



TP-00440A

TP-00440B

TP-00440 A

TP-00440 B

NOAA FORM 76-35 (3-76)	
U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION NATIONAL OCEAN SURVEY	
DESCRIPTIVE REPORT	
Map No. TP-00440A & TP-00440B	Edition No. 1
Job No. CM-7705	
Map Classification CLASS III (Final)	
Type of Survey SHORELINE	
LOCALITY	
State MICHIGAN	
General Locality LAKE SUPERIOR	
Locality KEWEENAW WATERWAY AND HOUGHTON-HANCOCK	
1977 TO 19	
REGISTRY IN ARCHIVES	
DATE	

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TP-00440A & TP-00440B

TP-00440A

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NOAA FORM 76-36A (3-72)		U. S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMIN.		TYPE OF SURVEY <input checked="" type="checkbox"/> ORIGINAL <input type="checkbox"/> RESURVEY <input type="checkbox"/> REVISED		SURVEY TP. 00440A MAP EDITION NO. (1) MAP CLASS III FINAL JOB PH. CM-7705	
DESCRIPTIVE REPORT - DATA RECORD				LAST PRECEDING MAP EDITION TYPE OF SURVEY <input type="checkbox"/> ORIGINAL <input type="checkbox"/> RESURVEY <input type="checkbox"/> REVISED JOB PH. _____ MAP CLASS _____ SURVEY DATES: 19__ TO 19__			
PHOTOGRAMMETRIC OFFICE Coastal Mapping Unit, Norfolk, VA				OFFICER-IN-CHARGE A.Y. Bryson			
I. INSTRUCTIONS DATED							
1. OFFICE				2. FIELD			
Aerotriangulation August 28, 1978 Compilation January 18, 1979 Change No. 2 November 1, 1979				Photography March 30, 1977 Control April 11, 1978 Change No. 1 June 16, 1978			
II. DATUMS							
1. HORIZONTAL: <input checked="" type="checkbox"/> 1927 NORTH AMERICAN				OTHER (Specify)			
2. VERTICAL: <input type="checkbox"/> MEAN HIGH-WATER <input type="checkbox"/> MEAN LOW-WATER <input type="checkbox"/> MEAN LOWER LOW-WATER <input type="checkbox"/> MEAN SEA LEVEL				OTHER (Specify) International Great Lakes Datum, (1955) Lake Superior Low water Datum			
3. MAP PROJECTION Lambert Conformal Conic				4. GRID(S) STATE Michigan ZONE North			
5. SCALE 1:30,000				STATE ZONE			
III. HISTORY OF OFFICE OPERATIONS							
OPERATIONS				NAME		DATE	
1. AEROTRIANGULATION BY				B. Thornton		Oct. 1979	
METHOD: Analytic LANDMARKS AND AIDS BY				D. Norman		Oct. 1979	
2. CONTROL AND BRIDGE POINTS PLOTTED BY				B. Thornton		Oct. 1979	
METHOD: Coradomat CHECKED BY				D. Norman		Oct. 1979	
3. STEREOSCOPIC INSTRUMENT PLANIMETRY BY				J. Moler		June 1980	
COMPILATION CHECKED BY				F. Mauldin		June 1980	
INSTRUMENT: Wild B-8				N.A.			
SCALE: 1:30,000				N.A.			
4. MANUSCRIPT DELINEATION PLANIMETRY BY				J. Moler		August 1980	
CHECKED BY				D. Butler		August 1980	
METHOD: Smooth drafted				N.A.			
CHECKED BY				N.A.			
SCALE: 1:30,000 HYDRO SUPPORT DATA BY				J. Moler		August 1980	
CHECKED BY				D. Butler		August 1980	
5. OFFICE INSPECTION PRIOR TO FIELD EDIT BY				D. Butler		August 1980	
6. APPLICATION OF FIELD EDIT DATA BY				I. Perkinson		Sept. 1982	
CHECKED BY				C. Blood		April 1983	
7. COMPILATION SECTION REVIEW BY				C. Blood		April 1983	
8. FINAL REVIEW CLASS III BY				L.O. Neterer Jr.		Jan. 1984	
9. DATA FORWARDED TO PHOTOGRAMMETRIC BRANCH BY				L.O. Neterer Jr.		Jan. 1984	
10. DATA EXAMINED IN PHOTOGRAMMETRIC BRANCH BY				P.-Hawkins		Aug. 1984	
11. MAP REGISTERED - COASTAL SURVEY SECTION BY				E. DAUGHERTY		NOV. 1984	

COMPILATION SOURCES

1. COMPILATION PHOTOGRAPHY

CAMERA(S) Wild RC-10 "Y" (88.72mm)		TYPES OF PHOTOGRAPHY LEGEND		TIME REFERENCE	
TIDE STAGE REFERENCE <input type="checkbox"/> PREDICTED TIDES N.A. <input type="checkbox"/> REFERENCE STATION RECORDS N.A. <input type="checkbox"/> TIDE CONTROLLED PHOTOGRAPHY N.A.		(C) COLOR (P) PANCHROMATIC (I) INFRARED		ZONE Central MERIDIAN 70th <input checked="" type="checkbox"/> STANDARD <input type="checkbox"/> DAYLIGHT	
NUMBER AND TYPE	DATE	TIME	SCALE	STAGE OF TIDE	
78Y (P) 4487 - 4493	June 18, 1978	14:51	1:50,000	N.A.	
78Y (P) 4454 - 4463	June 18, 1978	14:12	1:50,000	N.A.	

REMARKS Lake level at time of photography was 600.56 feet, Lake Superior Low Water Datum, Marquette gage.

2. SOURCE OF MEAN HIGH-WATER LINE:

Mean high water line is not applicable. The "shoreline" was delineated from the above listed photographs, and is defined as that line visible on the photographs which marks the contact between land and water.

3. SOURCE OF MEAN LOW-WATER OR MEAN LOWER LOW-WATER LINE:

Not applicable.

4. CONTEMPORARY HYDROGRAPHIC SURVEYS (List only those surveys that are sources for photogrammetric survey information.)

SURVEY NUMBER	DATE(S)	SURVEY COPY USED	SURVEY NUMBER	DATE(S)	SURVEY COPY USED

5. FINAL JUNCTIONS

NORTH	EAST	SOUTH	WEST
No Survey	No Survey	TP-00441	No Survey

REMARKS

The map TP-00440B scale 1:10,000 lies entirely within this map.

TP-00440A

HISTORY OF FIELD OPERATIONS

I. ☒ FIELD INSPECTION OPERATION☐ FIELD EDIT OPERATION

OPERATION	NAME	DATE
1. CHIEF OF FIELD PARTY	R. Tibbetts	July 1978
2. HORIZONTAL CONTROL	RECOVERED BY R. Tibbetts ESTABLISHED BY None PRE-MARKED OR IDENTIFIED BY R. Tibbetts	July 1978
3. VERTICAL CONTROL	RECOVERED BY None ESTABLISHED BY None PRE-MARKED OR IDENTIFIED BY None	
4. LANDMARKS AND AIDS TO NAVIGATION	RECOVERED (Triangulation Stations) BY None LOCATED (Field Methods) BY None IDENTIFIED BY None	
5. GEOGRAPHIC NAMES INVESTIGATION	TYPE OF INVESTIGATION <input type="checkbox"/> COMPLETE <input type="checkbox"/> SPECIFIC NAMES ONLY <input checked="" type="checkbox"/> NO INVESTIGATION	
6. PHOTO INSPECTION	CLARIFICATION OF DETAILS BY None	
7. BOUNDARIES AND LIMITS	SURVEYED OR IDENTIFIED BY N.A.	

II. SOURCE DATA

1. HORIZONTAL CONTROL IDENTIFIED

Photo I. D.

2. VERTICAL CONTROL IDENTIFIED

None

PHOTO NUMBER	STATION NAME	PHOTO NUMBER	STATION DESIGNATION
78Y(P) 4494	CALUMET, 1939		
78Y(P) 4493	TORCH LAKE, 1935		
78Y(P) 4454	26 Cl, 1934		
78Y(P) 4458	26 H, 1934		
78Y(P) 4460	26 N, 1934		
78Y(P) 4457	A U.S.E., 1934		

3. PHOTO NUMBERS (Clarification of details)

None

4. LANDMARKS AND AIDS TO NAVIGATION IDENTIFIED

None

PHOTO NUMBER	OBJECT NAME	PHOTO NUMBER	OBJECT NAME

5. GEOGRAPHIC NAMES: ☐ REPORT ☒ NONE6. BOUNDARY AND LIMITS: ☐ REPORT ☒ NONE

7. SUPPLEMENTAL MAPS AND PLANS

None

8. OTHER FIELD RECORDS (Sketch books, etc. DO NOT list data submitted to the Geodesy Division)

2 Forms 76-109, 6 Forms 76-53, 6 Forms 738, 9 Forms 75-63, 5 Forms 75-65,
4 Forms 76-184.

HISTORY OF FIELD OPERATIONS

I. ☐ FIELD INSPECTION OPERATION☒ FIELD EDIT OPERATION (Partial)

OPERATION	NAME	DATE
1. CHIEF OF FIELD PARTY	L. Neterer, Jr.	May 1981
2. HORIZONTAL CONTROL	RECOVERED BY ESTABLISHED BY PRE-MARKED OR IDENTIFIED BY	None None None
3. VERTICAL CONTROL	RECOVERED BY ESTABLISHED BY PRE-MARKED OR IDENTIFIED BY	N.A. N.A. N.A.
4. LANDMARKS AND AIDS TO NAVIGATION	RECOVERED (Triangulation Stations) BY LOCATED (Field Methods) BY IDENTIFIED BY	L. Neterer, Jr. May 1981 L. Neterer, Jr. May 1981 None
5. GEOGRAPHIC NAMES INVESTIGATION	TYPE OF INVESTIGATION <input type="checkbox"/> COMPLETE <input type="checkbox"/> SPECIFIC NAMES ONLY <input checked="" type="checkbox"/> NO INVESTIGATION	BY
6. PHOTO INSPECTION	CLARIFICATION OF DETAILS BY	L. Neterer, Jr. May 1981
7. BOUNDARIES AND LIMITS	SURVEYED OR IDENTIFIED BY	N.A.

II. SOURCE DATA

1. HORIZONTAL CONTROL IDENTIFIED
None2. VERTICAL CONTROL IDENTIFIED
None

PHOTO NUMBER	STATION NAME	PHOTO NUMBER	STATION DESIGNATION

3. PHOTO NUMBERS (Clarification of details)

78 Y(P) 4454, 4455, and 4488

4. LANDMARKS AND AIDS TO NAVIGATION IDENTIFIED

Visually verified and noted on the Master Field Edit Print.

PHOTO NUMBER	OBJECT NAME	PHOTO NUMBER	OBJECT NAME
78Y(P) 4455	RAULEAU POINT RANGE FRONT LIGHT		

5. GEOGRAPHIC NAMES: ☐ REPORT ☒ NONE6. BOUNDARY AND LIMITS: ☐ REPORT ☒ NONE

7. SUPPLEMENTAL MAPS AND PLANS

None

8. OTHER FIELD RECORDS (Sketch books, etc. DO NOT list data submitted to the Geodesy Division)

Master Field Edit Print, Thirty-four pictures taken by the field editor. Field editor report.

