



KANABEC COUNTY PUBLIC WORKS DEPARTMENT

Chad T. Gramentz, PE, Public Works Director

903 Forest Avenue East, Mora, MN 55051

320-679-6300

Kanabec County Drainage Authority Board Public Hearing

To Be Held At:

Kanabec County Jail Training Room
100 S Vine St, Mora, MN 55051

Date and Time:

August 17, 2021
6:30pm

AGENDA:

1. Call Meeting to Order

2. Pledge of Allegiance

3. Approval of Agenda

4. CD 2 & CD 10 Repair Petitions
 - a. Presentation of Inspection Reports by Engineer

 - b. Cost Estimates

 - c. Public Input

 - d. Determine Next Step

5. Adjourn

103E.715 REPAIR BY PETITION.

Subdivision 1. **Repair petition.** An individual or an entity interested in or affected by a drainage system may file a petition to repair the drainage system. The petition must state that the drainage system needs repair. The auditor shall present the petition to the board at its next meeting or, for a joint county drainage system, to the drainage authority within ten days after the petition is filed.

Subd. 2. **Engineer's repair report.** If the drainage authority determines that the drainage system needs repair, the drainage authority shall appoint an engineer to examine the drainage system and make a repair report. The report must show the necessary repairs, the estimated cost of the repairs, and all details, plans, and specifications necessary to prepare and award a contract for the repairs. The drainage authority may give notice and order a hearing on the petition before appointing the engineer.

Subd. 3. **Notice of hearing.** When the repair report is filed, the auditor shall promptly notify the drainage authority. The drainage authority in consultation with the auditor shall set a time, by order, not more than 30 days after the date of the order for a hearing on the repair report. At least ten days before the hearing, the auditor shall give notice by mail of the time and location of the hearing to the petitioners, owners of property, and political subdivisions likely to be affected by the repair in the repair report.

Subd. 4. **Hearing on repair report.** (a) The drainage authority shall make findings and order the repair to be made if:

(1) the drainage authority determines from the repair report and the evidence presented that the repairs recommended are necessary for the best interests of the affected property owners; or

(2) the repair petition is signed by the owners of at least 26 percent of the property area affected by and assessed for the original construction of the drainage system, and the drainage authority determines that the drainage system is in need of repair so that it no longer serves its original purpose and the cost of the repair will not exceed the total benefits determined in the original drainage system proceeding.

(b) The order must direct the auditor and the chair of the board or, for a joint county drainage system, the auditors of the affected counties to proceed and prepare and award a contract for the repair of the drainage system. The contract must be for the repair described in the repair report and as determined necessary by the drainage authority, and be prepared in the manner provided in this chapter for the original drainage system construction.

Subd. 5. **Apportioning repair cost for joint county drainage system.** For the repair of a joint county drainage system, the drainage authority shall, by order, apportion the repair cost among affected counties in the same manner required in the original construction of the drainage system.

Subd. 6. **Repair by resloping ditches, incorporating multistage ditch cross-section, leveling spoil banks, installing erosion control, or removing trees.** (a) For a drainage system that is to be repaired by resloping ditches, incorporating a multistage ditch cross-section, leveling spoil banks, installing erosion control measures, or removing trees, before ordering the repair, the drainage authority must appoint viewers to assess and report on damages and benefits if it determines that:

(1) the resloping, incorporation of a multistage ditch cross-section, spoil bank leveling, installation of erosion control measures, or tree removal will require the taking of any property not contemplated and included in the proceeding for the establishment or subsequent improvement of the drainage system; or

(2) any spoil bank leveling or tree removal will directly benefit property where the spoil bank leveling or tree removal is specified.

(b) The viewers shall assess and report damages and benefits as provided by sections 103E.315 and 103E.321. The drainage authority shall hear and determine the damages and benefits as provided in sections 103E.325, 103E.335, and 103E.341. The hearing shall be held within 30 days after the property owners' report is mailed. Damages must be paid as provided by section 103E.315 as a part of the cost of the repair, and benefits must be added to the benefits previously determined as the basis for the pro rata assessment for the repair of the drainage system for the repair proceeding only.

History: *1990 c 391 art 5 s 93; 2013 c 4 s 14*



OUR TASK

- Obtain aerial drone footage of Ditches 2 and 10
- Prepare inspection report to assess current condition of both ditches
- Prepare concept-level cost estimates for repair

The map shows a green field with yellow dashed lines indicating the locations of Ditch 2 and Ditch 10. A north arrow is present in the bottom right corner of the map.

CD 2 ALIGNMENT AND DIMENSIONS

- **Main Trunk and 2 Branches**
- **Total Length:** 8.2 miles
- **Dimensions:**
 - 3' Bottom and 1:2 side slopes
- **Flows both north and south**
 - North: Groundhouse River
 - South: Ties Creek

The map shows the alignment of CD 2 with a legend in the bottom left corner. The legend includes: Numbered Catchment Area, Groundhouse River, and Ties Creek. A scale bar is also present.

CD 2 CURRENT CONDITIONS 



Poor flow and algae growth



Numerous locations with blockage of flow

CD 2 CURRENT CONDITIONS 

Poorly defined channel



Poor flow at road crossings



CD 2 CURRENT CONDITIONS 

[drone video this slide]

CD 10 ALIGNMENT AND DIMENSIONS



- **Main Trunk and 3 Branches**
- **Total Length:** 11.4 miles
- **Dimensions:**
 - 5-7' Bottom and 1:1 side slopes
- **Flows south**
 - South: Mud Creek

CD 10 CURRENT CONDITIONS



Meandering channel and trees within banks



Failing crossings blocking flow

CD 2 CURRENT CONDITIONS



Pooling of water outside banks



Stagnant water in ditch near Pomroy Lake



CD 2 CONSTRUCTION COST ESTIMATE

- HEI prepared “concept-level” construction cost estimate based on drone inspection, aerial photos, experience

- Cost estimates prepared:
 - Full repair
 - Partial repair
- *Note – Estimates are preliminary and subject to change*



CD 2 COST ESTIMATE

Full Repair

Category	Cost
Total Construction Cost	\$786,700
Public Drainage Infrastructure	\$510,100
Public Road Crossings	\$270,600
Engineering	\$137,100
Legal and Administrative	\$20,000
Total Repair Project Cost	\$843,800

Partial Repair

Category	Cost
Total Construction Cost	\$551,000
Public Drainage Infrastructure	\$351,600
Public Road Crossings	\$210,200
Engineering	\$91,800
Legal and Administrative	\$20,000
Total Repair Project Cost	\$953,800

- 20% contingency for construction costs
- Engineering approximated at 20% of construction cost
- Public road crossings responsibility of road authorities
- Partial repair ~ 1/2 of ditch length

CD 10 COST ESTIMATE

Full Repair

Category	Cost
Total Construction Cost	\$606,000
Public Drainage Infrastructure	\$564,000
Public Road Crossings	\$30,400
Engineering	\$116,800
Legal and Administrative	\$20,000
Total Repair Project Cost	\$830,800

Partial Repair

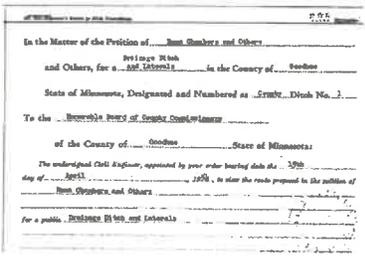
Category	Cost
Total Construction Cost	\$376,200
Public Drainage Infrastructure	\$346,800
Public Road Crossings	\$30,400
Engineering	\$90,300
Legal and Administrative	\$20,000
Total Repair Project Cost	\$486,800

- Most road crossings are concrete box culverts – No replacement

MAINTENANCE VS. REPAIR

Drainage Terms

- "Repair" – Return to historical design and function
- "Improvement" – increase capacity or depth
- Generally, "Repair" requires much less process and regulatory engagement



RECOMMENDATIONS

Ditches are in need of repair

- Remove debris and sediment
- Remove obstructions to flow
- Replace culverts at grade
- Establish drainage at downstream outlets

Next Steps

- Repair Report ordered by Drainage Authority



QUESTIONS AND COMMENTS?





Technical Memorandum

To: Chad Gramentz, P.E.
 Kanabec County
From: Chris Otterness, P.E.
 Zachary Schuster, EIT
Subject: Kanabec County Ditch 2 Inspection Report
Date: July 16, 2021

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am duly Licensed Professional Engineer under the laws of the State of Minnesota.



7-16-2021

Christopher Otterness
 Reg. No. 41961

Date

INTRODUCTION

Houston Engineering (HEI) contracted with Kanabec County to prepare an inspection report for County Ditch 2 (CD 2) located in Township 38N, Range 24W, Sections 11-12, 13-15, 22-23, 26, and 35 in Kanabec County. CD 2 was established in 1904 and, per available documentation, has received little maintenance during its lifespan. In recent years, Kanabec County has received complaints about the condition of the ditch and its effect on upland drainage.

For this study, HEI was asked to perform a ditch inspection meeting the requirements of M.S. 103E.705 Subd. 1. To do so, HEI obtained aerial drone footage of the ditch system and used Kanabec County GIS data to determine the current alignment of the ditch.

Kanabec County also requested a preliminary cost estimate for the repair of CD 2. We have provided estimates, based on our experience working on ditch repair projects in the area, for both full and partial repairs.

This technical memorandum summarizes findings from the inspection of CD 2.

DITCH INSPECTION REPORT

DITCH DESCRIPTION

Kanabec CD 2 consists of a Main Trunk and Branches 1 and 2. The Main Trunk generally runs north-south and is approximately 5.6 miles long. The ditch has outlets at both ends. The north end outlets to the Groundhouse River in T38N, R24W, Section 12, and the south end outlets to Ties Creek in T37N, R24W, Section 2. The location of Kanabec CD 2 is shown on **Figure 1**. For the purposes of this report, stationing begins on the north end of the ditch, with Station 0+00 at Groundhouse Creek.

Branch 1 outlets to the Main Trunk at approximately Main Trunk Station 87+00. The upstream end of Branch 1 is approximately 1.3 miles west of the outlet in T38N, R24W, Section 22. Branch 2 outlets to the Main Trunk at Station 242+00. The upstream end of Branch 2 is approximately 1.5 miles north of the outlet in T38N, R24W, Section 24.

METHODS

HEI conducted an inspection of the existing Kanabec CD 2 in accordance with the requirements of M.S. 103E.705 Subd. 1. A ditch inspection helps assess the need for a repair and assess the extents of the repair if one is required. The survey of the public drainage system was done using aerial drone footage recorded by HEI on June 2, 2021. The drone flights were completed during a period of low precipitation with respect to long-term historical normals.

Kanabec County provided a GIS shapefile showing the current centerline of the ditch, and LiDAR elevation data obtained from the State of Minnesota was also used to verify the alignment of the ditch.

Locations of images taken from the drone survey are shown on **Figure 1** of this report.

OBSERVATIONS

Main Trunk

Overall, Kanabec CD 2 is in poor condition, and the ditch is not functioning as it was designed. Observations of Kanabec CD 2 showed poor drainage throughout the ditch system, with stagnant water and algae growth present throughout the Main Trunk. **Photo 1** shows a typical example of algae growth located at Station 58+00.

Stagnant water and large pools are also present upstream of many of the road and field culvert crossings. **Photo 2** shows a large impoundment upstream of the culvert under County Road 4 (103rd Street) at Station 283+00. Large impoundments are also present at State Road 65 (STA 43+00), County Road 15 (STA 57+00), and at the field crossing at Station 87+00. Although it is unclear what the primary cause of the pooling is, likely factors include sedimentation in the channel, beaver dams, and poor culvert conditions.

In areas where standing water has not filled the ditch banks, many parts of the channel are poorly defined. **Photo 3** shows a reach of the ditch from Station 105+00 to 112+00 where both the ditch banks and centerline are poorly defined. The ditch also has poor definition south of that reach from Station 124+00 to 140+00 and from Station 284+00 to the Ties Creek outlet.

Woody vegetation and treefalls that impede flow are also present along the length of the Main Trunk. Heavy woods are present from the Groundhouse River outlet to Station 26+00. **Photo 4** shows a

significant blockage present at the upstream end of the wooded section. **Photo 5** shows another flow blockage caused by woody debris located at Station 55+00. Additional reaches of the Main Trunk that have excessive woody vegetation include Station 76+00 to 80+00, Station 146+00 to 156+00, and 158+00 to 170+00.

Branch 1

Branch 1 of CD 2 is also in poor condition. The ditch has several large impoundments of stagnant water. There is a large impoundment upstream of County Road 16 (Station 16+00) and at a field crossing immediately upstream of the outlet to the Main Trunk (Station 0+50). **Photo 6** shows the impoundment at County Road 16. The impoundment appears to be caused by a downstream impoundment on the Main Trunk, suggesting a repair of the full length of the system will likely be necessary to restore drainage function throughout all of CD 2.

Much of the ditch channel is in poor condition upstream of County Road 16. There are an excessive amount of trees and woody debris within the ditch banks from the upstream end to 130th Avenue (Station 34+00) as seen in **Photo 7**. The channel is poorly defined from 130th Avenue to the County Road 16 crossing.

Branch 2

The channel of Branch 2 is poorly defined from the upstream end to Station 44+00 and from Station 22+00 to 8+00 (**Photo 8**). Additionally, the reach from Station 34+00 to 28+00 holding water, with a large body of water formed from Station 32+00 to 30+00 (**Photo 9**).

REPAIR COST ESTIMATE

HEI has extensive experience managing the bidding process for ditch repair projects in Minnesota. The cost estimate given here draws on that experience while making reasonable assumptions about project-specific measurements such as culvert lengths, depth of channel excavation, and extents of tree clearing.

Based on aerial photos, we identified 13 public road crossings on CD 2. The crossings all appear to have either RCP or CMP culverts, and given the age and condition of the ditch, our experience suggests all of these culverts will likely need to be replaced. Costs for this work will be the responsibility of the relevant road authorities.

