

**Vessel SS William A. Irvin**  
**Relocation**  
Duluth, MN



**CHASE DEWHIRST, PE**

AMI Consulting Engineers, PA - Multidiscipline Engineering Firm  
Marine | Civil | Structural | Mechanical | Environmental



## OWNER(S)

- City of Duluth
- Duluth Entertainment Convention Center (DECC)

## ENGINEER:

- AMI Consulting Engineers, PA

## CONSULTATION:

- United States Army Corp of Engineers (USACE) Marine Design Center (MDC)
- United States Coast Guard (USCG)
- Minnesota Pollution Control Agency (MPCA)



Duluth Entertainment  
Convention Center





Consulting Engineers P.A.



TECHNICAL SPECIFICATIONS FOR:  
**Temporary Relocation of the William A. Irvin**  
350 Harbor Drive  
Duluth, Minnesota

Prepared For:



Duluth Entertainment  
Convention Center

Duluth, Minnesota

Prepared By:



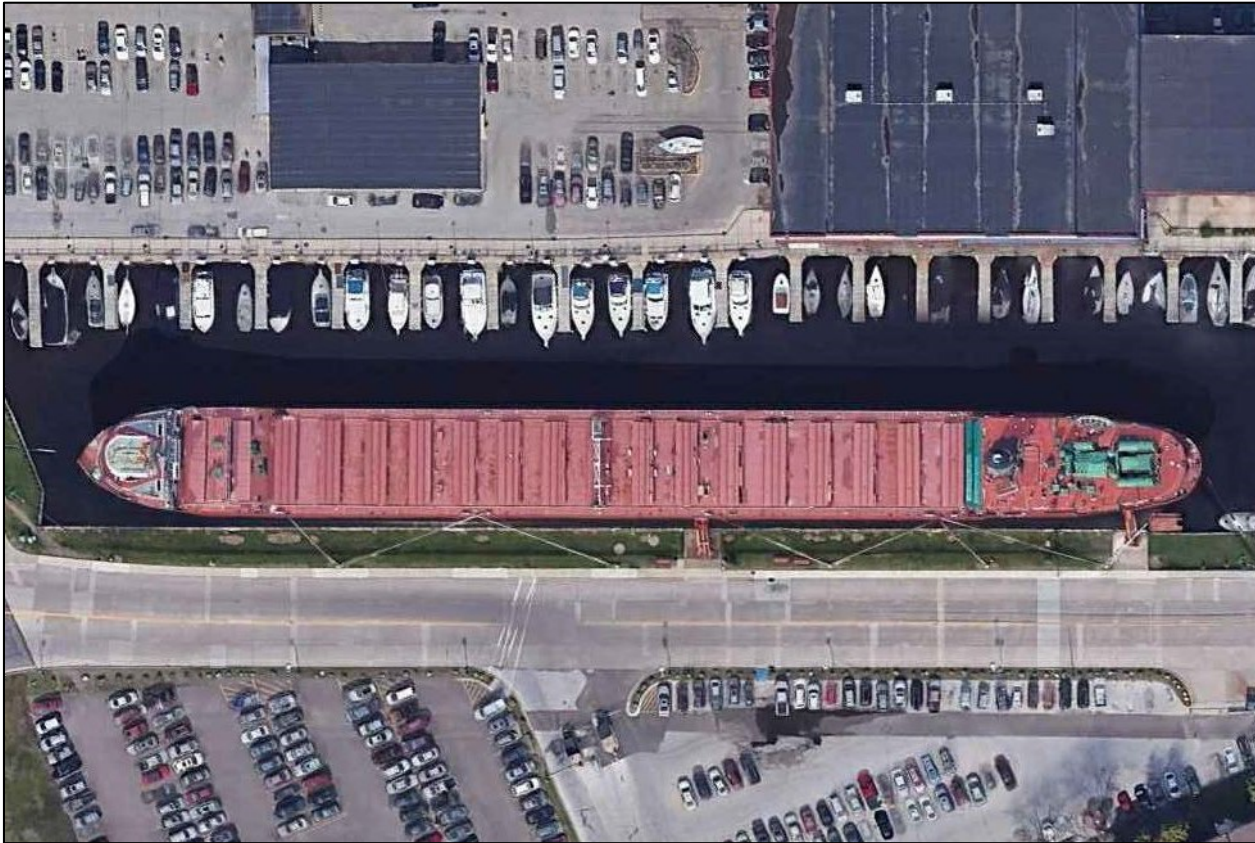
91 Main Street  
Superior, WI 54880

AMI Project No. 181078  
Date: 6/19/2018

## Project Plan Set & Specifications

- The intent of the provided drawings & specifications is to provide minimum standards for the tow plan
- Contractor is responsible for providing a tow plan that will be reviewed by the City of Duluth, DECC, USACE MDC, USCG & Regulatory Agencies





