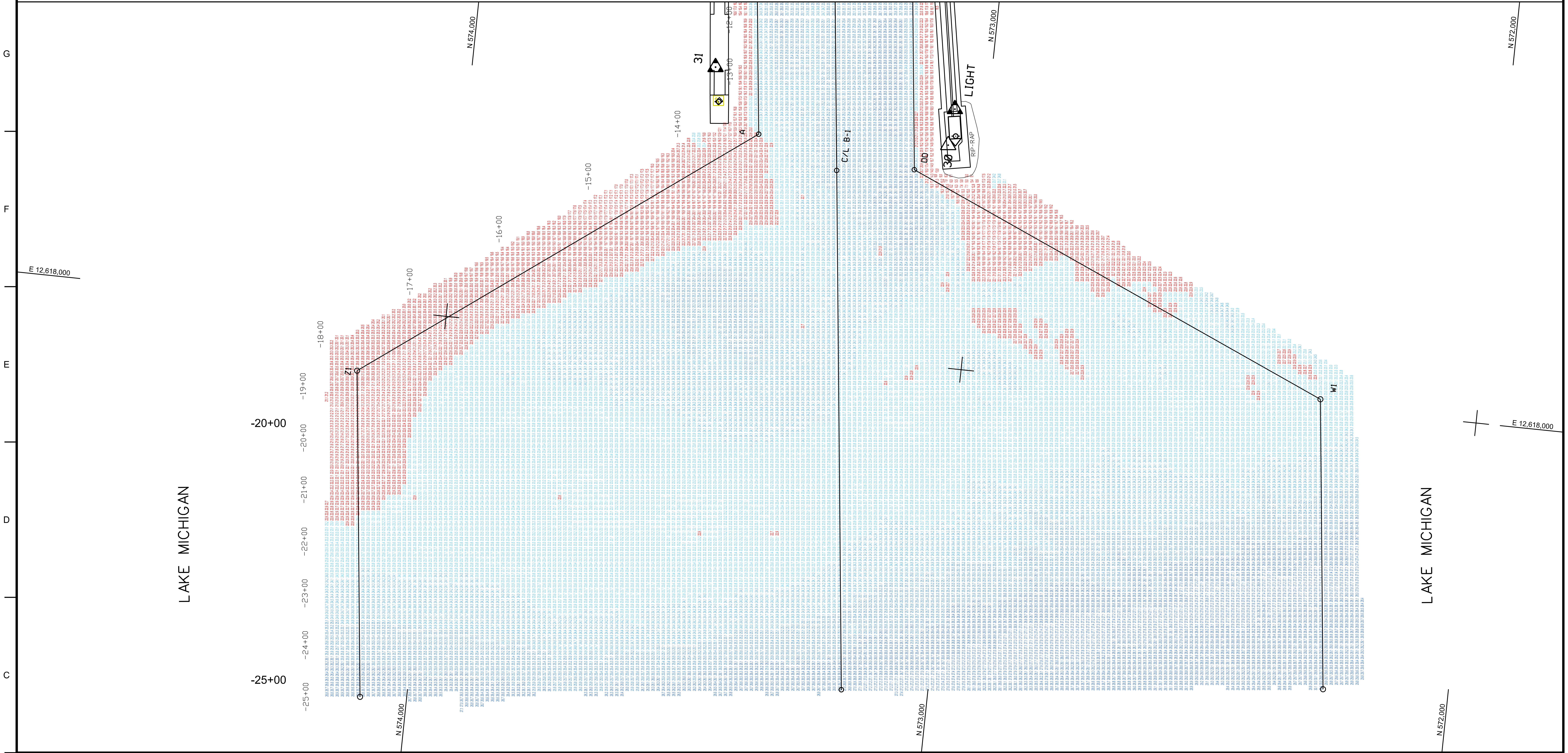
MATCH LINE SHEET VH102



ALL SOUNDINGS ARE REFERENCED TO I.G.L.D. 1985 FOR LAKE MICHIGAN, ELEVATION 577.5 FT. ABOVE MEAN SEA LEVEL AT RIMOUSKI, QUEBEC.

GRID SYSTEM BASED ON LAMBERT PROJECTION, MICHIGAN STATE PLANE COORDINATE SYSTEM, SOUTH ZONE (2113) 1983 NORTH AMERICAN DATUM, U.S. FOOT.

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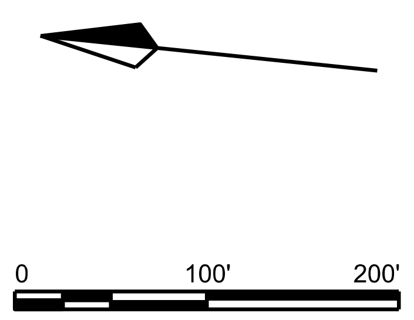
VERTICAL WATER LEVEL READINGS WERE TAKEN FROM A FIXED GAUGE MARK ALONG THE SHEET STEEL WALL IN THE GRAND HAVEN GOVERNMENT BASIN.

SURVEYED ON: 30 OCTOBER 2019
POSITIONING METHOD: APPLANIX POS M/V W/DGPS CORRECTIONS
MOTION COMPENSATION: APPLANIX OCEAN MASTER POS M/V
EQUIPMENT: R2 SONIC 2024 MULTIBEAM ECHOSOUNDER
SOFTWARE: HYPACK
VESSEL: LAUNCH 3058

23' Legend

	0.0'
🟥	23.0'
🟦	24.0'
🟦	25.0'
🟦	26.0'
🟦	27.0'
🟦	27.0' +

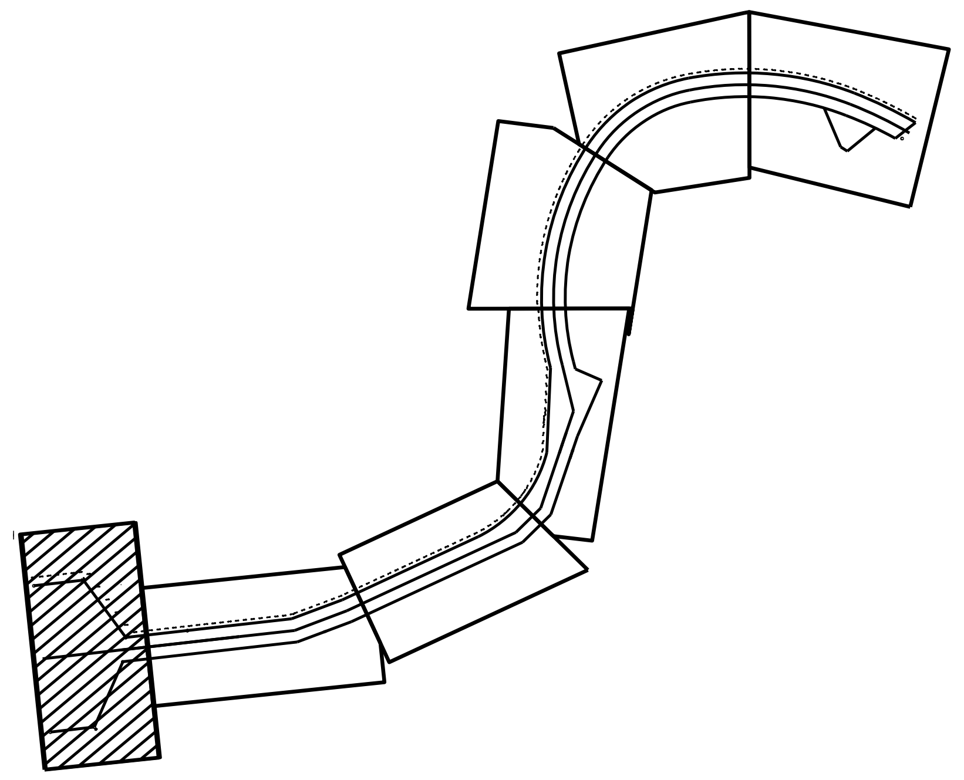


CHANNEL LINE T.P.

T.P.	EAST X	NORTH Y
A	12,618,412.21	573,435.73
DD	12,618,374.87	573,129.62
Z1	12,617,877.92	574,160.24
W1	12,618,014.68	572,303.70

CENTER LINE T.P.

