

Exhibit 1

EXHIBIT A

AMENDMENT NO. 1 TO L30022

Contract Start Date:	12/7/2017	Original Total Amount:	\$44,378.00
Original Completion Date:	2/28/18	As Previously Amended:	0
Amendment Completion Date:	12/31/2019	Current Amendment:	\$498,388.00
Resolution:	18-00XXR	New Total Contract Amount:	\$542,766.00

This amendment, effective as of the date of attestation by the City Clerk (the "Effective Date"), by and between the City of Duluth, hereinafter referred to as "City", and TRC Environmental Corporation located at 230 West Monroe Street; Suite 2300, Chicago, IL 60606, hereinafter referred to as "Consultant", for the purpose of rendering services to the City.

WHEREAS, on December 7, 2017, City and Consultant entered into an agreement bearing City of Duluth Contract No. L30022 for professional engineering services for damage assessment and reconstruction recommendations for portions of the lakewalk and north shore, hereinafter referred to as the "Contract"; and

WHEREAS, both parties desire to amend the Contract.

NOW THEREFORE, in consideration of the mutual covenants and conditions hereinafter set forth, the parties hereto hereby agree as follows:

In this Amendment changes in the language of the Contract which delete language will be shown as stricken and language added to the contract language will be underlined.

Revision 1. Phases D (Final Design), E (Bidding), F (Construction Survey and Layout) and G (Construction Administration and Inspection) of the professional engineering services agreement are now included.

Revision 2. The Services and Supplementary Duties to be performed in the additional phases are pursuant to the Engineer's Proposal dated March 23, 2018 and attached as Exhibit C.

Revision 3. The Completion Dates for each additional phase shall be December 31, 2019.

Revision 4. The Estimated Compensation shown in Section V.C. Standard Payment is hereby modified to include the cost for each additional phase:

D. Final Design Phase	\$320,027.00
E. Bidding Phase	\$11,488.00
F. Construction Survey & Layout Phase	\$40,956.00
G. Construction Administration & Inspection Phase	<u>\$125,917.00</u>
TOTAL	\$44,378.00 <u>\$542,766.00</u>

The maximum compensation for all phases A through G shall not exceed ~~Forty-four Thousand Three Hundred Seventy-eight~~ Five Hundred Forty-Two Thousand Seven Hundred Sixty-Six and no/100ths Dollars.

Revision 5. The Total Not to Exceed described in Section V.E. of the Contract is hereby amended as follows:

All payments under this Contract are not to exceed ~~\$4,378.00~~ \$542,766.00, payable under fund 110-121-1217-2145-5310.

Revision 6. The Special Provisions described in Section VI of the Contract are hereby amended as follows:

3) Exhibit C, Engineer's Proposal dated March 23, 2018

In all other respects the contract, together with all of its terms, covenants and conditions, is hereby confirmed in its entirety.



230 W. Monroe Street
Suite 630
Chicago, IL 60606

312.800.5912 PHONE
312.578.0877 FAX

www.trcsolutions.com

March 23, 2018

Mr. Erik Birkeland
Property & Facilities Manager
City of Duluth
1532 West Michigan Street
Duluth, MN 55806

**Subject: City of Duluth Shoreline Restoration Design
TRC Proposal No. 299038.9990.0000**

Dear Mr. Birkeland:

We are pleased to submit this proposal for Professional Services for the City of Duluth Shoreline Restoration Design project. We are well aware of the critical importance of immediately restoring the public access safety along the shoreline, and protecting the City infrastructure. Our team recognizes the very important aspects of selecting a robust design for the significant Lake Superior Coastal conditions, practical construction phasing and methods, and incorporating locally available materials, which may result in construction savings.

Toward that end, we have assembled a "customized" Team of Great Lakes experts in all disciplines relevant to this important initiative, including Coastal Engineers and Scientists, Geotechnical, Civil and Structural Engineers, all of whom are intimately familiar with the project site conditions. Led by TRC, our Team includes three valued sub-consultants (AMI Consulting Engineers, Resolution Studio and AECOM), with a wealth of similar project experience. The TRC Team staff have collaborated on similar projects, and have a great long-term working relationship with the sub-consultants selected.

We appreciate the opportunity to submit this proposal and welcome the possibility to work with you.

Sincerely,

TRC

Dan Veriotti, PE
Chicago Office Principal Engineer
312.800.5916

Kris Krause, PE
Vice President Midwest Unit
608.826.3637

Detailed Proposal for Duluth Shoreline Restoration Design

March 23, 2018



Prepared by:
TRC
230 West Monroe Street
Chicago, IL 60606

Prepared for:
City of Duluth
Property & Facilities Management
1532 West Michigan Street
Duluth, MN, 55806

Table of Contents

Table of Contents i

1.0 Project Understanding 1

2.0 The TRC Team 2

 2.1 TRC: Knowledgeable, Qualified, Experienced 2

 2.2 AMI Consulting Engineers, PA 3

 2.3 AECOM 4

 2.4 Resolution Studio 4

3.0 Project Scope 6

 3.1 Kickoff Meeting and Site Inspection..... 6

 3.2 Data Review 6

 3.3 Field Data Collection..... 6

 3.3.1 Bathymetric and Topographic Survey 6

 3.3.2 Underwater Investigation 7

 3.4 Coastal Analysis 7

 3.5 Geotechnical Analysis and Considerations..... 9

 3.6 Design Development 9

 3.7 Regulatory Coordination 9

 3.8 Construction Documents..... 10

 3.9 Bid Phase Services 12

 3.10 Construction Phase Services 12

4.0 Proposed Fees and Schedule 13

 4.1 Fees..... 13

 4.2 Schedule 13

 4.3 Assumptions 14

List of TRC Attachments

Attachment 1 – Resumes

Attachment 2 – 2018 Hourly Rates

1.0 Project Understanding

The City of Duluth (City) initiated a Shoreline Assessment Study to quantify the damages produced by a very significant storm on October 26/27, 2017 (which met, or exceeded typical Coastal design conditions). The TRC Team was commissioned to conduct the study, which recommended near-term repairs, to restore the shoreline to pre-storm conditions in four project areas (Canal Park and Harbor, Lakewalk and the North Shore, Park Point, and the Lake Superior & Mississippi Railroad).

As expected, it was found that most of the storm damages occurred along the Canal Park and Lakewalk and the North Shore, as these two areas are the most exposed to the Lake Superior waves and surge. We understand that restoring them to the pre-storm conditions is an immediate priority.

The Lake Superior & Mississippi Railroad shoreline experienced some erosion during the storms and will also have to be restored for recreational rail traffic.

The Park Point area experiences beach erosion during significant storms; while recommendations have been provided near-term (beach nourishment) and long-term (backshore protection), there are some unknowns regarding the quantity of sand needed to maintain the existing shoreline positioning, and if the Federal Harbor periodic dredging will provide it at no cost to the project. Park Point is not included in our services at this time; the same applies to the areas inside the Harbor that experienced storm damage, but are currently being repaired by the City.

We believe that a good understanding of the existing conditions and close coordination with the City will be key elements to the project. The success of providing a successful project also depends on identifying the most efficient and economical construction methods, incorporate locally available materials, and include key local team members for the construction administration services.

In general terms, TRC's approach will be to rely on the completed Assessment Study (March 15, 2018) and data collection (leveraged to the maximum extent), and our site knowledge; these will be supplemented by a new data collection and analysis, a Design Development phase to validate and refine the design elements, bidding and construction administration services, which are described in the next sections.

2.0 The TRC Team

2.1 TRC: Knowledgeable, Qualified, Experienced

The project will be led by TRC in the Chicago, IL, office, with a local presence (Scott Weyandt, PE in Superior, WI). A pioneer in groundbreaking scientific and engineering developments since the 1960s, TRC is a national engineering, environmental consulting, and construction management firm that provides integrated services to the infrastructure, environmental, power, and oil and gas markets.

With more than 4,100 technical professionals and support personnel at more than 120 offices throughout the U.S., we serve a broad range of clients in government and industry. Our multidisciplinary teams implement complex projects—from initial concept; through permitting, engineering, and construction; to delivery and operations—successfully and cost-effectively.

TRC has the technically qualified resources to offer support to our clients throughout the development process, from due diligence analysis through completion of project construction. TRC also has strong visions for safety and sustainability performance that our clients find beneficial to achieving their goals.

The successful execution of this challenging project includes, but goes well beyond, our team expertise in coastal engineering for shore protection structures. Our Team also features capabilities in the areas of underwater investigation, site survey (topographic and bathymetric, specialty survey in breakwater inaccessible areas), structural engineering, and bidding and construction administration. The following are a few differentiators for our team:

- We are a regionally-based Team highly accessible to the City. Our “customized” Team features project principals that live and work in the Great Lakes area. We are available (on short notice) to meet in-person with the City members to discuss project approach, progress and outcomes.
- We offer Subject Matter Experts in all relevant disciplines. This project requires the services of highly experienced professionals in multiple disciplines that include (among others) Coastal and Marine Engineering, Marine Structural, site survey and Landscape Architecture. We assembled our Team to provide the City with Subject Matter Experts that not only have technical credentials, but are also intimately familiar with the Lake Superior Basin.

