FLOOD DIVERSION BOARD OF AUTHORITY
Thursday, February 11, 2016
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		
	i. Remarks by Colonel Koprowski		
5.	Administrative/Legal		Information/action
6.	Technical		Information/action
	a. Recommended Contracting Actions	Item 6a.	
7.	Public Outreach		Information/action
	a. Committee report		
	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. Voucher approval	Item 9b.	
10.	Other Business		
11.	Next Meeting – February 25, 2016		
12.	Adjournment		

cc: Local Media

FLOOD DIVERSION BOARD OF AUTHORITY
JANUARY 14, 2016—3:32 PM

1. MEETING TO ORDER

A meeting of the Flood Diversion Board of Authority was held Thursday, January 14, 2016, at 3:32 PM in the Fargo City Commission Room with the following members present: Cass County Commission representative Darrell Vanyo via conference call; Cass County Commissioner Ken Pawluk; West Fargo City Commissioner Mike Thorstad; Fargo City Mayor Tim Mahoney; Fargo City Commissioner Mike Williams; Cass County Joint Water Resource District Manager Rodger Olson; Clay County Commissioner Kevin Campbell; and Moorhead City Council Member Nancy Otto. Also present was ex-officio member Gerald Van Amburg, Buffalo-Red River Watershed District. Fargo City Commissioner Melissa Sobolik was absent.

Staff members and others present: Cass County Administrator Keith Berndt; Interim Fargo City Administrator Bruce Grubb; 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; Mark Nisbet, Chamber of Commerce Business Leaders Taskforce; Bruce Spiller, PE, CH2M; and Terry Williams, Project Manager, Corps of Engineers.

2. MINUTES APPROVED

MOTION, passed

Mr. Williams moved and Mr. Campbell seconded to approve the minutes from the December 17, 2015, meeting as presented. Motion carried.

3. AGENDA ORDER

MOTION, passed

Mr. Campbell moved and Mr. Thorstad seconded to approve the order of the agenda with the addition of a Financial Services Agreement under the Finance Committee update. Motion carried.

4. ELECTION OF CHAIR AND VICE CHAIR FOR 2016

MOTION, passed

Mr. Pawluk moved and Mr. Campbell seconded to nominate Darrell Vanyo as Chairman and Tim Mahoney as Vice Chairman of the Flood Diversion Board of Authority for 2016. On roll call vote, the motion carried unanimously.

5. MANAGEMENT UPDATE

Program management consultant (PMC) report

Bruce Spiller provided an update on activities over the last month including work on in-town levees and the bid schedule for 2016; completion of the asbestos abatement and beginning demolition of Park East Apartments; development of procurement documents for the Public-Private Partnership (P3); and development of responses to public comments associated with the Minnesota Draft EIS (MN DEIS).

Corps of Engineers report

Terry Williams provided an update of activities by Corps of Engineers staff which includes continued review of in-town levee design and construction; final technical review of the diversion inlet structure; assist with development of RFP and reference documents on alternate financing and split delivery plan; continued design of southern embankment elements; and advance permit coordination for diversion channel and southern embankment. The Corps received a request from the MN DNR to assist with responses to public comments received as part of the MN DEIS.

6. ADMINISTRATIVE/LEGAL UPDATE

Second Monthly Meeting

Attorney Erik Johnson said for consideration today is a request to add a second monthly board meeting. Mr. Spiller said with the pace of work being done, it is necessary for the board to meet more frequently to review and approve items. The recommendation is to hold the second meeting on the 4th Thursday of each month in addition to the current meeting held on the 2nd Thursday of each month. The consensus of the board was to hold meetings twice a month as requested. Mr. Spiller said if there is no business to conduct, the second meeting would be cancelled.

Ashurst LLP Letter of Engagement and Legal Services Agreement

Katie Bertsch from Ohnstad Twichell discussed an agreement with Ashurst LLP for P3 legal counsel services. Last month the board approved a work order in an amount not to exceed $100,000 for their services.

MOTION, passed

Mr. Campbell moved and Mr. Pawluk seconded to approve a Letter of Engagement and Legal Services Agreement with Ashurst LLP to serve as the national P3 legal counsel. Discussion: Mr. Pawluk asked about the process used to select a law firm. Mr. Spiller provided a brief overview of the staff who were involved with selecting the firm. Mr. Berndt said the work of Ashurst LLP will be monitored closely by Ohstad Twichell to help manage the costs. On roll call vote, the motion carried unanimously.

7. TECHNICAL UPDATE

Recommended Contract Actions Summary

Mr. Spiller discussed one Task Order as follows:

Task Orders

- Terracon Task Order No. 1 Amendment 2—materials testing services, asbestos abatement monitoring and quality assurance services for the Howard Johnson Hotel, Shakey's, Fargo Public School, and Park East Apartments demolition projects; El Zagal Phase 2 levee; and Mickelson Field levee extension in the amount of $75,000.

MOTION, passed

Ms. Otto moved and Mr. Thorstad seconded to approve the appropriation of funds for Task Order No. 1 Amendment 2 with Terracon; and recommend approval of the appropriation of funds by the Dakota Metro Flood Board for the Diversion Authority. On roll call vote, the motion carried unanimously.

North Dakota retention projects update

Chad Engels from Moore Engineering serves as engineer for the Southeast Cass Water Resource District. He provided a presentation on North Dakota retention projects. He discussed eight North Dakota water resource district sponsored projects from past years, which provide 110,000 acre feet of total flood storage volume constructed. He also outlined recent studies and future studies and projects, which include 8 from North Dakota and 14 from Minnesota.

8. PUBLIC OUTREACH UPDATE

Committee report

Mr. Olson said the Public Outreach Committee met on January 13th. One of the main topics discussed was upstream outreach efforts. He discussed upcoming meetings with Stanley Township, Horace City, and Moorhead Rotary Club as well as attendance at the Red River Basin Commission annual conference. He outlined numerous outreach efforts with upstream residents and officials over the last year. A joint meeting with the Diversion Authority and MNDak Upstream Coalition has been proposed and a meeting with Fargo and Moorhead Mayors and commissioners associated with the Richland-Wilkin JPA has also been offered.

Daron Selvig from AE2S provided an update on the newsletter, which will be published soon and will include articles on the Chairman's goals for 2016 and the retention project presentation given today.

Business Leaders Task Force
Mark Nisbet said Chamber of Commerce members consider flood protection to be one of the top priorities for the area, and the task force continues to be committed to permanent flood protection.

9. LAND MANAGEMENT UPDATE

Committee report
The Land Management Committee met on January 13th.

CCJWRD update
Mr. Brodshaug referred to the handout regarding land acquisitions completed through December 31, 2015, which includes completed acquisitions, budget figures, and completed negotiations. He said if the Corps of Engineers receives a new start and construction funding, those funds will need to be obligated by awarding a construction contract no later than September, 2016. The plan is to award the contract for the inlet structure located just south of Horace, which means the Corps will need to advertise for construction proposals and have access to the lands this spring. Because the land acquisition process takes some time, pre-acquisition activities have begun including the CCJWRD securing right-of-entry for surveying, and authorizing right-of-way agents and appraisers to begin contacting property owners. Right of entry letters have been sent to property owners affected by the diversion channel alignment, diversion inlet and associated County Road 16 and 17 realignment properties. If federal construction funds are awarded, the CCJWRD will proceed with acquiring the lands so the Corps is able to obligate its funds. If the Minnesota EIS is not complete in time to allow the Diversion Authority to meet this schedule, acquisition of lands and all funding will be done entirely by North Dakota entities with no obligations or involvement requested from the Minnesota partners. He said the location of the diversion inlet is the same for both alignment alternatives that the Minnesota DNR is considering in its EIS.

10. FINANCE UPDATE

Committee report
Michael Montplaisir Cass County Auditor, said the Finance Committee met on January 13th. The committee discussed short and long-term financing needs for the project. He said $244 million has been appropriated in state funding and $153 million remains after reimbursement requests totaling $91 million have been submitted for the diversion project.

Voucher approval
The bills for the month are with Ohnstad Twichell, P.C. for legal services; CCJWRD for costs associated with in-town levees, access issues, Diversion Project Assessment Committee (DPAC) work, OHB levee, and Oxbow Country Club golf course construction; Army Corps of Engineers for cost share funds; City of Fargo for fiber relocation work on 2nd Street North flood wall project; and Cass County Treasurer for property tax payments.

MOTION, passed
Mr. Pawluk moved and Mr. Vanyo seconded to approve the vouchers in the amount of $3,044,903.27 for December, 2015. On roll call vote, the motion carried unanimously.

Financial Services Agreement with Springsted Incorporated
Mr. Montplaisir said previously the board contracted with Public Financial Management (PFM) to provide financing options. The City of Fargo uses Springsted Incorporated for bonding advice. In order to provide consistency, the Finance Committee approved a contract with Springsted Incorporated on an hourly basis for financial advisor services for the Diversion Authority.

MOTION, passed

Ms. Otto moved and Mr. Olson seconded to approve a Municipal Advisor Services Agreement with Springsted Incorporated. On roll call vote, the motion carried unanimously.

11. NEXT MEETING DATE

The next meeting will be held on **Thursday, January 28, 2016**, at 3:30 PM.

12. ADJOURNMENT

MOTION, passed

On motion by Mr. Williams, seconded by Ms. Otto, and all voting in favor, the meeting was adjourned at 4:34 PM.

Minutes prepared by Heather Worden, Cass County Administrative Assistant

Recommended Contracting Actions Summary

Date: February 11, 2016

Description	Company	Budget Estimate ($)
Task Order Amendments	**HMG TOTAL**	**2,347,211**
Task Order No. 8, Amendment 12 Work-in-Kind • Add additional Cemetery Assessment Team Support • Add additional Baseline Streambank Erosion Evaluation • Extend POP to December 31, 2016	HMG	34,190
Task Order No. 9, Amendment 15 Hydrology and Hydraulic Modeling • Add additional assistance/support for the USACE Maple River Aqueduct physical model • Add additional updates and reviews for Phase 8 model • Add support for the update (expansion of study geography) of the NDSU Ag Study • Reallocated budget from completed subtasks to open/ongoing subtasks • Extend POP to December 31, 2016	HMG	98,021
Task Order No. 13, Amendment 12 Levee Design and Design Support • Add additional WP-43D Pump Station Design • Add WP-43 O/H/B Wetland Mitigation Design • Add WP-43A Levee Inspection • Add additional Land Surveying for ROW Acquisition • Extend POP to December 31, 2016	HMG	610,000
Task Order No. 17, Amendment 2 Services During Construction (SDC) – Work Package 42 • Incorporate AWD-00052, WP-42C.2 SDC and WP-42C.1 SDB • WP-42A.2, 2nd St Pump Station - Additional SDC • WP-42A.1/A.3, 4th St Pump Station and 2nd St So. Floodwall - Additional SDC • WP-42H.2, El Zagal Phase 2 – SDC • WP-42.I.1, Mickelson Levee Extension –SDC • WP-42C.1, HoJo, Old Shakey's, FPS – SDC • WP-42F.1N, Flood Control, 2nd St. N, North of Pump Station - SDB • Extend POP to June 30, 2017	HMG	1,605,000
Minnesota Department of Natural Resources (MnDNR)		
Income Contract No. 39228 – Amendment 4 • Add funding for additional MnDNR labor and expenses to complete the Final EIS and prepare adequacy determination • Extend POP to December 2, 2016	MnDNR	137,464.92

Description	Company	Budget Estimate ($)
Construction Contract Awards		
WP-42H.2 El Zagal Phase 2 • Recommendation of Award for constructing approximately 1,000 linear feet of earthen levee and floodwall, temporary floodwall closure, 1 Gatewell structure, 8 residential demolitions with landscape removal, Sanitary Lift Station, 550 feet of Storm Sewer, 500 feet of Sanitary Sewer, and other components.	Reiner Contracting, Inc.	1,515,798.64 (contingent on acquisition of land)
Work Package 42C.1 In-Town Levees 2nd Street/Downtown Area Demolition (HoJo's, Shakey's, Fargo Public Schools) • Recommendation of Award for building and foundation demolition of a two story hotel and attached restaurant, building and foundation demolition of a 3,575 square foot office building, and partial building and foundation demolition of a warehouse in downtown Fargo, North Dakota. The project will also include a partial renovation to the warehouse building.	Landwehr Construction, Inc.	668,870.00 (contingent on acquisition of land)
Work Package 42I.1 Mickelson Levee Extension • Recommendation of Award for constructing an earthen levee, road reconstruction, and underground utility relocation located is along North Terrace North and North River Road North in Fargo, ND.	[TBD]	[TBD]

Technical Staff Recommendation

Meeting Date: 2/2/2016

RECOMMENDATION FOR ACTION:

The Technical Staff have reviewed and recommends approval of the following Contract Action(s).

SUMMARY OF CONTRACTING ACTION:

The Owner's Representative prepared the following Contract Action(s) for the Technical Staff team:

List description of Contract Action(s):

HMG

MFDA – Task Order 8, Amendment 12 – Work-in-Kind $34,190

- Add coordination activities for subtask E.VII Cemetery Assessment Team Support
- Add analysis for subtask E.X Baseline Streambank Erosion Evaluation
- Extend POP of selected subtasks to December 31, 2016

BACKGROUND:

Houston-Moore Group, LLC (HMG) has provided Work-in-Kind engineering services under Task Order 13 from November 8, 2012, to the present time, and is the Engineer of Record for those services. See the table on the next page for a summary of the amendments to the Task Order.

This amendment adds funding for subtask E.VII Cemetery Assessment Team Support, and subtask E.X Baseline Streambank Evaluation. In addition, the POP for the following subtasks is extended to December 31, 2016:

- E. On-Call Services
- E.VI MN EIS Preparation Support
- E.VII Cemetery Assessment Team Support
- E.VIII Large Structure Team Support
- E.IX Hydraulic Structures Aesthetics Evaluation
- E.X Baseline Streambank Erosion Evaluation
- E.XI LFC Modeling: Maple River to Diversion Inlet

Summary of Contracting History and Current Contract Action:

Original Agreement or Amendment	Budget ($) Change	Original Project Cost	Revised Project Cost	Project Start	Project Completion	Comments
Task Order 8 Amendment 0	$ -	$669,330	$ -	12-Apr-12	31-Jul-12	Initial authorization of subtasks A-E.
Task Order 8 Amendment 1	$58,000	-	$727,330	12-Apr-12	31-Oct-12	Added meander belt width analyses; EMB opening; maximum project design flows; local drainage plan.
Task Order 8 Amendment 2	$18,000	-	$727,300	8-Nov-12	31-Dec-12	Added Reach 1 Low Flow Channel Meander Modeling.
Task Order 8 Amendment 3	$15,000	-	$727,330	13-Dec-12	30-Sep-13	Added Geomorphology.
Task Order 8 Amendment 4	$15,000	-	$727,330	24-Apr-13	30-Sep-13	Added MN EIS Scoping Document.
Task Order 8 Amendment 5	$0	-	$727,330	24-Apr-13	30-Sep-14	Extended POP.
Task Order 8 Amendment 6	$129,345	-	$856,675	13-Feb-14	30-Sep-14	Added MN EIS Preparation Support.
Task Order 8 Amendment 7	$86,000	-	$942,675	9-Oct-14	31-Mar-15	Added Cemetery Assessment Team Support, and Large Structure Team Support.
Task Order 8 Amendment 8	$264,000	-	$1,206,675	11-Dec-14	28-Feb-15	Added Hydraulic Structures Aesthetics Evaluation, and Baseline Streambank Erosion Evaluation.
Task Order 8 Amendment 9	$97,000	-	$1,303,675	12-Mar-15	31-Mar-16	Added analysis of 37-foot stage through town, and LFC Modeling: Maple River to Diversion Inlet.
Task Order 8 Amendment 10	$175,000	-	$1,478,675	9-Oct-14	30-Sep-15	Added funding for MN EIS Preparation Support, and Large Structure Team Support.
Task Order 8 Amendment 11	$0	-	$1,478,675	13-Aug-15	31-Mar-16	Reallocated budget, and extended POP of selected subtasks to 31-Mar-16.
Task Order 8 Amendment 12	$34,190	-	$1,512,865	2-Feb-16	31-Dec-16	Adds funding Cemetery Assessment Team Support, and Baseline Streambank Erosion Evaluation; extends POP of selected subtasks to 31-Dec-16.

DISCUSSION:

E.VII Cemetery Assessment Team Support:

The USACE with support from the Local Sponsors, including HMG staff, completed a draft Cemetery Mitigation Plan in June 2015 from project impacted cemeteries. Work is planned for 2016 to further advance cemetery mitigation with planned meetings and discussion with cemetery representatives. This amendment provides scope and budget to prepare for and attend meetings with cemetery representatives.

E.X Baseline Streambank Erosion Evaluation:

The level of effort to complete the baseline streambank erosion evaluation exceeded the planned budget due to having to make multiple data requests/retrievals to collect the required data. This necessitated an interactive approach for the analysis of the data. The original task budget was $210,000 and this request for an additional $9,440 is approximately 4.5% of the original budget.

TO08 Work-in-Kind Budgets by Work Package:

Subtask	Activity ID	Current Budget ($)	Amendment 12 ($)	Total ($)
A. Meander Belt Width Analyses	SW-1010	307,203	0	307,203.00
B. Identification and Assessment of Tie-Back Levees	SW-1040	45,089.96	0	45,089.96
C. EMB Openings (Allowance)	SW-1040	39,989	0	39,989.00
D. Diversion Inlet Gates (Allowance)	SW-1040	55,418	0	55,418.00
E. On-Call Services ($250,000 Allowance)	SW-1040	76,338.95	0	76,338.95
E.I. Maximum Project Design Flows	SW-6130	13,658	0	13,658.00
E.II. Local Drainage Plan	SW-1060	9,978	0	9,978.00
E.III. Reach 1 LFC Meander Modeling	SW-1010	9,693	0	9,693.00
E.IV. Geomorphology Consulting	SW-1390	16,804.34	0	16,804.34
E.V. MN EIS Scoping Document Comment Support	SW-6180	8,502.75	0	8,502.75
E.VI. MN EIS Preparation Support	SW-1142	416,000	0	416,000.00
E.VII. Cemetery Assessment Team Support	SW-1410	85,000	24,750	109,750.00
E.VIII. Large Structure Team Support	SW-6110	50,000	0	50,000.00
E.IX. Hydraulic Structures Aesthetics Evaluation	SW-6200	54,000	0	54,000.00
E.X. Baseline Stream Bank Erosion Evaluation	SW-1390	210,000	9,440	219,440.00
E.XI. LFC Modeling: Maple River to Diversion Inlet	SW-6170	81,000	0	81,000.00
TOTAL		**1,478,675**	**34,190**	**1,512,865**

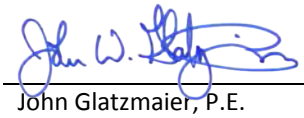
The PMC reviewed HMG's cost proposals and found them to be acceptable.

This change amount of $34,190 is included in the FY-2016 MFDA budget.

ATTACHMENT(S):

1. Draft Task Order 8, Amendment 12
2. HMG Cost Proposal for E.VII Cemetery Assessment Support and Streambank Evaluation

Presented by:



John Glatzmaier, P.E.
CH2M HILL
Project Manager
Metro Flood Diversion Project

Feb 2, 2016
Date

Keith Berndt, Cass County Administrator
Concur: Feb 3, 2016 *Non-Concur:* _____

April Walker, Fargo City Engineer
Concur: Feb 2, 2016 *Non-Concur* _____

Mark Bittner, Fargo Director of Engineering
Concur: Feb 3, 2016 *Non-Concur:* _____

Jason Benson, Cass County Engineer
Concur: Feb 3, 2016 *Non-Concur* _____

David Overbo, Clay County Engineer
Concur: Feb 2, 2016 *Non-Concur:* _____

Robert Zimmerman, Moorhead City Engineer
Concur: Feb 3, 2016 *Non-Concur* _____

Nathan Boerboom, Diversion Authority Project Manager
Concur: Feb 3, 2016 *Non-Concur:* _____

This is Task Order No. 8, Amendment 1~~0~~, consisting of 15~~15~~15~~14~~ pages.

Houston-Moore Group, LLC

Task Order No. 8, Amendment ~~1~~112

FMDA Purchase Order No. 152023

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.

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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.

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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

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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.

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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).

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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).

   e. Analysis of 37-feet stage through town - For Fargo ND, Moorhead MN, Cass County ND, and Clay County MN review existing infrastructure and document impacts that 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

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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.

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

   g. Technical memorandum summarizing the additional impacts and mitigation for a Project 37-foot stage at the Fargo Red River gage.

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.

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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 an 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

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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

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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.

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XI. LFC MODELING: MAPLE RIVER TO THE DIVERSION INLET

1. Purpose: For the Diversion Channel between the Maple River and the Diversion Inlet Structure, determine the appropriate meandering LFC wavelength and amplitude design parameters Diversion Channel bottom widths of 200-feet and 250-feet.

2. Background: Additional H&H modeling of flow in the Diversion Channel from the Maple River to the Diversion Inlet has shown that the current 300-feet wide Diversion Channel can be narrow to 200-feet and still pass the project design flows. A narrower Diversion Channel will require revised meandering LFC design parameters.

3. Scope:

   a. Task 1 - Provide analysis of the morphodynamic stability of the meandering LFC alignment within the main Diversion Channel from the Maple structure upstream to the Diversion Inlet structure. Determine an appropriate alignment wavelength that will not tend to initiate planform widening. Determine an alignment amplitude such that the LFC planform is within the main Diversion Channel for 200-feet and 250-feet bottom widths and 25-feet and 50-feet side slope toe buffer zones. Model the recommended alignments in RVR Meander model and summarize the alignments' stability.

   b. Task 2 – If authorized in writing, model the designed alignments from the Maple River downstream to Reach 1 (to be provided by USACE) in RVR Meander and summarize the alignments' stability.

4. Deliverables:

   a. Draft and Final Technical Memorandums summarizing the results of the analysis and modeling.

   b. Power Point presentation summarizing the results.

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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

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	December 31, 2016~~March, 31, 2016~~
E.I-Maximum Project Design Flows	July 16, 2012	October 31, 2012
E.II-Local Drainage Plan	September 13, 2012	October 31, 2012

Subtask	Start Time	Completion Time
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	December 31, 2016~~September 30, 2015~~
E.VII-Cemetery Assessment Team Support	October 9, 2014	December 31, 2016~~March, 31, 2016~~
E.VIII-Large Structure Team Support	October 9, 2014	December 31, 2016~~March, 31, 2016~~
E.IX-Hydraulic Structures Aesthetics Evaluation	December 11, 2014	December 31, 2016~~March, 31, 2016~~
E.X-Baseline Stream Bank Erosion Evaluation	December 11, 2014	December 31, 2016~~March, 31, 2016~~
E.XI-LFC Modeling: Maple River to Diversion Inlet	February 5, 2015	December 31, 2016~~March, 31, 2016~~

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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	Activity ID	Current Budget ($)	Change ($)	Revised Budget ($)
A. Meander Belt Width Analyses	SW-1010	307,203	0	307,203.00
B. Identification and Assessment of Tie-Back Levees	SW-1040	45,089.96	0	45,089.96
C. EMB Openings (Allowance)	SW-1040	39,989	0	39,989.00
D. Diversion Inlet Gates (Allowance)	SW-1040	55,418	0	55,418.00
E. On-Call Services ($250,000 Allowance)	SW-1040	76,338.95	0	76,338.95
E.I. Maximum Project Design Flows	SW-6130	13,658	0	13,658.00
E.II. Local Drainage Plan	SW-1060	9,978	0	9,978.00
E.III. Reach 1 LFC Meander Modeling	SW-1010	9,693	0	9,693.00
E.IV. Geomorphology Consulting	SW-1390	16,804.34	0	16,804.34
E.V. MN EIS Scoping Document Comment Support	SW-6180	8,502.75	0	8,502.75
E.VI. MN EIS Preparation Support	SW-1142	416,000	0	416,000.00
E.VII. Cemetery Assessment Team Support	SW-1410	85,000	24,750	109,750.00
E.VIII. Large Structure Team Support	SW-6110	50,000	0	50,000.00
E.IX. Hydraulic Structures Aesthetics Evaluation	SW-6200	54,000	0	54,000.00
E.X. Baseline Stream Bank Erosion Evaluation	SW-1390	210,000	9,440	219,440.00
E.XI. LFC Modeling: Maple River to Diversion Inlet	SW-6170	81,000	0	81,000.00
TOTAL		**1,478,675**	**34,190**	**1,512,865**

~~Subtask~~	~~Current Budget ($)~~	~~Change ($)~~	~~Revised Budget ($)~~
~~A. Meander Belt Width Analyses~~	~~307,203~~	~~0~~	~~307,203.00~~
~~B. Identification and Assessment of Tie-Back Levees~~	~~40,000~~	~~5,089.96~~	~~45,089.96~~
~~C. EMB Openings (Allowance)~~	~~39,989~~	~~0~~	~~39,989.00~~
~~D. Diversion Inlet Gates (Allowance)~~	~~55,418~~	~~0~~	~~55,418.00~~
~~E. On-Call Services ($250,000 Allowance)~~	~~100,000~~	~~-23,661.05~~	~~76,338.95~~
~~E.I. Maximum Project Design Flows~~	~~13,658~~	~~0~~	~~13,658.00~~
~~E.II. Local Drainage Plan~~	~~9,978~~	~~0~~	~~9,978.00~~
~~E.III. Reach 1 LFC Meander Modeling~~	~~9,693~~	~~0~~	~~9,693.00~~
~~E.IV. Geomorphology Consulting~~	~~15,736~~	~~1,068.34~~	~~16,804.34~~

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~~Subtask~~	~~Current Budget ($)~~	~~Change ($)~~	~~Revised Budget ($)~~
~~E.V. MN EIS Scoping Document Comment Support~~	~~15,000~~	~~-6,497.25~~	~~8,502.75~~
~~E.VI. MN EIS Preparation Support~~	~~416,000~~	~~0~~	~~416,000.00~~
~~E.VII. Cemetery Assessment Team Support~~	~~61,000~~	~~24,000.00~~	~~85,000.00~~
~~E.VIII. Large Structure Team Support~~	~~50,000~~	~~0~~	~~50,000.00~~
~~E.IX. Hydraulic Structures Aesthetics Evaluation~~	~~54,000~~	~~0~~	~~54,000.00~~
~~E.X. Baseline Stream Bank Erosion Evaluation~~	~~210,000~~	~~0~~	~~210,000.00~~
~~E.XI. LFC Modeling: Maple River to Diversion Inlet~~	~~81,000~~	~~0~~	~~81,000.00~~
~~TOTAL~~	~~1,478,675~~	~~0.00~~	~~1,478,675.00~~

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

C. Provide Monthly Invoice and status report

i. Status report will accompany invoice and detail work completed during the invoice period.

ii. Status report will be organized by subtask and provide narrative of work completed on each subtask.

iii. Status of work completed will include:

1. Outstanding issues to resolve, expected steps to progress work, outstanding items required from either Owner, Owner's Representative, or others to progress work, anticipated completion date of subtasks.

2. Dates of on-call services provided and description of the activities performed by Engineer, including any deliverables produced.

3. Dates of deliverables otherwise required under the Project Management task.

~~B.~~

6. Consultants:

A. Barr Engineering Company

B. HDR, Inc.

7. Other Modifications to Agreement: None

8. Attachments: None

9. Documents Incorporated By Reference:

~~A.~~ AWD-00039 REV-0, Cemetery Berm Conceptual Designs and Rural Water Well Survey, dated July 10, 2014.

A.

B. AWD-00046 REV-0, MN EIS Support for Additional Information Request, signed December 10,

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2014.

~~10. AWD-00046-REV-0, MN EIS Support for Additional Information Request, signed December 10, 2014.~~

~~11.~~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
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

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HMG

FM Metro Risk Management Project
HMG Task Order No. 8 - Work In Kind

Task	Activity Description	Personnel Costs												Cost Per Task
		Senior Project Manager		Project Manager		Senior Project Engineer		Graduate Engineer		CADD Technician III		Sub-Consultant		
		Hours	Cost	Hours	Cost	Hours	Cost	Hours	Cost	Hours	Cost	Sub Cost	HMG Cost	
E.VII Cemetery Assessment Team Support														
Task 1	Support Cemetery Team - assume 2 meetings per cemetery plus preparation time (16 hours/cemetery, 11 cemeteries)		$ -	88	$ 13,816	22	$ 3,564	44	$ 4,840	22	$ 2,530		$ -	$ 24,750
			$ -		$ -		$ -		$ -		$ -			$ -
	Total	0	$ -	88	$ 13,816	22	$ 3,564	44	$ 4,840	22	$ 2,530		$ -	$ 24,750
E.X Baseline Streambank Erosion Evaluation														
Task 1	Additional effort to complete scoped work due to availability of necessary data and iterative nature of the analysis.	0	$ -	0	$ -	0	$ -		$ -		$ -	$ 8,990	$ 9,440	$ 9,440
	Total	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -		$ 9,440	$ 9,440
	Grand Totals													$ 34,190

Technical Staff Recommendation

Meeting Date: 2/2/2016

RECOMMENDATION FOR ACTION:

The Technical Staff have reviewed and recommends approval of the following Contract Action(s).

SUMMARY OF CONTRACTING ACTION:

The Owner's Representative prepared the following Contract Action(s) for the Technical Staff team:

List description of Contract Action(s):

HMG

MFDA – Task Order 9, Amendment 15 – Hydrology and Hydraulic Modeling $98,021

- Add budget for additional assistance and support for the USACE Maple River Aqueduct model
- Add budget for additional updates and reviews to Phase 8 HEC-RAS model
- Add budget to support the update (expansion of study geography) of the NDSU Agricultural Impacts Study
- Reallocated budget from completed subtasks to open and ongoing subtasks
- Extend POP of selected subtasks to December 31, 2016

BACKGROUND:

Houston-Moore Group, LLC (HMG) is the Engineer of Record for the hydrology and hydraulic modeling used to support the design of the proposed flood control improvements. HMG has provided these engineering services under Task Order 9 from June 14, 2012, to the present time. See the table below for a summary of the amendments to the Task Order.

This amendment adds budget for subtasks F.I, F.III, F.IV, F.VIII, K, and O from reallocated funds and the addition of $98,021. Budget is de-allocated from other subtasks, except for F, G, and M, which remain unchanged.

In addition, the POP for the following subtasks is extended to December 31, 2016:

- C. Evaluation of Channel Size
- F. On-Call Services
- F.IV Additional Assistance for the Maple River Aqueduct Physical Model
- G. Basin-Wide Retention Support
- K. Phase 8 Model Update
- M. Eastern Staging Area Evaluation
- O. NDSU Agricultural Impacts Study Support

Summary of Contracting History and Current Contract Action:

Original Agreement or Amendment	Budget ($) Change	Original Project Cost	Revised Project Cost	Project Start	Project Completion	Comments
Task Order 9 Amendment 0	$ -	$194,341	$ -	8-Mar-12	30-Sep-12	Initial authorization of subtasks A-F.

Task Order 9 Amendment 1	$0	-	$194,341	13-Sep-12	30-Nov-12	Added F.I Extreme Rainfall Events, and F.II Extreme Event Evaluations.
Task Order 9 Amendment 2	$95,000	-	$289,341	14-Sep-12	30-Sep-13	Added F.III Tributary Peak Model Runs to Support the Maple R. Aqueduct Physical Model; F. IV Additional Assistance for the Maple R. Aqueduct Physical Model; and F.V Unsteady HEC-RAS Modeling of Existing PMF Inflows.
Task Order 9 Amendment 3	$55,000	-	$344,341	13-Dec-12	30-Sep-13	Added F.VI Update HEC-RAS Model, and G. Basin-Wide Retention Support.
Task Order 9 Amendment 4	$93,000	-	$437,341	18-Dec-12	30-Sep-13	Added F.V Phase 2 Numeric Modeling, and F.VII Connecting Channel and 20-Year Existing Conditions.
Task Order 9 Amendment 5	$100,000	-	$537,341	16-May-13	30-Sep-13	Added funds for F. On-Call Services.
Task Order 9 Amendment 6	$90,000	-	$627,341	14-Mar-13	30-Sep-13	Added F. VIII Maple R. Aqueduct Flow Analysis; F.IX Update HEC-RAS Models-Maple R. Aqueduct & Reach 6 Bridge; F.X Water Monitoring Gage Survey; and H. Phasing Plan Interim Modeling.
Task Order 9 Amendment 7	$210,000	-	$837,341	11-Jul-13	31-Dec-13	Added I. Phase 7.1 Model Update, and J. Update PMF Study with Revised Distribution of Snowmelt Runoff.
Task Order 9 Amendment 8	$310,000	-	$1,147,341	12-Sep-13	30-Sep-14	Added K. Phase 8 Model Update.
Task Order 9 Amendment 9	$166,000	-	$1,313,341	10-Oct-13	30-Sep-14	Added L. Update the Balanced Hydrographs at Hickson, ND.
Task Order 9 Amendment 10	$25,000	-	$1,338,341	11-Jul-13	30-Apr-14	Added funding for I. Phase 7.1 Model Update.
Task Order 9 Amendment 11	$373,000	-	$1,711,341	12-Sep-13	30-Sep-14	Added funding for C. Evaluation of Channel Size, and K. Phase 8 Model Update.
Task Order 9 Amendment 12	$193,000	-	$1,904,341	9-Oct-14	31-Mar-15	Added F.XI HEC-RAS Models-Maple R. Aqueduct; M. Eastern Staging Area Evaluation; and N. Staging Area Culvert and Bridge Survey.
Task Order 9 Amendment 13	$90,000	-	$1,994,341	12-Mar-15	30-Sep-15	Added O. NDSU Agricultural Impacts Study Support.
Task Order 9 Amendment 14	$330,000	-	$2,324,341	14-Aug-15	31-Mar-16	Added budget for subtasks C., K., M., and O.
Task Order 9 Amendment 15	$98,021	-	$2,422,362	13-Aug-15	31-Mar-16	Reallocated budget, and extended POP of selected subtasks to 31-Mar-16.

