

August 23, 2019

Mr. Michael Redlinger
FM Metro Diversion Authority
225 4th Street South
Fargo, ND 58102

RE: Construction Permit Application No. 2489 – Wild Rice River Structure

Dear Mr. Redlinger:

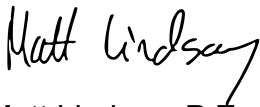
The Office of the State Engineer (OSE) has reviewed your construction permit application for the Wild Rice River Structure. The State Engineer has approved the application and signed Construction Permit No. 2489.

The permit issued is subject to the conditions listed on the permit. Our office suggests that you file the permit with the county recorder's office. Our office also recommends compliance with the North Dakota Department of Health's Construction and Environmental Disturbance Requirements (enclosed).

In accordance with North Dakota Administrative Code § 89-08-02-03.1, you must notify the State Engineer of the completion of your project. A Construction Completion Notification form (enclosed) is provided that, if completed and returned to the OSE, will fulfill the notification of completion requirement.

If you have any questions, please feel free to contact me at 701-328-4949 or mlindsay@nd.gov.

Sincerely,



Matt Lindsay, P.E.
Engineering & Permitting Section Manager

MR. MICHAEL REDLINGER
PAGE 2
AUGUST 23, 2019

Enclosures: Permit to Construct or Modify No. 2489
NDDH Construction and Environmental Disturbance Requirements
Construction Completion Notification SFN 60895

cc: Nathan Boerboom – City of Fargo (electronic)
Terry Williams – US Army Corps of Engineers – St. Paul District (electronic)
Cass County Joint Water Resource District (electronic)
Richland County Water Resource District (electronic)
ND Game and Fish Department (electronic)
ND Department of Environmental Quality – Division of Water Quality (electronic)
Minnesota Department of Natural Resources (electronic)

ML/1928

CONSTRUCTION PERMIT NO. 2489

This permit authorizes the permittee to construct or modify a portion of the Fargo Moorhead Metro Area Risk Reduction Project (***Diversion Inlet Structure; Wild Rice River Structure***), hereafter known as “Project” pursuant to North Dakota Century Code section 61-16.1-38.

Name of Permittee: **FM Metro Diversion Authority
225 4th Street South
Fargo, ND 58102**

Structure Type: **Dam**

Purpose: **Flood Control**

Location and Waterway on which Project will be constructed:

Location: **Sections 31 and 32, Township 138 North, Range 49 West;
Sections 2, 3, 5, and 6, Township 137 North, Range 49 West;
Cass County**

Stream: **Wild Rice, Sheyenne, & Red Rivers**

Basin: **Red River of the North**

Maximum Height: **56.1 feet** Top Width: **15 feet** Sideslopes: **4:1 to 6:1** Upstream
4:1 to 6:1 Downstream

Dam Design Classification: **Class 5 – High Hazard**

	Spillway Type	Elevation (NAVD 88)	Reservoir Surface Area (acres)	Reservoir Capacity (acre-feet)
Top of Southern Embankment:	--	928.5	67,000	620,800
Auxillary Emergency Spillway:	Uncontrolled	923.5	37,000	288,000
Emergency Spillway:	Tainter Gate	899.7	1,029	8,100
Auxillary Principal Spillway:	Tainter Gate	886.6	0	0
Principal Spillway:	Tainter Gate	873.0	0	0
Streambed at Dam (Wild Rice):	--	886.6	0	0
Streambed at Dam (Red River):	--	873.0	0	0

Location Map: **See Attached Map**

CONSTRUCTION PERMIT NO. 2489 (CONTINUED)

AUTHORIZED PROJECT FEATURES LISTED IN BOLD TEXT ON PAGE 2 OF THIS PERMIT:

Southern Embankment:

Location: TBD

Type: TBD Length: TBD Width: TBD

Invert Elevation (NAVD 88): TBD Top Elevation (NAVD 88): **928.5**

Western Tieback (Auxiliary Emergency Spillway):

Location: TBD

Type: TBD Length: TBD Width: TBD

Invert Elevation (NAVD 88): TBD Top Elevation (NAVD 88): **923.5 feet**

Diversion Inlet Structure (Emergency Spillway):

Location: Sections 5 and 6, Township 137 North, Range 49 West; Sections 31 and 32, Township 138 North, Range 49 West, Cass County

Type: 3x50-foot wide Tainter Gates Length: 255 feet Width: 180 feet

Invert Elevation (NAVD 88): 899.7 feet Top Elevation (NAVD 88): 925.7 feet

Wild Rice River Structure (Auxiliary Principal Spillway):

Location: Sections 2 and 3, Township 137 North, Range 49 West, Cass county

Type: 2x40-foot wide Tainter Gates Length: 3000 feet Width: 15 feet

Invert Elevation (NAVD 88): 886.6 feet Top Elevation (NAVD 88): 930.0 feet

Red River Structure (Principal Spillway):

