Young Environmental Consulting Group, LLC

SITE LOCATION: CSAH 61-Flying Cloud Drive

PURPOSE: Construction Stormwater Site Visit on Behalf of the Lower Minnesota River Watershed District (LMRWD)

DATE & TIME: 29 December 2018, 0915-1130

INSPECTOR: Sarah Duke Middleton, Water Resources Scientist
Young Environmental Consulting Group, LLC

WEATHER: 7°F, overcast with light winds, light intermittent snow

SITE CONDITIONS: Recent warm weather from December 26 through December 28 brought several forms of precipitation to the site. An inch or two of snow fell, followed by 0.8 inches of rain, then an additional inch of snow covered the site. During the site visit the project was covered in ice with approximately one inch of snow. The ground was frozen.

PHASE: Active construction, including the construction of walls, prep for bridge construction (predominately in the middle section of the project), and some grading.

DISCUSSION

Construction crews were not present during the site visit. Recent precipitation coated the construction site with a layer of ice and an inch of snow. Areas along the roadbed had large sheets of ice suggesting ponding occurring during the rain event.

INSPECTION NOTES

Since the last visit on December 26, weather has varied for warm, snow fall, rain, to freezing conditions. Erosion and sediment control (ESC) efforts were underway during the last visit, predominately on the eastern half of the project. Many slopes were graded and hydomulched before the last precipitation event. During this visit, the hydromulch appeared undisturbed by the snow melt and precipitation.

Erosion and sediment documented during the last site visit were still evident in many places. The recent ESC efforts, addressed some, but not all these areas. Hydromulch and regrading activities were concentrated in the middle and eastern areas of the project (see photos in Segments 3 & 4 in the photo log).

Construction crews continue to install pylons, which necessitates dewatering in several locations. Several areas had dewatering equipment setups along the southern side of the right of way but there were no active operations. See photos 3 - 5, 22, 23, and 25.

See the attached photo log for documentation of current site conditions.

RECOMMENDATIONS

Lower Minnesota River Watershed District:

- Attend the next project meeting to present the District's concerns about erosion and sediment management of the project as well as the potential negative effects to adjacent water and natural resources.

Project Team/Site Supervisor:

- Numerous BMPs appear to have failed. Review site conditions (slope, drainage, etc.), and provide and install appropriate BMPs for site conditions and anticipated seasonal precipitation.
- Culverts draining stormwater: Culverts on the northern side of the road receive drainage from nearby construction activity. Without BMPs in place, sediment-laden stormwater flows directly into the culvert and outputs into Rice Lake or other down-gradient water features. See the following photos for reference: 1, 7, 10 – 11, and 16.
- Actively maintain and install all site BMPs per regulatory requirements, design, and installation specifications.
- Remove construction debris and trash from the site (used oil bottles, fiber, rope, food waste, etc.).

NEXT PROJECT SITE VISIT

Site visits will take place on a monthly basis during frozen conditions, unless warmer weather or a rain event occur. The next site visit will take place in late-January 2019, unless otherwise directed by the LMRWD.

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PHOTO LOG

The following photographs were taken during the site visit on Saturday, December 29, 2018. All photos show a red arrow indicating north and a text box indicating the general location of Rice Lake. Aerial photos of the project site are incorporated to designate where site features are located/photographed.

Due to the linear nature of the project, the site has been divided into four segments (see aerial photo ->). The photo log will highlight locations of site features at the segment level.

Segment 1

Photo No.: 1

Location: 44°48’50.52”N 93°31’54.07”W

BMPs Present: None visible

Description: Stormwater inlet on southern side of ROW.

	Photo No.: 2 Location: 44°48'50.57"N 93°31'54.22"W BMPs Present: Two rows of silt fencing; ESC blanket south of the silt fencing. Description: Outlet of stormwater culvert pictured in photo 1.
	Photo No.: 3 Location: 44°48'55.02"N 93°31'37.64"W BMPs Present: None visible Description: Dewatering setup in wetland area on northern side of the ROW.
	Photo No.: 4 Location: 44°48'55.11"N 93°31'37.47"W BMPs Present: None visible Description: Continuation of dewatering setup from photo 3.