DISCUSSION:

For subtasks that have been completed and have budget remaining, that budget was reallocated to tasks that remain open. There were minor budget overruns (less than $1,000) for subtasks F.I, F.III, and F.VIII.

Additional costs of $68,184 for meetings and consulting were incurred to support the USACE Maple River Aqueduct Physical Model.

Additional scope and budget ($350,493) are requested to complete the Phase 8 modeling task. Work includes: revising the Phase 8 model to match the Hickson Hydrograph and recalibrate the model, evaluation of RRN tributary hydrographs, address outstanding review comments, review and incorporate Western Cass Flood Insurance Study geometry and hydrology, compare Phase 8 model to Phase 7.1 model, and perform QA/QC reviews.

Additional scope and budget ($27,537) is requested to support the update (expanded geography) of the NDSU Agricultural Impacts Study.

TO09 Hydrology and Hydraulic Modeling Budgets by Subtask:

Subtask	Activity ID	Current Budget ($)	Amendment 15 ($)	Total ($)
HMS Diversion Inlet Modeling	SW-1040	22,121	(2,702)	19,419
Updates to Rush/Lower Rush	SW-1050	16,401	(986)	15,415
Evaluation of Channel Size	SW-1040	237,605	(169,422)	68,183
Extend RAS Geometry of Rush/Lower Rush	SW-1040	17,714	(11,182)	6,532
Physical Modeling Assistance	SW-1040	10,500	(272)	10,228
ON-CALL SERVICES (ALLOWANCE)	SW-1040	44,900	0	44,900
F.I. Extreme Rainfall Events	SW-1270	7,500	260	7,760
F.II. Extreme Event Evaluations	SW-1270	26,600	(182)	26,418
F.III Tributary Peak Model Runs to Support the Maple River Aqueduct Physical Model	SW-6100	20,000	81	20,081
F.IV Additional Assistance for the Maple River Aqueduct Physical Model	SW-6110	104,000	68,184	172,184
F.V Unsteady HEC-RAS Modeling of Existing PMF Inflows	SW-1040	50,000	(3,199)	46,801
F.V Phase 2 Numeric Modeling	SW-1040	60,000	(30,779)	29,221
F.VI Update HEC-RAS Model	SW-1040	36,000	(29)	35,971
F.VII Connecting Channel and 20-year Existing Conditions	SW-1040	9,000	(2,586)	6,414
F.VIII Maple River Aqueduct Flow Analysis	SW-1040	15,000	52	15,052
F.IX Update HEC-RAS Models – Maple River Aqueduct & Reach 6 Bridge	SW-6110	40,000	(4,910)	35,090
F.X Water Monitoring Gage Survey	SW-6080	5,000	(982)	4,018
F.XI. HEC-RAS Models - Maple River Aqueduct	SW-6150	25,000	(4,910)	20,090

G. Basin-Wide Retention Support	SW-1040	55,000	0	55,000
H. Phasing Plan Interim Modeling	SW-6140	90,000	(34,837)	55,163
I. Phase 7.1 Model Update	SW-1040	165,000	(460)	164,540
J. Update PMF Study with Revised Distribution of Snowmelt Runoff	SW-6130	116,000	(4,391)	111,609
K. Phase 8 Model Update	SW-1040	732,000	350,493	1,082,493
L. Update the Balanced Hydrographs at Hickson, ND	SW-6090	167,000	(45,482)	121,518
M. Eastern Staging Area Evaluation	SW-6070	52,000	0	52,000
N. Staging Area Culvert and Bridge Survey	SW-6060	153,000	(31,275)	121,725
O. NDSU Ag Impacts Study Support	SW-1040	47,000	27,537	74,537
TOTAL		**2,324,341**	**98,021**	**2,422,362**

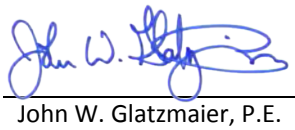
The PMC reviewed HMG's revised cost proposals and found it to be acceptable.

This change amount of $98,021 is included in the FY-2016 FMDA budget.

ATTACHMENT(S):

1. Draft Task Order 9, Amendment 15
2. HMG Cost Proposal for K. Phase 8 Model Update

Presented by:



John W. Glatzmaier, P.E.
CH2M
Project Manager
Metro Flood Diversion Project

Feb 3, 2016
Date

Keith Berndt, Cass County Administrator
Concur: Feb 4, 2016 *Non-Concur:* _____

April Walker, Fargo City Engineer
Concur: Feb 3, 2016 *Non-Concur* _____

Mark Bittner, Fargo Director of Engineering
Concur: Feb 3, 2016 *Non-Concur:* _____

Jason Benson, Cass County Engineer
Concur: Feb 3, 2016 *Non-Concur* _____

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

Robert Zimmerman, Moorhead City Engineer
Concur: Feb 3, 2016 *Non-Concur* _____

Nathan Boerboom, Diversion Authority Project Manager
Concur: Feb 3, 2016 *Non-Concur:* _____

This is Task Order No. 9, Amendment 154, consisting of 23~~2323122~~ pages.

Houston-Moore Group, LLC

Task Order No. 9, Amendment 154

FMDA Purchase Order No. 152024

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 hydraulic~~ologic~~ 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 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:

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.

m. Additional Updates to Phase 8 Model

i. Revise Phase 8 HEC-RAS model hydrology to match revised Hickson hydrology and HEC-HMS Phase 2 modeling. Recalibrate 10%, 4%, 2%, 1%, and 0.2% chance synthetic events.

ii. Evaluate Red River and tributary hydrographs between Fargo and Drayton, and update Phase 8 HEC-RAS model.

iii. Address outstanding USACE Agency Technical Review (ATR) comments and Independent Technical Review (ITR) comments on Phase 8 HEC-RAS model.

iv. Review Western Cass Flood Insurance Study (FIS) geometry and hydrology, and incorporate into the Phase 8 HEC-RAS model. Update floodplain mapping.

v. Provide review of, and revisions to, Phase 8 model, and assess against Phase 7.1 model. Elements to be considered include staging area elevations and river profiles; effects of new hydrology; geometry; and project operation.

~~l.~~vi. Perform QA/QC on work products prior to submittal.

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.

~~e.~~f. Updated Phase 8 model, incorporating modifications resulting from the scope activities described in 2.K.II.m (above).

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.

e. Recalibrate H&H models to account for the additional culverts identified in the HEC-RAS model.

III. Deliverables:

a. Electronic survey files

b. Maps

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

d. Updated H&H model

O. NORTH DAKOTA STATE UNIVERSITY (NDSU) AGRICULTURAL IMPACTS STUDY SUPPORT

I. Background: Modeling, mapping, and data is needed to support the NDSU agriculture impacts study for areas with impacts of 1-foot and greater.

II. Scope:

a. Coordinate and meet with NDSU staff on data needs.

b. Provide tabular and mapped data for the 10-, 25-, 50-, 100-, and 500-year floods and extended duration hypothetical floods.

III. Deliverables:

a. Maps for the 10-, 25-, 50-, 100-, and 500-year floods and extended duration hypothetical floods

b. Table of data collected for agriculture impacts surveyed

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	December 31, 2016~~March 31, 2016~~
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	December 31, 2016~~September 30, 2015~~
F.I Extreme Rainfall Events	September 13, 2012	November 30, 2012
F.II. Extreme Event Evaluations	September 13, 2012	March 31, 2016
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	December 31, 2016~~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	December 31, 2016~~March 31, 2016~~
H. Phasing Plan Interim Modeling	April 24, 2013	September 30, 2015
I. Phase 7.1 Model Update	July 11, 2013	April 30, 2014
J. Update PMF Study with Revised Distribution of Snowmelt Runoff	July 11, 2013	December 31, 2013
K. Phase 8 Model Update	September 12, 2013	December 31, 2016~~March 31, 2016~~

Subtask	Start Time	Completion Time
L. Update the Balanced Hydrographs at Hickson, ND	October 10, 2013	September 30, 2014
M. Eastern Staging Area Evaluation	October 9, 2014	December 31, 2016~~March 31, 2015~~
N. Staging Area Culvert and Bridge Survey	October 30, 2014	March 31, 2015
O. NDSU Agricultural Impacts Study Support	March 12, 2015	December 31, 2016~~March 31, 2016~~

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	Activity ID	Current Budget ($)	Change ($)	Revised Budget ($)
A. HMS Diversion Inlet Modeling	SW-1040	22,121	(2,702)~~0~~	19,419~~22,121~~
B. Updates to Rush/Lower Rush	SW-1050	16,401	(986)~~0~~	15,415~~16,401~~
C. Evaluation of Channel Size	SW-1040	237,605	(169,422)~~0~~	68,183~~237,605~~
D. Extend RAS Geometry of Rush/Lower Rush	SW-1040	17,714	(11,182)~~0~~	6,532~~17,714~~
E. Physical Modeling Assistance	SW-1040	10,500	(272)~~0~~	10,228~~10,500~~
F. ON-CALL SERVICES (ALLOWANCE)	SW-1040	44,900	0	44,900
F.I. Extreme Rainfall Events	SW-1270	7,500	260~~0~~	7,760~~7,500~~
F.II. Extreme Event Evaluations	SW-1270	26,600	(182)~~0~~	26,418~~26,600~~
F.III Tributary Peak Model Runs to Support the Maple River Aqueduct Physical Model	SW-6100	20,000	81~~0~~	20,081~~20,000~~

Subtask	Activity ID	Current Budget ($)	Change ($)	Revised Budget ($)
F.IV Additional Assistance for the Maple River Aqueduct Physical Model	SW-6110	104,000	68,184~~0~~	172,184~~104,000~~
F.V Unsteady HEC-RAS Modeling of Existing PMF Inflows	SW-1040	50,000	(3,199)~~0~~	46,801~~50,000~~
F.V Phase 2 Numeric Modeling	SW-1040	60,000	(30,779)~~0~~	29,221~~60,000~~
F.VI Update HEC-RAS Model	SW-1040	36,000	(29)~~0~~	35,971~~36,000~~
F.VII Connecting Channel and 20-year Existing Conditions	SW-1040	9,000	(2,586)~~0~~	6,414~~9,000~~
F.VIII Maple River Aqueduct Flow Analysis	SW-1040	15,000	52~~0~~	15,052~~15,000~~
F.IX Update HEC-RAS Models – Maple River Aqueduct & Reach 6 Bridge	SW-6110	40,000	(4,910)~~0~~	35,090~~40,000~~
F.X Water Monitoring Gage Survey	SW-6080	5,000	(982)~~0~~	4,018~~5,000~~
F.XI. HEC-RAS Models - Maple River Aqueduct	SW-6150	25,000	(4,910)~~0~~	20,090~~25,000~~
G. Basin-Wide Retention Support	SW-1040	55,000	0	55,000
H. Phasing Plan Interim Modeling	SW-6140	90,000	(34,837)~~0~~	55,163~~90,000~~
I. Phase 7.1 Model Update	SW-1040	165,000	(460)~~0~~	164,540~~165,000~~
J. Update PMF Study with Revised Distribution of Snowmelt Runoff	SW-6130	116,000	(4,391)~~0~~	111,609~~116,000~~
K. Phase 8 Model Update	SW-1040	732,000	350,493~~0~~	1,082,493~~732,000~~
L. Update the Balanced Hydrographs at Hickson, ND	SW-6090	167,000	(45,482)~~0~~	121,518~~167,000~~
M. Eastern Staging Area Evaluation	SW-6070	52,000	0	52,000
N. Staging Area Culvert and Bridge Survey	SW-6060	153,000	(31,275)~~0~~	121,725~~153,000~~
O. NDSU Agricultural Impacts Study Support	SW-1040	47,000	27,537~~10,000~~	74,537~~47,000~~
TOTAL		**2,324,341~~1,994,341~~**	**98,021~~330,000~~**	**2,422,362~~2,324,341~~**

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

C. Provide Monthly Invoice and status report

i. Status report will accompany invoice and detail work completed during the invoice period.

ii. Status report will be organized by subtask and provide narrative of work completed on each subtask.

iii. Status of work completed will include:

1. Outstanding issues to resolve, expected steps to progress work, outstanding items required from either Owner, Owner's Representative, or others to progress work, anticipated completion date of subtasks.

2. Dates of on-call services provided and description of the activities performed by Engineer, including any deliverables produced.

3. Dates of deliverables otherwise required under the Project Management task.

6. Consultants: None

7. Other Modifications to Agreement: None

8. Attachments: None

9. Documents Incorporated By Reference:

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.

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	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

HMG

FM Metro Risk Management Project

Cost Proposal for Task Order 9, Amendment 15 - Phase 8 Model Update

Task	Activity Description	Personnel Costs										Cost Per Task
		Senior Project Engineer		Project Manager		Project Engineer		Graduate Engineer		GIS Technician III		
		Hours	Cost	Hours	Cost	Hours	Cost	Hours	Cost	Hours	Cost	
Additional Services												
Task 1	Modify Phase 8 HEC-RAS model hydrology to match revised Hickson hydrology and HEC-HMS Phase 2 modeling. This task required recalibration of the 10, 4, 2, 1, and 0.2% chance synthetic events.	16	$ 2,592	80	$ 12,560	200	$ 25,600	200	$ 22,000	40	$ 4,920	$ 67,672
Task 2	Evaluate historical Red River and tributary hydrographs between Fargo and Drayton. Update Phase 8 HEC-RAS model.	16	$ 2,592	40	$ 6,280	100	$ 12,800	100	$ 11,000	0	$ -	$ 32,672
Task 3	Addressing outstanding USACE Agency Technical Review (ATR) comments and Independent Technical Review (ITR) comments in Phase 8 HEC-RAS model.	16	$ 2,592	160	$ 25,120	200	$ 25,600	200	$ 22,000	40	$ 4,920	$ 80,232
Task 4	Review and incorporate Western Cass Flood Insurance Study (FIS) geometry and hydrology into the Phase 8 HEC-RAS model. Update floodplain mapping.	16	$ 2,592	60	$ 9,420	120	$ 15,360	120	$ 13,200	120	$ 14,760	$ 55,332
Task 5	Provide review of, and revisions to Phase 8 model. Comparisons made to Phase 7.1 models. Includes staging Area elevations and river profiles, effects of new hydrology, geometry, and project operation.	16	$ 2,592	80	$ 12,560	100	$ 12,800	100	$ 11,000	24	$ 2,952	$ 41,904
Task 6	Miscellaneous Study Requests. This task is for additional modeling efforts to be requested by USACE and/or DA. For example, staging area road elevation sensitivity evaluation.	16	$ 2,592	80	$ 12,560	120	$ 15,360	160	$ 17,600	24	$ 2,952	$ 51,064
Task 7	QA/QC	48	$ 7,776	20	$ 3,140	40	$ 5,120	40	$ 4,400	10	$ 1,230	$ 21,666
	Total	144	$ 23,328	520	$ 81,640	880	$112,640	920	$101,200	258	31734	$ 350,542
	Grand Totals											$ 350,542

Technical Staff Recommendation

Meeting Date: 2/2/2016

RECOMMENDATION FOR ACTION:

The Technical Staff have reviewed and recommends approval of the following Contract Action(s).

SUMMARY OF CONTRACTING ACTION:

The Owner's Representative prepared the following Contract Action(s) for the Technical Staff team:

List description of Contract Action(s):

HMG

MFDA – Task Order 13, Amendment 12 – Levee Design and Design Support $610,000

- Add WP-43D Pump Station Design
- Add WP-43 O/H/B Wetland Mitigation Design
- Add WP-43A Levee Inspection for Upstream Staging Area Ring Levees
- Add Land Surveying for ROW Acquisition
- Extend POP to December 31, 2016

BACKGROUND:

Houston-Moore Group, LLC (HMG) is the Engineer of Record for the design of the levees along the Red River, and has provided levee design and design support services under Task Order 13 from November 8, 2012, to the present time. See the table on the next page for a summary of the amendments to the Task Order.

This amendment adds budget for WP-43D (Pump Station Design); WP-43 (O/H/B Wetland Mitigation Design); WP-43A (Levee Inspection); and Land Surveying for ROW Acquisition. The POP for all activities is also extended to December 31, 2016.

Summary of Contracting History and Current Contract Action:

Original Agreement or Amendment	Budget ($) Change	Original Project Cost	Revised Project Cost	Project Start	Project Completion	Comments
Task Order 13 Amendment 0	-	$425,000	-	8-Nov-12	30-Sep-13	Initial authorization of 2.B.i and 2.B.ii.
Task Order 13 Amendment 1	$150,000	-	$575,000	13-Dec-12	30-Sep-13	Added Ring Levee Evaluations for Oxbow/Hickson/Bakke; Comstock; Christine; and Wolverton. Added Non-Structural Improvement Evaluation for staging area, and public meeting support.
Task Order 13 Amendment 2	$4,090,000	-	$4,665,000	8-Aug-13	31-May-15	Added Red River Levees-Phase 2, and VES reports for WP-43A, WP-43C, WP-43D, and WP-43E. Add mapping of impacted residential structures in Staging Area.
Task Order 13 Amendment 3	$135,000	-	$4,800,000	14-Nov-13	30-Sep-14	Added landscape architecture and master planning for 2nd St. corridor. Added master planning services for Mickelson to the 4th St. levee.
Task Order 13 Amendment 4	$600,000	-	$5,400,000	13-Feb-14	30-Sep-14	Added 4th St. Levee Pump Station Replacement.
Task Order 13 Amendment 5	$55,000	-	$5,455,000	8-May-14	30-Sep-14	Added laboratory testing for Red River Levees – Phase 1 Design.
Task Order 13 Amendment 6	$549,000	-	$6,004,000	14-Aug-14	30-Sep-14	Added Phase 2-Design misc design work; misc design work and preparation of bid package for 4th St. Levee PS. Added land surveying for In-Town Levee and O/H/B Ring Levee.
Task Order 13 Amendment 7	$115,000	-	$6,119,000	9-Oct-14	30-Sep-15	Added O/H/B Ring Levee Design Modification – 100-Year Elevation.
Task Order 13 Amendment 8	$450,000	-	$6,569,000	5-Feb-15	31-Mar-16	Added Phase II ESAs for Case Plaza and City Hall; conceptual design for 2nd St. N pedestrian overpass; Mickelson Levee Extension.
Task Order 13 Amendment 9	$190,000	-	$6,759,000	12-Mar-15	31-Mar-16	Added El Zagal Phase 2 Design.
Task Order 13 Amendment 10	$602,000	-	$7,361,000	11-Jun-15	31-Mar-16	Added Phase 2 Design misc design work.
Task Order 13 Amendment 11	$418,000	-	$7,779,000	13-Aug-15	31-Mar-16	Added funding for Upstream Staging Area Ring Levees.
Task Order 13 Amendment 12	$610,000	$7,779,000	$8,389,000	10-Jul-14	31-Dec-16	Add WP-43D (O/H/B Pump Station Design); WP-43 Wetland Mitigation Design; WP-43A (Levee inspection); Land Surveying for ROW Acquisition; extend POP to 31-Dec-16.

DISCUSSION:

WP-43D Pump Station Design:

Prepare revised engineering contract documents for the O/H/B pump station, based on the full-height 100 year flood elevation. Modify design elements as required to be compliant with building classification (e.g., non-explosion proof wetwell equipment changes).

WP-43D O/H/B Wetland Mitigation Design:

Perform wetland delineation for existing conditions on the current site. Provide design for the OHB Wetland Mitigation site located on the former Oxbow Country Club. Provide environmental and design assistance on the wetland mitigation for the Diversion Inlet and CH16/CH17 bridge/roadway.

WP-43A Levee Inspection for Upstream Staging Area Ring Levees:

The WP-43A levee was constructed in 2014, and has not been formally inspected or maintained since that time. Anecdotal observations suggest that the levee could benefit from maintenance in 2016. This subtask will provide for the Engineer to inspect the levee and determine the needed maintenance activities. The Engineer's recommendation will be provided to the Owner in the form of a technical brief.

Land Surveying for ROW Acquisition:

Where requested to support the land acquisition process, provide land surveys for WP-42 (In Town Levees, and specifically to support the replat of 2nd Street North in Fargo, ND) and WP-43 (OHB Ring Levee).

TO13 Levee Design and Design Support Budgets by Work Package:

Work Package	Activity ID	Current Budget ($)	Amendment 12 ($)	Total ($)
Red River Levees – Phase 1 Design	DE-7430	490,000	0	490,000
Landscape Arch/MP – 2nd St. Corridor	DE-7430	35,000	0	35,000
Master Planning Svcs – Mickelson to 4th	DE-7430	100,000	0	100,000
Red River Levees – Phase 2 Design	DE-7430	3,064,000	0	3,064,000
Red River Levees – VES	DE-7430	30,000	0	30,000
4th St. PS Replacement	DE-7430	600,000	0	600,000
Michelson Levee Ext	DE-7430	328,000	0	328,000
El Zagal Phase 2 Levee Design	DE-7430	190,000	0	190,000
Upstream Staging Area Ring Levees	CN-6860	440,000	0	440,000
WP-43A Design	CN-6860	362,499	0	362,499
WP-43C Design	CN-6860	210,747	0	210,747
WP-43D Design	CN-6860	1,439,332	454,000	1,893,332
WP-43E Design	CN-6860	260,000	0	260,000
O/H/B Ring Levee – VES	CN-6860	33,694	0	33,694
O/H/B Ring Levee Design Mod	CN-6860	127,240	0	127,240
O/H/B Wetland Mitigation Design	CN-6860	0	92,000	92,000
WP-43A Levee Inspection	CN-6860	0	5,000	5,000
Land Surveying for ROW Acquisition	CN-6860	68,488	59,000	127,488
TOTAL		**7,779,000**	**610,000**	**8,389,000**

The PMC reviewed HMG's revised cost proposals and found it to be acceptable.

This change amount of $610,000 is included in the FY-2016 FMDA budget.

ATTACHMENT(S):

1. Draft Task Order 13, Amendment 12
2. HMG Cost Proposal for WP-43D (O/H/B Pump Station Design) and WP-43A (Levee Inspection)
3. HMG Cost Proposal for WP-43 (Wetland Mitigation Design)
4. HMG Cost Proposal for Land Surveying for ROW Acquisition

Presented by:

Feb 2, 2016

John W. Glatzmaier, P.E.
CH2M HILL
Project Manager
Metro Flood Diversion Project

Date

Keith Berndt, Cass County Administrator
Concur: Feb 2, 2016 *Non-Concur:* _____

April Walker, Fargo City Engineer
Concur: Feb 2, 2016 *Non-Concur* _____

Mark Bittner, Fargo Director of Engineering
Concur: Feb 3 2016 *Non-Concur:* _____

Jason Benson, Cass County Engineer
Concur: Feb 2, 2016 *Non-Concur* _____

David Overbo, Clay County Engineer
Concur: Feb 2, 2016 *Non-Concur:* _____

Robert Zimmerman, Moorhead City Engineer
Concur: Feb 2, 2016 *Non-Concur* _____

Nathan Boerboom, Diversion Authority Project Manager
Concur: Feb 2, 2016 *Non-Concur:* _____

This is Task Order No. 13, Amendment 12~~1~~, consisting of 2~~12~~12112~~0~~ pages.

Houston-Moore Group, LLC

Task Order No. 13, Amendment ~~11~~12

FMDA Purchase Order No. 157599

Levee Design and Design Support

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. 13 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: **Levee Design and Design Support**

   B. Description: As part of Work-in-Kind (WIK), provide assistance to USACE, in design and design support activities, for design of levees along the Red River to support increased flow through the protected area and for levees in the upstream staging area. Provide Lands, Easements, Rights-of-Way, Relocations, and Disposal areas (LERRDs) assistance to Owner to support the levee designs.

   C. Background:

      i. Red River Levees: At the November 8, 2012 Diversion Board meeting, the Board requested the US Army Corps of Engineers (USACE) add levees along the Red River to allow increased flow through the protected area. This task order allows HMG to provide design and design support to USACE for these Red River levees.

         1. Phase 1 – Screening of alternatives and selecting final alignment scope to include: Development of Alternatives, Public Involvement, Surveying, Geotechnical Exploration and Testing, Preliminary Geotechnical Analysis, Preliminary Hydrologic and Hydraulic Analysis, Preliminary Internal Flood Control Analysis, Preliminary Utility Investigation, Preliminary Levee and Structural Design, Transportation Evaluation, Preliminary Environmental Studies, Preliminary Report and Drawings, and Project Management.

         2. Phase 2 – Detailed Plans and Specifications: Based on the alternative selected in Phase 1, conduct a Value Engineering (VE) evaluation of the proposed project and prepare plans and specifications for 65 and 95 percent submittals, and prepare a cost estimate based on the 95 percent design submittal. Notice To Proceed (NTP) will be subject to the completion and signing of the USACE Supplemental Environmental Assessment (EA).

      ii. Upstream Staging Area Levees/Ring Dikes: At the November 8, 2012 Diversion Board meeting, the Board passed AWD-00020 Recommended Board of Authority Position for Post-Feasibility Alternatives Analysis VE-13A vs. VE-13C, which authorized HMG to begin conceptual design and site investigations of potential levees for the Oxbow.

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2. Services of Engineer

A. General

i. Red River Levees. Prepare Preliminary Design Report (PDR) and drawings for the construction of levees through town. The work will be done in 2 phases: Phase 1 will include screening of alternatives, preliminary design, and selecting final alignments. Phase 2 will include detailed plans and specifications.

ii. Support for Upstream Stage Area Levees. Provide, as requested, assistance to USACE for design of ring levees and non-structural improvements in the Upstream Staging Area.

1. Provide detailed designs for four of the Oxbow/Hickson/Bakke ring levee Work Packages (WP-43A, WP-43C, WP-43D, and WP-43E).

B. Scope of Work

i. Red River Levees – Work will be done in 2 phases:

1. Phase 1 - Screening of Alternatives, Selection of Alignment, and Preliminary Design for the area in Fargo, ND along the Red River between the existing railroad embankment near 5th Avenue North and the north end of the existing 4th Street levee (near 2nd Street South). Work will include:

a. Development of Alternatives – Develop up to three (3) protection alignment concepts and conceptual level cost estimates. Participate in an alignment selection meeting.

b. Public involvement – Meet with affected property owners (5 anticipated), participate in two (2) public meetings, and respond to calls after public meetings. Prepare visualizations of alignment alternatives(s).

c. Surveying – Conduct topographic survey of project corridor including elevations, utilities, landscaping, buildings, and streets.

d. Geotechnical Exploration and Testing – Determine location of borings, right-of-entry requests, conduct borings, field and laboratory testing, to determine surface and subsurface geological conditions.

e. Preliminary Geotechnical Analysis – Conduct preliminary stability analysis on alignment alternatives and report of findings.

f. Preliminary Hydrologic and Hydraulic Analysis - Conduct HEC-RAS modeling to complete preliminary evaluation of Red River stage impacts due to proposed project.

g. Preliminary Internal Flood Control Analysis – Conduct SWMM model update for existing conditions and proposed conditions with project (including consideration of interior ponding), review of historical precipitation and stream flow, simulation of low river gravity outlet condition, simulation of high river pumped outlet condition, and determine preliminary pump sizing and additional internal storage needs.

h. Preliminary Utility Investigation – Determine preliminary utility relocation requirements, conduct utility coordination meeting, and document utility relocation requirements and issues.

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i. Preliminary Levee Design Structural Design – Develop preliminary design of levee protection system, preliminary estimate of embankment and borrow requirements, and prepare a narrative of design criteria.

j. Preliminary Structural Design – Develop preliminary design for proposed floodwalls and closures, pump stations, and miscellaneous drainage structures. Prepare a narrative with descriptions of features, design considerations, and criteria assumptions.

k. Transportation Evaluation – Develop initial evaluation of transportation impacts, and participate in two (2) coordination meetings with City of Fargo staff and two (2) coordination meetings with railroad staff. Develop up to five (5) alternatives for the 2nd Street road alignment to accommodate flood protection alternatives.

l. Preliminary Environmental Studies – Complete Phase 1 Environmental Site Assessment report for six (6) properties.

m. Preliminary Design Report and Drawings – Prepare Preliminary Design Report (PDR) with cost estimates and preliminary project plans for selected alignment. Prepare artists renderings of selected plan.

n. Project Management – Document coordination and review, schedule and resource management, budgeting, and project team coordination.

o. Landscape Architecture/Master Planning- Provide landscape architecture and master planning services for the Red River Levees.

    i. Provide landscape architecture services for the 2nd St. Corridor from NP Ave. to 4th Ave. Coordinate with the city of Fargo City Hall Project throughout the design phase of the City Hall Project.

    ii. Provide master planning services from Mickelson to the 4th St. Levee.

2. Phase 2 – Detailed Plans and Specifications: Complete detailed project engineering and design and provide plans and technical specifications (Division 2 and higher) for the selected alternative from Phase 1. Include required surveying, environmental studies, permitting, removals and demolition, geotechnical and hydraulic analyses, internal flood control and pumping, levee systems, floodwalls, closures, traffic evaluations, road realignments and signal changes, public and private utility relocations, landscaping, drawings and specifications, internal QA/QC, design documentation, operation and maintenance plan, and project management and coordination. Major milestone deliverables include:

    a. 65 Percent Design Submittal – evaluate and incorporate accepted VE proposals into the design documents, advance the detailed design to 65 percent and submit the design report, plans and specifications for review by the Diversion Authority, PMC, USACE Consistency, Agency Technical Review (ATR) and USACE Independent External Peer Review (IEPR) review teams.

    b. 95 Percent Design Submittal – evaluate and incorporate 65 percent review comments into the design documents, advance the detailed design to 95 percent and submit the design report, plans and

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specifications for review by the Diversion Authority, PMC, and USACE Consistency and ATR review teams.

c. Cost Estimate – prepare a cost estimate for the project based on the 95 percent submittal documents.

d. Operation and Maintenance Plan – prepare draft O&M Plan for review by the Diversion Authority, PMC, and USACE. Incorporate review comments and prepare final O&M Plan.

e. Bid Document Development – incorporate 95 percent review comments into the design documents and assist the PMC with development of bid documents.

f. Additional design work to accommodate requested project changes:

   i. Increase 2nd Street N pump station size and pumping capacity to 75,000 gpm and add formed pump suction inlets.

   ii. Coordinate electrical design for connection to new back-up power generator on New City Hall site.

   iii. Add forty feet of floodwall to the pump station construction package.

   iv. Use USACE specifications in lieu of City of Fargo Specifications for the pump station.

   v. Coordinate pump station and floodwall architectural and design and aesthetics with the New City Hall project.

   vi. Provide Computational Fluid Dynamics (CFD) modeling for the pump station wetwell and pump inlet design.

   vii. 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.

      1. 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.

      2. Deliverables include draft and final Phase II ESA Reports for Case Plaza and City Hall parking lot properties, and laboratory test results.

   viii. A 2nd St N Pedestrian Overpass between the City Hall project and the Red River at 2nd Avenue N is desired and is integral to the 2nd St N floodwall design. Provide the following conceptual design services:

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1. Prepare for and attend four (4) coordination meetings and Commission meeting.
2. Develop bridge design concepts for prefabricated and pre-stressed options, at-grade crossing concepts, and coordination with landscape design.
3. Prepare visualizations and graphics for City Commission Meeting.
4. Provide a summary report.

ix. Provide soil characterization for Case Plaza lot, conduct geo-probes and soil characterization to determine if soil is suitable for re-use on the project.

x. Provide additional design services for flood wall including wall aesthetics and accommodation of future pedestrian bridge.

xi. Provide additional planning and design services and coordination to integrate design with the new Fargo City Hall project.

xii. Provide additional design services to prepare multiple bid packages to accommodate construction phasing of flood control features. This includes additional design, plan preparation, and design reviews.

3. Value Engineering Study (VES)

    a. Facilitate a VES in accordance with USACE guidelines (up to 3 days) with staff from the Diversion Authority, Program Management Consultant (PMC), and USACE. Prepare and distribute materials and documents, facilitate the workshop, and prepare a VES report.