NOAA FORM 76-36D
(3-72)U. S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATIONTP-00440A
RECORD OF SURVEY USE

I. MANUSCRIPT COPIES

COMPILATION STAGES			DATE MANUSCRIPT FORWARDED	
DATA COMPILED	DATE	REMARKS	MARINE CHARTS	HYDRO SUPPORT
Compilation complete pending field edit.	Oct. 1980	Class III manuscript. Superseded.		
Partial Field Edit applied, compilation complete	Sept. 1982	Class III manuscript Superseded		
Final Reviewed	Jan. 1984	Final Class III Map		

II. LANDMARKS AND AIDS TO NAVIGATION

1. REPORTS TO MARINE CHART DIVISION, NAUTICAL DATA BRANCH

PAGES NUMBER	CHART LETTER NUMBER ASSIGNED	DATE FORWARDED	REMARKS
1			Landmarks to be charted.
1			Aids to be charted

2. ☒ REPORT TO MARINE CHART DIVISION, COAST PILOT BRANCH. DATE FORWARDED: None3. ☐ REPORT TO AERONAUTICAL CHART DIVISION, AERONAUTICAL DATA SECTION. DATE FORWARDED: _____

III. FEDERAL RECORDS CENTER DATA

1. ☒ BRIDGING PHOTOGRAPHS; ☒ DUPLICATE BRIDGING REPORT; ☒ COMPUTER READOUTS.
 2. ☒ CONTROL STATION IDENTIFICATION CARDS; ☐ FORM NOS ~~187~~ 76-40 SUBMITTED BY FIELD PARTIES.
 3. ☒ SOURCE DATA (except for Geographic Names Report) AS LISTED IN SECTION II, NOAA FORM 76-36C. ACCOUNT FOR EXCEPTIONS:

4. ☐ DATA TO FEDERAL RECORDS CENTER. DATE FORWARDED: _____

IV. SURVEY EDITIONS (This section shall be completed each time a new map edition is registered)

SECOND EDITION	SURVEY NUMBER TP - _____ (2)	JOB NUMBER PH - _____	TYPE OF SURVEY <input type="checkbox"/> REVISED <input type="checkbox"/> RESURVEY MAP CLASS <input type="checkbox"/> II. <input type="checkbox"/> III. <input type="checkbox"/> IV. <input type="checkbox"/> V. <input type="checkbox"/> FINAL
	DATE OF PHOTOGRAPHY	DATE OF FIELD-EDIT	
THIRD EDITION	SURVEY NUMBER TP - _____ (3)	JOB NUMBER PH - _____	TYPE OF SURVEY <input type="checkbox"/> REVISED <input type="checkbox"/> RESURVEY MAP CLASS <input type="checkbox"/> II. <input type="checkbox"/> III. <input type="checkbox"/> IV. <input type="checkbox"/> V. <input type="checkbox"/> FINAL
	DATE OF PHOTOGRAPHY	DATE OF FIELD EDIT	
FOURTH EDITION	SURVEY NUMBER TP - _____ (4)	JOB NUMBER PH - _____	TYPE OF SURVEY <input type="checkbox"/> REVISED <input type="checkbox"/> RESURVEY MAP CLASS <input type="checkbox"/> II. <input type="checkbox"/> III. <input type="checkbox"/> IV. <input type="checkbox"/> V. <input type="checkbox"/> FINAL
	DATE OF PHOTOGRAPHY	DATE OF FIELD EDIT	

JOB CM-7705

KEWEENAW WATERWAY, MICH.
KEWEENAW BAY, MICH.

MARQUETT, MICH.
ASHLAND, WISC.

SHORELINE MAPPING

SCALES: 1:15,000-1:30,000

INSETS AT 1:10,000

ASHLAND

(1:15,000 Scale)

TP-00439

46°40'36"

46°34'38.4"

(1:10,000 Scale)

46°47'07.7"

46°46'05.4"

٤٣٠

3

(1:10,000 Scale)

46°44'52.8"

MARQUETTE

(1:15,000 scale)

TP-00442

46°36'54" E

46°30'12"

112

8

SUMMARY TO ACCOMPANY
DESCRIPTIVE REPORTS
TP-00440A and TP-00440B

These two maps TP-00440A, 1:30,000 scale and its inset TP-00440B, 1:10,000 scale, are part of project CM-7705, Keweenaw Waterway, Keweenaw Bay, Marquette Harbor, Michigan and Ashland, Wisconsin which consist of four maps and three insets.

This project is divided into three different geographic areas. Part I, Ashland Harbor, Chequamegon Bay, Lake Superior, Wisconsin, longitude 90°49'49.7" west to 90°57'17.3", latitude 46°34'38.4" north to 46°40'36". Part II, L'Anse, Michigan latitude 46°44'46" to the north entrance of the Keweenaw Waterway, Michigan, latitude 47°15'37". Part III Marquette Bay, Lake Superior, Michigan, latitude 46°30'12" north to latitude 46°36'54".

Field work prior to compilation which was accomplished in July 1978 involved the identification of horizontal control by photo identification methods, to meet aerotriangulation requirements.

Photographic coverage was provided in May 1977 using the "E" camera with a focal length of 152.71 millimeters with panchromatic film at 1:20,000 scale and June 1978 with the "Y" camera with a focal length of 88.72 millimeters at 1:50,000 scale. Photographs were provided to aerotriangulation for bridging.

Analytic aerotriangulation was performed at the Washington Science Center in October 1979.

Compilation was performed at the Atlantic Marine Center in January 1980 from office interpretation of the May 1977 1:20,000 scale photography and the June 1978 1:50,000 scale photography.

Field edit accomplished during May 1981 consisted of a visual examination to check for completeness, and to answer questions and to clarify details.

Field edit was applied as partial during August 1982 at the Atlantic Marine Center. The map was kept as Class III since the edit was not complete and no field checks for accuracy were made.

Final review was performed at the Atlantic Marine Center in January 1984.

These two maps are to be registered together as one, as Final Class III maps.

This descriptive report is segmented in prescribed arrangement and contains all the pertinent information without duplication in the construction of these two maps.

The original base manuscripts and relevant data was forwarded to the Washington Science Center for final registration.

FIELD INSPECTION

TP-00440A & TP-00440B

There was no field inspection prior to compilation. Field work accomplished was limited to the recovery and identification of the horizontal control necessary for the aerotriangulation of the project.

Photogrammetric Plot Report

Keweenaw, Michigan

CM-7705

October 11, 1979

21. Area Covered

The area covered by this report extends from L'Anse Bay up to Lake Superior near Calumet. This area is covered by two 1:30,000 scale sheets; TP-00440 and TP-00441, including three insets which are at a scale of 1:10,000.

22. Method

Three strips of 1:50,000 scale black and white photography were bridged by analytic aerotriangulation methods. The strips of bridging photography were controlled by field identified control. Tie points were used in all strips to insure an adequate junction of all strips during the strip adjustments. Ratio photos of compilation photography was ordered.

23. Adequacy of Control

This office has often experienced problems in adjusting strips to ground control points in the Great Lakes area. Usually the problems are in the order of 10 to 15 feet and are well within the National Map Accuracy Standards but in this Great Lakes area our strip adjustments are not as good as in other areas.

In the Keweenaw part of this project, CM-7705, we were not able to resolve the control problem but fortunately we were able to omit the problem area.

Originally, strip 1 contained 14 photos with five control station. The north terminal for this strip was Calumet, 1939. In the strip adjustment, the two sub points for Calumet differed by 24 feet. When using sub point #1 of Calumet, the next control station in the strip, Torch Lake, 1935 was off by about 16 feet. If sub point #2 of Calumet was held, Torch Lake was off by 33 feet. Note that in mensuration, the image of Calumet sub point #1 could not be positively identified, but the image of sub point #2 could be positively identified.

This office requested additional control identification by a field party. Two sub points were identified for Section Corner (Glo Mich. GS) 1934. These sub points would not fit in the adjustment. They were both off by at least 1200 feet.

The control discrepancy could not be resolved. It was decided to delete the 3 photos at the north end of the strip that covered Calumet and Section Corner. This left sufficient photo coverage for shoreline compilation. The remainder of strip #1 and the other two strips in this Keweenaw area fit quite well with the ground control.

24. Supplemental Data

USGS quadrangles were used to provide vertical control for the adjustment.

25. Photography

The coverage, overlap, and quality of the photography was adequate for the job.

Submitted by,

Brian Thornton

Brian Thornton

Approved and Forwarded by:

Don O. Norman

Don O. Norman
Chief, Aerotriangulation Section

KEWEENAW BAY, MICHIGAN
CM-7705

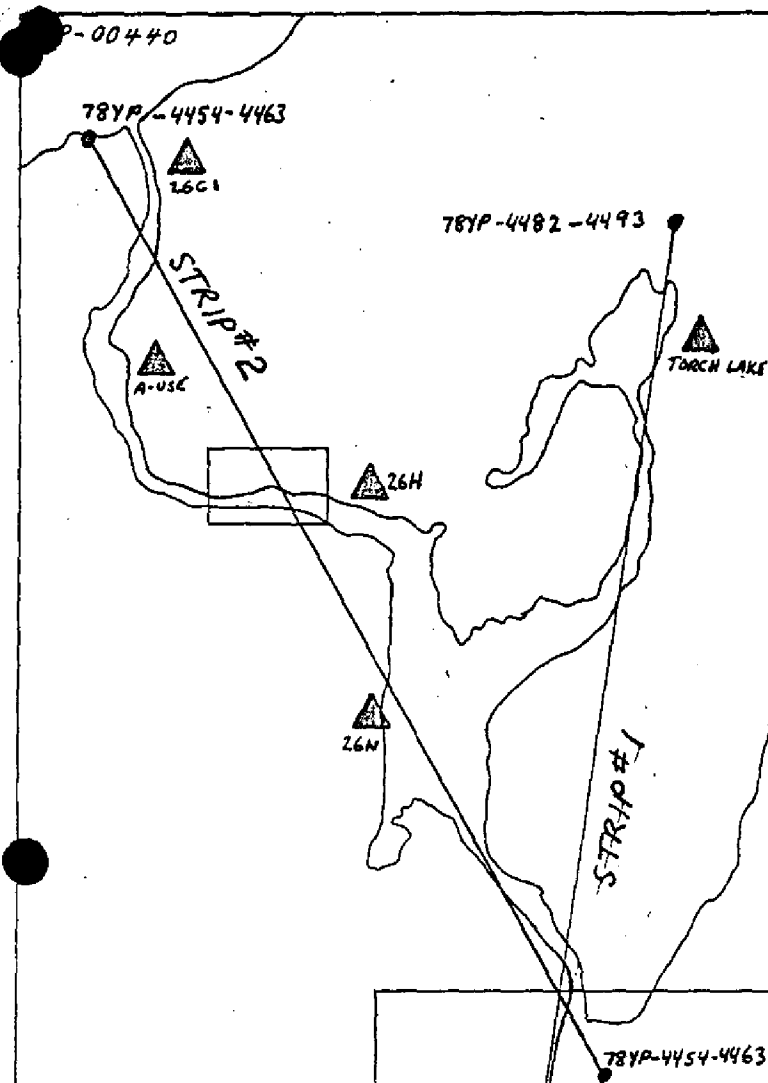
FIT TO CONTROL
X AND Y VALUES IN FEET

<u>NAME</u>		<u>POINT NO.</u>	<u>X ERROR</u>	<u>Y ERROR</u>
<u>STRIP 1</u>				
Lanse Muni. W.T., 1956		482100	1.118	-0.772
	Sub Pt A	482101	-2.695	-4.495
	Sub Pt B	482102	0.000	0.000
Keweenaw Pt. South Base USLS				
	Sub Pt A	485101	-2.198	3.744
	Sub Pt B	485102	-1.133	4.353
Keweenaw Pt. North Base USLS, 1871				
	Sub Pt	487101	0.000	0.000
Torch Lake, 1935				
	Sub Pt A	493101	0.001	0.004
	Sub Pt B	493102	0.579	-0.290
<u>STRIP 2</u>				
26 C1, 1934				
	Sub Pt A	454101	-2.347	2.532
	Sub Pt B	454102	3.273	1.302
A-USE, 1934				
	Sub Pt A	456101	-1.905	3.048
	Sub Pt B	456102	-3.055	-3.388
26 H, 1934				
	Sub Pt A	458101	-1.369	1.904
26 N (MGS), 1934				
	Sub Pt A	459101	1.744	0.682
	Sub Pt B	459102	2.235	-1.665
Keweenaw Pt. North Base USLS, 1871				
	Sub Pt	487101	-0.592	-0.501
<u>STRIP 3</u>				
Bay No. 4, 1979				
	Sub Pt A	472101	-0.107	-1.545
	Sub Pt B	472102	-0.079	0.311

<u>NAME</u>		<u>POINT NO.</u>	<u>X ERROR</u>	<u>Y ERROR</u>
Pequaming 2, 1972				
	Sub Pt A	473101	-0.079	-1.079
	Sub Pt B	473102	1.308	-4.944
Bay 2, 1979				
	Sub Pt A	474101	-0.004	1.301
	Sub Pt B	474102	-1.176	0.568
L'Anse Muni. W.T., 1956				
	Sub Pt A	482101	0.162	-0.534
	Sub Pt B	482102	-1.054	0.136

The control for this project is adequate for the job and is within the National Standards of Map Accuracy.

