9173

WIRE DRAG

Diag. Cht. Nos. 1218-2 & 1219-2.

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 20-2-70WD *Office No.* H-9173

LOCALITY

State DELAWARE

General locality ENTR. TO DELAWARE BAY

Locality FIVE FATHOM BANK SEA LANE

19 70

CHIEF OF PARTY

MERRITT N. WALTER

LIBRARY & ARCHIVES

DATE 4/27/71

USCOMM-DC 37022-P66

9173 WIRE DRAG

FORM C&GS-537
(5-66)

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

REGISTER NO.

HYDROGRAPHIC TITLE SHEET

H-9173

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 20-2-70WD

State DELAWARE

General locality ENTRANCE TO DELAWARE BAY

Locality FIVE FATHOM BANK SEA LANE

Scale 1:20,000 Date of survey Aug 26 to Sept. 30, 1970

Instructions dated JUNE 25, 1970 Project No. OPR-480

Vessel SHIPS RUDE & HECK

Chief of party MERRITT N. WALTER

Surveyed by G.R. SCHAEFER, A.Y. BRYSON, J.J. MORLEY & M.M. ETHRIDGE

Soundings taken by echo sounder, hand lead, pole NONE

Graphic record scaled by NONE

Graphic record checked by

Protracted by BERNIE T. DAVIS Automated plot by

DRAG STRIPS INKED BY:

Soundings penciled by BERNIE T. DAVIS

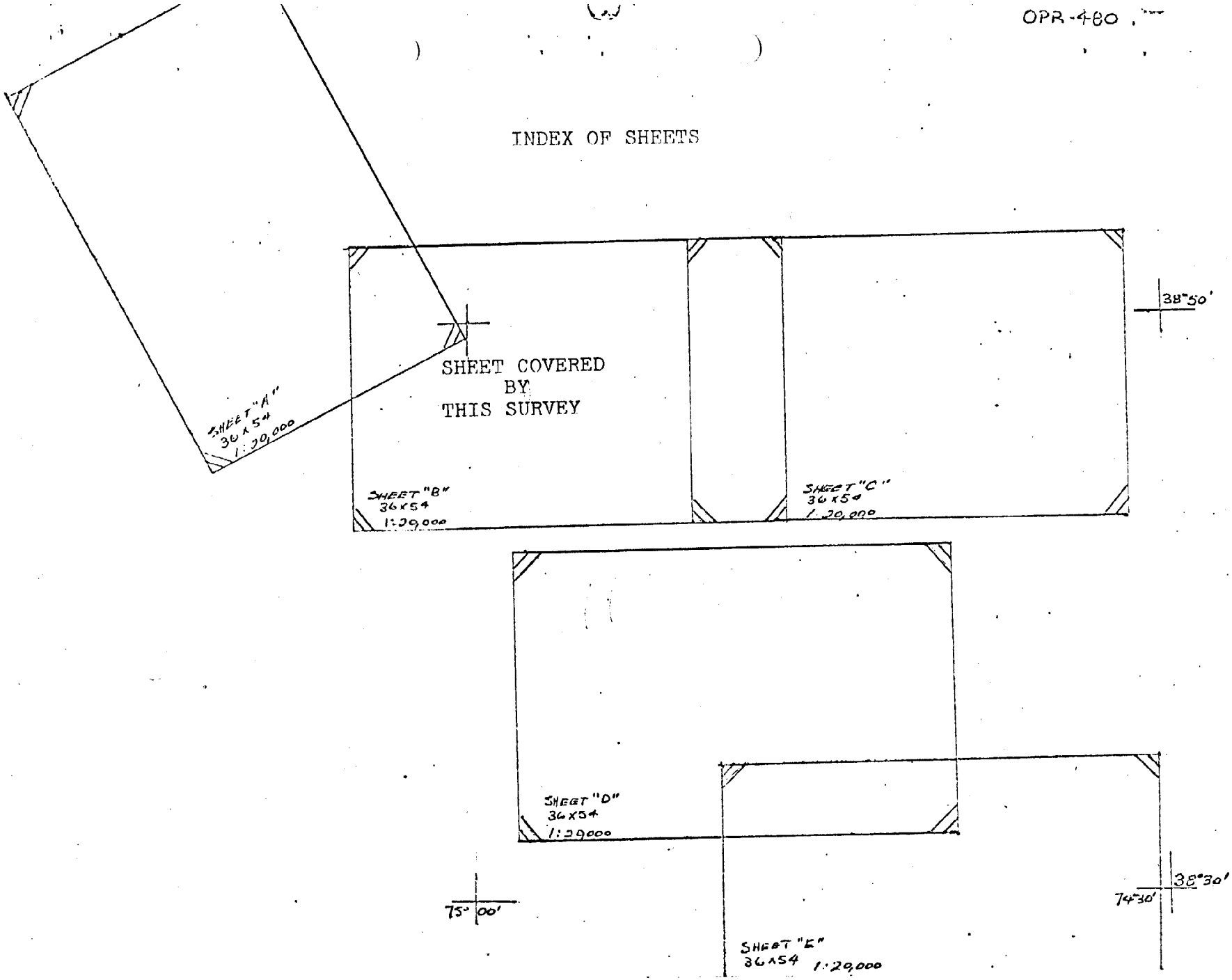
Soundings in ~~XXXXX~~ feet at MLW ~~MLLW~~ XXXX