4. 4th Street Levee Pump Station Replacement

    a. Background: At the November 8, 2012 Diversion Board meeting, the Board requested the USACE add levees long the Red River to allow increased flow through the protected area. To allow 35 feet through town, the 4th Street levee requires certification. In order to meet certification criteria, the stormwater pump stations on the north end of the levee must be replaced.

    b. Detailed Plans and Specifications: Provide design services and prepare detailed plans as described below.

        i. Complete detailed project engineering and design and provide plans and technical specifications (Division 2 and higher) for the 4th Street Levee Pump Station. Include required surveying, Section 408 permit (if required), removals and demolition, geotechnical and hydraulic analyses, internal flood control and pumping, levee systems, closures, traffic evaluations, service road realignments, public and private utility relocations, landscaping, drawings and specifications, internal QA/QC, design documentation, operation and maintenance plan, and project management and coordination. Major milestone deliverables include:

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1. 35 Percent Design Submittal – prepare preliminary design submittal and submit the design report and preliminary plans for review by the Owner, PMC, and USACE Consistency and ATR review teams.
2. 95 Percent Design Submittal – evaluate and incorporate 35 percent review comments into the design documents, advance the detailed design to 95 percent and submit the design report, plans and specifications for review by the Owner, PMC, and USACE Consistency and ATR review teams.
3. Pre-Purchase Specifications - prepare up to 3 pre-purchase specifications, if requested, for:
    a. Gates
    b. Pumps
    c. Electrical Panels
4. Cost Estimate – prepare a cost estimate for the project based on the 35 percent and 95 percent submittal documents.
5. Operation and Maintenance Plan – prepare draft O&M Plan for review by the Owner, PMC, and USACE. Incorporate review comments and prepare final O&M Plan.
6. Bid Document Development – incorporate 95 percent review comments into the design documents and assist the PMC with development of bid documents.

c. Additional design work to accommodate requested project changes:
    i. Increase capacity of the back-up power generator to accommodate power for adjacent sanitary sewer lift station.
    ii. Modify the pump station and generator building design including: addition/modification of transoms and lintels, lower pump station slab, deletion of fuel storage, addition of louvers, removal of windows and parapets, and modification of brick veneer.

d. Deliverables:
    i. Detailed Plans and Specifications
        1. 35 Percent Design Submittal
        2. 95 Percent Design Submittal
    ii. Pre-Purchase Specifications
    iii. 35 Percent Cost Estimate
    iv. 95 Percent Cost Estimate
    v. Operation and Maintenance Plan
        1. Draft Plan
        2. Final Plan

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e. Work not included in this Scope of Services:

i. Environmental permitting
ii. Utility Relocation Agreements
iii. ROW Acquisition including Appraisals, Title Searches, Title Opinions, Deeds
iv. Bid documents and bidding services

5. Mickelson Levee Extension

a. Background: The Mickelson Levee Extension is a component of In-Town levees that was conceptually evaluated as part of the July 16, 2012 report entitled "*Final Technical Memorandum, AWD-00002 – Flows Through Flood Damage Reduction Area*" and includes an extension of the existing Mickelson levee to the south to tie into high ground.

b. Detailed Plans and Specifications: Provide design services and prepare detailed plans as described below.

i. Complete detailed project engineering and design and provide plans and technical specifications (Division 2 and higher) for the Mickelson Levee Extension. Include required surveying, Section 408 permit (if required), removals and demolition, geotechnical and hydraulic analyses, internal flood control and pumping, levee systems, public and private utility relocations, landscaping, drawings and specifications, internal QA/QC, design documentation, operation and maintenance plan, and project management and coordination. Major milestone deliverables include:

1. 35 Percent Design Submittal – prepare preliminary design submittal and submit the design report and preliminary plans for review by the Owner, PMC, and USACE Consistency and ATR review teams.

2. 65 Percent Design Submittal – evaluate and incorporate 35 percent review comments into the design documents, advance the detailed design to 65 percent and submit the design report, plans and specifications for review by the Owner, PMC, and USACE Consistency and ATR review teams.

3. 95 Percent Design Submittal – evaluate and incorporate 65 percent review comments into the design documents, advance the detailed design to 95 percent and submit the design report, plans and specifications for review by the Owner, PMC, and USACE Consistency and ATR review teams.

4. Cost Estimate – prepare a cost estimate for the project based on the 65 percent and 95 percent submittal documents.

5. Operation and Maintenance Plan – prepare draft O&M Plan for review by the Owner, PMC, and USACE. Incorporate review comments and prepare final O&M Plan.

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6. Bid Document Development – incorporate 95 percent review comments into the design documents and assist the PMC with development of bid documents.

c. Additional design work to accommodate requested project changes:

ii. None.

d. Deliverables:

iii. Detailed Plans and Specifications

1. 35 Percent Design Submittal
2. 65 Percent Design Submittal
3. 95 Percent Design Submittal

iv. 65 Percent Cost Estimate
v. 95 Percent Cost Estimate
vi. Operation and Maintenance Plan

6. El Zagal Phase 2 Levee Design

a. Background: The El Zagal Phase 2 Levee is a component of In-Town levees that was conceptually evaluated as part of the July 16, 2012 report entitled "Final Technical Memorandum, AWD-00002 – Flows Through Flood Damage Reduction Area" and includes an extension of recently completed El Zagal Phase 1 Levee to the south to tie into high ground.

b. Detailed Plans and Specifications: Provide design services and prepare detailed plans as described below.

i. Complete detailed project engineering and design and provide plans and technical specifications (Division 2 and higher) for the El Zagal Phase 2 Levee. Include required surveying, removals and demolition, geotechnical and hydraulic analyses, internal flood control and pumping, levee systems, roadway revisions, public and private utility relocations, landscaping, drawings and specifications, internal QA/QC, design documentation, operation and maintenance plan, and project management and coordination. Major milestone deliverables include:

1. 65 Percent Design Submittal – advance the detailed design to 65 percent and submit the design report, plans and specifications for review by the Owner, PMC, and USACE Consistency and ATR review teams.

2. 95 Percent Design Submittal – evaluate and incorporate 65 percent review comments into the design documents, advance the detailed design to 95 percent and submit the design report, plans and specifications for review by the Owner, PMC, and USACE Consistency and ATR review teams.

3. Cost Estimate – prepare a cost estimate for the project based on the 95 percent submittal documents.

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4. Operation and Maintenance Plan – prepare draft O&M Plan for review by the Owner, PMC, and USACE. Incorporate review comments and prepare final O&M Plan.

5. Bid Document Development – incorporate 95 percent review comments into the design documents and assist the PMC with development of bid documents.

c. Additional design work to accommodate requested project changes:

i. None.

d. Deliverables:

i. Detailed Plans and Specifications
ii. 65 Percent Design Submittal
iii. 95 Percent Design Submittal
iv. 95 Percent Cost Estimate
v. Bid Documents
vi. Operation and Maintenance Plan

ii. Upstream Staging Area Ring Levees:

1. Provide support as defined below and as requested in writing. Types of requests may include:

a. Respond to information requests by affected residences and develop information for presentations or public meetings.

b. Conduct a geotechnical site visit(s) of the levee site(s) to observe surface features and, if requested, conduct subsurface investigations.

c. Determine existing utilities and utility relocation requirements.

d. Begin conceptual design of the levees and/or floodwalls and floodgates, interior layout (which may include street layout, storm water sewer, storage, and lift station sizing, house relocation planning, and golf course layout), and external infrastructure (road raises for egress).

2. Oxbow/Hickson/Bakke – Ring Levee Evaluation:

a. Prepare a proposed ring levee system to reduce flood risk to Oxbow/Hickson/Bakke, ND during operation of the Diversion Project and staging of water. Show the location of a potential ring levee, develop height required for rink levee, and evaluate access during periods of Diversion operation.

b. The ring levee will impact the golf course and clubhouse. Provide conceptual design services for re-design of the golf course and clubhouse.

i. Provide an updated conceptual design of golf course and clubhouse based on update levee alignment to accommodate a total of 80 replacement residential lots.

c. Initial Survey and Geotechnical Activities for Levee Design:

i. Work with USACE to develop a geotechnical investigation plan for the alternative Levee alignments for approval.

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ii. Stake the location of approved borings and record the coordinates and elevations of the borings.

iii. Conduct laboratory testing on boring samples provide by the USACE for the OHB ring levee alternative alignments and Wild Rice River mirco-siting evaluation. Laboratory testing to include the following: Atterb~~u~~erg Limits, Water Content, Hydrometer and Sieve analysis, Proctor Density, Triaxial Compression-unconsolidated/undrained, Triaxial Compression-consolidated/undrained, Torsional Ring Shear, Consolidation Reporting P-e, and TWT Extrusion and Description. Approximately 580 laboratory tests are planned.

iv. Obtain and comply with right of entry (ROE) and right of way (ROE) requirements for each property entered.

The construction of the Oxbow/Hickson/Bakke (O/H/B) ring levee and associated work is phased. The work has been divided into five (5) Work Packages, which include: three (3) levee design packages, an interior drainage and road raise package, and a demolition and utility relocations package. One of the levee design packages (WP-43B) will be completed by the USACE. The remaining 4 design packages (WP-43A, WP-43C, WP-43D and WP-43E) will be completed in this scope of work. See Figure 1, attached.

Assumptions for WP-43A, WP-43C, WP-43D and WP-43E include:

- No additional surveys required (included in WP- 43B).
- Soil exploration, laboratory testing, and instrumentation costs included under WP-43B. Geotechnical design of the levee is required. Groundwater evaluation is required to determine impacts to existing septic systems, sewer systems and basements.
- No staging area water hydrologic and hydraulic (H&H) modeling required (included in WP- 43B). H&H for local drainage and interior drainage is required.
- Include design of levee, vegetation free zone, and ditching (input from WP-43B and WP-43D). CR-81 road raise will be in WP-43D. Retention basin/pump station design will be in WP-43D. Utility relocation design and demolition design will be in WP-43E.
- Coordination between designers for WP-43B, WP-43C, WP-43D, and WP-43E is required, along with review of design submittals from WP-43B.
- Develop design, plans, ROW drawings, technical specs, Design Documentation Report (DDR), cost estimate, and engineering considerations.
- Preliminary Engineering Report (PER) -35% review includes internal review, Sponsor review, and USACE Consistency and ATR review.
- Draft Technical Report (DTR) -65% review includes internal review, Sponsor review, USACE Consistency, ATR, and USACE IEPR. IEPR will be accomplished by the Natural Resources Conservation Service (NRCS)
- Final Technical Report (FTR) -95% review includes internal review, Sponsor review, and USACE ATR.

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- Final Technical Certification (Bid Documents). Provide final documents for closeout of remaining comments and technical signoff. There will not be a review associated with this submittal.
- Bid set will include final Plans and Specifications.
- Assume limited work effort during the bid period consisting of: responding to bidders' questions and preparing amendments.
- Provide final contract award CD of all work items.
- Weekly coordination meetings will be held and will include: tech lead, geotech, cost/specs, and H&H designers. Assume the meetings for WP-43A and WP-43C, WP-43D, and WP-43E will be combined into one weekly meeting.
- Provide right of way drawings for the WP-43B portion of the levee.

d. WP-43A – Levee Section from Riverbend Road to CR81 (southeast): Design approximately 7,300 lineal feet (lf) of levee, interior buffer zone, and interior drainage swale (if required – based on interior drainage developed in WP-43D), including geotechnical design, civil design, permitting, cost estimates, and preparation of drawings and technical specifications; coordinate design of interior levee buffer zone (drainage swale, snow drop area, and tree screen) and recreational features with O/H/B community and developer/golf course designer; determine e~~a~~ffect of levee and exterior impounded water on existing septic systems, sewer systems, and basements. Coordinate with design of Retention Basin (WP-43D). Coordinate with design of road raise of CR-81 (design WP-43D). To be constructed with interior drainage stormwater pump station (WP-43D).

   i. Deliverables:

      1. 35 Percent Design Submittal – prepare preliminary design submittal and submit the design report and preliminary plans for review by the Diversion Authority, PMC, and USACE Consistency and ATR review teams.
      2. 65 Percent Design Submittal – evaluate and incorporate accepted VE proposals into the design documents, advance the detailed design to 65 percent and submit the design report, plans and specifications for review by the Diversion Authority, PMC, and USACE Consistency, ATR & IEPR review teams.
      3. 95 Percent Design Submittal – evaluate and incorporate 65 percent review comments into the design documents, advance the detailed design to 95 percent and submit the design report, plans and specifications for review by the Diversion Authority, PMC, and USACE Consistency, ATR & IEPR review teams.

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4. Cost Estimate – prepare cost estimates for the project based on the 35 percent and 95 percent submittal documents.

5. Bid Document Development – incorporate 95 percent review comments into the design documents and assist the PMC with development of bid documents.

e. WP-43C - Levee Section from CR-81 (northeast) to Riverbend Road: Design approximately 5,000 lf of levee, including geotechnical design, civil design, permitting, cost estimates, and preparation of drawings and technical specifications; coordinate design of interior levee drainage with interior drainage design as part of WP-43D; coordinate design of interior levee slope and recreational features with O/H/B community and golf course designer. Removal/demolition of existing structures and utility cut, cap and removal will be designed under WP-43E.

i. Deliverables:

1. 35 Percent Design Submittal – prepare preliminary design submittal and submit the design report and preliminary plans for review by the Diversion Authority, PMC, and USACE Consistency and ATR review teams.

2. 65 Percent Design Submittal – evaluate and incorporate accepted VE proposals into the design documents, advance the detailed design to 65 percent and submit the design report, plans and specifications for review by the Diversion Authority, PMC, and USACE Consistency, ATR and IEPR review teams.

3. 95 Percent Design Submittal – evaluate and incorporate 65 percent review comments into the design documents, advance the detailed design to 95 percent and submit the design report, plans and specifications for review by the Diversion Authority, PMC, and USACE Consistency and ATR review teams.

4. Cost Estimate – prepare cost estimates for the project based on the 35 percent and 95 percent submittal documents.

5. Bid Document Development – incorporate 95 percent review comments into the design documents and assist the PMC with development of bid documents.

f. WP-43D –Interior Drainage and CR-81 Road Raises: Design interior drainage system for the O/H/B communities, including both new drainage infrastructure and required rehabilitation or upgrades to existing drainage infrastructure; design stormwater retention pond and new stormwater pump station, including surveying, H&H to determine ditch cross sections and slopes, culvert sizes and slopes,

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geotechnical, structural, electrical, architectural, civil, permitting, cost estimates, and preparation of drawings and technical specifications. Design road raises of CR-81, including geotechnical, geology, civil, cost estimates, and preparation of drawings and technical specifications, coordinate with levee design teams.

i. Deliverables:

1. 35 Percent Design Submittal – prepare preliminary design submittal and submit the design report and preliminary plans for review by the Diversion Authority, PMC, and USACE Consistency and ATR review teams.

2. 65 Percent Design Submittal – evaluate and incorporate accepted VE proposals into the design documents, advance the detailed design to 65 percent and submit the design report, plans and specifications for review by the Diversion Authority, PMC, and USACE Consistency, ATR and IEPR review teams.

3. 95 Percent Design Submittal – evaluate and incorporate 65 percent review comments into the design documents, advance the detailed design to 95 percent and submit the design report, plans and specifications for review by the Diversion Authority, PMC, and USACE Consistency and ATR review teams.

4. Cost Estimate – prepare cost estimates for the project based on the 35 percent and 95 percent submittal documents.

5. Operation and Maintenance Plan – prepare draft O&M Plan for review by Diversion Authority, PMC, and USACE. Incorporate review comments and prepare final O&M Plan.

6. Bid Document Development – incorporate 95 percent review comments into the design documents and assist the PMC with development of bid documents.

7. Provide a separate bid package for the pump station and gatewell pre-consolidation construction package.

8. Provide an above ground building for the stormwater pump station.

g. WP-43E – Demolition and Utility Relocations: Develop demolition plan for WP-43C Levee area (CR-81 (northeast) to Riverbend Road, including utility identification, identification of structures to be sold or demolished in place, environmental Phase 1, permitting, and required remediation. Design utilities to be cut, capped, and removed, and utilities to be relocated (coordinate with developer of new City of Oxbow infrastructure), including cost estimates, and drawings and

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technical specifications. Review adequacy of existing wastewater pump station and forcemain for the 38 additional residential units.

i. Deliverables:

1. 35 Percent Design Submittal – prepare preliminary design submittal and submit the design report and preliminary plans for review by the Diversion Authority, PMC, and USACE Consistency and ATR review teams.

2. 65 Percent Design Submittal – evaluate and incorporate accepted VE proposals into the design documents, advance the detailed design to 65 percent and submit the design report, plans and specifications for review by the Diversion Authority, PMC, and USACE Consistency, ATR and IEPR review teams.

3. 95 Percent Design Submittal – evaluate and incorporate 65 percent review comments into the design documents, advance the detailed design to 95 percent and submit the design report, plans and specifications for review by the Diversion Authority, PMC, and USACE Consistency and ATR review teams.

4. Cost Estimate – prepare cost estimates for the project based on the 35 percent and 95 percent submittal documents.

5. Bid Document Development – incorporate 95 percent review comments into the design documents and assist the PMC with development of bid documents.

h. VES or Value Based Design Charrette (VBDC) – facilitate a VES or VBDC in accordance with USACE guidelines (up to 3 days) with staff from the Diversion Authority, PMC, and USACE. Prepare and distribute materials and documents, facilitate the workshop, and prepare a VES report.

i. Coordinate and lead VES or VBDC of the five (5) O/H/B levee design packages (WP-43A through WP-43E).

i. O/H/B Ring Levee Design Modification - 100-year Elevation

Provide the following design services to provide a modified levee design for WP-43C and WP-43D to protect to the without project 100-year event elevation. Work tasks include:

i. Update interior flood control model based on 100-year levee earthwork quantities.

ii. Update WP-43D plans to include 100-year levee design.

iii. Update WP-43C plans to include 100-yr levee design.

iv. Calculate earthwork balance for 100-year levee design.

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v. Update stormwater pond designs for 100-year levee earthwork quantities.

vi. Provide roadway replacement plans and traffic control for gravity drain construction area on Cass County Highway 81.

vii. Update pump station design based on 100-yr levee scenario. Includes reconfiguration of pump station elevation as well as general civil for access, etc.

viii. Update DDRs for WP-43C and WP-43D, including interior flood control, to include 100-year levee design documentation.

ix. Provide QA/QC review of design modifications.

j. WP-43A – SDC

The WP-43A levee was constructed in 2014, and has not been formally inspected or maintained since that time. Anecdotal observations suggest that the levee could benefit from maintenance in 2016. This subtask will provide for the Engineer to inspect the levee and determine the needed maintenance activities. The Engineer's recommendation will be provided to the Owner in the form of a technical brief.

k. WP-43D – O/H/B Pump Station Redesign

Prepare revised engineering contract documents for the O/H/B pump station, based on the full-height 100 year flood elevation. Modify design elements as required to be compliant with building classification (e.g., non-explosion proof wetwell equipment changes).

l. WP-43D – Wetland Mitigation Design

Perform wetland delineation and design services ~~for~~ existing conditions on the current site and up to one additional site (for CR-16/17 Bridge). Provide design for the OHB Wetland Mitigation site located on the former Oxbow Country Club. Provide environmental and design assistance on the wetland mitigation for the Diversion Inlet and CH16/CH17 bridge/roadway.

3. Comstock – Ring Levee Evaluation:

a. Prepare a proposed ring levee system to reduce flood risk to Comstock, MN during operation of the Diversion Project and staging of water. Show the location of a potential ring levee, develop height required for rink levee, and evaluate access during periods of Diversion operation.

4. Christine – Ring Levee Evaluation:

a. Prepare a proposed ring levee system to reduce flood risk to Christine, ND during operation of the Diversion Project and staging of water. Show the location of a potential ring levee, develop height required

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for rink levee, and evaluate access during periods of Diversion operation.

5. Wolverton – Ring Levee Evaluation:

    a. Prepare a proposed ring levee system to reduce flood risk to Wolverton, MN during operation of the Diversion Project and staging of water. Show the location of a potential ring levee, develop height required for rink levee, and evaluate access during periods of Diversion operation.

6. Staging Area – Non-Structural Improvement Evaluation:

    a. Identify individual residential properties within the staging area and evaluate the potential benefit from non-structural improvements to reduce flood risk to residential structures during operation of the Diversion Project and staging of water. Show the location of potential improvements and evaluate access during periods of Diversion operation.

        i. Provide mapping of residential structures and farmsteads impacted by the Staging Area for the 100-year event, and include estimated depth of impact for the structures with and without the project.

        ii. Where technically feasible, provide concept for non-structural improvements and estimate cost of improvements.

        iii. Develop database of impacted properties that includes relevant project information (such as depth of impact with and without project, etc.)

        iv. Assist in preparation, provide meeting materials, and attend one-on-one meetings with impacted landowners.

7. Assist with preparation of materials for public meetings.

iii. Provide land surveying services for In Town Levee and OHB Ring Levee projects. The surveying is required to create Right of Way descriptions and certificates of survey for 34 partial takes for the OHB Ring Levee and 17 certificates for the In Town Levee project.

1. Provide real estate drawings for the El Zagal project per USACE requirements.

iv. Deliverables

1. Red River Levees – Phase 1

    a. Project Schedule with milestone dates for key activities and monthly updates
    b. Monthly Progress Reports and meeting minutes
    c. Alignment selection TM
    d. Geotechnical TM, including:
        - Geotechnical field and laboratory findings
        - Geotechnical stability analysis
        - Survey data
        - Geotechnical field logs
    e. Hydrologic and Hydraulic analysis TM
    f. Transportation TM
    g. Phase 1 Environmental Site Assessment reports

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h. Preliminary Design Report, including:
   - Preliminary pump sizing and storage needs
   - Utility relocation requirements and issues
   - Preliminary Levee design
   - Preliminary Structural design
   - Cost Estimate
   - Preliminary Drawings

i. Landscape concepts and plans for the 2nd St. Corridor from NP Ave. to 4th Ave.

j. Master Plan from Mickelson to 4th St. Levee.

2. Red River Levees - Phase 2

   a. 65 Percent Design Submittal
   b. 95 Percent Design Submittal
   c. Cost Estimates
   d. Operation and Maintenance Plan
      i. Draft Plan
      ii. Final Plan

3. Red River Levees – VES reports

4. Support for Upstream Staging Area Levees

   a. Oxbow/Hickson/Bakke TM
   b. WP-43A
      i. 35 Percent Design Submittal
      ii. 65 Percent Design Submittal
      iii. 95 Percent Design Submittal
      iv. Cost Estimates
      ~~iv.~~v. 2016 Engineer's Inspection Report
   c. WP-43C
      i. 35 Percent Design Submittal
      ii. 65 Percent Design Submittal
      iii. 95 Percent Design Submittal
      iv. Cost Estimates
   d. WP-43D
      i. 35 Percent Design Submittal
      ii. 65 Percent Design Submittal
      iii. 95 Percent Design Submittal
      iv. Cost Estimates
      v. Operation and Maintenance Plan
         1. Draft Plan
         2. Final Plan
   e. WP-43E
      i. 35 Percent Design Submittal
      ii. 65 Percent Design Submittal
      iii. 95 Percent Design Submittal
      iv. Cost Estimates
   f. VES or VBDC reports
   g. Comstock TM
   h. Christine TM
   i. Wolverton TM
   j. Staging Area Non-Structural Improvements TM

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k. WP-43D O/H/B-Diversion Inlet-CH16/CH17 Wetland Mitigation Design
   i. 30 Percent Design Submittal
   ~~i.~~ii. 90 Percent Design Submittal
   iii. Final Plans
   iv. Cost Estimates
   v. Additional design and permitting assistance

v. Work not included in this Scope of Services, unless noted otherwise:

1. Environmental permitting
2. Utility Relocation Agreements
3. ROW Acquisition including Appraisals, Title Searches, Title Opinions, Deeds
4. Bid documents and bidding services

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
2.B.i Red River Levees – Phase 1	November 8, 2012	September 30, 2013
2.B.ii Upstream Staging Area Ring Levees	November 8, 2012	September 30, 2013
Amendment 1 all work	December 13, 2012	September 30, 2013
2.B.ii.2.d WP-43A Bid Documents	August 8, 2013	May 4, 2014
Amendment 2 other work	August 8, 2013	May 31, 2015
Amendment 3 all work	November 14, 2013	September 30, 2014
Amendment 4 all work	February 13, 2014	September 30, 2014
Amendment 5 all work	May 8, 2014	September 30, 2014
Amendment 6 all work	August 14, 2014	September 30, 2015
Amendment 7 all work	October 9, 2014	September 30, 2015
Amendment 8 all work	February 5, 2015	March 31, 2016
Amendment 9 all work	March 12, 2015	March 31, 2016
Amendment 10 all work	June 11, 2015	March 31, 2016
Amendment 11 all work	August 13, 2015~~6~~	March 31, 2016
Amendment 12 all work	February 2, 2016	December 31, 2016

5. Payments to Engineer

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

i. Compensation for services 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 2.B.i through 2.B.iii is not-to-exceed amount as defined in the table below.

iii. Estimated budget for Subtask 2.B.ii, Upstream Staging Area Levees/Ring Dikes, is based on an allowance.

1. Engineer will notify Owner when eighty percent (80%) of the budget on Subtask 2.B.ii, Upstream Staging Area Levees/Ring Dikes, is expended.

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2. Engineer will prepare and submit an amendment for additional compensation when ninety percent (90%) of budget on Subtask 2.B.ii, Upstream Staging Area Levees/Ring Dikes, is expended.

3. Engineer will not perform work beyond one hundred percent (100%) of the budget for Subtask 2.B.ii, Upstream Staging Area Levees/Ring Dikes, without Owner's authorization by an amendment to this Task Order.

Subtask	Activity ID	Current Budget ($)	Change ($)	Revised Budget ($)
2.B.i.1 Red River Levees – Phase 1 Design	DE-7430	490,000	0	490,000
2.B.i.1.o.i Landscape Architecture/Master Planning - 2nd St. Corridor from NP Ave. to 4th Ave.	DE-7430	35,000	0	35,000
2.B.i.1.o.ii Master Planning Services - Mickelson to the 4th St. Levee	DE-7430	100,000	0	100,000
2.B.i.2 Red River Levees – Phase 2 Design	DE-7430	3,064,000	0	3,064,000
2.B.i.3 Red River Levees – VES	DE-7430	30,000	0	30,000
2.B.i.4 4th Street Levee Pump Station Replacement	DE-7430	600,000	0	600,000
2.B.i.5 Michelson Levee Extension	DE-7430	328,000	0	328,000
2.B.i.6 El Zagal Phase 2 Levee Design	DE-7430	190,000	0	190,000
2.B.ii Upstream Staging Area Ring Levees (Allowance)	CN-6860	440,000	0	440,000
2.B.ii.2.d WP-43A Design	CN-6860	362,499	0	362,499
2.B.ii.2.e WP-43C Design	CN-6860	210,747	0	210,747
2.B.ii.2.f WP-43D Design	CN-6860	1,439,3321,162,000	454,000277,332	1,893,3321,4
2.B.ii.2.g WP-43E Design	CN-6860	260,000	0	260,000
2.B.ii.2.h O/H/B Ring Levee – VES	CN-6860	33,694	0	33,694
2.B.ii.2.h.i. O/H/B Ring Levee Design Modification - 100-Year Elevation	CN-6860	127,240	0	127,240
2.B.ii.2.i O/H/B Wetland Mitigation Design	CN-6860	0	92,000	92,000
2.B.ii.2.j WP-43A Levee Inspection	CN-6860	0	5,000	5,000
2.B.iii Right of Way Surveying	CN-6860	68,48857,000	59,00011,488	127,27668,488
TOTAL		**7,779,0007,361,000**	**610,000581,973**	**8,388,7617,779,000**

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

C. Provide Monthly Invoice and status report

i. Status report will accompany invoice and detail work completed during the invoice period.

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ii. Status report will be organized by subtask and provide narrative of work completed on each subtask.

iii. Status of work completed will include:

1. Outstanding issues to resolve, expected steps to progress work, outstanding items required from either Owner, Owner's Representative, or others to progress work, anticipated completion date of subtasks.

2. Dates of on-call services provided and description of the activities performed by Engineer, including any deliverables produced.

3. Dates of deliverables otherwise required under the Project Management task.

6. Consultants:

   a. Braun Intertec Corporation
   b. Northern Technologies, Inc.
   c. Robert Trent Jones II, LLC

7. Other Modifications to Agreement: None

8. Attachments: None

9. Documents Incorporated By Reference:

   A. AWD-00045, REV-0, WP - 42F.1 Phase II Environmental Site Assessment (ESA), dated December 11, 2014.

   B. AWD-00047, REV-0, El Zagal Phase 2 Levee Design, dated February 5, 2015.

   C. AWD-00049, REV-0, Soil Characterization for Case Plaza for Work Package 42F.1S, dated June 11, 2015.

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.

    A. The Effective Date of this Task Order is November 8, 2012.

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ENGINEER:

Houston-Moore Group, LLC

Signature Date

Jeffry J. Volk
Name

President
Title

DESIGNATED REPRESENTATIVE FOR
TASK ORDER:

C. Gregg Thielman
Name

Sr. Project Manager
Title

925 10th Avenue East
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Address

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E-Mail Address

(701) 237-5065
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Fax

OWNER:

Fargo-Moorhead Metro Diversion Authority

Signature Date

Darrell Vanyo
Name

Chairman, Flood Diversion Board of Authority
Title

DESIGNATED REPRESENTATIVE FOR
TASK ORDER:

Keith Berndt
Name

Cass County Administrator
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HMG Cost Proposal Summary, provided Nov 30, 2015

Feb 1, 2016

	TO3-A0			TO3-A1					TO3-A2
	Contract	Invoiced and Paid to Date		2015 Through May (unpaid)	2015 June-November (unpaid)	WP-43D rebid (with 43B design)	WP-43E2B (345 Schnell & 744 Riverbend)	WP-43A (site inspection)	WP-43B-D SDC
A. SDB	$18,530	A $27,411 D $0 D3a $140 E2a $280		A $0 D $156,214 D3a $0 E2a $0	$0	~~$504,213~~ $50,000	$10,000	~~$5,000~~ $0	$0
B. SDC	$78,240	A $61,872 D3a $15,899 E2a $70		A $4,060 D3a $4,484 E2a $0	$0	$0	$17,500	$0	
C. PM	$32,195	$8,113		$0	$24,000	$0	$2,500	$0	$0
D. On-Call	$25,000	$0		$0	$0	$0	$0	$0	$0
Totals	$153,965	$113,785		$164,758	$24,000	~~$504,213~~ $50,000	$30,000	~~$5,000~~ $0	$0

Design Services removed from TO3-A1 and included in HMG's Task Order 13 (Design Services) - Amendment 12:

WP-43D $454,213.00

WP-43A $5,000.00

Total for TO13-A12 $459,213.00

HMG

FM Metro Risk Management Project

Cost Proposal for Task Order 13, Wetland Mitigation Design

Task	Activity Description	Personnel Costs														Cost Per Task
		Senior Project Manager		Professional Engineer		Graduate Engineer		Sr. Env. Scientist		CADD Tech II		2 Man Survey Crew		Clerical		
		Hours	Cost	Hours	Cost	Hours	Cost	Hours	Cost	Hours	Cost	Hours	Cost	Hours	Cost	
Design Assistance for OHB Wetland Mitigation site on former Oxbow Country Club site. Assume there will be 3 submittals/reviews…. 30%, 90% and final plans. Also assume we will perform a wetland delineation for existing conditions on the current site and other mitigation on this site may be added. SOW and budget also includes providing environmental and design assistance on wetland mitigation for the Diversion Inlet and CH16/CH17 bridge/roadway. This may occur on the Oxbow site or other sites to be identified.																
Task 1	30% Design for OHB Wetland Mitigation Site, includes existing wetland delineation.	2	$ 348	16	$ 2,336	40	$ 4,400	70	$ 10,640	40	$ 4,200	20	$ 4,640	4	$ 288	$ 26,852
Task 2	90% Design for OHB Wetland Mitigation Site	2	$ 348	20	$ 2,920	80	$ 8,800	40	$ 6,080	40	$ 4,200	8	$ 1,856	4	$ 288	$ 24,492
Task 3	Final Design for OHB Wetland Mitigation Site	2	$ 348	12	$ 1,752	40	$ 4,400	24	$ 3,648	40	$ 4,200	8	$ 1,856	4	$ 288	$ 16,492
Task 4	Additional Design and Permitting Assistance for Oxbow Mitigation Site and Mitigation Sites for Diversion Inlet and CH16/CH17 sites.	2	$ 348	12	$ 1,752	40	$ 4,400	40	$ 6,080	40	$ 4,200	8	$ 1,856	4	$ 288	$ 18,924
Expenses																$ 5,000
	Total	8	$ 1,392	60	$ 8,760	200	$ 22,000	174	$ 26,448	160	$ 16,800	44	$ 10,208	16	$ 1,152	$ 91,760
	Grand Totals															$ 91,760

HMG

FM Metro Risk Management Project

Cost Proposal for Task Order 13, ROW Surveying for WP42 and WP43

Task	Activity Description	Personnel Costs										Cost Per Task
		Senior Project Manager		2 Man Survey Crew		Senior Land Surveyor		CADD Tech II		Clerical		
		Hours	Cost	Hours	Cost	Hours	Cost	Hours	Cost	Hours	Cost	
Additional surveying and LS support in response to design changes and landowner negotiations for Work Packages 42 (In Town Levees) and 43 (OHB)												
Task 1	WP42 - In Town Levees	4	$ 696	24	$ 5,568	80	$ 11,360	60	$ 6,300	8	$ 576	$ 24,500
Task 2	2nd Street North Replat	2	$ 348	8	$ 1,856	20	$ 2,840	20	$ 2,100	2	$ 144	$ 7,288
Task 2	WP43 - OHB Ring Levee	4	$ 696	24	$ 5,568	80	$ 11,360	60	$ 6,300	8	$ 576	$ 24,500
Expenses												$ 2,500
	Total	10	$ 1,740	56	$ 12,992	180	$ 25,560	140	$ 14,700	18	$ 1,296	$ 58,788
	Grand Totals											$ 58,788

Technical Staff Recommendation

Meeting Date: 2/2/2016

RECOMMENDATION FOR ACTION:

The Technical Staff have reviewed and recommends approval of the following Contract Action(s).

