

Minutes of Meeting
Souris River Joint Water Resource Board
Thursday, April 14th, 2016
Minot Municipal Auditorium, Minot North Dakota

A regular meeting of the Board of Directors of the Souris River Joint Water Resource Board was called to order by Chairman David Ashley on Thursday, April 14th, 2016, in room 203 of the Minot City Auditorium in Minot North Dakota. Joint Board members attending the meeting were David Ashley, Clif Issendorf, Tom Klein, Roger Sauer, and Dan Jonasson. A quorum was declared. A roster of those attending the meeting are listed on Attachment A.

The Joint Board discussed the agenda for the meeting. Chairman Ashley stated that additional items under other business would include:

1. Outlaw Creek
2. Feasibility Study
3. RFQ for Entire Basin
4. Next meeting

It was moved by Dan Jonasson, seconded by Roger Sauer, that the agenda be approved with the additions identified by Chairman Ashley. The motion was unanimously approved.

The Board reviewed the minutes of the March 10th, 2016 Board Meeting. Clif Issendorf corrected paragraph one to provide that Roger Sauer "participated" by telephone, rather than "appeared." There being no further corrections, it was moved by Clif Issendorf, seconded by Roger Sauer, that the minutes be approved. The motion was unanimously approved.

The Joint Board considered invoices.

It was moved by Dan Jonasson, seconded by Roger Sauer, that the Barr Engineering invoice for environmental and design in the amount of \$794,246.79 be approved. The motion was unanimously approved by roll call vote.

It was moved by Dan Jonasson, seconded by Roger Sauer, that the Houston Engineering invoice for environmental and design in the amount of \$417,472.17 be approved. The motion was unanimously approved by roll call vote.

It was moved by Dan Jonasson, seconded by Roger Sauer, that the invoice from Ackerman-Estvold for administration in the amount of \$19,358.29 be approved. The motion was unanimously approved by roll call vote.

It was moved by Dan Jonasson, seconded by Clif Issendorf, that the invoice from HDR Engineering for independent external peer review in the amount of \$60,470.71 be approved. The motion was unanimously approved by roll call vote.

It was moved by Dan Jonasson, seconded by Roger Sauer, that the invoice from Apex Engineering for miscellaneous engineering services in the amount of \$3,672.00 be approved. The motion was unanimously approved by roll call vote.

It was moved by Dan Jonasson, seconded by Roger Sauer, that the invoice from Dwyer Law Office for legal services in the amount of \$17,101.74 be approved. The motion was unanimously approved by roll call vote.

Ryan Ackerman provided an update on the STARR Program. Ackerman stated that Jack Dwyer was working on legal forms, and that there would be coordination between Ackerman-Estvold and Dwyer Law Office concerning the necessary forms for the STARR Program. Ackerman stated that the next step was to have input meetings in early June. Ackerman also reported that he had met with Corps of Engineers staff in St. Paul and that the budget issues were resolved and data would be released in May.

Jerry Bents of Houston Engineering provided a slide presentation on Phase One. Bents indicated that Houston had held a review meeting with Minot City staff, and that they were waiting for comments from the Corps of Engineers. Bents reviewed the Broadway pump station, concrete flood walls, sanitary lift station, and related items concerning Phase One. Roger Sauer asked about pedestrian closures in flood walls. Clif Issendorf asked about relocation of Home Sweet Home.

Jason Westbrook of Barr Engineering provided a slide presentation on Phase Two and Three. Westbrook stated that the DOT bypass project was moving forward, and provided information relating to the levee system and related matters. Roger Sauer inquired about the level of floodgates on 16th street, and Westbrook responded it was about 10,000 CFS.

Ryan Ackerman reported on Phase MI-2A, relating to Perkett Ditch. Ackerman reported that the detention facility would result in 5-10 million dollars in savings, indicated that the existing ditch would be improved, and that the area around the retention ponds would be flooded approximately one every three years. Ackerman reported that there would be a public input meeting at Perkett School on Phase MI-2A on April 14th at 6:30pm.

Ryan Ackerman reported on SWIF, and indicated that SWIF had made its way through the channels and that the next stop would be headquarters at the Corps of Engineers.

The Joint Board considered memberships in the North Dakota Water Coalition and the North Dakota Water Users Association. Dwyer reported that the Souris River Joint Board had been a member of the North Dakota Water Coalition since it was created in 1994. It was moved by Clif Issendorf, seconded by Roger Sauer, that the Souris River Joint Board renew its membership in the North Dakota Water Coalition in the amount of \$1,000.00. The motion was unanimously approved by roll call vote.

It was moved by Clif Issendorf, seconded by Roger Sauer, that the Souris River Joint Board become a sustaining member of the North Dakota Water Users Association in the amount of \$5,000.00. It was explained that the North Dakota Water Users Association sponsors the North Dakota Water Coalition

and provides legislative support for water projects and for the coordinated plan for funding of the North Dakota Water Coalition. The motion was unanimously approved by roll call vote.

Leland Goodman presented a request to the Souris River Joint Board to move forward with the outlet of Outlaw Creek. Mr. Goodman presented a memo and preliminary findings for moving forward with the outlet of Outlaw Creek. The material is Attachment B. Mr. Goodman indicated that McHenry County had approved \$100,000.00 for this project. Clif Issendorf inquired of Frank Durbian as to the necessary permits. Durbian indicated a permit was needed for the survey, and that his agency would be supportive of the permit. Chairman Ashley indicated the request to move forward with the outlet of Outlaw Creek would be taken under advisement for the next meeting.

Chairman Ashley inquired of Frank Durbian about water releases for Eaton irrigation. Frank Durbian indicated that water had been released for Eaton irrigation to fulfill its water requirement.

It was reported that the signing of the feasibility study would take place at 3pm on May 6th at the Minot Airport. Minot City Manager Lee Staab indicated that the signing ceremony was by invitation only, and that only 24 spots were available for the signing ceremony.