For a full repair of Kanabec County Ditch 2, we estimated a total construction cost of \$656,000 and a total project cost—which includes engineering services, legal and administrative fees, and a 20% contingency—of **\$943,800**.

A summary of the costs is provided in the following table:

Category	Cost
Total Construction Cost	\$786,700
<i>Public Drainage Infrastructure</i>	<i>\$516,100</i>
<i>Public Road Crossings</i>	<i>\$270,600</i>
Engineering	\$137,100
Legal and Administrative	\$20,000
Total Repair Project Cost	\$943,800

**Construction costs include a 20% contingency*

**Engineering is 20% of construction cost*

The drainage authority may consider a repair that involves a smaller portion of our system. Based on our inspection report, it is likely reestablishing drainage at the north and south outlets of CD 2 will be necessary to restore function to the ditch.

We mapped approximate work extents (shown on **Figure 2**) that totaled 5.4 miles of ditch cleaning work. The partial cost estimate assumes replacement of 6 field crossings and 10 road crossings, as some culverts can be left in their existing condition in most repair projects of this size.

The total estimated project cost for a partial repair is **\$662,800**. Costs are summarized in the following table:

Category	Cost
Total Construction Cost	\$551,000
<i>Public Drainage Infrastructure</i>	<i>\$331,800</i>
<i>Public Road Crossings</i>	<i>\$219,200</i>
Engineering	\$91,800
Legal and Administrative	\$20,000
Total Repair Project Cost	\$662,800

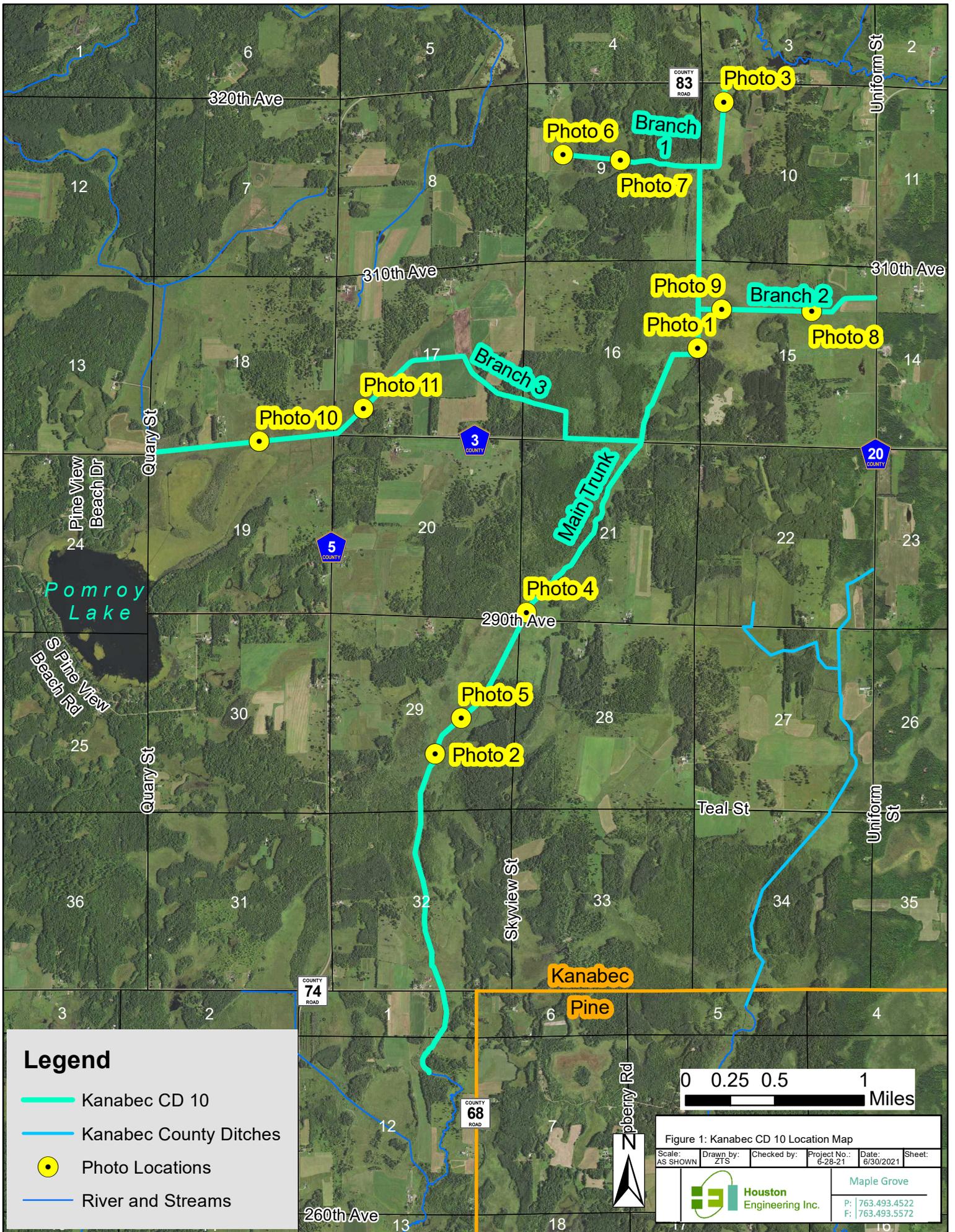
**Construction costs include a 20% contingency*

**Engineering is 20% of construction cost*

CONCLUSION

Kanabec County Ditch 2 is not functioning as designed, with much of the ditch holding stagnant water up to the top of its banks. Additionally, portions of the ditch are impeded by excessive woody vegetation and debris and have poorly defined channels. Although a full inspection of culverts was not completed, given the pooling observed and lack of maintenance on the system, it is likely that multiple culverts are failing and/or improperly sized. Also note that access along the banks for repair will be infeasible until clearing has taken place.

We recommend the Kanabec County Drainage Authority initiate a repair proceedings to restore the function and capacity of CD 2. The excessive amount of stagnant water and impoundments suggest the entire system will need to be repaired to provide effective outlets for the Main Trunk and both Branches and restore proper drainage.



Legend

- Kanabec CD 10
- Kanabec County Ditches
- Photo Locations
- River and Streams

0 0.25 0.5 1 Miles

Figure 1: Kanabec CD 10 Location Map

Scale: AS SHOWN	Drawn by: ZTS	Checked by:	Project No.: 6-28-21	Date: 6/30/2021	Sheet:
				Maple Grove P: 763.493.4522 F: 763.493.5572	

PHOTOS



Photo 1: Algae growth in the ditch channel at Main Trunk STA 58+00.



Photo 2: Impounded water upstream of County Road 4 at Main Trunk STA 283+00.



Photo 3: Poorly defined channel at Main Trunk STA 105+00, upstream of 127th Avenue.

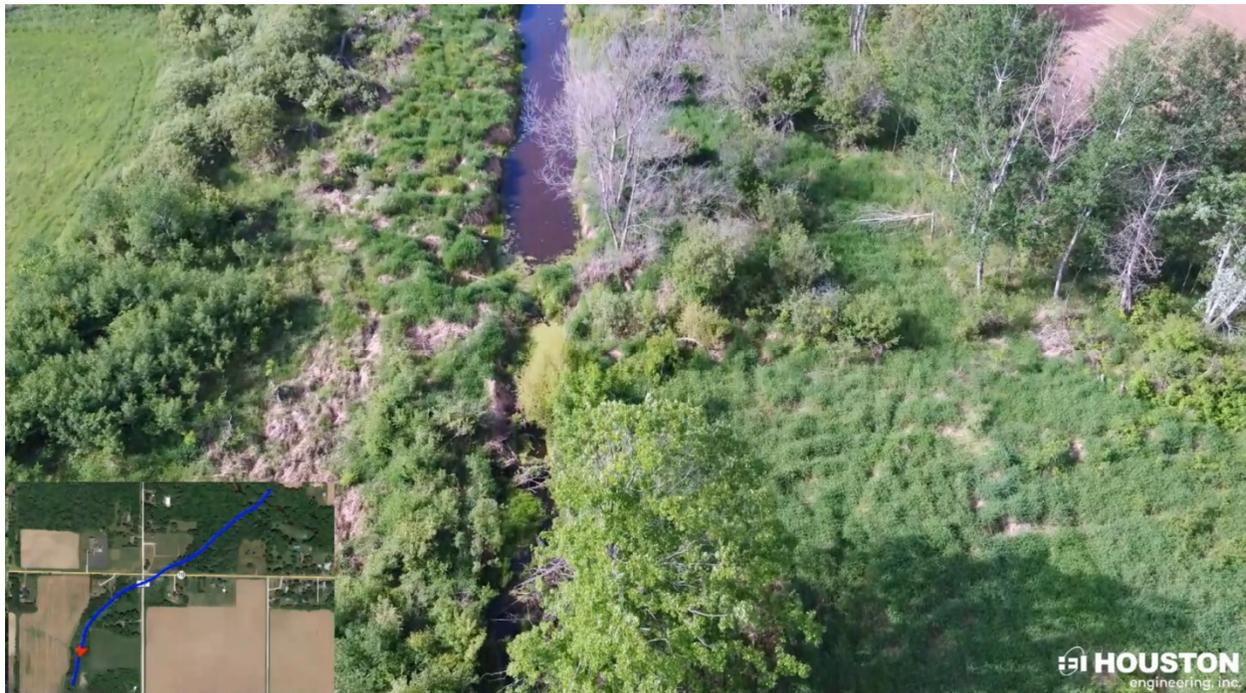


Photo 4: Blockage of flow caused by woody debris / beaver dam located at Main Trunk STA 26+00.



Photo 5: Flow blockage on Main Trunk caused by debris at STA 55+00.



Photo 6: Impounded water on Branch 1 upstream of County Road 16 at STA 16+00.



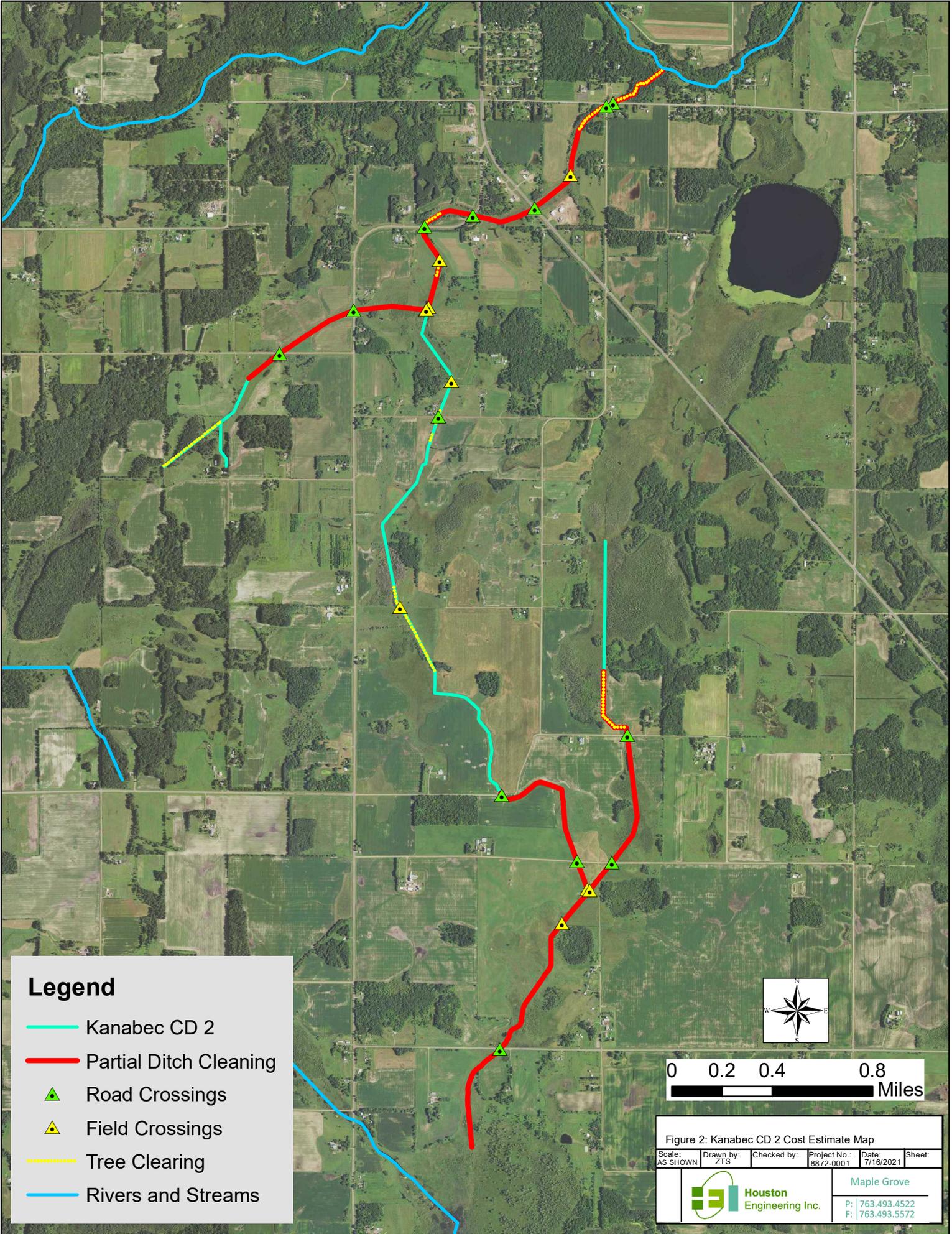
Photo 7: Tree growth within the banks of Branch 1 located at STA 42+00.



Photo 8: Poor definition of Branch 2 channel near upstream end.



Photo 9: Large impoundment at approximately STA 30+00 on Branch 2.