SUMMARY OF CONTRACTING ACTION:

The Owner's Representative prepared the following Contract Action(s) for the Technical Staff team:

List description of Contract Action(s):

HMG

MFDA – Task Order 17, Amendment 2 - WP-42 SDC $ 1,605,000

- Incorporate AWD-00052 REV 0, WP-42C.2 SDC and WP-42C.1 SDB
- Add WP-42A.2, 2nd St Pump Station - SDC
- Add WP-42A.1/A.3, 4th St Pump Station and 2nd St So. Floodwall - SDC
- Add WP-42H.2, El Zagal Phase 2 – SDC
- Add WP-42.I.1, Mickelson Levee Extension –SDC
- Add WP-42C.1, HoJo, Old Shakey's, FPS – SDC
- Add WP-42F.1N, Flood Control, 2nd St. N, North of Pump Station - SDB

BACKGROUND:

Houston-Moore Group, LLC (HMG) is the Engineer of Record for the In-Town Levees (WP-42), and has provided Services During Bid (SDB) and Services During Construction (SDC) for WP-42 from July 10, 2014, to the present time.

Task Order 17, Amendment 0, included SDB and SDC for WP-42A.1 and A.3 (4th St. Pump Station and 2nd St. So. Floodwall), and WP-42A.2 (2nd St. Pump Station). On July 10, 2015, Amendment 1 authorized SDB/SDC for WP-42F.1S (Flood Control, 2nd Street North, South of Pump Station) and SDB for WP-42H.2(El Zagal Area Flood Risk Management – Phase 2), WP-42I (Mickelson Levee Extension), and WP-42C.2 (Park East Demolition).

This amendment incorporates work authorized under AWD-00052 (WP-42C.1, HoJo, Old Shakey's, FPS – SDB; and WP-42C.2, Park East Demolition – SDC); adds additional SDC period of performance and budget for both WP-42A.2 and WP-42A.1/A.3; adds SDC scope and budget for WP-42H.2, WP-42I.1, and WP-42C.1; and, adds SDB for WP-42F.1N.

Summary of Contracting History and Current Contract Action:

Original Agreement or Amendment	Budget ($) Change	Original Project Cost	Revised Project Cost	Project Start	Project Completion	Comments
Task Order 17 Amendment 0	$ -	$1,550,000	$ -	10-Jul-14	30-Sep-16	Initial WP-42 SDB and SDC agreement for WP-42A.1, WP-42A.2, and WP42A.3.
Task Order 17 Amendment 1	$693,000		$2,243,000	10-Jul-14	30-Sep-16	Adds SDB and SDC for WP-42F.1S; SDB for WP-42H.2; SDB for WP-42I; and, SDB for WP-42C.2.
Task Order 17 Amendment 2	$1,605,000		$3,848,000	10-Jul-14	30-Jun-17	Incorporates AWD-00052; adds additional SDC period of performance and budget for WP-42A.2 and WP-42A.1/A.3; adds SDC for WP-42H.2, WP-42I.1, and WP-42C.1; and, adds SDB for 42F.1N.

DISCUSSION:

AWD-00052 (WP-42C.2 SDC and WP-42C.1 SDB):

AWD-00052 authorized HMG to perform WP-42C.1 SDB up to $10,000 and WP-42C.2 SDC up to $40,000. This amendment incorporates that authorized work into Task Order 17. These costs are shown in the WP-42 SDB and SDC budget table summary below.

WP-42A.2 (2nd Street Pump Station, Gatewell, and Outfall):

HMG provided a revised cost proposal in January 2016 for additional WP-42A.2 SDC services in the amount of $191,624, that includes design services for modifications to the 2nd Street Pump Station (based on physical modeling recommendations); additional RFI responses and associated design changes; period of performance extension due to longer than planned construction period; additional project coordination with USACE and adjacent projects; additional material testing, submittal reviews, and project management; and Out of Scope Work/Field Design services. Specific activities covered by this Amendment are listed in attached HMG WP-42A.2 amendment cost proposal. These costs, rounded to the nearest thousand dollars, are shown in the WP-42 SDB and SDC budget table summary below.

WP-42A.1/A.3 (4th Street Pump Station and 2nd St. So. Floodwall):

HMG provided a revised cost proposal in January 2016 for additional SDC services in the amount of $857,247, which includes SDC services for WP-42A.1 and WP-42A.3. Additional work activities include additional RFI responses, field design work, and additional project management and field time due to a longer than planned construction period. Specific activities covered by this Amendment are listed in attached HMG WP-42A.1/A.3 revised cost proposal. These costs, 830,000 for SDC and 28,000 for PM (rounded to the nearest thousand dollars), are shown in the WP-42 SDB and SDC budget table summary below.

WP-42H.2 (El Zagal Phase 2):

Amendment 1 added SDB services for WP-42H.2 but did not include SDC services. Construction for WP-42H.2 is scheduled to start in 2016, and this amendment adds the SDC scope and budget for this work. Attached is HMG's cost proposal for this work. These costs, 263,000 for SDC and 38,000 for PM (rounded to the nearest thousand dollars), are shown in the WP-42 SDB and SDC budget table summary below.

WP-42I.1 (Mickelson Levee Extension):

Amendment 1 added SDB services for WP-42I.1 but did not include SDC services. Construction for WP-42I.1 is scheduled to start in 2016, and this amendment adds the SDC scope and budget for this work. Attached is HMG's cost proposal for this work. These costs, 132,000 for SDC and 25,000 for PM (rounded to the nearest thousand dollars), are shown in the WP-42 SDB and SDC budget table summary below.

WP-42C.1 (HoJo, Old Shakey's, FPS Demolition):

AWD-00052 authorized SDB services for WP-42C.1 but did not include SDC services. Construction for WP-42C.1 is scheduled to start in 2016, and this amendment adds the SDC scope and budget for this work. Attached is HMG's cost proposal for this work. These costs, 22,000 for SDC and 3,000 for PM (rounded to the nearest thousand dollars), are shown in the WP-42 SDB and SDC budget table summary below.

WP-42F.1N (Flood Control, 2nd St. N, North of Pump Station):

Construction for WP-42F.1N is scheduled to start in 2016, and this amendment adds the SDB scope and budget for this work. Attached is HMG's cost proposal for this work. This cost, 22,000 for SDB (rounded to the nearest thousand dollars), is shown in the WP-42 SDB and SDC budget table summary below.

WP-42 SDB and SDC Budgets by Work Package and Amendment:

Work Package	Act. ID	SDB ($)	SDC ($)	PM ($)	On Call ($)	Total ($)	Amendment
WP-42A.2 & 42A.1/A3	CN-XXXX	50,000	1,300,000	180,000	20,000	1,550,000	TO17-A0
WP-42F.1S	CN-XXXX	36,000	540,000	60,000		636,000	TO17-A1
WP-42H.2	CN-XXXX	27,000				27,000	
WP-42I.1	CN-XXXX	15,000				15,000	
WP-42C.2	CN-XXXX	15,000				15,000	
Subtotal TO17-A1		93,000	540,000	60,000	0	693,000	
WP-42A.2	CN-XXXX		192,000			192,000	TO17-A2
WP42A.1/A3	CN-XXXX		830,000	28,000		858,000	
WP-42C.1	CN-XXXX	10,000	22,000	3,000		35,000	
WP-42C.2	CN-XXXX		40,000			40,000	
WP-42H.2	CN-XXXX		263,000	38,000		301,000	
WP-42I.1	CN-XXXX		132,000	25,000		157,000	
WP-F.1N	CN-XXXX	22,000				22,000	
Subtotal TO17-A2		32,000	1,479,000	94,000	0	1,605,000	
TOTAL		**175,000**	**3,319,000**	**334,000**	**20,000**	**3,848,000**	

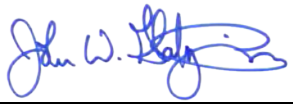
The PMC reviewed HMG's revised cost proposals and found it to be acceptable.

This change amount of $1,605,000 is included in the FY-2016 FMDA budget.

ATTACHMENT(S):

1. Draft Task Order 17, Amendment 2
2. HMG Cost Proposal for WP-42A.2 SDC
3. HMG Cost Proposal for WP-42A.1/A.3 SDC
4. HMG Cost Proposal for WP-42H.2 SDC
5. HMG Cost Proposal for WP-42I.1 SDC
6. HMG Cost Proposal for WP-42C.1 SDC
7. HMG Cost Proposal for WP-42F.1N SDB

Presented by:



Feb 2, 2106

John W. Glatzmaier, P.E.
CH2M HILL
Project Manager
Metro Flood Diversion Project

Date

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

April Walker, Fargo City Engineer
Concur: Feb 3, 2016 *Non-Concur* _____

Mark Bittner, Fargo Director of Engineering
Concur: Feb 3, 2016 *Non-Concur:* _____

Jason Benson, Cass County Engineer
Concur: Feb 3, 2016 *Non-Concur* _____

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

Robert Zimmerman, Moorhead City Engineer
Concur: Feb 3, 2016 *Non-Concur* _____

Nathan Boerboom, Diversion Authority Project Manager
Concur: Feb 3, 2016 *Non-Concur:* _____

This is Task Order No. 17, Amendment 2~~1~~, consisting of

Houston-Moore Group, LLC

Task Order No. 17, Amendment 2~~1~~

FMDA Purchase Order No. 174124

Services During Construction – Work Package 42

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. 17 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: SERVICES DURING CONSTRUCTION – WORK PACKAGE 42

   B. Description: Provide Services During Bid (SDB) and Services During Construction (SDC) for projects designed by HMG for the Fargo-Moorhead Area Flood Diversion Project (Project), and provide primary project management and construction inspection on specific projects.

   C. Background: The scope of work for this Task Order includes SDB and SDC. Owner will be issuing various construction packages for bid. Engineer will assist Owner with SDC, including SDB. It is anticipated that the following construction contracts will be required:

      1. WP-42A.1, A.3 – Red River Levees – 4th Street Lift Station, Gatewell, and Outfall Structure
      2. WP-42A.2 – Red River Levees –2nd Street Lift Station and Gatewell Structure
      3. WP-42F.1S – Flood Control, 2nd Street North, South of Pump Station
      4. WP-42H.2 – El Zagal Area Flood Risk Management – Phase 2 (SDB ~~only~~and SDC)
      5. WP-42I.1 – Mickelson Levee Extension (SDB ~~only~~and SDC)
      6. WP-42C.2 – Park East Demolition (SDB ~~only~~and SDC)
      7. WP-42C.1 – HoJo, Old Shakey's, and FPS Demolition (SDB and SDC)
      ~~6.~~8. WP-42F.1N – Flood Control, 2nd Street North, North of Pump Station (SDB only)

   A. SERVICES DURING BIDDING

      1. Respond to bidder inquiries forwarded by Owner's Representative during advertisement period and prepare addenda as necessary to provide a clear, biddable set of solicitation documents.
      2. Attend and participate in pre-bid meetings and site visits.
      3. Attend bid openings and, if requested, assist in evaluation of bids.
      4. Incorporate addenda into the plans and technical specifications to create a set of Contract Award Documents.
      5. Prepare a submittal register based on the Contract Documents indicating required submittals, the specific technical submittals requiring review and/or approval by the

Engineer, and administrative submittals that can be reviewed by the Owner's Representative.

B. SERVICES DURING CONSRUCTION

1. Fulfill the duties of Engineer in accordance with the specific requirements of the Contract Documents for each project.
2. Comply with the general guidelines of the Memorandum for Record No. 018 (MFR-018) "Fargo-Moorhead Metro (FMM) Flood Risk Management (FRM) Project – Sponsor Constructed Features Roles and Responsibilities" between the Diversion Authority, US Army Corps of Engineers (USACE), and the Program Management Consultant (PMC) as modified by the Rules and Responsibilities table in Attachment A.
3. Participate in one or more partnering meetings.
4. Comply with Owner's and Contractor's safety plans.
5. Provide a Resident Project Representative (RPR) that will represent the Engineer and Owner's Representative. RPR will have the duties and defined in the Contract Documents for each project. Observe construction in sufficient detail to certify the flood risk reduction features of the Project. Prepare site visit reports and submit to Owner's Representative and City of Fargo.
6. Respond to Requests for Information and other construction communication provided by the Owner's Representative.
7. Review shop drawings, samples, and operation and maintenance manuals for conformance with the Contract Documents.
8. Review and approve change orders or modifications that could affect the design or function of the Project.
9. Update monthly the As-Built drawings based on information provided by Owner's Representative.
10. Assist Owner's Representative with determination of monthly pay application quantities based on survey information provided by Owner's Representative.
11. Following completion of construction, update the Design Document Report to reflect the design changes, contract modifications, site conditions encountered, testing, and submittals.
12. Provide Final As-Built drawings in conformance with the same standards as the design drawings.
13. Prepare a post construction Inspection and Monitoring Plan specifying annual inspections required to verify satisfactory maintenance and performance of the flood risk management features.
14. Provide flood risk reduction certifications as required by Owner.

C. PROJECT MANAGEMENT

1. Provide project management, including monthly status reports and invoicing to PMC, on Engineer's task activity.
2. Participate in regular and periodic meetings or teleconferences with contractors, the Owner's Representative, City of Fargo, Owner, and USACE.

Deliverables:

1. Monthly status reports and invoices

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D. ON-CALL SERVICES

Respond to requests for services from Owner or Owner's Representative for tasks not included in individual Task Orders. Services will be provided only with written authorization from Owner or Owner's Representative.

Deliverables:

1. On-call services deliverables as requested.

3. Owner's Responsibilities

Owner shall have those responsibilities set forth in Article 2 and in EXHIBIT B of the Agreement.

4. Times for Rendering Services

Subtask	Start Time	Completion Time
All Work	July 10, 2014	September 30, 2016
Amendment 2	February 2, 2016	June 30, 2017

5. Payments to Engineer

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

I. Compensation for services in Subtasks A, B, and C shall be on a Time and Material basis in accordance with the Standard Hourly Rates shown in Exhibit C of the Agreement.

II. The budgets for Subtask D is an allowance.

B. Engineer will notify Owner when 80 percent of the budget is expended.

C. Engineer will submit an amendment for additional compensation when 90 percent of the budget is expended, or confirm to Owner that this Task Order can be completed for the remaining budget.

D. Engineer will not perform work beyond 100 percent of the budget without Owner's authorization by an amendment to this Task Order.

Activity ID	Subtask	Current Budget ($)	Change ($)	Revised Budget ($)
174124	A. Services During Bid	143,000	~~93,000~~32,000	~~143,000~~175,000
174124	B. Services During Construction	1,840,000	~~540,000~~1,479,000	~~1,840,000~~3,319,000
174124	C. Project Management	240,000	~~60,000~~94,000	~~240,000~~334,000
174124	D. On-Call Services	20,000	0	20,000
	TOTAL	**2,243,000**	**~~693,000~~1,605,000**	**~~2,243,000~~3,848,000**

E. The terms of payment are set forth in Article 4 and EXHIBIT of Agreement C.

F. Provide Monthly Invoice and status report

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I. Status report will accompany invoice and detail work completed during the invoice period.

II. Status report will be organized by subtask and provide narrative of work completed on each subtask.

III. Status of work completed will include:

i. Outstanding issues to resolve, expected steps to progress work, outstanding items required from either Owner, Owner's Representative, or others to progress work, anticipated completion date of subtasks.

ii. Dates of on-call services provided and description of the activities performed by Engineer, including any deliverables produced.

iii. Dates of deliverables otherwise required under the Project Management task.

~~E.~~

6. Sub consultants: None
7. Other Modifications to Agreement: No additions or modifications
8. Attachments:
   A. None.
9. Documents Incorporated By Reference:
   A. Agreement between Owner and Engineer for Professional Services – Task Order Edition, dated March 8, 2012.
   B. AWD-00050 REV-0, Services During Bidding-WP-42F.1S, dated July 9, 2015.
   C. AWD-00052 REV 0, WP-42C.2 SDC~~s~~ and WP-42C.1 SDB~~s~~, dated November 12, 2015.
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 July 10, 2014.

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FM Metro Risk Management Project
Task Order 17 Amendment - WP42A2 SDC

Task	Activity Description	Cost Per Task
Additional Services During Construction Support for WP42A2		
	Amendment request from HDR ($182,499) as outlined in attached detail plus HMG markup (5%)	$ 191,624
	Total	$ 191,624
	Grand Totals	$ 191,624

Additional Task Summary:

1. **Design Modification as a result of Physical Model –** Under ideal circumstances the physical model would have been completed as part of the design process. Due to an accelerated design schedule, this task was required as part of the contract documents. As a result of the physical model conducted at the Utah Water Research Laboratory, two recommendations were incorporated into the pump station. Vanes were added in the pump spool between the FSI and pump intake to reduce velocities to the pump impellors and the addition of a baffle wall in the wet well was required to provide more uniform flows and reduce vortices. Design coordination for the baffle wall presented the majority of additional work for this task. Plan sheets with connection details were developed after close coordination with Utah Water Research Laboratory, USACE, contractor, CFD modelers, design engineers and City personnel to ensure the intent of the modeled results were captured and that operations and maintenance personnel can maintain the baffle wall and wet well.

2. **RFI responses/design changes associated –** As of 1/6/2016 responded to 81 RFIs. 30 RFIs were assumed in original scope. Costs incurred for RFI responses include redesign of several components including structural accommodations for pump base plates, beam redesign (FO-002A) and roofing system (FO-003).

3. **Contract schedule extension –** Based on average burn rate of hours for RPR, Project Manager and design support throughout duration of project. Schedule extended a total of 13 weeks. Additional hours/fee calculated for 11 weeks due to contractor taking two weeks off during holidays.

4. **Project Coordination –** Coordination efforts for this project exceed a typical project. Partnering meetings, USACE coordination, adjacent project coordination, extensive material testing requirements and submittal logging and tracking coordination are required items that were not fully scoped. This coordination is vital to the success of the overall downtown levee project.

CHANGE ORDER NO. 1

TO

SCOPE OF SERVICES

FARGO-MOORHEAD FLOOD RISK MANAGEMENT PROJECT
RED RIVER LEVEES – PHASE 1 2ND STREET/DOWNTOWN REACH

2ND STREET STORM WATER PUMP STATION (WP 42A.2)

CONSTRUCTION ENGINEERING SERVICES (REVISED 1/6/16)

The following outlines the scope of services to be completed for the project.

PROJECT DESCRIPTION: Change Order No. 1 covers additional services provided during Services During Construction (SDC) for the 2nd Street Pump Station (WP42A.2) for the Fargo-Moorhead Area Flood Diversion Project (Project). Additional services are detailed in blue text as described in the tasks below.

Task 2A SERVICES DURING BIDDING

Task 2.A.1 Respond to bidder inquiries forwarded by Owner's Representative during advertisement period and prepare addenda as necessary to provide a clear, biddable set of solicitation documents.

Task 2.A.2 Attend and participate in pre-bid meetings and site visits. Assume 1 pre-bid meeting and 2 site visits.

Task 2.A.3 Attend bid openings and, if requested, assist in evaluation of bids.

Task 2.A.4 Incorporate addenda into the plans and technical specifications to create a set of Contract Award Documents.

Task 2.A.5 Prepare a submittal register based on the Contract Documents indicating required submittals, the specific technical submittals requiring review and/or approval by the Engineer, and administrative submittals that can be reviewed by the Owner's Representatives.

Task 2B SERVICES DURING CONSTRUCTION (Assume a 14 month construction timeline)

Task 2.B.3 Participate in one or more partnering meetings - Assume 2 meetings
Participated in two partnering meetings per scope on 7/15/15 and 10/13/15. In addition, attended pre-construction checkpoint meeting dry run with on 7/13/15 and desktop partnering on 10/14/15 following checkpoint meeting on 10/13/15. Cost includes two additional checkpoint meetings.

Task 2.B.5 Periodically visit the construction site(s) during the construction phase to observe critical elements of the project and meet with Quality Assurance (QA) representatives to review record drawings, answer questions from the QA representatives and the Contractor, and to observe construction in sufficient detail to certify the flood risk reduction features of the Project. Prepare site visit reports and submit to Owner's Representative. - Assume 2 hours per week and 14 month construction timeline.

Site visits by disciplines include:

- Structural – 2 visits
- Process – 2 visits
- Electrical – 1 visit
- Architectural – 1 visit
- I&C – 1 visit
- Mechanical – 1 visit

Task 2.B.6 Respond to Requests for Information and other construction communication provided by the Owner's Representative. Assume 30 RFIs.
As of 1/6/2016 responded to 81 RFIs at average cost of $717 per RFI. Cost of 51 additional RFIs responded to as of 1/6/16 is $36,567. Cost of additional services includes response to additional 10 RFIs through project completion (10 RFIs x $717 = $7,170).

Task 2.B.7 Review shop drawings, samples, and operation and maintenance manuals for conformance with the Contract Documents.

Task 2.B.8 Review and approve change orders or modifications that could affect the design or function of the Project. Assume 10 change orders. Table 1 of MFR-018 will be used to define which items require DOR review and approval. Per MFR-018 for flood risk management features the Corps will be notified by the Owner's Representative of modifications/change orders which could impact the design or function of the project to ensure that the project will function as intended overall and certification of the flood risk management project is not jeopardized.

Task 2.B.9 Update monthly the As-Built drawings based on information provided by Owner's Representative - Assume no field survey will be completed by HMG.

Task 2.B.10 Assist Owner's Representative with determination of monthly pay application quantities based on survey information provided by Owner's Representative. Assume no field survey will be completed by HMG.

Task 2.B.11 Following completion of construction, update the Design Documentation Report (DDR) to reflect the design changes, contract modifications, site conditions encountered, testing, site visit reports, and submittals. Per Section gg. of MFR-018 the post construction DDR will include documentation of modifications, the Engineer's Estimate for the modifications, and documentation of the Corps review.

Task 2.B.12 Provide Final As-Built drawings in conformance with the same standards as the design drawings. Assume no field survey will be completed by HMG.

Task 2.B.13 Prepare a post construction Inspection and Monitoring Plan specifying annual inspections required to verify satisfactory maintenance and performance of the flood risk management features.

Task 2.B.14 Per Section pp. of MFR-018 the Owner's Representative, Contractor, Corps, DOR, and appropriate stakeholders will conduct at least one joint pre-final inspection to verify contract requirements have been met, the design intent is represented in the completed construction and that the flood risk management certification requirements are met. A Corps Levee Safety representative will be included in this review to assist with completing the Levee Inspection Check List and identifying any deficiencies that need to be addressed. Following completion of the identified items, a final joint inspection will be conducted to validate that the contract requirements have been met. The DOR will provide certification that the project features are in general conformance with the plans and specifications.

Task 2.B.15 Provide a Resident Project Representative (RPR) that will represent the Engineer and Owner's Representative. RPR will observe construction in sufficient detail to certify the flood risk reduction features of the Project are in general conformance with the plans and specifications. Prepare site visit reports and submit to Owner's Representative and city of Fargo. Assume October 1, 2014 – February 28, 2015 - 10 hours/week (210 hours). March 1, 2015 – November 30, 2015 - 20 hours/week (39 weeks x 20 hours plus 120 hours for additional time required).

Task 2C PROJECT MANAGEMENT

Task 2.C.1 Provide project management, including monthly status reports and invoicing to Owner on Engineer's task activity - Assume 14 month construction timeline and 1 hour per week for PM and Civil Engineer.

Task 2.C.2 Participate in regular and periodic meetings or teleconferences with contractors, the Owner's Representatives, Owner, and USACE - Assume 14 month construction timeline and 3 hour per week (including prep and meeting notes) for PM and Civil Engineer.
In addition to the scoped meetings, several project coordination meetings attended for coordination of project with adjacent FMDA projects, material testing requirements, submittal logging and tracking coordination, QA/QC inspection coordination, in-town levee coordination meetings and site visits with community leaders. Meetings and dates listed below.

10/14/2014	At CH2 request, attended Pre-planning/pre-construction coordination meeting (HMG and CH2 only) for 2nd St N PS
10/17/2014	At request of Gregg T & CH, prepared Building Permit Application for 2nd St N PS. Specs identified this as a contractor responsibility.
10/17/2014	Gail Chamberlain - Call to set up PW on Ken Demmons computer
10/21/2014	Internal 2nd St PS KO meeting with City of Fargo personnel

10/28/2014	2nd St PS - Traffic plan - Met with Dave Goulet, Gregg T and Ty to discuss updating Traffic plan for 2nd St PS
10/29/14 - 11/7/14	Update traffic control plan - Josh Hinds and Ron Ceroll
12/1/2014	Requested meeting by CH @ CH2 office - Materials Testing
12/2/2014	Teleconf. With Corps to discuss 2nd St PS model & address Corps questions (Gregg T, Ken D, Eric C, Adrian S, Andy M, Nathan B, Terry W, Tim P, Charlie Allen, Laurie Ebner)
12/9/2014	Review Materials Testing Log - At CH2 office with Ty, Loren, Ken and Glen
12/11/2014	Call with Matt Metzger (and two other Barr Engineers) to discuss NFPA decisions made by HDR during pump station design. Barr is designing a PS for OHB and ran into same C1D2 classification issues HDR had during design.
12/15/2014	Call with Ty Smith to discuss Shop Drawing and RFI Submittal procedures
12/16/2014	Meeting with CH2 (Ty, Loren, Jeremy, Jhon) to discuss materials testing request by CH. Includes full review of specs to develop a materials testing list for Teracon.
12/18/2014	Meeting - ICS would like to discuss pump submittals for 4th Street pump station
12/18/2014	Submittal log review with CH2 at CH2 office
1/7/2014	CMP Meeting with HEI to coordinate comments
2/6/2015	Construction QA - QA Inspections meeting at CH office
3/5/2015	City Hall Coordination Meeting at CH. (HMG, Stroh, CH, Mayor Mahoney, Pat Z, Bruce G, Kent)
3/5/2015	QA Inspection Plan Meeting - At CH office
3/9/2015	Review and comments on QA Inspection tables
3/27/2015	In Town Levee Coordination
4/3/2015	Meeting - Discuss specification incorporation into CH Contract Documents with Jeremy Higgins, Kurt Lysne, Randy Englestad, Kris Bakkegard and Ryan Cornwall (phone). Meeting notes sent to group.
4/3/2015	In Town Levee Coordination
4/24/2015	In Town Levee Coordination
3/15/15 - 5/14/15	Design of generator for City Hall
5/1/2015	In Town Levee Coordination
5/5/2015	QC Meeting with IBI - Howard Johnson (pumps, gates, valves, piping)
5/7/2015	QC Meeting with IBI - Howard Johnson (mechanical, electrical)
5/8/2015	In Town Levee Coordination
5/22/2015	In Town Levee Coordination
6/5/2015	In Town Levee Coordination
6/19/2015	In Town Levee Coordination
6/15/2015	Meeting - Discuss linkage between A.2 and F.1S
6/25/2015	BCOE Review of WP-42F.1S
6/26/2015	In Town Levee Coordination
7/10/2015	In Town Levee Coordination

7/21/2015	CCJWRD - Site Visit with CH & Board members
7/29/2015	In Town Levee Coordination
7/30/2015	Partnering Meeting (Call) with ACE, City, HMG - Re: Corps call to April
8/4/2015	Meet IBI, City on site to discuss physical model changes to PS
7/20/15 - 8/21/15	Physical model design changes
8/11/2015	Mayor, April Walker, Nathan Boerboom Site visit
8/12/2015	In Town Levee Coordination
8/19/2015	In Town Levee Coordination
9/3/2015	Pre-Pre Con 2nd St Floodwall
10/13/2015	Checkpoint meeting with USACE, CH2, HMG - Field Visit
10/14/2015	Checkpoint meeting with USACE, CH2, HMG - Office/Records Review
10/15/2015	Veneer teleconference with April, Nathan, Terry Stroh, Joni & Jim Adrian
10/23/2015	In Town Levee Coordination

Task 2.C.3 Respond to requests for services from Owner or Owner's Representative for tasks not included in individual Task Orders up to 40 hours. Services will be provided only with written authorization from Owner or Owner's Representative, and services beyond 40 hours will be considered as additional services.
Veneer and floodwall form liner coordination with City of Fargo and HMG. The importance of this process in determining the final look and integration of the pump station exterior/veneer with the overall concept of the downtown area has required additional time for coordination between the HMG landscape architects, City Staff and City Hall designers. After considerable discussion, site visits and samples, a decision to proceed with Crimson Creek veneer with three rows of 8" bottom coursing in a stone veneer was made. Additional time required for updating plan sheets with updated concept.

Deliverables
Summary list of deliverables

- Site visit reports
- Redlined As-Built drawings
- Post-construction Inspection and Monitoring Plan
- Certification that the project features are in general conformance with the plans and specifications
- Post-construction DDR-

Schedule
Construction timeline is assumed to be 14 months (October 2014 – November 2015).

TASK 2D – OUT OF SCOPE WORK/FIELD DESIGN

Task 2.D.1 Update Traffic Control Plan
From 10/29/14 – 11/7/14 coordinated with contractor and City personnel to allow 3rd Avenue North to remain open during majority of construction (closed only for large concrete pours) and to provide 14-ft wide southbound lane and 13-ft wide

northbound lane along 2nd Street North. Updated design included addition of traffic control devises, barriers, etc.

Task 2.D.2 Hazardous Material Specification
As a result of unknown material encountered at the project site during excavation in December 2014, developed Specification Section 02 61 13 – Excavation and Handling of Contaminated Material to provide contractor with direction and instructions to handle hazardous material.

Task 2.D.3 Corps specifications (December 2014) – Reviewed entire specification manual for Corps required specifications to review. Corps specifications do not delineate what should be reviewed by 3rd party designer and what must be reviewed by the Corps. Provided Program Manager list of proposed specifications and held meetings to discuss proposed list. Several iterations required.

Task 2.D.4 Design Modifications as a Result of Physical Model
The Contract Documents included provisions for the contractor to coordinate with the pump supplier to provide a physical model of the pump station. As a result of the physical model results, two recommendations were incorporated into the pump station. Vanes were added in the pump spool between the FSI and pump intake reduce velocities to the pump impellors and the addition of a baffle wall in the wet well was required to provide more uniform flows and reduce vortices. Design coordination for the baffle wall presented the majority of additional work for this task. A plan sheet with connection details was developed after close coordination with the physical model lab, USACE, contractor, CFD modelers, design engineers and City personnel to ensure the intent of the modeled results was captured and that operations and maintenance personnel can maintain the baffle wall and wet well.

Task 2.D.5 At the request of Program Manager on 10/17/2014, prepared Building Permit Application for 2nd St N PS.

Task 2.D.6 Review and comment on Construction Management Plan (12/26/2014) – Reviewed and provided comments to Program Manager on Construction Management Plan for 2nd Street North project.

Task 2.D.7 Materials testing spreadsheet and QA Inspection Tables (December 2014) – As part of the Corps documentation requirements, assisted Program Manager with preparation and review of final materials testing spreadsheet and QA inspection tables.

Task 2.D.8 Relocation of Generator – Provided redesign plans and specifications for relocation of generator for inclusion with future FMDA project plan set. Includes time associated with design of plans and specifications, cost estimate, coordination with HMG designers and City Hall designers, City staff and responding to questions during bid period.

Task 2.D.9 Contract Schedule Extension – Time included in this task to account for additional manpower of Project Manager, Project/Discipline Engineer(s) and part

time Resident project Representative to remain on site for additional contract time. Assumed extension of project schedule from 11/30/15 to 2/25/16 (13 weeks). Due to holiday and contractor break for two weeks, only calculating additional time for 11 weeks. RPR – 20 hours/week, PM – 10 hours/week and discipline engineer – 15 hours/week.

