9841

Diagram No. LS-3

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey Hydrographic

Field No. HSB-10-1-79

Registery No. H-9841

LOCALITY

State New York

General Locality Niagara River

Sublocality Lake Erie to Tonawanda

19 79

CHIEF OF PARTY
LCDR T.W. Richards

LIBRARY & ARCHIVES

DATE November 16, 1987

☆U.S. GOV. PRINTING OFFICE: 1985—566-054

9841

Area 17

14833
14832
14830
14829 M

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* Removed from Descriptive Report and filed with original survey field records.

NOAA FORM 77-28 (11-72)

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

HYDROGRAPHIC TITLE SHEET

REGISTER NO.

H-9841

FIELD NO.

HSB 10-1-79

INSTRUCTIONS - The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

State New York

General locality Niagara River

Locality Lake Erie to ~~Grand Isle~~ Tonawanda.

Scale 1:10,000 Date of survey 27 JUL 79 to 27 SEP 79

Instructions dated 25 JAN 77 Project No. OPR-W216-HFP-7/8

Vessel NOAA Launch 1286

Chief of party LCDR Thomas W. Richards

Surveyed by LT K. Andreen

Soundings taken by echo sounder, hand lead, pole Raytheon 719-B

Graphic record scaled by KA, WS, DB, JK, KK, SG, RK

Graphic record checked by KA, WS, DB, JK, KK, SG, RK

Protracted by N/A Automated plot by Field Sheet PDP8/e AMC-~~Xyninetics 1200~~ XYNETICS 1201 Plotter

Verification by AMC-Verification ~~Branch~~ Group

Soundings in ~~feet~~ feet at ~~MHW~~ ~~MLLW~~ low water datum (IGLD 1955: 568.6 feet) ~~low water datum per COE Niagara River profile. (23 October 1962)~~

REMARKS: Kathryn A. Andreen, Wayne L. Sprye, Danny M. Bryant, Judith K. Krauthamer, J. Kurtz Klinefelter, Susan E. Gilbert, ~~Bob~~ Reginald L. Keene

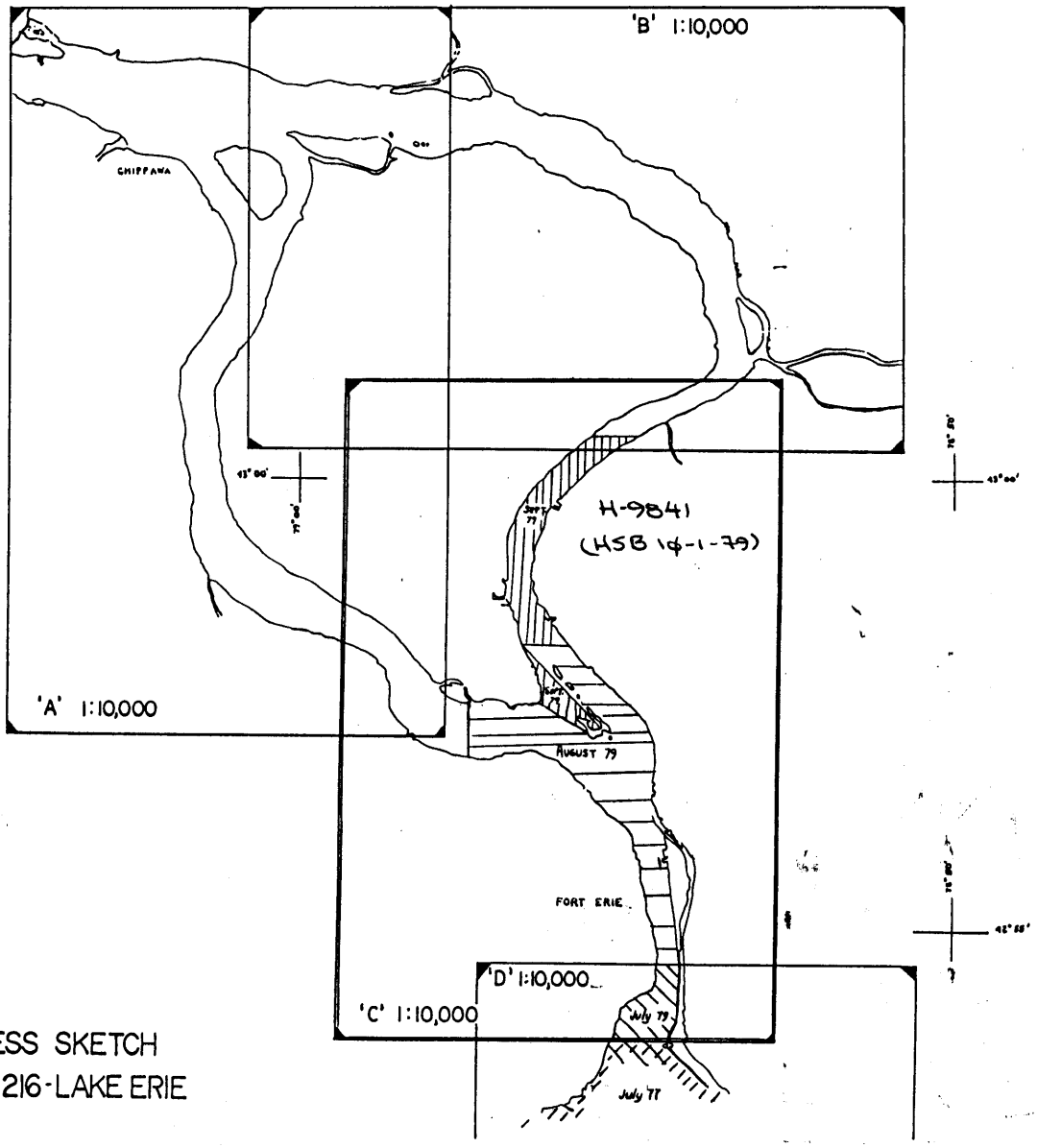
Notes in the Descriptive Report were made in red during office processing.

AWOIS / SURF MSM 9/1/88

(1)

NOAA FORM 77-28 SUPERSEDES FORM C&GS-537.

☆ U.S. GPO: 1974-0-768-081/1207



PROGRESS SKETCH
OPR-W 216-LAKE ERIE

NOAA HFP-2

THOMAS RICHARDS, LCDR, NOAA
CHIEF - HSB

CHART 14822 (FORMERLY LS 31)

MONTH	JULY	AUGUST 79	SEPT. 79	Oct. 79				
SQ. NAUT. MI.	.85	2.5	1.7	—				
N.MI. SNDG.	13.7	64.41	56.1	—				
DIST. TO-FROM	8.0	39.2	73.6	—				
MISC. DIST.	5.3	58.9	45.0	—				
BTM. SAMPLE	0	0	2	—				
TIDE GAGE	2	2	0	—				
CNTR. STA.	5	5	10	—				
				Processing				

DESCRIPTIVE REPORT
TO ACCOMPANY
HYDROGRAPHIC SURVEY H-9841
HSB-10-1-79

Scale 1: 10,000
Chief of Party: LCDR Thomas W. Richards
Officer-in-Charge: LT K. Andreen
Hydrographic Surveys Branch, Hydrographic Field Party #2
Launch 1286

A. PROJECT

This survey was accomplished under Project Instructions OPR-W216-HFP-77B dated 25 JAN 1977, and amended by:

Change No. 1, 30 MAR 1977
Change No. 2, 31 MAR 1977
Change No. 3, 31 MAY 1977
Change No. 4, 11 JULY 1977
Change No. 5, 21 DEC 1977
Change No. 6, 1 MAR 1978
Change No. 7, 13 APR 1978
Change No. 8, 28 APR 1978
Change No. 9, 18 MAY 1978
Change No. 10, 14 SEP 1978
Change No. 11, 12 FEB 1979
Change No. 12, 7 MAR 1979
Change No. 13, 17 JUL 1979

B. AREA SURVEYED

The area surveyed was the head of the Upper Niagara River, New York, bound on the east by the shoreline of the city of Buffalo; on the west by the shoreline of Fort Erie, Ontario, Canada, and the shoreline of Grand Island. The southern (lakeward) limit was the Lat. 42°53'40"N. The northern boundary on the eastern branch of the river was 43°00'30"N, with 78°57'20"W the limit on the west branch of the Niagara River. The Black Rock Canal was not surveyed due to Corps of Engineers resurveying this area at the same time. Refer to the letter concerning this area in the separates following the text for more information.

This survey was conducted from 27 JULY 1979 to 27 SEP 1979 (J.D. 208 to 270) inclusive.

C. SOUNDING VESSEL

All soundings obtained on this survey were obtained from NOAA Launch 1286 (EDP #1286). All survey records are annotated with the Vessel Number 1286.

D. SOUNDING EQUIPMENT AND CORRECTIONS TO ECHO SOUNDINGS

The following Raytheon fathometer equipment was used during the survey:

JD 208-270: Recorder Model # 719B
Serial # 5784

No unusual problems were encountered with this equipment. The fathometer was monitored continuously while sounding and was under constant adjustment to insure that no initial corrections were necessary except on JD 211.

Settlement and squat tests on Launch 1286 were run on 23 JULY 1979 at Buffalo Harbor. The results of these tests are included in the Appendix of this report.

Settlement and squat corrections will be applied via the TC/TI tape during plotting of the smooth sheet at the Atlantic Marine Center and were not applied to the field sheets.

Velocity and instrument corrections were determined by barchecks. It should be noted that bar checks were taken in the Buffalo Harbor area or out in Lake Erie due to the strong current in the river. The lengths of the line on the bar and sounding pole were checked on 20 JULY 1979 and on 11 NOV 1979. The results of this inspection showed that the lines and pole were accurate.

E. HYDROGRAPHIC SHEETS (FIELD SHEETS)

The field sheets were prepared in the field using a PDP8/e computer and a DP-3 complot plotter. Work sheets, semi-smooth sheets, smooth field sheets, and overlay sheets are included with this survey. Mainscheme hydrographic and crosslines are plotted on the field sheets while developments, splits, bottom samples, prior survey soundings, junctions soundings, charted soundings, presurvey review items, and aids to navigation are shown on various overlay sheets. Projection and electronic control parameters for the field sheets are included in the Appendix of this report. The final smooth sheet and verification of this survey will be accomplished at the Atlantic Marine Center on the Harris/7 computer and the Xyninetics 1201 plotter.

F. CONTROL STATIONS

Control stations used during this survey were either existing geodetic control stations published by NGS or were established by Hydrographic Field Party #2 to third order or better standards. All stations are referred to the North American 1927 datum. A list of all control stations used during this survey is included in the Appendix of this report.

G. HYDROGRAPHIC POSITION CONTROL

The method used to control this survey was a range-azimuth mode using a Del Norte remote unit and a Wild T-1. Nine control networks were used on this survey for the control stations used.

The equipment used to control this survey was the DMU S/N 189 and S/N 172; the master units S/N 246 and 189; and the remote units 174, 249, 262, and 927.

