FLOOD DIVERSION BOARD OF AUTHORITY
Thursday, December 11, 2014
3:30 PM

Fargo City Commission Room
Fargo City Hall
200 3rd Street North

1. Call to order

2. Approve minutes from previous meeting — Item 2. — Action

3. Approve order of agenda — Action

4. Management — Information
   a. PMC report
   b. Corps of Engineers report — Item 4b.

5. Administrative/Legal — Information/action
   a. Lawsuit update

6. Technical — Information/action
   a. Contracts/Task Orders/Authority Work Directives — Item 6a.
      i. Task Order No. 8 Amendment 8 Work-in-Kind — Item 6a. (i)
      ii. Task Order No. 9 Amendment 12 Hydrology/Hydraulic Modeling — Item 6a. (ii)
      iii. Task Order No. 18 Amendment 0 CR-16/CR-17 bridge design — Item 6a. (iii)
      iv. AWD-00045 Phase II Environmental Site Assessment — Item 6a. (iv)
      v. AWD-00046 MN EIS Support for Additional Information — Item 6a. (v)
      vi. Decision Paper No. 00035 Work Change Directives — Item 6a. (vi)
      vii. Change Order No. 1 for 2nd Street North pump station — Item 6a. (vii)

7. Public Outreach — Information
   a. Committee report — Item 7a.
   b. Business Leaders Task Force update

8. Land Management — Information/action
   a. Committee report
   b. CCJWRD update

9. Finance — Information/action
   a. Committee report
   b. Draw Request No. 3
   c. Voucher approval — Item 9b.

10. Other Business

11. Next Meeting – January 8, 2015

12. Adjournment

cc: Local Media

RESOLUTION

WHEREAS Dennis Walaker, The Honorable Mayor of the City of Fargo who first took office on June 28, 2006, was a man who fought tirelessly and continuously to protect the City from flooding; and

WHEREAS Mayor Walaker waged repeated, epic battles against the frigid floodwaters of the Red River of the North; and

WHEREAS Mayor Walaker mobilized tens of thousands of volunteers over and over to sandbag along the banks of the flood-prone river and spare the low-lying city from rising water; and

WHEREAS Mayor Walaker would model calm and reassurance to the people of his City and its workers, no matter the extent of the flood threat; and

WHERAS Mayor Walaker dedicated four decades of his life serving the City of Fargo, first as a Civil Engineer, then as Public Works Director, before being elected as Mayor; and

WHERAS Mayor Walaker was a champion for the F-M Area Diversion Project and recognized the Project's necessity;

NOW BE IT THEREFORE RESOLVED that we, the members of this body, the Flood Diversion Board of Authority, officially recognize Mayor Dennis Walaker's countless efforts and contributions to establish effective and permanent flood protection for the Fargo-Moorhead area; and that we will continue to work to plan, design and manage a Diversion Project which will put to an end the kind of recurring emergency responses that Mayor Walaker tirelessly coordinated and directed, despite overwhelming odds.

FLOOD DIVERSION BOARD OF AUTHORITY
NOVEMBER 13, 2014—3:30 PM

Item 2.

1. MEETING TO ORDER

A meeting of the Flood Diversion Board of Authority was held Thursday, November 13, 2014, at 3:30 PM in the Fargo City Commission Room with the following members present: Cass County Commissioner Darrell Vanyo; Cass County Commissioner Vern Bennett; West Fargo City Commissioner Mike Thorstad; Fargo City Commissioner Tim Mahoney; Fargo City Commissioner Melissa Sobolik; Cass County Joint Water Resource District Manager Rodger Olson; Clay County Commissioner Kevin Campbell; and Moorhead City Council Member Nancy Otto. Fargo Mayor Dennis Walaker was absent.

Staff members and others present: Cass County Administrator Keith Berndt; Moorhead City Manager Michael Redlinger; Clay County Administrator Brian Berg; Cass County Engineer Jason Benson; Fargo City Director of Engineering Mark Bittner; Fargo City Engineer April Walker; Moorhead City Engineer Bob Zimmerman; Bruce Spiller, CH2MHill; Tom Dawson, Chairman, Chamber of Commerce Business Leaders Task Force; Brett Coleman, Project Manager, Corps of Engineers; and Terry Williams, Project Manager, Corps of Engineers.

2. MINUTES APPROVED

MOTION, passed

Mr. Mahoney moved and Ms. Otto seconded to approve minutes from the October 9, 2014, meeting as presented. Motion carried.

3. AGENDA ORDER

MOTION, passed

Mr. Campbell moved and Ms. Sobolik seconded to approve the order of the agenda. Motion carried.

4. MANAGEMENT UPDATE

Program management consultant (PMC) report

Bruce Spiller provided an update on activities over the last month including construction of the Oxbow-Hickson-Bakke (OHB) levee; submittal of a draft socio-economic analysis and draft operation plan to the Minnesota DNR for the Minnesota EIS (Environmental Impact Statement); beginning construction on the 2nd Street North pump station work; continued work on land acquisition activities and policies; completion of cultural fall field surveys; continued review of draft EIS sections and submittal of draft adaptive management and mitigations plans to the MDNR; and development of mitigation plans associated with impacted cemeteries.

Corps of Engineers report

Terry Williams provided an update of activities by Corps of Engineers staff including Maple River aqueduct physical modeling work; continued coordination to provide information to the Minnesota DNR for the EIS, which is a top priority; continuing work on the operation plan and adaptive management plan for the project; participation in weekly OHB levee coordination meetings; assistance with local efforts on the in-town levees; continuing to develop and review design products; and continuing to refine the project to reduce impacts.

5. ADMINISTRATIVE/LEGAL UPDATE

Lawsuit update

Attorney Erik Johnson provided an update regarding lawsuits filed by the Richland-Wilkin Joint Powers Authority. He said a scheduling conference was held on October 22nd for counsel to identify the timelines associated with the case, and that the record will be complete by mid-February 2015.

6. TECHNICAL UPDATE

Award construction contract for 4th Street North pump station

Mr. Spiller said bids were opened on October 28, 2014, for the 4th Street pump station and gate well, and 2nd Street flood wall south work package. He said CH2MHill recommends the board award the contract to ICS, Inc. in the amount of $17,361,616.35 as it is the lowest and best bid.

MOTION, passed

Mr. Mahoney moved and Ms. Otto seconded to award the construction contract for the 4th Street pump station and gate well, and 2nd Street flood wall south work package to ICS, Inc. in the amount of $17,361,616.35. Discussion: Mr. Berndt said the technical team met earlier this week and discussed how to separate the in-town work from the diversion work and said a map will be developed to show the projects. On roll call vote, the motion carried unanimously.

Task Orders / Authority Work Directives (AWD)

Mr. Spiller reviewed one authority work directive (AWD-00044) with Houston Moore Group (HMG) at a cost not to exceed $20,000 for survey work to collect detailed culvert and bridge information near the staging area. Mr. Vanyo signed the document last week as it fell below the monetary threshold established by the board, and also because the work needed to be done before there was snow on the ground.

MOTION, passed

Mr. Campbell moved and Mr. Pawluk seconded to approve AWD-00044 with HMG totaling $20,000. On roll call vote, the motion carried unanimously.

7. PUBLIC OUTREACH UPDATE

Committee report

Rodger Olson discussed numerous outreach activities including an open house to be held on November 17th to discuss the OHB ring levee project; community outreach meetings; work with the Business Leaders Task Force to provide their memberships in North Dakota and Minnesota with information about the diversion project; outreach with local legislators in anticipation of the upcoming legislative session; and e-newsletter and diversion website updates.

Business Leaders Task Force

Tom Dawson said the next meeting of the task force will be held on December 16th. He said a meeting will be held with North Dakota and Minnesota legislators on February 12, 2015.

Retention Projects

Mr. Olson said the outreach committee discussed retention projects. The Diversion Authority has earmarked $25 million for retention efforts. He said these types of projects take years to build. He said the best location has to be found and then damage areas are studied, which makes for a complex process. He discussed the different funding available for retention projects, and said a commitment is needed from area water boards to make retention a priority. Mr. Campbell said one of the most difficult aspects in the process is obtaining permission from property owners to use their land to store water.

8. LAND MANAGEMENT UPDATE

Committee report

Mr. Vanyo said the Land Management Committee met earlier this afternoon. He said work continues on the Ag Risk Evaluation for Temporary Water Retention Easement Values and Crop Insurance by the NDSU Agribusiness and Applied Economics Department. The committee reviewed farm land that is owned by the Diversion Authority and managed by Pifer Group. He said $188,000 has been generated through farm land rental agreements.

CCJWRD update

Mark Brodshaug provided an update on land acquisitions completed through October 31, 2014. He reviewed a handout with information on completed acquisitions, budget figures, and completed negotiations. Purchase agreements and replacement housing agreements have been signed with six residential property owners in Oxbow, and appraisals continue for properties associated with the OHB levee and in-town levee. He said purchase and relocation negotiations are underway with Oxbow Country Club.

Eric Dodds from AE2S provided a brief presentation on land management acquisitions and the scope of work. He said the process for a typical acquisition is to confirm the need for the property; authorize the acquisition; conduct an appraisal; negotiate with the owner for acquisition; coordinate the relocation; and close on the property. He said some of the challenges with acquisitions are the availability of appraisers, consistency of quality, unique property circumstances, and the complex structure of the local sponsor. He said future actions to help the acquisition process include searching for additional appraisers, CH2MHill or AE2S to retain an appraiser, start design as early as possible, and anticipate issues in advance.

9. FINANCE UPDATE

Committee report

Michael Montplaisir, Cass County Auditor, said the Finance Committee met on November 12th. The board continues to operate on borrowed money from the $20 million loan, which is being used to pay the monthly bills to allow for Fargo and Cass County sales tax funds to build up reserves. He said a decision will need to be made in December or January whether to consider another draw down of the loan or to use sales tax funds for monthly expenses.

Contract for lobbyist

Mr. Montplaisir said the Finance Committee approved a contract for a lobbyist to assist with the Minnesota EIS process and work with the MDNR. He said the board also needs to approve the contract to move forward with their services.

MOTION, passed

Mr. Pawluk moved and Ms. Otto seconded to approve a contract with Fredrickson & Byron, P.A. in the amount of $36,000 for lobbyist services. On roll call vote, the motion carried unanimously.

Voucher approval

The bills for the month are for legal services with Erik Johnson & Associates and Dorsey & Whitney LLP; access work for in-town and OHB levees with the Cass County Joint Water Resource District (CCJWRD); and relocation of fiber optic cables with Enventis and 702 Communications. Mr. Montplaisir said the bills total $3.9 million with $3.5 million for the work done by the CCJWRD.

MOTION, passed

Mr. Mahoney moved and Mr. Olson seconded to approve the vouchers in the amount of $3,901,340.15 for October, 2014. On roll call vote, the motion carried unanimously.

10. NEXT MEETING DATE

The next meeting will be held on Thursday, December 11, 2014, at 3:30 PM.

11. ADJOURNMENT

MOTION, passed

On motion by Mr. Mahoney, seconded by Ms. Sobolik, and all voting in favor, the meeting was adjourned at 5:00 PM.

Minutes prepared by Heather Worden, Cass County Administrative Assistant

US Army Corps of Engineers
St. Paul District

Monthly Update

December 11, 2014

Since the last Diversion Authority meeting, the following project-related activities were worked on.

1. Continued coordination and supply of requested data to the MN DNR in support of their EIS process.

2. Continuing the Maple River Physical Model work and preliminary design of the Aqueduct Structure and associated diversion channel.

3. Continuing In-Town Levees design and construction support.

4. Lower Rush River Structure 95% Plans and Specs provided 8 December for Sponsor/ATR reviews.

5. Continuing work on the Cemetery Mitigation Plan.

6. Holding Oxbow/Hickson/Bakke (OHB) Levee coordination meetings. Held a public open house on November 17 at the Hickson Community Center.

7. Work continues on the Operation Plan and Adaptive Management plan for the project.

8. Continuing development of Alternate Resourcing and Delivery plan for expedited implementation of the FMM Project.

9. Commencing preliminary design work on the Diversion Inlet Structure. Design charette was held, November 19-21.

10. Held a coordination meeting in Fargo with our ATR review team (Omaha District-USACE) and our IEPR review team (NRCS) on November 18.

11. Geotechnical borings continue to be taken along the Southern Embankment alignment.

12. Aaron Snyder presented at the Joint North Dakota Water Convention and Irrigation Workshop on December 4, 2014.

ATR/IEPR Teams Tour – 18 Nov.

OHB Open House – 17 Nov.

Fargo-Moorhead Metro FRM Update November 2014

TO: Fargo-Moorhead Metro Flood Risk Management Project Stakeholders. This email is being sent to the Diversion Authority, Congressional offices and to the media.

During the Feasibility Study, the Corps of Engineers Project Management team emailed regular updates to share information on the Fargo-Moorhead Metro Flood Risk Management Project and provide clarification to the public. We are resuming these emails to ensure the distribution of accurate information and provide status updates as we move towards Federal construction. This first update looks back and focuses on how public input has resulted in minimizing the impacts to people, land, infrastructure, and the environment.

During the Feasibility study in 2010, the Corps originally presented a locally preferred plan consisting of a diversion channel through North Dakota. The Corps determined that downstream impacts of the original plan would extend into Canada and would impact over 4,500 structures downstream between the metro area and the Canadian border. A number of alternatives for reducing those impacts were examined and the Corps determined that the most effective and efficient method would be water retention immediately upstream of the Project. This upstream retention, known as the staging area, virtually eliminated downstream impacts and reduced the number of impacted structures at the time from over 4,500 to approximately 800 (based on the 2011 version of the Project).

The impacts from upstream staging of water resulted in uncertainty for the residents of Oxbow, Hickson, and Bakke (OHB) and others in the staging area, as well as for the Kindred School District. Based on the uncertainty and public input, the Corps identified a way to mitigate for those impacts by developing a ring levee around OHB which eliminates the need for the community-wide buyout of 196 homes, preserves the tax base for the Kindred School District, and provides certifiable 100-year level of flood protection. In addition, the Diversion Authority has implemented an early hardship acquisition program that has resulted in five hardship acquisitions to date and has developed a voluntary, early mitigation program for staging area residents that wish to move into the OHB ring levee area.

To further minimize the upstream impacts, the Corps moved the southern embankment alignment of the Project north by one mile, greatly reducing impacts in Richland and Wilkin Counties from the 2011 Feasibility Report alignment. With the modifications to the Project discussed in the 2013 Supplemental Environmental Assessment, the project causes direct impacts to just two residential structures and 1,071 acres of newly flooded land in Richland County; in Wilkin County, one residential structure is directly affected and 995 acres of land are newly flooded. For both counties there are no induced impacts for a 10-year event and 95% of impacts are between 0-1 feet of increased flood depth.

When the Project's southern embankment was moved a mile to the north, not only did it minimize the impacts to Richland and Wilkin Counties, but it also further reduced the number of residential structures in the staging area. Comstock, MN and the Oxbow/Hickson/Bakke, ND communities will have ring levees, and fewer than 150 residences in the staging area will be directly affected with the current plan.

The upstream staging area includes agricultural properties and landowners indicated that summer floods would be devastating to standing crops. As a way to mitigate for the potential of summer operation of the staging area, in-town levees were added, which reduce how often the project operates (there are no impacts in the staging area if the project is not operating) and significantly reduce the chance of summer operation and associated crop damage. More than 700 homes in Cass and Clay counties have been bought to clear the floodplain and make way for levees and floodwalls. With the in-town levees in place, the Project will operate only when flows through Fargo-Moorhead are expected to be larger than 17,000 cubic feet per second, which has happened about one year out of ten in the past. Flows that large typically occur in March or April before planting has occurred. During the entire period of record from before 1900, the Project never would have operated during the summer.

Additionally, gates were added to the diversion inlet structure, which reduce the elevation and size of the upstream staging area and allow for the area to drain faster, reducing the duration of the flooding whenever the Project is operated. The proposed Project operation would increase the 100-year flood duration in Richland and Wilkin counties by less than three days; and duration would increase up to ten days for portions of Cass and Clay counties in the northern portion of the staging area.

In summary, the Project has been modified to significantly reduce the impacts to the upstream agricultural community, OHB, Comstock, Richland County and Wilkin County while providing benefits to more than 200,000 people. Every large flood risk reduction project in the Red River Basin will have impacts, but significant efforts and modifications have taken place to reduce the impacts to people, land, infrastructure, and the environment.

Please let us know if you have any questions and distribute this information to any interested parties.
Terry Williams and Brett Coleman, P.E.

Fargo-Moorhead Metropolitan Flood Risk Management Project

Flood Diversion Board of Authority meeting

December 11, 2014

MOORHEAD
MINNESOTA

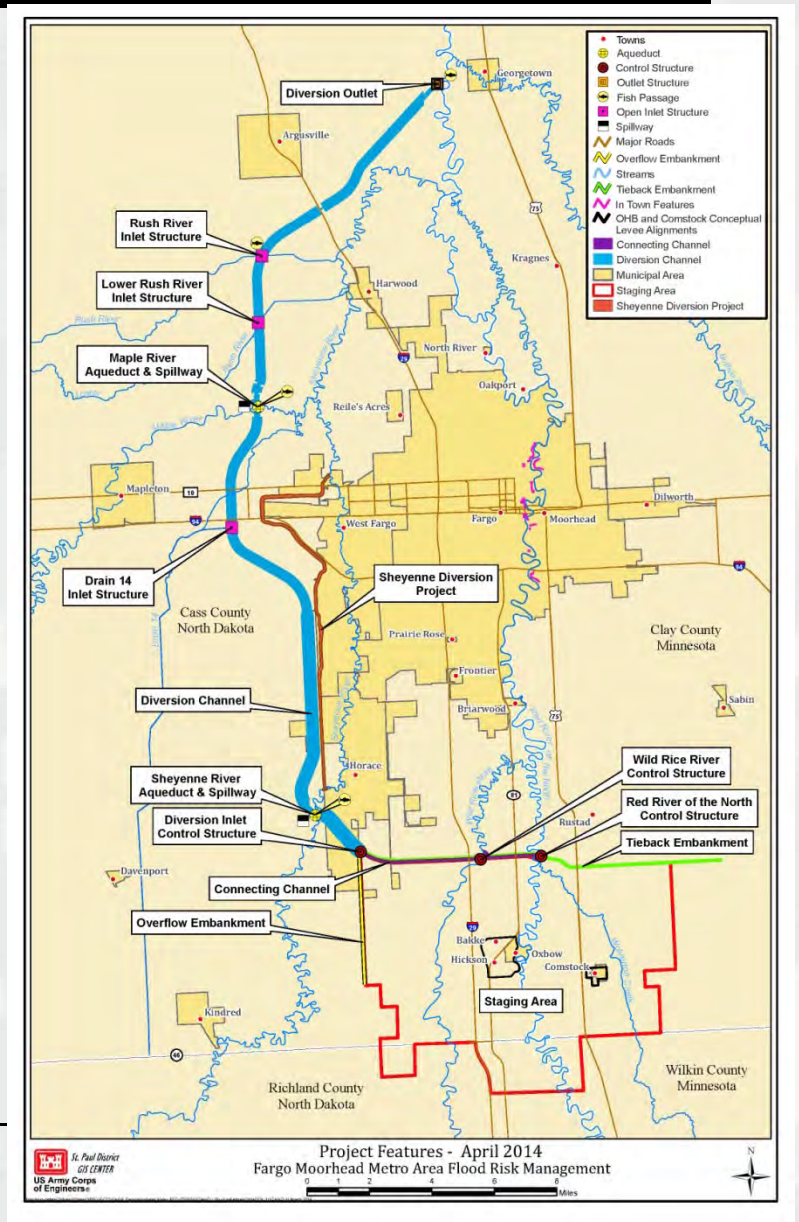
FLOOD DIVERSION AUTHORITY

CITY OF Fargo

US Army Corps of Engineers
BUILDING STRONG®

Corps Monthly Update

- Maple River Aqueduct Physical Modeling continues
- Work continues on the operation plan and adaptive management plan for the project
- Oxbow/Hickson/Bakke Levee design continues
- Provided information to the public and elected officials on the project
- Assisting with In-Town Levee design and support of construction
- Continued coordination with MN DNR on their EIS process
- Continuing development of plan for expedited implementation of the FMM Project.



FMM Project Alternative Resourcing & Delivery (P3/P4)

- Goal is to complete the project as soon as possible, saving millions in taxpayer dollars and reducing flood risk to the public and infrastructure sooner.
- All available federal and local options to fund the project to completion are being pursued – including Public-Private Partnerships.
- Public-private partnerships utilize available resources/incentives to complete the project sooner and at a lower cost.
- Design and construction standards will not be compromised and the project will be extremely safe and robust.
- More details will be provided in the future as they are developed.

Project Factoids

- **Agency Technical (ATR) Review – Omaha District (NWO), USACE**
  - Required by Engineering Regulation 1110-1-12, Engineering and Design Quality
  - Expert reviewers must be from outside St. Paul District
  - Confirm proper application of criteria, regulations, laws, codes, principles and professional practices
  - Omaha has performed approximately 70 reviews of design products to date

- **Independent External Peer (IEPR) Review – Natural Resources Conservation Service (NRCS)**
  - Specific requirements established by Congress in WRDA 2007, after Katrina
  - Strategic level of review by panel of experts that focuses on life safety assurance
  - NRCS has reviewed the overall project, OHB ring levee and In-Town Levee designs to date

- **Second meeting/site visit** between MVP, Sponsors, ATR and IEPR Team members held on 18 November.

Project Path Forward

- Continue to support MN EIS process
- Continue to develop and review design products
- Continue to provide regular email updates to the Diversion Authority members and stakeholders
- Continue refining the project to reduce impacts

Task Order and AWD Summary

Date: December 11, 2014

Task Order and AWD Summary	Budget Estimate ($)
HMG Task Order No. 8-Amendment 8 **Work-In-Kind (WIK)**	264,000
• Provide Hydraulic Structures Aesthetics Evaluation • Provide Baseline Stream Bank Erosion Evaluation	
HMG Task Order No. 9-Amendment 12 **Hydrology and Hydraulic Modeling**	193,000
• Maple River Aqueduct – Provide additional HEC-RAS Modeling • Probable Maximum Flood (PMF) – Provide additional modeling and mapping for comment response support • Eastern Staging Area Evaluation – Incorporate AWD-00043 final scope and budget • Staging Area Culvert and Bridge Survey – Incorporate AWD-00044 final scope and budget	
HMG Task Order No. 18-Amendment 0 **Design of Work Package 28 (CR-16/CR-17 Bridge)**	980,000
• Prepare Plans and Specifications for the construction of a new combined CR-16/CR-17 bridge, associated roads, local drainage facilities, and diversion channel	
HMG AWD-00045 **WP-42F.1 Phase II Environmental Site Assessment (ESA)**	27,000
• Provide Phase II ESA 2nd Street/Downtown	
HMG AWD-00046 **MN EIS Support for Additional Information Request**	20,000
• Provide additional technical support services to develop response to the Minnesota Department of Natural Resources (DNR) flow through town information request	
Total	**1,484,000**

TASK ORDER SUMMARY

Houston-Moore Group, LLC (HMG)
Task Order No. 8, Amendment 8 **Add $ 264,000**
Work-In-Kind (WIK)

Subtask 2.E.IX: Hydraulic Structures Aesthetics Evaluation

Description:

Conduct an aesthetics evaluation for the Project's hydraulic structures which include three (3) control structures and two (2) aqueducts. Take into account and build upon the aesthetics developed for the Project bridges. Provide up to three aesthetics concepts for the Projects hydraulic structures for review by the Owner. Review preliminary hydraulic structure design documents and relevant available information, assess the visual characteristics of the proposed sites and surrounding areas, develop up to three (3) alternative themes, prepare cost estimates, provide conceptual plans and a 3D visualization graphic, and document concepts, guidelines and decisions in a technical memorandum.

Background:

A unified aesthetic identity for structural elements along the Diversion Channel is desired. A Bridge Aesthetics Technical Memorandum was completed in November 2012 and formed the basis for future aesthetic evaluations. The USACE has started preliminary design work on the Diversion inlet structure and requested the non-federal local sponsors provide an aesthetic plan for the structure after completion of their Preliminary Engineering Report. This scope of work builds on the selected bridge aesthetic plan and provides for an evaluation of several aesthetic concepts for the Project's hydraulic structures.

