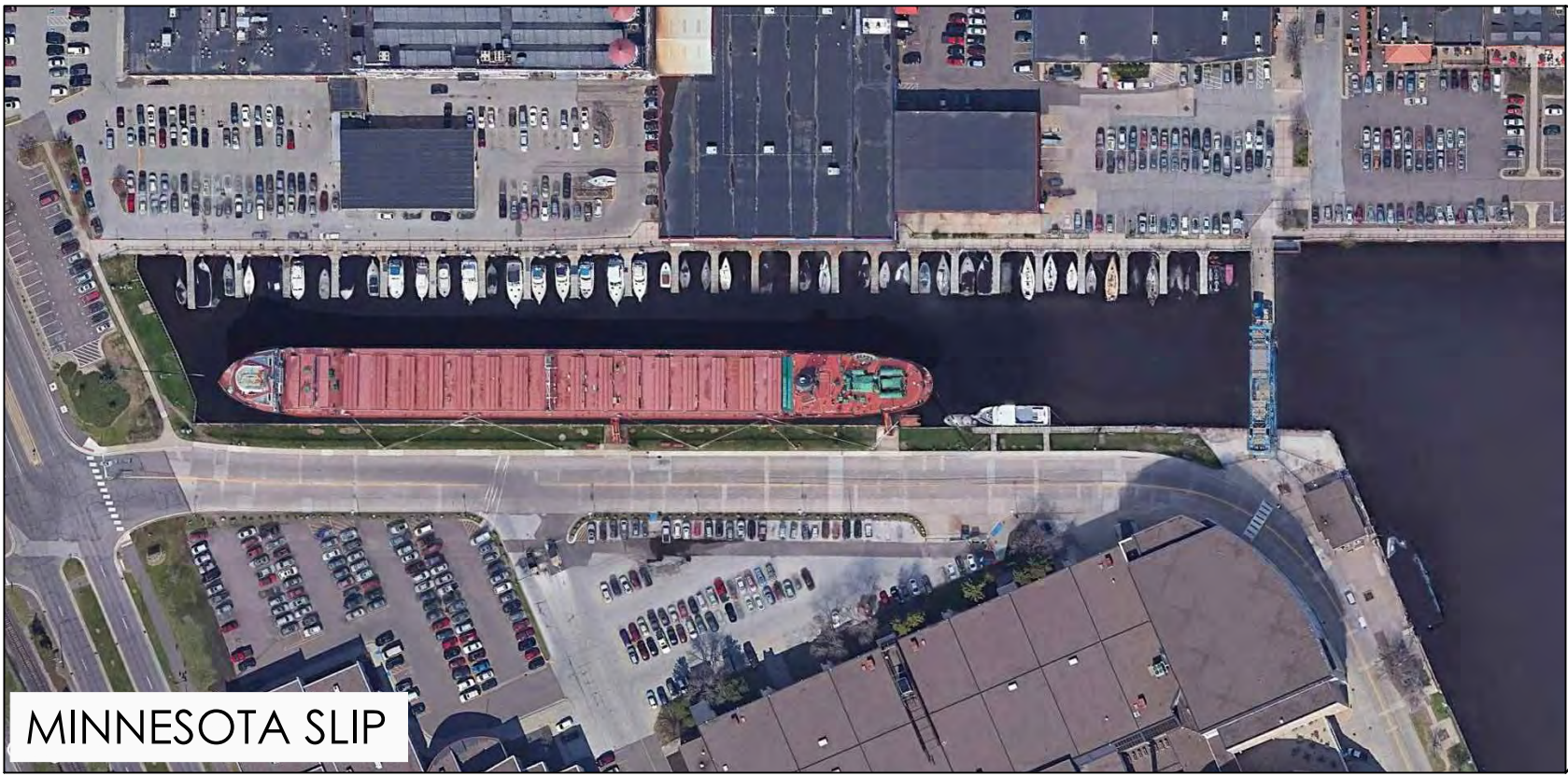


CITY OF DULUTH, MINNESOTA IRVIN RELOCATION DESIGN

ST. LOUIS COUNTY
DULUTH, MINNESOTA



OWNERS

CITY OF DULUTH

ERIC BIRKELAND
PROJECT MANAGER
ERIKBIRKELAND@DULUTHMN.GOV
218.730.4435

DECC

CHELLY TOWNSEND
EXECUTIVE DIRECTOR
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DESIGN TEAM

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715.718.2193

STRUCTURAL/ MARINE ENGINEER

CHASE DEWHIRST
CHASE.DEWHIRST@AMIENGINEERS.COM

BARR ENGINEERING

325 SOUTH LAKE AVE
DULUTH, MN 55802
218.529.8200

PERMITTING

JULIE A. KLOSS MOLINA
JKLOSSMOLINA@BARR.COM

SURVEY/LAYOUT INFORMATION:

COORDINATE SYSTEM: MN COUNTY COORDINATE SYSTEM
DATUM: ST. LOUIS TRANSVERSE MERCATOR 96
GEOID: G12B
BENCHMARK HELD: A49913

GENERAL PROJECT NOTES:

1. BIDDER WILL VISIT THE SITE TO UNDERSTAND THE SCOPE OF WORK. NO ADDITIONAL COMPENSATION WILL BE ALLOWED FOR ITEMS THAT COULD HAVE BEEN IDENTIFIED BY A SITE VISIT, STUDYING THE TOPOGRAPHIC & BATHYMETRIC SURVEYS, THOROUGHLY REVIEWING ALL PLANS AND REPORTS, AND ADDITIONAL INFORMATION REQUESTED FOR CLARIFICATION PRIOR TO BIDDING.
2. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL REQUIRED PERMITS PRIOR TO STARTING WORK.
3. EXISTING SHIP MEASUREMENT & TOPOGRAPHIC INFORMATION TAKEN FROM SURVEYS DATED 4/23/18 AND 5/7/18 RESPECTIVELY, BATHYMETRIC SURVEYS PRODUCED BY THE USAGE. SUPPLEMENTAL INFORMATION GATHERED FROM SITE VISITS, RECORD DRAWINGS AND PLANS OBTAINED FROM CLIENT, ARE SHOWN AS APPROXIMATE LOCATIONS ONLY AND SHALL BE FIELD VERIFIED PRIOR TO OR DURING CONSTRUCTION. CONTACT ENGINEER IMMEDIATELY IF ANY DISCREPANCIES ARE DISCOVERED.
4. THE LOCATIONS OF ALL EXISTING UTILITIES SHOWN ON THIS PLAN HAVE BEEN DETERMINED FROM THE BEST INFORMATION AVAILABLE AND ARE GIVEN FOR THE CONVENIENCE OF THE CONTRACTOR. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR THEIR ACCURACY. PRIOR TO THE START OF ANY DEMOLITION ACTIVITY, THE CONTRACTOR SHALL NOTIFY THE UTILITY COMPANIES FOR ONSITE LOCATIONS OF EXISTING UTILITIES. THE CONTRACTOR IS REQUIRED TO TAKE DUE PRECAUTIONARY MEASURES TO PROTECT ANY EXISTING UTILITIES OR STRUCTURES LOCATED AT THE WORK SITE.
5. PROVIDE AND MAINTAIN TRAFFIC CONTROL DEVICES WHERE NECESSARY (INCIDENTAL). PLACEMENT OF THESE DEVICES SHALL BE APPROVED BY THE CITY AND ENGINEER PRIOR TO PLACEMENT. TRAFFIC CONTROL DEVICES SHALL MEET THE REQUIREMENTS OF THE WMUTCD, CURRENT EDITION.
6. CONTRACTOR SHALL MAINTAIN FULL ACCESS TO ADJACENT PROPERTIES DURING CONSTRUCTION AND TAKE ALL PRECAUTIONS NECESSARY TO AVOID PROPERTY DAMAGE TO ADJACENT PROPERTIES.
7. ALL CONSTRUCTION WORK SHALL BE COMPLETED WITHIN CITY APPROVED WORKING HOURS.
8. INSTALL CONTROL FENCING AND BARRICADING AS NECESSARY TO PROTECT THE PUBLIC.



