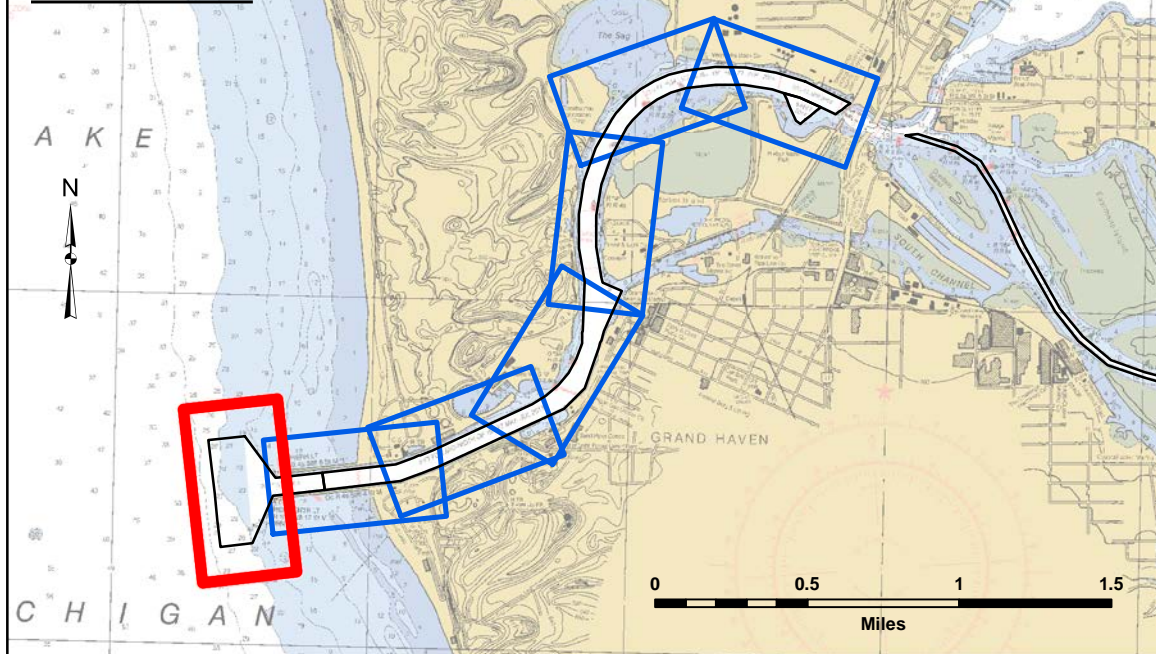


SHEET INDEX



VICINITY MAP

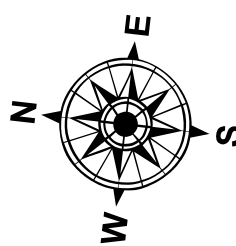


LEGEND

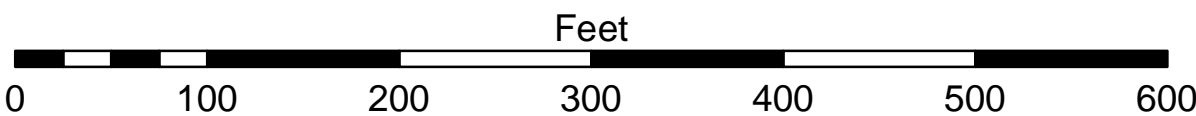
- Cable Submarine
- - Cable Overhead
- Placement Area
- Beacon, General
- Contour Lines
- Channel_Limits

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:
- 1) THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME.
 - 2) ALL SOUNDINGS ARE IN FEET AND ARE REFERENCED TO LOW WATER DATUM ELEVATION AS SHOWN ABOVE MEAN SEA LEVEL I.G.L.D. 1985.
 - 3) HORIZONTAL GRID SYSTEM IS REFERENCED TO THE MICHIGAN STATE PLANE COORDINATE SYSTEM, LAMBERT PROJECTION, SOUTH ZONE (2113), NORTH AMERICAN DATUM 1983 (NAD83), US FOOT.
 - 4) VERTICAL WATER LEVEL READINGS WERE TAKEN FROM A FIXED GAGE MARK ALONG THE SHEET STEEL WALL IN THE GRAND HAVEN GOVERNMENT BASIN.
 - 5) POSITIONING METHOD: TRIMBLE DGPS WMAAS CORRECTIONS
EQUIPMENT: ODOM CV 100 SINGLE BEAM SOUNDER
SOFTWARE: HYPACK
VESSEL: 3064

IMAGERY SOURCED FROM: 2014 MICHIGAN NAIP IMAGERY



US Army Corps
of Engineers
District: CELRE

Disclaimer: Liability: The data represents the results of data collection operations for a specific US Army Corps of Engineers activity and indicates the general existing conditions. The user is responsible for the results of any of the application of the data for other than its intended purpose.