Legend

- Kanabec CD 2
- Partial Ditch Cleaning
- ▲ Road Crossings
- ▲ Field Crossings
- - - - - Tree Clearing
- Rivers and Streams



Figure 2: Kanabec CD 2 Cost Estimate Map

Scale: AS SHOWN	Drawn by: ZTS	Checked by:	Project No.: 8872-0001	Date: 7/16/2021	Sheet:
Houston Engineering Inc.				Maple Grove	
				P: 763.493.4522 F: 763.493.5572	

Property Owner	Parcel ID No.	Partial Repair of Ditch - \$662,800		Full Repair of Ditch - \$943,800	
		Estimated Total Cost Contribution	Estimated Yearly Payment	Estimated Total Cost Contribution	Estimated Yearly Payment
BLASE,JOHN	03.02060.00	\$28.83	\$2.51	\$41.06	\$3.58
BARNICK,LOREN & JUDY	03.02000.00	\$48,074.34	\$4,191.34	\$68,455.89	\$5,968.30
NEB FARM LLC	03.02705.20	\$954.43	\$83.21	\$1,359.07	\$118.49
SWANSON,DAVID J	03.01800.00	\$499.90	\$43.58	\$711.83	\$62.06
SPECHT,KIM & DEBRA	03.01810.10	\$443.75	\$38.69	\$631.88	\$55.09
BLISS,TIMOTHY B & LOUISE A	03.01800.10	\$85.79	\$7.48	\$122.16	\$10.65
AMMERMAN,LARRY G & DOROTHY	03.01810.20	\$6,667.00	\$581.26	\$9,493.53	\$827.69
RICHARDSON,ROBERT G & MARY	03.01260.00	\$19,570.66	\$1,706.26	\$27,867.82	\$2,429.64
TAUER,DANIEL J & JENNIFER JO	03.02700.00	\$1,431.65	\$124.82	\$2,038.61	\$177.74
BELKHOLM,BRIAN & CINDY	03.02120.10	\$965.29	\$84.16	\$1,374.53	\$119.84
BELKHOLM,BRIAN & CINDY	03.02120.00	\$357.91	\$31.20	\$509.65	\$44.43
BUSTROM,JOSHUA	03.02120.20	\$108.45	\$9.45	\$154.42	\$13.46
NELSON,DALLAS	03.01825.00	\$1,431.65	\$124.82	\$2,038.61	\$177.74
BARNICK,LOREN & JUDY	03.02000.50	\$329.28	\$28.71	\$468.88	\$40.88
TWITCHELL,NEIL & TERRASA	03.01335.00	\$477.22	\$41.61	\$679.54	\$59.25
SCHULTZ,LELAND & MARILYN	03.01280.00	\$4,098.89	\$357.36	\$5,836.65	\$508.87
ERICKSON,COREY D & MARIA	03.01755.10	\$734.73	\$64.06	\$1,046.22	\$91.21
ERICKSON,ROSS D & TRACY	03.01710.00	\$734.73	\$64.06	\$1,046.22	\$91.21
YOUNG,ELIZABETH & SETH	03.01315.10	\$1,418.39	\$123.66	\$2,019.73	\$176.09
ZAFFKE,MELISSA	03.01315.00	\$1,418.39	\$123.66	\$2,019.73	\$176.09
ERICKSON,DARYL R & LINDA J	03.01755.00	\$46,861.92	\$4,085.64	\$66,729.45	\$5,817.78

LARSON,SANDRA L & RUSSELL	03.01285.00	\$355.13	\$30.96	\$505.69	\$44.09
PEYSAR,ROGER	03.01985.00	\$3,420.05	\$298.18	\$4,870.01	\$424.59
BARNICK,AARON A	03.02005.20	\$3,541.00	\$308.72	\$5,042.23	\$439.60
BARNICK,AARON A	03.02005.00	\$250.22	\$21.82	\$356.30	\$31.06
HAPPY LAND TREE FARMS INC, C/O KENNETH W OLSON	03.01730.10	\$3,791.22	\$330.54	\$5,398.54	\$470.67
BARNICK,LOREN & JUDY	03.02005.10	\$4,560.06	\$397.57	\$6,493.34	\$566.12
VIGSTOL,MICHAEL D	03.01765.50	\$707.95	\$61.72	\$1,008.09	\$87.89
ETTER,LOREN	03.01770.00	\$912.01	\$79.51	\$1,298.67	\$113.22
DEMARCO,MARIA LOUISE	03.01780.00	\$1,140.02	\$99.39	\$1,623.34	\$141.53
DAILY BREAD LAND COMPANY INC	03.01765.00	\$1,800.09	\$156.94	\$2,563.25	\$223.48
BELKHOLM FAMILY TRUST, % CHESTER C & VIOLET BELKHOLM	03.01100.00	\$3,699.35	\$322.53	\$5,267.73	\$459.26
HELD,KEVIN M	03.01170.00	\$1,029.43	\$89.75	\$1,465.87	\$127.80
KAHLOW,MITCHELL	03.01175.00	\$438.91	\$38.27	\$624.98	\$54.49
THOMAS,CRISTY L	03.01165.00	\$220.02	\$19.18	\$313.30	\$27.32
HERNANDEZ,JAMES M & DIANNA L	03.01110.00	\$2,807.57	\$244.78	\$3,997.87	\$348.55
HAMERNIK,CRAIG S, %EDWARD L HAMERNIK	03.01850.00	\$2,372.82	\$206.87	\$3,378.80	\$294.58
DOLAN,JOSEPH	03.01865.00	\$1,301.49	\$113.47	\$1,853.27	\$161.58
JOHNSON,CORY	03.01860.20	\$387.96	\$33.82	\$552.43	\$48.16
MICHAEL,THOMAS A	03.01860.30	\$821.00	\$71.58	\$1,169.07	\$101.92
SWANSON,JAMES	03.01875.00	\$205.25	\$17.89	\$292.27	\$25.48
WEIMER,MATTHEW R	03.01855.00	\$2,016.90	\$175.84	\$2,871.98	\$250.39
QUAM,EDWARD E & PAMELA S	03.01870.00	\$2,372.82	\$206.87	\$3,378.80	\$294.58
DOLAN,JOSEPH	03.01865.10	\$1,071.33	\$93.40	\$1,525.53	\$133.00
BARTELL,ANTHONY J	03.01855.10	\$355.92	\$31.03	\$506.82	\$44.19
REED,SCOTT & SHARON	03.01820.00	\$593.21	\$51.72	\$844.70	\$73.64

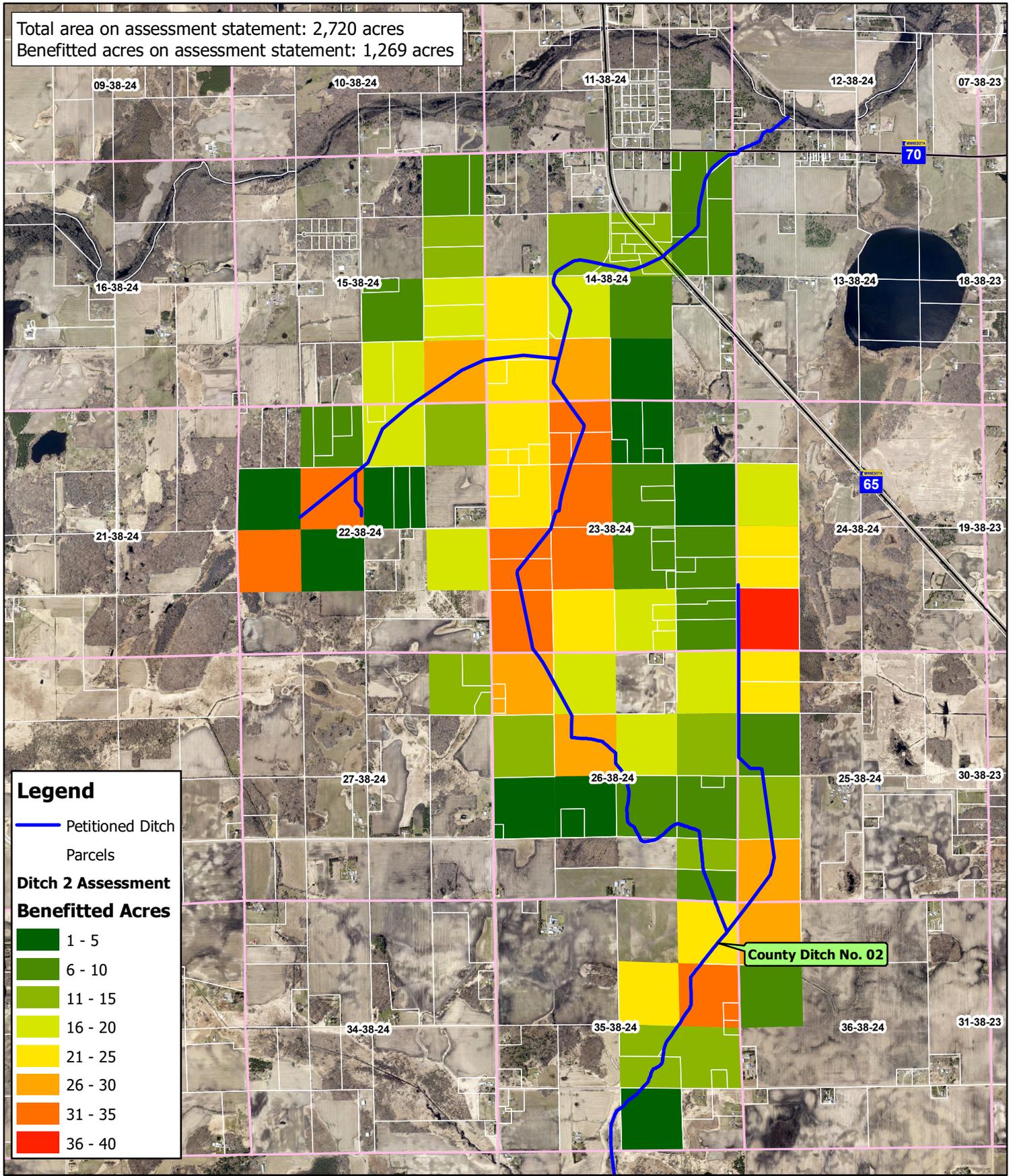
KAWALEK,RICHARD A & CONNIE	03.01815.00	\$24,062.95	\$2,097.92	\$34,264.66	\$2,987.35
STROMBERG,RICHAD TRUST ETAL	03.01860.10	\$27,395.89	\$2,388.50	\$39,010.62	\$3,401.12
BARTZ,CODY A & MOLLY	03.01860.40	\$712.51	\$62.12	\$1,014.59	\$88.46
HAUGEN,LEROY ET AL	03.01860.50	\$538.66	\$46.96	\$767.03	\$66.87
BLAISDELL,STACY	03.01860.00	\$294.98	\$25.72	\$420.04	\$36.62
HAMERNIK,CRAIG S, %EDWARD L HAMERNIK	03.01890.00	\$11,625.51	\$1,013.57	\$16,554.25	\$1,443.28
KAWALEK,RICHARD A & CONNIE	03.01705.00	\$5,700.08	\$496.96	\$8,116.68	\$707.65
CROP PRODUCTION SERVICES INC	03.01105.00	\$2,226.30	\$194.10	\$3,170.16	\$276.39
BARNICK,LOREN & JUDY	03.01945.00	\$6,813.58	\$594.04	\$9,702.26	\$845.89
LONDGREN,JAMES E & PHYLLIS	03.02685.00	\$22,502.09	\$1,961.84	\$32,042.06	\$2,793.57
LONDGREN,KIMBERLY ANN	03.02685.10	\$586.18	\$51.11	\$834.70	\$72.77
LONDGREN,KELLY & ANGELA	03.02685.20	\$793.72	\$69.20	\$1,130.23	\$98.54
WESTERLUND,ADAM	03.01330.00	\$3,724.87	\$324.75	\$5,304.06	\$462.43
PRINZING,RONALD R & SANDRA K	03.01330.30	\$3,351.43	\$292.19	\$4,772.31	\$416.07
BESSER,BRANDON & MARY	03.01330.50	\$23,266.68	\$2,028.50	\$33,130.80	\$2,888.49
MEYER,KODY S	03.01120.00	\$297.27	\$25.92	\$423.29	\$36.90
ENFIELD,STEVEN R	03.01095.00	\$1,298.06	\$113.17	\$1,848.39	\$161.15
TEMPLIN,PETER J & RACHEL E	03.01150.00	\$505.35	\$44.06	\$719.60	\$62.74
RICHARDSON,ROBERT & MARY JANE	03.01155.00	\$1,086.01	\$94.68	\$1,546.44	\$134.83
JOHNSON,MIKE	03.01130.00	\$297.27	\$25.92	\$423.29	\$36.90
JOHNSON,MICHAEL RAY	03.01115.00	\$495.44	\$43.19	\$705.49	\$61.51
DUSEN,ROBERT W VAN	03.01160.00	\$426.08	\$37.15	\$606.72	\$52.90
ROLLINS,CLIFFORD	03.01145.00	\$243.76	\$21.25	\$347.10	\$30.26
STATE OF MINNESOTA	03.01140.00	\$346.81	\$30.24	\$493.84	\$43.06