TRC Quick Facts	
✓	4,100+ employees in over 120 offices
✓	Ranked #23 in Engineering News-Record's (ENR's) Top 500 Design Firms (2017)
✓	Ranked #7 ENR Top 100 Pure Design Firms (2017)
✓	Ranked #10 ENR Top 20 by Sector in Power (2017)
✓	Ranked #10 ENR Top 20 by Sector in Hazardous Waste (2017)
✓	Ranked #38 ENR Top 200 Environmental Firms (2016)
✓	EPA's ENERGY STAR 2008 Partner of the Year
✓	Over 20 Engineering Excellence Awards
✓	25 patents for innovative technologies; 2 patents pending



- We are highly respected throughout the Great Lakes Basin for technical excellence, objectivity, and innovative solutions. This is a hallmark of our Team that is recognized within government; the private sector; non-governmental organizations; and stakeholders in general.
- Perhaps most importantly, we have a passion for the Great Lakes! Our studies and projects on the Great Lakes reflect a career-length commitment for our Team members, many of whom live on or near Great Lakes shorelines. We welcome the opportunity to continue this commitment by supporting this important project in Duluth.

Dan Veriotti, PE, will be the Project Manager and Principal Engineer for the work. Dan is a specialized Coastal Engineer, with over 20 years of experience with similar work around the Great Lakes, and has managed hundreds of relevant projects. On Lake Superior, Dan managed the National Park Service Pictured Rocks-Sand Point Shoreline Restoration, Marquette Lakeshore Shoreline Restoration projects and conducted a Coastal Analysis and evaluation of design repairs to the Lutsen intake. Dan will periodically be in Duluth during key meetings and construction progress meetings.

Scott Weyandt, PWS, will be the Assistant Project Manager and local point of contact with the City. Scott has over 30 years of experience providing services to Duluth and Superior clients ranging from Coastal assessments to shoreline stabilization, design, and permitting and construction administration. Scott will lead the construction administration services and repairs to the City infrastructure, regulatory permitting, and will attend regular progress meetings with the City representatives.

TRC will provide the overall project management, Coastal analysis and design, lead the regulatory coordination, prepare the construction documents, and lead the construction administration phase. Dan and Scott will be assisted by other registered engineers and staff personnel, including Civil3D drafters.

2.2 AMI Consulting Engineers, PA

First founded in 2006, AMI provides a range of professional services, including Marine Civil and Structural Engineering, Surveying and Underwater Investigation. In the Duluth area, among others, AMI designed the Pier B Resort, DECC Bayfront, and the Hallett Dock 5& 8 in Superior. AMI will work closely with TRC, providing survey, underwater investigation, structural design services and periodic construction observations.



Chad Scott, PE, has over 20 years of experience as a Marine Civil Engineer, and co-founded AMI with Craig Jouppi, SE, PE. Chad has managed numerous projects in the Duluth area, will coordinate all work for AMI, working closely with Dan and Scott.

Craig Jouppi, SE, PE, has over 20 years of experience as a Marine Structural Engineer, and lead the design on numerous local projects ranging from heavy marine structures to industrial buildings and bridges.

Chase Dewhirst, PE, has over 10 years of experience as a Marine Civil Engineer, and assisted with marine design services to many local projects.

Seth Johnson, PE, has over 18 years of experience as a Hydrographic Surveyor, and collected bathymetric survey data for numerous regional projects.

2.3 AECOM

Chris Reed, PhD from AECOM has over 30 years of experience as a Coastal Scientist. Chris is one of the national leaders in numerical modeling development, and created, or co-authored several software packages authorized by the Federal Government to us on Coastal projects. Chris will work closely with Dan to refine the preliminary Coastal analysis and validate the selected Coastal conditions for the repairs.



2.4 Resolution Studio

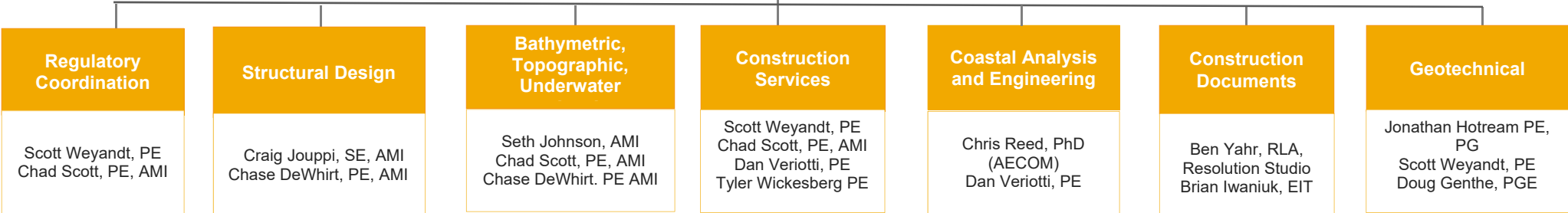
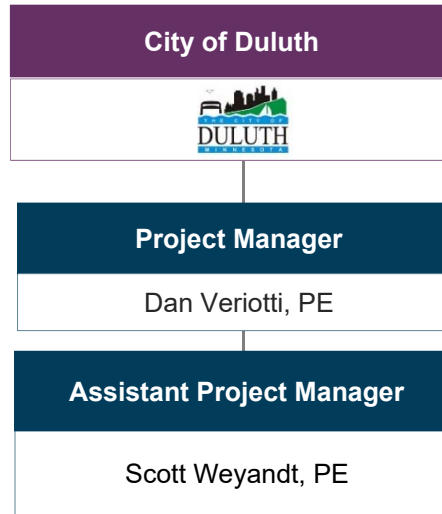
First founded in 2016, Resolution Studio, LLC, provides creative design and project management support for waterfront projects, public access, park and open space planning and design for projects throughout the Great Lakes areas.



Ben Yahr, RLA, has over 13 years of experience with site design, preparation of construction plans and specifications, and regulatory compliance. Ben worked on numerous Coastal restoration and Waterfront projects around the Great Lakes. Ben is a licensed pilot for collecting aerial survey with advanced technology and capabilities. Ben will provide landscape architecture services and assist with the construction documents.

An Organizational Chart is presented below, while abbreviated 1-page resumes are provided in Appendix A.

ORGANIZATION CHART



3.0 Project Scope

3.1 Kickoff Meeting and Site Inspection

A project kick-off meeting with the City will be conducted to verify/clarify the scope of services, schedule, and to confirm goals and objectives for the project. Following the project kick-off meeting, the project team will conduct a site visit to document any significant changes that may have occurred after the last project site inspection in December 2017.

We are proposing a detailed materials field investigation to measure the existing Canal Park and Lakewalk revetment stone, review quality, and calculate (to the practical extent possible) the stone quantity and sizes that may be reused in the final revetment design phase. We will inventory (to the extent possible) the boardwalk materials and quantity that can be re-used in the final design, especially the decking materials. This investigation will likely result in potential construction cost savings.

We have budgeted one (1) on-site meeting with the client to discuss our findings. We have included representatives from TRC, AMI and Resolution Studio to participate in this meeting and site inspection.

3.2 Data Review

Our project team has extensive knowledge of the project area. We will review all new data available; of particular interest will be soil borings along Canal Park and the Lakewalk. We will review any sediment sampling and analysis, soil borings, and any other reports provided to TRC, if relevant. At this point, we believe there is sufficient information and that new borings will not be needed. We will advise the City if we find otherwise during our review.

3.3 Field Data Collection

3.3.1 Bathymetric and Topographic Survey

A bathymetric survey will be performed, collecting data at 200-foot cross-section along Canal Park and Lakewalk, and extending a minimum 500 feet offshore. Additional soundings by hand held survey rod will be collected in shallow areas that are inaccessible by boat. In areas with less than 3 feet of water depth, topographic survey by conventional methods will be used. Specifically:

- A topographic survey will be performed along Canal Park, from Sta +00 to Sta 31+38, from the landscaped areas to the shoreline, along transects every 200 feet. The survey along transects will be extended in the water by wading survey, to provide overlap with the bathymetric data.
- A topographic survey will also be performed along the Lakewalk, at selected erosion areas located between Sta +00 and Sta 110+00, identified in the Shoreline Assessment Study.
- Approximately 1,200 feet of shoreline will be surveyed along the Scenic Railway, to include the rail bed and shoreline.

3.3.2 Underwater Investigation

As indicated in the Shoreline Assessment Study, one key element necessary to successfully restore the Canal Park revetment is the condition of the structure toe. We anticipate that a significant quantity of stone was displaced at the toe. Our team will employ divers to document the toe condition, using visual inspection, underwater camera, video and measurements. We will also collect several surficial grab samples for lake bottom material visual characterization.

The Steel Sheet Pile area (Lakewalk Sta 5+00) will also be investigated, to document the stone fill and the toe of the wall.

