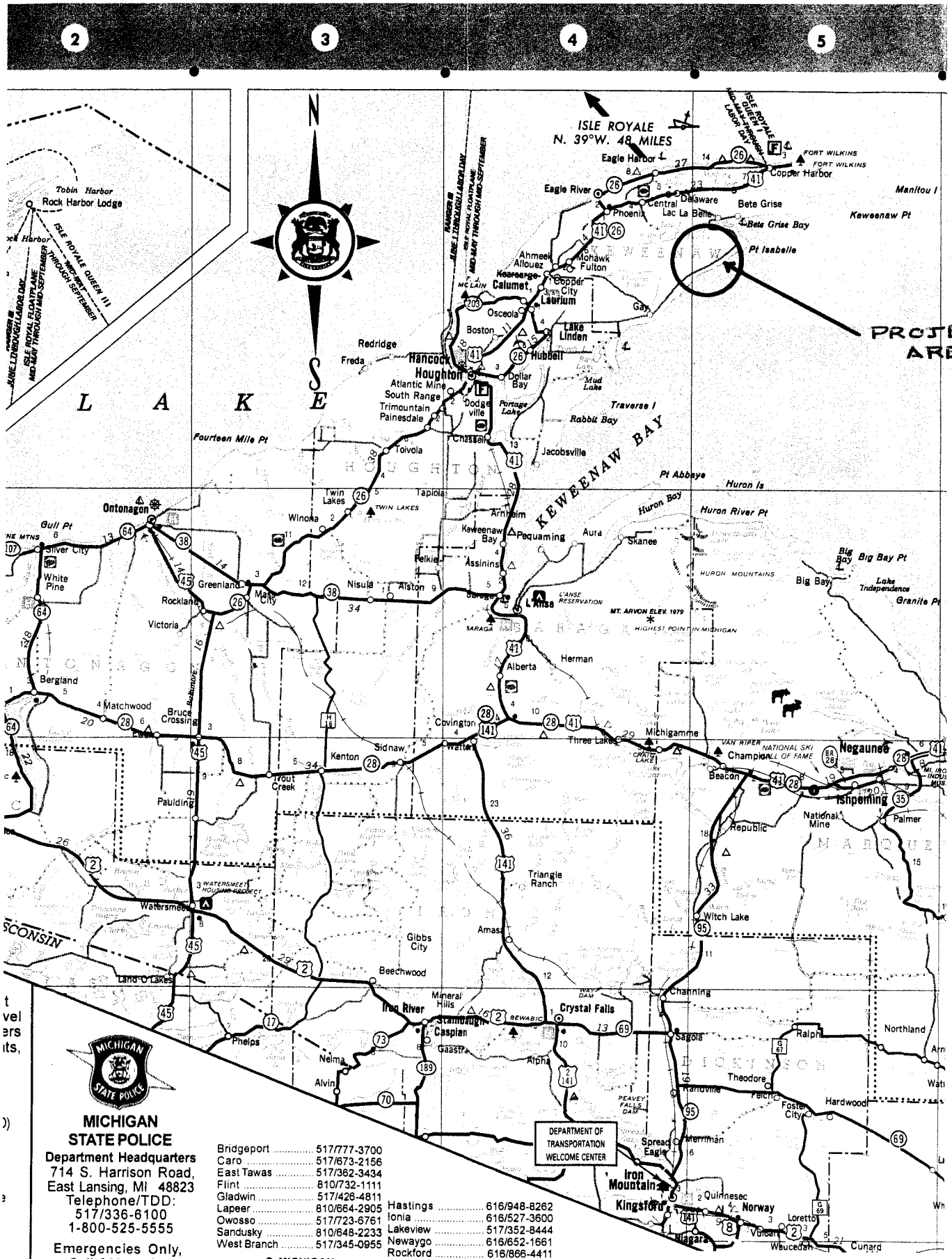


MICHIGAN STATE POLICE

Department Headquarters
714 S. Harrison Road,
East Lansing, MI 48823
Telephone/TDD:
517/336-6100
1-800-525-5555

Emergencies Only,
Call 911 or the
nearest post
(on cellular phones, dial 911)

DETROIT AREA

Brighton	810/227-1051
Detroit	313/256-9636
Flat Rock	810/782-2434
Northville	810/348-1505
Pontiac	810/332-9132
Richmond	1-800-495-4677
Ypsilanti	313/971-8400

E. MICHIGAN

Bad Axe	517/269-6441
Bridgeport	517/777-3700
Caro	517/673-2156
East Tawas	517/362-3434
Flint	810/732-1111
Gladwin	517/426-4811
Lapeer	810/664-2905
Owosso	517/723-6761
Sandusky	810/648-2233
West Branch	517/345-0955

S. MICHIGAN

Adrian	517/263-0033
Battle Creek	616/968-6115
Coldwater	517/278-2373
Jackson	517/782-9443
Jonesville(Hillsdale)	517/849-9922
Lansing	517/336-6600
Monroe	313/242-3500
Niles	616/683-4411
Paw Paw	616/657-5551
White Pigeon	616/483-7611

W. MICHIGAN

Bridgman	616/465-3111
Grand Haven	616/842-2400
Hastings	616/948-8262
Ionia	616/527-3600
Lakeview	517/352-8444
Newaygo	616/652-1661
Rockford	616/866-4411
South Haven	616/637-2125
Wayland	616/792-2213

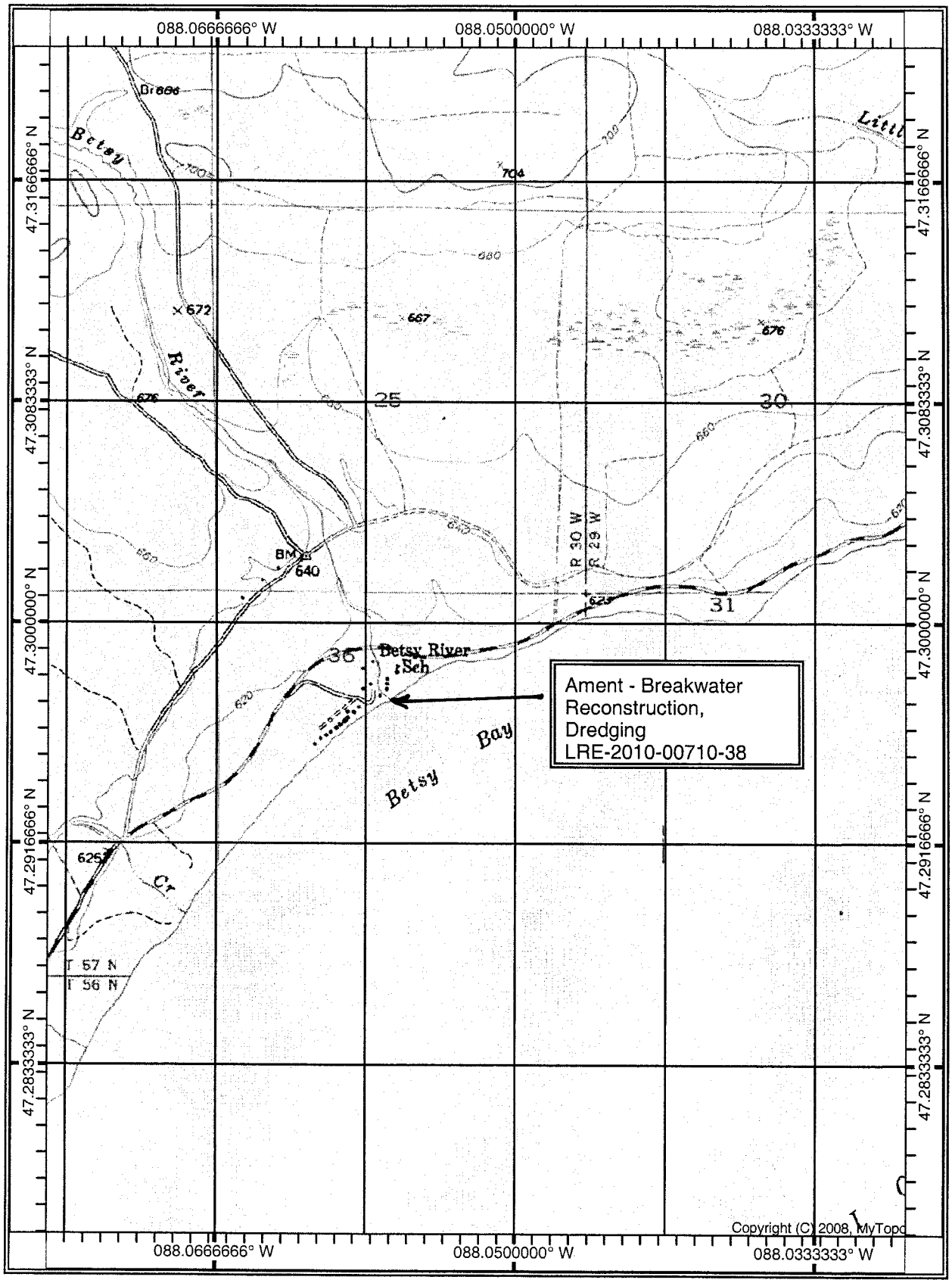
N. MICHIGAN

Alpena	517/354-4101
Cadillac	616/775-2433
Cheboygan	616/627-9973
Gaylord	517/732-5141
Houghton Lake	517/422-5101
Ithaca	517/875-4111
Kalkaska	616/258-2831
Manistee	616/723-3535
Mt. Pleasant	517/773-5951
Petoskey	616/347-8101

