

# RED LAKE WATERSHED DISTRICT

June 13, 2019

Agenda

9:00 a.m.

9:00 a.m.	Call to Order	Action
	Review and approve agenda	Action
	Requests to appear	Information
	May 23, 2019 Minutes	Action
	June 6, 2019 Special Meeting Minutes	Action
	Financial Report dated June 12, 2019	Action
	League of Minnesota Cities-Liability and Excess Liability Insurance	Info./Action
	June 27, 2019 Board Meeting	Action
	Petition to Pennington County for partial abandonments of County Ditch 1 and 70.	Info./Action
9:30 a.m.	Continuation Hearing for Thief River Falls Westside FDR Project, RLWD Project No. 178	Info./Action
	Black River Impoundment, RLWD Project No. 176-Update	Information
	Four-Legged Lake Project, RLWD Project No. 102A-RCPP	Information
	Judicial Ditch 5, Project No. 102	Information
	RLWD Ditch 16, RLWD Project No. 177	Information
	Improvement to Polk County Ditch 39, Project No. 179	Information
	Brandt Impoundment, RLWD Project No. 60D	Info./Action
	Euclid East Impoundment, RLWD Project No. 60C	Info./Action
	Viewers	Info./Action
	Engineering Equipment-Stream Gauges	Info./Action
	Engineering Equipment-iPad	Info./Action

Permit 19013, Dan Johnson, Huntsville Twp, Polk County	Action
Permits: No. 19042-19044, 19046-19056	Action
Permit Process	Info./Action
RLWD 50 <sup>th</sup> Anniversary	Information
Administrators Update	Information
Legal Counsel Update	Information
Managers' updates	Information
Adjourn	Action

UPCOMING MEETINGS

June 18, 2019	RRWMB Meeting, Ada, 9:30 a.m.
June 26-28, 2019	2019 MAWD Summer Tour
June 27, 2019	RLWD Board Meeting, 9:00 a.m.
July 4, 2019	Office Closed-Independence Day
July 11, 2019	RLWD Board Meeting, 9:00 a.m.
July 25, 2019	RLWD Board Meeting, 9:00 a.m.

# DRAFT

RED LAKE WATERSHED DISTRICT  
Board of Manager's Minutes  
May 23, 2019

President Dale M. Nelson called the meeting to order at 3:00 p.m. at the Red Lake Watershed District Office, Thief River Falls, MN.

Present were: Managers Dale M. Nelson, Gene Tiedemann, Terry Sorenson, LeRoy Ose, Allan Page, and Brian Dwight. Absent: Les Torgerson. Staff Present: Myron Jesme and Arlene Novak and Legal Counsel Delray Sparby.

The Board reviewed the agenda. A motion was made by Tiedemann, seconded by Dwight, and passed by unanimous vote that the Board approve the agenda. Motion carried.

The Board reviewed the May 9, 2019 and the May 17, 2019 minutes. Motion by Sorenson, seconded by Ose, to approve the May 9, 2019 and the May 17, 2019 Board meeting minutes as presented. Motion carried.

The Board reviewed the Financial Report dated May 22, 2019. Motion by Tiedemann, seconded by Ose, to approve the Financial Report dated May 22, 2019 as presented. Motion carried.

Staff member Arlene Novak reviewed the League of MN Cities Insurance Trust 2019-2020 Notice of Premium Options for Standard Premiums of less than \$25,000 Workers Compensation. Following questions of the Regular Premium or Deductible Premium options, a motion was made by Dwight, seconded by Page, to select the option of Regular Premium and approve Administrator Jesme to sign on the renewal form. Motion carried.

The City of Thief River Falls wishes to enter into a Joint Powers Agreement with the Red Lake Watershed District for the purpose of incorporating their wastewater and storm sewer project as part of the Thief River Falls Westside Flood Damage Reduction Project, RLWD Proj. No. 178. A motion was made by Sorenson, and seconded by Tiedemann, and passed unanimously to adopt the following resolution:

WHEREAS, the City of Thief River Falls, MN, desires to enter into a Joint Powers Agreement with the Red Lake Watershed District in order to allow them to bid the City's wastewater force main project and storm sewer project as part and parcel with the District's bidding of the TRF Westside FDR Project.

NOW, THEREFORE, BE IT RESOLVED BY THE Red Lake Watershed District as follows:

THAT the City shall provide at its own cost and expense all necessary plans and specifications and any other information necessary for the planned bidding documents for the wastewater force main project; and shall be responsible for the cost and expense of all necessary plans and specifications and any other information necessary for the planned bidding documents for the storm sewer project designed and administered by the Red Lake Watershed District.

THAT the planned bidding documents shall be provided to the City's Public Works Director and Water Systems Superintendent for review and approval.

THAT after bidding and acceptance of the lowest responsible bidder, the city shall be responsible for all costs and expenses involved in the construction of its portion of the supplies bid plans and specifications and shall be responsible, either by itself or through its hired representatives or agents, for all inspection and testing for the wastewater for main project; and shall be responsible for the cost of all expense for the Red Lake Watershed inspection and testing for the storm sewer project.

Joint Powers Agreement by and between the Red Lake Watershed District and the City of Thief River Falls, MN, is hereby approved.

THAT the President or Administrator of the Red Lake Watershed District are designated the Authorized Representative for the District. The Authorized Representative is also authorized to sign any subsequent amendment or agreement that may be required by the Red Lake Watershed District or the City.

District Manager, Nicole Berndt, and District Technician, Duane Steinbrink, West Polk Soil and Water Conservation District, presented a proposal for a cost share of a grade stabilization project in the Burnham Creek area. This is one of the first projects to be funded in part with the One Watershed One Plan monies. The cost estimate is \$77,364.00 with a request for cost share funding from the RLWD's Erosion Control Funds. Following discussion, a motion was made by Tiedemann, seconded by Dwight, and passed unanimously, to approve a cost share of \$15,000 from the RLWD Erosion Control Funds for the Burnham Creek grade stabilization project.

Staff member Loren Sanderson stated there are problems with flapgates leaking onto farmland at the Brandt Impoundment and requested that 4 flapgates be removed and replaced with canal/screwgates. This will help increase releases from the Brandt Impoundment without causing crop damage. The cost estimate is \$925 per screwgate. Motion by Sorenson, seconded by Page, to purchase 4 screwgates at an approximate cost of \$925 each for the Brandt Impoundment. Motion passed with Manager Tiedemann abstaining from voting.

RLWD Permit No. 18148, Ray Kvalvog, Poplar River Township, Red Lake County, had been tabled in November 2018 until after the 2019 spring melt in order to observe runoff conditions, water elevations, existing flow patterns and possible split flow. Staff member Loren Sanderson recommends approval of the permit following these 2019 Spring runoff observations. Motion by Page, seconded by Tiedemann, to approve Permit No. 18148, Ray Kvalvog, Motion carried.

RLWD Permit No. 18156, Brent Strand, Poplar River Township, Red Lake County, had been tabled in December 2018 until after the 2019 spring melt in order to observe runoff conditions, water elevations, existing culvert sizes and flow patterns. Staff member Loren Sanderson recommends approval of the permit following these 2019 Spring runoff observations. Motion by Page, seconded by Ose, to approve Permit No. 18156, Brent Strand. Motion carried.

The Board reviewed the permits for approval. Motion by Tiedemann, seconded by Page, to approve the following permits with conditions stated on the permit: No. 19010, North Dakota Pipeline Company, LLC, Leon Township, Clearwater County; No. 19027, Gerald Hermreck, Numedal Township, Pennington County; No. 19028, Colleen Kaste, Rocksbury Township, Pennington County; No. 19029, Bruce Driscoll, Nesbit Township, Polk County; No. 19030, Sara L. Faivre, Terrebonne Township, Red Lake County; No. 19031, Carolyn J. Faivre, Terrebonne Township, Red Lake County; No. 19032, David Faivre, Terrebonne Township, Red Lake County; No. 19033, Carolyn J. Faivre, Terrebonne Township, Red Lake County; No. 19034, Steve Faivre, Poplar River Township, Red Lake County; No. 19035, MN Department of Transportation, Kelliher Township, Beltrami County; No. 19036, Polk County Highway Department, Lowell Township, Polk County; No. 19037, Polk County Highway Department, Gully Township, Polk County; No. 19038 and 19039, Jerry Hasnedl, River Falls Township, Pennington County; No. 19040, Jeff Novak, Rocksbury Township, Pennington County; No. 19041, Michael G. Davidson, Crookston Township, Polk County; and No. 19045, El-Rio Wishard, Hickory Township, Pennington County. Motion carried.

Due to the loss of a water level logger in a stream and the addition of 6 additional water testing sites in 2019, staff member Corey Hanson presented a proposal to purchase 5 -7 Water Level loggers. Following discussion on the equipment, motion by Ose, seconded by Dwight, to purchase 7 Onset HOB0 water level loggers at a quoted price of \$3,164. Motion carried.

Administrator Jesme presented information on Beacon light bars used on top of the vehicles. Four Beacons are needed for safety reasons on all vehicles used by engineering and water quality personnel. Motion by Tiedemann, seconded by Page, and passed unanimously to purchase 4 Beacon light bars at an estimated cost of \$720.00.

Engineer Tony Nordby, Houston Engineering, Inc. presented an update on the Black River Impoundment project and distributed an Opinion of Probable Cost. Nordby reviewed the foreseeable remaining items to complete prior to construction.

At 3:30 p.m., President Nelson stated that the bid opening for the construction of RLWD Ditch No. 16, Project No. 177 would be conducted. Legal Counsel Sparby noted the time and that all bid proposals have been accepted by the 3:30 p.m. bid closing. Bids were opened and bid amounts were publicly announced and are on file at the office District office. The following bids were received: Davidson Construction & Ready Mix, Inc., Newfolden, MN, \$2,341,700.00; Burski Excavating, Inc., Rice, MN, \$1,454,118.40; Gladen Construction, Laporte, MN, \$1,649,630.80; RJ Zavoral & Sons, Inc., East Grand Forks, MN, \$1,745,560.00; Park Construction Company, Minneapolis, MN, \$2,023,596.80; and Diversified Infrastructure Services, Inc., Fond DuLac, WI, \$2,346,609.20. Motion by Ose, seconded by Tiedemann, and passed by unanimous vote to accept the apparent low bid from Burski Excavating, Inc. in the amount of \$1,454,118.40 for construction of RLWD Ditch 16, Project No. 177, contingent upon the audit and review of the bids and approval by Legal Counsel Sparby, District staff, and Project Engineers Jerry and Nick Pribula, Pribula Engineering, Inc.

Engineer Tony Nordby, Houston Engineering, Inc., further discussed the proposed budget of the Black River Impoundment Project and stated that some Environmental items still need to be completed.

The Technical Evaluation Panel requested that a wetland delineation be completed on RLWD Ditch No. 16 prior their inspection of wetlands which may be impacted during construction. A quote was received from Houston Engineering for \$4,100.00 to complete the delineation. Motion by Tiedemann, seconded by Ose, to approve the quote from Houston Engineering in the amount of \$4,100 to complete the wetland delineation on RLWD Ditch No. 16. Motion carried. Administrator Jesme stated that Joe McFarland, McFarland Consulting, indicated that the Phase I Archaeological Survey has been completed on RLWD Ditch 16. Upon receipt of the Report, Jesme will forward to USACOE staff.

Managers Sorenson and Dwight discussed the Pine Lake Project Work Team meeting held at the RLWD on May 17, 2019. The pros and cons of extending the Natural Resources Conservation Regional Conservation Partnership Program grant was reviewed. Motion by Ose, seconded by Tiedemann, to request an extension of the grant in order to give landowners time to review information and to seek alternatives.

Attorney John Kolb, Rinke Noonan, reviewed the order of the hearing for Thief River Westside Flood Damage Control project hearing scheduled for 6:00 p.m. today. Considerable discussion was held on appraisal of land, land acquisition, Water Management District, and timeframe of the project. Engineer Nate Dalager, HDR Engineering, Inc., stated that since this project is part of a larger project with other agencies, he felt that the timeframe needs to be adhered to.

MAWD Summer Tour handout was reviewed. If interested in attending the MAWD Summer Tour, please contact office to register.

Legal counsel Delray Sparby stated that a motion for continuance was filed for Four-Legged Lake hearing. It is tentatively scheduled for July 15, 2019.

#### Administrators Update:

- Managers Ose and Page, and Administrator Jesme attended the RRWMB meeting held 9:30 a.m. on May 21, 2019 at the University of Minnesota Crookston. Some of the highlights from the RLWD perspective as they officially approved the Funding Agreement and Resolution for the Thief River Westside FDR Project.
- Jesme was informed by the West Polk SWCD Wetland Conservation Act Specialist that the RLWD is to complete a delineation of wetlands near the outlet at the Grand Marais to determine the impacts for the project and reached out to Houston Engineering wetland staff to provide a quote to complete this project. All this stems from our Joint Permit application for the project. Jesme also added that the cultural survey required by the Corps has been completed and the RLWD expects to receive a report from the Archaeologist soon.

- Jesme attended a portion of the meeting which included the project readiness form for the Black River Impoundment. The result was the FDRWG approving the report and recommending this project for funding from the State of Minnesota Flood Hazard Mitigation funding.
- Included in your packet is a thank from West Polk and Pennington SWCD for our donation to their event.
- Included is a newsletter from Jean Chadwick, President of Clearwater Lake Area Association, for your review. The newsletter includes various activities and events that are occurring this summer.

Motion by Ose, seconded by Sorenson, to recess the board meeting to the Quality Inn, 1060 Highway 32 South, Thief River Falls, MN, at 6:00 p.m. for the purpose of conducting the hearing on Thief River Falls Westside Flood Damage Reduction Project. Motion carried.

President Dale M. Nelson convened the recessed meeting to order at 6:00 p.m. at the Quality Inn, 1060 Highway 32 South, Thief River Falls, MN.

Present were: Managers Dale M. Nelson, Gene Tiedemann, LeRoy Ose, Terry Sorenson, Allan Page, and Brian Dwight. Absent: Les Torgerson. Staff Present: Myron Jesme, Nick Olson and Arlene Novak and Legal Counsel John Kolb.

At 6:00 p.m. President Dale M. Nelson called the final hearing on the establishment of the Thief River Falls Westside Flood Damage Reduction Project; RLWD Project No. 178 at the Quality Inn, 1060 Highway 32 South, Thief River Falls, MN.

President Dale M. Nelson stated the purpose of the hearing and instructed the audience on the format that would be used in conducting the public meeting. Nelson stated that the hearing is being videotaped in order to preserve record. Nelson turned the hearing over to John Kolb, legal counsel for this project.

Attorney Kolb presented a summary of procedural process for this hearing and gave a history of the project petitioned by the City of Thief River Falls and Pennington County. Kolb stated Nate Dalager, HDR Engineering, had been appointed engineer for the project. Advisory reports from Board of Water and Soil Resources were received on July 18, 2018 and Minnesota Department of Natural Resources on July 23, 2018 and were made available to the public. Funding sources for the project were also reviewed.

Engineer Nate Dalager, HDR Engineering, Inc. and the Engineer for the project gave a detail of the proposed Thief River Falls Westside Flood Damage Reduction Project, RLWD Projects No. 178, goals of the project, proposed alternatives, as well as the committed funding partners.

Administrator Jesme further explained the funding partners and each partners' financial commitment.

Attorney Kolb further addressed the Board and audience regarding the storm frequency and rain fall amounts. He stated that drainage improvement is the secondary benefit but the primary benefit is to remove flood damage.

Upon completion of the presentations, questions and public comment were received from the audience. Some of the comments received included question whether there was a cost benefit analysis completed, how benefits were derived, why benefits are different on either side of 130<sup>th</sup> Street, how is land draining north to a lateral of County Ditch 70 which drains directly into the Thief River north of city limits benefited by the project, and is the City of Thief River Falls being charged for land they own within the project area, property in the benefited area of Pennington County Ditch #1 should have less benefits than that of property located in the Pennington County Ditch #70 benefited area? All members of the audience had adequate opportunity to express questions and comments.

Manager Tiedemann moved to close the public comment portion of the hearing and that the RLWD direct staff to prepare Findings and an Order consistent with the proceedings, that the draft Findings and Order be written to establish the project according to the engineer's recommendations and confirming the allocation of no more than \$500,000 to water management district charges. That this hearing be continued to the Board's regular meeting on June 13, 2019 at 9:30 a.m. or thereafter as appropriate on the Board's meeting agenda. That the Board reserve a decision on the award of damages pending receipt of the appraisers' recommendation, that supplemental notice be provided to affected landowners, and to allow further public comment on the damage award at the continued hearing. That the order include adjustment of the water management district charge area to omit those properties not placing a burden on the project because they drain away from the project. Motion seconded by Manager Ose and unanimously carried.

Motion by Sorenson, seconded by Page, with motion carried to recess the public hearing to the regular scheduled meeting on June 13, 2019 at 9:00 a.m. at the Red Lake Watershed District office with public hearing starting at 9:30 am. Motion carried.

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Terry Sorenson, Secretary



# DRAFT

RED LAKE WATERSHED DISTRICT  
Special Meeting  
Board of Manager's Minutes  
June 6, 2019

President Dale M. Nelson called the Special Meeting to order at 9:00 a.m. at the Red Lake Watershed District Office, Thief River Falls, MN.

Present were: Managers Terry Sorenson, Gene Tiedemann, Dale M. Nelson, and Allan Page. Absent: Les Torgerson, Brian Dwight and LeRoy Ose. Staff Present: Myron Jesme and Tammy Audette and Legal Counsel Sparby.

The Board reviewed the agenda. A motion was made by Tiedemann, seconded by Page, and passed by unanimous vote that the Board approve the agenda. Motion carried.

Legal Counsel Sparby stated that the District received notice from the Minnesota Department of Labor and Industry that the District did not comply with the Prevailing Wage requirements in the Plans and Specifications and bid request for RLWD Ditch 16, RLWD Project No. 177.

Engineer Nick Pribula, Pribula Engineering, Inc., stated that the Plans and Specifications referenced the Prevailing Wage and Statute requirements, but did not specifically include the prevailing wage rates, prevailing hours of labor and hourly basic rates of pay as required.

Discussion was held on the pros and cons of rejecting all bids received and then rebid the project to include the Prevailing Wage requirement. Administrator Jesme stated that the project is receiving funds from the Red Lake River 1W1P for the installation of side water inlet culverts, which are considered State funds, therefore Prevailing Wage is required.

Administrator Jesme discussed the need to complete the installation of the box culvert on Highway 220 prior to beet harvest and delaying the award of the contract would clearly jeopardize completion in a timely manner.

The Board reviewed correspondence from Nick Biermaier, Project Estimator from Burski Excavating, Inc. who submitted the apparent low bid. Administrator Jesme stated Biermaier submitted a breakdown of costs to include the Prevailing Wage rate requirements. Jesme stated that Burski Excavating, Inc. is requesting an additional \$118,078.30, in addition to their bid price, to comply with the Prevailing Wage Requirements. Jesme stated that if the District agrees to the increase, the increased amount should be spread out on a percentage basis to all the individual unit rates as submitted in the bid. This would assure we have accurate unit prices should any change orders occur.

Motion by Tiedemann, seconded by Sorenson, to accept the bid from Burski Excavating, Inc., as revised to include the applicable prevailing wage rates as designated by the Department of Labor and Industry, in the amount of \$1,572,196.70, which includes the increase in the amount of \$118,078.30, and to reflected the increase to each unit rate item, for construction of RLWD

Ditch 16, RLWD Project No. 177. Motion carried. Legal Counsel Sparby recommended having the contractor sign off on the revisions of the submitted bid, indicating agreement with the prevailing wage rate schedule. The contractor is required to submit payroll reports to ensure compliance with the Prevailing Wage requirements. It was noted that even with the prevailing wage rate revision, that Burski Excavating, Inc. was still the lowest responsible bidder.

Motion by Sorenson, seconded by Page, to adjourn the meeting. Motion carried.

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Terry Sorenson, Secretary

**RED LAKE WATERSHED DISTRICT**  
**Financial Report for June 12, 2019**

<b>Ck#</b>	<b>Check Issued to:</b>	<b>Description</b>	<b>Amount</b>
online	EFTPS	Withholding for FICA, Medicare, and Federal taxes	4,148.86
online	MN Department of Revenue	Withholding taxes	763.82
online	Public Employees Retirement Assn.	PERA contributions	2,747.21
37500	City of Thief River Falls	Electricity, water, sewer, etc.	538.89
37501	Sjobergs Cable TV	Internet expense	106.95
37502	Ace Hardware	Drilling hammer and pins for barricades	92.77
37503	Aflac	Staff paid insurances	613.46
37504	Ameripride Services Inc.	Office rug rental	39.93
37505	Tammy Audette	Clean offices in May	360.00
37506	Breiland Landscaping	Cedar mulch for landscaping	300.00
37507	Brodin Comfort Systems	Controller kit assembly for air conditioner & filters	712.30
37508	Centurylink	Monthly telephone expense	275.19
37509	City of Crookston	One year of 2 year commitment for RL River Corridor Enhancement	500.00
37510	Delta Dental	Dental insurance premium	437.45
37511	Farmers Union Oil Company	Gas for vehicles	961.75
37512	Fastenal Company	Self tappers for culvert markers	56.80
37513	Fleet Supply	Aluminum chestbox for 2019 pickup and ball for receiver hitch	354.80
37514	Forestry Suppliers, Inc.	Fiberglass survey rods (3)	421.44
37515	Garden Valley Technologies	Monthly telephone maintenance expense	125.25
37516	HDR, Inc.	Engineering fees for Brandt Impoundment inspection	1,301.87
37517	Houston Engineering, Inc.	Black River Impoundment engineering fees	24,435.60
37518	Hugo's #7	Maintenance supplies and meeting expense for various meeting	269.94
37519	Les's Sanitation, Inc.	Garbage pickup expense	34.70
37520	Marco	*See below	1,894.35
37521	McFarlane Consulting, LLC	Phase 1 survey for Black River Impoundment	5,963.00
37522	MCI	Long distance telephone expense	63.92
37523	Mike's Handyman Services	Repair hallway wall and build attic access	150.00
37524	NCPERS Group Life Insurance	Life insurance premium	128.00
37525	Northdale Oil Inc.	River watch meeting expense and gas & vehicle wash '11 Ford	83.53
37526	Northwest Beverage, Inc.	H2O for office	80.50
37527	Oil Boyz Express Lube	Oil change on 2018 Traverse	52.83
37528	Red Lake County Central	River Watch expense (substitute teacher and mileage)	2,743.80
37529	LeRoy Ose	Mileage	140.94
37530	Purchase Power	Postage and fee	301.50
37531	Quill Corporation	copy paper,post it notes, receipt books,markers,maint.supp.	292.57
37532	Rinke Noonan	**See below	7,322.00
37533	RMB Environmental Laboratories	Lab analysis of water quality samples	4,771.00
37534	RV Sports Inc.	Battery for four wheeler	66.21
37535	Gerald Rychlock	Read and observe Moose River pools	270.00
37536	Speedee Delivery	Overnight delivery of wq samples	13.11
37537	Gene Tiedemann	Mileage	320.74
37538	TRF Hardware	U-posts and clamps for stream gage equipment	143.44
37539	Thief River Falls Times	Graduation ad and ad for Thief River Falls Westside hearing	440.06
37540	Wright Construction Co., Inc.	Dam operation of Schirrick dam	1,765.00
direct	Brian Dwight	Mileage	393.24
direct	Allan Page	Mileage	76.56
direct	Terry Sorenson	Mileage	153.70
online	Further	Medical FSA	131.02
	<b>Payroll</b>		
	Check #11673-11684 and 7447		14,077.09
	<b>Total Checks</b>		<b>\$ 81,437.09</b>

<b>* Marco</b>	
Monthly Managed IT Services	1,441.43
Copier maintenance for June	<u>452.92</u>
<b>Total</b>	<b>2,347.27</b>
<b>** Rinke Noonan</b>	
Proj. 01 Monthly retainer	200.00
Pjt. 179 Improvement to PC Dt.#39	1,716.00
Proj.178 Black River Impoundment	<u>5,406.00</u>
<b>Total</b>	<b>7,322.00</b>

## Banking

<b>Northern State Bank</b>	
Balance as of May 22, 2019	\$ 136,980.06
Total Checks Written	(81,437.09)
Receipt #414553 State of Minnesota-Proj. 157E and 157C grant reimbursements	10,325.00
Receipt #414558 Northern State Bank-Monthly interest	110.29
Receipt #414561 Polk County- bond proceeds for RLWD Ditch No. 16	<u>2,300,000.00</u>
Balance as of June 12, 2019	<b><u>\$ 2,365,978.26</u></b>

<b>Border State Bank</b>	
Balance as of April 30, 2019	\$ 18,231.98
Receipt #414560 Border State Bank-Monthly interest	<u>9.26</u>
Balance as of May 31, 2019	<b><u>\$ 18,241.24</u></b>

<b>American Federal Bank-Fosston</b>	
Balance as of May 22, 2019	\$ 2,173,145.83
Receipt #414549 RRWMB-Reimburse for RRWMB meeting lunch	298.32
Receipt #414550 RRWMB-Pay request #2-TR Westside FDR Project	49,271.76
Receipt #414551 RRMWB-Reimburse for FRDWG meeting lunch	272.54
Receipt #414552 Marshall County-current tax settlement	85,236.37
Receipt #414555 Beltrami County-Riparian aid	86.00
Receipt #414556 Red Lake County-current tax settlement, special revenue and mineral	248,521.90
Receipt #414557 Pennington County-Riparian aid	7,833.00
Receipt #414559 American Federal Bank-Monthly interest	2,953.87
Receipt #414562 Unity Bank North-Monthly interest on CDARS CDs	<u>1,504.66</u>
Balance as of June 12, 2019	<b><u>\$ 2,569,124.25</u></b>

STATE OF MINNESOTA

PENNINGTON COUNTY BOARD OF COMMISSIONERS  
DRAINAGE AUTHORITY FOR PENNINGTON COUNTY DITCHES 1 AND 70

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Regarding the Petition of the Red Lake Watershed District for the Diversion of Drainage System waters from Pennington County Ditch 70, the Re-routing of a Portion of Pennington County Ditch 70, the Re-routing of a Portion of Pennington County Ditch 1 (Statutes Section 103E.227) and Partial Abandonment of Portions of Pennington County Ditches 1 and 70 (Statutes Section 103E.806)

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**Petition for Drainage System  
Modification and Partial Abandonment**

For its petition to divert waters and modify alignments of Pennington County Ditches (CD) 1 and 70 and to partially abandon portions of CDs 1 and 70, the Board of Managers of the Red Lake Watershed District state and alleges the following:

**Part 1: General Statement of Facts and Conditions:**

1. The Red Lake Watershed District (RLWD) is a special purpose unit of government established by the State of Minnesota and possessing the powers outlined in statutes chapter 103D.
2. The RLWD comprises portions of Pennington County (County), including the drainage areas of Pennington County Ditches (CD) 1 and 70 and the City of Thief River Falls (City).
3. The Pennington County Board of Commissioners serves as the Drainage Authority for CDs 1 and 70 pursuant to statutes chapter 103E.
4. The County and City petitioned the RLWD for establishment of a Flood Damage Reduction Project to relieve flood damages originating in the drainage area of CDs 1 and 70 and impacting public and private property and infrastructure in the County and City.

5. Pursuant to the petitions, and in a manner consistent with the Red Lake River Comprehensive Watershed Management Plan (One Watershed Plan) and statutes chapter 103D, the RLWD Board has established, contingent on the approval sought herein, the Thief River Falls-Westside Flood Damage Reduction Project (RLWD Project 178).
6. Concurrent with the design of Project 178, the Minnesota Department of Transportation (MnDOT) is proposing highway improvements, including the construction of roundabouts at the junctions and intersections of United States Highway (US) 59, State Trunk Highway (TH) 1 and County State Aid Highway (CSAH) 16 and possible future improvements at the intersection of CSAH 7 and TH 32.
7. The MnDOT project also requires modification of CDs 1 and 70. Authorization for those modifications are included herein.
8. RLWD Project 178, will, in conjunction with the MnDOT project, divert damaging flood waters from the channel of CD 70 to a bypass channel located outside of the City limits. To construct the project, as preliminarily designed, flood waters would be diverted from CDs 1 and 70 to the diversion, portions of CDs 1 and 70 would be realigned, portions of CD 70 within the City would be modified, and portions of CDs 1 and 70, where realigned, would be abandoned.
9. A diagram of the project facility locations in relation to CDs 1 and 70 and the City limits is attached as **Attachment 1, pages 1-3**.
10. Each of the above actions – diversion, realignment, modification and partial abandonment – require proceedings before the Drainage Authority pursuant to statutes chapter 103E.

**Part 2a: Petition for Diversion of Drainage System Waters, Realignment of Drainage System, and Modification of Drainage System:**

11. Minnesota Statutes Section 103E.227 allows any person, public or municipal corporation, governmental subdivision, the state or a department or agency of the state or federal government to petition to modify a drainage system, to include diversion or rerouting of drainage system waters, for beneficial use. Beneficial uses can include wetland preservation or restoration or creation of water quality improvements or flood control.
12. The project does not impact public waters and neither a public waters work permit nor a water use permit is required from the commissioner of natural resources. The RLWD is securing all required local, state and federal permits for Project 178 and evidence of such permits may be made a condition of approval of the action requested by this petition.
13. A bond is not required because this petition is filed by a watershed district. However, the RLWD understands that it must pay the costs incurred if the proceedings are dismissed.
14. The RLWD has performed a technical analysis of the proposed modifications of the drainage systems to ensure that the drainage system modifications will not impair the utility of the drainage systems or deprive affected landowners of its benefit. The technical analysis is contained in the preliminary engineering report for Project 178 and is appended hereto as **Attachment 2**.
15. Project 178 has been found to be of a public and private benefit. The benefits of the project result from the diversion of damaging flood waters from the drainage area of CDs 1 and 70 and the creation of increased flood protection, and resulting decreases in flood damage, to public and private property and infrastructure within the drainage areas of CDs

1 and 70 and the City. Additional public benefit will result from the project facilitating public road improvements to increase safety for the traveling public.

16. Based on the technical analysis found in **Attachment 2**, no flowage are necessary as a result of the modification of the drainage system and all impacts from the modification of the drainage system will be contained to existing public right of way or within right of way to be acquired as part of RLWD Project 178. Temporary damages are expected during construction that will be identified and paid as part of the establishment of RLWD Project 178. Proof of acquisition or awarding of damages may be made a condition of approval of the modifications petitioned herein.
17. Granting of the petition to modify the drainage systems waters will give the RLWD authority to permanently modify CDs 1 and 70 in the manner detailed in **Attachment 2** and as depicted in **Attachment 1**. The permanent modifications will be reflected in the drainage system record by the filing of as-built plans for Project 178.
18. The RLWD acknowledges that it is solely responsible for construction, operation, and maintenance of the drainage system modifications and remains subject to the Drainage Authority's jurisdiction and authority to require the RLWD to maintain the modifications at the RLWD's expense as part of Project 178.
19. By operation of statute section 103E.227, unless the Drainage Authority determines otherwise, the drainage system will have no financial obligation for the cost of future maintenance of the drainage system modifications.



**Part 2b: Petition for Partial Abandonment of Drainage System:**

20. Minnesota Statutes Section 103E.806 allows a petition to abandon any part of a drainage system that is not of public benefit and utility and does not serve a substantial useful purpose to property remaining in the system.
21. If the petition to realign the drainage systems, above, is granted, the former alignments should be removed from the drainage system record to ensure both clarity in the record and to remove restrictions upon the underlying property.
22. All benefitted properties and infrastructure lying upstream of the petitioned modifications property will continue to discharge beneficial drainage into the realigned channels and, during flood events, into the diversion channel. The modifications proposed as part of RLWD Project 178 will continue to carry those waters, unimpeded, to their current outlet or to the diversion channel depending on runoff conditions.
23. The RLWD's analysis of the impact of Project 178 indicates that once the project and modifications to the drainage systems are constructed, the modified portion of the drainage systems will not be of public benefit and will not serve a substantial useful purpose to property remaining in the system.

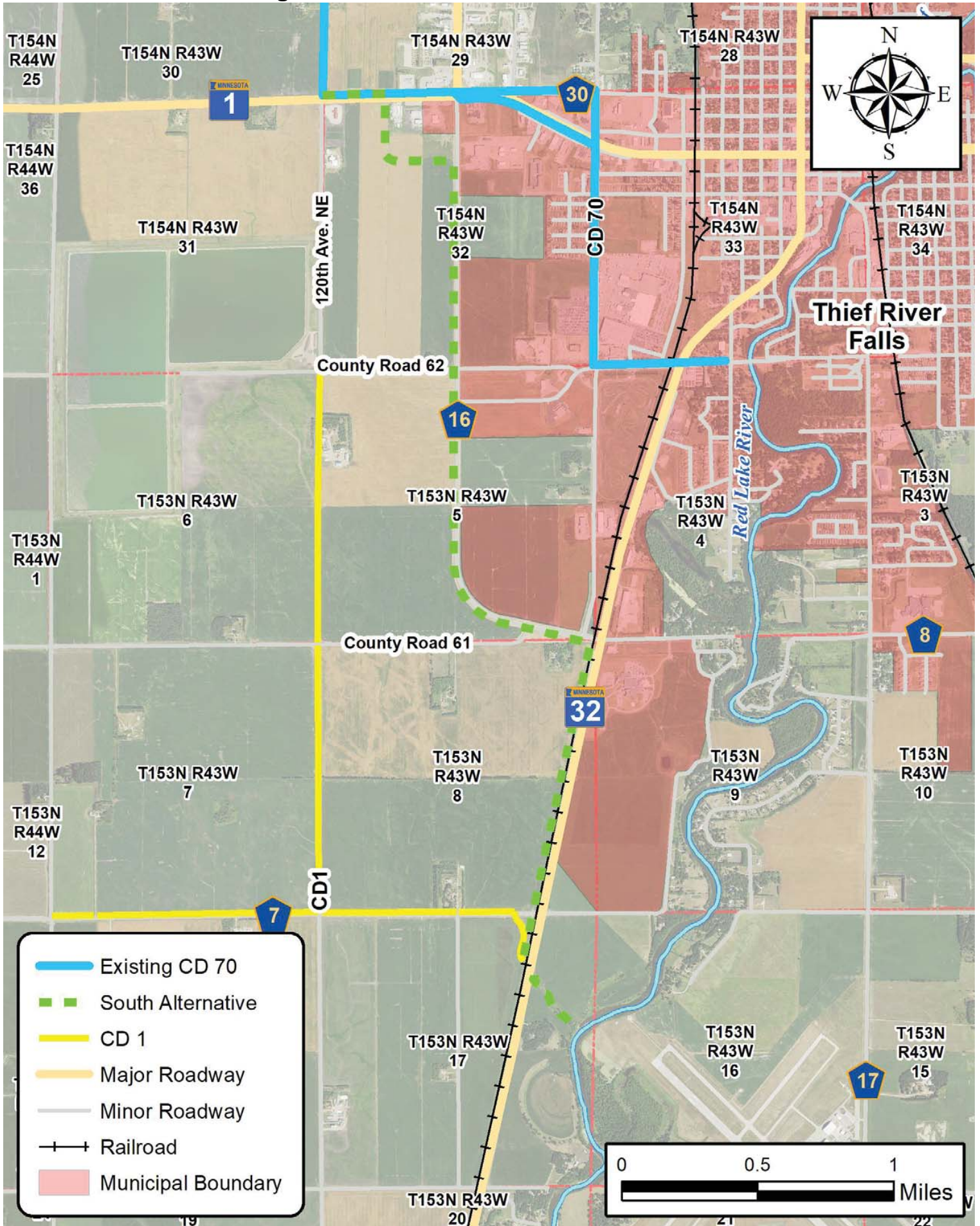
Respectfully Submitted,

**Red Lake Watershed District Board of Managers**

By \_\_\_\_\_  
Dale M. Neslon, President, Board of Managers

Attest: \_\_\_\_\_  
Myron Jesme, Administrator

The above petition was approved for execution and filing by the Board of Managers of the Red Lake Watershed District upon motion by Manager \_\_\_\_\_, seconded by Manager \_\_\_\_\_, by a vote of \_\_ yes and \_\_ no, as reflected in the minutes of the regular meeting of the Board on June 13, 2019.