The Joint Board discussed the RFQ for continued work in the Souris River Basin. It was stated that HDR Engineering, Houston Engineering, and Barr Engineering all submitted qualifying proposals, and that all three firms were qualified for future potential work in the Souris River Basin. No decision was made.

Minot City Manager Lee Staab stated that he had been invited to the retirement ceremony for General Tom Bostick on May 18th in Washington D.C.

Chairman Ashley announced that the next meeting of the Souris River Joint Board would be Thursday, May 12th, 2016 in Minot.

There being no further business, the meeting was adjourned.



Michael Dwyer
Legal Counsel

Source List At Board Mtg
 4/14/16

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 PHONE: (701) 223-4232 • WEBSITE: dwyerlawofficend.com

Dwyer

from

Bismarck

Mike Dune

Ryan Ackerman

Clif Dersendof

Jason Westbrode

JERRY BENT

Maurice U Zoler

Roger Sauer

Tom Klein

DAN JONASSON

Josh Wolsky

Frank Durbian - USFWS

Lorinda Haman

Leland Goodman

Lee Stzzb

Cindy Hemphill

Bob Schempp

Duffy Zimmerman

Shelly Weypler

Minot

Boons

Burr

Houston Eng

Walter Comm

SRJB - Renelle

SRJB - Ward

SRJB - Minot city -

The Minot Voice

ISRSB

willow city

City of Minot

City of Minot

Allenman, Estvold

Ward County



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PHONE: (701) 223-4232 WEBSITE: dwyerlawofficend.com

Sally Johnson Senator Hoeven
Emily Huether Beckerman-Estvold

DATE: APRIL 14, 2016

TO: SOURIS RIVER JOINT BOARD

Attn: DAVE ASHELY; Chairman

FROM: STAKEHOLDERS NORTH OF TOWNER ALONG MOUSE RIVER

RE: REQUEST TO MOVE FORWARD WITH THE OUTLET OF OUTLAW CREEK

This letter is a follow up to the discussions that have been brought before the board prior about the problems with the flow through Outlaw Creek to drain the meadows to regain productivity of our land that has been taken through overland flooding. We request this board to move forward to address this issue of the standing water caused by sedimentation buildup in the drain not letting water flow off meadows. Prior discussions with this board have been about cleaning the channel. We are now requesting that action be taken to move forward with an engineering and bid letting to move this project along when the water table is lower than in previous years to help to minimize the cost of survey and dirt removal due to drier conditions. Stakeholders have agreed to have spoil hauled to private land near by helping to control costs of long hauls. This flow reduction because of the sedimentation and high cfs flows has cost all of these stakeholders hundreds of thousands of dollars and nothing has been done to address this problem.

A copy of a memorandum prepared by a Water Resource Engineer from the State Water Commission is included with this letter for your review. It addresses the problems with the Outlaw Creek Outlet and suggestions of resolution.

The livelihoods of our ranches are at stake and we are asking to you to take the necessary steps to remediate this problem. Thank you.

Robert Goodman
Cloris A. Yee
Thomas J. Yee
Sonnie Livedalen
Trevor Livedalen
Roger Livedalen
Jerry Bailey

Linda Bailey
Linda Livedalen
Barbara Goodman
Allan Bailey

MEMORANDUM

TO: Tim Fay, P.E., Investigations Section Chief
FROM: Chris Korkowski, E.I.T., Water Resource Engineer
SUBJECT: Outlaw Creek, Preliminary Findings
DATE: March 25, 2015

Introduction:

Outlaw Creek is an overland channel of the Mouse River located in McHenry County, ND (Figure 1). The Mouse River's overbanks provide ideal conditions for haying. Typically, Outlaw Creek is hayed during the summer and overbank flooding during the spring recharges its vegetation. This process allows the land around Outlaw Creek to produce large yields of hay during ideal conditions. However, floodwater can remain on the meadows late into the summer diminish the hay crop which cattle producers in the area depend on.

