ 3,000.00
-	EA	Tracking Pad	$ 3,000.00	$ -
		Subtotal		**$ 54,480.00**
		Contingency (20%)	$ 10,900.00	
		Total Estimated Construction Cost		**$ 65,380.00**

Rip Rap Calcs		
Length of bank	240	feet
slope length	26.88	feet
Depth	18	inches
Bank Height	8.5	feet
Volume	**358**	**CY**

Geotextile Calcs		
Length	240	feet
slope length	26.88	feet
Area	**717**	**SY**

Mulching Calcs		
Length	240	feet
Width	10	feet
Area	**266.7**	**SY**

POUNDS OF PHOSPHORUS

42 lb/yr

SITE 3 - Todd Leonard — Site 3 TL — 0.07% Phos

Quantity	Unit	Item	Unit Price	Total
-	L.S.	Mobilization & Cleanup	$ 3,000.00	$ -
1	L.S.	Site Preparation, clearing, and grading	$ 2,500.00	$ 2,500.00
130	cu. yd.	Limestone rock riprap D50 size 8" Diameter	$ 110.00	$ 14,300.00
260	sq. yd.	Geotexile Fabric, Type SAS	$ 6.50	$ 1,690.00
100	sq. yd.	Liming, fertilizing, seeding and mulching	$ 10.00	$ 1,000.00
1	ea	Streambank habitat structure	$ 2,000.00	$ 2,000.00
1	L.S.	Erosion Control	$ 3,000.00	$ 3,000.00
-	L.S.	Tracking Pad	$ 3,000.00	$ -
		Subtotal		**$ 24,490.00**
		Contingency (20%)	$ 4,900.00	
		Total Estimated Construction Cost		**$ 29,390.00**

Rip Rap Calcs		
Length	90	feet
slope length	25.30	feet
Depth	18	inches
Bank Height	8	feet
Volume	**126**	**CY**

Geotextile Calcs		
Length	90	feet
slope length	25.30	feet
Area	**253**	**SY**

Mulching Calcs		
Length	90	feet
Width	10	feet
Area	**100.0**	**SY**

POUNDS OF PHOSPHORUS

11 lb/yr

SITE 4 - Todd Leonard — Site 4 - TL — 0.05% Phos

Quantity	Unit	Item	Unit Price	Total
-	L.S.	Mobilization & Cleanup	$ 3,000.00	-
1	L.S.	Site Preparation, clearing, and grading	$ 2,500.00	$ 2,500.00
120	cu. yd.	Limestone rock riprap D50 size 8" Diameter	$ 110.00	$ 13,200.00
230	sq. yd.	Geotexile Fabric, Type SAS	$ 6.50	$ 1,500.00
70	sq. yd.	Liming, fertilizing, seeding and mulching	$ 10.00	$ 700.00
1	ea	Streambank habitat structure	$ 2,000.00	$ 2,000.00
1	L.S.	Erosion Control	$ 3,000.00	$ 3,000.00
-	L.S.	Tracking Pad	$ 3,000.00	-
		Subtotal		**$ 22,900.00**
		Contingency (20%)	$ 4,580.00	
		Total Estimated Construction Cost		**$ 27,480.00**

Rip Rap Calcs		
Length	60	feet
slope length	33.20	feet
Depth	18	inches
Bank Height	10.5	feet
Volume	**111**	**CY**

Geotextile Calcs		
Length	60	feet
slope length	33.20	feet
Area	**221**	**SY**

Mulching Calcs		
Length	60	feet
Width	10	feet
Area	**66.7**	**SY**

POUNDS OF PHOSPHORUS

11 lb/yr

SITE 5 - Todd Leonard — Site 5 TL — 0.05% Phos

Quantity	Unit	Item	Unit Price	Total
-	L.S.	Mobilization & Cleanup	$ 3,000.00	-
1	L.S.	Site Preparation, clearing, and grading	$ 2,500.00	$ 2,500.00
340	cu. yd.	Limestone rock riprap D50 size 8" Diameter	$ 110.00	$ 37,400.00
680	sq. yd.	Geotexile Fabric, Type SAS	$ 6.50	$ 4,420.00
270	sq. yd.	Liming, fertilizing, seeding and mulching	$ 10.00	$ 2,700.00
1	ea	Streambank habitat structure	$ 2,000.00	$ 2,000.00
1	L.S.	Erosion Control	$ 3,000.00	$ 3,000.00
-	L.S.	Tracking Pad	$ 3,000.00	-
		Subtotal		**$ 52,020.00**
		Contingency (20%)	$ 10,400.00	
		Total Estimated Construction Cost		**$ 62,420.00**