# Preliminary Engineer's Report

Thief River Falls Westside Flood Damage Reduction Project

*Prepared For:  
Red Lake Watershed District*

June 14, 2018



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# PRELIMINARY ENGINEER'S REPORT

## THIEF RIVER FALLS WESTSIDE FLOOD DAMAGE REDUCTION PROJECT

Red Lake Watershed District

**June 14, 2018**

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.

A handwritten signature in black ink, reading "Nathan P. Dalager".

---

Nathan P. Dalager, P.E.

License Number 25309

**HDR Engineering, Inc.**

213 LaBree Ave N, Suite 203

Thief River Falls, Minnesota 56701-2022



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Appendix A. Additional Figures

Appendix B. Opinion of Probable Cost for Alternatives Considered

Appendix C. Petition

Appendix D. RRWMB Mediation Agreement Goals



## Acronyms

BMP	Best Management Practices
CD	County ditch
CN	Curve Number
CSAH	County State Aid Highway
CSP	Corrugated Steel Pipe
EAW	Environmental Assessment Worksheet
FDR	Flood Damage Reduction
LiDAR	Light Detection and Ranging (survey technology)
MnDNR	Minnesota Department of Natural Resources
MnDOT	Minnesota Department of Transportation
MPCA	Minnesota Pollution Control Agency
MSE	Midwest-Southeast
NAVD 88	North American Vertical Datum of 1998
NLCD	National Landcover Dataset
NOAA	National Oceanic and Atmospheric Administration
R	SCS Storage Coefficient
RCB	Reinforced Concrete Box
Red River	Red River of the North
RLWD	Red Lake Watershed District
ROW	Right-of-Way
RRFDRWG	Red River Flood Damage Reduction Work Group
RRWMB	Red River Watershed Management Board
SCS	Soil Conservation Service
T <sub>c</sub>	Time of Concentration
TP 11	Technical Paper 11
TSAC	Technical and Scientific Advisory Committee
USACE	United States Army Corp of Engineers
USGS	U.S. Geological Survey
WCA	Wetland Conservation Act
WSE	Water Surface Elevation

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# 1 Introduction

In 2017 the Red Lake Watershed District (RLWD) partnered with the City of Thief River Falls (City) and Pennington County (County) to hire HDR to perform a study for improvements to CD 70 because the system has a history of flood damage northwest of the City. This document presents the findings of that study, recommends a preferred alternative, and documents the preliminary design of the preferred alternative.

## 1.1 Pennington County Ditch #70

Pennington County Ditch #70 (CD 70) is located north and west of the City. The system drains areas north and west of the City, as well as areas in the City. The system currently enters the City from the west along State Highway 1 (Hwy 1), travels south along Barzen Avenue past the Digi-Key and Arctic Cat facilities, and outlets at the Red Lake River along Greenwood Street. The portion of the ditch system which drains through the Greenwood Street outlet provides drainage for over 8 square miles of primarily agricultural and urban land. The ditch system's location is provided in Figure 1-1.

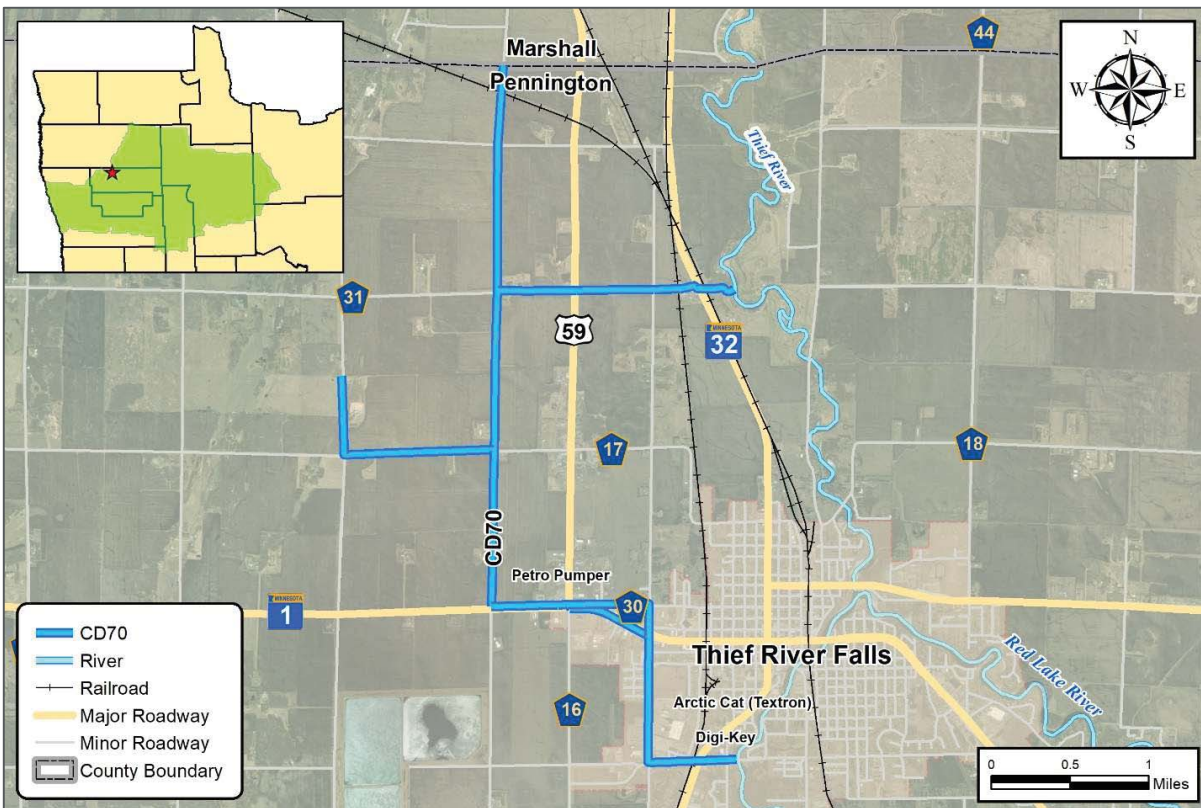


Figure 1-1: Project Location

## 1.2 Flood Damage Reduction Process

The proposed Flood Damage Reduction (FDR) project (Project) is being conducted in compliance with the provisions of Minnesota Statute 103D.701. The engineering tasks associated with this Project include performing survey, meeting with area landowners and petitioners, reviewing and analyzing the flooding problems, preparing this report, presenting this report to regulatory agencies for advisory comments, and conducting a preliminary public hearing.

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## 2 Project Need

### 2.1 Performance of Existing Ditch System

CD 70 currently provides an estimated 2-year or less level of service in agricultural areas and an estimated 10-year level of service in residential / commercial areas. Currently, much of the system does not completely drain following wet weather events due to the inconsistent grade and excess vegetation in the ditch. These conditions result in long periods of inundation on adjacent agricultural and commercial land from minor rainfall events, creating safety hazards, damages to property and crops, and causing a public nuisance. Photos of flooding associated with a less than 2-year rainfall event along CD 70 are provided in Figure 2-1 and Figure 2-2. A level of service map is provided in Figure A-1 of Appendix A.



Figure 2-1. Agricultural Flooding Along 120th Ave NE



Figure 2-2. Excess Vegetation and Poor Grades Along CD 70

### 2.2 Project Partners and Coordination

As discussed above, the City and County partnered with the RLWD to initiate this Project. The Project was precipitated by factors such as local roadway projects, commercial development, and continued urbanization within the Project's benefitted area. These factors are discussed in the following subsections.

The Project partners currently include the RLWD, City, County, and Minnesota Department of Transportation (MnDOT). Funding partners for the Project will include the RLWD, City, County, MnDOT, Minnesota Department of Natural Resources (MnDNR) FDR grant, Red River Watershed Management Board (RRWMB), and the benefitting landowners.

#### 2.2.1 City of Thief River Falls

The City is currently coordinating with MnDOT on roadway improvements along Hwy 1. They are also in the process of constructing a new roadway from County State Aid Highway (CSAH) 16 to the Digi-Key expansion, as well as have plans to extend 1<sup>st</sup> Street west to CSAH 16. Aside from their roadway projects, development areas currently owned by the City are located along the CSAH 16 corridor. This Project will reduce the potential flood impacts to the western portion of the City, including future development areas along the Hwy 1, CSAH 16, Barzen Avenue, and Greenwood Street corridors.



### 2.2.2 Pennington County

Pennington County currently has jurisdiction of CD 70 and is a benefitting landowner along the existing ditch alignment. The Project will reduce flooding potential for their infrastructure.

### 2.2.3 MnDOT

MnDOT is in the process of planning roadway improvements along Hwy 1 through the Project area to begin construction in the year 2020. The improvements will include installation of roundabouts at the intersection of Hwy 1 with CSAH 16 and the intersection of Hwy 1 with Barzen Avenue. A portion of CD 70's alignment is along the south side of Hwy 1 between CSAH 16 and Barzen Avenue. The Project partners are coordinating with MnDOT to implement the proposed Project's design in conjunction with the planned roadway improvements.

### 2.2.4 Industry and Commercial Interests

CD 70 currently conveys flows through a key commercial corridor where approximately 4,500 people are employed at Digi-Key and Arctic Cat. Digi-Key is in the process of constructing an approximately \$300 million, 2.2 million square foot facility across from their existing location. Arctic Cat is expanding their production processes with the assembly of Textron and Caterpillar utility vehicles. This Project will reduce flooding potential to the existing and future industrial and commercial facilities in this area.

### 2.2.5 Urbanization

Urbanization of the western portion of the City is quickly occurring with the improvements to transportation and the expansion of commercial facilities previously described. Multiple development areas have also been platted along the CSAH 16 corridor and near Sanford Medical Center. Reduction of flood potential will help facilitate future urbanization of these areas.

## 3 Project Description and Design Criteria

### 3.1 Project Goals

The Project's primary goals are to provide 100-year 24-hour flood protection for urban areas and 10-year 24-hour protection for agricultural areas, provide flood protection and drainage for future development, and improve the drainage of the surrounding area by providing an adequate outlet. The Project is intended to divert potential flood waters and relocate the outlet outside of the urban / commercial areas.

### 3.2 Alternatives and Options Considered

Four alternatives were evaluated in the initial Project study completed by HDR in July, 2017. Each alternative included some level of improvement to CD 70 and some include diversion of flows away from developed areas. The alternatives considered urbanization (the assumed future development and growth of the City). Each alternative is described below and summarized in Table 3-1. Figure 3-1 displays the proposed alternative alignments.

Alternative 1 is the "Improve Existing" alternative. This alternative would not alter the current alignment of CD 70 but would instead improve CD 70 beginning at the intersection of Hwy 1 and



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120<sup>th</sup> Ave NE. The improvements would include culvert upsizing, ditch grade lowering, increasing ditch cross-section capacity, and utility relocations.

Alternative 1A would regrade CD 70 along Hwy 1 from Barzen Avenue to CSAH 16 so it would flow west along its existing alignment. A culvert would be installed under CSAH 16 to allow flow to be directed along the west side of CSAH 16 south for one mile. Flows would then pass east under CSAH 16 to the existing outlet at the Red Lake River. Improvements would include culvert upsizing, ditch grade lowering, increasing cross-section capacity, and utility relocations.

The Middle Alternative would divert CD 70 at the intersection of Hwy 1 and U.S. Highway 59 (Hwy 59). The diversion would reroute the ditch south under Hwy 1 along the west side of CSAH 16 for 1.5 miles. A new ditch would be constructed east through agricultural land to an oxbow of the Red Lake River. The diversion would be constructed to the south of Les's Sanitation and would pass under County Road 75, the railroad tracks, and State Highway 32 (Hwy 32).

The South Alternative would divert CD 70 at the intersection of Hwy 1 and Hwy 59. The diversion would reroute flows south under Hwy 1 along the west side of CSAH 16 to Hwy 32. The flows would then be directed to the south along the west side of the railroad tracks for 1 mile, pass under CSAH 7, and continue south until intercepting County Ditch 1 (CD 1) and through an existing drainage channel / coulee. Then the flows would travel east in the coulee under Hwy 32 and discharge to the Red Lake River.

**Table 3-1: Alternatives Summary**

Alternative	Alternative Description
Alternative 1	Re-grading & increased capacity of existing CD 70.
Alternative 1A	Regrade CD 70 from Barzen Ave west to CSAH 16. Divert flows from U.S. Highway 59 south along the west side of CSAH 16 for 1 mile and then direct flows east to the existing CD 70 outlet location.
Middle Alternative	Divert flows at Hwy 59 south under Hwy 1 and along CSAH 16 for 1.5 miles. Construct new ditch east behind Les's Sanitation, pass under the railroad tracks and Hwy 32, and outlet into the Red Lake River.
South Alternative	Divert flows at Hwy 59 south under Hwy 1 and along CSAH 16 for 2 miles. Construct new ditch south along west side of railroad tracks for 1 mile, pass under CSAH 7, intercept CD 1, and use an existing coulee, and outlet into the Red Lake River.

### 3.3 Design Criteria

Design criteria were established to analyze the hydraulic adequacy of each alternative while maintaining a cost efficient design:

- Channel containment of the 100-year, 24-hour rainfall event (maintain flows below adjacent existing ground)
- Culvert structures sized such that existing infrastructure (i.e., roadways and railroad tracks) would not be impacted or flooded by increased flows
- Channel design must account for increased runoff attributed to future urbanization

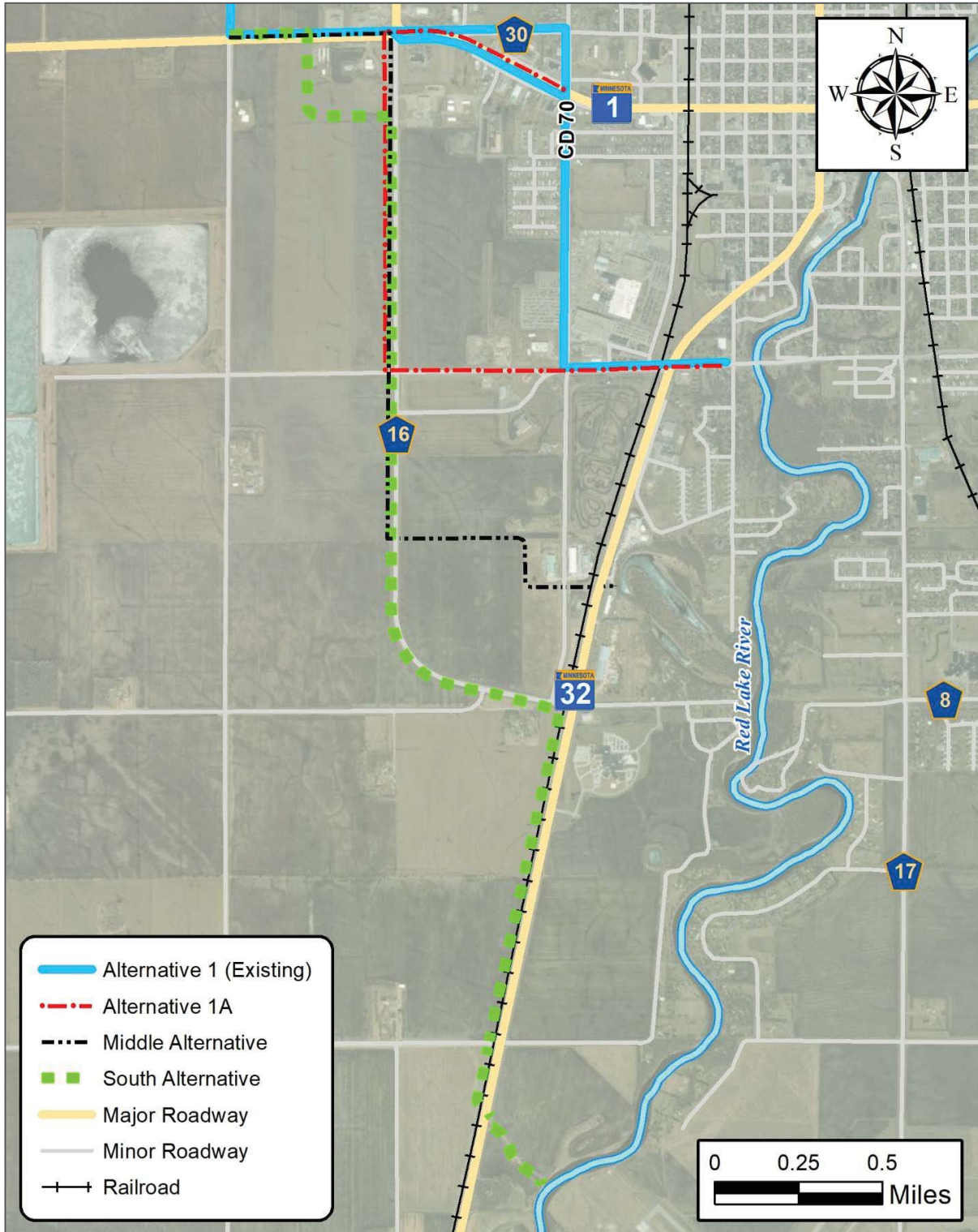


Figure 3-1: Alternative Alignments

### 3.4 Red River Basin Flood Damage Reduction Initiative

The Red River Flood Damage Reduction Work Group (RRFDRWG) Agreement of December 1998 is the framework for FDR projects in the Red River Basin. The purpose of the mediation process was to reach an agreement on long-term solutions for reducing flood damage and ensuring the protection and enhancement of natural resources. The RLWD encourages participation by local, state and federal governments, natural resource agencies, conservation organizations, and local citizens in the planning process. The Project is consistent with the Mediation Agreement goals adopted by the RRWMB and RRFDRWG (see Appendix D).

The RRFDRWG formed a Technical and Scientific Advisory Committee to provide a series of technical papers that provide guidance to FDR methods. Technical Paper 11 (TP 11) was designed to provide guidance on where specific FDR methods can be placed in the Red River Basin to achieve the greatest benefits locally and downstream. The Project's flood water is considered to be "early water" for the Red Lake River and is in the middle area for the Red River of the North based on TP 11. FDR measures such as a diversion receives a positive rating in an early area and a "variable" rating in a middle area.

## 4 Project Investigation

### 4.1 Data Collection

Data collected to evaluate the alternatives analysis are listed in Table 4-1.

**Table 4-1. Data Sources**

Data	Date	Source	Vertical Datum	Description
Survey Data	2017	HDR	NAVD 1988	Survey of existing drainage system including ditch geometry, culverts, and utilities
City Utilities	2017	City of Thief River Falls	NAVD 1988	Survey of existing utilities such as storm sewer, sanitary, water main, electric, and fiber lines
LiDAR	2008	International Water Institute	NAVD 1988	1 Meter DEM and 2-foot contours
As-Built Survey	2000	Pennington County	NAVD 1988	Survey of existing drainage system including ditch and culvert inverts
As-Built Plans	2000	Pennington County	NGVD 1929	As-Built plans of CSAH 16 between Hwy 59 & Hwy 32
As-Built Plans	1981	City of Thief River Falls	NGVD 1929	Plan and profile for the Oakland Park Road outlet structure

### 4.2 Hydrology

The HEC-HMS hydrologic model of the Lower Red Lake River basin that was developed for the U.S. Army Corps of Engineers (USACE) in 2012 as part of the Red River Basin-Wide Modeling Approach project was used as a base model for the hydrologic analysis. Guidance developed since the creation of the base HEC-HMS model has been used to revise the model and develop the hydrologic analysis for this Project. The following sub-sections describe the revisions made to the model.



4.2.1 Subwatersheds

The existing CD 70 drainage area was categorized into area contributing to the Project and non-contributing areas. The total contributing area of approximately 9.3 square miles was divided into four subwatersheds. The non-contributing drainage area conveys runoff to a lateral of CD 70 that discharges to the Thief River north of the City. Approximately 3.6 square miles of the CD 1 drainage area was included in the hydrology analysis for the South Alternative because the South Alternative alignment intercepts this drainage area. The contributing drainage area for each subwatershed is displayed in Figure 4-1 and Table 4-2.

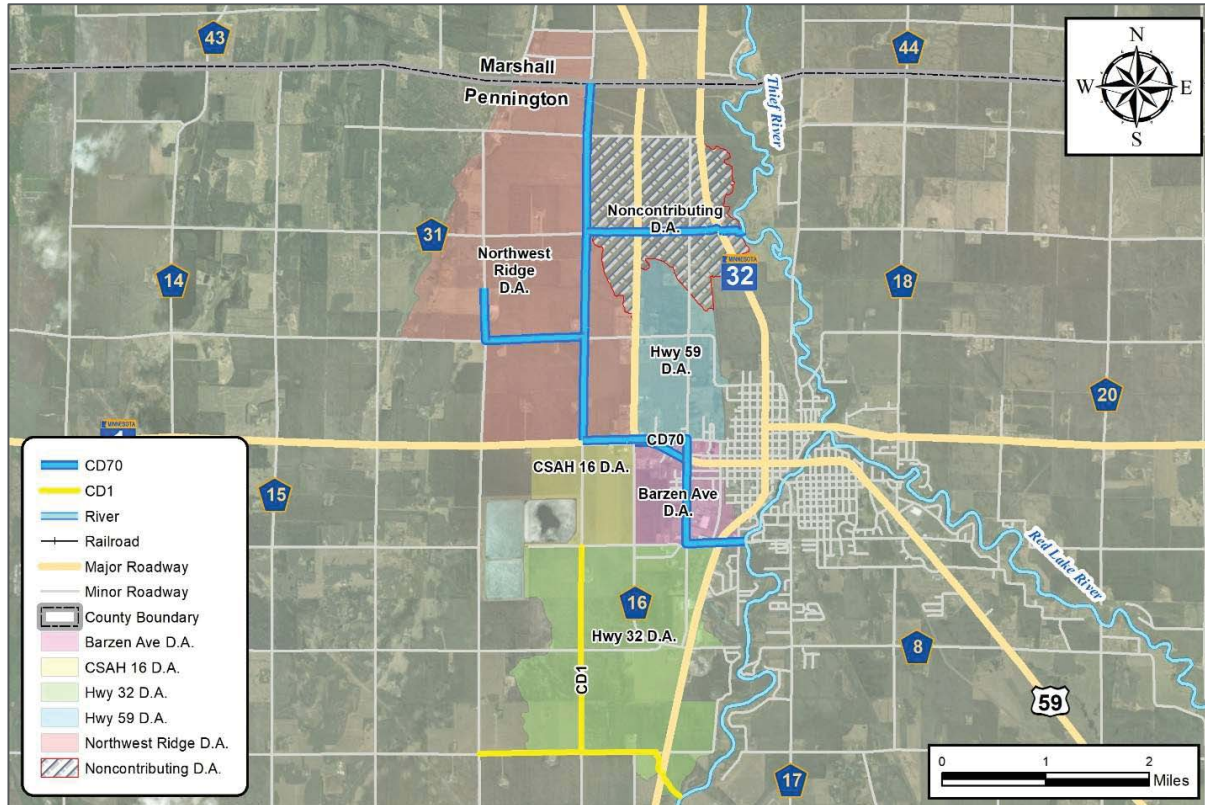


Figure 4-1: Subwatershed Drainage Areas

Table 4-2. Subwatershed Drainage Areas

Subwatershed Description	Drainage Area (Sq. Mi.)
Northwest Ridge	6.34
CSAH 16	0.82
Hwy 59	1.25
Barzen Ave	0.91
Hwy 32	3.56

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### 4.2.2 Design Storm Data

The Project design is based on the 10-year 24-hour and 100-year 24-hour rainfall events. The precipitation depths for the 24-hour events were based on the Precipitation Frequency Atlas from the National Oceanic and Atmospheric Administration (NOAA) Atlas 14 Volume 8 data. This data was obtained at the central location of each subwatershed to provide an average rainfall depth.

The subwatersheds and correlating rainfall depth used in the HEC-HMS analysis are displayed in Table 4-3 and Table 4-4.

**Table 4-3: 10-Year 24-Hour Rainfall Depths**

Subwatershed	HEC-HMS Subwatershed	Frequency	24-Hour Duration
Northwest Ridge	RLR13630_1	10-Year	3.76"
CSAH 16	RLR 13630_2	10-Year	3.77"
Hwy 59	RLR 13630_3	10-Year	3.77"
Barzen Ave	RLR 13630_4	10-Year	3.77"
Hwy 32	RLR 14710_2	10-Year	3.77"

**Table 4-4: 100-Year 24-Hour Rainfall Depths**

Subwatershed	HEC-HMS Subwatershed	Frequency	24-Hour Duration
Northwest Ridge	RLR13630_1	100-Year	6.28"
CSAH 16	RLR 13630_2	100-Year	6.29"
Hwy 59	RLR 13630_3	100-Year	6.30"
Barzen Ave	RLR 13630_4	100-Year	6.30"
Hwy 32	RLR 14710_2	100-Year	6.30"

### 4.2.3 Design Rainfall Distribution

National Engineering Handbook supplement MN650.290 specifies that the Midwest-Southeast (MSE) Distribution 3 is to be applied for hyetographs of 24-hours or less for Pennington County, Minnesota. As indicated in Merkel and Moody, the MSE distributions are regionalized nested hyetographs developed from the Atlas 14 Volume 8 data. The recommended MSE 3 is more intense than the previously used Soil Conservation Service (SCS) Type II distribution.

### 4.2.4 Precipitation Losses

The basin models use the SCS Curve Number (CN) as a loss method. The 24-hour scenario CN values were determined by hydrologic soil group types (Soil Survey Geographic Database) and the landuse (2001 National Land Cover Data) prevalent in the area. To account for future runoff rates, the Project drainage area was examined to determine where known or assumed future development areas are expected. The areas of potential future development are displayed in Figure A-2 of Appendix A. Using the US Department of Agriculture's Technical Release 55 for Urban Hydrology for Small Watersheds, a composite curve number for future conditions was

calculated for each subwatershed. The existing and future curve numbers for each subwatershed are displayed in Table 4-5.

**Table 4-5: Landuse Curve Number Values**

Subwatershed	Existing CN	Future CN
Northwest Ridge	77	77
CSAH 16	83	84
Hwy 59	80	80
Barzen Ave	85	87
Hwy 32	77	80

**4.2.5 Time of Concentration**

The time of concentration ( $T_c$ ) is the travel time of a particle of water from the most hydraulically distant point in the subwatershed to the outlet. The  $T_c$  data in the USACE HEC-HMS model was derived using a Travel Time Routine that had previously been developed by the MnDNR. The tool applies a gridded version of the Manning's equation to calculate flow velocities throughout the contributing watershed drainage area using the 2001 National Landcover Dataset (NLCD) landuse, slope, and stream network as inputs. These flow velocities are converted into travel times and summed along the flow paths that terminate in the watershed outlet. The resulting output grid has an estimate of travel time from any given cell to the watershed outlet. The maximum difference in travel time within a subwatershed to the subwatershed's outlet is set as the  $T_c$ .

The future  $T_c$  values were not calculated for this level of study but will be determined for final design.

**4.2.6 Hydrograph Shape**

The hydrograph transformation uses the Clark synthetic unit hydrograph.  $T_c$  and the SCS storage coefficient (R) were used as inputs for this method. A summary of the existing and future conditions model inputs for each subwatershed are displayed in Table 4-6 and

Table 4-7.

**Table 4-6: Existing Subwatershed Characteristics**

Project Subwatershed	HEC-HMS Subwatershed	Drainage Area (Acres)	Existing CN	$T_c$ (Hours)	R
Northwest Ridge	RLR13630_1	6.34	77	22.54	32.99
CSAH 16	RLR 13630_2	0.82	83	13.28	19.43
Hwy 59	RLR 13630_3	1.25	80	9.04	13.24
Barzen Ave	RLR 13630_4	0.91	85	4.42	6.48
Hwy 32	RLR 14710_2	3.56	77	11.77	18.28

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**Table 4-7: Future Subwatershed Characteristics**

Project Subwatershed	HEC-HMS Subwatershed	Drainage Area (Acres)	Future CN	Tc (Hours)	R
Northwest Ridge	RLR13630_1	6.34	77	22.54	32.99
CSAH 16	RLR 13630_2	0.82	84	13.28	19.43
Hwy 59	RLR 13630_3	1.25	80	9.04	13.24
Barzen Ave	RLR 13630_4	0.91	88	4.42	6.48
Hwy 32	RLR 14710_2	3.56	80	11.77	18.28

### 4.2.7 Peak Excess Runoff

Excess precipitation (runoff) hyetograph from each of the subwatersheds were obtained from the HEC-HMS model for each design scenario. The excess runoff is the precipitation that is not infiltrated into the soil and becomes surface flows. This surface water is what must be accounted for in the design of the Project. Table 4-8 and

Table 4-9 provide the peak excess runoff depths and flow rates for each subwatershed during the design scenarios.

**Table 4-8: 10-Year 24-Hour Peak Excess Runoff and Flows**

Project Subwatershed	Existing Peak Runoff (in)	Future Peak Runoff (in)	Existing Peak Flow (cfs)	Future Peak Flow (cfs)
Northwest Ridge	1.63	1.63	143	143
CSAH 16	2.09	2.17	38	40
Hwy 59	1.85	1.85	72	72
Barzen Ave	2.25	2.52	115	129
Hwy 32	1.63	1.85	138	157

**Table 4-9: 100-Year 24-Hour Peak Excess Runoff and Flows**

Project Subwatershed	Existing Peak Runoff (in)	Future Peak Runoff (in)	Existing Peak Flow (cfs)	Future Peak Flow (cfs)
Northwest Ridge	3.72	3.72	328	328
CSAH 16	4.36	4.47	80	83
Hwy 59	4.05	4.05	159	159
Barzen Ave	4.59	4.92	236	253
Hwy 32	3.74	4.05	319	346



## 4.3 Hydraulics

HEC-RAS version 5.0.4 was utilized to perform all hydraulic computations of the existing conditions as well as the proposed design of the diversion and channel improvements for this Project. The following methods and data were used for the hydraulic components of the analysis.

### 4.3.1 General Assumptions

Several assumptions were used in the development of the HEC-RAS models. These assumptions were implemented to simplify certain components of the models that were not required for this analysis. Additional modeling and survey will be required to address these assumptions.

- Where as-built and survey data were not available, ditch invert elevations were estimated using the available NAVD 1988 LiDAR data
- Existing railroad bridges were not included in the model
- All features within the CD 70 drainage system are assumed to be in good condition and functioning correctly
- Runoff is applied equally over the entire subwatershed, regardless of the local hydrologic loss values

### 4.3.2 Hydraulic Model Development

A field survey of all ditches, hydraulic structures, and overbank areas along the alternative alignments was completed. This data was used to create an existing ground surface in AutoCAD Civil 3D 2016. LiDAR data was obtained from the Red River Basin Mapping Initiative from the International Water Institute for the Red River of the North watershed. The existing ground surface was mosaicked over the LiDAR data to create a terrain of the Project area.

Existing landuse information was obtained from the NLCD 2011 data. The future landuse raster file was created by incorporating information relating to potential future development areas from the Project partners. These development areas were assigned a NLCD value of 23 (Developed, Medium Intensity) because it is anticipated that these areas will be a mix of residential, commercial, and industrial. The landuse information used in the model is displayed in Table 4-10.

The building structures located in City limits were digitized into a shapefile in ArcGIS. This shapefile was converted into a raster with an assigned elevation higher than the peak 100-year water surface elevation (WSE). The raster was then mosaicked over the existing ground terrain. This creates an obstruction in the building locations for the overland runoff. The buildings were also assigned a Manning's  $n$  value of 0.999. By doing this, runoff will not be conveyed over these areas.

The hydraulic structures were input into the model based on the gathered survey data and using aerial imagery where information was not known.

The excess precipitation hyetograph for each of the design scenarios were obtained from the HEC-HMS runoff analysis previously discussed. These excess precipitation hydrographs were input as a precipitation boundary condition for each of the five subwatersheds. This results in the runoff hyetograph being equally applied over the respective subwatersheds.



### 4.3.3 Hydraulic Losses

System losses throughout the hydraulic models were accounted for through defining flow retardation resulting from overland Manning's values as well as loss coefficients and surface roughness for culverts. Manning's n values associated with landuse classifications are summarized in Table 4-10. Loss coefficients used in the hydraulic structures are summarized in Table 4-11. Standard roughness values were used where applicable for the culverts. And standard roughness values are summarized in Table 4-12.

**Table 4-10. NLCD Classifications Manning's n Values**

NLCD Name	Manning's n
Cultivated crops	0.035
Deciduous forest	0.16
Developed, high intensity	0.15
Developed, low intensity	0.1
Developed, medium intensity	0.08
Developed, open space	0.04
Emergent herbaceous wetlands	0.07
Evergreen forest	0.16
Grassland/herbaceous	0.035
Open water	0.04
Pasture/hay	0.03
Shrub/scrub	0.1
Woody wetlands	0.12

**Table 4-11: Hydraulic Loss Coefficients**

Description	Loss Coefficient
Culvert Entrance Loss	0.5
Culvert Exit Loss	1.0

**Table 4-12: Hydraulic Structure Manning's n Values**

Description	Manning's n
Precast Reinforced Concrete Pipe/Box	0.012
Corrugated Steel/Metal Pipe	0.024

### 4.3.4 Ditch Channel Sizing

Hydraulic analysis of CD 70 was performed to determine the existing channel capacities. The existing CD 70 alignment has an average 2-year capacity in agricultural areas and 10-year



capacity in urban areas. Improved ditch characteristics such as the side slopes, ditch grade, and bottom width were evaluated using an iterative process.