+7 15 37



AEROTRIANGULATION SKETCH
 CM-7705
 KEWEENAW BAY AND
 WATERWAY
 MICHIGAN
 OCTOBER 15, 1979

1:50,000 SCALE BRIDGING
 PHOTOS

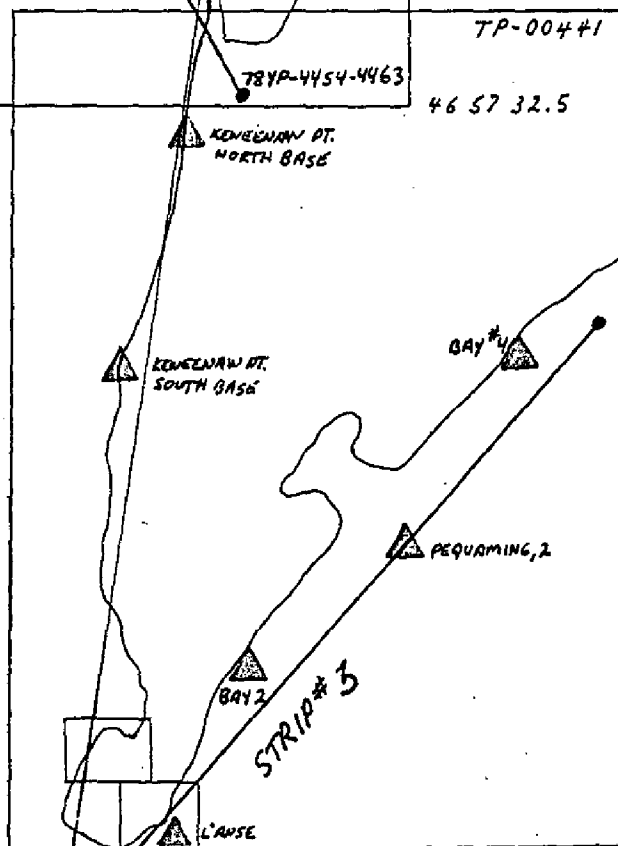
88 40 39

88 15 30

TP-00441

+6 59 09

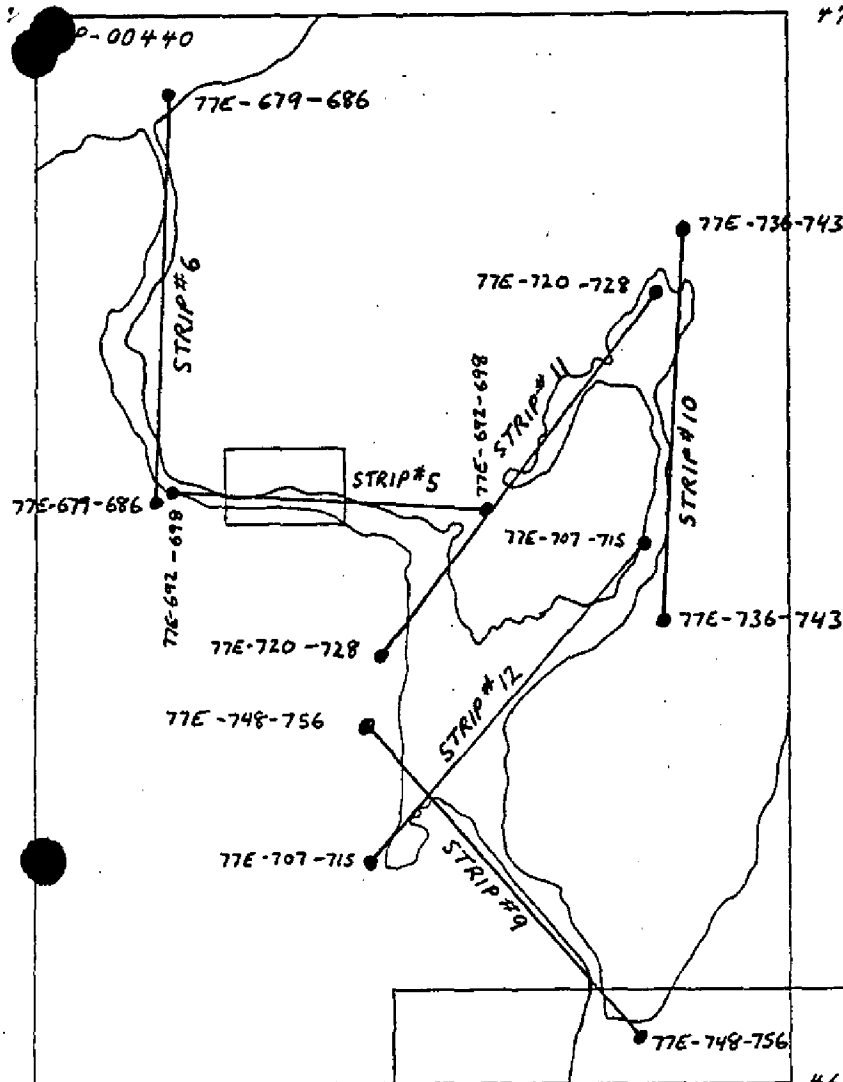
46 57 32.5



46 44 46

78YP-4482-4493

47 15 37



AEROTRIANGULATION SKETCH

CM-7705

KEWEENAW BAY AND

WATERWAY

MICHIGAN

OCTOBER 15, 1979

1:20,000 SCALE PHOTOS

88 15 20

46 59 09

TP-00441

46 57 32.5

88 40 29

77E-772-775

STRIP #7

77E-773-775

STRIP #8

77E-769-771

46 44 46

DESCRIPTIVE REPORT CONTROL RECORD

MAP NO.	JOB NO.	GEODETIC DATUM	ORIGINATING ACTIVITY		
TP-00440A	CM-7705	N.A. 1927	Coastal Mapping Unit, AMC		
STATION NAME	SOURCE OF INFORMATION (Index)	AEROTRIANGULATION POINT NUMBER	COORDINATES IN FEET STATE <u>Michigan</u> ZONE <u>North</u>	GEOGRAPHIC POSITION ϕ LATITUDE λ LONGITUDE	REMARKS
MCMT 107 (MGS), 1934	470883 Page 1041	23	$x =$ $y =$	ϕ 47°08'07.488" λ 88°38'12.995"	
B (USE - MGS), 1934	470883 Page 1036		$x =$ $y =$	ϕ 47°09'51.265" λ 88°38'30.902"	
HIGH POINT (USE MGS), 1934	470883 Page 1040		$x =$ $y =$	ϕ 47°10'02.179" λ 88°38'05.463"	
A (USE MGS), 1934	470883 Page 1035	456100	$x =$ $y =$	ϕ 47°09'59.670" λ 88°38'38.352"	
CANAL 26 B1 (MGS), 1934	470883 Page 1038	20	$x =$ $y =$	ϕ 47°12'14.234" λ 88°38'03.287"	
26 C1, (MGS), 1934	470833 Page 1018	454100	$x =$ $y =$	ϕ 47°12'59.349" λ 88°37'41.283"	
TORCH LAKE (MGS), 1935	470882 Page 1024	493100	$x =$ $y =$	ϕ 47°10'52.208" λ 88°22'45.895"	
CALUMET FIRE LOOKOUT TOWER (MGS), 1934	470882 Page 1001	494100	$x =$ $y =$	ϕ 47°15'03.258" λ 88°24'36.130"	
CALUMET, 1939	470832 Page 1001	14	$x =$ $y =$	ϕ 47°15'03.041" λ 88°24'36.423"	
CREBASSA LATITUDE POST (USLS)	460881 Page 1030		$x =$ $y =$	ϕ 46°58'40.82" λ 88°24'53.01"	
COMPUTED BY J. Moler		DATE 12/30/79	COMPUTATION CHECKED BY L. Williams		DATE 12/4/79
LISTED BY J. Moler		DATE 11/30/79	LISTING CHECKED BY L. Williams		DATE 12/3/79
HAND PLOTTING BY J. Moler		DATE 12/17/79	HAND PLOTTING CHECKED BY C. Blood		DATE 12/17/79

DESCRIPTIVE REPORT CONTROL RECORD

MAP NO.		JOB NO.		GEODETTIC DATUM		ORIGINATING ACTIVITY			
TP-00440A		CM-7705		N.A. 1927		Coastal Mapping Unit, AMC			
STATION NAME	SOURCE OF INFORMATION (Index)	AEROTRIANGULATION POINT NUMBER	COORDINATES IN FEET STATE Michigan ZONE North		GEOGRAPHIC POSITION φ LATITUDE λ LONGITUDE		REMARKS		
26 I, (MGS), 1934	470882 Page 1011	39	x=	φ 47°06'41.351"					
			y=	λ 88°29'55.943"					
26 H (MGS), 1934	470883 Page 1023	458100	x=	φ 47°07'09.746"					
			y=	λ 88°31'24.680"					
MCM No. 91, 1939	470883 Page 1003	37	x=	φ 47°06'44.252"					
			y=	λ 88°33'05.530"					
26 D (MGS), 1934	470883 Page 1019		x=	φ 47°06'22.650"					
			y=	λ 88°35'29.403"					
MCM No. 83, 1939	470883 Page 1012	31	x=	φ 47°06'30.09"					
			y=	λ 88°35'43.49"					
26 E (MGS), 1934	470883 Page 1020		x=	φ 47°06'51.466"					
			y=	λ 88°35'18.817"					
HANCOCK QUINCY MINING TOWN TANK, 1939	470883 Page 1010	457420	x=	φ 47°08'25.704"					
			y=	λ 88°34'27.868"					
HANCOCK QUINCY MINE, NO. 6, TALLER STACK, 1939	470883 Page 1009	457403	x=	φ 47°08'23.185"					
			y=	λ 88°34'12.784"					
26 Z (MGS), 1934	470883 Page 1034	27	x=	φ 47°08'22.178"					
			y=	λ 88°33'56.049"					
26 A 1 (MGS), 1934	470883 Page 1015	26	x=	φ 47°08'23.467"					
			y=	λ 88°32'21.408"					
COMPUTED BY J. Moler		92/03/79	COMPUTATION CHECKED BY L. Williams				DATE	12/4/79	
LISTED BY J. Moler		11/30/79	LISTING CHECKED BY L. Williams				DATE	12/3/79	
HAND PLOTTING BY J. Moler		12/17/79	HAND PLOTTING CHECKED BY C. Blood				DATE	12/17/79	

SUPERSEDES NOAA FORM 76-41, 2-71 EDITION WHICH IS OBSOLETE.

DESCRIPTIVE REPORT CONTROL RECORD

MAP NO.	JOB NO.	GEODETIC DATUM	ORIGINATING ACTIVITY		
TP-00440A	CN-7705	N.A. 1927	Coastal Mapping Unit, AMC		
STATION NAME	SOURCE OF INFORMATION (Index)	AEROTRI-ANGULATION POINT NUMBER	COORDINATES IN FEET STATE Michigan ZONE North	GEOGRAPHIC POSITION φ LATITUDE λ LONGITUDE	REMARKS
26 S (MGS), 1934	470883 Page 1033	47	x= y=	φ 47°00'48.883" λ 88°30'28.744"	
26 R (MGS), 1934	470883 Page 1032		x= y=	φ 42°01'01.602" λ 88°30'35.801"	
26 Q (MGS), 1934	470833 Page 1031	46	x= y=	φ 47°01'07.150" λ 88°31'02.271"	
26 P (MGS), 1934	470833 Page 1030	45	x= y=	φ 47°02'14.162" λ 88°31'14.464"	
26 O (MGS), 1934	470883 Page 1029	44	x= y=	φ 47°02'50.153" λ 88°31'05.282"	
26 N (MGS), 1934	470883 Page 1028	459100	x= y=	φ 47°03'20.523" λ 88°31'03.892"	
26 M (MGS), 1934	470883 Page 1027		x= y=	φ 47°03'39.498" λ 88°31'06.292"	
26 L (MGS), 1934	470883 Page 1026	42	x= y=	φ 47°04'06.584" λ 88°31'07.325"	
26 K (MGS), 1934	470883 Page 1025	41	x= y=	φ 47°04'33.767" λ 88°31'03.209"	
26 J (MGS), 1934	470883 Page 1024	40	x= y=	φ 47°05'42.147" λ 88°30'51.543"	
COMPUTED BY J. Moler		DATE 12/03/79	COMPUTATION CHECKED BY L. Williams	DATE 12/4/79	
LISTED BY J. Moler		DATE 11/30/79	LISTING CHECKED BY L. Williams	DATE 12/3/79	
HAND PLOTTING BY J. Moler		DATE 12/17/79	HAND PLOTTING CHECKED BY C. Blood	DATE 12/17/79	

COMPILATION REPORT

TP-00440A

31 - DELINEATION

Delineation was done on the Wild B-8 stereoplotter using 1:20,000 scale and 1:50,000 scale panchromatic photography. The quality was good and coverage adequate except for an area to the north east which prevented completion of compilation to the limit of the manuscript.