Cost = $ 54,000

Subtask 2.E.X: Baseline Stream Bank Erosion Evaluation

Description:

Use historical aerial photography and other data from the 1980's to present to establish pre construction baseline data of stream bank erosion and channel planform changes along the Red River and associated tributaries in the Project area. Tributaries include Wolverton Creek, Wild Rice River (ND), Buffalo River, Sheyenne River, Maple River, Rush River and Lower Rush River. Provide graphic and tabular data of changes.

Background:

The proposed Project is being designed and constructed to reduce the impacts of Red River and tributary flooding in the Fargo/Moorhead area. Post construction changes to the river systems may occur and adaptive management and monitoring plans will provide guidelines to measure, evaluate, and respond to changes. Relative impacts of the Project on the river channel and associated resources will largely be based on assessments and comparisons of stream bank conditions over time. Monitoring the rivers before and after construction provides the necessary empirical data for a valid assessment of the impacts that can be attributed to the Project.

Cost = $ 210,000

Recommendation:

PMC recommends authorization for Task Order No. 8, Amendment 8 for $ 264,000.

Subtask 2.F.XI: Maple River Aqueduct – HEC-RAS models

Description:

Provide modeling services to update channel and spillway model geometry to be consistent with changes to the Maple River Aqueduct physical model, conduct sensitivity modeling runs to size the excavated material berm (EMB) gap upstream of the Aqueduct.

Background:

The USACE's Maple River Aqueduct physical modeling team is changing the physical model to analyze different channel and spillway geometries. The numerical model geometry requires updating to match the physical model for model calibration, testing, and analysis.

Cost = $ 25,000

Subtask 2.J: Probable Maximum Flood (PMF)

Description:

Provide modeling services to support close-out of review comments, provide revised mapping and figures for final report, and provide report documentation support to USACE report writing staff.

Background:

Adjudication of review comments is required prior to completion of the PMF report. USACE has requested modeling support to develop responses to comments. USACE has also requested mapping and report documentation support.

Cost = $ 36,000

Subtask 2.K: Phase 8 Modeling

Description:

Correct error in subtask budget.

Cost = $ -62,000

Subtask 2.L: Update the Balanced Hydrographs at Hickson, ND

Description:

Correct error in subtask budget.

Cost = $ 62,000

Subtask 2.M: Eastern Staging Area Evaluation

Description:

Provide preliminary design for two (2) Eastern Staging Area alternatives, prepare opinions of probable cost, and provide a summary memorandum outlining the results of the Eastern Staging Area Evaluation.

Background:

Hydraulic modeling (Phase 7 HEC-RAS) and design performed in support of the September, 2013 Supplemental Environmental Assessment for the Fargo-Moorhead Metropolitan Area Flood Risk Management Project did not include the area east of Clay County Highway 7 (40th St. S.) and south of the Embankment in the staging area for the FM Diversion. Additional design and modeling in support of the Local Drainage Plan for the staging area has since shown that a design change may be required to pass local drainage that could potentially bring this area into the staging area.

Cost = $ 32,000

Subtask 2.N: Staging Area Culvert and Bridge Survey

Description:

Provide surveying services to collect detailed culvert and bridge information in and near the Staging Area. Define the survey area, gather existing information on culverts and bridges in the survey area and develop a survey plan. Survey culverts, and bridges in the survey area and incorporate survey information into the H&H models.

Background:

USACE has requested detailed survey information on culverts and bridges in the Staging Area be added to the Hydrology and Hydraulic (H&H) models and used to better determine the duration of flooding in the Staging Area during Project operation and assess project impacts at the fringe areas of the Staging Area.

Cost = $ 100,000

Recommendation:

PMC recommends authorization for Task Order No. 9, Amendment 12 for $ 193,000.

Houston-Moore Group, LLC (HMG)
Task Order No. 18, Amendment 0 — Add $ 980,000
Design of Work Package 28 (CR-16/CR-17 Bridge)

Description:

Design and prepare plans and specifications for the construction of the new combined CR-16/CR-17 bridge, associated roads, local drainage facilities, and diversion channel. Design items include, but are not limited to:

1. CR-16/CR-17 bridge, approximately 550 feet long and per Cass County bridge design requirements and USACE design criteria.
2. Approximately 2.5 miles of associated new county roadway, one round-about, and township roadway improvements for detour routes accommodating construction of the combined interchange of CR-16 and CR-17 at the intersection of 124th Ave S and 170th Ave SE per Cass County roadway design requirements.
3. Approximately 1000-feet of diversion channel per USACE design requirements.

Background:

As part of the Owner's Lands, Easements, Rights of Way, Relocations, and Disposal (LERRDs) work, design and prepare plans and specifications for the construction of a new County Road 17 (CR-16/CR-17) bridge, associated roads, local drainage facilities, and diversion channel. The proposed alignment was developed as part of the Project's South Diversion Master Transportation Plan Final Report, dated October 2013, and is based upon an evaluation of existing and forecasted traffic volumes.

Cost = $ 980,000

Recommendation:

PMC recommends authorization for Task Order No. 18, Amendment 0 for $ 980,000.

AWD SUMMARY

AWD-00045
Houston-Moore Group, LLC (HMG) — Add $ 27,000
WP-42F.1 Phase II Environmental Site Assessment (ESA)

Description:

Provide up to nine (9) borings at the Case Plaza and City Hall parking lot sites, survey boring locations, and provide the following sampling and testing services: boing logs by a field geologist, continuous soil sampling to the groundwater table, soil head space analysis for volatile organic compounds (VOCs), groundwater sampling, laboratory testing and analysis of samples for the presence of contaminants, and a report of the findings.

Background:

Phase I ESAs were conducted for the Case Plaza and City Hall parking lot sites in 2013 as part of the preliminary design of WP-42 (In Town Levees). The Phase I ESA recommended additional Phase II ESA testing of the soils and groundwater on these sites.

This AWD authorizes the initiation of the Phase II ESA, and includes up to nine (9) soil borings, boring location surveys, sampling and testing of the soil and groundwater, and preparation of a report of the findings. The scope and budget will be included in a future Task Order No. 13, Levee Design and Design Support.

The field work needs to be completed this month because rights of entry for these sites are set to expire at the end of the year.

Cost incurred under this AWD is not to exceed $27,000.

AWD-00046
Houston-Moore Group, LLC (HMG) — Add $ 20,000
MN EIS Support for Additional Information Request

Description:

For Fargo ND, Moorhead MN, Cass County ND, and Clay County MN review existing infrastructure and document what impacts would occur and require mitigated if the Project Red River flow through town stage were increased from 35-feet to 37-feet at the Fargo gage. Include in the evaluation: pump dependency time, county road closures and isolated properties, protecting/maintaining sewer systems between 35-feet and 37-feet, number of basements impacted between 35-feet and 37-feet, and impacts to Cass and Clay Counties in rural areas. Determine the additional length of levees required for Project Red River flow through town stage of 37-feet at the Fargo gage. Determine what modifications are required for certification of existing levees for Project Red River flow through town stage of 37-feet at the Fargo gage.

Background:

DNR requested additional information on impacts to infrastructure and new infrastructure needed for Project Red River flow through town stage/flows greater than the current Project stage of 35-feet at the Fargo gage (equivalent to approximately 17,000 cfs).

Cost incurred under this AWD is not to exceed $20,000.

This is Task Order No. 8, Amendment ~~8~~ 7, consisting of 13 pages.

Houston-Moore Group, LLC

Task Order No. 8, Amendment ~~8~~ 7

Work-In-Kind (WIK)

In accordance with Paragraph 1.01 of the Agreement between **Fargo-Moorhead Flood Diversion Authority** ("Owner") and **Houston-Moore Group, LLC** (HMG) ("Engineer") for Professional Services – Task Order Edition, dated March 8, 2012 ("Agreement"), Owner and Engineer agree as follows:

The parties agree that in the event of a conflict between prior versions of this Task Order No. 8 and this Amendment, the terms and conditions in this Amendment shall prevail, provided however, nothing herein shall preclude ENGINEER from invoicing for work authorized under prior versions of this Task Order and performed prior to effective date of this Amendment, even to the extent such prior work was revised by this Amendment. All other terms and conditions shall remain the same and are hereby ratified and affirmed by the parties.

1. Specific Project Data

   A. Title: **Work-In-Kind (WIK)**

   B. Description: This task order will include requests by USACE for the Local Sponsor (Diversion Authority) to provide WIK services related to the Project.

   C. Background: As allowed by the Federal process, USACE is allowed to request the Diversion Authority provide services as WIK for services that USACE would normally do, but that the Diversion Authority has resources or particular expertise to perform.

2. Services of Engineer

   A. MEANDER BELT WIDTH ANALYSES:

   Background: Meander Belt Width Analysis was begun under a separate contract. This scope expands upon the work completed under the separate contract.

   Develop a Technical Memorandum (TM) that provides estimates of the probability of non-exceedance for different meander belt widths given design flows and channel geometry of the Low Flow Channel (LFC), variability and uncertainty in the erodibility and shear strength of the soils along the LFC, and most likely scenarios for the sequence of diversion works commissioning.

   Develop for the following six (6) reaches:

   I. Diversion outlet upstream to Rush River inlet
   II. Rush River inlet upstream to Lower Rush River inlet
   III. Lower Rush River inlet upstream to Maple River aqueduct
   IV. Maple River aqueduct upstream to Drain 14 inlet
   V. Drain 14 inlet upstream to Drain 21C inlet
   VI. Drain 21C inlet upstream to Sheyenne River aqueduct

   Conduct the following tasks:

   I. Site visit of Red River and tributaries.

   II. Conduct geoprobe drilling, sediment coring, and carbon dating at transects along successive point bars in meander loops at the Red River of the North, Sheyenne River, and Rush River (upstream of channelized reaches) to determine channel migration rates over geologic time scale.

III. Identify channel avulsion using LiDAR, and develop preliminary hypothesis about possible triggers.

IV. Calculate meandering planform statistics for different reaches of the Red River of the North, Rush, Lower Rush, Maple, and Sheyenne Rivers and compare bankfull geometry and streamwise slope for bracketing of the proposed planform and cross section configuration of the LFC.

V. Develop RVR Meander models for selected reaches of the Red River of the North, Rush, Lower Rush, Maple, and Sheyenne Rivers to obtain calibration parameters for evaluation of the proposed planform and cross section configuration of the LFC.

VI. Quantify the ultimate meander amplitude of the proposed planform configuration of the LFC using RVR Meander in probabilistic fashion to account for the observed variability in hydrologic conditions and soil properties.

VII. Provide most optimal, alternative planform and cross section configuration of the LFC that minimizes meandering adjustments in both the short- and long-term. Evaluate need for lateral and vertical erosion control features in the LFC or the main diversion channel.

VIII. Assess impact of different scenarios for commissioning of diversion works on short-term LFC meandering adjustments using RVR meander in deterministic fashion.

IX. Develop a summary of significant O&M activities for the West Fargo Diversion and Horace to West Fargo Diversion Channels. This will include a map for every year since the Diversion channels were constructed, including items such as quantities and lengths of sediment removal, riprap, structure installations or modifications, or surveys.

X. Provide technical assistance and review to USACE on sediment transport analysis and Geomorphology Study.

The following data and definitions will be provided by USACE or Owner:

I. The resistance to erosion and shear strength properties of the soils along the LFC, including ongoing laboratory tests of soil erodibility at Texas A&M, as well as more recent geotechnical field investigations conducted along the LFC and main diversion channel.

II. The proposed LFC dimensions (cross sections, slope) and planform configuration.

III. Design flow discharges for the LFC, including updates on the hydrology of frequent events.

IV. Proposed vegetation coverage at the bottom of the main diversion channel.

V. Report prepared by WEST Consultants (“Geomorphology Study of the Fargo, ND & Moorhead, MN Flood Risk Management Project”), including electronic files containing historical data compiled and new data collected.

VI. Most likely scenarios for commissioning of diversion works.

Prepare a first Draft Technical Memorandum:

I. Summarize key findings during initial site visit.

II. Describe field investigations along successive point bars in meander loops; include laboratory results of carbon dating, if available.

III. Identify channel avulsion areas, and of other geomorphic features (e.g., oxbows) characterizing river dynamics over long spatial and time scales.

IV. Present meandering statistics for the Red River of the North, Rush, Lower Rush, Maple and Sheyenne rivers and compare to bankfull geometry and streamwise slopes.

V. Provide initial description of approach for meander belt width analysis using RVR Meander, including modeling in probabilistic terms.

VI. Develop and calibrate RVR Meander models for selected reaches of the Red River of the North, Rush, Lower Rush, Maple, and Sheyenne Rivers.

Prepare a second Draft Technical Memorandum:

I. Describe approach for meander belt width analysis using RVR Meander and extended geomorphologic analysis of the Red River of the North and its tributaries.

II. Process data for input into meander belt width analysis of LFC.

III. Provide meander belt width analysis of LFC using RVR meander, and iterations with sediment transport calculations.

IV. Extend geomorphologic analysis of the Red River of the North and its tributaries, including determination of channel migration rates and channel avulsion potential over long time scales.

V. Recommend design planform and cross section configuration for Final Design of LFC.

Develop a brief, graphics-rich, PowerPoint presentation of the background and results. This presentation must be suitable for a non-technical audience.

Deliverables:

I. REV2 Technical Memorandum – Meander Belt Width Analysis

II. REV2 PowerPoint Presentation

B. IDENTIFICATION AND ASSESSMENT OF TIE-BACK LEVEES:

I. Background: USACE is undertaking an analysis to determine if the tie-back levees would be classified as jurisdictional dams. If the tie-back levees are classified as dams, the impact to the project needs to be determined.

II. Assist the Owner and PMC with identifying and assessing the impacts to the Project due to the possible reclassification of the tie-back levees to be jurisdictional dams. Assistance may include:

- analysis and comparison of Federal, State of North Dakota, and State of Minnesota regulations
- identification of applicable design criteria
- analysis of floodplain impacts, including FEMA, state law and rules, and local jurisdiction regulations
- assessment of spillway and flowway requirements
- recommendations for options for the project

C. EMB OPENINGS:

I. Background: prior to operation of the Diversion, the Fargo-Moorhead area may experience flood events. The partially constructed works should not increase the impacts of flooding.

II. Determine the location and size of openings in the excavated material berms (EMBs) to prevent an increase in flood elevations from the “without project” case for the 10-yr and

100-yr events. In addition to analysis of Red River and Rush/Lower Rush River events, analyze Sheyenne River and Maple River events. Provide to USACE design teams.

D. DIVERSION INLET GATES:

I. Background: the FM Diversion Feasibility Study recommended a fixed weir for the inlet to the Diversion Channel. A gated inlet may offer some advantages over the fixed weir.

II. Develop preliminary layout and sizing of a gated inlet to the Diversion channel, including gate sizing and number of gates, to pass flows up to the Inflow Design Flood (IDF). Describe operation during the Probable Maximum Flood (PMF).

III. Assess capacity limitations of the Sheyenne River aqueduct for events up through the IDF.

IV. Determine advantages and disadvantages of a fixed weir and a gated structure, including reliability, operability, through-town hydrograph, environmental, and geotechnical considerations, and impacts on the volume, frequency, and duration of water in the staging and storage areas for the 10, 100, and 500 year events.

V. Develop preliminary comparative cost estimates of each type of inlet.

E. ON-CALL SERVICES**:** Respond to requests for services from PMC for tasks not identified to date. Requests will be provided by PMC in writing. Work will not be performed by Engineer without authorization by PMC or Owner.

Deliverables: On-call service deliverables as requested.

I. MAXIMUM PROJECT DESIGN FLOWS. For approximately 15 Project flow scenarios, ranging from 0 – 250,000 cubic feet per second (cfs) and with a maximum flow rate through the diversion channel of 100,000 cfs:

1. Use existing model runs with Fargo Gage range of 30-40 feet and interpolate when needed, determine the following:

- Modeled flow rates through the diversion channel.
- Modeled flow rates through the Red River.
- The water surface elevation for the southern embankment (staging/storage area).

2. For stages at the Fargo Gage up to 43 feet, conduct modeling to determine:

- Modeled flow rates through the diversion channel.
- Modeled flow rates through the Red River.
- The water surface elevation for the southern embankment (staging/storage area).

Deliverables: Provide a table of results. Use template developed by USACE.

II. LOCAL DRAINAGE PLAN. Complete the scope of work identified in AWD-00005, currently being executed under City of Fargo contract No. 5683-5.

Deliverables:

1. Technical Memorandum – Local Drainage Plan for the FM Diversion Project.
2. PowerPoint Presentation.

III. REACH 1 LOW FLOW CHANNEL (LFC) MEANDER MODELING.

1. Model the Reach 1 LFC design developed by USACE using the RVR Meander software.

Deliverables:

1. Technical Memorandum.

IV. GEOMORPHOLOGY CONSULTING

1. Provide senior engineer ongoing engineering consultation, preparation for workshop with Minnesota Department of Natural Resources, and workshop participation.

V. MN EIS SCOPING DOCUMENT

1. Participate in meetings and perform requested work to expand upon the upstream retention portion of the FM Diversion – Flood Frequency and Retention White Paper in combination with levees to 42.5 feet. Assist the USACE with comments on the MN EIS Combination of Measures without a Diversion alternative.

Deliverables:

1. Revised upstream retention white paper.

VI. MN EIS PREPARATION SUPPORT

The Minnesota Department of Natural Resources (DNR) is preparing an EIS for the Fargo-Moorhead Flood Risk Management Project and requires support from the Local Sponsors to complete technical studies and reports for the EIS as listed below.

1. Socioeconomic Analysis:

The MN EIS will provide information on the social and economic effects of reducing flood risk within the Fargo-Moorhead Metropolitan area and impacts in the staging area. This information will satisfy the State's procedural requirements to assess social and economic factors as they relate to the Project and project alternatives (Minnesota Rules part 4410.2300 H) and address public comments received regarding the socioeconomic effects of the Project.

The socioeconomic impacts will quantitatively identify the costs of the Project (including mitigation) as well as the flood damage reduction benefits arising from operation of the Project (including mitigation). The EIS will also qualitatively disclose the social implications of the Project.

The socioeconomic analysis will incorporate new and updated information in addition to what was incorporated into models developed for the FFREIS. Therefore, the EIS model outputs will not provide a side-by-side comparison of model outputs developed for the FFREIS and will not be comparable to model outputs that were presented in the FFREIS or model outputs that would result from applying the model platform used for the FFREIS.

Model outputs for inclusion in the EIS will be quantitative cost/benefits for five different flood frequencies (10, 25, 50, 100, and 500-year) for all alternatives found to meet the purpose and need of the Project and carried forward in analysis. Flood elevations from the H&H flood frequencies will be used to populate a socioeconomic model to quantify flood related costs and benefits. Local and regional benefits will be identified and incorporated into the analysis.

Social impacts such as property buyouts will be described in monetary terms where possible and qualitatively disclosed where the impact is not quantifiable. If possible, the flood damages/fighting, development and qualitative social outputs will also be displayed geographically indicating North Dakota versus Minnesota and metropolitan versus rural.

a. Software: Hazus-MH 2.1 (FEMA) with user supplied data for economic analysis (IMPLAN default data not provided with this version).

b. Local and Regional Benefits – obtain from Corp's Regional Economic Development (RED) account or similar source. An IMPLAN model can be used to develop quantitative outputs from updated RED information that can be added and/or subtracted from the costs and benefits output from the Hazus model.

c. Cost information for analysis:

   i. Construction costs (quantitative)

   ii. Mitigation costs (quantitative)

   iii. Operation and maintenance costs (quantitative)

   iv. Social costs (qualitative)

d. Benefit information needed for analysis:

   i. Flood damages/fighting (quantitative)

   ii. Development (quantitative)

   iii. Induced economic growth (quantitative)

   iv. Social (qualitative)

e. Analyze the following MN EIS alternatives (if found to meet the purpose and need of the Project):

   i. Proposed Project

   ii. Base No Action Alternative (no emergency measures)

   iii. No Action Alternative (with emergency measures)

   iv. Distributive Storage (with flood barriers)

   v. C2 (move the Southern Alignment north 1.5 miles)

2. Other Studies and Support:

   a. Compilation of completed and currently funded flood risk reduction projects since FFREIS) – provide list of project descriptions and available information to DNR.

   b. Changes in wetland impacts due to Project alignment changes – write memo based on information provided by USACE.

   c. County and city land use plans (relevant portions) – provide information to DNR.

   d. Analysis of hydrologic rating curve – provide DNR with updated H&H models that incorporate the most recent project modifications and mitigation measures (H&H 7.1 model update).

3. Deliverables

   a. Model outputs for different flood frequencies for all alternatives found to meet the purpose and need of the Project

   b. For alternatives modeled, maps of the flood damages/fighting, development and qualitative social outputs displayed geographically indicating North Dakota versus Minnesota and metropolitan versus rural

c. Project descriptions and available information of completed and currently funded flood risk reduction projects since FFREIS)

d. Wetland impacts memo due to project changes

e. County and city land use plans

f. Updated H&H model

VII. CEMETERY ASSESSMENT TEAM SUPPPORT

Work with the Corps-Sponsor Cemetery Assessment Team to develop two to three mitigation alternatives (if applicable) for each site:

1. Identify impacts to each of 11 impacted cemeteries, both under existing conditions and with Project. Identify if the impact severity changes/increases under the "with-project condition" (does increase in depth, duration, frequency change/increase the impact).
2. Include issues/information identified during site-visits conducted on July 21-22, 2014.
3. Identify and screen alternatives for site-specific mitigation measures for the 11 cemeteries to be impacted by the diversion project. List all mitigation types considered.
4. Include the berm alternative evaluations.
   a. Include alternatives for interior drainage features for a berm/wall alternative.
   b. Consider use of closure types for access.
   c. Identify whether there are any land constraints making a berm unfeasible at a particular cemetery.
5. Include a high-level cost estimate for each. The cost estimate should include line items for projected O&M costs with each mitigation alternative in place.
6. Consider how access to each site is under existing and "with-project conditions". Include a rough cost estimate for mitigating for access.
7. The USACE will provide any necessary geotechnical assistance.
8. Develop a report that fully documents the efforts and analysis completed in developing a site-specific mitigation plan, including specific cemetery information.
   a. Report should include cemetery maps which show land parcel information. This would also show the parcels adjacent to the cemetery which may be needed if a berm is to be constructed.
   b. Incorporate the previously developed "Cemetery Study – June 2013" as an appendix.

VIII. LARGE STRUCTURES DESIGN TEAM SUPPORT

1. Provide senior engineer to provide ongoing engineering consultation to the USACE Large Structure Design Team. Participate in weekly meetings and provide status reports to Owner and PMC regarding design of the following structures: Diversion Inlet Structure, Red River Control Structure, and Wild Rice River Control Structure.

IX. HYDRAULIC STRUCTURES AESTHETICS EVALUATION

1. Background: The Owner desires to have a unified aesthetic identity for structural elements along the Diversion Channel. Engineer completed a Bridge Aesthetics

Technical Memorandum in November 2012 which included a review of relevant project information, including the draft recreation plan, a picture survey of regional bridges, and the development of several bridge aesthetic concepts for interstate and county road bridges. The Owner selected a simulated stone (Mankato Cut Stone) form liner for abutment wing walls, tapered wall piers for interstate bridges and hammerhead piers for county and township bridges.

2. Purpose: The USACE has started preliminary design work on the Diversion inlet structure and requested the non-federal local sponsors provide an aesthetic plan for the structure by February 1, 2015 after completion of their Preliminary Engineering Report. This scope of work builds on the selected bridge aesthetic plan and provides for an evaluation of several aesthetic concepts for the Project's hydraulic structures.

