

LEGEND

- Cable Submarine
- Cable Overhead
- Channel_Limits
- Contour Lines

SOUNDING LEGEND

- LESS THAN PROJECT DEPTH
- PROJECT DEPTH
- PROJECT DEPTH +1'
- PROJECT DEPTH +2'
- PROJECT DEPTH +3'
- PROJECT DEPTH +4'
- PROJECT DEPTH +5'

1 inch = 100 feet

Feet

0 100 200 300 400 500 600

- NOTES:**
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 6. IMAGERY SOURCED FROM: ESRI & 2014 NAIP IMAGERY

Keweenaw Waterway, MI

Keweenaw Waterway

KW_01_NAW_20200701_CS

01 July 2020

Sheet

Reference

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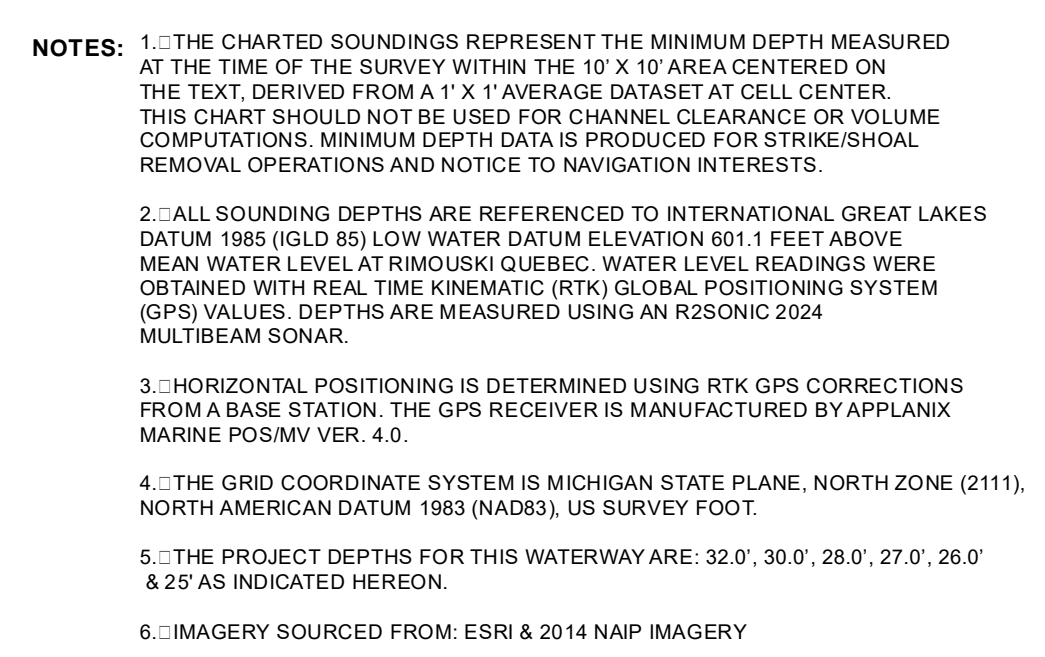
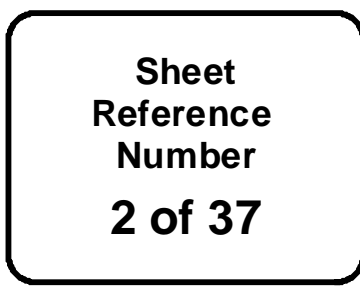
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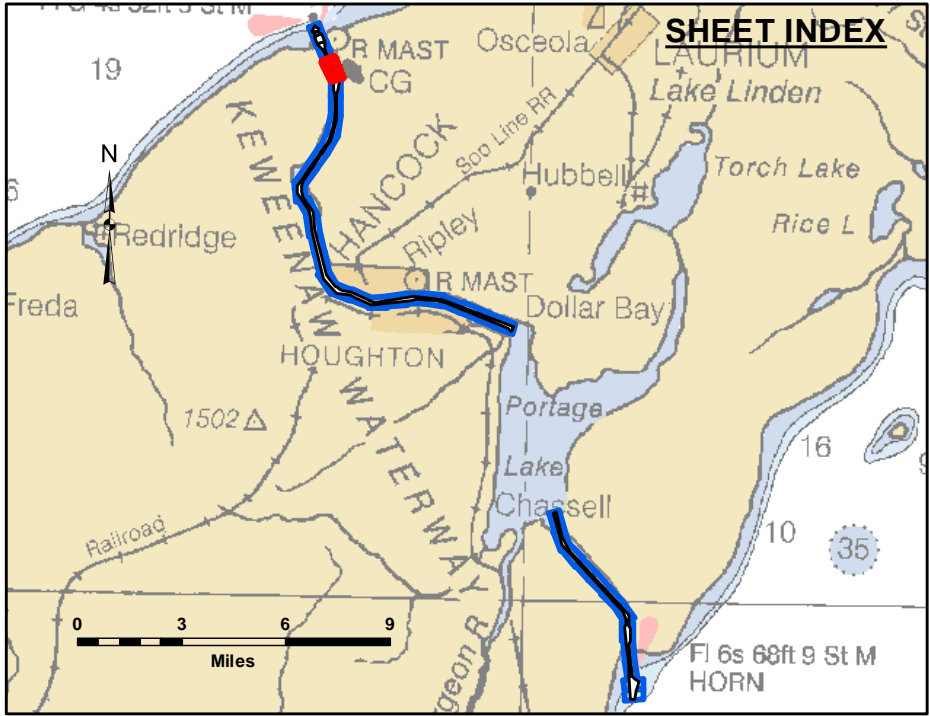
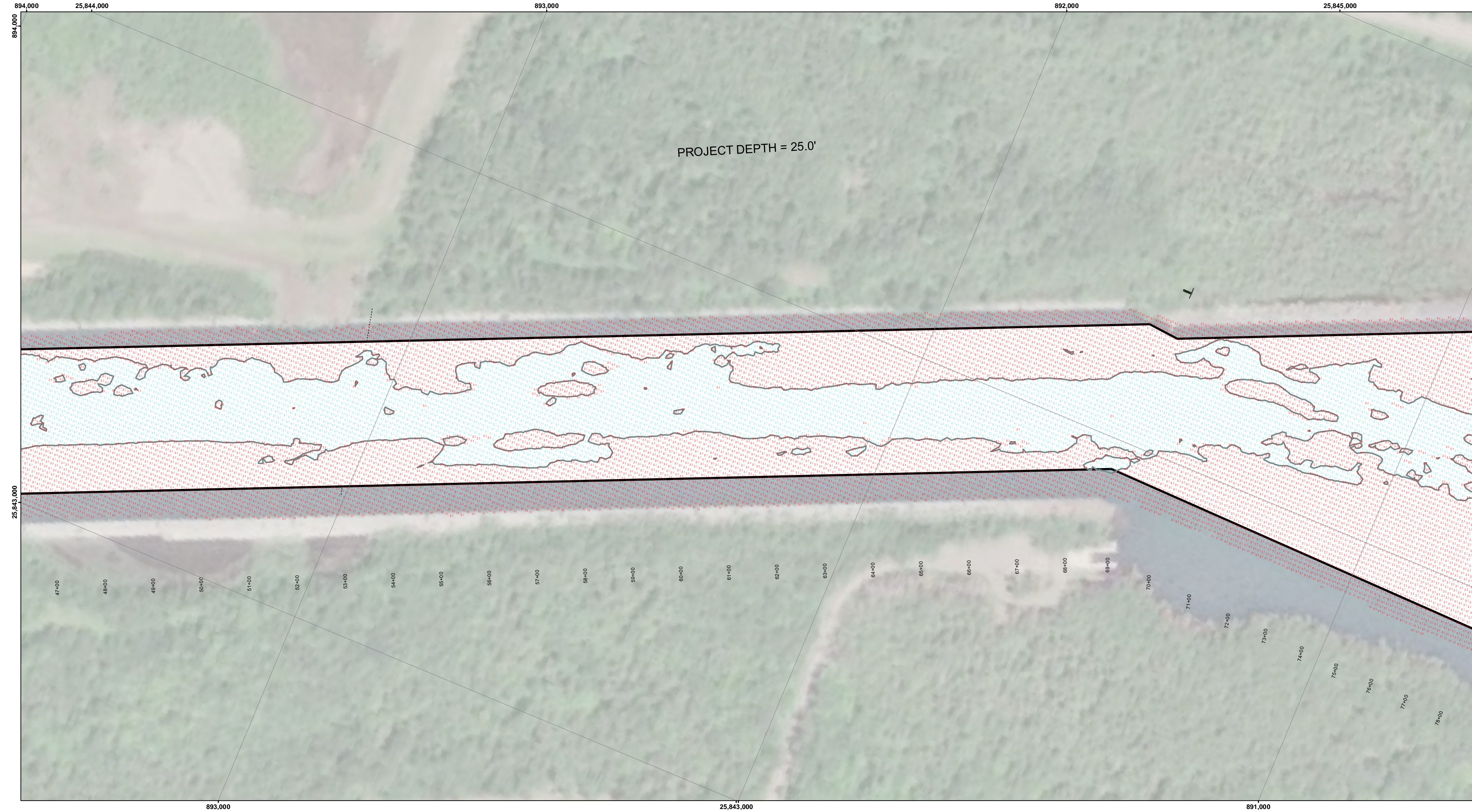
US Army Corps
of Engineers
District: CELRE

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U.S. ARMY CORPS OF ENGINEERS DETROIT DISTRICT		
Submitted:	Surveyed By:	
Recommended:	Plotted By:	
Approved:	Chief, Technical Services	



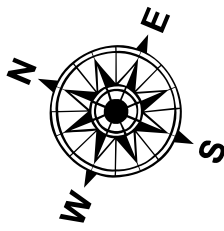


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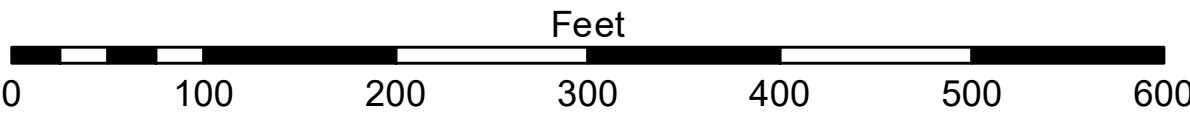
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**US Army Corps
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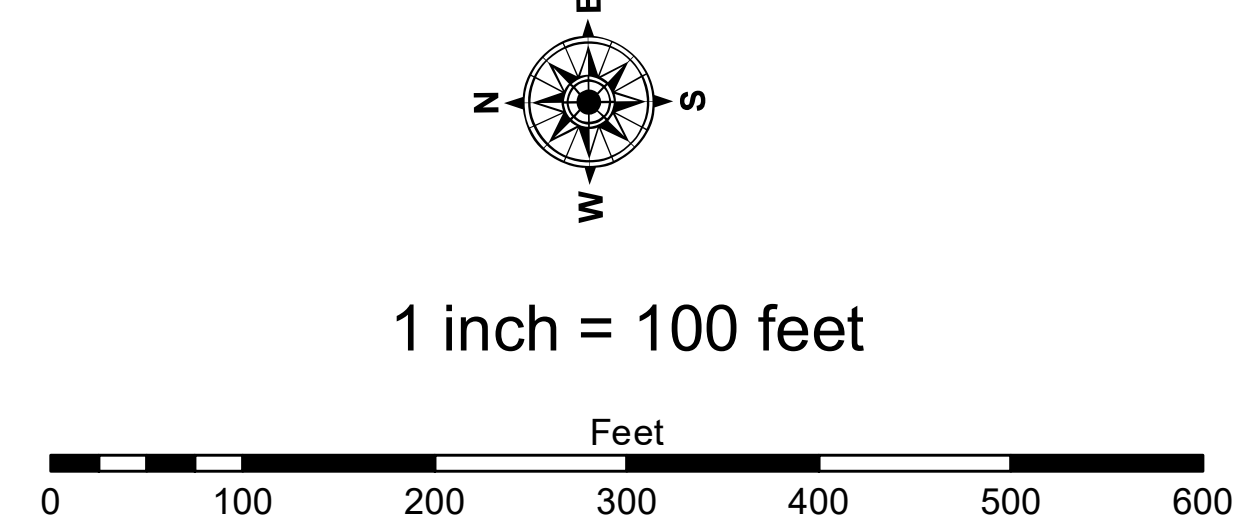
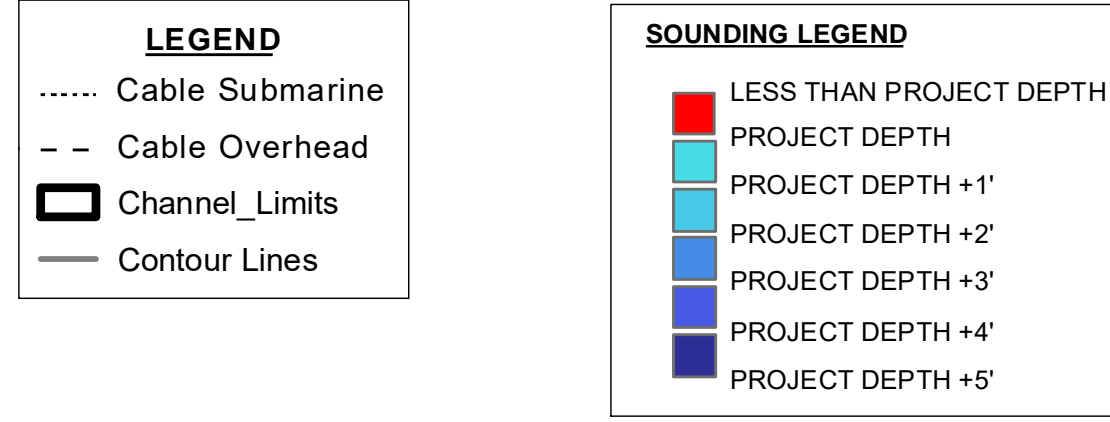
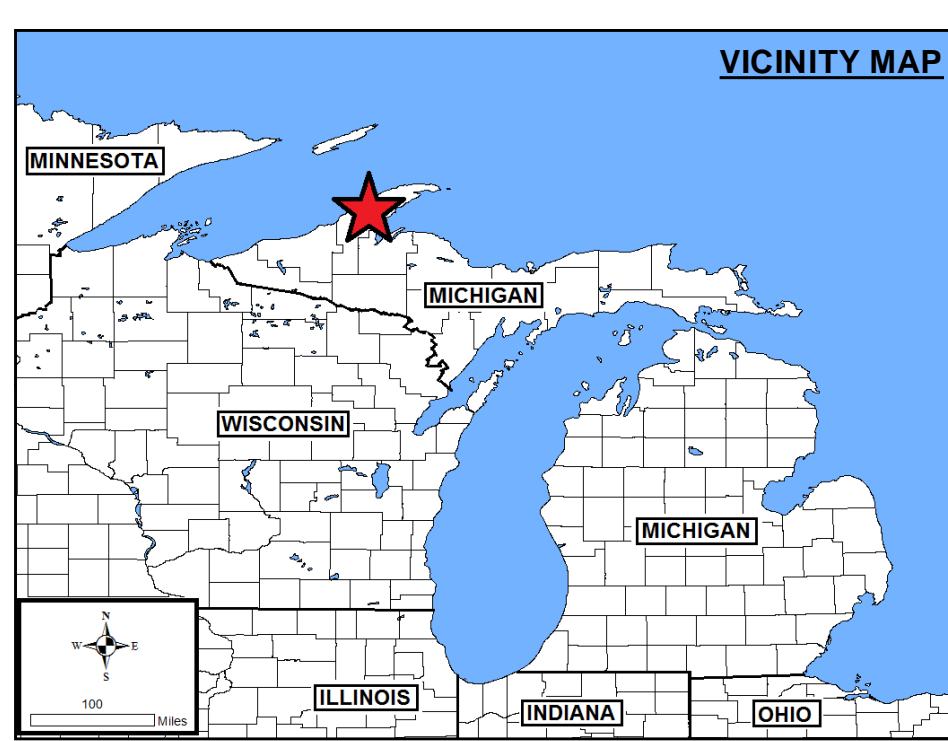
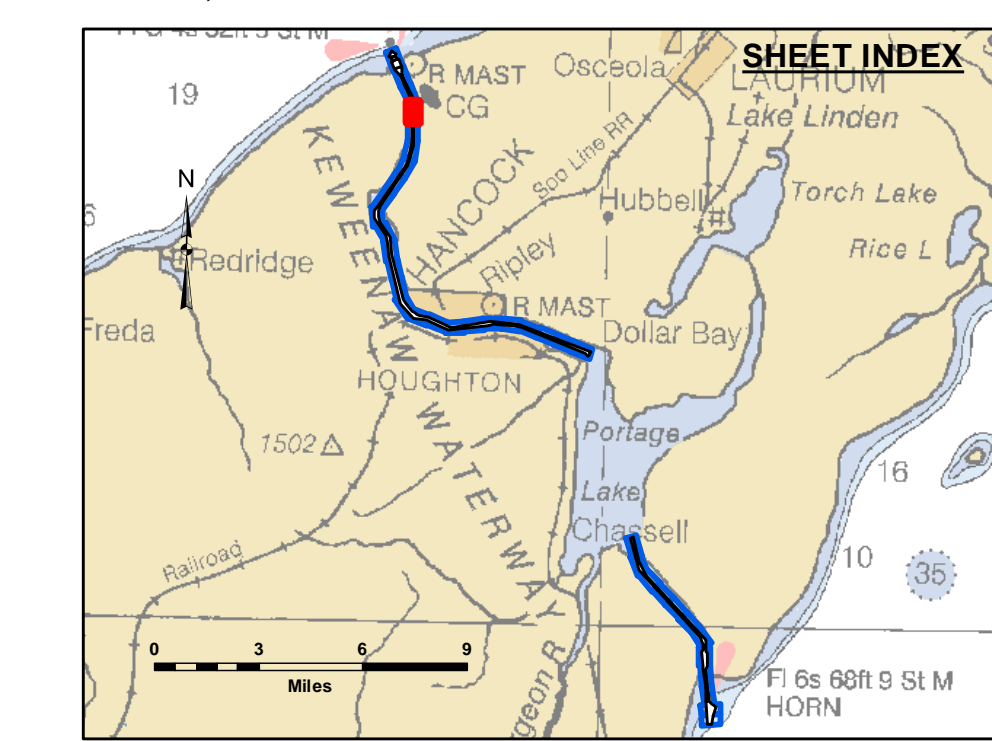
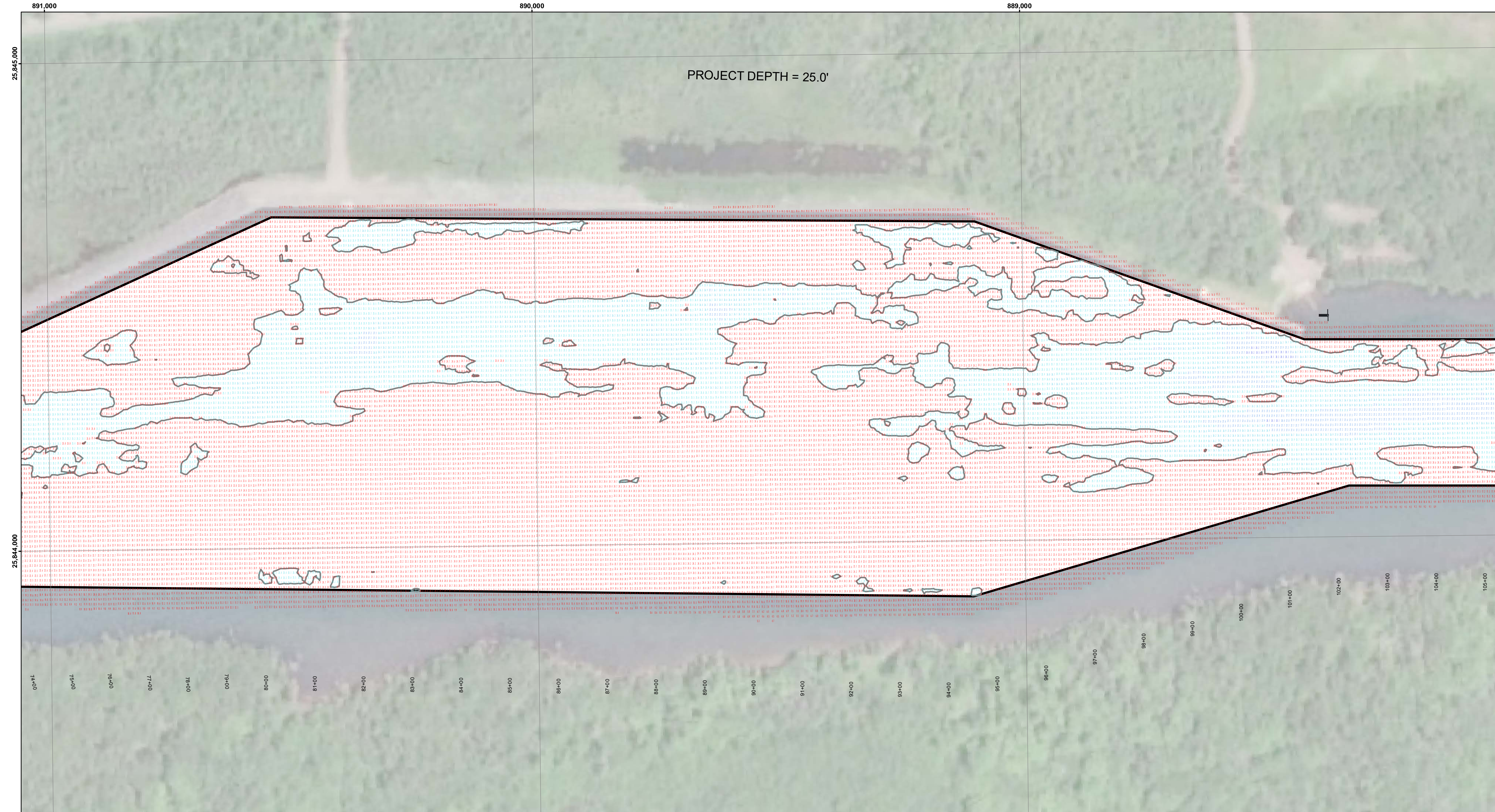
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U.S. ARMY CORPS OF ENGINEERS DETROIT DISTRICT		
Submitted:	Surveyed By: _____	
Recommended:	Plotted By: _____	
Approved:	Chief, Survey Section	Checked By: _____
	Chief, Technical Services	