32 - CONTROL

Refer to the Photogrammetric Plot Report, dated October 11, 1979.

33 - SUPPLEMENTAL DATA

None.

34 - CONTOURS AND DRAINAGE

Contours are not applicable to the project. Drainage was delineated by the Wild B-8 stereoplotter and by office stereoscopic interpretation of the ratioed photographs.

35 - SHORELINE AND ALONGSHORE DETAILS

Delineation was done on the Wild B-8 stereoplotter and office inspection of the ratioed photographs.

36 - OFFSHORE DETAILS

Delineation was done on the Wild B-8 stereoplotter.

37 - LANDMARKS AND AIDS

Appropriate copies of 76-40's are submitted with this descriptive report.

38 - CONTROL FOR FUTURE SURVEYS

None.

39 - JUNCTIONS

Refer to the Data Record Form 76-36B, item 5 of this Descriptive Report.

TP-00440A

40 - HORIZONTAL AND VERTICAL ACCURACY~~See~~ See Item #32.46 - COMPARISON WITH EXISTING MAPS

A comparison was made with the following U.S.G.S. Michigan quadrangles:
1:24,000 scale, 1975 revised edition - Oskar, Chassell, Laurium, Hancock,
Point Mills, Traverse Island, Muggun Creek; and Keweenaw Bay, 1:62,500 scale.

47 - COMPARISON WITH NAUTICAL CHARTS

A comparison was made with the following NOS Charts: Chart 14972,
20th edition, April 1976 and 21st edition, July 1979.

ITEMS TO BE APPLIED TO NAUTICAL CHARTS IMMEDIATELY

None.

ITEMS TO BE CARRIED FORWARD

None.

Submitted by,

J. C. Moler

J. Jeffery C. Moler
Cartographer
August 19, 1980

Approved:

James L. Byrd, Jr.

James L. Byrd, Jr.
Chief, Coastal Mapping Unit

CM-7705
KEWEENAW WATERWAY
FIELD EDIT REPORT
TP-00440 A

51. METHOD

A visual inspection was made of the shoreline by automobile and on foot. Some areas marked private property were not accessible.

Notes were made on the Master Field Edit Ozalid, photographs 78 YP 4454 and 4455, 78 YP 4458, 78 YP 4488, and thirty-four horizontal pictures taken by the field editor for clarification of the compilation.

52. ADEQUACY OF COMPILATION

The compilation was very good.

53. MAP ACCURACY

The horizontal placement of the compiled detail was very good. No statement about vertical accuracy.

54. RECOMMENDATIONS

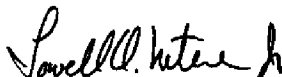
Field experience by the office compiler would be a good aid in photo interpretation.

Photographs taken by the field editor are a good aid for the compiler for field edit application.

55. EXAMINATION

No statement.

Field Editor



Lowell O. Neterer, Jr.

May 26, 1981

REVIEW REPORT
SHORELINE
TP-00440A & TP-00440B

61. GENERAL STATEMENT

See Summary included with this report.

62. COMPARISON WITH REGISTERED TOPOGRAPHIC SURVEYS

Not applicable.

63. COMPARISON WITH MAPS OF OTHER AGENCIES

A comparison was made with U.S. Geological Survey Quadrangles: Muggun Creek, Hancock and Chassell, Michigan, dated 1946, Oskar, Point Mills, and Traverse Island, Michigan, dated 1954 (all six photorevised 1975, all 1:24,000 scale), Keweenaw Bay and Pelkie, Michigan, dated 1954, scale 1:62,500.

64. COMPARISON WITH CONTEMPORARY HYDROGRAPHIC SURVEYS

No contemporary hydrographic survey was conducted within the limits of this map.

65. COMPARISON WITH NAUTICAL CHARTS

A comparison was made with NOS Charts: 14972, 22nd edition, dated April 2, 1983, scale 1:30,000 with an inset of same area covered by this map, Hancock and Houghton, scale 1:10,000; and 14964, 16th edition, dated July 31, 1982, scale 1:120,000.

66. ADEQUACY OF RESULTS AND FUTURE SURVEYS

This map complies with the project instructions and meets the requirements for National Standards of Map Accuracy.

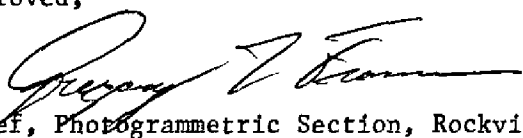
Submitted by,

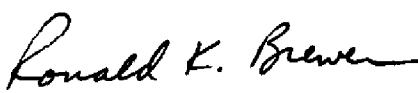
Lowell O. Neterer, Jr.
Lowell O. Neterer, Jr.
Final Reviewer
January 24, 1984

Approved,

Billy H. Barnes
Billy H. Barnes
Chief, Photogrammetric Section, AMC

Approved,


Chief, Photogrammetric Section, Rockville


Chief, Photogrammetry Branch

February 6, 1984

GEOGRAPHIC NAMES
FINAL NAME SHEET
PH-7705 (Keweenaw Waterway, Michigan)
TP-00440

Atlantic Point
Bear Lake
Big Creek
Boston Creek
Chassell
Cole Creek
Dollar Bay
Dollar Bay (locality)
Dover Creek
Dreamland
Dubuque Creek
Franklin Mine (locality)
Gooseneck Creek
Gregoryville
Grosse Point
Hammell Creek
Hancock
Harrington Island
High Point
Houghton
Hubbell
Huron Creek
Hurontown
Jacobsville
Keweenaw Bay
Keweenaw Peninsula
Keweenaw Waterway (title)
Lake Linden (locality)
Lake Superior
Lily Creek
Lovell Creek
McCallum Creek
Mason

Mill Point
Old Channel
Oskar
Pewabic
Pike Bay
Pike River
Pilgrim
Pilgrim Point
Pilgrim River
Point Mills (locality)
Portage Entry
Portage Lake
Portage Lake Ship Canal
Portage River
Quincy Creek
Quincy Mill
Ripley
Sawmill Creek
Schlot Creek
Schmidt Corner
Senter
Silver Creek
Snake River
Soo Line (RR)
Spring Creek
Stone Quarry Lake
Sturgeon River
Swedetown Creek
Torch Bay
Torch Lake
Torch Lake Canal
Trap Rock River
Ureux Point

Approved by:

Charles E. Harrington

Charles E. Harrington
Chief Geographer
Nautical Charting Division

DISSEMINATION OF PROJECT MATERIAL

CM-7705

NATIONAL ARCHIVES/FEDERAL RECORDS CENTER

JOB COMPLETION REPORT

Box:

NOAA Forms 76-40's
76-41's
Computer Readouts
5 Field Editor Reports
1 Envelope 76-40's Field Copies
Field Notebooks 76-52
76-109
2 Bound Notebooks containing Field Data
1 Bound Notebook containing Forms 76-109
Field Identified Contact Photos
Field Data
1 U.P. Generating Co. Plan
1 Project Diagram (TP-00442)
1 Envelope with Control Photos
1 Project Diagram

BUREAU ARCHIVES

Registered Copy of Each Map
Descriptive Report of Each Map

REPRODUCTION DIVISION

8x Reduction Negative of Each Map

OFFICE OF STAFF GEOGRAPHER

Geographic Names Standard

RESPONSIBLE PERSONNEL	
TYPE OF ACTION	NAME
OBJECTS INSPECTED FROM SEAWARD	Lowell O. Neterer, Jr.
POSITIONS DETERMINED AND/OR VERIFIED	Lowell O. Neterer, Jr.
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES	Irene Perkinson
INSTRUCTIONS FOR ENTRIES UNDER 'METHOD AND DATE OF LOCATION'	
(Consult Photogrammetric Instructions No. 64.)	
OFFICE I. OFFICE IDENTIFIED AND LOCATED OBJECTS Enter the number and date (including month, day, and year) of the photograph used to identify and locate the object. EXAMPLE: 75E(C)6042 8-12-75	FIELD (Cont'd) B. Photogrammetric field positions** require entry of method of location or verification, date of field work and number of the photograph used to locate or identify the object. EXAMPLE: P-8-V 8-12-75 74L(C)2982
FIELD I. NEW POSITION DETERMINED OR VERIFIED Enter the applicable data by symbols as follows: F - Field L - Located V - Verified 1 - Triangulation 2 - Traverse 3 - Intersection 4 - Resection 5 - Field Identified 6 - Theodolite 7 - Planetable 8 - Sextant A. Field positions* require entry of method of location and date of field work. EXAMPLE: F-2-6-L 8-12-75	II. TRIANGULATION STATION RECOVERED When a landmark or aid which is also a triangulation station is recovered, enter 'Triang. Rec.' with date of recovery. EXAMPLE: Triang. Rec. 8-12-75 III. POSITION VERIFIED VISUALLY ON PHOTOGRAPH Enter 'V-Vis.' and date. EXAMPLE: V-Vis. 8-12-75
**FIELD POSITIONS are determined by field observations based entirely upon ground survey methods. **PHOTOGRAMMETRIC FIELD POSITIONS are dependent entirely, or in part, upon control established by photogrammetric methods.	

RESPONSIBLE PERSONNEL	
TYPE OF ACTION	NAME
OBJECTS INSPECTED FROM SEAWARD	Lowell O. Neterer, Jr.
POSITIONS DETERMINED AND/OR VERIFIED	Lowell O. Neterer, Jr.
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES	Irene Parkinson
INSTRUCTIONS FOR ENTRIES UNDER 'METHOD AND DATE OF LOCATION'	
(Consult Photogrammetric Instructions No. 64)	
OFFICE I. OFFICE IDENTIFIED AND LOCATED OBJECTS Enter the number and date (including month, day, and year) of the photograph used to identify and locate the object. EXAMPLE: 75E(C)6042 8-12-75	FIELD (Cont'd) B. Photogrammetric field positions** require entry of method of location or verification, date of field work and number of the photograph used to locate or identify the object. EXAMPLE: P-8-V 8-12-75 74L(C)2982
FIELD I. NEW POSITION DETERMINED OR VERIFIED Enter the applicable data by symbols as follows: F - Field P - Photogrammetric L - Located V - Verified 1 - Triangulation 2 - Traverse 3 - Intersection 4 - Resection 5 - Field identified 6 - Theodolite 7 - Planetable 8 - Sextant A. Field positions* require entry of method of location and date of field work. EXAMPLE: F-2-6-L 8-12-75	III. POSITION VERIFIED VISUALLY ON PHOTOGRAPH Enter 'V-Vis.' and date. EXAMPLE: V-Vis. 8-12-75 **PHOTOGRAMMETRIC FIELD POSITIONS are dependent entirely, or in part, upon control established by photogrammetric methods.
*FIELD POSITIONS are determined by field observations based entirely upon ground survey methods.	

