West Michigan Shoreline Regional Development Commission

Mill Debris Fish & Wildlife Restoration

Muskegon County, Michigan
November 2018 - Record Drawings

AS-BUILT

CONTRACTOR:	RUSSELL MARINE LLC
FIELD ENGINEER:	RICK BUTEYN
INSPECTED BY:	PROGRESSIVE AE
DATE:	09/27/2018

DRAWING INDEX

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2 LOCATION MAP
3 EXISTING CONDITIONS
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MICHIGAN STATE MAP
NOT TO SCALE

VICINITY MAP
NOT TO SCALE

SOURCE: http://www.maps.google.com

NO.	DATE	ISSUE/REVISION	APP
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	01/12/2018	OWNER REVIEW	
	11/17/2017	OWNER REVIEW	
0	07/06/2017	DESIGN MODIFICATION	APP
0	04/07/2017	CONSTRUCTION DOCUMENTS	APP

ATTENTION:
0 — 1"
If this scale bar does not measure 1" then drawing is not original scale.

Surveyed By:	Great Lakes Dock on 06/01/2016 Progressive AE on 09/27/2018
Designed:	–
Checked:	–
Drawn:	–R. Dolweck
Submitted By:	– M. Oezer
MI P.E. NO.:	– 41016

Submittal Date:

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MLWP Muskegon Lake Watershed Partnership
WMSRDC WEST MICHIGAN SHORELINE REGIONAL DEVELOPMENT COMMISSION

Progressive AE Project 7008004

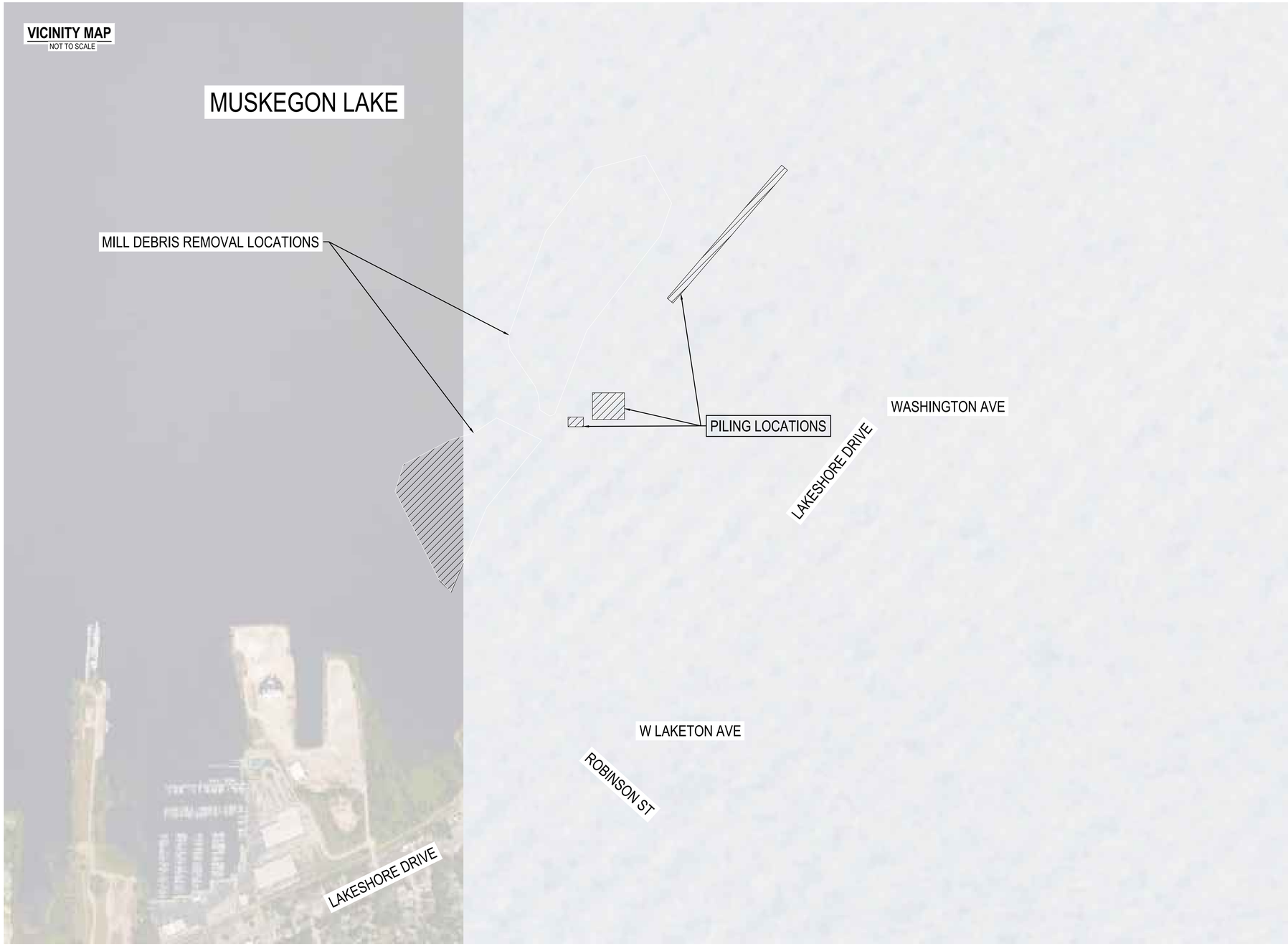
MILL DEBRIS FISH & WILDLIFE HABITAT RESTORATION
West Michigan Shoreline Regional Community
Muskegon, Michigan

