EXHIBIT A

PROPOSAL FOR PROFESSIONAL SERVICES

Duluth Stormwater Management Plan

RFP # 22-99467 – Technical Submittal

SEH

Building a Better World for All of Us®

Engineers | Architects | Planners | Scientists

APPENDIX A - PROPOSAL COVER SHEET
CITY OF DULUTH
RFP# 22-99467 Stormwater Management Plan 2022

Bidder Information:	
Bidder Name	Short Elliott Hendrickson Inc.
Mailing Address	418 West Superior Street, Suite 200, P.O. Box 229 Duluth, MN 55802-0229
Contact Person	Jeremy Walgrave
Contact Person's Phone Number	612.750.4574
Contact Person's E-Mail Address	jwalgrave@sehinc.com
Federal ID Number	41-1251208
Authorized Signature	
Name & Title of Authorized Signer	Matt Bolf, Principal
Email of Authorized Signer	mbolf@sehinc.com

Purchasing Division
Finance Department

Room 120
411 West First Street
Duluth, Minnesota 55802

218-730-5340
purchasing@duluthmn.gov

Addendum 1
Solicitation 22-99467
DULUTH STORMWATER MANAGEMENT PLAN 2022

This addendum serves to notify all bidders of the following changes to the solicitation documents:

Questions asked are answered below in italics.

1. Would PCSWMM be considered an acceptable alternative for the modeling required? Model files could be exported to EPA-SWMM format for use with XPSWMM?
   Yes, as long as the information/data is compatible and convertible to EPA-SWMM / XPSWMM

2. Does the City have any existing XPSWMM or other hydraulic/hydrologic models for the study area?
   Not for the 32nd Ave W Creek Watershed. There is some HEC-RAS from FEMA for other watershed, but not needed for this project.

3. Does the City have a preferred method for determining damage reduction? Estimated cost, damage cost curves, relative damage reduction, etc.?
   As noted in the RFP, cost estimates with the current economic climate is tough, there is not a preferred method, and estimates should be useable now and into the future…

4. Does the City have flood damage cost curves, or detailed damage costs from the 2012 flood?
   There are FEMA reports that were done for repairs, and most were site by site projects. There may be some overall data available, but not certain on its availability.

5. Will the H&H model used for preliminary FEMA modeling be made available for this project? If so, can you share which modeling package was used for that modeling?
   The FEMA models may be available through the DNR, it should be noted that the draft Map 90-day comment period has not started and is scheduled for 2022. It should also be noted that the 32 Ave West Creek is not a mapped FEMA flood study area.

6. Is it possible for the city to provide relevant references (TMDL, WRAPS, etc.) at the proposal stage?
   All TMDL and WRAPS documents are available on the MPCA Webpage.

7. What is the expectation for the level of detail required for the water quality assessment? Is any WQ modeling expected?
   Water Quality is a secondary component of the study for the 32nd Ave W watershed, with the main focus on flood vulnerability of the built environment. Water quality opportunities and general benefits from them should be included.

8. Who are the project partners mentioned in the RFP? Do we assume the contractor is considered a project partner and those items/tasks that refer to project partners should be included in our proposal?
   Yes, the project partner is the consultant/contractor and the City. The City will provide info/data as mentioned in the RFP. Also help coordinate the public meeting.

9. For vulnerability assessments, does analysis need to be performed for multiple storm events – or is the City focused on a single storm event (i.e. Atlas-14 100-year)?
   The assessment should be performed to determine the level of capacity of the system currently and the increase in risks for events up to the 100-year event. The grant does want the down-scaled precipitation models to be used as well.

10. Are there any inflow concerns that would not be captured with a stormwater model of the delineated watershed, such as sanitary lines, groundwater, or runoff from adjacent watersheds that overflows into this watershed during certain storm events?
    No. Only flow generated from a rain event.

11. For the entire city and 32nd Ave. W. Creek watershed, what is the approximate percent of data available across the two study area extents for existing stormwater infrastructure – pipe age, condition, type, slope, invert elevation, size, inlet type, etc.?
    The City has GIS data on the storm water system and with about 90% of inverts, pipe diameters, … If data is missing, the City will provide the data with City staff.

Please acknowledge receipt of this Addendum by including a copy of it with your proposal. The pages included will not count toward any page limitation, if any, identified in the RFP.

Posted: June 10, 2022

June 17, 2022

City of Duluth
Attn: Purchasing Division
City Hall, Room 120
411 West 1st Street
Duluth, MN 55802

Building a Better World for All of Us®

RE: Duluth Stormwater Management Plan 2022

Dear Members of the Selection Committee:

The City of Duluth is moving forward with a Stormwater Resiliency Plan that will be crucial in meeting the community's needs. This project will identify and develop a path forward for the 32nd Avenue West Creek Watershed while also providing the City with a larger framework for projects that should be prioritized and implemented in the future.

At Short Elliott Hendrickson Inc. (SEH®), we understand the challenges that the City faces with these infrastructure needs. This Plan will need to balance short- and long-term community needs, identifying what projects should be done and how they can be funded. We formed our team to provide you with the relevant experience and expertise to deliver these outcomes in the Plan update.

Our team will work with you to develop a plan that provides a clear path forward with management priorities and implementation. Our approach will balance a number of factors with this Plan, including the specific needs in the 32nd Avenue West Creek watershed, additional vulnerabilities in other areas, and the overall need to improve climate change resilience. This will provide a clearer picture of where the City should focus to meet stormwater management challenges and needs.