UPPER I

Calumet	
Gladstone	
Iron Mountain	
Iron River	
L'Anse	
Manistique	
Munising	
Negaunee	
Newberry	
St. Ignace	906/643-8383
Sault Ste. Marie	906/632-2216

NUMBER: LRE-2010-00710-38 (10-42-28-P)
Ament - Breakwater Reconstruction & Dredging
BY: Mark and Peggy Ament
Betsy, Keweenaw County, Michigan
SHEET 1 OF 18



SCALE 1:24000

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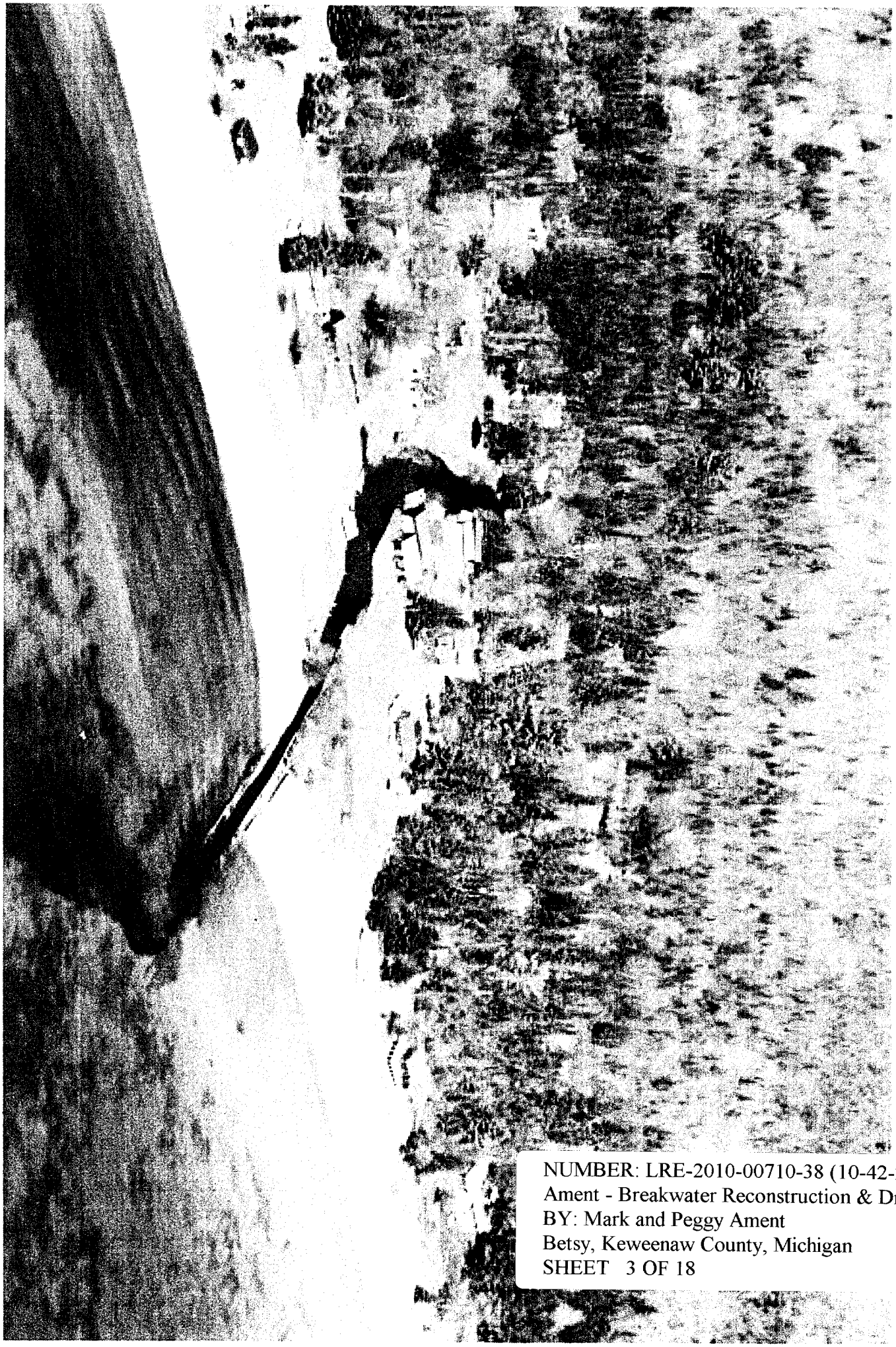
FEET

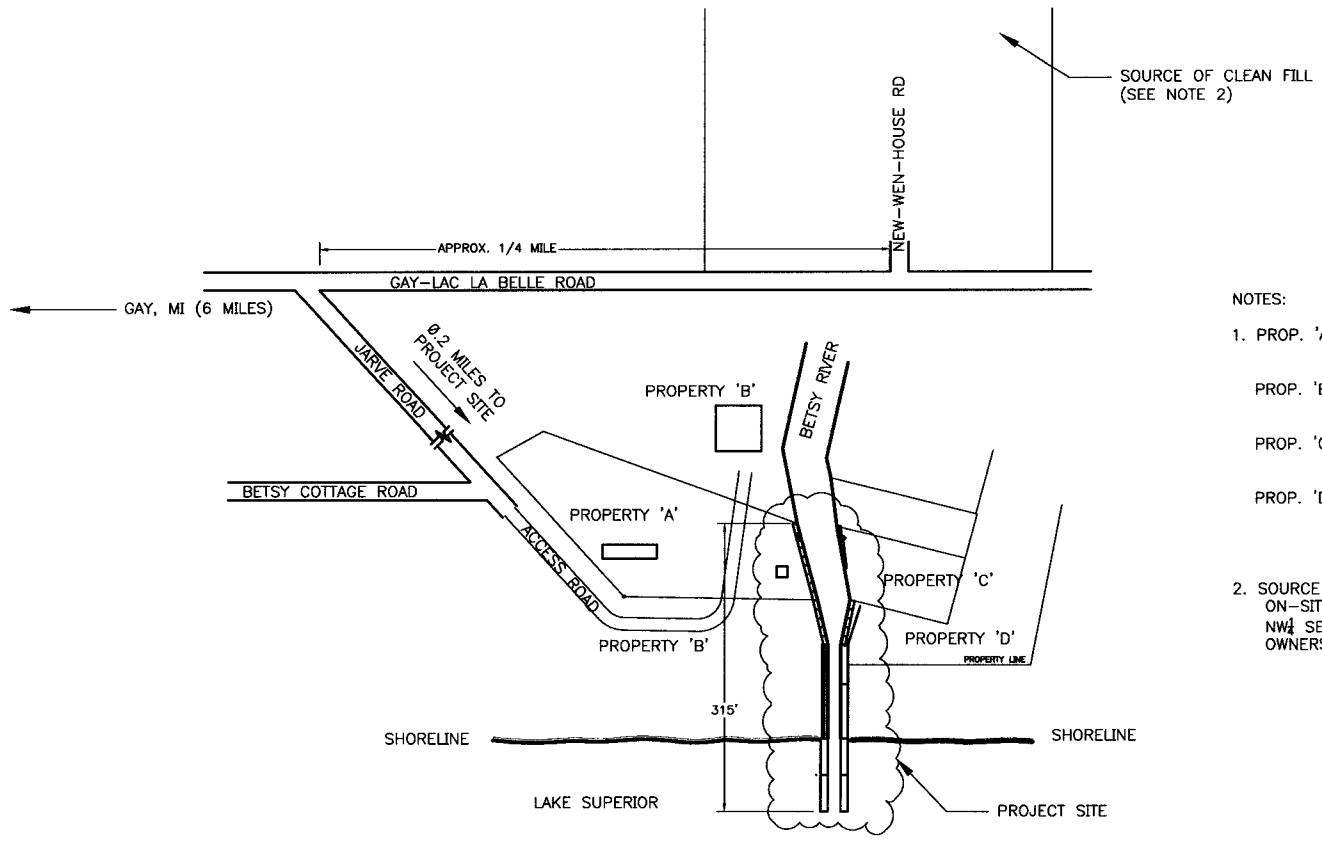
NUMBER: LRE-2010-00710-38 (10-42-28-P)
Ament - Breakwater Reconstruction & Dredging
BY: Mark and Peggy Ament
Betsy, Keweenaw County, Michigan
SHEET 2 OF 18



NUMBER: LRE-2010-00710-38 (10-42-28-P)
Ament - Breakwater Reconstruction & Dredging
BY: Mark and Peggy Ament
Betsy, Keweenaw County, Michigan
SHEET 3 OF 18

Participating Landowners

NUMBER: LRE-2010-00710-38 (10-42-28-P)
Ament - Breakwater Reconstruction & Dredging
BY: Mark and Peggy Ament
Betsy, Keweenaw County, Michigan
SHEET 4 OF 18



NOTES:

1. PROP. 'A': PEGGY AMENT
   1386 MARTINGALE LN
   NEENAH, WI 54956
   PROP. 'B': PAUL JARVE, ET AL
   57560 ROCKLAND ST
   CALUMET, MI 49913
   PROP. 'C': JEROME SPAGNOTTI
   57631 CALEDONIA ST
   CALUMET, MI 49913
   PROP. 'D': ANNE JOHNSON
   C/O REED JOHNSON
   W5502 HIGHWAY 117
   CECIL, WI 54111