3.4 Coastal Analysis

The design of a shoreline protection structure requires a thorough understanding of the wave climate, water levels and ice conditions at the site. A preliminary Coastal analysis was performed for the Shoreline Assessment Study, but will be refined as follows:

- Verify the water levels and hindcast offshore waves as a function of return period;
- Review the collected survey nearshore bathymetry, coupled with the NOAA (National Oceanic Atmospheric Administration) offshore bathymetry;
- Include NOAA average and extreme ice conditions;
- Risk is defined as the probability that a given design event (e.g., a specified combination of monthly mean water level, storm surge and wave height) will be reached or exceeded at least once during the project life. The level of risk and required structure design life are parameters established/accepted by the Client. Once the risk and design life are established, the resulting return period event can be determined for final design. The storm return period of the design event is a function of the specified risk and project life.
- A numerical analysis (computer modeling) will be used to transform the offshore waves to the toe of the Canal Park and Lakewalk revetments. The wave transformation will employ a numerical model to propagate the offshore waves from the wave hindcast data of the USACE Wave Information Studies (WIS) Station 95259 to the shoreline, to account for refraction and shoaling. The analysis will use multiple nested wave model grids to efficiently resolve nearshore features and wave direction. The modeling analysis will be completed using the USACE maintained STWAVE model (STWAVE, 2008) or a similar model to be selected by our team.
- The wave data at the offshore hindcast locations will be organized into discrete bins representing the range of wave heights, periods and directions. The wave conditions simulated at the shoreline for each bin will be used to transform the entire historical time series to conditions at the shoreline.
- A return period analysis will be conducted on the transformed waves to determine the design wave for the revetment and designs.

- The wave transformation analysis will include the impact of ice formations on the waves in the nearshore. Ice formations at the shoreline will prevent waves from impacting the shoreline and therefore will impact return period analysis. The historic ice coverage data developed by the Great Lakes Environmental Research Laboratory (GLERL) will be obtained and used for the analysis.
- The presence of ice will also be included in the development of the revetment design and stone sizing. The analysis will include a review/research of the suggested revetment design for ice load conditions, from existing literature such as Sodhi (Ice Action on Riprap, 1996) based on model testing.
- The stone sizing requirements for protection against surge and waves is often lower than those needed to withstand dynamic ice forces. A data search will be conducted to acquire, if available, ice thickness data for Lake Superior. GLERL is currently developing an ice thickness model for developing ice thickness forecasts and hindcast. It is likely that this effort includes a compilation of historical measured ice data, which can be used as guidance for selecting the design ice thickness.
- After the numerical analysis creates the wave characteristics at the toe of the revetment and the ice conditions are defined, we will calculate the following for the Canal Park selected design condition:
 - Required median armor stone size D50 and armor stone layer size range;
 - Structure slope, crest and width, transition requirements from two layers to one close to the boardwalk;
 - Required gradation for the core and filter stone. We will compare these sizes with the site materials investigation findings on the existing sizes and material quality, to maximize the use of the existing materials.
 - Based on our practical experience, we will conduct a materials search at regional quarries and inquire about the quantity of available armor stone and sizes. We find that sometimes, a different (larger) size range is available at a lower cost, and we can incorporate this in the development of cross-sections for construction cost savings;
 - Numerous empirical methods for predicting overtopping of rubblemound structures have been published for varying slopes and crest configurations. In general, the structure freeboard (vertical distance from crest to still water level) is the most important design factor with respect to wave overtopping. We will calculate the overtopping rates associated with a range of alternative cross-sections during the selected extreme storm events and assess the structure crest elevation and conditions at the boardwalk location.
- We will perform a similar set of design calculation for the Lakewalk, for selecting a new revetment geometry and the required stone sizes, which will be compared against the field inventory;
- Our team's practical expertise with similar projects will be leveraged to the maximum extent, to create the project required Coastal cross-sections.

3.5 Geotechnical Analysis and Considerations

Based on the current geotechnical data which we have assumed to be sufficient for our project, we will evaluate the requirements for the Lakewalk stable bluff slope and stone revetment geometry, slope regrading, materials and construction phasing to provide a stable slope and a revetment that will protect the new rebuilt boardwalk. We will also review all available data in the estuary and assess fill alternatives. Based on all the information we currently have, we do not expect any structure settlement (Canal Park and Lakewalk).

3.6 Design Development

In the Design Development phase, we will conduct a Value Engineering study based on the Coastal analysis, materials search and field investigation findings. We will prepare refined construction cost estimates, summarize alternatives with advantages and disadvantages, and discuss them with the City for the selection of the final design alternatives. The main items to address in this task are:

- Optimized Canal Park revetment cross-section, slope, crest elevation and width;
- Structural concrete wall requirements (thickness, depth, elevation) for the boardwalk and alignment;
- Boardwalk design details; elevation, gravel base, drainage alternatives through the concrete wall;
- Lakewalk revetment, bluff restoration alternatives (vertical wall with stone toe armoring versus stone revetment);
- Outfall and erosion area repairs (bluff reinforcing, toe protection, new revetments, etc).
- SSP repairs;
- Railroad shoreline restoration alternatives;
- Public access potential improvements and other amenities/trail uses.

We will also conduct a Constructability Study to identify marine (from a barge) versus land-based (from the revetment with choke stone causeway) construction, contractor staging, and phasing. A construction methodology (equipment, sequencing, site access, and staging) will be developed to provide a buildable design. We will identify opportunities for Canal Park material offloading from a barge (such as using the north jetty for mooring and land-based material transfer). We will provide a summary of construction-related items such as: equipment requirements and current means of material placing.

3.7 Regulatory Coordination

TRC will develop a permit application package and submit this document to the regulatory agencies that have jurisdiction. The permit application package will include the level of design detail that the agencies will need to consider for permit application approval.

We will attend an early coordination meeting (pre-application) with the MDNR, MPCA, and USACE to determine the level of documentation and effort for the permit applications. We will prepare the permit filled out forms and a summary permit report, including justification for the proposed repairs, methodology, alternatives considered and the final design alternatives selected for implementation.

We will coordinate a post application meeting to respond to agency inquiries for additional information and application clarifications.

We have budgeted a total of two meetings be attended by Scott Weyandt and Chad Scott, and a total of 140 hours for the permit applications, report and drawings.

There are some unknowns regarding how the regulatory agencies will perceive the proposed repairs, and which portions of the project are not subject to State and Federal permitting, as they are above the Ordinary High Water Mark (OHWM). We propose to bill any tasks and additional effort required to address the regulatory agencies questions and concerns exceeding the 140 hours on a Time and Materials basis (T&M) at our standard 2018 hourly rates-see Attachment 2.

3.8 Construction Documents

TRC will develop the construction documents ready for contractor bidding, to include the following:

- Construction drawing preparation with an updated and detailed Engineering Opinion of Probable Construction Cost;
- Prepare technical specifications and include supplementary contract conditions not part of the Construction Drawings or in the City of Duluth front end bid and construction documents. Also prepare a project description and bid sheet for the bid documents. We assume that the City of Duluth will provide the front end construction contract documents. We will review these documents to help develop our Plans and Specifications to be compatible.

It is anticipated that the construction drawings will include, at a minimum, 57 sheets, with Cover, Key Notes/Legend and the following as shown in the table below:

Table. Construction Drawings Index Sheet

Canal Park	Lakewalk South
Existing Conditions/Stationing	Existing Conditions/Stationing
Overall Plan	Overall Plan
Demolition Plan /Staging	Demolition Plan /Staging
Erosion Control	Erosion Control
West Site Civil/ Grading Plan	South Site Civil/ Grading Plan
East Site Civil/Grading Plan	North Site Civil/Grading Plan
West Landscaping	South Landscaping
East Landscaping	North Landscaping
Coastal Details	Coastal Details
Civil Details	Civil Details
Stormwater Details	Stormwater Details
Landscaping Details	Landscaping Details
	Existing Conditions/Stationing
Lakewalk North	North Shore
Existing Conditions/Stationing	Existing Conditions/Stationing
Overall Plan	Overall Plan
Demolition Plan /Staging	Demolition Plan /Staging
Erosion Control	Erosion Control
South Site Civil/ Grading Plan	South Site Civil/ Grading Plan
North Site Civil/Grading Plan	North Site Civil/Grading Plan
South Landscaping	Coastal Details
North Landscaping	Civil Details
Coastal Details	Stormwater Details
Civil Details	
Stormwater Details	
Landscaping Details	

TRC will attend up to three (3) meetings with the City, to discuss project progress and items with input needed at 50%, 75% and 90% document completion. Dan Veriotti, Scott Weyandt and Chad Scott will attend the meetings.

The project deliverables will include the following:

- Bid ready construction documents (1 hard copy and digital set);
- Copies of permit applications and permitting reports;
- Construction Cost Estimates and milestones;

- List of qualified contractors.

3.9 Bid Phase Services

TRC will provide the following services:

- Request for Clarification (RFC);
- Preparation of addenda if needed;
- Attendance at pre-bid meeting;
- Attendance at bid opening;
- Evaluation of the bids and written recommendation for contract award.