T.P.	EAST X	NORTH Y
C/L B-1	12,618,358.07	573,278.68



US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

SURVEYED BY: E.D.S.	ISSUE DATE: 30-OCT-2019
DRAWN BY: E.D.S.	SOLICITATION NO.:
REVIEWED BY:	CONTRACT NO.:
APPROVED BY:	DRAWING NUMBER:
SIZE: ANSI D	FILE NAME: grand haven october 2019 after.dgn

U.S. ARMY CORPS OF ENGINEERS
DETROIT DISTRICT
477 MICHIGAN AVE
DETROIT, MI 48226

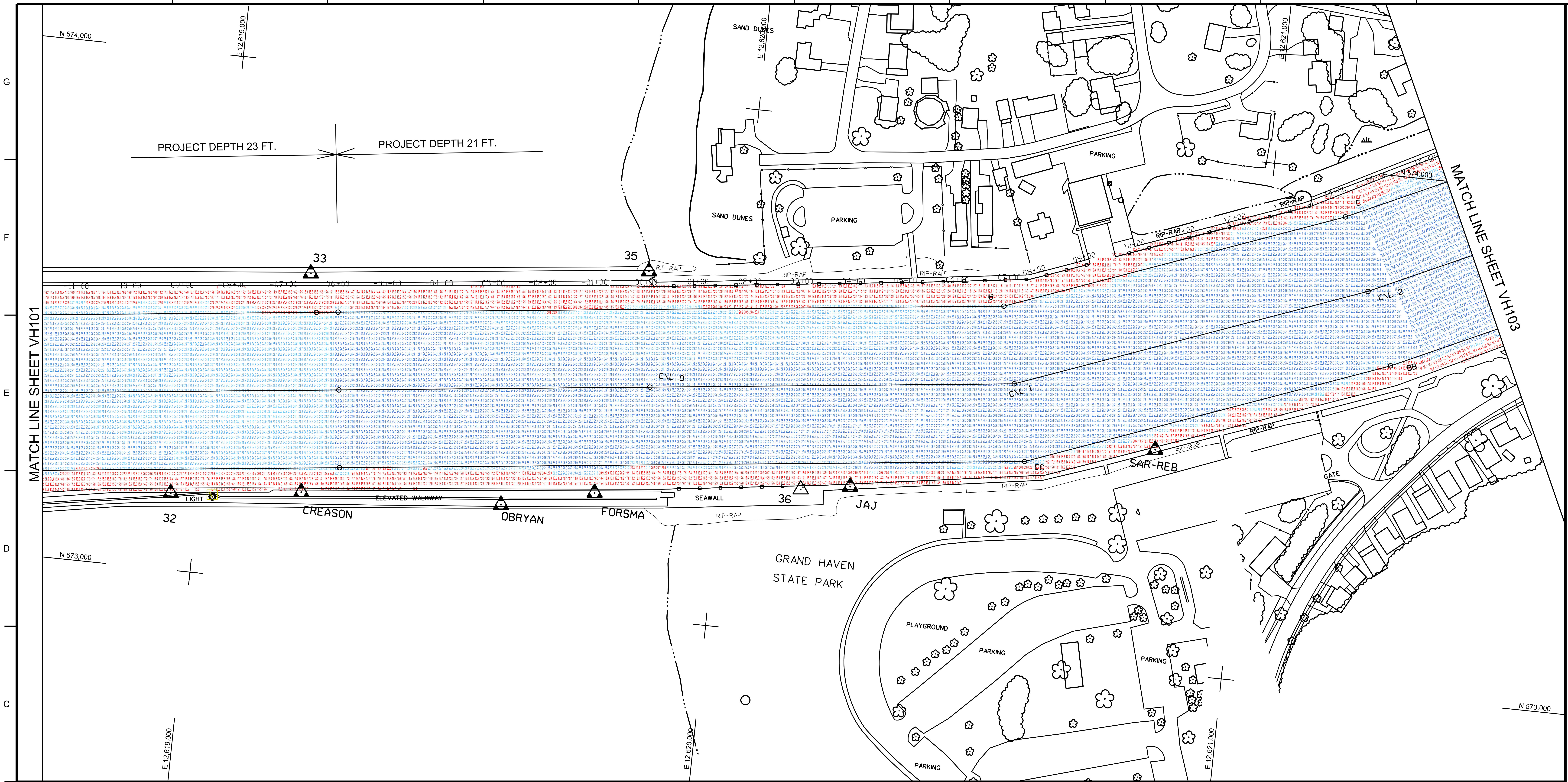
LAKE MICHIGAN AREA OFFICE
307 SOUTH HARBOR DR
GRAND HAVEN, MI 49417

GRAND HAVEN HARBOR
MICHIGAN

CONDITION OF CHANNEL
OCTOBER 2019

SHEET ID

VH101



ALL SOUNDINGS ARE REFERENCED TO I.G.L.D. 1985 FOR LAKE MICHIGAN, ELEVATION 577.5 FT. ABOVE MEAN SEA LEVEL AT RIMOUSKI, QUEBEC.

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VERTICAL WATER LEVEL READINGS WERE TAKEN FROM A FIXED GAUGE MARK ALONG THE SHEET STEEL WALL IN THE GRAND HAVEN GOVERNMENT BASIN.

SURVEYED ON: 17 SEPTEMBER 2019
POSITIONING METHOD: APPLANIX POS M/V W/DGPS CORRECTIONS
MOTION COMPENSATION: APPLANIX OCEAN MASTER POS M/V
EQUIPMENT: R2 SONIC 2024 MULTIBEAM ECHOSOUNDER
SOFTWARE: HYPACK
VESSEL: LAUNCH 3058

23' Legend

	0.0'
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21' Legend

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🟦	25.0'
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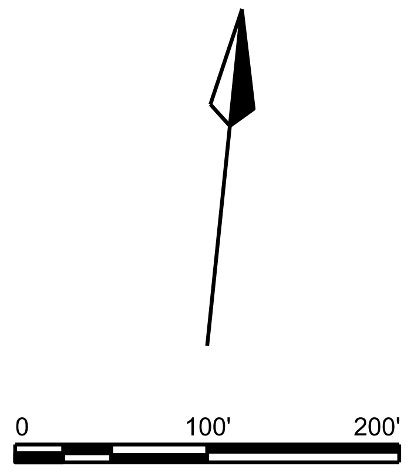
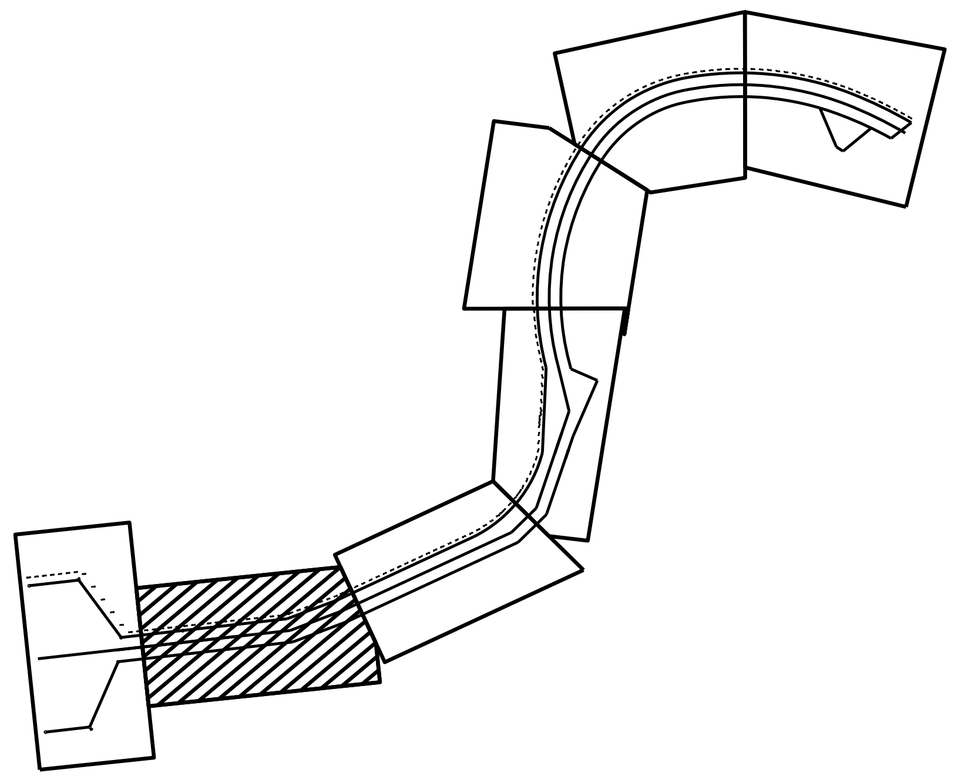


CHANNEL LINE T.P.