Location: TBD

Type: TBD Length: TBD Width: TBD

Invert Elevation (NAVD 88): TBD Top Elevation (NAVD 88): **873.0 feet**

CONSTRUCTION PERMIT NO. 2489 (CONTINUED)

CONDITIONS

1. The Permittee, project owner, project sponsor, landowner, and any associated parties may be liable for all activity conducted and all effects caused by the construction, modification, and operation of the dam, dike, or other device as described in the application and this permit. Consequently, the receipt of this permit does not relieve the Permittee, project owner, project sponsor, landowner, or any associated parties from liability resulting from the construction, modification, or operation of the dam, dike, or other device, as approved under this permit.
2. In accordance with North Dakota Century Code chapter 61-03, section 61-04-11, and section 61-16.1-38, this permit and the project approved under this permit are subject to changes, conditions, or modifications as in the judgement or discretion of the State Engineer may be necessary for safety or the protection of property. Such changes, conditions, or modifications, if required, will be at the expense of the Permittee, project owner, project sponsor, or any associated parties.
3. This permit is authorized for a total of four (4) years under N.D.A.C. sections 89-08-02-03.1 and 89-08-02-03.2, including extensions, from its approval date. No extensions will be granted beyond these 4 years unless the permit is reauthorized under a future phase of the project.
4. An Operation and Maintenance Plan must be submitted to and approved by the State Engineer before the last construction phase of the Dam will be permitted for construction.
5. An Emergency Action Plan must be submitted to and approved by the State Engineer before the last construction phase of the Dam will be permitted for construction.
6. With regard to any project component or phase that will impact or require modification of any Southeast Cass County Water Resource District Facility, the USACE must submit all engineering designs and construction plans to the Southeast Cass County Water Resource District.
7. USACE should consult with the Southeast Cass County Water Resource District to ensure acceptable mitigation of impacts to drainage as a result of construction or operation of the Diversion Inlet Structure; the USACE should otherwise ensure the Diversion Inlet Structure does not impede or inhibit drainage.
8. Access to the project for inspection will not be denied to the county water resource district of jurisdiction, State Engineer staff, or State Water Commission staff.
9. By constructing this structure, Permittee acknowledges responsibility for its safety and maintenance. This maintenance will include correction of slumping or erosion problems, removal of all woody vegetation, and maintenance of vegetative cover.
10. If prior to or during construction items of substantial archeological value are discovered or a deposit of such items are disturbed, the Permittee shall cease construction activities in the affected area. The State Historical Preservation Office and the State

CONSTRUCTION PERMIT NO. 2489 (CONTINUED)

Engineer must be promptly notified of the discovery, and construction will not resume until the State Engineer gives written permission.

11. The permit applies to the specific project and project location described in the permit application.
12. In accordance with North Dakota Administrative Code section 89-08-02-07, Permittee must provide the State Engineer with As-Built plans within six months after the dam has been constructed.
13. In accordance with North Dakota Administrative Code chapter 89-08-03, a registered and licensed professional engineer must be in charge of and responsible for inspections during construction.
14. In accordance with North Dakota Administrative Code chapter 89-08-03, inspections during construction must be performed at intervals necessary to ensure conformity with the construction permit as well as the plans and specifications.
15. In accordance with North Dakota Administrative Code chapter 89-08-03, the information obtained during an inspection must be documented in a written report. The report will specify any changes necessary under section 89-08-03-03. The inspection reports must be provided to the State Engineer upon request.
16. No portion of the project shall be constructed, including those portions of the project located in Minnesota, without approval from the North Dakota State Engineer through a construction permit application under N.D.C.C. section 61-16.1-38. For review of project components in Minnesota, the State Engineer will review only the project design without consideration of Minnesota statutes and rules.
17. A mitigation plan must be submitted by the Permittee to the State Engineer. The mitigation plan will require the Permittee to propose mitigation for all property and infrastructure hydraulically affected upstream and adjacent to the project. The mitigation plan will be subject to State Engineer review and approval based upon reasonableness of the plan for the purposes of this permit approval. Future phases of this permit will be subject to an approved mitigation plan, which may be updated with each permit approval phase as deemed necessary by the State Engineer.

RECOMMENDATIONS

The following list of recommendations, though not binding to the approval of this permit, are strongly encouraged:

1. Given the high hazard nature of the project, the State Engineer strongly encourages wise and sound development downstream of the project to ensure those high-risk areas downstream of the project are developed in a way that will minimize risk to the public.