#### *Ditch Side Slopes*

In areas where the ditch channel parallels major roadways (i.e., Hwy 1, CSAH 16, Barzen Ave), the inslope will be 4:1 (H:V) where possible. Slopes of 4:1 or flatter are considered recoverable slopes for motorists. Outslopes of 3:1 will be used where possible in all cases to allow mowing or spraying of the slopes. In areas not parallel to major roadways the inslope and outslope of the ditch will be 3:1 where possible.

#### *Ditch Grade*

The ditch grade for each alternative was determined based on the existing invert elevation at 120<sup>th</sup> Ave NE and the proposed outlet elevation. The goal was to convey water efficiently downstream while maintaining a feasible ditch geometry. The design grade for the Existing and Existing 1A alternatives was limited to 0.03% because of a lack of open space available through the urban areas of the alignments.

The Middle and South alternatives are located mainly in a rural environment with outlet elevations significantly lower than the existing CD 70 outlet. The open space along these alignments allowed for a design grade of 0.1% to be achieved for both alternatives from the upstream end of the alignment to the railroad tracks west of Hwy 32. The Middle Alternative would transition from a 0.1% grade to a 0.5% grade beginning at the railroad tracks through the outlet at the Red Lake River. The South Alternative would transition from a 0.1% grade to a 1.2% grade beginning at the railroad tracks through the outlet at the Red Lake River.

#### *Ditch Bottom Width*

Ditch bottom widths between 10 feet and 30 feet were analyzed for each alternative. The allowable width of Existing and Existing 1A alternatives would be limited by the lack of available space through within the urban portions of the alignment; however, a 30 feet bottom width was analyzed to assess the ability to meet design criteria if sufficient ROW could be acquired. The shallow ditch grade of 0.03% limited the capacity of these options, and a bottom width of 30 feet does not meet design criteria to convey flows from the 100-year, 24-hour rainfall event.

Due to the increased ditch grades of the Middle and South alternatives, a ditch bottom width of 15 feet would meet design criteria.

### 4.3.5 Hydraulic Structure Sizing

Culvert hydraulics were analyzed using an iterative process to adjust the size and slope to meet design criteria. The upstream and downstream WSE, duration of inundation on adjacent land, and not negatively impacting adjacent roadways and infrastructure were the main culvert design considerations. The analysis determined that the grade of the culvert and ditch were greater controlling factors than the size of the structure. Culvert size, shape, and material will vary depending on location along each alignment and available cover at each crossing.

### 4.3.6 Hydraulic Analysis Results

The existing conditions model confirms the CD 70 system has a 2-year or less capacity in agricultural areas and a 10 to 25-year capacity in urbanized areas. Portions of the drainage areas remain inundated for up to one week after the 100-year 24-hour scenario.

Each of the four alternatives were evaluated for the 10-year 24-hour and the 100-year 24-hour scenarios. The main factor in reducing the flood potential is to increase the ditch grade. Secondary improvement factors include increasing the ditch cross-section capacity and upsizing culvert structures. The Existing and Existing 1A alternatives do not meet design criteria primarily due to the shallow ditch grade. The Middle and South alternatives both meet design criteria with a 0.1% grade and 15 foot bottom width.

Inundation maps for the existing and proposed scenarios are provided in Appendix A.

## 5 Selection of Preferred Alternative

### 5.1 Comparison of Alternatives

This study evaluated four alternatives to alleviate flooding potential along CD 70 while providing adequate capacity for potential future development in the City and surrounding areas.

The Existing and Existing 1A alternatives would improve drainage throughout the system but capacity to convey flows from a 100-year 24-hour event is not attainable due to grade limitations. Both of these alternatives would not remove CD 70 flows from City limits, provide an adequate outlet, or address additional runoff from potential future development. Installation of a large storm sewer system would be required to attain the required conveyance capacity to achieve design criteria for the existing alignment.

The Middle Alternative would reduce the risk of flood damages in the City and rural areas by diverting flows south and improving conveyance along the system. This alternative would also provide conveyance for the 100-year 24-hour rainfall event and provide capacity for future development. The negatives associated with this alternative are high structure costs, specifically the outlet structure under the railroad and Hwy 32, and the outlet is located in the City limits.

The South Alternative would reduce the risk of flood damages in the City and rural areas by diverting flows south and improving conveyance along the system. This alternative would also provide conveyance for the 100-year 24-hour rainfall event and provide capacity for future development. The outlet for this alternative is an existing drainage channel outside of City limits that is part of the CD 1 system. If this alternative were to be implemented FDR benefits would be applied to additional benefited area from CD 1 system because of the improvements that would be made to a portion of CD 1. A project of this scale does have a high cost associated with it due to the number of structures impacted and the excavation required.

### 5.2 Opinion of Probable Cost

Table 5-1 displays estimated costs for each of the proposed alternatives based on 2017 rates. A complete analysis of estimated quantities and unit costs for each alternative is provided in Appendix B.

**Table 5-1. Engineer's Estimate of Probable Project Costs**

Alternative	Construction <sup>1</sup>	Engineering & Administration <sup>2</sup>	Utility Relocation	Materials Testing	ROW Acquisition	Contingencies <sup>3</sup>	Total Estimated Project Cost
Alternative 1	\$10,151,000	\$2,538,000	\$90,000	\$2,800	\$50,000	\$2,030,000	\$14,861,800



Alternative	Construction <sup>1</sup>	Engineering & Administration <sup>2</sup>	Utility Relocation	Materials Testing	ROW Acquisition	Contingencies <sup>3</sup>	Total Estimated Project Cost
Alternative 1A	\$4,168,000	\$1,040,000	\$90,000	\$6,000	\$95,000	\$833,000	\$6,232,000
Middle Alternative	\$2,750,000	\$690,000	\$150,000	\$11,000	\$124,000	\$550,000	\$4,272,000
South Alternative	\$2,631,000	\$658,000	\$150,000	\$27,000	\$160,000	\$526,000	\$4,152,000

<sup>1</sup> Summation of estimated quantities and unit costs (see Appendix B).

<sup>2</sup> 25 percent of estimated construction costs

<sup>3</sup> 20 percent of estimated total project costs

### 5.3 Petition

Following completion of the 2017 FDR analysis, the City and County presented a petition to the RLWD. The petition requested a project to provide FDR benefits and protections as well as diverting any potential flood waters around the improved urban area affected and to provide proper channelization of flood waters to protect agricultural lands and urban area infrastructure and improvements, located in the County and known to the public as parts of CD 70 and CD 1, along with other areas. Based on the four alternatives and data presented, the Petitioners proposed that the preferred alternative be the South Alternative. A copy of the petition is provided in Appendix C.

### 5.4 Preferred Alternative

Each of the alternative alignments was analyzed based on meeting the Project design goals, constructability, and overall cost. The following tables summarizes the pros and cons for each of the alternatives considered.

**Table 5-2. Pros and Cons for Existing and Existing 1A Alternatives**

Pros	Cons
Improves drainage along system	Water remains in the City
Reduces volume of water along Barzen Ave. (1A)	Does not address future development
Utilizes existing structures	No adequate outlet
	No 100-year protection with existing ROW
	Storm sewer = Highest costs

**Table 5-3. Pros and Cons for Middle Alternative**

Pros	Cons
Improves drainage along system	High structure costs
Reduces flood potential in City & rural areas	Outlet within City limits
Provides drainage for future development	New outlet passes under the railroad and Hwy 32
Provides 100-year protection	

**Table 5-4. Pros and Cons for South Alternative**

Pros	Cons
Improves drainage along system	Cost
Reduces flood potential in City & rural areas	
Provides drainage for future development	
Provides 100-year protection	
Most comprehensive solution	
Outlet is outside City limits	
Utilizes existing drainage channel under railroad and Hwy 32	
More benefited area	

From the study it appears that the South Alternative is the only alternative considered that meets each of the Project goals to provide 100-year 24-hour flood protection for urban areas and 10-year 24-hour protection for agricultural areas, provide flood protection for future development, and divert flows from urban / commercial areas such as the Digi-Key and Arctic Cat corridor while providing an adequate outlet outside of City limits.

In October of 2017 the RLWD accepted the petition under Minnesota State Statute 103D.705 and began the process for the examination and possible construction of the South Alternative as an FDR project.

## 6 Preliminary Design of Preferred Alternative

### 6.1 South Alternative Alignment

Three sub-alignment alternatives have been considered at the upstream end of the Project (near the intersection of Hwy 59 and Hwy 1). Each of the sub-alignments diverts water under Hwy 1 at a different location and takes into consideration property impacts, culvert sizing, ditch grades, and ROW limits. Each sub-alignment is summarized in Table 6-1.

**Table 6-1: South Alternative Sub-Alignments**

Alternative	Alternative Description
South Alignment A	Divert flows south at Hwy 59 under Hwy 1 to the west of CSAH 16 where the existing ditch passes through a 10' x 5' Reinforced Concrete Box (RCB) culvert. The flows would then travel south along the west side of CSAH 16.
South Alignment B	Divert flows south under Hwy 1, to the west of SafeKey Storage, and flow south through an existing agricultural field for approximately 0.25 miles, then east to CSAH 16 for approximately 0.25 miles. The flows would then travel south along the west side of CSAH 16.
South Alignment C	Divert flows south under Hwy 1 to the west of the Petro Pumper access, then along the existing Hwy 1 roadside ditch. The diversion would then travel south along the west side of CSAH 16.

Each of the three sub-alignments and the South Alternative stationing are displayed in Figure 6-1.

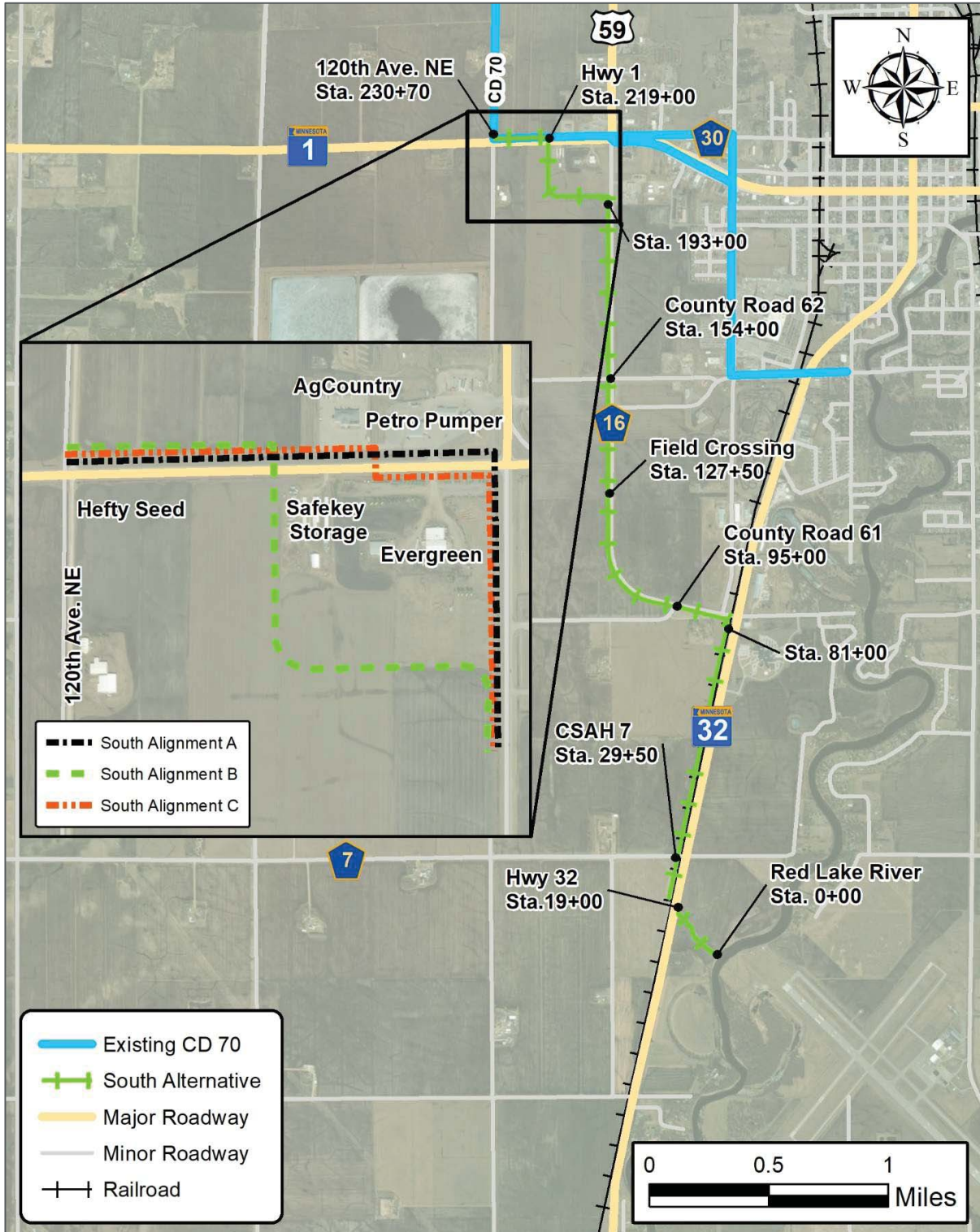


Figure 6-1. South Alternative Alignment

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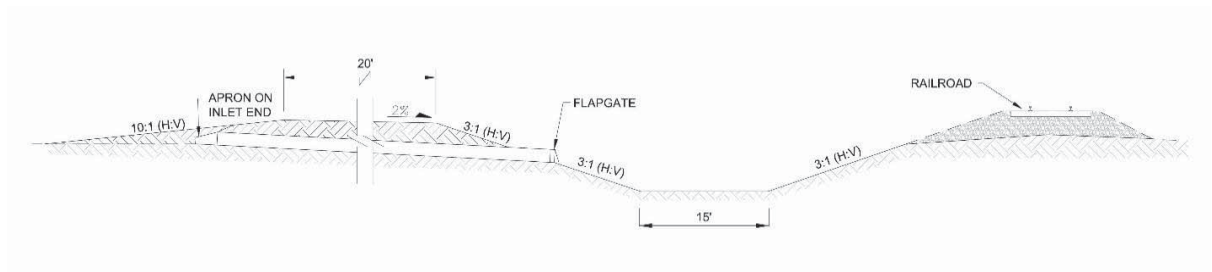
Red Lake Watershed District | Preliminary Engineer's Report  
Thief River Falls Westside Flood Damage Reduction Project

## 6.2 Improved Ditch Cross-Section

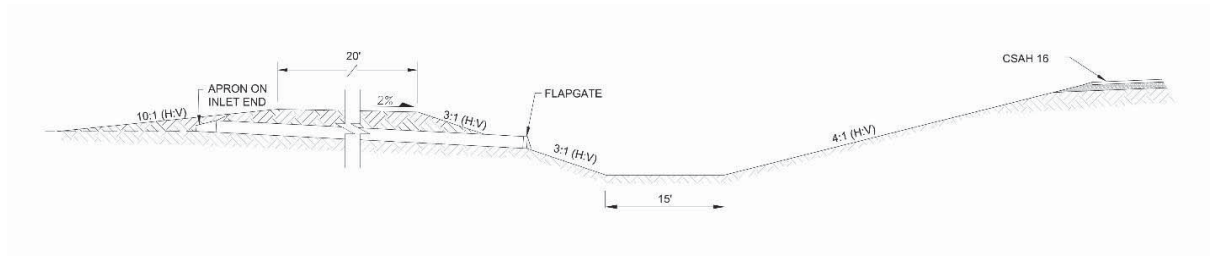
Table 6-2 provides the proposed ditch geometry that meets the design criteria previously discussed. Typical ditch cross-sections are displayed in Figure 6-2 through Figure 6-5.

**Table 6-2: Proposed Ditch Geometry**

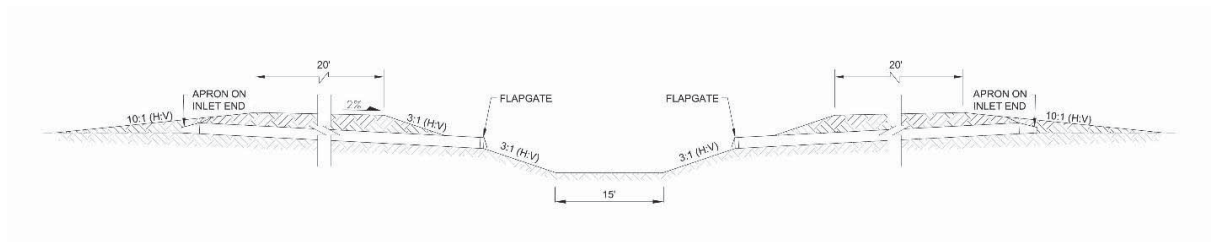
Stations	Description	Ditch Bottom Width (ft)	Side Slopes (H:V)
0+00 to 19+00	Outlet Channel	See Section 6.5	See Section 6.5
19+00 to 81+00	Parallel to Railroad	15	3:1
81+00 to 193+00	Parallel to CSAH 16	15	4:1 Road Slope, 3:1 Field Slope
193+00 to 219+00	Alignment B	15	3:1
219+00 to 230+70	Hwy 1 to 120 <sup>th</sup> St NE	15	4:1 Road Slope, 3:1 Field Slope



**Figure 6-2. Typical Cross-Section Parallel to Railroad**



**Figure 6-3. Typical Cross-Section Parallel to CSAH 16**



**Figure 6-4. Alignment B Typical Cross-Section**

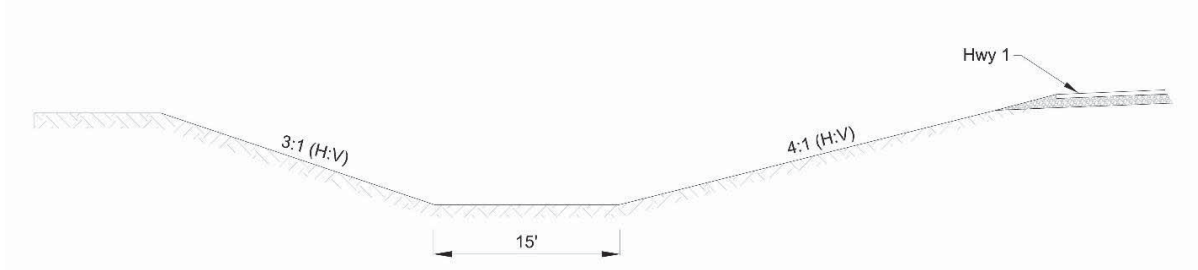


Figure 6-5. Typical Cross-Section Hwy 1 to 120<sup>th</sup> St. NE

### 6.3 Improved Ditch Grades

The existing inconsistent and at times inverted grade will be re-graded to provide positive drainage along the entire Project alignment. The proposed ditch grade ranges from 0.07% to 0.16%. Table 6-3 displays the ditch grades for the South Alignment B alternative.

Table 6-3: Proposed Ditch Grades

Stations	Description	Proposed Grade
0+00 to 19+00	Outlet Channel	See Section 6.5
19+00 to 154+00	160 <sup>th</sup> St. NE to Hwy 32	0.10%
154+00 to 193+00	West side of CSAH 16 to 160 <sup>th</sup> St NE	0.07%
193+00 to 219+00	Alignment B	0.10%
219+00 to 230+70	Hwy 1 to 120 <sup>th</sup> St NE	0.16%

### 6.4 Hydraulic Structure Improvements

The proposed culverts were sized using the HEC-RAS 2D model discussed in Section 4.3. Table 6-4 displays the culvert schedule for the South Alignment B alternative.

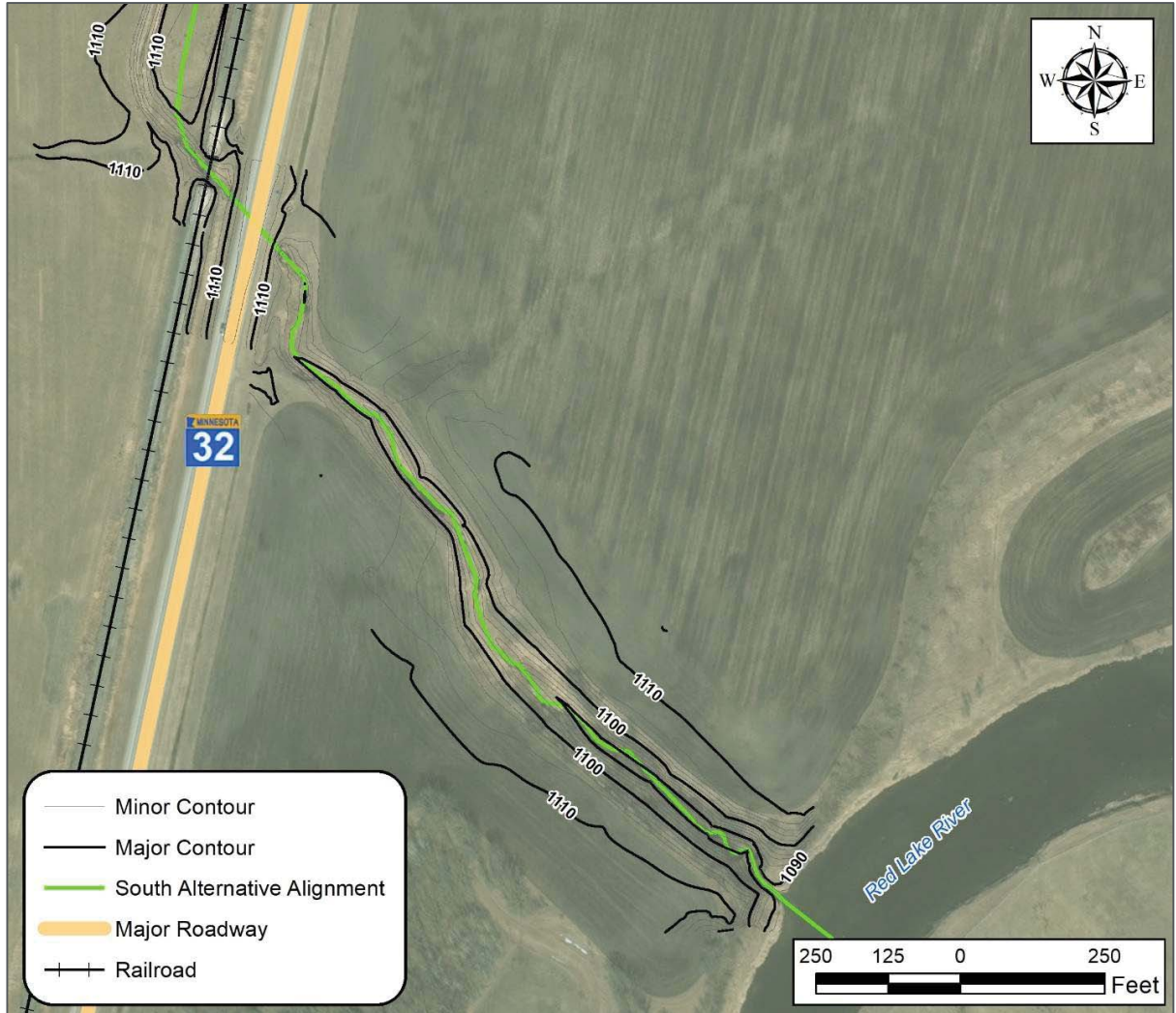
Table 6-4: Proposed Culvert Schedule

Location	Station	Existing Culvert	Proposed Shape	Proposed Size	Proposed Length (ft)	Proposed Material
Hwy 32	19+00	(2) 66" RCP	RCB	12' x 10'	132	Concrete
CSAH 7	29+50	118" x 72" RCP-A	RCB	12' x 8'	122	Concrete
County Rd 61	95+25	-	Round	(2) 84"	128	Corrugated Steel
Field Crossing	127+50	24" CSP	Round	(2) 84"	126	Corrugated Steel
County Rd 62	154+00	-	Round	(2) 84"	124	Corrugated Steel
Hwy 1	219+00	-	RCB	12' x 6'	108	Concrete
120 <sup>th</sup> Ave NE	230+70	84" x 67" CSP-A	Round	(2) 72"	70	Corrugated Steel



## 6.5 Outlet Improvements

The Project will discharge flows to the Red Lake River through a natural meandering coulee that currently discharges flow from CD 1 to the Red Lake River (Figure 6-6). This coulee, or outlet conveyance channel, is located south of the City between Hwy 32 and the Red Lake River. Improvements and channel rehabilitation measures will be implemented through the length of the outlet conveyance channel to stabilize the channel and minimize adverse impacts to the surrounding area. The following sub-sections discuss the existing conditions at the location of the proposed outlet structure and as well as design alternatives.



**Figure 6-6. Outlet Channel Plan View**

### 6.5.1 Existing Conditions

The outlet conveyance channel is approximately 1,500 feet long and drops 17 feet in elevation between Hwy 32 and the Red Lake River (average 1.13% grade). The channel depth ranges from 10 feet near Hwy 32 to 30 feet near the Red Lake River. The soils in and around the coulee appear to be a mixture of sand, silt, and clay material with an underlying layer of fine gravel. A soil investigation will be performed during final design activities to confirm soil characteristics. A

combination of recurrent peak flows, steep slopes, and erodible soils have caused significant head cutting, erosion, and sediment deposition in the channel, as shown in Figure 6-7 and Figure 6-8.



**Figure 6-7. Erosion of Existing Channel**



**Figure 6-8. Head Cutting and Instability**

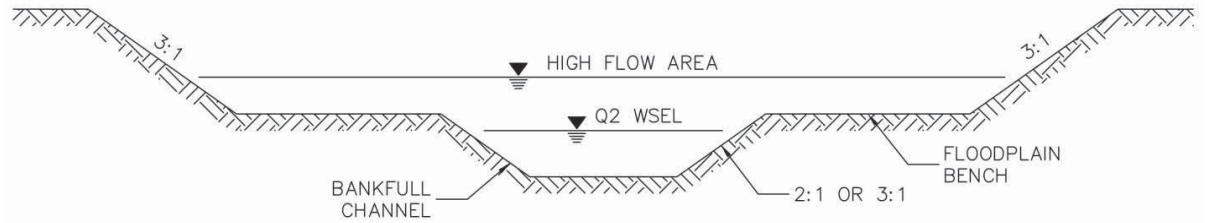
### 6.5.2 Outlet Design Criteria and Goals

The primary goals of the outlet conveyance channel design are to convey flows from events up to the 100 year, 24 hour event, maintain a stable channel, and minimize adverse impacts to the surrounding area. The channel's existing drainage area is approximately 3.6 square miles and the calculated peak flow rate for the 100 year, 24 hour event is over 400 cfs. The Project will add approximately 8.4 square miles for a total drainage area of 12.0 square miles and a design flow for the 100 year, 24 hour event of 800 cfs. The increased channel flows and relatively steep slope of greater than 1% will require implementation of stabilization measures to rehabilitate the existing channel and prevent future channel degradation.

### 6.5.3 Two-Stage Channel

The proposed outlet channel will consist of a two-stage channel and a series of intermittent drop structures designed to dissipate energy created by peak flows. The concept behind a two-stage channel is to provide a bankfull channel (low-flow channel) for regular flows and a stabilized floodplain bench for peak flows.

The bankfull channel will have a trapezoidal cross section with 2:1 or 3:1 sideslopes, sized to convey flows from an approximately 2-year rainfall event. The bottom width will be between 8 and 10 feet with a gradual grade. The stabilized floodplain bench will be sized to effectively convey flows for up to the 100 year, 24 hour event. Preliminary hydraulics analysis estimates the bench will be between 10 and 15 feet wide with 3:1 side slopes that will tie-in to the surrounding terrain. Figure 6-9 shows a conceptual cross section for the proposed channel. Final design of side slopes and channel grade will be determined using the results from an on-site soils investigation.



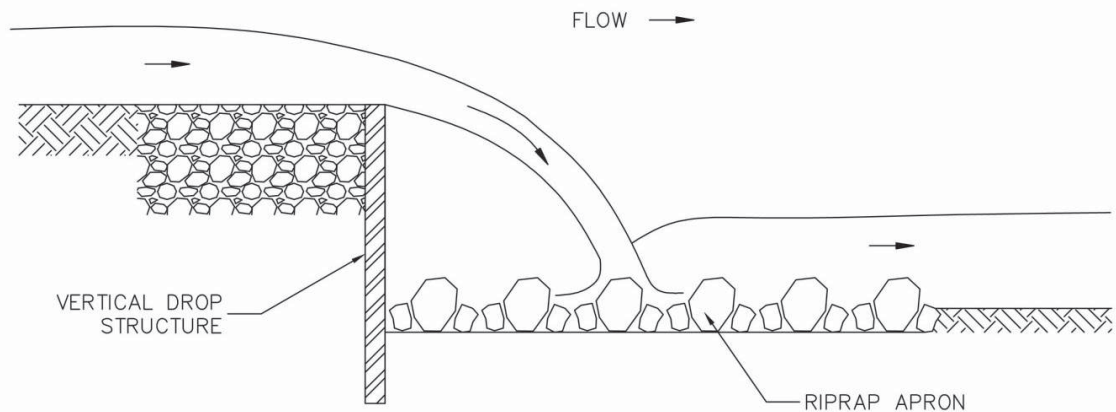
**Figure 6-9. Conceptual Two Stage Channel Section**

### 6.5.4 Drop Structure Alternatives

Intermittent drop structures will be incorporated throughout the outlet channel. Each structure will be located and designed so that the energy created by peak flows can be dissipated in a controlled manner. Three types of drop structures have been considered and are discussed below.

#### *Vertical Drop Structure*

This option would consist of 3 or 4 vertical drop structures, each with a height of 3 to 4 feet. There would be a riprap stilling basin below each drop structure to dissipate energy and prevent erosion. Gradual channel grades between the structures would provide for stable and low-velocity flows to sustain a stable meandering channel. The structures would likely be constructed using a combination of sheet pile and concrete. Figure 6-10 shows a conceptual profile of a vertical drop structure.



**Figure 6-10. Example Vertical Drop Structure Profile**

#### *Fractured Granite Chutes*

This option would consist of three chutes constructed of fractured granite, each with a height of approximately 4 feet. Each chute would be 75 to 100 feet long with a grade between 5 and 7 percent. Fractured granite riprap would be sized to dissipate energy and would be placed in a matrix formation to remain in place during high flow events. Gradual channel grades between the structures would provide for stable and low-velocity flows to sustain a stable meandering channel. For visual reference, Figure 6-11 shows a conceptual layout of a fractured granite chute.

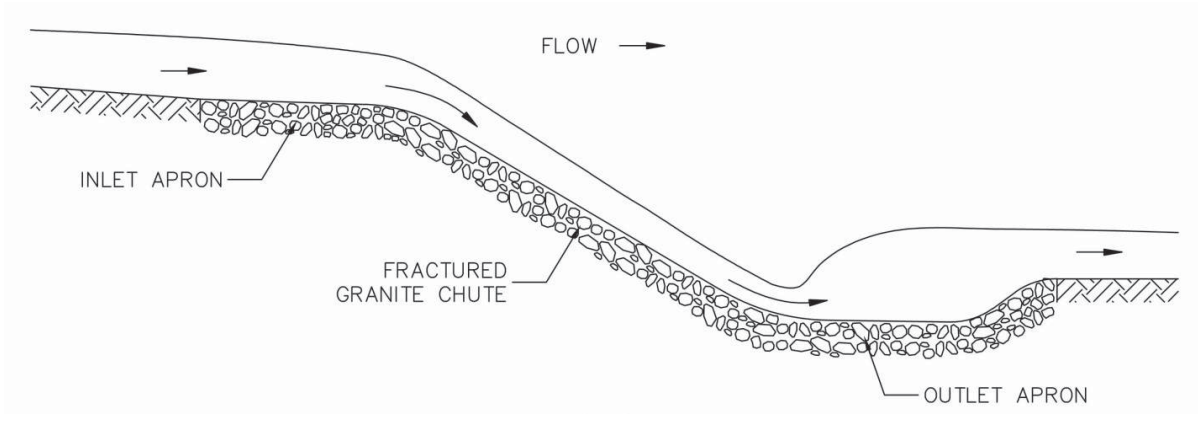


Figure 6-11. Example Fractured Granite Chute Profile

*Constructed Stepped Pools*

Constructed stepped pools are 3 to 6 inch tall vertical drops constructed of boulders or logs. The channel would have 35 to 50 drops spaced throughout the length of the channel. Gradual channel grades between the structures would provide for stable and low-velocity flows to sustain a stable meandering channel. Figure 6-12 shows a conceptual layout of a constructed step pool.

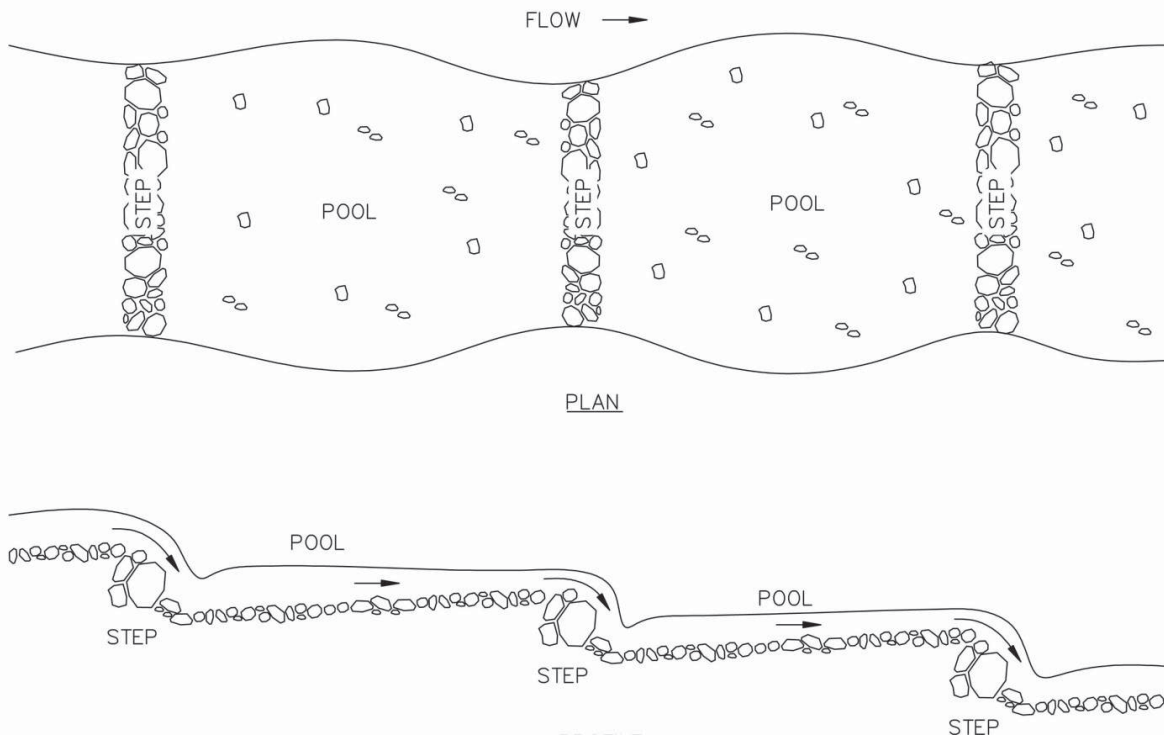


Figure 6-12. Example Step Pool Plan and Profile

6.5.5 Outlet Alternatives Summary

The outlet channel will consist of a two stage channel with multiple drop structures spaced throughout the length of the channel to dissipate energy and prevent erosion. Dimensions and grade of the two stage channel will be dependent on results of the on-site soils investigation to

be conducted during final design. Drop structure type will be selected based on feasibility, cost, maintenance considerations, and aesthetic appeal during final design.