NOAA FORM 76-40 (6-74) Replaces C&GS Form 567.				U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION				ORIGINATING ACTIVITY			
<input checked="" type="checkbox"/> TO BE CHARTED <input type="checkbox"/> TO BE REVISED <input type="checkbox"/> TO BE DELETED				REPORTING UNIT (Field Party, Ship or Office) Coastal Mapping Unit AMC, Norfolk, VA		STATE Michigan		LOCALITY Keweenaw Waterway		DATE Aug. 1982	
The following objects HAVE <input type="checkbox"/> HAVE NOT <input checked="" type="checkbox"/> been inspected from seaward to determine their value as landmarks. *				JOB NUMBER CM-7705		SURVEY NUMBER TP-00440A		DATUM N.A. 1927		METHOD AND DATE OF LOCATION (See instructions on reverse side)	
CHARTING NAME	DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses.)	LATITUDE		LONGITUDE		OFFICE	FIELD	CHARTS AFFECTED			
		° / ' " D.M. Meters	° / ' " D.P. Meters	° / ' " D.M. Meters	° / ' " D.P. Meters						
* STACK	Southwest one of two	47 10	36.43	88 25	23.00	78 Y(P) 4493 6-18-78	V-Vis. 5-25-81	14972			
* CROSS		47 10	26.52	88 25	46.34	"	"	"			
* STACK		47 10	04.50	88 26	08.49	78 Y(P) 4492 6-18-78	"	"			
* STACK		47 08	47.67	88 27	30.70	"	"	"			
* STACK			1472		647	Not Visible on compilation photographs	"	"			
* R RELAY MAST	2 Vertical Lts. Occ R FR (Obstr. Lts.)	47 08	27.64	88 32	27.59	78 Y(P) 4457 6-18-78	"	"			
* R MAST	R BN 312 KHz also listed as aid	47 13	38.47	88 37	29.09	78 Y(P) 4454 6-18-78	"	"			
* R MAST	At Coast Guard Base	47 13	31.90	88 37	24.62	78 Y(P) 4454 6-18-78	"	"			
* STACK	Southwest one of two	47 08	21.80	88 34	15.02	78 Y(P) 4457 6-18-78	"	"			
* STACK	(Hancock Quiney Mine No. 6, Taller Stack, 1939)	47 08	23.185	88 34	12.784	"	"	"			

RESPONSIBLE PERSONNEL	
TYPE OF ACTION	NAME
OBJECTS INSPECTED FROM SEAWARD	Lowell O. Neterer, Jr.
POSITIONS DETERMINED AND/OR VERIFIED	Lowell O. Neterer, Jr.
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES	Irene Perkinson
INSTRUCTIONS FOR ENTRIES UNDER 'METHOD AND DATE OF LOCATION'	
(Consult Photogrammetric Instructions No. 64.)	
OFFICE I. OFFICE IDENTIFIED AND LOCATED OBJECTS Enter the number and date (including month, day, and year) of the photograph used to identify and locate the object. EXAMPLE: 75E(C)6042 8-12-75 FIELD I. NEW POSITION DETERMINED OR VERIFIED Enter the applicable data by symbols as follows: F - Field P - Photogrammetric L - Located Vis - Visually V - Verified 1 - Triangulation 5 - Field identified 2 - Traverse 6 - Theodolite 3 - Intersection 7 - Planetable 4 - Resection 8 - Sextant A. Field positions* require entry of method of location and date of field work. EXAMPLE: F-2-6-L 8-12-75 *FIELD POSITIONS are determined by field observations based entirely upon ground survey methods.	FIELD (Cont'd) B. Photogrammetric field positions** require entry of method of location or verification, date of field work and number of the photograph used to locate or identify the object. EXAMPLE: P-8-V 8-12-75 74L(C)2982 III. TRIANGULATION STATION RECOVERED When a landmark or aid which is also a triangulation station is recovered, enter 'Triang. Rec.' with date of recovery. EXAMPLE: Triang. Rec. 8-12-75 III. POSITION VERIFIED VISUALLY ON PHOTOGRAPH Enter 'V-Vis.' and date. EXAMPLE: V-Vis. 8-12-75 **PHOTOGRAMMETRIC FIELD POSITIONS are dependent entirely, or in part, upon control established by photogrammetric methods.

[illegible]

RESPONSIBLE PERSONNEL	
TYPE OF ACTION	NAME
OBJECTS INSPECTED FROM SEAWARD	Lowell O. Neterer, Jr.
POSITIONS DETERMINED AND/OR VERIFIED	Lowell O. Neterer, Jr.
	Irene Perkinson
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES	<input checked="" type="checkbox"/> PHOTO FIELD PARTY <input type="checkbox"/> HYDROGRAPHIC PARTY <input type="checkbox"/> GEODETIC PARTY <input type="checkbox"/> OTHER (Specify)
INSTRUCTIONS FOR ENTRIES UNDER METHOD AND DATE OF LOCATION: (Consult Photogrammetric Instructions No. 64.)	
OFFICE I. OFFICE IDENTIFIED AND LOCATED OBJECTS Enter the number and date (including month, day, and year) of the photograph used to identify and locate the object. EXAMPLE: 75E(C)6042 8-12-75	FIELD (Cont'd) B. Photogrammetric field positions** require entry of method of location or verification, date of field work and number of the photograph used to locate or identify the object. EXAMPLE: P-8-V 8-12-75 74L(C)2982
FIELD I. NEW POSITION DETERMINED OR VERIFIED Enter the applicable data by symbols as follows: F - Field L - Located V - Verified 1 - Triangulation 2 - Traverse 3 - Intersection 4 - Resection 5 - Field identified 6 - Theodolite 7 - Planetable 8 - Sextant A. Field positions* require entry of method of location and date of field work. EXAMPLE: F-2-6-L 8-12-75	II. TRIANGULATION STATION RECOVERED When a landmark or aid which is also a triangulation station is recovered, enter 'Triang. Rec.' with date of recovery. EXAMPLE: Triang. Rec. 8-12-75 III. POSITION VERIFIED VISUALLY ON PHOTOGRAPH Enter 'V-Vis.' and date. EXAMPLE: V-Vis. 8-12-75 **PHOTOGRAMMETRIC FIELD POSITIONS are dependent entirely, or in part, upon control established by photogrammetric methods.
*FIELD POSITIONS are determined by field observations based entirely upon ground survey methods.	

NOAA FORM 76-40 (8-74) Replaces C&GS Form 567.										U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION															
NONFLOATING AIDS OR LANDMARKS FOR CHARTS										ORIGINATING ACTIVITY															
REPORTING UNIT (Field Party, Ship or Office) Coastal Mapping Unit, AMC, Norfolk, VA					STATE Michigan					LOCALITY Keweenaw Waterway					DATE July 1982										
The following objects HAVE <input type="checkbox"/> HAVE NOT <input checked="" type="checkbox"/> been inspected from seaward to determine their value as landmarks. *					SURVEY NUMBER TP-00440A					DUTY N.A. 1927					METHOD AND DATE OF LOCATION (See instructions on reverse side)										
CHARTING NAME					DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses)					LATITUDE					LONGITUDE										
										° / ' " D.M. Meters					° / ' " D.P. Meters										
* LIGHT	Keweenaw Waterway Lower Entrance Light, R.BN. 296, KHz (Keweenaw Waterway Lighthouse, 1939)					46 58 07.985 247					88 25 51.561 1090					78 Y(P) 4488 6-18-78 V-Vis. 5-25-81					14971 14972				
* LIGHT	Keweenaw Waterway Light 5					46 58 55.15 1703					88 26 08.32 176					" " " "					"				
* DAY BEACON	Keweenaw Waterway Daybeacon 7					46 59 1.26 39					88 26 10.36 219					P-Vis.-V 5-25-81 78 Y(P) 4488					"				
* DAY BEACON	Keweenaw Waterway Daybeacon 9					46 59 20.08 620					88 26 11.36 240					P-Vis.-V 5-25-81 78 Y(P) 4489					14972				
* LIGHT	Keweenaw Waterway Light 10					46 59 21.67 669					88 26 02.25 47					78 Y(P) 4488 6-18-78 V-Vis. 5-25-81					"				
* LIGHT	Keweenaw Waterway Light 11					46 59 24.21 748					88 26 09.08 192					" " " "					"				
* LIGHT	Keweenaw Waterway Light 13					46 59 31.92 986					88 26 09.45 200					" " " "					"				
* LIGHT	Keweenaw Waterway South Range Front Light					46 59 36.75 1135					88 26 03.00 63					78 Y(P) 4488 6-18-78					"				
* LIGHT	Keweenaw Waterway South Range Rear Light					46 59 24.84 767					88 25 46.31 979					" " " "					"				
Lights were visually verified from the banks of Keweenaw Waterway. Fieldman traveled by car, as no boat was available.																									

RESPONSIBLE PERSONNEL		ORIGINATOR	
TYPE OF ACTION	NAME		
OBJECTS INSPECTED FROM SEAWARD	Lowell O. Neterer, Jr.	<input checked="" type="checkbox"/> PHOTO FIELD PARTY	<input type="checkbox"/> HYDROGRAPHIC PARTY
	Lowell O. Neterer, Jr.	<input type="checkbox"/> GEODETIC PARTY	<input type="checkbox"/> OTHER (Specify)
POSITIONS DETERMINED AND/OR VERIFIED	Irene Perkinson	FIELD ACTIVITY REPRESENTATIVE	
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES		<input type="checkbox"/> REVIEWER	<input type="checkbox"/> QUALITY CONTROL AND REVIEW GROUP REPRESENTATIVE
INSTRUCTIONS FOR ENTRIES UNDER 'METHOD AND DATE OF LOCATION'			
(Consult Photogrammetric Instructions No. 64.)			
OFFICE I. OFFICE IDENTIFIED AND LOCATED OBJECTS Enter the number and date (including month, day, and year) of the photograph used to identify and locate the object. EXAMPLE: 75E(C)6042 8-12-75		FIELD (Cont'd) B. Photogrammetric field positions** require entry of method of location or verification, date of field work and number of the photograph used to locate or identify the object. EXAMPLE: P-8-V 8-12-75 74L(C)2982	
FIELD I. NEW POSITION DETERMINED OR VERIFIED Enter the applicable data by symbols as follows: F - field P - Photogrammetric L - Located Vis - Visually V - Verified 1 - Triangulation 5 - Field identified 2 - Traverse 6 - Theodolite 3 - Intersection 7 - Planetable 4 - Resection 8 - Sextant A. Field positions* require entry of method of location and date of field work. EXAMPLE: F-2-6-L 8-12-75		III. POSITION VERIFIED VISUALLY ON PHOTOGRAPH Enter 'V-Vis.' and date. EXAMPLE: V-Vis. 8-12-75 **PHOTOGRAMMETRIC FIELD POSITIONS are dependent entirely, or in part, upon control established by photogrammetric methods.	
*FIELD POSITIONS are determined by field observations based entirely upon ground survey methods.			

NOAA FORM 76-40 (8-74) Replaces C&GS Form 567.				U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION				NONFLOATING AIDS TO NAVIGATION FOR CHARTS				ORIGINATING ACTIVITY			
<input checked="" type="checkbox"/> TO BE CHARTED <input type="checkbox"/> TO BE REVISED <input type="checkbox"/> TO BE DELETED		REPORTING UNIT (Field Party, Ship or Office)	STATE	LOCALITY	DATE	<input type="checkbox"/> HYDROGRAPHIC PARTY <input type="checkbox"/> GEODETIC PARTY <input type="checkbox"/> PHOTO FIELD PARTY <input checked="" type="checkbox"/> COMPILATION ACTIVITY <input type="checkbox"/> FINAL REVIEWER <input type="checkbox"/> QUALITY CONTROL & REVIEW GRP. <input type="checkbox"/> COAST PILOT BRANCH									
		Coastal Mapping Unit, ANC, Norfolk, VA	Michigan	Keweenaw Waterway	July 1982										
The following objects HAVE <input type="checkbox"/> HAVE NOT <input checked="" type="checkbox"/> been inspected from seaward to determine their value as landmarks.		JOB NUMBER		DATUM		* (See reverse for responsible personnel)									
OPR PROJECT NO.		CM-7705	TP-00440A	N.A. 1927											
CHARTING NAME	DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses.)	POSITION		LONGITUDE	METHOD AND DATE OF LOCATION (See instructions on reverse side)	CHARTS AFFECTED									
		LATITUDE	D.P. Meters												
* LIGHT	Keweenaw Waterway Light 15	46 59	43.62	26 16.67	78 Y(P) 4488 6-18-78	14972									
* LIGHT	Keweenaw Waterway Light 17	47 00	7.88	26 50.63	"	"									
* LIGHT	Keweenaw Waterway Light 16	47 00	10.61	26 46.46	"	"									
* LIGHT	Keweenaw Waterway Light 19	47 00	41.06	27 37.17	"	"									
* LIGHT	Keweenaw Waterway Light 18	47 00	43.80	27 33.01	"	"									
* LIGHT	Keweenaw Waterway Light 20	47 01	13.89	28 15.24	"	"									
* LIGHT	Princess Point Range Front Light	47 01	17.79	28 28.84	"	"									
* LIGHT	Princess Point Range Rear Light	47 01	06.93	28 24.50	"	"									
* LIGHT	Keweenaw Waterway Light 22	47 01	35.03	28 32.80	"	"									
* LIGHT	Keweenaw Waterway Light 25	47 01	50.43	28 45.48	"	"									