T.P.	EAST X	NORTH Y
A	12,618,412.21	573,435.73
B	12,620,508.92	573,672.04
C	12,621,146.62	573,911.14
BB	12,621,262.68	573,634.27
CC	12,620,579.45	573,378.09
DD	12,618,374.87	573,129.62

CENTER LINE T.P.

T.P.	EAST X	NORTH Y
C/L B-1	12,618,358.07	573,278.68
C/L O	12,619,845.64	573,446.33
C/L 1	12,620,544.18	573,525.06
C/L 2	12,621,204.65	573,772.71



US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

SURVEYED BY: E.D.S.
DRAWN BY: E.D.S.
REVIEWED BY:
APPROVED BY:
SIZE: ANSI D
ISSUE DATE: 17-SEP-2019
SOLICITATION NO.:
CONTRACT NO.:
DRAWING NUMBER:
FILE NAME: grand haven september 2019.dgn

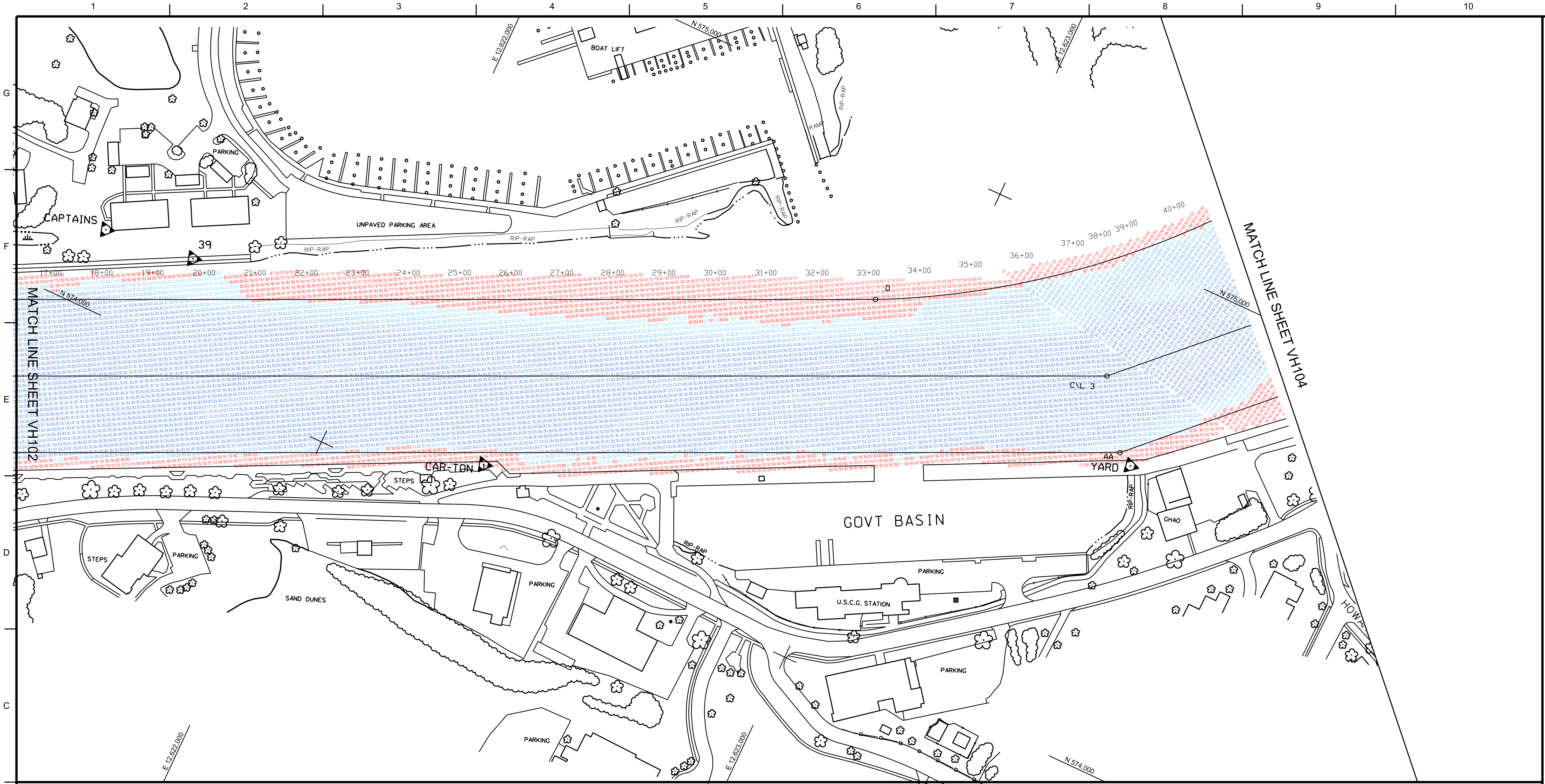
U.S. ARMY CORPS OF ENGINEERS
DETROIT DISTRICT
477 MICHIGAN AVE
DETROIT, MI 48226

LAKE MICHIGAN AREA OFFICE
307 SOUTH HARBOR DR
GRAND HAVEN, MI 49417

GRAND HAVEN HARBOR
MICHIGAN

CONDITION OF CHANNEL
SPTEMBER 2019

SHEET ID
VH102



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VERTICAL WATER LEVEL READINGS WERE TAKEN FROM A FIXED GAUGE MARK ALONG THE SHEET STEEL WALL IN THE GRAND HAVEN GOVERNMENT BASIN.

SURVEYED ON: 16 SEPTEMBER 2019
POSITIONING METHOD: APPLANIX POS M/V W/DGPS CORRECTIONS
MOTION COMPENSATION: APPLANIX OCEAN MASTER POS M/V
EQUIPMENT: R2 SONIC 2024 MULTIBEAM ECHOSOUNDER
SOFTWARE: HYPACK
VESSEL: LAUNCH 3058

21' Legend

0.0'
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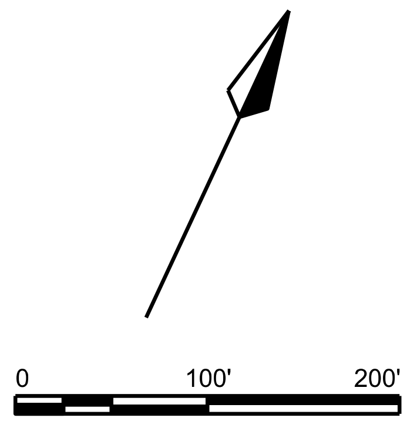
25.0' +