CONSTRUCTION PERMIT NO. 2489 (CONTINUED)

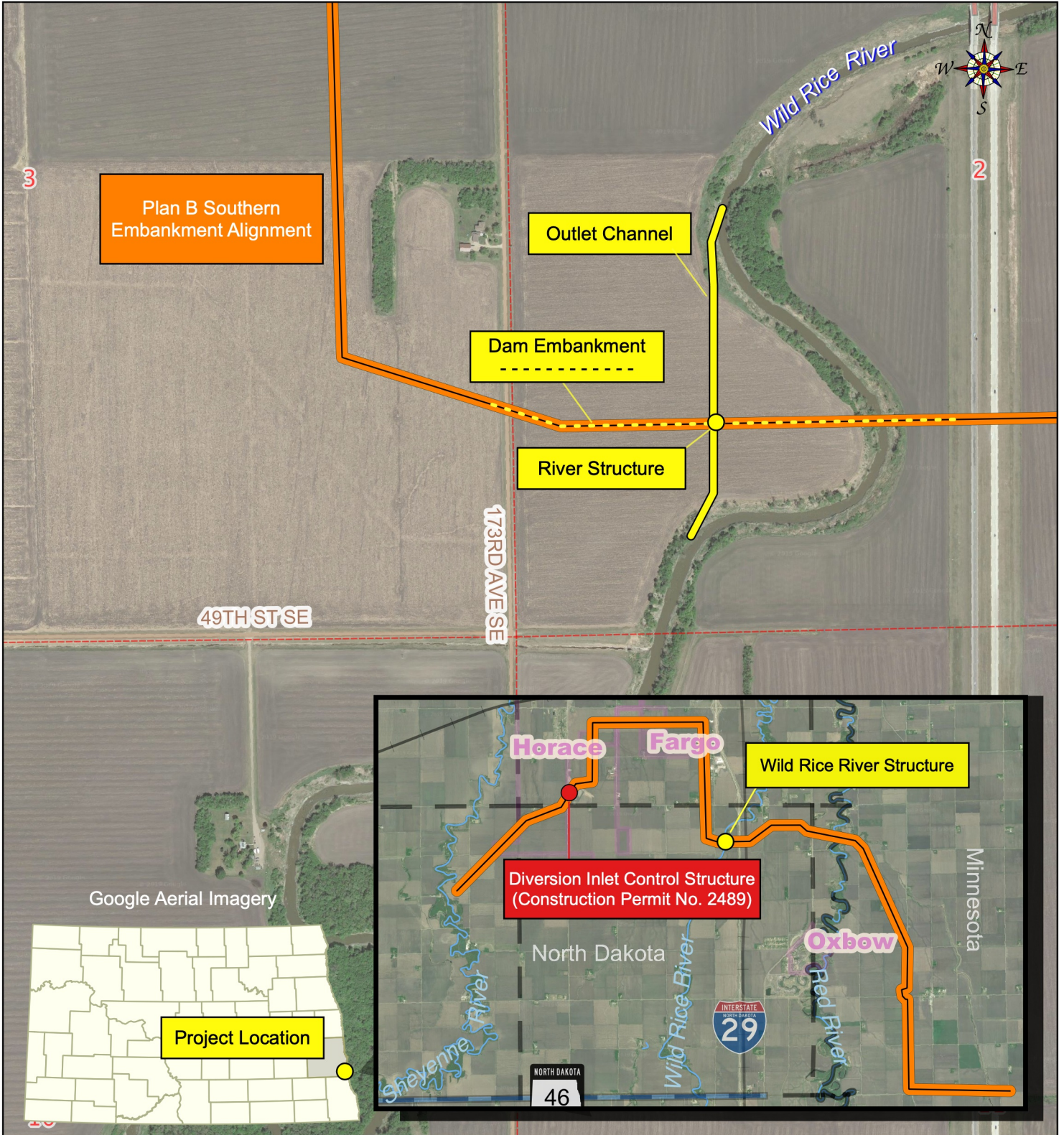
2. Permittee is responsible for obtaining any other local, state, or federal permits or approvals that may be necessary prior to construction.



Garland Erbele

Garland Erbele, P.E.
State Engineer

Date: 8.23.2019



Date: 8/23/2019
Prepared by: CWN

Construction Permit Application No. 2489
Metro Flood Diversion Authority
Wild Rice River Structure,
Fargo-Moorhead Metro Area Flood Risk Reduction Project

Sections 2 and 3, T137N, R49W, Cass County



Construction and Environmental Disturbance Requirements

These represent the minimum requirements of the North Dakota Department of Health. They ensure that minimal environmental degradation occurs as a result of construction or related work which has the potential to affect the waters of the State of North Dakota. All projects will be designed and implemented to restrict the losses or disturbances of soil, vegetative cover, and pollutants (chemical or biological) from a site.

Soils

Prevent the erosion of exposed soil surfaces and trapping sediments being transported. Examples include, but are not restricted to, sediment dams or berms, diversion dikes, hay bales as erosion checks, riprap, mesh or burlap blankets to hold soil during construction, and immediately establishing vegetative cover on disturbed areas after construction is completed. Fragile and sensitive areas such as wetlands, riparian zones, delicate flora, or land resources will be protected against compaction, vegetation loss, and unnecessary damage.

Surface Waters

All construction which directly or indirectly impacts aquatic systems will be managed to minimize impacts. All attempts will be made to prevent the contamination of water at construction sites from fuel spillage, lubricants, and chemicals, by following safe storage and handling procedures. Stream bank and stream bed disturbances will be controlled to minimize and/or prevent silt movement, nutrient upsurges, plant dislocation, and any physical, chemical, or biological disruption. The use of pesticides or herbicides in or near these systems is forbidden without approval from this Department.