2. SOURCE OF CLEAN FILL:
   ON-SITE DREDGE SPOILS, AND
   NW¼ SE¼ SEC25 T57NR30W
   OWNERS: THOMAS & ELIZABETH NIEUWENHUIS
   2276 CIRCLE DRIVE
   WAUSUA, WI 54401

NORTH

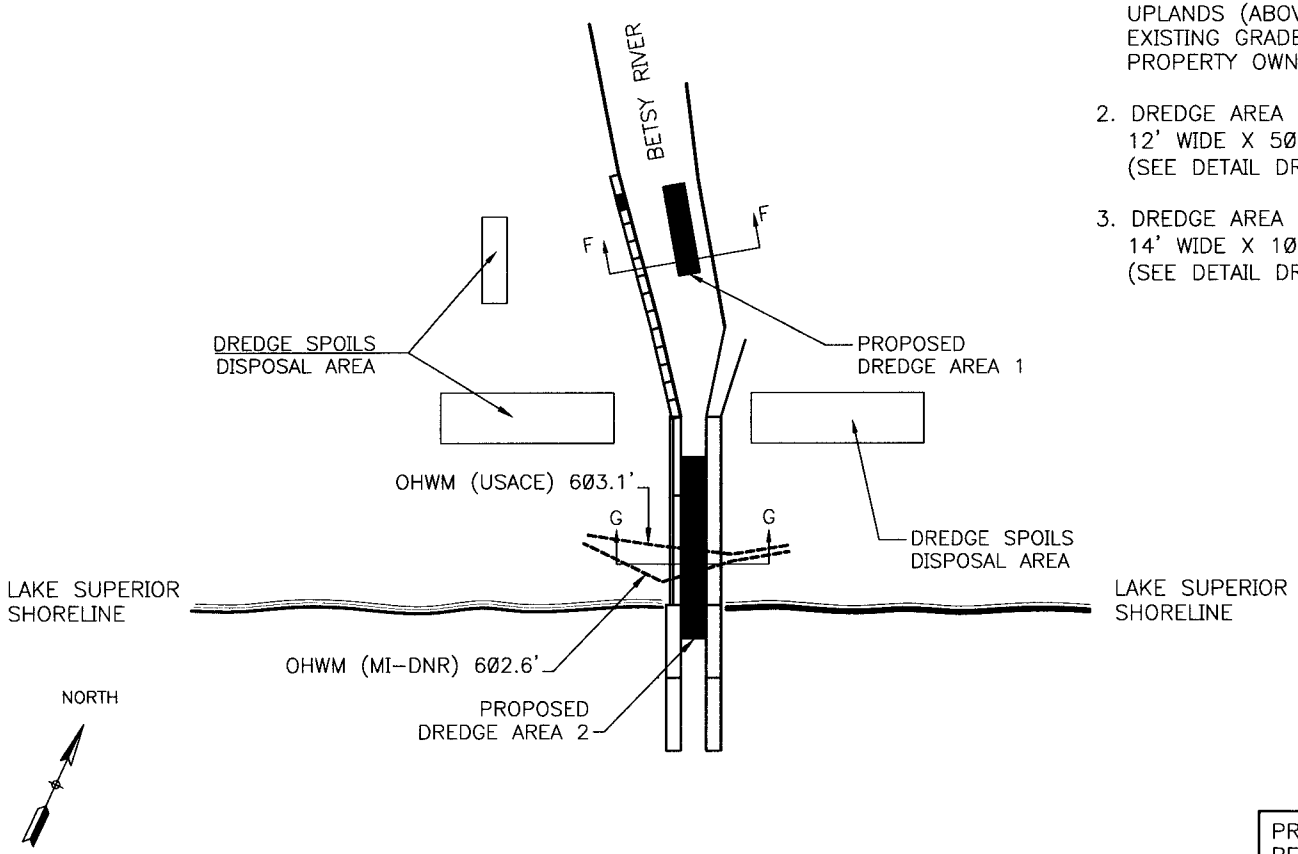
1/128" = 1'

0 80
FEET

PROPOSED SITE PLAN – BREAKWATER RESTORATION

APPLICANT: MARK & PEGGY AMENT
WATERWAY: LAKE SUPERIOR & BETSY RIVER
CITY: BETSY
TOWNSHIP: GRANT
COUNTY: KEWEENAW
NUMBER OF SHEETS: 1 OF 1
DATE: DECEMBER 9, 2010

Proposed Dredge Areas



1/64" = 1'

0 40
FEET

NOTES:

1. APPLICATION TO DREDGE APPROXIMATELY 170 CUBIC YARDS OF MATERIAL. SPOILS TO BE USED AS FILL FOR BREAKWATER AND SEAWALL CRIBS. ANY REMAINING SPOILS TO BE PLACED ON ADJACENT UPLANDS (ABOVE OHWM) AND LEVELED TO MATCH EXISTING GRADE WITH PERMISSION OF ADJOINING PROPERTY OWNERS.

2. DREDGE AREA 1 (APPROX. 67 CU. YDS): 12' WIDE X 50' LONG X 3' DEEP (SEE DETAIL DRAWING F-F)

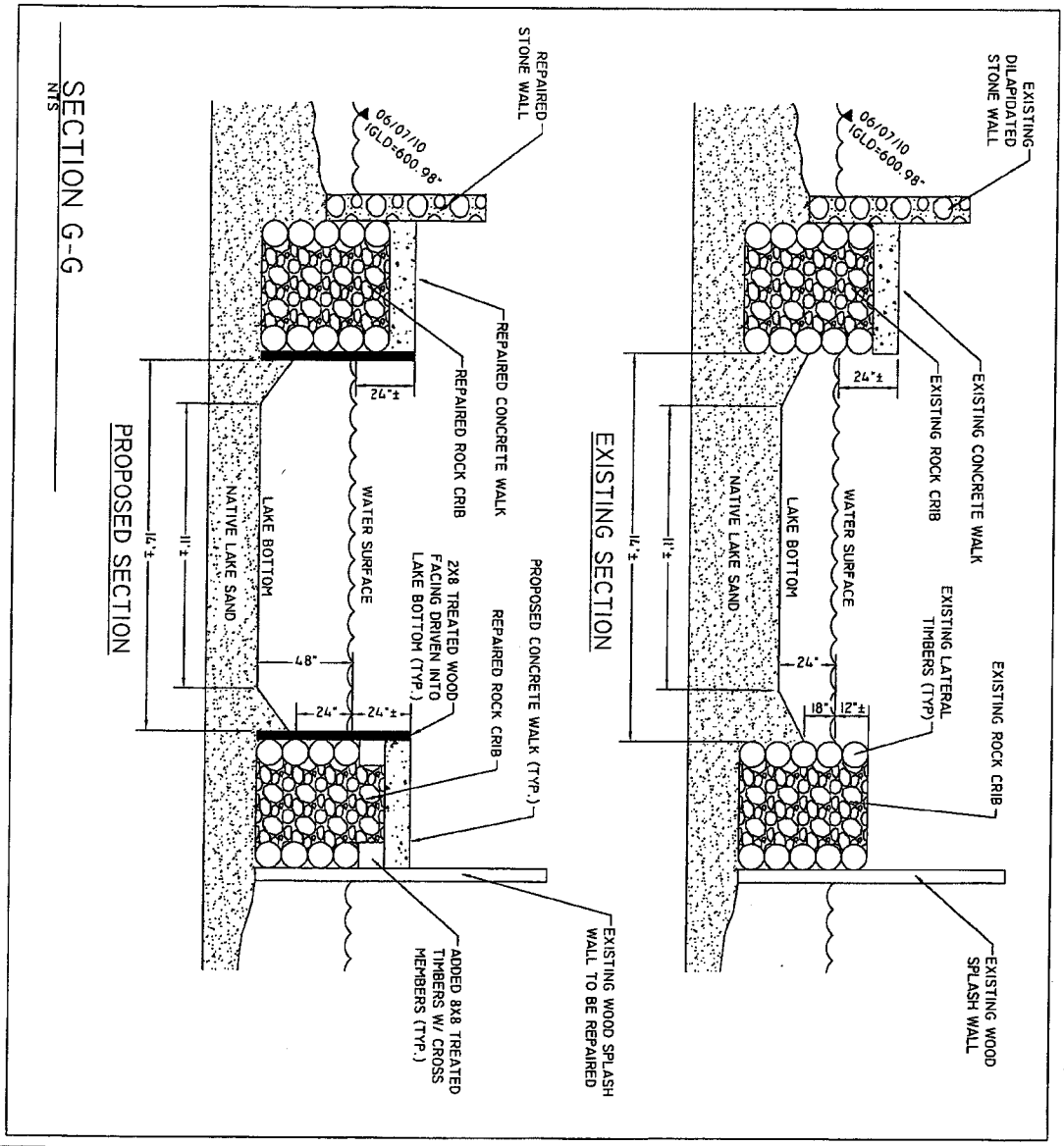
3. DREDGE AREA 2 (APPROX. 104 CU. YDS): 14' WIDE X 100' LONG X 2' DEEP (SEE DETAIL DRAWING G-G)