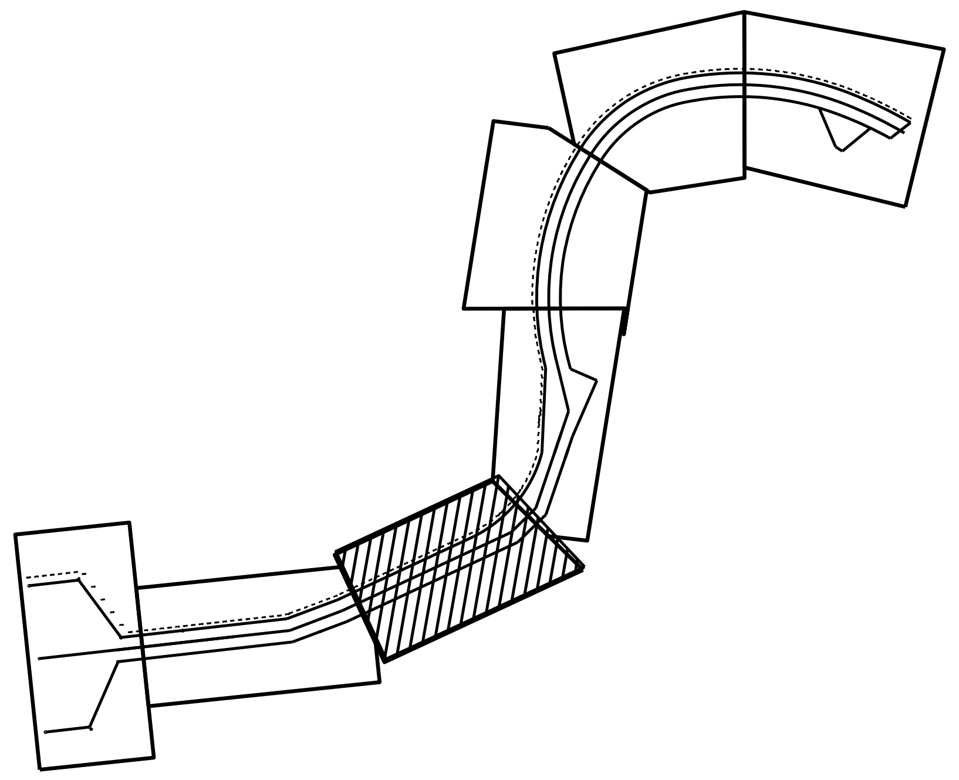


CENTER LINE T.P.

T.P.	EAST X	NORTH Y
CL-3	12,623,339.94	574,765.24
CL-4	12,623,653.21	575,072.11

CHANNEL LINE T.P.

T.P.	EAST X	NORTH Y
C	12,621,146.62	573,911.14
AA	12,623,426.52	574,640.07
BB	12,621,262.68	573,634.27
D	12,622,865.95	574,710.33



US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

SURVEYED BY:
E.D.S.
DRAWN BY:
E.D.S.
REVIEWED BY:
APPROVED BY:
SIZE:
ANSI D
ISSUE DATE:
16-SEP-2019
SOLICITATION NO.:
CONTRACT NO.:
DRAWING NUMBER:
FILE NAME:
grand haven september 2019.dgn

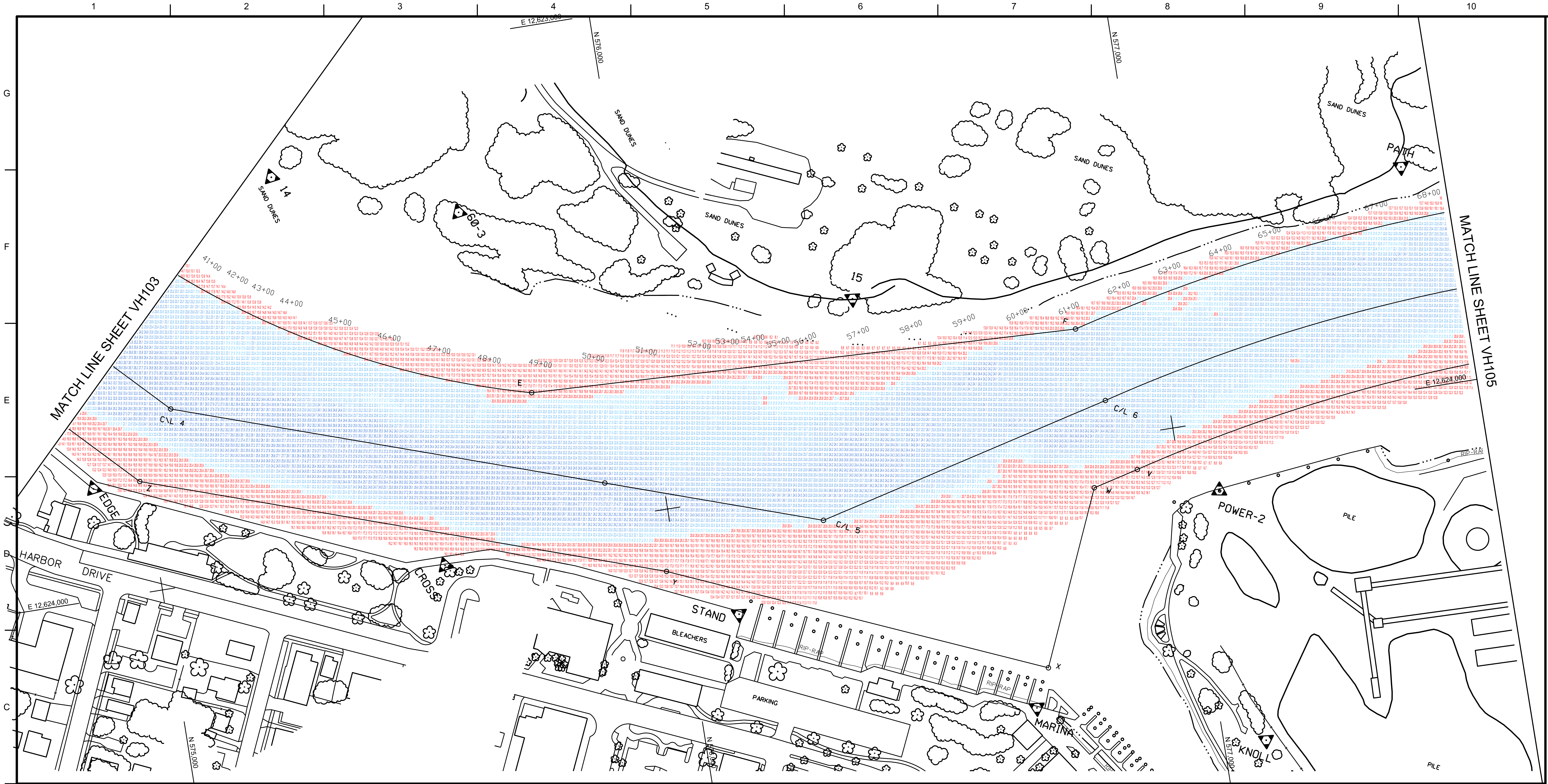
U.S. ARMY CORPS OF ENGINEERS
DETROIT DISTRICT
477 MICHIGAN AVE
DETROIT, MI 48226

LAKE MICHIGAN AREA OFFICE
307 SOUTH HARBOR DR
GRAND HAVEN, MI 49417

GRAND HAVEN HARBOR
MICHIGAN

CONDITION OF CHANNEL
SEPTEMBER 2019

SHEET ID
VH103



ALL SOUNDINGS ARE REFERENCED TO I.G.L.D. 1985 FOR LAKE MICHIGAN, ELEVATION 577.5 FT. ABOVE MEAN SEA LEVEL AT RIMOUSKI, QUEBEC.

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VERTICAL WATER LEVEL READINGS WERE TAKEN FROM A FIXED GAUGE MARK ALONG THE SHEET STEEL WALL IN THE GRAND HAVEN GOVERNMENT BASIN.