### 6.6 Soils

The United States Department of Agriculture (USDA) Web Soil Survey indicates that the majority of the soils along the South Alternative alignment are classified as Clearwater clay and fine sandy loam. Figure 6-13 displays the soil data along the South Alternative alignment.

Silty and sandy soils have erosive potential and design considerations must be taken to avoid eroding of the newly constructed channel and depositing sediment downstream. The proposed Project will have side slopes of 3:1 (H:V) at a minimum. Further investigation will be conducted to determine sufficient slopes for the proposed ditch geometry. The construction of the proposed trapezoidal ditch is considered feasible and there should be minimal concerns of potential slope instability, excessive sloughing, or erosion of ditch banks due to excessive water velocities within the main Project channel. Proper erosion control measures will be established in final design. Soil borings along the Project alignment will also be performed during the geological analysis.



Figure 6-13. USDA Soil Survey

## 6.7 Side Inlets and Approaches

Side inlets will be installed where berms are constructed and at every major field ditch inlet as appropriate. Each side inlet will be equipped with an apron at the inlet and flap gate on the outlet as well as a minimum of five cubic yards of MnDOT Class II riprap to reduce possibility of backflow and erosion. The majority of these pipes will be 18 inch corrugated steel pipe (CSP). Larger pipes will be considered for larger drainage areas.

## 6.8 Spoil Placement

Spoil from ditch excavation will be placed adjacent to the ditch, creating a berm within the permanent and/or temporary ROW. It is estimated that the berm will have a 3:1 (H:V) inslope, a top width of 20 feet, and a 10:1 (H:V) backslope for maintenance and/or agricultural purposes.

## 6.9 Roadway Impacts

New culvert structures will be constructed through Hwy 1, County Road 62, County Road 61, CSAH 7, and Hwy 32 with the construction of the South Alternative. These impacts will temporarily close each respective roadway during the installation of the new culverts. No additional or new modifications to the roadway design will take place and they will be returned at a minimum to their respective state before construction.

## 6.10 Right of Way

There is approximately 75 feet of existing right-of-way (ROW) along Hwy 1 and approximately 100 – 120 feet of ROW along CSAH 16. There is currently no ROW along the western edge of the railroad tracks or the coulee. ROW information was estimated using Pennington County parcel information. Additional ROW in the form of a temporary and permanent easement will be obtained for the Project along these roadways. Ditch statute requires a minimum permanently vegetated buffer zone of one rod (16.5 feet) from the top of the excavated slope or to the top of the spoil slope on the ditch side, whichever is greater. The Project will pursue a 20 foot wide minimum buffer zone. Temporary ROW will be purchased, as needed, beyond the permanent ROW to provide for construction access and spoil disposal. Exact ROW needs will be determined during final design. Anticipated ROW corridor widths are shown in Table 6-5. The ROW parallel to roadways is measured from the roadway centerline.

**Table 6-5. Right-of-Way**

Description	Existing Right-of-Way Width	Average Right-of-Way Width Required
0+00 to 19+00	-	200'
19+00 to 81+00	-	100'
81+00 to 193+00	100' – 120'	150'
193+00 to 219+00	-	100'
219+00 to 230+70	75'	120'



### 6.11 Utilities

HDR conducted a Gopher State One Call to obtain design-locate information for all utilities located along the Project corridor. Utility information was also received by the City in the form of CAD and as-built drawings. The identified utilities include underground and overhead electric, telephone, fiber optic cable, natural gas, water, storm sewer, and sanitary sewer. Special attention was given to the 20 inch steel sanitary sewer force main crossing the proposed alignment at station 154+00 and the 8 inch PVC sanitary force main paralleling CSAH 16. The 20 inch sanitary force main is the City's primary sanitary sewer conveying sewage to the lagoons to the west. The force main will need to be lowered to accommodate the proposed ditch profile. The 8 inch PVC force main that parallels CSAH 16 and will be impacted by the proposed ditch alignment. This pipe currently services Sanford Medical Center. Additional discussions regarding the necessary modifications to each of these pipes will be required during final design. These utility conflicts as well as others identified are shown in Table 6-6 and Figure 6-14.

**Table 6-6. Utility Schedule**

Utility (Owner/Type)	Station	Location	Obstruction Location
CenturyLink - Copper	219+00 - 230+70.58	Underground	Adjacent
Sjobergs - Fiber	218+71 - 230+71	Underground	Adjacent
Sjobergs - Fiber	218+71	Underground	Crosses
CenturyLink - Fiber	217+65	Underground	Crosses
CenturyLink - Fiber	217+64	Underground	Crosses
CenturyLink - Fiber	217+63	Underground	Crosses
Red Lake Electric Co-Op	217+60	Overhead	Crosses
MERC – Natural Gas	217+60	Underground	Adjacent
Red Lake Electric Co-Op	153+92	Overhead	Crosses
Wiktel - Fiber	153+72	Underground	Adjacent
City of TRF - 20" Sanitary Sewer Force Main	154+92	Underground	Crosses
City of TRF - 8" Sanitary Sewer Force Main	128+46 - 153+93	Underground	Crosses
City of TRF - 8" Sanitary Sewer Force Main	127+54 - 153+93	Underground	Adjacent
Sjobergs - Fiber	83+50 - 194+00	Underground	Adjacent
Red Lake Electric Co-Op	86+00	Overhead	Crosses
City of TRF - Underground Power	83+50 - 88+75	Underground	Adjacent



# Attachment 2 Page 36 of 69

Red Lake Watershed District | Preliminary Engineer's Report  
 Thief River Falls Westside Flood Damage Reduction Project

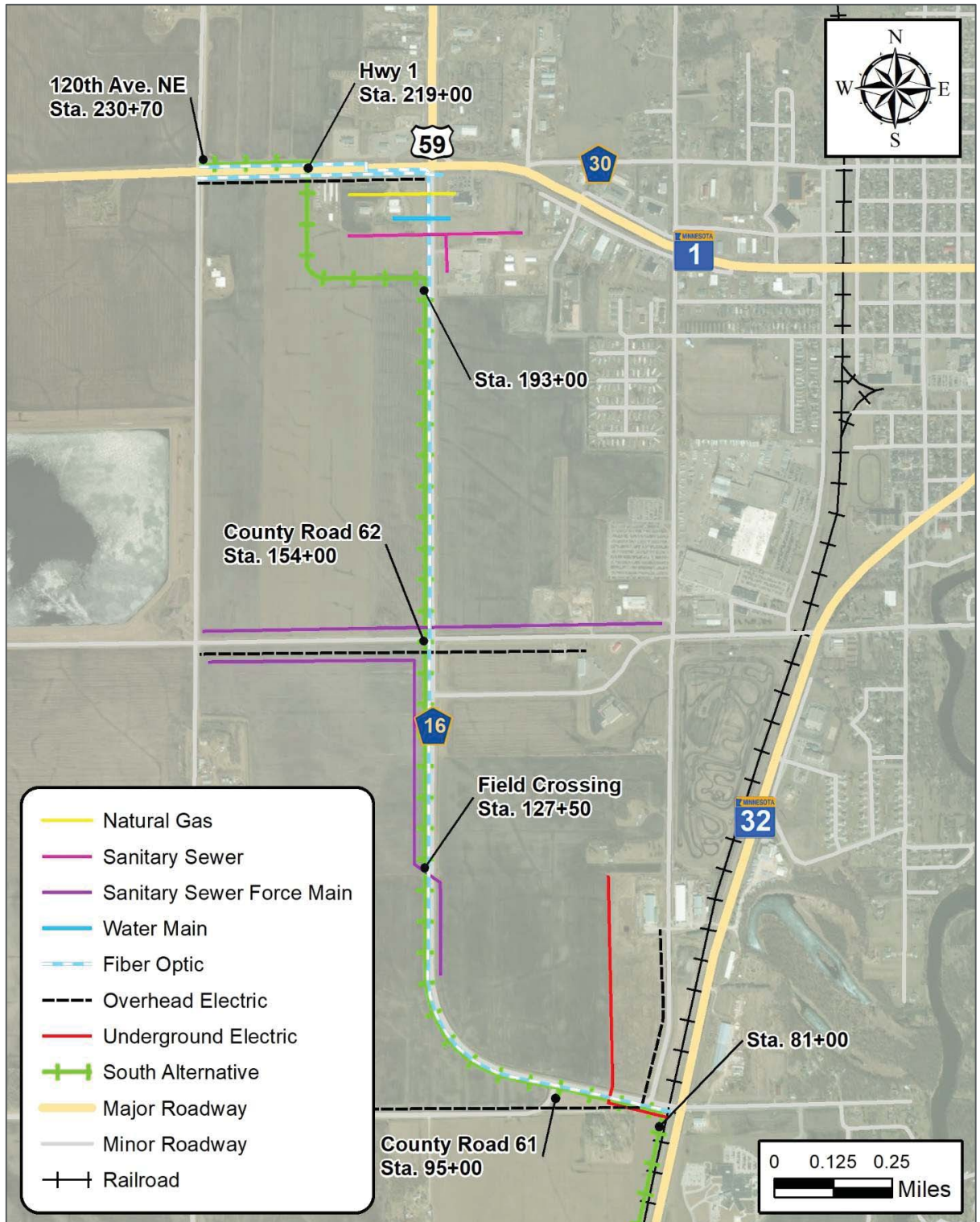


Figure 6-14. Identified Utilities in Project Corridor



## 7 South Alternative Probable Cost

The following table outlines the estimated cost for the South Alternative based on 2017 rates.

Table 7-1. South Alternative Opinion of Probable Cost

TRF Westside Flood Damage Reduction Project				
South Alternative – Engineer's Opinion of Most Probable Cost				
Item	Unit	Qty	Unit Cost	Cost
MOBILIZATION	LS	1	\$78,000.00	\$78,000.00
FIELD LABORATORY - TYPE D	EACH	1	\$8,000.00	\$8,000.00
CLEARING AND GRUBBING	LS	1	\$15,000.00	\$15,000.00
COMMON EXCAVATION (P)	CY	414,000	\$3.25	\$1,345,500.00
COMMON EXCAVATION HAULING	CY	25,000	\$5.00	\$125,000.00
AGGREGATE BASE, CLASS 3	TON	1,390	\$22.00	\$30,580.00
AGGREGATE SURFACING, CLASS 5	CY	715	\$20.00	\$14,300.00
TYPE SP 9.5 WEARING COURSE MIXTURE (2,B)	TON	292	\$195.00	\$56,940.00
SALVAGE 115" x 72" RCP ARCH PIPE	LF	92	\$40.00	\$3,680.00
REMOVE 24" CS PIPE CULVERT	LF	68	\$10.00	\$680.00
18" SIDE INLET PIPES W/ APRON AND FLAP	EA	26	\$2,630.00	\$68,380.00
48" CS PIPE CULVERT	LF	460	\$85.00	\$39,100.00
84" CS PIPE CULVERT	LF	504	\$185.00	\$93,240.00
48" CS PIPE APRON	EA	18	\$1,250.00	\$22,500.00
12' X 6' PRECAST CONCRETE BOX CULVERT, CLASS III	LF	84	\$850.00	\$71,400.00
12' X 6' PRECAST CONCRETE BOX CULVERT END	EA	2	\$9,500.00	\$19,000.00
12' X 8' PRECAST CONCRETE BOX CULVERT, CLASS III	LF	90	\$900.00	\$81,000.00
12' X 8' PRECAST CONCRETE BOX CULVERT END	EA	2	\$12,000.00	\$24,000.00
12' X 10' PRECAST CONCRETE BOX CULVERT, CLASS III	LF	132	\$1,100.00	\$145,200.00
12' X 10' PRECAST CONCRETE BOX SKEWED END	EA	2	\$20,000.00	\$40,000.00
GRANULAR BEDDING (CV)	CY	864	\$18.00	\$15,552.00
QUARRY RUN ROCK - CLASS 3	CY	2,792	\$90.00	\$251,280.00
GEOTEXTILE FILTER, TYPE IV	SY	1,800	\$2.50	\$4,500.00
TRAFFIC CONTROL	LS	1	\$25,000.00	\$25,000.00
TEMPORARY DITCH CHECK, TYPE 2	LF	1,000	\$2.50	\$2,500.00
SEEDING	ACRE	78	\$90.00	\$7,020.00
SEED MIXTURE, 25-141	POUND	5,460	\$3.15	\$17,199.00
MULCH MATERIAL TYPE 1	TON	156	\$110.00	\$17,160.00
DISK ANCHORING	ACRE	78	\$40.00	\$3,120.00
FERTILIZER, TYPE 1	TON	7.8	\$800.00	\$6,240.00
Subtotal				\$2,631,071.00
Engineering and Administration			25%	\$657,768.00
Utility Relocation	LS	1	\$ 150,000.00	\$150,000.00
Materials Testing (Construction)			2% of Earthwork Cost	\$26,910.00
Right of Way Acquisition	ACRE	53.2	\$ 3,000.00	\$159,600.00
Contingencies			20%	\$526,215.00
Total Construction				<b>\$4,151,564.00</b>

## 8 Additional Considerations

### 8.1 Ditch Improvement for upstream Pennington County Ditch #70 and County Ditch #1

The proposed FDR Project ends at the intersection of 120<sup>th</sup> Ave NE and Hwy 1. The Project does not include the upstream reaches of CD 70 or CD 1. These upstream areas consist of agricultural landuse and currently there is an approximately 2-year capacity on CD 70 and a 5-year capacity on CD 1. The FDR Project has been designed to accommodate an upstream drainage improvement up to a 10-year ditch capacity. This improvement would require a petition to the RLWD in accordance with Minnesota Statute 103E.215 Improvement of Drainage System.

### 8.2 Improvements to Contributing Drainage Systems

Multiple drainage ditches convey flows to the CD 70 system. Improvements to these ditches are not included in the FDR Project. Future consideration to the improvement of these ditches is recommended in order to achieve the greatest benefits along the CD 70 benefiting area. Locations of these ditches include but are not limited Hwy 59, 6<sup>th</sup> St W, 130<sup>th</sup> Ave NE, and Barzen Ave.

### 8.3 Storm Sewer Improvements

Urbanization alternatives include the option to install storm sewer within the existing CD 70 alignment along Barzen Ave and Greenwood St to the existing outlet structure. The storm sewer was designed based on the new drainage areas created along the existing alignment by the Project and using a 10-year 24-hour design scenario.

Assumptions in the design of the storm sewer included:

- Maximum distance between catch basin structures of 400 feet
- 72 inch RCP under the existing Digi-Key parking lot would remain in place
- RCP under Hwy 32 would remain in place as a high flow pipe, smaller pipe would be bored under the highway for low flows
- The existing CD 70 outlet structure would remain in-place and be modified to accommodate storm sewer

Table 8-1 displays the location and proposed size for the storm sewer. An overflow ditch on top of the storm sewer would provide additional capacity.

**Table 8-1: Storm Sewer Size**

Location	Storm Sewer Size	Recurrence Interval Capacity (Storm Sewer)
Barzen Avenue	36" RCP	10-Year
Greenwood Street	42" RCP	10-Year



## 9 Social, Economic, and Environmental Impacts

### 9.1 Adequacy of the Outlet

The outlet for the proposed alternative is the Red Lake River which has a drainage area of approximately 4,000 square miles upstream of Thief River Falls, while the size of the project drainage area is as much as 14 square miles. Because the Project does not include retention as an integral component, preliminary hydraulic analysis indicates that there are no net changes to subwatershed travel times in the drainage area due to the Project, but rather the flooded areas and volumes that occur in the existing condition are stored in the longer proposed excavated channel while moving downstream earlier in the hydrograph. Post-project peaks compared to existing peaks are actually reduced in the Red Lake River due to the shifted flood volumes. A small increase in the amount of diverted floodwater volume is passed downstream in the early part of an event hydrograph.

The Project is consistent with the Mediation Agreement goals adopted by the RRWMB and Red River Basin Flood Damage Reduction Work Group. The flood water is considered to be “early water” for the Red Lake River and is in the middle area for the Red River of the North based on the Flood Damage Reduction Work Group Technical Paper #11. FDR measures, such as a diversion, receives a positive rating in an early area and a “variable” rating in a middle area. The Red Lake River provides an adequate outlet for this proposed Project.

### 9.2 Benefited Area and Funding

The existing benefited area of CD 70 was obtained from the Pennington County Courthouse records of the ditch system. The timeframe since the benefited area was determined is unknown but as displayed in Figure 9-1, the benefited area does not capture the current drainage area.

Potential funding partners for the Project may include MnDNR State funding through the FDR grant program, RRWMB, benefiting landowners, MnDOT, RLWD, Pennington County, and County State-Aid Highway funds. Minnesota statute 103D.905 may allow the RLWD to levy a special tax across the entire District for a project meeting certain criteria. Statute 103E.411 states that the ditch authority may determine the amount that the municipality (City of Thief River Falls) must pay to use the drainage system as an outlet for its municipal drainage system. It is anticipated that the Project costs will be shared by multiple government entities and benefiting landowners. An example of how the total Project costs may be distributed is displayed in Table 9-1.

Table 9-1. Funding Breakdown

Total Project Cost	MN –FDR \$1,500,000 (30%)
	RRWMB \$1,000,000 (20%)
	Benefiting Landowners \$1,000,000 (20%)
	MnDOT \$750,000 (15%)
	RLWD \$500,000 (10%)
	Pennington County – State Aid \$250,000 (5%)

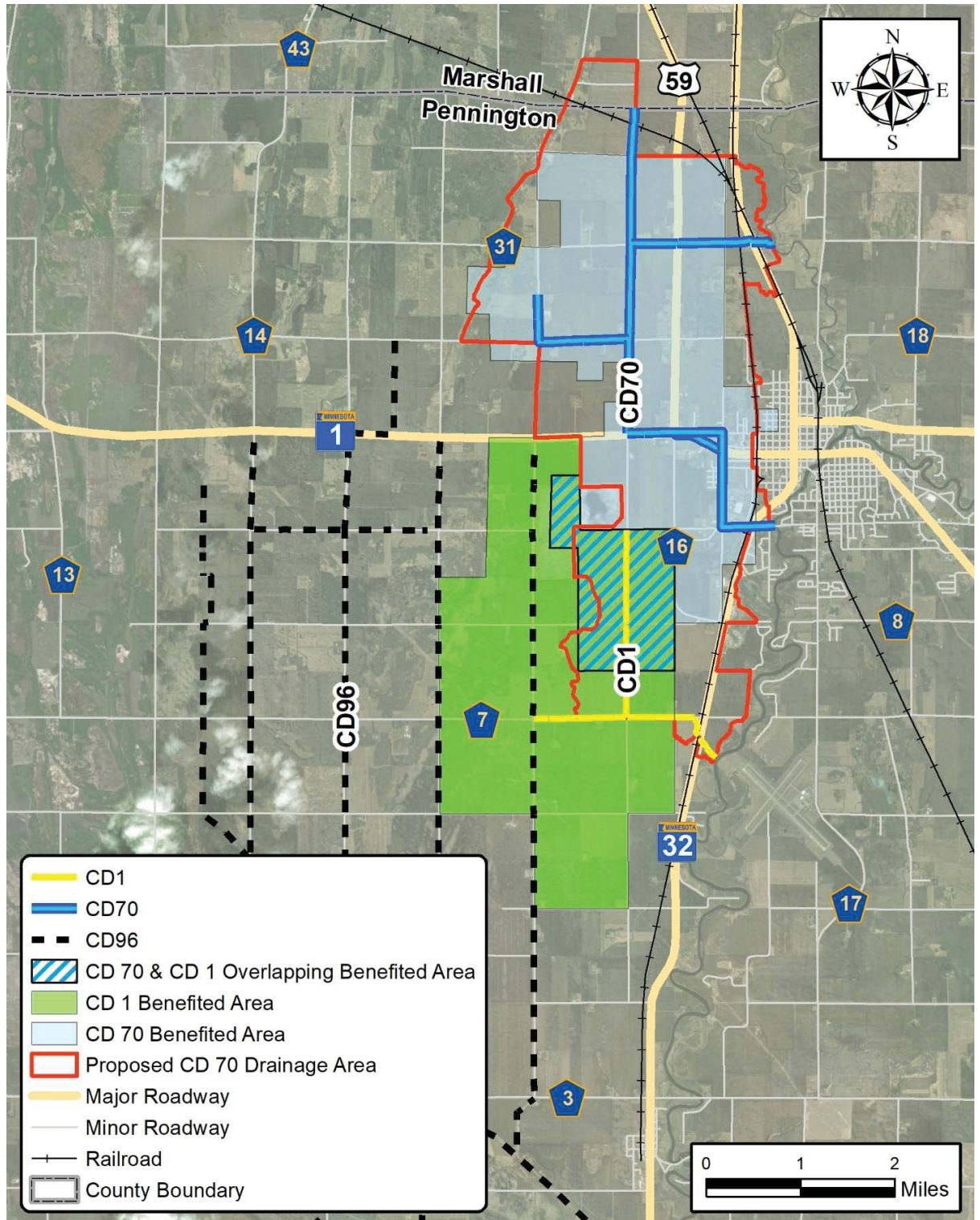


Figure 9-1. Existing CD 70 and CD 1 Benefited Area



### 9.3 Social Impacts

Construction within urban areas means the Project will be socially and politically sensitive in nature. To ensure a socially acceptable project, careful consideration and involvement from the public will be conducted in the form of landowner meetings, open house meetings, board hearings, etc. in order to construct a socially acceptable Project for the City and the rural benefited areas.

### 9.4 Economic Impacts

The Project will produce a positive economic impact for the long-term growth and development of the benefitting area. The initial Project investment will be equalized over time by the reduced flood damage costs to the surrounding rural and urban areas. Given the area and extents of the Project, the benefits should impact the community at present, and the long-term planning and expansion of the community.

This Project will benefit local landowners by reducing property damage and crop loss due to flooding. Public benefits include increased assurances created by the reduction in flood damages to the City and will promote residential and commercial growth. The current land use is an aggregate of agricultural, residential, and commercial with a larger part dedicated to agricultural. On the south end of the City, anticipated land use could be converted into urban areas along the river and Hwy 32 in the years to come.

## 10 Compatibility with Existing Plans, Statutes, Rules and Permits

### 10.1 Red Lake Watershed District Plan

It is the intention of the Board to manage the waters and related resources within the Watershed District in a reasonable and orderly manner to improve the general welfare and public health of the residents of the Watershed District in accordance with their 10-year overall comprehensive plan.

### 10.2 Minnesota Statutes and Rules

Section 103D of Minnesota Statutes pertains to Watershed Districts. Section 103D.335, Subd. 5 enables watershed districts to exercise the power to "...make necessary surveys or utilize other reliable surveys and data and develop projects to accomplish the purposes for which the district is organized." Section 103D.335, Subd. 8 gives the watershed district the power to "...construct, clean, repair, alter, abandon, consolidate, reclaim, or change the course or terminus of any public ditch, drain, sewer, river, watercourse, natural or artificial, within the district."

Also required by Section 103D.711 is the preparation of an "Engineer's Report". Requirements relative to the content of the report include:

- A scaled map of the area to be improved.
- Location of the proposed improvements; location of respective outlets.
- The watershed of the Project Area; the location of existing highways, bridges and culverts.
- All lands, highways, and utilities affected, together with the names of the owners thereof, so far as known; the outlines of any public lands and public bodies of water affected; potential benefiting lands; easement maps; and principal Project features.

This report is intended to satisfy the requirements of 103D.605, 103D.701, and 103D.711

### 10.3 Wetland Impacts

Minimal wetland impacts are anticipated with the proposed Project. Potential wetland impacts at the proposed outlet location to the Red Lake River may occur based on the National Wetlands Inventory database. These impacts would be approximately 0.4 acres.

### 10.4 State Environmental Review

Minnesota Rules Chapter 4410 requires the preparation of an Environmental Assessment worksheet (EAW). The mandatory preparation of an EAW ( Minnesota Rules 4410.4300, subpart 27) is necessary "for projects that will change or diminish the course, current, or cross-section of one acre or more of any public water or public waters wetland except for those to be drained without a permit pursuant to Minnesota Statutes, chapter 103G." Based on the public waters inventory map for Pennington County, the Project is not considered a public watercourse. The Project is not anticipated to disturb more than one acre of public water wetlands so an EAW is not anticipated.

### 10.5 US Army Corps of Engineers Section 404

A Section 404 permit may be required by the USACE because wetland impacts may occur by the construction and operation of the proposed project. USACE permitting authorities will be consulted regarding the proposed Project. The permit will also review any additional wetland impacts due to construction. Construction will not begin until all permits are received.

### 10.6 Minnesota Department of Natural Resources

A Minnesota Department of Natural Resources Public Waters Permit, in accordance with Minnesota Rules 6115.015, may be required. The Red Lake River is considered a public water and discharging flows from the proposed Project may trigger a Public Waters Permit.

### 10.7 Wetland Conservation Act

It is anticipated that a Wetland Conservation Act (WCA) permit may be required for the proposed Project. The permit will include a review of all wetland impacts do to the footprint, operation, and construction of the proposed Project. Construction will not begin until all permits are received.

### 10.8 National Pollutant Discharge Elimination System Requirements (NPDES)

A storm water permit will be required for the construction of this Project. The permittee will develop a stormwater pollution prevention plan (SWPPP) that focuses on discharges from the site into public waters. Each party under regulation determines the most appropriate best management practices (BMPs) that should be implemented to minimize pollution for the specific site. The final engineering plans for this Project will address the SWPPP by means of seeding, mulch, fiber rolls, silt fence, filter fabric, and riprap.



## 11 Conclusions and Recommendations

The FDR analysis completed by HDR in 2017 evaluated four alternatives that would alleviate flooding issues along CD 70 while providing adequate capacity for potential future development within the City and surrounding areas.

Following the FDR analysis, the City and County submitted a petition under MN Statute 103D.705 requesting a project that will provide FDR benefits and protections, as well as divert potential flood waters around the urban corridor of the existing CD 70. It also requested that proper channelization of the flood waters occurs to protect agricultural lands and urban infrastructure. The petition then stated that the proposed project be the South Alternative alignment.

The South Alternative will provide 100-year 24-hour flood protection for the City and rural benefiting areas by improving the conveyance along a majority of the system and diverting flows south from the City limits to CD 1. Additional benefited area from CD 1 will be included with this alternative and an improved outlet will be constructed. The South Alternative also provides the most comprehensive area for potential future development of the four alternatives. The main focus of the Project is FDR but a secondary benefit achieved by the South Alternative will be the improved level of service provided to the existing CD 70 system. The proposed level of service is displayed in Figure A-7 of Appendix A.

Preliminary design performed on the South Alternative considered three potential alignments near the Hwy 1 and Hwy 59 intersection. The recommended South Alternative alignment is South Alignment B. This alignment diverts flows away from the commercial area near the Hwy 1 and Hwy 59 intersection. Alignment B will also improve the flood protection and drainage for the MnDOT highway project along Hwy 1 and have the least impacts in regards to utilities.

Final design is expected to begin July 2018. An approximate timeline of past and future tasks is displayed in Table 11-1. Due to the infrastructure and roadway improvements taking place in 2019 and 2020, this Project has an expedited timeframe.



Table 11-1: Potential Project Timeline

Task	Summer 2017	Fall 2017	Winter 2018	Spring 2018	Summer 2018	Fall 2018	Winter 2019	Spring 2019	Summer 2019	Fall 2019	Winter 2020	Spring 2020	Summer 2020	Fall 2020
Establish Project Partnerships	X	X	X	X										
Develop Funding Package	X	X	X	X	X	X								
Initiate Project – Petition?	X	X												
Project Mgmt / Coord / Meetings	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Survey		X			X									
Screening of Alternatives	X	X	X	X	X									
Preliminary Engineering of Selected Alternatives		X	X	X	X									
Viewing						X		X						
Soil Borings and Wetland Delineation						X								
Preliminary Hearing						X								
Final Engineering / Design / Plans & Specs						X	X	X	X					
Land Acquisition					X	X	X							
Permitting								X	X					
Final Hearing & Viewers Report								X	X					
Construction										X		X	X	X



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**Red Lake Watershed District** | Preliminary Engineer's Report  
Thief River Falls Westside Flood Damage Reduction Project



