9172
WIRE DRAG

Diag. Cht. No. 1218-2.

FORM C&GS-504

U.S. DEPARTMENT OF COMMERCE
ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
COAST AND GEODETIC SURVEY

DESCRIPTIVE REPORT

Type of Survey WIRE DRAG

Field No. RH 20-1-70WD *Office No.* H-9172

LOCALITY

State DELAWARE

General locality DELAWARE BAY

Locality NORTH OF LEWES

1968-70

CHIEF OF PARTY

MERRITT N. WALTER

LIBRARY & ARCHIVES

DATE 4/22/71

USCOMM-DC 37022-P66

9172
WIRE DRAG

FORM C&GS-537
(5-66)

U.S. DEPARTMENT OF COMMERCE
ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
COAST AND GEODETIC SURVEY

REGISTER NO.
H-9172

HYDROGRAPHIC TITLE SHEET

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

FIELD NO.
RH 20-1-70WD

State DELAWARE

General locality DELAWARE BAY

Locality NORTH OF LEWES

Scale 1:20,000 Date of survey 9/29/68 to 8/19/70

Instructions dated 25 JUNE 1970 Project No. OPR-480

Vessel RUDE & HECK

Chief of party MERRITT N. WALTER

Surveyed by GR SCHAEFER, A.Y. BRYSON, J.J. MORLEY

Soundings taken by echo sounder, hand lead, pole NONE

Graphic record scaled by NONE

Graphic record checked by

Protracted by J.J. MORLEY, LTJG Automated plot by

DRAG STRIPS INKED BY:
Soundings penciled by J.J. MORLEY, LTJG

Soundings in ~~fathoms~~ XXXXX feet at MLW ~~MLLW~~ XXXXX

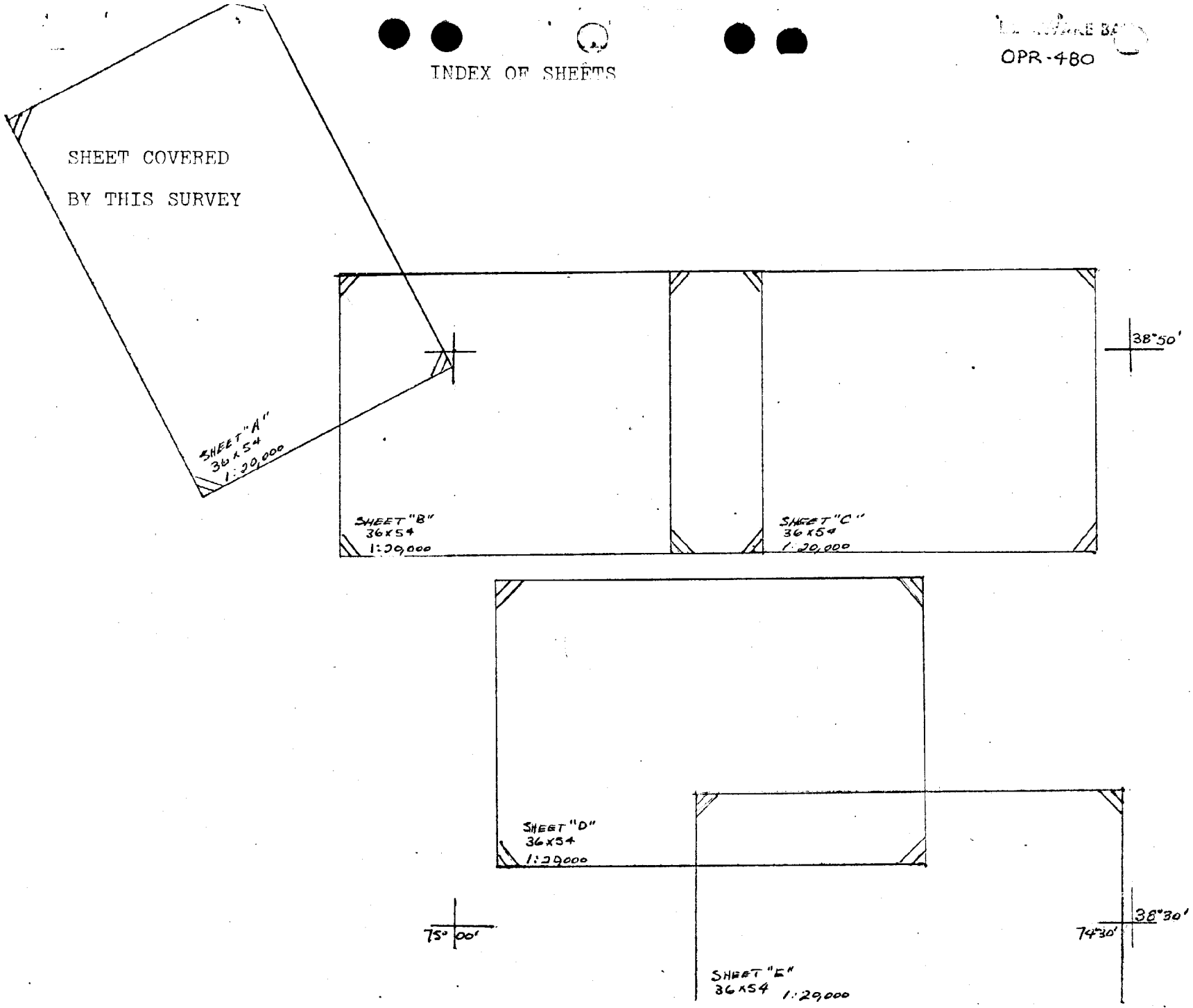
REMARKS:

Applied to Nos. 2 12 71

USCOMM-DC 37009-P66

OPR-480

INDEX OF SHEETS



DESCRIPTIVE REPORT
TO ACCOMPANY
WIRE DRAG FIELD NO. RH-20-1-70, SHEET "A"
PROJECT OPR-480
DELAWARE BAY ENTRANCE
1970
LCDR MERRITT N. WALTER
USC&GS SHIPS RUDE & HECK

A. AUTHORITY - Project Instructions, OPR-480, wire drag and wire sweep, Delaware Bay Entrance dated 25 June 1970; amendment to instructions dated 6 July 1970; amendment to instructions dated 13 July 1970; memorandum giving approval to revised project limits dated 13 August 1970.

B. CHARACTER AND LIMITS OF THE WORK - The purpose of this project is to clear the approaches to and within the anchorage area (LAT 38°58' N, LONG 75°12' W) in Delaware Bay Entrance.

The locality of the survey, covered by C&GS Chart 1218 is the entrance to Delaware Bay at effective depths greater than 60 ft. from the restricted area 207.105 Northwest to the anchorage area 110.157. The survey was conducted on a scale of 1:20,000 using visual and Raydist fixes for control.

C. CONTROL - Raydist control was utilized at all times except N day, 7 July 1970 and for wreck investigations at St. Jones River and at position LAT 39°00.1' N, LONG 75°12.3' W. Position of objects used for visual control and calibration were taken from horizontal control data, April 1960.