Keweenaw Waterway, MI
Keweenaw Waterway
KW_01_NAW_20200701_CS
01 July 2020

**Sheet
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Number**
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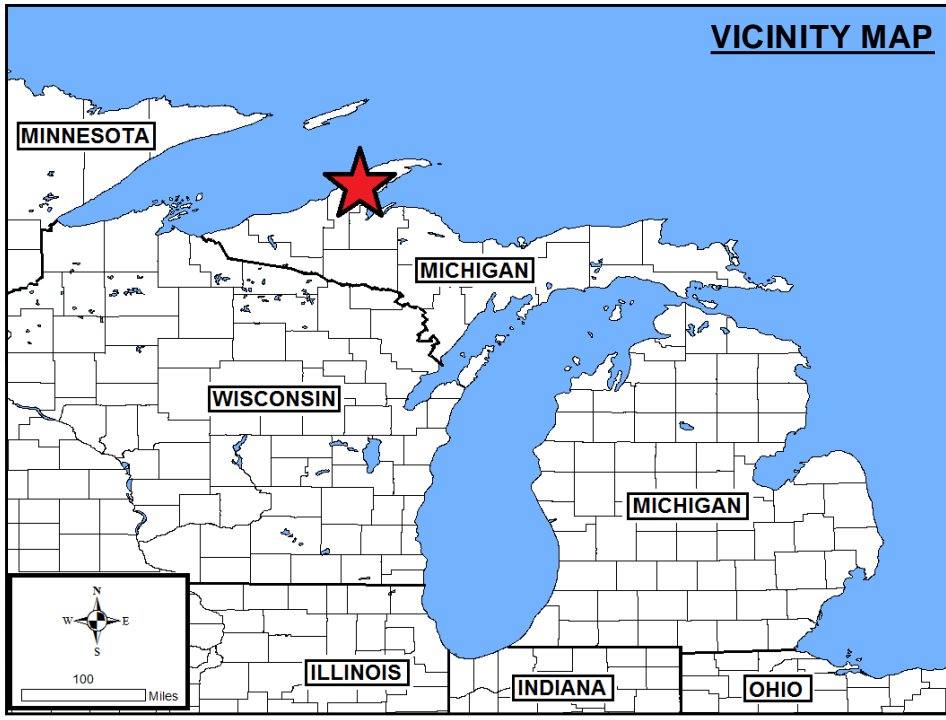
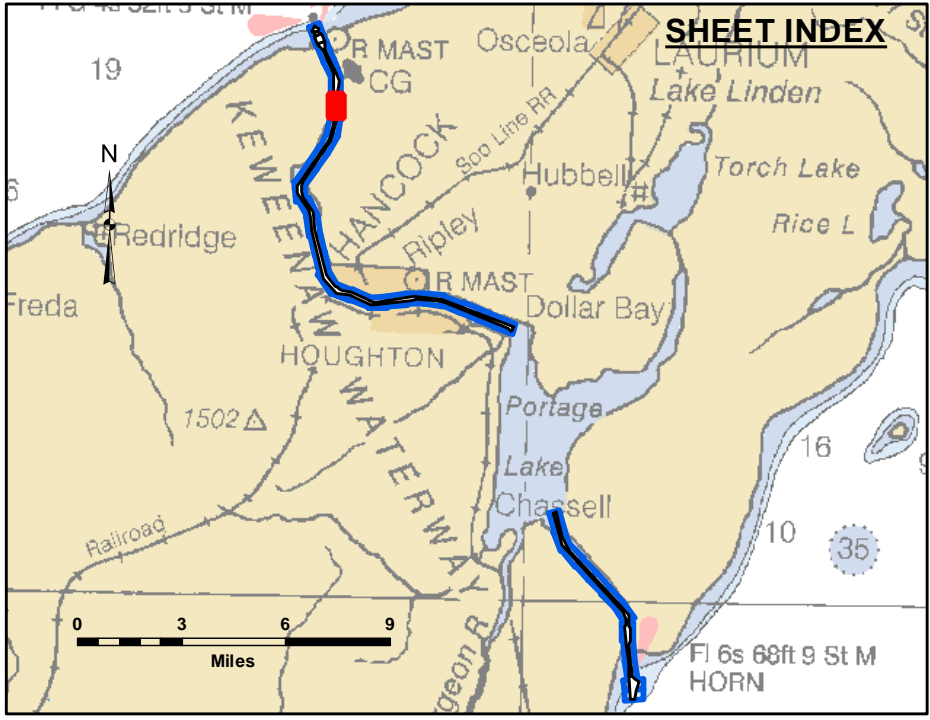
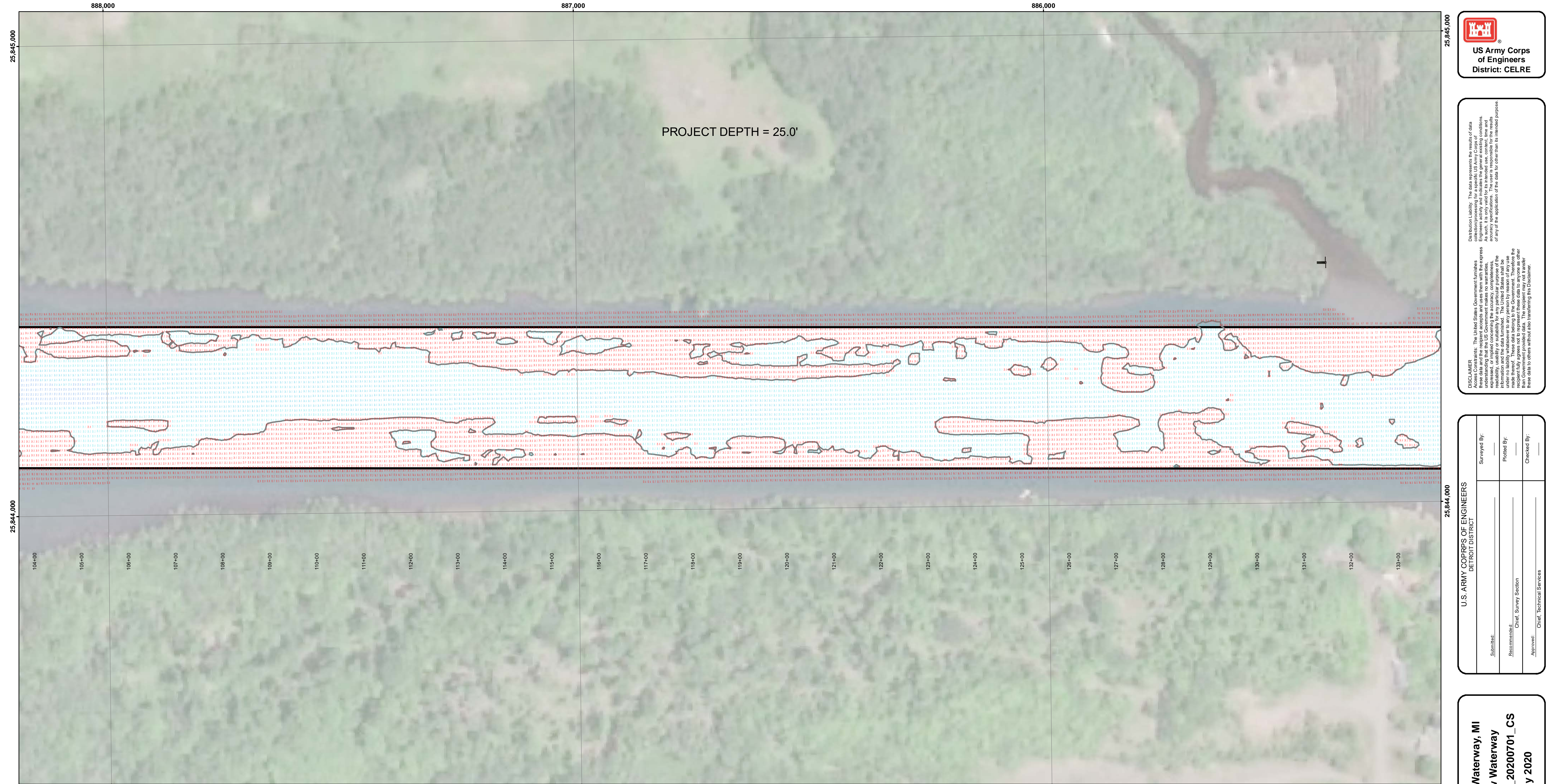
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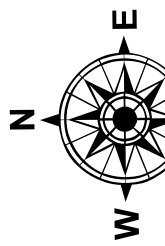
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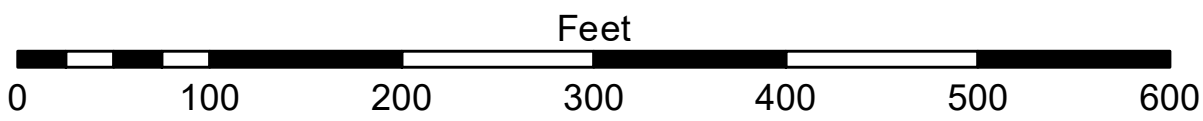