## Appendix A. Additional Figures

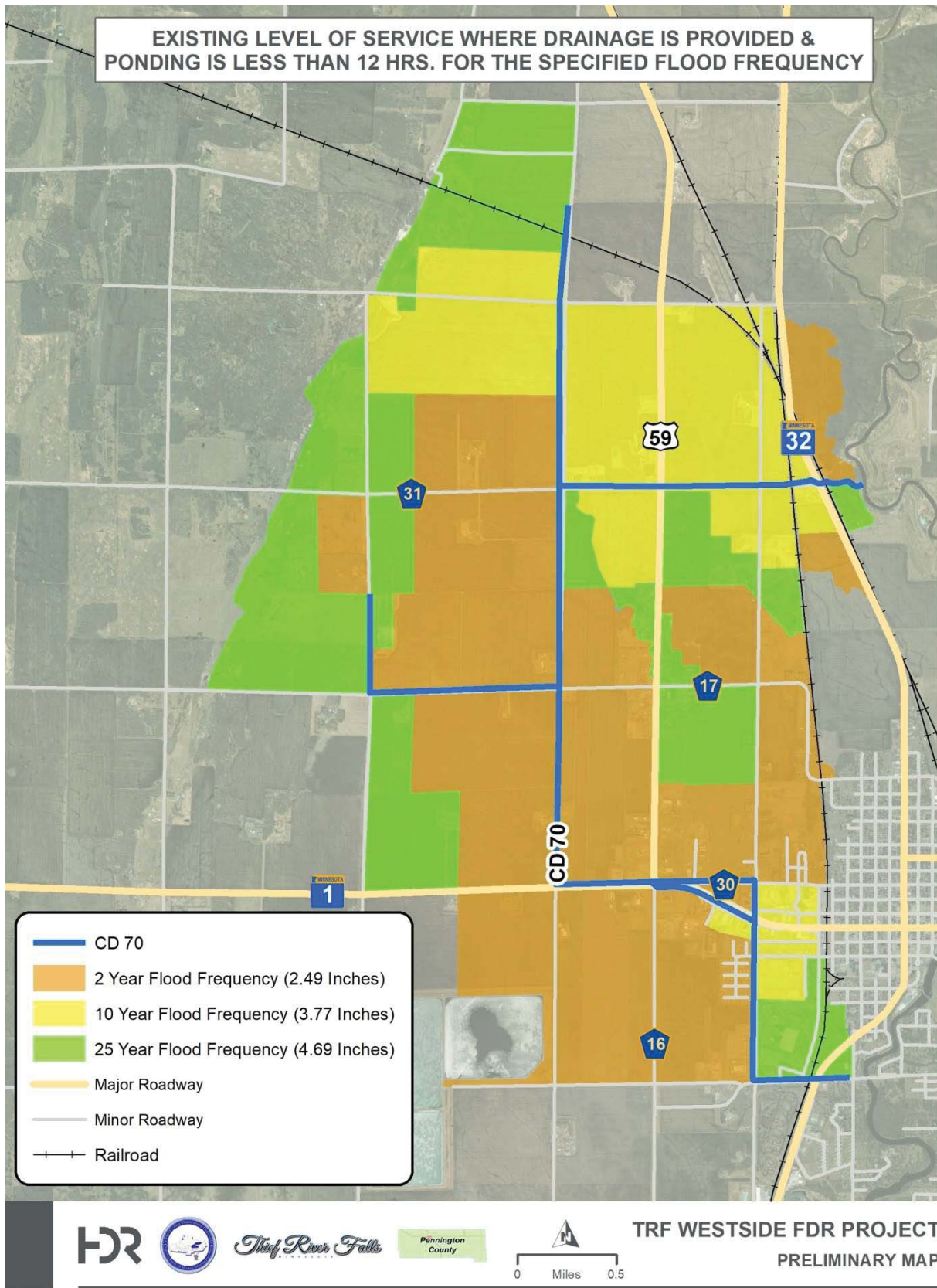


Figure A-1. CD 70 Existing Level of Service

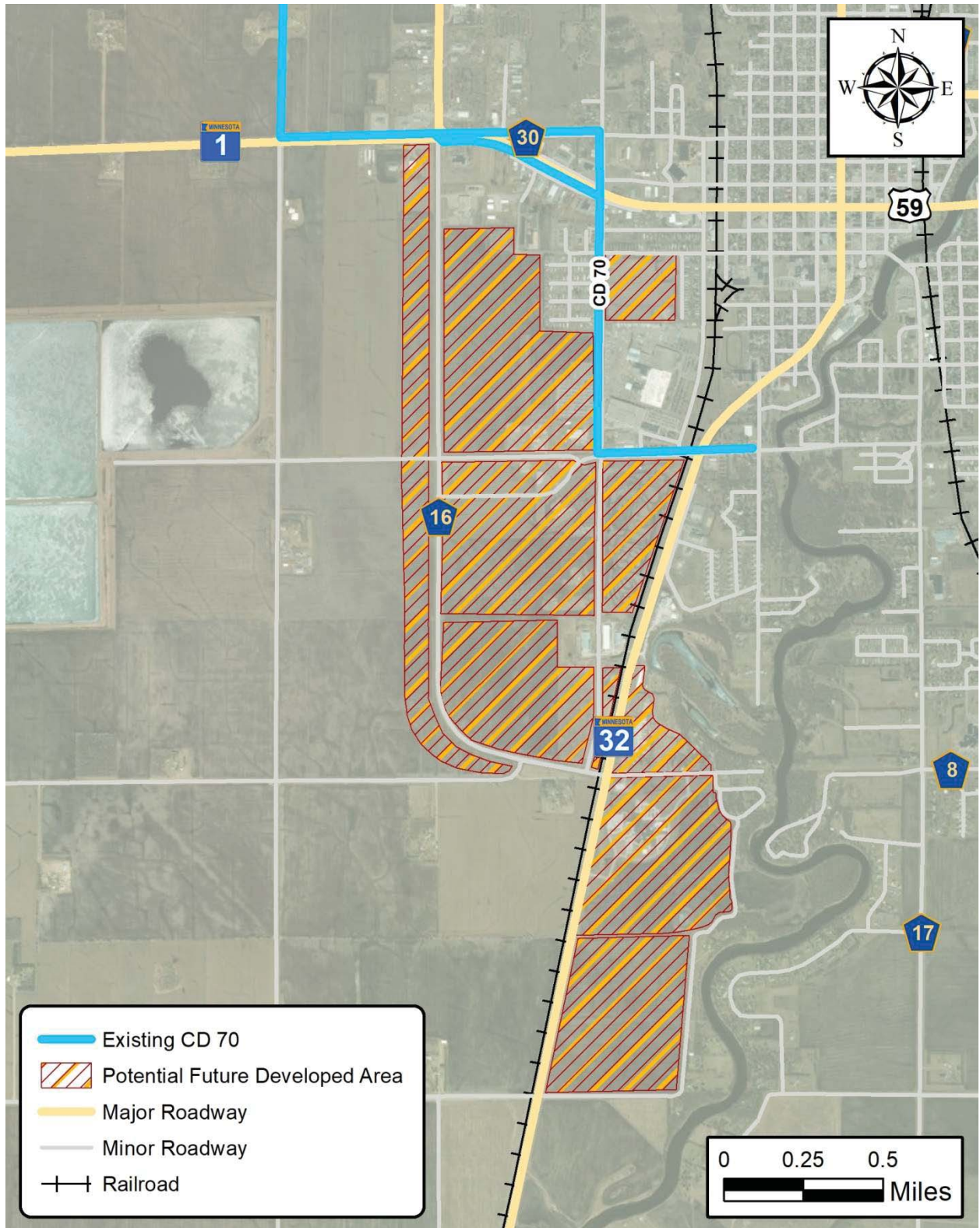
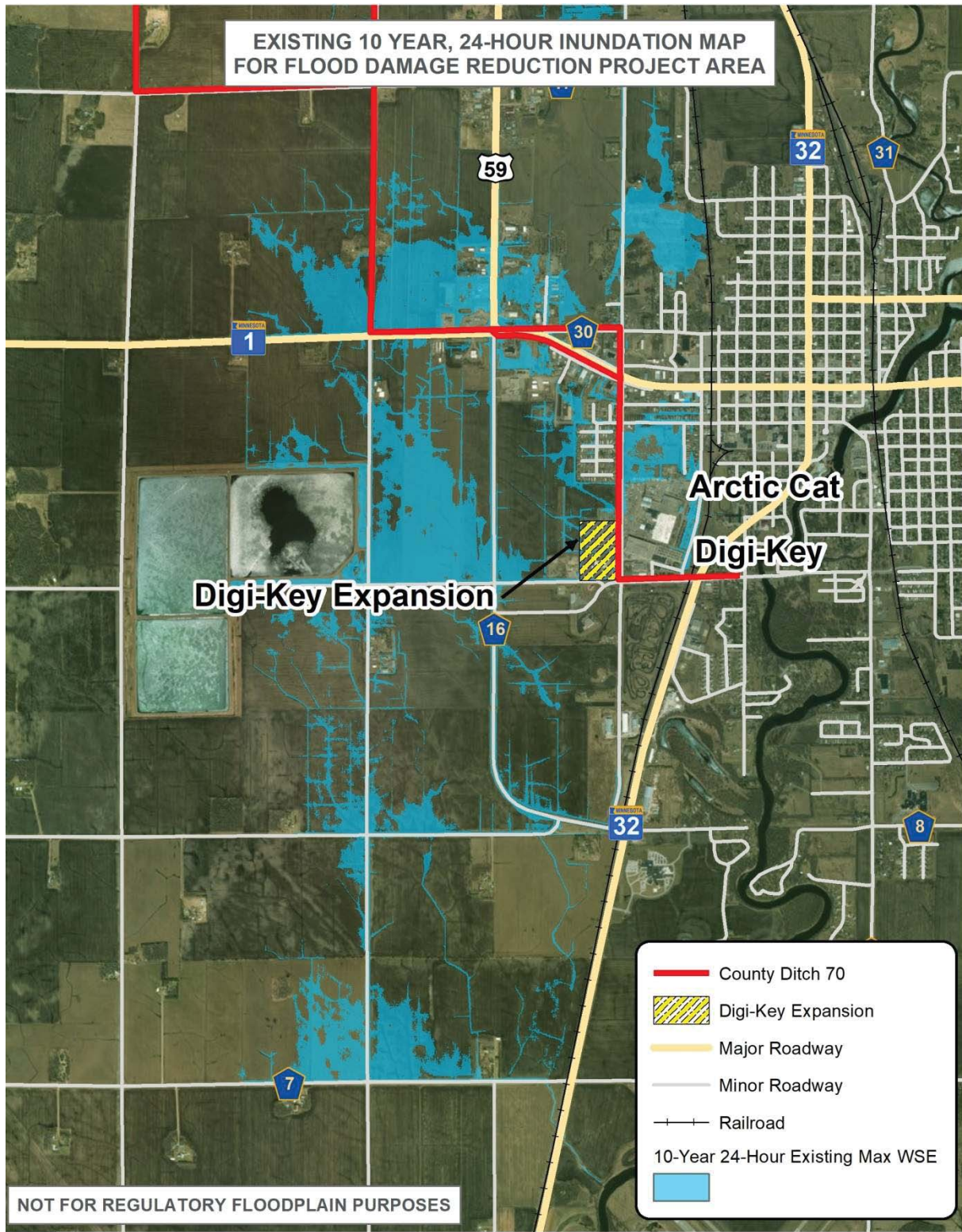


Figure A-2. Potential Future Development Areas



**TRF WESTSIDE FDR PROJECT PRELIMINARY MAP**

0 Miles 0.5

Pennington County

Thief River Falls

HDR

TRF WESTSIDE FDR PROJECT

PATH: \\TRF-SRV1\GIS\PROJ\PROJECTS\RLWD\_GENERAL\WESTSIDE\_DRAINAGE\MAP\_DOCS\MXD\EXISTING 10 YEAR LEVEL OF PROTECTION MAP.MXD - USER: DINELSON - DATE: 6/12/2018

Figure A-3. Existing 10 Year, 24 Hour Inundation Map

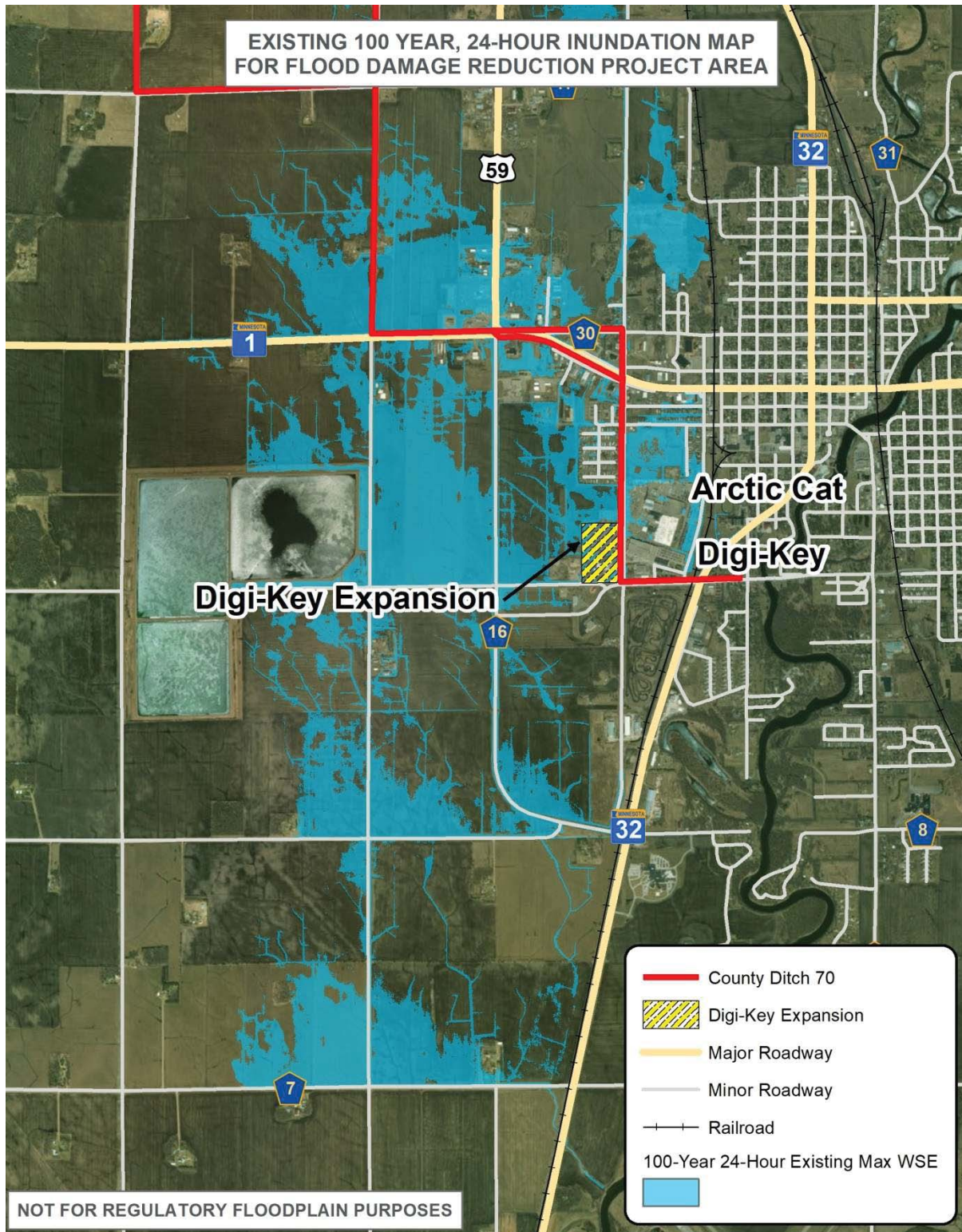
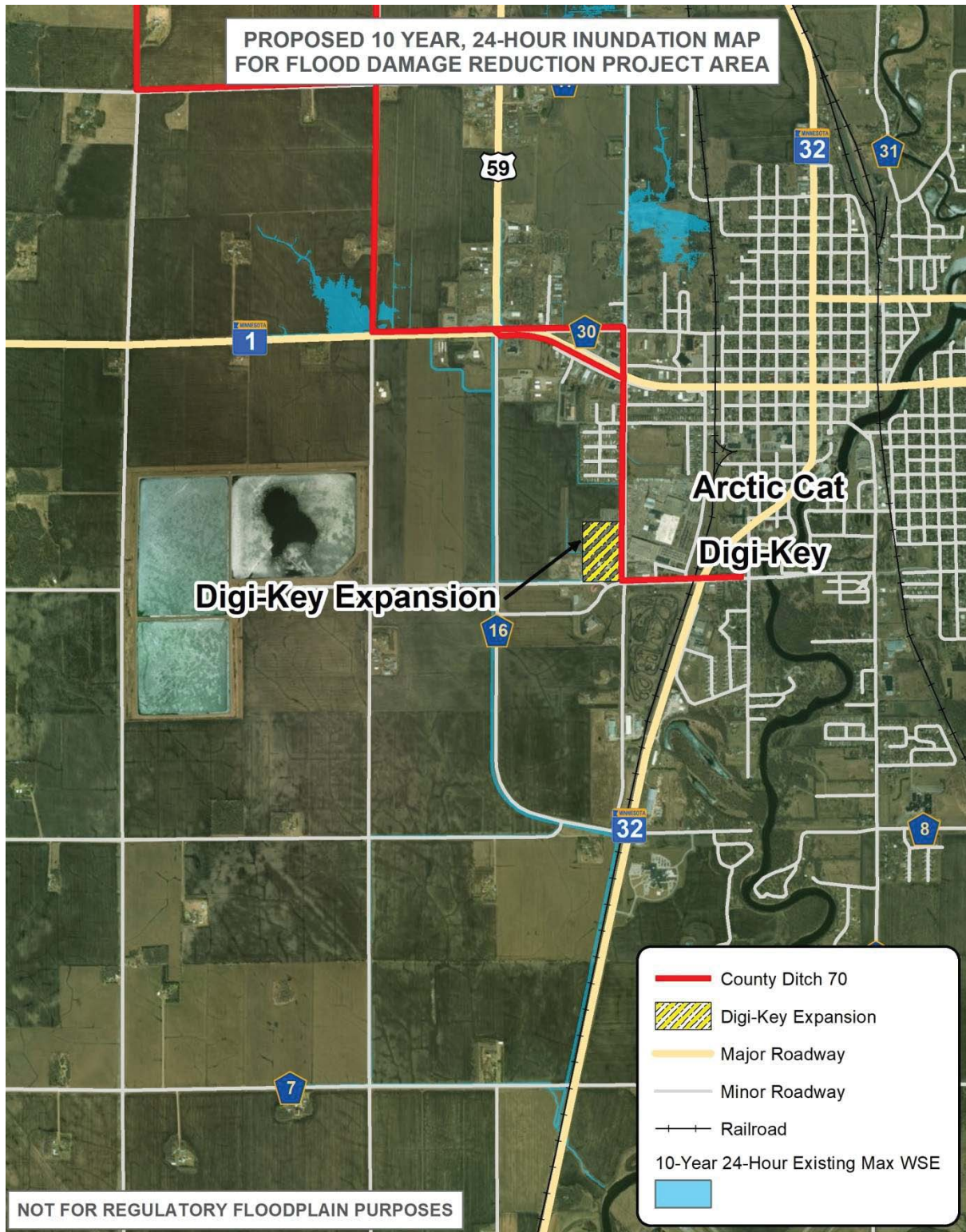


Figure A-4. Existing 100 Year, 24 Hour Inundation Map





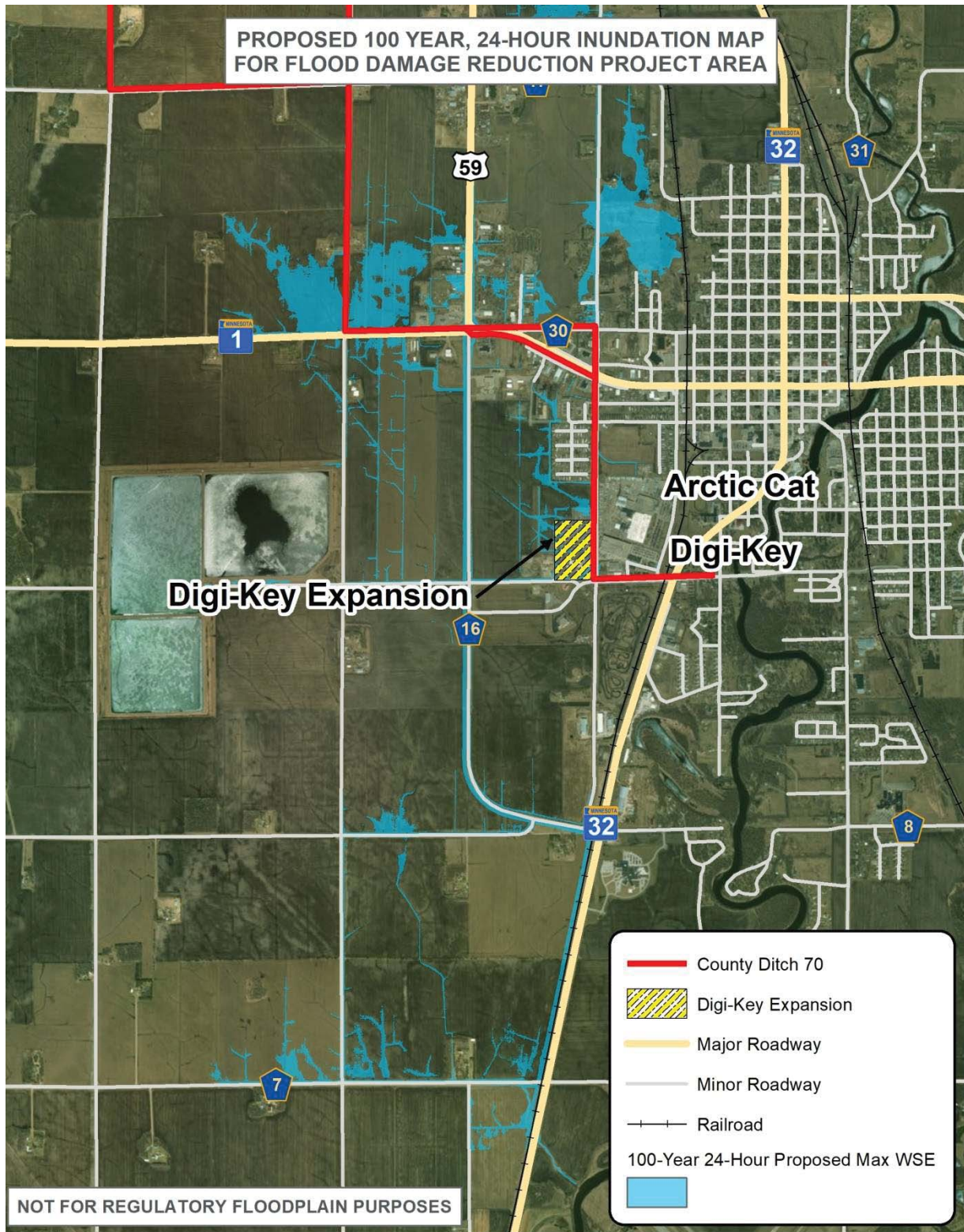





**TRF WESTSIDE FDR PROJECT**  
**PRELIMINARY MAP**

PATH: Y:\PROJECTS\RLWD\_GENERAL\WESTSIDE\_DRAINAGE\MAP\_DOC\MXD\10 YEAR LEVEL OF PROTECTION MAP.MXD - USER: DINELSON - DATE: 6/12/2018 TRF WESTSIDE FDR PROJECT

Figure A-5. Proposed 10 Year, 24 Hour Inundation Map



HDR TRF WESTSIDE FDR PROJECT PRELIMINARY MAP

0 Miles 0.5

PATH: \\TRF-SRV1\GIS\PROJ\PROJECTS\RLWD\_GENERAL\WESTSIDE\_DRAINAGE\MAP\_DOCS\MXD\100 YEAR LEVEL OF PROTECTION MAP.MXD - USER: DINELSON - DATE: 6/12/2018

TRF WESTSIDE FDR PROJECT

Figure A-6. Proposed 100 Year, 24 Hour Inundation Map

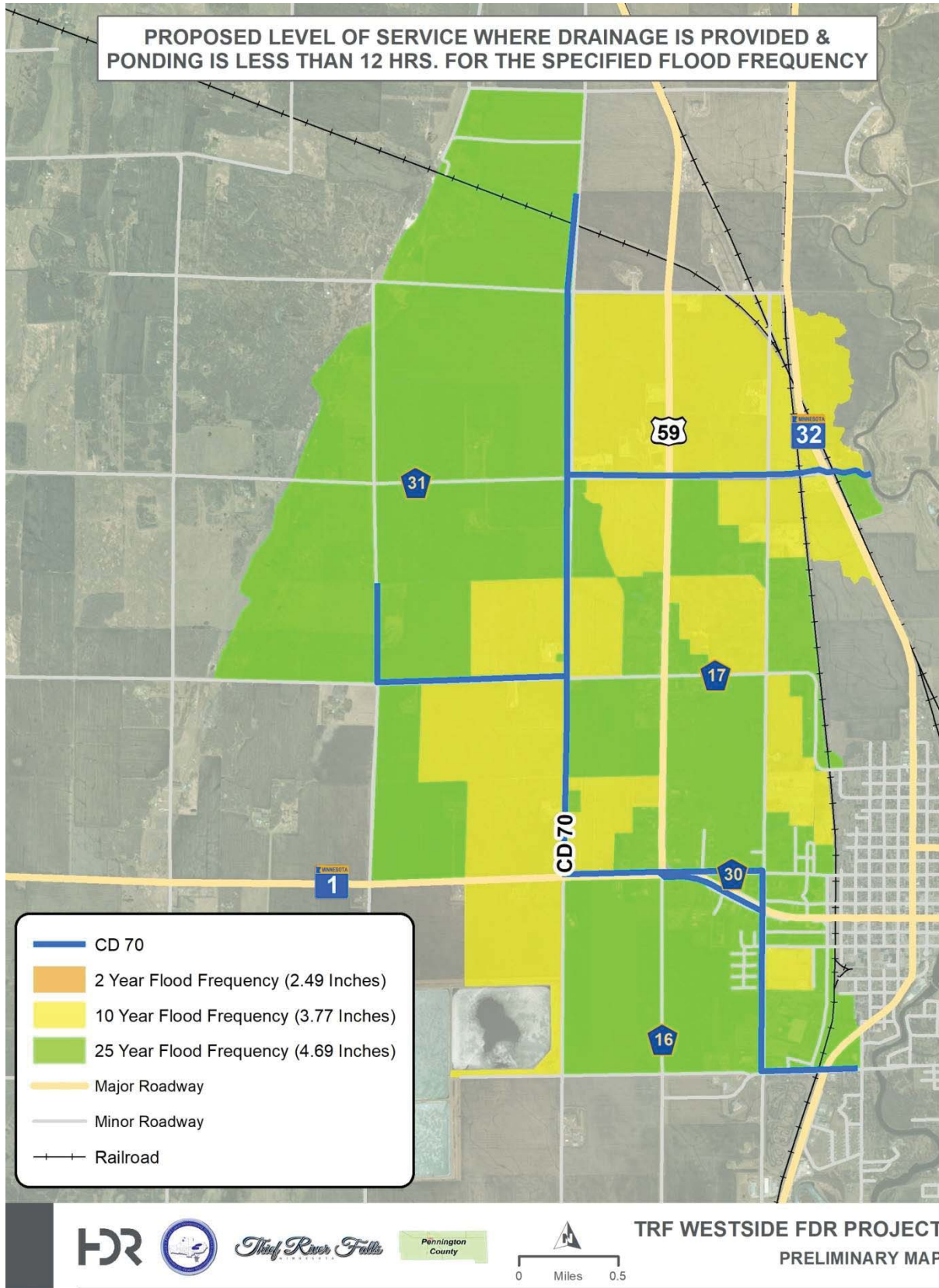


Figure A-7. CD 70 Proposed Level of Service

## Appendix B. Opinion of Probable Cost for Alternatives Considered



TRF Westside Drainage Study				
Alternative 1 – Engineer's Opinion of Most Probable Cost				
Item	Unit	Qty	Unit Cost	Cost
MOBILIZATION	LS	1	\$20,000.00	\$20,000.00
FIELD LABORATORY - TYPE D	EACH	1	\$8,000.00	\$8,000.00
CLEARING AND GRUBBING	LS	1	\$5,000.00	\$5,000.00
COMMON EXCAVATION (P)	CY	40,000	\$3.50	\$140,000.00
COMMON EXCAVATION HAULING	CY	25,000	\$5.00	\$125,000.00
TYPE SP 9.5 WEARING COURSE MIXTURE (2,B)	TON	288	\$195.00	\$56,160.00
AGGREGATE SURFACING, CLASS 5	CY	300	\$20.00	\$6,000.00
48" STEEL CASING PIPE (JACK INSTALLED)	LF	242	\$650.00	\$157,300.00
18" SIDE INLET PIPES W/ APRON AND FLAP	EA	10	\$2,630.00	\$26,300.00
8' X 7' PRECAST CONCRETE BOX CULVERT, CLASS III	LF	3,010	\$925.00	\$2,784,250.00
10' X 8' PRECAST CONCRETE BOX CULVERT, CLASS III	LF	4,246	\$1,100.00	\$4,670,600.00
10' X 10' PRECAST CONCRETE BOX CULVERT, CLASS III	LF	1,625	\$1,300.00	\$2,112,500.00
QUARRY RUN ROCK - CLASS 3	CY	100	\$90.00	\$9,000.00
GEOTEXTILE FILTER, TYPE IV	SY	300	\$2.50	\$750.00
TRAFFIC CONTROL	LS	1	\$25,000.00	\$25,000.00
TEMPORARY DITCH CHECK, TYPE 2	LF	750	\$2.50	\$1,875.00
SEEDING	ACRE	5	\$90.00	\$450.00
SEED MIXTURE, 25-141	POUND	350	\$3.15	\$1,103.00
MULCH MATERIAL TYPE 1	TON	10	\$110.00	\$1,100.00
DISK ANCHORING	ACRE	5	\$40.00	\$200.00
FERTILIZER, TYPE 1	TON	0.5	\$800.00	\$400.00
Subtotal				\$10,150,988.00
Engineering and Administration			25%	\$2,537,747.00
Utility Relocation	LS	1	\$ 90,000.00	\$90,000.00
Materials Testing (Construction)			2% of Earthwork Cost	\$2,800.00
Right of Way Acquisition	ACRE	10	\$ 5,000.00	\$50,000.00
Contingencies			20%	\$2,030,198.00
<b>Total Construction</b>				<b>\$14,861,733.00</b>



TRF Westside Drainage Study				
Alternative 1A – Engineer's Opinion of Most Probable Cost				
Item	Unit	Qty	Unit Cost	Cost
MOBILIZATION	LS	1	\$50,000.00	\$50,000.00
FIELD LABORATORY - TYPE D	EACH	1	\$8,000.00	\$8,000.00
CLEARING AND GRUBBING	LS	1	\$5,000.00	\$5,000.00
SALVAGE 10' X 6' RC BOX CULVERT	LF	88	\$25.00	\$2,200.00
COMMON EXCAVATION (P)	CY	90,000	\$3.50	\$315,000.00
COMMON EXCAVATION HAULING	CY	30,000	\$5.00	\$150,000.00
AGGREGATE SURFACING, CLASS 5	CY	300	\$20.00	\$6,000.00
INSTALL SALVAGED 10' X 6' RC BOX CULVERT	LF	88	\$130.00	\$11,440.00
10' X 10' PRECAST CONCRETE BOX CULVERT, CLASS III	LF	2,340	\$1,300.00	\$3,042,000.00
48" STEEL CASING PIPE (JACK INSTALLED)	LF	780	\$650.00	\$507,000.00
18" SIDE INLET PIPES W/ APRON AND FLAP	EA	10	\$2,630.00	\$26,300.00
QUARRY RUN ROCK - CLASS 3	CY	100	\$90.00	\$9,000.00
GEOTEXTILE FILTER, TYPE IV	SY	300	\$2.50	\$750.00
TRAFFIC CONTROL	LS	1	\$25,000.00	\$25,000.00
TEMPORARY DITCH CHECK, TYPE 2	LF	750	\$2.50	\$1,875.00
SEEDING	ACRE	13	\$90.00	\$1,170.00
SEED MIXTURE, 25-141	POUND	920	\$3.15	\$2,898.00
MULCH MATERIAL TYPE 1	TON	26	\$110.00	\$2,860.00
DISK ANCHORING	ACRE	13	\$40.00	\$520.00
FERTILIZER, TYPE 1	TON	1.3	\$800.00	\$1,040.00
Subtotal				\$4,168,053.00
Engineering and Administration			25%	\$1,042,014.00
Utility Relocation	LS	1	\$ 90,000.00	\$90,000.00
Materials Testing (Construction)			2% of Earthwork Cost	\$6,344.00
Right of Way Acquisition	ACRE	19	\$ 5,000.00	\$95,000.00
Contingencies			20%	\$833,611.00
<b>Total Construction</b>				<b>\$6,235,022.00</b>



<b>TRF Westside Drainage Study</b>				
<b>Middle Alternative – Engineer's Opinion of Most Probable Cost</b>				
<b>Item</b>	<b>Unit</b>	<b>Qty</b>	<b>Unit Cost</b>	<b>Cost</b>
MOBILIZATION	LS	1	\$69,000.00	\$69,000.00
FIELD LABORATORY - TYPE D	EACH	1	\$8,000.00	\$8,000.00
CLEARING AND GRUBBING	LS	1	\$10,000.00	\$10,000.00
REMOVE 24" CS PIPE CULVERT	LF	68	\$10.00	\$680.00
COMMON EXCAVATION (P)	CY	160,000	\$3.50	\$560,000.00
COMMON EXCAVATION HAULING	CY	30,000	\$5.00	\$150,000.00
AGGREGATE BASE, CLASS 3	TON	1,750	\$22.00	\$38,500.00
AGGREGATE SURFACING, CLASS 5	CY	750	\$20.00	\$15,000.00
TYPE SP 9.5 WEARING COURSE MIXTURE (2,B)	TON	369	\$195.00	\$71,955.00
8' X 6' PRECAST CONCRETE BOX CULVERT, CLASS III	LF	476	\$900.00	\$428,400.00
8' X 6' PRECAST CONCRETE BOX CULVERT END	EA	8	\$10,000.00	\$80,000.00
8' X 8' PRECAST CONCRETE BOX CULVERT, CLASS III	LF	1,004	\$950.00	\$953,800.00
8' X 8' PRECAST CONCRETE BOX CULVERT END	EA	8	\$12,000.00	\$96,000.00
78" CS PIPE CULVERT	LF	318	\$150.00	\$47,700.00
GRANULAR BEDDING (CV)	CY	1,309	\$18.00	\$23,562.00
18" SIDE INLET PIPES W/ APRON AND FLAP	EA	17	\$2,630.00	\$44,710.00
QUARRY RUN ROCK - CLASS 3	CY	1,000	\$90.00	\$90,000.00
GEOTEXTILE FILTER, TYPE IV	SY	1,000	\$2.50	\$2,500.00
TRAFFIC CONTROL	LS	1	\$25,000.00	\$25,000.00
TEMPORARY DITCH CHECK, TYPE 2	LF	1,000	\$2.50	\$2,500.00
SEEDING	ACRE	50	\$90.00	\$4,500.00
SEED MIXTURE, 25-141	POUND	3,500	\$3.15	\$11,025.00
MULCH MATERIAL TYPE 1	TON	100	\$110.00	\$11,000.00
DISK ANCHORING	ACRE	50	\$40.00	\$2,000.00
FERTILIZER, TYPE 1	TON	5.0	\$800.00	\$4,000.00
Subtotal				\$2,749,832.00
Engineering and Administration			25%	\$687,458.00
Utility Relocation	LS	1	\$ 150,000.00	\$150,000.00
Materials Testing (Construction)			2% of Earthwork Cost	\$11,214.00
Right of Way Acquisition	ACRE	38.5	\$ 3,200.00	\$123,200.00
Contingencies			20%	\$549,967.00
<b>Total Construction</b>				<b>\$4,271,671.00</b>



TRF Westside Drainage Study				
South Alternative – Engineer's Opinion of Most Probable Cost				
Item	Unit	Qty	Unit Cost	Cost
MOBILIZATION	LS	1	\$78,000.00	\$78,000.00
FIELD LABORATORY - TYPE D	EACH	1	\$8,000.00	\$8,000.00
CLEARING AND GRUBBING	LS	1	\$15,000.00	\$15,000.00
COMMON EXCAVATION (P)	CY	414,000	\$3.25	\$1,345,500.00
COMMON EXCAVATION HAULING	CY	25,000	\$5.00	\$125,000.00
AGGREGATE BASE, CLASS 3	TON	1,390	\$22.00	\$30,580.00
AGGREGATE SURFACING, CLASS 5	CY	715	\$20.00	\$14,300.00
TYPE SP 9.5 WEARING COURSE MIXTURE (2,B)	TON	292	\$195.00	\$56,940.00
SALVAGE 115" x 72" RCP ARCH PIPE	LF	92	\$40.00	\$3,680.00
REMOVE 24" CS PIPE CULVERT	LF	68	\$10.00	\$680.00
18" SIDE INLET PIPES W/ APRON AND FLAP	EA	26	\$2,630.00	\$68,380.00
48" CS PIPE CULVERT	LF	460	\$85.00	\$39,100.00
84" CS PIPE CULVERT	LF	504	\$185.00	\$93,240.00
48" CS PIPE APRON	EA	18	\$1,250.00	\$22,500.00
12' X 6' PRECAST CONCRETE BOX CULVERT, CLASS III	LF	84	\$850.00	\$71,400.00
12' X 6' PRECAST CONCRETE BOX CULVERT END	EA	2	\$9,500.00	\$19,000.00
12' X 8' PRECAST CONCRETE BOX CULVERT, CLASS III	LF	90	\$900.00	\$81,000.00
12' X 8' PRECAST CONCRETE BOX CULVERT END	EA	2	\$12,000.00	\$24,000.00
12' X 10' PRECAST CONCRETE BOX CULVERT, CLASS III	LF	132	\$1,100.00	\$145,200.00
12' X 10' PRECAST CONCRETE BOX SKEWED END	EA	2	\$20,000.00	\$40,000.00
GRANULAR BEDDING (CV)	CY	864	\$18.00	\$15,552.00
QUARRY RUN ROCK - CLASS 3	CY	2,792	\$90.00	\$251,280.00
GEOTEXTILE FILTER, TYPE IV	SY	1,800	\$2.50	\$4,500.00
TRAFFIC CONTROL	LS	1	\$25,000.00	\$25,000.00
TEMPORARY DITCH CHECK, TYPE 2	LF	1,000	\$2.50	\$2,500.00
SEEDING	ACRE	78	\$90.00	\$7,020.00
SEED MIXTURE, 25-141	POUND	5,460	\$3.15	\$17,199.00
MULCH MATERIAL TYPE 1	TON	156	\$110.00	\$17,160.00
DISK ANCHORING	ACRE	78	\$40.00	\$3,120.00
FERTILIZER, TYPE 1	TON	7.8	\$800.00	\$6,240.00
Subtotal				\$2,631,071.00
Engineering and Administration			25%	\$657,768.00
Utility Relocation	LS	1	\$ 150,000.00	\$150,000.00
Materials Testing (Construction)			2% of Earthwork Cost	\$26,910.00
Right of Way Acquisition	ACRE	53.2	\$ 3,000.00	\$159,600.00
Contingencies			20%	\$526,215.00
<b>Total Construction</b>				<b>\$4,151,564.00</b>



**Red Lake Watershed District** | Preliminary Engineer's Report  
Thief River Falls Westside Flood Damage Reduction Project 

## Appendix C. Petition

**BEFORE THE RED LAKE WATERSHED DISTRICT  
PETITION FOR WESTSIDE FLOOD DAMAGE REDUCTION DIVERSION  
PROJECT UNDER MINN. STAT. 103D.705**

WHEREAS, the petitioners are requesting a proposed project to provide flood damage reduction benefits and protections as well as diverting any potential flood waters around the improved urban area affected and to provide proper channelization of flood waters to protect agricultural lands and urban area infrastructure and improvements, located in Pennington County and known to the public as parts of County Ditch 70 and County Ditch 1, along with other areas; and

WHEREAS, Petitioners propose that the proposed project will be located and pass over that certain real property described as follows and as represented in the attached Exhibit "A":

Commencing at a point on the north side of MN State Hwy No. 1 located approximately ½ mile west of its intersection with U.S. Hwy No. 59, as the point of beginning; thence continuing in an easterly direction along the north side of MN State Hwy No. 1 to the point of its intersection with U.S. Hwy No. 59; thence continuing in a southerly direction along the West side of C.S.A.H. No. 16 to the point of its intersection with MN St. Hwy No. 32; thence continuing in a southwesterly direction along the West side of MN State Hwy No. 32 to the point of its intersection with C.S.A.H. No. 7; thence continuing southwesterly to the point of its intersection with a natural waterway located in

part of the NE1/4 in Section 17, Township 153 North of Range 43 West of the Fifth Principal Meridian, lying West of MN State Hwy 32; thence in a southeasterly direction following an existing waterway/drainageway to the point of its intersection with the West bank of the Red Lake River; and

WHEREAS, a general description of the area of the Red Lake Watershed District that will be affected by the proposed project is all or portions of the benefitted areas as shown in the attached Exhibit "B"; and

WHEREAS, said proposed project is necessary to prevent flooding of agricultural lands and urban infrastructure and urban and residential real property and improvements in the event of a rain or storm event in excess of 3 inches of rain within a 24 hour period; and

WHEREAS, there has been an Engineer appointed to examine the present proposed project area and Petitioners are interested in having an Engineer appointed to make an engineering report for the proposed project; and

WHEREAS, the proposed project will be conducive to public health, convenience and welfare; and

WHEREAS, Petitioners understand that they will pay all costs and expenses that may be incurred if the proceedings are dismissed or a construction or implementation contract is not awarded for the proposed project.