RESPONSIBLE PERSONNEL	
TYPE OF ACTION	NAME
OBJECTS INSPECTED FROM SEAWARD	Lowell O. Neterer, Jr.
POSITIONS DETERMINED AND/OR VERIFIED	Lowell O. Neterer, Jr.
	Irene Perkinson
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES	<input type="checkbox"/> PHOTO FIELD PARTY <input type="checkbox"/> HYDROGRAPHIC PARTY <input type="checkbox"/> GEODETIC PARTY <input type="checkbox"/> OTHER (Specify)
INSTRUCTIONS FOR ENTRIES UNDER 'METHOD AND DATE OF LOCATION'	
<p>OFFICE</p> <p>I. OFFICE IDENTIFIED AND LOCATED OBJECTS</p> <p>Enter the number and date (including month, day, and year) of the photograph used to identify and locate the object.</p> <p>EXAMPLE: 75E(C)6042 8-12-75</p> <p>FIELD</p> <p>I. NEW POSITION DETERMINED OR VERIFIED</p> <p>Enter the applicable data by symbols as follows:</p> <p>F - Field P - Photogrammetric</p> <p>L - Located Vis - Visually</p> <p>V - Verified</p> <p>1 - Triangulation 5 - Field identified</p> <p>2 - Traverse 6 - Theodolite</p> <p>3 - Intersection 7 - Planetable</p> <p>4 - Resection 8 - Sextant</p> <p>A. Field positions* require entry of method of location and date of field work.</p> <p>EXAMPLE: F-2-6-L 8-12-75</p> <p>*FIELD POSITIONS are determined by field observations based entirely upon ground survey methods.</p>	
<p>FIELD (Cont'd)</p> <p>B. Photogrammetric field positions** require entry of method of location or verification, date of field work and number of the photograph used to locate or identify the object.</p> <p>EXAMPLE: P-8-V 8-12-75 74L(C)2982</p> <p>III. TRIANGULATION STATION RECOVERED</p> <p>When a landmark or aid which is also a triangulation station is recovered, enter 'Triang. Rec.' with date of recovery.</p> <p>EXAMPLE: Triang. Rec. 8-12-75</p> <p>III. POSITION VERIFIED VISUALLY ON PHOTOGRAPH</p> <p>Enter 'V-Vis.' and date.</p> <p>EXAMPLE: V-Vis. 8-12-75</p> <p>**PHOTOGRAMMETRIC FIELD POSITIONS are dependent entirely, or in part, upon control established by photogrammetric methods.</p>	

NOAA FORM 76-40 (8-74)										U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION										ORIGINATING ACTIVITY																																							
NONFLOATING AIDS TO NAVIGATION FOR CHARTS																																																											
Replaces C&GS Form 567.																																																											
REPORTING UNIT (Field Party, Ship or Office) Coastal Mapping Unit, AMC, Norfolk, VA										STATE Michigan										LOCALITY Keweenaw Waterway										DATE July 1982																													
TO BE CHARTED TO BE REVISED TO BE DELETED										HAVE <input type="checkbox"/> HAVE NOT <input checked="" type="checkbox"/>										been inspected from seaward to determine their value as landmarks.																																							
OPR PROJECT NO.										JOB NUMBER CM-7705										SURVEY NUMBER TP-00440A										DATUM N.A. 1927																													
CHARTING NAME										DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses)										LATITUDE ° / ' " D.M. Meters										LONGITUDE ° / ' " D.P. Meters										METHOD AND DATE OF LOCATION (See instructions on reverse side)										CHARTS AFFECTED									
* LIGHT										Pilgrim Point Light										06 47 24.00 88 30 26.32 555										78 Y(P) 4459 6-18-78										V-Vis. 5-25-81										14972									
* LIGHT										Cole Creek Light										07 47 45.27 88 37 19.21 405										78 Y(P) 4456 6-18-78										No comment from field edit 5-25-81										"									
* LIGHT										Harrington Island Light										09 47 30.51 88 38 04.31 90										78 Y(P) 4457 6-18-78										V-Vis. 5-25-81										"									
* LIGHT										Rouleau Point Range Front Light										11 47 33.52 88 37 07.39 156										78 Y(P) 4456 6-18-78										"										"									
* LIGHT										Rouleau Point Range Rear Light										11 47 44.10 88 36 57.10 1202										78 Y(P) 4454 5-25-81										V-Vis. 78 Y(P) 4454 5-25-81										"									
* LIGHT										Lily Pond Leading Light										12 47 0.87 88 37 04.99 105										78 Y(P) 4455 6-18-78										Coast Guard verified in place 5-25-81										"									
* LIGHT										Lily Pond South Light 68										12 47 30.21 88 37 05.65 119										78 Y(P) 4455 6-18-78										V-Vis. 5-25-81										"									
* LIGHT										Lily Pond North Light 70										13 47 00.96 88 37 8.73 184										78 Y(P) 4456 6-18-78										Coast Guard verified in place 5-25-81										"									
* LIGHT										Keweenaw Upper Entrance Light										14 47 04.32 88 37 49.21 1035										78 Y(P) 4455 6-18-78										V-Vis. 5-25-81										"									

TYPE OF ACTION		RESPONSIBLE PERSONNEL	
		NAME	ORIGINATOR
OBJECTS INSPECTED FROM SEAWARD		Lowell O. Neterer, Jr.	<input checked="" type="checkbox"/> PHOTO FIELD PARTY <input type="checkbox"/> HYDROGRAPHIC PARTY <input type="checkbox"/> GEODETIC PARTY <input type="checkbox"/> OTHER (Specify)
POSITIONS DETERMINED AND/OR VERIFIED		Lowell O. Neterer, Jr.	FIELD ACTIVITY REPRESENTATIVE
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES		Irene Perkinson	OFFICE ACTIVITY REPRESENTATIVE
INSTRUCTIONS FOR ENTRIES UNDER 'METHOD AND DATE OF LOCATION'			
(Consult Photogrammetric Instructions No. 64.)			
OFFICE I. OFFICE IDENTIFIED AND LOCATED OBJECTS Enter the number and date (including month, day, and year) of the photograph used to identify and locate the object. EXAMPLE: 75E(C)6042 8-12-75		FIELD (Cont'd) B. Photogrammetric field positions** require entry of method of location or verification, date of field work and number of the photograph used to locate or identify the object. EXAMPLE: P-8-V 8-12-75 74L(C)2982	
FIELD I. NEW POSITION DETERMINED OR VERIFIED Enter the applicable data by symbols as follows: F - Field L - Located V - Verified 1 - Triangulation 2 - Traverse 3 - Intersection 4 - Resection 5 - Field identified 6 - Theodolite 7 - Planetable 8 - Sextant A. Field positions* require entry of method of location and date of field work. EXAMPLE: F-2-6-L 8-12-75		III. POSITION VERIFIED VISUALLY ON PHOTOGRAPH Enter 'V-Vis.' and date. EXAMPLE: V-Vis. 8-12-75 **PHOTOGRAMMETRIC FIELD POSITIONS are dependent entirely, or in part, upon control established by photogrammetric methods.	
*FIELD POSITIONS are determined by field observations based entirely upon ground survey methods.			

RESPONSIBLE PERSONNEL	
TYPE OF ACTION	NAME
OBJECTS INSPECTED FROM SEAWARD	Lowell O. Neterer, Jr.
POSITIONS DETERMINED AND/OR VERIFIED	Lowell O. Neterer, Jr.
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES	Irene Parkinson
INSTRUCTIONS FOR ENTRIES UNDER 'METHOD AND DATE OF LOCATION'	
(Consult Photogrammetric Instructions No. 64.)	
OFFICE 1. OFFICE IDENTIFIED AND LOCATED OBJECTS Enter the number and date (including month, day, and year) of the photograph used to identify and locate the object. EXAMPLE: 75E(C)6042 8-12-75	FIELD (Cont'd) 8. Photogrammetric field positions** require entry of method of location or verification, date of field work and number of the photograph used to locate or identify the object. EXAMPLE: P-8-V 8-12-75 74L(C)2982
FIELD I. NEW POSITION DETERMINED OR VERIFIED Enter the applicable data by symbols as follows: F - Field L - Located V - Verified 1 - Triangulation 2 - Traverse 3 - Intersection 4 - Resection P - Photogrammetric Vis - Visually 5 - Field identified 6 - Theodolite 7 - Planetable 8 - Sextant A. Field positions* require entry of method of location and date of field work. EXAMPLE: F-2-6-L 8-12-75	II. TRIANGULATION STATION RECOVERED When a landmark or aid which is also a triangulation station is recovered, enter 'Triang. Rec.' with date of recovery. EXAMPLE: Triang. Rec. 8-12-75 III. POSITION VERIFIED VISUALLY ON PHOTOGRAPH Enter 'V-Vis.' and date. EXAMPLE: V-Vis. 8-12-75
**PHOTOGRAMMETRIC FIELD POSITIONS are dependent entirely, or in part, upon control established by photogrammetric methods.	
*FIELD POSITIONS are determined by field observations based entirely upon ground survey methods.	

NOAA FORM 76-36A (3-72)		U. S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMIN.		TYPE OF SURVEY		SURVEY TP. 00440B	
DESCRIPTIVE REPORT - DATA RECORD				<input checked="" type="checkbox"/> ORIGINAL		MAP EDITION NO. (1)	
				<input type="checkbox"/> RESURVEY		MAP CLASS III FINAL	
				<input type="checkbox"/> REVISED		JOB PH CM-7705	
PHOTOGRAMMETRIC OFFICE				LAST PRECEDING MAP EDITION			
Coastal Mapping Unit, Norfolk, VA				TYPE OF SURVEY		JOB PH.	
OFFICER-IN-CHARGE				<input type="checkbox"/> ORIGINAL		MAP CLASS	
A. Y. Bryson				<input type="checkbox"/> RESURVEY		SURVEY DATES:	
				<input type="checkbox"/> REVISED		19__ TO 19__	
I. INSTRUCTIONS DATED							
1. OFFICE				2. FIELD			
Aerotriangulation August 28, 1978				Photography March 30, 1977			
Compilation January 18, 1979				Control April 11, 1977			
Change No. 2 November 11, 1979				Change No. 1 June 16, 1978			
II. DATUMS							
1. HORIZONTAL: <input checked="" type="checkbox"/> 1927 NORTH AMERICAN				OTHER (Specify)			
2. VERTICAL: <input type="checkbox"/> MEAN HIGH-WATER <input type="checkbox"/> MEAN LOW-WATER <input type="checkbox"/> MEAN LOWER LOW-WATER <input type="checkbox"/> MEAN SEA LEVEL				OTHER (Specify) International Great Lakes Datum, (1955). Lake Superior Low Water Datum.			
3. MAP PROJECTION				4. GRID(S)			
Lambert Conformal Conic				STATE Michigan		ZONE North	
5. SCALE 1:10,000				STATE		ZONE	
III. HISTORY OF OFFICE OPERATIONS							
OPERATIONS				NAME		DATE	
1. AEROTRIANGULATION BY				B. Thornton		Oct. 1979	
METHOD: Analytic LANDMARKS AND AIDS BY				D. Norman		Oct. 1979	
2. CONTROL AND BRIDGE POINTS PLOTTED BY				B. Thornton		Oct. 1979	
METHOD: Coradomat CHECKED BY				D. Norman		Oct. 1979	
3. STEREOSCOPIC INSTRUMENT PLANIMETRY BY				D. Butler		Jan. 1980	
COMPILATION CHECKED BY				L. Neterer, Jr.		Jan. 1980	
INSTRUMENT: Wild B-8				CONTOURS BY		N.A.	
SCALE: 1:10,000				CHECKED BY		N.A.	
4. MANUSCRIPT DELINEATION PLANIMETRY BY				D. Butler		Jan. 1980	
CHECKED BY				L. O. Neterer, Jr.		March 1981	
METHOD: Smooth drafted				CONTOURS BY		N.A.	
CHECKED BY				N.A.			
SCALE: 1:10,000 HYDRO SUPPORT DATA BY				D. Butler		Jan. 1980	
CHECKED BY				L. O. Neterer, Jr.		March 1981	
5. OFFICE INSPECTION PRIOR TO FIELD EDIT BY				L. O. Neterer, Jr.		March 1981	
6. APPLICATION OF FIELD EDIT DATA BY				M. Mozgala		August 1982	
CHECKED BY				I. Perkinson		Sept. 1982	
7. COMPILATION SECTION REVIEW BY				I. Perkinson		Sept. 1982	
8. FINAL REVIEW CLASS III BY				L. O. Neterer, Jr.		Jan. 1984	
9. DATA FORWARDED TO PHOTOGRAMMETRIC BRANCH BY				L. O. Neterer, Jr.		Jan. 1984	
10. DATA EXAMINED IN PHOTOGRAMMETRIC BRANCH BY				P. Hawkins		Aug. 1984	
11. MAP REGISTERED - COASTAL SURVEY SECTION BY							

TP-00440B
COMPILATION SOURCES

1. COMPILATION PHOTOGRAPHY

CAMERA(S) Wild RC 8 "E" (152.71mm)		TYPES OF PHOTOGRAPHY LEGEND (C) COLOR (P) PANCHROMATIC (I) INFRARED		TIME REFERENCE ZONE Central MERIDIAN 90th	
TIDE STAGE REFERENCE <input type="checkbox"/> PREDICTED TIDES N.A. <input type="checkbox"/> REFERENCE STATION RECORDS N.A. <input type="checkbox"/> TIDE CONTROLLED PHOTOGRAPHY N.A.				<input checked="" type="checkbox"/> STANDARD <input type="checkbox"/> DAYLIGHT	
NUMBER AND TYPE	DATE	TIME	SCALE	STAGE OF TIDE	
77 E(P) 693 - 696	May 25, 1977	15:18	1:20,000	N.A.	