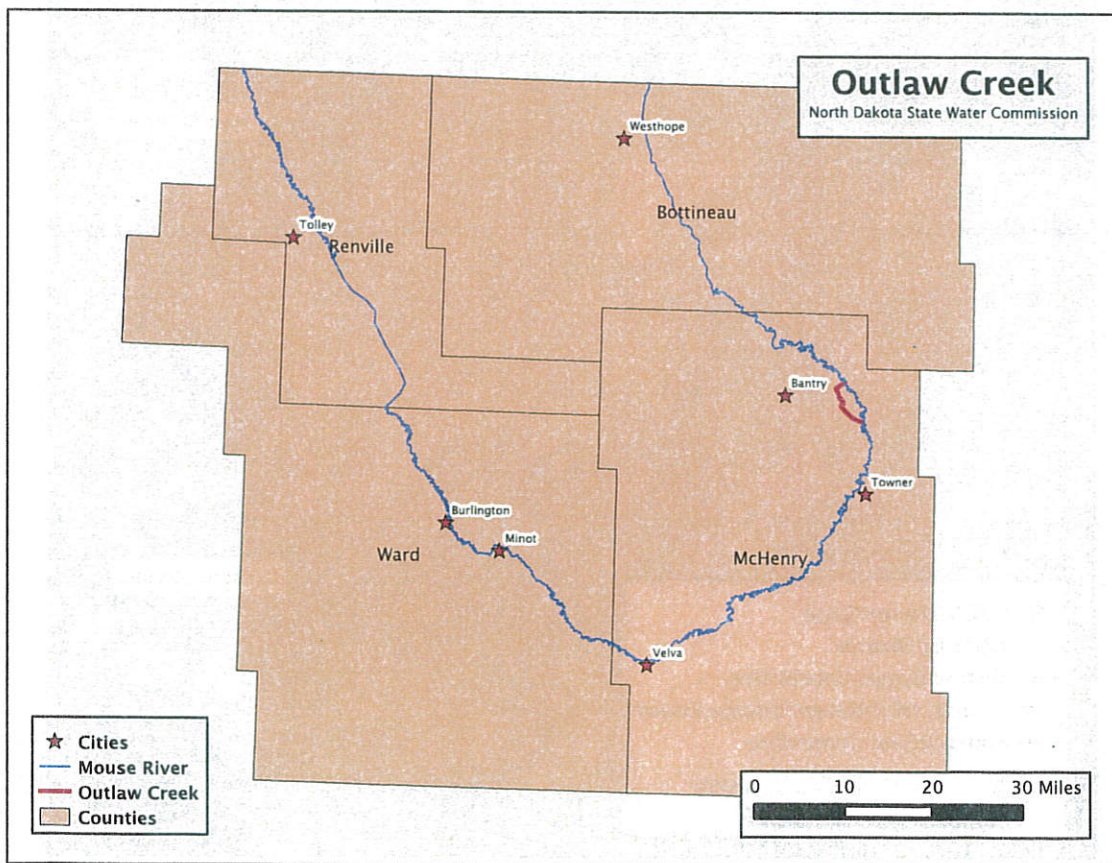


Figure 1. Outlaw Creek's geographic location.

Local residents and the Souris River Joint Board contacted the North Dakota State Water Commission (SWC) to identify alternatives for improving this situation. Figure 2 shows the centerline of Outlaw Creek. The creek is nearly 7.2 miles long before it re-enters the Mouse River.

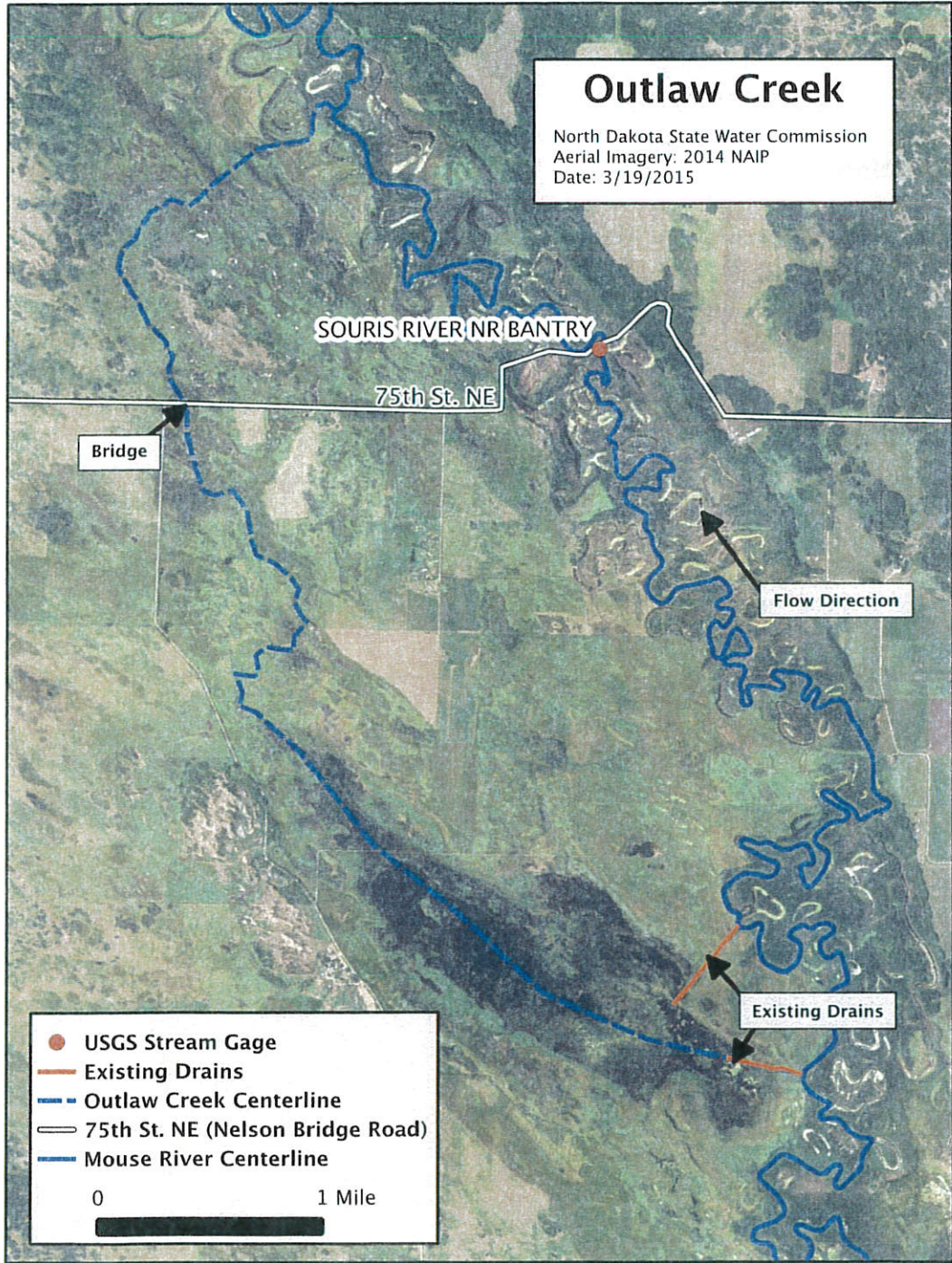


Figure 2. Outlaw Creek's Centerline.

