# ENGINEER'S FINAL SURVEY REPORT

## KITTSON COUNTY DITCH NO. 7 IMPROVEMENT

Two Rivers Watershed District

February 17, 2025

Prepared By:

Widseth Smith Nolting & Associates, Inc.
216 South Main Street
Crookston, Minnesota 56176-1028

WSN Project No. 2021-11848

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WSN Project No. 2021-10848

### Certification:

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

Blake Carlson

Blake A. Carlson, PE

2/17/2025
Date

18814
License No.

## Introduction

These proceedings were initiated by a petition from landowners requesting an improvement to Kittson County Ditch Number 7 (KCD7). A copy of the original petition with amendment is attached in Appendix A. The petition states that the "Proposed improvement is necessary due to repeated events where inadequate capacity of County Ditch 7 causes waters to breach the ditch system and spill onto ag lands." It goes on to state that "due to the inadequate capacity, rainfall added to the spilled ditch system waters does not have timely access to the ditch system, adding to the significant financial hardships from crop loss." The petition requested improvement of the ditch along Sections 19 to 23 of Svea Township.

## Present Situation

KCD7 is located in the southwest corner of Kittson County, to the northwest of the City of Donaldson. See Figure 1. The ditch runs east-west with the upstream end of the ditch just to the west of US Highway 75. From there it runs to the west for 6.2 miles and outlets to Judicial Ditch 10 (JD10). JD10 continues to the north and west for 1.8 miles where it outlets to a natural channel that flows another 6 miles and outlets to the Red River of the North.

The drainage area is shown in Figure 2. There is 17.8 square miles of drainage to the upstream end of the ditch-east of US Hwy 75--and 22.6 square miles total to the downstream end.

The KCD7 system was originally established circa 1905. There is information in the ditch file for proposed improvements that were considered in 1949 and 1957. However, there is no evidence in the record that either of these improvements was established. Therefore, the assumption is that the original profile and cross-section established in 1905 represent the present legal ditch.

The present benefit area for the KCD7 system is shown in Figure 3. Benefits were redetermined in 2011.

The topography data used for this report was a combination of LiDAR data collected circa 2008 and on the ground surveys conducted by the watershed district staff. The existing data used for the preliminary plan sheets was collected in 2010. The vertical datum for the LiDAR and survey data is NAVD88. The horizontal datum for the survey data is "NAD 1983 HARN Adj MN Kittson Feet".

There are some situations related to this ditch that are of note. Two of them pertain to the topography of this area. The first is the slope of the land from east to west and how this relates to the slope of the ditch. Beginning at the upstream end, the slope of the ditch is nearly 6 feet per mile. Moving downstream on the ditch the slope decreases and for the last 2.8 miles the slope is less than 3 feet per mile. The cross-section and or depth of the ditch does not increase significantly moving to the west so the flattening of the slope results in a ditch that has less capacity than the approximately 3 miles of the upstream, eastern portion of the ditch.

The second situation relative to topography, in combination with the first, exaggerates the capacity inconsistency on this system. The ditch passes through high ground in Section 20 of Svea. This can be seen in the profile on the plan sheets in Exhibit B. The natural ground profile is the field elevation just to the south of the ditch. From Station 244+00 to 257+00, the elevation increases 2 feet. When the capacity of the ditch system is exceeded, the fields just to the east of this high ground are most affected. At relatively low flows, the water in the ditch is too high for any water on the fields in this area to drain into the legal ditch. In addition, this is one of the first areas that receives overflow from the ditch because of the combined effect of the slope of the ditch and the high ground to the west. The fields to the south of the ditch are most affected. There are

presently several locations in this portion, where the south spoil has been overtopped and in some locations is washed out.

One other situation of note. There are two companies that have pipeline crossings in Section 23 of Svea. See preliminary plans in Attachment B and C. Viking has two natural gas lines and Enbridge has eight oil lines carrying crude oil, refined products or natural gas. The reason to note these pipelines is that they limit the depth the channel can be lowered. Lowering these pipelines is not possible since the cost of doing so would be prohibitive and would likely make an improvement project more costly than the benefits provided.

The lines were located and probed for depth during the Summer of 2022. See Attachment C. The Viking lines were found to be buried deep enough that they are not a problem for the improvement. Unfortunately, this was not the case for all the Enbridge lines. The three east lines are buried the shallowest. Their depth is such that they present a problem for an improvement. Enbridge requires a minimum of 2.5 feet between the top of their pipe and the bottom of the ditch-see exception to this described below. These three lines are also the oldest of the group installed in 1950. The newer pipes have permits from the watershed that require the pipeline to be lowered at the cost of the company if required by a ditch improvement. The pipes installed in 1950 do not have permits since this was prior to the establishment of the watershed district so there is no requirement for Enbridge to lower the pipes at their cost.

The top of the pipe designated as Enbridge Line 3, which is the third line from the east, has the highest top of pipe elevation of the eight Enbridge pipes. It is one of the older lines and has been deactivated. In conversation with Enbridge, they would allow somewhat less cover on this pipe. Enbridge Line 13, which is the next pipe east of Line 3, has the next highest top elevation and would control the maximum depth of the ditch

at this point. The ditch bottom design provides for 2.5 feet of cover on Line 13. Line 3 would have 2.35 feet of cover.

**Adequacy of Outlet**

Even before the start of the ditch improvement petition process, there have been concerns about the adequacy of ditches and channels that serve as an outlet for KCD7. Because of this, there was an initial analysis and report done of the outlet adequacy for the proposed improvement. A copy of the report is included as Appendix D. The findings of the report were that simply deepening and or widening the existing legal ditch would result in additional downstream flooding of agricultural lands and crops for the proposed design event of a 5-year 24 hour storm. This will be referred to as the design event in the remainder of the report.

To address this, several alternatives were proposed that could be used in combination with an improvement to mitigate the increased peak flow. These included adding an impoundment, using setback levees along KCD7, culvert sizing in the upstream drainage area, overflow sections in south KCD7 berm, damage payments to downstream landowners, flood easements along the outlet or an outlet channel improvement. Some of these alternatives would by themselves totally mitigate for the increased flood potential, some would need to be used in combination with other alternatives.

At a meeting of the petitioners and landowners where the outlet adequacy findings were presented, the consensus of the group was to move forward using setback levees. However, when the modeling was done to evaluate the improvement with setback levees, the result was that setback levees would not work to completely mitigate for the increased peak flows resulting from an improvement to KCD7. For the proposed project design presented in this report, it is estimated that an increased peak of approximately

105 cubic feet per second will be passed downstream. The calculation of this increase is further explained in the following "Hydraulics & Hydrology" section.

The portion of the outlet channel where lands have agricultural crops that are presently flooded by the design event which would receive additional flooding is from the point where KCD7 outlets to JD10 to the point where the downstream channel intersects the section line between Sections 26 and 35 of South Red River Township. The increase in water level in the channel for the increase in peak flow from KCD7 of 105 cubic feet was modeled in a HEC-RAS model of the downstream channel. The additional area that would be flooded by the design event derived from this, is about 51 acres. A tally of this for each parcel is included in Appendix J. The value of this flood easement should be something less than the outright purchase of the land. The viewers and Engineer should work together to determine the amount to be paid for these flood easements.

For runoff events larger than the design event, the potential for increased downstream flooding will be mitigated by having several overflow sections of the ditch berms of KCD7 as included in the plans. The elevation of the overflow sections will be such that for flows larger than the design event, water will overflow into the adjacent fields and either pond there until the level in the ditch falls and allows the water back into the ditch, flow via other routes to the outlet as it does now or a combination of these. The overflow elevation of these sections will be set at the design event water surface elevation. Doing this will significantly mitigate for any increase in downstream peak flows for events larger than the design event.

To move this project forward a typical ditch improvement consisting of deepening and widening of the ditch in conjunction with purchasing flood easements along the outlet channel where lands are presently cropped that would be damaged by the increased peak from the design event will be developed and presented.

## Design Criteria

The petition stated the project should be an "Improvement of grade from high point to low point, eliminating flat sections, and improvement/addition of ditch capacity to handle upstream peak flows."

Regarding the "Improvement of grade from high point to low point, eliminating flat sections…", the depth and slope of the ditch was designed such that the level of flow in the ditch for the design event was as close to the adjacent field elevation as practicable.

The plan presented in the preliminary report included a ditch grade that had a level (flat) portion that was just under 2000 feet long from the Enbridge pipe crossings and upstream. The bottom width of this portion transitioned from 15 feet wide on the upstream end to 40 feet wide at the Enbridge pipe crossings. The increased bottom width was needed to offset the decreasing depth of the ditch relative to the adjacent fields. At the hearing where the preliminary report was presented, the petitioners requested that a ditch grade with slope be included in the design, in place of the flat portion. In response to this request, the Watershed board directed that the ditch design be revised to eliminate the level portion of the ditch grade.

Details for the ditch design that was arrived at are shown on the preliminary plans in Appendix B. The ditch bottom widths are sections of 10, 15 and 45 feet wide. The three existing ditch centerline box pipes will be used as is. In the pipes located at Stations 80+35 and 134+28, a 1.5 foot high weir will be installed in the upstream apron to provide transitions from the existing to improved ditch and downstream from the Enbridge pipe crossing, respectively. The side slope of the improved ditch will be 3:1. For additional details, refer to the plans and cross-sections included in Appendix B.

If this improvement is established, the legal ditch moving forward would be the 1905 depth and cross-section from Station 0+00 to 80+11 and the improved depth and cross-

section from Station 80+11 to 321+65 (upstream end of existing drop structure). It would also include the berm overflows at the elevations and lengths shown in the design plans. In addition, it would include the rock drop structure that as installed in 2017 to address head cut erosion that was progressing upstream in the ditch. The proposed legal grade from the rock structure and downstream is shown on the design plans. Design sketches for the rock structure that was installed are attached in Appendix E.

**Hydraulics and Hydrology**

The design event used to analyze the adequacy and peak flow effect is a 5-year 24 hour event. The design is based on the criteria in Briefing Paper #3 of the Basin Technical Advisory Committee (BTSAC #3). The BTSAC #3 discharge at Hwy 75 for 17.8 square miles is 290 cubic feet per second.

To get a feel for how a ditch designed to carry this peak discharge would have performed with some of the larger events that have occurred in this area in the past, streamflow measurements that were taken in this area were reviewed. There is a streamflow measurement site nearby in the City of Kennedy. The drainage area (42.5 square miles) is larger than that for KCD7, but the other characteristics of the upstream drainage area are similar to that for KCD7. There have been several peaks at the Kennedy site in the range of 500-600 cubic feet per second. There have only been two peaks significantly over this range. Taking 600 cubic feet per second and proportioning by area to KCD7, this would translate to a peak of 250 cubic feet per second. The conclusion from this being that KCD 7, improved as being proposed, would likely have been adequate to carry all but two of the past events that have been measured, without backing out onto the adjacent fields. A peak of 250 cubic feet per second is assumed to be in the range of a 5-year 24 hour event.

Using "Techniques for Estimating the Magnitude and Frequency of Peak Flow on Small Streams in Minnesota Based on Data through Water Year 2005", USGS Scientific Investigations Report 2009-5250, peak flows for 5-, 10-, 25- and 50-year events were determined for KCD 7 at Hwy 75 and are given in the following table.

| Return Event | Peak Discharge, cfs |
|---|---|
| 5 yr | 350 |
| 10 yr | 520 |
| 25 yr | 780 |
| 50 yr | 1000 |

Comparing the 5-year peak here with the peak derived previously for this, it is significantly greater. To resolve this the stream flow measurements made at Kennedy were again referred to. Measurements have been taken at this location starting in 1997 and continuing to present day, a period of around 25 years. The largest flow measured at this site was 796 cubic feet per second. Proportioning the Kennedy peak for KCD7 based on area, this would be 330 cubic feet per second. With the number and size of events that have occurred in this area in this period of time, you would expect to have at least one event that equaled or exceeded that of a 10-year event. Based on this it appears that the peaks from the USGS report are higher than KCD7 is experiencing.

For the purpose of this report, the assumption is that the more appropriate 5-year flow is 290 cubic feet per second. The other return event peak flows used for this project will be proportioned from the USGS values based on the 290 cubic foot per second 5 year flows. The resulting design flows are shown below.

| Return Event | Peak Discharge, cfs |
|---|---|
| 5 yr | 290 |
| 10 yr | 431 |
| 25 yr | 647 |
| 50 yr | 829 |

A hydrograph at Hwy 75 was developed from the most recent HEC-HMS model of the Lower Red River Retention Study. The hydrograph was used as a unit hydrograph and proportioned to have a peak of 340 cubic feet per second. This represents the 5-year 24 hour design event peak flow at the point of the ditch were spoil along the ditch begins to overflow first at Station 216+00. It accounts for inflows to the ditch from the upstream end to this point, the difference between 290 and 340 cubic feet per second.

To account for overflows into the adjacent fields for the design event with the existing conditions, an unsteady HEC-RAS model was developed. With the existing conditions, the overflows to the south result in a lower peak flow being passed down KCD7 to the outlet channel. The peak discharge at the outlet for the existing conditions was used to determine what if any increased peak charge would be expected from the proposed condition. The peak discharge at the outlet of KCD7 for existing and proposed, respectively is 235 and 340 cubic feet per second. The peak level for the design event water surface profile is attached as Appendix F.

Steady state HEC-RAS models were run for the 10-, 25- and 50-year events. Profiles for these events are attached in Appendix G.

**Right-Of-Way**

Based on a review of the ditch files available at the time of this report, it was determined that the existing right-of-way is 41.5 feet south of the section line. Permanent right-of-way required for the proposed ditch is 150 to 175 feet south of the section line. Refer to the plans in Appendix B for the location of the required right-of-way. This includes adequate area for placing the spoil to the south side of the ditch and to provide for the required 16.5 foot grass strip. The tally of permanent right-of-way required is attached in Appendix J. A total of approximately 50 acres of additional permanent right-of-way is needed.

A strip of 40 feet of temporary right-of-way, south of the permanent right-of-way will be required for construction. The tally of temporary right-of-way is attached in Appendix J. A total of approximately 22 acres of temporary right-of-way is needed.

**Environmental and Land Use Criteria**

There will be an increase of benefit to private and public entities resulting from the improvement. The private benefits will be in reduced flooding of adjacent agricultural lands. The public benefit will be in reduced stage and duration of water against road embankments. The exact amount of benefits will be determined by viewers as part of the next steps in the procedure. The probable cost for the project is presented in Appendix H.

The present land use along KCD7 is all agricultural. There is no anticipated change in land use that will result from the proposed improvement. The waters to be drained are the same as what are drained by the present ditch system. There are no effects anticipated on wetlands resulting from the proposed project.

Proper measures to minimize the effect to water quality will be used during construction as part of the Stormwater Pollution Prevention Plan. This will minimize the likelihood of substantial sediment discharge following rainfall events. The project will include provisions to establish adequate vegetative coverage at the conclusion of construction. Once vegetation is established there should be no significant adverse effect on water quality.

The proposed project involves widening and deepening an existing ditch. The lands adjacent to the ditch where excavation will occur is either farmed or planted to grass. There is a Minnesota protected water channel downstream of JD10. The 2 year event is carried by the existing ditch with no overflows from the ditch, therefore there will be no significant change in the 2 year peak flows. For flows in excess of the design event, the

spoil overflows will prevent passing higher peak flows downstream than exist now. As a result, there is no significant effect anticipated on fish or wildlife resources.

The proposed improvement should have insignificant to no impact on shallow ground water resources.

All things considered. the overall environmental impact of the project is anticipated to be limited to the period of construction, with no long-term adverse impacts.

**Permitting**

The only anticipated permits for the project will be for a Stormwater Pollution Prevention permit from the Minnesota Pollution Prevention Control Agency, from the Kittson County Highway Department and for a Two Rivers Watershed District permit.

**DNR Advisory Report**

The DNR advisory report is attached in Appendix I. Among other comments, this report included comments about the channel design at Stations 70+00 to 80+00 and 130+00 to 135+00. These were portions of the proposed ditch from the Engineer's Preliminary Survey report where the ditch had a higher slope. They were located at the upstream transition from the existing ditch to the improved ditch and just downstream of Enbridge pipe crossings.

The ditch plan as revised for this report includes weirs in the apron of the box pipes located just downstream of both locations. Refer to the plans in Appendix B. This provides much of the transition required at these locations and will provide for lower non-erosive velocities in the ditch immediately upstream. Both portions were reviewed relative to the flow velocities that were modeled using HEC-RAS. The velocities were non-erosive with the design presented in the Engineer's Preliminary Survey Report. Using the weirs as described will result in even lower velocities.

**BWSR Advisory Report**

The BWSR advisory report is attached in Appendix I. Among other comments, this report has similar comments about the two portions of the ditch with higher slopes. The same discussion as above for the DNR advisory report applies to this.

**Conclusions and Recommendations**

The project design, as described in this report, would provide improved drainage to the lands adjacent to the portions of the channel to be improved. It would also provide for a more adequate outlet for the lands in the drainage area to the ditch, upstream from this point. If all lands in the drainage area of KCD 7 receive an assessment appropriate to these benefits, the construction would be cost effective.

This being said, it is important that the petitioners understand and agree to all aspects of the ditch design. In particular, to understand there are overflow sections that are planned in the vicinity of Station 133+00 to the north, Station 186+00 to the north and south and Station 235+00 to the south. The first two of these are locations were flows in excess of the design flow can flow out into the adjacent field and primarily be held there until the water level in the ditch drops to allow the water back into the ditch. The last location is the first location where outflow occurs from the existing ditch. These proposed overflows, included with the design of the ditch, should be taken into consideration in the determination of benefits.

Another aspect of the existing ditch which is important to note. The existing road and or spoil located adjacent to the ditch provides for larger than design flows to be carried in some portions of the existing ditch. This is good for the portions of the ditch where the road and or spoil keeps water in the ditch, but is bad for portions of the ditch that do not have the same level of road or spoil to keep water in the ditch. This provides an unequal level of protection for lands along the ditch. It also tends to pass larger peak

flows to other lands along KCD7 and to the channels downstream from KCD 7. Constructing the project as designed would, to some extent, address these issues.

A possible option for reducing the costs to the landowners, would be to pursue water quality grant programs which could be used for portions of the project. This would pertain to the work to install side water inlets, berm area and seeding of the berm area. The potential for these grants should be explored if the project moves forward.

As was noted previously, the survey used to design the project was collected in 2010. It is not anticipated that the cross-sections have changed in a way that would significantly change the estimated quantities. The plan regarding this, would be to collect cross-sections as part of the construction staking. These cross-sections would be used in the calculation of the quantities for payment.

# Appendix A

# Petition & Amendment

Kittson County Ditch 7 Improvement

PETITION FOR IMPROVEMENTS TO KITTSON COUNTY DITCH 7

BEFORE THE DRAINAGE AUTHORITY OF TWO RIVERS WATERSHED BOARD

TWO RIVERS WATERSHED DISTRICT, KITTSON COUNTY

1. That they collectively, represent the majority of the owners of the property of the proposed drainage improvement described herein passes over or that they collectively own at least 60% of the area of the land over which the proposed improvement passes, measured in both cases by 40 acre tracts or government lots.

2. Petitioners propose to improve drainage along a 4.7 mile section of Kittson County Ditch 7 starting at the eastern edge of Svea sections 14\23 and going westward to the western edge of Svea sections 16\20. Improvement of grade from high point to low point, eliminating flat sections, and improvement/addition of ditch capacity to handle upstream peak flows.

3. Proposed improvement is necessary due to repeated events where inadequate capacity of County Ditch 7 causes waters to breach the ditch system and spill onto ag lands. Lands significantly affected by flooding includes Svea sections 14, 21 and 23. Also due to the inadequate capacity, rainfall added to the spilled ditch system waters does not have timely access to the ditch system, adding to the significant financial hardships from crop loss.

4. The proposed improvement will benefit 10 land owners, including one residence by providing more timely run off of heavy rainfalls

5. The petitioners will pay all costs of the proceedings if the proceedings are dismissed or the contract for the improvements to the drainage system is not awarded

6. The petitioners provide herewith a corporate surety bond in the face amount of $25,000 payable to the drainage authority, said bond conditioned to pay the costs incurred if the proceedings are dismissed or a contract is not awarded to perform the improvements proposed in this petition. Petitioners covenant that they will not allow the costs incurred to exceed the amount of the bond and that they will cause additional bond to be filed if it appears that the costs will exceed the bond submitted herewith.

7. We, the following petitioners, request that the drainage authority proceed as authorized by law toward the construction of the drainage improvement herein.

8. I HAVE BEEN INFORMED, AND I UNDERSTAND THAT I MAY NOT WITHDRAW AS A PETITIONER AT ANY TIME AFTER THIS PETITION HAS BEEN FILED. I ALSO UNDERSTAND THAT IF THE PROPOSED DRAINAGE IMPROVEMENT PROJECT IS NOT CONSTRUCTED, I AM, AND

EACH OTHER PETITIONER IS, LIABLE TO THE DRAINAGE AUTHORITY FOR ALL THE COSTS INCURRED INCLUDING ENGINEERING, LEGAL, AND AUDITOR'S FEES.

This petion is prepared by:

Scott Klein

1946 200TH St.

Hallock MN 56728

In re Petition for Improvement of Ditch 7 Svea twp
Tract description N½ 23 Svea & S½ 15 Svea twp.
Ownership (check one)

- ✓ Individual
- _____ Partner. Name of Partnership _____
- _____ Co-owner. How many _____
- _____ Corporation. Name of corporation _____
- _____ Trust. Name of Trust _____
  How many trustees _____

| signature | title | date | |
|---|---|---|---|
| Kurt Krantz | owner | 3-9-21 | |
| | | | |
| | | | |
| | | | |

In re Petition for _____
Tract description
ownership (check one)

- _____ Individual
- _____ Partner. Name of Partnership _____
- _____ Co-owner. How many _____
- _____ Corporation. Name of corporation _____
- _____ Trust. Name of Trust _____
  How many trustees _____

| signature | title | date | |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |

In re Petition for Ditch # 7 Improvement
Tract description Sec. 22
Ownership (check one)

X Individual
___ Partner. Name of Partnership ___
___ Co-owner. How many ___
___ Corporation. Name of corporation ___
___ Trust. Name of Trust ___
How many trustees ___

| | | | |
|---|---|---|---|
| Martha Joy Roberts | Owner | 3-22-21 | ___ |
| signature | title | date | |
| ___ | ___ | ___ | ___ |
| signature | title | date | |
| ___ | ___ | ___ | ___ |
| signature | title | date | |
| ___ | ___ | ___ | ___ |
| signature | title | date | |

In re Petition for Ditch # 7 Improvement
Tract description Sec. 22
ownership (check one)

X Individual
___ Partner. Name of Partnership ___
___ Co-owner. How many ___
___ Corporation. Name of corporation ___
___ Trust. Name of Trust ___
How many trustees ___

| | | | |
|---|---|---|---|
| Brian C. Anderson | Owner | 3-16-2021 | ___ |
| signature | title | date | |
| ___ | ___ | ___ | ___ |
| signature | title | date | |
| ___ | ___ | ___ | ___ |
| signature | title | date | |
| ___ | ___ | ___ | ___ |
| signature | title | date | |

In re Petition for IMPROVEMENT TO KC DITCH 7
Tract description
Ownership (check one)

X Individual
_____ Partner. Name of Partnership _____
_____ Co-owner. How many _____
_____ Corporation. Name of corporation _____
_____ Trust. Name of Trust _____
How many trustees _____

SUSA SECTION 21

| | | | |
|---|---|---|---|
| Tim Blount | Owner | 3-10-2021 | |
| signature | title | date | |
| | | | |
| signature | title | date | |
| | | | |
| signature | title | date | |
| | | | |
| signature | title | date | |

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In re Petition for _____
Tract description
ownership (check one)

_____ Individual
_____ Partner. Name of Partnership _____
_____ Co-owner. How many _____
_____ Corporation. Name of corporation _____
_____ Trust. Name of Trust _____
How many trustees _____

| | | | |
|---|---|---|---|
| | | | |
| signature | title | date | |
| | | | |
| signature | title | date | |
| | | | |
| signature | title | date | |
| | | | |
| signature | title | date | |

In re Petition for IMPROVEMENT TO CTY DITCH 7
Tract description SE¼ SWEA 16.
Ownership (check one)

__x__ Individual
_____ Partner. Name of Partnership _____
_____ Co-owner. How many _____
_____ Corporation. Name of corporation _____
_____ Trust. Name of Trust _____
How many trustees _____

| signature | title | date | |
|---|---|---|---|
| [signature] | OWNER | 3-9-21 | |
| signature | title | date | |
| signature | title | date | |
| signature | title | date | |

In re Petition for _____
Tract description
ownership (check one)

_____ Individual
_____ Partner. Name of Partnership _____
_____ Co-owner. How many _____
_____ Corporation. Name of corporation _____
_____ Trust. Name of Trust _____
How many trustees _____

| signature | title | date | |
|---|---|---|---|
| signature | title | date | |
| signature | title | date | |
| signature | title | date | |
| signature | title | date | |

In re Petition for Improvement Ditch 7 ●
Tract description E½ of Sec 20 & SW of Sec 17
Ownership (check one)

X Individual
___ Partner. Name of Partnership _____
___ Co-owner. How many _____
___ Corporation. Name of corporation _____
___ Trust. Name of Trust _____
How many trustees _____

Florence Dahl owner 3/8/21
signature title date

_____ _____ _____
signature title date

_____ _____ _____
signature title date

_____ _____ _____
signature title date

---

In re Petition for _____
Tract description
ownership (check one)

___ Individual
___ Partner. Name of Partnership _____
___ Co-owner. How many _____
___ Corporation. Name of corporation _____
___ Trust. Name of Trust _____
How many trustees _____

_____ _____ _____
signature title date

_____ _____ _____
signature title date

_____ _____ _____
signature title date

_____ _____ _____
signature title date

Auto-Owners INSURANCE

LIFE · HOME · CAR · BUSINESS

BOND NUMBER: 66367482

# LICENSE AND PERMIT BOND

Not Valid for Contract, Performance, Maintenance, Subdivision,
Agent to Sell Hunting and Fishing Licenses or Utility Guarantee Bonds.

**KNOW ALL MEN BY THESE PRESENTS:**

That we, Scott Klein, Kurt Kraulik, Timothy Bloomquist, Cory Grochowski, Brian Anderson, as Principal, and the Auto Owners, a corporation duly licensed to do business in the state of Minnesota, as Surety, are held and firmly bound unto Two River Watershed District as Obligee, in the amount of Twenty Five Thousand Dollars ($25,000), lawful money of the United States of America, to be paid to said Obligee, for which payment well and truly to be made, we bind ourselves and our legal representatives, jointly and severally.

**THE CONDITION OF THIS OBLIGATION IS SUCH,** that whereas, the Principal has been licensed as a Contractor for Ditch Cleaning of County Ditch 7 Kittson County by the Obligee.

**NOW, THEREFORE,** if the Principal shall faithfully perform the duties and comply with the laws and ordinances (including all amendments) pertaining to the license or permit, then this obligation shall be void; otherwise to remain in full force and effect for a period commencing on the 5th day of May, 2021, and ending on the 5th day of May, 2022, unless renewed by continuation certificate.

This bond may be terminated at any time by the Surety upon sending notice in writing to the Obligee and to the Principal, in care of the Obligee or at such other address as the Surety deems reasonable, and at the expiration of thirty (30) days from the mailing of notice or as soon thereafter as permitted by applicable law, whichever is later, this bond shall terminate and the Surety shall be relieved from any liability for any subsequent acts or omissions of the Principal.

**SIGNED, SEALED and DATED** this 5th day of May 2021.

Two River Watershed District
Principal

By Scott Klein

Auto-Owners Insurance Company
Surety

By Daniel Sjostrand
Attorney-in-Fact

STEVEN D SJOSTRAND
Notary Public
Minnesota
My Commission Expires
Jan 31, 2023

29383 (01-18)

DATE AND ATTACH TO ORIGINAL BOND

# AUTO-OWNERS INSURANCE COMPANY

LANSING, MICHIGAN

POWER OF ATTORNEY

NO. 66367482

KNOW ALL MEN BY THESE PRESENTS: That the AUTO-OWNERS INSURANCE COMPANY AT LANSING, MICHIGAN, a Michigan Corporation, having its principal office at Lansing, County of Eaton, State of Michigan, adopted the following Resolution by the directors of the Company on January 27, 1971, to wit:

"RESOLVED, That the President or any Vice President or Secretary or Assistant Secretary of the Company shall have the power and authority to appoint Attorneys-in-fact, and to authorize them to execute on behalf of the Company, and attach the seal of the Company thereto, bonds and undertakings, recognizances, contracts of indemnity, and other writings obligatory in the nature thereof. Signatures of officers and seal of Company imprinted on such powers of attorney by facsimile shall have same force and effect as if manually affixed. Said officers may at any time remove and revoke the authority of any such appointee."