### Reason(s) for Relocating of Irvin

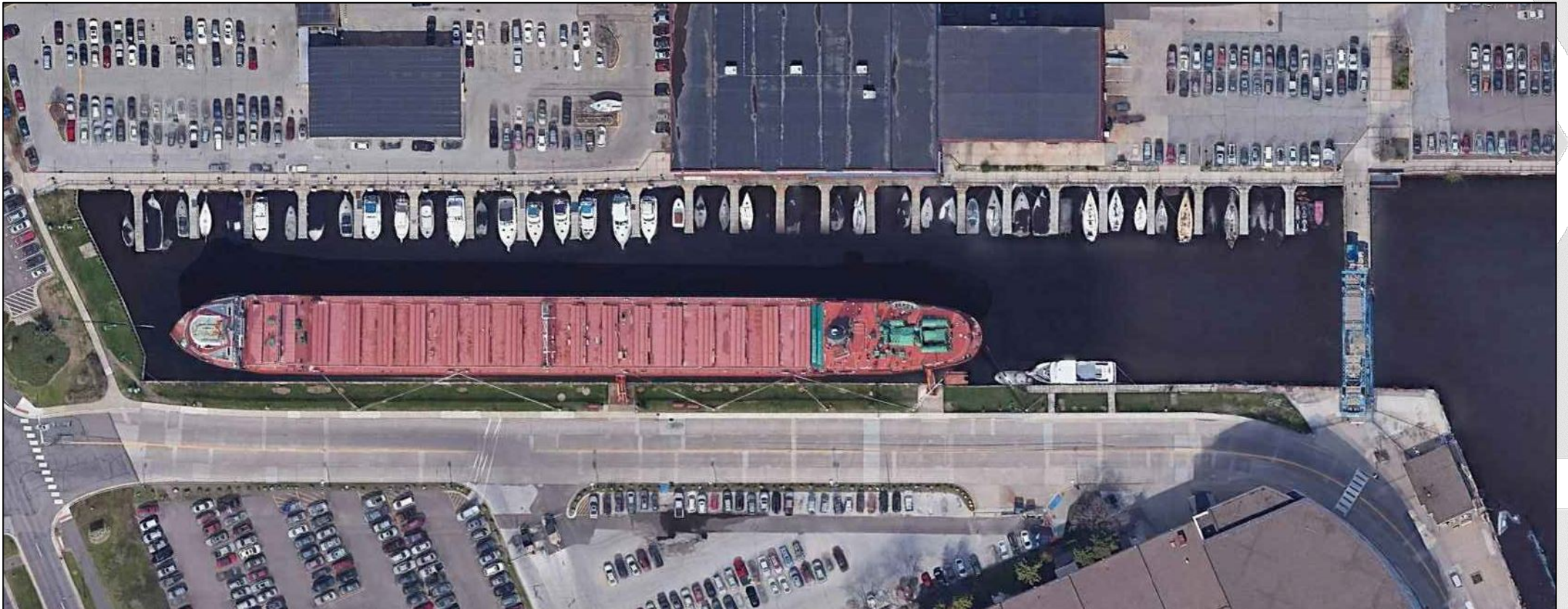
- The MPCA plans to remediate the contaminated sediment in Mn Slip in late fall of 2018.
  - Existing sediment materials leveled to one elevation
  - Contaminated sediment capped with a clean granular fill to 12' below 1985 IGLD LWD = 601.1'
  - Can not be completed while vessel is in MN Slip
- The Irvin is anticipated to be placed in dry-dock at Fraser Shipyards:
  - Vessel further inspected for deterioration & possible rehabilitation of deterioration.
  - Hull will be sand blasted and repainted