Outlaw Creek flows North into J Clark Salyer National Wildlife Refuge (JCS) after flowing through a bridge located on 75th St. NE (Nelson Bridge Road). The creek maintains a relatively small slope as it flows North to the refuge. Elevations from the creek's channel profile are from processed 5-meter resolution Light Detection and Ranging (LIDAR) data. The profile shows an elevation change of 10 feet over the 7.2 miles

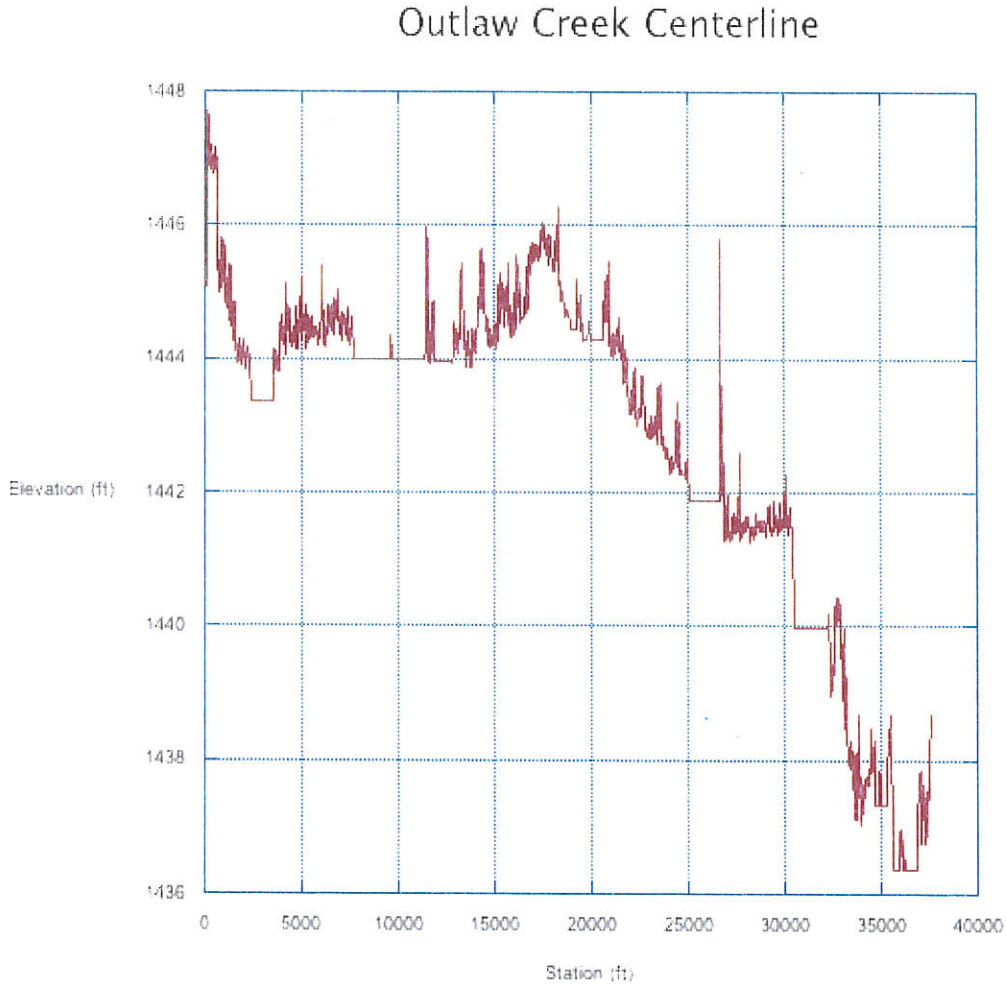


Figure 3. Outlaw Creek's centerline profile.

The lack of channel gradient upstream of JCS, suggests that water could remain standing on this portion of the creek. The Digital Elevation Model (DEM) created from the LIDAR data was processed to examine the topography of the hay meadows. The DEM with hill shading depicts the topography in Figure 4.