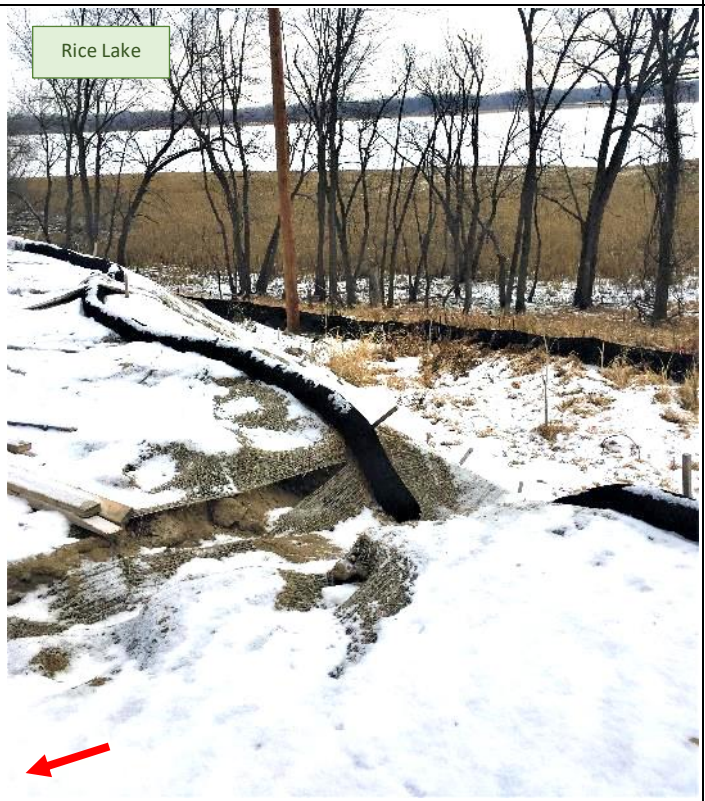
	Photo No.: 5 Location: 44°48'54.89"N 93°31'37.16"W BMPs Present: None visible Description: Wall construction on the northern side of the ROW.
	Photo No.: 6 Location: 44°48'56.92"N 93°31'26.10"W BMPs Present: ESC blanket; biologs; two rows of silt fence Description: Southern side of the ROW. Washed out areas beneath blanket do not appear to have eroded further (since December 21st site visit).

Photo No.: 7

Location: 44°48’57.64”N 93°31’22.47”W

BMPs Present: Rock checks

Description: Northern side of ROW conditions. Area appears stable and frozen. Green arrows denote the stormwater drainage route leading to an inlet masked by vegetation.