SURVEYED ON: 13 SEPTEMBER 2019
POSITIONING METHOD: APPLANIX POS M/V W/DGPS CORRECTIONS
MOTION COMPENSATION: APPLANIX OCEAN MASTER POS M/V
EQUIPMENT: R2 SONIC 2024 MULTIBEAM ECHOSOUNDER
SOFTWARE: HYPACK
VESSEL: LAUNCH 3058

21' Legend

	0.0'
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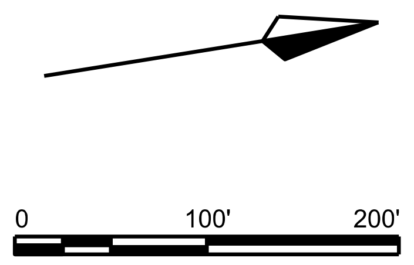
🟦	23.0'
🟦	24.0'
🟦	25.0'
	25.0' +

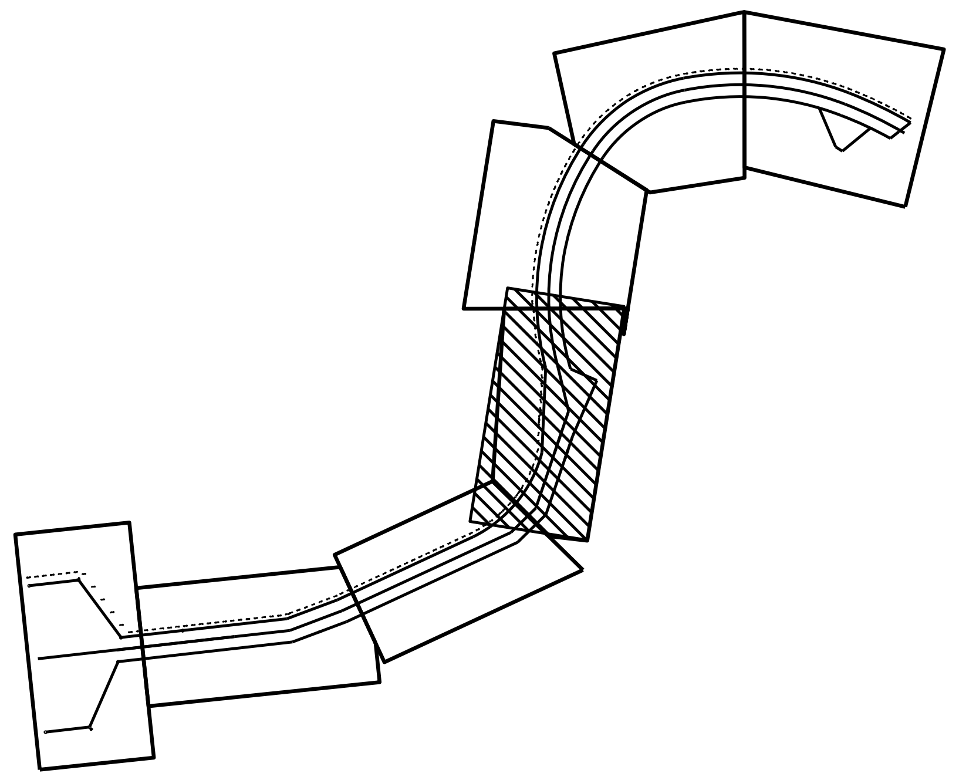


CENTER LINE T.P.

T.P.	EAST X	NORTH Y
CL-4	12,623,653.21	575,072.11
CL-5	12,624,070.08	576,297.21
CL-6	12,623,925.90	576,878.39

CHANNEL LINE T.P.

T.P.	EAST X	NORTH Y
F	12,623,778.73	576,842.84
Z	12,623,783.70	574,989.96
E	12,623,733.45	575,773.56
V	12,624,069.01	576,918.61
W	12,624,091.03	576,829.92
X	12,624,424.39	576,685.69
Y	12,624,120.11	575,978.59



US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

SURVEYED BY:
E.D.S.
DRAWN BY:
E.D.S.
REVIEWED BY:
APPROVED BY:
SIZE:
ANSI D

ISSUE DATE:
13-SEP-2019
SOLICITATION NO.:
CONTRACT NO.:
DRAWING NUMBER:
FILE NAME:
grand haven september 2019.dgn

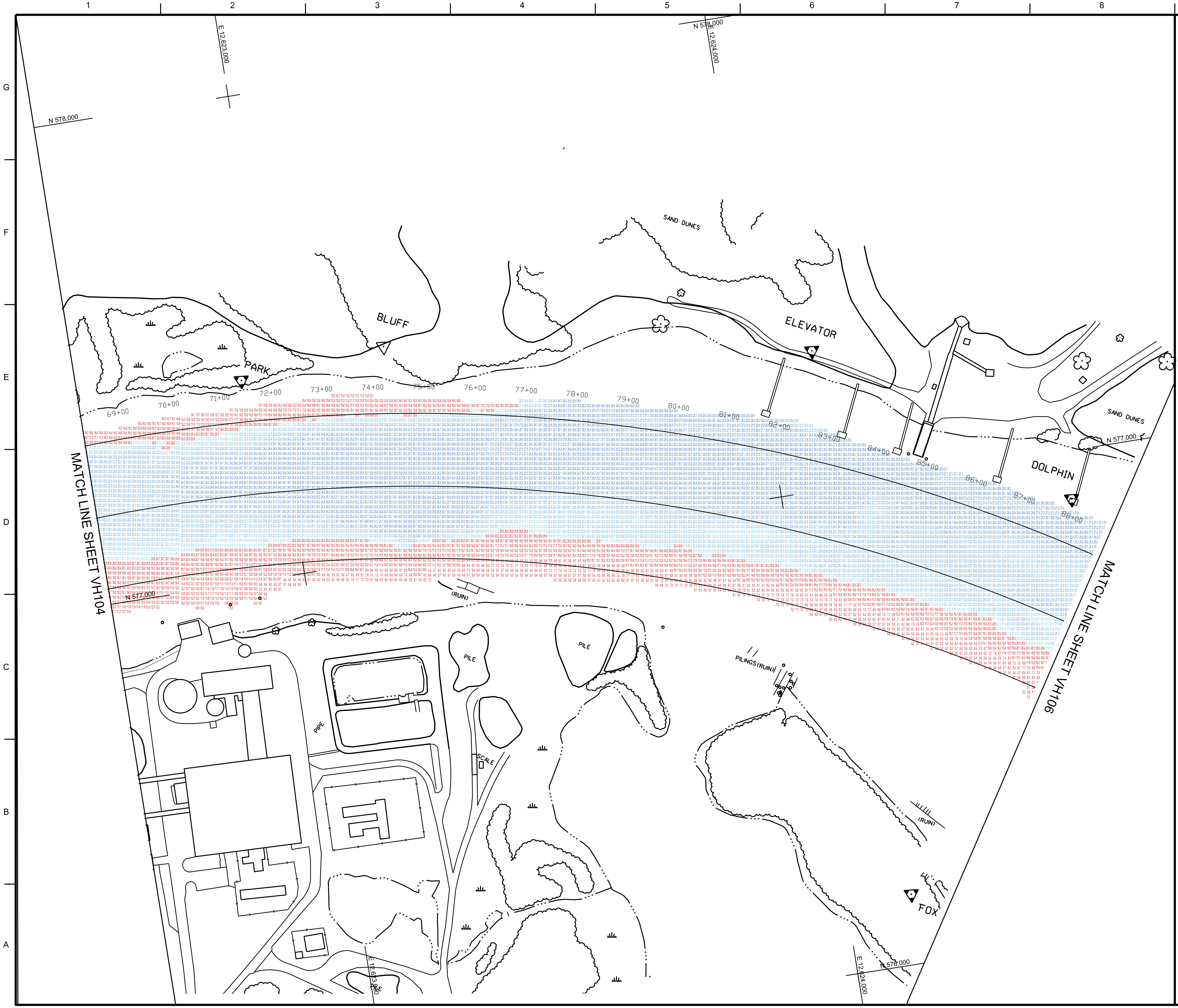
U.S. ARMY CORPS OF ENGINEERS
DETROIT DISTRICT
477 MICHIGAN AVE
DETROIT, MI 48226

LAKE MICHIGAN AREA OFFICE
307 SOUTH HARBOR DR
GRAND HAVEN, MI 49417

GRAND HAVEN HARBOR
MICHIGAN

CONDITION OF CHANNEL
SEPTEMBER 2019

SHEET ID
VH104



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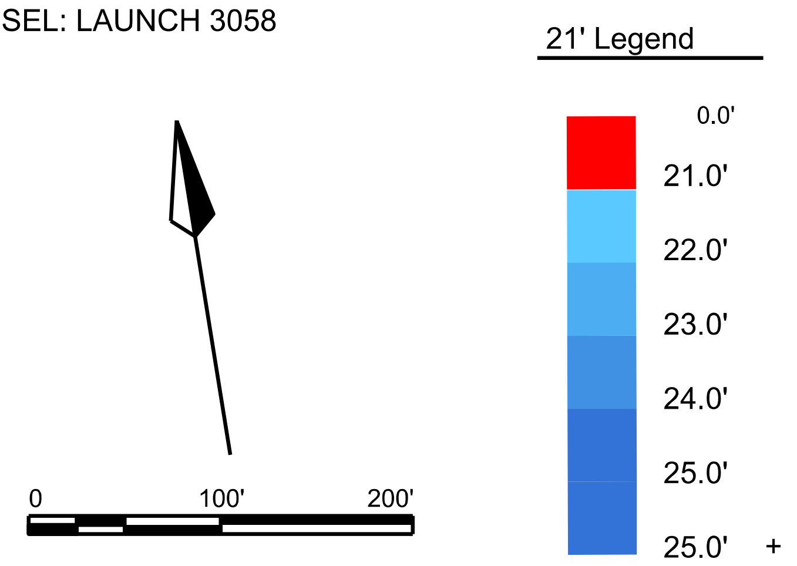
VERTICAL WATER LEVEL READINGS WERE TAKEN FROM A FIXED GAUGE MARK ALONG THE SHEET STEEL WALL IN THE GRAND HAVEN GOVERNMENT BASIN.