REMARKS:

USCOMM-DC 37009-P

OPR-480

INDEX OF SHEETS



DESCRIPTIVE REPORT
TO ACCOMPANY
WIRE DRAG FIELD NO. RH-20-2-70 SHEET "B"
PROJECT OPR-480
DELAWARE BAY ENTRANCE
1970
LCDR MERRITT N. WALTER
NOAA 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 to Director, AMC dated 16 October 1970.

B. CHARACTER AND LIMITS OF THE WORK - The purpose of this project is to clear the sea lanes, including buffer zones in Delaware Bay Entrance.

The locality of the survey covered by C&GS Chart 1219 is the Five Fathom Bank sea lanes from Long 74°48.5'W. to Long 75°01'W. The survey was conducted on a scale of 1:20:000 using Raydist fixes for control.

C. CONTROL - Raydist control was utilized at all times. Wire drag party established CHAP, Raydist control station RED, on 25 July 1970 by triangulation.

A listing of all signals used is given in Attachment I.

D. DATE OF SURVEY - Dragging for OPR-480 on Sheet "B" began 26 August 1970 and was completed 30 September 1970.

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

Tide data for all strips on Sheet B was corrected - High Water (+ 0h 30m and + 0.0 ft) Low Water (+ 0h 30m and + 0.0 ft) as recommended by Washington Office, Chief Tides Section.

F. JUNCTIONS - Sheet B joins Sheet A, 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 NOAA Ship WHITING with Hydrographic Survey OPR-492, Sheet No. WH-10-1-70. H-9154 (1970)

Sheet B joins Sheet C.

G. SPLITS - All areas within the project limits were covered ~~without splits.~~ All strips have sufficient overlap. except for one split and two groundings not cleared.

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

I. GENERAL NOTES

Morning and evening Raydist calibrations at Lewes, Delaware were made by running the Lewes West Oil Factory Chimney - Fort Miles Observation Tower #8 range and turning the right angle to Harbor of Refuge Lighthouse. When the ships docked at Cape May, New Jersey calibration was accomplished by three point fixes. All but one of these three point fixes were sent to the WHITING for computer solutions. The three point fix for which no computer solution was obtained (U day) was saved by plotting the fix on a mylar calibration sheet constructed by the WHITING's computer.

Daily strip descriptions are recorded in the daily journal.

On L day, 15 September 1970, the HECK launch acted as end vessel. An 800 ft. towline was used by the RUDE and the HECK launch. Distance from the RUDE's mast to the near buoy was 265 meters. Distance from the center of the HECK's launch to the far buoy was 245 meters. Single vessel control was utilized this day.