We will position the City for success with the Minnesota Pollution Control Agency (MPCA) grant and other funding opportunities. SEH has worked with three communities statewide to develop competitive applications and secure funding through this MPCA grant program, including the cities of Cloquet, St. Cloud and Worthington. We will draw on this experience to guide the City through the process for this grant program as well as the requirements for other funding mechanisms.

We will draw on our experience with similar Plan updates and knowledge of Duluth to identify specific projects and connect them to funding sources. Our team understands the potential funding sources that are available for stormwater infrastructure projects. SEH also offers a dedicated team of funding experts. As we develop this Plan, we will incorporate funding research and analysis to make certain the City can fund the improvements that are identified.

Manage the Plan update and overall process on the City's behalf. City staff are spread thin and balancing a number of projects at the same time. SEH offers the depth and experience to lead the day-to-day tasks and overall process for this Plan while keeping the project on track with the MPCA's contractual schedule. Our team also includes climate change experts from the University of Minnesota Climate Adaptation Partnership to enhance the expertise we offer the City to manage the process and develop a Plan that provides long-term resiliency.

We acknowledge receipt of Addendum 1 on June 10. We are invested in serving as the City's partner to identify and address stormwater challenges and opportunities in Duluth. Please contact me at 612.750.4574 or jwalgrave@sehinc.com with any questions or requests for additional information.

Respectfully submitted,

"This plan will provide an understanding of issues and path forward for successful stormwater resiliency. We're ready to get to work!"

JEREMY WALGRAVE PE (MN), CFM
PROJECT MANAGER

MATT BOLF PE (MN)
CLIENT SERVICE MANAGER

CONTENTS

The specific licenses and credentials of the team members are described in the personnel and/or resume section of this document.

DULUT 164329

Project Narrative

PROJECT UNDERSTANDING

The City of Duluth has secured funding through the Minnesota Pollution Control Agency (MPCA) Planning Grants for Stormwater, Wastewater, and Community Resilience to study and address stormwater issues and the effects on vulnerable communities in the City of Duluth. The study includes a detailed look at the area within the 32nd Avenue West Creek Watershed and a high-level look at the City as a whole.

This project will provide a much-needed Stormwater Resiliency Plan that can be used by City staff, developers, and residents of Duluth to increase the stormwater resiliency of the community, in particular the economically disadvantaged Lincoln Park neighborhood.

The City of Duluth and surrounding areas have experienced unprecedented rainfall events in the last decade, which have resulted in flooding within the community. Updated stormwater studies are needed to reflect these changing climate conditions and predict future needs of the community. A Stormwater Resiliency Plan will identify specific locations with inadequate stormwater infrastructure and the resulting high risk of localized flooding, particularly within the Lincoln Park neighborhood and 32nd Avenue West Creek Watershed.

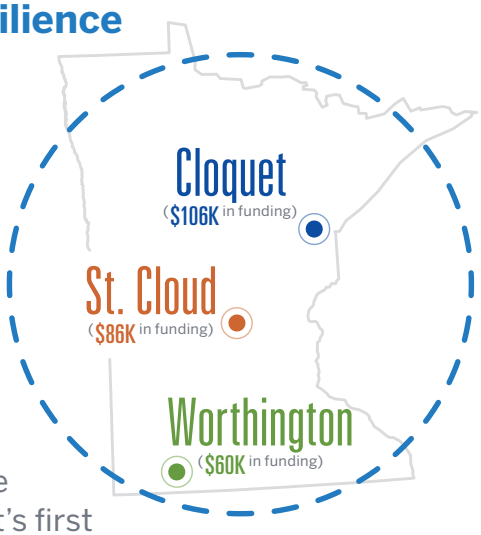
In addition, a high-level evaluation of the City's drainage system will help to identify vulnerable areas and areas that should be prioritized for further study. From this plan, projects focused on minimizing localized food risk will be developed and prioritized for future implementation.

This benefits the entire community and includes areas with more vulnerable populations similar to the Lincoln Park neighborhood.

The capital costs of the projects identified as part of the studies will likely exceed the City's available funding, including conventional funding programs such as the stormwater utility. As part of the study, it will be important to identify outside funding sources, including deadlines, dollar amounts, eligibility criteria and non-eligible expenses. One of the major benefits of this project is that the studies will identify and prioritize projects. An additional goal of this project will be to gain City Council adoption of the Plan and implementation projects, which will significantly improve the opportunities for funding.

SEH KNOWS...

MPCA Planning Grants for Stormwater, Wastewater and Community Resilience



In the grant's first year of operation, SEH helped secure **30% of all available funding** ($252K) for our clients and partners.

CAPACITY AND EXPERIENCE

SEH is well equipped to lead this effort; along with the University of Minnesota Climate Adaptation Partnership (MCAP), we have the resources to complete such a study and work within the confines of the grant rules and regulations. Our SEH water resources engineering staff offer a wide range of experience levels and specialties, ranging from watershed modeling and storm sewer assessment to field inspection and licensed drone pilots for a unique field perspective.

In addition, SEH successfully assisted the communities of Worthington, St. Cloud and Cloquet to apply for and receive MPCA funding through this same grant, totaling 30 percent of the total available funding. Because of this, our staff have a thorough understanding of the grant goals and deliverables. We will use this knowledge to create a Stormwater Resiliency Plan that will set up the City of Duluth for future prioritizing, funding and project implementation.