Proposed Tow Route



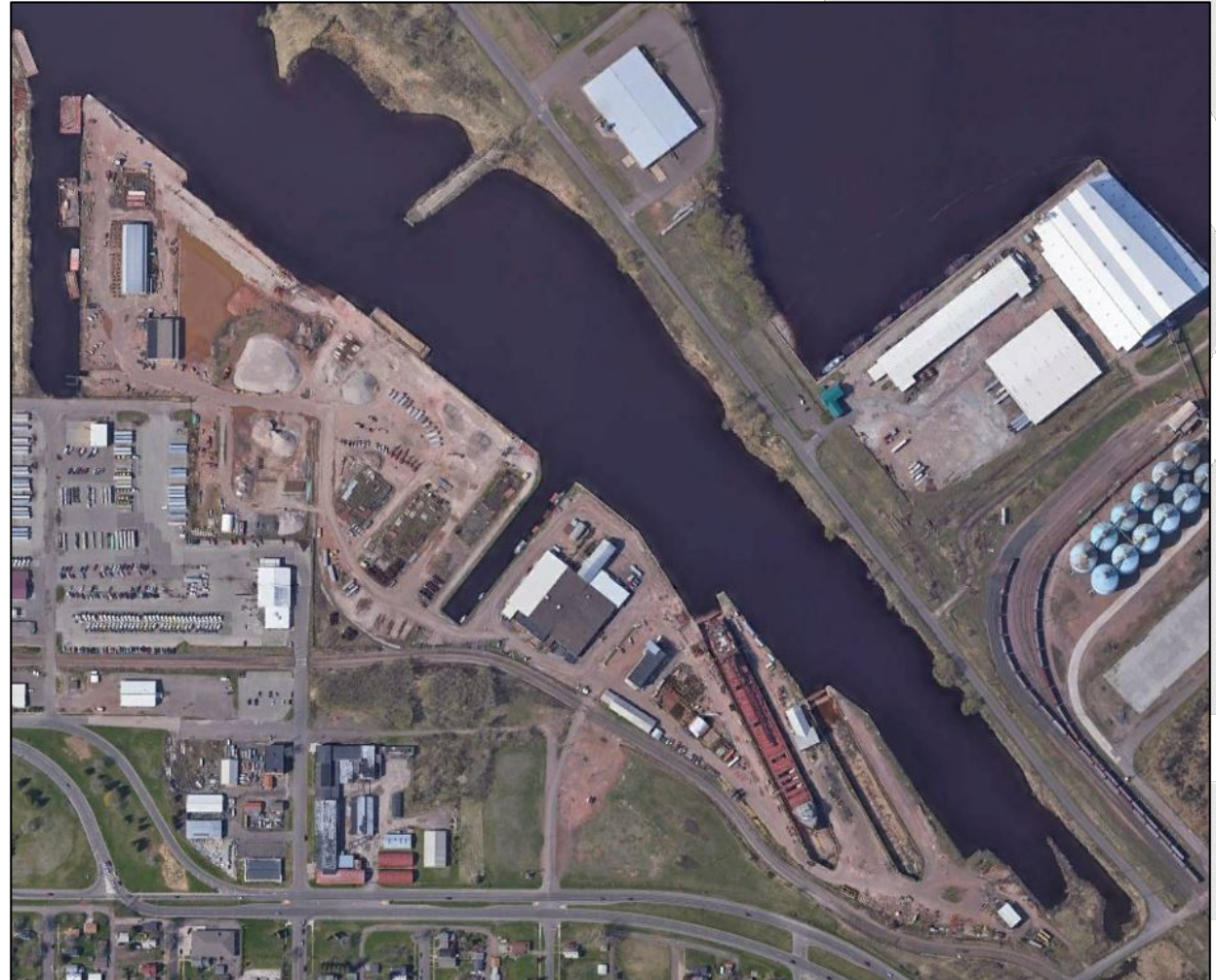


Current Location of Irvin: MN Slip

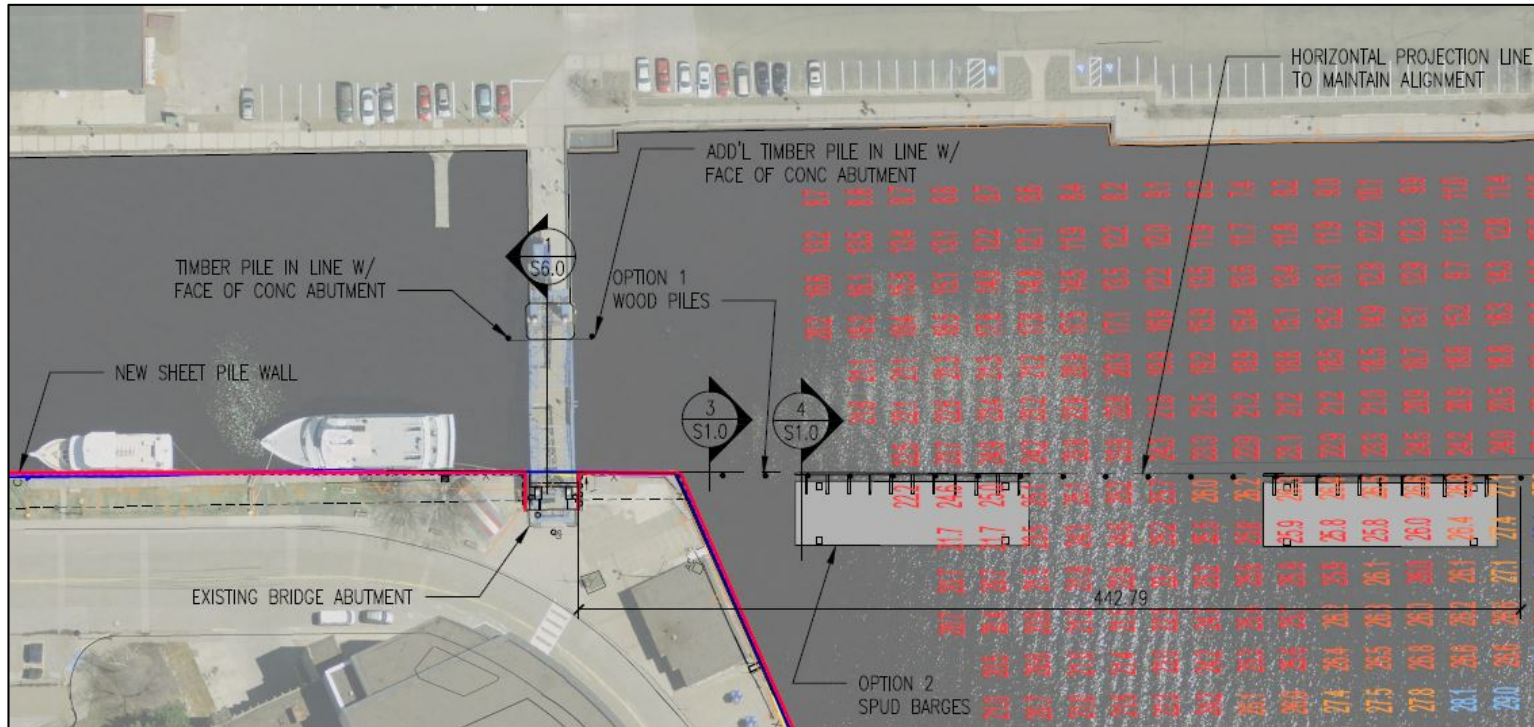


Once at Fraser Shipyards

- Final Location at Fraser Shipyards undetermined.
- Contractor is responsible for coordinating with Fraser Shipyards on final location.
- Contractor responsible for properly mooring the vessel at Fraser Shipyards.



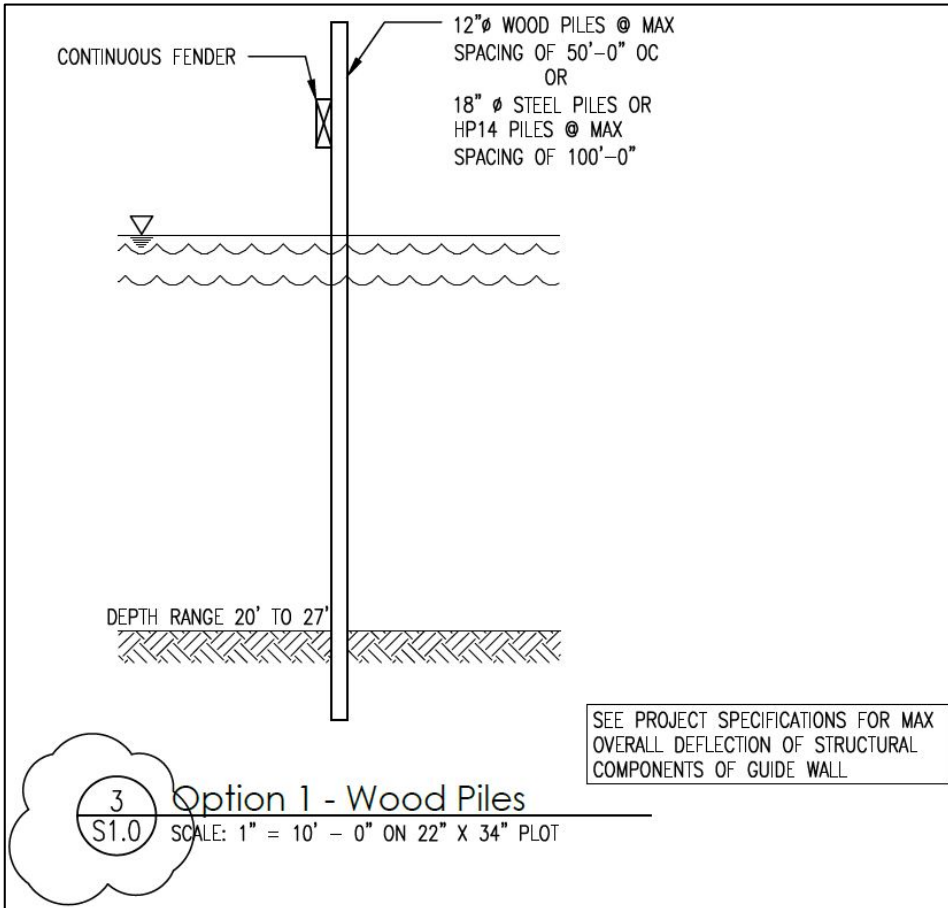
Final Destination: Fraser Shipyards



### Temporary Guide Structures

- Maintain Proper Alignment of Vessel during Relocation Process
  - Spud Barges
  - Steel or Timber Piles
- Protection of Existing Structures
- The intent of the provided drawings & specifications is to provide minimum standards for the tow plan
- The temporary guide wall may be left in position during the winter
  - Contractor responsible for coordination with USCG & reverifying alignment in Spring 2019.
  - AMI has made initial conversations with USCG





