

December 10, 2020

Mr. Kris Bakkegard, Director of Engineering Metro Flood Diversion Authority 207 4<sup>th</sup> Street N, Suite A Fargo, ND 58102

RE: Construction Permit Application No. 2626 - FM Diversion

Dear Mr. Bakkegard:

The Office of the State Engineer (OSE) has reviewed your construction permit application for the FM Diversion. The State Engineer has approved the application and signed Construction Permit No. 2626.

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

If you have any questions, please feel free to contact me at 701-328-4288 or kahuber@nd.gov.

Sincerely,

Keling Hora

Kelsey Huber Water Resource Engineer

KH:pdp/1928

Enclosures: Permit to Construct or Modify No. 2626 NDDH Construction and Environmental Disturbance Requirements Construction Completion Notification SFN 60895

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



# State Engineer

# CONSTRUCTION PERMIT NO. 2626

This permit authorizes the permittee to construct or modify a structure, pursuant to North Dakota Century Code § 61-16.1-38, subject to the permit conditions.

Name of Permittee:	Metro Flood Diversion Authority 207 4 <sup>th</sup> Street N, Suite A Fargo, ND 58102	
Structure Type:	Diversion; Dike	
Purpose:	Flood Control	

Location and Waterway on which Project will be constructed:

Location:	See Attached Map
Stream:	Maple River, Red River, Sheyenne River, Lower and Upper Rush Rivers; Various Drains
Basin:	Devils Lake-Sheyenne; Upper Red
Project:	Diversion Channel, Diversion Channel Line of Protection, and associated infrastructure

This permit covers the Diversion Channel (Diversion), Diversion Channel Line of Protection (Dike), and associated infrastructure that form a portion of the Fargo-Moorhead Metropolitan Area Flood Risk Management Project.

Location Map: See Attached Map

### CONSTRUCTION PERMIT NO. 2626 (CONTINUED)

#### CONDITIONS TO PERMIT

- 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, operation, or maintenance 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. Prior to construction, in accordance with North Dakota Century Code section 61-16.1-38, plans and specifications associated with each Project component must be signed by a professional engineer registered in the state of North Dakota.
- 4. In accordance with North Dakota Administrative Code section 89-08-02-07, the Permittee must provide the State Engineer with As-Built plans within six months after the Project's construction.
- 5. 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.
- 6. If prior to or during construction items of substantial archeological value are discovered or a deposit of such items are disturbed, the Permittee must cease construction activities in the affected area. The State Historical Preservation Office and the State Engineer must be promptly notified of the discovery, and construction will not resume until the State Engineer gives written permission.
- 7. The permit applies to the specific Project and Project location described in the permit application.
- 8. Any activity below the Ordinary High Water Mark of the Sheyenne River or Red River may not be conducted until an approved sovereign lands permit is obtained from the Office of the State Engineer.
- Construction for works authorized under this permit are to be completed within a total of 4 years under North Dakota Administrative Code sections 89-08-02-03.1 and 89-08-02-03.2, including extensions, from the approval date. Construction expected beyond 4 years will require the permit to be reauthorized.

# CONSTRUCTION PERMIT NO. 2626 (CONTINUED)

#### SPECIAL CONDITIONS

- This permit is subject to compliance with the FM Area Diversion Project Property Rights Acquisition and Mitigation Plan. Any modifications to the Project Property Rights Acquisition and Mitigation Plan are subject to approval by the State Engineer. If additional mitigation needs are deemed necessary, the State Engineer reserves the right to require modifications to the approved Property Rights Acquisition and Mitigation Plan.
- 2. This permit is subject to the Technical Requirements associated with the Project Agreement for the Fargo-Moorhead Metropolitan Area Flood Risk Management Project. Any change to the Technical Requirements that would impact the construction, operation, or maintenance of the Project must be approved by the State Engineer prior to implementation.
- 3. This permit is subject to the Design Submittals Process Flowchart attached to this permit. Any change to the Design Submittals Process Flowchart must be approved by the State Engineer prior to implementation.
- 4. An Operation and Maintenance Plan for the Project must be submitted, reviewed, and accepted by the State Engineer before the Project is operated.
- Prior to construction, the final memorandums of understanding between the Metro Flood Diversion Authority and Southeast Cass Water Resource District, Maple River Water Resource District, Rush River Water Resource District, North Cass Water Resource District, and Cass County Joint Water Resource District must be submitted to the Office of the State Engineer (OSE).