3. Scope: An aesthetics evaluation will be conducted for the Project's hydraulic structures which include three (3) control structures and two (2) aqueducts. It will take into account and build upon the aesthetics developed for the Project bridges. Up to three aesthetics concepts will be developed for the Projects hydraulic structures and a Owner selection team will review and select an aesthetics plan for the structures.

    a. Review preliminary hydraulic structure design documents and relevant available base mapping, the bridge aesthetics report and relevant planning studies and agency guidelines, and the Draft Diversion Recreation and Use Plan. Identify aspects of the Recreation and Use Plan that could affect the design of structures.

    b. Assess the visual character of the proposed structure sites and nearby surrounding community context through select photographs and sketches to serve as a basis for developing aesthetic design themes appropriate to the setting.

    c. Hydraulic Structures Aesthetics Concept Development and Coordination.

        i. Develop three (3) alternative aesthetic design themes for the Project's hydraulic structures. Prepare appropriate graphics to communicate each theme for preliminary consideration by project stakeholders with the goal of selecting a preferred alternative(s) that can be applied to the entirety of the project to establish a distinct recognizable identity. The scale of the project may potentially warrant multiple complementary aesthetic treatments rather than just one uniform theme dependent upon further review.

    d. Prepare comparative cost estimates for each alternative.

    e. Prepare hydraulic structures aesthetics design drawings.

        i. At a minimum, prepare drawings for one (1) control structure and one (1) aqueduct.

        ii. Coordinate with design team members on technical aspects of the hydraulic structures designs.

        iii. Prepare conceptual plan, elevation, and section drawings that illustrate different hydraulic structures types using the selected preferred alternative theme(s).

f. Prepare prototypical hydraulic structures aesthetics design models. Prepare conceptual 3D computer models using the Sketchup Program that illustrate prototypical conditions and select design details utilizing the selected preferred alternative theme(s).

g. Develop one (1) photo-realistic 3D visualization graphic illustrating the incorporation of the preferred alternative design at a specific project location.

h. Prepare a Hydraulic Structures Aesthetics Technical Memorandum to serve as a guide for final design and as a record of the process by which aesthetic design decisions were made. Include an executive summary, narrative, design guidelines, meeting records, and a summary record of decisions matrix.

i. The narrative should summarize the basis for the selected preferred alternative theme(s) and intended application including but not limited to: project background, site and community context, associated studies, alternative themes considered, bridge types, retaining wall types, and other design features.

ii. Prepare hydraulic structures aesthetics design guidelines. Refine and format the graphic illustrations of the prototypical and bridge-specific studies prepared in task above that will serve as guidelines for the final design phase of each hydraulic structures.

iii. Summary Record of Decisions Matrix. In simple matrix table format, list the selected hydraulic structures aesthetic options as a quick summary reference.

X. BASELINE STREAM BANK EROSION EVALUATION

1. Purpose: To establish baseline data with historical references of stream bank erosion and channel planform changes along the Red River and associated tributaries in the Fargo, ND and Moorhead, MN region using GIS aerial imagery and analysis.

2. Background: The Project is being designed and constructed to reduce the impacts of Red River flooding in the Fargo/Moorhead area. River systems in dynamic equilibrium generally exhibit some erosion and ongoing changes that are considered baseline or normal responses to various driving mechanisms. The Army Corps of Engineers and partners acknowledge that post construction changes to the river systems may occur and are cooperatively creating a monitoring plan and adaptive management guidelines to measure, evaluate, and respond to changes. Relative impacts of the Project on the river channel and associated resources will largely be based on assessments and comparisons of stream bank conditions over time. Monitoring the river(s) before and after construction provides the necessary empirical data for a valid assessment of the impacts that can be attributed to the Project.

3. Location: Red River and associated tributaries in the Fargo, ND and Moorhead, MN Project area. Tributaries include Wolverton Creek, Wild Rice River (ND), Buffalo River, Sheyenne River, Maple River, Rush River and Lower Rush River.

4. Deliverables:

    a. Compile channel erosion and deposition data and graphics from existing reports into one file location and summary document.

    b. Provide aerial photographs, shapefiles and attributes for all stream bank erosion and depositional features for defined rivers and creeks including:

        i. Location

        ii. Feature identification (e.g., bridge scour, overbank deposition)

        iii. Length, height, area, and estimated volume of erosion or deposition

            1. Determine existing bank heights from LIDAR and estimate erosion/deposition volumes based on the LIDAR elevations, complemented by river cross sections or bathymetric information that can be available.

        iv. Hypothesis about possible driver of feature (natural meandering process, artificial structure, land use change, surficial drainage pattern change, etc.)

        v. Percentage of each river reach (as defined in the geomorphology study by WEST Consultants, also shown in Exhibit "A") and the overall system that each feature type represents

        vi. Percent change of each feature at each location for 3 to 4 data points over evaluation period

        vii. Graphic and tabular data of changes from 1980's to present day

            1. GIS layer with erosion and depositional features highlighted and linked to data attributes listed above.

3. Owner's Responsibilities

    Owner shall have those responsibilities set forth in Article 2 and in Exhibit B.

4. Times for Rendering Services

Subtask	**Start Time**	**Completion Time**
A. Meander Belt Width Analyses	April 12, 2012	October 31, 2012
B. Identification and Assessment of Tie Back Levees	June 1, 2012	October 31, 2012
C. EMB Openings	June 1, 2012	October 15, 2012
D. Diversion Inlet Gates	June 1, 2012	October 31, 2012
E. On-Call Services	TBD with each task	September 30, 2015
E.I-Maximum Project Design Flows	July 16, 2012	October 31, 2012

Subtask	Start Time	Completion Time
E.II-Local Drainage Plan	September 13, 2012	October 31, 2012
E.III-Reach 1 Low Flow Channel Meander Modeling	November 8, 2012	December 31, 2012
E.IV-Geomorphology Consulting	December 13, 2012	September 30, 2015
E.V-MN EIS Scoping Document Comment Support	April 24, 2013	September 30, 2014
E.VI-MN EIS Preparation Support	February 13, 2014	September 30, 2015
E.VII-Cemetery Assessment Team Support	October 9, 2014	March 31, 2015
E.VIII-Large Structure Team Support	October 9, 2014	September 30, 2015
E.IX-Hydraulic Structures Aesthetics Evaluation	December 11, 2014	February 28, 2015
E.X-Baseline Stream Bank Erosion Evaluation	December 11, 2014	February 28, 2015

5. Payments to Engineer

A. Owner shall pay Engineer for services rendered as follows:

I. Compensation for services identified under Subtasks A through E shall be on a Time and Material basis in accordance with the Standard Hourly Rates shown in Appendix 2 of Exhibit C of the Agreement.

II. The total compensation for services identified under the Task Order for Subtasks A through E is not-to-exceed amount as defined in the table below.

III. Estimated budget for Subtask B, Identification and Assessment of Tie-Back Levees, Subtask C, Diversion Inlet Gates, and Subtask E, On-Call Services, are based on an allowance.

1. Engineer will notify Owner when eighty percent (80%) of the budget on Subtask B, Identification and Assessment of Tie-Back Levees, Subtask C, Diversion Inlet Gates, and Subtask E, On-Call Services, is expended.

2. Engineer will prepare and submit an amendment for additional compensation when ninety percent (90%) of budget on Subtask B, Identification and Assessment of Tie-Back Levees, Subtask C, Diversion Inlet Gates, or Subtask E, On-Call Services, is expended.

3. Engineer will not perform work beyond one hundred percent (100%) of the budget for Subtask B, Identification and Assessment of Tie-Back Levees, Subtask C, Diversion Inlet Gates, or Subtask E, On-Call Services, without Owner's authorization by an amendment to this Task Order.

Subtask	Current Budget ($)	Change ($)	Revised Budget ($)
A. Meander Belt Width Analyses	307,203	0	307,203
B. Identification and Assessment of Tie-Back Levees	40,000	0	40,000
C. EMB Openings (Allowance)	39,989	0	39,989
D. Diversion Inlet Gates (Allowance)	55,418	0	55,418
E. On-Call Services ($250,000 Allowance)	100,000	0	100,000
E.I. Maximum Project Design Flows	13,658	0	13,658

Subtask	Current Budget ($)	Change ($)	Revised Budget ($)
E.II. Local Drainage Plan	9,978	0	9,978
E.III. Reach 1 LFC Meander Modeling	9,693	0	9,693
E.IV. Geomorphology Consulting	15,736	0	15,736
E.V. MN EIS Scoping Document Comment Support	15,000	0	15,000
E.VI. MN EIS Preparation Support	250,000	0	250,000
E.VII. Cemetery Assessment Team Support	61,000	0~~61,000~~	61,000
E.VIII. Large Structure Team Support	25,000	0~~25,000~~	25,000
E.IX. Hydraulic Structures Aesthetics Evaluation	0	54,000	54,000
E.X. Baseline Stream Bank Erosion Evaluation	0	210,000	210,000
TOTAL	**942,675~~856,675~~**	**264,000~~8 6,000~~**	**1,206,675~~9 42,675~~**

B. The terms of payment are set forth in Article 4 of the Agreement and in Exhibit C.

6. Consultants:

   A. Barr Engineering Company

   B. HDR, Inc.

7. Other Modifications to Agreement: None

8. Attachments: None

9. Documents Incorporated By Reference: AWD-00039 REV 0, Cemetery Berm Conceptual Designs and Rural Water Well Survey, dated July 10, 2014.

10. Terms and Conditions: Execution of this Task Order by Owner and Engineer shall make it subject to the terms and conditions of the Agreement (as modified above), which Agreement is incorporated by this reference. Engineer is authorized to begin performance upon its receipt of a copy of this Task Order signed by Owner.

The Effective Date of this Task Order is June 14, 2012.

ENGINEER:	OWNER:
Houston-Moore Group, LLC	**Fargo-Moorhead Metro Diversion Authority**
Signature Date	Signature Date
Jeffry J. Volk Name	Darrell Vanyo Name
President Title	Board Chair Title
DESIGNATED REPRESENTATIVE FOR TASK ORDER:	DESIGNATED REPRESENTATIVE FOR TASK ORDER:
C. Gregg Thielman Name	Keith Berndt Name
Sr. Project Manager Title	Cass County Administrator Title
925 10th Avenue East West Fargo, ND 58078 Address	211 9th Street South PO Box 2806 Fargo, ND 58108-2806 Address
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This is Task Order No. 9, Amendment 12~~1~~, consisting of 22 pages.

Houston-Moore Group, LLC

Task Order No. 9, Amendment 12~~1~~

Hydrology And Hydraulic Modeling

In accordance with Paragraph 1.01 of the Agreement between Fargo-Moorhead Flood Diversion Authority ("Owner") and Houston-Moore Group, LLC (HMG) ("Engineer") for Professional Services – Task Order Edition, dated March 8, 2012 ("Agreement"), Owner and Engineer agree as follows:

The parties agree that in the event of a conflict between prior versions of this Task Order No. 9 and this Amendment, the terms and conditions in this Amendment shall prevail, provided however, nothing herein shall preclude ENGINEER from invoicing for work authorized under prior versions of this Task Order and performed prior to effective date of this Amendment, even to the extent such prior work was revised by this Amendment. All other terms and conditions shall remain the same and are hereby ratified and affirmed by the parties.

1. Specific Project Data
   - A. Title: HYDROLOGY AND HYDRAULIC MODELING
   - B. Description: Provide hydrology and hydrologic modeling services in order to advance design components of the Diversion Channel. Specific modeling subtasks include: modeling of Diversion inlets to determine design flows, modeling to evaluate hydraulic impacts of various Diversion Channel sizes, extending model geometry of the Rush and Lower Rush Rivers, providing technical assistance and support for the physical modeling of the Maple and Sheyenne River aqueduct structures, and on-call services as requested.
2. Services of Engineer
   - A. HMS DIVERSION INLET MODELING:

     The objective of this subtask is to develop an HMS model for each Diversion inlet subbasin using synthetic rainfall events, and to obtain parameters for an estimate of discharge-frequency using a methodology coordinated with the U.S. Army Corps of Engineers.

     I. Discharge frequency curve at Amenia.

     II. Adopted discharge frequencies at the inlet location after the initial HMS simulations.

     Scope:

     I. Model Diversion inlet inflows for 1.3-, 1.5-, and 2-yr rain events. Inlets to be modeled are:

        1. Diversion Inlet
        2. Local Drain 1
        3. Drain 50
        4. Drain 21C
        5. Local Drain 2
        6. Local Drain 3
        7. Local Drain 4
        8. Drain 14 (new location)
        9. Original Drain 14
        10. Local Drain 5
        11. Maple River
        12. Lower Rush River

13. Local Drain 6
14. Rush River
15. Drain 30
16. Drain 29
17. Drain 13

II. Calibrate model to match each subbasin's adopted discharge-frequency to obtain HMS hydrographs for each inlet to the Diversion.

III. Obtain the following parameters: Clark's Tc, R, R/(Tc+R), CN, slopes, and drainage area. Parameters to be used to estimate Diversion inlet discharge-frequency using the NRCS method for small subbasins, as per the ND Hydrology Guide.

Deliverables:

I. HMS hydrographs at each inlet to the Diversion in a separate DSSVue file.

II. List of parameters used or determined such as: precipitation, Clark's Tc, R, R/(Tc+R), CN, slopes, and drainage area.

III. Schematic showing drainage area for each inlet, with the Diversion alignment.

IV. Brief report describing method, assumptions, parameters used, maps, and results.

B. UPDATES TO THE RUSH/LOWER RUSH:

The objective of this subtask is to produce working HEC-RAS models using updated HEC-HMS hydrology for local peak flows in the Rush and Lower Rush areas for use in project design.

Scope:

I. Red River Peak Flood - Modified Rush River hydrographs from the existing conditions model will be input into the Phase 6 LPP model, which initially will be conducted for the 100-year flood event.

II. Rush River and Red River Peak Flood - The updated hydrographs from the HEC-HMS models developed for existing conditions will be run for the Red River Peak 10 and 100-year flood events in the Phase 6 LPP model.

III. RAS Mapper will be used to map the floodplain outside of the diversion channel for the peak tributary event on the Rush and Lower Rush Rivers.

Deliverables: Updated existing conditions and with-project HEC-RAS unsteady models.

C. EVALUATION OF CHANNEL SIZE:

The objective of this subtask is to evaluate various Diversion Channel width sizes to determine hydraulic impacts based on channel size.

Scope for Diversion Channel from the Outlet to the Maple River:

I. Evaluate alternatives using the criteria below to assess the size of the Diversion Channel and conduct a Screening Analysis using the HEC-RAS steady state software with the objective of determining the most favorable alternatives:

1. Bottom width of the main Diversion Channel.
2. Channel bottom elevation of the Diversion Channel.
3. Considerations of the water surface profile in the Diversion Channel with respect to existing ground elevations.
4. Modification of the Hydraulic Structure at the Maple River.

5. Other criteria can be applied at a later time if it is determined that optimizing the Diversion Channel is justified with this initial evaluation.
6. The 100 and 500-year events for the Red River peak flood event will be analyzed.
7. Peak discharge values from the current Phase 6 unsteady model will be used, which is also being applied to the bridge analysis (MFR-001) currently being updated by the USACE.

II. Conduct an Impact Analysis using the HEC-RAS unsteady state software for the most favorable alternatives identified in Task 1.

1. The 100 and 500-year events for the Red River peak flood event will be analyzed using the latest Phase 6 unsteady flow model.
2. River impacts will focus only on the Red River upstream, downstream, and throughout Fargo-Moorhead. Impacts will be compared to those determined in Phase 4 and Phase 5, which may require that the gate operations may be modified to obtain similar impacts.
3. Additional impacts can be further evaluated at a later time if it is determined that optimizing the Diversion Channel is justified with this initial evaluation.

III. Develop a preliminary cost estimate for the most favorable alternative identified for optimizing the Diversion Channel.

1. Quantify the cost savings based on unit-cost savings using the Feasibility Study unit prices, focusing primarily on costs associated with earth work and at the Maple River Hydraulic Structure.
2. Additional cost detail can be further evaluated at a later time if it is determined that optimizing the Diversion Channel is justified with this initial evaluation.

IV. Prepare a Technical Memorandum (TM) summarizing whether the size of the Diversion Channel warrants additional and more detailed study.

V. Evaluate the Diversion Channel upstream of the Maple River to determine the most cost effective channel size. Work includes:

1. Develop the existing ground profiles along the right and left banks of the Diversion Channel upstream of the Maple River aqueduct.
2. Update the 1% and 0.2% chance flood event profiles in the Diversion. Determine the minimum bottom width such that the 1% chance flood event is generally below existing ground. Conduct sensitivity analysis to evaluate water surface profiles and comparing to the original bridge MFR flows and Phase 7.1 flows.
3. Calculate flood inundation flow rates at the Red and Wild Rice River control structures to establish an extreme event flow rate in the Diversion Channel.
4. Evaluation project operations during extreme events, and determine how diversion channel size upstream of the Maple River aqueduct affects the Inflow Design Flood (IDF) event and the corresponding staging area.
5. Provide opinion of optimal channel width based on capital, operational, and maintenance costs along with project operation goals.

Deliverables:

I. Draft report.

II. Final report.

D. EXTEND RAS GEOMETRY OF THE RUSH/LOWER RUSH

The objective of this subtask is to account for break-out flows between the Rush and Lower Rush Rivers by extending the RAS model geometry of the Rush and Lower Rush Rivers upstream to the beach ridge of Glacial Lake Agassiz.

Scope:

I. Extend existing conditions Rush River HEC-RAS model approximately 10 miles upstream from Amenia and add model detail between the Rush and Lower Rush Rivers to incorporate breakout discharges.

Deliverables:

I. Updated existing conditions and with-project HEC-RAS unsteady models.

E. PHYSICAL MODELING ASSISTANCE:

Provide ongoing assistance to the Diversion Authority during the transition for Feasibility Study to Preliminary Engineering and Design (PED) in support of the Maple and Sheyenne River aqueduct structures.

Scope:

I. Participate in USACE design team meetings, Local Sponsor/Local Consultants Technical Team (LSLCTT) meetings, and workshops as requested.

II. Provide technical assistance for physical modeling of hydraulic structures.

III. Provide hydrology information, as requested, to USACE.

IV. Provide additional assistance as requested.

Deliverables: Meeting minutes.

F. ON-CALL SERVICES**:**

Respond to requests for services from PMC for tasks not identified to date. Requests will be provided by PMC in writing. Work will not be performed by Engineer without authorization by PMC or Owner.

Deliverables: On-call service deliverables as requested.

I. EXTREME RAINFALL EVENTS – Complete the work originally authorized in AWD-00016 and deliver the final report. The scope of work specified in AWD-00016 was:

1. Develop a Technical Memorandum (TM) that determines whether or not a meander belt width of 200 feet is sufficient to allow establish a low-flow channel that is in dynamic equilibrium, and if so, provide sufficient information and criteria for others to design the four (4) low-flow channel reaches:

a. Diversion Outlet to Lower Rush

b. Lower Rush to Drain 14

c. Drain 14 to Drain 21C

d. Drain 21C to Diversion Inlet

The focus of this meander belt width analysis is on the reach Diversion Outlet to Lower Rush. Meander belt width for other reaches will be confirmed in subsequent analyses.

The Final Feasibility Report includes a grade control feature across the entire width of the main section of the diversion channel every 5,000 feet along the length of the diversion. The use of grade control to set some constraints on the low-flow channel migration rates within the meander belt width should be considered as part of this study. The distance between grade control features can be modified if warranted. Discuss, and if appropriate, recommend other methods to limit meander belt width.

The following data will be provided by the Diversion Authority at the commencement of the work effort:

a. Soil test data to include Atterberg limits and gradations, boring log plates, boring location diagrams, and boring profile plates

b. Sediment grain size distribution and sediment transport (both as bedload and in suspension) data that has been collected recently by the US Geological Survey and West Consultants, including low and high flow events, for streams near the proposed diversion, including the Rush, Lower Rush, Maple and Sheyenne rivers

c. Current, and if available, also historical cross sections for streams near the proposed diversion, including the Rush, Lower Rush, Maple and Sheyenne rivers

d. Required diversion profile information along the centerline of the diversion

e. Typical cross-sections for the low-flow channel and main section of the diversion channel for the four reaches referred to above (i.e., 1) Mouth to Lower Rush, 2) Lower Rush to Drain 14, 3) Drain 14 to Drain 21C, and 4) Drain 21C to Diversion Inlet)

f. Current, and if available, also historical general slope and sinuosity information for streams near the proposed diversion, including the Rush, Lower Rush, Maple and Sheyenne rivers

g. Current, and if available, also historical digitized information (GIS format) on planform alignments for streams near the proposed diversion, including the Rush, Lower Rush, Maple and Sheyenne rivers

h. Stage (water depth)-discharge, flow velocity-discharge, discharge-duration and discharge-frequency information for the four reaches referred to above (i.e., 1) Mouth to Lower Rush, 2) Lower Rush to Drain 14, 3) Drain 14 to Drain 21C, and 4) Drain 21C to Diversion Inlet)

i. Typical flood hydrographs for the four reaches referred to above (i.e., 1) Mouth to Lower Rush, 2) Lower Rush to Drain 14, 3) Drain 14 to Drain 21C, and 4) Drain 21C to Diversion Inlet)

j. Compilation of frequency and duration of operation, typical cross sections, slopes, erosion protection measures, and sedimentation records for the two existing diversions on the Sheyenne River (Horace to West Fargo, and West Fargo)

Deliverables:

1. Prepare a first Draft Technical Memorandum to include:
    - Outline approach for meander belt width analysis
    - Brief literature review on constructed meandering channels
    - Preliminary summary of data available
    - Initial thoughts on feasibility of meander belt width concept
2. Prepare a second Draft Technical Memorandum to include:
    - Description of approach for meander belt width analysis
    - Processing of data for input in meander belt width analysis
    - Meander belt width analysis
    - Stabilization alternatives, including grade-control measures, non-structural measures (e.g., vegetation), widening of main diversion channel in certain reaches, among other considerations, to ensure low-flow channel migration occurs within prescribed meander belt width
    - Determination of need for rock toe protection along the entire length of the inner diversion toe to prevent erosion
    - Suggestions for future field investigations
    - Recommended design criteria for Final Design
3. Consult with Professor Gary Parker (University of Illinois at Urbana-Champaign) during development of the meander belt width analysis and recommendations.
4. Develop a brief, graphics-rich, PowerPoint presentation of the background and results. This presentation must be suitable for a non-technical audience.
5. Determine timing of tributary contributions to the low flow channel by reviewing and comparing the Phase 1 HEC-HMS model results for the Rush and Lower Rush Rivers, and Drains 14 and 21C for the 2-year and 5-year 24-hour rainfall events. Compare model results to low flow channel hydrology developed by USACE.
6. Prepare a Technical Memorandum presenting summarizing results.

II. EXTREME EVENT EVALUATIONS

1. Evaluate the following for extreme (103,000 cfs and Probable Maximum Flood [PMF]) events
    a. Adequacy of aqueduct openings
    b. Lowering the left EMB to reduce the amount of flow in the Diversion Channel
    c. Head differential across raised road in the staging area
    d. For VE-13 Option D, sloping the Diversion Channel from the Wild Rice River toward the Diversion Inlet

III. TRIBUTARY PEAK MODEL RUNS TO SUPPORT THE MAPLE RIVER AQUEDUCT PHYSICAL MODEL

Background: To provide 10-, 50-, 100-, and 500-year tributary peak hydrographs in the current version of the unsteady RAS model to obtain the best available tributary peak flow information for the Maple River physical modeling effort. These updated tributary peak model runs will aid in the effort of determining the flow combinations to be modeled during maple River physical modeling effort.

Scope: Perform model runs for the 10-, 50-, 100-, and 500-year tributary peak hydrographs to support the USACE's physical and numeric modeling of the Maple River Aqueduct Structure. Provide modeling results to USACE.

IV. ADDITIONAL ASSISTANCE FOR THE MAPLE RIVER AQUEDUCT PHYSICAL MODEL

Scope: Additional assistance includes participating in bi-weekly conference calls, providing additional technical information and support from Feasibility Study team to USACE's physical modeling team, and attending a four-day value-based design charrette.