Fill Material

Any fill material placed below the high water mark must be free of top soils, decomposable materials, and persistent synthetic organic compounds (in toxic concentrations). This includes, but is not limited to, asphalt, tires, treated lumber, and construction debris. The Department may require testing of fill materials. All temporary fills must be removed. Debris and solid wastes will be removed from the site and the impacted areas restored as nearly as possible to the original condition.



CONSTRUCTION COMPLETION NOTIFICATION

NORTH DAKOTA STATE WATER COMMISSION
REGULATORY DIVISION
SFN 60895 (10/2018)

OFFICE OF
THE STATE
ENGINEER
USE ONLY

Mail To:
Office of the State Engineer
900 East Boulevard Ave
Bismarck, ND 58505-0850

Contact Info:
(P) (701) 328-2750
(F) (701) 328-3696
www.swc.nd.gov

For structures that require a construction permit from the State Engineer, this form is to be submitted to the State Engineer upon completion of the structure in accordance with North Dakota Administrative Code **89-08-02-03.1**. As built plans of the structure must be submitted with this form in accordance with North Dakota Administrative Code **89-08-02-07**. For structures that do not require a construction permit, the State Engineer requests that the owner of the structure complete applicable sections of this form for the State Engineer's records. As built plans are not required for structures not requiring a construction permit.

89-08-02-03.1: *Construction must be completed and the State Engineer must be notified of completion in writing within two years from the date of final approval or the permit is void. The two-year period does not begin until any appeal is complete.*

89-08-02-07: *As a condition on all construction permits, the owner of the dam, dike, or other device will provide the state engineer with "as built" plans within six months after the dam, dike, or other device has been constructed to provide details of the modifications that occurred during construction.*

1. General Information

Type Of Structure (choose one) Dam Dike Other (Diversion, Pond, Lagoon, etc.) _____

Name Of Structure

Legal Description	1/4	1/4	Section	Township	Range
Construction Permit Number (if applicable)			Water Use Permit Number (if applicable)		
Construction Permit Approval Date (if applicable)					

2. Verification Of Construction (complete sections A, B or C as applicable)

A. For Structures Requiring A Construction Permit

This structure has been built or modified in accordance with the construction permit. As built plans are attached.
 Yes No (If no, please complete section C)

Completion Date

B. For Structures Not Requiring A Construction Permit

This structure has been built in accordance with the submitted plans
 Yes No (If no, please complete section C)

List Any Modifications From The Submitted Plans That Occurred During Construction

Completion Date


C. This Structure Will Not Be Constructed Yes




Reason

3. Ownership And Maintenance (complete all)			
A. Owner Of The Property On Which The Structure Is Located			
Name Or Agency			
Agency Contact Person (if applicable)			
Mailing Address	City	State	ZIP Code
Email Address	Home Telephone Number		
Work Telephone Number	Cell Telephone Number		
B. Agency Or Individual Responsible For Operation And Maintenance Of The Structure			
<input type="checkbox"/> Land Owner Listed Above <input type="checkbox"/> Other (if other, please complete information below)			
Name Or Agency			
Agency Contact Person (if applicable)			
Mailing Address	City	State	ZIP Code
Email Address	Home Telephone Number		
Work Telephone Number	Cell Telephone Number		
(Signature Of Owner or Agency Representative)	(Print Name)	(Date)	

TECHNICAL MEMORANDUM

DATE: **August 23, 2019**

TO:  Garland Erbele, P.E., State Engineer

FROM:  John Paczkowski, P.E., Assistant State Engineer
 Aaron Carranza, P.E., Director, Regulatory Division
 Matt Lindsay, P.E., Manager, Engineering and Permitting Section

SUBJECT: **Construction Permit Application No. 2489 - Wild Rice Control Structure
2nd Permit Review Phase for "Fargo Metro Area Risk Reduction Project"**

On May 3, 2019, the Office of the State Engineer (OSE) received a construction permit application from the FM Metro Diversion Authority (Diversion Authority) for the "Wild Rice River Structure" (WRRS), which is the 2nd major phase of the "Fargo Metro Area Risk Reduction Project" (Project), of which the 1st major phase included the "Diversion Inlet Structure." The Project is being reviewed by the OSE in phases and under Construction Permit Application No. 2489, such that each Project phase will be reviewed sequentially and cumulatively.