HDR Engineering Inc.
FM Metro Diversion Authority - 2nd Street Stormwater Pump Station
CO #1 - Construction Engineering Services

Overhead Rate							
1. Direct Labor Costs: Labor Category	HDR Base Year Rates ($/Hour)	HDR Burdened Base Year Rates ($/Hour)	2015 Agreed Rates ($/Hour)	Hours	Costs Audited OH No Profit	HDR Labor Costs 2.75 Ovhd	HDR Labor Only Fee
Project Manager		$0.00	$185.78	241.0	$0.00	$0.00	$44,772.98
Senior Civil Engineer		$0.00	$199.02	90.0	$0.00	$0.00	$17,911.80
Civil Engineer		$0.00	$140.06	122.0	$0.00	$0.00	$17,087.32
Senior Structural Engineer		$0.00	$177.26	28.0	$0.00	$0.00	$4,963.28
Structural Engineer		$0.00	$136.80	61.0	$0.00	$0.00	$8,344.80
Senior Electrical Engineer		$0.00	$190.27	20.0	$0.00	$0.00	$3,805.40
Electrical Engineer		$0.00	$166.20	64.0	$0.00	$0.00	$10,636.80
Senior Mechanical Engineer		$0.00	$222.92	8.0	$0.00	$0.00	$1,783.36
Mechanical Engineer		$0.00	$151.61	32.0	$0.00	$0.00	$4,851.52
Senior Architect		$0.00	$188.03	20.0	$0.00	$0.00	$3,760.60
Architect		$0.00	$147.33	54.0	$0.00	$0.00	$7,955.82
Senior Engineering Technician		$0.00	$119.19	68.0	$0.00	$0.00	$8,104.92
CADD Operator		$0.00	$110.56	60.0	$0.00	$0.00	$6,633.60
RPR		$0.00	$140.00	220.0	$0.00	$0.00	$30,800.00
Administrative		$0.00	$89.10	12.0	$0.00	$0.00	$1,069.20
SUBCONTRACTORS							
1. Subtotal Labor Fee				1100	$0.00	$0.00	$172,481.40
2016 Escalation							$0.00
Total Labor Fee							$172,481.40
2. Travel		See Travel			$5,947.50	$5,947.50	$5,947.50
3. Other Direct Costs		See ODC			$ 4,070.00	$ 4,070.00	$ 4,070.00
4. Subconsultants							
4a. Subconsultants (Direct Costs)					$ -	$ -	$ -
4b. Markup on Subconsultants					$0.00	$0.00	$0.00
HDR 899 ODC Subtotal (Items 2,3,4)					**$10,017.50**	**$10,017.50**	**$10,017.50**
HDR Labor and ODC Total					**$10,017.50**	**$10,017.50**	**$182,498.90**
TOTAL AMOUNT (ITEMS 1-4)				Fee	$ 10,017.50	$ 10,017.50	**$182,498.90**

Project Name: **CO #1 - 2nd Street Stormwater Pump Station - Construction Services**

Task Series	Task Description	Project Manager	Senior Civil Engineer	Civil Engineer	Senior Structural Engineer	Structural Engineer	Senior Electrical Engineer	Electrical Engineer	Senior Mechanical Engineer	Mechanical Engineer	Senior Architect	Architect	Senior Engineering Technician	CADD Operator	RPR	Administrative	Total BIL Hours per Task	Labor	Activity Subtotal
	Construction 10/1/14 - 11/30/2015 (14 months)	$185.78	$199.02	$140.06	$177.26	$136.80	$190.27	$166.20	$222.92	$151.61	$188.03	$147.33	$119.19	$110.56	$140.00	$89.10	(hr)	($)	**($)**
Task 2A	**WP 42A.2 (2nd Street North Pump Station) Services During Bidding**																		**0**
	Task 2A Subtotals																0.0		
Task 2B	**WP 42A.2 (2nd Street North Pump Station) Services During Construction (Assume a 14 month construction timeline)**																		**45,647**
Task 2.B.3	Participate in one or more partnering meetings - **Assume 2 meetings**	13															13.0	2,415	
Task 2.B.6	Respond to Requests for Information and other construction communication provided by the Owner's Representative. **Assume 30 RFIs.** As of 1/6/2016 responded to 81 RFIs at average cost of $717 per RFI. Cost of 51 additional RFIs responded to as of 1/6/16 is $36,567. Cost of additional services includes response to additional 10 RFIs through project completion (10 RFIs x $717 = $7,170).	32	16	32	16	24	8	24	4	16	12	24	24	48		8	288.0	43,231	
	Task 2B Subtotals	45	16	32	16	24	8	24	4	16	12	24	24	48		8	301.0		
Task 2C	**WP 42A.2 (2nd Street North Pump Station) Project Management**																		**17,006**
Task 2.C.2	Participate in regular and periodic meetings or teleconferences with contractors, the Owner's Representatives, Owner, and USACE - **Assume 14 month construction timeline and 3 hour per week (including prep and meeting notes) for PM and Prof. Eng.**	34	24														58.0	11,093	
Task 2.C.3	Respond to requests for services from Owner or Owner's Representative for tasks not included in individual Task Orders. Services will be provided only with written authorization from Owner or Owner's Representative.	8									4	12	16				40.0	5,913	
	Task 2C Subtotals	42	24	0	0	0	0	0	0	0	4	12	16	0	0	0	98.0	17,006	
Task 2D	**WP 42A.2 (2nd Street North Pump Station) Out of Scope Work/Field Design**																		**109,828**
Task 2.D.1	Updated Traffic Control Plan	2	2	10										12			26.0	3,497	
Task 2.D.2	Hazardous Material Specification	2	2	6													10.0	1,610	
Task 2.D.3	Corps required specifications for review	8	8														16.0	3,078	
Task 2.D.4	Design Modifications as a Result of Physical Model	12	12	24	4	12							12				76.0	11,760	
Task 2.D.5	Buildign Permit Application	2		2													4.0	652	
Task 2.D.6	Review Construction Management Plan	8															8.0	1,486	
Task 2.D.7	Material testing spreadsheet/QA Inspection Tables	4		8													12.0	1,864	
Task 2.D.8	Relocation of Generator	6	2			4	4	16				2	16				50.0	7,682	
Task 2.D.9	Contract Schedule Extension	110	24	40	8	21	8	24	4	16	4	16			220	4	499.0	78,200	
	Task 2D Subtotals	154	50	90	12	37	12	40	4	16	4	18	28	12	220	4	701.0		
	Subtotals	241	90	122	28	61	20	64	8	32	20	54	68	60	220	12	1100.0	0	**$172,481**

HMG

FM Metro Risk Management Project

Task Order 17 Amendment - WP42A1/A3 SDC

Task	Activity Description	Cost Per Task
Additional Services During Construction Support for WP42A1/A3		
	Amendment request from HDR ($489,447) for work on WP42A1 as outlined in attached detail plus HMG markup (5%)	$ 513,919
	Amendment request from HEI for work on WP42A3 as outlined in attached detail	$ 343,328
	Total	$ 857,247
	Grand Totals	$ 857,247

Additional Task Summary - WP42A1

1) RFIs- 40 RFI's were budgeted. As of 1-6-2016 there were 136 RFIs of which 104 were HDR's with 5 RFI resubmittals. The RFI responses include the following: masonry and caulking; light locations, electrical panels, routing, and rearranging items in electrical room; waterstops; concrete curing, form ties, and backfill; and pumps, piping, and bar screens.

2) Field Design - There have been a number of items requiring field design, the following are a sample of the design changes: shoring, backfill, and stockpile changes; rebar changes at sluice gates, pump station walls, gate operators, gatewell footing, and embed frames; and electrical conduit adjustments, monitoring, power to the site, and lube system changes.

3) Schedule slip - The project is taking longer than scheduled which increases project management, meetings, and answering the additional questions that result. The biggest impact of schedule slip is the increased time on-site to observe construction and prepare site visit reports.

Additional Task Summary - WP42A3

1) Additional SOW and budget did not includes costs for subconsultant SRF. These costs have totaled $30,371 through 11/30/2015 and we anticipate there will be some additional submittal reviews through completion.

2) Change Orders exceeded those anticipated in the original SOW and budget. Change Order #1 included 37 plan sheets and was related to: Warming House electrical service revisions based off of the existng warming house service coming from the existing lift station that was unknown; Jacking and boring under the existing sanitary lift station - the as-builts showed the pipe to be DIP, but during excavation it was discovered that the pipe was cast iron; and revising the Fargo High Rise pavement limits to provide additional parking and relocating the propane tanks. Change Order #2 included 25 plan sheets and was related to: Revising the 2nd Street water line based on a request from the City for future sanitary sewer lift station modifications; the Mystery Manhole; and Revised lift station grading. Change Order #3 included 3 sheets and included a revised rock riprap detail.

3) Reviewed approximately 70 submittals and 30 RFIs. Many of the RFIs and submittals were reviewed multiple times.

4) Schedule slip and level of effort. Initial Scope assumed 6 months of construction and 40 hrs per week of inspection, which was further reduced by 20%. Actual time in field in 2015 was closer to 45 hours per week. Additional time includes 6 weeks in 2015 at 45 hours per week and an expected time of 19 weeks in 2016 at 40 hours per week.

5) Amount of coordination required with Diversion Authority, City, Contractor and USACE representatives.

FM Metro Risk Management Project

HMG Task Order No. 17 - Services During Construction - Amendent 20160122

Task	Activity Description	Personnel Costs										Cost Per Task
		Senior Project Manager		Project Manager		Professional Engineer		Graduate Engineer		Senior Administrative		
		Hours	Cost	Hours	Cost	Hours	Cost	Hours	Cost	Hours	Cost	
WP42A.3 (2nd St. S. Floodwall) Services During Construction (Original Task Order Assumed a 6 month construction timeline for WP42A.3 and 40 hours per week of Observation). Actual time for observation was approximately 45 hours per week. Based on the latest Contractor schedule, there were an additional 6 weeks of construction in 2015 (45 hours per week) and 19 weeks in 2016 (40 hours per week). Assume 4 hours per week of office PE support.												
Task 2.B.5	Provide a Resident Project Representative (RPR) that will represent the Engineer and Owner's Representative. RPR will have the duties and defined in the Contract Documents for each project. Observe construction in sufficient detail to certify the flood risk reduction features of the Project. Prepare site visit reports and submit to Owner's Representative. (WP42A.3 - Floodwall) - **Assume 45 hours per week and 16 weeks of additional construction.**	12	$ 2,088	0	$ -	100	$ 14,600	1350	$ 148,500	12	$ 864	$ 166,052
Task 2.B.6	Respond to Requests for Information and other construction communication provided by the Owner's Representative (WP42A.3 - Floodwall)	4	$ 696	0	$ -	120	$ 17,520	80	$ 8,800	8	$ 576	$ 27,592
Task 2.B.7	Review shop drawings, samples, and operation and maintenance manuals for conformance with the Contract Documents (WP42A.3 - Floodwall)	4	$ 696	0	$ -	80	$ 11,680	40	$ 4,400	2	$ 144	$ 16,920
Task 2.B.8	Review and approve change orders or modifications that could affect the design or function of the Project (WP42A.3 - Floodwall) **Change Orders have included the Mystery Manhole, the Cast Iron Sanitary Pipe boring and Change Order 3 that is pending**	8	$ 1,392	0	$ -	140	$ 20,440	200	$ 22,000		$ -	$ 43,832
Task 2.B.9	Update monthly the As-Built drawings based on information provided by Owner's Representative (WP42A.3 - Floodwall) - **Assume no field survey will be completed by HMG. Work is for 25 additional weeks of construction (4 hrs per month)**	4	$ 696	0	$ -	24	$ 3,504	24	$ 2,640		$ -	$ 6,840
Task 2.B.10	Assist Owner's Representative with determination of monthly pay application quantities based on survey information provided by Owner's Representative (WP42A.3 - Floodwall) - **Assume no field survey will be completed byHMG. Work is for 25 additional weeks of construction (4 hrs per month)**	2	$ 348	0	$ -	24	$ 3,504	24	$ 2,640		$ -	$ 6,492
	Total	34	$ 5,916	0	$ -	488	$ 71,248	1718	$ 188,980	22	$ 1,584	$ 267,728
WP42A.3 (2nd St. S. Floodwall) Project Management. (Original Task Order Assumed a 6 month construction timeline for WP42A.3) Based on the latest Contractor schedule, there were an additional 6 weeks of construction in 2015 and 19 weeks in 2016												
Task 2.C.1	Provide project management, including monthly status reports and invoicing to Owner on Engineer's task activity (WP42A.3 - Floodwall) - **Assume 25 weeks of additional construction timeline and 1 hour per week for PM and Prof. Eng.**	0	$ -	0	$ -	25	$ 3,650	25	$ 2,750		$ -	$ 6,400
Task 2.C.2	Participate in regular and periodic meetings or teleconferences with contractors, the Owner's Representatives, Owner, and USACE (WP42A.3 - Floodwall) - **Assume 25 weeks of additional timeline and 3 hour per week (including prep.) for PM and Prof. Eng.**	0	$ -	0	$ -	75	$ 10,950	75	$ 8,250		$ -	$ 19,200
	Total	0	$ -	0	$ -	100	$ 14,600	100	$ 11,000	0	$ -	$ 25,600
	SRFSupport											$ 40,000
	Geotechnical Support											$ 5,000
	Expenses (WP42A.3)											$ 5,000
	Grand Totals											$ 343,328

SCOPE OF SERVICES

FARGO-MOORHEAD FLOOD RISK MANAGEMENT PROJECT
RED RIVER LEVEES – PHASE 1 2ND STREET/DOWNTOWN REACH

4TH STREET SOUTH STORM WATER PUMP STATION, GATEWELL AND OUTFALL (WP42A.1)

CONSTRUCTION ENGINEERING SERVICES (REVISED 1-06-2016)

The following outlines the scope of services to be completed for this project.

PROJECT DESCRIPTION: Provide Services During Bid (SDB) and Services During Construction (SDC) for the 4th Street Pump Station, Gatewell and Outfall Project (WP42A.1) for the Fargo-Moorhead Area Flood Diversion Project (Project) as described in the tasks below.

Task 2A SERVICES DURING BIDDING

Task 2.A.1 Respond to bidder inquiries forwarded by Owner's Representative during advertisement period and prepare addenda as necessary to provide a clear, biddable set of solicitation documents.

Task 2.A.2 Attend and participate in pre-bid meetings and site visits. Assume 1 pre-bid meeting and 2 site visits.

Task 2.A.3 Attend bid openings and, if requested, assist in evaluation of bids.

Task 2.A.4 Incorporate addenda into the plans and technical specifications to create a set of Contract Award Documents.

Task 2.A.5 Prepare a submittal register based on the Contract Documents indicating required submittals, the specific technical submittals requiring review and/or approval by the Engineer, and administrative submittals that can be reviewed by the Owner's Representatives.

Task 2B SERVICES DURING CONSTRUCTION (Assume a 21 month construction timeline)

Task 2.B.3 Participate in one or more partnering meetings - Assume 2 meetings

Task 2.B.5 Periodically visit the construction site(s) during the construction phase to observe critical elements of the project and meet with Quality Assurance (QA) representatives to review record drawings, answer questions from the QA representatives and the Contractor, and to observe construction in sufficient detail to certify the flood risk reduction features of the Project. Prepare site visit reports and submit to Owner's Representative. - Assume 2 hours per week and 21 month construction timeline.

Current schedule adds 3 months (12 weeks) to project, 2 hours per week = 24 additional projected hours

- Site visits by disciplines include:
  - Structural – 2 visits
  - Process – 2 visits
  - Electrical – 1 visit
  - Architectural – 1 visit
  - I&C – 1 visit
  - Mechanical – 1 visit

Task 2.B.6 Respond to Requests for Information and other construction communication provided by the Owner's Representative. Assume 40 RFIs.

As of January 6, 2016 there have been 136 RFI's 109 have been HDR's. An average of 6.5 hrs per RFI and 69 additional RFIs results in 448.5 additional hrs.
Currently 55% of the way through the project, at the current rate there will be an additional 110 RFI's assuming the current split HDR would have an additional 89 RFIs average of 6.5 hrs per RFI would result in 578.5 additional projected hrs.

Task 2.B.7 Review shop drawings, samples, and operation and maintenance manuals for conformance with the Contract Documents.

Task 2.B.8 Review and approve change orders or modifications that could affect the design or function of the Project. Assume 10 change orders.

Task 2.B.9 Update monthly the As-Built drawings based on information provided by Owner's Representative - Assume no field survey will be completed by HMG.

Task 2.B.10 Assist Owner's Representative with determination of monthly pay application quantities based on survey information provided by Owner's Representative. Assume no field survey will be completed by HMG.

Task 2.B.11 Following completion of construction, update the Design Documentation Report to reflect the design changes, contract modifications, site conditions encountered, testing, and submittals.

Task 2.B.12 Provide Final As-Built drawings in conformance with the same standards as the design drawings. Assume no field survey will be completed by HMG.

Task 2.B.13 Prepare a post construction Inspection and Monitoring Plan specifying annual inspections required to verify satisfactory maintenance and performance of the flood risk management features.

Task 2.B.14 Provide flood risk reduction certifications as required by owner or Diversion Authority.

Task 2.B.15 Provide a Resident Project Representative (RPR) that will represent the Engineer and Owner's Representative. RPR will observe construction in sufficient detail to certify the flood risk reduction features of the Project. Prepare site visit reports and submit to Owner's Representative and city of Fargo. Assume November 1,

2014 – February 28, 2015 - 10 hours/week (160 hours). March 1, 2105 – September, 2016 - 20 hours/week (73 weeks x 20 hours plus 160 hours for additional time required).

March 1, 2015 through December 2015 have averaged 30 hours per week, or an additional 10 hours for the last 10 months (44 weeks) = 440 hours

January 2016 through September 2016 (39 weeks) expect to continue at the current rate 10 above budgeted = 390 additional projected hours

Current schedule has the project to taking 3 months longer 30 hours per week (12 weeks) = 360 additional projected hours

Task 2C PROJECT MANAGEMENT

Task 2.C.1 Provide project management, including monthly status reports and invoicing to Owner on Engineer's task activity - Assume 21 month construction timeline and 1 hour per week for PM and Civil Engineer.

Current schedule adds 3 months (12 weeks) to project, 1 hours per week = 12 additional projected hours

Task 2.C.2 Participate in regular and periodic meetings or teleconferences with contractors, the Owner's Representatives, Owner, and USACE - Assume 21 month construction timeline and 3 hour per week (including prep and meeting notes) for PM and Civil Engineer.

Current schedule adds 3 months (12 weeks) to project, 3 hours per week = 36 additional projected hours

Task 2.C.3 Respond to requests for services from Owner or Owner's Representative for tasks not included in individual Task Orders. Services will be provided only with written authorization from Owner or Owner's Representative.

Current schedule adds 3 months (12 weeks) to project, 4 hours per week = 48 additional projected hours

Task 2D OUT OF SCOPE WORK/FIELD DESIGN

Task 2.D.1 Provide technical analysis and recommendations for the following field design changes:

- Shoring plan evaluation – Analysis and coordination was required to evaluate the impact of the shoring plan struts and supports on the design of the pump station walls and base slab. (November 2014 Ark 10 hr, Glen 6 hrs)
- Subgrade aggregate backup plan – An evaluation of a back up plan was completed to determine what was needed if the subgrade ended up not being suitable. (December 2014 Glen 10 hrs)
- Stockpile against levee – A request to stockpile against the west side of the levee was evaluated and resulted in the stockpile being placed starting at the toe of the levee. (December 2014 Glen 10 hrs)

- Rebar in sump pit – A request was made and a detail provided for rebar in the sump pit. (February 2015 Ark 4 hrs)
- Concrete Spall Repair review – A detail was required to fix a segment of wetwell floor (March 2015 Ark 4 hrs)
- Concrete Alkali content – The proposed precast cement did not meet specifications for alkali content. Recommendations were provided to test the alkali for the concrete mix. (March 2015 Ark 4 hrs)
- Site grading/drainage – The grading around the pump station and generator was redone to accommodate drainage. (April 2015 Eric 2 hrs, Glen 2 hrs)
- Conduits through wetwell – A design change was evaluated for a thicker wall section to encase the duct bank in concrete. (April 2015 Ark 4 hrs, Kyle 4 hrs)
- Rebar around sluice gate thimble – The vertical rebar around the sluice gate opening was not poured into base slab. A design analysis was required for rebar around thimble. (April 2015 Ark 12 hrs, Eric 4 hrs)
- Horizontal sump pump discharge – The electrical conduit concrete encasement change was in conflict with the sump pump discharge pipe. Two options were evaluated. (April 2015 Eric 4 hrs)
- Gate Operators – The forces provided for the gate operators resulted in forces that required rebar design updates to the pump station and gatewell 03 20 00.00 10 (April 2015 Ark 4 hrs, Gary 4 hrs)
- Trash rack and rake 46 20 20 redesign – The manufacturer observed the rake did not stay in would jam, so after several discussions (April 2015 Eric 4 hrs)
- Lube system reconfiguration – The lube system reconfigured and moved into the electrical room. (June to October 2015 Kyle 6 hrs, Eric 6 hrs)
- Waterproofing – Changes to the waterproofing limits and tests were evaluated. (June 2015 - Wayne 2 hrs)
- Gatewell column footing – The gatewell column footing was constructed 11 inches too far to the west. An analysis was completed to determine if it was ok to have the column off center from the footing. (July 2015 Gary 4 hrs)
- Pump station wall rebar – The pump station wall rebar hooks were not placed at the correct elevation which required a reevaluation of the grade level slab design. (August 2015 Ark 16 hrs, Svien 4 hrs)
- Embed frame design modification 05 50 13 to allow concrete slab to be poured with block outs (August 2015 Ark 4 hrs, Eric 4 hrs))
- Protection board – The engineer was asked to evaluate the need for waterproofing protection board (September 2015 Wayne 2 hrs)
- Outfall form anchors – The form anchors used for the first box culvert pour did not meet specifications. Fixes were evaluated. (September 2015 Gary 4 hrs)
- Review of high early strength concrete mix – ICS proposed the high-early mix to help with construction schedule. Durability concerns were researched, which led to curing recommendations, and ultimately the high early mix not being used. (September 2015 Glen 2 hrs, Ark 4 hrs, Kirchner 2 hrs)
- Pump house receptacles – Coordination was required on the pump station receptacles leading to removal in the pump room (Kyle 4 hrs, Glen 4 hrs)
- Bearing monitors – The pump supplier did not include bearing monitors with the pumps so the electrical contractor proposed several alternatives that had to be evaluated. (October 2015 Eric 4 hrs, Kyle 2hrs)

- Outfall riprap regrading – Lidar was not available at the outfall due to high water during the flights, so the outfall was regraded to fit the existing contours. (October 2015 Glen 4 hrs)
- Earthwork and Emergency action plan updates 31 00 00.00 13 and 14 – There have been six updates to the earthwork and emergency action plan requiring review of stockpiles, grading, temporary levee construction, demolition, construction sequencing, and river water levels. (January through October 2015 Glen 12 hrs)
- Gatewell architectural recommendations – Formliner was reviewed but decided to go with a veneer, to be designed. (October 2015 Jim 2 hrs, Gary 2 hrs)
- Waterstops – The tested waterstop samples did not meet specifications and were retested requiring a review of design options. The waterstops were installed incorrectly in some locations of the outfall culvert, gatewell, and pump station requiring design review (March through October 2015 Ark 8 hrs, Gary 4 hrs)
- Power to site – The power to the pump station was modified to come from 4th Street instead of the existing transformer requiring review of three alternatives and coordinate with XCEL, sanitary pump station designers, and utility conflicts. (September and October 2015 Kyle 4 hrs, Glen 4hrs)
- Structural related item hours October, November, and December 2015 – 104 hours

Out of Scope Field Design Hours November 2014 through December 2015 = 310 hrs
Projected Out of Scope Field Design Hours January 2016 through September 2016 = 206 hrs
hrs

Summary

Out of Scope Hours November 2014 through December 2015 = 1198.5 hrs
Projected Out of Scope Hours January 2016 through September 2016 = 968.5 hrs
Projected Out of Scope Hours October through December 2016 = 686 hrs

Project Name: **4th Street Stormwater Pump Station - Construction Services**

Task Series	Task Description	Project Manager	Senior Civil Engineer	Civil Engineer	Senior Structural Engineer	Structural Engineer	Senior Electrical Engineer	Electrical Engineer	Senior Mechanical Engineer	Mechanical Engineer	Senior Architect	Architect	CADD Operator	RPR	Administrative	Total BIL Hours per Task	Labor	Labor Per Subtask	Activity Subtotal	Additional Tasks Completed Nov-14 to Dec-15		Additional Tasks Projected Jan-16 to Sept-16		Additional Cost Due to Schedule Slip Oct-Dec-16	
	Construction 11/1/14 - 9/5/16 (21 months)	$185.78	$199.02	$140.06	$177.26	$136.80	$190.27	$166.20	$222.92	$151.61	$188.03	$147.33	$106.31	$140.00	$89.10	(hr)	($)		($)	(hr)	($)	(hr)	($)	(hr)	($)
Task 2A	**Services During Bidding**																	0	0						
																	0	0							
Task 2B	**Services During Construction (Assume a 21 month construction timeline for Pump Station, Gatewell and Outfall)**																	**2,241.0**	**349,058**						
Additional Items																	0								
Task 2.B.5	Current schedule adds 3 months (12 weeks) to project, 2 hours per week = 24 additional projected hours	24														24.0	4,459							24.0	4458.72
Task 2.B.6a	As of January 6, 2016 there have been 136 RFI's 109 have been HDR's. An average of 6.5 hrs per RFI and 69 additional RFIs results in 448.5 additional hrs.	100	100		100			100				40			8.5	448.5	79,477			448.5	79,476.6				
Task 2.B.6b	An additional projected 89 RFIs average of 6.5 hrs per RFI would result in 578.5 additional projected hrs	100	80		100			180				100			18.5	578.5	98,523					578.5	98522.95		
Task 2.B.15a	March 1, 2015 through December 2015 have averaged 30 hours per week, or an additional 10 hours for the last 10 months (44 weeks) = 440 hours													440		440.0	61,600			440.0	61,600.0				
Task 2.B.15b	October 2015 through September 2016 (52 weeks) expect to continue at the current rate 7.5 above budgeted = 390 additional projected hours													390		390.0	54,600					390.0	54600		
Task 2.B.15c	Current schedule is has project taking 3 months longer 30 hours per month (12 weeks) = 360 additional projected hours													360		360.0	50,400							360.0	50400
Task 2C	**Project Management**																	**48.0**	**8,917**						
Additional Items																	0								
Task 2.C.1	Current schedule adds 3 months (12 weeks) to project, 1 hours per week = 12 additional projected hours	12														12.0	2,229							12.0	2229.36
Task 2.C.2	Current schedule adds 3 months (12 weeks) to project, 3 hours per week = 36 additional projected hours	36														36.0	6,688							36.0	6688.08
Task 2.C.3	Current schedule adds 3 months (12 weeks) to project, 4 hours per week = 48 additional projected hours	48														48.0	8,917							48.0	8917.44
Task 2D	**OUT OF SCOPE WORK/FIELD DESIGN**																	**516.0**	**84,078**						
	November 2014 through February 2015 - shoring plan, aggregate backup, stockpile, rebar	26				14										40.0	6,745			40.0	6,745.5				
	March 2015 through May 2015 - spall repair, alkali content, site grading, conduits in wetwell, rebar at thimble, sump discharge	2	14			32		4								52.0	8,200			52.0	8,200.2				
	June 2015 through August 2015 - Lube system, waterproofing, gatewell column, pump station wall rebar		10		4	24		6				2				46.0	7,274			46.0	7,274.3				
	September 2015 through October 2015	26	4		2	22		10				4				68.0	11,242			68.0	11,241.8				
	November 2015 through December 2015	20	20		34	20						10				104.0	17,932			104.0	17,932.1				
	Projected field design January 2016 through September 2016	64	8		6	60		20				40			8	206.0	32,684							206.0	32683.64
	Subtotals	458	236	0	246	172	0	320	0	0	0	196	0	1190	35	2,853.0	$450,970.70	**2805**	**$442,053.26**	**1198.5**	**$192,470.51**	**968.5**	**$153,122.95**	**686**	**$105,377.24**
	Burdened Labor Rate	$185.78	$199.02	$140.06	$177.26	$136.80	$190.27	$166.20	$222.92	$151.61	$188.03	$147.33	$106.31	$140.00	$89.10					Percent of Total	43.54%		34.64%		23.84%

HDR Engineering Inc.
FM Metro Diversion Authority - 4th Street Stormwater Pump Station, Gatewell and Outfall
Construction Engineering Services Change Order

Overhead Rate						
1. Direct Labor Costs: Labor Category		2015 Rates ($/Hour)	Hours	Costs Audited OH No Profit	HDR Labor Costs 2.75 Ovhd	HDR Labor Only Fee
	Project Manager	$185.78	458.0	$0.00	$0.00	$85,087.24
	QA/QC Manager	$293.81	0.0	$0.00	$0.00	$0.00
	Senior Civil Engineer	$199.02	236.0	$0.00	$0.00	$46,968.72
	Civil Engineer	$140.06	0.0	$0.00	$0.00	$0.00
	Senior Structural Engineer	$177.26	246.0	$0.00	$0.00	$43,605.96
	Structural Engineer	$136.80	172.0	$0.00	$0.00	$23,529.60
	Senior Electrical Engineer	$190.27	0.0	$0.00	$0.00	$0.00
	Electrical Engineer	$166.20	320.0	$0.00	$0.00	$53,184.00
	Senior Mechanical Engineer	$222.92	0.0	$0.00	$0.00	$0.00
	Mechanical Engineer	$151.61	0.0	$0.00	$0.00	$0.00
	Hydrologic/Hydraulic Engineer	$164.47	0.0	$0.00	$0.00	$0.00
	Senior Architect	$188.03	0.0	$0.00	$0.00	$0.00
	Architect	$147.33	196.0	$0.00	$0.00	$28,876.68
	Senior Engineering Technician	$119.19	0.0	$0.00	$0.00	$0.00
	CADD Operator	$110.56	0.0	$0.00	$0.00	$0.00
	RPR	$140.00	1190.0	$0.00	$0.00	$166,600.00
	Administrative	$89.10	35.0	$0.00	$0.00	$3,118.50
SUBCONTRACTORS						
1. Subtotal Labor Fee			2853.0	$0.00	$0.00	$450,970.70
Total Labor without escalation						$450,970.70
2. Travel				$26,870.00	$26,870.00	$26,870.00
3. Other Direct Costs						$ 11,606.10
4. Subconsultants						
4a. Subconsultants (Direct Costs)						
4b. Markup on Subconsultants						
HDR 899 ODC Subtotal (Items 2,3,4)				**$26,870.00**	**$26,870.00**	**$38,476.10**
HDR Labor and ODC Total				**$26,870.00**	**$26,870.00**	**$489,446.80**
SUBTOTAL (Items 1 - 4) - HDR Fee				**$26,870.00**	**$26,870.00**	**$489,446.80**
TOTAL AMOUNT (ITEMS 1-4)			Fee	$ 26,870.00	$ 26,870.00	**$489,446.80**

FM Metro Risk Management Project

HMG Task Order No. 17 - Services During Construction

Task	Activity Description	Personnel Costs										Cost Per Task
		Senior Project Manager		Project Manager		Senior Project Engineer		Graduate Engineer		CADD Technician III		
		Hours	Cost	Hours	Cost	Hours	Cost	Hours	Cost	Hours	Cost	
WP42H.2 (El Zagal Levee Phase 2) Services During Construction (Assume a 6 month construction timeline for WP42A.3)												
Task 2.B.3	Participate in one or more partnering meetings (WP42H.2) - **Assume 2 meetings**	2	$ 348	8	$ 1,256	8	$ 1,296		$ -		$ -	$ 2,900
Task 2.B.5	Provide a Resident Project Representative (RPR) that will represent the Engineer and Owner's Representative. RPR will have the duties and defined in the Contract Documents for each project. Observe construction in sufficient detail to certify the flood risk reduction features of the Project. Prepare site visit reports and submit to Owner's Representative. (WP42H.2) - **Assume 50 hours per week and 30 week construction timeline**	4	$ 696	6	$ 942	60	$ 9,720	1500	$ 165,000		$ -	$ 176,358
Task 2.B.6	Respond to Requests for Information and other construction communication provided by the Owner's Representative (WP42H.2)	0	$ -	4	$ 628	24	$ 3,888		$ -	8	$ 920	$ 5,436
Task 2.B.7	Review shop drawings, samples, and operation and maintenance manuals for conformance with the Contract Documents (WP42H.2)	0	$ -	4	$ 628	32	$ 5,184	8	$ 880		$ -	$ 6,692
Task 2.B.8	Review and approve change orders or modifications that could affect the design or function of the Project (WP42H.2)	0	$ -	8	$ 1,256	16	$ 2,592		$ -		$ -	$ 3,848
Task 2.B.9	Update monthly the As-Built drawings based on information provided by Owner's Representative (WP42H.2) - **Assume no field survey will be completed by HMG**	0	$ -	6	$ 942	12	$ 1,944	24	$ 2,640	30	$ 3,450	$ 8,976
Task 2.B.10	Assist Owner's Representative with determination of monthly pay application quantities based on survey information provided by Owner's Representative (WP42H.2) - **Assume no field survey will be completed byHMG**	0	$ -	12	$ 1,884	12	$ 1,944	24	$ 2,640	24	$ 2,760	$ 9,228

Task 2.B.11	Following completion of construction, update the Design Documentation Report to reflect the design changes, contract modifications, site conditions encountered, testing, and submittals (WP42H.2)	0	$ -	12	$ 1,884	40	$ 6,480	12	$ 1,320	12	$ 1,380	$ 11,064
Task 2.B.12	Provide Final As-Built drawings in conformance with the same standards as the design drawings (WP42H.2) - **Assume no field survey will be completed byHMG.**	0	$ -	4	$ 628	16	$ 2,592	10	$ 1,100	40	$ 4,600	$ 8,920
Task 2.B.13	Prepare a post construction Inspection and Monitoring Plan specifying annual inspections required to verify satisfactory maintenance and performance of the flood risk management features (WP42H.2)	0	$ -	16	$ 2,512	40	$ 6,480		$ -		$ -	$ 8,992
Task 2.B.14	Provide flood risk reduction certifications as required by owner or Diversion Authority (WP42H.2)	4	$ 696	16	$ 2,512	16	$ 2,592		$ -		$ -	$ 5,800
	Total	10	$ 1,740	96	$ 15,072	276	$ 44,712	1578	$ 173,580	114	$ 13,110	$ 248,214
WP42H.2 (El Zagal Levee Phase 2) Project Management												
Task 2.C.1	Provide project management, including monthly status reports and invoicing to Owner on Engineer's task activity (WP42H.2) - **Assume 6 month construction timeline and 1 hour per week for PM and Prof. Eng.**	0	$ -	26	$ 4,082	26	$ 4,212		$ -		$ -	$ 8,294
Task 2.C.2	Participate in regular and periodic meetings or teleconferences with contractors, the Owner's Representatives, Owner, and USACE (WP42(WP42H.2)) - **Assume 6 month construction timeline and 3 hour per week (including prep.) for PM and Prof. Eng.**	0	$ -	78	$ 12,246	78	$ 12,636		$ -		$ -	$ 24,882
	Total	0	$ -	104	$ 16,328	104	$ 16,848	0	$ -	0	$ -	$ 33,176
	Geotechnical Support (Sub)											$ 12,500
	Structural Support (Sub)											$ 2,500
	Expenses (WP42H.2)											$ 5,000
	Grand Totals											$ 301,390