Wire drag party established Raydist 1968 control station on 17 Sept. 1968 by triangulation.

A listing of all signals (visual and electronic) used is given in Attachment I.

D. DATE OF SURVEY - Dragging for OPR-480 on Sheet "A" began 29 Sept. 1968 and was completed 19 August 1970.

E. TIDAL REDUCERS - Preliminary reduction of each days data was made using predicted tides for the standard tide gage at Smith Piers, Lewes, Delaware from Eastern Daylight Savings Time. Actual tidal data was furnished by the Rockville Office from the standard tide gage at Lewes, Delaware.

Tide data for all strips north of the MO(A) buoy LAT 38°54' N, LONG 75°08' W was corrected - High Water (+0h 20m and + 0.6 ft) Low Water (+0h 45m and 0.0 ft) In 1970. In 1969 - High Water (+0h 30m and +0.6ft) Low Water (+0h 30m and 0.0 ft) (See tidal note, page 7, Attachment II)

F. JUNCTIONS - Sheet A joins Sheet B, but wire drag surveys will not junction due to restricted area 207.105 in which permission to drag was denied. This area will be covered by USC&GS Ship WHITING with Hydrographic Survey OPR-492, Sheet No. WH-10-1-70. H. 9154

G. SPLITS - All areas within the project limits were covered without splits. All strips had sufficient overlap. See area of insufficient overlap. at 38°51.8' λ 75°05.9'

H. GROUNDINGS AND HANGS - See Attachment III. List of Groundings and Hangs.

I. GENERAL NOTES - The Ships RUDE & HECK began working on Project OPR-480, Sheet "A" on 29 September 1968. Both days of wire drag that year were not claimed due to poor quality.

Work was resumed on 23 September 1969. C through K days were not completed of which E and K days were not claimed due to poor quality. Work in 1969 was done on a scale of 1:30,000. This data was replotted to a scale of 1:20,000 and all work claimed was in compliance with project instructions dated 25 June 1970.

Work on Sheet "A" was resumed on 1 July 1970 and completed on 19 August 1970.

Daily strip description is recorded in the daily journal.

J. CURRENTS - Drag strips planned with the use of C&GS tidal current tables gave satisfactory results. Excessive lift resulted when strips were attempted before the direction of current had fully changed to the direction of the drag.

K. DISCREPANCIES AND COMPARISON WITH PREVIOUS SURVEY AND CHARTS - See Attachment IV, Item Investigation.

L. PERSONNEL AND EQUIPMENT - During 1968 and 1969 Field Seasons the Ship HECK and RUDE acted as guide and end vessels respectively. During the 1970 Field Season the Ship RUDE and HECK acted as guide and end vessels respectively. The RUDE & HECK launches equipped with DE-723 fathometers, were alternated as the drag tender. During calm weather the RUDE or HECK skiff was used to tend the drag. At times both a launch and skiff were used to speed raising or lowering the drag when working shoal waters. Reconnaissance hydrography was done by both ships strictly for the purpose of figuring upright settings. This hydrography should

not be used for charting. Records for warded - Data not smooth plotted - Cuts to the end buoy and opposite vessel were made by gyro repeater.

The distance from the mast to the end buoy was 204 meters when a 600 ft. towline was used, and 265 meters when a 800 ft. towline was used.

Standard wire drag equipment was used throughout the survey. Maximum length of drag used was 7200 feet while 2000 feet was the minimum. 7 Ground wire 1/4" Toggles @ 50' N.L.P

Officers on board during 1968 were LCDR D. J. Florwick, LT C. Andreasen, LTJG, J. C. Veselenak, LTJG C. D. North.

Officers in 1969 were LCDR C. Andreasen, LT M. N. Walter, ENS P. L. Campbell, ENS J. J. Morley.

Officers in 1970 were LCDR M. N. Walter, LT G. R. Schaefer, LTJG A. Y. Bryson, ENS J. J. Morley.

M. MISCELLANEOUS - A Smooth Sheet will be prepared by one of the ship's officers working in the Norfolk processing office.

Sixtieth (60th) meridian time was used throughout the project.

List of floating aids to navigation is omitted as all aids will be covered by USC&GS Ship WHITING's OPR-492. See addendum

N. RECOMMENDATIONS - This survey is considered adequate with respect to the wire drag requested.

Submitted by,

A. Y. Bryson Jr

LTJG A. Y. Bryson, Jr.

APPROVAL SHEET

All records of this survey, prior to smooth plotting are hereby approved. The 1970 Field Work was personally supervised by the undersigned, and the boat sheet and records were inspected daily. Previous seasons' work has been reviewed and is approved where utilized in this survey. This survey is considered complete and adequate for charting. No additional field work is recommended.

Merritt N. Walter
LCDR USESSA

TABLE OF ATTACHMENTS

ATTACHMENT I

CONTROL SIGNALS

1968-69

NAME	STATION	SOURCE	YEAR
COD	HARBOR OF REFUGE NORTH END LIGHT	G-13691	1933
BAT	HARBOR OF REFUGE LIGHTHOUSE	G-3016	1927
ABE	DELAWARE BREAKWATER LIGHTHOUSE	G-3016	1927
DOG	DELAWARE BREAKWATER WEST END LIGHT	G-1751	1933
GREEN	RAYDIST 1968 - ESTABLISHED BY WIRE DRAG PARTY		1968
RED	BAYSIDE LAB	G-13691	1962

Not Used see below 1970 Work H.L.P.

1970

BANK	FOURTEEN FOOT BANK	G-1751	1933
WINE	BRANDYWINE SHOALS LIGHTHOUSE	G-1895	1932
HARB	HARBOR OF REFUGE LIGHTHOUSE	G-3016	1927
FACT	LEWES WEST OIL FACTORY CHIMNEY	G-13691	1962
LITE	HARBOR OF REFUGE NORTH END LIGHT	G-13691	1933
TANK	LEWES MUNICIPAL WATER TANK	G-13691	1962
GREEN	RAYDIST 1968 - ESTABLISHED BY WIRE DRAG PARTY		1968
RED	BAYSIDE LAB	G-13691	1962
DELA	DELAWARE BREAKWATER WEST END LIGHT	G-1751	1933
	MIAH MAULL SHOAL LIGHT	G-1751	1933
BOWERS RRL	MURDERKILL RIVER REAR RANGE LIGHT	G-1751	1933
BOWERS F.R.L.	MURDERKILL RIVER FRONT RANGE LIGHT ESTABLISHED BY WIRE DRAG PARTY		1970
	BIG STONE BEACH TOWER - ESTABLISHED BY WIRE DRAG PARTY		1970

Note: - Signal names changed to conform with 1970 work.

ATTACHMENT II

TIDAL NOTE

Hourly tide heights were supplied by the Washington Office, (Chief, Tides Section C3312-186-GSS), for Lewes (Breakwater Harbor) Delaware. Breakwater Harbor - LAT. 38° 47'N., LONG. 75° 06'W. All field work was done on 60°W meridian time.