Does hereby constitute and appoint STEVEN D SJOSTRAND

its true and lawful attorney(s)-in-fact, to execute, seal and deliver for and on its behalf as surety, any and all bonds and undertakings, recognizances, contracts of indemnity and other writings obligatory in the nature thereof, and the execution of such instrument(s) shall be as binding upon the AUTO-OWNERS INSURANCE COMPANY AT LANSING, MICHIGAN as fully and amply, to all intents and purposes, as if the same had been duly executed and acknowledged by its regularly elected officers at its principal office.

IN WITNESS WHEREOF, the AUTO-OWNERS INSURANCE COMPANY AT LANSING, MICHIGAN, has caused this to be signed by its authorized officer this 1st day of August, 2016.

Denise Williams — Senior Vice President

STATE OF MICHIGAN }ss.
COUNTY OF EATON }

On this 1st day of August, 2016, before me personally came Denise Williams, to me known, who being duly sworn, did depose and say that they are Denise Williams, Senior Vice President of AUTO-OWNERS INSURANCE COMPANY, the corporation described in and which executed the above instrument, that they know the seal of said corporation, that the seal affixed to said instrument is such Corporate Seal, and that they received said instrument on behalf of the corporation by authority of their office pursuant to a Resolution of the Board of Directors of said corporation.

SUSAN E. THEISEN NOTARY PUBLIC COUNTY OF CLINTON My Commission Expires MARCH 10, 2022 Acting in the County of STATE OF MICHIGAN

My commission expires March 10, 2022.

Susan E. Theisen — Notary Public

STATE OF MICHIGAN }ss.
COUNTY OF EATON }

I, the undersigned First Vice President, Secretary and General Counsel of AUTO-OWNERS INSURANCE COMPANY, do hereby certify that the authority to issue a power of attorney as outlined in the above board of directors resolution remains in full force and effect as written and has not been revoked and the resolution as set forth is now in force.

Signed and sealed at Lansing, Michigan. Dated this 5th day of May, 2021.

AUTO-OWNERS INSURANCE SEAL

William F. Woodbury, First Vice President, Secretary and General Counsel

Auto-Owners INSURANCE
LIFE · HOME · CAR · BUSINESS

# EXECUTION REPORT

*(Detach and return with a copy of original bond.)*

Bond Number 66367482

Agency: STEVEN SJOSTRAND AGENCY LLC
PO BOX 844
HALLOCK, MN 56728-0844

Agency Code: 06-0265-00
Agency Phone Number: (218) 843-2697

Name of Principal SCOTT KLEIN, KURT KRAULIK, TIMOTHY BLOOOMQUIST, CORY G

Effective Date 05/05/2021

Mailing Address 1946 200TH ST, HALLOCK, MN 56728-423

Premium Charge $540.00

Name of Obligee TWO RIVER WATERSHED DISTRICT

Amount of Bond $25,000.00

Address of Obligee 410 5TH ST SE, HALLOCK, MN 56728-4140

Type of Bond License/Permit

COMPLETE AND ATTACH ALL PAPERS UNDER THIS REPORT THE SAME DAY THE BOND IS SIGNED

# NOTICE OF PRIVACY PRACTICES

## What We Do To Protect Your Privacy

At Auto-Owners Insurance Group*, we value your business and we want to retain your trust. In the course of providing products and services, we may obtain nonpublic personal information about you. We assure you that such information is used only for the purpose of providing our products and services to you.

## Protecting Confidentiality

Our agents and Company associates may have access to nonpublic personal information only for the purpose of providing our products or services to you. We maintain physical, electronic and procedural safeguards against unauthorized use of your nonpublic personal information.

## Information We Obtain

To assist in underwriting and servicing your policy, we may obtain nonpublic personal information about you. For example, we routinely obtain information through applications, forms related to our products or services, from visiting www.auto-owners.com, and your transactions with us. We may obtain such information from our affiliates, independent insurance agents, governmental agencies, third parties, or consumer reporting agencies.

The type of information that we collect depends on the product or service requested, but may include your name, address, contact information, social security number, credit history, claims history, information to properly investigate and resolve any claims, or billing information. We may obtain your medical history with your permission. The nature and extent of the information we obtain varies based on the nature of the products and services you receive.

## The Internet and Your Information

If you would like to learn about how we gather and protect your information over the Internet, please see our online privacy statement at www.auto-owners.com/privacy.

Generally, Auto-Owners may use cookies, analytics, and other technologies to help us provide users with better service and a more customized web experience. Our business partners may use tracking services, analytics, and other technologies to monitor visits to www.auto-owners.com. The website may use web beacons in addition to cookies. You may choose to not accept cookies by changing the settings in your web browser.

Information obtained on our websites may include IP address, browser and platform types, domain names, access times, referral data, and your activity while using our site; who should use our web site; the security of information over the Internet; and links and co-branded sites.

## Limited Disclosure

Auto-Owners Insurance Group companies do not disclose any nonpublic personal information about their customers or former customers except as permitted by law. We do not sell your personal information to anyone. We do not offer an opportunity for you to prevent or "opt out of" information sharing since we only share personal information with others as allowed by law.

When sharing information with third parties to help us conduct our business, we require them to protect your personal information. We do not permit them to use or share your personal information for any purpose other than the work they are doing on our behalf or as required by law.

The types of information disclosed may include personal information we collect as necessary to service your policy or account, investigate and pay claims, comply with state and federal regulatory requests or demands, and process other transactions that you request. Third parties that receive disclosures may include your independent agent, regulators, reinsurance companies, fraud prevention agencies, or insurance adjusters.

## How Long We Retain Your Information

We generally retain your information as long as reasonably necessary to provide you services or to comply with applicable law and in accordance with our document retention policy. We may retain copies of information about you and any transactions or services you have used for a period of time that is consistent with applicable law, applicable statute of limitations or as we believe is reasonably necessary to comply with applicable law, regulation, legal process or governmental request, to detect or prevent fraud, to collect fees owed, to resolve disputes, to address problems with our services, to assist with investigations, to enforce other applicable agreements or policies or to take any other actions consistent with applicable law.

In some circumstances we may anonymize your personal information (so that it can no longer be associated with you) for research or statistical purposes, in which case we may use this information indefinitely without further notice to you. This allows the specific information collected (name, email, address, phone number, etc.) to become anonymous, but allows Auto-Owners to keep the transaction or engagement data.

## Changes to the Privacy Policy

We will provide a notice of our privacy policy as required by law. This policy may change from time to time, but you can always review our current policy by visiting our website at www.auto-owners.com/privacy or by contacting us.

## Contact Us

Auto-Owners Insurance Company
Phone: 844-359-4595 (toll free)
Email: privacyrequest@aoins.com

*Auto-Owners Insurance Group includes, Auto-Owners Insurance Company, Auto-Owners Life Insurance Company, Home-Owners Insurance Company, Owners Insurance Company, Property-Owners Insurance Company and Southern-Owners Insurance Company.

AMMENDMENT TO "PETITION FOR IMPROVEMETNS TO KITTSON COUNTY DITCH 7

BEFORE THE BOARD OF MANAGERS OF THE TWO RIVERS WATERSHED DISTRICT (DRAINAGE AUTHORITY)

Whereas, the 'Petition For Improvements To Kittson County Ditch #7' was presented to the Two Rivers Watershed District on May 6, 2021, and

Whereas, the Board of Managers of the Two Rivers Watershed District accepted and approved the petition pending formal review by the District Attorney, Jeff Hane, and

Whereas, Mr. Hane identified a discrepancy in item #2 in the petition that identifies a 4.7 mile long project but describes it to be only 3 miles, and

Whereas, it is in the best interest of both the project petitioners and the Two Rivers Watershed District to accurately describe the extent of the project.

Now, Therefore, the project petitioners agree to strike the language from item number 2 of the original petition and replace it with the following:

*2. Petitioners propose to improve drainage along a 4.7 mile section of Kittson County Ditch 7 starting at the eastern edge of Svea Township, sections 14/23 and going westward to the outlet of the ditch at the junction of Judicial Ditch #10 in the NW ¼, NE ¼, NW ¼ Section 19 Svea Township, Kittson County, MN. The project proposes to improve the grade of the ditch from high point to low point, eliminating flat sections, and improvement / addition of ditch capacity to handle upstream peak flows.*

Be it also resolved that each of the original petitioners approve of this change by signing below:

Kurt Kraulik — 5/24/21

Kurt Kraulik, Landowner N ½ Svea 23 and S ½ Svea 15 — Date

Martha Joy Roberts — 5-29-21

Martha Joy Roberts, Landowner Svea Section 22 — Date

Brian C. Anderson — 5-24-2021

Brian C. Anderson, Landowner Svea Section 22 — Date

Tim Bloomquist, Landowner Svea Section 21 — 5-29-21 Date

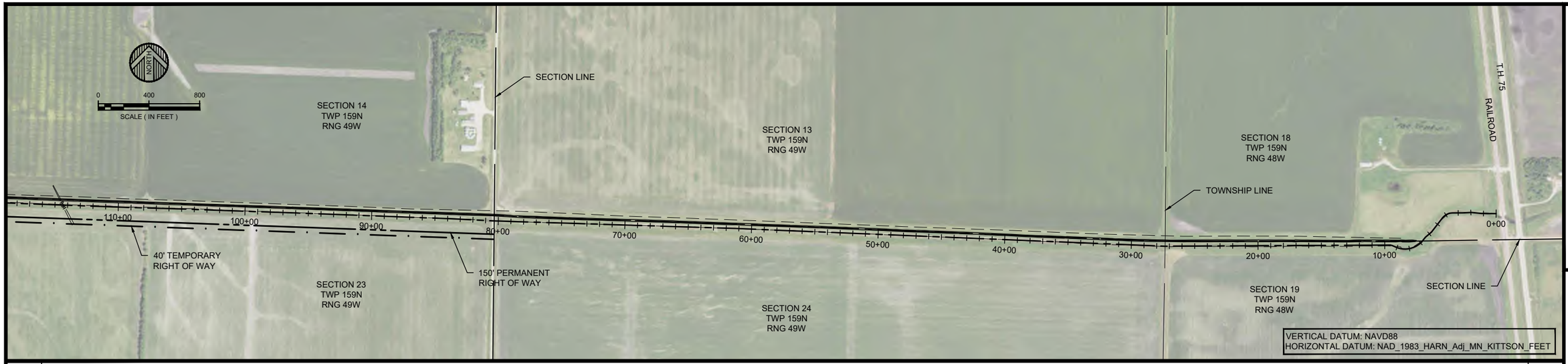
Scott Klein, Landowner SE ¼ Svea 16 — 6-1-21 Date

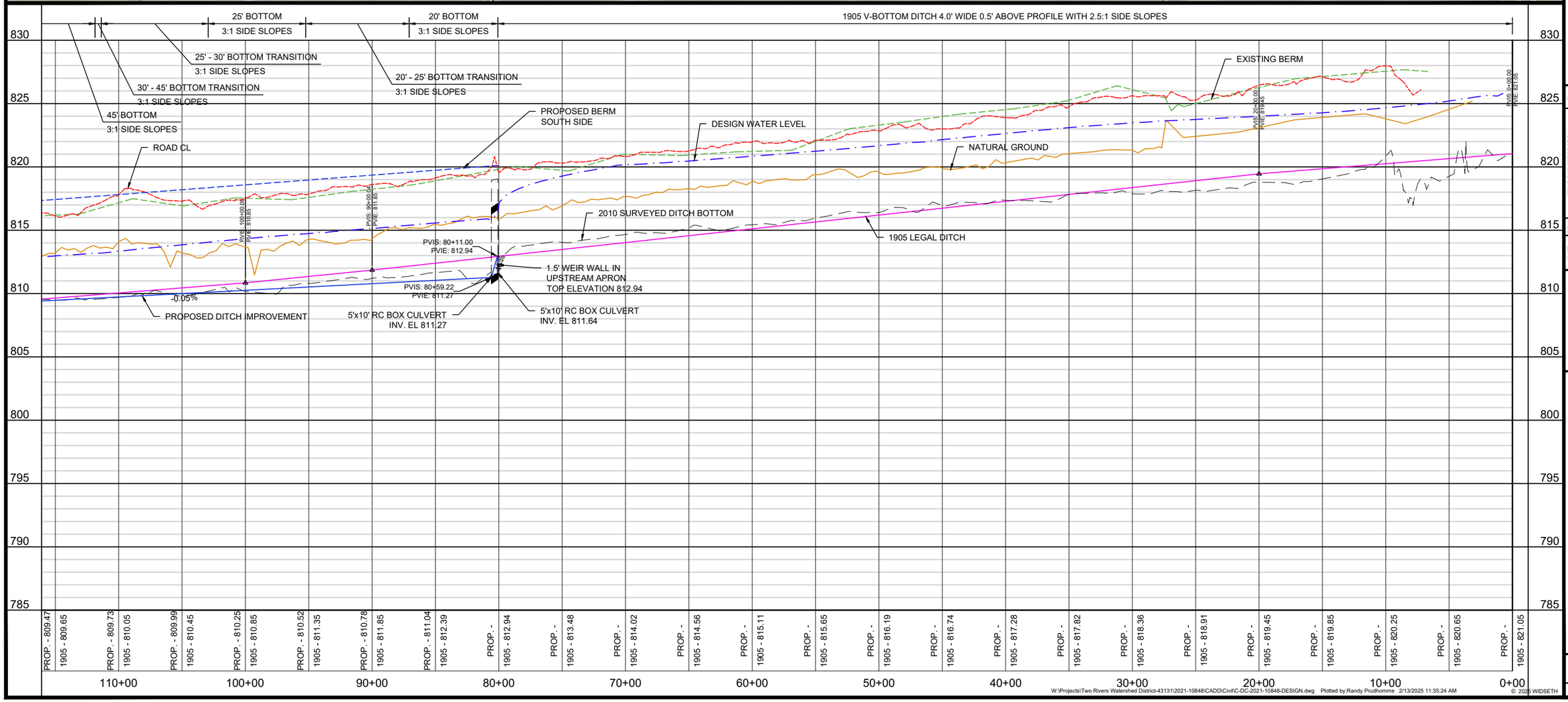
Florence Dahl, Landowner E1/2 of Svea 20 and of Svea 17 — 6/9/21 Date

# Appendix B

# Preliminary Plans

Kittson County Ditch 7 Improvement

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KITTSON COUNTY DITCH #7
TWO RIVERS WATER SHED DISTRICT
KITTSON COUNTY

**PLANS AND PRFILE**

SHEET NO.
**01**
SHEET 01 OF 10

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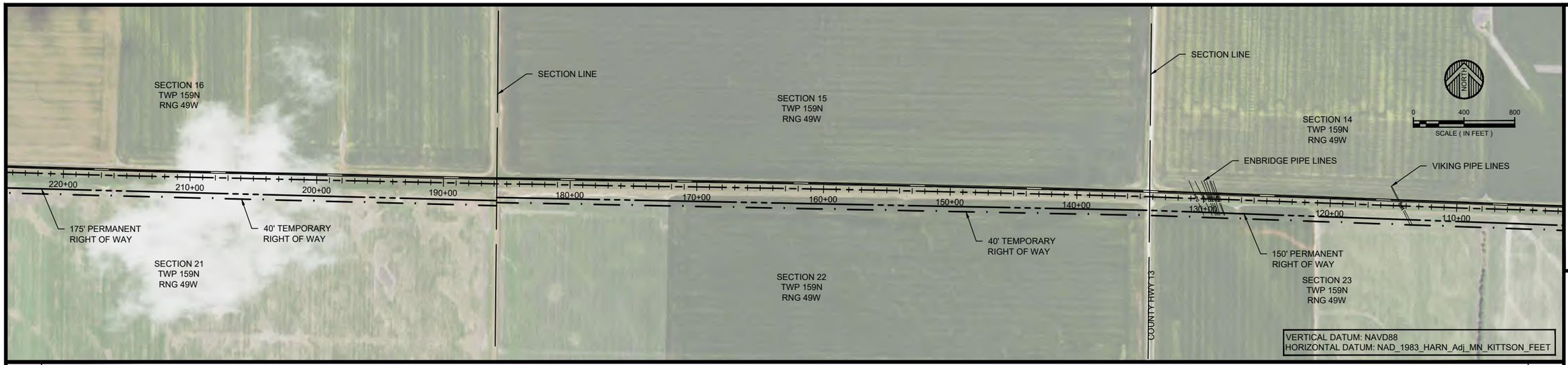


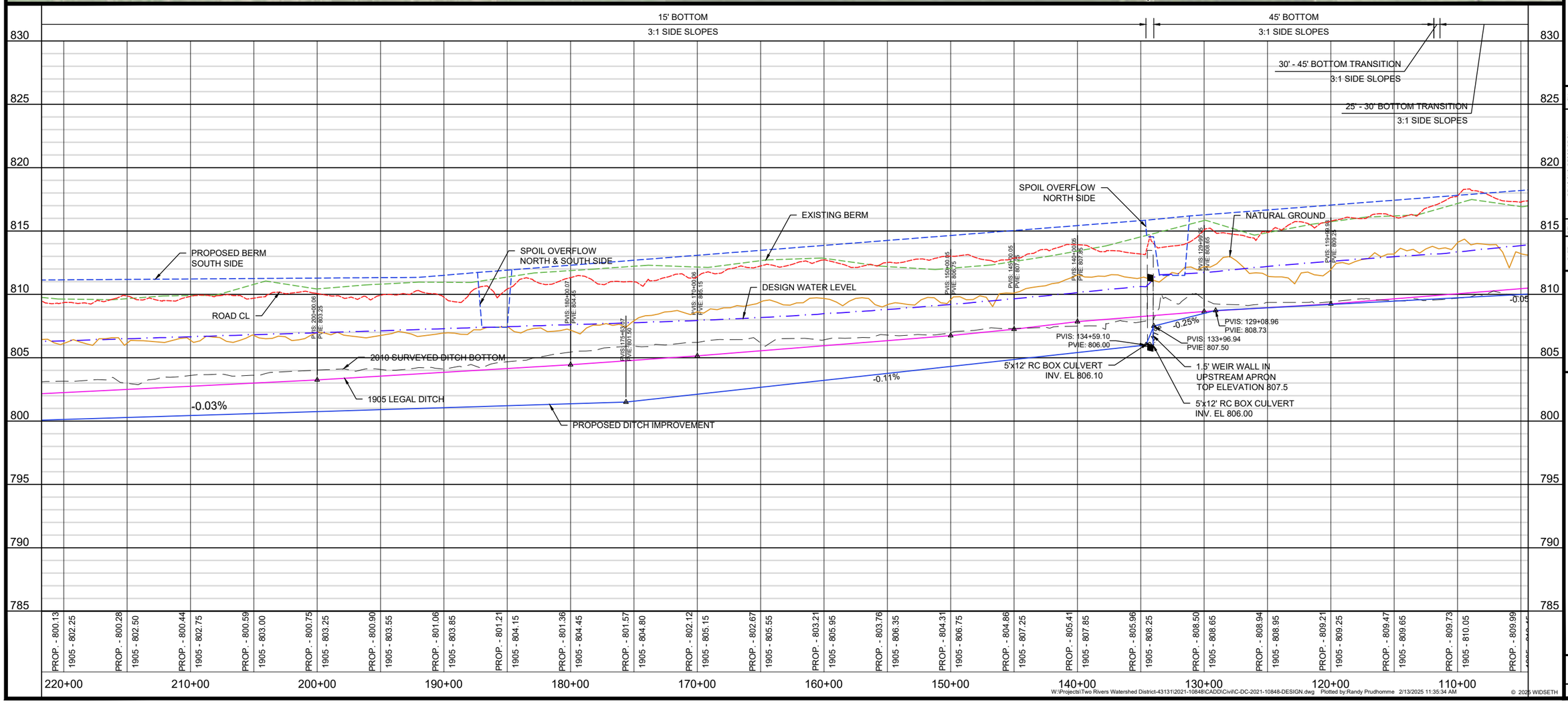


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KITTSON COUNTY DITCH #7
TWO RIVERS WATER SHED DISTRICT
KITTSON COUNTY

**PLANS AND PRFILE**

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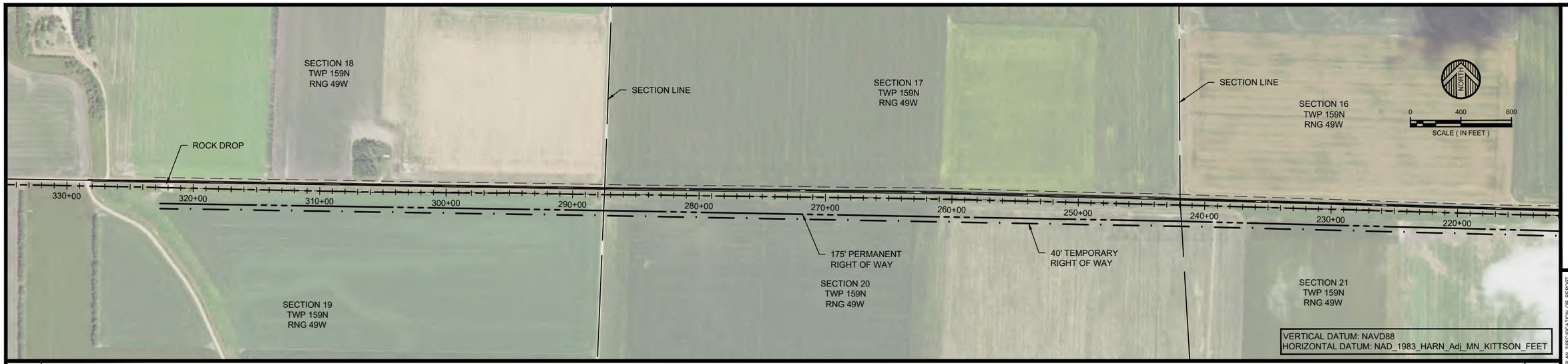
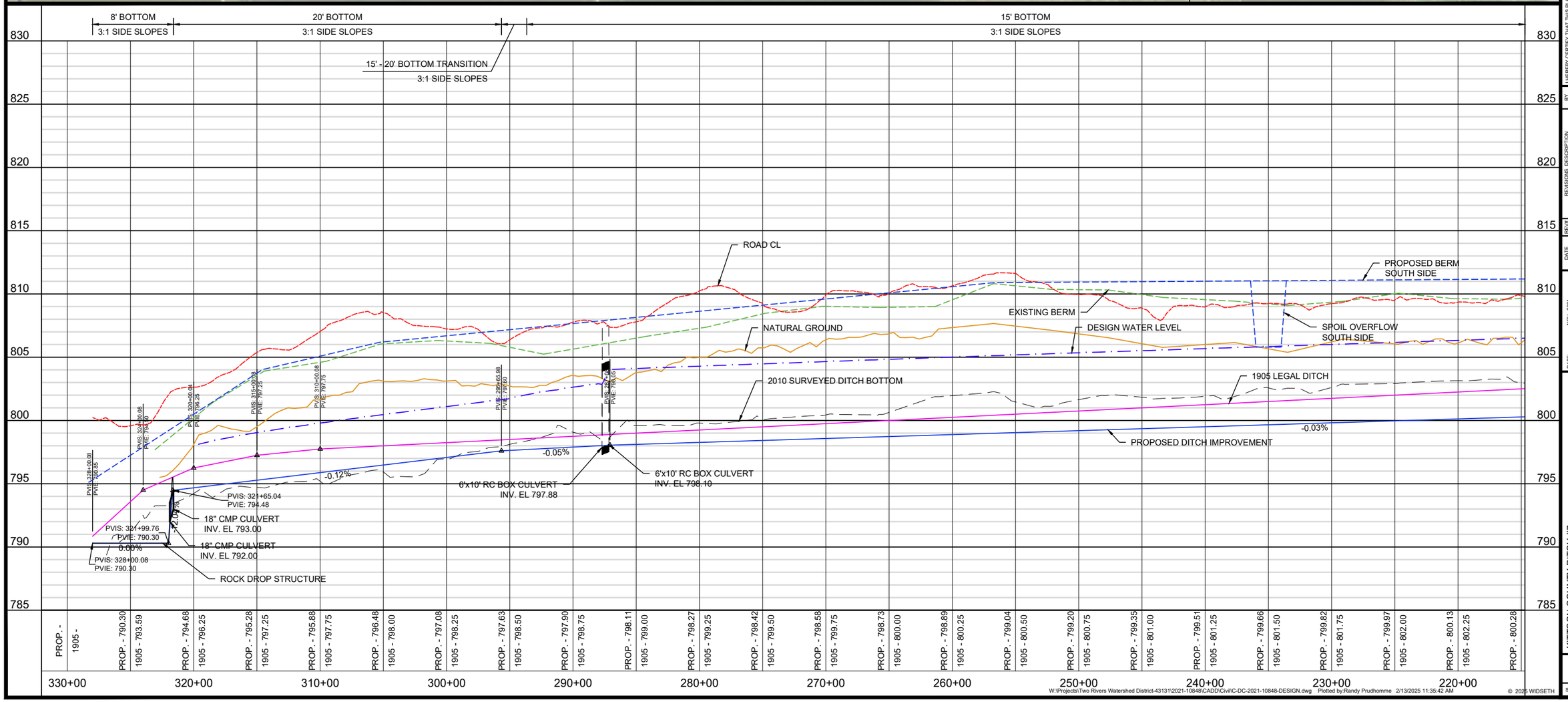
SHEET 02 OF 10

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KITTSON COUNTY DITCH #7
TWO RIVERS WATER SHED DISTRICT
KITTSON COUNTY
**PLANS AND PRFILE**

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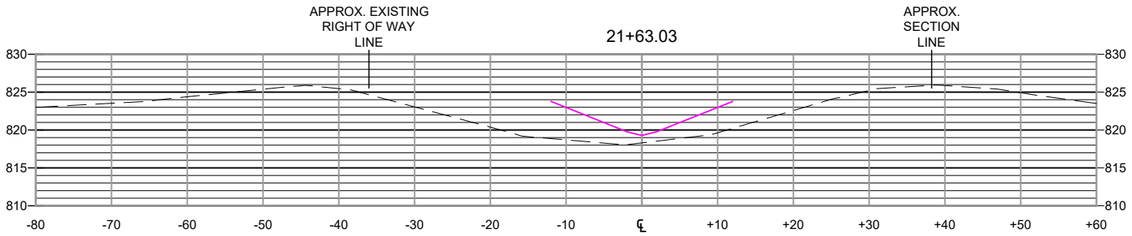
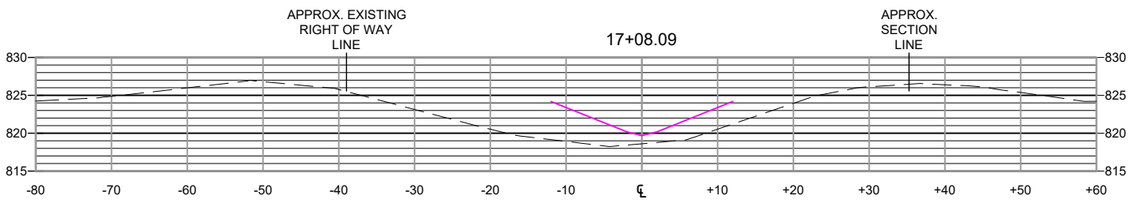
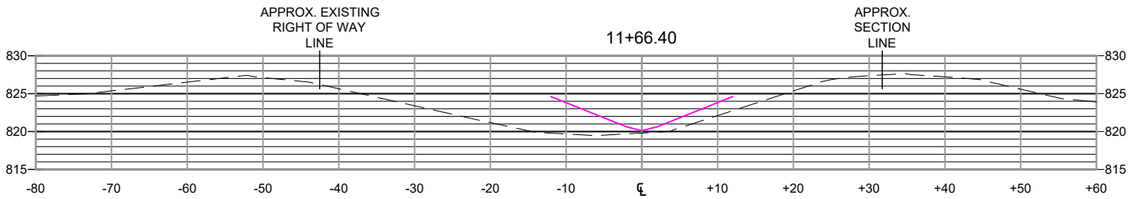
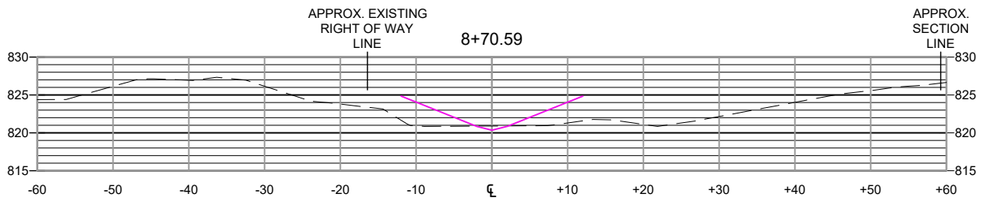
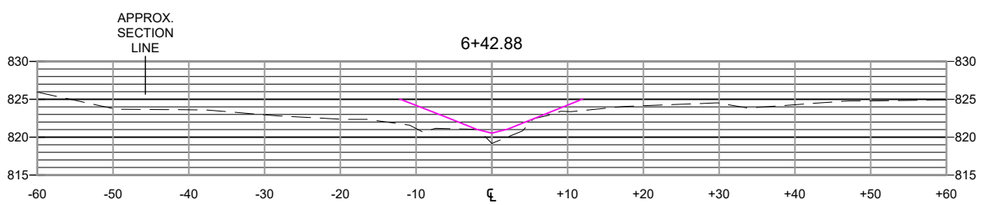
2010 SURVEY
1905 LEGAL DITCH
PROPOSED DITCH IMPROVEMENT