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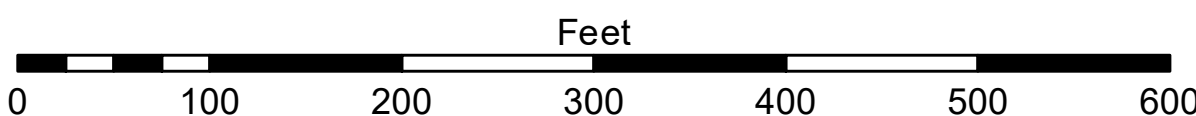
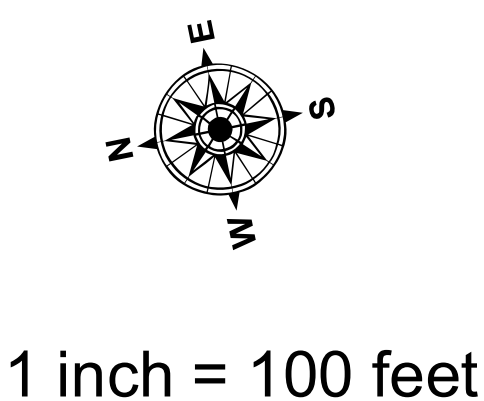
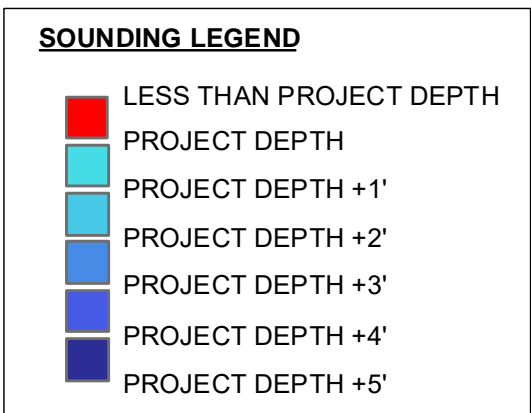
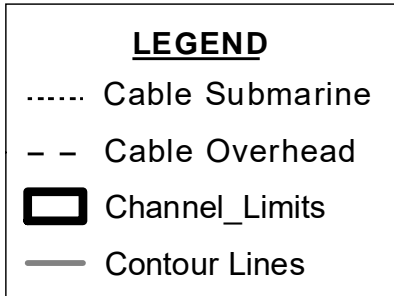
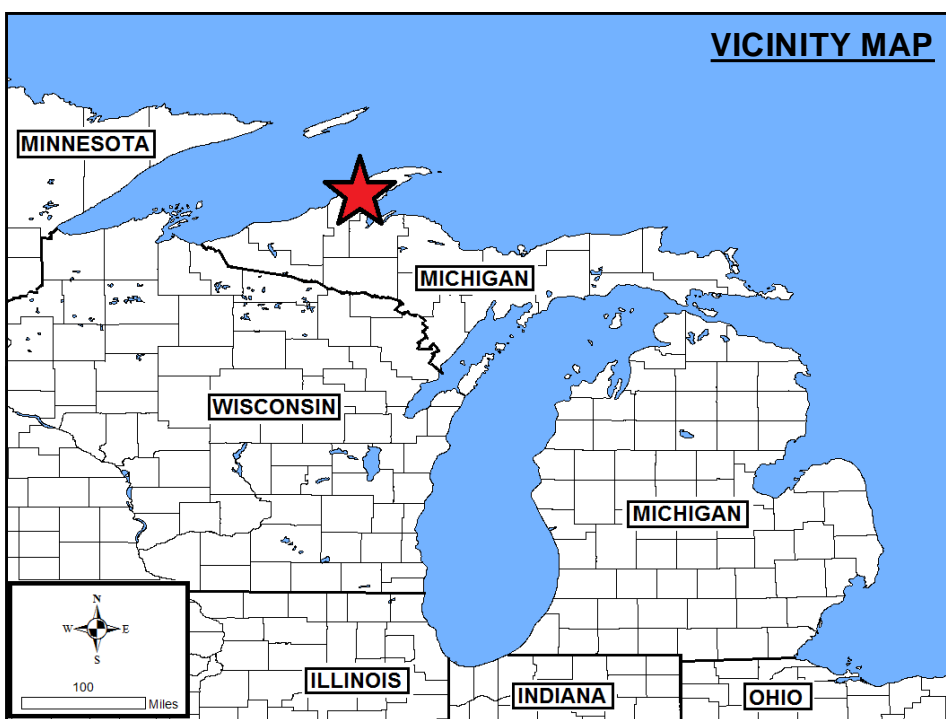
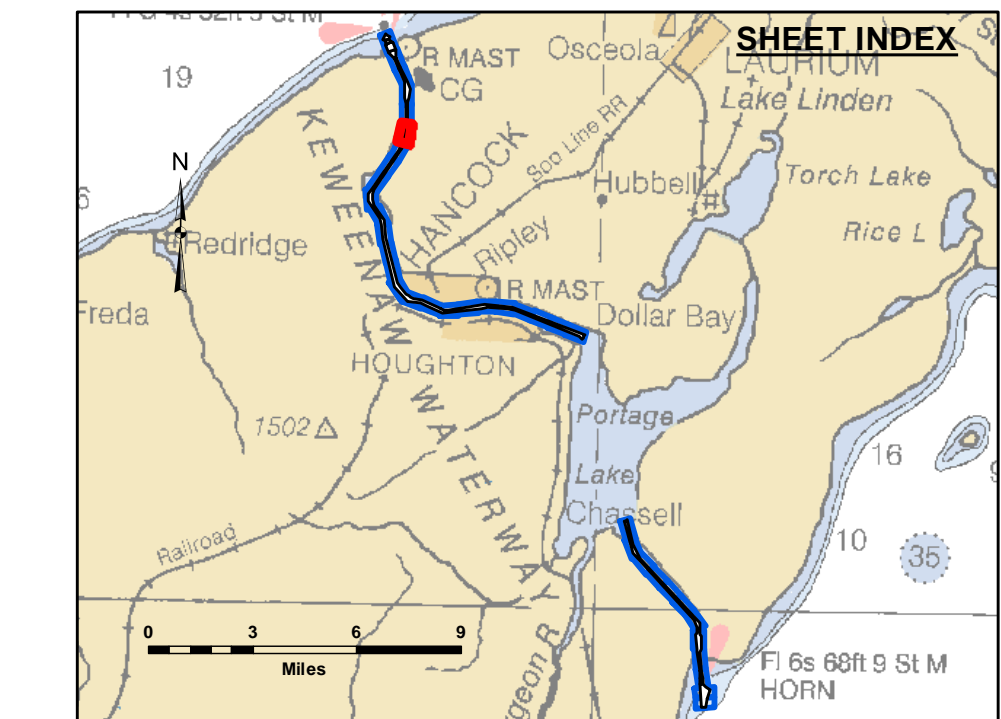
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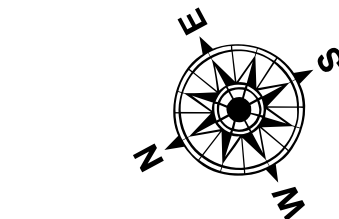
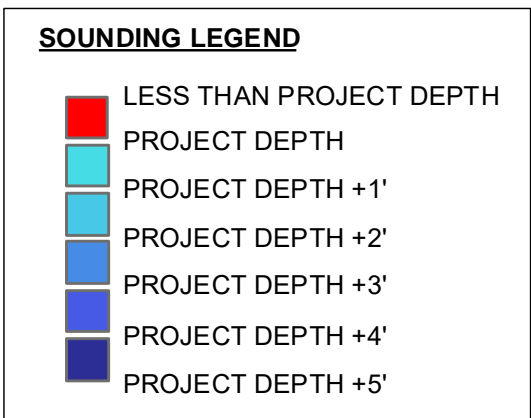
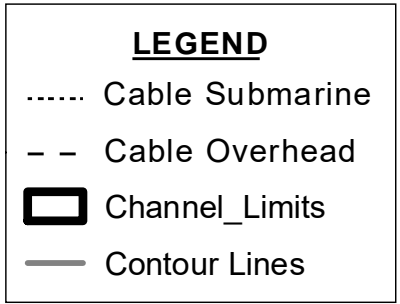
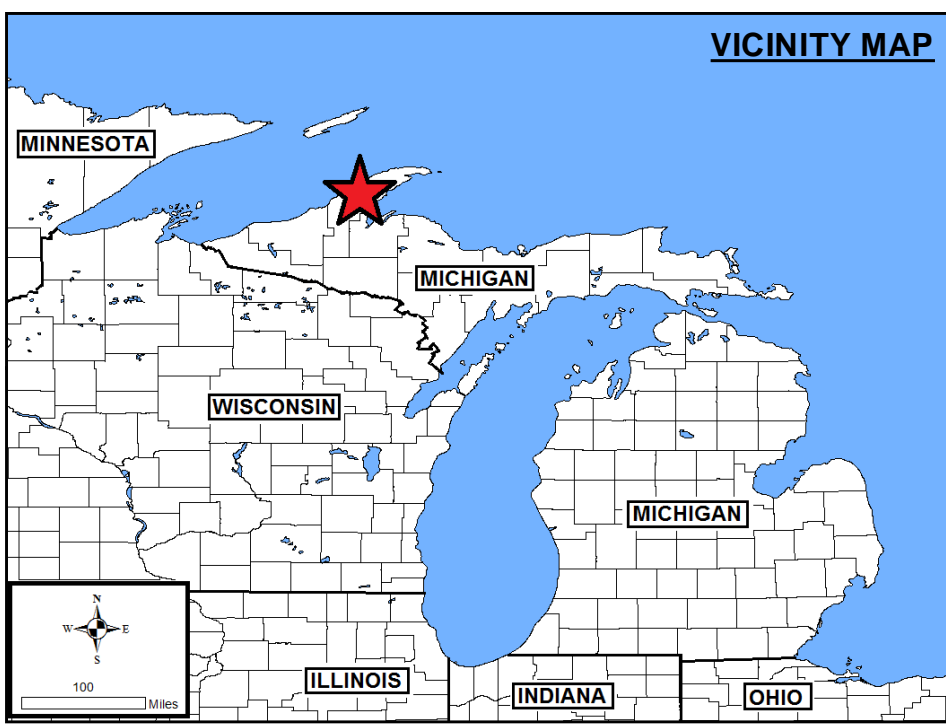
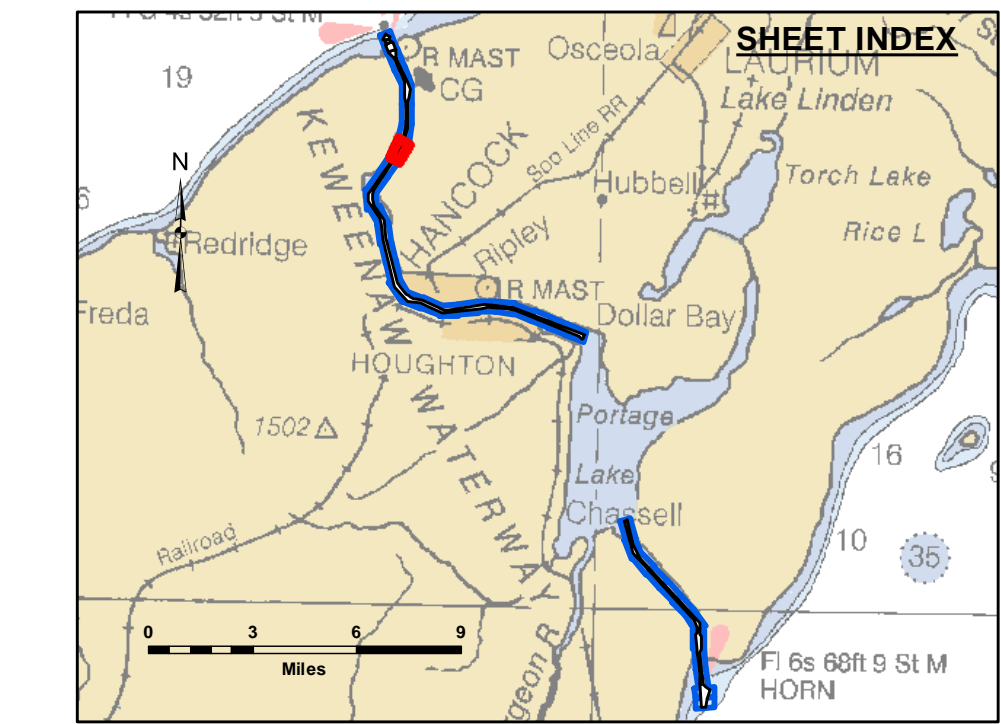
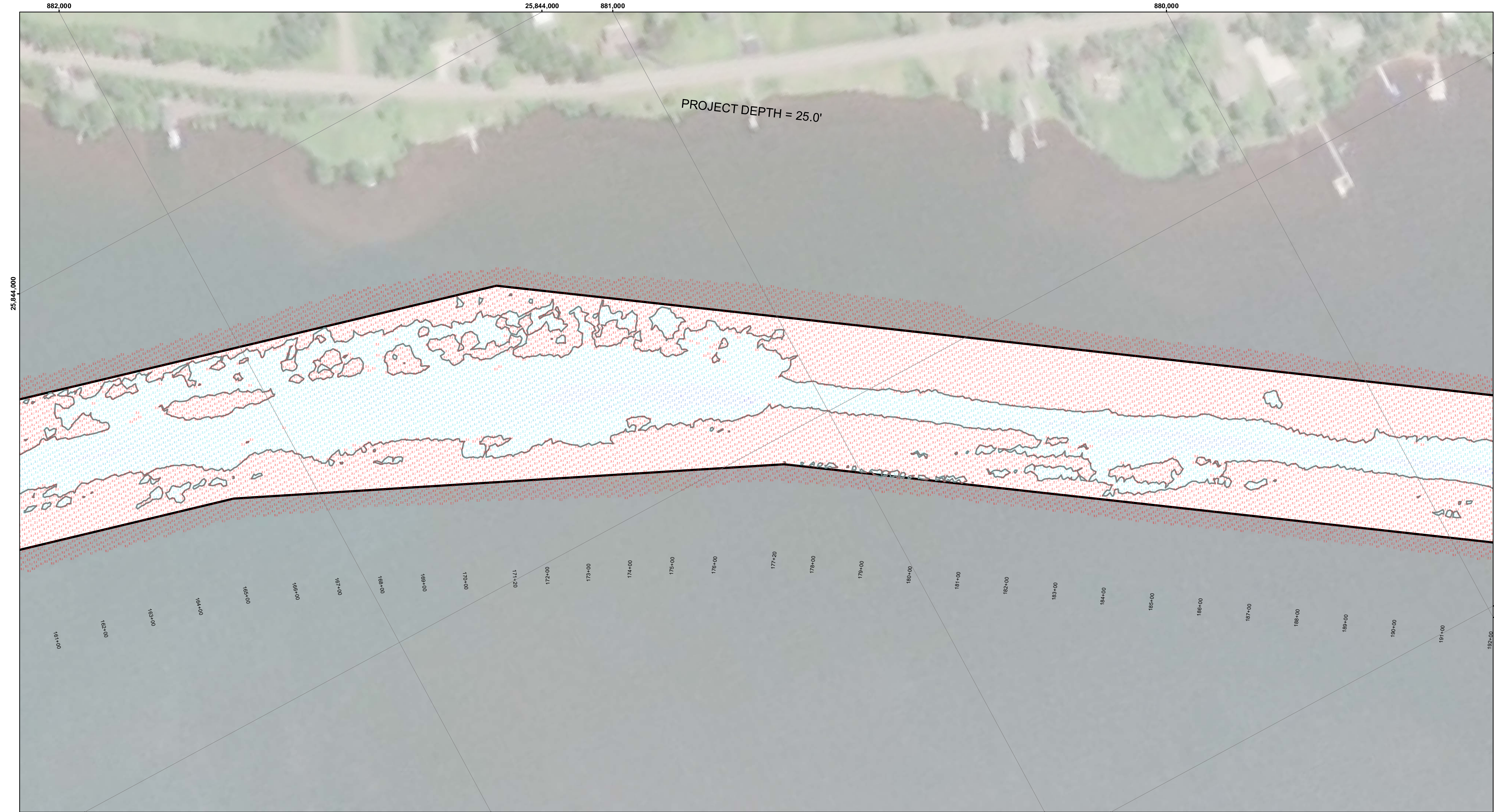
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U.S. ARMY CORPS OF ENGINEERS DETROIT DISTRICT	
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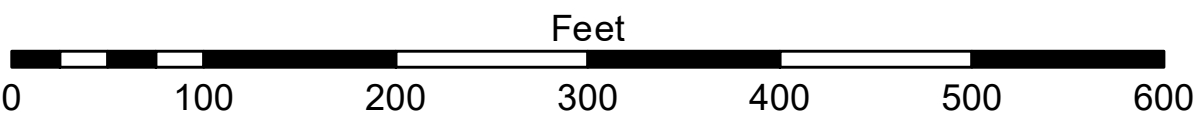
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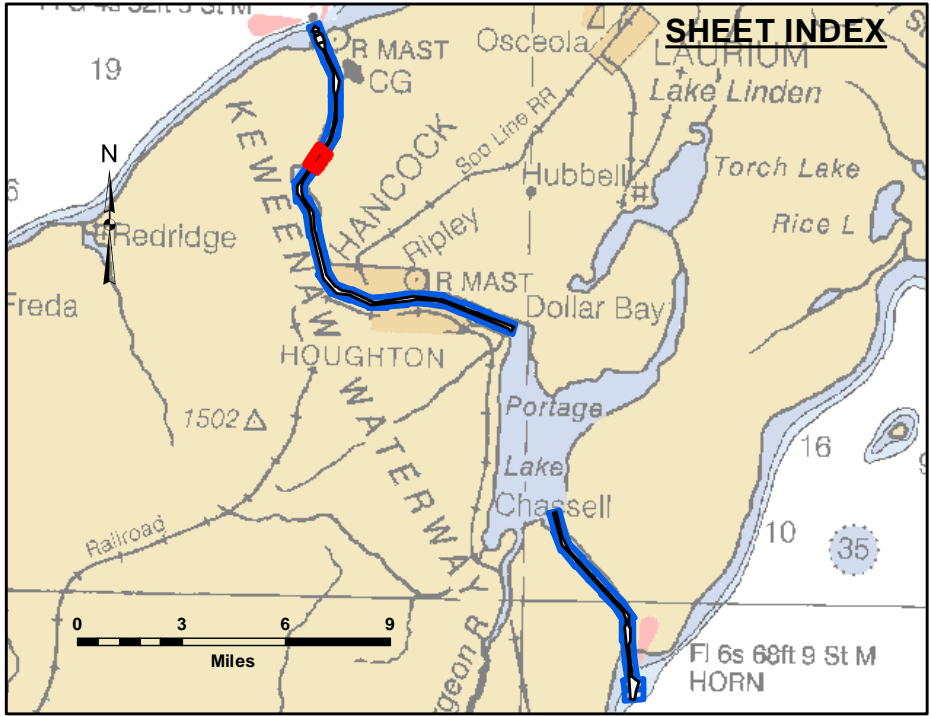
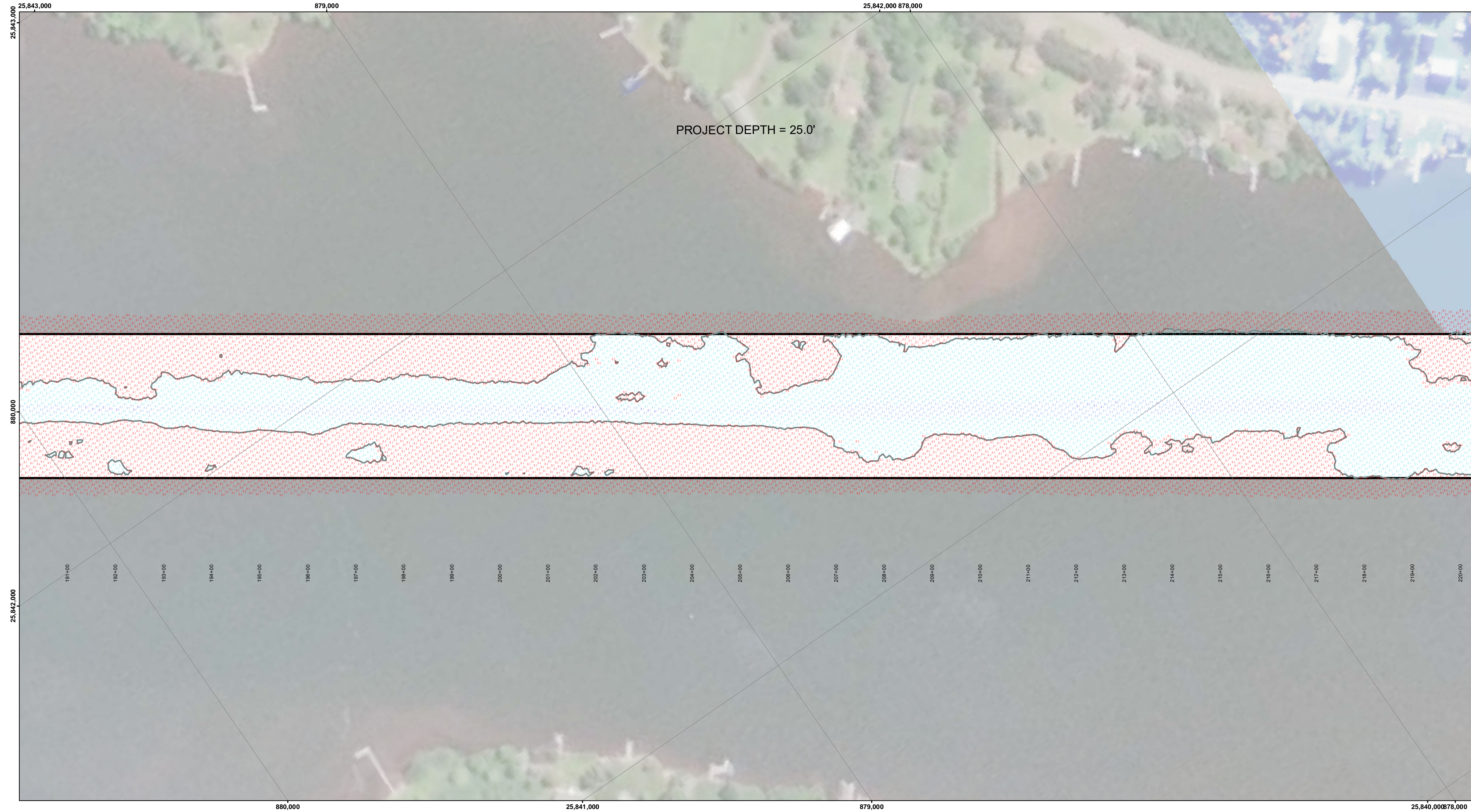
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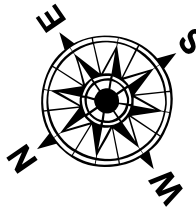


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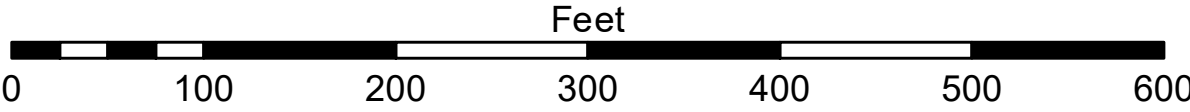
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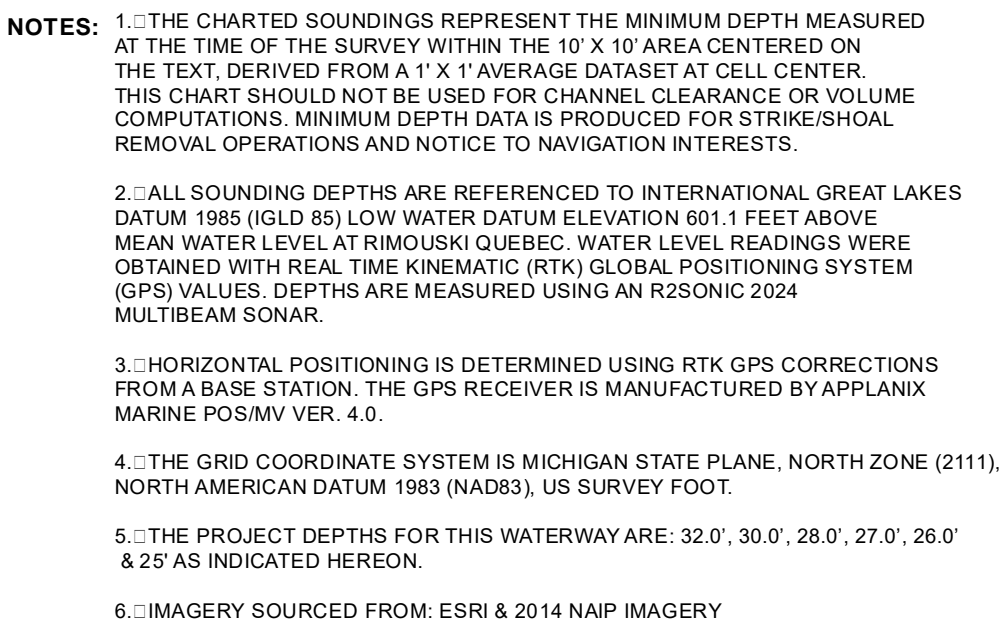
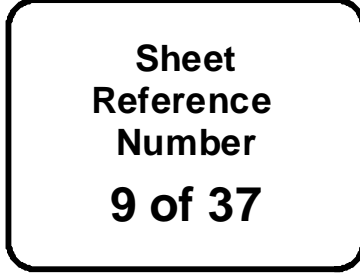

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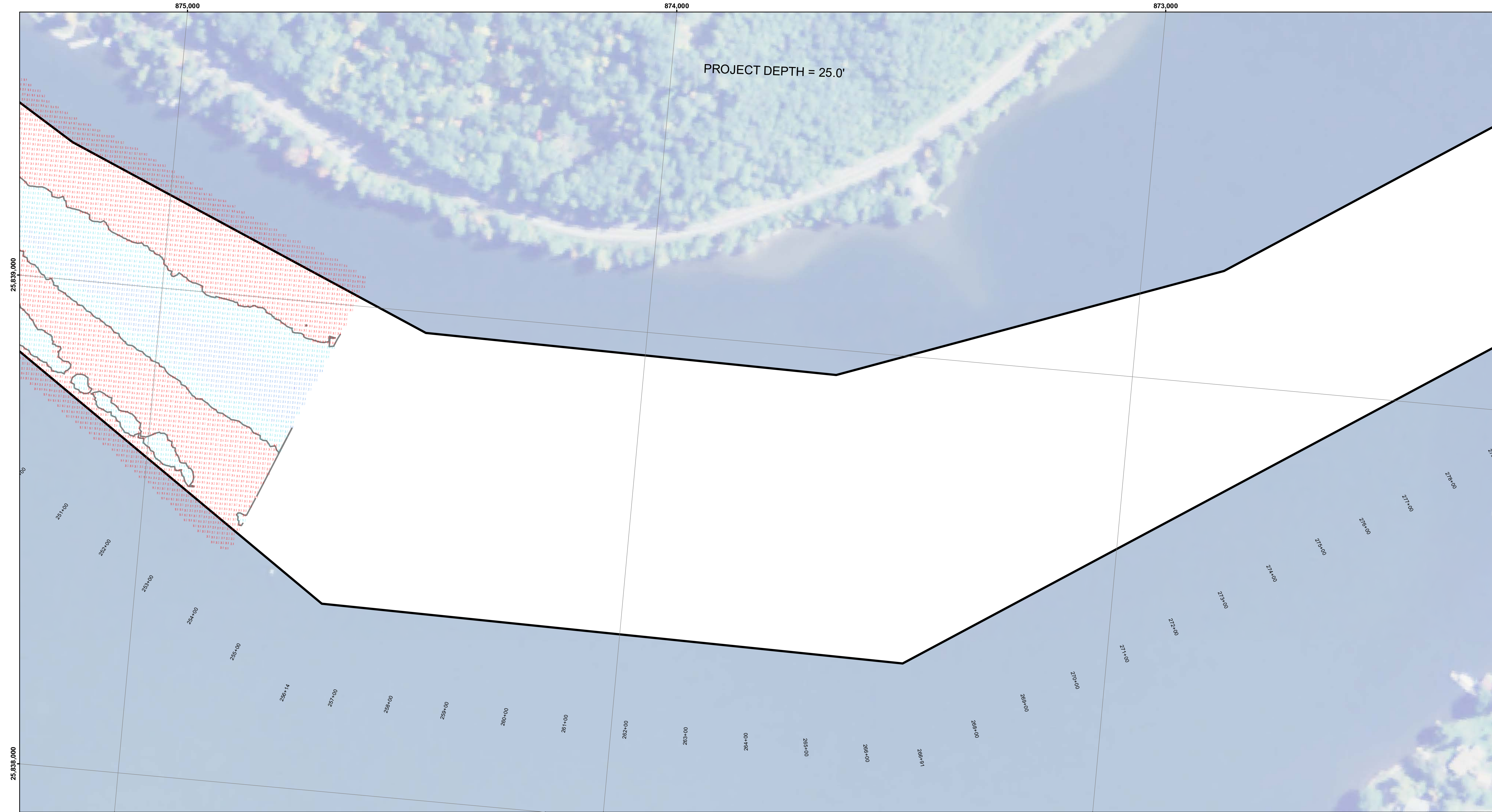
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Keweenaw Waterway, MI
Keweenaw Waterway
KW_01_NAW_20200701_CS
01 July 2020

**Sheet
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Number**
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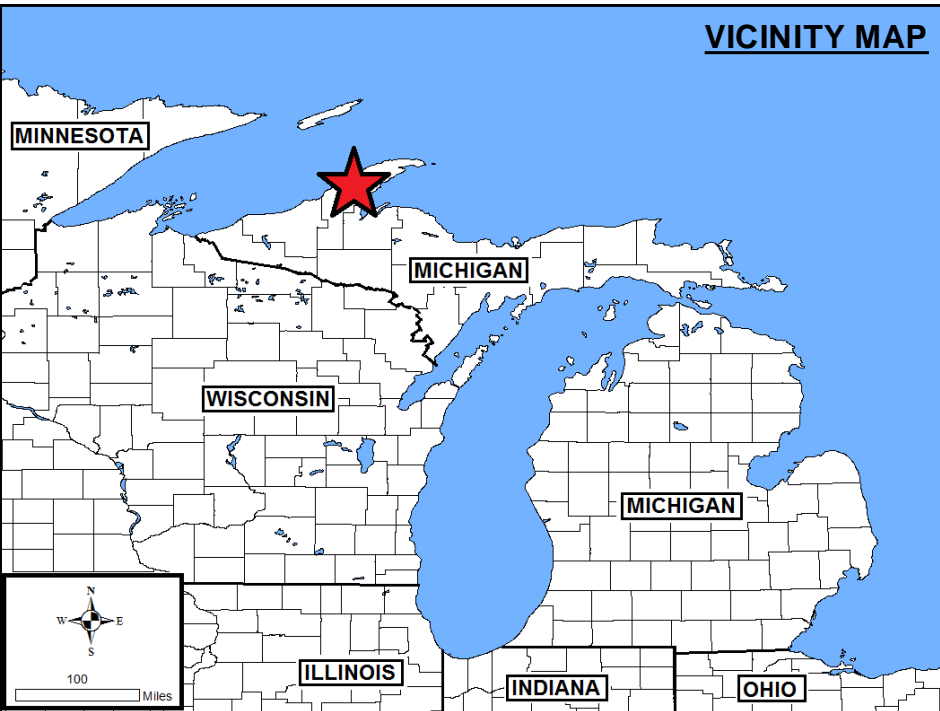
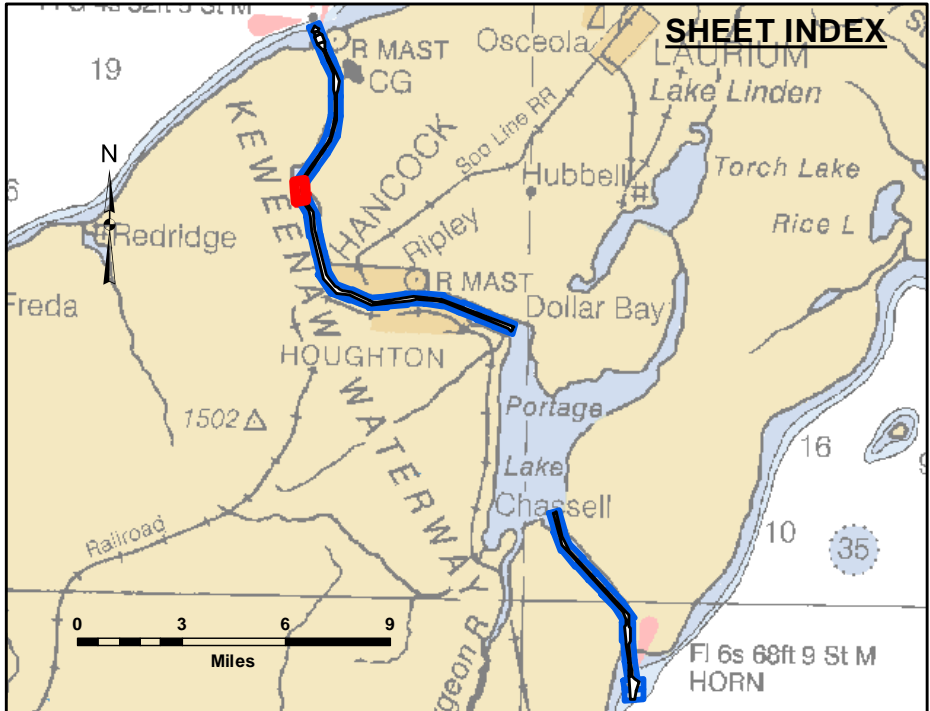
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Recommended:	Printed By:
Approved:	Checked By:

Keweenaw Waterway, MI
Keweenaw Waterway
KW_01_NAW_20200701_CS
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LEGEND

..... Cable Submarine

-- Cable Overhead

Channel_Limits

Contour Lines

SOUNDING LEGEND

LESS THAN PROJECT DEPTH

PROJECT DEPTH

PROJECT DEPTH +1'

PROJECT DEPTH +2'

PROJECT DEPTH +3'

PROJECT DEPTH +4'

PROJECT DEPTH +5'

1 inch = 100 feet

Feet

0 100 200 300 400 500 600

- NOTES:
- THE CHARTED SOUNDINGS REPRESENT THE MINIMUM DEPTH MEASURED AT THE TIME OF THE SURVEY WITHIN THE 10 X 10 AREA CENTERED ON THE TEXT. DERIVED FROM A 1" X 1" AVERAGE DATASET AT CELL CENTER. THIS CHART SHOULD NOT BE USED FOR CHANNEL CLEARANCE OR VOLUME COMPUTATIONS. MINIMUM DEPTH DATA IS PRODUCED FOR STRIKE/SOAL REMOVAL OPERATIONS AND NOTICE TO NAVIGATION INTERESTS.
 - ALL SOUNDING DEPTHS ARE REFERENCED TO INTERNATIONAL GREAT LAKES DATUM 1985 (IGLD 85) LOW WATER DATUM ELEVATION 601.1 FEET ABOVE MEAN WATER LEVEL AT RIMOUSKI QUEBEC. WATER LEVEL READINGS WERE OBTAINED WITH REAL TIME KINEMATIC (RTK) GLOBAL POSITIONING SYSTEM (GPS) VALUES. DEPTHS ARE MEASURED USING AN R2SONIC 2024 MULTIBEAM SONAR.
 - HORIZONTAL POSITIONING IS DETERMINED USING RTK GPS CORRECTIONS FROM A BASE STATION. THE GPS RECEIVER IS MANUFACTURED BY APPLANIX MARINE POS/MV VER. 4.0.
 - THE GRID COORDINATE SYSTEM IS MICHIGAN STATE PLANE, NORTH ZONE (2111), NORTH AMERICAN DATUM 1983 (NAD83), US SURVEY FOOT.
 - THE PROJECT DEPTHS FOR THIS WATERWAY ARE: 32.0', 30.0', 28.0', 27.0', 26.0' & 25' AS INDICATED HEREON.
 - IMAGERY SOURCED FROM: ESRI & 2014 NAIP IMAGERY



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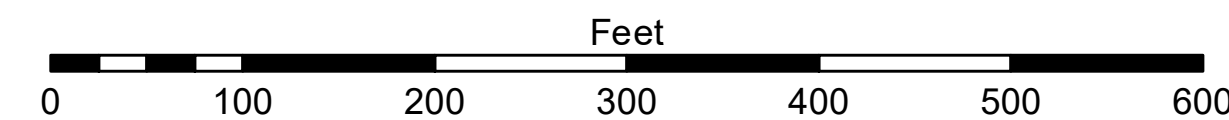
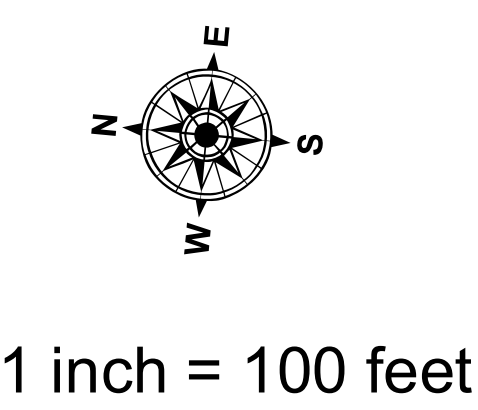
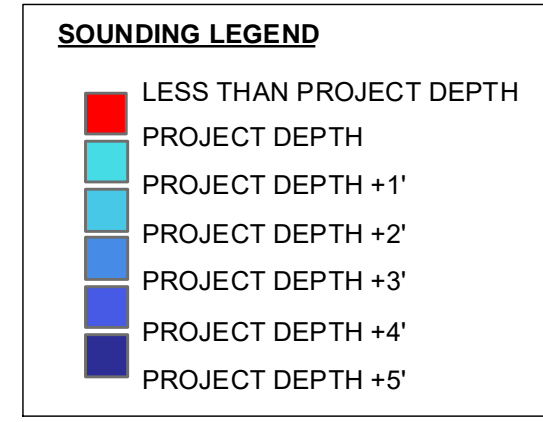
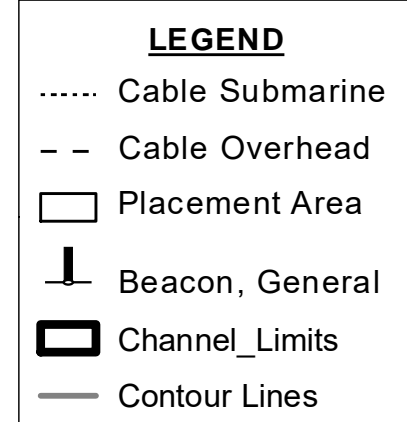
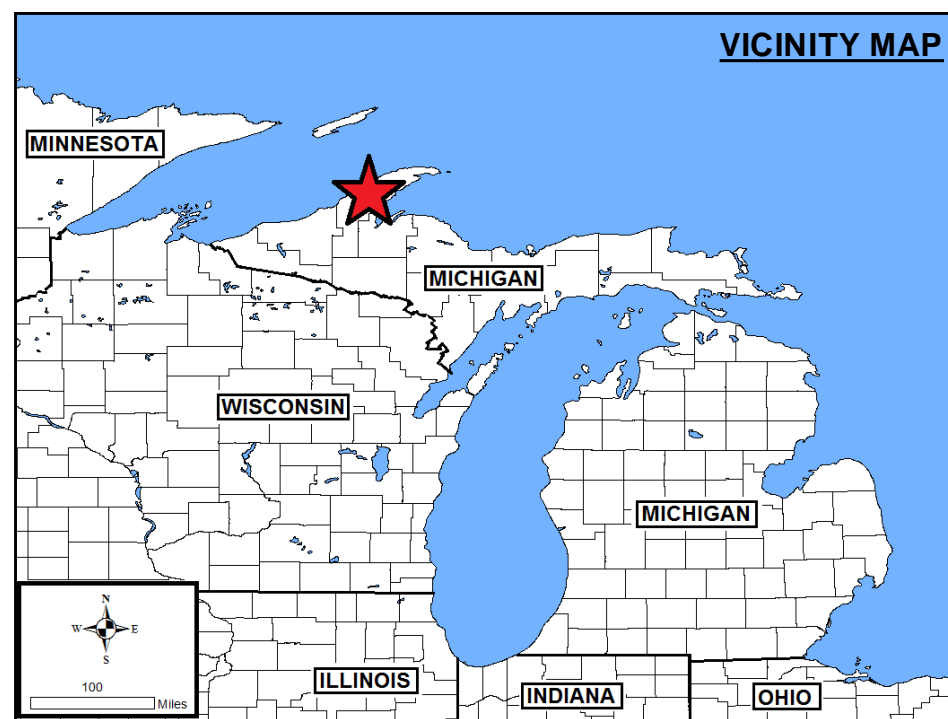
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Submitted: _____	Surveyed By: _____
Recommended: _____ Chief, Survey Section	Plotted By: _____
Approved: _____ Chief, Technical Services	Checked By: _____

Keweenaw Waterway, MI
Keweenaw Waterway
KW_01_NAW_20200611_CS
11 June 2020

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Revision Number:
4.1-20191105



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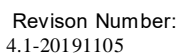
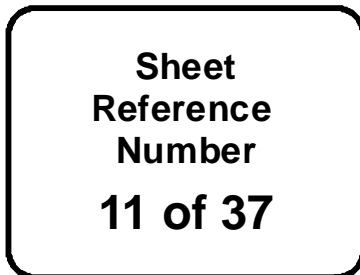
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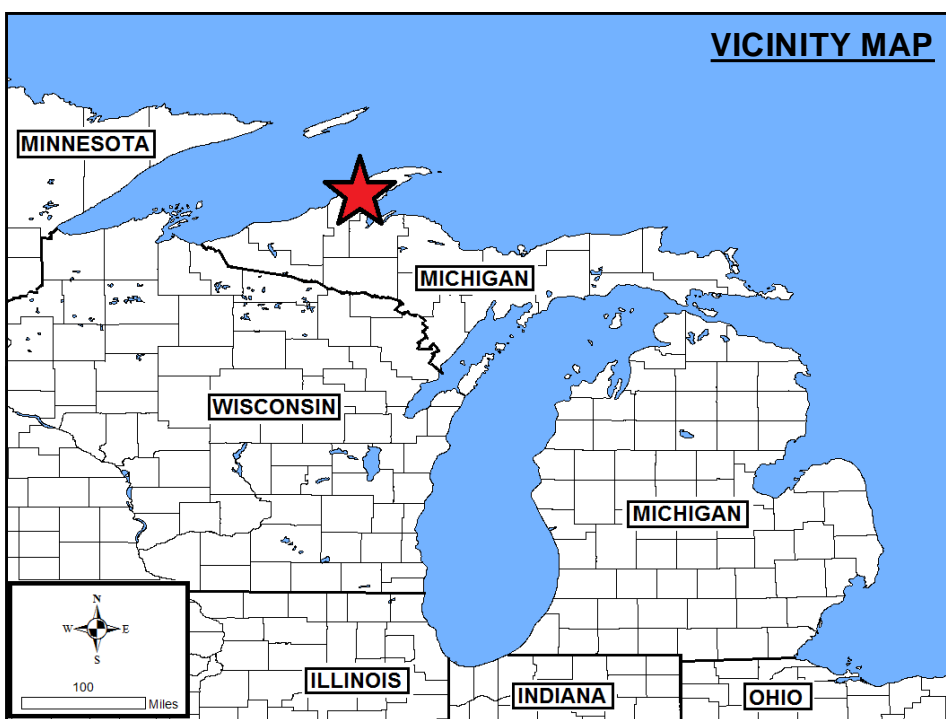
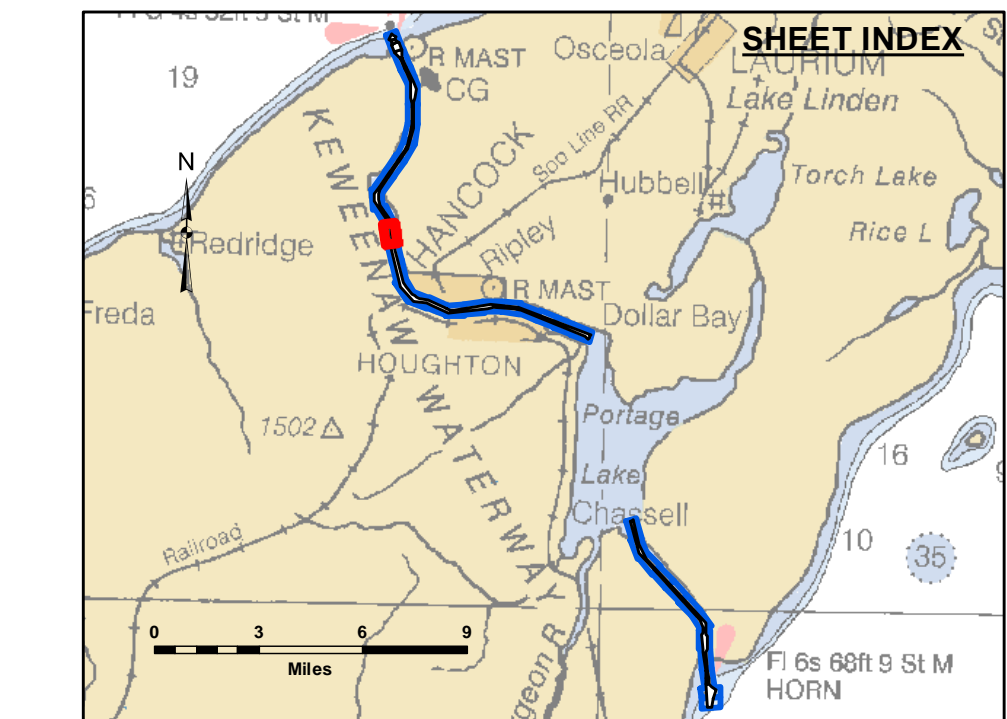
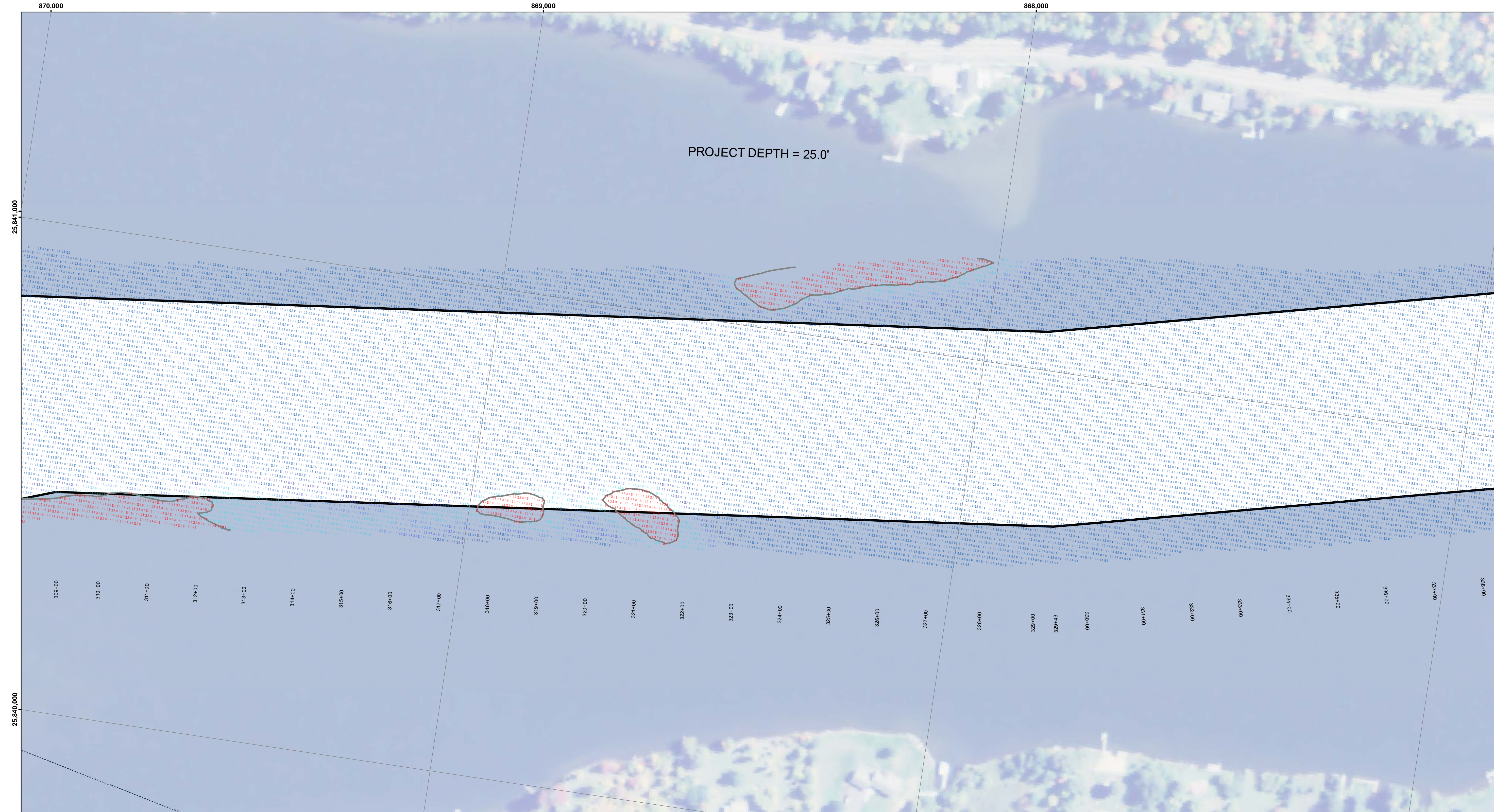
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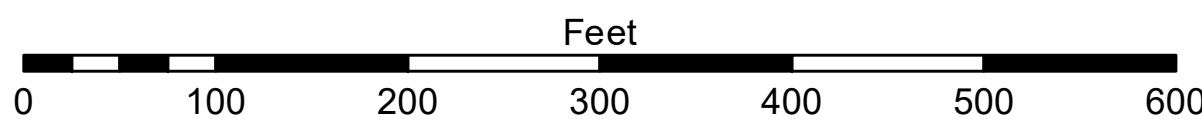
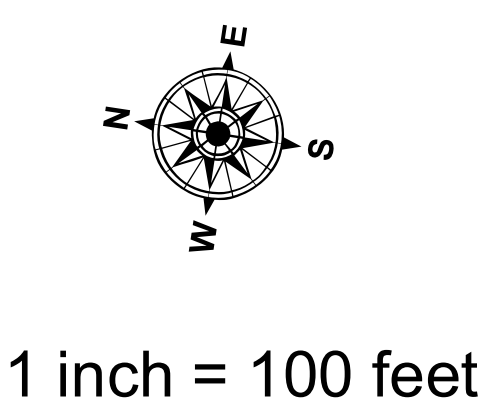
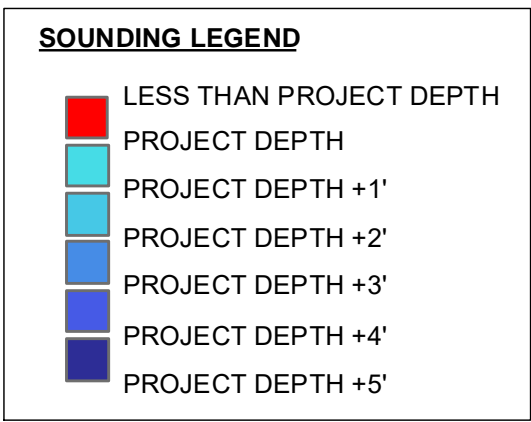
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32.0', 30.0', 28.0', 27.0', 26.0' & 25' AS INDICATED HEREON

IMAGERY SOURCED FROM: ESRI & 2014 NAIP IMAGERY





- LEGEND**
- Cable Submarine
 - - - Cable Overhead
 - Placement Area
 - ↑ Beacon, General
 - ▭ Channel_Limits
 - Contour Lines



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Keweenaw Waterway, MI
Keweenaw Waterway
KW_01_NAW_20200611_CS
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U.S. ARMY CORPS OF ENGINEERS
DETROIT DISTRICT