V. UNSTEADY HEC-RAS MODELING OF EXISTING PMF INFLOWS

Background: The existing Probably Maximum Flood (PMF) was developed almost 30 years ago (1984) and is based on simple hydrologic routing that likely does not account for the full effects of floodplain storage and cross-basin flow that occurs upstream of Fargo-Moorhead. USACE has updated the unsteady HEC-RAS model upstream of the unsteady HEC-RAS model currently being used for the FMMFRM project so that it has the extents and connections necessary to model the PMF event. The portion of the FMMFRM unsteady HEC-RAS model from Abercrombie, ND (the upstream extents of the unsteady HEC-RAS model being used for the FMMFRM study) through Fargo-Moorhead has been added to the upstream model to create the unsteady HEC-RAS model required for this PMF analysis. To avoid confusion, the unsteady HEC-RAS model being used for the PMF analysis will be referred to as the "Upstream" model, while the unsteady HEC-RAS model generally being used for most of the FMMFRM study will be referred to as the "FMMFRM" model.

To get an idea of how much the PMF might change, the Corps and the Project Sponsor previously decided that it would be useful to investigate routing the existing PMF inflows using the Upstream model. The Corps has set up the Upstream model with the proper inflows.

Scope:

a) Perform a technical review of the model

b) Address the instability issues related to running the model with very large inflows

c) Produce final model runs using the 1984 hydrology that provide the PMF at the Fargo gage.

Deliverables:

a) Draft unsteady HEC-RAS models.
b) Draft technical memorandum (hard copy and electronic).
c) Final unsteady HEC-RAS input and output files for the PMF event.
d) Final technical memorandum.

Phase 2 - Numerical Modeling Scope:

a) Set Up Unsteady HEC-RAS Model for New PMF Inflows
USACE has developed a number of new inflow locations for the unsteady HEC-RAS model that are associated with HMS output hydrographs. These inflow locations have been provided separately in an HEC-RAS unsteady flow data file. Develop a draft unsteady HEC-RAS model with updated inflow locations. If requested, modify names of certain reaches and storage areas to be consistent with the final unsteady HEC-RAS model used for the PMF flow routing.

Deliverables:

i. Draft unsteady HEC-RAS model with updated inflow locations.

b) Unsteady HEC-RAS Modeling of New PMF Inflows
Using the updated unsteady HEC-RAS model with the updated inflow locations, model two sets of hydrographs representing two different runoff scenarios. USACE will provide the two sets of inflow hydrographs. Evaluate the inflow locations and the magnitude and shape of the hydrographs for reasonableness and model stability. Modify as required, in consultation with USACE, to allow the model to run successfully.

Once any model instabilities have been addressed and the model runs are complete, evaluate, in consultation with USACE, the hydrographs at the Fargo gage location to determine whether additional sets of hydrographs representing other runoff scenarios are required to determine the PMF at the Fargo gage location (to be performed under subtask c).

Deliverables:

i. Preliminary unsteady HEC-RAS models.
ii. Draft Technical Memorandum. Prepare a Technical Memorandum that summarizes the work effort and the resulting hydrograph at the Fargo gage location.

c) Additional Unsteady HEC-RAS Modeling of New PMF Inflows (if authorized).
If additional sets of hydrographs need to be developed to determine the PMF at the Fargo gage location, as determined in subtask b, USACE will provide one to four additional sets of hydrographs to be modeled with HEC-RAS. Prepare update of draft Technical Memorandum prepared in subtask b.

Deliverables:

i. Preliminary unsteady HEC-RAS.
ii. Second draft Technical Memorandum.

d) Final Technical Memorandum.
Upon review of the model results and draft Technical Memorandum by USACE, finalize the HEC-RAS models and prepare a Final Technical Memorandum, addressing comments provided by USACE.

Deliverables:

i. Final unsteady HEC-RAS input and output files for the PMF event.
ii. Final Technical Memorandum.

VI. UPDATE HEC-RAS MODEL

a) Update the HEC-RAS model geometry for the revised western alignment from the Maple River to the Sheyenne River and the proposed upstream staging area ring levees.
b) Provide on-going hydrology and hydraulic modeling services as requested in order to keep HEC-RAS model consistent with project features.

VII. CONNECTING CHANNEL AND 20-YEAR EXISTING CONDITIONS

Scope:

a) Connecting Channel Geometry: Update the HEC-RAS model geometry to incorporate the geometry of the connecting channel between the Wild Rice and Red Rivers. Complete the 10-yr, 20-yr, and 50-yr model runs to determine the

proper model modifications and to determine the impacts of the updated geometry. If the modifications affect the 50-yr model results, complete the 100-yr, 500-yr, SPF, and PMF model runs to determine the impact of the updated geometry. If the modifications do not affect the 50-yr model results, the updated 100-yr, 500-yr, SPF, and PMF model runs will be made under a future authorization. Develop flooded outline polygons and depth grids for the 10-yr, 20-yr, 50-yr, 100-yr, 500-yr, SPF, and PMF events.

b) 20-year Existing Conditions Modeling: Develop 20-year Existing Conditions models and provide floodplain mapping for the Staging Area.

Deliverables:

a) Preliminary unsteady HEC-RAS models.
b) Final unsteady HEC-RAS input and output files.
c) 20-year existing conditions model results.

VIII. MAPLE RIVER AQUEDUCT FLOW ANALYSIS

a) Conduct modeling of Maple River flows across the proposed Maple River Aqueduct and into the Risk Reduction Area.
    i. Use the latest HEC-RAS model for the FMMFRM Project and the best available topographic data.
    ii. The study area is the area within the Risk Reduction Area that is affected by the flow coming across the Maple River Aqueduct.
    iii. Account for coincident flows on the Sheyenne River and other local drains and ditches.
    iv. Select Maple River design flows such that insurable structures in the Risk Reduction Area, and within the expected future 1% Maple River floodplain, are minimally affected by the Maple River design flows and the coincident flows on the Sheyenne River and the other local drains and ditches in the Risk Reduction Area.
b) Establish Maple River design flows across the Maple River Aqueduct for the 1% and 0.2% flood events.
c) Recommend a maximum Maple River flow across the Maple River Aqueduct for the Standard Project Flood (SPF) event.

Deliverables:

a) Preliminary unsteady HEC-RAS models.
b) Final unsteady HEC-RAS input and output files.
c) 20-year existing conditions model results.
d) Final Technical Memorandum.

IX. UPDATE HEC-RAS MODELS – MAPLE RIVER AQUEDUCT AND REACH 6 BRIDGE

a) Modify the unsteady-flow HEC-RAS model to reflect the lateral structure and spillway changes recommended by the Maple River aqueduct study team.
b) Update the flow profile information (1% and 0.2% chance events, and 103,000 cfs event) needed for the bridge design effort, using the current Phase 7 unsteady-flow HEC-RAS model as the source of the geometry for the steady-flow HEC-RAS model. Continue to use the bridge design criteria provided in MFR-005 (General Bridge Re-Assessment for the Diversion from Inlet to Outlet) to determine the low-chord elevation and hydraulic opening of bridges in the Diversion Channel.
c) Update the HEC-RAS model geometry: (i) to be consistent with survey and topography dates collected, (ii) to reflect proposed changes to the Maple River natural channel, (iii) to reflect the proposed revised location of the spillway into the

diversion channel; perform QA/QC of model changes; and evaluate revised model performance for various flood events using the HEC-RAS unsteady flow model.

Deliverables:
a) Draft Technical Memorandum.
b) Final Technical Memorandum.

X. WATER MONITORING GAGE SURVEYING

a) Prepare and provide maps and coordinates of installation locations for 10 HOBO gages to USGS installation teams.
b) After HOBO gages are installed, survey the elevations of the installed gages and provide survey data to USGS.

Deliverables:
a) Maps and coordinates of installation locations for 10 HOBO gages.
b) Surveyed elevations of 10 HOBO gages.

XI. HEC-RAS MODELS - MAPLE RIVER AQUEDUCT

a. Provide modeling services to add detail associated with updating HEC-RAS model geometry to be consistent with 2014 changes made on the Maple River aqueduct physical model. Incorporate HEC-RAS cross sections from JV where applicable, combine detailed USACE river survey data into HEC-RAS cross sections, and modify adjacent lateral structures and storage areas.

b. Coordinate with USACE to update model geometry for the relocated Maple River channel. The geometry will have a bank-full wetted area consistent with the natural Maple River channel in the vicinity of the proposed aqueduct.

c. Modify model geometry so the spillway enters the diversion at a 90 degree angle as a lateral structure. Update the width and the upstream weir elevation of the spillway such that a target 3000 cfs flows through the aqueduct for the 1% event on the Maple River with the water surface elevation just upstream of the spillway being as close as possible to the existing-condition water surface elevation. Include additional coordination with USACE.

d. Conduct sensitivity model runs associated with the aqueduct, spillway, and EMB gap for various flood events. Evaluate impacts for 1% chance flood event elevations in the floodplain upstream of the spillway and assess~~ing~~ how the project will operate for the SPF event. Determine the proper size and elevation of the EMB gap.

e. Provide QA/QC of modeling.

Deliverables:

~~b)~~a. Updated models.

G. BASIN-WIDE RETENTION SUPPORT

I. Objective: Assist Owner in supporting retention projects by others in the region.

II. Background: The Diversion Board has authorized up to $25 million for Basin-wide Retention Projects that are compatible with, and provide benefits for, the Diversion Project. An initial study is underway by the Red River Basin Commission (RRBC).

This subtask is not creditable by USACE.

III. Scope:

a. Assist Owner with developing a method of evaluating existing, planned, or potential regional retention projects' potential benefits to the Diversion Project. Scope to include up to two (2) site evaluations.

b. Provide technical assistance to the RRBC in its study "Halstad Upstream Retention (HUR) Modeling – Phase 1".

IV. Deliverables

a. As requested.

H. PHASING PLAN INTERIM MODELING

I. Objective: Incorporate the Phase 1 and Phase 2 project features into the hydraulic model, evaluate project benefits, and determine interim measures needed for a phased project.

II. Background: The original project execution plan assumed unconstrained funding, an approximate 8 year project schedule, and project design and construction starting on the downstream (north) end of the project and progressing sequentially upstream. Currently, it is anticipated that Federal funding will be constrained and, therefore, a phased plan was developed to allow the project to proceed with limited Federal funding and provide benefits as early as practical. This results in a three phased project. Phase 1 includes the Diversion Channel from the Outlet to downstream of the Maple River and associated bridges, in-town levees, and the Oxbow-Hickson-Bakke area levee. Phase 2 includes the Red River and Wild Rice River control structures, the Staging Area embankment, overflow embankment, tie-back levee, the Diversion Inlet structure, staging area land, associated bridges and transportation improvements, and associated mitigation projects. Phase 3 includes the Diversion Channel from the Maple River to the Diversion Inlet structure, associated bridges, the Maple River Aqueduct, the Sheyenne River Aqueduct, and associated mitigation projects.

There may be a lag of several years between completion of Phases 1 and 2, and the completion of Phase 3, and, therefore, modeling and evaluation is needed to 1) determine project benefits and 2) the need for and extent of temporary measures between phases of the project.

III. Scope: Perform 100-year and 500-year modeling evaluations of Phase 1 and Phase 2 project components, quantify interim benefits, and determine what interim measures are needed until completion of Phase 3.

IV. Deliverables:

a. Draft Technical Memorandum.

b. Final Technical Memorandum.

I. PHASE 7.1 MODEL UPDATE

I. Task 1 - Update the Red River peak flow model geometry. Complete modeling for the Red River peak flood events, including the 10-, 2-, 1-, 0.2-percent chance events and the 103kcfs and PMF flood events for both existing conditions and with-project conditions. Geometry updates include:

a. Update storage connections for the existing and with-project model in the area west of the diversion between the Maple River and the Sheyenne River to better reflect floodplain impacts and diversion side inlet sizing.

b. Revise the Wild Rice River Control Structure and embankment alignment (combine bridges).

c. Analyze the removal of the connecting channel between the Wild Rice River and Red River. Replace with storage areas.

d. Analyze Hwy 81/Hwy 75/Red River Control Structure Bridge/Culvert Sensitivity at the tie back levee.

e. Change the channel size from the Wild Rice River to the Diversion Inlet based on cross section volume of the southern embankment.

f. Account for staging area levees including the proposed Oxbow/Hickson/Bakke and Comstock levees.

g. Verify the eastern staging area tieback is modeled as being used in storage. Add detail to check if culverts are adequate to convey water west to the Red River Control Structure.

h. Revise Maple River south bank near the Maple River Aqueduct. Set elevation to 901.0.

i. Investigate diversion gate operations for events larger than the 0.2% chance event.

j. Update the Drain 14 inlet at the diversion.

k. Extend the Red River model from Grand Forks, ND to Drayton, ND.

II. Task 2 – Update tributary peak flow models with geometry developed in Task 1. Complete modeling for the 10-, 2-, 1-, 0.2-percent chance flood events for both existing conditions and with-project conditions.

III. Task 3 - Conduct a higher volume sensitivity analysis using the Red River peak flow geometry from Task 1 and the high volume hydrology developed as part of the Phase 5 unsteady modeling effort. Complete evaluations for the 1- and 0.2-percent chance flood events for both existing conditions and with-project conditions. The main objective of this task is to determine how the diversion system would operate with higher volumes and if the higher volumes would affect the staging area elevation. No mapping is required; however, calculate impacts and compare to Phase 7.0. For comparison purposes, match Phase 7.1 downstream impacts, flows through town, and diversion flows to the targeted values from Phase 7.0. The variable parameter will be the staging area elevation. Prepare a technical memorandum to summarize the sensitivity analysis.

IV. Task 4 – QA/QC of Phase 7.1 modeling.

V. Task 5 – Complete additional modeling and mapping tasks as part of the Phase 7.0 modeling effort. These items include details such as:

a. Update geometry to include the City of Fargo Comprehensive Flood Protection Plan.

b. Additional mapping for existing and project conditions.

c. Development of Tributary Peak models.

d. Add detail to Interstate 94 near the Red River and also to Drain 27 area.

e. Update weir coefficients, culverts, initial elevations, and cross section duplication.

f. Diversion centerline alignment rectification due to Microstation and GIS formats.

g. Add Excavated Material Berms into project geometry.

h. Add designed bridges for Reaches 1 through 5 into the geometry.

i. Update HEC-RAS unsteady flow model geometry to reflect most current layout of the Maple River Aqueduct and Spillway being used by the physical modeling team. The Maple River overbank berms near the structure will also be updated. Using the latest project designs, update the layouts and inlet structure geometry for the Rush and Lower Rush Rivers, as well as Drain 30.

a. Update HEC-RAS unsteady flow existing conditions and project conditions for the 10-, 50-, 100-, and 500-year Red River peak events. No diversion gate optimizations will be conducted, as this will be completed as part of the Phase 8 model updates.

b. Update HEC-RAS unsteady flow existing conditions and project conditions for the 10-, 50-, 100-, and 500-year Tributary peak events. No diversion gate optimizations will be conducted, as this will be completed as part of the Phase 8 model updates.

VI. Deliverables:

a. Updated phase 7.1 model for the Red River peak flood events, including the 10-, 2-, 1-, 0.2-percent chance events and the 103kcfs and PMF flood events for both existing conditions and with-project conditions.

b. Updated phase 7.1 tributary peak flow models with geometry developed in Task 1, for the 10-, 2-, 1-, 0.2-percent chance flood events for both existing conditions and with-project conditions.

c. Higher volume sensitivity analysis:

d. Updated phase 7.0 model.

J. UPDATE PMF WITH REVISED DISTRIBUTION OF SNOWMELT RUNOFF:

I. Background:

a. Initial results from the current PMF study for the USGS Gage at Fargo, ND indicate that the peak flow is about 25% higher than what was determined during the 1985 study. Comparisons with the 1985 study indicate that the Wild Rice, North Dakota basin requires further investigation. Contributing drainage area for the PMF also requires further investigation. Two HMS model runs (two storm centerings) are available from the USACE St. Paul District for each of the eight sub-basins that are included in the PMF study. The HMS models that were used in the initial PMF work were modified from the Phase 1 HMS final product by peaking unit hydrograph parameters for each subbasin, re-incorporating the entire drainage area, and extending several storage outflow relationships that were exceeded with the magnitude of discharges generated from the PMF simulations.

b. It has been proposed that GIS can be used in conjunction with the HMS models to better estimate the amount of runoff occurring during a PMF event. The GIS/HMS effort would determine areas that contribute runoff, areas that do not contribute runoff, and areas that partially contribute runoff for the events investigated.

II. Scope:

a. Discuss the GIS/HMS effort with USACE before proceeding with this work.

b. Update the USACA-provided HMS model runs in conjunction with the GIS/HMS-based runoff-determination effort. Determine the order of HMS model simulations and account for the breakout flows between the various models. Coordinate between the HMS model simulations and RES-SIM with USACE. Save Reservoir inflows for Traverse and Orwell in DSS and submit to USACE for simulation. Forward the regulated flow DSS records for inclusion into the RAS Model.

c. Upon completion of the update to the Wild Rice River basin HMS model by USACE, perform final model runs. Perform work that can be accomplished in advance to prepare for the final HMS models runs.
d. Use the HMS results as input for an updated unsteady HEC-RAS model run for each storm centering. Complete the existing scope of work (Subtask F.V) for the PMF study using the updated unsteady HEC-RAS model runs.
e. Prepare a report section documenting the GIS/HMS-based runoff-determination effort and comparing the 1985 PMF study to this current study, including input assumptions. Incorporate this draft report section into the overall current PMF study report.
f. Conduct model runs as requested by USACE to support close out of comments from ITR. Assume 6 additional sensitivity runs will be made as identified in the reviewer comments.
g. Provide map making and figure revisions for final report. Assume two iterations of revisions will be made to maps currently in report and two additional maps to be made to satisfy the review comments.
h. Support report documentation as requested by USACE lead. Assume that USACE will finalize the draft report and HMG will provide supplemental information.

III. Deliverables

a. Updated runoff grids resulting from the GIS/HMS-based runoff-determination effort.
b. Draft report with maps.
c. Updated HMS models (16 models: 2 storms centering for 8 sub-basins.)
d. Updated unsteady HEC-RAS models (2 models, one for each storm centering).

K. PHASE 8 MODEL UPDATE

I. Background:

a. The Phase 8 modeling will incorporate higher volume hydrology developed by the USACE. It will also include the development of the 20-year event model and investigate additional model updates in the staging area based on culvert connections, connecting channel investigations, and tieback embankment alignment adjustments. The downstream model limit will be Drayton, ND.

b. The most recent independent QA/QC review of the FM Diversion project unsteady HEC-RAS model occurred during the Phase 4 modeling (February 28, 2011). Subsequent model updates included peer reviews by modelers, but did not included a full independent review.

II. Scope:

a. Update geometry in the upstream staging area based on culvert details and the local drainage plan (currently under development).

b. Update synthetic model hydrology for the 10, 50-, 100-, and 500-year flood events and develop new 20-year hydrology using new higher volume hydrographs developed by the USACE for the peak Red River flood event. Local inflow development will utilize the Phase 1 HEC-HMS models.

c. Update the existing conditions tributary peak unsteady model using updated hydrology developed by the USACE for the 10-, 50-, 100-, and 500-year flood events and new 20-year hydrology.

d. Conduct QA/QC review of the Phase 8 Existing conditions models for the RRN and tributary peak conditions.

e. Conduct with-project modeling for the 10-, 20-, 50-, 100-, and 500-year events for the RRN peak flood event.

f. Conduct with-project modeling for the 10-, 20-, 50-, 100-, and 500-year events for the tributary peak flood events.

g. Conduct QA/QC of the Phase 8 with-project model runs.

h. Prepare floodplain mapping for the 10-, 20-, 50-, 100-, and 500-year events for existing conditions and with-project for both the RRN and tributary peak flood events.

i. Prepare draft and final Technical Memorandums summarizing Phase 8 modeling results.

j. Conduct an independent QA/QC review of the unsteady HEC-RAS model.

    i. Part 1 – Conduct an independent QA/QC review of the Phase 7.1 unsteady HEC-RAS model geometry and general assumptions. Include a kick-off review meeting, a review of the technical memorandums and previous District Quality Control (DQC) and Agency Technical Review (ATR) reviews developed for the model updates subsequent to Phase 4, and a review of geometry files through Phase 7.1 of the model. Commence review following completion of the Phase 7.1 update.

    ii. Upon completion of the Phase 7.1 model review, provide recommendations for additional QC review of the Phase 8 model updates.

    iii. Document the review findings and recommendations in Technical Memorandum.

    iv. Document the review findings and recommendations in Technical Memorandum.

k. Incorporate geometry and general assumptions QA/QC recommendations into the HEC-RAS model

    i. Review all comments and discus with USACE and review team, and determine which model recommendations should be incorporated into the HEC-RAS model.

    ii. Make revisions in HEC-RAS Model Geometry for Red (from Enloe to Perley), Wild Rice, Sheyenne and Maple Rivers: Update model to HEC-RAS 5.0, convert horizontal projection to Albers Equal Area. Update bridge modeling approaches, ineffective flow limits, bank stations, blocked obstructions, roughness parameters, river junction cross-section geometry, address ineffective flow at bridges and two inconsistencies between EX and WP models. Verify volume continuity.

    iii. Re-calibrate model using 2006, 2009, 2010, 2011 historic events (adjust parameters).

l. Provide additional assistance to USACE for the Hickson Hydrology Update. These modeling tasks include assessing modeling parameters, development of a baseline storage-discharge relationships, comparison modeling downstream of the Otter Tail Diversion, historic flow record checks, and revise model calculation at bridges and inline structures.

III. Deliverables:

a. Updated phase 8 model for the Red River peak flood events, including the 10-, 20-, 50-, 100-, and 500-year events for both existing conditions and with-project conditions.

b. Updated phase 8 models for the tributary peak flood events, including the 10-, 20-, 50-, 100-, and 500-year events for both existing conditions and with-project conditions.

c. Floodplain maps for the 10-, 20-, 50-, 100-, and 500-year events for existing conditions and with-project for both the RRN and tributary peak flood events.

d. Draft and Final Phase 8 Technical Memorandum.

e. Draft and Final QA/QC Technical Memorandum, Kick-off meeting minutes, and Quality Review Form (QRF) summarizing review comments for the Phase 7.1 QC review.

L. UPDATE THE BALANCED HYDROGRAPHS AT HICKSON, ND

I. Background:

a. The USACE, St. Paul District, requested assistance to update the Red River of the North (RRN) balanced hydrographs at the USGS gage at Hickson, ND. This effort is required prior to starting the Phase 8 model update, and involves working with both the hydrologic (HEC-ResSIM) and hydraulic (unsteady HEC-RAS) routing models to determine the proper ungaged inflow hydrographs and hydrologic modeling parameters such that similar results are obtained from the two methods.

II. Scope:

a. Hydrologic Model Development: Use the unsteady HEC-RAS model to determine peak flows at Hickson and Abercrombie ND and identify breakout flow locations.

b. Initial Storage Outflow Curve Development: Develop storage outflow curves for the hydrologic model reaches determined in above task, and identify bankfull discharges for each routing reach.

c. Quality Control Check on Unregulated Record Generated by Hydrologic Model: Run five test historic, unregulated events through the unsteady HEC-RAS model to check the validity of the unregulated record being developed by the hydrologic modeler.

d. Routed Synthetic-Event Unregulated Hydrographs and Report: Using information developed in previous tasks, provide the resulting unregulated hydrographs at Fargo, ND and Wahpeton, ND, which are produced in concert with the 10-yr, 50-yr, 100-yr, 200-yr, 500-yr synthetic events at Hickson, ND.

e. Fine Tune the Regulated Synthetic Event Analysis: Run the five HEC-RAS models (10-yr, 50-yr, 100-yr, 200-yr, 500-yr synthetic events) for regulated conditions using the outflow hydrographs from the reservoirs developed by USACE using the hydrologic model.

f. Final Technical Memorandum: Develop an overall Technical Memorandum summarizing the work accomplished for Tasks 1-5.

III. Deliverables:

a. Breakout Flow and Hydrologic Routing Reach Report

b. Upstream Input Test Hydrographs and Routed Test Hydrographs at Critical Locations

c. Storage Outflow Curves and bankfull discharges for each routing reach

d. Routed Historic Hydrographs

e. Routed Synthetic-Event Regulated Hydrographs and Report

f. Final Technical Memorandum

M. EASTERN STAGING AREA EVALUATION

I. Background: Hydraulic modeling (Phase 7 HEC-RAS) and design performed in support of the September, 2013 Supplemental Environmental Assessment for the Fargo-Moorhead Metropolitan Area Flood Risk Management Project did not include the area east of Clay County Highway 7 (40th St. S.) and south of the Embankment in the staging area for the FM Diversion. Additional design and modeling in support of the Local Drainage Plan for the staging area has since shown that there may need to be a connection to this area to pass local drainage that could potentially bring this area into the staging area.

