



Lessard-Sams Outdoor Heritage Council

Tamarac River Enhancement Project - Phase 1

ML 2027 Request for Funding

General Information

Date: 06/22/2026

Proposal Title: Tamarac River Enhancement Project - Phase 1

Funds Requested: \$7,876,000

Confirmed Leverage Funds: \$245,000

Is this proposal Scalable?: Yes

Manager Information

Manager's Name: Lon Aune

Title: County Engineer

Organization: Marshall County

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Location Information

County Location(s): Marshall.

Eco regions in which work will take place:

Prairie

Activity types:

Enhance

Priority resources addressed by activity:

Habitat

Narrative

Abstract

The Tamarac River Enhancement Project – Phase 1 begins to correct issues created by the State’s construction of State Ditch 2 in the early 1900s. When all phases are completed, the full project will enhance 8 miles of straight ditch into 9.6 miles of natural meandering stream within a 290-acre habitat corridor. The project will create a minimum 300-foot wide perpetually protected stream habitat corridor in Marshall County connecting habitat corridors along the Red River to the natural Tamarac River channel and larger blocks of natural lands to the east.

Design and Scope of Work

The straightened portion of the Tamarac River is a prime example of a problem common in the Red River Valley Prairie Ecological Section of Minnesota. Straight channels created by the State to alleviate flooding through the Lake Agassiz Plain created homogenous habitats that don’t have the shallow riffles and deeper pools that are required by fish throughout the year and throughout their life cycle. These channels limit access to their floodplains increasing erosion in the channel, causing lowered habitat diversity, causing lower aquatic life diversity. Downstream habitat is negatively affected due to sediment deposition and increased sediment loading, reducing habitat quality while making flooding worse.

The proposed project addresses these issues using a natural Rosgen E-Channel design with a meandering river alignment within an enhanced floodplain corridor. The natural channel design has been developed with direct input from the MN DNR River Ecology Unit. A sinuous riffle-pool design is proposed to create the aquatic habitat diversity lacking in the currently straightened channel. This activates natural stream processes to maintain habitat stability/quality in the future, which supports MN DNR Fisheries aquatic habitat goals for the Red River Basin. Existing spoil banks will be pulled back and blended into the landscape to complement a more natural waterway, establishing a terrestrial habitat corridor.

The total 8-mile project extent was originally constructed as State Ditch #2 in the early 1900s and later renamed Marshall County Ditch #45 to connect the Tamarac River to the Red River through a pre-settlement prairie wetland that is now highly valuable agricultural land. The original construction included a straight channel with the spoil used as setback levees to confine the waterway and provide flood protection to the adjacent agricultural lands. Beyond the original habitat loss from this approach, the channel bottom has down-cut approximately 3 to 5 feet in depth, causing significant bank failures that have further degraded the limited habitat. By enhancing this artificial system using natural channel design approaches, it develops channel habitat diversity and process for aquatic life, with these benefits maintained in low-flow conditions to ensure fish migrations. It also creates upland and wetland habitats for waterfowl, migratory birds, and other valuable wildlife.

Since the estimated cost of enhancing the full 8-mile project length is approximately \$15,800,000, Marshall County proposes to perform the project in phases. This application includes costs for engineering and permitting for the entire 8-mile project length and the construction costs of approximately 4 of the 8 total miles (Sections 22, 23, & 24 T158N, R50W & Sections 19 & 20 T158N, R49W). Establishing Phase 1 of the project would provide an approximate 145 acres of channel habitat corridor.

In 2022, Marshall County partnered with local SWCDs, the Middle-Snake-Tamarac Rivers Watershed District to develop the MSTR Comprehensive Watershed Management Plan. This plan identified the proposed project as high priority. Several landowner meetings have occurred with very positive feedback regarding the natural E-channel design approach. The easement acquisition is in process and intends to use both the RIM program and local funding.