Submitted: _____

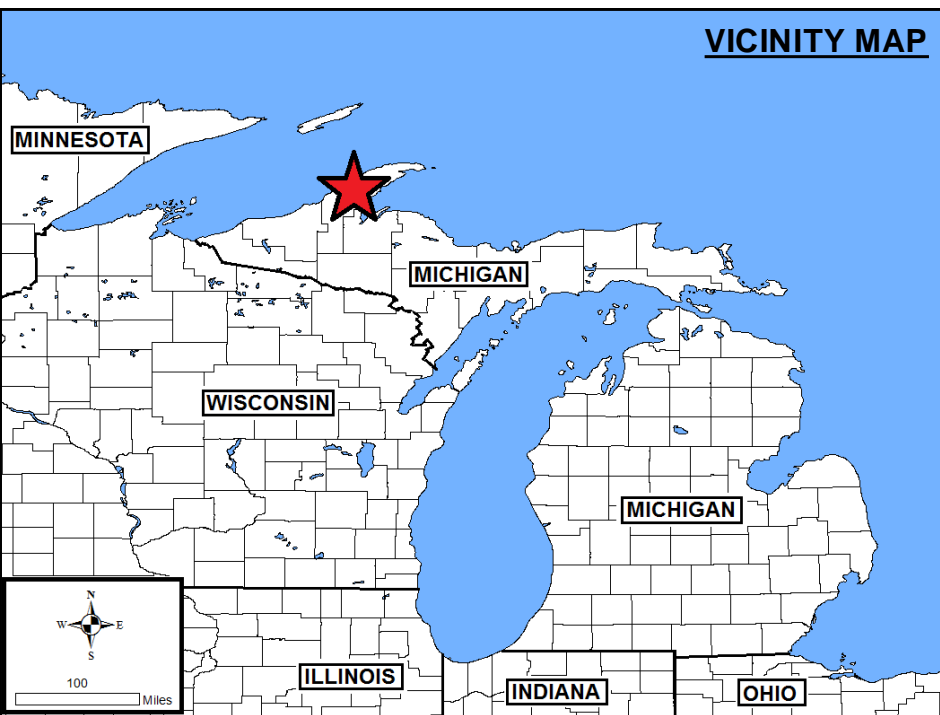
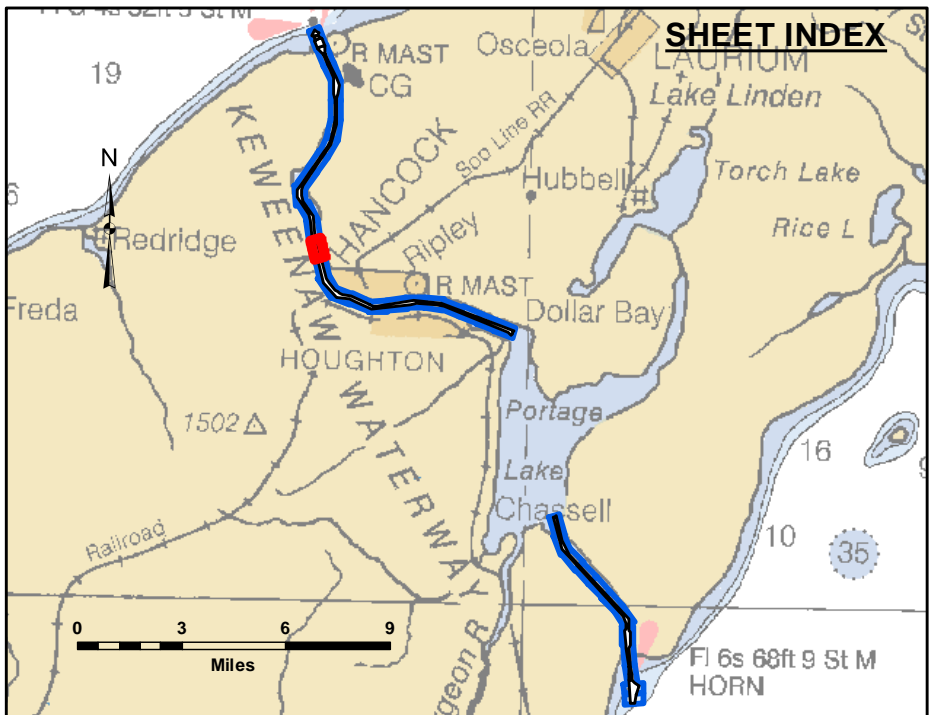
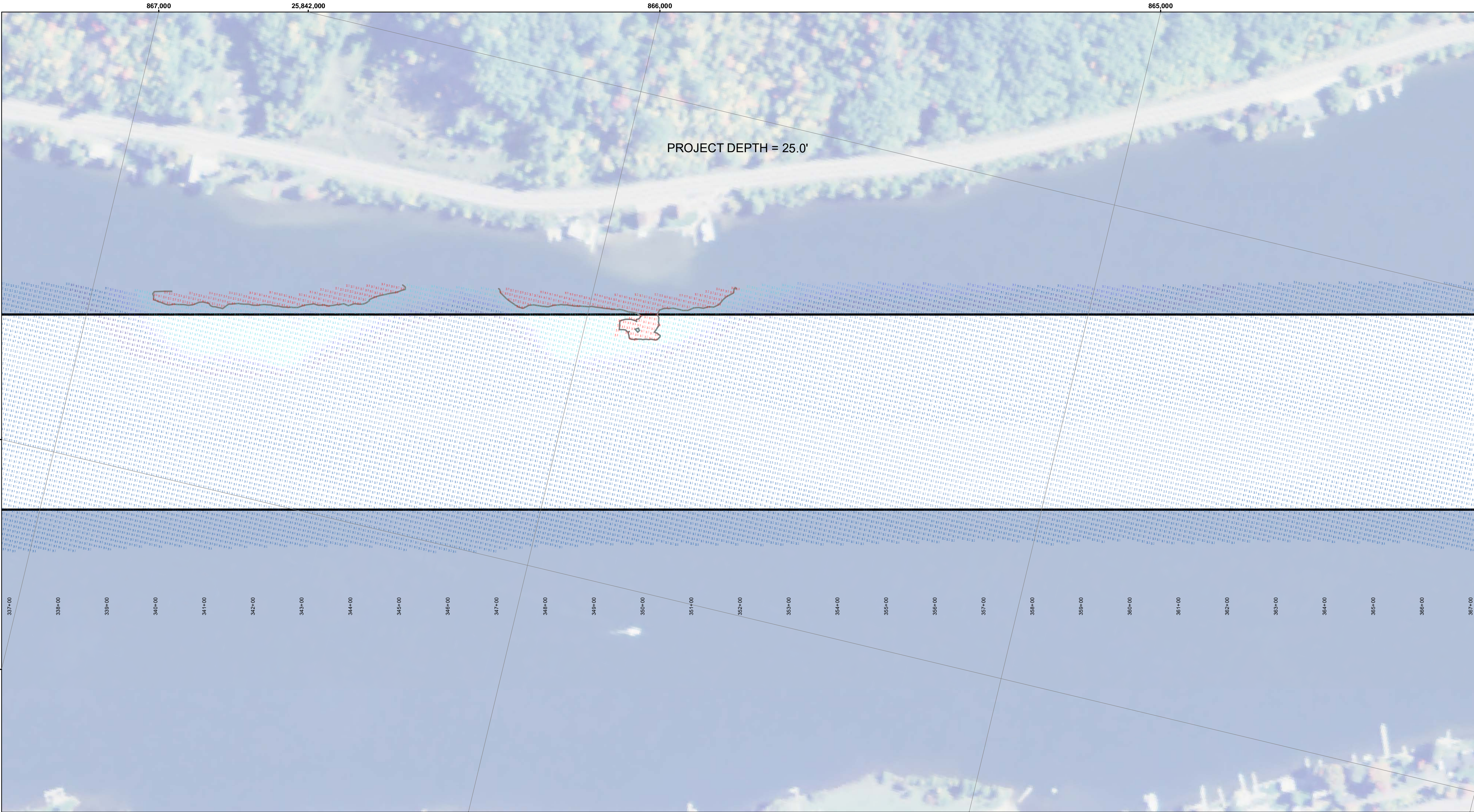
Recommended: Chief, Survey Section

Approved: Chief, Technical Services

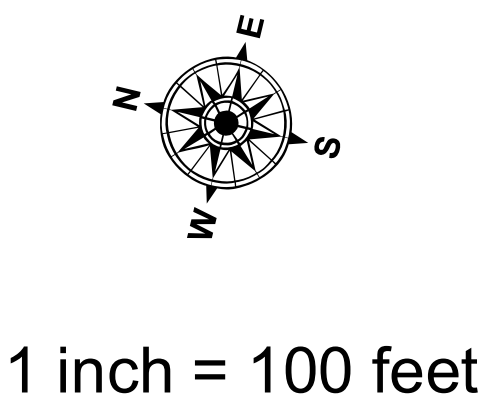
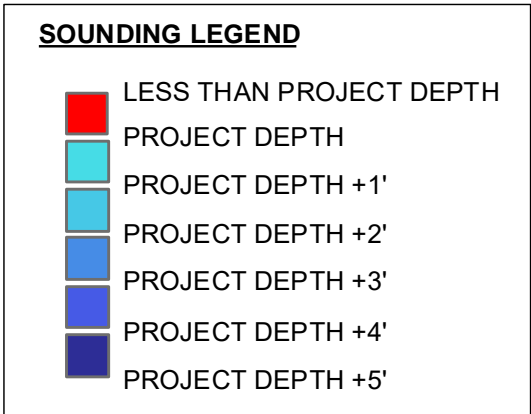
Surveyed By: _____

Plotted By: _____

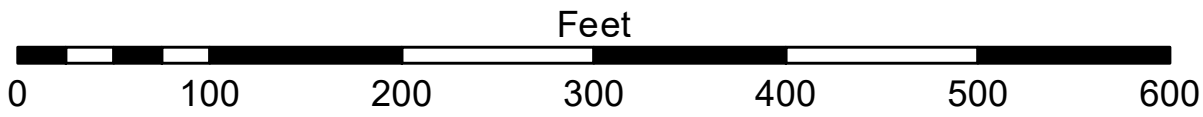
Checked By: _____



- LEGEND**
- Cable Submarine
 - Cable Overhead
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1 inch = 100 feet



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U.S. ARMY CORPS OF ENGINEERS DETROIT DISTRICT			
Submitted:	Surveyed By:	Plotted By:	Checked By:
Recommendations:	Chief, Survey Section		
Approved:	Chief, Technical Services		

Keweenaw Waterway, MI

Keweenaw Waterway

KW_01_NAW_20200611_CS

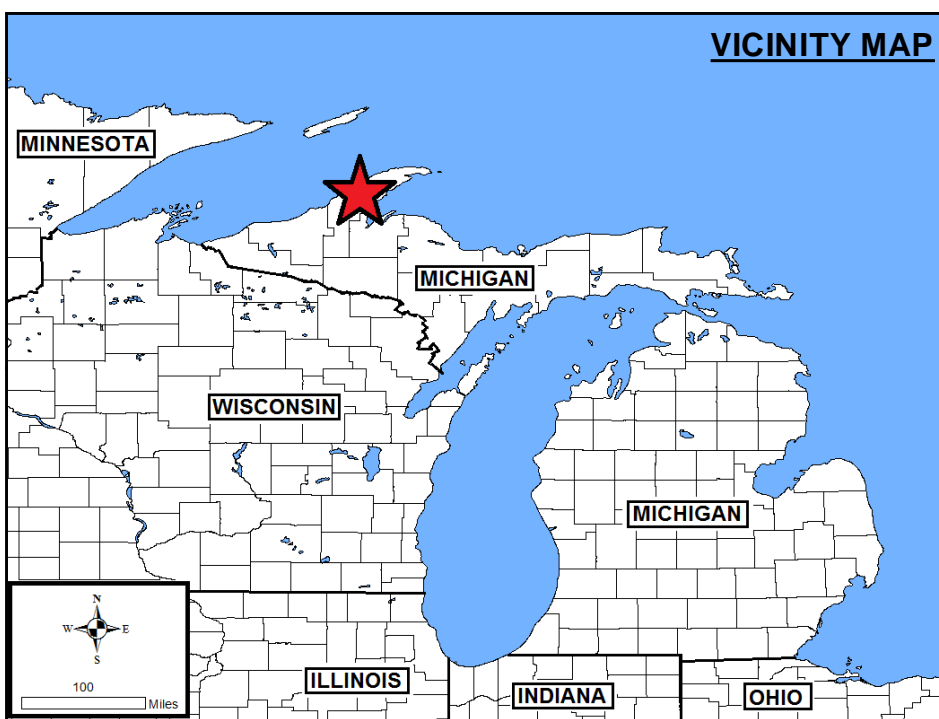
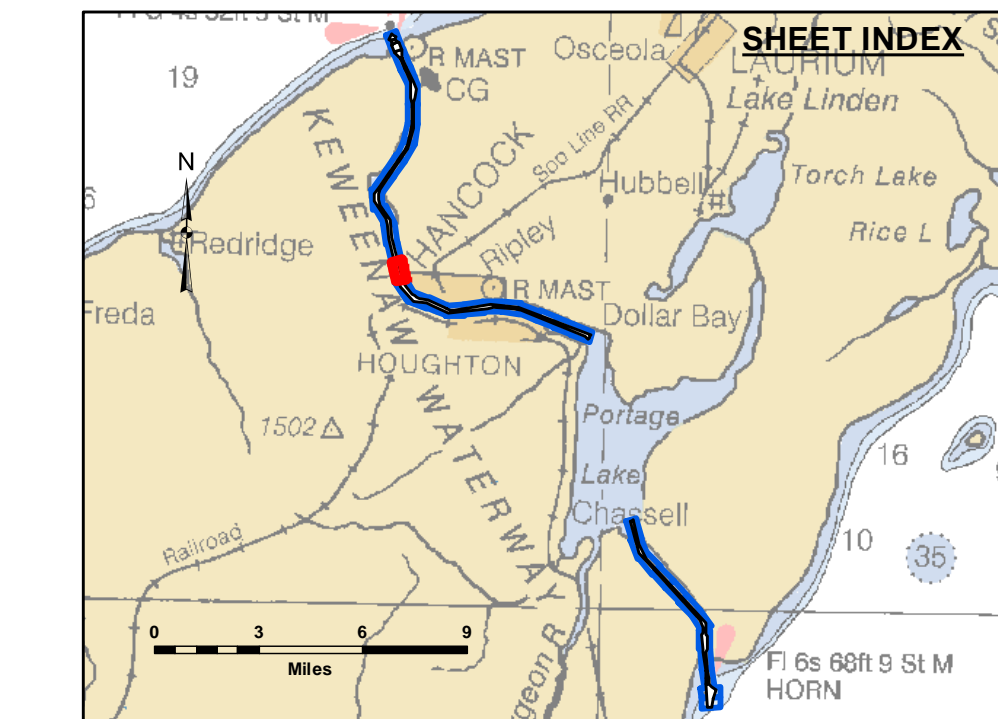
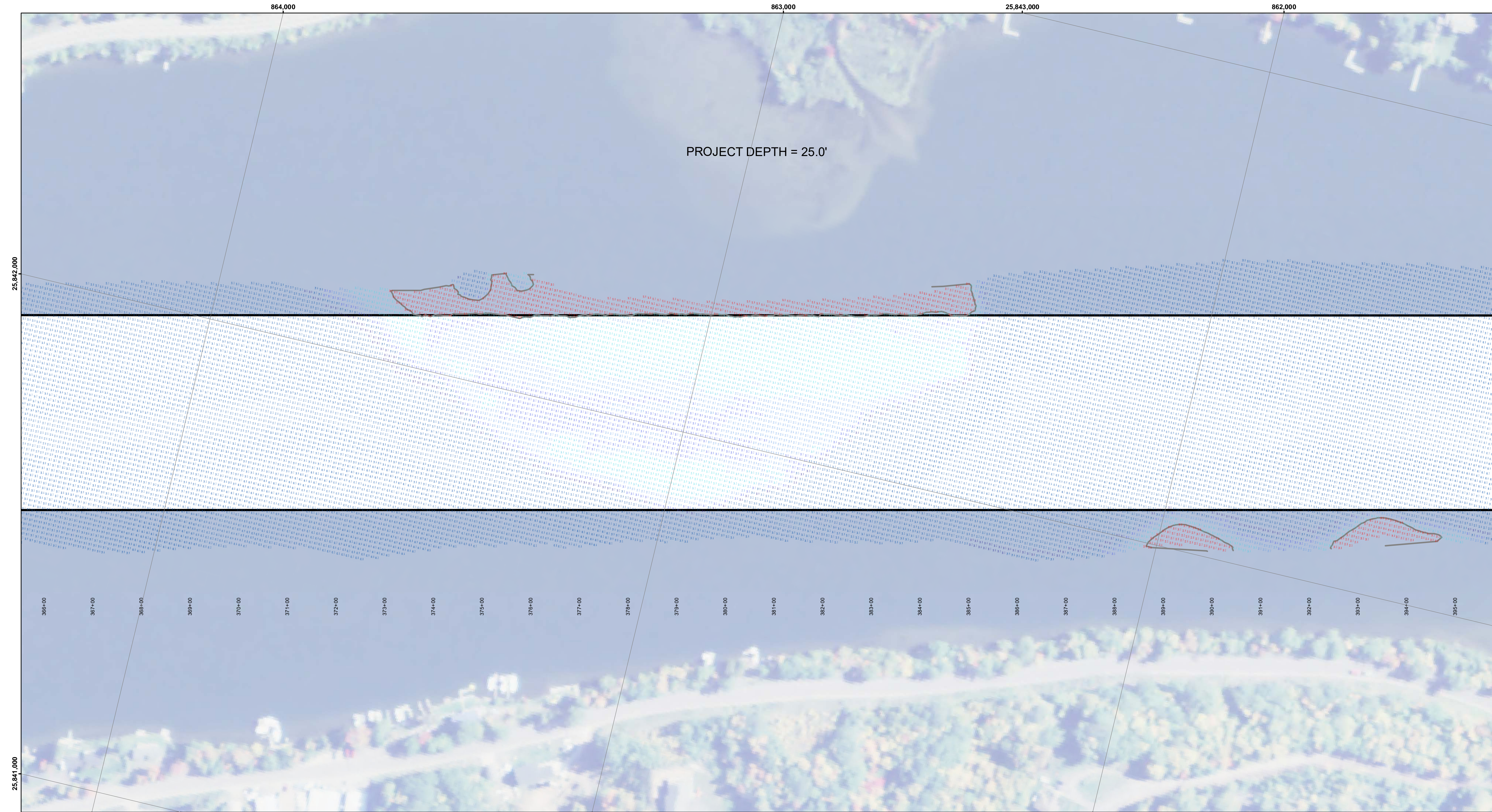
11 June 2020

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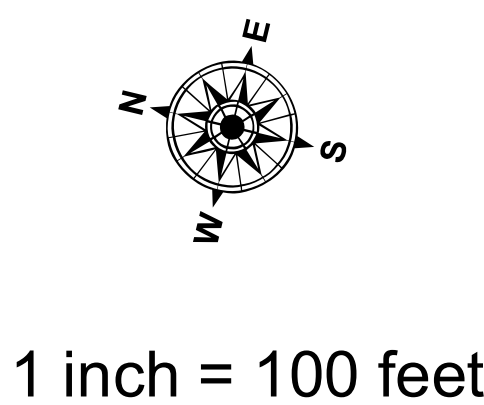
Number

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- LEGEND**
- Cable Submarine
 - Cable Overhead
 - Placement Area
 - ┆ Beacon, General
 - ▭ Channel_Limits
 - Contour Lines

- SOUNDING LEGEND**
- LESS THAN PROJECT DEPTH
 - PROJECT DEPTH
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U.S. ARMY CORPS OF ENGINEERS
DETROIT DISTRICT