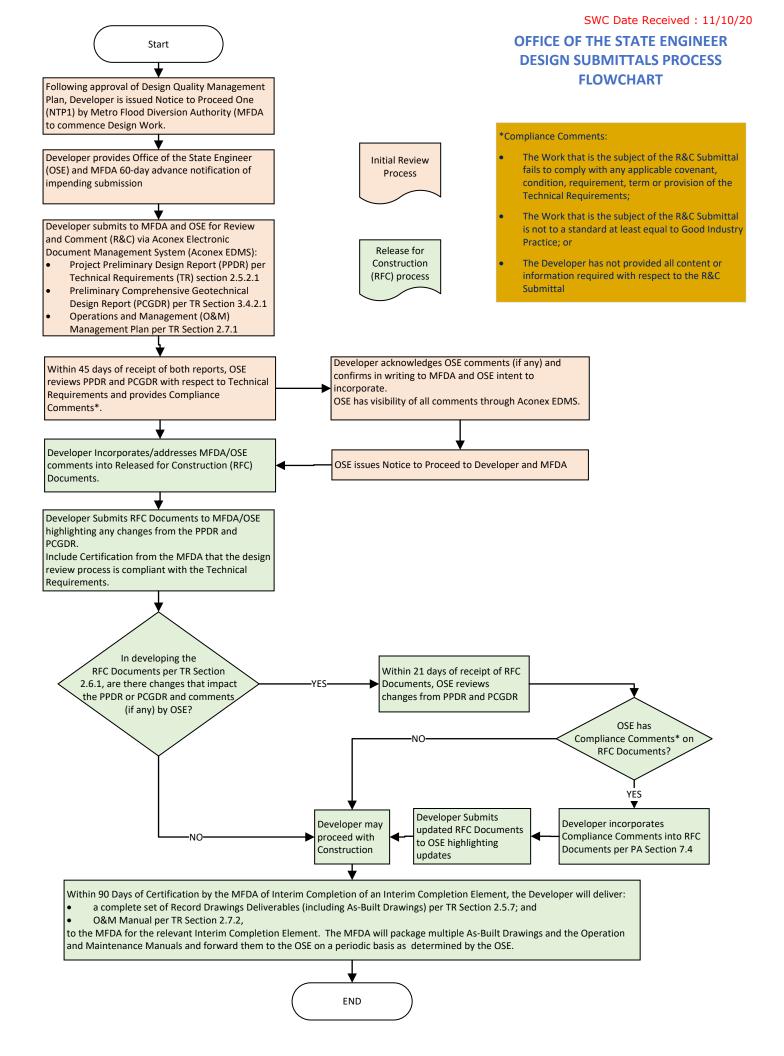
# RECOMMENDATIONS

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

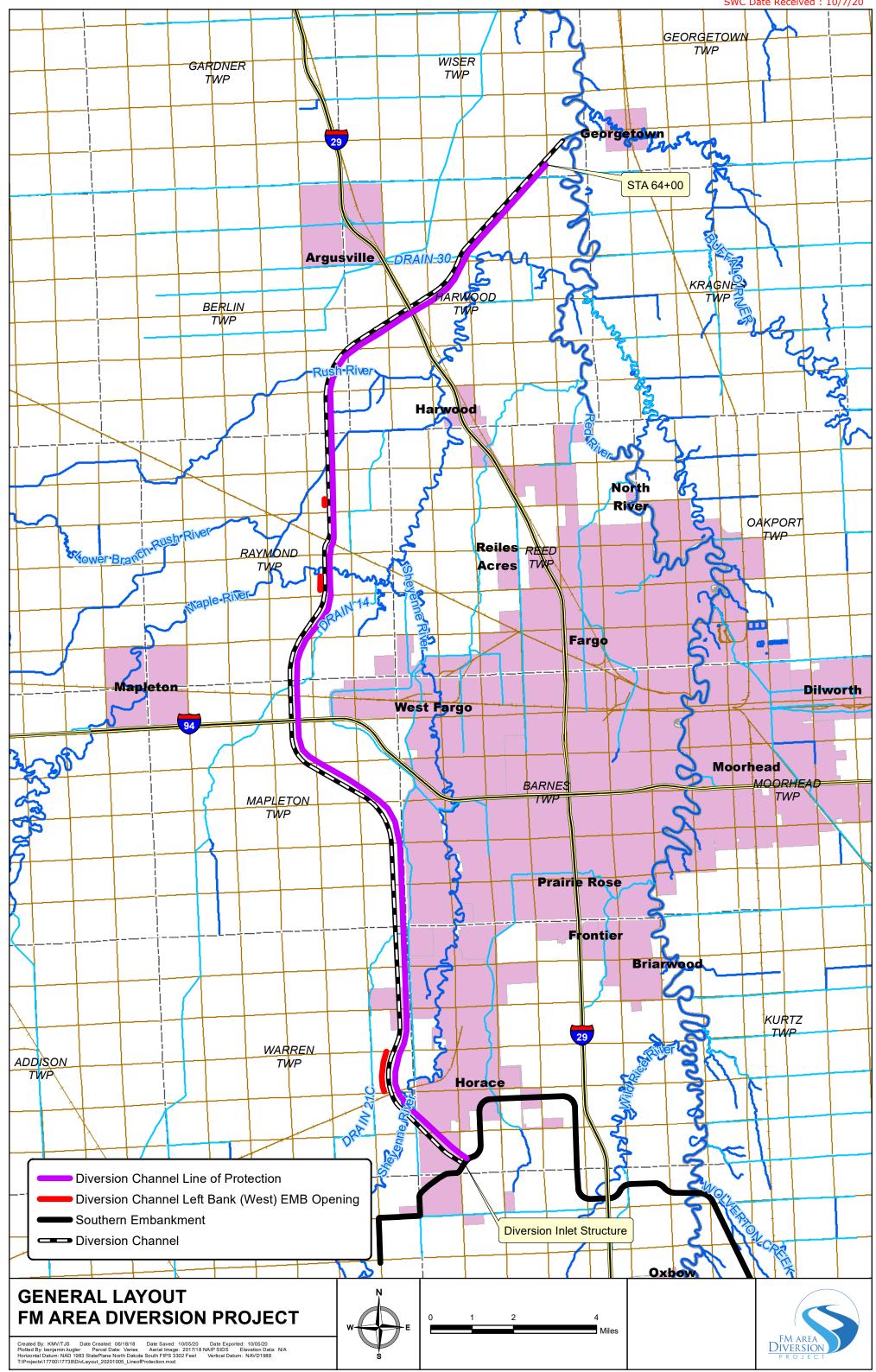
- 1. The State Engineer strongly encourages wise and sound development adjacent to the Project to ensure high-risk areas are developed in a way that will minimize risk to the public.
- 2. The Permittee is encouraged to coordinate with the OSE regarding Project status updates and the format in which they will be submitted to the OSE.
- 3. The Permittee is responsible for obtaining any other local, state, or federal permits or approvals that may be necessary prior to construction.