No range or time corrections were made to tides for drag strips south of MO(A) buoy - LAT. 38° 54'N., LONG. 75° 08'W.

Range and time corrections to tides for all drag strips north of MO(A) buoy - LAT. 38° 54'N., LONG. 75° 08'W., are as follows:

in 1969	high water	+ 0h 30m	+ 0.6 ft.
	low water	+ 0h 30m	+ 0.0 ft.
in 1970	high water	+ 0h 20m	+ 0.6 ft.
	low water	+ 0h 45m	+ 0.0 ft.

FORM C&GS-712
(3-9-64)

U.S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY

TIDE NOTE FOR HYDROGRAPHIC SHEET

February 5, 1971

~~Nautical Charts Division~~ Atlantic Marine Center

Plane of reference approved in
10 volumes of ~~records~~ records for
wire drag

HYDROGRAPHIC SHEET 9172

Locality: Delaware Bay

~~Year:~~
~~Chief of Party~~: 1969 and 1970

Plane of reference is mean low water

Tide Station Used (Form C&GS-681):

Lewes, Delaware

Height of Mean High Water above Plane of Reference is as follows:

South of Lat. 38°54'N = 4.1 ft.

North of Lat. 38°54'N = 4.7 ft.

Remarks

J. M. Symons
Chief, Tides and Currents Branch

USCOMM-DC 6680-P64

ATTACHMENT III

GROUNDINGS AND HANGS

POS. NO. AND DAY LETTER	LAT	LONG	GROUND EFF. DEPTH	CLEAR BY STRIP	CLEAR EFF. DEPTH	REMARKS
1C/3C	38°56'30"	75°11'00"	61'	~~NONE~~	~~NONE~~	Charted Shoal
14C/15C	38°54'35"	75°09'28"	61'	J-1	60'	Charted Shoal
~~7D/7D~~	~~38°57'08"~~	~~75°10'45"~~	~~58'~~	~~Q-1~~	~~60'~~	~~Disproved w/70 Work~~
~~12D/13D~~	~~38°56'30"~~	~~75°10'25"~~	~~60'~~	~~RA-1~~	~~73'~~	~~Disproved w/70 Work~~
1F/3F	38°51'50"	75°07'35"	61'	JA-2	52'	Charted Shoal
6F/8F	38°51'15"	75°06'35"	61'	NONE	NONE	Charted Shoal
1H/6H	38°59'25"	75°13'40"	60'	~~NONE~~	~~NONE~~	Charted Shoal
10H/13H	38°57'55"	75°12'35"	60'	AA-1	37'	Charted Shoal
3J/6J	38°54'20"	75°09'15"	60'	NA-2	55'	Charted Shoal
7J/8J	38°53'55"	75°09'00"	60'	NA-2	55'	Charted Shoal
35J/36J	38°50'00"	75°04'45"	62'	HA-3	60'	~~Charted Shoal~~
15L/20L	~~38°56'05"~~	~~75°10'05"~~	58'	NONE	~~NONE~~	Charted Shoal
29L/30L	38°57'35"	75°11'10"	59'	R-1	55'	Charted Shoal
31L/34L	38°57'50"	75°11'50"	59'	R-1	57'	Charted Shoal
~~34L/36L~~	~~38°57'50"~~	~~75°11'50"~~	59'	R-1	57'	~~Charted Shoal~~
24M/27M	38°57'30"	75°11'50"	62'	R-1	57'	Charted Shoal
25N/30N	38°53'30"	75°08'20"	62'/61'	J-1	60'	Charted Shoal
46N/47N	38°55'30"	75°09'00"	63'	NONE	NONE	Charted Shoal
25P/26P	38°53'40"	75°07'00"	61'	NONE	NONE	Charted Shoal
~~26P/28P~~	~~38°53'25"~~	~~75°07'40"~~	~~61'~~	~~NONE~~	~~NONE~~	~~Charted Shoal~~
16Q/17Q	38°57'30"	75°10'35"	61'	NONE	NONE	Charted Shoal
20Q/22Q	38°58'00"	75°11'15"	60'	NONE	NONE	Charted Shoal
19Q/22Q	38°57'35"	75°11'25"	60'	R-1	55'	Charted Shoal
~~27Q/28Q~~	~~39°00'05"~~	~~75°14'05"~~	~~61'~~	~~NONE~~	~~NONE~~	~~Charted Shoal~~
8R/14R	38°58'30"	75°11'40"	57'	~~NONE~~	~~NONE~~	Charted Shoal
53S/56S	38°53'40"	75°04'55"	62'	NONE	NONE	Charted Shoal
32T/41T	38°50'50"	75°03'25"	59'/61'	NONE	NONE	Charted Shoal
55T/58T	38°53'25"	75°05'10"	61'	~~NONE~~	~~NONE~~	Charted Shoal
55T/58T	38°53'00"	75°05'30"	61'	LA-1	56'	Charted Shoal
55T/58T	38°53'00"	75°05'40"	61'	~~LA-1~~	56'	Charted Shoal
1V/3V	39°00'35"	75°13'35"	52'	NONE	NONE	Charted Shoal
5V/8V	39°00'08"	75°13'08"	52'	NONE	NONE	Charted Shoal
15V/23V	38°59'20"	75°12'30"	54'/55'	V-3	47'	Charted Shoal
~~39V/42V~~	~~38°58'30"~~	~~75°11'20"~~	~~48'~~	~~NONE~~	~~NONE~~	~~Charted Shoal~~
23W/24W	38°53'40"	75°05'10"	61'	~~NONE~~	~~NONE~~	Charted Shoal
~~17Y/20Y~~	~~38°53'30"~~	~~75°05'35"~~	~~62'~~	~~NONE~~	~~NONE~~	~~Charted Shoal~~
6Z/9Z	38°55'35"	75°10'00"	62'	~~NONE~~	~~NONE~~	Charted Shoal
18Z/20Z	38°57'35"	75°11'15"	61'	R-1	55'	Charted Shoal
10AA/11AA	38°58'55"	75°13'30"	37'	NONE	NONE	Charted Shoal
14AA/16AA	38°58'30"	75°13'12"	37'	NONE	NONE	Charted Shoal
24AA/25AA	38°57'25"	75°12'20"	38'	NONE	NONE	Charted Shoal
27AA/28AA	38°57'05"	75°11'55"	38'	NONE	NONE	Charted Shoal
28BA	38°49'59"	75°04'48"	62'	HA-3	60'	Hang 6X6X6 Cement Clump
18T/20T	39°[illegible]'48"	[illegible]	62'	[illegible]	59'	[illegible]
11Y/14Y	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
15Y	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