NUMBER: LRE-2010-00710-38 (10-42-28-P)
Ament - Breakwater Reconstruction & Dredging
BY: Mark and Peggy Ament
Betsy, Keweenaw County, Michigan
SHEET 5 OF 18

PROPOSED DREDGING PROJECT – BREAKWATER RESTORATION

APPLICANT: MARK & PEGGY AMENT
WATERWAY: LAKE SUPERIOR & BETSY RIVER
CITY: BETSY
TOWNSHIP: GRANT
COUNTY: KEWEENAW
NUMBER OF SHEETS: 1 OF 3
DATE: DECEMBER 9, 2010

Phase 1
Dredge Cross-Section G-G
Area 2: Approximately 104 cy



SECTION G-G
NTS

PROPOSED DREDGING PROJECT – BREAKWATER RESTORATION

APPLICANT: MARK & PEGGY AMENT
WATERWAY: LAKE SUPERIOR & BETSY RIVER
CITY: BETSY
TOWNSHIP: GRANT
COUNTY: KEWEENAW
NUMBER OF SHEETS: 3 OF 3
DATE: SEPTEMBER 20, 2010

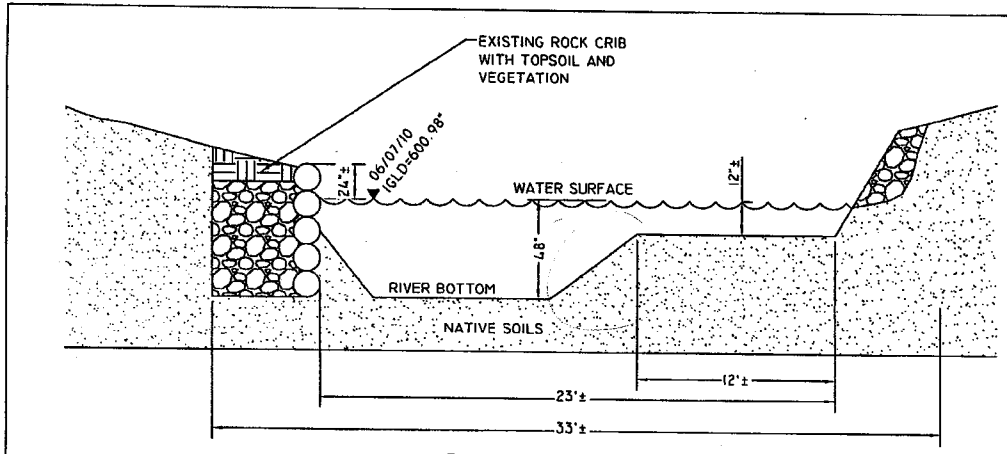
RECEIVED
SEP 29 2010
DNRE/WRD
PERMIT CONSOLIDATION UNI.

Revised

NUMBER: LRE-2010-00710-38 (10-42-28-P)
Ament - Breakwater Reconstruction & Dredging
BY: Mark and Peggy Ament
Betsy, Keweenaw County, Michigan
SHEET 6 OF 18

Revised

Phase 3
Dredge Cross-Section F-F
Area 1: Approximately 67 cy



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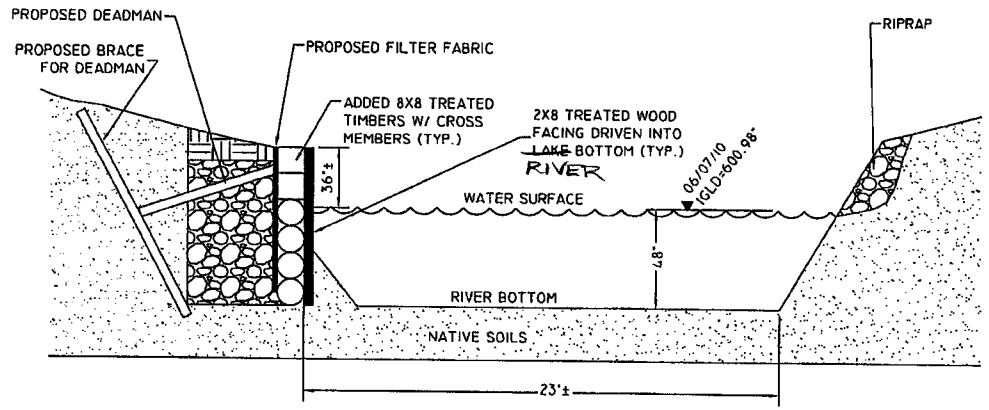


PROPOSED SECTION

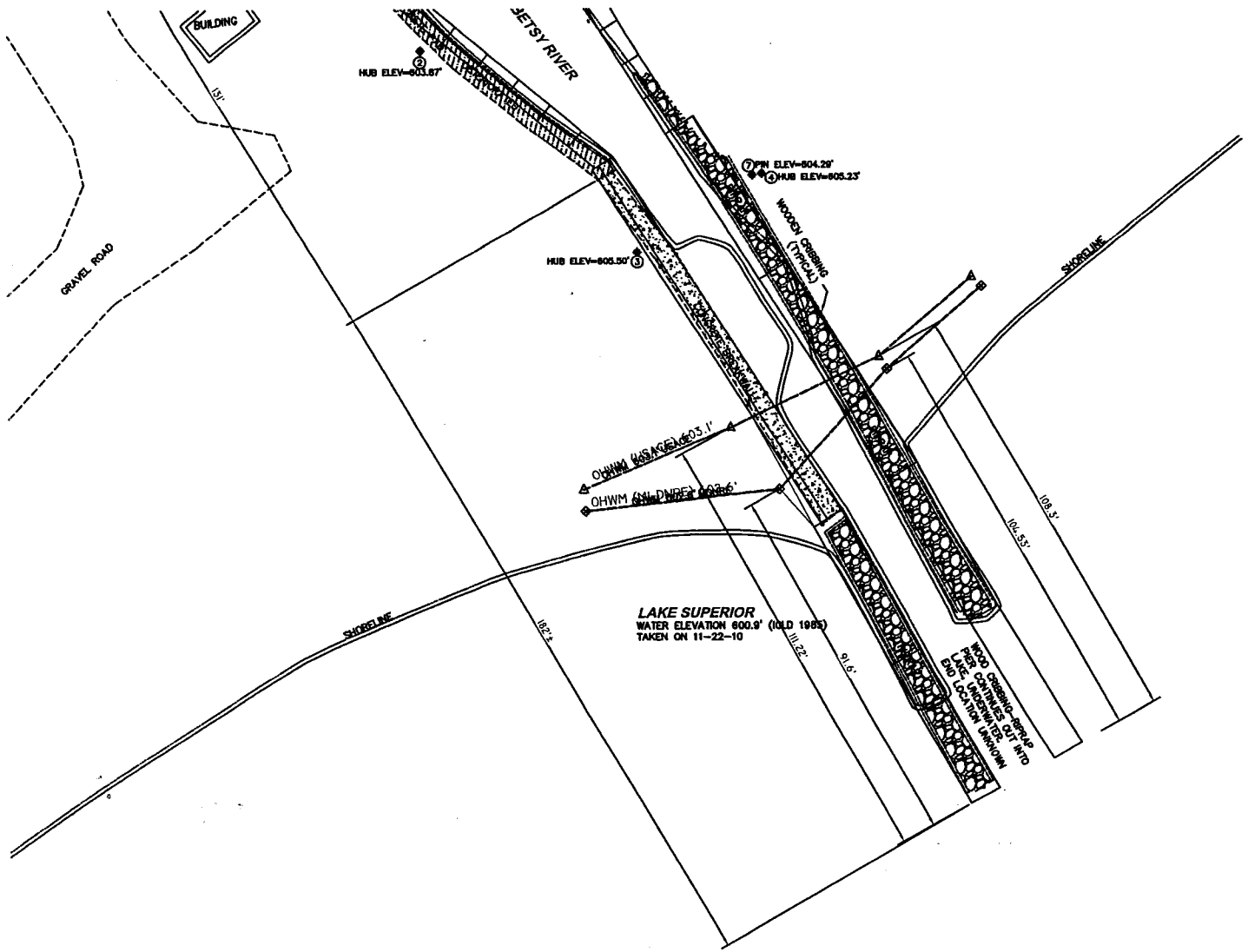
SECTION F-F
NTS

NUMBER: LRE-2010-00710-38 (10-42-28-P)
Ament - Breakwater Reconstruction & Dredging
BY: Mark and Peggy Ament
Betsy, Keweenaw County, Michigan
SHEET 7 OF 18

RECEIVED
SEP 29 2010
DNRE/WRD
PERMIT CONSOLIDATION UNIT

PROPOSED DREDGING PROJECT – BREAKWATER RESTORATION

APPLICANT: MARK & PEGGY AMENT
WATERWAY: LAKE SUPERIOR & BETSY RIVER
CITY: BETSY
TOWNSHIP: GRANT
COUNTY: KEWEENAW
NUMBER OF SHEETS: 2 OF 3
DATE: SEPTEMBER 20, 2010



NUMBER: LRE-2010-00710-38 (10-42-28-P)
Ament - Breakwater Reconstruction & Dredging
BY: Mark and Peggy Ament
Betsy, Keweenaw County, Michigan
SHEET 8 OF 18