COVER SHEET

DWG NO. 1

ISSUE 0

Great Lakes Commission des Grands Lacs



(SOURCE: http://maps.google.com)

AS-BUILT

CONTRACTOR:	RUSSELL MARINE LLC
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NORTH

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Progressive AE on 09/27/2018

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Drawn: –*R. Dolweck*
Submitted By: – *M. Oezer*
MI P.E. NO.: – *41016*

Submittal Date:

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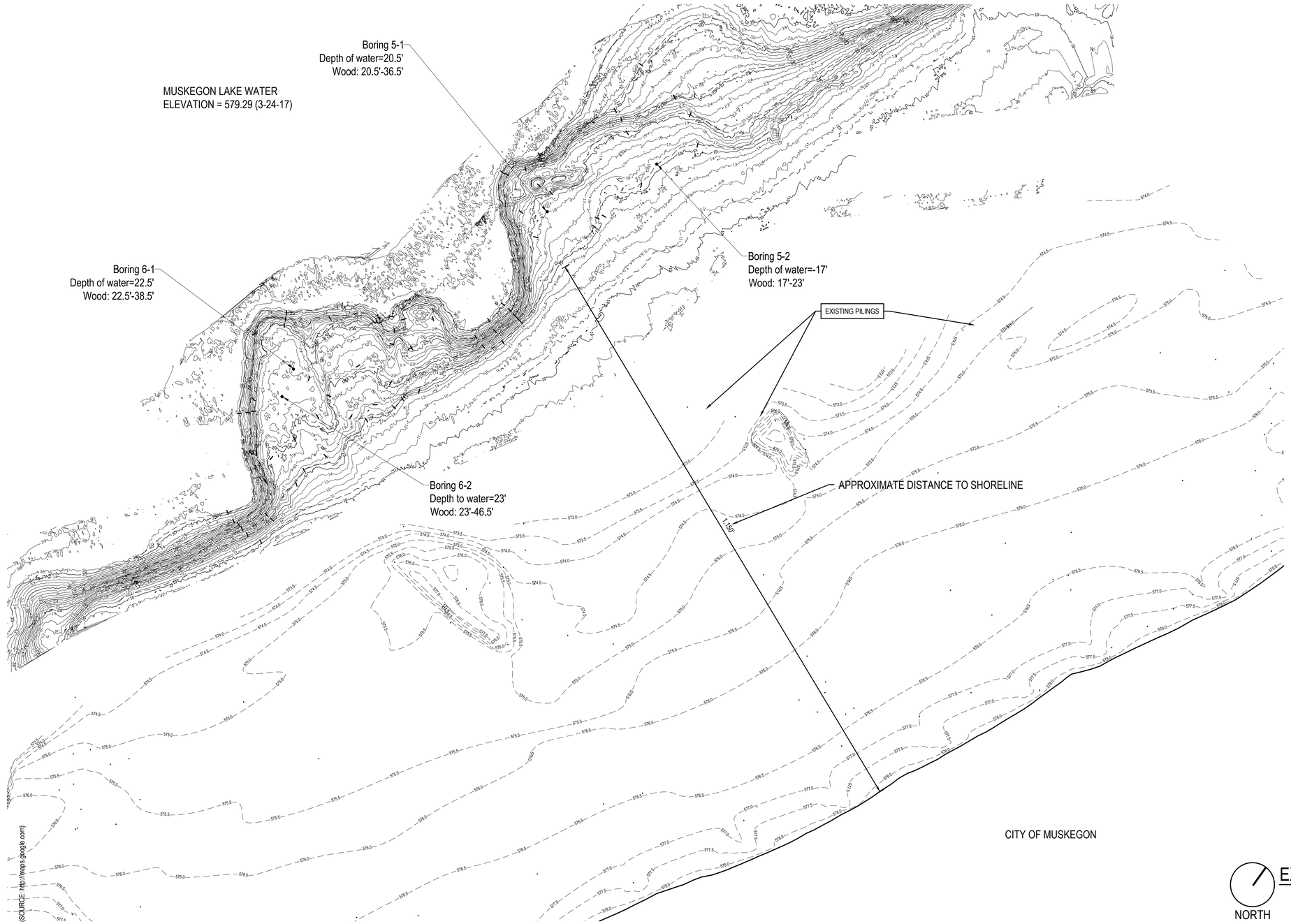
Muskegon, Michigan