DISCLAIMER: The United States Government furnishes these data and the recipient accepts and uses them with the express understanding that the data are not to be used for any purpose other than that for which they were provided. The user is responsible for the results of any of the application of the data for other than its intended purpose. The data are not to be used for any purpose other than that for which they were provided. The user is responsible for the results of any of the application of the data for other than its intended purpose.

U.S. ARMY CORPS OF ENGINEERS
DETROIT DISTRICT

Submitted:

Surveyed By:

Plotted By:

Checked By:

Grand Haven, MI
Grand Haven Harbor
GR_01_HVN_20221025_CS
25 October 2022

Sheet
Reference
Number
1 of 7

Revision Number:
4.2-2020M020



Distribution Liability. The data represents the results of data collection/processing for a specific US Army Corps of Engineers project. As such, it is only valid for its intended uses, content, time and accuracy specifications. The user is responsible for the results of any of the application of the data for other than its intended purpose.

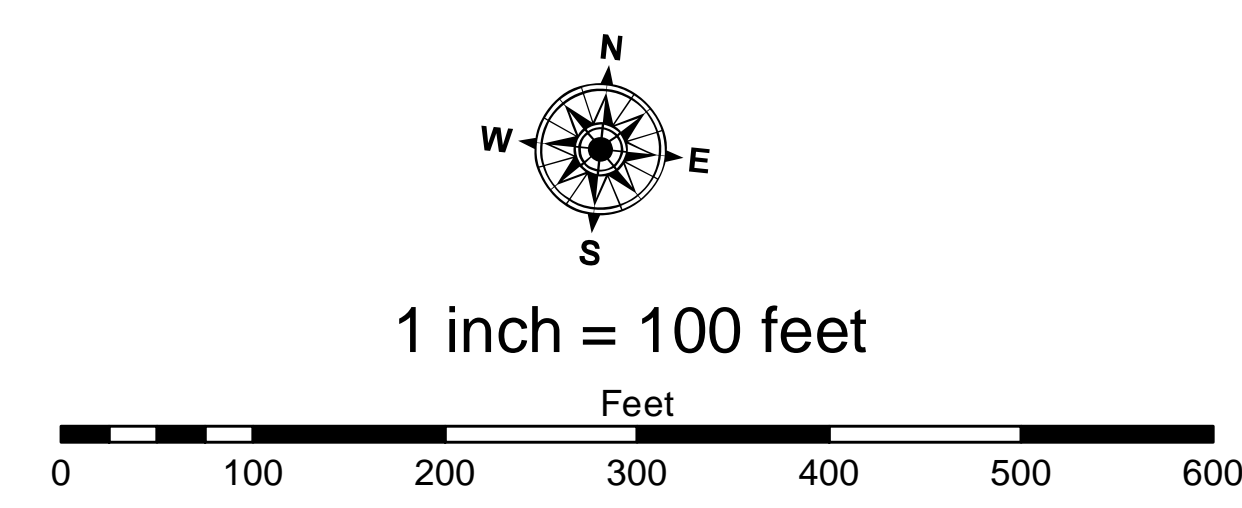
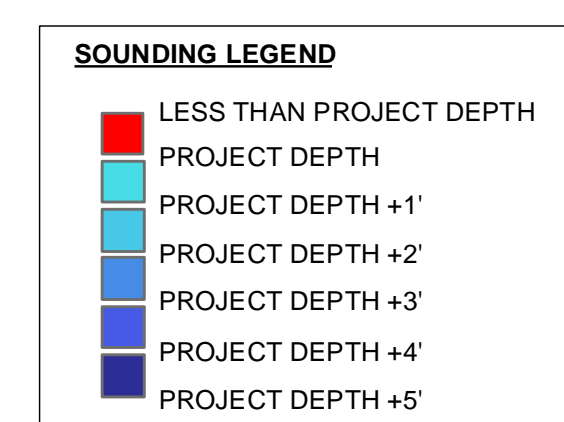
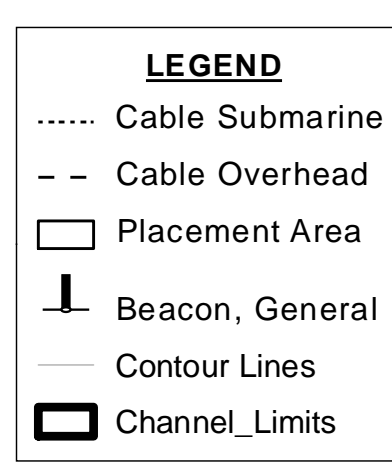
DISCLAIMER