Explain how the proposal addresses habitat protection, restoration, and/or enhancement for fish, game & wildlife, including threatened or endangered species conservation

This project is designed to permanently enhance a vital ecological corridor within the Lake Agassiz Glacial Plain, a region that once supported vast upland and wetland prairie communities. In total the multi-phase project would restore and enhance the 8-miles straightened reach of Tamarac River into a natural E-channel design and 290 acres of associated riparian habitat, creating a corridor of perpetual upland and wetland conservation easements. Habitat benefits for fish and wildlife will be achieved by our holistic approach centered around the restored natural stream; these will extend to aquatic invertebrates, amphibians, reptiles, and semi-aquatic mammals. Fish habitat improvements will support goals for the Tamarac River and the Red River of the North, specifically by promoting natural stream habitat, connectivity, and more natural hydrology. The stream habitat improvements will benefit Channel Catfish, Northern Pike, and the other 20 native fish species in the Tamarac River. Some species of fish will also benefit from the project as a result of a larger quantity of enhanced quality spawning habitat. The project is consistent with the Comprehensive Watershed Management Plan and will complement other ongoing work in the watershed to improve fish and wildlife habitat, water quality, and reduce flood damage. Terrestrial Species of Greatest Conservation Need (SGCN) within the project area that would benefit greatly from habitat quality improvement are the Nelson's Sparrow, Yellow Rails, and Marbled Godwit. Additionally, there are 3 species of native mussel present downstream of the straightened reach that are missing above. MN DNR hopes a channel restoration will promote natural range expansion of these important but often overlooked native species.

What are the elements of this proposal that are critical from a timing perspective?

Timing is important for implementation of this project, as a major feature of our proposal is the conversion of cropland to perpetual wildlife habitat. Landowners currently are willing to move forward with the proposed project. We need to capitalize on the current high level of interest and concept momentum as the easement needs drive the project. As the drainage authority of the straightened portion of the Tamarac River (MCD #45), Marshall County received BWSR Water Quality Funding for project feasibility. That was used to gain concurrence with landowners along the river. With that work and funding nearing completion, additional funding is needed to complete final engineering, permitting, and begin Phase 1 construction.

Describe how the proposal expands habitat corridors or complexes and/or addresses habitat fragmentation:

This is a multi-phase habitat corridor project to enhance the straightened 8-mile reach of the Tamarac River into a natural E-channel design, which will be situated within 290 acres of associated riparian habitat corridor. Perpetual conservation easements will protect these upland and wetland habitats, reconnecting a fragmented stream habitat corridor between the Tamarac River and Red River of the North. Fish and wildlife habitat benefits are diverse; in addition to the creation and natural maintenance of improved habitat for the fish and other aquatic life, the stream restoration corridor will also link isolated habitat patches that support migratory birds, pollinators, and grassland species. Amphibians, reptiles, and semi-aquatic mammals will benefit through the improved ecosystem connectivity. The wide channel corridor further serves as a buffer from adjacent land uses, improving ecological function and long-term habitat viability.

Which top 2 Conservation Plans referenced in MS97A.056, subd. 3a are most applicable to this project?

Minnesota Prairie Conservation Plan

Minnesota's Wildlife Action Plan 2015-2025

Which LSOHC section priorities are addressed in this proposal?

Prairie

Protect, enhance, or restore existing wetland/upland complexes, or convert agricultural lands to new wetland/upland habitat complexes

Describe how this project/program will produce and demonstrate a significant and permanent conservation legacy and/or outcomes for fish, game, and wildlife:

This project is designed to enhance ecosystem resilience in response to increasingly frequent extreme precipitation events and variable flow regimes driven by climate change. A sinuous channel, improved floodplain connectivity, and establishment of a wide perpetual vegetated buffer will enable the system to more effectively manage fluctuating flow conditions, maintaining habitat continuity across seasons and hydrologic extremes. The restored corridor will filter runoff, and reduce erosion, supporting healthier aquatic ecosystems for long lasting fish, game, and wildlife habitat. Expanded prairie and wetland habitats—well adapted to climate variability—will provide critical refuge for species displaced by changing environmental conditions. Together, these design elements will promote the long term conservation outcomes needed to sustain viability of aquatic and wildlife populations within the Tamarac River watershed and Red River Basin.