Joi∕n Paczkowski,<sup></sup>♥.E. Interim State Engineer Date: 11/25/2020



SWC Date Received : 10/7/20







# **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.

Division of Municipal Facilities 701.328.5211 Division of Water Quality 701.328.5210

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# CONSTRUCTION COMPLETION NOTIFICATION

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

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 OFFICE OF THE STATE ENGINEER USE ONLY

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 **<u>89-08-02-03.1</u>**. As built plans of the structure must be submitted with this form in accordance with North Dakota Administrative Code **<u>89-08-02-07</u>**. 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.

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 Maintena	nce Of The Structure					
Land Owner Listed Above 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					
	1					

(Signature Of Owner or Agency Representative)	(Print Name)	(Date)
	1	



# TECHNICAL MEMORANDUM

#### DATE: November 9, 2020

- TO: John Paczkowski, P.E., Interim State Engineer
- FROM: Aaron Carranza, P.E., Director, Regulatory Division M Matt Lindsay, P.E., Manager, Engineering and Permitting Section M Kelsey Huber, E.I.T., Water Resource Engineer

### SUBJECT: Construction Permit Application No. 2626 – FM Diversion

Construction Permit Application No. 2626 (Application) was received by this office from the Metro Flood Diversion Authority (Diversion Authority) on September 4, 2020, for the permitting of the Fargo-Moorhead Diversion (FM Diversion), which includes the Diversion Channel (Diversion), Diversion Channel Line of Protection (Dike), and all associated infrastructure. The FM Diversion forms part of the Fargo Moorhead Metropolitan Area Flood Risk Management Project (FM Metro Project), a project that intends to provide federally certifiable flood protection to the cities of Fargo and West Fargo in North Dakota and Moorhead in Minnesota.

#### BACKGROUND

The FM Metro Project includes a dam (referred to as the Southern Embankment), the FM Diversion, in-town levees and floodwalls, as well as a ring levee around the communities of Oxbow, Hickson, and Bakke (OHB Ring Dike). The federal government, through the United States Army Corps of Engineers (USACE), is responsible for the Southern Embankment and OHB Ring Dike construction, while the non-federal sponsors are responsible for the remaining project features, including the FM Diversion.

The FM Diversion is to be constructed through a Public-Private Partnership (P3) between the Diversion Authority and a selected Developer. The Developer is to design, construct, operate, and maintain the FM Diversion such that it meets the criteria outlined in the Technical Requirements of the Project Agreement for the FM Metro Project, as well as any other local, state, or federal permits or approvals that may be necessary.

The Office of the State Engineer (OSE) has permitted portions of the FM Metro Project:

- Southern Embankment under Construction Permit No. 2489 on July 8, 2016 (Diversion Inlet Structure) and August 23, 2019 (Wild Rice River Structure)
- OHB Ring Dike under Construction Permit Nos. 2427 on August 7, 2017 and 2429 on June 19, 2014
- In-town levees and floodwalls under several Construction Permits

On June 1, 2020, the OSE approved the Property Rights Acquisition and Mitigation Plan v.5 (Mitigation Plan), a document that outlines how the FM Diversion will mitigate impacted properties.

The FM Metro Project is also subject to other regulatory requirements and has been:

- Granted a Dam Safety and Public Waters Work Permit, also referred to as the Fargo-Moorhead Plan B permit, on December 27, 2018, by the Minnesota Department of Natural Resources.
- Issued a Conditional Letter of Map Revision (CLOMR) by the Federal Emergency Management Agency (FEMA) for Minnesota and North Dakota on September 9, 2020.

Full authorization of the FM Metro Project is subject to all applicable local, state, and federal rules and requirements.

# FM DIVERSION LOCATION AND DESCRIPTION

According to the Application materials, the FM Diversion consists of an approximately 30-mile long diversion that diverts floodwaters around the Cities of Horace, West Fargo, Fargo, and Harwood, until joining with the Red River in the N ½ of Section 36, Township 142 North, Range 49 West, Cass County across from Georgetown, Minnesota. The FM Diversion crosses the Sheyenne, Maple, Lower Rush, and Rush Rivers, as well as intercepting several drains. The inlet to the FM Diversion, the Diversion Inlet Structure (DIS), is located just south of Horace within the Southern Embankment in the SE ¼ of Section 31 and SW ¼ of Section 32, Township 138 North, Range 49 West, Cass County.