Photo No.: 8

Location: 44°48’57.73”N 93°31’20.45”W

BMPs Present: Riprap; biologs; two rows of silt fencing

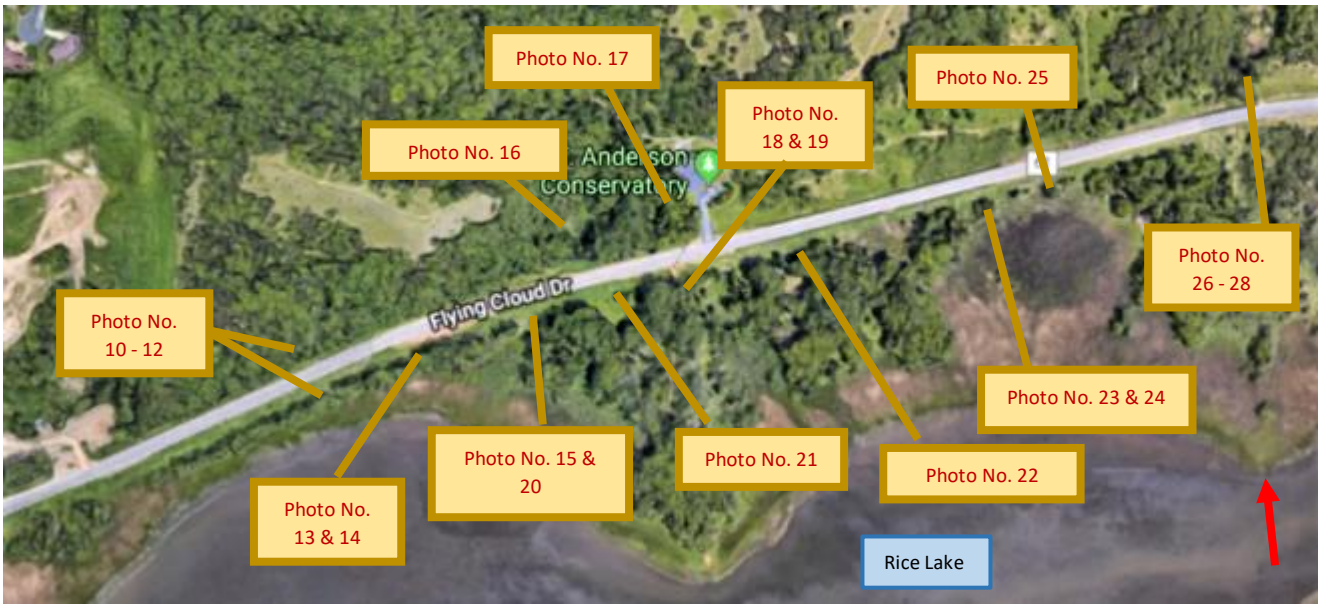
Description: Outlet on southern side of ROW. Area is stable and frozen. During my site visit there was no indication of new erosion or sedimentation post rain event.

Photo No.: 9

Location: 44°48’58.64”N 93°31’17.89”W

BMPs Present: Two rows of silt fence

Description: ROW conditions on the southern side of the project. The ground is frozen and silt fencing is intact.



Segment 2

Photo No.: 10

Location: 44°49’02.70”N 93°31’09.71”W

BMPs Present: None visible

Description: Northern side of ROW. The green arrows indicate stormwater drainage pattern into a partially buried inlet. See photo 11 for inlet and photo 12 for outlet.

Photo No.: 11

Location: 44°49’02.39”N 93°31’09.42”W

BMPs Present: None visible

Description: Partially buried stormwater inlet. See photo 10 for drainage leading to this inlet and photo 12 for outlet.

