

Information for File # 2013-04342-MMJ; Hydes Lake Water Quality Improvement Project

Applicant: Carver Soil and Water Conservation District (Carver SWCD)

Corps Contact: Melissa Jenny

Address: 180 Fifth Street East, Suite 700, St. Paul, Minnesota 55101

E-Mail: Melissa.m.jenny@usace.army.mil

Phone: (651) 290-5363

Primary County: Carver

Location: Sec. 30, T. 116 N., R. 25 W.

Information Complete On: 12/23/2013

Posting Expires On: 1/06/2014

Authorization Type: MN-LOP-05

This application is being reviewed in accordance with the practices for documenting Corps jurisdiction under Sections 9 & 10 of the Rivers and Harbor Act of 1899 and Section 404 of the Clean Water Act identified in Regulatory Guidance Letter 07-01. We have made a preliminary determination that the aquatic resources that would be impacted by the proposed project are regulated by the Corps of Engineers under Section 404 of the Clean Water Act. Our jurisdictional review and final jurisdictional determination could result in modifications to the scope of the project's regulated waterbody/wetland impacts and compensatory mitigation requirements identified below.

PROJECT DESCRIPTION AND PURPOSE: The purpose of this project is to reduce nutrient loading into Hydes Lake by installing an off-line iron sand filter shelf system to treat water entering Hydes Lake from the northern Patterson Lake subwatershed. Work would include the installation of a reinforced earthen weir (at 973.0') within the man-made outlet channel downstream of Patterson Lake. This would divert water within the channel during low and moderate flows into the filter shelf system for treatment. During high flow events following heavy rainfall or early spring snow melt, water within the channel would overtop the diversion weir and circumvent the system. Work in wetlands would include the abovementioned weir, and wetland excavation associated with installation of a 2,500 square foot iron sand filter shelf just upstream of the weir, as well as the excavation of a 6,000 square foot shallow open water pond, on the northern end of the project area. The open water area was included in this project at the request of the landowner, to enhance wildlife habitat on his property. The excavated open water area

would not exceed 4 feet in depth, and the pond would be constructed with gradual 8:1 side slopes.

NAME, AREA AND TYPES OF WATERS (INCLUDING WETLANDS) SUBJECT TO LOSS: Construction of the weir would result in the permanent discharge of fill material over approximately 500 square feet of wet meadow type wetland. Construction of the filter shelf would result in the discharge of fill material over approximately 2,500 square feet of wet meadow type wetland. Excavating the open water area would result in conversion of approximately 6,000 square feet of wet meadow type wetland area to a shallow open water type wetland community. Installation of the weir at 973.0' would restore hydrology to a portion of partially drained wetland located adjacent to the ditch upstream from the weir. The approximate wetland edge elevation of this wetland complex is 974.3'. Approximate extents of water back-up at the weir crest elevation (973.0') may restore hydrology to an approximately 15,190 square-foot portion of existing partially-drained and degraded wet meadow and shallow marsh type wetland, restoring the area to a shallow and deep marsh type wetland community. This portion of the wetland could be restored to predevelopment conditions without adversely affecting any neighboring properties. Also, the project will not adversely affect the ordinary high water level (OHWL, 974.4') of Patterson Lake; the control elevation of the diversion weir (973.0') is approximately 1.40' below the OHWL of the lake.

ALTERNATIVES CONSIDERED: The applicant considered the no build option, but determined that it was not feasible because doing nothing would not reduce nutrient loading into the lake as identified in the Hydes Lake Total Maximum Daily Load (TMDL) report and implementation plan. Carver SWCD also explored alternate locations for the system, including a location approximately 700-1000 feet downstream from proposed, on the eastern side of the ditch, and other locations in the same general area as proposed, with placement of the filter shelf in upland areas. These alternate locations were deemed not feasible because they were unacceptable to the landowner because of current and future activity he has planned for these areas.

COMPENSATORY MITIGATION: The applicant has not proposed compensatory wetland mitigation for this project; this is a water quality improvement project, intended to improve the resource. Permanent wetland impacts associated with this project would be small, and would be off-set by the overall gain in wetland function and improved water quality resulting from construction of the iron sand filter shelf system.