### APPLICATION REVIEW

According to North Dakota Century Code (N.D.C.C.) § 61-16.1-38 and North Dakota Administrative Code (N.D.A.C.) § 89-08-02-01, a permit is required from the OSE for the construction or modification of a structure capable of obstructing or diverting more than fifty acrefeet of water. The FM Diversion has the capability of acting as a dike, obstructing a volume greater than 50 acre-feet, and as a diversion, diverting a volume greater than 50 acre-feet for the 25-year, 24-hour event. Therefore, a construction permit is required from the OSE.

Given this project is supervised by the US Army Corps of Engineers (a federal agency), the FM Diversion is exempt from drainage permitting according to N.D.C.C. § 61-32-03 and N.D.A.C. § 89-02-01-05.

# **COMPLETE APPLICATION**

According to N.D.C.C. § 61-16.1-38 and N.D.A.C. § 89-08-02-02, a completed construction permit application must include complete plans and specifications completed by a professional engineer and evidence establishing a property right for the property that will be affected by the construction of the project proposed under the Application.

Given the design-build nature of the proposed P3 process, the Applicant provided a proscriptive suite of design, build, and operation requirements (Technical Requirements) in place of plans and specifications. Similarly, the OSE's approval of the Mitigation Plan for the FM Metro Project was determined to satisfy the requirement for evidence of a property right for property affected by the construction of the FM Diversion.

#### TECHNICAL REQUIREMENTS

The Technical Requirements are included as part of the Project Agreement for the FM Metro Project – Diversion Channel and Associated Infrastructure. The Technical Requirements contain

TECHNICAL MEMORANDUM CONSTRUCTION PERMIT APPLICATION NO. 2626 PAGE 3 OF 6

the performance standards for the FM Diversion that a Developer will be obligated to be in compliance with when designing, constructing, inspecting, operating, and maintaining the FM Diversion. These performance standards take into consideration requirements for FEMA accreditation, maintaining public funding eligibility, and ensuring conformance with the Mitigation Plan. A special condition has been placed on the permit such that it is subject to Technical Requirements and any changes to the Technical Requirements require State Engineer approval.

Given that the Technical Requirements outline the criteria the plans and specifications are to meet, the OSE determined approval of the Technical Requirements through this permit satisfies the requirement for plans and specifications. In addition, the permit is conditioned such that final plans and specifications for the FM Diversion are provided to the OSE prior to construction.

#### MITIGATION PLAN

According to the Application materials, "[t]he Technical Requirements contain performance standards that allow the [Diversion] Authority to achieve compliance with the Property Rights Acquisition and Mitigation Plan for the Comprehensive Project approved by the OSE on June 1, 2020." A special condition was placed on the permit such that it is subject to the Mitigation Plan and any modifications to the Mitigation Plan require State Engineer approval.

Based on review of N.D.A.C. § 89-08-02-02, with the submission of an updated Design Submittals Process Flowchart, the OSE determined the Application complete on November 10, 2020.

#### **OSE CONSTRUCTION AUTHORIZATION PROCESS**

The Technical Requirements outline the submittals process for each component of the FM Diversion. The submittals process described in the Technical Requirements is also summarized in the Design Submittals Process Flowchart (Flowchart) included with the Application materials and attached to the Permit. According to the Flowchart, the Project Preliminary Design Report (PPDR) and Preliminary Comprehensive Geotechnical Design Report (PCGDR) are to be submitted to the OSE to review with respect to the Technical Requirements. The OSE's comments will be incorporated into the Released for Construction (RFC) documents and submitted to the OSE for review, with any changes from the PPDR or PCGDR highlighted. According to the Technical Requirements, RFC documents submitted to the OSE for review are to include certification that the design meets the Technical Requirements, signed plans and specifications, as well as evidence of a property right. To clarify the submittals process, a single document outlining the process described in the Technical Requirements was referenced in the permit conditions.