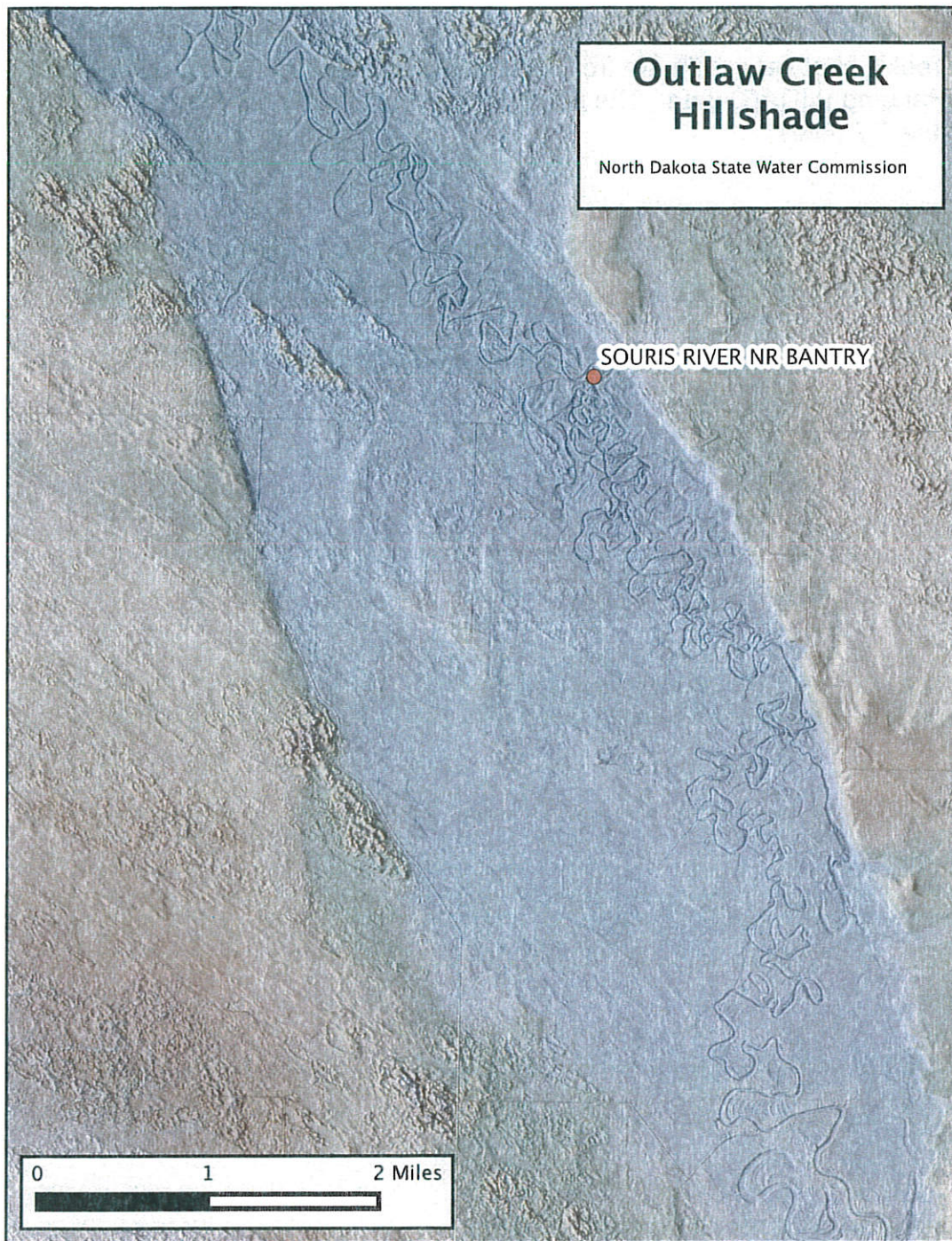


Figure 4. Outlaw Creek's DEM with hill shade.

The lack of elevation change along Outlaw Creek, as seen in Figure 4, helps to further define the problems in the hay meadows. Lack of gradient traps water along the

meadows and keeps the ground saturated during wet cycles. Water trapped on the meadows remains until it infiltrates into the soil or evaporates.

The hay meadow's ability to allow water to infiltrate is directly related to the area's soils and ground water table. The area is composed of sandy soils on most of the overbank and clay soils along the Mouse River (Figure 5). Typically, sandy soils have high infiltration rates due to large spacing between the soil particles. Slow infiltration rates in areas containing sandy soils point to a high ground water table reducing the area's infiltration.

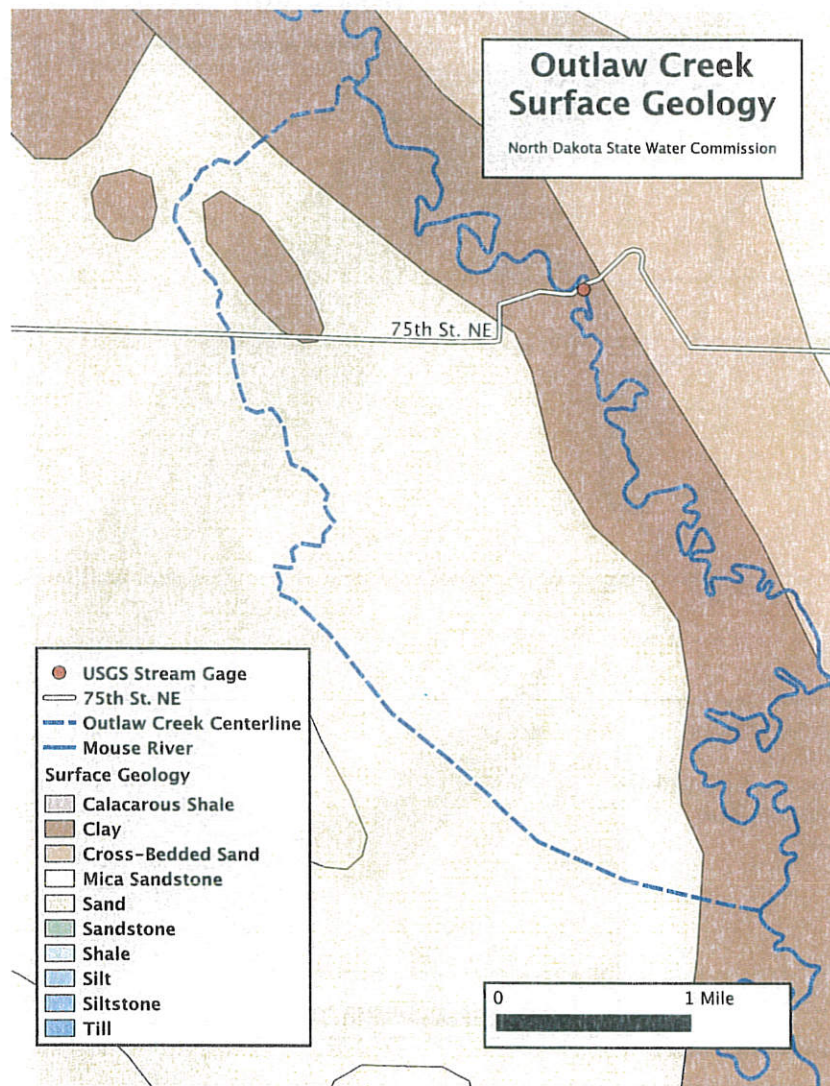


Figure 5. Outlaw Creek surface geology.

A soil's hydrologic soil group can be used to determine its infiltration capacity and if the soil is located near a high ground water table. An 'A' classification indicates a soil

that should have little runoff due to the water's ability to infiltrate through the soil column. A soil with the classification D indicates the soil's inability to allow water to infiltrate. Soils with any classification followed by a D classification indicate that the soil has a high groundwater profile and the soil, although hydraulically conducive, will not allow optimum infiltration.