If this project/program does not have permanent outcomes, describe why it is important to undertake at this time:

Not applicable

Outcomes

Programs in prairie region:

Agriculture lands are converted to grasslands to sustain functioning prairie systems ~ The overall project will enhance 8 miles of straight ditch into 9.6 miles of natural meandering stream within a 290-acre habitat corridor. The project will create a minimum 300-foot wide perpetually protected stream habitat corridor connecting habitat corridors along the Red River to the Tamarac River and larger blocks of natural lands to the east. The perpetual easement to sustain this habitat corridor will be surveyed and recorded with Marshall County so the easement perpetually will stay with the land for the future to come.

Per MS 97A.056, Subd. 24, Please explain whether the request is supplanting or is a substitution for any previous funding that was not from a legacy fund and was used for the same purpose.

No

How will you sustain and/or maintain this work after the Outdoor Heritage Funds are expended?

Marshall County is the drainage authority for multiple drainage ditches within the county and provides joint authority on multiple ditch systems that overlap between counties. With the Tamarac River Enhancement Project being MCD #45, Marshall County would still act as the drainage authority and have taxation capabilities for long term maintenance of the project assuming full responsibility for operation and maintenance under drainage law. Annual inspections and adaptive management will ensure functionality over time and that long term habitat benefits continue into the future.

Furthermore, the very specific design details incorporated into a natural channel design (e.g. Rosgen E-channel, stream geometry & dimensions) are intended to produce outcomes beyond immediate habitat improvements. More importantly, these choices establish necessary preconditions for natural processes to maintain stream

habitat quality into the future. The emphasis on long-term beneficial outcomes via stream habitat processes is why we chose the natural channel restoration approach.

Actions to Maintain Project Outcomes

Year	Source of Funds	Step 1	Step 2	Step 3
Annual	Marshall County Ditch #45 ditch fund	Inspection of the project performance in coordination with MNDNR staff	Monitor & maintain vegetation	Monitor & maintain vegetation

Provide an assessment of how your program may celebrate cultural diversity or reach diverse communities in Minnesota, including reaching low- and moderate-income households:

Project Partners will complete: 1. Outreach to tribal authorities on natural resource benefits. 2. Consultation with tribal authorities on cultural resources associated with the project area. 3. Project Partners will plan additional education outreach on the cultural significance and history of the area.

Activity Details

Requirements

Will restoration and enhancement work follow best management practices including MS 84.973 Pollinator Habitat Program?

Yes

Is the restoration and enhancement activity on permanently protected land per 97A.056, Subd 13(f), tribal lands, and/or public waters per MS 103G.005, Subd. 15 or on lands to be acquired in this program?

Yes

Where does the activity take place?

Permanently Protected Conservation Easements

Public Waters

Land Use

Will there be planting of any crop on OHF land purchased or restored in this program, either by the proposer or the end owner of the property, outside of the initial restoration of the land?

No

Will insecticides or fungicides (including neonicotinoid and fungicide treated seed) be used within any activities of this proposal either in the process of restoration or use as food plots?

No

Previous OHF Appropriations

Have you received OHF dollars through LSOHC for this program or project in the past?

No

Timeline

Activity Name	Estimated Completion Date
Final (Design/Plans) Engineering	February 2028
Easement Acquisition/Permitting	May 2028
River Enhancement Construction (Phase 1)	October 2030

Budget

Totals

Item	Funding Request	Total Leverage	Leverage Source	Total
Personnel	-	\$45,000	Marshall County	\$45,000
Contracts	\$7,016,000	\$200,000	BWSR Watershed Based Implementation Funds	\$7,216,000
Fee Acquisition w/ PILT	-	-	-	-
Fee Acquisition w/o PILT	-	-	-	-
Easement Acquisition	-	\$988,500	MCD #45 fund/Reinvest in MN	\$988,500
Easement Stewardship	-	-	-	-
Travel	-	-	-	-
Professional Services	\$860,000	-	-	\$860,000
Direct Support Services	-	-	-	-
DNR Land Acquisition Costs	-	-	-	-
Capital Equipment	-	-	-	-
Other Equipment/Tools	-	-	-	-
Supplies/Materials	-	-	-	-
DNR IDP	-	-	-	-
Grand Total	\$7,876,000	\$1,233,500	-	\$9,109,500