Know what's below.
Call before you dig.

GOVERNING SPECIFICATIONS

THE 2018 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND THE 2017 VERSION OF THE DULUTH STANDARD CONSTRUCTION SPECIFICATIONS SHALL GOVERN.

THE LOCATIONS OF UNDERGROUND UTILITIES HAVE BEEN PROVIDED BY THE UTILITY OWNER, ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED. THE CONTRACTOR SHALL FIELD VERIFY EXACT LOCATION OF ALL UTILITIES BEFORE COMMENCING CONSTRUCTION PER STATE LAW.

REV.	BY:	DESCRIPTION	DATE

Irvin Relocation Design
City of Duluth
350 Harbor Drive
Duluth, Minnesota

JOB No: 181078
DATE: 07.10.18
DRAWN BY: SAJ
DESIGNED BY: CAD

SHEET:
COV

SHEET INDEX

COV	Cover Sheet
\$1.0	Plans & Sections
\$2.0	Irvin Section 1+53
\$3.0	Irvin Section 2+65
\$4.0	Irvin Section 3+86
\$5.0	Irvin Section 4+82
\$6.0	MN Slip Ped. Bridge Survey
\$7.0	Dock Wall Details
\$8.0	Irvin Plan - Anchor & Mooring
\$8.1	Irvin Anchors & Mooring Photos

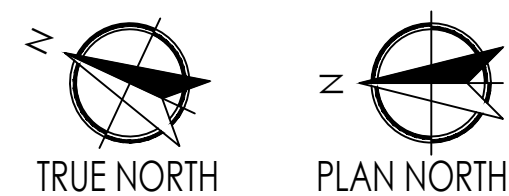


Diagram illustrating the plan view of a ship hull, showing the location of vertical alignments (V.A.) and their corresponding stationing (STA).

The hull is oriented horizontally, with the **BOW** on the left and the **STERN** on the right.

The vertical alignment points are marked by 'X' symbols along the hull's centerline, with their stationing and vertical curve data indicated above them:

- STA V: 6 + 10
- STA V: 4 + 82
- STA V: 3 + 86
- STA V: 2 + 65
- STA V: 1 + 53
- STA V: 0 + 00

The horizontal distance between the vertical alignment points is indicated by dimension lines and labels:

- 1/52.0
- 1/53.0
- 1/54.0
- 1/55.0

The stationing along the hull is marked at intervals of 50 units, starting from 0+50 at the bow and ending at 6+50 at the stern:

- 0+50
- 1+00
- 1+50
- 2+00
- 2+50
- 3+00
- 3+50
- 4+00
- 4+50
- 5+00
- 5+50
- 6+00
- 6+50

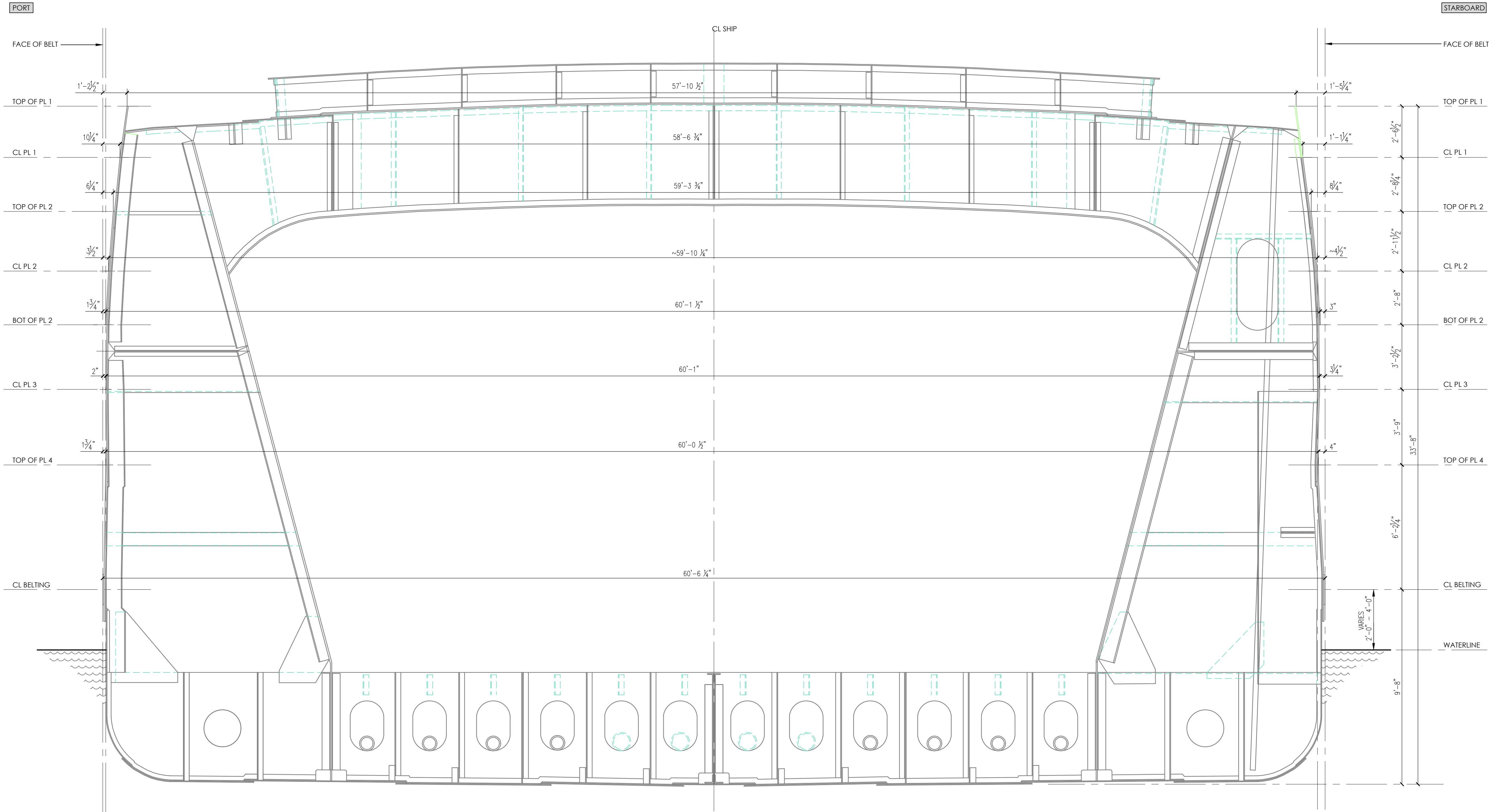
A label "LOCATION OF VERTICAL ALIGNMENTS, TYP" points to the first vertical alignment point (STA V: 6 + 10).