For example, our continuing work with the City of Cloquet on their Stormwater Resiliency Assessment & Action Plan is giving SEH a unique, parallel experience with the grant workflow and lessons learned to make this an effective plan. City staff can trust that we have the knowledge and expertise to take the lead on each of the subtasks described below with as much or as little involvement from City staff as desired.

The SEH staff assigned to this effort either live in the Duluth area or have direct experience working on projects in the City of Duluth. We understand your expectations and standards for project delivery. The SEH team has a broad understanding of the technical aspects, such as topography, land use, flood sources, climate change, and hydraulics within the Duluth watersheds and sewersheds. In addition to the technical aspects, we understand many of the social aspects of the community including demographics, funding limitations, flood insurance, community resiliency and environmental stewardship.

Below we have provided an overview of our key team members, their roles and their experience.

JEREMY WALGRAVE PE, CFM

PROJECT MANAGER | SEH

Jeremy will serve as the project manager. Jeremy has more than 22 years of experience and has managed numerous stormwater management and flood risk reduction projects.

MATT BOLF PE

CIVIL ENGINEER/PUBLIC ENGAGEMENT | SEH

Matt will lead our public engagement and any civil engineering tasks. With more than 21 years of experience including many types of projects with Duluth, he will lead the public involvement and assist with coordination of the City departments.

RACHEL PICHELMANN PE, CFM

QA/QC MANAGER | SEH

Rachel will serve as quality assurance/quality control (QA/QC) manager for the project. With her extensive background in modeling and flood mitigation projects, Rachel has effectively executed several projects with similar deliverables to the Duluth Stormwater Resiliency Plan.

CHLOE GLOECKNER PE, CFM

WATER RESOURCES ENGINEER | SEH

Chloe will assist with field verification of the drainage infrastructure and model review to ensure the accuracy of the drainage infrastructure dimensions and elevations. Based in Duluth, she has experience in erosion and sediment control design and preparation of Stormwater Pollution Prevention Plans (SWPPP) for a variety of project types.

MARK CHRISTENSON EIT

WATER RESOURCES ENGINEER | SEH

Mark will be involved in the development of the hydraulic modeling. He is well-versed in analysis of flooding issues and designing proposed solutions.

EMILY JENNINGS PE

WATER RESOURCES ENGINEER | SEH

Emily will provide guidance on stormwater regulatory programs and synergies that may be recognized with identified projects. She specializes in stormwater management design, SWPPP design, and Municipal Separate Storm Sewer Systems (MS4) program coordination and design.

CARSON WEBB EIT

DRONE PILOT | SEH

Carson will assist with GIS analysis, drone photography and hydraulic model development. He provides drone and GIS services for a variety of SEH projects.

CHELSEA MOORE RITCHIE

PUBLIC ENGAGEMENT | SEH

Chelsea will support the public outreach and development of engagement materials. Chelsea has worked with cities, counties and consulting firms to deliver quality analyses and recommendations on projects ranging from regional trail studies to comprehensive community plans.

DR. HEIDI ROOP PHD

CLIMATE CHANGE SPECIALIST | UNIVERSITY OF MINNESOTA

Dr. Roop and the MCAP team will assist in understanding and selecting appropriate future climate change scenarios for our case study and support public engagement. Dr. Roop is a climate scientist, the Director of Minnesota Climate Adaptation Partnership (MCAP) and a faculty member at the University of Minnesota.

Work Plan

TASK 2: NEIGHBORHOOD/ WATERSHED – SCALE STORMWATER VULNERABILITY ASSESSMENT

2A: NEIGHBORHOOD VULNERABILITY ASSESSMENT

A hydrologic and hydraulic model of the 32nd Avenue West Creek Watershed area will be developed using XPSWMM. This model will include a 2D modeling component that represents flood storage and overland flow patterns to simulate real-world conditions more accurately than a traditional 1D model. This model will also provide inundation mapping showing flood-prone areas and potential flooding depths for all rainfall events analyzed.

Detailed XPSWMM modeling will be conducted based on storm sewer, culvert, ditch and pond information. Overland flow and surface flooding will also be represented. Using information on localized flooding that has occurred in the past, we will calibrate the XPSWMM model to improve the overall accuracy and relevance of the modeling effort. Historic rainfall events will be simulated and inundation maps will be generated and used to obtain feedback on the validity of the modeling results.

Additional field data will be obtained through a site visit and a drone flight through the 32nd Avenue West Creek Watershed. The XPSWMM model parameters and input data will be modified as needed to produce results that match observations of past localizing flooding.

We will use the expertise of the MCAP team, under the leadership of Dr. Roop, to help guide us in the selection of appropriate future climate change scenarios for use in our case study analyses. Dr. Roop and the MCAP team bring well-regarded expertise in climate science, climate modeling and downscaling techniques specific to the State of Minnesota.

Additionally, precipitation data from the Humphrey School of Public Affairs, University of Minnesota - Twin Cities will be assessed to determine potential future impacts to the City's stormwater system. These parameters will be identified for a point 50 years from now which coincides with an estimated 50-year lifespan of stormwater infrastructure installed today.

The XPSWMM model will be used to map locations of known flooding for various rainfall events based on rainfall events currently used for design. This map will also include color-coded mapping of the modeled pipe segments to indicate which segments are hydraulically adequate or inadequate.