Personnel

Position	Annual FTE	Years Working	Funding Request	Total Leverage	Leverage Source	Total
Administrative Assistant / Bookkeeping	0.1	2.0	-	\$15,000	Marshall County	\$15,000
County Engineer / Project Manager	0.1	2.0	-	\$30,000	Marshall County	\$30,000

Amount of Request: \$7,876,000

Amount of Leverage: \$1,233,500

Leverage as a percent of the Request: 15.66%

DSS + Personnel: -

As a % of the total request: 0.0%

Easement Stewardship: -

As a % of the Easement Acquisition: -

Leverage Funding Table

	Leverage Amount Committed	Leverage Amount Confirmed (of Committed Funds)	Leverage Amount Anticipated	Total Leverage
Amount:	\$1,233,500	\$245,000	\$988,500	\$1,233,500
% of Total Leverage:	100.0%	19.86%	80.14%	

Detail leverage sources and confirmation of funds:

BWSR's WBIF - \$200,000 confirmed, Reinvest in Minnesota and MCD #45 local levy funds are anticipated for \$988,500 in easement acquisition, Marshall Counties personnel cost is secured which includes the County Engineer/Project Manager and administrative/bookkeeping tasks.

Does this proposal have the ability to be scalable?

Yes

If the project received 50% of the requested funding

Describe how the scaling would affect acres/activities and if not proportionately reduced, why?

Professional services would be completed so final design and permitting would be accomplished for the project. The project construction would be broken into additional phases to complete portions as funding allows.

Describe how personnel and DSS expenses would be adjusted and if not proportionately reduced, why?

Not applicable

If the project received 30% of the requested funding

Describe how the scaling would affect acres/activities and if not proportionately reduced, why?

Professional services would be completed so final design and permitting would be accomplished for the project. The project construction would be broken into additional phases to complete portions as funding allows.

Describe how personnel and DSS expenses would be adjusted and if not proportionately reduced, why?

Not applicable

What other dedicated funds may collaborate with or contribute to this proposal?

Clean Water Fund

Contracts

What is included in the contracts line?

The contract item consists of construction costs.

Professional Services

What is included in the Professional Services line?

Design/Engineering

Surveys

Federal Funds

Do you anticipate federal funds as a match for this program?

No

Output Tables

Acres by Resource Type (Table 1)

Type	Wetland	Prairie	Forest	Habitat	Total Acres
Restore	0	0	0	0	0
Protect in Fee with State PILT Liability	0	0	0	0	0
Protect in Fee w/o State PILT Liability	0	0	0	0	0
Protect in Easement	0	0	0	0	0
Enhance	0	0	0	145	145
Total	0	0	0	145	145

Restoration/Enhancement Acres Breakdown of Existing Protected Lands (Table 1a.2)

	RESTORE: Lands acquired with OHF	RESTORE: Lands NOT acquired with OHF	ENHANCE: Lands acquired with OHF	ENHANCE: Lands NOT acquired with OHF
DNR Lands (WMA, State Forests, etc.)	-	-	-	-
Non-DNR Lands (city, state, federal, etc.)	-	-	-	-
Easements	-	-	-	145
Total	-	-	-	145

Total Requested Funding by Resource Type (Table 2)

Type	Wetland	Prairie	Forest	Habitat	Total Funding
Restore	-	-	-	-	-
Protect in Fee with State PILT Liability	-	-	-	-	-
Protect in Fee w/o State PILT Liability	-	-	-	-	-
Protect in Easement	-	-	-	-	-
Enhance	-	-	-	\$7,876,000	\$7,876,000
Total	-	-	-	\$7,876,000	\$7,876,000

Acres within each Ecological Section (Table 3)

Type	Metro/Urban	Forest/Prairie	SE Forest	Prairie	N. Forest	Total Acres
Restore	0	0	0	0	0	0
Protect in Fee with State PILT Liability	0	0	0	0	0	0
Protect in Fee w/o State PILT Liability	0	0	0	0	0	0
Protect in Easement	0	0	0	0	0	0
Enhance	0	0	0	145	0	145
Total	0	0	0	145	0	145

Total Requested Funding within each Ecological Section (Table 4)

