



**Title:** Authorization to Execute Amended Agreements with the MN DNR and Wenck for Improved Floodplain Modeling and Mapping Updates

**Resolution number:** 21-007

**Prepared by:** Name: Tiffany Schaufler  
Phone: 952-641-4513  
tschaufler @minnehahacreek.org

**Reviewed by:** N/A

**Recommended action:** Approval of the amended DNR grant agreement and Wenck contract

**Schedule:** Date: 10/1/2020 – Finalize hydraulic models  
Date: 3/1/2021 – Flood Risk Review Meetings  
Date: 6/1/2021 – Updates complete

**Budget considerations:** Fund name and code: N/A

**Past Board action:** Res # 18-091 Title: Authorization to Accept Funding and Execute an Agreement with the MN DNR for Improved Flood Risk Mapping

Res #20-015 Title: Authorization to Execute Agreements with the MN DNR and Wenck for Improved Floodplain Modeling and Mapping Updates

**Summary:**

In 2018 the Minnesota DNR notified the District that the DNR had received a grant from the Federal Emergency Management Agency (FEMA) to update the hydrologic and hydraulic modeling of FEMA reaches in the Twin Cities HUC8 watershed. DNR staff reached out to District staff to see if the District was interested receiving a pass-through grant to do the modeling work by the District's engineer.

In September 2018, the MCWD Board of Managers approved a DNR grant agreement for \$8,065 to evaluate the current FEMA approved hydraulic model for Minnehaha Creek to identify how the current model responded in comparison with Atlas-14 precipitation data. Additionally through this grant agreement the results of the XP-SWMM model output for the June 20-24, 2014 high water event were compared to actual monitoring data collected by the District to confirm model accuracy.

At the end of 2019 FEMA awarded the DNR additional monies to update the special flood hazard areas in the Twin Cities HUC8 watershed. DNR staff inquired with the District to determine if the District was interested in adding in additional tasks to the September 2018 agreement to update the special flood hazard areas in the District. District staff confirmed interest in utilizing the DNR funds to update the special flood hazard areas through updates to the District's XP-SWMM model using 10-day and 24-hour, 100-year Atlas-14 storm events, as the District would benefit from the additional development of this flood data. Subsequently the District's engineer, Wenck, provided a proposal for \$63,400 to perform the special flood hazard areas update through use of the DNR grant funding. At the February 27, 2020 MCWD Board of Managers meeting, the Board approved an amended agreement to the September 2018

agreement between the DNR and MCWD and the Board approved Wenck's scope of work, in which the DNR would reimburse MCWD \$63,400 for Wenck to perform the work.

Throughout 2020 and into 2021 Wenck has been performing the tasks identified in their October 22, 2019 scope of work. Recently Wenck was performing GIS and mapping work and identified that some of the XPSWMM model's nodes were missing their required georeferenced information that was necessary to perform the mapping work. Wenck has identified that rectifying this issue would require extra time and cost \$9,500 to correct.

DNR staff have reviewed Wenck's revised proposal and have drafted a second amendment to the 2018 grant agreement between the DNR and MCWD, in which the DNR would reimburse MCWD the \$72,900 to perform the work. Wenck will conform to the terms of the DNR grant agreement and provide professional warranties so that the MCWD will not bear risk.

**Supporting documents (list attachments):**

1. Second amendment to September 28, 2018 DNR-MCWD Grant Agreement
2. Revised October 22, 2019 Wenck Scope of Work



## RESOLUTION

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**Resolution number:** 21-007

**Title:** Authorization to Execute Amended Agreements with the MN DNR and Wenck for Improved Floodplain Modeling and Mapping Updates