WHEREAS, a Petitioner's bond is not required by statute due to the standing of the Petitioners as a County Board and/or standing as the City Council of the City of Thief River Falls, Minnesota.

NOW, THEREFORE, the Petitioners request the Red Lake Watershed District to accept this petition under Minnesota State Statute 103D.705 and begin the process for the examination and possible construction of the proposed flood damage reduction diversion project, as allowed by statute.

Dated: September 26<sup>th</sup>, 2017

PENNINGTON COUNTY BOARD OF COMMISSIONERS

BY:  \_\_\_\_\_

ITS: Chairman \_\_\_\_\_

Dated: 10/3/17 \_\_\_\_\_

CITY OF THIEF RIVER FALLS, MN

BY:  \_\_\_\_\_

ITS: Mayor

BY:  \_\_\_\_\_

ITS: City Administrator

*Pennington County Highway Dept.  
County Engineer's Office*

250 125th Avenue NE  
Thief River Falls, MN 56701

Telephone (218) 683-7017  
Fax (218) 683-7016

RESOLUTION COUNTY OF PENNINGTON

WHEREAS, the County, in partnership with the Red Lake Watershed District and the City of Thief River Falls, hired HDR Engineering to perform a feasibility study for drainage improvements to County Ditch 70. This system drains areas north and west of the city, as well as areas of the city. This system runs along Highway 1 & 59 to Barzen Avenue along Digi-key and Arctic Cat, and outlets along Greenwood Street to the Red Lake River. This system has a history of flood damage northwest of the city and does not have adequate capacity for anticipated growth and expansion in the southwest part of the city; and

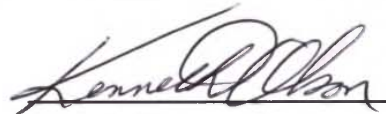
WHEREAS, the strategic partnership between the County, City and Watershed District is complimented by the Minnesota Department of Transportation through cost sharing of drainage improvements that are programmed for 2020. These benefits, along with the Digi-key expansion and the need for improved agricultural drainage make this the opportune time to accomplish this project.

THEREFORE, BE IT RESOLVED, by the Pennington County Board, to accept the Adopt a Resolution requesting a proposed project to provide flood damage reduction benefits and protections as well as diverting any potential flood waters around the improved urban area affected and to provide proper channelization of flood waters to protect agricultural lands and urban area infrastructure and improvements, located in Pennington County and known to the public as parts of County Ditch 70 and County Ditch 1.

Approved this 26th day of September 2017.

STATE OF MINNESOTA  
COUNTY OF PENNINGTON

I, Kenneth Olson, Auditor of Pennington County, do hereby certify that the above is a true and correct copy of a resolution moved by Commissioner Peterson, seconded by Commissioner Lawrence, and upon vote was unanimously carried.

  
Kenneth Olson, Auditor  
Pennington County

## **CITY OF THIEF RIVER FALLS**

### **RESOLUTION NO. 9-234-17: APPROVAL OF PETITION FOR WESTSIDE FLOOD DAMAGE REDUCTION DIVERSION**

The City Council reviewed a Request for Council Action. Councilmember Narverud introduced Resolution No. 9-234-17, being seconded by Councilmember Howe, that:

WHEREAS, the City, in a partnership with the Red Lake Watershed District and Pennington County hired HDR Engineering to perform a feasibility study for drainage improvements to County Ditch 70. This system drains areas north and west of the city, as well as areas of the city. This system runs along Highway 1 & 59 to Barzen Avenue along Digi-Key and Arctic Cat, and outlets along Greenwood Street to the Red Lake River. This system has a history of flood damage northwest of the city and does not have adequate capacity for anticipated growth and expansion in the southwest part of the city; and

WHEREAS, the strategic partnership between the City, County and Watershed District is complimented by the Minnesota Department of Transportation through cost sharing of drainage improvements that are programmed for 2020. These benefits, along with the Digi-Key expansion and the need for improved agricultural drainage make this the opportune time to accomplish this project.

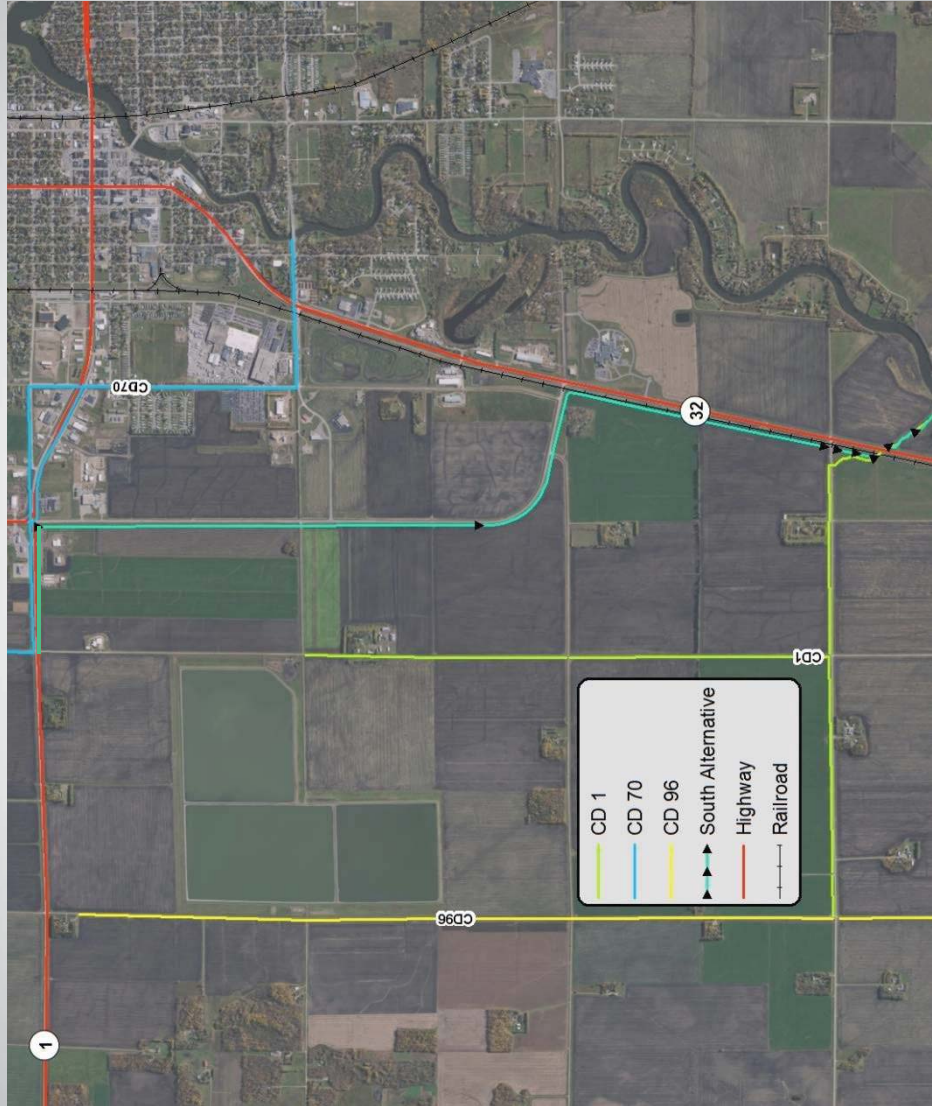
THEREFORE, BE IT RESOLVED, by the City Council, to accept the Adopt a Resolution requesting a proposed project to provide flood damage reduction benefits and protections as well as diverting any potential flood waters around the improved urban area affected and to provide proper channelization of flood waters to protect agricultural lands and urban area infrastructure and improvements, located in Pennington County and known to the public as parts of County Ditch 70 and County Ditch 1.

On vote being taken, the resolution was unanimously passed.

*The above is an excerpt from the September 19, 2017 Council Proceedings*

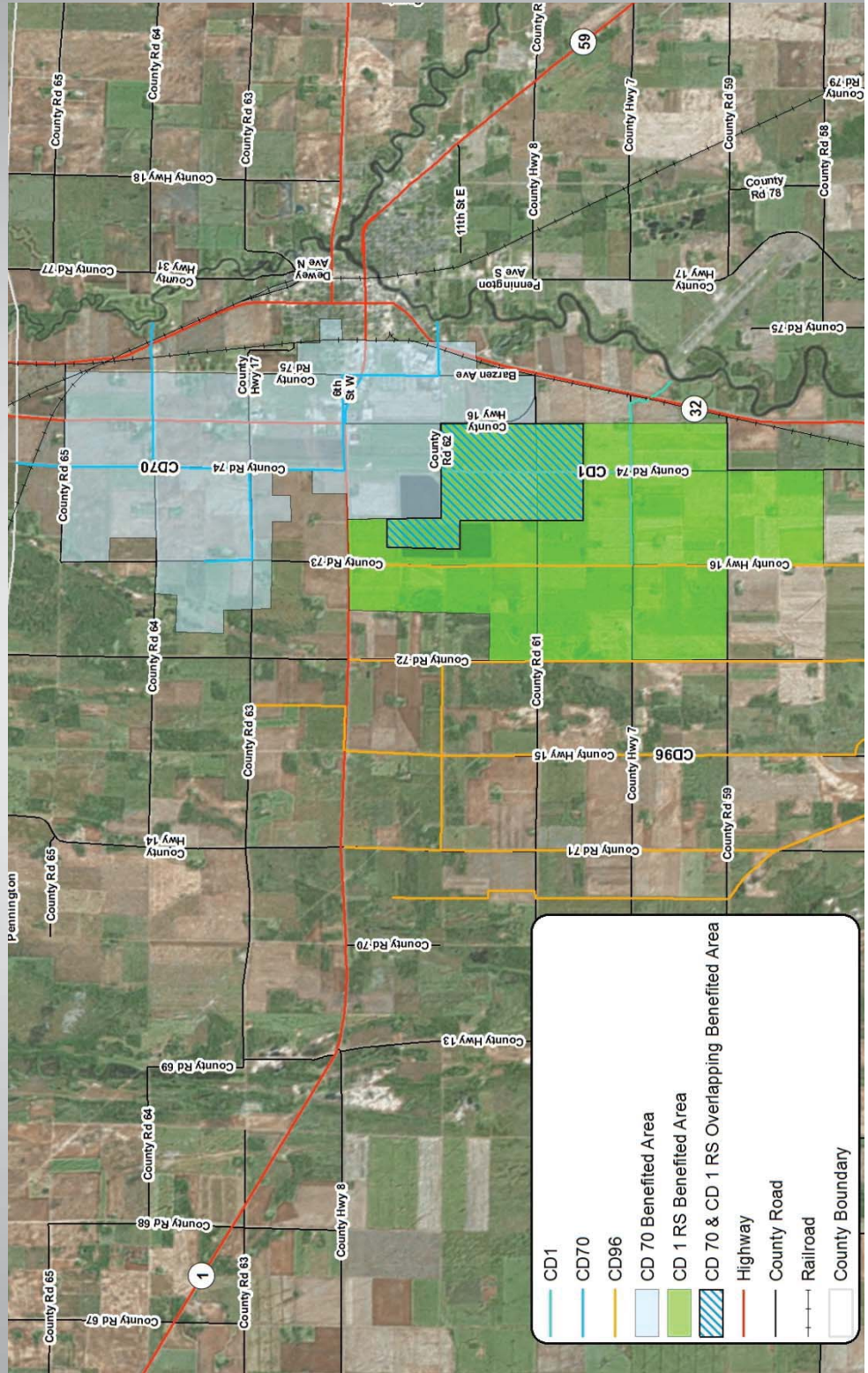
# EXHIBIT A

## SOUTH ALTERNATIVE



# EXHIBIT B

## CD 70 & CD 1 BENEFITED AREAS





**Red Lake Watershed District** | Preliminary Engineer's Report  
Thief River Falls Westside Flood Damage Reduction Project 

## Appendix D. RRWMB Mediation Agreement Goals



1. **Prevent** loss of human life.
  - a. Promote the development of community flood warning systems and emergency response plans.
  - b. Promote the development of flood plain management plans and land use ordinance administration and enforcement.
  - c. Ensure state oversight of project design and technical criteria.
2. **Prevent** damage to farm structures, homes, and communities.
  - a. Promote the construction of farmstead ring dikes built to a minimum of 2 feet of freeboard over the flood of record, or 1 foot above the administrative 100-year flood, whichever is greater.
  - b. Promote the construction of community setback levees and floodwalls built to the flood of record plus uncertainty (3 feet) or the 100-year flood plus uncertainty, whichever is greater.
  - c. Promote the acquisition and permanent removal of flood-prone structures and establishment of greenways within the 100-year flood plain.
  - d. Accelerate flood insurance studies, flood plain remapping and hydraulic/hydrologic studies in poorly defined or unmapped areas.
  - e. Accelerate comprehensive watershed and systems approaches to basin management.
  - f. Discourage the development of structures within the 100-year flood plain, with the exception of those approved in a community's flood plain ordinances.
3. **Reduce** damage to farmland by:
  - a. Providing protection against a ten-year summer storm event for intensively farmed agricultural land;
  - b. Maintaining existing levels of flood protection when consistent with a comprehensive watershed management plan; and
  - c. Providing a higher level of protection, e.g., 25-year event, when feasible at a minimal incremental cost.
4. **Reduce** damage to transportation.
5. **Reduce** damage to water quality, including direct and chronic impacts, from floodwaters coming into contact with potential contaminants.
6. **Reduce** environmental damage caused by flood control projects.
  - a. When advancing a project that requires a permit, select the least environmentally damaging (or most environmentally enhancing), feasible and prudent alternative that accomplishes the water management goals.
  - b. Design projects or packages of projects that provide net natural resource enhancement.
  - c. A planned response to a flooding problem should take into account natural resource benefits, as well as negative impacts, in a watershed context (beyond the immediate project site).
7. **Reduce** social and economic damage.
8. **Reduce** damage to natural resource systems caused by flooding.

STATE OF MINNESOTA  
RED LAKE WATERSHED DISTRICT

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The matter of the petitions of the City of Thief River Falls and Pennington County for establishment of the Thief River Falls-West Side Flood Damage Reduction Project (RLWD Project No. 178)

**ORDER FOR ESTABLISHMENT OF THE THIEF RIVER FALLS-WEST SIDE FLOOD DAMAGE REDUCTION PROJECT (RLWD PROJECT NUMBER 178)(Minn. Stat. §§103D.605; .729)**

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Upon proper notice, the Board of Managers of the Red Lake Watershed District held a final hearing on the establishment of the Thief River Falls-West Side Flood Damage Reduction Project (RLWD Project No. 178) at 6:00 p.m. on Thursday, May 23, 2019, in the meeting room of the Quality Inn, 1060 Highway 32 South, Thief River Falls, Minnesota, continued to the Board's regular meeting on June 13, 2019. Upon consideration of the evidence presented in the proceedings and the public comments therein, Manager \_\_\_\_\_ moved, seconded by Manager \_\_\_\_\_, to adopt the following:

**Findings**

1. In October, 2017, Pennington County (County) and the City of Thief River Falls (City) petitioned the Red Lake Watershed District (District) to initiate proceedings for a Flood Damage Reduction (FDR) Project west of the City within the Pennington County Ditch (CD) 1 and 70 watersheds.
2. The Board of Managers (Board) received the petition at its October 12, 2017, regular meeting and initiated proceedings for project establishment pursuant to statutes chapter 103D.
3. The project, as petitioned, proposed the construction of basic water management (flood control) features identified in appendix M of the Red Lake River One Watershed One Plan (1W1P or Watershed Management Plan).
4. Because the proposed project was identified in the 1W1P, the Board's proceedings primarily followed the requirements of statutes section 103D.605. However, because the proposed project also involved the acquisition of right of way and the development of water management district charges to generate project revenues, the Board concurrently followed the requirements of statutes sections 103D.711, .721, .729, .735, and .741.
5. Pursuant to statutes sections 103D.605 and .711, the Board assigned a name and number to the project proceedings and designated an engineer to make surveys, maps, and a report on the proposed project.

6. The Board's engineer transmitted the project report to the Board of Water and Soil Resources and to the Department of Natural Resources. Both agencies prepared and delivered advisory and review reports for the project. The engineer and Board reviewed the advisory reports and used the review and recommendations contained therein in developing the final project plan.
7. As part of project development, the Board determined that the use of Water Management District (WMD) Charges would be a feasible option for generating local revenue to pay a portion of project costs. Based on its determination, the Board initiated proceedings to amend the 1W1P to establish a WMD for the project. After the required proceedings under statutes chapter 103D, including noticed hearings, the Board of Water and Soil Resources issued findings and an order, dated January 23, 2019, approving the plan amendments and authorizing establishment of the Thief River Falls – West Side Flood Damage Reduction Project Water Management District.
8. The Board determined it necessary to petition Pennington County, the drainage authority for CDs 1 and 70, to modify portions of CDs 1 and 70 to facilitate the project. The Board hereby approves the petition to the County for the required modifications and makes construction of the proposed project, if established, contingent on the Pennington County Board of Commissioners' authorization for modifications of the drainage systems as required for the proposed project.
9. Because the proposed project involves the acquisition of right of way for certain project components, the Board is following the procedures found in statutes sections 103D.721 for the determination of damages for the acquisition. To aid in its damage determinations, the Board has hired Tinjum Appraisal Company, Inc., to complete the appraisal of properties and provide the Board with an opinion of value. As of the date of this order, the appraisals have not been returned to the Board. Therefore, any action authorized under this order, is contingent upon subsequent proceedings awarding damages for the necessary right of way for the project.
10. The engineer's opinion of cost for the project is \$4.7 million.
11. Funding for the project is anticipated to derive from various sources including, but not limited to: Watershed District project funds; Red River Watershed Management Board (RRWMB) project funds; State of Minnesota flood damage reduction and flood hazard mitigation funds; State of Minnesota watershed based funding (clean water fund) for the Red Lake River 1W1P; in-kind and financial assistance from the City of Thief River Falls and Pennington County; State of Minnesota transportation infrastructure funds; and WMD charges.

12. For the project, the District has been awarded a Flood Hazard Mitigation Grant in the amount of \$1,500,000.00. Matching funds for the State grant will come from the RRWMB (\$1,000,000) and the District (\$500,000).
13. The project involves modification of crossings under state highways that are currently slated for re-construction. Coordinating with the Minnesota Department of Transportation (MNDOT), the District has been able to time construction of the proposed project with MNDOT improvements. As a result, MNDOT has awarded the District a \$750,000 Minnesota Department of Transportation Local Partnership Program Grant for the installation of the Box Culverts through Trunk Highways 1 and 32 as part of the project.
14. Annually, the District receives watershed based funding, through the State's Clean Water Fund, to implement basic water management and water quality improvement actions as part of implementation of the 1W1P. Certain erosion control, grade stabilization and water quality features of the proposed project will be funded with these funds in the amount of \$175,000.
15. The proposed project will divert flood waters from CD 70, which travels through the City of Thief River Falls to the Red Lake River, to an alternative outlet channel that by-passes the City.
16. The project, if constructed, will result in 100-year flood protection for urban areas and 10-year flood protection for agricultural areas within the project limits. The alternative outlet channel and other project components will alleviate or considerably lessen the damages being done by the overloading of the existing drainage system. The project will also improve the storm water runoff within the City of Thief River Falls.
17. WMD charges for the project are based on pre- and post-project flood damage protection conditions (level of service) for each acre or fraction thereof in the water management district. The flood damage protection is considered in relation to land use and run-off and the flood damage burden relieved by the proposed project. Anticipated performance of the project was modeled to evaluate the ability of an area of land to drain 12 hours after a modeled storm event has ended. Subwatersheds within the drainage area of the project were analyzed for a 2-year (2.49 inches), 10-year (3.77 inches), and 25-year (4.69 inches) 24 hour duration summer storm event.
18. The Board finds that the WMD charges and the method of determining the charges are reasonable, reflect the portion of project cost attributable to project flood damage reduction to lands within the WMD, and are necessary as a local component of project cost.
19. WMD charges for the project are capped at \$500,000.

20. During the public hearing, several landowners commented on the proposed WMD area and, specifically, an area north of the City, in sections 16, 17, 20 and 21, T154N, R43W, that are drained to the Thief River by a branch of CD 70. While these properties do benefit from the project in high water conditions (i.e. by diverting high water flows away from these properties and to the south), the Board agrees that the WMD charges for these properties should be modified to recognize that the primary outlet for flood damaging waters will not be the proposed project.
21. During the public hearing, landowners commented on the diversion of waters from CD 70 and the impact to lands along and downstream of the diversion and potential damages. Modeling of the performance of the project show improvement to existing flood risk conditions in these areas because the project is better able to confine and convey damaging floodwaters. Also, as discussed above, right of way damages are being determined with the assistance of an appraiser to ensure a fair reflection of market value for those damages. Any action taken herein, shall be contingent on a final determination and award of damages for the project.
22. During the public hearing, at least one landowner asked whether there had been any formal study of flood damage values in the area of the proposed project. While an economic analysis and study has not been completed, County and District data demonstrate an increased frequency of flooding in the project area. Additionally, modeling was performed using updated precipitation and runoff data. The additional modeling shows increased risk of flood damages in all storm events that will be addressed by the project. Even without an economic study, the Board finds necessity for the project both to address current flooding and flood damage issues and to build resiliency into local and regional water management systems for future changes in development, land use and climate conditions.
23. The Board has been proactive in communicating about the project, project funding and impacts. In addition to proceedings and hearings for the various actions related to CDs 1 and 70 and proceedings and hearings on amendments to the 1W1P in support of the project, the Board has held meetings with landowners within the CD 1 and 70 benefited areas to share project details, costs and potential WMD charges for the project.
24. Notice of the final hearing was published in the *Thief River Falls Times* on May 8 and 15, 2019.
25. On May 8, 2019, the Pennington County Sheriff's Office served notice of the hearing and potential damages as required by statutes section 103D.741, subd. 3, on the owners of property over which right of way is to be acquired for the project.
26. Property Owners' Reports detailing anticipated WMD charges and a notice of the final hearing were mailed to all landowners within the project area on May 9, 2019.

27. On May 9, 2019, hearing notices were sent to the following: MnDNR, BWSR, City of Thief River Falls, Pennington County, Pennington County Highway Department, Norden Township, North Township, Rocksbury Township, Sjobergs Cable TV, Inc., Century Link, Minnesota Northern Railroad, Minnesota Energy Resources, Red Lake Electric Cooperative and the Red Lake River 1W1P Planning Work Group. Notices to the City, County and Townships included details of the WMD charges as required by statutes section 103D.729, subd. 3.
28. The record of these proceedings, including statutory notices, order and other actions, as required by statutes chapters 103D and 103E, are contained within the record of proceedings maintained by the District.
29. May 9, 2019, HDR Engineering, Inc., submitted permit applications to agencies.
30. The Board finds that the project is consistent with the Basic Water Management Project identified in the 1W1P. Further, the Board finds that the project is conducive to public health, promotes the general welfare, is compliant with statutes chapter 103D, and otherwise meets all requirements for project establishment pursuant to statutes section 103D.605.

### **Order**

- A. The Board hereby establishes the Thief River Falls-West Side Flood Damage Reduction Project (RLWD Project No. 178), as outlined and described in the engineer's final report, pursuant to statutes section 103D.605, subject to the following contingencies:
  - 1) Completion of necessary proceedings with the Pennington County Board pursuant to statutes chapter 103E;
  - 2) Final determination and award of damages for the acquisition of right of way.
- B. The Board establishes and approves the imposition of WMD charges for the project, as modified to reflect the drainage patterns and outlet provided in sections 16, 17, 20 and 21, T154N, R43W.
- C. The Board directs its engineer to prepare plans, specifications and bidding documents for the project as established herein or modified by subsequent order.
- D. The Board directs its administrator to coordinate and take all subsequent actions necessary for implementation of the repair in a manner consistent and compliant with existing law. The Board reserves to itself, however, all subsequent actions required by law to proceed upon Board approval.
- E. The Board further authorizes expenditures for the project.

The question was on the adoption of the findings and order and, after discussion, there were \_\_\_ yeas and \_\_\_ nays as follows:

	<u>Yea</u>	<u>Nay</u>	<u>Absent</u>	<u>Abstain</u>
DWIGHT	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
OSE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PAGE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SORENSEN	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TIEDEMANN	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TORGERSON	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NELSON	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Upon vote, the Board President declared the findings and order adopted.

Dated: June 13, 2019

\_\_\_\_\_  
Dale M. Nelson, Board President

\* \* \* \* \*

I, Terry Sorenson, Secretary of the Red Lake Watershed District, do hereby certify that I have compared the above findings and order with the original thereof as the same appears of record and on file with the District and find the same to be a true and correct transcript thereof.

IN TESTIMONY WHEREOF, I hereunto set my hand this 13<sup>th</sup> day of June, 2019.

\_\_\_\_\_  
Terry Sorenson, Secretary



From: Dennis Ptacek  
17321 130<sup>th</sup> Ave NE  
Thief River Falls MN 56701

May 30, 2019

To: Myron Jesme  
Project Manager, Project #178  
1000 Pennington Avenue South  
Thief River Falls, MN 56701

Subject: Request for data for Project #178

Dear Mr. Jesme

At the May 23, 2019 public hearing I expressed my objection to the funding classification for my property. This is formal request for information as to not only the project as a whole but to gather information on how this classification was justified by the Red Lake Watershed District therefore listed below is the information I would like.

1. List of all funding sources including funds to be allocated per each funding source.
2. List of all flow line elevations for inplace structures, description of structure including location, and flow direction starting from the north structure north of 6<sup>th</sup> St along 130<sup>th</sup> Ave NE that is included in work being performed under this project, thence south along 130<sup>th</sup> Ave NE and south along Barzen Ave to and including Greenwood St., thence east along Greenwood St. to the Red Lake River and west along abandoned/closed County Road 62 to and including Co. Rd 16, thence North along CR 16 and then North along T.H. 59 for one half mile, thence southeasterly to the point of beginning. This includes all structures along T.H. 59/T. H. 1 and 6<sup>th</sup> St. within these limits.
3. List of all flow line elevations for proposed structures, description of structure including location, and flow direction starting from the north structure north of 6<sup>th</sup> St along 130<sup>th</sup> Ave NE that is included in work being performed under this project, thence south along 130<sup>th</sup> Ave NE and south along Barzen Ave to and including Greenwood St., thence east along Greenwood St. to the Red Lake River and west along abandoned/closed County Road 62 to and including Co. Rd 16, thence North along CR 16 and then North along T.H. 59 for one half mile, thence easterly to the point of beginning. This includes all structures along T.H. 59/T. H. 1 and 6<sup>th</sup> St. within these limits
4. Map of city limits of City of Thief River Falls west of T.H. 32 and any anticipated or proposed changes to city limits that you are aware of.

If you have any questions contact me at email: [dennisptacek@gmail.com](mailto:dennisptacek@gmail.com) or phone 218-681-8730.

Sincerely,



Dennis Ptacek



# Red Lake Watershed District

2019 Spring runoff & Flood water storage

- Euclid East Imp.
- Brandt Imp.

June 13, 2019 - Board of Managers Meeting

Thief River Falls, MN

Loren Sanderson

Nick Olson

# Euclid East Imp.

5-29-2019

Pool elev. 902.1

6-12-2019

Pool elev. 897.95

Flowline of struc. 895.3



Looking West from Outlet Struc.

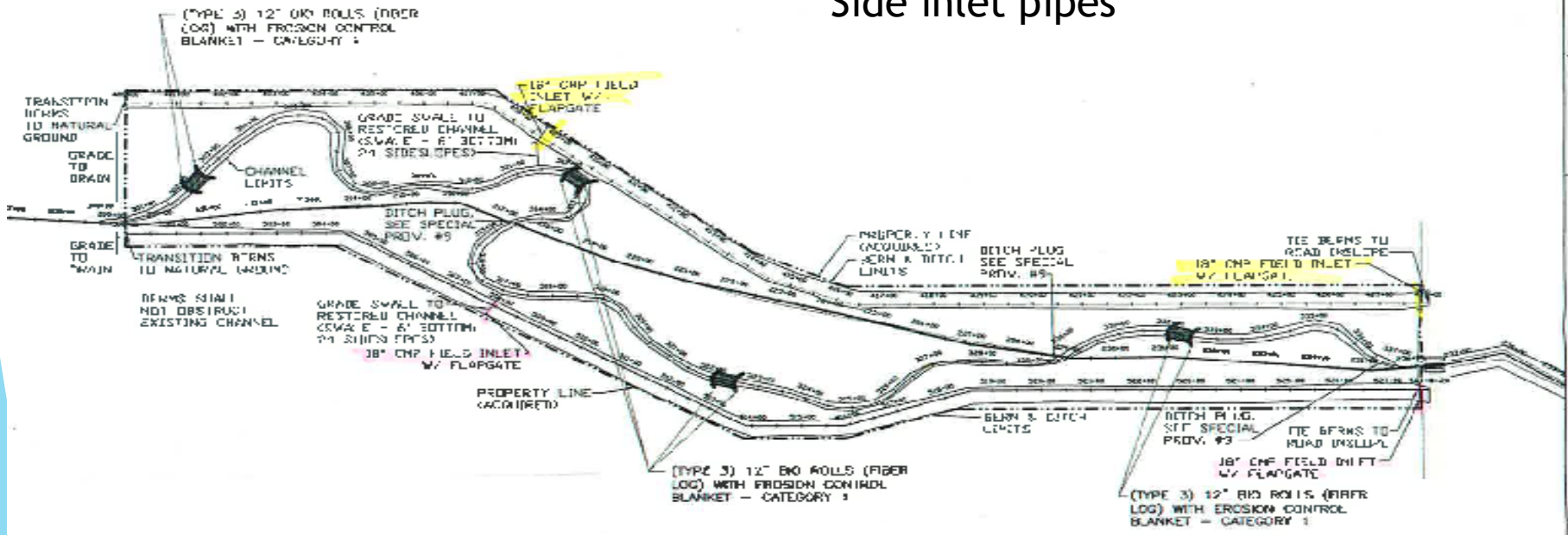


Brandt Imp.  
5-29-2019  
Pool elev. 907.7

56-12-2019  
Pool elev. 897.30  
Struc. flowline elev. 896.6



# Euclid Twp. - sec. 12 Bramdt Outlet Channel Side inlet pipes



Submerged Side inlet Pipe  
With flap-gate



# Outlet Chnl. - looking West





# Outlet Chnl. - looking East





21430 Timberlake Rd  
Unit 349  
Lynchburg, VA 24502  
Phone: 800-591-8907  
Fax: 888-938-1787

## REQUESTED QUOTE

Quote prepared on: 06/04/19

Quote prepared for:

Nick Olson  
Red Lake Watershed District

**Shipping Address:**

1000 Pennington Ave S  
Thief River Falls, MN 56701  
218-681-5800  
[nick.olson@redlakewatershed.org](mailto:nick.olson@redlakewatershed.org)

Product Code	Model Number	Product Name	Qty	Price Each	Totals
ES8967	99000	Seco - 4" Wide Un-numbered Stream Gauge with Ft/10th/100ths Graduations	20	\$ 58.99	\$ 1,179.80
				Subtotal: \$	1,179.80
				Shipping: \$	88.25
				Sales Tax (5.3% if shipping to Virginia) \$	0.00
				<b>Grand Total: \$</b>	<b>1,268.05</b>

The quoted prices are good for 10 calendar days from the date of this quote. Please contact me with any questions or concerns you may have. Thank you for the opportunity.

Brandi  
[EngineerSupply.com](http://EngineerSupply.com)

## iPad prices from AT&T

### iPad 6<sup>th</sup> generation

GB	Price	Price if paid in installments
32GB	\$460	\$23/month for 30 months (\$690)
128 GB	\$560	\$28/month for 30 months (\$840)

### iPad Pro 11"

GB	Price	Price if paid in installments
64GB	\$950	\$47.50/month for 30 months (1,425.00)

What we have now – used for ditch inspections

- 5<sup>th</sup> generation
- 32GB



**Applicant Information**

Name	Organization	Address	Email	Phone Number(s)
Dan Johnson		43407 190th Street SW East Grand Forks, MN 56721		tel:218-791-0520 mobile: fax:

**General Information**

(1) The proposed project is a:

**Culvert Installation / Removal / Modification**

(2) Legal Description

(3) County: **Polk** Township: **Huntsville** Range: **49** Section: **19 1/4: NE1/4**

(4) Describe in detail the work to be performed. **Raise culvert and fill ditch.**

(5) Why is this work necessary? Explain water related issue/problem being solved. **Water does not flow. Standing water in ditch.**

**Status**

Status	Notes	Date
Approved	Revision with conditions.	June 5, 2019
Denied		May 2, 2019
Received	None	April 24, 2019

**Conditions**

Red Lake Watershed District (RLWD) approval to fill ditch bottom to alleviate water ponding, as per approval of Huntsville Township specs/conditions; proposed work is within township road Right-of Way. Ditch may be filled to an elevation of 835.24' which is the elevation of the east flow line of applicant's driveway culvert. Water ponding is a result of downstream culvert elevations being too high. To permanently alleviate ponding water, downstream culverts would need to be lowered and the ditch re-graded accordingly, this would require cooperation with the landowners to the west of permit holder's driveway. See attached ditch profile. -Approve. For proposed work on lands not owned by applicant, he/she must obtain, in writing, permission from the affected landowners to perform proposed work. Applicant is responsible for utility locates by calling Gopher 1. (1-800-252-1166)

NOTE: This permit does not relieve the applicant of any requirements for other permits which may be necessary from Township, County, State, or Federal Government Agencies.