LOCATION MAP

DWG NO. 2

ISSUE 0



LEGEND

000	MAJOR CONTOUR - 5 FT. INTERVAL
001	MINOR CONTOUR - 1 FT. INTERVAL

NOTES

1) ORDINARY HIGH WATER MARK (OHWM) = 580.5'
2) ALL PROPERTY AND/OR RIGHT OF WAY LINES ARE APPROXIMATE.
3) TOPOGRAPHIC SURVEY PROVIDED BY RUSSELL MARINE ENGINEERING & DESIGN LLC ON 06/01/2016.
4) TOPOGRAPHY SHOWN BASED ON DEPTH BELOW WATER ON DAY OF TOPOGRAPHIC SURVEY (JUNE 1, 2016).
5) WATER ELEVATION ON JUNE 1,2016 = 580.18'

NORTH

EXISTING CONDITIONS

1"= 100' 0 100'

AS-BUILT

CONTRACTOR:	RUSSELL MARINE LLC
FIELD ENGINEER:	RICK BUTEYN
INSPECTED BY:	PROGRESSIVE AE
DATE:	09/27/2018

Great Lakes Commission des Grands Lacs

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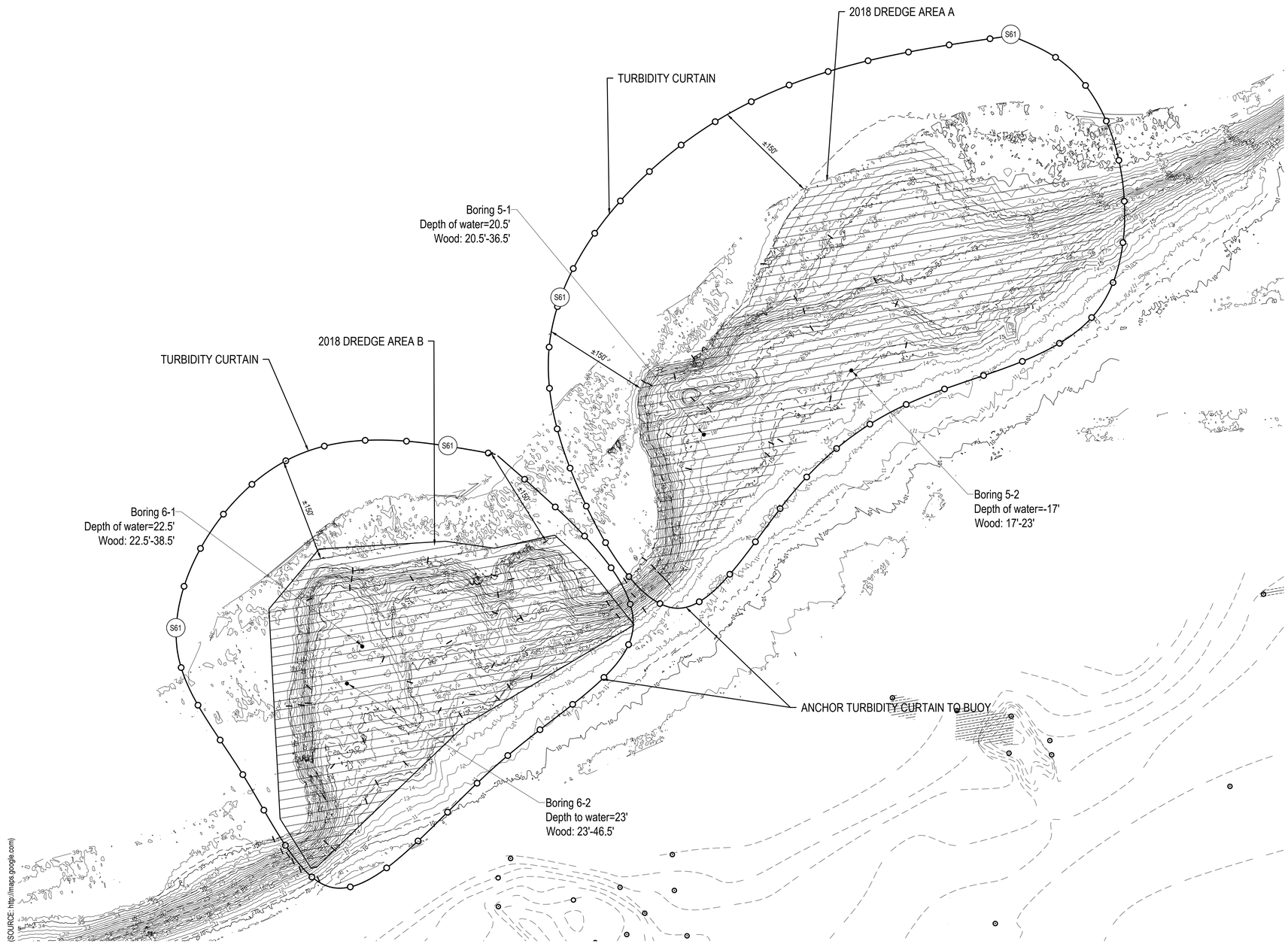
Muskegon, Michigan