SURVEYED ON: 11 SEPTEMBER 2019
POSITIONING METHOD: APPLANIX POS M/V W/DGPS CORRECTIONS
MOTION COMPENSATION: APPLANIX OCEAN MASTER POS M/V
EQUIPMENT: R2 SONIC 2024 MULTIBEAM ECHOSOUNDER
SOFTWARE: HYPACK
VESSEL: LAUNCH 3058

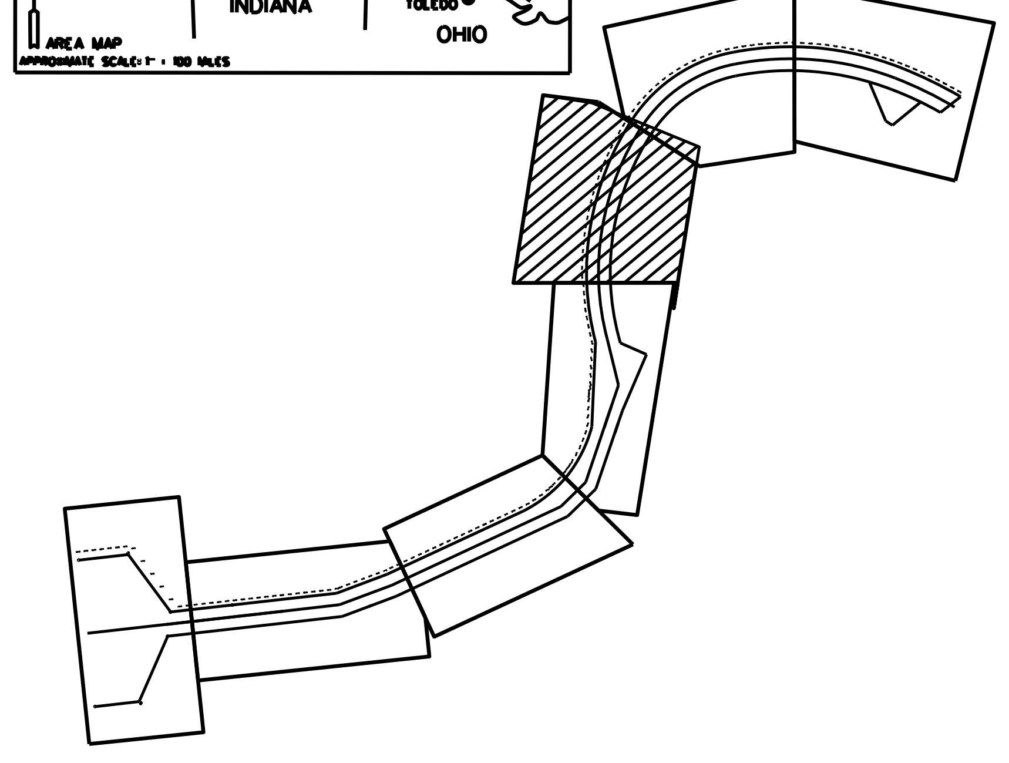


CHANNEL LINE T.P.

T.P.	EAST X	NORTH Y
G	12,624,253.63	579,668.90
U	12,624,502.90	579,501.96

CENTER LINE T.P.

T.P.	EAST X	NORTH Y
CL-7	12,623,918.47	578,500.38
CL-8	12,624,442.85	579,668.98



US Army Corps of Engineers

MARK	DESCRIPTION	DATE

SURVEYED BY: E.D.S.
DRAWN BY: E.D.S.
REVIEWED BY:
APPROVED BY:
SIZE: ANSI D
ISSUE DATE: 11-SEP-19
SOLICITATION NO.:
CONTRACT NO.:
DRAWING NUMBER:
FILE NAME: grand haven september 2019.dgn