Township, Pennington County; No. 19025, Earl Pederson, North Township, Pennington County; and No., 19026, Bruce Jones, Goodridge Township, Pennington County. Motion carried.

Motion by Tiedemann, seconded by Dwight, to deny Permit No. 19013, Dan Johnson, Huntsville Township, Polk County. Motion carried.

Staff member Tammy Audette reviewed quotes received from Garden Valley Technologies and Marco for a new telephone system for the District office. Motion by Dwight, seconded by Sorenson, to approve the quote in the amount of \$3,911.00 from Marco, for a new telephone system for the District office. Motion carried.

The Board reviewed quotes for the purchase of a 2019 Chevrolet Silverado from Northern Motors and Thibert's Chevrolet. Sorenson questioned if any other car dealers were contacted for their services. Jesme indicated that he did request a quote from Thief River Ford, but no quote was received. Motion by Ose, seconded by Torgerson, to approve the low quote in the amount of \$36,531.58, from Thibert's Chevrolet for a 2019 Chevrolet Silverado. Motion carried with Manager Sorenson opposed.

Staff member Loren Sanderson stated that he was contacted by April Swenby from the Sandhill River Watershed District regarding a boundary issue located in Onstad Township, Polk County. Sanderson viewed the area with Swenby, noting that Swenby intends to contact MnDOT to request the removal of a culvert. Sanderson noted that the culvert in question was placed two years prior to the revised boundary with Sandhill River Watershed District. The culvert does not contribute to adverse impacts downstream. Sanderson also noted that there are additional culverts on the boundary that enter the RLWD from the Sandhill River Watershed District. Sanderson stated that he will be meeting with MnDOT staff to review the concerns brought up by Swenby. It was the consensus of the Board, to recommend leaving the stated culvert in place, and request MnDOT to review the off-take ditch and clean if necessary.

Staff member Loren Sanderson updated the Board on operation of District impoundments, and release of water from within the impoundments after the spring flood event.

Manager Tiedemann asked about the status of the emergency spillway on the Brandt Impoundment regarding the concerns of landowner Ron Salentine. Staff member Nick Olson stated that he surveyed the emergency spillway and provided the information to HDR Engineering, Inc. Olson noted that it appears the emergency spillway is one foot higher than planned design.

Staff member Loren Sanderson stated that the District tile permit application does not state that the landowner be the applicant. Administrator Jesme stated that the District's Permit Rules and Regulations state that the application should be in the landowner's name, not the renter. Motion by Ose, seconded by Torgerson, to amend the District's tile permit application to comply with the District's rules requiring the landowner to be the applicant. Motion carried.



Permit # 19-042

Status Report: **Approved**

**Applicant Information**

Name	Organization	Address	Email	Phone Number(s)
	Polk County Highway Department	820 Old Highway 75 South Crookston, MN 56716		tel:218-289-3972 mobile: fax:

**General Information**

(1) The proposed project is a:

**Culvert Installation / Removal / Modification**

(2) Legal Description

(3) County: **Polk** Township: **Andover** Range: **47** Section: **6 1/4: NW1/4**

(4) Describe in detail the work to be performed. **Existing bridge is structurally deficient, install 3 lines 14x14 PCC box**

(5) Why is this work necessary? Explain water related issue/problem being solved.

**Status**

Status	Notes	Date
<b>Approved</b>	<b>None</b>	<b>June 13, 2019</b>
Received	None	May 16, 2019

**Conditions**

**P.A. #19042 Polk Co. Hwy. Dept. – Andover Twp. – section 6 – replace deficient bridge structure with 3 lines of 14’ x 14’ Conc. box culverts – as per approval of MnDNR The proposed culvert work is within a MN Dept. of Natural Resources protected watercourse. The applicant has contacted the MN Dept. of Natural Resources (MnDNR) area hydrologist concerning their permitting requirements. Contact person at the Thief River Falls MnDNR office is hydrologist Stephanie Klamm at 218-681-0947**

NOTE: This permit does not relieve the applicant of any requirements for other permits which may be necessary from Township, County, State, or Federal Government Agencies.



Permit # 19-043

Status Report: **Approved**

**Applicant Information**

Name	Organization	Address	Email	Phone Number(s)
	Polk County Highway Department	820 Old Highway 75 South Crookston, MN 56716		tel: mobile: 218-289-3972 fax:

**General Information**

(1) The proposed project is a:

**Culvert Installation / Removal / Modification**

(2) Legal Description

(3) County: **Polk** Township: **Fanny** Range: **47** Section: **3 1/4**:

(4) Describe in detail the work to be performed. **Replace existing culvert. Install 10x4 PCC box.**

(5) Why is this work necessary? Explain water related issue/problem being solved. **Existing culvert has washed out.**

**Status**

Status	Notes	Date
<b>Approved</b>	<b>None</b>	<b>June 13, 2019</b>
Received	None	May 16, 2019

**Conditions**

**P.A. #19043 Polk Co. Hwy. Dept. – Fanny Twp. – section 3 & 4 – replace 2 lines of 48 in. dia. township road centerline culverts with 1 line of 10’ x 4’ Conc. box culvert - as per approval of MnDNR The proposed culvert work is within a MN Dept. of Natural Resources protected watercourse. The applicant has contacted the MN Dept. of Natural Resources (MnDNR) area hydrologist concerning their permitting requirements. Contact person at the Thief River Falls MnDNR office is hydrologist Stephanie Klamm at 218-681-0947**

NOTE: This permit does not relieve the applicant of any requirements for other permits which may be necessary from Township, County, State, or Federal Government Agencies.



Permit # 19-044

Status Report: **Approved**

### Applicant Information

Name	Organization	Address	Email	Phone Number(s)
Dennis Schulz		13609 US Hwy 75 SW Euclid, MN 56722		tel: mobile: 218-289-0989 fax:

### General Information

(1) The proposed project is a:

#### Tiling

(2) Legal Description

(3) County: Polk Township: Euclid Range: 47 Section: 23 1/4:

(4) Describe in detail the work to be performed. **Tile wet areas to remove excess moisture that is causing crop failure.**

(5) Why is this work necessary? Explain water related issue/problem being solved. **High sodic salt content and high water table causing crop failure across significant acres.**

### Status

Status	Notes	Date
Approved	None	June 13, 2019
Received	None	May 17, 2019

### Conditions

**P.A. #19044** The Red Lake Watershed District (RLWD) approves the pattern tile project and lift station. If any work is within a public road and/or public ditch Right-of-Way, applicant shall contact the appropriate road/ditch authority for their approval, and must meet their specs/conditions. Directly downstream of the tile and/or pump station(s) outlets, applicant shall ensure that adequate grade and drainage is provided. ■ Note: Please be aware of, and review the 'bullet points' on the bottom half of the application. For proposed work on lands not owned by applicant, he/she must obtain, in writing, permission from the affected landowners to perform proposed work. Applicant is responsible for utility locates by calling Gopher 1.

**(1-800-252-1166)**

NOTE: This permit does not relieve the applicant of any requirements for other permits which may be necessary from Township, County, State, or Federal Government Agencies.





Permit # 19-046

Status Report: **Approved**

**Applicant Information**

Name	Organization	Address	Email	Phone Number(s)
Kevin Lien		27849 327th Avenue SW Fisher, MN 56723		tel: mobile: 218-280-0807 fax:

**General Information**

(1) The proposed project is a:

**Culvert Installation / Removal / Modification**

(2) Legal Description

(3) County: **Polk** Township: **Roome** Range: **48** Section: **12 1/4**:

(4) Describe in detail the work to be performed. **Install field crossing and 24" culvert.**

(5) Why is this work necessary? Explain water related issue/problem being solved. **No field entrance existing at present.**

**Status**

Status	Notes	Date
<b>Approved</b>	<b>None</b>	<b>June 13, 2019</b>
Received	None	May 24, 2019

**Conditions**

**P.A. #19046 Red Lake Watershed District (RLWD) approval to install a field entrance and a 24 inch dia. culvert, as per approval of Polk County Drainage Authority/County Board specs/conditions; proposed work is within Polk Co. Ditch #120 Right-of Way. Contact person at Polk Co. Hwy. Dept. is Drainage Inspector Jody Beauchane at 218-281-3952 ext. 8263. For proposed work on lands not owned by applicant, he/she must obtain, in writing, permission from the affected landowners to perform proposed work. Applicant is responsible for utility locates by calling Gopher 1. (1-800-252-1166)**

NOTE: This permit does not relieve the applicant of any requirements for other permits which may be necessary from Township, County, State, or Federal Government Agencies.



Permit # 19-047

Status Report: **Approved**

### Applicant Information

Name	Organization	Address	Email	Phone Number(s)
Noel Joppru		13137 180th Street NE Thief River Falls, MN 56701		tel: mobile: 218-686-7087 fax:

### General Information

(1) The proposed project is a:

**Culvert Installation / Removal / Modification**

(2) Legal Description

(3) County: **Pennington** Township: **North** Range: **43** Section: **28 1/4**:

(4) Describe in detail the work to be performed. **Install culvert for field crossing.**

(5) Why is this work necessary? Explain water related issue/problem being solved. **No current access.**

### Status

Status	Notes	Date
<b>Approved</b>	<b>None</b>	<b>May 29, 2019</b>
Received	None	May 24, 2019

### Conditions

**Red Lake Watershed District (RLWD) approval to install an 18" diameter field entrance culvert as per approval of North Township specs/conditions; proposed work is within road Right-of Way. -Approve. For proposed work on lands not owned by applicant, he/she must obtain, in writing, permission from the affected landowners to perform proposed work. Applicant is responsible for utility locates by calling Gopher 1. (1-800-252-1166)**

NOTE: This permit does not relieve the applicant of any requirements for other permits which may be necessary from Township, County, State, or Federal Government Agencies.



Permit # 19-048

Status Report: **Approved**

### Applicant Information

Name	Organization	Address	Email	Phone Number(s)
John McDonald		33414 210th Street SW Fisher, MN 56723		tel: mobile: 218-289-3500 fax:

### General Information

(1) The proposed project is a:

**Culvert Installation / Removal / Modification**

(2) Legal Description

(3) County: **Polk** Township: **Nesbit** Range: **48** Section: **19 1/4: SW1/4**

(4) Describe in detail the work to be performed. **Install crossing**

(5) Why is this work necessary? Explain water related issue/problem being solved. **Access to field and yard.**

### Status

Status	Notes	Date
<b>Approved</b>		<b>June 4, 2019</b>
Received	None	May 28, 2019

### Conditions

**Red Lake Watershed District (RLWD) approval to install 18" diameter culvert for yard/field entrance as per approval of Polk County specs/conditions; proposed work is within county road #63 Right-of Way. -Approve. N.J.O. For proposed work on lands not owned by applicant, he/she must obtain, in writing, permission from the affected landowners to perform proposed work. Applicant is responsible for utility locates by calling Gopher 1. (1-800-252-1166)**

NOTE: This permit does not relieve the applicant of any requirements for other permits which may be necessary from Township, County, State, or Federal Government Agencies.



Permit # 19-049

Status Report: **Approved**

**Applicant Information**

Name	Organization	Address	Email	Phone Number(s)
	Grove Park-Tilden Township	17742 US Hwy 2 SE Mentor, MN 56736		tel:218-637-0558 mobile: fax:

**General Information**

(1) The proposed project is a:

**Culvert Installation / Removal / Modification**

(2) Legal Description

(3) County: **Polk** Township: **Grove Park** Range: **43** Section: **3 1/4: NE1/4**

(4) Describe in detail the work to be performed. **Replace existing 2-4' culverts with arch culvert.**

(5) Why is this work necessary? Explain water related issue/problem being solved. **Two existing culverts seem to wash out and catch debris.**

**Status**

Status	Notes	Date
<b>Approved</b>	<b>None</b>	<b>June 6, 2019</b>
Received	None	May 29, 2019

**Conditions**

**Red Lake Watershed District (RLWD) approval to replace two lines of 48" diameter CMP with one line of 85"X54" CMP-Arch-Approve. N.J.O. For proposed work on lands not owned by applicant, he/she must obtain, in writing, permission from the affected landowners to perform proposed work. Applicant is responsible for utility locates by calling Gopher 1. (1-800-252-1166)**

NOTE: This permit does not relieve the applicant of any requirements for other permits which may be necessary from Township, County, State, or Federal Government Agencies.



Permit # 19-050

Status Report: **Approved**

**Applicant Information**

Name	Organization	Address	Email	Phone Number(s)
Red Lake County Highway Department		204 7th Street SE Red Lake Falls, MN 56750		tel:2182532697 mobile: fax:

**General Information**

(1) The proposed project is a:

**Culvert Installation / Removal / Modification**

(2) Legal Description

(3) County: **Red Lake** Township: **Terrebonne** Range: **43** Section: **9 1/4**:

(4) Describe in detail the work to be performed. **Remove and replace existing structure-2 lines 115"x72"**

(5) Why is this work necessary? Explain water related issue/problem being solved. **In place structure is in need of replacement.**

**Status**

Status	Notes	Date
<b>Approved</b>	<b>None</b>	<b>June 6, 2019</b>
Received		May 30, 2019

**Conditions**

**Red Lake Watershed District (RLWD) approval to replace 8'10" Span CMP-A & 7'8" Span CMP-A with one line of 14'X6' Box Culvert. -Approve. N.J.O. For proposed work on lands not owned by applicant, he/she must obtain, in writing, permission from the affected landowners to perform proposed work. Applicant is responsible for utility locates by calling Gopher 1. (1-800-252-1166)**

NOTE: This permit does not relieve the applicant of any requirements for other permits which may be necessary from Township, County, State, or Federal Government Agencies.



Permit # **19-051**

Status Report: **Approved**

### Applicant Information

Name	Organization	Address	Email	Phone Number(s)
Red Lake County Highway Department		204 7th Street SE Red Lake Falls, MN 56750		tel:218-253-2697 mobile: fax:

### General Information

(1) The proposed project is a:

**Culvert Installation / Removal / Modification**

(2) Legal Description

(3) County: **Red Lake** Township: **Terrebonne** Range: **43** Section: **11 1/4**:

(4) Describe in detail the work to be performed.

(5) Why is this work necessary? Explain water related issue/problem being solved.

### Status

Status	Notes	Date
Approved	None	June 3, 2019
Received	None	May 30, 2019

### Conditions

**Red Lake Watershed District (RLWD) approval to replace 10'8" Span CMP-A & 96" CMP with one line of 14'X7' RC Box Culvert. -Approve. N.J.O.**

NOTE: This permit does not relieve the applicant of any requirements for other permits which may be necessary from Township, County, State, or Federal Government Agencies.



Permit # 19-052

Status Report: **Approved**

**Applicant Information**

Name	Organization	Address	Email	Phone Number(s)
Chad Lian		15342 180th Avenue NE Thief River Falls, MN 56701		tel: mobile: 218-688-0073 fax:

**General Information**

(1) The proposed project is a:

**Culvert Installation / Removal / Modification**

(2) Legal Description

(3) County: **Marshall** Township: **Moylan** Range: **40** Section: **4 1/4: NE1/4**

(4) Describe in detail the work to be performed. **Install crossing and culvert.**

(5) Why is this work necessary? Explain water related issue/problem being solved. **No current access.**

**Status**

Status	Notes	Date
Approved	None	June 5, 2019
Received	None	June 4, 2019

**Conditions**

**Red Lake Watershed District (RLWD) approval to install a 60" diameter culvert to access property as per approval of Marshall County Drainage Authority; proposed work is within Marshall County Ditch 32 - Lateral 4 Right-of-Way. -Approve. N.J.O. For proposed work on lands not owned by applicant, he/she must obtain, in writing, permission from the affected landowners to perform proposed work. Applicant is responsible for utility locates by calling Gopher 1. (1-800-252-1166)**

NOTE: This permit does not relieve the applicant of any requirements for other permits which may be necessary from Township, County, State, or Federal Government Agencies.



Permit # 19-053

Status Report: **Approved**

### Applicant Information

Name	Organization	Address	Email	Phone Number(s)
	Minnesota Department of Natural Resources	246 125th Avenue NE Thief River Falls, MN 56701		tel:218-681-0946 mobile: fax:

### General Information

(1) The proposed project is a:

**Culvert Installation / Removal / Modification**

(2) Legal Description

(3) County: **Marshall Township: Moylan Range: 40 Section: 3 1/4: NE1/4**

(4) Describe in detail the work to be performed. **Install one 48" diameter by 44' long CMP culvert and fill material to create a crossing for accessing public land south of drainage ditch (Branch 182 JD 11). Crossing will have rip-rap installed on upstream and downstream slopes.**

(5) Why is this work necessary? Explain water related issue/problem being solved. **Currently, the public land south of the ditch is only accessible on foot by crossing ditch in waders or hip boots.**

### Status

Status	Notes	Date
Approved	None	June 13, 2019
Received	None	June 6, 2019

### Conditions

**P.A. #19053 - MnDNR Red Lake Watershed District (RLWD) approval to install a 48 in. diameter culvert and entrance to MnDNR Wildlife Management land, as per approval of Marshall County specs/conditions; proposed work is in Branch #182 of Judicial Ditch #11 Right-of-Way. Contact person at Marshall Co. Hwy. Dept. is Engineer Lon Aune at 218-745-4381 For proposed work on lands not owned by applicant, For he/she must obtain, in writing, permission from the affected landowners to perform proposed work. Applicant is responsible for utility locates by calling Gopher 1. (1-800-252-1166)**

NOTE: This permit does not relieve the applicant of any requirements for other permits which may be necessary from Township, County, State, or Federal Government Agencies.





Permit # 19-054

Status Report: **Approved**

**Applicant Information**

Name	Organization	Address	Email	Phone Number(s)
John Jeffrey		43125 200th Street SW East Grand Forks, MN 56721		tel:701-795-3344 mobile: 218-779-6168 fax:

**General Information**

(1) The proposed project is a:

**Culvert Installation / Removal / Modification**

(2) Legal Description

(3) County: **Polk** Township: **Huntsville** Range: **49** Section: **30 1/4**: **NE/14 NE1/4**

(4) Describe in detail the work to be performed. **Remove 24" culvert, repair crossing, replace existing culvert with a 48" culvert.**

(5) Why is this work necessary? Explain water related issue/problem being solved. **Current culvert can't handle the spring drainage, crossing gets topped. Long term fix.**

**Status**

Status	Notes	Date
Approved	None	June 13, 2019
Received	None	June 7, 2019

**Conditions**

**P.A. #19054 Red Lake Watershed District (RLWD) approval to remove existing 24 in. diameter culvert and install a 48 in. diameter culvert, as per approval of Huntsville Township specs/conditions; proposed work is within township road Right-of Way. For proposed work on lands not owned by applicant, he/she must obtain, in writing, permission from the affected landowners to perform proposed work. Applicant is responsible for utility locates by calling Gopher 1. (1-800-252-1166)**

NOTE: This permit does not relieve the applicant of any requirements for other permits which may be necessary from Township, County, State, or Federal Government Agencies.



Permit # 19-055

Status Report: **Approved**

**Applicant Information**

Name	Organization	Address	Email	Phone Number(s)
	Moylan Township	24701 323 Avenue NE Goodridge, MN 56725		tel: mobile: 218-689-3192 fax:

**General Information**

(1) The proposed project is a:

**Culvert Installation / Removal / Modification**

(2) Legal Description

(3) County: **Marshall** Township: **Moylan** Range: **40** Section: **28 1/4: SW1/4**

(4) Describe in detail the work to be performed. **Replace culvert in MN Hwy 219 ROW and county ditch.**

(5) Why is this work necessary? Explain water related issue/problem being solved. **Culvert eroded during high spring water.**

**Status**

Status	Notes	Date
<b>Approved</b>	<b>None</b>	<b>June 13, 2019</b>
Received	None	June 10, 2019

**Conditions**

**P.A. #19055 Red Lake Watershed District (RLWD) approval to remove existing culvert and install a 95 in. csp-arch culvert, as per approval of MnDOT specs/conditions; proposed work is within State Highway #219 Right-of Way. Contact person at the Crookston MNDOT office is Brad Knutson (218-277-7965) For proposed work on lands not owned by applicant, he/she must obtain, in writing, permission from the affected landowners to perform proposed work. Applicant is responsible for utility locates by calling Gopher 1. (1-800-252-1166)**

NOTE: This permit does not relieve the applicant of any requirements for other permits which may be necessary from Township, County, State, or Federal Government Agencies.



Permit # 19-056

Status Report: **Approved**

### Applicant Information

Name	Organization	Address	Email	Phone Number(s)
Gary Roisland		11314 260th Avenue NE Thief River Falls, MN 56701		tel: 218-964-5424 mobile: 218-684-1987 fax:

### General Information

(1) The proposed project is a:

**Culvert Installation / Removal / Modification**

(2) Legal Description

(3) County: **Pennington** Township: **Kratka** Range: **41** Section: **27 1/4**: **SW**

(4) Describe in detail the work to be performed. **Clean east ditch of Pennington County Road #88. Replace, lower and extend driveway culvert and one field entrance culvert (re-apply of Permit #17056).**

(5) Why is this work necessary? Explain water related issue/problem being solved. **Poor drainage and ditch grade.**

### Status

Status	Notes	Date
Approved	None	June 13, 2019
Received	None	June 11, 2019

### Conditions

**P.A. #19056 Red Lake Watershed District (RLWD) approval to clean east ditch of county road, and to replace, lower, and extend driveway culvert and a field entrance culvert, as per approval of Pennington County Hwy. Dept. specs/conditions; proposed work is in Penn. County Road #88 Right-of-Way. All excavation shall be consistent with the existing road and ditch slopes and there shall be no vertical excavation faces. Existing drainage/flow patterns shall not be changed or diverted. The RLWD has performed an elevation survey of the ditch bottoms, and existing culverts. A copy of the survey will be provided to the applicant with the proposed ditch grade for excavation. Contact persons at Pennington Co. Hwy. Dept. are Engineer Mike Flaagen or Assistant Mike Stennes at 218-683-7017. For proposed work on lands not owned by applicant, For he/she must obtain, in writing, permission from the affected landowners to perform proposed work. Applicant is responsible for utility locates by calling Gopher 1. (1-800-252-1166)**

NOTE: This permit does not relieve the applicant of any requirements for other permits which may be necessary from Township, County, State, or Federal Government Agencies.

In the matter of the application of: Brent Strand, 3542 6th Street East, West Fargo, ND 58078

Pursuant to Minnesota Statutes Chapter 103D, the Permit and Drainage Rules of the Red Lake Watershed District, and on the basis of the statement and information contained in the permit application submitted by applicant, including all letters, maps, and other supporting data furnished by applicant, all of which are made a part hereof by reference, permission is hereby granted to Brent Strand address for the purposes of notice and other communications pertaining to this permit is 3542 6th Street East, West Fargo, ND 58078 the purpose of doing the work applied for with the following exceptions, changes, and/or special conditions:

**Red Lake Watershed District (RLWD) approval to replace and lengthen, the east culvert of 2 lines, of 36 in. diameter pipes in the existing field entrance.**

- **Lengthening/widening of culvert and entrance shall be to the North of what is currently in-place. By lengthening to the north, this will ensure that the field ditch entering from the East, on the south side of the entrance, will not be restricted.**
- **Approval of Red Lake County Highway Department must also be obtained and meet their specs/conditions; proposed work is in County Road #119 Right-of-Way.**


**Contact person at Red Lake Co. Hwy. Dept. is Randy Konickson at 218-253-2697. For proposed work on lands not owned by applicant, he/she must obtain, in writing, permission from the affected landowners to perform proposed work. Applicant is responsible for utility locates by calling Gopher 1. (1-800-252-1166)**

This permit is granted subject to the following provisions:

- 1) This permit is permissive only and shall not release the permittee from any liability or obligation imposed by Minnesota Statutes, Federal Law or Local Ordinances and shall be subject to all conditions and limitations now or hereafter imposed by law. The Red Lake Watershed District makes no representations to the applicant in granting the permit that the proposed work complies or does not comply with the existing law. No liability shall be imposed upon or incurred by the District or any of its officers, agents or employees, officially or personally, on account of the granting of this permit, or on account of any damage to any person or property resulting from any act or omission of the permittee or any of its agents, employees or contractors relating to any matter hereunder. This permit shall not be construed as estopping or limiting any legal claim or right of action of the District against the permittee, its agents, employees, or contractors for violation of or failure to comply with the provisions of the permit or applicable provisions of law.
- 2) Work authorized under this permit shall be completed by May 30, 2020, unless extended by the District.
- 3) The permittee shall grant access to the site at all reasonable times during and after construction to authorized representatives of the District for inspection of the work authorized by this permit.
- 4) This permit may be terminated by the District without notice at any time deemed necessary for the management of the water resources of the District, or in the interest of the public health and welfare, or for violation of any of the provisions of this permit.

Dated this 30 day of May, 2019.

Red Lake Watershed District

  
\_\_\_\_\_  
Myron Jesme, Administrator

**APPLICATION FOR PERMIT  
RED LAKE WATERSHED DISTRICT**  
1000 Pennington Avenue South  
Thief River Falls, MN 56701  
218-681-5800

TO THE BOARD OF MANAGERS:

Applicant's Name: <u>Brent Strand</u>		Telephone Number: <u>218-686-7886</u>
Address (Street, RFD, Box No., City, State, Zip): <u>3542 6th St East West Fargo, ND 58028</u>		
Project Location: Government Lot _____	Quarter Section(s) <u>NW</u>	Section(s) <u>26</u>
Township (Name & #) <u>Poplar River</u> Range # <u>150 R-42W</u> County <u>Red Lake</u>		
Type of Work Proposed:		
<input type="checkbox"/> Excavate	<input checked="" type="checkbox"/> Install	<input type="checkbox"/> Channel
<input type="checkbox"/> Fill	<input checked="" type="checkbox"/> Remove	<input type="checkbox"/> Culvert (Size <u>36" 2 lines</u> )
<input type="checkbox"/> Drain	<input type="checkbox"/> Other	<input type="checkbox"/> Bridge (Size <u>(1 is bal east line)</u> )
<input type="checkbox"/> Construct	<input type="checkbox"/>	<input type="checkbox"/> Dam
		<input type="checkbox"/> Dike
		<input type="checkbox"/> Erosion Control
		<input type="checkbox"/> Tile
		<input type="checkbox"/> Other

Be sure to attach all necessary reports, maps, drawings, photos, other data, etc., to support permit application.

Description of work to be done: <u>Replace existing old 36" x 20' culvert with a new 36" x 30' culvert in field approach</u>	
Estimated drainage area: acres _____ or sq. mile(s) _____	<u>Co. Rd. #132 119</u>
Work is necessary because: <u>hole in old culvert</u>	

I hereby make application for a permit to proceed with the proposal described above and have attached all supporting maps, plans, and other information submitted with this application. The information submitted and statements made concerning this application are true and correct to the best of my knowledge. Obtaining a permit from the Managers does not relieve the applicant from the responsibility of obtaining any other additional authorization or permits required by law.

Signature of landowner: <u>Brent Strand</u>	Date: <u>11-19-18</u>
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For Office Use Only P.A. No. <u>18156</u>
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Permit # 18-156

Status Report: **Approved**

**Applicant Information**

Name	Organization	Address	Email	Phone Number(s)
Brent Strand		3542 6th Street East West Fargo, ND 58078		tel: mobile: 218-686-7886 fax:

**General Information**

(1) The proposed project is a:

**Culvert Installation / Removal / Modification**

(2) Legal Description

(3) County: **Red Lake** Township: **Poplar River** Range: **42** Section: **26 1/4: NW1/4**

(4) Describe in detail the work to be performed. **Replace existing 36"x20' culvert with a 36"x30' culvert in field approach.**

(5) Why is this work necessary? Explain water related issue/problem being solved. **Existing culvert has deteriorated.**

**Status**

Status	Notes	Date
Approved	None	May 23, 2019
Tabled	None	Dec. 27, 2018
Received	None	Nov. 19, 2018

**Conditions**

**P.A. #18156 – Previously “Tabled”** Red Lake Watershed District (RLWD) approval to replace and lengthen, the east culvert of 2 lines, of 36 in. diameter pipes in the existing field entrance. ■ Lengthening/widening of culvert and entrance shall be to the North of what is currently in-place. By lengthening to the north, this will ensure that the field ditch entering from the East, on the south side of the entrance, will not be restricted. ■ Approval of Red Lake County Highway Department must also be obtained and meet their specs/conditions; proposed work is in County Road #119 Right-of-Way. Contact person at Red Lake Co. Hwy. Dept. is Randy Konickson at 218-253-2697. For proposed work on lands not owned by applicant, he/she must obtain, in writing, permission from the affected landowners to perform proposed work. Applicant is responsible for utility locates by calling Gopher 1. (1-800-252-1166)

**P.A. #18156 – ‘Tabled’** at 12-27-2018 Brd. Mtg. I recommend this permit be “tabled” until after the 2019 Spring melt. This will allow for adequate time to observe runoff conditions, water elevations, existing culvert sizes and flow patterns. Staff member, Loren Sanderson met with the applicant on Dec. 19, 2018, to discuss the permit, topography, culvert sizes, etc. The out of area landowner/applicant was unaware that there are 2 lines of 36 in. diameter pipes in the existing field entrance permit site.

NOTE: This permit does not relieve the applicant of any requirements for other permits which may be necessary from Township, County, State, or Federal Government Agencies.

## **History of the Red Lake Watershed District**

The Red Lake Watershed District (District) covers an area of approximately 5,990 square miles in northwestern Minnesota and includes all Red Lake County, most of Pennington County, and parts of Mahnomen, Polk, Itasca, Marshall, Clearwater, Beltrami, Roseau, and Koochiching Counties.

A governmental unit known as the Red Lake Drainage and Conservancy District preceded the District, whose territory included approximately the same land. Under the Conservancy District, three major improvement projects were completed: dredging of the Clearwater, Red Lake, and Lost Rivers.

The Board of Directors of the Red Lake Drainage and Conservancy District felt the District could better function under the Minnesota Watershed Act. The Board petitioned the District Court for the right to operate under Chapter 112, the Minnesota Watershed Act. A hearing was held in Thief River Falls on January 25, 1969, and the Conservancy District was authorized to operate under and exercise all the rights and authorities contained in the Minnesota Watershed Act.

The Board petitioned the Minnesota Water Resources Board (now the Board of Water and Soil Resources) on July 24, 1969, amended January 20, 1970, for a change of name, review of boundary, and distribution of managers of the District. A hearing on the matter was held at Thief River Falls on March 31, 1970, and at Kelliher on April 2, 1970. In their Order, the Water Resources Board stated that the principle place of business shall be at Thief River Falls; that a description of the land within the District be written; specified that the Board of Managers be seven members, the procedure by which county boards shall appoint managers and terms of office for the Managers.

On March 25, 1975, the District adopted the Rules and Regulations pursuant to Minnesota Statutes. They were amended on May 12, 1978; December 14, 1978; August 10, 1989; and reviewed and updated on June 24, 1993, and again in 2015 to be entitled "Permit and Drainage Rules of the Red Lake Watershed District."

In 1977, the District signed a Joint Powers Agreement with other watershed districts in the Red River Basin to form the Lower Red River Watershed Management Board. In 1991, the name was changed to the Red River Watershed Management Board. This organization currently consists of eight watershed districts in the Red River Basin and provides funding to member districts, primarily for floodwater detention structures, which benefit more than one-member district. The levy collected is used for funding the development, construction, and maintenance of projects of common benefit to the Red River Basin.

The District currently is governed by Minnesota Statutes 103D, which provides a broader scope for a local unit of government to manage quantity and quality of water within the hydrological boundaries.

By Corey Hanson, Red Lake Watershed District Water Quality Coordinator. 5/31/2019.

- ✓ Clearwater River Watershed Restoration and Protection Strategy
- ✓ Grand Marais Creek Watershed Restoration and Protection Strategy and Total Maximum Daily Load public notice period.
- ✓ Red Lake River Watershed Restoration and Protection Strategy

**Red Lake Watershed District (RLWD) Long-Term Monitoring Program**

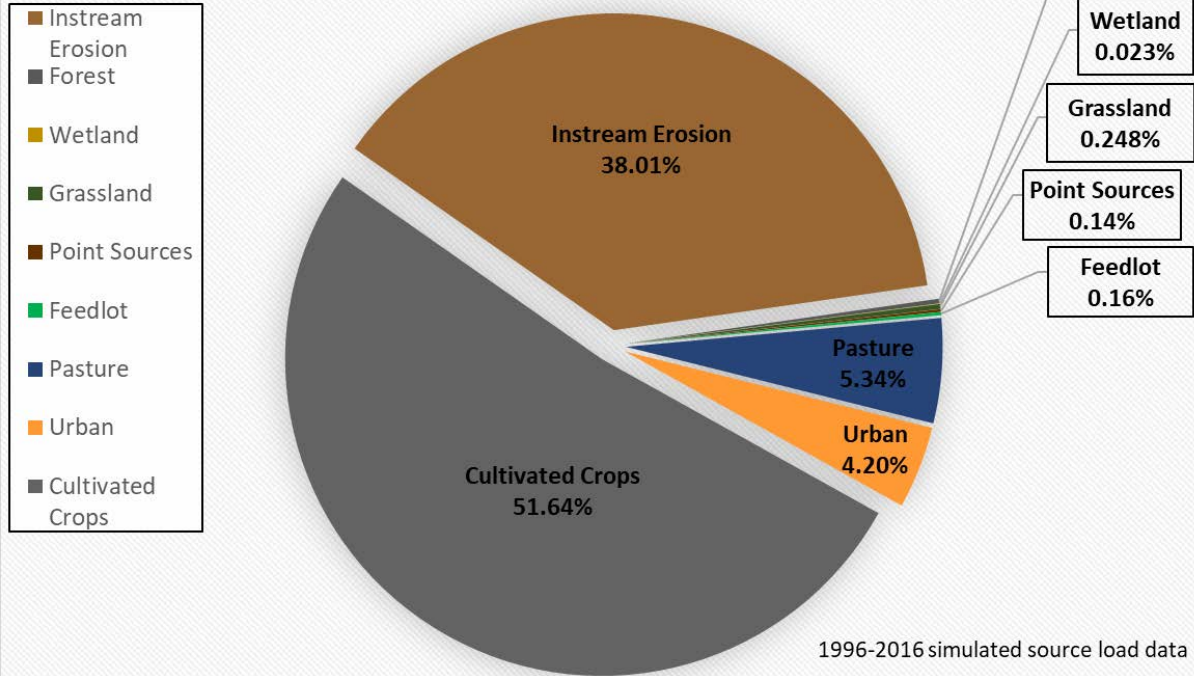
A final data review, before storage in the state's EQiS database, was completed in January of 2019.