DUNN,JOEL E	03.01125.00	\$481.57	\$41.99	\$685.74	\$59.79
BERG,LOREN R	03.01210.00	\$7,615.57	\$663.96	\$10,844.26	\$945.45
SCHMITZ,ZACHARY K & VANESSA	03.02680.00	\$4,268.43	\$372.14	\$6,078.07	\$529.91
MAACK,WESLEY	03.02705.30	\$8,536.86	\$744.28	\$12,156.14	\$1,059.83
BLASE,JOHN	03.02055.00	\$8,536.86	\$744.28	\$12,156.14	\$1,059.83
BARNICK,LOREN & JUDY	03.02070.00	\$11,373.65	\$991.61	\$16,195.61	\$1,412.01
BARNICK,LOREN & JUDY	03.02010.00	\$10,662.80	\$929.63	\$15,183.38	\$1,323.76
SCOFIELD,DANIEL R ET AL	03.01330.10	\$5,686.82	\$495.80	\$8,097.80	\$706.00
DAILY BREAD LAND COMPANY INC	03.01760.00	\$10,472.29	\$913.02	\$14,912.11	\$1,300.11
FORS,GREGORY C	03.01760.10	\$901.36	\$78.58	\$1,283.50	\$111.90
RICHARDSON,ROBERT G & MARY	03.01270.50	\$17,144.81	\$1,494.76	\$24,413.51	\$2,128.48
RICHARDSON,DANNY R & MICHELE M	03.01990.00	\$5,925.43	\$516.61	\$8,437.57	\$735.63
ATKINS,THOMAS & JORAE	03.01995.00	\$5,925.43	\$516.61	\$8,437.57	\$735.63
WEIMER,MATTHEW R	03.01910.00	\$5,925.43	\$516.61	\$8,437.57	\$735.63
BELKHOLM,PAUL	03.01835.10	\$8,591.88	\$749.08	\$12,234.48	\$1,066.66
SHOCKMAN,JASON J	03.01835.70	\$1,285.82	\$112.10	\$1,830.95	\$159.63
BOSTROM,JACOB	03.01835.30	\$986.58	\$86.01	\$1,404.86	\$122.48
BJERGO,BARRY	03.01835.40	\$986.58	\$86.01	\$1,404.86	\$122.48
BARNICK,LOREN & JUDY	03.02660.00	\$36,896.43	\$3,216.80	\$52,539.00	\$4,580.59
ENGBERG,DAVID V	03.01840.00	\$14,210.43	\$1,238.93	\$20,235.07	\$1,764.19
PETERSEN,PATRICK D	03.01835.20	\$10,657.82	\$929.20	\$15,176.30	\$1,323.14
ROBERT LINDAHL REALTY INC	03.01835.00	\$3,552.61	\$309.73	\$5,058.77	\$441.05
ANDERSON,MARK P & RENEE T	03.01270.00	\$14,210.43	\$1,238.93	\$20,235.07	\$1,764.19
SCHOLZEN,ANDREW	03.01275.00	\$7,698.50	\$671.19	\$10,962.35	\$955.75
BOCK,MICHAEL & CINDY	03.01275.10	\$4,735.63	\$412.87	\$6,743.34	\$587.91
THOMAS,ADAM D & EMILY E	03.01275.20	\$1,776.30	\$154.87	\$2,529.38	\$220.52

BARNICK,LOREN & JUDY	03.02075.00	\$17,073.73	\$1,488.57	\$24,312.29	\$2,119.66
BARNICK,LOREN & JUDY	03.01955.00	\$17,073.73	\$1,488.57	\$24,312.29	\$2,119.66
SCHMID,TANNER	03.02050.10	\$853.69	\$74.43	\$1,215.61	\$105.98
NELSON,MIKEAL ALLEN	03.02050.00	\$853.69	\$74.43	\$1,215.61	\$105.98
BARNICK,LOREN & JUDY	03.02025.00	\$15,366.36	\$1,339.71	\$21,881.06	\$1,907.69
DOLAN,JOSEPH	03.01915.00	\$18,956.08	\$1,652.68	\$26,992.68	\$2,353.34
FIX,BRONSON	03.02685.30	\$1,498.27	\$130.63	\$2,133.47	\$186.01
HIESTAND,LUANN	03.01845.00	\$19,910.51	\$1,735.89	\$28,351.75	\$2,471.83
RICHARDSON,ROBERT G & MARY	03.01830.00	\$9,955.26	\$867.94	\$14,175.88	\$1,235.92
SOUTHERLAND,CHERI C & ERIC M	03.01835.60	\$9,955.26	\$867.94	\$14,175.88	\$1,235.92
YANG,KA	03.01810.00	\$3,484.34	\$303.78	\$4,961.56	\$432.57
SINGER,ZACHARY & ZOE	03.01835.50	\$9,955.26	\$867.94	\$14,175.88	\$1,235.92

County Ditch Number 02 - Assessment Area

Total area on assessment statement: 2,720 acres
 Benefitted acres on assessment statement: 1,269 acres



Legend

- Petitioned Ditch
- Parcels

Ditch 2 Assessment Benefitted Acres

	1 - 5
	6 - 10
	11 - 15
	16 - 20
	21 - 25
	26 - 30
	31 - 35
	36 - 40

0 0.425 0.85 1.7 2.55 Miles

Date Created: 08/13/2021



Petition for assessment and cleaning of county ditch 2 brunswick township Kanabec county

Land owner name[s] Brandon + Mary Besser

Parcel number 03.01330.50

Acres of parcel 62.95

approx. feet of ditch 2000'

Acres of cropland in parcel 43

Quarter/quarter/section E 1/2 SE 1/4 sec 15

This is a petition to have land in the watershed of county ditch 2 assessed on your property taxes and the money raised used to clean out county ditch 2 and various branches. By signing this you will probably pay more property taxes if it is determined you benefit from the ditch.

Signature 

date 2-23-21

check what applies to you;

I feel I would greatly benefit from cleaning co ditch 2

I would somewhat benefit from cleaning co ditch 2

I feel I would not benefit from cleaning co ditch 2

Clean the ditch, I will be responsible for leveling spoil piles and cleanup on my land

Clean the ditch and level the spoil piles for me. There may be extra charges

clean the ditch, level spoil piles, chip the brush, remove stumps, reseed grass and make it look pretty. I am willing to pay extra to have it look pretty

I want the spoil piles removed from my property. There will be extra charges

as soon as you can clean the ditch again

I have private roads crossing the ditch on my property now

I wish a private road to cross the ditch when the project is done. Give location. There will be extra costs

I have large trees on my property near the ditch that I want saved. We will try to grant your wishes if you mark the trees

Petition for assessment and cleaning of county ditch 2 brunswick township Kanabec county

Land owner name[s] *Daryl + Linda Erickson*

Parcel number *03.01755,00*

Acres of parcel *270.7*

approx. feet of ditch *6200'*

Acres of cropland in parcel

Quarter/quarter/section

This is a petition to have land in the watershed of county ditch 2 assessed on your property taxes and the money raised used to clean out county ditch 2 and various branches. By signing this you will probably pay more property taxes if it is determined you benefit from the ditch.

Signature *Daryl Erickson*

date *1-28-2021*

check what applies to you;

I feel I would greatly benefit from cleaning co ditch 2

I would somewhat benefit from cleaning co ditch 2

I feel I would not benefit from cleaning co ditch 2

Clean the ditch, I will be responsible for leveling spoil piles and cleanup on my land

Clean the ditch and level the spoil piles for me. There may be extra charges

clean the ditch, level spoil piles, chip the brush, remove stumps, reseed grass and make it look pretty. I am willing to pay extra to have it look pretty

I want the spoil piles removed from my property. There will be extra charges

as soon as you can clean the ditch again

I have private roads crossing the ditch on my property now

I wish a private road to cross the ditch when the project is done. Give location. There will be extra costs

I have large trees on my property near the ditch that I want saved. We will try to grant your wishes if you mark the trees

Petition for assessment and cleaning of county ditch 2 brunswick township Kanabec county

Land owner name[s] Joe Belkholm

Parcel number 03,01730,00

Acres of parcel 43.64

approx. feet of ditch none

Acres of cropland in parcel

Quarter/quarter/section

This is a petition to have land in the watershed of county ditch 2 assessed on your property taxes and the money raised used to clean out county ditch 2 and various branches. By signing this you will probably pay more property taxes if it is determined you benefit from the ditch.

Signature 

date 1/30/21

check what applies to you;

I feel I would greatly benefit from cleaning co ditch 2

I would somewhat benefit from cleaning co ditch 2

I feel I would not benefit from cleaning co ditch 2

Clean the ditch, I will be responsible for leveling spoil piles and cleanup on my land

Clean the ditch and level the spoil piles for me. There may be extra charges

clean the ditch, level spoil piles, chip the brush, remove stumps, reseed grass and make it look pretty. I am willing to pay extra to have it look pretty

I want the spoil piles removed from my property. There will be extra charges

as soon as you can clean the ditch again

I have private roads crossing the ditch on my property now

i wish a private road to cross the ditch when the project is done. Give location. There will be extra costs

I have ___ large trees on my property near the ditch that I want saved. We will try to grant your wishes if you mark the trees

Return to Kevin Belkholm 1438 melody st Braham MN 55006 320-493-3825 cell

Petition for assessment and cleaning of county ditch 2 brunswick township Kanabec county

Land owner name[s] Brian Candy Belkholm

Parcel number 03.02120.10

Acres of parcel 67.9 / 10

approx. feet of ditch Feeds into branch

Acres of cropland in parcel

Quarter/quarter/section

This is a petition to have land in the watershed of county ditch 2 assessed on your property taxes and the money raised used to clean out county ditch 2 and various branches. By signing this you will probably pay more property taxes if it is determined you benefit from the ditch.

Signature Brian Belkholm

date 1/29/21

check what applies to you;

I feel I would greatly benefit from cleaning co ditch 2

I would somewhat benefit from cleaning co ditch 2

I feel I would not benefit from cleaning co ditch 2

Clean the ditch, I will be responsible for leveling spoil piles and cleanup on my land

Clean the ditch and level the spoil piles for me. There may be extra charges

clean the ditch, level spoil piles, chip the brush, remove stumps, reseed grass and make it look pretty. I am willing to pay extra to have it look pretty

I want the spoil piles removed from my property. There will be extra charges

as soon as you can clean the ditch again

I have private roads crossing the ditch on my property now

i wish a private road to cross the ditch when the project is done. Give location. There will be extra costs

I have ___ large trees on my property near the ditch that I want saved. We will try to grant your wishes if you mark the trees

Return to Kevin Belkholm 1438 melody st Braham MN 55006 320-493-3825 cell

Petition for assessment and cleaning of county ditch 2 brunswick township Kanabec county

Land owner name[s] *Loren + Judy Barnick*

Parcel number *03.02000000*

Acres of parcel *235.6/40/60/60/1143/157/2* approx. feet of ditch

Acres of cropland in parcel

Quarter/quarter/section *26, 23*

This is a petition to have land in the watershed of county ditch 2 assessed on your property taxes and the money raised used to clean out county ditch 2 and various branches. By signing this you will probably pay more property taxes if it is determined you benefit from the ditch.

Signature *Judy Barnick*

date *2-13-21*

check what applies to you;

I feel I would greatly benefit from cleaning co ditch 2

I would somewhat benefit from cleaning co ditch 2

I feel I would not benefit from cleaning co ditch 2

Clean the ditch, I will be responsible for leveling spoil piles and cleanup on my land

Clean the ditch and level the spoil piles for me. There may be extra charges

clean the ditch, level spoil piles, chip the brush, remove stumps, reseed grass and make it look pretty. I am willing to pay extra to have it look pretty

I want the spoil piles removed from my property. There will be extra charges

as soon as you can clean the ditch again

I have private roads crossing the ditch on my property now

i wish a private road to cross the ditch when the project is done. Give location. There will be extra costs

I have ___ large trees on my property near the ditch that I want saved. We will try to grant your wishes if you mark the trees

Return to Kevin Belholm 1438 melody st Braham MN 55006 320-493-3825 cell

Petition for assessment and cleaning of county ditch 2 brunswick township Kanabec county

Land owner name[s] Richard Stromberg Trust

Parcel number 03.01860.10

Acres of parcel 97.21

approx. feet of ditch corners to ditch

Acres of cropland in parcel

Quarter/quarter/section NE 1/4 & SW 1/4 Sec 23
W 1/2 & SE 1/4

This is a petition to have land in the watershed of county ditch 2 assessed on your property taxes and the money raised used to clean out county ditch 2 and various branches. By signing this you will probably pay more property taxes if it is determined you benefit from the ditch.

Signature 

date 2-10-21

check what applies to you;

I feel I would greatly benefit from cleaning co ditch 2

I would somewhat benefit from cleaning co ditch 2

I feel I would not benefit from cleaning co ditch 2

Clean the ditch, I will be responsible for leveling spoil piles and cleanup on my land

Clean the ditch and level the spoil piles for me. There may be extra charges

clean the ditch, level spoil piles, chip the brush, remove stumps, reseed grass and make it look pretty.
I am willing to pay extra to have it look pretty

I want the spoil piles removed from my property. There will be extra charges

as soon as you can clean the ditch again

I have private roads crossing the ditch on my property now

i wish a private road to cross the ditch when the project is done. Give location. There will be extra costs

I have ___ large trees on my property near the ditch that I want saved. We will try to grant your wishes if you mark the trees

Petition for assessment and cleaning of county ditch 2 brunswick township Kanabec county

Land owner name[s] Paul Belkholm, Inc. ; Daily Bread Land Company

Parcel number 03.01835.10 ; 03.01760.00 ; 03.01765.00

Acres of parcel 29 ; 36.83 acres ; 16.79 acres
approx. feet of ditch

Acres of cropland in parcel 22.6 ; 13.94 ; 14.36

Quarter/quarter/section NW/NW 23 ; NW/NE 22 ; NW/NE 22

This is a petition to have land in the watershed of county ditch 2 assessed on your property taxes and the money raised used to clean out county ditch 2 and various branches. By signing this you will probably pay more property taxes if it is determined you benefit from the ditch.