A database identifying areas with low, moderate and significant impacts to existing infrastructure will be developed. These impact criteria will be based on topics such as constructability, permit accessibility and potential implementation roadblocks. This database will be compared to the XPSWMM modeling results to combine the likelihood of flooding with the impact of flooding. **The results of this comparison will be used to identify the areas at greatest risk of localized flooding under current and future climate conditions.**

Timeframe: June 2022-January 2023

Deliverables: Figures, Technical Memo

2B: EVALUATION OF CANDIDATE PROJECTS

The flood inundation results generated from the XPSWMM modeling will be compared to the environmental justice areas, including those based on income/poverty and people of color, to identify the areas most vulnerable to flooding. Stormwater management improvement project concepts will be developed and may include increasing pipe capacity, incorporating more stormwater detention, or rerouting drainage systems.

Up to 10 project concepts will be developed based on the results of the risk and vulnerability assessments. These projects will focus on reducing the localized flooding while minimizing risk throughout the community and reducing the vulnerability of the community. Secondary benefits may include water quality, habitat and temperature control elements. These concepts will be analyzed using the XPSWMM model for both current and future rainfall events to assess their ability to lessen impacts of localized flooding due to climate change. Inundation maps will be produced to show the benefits of the concepts within the areas in the study limits.

The project list will be compared to the City's Capital Improvement Plan (CIP) to identify opportunities for cost savings by adding stormwater infrastructure improvements to previously planned projects. Planning level cost estimates will be developed for each project concept. Contingency factors will be applied to the cost estimates to account for current trends and market volatility.

Timeframe: June 2022-January 2023

Deliverables: Figures, Technical Memo, Project List

TASK 3: BROAD-SCALE GEOSPATIAL ANALYSIS AND CHARACTERIZATION OF DULUTH'S WATERSHEDS; IDENTIFICATION OF DISCERNIBLE STORMWATER VULNERABILITIES

A desktop evaluation of the City-wide surface and stormwater system will be conducted using GIS. This evaluation will take existing flood, watershed, sewershed, infrastructure and environmental justice data, which will be provided by the City, and determine additional at-risk neighborhoods based on factors such as flood risk, economic vulnerability and existing storm sewer deficiencies.

Based on this evaluation, a map of the City will be created and neighborhoods will be colored based on their risk level. We will provide recommendations for areas and projects that should be studied in more depth. **We will also develop a project prioritization framework through discussions with City staff.**

Timeframe: June 2022-January 2023

Deliverables: Summary Memo, Figures, Project Priority Framework

TASK 4: DULUTH STORMWATER RESILIENCY PLAN

The results of the previous tasks will provide the primary framework for prioritizing proposed improvements to the stormwater management system, with a focus on reducing localized flood risk and vulnerability to flooding. An additional consideration for project prioritization will be the feasibility of adding a stormwater improvement to an already planned City project, which can result in significant cost savings for implementation.

The "Neighborhood Scale" portion of the plan will provide detailed information on the 32nd Avenue West Creek Watershed, including data gaps, hydrologic and hydraulic modeling results of the existing condition, recommendations for more detailed modeling and potential improvement projects. The "City Scale" portion of the plan will include a Citywide assessment of flood prone areas, which will be related to environmental justice areas. The City Scale portion of the plan will also include recommendations on prioritization of projects and identify projects and areas in need of further study and evaluation.

Our team will prepare a draft Stormwater Resiliency Plan that will include the following:

- Description of the work completed as part of the preceding tasks
- Maps of the study area showing locations of localized flooding for current and future climate conditions
- Results of the risk and vulnerability assessments
- Proposed projects for lessening the impacts of localized flooding and climate change

This development of the Stormwater Resiliency Plan will be an important foundation that will guide future study areas.

Timeframe: October 2022-May 2023

Deliverables: Stormwater Resiliency Plan/Stormwater Management Plan

TASK 5: PUBLIC STORMWATER RESILIENCY WORKSHOP

SEH will prepare a GIS StoryMap to present the main components and findings of the 32nd Avenue West Creek Watershed. A PDF of the draft Plan will also be provided, but the StoryMap format provides an interactive, more user-friendly format for public viewing. The public will be invited to provide feedback on the draft Plan. SEH and City staff will be in attendance to answer questions and engage with community members to solicit discussion and feedback on the Plan.

Dr. Roop and the MCAP Team will also review and advise the team on the development of materials for the Public Stormwater Resiliency Workshop to ensure they are inclusive and easily understood by the intended users and project stakeholders.

Timeframe: April 2023

Deliverables: Workshop Graphics and Materials, Story Map, Summary of Feedback

TASK 6: CONNECTING PROJECTS TO FUNDING

SEH will work with our internal funding experts to research and determine potential funding sources for the identified projects in the Stormwater Resiliency Plan. These funding sources will be displayed in a Funding Matrix, which will be included as an Appendix in the Resiliency Plan documentation. **The matrix will display funding sources, eligible and non-eligible costs, scoring criteria, requirements and deadlines to assist City staff in project planning and design.**