On F Day, 3 September 1970, dragging was conducted in heavy seas with large swells.

Strip 1 was attempted dragging from North to South against wind and seas. Excessive lift and slow forward progress resulted.

Strip 2, on the same day, was run from South to North in the same direction as wind and seas. After an initial high test which appeared to be the result of an unsettled drag, all tests were satisfactory. Tests were conducted continuously to verify their validity. Even though the tests indicated small lift there should be an error in the effective depth due to the large swells.

A grounding, on F day, strip 2, effective depth 52', was cleared on U day, strip 2, effective depth 49'. This gives a maximum 2 foot swell correction for F day in order to be grounded in this area. This is the swell correction to be applied to F day, strips 1 and 2.

J. CURRENTS - Drag strips planned with the use of C&GS tidal current and tide 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. Currents were unusually strong at the west end of the boat sheet with no appreciable slack time due to funnel affect of Delaware Bay.

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

L. PERSONNEL AND EQUIPMENT - During the 1970 Field Season the Ships RUDE & 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 tend the drag, in order to speed raising or lowering of 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. *Not smooth plotted.* Cuts to the end buoy and opposite vessel were made by gyro repeaters.

The distance from the mast to the end buoy was 265 meters when an 800 ft. towline was used.

Standard wire drag equipment was used throughout the survey. Maximum length of drag used was 6500 feet while 2000 feet was the minimum.

Officers onboard during 1970 work on OPR-480, Sheet B, were: LCDR M.N. Walter, LT G.R. Schaefer, LTJG A.Y. Bryson, ENS J.J. Morley, ENS M.M. Ethridge.

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

Control Station Loran Tower was recovered by C&GS Field Party 1970 and was found to be triangulation station Cape May U.S. Coast Guard Electronic Mast I.

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

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

Submitted by,

M.M. Ethridge

ENS M.M. Ethridge

APPROVAL SHEET

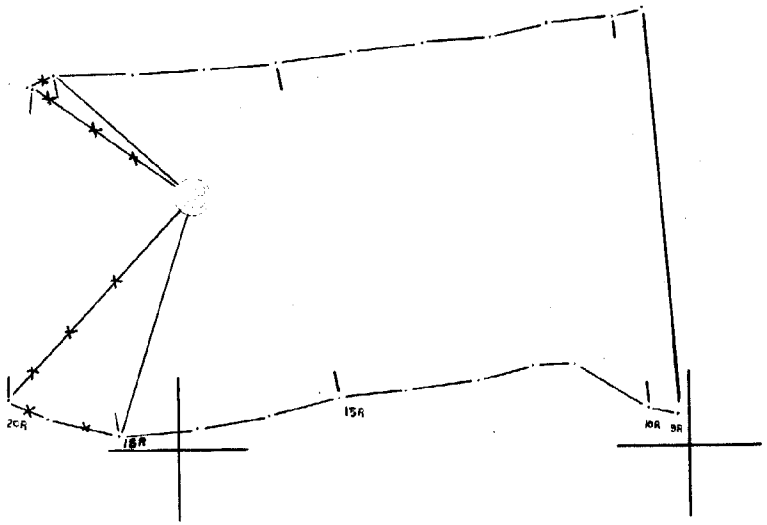
All records of this survey prior to smooth plotting are hereby approved. The 1970 Field Work was personally supervised by the undersigned, and the boat sheet and records were inspected daily. This survey is considered complete and adequate for charting. No additional field work is recommended.

Merritt N. Walter

Merritt N. Walter
LCDR NOAA

74° 57'
38° 50'

74° 54'
38° 50'



38° 49'
74° 57'

38° 49'
74° 54'

NOTE: This line was not plotted on the smooth sheet because of insufficient tests. This smooth overlay is being submitted to show the position of the sunken buoy. The buoy was turned on its side and was later cleared at 35 feet on T day and at 34 feet on U day.
The position of the hang located by sextant cuts and the drag position vary. Positions 19 and 20 have been rejected to reconcile these differences although the cuts to the hang were accepted.