EXISTING CONDITIONS

DWG NO. 3

ISSUE 0



LEGEND

- MAJOR CONTOUR - 5 FT. INTERVAL
- MINOR CONTOUR - 1 FT. INTERVAL
- TURBIDITY CURTAIN
- 2018 DREDGE FOOTPRINT

NOTES

1) ORDINARY HIGH WATER MARK (OHWM) = 580.5'
2) ALL PROPERTY AND/OR RIGHT OF WAY LINES ARE APPROXIMATE.
3) ALL QUANTITIES LISTED ARE APPROXIMATIONS.
4) INSTALL TURBIDITY CURTAIN AROUND WORK AREA DURING DREDGING OPERATIONS.
5) TOPOGRAPHIC SURVEY PROVIDED BY RUSSELL MARINE ENGINEERING & DESIGN LLC ON 06/01/2016.
6) SESC BMP'S UTILIZE MICHIGAN KEYING SYSTEM.

SESC MATERIALS SUMMARY

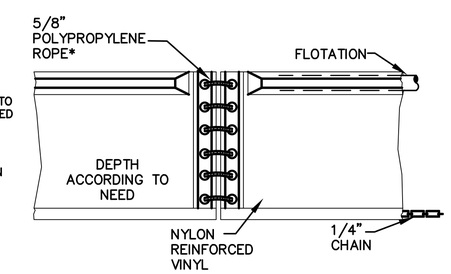
S61 = TURBIDITY CURTAIN

SESC MATERIALS SUMMARY

TURBIDITY CURTAIN A	LF	2500
TURBIDITY CURTAIN B	LF	1950

NOTES:
TYPE OF TURBIDITY CURTAIN TO BE DETERMINED BY A QUALIFIED ENGINEER or CPESC.

*** JOINTS VARY DEPENDING ON TYPE OF WATERBODY AND VELOCITY OF WATERFLOW.**



PROFILE – TURBIDITY CURTAIN DETAIL

NOT TO SCALE

NORTH

SESC PLAN

1"= 80' 0 80'

AS-BUILT

CONTRACTOR:	RUSSELL MARINE LLC
FIELD ENGINEER:	RICK BUTEYN
INSPECTED BY:	PROGRESSIVE AE
DATE:	09/27/2018

ATTENTION:

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Muskegon, Michigan

SESC

DWG NO. 4

ISSUE 0

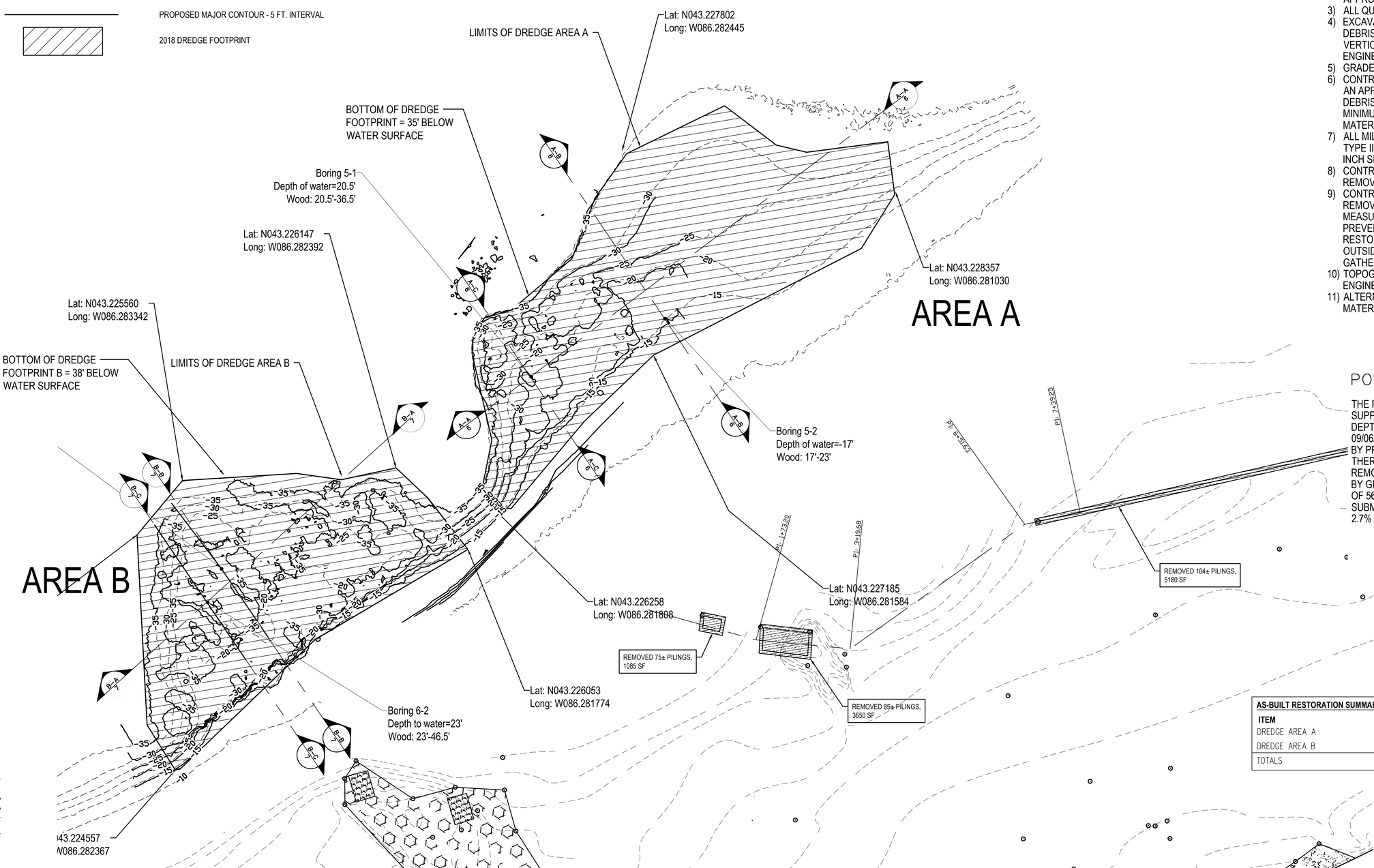
Great Lakes Commission des Grands Lacs

LEGEND

000 — MAJOR CONTOUR - 5 FT. INTERVAL

PROPOSED MAJOR CONTOUR - 5 FT. INTERVAL

2018 DREDGE FOOTPRINT



NOTES

1) ORDINARY HIGH WATER MARK (OHWM) = 580.5'
2) ALL PROPERTY AND/OR RIGHT OF WAY LINES ARE APPROXIMATE.
3) ALL QUANTITIES LISTED ARE APPROXIMATIONS.
4) EXCAVATE APPROXIMATELY 100,500 CUBIC YARDS OF MARINE DEBRIS FROM 7.0 ACRES WITHIN DREDGE AREAS A & B TO VERTICAL LIMIT OF WOOD DEBRIS, OR AS APPROVED BY ENGINEER.
5) GRADE SIDE SLOPES BACK 2(V):1(H) WHERE APPLICABLE.
6) CONTRACTOR SHALL STOCKPILE AND DEWATER MATERIAL AT AN APPROVED SITE TO REDUCE MOISTURE CONTENT OF MILL DEBRIS. MATERIAL SHALL BE STOCKPILED AND DRIED A MINIMUM OF 60 DAYS WITH PHYSICAL TURN-OVER OF MATERIAL EVERY 20 DAYS.
7) ALL MILL DEBRIS SHALL BE DISPOSED OF IN AN APPROVED TYPE II LANDFILL AFTER DEWATERING AND SHREDDING TO 3 INCH SIZE.
8) CONTRACTOR SHALL REMOVE ONLY WOODY MARINE DEBRIS. REMOVAL OF SEDIMENTS AND/OR SAND IS NOT ALLOWED.
9) CONTRACTOR SHALL BE RESPONSIBLE FOR CONTAINING AND REMOVING DISLODGED MILL DEBRIS. CONTAINMENT MEASURES SUCH AS TURBIDITY CURTAINS SHALL BE USED TO PREVENT WOOD FROM MIGRATING OUTSIDE THE RESTORATION AREA. ANY DEBRIS THAT DOES MIGRATE OUTSIDE THE RESTORATION AREAS SHALL BE IMMEDIATELY GATHERED AND DISPOSED OF BY THE CONTRACTOR.