3.10 Construction Phase Services

TRC will provide weekly construction observation services, assuming a 6-month (24-week) total construction schedule:

- Attend a pre-construction meeting;
- Inspect test revetment sections built by contractor for construction drawings conformance;
- Provide responses and clarifications to Contractor questions;
- Evaluate Contractor request for Charge Orders;
- Preparation of Change Orders, if approved;
- Periodic observation of the Work (up to 2 visits per week, 20 hours per week, total 48 visits, and 480 hours);
- Weekly construction progress report, 2 hours per week, and 48 hours)
- One visit to the stone quarry to inspect the stone quality;
- Participation in construction progress meetings coinciding with the weekly site visits;
- Review and recommendation of approval or denial of the Contractor's Requests for Payment.
- The performance of a walk-through and preparation of a punch list upon the Contractor's request for a determination of Substantial Completion.
- A determination of completion and recommendation for final payment upon satisfaction of the project punch list and completion of all Work.
- Project close-out.

As-built conditions will be provided by the AMI conventional survey of the Lakewalk, and Resolution Studio of the Canal Park (aerial survey).

We assume that our team will develop a Request for Proposal (RFP) to identify a Construction Manager (CM) overseeing the work full-time. Our team will perform periodic construction observations and participate in weekly progress meetings with the CM. Alternatively, our team can perform the CM responsibilities and be on-site full time during the construction.

4.0 Proposed Fees and Schedule

4.1 Fees

Our team will complete all services described in this proposal for LSUM of \$498,388.00, including all direct work and associated expenses. The following table summarizes the cost breakdown by task:

Item	Fee
3.1 Kick Off Meeting, Site Inspection (TRC, AMI, Resolution)	\$9,298
3.2 Data Review (TRC, AMI)	\$3,607
3.3 Field Data Collection (AMI)	\$40,956
3.4 Coastal Analysis (TRC, AECOM)	\$44,513
3.5 Geotechnical Considerations (TRC)	\$5,843
3.6 Design Development (TRC, AMI, Resolution)	\$132,158
3.7 Regulatory Coordination (TRC, AMI)	\$17,505
3.8 Construction Documents (TRC, AMI, Resolution)	\$107,103
3.9 Bid Phase (TRC, AMI)	\$11,488
3.10 Construction Phase (TRC, AMI)	\$125,917
Total	\$498,388

4.2 Schedule

Our team can start work immediately after the Notice to Proceed; depending on the regulatory coordination outcomes, there are two possible implementation scenarios:

- A. Project bid and construction in summer 2018 for fall completion of select projects. We will find out what parts of the projects can be implemented right away with no, (or minimal) permit review and requirements, during the early coordination meetings with the regulatory agencies and provide a schedule for it.
- B. Project design in summer 2018 and bid December 2018 for summer 2019 construction completion.

The following is a tentative deadline schedule, for the project main tasks assuming Scenario B:

<u>Task</u>	<u>Estimated Completion*</u>
1. Kick Off Meeting	April 2018
2. Field Data Collection	May 2018
3. Coastal Analysis	June 2018

<u>Task</u>	<u>Estimated Completion*</u>
4. Design Development	September 2018
5. Construction Documents	November 2018
6. Bidding Phase (<i>Advertise for Bids/Contact Contractors, Bid Period, Contract Award</i>)	December 2018
7. Construction Phase Services	June 2019

**Note: the proposed schedule is dependent upon securing all regulatory permitting approvals. We will monitor the permit process closely, and inform the City of necessary schedule revisions.*

4.3 Assumptions

The following is a list of assumptions used for the development of this proposal:

- Soil borings are not required;
- Schedule for data collection is weather dependent;
- Boundary or legal surveys are not required;
- Coordination meetings with the City personnel will be local;
- Permitting fees are not included; and
- McQuade Harbor repairs are not included in the contract. Our team can provide the design services for the Harbor if required.



Attachment 1
Resumes



Dan Veriotti, PE
PPL Practice Lead

AREAS OF EXPERTISE

- Site Investigations
- Data Collection
- Numerical Analysis
- Regulatory Coordination
- Design Development
- Bidding/Construction Administration

Dan Veriotti has over twenty years of project management experience with feasibility studies/master planning, coastal and water resources engineering (surface and groundwater), environmental remediation studies; wetlands; waterfront design development for marinas, harbors, shoreline protection structures, and beaches; technical studies (coastal processes, river hydraulics); data collection; structural analysis; regulatory coordination; and construction administration. Developed strategic partnerships and working relationships with federal (USACE-Chicago, Buffalo, and Detroit) and state agencies, and public and private clients, as well as other private consulting firms. Led multi-disciplinary teams for complex projects throughout the Great Lakes, Mississippi River, and various inland lakes, as well as Singapore, Shanghai, and Malaysia.

Education/Training

- M.Sc., Coastal Engineering, University of Michigan
- M.Sc., Water Resources Engineering-Coastal Hydraulics, University of Michigan

CREDENTIALS

Professional Registrations/Certifications

- Professional Engineer – MN, IL OH, WI, IN, PA, MI, IA

PROJECT EXPERIENCE

Coastal/Marine Engineering

Shoreline Storm Damage Assessment Study – Duluth, MN. Project Manager and lead principal engineer for data collection (field investigation, aerial survey), site assessment for the Coastal structures, Coastal analysis, and formulation of near-term and long-term alternatives for repair with construction cost estimates.

North Lake Shore Drive Phase I Engineering Study – Chicago, IL. Project Manager for data collection (in-situ long-term wave height, direction and current), technical analysis (water levels, wave climate, sediment transport and Coastal flooding) and Coastal Engineering-design development for a 1-mile shoreline segment between Grand and North Avenue. The project will reduce Coastal flooding and provide new beach recreational opportunities.

Illinois Interim Erosion Study V, Coastal Zone Management (INDNR, USACE-Chicago) – IL Project Manager for data collection over 22 miles of shoreline (Wilmette to Waukegan Harbor), performing structure inventory, classification, coastal analysis-FEPS, risk assessment, and feasibility/economic analysis of implementing a Coastal Protection Plan on a large scale. Coastal calculations, development of structures, beach nourishment, and construction cost estimates.

Rosewood Beach (USACE Chicago and the Park District of Highland Park) – Highland Park, IL Project Manager for data collection, detailed numerical analysis (shoreline evolution, water levels, wave climate, and sediment transport) and final design development of project layout (general arrangement plan, breakwaters, beach fill, and cross-sections) and detailed coastal analysis. The project provides a stable shoreline and ecosystem habitat restoration (both land and water-based). The project was funded by the Great Lakes Fishery and Ecosystem Restoration (GLFER).

Racine Harbor Coastal Monitoring – Racine, WI. Project Manager and lead principal engineer for data collection (topographic, bathymetric and aerial survey), site assessment for the Coastal structures, underwater investigation, computer analysis of cross-sections, volumetric calculations for accretion/erosion, and alternative formulation for repairs with construction cost estimates. Environmental Assessment of the existing water quality, terrestrial and aquatic habitat. Feasibility study for partial small harbor fill to create new habitat used dredged material.

SCOTT WEYANDT, PE

EDUCATION

M.S., Civil Engineering (Water Resources and Geotechnical), Michigan Technological University, 2000

B.S., Civil Engineering, Michigan Technological University, 1984

PROFESSIONAL REGISTRATIONS/CERTIFICATIONS

Professional Engineer, Wisconsin, (E-27245), 1990

Professional Engineer, Minnesota, (25602), 1997

REPRESENTATIVE EXPERIENCE

Mr. Scott Weyandt has served as a Project and Client Service Manager on a diverse range of projects, and has more than 30 years of experience in municipal, transportation, natural resource, and water resource engineering. His specialties include regulatory compliance, water resource designs and policy development, environmental permitting for complex projects, large-scale urban and rural highway design and construction development.

City of Superior, Wisconsin Point Shoreline Restoration and Recreation Area Improvements – WI (Project Manager: 2017)

Wisconsin Point and Minnesota Point combine to form the longest freshwater sandbar in the world. The road leading to Wisconsin Point is in a state of disrepair, the beach accesses are damaging the dunes, and invasive species dominate portions of the landscape. Recent storm events have threatened the stability of the bayside shoreline and access road. As part of a grant, teamed with TKDA, provided conceptual engineering and analysis to consolidate access and parking, add park amenities at each access point, provide non-destructive access from the parking areas over the dunes to the beach, and to remove invasive species. Grant funding was acquired to provide final design based on this work, and final design is commencing. As a separate project and in conjunction with the improvements above, developed a living shoreline concept in lieu of pure hardscape to stabilize the storm induced damage on the bay side of Wisconsin Point. This was funded and coordinated with FEMA and the City of Superior.

Wisconsin DOT, Belknap Street Final Design – Superior, WI (Senior Design Engineer: 2013 – 2017)

The project involved final design of this \$22 million urban reconstruction job in Superior, Wisconsin. Mr. Weyandt represented the final design team at project meetings, public meetings, and with businesses and residents. His functioned as the local on-site design team representative and met directly with landowners to finalize design plans and obtain construction/maintenance permits for site and landscape improvements. Mr. Weyandt performed QA/QC functions and assisted with final PS&E.