II. Scope:

a. Provide preliminary design for two (2) Eastern Staging Area alternatives. This includes civil and hydraulic design in support of the two Alternatives.

i. Alternative 1 includes turning the embankment south near Clay County Highway 7 and extending it to high ground to prevent the staging area from extending into the Eastern area.

ii. Alternative 2 includes keeping the current embankment alignment, but including a penetration through the embankment to pass local drainage for the Eastern area north into the Flood Damage Reduction area along its current drainage path.

b. Prepare Opinions of Probable Cost for the two Eastern Staging Area alternatives.

c. Prepare a summary memorandum outlining the results of the Eastern Staging Area Evaluation.

III. Deliverables:

a. Draft and Final Technical Memorandum.

N. STAGING AREA CULVERT AND BRIDGE SURVEY

I. Background: USACE requested detailed survey information on culverts and bridges in the Staging Area so that this information can be added to the Hydrology and Hydraulic (H&H) models and used to:

a. Better determine project impacts at the fringe areas of the Staging Area.

b. Better assess impacts to road and duration of flooding in the Staging Area during Project operation.

II. Scope:

a. Define the survey area.

b. Gather existing information on culverts and bridges in the survey area and develop a survey plan.

c. Survey culverts, and bridges in the survey area. Information collected to include, but not limited to: culvert diameter, material type, up and downstream inverts, types of end section, and number of culverts; bridge pier and abutment size, shape, and clear space between piers and abutments.

d. Incorporate survey information into the H&H models.

III. Deliverables:

a. Electronic survey files

b. Maps

c. Table of data collected for each culvert and bridge surveyed

d. Updated H&H model

3. Owner's Responsibilities

Owner shall have those responsibilities set forth in Article 2 and in Exhibit B.

4. Times for Rendering Services

Subtask	Start Time	Completion Time
A. HMS Diversion Inlet Model	April 1, 2012	July 31, 2012
B. Updates to Rush/Lower Rush	March 8, 2012	May 31, 2012
C. Evaluation of channel size	March 8, 2012	September 30, 2015
D. Extend RAS geometry of Rush/Lower Rush	March 8, 2012	May 31, 2012
E. Physical Modeling Assistance	April 26, 2012	September 30, 2015
F. On-Call Services	June 14, 2012	September 30, 2015
F.I Extreme Rainfall Events	September 13, 2012	November 30, 2012
F.II. Extreme Event Evaluations	September 13, 2012	November 30, 2012
F.III. Tributary Peak HEC-RAS Model Runs	September 14, 2012	December 31, 2012
F.IV. Additional Assistance for the Maple River Aqueduct Physical Model	September 14, 2012	September 30, 2015
F.V. Unsteady HEC-RAS Modeling of Existing PMF Inflows	November 8, 2012	January 31, 2013
F.V. Phase 2 Numerical Modeling	February 14, 2013	September 30, 2013
F.VI. Update HEC-RAS Model	December 13, 2012	January 31, 2014
F.VII. Connecting Channel and 20-year Existing Conditions	December 18, 2012	September 30, 2013
F.VIII. Maple River Aqueduct Flow Analysis	March 14, 2013	September 30, 2013
F.IX. Update HEC-RAS Models – Maple River Aqueduct & Reach 6 Bridge	April 18, 2013	September 30, 2015
F.X. Water Monitoring Gage Survey	April 9, 2013	May 31, 2013
F.XI. HEC-RAS Models - Maple River Aqueduct	December 11, 2014	March 31, 2015
G. Basin-Wide Retention Support	December 13, 2012	September 30, 2015
H. Phasing Plan Interim Modeling	April 24, 2013	September 30, 2015
I. Phase 7.1 Model Update	July 11, 2013	April 30, 2014

Subtask	Start Time	Completion Time
J. Update PMF Study with Revised Distribution of Snowmelt Runoff	July 11, 2013	December 31, 2013
K. Phase 8 Model Update	September 12, 2013	September 30, 2015
L. Update the Balanced Hydrographs at Hickson, ND	October 10, 2013	September 30, 2014
M. Eastern Staging Area Evaluation	October 9, 2014	March 31, 2015
N. Staging Area Culvert and Bridge Survey	October 30, 2014	March 31, 2015

5. Payments to Engineer

A. Owner shall pay Engineer for services rendered as follows:

I. Compensation for services in accordance with the Standard Hourly Rates shown in Appendix 2 of Exhibit C of the Agreement.

II. The total compensation for services identified under the Task Order is not-to-exceed the amount as defined in the table below.

III. Estimated budget for Subtask F. On-Call Services, and G. Basin-Wide Retention Support, is based on an allowance.

1. Engineer will notify Owner when eighty percent (80%) of the budget on Subtask F. On-Call Services, and G. Basin-Wide Retention Support, is expended.

2. Engineer will prepare and submit an amendment for additional compensation when ninety percent (90%) of budget on Subtask F. On-Call Services, and G. Basin-Wide Retention Support, is expended.

3. Engineer will not perform work beyond one hundred percent (100%) of the budget for Subtask F. On-Call Services, and G. Basin-Wide Retention Support, without Owner's authorization by an amendment to this Task Order.

Subtask	Current Budget ($)	Change ($)	Revised Budget ($)
A. HMS Diversion Inlet Modeling	22,121	0	22,121
B. Updates to Rush/Lower Rush	16,401	0	16,401
C. Evaluation of Channel Size	137,605~~27,605~~	~~110,0000~~	137,605
D. Extend RAS Geometry of Rush/Lower Rush	17,714	0	17,714
E. Physical Modeling Assistance	10,500	0	10,500
F. ON-CALL SERVICES (ALLOWANCE)	44,900~~94,900~~	~~-50,0000~~	44,900
F.I. Extreme Rainfall Events	7,500	0	7,500
F.II. Extreme Event Evaluations	26,600	0	26,600
F.III Tributary Peak Model Runs to Support the Maple River Aqueduct Physical Model	20,000	0	20,000

Subtask	Current Budget ($)	Change ($)	Revised Budget ($)
F.IV Additional Assistance for the Maple River Aqueduct Physical Model	104,000~~79,000~~	~~25,000~~0	104,000
F.V Unsteady HEC-RAS Modeling of Existing PMF Inflows	50,000	0	50,000
F.V Phase 2 Numeric Modeling	60,000	0	60,000
F.VI Update HEC-RAS Model	36,000	0	36,000
F.VII Connecting Channel and 20-year Existing Conditions	9,000	0	9,000
F.VIII Maple River Aqueduct Flow Analysis	15,000	0	15,000
F.IX Update HEC-RAS Models – Maple River Aqueduct & Reach 6 Bridge	40,000~~15,000~~	~~25,000~~0	40,000
F.X Water Monitoring Gage Survey	5,000	0	5,000
F.XI. HEC-RAS Models - Maple River Aqueduct	0	25,000	25,000
G. Basin-Wide Retention Support	55,000	0	55,000
H. Phasing Plan Interim Modeling	90,000	0	90,000
I. Phase 7.1 Model Update	165,000	0	165,000
J. Update PMF Study with Revised Distribution of Snowmelt Runoff	80,000	~~0~~36,000	116,000~~80,000~~
K. Phase 8 Model Update	~~331,000~~594,000	~~263,000201 -~~ 62,000	532,000~~594,000~~
L. Update the Balanced Hydrographs at Hickson, ND	105,000	~~0~~62,000	167,000~~105,000~~
M. Eastern Staging Area Evaluation	0	32,000	32,000
N. Staging Area Culvert and Bridge Survey	0	100,000	100,000
TOTAL	**~~1,448,3~~1,711,341~~1 ,338,341~~**	**~~456~~193,000~~373,00 0~~**	**1,904,341~~1,711,34 1~~**

B. The terms of payment are set forth in Article 4 of the Agreement and in Exhibit C.

6. Consultants: None
7. Other Modifications to Agreement: None
8. Attachments: None
9. Documents Incorporated By Reference: ~~None~~
   A. AWD-00043 REV-0, Eastern Staging Area Evaluation, dated October 9, 2014.

B. AWD-00044 REV-0, Staging Area Culvert Surveying, dated October 30, 2014.

This is Task Order No. 18, Amendment 0, consisting of 9 pages.

Houston-Moore Group, LLC

Task Order No. 18, Amendment 0

Design of Work Package 28 (CR-16/CR-17 Bridge)

In accordance with Paragraph 1.01 of the Agreement Between Fargo-Moorhead Flood Diversion Authority ("Owner") and Houston-Moore Group, LLC (HMG) ("Engineer") for Professional Services – Task Order Edition, dated March 8, 2012 ("Agreement"), Owner and Engineer agree as follows:

1. Specific Project Data

   A. Title: Design of Work Package 28 (CR-16/CR-17 Bridge)

   B. Description: As part of the Owner's Lands, Easements, Rights of Way, Relocations, and Disposal (LERRDs) work, design and prepare contract documents for the construction of the new County Road 17 (CR-16/CR-17) bridge, and County Road 16 (CR-16) realignment, which crosses the diversion channel at the intersection of 124th Ave S and 170th Ave SE, approximately 2.5 miles of associated county road to accommodate road alignment and grade changes, local drainage facilities and structures, and 1000-feet of diversion channel (nominally 500-feet on either side of the centerline of the bridge).

   C. Background: The draft Red River Diversion Master Transportation Plan provides for one (1) bridge crossing the diversion channel to accommodate a combined crossing for CR-16/CR-1716 and CR-17. The crossing at combined Cass CR-16/CR-17 does not intersect the diversion perpendicularly. Proposed roadway realignments balanced the safety implications of lower speeds at roadway curves, right-of-way impacts associated with large curves and costs required to build longer bridges that do not intersect the diversion alignment perpendicularly. The alignment of the combined crossing at Cass CR 16 and 17 required additional considerations due to the high volume of conflicting traffic forecasted at the intersection of these two high volume roadways. The proposed alignment was developed based upon an evaluation of existing traffic volumes and forecasted traffic growth or reduction. The alignment included a roundabout on the dry side of the diversion where the bridge will intersect Cass CR 16 and 17 in an attempt to distribute prioritization to the three approaches and provide traffic control for the highly traveled corridors.

2. Services of Engineer

   A. General

      i. Design of Work Package 28 Contract Documents: Prepare contract documents (Plans and Specifications) for the construction of the new combined CR-16/CR-17 bridge, associated roads, local drainage facilities, and diversion channel. Design items include, but are not limited to:

         1. CR-16/CR-17 bridge, approximately 550 feet long and per Cass County roadway bridge design requirements and USACE design criteria.

         2. Approximately 2.5 miles of associated new county roadway, one round-about, construction detour routes, and township roadway improvements for detour routes accommodating construction of the combined interchange of CR-16 and CR-17 at the intersection of 124th Ave S and 170th Ave SE per Cass County roadway design requirements.

         3. 1000-feet of diversion channel per USACE design requirements.

         4. Include a list of permits and forms required for construction of these facilities.

ii. Certain of these design items may be included in the Work Package 28 Contract Documents and certain items may be provided to USACE for inclusion in their Contract Documents.

iii. Roadway and bridge design services will be prepared in accordance with applicable Cass County Standards, NDDOT Design Manual, NDDOT CADD Standards, and AASHTO bridge and roadway design specifications, modified as required for this project. Plan drawings will be generated using MicroStation V8i. Survey will follow USACE standards and will be translated to Cass County standards under a future Task Order.

B. Scope of Work

100 Project Management and Coordination

101 Project Schedule.

Develop and maintain a project schedule. The schedule will include the establishment of milestone dates for the major work items. Review and adjust the schedule as necessary to incorporate changes in the work concept and progress to date.

102 Progress Reports (Monthly).

Provide written progress reports describing the work performed on each task. Provide progress reports concurrently with the monthly invoice.

103 Bridge Design Team Meetings.

Participate in weekly team meetings (conference calls) to discuss design progress, technical issues, and other topics developed as the project progresses. Prepare issues and decisions log to document design issues and resolution; this log will be reviewed as needed during the weekly team meetings.

104 Coordination Meetings.

Participate in coordination meetings with the PMC, USACE, BNSF Railway, Cass County, contractors or other organizations relevant to the project.

200 Field Survey

201 Landowner Notification.

Notify landowners prior to accessing property to conduct the field survey in accordance with Right-of-Entry agreements. Coordinate access with PMC and Owner.

202 Field Survey.

Collect survey data in accordance with the MFR-015 *Survey Standards*. Field survey will include establishing control, collecting topographic data of the existing ground and roadways, utilities, drainage features, and existing right of way.

203 Compile Data and Generate Base Map.

Download the survey data collected and generate a base map for development of project plan drawings.

204 Geotechnical Location Survey.

Stake the location of the planned soil borings and record the coordinates and elevation of the borings for inclusion in the geotechnical report and the project plans.

205 Pickup Survey.

After the final bridge alignment and elevation has been established, collect additional data from the site if needed.

206 Survey Control Report.

Develop a report documenting the survey control established for the bridge site and the standards used.

300 Roadway Design

301 Preliminary Roadway Design.

Perform preliminary roadway design functions and prepare preliminary roadway plans for review Cass County and the PMC. The preliminary design will include the following:

- Traffic Operations
- Preliminary alignment and profile
- Settlement countermeasure concepts
- Existing and proposed typical sections
- Establish subgrade criteria
- Preliminary pavement/section design
- Roadway design report

302 Final Roadway Design and Plan Preparation.

Develop the final roadway design and final plans and conduct a Plans, Specifications and Estimate (PS&E) review meeting with Cass County, the local sponsors, USACE, and other interested parties and agencies. Preparation of final roadway plans will consist of the following:

- Final alignment and grade
- Final typical section
- Traffic control/construction staging
- Utility relocations
- Drainage design
- Signing and pavement marking
- Guardrail design and plans
- Settlement countermeasures
- Roadway plan drawings
- Roadway plan notes and special provisions

Assemble and distribute plans for review.

Attend a PS&E Review Meeting and provide written response to comments.

400 Preliminary Bridge Design

401 Develop Design Criteria.

Develop a Bridge Design Criteria Document detailing the governing design and construction specifications, the hydraulic and geometric criteria used to determine the bridge length and elevation, material strengths and properties, and specific design methodologies to be used for the major components of the bridge. Deliver the Bridge Design Criteria Document to the PMC for distribution to project stakeholders for review. Incorporate comments and produce a final document.

402 Bridge Length Determination.

Determine the final bridge length in accordance with the design criteria established for the bridge.

403 Conceptual Superstructure Design.

Perform preliminary design calculations to establish the preliminary designs for the girders, bridge deck, and traffic barriers. Evaluate two girder types for cost effectiveness comparison: prestressed concrete I-girders, and steel plate girders.

404 Conceptual Substructure Design.

Perform preliminary design calculations to establish the preliminary designs for the piers and abutments. Evaluate two foundation types for cost effectiveness comparison: driven piles and drilled reinforced concrete shafts.

405 Evaluate Use of Alternate Designs.

Prepare cost estimates for the various structure concepts developed in Tasks 403 and 404 to determine if there is potential for overall construction cost savings by bidding competing superstructure and/or substructure types.

406 Bridge Aesthetic Design Concepts.

Incorporate bridge aesthetic concepts and features developed in the Fargo-Moorhead Area Diversion Bridge Aesthetics Technical Memorandum.

407 Type, Size & Location Inspection (TS&L).

Conduct a TS&L Inspection with the bridge owners and other interested parties to confirm the site conditions and the suitability of the bridge concept. Complete and distribute TS&L report following the meeting.

408 Bridge Preliminary Design Report.

Prepare a Bridge Preliminary Design Report to document the conceptual designs studied, the structure site data, hydraulic and geotechnical criteria used as a basis for the design, a discussion of the span optimization process used, and a recommendation for bridge substructure and superstructure, along with a recommendation regarding the use of alternate designs.

410 Channel Preliminary Design.

Prepare a draft Preliminary Design Report (PDR) on the Diversion Channel design for 1,000 feet of channel, nominally 500 feet each side of the bridge centerline, consistent with USACE Design Criteria and Engineer's analysis of specific project requirements. The PDR will be submitted to USACE for review. Respond to USACE and Owner comments and issue a final PDR.

500 Final Bridge Design Calculations

501 Design Kickoff Meeting.

Participate in a design kickoff meeting with the bridge owner and other interested parties to discuss the final design criteria, the submittal schedule, and agency review requirements.

502 Foundation/Substructure Design.

The substructure design will be either driven piles or drilled shafts. If alternate designs are to be bid, both types will be designed. The following elements are included in the substructure design:

- Finalize geotechnical criteria
- Foundation design (piling or drilled shafts)
- Pier column and cap design

- Abutment design
- Bearing design
- Scour countermeasures

503 Superstructure Design.

The superstructure design is based on designing prestressed concrete I-girders or steel plate girders as the structural system. If the preliminary design recommends alternate designs, both types will be designed. The following elements are included in the superstructure design:

- Deck design
- Girder design
- Camber and deflection calculations
- Pier and abutment diaphragms
- Traffic barriers
- Drainage system
- Expansion joints
- Utility supports (if applicable)

510 Final Channel Design.

Based on the final PDR, prepare final design drawings and specifications of the Diversion Channel, including a 90% cost estimate. Submit design to Owner and USACE for review. Respond to Owner and USACE comments and issue 90% design.

511 Channel Design BCOE Review.

Prepare Bidability, Constructability, Operability, and Environmental (BCOE) review documents, compile final design documents bearing engineer signatures to distribute when bid is advertised. Submit bid documents to Owner's Representative for review and for bidding. Provide submittal log and Construction Quality Control Testing Matrix for inclusion to the Construction Management Plan.

600 Bridge Plan Preparation

601 30% Plan Submittal.

- Bridge Layout
- Construction Staging
- Preliminary Foundation/Substructure
- Preliminary Superstructure
- Miscellaneous Sheets (Soil borings, framing plan, etc.)

Assemble and distribute plans.

Attend review meeting and provide written response to comments.

602 90% Plans.

- Bridge layout
- Construction staging
- Foundation/substructure
- Superstructure
- Miscellaneous sheets
- Aesthetic details
- Details
- Plan notes

- Quantity calculations
- Special Provisions

Assemble and distribute plans.

Attend PS&E Review Meeting and provide written response to comments.

610 Bridge Plan Preparation.

Prepare plans and specifications for inclusion in construction documents.

620 Bridge Design BCOE Review.

Prepare COE review documents, compile final design documents bearing engineer signatures to distribute when bid is advertised. Submit bid documents to Owner's Representative for review and for bidding. Provide submittal log and Construction Quality Control Testing Matrix for inclusion to the Construction Management Plan.

700 Quality Assurance/Quality Control

701 Internal Design Review (IDR).

This review will consist of internal quality control checks and quality assurance reviews of the design calculations and the 30%, 90%, and final plan submittals.

702 Discipline Design Review (DDR).

This review will consist of cross review of the bridge plans, roadway plans, diversion channel plans, and the geotechnical report by the various disciplines involved in the project.

703 Rotational Team Review (RTR).

The design calculations and bridge plans for each bridge will be reviewed by designers from a team other than the team that designed the bridge to ensure consistency in design approach and compliance with NDDOT and Cass County standards across the overall team.

Deliverables

1. Project Schedule with milestone dates for key activities and monthly updates
2. Monthly Progress Reports
3. Survey Control Report
4. Roadway Design Report
5. Final Roadway Plans
6. Preliminary Bridge Design Report
7. Preliminary Channel Design Report
8. 30% Bridge, Roadway, and Channel Plan Submittal
9. 30% cost estimate
10. 90% Bridge, Roadway, and Channel Plan Submittal
11. 90% cost estimate
12. Final Channel Plan Submittal
13. Final Bridge Plan Submittal
14. Contract Documents (final plans and specifications)
15. Submittal log and QC Testing Matrix for inclusion in Construction Management Plan

Work not included in this Scope of Services

1. Environmental documentation and permitting
2. Utility Relocation Agreements

3. ROW Acquisition including Appraisals, Title Searches, Title Opinions, Deeds
4. Bid documents and bidding services

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3. Owner's Responsibilities

   Owner shall have those responsibilities set forth in Article 2 and in Exhibit B.

4. Times for Rendering Services

Phase	**Start Time**	**Completion Time**
Design of Work Package 28 (CR-16/CR-17 Bridge) Contract Documents (100 % Plans and Specifications)	December 11, 2014	March 31, 2016

5. Payments to Engineer

   A. Owner shall pay Engineer for services rendered as follows:

      i. Compensation for services identified under Subtasks 100 through 700 shall be on a Time and Material basis in accordance with the Standard Hourly Rates shown in Appendix 2 of Exhibit C of the Agreement.

      ii. The total compensation for services identified under the Task Order, for Subtasks 100 through 700 is not-to-exceed total amount as defined in the table below.

	Subtask	**Assumed Distritribution ($)**
100	Project Management and Coordination	41,800
200	Field Survey	18,700
300	Roadway Design	173,800
400-408	Preliminary Bridge Design	102,300
410	Preliminary Channel Design	72,600
500-509	Final Bridge Design Calculations	125,400
510	Final Channel Design	41,800
511	Channel Design BCOE Review	10,000
600-609	Bridge Plan Preparation	187,000
610	Bridge Plan Preparation	56,100
620	Bridge Design BCOE Review	11,900
700	Quality Assurance/Quality Control	138,600
TOTAL		**980,000**

   B. The terms of payment are set forth in Article 4 of the Agreement and in Exhibit C.

6. Consultants: None

7. Other Modifications to Agreement: None

8. Attachments: None
9. Documents Incorporated By Reference: None

10. Terms and Conditions: Execution of this Task Order by Owner and Engineer shall make it subject to the terms and conditions of the Agreement (as modified above), which Agreement is incorporated by this reference. Engineer is authorized to begin performance upon its receipt of a copy of this Task Order signed by Owner.

The Effective Date of this Task Order is December 11, 2014.

ENGINEER:	OWNER:
Houston-Moore Group, LLC	**Fargo-Moorhead Metro Diversion Authority**
Signature Date	Signature Date
Jeffry J. Volk Name	Darrell Vanyo Name
President Title	Chairman, Flood Diversion Board of Authority Title
DESIGNATED REPRESENTATIVE FOR TASK ORDER:	DESIGNATED REPRESENTATIVE FOR TASK ORDER:
C. Gregg Thielman Name	Keith Berndt Name
Sr. Project Manager Title	Cass County Administrator Title
925 10th Avenue East West Fargo, ND 58078 Address	211 9th Street South PO Box 2806 Fargo, ND 58108-2806 Address
cgthielman@houstoneng.com E-Mail Address	berndtk@casscountynd.gov E-Mail Address
(701) 237-5065 Phone	(701) 241-5720 Phone
Fax	(701) 297-6020 Fax

Item 6a. (iv)

METRO FLOOD DIVERSION PROJECT

AUTHORITY WORK DIRECTIVE AWD-00045 REV-0

WP-42F.1 Phase II Environmental Site Assessment (ESA)

WORK TYPE: WIK

TO: Houston-Moore Group, LLC

DATE INITIATED: 12/11/2014

PROJECT: Fargo-Moorhead Diversion Engineering Design

OWNER: Metro Flood Diversion Authority

The following additions, deletions, or revisions to the Work have been ordered and authorized:

OBJECTIVE:

Initiate soil borings, surveying, sampling and testing at the Case Plaza and City Hall parking lot sites prior to the expiration of rights of entry for these sites.

BACKGROUND:

Phase I ESAs were conducted for the Case Plaza and City Hall parking lot sites in 2013 as part of the preliminary design of WP-42 (In Town Levees). The Phase I ESA recommended additional Phase II ESA testing of the soils and groundwater on these sites.

SCOPE:

Provide up to nine (9) borings at the Case Plaza and City Hall parking lot sites, survey boring locations, and provide the following sampling and testing services: boing logs by a field geologist, continuous soil sampling to the groundwater table, soil head space analysis for volatile organic compounds (VOCs), groundwater sampling, laboratory testing and analysis of samples for the presence of contaminants, and a report of the findings.