- WHEREAS, the Minnehaha Creek Watershed District (MCWD) has developed a watershed wide hydrologic and hydraulic model known as XP-SWMM;
- WHEREAS, the Federal Emergency Management Agency (FEMA) has approved the MCWD XP-SWMM model for use in floodplain mapping;
- WHEREAS, on September 28, 2018 the State of Minnesota, through the Minnesota Department of Natural Resources (DNR), and MCWD entered into a grant agreement for \$8,065 for improved floodplain modeling and mapping along Minnehaha Creek;
- WHEREAS, MCWD, through its engineer Wenck, has performed the modeling work identified in the September 28, 2018 grant agreement;
- WHEREAS, In January 2020 the Minnesota DNR identified additional modeling tasks to update the special flood hazards areas within MCWD;
- WHEREAS, on February 27, 2020 MCWD Board of Managers approved amending the September 28, 2018 grant agreement with the DNR for \$63,400 and executing a contract with Wenck to perform the floodplain modeling and mapping tasks;
- WHEREAS, MCWD, through its engineer Wenck, is currently performing the floodplain modeling and mapping work identified in the in the amended September 28, 2018 grant agreement, and through that work Wenck has identified that additional tasks are necessary in order to perform the mapping work;
- WHEREAS, MCWD's engineer, Wenck, has prepared a scope of work to complete the additional modeling task updates and the Minnesota DNR has approved the Wenck scope of work;
- WHEREAS, the Minnesota DNR has drafted a second amendment to the September 28, 2018 grant agreement which identifies that funds to perform the modeling updates in an amount equal to the cost of the work will be provided to MCWD from the Minnesota DNR, so that the work will be performed without cost to MCWD;

NOW, THEREFORE BE IT RESOLVED that the District Administrator is hereby authorized to execute the second amendment to the September 28, 2018 DNR grant agreement, with any final changes on advice of counsel;

NOW, THEREFORE BE IT ALSO RESOLVED that the District Administrator is authorized to execute an amended contract with Wenck to update the floodplain modeling and mapping for the Minnehaha Creek Watershed District for an amount not to exceed \$72,900.

Resolution Number 21-007 was moved by Manager \_\_\_\_\_, seconded by Manager \_\_\_\_\_. Motion to adopt the resolution \_\_\_ ayes, \_\_\_ nays, \_\_\_ abstentions. Date: 1/14/2021

\_\_\_\_\_  
Secretary Date: \_\_\_\_\_

**Amendment # 2 for State of Minnesota Grant Contract #147305/3000177964 Between the State of Minnesota and the Minnehaha Creek Watershed District for Improved Floodplain Modeling and Mapping**

Contract Start Date:	<u>September 28, 2018</u>	Total Contract Amount:	<u>\$80,965.00</u>
Original Contract Expiration Date:	<u>April 30, 2020</u>	Original Contract:	<u>\$8,065.00</u>
Current Contract Expiration Date:	<u>March 31, 2021</u>	Previous Amendment(s) Total:	<u>\$63,400.00</u>
Requested Contract Expiration Date:	<u>n/a</u>	This Amendment:	<u>\$9,500.00</u>

This amendment is by and between the State of Minnesota, through its Commissioner of Natural Resources (“State”) and the Minnehaha Creek Watershed District (DUNS #150731255), 15320 Minnetonka Blvd., Minnetonka, Minnesota, 55345 (“Grantee”).

**Recitals**

1. The State has a grant contract with the Grantee identified as #147305/3000140574 (subsequently changed to #147305/3000177964) dated September 28, 2018 (“Original Grant Contract”) to provide funding to Grantee for improved floodplain modeling and mapping.
2. Grantee has agreed to perform additional GIS work for the State, requiring additional funding be provided to Grantee.
3. The State and the Grantee are willing to amend the Grant Contract as stated below.

**Grant Contract Amendment**

**REVISION 1.** Clause 2. “**Grantee’s Duties**” is amended as follows:

**2 Grantee’s Duties**

The Grantee, who is not a state employee, will be responsible for tasks generalized below, consistent with the details included in Attachment A– *Minnehaha Creek 100-year water surface elevation evaluation* dated April 25, 2018, and Revised Attachment B.1, MCWD FEMA Modeling Updates for the Twin Cities HUC8, both attached and incorporated hereto:

- Submittal of updated XP-SWMM hydraulic model for Minnehaha Creek
- Report comparing modeled results to monitoring data
- Coordination and participation in a partner meeting with DNR staff presenting a summary of modeled Results
- Upper Watershed Model Update
- Lower Watershed Analysis
- Modeling Summary memo
- GIS work and mapping

**REVISION 2.** Clause 4. “**Consideration and Payment**” is amended as follows:

**4 Consideration and Payment**

4.1 **Consideration.** The State will reimburse Grantee for all eligible products received and services performed by the Grantee under this grant contract as follows:

- (a) **Compensation.** The Grantee will be reimbursed 100% for eligible project expenses, not to exceed ~~\$71,465.00~~ \$80,965.00. This grant does not require a local match.