Signature 

date 1/28/21

check what applies to you;

I feel I would greatly benefit from cleaning co ditch 2

I would somewhat benefit from cleaning co ditch 2

I feel I would not benefit from cleaning co ditch 2

Clean the ditch, I will be responsible for leveling spoil piles and cleanup on my land

Clean the ditch and level the spoil piles for me. There may be extra charges

clean the ditch, level spoil piles, chip the brush, remove stumps, reseed grass and make it look pretty.
I am willing to pay extra to have it look pretty

I want the spoil piles removed from my property. There will be extra charges

as soon as you can clean the ditch again

I have private roads crossing the ditch on my property now

I wish a private road to cross the ditch when the project is done. Give location. There will be extra costs

I have 0 large trees on my property near the ditch that I want saved. We will try to grant your wishes if you mark the trees
I would like to install my own road across. I would review size with County Engineer.

Petition for assessment and cleaning of county ditch 2 brunswick township Kanabec county

Land owner name[s] Robert Richardson

Parcel number several 03.01260.00

Acres of parcel 132/5.48/40/20 approx. feet of ditch 1 mile

Acres of cropland in parcel

Quarter/quarter/section SECT-14 TWP-03S Range-024

This is a petition to have land in the watershed of county ditch 2 assessed on your property taxes and the money raised used to clean out county ditch 2 and various branches. By signing this you will probably pay more property taxes if it is determined you benefit from the ditch.

Signature Robert Richardson

date 2-21

check what applies to you;

I feel I would greatly benefit from cleaning co ditch 2

I would somewhat benefit from cleaning co ditch 2

I feel I would not benefit from cleaning co ditch 2

Clean the ditch, I will be responsible for leveling spoil piles and cleanup on my land

Clean the ditch and level the spoil piles for me. There may be extra charges

clean the ditch, level spoil piles, chip the brush, remove stumps, reseed grass and make it look pretty. I am willing to pay extra to have it look pretty

I want the spoil piles removed from my property. There will be extra charges

as soon as you can clean the ditch again

I have private roads crossing the ditch on my property now

i wish a private road to cross the ditch when the project is done. Give location. There will be extra costs

I have ___ large trees on my property near the ditch that I want saved. We will try to grant your wishes if you mark the trees

Petition for assessment and cleaning of county ditch 2 brunswick township Kanabec county

Land owner name[s] *Erick & Cherrie Southerland*

Parcel number *03.01835.60*

Acres of parcel _____ approx. feet of ditch _____

Acres of cropland in parcel *20*

Quarter/quarter/section _____

This is a petition to have land in the watershed of county ditch 2 assessed on your property taxes and the money raised used to clean out county ditch 2 and various branches. By signing this you will probably pay more property taxes if it is determined you benefit from the ditch.

Signature *Eric Southerland*

date _____

check what applies to you;

I feel I would greatly benefit from cleaning co ditch 2

I would somewhat benefit from cleaning co ditch 2

I feel I would not benefit from cleaning co ditch 2

Clean the ditch, I will be responsible for leveling spoil piles and cleanup on my land

Clean the ditch and level the spoil piles for me. There may be extra charges

clean the ditch, level spoil piles, chip the brush, remove stumps, reseed grass and make it look pretty. I am willing to pay extra to have it look pretty

I want the spoil piles removed from my property. There will be extra charges

as soon as you can clean the ditch again

I have private roads crossing the ditch on my property now

i wish a private road to cross the ditch when the project is done. Give location. There will be extra costs

I have _____ large trees on my property near the ditch that I want saved. We will try to grant your wishes if you mark the trees

Return to Kevin Belholm 1438 melody st Braham MN 55006 320-493-3825 cell

Feb Kawalek 1-30-2021

Petition for assessment and cleaning of county ditch 2 brunswick township Kanabec county

Land owner name[s] Richard + Connie Kawalek

Parcel number 03.01815.00 + 03.01705.00

Acres of parcel 75 + 75 approx. feet of ditch 1500'

Acres of cropland in parcel SE 1/4 of NW 1/4 + SW 1/4 of NE 1/4 sec 23

Quarter/quarter/section SE 1/4 of NW 1/4 + SW 1/4 of NE 1/4 sec 23

This is a petition to have land in the watershed of county ditch 2 assessed on your property taxes and the money raised used to clean out county ditch 2 and various branches. By signing this you will probably pay more property taxes if it is determined you benefit from the ditch.

Signature

date

check what applies to you;

I feel I would greatly benefit from cleaning co ditch 2

I would somewhat benefit from cleaning co ditch 2

I feel I would not benefit from cleaning co ditch 2

Clean the ditch, I will be responsible for leveling spoil piles and cleanup on my land

Clean the ditch and level the spoil piles for me. There may be extra charges

clean the ditch, level spoil piles, chip the brush, remove stumps, reseed grass and make it look pretty.

I am willing to pay extra to have it look pretty

I want the spoil piles removed from my property. There will be extra charges

as soon as you can clean the ditch again

I have private roads crossing the ditch on my property now

i wish a private road to cross the ditch when the project is done. Give location. There will be extra costs

I have ___ large trees on my property near the ditch that I want saved. We will try to grant your wishes if you mark the trees

Petition for assessment and cleaning of county ditch 2 brunswick township Kanabec county

Land owner name[s] Violet Belkholm

Parcel number 03.01100.00

Acres of parcel 30.13

approx. feet of ditch 1300'

Acres of cropland in parcel

Quarter/quarter/section sec 14 E 1/2 NE 1/4

This is a petition to have land in the watershed of county ditch 2 assessed on your property taxes and the money raised used to clean out county ditch 2 and various branches. By signing this you will probably pay more property taxes if it is determined you benefit from the ditch.

Signature Violet Belkholm

date Jan. 28, 2021

I feel I would greatly benefit from cleaning co ditch 2

I would somewhat benefit from cleaning co ditch 2

I feel I would not benefit from cleaning co ditch 2

Clean the ditch, I will be responsible for leveling spoil piles and cleanup on my land

Clean the ditch and level the spoil piles for me. There may be extra charges

clean the ditch, level spoil piles, chip the brush, remove stumps, reseed grass and make it look pretty.
I am willing to pay extra to have it look pretty

I want the spoil piles removed from my property. There will be extra charges

as soon as you can clean the ditch again

I have private roads crossing the ditch on my property now

I wish a private road to cross the ditch when the project is done. Give location. There will be extra costs

I have large trees on my property near the ditch that I want saved. We will try to grant your wishes if you mark the trees

FINAL

Technical Memorandum

To: Chad Gramentz, P.E.
Kanabec County

From: Chris Otterness, P.E.
Zachary Schuster, EIT

Subject: Kanabec County Ditch 10 Inspection Report

Date: July 16, 2021

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am duly Licensed Professional Engineer under the laws of the State of Minnesota.



7-16-2021

Christopher Otterness
Reg. No. 41961

Date

INTRODUCTION

Houston Engineering (HEI) contracted with Kanabec County to prepare an inspection report for County Ditch 10 (CD 10) located in Township 40N, Range 23W, Sections 1 and 12 and Township 41N, R22W, Sections 9-10, 15-18, 21, 28-29, and 32. CD 10 was established in 1913 and, per available documentation, has not been repaired since the 1940s. In recent years, Kanabec County has received complaints about the condition of the ditch and its effect on upland drainage.

For this study, HEI was asked to perform a ditch inspection meeting the requirements of M.S. 103E.705 Subd. 1. To do so, HEI obtained aerial drone footage of the ditch system and used Kanabec County GIS data to determine the current alignment of the ditch.

Kanabec County also requested a preliminary cost estimate for the repair of CD 10. We have provided estimates, based on our experience working on ditch repair projects in the area, for both full and partial repairs.

This technical memorandum summarizes findings from the inspection of CD 10.

DITCH INSPECTION REPORT

DITCH DESCRIPTION

Kanabec CD 10 consists of a Main Trunk and Branches 1, 2, and 3. The location of the public drainage system is shown in **Figure 1**.

The Main Trunk generally runs north-south and is approximately 6.3 miles long. It begins in Township 41N, Range 22W, Section 10 and flows to the south before outletting into Mud Creek in Township 40N, Range 23W, Section 12.

Branch 1 outlets to the Main Trunk at Station 305+25 and extends upstream to the west approximately 0.8 miles. Branch 2 outlets to the Main Trunk at Station 263+00. Branch 2 extends to the west 1.0 mile. Branch 3 outlets to the Main Trunk at Station 214+75, and it extends west 3.2 miles, ending just north of Pomroy Lake, parallel to 300th Street.

METHODS

HEI conducted an inspection of the existing Kanabec CD 10 in accordance with the requirements of M.S. 103E.705 Subd. 1. A ditch inspection helps assess the need for a repair and assess the extents of the repair if one is required. The survey of the public drainage system was done using aerial drone footage recorded by HEI on June 2 and 9, 2021. The drone flights were completed during a period of low precipitation when compared to long-term historical normals.

Kanabec County provided a GIS shapefile showing the current centerline of the ditch, and LiDAR elevation data obtained from the State of Minnesota was also used to verify the alignment of the ditch.

Locations of images taken from the drone survey are shown on **Figure 1** of this report. Stationing given in this report begins with Station 0+00 at each branch's outlet, and stations increase in the upstream direction.

OBSERVATIONS

Main Trunk

Overall, Kanabec CD 10 is in poor condition and does not appear to be draining water as designed. There are extended reaches of the ditch that are holding water to the top of the banks during the current period of low precipitation. It is not clear what the primary cause of the pooling is, but likely factors include channel sedimentation, beaver dams, and culvert disrepair. **Photo 1** shows an obstruction at approximately Station 253+00 that is causing water to pool behind it.

Other locations with obstructions that appear to be restricting flow are located at STA 190+00, STA 100+00, 75+00, 69+00, 65+00, and 58+00. **Photo 2** shows the obstructed field crossing at STA 100+00 that appears to be contributing to the pooling of water upstream.

At some other locations where water has not pooled to the top of the banks, the channel is poorly defined. The upper reach of the Main Trunk is poorly defined from STA 331+00 to the upstream end of the channel. The poor channel definition has caused water to pool in adjacent low-lying areas in some locations (see **Photo 3**).

Excessive vegetation growing within the banks of CD 10 does not appear to be an issue for much of the ditch's length, but there are several locations where vegetation and trees appear to be impeding the function of the ditch. Upstream of 290th Street (STA 148+00 to 154+00), the channel meanders due in part to trees growing within the ditch (see **Photo 4**). Additionally, there are other locations such as the one shown in **Photo 5** (STA 113+00) where the ditch and its banks meander from a straight channel.

Branch 1

Branch 1 of CD 10 is generally poorly defined and has extensive woody vegetation surrounding the channel. The upstream end of the 0.8-mile reach is poorly defined with large areas of stagnant, pooled water, as seen in **Photo 6**. The downstream reach from STA 10+00 to the confluence with the Main Trunk is also poorly defined and largely filled with vegetation.

A reach of Branch 1 passes through heavy woods (**Photo 7**) from approximately STA 24+00 to 10+00. Although it difficult to determine the quality of the ditch through this reach from the aerial survey, the channel is likely filled with woody debris that can inhibit flow.

Branch 2

The upstream quarter-mile of Branch 2 is relatively well defined with some vegetation growth and would benefit from being cleaned out. Downstream of approximately STA 40+00 to the confluence with the Main Trunk, Branch 2 is holding a large amount of water that appears to be largely stagnant. **Photo 8** shows vegetation in the channel and stagnant water at approximately STA 33+00.

The downstream half-mile of Branch 2 is holding a large amount of water that is either up to the top of the banks or flooding adjacent low-lying areas. **Photo 9** shows water flooding land adjacent to the ditch at approximately STA 5+00.

Branch 3

The upstream reach of Branch 3 appears to be draining poorly, with a large volume of water accumulating in the ditch where it runs parallel to 300th Avenue, north of Pomroy Lake (**Photo 10**). The accumulation of water continues downstream of Rainbow Street and appears to be caused by a field crossing at STA 101+00 that is in disrepair (**Photo 11**).

Branch 3 also has an extensive stretch of the ditch that passes through heavy woods from approximately STA 54+00 to 23+00. It is difficult to determine the condition of the ditch in this reach, but it is likely trees and debris are inhibiting flow in this reach.

REPAIR COST ESTIMATE

HEI has extensive experience managing the bidding process for ditch repair projects in Minnesota. The cost estimate given here draws on that experience while making reasonable assumptions about project-specific measurements such as culvert lengths, depth of channel excavation, and extents of tree clearing.

Based on aerial photos, we identified 4 public road crossings on CD 10. The three crossings on the Main Branch are concrete box culverts, and given their capacity and the cost to replace them, we assumed the road authorities will not want to replace those structures. Costs for the remaining public crossing would be the responsibility of the relevant road authority.

Field crossings installed under a ditch proceedings are part of the public drainage system and costs are assessed accordingly. Locations of road and field crossings are shown on **Figure 2**.

For a full repair of Kanabec County Ditch 10, we estimated a total construction cost of \$579,200 and a total project cost—which includes engineering services, legal and administrative fees, and a 20% contingency—of **\$830,800**.

A summary of the costs is provided in the following table:

Category	Cost
Total Construction Cost	\$695,000
<i>Public Drainage Infrastructure</i>	<i>\$664,600</i>
<i>Public Road Crossings</i>	<i>\$30,400</i>
Engineering	\$115,800
Legal and Administrative	\$20,000
Total Repair Project Cost	\$830,800

**Construction costs include a 20% contingency*

**Engineering is 20% of construction cost*

The Drainage Authority may consider a repair that involves a smaller portion of the system. The channel at the downstream end of CD 10 appears to be in better conditions than portions upstream, and may potentially need less attention.

We mapped approximate work extents (shown on **Figure 2**) that totaled 5.3 miles of ditch cleaning work. The partial cost estimate assumes replacement of 1 field crossing and 1 road crossing.