DELIVERABLES:

- Draft Phase II ESA Report for Case Plaza (electronic)
- Draft Phase II ESA Report for City Hall Parking Lot (electronic)
- Final Phase II ESA Report for Case Plaza (electronic)
- Final Phase II ESA Report for City Hall Parking Lot (electronic)
- Analytical Laboratory Results (electronic)

SCHEDULE:

Begin upon receipt of AWD.

HOW WORK IS PERFORMED:

This work will be performed on a time and material basis.

COST:

Cost incurred under this AWD is not to exceed $27,000.00. Scope and budget changes for the modeling work will be included in a future Task Order No. 13, Levee Design and Design Support.

REASON FOR CHANGE(S):

To determine if any additional design is required to address contaminated soil on the project site.

ATTACHMENTS (List Supporting Documents):

None

It is understood that this Authority Work Directive will not change the Contract Price or Times, but is evidence that the parties expect a Contract Amendment to be subsequently issued reflecting the changes.

Recommended by: CH2M HILL
Program Management Consultant

Bruce Spiller, P.E.	Technical Services Manager
Name	Title
Signature	Date

Ordered by: Board of Authority
Owner

Darrell Vanyo	Board Chair
Name	Title
Signature	Date

Item 6a. (v)

METRO FLOOD DIVERSION PROJECT

AUTHORITY WORK DIRECTIVE AWD-00046 REV-0

MN EIS Support for Additional Information Request

		WORK TYPE:	OTHER CREDITABLE
TO:	Houston-Moore Group, LLC	DATE INITIATED:	4/10/2014
PROJECT:	Fargo-Moorhead Diversion Engineering Design		
OWNER:	Metro Flood Diversion Authority		

The following additions, deletions, or revisions to the Work have been ordered and authorized:

OBJECTIVE:

Provide additional technical support services to develop response to the Minnesota Department of Natural Resources (DNR) flow through town information request.

BACKGROUND:

DNR requested additional information on impacts to infrastructure and new infrastructure needed for Project Red River flow through town stage/flows greater than the current Project stage of 35-feet at the Fargo gage (equivalent to approximately 17,000 cfs).

SCOPE:

For Fargo ND, Moorhead MN, Cass County ND, and Clay County MN review existing infrastructure and document what impacts would occur and require mitigated if the Project Red River flow through town stage were increased from 35-feet to 37-feet at the Fargo gage. Include in the evaluation: pump dependency time, county road closures and isolated properties, protecting/maintaining sewer systems between 35-feet and 37-feet, number of basements impacted between 35-feet and 37-feet, and impacts to Cass and Clay Counties in rural areas. Determine the additional length of levees required for Project Red River flow through town stage of 37-feet at the Fargo gage. Determine what modifications are required for certification of existing levees for Project Red River flow through town stage of 37-feet at the Fargo gage.

DELIVERABLES:

Technical memorandum summarizing the impacts and mitigation for a Project Red River flow through town stage/flows greater than the current Project stage of 35-feet at the Fargo gage.

SCHEDULE:

Begin upon receipt of AWD.

HOW WORK IS PERFORMED:

This work will be performed on a time and material basis.

COST:

Cost incurred under this AWD is not to exceed $20,000.00. Scope and budget changes for the Work will be included in a future amendment to Task Order No. 8, Work in Kind (WIK).

REASON FOR CHANGE(S):

Additional information requested by DNR for MN EIS.

ATTACHMENTS (List Supporting Documents):

None

It is understood that this Authority Work Directive will not change the Contract Price or Times, but is evidence that the parties expect a Contract Amendment to be subsequently issued reflecting the changes.

Recommended by: CH2M HILL
Program Management Consultant

Bruce Spiller, P.E.	Technical Services Manager
Name	Title
Signature	Date

Ordered by: Board of Authority
Owner

Darrell Vanyo	Board Chair
Name	Title
Signature	Date

Work Change Directive

DECISION PAPER NO.: DP-00035

Date: 12/11/2014

RECOMMENDATION FOR BOARD ACTION:

Motion is made that the Diversion Authority Board approve a policy for ordering an addition, deletion, or revision in the Work for construction contracts via Work Change Directives (WCDs) on behalf of the Diversion Authority for up to $200,000 per WCD and a cumulative amount up to five (5) percent of the Contract Price and further that, in the absence of the chairman, the vice-chair shall also be so authorized.

SUMMARY OF DECISION TOPIC:

The Owner's Representative must manage construction project changes on a daily basis. Occasionally, changes in the Work are necessary to complete the project. The changes are recommended by Owner's Representative and ordered by the Owner via written and signed WCDs to Contractors.

WCD only orders the Work. A WCD must be incorporated into a Change Order which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, or other revision to the Contract, issued on or after the Effective Date of the Contract.

The decision which is required: Authorize the chairman of the Diversion Authority to order Contractors on behalf of the Diversion Authority to initiate additions, deletions, or revisions in the Work of up to $200,000 per WCD and a cumulative amount up to five (5) percent of the Contract Price.

This authority will better enable the Board to manage project changes between monthly Diversion Authority Board meetings.

EVALUATION OF KEY FACTORS FOR DECISION MAKING:

Significant issues related to this decision:

An efficient procedure to order Contract changes in a timely manner is required to allow for efficient day-to-day management of Diversion construction projects.

Advantages

Granting authorization for the Chairman to order an addition, deletion, or revision in the Work for up to $200,000 per WCD and a cumulative amount up to five (5) percent of the Contract Price allows for change management decisions to be executed in a timely manner between monthly Diversion Authority Board meetings without requiring a special Board meeting.

Disadvantages

No known disadvantages.

ATTACHMENT(S):

Sample WCD.

Submitted by:

Bruce J. Spiller, P.E.
CH2M HILL
Project Manager
Metro Flood Diversion Project

Date

Brian C. Berg, Clay County Administrator
Concur: _____ *Non-Concur:* _____

Michael J. Redlinger, Moorhead City Manager
Concur: _____ *Non-Concur* _____

Keith Berndt, Cass County Administrator
Concur: _____ *Non-Concur:* _____

April Walker, Fargo City Engineer
Concur: _____ *Non-Concur* _____

Mark Bittner, Fargo Director of Engineering
Concur: _____ *Non-Concur:* _____

Pat Zavoral, Fargo City Administrator
Concur: _____ *Non-Concur* _____

David Overbo, Clay County Engineer
Concur: _____ *Non-Concur:* _____

Robert Zimmerman, Moorhead City Engineer
Concur: _____ *Non-Concur* _____

Erik Johnson, Fargo City Attorney
Concur: _____ *Non-Concur:* _____

WORK CHANGE DIRECTIVE

TO CONTRACTOR: _____ WCD NO: _____

PROJECT: _____ PROJECT NO: _____

OWNER: _____

ENGINEER: _____

Description of Work:

Reason for Change(s):

Attachments (List Supporting Documents):

It is understood that this Work Change Directive will not change the Contract Price or Times, but is evidence that the parties expect a Change Order to be subsequently issued reflecting any changes.

Ordered By: _____ _____
Owner's Representative Date

Authorized By: _____ _____
Owner Date

Copy:
Owner
Engineer
PMC

Item 6a. (vii)

CH2M HILL
520 Main Avenue, Suite 601
Fargo ND 58103
Ph: (701) 566-5470

December 11, 2014

Metro Flood Diversion Authority
Attention: Darrell Vanyo, Chairman
211 9th Street South, Box 2806
Fargo, ND 58108

Subject: Recommendation of Award – Change Order No. 1 for Work Package 42A.2, 2nd Street North Pump Station

Dear Board Members:

CH2M HILL (Program Management Consultant) recommends the Metro Flood Diversion Authority award Change Order No. 1 (CO1) for Work Package 42A.2, 2nd Street North Pump Station. If approved, CO1 will increase the Contract Price by **$66,920.00** to a total contract value of **$8,135,920.00**. The purpose of the Change Order is to incorporate:

- A revised Traffic Control Plan providing concrete barriers and larger lane sizes that are more conducive to winter snow removal by the City of Fargo, and;
- An administrative correction to the Agreement that clarifies the Substantial Completion requirement to be November 30, 2015 in all paragraphs.

Installation of the revised Traffic Control Plan is complete after prior authorization under Work Change Directive 1, signed by the Owner on 11/14/14. CH2M HILL and HMG have reviewed the proposed price and find it acceptable.

Contact me at 208-771-1686 or tyler.smith@ch2m.com if you have any questions regarding this recommendation.

Sincerely,

Tyler Smith, P.E.
Construction Manager
CH2M HILL
Owner's Representative

c: Bruce Spiller/CH2M HILL
Keith Berndt/Cass County
Heather Worden/Cass County
Mark Bittner/City of Fargo
April Walker/City of Fargo
Gregg Thielman/HMG

Change Order No. 01

Date of Issuance:	12/11/2014	Effective Date:	11/14/2014
Owner:	Metro Flood Diversion Authority	Owner's Contract No.:	WP-42A.2
Owner's Representative:	CH2M HILL Engineers, Inc.	Owner's Representative Project No.:	435534
Contractor:	Industrial Builders, Inc.	Contractor's Project No.:	
Engineer:	Houston-Moore Group, LLC	Work Package No.:	WP-42A.2
Project:	Fargo-Moorhead Area Diversion	Contract Name:	2nd Street/Downtown – In-Town Levees, 2nd Street N Pump Station, Fargo ND

The Contract is modified as follows upon execution of this Change Order:

Description:

1. DRAWINGS – Incorporate revised Traffic Control Plan dated November 12, 2014 which provides 14-foot minimum (southbound) and 13-foot minimum (northbound) traffic lanes, 480 feet of additional concrete barriers, three crashworthy end sections, and deletes nearly all plastic drums. Revised Traffic Control Plan dated November 12, 2014 replaces awarded drawing C-002 in its entirety.

2. AGREEMENT – In paragraph 4.02.B replace:

   "The Work will be substantially completed on November 15, 2015…"

   With:

   "The Work will be substantially completed on November 30, 2015…"

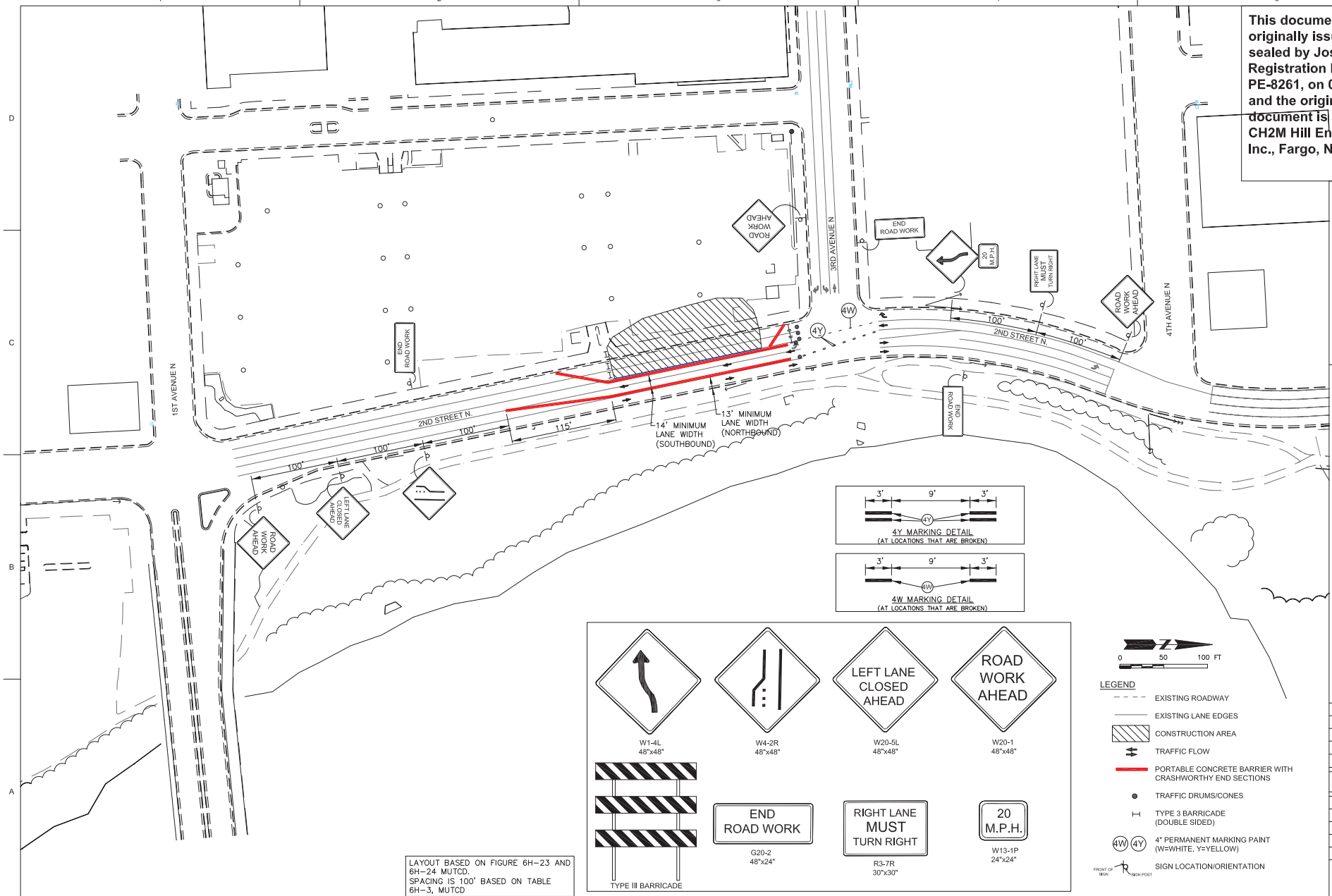
   So that it matches the Substantial Completion date shown in paragraph 4.02.A.2.

Attachments:

- 42A.2_Revised Traffic Control Plan_20141112.pdf

CHANGE IN CONTRACT PRICE	CHANGE IN CONTRACT TIMES *[note changes in Milestones if applicable]*
Original Contract Price: **8,069,000.00**	Original Contract Times: Substantial Completion: November 30, 2015 Ready for Final Payment: January 31, 2016 days or dates
[Increase] [Decrease] from previously approved Change Orders No. 00 : **0.00**	[Increase] [Decrease] from previously approved Change Orders No. 00: Substantial Completion: _____ Ready for Final Payment: _____ days or dates
Contract Price prior to this Change Order: **8,069,000.00**	Contract Times prior to this Change Order: Substantial Completion: November 30, 2015 Ready for Final Payment: January 31, 2016 days or dates
[Increase] ~~[Decrease]~~ of this Change Order: **66,920.00**	[Increase] [Decrease] of this Change Order: Substantial Completion: _____ Ready for Final Payment: _____ days or dates
Contract Price incorporating this Change Order: **8,135,920.00**	Contract Times with all approved Change Orders: Substantial Completion: November 30, 2015 Ready for Final Payment: January 31, 2016 days or dates

RECOMMENDED:	ACCEPTED:	ACCEPTED:
By: Tyler Lill	By:	By: Dan Hunt
Owner's Representative (Authorized Signature)	Owner (Authorized Signature)	Contractor (Authorized Signature)
Title: Construction Manager	Title:	Title: **Project Manager**
Date: 12/11/2014	Date:	Date: **12/9/2014**



LAYOUT BASED ON FIGURE 6H-23 AND 6H-24 MUTCD.
SPACING IS 100' BASED ON TABLE 6H-3, MUTCD

This document was originally issued and sealed by Josh N. Hinds, Registration No. PE-8261, on 08/25/14 and the original document is stored at CH2M Hill Engineering, Inc., Fargo, N.D.

HMG
HOUSTON - MOORE GROUP

2ND STREET/DOWNTOWN - IN-TOWN LEVEES
2ND STREET N PUMP STATION
FARGO, NORTH DAKOTA
WORK PACKAGE 42A.2
TRAFFIC CONTROL PLAN

DATE:	10/9/2014
REVISED:	
REVISED:	
REVISED:	
RECORD:	
FILE NAME:	C-002.DWG
PROJECT No.	226474-164
DRAWN BY:	RAC
CHECKED BY:	JNH
PROJ. MANAGER:	KTD
PROJ. ENGINEER:	JNH

C-002

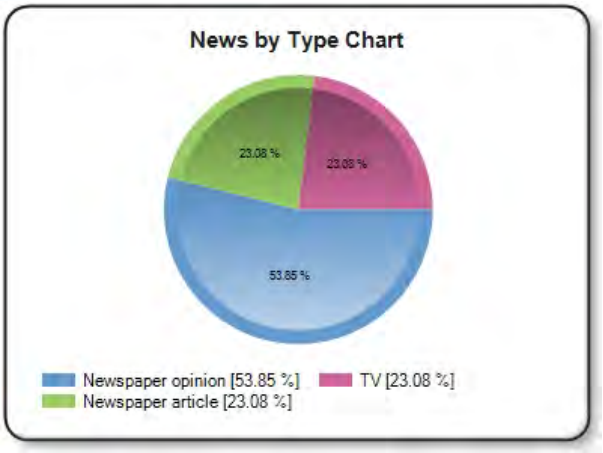
Public Outreach Committee Report
For Diversion Authority – Dec. 11, 2014

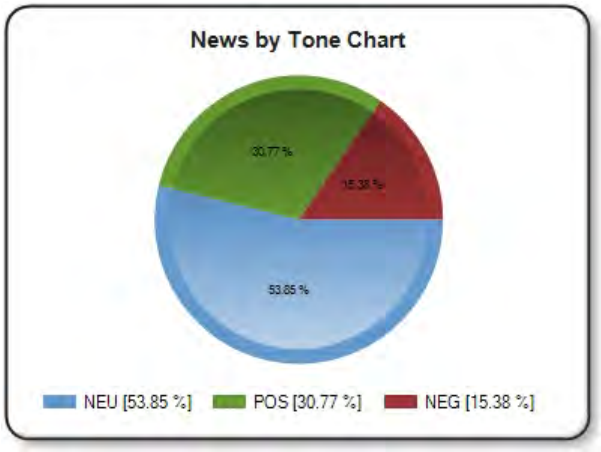
- Business Leaders Flood Taskforce
  - Representatives from the FM Area Association of Realtors, the Home Builders Association, and the Chamber attended and took part in the discussion of the Outreach Committee. In particular, the costs associated with flood insurance were of key concern.
  - The Taskforce has scheduled its next meeting for Dec. 16 with area ND legislators and has invited the Diversion Authority to present a Project Update.
- Governor Dalrymple's Budget Address
  - The committee reviewed the Governor's proposed budget, which included $69 million for the Diversion Project and reaffirmed the State's commitment to $450 million in total.
- Community Outreach
  - The Outreach Team hosted a booth at the North Dakota Water Convention. At the convention, Aaron Snyder with the Corps and Mark Brodshaug with CCJWRD gave a presentation to all attendees. In addition, Rodger Olson presented to the Red River Joint Board.
  - The Outreach Team will also be present at the RRBC Commission Conference in January in Winnipeg. A possible tour of their Diversion is being considered if interest is expressed.
  - Representatives from the Diversion Authority are available upon request to meet.
- E-Newsletter and FMDiversion.com
  - E-Newsletter Update: The newsletter publication list continues to grow and the click-through rate on the articles has been incredibly strong. In addition to members of the public who have signed up, the newsletter is distributed to legislators from both North Dakota and Minnesota.
  - FMDiversion.com continues to be a resource for a growing online population. The website hosts all Diversion meeting agendas, minutes, and supplemental information. The website also provides an opportunity for the public to ask questions about the Project and receive detailed answers in a timely manner.

Item 7a.

FM Diversion Media Tracking

November 18 – December 2, 2014





TOP STORIES

FEMA Basement Rule: The Forum published two articles that outlined how a new FEMA rule could impact the cost of building new homes in Fargo and how ND's Congressional delegation is urging FEMA to continue to allow Fargo to have basements in the floodplain.

Letters to the Editor: The Forum published an opinion column by Jim Shaw that encourages the ND Legislature to pass Rep. Al Carlson's proposed $275M bill for Fargo flood and drought protection. He cited high flood insurance costs and said the diversion may never happen. The Forum's Editorial Board published "Prairie Roses" about the flood control work completed on 40th Avenue South in Fargo. The Forum published a letter to the editor from former Sen. Tony Grindberg who mentioned flood protection and the F-M Diversion as some of his accomplishments while he was in office. The Forum also printed a letter to the editor by Tom Fieberger who suggests using North Dakota's Legacy Fund to pay for flood protection instead of relying on the federal government.

Defending Richland-Wilkin Counties: Trana Rogne wrote an anti-diversion column for the Daily News' opinion section. It focused on water retention. Another column referenced a TV news story about the 2nd Street dike project and Jim Shaw's Forum column which encouraged Fargo to get 100 year flood protection because the diversion may not happen.

Diversion Budget Vote: WDAY reported the Moorhead City Council approved the 2015 Diversion Authority Budget.

2nd St Floodwall: The Forum reported on Fargo City Commissioners' discussion of a potential bridge over the 2nd Street floodwall.

Darrell Vanyo retirement: KVRR and WDAY covered Darrell Vanyo's retirement from the Cass County Commission and plans to continue to serve on the Diversion Authority Board.

Land Management Summary

December 11, 2014

Acquisitions Completed Through November 30, 2014

Property Type	Complete	
	Properties	Acreage
Single-Family Residential	8	28
Subset: Medical Hardship	*5*	*27*
Agricultural	17	1,872
Commercial	--	--
Multi-Family Residential	--	--
Public	3	3
Other	--	--

Acquisition Budget Through November 30, 2014

Fiscal Year	No. Properties Acquired	Lands Budget ($000)	Lands Expenses ($000)	Remaining Budget ($000)
FY13	4	$28,000	$1,628	n/a
FY14	15	$37,700	$20,006	n/a
FY15	3	$101,700	$4,014	$97,686

Other News for month of October:

- The CH2M HILL / AE2S team has actively engaged with the residential property owners in Oxbow to present initial purchase offers and negotiate the replacement housing process.
- Six (6) homes are under construction in Oxbow
- Received approval from USACE on thirteen (13) residential, one (1) agricultural, and two (2) other appraisals.
- ProSource submitted six (6) appraisals for Oxbow and HMG submitted four (4) In-Town residential properties to USACE for review.
- Appraisals continue for properties for the Oxbow Ring Levee and for the In-Town Levee.
- CCJWRD recently authorized HMG to appraise six (6) additional properties as part of the Mickelson levee extension project. Four (4) of the properties will be full acquisition and two will require partial acquisition.
- Vacant lot appraisals in Oxbow reassigned to Ulteig in order to expedite completion
- Purchase and relocation negotiations are underway with Oxbow Country Club.
- 2 offers were presented to Oxbow area residents in November with 8 additional offers scheduled to be presented in early December.
- Purchases closed on one residential property In-Town.