Diagram illustrating a continuous fender system. A vertical post is shown with a fender attached. The fender is labeled "CONTINUOUS FENDER". The post is labeled "12\" WOOD PILES @ SET SPACING". The water level is indicated by a wavy line. The depth range is labeled "DEPTH RANGE 20' TO 27'".

MAX OVERALL DEFLECTION OF STRUCTURAL COMPONENTS OF GUIDE WALL SHALL NOT EXCEED FOUR INCHES FROM VESSEL IMPACT

Diagram illustrating a continuous fender system along a spud barge. The system consists of a continuous fender along the spud barge, supported by adjustable fender systems with set spacing. The diagram shows the fender system installed on a barge with a depth range of 20' to 27'. The fender system is supported by spuds, which are shown as vertical structures. The diagram also indicates that many overall depths are possible.

MAX OVERALL DEFLECTION OF STRUCTURAL COMPONENTS OF GUIDE WALL SHALL NOT EXCEED FOUR INCHES FROM VESSEL IMPACT



1
S2.0 IRVIN SECTION AT STA V: 1 + 53
3/8" = 1'-0" (24 X 36 PLOT)

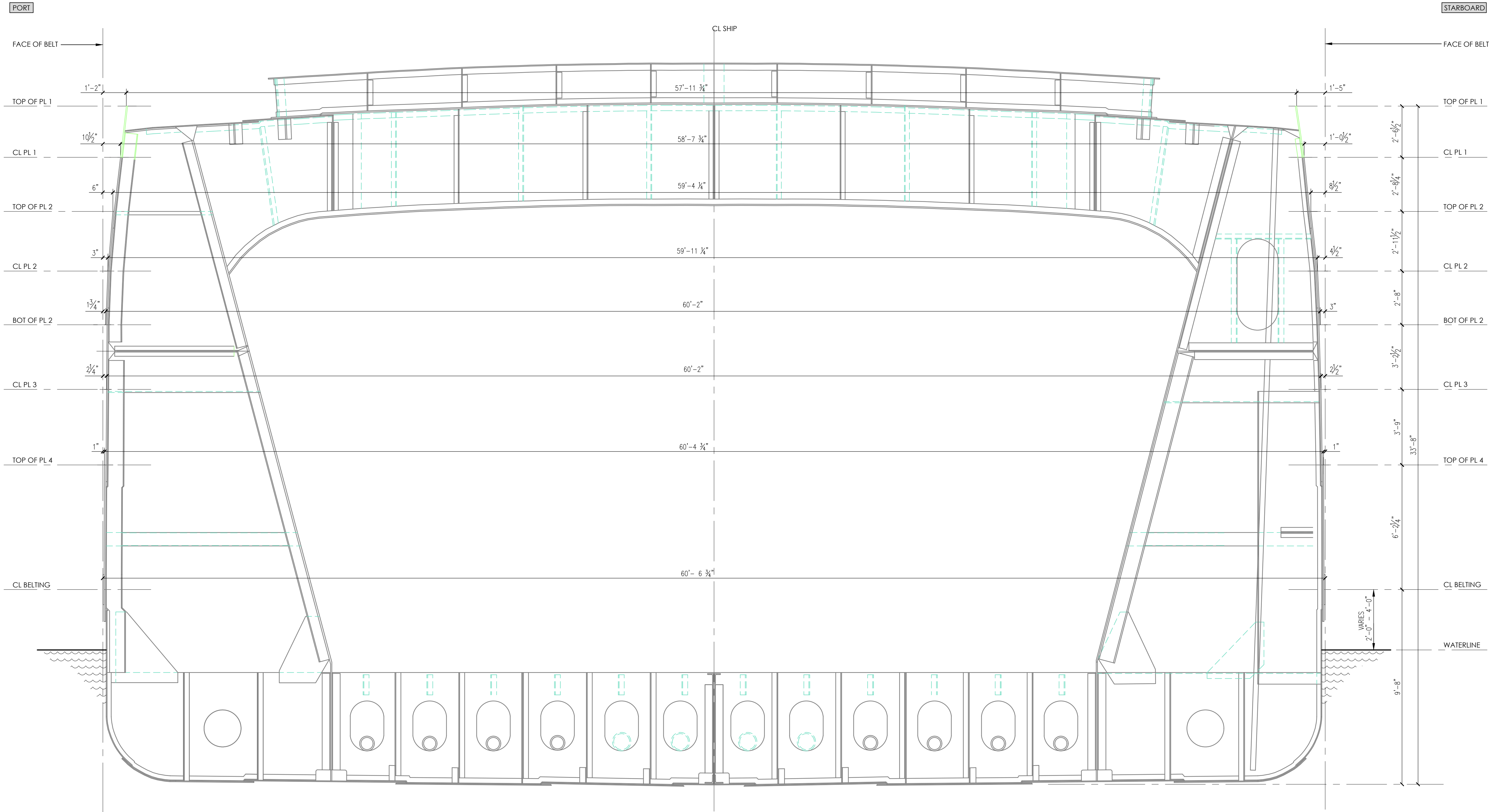
- NOTES:
1. STATIONING BEGINS AT THE STERN OF THE IRVIN AT THE EXTREME MEASUREMENT OF TOP OF PLATE 1. SEE 2/S1.0.
 2. ALL MEASUREMENTS HAVE AN ACCURACY OF 1"±.

REV. BY:					
DESCRIPTION					
REV:					
DATE:					

Irvin Relocation Design
City of Duluth
350 Harbor Drive
Duluth, Minnesota
Irvin Section at Sta 1 + 53
Section 1