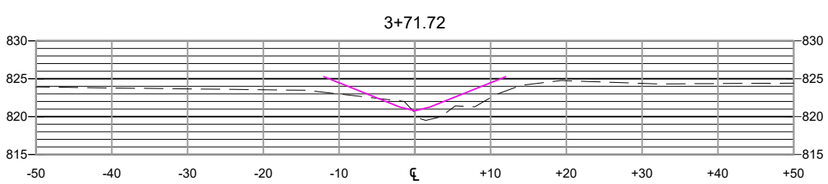


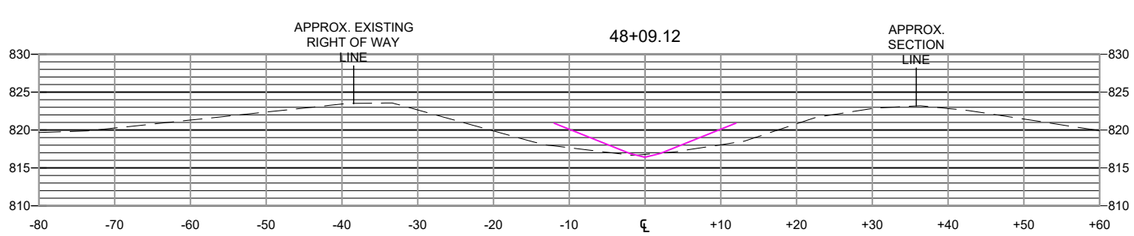



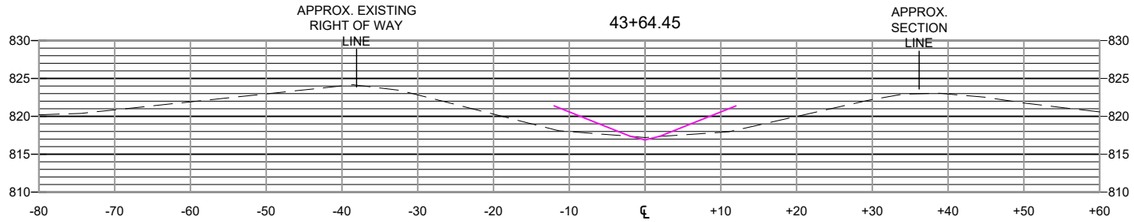



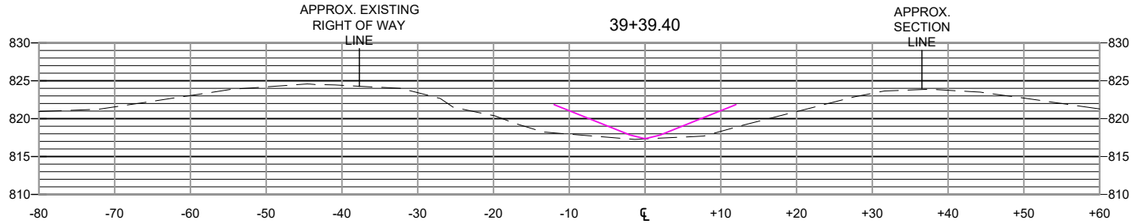



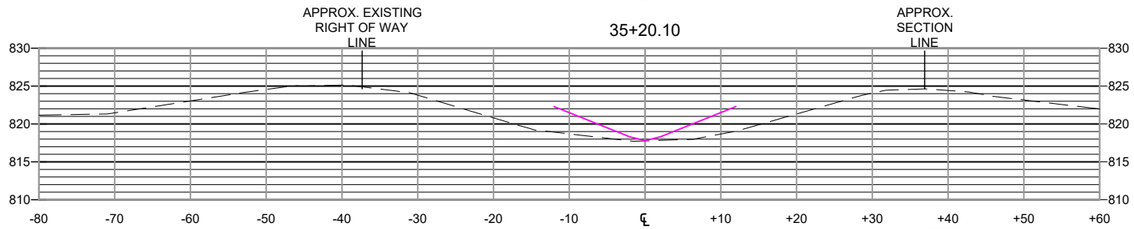



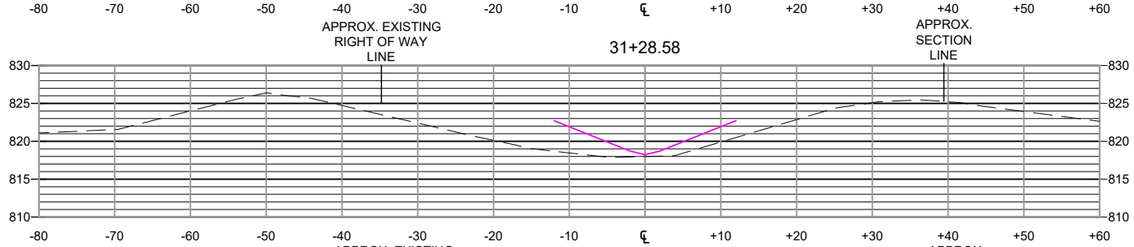



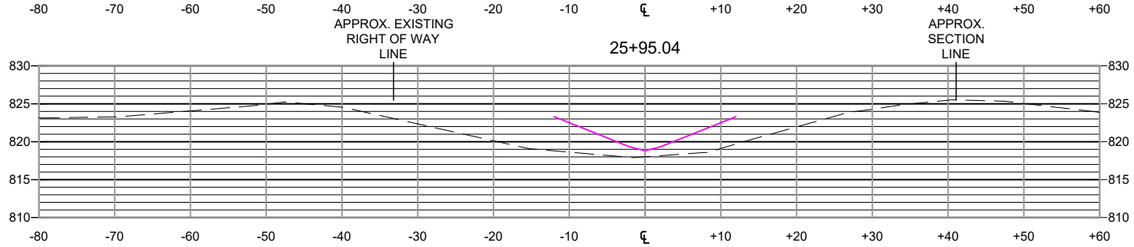

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KITTSON COUNTY DITCH #7
TWO RIVERS WATER SHED DISTRICT
KITTSON COUNTY
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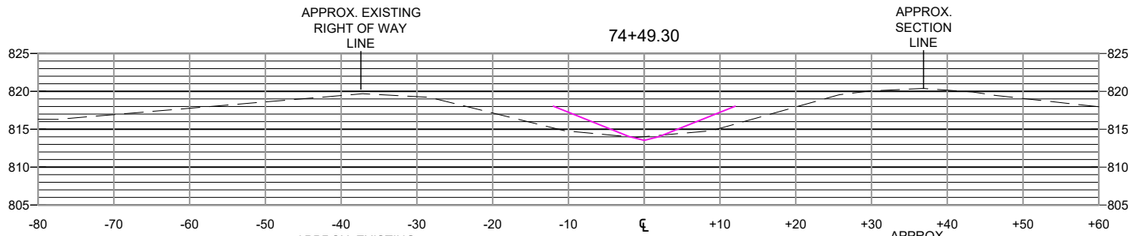


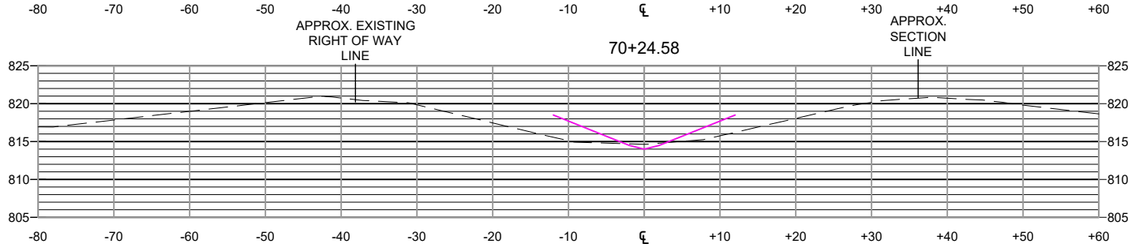


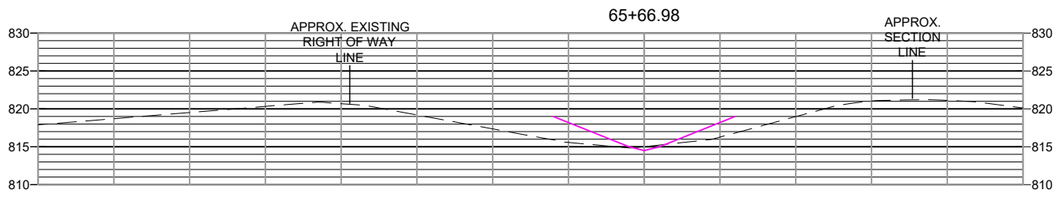


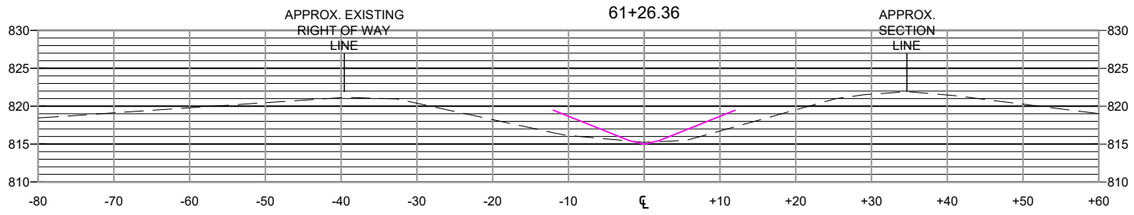


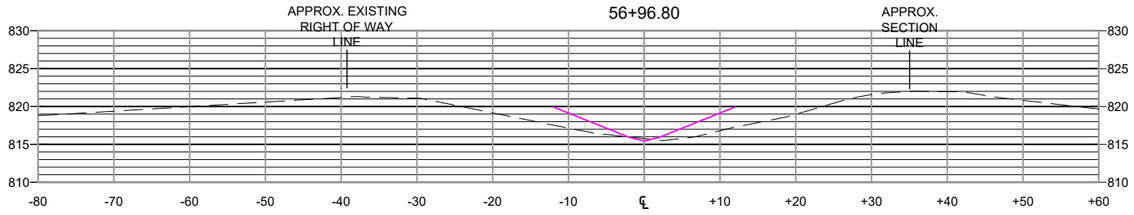


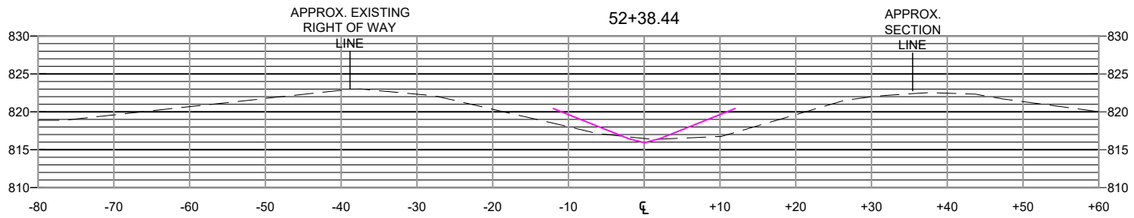


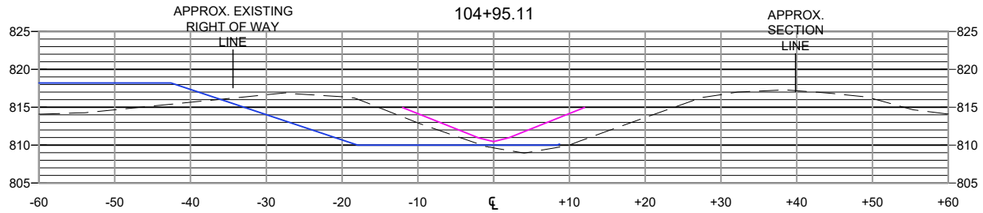


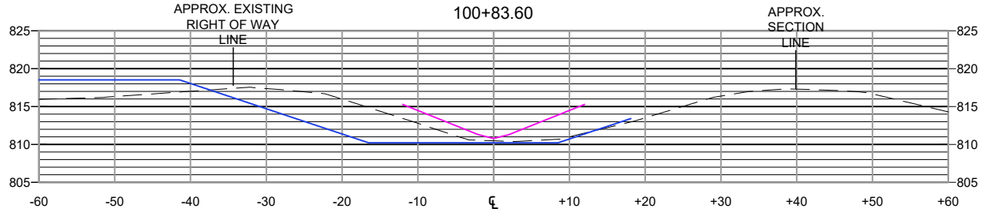


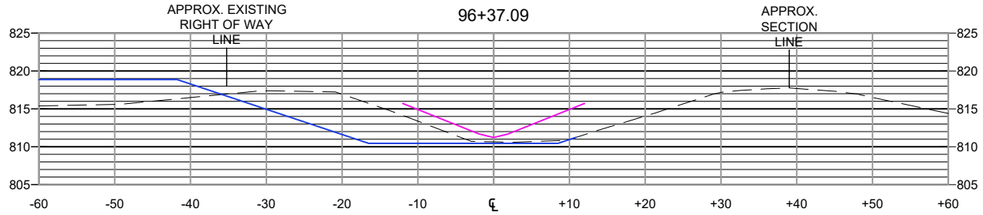


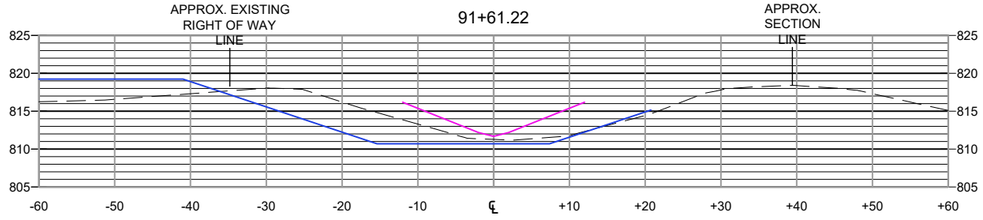


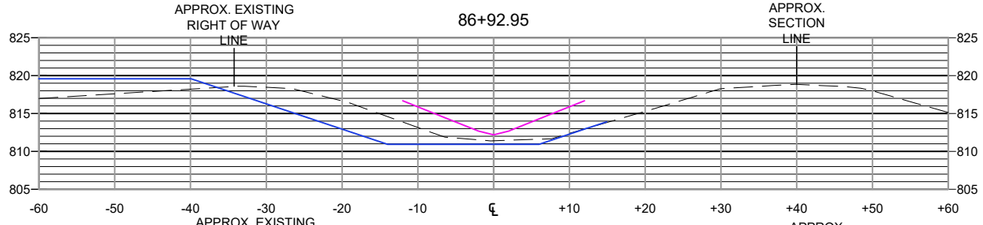


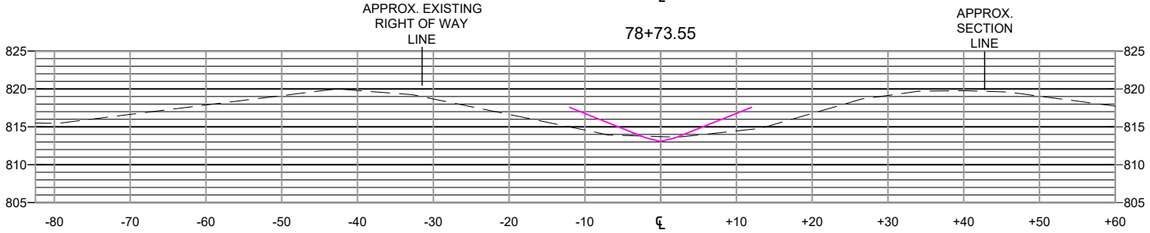


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KITTSON COUNTY DITCH #7
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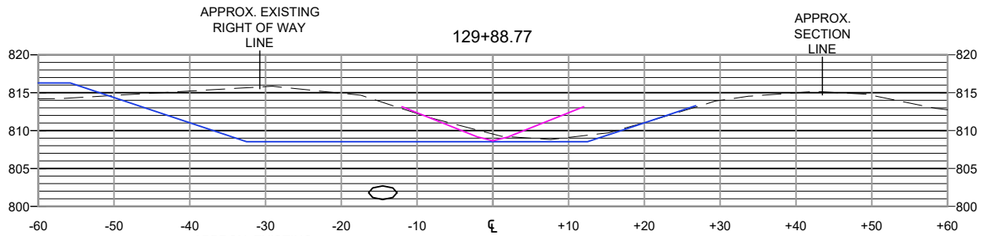
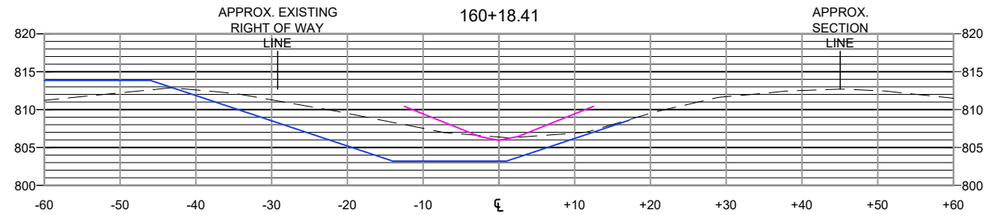
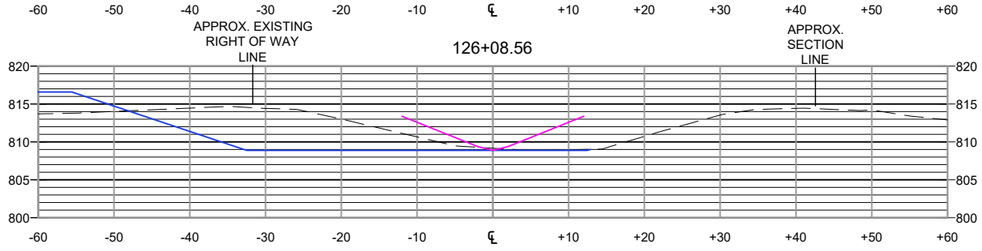
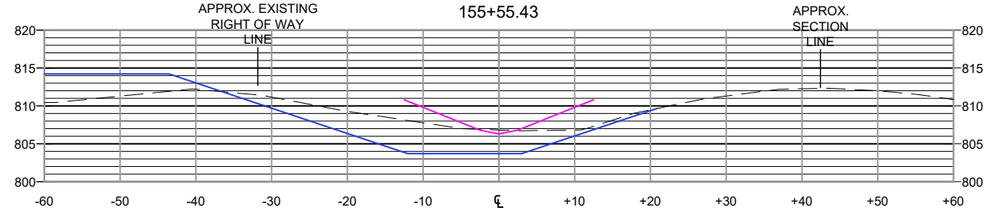
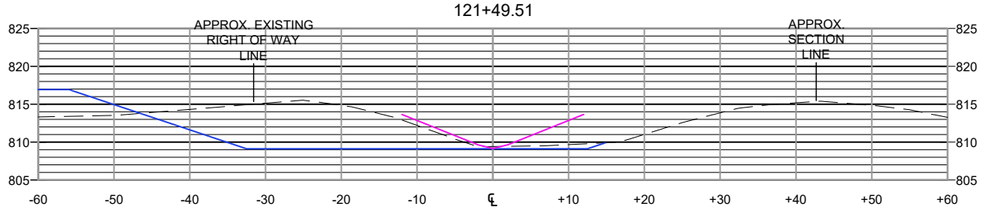
PROPOSED DITCH IMPROVEMENT

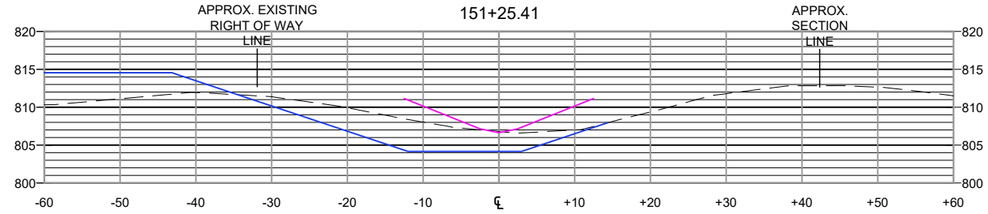


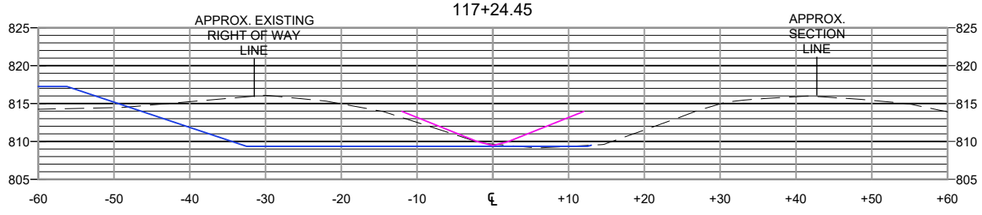



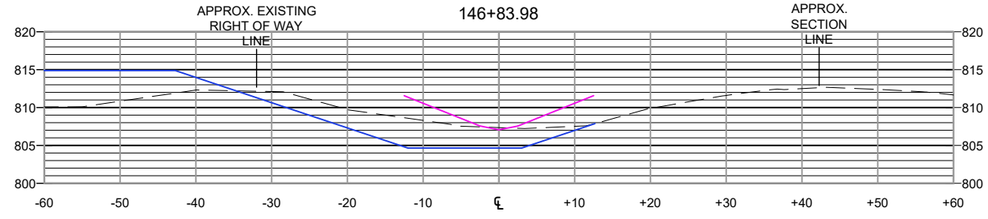



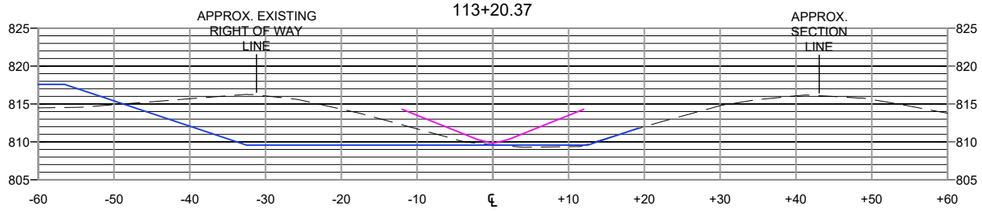



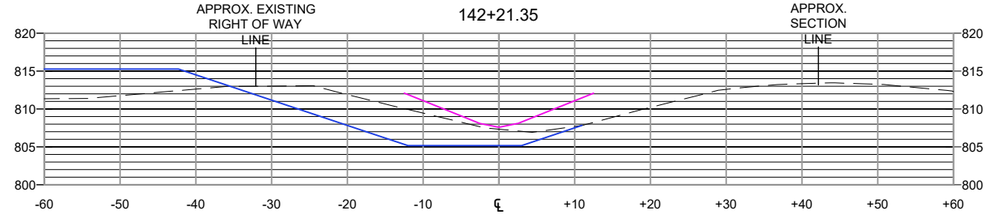



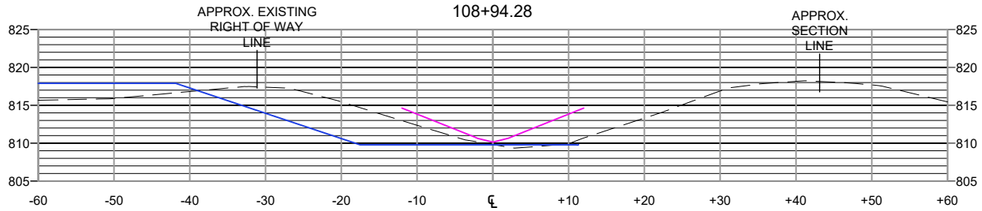



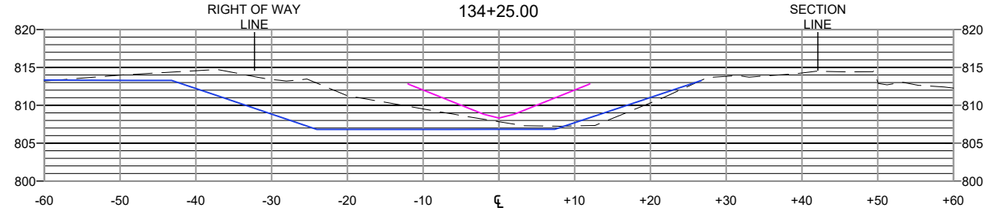

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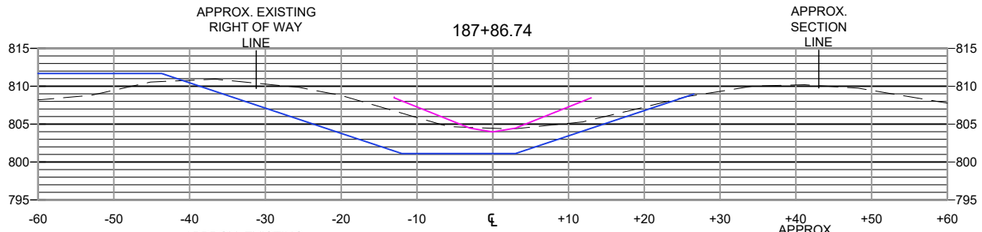
KITTSON COUNTY DITCH #7
TWO RIVERS WATER SHED DISTRICT
KITTSON COUNTY

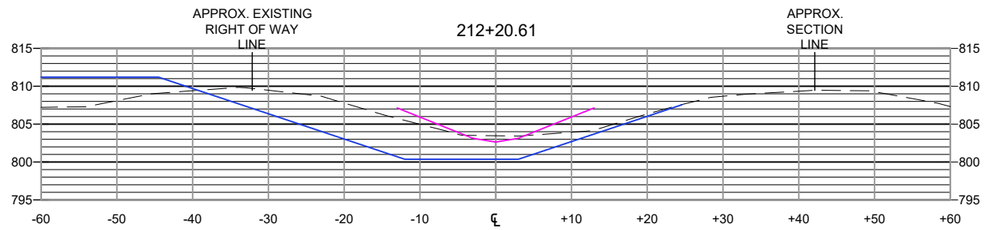
**PLAND AND PRFILE**

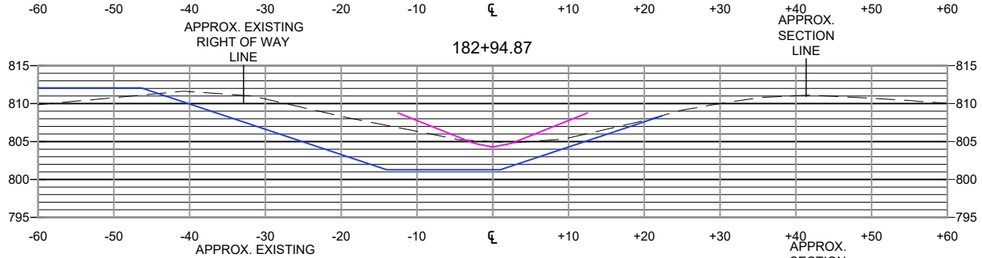
SHEET NO. **06**

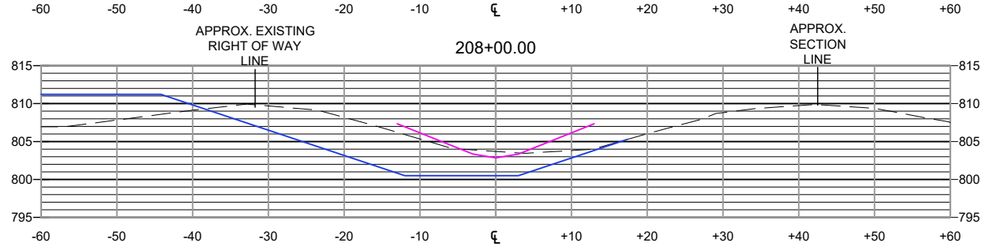
SHEET 06 OF 10

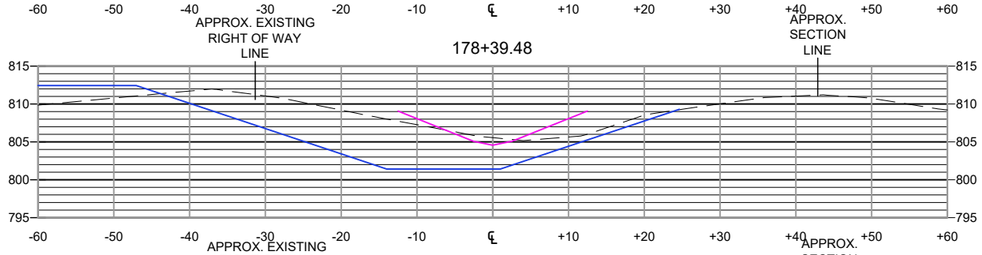
2010 SURVEY
1905 LEGAL DITCH
PROPOSED DITCH IMPROVEMENT