Land Management Summary

December 11, 2014

Appraisals Complete or In Negotiation (sorted by closing date)

Street Address	USACE Orig ID No.	Type	Activity[1]	Land Acq Firm/ Appraiser	Est.Closing Date
748 Riverbend Rd	9591	Residential	Purchase Agreement Signed	ProSource/Hraba	June 30, 2015
752 Riverbend Road	9592	Residential	Purchase Agreement Signed	ProSource/Hraba	June 30, 2015
349 Schnell Drive	9664	Residential	Purchase Agreement Signed	ProSource/Hraba	June 30, 2015
353 Schnell Drive	9665	Residential	Purchase Agreement Signed	ProSource/Hraba	June 30, 2015
357 Schnell Drive	9666	Residential	Purchase Agreement Signed	ProSource/Hraba	June 30, 2015
361 Schnell Drive	9667	Residential	Purchase Agreement Signed	ProSource/Hraba	June 30, 2015
Agricultural property *49.5ac – S13, T137, R49*	1931, 1936	Agricultural	In Condemnation	Ulteig/Bock	
Agricultural property *45ac – S25, T138, R50*	1201	Agricultural	In Negotiation	Direct negotiations	
Agricultural property *214ac – S13, T137, R49; S14, T137, R49*	1930, 1940, 1941	Agricultural	In Negotiation	Ulteig/Bock	
Agricultural property *266ac – S23, T137, R49; S24, T137, R49*	1975, 1985	Agricultural	In Negotiation	Ulteig/Bock	
Agricultural property *140ac – S23, T137, R49; S24, T137, R49*	1979, 1987	Agricultural	In Negotiation	Ulteig/Bock	
Agricultural property *283ac – S24, T137, R49*	1986, 1988, tbd	Agricultural	In Negotiation	Ulteig/Bock	
17495 52nd St SE, Hickson	1989	Residential	In Negotiation	ProSource/Hraba	
5059 Makenzie Cir, Horace (owner of 3 other parcels)	2150, 9669, 9672	Residential	In Negotiation	ProSource/Hraba	
130 Oxbow Drive (9 parcels for golf course)	2313, 2354, 9631, 9632, 9633, 9652, 9653, 9764, 9766	Commercial	In Negotiation	Ulteig/Mueller	
1326 Elm Street, Fargo	9202	Residential	In Negotiation	HMG/Britton	
1333 Oak Street, Fargo	9204	Residential	In Negotations	HMG/Britton	
1341 Oak Street, Fargo	9205	Residential	In Negotations	HMG/Britton	
350 Schnell Drive	9649	Residential	In Negotiation	ProSource/Hraba	
329 Schnell Drive	9659	Residential	In Negotiation	ProSource/Hraba	
326 Schnell Drive	9641	Residential	In Negotiation	ProSource/Hraba	
328 Schnell Drive	9642	Residential	In Negotiation	ProSource/Hraba	

Land Management Summary

December 11, 2014

Street Address	USACE Orig ID No.	Type	Activity[1]	Land Acq Firm/ Appraiser	Est.Closing Date
330 Schnell Drive	9643	Vacant Lot	In Negotiation	ProSource/Hraba	
332 Schnell Drive	9644	Residential	In Negotiation	ProSource/Hraba	
334 Schnell Drive	9645	Residential	In Negotiation	ProSource/Hraba	
336 Schnell Drive	9646	Residential	In Negotiation	ProSource/Hraba	
Feder Realty Co.	9776	Commercial	In Negotiation	HMG/Britton	
City of Fargo - School District 1	9777	Commercial	In Negotiation	HMG/Britton	
Park East Apartments, LLC	9782	Commercial	In Negotiation	HMG/Britton	
BNSF	9259, 9779, 9780	Commercial	In Negotiation	HMG/Britton	
Agricultural property *157ac – S10, T141, R49; S10, T141, R49*	547, 548	Agricultural	Appraisal in Review	Ulteig/Bock	
1429 3rd Street N, Fargo	9209	Commercial	Appraisal in Review	HMG/Britton	
829 Riverbend Road	9505	Residential	Appraisal in Review	ProSource/Hraba	
338 Schnell Drive	9647	Residential	Appraisal in Review	ProSource/Hraba	
Northland Hospitality, LLC	9785	Commercial	Appraisal in Review	HMG/Britton	

[1] Activity sequence: 1) Appraisal in Review; 2) In Negotiation; 3) Purchase Agreement Signed

[2] PP-Purchase Price, includes relocation costs unless noted; AV-Appraised Value. Does NOT include outstanding special assessment or tax balances. Final amount paid will be based on the closing statements for each property.

Appraisals in Progress (sorted by Activity, then Original ID Number)

Street Address	USACE Orig ID No.	Type	Activity[1]	Land Acq Firm/ Appraiser
16678 3rd St S	1802	Residential	Appraisal Initiated	HMG/Britton
5302 174 ½ Ave SE	1898	Residential	Appraisal Initiated	HMG/Britton
18 North Terrace	9166	Residential	Appraisal Initiated	HMG/Britton
16 North Terrace	9167	Residential	Appraisal Initiated	HMG/Britton
12 North Terrace	9168	Residential	Appraisal Initiated	HMG/Britton
24 North Terrace	9195	Residential	Appraisal Initiated	HMG/Britton
26 North Terrace	9196	Residential	Appraisal Initiated	HMG/Britton
724 North River Road	9197	Residential	Appraisal Initiated	HMG/Britton
1318 Elm Street, Fargo	9200	Residential	Appraisal Initiated	HMG/Britton
1330 Elm Street, Fargo	9203	Residential	Appraisal Initiated	HMG/Britton

Land Management Summary

December 11, 2014

Street Address	USACE Orig ID No.	Type	Activity[1]	Land Acq Firm/ Appraiser
Professional Associates LLC	9213	Commercial	Appraisal Initiated	HMG/Britton
Mid America Steel	9215, 9216, 9217, 9218, 9783	Commercial	Appraisal Initiated	HMG/Britton
843 Riverbend Road	9502	Residential	Appraisal Initiated	ProSource/Hraba
839 Riverbend Road	9503	Residential	Appraisal Initiated	ProSource/Hraba
833 Riverbend Road	9504	Residential	Appraisal Initiated	ProSource/Hraba
817 Riverbend Road	9507	Residential	Appraisal Initiated	ProSource/Hraba
813 Riverbend Road	9508	Residential	Appraisal Initiated	ProSource/Hraba
809 Riverbend Road	9509	Vacant Lot	Appraisal Initiated	Ulteig/Bock
805 Riverbend Road	9510	Residential	Appraisal Initiated	ProSource/Hraba
749 Riverbend Road	9511	Residential	Appraisal Initiated	ProSource/Hraba
724 Riverbend Road	9587	Residential	Appraisal Initiated	ProSource/Hraba
808 Riverbend Road (2 parcels at this address)	9593, 9594	Residential	Appraisal Initiated	ProSource/Hraba
810 Riverbend Road	9595	Residential	Appraisal Initiated	ProSource/Hraba
816 Riverbend Road	9596	Residential	Appraisal Initiated	ProSource/Hraba
828 Riverbend Road	9599	Residential	Appraisal Initiated	ProSource/Hraba
840 Riverbend Road	9600	Residential	Appraisal Initiated	ProSource/Hraba
844 Riverbend Road	9601	Residential	Appraisal Initiated	ProSource/Hraba
848 Riverbend Road	9602	Residential	Appraisal Initiated	ProSource/Hraba
852 Riverbend Road (owner of 3 other parcels)	9603	Residential	Appraisal Initiated	ProSource/Hraba
856 Riverbend Road (owner at 852 Riverbend)	9604	Vacant Lot	Appraisal Initiated	Ulteig/Bock
860 Riverbend Road (owner at 852 Riverbend)	9605	Vacant Lot	Appraisal Initiated	Ulteig/Bock
864 Riverbend Road (owner at 852 Riverbend)	9606	Vacant Lot	Appraisal Initiated	Ulteig/Bock
872 Riverbend Road	9607	Vacant Lot	Appraisal Initiated	Ulteig/Bock
869 Riverbend Road	9608	Vacant Lot	Appraisal Initiated	Ulteig/Bock
873 Riverbend Road	9609	Vacant Lot	Appraisal Initiated	Ulteig/Bock
477 Oxbow Drive	9614	Vacant Lot	Appraisal Initiated	Ulteig/Bock
473 Oxbow Drive	9615	Vacant Lot	Appraisal Initiated	Ulteig/Bock
469 Oxbow Drive	9616	Vacant Lot	Appraisal Initiated	Ulteig/Bock

Land Management Summary

December 11, 2014

Street Address	USACE Orig ID No.	Type	Activity[1]	Land Acq Firm/ Appraiser
465 Oxbow Drive	9617	Vacant Lot	Appraisal Initiated	Ulteig/Bock
461 Oxbow Drive	9618	Vacant Lot	Appraisal Initiated	Ulteig/Bock
457 Oxbow Drive	9619	Vacant Lot	Appraisal Initiated	Ulteig/Bock
455 Oxbow Drive	9620	Vacant Lot	Appraisal Initiated	Ulteig/Bock
425 Oxbow Drive	9628	Vacant Lot	Appraisal Initiated	Ulteig/Bock
354 Schnell Drive	9650	Vacant Lot	Appraisal Initiated	Ulteig/Bock
358 Schnell Drive	9651	Vacant Lot	Appraisal Initiated	Ulteig/Bock
309 Schnell Drive (owner of 2 other parcels)	9654	Residential	Appraisal Initiated	ProSource/Hraba
313 Schnell Drive	9655	Residential	Appraisal Initiated	ProSource/Hraba
317 Schnell Drive	9656	Residential	Appraisal Initiated	ProSource/Hraba
321 Schnell Drive	9657	Residential	Appraisal Initiated	ProSource/Hraba
325 Schnell Drive	9658	Residential	Appraisal Initiated	ProSource/Hraba
337 Schnell Drive	9661	Residential	Appraisal Initiated	ProSource/Hraba
341 Schnell Drive	9662	Residential	Appraisal Initiated	ProSource/Hraba
365 Schnell Drive	9668	Vacant Lot	Appraisal Initiated	Ulteig/Bock
Rural address (owner at 5059 Makenzie?)	9670, 9671	Residential	Appraisal Initiated	Ulteig/Bock
City of Fargo	9768	Commercial	Appraisal Initiated	HMG/Britton
City of Fargo - Housing Authority	9769	Commercial	Appraisal Initiated	HMG/Britton
Case Plaza LLC	9770	Commercial	Appraisal Initiated	HMG/Britton
City of Fargo	9772	Commercial	Appraisal Initiated	HMG/Britton
821 Riverbend Road	9506	Residential	Owner notified	ProSource/Hraba

[1] Activity stages: 1) Owner notified; 2) Appraisal Initiated

Easements in Progress on Publicly Owned Parcels (sorted by Activity, then Original ID Number)

Street Address	USACE Orig ID No.	Type	Activity[1]
City of Fargo - Park District	9212. 9771, 9781, 9784	Commercial	Easement in Process
Oxbow Job Development Authority *Permanent easement*	9581	Residential	Easement Identified

[1] Activity stages: 1) Easement Identified; 2) Easement in Process; 3) Easement Secured

[2] These Publicly Owned Parcels have entered into a MOU with the DA, therefore not requiring the parcels go through the appraisal process.

CASS COUNTY
GOVERNMENT

Item 9b.

Auditor

Michael Montplaisir, CPA
701-241-5601

Treasurer

Charlotte Sandvik
701-241-5611

Director of Equalization

Frank Klein
701-241-5616

MEMO

TO: Flood Diversion Board of Authority

FROM: Michael Montplaisir
Cass County Auditor

DATE: December 11, 2014

SUBJECT: U.S. Bank Loan – Draw Request No. 3

==========

At their meeting yesterday, the Finance Committee approved an additional draw request of $25 million from the U.S. Bank Loan.

The recommendation today is for the Diversion Authority to also approve this request in order to continue to pay the monthly project expenses.

SUGGESTED MOTION
Move to approve Draw Request No. 3 for $25 million from the U.S. Bank Loan for Flood Diversion Authority expenses.

Box 2806
211 Ninth Street South
Fargo, North Dakota 58103

Fax 701-241-5728

www.casscountynd.gov

Finance Committee Bills for December 2014

Item 9b.

Dorsey & Whitney LLP	Legal services through October 31, 2014	$79,119.04
Erik R. Johnson & Associates, LTD	Metro Flood Project - LEERDS through Nov 25	$9,605.00
Erik R. Johnson & Associates, LTD	Metro Flood Project - General through Nov 25	$5,345.83
Total Bills Received in November		**$94,069.87**

DORSEY
DORSEY & WHITNEY LLP

MINNEAPOLIS OFFICE
612-340-2600

(Tax Identification No. 41-0223337)

STATEMENT OF ACCOUNT FOR PROFESSIONAL SERVICES

Fargo-Moorhead Flood Diversion Bd of Authority
c/o Erik R. Johnson & Associates, Ltd.
Attn: Erik Johnson
505 Broadway, Suite 206
Fargo, ND 58102

November 18, 2014
Invoice No. 1981537

BY DATE 11-20-14

Client-Matter No.: 491379-00001
Red River Diversion Project

For Legal Services Rendered Through October 31, 2014

INVOICE TOTAL

Total For Current Legal Fees	$78,986.00
Total For Current Disbursements and Service Charges	$133.04
Total For Current Invoice	**$79,119.04**
Summary of Account	
*Prior Balance Due	~~$80,990.13~~ PD 11/19/14
Total Amount Due	$160,109.17

*If payment has been submitted for prior balance due, please disregard.

For your convenience, please remit payment to the address below or we offer the option of remitting payment electronically by wire transfer. If you have any questions regarding this information, please contact the lawyer you are working with on this project or Dorsey's Accounts Receivable Department at 1-800-861-0760. Thank you.

Mailing Instructions:
Dorsey & Whitney LLP
P.O. Box 1680
Minneapolis, MN 55480-1680

Wire Instructions:
U.S. Bank National Association
800 Nicollet Mall
Minneapolis, MN 55402

ABA Routing Number: 091000022
Account Number: 1602-3010-8500
Swift Code: USBKUS44IMT

Please make reference to the invoice number

Service charges are based on rates established by Dorsey & Whitney. A schedule of those rates has been provided and is available upon request. Disbursements and service charges, which either have not been received or processed, will appear on a later statement.

ALL INVOICES ARE DUE 30 DAYS FROM DATE OF INVOICE UNLESS OTHERWISE EXPRESSLY AGREED BY DORSEY & WHITNEY

03053

CITY OF Fargo

Office of the City Attorney

City Attorney
Erik R. Johnson

Assistant City Attorneys
Nancy J. Morris
Jason T. Loos

December 1, 2014

Kent Costin
Finance Director
City of Fargo
200 North Third Street
Fargo, ND 58102

Re: Red River Diversion Project

Dear Kent:

I am enclosing a Summary Invoice dated November 18, 2014 from the Dorsey & Whitney Firm in Minneapolis for their professional services rendered through October 31, 2014 on the Red River Diversion Project. If you have any questions, please feel free to contact me. Please remit payment directly to Dorsey Whitney.

Sincerely,

Erik R. Johnson

ERJ/jmf
Enclosure
cc: Pat Zavoral

Erik R. Johnson & Associates, Ltd
Attorneys at Law
Erik R. Johnson - Nancy J. Morris - Jason T. Loos
505 Broadway - Suite 206
Fargo, ND 58102
(701) 280-1901

Invoice #
2192-

Invoice

Date	11/25/2014

City of Fargo -- Auditor's Office
Attn: Kent Costin
200 North 3rd Street
Fargo, ND 58102

Description	Qty	Rate	Amount
Metro Flood Project -- LEERDS:	28	195.50	5,474.00
Erik Johnson: Oct 26 thru Nov 25, 2014-itemization enclosed			
Nancy J Morris: Oct 26 thru Nov 25, 2014-itemization enclosed	24.3	170.00	4,131.00

We appreciate your business.

TOTAL: $9,605.00

November 25, 2014

Client: City of Fargo
Job: Metro Flood - LEERDS

Atty	DATE	DESCRIPTION	TIME
E	10/27/2014	Telephone conference with Pat Zavoral and conference with Pat Zavoral and Nancy re: school district	0.4
E	10/29/2014	Conference with Joe Turman, Jim Nyhof re: real estate transactions in general	1.5
E	11/3/2014	Communication and preparation for meeting with staff re: acquisitions; prepare agenda	0.50
E	11/3/2014	Draft Oxbow Country Club contract	1.40
E	11/4/2014	Continue drafting Oxbow Country Club agreement	0.40
E	11/4/2014	Staff discussion re: acquisition issues	3.30
E	11/5/2014	Conference with Bruce	0.70
E	11/9/2014	Draft Oxbow Country Club contract	1.60
E	11/10/2014	Work on revised agreement with Oxbow Country Club	1.00
E	11/10/2014	Meeting with Bruce and Keith and revise agreement; telephone conference with Lukas Andrud re: Oxbow Country Club	1.00
E	11/12/2014	Communication with Spiller; telephone conference with David Hauff	0.60
E	11/12/2014	Conference with Spiller re: Oxbow Country club agreement	0.60
E	11/13/2014	Email and communication with David Hauff	0.40
E	11/17/2014	Revise Oxbow CC agreement and purchase agreement	1.50
E	11/18/2014	Conference with Spiller and revise Oxbow County Club agreement; telephone conference with Hauff and circulate emails	3.00
E	11/19/2014	Telephone conference with Bruce; telephone conference with David Hauff; conference with Sean and Bruce	1.40
E	11/20/2014	Telephone conference with David Hauff and email with Bruce re: Oxbow	0.30
E	11/21/2014	Confer with Bruce Spiller; call with David Hauff; telephone conference with Bruce; make revisions to Master Agreement	1.10
E	11/21/2014	Work on Oxbow Country Club agreement	1.10
E	11/21/2014	Telephone conference with Spiller re: Oxbow CC	0.20
E	11/22/2014	Revise Oxbow CC agreement and purchase agreement	3.20
E	11/23/2014	Draft collateral real estate mortgage and circulate email	2.80
		Total Time - ERJ	28
		Hourly Rate $	195.50
		Total Fees - ERJ $	5474.00
N	10/27/2014	Fargo Public Schools correspondence re: ROE & structural; conference re: taking; meeting w/ Mike Williams	1.2
N	10/28/2014	Phone call w/ Eric Dodds, review file & correspond re: Dike East Easement descriptions; Phone call w/ Doug Nelson re: setback; review ordinance; Review Bid docs for Bid opening & discuss; Research statute re: rejected bid; correspond w/ Ty Smith; Fargo Public Schools discussion w/ Mike Williams & Erik	2.8
N	10/29/2014	Correspondence re: El Zagal Temple docs	0.2
N	10/30/2014	Correspondence re: utility easements for Fargo Park District & additional easements	0.6

November 25, 2014

Client: City of Fargo

Job: Metro Flood - LEERDS

Atty	DATE	DESCRIPTION	TIME
N	10/31/2014	Park District Easement status	0.2
N	11/3/2014	Land acquisition call; Utility relocation correspondence & Park District easements; appraisal review	2.2
N	11/4/2014	Land acquisition meeting	3
N	11/5/2014	Correspondence re: Responsible bidder	1
N	11/6/2014	Administrative Advisory meeting; Land Acquisition; Responsible bidder investigation review; appraisal review	3.3
N	11/7/2014	Correspondence re: Responsible bidder; Correspondence re: Utility Relocation easements	1.4
N	11/12/2014	Valuation question, responsible bidder; Appraisal status & acquisition correspondence	3
N	11/13/2014	Revise Park District easements; general land phone calls w/ Greg Selbo & Gregg at Houston Engineering	1
N	11/14/2014	Park District Easement drafts	1
N	11/17/2014	Land call	1
N	11/20/2014	License Agreement correspondence; Appraisal review	0.7
N	11/24/2014	Review appraisal	0.4
N	11/25/2014	Fargo Public Schools testing; 2nd Street Dike easement; Phone call w/ Nathan & correspond	1.3

Total Time		24.30
Hourly Rate	$	170.00
Total Fees - NJM	$	4131.00

Erik R. Johnson & Associates, Ltd
Attorneys at Law
Erik R. Johnson - Nancy J. Morris - Jason T. Loos
505 Broadway - Suite 206
Fargo, ND 58102
(701) 280-1901

Invoice #
2193-

Invoice

Date	11/25/2014

City of Fargo -- Auditor's Office
Attn: Kent Costin
200 North 3rd Street
Fargo, ND 58102

Description	Qty	Rate	Amount
Metro Flood Project -- General Legal matters:	16.6	195.50	3,245.30
Erik Johnson: Oct 26 thru Nov 25, 2014-itemization enclosed			
Nancy J Morris: Oct 26 thru Nov 25, 2014-itemization enclosed	9.7	169.23	1,641.53
Jason T Loos: Oct 26 thru Nov 25, 2014-itemization enclosed	3	153.00	459.00

We appreciate your business.

TOTAL: $5,345.83

November 25, 2014

Client: City of Fargo

Job: Metro Flood - General Legal

Atty	DATE	DESCRIPTION	TIME
E	11/3/2014	Correspondence and communication	0.30
E	11/4/2014	Communication - P3 conference call	1.50
E	11/5/2014	Miscellaneous communication	0.60
E	11/6/2014	Administrative Advisory meeting	1.00
E	11/6/2014	Telephone conference with Pat Zavoral; telephone conference with Drysdale	0.40
E	11/7/2014	Conference cal with Cattanach, et al.	1.20
E	11/12/2014	Conference with Tietz, Martin, Pat Zavoral	0.90
E	11/13/2014	Attend Diversion Board of Authority meeting	1.70
E	11/14/2014	Conference call with staff and Drysdale	1.00
E	11/14/2014	Communication re: P3 and other matters	0.40
E	11/15/2014	Email to Rocky and to Sean and to April	0.30
E	11/17/2014	Conference with Pat Zavoral, Kent costin, April Walker, T.M., Jamie Bullock and follow up	1.40
E	11/17/2014	Prepare for staff lawyer meeting	1.00
E	11/17/2014	Meeting with Nancy Morris and Jason re: SWC cost share matters	1.50
E	11/18/2014	P3 conferenece call	1.30
E	11/18/2014	P3 and conference with Tietz and then Zavoral	1.00
E	11/20/2014	Administrative Advisory meeting	1.10
		Total Time - ERJ	16.60
		Hourly Rate - ERJ $	195.50
		Total Fees - ERJ $	3245.30
N	11/7/2014	General legal discussions	1
N	11/13/2014	Land Management & Diversion Authority meetings	3
N	11/14/2014		1.2
N	11/15/2014	Correspondence re: lobby	0.2
N	11/17/2014	SWC Discussion	1.4
N	11/18/2014	Review memo & correspondence re: project status & costs	0.8
N	11/20/2014	SWC invoice discussion	0.2
N	11/24/2014	SWC conference; SWC research	1.9
		Total Time - NJM	9.70
		Hourly Rate - NJM $	170.00
		Total Fees - NJM $	1649.00
JL	11/17/2014	Meet with Erik and Nancy to strategize re: State Water Fund disbursement	1.5
JL	11/22/2014	Draft MOU, research/review	0.7
JL	11/24/2014	Meeting on reimbursement issues	0.8

November 25, 2014

Client: City of Fargo

Job: Metro Flood - General Legal

Atty	DATE	DESCRIPTION	TIME
		Total Time - JTL	3.00
		Hourly Rate - JTL	$ 153.00
		Total Fees - JTL	$ 459.00

FM Diversion Authority
Fiscal Accountability Report Design Phase (Fund 790)
As of 11/30/2014

	2011	2012	2013	2014	Cumulative Totals
Revenues					
City of Fargo	443,138	7,652,681	7,072,961	16,649,565	31,818,345
Cass County	443,138	7,652,681	7,072,961	16,649,565	31,818,345
State Water Commission	-	-	3,782,215	(86,974)	3,695,241
Other Agencies	98,475	1,700,595	1,571,769	3,699,903	7,070,743
Lease/Rental Payments	-	-	17,358	149,809	167,167
Asset Sales	-	-	-	616,774	616,774
Miscellaneous	-	-	1,705	626	2,331
Total Revenues	**984,750**	**17,005,957**	**19,518,970**	**37,679,268**	**75,188,945**
Expenditures					
7905 Army Corp Payments	-	-	875,000	1,050,000	1,925,000
7910 WIK - Administration	107,301	331,321	77,614	137,114	653,350
7915 WIK - Project Design	149,632	5,366,147	3,220,859	7,473,927	16,210,565
7920 WIK - Project Management	679,037	7,223,650	4,695,477	3,001,350	15,599,515
7925 WIK - Recreation	-	163,223	-	-	163,223
7930 LERRDS - North Dakota	48,664	3,843,620	2,763,404	15,098,598	21,754,286
7931 LERRDS - Minnesota	-	27,996	289,387	12,207	329,589
7940 WIK Mitigation - North Dakota	-	-	-	587,180	587,180
7941 WIK Mitigation - Minnesota	-		-	-	-
7950 Construction - North Dakota	-	-	-	216,169	216,169
7951 Construction - Minnesota	-	-	-	-	-
7952 Construction - O/H/B	-	-	-	10,295,919	10,295,919
7955 Construction Management	-	-	-	402,718	402,718
7990 Project Financing	-	50,000	70,000	216,376	336,376
7995 Project Eligible - Off Formula Costs	-	-	-	-	-
7999 Non Federal Participating Costs	116	-	-	-	116
0000 Advance to City of Oxbow	-	-	7,527,231	630	7,527,861
Total Expenditures	**984,750**	**17,005,957**	**19,518,970**	**38,492,188**	**76,001,865**