#### FM DIVERSION DESIGN

The design of the FM Diversion must meet the criteria presented in the Technical Requirements. So long as the design meets the Technical Requirements, specifics related to design can vary. According to the Application and supporting materials, the FM Diversion includes the following:

#### **Diversion Channel (Diversion)**

- Low flow channel to provide aquatic habitat and biological connectivity
- Designed to carry 1-percent annual chance exceedance (ACE) flood event below existing ground elevations to limit impacts to drainage outside the channel
- Diversion outlet conveys diversion flows into the Red River

# **Diversion Channel Line of Protection (Dike)**

- Extends from the DIS to STA 64+00 along the east side of the Diversion
- Designed to provide protection up to the 1-percent ACE flood event or greater and may consist of:
  - Embedded levees Levees that are within an excavated material berm (EMB) with 6 feet or greater of EMB over the top and on the sides in all directions
  - Partially embedded levees Levees that are within an EMB with less than 6 feet of EMB over the top or on the sides
  - Non-embedded levee Levees that are not embedded levees or partially embedded levees
  - Floodwalls Flood protection features that are not levees

# Associated Infrastructure

- EMB that may exist on either side of Diversion
  - West side The EMB is not constructed to manage flood risk. Gaps are incorporated to limit water levels in the Diversion for design flows above the 1percent ACE flood event
  - East side –The EMB may be placed so that it overlays structural components of the Dike
- Sheyenne and Maple River Aqueducts
  - Sheyenne River Aqueduct
    - Minimum flow of 1,200 cubic feet per second (cfs) before flows are allowed to spill into the Diversion
    - Maximum flow of 1,500 cfs allowed through protected area (area east of the Diversion)
  - Maple River Aqueduct
    - Minimum flow of 1,700 cfs before flows are allowed to spill into the Diversion
    - Maximum flow of 3,500 cfs allowed through protected area (area east of the Diversion)
  - Lower Rush and Rush River Rock Ramps
    - Divert entire river flow into the Diversion
- Drain Inlets (11) associated with
  - Legal Drain 29
  - o Legal Drain 30
  - Legal Drain for Berlin Township
  - Legal Drain for Raymond Township North
  - Legal Drain for Raymond Township South
  - Legal Drain 14B
  - Legal Drain 14C
  - Legal Drain for Mapleton Township
  - Legal Drain 21C
  - Legal Drain 50
  - o CR 17
  - Local drainage from the unprotected area west of the Diversion will be directed to toe drains, Drain Inlets, or existing ditches, drains, or waterways. If required, additional inlets to the Diversion for local drainage from the protected area (area east of the Diversion) may be constructed.

#### **FM DIVERSION OPERATION & MAINTENANCE**

The Technical Requirements outline the requirements for an Operations and Management Plan and Operations and Management Manual for the FM Diversion. According to the Technical Requirements, the FM Diversion is to be operated, maintained, and inspected such that the Project maintains an "Active" status in the USACE Rehabilitation and Inspection Program in accordance with USACE Public Law 84-99 *Rehabilitation and Inspection Program*, USACE *Engineer Regulation ER 500-1-1 Emergency Employment of Army and Other Resources – Civil Emergency Management Program*, and USACE *Engineer Regulation ER 1130-2-530 Flood Control Operations and Maintenance Policies* (Section 4.1 and Attachment 4-2 of the Technical Requirements). Inspections are to be conducted annually, at a minimum, in order to be eligible for the USACE Rehabilitation and Inspection Program. A special condition was placed on the permit such that an Operation and Maintenance Plan must be accepted by the State Engineer before the FM Diversion is operated.