FM Metro Risk Management Project

HMG Task Order No. 17 - Services During Construction - WP42I

Task	Activity Description	Personnel Costs										Cost Per Task
		Senior Project Manager		Project Manager		Professional Engineer		Graduate Engineer		Senior Administrative		
		Hours	Cost	Hours	Cost	Hours	Cost	Hours	Cost	Hours	Cost	
WP42I - Mickelson Levee Extension -Services During Bidding.												
Task 2.A.1	Respond to bidder inquiries forwarded by Owner's Representative during advertisement period and prepare addenda as necessary to provide a clear, biddable set of solicitation documents.	1	$ 174	4	$ 628	16	$ 2,336	8	$ 880	2	$ 144	$ 4,162
Task 2.A.2	Attend and participate in pre-bid meetings and site visits.	1	$ 174	0	$ -	8	$ 1,168		$ -	1	$ 72	$ 1,414
Task 2.A.3	Attend bid openings and, if requested, assit in evaluation of bids.	1	$ 174	0	$ -	6	$ 876		$ -	1	$ 72	$ 1,122
Task 2.A.4	Incorporate addenda into the plans and technical specifications to create a set of Contract Award Documents	1	$ 174	4	$ 628	12	$ 1,752	24	$ 2,640	4	$ 288	$ 5,482
Task 2.A.5	Prepare a submittal register based on the Contract Documents indicating required submittals, the specific technical submittals requiring review and/or approval by the Engineer, and administrative submittals that can be reviewed by the Owner's Representatives.	1	$ 174	2	$ 314	12	$ 1,752	4	$ 440	2	$ 144	$ 2,824
	Total	5	$ 870	10	$ 1,570	54	$ 7,884	36	$ 3,960	10	$ 720	$ 15,004
WP42I - Mickelson Levee Extension - Services During Construction (Assume a 4 month construction timeline for WP42A.3)												
Task 2.B.3	Participate in one or more partnering meetings - **Assume 2 meetings**	1	$ 174	8	$ 1,256	8	$ 1,168		$ -		$ -	$ 2,598
Task 2.B.5	Provide a Resident Project Representative (RPR) that will represent the Engineer and Owner's Representative. RPR will have the duties and defined in the Contract Documents for each project. Observe construction in sufficient detail to certify the flood risk reduction features of the Project. Prepare site visit reports and submit to Owner's Representative. - **Assume 40 hours per week and 4 month (16 week) construction timeline.**	2	$ 348	4	$ 628	48	$ 7,008	640	$ 70,400	4	$ 288	$ 78,672
Task 2.B.6	Respond to Requests for Information and other construction communication provided by the Owner's Representative	1	$ 174	8	$ 1,256	24	$ 3,504		$ -	2	$ 144	$ 5,078
Task 2.B.7	Review shop drawings, samples, and operation and maintenance manuals for conformance with the Contract Documents	2	$ 348	8	$ 1,256	24	$ 3,504	12	$ 1,320	2	$ 144	$ 6,572
Task 2.B.8	Review and approve change orders or modifications that could affect the design or function of the Project	1	$ 174	8	$ 1,256	12	$ 1,752		$ -		$ -	$ 3,182
Task 2.B.9	Update monthly the As-Built drawings based on information provided by Owner's Representative - **Assume no field survey will be completed by HMG**	1	$ 174	8	$ 1,256	24	$ 3,504	24	$ 2,640		$ -	$ 7,574
Task 2.B.10	Assist Owner's Representative with determination of monthly pay application quantities based on survey information provided by Owner's Representative - **Assume no field survey will be completed byHMG.**	1	$ 174	4	$ 628	16	$ 2,336	16	$ 1,760		$ -	$ 4,898
Task 2.B.11	Following completion of construction, update the Design Documentation Report to reflect the design changes, contract modifications, site conditions encountered, testing, and submittals	2	$ 348	12	$ 1,884	24	$ 3,504	8	$ 880	8	$ 576	$ 7,192
Task 2.B.12	Provide Final As-Built drawings in conformance with the same standards as the design drawings - **Assume no field survey will be completed byHMG.**	1	$ 174	8	$ 1,256	24	$ 3,504	24	$ 2,640		$ -	$ 7,574
Task 2.B.13	Prepare a post construction Inspection and Monitoring Plan specifying annual inspections required to verify satisfactory maintenance and performance of the flood risk management features	1	$ 174	12	$ 1,884	24	$ 3,504		$ -	4	$ 288	$ 5,850
Task 2.B.14	Provide flood risk reduction certifications as required by owner or Diversion Authority	2	$ 348	8	$ 1,256	8	$ 1,168		$ -	2	$ 144	$ 2,916
	Total	15	$ 2,610	88	$ 13,816	236	$ 34,456	724	$ 79,640	22	$ 1,584	$ 132,106
WP42I - Mickelson Levee Extension - Project Management												
Task 2.C.1	Provide project management, including monthly status reports and invoicing to Owner on Engineer's task activity - **Assume 4 month (16 wk) construction timeline and 1 hour per week for PM and Prof. Eng.**	0	$ -	16	$ 2,512	16	$ 2,336		$ -		$ -	$ 4,848
Task 2.C.2	Participate in regular and periodic meetings or teleconferences with contractors, the Owner's Representatives, Owner, and USACE - **Assume 4 month (16 week) construction timeline and 2 hour per week (including prep.) for PM and Prof. Eng.**	0	$ -	32	$ 5,024	32	$ 4,672		$ -		$ -	$ 9,696
	Total	0	$ -	48	$ 7,536	48	$ 7,008	0	$ -	0	$ -	$ 14,544
	Geotechnical Support											$ 7,500
	Expenses (WP42I)											$ 3,000
	Grand Totals											$ 172,154

FM Metro Risk Management Project

HMG Task Order No. 17 - Services During Construction - WP42C1

Task	Activity Description	Personnel Costs										Cost Per Task
		Senior Project Manager		Project Manager		Professional Engineer		Graduate Engineer		Senior Administrative		
		Hours	Cost	Hours	Cost	Hours	Cost	Hours	Cost	Hours	Cost	
WP42C1 - Hojo-Shakey's-FPS Demo - Services During Construction (Assume a 6 week construction timeline)												
Task 2.B.3	Participate in one or more partnering meetings - **Assume 1 meetings**		$ -	0	$ -	0	$ -		$ -		$ -	$ -
Task 2.B.5	Provide a Resident Project Representative (RPR) that will represent the Engineer and Owner's Representative. RPR will have the duties and defined in the Contract Documents for each project. Observe construction in sufficient detail to certify the flood risk reduction features of the Project. Prepare site visit reports and submit to Owner's Representative. - **Assume 10 hours per week and 6 week construction timeline.**	0	$ -	2	$ 314	12	$ 1,752	60	$ 6,600	2	$ 144	$ 8,810
Task 2.B.6	Respond to Requests for Information and other construction communication provided by the Owner's Representative	0	$ -	0	$ -	4	$ 584	4	$ 440	1	$ 72	$ 1,096
Task 2.B.7	Review shop drawings, samples, and operation and maintenance manuals for conformance with the Contract Documents	0	$ -	0	$ -	8	$ 1,168	8	$ 880	2	$ 144	$ 2,192
Task 2.B.8	Review and approve change orders or modifications that could affect the design or function of the Project	1	$ 174	4	$ 628	8	$ 1,168		$ -		$ -	$ 1,970
Task 2.B.9	Update monthly the As-Built drawings based on information provided by Owner's Representative - **Assume no field survey will be completed by HMG**	0	$ -	0	$ -	4	$ 584	4	$ 440		$ -	$ 1,024
Task 2.B.10	Assist Owner's Representative with determination of monthly pay application quantities based on survey information provided by Owner's Representative - **Assume no field survey will be completed byHMG.**	0	$ -	0	$ -	4	$ 584	4	$ 440		$ -	$ 1,024
Task 2.B.11	Following completion of construction, update the Design Documentation Report to reflect the design changes, contract modifications, site conditions encountered, testing, and submittals	1	$ 174	2	$ 314	8	$ 1,168	4	$ 440	4	$ 288	$ 2,384
Task 2.B.12	Provide Final As-Built drawings in conformance with the same standards as the design drawings - **Assume no field survey will be completed byHMG.**	1	$ 174	0	$ -	4	$ 584	8	$ 880		$ -	$ 1,638
Task 2.B.13	Prepare a post construction Inspection and Monitoring Plan specifying annual inspections required to verify satisfactory maintenance and performance of the flood risk management features	0	$ -	0	$ -	8	$ 1,168		$ -	1	$ 72	$ 1,240
Task 2.B.14	Provide flood risk reduction certifications as required by owner or Diversion Authority	0	$ -	0	$ -	0	$ -		$ -	0	$ -	$ -
	Total	3	$ 522	8	$ 1,256	60	$ 8,760	92	$ 10,120	10	$ 720	$ 21,378
WP42C1 - Hojo-Shakey's-FPS Demo - Project Management												
Task 2.C.1	Provide project management, including monthly status reports and invoicing to Owner on Engineer's task activity - **Assume 6 week construction timeline and 0.5 hour per week for PM and Prof. Eng.**	0	$ -	3	$ 471	3	$ 438		$ -		$ -	$ 909
Task 2.C.2	Participate in regular and periodic meetings or teleconferences with contractors, the Owner's Representatives, Owner, and USACE - **Assume 6 week construction timeline and 1 hour per week (including prep.) for PM and Prof. Eng.**	0	$ -	6	$ 942	6	$ 876		$ -		$ -	$ 1,818
	Total	0	$ -	9	$ 1,413	9	$ 1,314	0	$ -	0	$ -	$ 2,727
	Geotechnical Support											$ 750
	Expenses (WP42I)											$ 250
	Grand Totals											$ 25,105

FM Metro Risk Management Project

HMG Task Order No. 17 - Services During Bidding - WP42F1N

Task	Activity Description	Personnel Costs										Cost Per Task
		Senior Project Manager		Project Manager		Professional Engineer		Graduate Engineer		Senior Administrative		
		Hours	Cost	Hours	Cost	Hours	Cost	Hours	Cost	Hours	Cost	
WP42F1N - 2nd Street/Downtown -Services During Bidding.												
Task 2.A.1	Respond to bidder inquiries forwarded by Owner's Representative during advertisement period and prepare addenda as necessary to provide a clear, biddable set of solicitation documents.	1	$ 174	4	$ 628	20	$ 2,920	12	$ 1,320	2	$ 144	$ 5,186
Task 2.A.2	Attend and participate in pre-bid meetings and site visits.	1	$ 174	0	$ -	8	$ 1,168	8	$ 880	1	$ 72	$ 2,294
Task 2.A.3	Attend bid openings and, if requested, assit in evaluation of bids.	1	$ 174	0	$ -	6	$ 876	6	$ 660	1	$ 72	$ 1,782
Task 2.A.4	Incorporate addenda into the plans and technical specifications to create a set of Contract Award Documents	1	$ 174	4	$ 628	24	$ 3,504	40	$ 4,400	4	$ 288	$ 8,994
Task 2.A.5	Prepare a submittal register based on the Contract Documents indicating required submittals, the specific technical submittals requiring review and/or approval by the Engineer, and administrative submittals that can be reviewed by the Owner's Representatives.	1	$ 174	2	$ 314	16	$ 2,336	8	$ 880	2	$ 144	$ 3,848
	Total	5	$ 870	10	$ 1,570	74	$ 10,804	74	$ 8,140	10	$ 720	$ 22,104

Technical Staff Recommendation

Meeting Date: 2/3/2016

RECOMMENDATION FOR ACTION:

The Technical Staff have reviewed and recommends approval of the following Contract Action(s).

SUMMARY OF CONTRACTING ACTION:

The Owner's Representative prepared the following Contract Action(s) for the Technical Staff team:

List description of Contract Action(s):

Minnesota Department of Natural Resources (MnDNR)

MFDA – Income Contract No. 39228 – Amendment 4 $137,464.92

- Add funding for additional MnDNR labor and expenses to complete the Final EIS and adequacy determination
- Extend POP of selected subtasks to December 2, 2016

BACKGROUND:

MnDNR is required by Minnesota State law to prepare an Environmental Impact Statement (EIS) for the FM Diversion Project because it includes a Class I dam.

MnDNR initiated work on the Scoping Decision Document for the EIS on Feb 3, 2012. Below is a summary of contracting actions prior to this amendment.

Summary of Contracting History and Current Contract Action:

Original Agreement or Amendment	Budget ($) Change	Original Project Cost	Revised Project Cost	Project Start	Project Completion	Comments
Contract No. 39228	$0	$230,550	$0	3-Feb-12	3-Jan-14	Initial contract for EIS scoping decision document.
Contract No. 39228, Amendment 1	$115,550		$346,100	3-Feb-12	1-Feb-14	Scope and budget added to complete modified environmental review process (Scoping Environmental Assessment Worksheet). Period of performance extended.
Contract No. 39228, Amendment 2	$1,146,618		$1,492,718	3-Feb-12	2-Feb-15	Scope and budget added to evaluate special studies, prepare Draft EIS, hold public meeting, respond to comments, prepare Final EIS, and prepare adequacy determination. Period of performance extended.
Contract No. 39228, Amendment 3.1	$695,289.43		$2,188,007.43	3-Feb-12	4-Mar-16	Budget added to add staff in order to expedite schedule to prepare Draft and Final EIS. Period of performance extended.
Contract No. 39228, Amendment 4	$137,464.92	-	$2,325,472.35	3-Feb-12	2-Dec-16	Budget reallocated between MnDNR and Consultant, budget added, and period of performance extended.

DISCUSSION:

MnDNR completed the Draft EIS in September 2015 and held a public meeting on October 14, 2015. The public comment period closed on October 28, 2015.

MnDNR completed their review of Draft EIS comments on January 7, 2016 and revised their estimated schedule and budget to complete the Final EIS and adequacy determination. This amendment requests an additional $137,464.92 and extension of the period of performance to December 2, 2016.

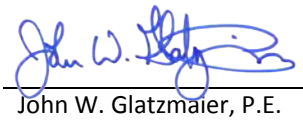
The PMC reviewed MnDNR's revised cost proposal and found it to be acceptable.

This change amount of $137,464.92 is included in the FY-2016 FMDA budget.

ATTACHMENT(S):

1. Draft MnDNR Income Contract No. 39228, Amendment 4
2. Exhibit E – EIS Estimated Costs – Amendment 4

Presented by:



Feb 3, 2016

John W. Glatzmaier, P.E.
CH2M
Project Manager
Metro Flood Diversion Project

Date

Keith Berndt, Cass County Administrator
Concur: Feb 3, 2016 *Non-Concur:* _____

April Walker, Fargo City Engineer
Concur: Feb 3, 2016 *Non-Concur* _____

Mark Bittner, Fargo Director of Engineering
Concur: Feb 3, 2016 *Non-Concur:* _____

Jason Benson, Cass County Engineer
Concur: Feb 3, 2016 *Non-Concur* _____

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

Robert Zimmerman, Moorhead City Engineer
Concur: Feb 3, 2016 *Non-Concur* _____

Nathan Boerboom, Diversion Authority Project Manager
Concur: Feb 3, 2016 *Non-Concur:* _____

Amendment 4 to Income Contract Number 39228

Contract Start Date:	February 3, 2012	Total Contract Amount:	$ 2,325,472.35
Original Contract Expiration Date:	January 3, 2014	Original Contract:	$ 980,550.00
Current Contract Expiration Date:	March 4, 2016	Previous Amendment(s) Total:	$ 1,207,457.43
Requested Contract Expiration Date:	December 2, 2016	This Amendment:	$ 137,464.92

This amendment is by and between the State of Minnesota, through its Commissioner of Department of Natural Resources ("DNR" or "State") and Fargo-Moorhead Metro Diversion Board of Authority c/o City of Moorhead, Moorhead City Hall, P.O. Box 779, Moorhead, MN 56561-0779 ("Purchaser").

Recitals

1. The State has a contract with the Purchaser identified as Income Contract Number 39228 ("Original Contract") to reimburse the State for reasonable expenses incurred in preparation of an Environmental Impact Statement (EIS) for the Fargo-Moorhead Metropolitan Area Flood Risk Management Project (Project).

2. The Original Contract is being amended to extend the expiration date of the contract and to provide additional funding for the State, and its EIS Contractor, to complete EIS preparation work through the adequacy determination and partial creation of the administrative record.

3. The State and the Contractor are willing to amend the Original Contract as stated below.

Contract Amendment

REVISION 1. Clause 1.2 "**Expiration Date**" is amended as follows:

***1.2 Expiration date*:** ~~March 4~~December 2, 2016, or until all obligations have been satisfactorily fulfilled, whichever occurs first.

REVISION 2. Clause 3 "**Payment**" is amended as follows:

The Purchaser will pay the State for all services performed by the State under this contract as follows:

EIS Scoping:

Purchaser shall receive an invoice and pay to the State $230,550 as reimbursement for services related to staff costs, legal costs, travel, public meetings, public notification, printing and distribution related to the Fargo-Moorhead Metropolitan Flood Risk Management Project's EIS scoping and consultant selection incurred by the state.

Upon execution of Amendment 1, Purchaser shall receive an invoice and pay to the State $115,550 as reimbursement for additional services to cover the State's anticipated increase in costs for the modified EIS scoping process. If costs to the State exceed $346,100.00, balance to be submitted prior to the EIS Preparation Notice issuance; If costs to the State total less than $346,100.00, balance to be credited toward EIS preparation, or refunded, at Purchaser's discretion. Costs to the State for the modified EIS scoping process exceeded $346,100.00 by $50,722.00. The exceeded amount of $50,722.00 shall be paid to the State prior to the State issuing an EIS Preparation Notice.

EIS Preparation:

A cost breakdown and payment schedule is included in Exhibit A, Exhibit B, Exhibit C, ~~and ,~~ Exhibit D, and Exhibit E which are attached to and incorporated into this contract.

Terms of payment:
$230,500.00 was remitted by Purchaser on February 28, 2012
$115,550.00 was remitted by Purchaser on January 15, 2013
$598,670.00 was remitted by Purchaser on February 10, 2014

$347,644.71 was remitted by Purchaser on October 6, 2014
$447,796.36 was remitted by Purchaser on June 2, 2015
$447,796.36 was remitted by Purchaser on December 1, 2015

Pursuant to Minn. Rules part 4410.6500, subp. 1(a)-(c), the Purchaser will pay the State for all services performed by the State under this contract as follows:

The Purchaser shall remit payment on the following schedule:
~~$598,670+$347,644.71=$946,314.71~~ $1,083,779.63 (~~50~~100% of total estimated costs within 10 days of Income Contract Amendment execution)
~~$273,974.00+$173,822.36 = $447,796.36 (25% total estimated costs following completion of the draft EIS chapters)~~
~~$273,974.00+$173,822.36 = $447,796.36(25% total estimated costs following the end of the public comment period)~~
Final Payment on any outstanding RGU/consultant costs (EIS adequacy determined)

The State will invoice the Purchaser for all services performed under this contract.

If costs to the State exceed ~~$1,146,618.00+695,289.43=1,841,907.43~~ $1,979,372.35, an amendment to this contract would be required and the balance is to be submitted prior to the EIS Adequacy Determination issuance.

Pursuant to Minn. Rules part 4410.6500, subp. 1(d), the State shall refund the overpayment, if the cash payments made by the Purchaser exceed the State's actual EIS costs. The refund shall be paid within 30 days of completion of the State of the accounting of the EIS costs.

The total obligation of the Purchaser for all compensation and reimbursements to the State under this contract is ~~$2,188,007.43~~ $2,325,472.35.

The Purchaser must complete all reimbursements of State costs before any state agency permit can be issued.

Except as amended herein, the terms and conditions of the original contract and all previous amendments remain in full force and effect.

1. PURCHASER

Fargo-Moorhead Metro Diversion Board of Authority

Signed: _____

Date: _____

2. STATE AGENCY

Department of Natural Resources

By: _____
(with delegated authority)

Title: Director, Ecological & Water Resources

Date: _____

39228
1-29-16
FB

3. COMMISSIONER OF ADMINISTRATION

As delegated to Materials Management Division

By: _____

Date: _____

EXHIBIT E (Jan 29, 2016, V2)

Project Name: FARGO-MOORHEAD FLOOD RISK MANAGEMENT

EIS Estimated Costs--Amendment #4

Start Date 2/19/2014

	Business office	OCO	Jill Townley Project Manager	Irina Comardicea Planning Asst.	Kate Frantz/Melissa Planning Director	Randall Doneen Unit Supervisor	Melissa Doperalski as Mgmt. Analyst	Project Team	Nathan Kestner (Eco/Non-Game)	Lisa Joyal (Heritage)	Laura Van Riper (Invasives)	Jamison Wendel (RR Fisheries)	Jim Solstad (H&H)	Suzanne Jiwani (Flood Program)	Emily Sira/Dan Thul (Area Hydro)	Luther Aadland (Streams)	Dave Friedl (Clean Water)	Ian Chisholm (Streams)	Jason Boyle (Dam Safety)	Technical Team	Fisheries (Drewes)	Don Schultz (Wildlife)	Other approved	TOTAL
Amendment #2 Hours	12	51	1566	350	548	218	1116	273	22	17	147	241	299	130	227	234	219	136	85	55	0	5,946.0	
Amendment #3 Hours	3	40	2505.6	124	151	145	1462	257	11	10	109	144	157	17	96.3	96.3	96.3	14	2	10	0	5,450.6	
TOTAL Hours Estimated	**15**	**91**	**4071.6**	**474**	**699**	**363**	**2578**	**530**	**33**	**27**	**256**	**385**	**456**	**147**	**323.3**	**330.3**	**315.3**	**150**	**87**	**65**	**0**	11,396.6	
Hours Invoiced																							
FY14 Q3	0	7	349.5	34.5	56	31	0	7.25	0	3	31	35.5	7.5	3	0	0	0	2	3	1	0	571.3	
FY14 Q4	0	0	337.5	113.5	116	78	0	27.5	0	3	46	47.5	47	3	0	28	10.5	12	6	1	5.5	882.0	
FY15 Q1	0	4	402	55	17.5	73	0	21	2.5	1	45.5	35.5	7.5	3	0	40	0	2	0	0	0	709.5	
FY15 Q2	0	0	291	0	42	38	428	18	0	0	52	14	41.5	0	16	53.5	27.5	8	0	0	0	1,029.5	
FY15 Q3	0	0	362	0	82	52	449	25	0	0	25	3.5	58	3	0	134	13	5	0	0	41.5	1,253.0	
FY15 Q4	0	0	513.99	128	78.5	45.8	547	34.25	5	4	15	2.5	37	7	0	0	22	12	0	4	56	1,512.0	
FY16 Q1	0	20	437.25	423	87.5	84	436	11	0	0.5	2	3	46.5	12	0	0	0	0	3	0	30	1,595.8	
FY16 Q2	0	23	306.5	347	34	40	289	0	0	0	10	18	21	0	0	0	8	27	2	0	23.5	1,149.0	
Estimated FY16 Q3	0	5	522	365.4	82	80	459.36	15	0	4	30	50	40	10	0	0	20	40	10	2	10	1,744.8	
Estimated FY16 Q4	0	20	522	365.4	82	60	522	5	5	5	5	5	5	5	5	5	5	5	5	5	5	1,641.4	
Estimated FY17 Q1	15	0	104.4	365.4	10	10	104.4	5	1	1	2	5	5	1	1	0	5	5	0	0	1	641.2	
TOTAL Hours Actual + Estimated	**15**	**79**	**4148.14**	**2197.2**	**687.5**	**591.8**	**3234.76**	**169**	**13.5**	**21.5**	**263.5**	**219.5**	**316**	**47**	**22**	**260.5**	**111**	**118**	**29**	**13**	**172.5**	12,729.4	
Hours Remaining in contract	0	12	-76.54	-1723.2	11.5	-228.8	-656.76	361	19.5	5.5	-7.5	165.5	140	100	301.3	69.8	204.3	32	58	52	-172.5	-1332.8	
% of Estimated Hrs. Invoiced	**100%**	**87%**	**102%**	**464%**	**98%**	**163%**	**125%**	**32%**	**41%**	**80%**	**103%**	**57%**	**69%**	**32%**	**7%**	**79%**	**35%**	**79%**	**33%**	**20%**			

DNR Staff Hours

Original Estimate	11,396.6	Hours
Actual+Add'l Estimated	12,729.4	Hours
Subtotal	**$ 114,620.80**	Dollars (average rate)
Wenck		
Contract Amount	$ 825,754.00	
Amendment #4 Change	**$ (14,625.00)**	
Printing & Distribution		
Estimated	$ 3,000.00	
Actual	$ 6,970.02	
Balance	$ (3,970.02)	
Additional	$ 7,000.00	
Subtotal	**$ 10,970.02**	
Travel		
Estimated	$ 5,129.00	
Actual	$ 411.48	
Balance	$ 4,717.52	
Additional (Land Use mtgs)	$ 5,194.00	3 people, 2 trips, per diem, fleet, 2 full days wages
Subtotal	**$ 476**	
DEIS Public Meeting		
Estimated	$ 3,895.00	
Actual	7,417.62	
Balance	**$ 3,522.62**	
Agency Direct		
Estimated	$ 27,000.00	
Actual	$ 27,000.00	
Balance	$ -	
Additional	**$ 22,500.00**	
Sub-Total Amend 4		
Balance + Additional	**$ 137,464.92**	

TOTAL AMEND 4 **$ 137,464.92** **(assumes no new alternative analysis is added to the FEIS)**

Fargo Office
520 Main Avenue
Suite 601
Fargo ND 58103
Tel 701-566-5470
Fax 701-634-9954

February 11, 2016

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

Subject: **Recommendation of Award**
Work Package 42H.2, El Zagal Area Flood Risk Management – Phase 2

Dear Board Members:

CH2M (Program Management Consultant) recommends the Metro Flood Diversion Authority award Work Package 42H.2, El Zagal Area Flood Risk Management – Phase 2 to Reiner Contracting, Inc. in the amount of $1,515,798.64 as the lowest and best bid, contingent on successful acquisition of all land needed for the project.

We conducted a public Bid Opening for this project on January 26, 2016. See attached Bid Summary for details. Reiner Contracting's bid for Construction is approximately 14% lower than the Engineer's Opinion of Probable Cost.

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: Mark Bittner/City of Fargo
April Walker/City of Fargo
Nathan Boerboom/City of Fargo
Keith Berndt/Cass County
Heather Worden/Cass County
Gregg Thielmann/HMG
Kurt Lysne/HMG
Bruce Spiller/CH2M
John Glatzmaier/CH2M

DRAFT

Work Package 42H.2
El Zagal Area Flood Risk Management - Phase 2
BID OPENING: January 26, 2016

BID SUMMARY

Bidder Name	Bid Price	Bid Bond	Contractor Lic.	Addenda
Reiner Contracting, Inc.	$1,515,798.64	✓	✓	✓
Hough, Inc.	$1,626,764.92	✓	✓	✓
Industrial Builders, Inc.	$1,716,953.00	✓	✓	✓
Landwehr Construction, Inc.	$1,719,352.20	✓	✓	✓
Master Construction	$1,836,613.75	✓	✓	✓
Sellin Brothers, Inc.	$1,870,659.00	✓	✓	✓
Rachel Contracting	$1,933,496.75	✓	✓	✓
H&S Contracting, Inc.	$2,088,844.50	✓	✓	✓
Park Construction Company	$2,756,241.85	✓	✓	✓
KPH, Inc.	Non-conforming bid	✓	✓	×

Fargo Office
520 Main Avenue
Suite 601
Fargo ND 58103
Tel 701-566-5470
Fax 701-634-9954

February 11, 2016

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

Subject: **Recommendation of Award**
Work Package 42C.1, Howard Johnson Hotel, Old Shakey's Pizza, Fargo Public Schools Warehouse Demolition

DRAFT

Dear Board Members:

CH2M (Program Management Consultant) recommends the Metro Flood Diversion Authority award Work Package 42C.1, Howard Johnson Hotel, Old Shakey's Pizza, Fargo Public Schools Warehouse Demolition, to Landwehr Construction, Inc. in the amount of $668,870.00 as the lowest and best bid.

We conducted a public Bid Opening for this project on February 9, 2016. See attached Bid Summary for details. Landwehr's bid for construction is approximately 44% lower than the Engineer's Opinion of Probable Cost.

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: Mark Bittner/City of Fargo
April Walker/City of Fargo
Nathan Boerboom/City of Fargo
Keith Berndt/Cass County
Heather Worden/Cass County
Gregg Thielmann/HMG
Cassie McNames/HMG
Bruce Spiller/CH2M
John Glatzmaier/CH2M

Work Package 42C.1

BID SUMMARY

Demolition – Howard Johnson Hotel, Old Shakey's Pizza, Fargo Public Schools Warehouse

BID OPENING: February 4, 2016

Bidder Name	Bid Price	Bid Bond	Contractor Lic.	Addenda
Landwehr Construction, Inc.	$668,870.00	✓	✓	✓
Rachel Contracting	$687,032.00	✓	✓	✓
Excavating, Inc.	$714,877.83	✓	✓	✓
Industrial Builders, Inc.	$739,000.00	✓	✓	✓
Hough, Inc.	$784,169.00	✓	✓	✓
Reiner Contracting, Inc.	$842,729.77	✓	✓	✓
Veit & Company, Inc.	$934,770.00	✓	✓	✓
Gast General Contractors	$949,250.00	✓	✓	✓
Utility Systems of America	$1,019,000.00	✓	✓	✓
Comstock Construction, Inc.	$1,697,400.00	✓	✓	✓

Finance Committee Bills for February 2016

Vendor	Description	Amount
Cass County Joint Water Resource District	Reimburse Diversion bills	$ 3,488,345.84
Fredrickson & Byron, P.A.	Government relations flat fee	$ 3,500.00
Erik R. Johnson & Associates, Ltd.	Metro Flood - General legal matters thru Dec 31, 2015	$ 8,009.86
Erik R. Johnson & Associates, Ltd.	Metro Flood - LEERDS matters thru Dec 31, 2015	$ 1,410.15
Erik R. Johnson & Associates, Ltd.	Metro Flood - General legal matters thru Jan 25, 2016	$ 11,283.55
Erik R. Johnson & Associates, Ltd.	Metro Flood - LEERDS matters thru Jan 25, 2016	$ 1,234.20
U.S. Army Corps of Engineers	Cost share	$ 700,000.00
Ohnstad Twichell, P.C.	Bond Counsel Work - PPP	$ 38,274.32
Ashurst LLP	Professional services rendered in January, 2016	$ 95,456.15
Total Bills Received in January		$ 4,347,514.07

CASS COUNTY GOVERNMENT

Cass County
Joint Water
Resource
District

Mark Brodshaug
Chairman
Fargo, North Dakota

Rodger Olson
Manager
Leonard, North Dakota

Dan Jacobson
Manager
West Fargo, North Dakota

Ken Lougheed
Manager
Gardner, North Dakota

Jacob Gust
Manager
Fargo, North Dakota

February 8, 2016

Diversion Authority
P.O. Box 2806
Fargo, ND 58108-2806

Greetings:

RE: Metro Flood Diversion Project
In-Town Levees Project
Access and Diversion Project Assessment Committee (DPAC)
Oxbow-Hickson-Bakke Ring Levee Project
Oxbow Golf and Country Club – Golf Course Construction

Enclosed please find copies of bills totaling $3,488,345.84 regarding the above referenced projects. The breakdown is as follows:

In-Town Levees	$ 503,881.65
Access issues	24,839.81
DPAC	2,177.00
Oxbow-Hickson-Bakke Ring Levee	2,948,749.44
Oxbow Golf and Country Club	8,697.94

At this time, we respectfully request 100% reimbursement as per the Joint Powers Agreement between the City of Fargo, Cass County and Cass County Joint Water Resource District dated June 1, 2015.

If you have any questions, please feel free to contact us. Thank you.