BACKGROUND

While the general scope and purpose of the Project has not changed since the OSE's original review (see interoffice memo dated July 8, 2016 - enclosed), the Project has undergone substantial changes in overall plan and design since the first phase of the Project, the "Diversion Inlet Structure," was approved by the OSE on July 8, 2016 (see original Construction Permit No. 2489 enclosed). Generally, the Diversion Inlet Structure's location and design remained the same, but the remainder of the Project and its alignment were completely re-planned and re-designed under an effort between the states of Minnesota and North Dakota known as the "Governors' Task Force." To advise the Governors' Task Force, a "Technical Advisory Group" (TAG) was created to assess the Project "components and alternatives and provide technical guidance to the Task Force." The resulting change in Project alignment and design was ultimately described as "Plan B," which is the current Project alignment and design configuration. A "Project Change Map – June 2018" (enclosed) found on page 11 of the Army Corps of Engineers' (Corps) Final Supplemental Environmental Assessment #2 (Corp's EA No. 2) succinctly displays the changes made in Project alignment. As a result, the WRRS was ultimately relocated to accommodate the new "Plan B" Project alignment, where it is currently proposed under this Application.

GENERAL PROJECT CHANGES

Several substantial Project changes materialized from the Governors' Task Force and TAG work. These changes are well documented in the Corps' EA No. 2 and the application materials, but generally, the Project changes can be summarized in several areas, which are listed below:

- 1) The Project hydrology used was changed from the Corps' EOE (Wet) hydrology to the Corps' "period of record" (POR) hydrology, which resulted in a change to the 100-year "annual chance exceedance" (ACE) event from 34,700 cubic feet per second (cfs) to 33,000 cfs at the USGS Fargo gage (No. 05054000).
- 2) The western end of the Project alignment, considered the "Western Tieback," was moved west and north to accommodate additional storage necessary in North Dakota to meet Governor's Task Force criteria.
- 3) The middle of the Project alignment, considered the "Southern Embankment," was moved north to accommodate additional storage necessary to meet mitigation concerns raised in the Governor's Task Force. This includes relocation of the Red River and Wild Rice River Structures.
- 4) The eastern end of the Project alignment in Minnesota, considered the "Eastern Tieback," was moved south and east along the western side of Wolverton Creek in Minnesota to balance effects of the Project in Minnesota as discussed in the Governor's Task Force. A structure will be constructed in the Eastern Tieback to accommodate Wolverton Creek flows through the embankment.
- 5) Project operation goals and guidelines have changed from maintaining a maximum stage of 35 feet at the USGS gage in Fargo, ND and increased that maximum to a stage of 37 feet.
 - a. To accommodate the increased stage through Fargo, the in-town flood protection measures have required upgrades to meet this new operational criteria.

The Corps is actively redesigning the Project based on these updated criteria.

WRRS LOCATION AND DESCRIPTION

The WRRS is to be located in the SW $\frac{1}{4}$ of Section 2 and SE $\frac{1}{4}$ of Section 3, Township 137 North, Range 49 West, Cass County. The WRRS will not be located on the natural Wild Rice River channel, but will be constructed adjacent to the natural channel and the Wild Rice River channel will be diverted permanently to the WRRS post-construction.

The WRRS is designed by the Army Corps of Engineers' St. Paul office. According to Section 2.2 of the "Design Documentation Report" provided with the Application, the WRRS is described generally as the following:

The Wild Rice River Structure includes a gated control structure, dam walls, vehicle service bridge, mechanical platform bridge, stilling basin, pre-formed scour hole, approach apron, slope protection slab and approach walls. The control structure includes two 40-foot wide Tainter gates, a 10-foot wide concrete pier between them, and abutments on the east and west side of the structure. Full height dam embankments will be constructed to within approximately 260 feet of the control structure. A combination of partial height dam embankment and dam walls will connect the control structure to the full height dam embankments. The dam wall footings will be at approximately the existing ground elevation. The abutments, stilling basin walls, and upstream training walls of the control structure

will retain embankment material up to the top of the dam wall footing elevation. There will be a 125-foot long stilling basin with a dentated end sill and a 20-foot deep pre-formed scour hole to dissipate energy. There will be an 85-foot long (measured from the nose of the piers) concrete approach apron on the upstream side of the structure. The project also includes a control building, access roads, and approximately 1,900 feet of engineered channel.

An overview map of the Project is enclosed, which was taken from page 8 of the Design Documentation Report.

WRRS OPERATION

The WRRS is to act as a control feature of the Project that will limit Wild Rice River flows downstream of the Project and through the City of Fargo (Fargo) during Project operations. The WRRS will be operated in tandem with the permitted "Diversion Inlet Structure" and to be proposed "Red River Control Structure" to operate the Project. Generally, the Project, including the WRRS, will not begin operation until the stage through town is projected to rise above 37 feet, equivalent to a combined flow upstream of Fargo of 21,000 cfs (5% ACE event) as measured from the sum of the USGS gages at Enloe (No. 0505152130) and Abercrombie (No. 05053000). This stage of 37 feet will be maintained through Fargo up to and including the 1-percent chance ACE event. The remainder of the Project operation is discussed in Section 4 of the Design Documentation Report.

DOCUMENTATION

Considerable documentation was provided with the Application that likely describes the WRRS and overall Project much more thoroughly and succinctly than necessary to reconvey in this memo. Instead, below is a summary of the documentation provided as well as other key references.