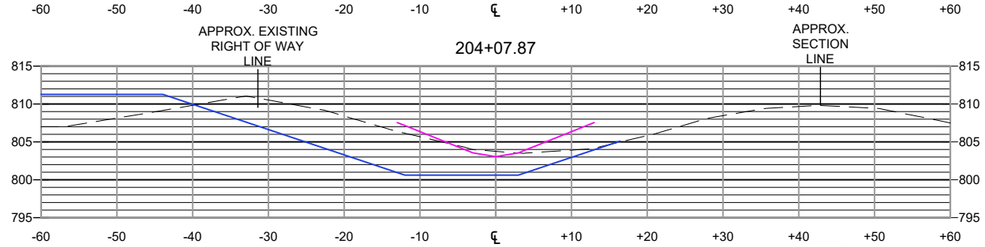


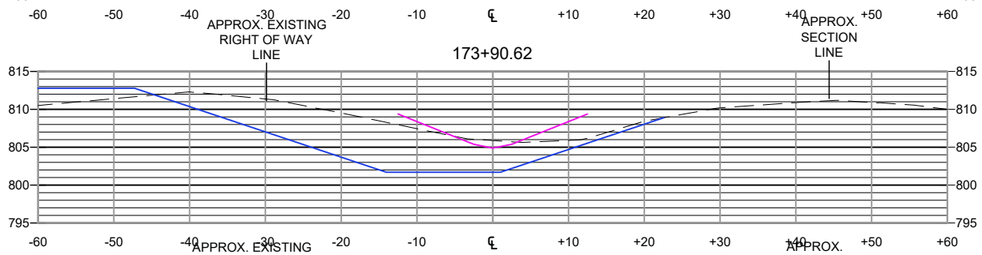



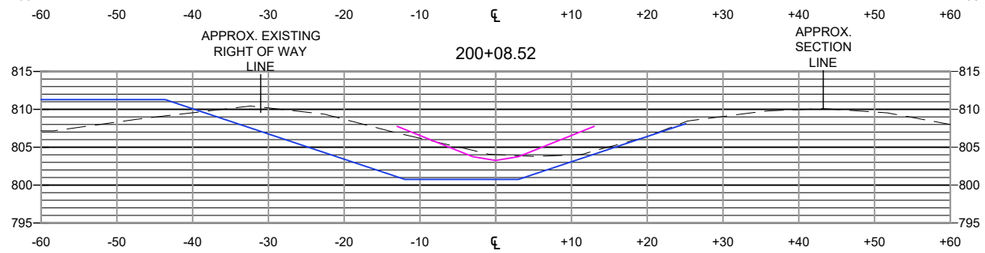



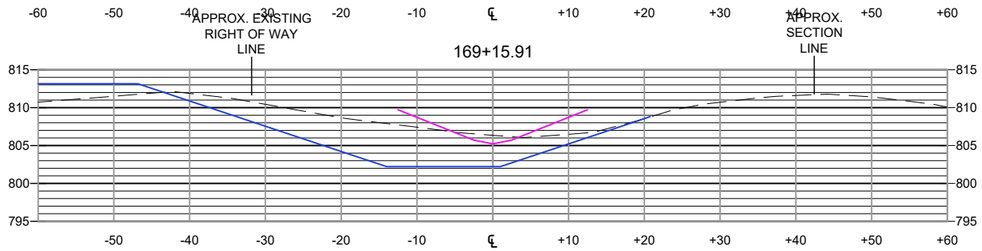



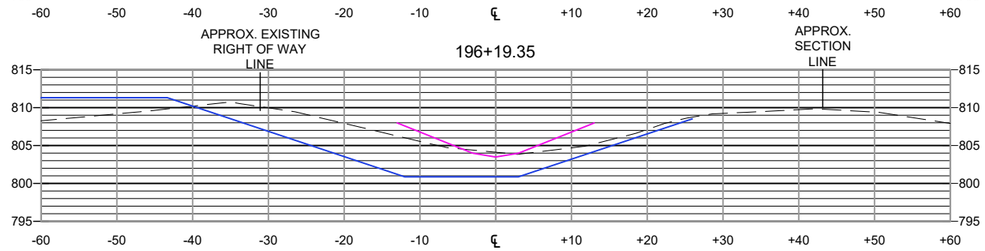



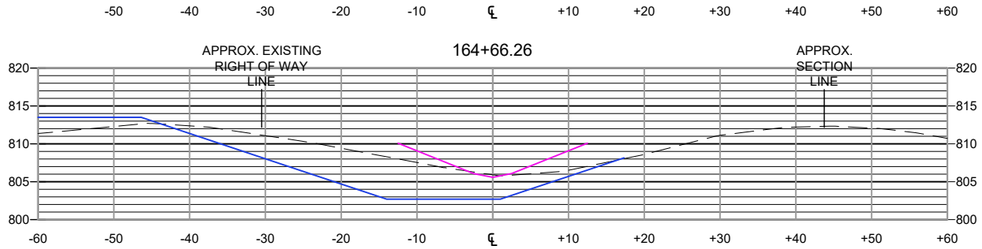



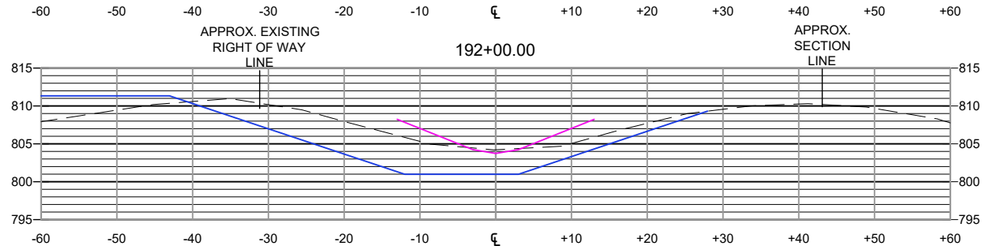



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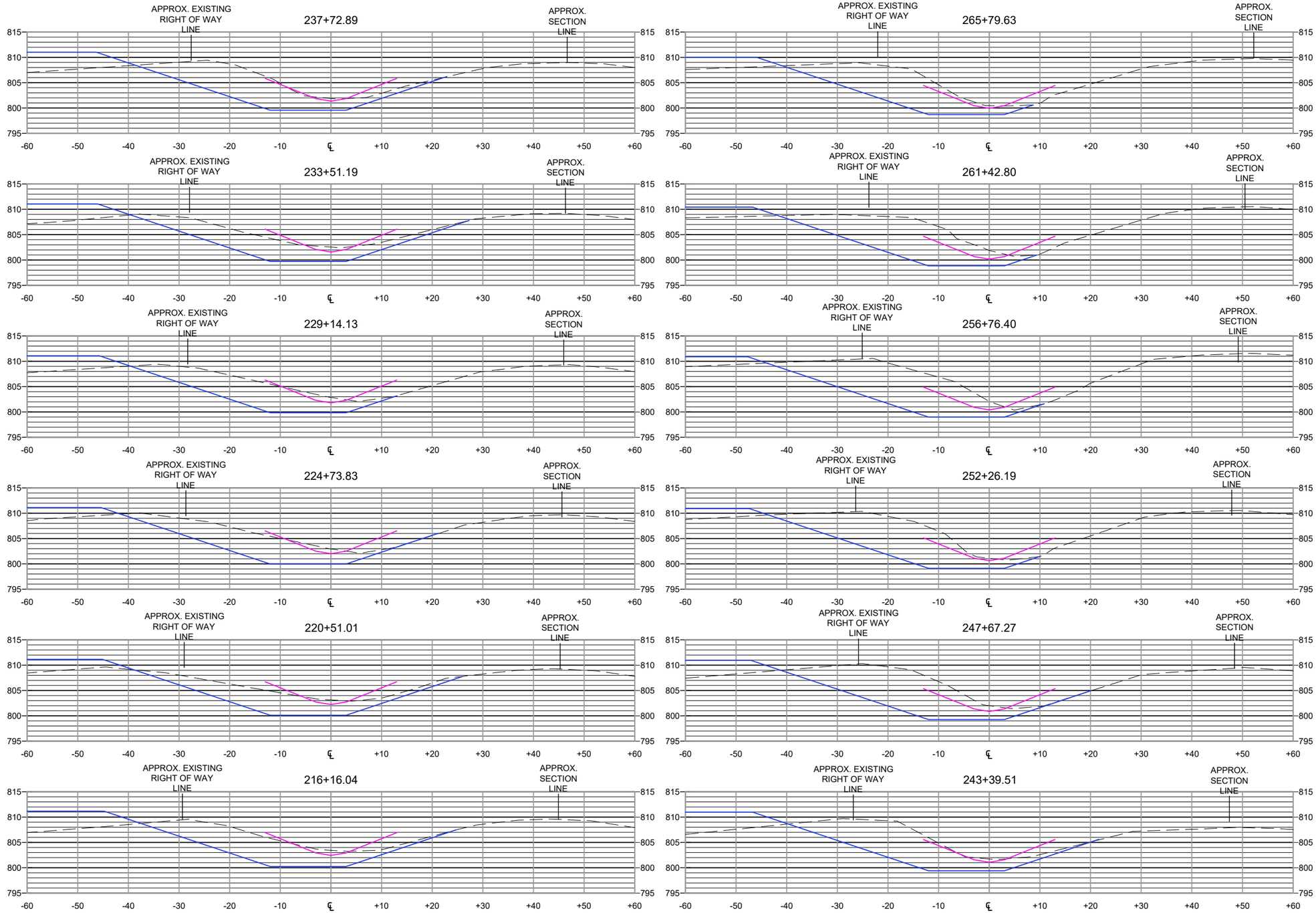
KITTSON COUNTY DITCH #7
TWO RIVERS WATER SHED DISTRICT
KITTSON COUNTY
**CROSS SECTIONS**

SHEET NO. **07**

SHEET 07 OF 10

2010 SURVEY
1905 LEGAL DITCH
PROPOSED DITCH IMPROVEMENT

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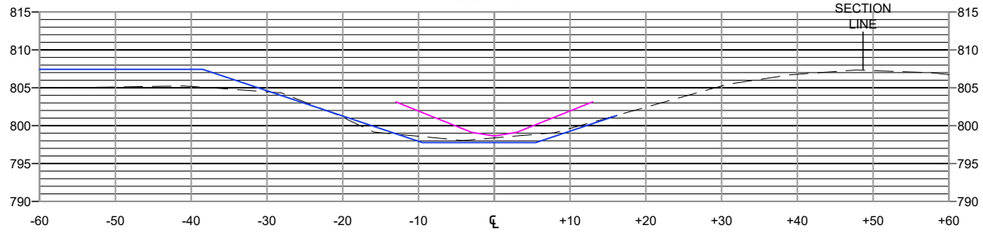
KITTSON COUNTY DITCH #7
TWO RIVERS WATER SHED DISTRICT
KITTSON COUNTY
**CROSS SECTIONS**

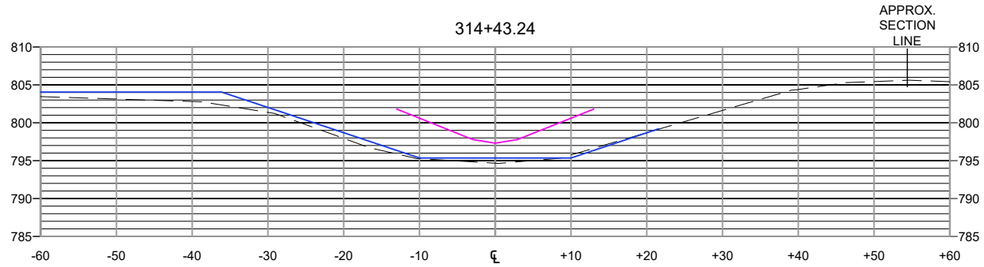
SHEET NO.
**08**
SHEET 08 OF 10

2010 SURVEY
1905 LEGAL DITCH
PROPOSED DITCH IMPROVEMENT

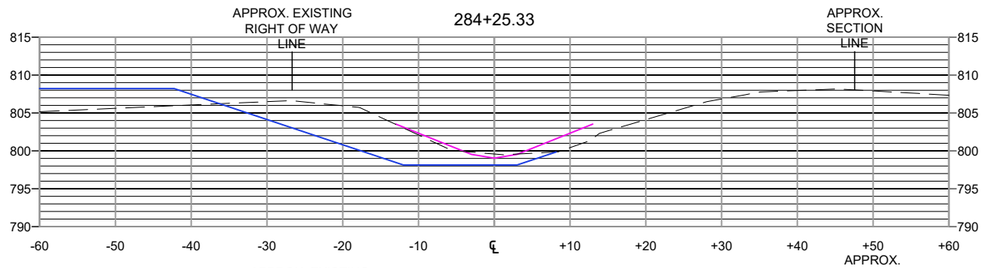
292+34.69




314+43.24




284+25.33

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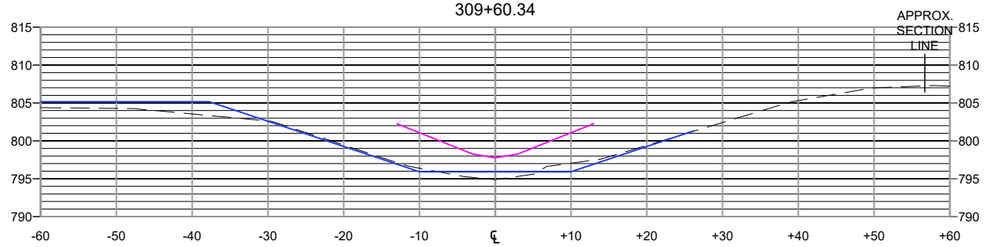


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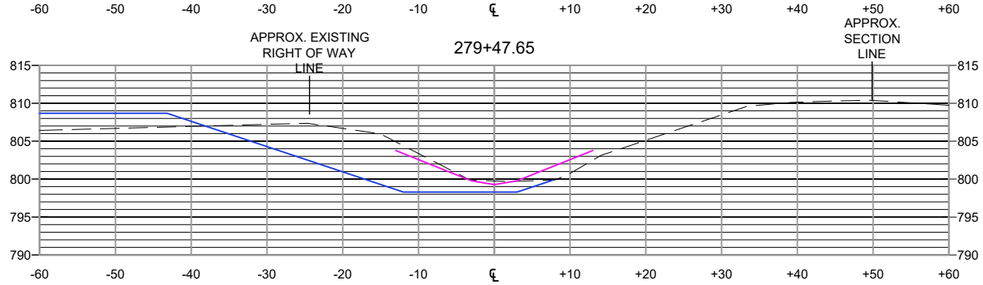


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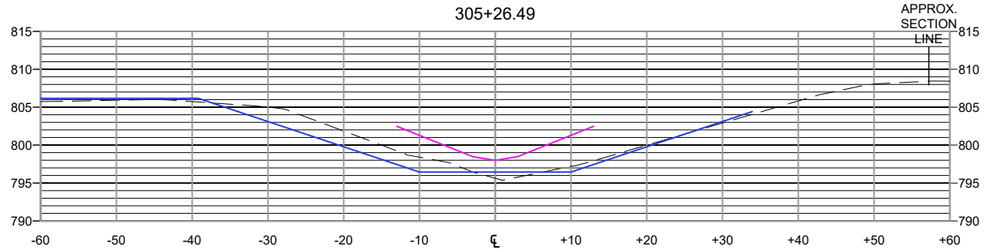


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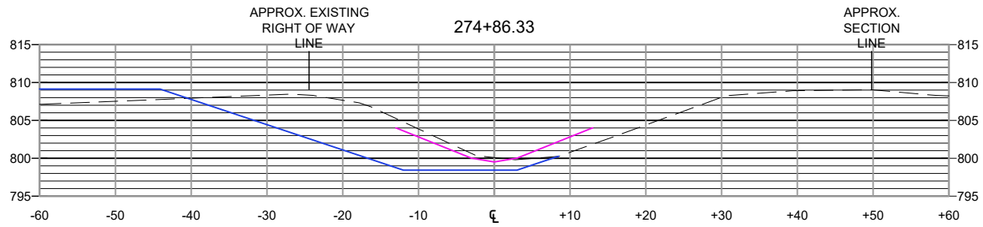
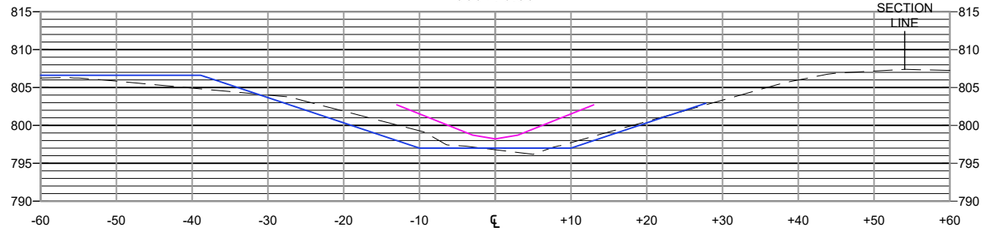
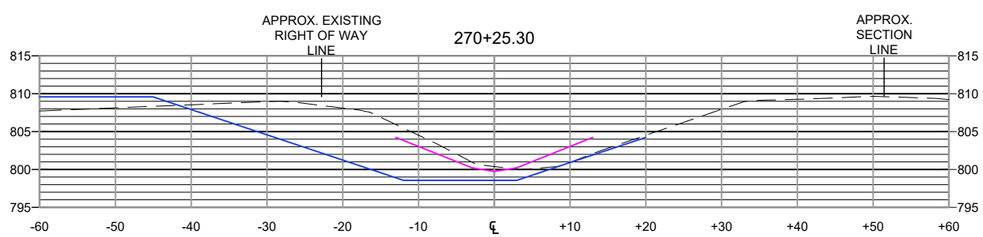


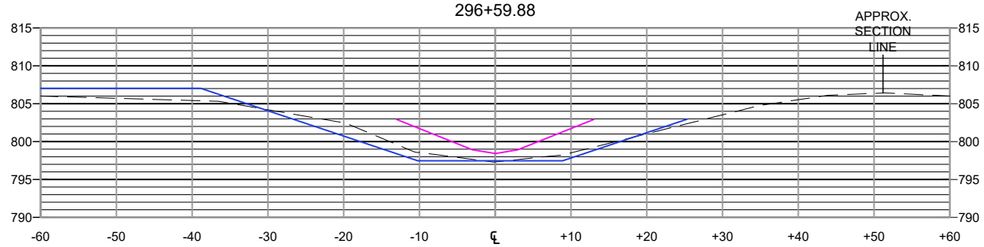

300+76.59




270+25.30




296+59.88

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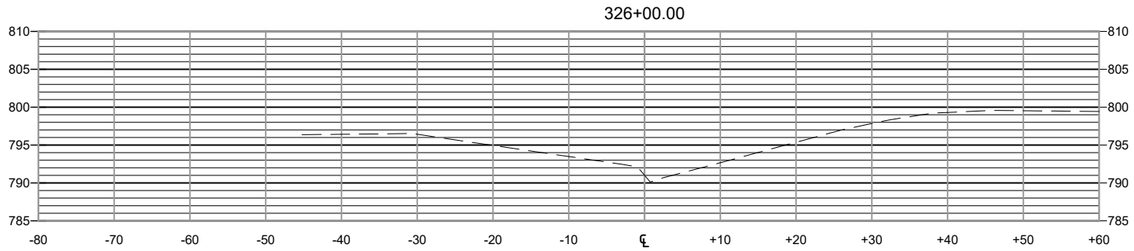
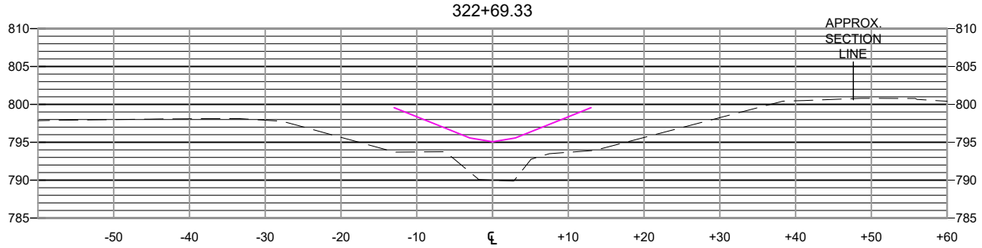
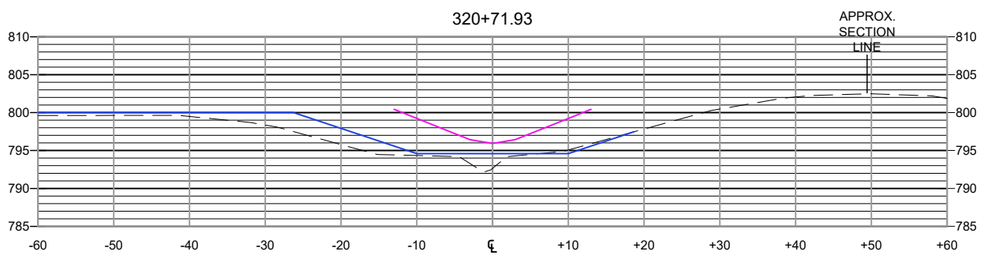
KITTSON COUNTY DITCH #7
TWO RIVERS WATER SHED DISTRICT
KITTSON COUNTY
**CROSS SECTIONS**

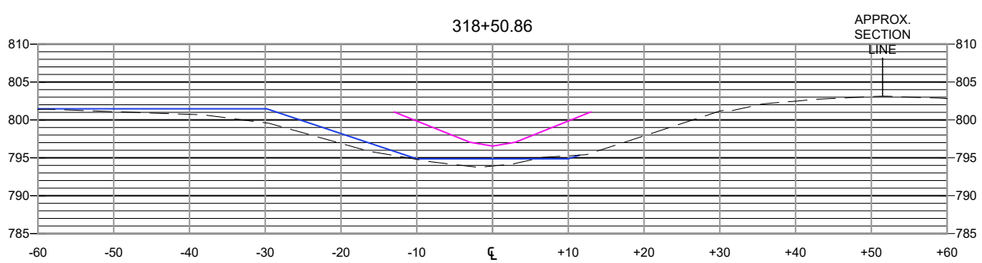
SHEET NO.
**09**
SHEET 09 OF 10

2010 SURVEY
1905 LEGAL DITCH
PROPOSED DITCH IMPROVEMENT

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KITTSON COUNTY DITCH #7
TWO RIVERS WATER SHED DISTRICT
KITTSON COUNTY
**CROSS SECTIONS**

SHEET NO. **10**
SHEET 10 OF 10



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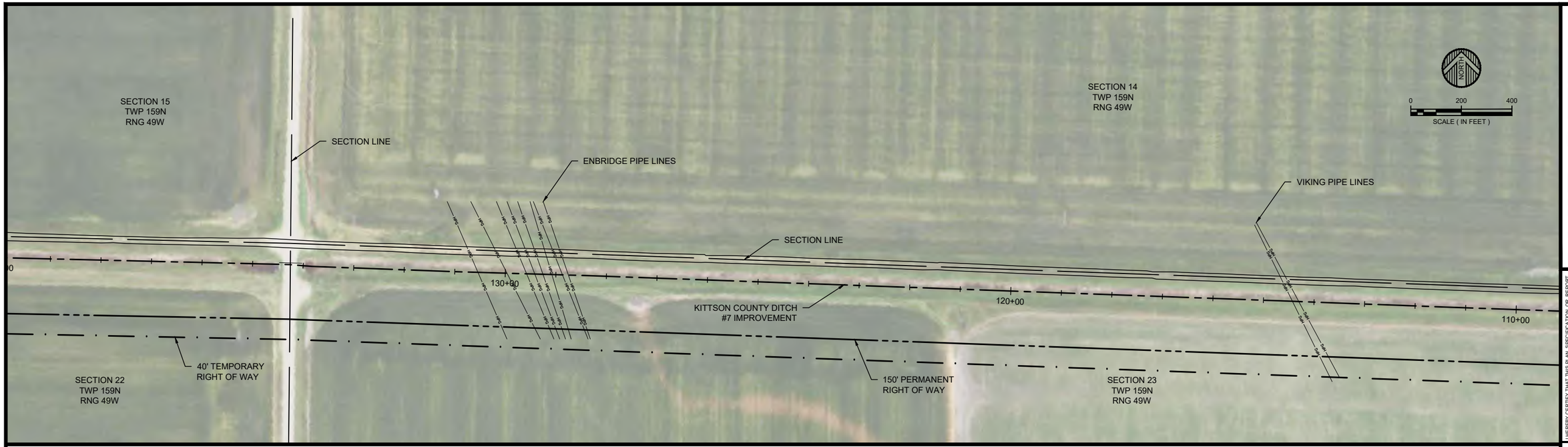
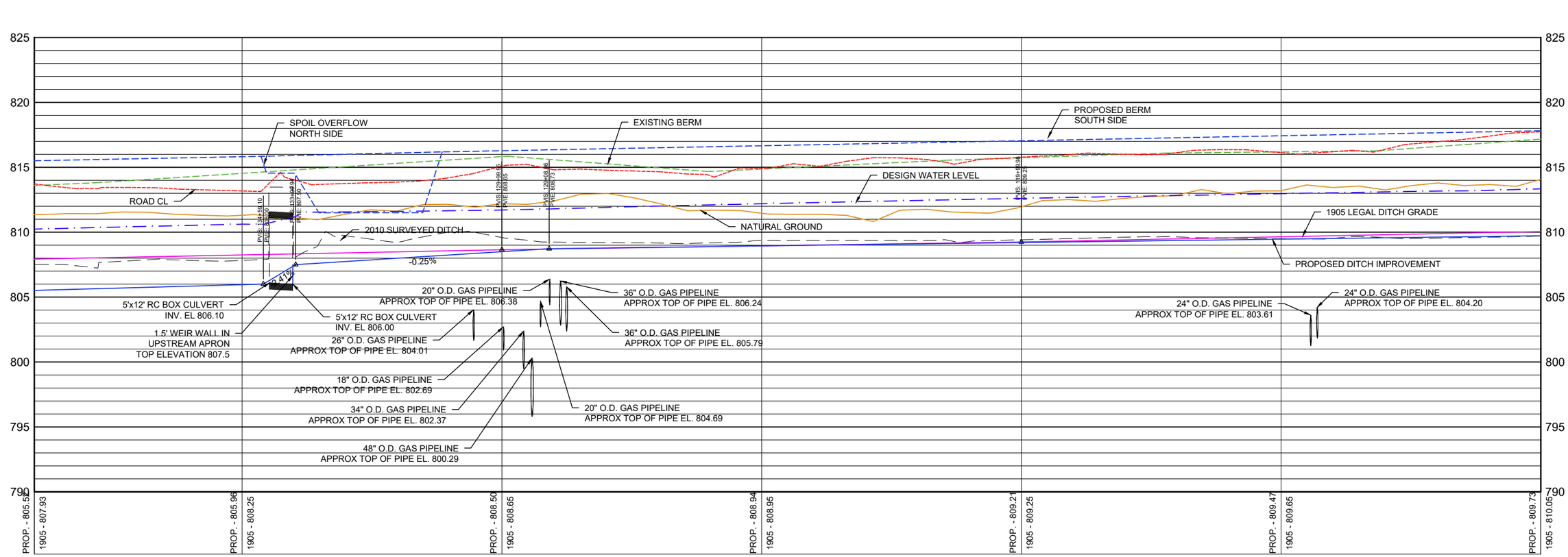
# Appendix C

# Plan Profile Pipeline Crossings

Kittson County Ditch 7 Improvement

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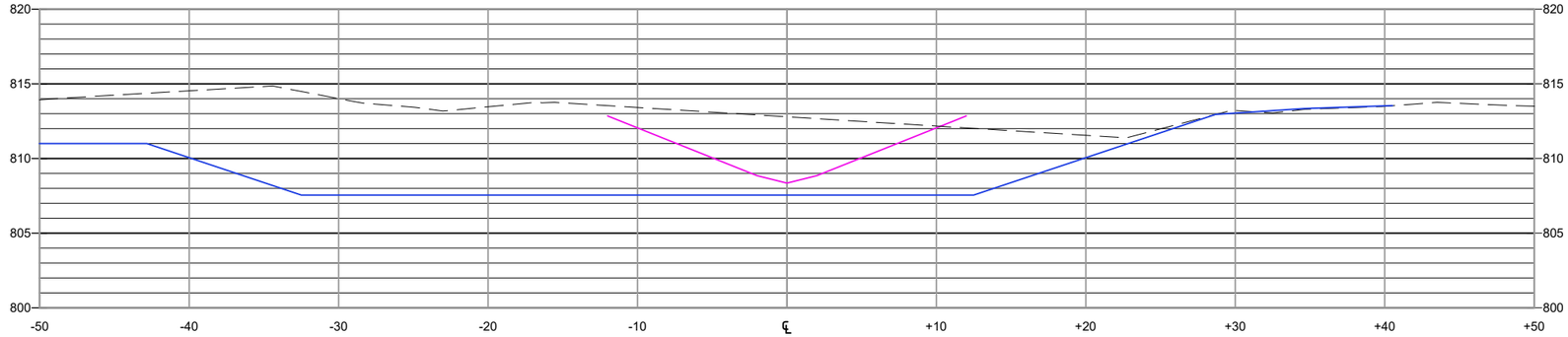
KITTSON COUNTY DITCH #7 IMPROVEMENT
TWO RIVERS WATERSHED DISTRICT
KITTSON COUNTY