Submitted: _____

Recommended: Chief, Survey Section

Approved: Chief, Technical Services

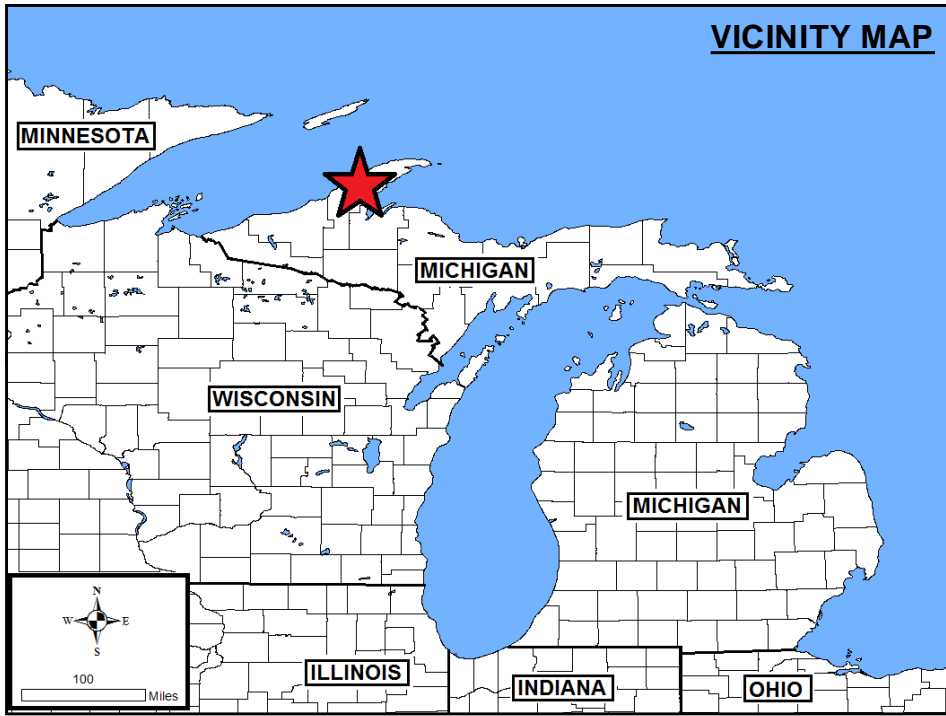
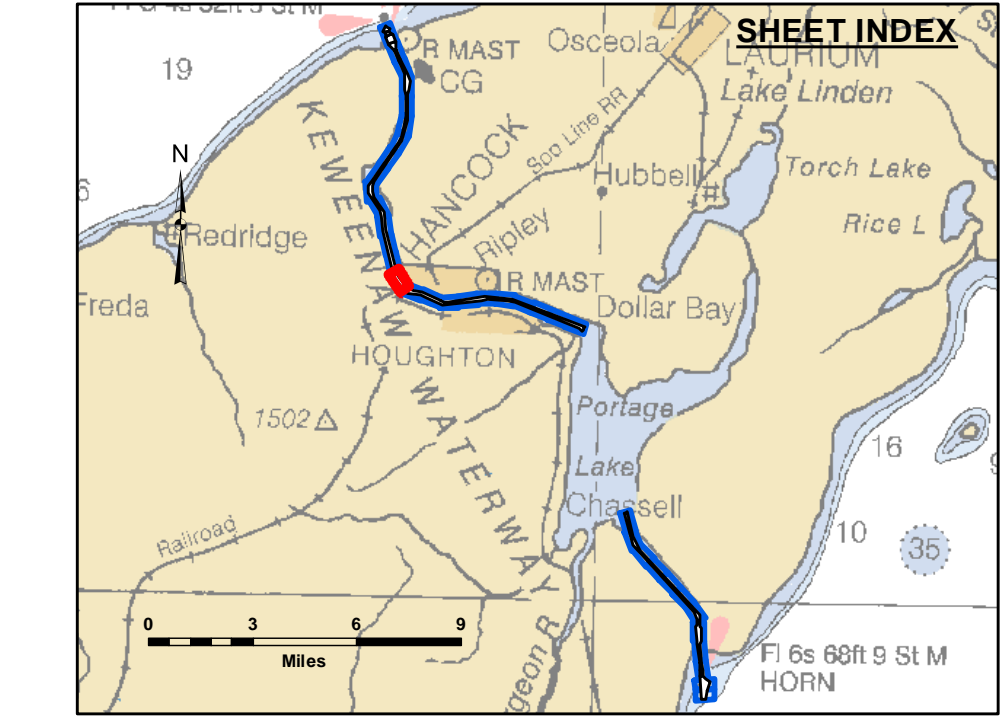
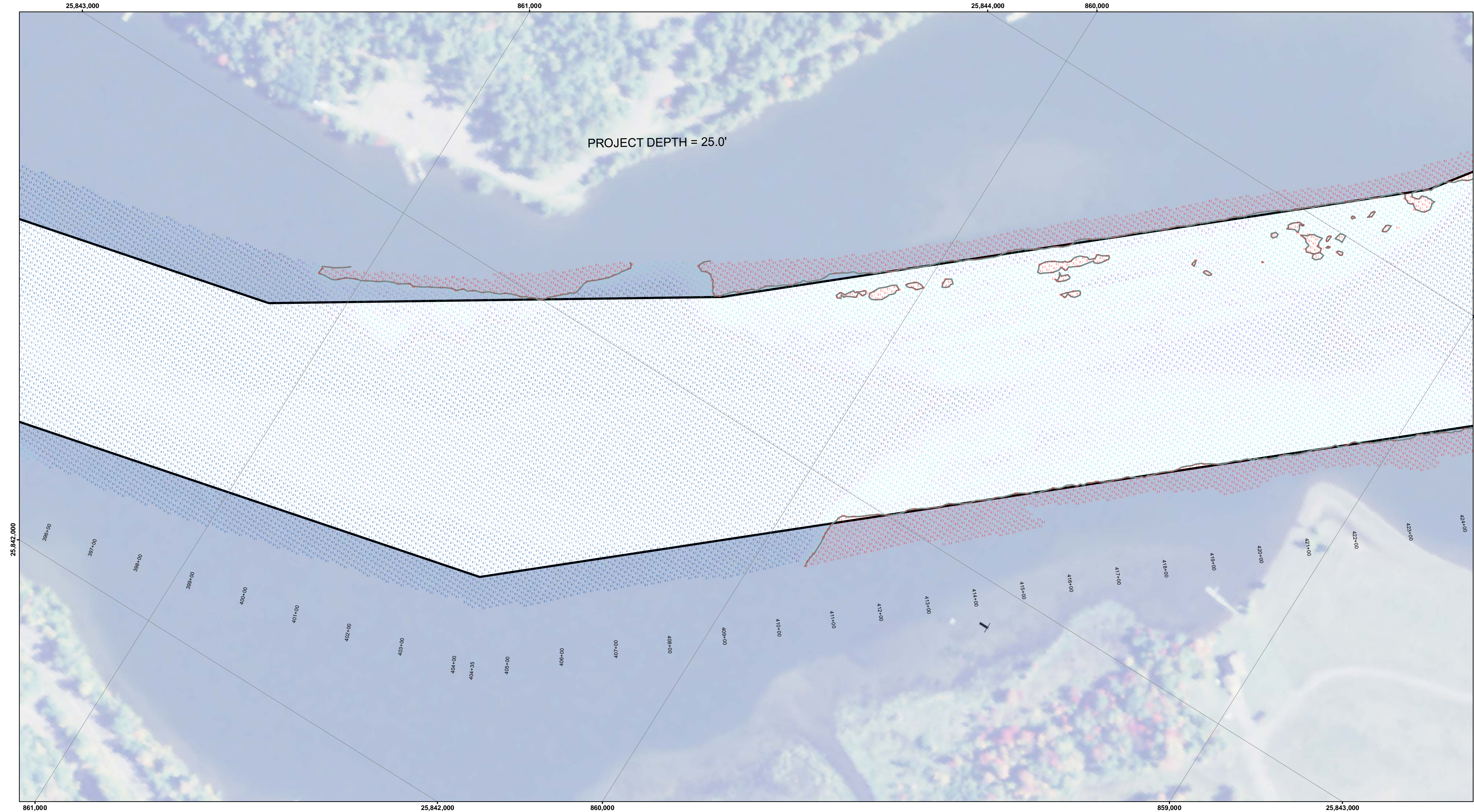
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Keweenaw Waterway, MI
Keweenaw Waterway
KW_01_NAW_20200611_CS
11 June 2020

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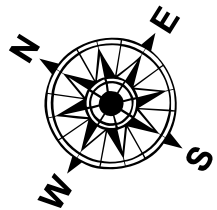


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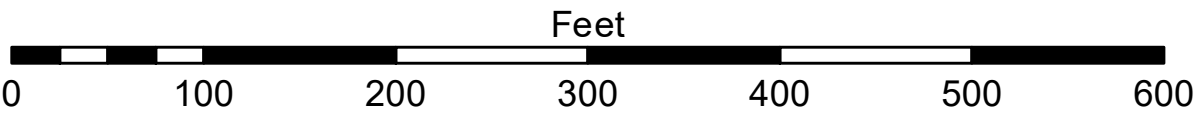
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SOUNDING LEGEND

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1 inch = 100 feet



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**US Army Corps
of Engineers**
District: CELRE

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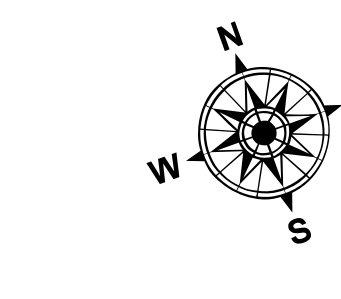
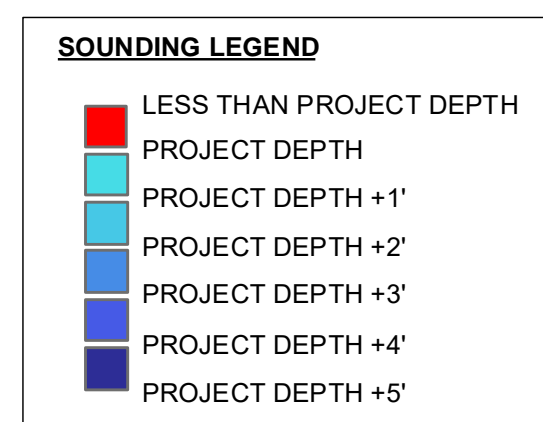
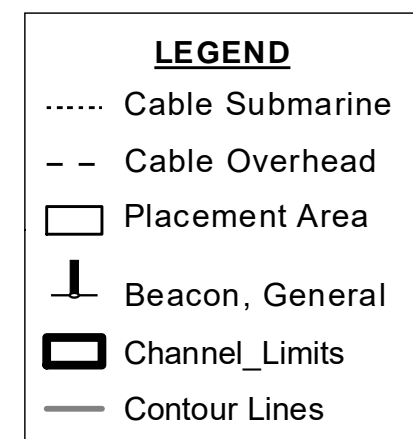
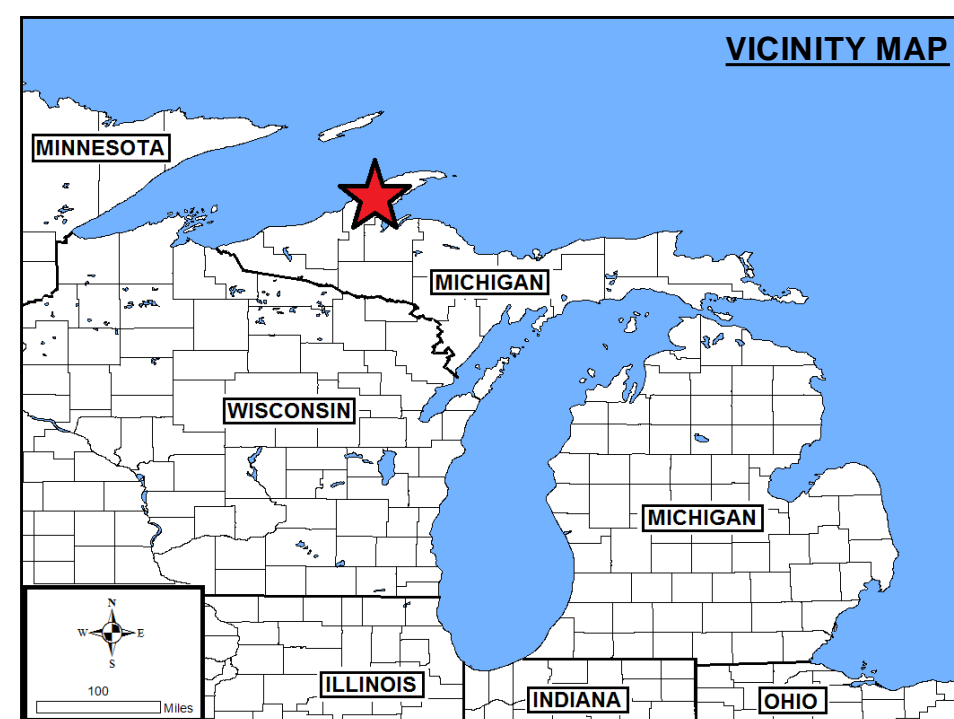
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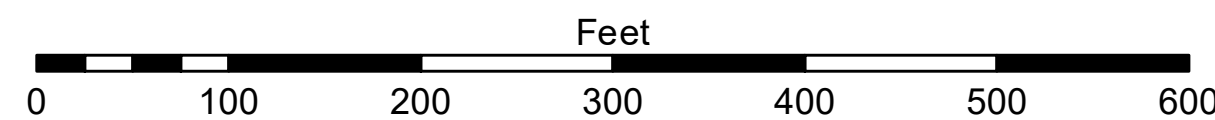
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1 inch = 100 feet



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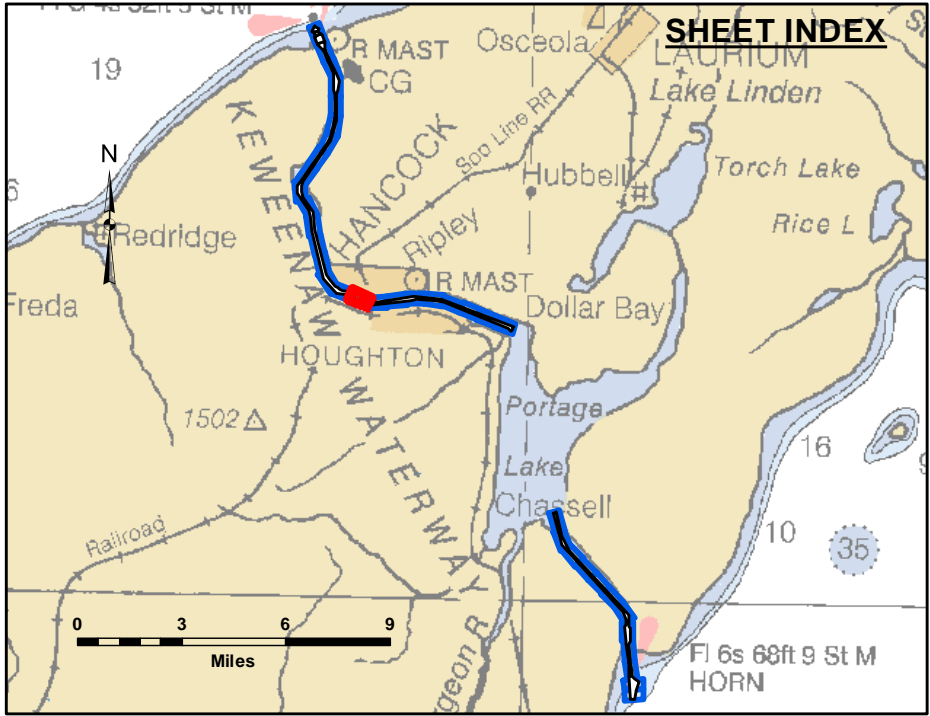
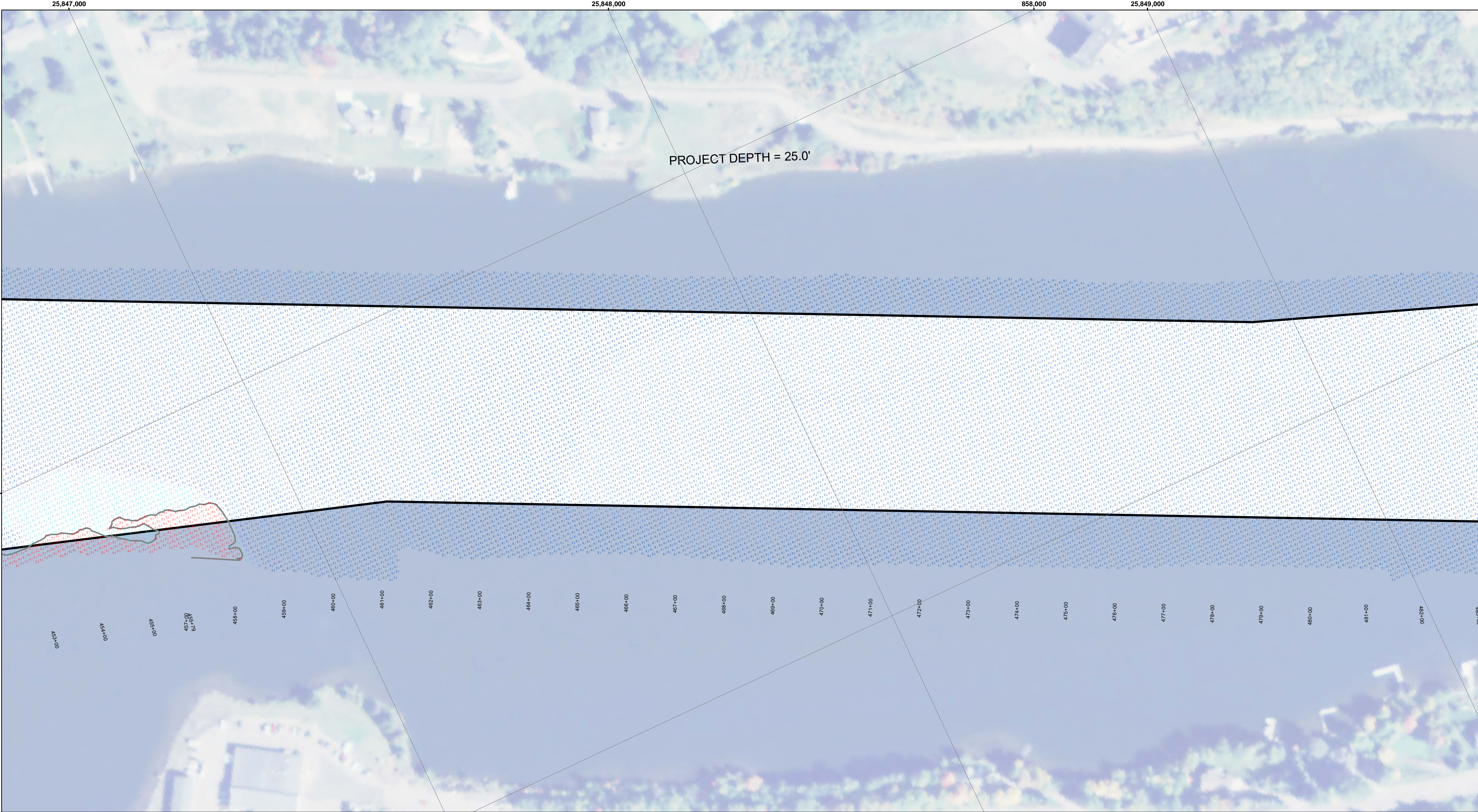
SOUNDING DEPTHS ARE REFERENCED TO INTERNATIONAL GREAT LAKES DATUM 1985 (IGLD 85) LOW WATER DATUM (LWD) ELEVATION 601.1 FEET ABOVE MEAN WATER LEVEL AT RIMOUSKI QUEBEC. WATER LEVEL READINGS WERE OBTAINED WITH RTK GPS VALUES. DEPTHS ARE MEASURED USING AN R2SONIC 2024 MULTIBEAM DEPTH SOUNDER.

HORIZONTAL POSITIONING IS DETERMINED USING REAL TIME KINEMATIC (RTK) GLOBAL NAVIGATION SATELLITE SYSTEM (GNSS) CORRECTIONS FROM A TEMPORARY USACE BASE STATION. THE GPS RECEIVER IS AN APPLIXIN MARINE POSMVVER 4.0.

GRID COORDINATES ARE IN U.S. SURVEY FEET AND ARE BASED ON THE MICHIGAN STATE PLANE COORDINATE SYSTEM, LAMBERT PROJECTION, MICHIGAN NORTH ZONE (2111) NORTH AMERICAN DATUM (NAD83).

THE PROJECT DEPTHS FOR THIS WATERWAY ARE:
32.0', 30.0', 28.0', 27.0', 26.0' & 25' AS INDICATED HEREON

IMAGERY SOURCED FROM: ESRI & 2014 NAIP IMAGERY

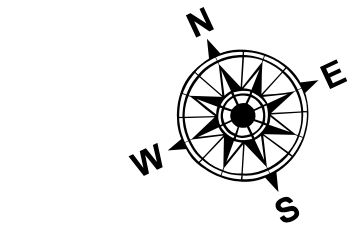


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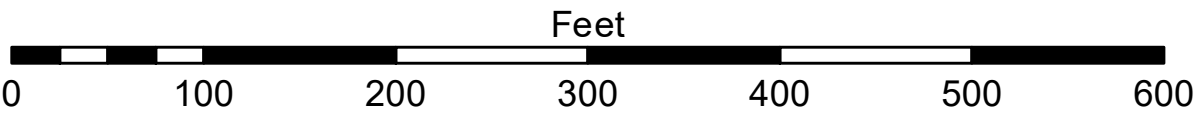
- Cable Submarine
- - Cable Overhead
- Placement Area
- ┆ Beacon, General
- ▭ Channel_Limits
- Contour Lines

SOUNDING LEGEND

- LESS THAN PROJECT DEPTH
- PROJECT DEPTH
- PROJECT DEPTH +1'
- PROJECT DEPTH +2'
- PROJECT DEPTH +3'
- PROJECT DEPTH +4'
- PROJECT DEPTH +5'



1 inch = 100 feet



NOTES: THE SOUNDINGS INDICATED HEREON REPRESENT THE MINIMUM DEPTH FOUND WITHIN THE 10' X 10' AREA CENTERED AROUND THE TEXT, DERIVED FROM A 1' X 1' AVERAGE DATASET AT CELL CENTER. THIS CHART SHOULD NOT BE USED FOR CHANNEL CLEARANCE OR VOLUME COMPUTATIONS. MINIMUM DEPTH DATA IS PRODUCED FOR STRIKE / SHOAL REMOVAL OPERATIONS AND NOTICE TO NAVIGATION INTERESTS.

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32.0', 30.0', 28.0', 27.0', 26.0' & 25' AS INDICATED HEREON.