10) TOPOGRAPHIC SURVEY PROVIDED BY RUSSELL MARINE ENGINEERING & DESIGN LLC ON 06/01/2016.
11) ALTERNATE REUSE OF MILL DEBRIS SHALL BE CONSIDERED IF MATERIAL IS DETERMINED TO BE CLEAN BY THE OWNER.

POST DREDGING REPORT

THE FINDINGS OF PROGRESSIVE AE ARE BASED UPON DATA SUPPLIED BY GREAT LAKES DOCK AND MATERIAL, LLC FROM DEPTHS OBTAINED ON 06/27/2018 (PRE-DREDGING) AND ON 09/06/2018 (POST-DREDGING). THIS DATA WAS THEN ANALYZED BY PROGRESSIVE AE TO FIND A DIFFERENCE IN VOLUME AND THEREFORE, CALCULATE HOW MUCH MILL DEBRIS WAS REMOVED FROM LAKE MUSKEGON. FROM THE DATA SUPPLIED BY GREAT LAKES DOCK AND MATERIALS, A REMOVAL VOLUME OF 56,513 CY WAS CALCULATED. THIS DIFFERS FROM THE SUBMITTED TOTAL VOLUME OF 55,018 CY, A DIFFERENCE OF 2.7% VOLUME.

AS-BUILT

CONTRACTOR:	RUSSELL MARINE LLC
FIELD ENGINEER:	RICK BUTEYN
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DATE:	09/27/2018

AS-BUILT RESTORATION SUMMARY

ITEM	UNIT	QTY	UNIT	QTY
DREDGE AREA A	ACRES	4.0	CY	42,205
DREDGE AREA B	ACRES	3.0	CY	12,813
TOTALS	ACRES	7.0	CY	55,018

PROPOSED CONDITIONS

NORTH 1"= 80' 0 80'

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MILL DEBRIS FISH & WILDLIFE HABITAT RESTORATION
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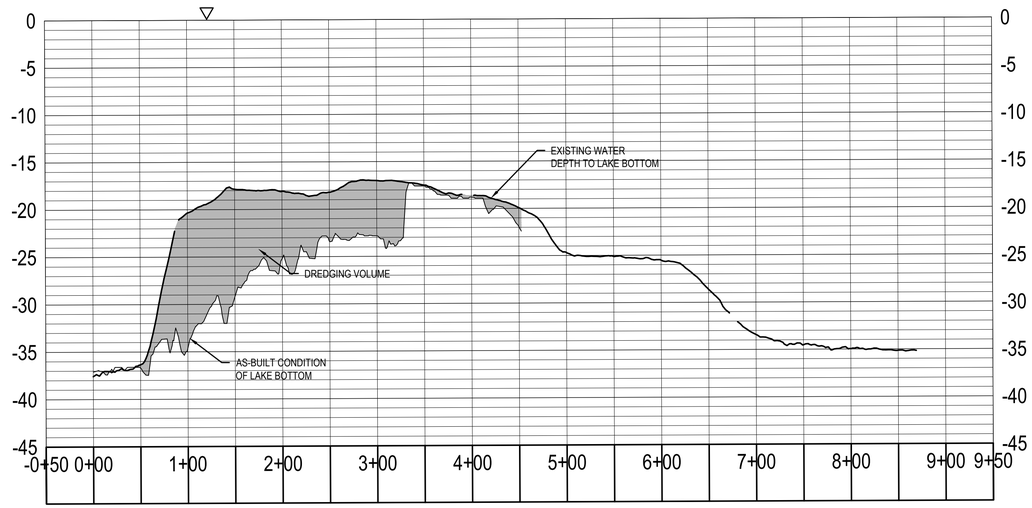
Muskegon, Michigan