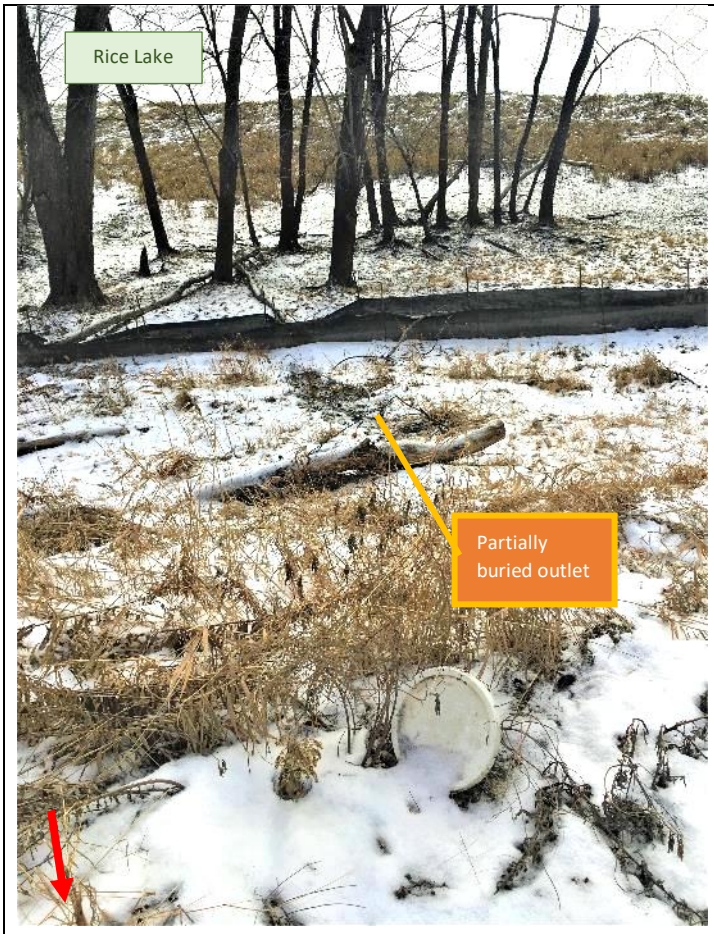


Photo No.: 12

Location: 44°49'01.67"N 93°31'09.19"W

BMPs Present: Two rows of silt fence; vegetative buffer

Description: Partially buried outlet (see photos 10 and 11 for inlet and drainage leading to this area). Area is surrounded by vegetation, with no visible erosion or sedimentation. A dark patch of ice leading to the silt fence indicates some water flow occurred recently.

Photo No.: 13

Location: 44°49'03.05"N 93°31'05.45"W

BMPs Present: Two rows of silt fence; biologs; ESC blanket

Description: Culvert outlet on the southern side of the ROW. The silt fence fabric is frozen to the ground, allowing stormwater to pass uninterrupted into Rice Lake.

Green arrows indicate route of stormwater through silt fence.

	Photo No.: 14 Location: 44°49'02.95"N 93°31'04.84"W BMPs Present: Two rows of silt fencing Description: Recently regraded slope approximately 15 yards east of photo 13. Area is stable with no signs of soil movement.
	Photo No.: 15 Location: 44°49'04.42"N 93°31'00.84"W BMPs Present: Two rows of silt fence on southern side of ROW Description: Current ROW conditions. Crews have been regrading this area to raise the roadbed and installing a wall along the northern perimeter.

	Photo No.: 16 Location: 44°49'06.07"N 93°30'58.22"W BMPs Present: Silt fence backed with jersey barriers; rock checks Description: Drainage (green arrows) area leading to a culvert on the northern side of the ROW. Channeling through the rock checks indicates a significant volume of water. Water drains east, west, and southward into the culvert.
	Photo No.: 17 Location: 44°49'07.07"N 93°30'53.20"W BMPs Present: Several rows of silt fence Description: This culvert allows a creek to pass through the center of the project north-to-south. This inlet is on the northern side of the ROW. The areas is stable and frozen.

	Photo No.: 18 Location: 44°49'05.20"N 93°30'52.86"W BMPs Present: Plastic sheet covering bare soils; silt fencing; rock settling basins Description: This outlet lies just south of photo 17 and routes the same creek through the center of the road construction. The BMPs are intact and the area is stable.
	Photo No.: 19 Location: 44°49'05.19"N 93°30'52.90"W BMPs Present: Two rows of silt fencing; riprap Description: This is the southern outlet for the aforementioned creek (see photos 17 & 18).
	Photo No.: 20 Location: 44°49'04.23"N 93°31'00.11"W BMPs Present: Two rows of silt fencing, on of which is reinforced with jersey barriers Description: Southern slope on the ROW. Water and some sediments have pooled in both rows of silt fencing and frozen.