### Temporary Guide Structures

- Steel Piles: Min 18" DIA at maximum spacing of 100'-0" OC
- Timber Piles: Min 12" at maximum spacing of 50'-0" OC
- Deflection Criteria:
  - Maximum allowable deflection varies linearly from outer dock wall corner to 200 feet from dock wall corner.
  - Max  $\Delta$  @ Dock Wall corner = 6"
  - Max  $\Delta$  @ 200 ft from Dock Wall corner = 2'-0"

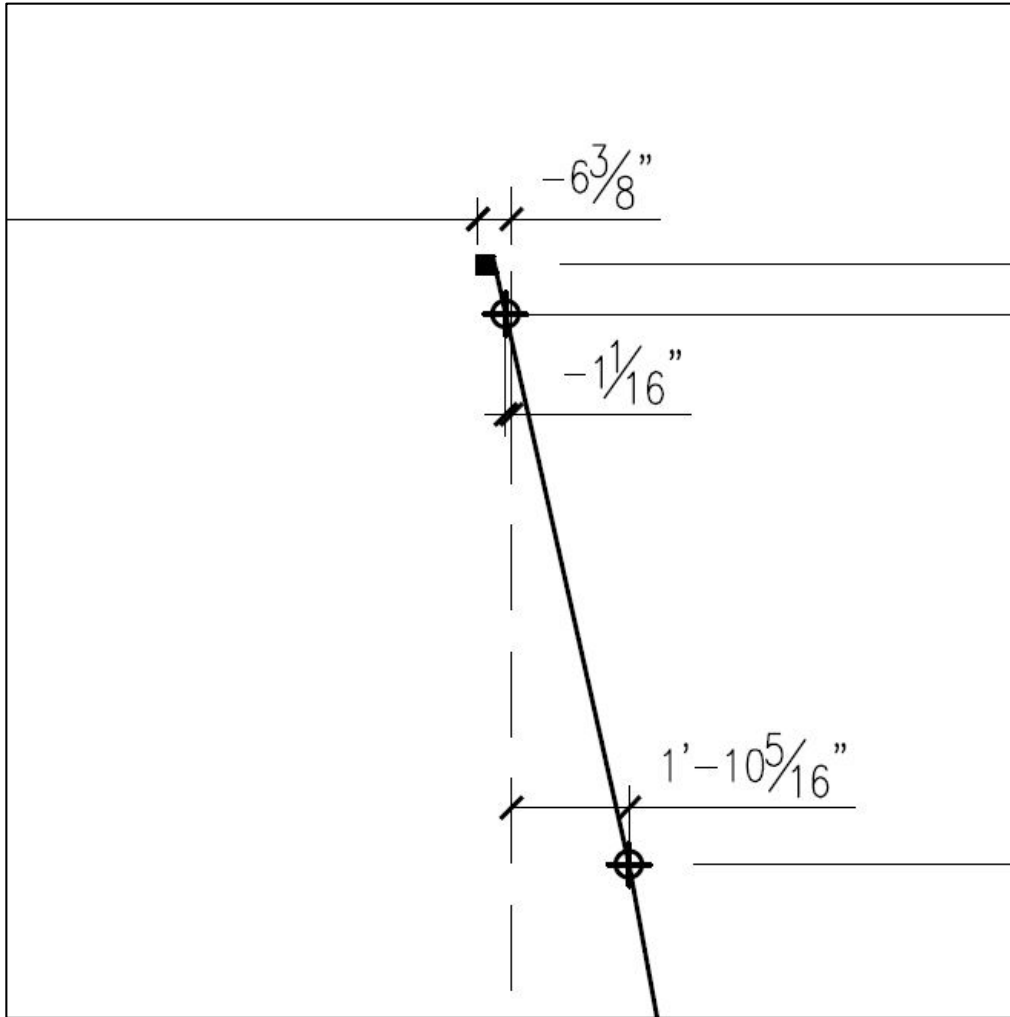


Minnesota Slip Pedestrian Bridge





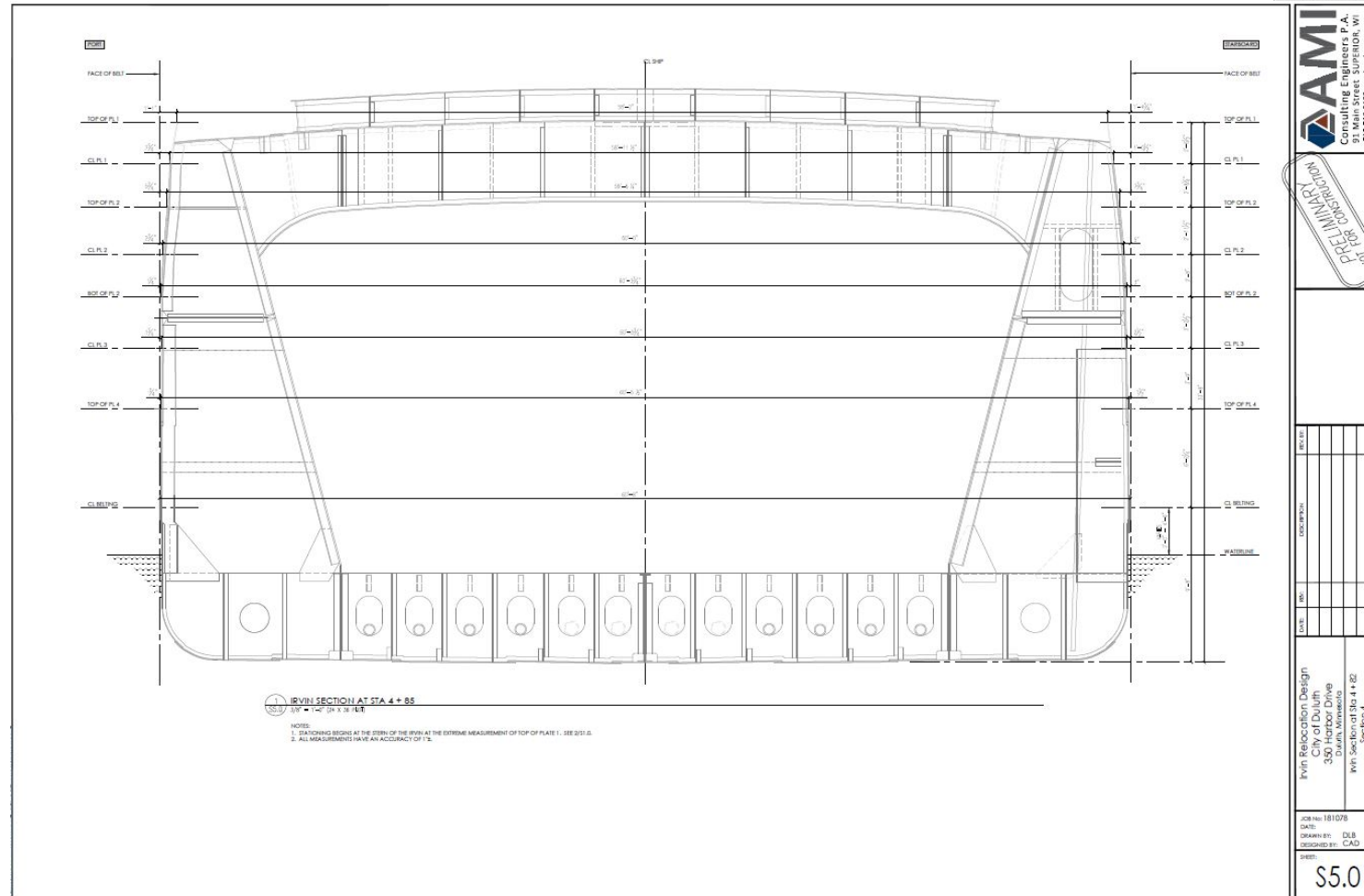
Minnesota Slip Pedestrian Bridge



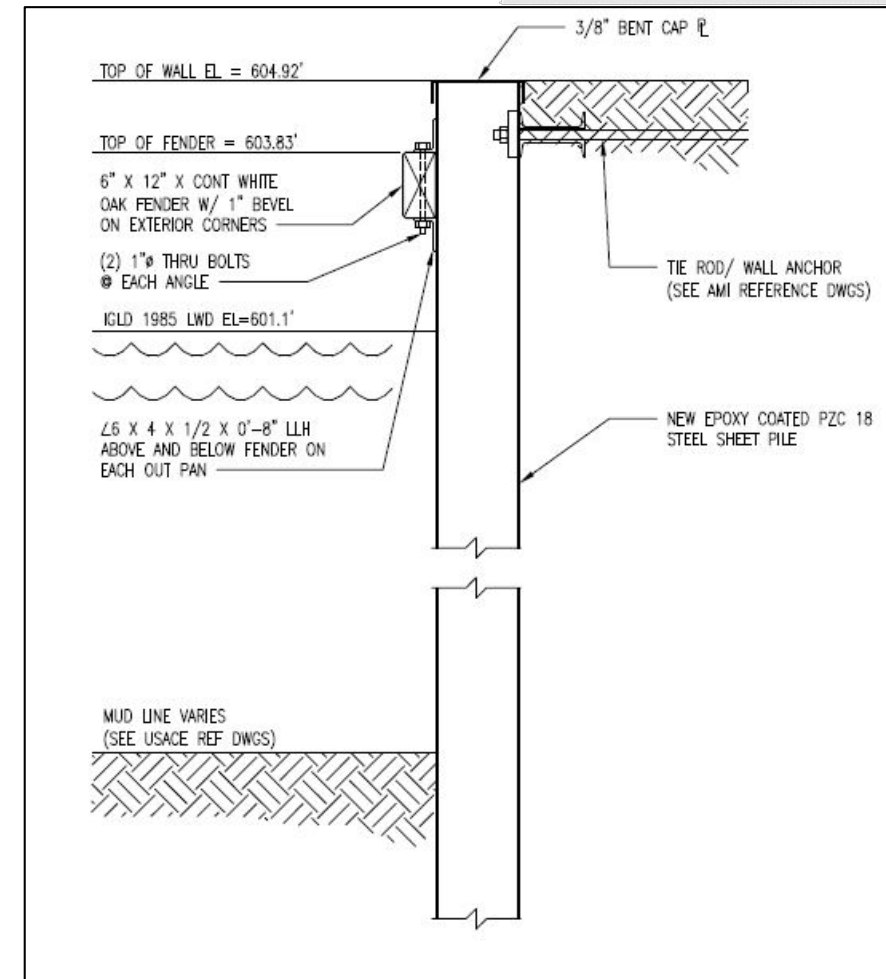
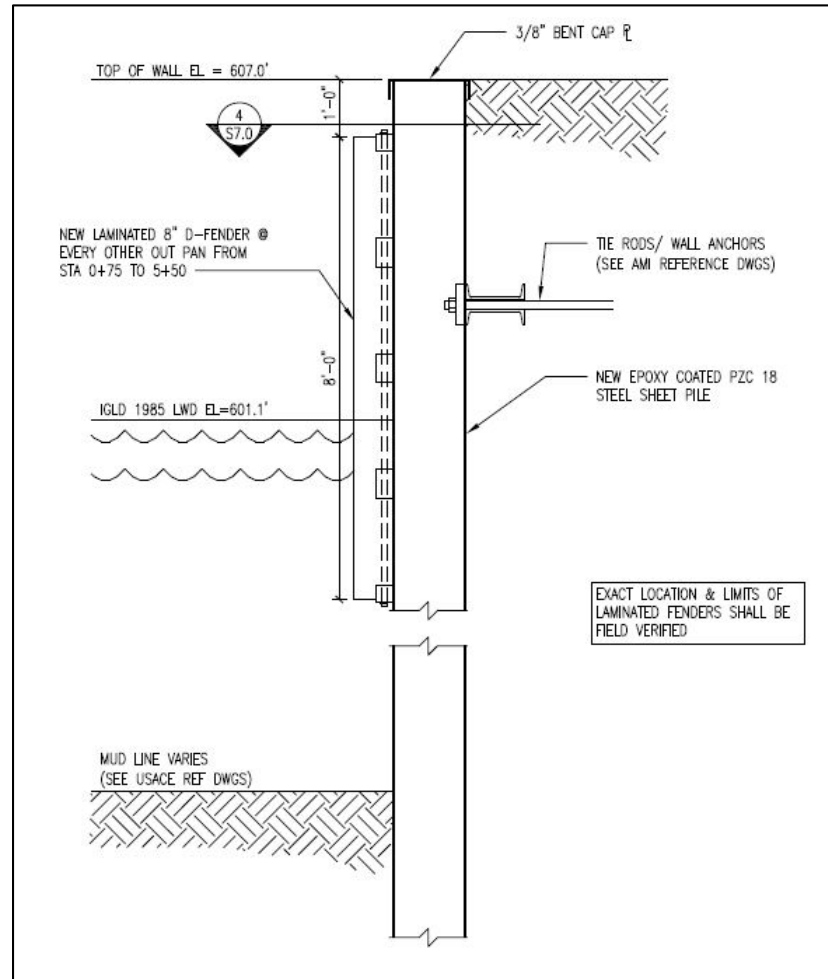
### Minnesota Slip Pedestrian Bridge – Steel Overhang

- When bridge is in the up position, the steel members of the bridge overhang the face of the concrete abutment on the Canal Park (East) side.
- City of Duluth will coordinate with a separate contractor to partially disassemble bridge so steel members are behind the face of the concrete abutment of Canal Park (East) side.