1. WRRS Plans; titled FMM Wild Rice River Structure (dated May 2019)
2. WRRS Specifications; titled Construction Documents for WRRS (dated April 2019)
3. Design Documentation Report (dated April 29, 2019)
4. Design Documentation Report Supporting Materials
 - a. Appendix C – Hydraulics
 - b. Appendix D – Geotechnical and Geology
 - c. Appendix E – Civil Site
 - d. Appendix F – Structural
 - e. Appendix G – Mechanical
 - f. Appendix H – Electrical
 - g. Appendix I – Architectural
 - h. Appendix J – Dewatering System
 - i. Appendix K – Environmental
 - j. Appendix L – Quality Control
 - k. Appendix M – Memos for Record and Guidance Memos
 - l. Appendix N – Engineering Considerations
5. Corps' "Final Supplemental Environmental Assessment # 2" (dated February 2019)

WATER RESOURCE DISTRICT AND OTHER AGENCY COMMENTS

On May 8, 2019, the OSE forwarded the application to the Cass County Joint Water Resource District (District) for consideration as required in N.D. Century Code § 61-16.1-38. The OSE received a response on May 13, 2019, stating the District had no comment (see file). The Richland County Water Resource District, Army Corps of Engineers N.D. Regulatory Office, N.D. Department of Health (now known as the Department of Environmental Quality; DEQ), N.D. Game and Fish Department (Game and Fish), and Minnesota Department of Natural Resources (MNDNR) were all copied on the letter, but the only comment was received from the DEQ regarding their 401 permit requirements (see file). DEQ and Game and Fish have worked directly with the Corps' St. Paul office on WRRS design components that entailed water quality and fish and wildlife mitigation efforts.

APPLICATION REVIEW

The WRRS is a feature of the Project and therefore, requires a construction permit under N.D. Century Code § 61-16.1-38. On June 20, 2019, OSE review questions on the Application were sent to the FM Diversion Authority and City of Fargo. A response to the questions was received on June 21, 2019 (see file). After receipt of this information, the Application was deemed complete according to N.D. Administrative Code § 89-08-02-02.

DAM DESIGN

Generally, upon review of all the Application materials and supporting documentation provided, the WRRS appears to be designed commensurate with the state of engineering practice for dam design. Several concerns with the Application were already addressed by MNDNR in their review of the WRRS (see files). The remaining OSE concern was whether there was adequate independent review of the Corps' design of the WRRS. A document entitled "Review Plan," dated June 2012, was provided via email by Terry Williams of the Corps on June 13, 2019 (see file) that signifies a thorough independent and peer review of the design. Additionally, Appendix L of the Design Documentation Report also provides insight into the design review.

MODEL REVIEW AND PROPERTY RIGHTS

The FM Diversion Authority provided their FEMA Conditional Letter of Map Revision (CLOMR) submittal to the OSE for review. The submittal included an H&H model of the Project to-date, as well as supporting documentation. The H&H model and supporting materials were provided to the Investigations Section of the State Water Commission for assistance in model review. The Investigations Section provided a technical memo dated August 20, 2019, that detailed their model review (see file). The recommendation in the technical memo was to solicit several questions regarding the H&H model and engineering assumptions to the Applicant to make sure the methodology used followed the state of engineering practice. A conference call was conducted on August 22, 2019, with the Applicant's modeling lead, Greg Thompson of Houston Engineering. The discussion revolved around clarifications to the questions asked, which resulted in final responses from Mr. Thompson (see file).

A meeting was held on July 25, 2019, between OSE and Diversion Authority representatives at the SWC office in Bismarck, ND. The meeting discussed the Diversion Authority's interest for a proposed alternative mitigation of the Project in lieu of the State Engineer's 0.1-foot policy (see NDSWC Property Mitigation Coordination Meeting prepared by Diversion Authority). The discussions revolved around the Diversion Authority's explanation of modeling accuracy and how

the top of dam approach for the existing permit conditions Nos. 1 and 2 were not the most representative of the Project's modeled effects. In light of the discussions and the need to update permit conditions, **I recommend the OSE consider a proposed mitigation plan by the Diversion Authority for the next phase of the permit approval. Consequently, I recommend permit condition Nos. 1 and 2 be replaced with a new condition, which is listed below:**

A mitigation plan must be submitted by the Permittee to the State Engineer. The mitigation plan will require the Permittee to propose mitigation for all property and infrastructure hydraulically affected upstream and adjacent to the project. The mitigation plan will be subject to State Engineer review and approval based upon reasonableness of the plan for the purposes of this permit approval. Future phases of this permit will be subject to an approved mitigation plan, which may be updated with each permit approval phase as deemed necessary by the State Engineer.