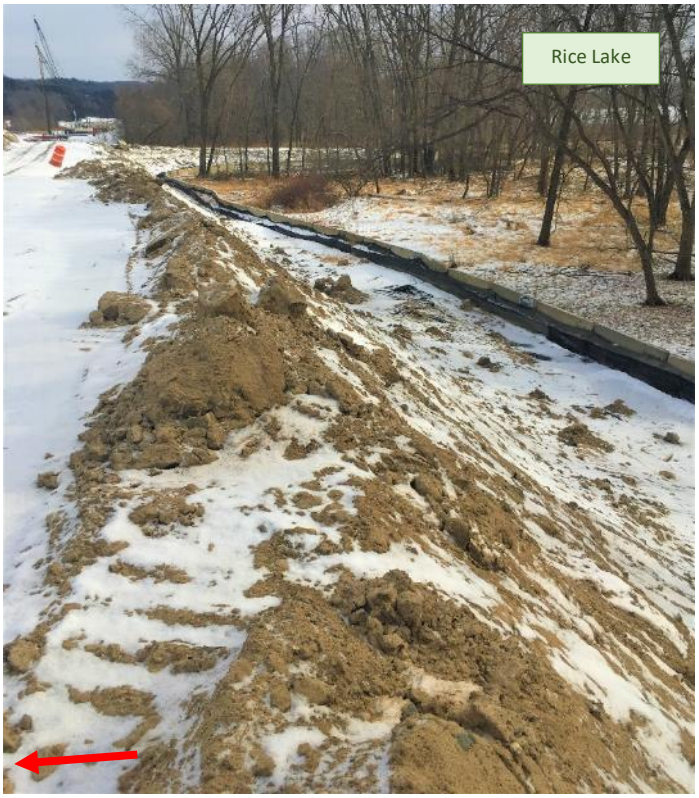
	Photo No.: 21 Location: 44°49'04.38"N 93°30'56.52"W BMPs Present: Two rows of silt fence Description: Southern side of ROW conditions. Mid- to late-December this area was regraded. The site is currently frozen and stable, with no evidence of washouts or channeling due to recent weather events.
	Photo No.: 22 Location: 44°49'05.95"N 93°30'48.20"W BMPs Present: Two rows of silt fence Description: This location was used in mid- to late-December for dewatering. Channeling (present during active dewatering) appears to have been acerbated by recent precipitation.

	Photo No.: 23 Location: 44°49'07.36"N 93°30'41.11"W BMPs Present: Two rows of silt fencing; riprap Description: Dewatering setup on southern side of the ROW. An area of brown sediment is visible around the bag.
	Photo No.: 24 Location: 44°49'07.66"N 93°30'40.53"W BMPs Present: None visible Description: Construction set up for installing pylons.