City of Superior, FEMA Project Assistance – WI (Project Manager: 2016 – 2017)

Mr. Weyandt assisted the City of Superior with damage assessment, estimation, construction administration, and reporting information in response to the storms of 2012 and 2016. Sites included surcharged combined sewer damage at various locations and roadway/culvert damage to 28th Street, Wisconsin Point Road, 58th Street, and Marina Drive.

City of Superior, Design Submittal Standards, Standard Details, and Inspection Standard Development – WI (Senior Engineer: 2016 – 2017)

Mr. Weyandt was responsible for the development of standards and details for roadway, storm sewer, sanitary sewer, and erosion control/sediment control. The work included coordinating between departments, assessing existing standards, and developing new documents and procedures.

TYLER WICKESBERG, PE

EDUCATION

BS., Chemical Engineering, Illinois Institute of Technology, Chicago, IL, 2003 B.S., Environmental Engineering, Illinois Institute of Technology, Chicago, IL, 2003

PROFESSIONAL REGISTRATIONS/CERTIFICATIONS

Licensed Professional Environmental Engineer, IL (#062.067618), MN (#53996) Minnesota Construction SWPPP Designer Certification

AREAS OF EXPERTISE

- Civil Design
- Stormwater Drainage
- Construction Documents
- Construction Administration

REPRESENTATIVE EXPERIENCE

Mr. Wickesberg has over 14 years of experience providing a variety of reporting (SWPPP, SPCC, FRP, emission reporting and plans); litigation support and environmental database/document research; emergency spill/incident response; civil design and earthwork contractor oversight for railroad yard improvements; storm water and industrial process sewer system assessments for Class 1 railroad yards; health and safety field oversight; and technical writing, invoicing, and proposal and budget preparation. Mr. Wickesberg has worked for clients in the rail, oil and gas, energy, transportation, legal, and financial industries.

BNSF Logistics Park Chicago Facility, Redesign of Primary Storm Water Drainage Ditch – Elwood, IL (2016)

Served as project manager for the design of a 7,500-foot long storm water drainage ditch to reestablish conveyance to outfall structures and allow for the facility oil water separator to drain properly. The ditch design included regrading, soil characterization and excess soil management evaluation, and geocell installation with a combination of rock and grout infill for erosion control. Tasks associated with this project included completing a topographic survey of existing conditions, coordinating with BNSF Engineering on design submittals and project direction, participate in a contractor bid walk and selection process, and review of contractor submittals.

Client Confidential, Industrial Wastewater System Evaluation Program – Council Bluffs, IA (2016)

Served as project manager to evaluate the condition of a Class I railroad yard's industrial wastewater system (IWWS) infrastructure and provide design recommendations to limit storm water infiltration. This evaluation included overseeing a topographic survey of the IWWS area and infrastructure, review of client-supplied design and as-built drawings, storm water modeling, and assessment of wastewater treatment plant system components.

Union Pacific Distribution Services, Laydown Yard Site Plan Development and Storm Water Permitting – Carlisle, IA (2017)

Served as primary field services manager and project coordinator during design and permitting phases of a wind turbine component laydown yard development project. Assisted with developing railroad siding track design plans for construction, contractor oversight, environmental site assessment, surveying, and storm water management activities associated with the site. Interfaced with client, municipal, and 3rd party stakeholders during site plan development and approval process with the City of Carlisle. Provided construction contractor oversight services as required during critical phases of project work (utility crossings, storm water pond construction, etc).

JONATHAN “FINN” N. HOTSTREAM, PE, PG

EDUCATION

M.S., Geological Engineering – University of Wisconsin-Madison, 2011

B.S., Geology – Louisiana State University, 2007

B.S., Civil Engineering – Louisiana State University, 2006

PROFESSIONAL REGISTRATIONS/CERTIFICATIONS

Professional Engineer – Texas (#125898), Wisconsin (#42745-6)

Professional Geologist – Wisconsin (#1303-13)

AREAS OF EXPERTISE

- Geotechnical subsurface explorations
- In-situ testing, especially CPT
- Subsurface characterization
- Slope stability analysis
- Settlement analysis

REPRESENTATIVE EXPERIENCE

Mr. Hotstream (Finn) leads the Geo-Environmental and Civil Engineering service unit engineering team in delivering geotechnical and civil engineering services, and provides coordination support for TRC's Geotechnical Testing Laboratory.

U.S. Army Corps of Engineers, Southeast Louisiana Hurricane Protection System – LA (Geotechnical Engineer: 2007 - 2010)

Worked on several projects for the design of the Southeast Louisiana Hurricane Protection System. These projects included alternative studies to recommend protection systems considering feasibility, cost, and construction schedule. Projects include Sector Gate South Engineering Alternatives Report, Engineering Alternative Report for St. Bernard Hurricane Protection System, Final Plans and Specifications for St. Bernard Parish Floodwalls, and Hero to Oakville Engineering Alternatives Study. Supported the effort by performing geotechnical design for levees, floodwalls, and pump stations. In addition, performed a 6-month embedment in the USACE New Orleans District office, providing on-site geotechnical engineering services.

U.S. Army Corps of Engineers, Central and Southern Florida Project Periodic Inspection – Lake Okeechobee, FL (Geotechnical Engineer: 2012)

Worked on a team of engineers to perform a periodic inspection of the Central and Southern Florida Project, including the levees and control structures surrounding the St. Lucie Canal. The inspection included a review of the geotechnical design components to determine if the design met current requirements, and a field inspection along the system. Conditions were documented in the field using the U.S. Army Corps of Engineers inspection software. Deliverables included a report summarizing the observations and a determination of the system conditions.

DOUGLAS R. GENTHE, P.E., D.GE

EDUCATION

M.S., Civil and Environmental Engineering (Geotechnical Engineering), University of Wisconsin - Madison, 1993; *Thesis: Shear Strength of Two Pulp and Paper Mill Sludge with Low Solids Content*

B.S., Civil Engineering, University of Wisconsin - Platteville, 1986

PROFESSIONAL REGISTRATIONS/CERTIFICATIONS

Diplomate, Geotechnical Engineering (D.GE) – The Academy of Geo-Professionals
Registered Professional Engineer – Alabama, Arizona, Connecticut, Illinois, Iowa, Michigan, Minnesota, Missouri, New Mexico, New York, Ohio, Rhode Island, and Wisconsin

Certified in radiation safety and the use of nuclear soil gauges

AREAS OF EXPERTISE

- Geotechnical engineering
- Permitting, design, and construction

REPRESENTATIVE EXPERIENCE

Mr. Genthe has 30 years of project management and lead design experience in civil and environmental engineering, with particular emphasis in geotechnical engineering relative to the permitting, design, and construction of various projects.

As unit practice leader of the Geo-Environmental and Civil Engineering unit for TRC's environmental business, he manages the overall delivery operations and leads the business development activities in the geotechnical and solid waste management service offerings. His technical responsibilities have ranged from initial field investigations through final design and construction, including the development of work plans, feasibility studies, permit applications, conceptual and final designs, operating plans, cost estimates, construction plans, bid documents, and project manuals; regulatory liaison; public relations; expert testimony; forensic engineering; and the preparation of construction quality assurance documents, closure plans, and construction observation and documentation reports for municipal, industrial, and hazardous waste landfills.

Doug has served as a project manager, a professional engineer of record, an office/review engineer, a technical coordinator, a lead design engineer, and a resident construction engineer.

Developed permit applications, plans of operation, construction plans and specifications, construction cost estimates, contingency plans, construction quality assurance plans, and closure plans (including field-scale test plots).



Brian Iwaniuk, EIT
Civil & Water Resources Engineer
Chicago Office

AREAS OF EXPERTISE

- Site Investigation
- Data Collection
- Numerical Analysis
- Regulatory Coordination
- Design Development
- Plan Preparation
- AutoCAD Civil 3D

Brian has three years of civil engineering experience with experience in all aspects of commercial site design. Particularly, Brian has worked on projects with renewable energy, water resources engineering (surface and groundwater), erosion and sediment control, site planning and development, regulatory coordination, and construction administration elements. Prepared construction plans and specifications for various projects.

Education/Training

- B. Sc., Civil Engineering, The University of Iowa

Licenses

Engineer in Training – IL

Renewable Energy

Microgrid Energy, Chicago, IL. Project Engineer for Site/Civil Engineering design and Stormwater management plans, for various sites in Illinois.

Cypress Creek Renewables-IL. Site planning and conceptual design for various sites in Illinois, for SUP (Special Use Permit) applications.

Site Development, Design, Regulatory Permitting and Construction Administration

Sandusky Promenade – Private Client

Project Engineer

Part of a multi-disciplinary team for a commercial site development project located in Sandusky, OH. Performed stormwater runoff analysis, takeoff calculations, final design, regulatory permitting coordination, cost estimation, and SWPP plan preparation for a 12-acre commercial retail project with associated site grading, parking, and stormwater management. Also as part of the project, Brian prepared construction document permit sets for proposed roadway improvements and coordinated permitting approval with ODOT.