Access Constraints: The United States Government furnishes this information as is without making any warranties, expressed or implied concerning the accuracy, completeness, suitability, usability or suitability for any particular purpose of the information and the data furnished. The United States shall be under no liability whatsoever to any person by reason of any use made thereof. These data belong to the government. Therefore the recipient must not transfer, copy, or otherwise use these data without the permission of the government. The recipient may not transfer these data to others without also transferring this Disclaimer.

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

Grand Haven, MI
Grand Haven Harbor
GR_01_HVN_20220406_CS
06 April 2022

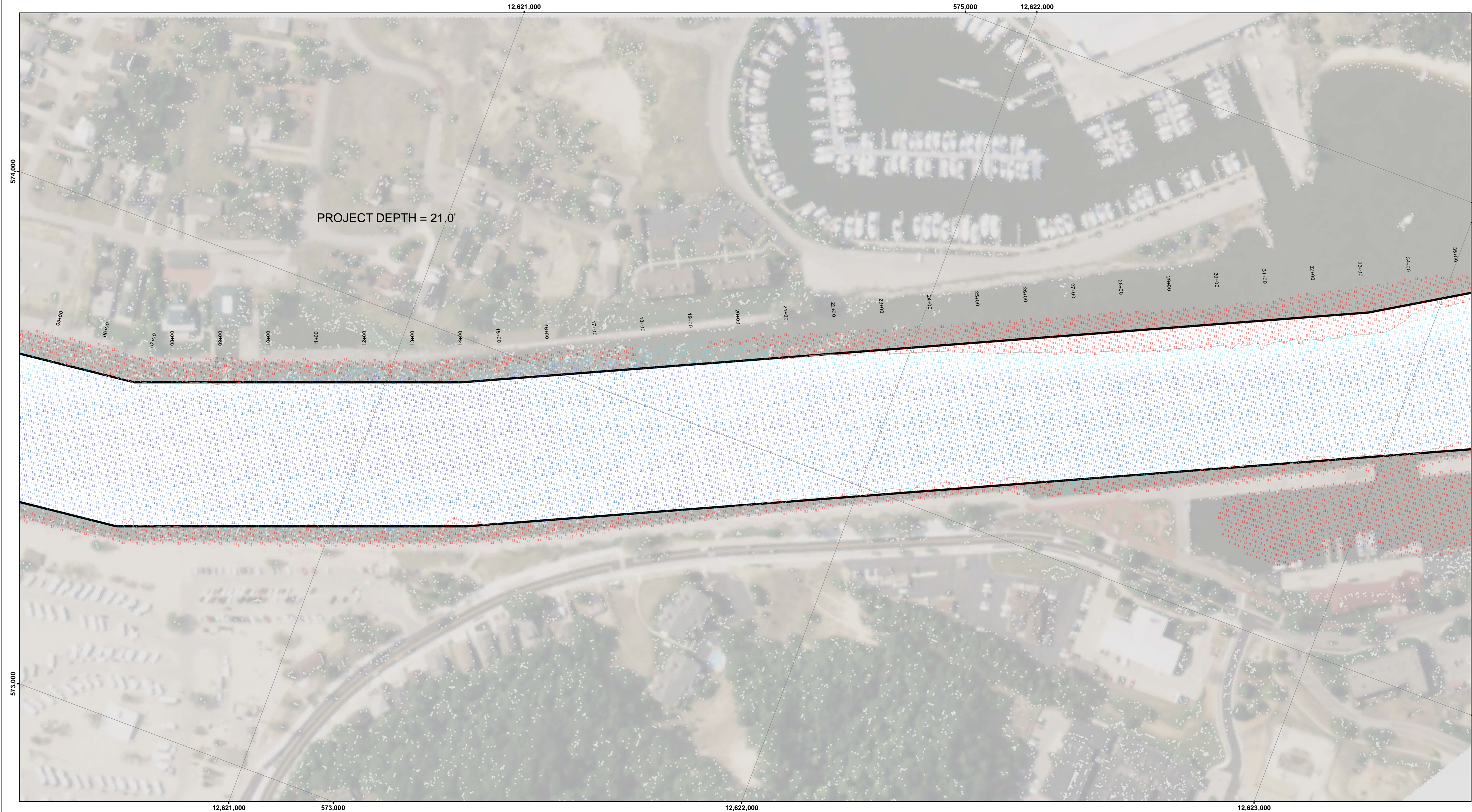
**Sheet
Reference
Number
2 of 7**



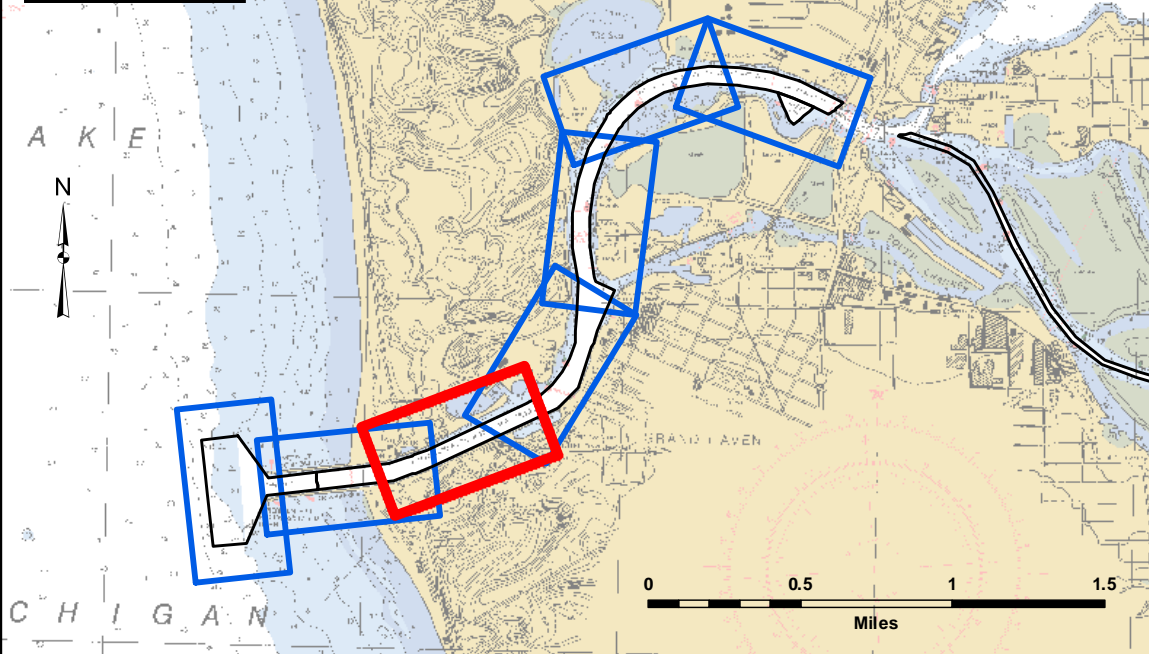
NOTES:

1. THE SOUNDINGS INDICATED HEREON ARE GENERALIZED DEPTHS AND ARE NOT REPRESENTATIVE OF THE FULL DATASET. THE SOUNDINGS REPRESENT THE MINIMUM DEPTH SOUNDING OF THE 10 FOOT BY 10 FOOT AREA CENTERED ON THE TEXT. DERIVED FROM A 1 FOOT BY 1 FOOT AVERAGE DATASET AT CELL CENTER. THIS MAP SHOULD NOT BE USED FOR CHANNEL CLEARANCE OR MINIMUM COMPUTATIONS. MINIMUM DEPTH DATA IS PRODUCED FOR STRIKE/SOAL REMOVAL OPERATIONS AND NOTICES TO NAVIGATION INTERESTS.
2. GRIDS SHOWN ARE BASED ON THE NATIONAL GEODETIC SURVEY PROJECTION/ TABLES, STATE OF MICHIGAN, SOUTH ZONE (2113). LAMBERT PROJECTION, 1983 NORTH AMERICAN DATUM, US SURVEY FOOT.
3. ALL SOUNDINGS ARE REFERENCED TO I.G.L.D. FOR LAKE MICHIGAN, ELEVATION 577.5 FT. ABOVE MEAN SEA LEVEL AT RIMOUSKI, QUEBEC.
4. VERTICAL WATER LEVEL READINGS WERE TAKEN FROM A FIXED GAGE MARK ABOVE THE SHEET STEEL WALL IN THE GRAND HAVEN GOVERNMENT BASIN, MI.
5. PROJECT DEPTH = 23.0 - 21.0 FEET
6. POSITIONING: APPLANIX POS M/V CORRECTIONS: MARINSTAR GNSS G2 SONAR: R2SONIC 2024 SOFTWARE: HYPACK 2021 VESSEL: LAUNCH 3058