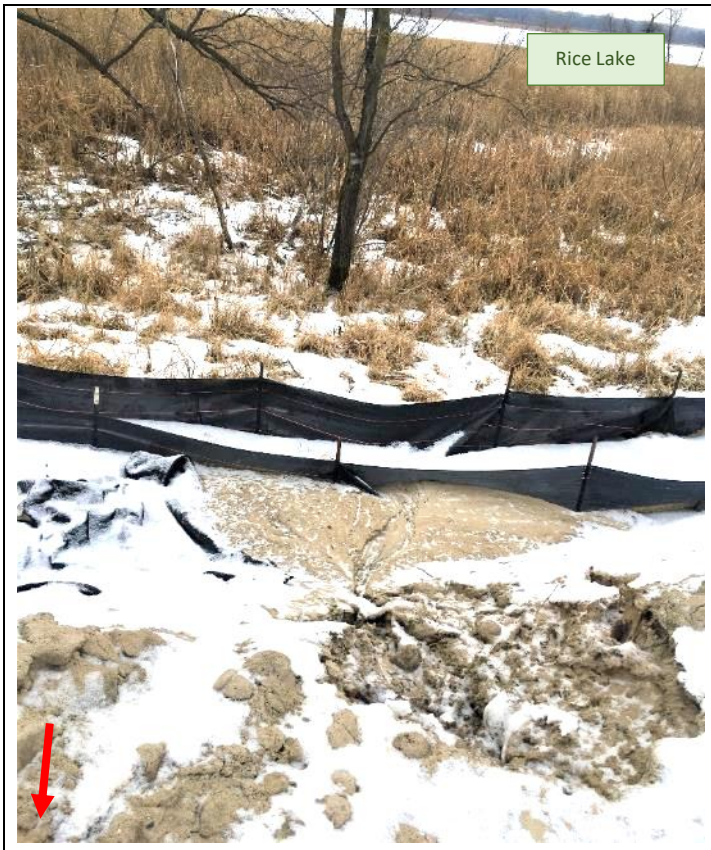


Photo No.: 25

Location: 44°49’08.05”N 93°30’37.19”W

BMPs Present: Two rows of silt fence

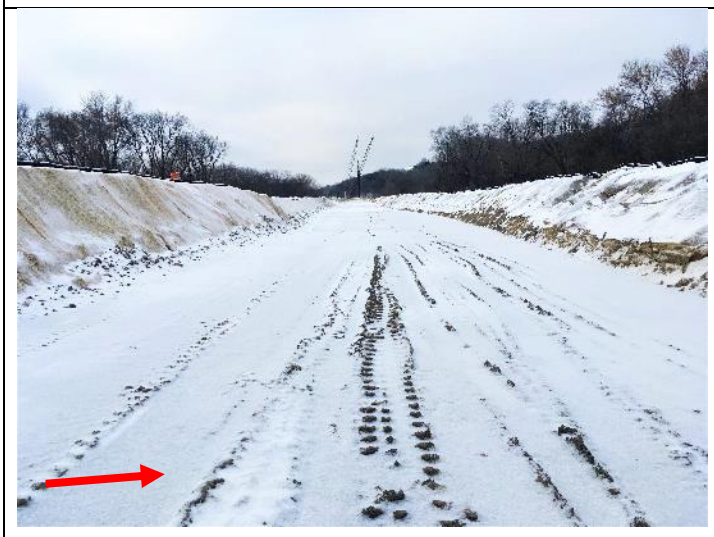
Description: Dewatering setup on the southern side of the ROW. During previous site visits sediment accumulation was noted in this area. The sediment has not breached the silt fence.

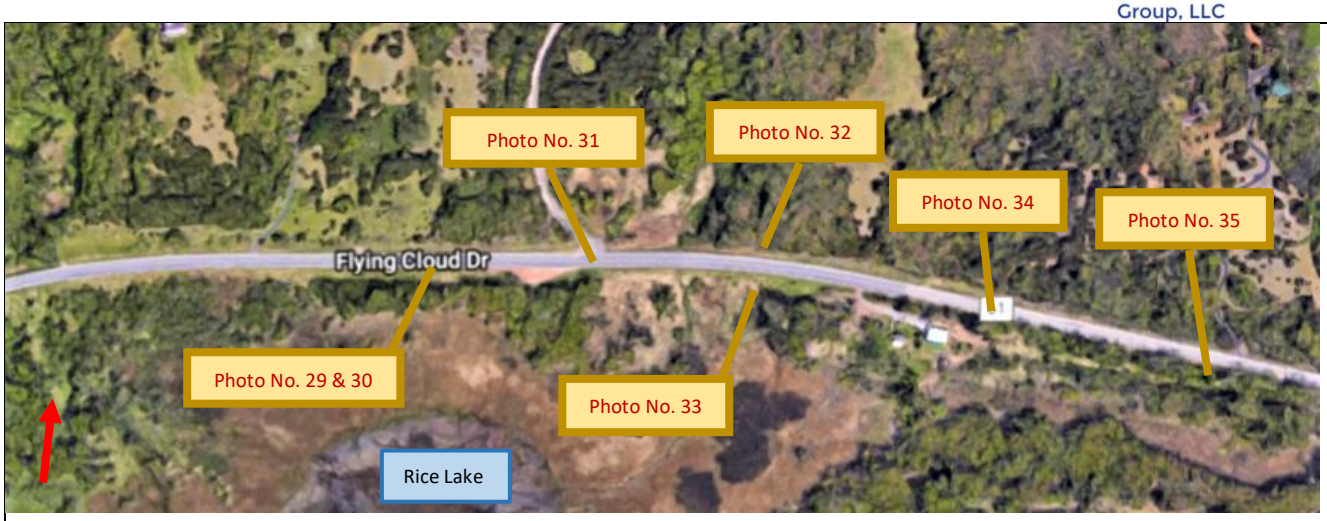
Photo No.: 26

Location: 44°49’10.67”N 93°30’27.98”W

BMPs Present: Rock check; hydromulch

Description: Rock check on the northern side of the ROW. A channel has been created to route stormwater around stock piles.