The total estimated project cost for a partial repair is **\$458,900**, as detailed in the following table:

Category	Cost
Total Construction Cost	\$376,200
<i>Public Drainage Infrastructure</i>	<i>\$345,800</i>
<i>Public Road Crossings</i>	<i>\$30,400</i>
Engineering	\$62,700
Legal and Administrative	\$20,000
Total Repair Project Cost	\$458,900

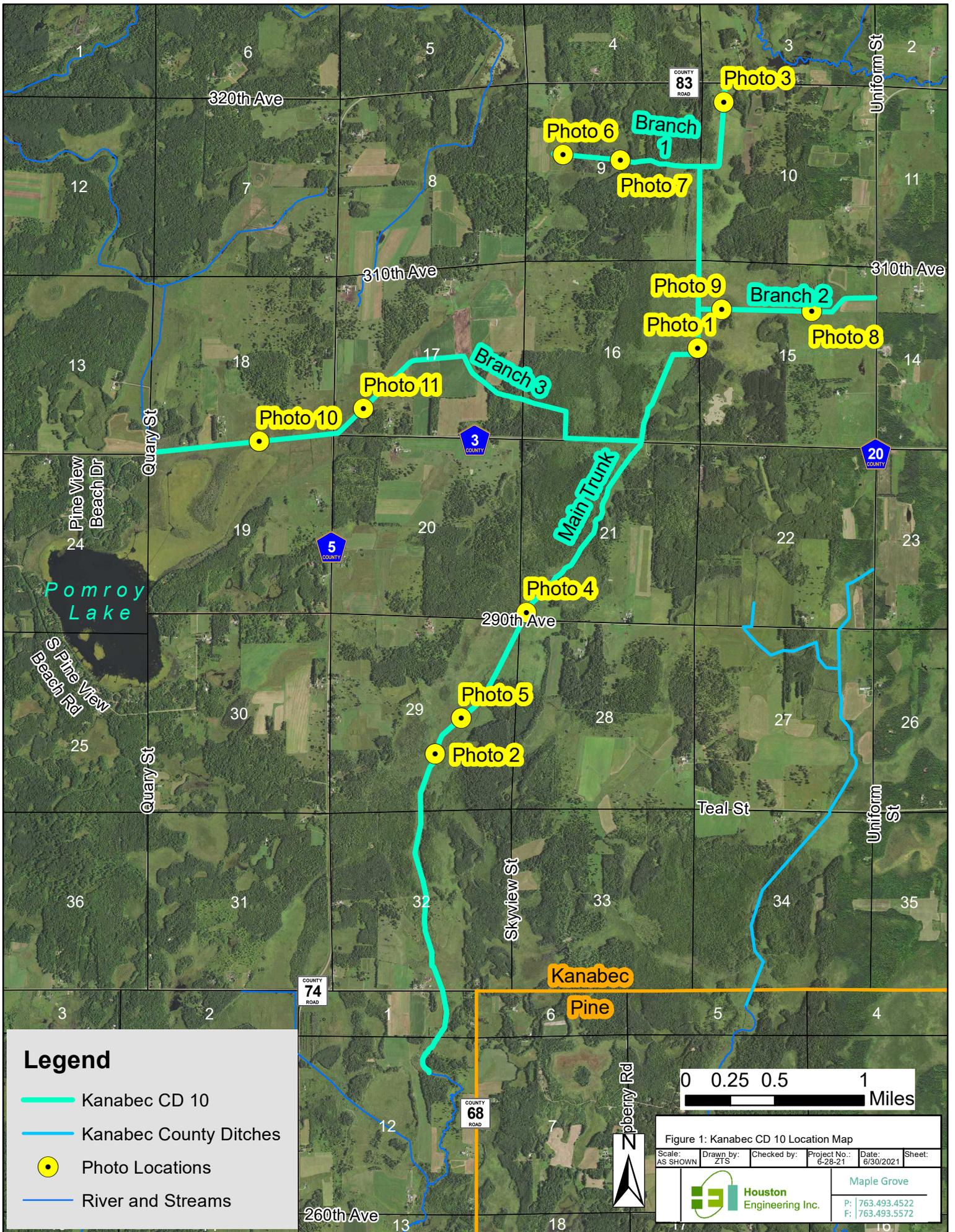
**Construction costs include a 20% contingency*

**Engineering is 20% of construction cost*

CONCLUSION

Kanabec County Ditch 10 is not functioning as designed, with long reaches of the ditch holding water to the top of banks or in low-lying overbank areas despite drier-than-normal conditions. Additionally, portions of the ditch meander from a straight path or are poorly defined and filled with trees and vegetation. An aerial inspection of the ditch also showed several culverts in poor condition that appear to be obstructing flow. It is likely further investigation of the system would identify additional culverts that are in undersized, too high, and/or otherwise in disrepair.

We recommend the Kanabec County Drainage Authority initiate a repair proceedings to restore the function and capacity of CD 10. The excessive amount of stagnant water, including pools at junctions such as the one between Branch 2 and the Main Trunk, suggest the full system will need to be repaired to provide effective outlets for the Main Trunk and all three branches.



Legend

- Kanabec CD 10
- Kanabec County Ditches
- Photo Locations
- River and Streams

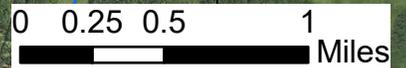


Figure 1: Kanabec CD 10 Location Map

Scale: AS SHOWN	Drawn by: ZTS	Checked by:	Project No.:	Date:	Sheet:
			6-28-21	6/30/2021	

Maple Grove
 P: 763.493.4522
 F: 763.493.5572

PHOTOS



Photo 1: Obstruction at Main Trunk Station 253+00 that is causing water to pool upstream.

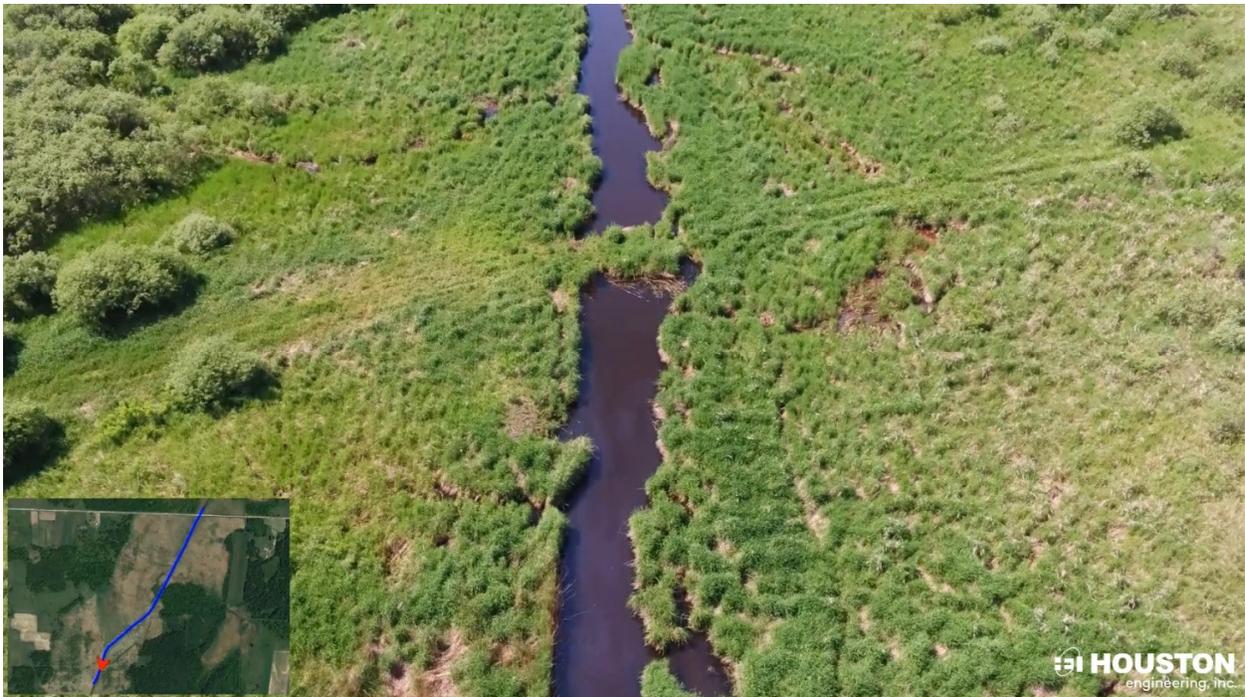


Photo 2: Field crossing at Main Trunk STA 100+00 that is in disrepair and obstructing flow.



Photo 3: Poor channel definition at the upstream end of the Main Trunk and pooling, stagnant water.



Photo 4: Meandering of ditch at Main Trunk STA 150+00 with trees growing in channel.



Photo 5: Ditch meandering at Main Trunk STA 113+00.



Photo 6: Poor channel definition at upstream end of Branch 1 with pooling, stagnant water.

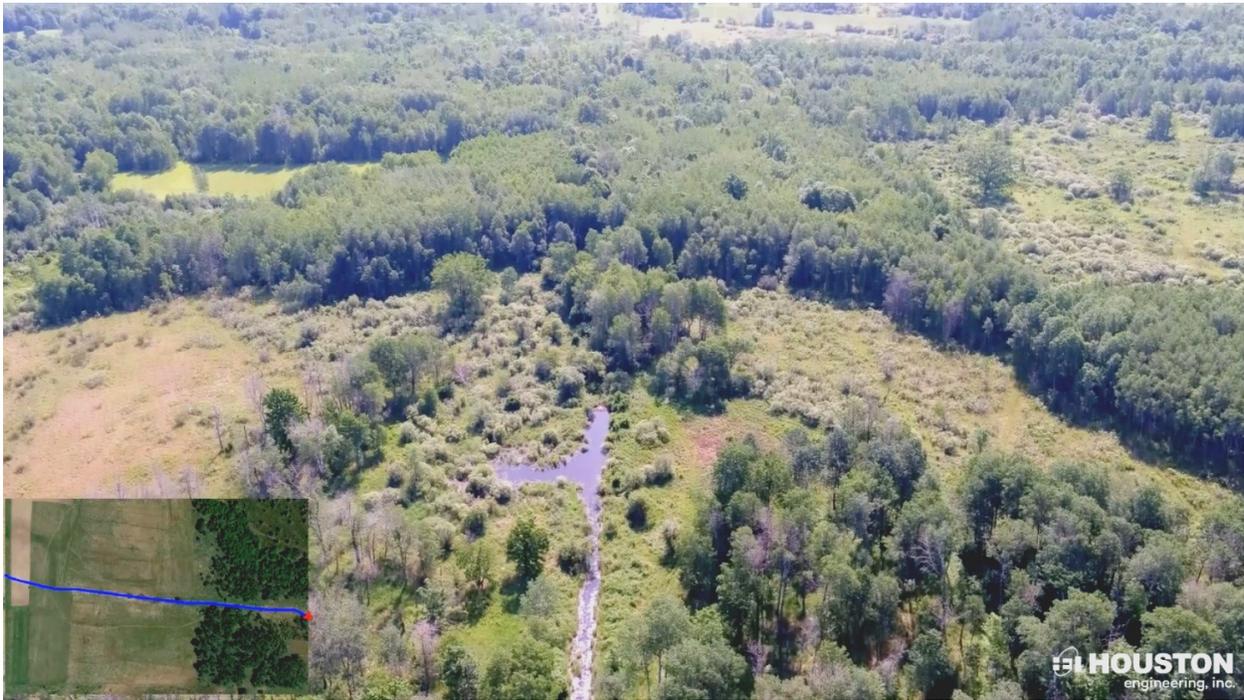


Photo 7: Branch 1 passes through a stretch of heavy woods from approximately STA 24+00 to 10+00.

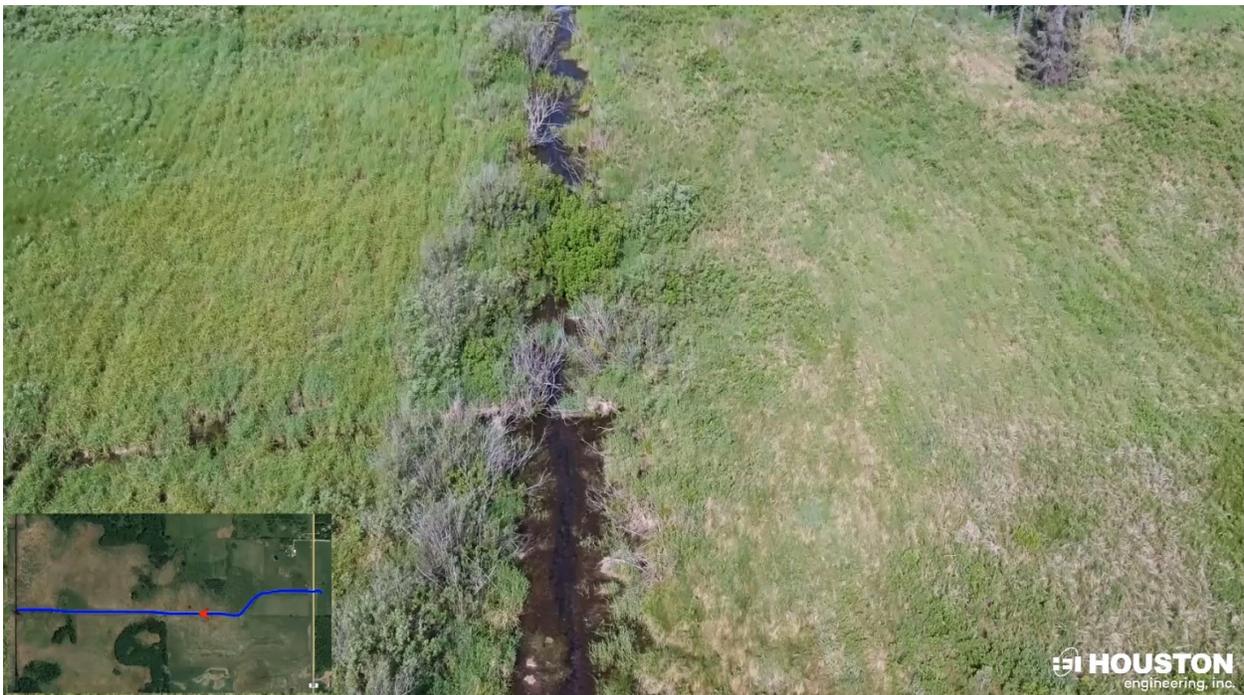


Photo 8: Pooling of water and flow obstruction at Branch 2 STA 33+00.