2010 AERIAL PHOTOGRAPHY DATA SOURCE: USGS



SHEET INDEX



VICINITY MAP

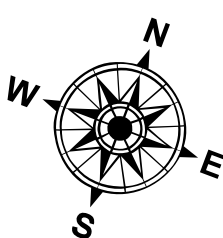


LEGEND

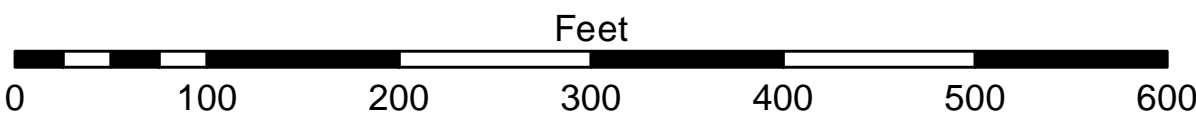
- Cable Submarine
- - Cable Overhead
- Placement Area
- └ Beacon, General
- Contour Lines
- ▭ Channel Limits

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:
1. THE SOUNDINGS INDICATED HEREON ARE GENERALIZED DEPTHS AND ARE NOT REPRESENTATIVE OF THE FULL DATASET. THE SOUNDINGS REPRESENT THE MINIMUM DEPTH FOUND WITHIN THE 10 FOOT BY 10 FOOT AREA CENTERED ON THE TEXT. THIS MAP SHOULD NOT BE USED FOR CHANNEL CLEARANCE OR VOLUME COMPUTATIONS. MINIMUM DEPTH DATA IS PRODUCED FOR STRIKE/SHOAL REMOVAL OPERATIONS AND NOTICES TO NAVIGATION INTERESTS.
 2. GRIDS SHOWN ARE BASED ON THE NATIONAL GEODETIC SURVEY PROJECTION TABLES, STATE OF MICHIGAN, SOUTH ZONE (2113), LAMBERT PROJECTION, 1983 NORTH AMERICAN DATUM, US SURVEY FOOT.
 3. ALL SOUNDINGS ARE REFERENCED TO I.G.L.D. FOR LAKE MICHIGAN, ELEVATION 577.5 FT. ABOVE MEAN SEA LEVEL AT RIMOUSKI, QUEBEC.
 4. VERTICAL WATER LEVEL READINGS WERE TAKEN FROM A FIXED GAGE MARK ALONG THE SHEET STEEL WALL IN THE GRAND HAVEN GOVERNMENT BASIN, MI.
 5. PROJECT DEPTH = 23.0 - 21.0 FEET

6. POSITIONING: APPLANIX POS M/V
CORRECTIONS: MARINSTAR GNSS G2
SONAR: R2SONIC 2024
SOFTWARE: HYPACK 2021
VESSEL: LAUNCH 3058

2010 AERIAL PHOTOGRAPHY DATA SOURCE: USGS



US Army Corps
of Engineers
District: CELRE

The data is publicly available. The data represents the results of data collection and is not intended for use in any other manner than its intended purpose. Engineers activity and indicates the general existing conditions. The user is responsible for the results of any of the application of the data for other than its intended purpose.

Access Constraints: The United States Government furnishes these data and the recipient accepts and uses them with the express understanding that the data are not to be used for any purpose other than that for which they were provided. The data are not to be used for any purpose other than that for which they were provided. The data are not to be used for any purpose other than that for which they were provided. The data are not to be used for any purpose other than that for which they were provided.

U.S. ARMY CORPS OF ENGINEERS
DETROIT DISTRICT

Submitted:

Plotted By:

Checked By:

Grand Haven, MI

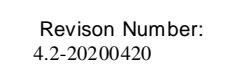
Grand Haven Harbor

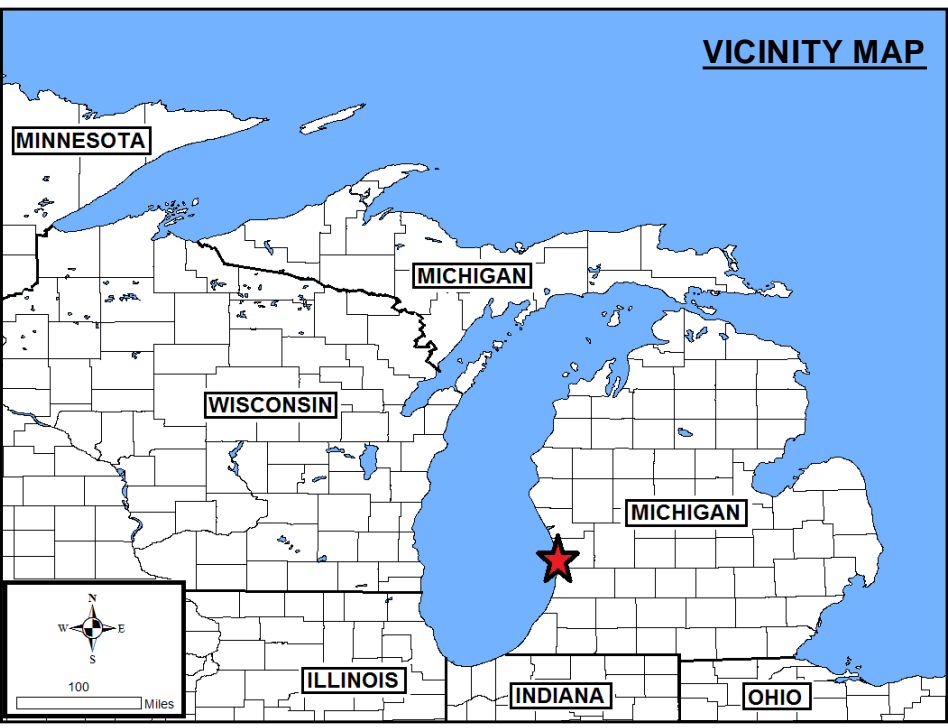