Timeframe: April 2023

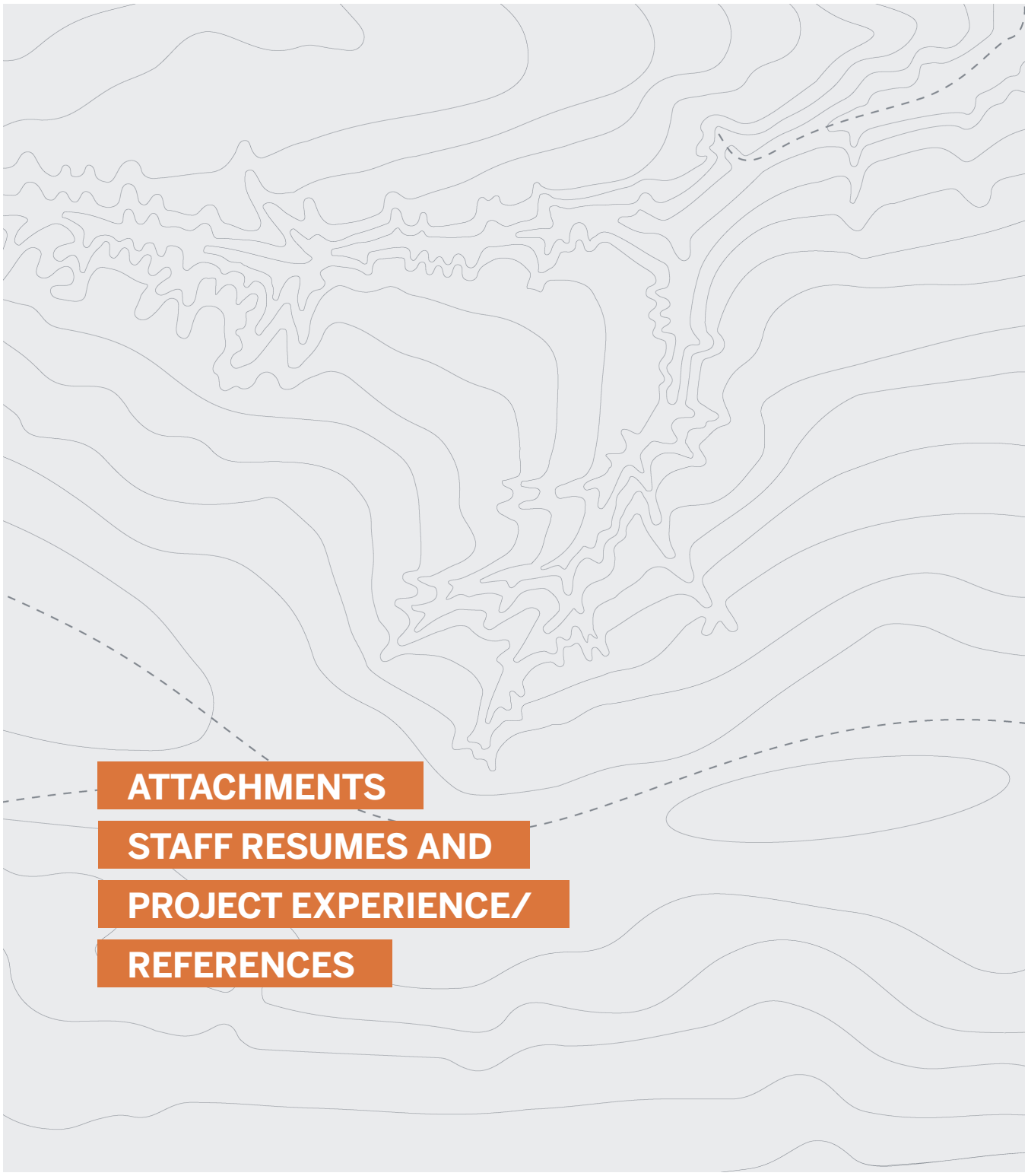
Deliverables: Funding Matrix

TASK 7: FINAL REPORT AND PROJECT DELIVERABLES

SEH will provide a final grant project report using the MPCA template approximately one month prior to the end of the grant agreement or at completion of the project, whichever occurs first. Our staff will respond promptly to any requests by the MPCA authorized representative for additional information and/or corrections to the report.

Timeframe: Draft Plan submittal to the City, May 1, 2023
Final Plan submittal to the City, June 1, 2023

Deliverables: Draft and Final Grant Project Report



ATTACHMENTS

STAFF RESUMES AND PROJECT EXPERIENCE/ REFERENCES

STAFF RESUMES

JEREMY WALGRAVE PE, CFM
PROJECT MANAGER | SEH

Jeremy is a senior water resources engineer and project manager with more than 22 years of experience. He has served in many roles, including project management, stormwater management planning, climate change planning, design analyses, cost estimating, public engagement and report writing. In addition to his planning and design experience, he has developed detailed construction plans and provided construction oversight on stormwater and flood management projects.

His related project experience includes:

- 2012 Flood Recovery West Side Trout Streams – Duluth, MN
- Keene Creek LOMR (St. Louis County) – Hermantown, MN
- Knoll District Stormwater Analysis (University of Minnesota) – Minneapolis, MN
- Stormwater Management Plan, Silver Bay Business Park - Silver Bay, MN
- Red Wing Surface Water Management Plan Updates – Red Wing, MN
- South of Dale Development Stormwater Management Plan – Woodbury, MN
- Surface Water Management Plan Updates – Oakdale, MN
- Central Business District Stormwater Plan – Superior, WI
- Bluestone Mixed-Use Development – Duluth, MN

EDUCATION

Bachelor of Science
Civil Engineering (Emphasis: Hydrology/Hydraulics)
University of Nebraska-Lincoln

REGISTRATIONS/CERTIFICATIONS

Professional Engineer in MN, IA, MO, OK, SD and TX

Certified Floodplain Manager (CFM), Association of State Floodplain Managers, Inc.