**PRELIMINARY SURVEY REPORT PIPELINE CROSSING PLAN & PROFILE**

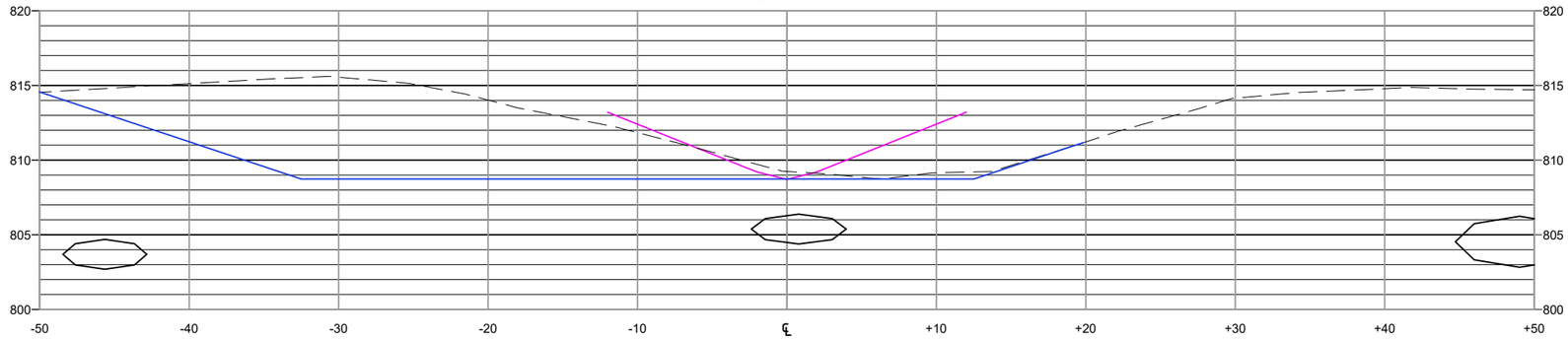
SHEET NO. **1**

SHEET 1 OF 1

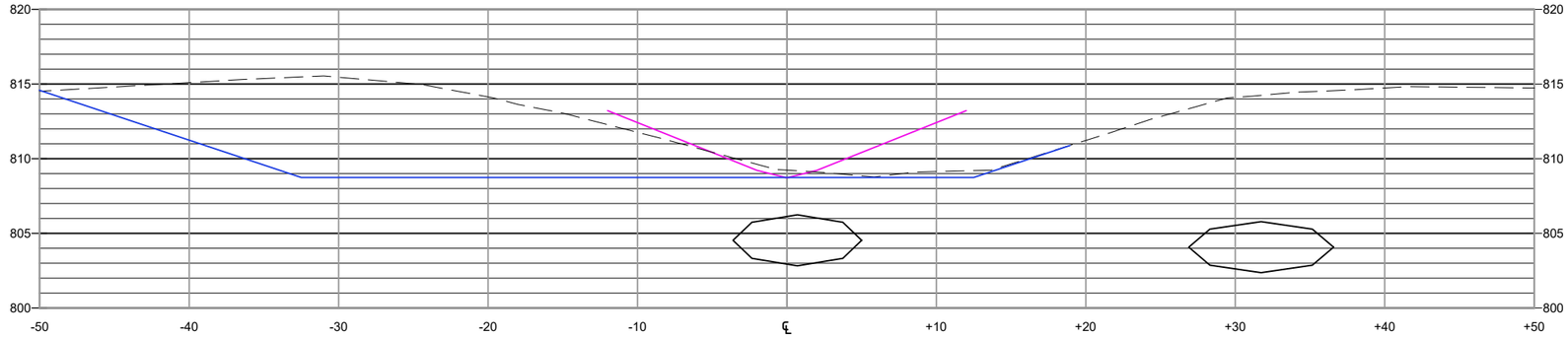
133+75.00



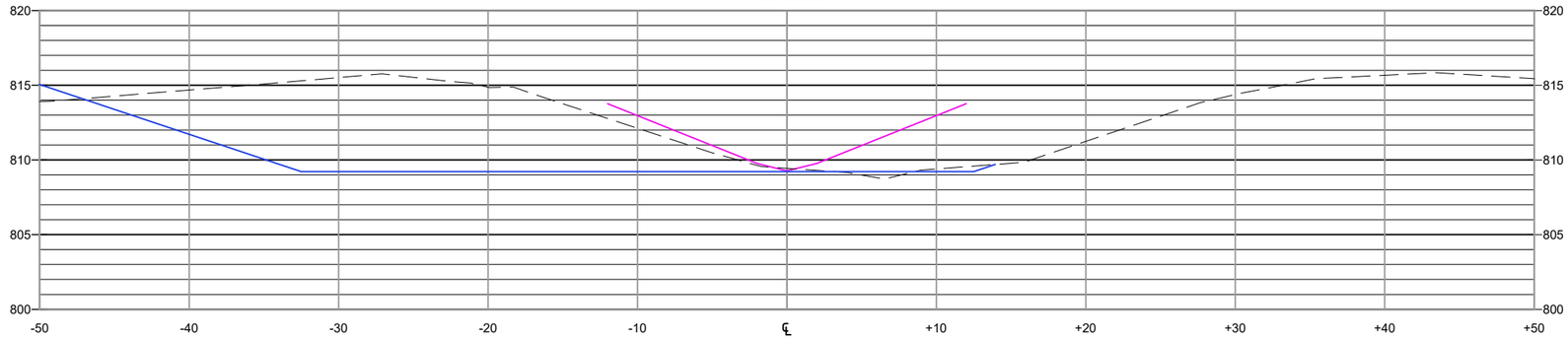

129+08.13




128+87.23




119+75.00

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KITTSON COUNTY DITCH #7
TWO RIVERS WATER SHED DISTRICT
KITTSON COUNTY
**CROSS SECTIONS**

SHEET NO. **12**

SHEET 12 OF 12

# Appendix D

# Letter Report on Adequacy of Outlet

Kittson County Ditch 7 Improvement

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Crookston
216 South Main Street
PO Box 458
Crookston MN 56716-0458

218.281.6522
Crookston@Widseth.com
Widseth.com

December 1, 2021

Two Rivers Watershed District
410 5th St., Suite 112
Hallock, MN 56728

Re: Kittson County Ditch #7 - 2021 Improvement

I have completed an evaluation of the adequacy of the outlet for an improvement to the existing Kittson County Ditch #7 (KCD #7). KCD #7 outlets to Judicial Ditch #10 (JD #10) which flows into a natural channel that outlets to the Red River. The total outlet channel length is approximately 8.8 miles, 1.8 miles of JD #10 and 7.0 miles of natural channel. See attached map. Essentially, all of the outlet for KCD #7 passes through cropped farmland. The total drainage area of KCD #7 is 22.6 square miles, see attached map.

In this situation there are two methods that were used to determine if the outlet would be adequate for an improvement to the capacity of the KCD #7 ditch. One way that the outlet can be deemed adequate is if the timing of peak flows from KCD #7 are such that they occur either before or after peak flows occur on the outlet channel. An existing hydrologic model (HEC_HMS) was used to evaluate timing. What was found is that the timing of peak flows from KCD #7 coincide almost exactly with peak flows on the outlet channel. In other words, increasing the capacity of KCD #7 would most likely increase the level of flooding along the outlet channel. Based on the timing alone, the outlet would not be adequate for an improvement.

The other method used to evaluate adequacy of the outlet was to look at the level of flood events in the outlet channel, in particular the 10-year 24-hour event. This event is typically used as the event that agricultural lands should be protected to. A hydraulic model (HEC-RAS) was developed to determine the depth of flow in the outlet channel for a 10-year 24-hour event. The results of the modeling show that agricultural lands along the upstream 4.1 miles of the outlet channel would be flooded with the existing conditions. Therefore, since the timing of peak flows from KCD #7 coincide with the peak flows on the outlet channel, any increase in flow resulting from increased capacity in KCD #7 would likely add to flooding of agricultural lands along the outlet ditch.

There are building sites and roads that could also be adversely affected by increases in peak flows. Since it was found that agricultural lands would be adversely affected by increased flows from KCD #7, there was no need to look at potential impacts to building sites and roads. However, the evaluation of any plan to improve KCD #7 would need to also consider potential adverse impacts to building sites and roads.

In order to address flooding that is presently experienced along KCD #7, some method in addition to simply increasing the size (capacity) of the existing ditch would need to be considered. Potential additional alternatives are listed below. Depending on the alternative, some by themselves or a combination of the alternatives could be used to address the current flooding problems.

The potential alternatives, in no particular order are:

Impoundment – A relatively small volume impoundment could be constructed that would eliminate any increase in peak flows. There are several potential sites in the upstream portion of the KCD #7 drainage area which have the location and topography to provide for the construction of an impoundment. One location that could be utilized is an area along the ditch, in west half of Section 21 of Svea which is an area that currently floods as a result of the inadequate capacity of KCD #7.

Set back levees – Move the south berm of the ditch to the south to limit the extent of land that is flooded and or to provide storage that would be used keep peak discharges the same or less than they are presently.

Culvert sizing – Pursue having all culverts within the KCD #7 drainage area sized to the watershed culvert sizing policy. The area of primary concern would be the portion upstream from the upstream end of KCD #7.

Overflow Sections in KCD #7 South Berm – The berm on the south side of KCD #7 is nearly as high, if not higher, than the road and 2 to 4 feet higher than the adjacent field elevation. This combined with the fact that the upstream 3 miles having twice the slope means that the upstream 3 miles has significantly more capacity than the downstream 3.2 miles. In fact, the upstream 3 miles with the berm acting as a levee has greater than a 10-year 24-hour event capacity. In other words, with the present situation, the upstream 3 miles of ditch gets the water to the downstream portion faster than it can handle it. Overflow sections on the east side of every section line, where there is an elevated road section, would allow water to flow into the field when flows exceeded the 10-year 24-hour event. It would be held there until the ditch could handle it.

Damage payments – Keep the KCD #7 as it is and when flooding and crop damages occur from a 10-year 24-hour flood, the ditch system could make payments to compensate landowners/renters for their losses. To my knowledge an arrangement like this has not been used on a legal ditch system. The legalities of using this would need to be determined.

Flood Easements – In conjunction with an improvement to increase the capacity of KCD #7, ditch system could purchase flood easements where flooding would be increased along the outlet channel.

Outlet Channel Improvement – The capacity of the outlet channel could be increased to handle the increased peak flows from a channel improvement on KCD #7. This alternative would be complicated by the fact that a portion of the outlet channel is a Minnesota Public Water.

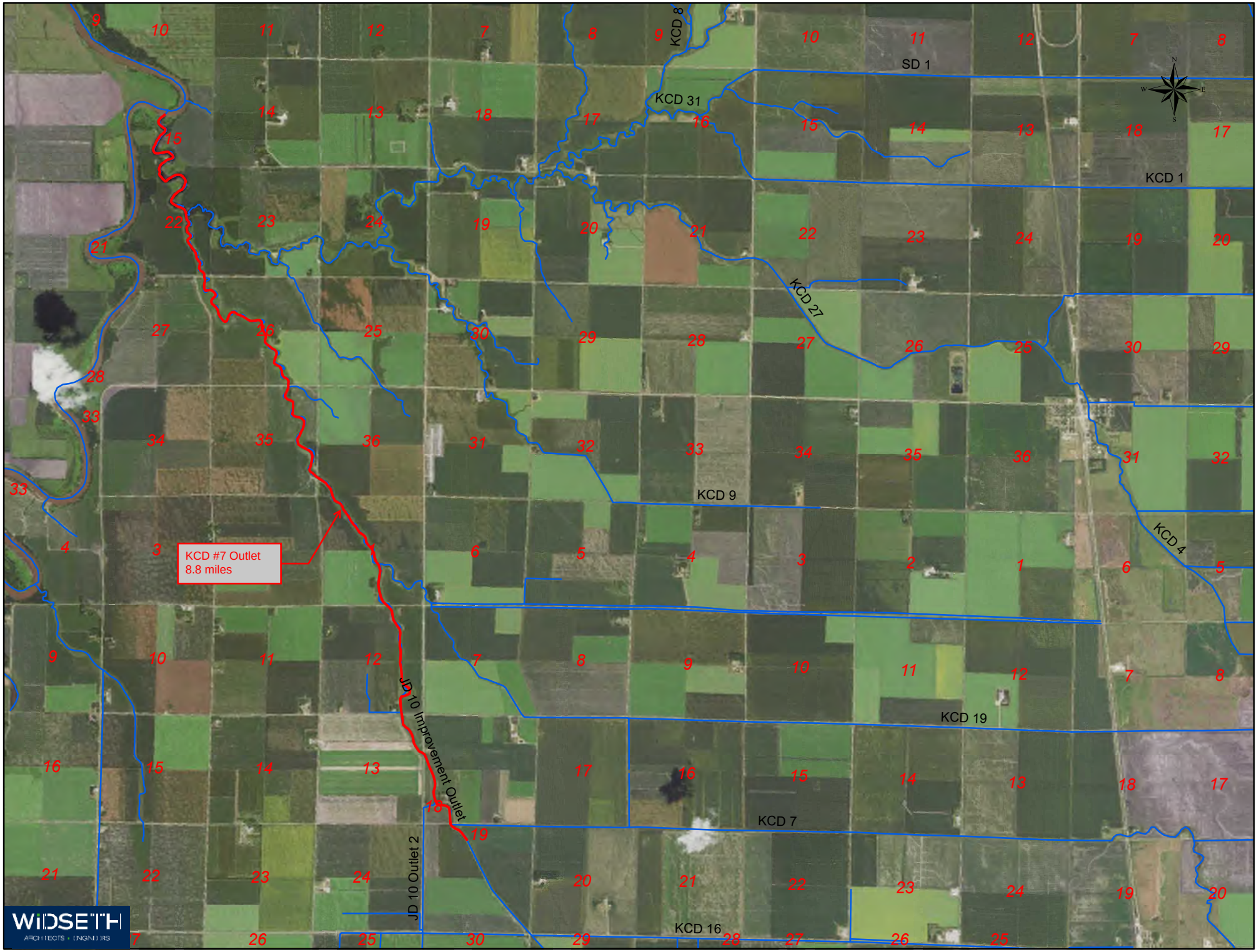
These alternatives would need to be investigated further to determine how they would actually address the problems presently associated with KCD #7. At this point I am looking for direction from the board. I would suggest that having a meeting with the petitioners to discuss the preliminary findings and potential alternatives would the next logical step.

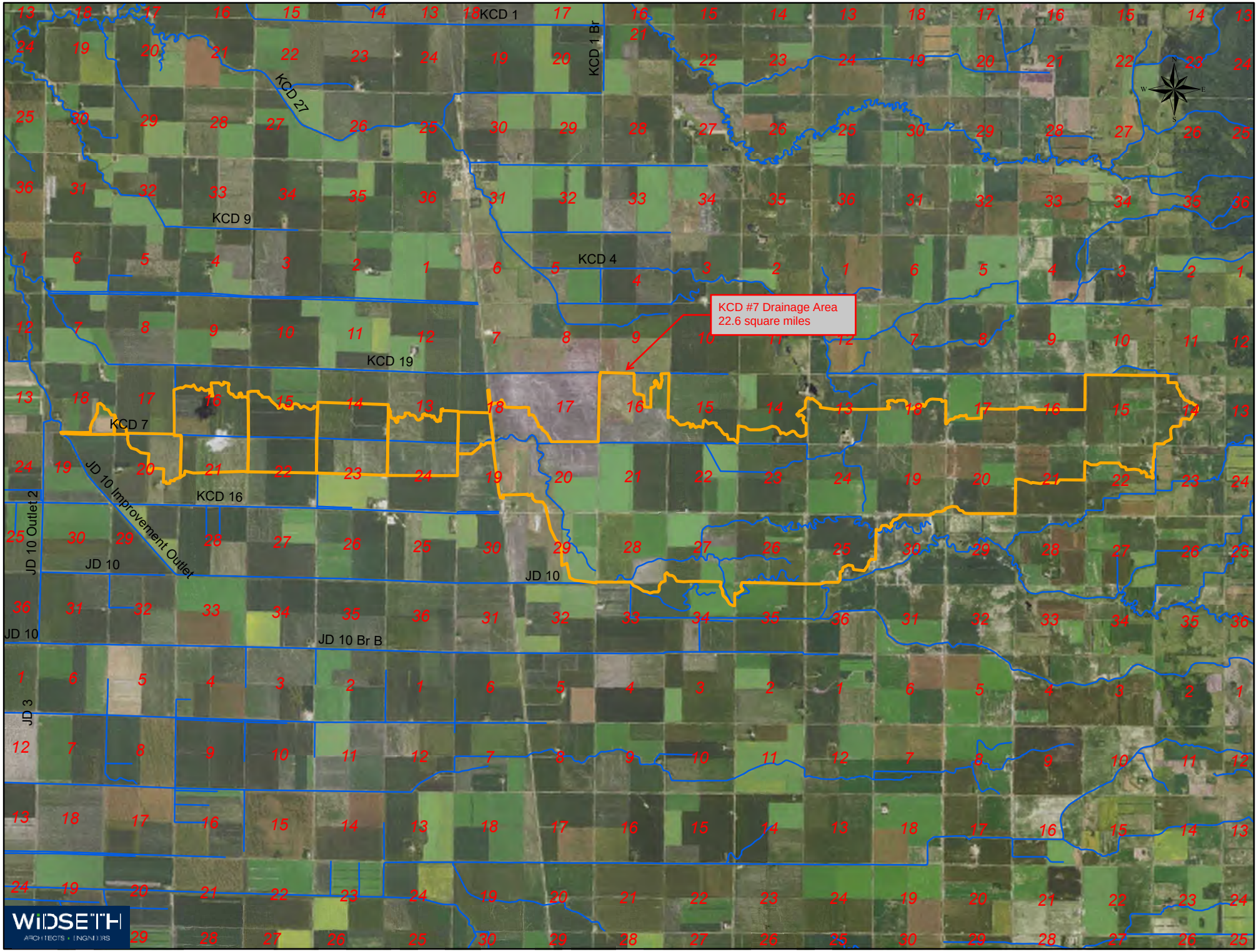
Sincerely,
Widseth Smith Nolting & Associates, Inc.

Blake Carlson

Blake Carlson, P.E.
Water Resources Engineer

Attachments


KCD 8
SD 1
KCD 31
KCD 1
KCD 27
KCD 9
KCD 4
KCD 19
KCD 7
KCD 16
KCD #7 Outlet
8.8 miles
JD 10 Improvement Outlet
JD 10 Outlet 2
WIDSETH
ARCHITECTS • ENGINEERS


KCD 1
KCD 1 Br
KCD 27
KCD 9
KCD 4
KCD #7 Drainage Area
22.6 square miles
KCD 19
KCD 7
JD 10 Improvement Outlet
KCD 16
JD 10 Outlet 2
JD 10
JD 10
JD 10
JD 10 Br B
JD 3
N
W
E
S
WIDSETH
ARCHITECTS • ENGINEERS

# Appendix E

# Rock Drop Structure

Kittson County Ditch 7 Improvement

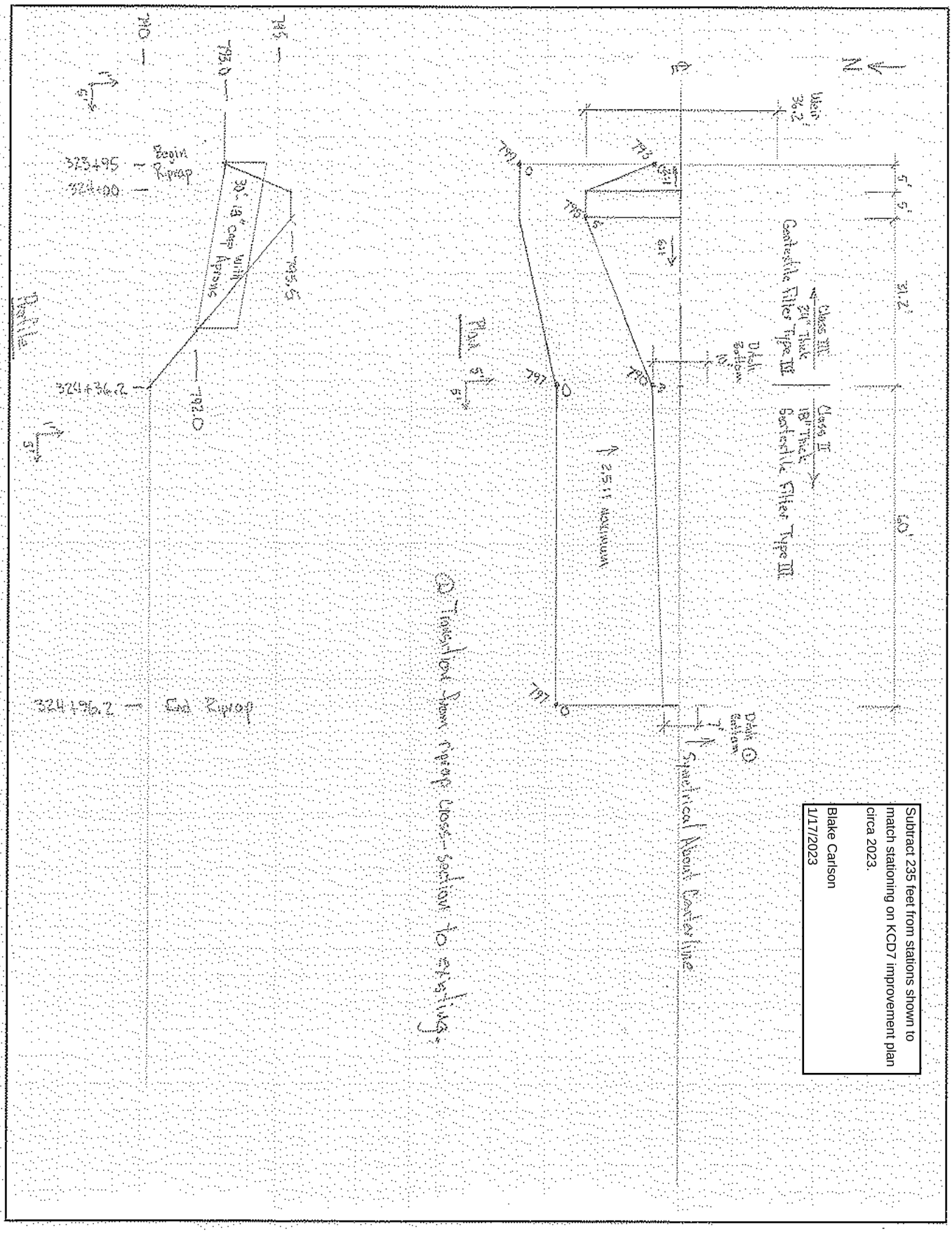
WIDSETH SMITH NOLTING

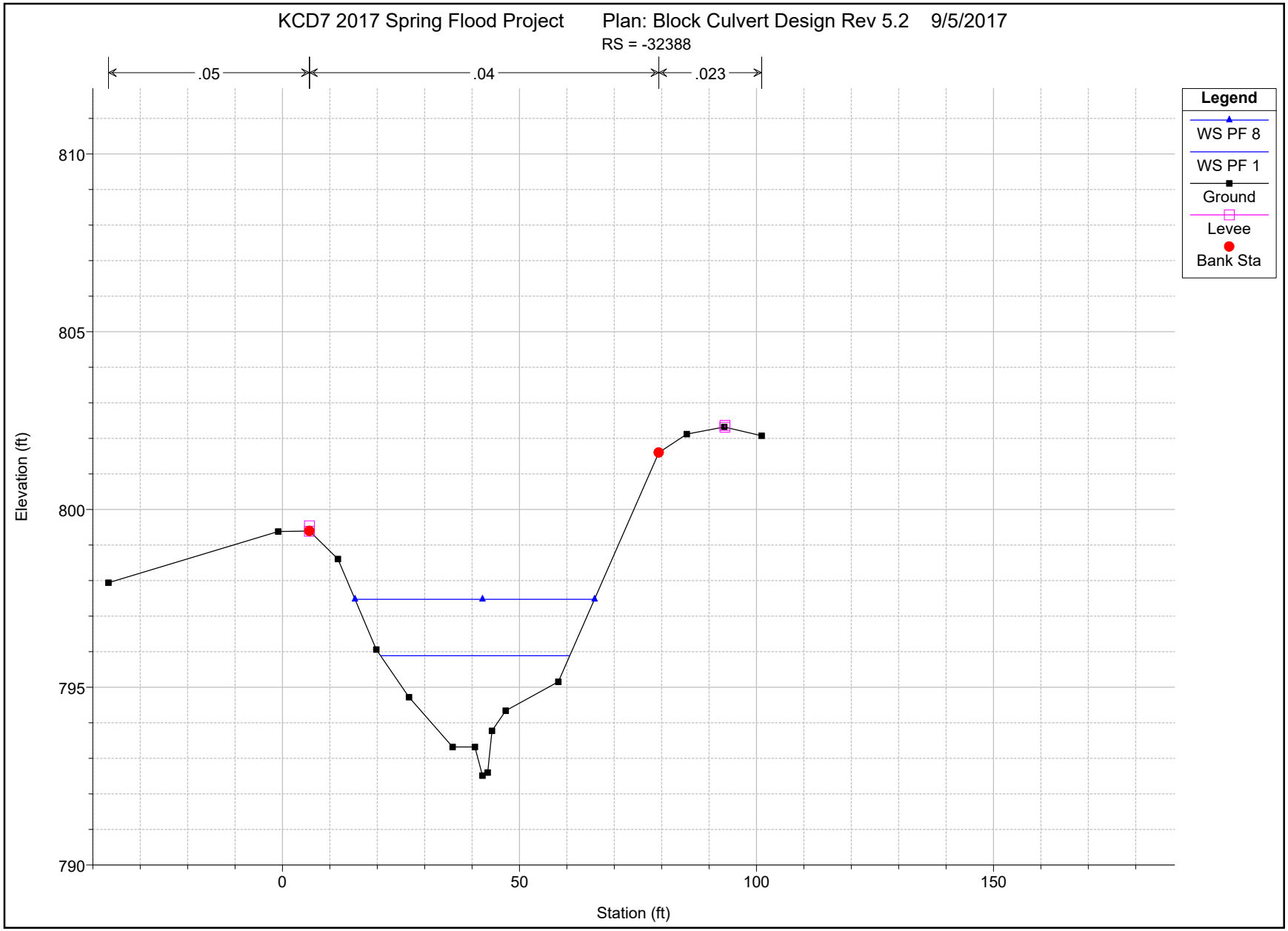
JOB TRWD - KCD7 / Spring Flood Repairs

JOB NO.