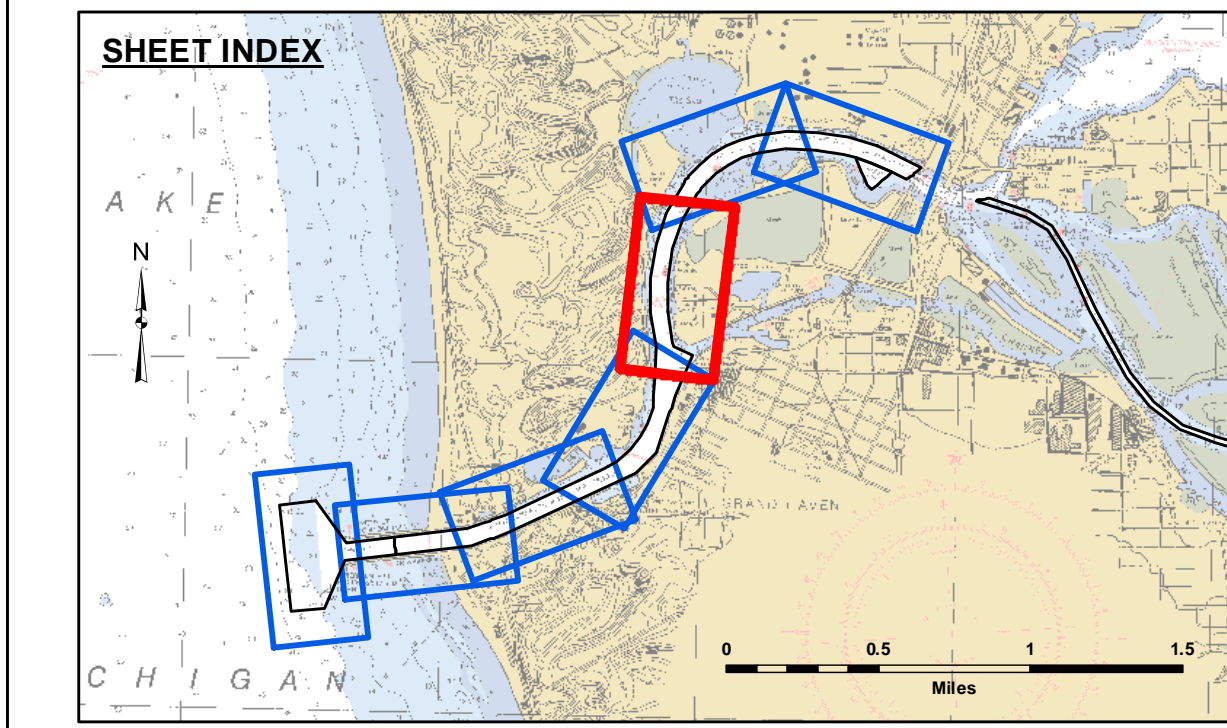
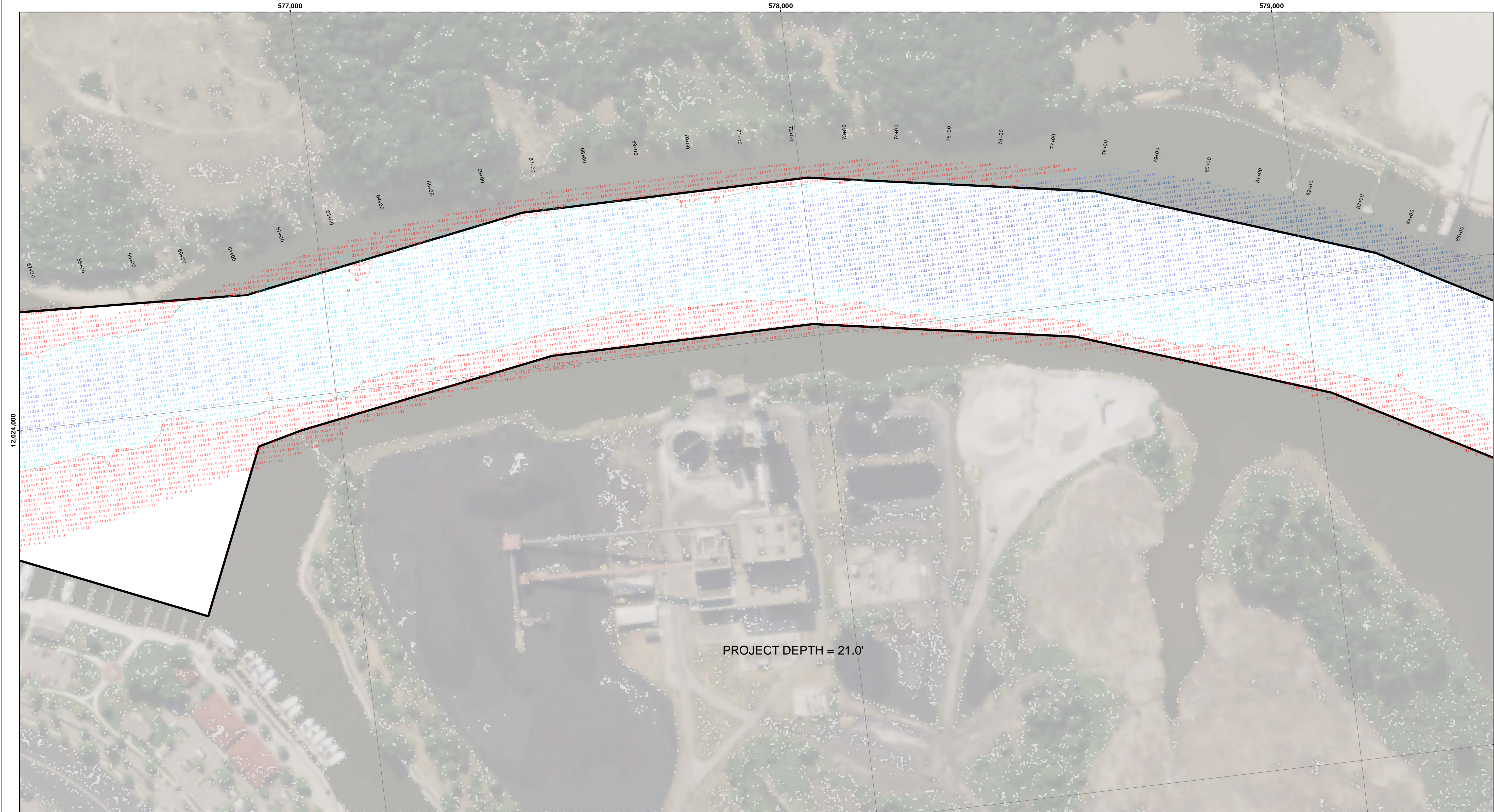
GR_01_HVN_20220406_CS

