Capital Improvement Project

Webster Wetland Restoration

This project led by the City of Elko New Market restored a six acre, partially drained wetland that is located in the highest tributary reach of the Vermillion River within the Vermillion River Watershed area of Scott County. The wetland area restored is located in an outlot owned by the City.

There was a field tile that ran in a northwest direction installed through the middle of the wetland, running the entire length. This tile drained the wetland between rainfall events. The field tile also served as a drain for a farmed wetland further upstream on private property. It is unknown whether secondary tile lines connect to this tile and further drain the wetland.

The City replaced the field tile through this wetland in November 2020 with solid pipe (to maintain the upstream drainage) and construct an outlet structure to protect Webster/Zane Avenue from overtopping and provide a consistent normal water level. The restored water level would result in depths of 6 to 36 inches in the center of the wetland (deep marsh) and surface saturation to 6 inches deep at the edges (shallow marsh). The field has been used to raise alfalfa for decades, so emergent native wetland vegetation establishment below the resulting water level is part of the design. The partially drained condition has allowed reed canary grass to become dominant. This species will be drowned out by the restored hydrology. It is not proposed to attempt eradication or replacement of this species above the restored water level.

This project will result in increased water quality benefits to Whispering Creek and the Vermillion River. Using the P8 Urban Catchment Model, pollutant reduction amounts for Total Suspended Sediment (TSS), Total Phosphorus (TP) and Total Kjeldahl Nitrogen (TKN) were predicted.

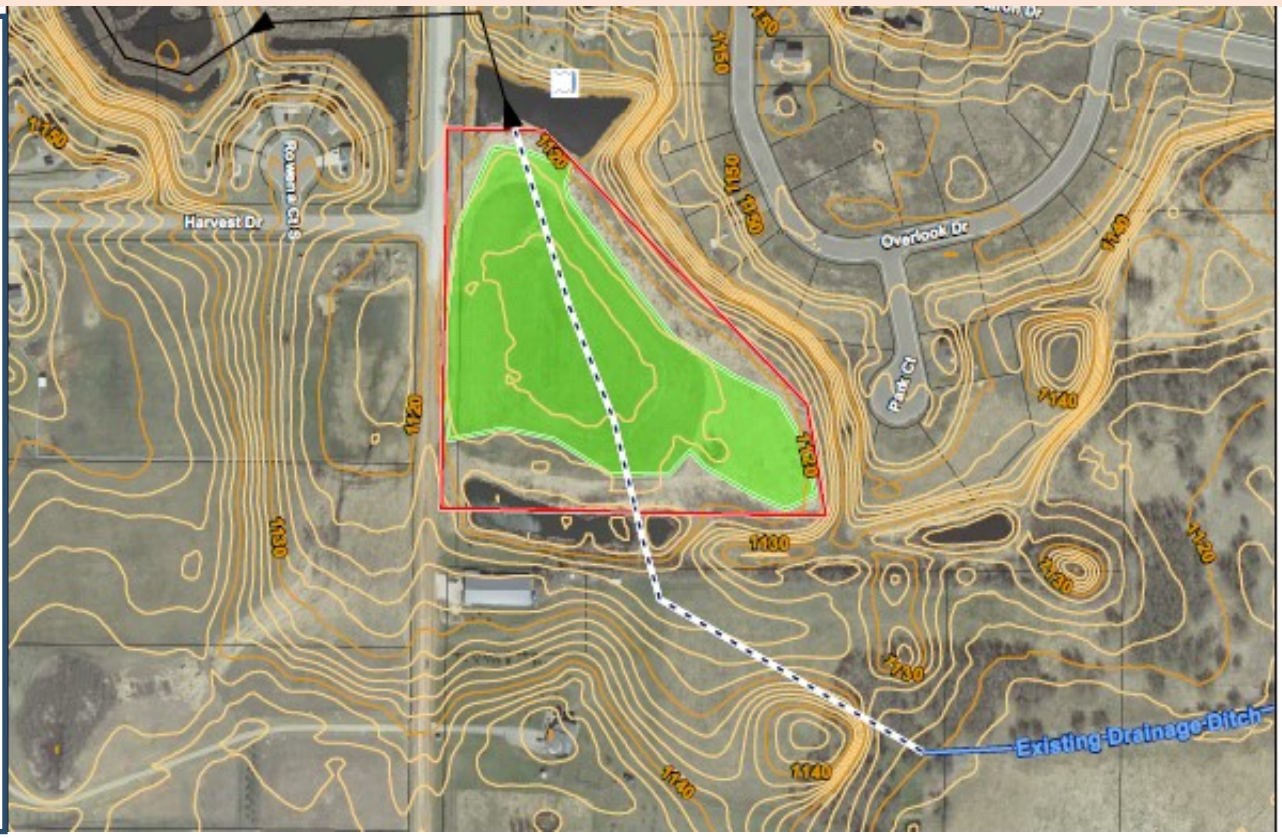
This project would offer benefits in addition to water quality improvements resulting from capture of sediments and nutrients. The restored emergent vegetation would improve wildlife habitat, enhance open space in the growing community, and exemplify the potential for future, additional wetland restoration upstream.