Private School Development – Private Client

Project Engineer

Commercial site development project located in Lincolnshire, IL. Performed and coordinated stormwater runoff analysis, wetland delineation permitting, and erosion and sediment control plan design for exceedingly stringent local and County agency requirements. Led construction administration efforts on behalf of the client, ensuring compliance with strict regulatory agency requirements.

Commercial Site Development Projects – Various Midwest Locations (10+)

Project Engineer

Various sites involving stormwater runoff analysis, earthwork takeoff analysis, SWPP plan preparation, cost estimation, and permitting coordination.

CHAD W. SCOTT, PE, – PRINCIPAL; MARINE ENGINEERING DEPARTMENT MANAGER



PROFESSIONAL EXPERIENCE

- 20+ Years' Engineering Experience
- 8 Years' Military Experience
- AMI Principal

EDUCATION

Bachelor of Civil Engineering,
University of Colorado

REGISTERED PROFESSIONAL ENGINEER

Minnesota, Wisconsin,
Michigan, Louisiana, Ohio, and
Indiana

CERTIFICATION

- Association of Diving Contractors
- International Surface Supplied Air Diving Supervisor #812
- AWS Weld Inspector D1.1/D3.6
- NDT Ultrasonic, MP, DP
- LPR Corrosion

ADDITIONAL COURSES

- "Safety Inspection of In-Service Bridges"
- NHI "Underwater Bridge Inspection"
- Divers Academy of the Eastern Seaboard

PRIMARY OFFICE LOCATION

Superior, WI

Mr. Scott is founding partner of AMI Consulting Engineers and an experienced Marine Civil Engineer. He has been formally trained in a wide variety of Civil, Structural, Industrial, Mechanical, Ocean and Marine engineering services. He has a strong background in Commercial and Industrial Construction which aids his ability to plan practical and efficient designs.

Mr. Scott's specialty and expertise is focused in Marine Civil Engineering, which encompasses the planning, design and construction of fixed and stationary moored floating structures along the coastlines, Great Lakes and Inland River Systems. His unique knowledge has made him an invaluable resource to both government and private sector developers in conducting feasibility determinations for critical potential projects, as well as designing and completing projects of all scales. By leveraging his diversity of experience and his passion for Marine Engineering, Mr. Scott has helped shape AMI into one of the leading maritime engineering firms in the Great Lakes Region.

As co-owner of AMI, Mr. Scott believes that the company's future growth and success rely on a customer-focused business model and the cultivation of long-lasting business relationships. As AMI continues to expand its full-service capabilities and expertise, clients continue to receive a commitment of a high standard of excellence while retaining the small company culture and values that have defined AMI for over a decade.

CURRENT AND NOTABLE PROJECT EXPERIENCE

PIER B RESORT; Duluth, MN

ARROWHEAD FISHING PIER & FACILITY RENOVATIONS – CITY OF SUPERIOR; Superior, WI

FRASER SHIPYARDS – PHASES I-III DESIGN SPECS and DRAWINGS of SHEET PILE DOCK STRUCTURES – CITY OF SUPERIOR; Superior, WI

BARKER'S ISLAND MARINA UPGRADES – CITY OF SUPERIOR; Superior, WI

HALLET 5 & 8 DOCK MARINE FACILITY UPGRADE – CITY OF SUPERIOR; Superior, WI

HAITI CONTAINER PORT – GB GROUP; Port Lafiteau, Haiti

DECC BAYFRONT DOCK WALL DESIGN; Duluth, MN

SANDY HOOK FERRY LANDING – NATIONAL PARK SERVICE; Sandy Hook, NJ

TRANSIENT BOAT FACILITY - DEDA & MINNESOTA DNR; Duluth, MN

ASHLAND MARINA - CITY OF ASHLAND; Ashland, WI

DELTA & OUTFALL INSPECTION (wave action & littoral drift analysis) – NSM; Silver Bay, MN

WI SUPERIOR
715.718.2193

MN TWIN CITIES
651.337.9259

IRON RANGE
218.749.3436

 **AMI**
AMlengineers.com



PROFESSIONAL EXPERIENCE

20+ Years' of Experience
AMI Principal

EDUCATION

Bachelor of Science in Civil Engineering, North Dakota State University, 1997

REGISTERED STRUCTURAL & PROFESSIONAL ENGINEER

Minnesota, Wisconsin, Michigan, Florida, Illinois, Virginia, Alabama, New Jersey, South Dakota, North Dakota, Texas, Missouri, Kansas, Iowa, North Carolina, Arkansas, Georgia, South Carolina, Maryland, Nebraska, Pennsylvania, Kentucky, Oklahoma

MEMBERSHIPS

- Timber Framers' Guild
- American Institute of Steel Construction (AISC)

CERTIFICATION

- Association of Diving Contractors International Tender/ Diver #7053

ADDITIONAL COURSES

- NHI Course No. 130091, "Underwater Bridge Inspection"

PRIMARY OFFICE LOCATION

Superior, WI

CRAIG JOUPPI PE, SE— PRINCIPAL STRUCTURAL DEPARTMENT MANAGER

As a founder and partner of AMI Consulting Engineers, PA, Mr. Jouppi has over 20 years of experience in detailed analysis and design of critical structures ranging from industrial buildings and bridges to heavy marine structures. His ability to utilize state-of-the-art analysis programs to assess structures provides AMI with the ability to complete projects with a high degree of accuracy and efficiency in both seismic and non-seismic zones. He practices due diligence in staying up-to-date on code revisions, allowing timeliness and efficient project progress and completion. Mr. Jouppi believes in good leadership, strong project management and continuous quality assurance and control of all AMI projects. Mr. Jouppi's skill set extends to other engineering positions such as project management, detailed design, condition assessment, inspection and forensic assessments.

Mr. Jouppi believes that as an owner of AMI, honesty, integrity, continued education and professional development set AMI apart from other engineering firms. As AMI continues to expand its full-service capabilities and expertise, clients continue to receive a commitment of a high standard of excellence while retaining the small company culture and values that have defined AMI for over a decade.

CURRENT AND NOTABLE PROJECT EXPERIENCE

CITY OF BUFFALO GOVERNMENT CENTER; Buffalo, MN

CITY OF BUFFALO MAINTENANCE FACILITY; Buffalo, MN

BECKER FIRE HALL; Becker, MN

WASHBURN COUNTY HIGHWAY MAINTENANCE FACILITY; Spooner, WI

HAWKSBOOTS MANUFACTURING FACILITY; Duluth, MN

SAUK RAPIDS PUBLIC WORKS; Sauk Rapids, MN

CITY OF CHETEK PUBLIC WORKS; Chetek, WI

ESSAR MES MAINTENANCE FACILITY; Hibbing, MN

TRUCK AND EQUIPMENT WASH BUILDING – NORTHSHORE MINING; Babbitt, MN

LAKE STATES LUMBER; Duluth, MN

PIER B RESORT HOTEL DEVELOPMENT; Duluth, MN

MIN NO AYA WIN HUMAN SERVICE CENTER; Fond du Lac Band of Lake Superior
Chippewa

EDGEWATER HOTEL & WATER PARK ADDITION; Duluth, MN

VERMILLION FAMILY WELLNESS CENTER; Lake Vermillion, MN

HAMPTON INN & SUITES; Rogers, MN



CHASE DEWHIRST, PE

MARINE CIVIL ENGINEER
MARINE ENGINEERING DEPARTMENT MANAGER

CURRENT AND NOTABLE PROJECT EXPERIENCE

PIER B RESORT – Duluth, MN

AMI Consulting Engineers provided structural, civil, environmental and marine engineering for the 4-story, 83,000 sq. ft. Pier B Resort, located on the waterfront in Duluth, MN. The building’s frame is constructed of wood on a precast prestressed plank platform supported by concrete foundations and steel piling. This project was a Brownfield Redevelopment of a historic industrial pier that included a turn of the century lime kiln and warehouse, as well as a mid-1900’s bulk dry cement storage and distributor. AMI’s services included structural engineering for a four-story hotel, civil and storm water design, utilities, marine civil engineering, retractable bridge design, 25-slip transient marina and boat launch including all electrical and plumbing services; land and marine survey, underwater inspections, demolition, construction oversight/inspection, wave run-up studies, environmental remediation and capping of contaminated soil, geotechnical, capping and shallowing of legacy contaminants, and the design of critical habitat improvements.

DECC BAYFRONT - DOCK WALL DESIGN Duluth, MN

Designed and provide structural drawings for a new dock structure to replace an old and failing timber dock wall. The project included the installation of 615 lineal feet of a new steel sheet piling dock wall and a tie back system utilizing new structural steel and helical anchors. New bollards and their foundations were also design to accommodate the facilities needs from vessel traffic. This project is in a highly-traveled tourist area and AMI worked closely with the City of Duluth and the current business located along the project site to meet the needs of both parties.