**Clearwater River Watershed Restoration and Protection Strategy (WRAPS) Project**

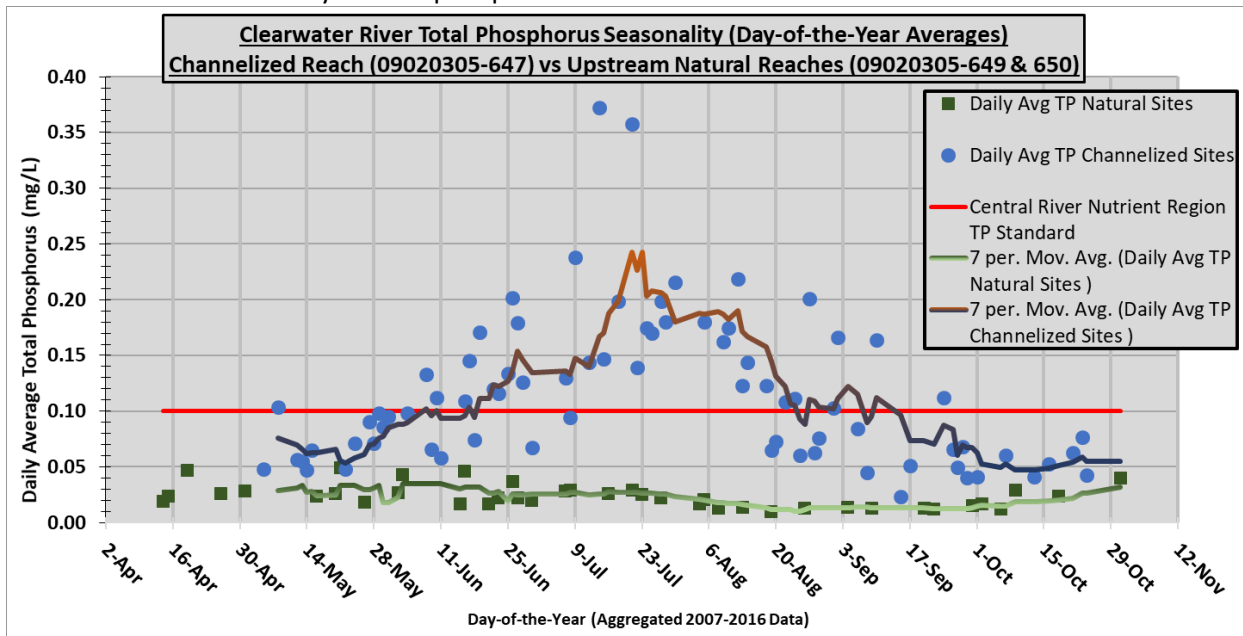
- Objective 9 – Civic Engagement
  - District staff attended a Maple Lake Improvement District meeting to discuss the protection and improvement of water quality within the lake.
  - RMB Environmental Labs completed a civic engagement evaluation plan for the Clearwater River Watershed
- Objective 10 – Report Writing
  - Clearwater River *E. coli* TMDL
  - Hill River *E. coli* TMDL
  - Nasset Creek *E. coli* TMDL
  - Margin of safety
  - Clearwater River total phosphorus TMDL
  - Completed draft Section 1 of the Clearwater River Watershed TMDL – Project Overview (purpose, identification of waterbodies, and priority ranking)
  - Completed draft Section 2 of the Clearwater River Watershed TMDL – Applicable Water Quality Standards and Numerical Targets
  - Completed draft Section 5.1 of the Clearwater River Watershed TMDL - Total Suspended Solids Total Maximum Daily Loads
  - Completed a draft Section 5.2 of the Clearwater River Watershed TMDL - *E. coli* Total Maximum Daily Loads
  - Completed draft Section 6 of the Clearwater River Watershed TMDL – Future Growth Considerations
  - Revised chart that shows the relative contributions from sediment sources throughout the watershed, as simulated by the Clearwater River HSPF Model



**Clearwater River Watershed HSPF Model (1996-2016)  
Sources of Total Suspended Solids Loads**



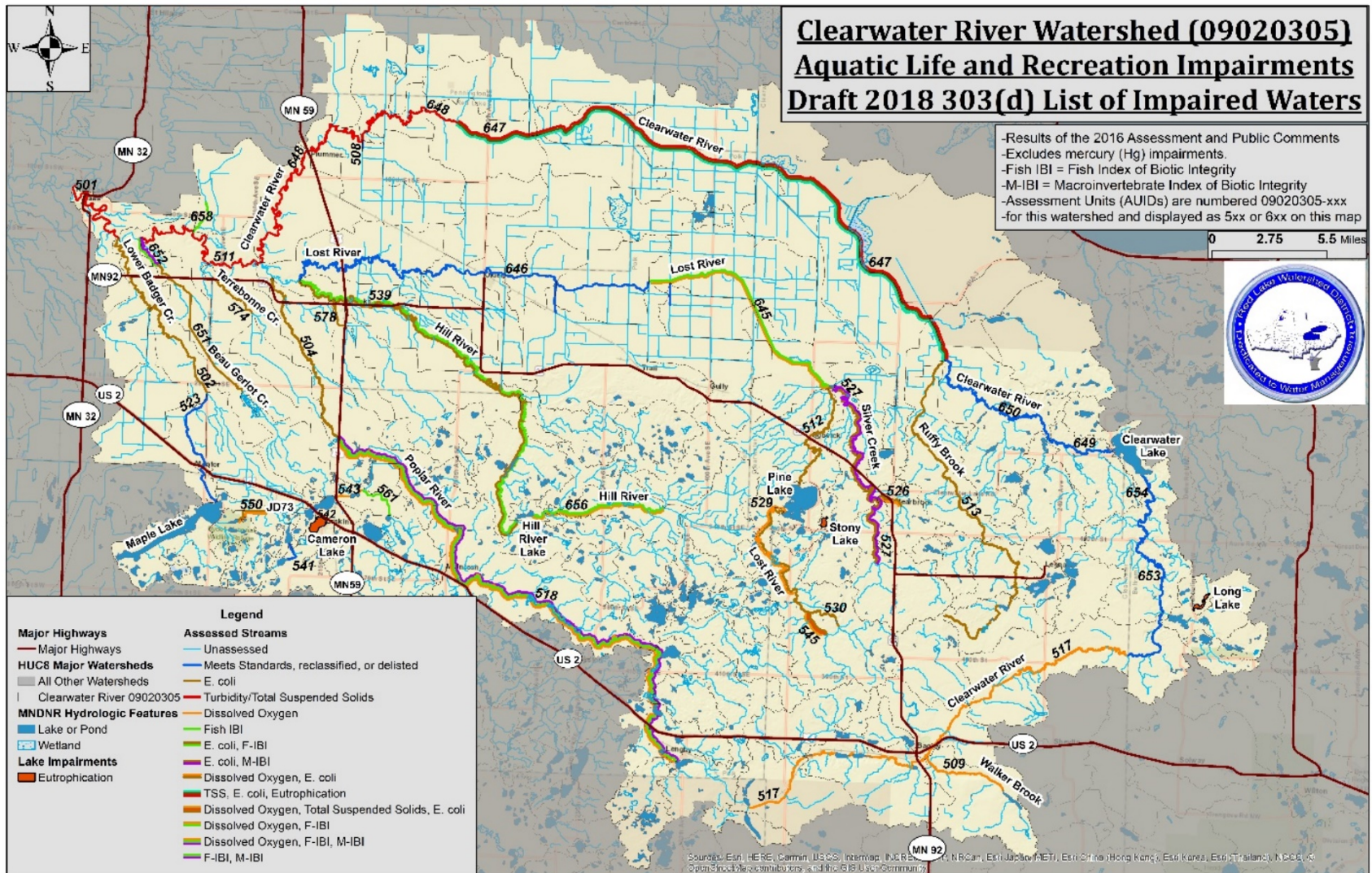
- Seasonality of total phosphorus concentrations



- Revised map of impairments
- Map of total phosphorus TMDL sites
- Map of *E. coli* TMDL sites

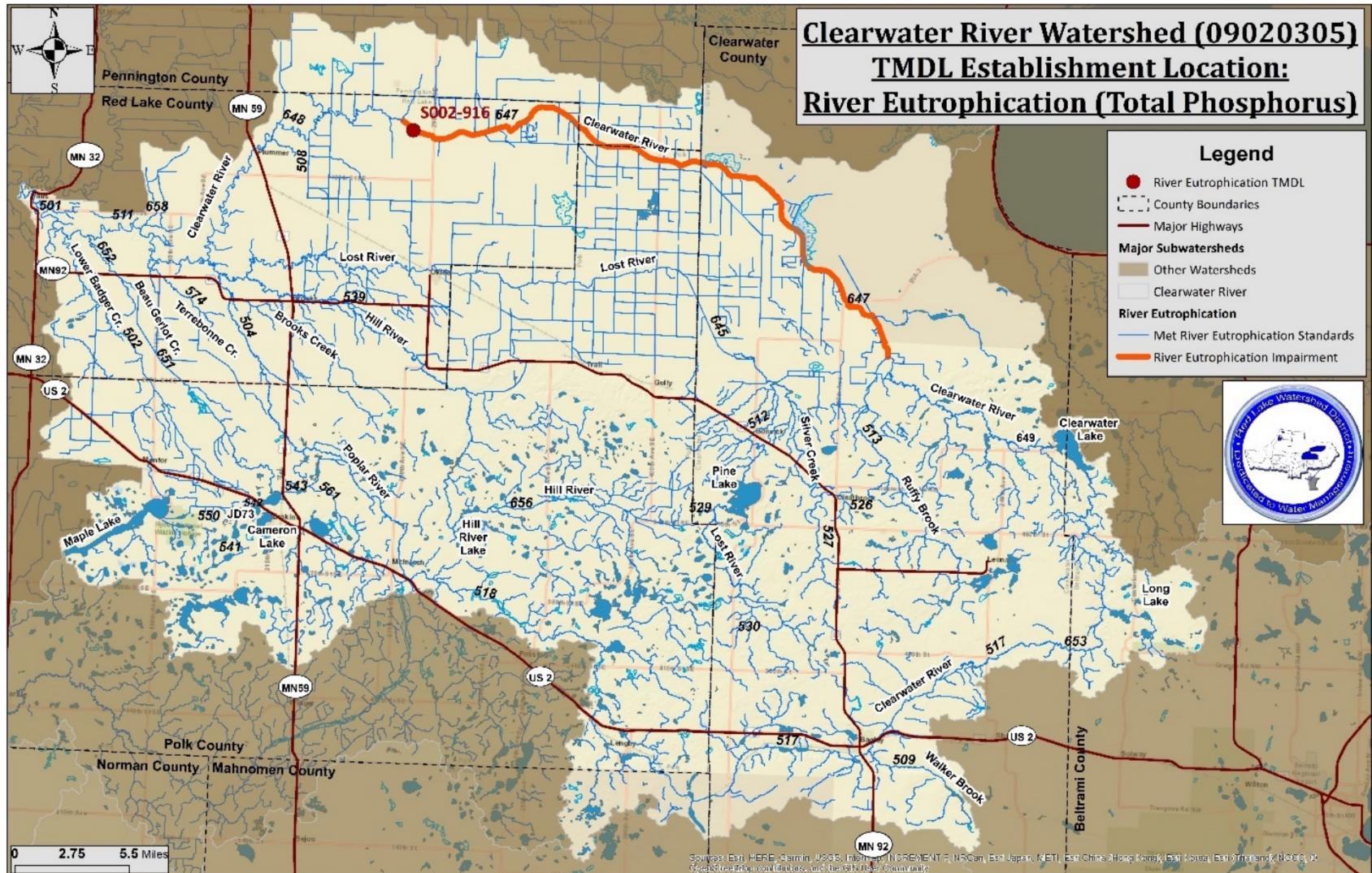
# RED LAKE WATERSHED DISTRICT MONTHLY WATER QUALITY REPORT

January 2019



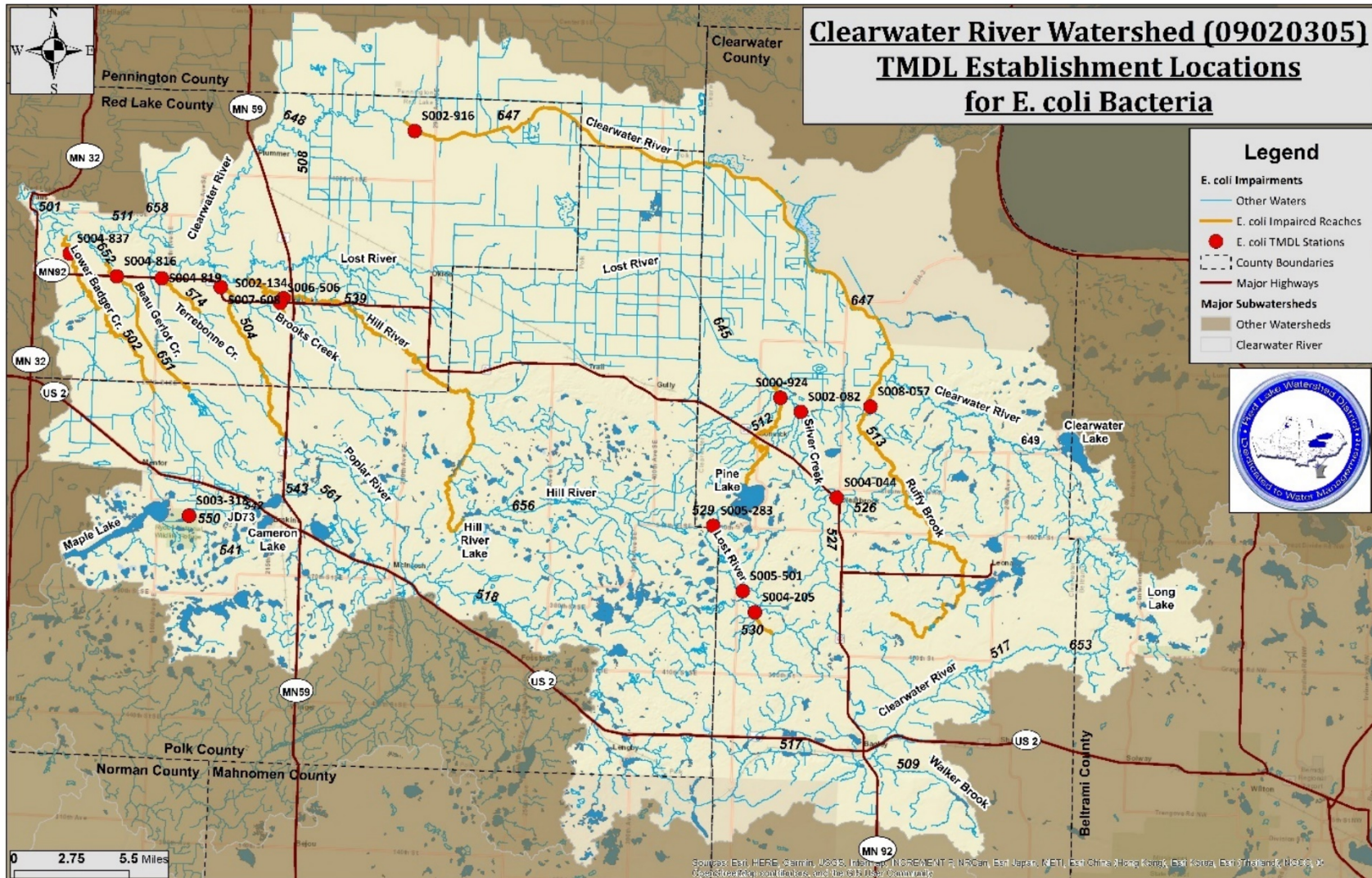
# RED LAKE WATERSHED DISTRICT MONTHLY WATER QUALITY REPORT

January 2019



# RED LAKE WATERSHED DISTRICT MONTHLY WATER QUALITY REPORT

January 2019



# RED LAKE WATERSHED DISTRICT MONTHLY WATER QUALITY REPORT

January 2019

## **Grand Marais Creek Watershed Restoration and Protection Strategy (WRAPS)**

The public notice period for the Grand Marais Creek Watershed Total Maximum Daily Load and Grand Marais Creek Watershed Restoration and Protection Strategy reports began on January 8, 2019 and comments were due by January 26, 2019. District staff helped publicize the reports and the public comment period. Very few comments were received, however, during the comment period.

Grand Marais Creek WRAPS Summary:

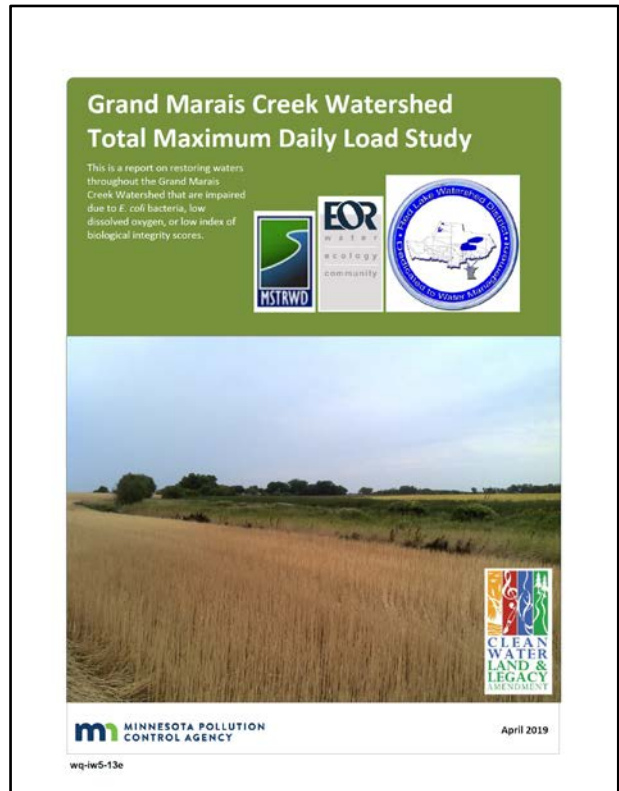
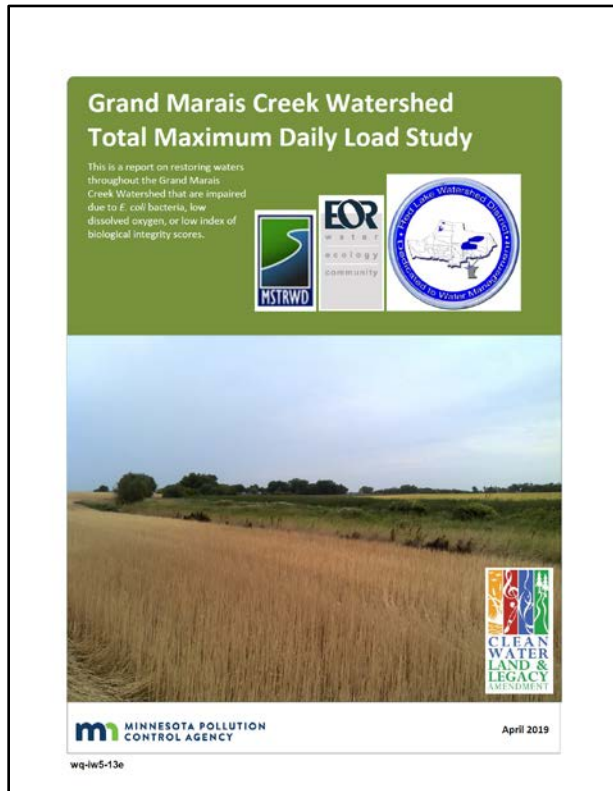
<https://www.pca.state.mn.us/sites/default/files/wq-ws4-56b.pdf>

Grand Marais Creek Watershed Restoration and Protection Strategy:

<https://www.pca.state.mn.us/sites/default/files/wq-ws4-56a.pdf>

Grand Marais Creek Watershed Total Maximum Daily Load:

<https://www.pca.state.mn.us/sites/default/files/wq-iw5-13e.pdf>



**Red Lake River Watershed Restoration and Protection Strategy (WRAPS)**

Wasteload allocations for the City of St. Hilaire were revised. Tables with TMDL calculations were revised to reflect the revised St. Hilaire wasteload allocation and to match MPCA formatting recommendations.

The MPCA Project Manager sent the draft Red Lake River Watershed Total Maximum Daily Load report to the Environmental Protection Agency for preliminary review.

**Thief River Watershed Restoration and Protection Strategy (WRAPS)**

When water quality conditions in the Thief River Watershed were formally assessed by the MPCA in 2013, tiered aquatic life use (TALU) standards were not yet in place. Those standards allow for the variation of water quality and biological standards throughout the state based on location, channel morphology, the known conditions that have been achieved by the waterway. District staff reviewed use attainment analysis information from the MPCA. The MPCA sought local input on the classification of ditches and channelized streams in the watershed so that those waters could be held to appropriate biological standards. A Thief River Watershed Use Attainment Analysis meeting was held at the RLWD office on January 15, 2019. There are two main types of use classifications that will be used for this watershed:

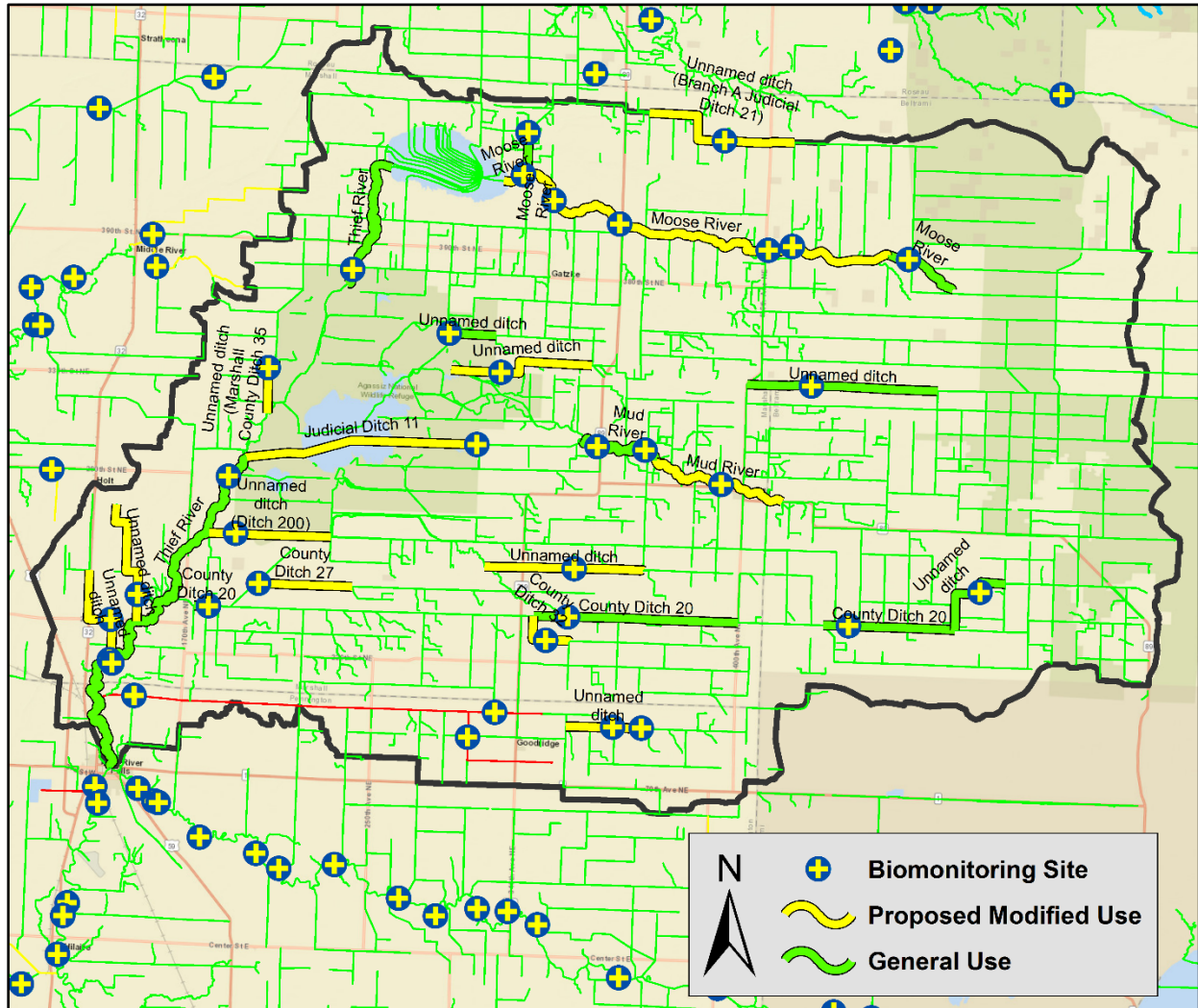
2Bg (General Use) = the designated aquatic life use code for a general warm water stream. Aquatic life in these systems should meet the interim clean water act goal of fishable and swimmable waters

2Bm (Modified Use) = the designated aquatic life use code for a modified warm water stream. These are altered waterbodies that have been compromised by legal ditching practices and the aquatic life in them reflect that fact. These systems currently have a reduced biological potential as a result of reduced habitat complexity.

The MPCA recommended a “modified” use designation for most of the channels, except for portions of the Moose River, Mud River, Marshall County Ditch 20, and some scattered ditch segments that yielded good index of biological integrity scores. Antidegradation is an important factor in the use attainment analysis. Some ditches and channelized streams met the general use standards and will be required to meet those higher standards if/when sampled prior to future assessments. During the discussion, state and local staff agreed to assign a modified use designation to the channelized portion of the Moose River and assign a general use designation to the Mud River downstream of Grygla. There was discussion about the sampling of intermittently flowing ditches like the Main and Lateral of Judicial Ditch 23. The RLWD will record stage and flow data from three questionable ditch channels in 2019 to characterize the duration of flow and help determine whether the reaches should be assessed for biological integrity. Although the MPCA was planning to assess small ditches like JD 23, a large drainage ditch that receives drainage from an entire subwatershed, Judicial Ditch 30, has a Class 7 (limited use) designation and was not going to be assessed by the MPCA. It was given the Class 7 designation because the Goodridge wastewater treatment facility discharged to the ditch. It is an odd situation because the MPCA did assess an upstream portion of JD 30, but didn’t assess any portion of the channel downstream of Goodridge.

# RED LAKE WATERSHED DISTRICT MONTHLY WATER QUALITY REPORT

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Fish communities in many reaches resembled small headwaters streams due to connectivity problems. Portions of the Mud River had good channel development, okay index of biological integrity scores, and okay habitat. Good minnow species were found in the upper portion of the Thief River between Thief Lake and Agassiz National Wildlife Refuge, but some species were missing. A very good fish index of biological integrity core was recorded in a ditch along Benville Road, northeast of Grygla (numerous sensitive species like finescale dace, northern redbelly dace, and pearl dace). The pristine water quality at that location had been documented when the water quality sampling site (S004-059 at the intersection of Wildlife Road NW and Benville Road NW) was used as a natural background sampling site during a previous study. Sensitive dace species were also found in an artificial watercourse near the northeast corner of Agassiz National Wildlife Refuge (a channel diverting water from Webster Creek into the Mud River Pool).

A potential impairment was found in an upstream portion of CD 20. Flow from that reach will also be characterized in 2019. There is a potential macroinvertebrate index of biological integrity impairment in

the channelized portion of the Moose River upstream of CSAH 54. Additional, potential impairments will be discussed at the professional judgement group meeting (July 2019).

Due to the size of the contributing watershed, the channelized portion of the Thief River was not eligible for a modified use designation. Therefore, the MPCA chose not to split the channelized portion from the natural portion so that it could be assessed separately.

There will be a professional judgement group meeting in 2019 to discuss the results of the MPCA's assessment.

### **Thief River One Watershed One Plan (1W1P)**

- District staff reviewed a draft of Section 4 of the Thief River One Watershed One Plan.
- A Thief River 1W1P Planning Work Group conference call was held on January 2, 2019 to discuss the draft Section 4 and the agenda for the upcoming Advisory Committee and Policy Committee meeting.
- The planning work group discussed methods of spatially prioritizing priority issues.
- The planning work group met to discuss prioritization of subwatersheds, technical implementation schedules, and actions.
- District staff reviewed and commented on planning region prioritization tables
- District staff worked with counties to get parcel GIS layers to Houston Engineering for use in development of the Thief River 1W1P

### **River Watch**

RLWD staff met with River Watch groups within the District (Red Lake Falls, Red Lake County Central) to help them prepare for the River Watch Forum. RLWD staff met with the Thief River Falls School Administration to discuss a revival of the Thief River Falls River Watch Program.

River Watch students from Red Lake County Central High School met with staff from the RLWD and Red Lake County to discuss their discovery of polluted discharge into the Hill River at Brooks and possible solutions to the problem.

The International Water Institute shared their Winter 2018-19 newsletter (<https://mailchi.mp/9efcb910b0a9/iwi-river-rendezvous-newsletter-winter-2018-19>) that provided updates on the River Watch and River of Dreams programs.

### **Other Notes**

- Water quality related notes from the January 10, 2019 Red Lake Watershed District Board of Managers meeting:
  - Manager Torgerson suggested that the District invite a trout organization to view the area of the trout stream designation in reference to the Pine Lake subwatershed.
  - Manager Dwight discussed the need for local involvement regarding individuals leaving garbage on the ice while ice fishing.



- Water quality related notes from the January 24, 2019 Red Lake Watershed District Board of Managers meeting:
  - Engineer Nate Dalager, HDR Engineering, Inc., discussed a meeting he attended along with Administrator Jesme, Board Managers Sorenson and Torgerson, Clearwater County Commissioner Mark Larson and Theresa Ebbenga, MnDNR regarding the Pine Lake Project, RLWD Project No. 26. Dalager discussed the various components of the project and a prior request to complete an Alternative Analysis Report. Dalager stated that he looked at every potential site and evaluated the impacts, with Sites D and E, having the least impact and being the most likely to be permitted. Site E is already a degraded stream, as it is the site of a 6' beaver dam, which is on-channel retention. Discussion was held on the issue of the trout stream designation and how it could affect the proposed FDR Project. Site F is also considered an on-channel storage site. Dalager stated that the District gained 260 acft. of storage by replacing the outlet structure on the Little Pine Lake WMA, which was considered as Site F. The Pine Lake area watershed is a steep watershed with ravines and valleys, where there is no flat land for off channel storage. To retain water, a dam would need to be built in the ravine or valley to hold water back. A meeting will be held later in February with all the DNR staff.
- District staff helped judge posters and presentations at the Franklin Middle School Science Fair
- A water quality report for the month of September 2018 was completed and posted online: <http://www.redlakewatershed.org/waterquality/MonthlyWQReport/2018%2009%20September%20Water%20Quality%20Report.pdf>
- Pennington SWCD staff provided an update on Chief's Coulee. The city attempted to televise (explore with a robotic camera) the underground portion of the drainage system. They were unable to televise much of it because of multiple cave ins and a lack of additional access points. The pipe was also rusted out on the bottom, which caused the robot to get stuck in a few spots. It didn't show any point sources entering the portions that they were able to televise. The pipe will be replaced in the spring. Before it gets replaced, another set of fecal DNA test should be completed.

#### **Meetings and Events from January 2019**

- **January 2, 2019** – Thief River One Watershed One Plan Planning Work Group conference call.
- **January 9, 2019** – Thief River One Watershed One Plan meeting
- **January 10, 2019** – Maple Lake Improvement District (MLID) meeting
  - The MLID was interested in getting help with septic system inspections around the lake, with a focus on residences and campers that haven't been required to get an inspection for a while. In-use campers on lots are like extra bedrooms that could be overloading septic systems.
  - There was discussion about implementing best management practices to reduce runoff from backlots
  - Agricultural practices and projects like buffers, grassed waterways, and waster and sediment control basins (WASCOBs) were discussed. The MLID Board was interested in the typical installation cost for a WASCOB.
  - The East Polk SWCD is planning rain barrel workshops.
  - There was discussion about ways to make information (including water quality testing results and event announcements) more readily available to the public.

- The MLID has some money available to put toward projects that will improve water quality in the lake.
- There will be work done in 2019 to improve the public beach area on the east end of the lake. There is concern about runoff from the parking lot. There could be opportunities to implement some practices there that will reduce runoff to the lake and serve as an educational demonstration project.
- The board was interested in identifying areas where pollutants may have a direct path to the lake (field drainage, erosion from lake lots) and targeting those locations with projects/practices.
- **January 14, 2019** – Red River Watershed Management Board Technical Advisory Committee Meeting to review a study proposal and water quality project funding
  - The Minnesota Department of Agriculture presented on a proposed project for which they were requesting funding from the RRWMB.
    - The study will evaluate water quality and agronomic benefits of the 4R Nutrient Stewardship while conducting edge-of-field monitoring throughout the Red River Basin.
      - 4R Nutrient Stewardship program addresses four aspects of fertilization
        - Right rate
        - Right time
        - Right place, and
        - Right source
    - Lindsey Pease, a Soil Scientist at the University of Minnesota, Crookston (Albert Sims' successor), gave a presentation on the proposed study.
    - An outreach program and resources will be developed to demonstrate research findings. Outreach will engage growers, nutrient service providers, research and extension personnel, local/state government staff, and the general public.
    - Some of the research will be conducted in plots near the University of Minnesota, Crookston.
    - Drainage water management is one of the practices that will be evaluated.
    - The project will promote increased use of nutrient use efficiency maps.
    - Broadcast and incorporation fertilization will be compared to injection.
    - Tile drainage will be compared to surface drainage.
  - The process for funding drainage and water quality projects was discussed along with ideas for potential improvements to the process.
    - Could efficiency be improved through more frequent meetings?
    - Should there be a "pot" of money available for each year?
    - Should the funding process be competitive?
    - Should matching funds or in-kind contributions be required from project partners?
    - Should there be separate "pots" of money for water quality projects and flood damage reduction projects, so they are not competing against each other?
    - Should the funding available to each member organization be proportional to that organization's contribution to the RRWMB?
- **January 18, 2019** – Pennington County Water Resources Advisory Committee meeting at the RLWD office
- **January 19, 2019** – Thief River Watershed Use Attainment Analysis meeting

**RED LAKE WATERSHED DISTRICT  
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- **January 22, 2019** – Thief River One Watershed One Plan Planning Work Group meeting to discuss prioritization of subwatersheds, technical implementation schedules, and actions.

Red Lake Watershed District Monthly Water Quality Reports are available online:

<http://www.redlakewatershed.org/monthwq.html>.

Learn more about the Red Lake Watershed District at [www.redlakewatershed.org](http://www.redlakewatershed.org).

Learn more about the watershed in which you live (Red Lake River, Thief River, Clearwater River, Grand Marais Creek, or Upper/Lower Red Lakes) at [www.rlwdwatersheds.org](http://www.rlwdwatersheds.org).

“Like” the Red Lake Watershed District on [Facebook](#) to stay up-to-date on RLWD reports and activities.