MATT BOLF PE
CIVIL ENGINEER/PUBLIC ENGAGEMENT | SEH

Matt will serve as civil engineer and public engagement lead for our team. Matt is the client service manager of the City and has more than 21 years of experience, including many types of projects with Duluth. He will attend the kick-off and project update meetings, lead the public involvement, assist with coordination of the City departments and provide QA/QC. In this role, Matt will strive to make sure Duluth's expectations are met.

Matt's related public involvement and stormwater resiliency projects for the City of Duluth include:

- Cross City Trail – Phases 1-5
- Lakewalk East Extensions – Phases 1-5
- Congdon Boulevard Reclamation
- Green Street, 63rd West, Bristol Street Box Culverts
- BlueStone Development
- Cody Street Box Culvert

EDUCATION

Bachelor of Science
Civil Engineering
North Dakota State University-Fargo

REGISTRATIONS/CERTIFICATIONS

Professional Engineer in MN and WI

RACHEL PICHELMANN PE, CFM
QA/QC MANAGER | SEH

13
YEARS OF EXPERIENCE

Rachel is a professional engineer and Certified Floodplain Manager with more than 13 years of experience serving clients throughout the Midwest by estimating and minimizing flood risk. Her project experience includes comprehensive watershed planning, green infrastructure design, hydrologic and hydraulic modeling studies, flood risk management plans, drainage designs for rural and urban projects, and preparation of construction plans and specifications.

Rachel's similar project experience includes:

- Minnesota River Flood Resiliency Projects for MnDOT in Southern MN – US 169, TH 101, TH 41, TH 19, TH 93 and Sibley CSAH 6
- Deep River Flood Risk Mitigation Plan – Lake County, IN
- Northeast Drainage Study & Alternatives Analysis – Olivia, MN
- Several Flood Mitigation Plans for Watersheds – Lowell, IN
- SD Hwy 50 Drainage Improvement Design – Vermillion, SD

EDUCATION

Bachelor of Science
Civil Engineering
Iowa State University-Ames

REGISTRATIONS/CERTIFICATIONS

Professional Engineer in MN, IA, IN and SD

Certified Floodplain Manager (CFM), Association of State Floodplain Managers, Inc.

CHLOE GLOECKNER PE
WATER RESOURCES ENGINEER | SEH

6
YEARS OF EXPERIENCE

Chloe is a water resources engineer with experience working on designs, specifications, and hydraulic and hydrologic modeling for public and private infrastructure projects. Chloe's experience includes stream restoration, stormwater BMP design for land development, stream analysis and culvert design for stream crossings, construction stormwater inspections, preparation of construction plans and municipal storm sewer design. Chloe also worked closely with the City of Olivia as City Engineer to determine the engineering needs of the City and helped to develop a capital improvement plan to meet those needs. Chloe is a certified SWPPP preparer, construction BMP installer and construction site manager through the University of Minnesota Erosion and Stormwater Management Certification Program.

Chloe's similar project experience includes:

- CSAH 3 (14th Street) Reconstruction – Cloquet, MN
- MS4 Services – Proctor, MN
- BlueStone Development Mixed-Use Development – Duluth, MN
- Keene Creek LOMR – St. Louis County and Hermantown, MN
- Culvert Hydraulic Analysis - On Call Services – St. Louis County, MN

EDUCATION

Bachelor of Science
Civil Engineering
University of Minnesota College of Science and Engineering

REGISTRATIONS/CERTIFICATIONS

Professional Engineer in MN

Design, Construction and Construction Site Manager for Stormwater Pollution Prevention Plan (SWPPP), University of Minnesota

Aggregate Production Level 1, Bituminous Street Level 1 and 2, Concrete Field Level 1 and 2, and Grading and Base
Minnesota Department of Transportation (MnDOT)

RILEY MONDLOCH PE
WATER RESOURCES ENGINEER | SEH

Riley is a hydraulic engineer with more than six years of experience in stormwater management and modeling. Riley's project experience includes leading storm sewer analysis and design tasks and supporting a number of other water resources tasks. He has worked on software including ArcGIS, HEC-RAS, HEC-GeoRAS, XPSWMM, HydroCAD, AutoCAD and Microsoft Office Suite. Riley has extensive 2D modeling experience using XPSWMM, HEC-RAS and SRH-2D.

Riley's relevant experience includes the following projects:

- Red Wing Surface Water Management Plan Updates – Red Wing, MN
- Water Resources Management Plan Update 2017 – Burnsville, MN
- Indian Creek Watershed Analysis – Mankato, MN
- South of Dale Development Stormwater Management Plan – Woodbury, MN
- Stormwater Analysis and Management Plan – Fort McCoy, WI

EDUCATION

Master of Science
Civil/Environmental Engineering
(Emphasis: Hydraulics, Hydrology, Water Resources Engineering)
University of Iowa-Iowa City

Bachelor of Science
Environmental Engineering
University of Wisconsin-Platteville

REGISTRATIONS/CERTIFICATIONS

Professional Engineer in MN

MARK CHRISTENSON EIT
WATER RESOURCES ENGINEER | SEH

Mark is a hydraulic engineer with more than four years of experience in stormwater management and hydrologic and hydraulic modeling. Mark's project experience includes 2D modeling of storm sewer and surface runoff for several communities in Minnesota. He is also well-versed in analysis of flooding issues and designing proposed solutions.