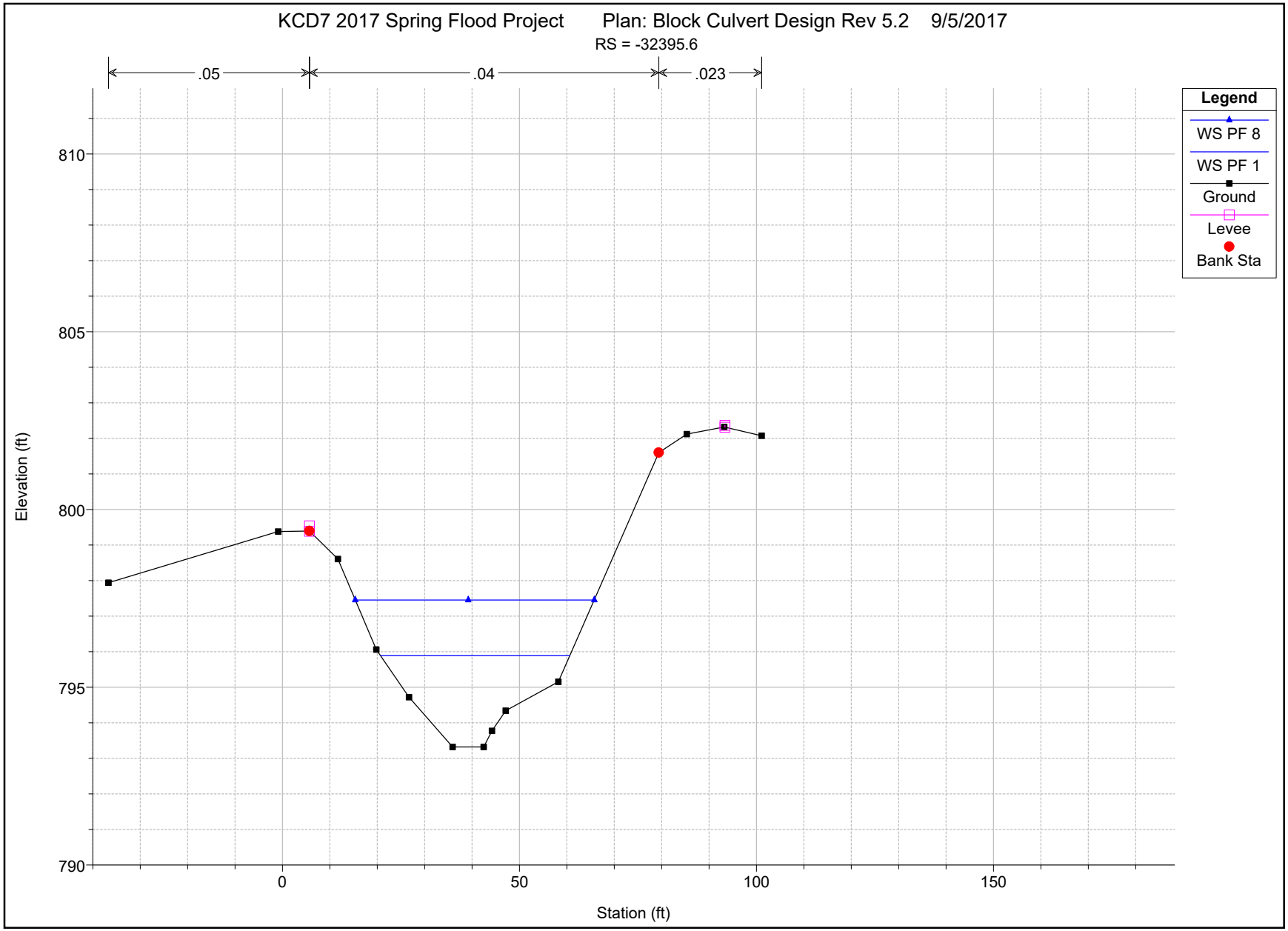
CALCULATED BY BAC DATE 9/5/17

CHECKED BY DATE

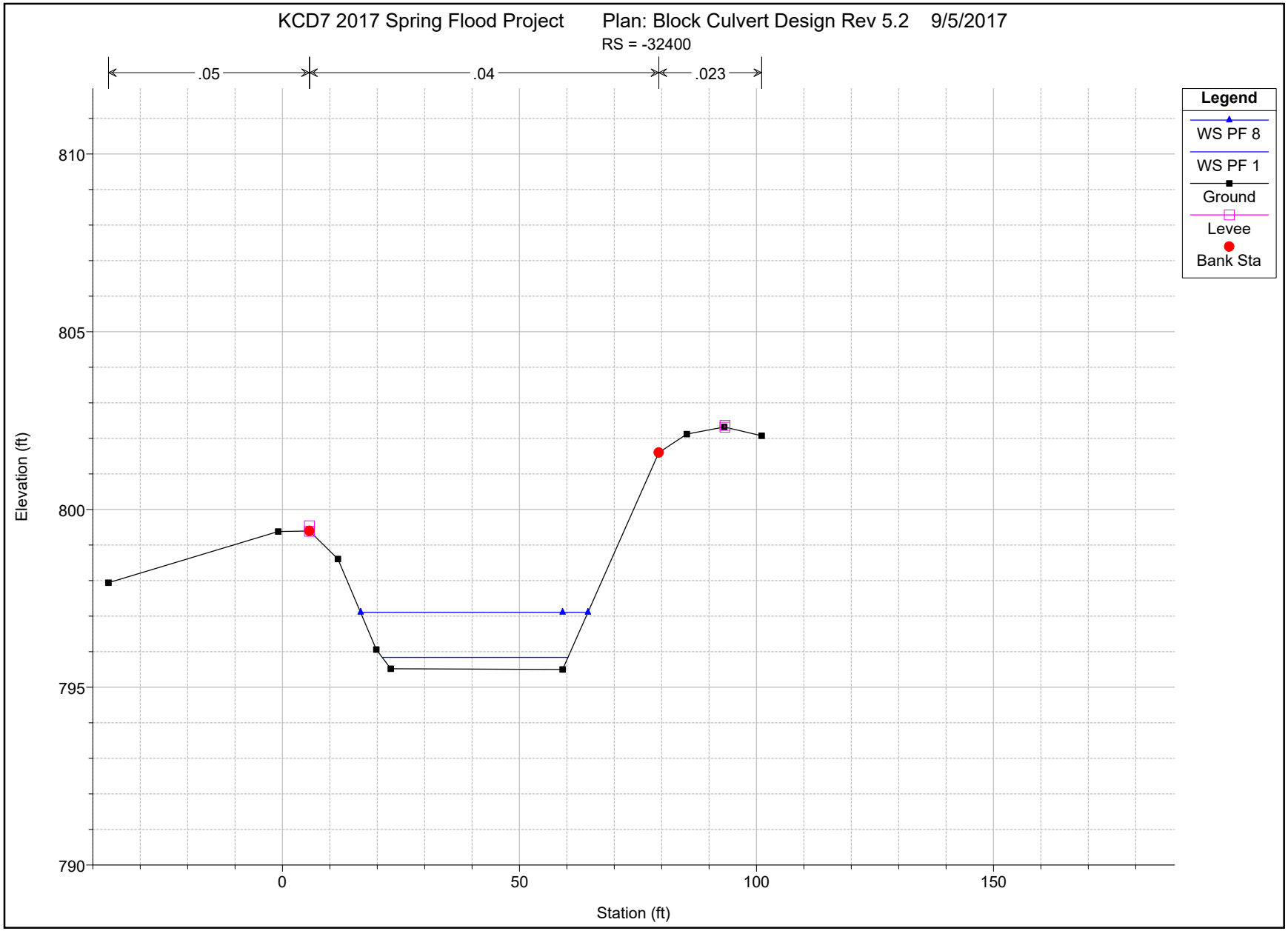




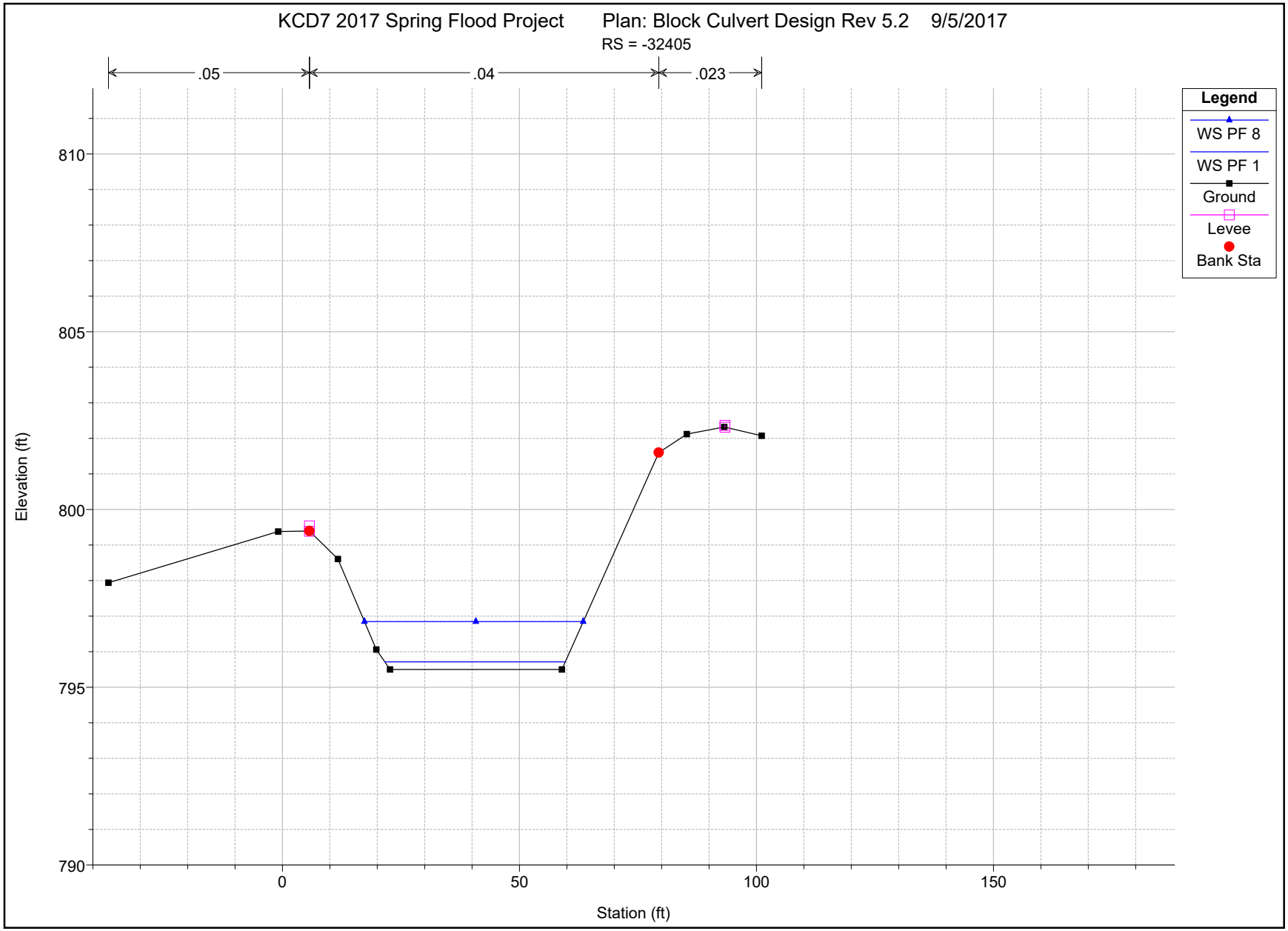

1 in Horiz. = 30 ft  1 in Vert. = 4 ft



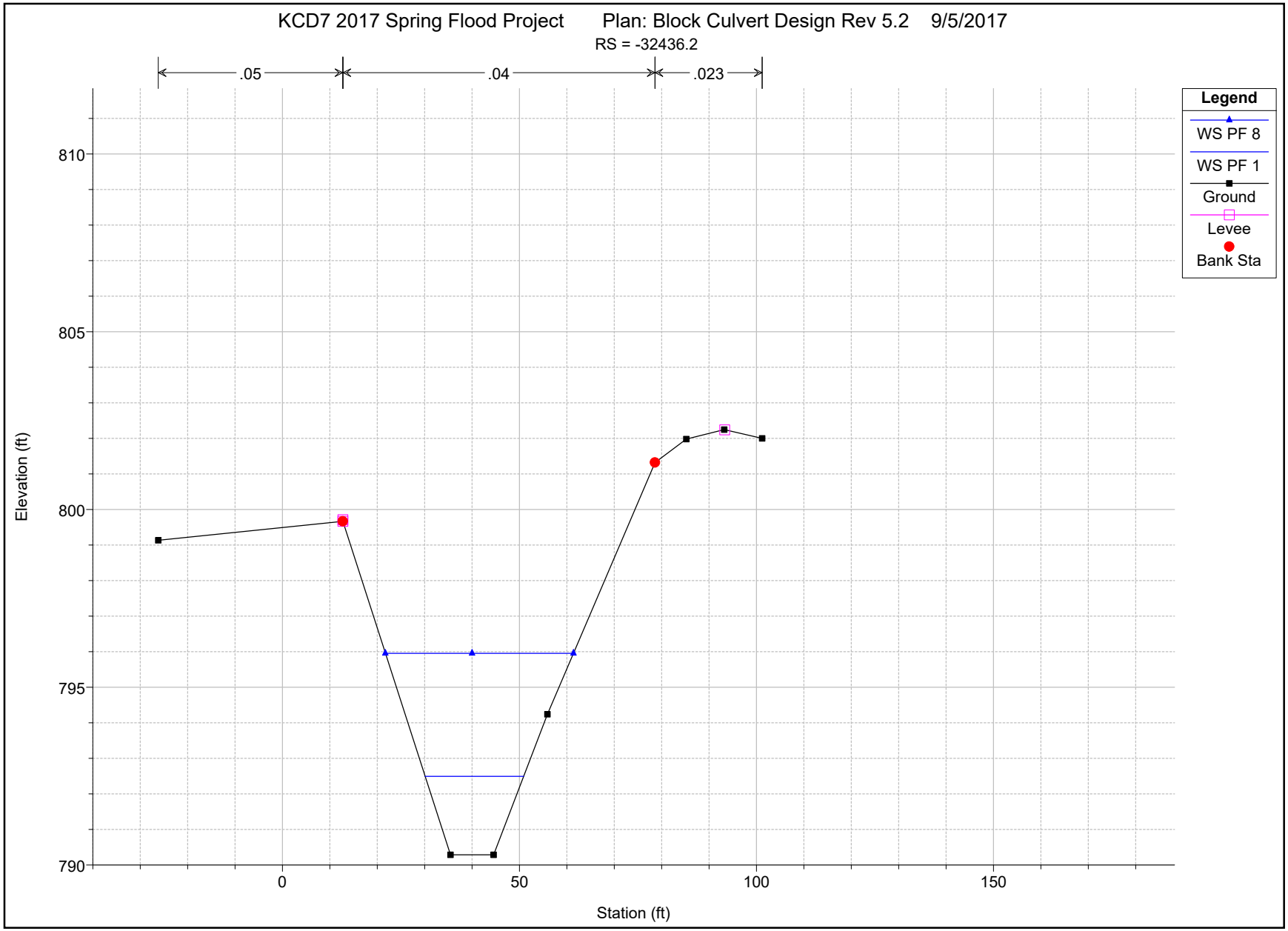

1 in Horiz. = 30 ft 1 in Vert. = 4 ft



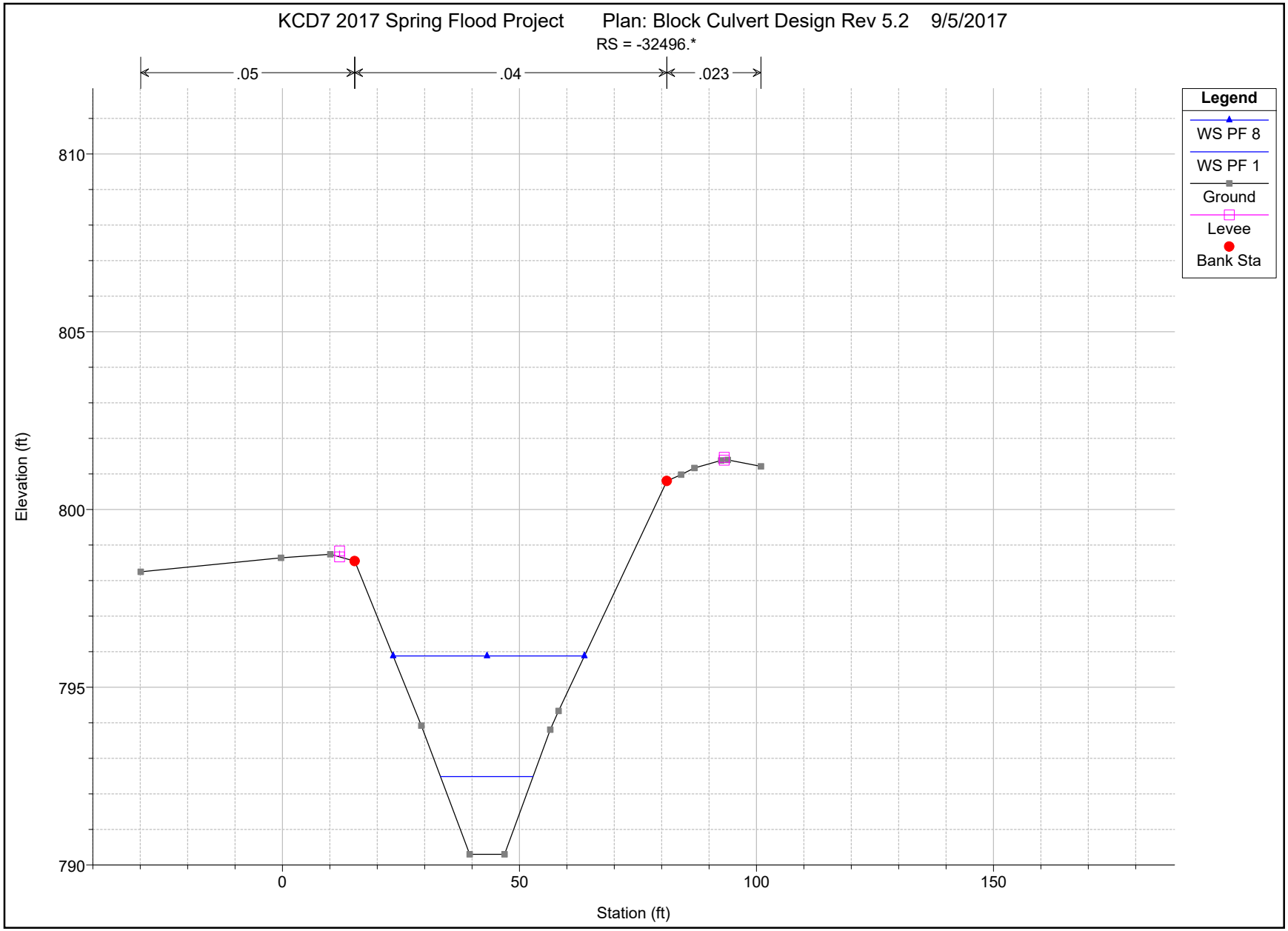

1 in Horiz. = 30 ft  1 in Vert. = 4 ft



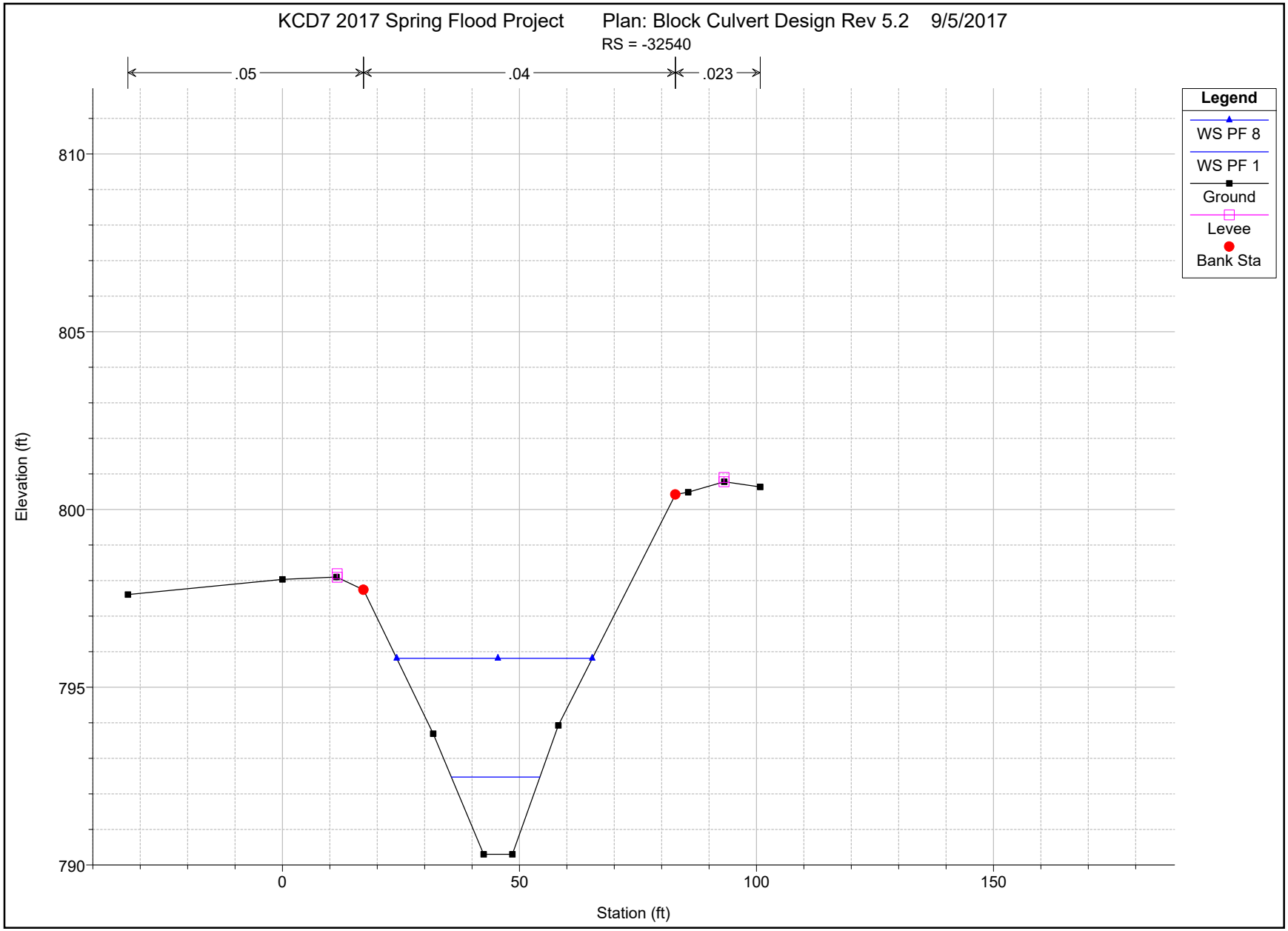

1 in Horiz. = 30 ft  1 in Vert. = 4 ft




1 in Horiz. = 30 ft 1 in Vert. = 4 ft




1 in Horiz. = 30 ft 1 in Vert. = 4 ft

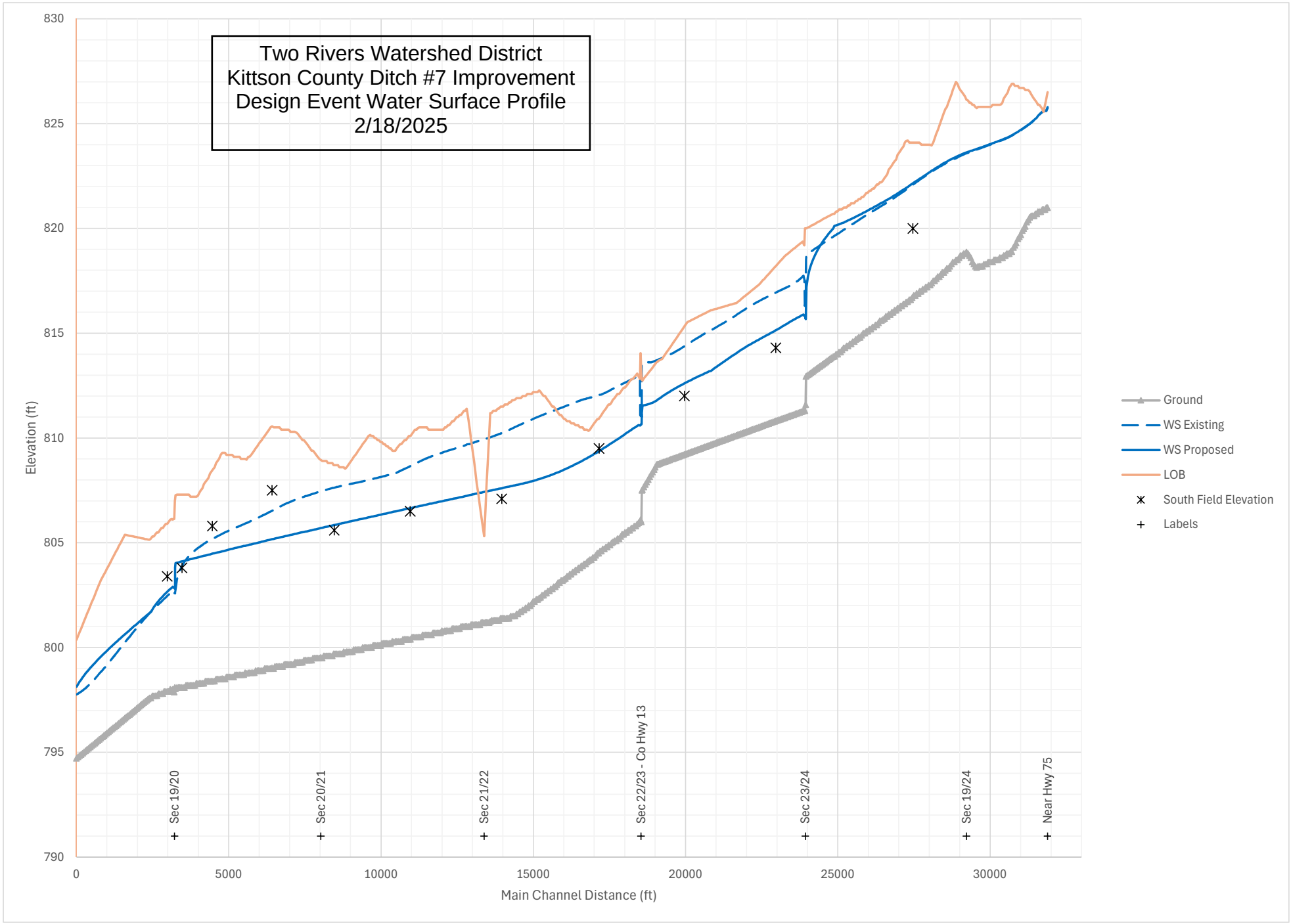



1 in Horiz. = 30 ft 1 in Vert. = 4 ft

# Appendix F

# Design Water Surface Profile

Kittson County Ditch 7 Improvement


Two Rivers Watershed District
Kittson County Ditch #7 Improvement
Design Event Water Surface Profile
2/18/2025
Elevation (ft)
830
825
820
815
810
805
800
795
790
0
5000
10000
15000
20000
25000
30000
Main Channel Distance (ft)
Sec 19/20
Sec 20/21
Sec 21/22
Sec 22/23 - Co Hwy 13
Sec 23/24
Sec 19/24
Near Hwy 75
Ground
WS Existing
WS Proposed
LOB
South Field Elevation
Labels

# Appendix G

# 10, 25, & 50 Year Water Surface Profile

Kittson County Ditch 7 Improvement


KCD 7 Unsteady Modeling Plan: Steady Rev 7 10, 25, 50 yr 2/17/2025
Legend
WS 50 Year
WS 25 Year
WS 10 Year
Ground
LOB
Elevation (ft)
830
825
820
815
810
805
800
795
790
0
5000
10000
15000
20000
25000
30000
35000
Main Channel Distance (ft)
Sec 19/20
Sec 20/21
Sec 21/22
Sec 22/33 - Co. Hwy 13
Sec 23/24
Sec 19/24
Near Hwy 75

# Appendix H

# Probable Cost

Kittson County Ditch 7 Improvement

Two Rivers Watershed District
Kittson County Ditch #7 Improvement
Engineer's Estimated Cost
2/17/2025

| Item | Quantity | Units | Unit Price | Cost |
|---|---|---|---|---|
| Mobilization | 1.0 | LS | 50,000.00 | $50,000 |
| Excavation | 134,000.0 | CY | 4.50 | $603,000 |
| Side Inlets | 18.0 | EA | 4,300.00 | $77,400 |
| Riprap Culvert Ends | 170.0 | CY | 75.00 | $12,750 |
| Fert, Seed, Mulch | 65.0 | AC | 750.00 | $48,750 |
| Additional Permanent Ditch ROW | 51.0 | AC | 5,500.00 | $280,500 |
| Temp Ditch ROW | 22.0 | AC | 180.00 | $3,960 |
| Outlet Channel Flood Easement | 52.0 | AC | 3,500.00 | $182,000 |
| Contingencies | 15.0% | | | $188,754 |
| Engineering | | | | $205,000 |
| Legal Administrative | | | | $33,000 |
| Viewing | | | | $12,000 |
| Total Estimated Project Cost | | | | $1,697,114 |

# Appendix I

# DNR & BWSR Advisory Reports

Kittson County Ditch 7 Improvement

**Ecological and Water Resources**
**2115 Birchmont Beach Rd NE**
**Bemidji, MN 56601**

March 16, 2023

Dan Money
District Administrator
Two Rivers Watershed District
410 South 5th Street, Suite 112
Hallock, MN

## Re: Preliminary Survey and Engineer's Report for Kittson County Ditch No. 7

Dear Dan Money,

On behalf of the Director of Ecological and Water Resources of the Minnesota Department of Natural Resources (MN DNR), I offer the following review of the Preliminary Survey and Engineer's Report for the Kittson County Ditch No. 7 Improvement project in accordance with Minnesota Statutes section 103E.255.

- The Preliminary Survey Report appears to be adequate as it contains all the required information; however, we have recommendations for the final engineering report below.
- Our review finds the project will not require Public Water Work Permitting or Permissions from the DNR.
- A soil survey is not needed.

### Recommendations to improve completeness

Please update project maps to show locations of all public waters (basins, public waters wetlands, and watercourses) in relation to drainage improvements.

### Mapped floodplain

The westernmost portion of the project area in Section 19 at the outlet of the ditch system is located within a FEMA mapped floodplain - AE zone. A floodplain permit may be needed from local authorities for work within the mapped floodplain.

### Channel design

Please consider including grade control structures in higher slope sections at approximately 70+00 to 80+00 and 130+00 to 135+00 on the profile to prevent channel head cutting and erosion of the ditch bottom. Constructed rock riffles or boulder cross vanes are effective at preventing channel incision and maintaining constructed

profile elevations. Maintaining constructed ditch profile elevation over time is of particular importance at the pipeline crossings to maintain required cover depth over the pipes.

Please consider including a slightly deeper low-flow or inner berm channel (similar to the upstream ditch width) in the wider ditch bottom (approximately 40 ft width) near 130+00. This will help maintain channel stability, sediment transport, and higher water quality.

## Water quality and altered hydrology

The project will result in increased peak flows from the County Ditch 7 drainage system into the Judicial Ditch 10 drainage system. Practices such as water storage and multipurpose drainage management within the watershed of County Ditch 7 should be considered as ways to minimize or mitigate for modeled changes in hydrology at the system outlet and downstream.