DWG NO. 5

PROPOSED CONDITIONS

ISSUE 0

A–A



LEGEND

PROPOSED GRADE

EXISTING GRADE

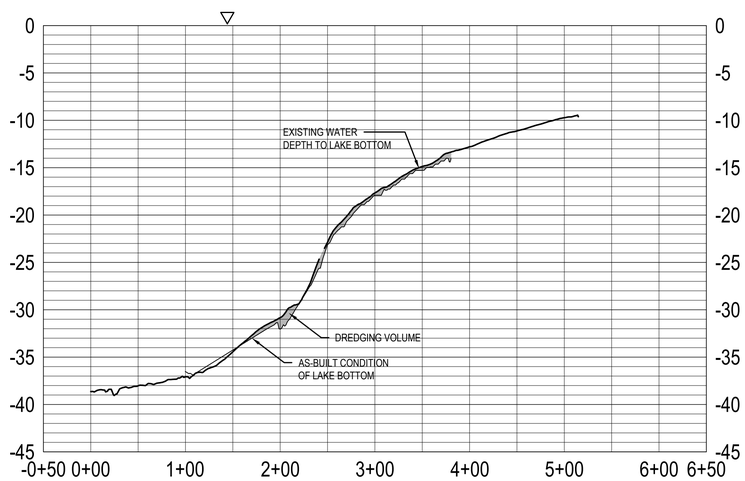
DREDGE AREA A

NOTES

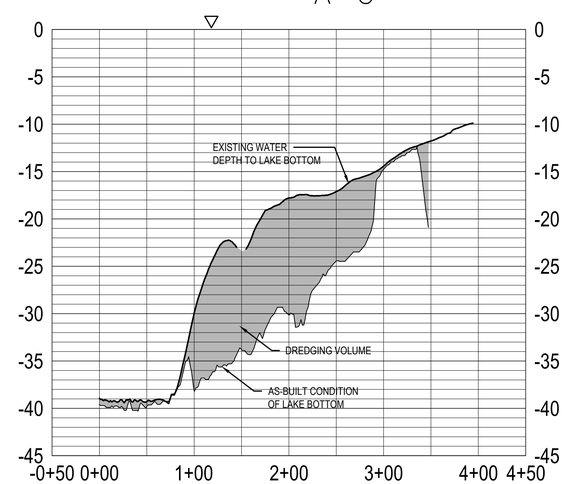
1) SIDE SLOPES OF DREDGE AREA ARE 2(V):1(H)
2) VERTICAL SCALE IS EXAGGERATED 10X.
3) LIMIT OF MARINE DEBRIS REMOVAL IS 36.5' BELOW WATER SURFACE ELEVATION.

AREA A SECTIONS

A–B



A–C



AS-BUILT	
CONTRACTOR:	RUSSELL MARINE LLC
FIELD ENGINEER:	RICK BUTEYN
INSPECTED BY:	PROGRESSIVE AE
DATE:	09/27/2018

NORTH

CROSS-SECTIONS: DREDGE AREA A

SCALE
HORZ. 1"=80'
VERT. 1"=8'