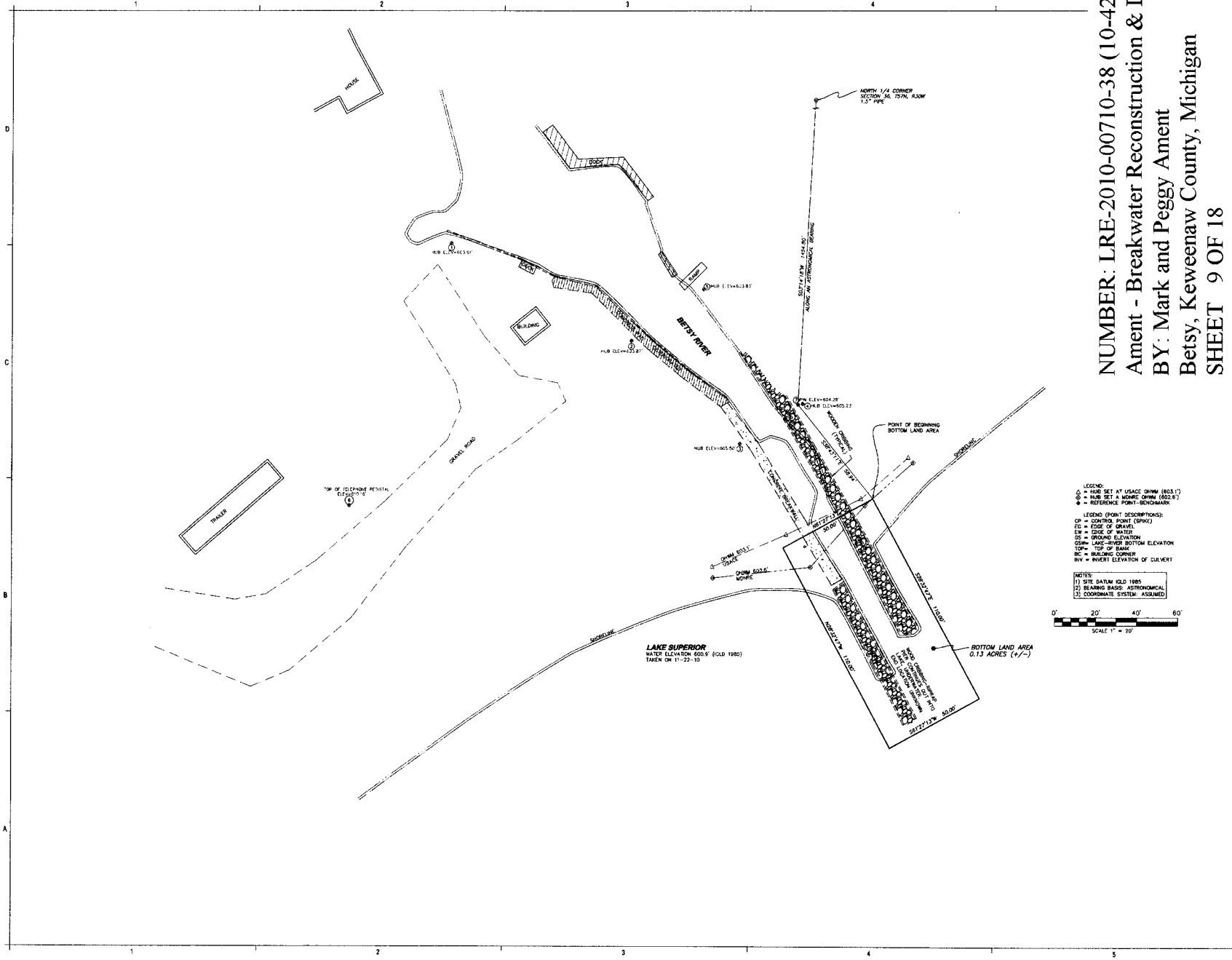
LEGEND:
△ = HUB SET AT USACE OHWM (603.1')
◇ = HUB SET A MDNRE OHWM (602.6')
◆ = REFERENCE POINT-BENCHMARK

LEGEND (POINT DESCRIPTIONS):
CP = CONTROL POINT (SPIKE)
EG = EDGE OF GRAVEL
EW = EDGE OF WATER
GS = GROUND ELEVATION
GSW= LAKE-RIVER BOTTOM ELEVATION
TOP= TOP OF BANK
BC = BUILDING CORNER
INV = INVERT ELEVATION OF CULVERT

NOTES:
1) SITE DATUM IGLD 1985
2) BEARING BASIS: ASTRONOMICAL
3) COORDINATE SYSTEM: ASSUMED

MODIFIED
10-42-28
CG
12/14/10
2 of 11

NUMBER: LRE-2010-00710-38 (10-42-28-P)
Ament - Breakwater Reconstruction & Dredging
BY: Mark and Peggy Ament
Betsy, Keweenaw County, Michigan
SHEET 9 OF 18



U.P. ENGINEERS & ARCHITECTS, INC.

ENGINEERING
ARCHITECTURE
PLANNING
SURVEYING
ENVIRONMENTAL

100 PORTAGE STREET
HOUGHTON, MI 49931
(906) 482-4810

102 W. WASHINGTON, SUITE 217
MARQUETTE, MI 49855
(906) 228-9061

611 MAIN STREET
NORWAY, MI 49870
(906) 563-5407

707 ASHMUN ST.
SAULT STE. MARIE, MI 49783
(906) 635-0611

1701 DUNLAP AVE. SUITE B
MARINETTE, WI 54143
(715) 732-4188

PROJECT TITLE:

SITE MAPPING BETSY RIVER & LAKE SUPERIOR

OWNER:

MARK AMENT

PROJECT LOCATION:

GRANT TWP. KEWEENAW CO. MICHIGAN

UPDATED	12-14-10
SUBMIT	11-24-10
ISSUED FOR:	DATE:

I, JEFFREY J. WEST, A PROFESSIONAL SURVEYOR IN THE STATE OF MICHIGAN, HAVE SURVEYED AND MAPPED THE ABOVE PARCEL OF LAND AT THE DIRECTION OF THE PARTY NAMED HEREIN.

STATE OF MICHIGAN
JEFFREY J. WEST
PROFESSIONAL SURVEYOR
No. 44697

JEFFREY J. WEST, P.S. 44697

PROFESSIONAL SEAL

PROJECT NO:	A35-11135
DRAWN BY:	J. WEST
CHECKED:	J. WEST
APPROVED:	

EXISTING SITE

© U.P. Engineers & Architects, Inc.

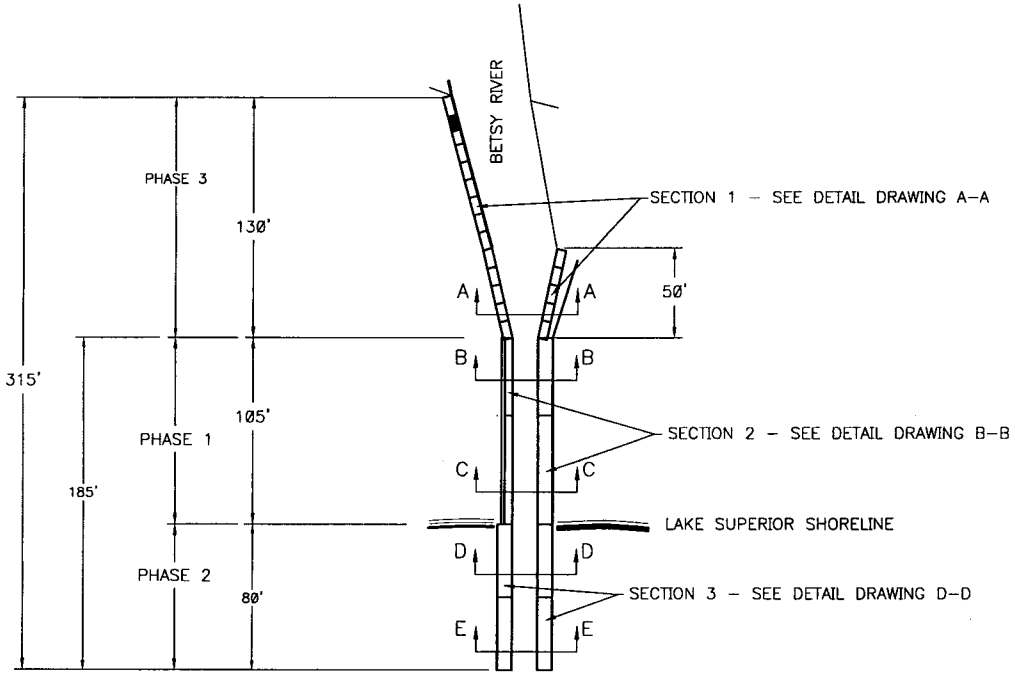
PROPOSED BREAKWATER & SEAWALL – BREAKWATER RESTORATION

APPLICANT: MARK & PEGGY AMENT
WATERWAY: LAKE SUPERIOR & BETSY RIVER
CITY: BETSY
TOWNSHIP: GRANT
COUNTY: KEWEENAW
NUMBER OF SHEETS: 1 – PLAN VIEW
DATE: 12/06/2010

SCALE 0 20 40

NUMBER: LRE-2010-00710-38 (10-42-28-P)
Ament - Breakwater Reconstruction & Dredging
BY: Mark and Peggy Ament
Betsy, Keweenaw County, Michigan
SHEET 10 OF 18

Project Plan View & Project Phases Plan

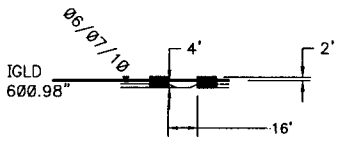


NOTES:

SECTION 1. REPAIR CRIBS TO PROVIDE STREAMBANK STABILIZATION ALONG 130' (WEST BANK) AND 50' (EAST BANK) SECTIONS OF BETSY RIVER.