Vessel SS William A. Irvin Beam



DECC Seawall Condition





### Irvin Current Condition

- Bow Anchors ( 3<sup>rd</sup> Anchor)
- Stern Anchor
  - Decorative Anchor
  - Not in Operation / Pin
- Access Platforms
  - Midship
  - Stern
- Some Navigational Lights are Operational
- North America Marine, Inc
  - Marine Survey Report
  - Ballast Tanks
- Propeller Shaft & Rudder **Not** Lock in Position
- Boats & Docks along east side of MN Slip will still be present
- See Specifications for Additional Information



### Irvin Current Condition/Cont.

- Deck Winches
  - Five of Six Operational
  - Benson Electric will inspect & test the five winches prior to relocating the Irvin
  - (1) Midship Deck Winch = 300 feet
  - Stern Deck Winch = 400 feet
  - Remaining (3) Deck winches = 200 feet



SECTION 35 0099  
DEAD VESSEL TOW

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
1. Minimum requirements of the dead vessel tow.
  2. Weather & equipment restrictions.
  3. Minimum strength criteria for protection systems of existing structures.

1.2 RELATED DOCUMENTS AND REFERENCES

- A. Society for Testing and Materials (ASTM International).
- B. Contract, the General Requirements Sections of Division 00 & 01 and the Drawings apply to Work of this Section.
- C. Minnesota Department of Transportation (MnDOT) Standard Specifications for Construction.
- D. City of Duluth, Minnesota Construction Standards 2017.
- E. United States (US) Navy Towing Manual; SL740-AA-MAN-010 (Revision 3, Dated 1 July 2002).

1.3 UNIT PRICES

- A. Contractor shall provide labor, equipment, tools, materials, and incidentals necessary to perform the Work as detailed on the contract drawings. Contractor shall include proper disposal of all materials not suitable or not approved for reuse on the Project.

1.4 SUBMITTALS

- A. Schedule indicating Work sequence:
1. Coordinate the schedule to allow sufficient time for required Quality Assurance (QA) testing & inspection, and installation of work of Related Sections.
  2. Coordinate with continuations of Owner's onsite operations.
- B. Experienced Land Surveyor qualifications and supervision.
- C. Pre-Work photographs or video before Work begins.
- D. Test reports from the independent testing facility on materials showing compliance with the Specifications.
- E. Copies of all permits received along with any special conditions or requirements of compliance.

## Restrictions

- Weather:
  - Sustained Wind Speed = 5 Mph
  - Gust Wind Speed = 10 Mph
  - Wave Height = 6 Inches
  - Currents = 0.5 feet/second
  - Ice shall not be visible in Harbor, or there is no risk of ice impacting movement operations
- Max Speed of Vessel out of & into MN Slip = **1 foot Per Every 4 Seconds**
  - Contractor shall have means to start & stop Vessel in MN Slip
- MPCA Restrictions or Requirements **within** MN Slip:
  - Prior to Capping
    - Installation of piles or dolphin (BMP's)
  - After Capping
    - Installation of piles or dolphins (BMP's repair of capping material)
    - Tugs limited to "Tender Tugs" with max draft of 7 feet & 400 HP
  - See Specifications for additional information



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### Sequence - Bidding & Construction

- Three Phases
  - Bidding
  - Preparing for the Tow
  - Tow of Vessel
- Phase I: Bidding Phase
  - Contractor Submit Cover Letter, Background Information, Resume, References, Preliminary Tow Plan & Project Costs
  - Evaluation of Bids or Interviews as Necessary
  - Contractor shall be Prepared to Present Preliminary Tow Plan if Necessary
- Phase II: Preparing for Tow
  - Detailed Tow Plan for Review by City, DECC, USACE MDC, USCG & Regulatory Agencies
  - Verification of Bridge Opening & Vessel Beam
  - Prepare the Vessel for Tow
- Phase III: Movement of Irvin
  - Final Inspections & Coordination

### Schedule - Bidding & Construction

- Questions Due = Wednesday July 18<sup>th</sup>, 2018
- Questions Answered = Thursday July 19<sup>th</sup>, 2018
- Proposal Deadline = Monday July 23<sup>rd</sup>, 2018 @ 2:00 PM
- Proposal Evaluation = July 24<sup>th</sup> to July 31<sup>st</sup>, 2018
- Anticipated Council Approval = Monday August 13<sup>th</sup>, 2018
- Final Day to Remove Vessel = September 30<sup>th</sup>, 2018
- Vessel Return to MN Slip = Spring of 2019

### Alterations to RFP

- Prevailing Wage Requirements (No PLA)
- Non-Collusion Affidavit
- Subcontractor & Supplier List
- Addendum Acknowledgement on Bid Form



# QUESTIONS

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