Photo 9: Water flooding overbank areas on Branch 2 near the confluence with the Main Trunk.

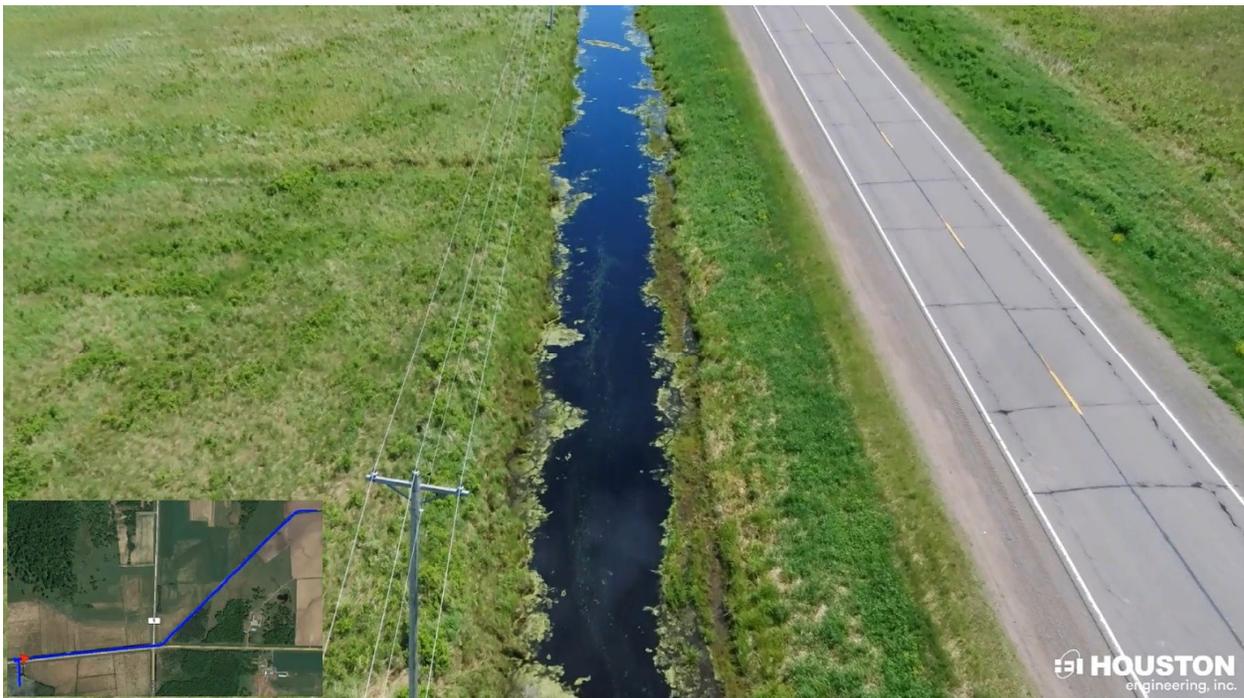
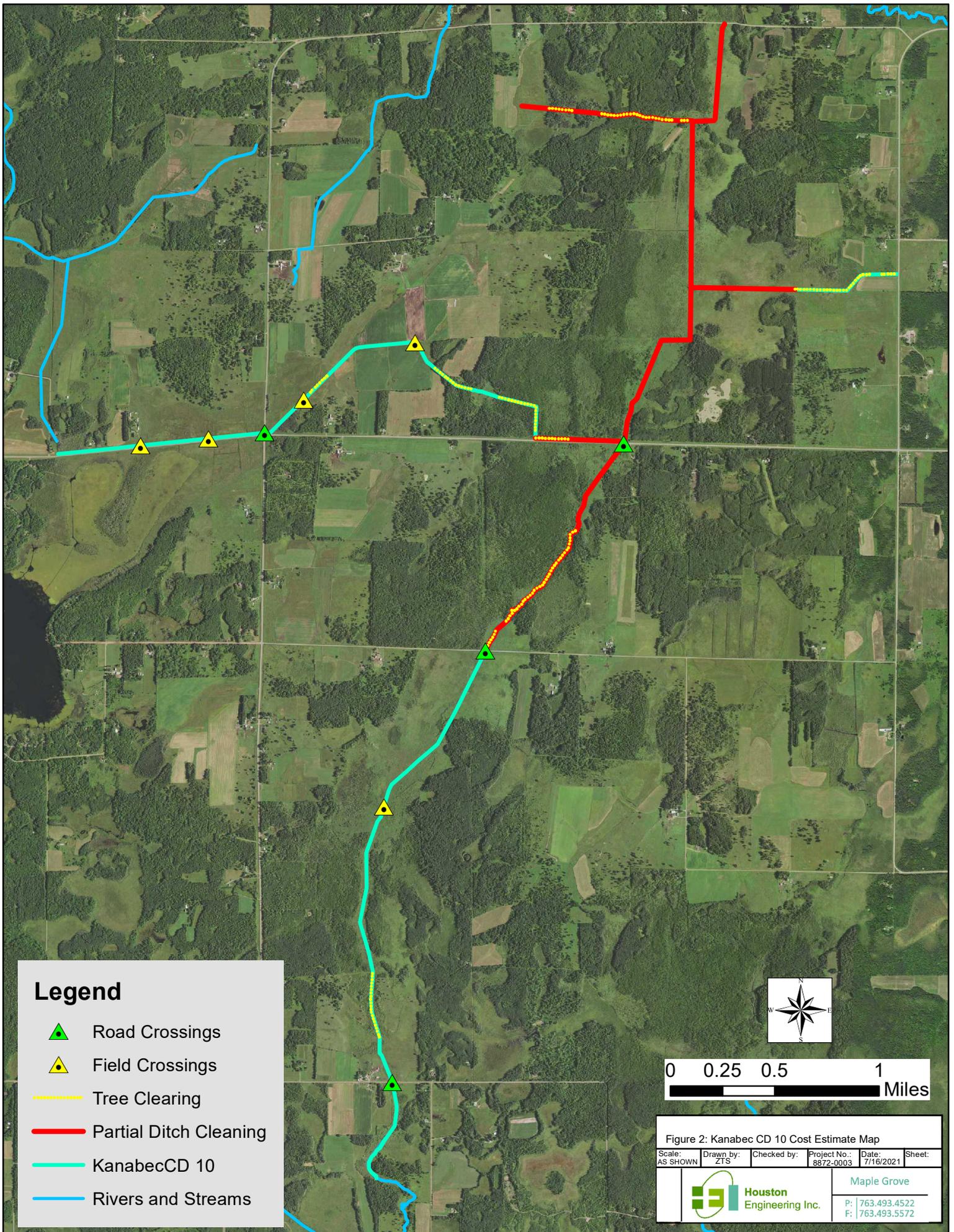


Photo 10: Stagnant water in Branch 3 parallel to 300th Avenue.



Photo 11: Branch 3 field crossing at STA 101+00 that is causing water to pool upstream.



Legend

-  Road Crossings
-  Field Crossings
-  Tree Clearing
-  Partial Ditch Cleaning
-  KanabecCD 10
-  Rivers and Streams



Figure 2: Kanabec CD 10 Cost Estimate Map

Scale: AS SHOWN	Drawn by: ZTS	Checked by:	Project No.: 8872-0003	Date: 7/16/2021	Sheet:
 Houston Engineering Inc.				Maple Grove	
				P: 763.493.4522 F: 763.493.5572	

Property Owner	Parcel ID No.	Partial Repair of Ditch - \$458,900		Full Repair of Ditch - \$830,800	
		Estimated Total Cost Contribution	Estimated Yearly Payment	Estimated Total Cost Contribution	Estimated Yearly Payment
COUNTY OF KANABEC	13.01336.00	\$17.31	\$1.51	\$31.33	\$2.73
COUNTY OF KANABEC	13.01476.00	\$26.88	\$2.34	\$48.66	\$4.24
NESS,KENNETH M & NANCY J	13.01340.00	\$33.45	\$2.92	\$60.57	\$5.28
SCOTT,LATHAN S	13.01915.00	\$156.89	\$13.68	\$284.03	\$24.76
HELMBRECHT,DAN	13.00905.00	\$168.10	\$14.66	\$304.32	\$26.53
COUNTY OF KANABEC	13.00990.00	\$135.60	\$11.82	\$245.49	\$21.40
KERBER,TODD	13.01920.00	\$179.30	\$15.63	\$324.61	\$28.30
TOWNLEY,JUSTIN N & NICOLE J	13.00950.00	\$36.53	\$3.18	\$66.13	\$5.77
GRABER,DANIEL H & DOLORES A	13.00870.50	\$31.90	\$2.78	\$57.75	\$5.03
COUNTY OF KANABEC	13.00921.00	\$314.35	\$27.41	\$569.10	\$49.62
KERBER,TODD B & CRYSTAL J	13.01925.00	\$324.98	\$28.33	\$588.36	\$51.30
WESTPHAL,RALPH	13.01910.00	\$347.40	\$30.29	\$628.93	\$54.83
LACHAPPELLE,KAREN M	13.01930.00	\$347.40	\$30.29	\$628.93	\$54.83
ORR,STEVEN P & DIANA L	13.00790.00	\$6,893.96	\$601.05	\$12,480.93	\$1,088.14
ELLINGSON,MICHAEL D & JEAN L	13.01900.00	\$515.49	\$44.94	\$933.25	\$81.37
MANDERS,MICHAEL & KARA	13.01935.00	\$526.70	\$45.92	\$953.54	\$83.13
PETERSON,CINDY	15.00020.00	\$58.97	\$5.14	\$106.76	\$9.31
OTT,JAMES	15.00020.10	\$60.27	\$5.25	\$109.11	\$9.51
OBEDOZA,WILLIAM M & GRACE P	13.00860.00	\$542.97	\$47.34	\$983.00	\$85.70
LAMBRIGHT,CHRISTIAN/MARILYN NE	13.01895.00	\$672.38	\$58.62	\$1,217.29	\$106.13
COUNTY OF KANABEC	13.01465.00	\$462.56	\$40.33	\$837.42	\$73.01
COLEMAN,ROBERT J	13.01335.00	\$268.97	\$23.45	\$486.95	\$42.45
TELANDER,JON G & TRISHA L	13.00785.00	\$8,130.15	\$708.82	\$14,718.96	\$1,283.27
STEFFEN,LOUIS	13.00475.00	\$887.05	\$77.34	\$1,605.94	\$140.01
DOWLING,WILLIAM S & ELIZABETH	13.00490.00	\$887.05	\$77.34	\$1,605.94	\$140.01
CARLSON,CORY & VICKI	13.00480.00	\$887.05	\$77.34	\$1,605.94	\$140.01
SEIDL,NICHOLAS J	13.00485.00	\$887.05	\$77.34	\$1,605.94	\$140.01