TABLE OF ATTACHMENTS

ATTACHMENT I

CONTROL SIGNALS

1970

NAME	STATION	SOURCE	YEAR
HARB	HARBOR OF REFUGE LIGHTHOUSE	G-3016	1927
FACT	LEWES WEST OIL FACTORY CHIMNEY	G-13691	1962
OBS 8	FORT MILES OBSERVATION TOWER #8	G-13691	1962
756	CAPE MAY LIGHTHOUSE	G-1447	1957
753	CAPE MAY COAST GUARD WEST TANK (HIGHER OF TWO)	G-10824	1969
755	LORAN TOWER (CAPE MAY US COAST GUARD ELECTRONICS MAST I)	G-12973	1962
750	CAPE MAY MUNICIPAL WATER TANK	G-12973	1962
GREEN	COTTON PATCH II	G-13691	1962

NAME	STATION	LATITUDE	LONGITUDE
RED	CHAP RAYDIST STATION ESTABLISHED BY WIRE DRAG PARTY 1970	38°47'29.91"N	75°05'23.94"W

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

U.S. DEPARTMENT OF COMMERCE
~~COAST AND GEODETIC SURVEY~~
National Oceanic and Atmospheric Administration
National Ocean Survey

TIDE NOTE FOR HYDROGRAPHIC SHEET

February 25, 1971

~~Marine Center:~~ Atlantic Marine Center

Plane of reference approved in 6 volumes of ~~sounding~~ records for wire drag

HYDROGRAPHIC SHEET 9173B

Locality: Delaware Bay, Delaware

~~Year of Survey:~~ Year 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:

4.1 feet

Remarks

J. M. Symons
Chief, Tides and Currents Branch

USCOMM-DC 6680-P64

ATTACHMENT II

TIDAL NOTE

Hourly tide heights were supplied by the Washington Office, (Chief, Tides Section, C3312 - 186 - CSS), for Lewes, (Breakwater Harbor) Delaware. Breakwater Harbor - LAT 38°47'N, LONG 75°06'W. Time meridian 75°W. Height datum is 2.5 feet below mean low water.

Tide data for all strips was corrected high water (+ 0h 30m and + 0.0 ft) low water (+ 0h 30m and + 0.0 ft) as recommended by Washington Office, Chief Tides Section.

ATTACHMENT III

FLOATING AIDS TO NAVIGATION

Two buoys were located within the limits of Sheet "B".

MO(A) Buoy was not investigated due to its location in the danger area for mines.

Buoy 2A, relocated during Sheet "B" work to 38°48'35"N 74°59'50"W, was wrapped in both directions. Latest local Notice to Mariners shows that Buoy 2A has since been moved to 38°47'55"N, 74°49'42"W. Buoy 2A was plotted on hangs on K and L days.