Sincerely,

CASS COUNTY JOINT WATER RESOURCE DISTRICT

Carol Harbeke Lewis
Secretary-Treasurer

Enclosures

Carol Harbeke Lewis
Secretary-Treasurer

1201 Main Avenue West
West Fargo, ND 58078-1301

701-298-2381
FAX 701-298-2397
wrd@casscountynd.gov
casscountygov.com

METRO FLOOD DIVERSION RIGHT OF ENTRY/LAND ACQUISITION COST SHARE INVOICES

Updated 2/8/16

Invoice Paid	Invoice Date	Invoice No.	Project No.	Amount	Vendor	Description
1/15/2016	12/22/2015	139643	100007	2,555.01	Ohnstad Twichell, P.C.	Legal-Diversion Right of Entry
1/15/2016	12/22/2015	139548	130007	10,139.25	Ohnstad Twichell, P.C.	Legal-Diversion ROW Acquisition
1/15/2016	12/22/2015	139642	90007	935.00	Ohnstad Twichell, P.C.	Legal-DA Cost share agreement and P3
1/15/2016		150160977-0		1,678.57	Cass County Treasurer	2015 Tax on parcel 57-0000-10355-000
1/15/2016		150160983-0		31.98	Cass County Treasurer	2015 Tax on parcel 57-0000-10358-020
1/28/2016				250.00	Compson Revocable Trust	soil boring on parcel 57-0000-10225-000
1/28/2016				500.00	Timothy Leiseth	soil borings on parcel 57-0000-10205-010
1/28/2016				1,000.00	Martin Johnson	soil borings on parcel 15-0000-02680-000
1/28/2016				1,750.00	Western Trust	soil borings on various parcels
1/28/2016				250.00	Joan Thompson	soil boring on parcel 53-0000-09180-020
1/28/2016				250.00	Bruce Cossette	soil boring on parcel 53-0000-09132-010
1/28/2016				250.00	David Houkom	soil boring on parcel 53-0000-09128-002
1/28/2016				250.00	Nancy Loberg	soil boring on parcel 53-0000-09122-010
1/28/2016				750.00	Coster Real Estate	soil borings on parcel 53-0000-09075-000
1/28/2016				250.00	Steve Loberg	soil boring on parcel 53-0000-09082-000
1/28/2016				250.00	William & Mary Lisburg	soil boring on parcel 53-0000-09078-010
1/28/2016				1,250.00	Marilyn Libbrecht	soil borings on parcel 53-0000-09079-000
1/28/2016				1,000.00	Janet Wanzek	soil borings on parcel 53-0000-09061-007
1/28/2016				250.00	Glen Libbrecht	soil boring on parcel 53-0000-09033-000
1/28/2016				250.00	Ann Kulas	soil boring on parcel 59-0000-10948-010
1/28/2016				750.00	Mark & Susan Andrews	soil borings on parcel 59-0000-10926-000
1/28/2016				250.00	Stuart Johnson	soil boring on parcel 59-0000-10920-010
			Total	24,839.81		

IN-TOWN LEVEES INVOICES

Invoice Paid	Invoice Date	Invoice No.	Project No.	Amount	Vendor	Description
01/15/16	01/12/16	381053285	479407	130,000.00	CH2M Hill Engineers	Construction Management Services
01/28/16	01/25/16	381054680.00	479407	130,000.00	CH2M Hill Engineers	Construction Management Services
1/15/2016	1/4/2016	Draw#3-A		45,262.11	Spirit Properties, Inc.	Sidestreet Grille relocation
1/15/2016	11/18/2015			1,610.00	Benjamin Otto	Final residential rental assistance
1/15/2016	11/16/2015			1,680.00	Juan Mondragon	residential fixed move claim
1/15/2016	11/16/2015			1,680.00	Annele Mondragon	residential fixed move claim
1/15/2016			(11 statements)	109,488.35	Cass County Treasurer	2015 tax on various parcels
1/15/2016	1/13/2016	484236779		10,936.15	Xcel Energy	Service to 1 2nd St S, Park East Apts
1/15/2016	2/2/2016	485090735		240.37	Xcel Energy	Service to 1330, 1326 and 1322 Elm St & 18 N Terrace
1/15/2016	1/11/2016	381053283	479407	22,800.86	CH2MHill	Land Acquisition Management 22%-See OHB for Invoice
1/28/2016	1/26/2016	381054773	479407	36,440.68	CH2MHill	Land Acquisition Management 22%-See OHB for Invoice
1/19/2016	12/26/2015	4995		5,129.75	Sentry Security Inc	Security Patrol services for Howard Johnson's
1/28/2016	1/9/2016	5024		4,934.38	Sentry Security Inc	Security Patrol services for Howard Johnson's
1/28/2016	1/23/2016	5052		3,679.00	Sentry Security Inc	Security Patrol services for Howard Johnson's
			Total	503,881.65		

DIVERSION PROJECT ASSESSMENT DISTRICT (DPAC) INVOICES

Invoice Paid	Invoice Date	Invoice No.	Project No.	Amount	Vendor	Description
1/15/2016	12/22/2015	139647	120007	816.00	Ohnstad Twichell, P.C.	Legal-DPAC
1/15/2016	12/22/2015	139673	150007	1,361.00	Ohnstad Twichell, P.C.	Legal-Garaas appeal
			Total	2,177.00		

OXBOW-HICKSON-BAKKE RING LEVEE INVOICES

Invoice Paid	Invoice Date	Invoice No.	Project No.	Amount	Vendor	Description
1/15/2016	12/22/2015	139653	140007	10,030.90	Ohnstad Twichell, P.C.	Legal-ROW
1/6/2016	1/6/2016			120,077.88	The Title Company	Purchase property - Rendy and Lisa Cremer
1/11/2016	1/11/2016			1,072,608.19	The Title Company	Purchase property - Hasbargen/Zimmerman
1/15/2016	12/28/2015			10,375.00	Becca Murphy	Moving costs
1/15/2016	12/28/2015			749.00	Becca Murphy	Moving costs
1/15/2016				7,200.00	Robert Gilberison	Rent supplement
1/15/2016	1/8/2016			10,891.80	David Hasbargen	Moving costs
1/15/2016	1/8/2016			9,200.00	Dekota Construction of Fargo, Inc.	builder advance - Talley
1/15/2016	1/8/2016			50.00	Grent and Debi Retzlaff	Miscellaneous cost claims
1/14/2016	1/13/2016			172,653.77	The Title Company	Purchase property - Murphy
1/14/2016	1/13/2016			264,769.47	The Title Company	replacement property - Murphy
1/15/2018			16 statements	47,188.51	Cass County Treasurer	2015 Tax Statements
1/15/2016	1/6/2016		10 invoices	2,788.42	Cass County Electric Cooperative	Service to various addresses
1/15/2016	1/11/2016	381053283	479407	80,839.40	CH2MHill	Land Acquisition Management 76%
1/28/2016	12/3/2015	54786	R12.00049	5,941.00	Ulteig Engineering Inc	Land Menegement services
1/26/2016	1/26/2016	381054773	479407	129,198.79	CH2MHill	Land Acquisition Management 78%
1/28/2016	1/21/2016	55821	R12.00049	3,734.00	Ulteig Engineering Inc	Land Management services
1/19/2016	1/6/2016	B048870	B14-04209.02	2,590.38	Braun Intertec	CMT for demolition
1/28/2016	12/16/2015			121,781.45	Midcontinent Communications	Phase II Oxbow Levee Relocation
1/19/2016	12/26/2015	5007		2,687.32	Sentry Security Inc	Security patrol services
1/28/2016	1/9/2016	5038		1,851.39	Sentry Security Inc	Security patrol services
1/28/2016	1/23/2016	5064		1,314.90	Sentry Security Inc	Security patrol services
2/1/2016	2/1/2016			403,385.43	The Title Company	purchase property - Randel and Debra Schneibel
2/1/2016	1/29/2016			466,864.64	The Title Company	replacement property - Schneibel
			Total	2,948,749.44		

OXBOW COUNTRY CLUB INVOICES

Invoice Paid	Invoice Date	Invoice No.	Project No.	Amount	Vendor	Description
1/15/2016		150166871-0		4,596.25	Cass County Treasurer	2015 tax on parcel 78-0010-01620-060
1/15/2016		150166872-0		493.34	Cass County Treasurer	2015 tax on parcel 78-0010-01620-070
1/15/2016		150166673-0		3,591.12	Cass County Treasurer	2015 tax on parcel 78-0010-01620-080
1/15/2016		150166674-0		13.53	Cass County Treasurer	2015 tax on parcel 78-0010-01620-090
1/15/2016		150166676-0		3.70	Cass County Treasurer	2015 tax on parcel 78-0010-01620-110
			Total	8,697.94		
			Grand Total	3,488,345.84		

Fredrikson & BYRON, P.A.

REMITTANCE PAGE

Diversion Board of Authority
211 9th Street South
P.O. Box 2806
Fargo, ND 58108-2806

Please remit this page with your payment. Thank you. We appreciate your business.

Invoice:	1348893
Client Account:	072720.0001
Regarding:	Government Relations LOB 30321
Invoice Date:	January 11, 2016

Total Fees:	$ 3,500.00
Total This Invoice	$ 3,500.00

Payment is due within 30 days from receipt of invoice

If you have any questions please email accounting@fredlaw.com or contact a client representative at 612.492.7574.

Communications concerning disputed debts, including an instrument tendered as full satisfaction of a debt, are to be sent to Fredrikson & Byron, PA, Attn: Credit Department, 200 South Sixth Street, Suite 4000, Minneapolis, MN 55402

main 612.492.7000
fax 612.492.7077
www.fredlaw.com
Tax ID No. 41-0971937

Fredrikson & Byron, P.A.
Attorneys & Advisors
P.O. Box 1484
Minneapolis, Minnesota
55480-1484

Fredrikson & BYRON, P.A.

INVOICE DETAIL

Diversion Board of Authority
211 9th Street South
P.O. Box 2806
Fargo, ND 58108-2806

Invoice: **1348893**
Client Account: **072720.0001**
Regarding: **Government Relations LOB 30321**
Invoice Date: **January 11, 2016**

Government Relations flat fee payment 7 of 12.

Total For Fees	**$ 3,500.00**

Total This Invoice	**$ 3,500.00**

***Please note that Fredrikson & Byron will be adjusting its standard hourly billing rate schedule for services rendered after January 1, 2016 If you have questions about the billing rates of specific individuals, please feel free to contact your attorney.*

Communications concerning disputed debts, including an instrument tendered as full satisfaction of a debt, are to be sent to Fredrikson & Byron, PA, Attn: Credit Department, 200 South Sixth Street, Suite 4000, Minneapolis, MN 55402

main 612.492.7000
fax 612.492.7077
www.fredlaw.com
Tax ID No. 41-0971937

Fredrikson & Byron, P.A.
Attorneys & Advisors
P.O. Box 1484
Minneapolis, Minnesota
55480-1484

Erik R. Johnson & Associates, Ltd.
Attorneys at Law
505 Broadway Street North – Suite 206
Fargo, ND 58102
Phone: (701) 280-1901
Fax: (701) 280-1902

STATEMENT OF ACCOUNT FOR PROFESSIONAL SERVICES

City of Fargo – Auditor's Office
Attn: Kent Costin
200 North Third Street
Fargo, ND 58102

December 31, 2015
Invoice No. 2375

RE: Metro Flood Project – General Legal Matters

For Legal Services Rendered Through December 31, 2015

INVOICE TOTAL

Total for Current Legal Fees	$ 7,517.40
Total for Current Disbursements and Service Charges	$ 492.46
Total for Current Invoice	**$ 8,009.86**

Summary of Account

*Prior Balance Due	$ 0
Total Amount Due	$ 8,009.86

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

We appreciate your business.

790-7910-4129. 33-25 V00102

Erik R. Johnson & Associates, Ltd.
Attorneys at Law
505 Broadway Street North – Suite 206
Fargo, ND 58102
Phone: (701) 280-1901
Fax: (701) 280-1902

STATEMENT OF ACCOUNT FOR PROFESSIONAL SERVICES

City of Fargo – Auditor's Office
Attn: Kent Costin
200 North Third Street
Fargo, ND 58102

December 31, 2015
Invoice No. 2371

RE: Metro Flood Project – LEERDS Matters

For Legal Services Rendered Through December 31, 2015

INVOICE TOTAL

Total for Current Legal Fees	$ 1,410.15
Total for Current Disbursements and Service Charges	$ 0
Total for Current Invoice	**$ 1,410.15**

Summary of Account

*Prior Balance Due	$ 0
Total Amount Due	$ 1,410.15

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

790-7930-429.33-25 V00103

We appreciate your business.

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

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

Date	1/25/2016
Invoice #	2392

Description	Qty	Rate	Amount
METRO FLOOD PROJECT -- General legal matters:			
Erik Johnson-Jan 1 thru Jan 25, 2016-itemization enclosed	47.45	211.00	10,011.95
Nancy J Morris-Jan 1 thru Jan 25, 2016-itemization enclosed	6.8	187.00	1,271.60

We appreciate your business.

TOTAL: $11,283.55

Erik R. Johnson & Associates, Ltd

Attorneys at Law

Erik R. Johnson - Nancy J. Morris

505 Broadway - Suite 206

Fargo, ND 58102

(701) 280-1901

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

Date	1/25/2016
Invoice #	2391

Description	Qty	Rate	Amount
Metro Flood Project -- LERRDS-related matters: Nancy J Morris-Jan 1 thru Jan 25, 2016-itemization enclosed	6.6	187.00	1,234.20

We appreciate your business.

TOTAL: $1,234.20

RECEIVED
CASS COUNTY COMMISSION
FEB 4 2016

DEPARTMENT OF THE ARMY
ST. PAUL DISTRICT, CORPS OF ENGINEERS
180 FIFTH STREET EAST, SUITE 700
ST. PAUL, MN 55101-1678

FEB 0 2 2016

Planning, Programs and Project Management Division
Project Management Branch

SUBJECT: Fargo-Moorhead Metro Preconstruction, Engineering, and Design Phase

Chairman Darrell Vanyo
Flood Diversion Board of Authority
Box 2806
211 Ninth Street South
Fargo, ND 58108

Dear Chairman Vanyo:

Based upon the Division Board of Authority's August 13, 2015 meeting where the Corps funds request for FY15-16 was passed and in accordance with Article IV of the Design Cost Share Agreement executed on September 12, 2011, please provide cost share funds in the amount of $700,000. These funds will count towards the required 5 percent cash contribution and are associated with Cost Share Control Record Number 531.

We request that $700,000 be wired directly to the U.S. Army Corps of Engineers. We are providing the following information:

a. Bank Name: Cash Link-ACH Receiver
   Account Name: USACE Finance Center
   Bank ABA Number: 051036706
   Account Number: 220025
   Bank Address: Riverdale MD
   Account Type: Checking

b. Advance Account Number: 293

c. ROV Number: 1703

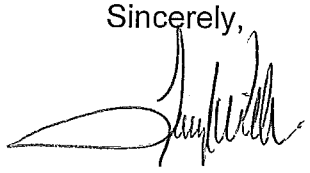
d. Cost Share Number: 531

The instructions require a notification letter from the non-Federal sponsor 14 days in advance of the transfer. To do this, please email terryl.l.williams@usace.army.mil and cherie.d.law@usace.army.mil with the date of transfer, amount and type of transfer. We will then forward this information to our point of contact at our Finance Center in Tennessee.

Please contact Cherie D. Law of our Finance and Accounting Branch at (651) 290-5465, if additional help is required to the complete the electronic funds transfer.

If you have any questions concerning the project, please contact me at (651) 290-5517 or at terryl.l.williams@usace.army.mil.

Sincerely,



Terryl Williams
Project Manager

cc:
Honorable Del Rae Williams
Mayor of Moorhead
500 Center Avenue
PO Box 779
Moorhead, MN 56561-0779

Honorable Dr. Tim Mahoney
Mayor of Fargo
200 Third Street North
Fargo, ND 58102

Mr. Bob Zimmerman
Moorhead City Hall
500 Center Avenue
PO Box 779
Moorhead, MN 56561-0779

Mr. Mark Bittner
Director of Engineering
200 Third Street North
Fargo, ND 58102

Mr. Keith Berndt
Cass County
211 9th Street South
PO Box 2806
Fargo ND 58108-2806

OHNSTAD TWICHELL, P.C.
ATTORNEYS AT LAW

901 13TH AVENUE EAST
P.O. BOX 458
WEST FARGO, ND 58078-0458
(701) 282-3249

15-1395 JTS
Flood Diversion Board
Bond Counsel Work – PPP

DATE: January 29, 2016

To: **Flood Diversion Board**
PO Box 2806
Fargo, ND 58108-2806

AMOUNT REMITTED $_____

Please detach. Return upper portion with your payment.
Payments received after the statement date will be reflected on next month's statement. Thank you.

PROFESSIONAL SERVICES RENDERED

Attorney	Hours	Rate *	Fees
JTS	67.05	*2015-16	$19,101.00
CMM	10.8	*2015-16	$3,114.00
KJB	72.7	*2015-16	$14,901.50
ZKJS	1.3	*2015-16	$208.00
AJM	3.5	*2015-16	$437.50
Expenses:			
Westlaw Research			$500.00
UPS Package			$11.32
Photocopies			$1.00
Total	**155.35**		**$38,274.32**

* Drafting of documents and work streams related to financing, P3, and joint powers agreements.

	Hourly Rate *2015	*2016
JTS - John T. Shockley, Partner	$275.00	$290.00
CMM - Christopher M. McShane, Partner	$275.00	$290.00
KJB - Katie J. Bertsch, Associate	$160.00	$225.00
ZKJS - Katie J. Stearns, Associate	$160.00	$225.00
AJM - Andrea J. Murphy, Paralegal	$125.00	$125.00

15-1395 JTS - Flood Diversion Board - Bond Counsel Work – PPP

Edwards, Brielle

To: Kent Costin
Subject: RE: Flood Diversion Board Authority - Ashurst Invoice

From: John T. Shockley [mailto:JShockley@OhnstadLaw.com]
Sent: Monday, February 08, 2016 2:34 PM
To: Jamie Bullock; Kent Costin
Cc: APInvoicesFMDiv@ch2m.com; Katayoun.Sadeghi@ashurst.com; Jason.Radford@ashurst.com
Subject: RE: Flood Diversion Board Authority - Ashurst Invoice

Good afternoon,

I reviewed the detailed invoice of Ashurst. Based upon that review:

- The hours worked are consistent with the work that Ashurst was asked to undertake.
- The hourly rate is consistent with the retainer agreement
- The work performed is consistent with the first work order given the Ashurst.

The invoice can be processed and submitted for payment. Please note that I have only attached the summary invoice.

Thank you

John T. Shockley
Attorney at Law
Ohnstad Twichell, P.C.
901 - 13th Avenue East
P.O. Box 458
West Fargo, ND 58078-0458
TEL (701) 282-3249
FAX (701) 282-0825

OhnstadTwichell
attorneys

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Invoice

Ashurst LLP
Times Square Tower
7 Times Square
New York, NY 10036
U.S.A.

Tel +1 212 205 7000
Fax +1 212 205 7020
www.ashurst.com

Flood Diversion Board of Authority
Box 2806
211 Ninth Street South
Fargo, North Dakota 58108

For the attention of: Darrell Vanyo

Invoice Date: **February 5, 2016** Our Ref: **JTR/FLO16.00002** Invoice No.: **9607625**

Re: Fargo-Moorhead Area Diversion Project -- AWD-00055	**Fees and Disbursements USD**
For our professional services rendered in January 2016	
PPA: 94,954.95 Procurement Process: 483.75	
Total Fees:	95,438.70
Disbursements Courier Charges	17.45
Total	95,456.15
Balance Due	95,456.15

The fees and disbursements the subject of this invoice may include fees and disbursements due to another member of the Ashurst Group.

Wire Transfer Instructions

Bank Name: Citibank, N.A.
Bank Address: New York, NY 10022
Account Name: Ashurst LLP
Account Number: 4971676095
ABA/Routing No: 021000089

Check Remittance Instructions

Address: Ashurst LLP
Times Square Tower
7 Times Square
New York, NY 10036

For direct payment purposes, please quote reference 9607625 when settling this invoice

Payment Terms: 21 days

Taxpayor Identification No. 52-2210201

AUSTRALIA BELGIUM CHINA FRANCE GERMANY HONG KONG SAR INDONESIA (ASSOCIATED OFFICE) ITALY JAPAN PAPUA NEW GUINEA SAUDI ARABIA SINGAPORE SPAIN SWEDEN UNITED ARAB EMIRATES UNITED KINGDOM UNITED STATES OF AMERICA

Ashurst LLP is a limited liability partnership registered in England and Wales under number OC330252 and is part of the Ashurst Group. It is a law firm authorised and regulated by the Solicitors Regulation Authority of England and Wales under number 468653. A list of members of Ashurst LLP and their professional qualifications is open to inspection at its registered office Broadwalk House, 5 Appold Street, London EC2A 2HA. The term 'partner' in relation to Ashurst LLP is used to refer to a member of Ashurst LLP or to an employee or to a consultant with equivalent standing and qualifications. The Ashurst Group has an office in each of the places listed above.

ashurst

Flood Diversion Board of Authority
Re: Fargo-Moorhead Area Diversion Project
JTR/FLO16.00002
For the period: 01/06/2016 to 01/31/2016
Bill Number: 9607625

TIME SUMMARY	Time	*Agreed Rate USD/hr	Amount (USD)
Partner			
Jason Radford	43.80	967.50	42,376.50
Associate			
Katayoun Sadeghi	95.60	531.00	50,763.60
Junior Associate			
Clinton Monteith	4.70	396.00	1,861.20
Paralegal			
Lucas Rehaut	1.80	243.00	437.40
		Total	95,438.70

Please Note:

* Calculations are based on agreed discounted hourly rate(s)
A Detailed Time Summary Follows Overleaf

FM Diversion Authority
Fiscal Accountability Report Design Phase (Fund 790)
As of 1/31/2016

	2011	2012	2013	2014	2015	2016	Cumulative Totals
Revenues							
City of Fargo	443,138	7,652,681	7,072,961	19,373,131	28,310,373	1,493,490	64,345,774
Cass County	443,138	7,652,681	7,072,961	19,373,131	28,310,373	1,493,490	64,345,774
State Water Commission	-	-	3,782,215	602,918	31,056,740	1,985,040	37,426,913
Other Agencies	98,475	1,700,595	1,571,769	4,305,140	6,291,194	323,098	14,290,271
Lease/Rental Payments	-	-	17,358	154,180	180,341	-	351,879
Asset Sales	-	-	-	616,774	315,892	133,922	1,066,588
Miscellaneous	-	-	1,705	626	427	-	2,758
Total Revenues	**984,750**	**17,005,957**	**19,518,970**	**44,425,900**	**94,465,339**	**5,429,040**	**181,829,956**
Expenditures							
7905 Army Corp Payments	-	-	875,000	1,050,000	2,725,000	700,000	5,350,000
7910 WIK - Administration	107,301	331,321	77,614	169,019	282,227	17,747	985,228
7915 WIK - Project Design	149,632	5,366,147	3,220,859	9,118,723	4,660,226	177,092	22,692,679
7920 WIK - Project Management	679,037	7,223,650	4,695,477	3,579,339	4,500,955	86,181	20,764,640
7925 WIK - Recreation	-	163,223	-	-	-	-	163,223
7930 LERRDS - North Dakota	48,664	3,843,620	2,763,404	17,013,358	55,948,209	1,827,987	81,445,241
7931 LERRDS - Minnesota	-	27,996	289,387	13,068	32,452	192,600	555,502
7940 WIK Mitigation - North Dakota	-	-	-	587,180	-	-	587,180
7941 WIK Mitigation - Minnesota	-		-	-	-	-	-
7950 Construction - North Dakota	-	-	-	1,738,638	19,269,055	2,197,699	23,205,391
7951 Construction - Minnesota	-	-	-	-	-	-	-
7952 Construction - O/H/B	-	-	-	11,282,504	5,044,001	349,237	16,675,742
7955 Construction Management	-	-	-	556,209	2,867,422	15,547	3,439,178
7990 Project Financing	-	50,000	70,000	216,376	566,600	79,101	982,078
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**	**45,325,044**	**95,896,147**	**5,643,190**	**184,374,059**

FM Diversion Authority
FY 2016 Summary Budget Report (In Thousands)
As of January 31, 2016

	FY 2016 Approved Budget	Current Month	Fiscal Year To Date	% Expended	Outstanding Encumbrances	Remaining Budget Balance
Revenue Sources						
City of Fargo	39,375	1,493	1,493			37,882
Cass County	39,375	1,493	1,493			37,882
State of ND - 50% Match	40,100	1,498	1,498			38,602
State of ND - 100% Match	109,900	487	487			109,413
State of Minnesota	-	-	-			-
Other Agencies	8,750	323	323			8,427
Financing Proceeds	-	-	-			-
Sale of Assets	-	134	134			(134)
Property Income	-	-	-			-
Miscellaneous	-	-	-			-
Total Revenue Sources	**237,500**	**5,429**	**5,429**			**232,071**
Funds Appropriated						
Army Corp Local Share	-	700	700		1,579	(2,279)
Management Oversight	11,340	119	119	1%	3,378	7,843
Technical Activities	7,500	177	177	2%	3,022	4,301
Land Acquisitions	109,900	2,021	2,021	2%	36,260	71,619
Construction	105,000	2,547	2,547	2%	33,075	69,378
Mitigation	2,200	-	-		-	2,200
Other Costs	1,560	79	79	5%	510	971
Total Appropriations	**237,500**	**5,643**	**5,643**	**2%**	**77,823**	**154,034**

FM Diversion Authority
Summary of Cash Disbursements
January 2016

Account Number	Check Date	Check Number	Vendor Name	Transaction Amount	Description 1	Project Number	Project Description
790-7905-429.33-42	1/7/2016	JB01160002	ARMY CORP	$ 700,000.00	ARMY CORP LOCAL SHARE	V01101	ARMY CORP LOCAL SHARE PMT
		Total WIK - General & Admin. - Army Corp Local Share		**700,000.00**			
790-7910-429.33-20	2/1/2016	JB01160014	CITY OF FARGO	$ 620.00	CHARGE COF TIME - 1/16	V00102	General & Admin. WIK
		Total WIK - General & Admin. - Accounting Services		**620.00**			
790-7910-429.33-25	1/21/2016	265061	OXBOW, CITY OF	12,690.70	TURMAN & LANG	V02407	OXBOW MOU-LEGAL SERVICES
	1/21/2016	265061	OXBOW, CITY OF	18.00	OHNSTAD TWITCHELL	V02407	OXBOW MOU-LEGAL SERVICES
	1/21/2016	265061	OXBOW, CITY OF	18.00	OHNSTAD TWITCHELL	V02407	OXBOW MOU-LEGAL SERVICES
	1/21/2016	265061	OXBOW, CITY OF	206.50	OHNSTAD TWITCHELL	V02407	OXBOW MOU-LEGAL SERVICES
	1/21/2016	265061	OXBOW, CITY OF	34.80	OHNSTAD TWITCHELL	V02407	OXBOW MOU-LEGAL SERVICES
	1/21/2016	265061	OXBOW, CITY OF	18.00	OHNSTAD TWITCHELL	V02407	OXBOW MOU-LEGAL SERVICES
	1/21/2016	265061	OXBOW, CITY OF	16.80	OHNSTAD TWITCHELL	V02407	OXBOW MOU-LEGAL SERVICES
	1/21/2016	265061	OXBOW, CITY OF	64.00	OHNSTAD TWITCHELL	V02407	OXBOW MOU-LEGAL SERVICES
	1/21/2016	265061	OXBOW, CITY OF	38.99	OHNSTAD TWITCHELL	V02407	OXBOW MOU-LEGAL SERVICES
	1/21/2016	265061	OXBOW, CITY OF	1,071.00	OHNSTAD TWITCHELL	V02407	OXBOW MOU-LEGAL SERVICES
	1/21/2016	265061	OXBOW, CITY OF	2,950.00	TURMAN & LANG	V02407	OXBOW MOU-LEGAL SERVICES
		Total WIK - General & Admin. - Legal Services		**17,126.79**			
790-7915-429.33-05	1/21/2016	265061	OXBOW, CITY OF	2,603.40	MOORE ENGINEERING	V02401	OXBOW MOU-PROJ MGMT ADMIN
	1/21/2016	265061	OXBOW, CITY OF	8,039.92	MOORE ENGINEERING	V02405	OXBOW MOU-DESN/CONST ENG
	1/21/2016	265061	OXBOW, CITY OF	8,137.05	MOORE ENGINEERING	V02415	OXBOW MOU-H2O QUALITY INF
	1/21/2016	265061	OXBOW, CITY OF	503.05	MOORE ENGINEERING	V02415	OXBOW MOU-H2O QUALITY INF
	1/21/2016	265061	OXBOW, CITY OF	14,157.22	MOORE ENGINEERING	V02420	OXBOW MOU-MOORE ENG TO #6
	1/21/2016	265027	HOUSTON-MOORE GROUP LLC	1,517.50	PERMIT SUBMITTAL PREP	V01616	PERMIT SUBMITTAL PREP
	1/21/2016	265027	HOUSTON-MOORE GROUP LLC	5,830.78	RECREATION/USE MASTER PLA	V01607	RECREATION/USE MASTER PLN
	1/21/2016	265027	HOUSTON-MOORE GROUP LLC	4,802.76	WORK-IN-KIND	V01608	WORK-IN-KIND (WIK)
	1/21/2016	265027	HOUSTON-MOORE GROUP LLC	53,910.10	HYDROLOGY/HYDRAULIC MOLDI	V01609	HYDROLOGY/HYDRAULIC MODEL
	1/21/2016	265027	HOUSTON-MOORE GROUP LLC	30,419.00	DRAFT OPERATION PLAN	V01615	DRAFT OPERATIONS PLAN
	1/13/2016	264968	URS CORPORATION	47,170.84	CULTURAL RESOURCES INVEST	V01003	CULTURAL RESOURCES INVEST
		Total WIK - Project Design - Engineering Services		**177,091.62**			
790-7920-429.33-05	1/21/2016	265027	HOUSTON-MOORE GROUP LLC	86,180.59	DIVERSION PROJECT MGMT	V01601	HMG - PROJECT MANAGEMENT
		Total WIK Construction Mgmt. - Engineering Services		**86,180.59**			

FM Diversion Authority
Summary of Cash Disbursements
January 2016

Account Number	Check Date	Check Number	Vendor Name	Transaction Amount	Description 1	Project Number	Project Description
790-7930-429.33-05	1/21/2016	265027	HOUSTON-MOORE GROUP LLC	549.50	LAND MANAGEMENT SERVICES	V01606	LAND MANAGEMENT SERVICES
	1/21/2016	265027	HOUSTON-MOORE GROUP LLC	20,058.65	UTILITY DESIGN	V01610	UTILITIES DESIGN
			Total LERRDS - North Dakota - Engineering Services	**20,608.15**			
790-7930-429.33-25	1/27/2016	265152	CASS COUNTY JOINT WATER RESOURCE DI	1,530.00	OHNSTAD TWITCHELL	V01201	Cass Joint Water ROE
	1/27/2016	265152	CASS COUNTY JOINT WATER RESOURCE DI	986.00	OHNSTAD TWITCHELL	V01202	Cass Joint Water DPAC
	1/27/2016	265152	CASS COUNTY JOINT WATER RESOURCE DI	5,137.40	OHNSTAD TWITCHELL	V01202	Cass Joint Water DPAC
	1/27/2016	265152	CASS COUNTY JOINT WATER RESOURCE DI	5,239.00	OHNSTAD TWITCHELL	V01201	Cass Joint Water ROE
	1/27/2016	265152	CASS COUNTY JOINT WATER RESOURCE DI	12,688.13	OHNSTAD TWITCHELL	V01201	Cass Joint Water ROE
	1/27/2016	265152	CASS COUNTY JOINT WATER RESOURCE DI	13,977.63	OHNSTAD TWITCHELL	V01203	Cass Joint Water OHB
	1/27/2016	265152	CASS COUNTY JOINT WATER RESOURCE DI	192.00	LARKIN HOFFMAN ATTORNEYS	V01201	Cass Joint Water ROE
			Total LERRDS - North Dakota - Legal Services	**39,750.16**			
790-7930-429.38-61	1/27/2016	265152	CASS COUNTY JOINT WATER RESOURCE DI	5,012.25	SENTURY SECURITY	V01703	ND LAND PURCH - IN TOWN
	1/27/2016	265152	CASS COUNTY JOINT WATER RESOURCE DI	4,764.88	SENTURY SECURITY	V01703	ND LAND PURCH - IN TOWN
	1/27/2016	265152	CASS COUNTY JOINT WATER RESOURCE DI	4,793.00	SENTURY SECURITY	V01703	ND LAND PURCH - IN TOWN
	1/27/2016	265152	CASS COUNTY JOINT WATER RESOURCE DI	254.75	SENTURY SECURITY	V01703	ND LAND PURCH - IN TOWN
	1/27/2016	265152	CASS COUNTY JOINT WATER RESOURCE DI	426.06	SENTRY SECURITY	V01203	Cass Joint Water OHB
			Total LERRDS - North Dakota - Security Services	**15,250.94**			
790-7930-429.38-95	1/27/2016	265152	CASS COUNTY JOINT WATER RESOURCE DI	300.00	VALLEY GREEN & ASSOCIATES	V01703	ND LAND PURCH - IN TOWN
	1/27/2016	265152	CASS COUNTY JOINT WATER RESOURCE DI	300.00	VALLEY GREEN & ASSOCIATES	V01703	ND LAND PURCH - IN TOWN
	1/27/2016	265152	CASS COUNTY JOINT WATER RESOURCE DI	350.00	VALLEY GREEN & ASSOCIATES	V01701	ND LAND PURCH-OUT OF TOWN
	1/27/2016	265152	CASS COUNTY JOINT WATER RESOURCE DI	420.00	VALLEY GREEN & ASSOCIATES	V01701	ND LAND PURCH-OUT OF TOWN
	1/27/2016	265152	CASS COUNTY JOINT WATER RESOURCE DI	780.00	VALLEY GREEN & ASSOCIATES	V01701	ND LAND PURCH-OUT OF TOWN
			Total LERRDS - North Dakota - Mowing Services	**2,150.00**			
790-7930-429.38-99	1/21/2016	265061	OXBOW, CITY OF	650.00	PROSWEEP	V02418	OXBOW MOU - MISC SERVICES
	1/27/2016	265152	CASS COUNTY JOINT WATER RESOURCE DI	217.53	ERIK DOMIER	V01703	ND LAND PURCH - IN TOWN
	1/27/2016	265152	CASS COUNTY JOINT WATER RESOURCE DI	8,084.70	TURFWORKS	V01203	Cass Joint Water OHB
	1/27/2016	265152	CASS COUNTY JOINT WATER RESOURCE DI	513.25	LANSEYS INC	V01701	ND LAND PURCH-OUT OF TOWN
			Total LERRDS - North Dakota - Other Services	**9,465.48**			
790-7930-429.41-05	1/27/2016	265152	CASS COUNTY JOINT WATER RESOURCE DI	1,082.28	CITY OF FARGO WATER DEPT	V01703	ND LAND PURCH - IN TOWN
			Total LERRDS - North Dakota - Water and Sewer	**1,082.28**			