IMAGERY SOURCED FROM: ESRI & 2014 NAIP IMAGERY



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U.S. ARMY CORPS OF ENGINEERS DETROIT DISTRICT		
Submitted:	Surveyed By:	
Recommended:	Plotted By:	
Approved:	Chief, Survey Section	
	Chief, Technical Services	

Keweenaw Waterway, MI

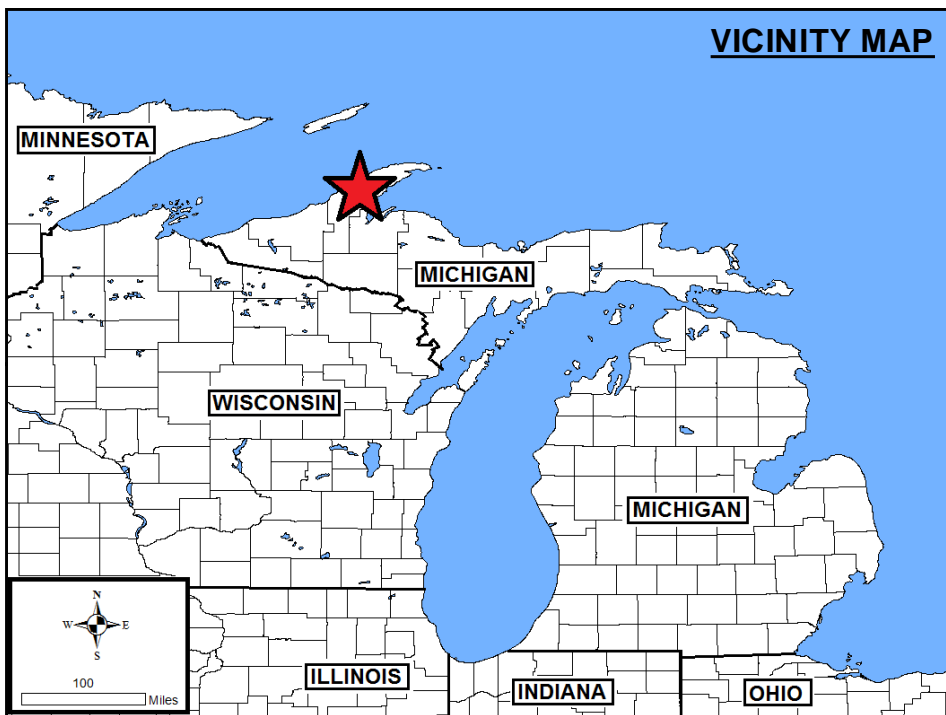
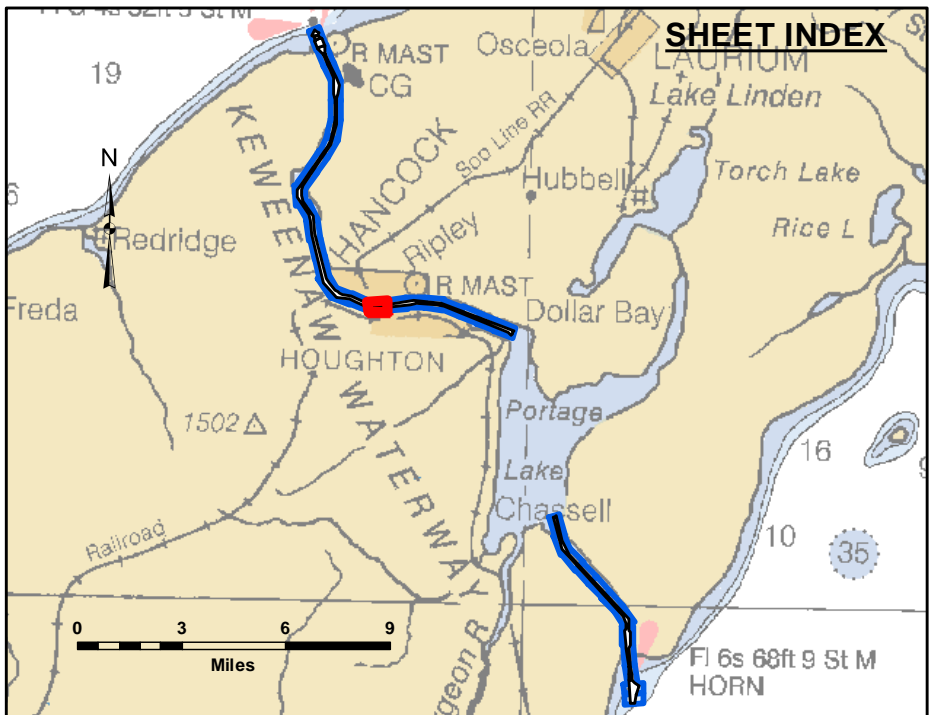
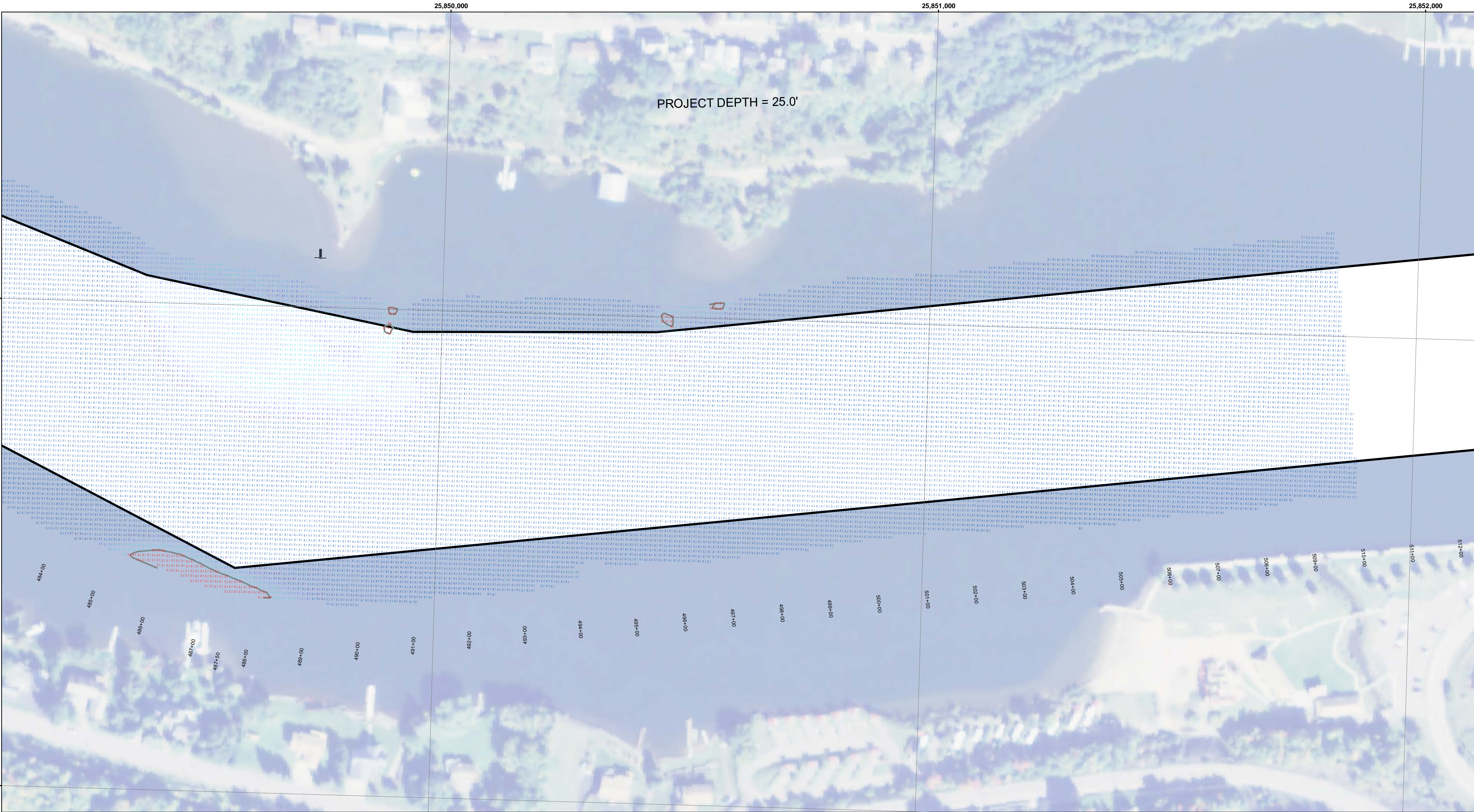
Keweenaw Waterway

KW_01_NAW_20200611_CS

11 June 2020

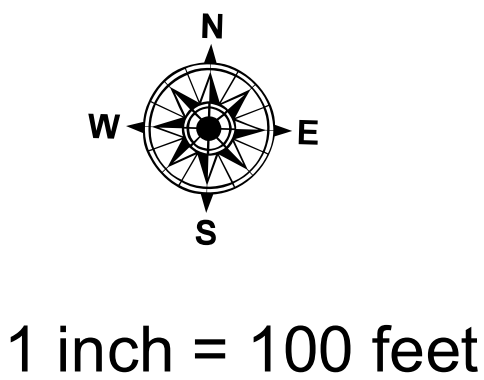
Sheet Reference Number

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- LEGEND**
- Cable Submarine
 - - Cable Overhead
 - Placement Area
 - ↓ Beacon, General
 - ▭ Channel_Limits
 - Contour Lines

- SOUNDING LEGEND**
- LESS THAN PROJECT DEPTH
 - PROJECT DEPTH
 - PROJECT DEPTH +1'
 - PROJECT DEPTH +2'
 - PROJECT DEPTH +3'
 - PROJECT DEPTH +4'
 - PROJECT DEPTH +5'



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HORIZONTAL POSITIONING IS DETERMINED USING REAL TIME KINEMATIC (RTK) GLOBAL NAVIGATION SATELLITE SYSTEM (GNSS) CORRECTIONS FROM A TEMPORARY USAGE BASE STATION. THE GPS RECEIVER IS AN APPLIX MARINE POSMV VER. 4.0.

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IMAGERY SOURCED FROM: ESRI & 2014 NAIP IMAGERY

Keweenaw Waterway, MI
Keweenaw Waterway
KW_01_NAW_20200611_CS
11 June 2020

Sheet
Reference
Number
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U.S. ARMY CORPS OF ENGINEERS
DETROIT DISTRICT

Submitted: _____

Recommended: _____
Chief, Survey Section

Approved: _____
Chief, Technical Services

Surveyed By: _____

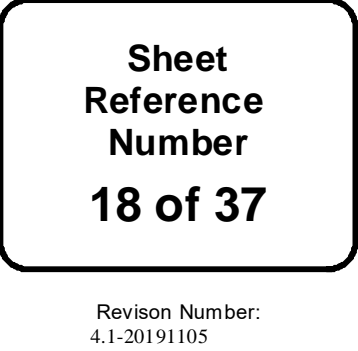
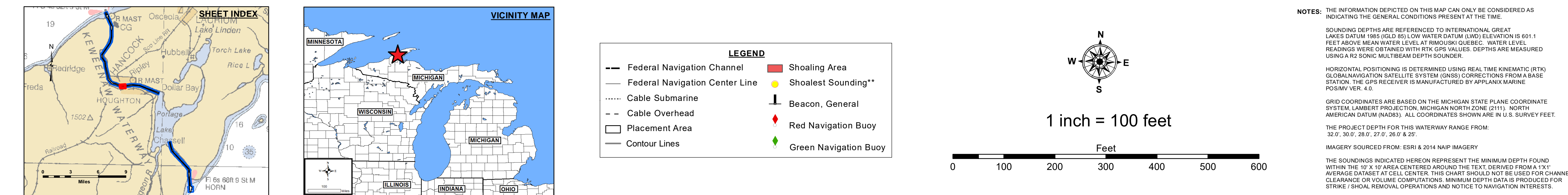
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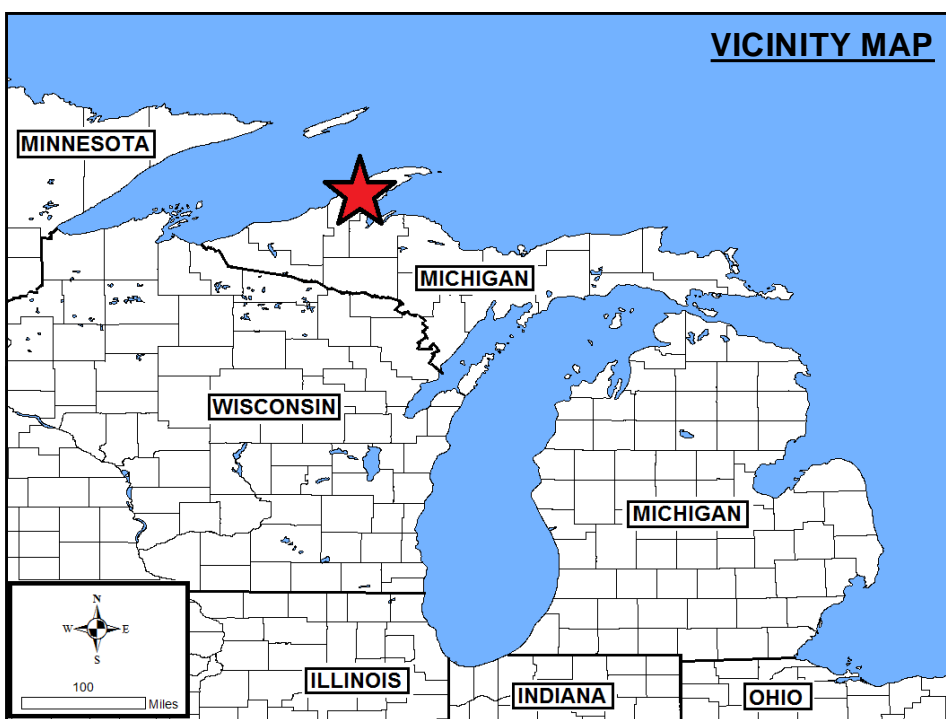
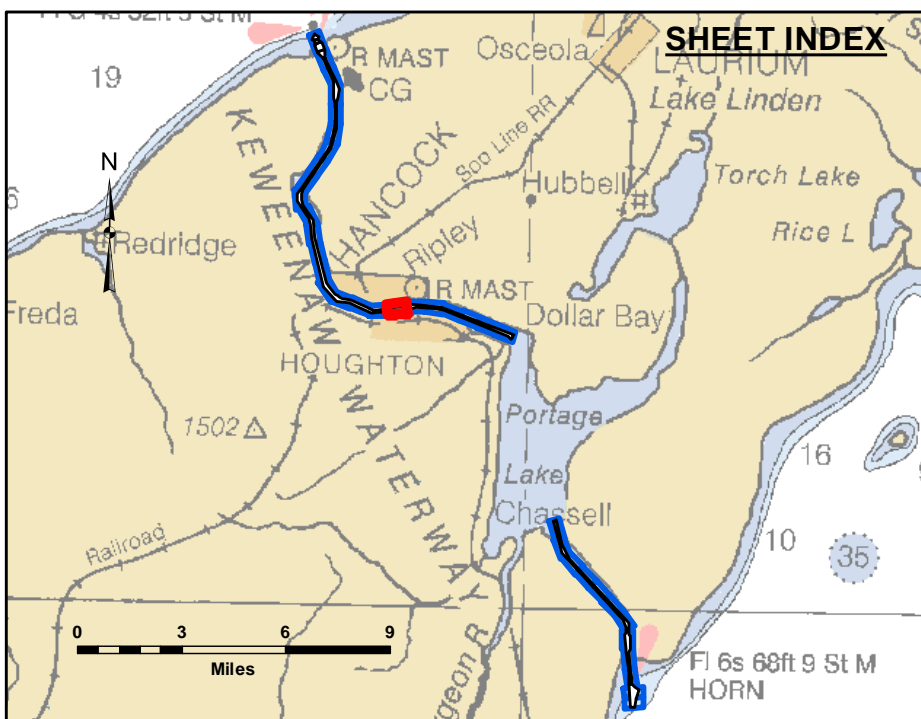
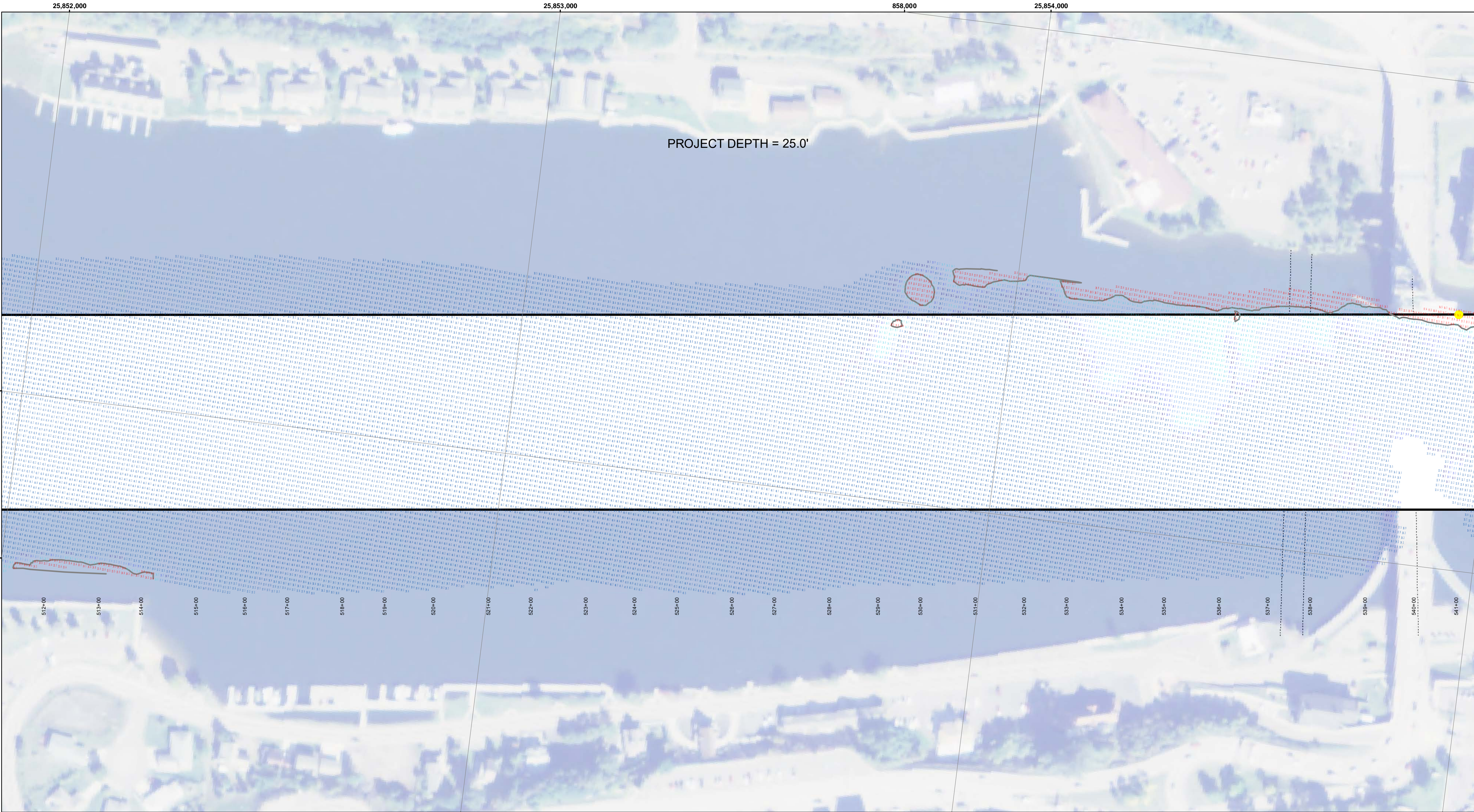
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DISCLAIMER: The data presented in this report is the property of the U.S. Army Corps of Engineers and is not to be used for any purpose other than that for which it was prepared. The data is not to be used for any purpose other than that for which it was prepared. The data is not to be used for any purpose other than that for which it was prepared.

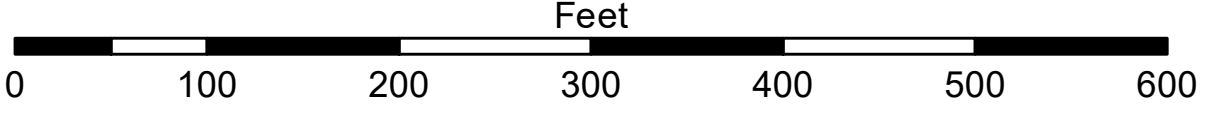
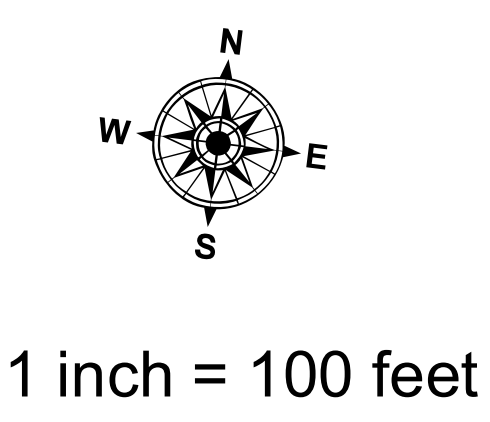
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- LEGEND**
- Federal Navigation Channel
 - Federal Navigation Center Line
 - Cable Submarine
 - - Cable Overhead
 - Placement Area
 - Contour Lines
 - Shoaling Area
 - Shoalest Sounding**
 - ⬇ Beacon, General
 - ◆ Red Navigation Buoy
 - ◆ Green Navigation Buoy



NOTES: THE INFORMATION DEPICTED ON THIS MAP CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS PRESENT AT THE TIME.

SOUNDING DEPTHS ARE REFERENCED TO INTERNATIONAL GREAT LAKES DATUM 1985 (IGLD 85) LOW WATER DATUM (LWD) ELEVATION IS 601.1 FEET ABOVE MEAN WATER LEVEL AT RIMOUSKI QUEBEC. WATER LEVEL READINGS WERE OBTAINED WITH RTK GPS VALUES. DEPTHS ARE MEASURED USING A R2 SONIC MULTIBEAM DEPTH SOUNDER.

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GRID COORDINATES ARE BASED ON THE MICHIGAN STATE PLANE COORDINATE SYSTEM, LAMBERT PROJECTION, MICHIGAN NORTH ZONE (2111). NORTH AMERICAN DATUM (NAD83). ALL COORDINATES SHOWN ARE IN U.S. SURVEY FEET.

THE PROJECT DEPTH FOR THIS WATERWAY RANGE FROM: 32.0', 30.0', 28.0', 27.0', 26.0' & 25'.