FM Diversion operation is described in section 4.1 of the USACE Hydrology and Hydraulics - Appendix D. The FM Metro Project will begin operation once combined flows at US Geological Survey streamgage at Enloe, North Dakota (Red River) and Abercrombie, North Dakota (Wild Rice River) exceed 21,000 cfs (approximately a 20-year event).

#### WATER RESOURCE DISTRICT AND OTHER AGENCY COMMENTS

Comment was solicited from the Cass County Joint Water Resource District, North Dakota USACE Regulatory Office, and North Dakota Department of Environmental Quality (DEQ) on October 14, 2020 (see file).

DEQ provided comment prior to the OSE's October 14, 2020 solicitation in its letter dated August 11, 2020, where it granted a provisional clean water certification subject to several conditions (see file).

The District provided comment on November 4, 2020, stating its support of the FM Diversion and noting "[a]II four Water Resource Districts in Cass County are negotiating a *Memorandum of Understanding* with the Diversion Authority, that [they] expect the parties to execute in the next month." The memorandums of understanding between the Metro Flood Diversion Authority and Southeast Cass, Maple River, Rush River, North Cass, and Cass County Joint Water Resource Districts outline the "respective roles and responsibilities for the design, construction, and relocation of facilities in conjunction with the Storm Water Diversion Channel and Associated Infrastructure of the Fargo-Moorhead Metropolitan Area Flood Risk Management Project" (see Attachment E of the Application materials). A special condition was placed on the permit such that the final memorandums of understanding be submitted to the OSE.

#### **OTHER OSE PERMITS AND CONSIDERATIONS**

The FM Diversion crosses the Sheyenne River and outlets into the Red River. Given the Sheyenne and Red Rivers are considered sovereign lands under N.D.C.C. § 61-33-01(5), any work completed within the beds and banks of either river requires a Sovereign Lands permit. This requirement was included as a standard condition on the permit:

Any activity below the Ordinary High Water Mark of the Sheyenne River or Red River may not be conducted until an approved sovereign lands permit is obtained from the Office of the State Engineer.

#### **CONCLUSION**

Based on the information provided in the Application and supporting materials, I recommend the State Engineer approve Construction Permit Application No. 2626 subject to the standard construction permit conditions and the following special conditions and recommendations:

#### Special Conditions

- This permit is subject to compliance with the FM Area Diversion Project Property Rights Acquisition and Mitigation Plan. Any modifications to the Project Property Rights Acquisition and Mitigation Plan are subject to approval by the State Engineer. If additional mitigation needs are deemed necessary, the State Engineer reserves the right to require modifications to the approved Property Rights Acquisition and Mitigation Plan.
- 2. This permit is subject to the Technical Requirements associated with the Project Agreement for the Fargo-Moorhead Metropolitan Area Flood Risk Management Project. Any change to the Technical Requirements that would impact the construction, operation, or maintenance of the Project must be approved by the State Engineer prior to implementation.
- 3. This permit is subject to the Design Submittals Process Flowchart attached to this permit. Any change to the Design Submittals Process Flowchart must be approved by the State Engineer prior to implementation.
- 4. An Operation and Maintenance Plan for the Project must be submitted, reviewed, and accepted by the State Engineer before the Project is operated.
- 5. Prior to construction, the final memorandums of understanding between the Metro Flood Diversion Authority and Southeast Cass Water Resource District, Maple River Water Resource District, Rush River Water Resource District, North Cass Water Resource District, and Cass County Joint Water Resource District must be submitted to the OSE.

#### **Recommendations**

- 1. The State Engineer strongly encourages wise and sound development adjacent to the Project to ensure high-risk areas are developed in a way that will minimize risk to the public.
- 2. The Permittee is encouraged to coordinate with the OSE regarding Project status updates and the format in which they will be submitted to the OSE.
- 3. The Permittee is responsible for obtaining any other local, state, or federal permits or approvals that may be necessary prior to construction.