SECTION 2. REPAIR SEAWALL CRIBS AND WALKWAY TO PROVIDE BANK STABILIZATION ALONG 105' SECTION (BOTH SIDES) OF BETSY RIVER.

SECTION 3. REPAIR BREAKWATER CRIBS ALONG 80' SECTION OF LAKE SUPERIOR.



1/64" = 1'

0 40
FEET

SEAWALL & BREAKWATER – BREAKWATER RESTORATION

APPLICANT: MARK & PEGGY AMENT
WATERWAY: LAKE SUPERIOR & BETSY RIVER
CITY: BETSY
TOWNSHIP: GRANT
COUNTY: KEWEENAW
NUMBER OF SHEETS: 1 OF 6
DATE: DECEMBER 9, 2010

NUMBER: LRE-2010-00710-38 (10-42-28-P)
Ament - Breakwater Reconstruction & Dredging
BY: Mark and Peggy Ament
Betsy, Keweenaw County, Michigan
SHEET 11 OF 18

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PLOTTED: DEC 15, 2010 - 3:38PM PLOTTED BY: c98209

Cross Section Length of Project East Side

Existing Conditions

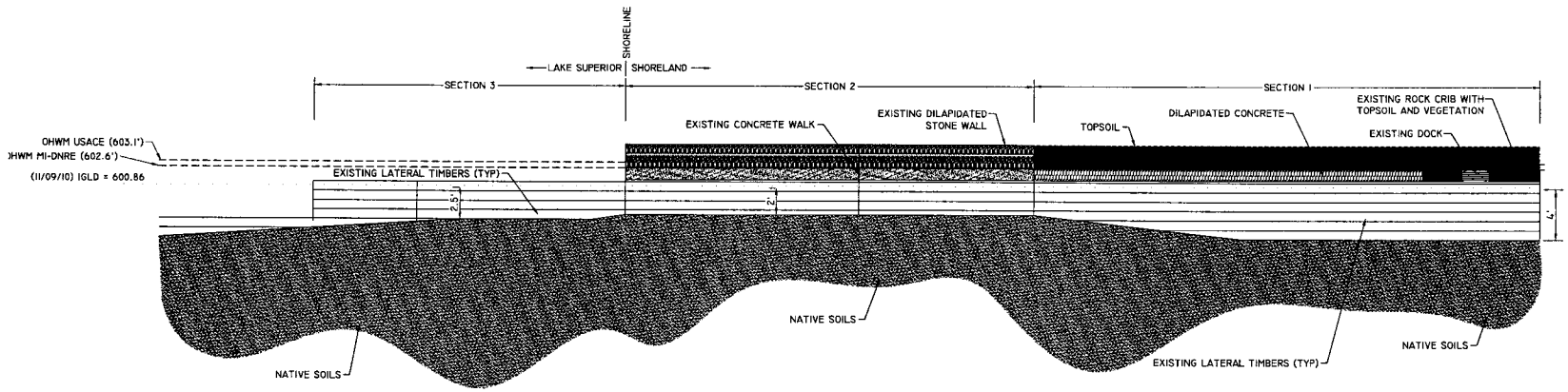
Proposed Project

PROPOSED BREAKWATER & SEAWALL – BREAKWATER RESTORATION

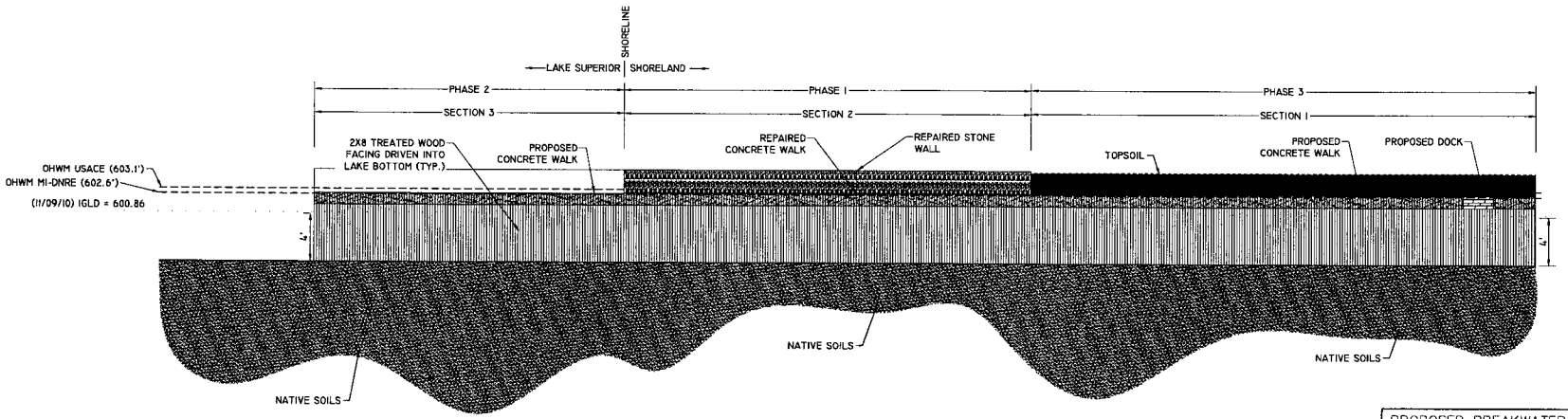
APPLICANT: MARK & PEGGY AMENT
WATERWAY: LAKE SUPERIOR & HESSY RIVER
CITY: BETSY
TOWNSHIP: GRANT
COUNTY: KEWEENAW
NUMBER OF SHEETS: 2 OF 2 (FACING EAST)
DATE: 12/06/2010

NUMBER: LRE-2010-00710-38 (10-42-28-P)
Ament - Breakwater Reconstruction & Dredging
BY: Mark and Peggy Ament
Betsy, Keweenaw County, Michigan
SHEET 12 OF 18

Cross Section Length of Project West Side



Existing Conditions



Proposed Project

PROPOSED BREAKWATER & SEAWALL –
BREAKWATER RESTORATION

APPLICANT: MARK & PEGGY AMENT
WATERWAY: LAKE SUPERIOR & BETSY RIVER
CITY: BETSY
TOWNSHIP: GRANT
COUNTY: KEWEENAW
NUMBER OF SHEETS: 1 OF 2 (FACING WEST)
DATE: 12/06/2010

NUMBER: LRE-2010-00710-38 (10-42-28-P)
Ament - Breakwater Reconstruction & Dredging
BY: Mark and Peggy Ament
Betsy, Keweenaw County, Michigan
SHEET 13 OF 18

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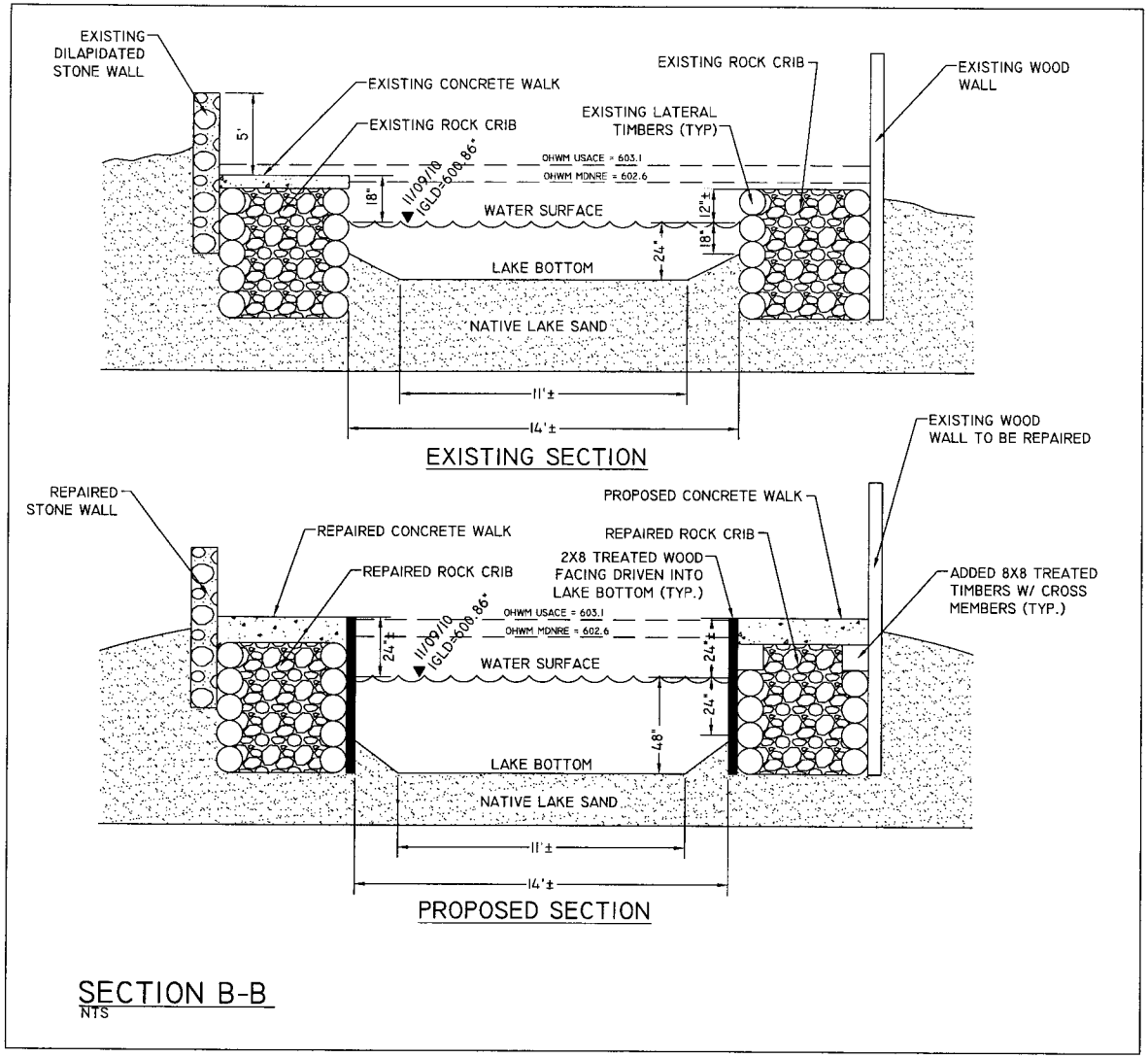