Mark's relevant experience includes:

- Red Wing Surface Water Management Plan Updates – Red Wing, MN
- 11th Street Stormwater Analysis – Sauk Rapids, MN
- South of Dale Development Stormwater Management Plan – Woodbury, MN
- Lake Minnetonka Regional Park Stormwater and Bioretention Design – Three Rivers Park District, MN

EDUCATION

Bachelor of Science
Applied Physics of Industry and Engineering
University of Wisconsin-River Falls

Master of Science
Civil and Environmental Engineering
University of Minnesota-Twin Cities

Bachelor of Arts
Conservation Biology, Zoology
University of Wisconsin-Madison

REGISTRATIONS/CERTIFICATIONS

Engineer-in-Training in MN

Design of Construction of Stormwater Pollution Prevention Plan (SWPPP)),
University of Minnesota

EMILY JENNINGS PE
WATER RESOURCES ENGINEER | SEH

Emily is a professional engineer with nine years of experience specializing in municipal, industrial and construction permitting, hydraulic and hydrological analysis, stormwater conveyance modeling and design including roadways, ditches, and BMP and construction stormwater inspections. Emily's project experience includes stormwater planning, culvert hydraulics analysis, stormwater management design, stormwater conveyance modeling and design, SWPPP design and MS4 program coordination and design. She has experience providing regulatory program guidance on numerous stormwater management projects.

Emily's relevant experience includes:

- Red Wing Surface Water Management Plan Update – Red Wing, MN
- MS4 Services – Gem Lake, Shoreview and Vadnais Heights, MN
- Vadnais Lakes Area Watershed Management Organization General Engineering Services – Vadnais Heights, MN
- Lambert Lake Stream Restoration and Water Quality Project – Vadnais Heights, MN

EDUCATION

Bachelor of Science
Civil Engineering
University of Minnesota-Duluth

REGISTRATIONS/CERTIFICATIONS

Professional Engineer in MN

Design and Construction for Stormwater Pollution Prevention Plan (SWPPP), University of Minnesota

CARSON WEBB EIT
DRONE PILOT | SEH

Carson is a water resources engineer and licensed drone pilot who has worked on a number of similar projects, including Stormwater Master Plans. Carson also has experience in XPSWMM 1D and 2D model development.

Carson's similar project experience includes:

- Hydrologic and Hydraulic Modeling, and Alternatives Analysis – Rice Lake, WI
- Comprehensive Stormwater Planning – Lowell, IN
- Hydraulic Modeling for Bridge Replacement – Waseca County, MN

EDUCATION

Bachelor of Science
Civil Engineering
Minnesota State University-Mankato

REGISTRATIONS/CERTIFICATIONS

Engineer-in-Training in MN

ROSE KOPECKY PE
GIS | SEH

Rose is a municipal engineer with more than eight years of experience in street, utility and site design. Rose has worked in a similar role on multiple projects in Duluth and surrounding communities. Her project experience includes leading plan production and design tasks and ArcGIS exhibits and analysis. Rose has worked on software including ArcGIS, AutoCAD Civil 3D and Infraworks, and Microsoft Office Suite.

Rose's experience on similar projects includes the following:

- New Regional Water System (Fond du Lac Reservation) – Cloquet, MN
- Water System Model – Moose Lake, MN
- Utility Extension Study – Cloquet, MN

EDUCATION
Bachelor of Science
Environmental Engineering (Minor: Sustainable and Renewable Energy Systems)
University of Wisconsin-Platteville

REGISTRATIONS/CERTIFICATIONS
Professional Engineer in MN

CHELSEA MOORE RITCHIE
PUBLIC ENGAGEMENT | SEH

Chelsea is a planner and public engagement specialist with more than seven years of experience. She brings a background that includes graphic communication and design, site planning and analysis, and environmental transportation planning. As a planner and urban designer, Chelsea has worked with cities, counties and consulting firms to deliver quality analyses and recommendations on a wide range of project types.

Chelsea's relevant experience includes:

- Downtown Revitalization – Glencoe, MN
- Hwy 42 Visioning Study (Dakota County) – Apple Valley, Burnsville and Rosemount, MN
- 10th Avenue Bridge Rehabilitation (City of Minneapolis) – Minneapolis, MN
- TH 47/TH 65 Planning and Environmental Linkages (PEL) Study (MnDOT West Metropolitan District) – Minneapolis to Blaine, MN

EDUCATION
Master of Urban and Regional Planning
Land Use Planning and Urban Design
Bloustein School of Planning and Public Policy - Rutgers University

Bachelor of Arts
Art History
University of Minnesota-Twin Cities

DR. HEIDI ROOP PHD

CLIMATE CHANGE SPECIALIST | UNIVERSITY OF MINNESOTA

Heidi is a is a climate change scientist with a passion for science and communication. Heidi's pursuit of science has led her to all seven continents. She currently serves as an Assistant Professor of Climate Science and Extension Specialist for the University of Minnesota. Throughout her scientific pursuits, she has prioritized sharing her science through teaching and public engagement. To learn more about her research, teaching and science communication research, please visit www.heidiroop.com.

EDUCATION

Doctor of Philosophy (PhD)
Victoria University of Wellington

Master of Science
Geology
Northern Arizona University

Geology, Arctic Climate Change, Rural Studies
Mount Holyoke College

NORTHEAST STORMWATER STUDY

OLIVIA, MN

In August 2016, the City of Olivia experienced a severe rainfall event in which more than 6 in. of rain fell in approximately nine hours. Severe regional flooding resulted, affecting portions of the City. The City hired SEH to analyze the northeast drainage system and evaluate potential improvements to reduce future flood risk for this area.