Drawings: See attached.



Carver County, MN

Waconia Twp

T116 R025 S30

SE1/4 of NE 1/4



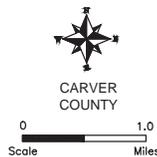
- Legend**
- 2011 County
 - 2011 1/4
 - POB
 - 2011 1/4
 - 2011 1/4

This map was prepared for the purpose of showing the location of the project. It is not intended to be used for any other purpose. The user assumes all responsibility for the accuracy of the information shown on this map. The user should consult the appropriate authorities for more information.



CONSTRUCTION PLANS FOR THE HYDES LAKE SOLUBLE PHOSPHORUS TREATMENT PROJECT

(CARVER COUNTY, MN)
for the CARVER COUNTY WATER MANAGEMENT ORGANIZATION
OCTOBER 2013



SHEET INDEX

- [1] TITLE SHEET
- [2] CONSTRUCTION DETAILS
- [3] FILTER SHELF LAYOUT

PLAN REFERENCES:

1) MINNESOTA DEPT. OF TRANSPORTATION - STANDARD SPECIFICATIONS FOR CONSTRUCTION, 2005 (XXXX) OR Mn/DOT XXXX

THE EXISTING UTILITY INFORMATION SHOWN IN THIS PLAN HAS BEEN SURVEYED BY OTHERS; THE CONTRACTOR SHALL FIELD VERIFY EXACT LOCATIONS PRIOR TO COMMENCING CONSTRUCTION AS REQUIRED BY STATE LAW. NOTIFY GOPHER STATE ONE CALL (1.800.252.1166 OR 651.454.0002)

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF C/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA."

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

DAVID M. POGGI
 LICENSE: 44573 DATE: 10/21/2013

10/21/2013 3:27:56 PM

HYDROMETHODS, LLC
 1551 Livingston Avenue, Suite 104
 West St. Paul, MN 55118
 o: 763.210.5713 | f: 763.219.1273

DESIGNED: DMP	REV.	BY	DATE	DESCRIPTION
DRAWN: DMP				
CHECKED: KEB				

HYDES LAKE SOLUBLE PHOSPHORUS TREATMENT
 CARVER COUNTY WATER MANAGEMENT ORGANIZATION

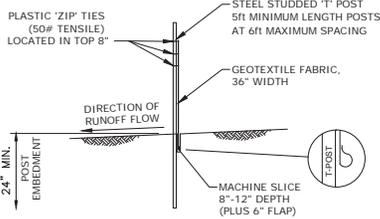
TITLE SHEET

SHEET
1
OF
3

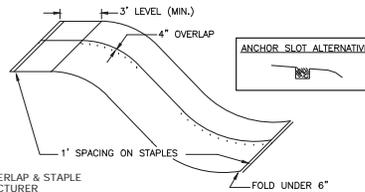
NOTE:
Iron filings shall be: ETI-CC-1004(-8-50) as supplied by Connelly-GPM, Inc. or approved equal.

FILTER INSTALLATION SEQUENCE:

1. Excavate shelf and quality compact subgrade.
2. Trench in 14" x 14" pipe trenches.
3. Place Type II woven geotextile fabric over entire bottom (3733).
4. Place Erosion Stabilization Mat, Class I (3888)
5. Place 4" coarse filter aggregate below CPEP drain tile.
6. Fill around pipe and 4" above with washed pea rock.
7. Place 12" of fine filter aggregate.
8. Place iron filings at a rate of 3.7 lb/sf.
9. Till in 4" deep with garden tiller.
10. Till in 8" deep. Repeat 8" till a second time.