ATTACHMENT III
Continued

GROUNDINGS AND HANGS

POS. NO. AND DAY LETTER	LAT	LONG	GROUND EFF. DEPTH	CLEAR BY STRIP	CLEAR EFF. DEPTH	REMARKS
33BA/35BA	38°52'00"	75°07'35"	61'	JA-2	57'	Charted Shoal
37BA/40BA	38°52'40"	75°08'20"	61'	JA-2	57'	Charted Shoal
4CA/6CA	38°51'10"	75°06'20"	60'	NONE	NONE	Charted Shoal
12CA	38°51'00"	75°05'30"	60'	CA-2	58'/57'	Charted Shoal
11DA/14DA	38°54'10"	75°09'25"	51'	DA-2	50'	Charted Shoal
12FA/16FA	38°52'55"	75°08'15"	60'	~~LA-2~~ NA 2	55'	Charted Shoal
24FA/28FA	38°54'15"	75°08'13"	60'/61'	~~NONE~~ EA-2	~~NONE~~ 49'	Charted Shoal
16HA/18HA	38°53'20"	75°06'15"	63'	KA-2	56'55'	Charted Shoal
31HA/32HA	38°49'53"	75°04'49"	61'	HA-3	60'59'	Hang. Believed to be same obstacle as hung by strip BA-1
43HA/46HA	38°49'35"	75°04'55"	59'	NONE	NONE	Charted Shoal
~~14JA/15JA~~	~~38°50'55"~~	~~75°06'05"~~	~~60'~~	~~NONE~~	~~NONE~~	~~Charted Shoal~~
24JA/25JA	38°51'50"	75°07'35"	57'49'	NONE	NONE	Charted Shoal
34JA/40JA	38°52'50"	75°08'10"	60'	LA-2	55'54'	Charted Shoal
37JA/40JA	38°52'50"	75°08'40"	58'	LA-2 Part	55'54'	Charted Shoal
47JA/48JA	38°49'55"	75°04'25"	63'	JA-4	61'	Charted Shoal
60JA/62JA	38°49'20"	75°04'15"	61'	NONE	NONE	Charted Shoal
27KA	38°52'15"	75°05'10"	56'55'	~~Y-1~~ Part	62' Part	~~"F" Toppled~~ Charted Shoal ~~Excessive Strain~~
21LA	38°53'25"	75°05'35"	56'53'	NONE	NONE	Charted Shoal
28LA/31LA	38°53'05"	75°08'45"	55'54'	~~LA-2~~ LA	51'	Charted Shoal
~~29LA/31LA~~	~~38°53'22"~~	~~75°08'40"~~	~~55'~~	~~EA-2~~	~~51'~~	~~Charted Shoal~~
7NA/11NA	38°54'25"	75°08'15"	61'	NONE	NONE	Charted Shoal
6NA/11NA	38°54'20"	75°08'50"	61'	J-1	60'59'	Charted Shoal
8NA	38°54'12"	75°08'14"	61'	EA-2	51'49'	Charted Shoal
33NA/35NA	38°54'15"	75°09'30"	55'	~~NONE~~ Part LA 2	~~NONE~~ 50'	Charted Shoal
~~40NA/42NA~~	~~38°56'25"~~	~~75°09'40"~~	~~74'~~	~~C-1~~	~~61'~~	~~Charted Shoal~~
~~1PA/6PA~~	~~38°57'00"~~	~~75°10'40"~~	~~73'~~	~~Q-1~~	~~60'~~	~~Charted Shoal~~
10QA/16QA	38°56'35"	75°09'55"	~~71'~~72'	~~C-1~~ Q-1 Part	61'/60'	Charted Shoal
17RA/18RA	38°57'20"	75°11'05"	74'/60'	Q-1	60'/60'	Charted Shoal
53-1/54-1	38°54'12"	75°08'14"	61'	EA-2	51'	Charted Shoal
8RA/10RA	38°56'35"	75°09'55"	71'	C-1	61'	Charted Shoal

NOTE: In the "Clear By Strip and Clear Eff. Depth" column, none indicates a planned grounding at the start or end of a strip outside the project limits.

TOCK NO. 37
4-30-57)
OMM-DC 28424

The following navigation buoy locations were not found in any of the volumes for this Survey. They were assigned day letter "a" (red) for identification purposes on the smooth sheet. Verification Br., AMC

NRB	DATE	TIME	RED	GREEN	DATE	TIME	RED	GREEN	
3 H. of Ref	19 Sept. 69	1215	104.05	480.68	24 Sept 69	0725	104.2	480.6	
	5 Oct 69	0913	104.3	480.9	17 Oct 69	1215	103.6	480.9	
W Mo (A)	24 Sept 69	0827	268.4	370.8	20 Oct 69	1144	267.2	370.7	
"	19 Sept. 69	1107	408.0	222.6	24 Sept. 69	0910	408.8	222.5	
" B"	19 Sept. 69	1040	516.0	253.7					
" C"	19 Sept 69	1050	502.0	211.8					
B = L. Mid	19 Sept 69	1022	441.0	284.9					
" 1"	19 Sept 69	1100	441.40	197.5					

SUPPLEMENT

ATTACHMENT IV

ITEM B

The lighted wreck awash, shown on chart 1218 at LAT. 39° 04!0, LONG. 74° 23!0, was not plotted on the smooth sheet or A & D sheet because this item was not located.

Upon investigating this item, whose results are recorded in smooth tester Vol. III, MA Day, it was found that no lighted wreck awash was in the area, or had ever been in the area. The skiff was positioned over the approximate location of the wreck obtained by taking several sextant fixes. The divers then performed a circle search from the skiff out to a radius of 250'. No obstruction was located. Extensive wire drag to disprove the item was considered unfeasable due to lack of control and shoal water (depth of water was only four to five feet).

Command recommended that the charts be changed to show a sunken wreck position approximate with no light or marker.

ATTACHMENT IV

ITEM INVESTIGATION
PRE-SURVEY REVIEW 14 AUGUST 1968

ITEM 1

The sunken wreck, position approximate at LAT 38°56'.55, LONG 75°10'.1, was cleared in one direction to a depth of 73 feet on RA Day. It was only cleared 0.3 mile wide by 2.3 miles long due to steep bottom slope on both sides of the position. Its location has not been disproved, but it constitutes no hazard to navigation. The wreck had been previously cleared in two directions on N day, strip #2 to a depth of 62 feet. Q day Strip # 1 to a depth of 62' ft. Recommend the wreck be removed from charts of the area.
charted as (+) PA (cleared to 66 ft)

ITEM 2

The sunken wreck charted at LAT 38°52'.0, LONG 75°07'.9 was cleared in one direction on JA day, strip #2 to a depth of ~~52~~ 49 feet. No change to the charts is recommended. AMC granted verbal authority to limit search on this item to one day in view of its location outside project limits.
Charted as (+)

ITEM 3 ✓

The charted 46 foot at LAT 38°50'.6, LONG 75°03'.3 was cleared in two directions on T day, strip #1 to a depth of 62 feet and strip #2 to a depth of 59 feet. Recommend the sounding be changed to 59 feet.