Please also consider the following recommendations:

- MN DNR recommends incorporating a native seed mix for vegetation restoration to benefit pollinators. The Board of Soil and Water Resources seed mix for Native Construction (32-241) or Pollinator Plot NW (38-441) may be good choices.
- Consider using 'bio-netting' or 'natural netting' type erosion control blankets (i.e., no products containing plastic mesh netting or other plastic components) to avoid small animal entanglement. These are listed as Category 3N or 4N in the 2016 & 2018 MNDOT Standards Specifications for Construction.

Thank you for the consideration of these comments. Please contact Environmental Assessment Ecologist Owen Baird (owen.baird@state.mn.us) with any concerns or questions.

Sincerely,

Nathan Kestner
Regional Manager, Ecological and Water Resources

CC: Stephanie Klamm, Area Hydrologist
Owen Baird, NW Region Environmental Assessment Ecologist
Randall Doneen, DNR Conservation Assistance and Regulation Section Manager
Tom Groshens, DNR NW Region North District Manager

*Equal Opportunity Employer*

BOARD OF WATER AND SOIL RESOURCES

March 27, 2023

Board of Managers
Two Rivers Watershed District
410 South 5th St, Suite 112
Hallock, MN 56728

Re: BWSR Advisory Report – Kittson County Ditch 7

Dear Managers,

On behalf of the Minnesota Board of Soil and Water Resources, I offer this advisory report in accordance with Minnesota Statute Section 103D.711, Subdivision 5. To prepare this advisory report, I reviewed the *Engineer's Preliminary Survey Report, Kittson County Ditch No. 7 Improvement,* dated January 31, 2023, and the report's associated Appendices.

I have one, potentially significant, concern with this project that the managers may want to investigate with their engineer. The increased velocities at the transition from zero slope to 0.5% slope at approx. Sta. 133 could result in erosion and could eventually lead to head cutting of the ditch. Over time, this could expose the pipelines. I suggest that the HEC-RAS model be used to evaluate the velocities as this location, and additional protective measures be used (if necessary) to prevent erosion.

I have a few other minor comments that the watershed district may want to consider as they finalize their plans for this improvement.

- In the Present Situation section of the report (Page 2), it is difficult to follow the issues presented, especially those near Section 20. A figure that includes topography would be helpful to better understand where the ditch capacity is reached and where there is breakout flow.
- Survey Data from 2010 may be outdated, so the excavation quantity (and cost) may be more than expected.
- Maps showing the extent of flooding before and after the improvement may be helpful for the watershed district and the landowners to understand the benefits of the project.
- In the hydrology and hydraulics section of the report, the conclusion from the flow comparison evaluation (Pages 6-7) states that the proposed design would carry all but the largest events without overflow into adjacent fields. I suggest clarifying this statement to note which events would be expected to be conveyed by the updated system so there is a better understanding of risk.
- If the spoil overflow areas are not represented in the HEC-RAS model, I suggest including them, so the water surface elevations are accurately calculated for storm events that utilize the overflow areas.

- There are two locations along the profile that state: “Spoil Overflow North Side” or “Spoil Overflow North & South Side” (approx. Sta 133 and Sta. 186 respectively). Should this be spoil overflow to the *south* side? Otherwise how will these overflows be conveyed north of the road?
- Report states there will be no change in peak flows for the 2-year event, however with widening and steepening the channel, there will likely be a change in peak flows for all events (even if they are both contained by the ditch). It may not be important to quantify this change, but it should be noted there will likely be an increase in flows even during smaller events.

I agree that side water inlets (with alternative intakes if possible) should be considered with this project. I suggest that the watershed district consider the Multipurpose Drainage Management grant for funding support to include side water inlets or other agricultural BMPs. Please feel free to contact me at 651-539-2591 (email rita.weaver@state.mn.us) if you have questions regarding this advisory report.

Sincerely,

Rita Weaver, PE
BWSR Chief Engineer

CC: John Jaschke, Director
Ryan Hughes, Northern Region Supervisor
Matthew Fischer, Board Conservationist
Henry Van Offelen, Clean Water Specialist
Dan Money, District Administrator
Stephanie Klamm, DNR Area Hydrologist

*Equal Opportunity Employer*

# Appendix J

# Right-Of-Way & Easements

Kittson County Ditch 7 Improvement

Two Rivers Watershed District
Kittson County Ditch #7 Improvement
Downstream Outlet Channel Flood Easement Required
2/17/2025

| Parcel_Num | Deed Holder | Mailing Add 1 | Mailing Add 2 | Mailing City | Mailing State | Deeded_Acres | Flood Esement Required (Acres) |
|---|---|---|---|---|---|---|---|
| 230261440 | LYNDEN MARC & STACY P LANGEN | 3267 170TH ST | | KENNEDY | MN | 158.00 | 0.01 |
| 230261460 | KYLE LANGEN | | PO BOX 234 | KENNEDY | MN | 158.00 | 0.40 |
| 230261480 | HANSON FAMILY FARM TRUST | 412 UNIVERSITY AVE | | MISSOULA | MT | 79.00 | 0.03 |
| 230261520 | ZACHARY & AMANDA RYNNING | PO BOX 202 | | KENNEDY | MN | 158.00 | 0.39 |
| 230271540 | ADRIAN JOHNSON FAMILY FARM PTR | | PO BOX 253 | KENNEDY | MN | 232.20 | 0.09 |
| 230351880 | TIMOTHY J & LISA A RYNNING | 2828 170TH ST | | KENNEDY | MN | 316.00 | 0.73 |
| 230351980 | KELLY R ERICKSON | 706 4TH ST SE | PO BOX 877 | HALLOCK | MN | 157.00 | 0.44 |
| 230362060 | JONELLE C CLOW TRUST AGREEMENT | 2800 PORTOLA VALLEY DR E | | GILBERT | AZ | 156.90 | 0.29 |
| 270060540 | JEFFREY C MORTENSON | 1914 150TH ST | | KENNEDY | MN | 4.70 | 0.12 |
| 270060550 | RICHARD P MORTENSON | | PO BOX 67 | KENNEDY | MN | 60.10 | 0.32 |
| 270070680 | CHRISTOPHER MORTENSON ETAL | 1890 200TH AVENUE | | KENNEDY | MN | 136.80 | 0.84 |
| 270182080 | JEROD & STEPHANIE HANSON | 1952 175TH AVE | | HALLOCK | MN | 260.20 | 1.61 |
| 270182100 | RICHARD E OSOSKI | 1005 15TH ST S | | GRAND FORKS | ND | 2.00 | 0.02 |
| 270182120 | RAYMOND D & KRISTI QUIBELL | 404 4TH ST S | | DRAYTON | ND | 10.90 | 0.33 |
| 270182130 | DOUGLAS QUIBELL | 509 ALMERON AVE APT 10 | | DRAYTON | ND | 134.90 | 7.30 |
| 270192200 | TUNGSETH REVOCABLE TRUST | 9542 PHINNEY AVE N | | SEATTLE | WA | 120.00 | 2.43 |
| 270192240 | DOUGLAS QUIBELL | 509 ALMERON AVE APT 10 | | DRAYTON | ND | 67.30 | 0.89 |
| 290010020 | JONELLE C CLOW TRUST AGREEMENT | 2800 PORTOLA VALLEY DR E | | GILBERT | AZ | 306.50 | 0.66 |
| 290010040 | STANLEY VISNESS ETAL | 45557 PEMBINA TRL NW | | KARLSTAD | MN | 232.90 | 1.44 |
| 290121150 | LON & CYNTHIA JOHNSON IRREV TRUST | 203 W WALLACE AVE | | DRAYTON | ND | 35.80 | 0.40 |
| 290121160 | LON & CYNTHIA JOHNSON IRREV TRUST | 203 W WALLACE AVE | | DRAYTON | ND | 35.80 | 0.07 |
| 290121170 | LYNN C. & KRISTI M. JOHNSON | 815 RED RIVER PLACE | | DRAYTON | ND | 68.90 | 0.85 |
| 290121180 | STANLEY VISNESS ETAL | 45557 PEMBINA TRL NW | | KARLSTAD | MN | 156.00 | 0.03 |
| 290121200 | MARK TUNGSETH | 1377 180TH AVE | | TEIEN TOWNSHIP | MN | 156.00 | 0.89 |
| 290121220 | CAREY S MORTENSON | 1870 140TH ST | | KENNEDY | MN | 6.80 | 0.12 |
| 290121240 | BRUCE A & MARY L MORTENSON | 1487 210TH AVE | | KENNEDY | MN | 133.90 | 4.28 |
| 290131260 | JOSHUA TUNGSETH | 1377 180TH AVE | | DRAYTON | ND | 115.40 | 4.45 |
| 290131280 | MARK TUNGSETH | 1377 180TH AVE | | TEIEN TOWNSHIP | MN | 354.00 | 7.59 |
| 290131300 | MARK TUNGSETH | 1377 180TH AVE | | TEIEN TOWNSHIP | MN | 117.80 | 6.08 |
| 290131320 | CAREY S MORTENSON | 1870 140TH ST | | KENNEDY | MN | 35.90 | 4.74 |
| 290242660 | RALPH H & KATHRYN M HERSETH | 7 1/2 11TH AVE SE | | ROSEAU | MN | 152.30 | 3.05 |
| 290242680 | KENNETH J URBANIAK LVG TRUST | 204 ATLANTIC AVE S | PO BOX 95 | KENNEDY | MN | 156.00 | 0.04 |
| | | | | | | **Total** | 50.94 |

Two Rivers Watershed District
Kittson County Ditch #7 Improvement
Permanent Right-Of-Way Required
2/17/2025

| TRSQQ | QQ_Desc | PIN | Deed Name | Deeded Acres | Mailing Address | Mailing Address 2 | Mailing City | Mailing State | PERM ROW ACRES |
|---|---|---|---|---|---|---|---|---|---|
| 159491911 | NENE | 270192200 | TUNGSETH REVOCABLE TRUST | 120.00 | 9542 PHINNEY AVE N | | SEATTLE | WA | 3.14 |
| 159491911 | NENE | 270202320 | DARRON W BENSON | 147.60 | 1973 140TH ST | | KENNEDY | MN | 0.06 |
| 159491912 | NWNE | 270192200 | TUNGSETH REVOCABLE TRUST | 120.00 | 9542 PHINNEY AVE N | | SEATTLE | WA | 3.20 |
| 159491921 | NENW | 270192200 | TUNGSETH REVOCABLE TRUST | 120.00 | 9542 PHINNEY AVE N | | SEATTLE | WA | 1.77 |
| 159492011 | NENE | 270202300 | FLORENCE C DAHL | 312.20 | 2078 ST HWY 11 | | KENNEDY | MN | 2.63 |
| 159492012 | NWNE | 270202300 | FLORENCE C DAHL | 312.20 | 2078 ST HWY 11 | | KENNEDY | MN | 2.12 |
| 159492012 | NWNE | 270202320 | DARRON W BENSON | 147.60 | 1973 140TH ST | | KENNEDY | MN | 0.51 |
| 159492021 | NENW | 270202320 | DARRON W BENSON | 147.60 | 1973 140TH ST | | KENNEDY | MN | 2.63 |
| 159492022 | NWNW | 270202320 | DARRON W BENSON | 147.60 | 1973 140TH ST | | KENNEDY | MN | 2.63 |
| 159492111 | NENE | 270212400 | TIMOTHY J BLOOMQUIST | 313.50 | 1737 130TH ST | | DRAYTON | ND | 3.20 |
| 159492111 | NENE | 270222460 | MARTHA JOY ROBERTS | 311.50 | 5800 ST CROIX AVE N APT C201 | | MINNEAPOLIS | MN | 0.02 |
| 159492112 | NWNE | 270212400 | TIMOTHY J BLOOMQUIST | 313.50 | 1737 130TH ST | | DRAYTON | ND | 2.69 |
| 159492112 | NWNE | 270212420 | TIMOTHY J BLOOMQUIST | 156.10 | 1737 130TH ST | | DRAYTON | ND | 0.53 |
| 159492121 | NENW | 270212420 | TIMOTHY J BLOOMQUIST | 156.10 | 1737 130TH ST | | DRAYTON | ND | 3.23 |
| 159492122 | NWNW | 270202300 | FLORENCE C DAHL | 312.20 | 2078 ST HWY 11 | | KENNEDY | MN | 1.09 |
| 159492122 | NWNW | 270212420 | TIMOTHY J BLOOMQUIST | 156.10 | 1737 130TH ST | | DRAYTON | ND | 2.14 |
| 159492211 | NENE | 270222450 | MARTHA JOY ROBERTS | 298.60 | 5800 ST CROIX AVE N APT C201 | | MINNEAPOLIS | MN | 2.18 |
| 159492211 | NENE | 270232520 | KURTIS KRAULIK ETAL | 233.90 | 2380 STATE HWY 11 | | KENNEDY | MN | 0.07 |
| 159492212 | NWNE | 270222450 | MARTHA JOY ROBERTS | 298.60 | 5800 ST CROIX AVE N APT C201 | | MINNEAPOLIS | MN | 2.25 |
| 159492221 | NENW | 270222450 | MARTHA JOY ROBERTS | 298.60 | 5800 ST CROIX AVE N APT C201 | | MINNEAPOLIS | MN | 0.04 |
| 159492221 | NENW | 270222460 | MARTHA JOY ROBERTS | 311.50 | 5800 ST CROIX AVE N APT C201 | | MINNEAPOLIS | MN | 2.20 |
| 159492222 | NWNW | 270222460 | MARTHA JOY ROBERTS | 311.50 | 5800 ST CROIX AVE N APT C201 | | MINNEAPOLIS | MN | 2.25 |
| 159492311 | NENE | 270232480 | SCOTT M KRAULIK LIVING TRUST | 153.50 | 39548 450TH ST NW | | STEPHEN | MN | 2.28 |
| 159492311 | NENE | 270242640 | GARY & KATHY GRUNDSTROM | 463.00 | | PO BOX 567 | FRANKTOWN | CO | 0.00 |
| 159492312 | NWNE | 270232480 | SCOTT M KRAULIK LIVING TRUST | 153.50 | 39548 450TH ST NW | | STEPHEN | MN | 2.33 |
| 159492321 | NENW | 270232480 | SCOTT M KRAULIK LIVING TRUST | 153.50 | 39548 450TH ST NW | | STEPHEN | MN | 0.06 |
| 159492321 | NENW | 270232500 | LORRAINE J HENNUM | 77.80 | 1305 SOO ST | | ENDERLIN | ND | 2.27 |
| 159492322 | NWNW | 270232500 | LORRAINE J HENNUM | 77.80 | 1305 SOO ST | | ENDERLIN | ND | 0.07 |
| 159492322 | NWNW | 270232520 | KURTIS KRAULIK ETAL | 233.90 | 2380 STATE HWY 11 | | KENNEDY | MN | 2.26 |
| | | | | | | | | **Total** | 49.85 |

Two Rivers Watershed District
Kittson County Ditch #7 Improvement
Temporary Construction Easement
2/17/2025

| TRSQQ | QQ_Desc | PIN | Deed Name | Deeded Acres | Mailing Address | Mailing Address 2 | Mailing City | Mailing State | Temporary Construction Easement (Acres) |
|---|---|---|---|---|---|---|---|---|---|
| 159491911 | NENE | 270192200 | TUNGSETH REVOCABLE TRUST | 120.00 | 9542 PHINNEY AVE N | | SEATTLE | WA | 1.25 |
| 159491911 | NENE | 270202320 | DARRON W BENSON | 147.60 | 1973 140TH ST | | KENNEDY | MN | 0.02 |
| 159491912 | NWNE | 270192200 | TUNGSETH REVOCABLE TRUST | 120.00 | 9542 PHINNEY AVE N | | SEATTLE | WA | 1.27 |
| 159491921 | NENW | 270192200 | TUNGSETH REVOCABLE TRUST | 120.00 | 9542 PHINNEY AVE N | | SEATTLE | WA | 0.70 |
| 159492011 | NENE | 270202300 | FLORENCE C DAHL | 312.20 | 2078 ST HWY 11 | | KENNEDY | MN | 1.05 |
| 159492012 | NWNE | 270202300 | FLORENCE C DAHL | 312.20 | 2078 ST HWY 11 | | KENNEDY | MN | 0.85 |
| 159492012 | NWNE | 270202320 | DARRON W BENSON | 147.60 | 1973 140TH ST | | KENNEDY | MN | 0.20 |
| 159492021 | NENW | 270202320 | DARRON W BENSON | 147.60 | 1973 140TH ST | | KENNEDY | MN | 1.05 |
| 159492022 | NWNW | 270202320 | DARRON W BENSON | 147.60 | 1973 140TH ST | | KENNEDY | MN | 1.05 |
| 159492111 | NENE | 270212400 | TIMOTHY J BLOOMQUIST | 313.50 | 1737 130TH ST | | DRAYTON | ND | 1.27 |
| 159492111 | NENE | 270222460 | MARTHA JOY ROBERTS | 311.50 | 5800 ST CROIX AVE N APT C201 | | MINNEAPOLIS | MN | 0.01 |
| 159492112 | NWNE | 270212400 | TIMOTHY J BLOOMQUIST | 313.50 | 1737 130TH ST | | DRAYTON | ND | 1.07 |
| 159492112 | NWNE | 270212420 | TIMOTHY J BLOOMQUIST | 156.10 | 1737 130TH ST | | DRAYTON | ND | 0.21 |
| 159492121 | NENW | 270212420 | TIMOTHY J BLOOMQUIST | 156.10 | 1737 130TH ST | | DRAYTON | ND | 1.28 |
| 159492122 | NWNW | 270202300 | FLORENCE C DAHL | 312.20 | 2078 ST HWY 11 | | KENNEDY | MN | 0.43 |
| 159492122 | NWNW | 270212420 | TIMOTHY J BLOOMQUIST | 156.10 | 1737 130TH ST | | DRAYTON | ND | 0.86 |
| 159492211 | NENE | 270222450 | MARTHA JOY ROBERTS | 298.60 | 5800 ST CROIX AVE N APT C201 | | MINNEAPOLIS | MN | 1.15 |
| 159492211 | NENE | 270232520 | KURTIS KRAULIK ETAL | 233.90 | 2380 STATE HWY 11 | | KENNEDY | MN | 0.04 |
| 159492212 | NWNE | 270222450 | MARTHA JOY ROBERTS | 298.60 | 5800 ST CROIX AVE N APT C201 | | MINNEAPOLIS | MN | 1.19 |
| 159492221 | NENW | 270222450 | MARTHA JOY ROBERTS | 298.60 | 5800 ST CROIX AVE N APT C201 | | MINNEAPOLIS | MN | 0.02 |
| 159492221 | NENW | 270222460 | MARTHA JOY ROBERTS | 311.50 | 5800 ST CROIX AVE N APT C201 | | MINNEAPOLIS | MN | 1.17 |
| 159492222 | NWNW | 270222460 | MARTHA JOY ROBERTS | 311.50 | 5800 ST CROIX AVE N APT C201 | | MINNEAPOLIS | MN | 1.19 |
| 159492311 | NENE | 270232480 | SCOTT M KRAULIK LIVING TRUST | 153.50 | 39548 450TH ST NW | | STEPHEN | MN | 1.21 |
| 159492311 | NENE | 270242640 | GARY & KATHY GRUNDSTROM | 463.00 | | PO BOX 567 | FRANKTOWN | CO | 0.00 |
| 159492312 | NWNE | 270232480 | SCOTT M KRAULIK LIVING TRUST | 153.50 | 39548 450TH ST NW | | STEPHEN | MN | 1.23 |
| 159492321 | NENW | 270232480 | SCOTT M KRAULIK LIVING TRUST | 153.50 | 39548 450TH ST NW | | STEPHEN | MN | 0.03 |
| 159492321 | NENW | 270232500 | LORRAINE J HENNUM | 77.80 | 1305 SOO ST | | ENDERLIN | ND | 1.20 |
| 159492322 | NWNW | 270232500 | LORRAINE J HENNUM | 77.80 | 1305 SOO ST | | ENDERLIN | ND | 0.04 |
| 159492322 | NWNW | 270232520 | KURTIS KRAULIK ETAL | 233.90 | 2380 STATE HWY 11 | | KENNEDY | MN | 1.20 |
| | | | | | | | | **Total** | 22.25 |