Type	Metro/Urban	Forest/Prairie	SE Forest	Prairie	N. Forest	Total Funding
Restore	-	-	-	-	-	-
Protect in Fee with State PILT Liability	-	-	-	-	-	-
Protect in Fee w/o State PILT Liability	-	-	-	-	-	-
Protect in Easement	-	-	-	-	-	-
Enhance	-	-	-	\$7,876,000	-	\$7,876,000
Total	-	-	-	\$7,876,000	-	\$7,876,000

Average Cost per Acre by Resource Type (Table 5)

Type	Wetland	Prairie	Forest	Habitat
Restore	-	-	-	-
Protect in Fee with State PILT Liability	-	-	-	-
Protect in Fee w/o State PILT Liability	-	-	-	-
Protect in Easement	-	-	-	-
Enhance	-	-	-	\$54,317

Average Cost per Acre by Ecological Section (Table 6)

Type	Metro/Urban	Forest/Prairie	SE Forest	Prairie	N. Forest
Restore	-	-	-	-	-
Protect in Fee with State PILT Liability	-	-	-	-	-
Protect in Fee w/o State PILT Liability	-	-	-	-	-
Protect in Easement	-	-	-	-	-
Enhance	-	-	-	\$54,317	-

Target Lake/Stream/River Feet or Miles

4 miles channel into 4.8 miles of natural meandering stream

Parcels

Sign-up Criteria?

No

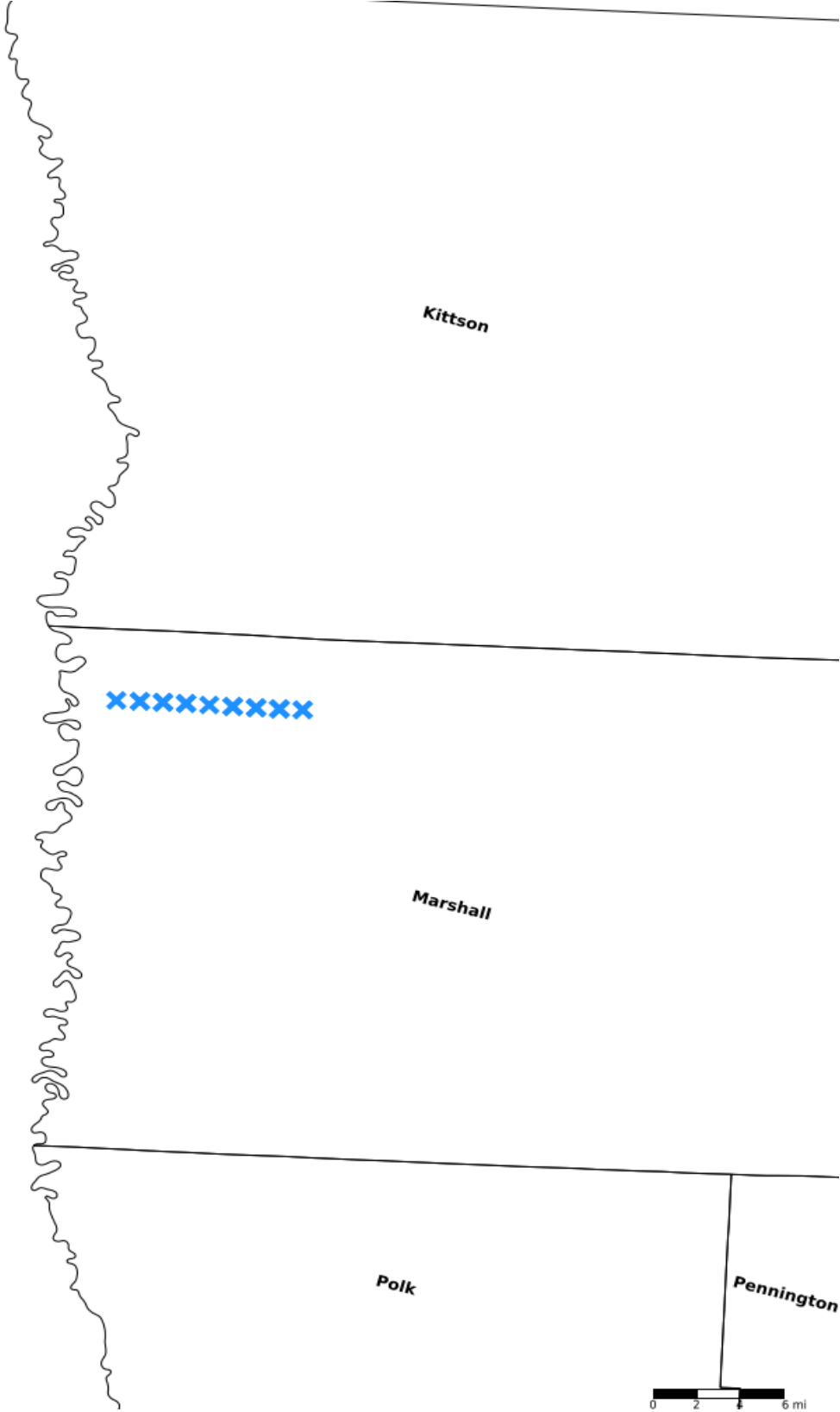
Explain the process used to identify, prioritize, and select the parcels on your list:

All the parcels are along the straight portion of the Tamarac River and are required for perpetual easement for the full implementation of the project. Although the easements are anticipated to be purchased with funds outside LSHOHC funding, the estimated dollar amounts to acquire the easements is given. The full project limits have been listed below, but Phase 1 construction area will be prioritized first as funding allows.

Restore / Enhance Parcels

Name	County	TRDS	Acres	Est Cost	Existing Protection	Description
10-0049-000	Marshall	15849219	17	\$54,265	Yes	-
10-0050-000	Marshall	15849219	8	\$25,201	Yes	-
10-0051-000	Marshall	15849219	8	\$26,468	Yes	-
10-0052-000	Marshall	15849220	34	\$107,182	Yes	-
10-0053-000	Marshall	15849221	15	\$48,307	Yes	-
10-0053-001	Marshall	15849221	1	\$1,276	Yes	-
10-0054-000	Marshall	15849221	19	\$58,382	Yes	-
10-0055-000	Marshall	15849222	13	\$43,700	Yes	-
10-0055-006	Marshall	15849222	10	\$32,663	Yes	-
10-0056-000	Marshall	15849222	10	\$32,327	Yes	-
10-0057-000	Marshall	15849223	5	\$20,311	Yes	-
10-0058-000	Marshall	15849223	3	\$9,945	Yes	-
10-0059-000	Marshall	15849223	7	\$20,146	Yes	-
10-0059-001	Marshall	15849223	15	\$47,917	Yes	-
10-0059-003	Marshall	15849223	5	\$17,136	Yes	-
10-0060-000	Marshall	15849224	1	\$0	Yes	-
10-0062-000	Marshall	15849224	38	\$124,636	Yes	-
11-0081-000	Marshall	15850222	1	\$0	Yes	-
11-0086-000	Marshall	15850223	35	\$98,078	Yes	-
11-0087-000	Marshall	15850223	1	\$2,370	Yes	-
11-0088-000	Marshall	15850224	23	\$65,023	Yes	-
11-0089-000	Marshall	15850224	4	\$12,170	Yes	-
11-0090-000	Marshall	15850224	7	\$19,993	Yes	-

Parcel Map



- Protect in Easement
- ▲ Protect in Fee with PILT
- Protect in Fee W/O PILT
- ★ Restore
- ✕ Enhance
- ⊕ Other

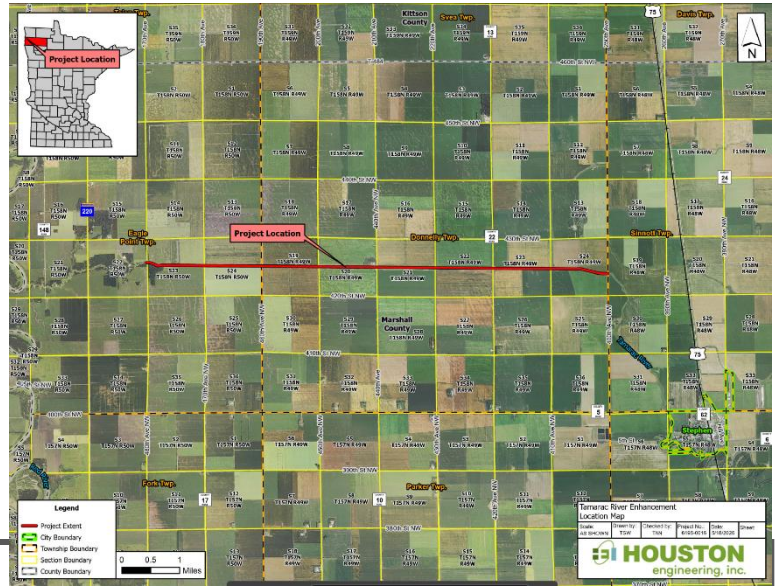
Tamarac River Enhancement Project – Phase 1