Before:

Existing clay tile

Delineated wetland

Project boundary



Problem:

- The old clay tile running through the middle of the wetland, drains the wetland between rainfall events, not allowing sedimentation and filtering of nutrients.
- This field tile also serves as a drain for a farmed wetland further upstream on private property.
- The partially drained condition has allowed reed canary grass to become dominant.

Actions:

- Replace field tile through wetland with a solid pipe (to maintain upstream drainage) and allow for water retention and filtering of sediments and nutrients.
- Construct on outlet structure to protect Webster/Zane Avenue from overtopping and provide a consistent water level.

Benefits:

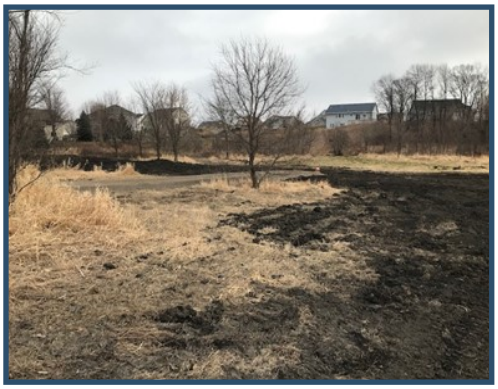
- Using the P8 Urban Catchment Model, the predicted removal amounts for total suspended solids (TSS) is 11,063 lbs./yr; total phosphorus (TP) 26.4 lbs./yr; and total Kjeldahl nitrogen (TKN) 110.4 lbs./yr.
- In addition to water quality improvements resulting from capture of sediments and nutrients, the restored emergent vegetation would improve wildlife habitat, and enhance open space in the growing community.

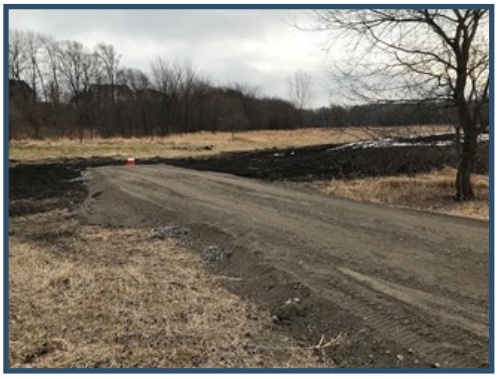
Costs & contributions:

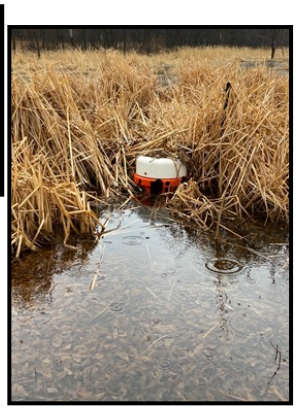
- Clean Water Fund: $67,000
- City of Elko New Market: $7,329 cash match, project management and construction oversight
- Vermillion River Watershed Joint Powers Organization: grant fiscal agent
- Scott County: project administrative oversight

Installing a solid pipe will allow the wetland to function like a wetland filtering sediment and nutrients that would otherwise flow unfiltered to the Vermillion River

After photos







A project completed cooperatively by:

Vermillion River watershed reflecting life

Scott

Clean Water Land & Legacy Amendment

City of Elko New Market — Small-town culture. Emerging possibilities.

Board of Water and Soil Resources

A grant from the Clean Water Fund, one of four funds established by the Clean Water, Land & Legacy Amendment, supported this project. Clean Water Stories can be found on the Minnesota Board of Water and Soil Resources website.