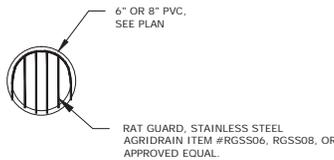


SILT FENCE - MACHINE SLICED



NOTE:
ANCHOR, OVERLAP & STAPLE PER MANUFACTURER SPECIFICATIONS

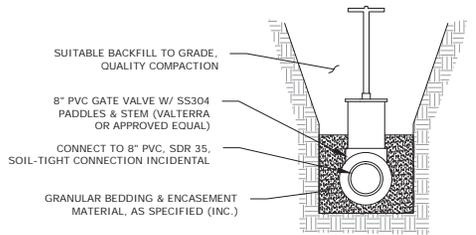
EROSION CONTROL BLANKET INSTALLATION



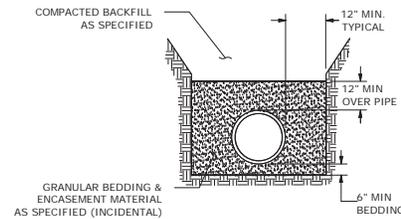
RAT GUARD, STAINLESS

VALVE AND PVC PIPE NOTES:

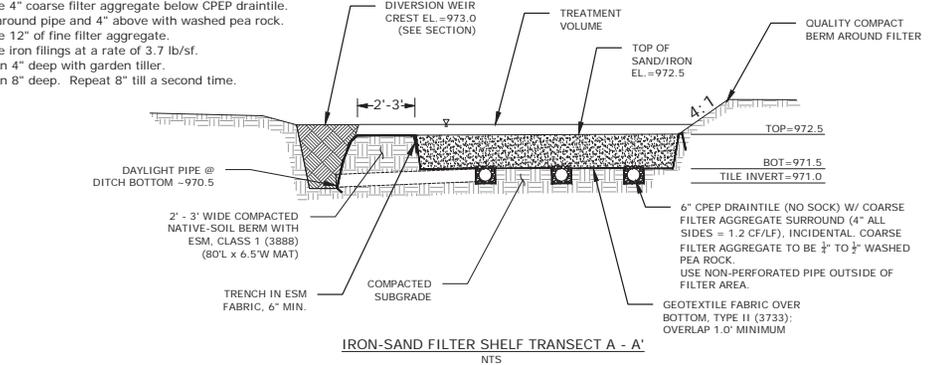
1. Granular Bedding and Encasement - Bedding and granular encasement materials used in the pipe zone area (6" below the pipe to 12" over the pipe) shall meet granular bedding (3149.2F) or fine filter aggregate (3149.2J) requirements.
2. Backfill material shall be suitable borrow material from the excavation, and shall be quality compacted with hand-machines. The maximum lift thickness shall be 6 inches.
3. All joints shall be water-tight with appropriate sealing material (per manufacturer recommendation).



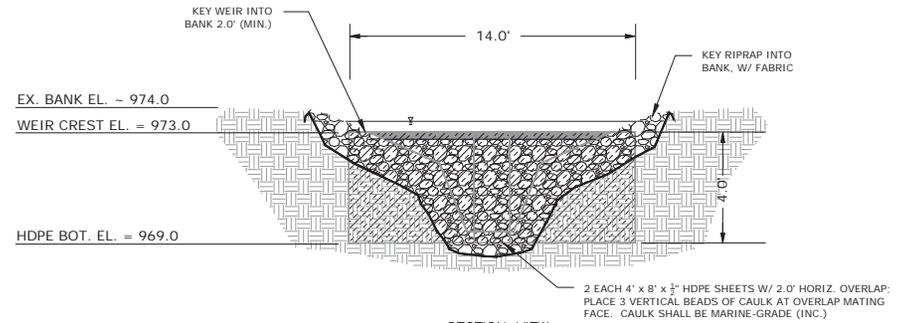
AGRICULTURAL GATE VALVE, 8"
NTS



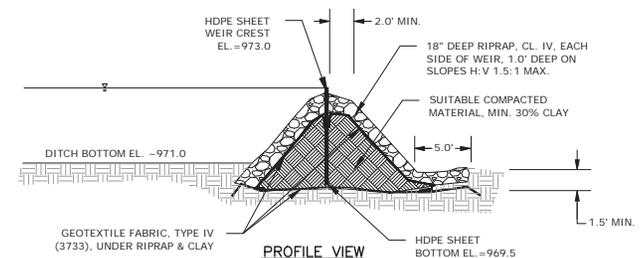
PIPE TRENCH, PVC
NTS



IRON-SAND FILTER SHELF TRANSECT A - A'
NTS



SECTION VIEW



DIVERSION WEIR-OUTLET CONTROL
NTS

10/27/2013 3:35:46 PM

HYDROMETHODS, LLC
1551 Livingston Avenue, Suite 104
West St. Paul, MN 55118
o: 763.210.5713 | f: 763.219.1273