IMAGERY SOURCED FROM: ESRI & 2014 NAIP IMAGERY

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Keweenaw Waterway, MI
Keweenaw Waterway
KW_01_NAW_20200421_CS
21 April 2020

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U.S. ARMY CORPS OF ENGINEERS
DETROIT DISTRICT

Submitted: _____

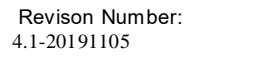
Recommended: Chief, Survey Section

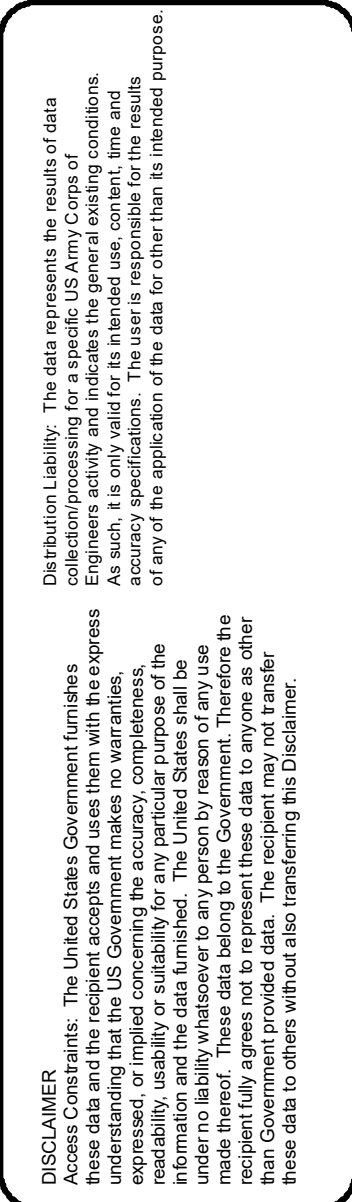
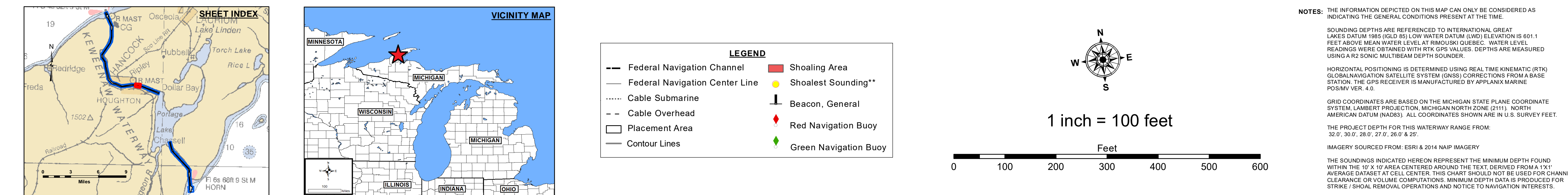
Approved: _____

Surveyed By: _____

Plotted By: _____

Checked By: _____



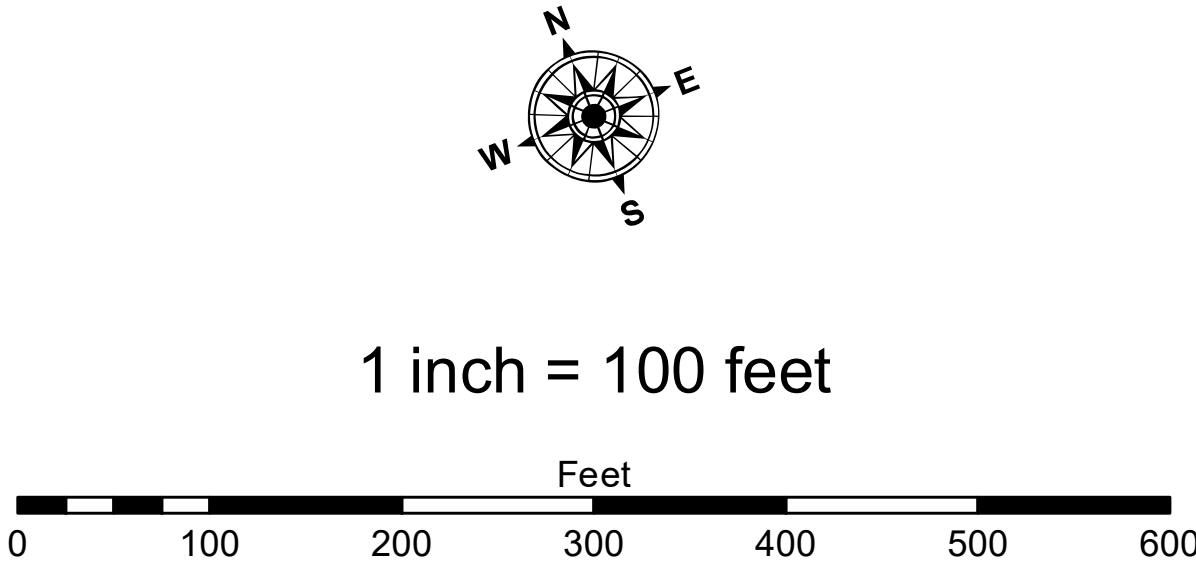
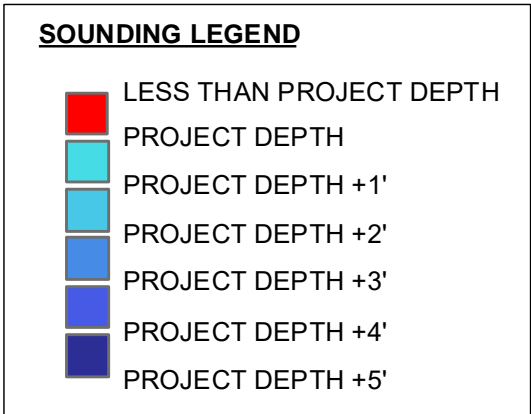
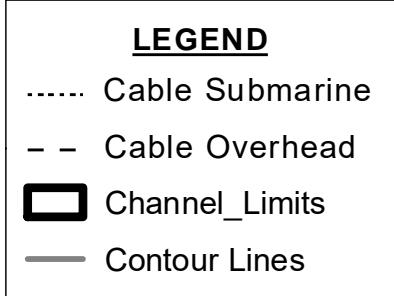
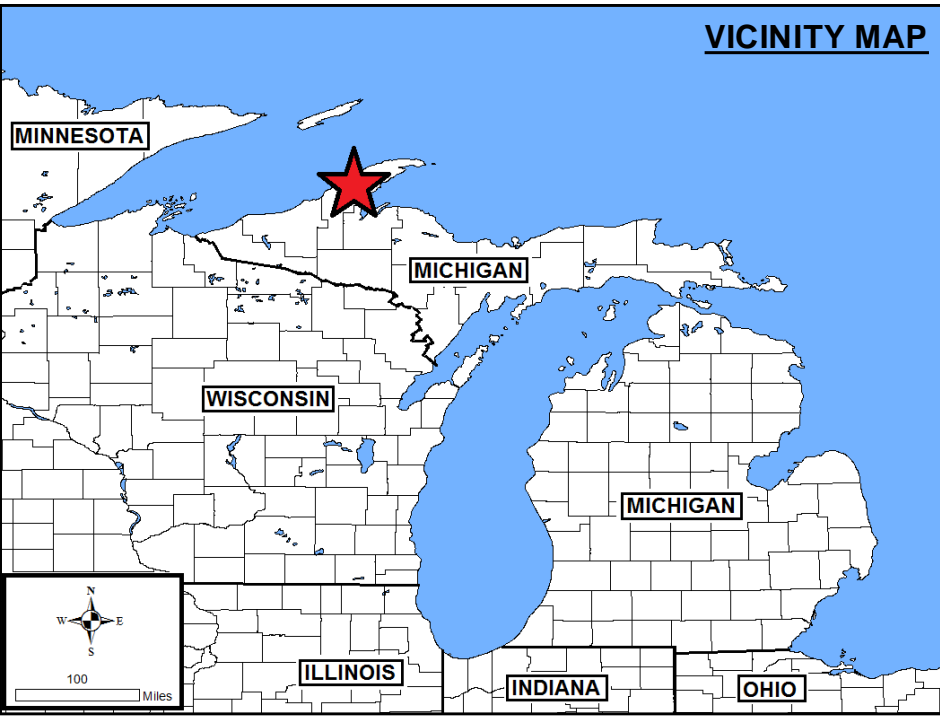


U.S. ARMY CORPS OF ENGINEERS DETROIT DISTRICT	
Submitted: _____	Surveyed By: _____
Recommended: Chief, Survey Section _____	Plotted By: _____
Approved: _____	Checked By: _____
	Chief, Technical Services _____

Keweenaw Waterway, MI
Keweenaw Waterway
KW_01_NAW_20200421_CS
21 April 2020

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NOTE: 1. THE CHARTED SOUNDINGS REPRESENT THE MINIMUM DEPTH MEASURED AT THE TIME OF THE SURVEY WITHIN THE 10' X 10' AREA CENTERED ON THE TEXT, DERIVED FROM A 1" X 1" AVERAGE DATASET AT CELL CENTER. THIS CHART SHOULD NOT BE USED FOR CHANNEL CLEARANCE OR VOLUME COMPUTATIONS. MINIMUM DEPTH DATA IS PRODUCED FOR STRIKE/SOAL REMOVAL OPERATIONS AND NOTICE TO NAVIGATION INTERESTS.

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3. HORIZONTAL POSITIONING IS DETERMINED USING RTK GPS CORRECTIONS FROM A BASE STATION. THE GPS RECEIVER IS MANUFACTURED BY APPLIX MARINE POS/MV VER. 4.0.

4. THE GRID COORDINATE SYSTEM IS MICHIGAN STATE PLANE, NORTH ZONE (2111), NORTH AMERICAN DATUM 1983 (NAD83), US SURVEY FOOT.

5. THE PROJECT DEPTHS FOR THIS WATERWAY ARE: 32', 30.0', 28.0', 27.0', 26.0' & 25' AS INDICATED HEREON.

6. IMAGERY SOURCED FROM: ESRI & 2014 NAIP IMAGERY

25,867,000

25,868,00855,000

PROJECT DEPTH = 25.0'

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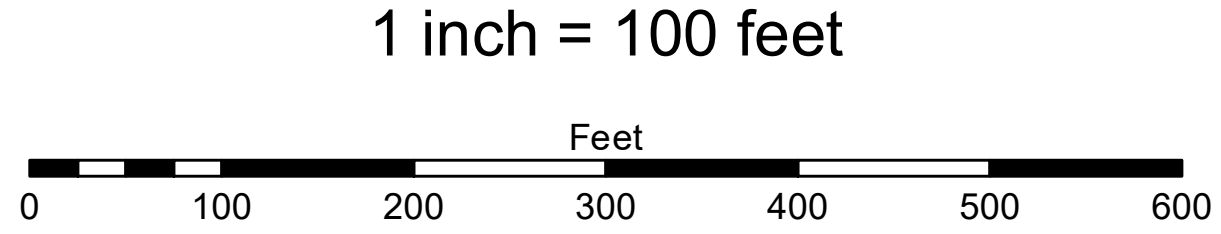
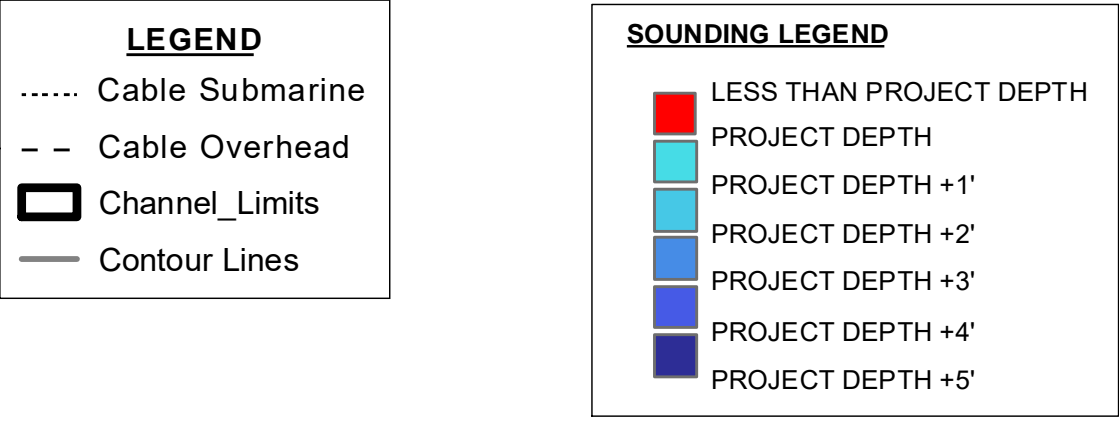
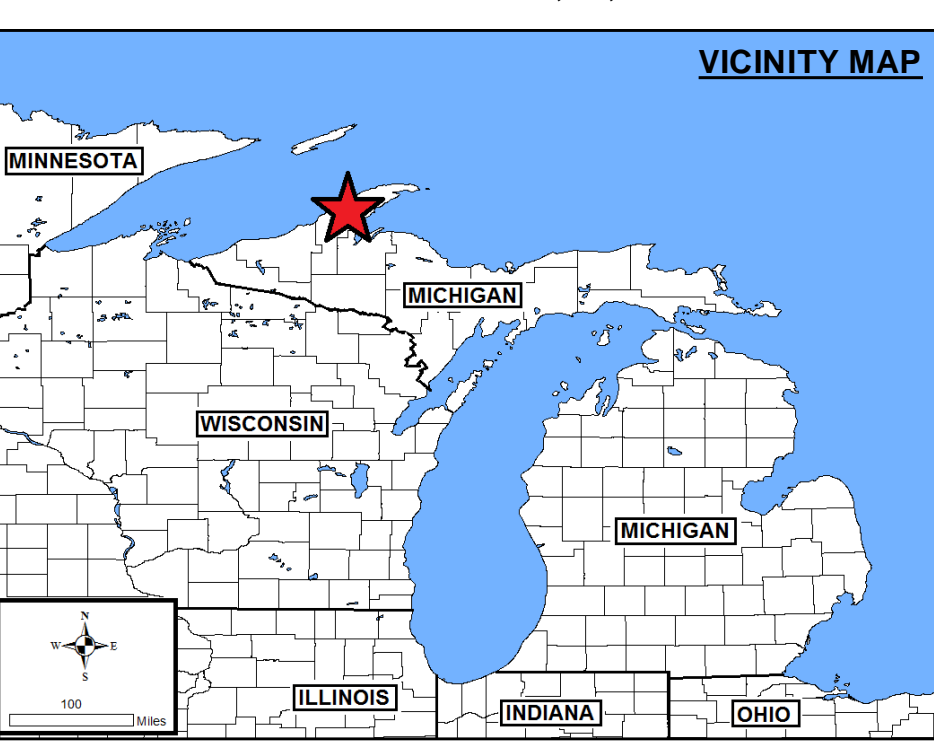
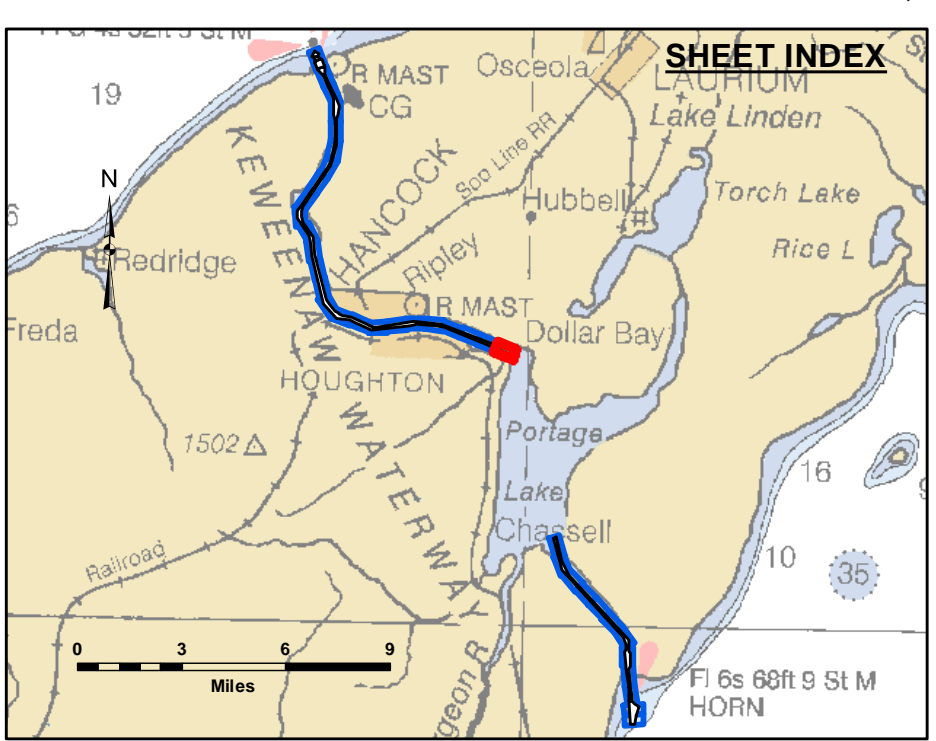
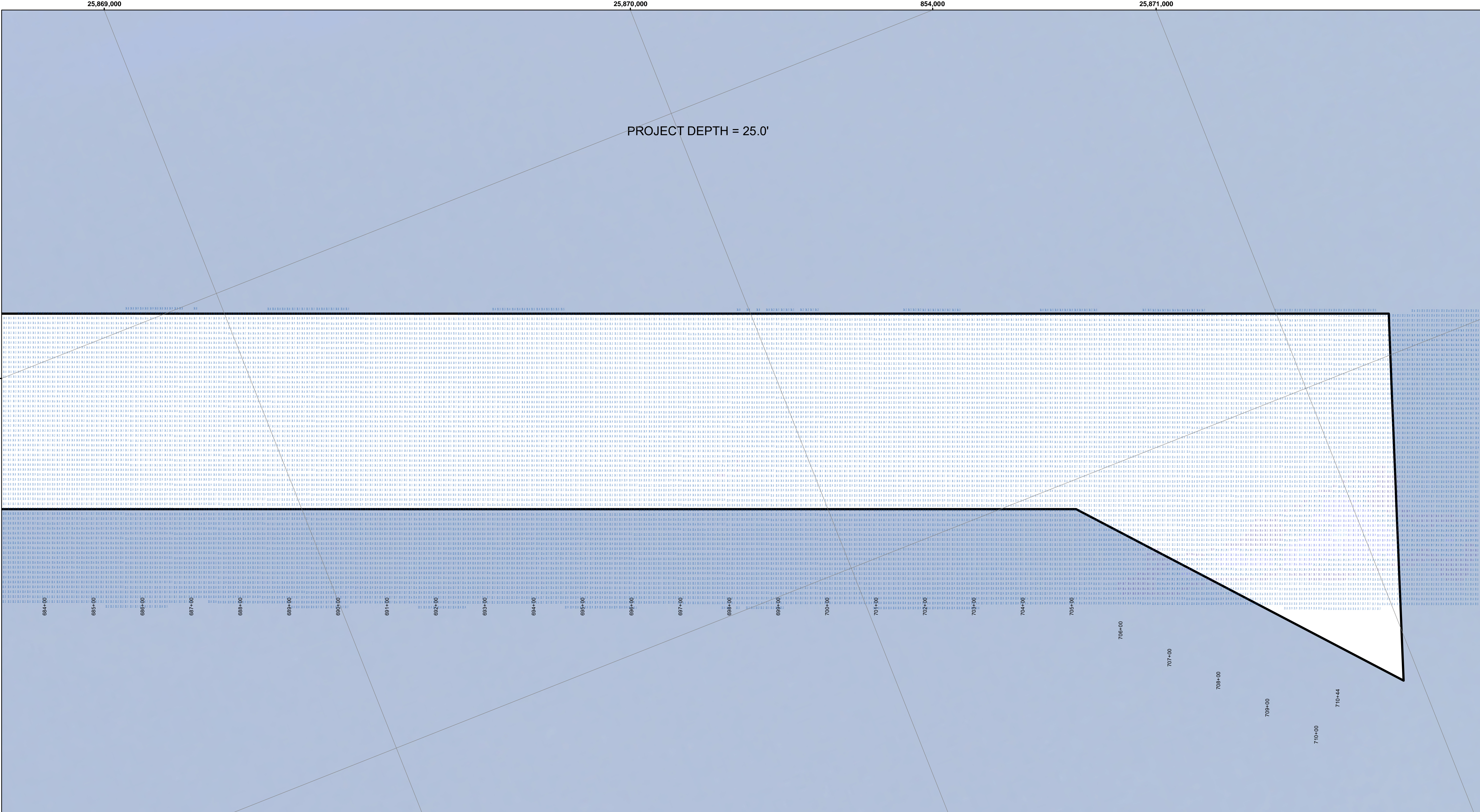
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NOTES: 1. THE CHARTED SOUNDINGS REPRESENT THE MINIMUM DEPTH MEASURED AT THE TIME OF THE SURVEY WITHIN THE 10' X 10' AREA CENTERED ON THE TEXT. DERIVED FROM DATA X-T-AVERAGE DATASET AT CELL CENTER. THIS CHART SHOULD NOT BE USED FOR CHANNEL CLEARANCE OR VOLUME COMPUTATIONS. MINIMUM DEPTH DATA IS PRODUCED FOR STRIKE/SOAL REMOVAL OPERATIONS AND NOTICE TO NAVIGATION INTERESTS.

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6. IMAGERY SOURCED FROM: ESRI & 2014 NAIP IMAGERY

Keweenaw Waterway, MI
Keweenaw Waterway
KW_01_NAW_20200904_CS
04 September 2020

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U.S. ARMY CORPS OF ENGINEERS
DETROIT DISTRICT
Surveyed By:
Plotted By:
Checked By:
Submitted:
Recommended: Chief, Survey Section
Approved: Chief, Technical Services