	Photo No.: 27 Location: 44°49'10.73"N 93°30'28.34"W BMPs Present: Hydromulch; rock checks; silt fence Description: Area along the northern side of the ROW. A stormwater channel has been routed from the main roadway (see photo 26) to the northern perimeter of the project. The channel has several rock checks and the surrounding stock piles are coated in hydromulch. The area was frozen and coated in ice.
	Photo No.: 28 Location: 44°49'10.10"N 93°30'27.54"W BMPs Present: Hydromulch; ESC blanket Description: Stabilized stockpiles flanking the southern and northern sides of the ROW. The southern side is stabilized with ESC blanket. The northern side was stabilized with hydromulch during a recent warm weather, once the snowpack had melted.



Segment 3

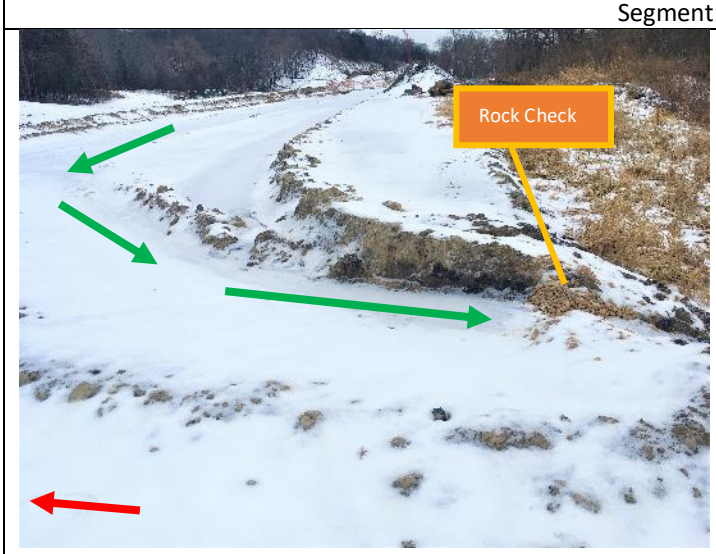


Photo No.: 29

Location: 44°49'10.25"N 93°30'11.95"W

BMPs Present: Rock check

Description: Roadway graded to channel stormwater to the southern side of the ROW. Green arrows indicate channel route. See photo 30 for an additional photo of the drainage area.

Photo No.: 30

Location: 44°49'10.32"N 93°30'11.76"W

BMPs Present: Rock check; two rows of silt fence; vegetative buffer

Description: Stormwater channel discharging on the southern side of the ROW. A portion of the rock check has been washed out. See photo 29 for upslope drainage area.

Photo No.: 31

Location: 44°49'10.16"N 93°30'05.69"W

BMPs Present: Hydromulch; two rows of silt fence

Description: Southern side of the ROW conditions after the rain event. The hydromulch appears unaffected the recent melting and precipitation events.

	Photo No.: 32 Location: 44°49'11.01"N 93°29'59.59"W BMPs Present: Silt fence Description: Stormwater outlet on the northern side of the ROW. Silt fence is position on either side of the outlet.
	Photo No.: 33 Location: 44°49'10.17"N 93°29'58.97"W BMPs Present: Silt fence; hydromulch Description: ROW conditions on the southern side of the project. Hydromulch was applied during my list site visit on December 21st. The area is stable and frozen.

Photo No.: 34

Location: 44°49’08.57”N 93°29’48.33”W

BMPs Present: None visible

Description: Current ROW conditions. The area is frozen and stable.