(b) **Travel Expenses.** Grantee shall not be reimbursed for travel and subsistence expenses incurred as a result of this grant contract.

(c) **Total Obligation**

The total obligation of the State for all compensation and reimbursements to the Grantee under this grant contract will not exceed ~~\$71,465.00~~ \$80,965.00.

4.2. **Payment**

(a) **Invoices/Deliverables**

Grantee will submit invoices for work completed no more frequently than monthly. Each invoice will state billing period of work performed, be itemized and include a report of work performed and progress as to each of the following project deliverables:

- Updated XP-SWMM hydraulic model for Minnehaha Creek incorporating Atlas 14 precipitation data
- Comparison of model results to monitoring data
- Meeting invoices for time and meeting summary
- Upper MCWD XP-SWMM models and comparison of results
- Lower MCWD XP-SWMM models and comparison of results
- Final report
- Final shapefiles for the 1% chance flood, floodway and cross sections
- GIS depth grids
- Internal QA/QC documentation

The State's Authorized Representative will review all invoices and the State will promptly disburse payment for accepted work. Disbursement does not limit any State remedies relating to the acceptability of the completed work pursuant to section 5 of this grant contract.

Requested reimbursement amounts for each work task shall not exceed 120% of the amount identified for each of the work tasks in Attachments A and Revised Attachment B.1 of this agreement. Upon project completion, prior to termination of this agreement, financial reconciliation will be performed to ensure Grantee is reimbursed for all actual incurred costs of services and deliverables, not to exceed ~~\$71,465.00~~ \$80,965.00.

It is required that invoices be submitted for reimbursement, at a minimum, by August 31 of each year for eligible expenses incurred in the **previous** fiscal year which is July 1 – June 30. If expenses are extensive, reimbursement requests may be submitted monthly or quarterly. Itemize the eligible expenses by the month of occurrence, **not** liquidation. If invoices are not received in this format, it could delay receipt of payment.

(b) **Federal funds**

Payments under this grant contract will be made from federal funds obtained by the State through FEMA Cooperating Technical Partners Program, CFDA number 97.045 and under 2 CFR 200, federal award number EMC-2017-CA-00005-SO1. The Grantee is responsible for compliance with all federal requirements imposed on these funds and accepts full financial responsibility for any requirements imposed by the Grantee's failure to comply with federal requirements.

**4.3 Contracting and Bidding Requirements**

Grantees that are municipalities as defined in state statute must comply with the contracting provisions of [Minn. Stat. §471.345](#).

Except as amended herein, the terms and conditions of the Original Grant and Amendment #1 remain in full force and effect.

**1. STATE ENCUMBRANCE VERIFICATION**

*Individual certifies that funds have been encumbered as required by Minn. Stat. §§16A.15 and 16C.05.*

Signed: *Felicia Barnes*  
850F68833C8A413

Date: January 11, 2021

Contract Number: 147305/3000177964

**3. STATE AGENCY**

*Individual certifies the applicable provisions of Minn. Stat. §16C.08, subdivisions 2 and 3 are reaffirmed.*

By: \_\_\_\_\_  
*(with delegated authority)*

Title: Acting Director, Ecological & Water Resources

Date: \_\_\_\_\_

**2. GRANTEE**

*The Grantee certifies that the appropriate person(s) have executed the grant contract on behalf of the Grantee as required by applicable articles, bylaws, resolutions, or ordinances.*

By: \_\_\_\_\_

Title: Administrator

Date: \_\_\_\_\_

By: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

Distribution:  
Agency  
Contractor  
State's Authorized Representative - Photo Copy