# Figures

Kittson County Ditch 7 Improvement

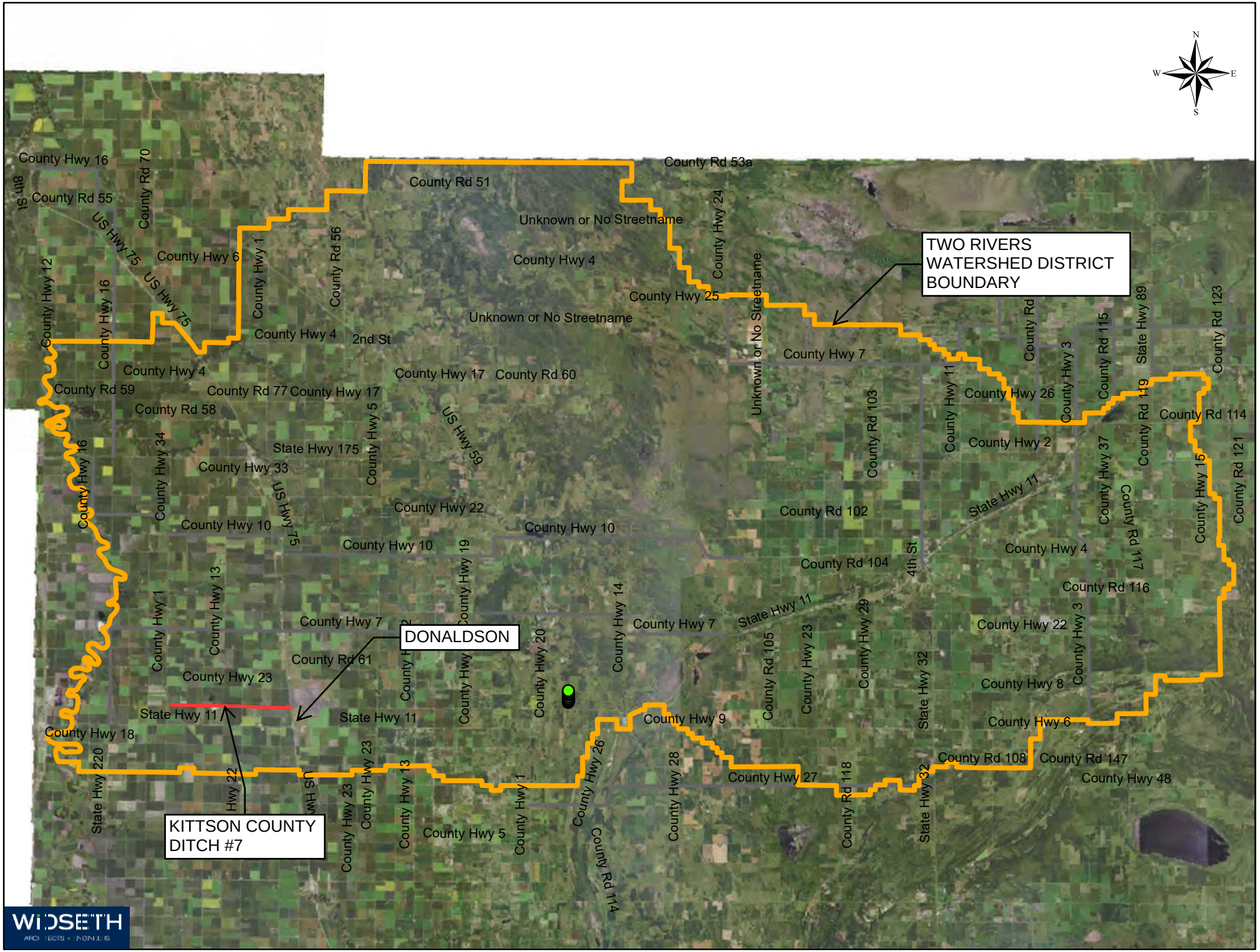



Figure 1 - Vicinity Map

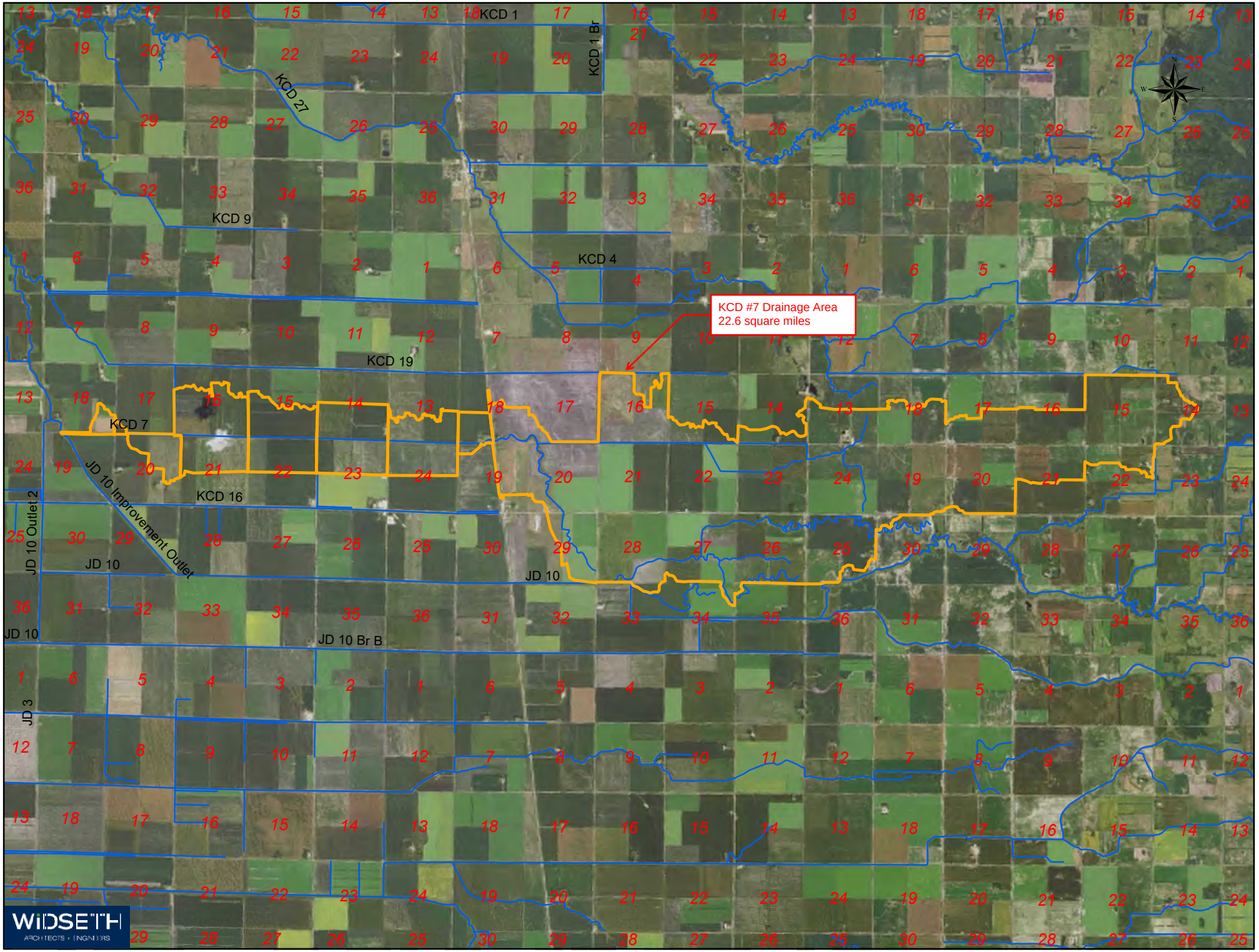



Figure 2 - Drain Area

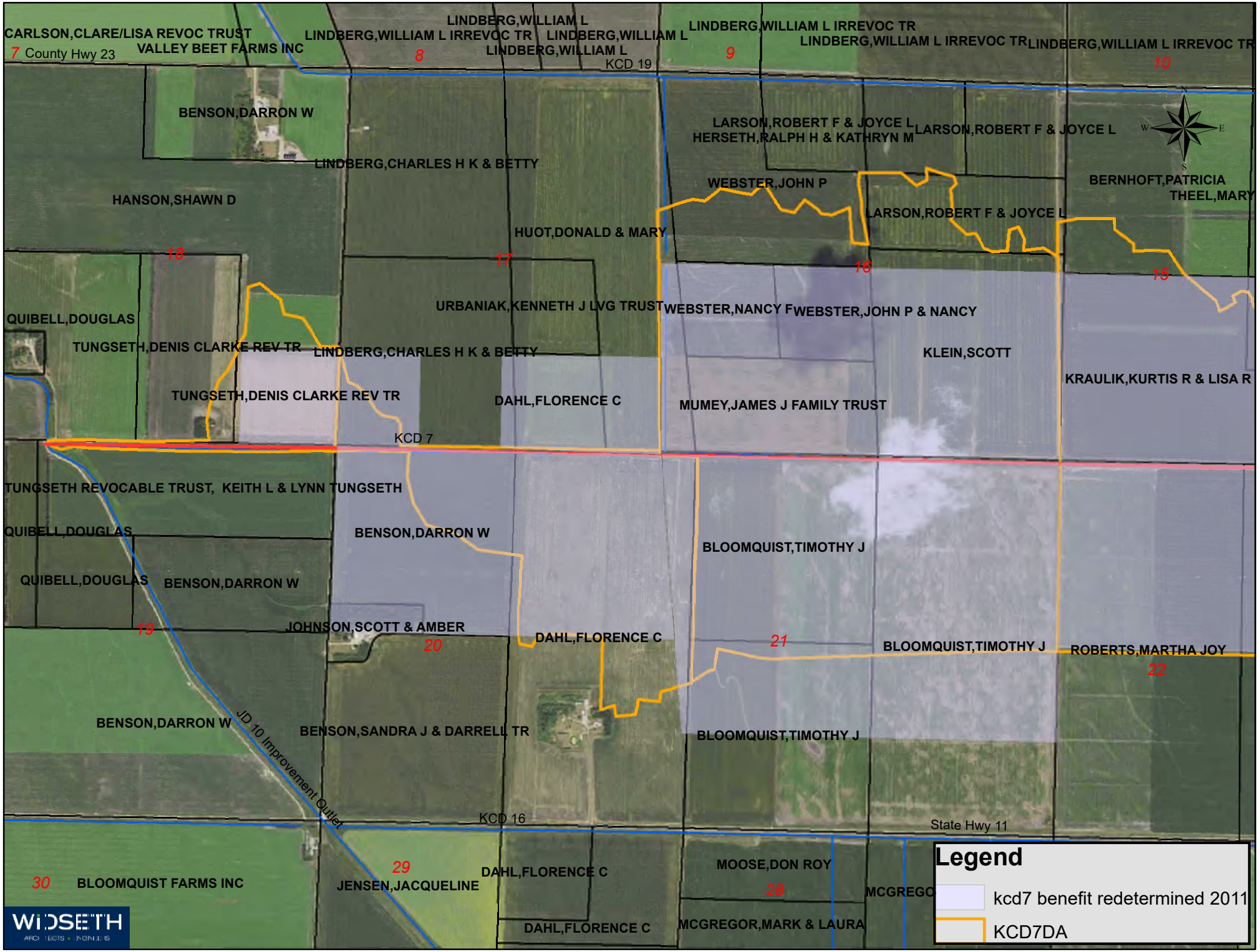



Figure 3 - Property Owners & Existing Benefited Area / 1 of 8

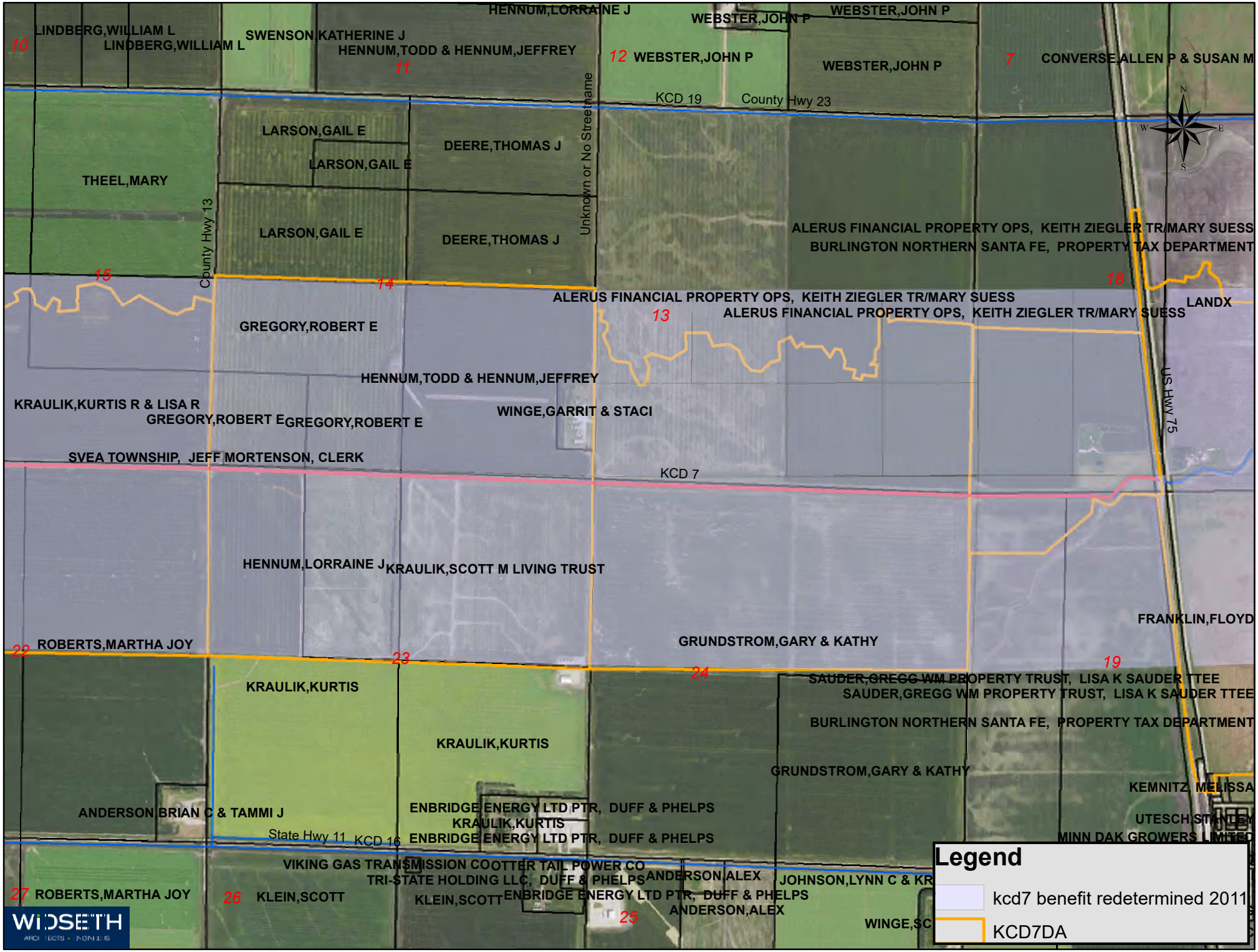



Figure 3 - Property Owners & Existing Benefited Area / 2 of 8

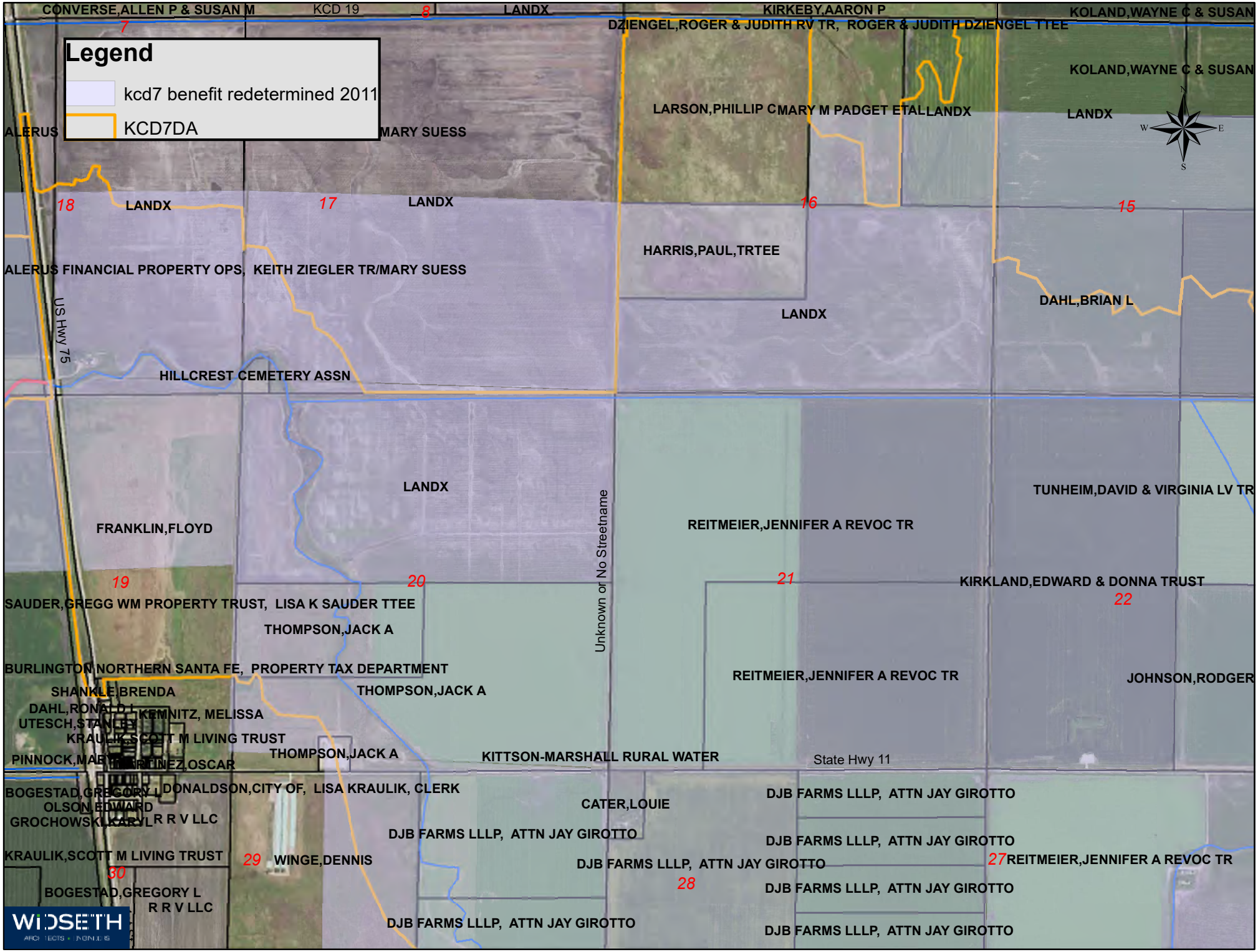



Figure 3 - Property Owners & Existing Benefited Area / 3 of 8

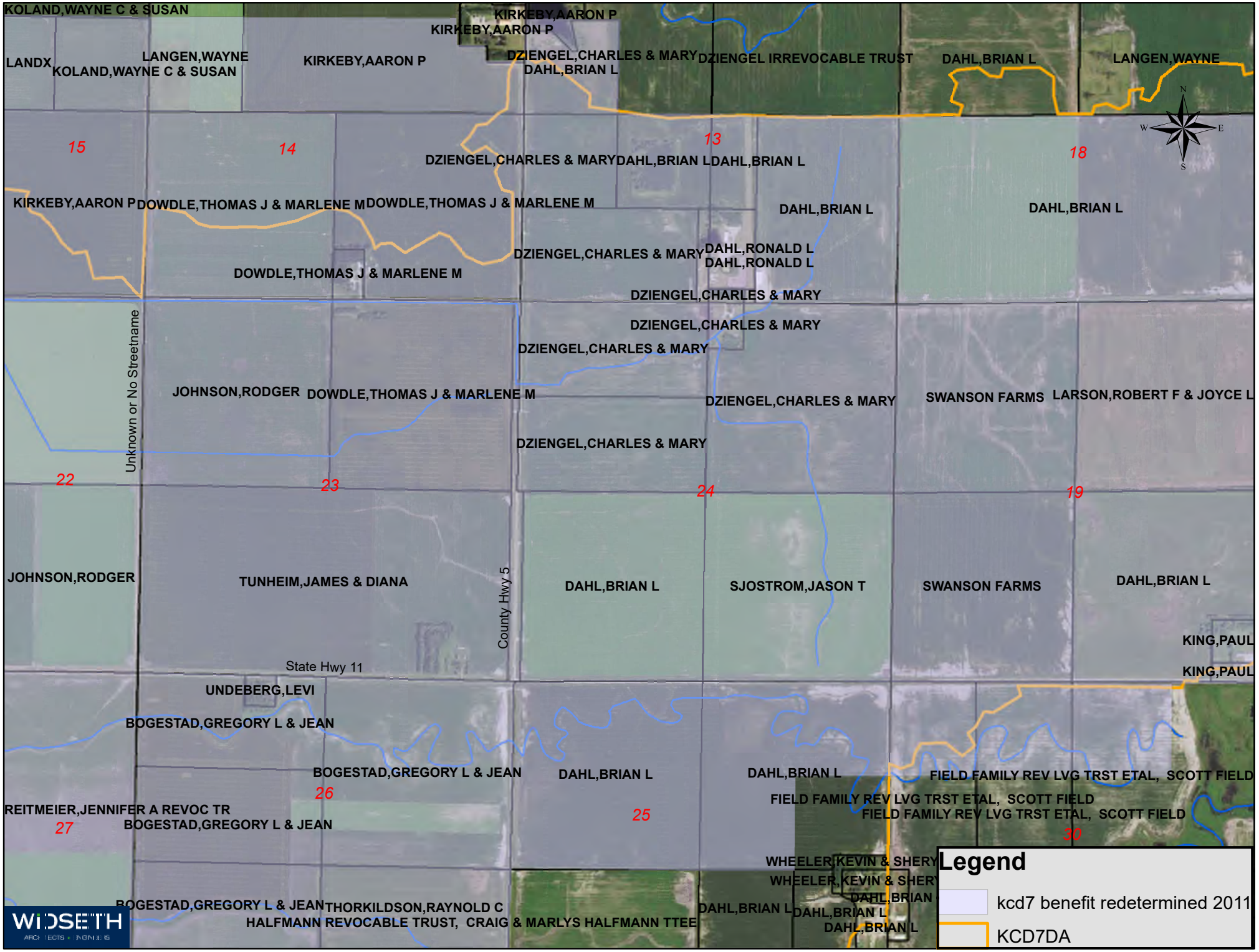



Figure 3 - Property Owners & Existing Benefited Area / 4 of 8

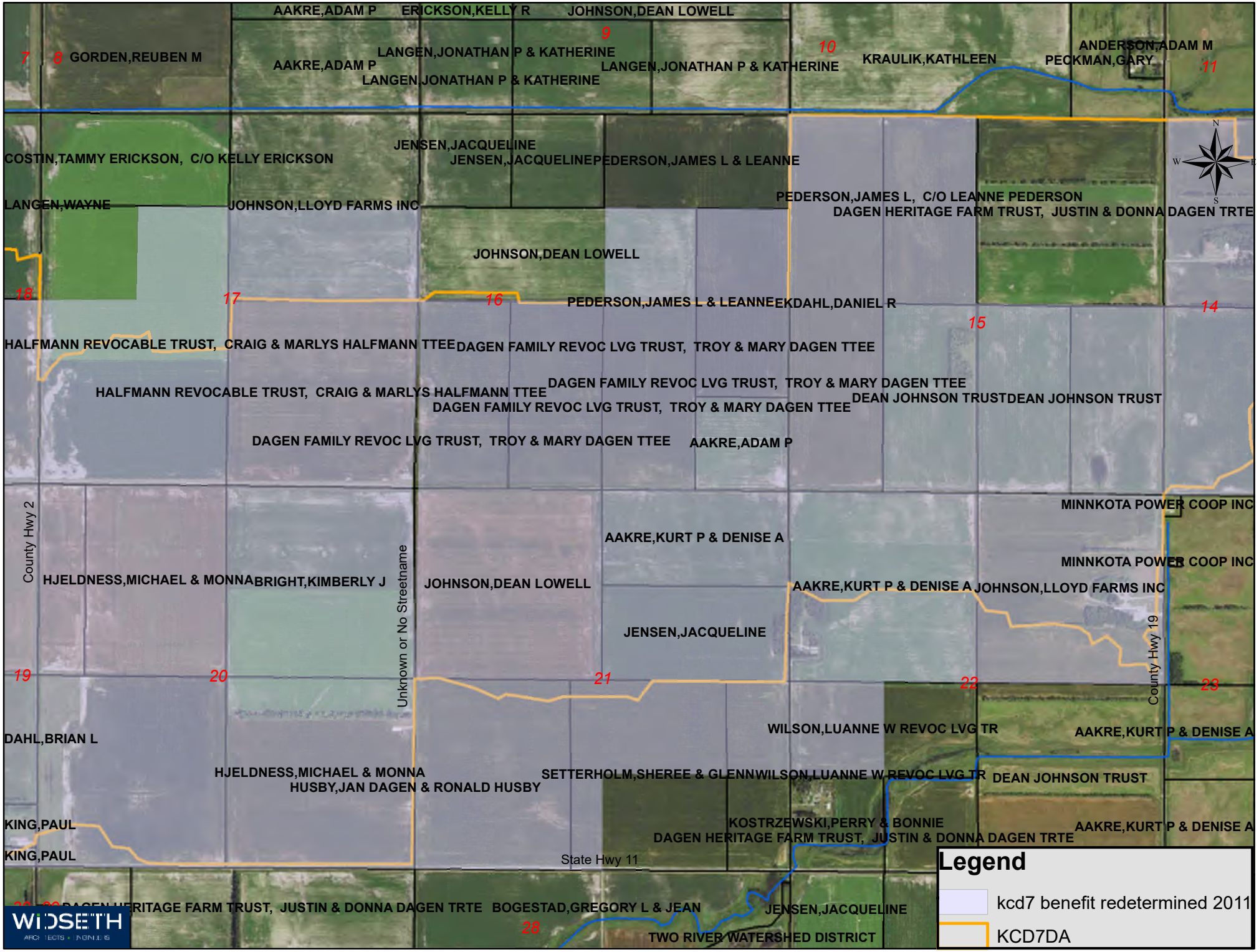



Figure 3 - Property Owners & Existing Benefited Area / 5 of 8

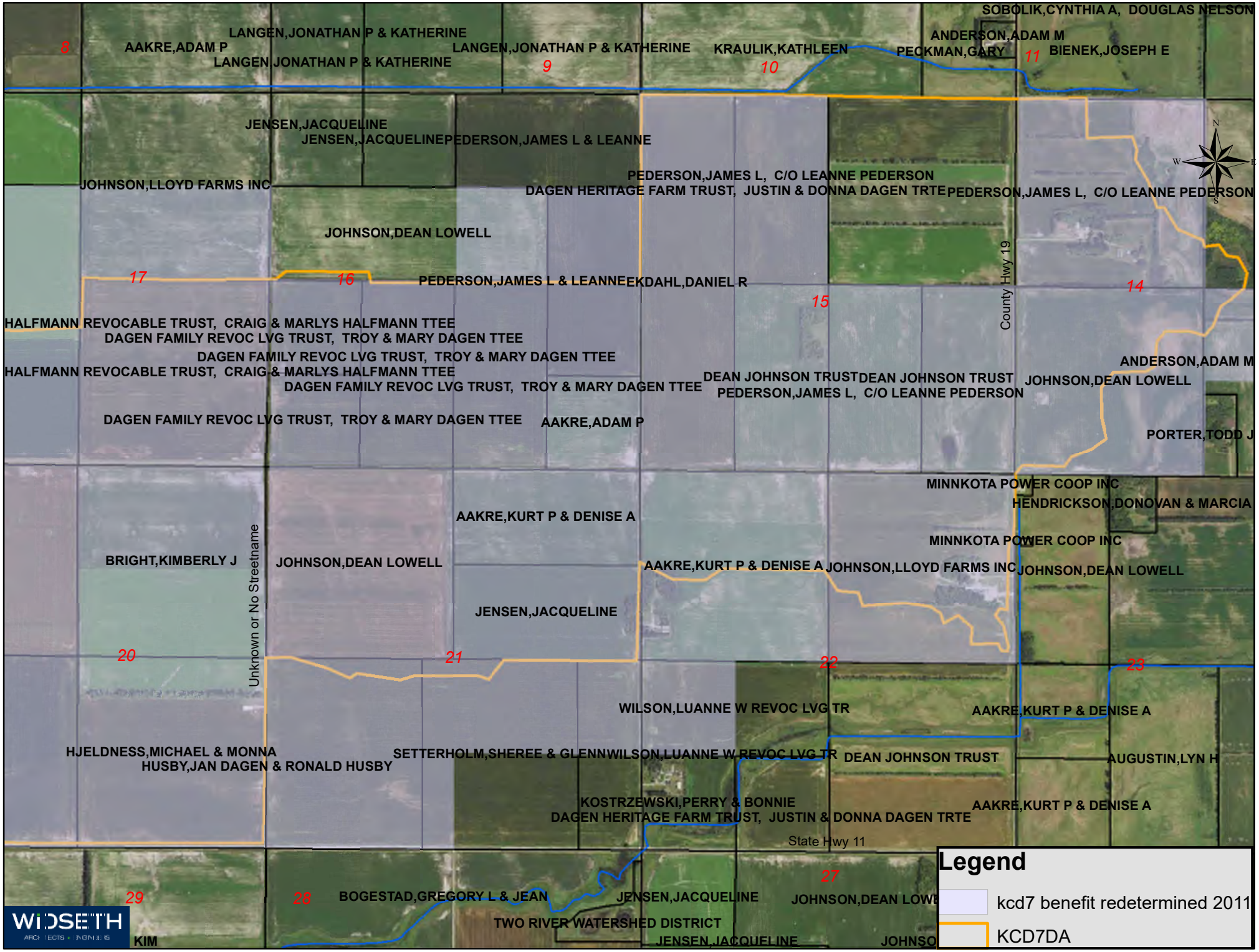



Figure 3 - Property Owners & Existing Benefited Area / 6 of 8

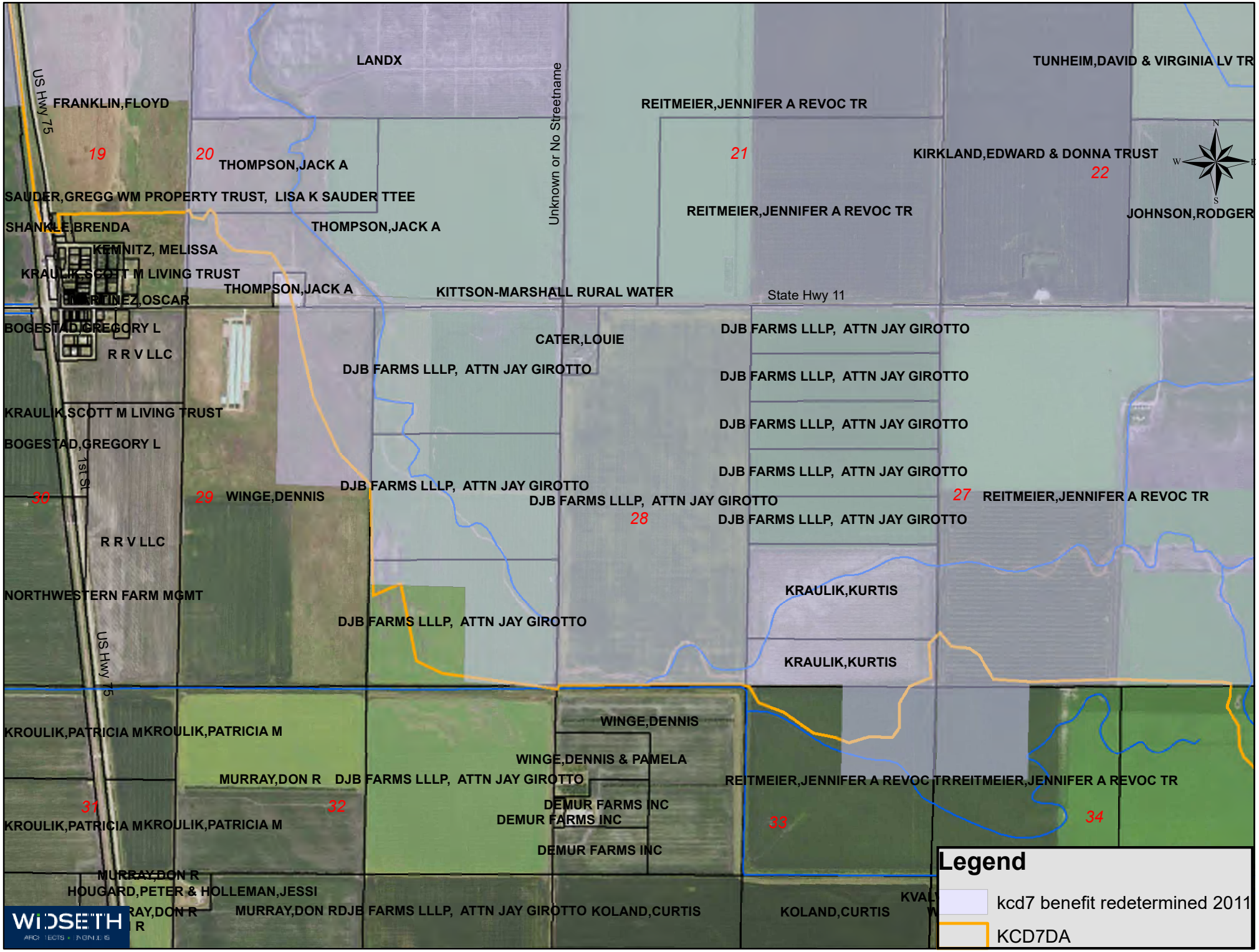



Figure 3 - Property Owners & Existing Benefited Area / 7 of 8

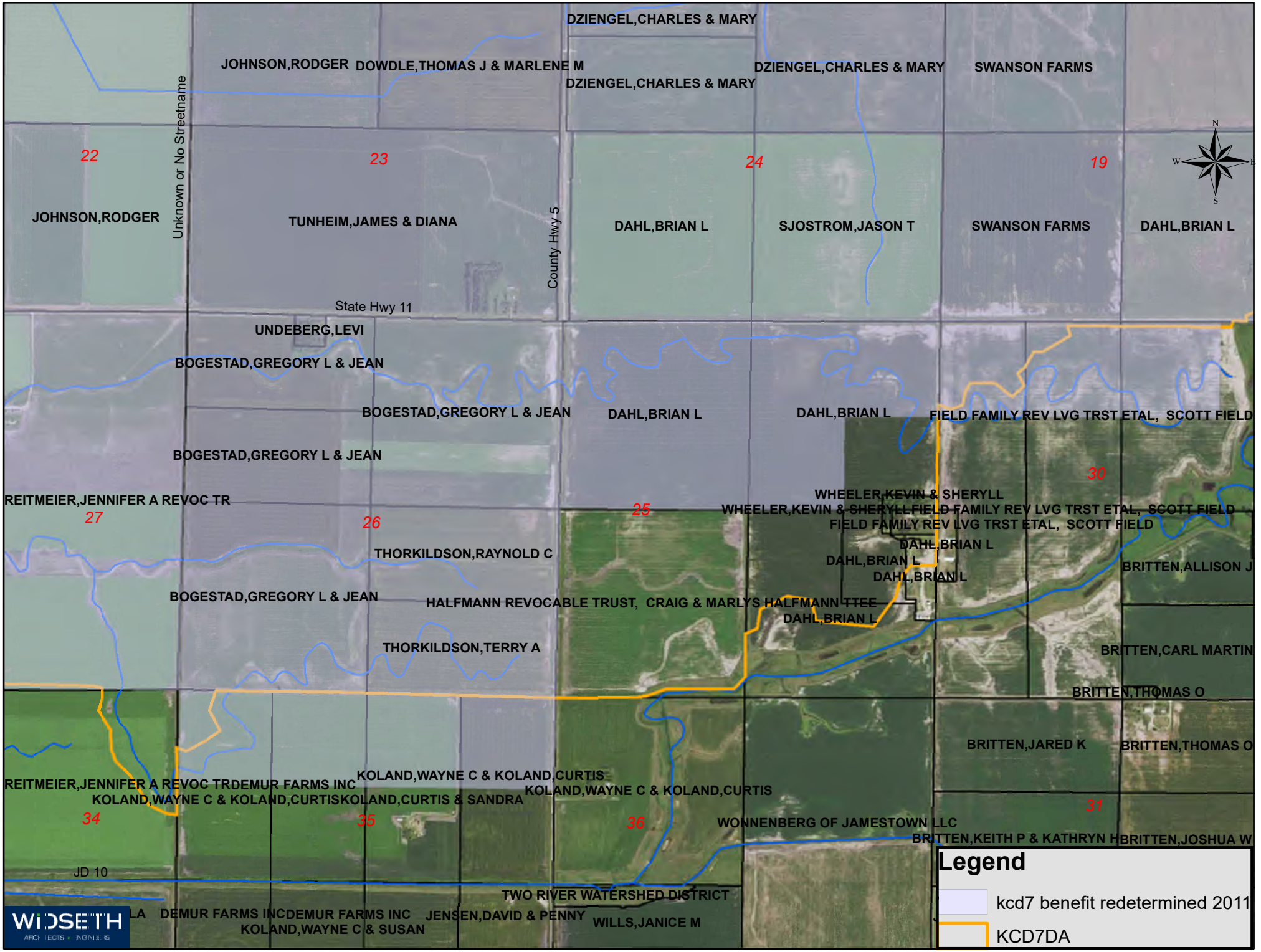



Figure 3 - Property Owners & Existing Benefited Area / 8 of 8