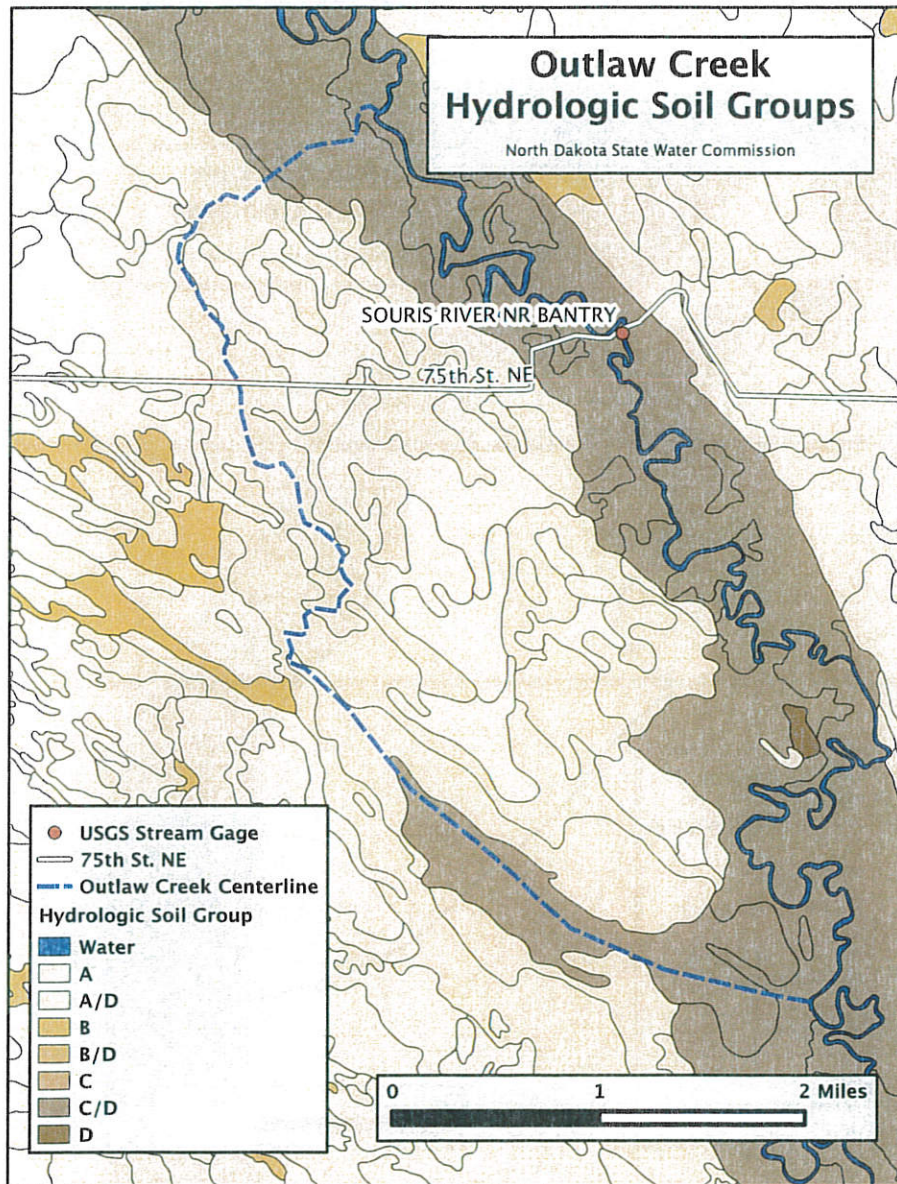


Figure 6. Outlaw Creeks hydrologic soil classification.

The soils around Outlaw Creek have a hydrologic soil group classification of A/D, which means the meadow's soils could have high infiltration rates if the ground water table wasn't close to the surface (Figure 6).

Residents of the area rely on the USGS stream gage near Bantry to keep track of the river discharges. The Mouse River reach near Bantry approaches bank-full capacity at 300 cfs. If flows are sustained beyond this point during the crucial haying months, the hay meadows would fail to produce expected crops. The gage record at Bantry was broken down to determine the frequency of events and to evaluate the periods the hay meadows were inundated. Table 1 is the calculated percent chance of reoccurrence for certain events at the Bantry stream gage.

Table 1. Bantry gage's percent chance of reoccurrence.

Percent Chance of Reoccurrence	Frequency Event	Expected Flow (cfs)
50%	2 Year	902
20%	5 Year	2,393
10%	10 Year	4,243
5%	20 Year	7,054
2%	50 Year	13,072
1%	100 Year	20,262

The Bantry gage data becomes more relevant when breaking down the gage data to reveal which years the flows were above 300 cfs during the haying season. The gage record was broken down into windows of inundation (1937-2014). Each year was examined from June 1st until October 31st to determine if 300 cfs flows were sustained for 10 or more days. Figure 7 shows the results of this analysis. A blue line during a given year represents the flows remaining greater than 300 cfs between June 1st and October 31st. Over the period of record (77 years) flows remained greater than 300 cfs during the haying season 40 times.

Years 300 cfs or greater remained for more than 10 days after June 1st at the Bantry Gage (1937-2014)