FM Diversion Authority
Summary of Cash Disbursements
January 2016

Account Number	Check Date	Check Number	Vendor Name	Transaction Amount	Description 1	Project Number	Project Description
790-7930-429.52-10	1/27/2016	265152	CASS COUNTY JOINT WATER RESOURCE DI	18.33	DAWSON INSURANCE	V01703	ND LAND PURCH - IN TOWN
	1/27/2016	265152	CASS COUNTY JOINT WATER RESOURCE DI	36.67	DAWSON INSURANCE	V01701	ND LAND PURCH-OUT OF TOWN
			Total LERRDS - North Dakota - Property Insurance	**55.00**			
790-7930-429.62-51	1/27/2016	265152	CASS COUNTY JOINT WATER RESOURCE DI	195.22	XCEL ENERGY	V01703	ND LAND PURCH - IN TOWN
	1/27/2016	265152	CASS COUNTY JOINT WATER RESOURCE DI	10,972.75	XCEL ENERGY	V01703	ND LAND PURCH - IN TOWN
	1/27/2016	265152	CASS COUNTY JOINT WATER RESOURCE DI	131.25	CASS COUNTY ELECTRIC	V01701	ND LAND PURCH-OUT OF TOWN
	1/27/2016	265152	CASS COUNTY JOINT WATER RESOURCE DI	81.12	CASS COUNTY ELECTRIC	V01701	ND LAND PURCH-OUT OF TOWN
	1/27/2016	265152	CASS COUNTY JOINT WATER RESOURCE DI	117.45	CASS COUNTY ELECTRIC	V01701	ND LAND PURCH-OUT OF TOWN
	1/27/2016	265152	CASS COUNTY JOINT WATER RESOURCE DI	671.18	CASS COUNTY ELECTRIC	V01701	ND LAND PURCH-OUT OF TOWN
	1/27/2016	265152	CASS COUNTY JOINT WATER RESOURCE DI	33.83	CASS COUNTY ELECTRIC	V01701	ND LAND PURCH-OUT OF TOWN
	1/27/2016	265152	CASS COUNTY JOINT WATER RESOURCE DI	60.26	CASS COUNTY ELECTRIC	V01701	ND LAND PURCH-OUT OF TOWN
	1/27/2016	265152	CASS COUNTY JOINT WATER RESOURCE DI	15.84	CASS COUNTY ELECTRIC	V01701	ND LAND PURCH-OUT OF TOWN
	1/27/2016	265152	CASS COUNTY JOINT WATER RESOURCE DI	79.71	CASS COUNTY ELECTRIC	V01701	ND LAND PURCH-OUT OF TOWN
	1/27/2016	265152	CASS COUNTY JOINT WATER RESOURCE DI	254.11	CASS COUNTY ELECTRIC	V01701	ND LAND PURCH-OUT OF TOWN
	1/27/2016	265152	CASS COUNTY JOINT WATER RESOURCE DI	23.88	CASS COUNTY ELECTIC	V01701	ND LAND PURCH-OUT OF TOWN
			Total LERRDS - North Dakota - Electricity	**12,636.60**			
790-7930-429.67-11	1/27/2016	265152	CASS COUNTY JOINT WATER RESOURCE DI	394.60	SRF CONSULTING GROUP	V01703	ND LAND PURCH - IN TOWN
	1/27/2016	265152	CASS COUNTY JOINT WATER RESOURCE DI	33,017.30	SRF CONSULTING GROUP	V01703	ND LAND PURCH - IN TOWN
	1/27/2016	265152	CASS COUNTY JOINT WATER RESOURCE DI	1,190.00	SRF CONSULTING GROUP	V01703	ND LAND PURCH - IN TOWN
	1/27/2016	265152	CASS COUNTY JOINT WATER RESOURCE DI	273,967.35	DALE & NAN MATHIASON	V02411	OXBOW MOU-RESIDENT RLCTN
	1/27/2016	265152	CASS COUNTY JOINT WATER RESOURCE DI	2,435.00	HUBER, STEVE & CHRISTINE	V02411	OXBOW MOU-RESIDENT RLCTN
	1/27/2016	265152	CASS COUNTY JOINT WATER RESOURCE DI	1,059.46	LOSING, STEVE & MICHELLE	V02411	OXBOW MOU-RESIDENT RLCTN
	1/27/2016	265152	CASS COUNTY JOINT WATER RESOURCE DI	2,210.00	MURPHY, MATTHEW & RECECCA	V02411	OXBOW MOU-RESIDENT RLCTN
			Total LERRDS - North Dakota - Residential Buildings	**314,273.71**			
790-7930-429.67-12	1/27/2016	265152	CASS COUNTY JOINT WATER RESOURCE DI	430,175.20	SIDESTREET RELOCATION	V01703	ND LAND PURCH - IN TOWN
	1/27/2016	265152	CASS COUNTY JOINT WATER RESOURCE DI	126,519.28	LANDSCAPES UNLIMITED	V01204	Cass Joint Water OCC
			Total LERRDS - North Dakota - Commercial Buildings	**556,694.48**			
790-7930-429.71-30	1/27/2016	265152	CASS COUNTY JOINT WATER RESOURCE DI	5,000.00	RANDY & LISA CRAMER	V01701	ND LAND PURCH-OUT OF TOWN
	1/27/2016	265152	CASS COUNTY JOINT WATER RESOURCE DI	150,000.00	D HASBARGEN & W ZIMMERMAN	V01701	ND LAND PURCH-OUT OF TOWN
	1/27/2016	265152	CASS COUNTY JOINT WATER RESOURCE DI	125,800.09	THE TITLE COMPANY	V01703	ND LAND PURCH - IN TOWN
	1/27/2016	265152	CASS COUNTY JOINT WATER RESOURCE DI	5,000.00	TONY D FLACH	V01703	ND LAND PURCH - IN TOWN
	1/27/2016	265152	CASS COUNTY JOINT WATER RESOURCE DI	141,000.00	GOLDSMITH, GREG & BRIENA	V01701	ND LAND PURCH-OUT OF TOWN
	1/27/2016	265152	CASS COUNTY JOINT WATER RESOURCE DI	69,590.00	GOLDSMITH, GREG & BRIENA	V01701	ND LAND PURCH-OUT OF TOWN

FM Diversion Authority
Summary of Cash Disbursements
January 2016

Account Number	Check Date	Check Number	Vendor Name	Transaction Amount	Description 1	Project Number	Project Description
	1/27/2016	265152	CASS COUNTY JOINT WATER RESOURCE DI	356,024.01	DALE & NAN MATHIASON	V01701	ND LAND PURCH-OUT OF TOWN
			Total LERRDS - North Dakota - Land Purchases	**852,414.10**			
790-7930-429.80-17	1/29/2016	265271	CASS COUNTY TREASURER	3,606.11	3833 14 ST W-WEST FARGO	V01701	ND LAND PURCH-OUT OF TOWN
			Total LERRDS - North Dakota - Property Tax - FMDA	**3,606.11**			
790-7931-429.71-30	1/27/2016	265152	CASS COUNTY JOINT WATER RESOURCE DI	192,600.00	ROBERT & JUDITH ANDERSON	V02302	MN LAND PURCHASE-HARDSHIP
			Total LERRDS - Minnesota - Land Purchases	**192,600.00**			
790-7950-429.73-20	1/21/2016	265039	LANDWEHR CONSTRUCTION INC	215,545.00	PARK EAST APT DEMOLITION	V02813	PARK EAST DEMOLITION
			Total ND Construction - Site Improvements	**215,545.00**			
790-7950-429.73-52	1/13/2016	264878	INDUSTRIAL BUILDERS INC	229,375.01	2 ST N PUMP STATION	V02801	2ND ST NORTH PUMP STATION
	1/21/2016	265030	INDUSTRIAL BUILDERS INC	297,618.00	2 ST FLOODWALL	V02812	2ND ST NORTH FLOODWALL
	1/27/2016	265181	INDUSTRIAL CONTRACT SERVICES INC	1,305,963.35	IMPROVEMENT NOT BUILDINGS	V02805	PUMP STATION & FLOODWALL
			Total ND Construction - Flood Control	**1,832,956.36**			
790-7950-429.73-70	1/13/2016	264981	702 COMMUNICATIONS	37,341.89	UTILITY RELOCATION	V02804	702 WP42 UTILITY RELOCATE
	2/3/2016	265444	702 COMMUNICATIONS	29,640.00	2 ST FLOOD WALL PROJECT	V02804	702 WP42 UTILITY RELOCATE
	1/13/2016	264830	CONSOLIDATED COMMUNICATIONS	57,755.42	UTILITY RELOCATION	V02803	EVENTIS WP42 UTILITY RLCT
	1/13/2016	264830	CONSOLIDATED COMMUNICATIONS	24,459.85	S ROUTE PAYMENT AGREEMENT	V02803	EVENTIS WP42 UTILITY RLCT
			Total ND Construction - Utilities	**149,197.16**			
790-7952-429.33-05	1/27/2016	265152	CASS COUNTY JOINT WATER RESOURCE DI	5,362.20	MOORE ENGINEERING INC	V01204	Cass Joint Water OCC
			Total O/H/B Construction - Engineering Services	**5,362.20**			
790-7952-429.44-20	1/27/2016	265152	CASS COUNTY JOINT WATER RESOURCE DI	135.45	BIERSCHBACH EQUIPMENT	V01204	Cass Joint Water OCC
			Total O/H/B Construction - Equipment & Vehicle Rent	**135.45**			
790-7952-429.73-20	1/21/2016	265061	OXBOW, CITY OF	343,739.08	HOUGH INC	V02417	OXBOW MOU-INTAKE/PUMP SYS
			Total O/H/B Construction - Site Improvements	**343,739.08**			
790-7955-429.33-06	1/13/2016	264961	TERRACON CONSULTING ENGINEERS	1,316.75	MATERIALS TESTING	V02802	WP-42 MATERIALS TESTING
	1/13/2016	264961	TERRACON CONSULTING ENGINEERS	3,280.50	MATERIAL TESTING	V02802	WP-42 MATERIALS TESTING

FM Diversion Authority
Summary of Cash Disbursements
January 2016

Account Number	Check Date	Check Number	Vendor Name	Transaction Amount	Description 1	Project Number	Project Description
	1/13/2016	264961	TERRACON CONSULTING ENGINEERS	10,949.75	MATERIALS TESTING	V02802	WP-42 MATERIALS TESTING
			Total Construction Management - Quality Testing	**15,547.00**			
790-7990-520.80-20	1/4/2016	JB01160001	US BANK	28,645.83	US BANK INTEREST PAYMENT	V02902	$50M FARGO USBANK ADVANCE
			Total Project Financing - Interest	**28,645.83**			
790-7990-520.80-30	1/4/2016	JB01160001	US BANK	50,455.56	US BANK ADVANCE-LOAN FEE	V02902	$50M FARGO USBANK ADVANCE
			Total Project Financing - Fiscal Agent Fees	**50,455.56**			
			Total Disbursed for Period	**$ 5,643,189.65**			

FM Diversion Authority
Summary of Cash Disbursements
Period 13 2015

Date: 2/1/2016

Period/Year: 13/2015

Account Number	Check Date	Check Number	Vendor Name	Transaction Amount	Description 1	Project Number	Project Description
790-7910-429.38-68	1/3/2015	532	P CARD BMO	3,500.00	FREDRIKSON AND BYRON P	V00102	General & Admin. WIK
Total WIK - General & Admin. - Lobbyist				$3,500.00			
790-7930-429.33-25	1/3/2015	532	P CARD BMO	84,112.49	DORSEY WHITNEY LLP	V00101	Dorsey Whitney Legal
	1/3/2015	532	P CARD BMO	62,694.45	DORSEY WHITNEY LLP	V00101	Dorsey Whitney Legal
Total LERRDS - North Dakota - Legal Services				$146,806.94			
790-7990-429.33-25	1/3/2015	532	P CARD BMO	30,000.00	NIXON PEABODY LLP	V00102	General & Admin. WIK
	1/3/2015	532	P CARD BMO	7,209.00	OHNSTAD TWICHELL PC	V00102	General & Admin. WIK
Total Project Financing - Legal Services				$37,209.00			
Total Disbursed for Period				**$187,515.94**			

FM Diversion Authority
Cumulative Vendor Payments Since Inception
As of January 31, 2016

Vendor Name	Approved Contract/Invoice Amount	Liquidated	Outstanding Encumbrance	Purpose
CASS COUNTY JOINT WATER RESOUR	$ 119,408,133.40	$ 79,208,977.71	$ 40,199,155.69	Land Purchases, O/H/B Ring Levee, DPAC, & ROE
HOUSTON-MOORE GROUP LLC	28,848,598.10	23,285,513.08	5,563,085.02	Engineering Services
INDUSTRIAL BUILDERS INC	25,133,047.86	8,679,679.37	16,453,368.49	2nd St North Pump Station Project and 2nd Street Floodwall, South of Pump Station
CH2M HILL ENGINEERS INC	18,665,819.01	17,390,819.01	1,275,000.00	Project Management
INDUSTRIAL CONTRACT SERVICES I	17,523,063.63	12,866,623.49	4,656,440.14	4th St Pump Station and 2nd Street Floodwall
OXBOW, CITY OF	15,569,014.06	14,234,733.04	1,334,281.02	City of Oxbow - MOU
ARMY CORP OF ENGINEERS	6,929,000.00	5,350,000.00	1,579,000.00	Local Share
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
DORSEY & WHITNEY LLP	2,723,789.78	2,723,789.78	-	Legal Services
CENTURYLINK COMMUNICATIONS	2,586,742.00	-	2,586,742.00	Utility Relocation
MINNESOTA DNR	2,188,007.43	2,188,007.43	-	EIS Scoping
URS CORPORATION	1,775,118.42	1,561,650.89	213,467.53	Engineering Services
KENNELLY & OKEEFFE	1,729,310.56	1,729,310.56	-	Home Buyouts
CONSOLIDATED COMMUNICATIONS	1,706,312.00	601,133.54	1,105,178.46	Utility Relocation
LANDWEHR CONSTRUCTION INC	1,089,888.00	325,305.00	764,583.00	Demo Park East Apartments
XCEL ENERGY-FARGO	890,530.93	16,275.85	874,255.08	Utility Relocation
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
US BANK	557,838.61	557,838.61	-	Loan Advance Debt Service Payments
TERRACON CONSULTING ENGINEERS	525,000.00	247,963.11	277,036.89	Materials Testing
RED RIVER BASIN COMMISSION	500,000.00	500,000.00	-	Engineering Services
NORTHERN TITLE CO	484,016.00	484,016.00	-	Land Purchases
AT & T	441,330.44	278,964.28	162,366.16	Utility Relocation
ERIK R JOHNSON & ASSOCIATES	439,783.12	417,845.36	21,937.76	Legal Services
JP MORGAN CHASE-LOCKBOX PROCES	350,000.00	90,414.71	259,585.29	Financial Advisor
CITY OF FARGO	332,698.71	332,698.71	-	Digital Imagery Project, Utility Relocation & Accounting Svcs
702 COMMUNICATIONS	275,862.91	266,892.07	8,970.84	Utility Relocation
CASS COUNTY TREASURER	249,171.51	249,171.51	-	Property Tax
ROBERT TRENT JONES	200,000.00	200,000.00	-	Oxbow MOU - Golf Course Consulting Agreement
CABLE ONE (FARGO)	148,511.37	-	148,511.37	Utility Relocation
PFM PUBLIC FINANCIAL MANAGEMEN	146,460.00	146,460.00	-	Financial Advisor
NDSU BUSINESS OFFICE-BOX 6050	135,167.00	135,167.00	-	Ag Risk Study Services
ENVENTIS	115,685.62	115,685.62	-	Utility Relocation
BEAVER CREEK ARCHAEOLOGY	111,000.00	-	111,000.00	Engineering Services
UNITED STATES GEOLOGICAL SURVE	104,600.00	104,600.00	-	Water Level Discharge Collection
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
OHNSTAD TWICHELL PC	72,244.11	72,244.11	-	ROE and Bonding Legal Fees
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
NIXON PEABODY LLC	60,000.00	60,000.00	-	Legal Services
FREDRIKSON & BYRON, PA	59,500.00	42,000.00	17,500.00	Lobbying Services

FM Diversion Authority
Cumulative Vendor Payments Since Inception
As of January 31, 2016

Vendor Name	Approved Contract/Invoice Amount	Liquidated	Outstanding Encumbrance	Purpose
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
US GEOLOGICAL SURVEY	46,920.00	46,920.00	-	Stage Gage Installation
GEOKON INC	33,815.36	33,815.36	-	Vibrating Wire Piezometer Equipment
CLAY COUNTY AUDITOR	33,796.71	33,796.71	-	Property Tax, Home Buyout Demo
COLDWELL BANKER	33,066.02	33,066.02	-	Property Management Services
WARNER & CO	19,900.00	19,900.00	-	General Liability Insurance
PRIMORIS AEVENIA INC	16,230.00	16,230.00	-	Utility Relocation
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
BRIGGS & MORGAN PA	12,727.56	12,727.56	-	Legal Services
ND WATER USERS ASSOCIATN	5,000.00	5,000.00	-	Membership Dues
ONE	3,575.00	3,575.00	-	Utility Relocation
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
NORTH DAKOTA TELEPHONE CO	1,697.00	1,697.00	-	Communication
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
TRIO ENVIRONMENTAL CONSULTING	747.60	747.60	-	Asbestos and LBP Testing - Home Buyouts
BNSF RAILWAY CO	600.00	600.00	-	Permit for 4th St N Project
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	**$ 262,196,606.89**	**$ 184,374,059.09**	**$ 77,822,547.80**	

FM Diversion Authority
In-Town Levee Work
as of January 31, 2016

Vcode #	Vendor Name	Descriptions	Contract Amount	Amount Paid
V02801	Industrial Builders	2nd Street North Pump Station - Work Package 42.A2	$ 8,674,859.68	$ 6,388,889.15
V02802	Terracon Consulting	WP-42 (In Town Levees) Materials Testing	525,000.00	247,963.11
V02803	Consolidated Communications	2nd Street Utility Relocation	1,821,997.62	716,819.16
V02804	702 Communications	2nd Street Utility Relocation	275,862.91	266,892.07
V02805	ICS	4th St Pump Station & Gatewell and 2nd St Floodwall S - WP-42A.1/A.3	17,523,663.63	12,867,223.49
V02806	HMG	Services During Construction - Work Package 42	2,243,000.00	1,193,509.42
V02807	CCJWRD	In-Town Levee Work	2,189,450.10	2,189,450.10
V02808	City of Fargo	Relocation of fiber optic along 2nd Street North	38,002.05	38,002.05
V02809	AT & T	2nd Street Utility Relocation	603,696.60	278,964.28
V02810	Cable One	2nd Street Utility Relocation	148,511.37	-
V02811	Xcel Energy	2nd Street & 4th Street Utility Relocations	890,530.93	16,275.85
V02812	Industrial Builders	2nd Street North Floodwall, South of Pump Station - WP-42F.1S	16,458,188.18	2,290,790.22
V02813	Landwehr Construction	Park East Apartments Demolition	1,089,888.00	325,305.00
V02814	Primoris Aevenia	2nd Street Utility Relocation	16,230.00	16,230.00
V02815	Centurylink Communications	2nd Street Utility Relocation	2,586,742.00	-
V01703	Various	In-Town Property Purchases	31,423,979.59	20,179,960.14
			$ 86,509,602.66	$ 47,016,274.04

FM Diversion Authority
Lands Expense - Life To Date
As of January 31, 2016

Property Address	Purchase Date	Purchase Price	Replacement Lot	Down Payment	Earnest Deposit	Tax Payment	Relocation Assistance	Property Management Expense	Property Management Income	Sale Proceeds	Total
Home Buyouts - Fargo											
1322 Elm St N, Fargo ND	11/19/2014	347,270.27	-	-	-	2,840.39	47,168.14	2,519.84	-	-	399,798.64
1341 N Oak St, Fargo ND	1/29/2015	309,888.24	-	-	-	-	78,889.24	64.79	-	-	388,842.27
1326 Elm St N, Fargo ND	12/23/2014	230,196.41	-	-	-	-	8,001.02	156.69	-	-	238,354.12
1330 Elm St N, Fargo ND	2/12/2015	229,982.44	-	-	-	-	62,362.63	236.16	-	-	292,581.23
18 North Terrace N, Fargo ND	4/2/2015	129,698.25	-	-	-	-	44,688.72	200.18	-	-	174,587.15
Park East Apartments - 1 2nd St S Fargo, ND	6/23/2015	9,002,442.20	-	-	-	-	1,350,570.53	79,701.06	-	-	10,432,713.79
1318 Elm St N, Fargo ND	5/29/2015	229,012.67	-	-	-	-	55,452.01	50.00	-	-	284,514.68
724 North River Road, Fargo, ND	6/8/2015	204,457.83	-	-	-	-	35,312.30	109.76	-	(10,000.00)	229,879.89
1333 Oak Street N, Fargo, ND	6/24/2015	238,513.23	-	-	-	-	2,700.85	50.00	-	-	241,264.08
26 North Terrace N, Fargo ND	9/11/2015	138,619.58	-	-	-	-	12,620.00	118.50	-	-	151,358.08
16 North Terrace N, Fargo ND	9/24/2015	227,987.50	-	-	-	-	96,717.14	93.33	-	-	324,797.97
301 3rd Ave N, Fargo ND	11/2/2015	3,266,079.60	-	-	-	-	3,154,943.93	9,805.25	-	-	6,430,828.78
1314 Elm Street N, Fargo ND	12/18/2015	225,800.09	-	-	-	-	2,512.50	-	-	-	228,312.59
24 North Terrace N, Fargo ND	11/25/2015	182,437.38	-	-	-	-	29,269.60	-	-	-	211,706.98
					-						
Home Buyouts - Moorhead					-						
387 170th Ave SW, Moorhead MN	11/1/2013	281,809.91	-	-	-	1,970.00	-	34,073.72	-	(8,440.00)	309,413.63
16678 3rd St S, Moorhead MN		-	-	-	192,600.00	-	-	-	-	-	192,600.00
					-						
Home Buyouts - Oxbow					-						
105 Oxbow Drive, Oxbow ND	11/28/2012	216,651.85	-	-	-	4,993.72	-	**13,695.77**	(18,680.72)	(181,249.54)	35,411.08
744 Riverbend, Oxbow ND	12/3/2012	343,828.30	-	-	-	10,599.10	2,435.00	**19,786.48**	(37,617.16)	-	339,031.72
121 Oxbow Drive, Oxbow ND	7/31/2013	378,781.20		-	-	1,581.52	-	**19,519.02**	-	(186,918.33)	212,963.41
333 Schnell Drive, Oxbow ND	9/20/2013	104,087.79	-	-	-	2,781.89	-	30,137.65	-	-	137,007.33
346 Schnell Dr, Oxbow ND	2/13/2014	512,970.73	-	-	-	3,143.13	-	**13,322.78**	(18,000.00)	-	511,436.64
345 Schnell Dr, Oxbow ND	10/24/2014	478,702.98	-	-	-	3,055.99	6,869.44	2,019.98	-	-	490,648.39
336 Schnell Dr, Oxbow ND	1/29/2015	310,888.51	-	-	-	-	-	141.64	-	-	311,030.15
5059 Makenzie Circle	5/21/2015	2,698,226.97	-	-	-	-	10,549.70	2,939.84	-	-	2,711,716.51
748 Riverbend Rd / 755 River Bend Rd	9/1/2015	480,784.30	-	-	-	-	205,649.82	181.53	-	-	686,615.65
752 Riverbend Rd / 768 River Bend Rd	9/4/2015	469,078.13	-	-	-	-	507,103.56	297.87	-	-	976,479.56
349 Schnell Dr / 761 River Bend Rd	6/26/2015	306,725.20	-	-	-	-	309,992.53	419.67	-	-	617,137.40
353 Schnell Dr / 772 River Bend Rd	9/11/2015	494,342.87	-	-	-	-	312,212.95	503.10	-	-	807,058.92
357 Schnell Dr / 760 River Bend Rd	6/18/2015	466,720.80	-	-	-	-	176,524.79	398.47	-	-	643,644.06
361 Schnell Dr / 764 River Bend Rd	9/2/2015	490,091.32	-	-	-	-	267,757.65	280.83	-	-	758,129.80
SE 1/4-23-137-49 & NW 1/4 SW 1/4 24-137-49 - Heitman	9/30/2015	1,328,151.00			-	-	-	36.67	-	-	1,328,187.67
326 Schnell Drive, Oxbow, ND		-			130,000.00	-	62,505.89	-	-	-	192,505.89
828 Riverbend Rd, Oxbow ND		-	-	25,000.00	25,000.00	-	-	-	-	-	25,000.00
330 Schnell Dr, Oxbow ND		-	-	150,000.00	150,000.00	-	-	-	-	-	150,000.00
749 Riverbend Rd / 433 Trent Jones Dr		-	104,000.00	91,500.00	195,500.00	-	-	-	-	-	195,500.00
334 Schnell Dr / 751 River Bend Rd		-	114,000.00	32,226.00	146,226.00	-	2,210.00	-	-	-	148,436.00
350 Schnell Dr / 769 River Bend Rd	12/15/2015	491,024.01	-	-	-	-	273,967.35	-	-	-	764,991.36
829 Riverbend Rd / 788 River Bend Rd		-	-	-	-	-	8,000.00	-	-	-	8,000.00
328 Schnell Dr / 347 Trent Jones Dr		-	150,000.00	50,000.00	200,000.00	-	-	-	-	-	200,000.00
338 Schnell Dr / 775 River Bend Rd		-	115,000.00	107,500.00	222,500.00	-	-	-	-	-	222,500.00
813 Riverbend Rd / 449 Trent Jones Dr		-	163,000.00	65,000.00	228,000.00	-	-	-	-	-	228,000.00
341 Schnell Dr / 351 Trent Jones Dr		-	143,000.00	95,500.00	238,500.00	-	-	-	-	-	238,500.00
329 Schnell Dr / 417 Trent Jones Dr		-	130,000.00	50,000.00	180,000.00	-	-	-	-	-	180,000.00
805 Riverbend Rd / 776 River Bend Rd		-	131,000.00	89,855.00	220,855.00	-	-	-	-	-	220,855.00
317 Schnell Dr / 409 Trent Jones Dr		-	136,000.00	86,000.00	222,000.00	-	-	-	-	-	222,000.00
309 Schnell Dr / 261 S Schnell Dr		-	160,000.00	50,000.00	210,000.00	-	-	-	-	-	210,000.00
810 Riverbend Rd / 787 River Bend Rd		-	174,000.00	115,500.00	289,500.00	-	-	-	-	-	289,500.00
332 Schnell Dr / 421 Trent Jones Dr		-	133,000.00	25,000.00	158,000.00	-	-	-	-	-	158,000.00
833 Riverbend Rd / 446 Trent Jones Dr		-	149,000.00	120,000.00	269,000.00	-	-	-	-	-	269,000.00
821 Riverbend Rd / 434 Trent Jones Dr		-	108,000.00	77,000.00	185,000.00	-	-	-	-	-	185,000.00

FM Diversion Authority
Lands Expense - Life To Date
As of January 31, 2016

Property Address	Purchase Date	Purchase Price	Replacement Lot	Down Payment	Earnest Deposit	Tax Payment	Relocation Assistance	Property Management Expense	Property Management Income	Sale Proceeds	Total
321 Schnell Dr / 410 Trent Jones Dr		-	148,000.00	81,366.00	229,366.00	-	-	-	-	-	229,366.00
337 Schnell Dr / 355 Trent Jones Dr		-	124,000.00	82,021.00	206,021.00	-	-	-	-	-	206,021.00
840 Riverbend Rd / 442 Trent Jones Dr		-	139,000.00	50,000.00	189,000.00	-	-	-	-	-	189,000.00
325 Schnell Dr		-	141,000.00	69,590.00	210,590.00	-	-	-	-	-	210,590.00
852 Riverbend Rd				150,000.00	150,000.00						150,000.00
365 Schnell Dr		-	-	5,000.00	5,000.00						5,000.00
					-						
Home Buyouts - Hickson					-						
17495 52nd St SE, Hickson, ND	4/28/2015	785,747.66	-	-	-	-	27,604.74	619.24	-	-	813,971.64
					-						
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	-	-	-	-	-	-	(27,892.63)	-	931,947.37
2 Tracts in the E 1/2-2-137-49 - Sorby/Maier	1/24/2014	1,636,230.00	-	-	-	-	-	-	(56,114.10)	-	1,580,115.90
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	-	-	-	-	-	-	(121,611.02)	-	3,337,369.68
11-140-50 NE1/4 (Raymond Twp) - Diekrager	4/15/2014	991,128.19	-	-	-	-	-	-	(32,244.98)	-	958,883.21
NW 1/4 36-141-50 - Monson	5/7/2014	943,560.05	-	-	-	-	-	-	(28,029.64)	-	915,530.41
SW 1/4-11-140-50 - Hoglund	7/21/2014	989,706.03	-	-	-	2,566.59	-	-	(3,725.49)	-	988,547.13
NW 1/4 14-140-50 - Hoglund	10/23/2014	948,782.22	-	-	-	5,327.10	-	-	(22,249.56)	-	931,859.76
SW 1/4 2-140-50 -Rust	10/29/2014	955,901.00	-	-	-	2,265.76	-	-	(11,053.17)	-	947,113.59
Fercho Family Farms, Oxbow ND	3/25/2015	464,600.00	-	-	-	-	-	-	-	-	464,600.00
W 1/2 SE 1/4 SW 1/4 & SW 1/4 SW 1/4 2-137-49 - Gorder	5/13/2014	321,386.00	-	-	-	-	-	-	(3,786.29)	-	317,599.71
2-140-50 S 1/2 of NW 1/4 & Lot 4A - Pile	3/4/2015	594,108.00			-	-	-	-	-	-	594,108.00
W 1/2 NW 1/4 2-141-49 - Heiden	4/24/2015	433,409.00			-	-	-	-	-	-	433,409.00
(Raymond Twp) - Henke	6/17/2015	1,196,215.00			-	-	-	-	-	-	1,196,215.00
Land Purchases											
Hayden Heights Land, West Fargo ND	10/12/2012	484,016.00	-	-	-	223,505.56	-	-	-	(689,979.79)	17,541.77
Lot 4, Block 4, ND R-2 Urban Renewal Addition, Fargo ND - Professional Associates	5/14/2015	39,900.00			-	-	-	-	-	-	39,900.00
BNSF Railway Company		-			27,000.00	-	-	-	-	-	27,000.00
	Total	40,142,302.13	2,462,000.00	1,668,058.00	4,479,658.00	264,630.75	7,154,592.03	231,479.82	(381,004.76)	(1,076,587.66)	50,815,070.31

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

Time Period for This Request: January 1, 2016 - January 31, 2016

Drawdown Request No: 23		
Requested Amount:	**$**	**1,985,040**
Total Funds Expended This Period:	$	3,482,956
Total Funds Requested at 100% Match		487,124
Remaining Funds Requested at 50% Match		2,995,832
SB 2020 Matching Requirements		50%
Total Funds Requested at 50% Match		1,497,916
Total Funds Requested:	**$**	**1,985,040**

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
Appropriations from 2015 Legislative Session		69,000,000
Appropriations to be funded in 2017 Legislative Session	69,000,000	
Appropriations to be funded in 2019 Legislative Session	69,000,000	
Appropriations to be funded in 2021 Legislative Session	68,000,000	
Total State Funds	206,000,000	244,000,000
Less: Payment #1 through #35 - City of Fargo		(55,510,209)
Less: Payment #1 - Cass County		(136,039)
Less: Payment #1 through #10 - FM Diversion Authority		(8,524,053)
Less: Payment #11 - FM Diversion Authority		(470,398)
Less: Payment #12 - FM Diversion Authority		(1,231,810)
Less: Payment #13 - FM Diversion Authority		(612,361)
Less: Payment #14 - FM Diversion Authority		(1,182,540)
Less: Payment #15 - FM Diversion Authority		(4,501,221)
Less: Payment #16 - FM Diversion Authority		(3,325,169)
Less: Payment #17 - FM Diversion Authority		(2,833,772)
Less: Payment #18 - FM Diversion Authority		(1,528,056)
Less: Payment #19 - FM Diversion Authority		(885,633)
Less: Payment #20 - FM Diversion Authority		(3,767,195)
Less: Payment #21 - FM Diversion Authority		(2,580,786)
Less: Payment #22 - FM Diversion Authority		(3,998,879)
Less: Payment #23 - FM Diversion Authority		(1,985,040)
Total Funds Reimbursed		(93,073,161)
Total State Fund Balances Remaining		**$ 150,926,839**

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

LOCAL MATCHING FUNDS SUMMARY:		
Matching Funds Expended To Date - City of Fargo	$	47,629,069
Matching Funds Expended To Date - Cass County		291,500
Matching Funds Expended To Date - FM Diversion Authority		7,802,584
Total Matching Funds Expended To Date		55,723,153
Less: Match Used on Payment #1 through #35 - City of Fargo		(41,506,620)
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		(238,241)
Less: Match Used on Payment #8 - FM Diversion Authority		(346,664)
Less: Match Used on Payment #11 - FM Diversion Authority		(470,398)
Less: Match Used on Payment #12 - FM Diversion Authority		(237,286)
Less: Match Used on Payment #16 - FM Diversion Authority		(3,018,978)
Less: Match Used on Payment #17 - FM Diversion Authority		(1,374,624)
Less: Match Used on Payment #20 - FM Diversion Authority		(1,427,344)
Less: Match Used on Payment #22 - FM Diversion Authority		(116,437)
Less: Match Used on Payment #23 - FM Diversion Authority		(487,124)
Balance of Local Matching Funds Available	**$**	**6,277,910**