JOB No: 181078
DATE: 07.10.18
DRAWN BY: DLB
DESIGNED BY: CAD

SHEET:
S2.0



1
S3.0 IRVIN SECTION AT STA V: 2 + 65
3/8" = 1'-0" (24 X 36 PLOT)

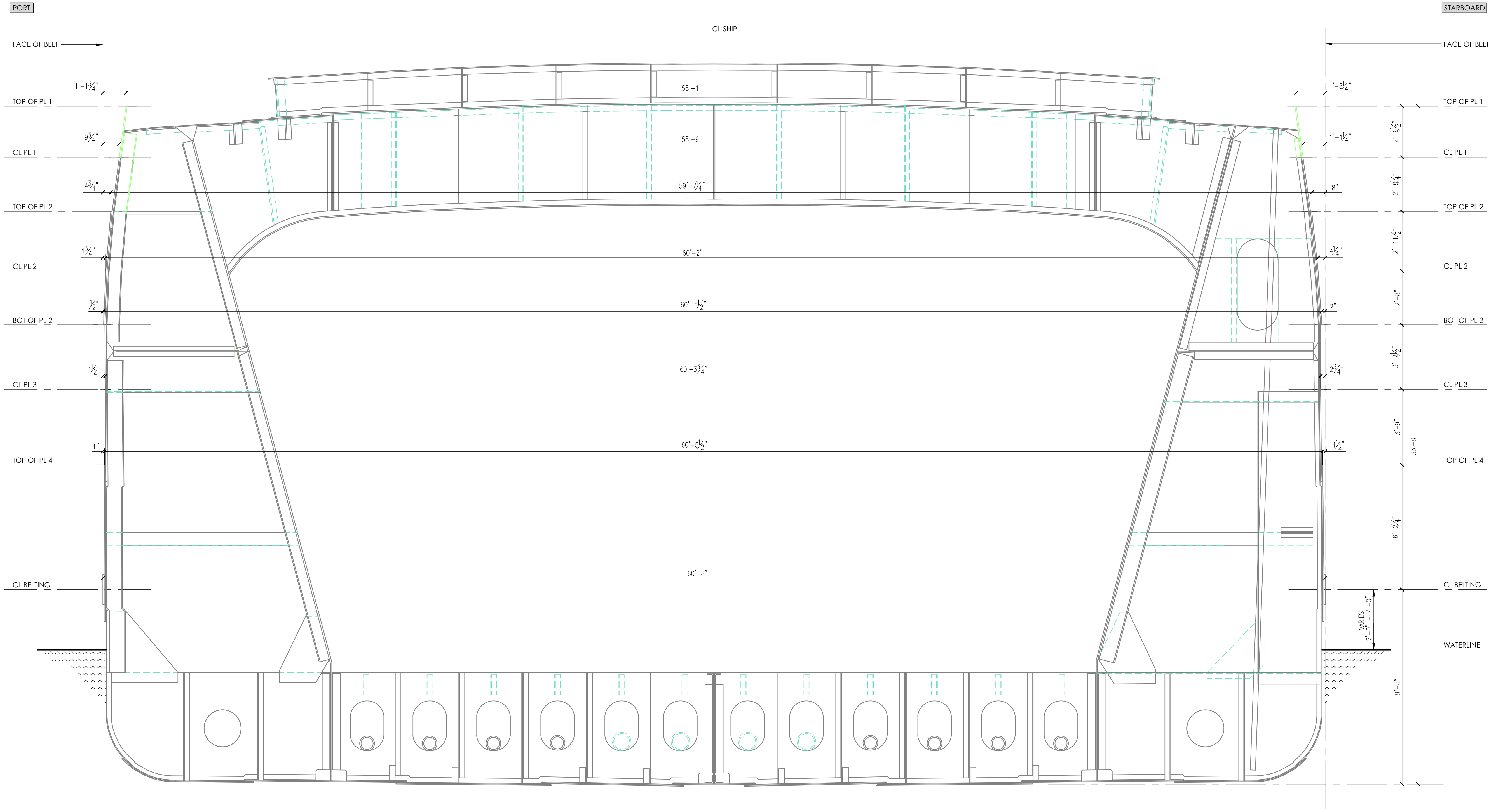
- NOTES:
1. STATIONING BEGINS AT THE STERN OF THE IRVIN AT THE EXTREME MEASUREMENT OF TOP OF PLATE 1. SEE 2/S1.0.
 2. ALL MEASUREMENTS HAVE AN ACCURACY OF 1"±.

REV. BY:					
DESCRIPTION					
REV:					
DATE:					

Irvin Relocation Design
City of Duluth
350 Harbor Drive
Duluth, Minnesota
Irvin Section at Sta 2 + 65
Section 2

JOB No: 181078
DATE: 07.10.18
DRAWN BY: DLB
DESIGNED BY: CAD

SHEET:
S3.0



1
S4.0 IRVIN SECTION AT STA V: 3 + 86
3/8\" = 1'-0\" (24 X 36 PLOT)

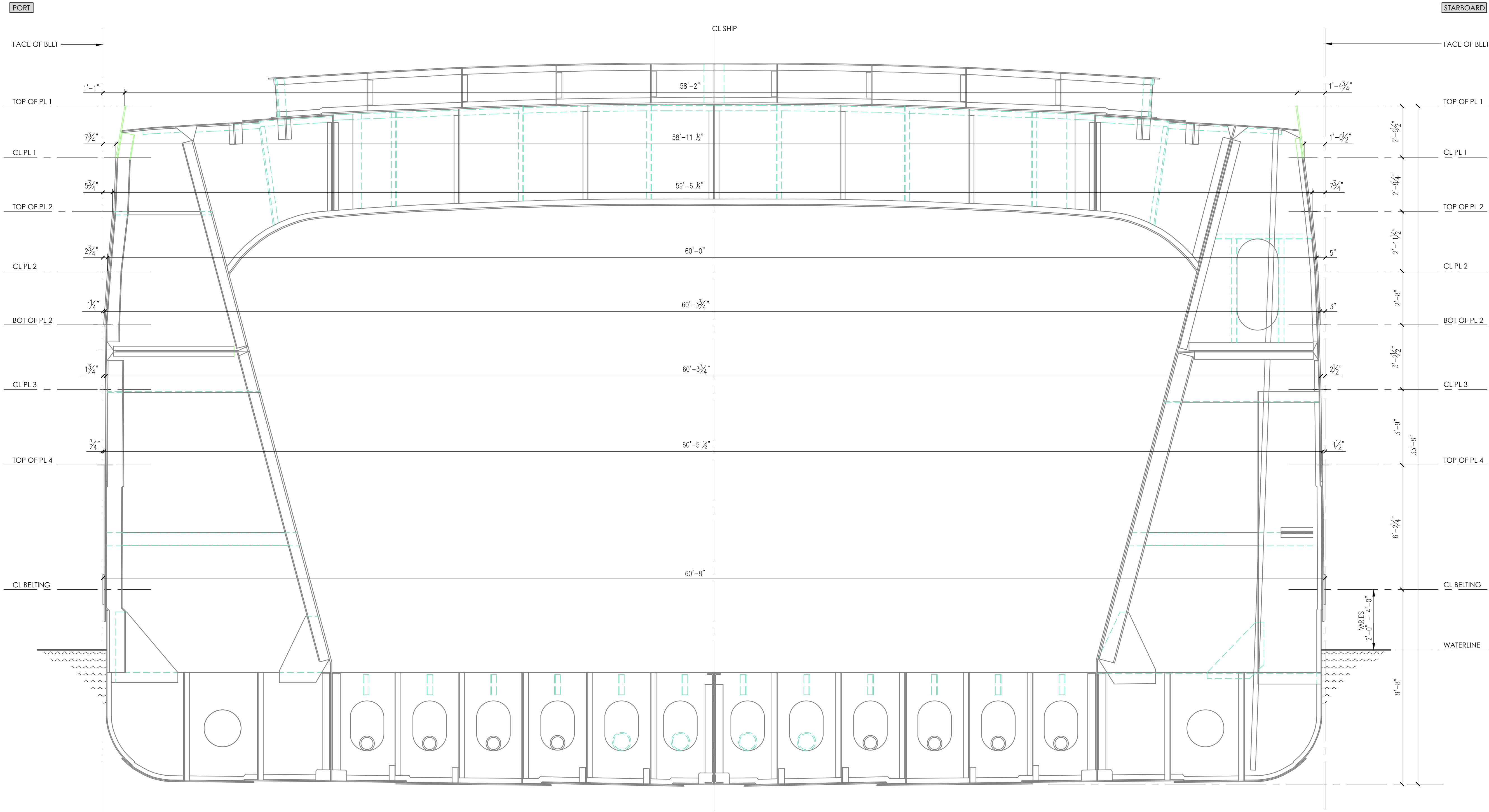
- NOTES:
1. STATIONING BEGINS AT THE STERN OF THE IRVIN AT THE EXTREME MEASUREMENT OF TOP OF PLATE 1. SEE 2/S1.0.
2. ALL MEASUREMENTS HAVE AN ACCURACY OF 1\"±.