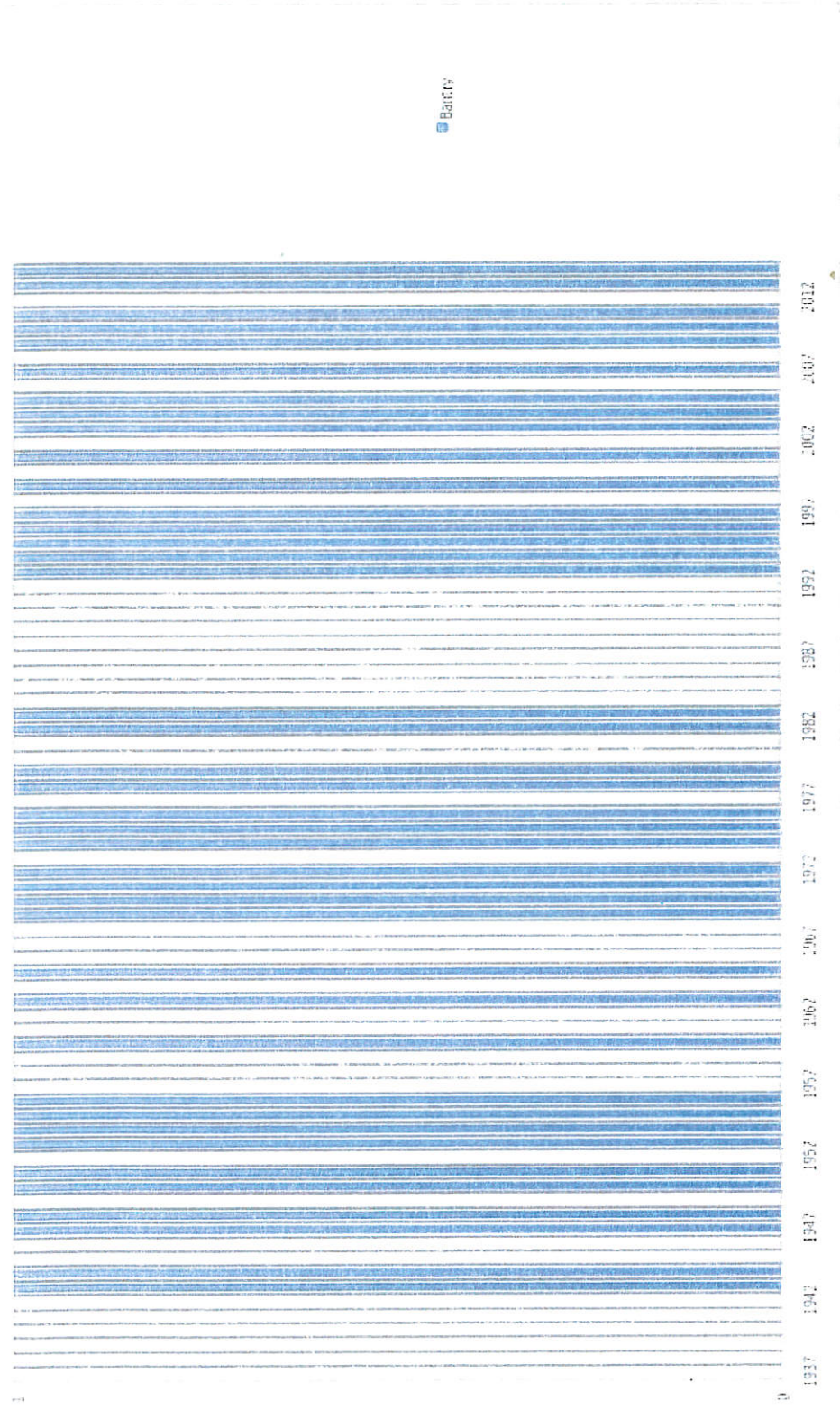


Figure 7. Bantry stream gage sustained flow analysis (1937-2014)

The frequency of inundation and saturation of the ground creates a difficult situation for relieving the meadows. Small drains in the area do not provide drainage to remove floodwaters in time. The large slough located at the headwaters of Outlaw Creek fills as the Mouse River rises. As the slough raises it continues to inundate land until it flows north over a natural high point. Once the floodwaters surpass the high point it continues to flow north until it crosses under the bridge on 75th St. NE (Nelson Bridge Road). After the floodwaters flow through the bridge they are trapped due to a wall of cattails and another natural high point. The floodwaters continue to inundate the area flowing through ditches and culverts, and remain stagnant on the meadows. Once the waters rise high enough to flow through cattails and high points north of the bridge the area is left with pools of water along the meadows. These drain slowly due to the high ground water table. Creating a drainage channel along this route could alleviate many of the area's problems. Although the grade is not sufficient to produce a drain capable of preventing flooding of the meadows, it could create an avenue for floodwaters to evacuate. Removing floodwaters faster could also decrease the time the sloughs are inundated, reduce the amount of stagnant pools in the meadows, and slowly lower the ground water table. Figure 8 is a proposed drain route. Figure 9 is the surface profile along the proposed drainage route.