Problems encountered with the use of this equipment were:

Remote S/N 262 - transmitted sporadically
Remote S/N 174 - rates jumped 6-10 meters at times
Remote S/N 249 - rates jumped up to 400 meters
DMU S/N 172 & Master S/N 189 - rates jumped no matter what remote was used.

The control equipment was calibrated by theodolite intersection of the launch. Calibrations were computed by using RK407 for establishing forward azimuths between stations and RK562, using the "R" method.

H. SHORELINE - See section 2.b. of the Evaluation Report, also.

Shoreline detail for this survey was obtained from Class III photo manuscripts dated June, 1979. Chart #14832 blown up to the scale of the survey 27th Edition dated October 1, 1977 and "NANCI" Facilities of 1975.

Shoreline corrections were necessary at Strawberry Island, southeastern corner, plus the International Railroad swing bridge is now fixed with a vertical clearance of 22 ft. This clearance needs to be mentioned on the chart. - No shoreline changes were made around Strawberry Island. See section 2.b. of the Evaluation Report.

I. CROSSLINES - See section 3.a of the Evaluation Report

Crosslines constitute 12% of the mainscheme hydrogrpahy. 99% of the crossings agree within one foot. No soundings are in disagreement at crossing by more than two feet.

J. JUNCTIONS - See section 5. of the Evaluation Report.

This survey junctions with the following surveys:

H-9705 to the south
H-9889 to the north
H-10826 to the west

50% of these junction sounding agree within two feet when compared with the current survey and none of the junction soundings are in disagreement by more than 3 feet. The reason for this disagreement is believed to be due to differences in water level values applied to both this survey and H-9705 in 1977.

K. COMPARISON WITH PRIOR SURVEYS - See also section 6. of the Evaluation Report.

This survey area was previously covered by the following prior surveys:

Corps of Engineers Niagara River Sheet No. 4, 1940, 1:10,000 scale., 1-1778. Copies of 1-1775,1776, & 1777 were lost and not available for field comparison.

Comparison showed a general agreement (90%) to that of the Contemporary Survey, to within two feet.

Where discrepancies exist, it is recommended that the soundings from the present survey supersede the prior surveys' soundings.

The following presurvey review items were investigated during this survey:

a dangerous sunken wreck, PD, in Lat. 42°53'48"N, Lon. 78°54'32"W,

PSR Item #6B was searched for on JD 208 (Pos. 14-16, 18-20, 31-32, & 34-36) and on JD 267 (Pos. 1704-1706, 1717-1720, & 1721-1724). The submerged wreck was reported in 1972 to be a submerged tug which shifted and could not be relocated. There was no indication on our fathograms of the wreck in this area. A wire drag was not performed due to the irregular bottom profile, presence of grass, and an extremely strong current. ~~With consideration to these factors, it is recommended by the hydrographer that the wreck remain charted as PD.~~ Do not concur. See section 7.a.2) of the Evaluation Report. Awois #6837

a nondangerous sunken wreck, PD, in Lat. 42°54'49"N, Lon. 78°54'47"W,

PSR Item #6A was searched for on JD 227. This area was not included in the survey HSB-10-1-79 as explained in Section B, however, this non-dangerous wreck was investigated. Only a large amount of debris was found in the vicinity, nothing that could be identifiable as a wreck. It appeared that this debris was not permanent and with a change of wind and water level it could continue down the river. ~~Thus, it is recommended that this wreck be deleted from the chart.~~ See section 7.a.1) of the Evaluation Report. Awois #6838

a nondangerous sunken wreck, in Lat. 42°57'31"N, Lon. 78°55'54.4"W,

PSR Item #11G was searched for on JD 265 (Pos. 1670-1690) for 1.5 hours. The submerged wreck was reported in 1940 (Prior Survey I-1777). At the time of the investigation, water clarity was about 0.5 feet, with grass clumps throughout the area. There were no indications of its existence on the fathogram and a wire drag was not practical due to the grass and irregular bottom. Local boaters and divers were consulted concerning the condition of the wreck. According to local knowledge, no one has been able to locate the wreck. ~~It is recommended that this wreck be deleted from the chart.~~ See section 7.a.3) of the Evaluation Report. Awois #6839

a visible wreck, in Lat. 42°58'13.2"N, Lon. 78°56'36"W,

PSR Item #12D was searched for on JD 255 (Pos. 1086-1089). The visible wreck was reported in 1940 from the Prior Survey I-1777. This location was found to be a graveyard of wrecks. The most riverward wreck was located with Position #1086, plus b in Lat 42-58-14.0 Long 78-56-43.0 Awois #6840

the limits of the foul area were taken (Pos. 1087-1089). ~~It is recommended that this wreck be retained on the chart.~~ See section 7.2.c) of the Evaluation Report.

PSR Item #12C, a visible wreck, in Lat. 42°52'26.8"N, Lon 78°56'44.8"W, was searched for on JD 269. This visible wreck was reported in 1940 (Prior Survey I-1777). Information concerning the type of wreck was not available. The wreck was found in this area; located approximately 60 meters downriver (Pos. 1932) from its presently charted position. It is recommended that this visible wreck be retained on the chart in its new location. - See section 7.2.5) of the Evaluation Report.

PSR Item #11F, a non dangerous sunken wreck, in Lat 42°59'11.5"N, Lon 78°56'34.5"W, was searched for on JD 270. There was no available source for this submerged wreck, however, its position was verified (Pos. 2012). Due to the size and shape, it is assumed to be an old wooden barge, with a least depth of one foot. It is recommended that this wreck be retained on the chart with a confirmed position. - See section 7.2.4) of the Evaluation Report.

The circled PSR Item 12-foot sounding, in Lat 42°54'14"N, Lon 78°54'27"W, was investigated on JD 208, 211, and 267 (Pos. 57-60, 66-68, 89-91, 1734-1735 & 1738-1741). This area was covered with 40 meter spaced sounding lines, coming up with only a 14-foot least depth. It is recommended that after smooth water level corrections are applied, the present survey soundings supersede this 12-foot shoal. See section 6., LS-1778(1944)e. of the NC Evaluation Report.

12 foot sounding found in Lat 42°54'19.57"N, Lon 78°54'28.34"W - 177 meters N of charted depth.

The circled PSR Item - "depth over crib 10 feet," charted in Lat 42°56'55"N, Lon. 78°55'09"W, was investigated on JD 247. An excellent trace on the fathogram was obtained along with diver verification from HFP #5. A least depth of ~~10~~ 9 feet (water level correction not applied) was obtained. ~~Retention on the chart is recommended.~~ Revise chart to show a crib with a depth of 9 feet NC

The circled PSR Item - a submerged crib with a "depth over crib 6 feet," charted in Lat 42°58'06"N, Lon. 78°56'28"W was searched for on JD 269 (Pos. 1870-1914) and later on JD 275. Due to the irregular bottom and large amounts of grass, plus the absence of any divers at this time, verification could not be established. A suspicious trace at the beginning of the 10 meter spaced line development (Pos. 1870) inspired launch personnel to research the area for the crib. However, after 1.5 hours of searching, nothing further could be found and we gave up. Retention is recommended. - Concur - not considered verified or disproved - retain as charted.

The circled PSR Item - "17-foot sounding", charted in Lat 42°59'25"N, Lon 78°56'35"W, was searched for on JD 256 and 261 (Pos. 1197-1198, 1201-1202, 1205-1206 & 1326-1327). Only a 20-foot least depth was obtained for this area, however, 60 meters east, a shoal of 18 feet was found. ~~It is recommended that the shoal be charted in this new location.~~ NC

17 foot depth found in Lat. 42°59'19"N, Lon. 78°56'35"W and Lat 42°59'26"N, Lon 78°56'27"W.

L. COMPARISON WITH THE CHART See section 6., LS-1777(1944)g. of the Evaluation Report. See also section 7. of the Evaluation Report

This survey was compared as the survey progressed with Chart 14832, 27th Edition blown up to the scale of the survey.

The following changes in the chart were detected:

A deep hole was found to exist at Lat. 42°~~54'58~~55'44.14".5'N, Long. 78°54'~~27~~26.45"W, with a depth of 61 feet. An old dumping area was discovered from 42°56'33"N, 78°54'58"W; northwest to 42°57'00"N, 78°55'30"W; and northeast to 42°57'06"N, 78°55'00"W.

M. ADEQUACY OF SURVEY

This survey is complete and adequate to warrant it's use to supersede prior surveys for charting in the common areas.

N. AIDS TO NAVIGATION

All floating and fixed aids to navigation in the survey area were located and comparisons between their charted, Light List (Vol IV, 1979), and surveyed positions and descriptions were made. All aids were found to adequately serve the apparent purpose for which they were established. USCG District Buffalo was notified that the following buoys #8, 9, 12, 13, 21, 26, 30, 31 & 32 were found off station, ranging from 30-200 m. off. The hydrographer further recommended to the Buffalo District the following changes to their buoyage scheme; specifically that new methods of locating and stationing the buoys be used. Currently Chart 14832, scale 1:30,000 is used to hand plot sextant angles (to nearest minute) obtained when placing the buoys. A large discrepancy can result due to this method. Cable and bridge clearances were checked and found to be accurately charted, except the International Railroad Bridge was charted as a swing bridge which is now fixed with a 22-foot vertical clearance.

O. STATISTICS

Total number of positions	2012
Lineal nautical miles of sounding line	92.4
Lineal nautical miles of crossline	10.7
Lineal nautical miles of development	6.0
Total lineal nautical miles of hydrography	109.10
Total square nautical miles of hydrography	5.1
Number of bottom samples	2

P. MISCELLANEOUS

Water level data for smooth water levels were requested by field personnel at the end of each month that hydrography was obtained for this survey.

Grassy areas were numerous in this survey and interferred with the analog traces on the fathograms. Lead line and pole soundings were taken when possible to verify bottom depth. These grassy areas were primarily in the vicinities of Fort Erie shoreline, around the perimeter of Strawberry Island and between Strawberry and Motor Islands.

Bottom samples were not taken except in two cases due to the strong currents, thus being unable to have the grabber reach the bottom.

Q. RECOMMENDATIONS

See Sections H and K for specific recommendations.

R. AUTOMATED DATA PROCESSING

Programs used during field data aquisition and field processing of this survey are as follows:

PROGRAM	DESCRIPTION	VERSION DATE
FA181	Range-azimuth hydrolog	2/23/78
RK201	Grid, Signal, & Lattice Plot	4/18/75
RK212	Visual station table load	4/01/74
RK216	Range-azimuth non-real time plot	2/05/76
RK300	Utility computations	2/05/76
RK330	Reformat and Data Check	5/04/76
RK407	Geodetic Inverse/Direct Computation	9/25/78
RK562	Geodetic Calibration	9/10/74
AM602	Elinore-Line Oriented Editor	5/20/75

S. REFERENCE TO REPORTS

Descriptive Report H-9705, 1977, 1:10,000
Control Report for OPR-300, dated 1977.- Not applicable to the present survey.