Great Lakes Commission des Grands Lacs

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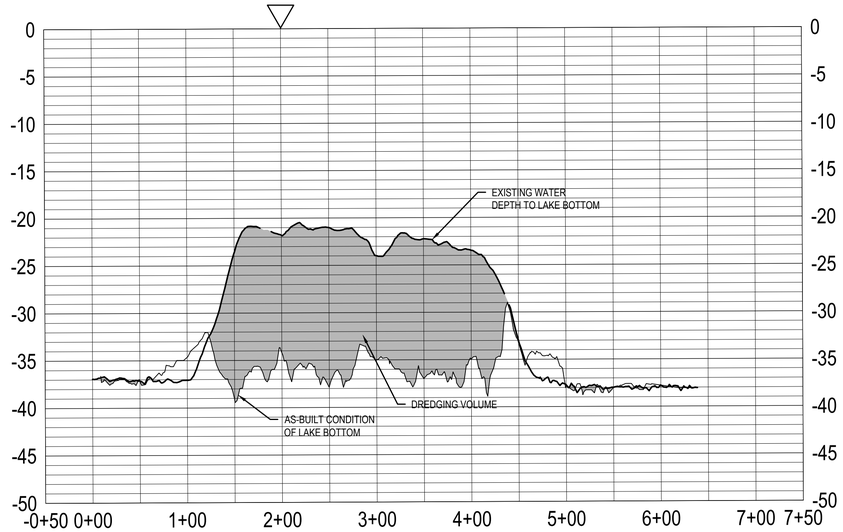
CROSS-SECTIONS: DREDGE AREA A

DWG NO. 6

ISSUE 0

B–A



LEGEND

PROPOSED GRADE

EXISTING GRADE

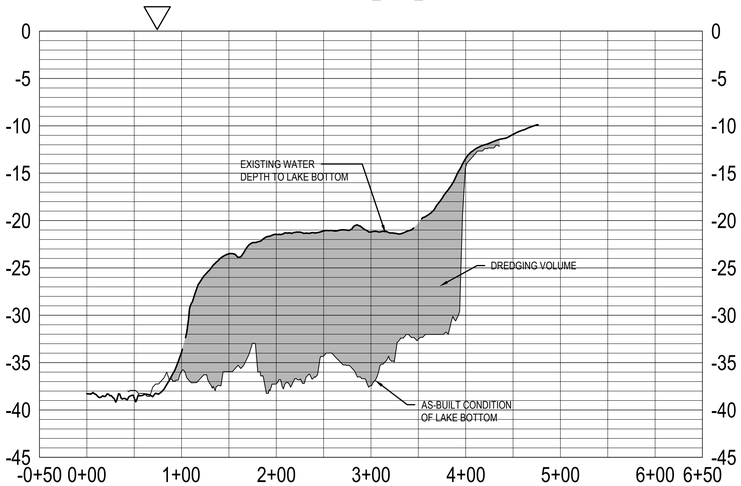
DREDGE AREA B

NOTES

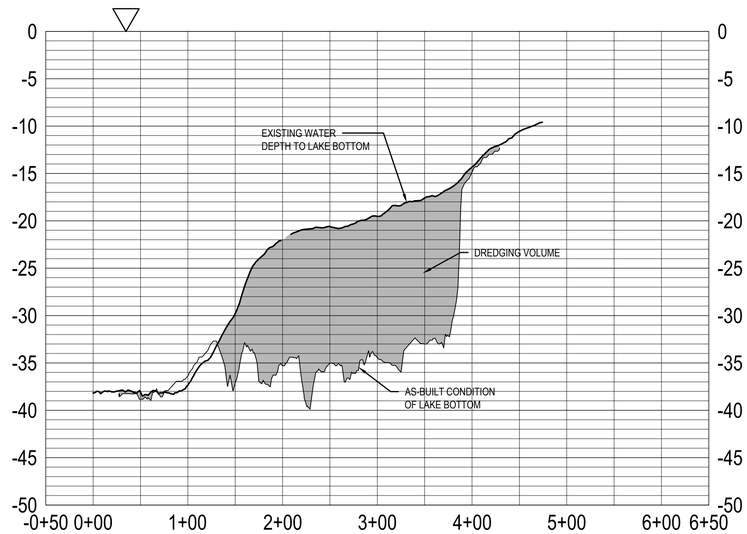
1) SIDE SLOPES OF DREDGE AREA ARE 2(V):1(H)
2) VERTICAL SCALE IS EXAGGERATED 10X.
3) LIMIT OF MARINE DEBRIS REMOVAL IS 38' BELOW WATER SURFACE ELEVATION.

AREA B SECTIONS

B–B



B–C



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NORTH

CROSS-SECTIONS: DREDGE AREA B

SCALE
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VERT. 1"=8'

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CROSS-SECTIONS: DREDGE AREA B

DWG NO. 7

ISSUE 0