Photo No.: 35

Location: 44°49’07.00”N 93°29’39.67”W

BMPs Present: Hydromulch; two rows of silt fence

Description: Southern side of the row. Hydromulch was applied to the area during my last site visit on December 21st. The area is stable and frozen.

Segment 4

	Photo No.: 36 Location: 44°49'06.92"N 93°29'35.11"W BMPs Present: None visible Description: Roadway on the project. Ponding is visible and has begun to freeze. Most of the ROW in this area is coated in at least 1 inch of ice.
	Photo No.: 37 Location: 44°49'06.67"N 93°29'35.28"W BMPs Present: Two rows of silt fence; hydromulch Description: Drainage outlet on the southern side of the ROW. The outlet is small and has formed a slight channel leading to the silt fence. The green arrow indicates route of stormwater. Water has pooled and frozen on the upslope side of the silt fence.

	Photo No.: 38 Location: 44°49'06.11"N 93°29'25.36"W BMPs Present: Two rows of silt fencing Description: ROW conditions along the southern perimeter of the project. The area is frozen and stable.
	Photo No.: 39 Location: 44°49'06.07"N 93°29'23.03"W BMPs Present: None visible Description: Conditions on the northern side of the ROW. The area is stable and coated in a sheet of ice.
	Photo No.: 40 Location: 44°49'05.79"N 93°29'17.26"W BMPs Present: None visible Description: Northern side of the ROW and part of the stormwater conveyance system. See photos 41 and 42 for southern outlets.

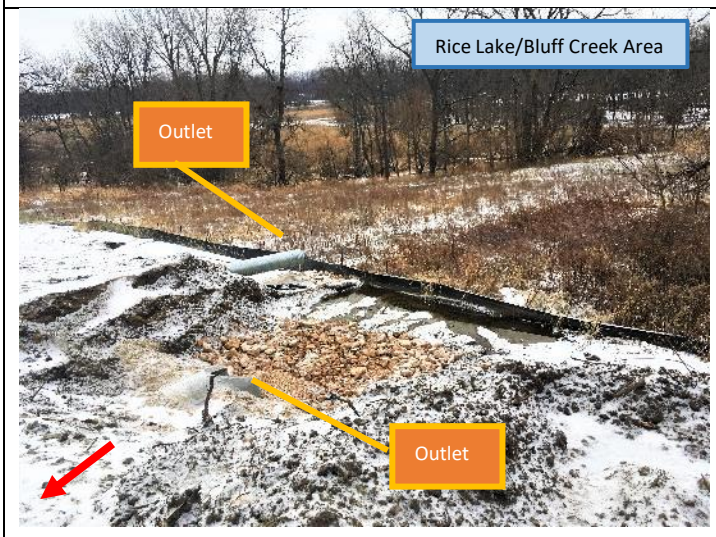
	Photo No.: 41 Location: 44°49'06.00"N 93°29'13.75"W BMPs Present: ESC fabric; two rows of silt fence Description: Outlet that lies directly south of the water conveyance structures visible in photo 40. The area is coated with a layer of ice. The green arrows indicate direction of flow.
	Photo No.: 42 Location: 44°49'05.38"N 93°29'14.23"W BMPs Present: Riprap; two layers of silt fence Description: Two outlets on the southern side of the ROW. These outlets lie downslope of the outlet in photo 41. This area is coated in ice and has water pooled at the base of the silt fencing.

	Photo No.: 43 Location: 44°49'05.26"N 93°28'57.78"W BMPs Present: Two rows of silt fence; hydromulch Description: A frozen and stable ROW. Hydromulch was applied in this area in mid-December. The hydromulch remains intact despite recent storm events. During the inspection the area was coated in ice.
	Photo No.: 44 Location: 44°49'04.98"N 93°28'58.20"W BMPs Present: Two rows of silt fence; hydromulch Description: A frozen and stable ROW.