Marshall County, MN

Project Background

The Tamarac River Enhancement Project – Phase 1 begins to correct issues created by the State’s construction of State Ditch 2 in the early 1900s. When all phases are completed, the full project will enhance 8 miles of straight ditch into 9.6 miles of natural meandering stream within a 290-acre habitat corridor.

The project will create a minimum 300-foot wide perpetually protected stream habitat corridor in Marshall County. It will connect habitat corridors along the Red River to the natural Tamarac River

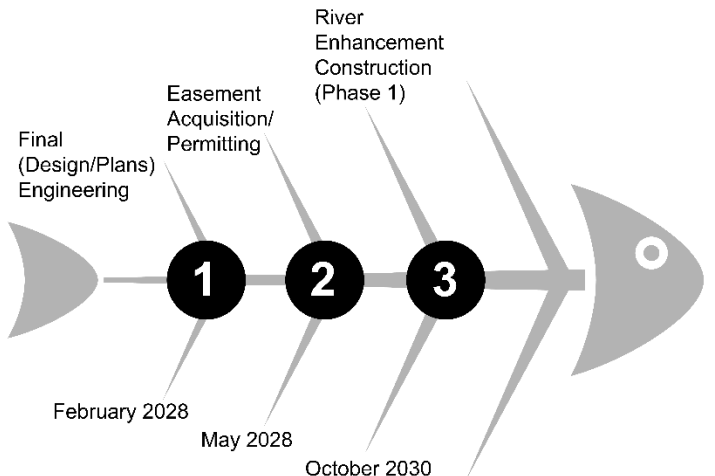
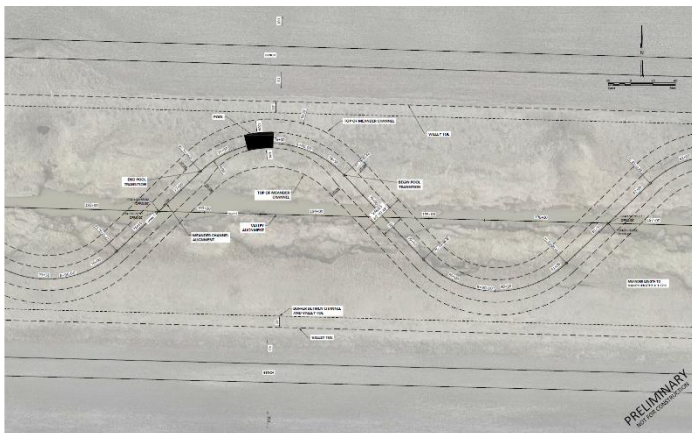


Project Benefits

- Restore and enhance the 8-miles straighten reach of Tamarac River into a natural meandering design
- Restore 290 acres of associated riparian habitat
- Create a corridor of perpetual upland and wetland conservation easements
- Complements other ongoing work in the watershed to improve fish and wildlife habitat, improve water quality, and reduce flood damage
- Holistic approach centered around the restored natural stream
- Fish habitat improvements will support the Tamarac River and the Red River of the North’s goals by promoting natural stream habitat, connectivity, and more natural hydrology
- Stream habitat improvements will benefit Channel Catfish, Northern Pike, and 20 other native fish species due to increased spawning habitat

Timeline

Timing is important for implementation of this project, as a major feature of our proposal is converting cropland into perpetual wildlife habitat. **Landowners are willing to move forward with the proposed project.** We need to capitalize on the current high level of interest.



Map of the plan sheet showing the meandering channel design over the straight ditch.