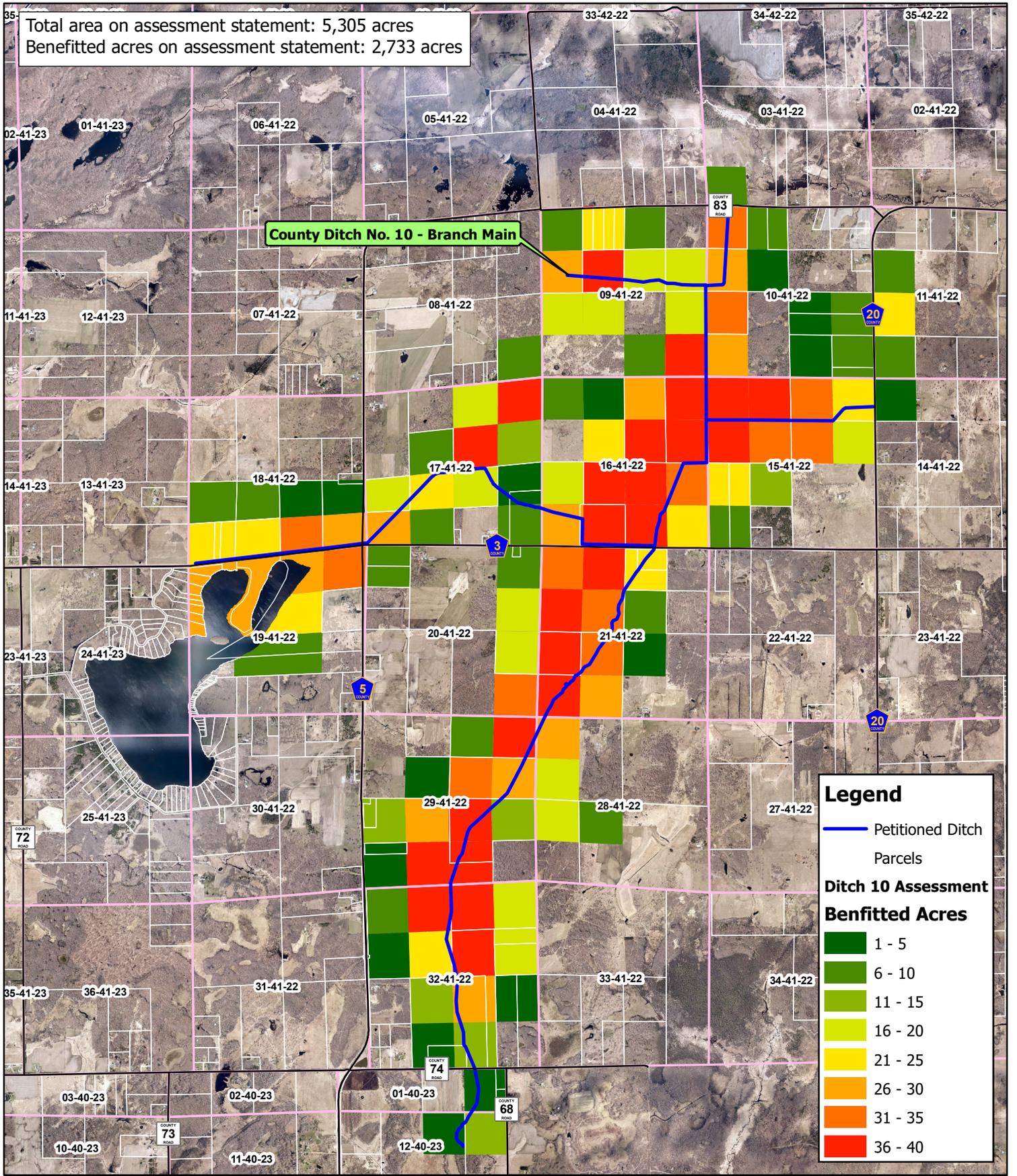
THOMPSON,TIMOTHY D & SHIRLEY	13.00495.00	\$10.10	\$0.88	\$18.28	\$1.59
WARD,LORI A	13.00505.40	\$121.61	\$10.60	\$220.16	\$19.19
PETERSON,CINDY	13.01465.20	\$7,279.99	\$634.70	\$13,179.81	\$1,149.08
OSLIN,RODNEY R & JUDY	13.00820.00	\$2,514.77	\$219.25	\$4,552.78	\$396.93
STATE OF MINNESOTA	13.01365.00	\$94.88	\$8.27	\$171.78	\$14.98
OSLIN,SHANNON CORY	13.00835.00	\$386.38	\$33.69	\$699.50	\$60.99
HELMBRECHT,DAN	13.00865.00	\$1,266.93	\$110.46	\$2,293.67	\$199.97
GIBBONS,JOSEPH T	13.01525.10	\$758.70	\$66.15	\$1,373.57	\$119.75
GARDNER,JEREMY	13.00980.50	\$1,339.94	\$116.82	\$2,425.84	\$211.50
KNOLL,DANIEL J & MARSHA M	13.01525.00	\$182.64	\$15.92	\$330.66	\$28.83
MYLLYKANGAS,JOHN	13.01530.00	\$182.64	\$15.92	\$330.66	\$28.83
MANS,GERALD C	13.00955.30	\$811.34	\$70.74	\$1,468.85	\$128.06
LABOUNTY,RENEE L	13.00955.10	\$811.34	\$70.74	\$1,468.85	\$128.06
LABORE,RAYMOND E	13.00505.10	\$273.50	\$23.85	\$495.16	\$43.17
FOSTER,JOHN N	13.00770.10	\$2,169.68	\$189.16	\$3,928.02	\$342.46
JONES,THOMAS A	13.00505.00	\$273.50	\$23.85	\$495.16	\$43.17
FOSTER,JOHN N	13.00770.20	\$2,169.68	\$189.16	\$3,928.02	\$342.46
TOWLE,RANDY A & JOVITA N	13.00515.00	\$425.86	\$37.13	\$770.98	\$67.22
OIEN,STEVEN D	13.01320.00	\$11,112.72	\$968.86	\$20,118.65	\$1,754.04
TOWLE,JANET EMMA	13.00515.10	\$5,088.28	\$443.62	\$9,211.91	\$803.14
ALCOCK,CHARLES & JUDITH A	13.01350.00	\$15,090.90	\$1,315.69	\$27,320.81	\$2,381.95
WILLMAN,SUZANNE M	13.00980.60	\$2,092.87	\$182.47	\$3,788.97	\$330.34
COUNTY OF KANABEC	13.01465.10	\$5,883.11	\$512.92	\$10,650.88	\$928.59
OBEDOZA,WILLIAM M & GRACE P	13.00855.00	\$2,245.18	\$195.75	\$4,064.72	\$354.38
NELSON,TODD PHILLIP LIV TRUST	13.00915.50	\$12,728.18	\$1,109.70	\$23,043.31	\$2,009.02
RUMPEL,DALE B	13.01525.20	\$1,551.54	\$135.27	\$2,808.93	\$244.90
THOMPSON,GARY D & RAE M	13.00495.50	\$30.29	\$2.64	\$54.83	\$4.78
JONES,THOMAS A	13.00505.30	\$364.83	\$31.81	\$660.49	\$57.58
OSLIN,SHANNON CORY	13.00825.00	\$10,787.82	\$940.53	\$19,530.45	\$1,702.75
STATE OF MINNESOTA	13.00910.00	\$3,649.85	\$318.21	\$6,607.75	\$576.09
CARDA,DAVID L & KAYE E	15.00015.00	\$367.61	\$32.05	\$665.53	\$58.02
NELSON,CHRISTOPHER A	13.00920.00	\$303.45	\$26.46	\$549.37	\$47.90
GRABER,SCOTT & LANI	13.00870.00	\$5,280.33	\$460.36	\$9,559.59	\$833.45

GRABER,GALEN E	13.00945.00	\$5,439.07	\$474.20	\$9,846.97	\$858.50
OFFERDAHL,LARRY H, % LARRY H & JEANETTE OFFERDAHL	13.01475.00	\$10,559.03	\$920.58	\$19,116.23	\$1,666.64
GIBBONS,JOSEPH T	13.01470.00	\$8,557.57	\$746.09	\$15,492.76	\$1,350.73
HANUMAN,INDRANI	15.00500.00	\$1,459.30	\$127.23	\$2,641.94	\$230.34
GATH,DERRICK J	15.00440.00	\$607.58	\$52.97	\$1,099.98	\$95.90
LILIENTHAL,DEANNA M	13.01315.00	\$284.52	\$24.81	\$515.10	\$44.91
WELCH,EUGENE & MISTY LEIGH	13.01310.00	\$7,766.42	\$677.11	\$14,060.46	\$1,225.85
OIEN,MARC	13.01325.00	\$10,382.15	\$905.16	\$18,796.02	\$1,638.72
OIEN,CRAIG	13.01295.00	\$1,297.77	\$113.15	\$2,349.50	\$204.84
KNUDSON,PHEBE J, C/O MARK AND CHERYL KNUDSON	13.01300.00	\$649.80	\$56.65	\$1,176.41	\$102.57
WATSON,WILLIAM J	13.00965.00	\$21,940.93	\$1,912.91	\$39,722.21	\$3,463.16
BIERBRAUER,CHESTER J	13.00960.00	\$5,029.54	\$438.50	\$9,105.57	\$793.86
GRABER,GALEN E	13.00975.00	\$6,488.85	\$565.73	\$11,747.51	\$1,024.20
KNUDSON,ROY L	13.00970.00	\$15,797.17	\$1,377.27	\$28,599.46	\$2,493.43
SCHWANTKE,RAYMOND G & KITTY	13.00460.00	\$15,048.25	\$1,311.97	\$27,243.59	\$2,375.22
OSLIN,RODNEY R & JUDY	13.00845.00	\$8,131.71	\$708.96	\$14,721.78	\$1,283.51
STENSTROM,ADAM D	13.00805.00	\$27,902.96	\$2,432.71	\$50,515.96	\$4,404.21
POMROY MAPLE MEADOWS INC	13.00850.00	\$141.34	\$12.32	\$255.89	\$22.31
SCHWANTKE,RAYMOND G & KITTY	13.00450.00	\$425.86	\$37.13	\$770.98	\$67.22
STATE OF MINNESOTA	13.00800.00	\$9,205.53	\$802.58	\$16,665.85	\$1,453.00
POMROY MAPLE MEADOWS INC	13.00830.00	\$3,081.97	\$268.70	\$5,579.65	\$486.46
KOCH,WAYNE R	13.00880.30	\$5,598.58	\$488.11	\$10,135.76	\$883.68
GRABER,SCOTT D	13.00880.00	\$3,568.41	\$311.11	\$6,460.30	\$563.24
POMROY MAPLE MEADOWS INC	13.00880.20	\$851.72	\$74.26	\$1,541.96	\$134.44
LILIENTHAL,ROBERT & MARIE	13.00465.00	\$5,679.35	\$495.15	\$10,281.98	\$896.43
STATE OF MINNESOTA	13.00470.00	\$6,488.85	\$565.73	\$11,747.51	\$1,024.20
GEBHART,GREGORY D	13.00455.30	\$1,418.92	\$123.71	\$2,568.83	\$223.96
GEBHART,LARRY F & TRINA J	13.00455.10	\$3,245.34	\$282.94	\$5,875.42	\$512.25

ADKINS,TERESA M	13.00455.20	\$2,920.44	\$254.62	\$5,287.21	\$460.96
HESSENIUS,ROBERT & MIKELYN	13.00090.00	\$1,622.67	\$141.47	\$2,937.71	\$256.12
WARNER,THOMAS RAYMOND	13.00525.00	\$5,191.08	\$452.58	\$9,398.01	\$819.36
TOWLE,JANET EMMA	13.00520.00	\$5,677.51	\$494.99	\$10,278.66	\$896.14
LEMKE,LOREN L & MARY ANN	13.00510.00	\$4,500.89	\$392.41	\$8,148.49	\$710.42
THOMPSON,GARY D & RAE M	13.00565.00	\$811.34	\$70.74	\$1,468.85	\$128.06
LEMKE,LOREN L & MARY ANN	13.00755.00	\$24,332.71	\$2,121.44	\$44,052.34	\$3,840.68
PETERSEN,KEVIN A & RENEE J	13.00760.00	\$8,799.87	\$767.21	\$15,931.42	\$1,388.97
HUNTINGTON,LEVERN IGNATIUS	13.00765.00	\$8,111.52	\$707.20	\$14,685.22	\$1,280.32
SAXHAUG,JOHN W	13.00770.40	\$1,459.30	\$127.23	\$2,641.94	\$230.34
JONES,THOMAS A	13.00505.20	\$486.43	\$42.41	\$880.65	\$76.78
ALM,RONALD & CYNTHIA TRUST	13.00750.00	\$425.86	\$37.13	\$770.98	\$67.22
FLIKKE,LEONARD	13.01305.00	\$6,488.85	\$565.73	\$11,747.51	\$1,024.20
KNUDSON,ROY L	13.00995.00	\$1,257.39	\$109.62	\$2,276.39	\$198.47
STATE OF MINNESOTA, DNR DIV OF LAND & MINERALS	13.00540.00	\$1,580.45	\$137.79	\$2,861.28	\$249.46
OSLIN,RODNEY R & JUDY	13.00795.00	\$15,674.19	\$1,366.55	\$28,376.80	\$2,474.02
MUELLNER SR,THOMAS G	13.00880.10	\$729.02	\$63.56	\$1,319.83	\$115.07

County Ditch Number 10 - Assessment Area

Total area on assessment statement: 5,305 acres
 Benefitted acres on assessment statement: 2,733 acres



Legend

- Petitioned Ditch
- Parcels

Ditch 10 Assessment Benefitted Acres

	1 - 5
	6 - 10
	11 - 15
	16 - 20
	21 - 25
	26 - 30
	31 - 35
	36 - 40

0 0.5 1 2 3 Miles

Date Created: 08/10/2021



March 1, 2021

Petition to the Kanabec County Board for the grading and dredging of Kanabec County Ditch 10, with the goals of improving public safety and to reclaim agricultural farmland.

Kanabec County Ditch 10 has not been properly maintained and does not flow or drain properly causing high levels of stagnant water that frequently floods into farmlands and residential areas making them unusable and unsafe. This is affecting properties on the north side of Kanabec County Road 3 (300th Ave.) from Quarry Street on the west and Kanabec County Road 10 (Rainbow Street) on the east. The high water levels in the ditch have no viable outlet due to the current lack of proper grading and frequently remain high throughout the warmer weather months.

The undersigned concerned citizens ask that the Kanabec County Board of Directors consider taking action to correct this public safety and agricultural issue.

Name: Wayne Koch
Address: 2144 300 Ave
Mora MN
Signature: Wayne Koch

Name: Kathy Hayen
Address: 2144 - 300th Av
Signature: Kathy Hayen

Name: David Broetter
Address: _____
Signature: David Broetter

Name: Elaine Alderink
Address: 2541 300th Ave.
Brook Park, Mn 55007
Signature: Elaine Alderink

Name: Dan Helmbrecht
Address: 2618 300 Ave
Brook Park mn.
Signature: Dan Helmbrecht

Name: Glen S. Isaler
Address: 3094 Rainbow St
Brook Park
Signature: _____

March 1, 2021

Petition to the Kanabec County Board for the grading and dredging of Kanabec County Ditch #5, with the goals of improving public safety and to reclaim agricultural farmland.

Name: DAN GRABER
Address: 3047 RAINBOW ST
BROOK PARK
Signature: [Signature]

Name: MARK H. GRABER
Address: 3255 RAINBOW ST
BROOK PARK MN
Signature: [Signature]

Name: SCOTT GRABER
Address: 2644 300th Ave
BROOK PARK, MN. 55007
Signature: [Signature]

Name: Jani Graber
Address: 2644 300th Ave
BROOK PARK, MN 55007
Signature: [Signature]

Name: Dolores Graber
Address: 3047 Rainbow St
Brook Park 55007
Signature: [Signature]

Name: _____
Address: _____
Signature: _____

Name: _____
Address: _____
Signature: _____

Name: _____
Address: _____
Signature: _____

Petition Percentage Calculation

County Ditch 10:

Petitioner assessment acres = 185.5 acres

Total assessed acres on original assessment = 5,305 acres

Percentage of area petitioned = 3.5%

County Ditch 2:

Petitioner assessment acres = 1,432.91 acres

Total assessed acres on original assessment = 2,720 acres

Percentage of area petitioned = 52.7%