SEH completed a field survey to obtain critical data for the existing stormwater system, developed a GIS database of the information, and used that data to generate a 1D/2D XPSWMM model of the system. This model was calibrated to the August 2016 event, and used to evaluate six alternatives which resulted in reduced flood risk for the area. Several of the alternatives incorporated improvements to the pipe network to increase capacity, but also included BMPs which reduced flow rates.

Our team used the 1D/2D XPSWMM model to evaluate upstream and downstream impacts of each alternative. We generated graphical results to clearly communicate the estimated benefits of each alternative to the City Council and public. We completed a benefit/cost analysis to help the City prioritize the projects for implementation. Our Stormwater Report summarized the study and this report became an extension of the community's CIP.

2D modeling greatly helped make complex hydraulic data understandable for our City Council and City staff, which allowed them to make informed decisions about future City planning needs.

DAN COUGHLIN | CITY ADMINISTRATOR, OLIVIA, MN

CLIENT

City of Olivia

KEY PERSONNEL

Rachel Pichelmann
Riley Mondloch
Chloe Gloeckner

REFERENCE

Dan Coughlin
320.523.2361
danc@olivia.mn.us

CENTRAL BUSINESS DISTRICT STORMWATER PLAN

SUPERIOR, WI

This project produced a stormwater master plan which reduced the stormwater load on the City of Superior's combined sewer system in the Central Business District. It included stormwater modeling of a 765-acre urban watershed and creation of a recommended storm sewer improvement plan in an urban area where no storm sewer existed. The design included siting and sizing of new stormwater ponds, creating preliminary design of a stormwater conveyance system to avoid conflicts with other gravity utilities, cost estimating and conducting design workshops to seek City input and report preparation.

Additionally, the project included the final design of the first phase of improvement, including a 72 in. storm sewer interceptor and collection system along Poplar Avenue. SEH also provided construction administration for the Poplar Avenue storm sewer interceptor, including managing resident project representative efforts, reviewing and recommending approval of payment applications and change orders, and completing typical construction administration duties.

CLIENT

City of Superior

KEY PERSONNEL

Jeremy Walgrave
Matt Bolf
Emily Jennings

REFERENCE

Steve Roberts
715.394.0392, ext. 1034
esdpw-info@ci.superior.wi.us

2012 FLOOD RECOVERY

DULUTH, MN

The SEH team was involved in several aspects of the City's flood recovery efforts as a result of the 2012 flooding. Services included damage assessments of streams, drainage systems, streets and utilities. Cost estimates were developed to repair damages and support disaster relief funding requests from FEMA. Plans and specifications were developed for multiple damage repair projects. SEH team members also assisted with bidding and construction oversight.

CLIENT

City of Duluth

KEY PERSONNEL

Jeremy Walgrave
Matt Bolf

REFERENCE

Tom Johnson
218.730.5103
tajohnson@duluthmn.gov

BLUESTONE MIXED-USE DEVELOPMENT

DULUTH, MN

The SEH team led the site design, stormwater design and surveying for this mixed use development. This project covered 20 acres and included student and residential housing, retail and commercial buildings, and several restaurants. Stormwater from this project site ultimately flows into Oregon Creek.

SEH incorporated several innovative stormwater treatment methods including three below grade stormwater detention systems, sumped catch basins serving as grit chambers and biofiltration basins. Additionally, the SEH team assisted with building demolitions, Tax Increment Financing (TIF) assessments, platting and ALTA surveys, permitting, hydraulic analysis and design, preliminary and final design of all driving surfaces, grading and site utilities.

CLIENT

Summit Management, LLC

KEY PERSONNEL

Jeremy Walgrave
Matt Bolf
Chloe Gloeckner
Emily Jennings
Rose Kopecky

REFERENCE

Tom Johnson
218.730.5103
tajohnson@duluthmn.gov

Building a Better World for All of Us®

Sustainable buildings, sound infrastructure, safe transportation systems, clean water, renewable energy and a balanced environment. Building a Better World for All of Us communicates a company-wide commitment to act in the best interests of our clients and the world around us.

We're confident in our ability to balance these requirements.

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Budget

	TASK	CLIENT SERVICE MANAGER	PROJECT MANAGER	QA/QC	STORMWATER ENGINEER	HYDRAULIC ENGINEER	HYDRAULIC ENGINEER	MS4/ STORMWATER ENGINEER	DRONE PILOT	GIS/CIVIL ENGINEER	PUBLIC ENGAGEMENT SPECIALIST
2	32nd Avenue West Creek - Detailed H&H Study	2	10	10	16	40	80		10	32	
3	City-wide Stormwater Management Evaluation	2	10	10		40	80			40	
4	Stormwater Management Plan Development	1	12	4	8	10	40				
5	Community Engagement Workshop	8	4								16
6	Connect Projects with Funding	2	6	6	6			6			
7	DRAFT and FINAL Plan Submittal	1	6	6	6	6		4		16	
Total Hours		**16**	**48**	**36**	**36**	**96**	**200**	**10**	**10**	**88**	**16**

Project Labor Cost	**$85,538**
Equipment charges	
Mileage	**$1,342**
Drone Equipment	**$1,120**
MCAP - Subconsultant	**$12,000**
TOTAL PROJECT COST	**$100,000**