Respectfully submitted,

Robert Lewis

cw/ Kathy Andreen
LT, NOAA
OIC, HFP-2

SIGNAL TAPE LISTING

HSB - 10 - 1 - 79

OPR-W216-HFP-77

H - 9841

✓ JLD

*	002	4	42	53	58459	078	54	12436	139 0000 000000	Light #17
*	004	0	42	53	52115	078	54	08292	250′ 0000 000000	Yacht, 1962
*	006	4	42	54	26722	078	54	10121	250′ 0000 000000	STA-N-3, 1962
*	008	7	42	56	09727	078	54	33621	139 0000 000000	STA-640, 1963
+	009	6	42	56	15013	078	54	37138	254′ 0000 000000	641 ECC, 1979
*	010	1	42	56	15004	078	54	36808	139 0000 000000	STA-641, 1963
**	012	3	42	56	52430	078	56	04458	250′ 0000 000000	IBM-31-41
*	016	7	42	52	28858	078	54	19613	250′ 0000 000000	West, 1962
*	022	0	42	52	52413	078	54	55254	139 0000 000000	Tower* (Horseshoe Reef Lt.)
*	024	4	42	56	55332	078	54	34880	250′ 0000 000000	View, 1963
*	026	4	42	57	12103	078	54	38502	250′ 0000 000000	* Strawberry Is. Upper Cut Front Range Lt.
*	034	3	42	56	56330	078	54	28298	139 0000 000000	Strawberry Is. Lower Cut Rear Range Lt.
*	036	3	42	58	40137	078	56	50229	139 0000 000000	Grand Is. Front Range Lt.
*	040	2	42	58	39811	078	56	24821	139 0000 000000	Solvey, 1963
*	048	3	42	59	56708	078	56	24818	250′ 0000 000000	Disposal, 1963
*	050	2	42	58	00732	078	55	44694	250′ 0000 000000	Mohawk, 1963
*	052	0	42	58	43780	078	57	23269	139 0000 000000	WBEN NE Mast
*	056	2	42	58	59116	078	56	23972	139 0000 000000	Wickwire Steel Plant Stack
*	058	7	42	59	47852	078	56	03647	139 0000 000000	South Bridge, 1963
@	060	3	42	55	36254	078	55	09558	139 0000 000000	Bridgeport, water tank, 1941
+	100	6	42	58	32696	078	56	43696	254′ 0000 000000	No Name, 1979

* Corps of Engineers Control * unadjusted NGS control.
+ Established by HFP-2
** LSC - Traverse 1963
@ International Boundary Commission p. 206

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
- [X] HYDROGRAPHIC PARTY
- [ ] GEODETIC PARTY
- [ ] PHOTO FIELD PARTY
- [ ] COMPILATION ACTIVITY
- [ ] FINAL REVIEWER
- [ ] QUALITY CONTROL & REVIEW GRP.
- [ ] COAST PILOT BRANCH

(See reverse for responsible personnel)

[X] TO BE CHARTED [ ] TO BE REVISED [ ] TO BE DELETED	REPORTING UNIT (Field Party, Ship or Office)	STATE	LOCALITY	DATE
	HFP-2	NY	Upper Niagara River	10/79

The following objects HAVE [X] HAVE NOT [ ] been inspected from seaward to determine their value as landmarks.

OPR PROJECT NO.	JOB NUMBER	SURVEY NUMBER	DATUM
W216	--------	H-9841	NA 1927

CHARTING NAME	DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses)	POSITION LATITUDE ° ′	LATITUDE ″ D.M. Meters	POSITION LONGITUDE ° ′	LONGITUDE ″ D.P. Meters	METHOD AND DATE OF LOCATION (See instructions on reverse side) OFFICE	FIELD	CHARTS AFFECTED
STACK	Dupont Co. Yerkes Plant W. Stack	42 57	54.711 ~~55.2~~	78 54	52.384 ~~55.0~~	8φ E(c)644φ 9-27-8φ	F-V-Vis 10-9-79	14832
TANK	Dupont Co., Yerkes Plant N.W. Tank	42 57	53.686 ~~55.406~~	78 54	53.492 ~~58.639~~	"	F-V-Vis 10-9-79	14832
LIGHT	Lt, FR	42 57	53.0	78 55	24.0	8φ E(c)644φ 9-27-8φ	F-V-Vis 10-9-79	14832
TANK	Tank	42 57	50.612 ~~50.0~~	78 55	27.164 ~~26.0~~	"	F-V-Vis 10-9-79	14832
TANK	Buffalo Dunlop S. Water Tank, New York, 1941 ~~Dunlop Tire & Rubber Corp. E. Tank~~ L-861(83)	42 58	15.892	78 55	00.172	"	F-V-Vis 10-9-79	14832
TANK	Dunlop Tire & Rubber Corp. W. Tank	42 58	16.552 ~~18.0~~	78 55	26.648 ~~24.0~~	"	F-V-Vis 10-9-79	14832
STACK	Niagara Mohawk Power Corp. E. Stack	42 58	13.619 ~~12.0~~	78 55	~~50.277~~ ~~48.0~~	"	F-V-Vis 10-9-79	14832
STACK	Niagara Mohawk Power Corp. W. Stack	42 58	φ15 18.0	78 55	511 57.0	"	F-V-Vis 10-9-79	14832
TANK	Tank	42 58	21.816 ~~22.0~~	78 55	479 38.0	"	F-V-Vis 10-9-79	14832
STACK	Stack	42 58	81 21.0	78 55	16 37.0	"	F-V-Vis 10-9-79	14832

(37)

RESPONSIBLE PERSONNEL		
TYPE OF ACTION	**NAME**	**ORIGINATOR**
OBJECTS INSPECTED FROM SEAWARD	Kathy Andreen, Lt	☐ PHOTO FIELD PARTY ☒ HYDROGRAPHIC PARTY ☐ GEODETIC PARTY ☐ OTHER *(Specify)*
POSITIONS DETERMINED AND/OR VERIFIED		FIELD ACTIVITY REPRESENTATIVE
		OFFICE ACTIVITY REPRESENTATIVE
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES		☐ REVIEWER ☐ 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

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

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.

☆ U.S.GPO:1975-0-665-080/1155

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
- [X] HYDROGRAPHIC PARTY
- [ ] GEODETIC PARTY
- [ ] PHOTO FIELD PARTY
- [ ] COMPILATION ACTIVITY
- [ ] FINAL REVIEWER
- [ ] QUALITY CONTROL & REVIEW GRP.
- [ ] COAST PILOT BRANCH

(See reverse for responsible personnel)

[X] TO BE CHARTED [ ] TO BE REVISED [ ] TO BE DELETED	REPORTING UNIT (Field Party, Ship or Office)	STATE	LOCALITY	DATE
	HFP-2	NY	Upper Niagara River	10/79

The following objects HAVE [X] HAVE NOT [ ] been inspected from seaward to determine their value as landmarks.

OPR PROJECT NO.	JOB NUMBER	SURVEY NUMBER	DATUM
W216	------	H-9841	NA 1927

CHARTING NAME	DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses)	POSITION LATITUDE ° ′	LATITUDE ″ D.M. Meters	POSITION LONGITUDE ° ′	LONGITUDE ″ D.P. Meters	METHOD AND DATE OF LOCATION (See instructions on reverse side) OFFICE	FIELD	CHARTS AFFECTED
TOWER	Sun Co., R. Mast	42 58	39.242 ~~37.2~~	78 56	~~08.363~~ ~~05.0~~	80E(C)644 9-27-80	F-V-Vis 10-9-79	14832
STACK	Wickwire Steel Plant Stack	42 58	~~58.860~~ ~~59.116~~	78 56	~~22.710~~ ~~23.972~~	"	F-V-Vis 10-9-79	14832
STACK	Allied Chemical Corp., Stack	42 59	~~01.852~~ ~~03.0~~	78 55	34.241 ~~36.0~~	"	F-V-Vis 10-9-79	14832
STACK	Stack, East	42 59	~~04.314~~ ~~03.6~~	78 55	32.358 ~~33.0~~	"	F-V-Vis 10-9-79	14832
STACK	Stack, West	52 59	~~04.291~~ ~~03.5~~	78 55	33.397 ~~35.0~~	"	F-V-Vis 10-9-79	14832
TOWER	R MAST 3 VERT LTS OCC R2 FR	42 59	~~05.873~~ ~~06.0~~	78 55	~~02.488~~ ~~02.0~~	"	F-V-Vis 10-9-79	14832
TOWER	Tower, FR, OVHD, PWR CAB. N.E. Tower	43 00	~~13.944~~ ~~14.4~~	78 55	25.155 ~~24.0~~	"	F-V-Vis 10-9-79	14832
TOWER	Tower, FR, OVHD, PWR CAB. S.W. Tower	43 00	12.894 ~~13.2~~	78 55	991 26.0	"	F-V-Vis 10-9-79	14832
STACK	Tonawanda Spaulding Fibre Stack, 1972 Stack	43 00	~~18.653~~ ~~19.2~~	78 53	~~973~~ 12.0	"	F-V-Vis 10-9-79	14832
TOWER	Tower, OVHD, PWR CAB.	42 54	35.0	78 54	36.0		F-V-Vis 10-9-79	14832

(38)

RESPONSIBLE PERSONNEL		
TYPE OF ACTION	**NAME**	**ORIGINATOR**
OBJECTS INSPECTED FROM SEAWARD	Kathy Andreen, Lt.	☐ PHOTO FIELD PARTY ☒ HYDROGRAPHIC PARTY ☐ GEODETIC PARTY ☐ OTHER *(Specify)*
POSITIONS DETERMINED AND/OR VERIFIED		FIELD ACTIVITY REPRESENTATIVE
		OFFICE ACTIVITY REPRESENTATIVE
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES		☐ REVIEWER ☐ 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

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

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.

☆ U. S. GPO:1975-0-665-080/1155

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
- [X] HYDROGRAPHIC PARTY
- [ ] GEODETIC PARTY
- [ ] PHOTO FIELD PARTY
- [ ] COMPILATION ACTIVITY
- [ ] FINAL REVIEWER
- [ ] QUALITY CONTROL & REVIEW GRP.
- [ ] COAST PILOT BRANCH

(See reverse for responsible personnel)

[X] TO BE CHARTED / [ ] TO BE REVISED / [ ] TO BE DELETED	REPORTING UNIT (Field Party, Ship or Office)	STATE	LOCALITY	DATE
	HFP-2	NY	Upper Niagara River	10/79

The following objects HAVE [X] HAVE NOT [ ] been inspected from seaward to determine their value as landmarks.