HAITI CONTAINER PORT – GB GROUP Port Lafiteau, Haiti

AMI Consulting Engineers was selected as the lead engineering firm for a phased multi-purpose container & bulk terminal to handle containerized and loose-bulk cargo in Haiti. The terminal, with a total estimated land area of twelve hectares, located 19 kilometers from the Port-Au-Prince airport and eight nautical miles north of international port of Port-Au-Prince. Development works related to the “Project” primarily consist of construction of a 450-meter quay for offloading and loading, deepening the Terminal’s draft alongside to 12-meters, installation and acquisition of the necessary cargo handling equipment; and development of container yard and supporting backup areas. The Terminal provides container handling capacity and reduces transport bottlenecks and costs. This initial port development project is one component of “Lafito Global” which consists of an Integrated Economic FREE TRADE Zone. Additional phases of the project include the complete design of all supporting infrastructure that includes all buildings for a cement plant, fertilizer plant, operations, dry goods, warehouse, hotel, man camps and general manufacturing buildings, roadways, general utilities, on site power generation and distribution, security and fencing, all on privately held land in the Lafiteau area. The entire project is expected to take 3 to 5 years to develop.

DULUTH SEAWAY PORT AUTHORITY (DSPA) - D DOCK WALL DESIGN Duluth, MN

Designed and prepared specifications for a new dock structure. The project included the installation of 985 lineal feet of a new steel sheet piling dock wall and two different tieback systems utilizing a large existing concrete silo foundation and a steel sheet pile tieback wall. New bollards and their foundations were also designed to accommodate the facilities needs from vessel traffic.

EDUCATION

Bachelors of Science in Civil Engineering, University of Minnesota-Twin Cities

REGISTERED PROFESSIONAL ENGINEER

Minnesota

CERTIFICATION

- Association of Diving Contractors International Surface Supply Air Diving Supervisor #45431
- AWS D1.1/D3.6
- Certified Weld Inspector (CWI)

ADDITIONAL COURSES

- NHI “Underwater Bridge Inspection”
- Minnesota Commercial Diver Training Center

EXPERIENCE

- 10+ years of Structural engineering experience
- Design of structural systems within buildings, bridges, water front structures, and industrial facilities

MEMBERSHIP

- ADCI Engineer Diving Committee

SETH JOHNSON, ENGINEERING TECH

HYDROGRAPHIC & BATHYMETRIC SURVEYOR
ADCI CERTIFIED COMMERCIAL DIVER



EDUCATION

Bachelor of Science in Aquatic
Biology & Ecology
University of Wisconsin-
Superior, 1998

CERTIFICATION

- Association of Diving
Contractors International
Surface-Supplied Air Diving
Supervisor #47019

TRAINING

- HYPACK Training Seminar
- Kongsberg Mesotech Sonar
Training Course
- NHI Course No. 13055,
"Safety Inspection of In-
Service Bridges"
- 40-Hour HAZWOPER,
"Hazardous Waste Operations
and Emergency Response"
- MSHA
- First Aid/ CPR/ AED
- SketchUp Base Camp

EXPERIENCE

- 18 years of Hydrographic
Surveying experience

Prior to joining AMI in 2006,
Mr. Johnson was a civil certified
bridge inspector and
commercial diver in the Marine
Department of a major
engineering firm since 2000. He
is now involved as a project
administrator and manager in
topside & underwater
structural projects that include
inspections, surveying, drafting
and reporting.

CURRENT AND NOTABLE PROJECT EXPERIENCE

ALLIANT ENERGY ASH POND SURVEYS – Wisconsin & Iowa

AMI was selected to provide bathymetric and topographic surveys of numerous ash ponds throughout Wisconsin and Iowa for Alliant Energy. Some of the project challenges included remote sites, limited access, shallow water depths, and soft material on the lake bottom. AMI utilized a small duck boat for the bathymetric surveys, and chest waders for some of the topographic data.

CN RAILWAY HYDROGRAPHIC SURVEY - Duluth & Two Harbors, Minnesota

Complete hydrographic surveys of both taconite ship loading facilities (11,000 lineal feet of dock). Surveys were conducted to insure they can safely receive lake class vessels for loading taconite at the facility. Final contour maps were prepared and presented to the CN in both paper chart and electronic versions for dissemination to the shipping owners.

DULUTH SEAWAY PORT AUTHORITY HYDROGRAPHIC SURVEY – Duluth, Minnesota

Performed yearly hydrographic surveys of port authority (10,350 lineal feet of dock). Yearly surveys were compared to monitor for ship scour and sediment transport of material.

CLIFFS NATURAL RESOURCES DELTA SURVEY – Silver Bay, MN

AMI conducted a bathymetric survey of the North Shore Mining's facility. The project included verifying dredged depths and the sediment transport of material near the mining facility. Some of the project challenges included working around shipping schedules and timing survey efforts with low winds.

PIER B RESORT – Duluth, MN

AMI Consulting Engineers provided structural, civil, environmental and marine engineering for the 4-story, 83,000 sq. ft. Pier B Resort, located on the waterfront in Duluth, MN. The building's frame is constructed of wood on a precast pre-stressed plank platform supported by concrete foundations and steel piling. This project was a Brownfield Redevelopment of a historic industrial pier that included a turn of the century lime kiln and warehouse, as well as a mid-1900's bulk dry cement storage and distributor. AMI's services included structural engineering for a four-story hotel, civil and storm water design, utilities, marine civil engineering, retractable bridge design, land and marine survey, underwater inspections, demolition, construction oversight/inspection, wave run-up studies, environmental remediation and capping of contaminated soil, geotechnical, capping and shallowing of legacy contaminants, and the design of critical habitat improvements.

HANSEN MUELLER HYDROGRAPHIC SURVEY - Superior, Wisconsin

Performed underwater assessment of the main slip to receive 1000-foot-long vessels for winter layup. A complete bathymetric and side scan survey were prepared to insure safe operations and proper draft was available to bring the large vessels into the slip.

FRASER SHIPYARDS HYDROGRAPHIC SURVEY – Superior, Wisconsin

Survey team performed underwater assessment of Howards Pocket for Fraser shipyards so they can safely receive lake class vessels for repairs at the facility. Final contour maps, of the 50+ acre bay, were prepared and presented to Fraser in both paper and electronic versions for dissemination the shipping owners and for future dredge planning.

Chris Reed, PhD

Surface Water Modeling



Areas of Expertise

Project Management
Hydrodynamics
Hydrological Modeling
Water Quality and Sediment Transport Modeling
Feasibility Analysis
Design Analysis

Education

Post Doctorate Studies/1988 / Coastal Engineering Department / University of Florida

PhD /1987 / Engineering Science and Mechanics / University of Florida

MS /1984 / Engineering Science and Mechanics / University of Florida

BS / 1982 / Engineering Sciences / Georgia Institute of Technology

Years of Experience

Total Years: 30

Summary

Dr. Chris Reed has 30 years of experience in conducting hydrodynamic, water quality, fate and transport, and sediment transport studies in support of feasibility analysis, design, and permitting. His modeling experience includes rivers, lakes, bays estuaries and tidally and wind dominated coastal regions along the Atlantic, Pacific and Gulf coasts. He has focused on the development and application of purpose-built one, two- and three-dimensional transport models for specialized applications in these areas. He has developed and applied hydrodynamic models for circulation, water quality, shoreline response, sediment transport, inlet dynamics, and storm surge analysis. Dr. Reed is also experienced in the application of standard process-based transport models including EFDC, CMS, ADCIRC, HSPF, WaSh, STWAVE, SWAN and the HEC suite of models as well as many others. He is a co-author on the CMS model hydrodynamic and transport model, which is part of the USACE supported SMS software package. Dr. Reed has applied these models for industrial clients and governmental agencies and often coordinates with academic institutions.

Dr. Reed is experienced with the design and implementation of field measurement programs, data collection and data analysis techniques. He has designed and participated in field measurement projects for obtaining boundary, calibration, and validation data and for site characterization and assessment.

Dr. Reed is an experienced project manager, providing project management of multi-million dollar projects, as well as conducting modeling analysis, senior technical guidance, quality assurance and internal review services.

Project Experience

COASTAL ANALYSIS

Ashtabula Breakwater Design, USACE Dr. Reed conducted a coastal engineering analysis of existing breakwaters at the Ashtabula Harbor to determine remediation requirements. The existing breakwaters require improvement to reduce sediment erosion and overtopping and to protect constructed wetlands. The analysis consisted of calculating the design breakwater crest elevation and the armor rock size for proposed breakwaters. The wave conditions are based on a wave hindcast that was developed for 53 stations along the Lake Erie shore based upon thirty-two years (1956-1987) of meteorological data. The wave conditions for the 2, 10 and 20 recurrence intervals we developed and the analysis considered wave conditions for three different approach angles, since the local bathymetric effects on the wave conditions will depend on the approach angle. The CMS-Wave Model was used to transform the deep water wave conditions and lake levels to local conditions at each of the breakwater locations. The breakwater elevation required to reduced overtopping and the armor rock size required to remain stable under the design wave conditions at each location was calculated using the methods described in the USACE's Coastal Engineering Manual (CEM).