REV. BY:					
DESCRIPTION					
REV:					
DATE:					

Irvin Relocation Design
City of Duluth
350 Harbor Drive
Duluth, Minnesota
Irvin Section at Sta 3 + 86
Section 3

JOB No: 181078
DATE: 07.10.18
DRAWN BY: DLB
DESIGNED BY: CAD

SHEET:
S4.0



1
S5.0 IRVIN SECTION AT STA V: 4 + 85
3/8" = 1'-0" (24 X 36 PLOT)

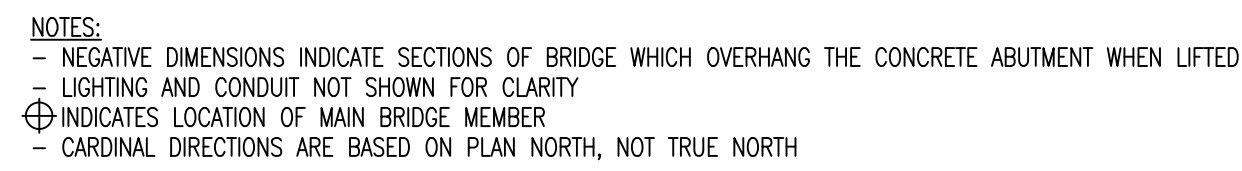
- NOTES:
1. STATIONING BEGINS AT THE STERN OF THE IRVIN AT THE EXTREME MEASUREMENT OF TOP OF PLATE 1. SEE 2/S1.0.
 2. ALL MEASUREMENTS HAVE AN ACCURACY OF 1"±.

REV. BY:					
DESCRIPTION					
REV:					
DATE:					

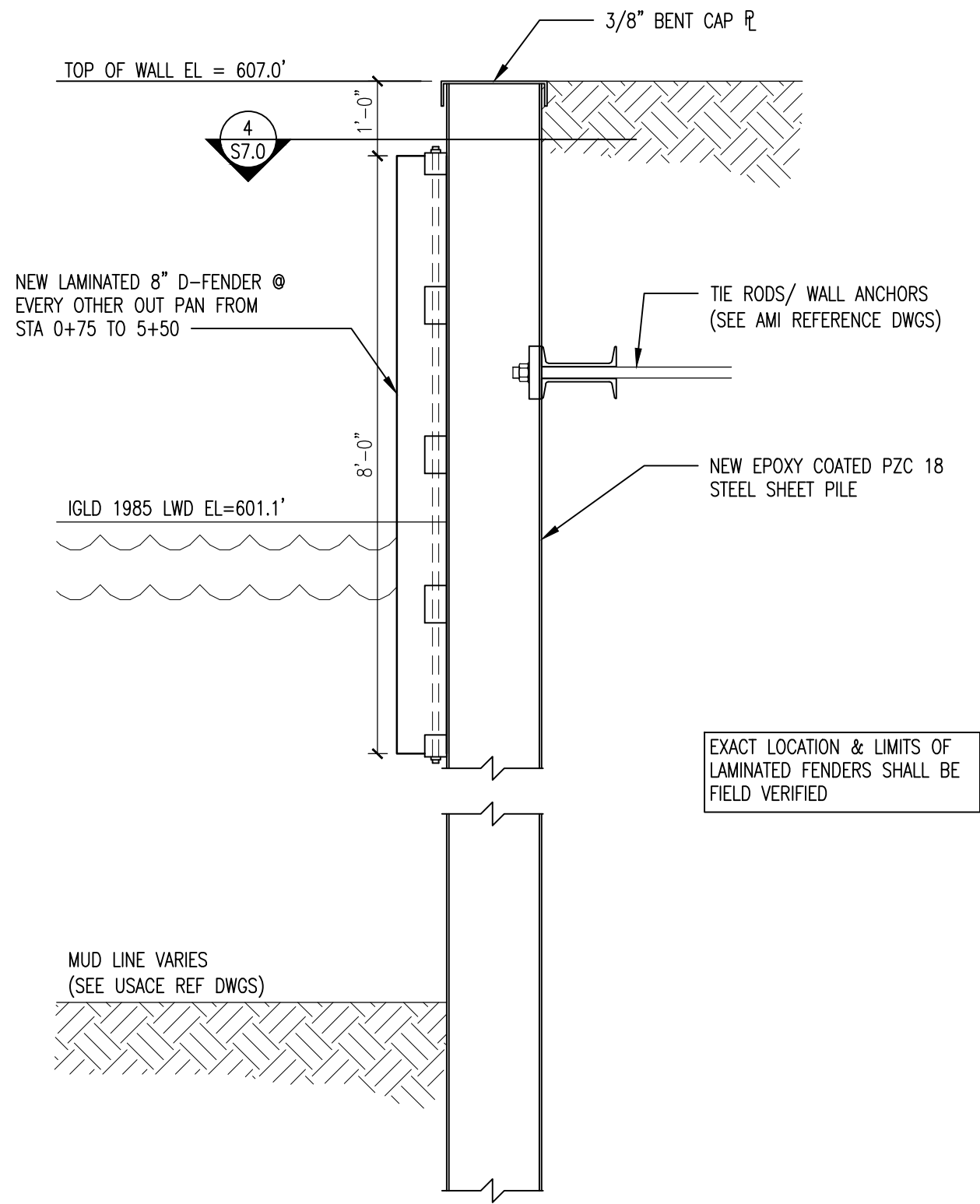
Irvin Relocation Design
City of Duluth
350 Harbor Drive
Duluth, Minnesota
Irvin Section at Sta 4 + 82
Section 4