ITEM 4 Drag grounded about 200 M West of charted 46' H.L.R

The sunken wreck is located in restricted area 207.105. Authorization to drag this area was denied.

ITEM 5

Located on Sheet B.

ITEM 6

Located on Sheet B.

ATTACHMENT IV
Continued

ADDITIONAL PRE-SURVEY REVIEW ITEMS
AMENDMENT TO INSTRUCTIONS - 13 JULY 1970

ITEM A

Located on Sheet B.

ITEM B

The lighted awash wreck, position approximate at LAT 39°04'.0, LONG 74°23'.0 was investigated on MA day with a 250 ft. radius circle search. Results are recorded in smooth tester Vol. III, MA day. An extensive wire drag to disprove the item at this time is considered unfeasable due to lack of control and sheal water. AMC concurred. Recommend the charts be changed to show a sunken wreck position approximate with no light or marker. See Item "B", Supplement to Attachment IV

Charted as (4) ED

ITEM C

The sunken wreck at position LAT 39°00'.1, LONG 75°12'.3 was investigated and recorded in smooth tester Vol. III, L day. A three point fix made when visibility had increased is recorded in wire drag Vol. XI, QA day.

Recommend the charts be changed to indicate a wreck awash (4) at mean low water. Also indicate wreck is marked by Red NUN Buoy. Reference - Notice To Mariners, 31(3756)70. No position of buoy furnished

charted as 2 PA

Computed fix
φ 39° - 00' - 08.116"
λ 75° 12' - 17.150"

ATTACHMENT V

STATISTICS

DATE	DAY LETTER	STRIP NO.	VOL. NO.	Positions	Lineal Nautical Miles	Square Nautical Miles
29 Sept. 68	A	1	1	42	4.0	3.2
13 Oct. 68	B	1	1	34	4.5	3.5
23 Sept. 69	C	1	II	15	2.4	2.4
25 Sept. 69	D	1	II	23	2.7	1.3
1 Oct. 69	E	1	II		Rejected	
6 Oct. 69	F	1	II	9	1.0	0.4
6 Oct. 69	F	2	II	15	0.6	0.2
7 Oct. 69	G	1	III	17	1.6	0.8
8 Oct. 69	H	1	III	13	2.0	1.0
9 Oct. 69	J	1	III	36	6.3	2.5
17 Oct. 69	K	1	III		Rejected	
1 July 70	L	1	IV	35	3.4	1.4
2 July 70	M	1	IV	37	5.3	2.1
7 July 70	N	1	IV	30	4.5	2.3
7 July 70	N	2	IV	24	3.9	2.0
8 July 70	P	1	IV	28	4.3	3.0
9 July 70	Q	1	V	22	2.5	1.3
9 July 70	Q	2	V	5	0.9	0.3
10 July 70	R	1	V	14	0.8	0.5
13 July 70	S	1	V	13	1.9	1.0
13 July 70	S	2	V	56	4.4	2.6
14 July 70	T	1	VI	25	2.7	1.6
14 July 70	T	2	VI	33	3.6	2.2
15 July 70	U		VI		Hydro	
16 July 70	V	1	VI	23	2.5	1.0
16 July 70	V	2	VI	14	1.2	0.5
16 July 70	V	3	VI	19	2.8	1.1
17 July 70	W	1	VII	9	1.0	0.4
17 July 70	W	2	VII	14	3.1	1.6
20 July 70	X	1	VII	8	0.7	0.3
21 July 70	Y	1	VII	20	1.2	0.8
22 July 70	Z	1	VII	23	3.5	1.4
22 July 70	Z	2	VII	29	3.0	1.2
23 July 70	AA	1	VIII	28	3.0	1.0
27 July 70	BA	1	VIII	28	3.2	1.0
27 July 70	BA	2	VIII	11	1.8	0.7
28 July 70	CA	1	VIII	19	1.5	0.8
28 July 70	CA	2	VIII	18	2.8	1.4
29 July 70	DA	1	VIII	14	1.7	0.8
29 July 70	DA	2	VIII	17	2.6	1.3

ATTACHMENT V
Continued

DATE	DAY LETTER	Strip No.	Vol. No.	Positions	Lineal Nautical Miles	Square Nautical Miles
31 July 70	EA	1	VIII	26	2.1	0.9
31 July 70	EA	2	IX	14	1.9	1.0
3 Aug. 70	FA	1	IX	23	2.7	1.4
4 Aug. 70	GA		IX		Hydro	
5 Aug. 70	HA	1	IX	18	4.0	2.0
5 Aug. 70	HA	2	IX	11	2.0	1.0
5 Aug. 70	HA	3	IX	18	2.0	1.0
6 Aug. 70	JA	2	IX	32	4.0	2.0
6 Aug. 70	JA	3	IX	11	1.6	0.8
6 Aug. 70	JA	4	X	12	1.6	0.6
7 Aug. 70	KA	1	X	7	0.8	0.4
7 Aug. 70	KA	2	X	7	0.7	0.4
10 Aug. 70	LA	1	X	21	1.3	0.5
10 Aug. 70	LA	2	X	10	1.4	0.6
12 Aug. 70	MA	1	X	13	1.9	0.7
13 Aug. 70	NA	1	X	16	1.5	0.6
13 Aug. 70	NA	2	X	20	3.1	1.2
13 Aug. 70	NA	3	X	5	0.8	0.3
14 Aug. 70	PA	1	XI	6	0.5	0.2
17 Aug. 70	QA	1	XI	8	0.3	0.1
18 Aug. 70	RA	1	XI	18	2.5	1.0
18 Aug. 70	RA		XI		Hydro	
19 Aug. 70	SA	1	XI	13	1.0	0.2
TOTALS	42	60	11	1129	136.6	67.8

VERIFICATION BRANCH AMC
ADDENDUM
TO ACCOMPANY

WIRE DRAG SURVEY H-9172 (RH 20-1-70WD)

GENERAL

This survey was smooth plotted by LTJG Joseph J. Morley working under the immediate supervision of Branch personnel.

Field work was started in 1968 and continued in 1969 and 1970. The days listed below were rejected in the field because of sub-par work.

DAY	DATE	DAY	DATE
A	9/29/68	U	7/15/70
B	10/13/68	X	7/20/70
E	10/1/69	GA	8/ 4/70
G	10/7/69	PA	8/14/70
K	10/17/69	JA	8/19/70

The quality of the drag work was generally good but the necessity of dragging very close to the bottom caused a greater number of groundings than are normally experienced in area dragging. These groundings are shown on the smooth and A and D in small penciled circles. The firm hangs are shown in the same manner and, in addition, have leaders to notes giving available hang data. Effective depths should be checked against sounded depths when modern surveys are made in the area.

A list of positions for floating aids, recorded on blue line paper, was found in the survey records. These positions were assigned numbers for identification purposes and plotted on the smooth sheet as interim locations until they are located at a later date as noted in paragraph "M". The field recording is appended to this report.