St. Louis River and Estuary Toxics TMDL Development, Minnesota DNR/EPA, Duluth, MN. Dr. Reed developed an EFDC/WASP model of the St. Lucie Estuary and River reach downstream of the Fond Du Lac Dam. The hydrodynamic EFDC model represented watershed discharge and seiches from Lake Superior. The hydrodynamic model was calibrated to ADCP measurements available from the USGS. The EFDC results were input into the WASP model to assess the long term impacts to sediment quality. The WASP model analysis was conducted to determine the rate of toxics clean-up (PAHs, Metals) from the sediments when the upstream sources of contamination were remediated.

Edgewater Marina and Geneva Park Restoration, Lake Erie, Ohio DEP Dr. Reed conducted an engineering analysis of the existing Edgewater Marina breakwater and the Geneva Park Revetment to determine remediation requirements. The STWAVE model was applied to determine the wave conditions for the 10, 25, 50 and 100 year return periods and used to guide the final breakwater and revetment designs. The USACE WIS data was used for the offshore wave conditions, and combined with local bathymetry data to conduct the analysis. The BOUS2D model was applied to estimate wave propagation into the Marina at Edgewater, and the results combined with wave overtopping to determine the wave energy in the Marina. Alternative designs were developed, evaluated and final recommendations made to the Ohio DEP.

Sylvan Beach Shoreline Protection & Beach Nourishment, Upper Galveston Bay, TX, GLO. Sylvan Beach, located in upper Galveston Bay, is a recreational park owned by Harris County and jointly managed/operated with the City of LaPorte. Various armoring techniques have been implemented with varying degrees of success. They have included both timber bulk heads and concrete debris. Dr. Reed worked with the GLO and the City of LaPorte to develop a cost effective erosion control system which maximized recreational opportunities. Dr. Reed designed a shoreline armoring system consisting of articulated concrete mattresses and stone fill/armoring to stabilize the bluff. It included a structural concrete walk which anchored the shoreline system and provided access to the bay front. Pocket beaches were also included as an integral part of the shoreline system. The STWAVE model was implemented to determine design wave conditions and the SBEACH model was used to evaluate beach stability and impacts of large storms.

Ben Yahr, PLA, ASLA

President/Landscape Architect

As founder of Resolution Studio, LLC, Ben serves as a Landscape Architect with over 13 years of experience providing creative design and project management support for public access, park and open space planning, waterfront design, and ecological restoration projects throughout the Great Lakes Region, Canada, the Caribbean, and Australia. Ben thrives on bringing new approaches, technology, and techniques such as drones to the design process to improve efficiency, client service, and the environmental components of projects.

As a key leader of conceptual, design development, and final design teams, Ben coordinates marketing and business development activities; field services; the production of landscape architecture, ecological restoration, civil, and coastal engineering design and bid documents; and is well versed in UAV services, CADD, GIS, and 3D visualization, and photorealistic rendering software for design analysis and communication.



Education:

B.Sc. Landscape Architecture
University of Wisconsin – Madison, 2005
Certificate - Environmental Studies
University of Wisconsin – Madison, 2005

Professional Affiliations:

Registered Professional Landscape Architect –
State of WI, MN, OH, MI
Member – American Society of Landscape Architects
Member – Society of Ecological Restoration
Chairman of the Board of Directors –
Friends of Lake Wingra, Madison WI

Selected Projects:

Shoreline Storm Damage Assessment Project Duluth, Minnesota

Project landscape architect and UAV manager for extensive waterfront analysis and design project following significant damage during the fall of 2017. The project team analyzed the extent of the damage, and documented areas to be repaired, using UAV data to fast-track the project schedule and perform detailed comparisons of pre- and post-storm conditions. Resolution Studio lead aerial survey efforts and the documentation of repair alternatives for lakefront paths, boardwalks, beaches, harbors, and railroads.

Kinnickinnic River Reach 2a - Milwaukee, Wisconsin

Landscape architect for final design of urban stream restoration project. Resolution Studio was part of a multidisciplinary team for the removal of deteriorated concrete and creation of a naturalized channel through park land on the Kinnickinnic River. Project tasks include preparation of vegetation plans for channel restoration alternatives, development of construction documents, operations and maintenance manuals, plans and costs for vegetation, engineering services during construction, and monitoring of vegetation establishment.

Racine Harbor Monitoring & Engineering Services Racine, Wisconsin

Landscape architect and UAV manager for analysis of coastal structures and habitat improvements. Resolution Studio was part of a specialized team investigating breakwaters, revetments, bulkheads, habitat, and water quality at a Great Lakes harbor which includes recreational marinas and boat launches. Resolution Studio supported a detailed site investigation through the use UAV mapping technology, and worked to identify and design water quality and habitat improvements to restore ecosystem services throughout the harbor.

Milwaukee River Parkway Habitat Improvement and Interpretive Access Design- Milwaukee, Wisconsin*

Project manager and landscape architect for park design, bluff stabilization, and public access project in collaboration with the River Revitalization Foundation and Milwaukee County Parks. Project includes design of stairs, trails, bioswales, habitat restoration, slope grading, urban plazas, and environmental education nodes to provide meaningful enhancements to nearly 500 feet of degraded urban park and riverway. Project tasks included successful grant applications securing funding for the project.

Menomonee River Streambank Stabilization- Milwaukee, Wisconsin

Project landscape architect for final design of urban stream restoration project. Resolution Studio was part of a multidisciplinary team for the restoration of approximately 200 feet of highly eroded river bank. The riverbank has rapidly eroded and receded over recent years and will be restored into a natural channel with native vegetation buffers. Tasks include site investigations, conceptual design, construction plans, technical specifications, bid services, and engineering services during construction.

**while with former firms*



Attachment 2
2018 Rates (TRC, AMI)

2018 TRC Environmental Standard Rate Schedule

CODE	TRC Labor Classification/Category	Hourly Labor Rate
Principal/Princ. Sci./Princ. Eng.		
A4	Level IV	\$293
A3	Level III	\$254
A2	Level II	\$226
A1	Level I	\$208
Project Manager		
B4	Level IV	\$203
B3	Level III	\$180
B2	Level II	\$158
B1	Level I	\$139
Senior Scientist/Planner/Engineer		
C4	Level IV	\$192
C3	Level III	\$173
C2	Level II	\$149
C1	Level I	\$124
Scientist/Planner/Engineer		
D4	Level IV	\$119
D3	Level III	\$102
D2	Level II	\$90
D1	Level I	\$78
Designer/Technician/Inspectors		
E4	Level IV	\$102
E3	Level III	\$89
E2	Level II	\$67
E1	Level I	\$45
Drafting/CADD/GIS		
F4	Level IV	\$119
F3	Level III	\$102
F2	Level II	\$79
F1	Level I	\$67
Project Support/Clerical		
G4	Level IV	\$107
G3	Level III	\$85
G2	Level II	\$67
G1	Level I	\$57

A 10% mark up will be added to non-labor costs and expenses/ODCs.

Overtime rates will apply to non-exempt (hourly) staff in conformance with applicable law.

TRC Rates are subject to an annual calendar year escalation.

Invoicing will apply TRC billing rates in conformance with the rate schedule in effect at the time of the services.

For Litigation or Litigation Support Services, please request a copy of our Standard Rates for Litigation Services.



Consulting Engineers P.A.

FEE SCHEDULE - CONFIDENTIAL

Effective Date: January 19, 2018

The compensation of *AMI Consulting Engineers, PA* for professional services is based upon hourly rates as indicated below.

STAFF CLASSIFICATION	HOURLY RATE
Principal Engineer	200
Engineer/Specialist III	140-180
Engineer/Specialist II	115-135
Engineer/Specialist I	95-110
Health & Safety Director	120
Staff Professional III	90-100
Staff Professional II	80-90
Staff Professional I	70-80
Scientist I/II/III	65/75/85
Technician III	95-115
Technician II	75-90
Technician I	50-70
Survey Crew	150-180
Marine Surveyor	115
3 Man Dive Team	380
4 Man Dive Team	450
EQUIPMENT	RATE
22' Hewescraft Boat	325/day
17.5' Waterman Boat, 20' Barge	150/day
Bathymetric Survey Package	325/day
Sidescan Survey Package	250/day
Survey Boat	250/day

·Engineer/Specialist classification includes department managers, project managers, licensed engineers, engineers in training, graduate engineers, permitting specialists & registered land surveyor.

·Staff Professional classification includes mid level geologist, scientist, water resource professional, soil scientist and environmental consulting professionals.

·Scientist classification includes junior level geologist, scientist, water resource professional, soil scientist and environmental consulting professionals.

·Technician classification includes CADD and GIS operators, surveyors, marine surveyors, certified bridge inspectors, interns and clerical staff.

·Overtime for personnel will be charged at 125% the above rates and Sundays and Holidays will be charged at 150% the above rates. Expenses connected with the work such as travel, vehicle rental, subsistence, lodging, etc., will be charged at cost. Outside consultants and materials will be charged at cost plus ten percent. Travel to locations outside the Duluth / Superior city limits will be charged at \$0.75 per mile for standard travel and \$1.25 per mile when towing a trailer. A minimum rate of ½ day will be charged for all equipment rentals.