Rip Rap Calcs		
Length	240	feet
slope length	25.30	feet
Depth	18	inches
Bank Height	8	feet
Volume	**337**	**CY**

Geotextile Calcs		
Length	240	feet
slope length	25.30	feet
Area	**675**	**SY**

Mulching Calcs		
Length	240	feet
Width	10	feet
Area	**266.7**	**SY**

POUNDS OF PHOSPHORUS

20 lb/yr

SITE 6 - Todd Leonard — Site 6 TL — 0.04% Phos

Quantity	Unit	Item	Unit Price	Total
-	L.S.	Mobilization & Cleanup	$ 3,000.00	-
1	L.S.	Site Preparation, clearing, and grading	$ 2,500.00	$ 2,500.00
390	cu. yd.	Limestone rock riprap D50 size 8" Diameter	$ 110.00	$ 42,900.00
780	sq. yd.	Geotexile Fabric, Type SAS	$ 6.50	$ 5,070.00
250	sq. yd.	Liming, fertilizing, seeding and mulching	$ 10.00	$ 2,500.00
1	ea	Streambank habitat structure	$ 2,000.00	$ 2,000.00
1	L.S.	Erosion Control	$ 3,000.00	$ 3,000.00
-	L.S.	Tracking Pad	$ 3,000.00	-
		Subtotal		**$ 57,970.00**
		Contingency (20%)	$ 11,590.00	
		Total Estimated Construction Cost		**$ 69,560.00**

Rip Rap Calcs		
Length	220	feet
slope length	31.62	feet
Depth	18	inches
Bank Height	10	feet
Volume	**387**	**CY**

Geotextile Calcs		
Length	220	feet
slope length	31.62	feet
Area	**773**	**SY**

Mulching Calcs		
Length	220	feet
Width	10	feet
Area	**244.4**	**SY**

POUNDS OF PHOSPHORUS

39 lb/yr

SITE 7 - Todd Leonard — Site 7 TL — 0.06% Phos

Quantity	Unit	Item	Unit Price	Total
-	L.S.	Mobilization & Cleanup	$ 3,000.00	-
1	L.S.	Site Preparation, clearing, and grading	$ 2,500.00	$ 2,500.00
530	cu. yd.	Limestone rock riprap D50 size 8" Diameter	$ 110.00	$ 58,300.00
1,060	sq. yd.	Geotexile Fabric, Type SAS	$ 6.50	$ 6,890.00
340	sq. yd.	Liming, fertilizing, seeding and mulching	$ 10.00	$ 3,400.00
1	ea	Streambank habitat structure	$ 2,000.00	$ 2,000.00
1	L.S.	Erosion Control	$ 3,000.00	$ 3,000.00
-	L.S.	Tracking Pad	$ 3,000.00	-
		Subtotal		**$ 76,090.00**
		Contingency (20%)	$ 15,220.00	
		Total Estimated Construction Cost		**$ 91,310.00**

Rip Rap Calcs

Bank Length	300	feet
slope length	31.62	feet
Depth	18	inches
Bank Height	10	feet
Volume	**527**	**CY**

Geotextile Calcs

Length	300	feet
slope length	31.62	feet
Area	**1054**	**SY**

Mulching Calcs

Length	300	feet
Width	10	feet
Area	**333.3**	**SY**

POUNDS OF PHOSPHORUS

61 lb/yr

SITE 8 - Todd Leonard — Site 8 TL — 0.05% Phos

Quantity	Unit	Item	Unit Price	Total
-	L.S.	Mobilization & Cleanup	$ 3,000.00	-
1	L.S.	Site Preparation, clearing, and grading	$ 2,500.00	$ 2,500.00
470	cu. yd.	Limestone rock riprap D50 size 8" Diameter	$ 110.00	$ 51,700.00
930	sq. yd.	Geotexile Fabric, Type SAS	$ 6.50	$ 6,050.00
300	sq. yd.	Liming, fertilizing, seeding and mulching	$ 10.00	$ 3,000.00
1	ea	Streambank habitat structure	$ 2,000.00	$ 2,000.00
1	L.S.	Erosion Control	$ 3,000.00	$ 3,000.00
-	L.S.	Tracking Pad	$ 3,000.00	-
		Subtotal		**$ 68,250.00**
		Contingency (20%)	$ 13,650.00	
		Total Estimated Construction Cost		**$ 81,900.00**