OPR PROJECT NO.	JOB NUMBER	SURVEY NUMBER	DATUM
W-216	--------	H-9841	NA 1927

CHARTING NAME	DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses)	POSITION LATITUDE ° ′	LATITUDE ″ D.M. Meters	POSITION LONGITUDE ° ′	LONGITUDE ″ D.P. Meters	METHOD AND DATE OF LOCATION (See instructions on reverse side) OFFICE	FIELD	CHARTS AFFECTED
LIGHT	#17	42 53	58.459	78 54	12.435		F-V-Vis 10-9-79	14832
LIGHT	Crib Light	42 52	46.333	78.54	44.660		F-V-Vis 10-9-79	14832
LIGHT	Lt. JAFCO Marina, S. Ent. Light	42 56	~~33.0~~ 35.13	78.54	36.~~0~~ 43		F-V-Vis 10-9-79	14832
LIGHT	LT, JAFCO Marina, N. Ent Light	42 56	~~36.0~~ 35.71	78.54	36.~~0~~ 52		F-V-Vis 10-9-79	14832
LIGHT	Strawberry Island Lower Cut Rear Range Lt. (LL456) Sig. 034	42 56	56.33~~0~~ 2	78.54	28.~~297~~ 317	8ΦE(C)6411 9-27-8Φ	F-V-Vis 10-9-79	14832
LIGHT	Strawberry Island Lower Cut Front Range Lt. (LL455)	42 57	01.~~779~~ 81Φ	78.54	34.~~797~~ 824	"	F-V-Vis 10-9-79	14832
L-361/83 LIGHT	Strawberry Island Upper Cut Front Range Lt. (LL453) Sig. 026	42 57	12.10~~8~~ 6	78.54	38.~~502~~ 498	"	F-V-Vis 10-9-79	14832
L-361/83 LIGHT	Strawberry Island Upper Cut Rear Range Lt. (LL454)	42 57	19.~~890~~ 89	78.54	38.23~~1~~ 0	8ΦE(C)6411	F-V-Vis 10-9-79	14832
LIGHT	Lt. East River Marina	42 58	09.0	78.56	30.0		F-V-Vis 10-9-79	14832
LIGHT	Grand Island Front Range Lt. (LL463_ Sig. 036	42 58	40.~~137~~ 128	78.56	50.~~228~~ 244	8ΦE(C)6446	F-V-Vis 10-9-79	14832

(39)

RESPONSIBLE PERSONNEL		
TYPE OF ACTION	**NAME**	**ORIGINATOR**
OBJECTS INSPECTED FROM SEAWARD	Kathy Andreen, Lt.	☐ PHOTO FIELD PARTY ☒ HYDROGRAPHIC PARTY ☐ GEODETIC PARTY ☐ OTHER *(Specify)*
POSITIONS DETERMINED AND/OR VERIFIED		FIELD ACTIVITY REPRESENTATIVE
		OFFICE ACTIVITY REPRESENTATIVE
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES		☐ REVIEWER ☐ 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

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

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.

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
- [X] HYDROGRAPHIC PARTY
- [ ] GEODETIC PARTY
- [ ] PHOTO FIELD PARTY
- [ ] COMPILATION ACTIVITY
- [ ] FINAL REVIEWER
- [ ] QUALITY CONTROL & REVIEW GRP.
- [ ] COAST PILOT BRANCH

(See reverse for responsible personnel)

[X] TO BE CHARTED [ ] TO BE REVISED [ ] TO BE DELETED	REPORTING UNIT (Field Party, Ship or Office)	STATE	LOCALITY	DATE
	HFP-2	NY	Upper Niagara River	10/79

The following objects HAVE [x] HAVE NOT [ ] been inspected from seaward to determine their value as landmarks.

OPR PROJECT NO.	JOB NUMBER	SURVEY NUMBER	DATUM
W-216	------	H-9841	NA 1927

CHARTING NAME	DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses)	POSITION LATITUDE ° ′	LATITUDE ″ D.M. Meters	POSITION LONGITUDE ° ′	LONGITUDE ″ D.P. Meters	METHOD AND DATE OF LOCATION (See instructions on reverse side) OFFICE	FIELD	CHARTS AFFECTED
LIGHT	Grand Island Rear Range Lt. (LL464)	42 58	50.~~610~~ 596	78 57	05.~~326~~ 354	8φ6(c)644φ 9-27-8φ	F-V-Vis 10-9-79	14832
LIGHT	Grand Island South Bridge South Lt.	42 59	~~54.0~~ 53.92	78 56	~~12.6~~ 13.77		F-V-Vis 10-9-79	14832
LIGHT	Grand Island South Bridge North Lt.	42 59	~~54.0~~ 55.22	78 56	~~14.8~~ 12.67		F-V-Vis 10-9-79	14832
LIGHT	FL, 14 ft., "A"	43 00	00.0	78 55	48.6		F-V-Vis 10-9-79	14832
LIGHT	FL, 14 ft., "B"	43 00	03.0	78 55	48.0		F-V-Vis 10-9-79	14832
STACK	Waterworks, S. E. Stack	42 53	48.0	78 54	00.0		F-V-Vis 10-9-79	14832
STACK	Waterworks, N.W. Stack	42 53	48.0	78 54	00.0		F-V-Vis 10-9-79	14832
TOWER	Tower, Fixed Red Lt. Flashing	42 52	59.457	78 52	41.078		F-V-Fis 10-9-79	14832
TOWER	TR., OVHD, PWR Cable	42 54	36.0	78 54	00.0		F-V-Vis 10-9-79	14832
TOWER	TVTR, 3 VERT LTS OCC R2, F2	42 55	03.234	78 53	42.514		F-V-Vis 10-9-79	14832

(40)

RESPONSIBLE PERSONNEL		
TYPE OF ACTION	**NAME**	**ORIGINATOR**
OBJECTS INSPECTED FROM SEAWARD	Kathy Andreen, Lt.	☐ PHOTO FIELD PARTY ☒ HYDROGRAPHIC PARTY ☐ GEODETIC PARTY ☐ OTHER *(Specify)*
POSITIONS DETERMINED AND/OR VERIFIED		FIELD ACTIVITY REPRESENTATIVE
		OFFICE ACTIVITY REPRESENTATIVE
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES		☐ REVIEWER ☐ 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

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

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.

NOAA FORM 76-40 (8-74)

SUPERSEDES NOAA FORM 76-40 (2-71) WHICH IS OBSOLETE, AND EXISTING STOCK SHOULD BE DESTROYED UPON RECEIPT OF REVISION.

☆ U. S. GPO:1975-0-665-080/1155

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
- [X] HYDROGRAPHIC PARTY
- [ ] GEODETIC PARTY
- [ ] PHOTO FIELD PARTY
- [ ] COMPILATION ACTIVITY
- [ ] FINAL REVIEWER
- [ ] QUALITY CONTROL & REVIEW GRP.
- [ ] COAST PILOT BRANCH

(See reverse for responsible personnel)

- [X] TO BE CHARTED
- [ ] TO BE REVISED
- [ ] TO BE DELETED

REPORTING UNIT (Field Party, Ship or Office)	STATE	LOCALITY	DATE
HFP-2	NY	Upper Niagara River	10/79

The following objects HAVE [X] HAVE NOT [ ] been inspected from seaward to determine their value as landmarks.

OPR PROJECT NO.	JOB NUMBER	SURVEY NUMBER	DATUM
W-216	-------	H-9841	NA 1927

CHARTING NAME	DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses)	POSITION LATITUDE ° ′	LATITUDE ″ D.M. Meters	POSITION LONGITUDE ° ′	LONGITUDE ″ D.P. Meters	METHOD AND DATE OF LOCATION (See instructions on reverse side) OFFICE	FIELD	CHARTS AFFECTED
STACK	Stack	42 55	05.4	78 54	00.0		F-V-Vis 10-9-79	14832
STACK	Stack	42 55	08.4	78 54	12.0		F-V-Vis 10-9-79	14832
STACK	Stack, W. Stack	42 55	48.0	78 54	12.6		F-V-Vis 10-9-79	14832
STACK	Stack, E. Stack	42 55	48.0	78 54	10.2		F-V-Vis 10-9-79	14832
TOWER	RTR, 3 Vert. Lts OCC R2 F2	42 56	06.0	78 51	48.0		F-V-Vis 10-9-79	14832
TANK	S.U.C. at Buffalo Tank	42 56	12.0	78 53	12.0		F-V-Vis 10-9-79	14832
TOWER	5 VERT LTS 2 OCC R, 3 FR	42 57	13.84 ~~19.0~~	78 52	37.38 ~~36.0~~		F-V-Vis 10-9-79	14832
TANK	Chevrolet Motor Division Tonawanda Plant Tank	42 57	52.104 ~~54.0~~	78 54	379 36.8	84EC0644 9-27-84	F-V-Vis 10-9-79	14832
TANK	Dupont Co., Yerkes Plant. S. E. Tank	42 57	54.711 ~~52.8~~	78 54	52.384 ~~54.0~~	"	F-V-Vis 10-9-79	14832
STACK	Dupont Co., Yerkes Plant E. Stack	42 57	55.2	78 54	54.0		F-V-Vis 10-9-79	14832

(41)

RESPONSIBLE PERSONNEL		
TYPE OF ACTION	**NAME**	**ORIGINATOR**
OBJECTS INSPECTED FROM SEAWARD	Kathy Andreen, Lt.	☐ PHOTO FIELD PARTY ☒ HYDROGRAPHIC PARTY ☐ GEODETIC PARTY ☐ OTHER *(Specify)*
POSITIONS DETERMINED AND/OR VERIFIED		FIELD ACTIVITY REPRESENTATIVE
		OFFICE ACTIVITY REPRESENTATIVE
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES		☐ REVIEWER ☐ 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

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

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.

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
- [X] HYDROGRAPHIC PARTY
- [ ] GEODETIC PARTY
- [ ] PHOTO FIELD PARTY
- [ ] COMPILATION ACTIVITY
- [ ] FINAL REVIEWER
- [ ] QUALITY CONTROL & REVIEW GRP.
- [ ] COAST PILOT BRANCH

(See reverse for responsible personnel)

[X] TO BE CHARTED
[ ] TO BE REVISED
[ ] TO BE DELETED

REPORTING UNIT (Field Party, Ship or Office): HFP-2

STATE: NY

LOCALITY: Upper Niagara River

DATE: 10/79

The following objects HAVE [X] HAVE NOT [ ] been inspected from seaward to determine their value as landmarks.