The wreck located under item "C", page 11, was plotted by computing the angles recorded on QA day, Guide Launch. Other data on this item are recorded on "1" of smooth tender record no. 3. Positional data in this record could not be plotted as Ship Rude was apparently used as an object in the fix. There also appears to be some confusion as to the meridian time used.

It is believed the data on item "C" and the locations of floating aids should be confirmed when hydrographic surveys are resumed in the area.

Hugh L. Proffitt
Chief, Verification Br., AMC

Norfolk, Va.
April 16, 1971

FORM 197
(3-16-55)

GEOGRAPHIC NAMES

Survey No. H-9172 W.D.

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	
Delaware Bay										1
										2
										3
										4
										5
										6
										7
										8
										9
										10
										11
										12
										13
										14
										15
										16
										17
										18
										19
										20
										21
				PREPARED BY						22
				Frank M. Pickett						23
				CARTOGRAPHIC TECHNICIAN						24
				APPROVED BY						25
				A. Joseph Wright						26
				CHIEF GEOGRAPHER						27

FORM C&GS-946
(REV. 11-65)
(PRESC. BY
HYDROGRAPHIC
MANUAL 20-2,
6-94, 7-13)

U.S. DEPARTMENT OF COMMERCE
ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
COAST AND GEODETIC SURVEY
NAUTICAL CHART DIVISION

HYDROGRAPHIC SURVEY STATISTICS

HYDROGRAPHIC SURVEY NO. 9172 W.D.

RECORDS ACCOMPANYING SURVEY: To be completed when survey is registered.

RECORD DESCRIPTION	AMOUNT	RECORD DESCRIPTION	AMOUNT
SMOOTH SHEET & A&D Sheet	1	BOAT SHEETS	2
DESCRIPTIVE REPORT		OVERLAYS	1-Envelope

DESCRIPTION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/ SOURCE DOCUMENTS
ENVELOPES						
CAHIERS						
VOLUMES	21					
BOXES						1-Hydro. Reconn.

T-SHEET PRINTS *(List)*

SPECIAL REPORTS *(List)*

OFFICE PROCESSING ACTIVITIES

The following statistics will be submitted with the cartographer's report on the survey

PROCESSING ACTIVITY	AMOUNTS			
	PRE-VERIFICATION	VERIFICATION	REVIEW	TOTALS
POSITIONS ON SHEET				
POSITIONS CHECKED				
POSITIONS REVISED				
DEPTH SOUNDINGS REVISED				
DEPTH SOUNDINGS ERRONEOUSLY SPACED				
SIGNALS ERRONEOUSLY PLOTTED OR TRANSFERRED				
	TIME (MANHOURS)			
TOPOGRAPHIC DETAILS				
JUNCTIONS				
VERIFICATION OF SOUNDINGS FROM GRAPHIC RECORDS				
SPECIAL ADJUSTMENTS				
ALL OTHER WORK				
TOTALS				

PRE-VERIFICATION BY	BEGINNING DATE	ENDING DATE
VERIFICATION BY	BEGINNING DATE	ENDING DATE
REVIEW BY	BEGINNING DATE	ENDING DATE

USCOMM-DC 36271-P65

FORM C&GS-946A
(REV. 11-65)
(PRES. BY HYDROGRAPHIC MANUAL, 6-94)

U.S. DEPARTMENT OF COMMERCE
ESSA
COAST AND GEODETIC SURVEY

VERIFIER'S REPORT

HYDROGRAPHIC SURVEY, H-9172 W.D.

INSTRUCTIONS - This form serves to identify items of a check list in verification together with items which are separately reported to the Reviewer. The form is not to be forwarded to the Reviewer. A report, which is prepared for the Reviewer, should identify items by number and letter and will be filed in the Descriptive Report until the survey is reviewed.

CL - Check List Items: should be checked as having been completed during the verification processes.

R - Report Item: This column refers to those items reported to the reviewer and is used to indicate the items discussed.

Part I - DESCRIPTIVE REPORT	CL	R
Note: The verifier should first read the Descriptive Report for general information and problems.		
1. The Descriptive Report was consulted, paragraphs checked if found satisfactory, and notations were made in soft black pencil regarding action taken. Remarks Required: -- None		
2. Soundings originating with the survey and mentioned in the Descriptive Report have been verified and checked in soft black pencil, including latitude and longitude, together with position identification. Remarks Required: --None		
3. All reference to survey sheets mentioned in the Descriptive Report should include registry number and year. Remarks Required: -- None		
Part II - SHORELINE AND SIGNALS		
4. Source of shoreline signals Remarks Required: -- List all surveys a. Give earliest and latest dates of photographs b. Field inspection date c. Field Edit date d. Reviewed-Unreviewed		
5. The transfer of contemporary topographic information was carefully examined and reconciled with the hydrography. Remarks Required: -- Discuss remaining differences.		
6. The plotting of all triangulation stations, topographic stations and hydrographic signals has been checked and noted in processing stamp No. 42 on the smooth sheet. Remarks Required: -- None		
7. Objects on which signals are located and which fall outside of the high-water line have been described on the sheet. Remarks Required: -- List those signals still unidentified.		
Part III - JUNCTIONS		
Note: Make a cursory comparison preliminary to inking soundings in area of overlap.		
8. All junctions of contemporary or overlapping sheets were transferred in colored ink and overlapping curves were made identical. Remarks Required: -- None		
9. The notation in slanted lettering "JOINS H----(19)" was added in colored ink for all verified contemporary adjoining or overlapping sheets. Those not verified are shown in pencil. Remarks Required: -- None		

Part III - JUNCTIONS (Continued)	CL	R
10. Junctions with contemporary surveys were satisfactory except as follows: Remarks Required: -- Consider conditions after adjustments have been made; note adjustments made. Make special notes of **Butt** junctions and areas which are **SUPERSEDED.**		
Part IV - VOLUMES		
11. All items affecting the plotting of the survey which are entered in the remarks columns of the sounding records were noted and check marked. In all cases appropriate action was taken and exceptions noted in the volumes. Remarks Required: -- None		
12. Condition of sounding records was satisfactory except as follows: Remarks Required: -- Mention deficiencies in completeness of notes or actions for the following: (a) rocks (b) line turns (c) position values of beginning and ending of lines (d) bar check or velocity correctors (e) time recording (f) notes or markings on fathograms (g) was reduction of soundings accurately done? (h) was scanning accurate? (i) were peaks at uneven intervals missed? (j) were stamps completed? (k) references to adjacent features		
Part V - PROTRACTING		
13. All positions verified instrumentally were check marked in color in the sounding records, and verifier initialed the processing stamp. Remarks Required: -- None		
14. The protracting and plotting of all unsatisfactory crossings were verified. Remarks Required: -- None		
15. All detached positions locating **critical** soundings, rocks, buoys, breakers, obstructions, kelp, etc., were verified and the position numbers are legible. Remarks Required: -- None		