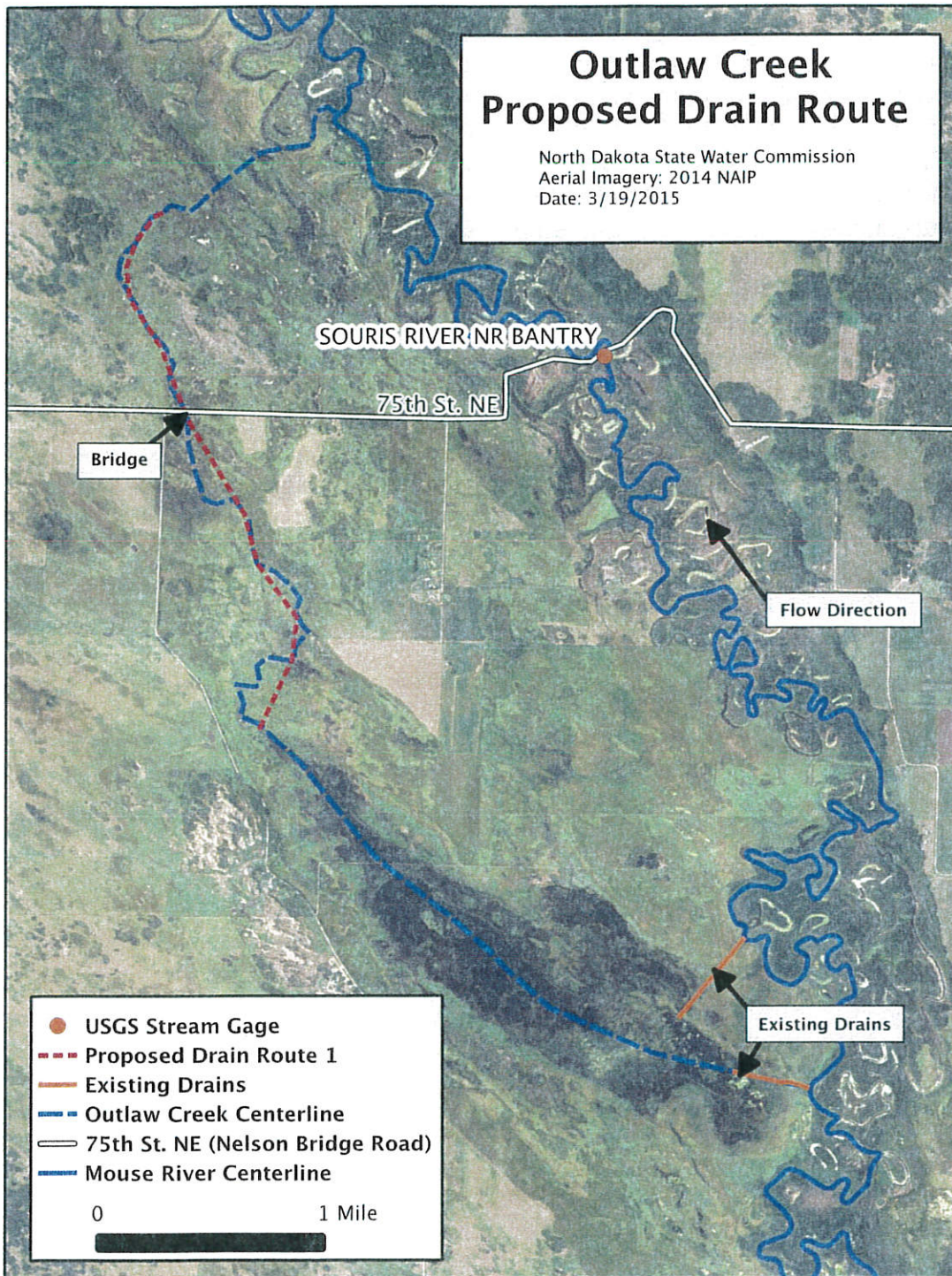


Figure 8. Outlaw Creek proposed drain route.

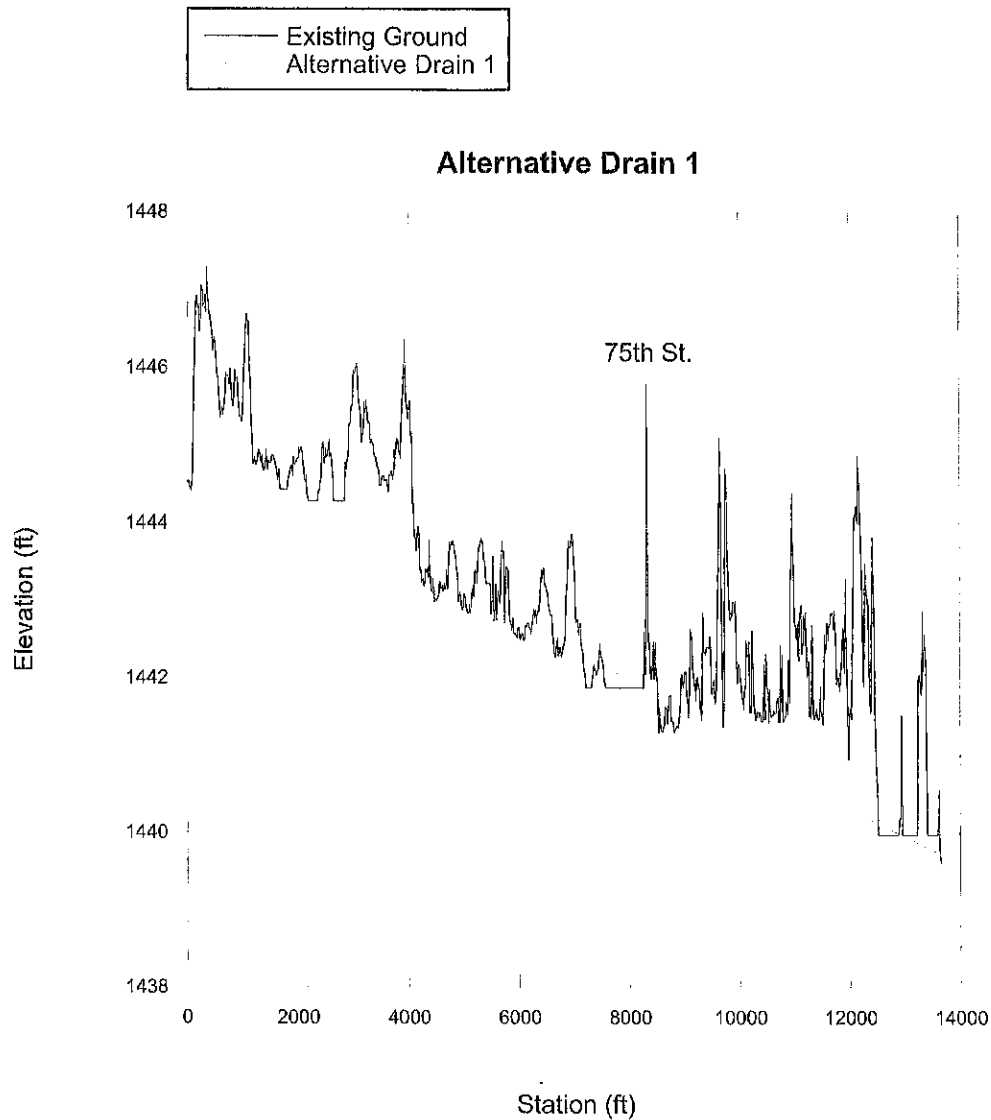


Figure 9. Outlaw Creek proposed drain route surface profile.

With a drainage channel slope of only 0.00035 ft/ft, Outlaw Creek's profile doesn't allow for a deep drainage channel. In order to increase conveyance and the drainage channel's affects, a wide drainage channel is suggested. Analysis and design are required to determine an appropriate channel width. Consideration should be given to a channel wide enough to allow mowing and baling. Due the density of the cattail stands, the DEM elevation values could be greatly affected by error induced by vegetation. Therefore, survey of this area should be conducted to verify the LIDAR.

In order to further the process of establishing a drainage channel, it is suggested that this document be submitted to the McHenry County Water Resources Board or the Souris River Joint Board.