DESIGNED: DMP	REV. BY	DATE	DESCRIPTION
DRAWN: DMP			
CHECKED: KEB			

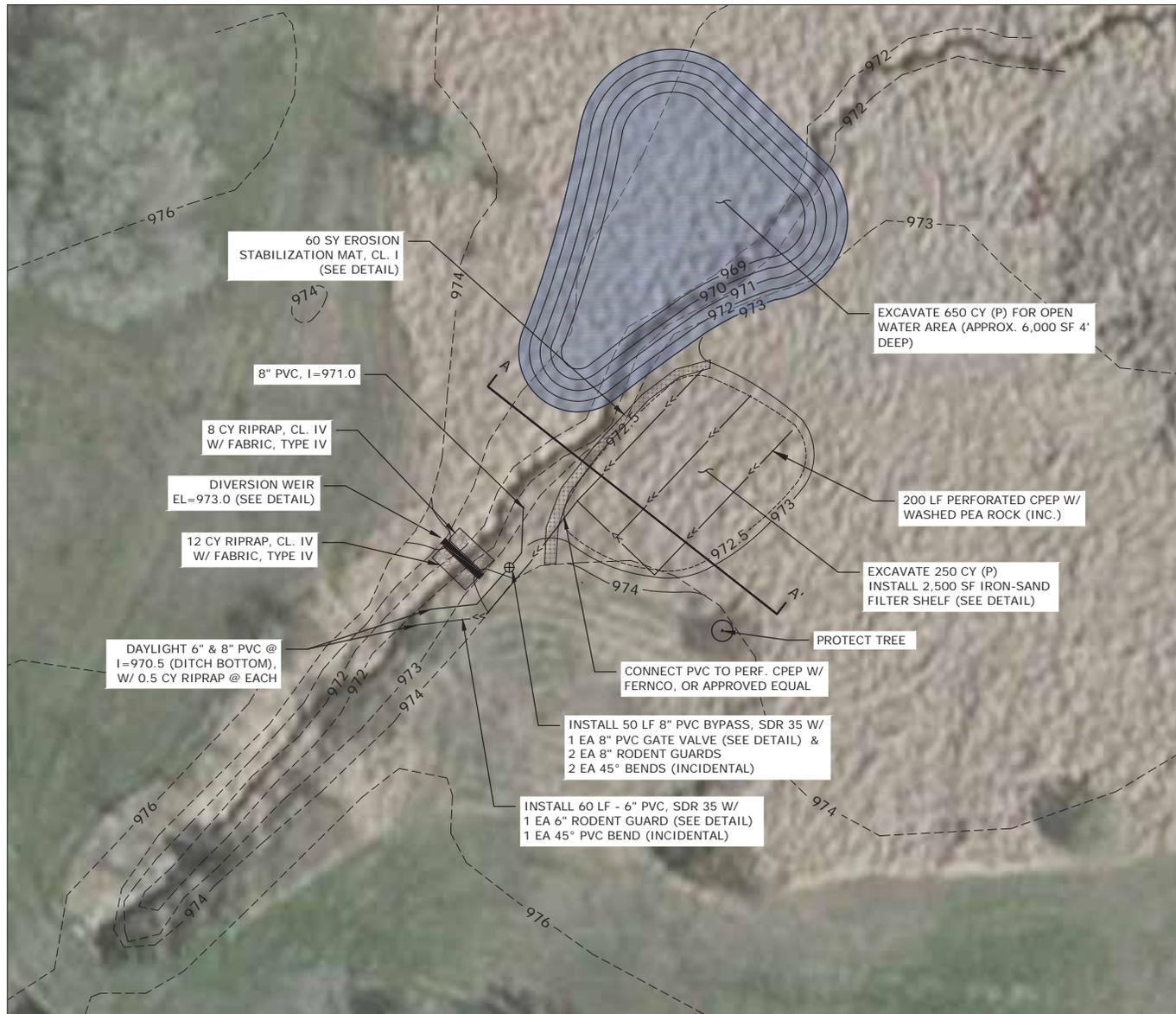
I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