REMARKS Lake level at time of photography was 600.17 ft., Lake Superior low water datum, Marquette gage.

2. SOURCE OF MEAN HIGH-WATER LINE:

Mean high water line is not applicable. The "shoreline" was delineated from the above listed photographs, and is defined as that line visible on the photographs which marks the contact between land and water.

3. SOURCE OF MEAN LOW-WATER OR MEAN LOWER LOW-WATER LINE:

Not applicable.

4. CONTEMPORARY HYDROGRAPHIC SURVEYS (List only those surveys that are sources for photogrammetric survey information.)

SURVEY NUMBER	DATE(S)	SURVEY COPY USED	SURVEY NUMBER	DATE(S)	SURVEY COPY USED

5. FINAL JUNCTIONS

NORTH	EAST	SOUTH	WEST

REMARKS

This inset lies within the central area of TP-00440A and junctions on all four sides with TP-00440A.

TP-00440B
HISTORY OF FIELD OPERATIONSI. ☒ FIELD INSPECTION OPERATION (PHOTO I.D.) ☐ FIELD EDIT OPERATION

OPERATION	NAME	DATE
1. CHIEF OF FIELD PARTY	R. Tibbetts	July 1978
2. HORIZONTAL CONTROL	RECOVERED BY	None
	ESTABLISHED BY	None
	PRE-MARKED OR IDENTIFIED BY	None
3. VERTICAL CONTROL	RECOVERED BY	None
	ESTABLISHED BY	None
	PRE-MARKED OR IDENTIFIED BY	None
4. LANDMARKS AND AIDS TO NAVIGATION	RECOVERED (Triangulation Stations) BY	None
	LOCATED (Field Methods) BY	None
	IDENTIFIED BY	None
5. GEOGRAPHIC NAMES INVESTIGATION	TYPE OF INVESTIGATION <input type="checkbox"/> COMPLETE <input type="checkbox"/> SPECIFIC NAMES ONLY <input checked="" type="checkbox"/> NO INVESTIGATION	
6. PHOTO INSPECTION	CLARIFICATION OF DETAILS BY	None
7. BOUNDARIES AND LIMITS	SURVEYED OR IDENTIFIED BY	N.A.

II. SOURCE DATA

1. HORIZONTAL CONTROL IDENTIFIED		2. VERTICAL CONTROL IDENTIFIED	
None		None	
PHOTO NUMBER	STATION NAME	PHOTO NUMBER	STATION DESIGNATION
3. PHOTO NUMBERS (Clarification of details)			
None			
4. LANDMARKS AND AIDS TO NAVIGATION IDENTIFIED			
None			
PHOTO NUMBER	OBJECT NAME	PHOTO NUMBER	OBJECT NAME
5. GEOGRAPHIC NAMES: <input type="checkbox"/> REPORT <input checked="" type="checkbox"/> NONE		6. BOUNDARY AND LIMITS: <input type="checkbox"/> REPORT <input checked="" type="checkbox"/> NONE	
7. SUPPLEMENTAL MAPS AND PLANS			
None			
8. OTHER FIELD RECORDS (Sketch books, etc. DO NOT list data submitted to the Geodesy Division)			
None			

NOAA FORM 76-36C
(3-72)U. S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SURVEYTP-00440B
HISTORY OF FIELD OPERATIONSI. ☐ FIELD INSPECTION OPERATION ☒ FIELD EDIT OPERATION (Partial)

OPERATION	NAME	DATE
1. CHIEF OF FIELD PARTY	L. O. Neterer, Jr.	May 1981
2. HORIZONTAL CONTROL	RECOVERED BY ESTABLISHED BY PRE-MARKED OR IDENTIFIED BY	None
3. VERTICAL CONTROL	RECOVERED BY ESTABLISHED BY PRE-MARKED OR IDENTIFIED BY	N.A.
4. LANDMARKS AND AIDS TO NAVIGATION	RECOVERED (Triangulation Stations) BY LOCATED (Field Methods) BY IDENTIFIED BY	None None
5. GEOGRAPHIC NAMES INVESTIGATION	TYPE OF INVESTIGATION <input type="checkbox"/> COMPLETE <input type="checkbox"/> SPECIFIC NAMES ONLY <input checked="" type="checkbox"/> NO INVESTIGATION	BY
6. PHOTO INSPECTION	CLARIFICATION OF DETAILS BY	L. O. Neterer, Jr.
7. BOUNDARIES AND LIMITS	SURVEYED OR IDENTIFIED BY	N.A.

II. SOURCE DATA

1. HORIZONTAL CONTROL IDENTIFIED
None

2. VERTICAL CONTROL IDENTIFIED

PHOTO NUMBER	STATION NAME	PHOTO NUMBER	STATION DESIGNATION

3. PHOTO NUMBERS (Clarification of details)

77E (P) 694 thru 696

4. LANDMARKS AND AIDS TO NAVIGATION IDENTIFIED

PHOTO NUMBER	OBJECT NAME	PHOTO NUMBER	OBJECT NAME

5. GEOGRAPHIC NAMES: ☐ REPORT ☐ NONE6. BOUNDARY AND LIMITS: ☐ REPORT ☐ NONE

7. SUPPLEMENTAL MAPS AND PLANS

8. OTHER FIELD RECORDS (Sketch books, etc. DO NOT list data submitted to the Geodesy Division)

1 Master Field Ozalid
 1 Field sketch
 33 Photographs - small closeups of details

TP-00440B
RECORD OF SURVEY USE

I. MANUSCRIPT COPIES

COMPILATION STAGES			DATE MANUSCRIPT FORWARDED	
DATA COMPILED	DATE	REMARKS	MARINE CHARTS	HYDRO SUPPORT
Compilation complete pending field edit.	March 1981	Class III manuscript. Superseded.		
Partial field edit applied	August 1982	Class III manuscript Superseded		
Final Review	Jan. 1984	Final Class III Map		

II. LANDMARKS AND AIDS TO NAVIGATION

1. REPORTS TO MARINE CHART DIVISION, NAUTICAL DATA BRANCH

PAGES XXXXXX	CHART LETTER NUMBER ASSIGNED	DATE FORWARDED	REMARKS
1			Non-floating aids to be charted.
2			Landmarks to be charted.

2. ☐ REPORT TO MARINE CHART DIVISION, COAST PILOT BRANCH. DATE FORWARDED: _____3. ☐ REPORT TO AERONAUTICAL CHART DIVISION, AERONAUTICAL DATA SECTION. DATE FORWARDED: _____

III. FEDERAL RECORDS CENTER DATA

1. ☒ BRIDGING PHOTOGRAPHS; ☒ DUPLICATE BRIDGING REPORT; ☒ COMPUTER READOUTS.
2. ☒ CONTROL STATION IDENTIFICATION CARDS; ☐ FORM NOS 76-36C SUBMITTED BY FIELD PARTIES.
3. ☐ SOURCE DATA (except for Geographic Names Report) AS LISTED IN SECTION II, NOAA FORM 76-36C.
ACCOUNT FOR EXCEPTIONS:

4. ☐ DATA TO FEDERAL RECORDS CENTER. DATE FORWARDED: _____

IV. SURVEY EDITIONS (This section shall be completed each time a new map edition is registered)

SECOND EDITION	SURVEY NUMBER TP - _____ (2)	JOB NUMBER PH - _____	TYPE OF SURVEY <input type="checkbox"/> REVISED <input type="checkbox"/> RESURVEY MAP CLASS <input type="checkbox"/> II. <input type="checkbox"/> III. <input type="checkbox"/> IV. <input type="checkbox"/> V. <input type="checkbox"/> FINAL
	DATE OF PHOTOGRAPHY	DATE OF FIELD EDIT	
THIRD EDITION	SURVEY NUMBER TP - _____ (3)	JOB NUMBER PH - _____	TYPE OF SURVEY <input type="checkbox"/> REVISED <input type="checkbox"/> RESURVEY MAP CLASS <input type="checkbox"/> II. <input type="checkbox"/> III. <input type="checkbox"/> IV. <input type="checkbox"/> V. <input type="checkbox"/> FINAL
	DATE OF PHOTOGRAPHY	DATE OF FIELD EDIT	
FOURTH EDITION	SURVEY NUMBER TP - _____ (4)	JOB NUMBER PH - _____	TYPE OF SURVEY <input type="checkbox"/> REVISED <input type="checkbox"/> RESURVEY MAP CLASS <input type="checkbox"/> II. <input type="checkbox"/> III. <input type="checkbox"/> IV. <input type="checkbox"/> V. <input type="checkbox"/> FINAL
	DATE OF PHOTOGRAPHY	DATE OF FIELD EDIT	

DESCRIPTIVE REPORT CONTROL RECORD

MAP NO.		JOB NO.		GEODETIC DATUM		ORIGINATING ACTIVITY	
TP-00440-A		CM-7705		N.A. 1927		Coastal Mapping Unit, AMC	
STATION NAME	SOURCE OF INFORMATION (Index)	AEROTRIANGULATION POINT NUMBER	COORDINATES IN FEET STATE _____ ZONE _____		GEOGRAPHIC POSITION ϕ LATITUDE λ LONGITUDE		REMARKS
MCM QUINCY NO. 2, 1939	470083 Sta. 1004	28	X=		ϕ 47°08'11.735"		
			Y=		λ 88°34'29.403"		
EAST QUINCY, QUINCY MINE NO. 2, STACK, 1939	470083 Sta. 1007	28A 457405	X=		ϕ 47°08'07.82"		
			Y=		λ 88°34'23.89"		
QUINCY, MINE NO. 2, FLAGPOLE, 1939	470083 Sta. 1004	34	X=		ϕ 47°08'11.72"		
			Y=		λ 88°34'29.31"		
MCM NO. 68B, 1939	470083 Sta. 1011	29	X=		ϕ 47°07'56.197"		
			Y=		λ 88°33'43.875"		
26Y (MGS), 1939	470083 Sta. 1001		X=		ϕ 47°07'57.900"		
			Y=		λ 88°33'42.724"		
CRAB, (MGS), 1934	470083 Sta. 1039		X=		ϕ 47°07'22.887"		
			Y=		λ 88°35'27.651"		
26F (MGS), 1934	470083 Sta. 1021	30	X=		ϕ 47°07'09.302"		
			Y=		λ 88°35'19.400"		
			X=		ϕ		
			Y=		λ		
			X=		ϕ		
			Y=		λ		
			X=		ϕ		
			Y=		λ		
COMPUTED BY J. Moler		DATE 12/3/79	COMPUTATION CHECKED BY D. Butler		DATE 12/4/79		
LISTED BY A. Rauck, Jr.		DATE 12/6/79	LISTING CHECKED BY D. Butler		DATE 12/26/79		
HAND PLOTTING BY		DATE	HAND PLOTTING CHECKED BY		DATE		

COMPILATION REPORT

TP-00440B

31 - DELINEATION

Delineation was done on the Wild B-8 stereoplotter using 1:20,000 scale panchromatic photography. Quality of the photography and coverage was good.

32 - CONTROL

Refer to the Photogrammetric Plot Report dated October 11, 1979.

33- SUPPLEMENTAL DATA

None.

34 - CONTOURS AND DRAINAGE

Contours are not applicable to the project. Drainage was delineated using the Wild B-8 stereoplotter and by office stereoscopic interpretation of the ratioed photos.

35 - SHORELINE AND ALONGSHORE DETAILS

Alongshore details were delineated on the Wild B-8 stereoplotter and by office interpretation of the ratioed photos.