U.S. ARMY CORPS OF ENGINEERS
DETROIT DISTRICT
477 MICHIGAN AVE
DETROIT, MI 48226

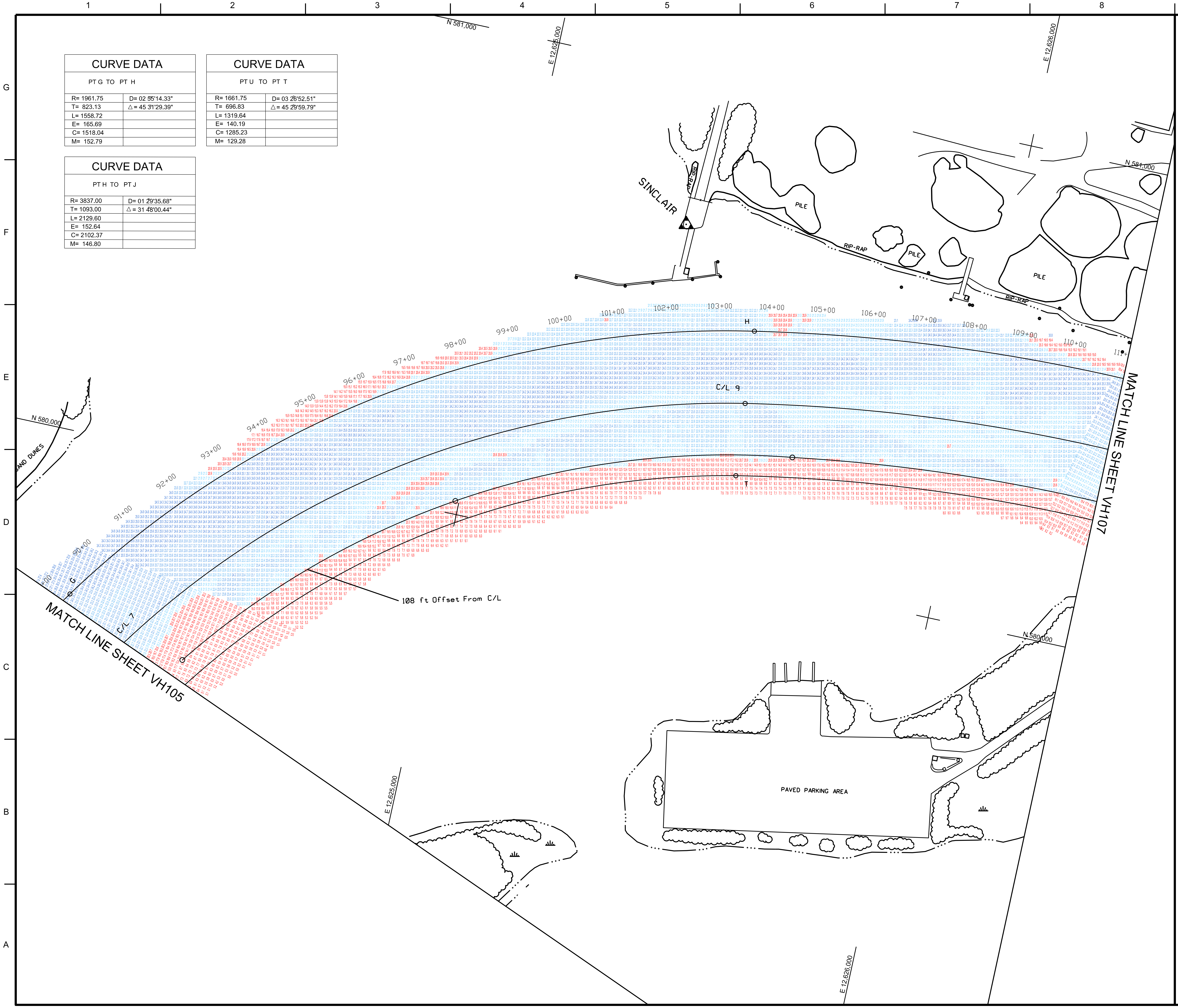
LAKE MICHIGAN AREA OFFICE
307 SOUTH HARBOR DR
GRAND HAVEN, MI 49417

GRAND HAVEN HARBOR
MICHIGAN

CONDITION OF CHANNEL
SEPTEMBER 2019

SHEET ID

VH105



CURVE DATA

PT G TO PT H

R= 1961.75	D= 02°55'14.33"
T= 823.13	△= 45°31'29.39"
L= 1558.72	
E= 165.69	
C= 1518.04	
M= 152.79	

CURVE DATA

PT U TO PT T

R= 1661.75	D= 03°26'52.51"
T= 696.83	△= 45°29'59.79"
L= 1319.64	
E= 140.19	
C= 1285.23	
M= 129.28	

CURVE DATA

PT H TO PT J

R= 3837.00	D= 01°29'35.68"
T= 1093.00	△= 31°48'00.44"
L= 2129.60	
E= 152.64	
C= 2102.37	
M= 146.80	

ALL SOUNDINGS ARE REFERENCED TO I.G.L.D. 1985 FOR LAKE MICHIGAN, ELEVATION 577.5 FT. ABOVE MEAN SEA LEVEL AT RIMOUSKI, QUEBEC.

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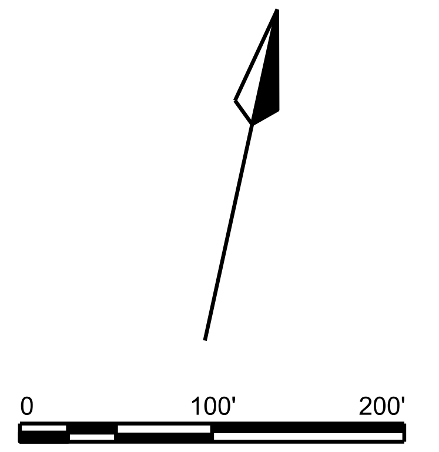
VERTICAL WATER LEVEL READINGS WERE TAKEN FROM A FIXED GAUGE MARK ALONG THE SHEET STEEL WALL IN THE GRAND HAVEN GOVERNMENT BASIN.

SURVEYED ON: 30 OCTOBER 2019
POSITIONING METHOD: APPLANIX POS M/V W/DGPS CORRECTIONS
MOTION COMPENSATION: APPLANIX OCEAN MASTER POS M/V
EQUIPMENT: R2 SONIC 2024 MULTIBEAM ECHOSOUNDER
SOFTWARE: HYPACK
VESSEL: LAUNCH 3058



21' Legend

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🟥	21.0'
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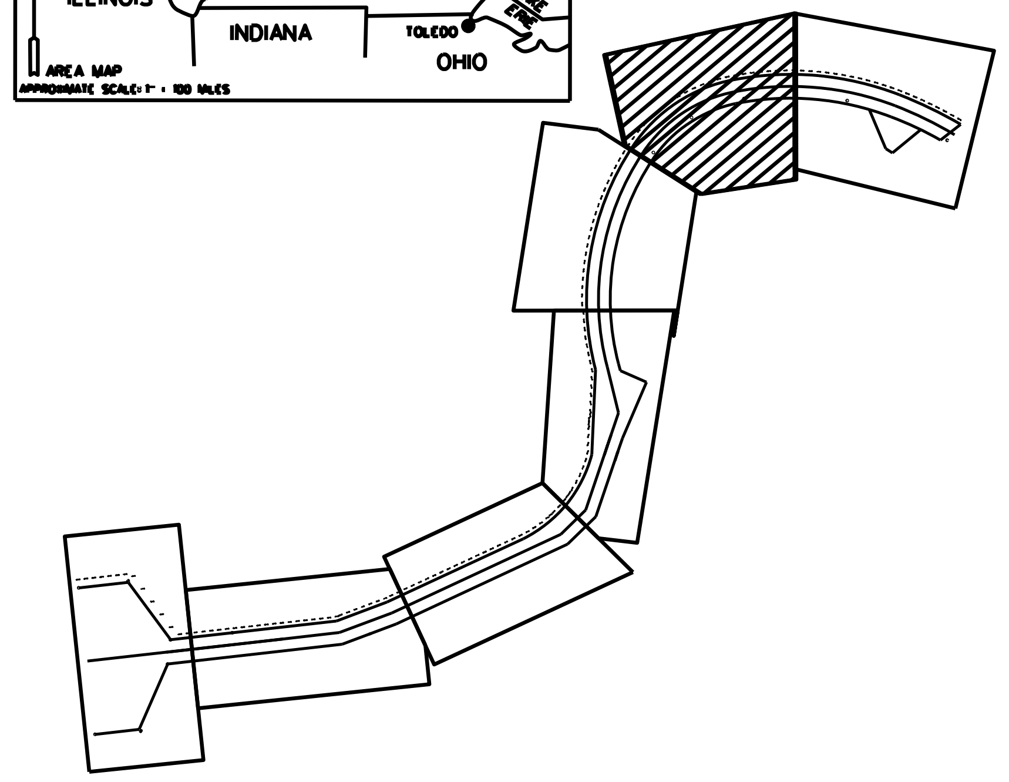
🟦	24.0'
🟦	25.0'
🟦	25.0' +

CHANNEL LINE T.P.

T.P.	EAST X	NORTH Y
G	12,624,253.63	579,668.90
U	12,624,502.90	579,501.96
H	12,625,522.00	580,502.94
T	12,625,548.34	580,202.42

CENTER LINE T.P.

T.P.	EAST X	NORTH Y
CL-8	12,624,442.85	579,668.98
CL-9	12,625,457.33	580,331.91



US Army Corps of Engineers®

MARK	DESCRIPTION	DATE	

ISSUE DATE:
30-OCT-19

SOLICITATION NO.:

CONTRACT NO.:

DRAWING NUMBER:

SURVEYED BY:
E.D.S.

DRAWN BY:
E.D.S.

REVIEWED BY:

APPROVED BY:

SIZE:
ANSI D

FILE NAME:
grand haven october 2019 after.dgn

U.S. ARMY CORPS OF ENGINEERS
DETROIT DISTRICT
477 MICHIGAN AVE
DETROIT, MI 48226

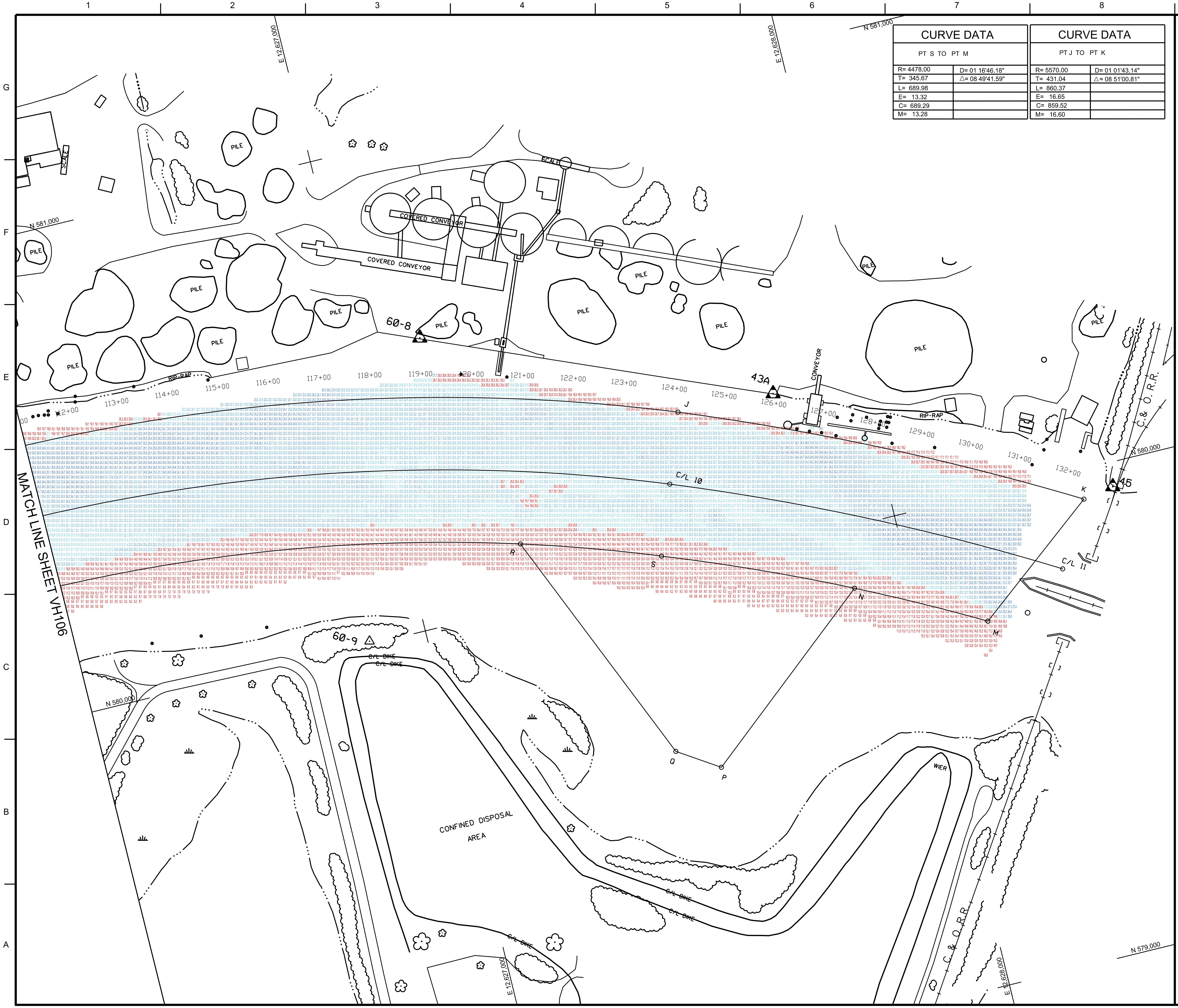
LAKE MICHIGAN AREA OFFICE
307 SOUTH HARBOR DR
GRAND HAVEN, MI 49417

GRAND HAVEN HARBOR
MICHIGAN
CONDITION OF CHANNEL

AFTER DREDGING
OCTOBER 2019

SHEET ID

VH106



CURVE DATA

PT S TO PT M

R= 4478.00	D= 01 16'46.18"
T= 345.67	△= 08 49'41.59"
L= 689.98	
E= 13.32	
C= 689.29	
M= 13.28	

CURVE DATA

PT J TO PT K

R= 5570.00	D= 01 01'43.14"
T= 431.04	△= 08 51'00.81"
L= 860.37	
E= 16.65	
C= 859.52	
M= 16.60	

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VERTICAL WATER LEVEL READINGS WERE TAKEN FROM A FIXED GAUGE MARK ALONG THE SHEET STEEL WALL IN THE GRAND HAVEN GOVERNMENT BASIN.

SURVEYED ON: 30 OCTOBER 2019
POSITIONING METHOD: APPLANIX POS M/V W/DGPS CORRECTIONS
MOTION COMPENSATION: APPLANIX OCEAN MASTER POS M/V
EQUIPMENT: R2 SONIC 2024 MULTIBEAM ECHOSOUNDER
SOFTWARE: HYPACK
VESSEL: LAUNCH 3058

21' Legend

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🟥	21.0'
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🟦	23.0'
🟦	24.0'
🟦	25.0'
🟦	25.0' +

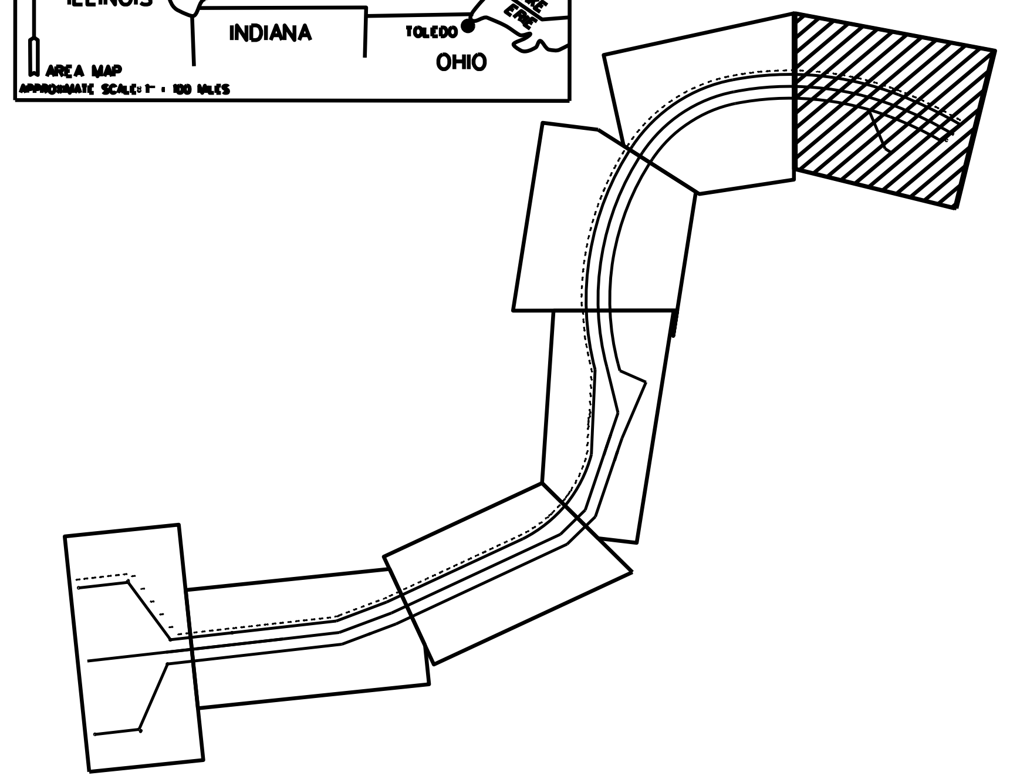
0 100' 200'

CHANNEL LINE T.P.

T.P.	EAST X	NORTH Y
J	12,627,615.94	580,315.25
K	12,628,389.31	579,940.21
M	12,628,136.02	579,724.11
N	12,627,884.02	579,874.17
P	12,627,528.03	579,579.65
Q	12,627,444.23	579,634.18
R	12,627,233.94	580,127.98

CENTER LINE T.P.

T.P.	EAST X	NORTH Y
CL-10	12,627,078.87	580,314.35
CL-11	12,628,312.20	579,810.40



US Army Corps
of Engineers

MARK | DESCRIPTION | DATE

ISSUE DATE:
30-OCT-19
SOLICITATION NO.:
CONTRACT NO.:
DRAWING NUMBER:
SURVEYED BY:
E.D.S.
DRAWN BY:
E.D.S.
REVIEWED BY:
APPROVED BY:
SIZE:
ANSI D
FILE NAME:
grand haven october 2019 after.dgn

U.S. ARMY CORPS OF ENGINEERS
DETROIT DISTRICT
477 MICHIGAN AVE
DETROIT, MI 48226

LAKE MICHIGAN AREA OFFICE
307 SOUTH HARBOR DR
GRAND HAVEN, MI 49417

GRAND HAVEN HARBOR
MICHIGAN
CONDITION OF CHANNEL

AFTER DREDGING
OCTOBER 2019

SHEET ID
VH107