06 April 2022

Sheet
Reference
Number
3 of 7

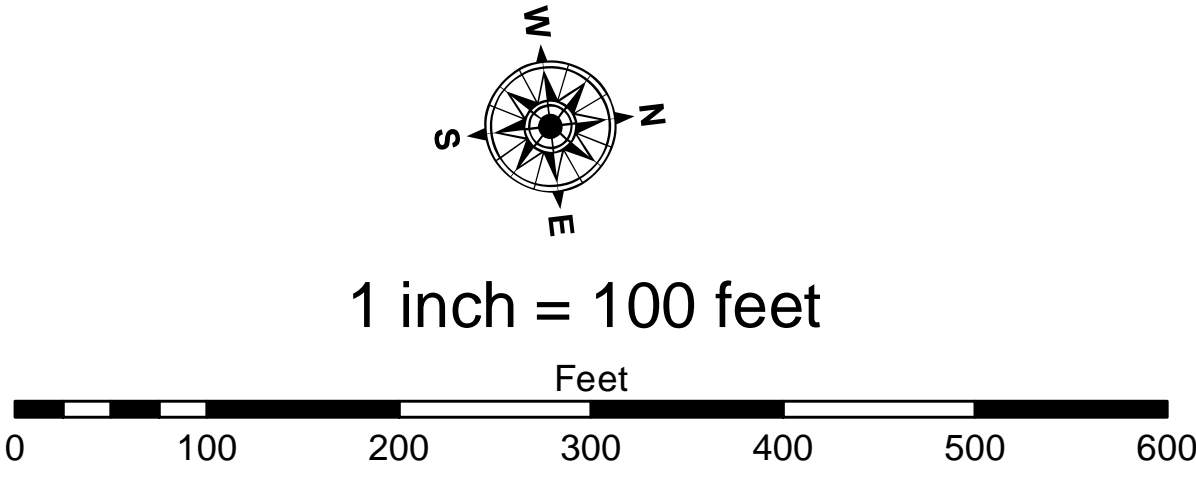
Revision Number:
4.2 2022/04/20





- LEGEND**
- Cable Submarine
 - Cable Overhead
 - Placement Area
 - ⊥ Beacon, General
 - Contour Lines
 - ▭ Channel Limits

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



- NOTES:**
1. THE SOUNDINGS INDICATED HEREON ARE GENERALIZED DEPTHS AND ARE NOT REPRESENTATIVE OF THE FULL DATASET. THE SOUNDINGS REPRESENT THE MINIMUM DEPTH FOUND WITHIN THE 10 FOOT BY 10 FOOT AREA CENTERED ON THE TEXT, DERIVED FROM A 1 FOOT BY 1 FOOT AVERAGE DATASET AT CELL CENTER. THIS MAP SHOULD NOT BE USED FOR CHANNEL CLEARANCE OR VOLUME COMPUTATIONS. MINIMUM DEPTH DATA IS PROVIDED FOR STRIKE/SHOAL REMOVAL OPERATIONS AND NOTICES TO NAVIGATION INTERESTS.
 2. GRIDS SHOWN ARE BASED ON THE NATIONAL GEODETIC SURVEY PROJECTION TABLES, STATE OF MICHIGAN, SOUTH ZONE (211), LAMBERT PROJECTION, 1983 NORTH AMERICAN DATUM, US SURVEY FOOT.
 3. ALL SOUNDINGS ARE REFERENCED TO I.G.L.D. FOR LAKE MICHIGAN, ELEVATION 577.5 FT. ABOVE MEAN SEA LEVEL AT RIMOUSKI, QUEBEC.
 4. VERTICAL WATER LEVEL READINGS WERE TAKEN FROM A FIXED GAGE MARK ALONG THE SHEET STEEL WALL IN THE GRAND HAVEN GOVERNMENT BASIN, MI.
 5. PROJECT DEPTH = 23.0 - 21.0 FEET
 6. POSITIONING: APPLANIX POS M/V CORRECTIONS: MARINSTAR GNSS G2 SONAR: R2SONIC 2024 SOFTWARE: HYPACK 2021 VESSEL: LAUNCH 3058

Grand Haven, MI
Grand Haven Harbor
GR_01_HVN_20220406_CS
06 April 2022

Sheet
Reference
Number
5 of 7

U.S. ARMY CORPS OF ENGINEERS
DETROIT DISTRICT

Submitted:	Surveyed By:
Recommended:	Plotted By:
Approved:	Checked By:

Chief, Survey Section
Chief, Technical Services

DISCLAIMER: The data presented in the results of data collection are for informational purposes only. The data are not intended for use in any other manner. The user is responsible for the results of any application of the data for other than its intended purpose.

Access Constraints: The United States Government furnishes these data and the recipient accepts and uses them with the express understanding that the data are not to be reproduced, stored, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or by any information storage and retrieval system, without prior written permission from the United States Government. The data are provided for informational purposes only and are not to be used for any other purpose. The data are not to be used for any other purpose. The data are not to be used for any other purpose.