36 - OFFSHORE DETAILS

Offshore details were compiled by office interpretation from the photographs.

37 - LANDMARKS AND AIDS

Appropriate copies of Form 76-40s are submitted with this Descriptive Report.

38 - CONTROL FOR FUTURE SURVEYS

None.

39 - JUNCTIONS

Refer to the Data Record Form 76-36B, item 5 of this Descriptive Report.

40 - HORIZONTAL AND VERTICAL ACCURACY

See Item #32.

TP-00440B

46 - COMPARISON WITH EXISTING MAPS

A comparison was made with U.S. Geological Survey Quadrangles: Hancock, Michigan, 1946, photorevised 1975, scale 1:24,000; and Chassel, Michigan, 1946, photorevised 1975, scale 1:24,000.

47 - COMPARISON WITH NAUTICAL CHARTS

A comparison was made with National Ocean Survey Chart: 14972, 21st edition, July 1979, scale 1:30,000; and inset, scale 1:10,000.

ITEMS TO BE APPLIED TO NAUTICAL CHARTS IMMEDIATELY

None.

ITEMS TO BE CARRIED FORWARD

None.

Submitted by,

J. Byrd for

David Butler
Cartographic Technician
January 30, 1980

Approved for forwarding,

James L. Byrd, Jr.

James L. Byrd, Jr.
Chief, Coastal Mapping Unit

CM-7705
KEWEENAW WATERWAY
FIELD EDIT REPORT
TP-00440 B
~~INSET #1~~

51. METHOD

A visual inspection was made of the shoreline by automobile and on foot. Notes were made on the Master Field Edit Ozalid, photographs 77E(P) 694, 77E(P) 695, and 77E(P) 696. There were thirty-three horizontal pictures taken by the field editor for clarification of the compilation and one field sketch.

52. ADEQUACY OF COMPILATION

The compilation was very good.

53. MAP ACCURACY

The horizontal placement of the compiled detail was good. No statement about vertical accuracy.

54. RECOMMENDATIONS

Field experience by the office compiler would be a good aid in photo interpretation.

Photographs taken by the field editor are a good aid for the compiler for field edit application.

55. EXAMINATION OF PROOF COPY

No statement.

Field Editor

Lowell O. Neterer, Jr.
Lowell O. Neterer, Jr.
May 26, 1981

RESPONSIBLE PERSONNEL	
TYPE OF ACTION	NAME
OBJECTS INSPECTED FROM SEAWARD	L. O. Neterer, Jr.
POSITIONS DETERMINED AND/OR VERIFIED	L. O. Neterer, Jr.
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES	M. Mozgala
INSTRUCTIONS FOR ENTRIES UNDER 'METHOD AND DATE OF LOCATION'	
(Consult Photogrammetric Instructions No. 64.)	
OFFICE I. OFFICE IDENTIFIED AND LOCATED OBJECTS Enter the number and date (including month, day, and year) of the photograph used to identify and locate the object. EXAMPLE: 75E(C)6042 8-12-75	FIELD (Cont'd) B. Photogrammetric field positions* require entry of method of location or verification, date of field work and number of the photograph used to locate or identify the object. EXAMPLE: P-8-V 8-12-75 74L(C)2982
FIELD I. NEW POSITION DETERMINED OR VERIFIED Enter the applicable data by symbols as follows: F - Field L - Located V - Verified 1 - Triangulation 2 - Traverse 3 - Intersection 4 - Resection 5 - Field identified 6 - Theodolite 7 - Planetable 8 - Sextant A. Field positions* require entry of method of location and date of field work. EXAMPLE: F-2-6-L 8-12-75	III. POSITION VERIFIED VISUALLY ON PHOTOGRAPH Enter 'V-Vis.' and date. EXAMPLE: V-Vis. 8-12-75 **PHOTOGRAMMETRIC FIELD POSITIONS are dependent entirely, or in part, upon control established by photogrammetric methods.
*FIELD POSITIONS are determined by field observations based entirely upon ground survey methods.	

NOAA FORM 76-40
(8-74)

Replaces C&GS Form 367.

NON-FLUORATING AIDS OR LANDMARKS FOR CHARTS

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

ORIGINATING ACTIVITY

- ☐ HYDROGRAPHIC PARTY
☐ GEODETIC PARTY
☒ PHOTO FIELD PARTY
☒ COMPILATION ACTIVITY
☐ FINAL REVIEWER
☐ QUALITY CONTROL & REVIEW GRP.
☐ COAST PILOT BRANCH

(See reverse for responsible personnel)

REPORTING UNIT
(If field party, ship or office)
Coastal Mapping Unit
AMC, Norfolk, VA
Michigan

LOCALITY
Houghton-Hancock
(Keweenaw Waterway)

DATE
May 1981The following objects HAVE ☒ been inspected from seaward to determine their value as landmarks.

OPR PROJECT NO.

JOB NUMBER

SURVEY NUMBER

DATUM

CM-7705

TP-00440B

N.A. 1927

METHOD AND DATE OF LOCATION
(See instructions on reverse side)

OFFICE

FIELD

CHARTS
AFFECTEDDESCRIPTION
(Record reason for deletion of landmark or aid to navigation.
Show triangulation station names, where applicable, in parentheses.)

SPIRE

TANK

STACK

STACK

CHIMNEY

47 07

47 07

47 08

47 07

47 07

47 07

39.05

55.44

07.82

26.29

38.60

11.29

88 35

88 35

88 34

88 35

88 35

88 35

24.10

09.35

23.89

46.83

11.29

11.29

508

197

503.5

988

238

238

V-Vis

V-Vis

V-Vis

V-Vis

V-Vis

V-Vis

5-23-81

5-23-81

5-23-81

5-23-81

5-23-81

5-23-81

14972

14972

14972

14972

14972

14972

*Landmarks were visually verified from the banks of Keweenaw Waterway by man in field as no boat was available

RESPONSIBLE PERSONNEL	
TYPE OF ACTION	NAME
OBJECTS INSPECTED FROM SEAWARD	<input type="checkbox"/> PHOTO FIELD PARTY <input type="checkbox"/> HYDROGRAPHIC PARTY <input type="checkbox"/> GEODETIC PARTY <input type="checkbox"/> OTHER (Specify)
POSITIONS DETERMINED AND/OR VERIFIED	FIELD ACTIVITY REPRESENTATIVE
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES	<input type="checkbox"/> REVIEWER <input type="checkbox"/> QUALITY CONTROL AND REVIEW GROUP REPRESENTATIVE
INSTRUCTIONS FOR ENTRIES UNDER 'METHOD AND DATE OF LOCATION'	
(Consult Photogrammetric Instructions No. 64.)	
OFFICE 1. OFFICE IDENTIFIED AND LOCATED OBJECTS Enter the number and date (including month, day, and year) of the photograph used to identify and locate the object. EXAMPLE: 75E(C)6042 8-12-75	FIELD (Cont'd) B. Photogrammetric field positions* require entry of method of location or verification, date of field work and number of the photograph used to locate or identify the object. EXAMPLE: P-8-V 8-12-75 74L(C)2982
FIELD 1. NEW POSITION DETERMINED OR VERIFIED Enter the applicable data by symbols as follows: F - Field L - Located V - Verified 1 - Triangulation 2 - Traverse 3 - Intersection 4 - Resection 5 - Field identified 6 - Theodolite 7 - Planetable 8 - Sextant A. Field positions* require entry of method of location and date of field work. EXAMPLE: F-2-6-L 8-12-75	11. TRIANGULATION STATION RECOVERED When a landmark or aid which is also a triangulation station is recovered, enter 'Triang. Rec.' with date of recovery. EXAMPLE: Triang. Rec. 8-12-75 111. POSITION VERIFIED VISUALLY ON PHOTOGRAPH Enter 'V-Vis.' and date. EXAMPLE: V-Vis. 8-12-75
**FIELD POSITIONS are determined by field observations based entirely upon ground survey methods. **PHOTOGRAMMETRIC FIELD POSITIONS are dependent entirely, or in part, upon control established by photogrammetric methods.	

Replaces C&GS Form 567.

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NEELED LINE AND LANDMARKS FOR CHARTS

<input checked="" type="checkbox"/> TO BE CHARTED <input type="checkbox"/> TO BE REVISED <input type="checkbox"/> TO BE DELETED	REPORTING UNIT <i>(If field Party, Ship or Office)</i> Coastal Mapping Unit, AMC, Norfolk, VA	STATE Michigan	LOCALITY Houghton-Hancock (Keweenaw Waterway)	DATE May 1981	<input checked="" type="checkbox"/> PHOTO FIELD PARTY <input checked="" type="checkbox"/> COMPILATION ACTIVITY <input type="checkbox"/> FINAL REVIEWER <input type="checkbox"/> QUALITY CONTROL & REVIEW GRP. <input type="checkbox"/> COAST PILOT BRANCH
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The following objects HAVE ☒ HAVE NOT ☐ been inspected from seaward to determine their value as landmarks.
 (See reverse for responsible personnel)

The following objects HAVE ☒ HAVE NOT ☐ been inspected from ~~season~~^{year} to determine their value as landmarks.

CHARTING NAME	JOB NUMBER	SURVEY NUMBER	DATUM	N.A. 1927				METHOD AND DATE OF LOCATION (See instructions on reverse side)			CHARTS AFFECTED	
				POSITION				OFFICE	FIELD			
				LATITUDE		LONGITUDE						
				°	'	°	'					
R MAST	CM-7705	TP-00440B		47	08	09.49 293	88	34	41.66 878	77 E(P) 694 5-25-77	V-Vis. 5-23-81	14972
R MAST		(Obstr. (WHDF) 1400 Khz 3 Vert. Lts. FR 'Lts.)		47	08	06.38 197	88	33	55.71 1174	77 E(P) 695 5-25-77	V-Vis. 5-23-81	14972
CUPOLA				47	07	39.57 1222	88	33	24.62 519	"	"	"
STACK		Quincy Mining Co., East of Two		47	07	31.48 972	88	33	48.68 1026	"	"	"
STACK		Quincy Mining Co., West of Two		47	07	31.51 973	88	33	52.71 1111	"	"	"
SPIRE				47	07	12.95 400	88	33	53.89 1136	"	"	"
CUPOLA		Houghton Courthouse (Floodlighted)		47	07	12.82 396	88	34	07.59 160	"	"	"
STACK		High School		47	07	12.66 391	88	34	17.27 364	"	"	"
SPIRE				47	07	36.33 1122	88	35	11.53 243	77 E(P) 694 5-25-77	"	"
*Landmarks were verified from the banks of the Keweenaw Waterway by man in the field as no boat was available.												

RESPONSIBLE PERSONNEL	
TYPE OF ACTION	NAME
OBJECTS INSPECTED FROM SEAWARD	Lowell O. Neterer, Jr.
POSITIONS DETERMINED AND/OR VERIFIED	Lowell O. Neterer, Jr.
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES	M. Mozgala
INSTRUCTIONS FOR ENTRIES UNDER METHOD AND DATE OF LOCATION. (Consult Photogrammetric Instructions No. 64.)	
OFFICE I. OFFICE IDENTIFIED AND LOCATED OBJECTS Enter the number and date (including month, day, and year) of the photograph used to identify and locate the object. EXAMPLE: 75E(C)6042 8-12-75 FIELD I. NEW POSITION DETERMINED OR VERIFIED Enter the applicable data by symbols as follows: F - Field P - Photogrammetric L - Located Vis - Visually V - Verified 1 - Triangulation 5 - Field identified 2 - Traverse 6 - Theodolite 3 - Intersection 7 - Planetable 4 - Resection 8 - Sextant A. Field positions* require entry of method of location and date of field work. EXAMPLE: F-2-6-L 8-12-75 *FIELD POSITIONS are determined by field observations based entirely upon ground survey methods.	FIELD (Cont'd) B. Photogrammetric field positions** require entry of method of location or verification, date of field work and number of the photograph used to locate or identify the object. EXAMPLE: P-8-V 8-12-75 74L(C)2982 III. TRIANGULATION STATION RECOVERED When a landmark or aid which is also a triangulation station is recovered, enter 'Triang. Rec.' with date of recovery. EXAMPLE: Triang. Rec. 8-12-75 III. POSITION VERIFIED VISUALLY ON PHOTOGRAPH Enter 'V-Vis.' and date. EXAMPLE: V-Vis. 8-12-75 **PHOTOGRAMMETRIC FIELD POSITIONS are dependent entirely, or in part, upon control established by photogrammetric methods.