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Part V - PROTRACTING (Continued)	CL	R
16. The protracting was satisfactory except as follows: Remarks Required: -- Refers to protracting in general except for specific faults repeated often, or faults in control information, which required considerable replotting or adjustments.		
17. The protractor has been checked within the last three months. Remarks Required: -- Date of check, type of protractor and number.		
Part VI - SOUNDINGS		
18. All soundings are clear and legible, and critical soundings are a little larger than adjacent soundings. Remarks Required: -- None		
19. Sounding line crossings were satisfactory except as follows: Remarks Required: -- Discuss adjustments.		
20. The spacing of soundings as recorded in the records was closely followed; Remarks Required: -- None		
21. The scanning, reduction, spacing, plotting of questionable soundings have been verified. Remarks Required: -- None		
22. The smooth plotting of soundings was satisfactory except as follows: Remarks Required: -- Refer to legibility, errors in spacing, and errors in numbers - but not to errors in scanning.		
Part VII - CURVES		
23. The depth curves have been inspected **before** inking. Remarks Required: -- By whom was the penciled curves inspected.		
24. The low-water line and delineation of shoal areas have been properly shown in accordance with the following: a. From T-Sheet in dotted black lines b. From soundings in orange c. Approximate position of sketched curve is dashed orange d. Approximate position of shoal area **not sounded** in black dashed Remarks Required: -- None		
25. Depth curves were satisfactory except as follows: (This statement should not refer to the manner in which the curves were drawn). Remarks Required: -- Indicate areas where curves could not be drawn completely because of lack of soundings. For some inshore areas a general statement is sufficient.		

Part VIII - AIDS TO NAVIGATION	CL	R
26. All fixed aids located together with those on the contemporary topographic sheets, have been shown on the survey. Remarks Required: -- Conflicts of any nature listed.		
27. All floating aids listed in the Descriptive Report should be verified and checked in soft black pencil, including latitude and longitude and position identification. Remarks Required: -- None		
Part IX - BOATSHEET		
28. The boat sheet was constantly compared with the smooth sheet with reference to notes, position of sounding lines and supplemental information. Remarks Required: -- None		
29. Heights of rocks awash were correctly reduced and compared with topographic information. Remarks Required: -- Note excessive conflicts with topographic information.		
Part X - GENERAL		
30. All information on the sheet is shown in accordance with figures 82 and 83 in the Hydrographic Manual (Pub. 20-2). Remarks Required: -- None		
31. Unnecessary pencil notes have been removed from the sheet. Remarks Required: -- None		
32. Degree, minute values and symbols have been checked; also electronic distance arcs have been properly identified and checked on the smooth sheet. Remarks Required: -- None		
33. The bottom characteristics are adequately shown. Remarks Required: -- None		
Part XI - NOTES TO THE REVIEWER		
34. Unresolved discrepancies and questionable soundings.		
35. Notation of discrepancies with photogrammetric survey inserted in report of unreviewed photogrammetric survey or on copy.		
36. Supplemental information.		

Verified by	Date

(3-25-63) NAUTICAL CHART DIVISION

RECORD OF APPLICATION TO CHARTS

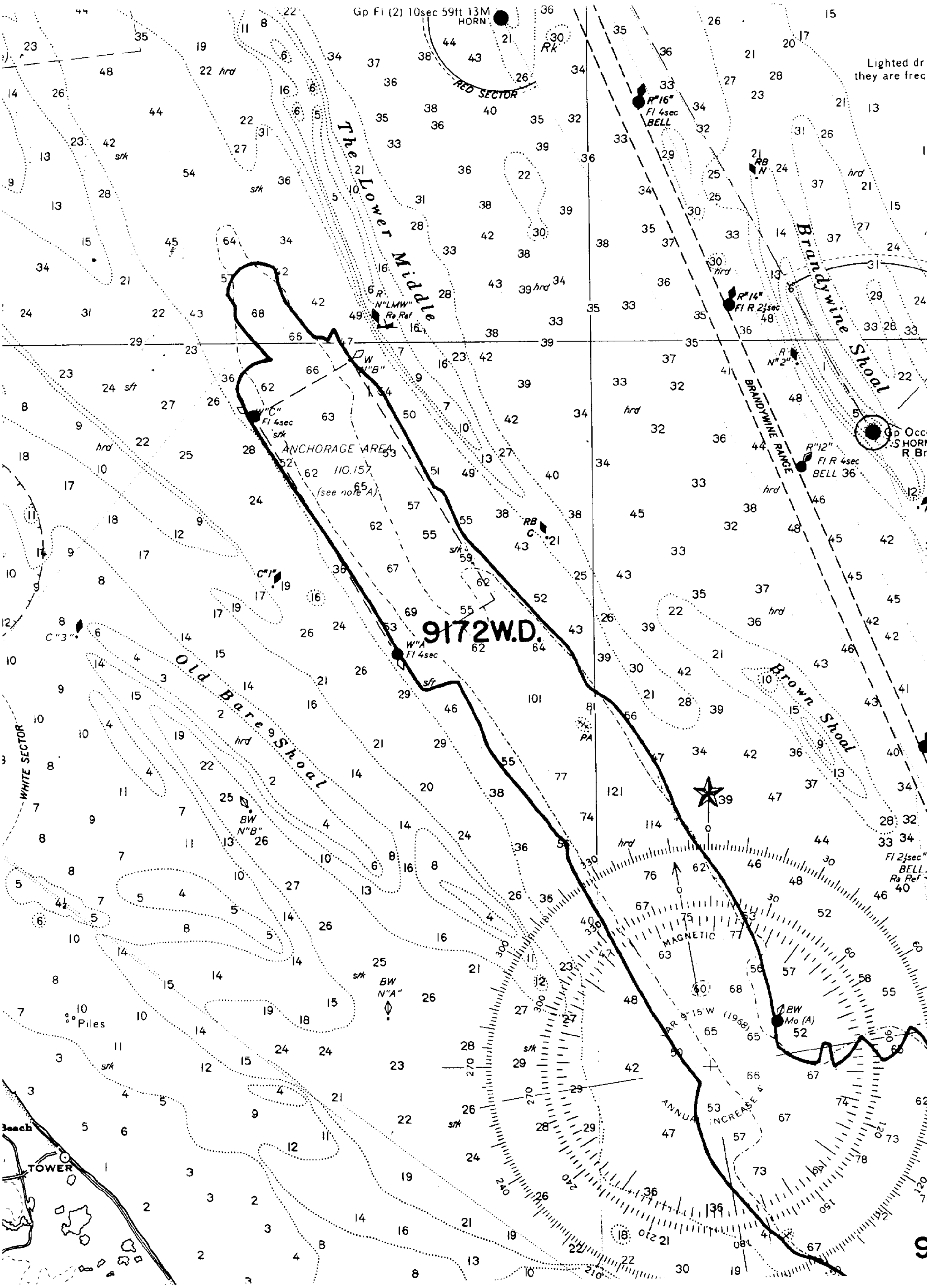
FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-9172 W.D.