OTHER PERMIT CONSIDERATIONS

The existing permit approval contains several standard conditions that have since been updated or removed by the OSE. Specifically, several standard permit conditions were coalesced into other new, standard permit conditions while several other standard permit conditions were deemed too proscriptive, and therefore, are no longer used as standard conditions by the OSE. Therefore, **I recommend several standard permit conditions be added to the permit as well as several existing permit conditions be updated or deleted. Specifically, I recommend removing condition Nos. 8, 9, 10, 12, 13, 14, and 23 of the existing permit approval.**

For existing permit condition No. 3, **given the Project complexity and permitting nuances, I recommend the permit condition No. 3 be altered to allow the full 4 years of permit authorization listed in N.D.A.C. § 89-08-02-03.1, as N.D.A.C. § 89-08-02-03.1 offers a 2-year construction timeline with two 1-year permit extensions. Consequently, I recommend the permit condition be updated with the following language:**

~~3. The two-year window to construct a permitted structure, as outlined in N.D.A.C. § 89-08-02-03.1, does not apply to this or any permitted phase of the FM Diversion Project Dam. This permit is authorized for a total of four (4) years under N.D.A.C. sections 89-08-02-03.1 and 89-08-02-03.2, including extensions, from its approval date. No extensions will be granted beyond these 4 years unless the permit is reauthorized under a future phase of the project.~~

For clarity in what is being regulated for the Project, **I recommend the following condition be added to the permit:**

No portion of the project shall be constructed, including those portions of the project located in Minnesota, without approval from the North Dakota State Engineer through a construction permit application under N.D.C.C. section 61-16.1-38. For review of project components in Minnesota, the State Engineer will review only the project design without consideration of Minnesota statutes and rules.

Additionally, given the special downstream considerations for the high hazard dam, **I recommend the following recommendation be added to the permit document such that the special nature of the downstream risk of this Project is encompassed in the permit approval:**

Given the high hazard nature of the project, the State Engineer strongly encourages wise and sound development downstream of the project to ensure those high-risk areas downstream of the project are developed in a way that will minimize risk to the public.

RECOMMENDATION

Based on the available information and my analysis, **I recommend that the State Engineer approve this phase of construction Permit No. 2489, subject to the recommendations and updated permit conditions presented in this memo and the prepared permit document.**