Rip Rap Calcs

Bank Length	264	feet
slope length	31.62	feet
Depth	18	inches
Bank Height	10	feet
Volume	**464**	**CY**

Geotextile Calcs

Bank Length	264	feet
slope length	31.62	feet
Area	**928**	**SY**

Mulching Calcs

Length	264	feet
Width	10	feet
Area	**293.3**	**SY**

POUNDS OF PHOSPHORUS

45 lb/yr

SITE 9 - Todd Leonard — Site 9 TL — 0.04% Phos

Quantity	Unit	Item	Unit Price	Total
-	L.S.	Mobilization & Cleanup	$ 3,000.00	-
1	L.S.	Site Preparation, clearing, and grading	$ 2,500.00	$ 2,500.00
190	cu. yd.	Limestone rock riprap D50 size 8" Diameter	$ 110.00	$ 20,900.00
380	sq. yd.	Geotexile Fabric, Type SAS	$ 6.50	$ 2,470.00
200	sq. yd.	Liming, fertilizing, seeding and mulching	$ 10.00	$ 2,000.00
1	ea	Streambank habitat structure	$ 2,000.00	$ 2,000.00
1	EA	Erosion Control	$ 3,000.00	$ 3,000.00
-	EA	Tracking Pad	$ 3,000.00	-
		Subtotal		**$ 32,870.00**
		Contingency (20%)	$ 6,570.00	
		Total Estimated Construction Cost		**$ 39,440.00**

Rip Rap Calcs

Bank Length	180	feet
slope length	18.97	feet
Depth	18.0	inches
Bank Height	6	feet
Volume	**190**	**CY**

Geotextile Calcs

Bank Length	180	feet
slope length	18.97	feet
Area	**379**	**SY**

Mulching Calcs

Length	180	feet
Width	10	feet
Area	**200.0**	**SY**

POUNDS OF PHOSPHORUS

11 lb/yr

SITE 10 - Todd Leonard — Site 10 TL — 0.04% Phos

Quantity	Unit	Item	Unit Price	Total
-	L.S.	Mobilization & Cleanup	$ 3,000.00	-
1	L.S.	Site Preparation, clearing, and grading	$ 2,500.00	$ 2,500.00
230	cu. yd.	Limestone rock riprap D50 size 8" Diameter	$ 110.00	$ 25,300.00
450	sq. yd.	Geotexile Fabric, Type SAS	$ 6.50	$ 2,930.00
200	sq. yd.	Liming, fertilizing, seeding and mulching	$ 10.00	$ 2,000.00
1	ea	Streambank habitat structure	$ 2,000.00	$ 2,000.00
1	EA	Erosion Control	$ 3,000.00	$ 3,000.00
-	EA	Tracking Pad	$ 3,000.00	$ -
1	LS	H and H Analysis	$ 25,000.00	$ 25,000.00
		Subtotal		**$ 62,730.00**
		Contingency (20%)	$ 12,550.00	
		Total Estimated Construction Cost		**$ 75,280.00**

LEONARD TOTAL COSTS **$ 607,480.00**

Estimated cost/lb of P **$ 2,073.31 /lb.**

Rip Rap Calcs

Bank Length	180	feet
slope length	22.14	feet
Depth	18	inches
Bank Height	7	feet
Volume	**221**	**CY**

Geotextile Calcs

Bank Length	180	feet
slope length	22.14	feet
Area	**443**	**SY**

Mulching Calcs

Length	180	feet
Width	10	feet
Area	**200.0**	**SY**

POUNDS OF PHOSPHORUS

19 lb/yr

293