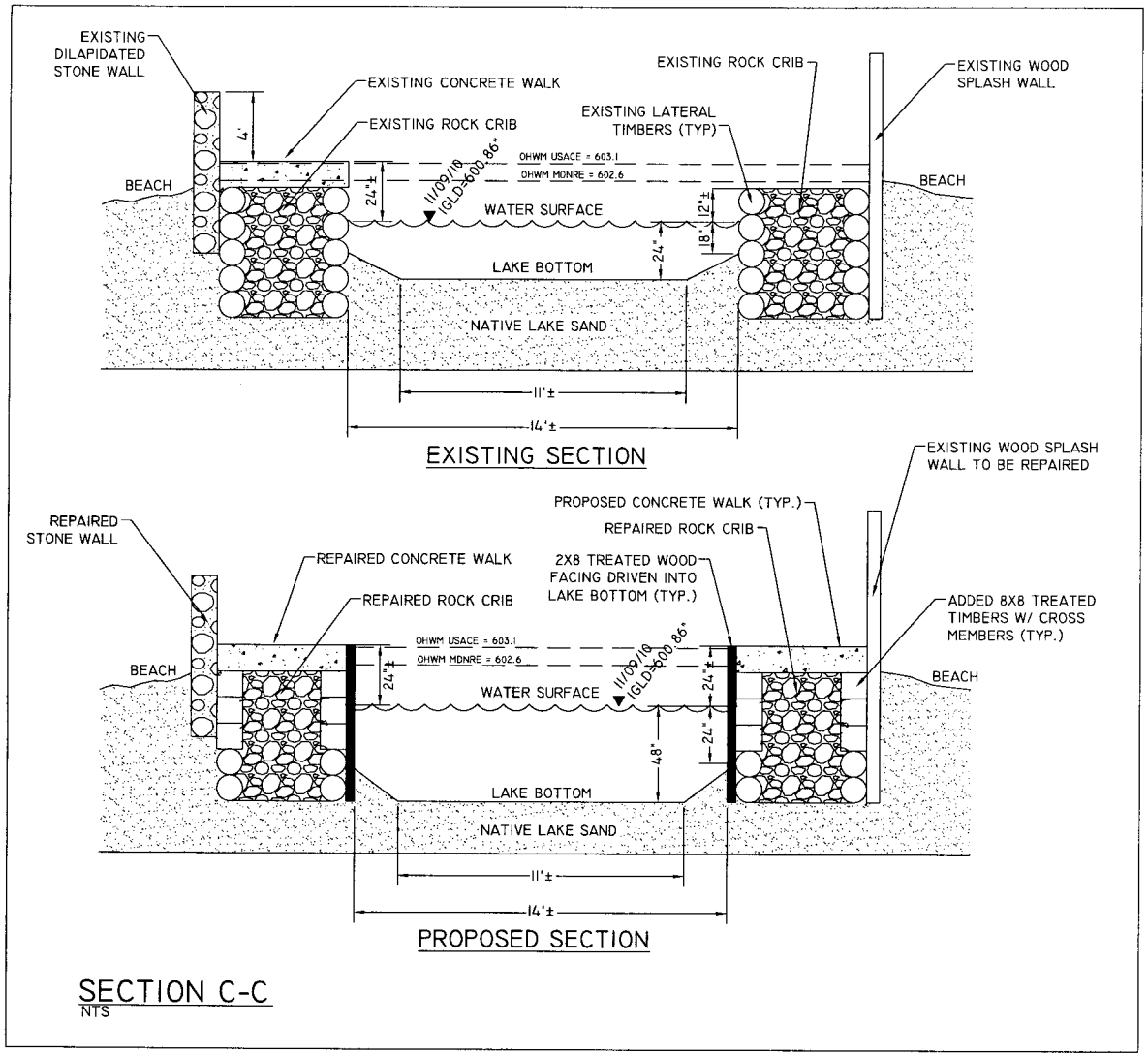
SECTION B-B
NTS

NUMBER: LRE-2010-00710-38 (10-42-28-P)
Ament - Breakwater Reconstruction & Dredging
BY: Mark and Peggy Ament
Betsy, Keweenaw County, Michigan
SHEET 14 OF 18

LRE-2010-00710-38: Phase 1
Restore existing bulkhead crib structures on the Betsy River immediately upstream from Lk. Superior

CROSS SECTION B–B: BREAKWATER RESTORATION

APPLICANT: MARK & PEGGY AMENT
WATERWAY: LAKE SUPERIOR & BETSY RIVER
CITY: BETSY
TOWNSHIP: GRANT
COUNTY: KEWEENAW
NUMBER OF SHEETS: 2 OF 5
DATE: 12/06/2010



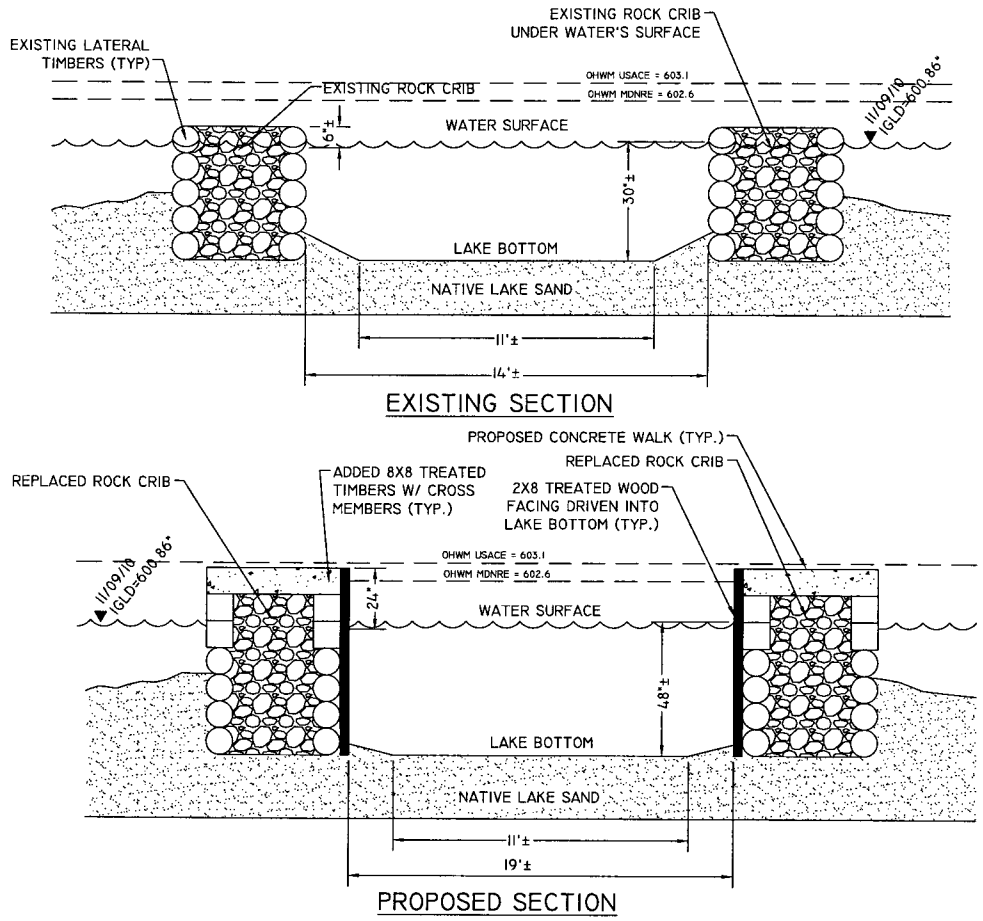
SECTION C-C
NTS

NUMBER: LRE-2010-00710-38 (10-42-28-P)
Ament - Breakwater Reconstruction & Dredging
BY: Mark and Peggy Ament
Betsy, Keweenaw County, Michigan
SHEET 15 OF 18