OPR PROJECT NO.: W-216

JOB NUMBER: ------

SURVEY NUMBER: H-9841

DATUM: NA 1927

CHARTING NAME	DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses)	POSITION LATITUDE ° ′	LATITUDE ″ D.M. Meters	POSITION LONGITUDE ° ′	LONGITUDE ″ D.P. Meters	METHOD AND DATE OF LOCATION (See instructions on reverse side) OFFICE	METHOD AND DATE OF LOCATION FIELD	CHARTS AFFECTED
TANK	FT. Erie South Tank	42 54	40.080	78 55	10.249		F-V-Vis 10-9-79	14832
TOWER	Tower	42 55	10.8	78 54	45.0		F-V-Vis 10-9-79	14832
TANK	Bridgeport Tank, 1941 Sig. 060	42 55	36.254	78 55	09.558		F-V-Vis 10-9-79	14832
CUPOLA (emp 1-96 1/83)	Cupola, Beaver Island State Park Admin. Building	42 57	37.589 ✓	78 57	04.174 ✓	8ϕE(C) 644ϕ 9-27-8ϕ	F-V-Vis 10-9-79	14832
TANK	Grand Isl. South Tank	42 57	55.758 → 55.754	78 57	32.279 → 567 32.567	"	F-V-Vis 10-9-79	14832
TOWER	Tower	42 58	33.6 → 537 33.537	78 56	48.8 → 123 48.123	"	F-V-Vis 10-9-79	14832
TOWER	R. Mast WBEN, NE Mast 4 VERT. Lts. 2 OCC R 2 FR Sig. 052	42 58	43.780 → 1 43.781	78 57	23.269 → 4 23.264	"	F-V-Vis 10-9-79	14832
TOWER	R. Mast WBEN, SW Mast 4 VERT Lts 2 OCC R, 2 FR	42 58	40.77X → 9 40.779	78 57	26.703 → 694 26.694	"	F-V-Vis 10-9-79	14832
TANK	Grand Isl. North Tank	42 59	55.848 → 37 55.837	78 57	18.150 → 4ϕ 18.154	"	F-V-Vis 10-9-79	14832
TOWER	TRS, FR, SW Tower	43 00	27.6 → 476 27.476	78 55	39.6 → 4ϕ.695 39.695		F-V-Vis 10-9-79	14832

(42.)

RESPONSIBLE PERSONNEL		
TYPE OF ACTION	**NAME**	**ORIGINATOR**
OBJECTS INSPECTED FROM SEAWARD	Kathy Andreen, Lt.	☐ PHOTO FIELD PARTY ☒ HYDROGRAPHIC PARTY ☐ GEODETIC PARTY ☐ OTHER *(Specify)*
POSITIONS DETERMINED AND/OR VERIFIED		FIELD ACTIVITY REPRESENTATIVE
		OFFICE ACTIVITY REPRESENTATIVE
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES		☐ REVIEWER ☐ 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

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

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.

☆ U.S.GPO:1975-0-665-080/1155

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

- [X] HYDROGRAPHIC PARTY
- [ ] GEODETIC PARTY
- [ ] PHOTO FIELD PARTY
- [ ] COMPILATION ACTIVITY
- [ ] FINAL REVIEWER
- [ ] QUALITY CONTROL & REVIEW GRP.
- [ ] COAST PILOT BRANCH

(See reverse for responsible personnel)

- [X] TO BE CHARTED
- [ ] TO BE REVISED
- [ ] TO BE DELETED

REPORTING UNIT (Field Party, Ship or Office)	STATE	LOCALITY	DATE
HFP-2	NY	Upper Niagara River	10/79

The following objects HAVE [X] HAVE NOT [ ] been inspected from seaward to determine their value as landmarks.

OPR PROJECT NO.	JOB NUMBER	SURVEY NUMBER	DATUM
W-216	------	H-9841	NA 1927

CHARTING NAME	DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses)	POSITION: LATITUDE ° '	LATITUDE " D.M. Meters	LONGITUDE ° '	LONGITUDE " D.P. Meters	METHOD AND DATE OF LOCATION (See instructions on reverse side): OFFICE	FIELD	CHARTS AFFECTED
TOWER	TRS, FR, NE Tower	43 00	28.2	78 55	37.2		F-V-Vis 10-9-79	14832
LIGHT	* Beaver Island State Park - East Entrance Light	42° 57'	27.94	78° 57'	17.23	* From Descriptive Report for TP-01127		
LIGHT	* Beaver Island State Park - West Entrance Light	42° 57'	29.13	78° 57'	26.86			
LIGHT	Beaver Island State Park - East Bulkhead Light					Unverified		
LIGHT	Beaver Island State Park - West Bulkhead Light					"		

See L- [illegible] Dup [illegible]

RESPONSIBLE PERSONNEL		
TYPE OF ACTION	**NAME**	**ORIGINATOR**
OBJECTS INSPECTED FROM SEAWARD	Kathy Andreen, Lt.	☐ PHOTO FIELD PARTY ☒ HYDROGRAPHIC PARTY ☐ GEODETIC PARTY ☐ OTHER *(Specify)*
POSITIONS DETERMINED AND/OR VERIFIED		FIELD ACTIVITY REPRESENTATIVE
		OFFICE ACTIVITY REPRESENTATIVE
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES		☐ REVIEWER ☐ 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

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

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.

☆ U. S. GPO:1975-0-665-080/1155

H-9841

APPROVAL SHEET

The hydrographic records transmitted with this report are complete and adequate to supersede prior surveys for charting.

The wreck presently charted at 42°57.52'N and 78°55.84'W (PSR #11G) originating with prior survey I-1777 (1940) was searched for and not found by HFP-2 using fathometer and visual search in water with a visibility of ½ foot. It was also reported by undocumented local sources that they had never found this wreck. This is not sufficient evidence to warrant removal of the wreck from the chart. It is recommended however that this wreck be shown as "ED" existance doubtful. No further investigation is recommended. -Concur

The crib shown as "under construction" on Chart 14832 between Motor Island and buoy C "17" is marked by a privately maintained horizontally banded black and red buoy. The position of the buoy was determined by HFP-2 however neither a least depth nor an accurate position of the intake crib was obtained. A phone call to Mr. Art Kline (473-2312) Buffalo Corps of Engineers permits section established that this crib has been completed as shown on Corps of Engineers permit drawing #76-621-13 (Raw Water Intake) and it has a least depth of 11 feet at LWD. No additional field work is recommended on this item. -Concur

Shoreline details north of 42°56'18.6" were obtained from Chart 14832 27th Edition, October 1, 1977 enhanced by NANCI Facilities 1975. Although helpful in the absence of shoreline manuscripts, chart blow ups do not provide the necessary accuracy nor necessary detail to support a basic hydrographic surveys in a congested urban area. Lack of shoreline manuscripts greatly increases the time required by the hydrographer to verify shoreline detail. Revisory photography for this area is highly recommended. -See section 2. b. of the Evaluation Report.

Direct daily supervision was not given by me during the field work.

Approved and forwarded,

Thomas W. Richards

Thomas W. Richards
Lt. Cdr., NOAA
Chief, Hydrographic Surveys Branch

REC'D SEP 4 1979
REQUIREMENTS BRANCH
HYDROGRAPHIC SURVEYS DIVISION

Atlantic Marine Center
439 W. York Street
Norfolk, Virginia 23510

August 30, 1979 CAM11/TWR

TO: Chief, Requirements Branch (OA/C351)

THRU: Cdr. Carl W. Fisher
Chief, Operations Division

FROM: Lt. Cdr. Thomas W. Richards
Chief, Hydrographic Surveys Branch

SUBJECT: Revised Sheet Layout OPR-W216, Niagara River

Permission is requested to revise the sheet layout in the Niagara River.

The requested change (shown on attached chart 14822) leaves sheet "C" unaltered, elongates sheet "B" to a 36X60 inch sheet, and shifts sheet "A" to the south and to the east. This change simplifies the water level gage requirements on this project by adjusting the smooth sheet hydro limits into coincidence with some of the water level gage limits.

Attachment

cc:
HFP-2

Revision is approved

TWR
File OPR W216

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SURVEY
Hydrographic Field Party #2

Date : July 31, 1979

Reply to Attn. of:

To : Jack La Fountain
Surveying Branch, Corps of Engineers

From : Kathryn A. Andreen
OIC, Hydrographic Field Party #2

Subject: Hydrographic Surveying of the Black Rock Canal

Mr. La Fountain,

I would like to reconfirm the hydrographic surveying status of the Black Rock Canal. As per our conversation on the 17th of July, it is my understanding that while surveying the maintained channel of the canal, your survey crew will extend their sounding lines to include the area outside the channel that will be within the limits of safe navigation for your launch. This would approximately be the 2.5 ft. IGLD contour which is equal to 5.0 ft. beneath the keel of the boat. Also, upon completion, a copy of the survey will be forwarded to Chief, Chart Information Branch, NOAA, Rockville, MD 20852, ATTN: C322.

Please advise me as to any misconceptions or changes to the above information. Thank you.

Aug 3, 1979

Miss Andreen,

You are correct in the above statement, And As you have seen the sounding Sheets + All sounding has been completed At this time I assume they are Adquate for your uses. As soon as they have been Signed they will be forwarded to Rockvilles And A ~~s~~ set to you. Jack La Fountain

(46.)

HYDROGRAPHIC SURVEY STATISTICS
REGISTRY NO.: H-9841

Number of positions	1756
Number of soundings	7195
Number of control stations	55

	TIME-HOURS	DATE COMPLETED
Preprocessing Examination	16	8 FEB 80
Verification of Field Data	1117	18 FEB 86
Quality Control Checks	79	
Evaluation and Analysis	96	28 JUL 86
Final Inspection	32	15 JUL 86
TOTAL TIME	1340	
Marine Center Approval		28 JUL 86

Transmittal letter of survey and survey records will be included in the Descriptive Report to identify the records accompanying the survey.

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

WATER LEVEL NOTE FOR HYDROGRAPHIC SHEET

Processing Division: Atlantic Marine Center: CAM3

Hourly heights are approved for

Water Level Station Used: See remarks

Period: July 27, 1979 - September 27, 1979

HYDROGRAPHIC SHEET: H-9841

OPR- W216-HFP-77

Locality: Upper Niagara River

Plane of reference: See remarks

Remarks:

The following list of Water Level Stations and their corresponding Low Water Datum (feet IGLD) should be used for this survey:

Buffalo, N.Y.	(906-3020)	568.6'
Fort Erie, Ont.	(906-3114)	568.0'
Peace Bridge, N.Y.	(906-3019)	565.4'
Squaw Island, N.Y.	(906-3219)	564.3'
Ontario St., N.Y.	(906-3117)	563.7'
Beaver Island, N.Y.	(906-3015)	563.0'
Huntley Station, N.Y.	(906-3016)	563.1'
Tonawanda Island, N.Y.	(906-3018)	562.7'

Philip C. Marks

Chief, Water Level Branch

NOAA FORM 76-155
(11-72)