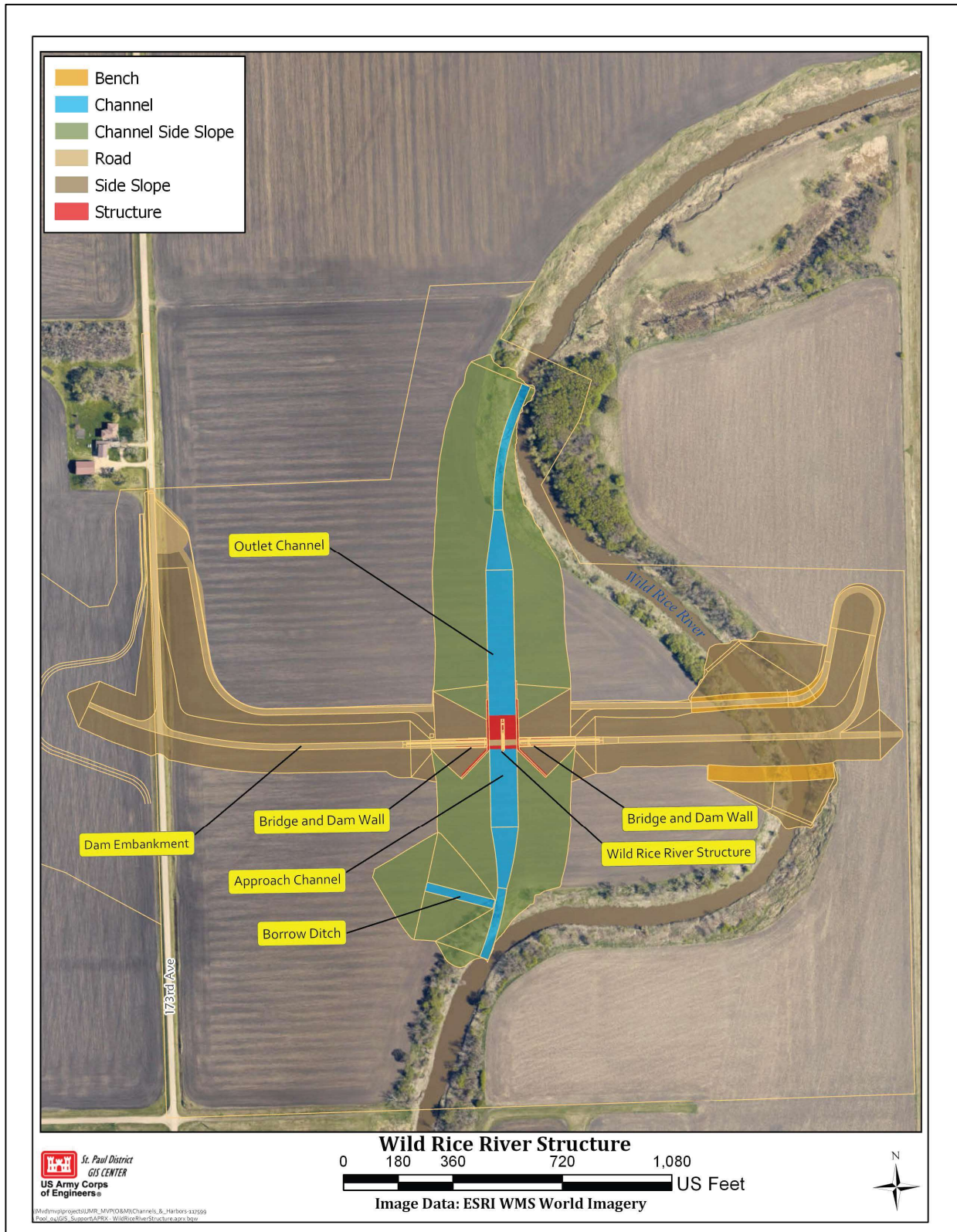
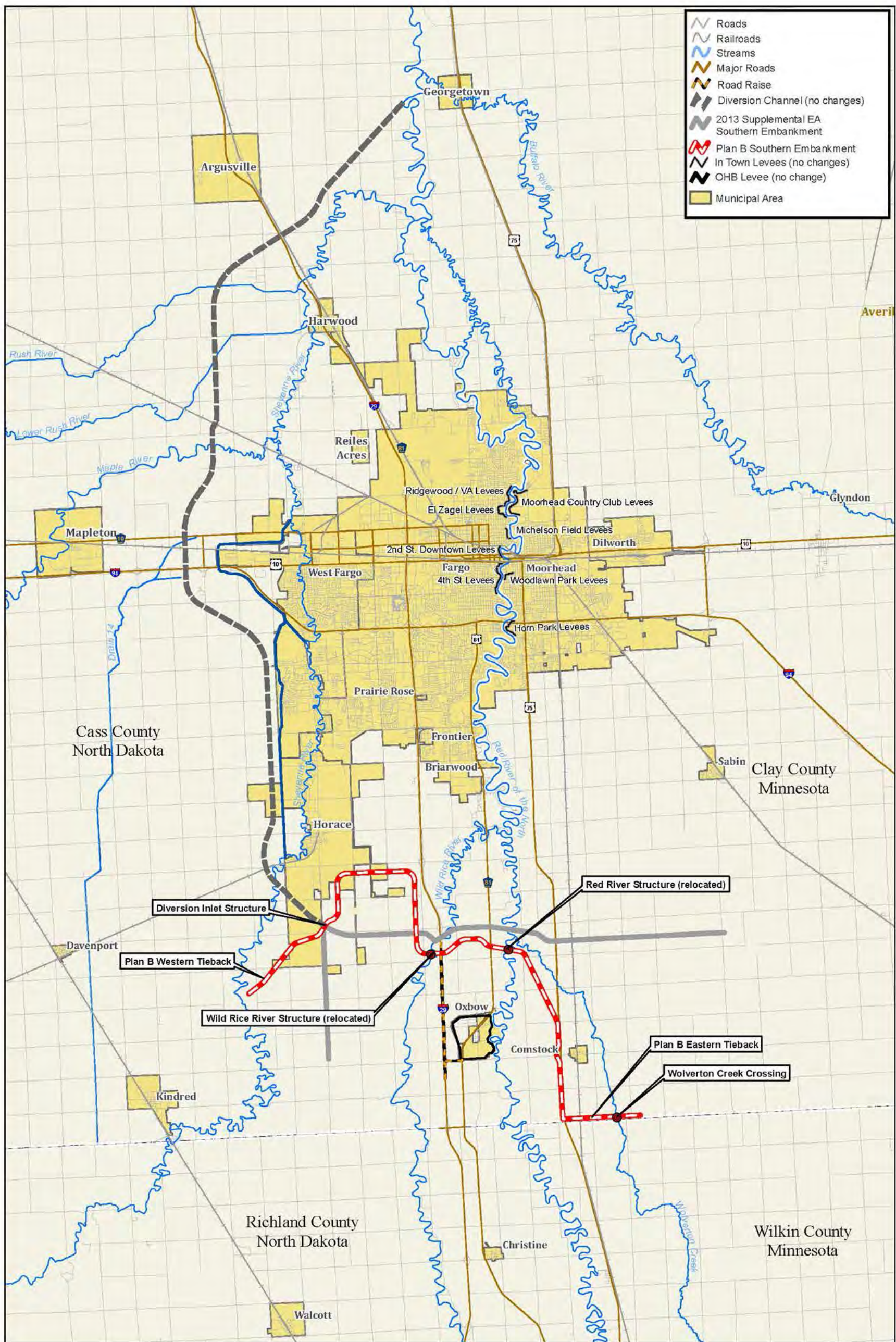


Figure 2: Location Map – Wild Rice River Structure



Project Change Map - June 2018
 Fargo Moorhead Metro Area Flood Risk Management

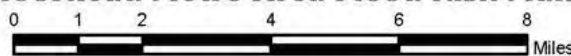


Figure 1. Proposed modifications to the Project since the 2013 Supplemental Environmental Assessment.