JOB No: 181078
DATE: 07.10.18
DRAWN BY: DLB
DESIGNED BY: CAD

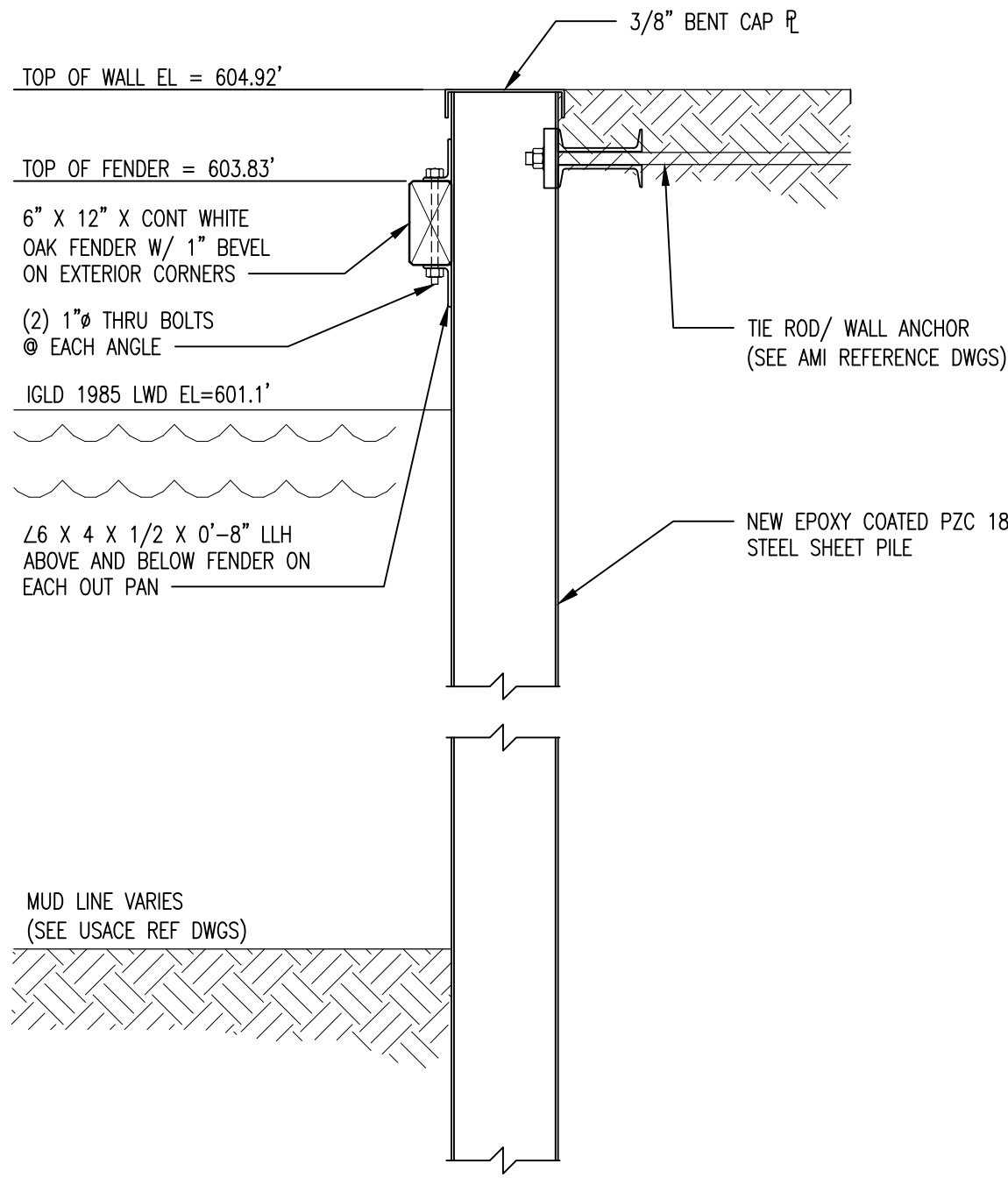
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S5.0



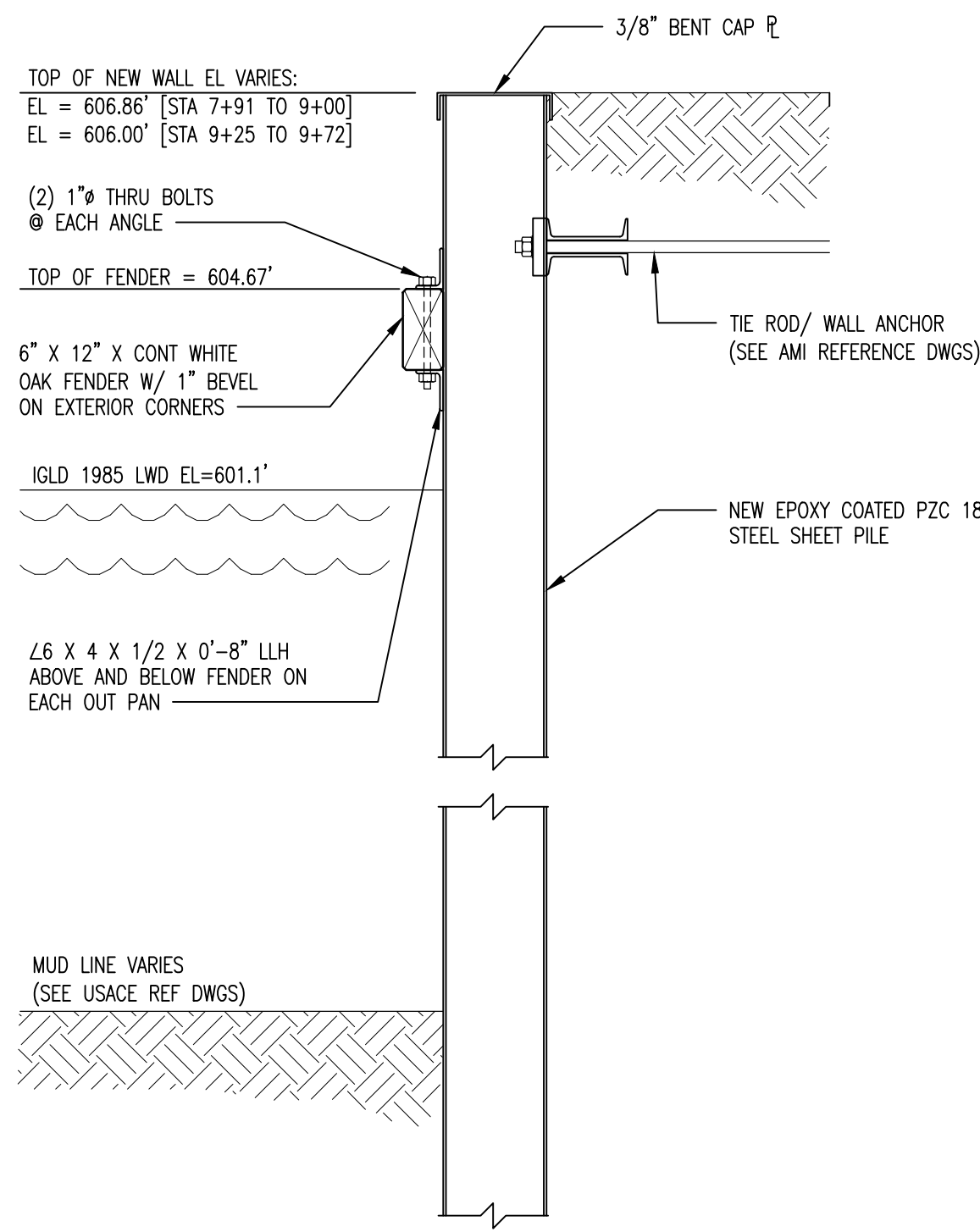
THE CITY OF DULUTH WILL PARTIALLY DISASSEMBLE THE BRIDGE ON THE CANAL PARK (EAST) SIDE SO THAT ALL COMPONENTS ARE BEHIND OR INLINE WITH THE FACE OF THE CONCRETE ABUTMENT. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THIS CONDITION PRIOR TO IRVIN MOVE.