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

SURVEY NUMBER

H-9841

GEOGRAPHIC NAMES

Name on Survey	A ON CHART NO.	B ON PREVIOUS SURVEY NO.	C ON U.S. QUADRANGLE MAPS	D FROM LOCAL INFORMATION	E ON LOCAL MAPS	F P.O. GUIDE OR MAP	G RAND MCNALLY ATLAS	H U.S. LIGHT LIST	K	
BIRD ISLAND REEF										1
BLACK ROCK CANAL										2
BUFFALO										3
CHIPPAWA CHANNEL										4
FERRY VILLAGE										5
FORT ERIE (locality)										6
FRENCHMAN CREEK										7
GRAND ISLAND										8
GRANDYLE VILLAGE										9
LAKE ERIE (title)										10
LIMEKILN REEF										11
MOTOR ISLAND										12
NEW YORK (title)										13
NIAGARA RIVER										14
NORTH FORT ERIE (locality)										15
ONTARIO										16
SQUAW ISLAND										17
STRAWBERRY ISLAND										18
TONAWANDA										19
TONAWANDA CHANNEL										20
					Approved:					21
					Charles C. Harrington					22
					Chief Geographer - N/CG2x5					23
					MAY 28 1986					24
										25

NOAA FORM 76-155 SUPERSEDES C&GS 197

ATLANTIC MARINE CENTER
EVALUATION REPORT

SURVEY NO.: H-9841 FIELD NO.: HSB-10-1-79

New York, Niagara River, Lake Erie to Tonawanda

SURVEYED: 27 July through 27 September 1979

SCALE: 1:10,000 and 1:5,000 Inset PROJECT NO.: OPR-W216-HFP-78

SOUNDINGS: RAYTHEON DE-719B Fathometer and Sounding Pole CONTROL: DEL NORTE/WILD T-1 Theodolite (Range/ Azimuth)

Chief of Party.....K. A. Andreen

Surveyed by.....W. L. Sprye
.....D. M. Bryant
.....J. T. Krauthamer
.....J. K. Klinefelter
.....S. E. Gilbert
.....R. L. Keene

Automated Plot by.....XYNETICS 1201 Plotter(AMC)

1. INTRODUCTION

a. No unusual problems were encountered during office processing.

b. Notes in the Descriptive Report were made in red during office processing.

c. The digital records for this survey contain multiple header records identifying two (2) digital files: the main sheet and inset number one (1).

2. CONTROL AND SHORELINE

a. Control is adequately discussed in sections F., G., and S. of the Descriptive Report.

b. Shoreline originates with final reviewed class III photogrammetric manuscript TP-00455 of 1978-79 and TP-01127 of 1980-82. Additional information shown in red originates with the hydrographic survey and supplements the shoreline manuscript. Both of the shoreline manuscripts were enlarged to 1:10,000 scale for application to the present survey.

A reference to shoreline "corrections" on the southeastern corner of Strawberry Island in section H. of the Descriptive Report is not correct. The hydrographer

made no red or dashed red lines on the field sheets to indicate any shoreline change on Strawberry Island. The hydrography and the shoreline applied to the present survey are not in conflict.

There are several areas where the symbols along the shoreline have no shoreline delineation inside or adjacent to the symbol. When the shoreline manuscripts were enlarged to the scale of the present survey gaps with no shoreline delineation were created by the difference in the symbol sizes at the different scales. Shoreline in these areas has been approximated during office processing.

The lights at the entrance to Jafco Marina (Cornelius Creek Dock Lights), approximate Latitude 42°56'35"N, Longitude 78°54'36.5"W and the marina to the south (Pier Aus-Tel), approximate Latitude 42°56'20"N, Longitude 78°54'33"W were located by field edit on 20 June 1982. The south light for Jafco Marina as shown on the present survey does not plot on the end of the breakwater. The shoreline for the present survey was taken from photogrammetric manuscript TP-01127 of 1978. The final compilation was completed prior to the field edit being performed. No shoreline change was indicated by hydrographer on the field sheet. A telephone conversation with personnel at Jafco Marine, (716) 876-5944, confirmed the delineation of the south breakwater as correct on the Control Station Identification (CSI) card submitted by the field edit personnel. The delineation on the present survey has been changed in red.

3. HYDROGRAPHY

a. Soundings at crossings are in excellent agreement and comply with the criteria found in sections 4.6.1 and 6.3.4.3. of the HYDROGRAPHIC MANUAL.

b. The standard depth curves could not be drawn in their entirety. There were many instances where the slope of the bottom was precipitously close to the shoreline thereby precluding the delineation of some curves and the zero (0) curve was not delineated because of vessel safety. The supplemental three (3) foot curve was drawn when appropriate to show additional bottom relief. The twenty-four (24) foot curve was also drawn to correspond with the charted twenty-four (24) foot curve. Additionally, dashed curves were also drawn to delineate bottom relief.

c. The development of the bottom configuration and determination of least depths is considered adequate with the following exception:

There were many bottom features where a sounding line along the axis of a feature would have enhanced the

development of the bottom configuration. In general, lines along the axis of features were not run. As a consequence it became doubtful whether the shoalest depths were obtained on many features.

4. CONDITION OF SURVEY

The smooth sheet and accompanying overlays, hydrographic records and reports are adequate and conform to the requirements of the HYDROGRAPHIC MANUAL with the following exceptions:

a. The hydrographer's discussions of the Pre-survey Review items did not contain geographic positions for each item. This information provides the personnel processing the survey and the compiler with a general location of each item without having to consult additional sources.

b. The hydrographer did not take twice daily bar checks as required by sections 1.5.2 and 4.9.51.1. of the HYDROGRAPHIC MANUAL. The hydrographer took twenty-four (24) out of a possible thirty-four (34) bar checks. This is an excellent effort by the field unit considering the currents in the survey area.

c. The hydrographer used poor judgement in the selection of control stations for some of the data obtained on this survey. Data was gathered using a station whose signal had to pass under a two lane highway bridge. The detached positions taken in this situation are not in good agreement with the shoreline manuscript positions. Objects located using the same combination of control stations on the same side of the bridge agree with the shoreline manuscript positions.

d. The hydrographer did an excellent job of describing features located alongshore. The detailed drawings in the sounding volumes are excellent.

e. The non-maintained waters of the Black Rock Canal were not surveyed south of the locks as required by section 1.3.a. of the Project Instructions. From a charting standpoint the area of non-maintained waters are not of any significant extent, and this is not considered a significant deficiency.

5. JUNCTIONS

H-9705 (1977) to the south
H-9889 (1980) to the north
H-10020 (1982) to the west

Adequate junctions were effected with surveys H-9889 (1980) and H-10020 (1982).

A standard junction could not be effected with survey H-9705 (1977). This junctional survey is archived at National Ocean Service (NOS) Headquarters, Rockville, Maryland. Any adjustments to the depth curves in this junctional area should be resolved on the nautical chart at headquarters during the chart compilation process.

COMPARISON WITH PRIOR SURVEYS

LS-1776 (1940) 1:10,000
LS-1777 (1940) 1:10,000
LS-1778 (1940) 1:10,000

The surveys listed above taken together cover the present survey in its entirety.

LS-1776 covers only a small portion of the present survey at the extreme northern limit. The present and prior soundings compare well with differences ranging from plus or minus (+/-) one (1) to three (3) feet.

A wreck in Latitude 43°00'19"N, Longitude 78°55'53"W on the prior survey is now inside the present high water line. The wreck is not charted, and no change in charting status is recommended.

LS-1777 (1940) covers the central portion and the majority of the present survey from Latitude 42°56'30"N to Latitude 43°00'30"N and to Longitude 78°57'30"W. Present survey depths compare well with the prior survey depths. Generally, the present survey depths vary plus or minus (+/-) two (2) to three (3) feet.

Numerous piers, wharves, and marinas have been constructed along the shore in the common area. The most noticeable area is on Grand Island between Beaver Island State Park and the Grand Island South Bridge. In this area many small finger piers have been constructed. It is recommended that these piers be charted as shown on the shoreline manuscript and supplemented by hydrographic data unless chart scale precludes their application to the chart. Along the west shore of the river there has been cultural development in conjunction with the industrial facilities. It is recommended that the western shoreline be charted as shown on the shoreline manuscript and supplemented by the hydrographic data.

A noticeable change in the common area is the change in the size and configuration of Strawberry Island and the erosion and subsequent disappearance of the small island between Strawberry and Motor Islands. The charted information in this area still reflects the 1940 survey results. It is recommended that the delineation of the

shoreline in the vicinity of these islands be charted as shown on photogrammetric manuscript TP-01127 of (1980-82).

The following should be noted:

a. A row of submerged piles on the east side of Motor Island in the vicinity of Latitude 42°57'55"N, Longitude 78°56'04"W on the prior survey was shown only as a single point with the note pier ruins on the present survey. A row of submerged piles has been brought forward to the present survey in this location to supplement the present survey. The hydrographer also located a row of piles south of the pier ruins on the east side of the island. The chart shows three (3) piles on the east side of Motor Island. It is recommended that this area be charted as shown on the present survey. Applyd

b. Three piles shown on the prior survey in Latitude 42°58'45"N, Longitude 78°56'49"W were not located on the present survey. These piles are at the end of a pier that was not constructed when the prior survey was conducted. It is recommended that the present survey information be charted in this area. N/C

c. A single pile shown on the prior survey in Latitude 42°58'48"N, Longitude 78°56'50"W was not located on the present survey. This pile is at the end of a pier that did not exist when the prior survey was conducted. It is recommended that the present survey information be charted in this area. N/C

d. A row of piles shown on the prior survey in Latitude 42°59'00"N, Longitude 78°56'51"W was not located on the present survey. There is a single pile shown on the chart in this location. This row of piles has been brought forward as a row of submerged piles to supplement the present survey. Applyd

e. The area shown on the prior survey as "swept to 13 feet" in the vicinity of Latitude 42°59'09"N, Longitude 78°56'38"W has an echo sounder least depth from the present survey of twelve (12) feet in Latitude 42°59'14"N, Longitude 78°56'38"W. There also several thirteen (13) foot soundings that fall within the limits shown on the prior survey. This apparent conflict with the swept depth may be attributable to difficulty in controlling a wire sweep in a river with a strong current. N/C

f. Two (2) twenty (20) foot depths in the vicinity of Latitude 42°58'49"N, Longitude 78°56'44"W fall in present survey depths of twenty-two (22) feet. These depths also fall in a U. S. Army Corps of Engineers maintained channel with a project depth of twenty-one (21) feet. These depths were not brought forward to supplement the present survey

because the U. S. Army Corps of Engineers surveys of the area would have superseded these depths for charting purposes. N/C

g. A charted 17-ft sounding in Latitude 42°59'25"N, Longitude 78°56'35"W originates with an unascertainable prior survey sounding transferred to survey LS-1777 (1940). This sounding is not considered verified or disproved by the present survey. The sounding was brought forward to the present survey from prior survey LS-1777 (1940) to supplement the present survey. Applyd

h. Four (4) charted piles in Latitude 42°58'23"N, Longitude 78°56'39"W originating with the prior survey were not found by the hydrographer. A single steel pile baring seven (7) feet at Low Water Datum was located in Latitude 42°58'23"N, Longitude 78°56'40"W. The piles on the prior survey were brought forward as submerged piles to supplement the present survey. It is recommended that the steel pile be charted as shown on the present survey, and the four (4) charted piles be revised to submerged piles. Applyd

i. A charted crib is in Latitude 42°59'54"N, Longitude 78°56'00"W. This crib was not located by the hydrographer nor is it shown on the shoreline manuscript. The crib is shown in this vicinity on prior survey LS-1777 (1940). The crib has been brought forward from the prior survey as a submerged crib to supplement the present survey. It is recommended that the charted crib be revised to a submerged crib in the above location. Applyd

Numerous shoal depths, charted dangers, and rocks awash on the prior survey not considered verified or disproved by the present survey have been brought forward to supplement the present survey.