FM Diversion Authority
FY 2015 Summary Budget Report (In Thousands)
November, 2014

	FY 2015 Approved Budget	Current Month	Fiscal Year To Date	% Expended	Outstanding Encumbrances	Remaining Budget Balance
Revenue Sources						
City of Fargo	53,145	1,586	3,747			49,398
Cass County	53,145	1,586	3,747			49,398
State of ND - 50% Match	57,200	1,206	2,233			54,967
State of ND - 100% Match	35,800	-	364			35,436
State of Minnesota	-	-	-			-
Other Agencies	11,810	352	833			10,977
Financing Proceeds	-	-	-			-
Sale of Assets	-	-	-			-
Property Income	-	5	8			(8)
Miscellaneous	-	-	-			-
Total Revenue Sources	**211,100**	**4,737**	**10,931**			**200,169**
Funds Appropriated						
Army Corp Local Share	-	-	-		525	(525)
Management Oversight	7,200	706	1,098	15%	3,593	2,509
Technical Activities	11,600	489	1,424	12%	5,617	4,559
Land Acquisitions	101,700	1,408	4,014	4%	1,596	96,090
Construction	90,300	2,382	4,557	5%	28,717	57,026
Mitigation	-	-	-		-	-
Other Costs	300	33	115	38%	-	185
Total Appropriations	**211,100**	**5,018**	**11,208**	**5%**	**40,049**	**159,843**

FM Diversion Authority
Summary of Cash Disbursements
November 2014

Account Number	Check Date	Check Number	Vendor Name	Transaction Amount	Description 1	Project Number	Project Description
790-7910-429.33-20	11/30/2014	JB11140023	CITY OF FARGO	$ 540.00	FISCAL SERVICES	V00102	General & Admin. WIK
			Total WIK - General & Admin. - Accounting Services	**540.00**			
790-7910-429.33-25	11/19/2014	253878	ERIK R JOHNSON & ASSOCIATES	8,648.03	METRO FLOOD PROJ-GEN INT	V00102	General & Admin. WIK
	11/19/2014	253878	ERIK R JOHNSON & ASSOCIATES	3,852.20	METRO FLOOD PROJ-GEN INT	V00102	General & Admin. WIK
			Total WIK - General & Admin. - Legal Services	**12,500.23**			
790-7915-429.33-05	11/13/2014	253761	OXBOW, CITY OF	5,809.40	OHB LEVEE PROJ	V02401	OXBOW MOU-PROJ MGMT ADMIN
	11/13/2014	253761	OXBOW, CITY OF	2,505.50	OHB LEVEE PROJECT	V02402	OXBOW MOU-PRELIM ENGINRNG
	11/13/2014	253684	HOUSTON-MOORE GROUP LLC	1,076.36	AUG 2014	V01607	RECREATION/USE MASTER PLN
	11/13/2014	253684	HOUSTON-MOORE GROUP LLC	27,145.15	AUG 2014	V01608	WORK-IN-KIND (WIK)
	11/13/2014	253684	HOUSTON-MOORE GROUP LLC	75,711.33	AUG 2014	V01609	HYDROLOGY/HYDRAULIC MODEL
	11/13/2014	253684	HOUSTON-MOORE GROUP LLC	280,021.59	AUG 2014	V01613	LEVEE DESIGN & SUPPORT
	11/13/2014	253684	HOUSTON-MOORE GROUP LLC	7,829.50	AUG 2014	V01614	TRANS/DRAINAGE MASTER PLN
	11/13/2014	253684	HOUSTON-MOORE GROUP LLC	39,179.50	AUG 2014	V01615	DRAFT OPERATIONS PLAN
	11/13/2014	253684	HOUSTON-MOORE GROUP LLC	11,779.00	AUG 2014	V01616	PERMIT SUBMITTAL PREP
	11/19/2014	253994	URS CORPORATION	37,814.07	9/13-10/17/14	V01003	CULTURAL RESOURCES INVEST
			Total WIK - Project Design - Engineering Services	**488,871.40**			
790-7920-429.33-05	11/13/2014	253684	HOUSTON-MOORE GROUP LLC	64,753.34	AUG 2014	V01601	HMG - PROJECT MANAGEMENT
			Total WIK Construction Mgmt. - Engineering Services	**64,753.34**			
790-7920-429.33-79	11/19/2014	253865	CH2M HILL ENGINEERS INC	31,000.00	NOV 2014	V00205	CH2M Hill-8.30.14-2.27.15
	11/19/2014	254004	CH2M HILL ENGINEERS INC	279,000.00	NOV 2014	V00205	CH2M Hill-8.30.14-2.27.15
			Total WIK Construction Mgmt. - Construction Management	**310,000.00**			
790-7930-429.33-05	11/19/2014	253863	CASS COUNTY JOINT WATER RESOURCE DI	133,425.92	FM AREA DIVERSION	V01201	Cass Joint Water ROE
	11/19/2014	253863	CASS COUNTY JOINT WATER RESOURCE DI	45,180.90	FM AREA DIVERSION	V01202	Cass Joint Water DPAC
	11/19/2014	253863	CASS COUNTY JOINT WATER RESOURCE DI	121,995.56	FM AREA DIVERSION	V01203	Cass Joint Water OHB
	11/19/2014	253863	CASS COUNTY JOINT WATER RESOURCE DI	469,747.10	FM AREA DIVERSION	V01204	Cass Joint Water In-Town
	11/13/2014	253684	HOUSTON-MOORE GROUP LLC	699.00	AUG 2014	V01602	CR-31 BRIDGE DESIGN
	11/13/2014	253684	HOUSTON-MOORE GROUP LLC	296.50	AUG 2014	V01604	CR-32 & CR-22 BRIDGE DSGN
	11/13/2014	253684	HOUSTON-MOORE GROUP LLC	1,062.50	AUG 2014	V01604	CR-32 & CR-22 BRIDGE DSGN
	11/13/2014	253684	HOUSTON-MOORE GROUP LLC	1,057.00	AUG 2014	V01606	LAND MANAGEMENT SERVICES
	11/13/2014	253684	HOUSTON-MOORE GROUP LLC	2,381.58	AUG 2014	V01611	REACH 6 & CR20 BRIDGE
			Total LERRDS - North Dakota - Engineering Services	**775,846.06**			
790-7930-429.33-06	11/19/2014	253863	CASS COUNTY JOINT WATER RESOURCE DI	800.00	FM AREA DIVERSION	V01701	ND LAND PURCH-OUT OF TOWN
			Total LERRDS - North Dakota - Quality Testing	**800.00**			

FM Diversion Authority
Summary of Cash Disbursements
November 2014

Account Number	Check Date	Check Number	Vendor Name	Transaction Amount	Description 1	Project Number	Project Description
790-7930-429.33-25	11/19/2014	253875	DORSEY & WHITNEY LLP	80,990.13	SVCS THROUGH 9/30/14	V00101	Dorsey Whitney Legal
	11/19/2014	253863	CASS COUNTY JOINT WATER RESOURCE DI	67,127.74	FM AREA DIVERSION	V01201	Cass Joint Water ROE
	11/19/2014	253863	CASS COUNTY JOINT WATER RESOURCE DI	6,170.14	FM AREA DIVERSION	V01202	Cass Joint Water DPAC
	11/19/2014	253863	CASS COUNTY JOINT WATER RESOURCE DI	14,033.82	FM AREA DIVERSION	V01203	Cass Joint Water OHB
	11/19/2014	253878	ERIK R JOHNSON & ASSOCIATES	8,795.80	METRO FLOOD PROJ-LEERDS	V00103	General & Admin. LERRDS
	11/19/2014	253878	ERIK R JOHNSON & ASSOCIATES	7,762.15	METRO FLOOD PROJ-LEERDS	V00103	General & Admin. LERRDS
			Total LERRDS - North Dakota - Legal Services	**184,879.78**			
790-7930-429.33-79	11/19/2014	253863	CASS COUNTY JOINT WATER RESOURCE DI	127,091.44	FM AREA DIVERSION	V01201	Cass Joint Water ROE
			Total LERRDS - North Dakota - Construction Management	**127,091.44**			
790-7930-429.38-99	11/19/2014	253863	CASS COUNTY JOINT WATER RESOURCE DI	6,982.43	FM AREA DIVERSION	V01703	ND LAND PURCH - IN TOWN
			Total LERRDS - North Dakota - Other Services	**6,982.43**			
790-7930-429.62-51	11/19/2014	253863	CASS COUNTY JOINT WATER RESOURCE DI	84.96	FM AREA DIVERSION	V01701	ND LAND PURCH-OUT OF TOWN
			Total LERRDS - North Dakota - Electricity	**84.96**			
790-7930-429.71-30	11/19/2014	253863	CASS COUNTY JOINT WATER RESOURCE DI	312,130.00	FM AREA DIVERSION	V01701	ND LAND PURCH-OUT OF TOWN
			Total LERRDS - North Dakota - Land Purchases	**312,130.00**			
790-7931-429.34-65	11/19/2014	253962	OHNSTAD TWICHELL PC	635.50	PROF SERVICES	V01301	City of Moorhead ROE
			Total LERRDS - Minnesota - Right of Entry Requests	**635.50**			
790-7950-429.73-70	11/19/2014	253877	ENVENTIS	115,685.62	FIBER OPTIC RELOCATION	V03001	FIBER RELOCATION-WP-42A.2
	11/19/2014	254003	702 COMMUNICATIONS	100,483.18	BORING	V03101	FIBER OPTIC RELOCATE-WP42
			Total ND Construction - Utilities	**216,168.80**			
790-7952-429.73-52	11/19/2014	253863	CASS COUNTY JOINT WATER RESOURCE DI	2,130,414.21	CCJWRD CONT W/RILEY BROS	V01203	Cass Joint Water OHB
			Total O/H/B Construction - Flood Control	**2,130,414.21**			
790-7952-429.73-70	11/19/2014	253863	CASS COUNTY JOINT WATER RESOURCE DI	35,262.65	FM AREA DIVERSION	V01203	Cass Joint Water OHB
			Total O/H/B Construction - Utilities	**35,262.65**			
790-7955-429.33-05	11/19/2014	253863	CASS COUNTY JOINT WATER RESOURCE DI	32,138.05	FM AREA DIVERSION	V01203	Cass Joint Water OHB
			Total Construction Management - Engineering Services	**32,138.05**			
790-7955-429.33-06	11/19/2014	253863	CASS COUNTY JOINT WATER RESOURCE DI	30,579.54	FM AREA DIVERSION	V01203	Cass Joint Water OHB
			Total Construction Management - Quality Testing	**30,579.54**			

FM Diversion Authority
Summary of Cash Disbursements
November 2014

Account Number	Check Date	Check Number	Vendor Name	Transaction Amount	Description 1	Project Number	Project Description
790-7955-429.33-79	11/19/2014	253863	CASS COUNTY JOINT WATER RESOURCE DI	255,000.00	FM AREA DIVERSION	V01203	Cass Joint Water OHB
Total Construction Management - Construction Management				**255,000.00**			
790-7990-520.80-30	11/4/2014	JB11140001	US BANK	33,297.09	US BANK LOAN FEE	V02901	$50M CASS US BANK ADVANCE
Total Project Financing - Fiscal Agent Fees				**33,297.09**			
Total Disbursed for Period				**$ 5,017,975.48**			

FM Diversion Authority
Cumulative Vendor Payments Since Inception
As of November 30, 2014

Vendor Name	Approved Contract/Invoice Amount	Liquidated	Outstanding Encumbrance	Purpose
HOUSTON-MOORE GROUP LLC	23,440,077.45	16,066,428.25	7,373,649.20	Engineering Services
CASS COUNTY JOINT WATER RESOUR	17,429,700.14	16,738,455.12	691,245.02	Land Purchases, O/H/B Ring Levee, DPAC, & ROE
INDUSTRIAL CONTRACT SERVICES I	17,361,616.35	-	17,361,616.35	4th St Pump Station and 2nd Street Floodwall
CH2M HILL ENGINEERS INC	14,140,819.01	13,210,819.01	930,000.00	Project Management
OXBOW, CITY OF	13,594,417.34	10,389,991.09	3,204,426.25	City of Oxbow - MOU
INDUSTRIAL BUILDERS INC	8,069,000.00	-	8,069,000.00	2nd St North Pump Station Project
COMMERCIAL TITLE LLC	3,869,541.00	3,869,541.00	-	Oxbow MOU - Advance for Land Purchase
TITLE COMPANY	3,641,500.00	3,641,500.00	-	Oxbow MOU - Advance for Land Purchase
ARMY CORP OF ENGINEERS	2,450,000.00	1,925,000.00	525,000.00	Local Share
MINNESOTA DNR	2,188,007.43	1,292,414.71	895,592.72	EIS Scoping
KENNELLY & OKEEFFE	1,729,310.56	1,729,310.56	-	Home Buyouts
URS CORPORATION	1,501,488.42	986,568.44	514,919.98	Engineering Services
DORSEY & WHITNEY LLP	1,480,591.85	1,480,591.85	-	Legal Services
MOORE ENGINEERING INC	662,468.17	662,468.17	-	Engineering Services
DUCKS UNLIMITED	587,180.00	587,180.00	-	Wetland Mitigation Credits
HOUSTON ENGINEERING INC	576,669.57	576,669.57	-	Engineering Services
RED RIVER BASIN COMMISSION	500,000.00	447,747.40	52,252.60	Engineering Services
NORTHERN TITLE CO	484,016.00	484,016.00	-	Land Purchases
CITY OF FARGO	285,671.66	285,671.66	-	Digital Imagery Project & Accounting Services
ERIK R JOHNSON & ASSOCIATES	224,634.28	224,634.28	-	Legal Services
ROBERT TRENT JONES	200,000.00	200,000.00	-	Oxbow MOU - Golf Course Consulting Agreement
CASS COUNTY TREASURER	182,125.46	182,125.46	-	Property Tax
US GEOLOGICAL SURVEY	151,520.00	46,920.00	104,600.00	Stage Gages & Water Level Discharge Collection
PFM PUBLIC FINANCIAL MANAGEMEN	146,460.00	146,460.00	-	Financial Advisor
ENVENTIS	115,685.62	115,685.62	-	Utility Relocation
702 COMMUNICATIONS	100,483.18	100,483.18	-	Utility Relocation
PROSOURCE TECHNOLOGIES, INC	100,000.00	8,324.94	91,675.06	Engineering Services
ULTEIG ENGINEERS INC	100,000.00	-	100,000.00	Engineering Services
BRAUN INTERTEC CORP	90,210.00	77,629.00	12,581.00	Quality Testing
EL ZAGAL TEMPLE HOLDING CO	68,040.72	68,040.72	-	Easement Purchase for El Zagal Levee
GRAY PANNELL & WOODWARD LLP	66,300.68	66,300.68	-	Legal Services
NDSU BUSINESS OFFICE-BOX 6050	64,495.00	-	64,495.00	Ag Risk Study Services
OHNSTAD TWICHELL PC	60,309.16	59,448.16	861.00	ROE and Bonding Legal Fees
US BANK	59,020.65	59,020.65	-	Loan Advance Debt Service Payments
IN SITU ENGINEERING	54,800.00	47,973.00	6,827.00	Quality Testing
ADVANCED ENGINEERING INC	50,000.00	50,000.00	-	Public Outreach
TERRACON CONSULTING ENGINEERS	50,000.00	-	50,000.00	Materials Testing
GEOKON INC	33,815.36	33,815.36	-	Vibrating Wire Piezometer Equipment
COLDWELL BANKER	33,066.02	33,066.02	-	Property Management Services
NIXON PEABODY LLC	30,000.00	30,000.00	-	Legal Services

FM Diversion Authority
Cumulative Vendor Payments Since Inception
As of November 30, 2014

Vendor Name	Approved Contract/Invoice Amount	Liquidated	Outstanding Encumbrance	Purpose
INNOVATIVE ABSTRACT & TITLE CO	15,921.53	15,921.53	-	Oxbow MOU - Advance for Land Purchase
MOORHEAD, CITY OF	15,062.90	15,062.90	-	ROE Legal Fees
WARNER & CO	14,925.00	14,925.00	-	General Liability Insurance
BRIGGS & MORGAN PA	12,727.56	12,727.56	-	Legal Services
MCKINZIE METRO APPRAISAL	3,200.00	3,200.00	-	Appraisal Services
FORUM COMMUNICATIONS (LEGALS)	2,224.20	2,224.20	-	Advertising Services
DAWSON INSURANCE AGENCY	1,867.81	1,867.81	-	Property Insurance - Home Buyouts
FORUM COMMUNICATIONS (ADVERT)	1,743.77	1,743.77	-	Advertising Services
CLAY COUNTY AUDITOR	1,550.00	1,550.00	-	Property Tax
SEIGEL COMMUNICATIONS SERVICE	1,490.00	1,490.00	-	Public Outreach
RED RIVER TITLE SERVICES INC	1,305.00	1,305.00	-	Abstract Updates
HUBER, STEVE	1,056.43	1,056.43	-	Home Buyouts
NORTH DAKOTA TELEPHONE CO	1,038.80	1,038.80	-	Communication
TRIO ENVIRONMENTAL CONSULTING	747.60	747.60	-	Asbestos and LBP Testing - Home Buyouts
RED RIVER VALLEY COOPERATIVE A	536.96	536.96	-	Electricity - Home Buyouts
FERRELLGAS	496.00	496.00	-	Propane - Home Buyouts
BROKERAGE PRINTING	473.33	473.33	-	Custom Printed Forms
KOCHMANN, CARTER	315.00	315.00	-	Lawn Mowing Services
GALLAGHER BENEFIT SERVICES INC	250.00	250.00	-	Job Description Review
DONS PLUMBING	240.00	240.00	-	Winterize - Home Buyouts
CURTS LOCK & KEY SERVICE INC	138.10	138.10	-	Service Call - Home Buyouts
GOOGLE LOVEINTHEOVEN	116.00	116.00	-	Meeting Incidentals
FEDERAL EXPRESS CORPORATION	71.89	71.89	-	Postage
CASS COUNTY RECORDER	68.00	68.00	-	Oxbow MOU - Advance for Land Purchase
GRAND TOTAL	**$ 116,050,606.96**	**$ 76,001,865.78**	**$ 40,048,741.18**	

FM Diversion Authority
State Water Commission Funds Reimbursement Worksheet
Fargo Flood Control Project Costs

Time Period for This Request: November 1, 2014 - November 30, 2014

Drawdown Request No: 7		
Requested Amount:	$	1,206,310
Total Funds Expended This Period:	$	2,412,619
SB 2020 Matching Requirements		50%
Total Funds Requested at 50% Match	$	1,206,310
Total Funds Requested:	$	1,206,310

STATE AID SUMMARY:		
Summary of State Funds Appropriated		
Appropriations from 2009 Legislative Session	$	45,000,000
Appropriations from 2011 Legislative Session		30,000,000
Appropriations from 2013 Legislative Session		100,000,000
Total State Funds Appropriated	$	175,000,000
Less: Payment #1 through #33 - City of Fargo		(50,134,193)
Less: Payment #1 - Cass County		(136,039)
Less: Payment #1 - FM Diversion Authority		(18,600)
Less: Payment #2 - FM Diversion Authority - REVISED		(782,908)
Less: Payment #3 - FM Diversion Authority - REVISED		(293,590)
Less: Payment #4 - FM Diversion Authority - REVISED		(2,905)
Less: Payment #5 - FM Diversion Authority - REVISED		-
Less: Payment #6 - FM Diversion Authority		(1,390,928)
Less: Payment #7 - FM Diversion Authority		(1,206,310)
Total Funds Reimbursed	$	(53,965,473)
Total State Fund Balances Remaining	$	121,034,527

LOCAL MATCHING FUNDS SUMMARY:		
Matching Funds Expended To Date - City of Fargo	$	47,071,452
Matching Funds Expended To Date - Cass County		291,500
Matching Funds Expended To Date - FM Diversion Authority		449,491
Total Matching Funds Expended To Date	$	47,812,443
Less: Match Used on Payment #1 through #33 - City of Fargo		(37,616,703)
Less: Match used on Payment #1 - Cass County		(136,039)
Less: Match Used on Payment #1 - FM Diversion Authority		(18,600)
Less: Match Used on Payment #2 - FM Diversion Authority		(66,888)
Less: Match Used on Payment #6 - FM Diversion Authority		(364,003)
Balance of Local Matching Funds Available	$	9,610,210

FM Diversion Authority
Lands Expense - Life To Date
As of November 30, 2014

Property Address	Purchase Date	Purchase Price	Appraisal	Abstract	Tax Payment	Property Management Expense	Property Management Income	Sale Proceeds	Total
Home Buyouts - Fargo									
1322 Elm St N, Fargo ND	-	6,982.43	-	-	-	-	-	-	6,982.43
Home Buyouts - Moorhead									
387 170th Ave SW, Moorhead MN	11/1/2013	281,554.91	-	255.00	1,550.00	2,247.01	-	(8,440.00)	277,166.92
Home Buyouts - Oxbow									
105 Oxbow Drive, Oxbow ND	11/28/2012	216,401.85	-	250.00	4,993.72	13,695.77	(18,680.72)	(181,249.54)	35,411.08
744 Riverbend, Oxbow ND	12/3/2012	343,658.30	-	170.00	7,296.43	17,174.08	(30,117.16)	-	338,181.65
121 Oxbow Drive, Oxbow ND	7/31/2013	375,581.20	3,200.00	-	1,581.52	19,519.02	-	(186,918.33)	212,963.41
333 Schnell Drive, Oxbow ND	9/20/2013	104,087.79	-	-	1,379.50	2,039.75	-	-	107,507.04
346 Schnell Dr, Oxbow ND	2/13/2014	512,970.73	-	-	-	9,183.14	(10,500.00)	-	511,653.87
345 Schnell Dr, Oxbow ND	10/24/2014	478,702.98	-	-	-	-	-	-	478,702.98
Easements - Fargo									
Part of Lot 5 El Zagal Park, Fargo ND	10/9/2014	68,040.72	-	-	-	-	-	-	68,040.72
Easements - Oxbow									
Oxbow Parcel 57-0000-10356-070 - Pearson	10/13/2014	55,500.00							55,500.00
Farmland Purchases									
SE 1/4 11-140-50 (Raymond Twp) - Ueland	1/20/2014	959,840.00	-	-	-	-	(13,543.73)	-	946,296.27
2 Tracts in the E 1/2-2-137-49 - Sorby/Maier	1/24/2014	1,636,230.00	-	-	-	-	(28,882.99)	-	1,607,347.01
3 Tracts NW1/4 1-140-50, NW1/4 11-140-50, & S1/2 25-141-50 Rust	2/18/2014	3,458,980.70	-	-	-	-	(59,830.86)	-	3,399,149.84
11-140-50 NE1/4 (Raymond Twp) - Diekrager	4/15/2014	991,128.19	-	-	-	-	(15,654.86)	-	975,473.33
NW 1/4 36-141-50 - Monson	5/7/2014	943,560.05	-	-	-	-	(12,089.61)	-	931,470.44
SW 1/4-11-140-50 - Hoglund	7/21/2014	989,706.03	-	-	-	-	(2,668.42)	-	987,037.61
NW 1/4 14-140-50 - Hoglund	10/23/2014	948,782.22	-	-	-	-	(881.55)	-	947,900.67
SW 1/4 2-140-50 -Rust	10/29/2014	955,901.00	-	-	-	-	-	-	955,901.00
Fercho Family Farms, Oxbow ND	-	312,130.00	-	-	-	-	-	-	312,130.00
W 1/2 SE 1/4 SW 1/4 & SW 1/4 SW 1/4 2-137-49 - Gorder	5/13/2014	-	-	-	-	-	(1,822.72)	-	(1,822.72)
Land Purchases									
Hayden Heights Land, West Fargo ND	10/12/2012	484,016.00	-	-	166,874.29	-	-	(240,166.11)	410,724.18
	Total	14,123,755.10	3,200.00	675.00	183,675.46	63,858.77	(194,672.62)	(616,773.98)	13,563,717.73