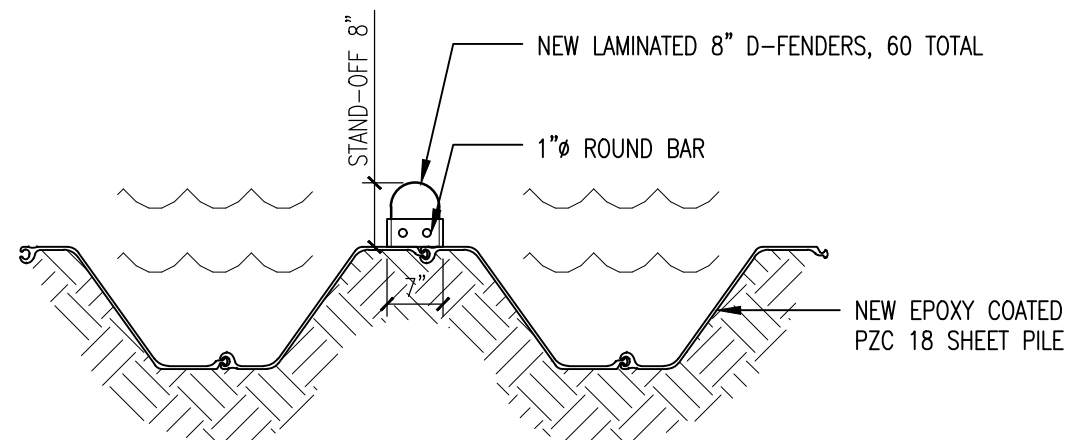
1
S7.0
Typical Dock Wall - STA 0 + 00 TO 6 + 65
SCALE: 1/2" = 1' - 0"



2
S7.0
Typical Dock Wall - STA 6 + 65 TO 7 + 91
SCALE: 1/2" = 1' - 0"



3
S7.0
Typical Dock Wall - STA 7 + 91 TO 9 + 00 & 9 + 25 TO 9 + 72
SCALE: 1/2" = 1' - 0"
1. REFER TO MN SLIP PEDESTRIAN BRIDGE HISTORICAL DRAWINGS FOR DETAILS ON BRIDGE FOUNDATION BETWEEN STATION 9+00 AND 9+25



4
S7.0
Typical Dock Wall Plan - STA 0 + 00 TO 6 + 65
SCALE: 1/2" = 1' - 0"

REV. BY:					
DESCRIPTION					
REV:					
DATE:					

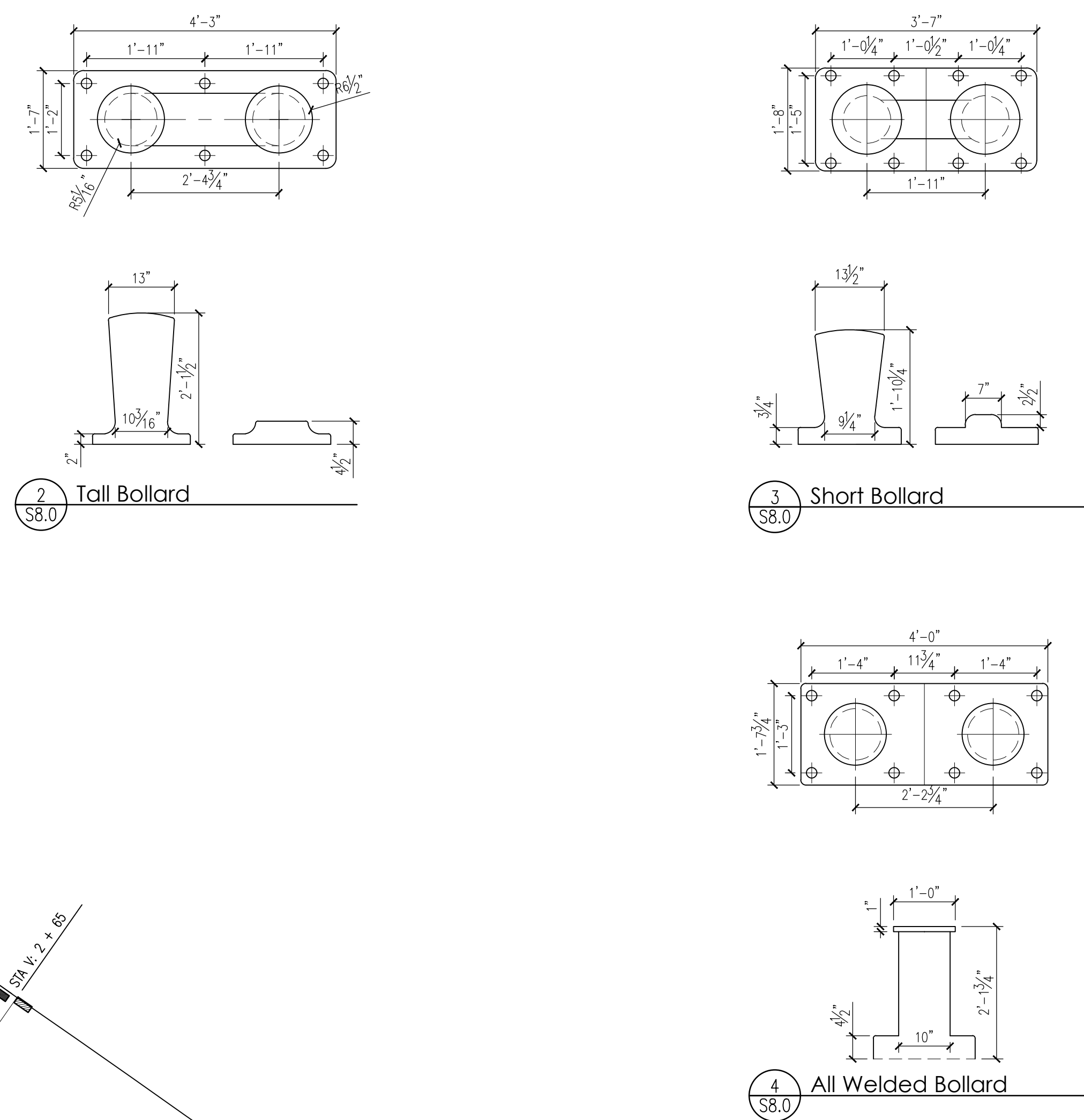
Irvin Relocation Design
City of Duluth
350 Harbor Drive
Duluth, Minnesota