LS-1778 (1940) covers the southern portion of the present survey to Latitude 42°56'30"N. The present survey soundings compare well with the prior survey soundings. Generally the depths vary plus or minus (+/-) one (1) to three (3) feet. One exception to this general statement is found in approximate Latitude 42°55'00"N, Longitude 75°54'24"W where present survey depths are six (6) to thirteen (13) feet deeper than the prior survey depths. The depths on the present survey fall between sounding lines on the prior survey.

Numerous cultural changes have occurred during the thirty-nine (39) year between surveys. The west side of Squaw Island has been filled extensively and the swing span on the International Bridge has been removed and is now fixed with a vertical clearance of 22 feet (field determination). Several large marinas have been constructed in the vicinity of the north end of the Black Rock Canal.

Along the western shore of the Niagra River south of the Peace Bridge there has been some filling and bulkheading. These features are shown on the latest editions of the chart and should be retained as charted. ✓

The following should be noted:

a. The hydrographer located a large, 6-foot by 12-foot, rock awash at Low Water Datum in Latitude 42°56'07"N, Longitude 78°54'59"W. The position of this rock closely corresponds to a portion of a pier shown on LS-1778 (1940). The possibility exists that there are ruins between the rock and the shore. A portion of the pier shown on the prior survey was brought forward as pier ruin to supplement the present survey. It is recommended that the rock and pier ruins be charted as shown on the present survey. Applyd

b. Three (3) small piers in the vicinity of Latitude 42°56'24"N, Longitude 78°55'24"W are shown on the prior survey. The hydrographer did not locate these piers nor are they shown on the shoreline manuscripts. The piers are not charted on the latest edition of the chart. No change in charting status is recommended. NK

c. A large marina now exists in the vicinity of Latitude 42°56'18"N, Longitude 78°54'30"W. The prior survey shows a much smaller marina in this area. The new marina configuration is shown on the present survey and the latest edition of the chart. No change in charting status is recommended. NK

d. A row of submerged piles in the vicinity of Latitude 42°54'39"N, Longitude 78°54'32"W originating with prior survey LS-1778 (1940) were brought forward to supplement the present survey. These piles are not considered verified or disproved. Some cultural change in the high water line has occurred in the northern vicinity of this area which precluded the retention of a portion of the row of piles. Applyd

e. A charted 12-ft sounding in Latitude 42°54'10"N, Longitude 78°54'27"W, a dashed circle Presurvey Review item, originates with prior survey LS-1778 (1940). The sounding is not considered verified or disproved by the present survey and has been brought forward from the prior survey to supplement the present survey. Applyd

f. The charted pier in Latitude 42°56'25"N, Longitude 78°56'27"W apparently originates with a pier shown on prior survey LS-1778 (1940). It is recommended that the pier should be charted as a submerged pier ruin in the charted location. Pos in error Applyd (from Hydro sheet)

g. A charted pier ruin in Latitude 42°56'24"N,

Longitude 78°55'26"W appears to originate with a pier shown on prior survey LS-1778 (1940). It is recommended that the pier ruin be retained as charted. N/C

h. A charted pier in Latitude 42°56'23"N, Longitude 78°55'25"W was not located by the field unit. The pier appears to originate with prior survey LS-1778 (1940). It is recommended that this feature be charted as submerged ruin in the present location. Applyd (see also item F)

Numerous shoal depths, charted dangers, and rocks awash on the prior survey not considered verified or disproved by the present survey were brought forward to supplement the present survey.

The present survey except as noted above is adequate to supersede the above prior surveys within the common area.

7. COMPARISON WITH CHART 11432 (27th Edition, Oct. 1/77)
11433 (22nd Edition, Aug. 17/85)

a. Hydrography

The charted hydrography originates with the previously discussed prior surveys and miscellaneous sources. The following should be noted:

78°54'59"W. It is recommended that this pipe be charted as shown on the present survey. } Pool road

1) Presurvey Review Item 6A, a charted nondangerous sunken wreck, PD in Latitude 42°54'09"N, Longitude 78°54'07.8"W was searched for by the hydrographer. The hydrographer found debris in the vicinity of the charted wreck. Survey data to support the investigation was not submitted by the hydrographer. The type of investigation performed was not described. The debris found in the vicinity of the wreck may not preclude the existence of a sunken wreck in the charted position. An examination of the latest edition of the charts revealed that the wreck has been removed from the charts. It is recommended that the chart compiler ascertain the source for the removal of the wreck and take the appropriate charting action. N/C

Awois # 6838

2) Presurvey Review Item 6B, a charted dangerous sunken wreck,PD, in Latitude 42°53'48"N, Longitude 78°54'32.4"W was searched for by the field unit with negative results. This wreck is described in the U. S. Coast Pilot Number 6, GREAT LAKES: LAKES ONTARIO, ERIE, HURON, MICHIGAN, AND SUPERIOR AND ST. LAWRENCE RIVER. Additional lines of hydrography would have been desirable for more complete bottom coverage. Additional lines of hydrography perpendicular to the main scheme lines would have also helped to provide better bottom coverage of the

Awois # 6837

search area. The shoreline manuscript for this survey shows a stranded wreck in the same area. The photography for this shoreline manuscript was flown in 1978. Since the wreck was not observed by the hydrographer the wreck is shown on the present survey as a sunken wreck. It is recommended that a sunken wreck be charted as shown on the present survey. Applyd

3) Presurvey Review Item 11G, a charted nondangerous sunken wreck, in Latitude 42°57'31.2"N, Longitude 78°55'50.4"W originates with prior survey LS-1777 (1940). The item was searched for by the hydrographer with negative results. The line spacing in the area of the item is 100 meters. The hydrographer should have reduced line spacing and run lines perpendicular to the main scheme lines during the search. Considering the development density and the contact with local people, it is recommended that the sunken wreck be retained with the note ED added. The nondangerous sunken wreck was brought forward from prior survey LS-1777 (1940) to supplement the present survey. Applyd

4) Presurvey Review Item 11F, a charted nondangerous sunken wreck, in Latitude 42°59'11.5"N, Longitude 78°56'30.5"W originates with prior survey LS-1777 (1940). The item was searched for by the hydrographer and found in Latitude 42°59'11"N, Longitude 78°56'29"W. The wreck appears to be the remains of a barge and is awash at the sounding datum. It should be noted that the Presurvey Review listed an erroneous position for the wreck. It is recommended that the wreck be charted as shown on the present survey. Applyd

5) Presurvey Review Item 12C, a charted visible wreck, in Latitude 42°58'25.8"N, Longitude 78°56'40.8"W apparently originates with prior survey LS-1777 (1940) which shows five (5) sunken wrecks in the vicinity. The item was located by the hydrographer in Latitude 42°58'29"N, Longitude 78°56'42"W. The wreck bares seven (7) feet at Low Water Datum. It is recommended that the wreck be charted as shown on the present survey. Applyd

6) Presurvey Review Item 12D, a charted visible wreck, in Latitude 42°58'13.2"N, Longitude 78°56'36"W, originates with prior survey LS-1777 (1940) which shows two (2) hulks in the vicinity. The item was searched for and located by the hydrographer. The hydrographer found an extensive area that is foul with wrecks during the investigation of the item. It is recommended that this area be charted as shown on the present survey. Applyd

7) A large submerged groin in the vicinity of Latitude 42°55'12"N, Longitude 78°54'39"W was located on the present survey. This feature is charted as ruins; it is recommended that a submerged groin be charted as shown on the present survey. Applyd

42°55'01.5"N

8) A submerged concrete pipe was located by the hydrographer in Latitude ~~42°55'41"N,~~ Longitude 78°54'36"W. This pipe is 16 feet long and 3 feet wide. It is recommended that this pipe be charted as shown on the present survey. position in error Applyd from Hydro Sheet

9) The hydrographer located a submerged concrete ruin in Latitude 42°55'15"N, Longitude 78°54'41"W. This ruin is 131 feet long and 6 feet wide. It is recommended that the submerged ruin be charted as shown on the present survey. Applyd

10) The hydrographer located a submerged groin in Latitude 42°55'38"N, Longitude 78°54'48"W. The groin is 66 feet long by 6 feet wide and should be charted as shown on the present survey. Applyd

11) The hydrographer located a pipe baring three (3) feet at Low Water Datum in Latitude 42°56'03"N, Longitude 78°54'56"W. It is recommended that this pipe be charted as shown on the present survey. Applyd

12) The hydrographer located a groin and pier ruin in Latitude 42°56'03"N, Longitude 78°54'56"W. It is recommended that this groin and pier ruin be charted as shown on the present survey. Pipe Applyd per Hydro

13) The hydrographer located a pipe baring four (4) feet at Low Water Datum in Latitude 42°56'06"N, Longitude 78°54'59"W.It is recommended that this pipe be charted as shown on the present survey. Applyd

14) A charted pier and dolphins in Latitude 42°59'41"N, Longitude 78°56'30"W is not shown on the shoreline manuscript in the same configuration as the chart or the present survey. It is recommended that the pier and dolphins be charted as shown on the present survey. N/C

15) A charted pier, partially in ruin in Latitude 42°59'24"N, Longitude 78°56'48"W was shown as ruins on the shoreline manuscript and verified by the hydrographer. It is recommended that the charted pier be revised to pier ruins as shown on the present survey. N/C

16) Charted piles or dolphins in Latitude 42°59'09"N, Longitude 78°56'30"W were not investigated by the hydrographer. These objects appear on prior survey LS-1777 (1940) as three (3) cribs. These objects were located by the present survey and identified as steel dolphins. It is recommended that these objects be charted as shown on the present survey unless subsequent charting information indicates otherwise. N/C

17) The charted marina, Anchor Marine, in Latitude

Corr to Charted position

42°58'27"N, Longitude ~~78°56'06"W~~ 78°56'42" has been expanded. The shoreline manuscript shows the present configuration. It is recommended that the marina be revised to the delineation shown on the shoreline manuscript. N|C

18) An uncharted obstruction in Latitude 42°56'54"N, longitude 78°57'08"W originates with the shoreline manuscript. This obstruction was not investigated by the field unit. It is recommended that the obstruction be charted as a submerged obstruction as shown on the present survey. AWOIS #6813 Applyd