DAVID M. POGGI DATE: 10/21/2013
LIC. NO.: 44573

HYDES LAKE SOLUBLE PHOSPHORUS TREATMENT
CARVER COUNTY WATER MANAGEMENT ORGANIZATION
CONSTRUCTION DETAILS

SHEET
2
OF
3

BENCHMARK
 Southeast Corner of Cabin Foundation
 Elevation = (Contact Carver SWCD)



EARTHWORK SUMMARY:

POND EXCAVATION (4.0') (EV) (P) = 650 CY

FILTER EXCAVATION (EV) (P) = 250 CY

EARTHWORK NOTES:

- 1) Excavated Volume (EV) is the measurement of material in its original undisturbed condition.
- 2) Compacted Volume (CV) is the measurement of material in its placed and compacted (shrunk) position, according to the dimensions shown on the plan.
- 3) Loose Volume (LV) is the measurement of material hauled to the site, in its uncompacted transport condition.
- 4) Plan quantity (P) will be paid at this quantity unless otherwise approved prior to work performed.

CONSTRUCTION NOTES:

1. Utilities have not been located - none are expected; Contractor to verify. Contractor is responsible for replacing or repairing any utilities or other features shown or not shown on the plan that are damaged during construction. No additional payment shall be made.
2. The DNR Permit has been obtained, and USCOE Permit will be obtained by Owner prior to construction; No MPCA NPDES permit is required for the project.
3. Existing contours in the construction area are based on County survey; outside construction area are approximated with LIDAR data. Contractor is responsible for obtaining final relative grades as shown on plan.
4. Excavated material shall be spread on landowner's property, as directed by Owner, OUTSIDE of wetland boundary (location to be verified by Owner prior to placement of fill).
5. Compacted berm with ESM shall be placed adjacent to filter shelf as shown, and shall not be on top of the filtration media surface elevation.
6. Riprap placed on weir shall be keyed into channel and shall not reduce cross-sectional area of channel below the up- or down-stream channel area.
7. Dewatering is not expected due to season of construction (contact Carver County SWCD prior to dewatering).
8. All equivalent substitutions must be approved by the Engineer prior to installation or bidding; no price adjustments shall be made due to unapproved substitutions. Bid accordingly.

EROSION & SEDIMENT CONTROL NOTES:

1. Work to be completed in late fall/winter 2013.
2. In the event of forecast rainfall or snowmelt, Contractor shall apply hydraulic soil stabilizer, Type 5, as directed (contact Engineer or SWCD Staff for approval prior to application).
3. Seed Mn/DOT Mix 350 @ 100 lb/ac and Hydraulic Soil Stabilizer, Type 5 @ 2500 lb/ac (3884) placed on disturbed areas. Do not seed filter area.
4. Notify Engineer or SWCD Staff prior to turf restoration; may be postponed until spring.
5. Turf restoration seed and mulch shall be applied at the application rates listed in the Mn/DOT Seeding Manual, 2007.

10/21/2013 3:34:53 PM

HYDROMETHODS, LLC
 1551 Livingston Avenue, Suite 104
 West St. Paul, MN 55118
 o: 763.210.5713 | f: 763.219.1273



0 30
 Scale Feet

DESIGNED:	DMP	REV.	BY	DATE	DESCRIPTION
DRAWN:	DMP				
CHECKED:	KEB				

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

DAVID M. POGGI
 DATE: 10/21/2013
 LIC. NO.: 44573

HYDES LAKE SOLUBLE PHOSPHORUS TREATMENT
 CARVER COUNTY WATER MANAGEMENT ORGANIZATION
 FILTER SHELF LAYOUT