LRE-2010-00710-38: Phase 1
Restore existing bulkhead crib structures on the Betsy River immediately upstream from Lk. Superior

CROSS SECTION C-C: BREAKWATER RESTORATION

APPLICANT: MARK & PEGGY AMENT
WATERWAY: LAKE SUPERIOR & BETSY RIVER
CITY: BETSY
TOWNSHIP: GRANT
COUNTY: KEWEENAW
NUMBER OF SHEETS: 3 OF 5
DATE: 12/06/2010



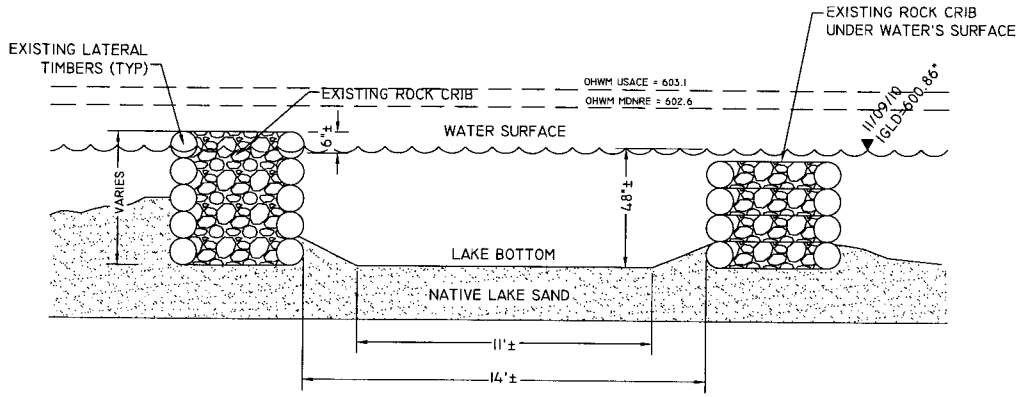
SECTION D-D
NTS

NUMBER: LRE-2010-00710-38 (10-42-28-P)
Ament - Breakwater Reconstruction & Dredging
BY: Mark and Peggy Ament
Betsy, Keweenaw County, Michigan
SHEET 16 OF 18

Phase II: Install pilings & rebuild breakwater cribs waterward of the shoreline OHWM on Lake Superior

CROSS SECTION D–D: BREAKWATER RESTORATION

APPLICANT: MARK & PEGGY AMENT
WATERWAY: LAKE SUPERIOR & BETSY RIVER
CITY: BETSY
TOWNSHIP: GRANT
COUNTY: KEWEENAW
NUMBER OF SHEETS: 4 OF 5
DATE: 12/06/2010



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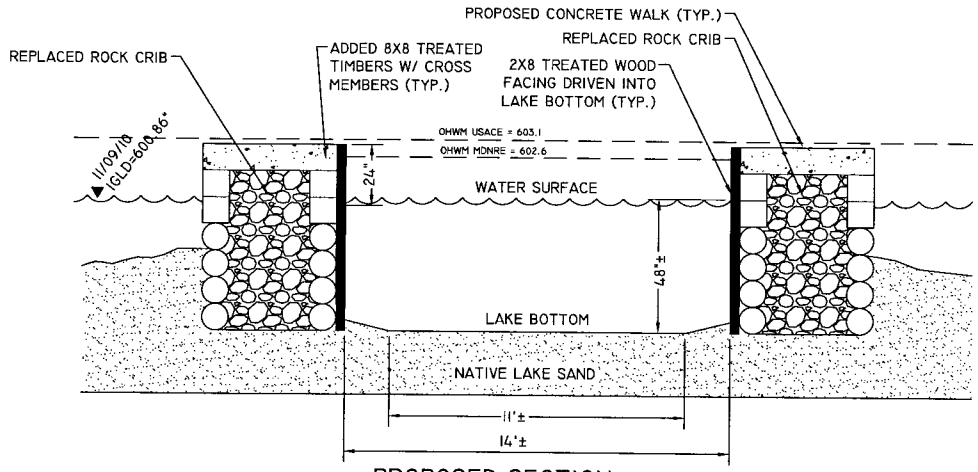


PROPOSED SECTION

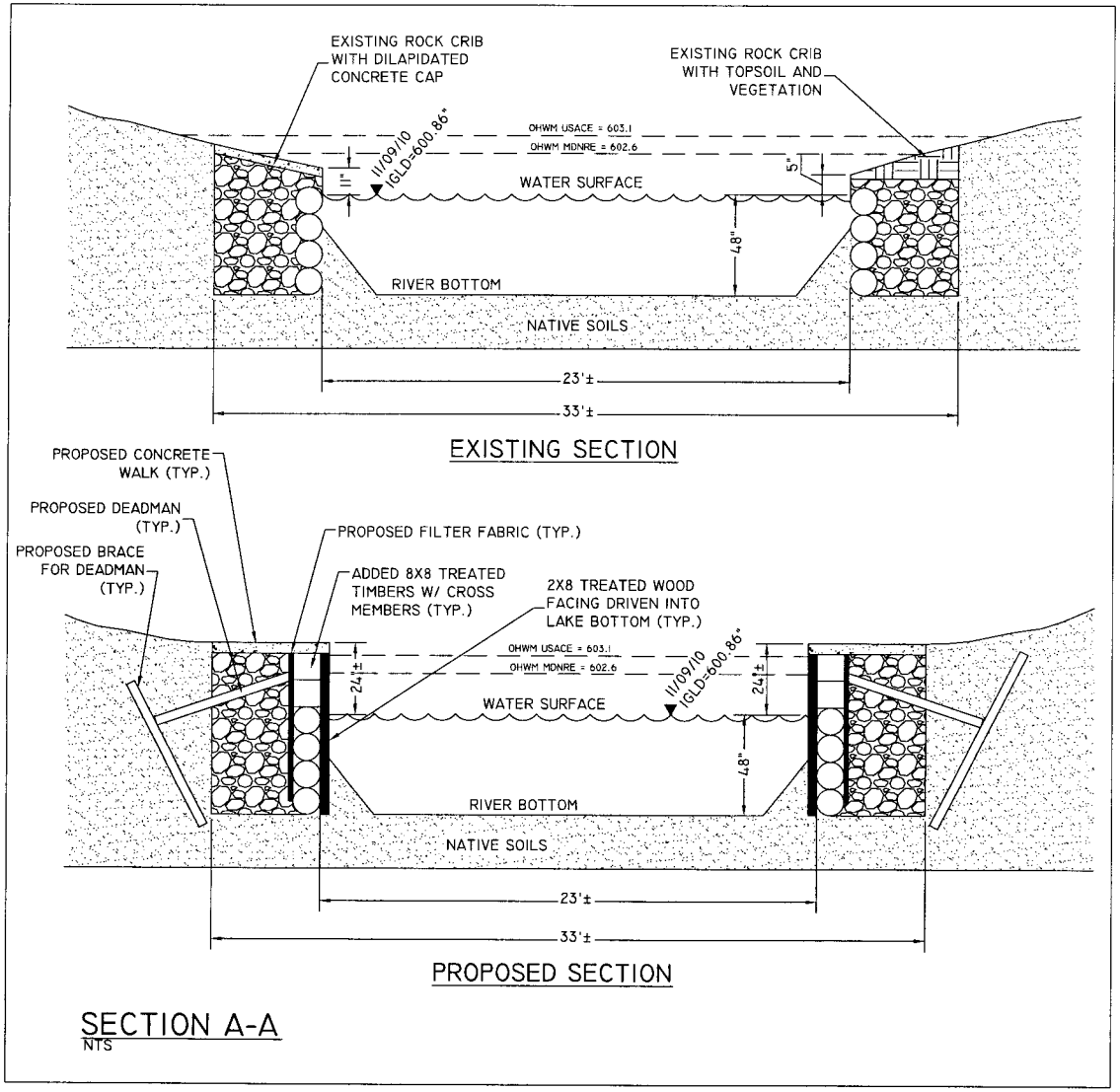
SECTION E-E
NTS

NUMBER: LRE-2010-00710-38 (10-42-28-P)
Ament - Breakwater Reconstruction & Dredging
BY: Mark and Peggy Ament
Betsy, Keweenaw County, Michigan
SHEET 17 OF 18

Phase II: Install pilings & rebuild breakwater cribs waterward of the shoreline OHWM on Lake Superior

CROSS SECTION E-E: BREAKWATER RESTORATION

APPLICANT: MARK & PEGGY AMENT
WATERWAY: LAKE SUPERIOR & BETSY RIVER
CITY: BETSY
TOWNSHIP: GRANT
COUNTY: KEWEENAW
NUMBER OF SHEETS: 5 OF 5
DATE: 12/06/2010



SECTION A-A
NTS

NUMBER: LRE-2010-00710-38 (10-42-28-P)
Ament - Breakwater Reconstruction & Dredging
BY: Mark and Peggy Ament
Betsy, Keweenaw County, Michigan
SHEET 18 OF 18

Phase III: Install pilings & repair bulkhead cribs on the east & west sides of the Betsy River

CROSS SECTION A–A: BREAKWATER RESTORATION

APPLICANT: MARK & PEGGY AMENT
WATERWAY: LAKE SUPERIOR & BETSY RIVER
CITY: BETSY
TOWNSHIP: GRANT
COUNTY: KEWEENAW
NUMBER OF SHEETS: 1 OF 5
DATE: 12/06/2010