INSTRUCTIONS

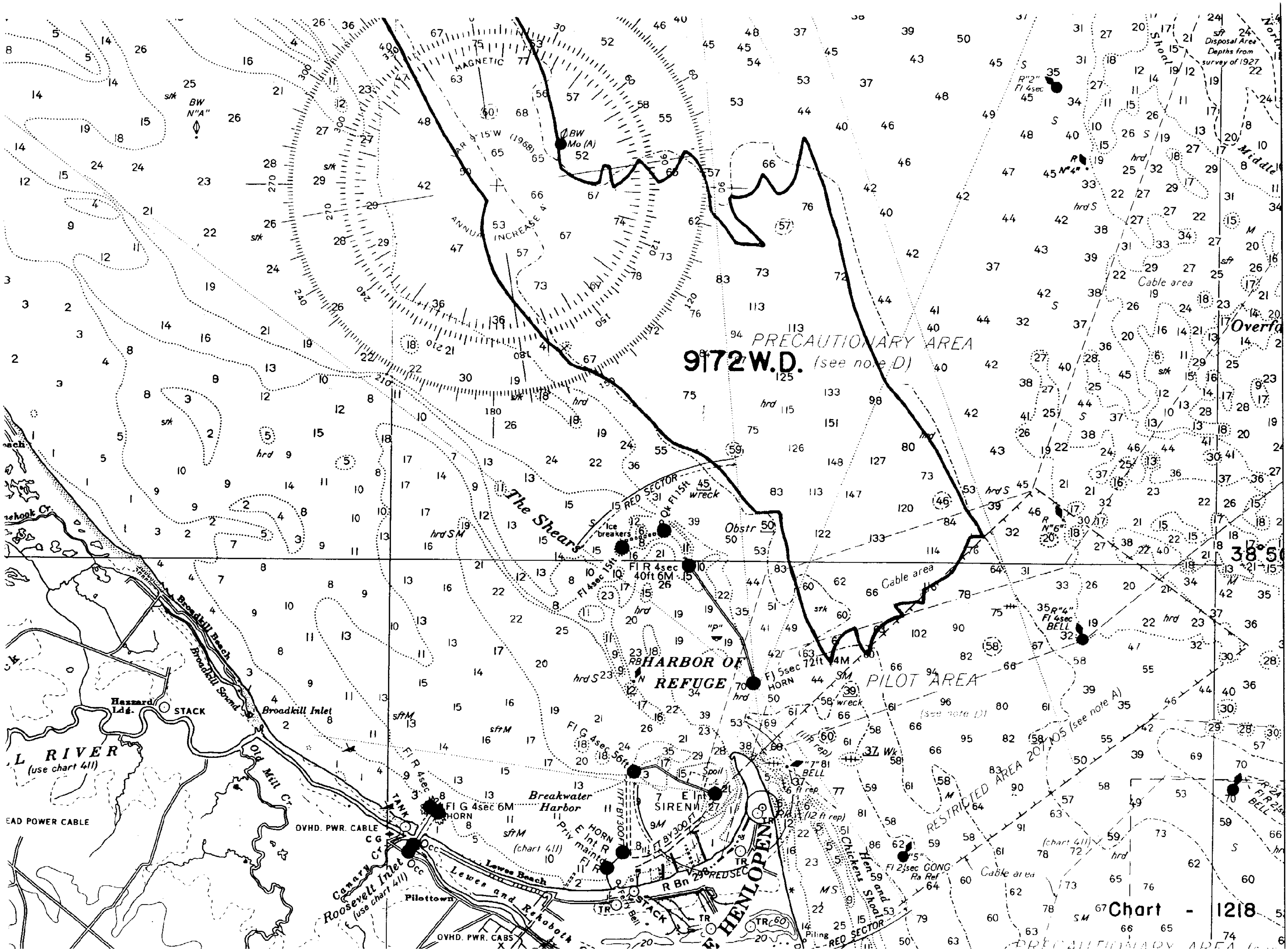
A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart.
1. Letter all information.
2. In "Remarks" column cross out words that do not apply.
3. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review.

CHART	DATE	CARTOGRAPHER	REMARKS
1219	6-2-71	L. R. EVERHART	[redacted] Part Before [redacted] Verification Review Inspection Signed Via
			Drawing No. APPLIED CRITICAL CORRECTIONS
1218	6-3-71	L.R EVERHART	[redacted] Part Before [redacted] Verification Review Inspection Signed Via
			Drawing No. APPLIED CRITICAL CORRECTIONS
411	11-2-71	B. Fernandez	[redacted] Part Before [redacted] Verification Review Inspection Signed Via
			Drawing No. Appl crit. cor. only
1109	12/9/71	B. Fernandez	[redacted] Part Before [redacted] Verification Review Inspection Signed Via
			Drawing No. Appl crit. cor. only from CHT 1219
1000	7-11-74	J. Bailey	Full ~~Part Before~~ Before After Verification Review Inspection Signed Via
			Drawing No. 51 Consider fully App'd. No hydro
			detail shown in area on this chart.
12304	12-9-96	S. Soherr	Full ~~Part Before~~ After Verification Review Inspection Signed Via
			Drawing No. 61 no corrections
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.

FORM C&GS-8352 SUPERSEDES ALL EDITIONS OF FORM C&GS-975. USCOMM-DC 8558-P63



Gp Fl (2) 10sec 59ft 13M
HORN
RED SECTOR
The Lower Middle
Brandywine Shoal
BRANDYWINE RANGE
R"16" Fl 4sec BELL
R"14" Fl R 2½sec
R N"2"
RB N
R N"LMW" Ra Ref
W N"B"
W"C" Fl 4sec
ANCHORAGE AREA 110.157 (see note A)
R"12" Fl R 4sec BELL
RB C
C"1"
C"3"
9172W.D.
W"A" Fl 4sec
Old Bare Shoal
Brown Shoal
BW N"B"
BW N"A"
WHITE SECTOR
MAGNETIC
VAR 9°15'W (1968)
ANNUAL INCREASE
BW Mo (A)
Piles
TOWER
Beach


9172 W.D.
PRECAUTIONARY AREA (see note D)
PILOT AREA
RESTRICTED AREA 207.105 (see note A)
HARBOR OF REFUGE
The Shears
Breakwater Harbor
HENLOPEN
Lewes Beach
Broadkill Beach
Broadkill Sound
Broadkill Inlet
Roosevelt Inlet (use chart 411)
Canary Cr
Old Mill Cr
L RIVER (use chart 411)
Hazzard Ldg.
STACK
Pilottown
OVHD. PWR. CABLE
EAD POWER CABLE
Hen and Chickens Shoal
Shoal
Middle
Overfa
Disposal Area Depths from survey of 1927
Cable area
MAGNETIC
VAR 9°15'W (1968)
ANNUAL INCREASE 4'
RED SECTOR
Chart - 1218
38°50'