October 22, 2019

**REVISED ATTACHMENT B.1 TO GRANT #147305/30001405743000177964**

**Stacy Harwell**

Floodplain Hydrologist  
MnDNR  
500 Lafayette Road N  
St. Paul, MN 55155-4044

RE: MCWD FEMA Modeling Updates for the Twin Cities HUC8

**Dear Ms. Harwell:**

Wenck Associates, Inc. (Wenck) is pleased to submit this proposal to update aspects of the hydrologic and hydraulic models for Minnehaha Creek Watershed District (MCWD). This letter proposal includes our understanding of the project, the proposed scope of services, and the estimated costs to complete the project.

**Project Understanding and Approach**

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The purpose of this project is to update special flood hazard areas through updates of the Upper and Lower MCWD XP-SWMM watershed models. To do this, the models will be updated with 10-day and 24-hr, 100-year, Atlas-14 storm events and the more conservative storm event will be used to create new GIS Shapefiles and Depth Grids. Additionally, select areas of the Lower XP-SWMM Model where large increases in the base flood elevation (BFE) are expected, will be investigated. This scope will provide an estimate for updating each of those areas. The generalized scope is as follows:

- ▲ Upper Watershed Model Update with 24-hr and 10-day, 100-year HWL Comparisons
- ▲ Lower Watershed Analysis of Edina and Lake Nokomis Areas
- ▲ Lower Watershed Model Update with 24-hr and 10-day, 100-year HWL Comparisons
- ▲ Create floodway and floodplain shapefiles
- ▲ Create Depth Grids using Arc-GIS
- ▲ Summarize Modeling Updates and QA/QC Process in Memo

**Scope**

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**Task 1 – Meetings**

For this project we anticipate having meetings at three points throughout the analysis and starting with a kick off meeting, which will set the tasks, schedule and outcomes of the project from the start. A list of anticipated meetings is below.

- ▲ Kickoff meeting – at this meeting Wenck, MCWD, and DNR staff will discuss the project and project objectives including schedule, key deliverables and the responsible party. We will identify data gaps and next steps.
- ▲ 60% Progress Meeting – At this meeting we will have a good idea of what the new flood inundation levels are and how the 24-hour and 10-day results compare for each model. At this meeting we will determine which rain event to use, go over large increases/decreases in BFEs.



**Stacy Harwell**  
Floodplain Hydrologist  
MnDNR  
October 22, 2019

- ▲ MCWD HUC8 Flood Risk Review Meeting. This will be a meeting between MCWD, DNR, and City staff to discuss the updated results and potential impacts before GIS shapefiles are compiled in Task 5.

*Deliverables:*

- ▲ *Meeting Agendas*
- ▲ *Meeting Minutes*

**Task 2 – Upper Watershed Analysis**

Wenck proposes to update the Upper Watershed XP-SWMM with the Atlas-14, 24-hr & 10-day storm events and compare high-water elevations outside of Lake Minnetonka and its backwater. Specific subtasks associated with the detailed area hydraulic update are, but not limited to:

- ▲ The DNR will confirm a 931.5 NAVD88 Elevation for Lake Minnetonka.
- ▲ Wenck will run the Atlas-14, 100-year, 24-hr and 10-day storm events and present a comparison of the results to MCWD and DNR staff at the 60% Progress Meeting.
- ▲ After deciding which storm event should be used for the updated maps, Wenck will finalize the modeling (Task 4) and compile appropriate GIS shapefiles and depth grids (Task 5).

*Deliverables:*

- ▲ *Upper MCWD XP-SWMM Model(s)*
- ▲ *Comparison of Results*

**Task 3 – Lower Watershed Analysis and Updates**

Wenck proposes to update the Lower Watershed XP-SWMM with the Atlas-14, 24-hr & 10-day storm events and compare high-water elevations downstream of Lake Minnetonka and the Gray's Bay Dam outlet. As part of this update, Wenck will investigate areas where large increases or decreases (upstream of Lake Nokomis) in the 1% flood elevations occur. Specific subtasks associated with the detailed area hydraulic update are, but not limited to:

- ▲ Wenck will run the Atlas-14, 100-year, 24-hr and 10-day storm events and present a comparison of the results to MCWD and DNR staff at the 60% Progress Meeting.
- ▲ As part of that comparison presentation at the 60% Progress Meeting, Wenck will summarize our analysis and causes [seen in the preliminary modeling updates] of:
  - the increases near Edina and Browndale Dam,
  - the decrease upstream of Lake Nokomis,
  - and other areas with greater than a 2.5' increase/decrease.
- ▲ After deciding which storm event should be used for the updated maps, Wenck will finalize the modeling (Task 4) and compile appropriate GIS shapefiles and depth grids (Task 5).

*Deliverables:*

- ▲ *Lower MCWD (Minnehaha Creek) XP-SWMM Model(s)*
- ▲ *Comparison of Results*
- ▲ *Overview of increases and decreases in BFEs and causation*

**Stacy Harwell**  
 Floodplain Hydrologist  
 MnDNR  
 October 22, 2019

#### **Task 4 – Finalize Modeling and Reporting**

Modeling will be finalized and a summary report documenting updated modeling results and findings from Task 3 and results will be provided to MCWD and DNR staff for review. The report will be submitted in two stages:

- ▲ 60% Draft Report – A draft of the report will be completed outlining results from Tasks 2 and 3 and submitted to the DNR and District Staff for comments.
- ▲ Final Report – After agreement on new HWLs and comments from the 60% Draft Report, a final report will be submitted, along with GIS output and Internal QA/QC Documentation from Task 5.

#### **Task 5 – GIS work and Mapping**

For detailed study areas, inundation shapefiles for the 1%- and 0.2%-chance floodplains and floodway will be delineated for the approximate areas. The shapefiles, along with a cross-section shapefile, will be delivered to the MnDNR in a pre-approved format. Additionally, depth grids will be developed for 1%- and 0.2%-chance storms. [The GIS shapefile that represents the XPSWMM nodes will be georeferenced to the precision needed for mapping purposes. Wenck will manually move any nodes used for mapping to the correct location for both the Upper and Lower MCWD model. Mapping cross sections will be placed at the node locations.](#)

All shapefiles will be QA/QC'd for accuracy and consistency with the model results. Documentation of the QA/QC process will be provided as part of the Final Report in Task 4.

Once the QA/QC process is finished, data will be imported into the blank shapefiles provided by the DNR as a starting point to map the special flood hazard areas. These shapefiles will be submitted for comments.

#### *Deliverables:*

- ▲ *Final shapefiles for the 1% annual chance flood, floodway, and cross sections*
- ▲ *GIS Depth Grids*
- ▲ *Internal QA/QC documentation*

#### **Budget**

The Wenck project team proposes a budget of be allocated to complete the tasks listed above. Wenck will invoice the Watershed District monthly based on time and materials. Wenck will not exceed the authorized budget without obtaining written approval.

<b>Task</b>	<b>Task Description</b>	<b>Cost</b>
1	Meetings	\$2,000
2	Upper Watershed Model Update	\$5,500
3	Lower Watershed Analysis	\$8,600
4	Modeling Summary Memo	\$5,600
5	GIS work and Mapping	\$41,500 <u>\$51,000</u>
<b>Total</b>		<b>\$63,400</b> <u><b>\$72,900</b></u>

**Stacy Harwell**  
Floodplain Hydrologist  
MnDNR  
October 22, 2019

## **Proposed Schedule**

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The list below is a proposed schedule for key project deliverables and meetings.

- ▲ Kickoff meeting – **TBD**
- ▲ 60% Draft Narrative to MnDNR for review and Comment – **TBD**
- ▲ All Preliminary files to MnDNR – **TBD**
- ▲ All final files to MnDNR staff – **TBD**

We look forward to assisting you with this project. If you have any questions regarding the scope of services and cost proposal enclosed, please contact me at 763-252-6844 or Erik Megow at 763-252-6857.

Sincerely,

**Wenck Associates, Inc.**

Chris Meehan, PE, CFM  
Project Manager, Principal

Erik Megow, EIT  
Project Engineer, Associate