19) Four (4) charted piles or dolphins charted in the vicinity of Latitude 42°57'54"N, Longitude 78°55'34"W originating with a miscellaneous source were not located by the hydrographer. A single detached position for pier ruin was taken by the hydrographer in Latitude 42°55'54"N, Longitude 78°55'34"W. It is recommended that the pier ruin found by the hydrographer be charted as shown on the present survey and the four (4) charted piles or dolphins be revised to submerged piles or submerged dolphins. Applyd

20) A charted pier ruin in Latitude 42°56'17"N, Longitude 78°55'16"W originates with a miscellaneous source. The hydrographer did not locate a pier ruin in this position on the present survey. It is recommended that the pier ruin be retained as charted. NC

21) Four (4) charted piles near the south end of Strawberry Island, in Latitude 42°57'09"N, Longitude 78°55'24"W from a unascertainable source are a portion of pier ruins located by the field unit. The hydrographer located a pile baring three (3) feet at Low Water Datum in Latitude 42°57'10"N, Longitude 78°55'26"W. It is recommended that the pier ruin be charted as shown on the present survey. Applyd

22) There are three (3) groups of charted piles in Latitude 42°56'08"N, Longitude 78°54'59"W, Latitude 42°56'05"N, Longitude 78°54'57"W, Latitude 42°56'04"N, Longitude 78°54'57"W and a single pile in Latitude 42°56'03"N, Longitude 78°54'56"W on chart 14833 that were not investigated by the field unit. It is recommended that these piles be charted as submerged piles in the charted locations. Applyd

23) A charted 17-ft sounding in Latitude 42°54'55"N, Longitude 78°54'26"W originates with a miscellaneous source. Present survey depths in the vicinity are nineteen (19) to twenty-two (22) feet. Considering the density of sounding data in this area, it is recommended that the present survey depths be charted in this area. Applyd

24) The charted bottom descriptions "rky" in several

places originate with miscellaneous sources. It is recommended that these "rky" descriptions be retained on the chart.

The present survey except as noted above is adequate to supersede the charted hydrography in the common area.

b. Controlling Depths

There are no conflicts between the present survey depths and the tabulation for the Tonawanda Channel. There is no project depth listed for the Black Rock Canal. There are several shoal depths in the charted limits of the canal that should be noted:

1) A 4-ft sounding located in Latitude 42°56'57"N, Longitude 78°54'43"W.

2) An 8-ft sounding located in Latitude 42°56'54"N, Longitude 78°54'36"W

3) A 9-ft sounding located in Latitude 42°56'52"N, Longitude 78°54'36"W.

The three (3) sounding listed above are all in the right outside quarter of the channel between buoy number 1 and 5. The chart compiler should consult the latest Corps of Engineers dredging surveys for appropriate notes for the charted tabulations.

c. Aids to Navigation

The hydrographer located twenty-two (22) floating and fifteen (15) fixed aids to navigation in the survey area. These aids appear adequate to serve their intended purpose.

The lights at the entrance to the area called Pier Aus-Tel in the vicinity of Latitude 42°56'20"N, Longitude 78°54'33"W were added to the present survey from the information provided by personnel from Photogrammetry Branch. The information was obtained in 1982. The positions for the lights were taken from CSI card #8. There is no accompanying geodetic data for the locations, only the description provided by field personnel. The lights were not located by the hydrographer in 1980. The lights are not charted on the 1977 edition of the nautical chart used by the hydrographer. Subsequent editions of the chart do not show these lights. It is recommended that the lights be charted as shown on the present survey. A copy of the CSI card is included with the data package for this survey.

Additional CSI cards were submitted by the field editor. A CSI card, #9, was submitted for the lights at the entrance to Jafco Marina (Cornelius Creek Dock Lights). The

lights at the entrance to Jafco Marina are shown on the present survey and are charted. Copies of these CSI cards will also be included in the survey data package.

8. COMPLIANCE WITH INSTRUCTIONS

This survey complies with the Project Instructions except as noted in section 4. of this report.

9. ADDITIONAL FIELD WORK

This is an adequate basic survey; no additional field work is recommended.

Franklin L. Saunders
Cartographic Technician
Verification of Field Data

Robert G. Roberson
Supervisory Cartographer
Evaluation and Analysis

Harry R. Smith
Senior Cartographic Technician
Verification Check

ADDENDUM TO ACCOMPANY SURVEY H-9841

The average values for shifting surveyed NAD 1927 positions to NAD 1983 positions for this survey are as follows:

Position shifts (NAD 1983 minus NAD 1927):
Average latitude shift = 0.205 seconds = 6.3 meters
Average longitude shift = -0.861 seconds = -19.5 meters

Inspection Report
H-9841

The completed survey has been inspected with regard to survey coverage, delineation of depth curves, development of critical depths, cartographic symbolization, and verification or disproval of charted data. The digital data have been completed and all revisions and additions made to the smooth sheet during survey processing have been entered in the magnetic tape record for this survey. Final control, position, and sounding printouts of the survey have been made. The survey complies with National Ocean Service requirements except as noted in the Evaluation Report. The survey records comply with NOS requirements except where noted in the Evaluation Report.

Inspected

R. D. Sanocki
Chief, Hydrographic Surveys
Processing Section
Hydrographic Surveys Branch

Approved 28 July 1986

Wesley V. Hull, RADM, NOAA
Director, Atlantic Marine Center

U.S. DEPARTMENT OF COMMERCE

NOAA—NATIONAL OCEAN SURVEY, LAKE SURVEY CENTER

630 Federal Building and U.S. Courthouse, Detroit ,Michigan 48226

Hydrographic Index No. 2C

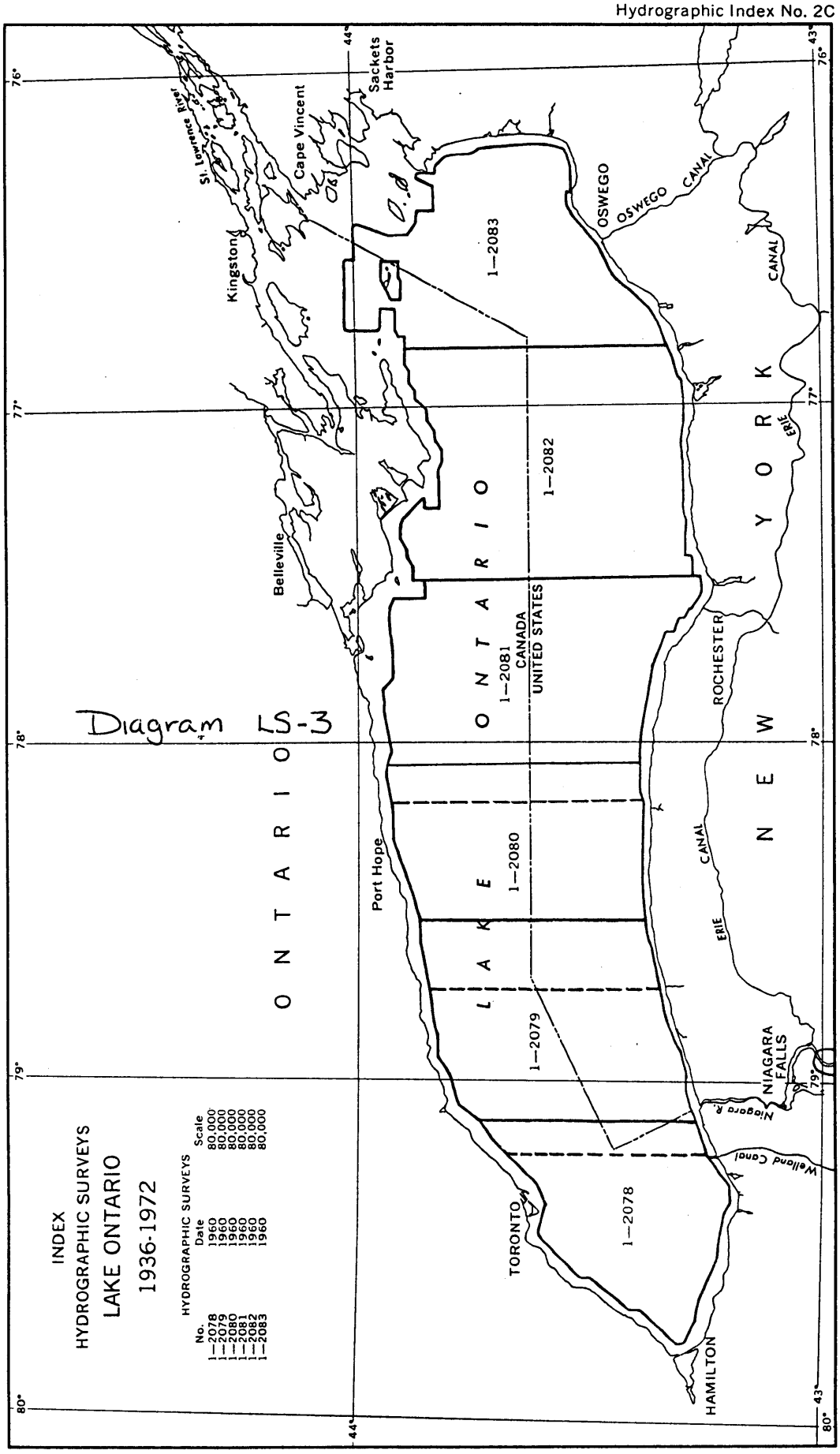


Diagram LS-3

H-9841

NOAA FORM 75-96
(10-83)

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

MARINE CHART BRANCH

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-9841

INSTRUCTIONS

A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart.
1. Letter all information.
2. In "Remarks" column cross out words that do not apply.
3. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review.

CHART	DATE	CARTOGRAPHER	REMARKS
14833	11/4/88	R Mansfield	~~Full~~ Part ~~Before~~ ~~After~~ Marine Center Approval Signed Via (Part AFTER)
			Drawing No. 4 App'd critical Corrections only
14832	11/9/88	R Mansfield	~~Full~~ Part Before ~~After~~ Marine Center Approval Signed Via
			Drawing No. 4 App'd Critical Corrections only
14822	11/10/88	R Mansfield	~~Full~~ Part Before ~~After~~ Marine Center Approval Signed Via (Part AFTER)
			Drawing No. 6 App'd Critical Corrections only.
14823M	11/14/88	R Mansfield	~~Full~~ Part ~~Before~~ After Marine Center Approval Signed Via
			Drawing No. 6 checked for Critical Corrections only
14832	3-28-89	ED MARTIN	Full ~~Part Before~~ After Marine Center Approval Signed Via
			Drawing No. 4 IN FULL
14833	5-4-89	D MCKINNON	Full Part Before After Marine Center Approval Signed Via
			Drawing No. 4 IN FULL
14823M	6/22/90	John Pierce	Full ~~Part Before~~ After Marine Center Approval Signed Via
			Drawing No. 4
14822	8/29/91	C Kenneth	Full Part Before After Marine Center Approval Signed Via
			Drawing No. 7 App'd in Full
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.

SUPERSEDES C&GS FORM 8352 WHICH MAY BE USED.

Upd to Std 11-18-87 Rev