Dock Wall Details

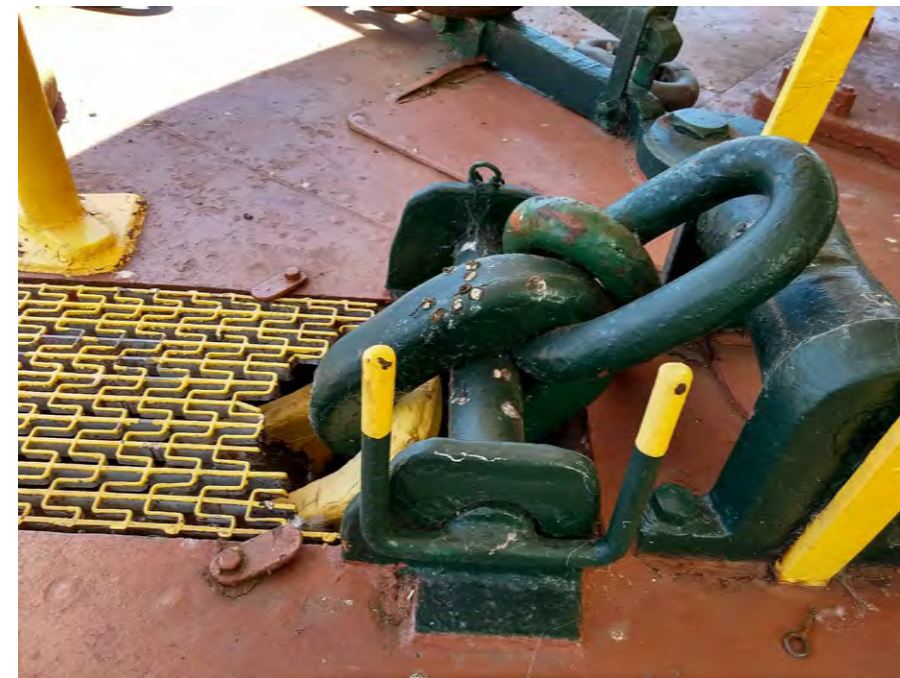
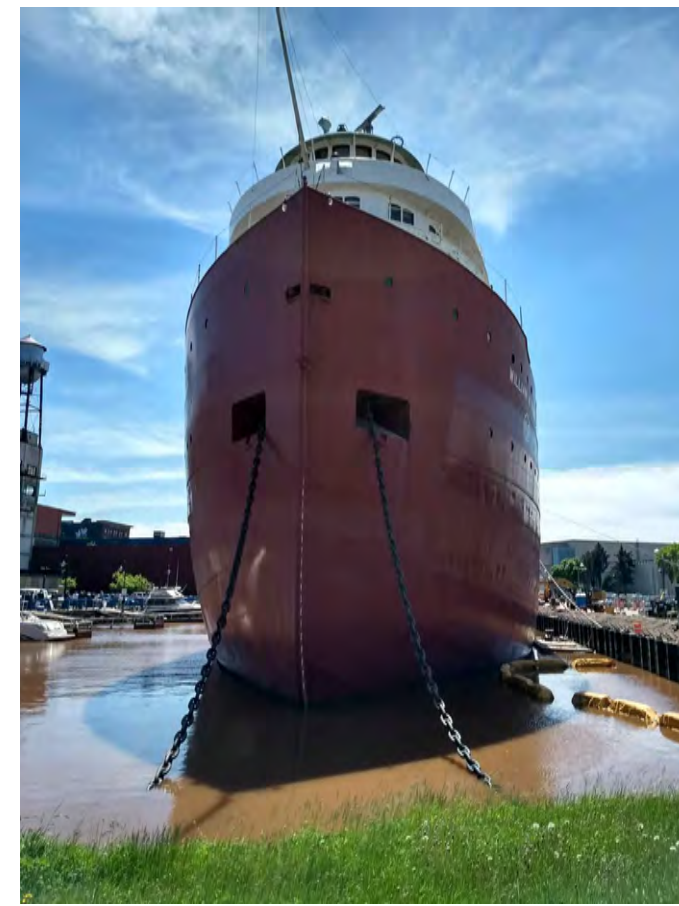
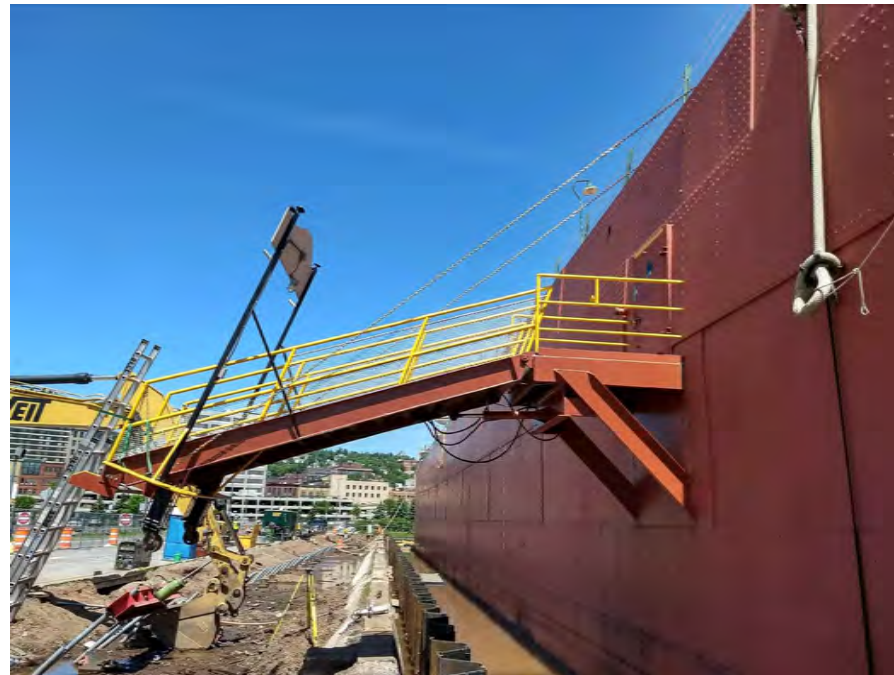
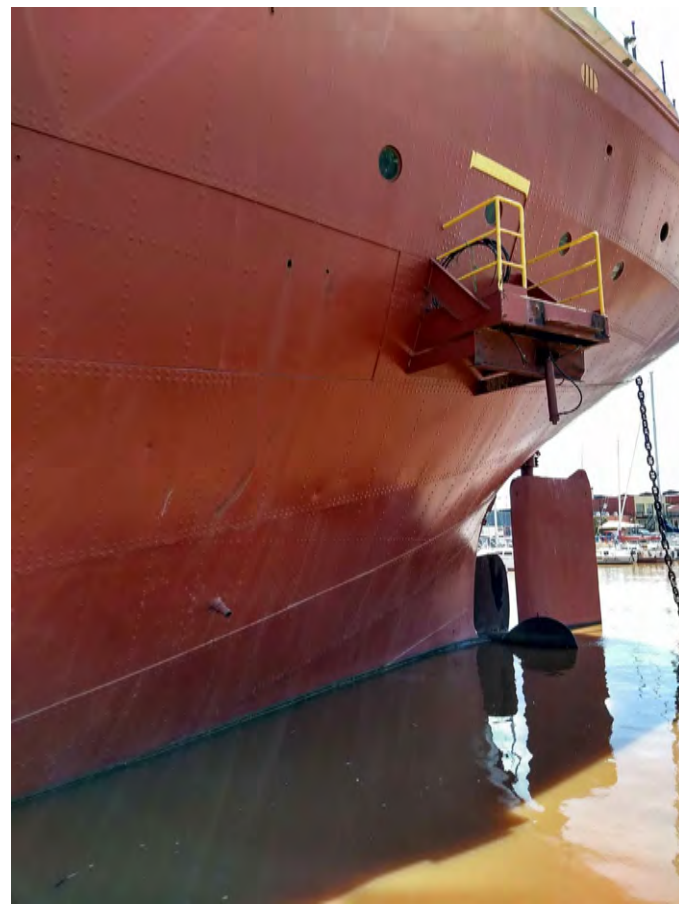
JOB No: 181078
DATE: 07.10.18
DRAWN BY: SAJ
DESIGNED BY: CAD

SHEET:

S7.0



1 Irvin Plan - Anchors & Mooring
S8.0 SCALE: 1" = 25' - 0"

[illegible]

Irvin Relocation Design City of Duluth 350 Harbor Drive Duluth, Minnesota	Irvin Anchors & Mooring Photos
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JOB No: 181078
DATE: 07.10.18
DRAWN BY: SAJ
DESIGNED BY: CWS

SHEET:

S8.1