ATTACHMENT IV

GROUNDINGS AND HANGS

POS. NO. AND DAY LETTER	LAT.	LONG.	GROUND EFF. DEPTH	CLEAR BY STRIP	CLEAR EFF. DEPTH	REMARKS
~~11A-32A~~	~~38°48'15"~~	~~74°49'54"~~	~~39'~~	~~M-1~~	~~38'~~	Not plotted as aground. Area claimed Upright #5 set 10' too deep
46A-55A	38°48'40"	74°55'40"	37'	N-1	34'	Charted Shoal
11B-16B	38°48'5[illegible]"3	74°50'0[illegible]"	~~40~~ 39'	K-2	39'	Slipped upright
20B-24B	38°49'0[illegible]"2	74°51'3[illegible]"5	39'	None	None H-6272 (1937) 38'	Charted shoal at
528	38°48'35"	74°55'23"	37	A-1	37	project limits
1C - 5C	38°49'05"	74°50'00"	42'	K-2[illegible]	3[illegible] H-6272 (1937) 41'	Charted shoal
14E-19E	38°48'1[illegible]"	74°59'[illegible]"27	38'	G-2	2[illegible] H-9176 (70) 31'	Charted shoal
30E-31E	38°48'18"	74°56'3[illegible]"	37'	Q-1	34' H-9153 (70) 36'	Charted shoal
1F - 6F	38°49'[illegible]0"	74°47'4[illegible]"	4[illegible]	None	None	Charted shoal outside project limits
8F -12F	38°49'0[illegible]5"	74°47'[illegible]"	4[illegible]'	Sheet C	Sheet C	Charted shoal
32F-36F	38°46'[illegible]"	74°47'5[illegible]"	[illegible]'49'	M-2	4[illegible]'	Shoal developed eastward
36F-40F	38°46'[illegible]0"	74°48'[illegible]0"	[illegible]'49'	U-2	4[illegible]'	Charted shoal
39F-41F	38°46'[illegible]"24	74°48'[illegible]"28	[illegible]'49'	U-2	4[illegible]'	Charted shoal
40K 61F *	38°48'3[illegible]"	74°59'[illegible]"	2[illegible]	None	None	Wrapped buoy 2"A"
18L	38°48'3[illegible]"	74°59'[illegible]"	29'	None	None	Wrapped buoy 2"A"
1M - 3M	38°48'[illegible]8"	74°5[illegible]'[illegible]"	41'	A-1	3[illegible]'	Charted shoal
6M - 8M	38°48'[illegible]"	74°53'2[illegible]"	41'	B-1	38'	Shoal developed eastward
42M-46M	38°46'[illegible]"	74°48'[illegible]"	4[illegible]	~~U-2~~ F-2	~~4[illegible]~~ 49'	See daily journal - M day
49M-50M	38°46'0[illegible]"	74°48'3[illegible]"	4[illegible]	~~U-2~~ F-2	~~4[illegible]~~ 49'	See daily journal - M day
15N-16N	38°48'1[illegible]"	74°56'2[illegible]"	3[illegible]	E-2	3[illegible]' H-9176 (70) 32'	Charted shoal
10P-20P15	38°49'1[illegible]"	74°55'00"	3[illegible] D.P. 29 31ft	S-1	3[illegible]	Hang item A(1)WK
90 -130	38°48'1[illegible]"	74°5[illegible]'[illegible]"	3[illegible]'5	E-2	3[illegible]' H-9176 (70) 32' 34'	Charted shoal
490-510	38°48'55"	74°56'1[illegible]"	35'	Q-2	33'	Sand wave
20R 18 *	38°49'2[illegible]"	74°5[illegible]'[illegible]"	None	U-XT-2	3[illegible]	Hang item A(2)
23R-25R	38°49'10"	74°55'00" NP	~~30'~~ 29	Q-3	36'	Slipped upright R day Grounding not plotted
~~9T - 11T~~ *Rej	~~38°49'10"~~	~~74°55'40"~~	~~34'~~	~~U-1~~	~~35'~~	~~See daily journal - T day~~
4U - 7U	38°49'4[illegible]"	74°56'4[illegible]"	34'	None	None H-4799 (27) 31'	Charted shoal outside project limits

* 61F 38°49'08" 74°48'50" 48' D-1 41'

18R On tracing cloth overlay in Descriptive Report. Sunken Nav. Buoy. See also Attachment V & Addendum

1T-17T This strip not plotted because of excess lift and sag.

ATTACHMENT V

ITEM INVESTIGATION

PRE-SURVEY REVIEW 14 AUGUST 1968

ITEMS 1, 2, 3 and 4 were previously covered on Sheet A.

ITEM 5

The charted 30' at LAT 38°48.7'N, LONG 74°59.8'W was not covered by wire drag operations due to its location near restricted area 207.105. Reference Project Instructions OPR-480, paragraph 29, dated 25 June 1970. Strong currents with a short slack water period were encountered in this area. This item has been transferred to NOAA Ship WHITING, OPR-492, Sheet WH 20-5-70. Reference memorandum of 16 October 1970 to Director, Atlantic Marine Center.

ITEM 6

The charted 34' reported at 38°48.0'N, 74°55.1'W was partially investigated by a semicircular area with a one mile radius centered at the item extending north. The southern half of the investigation was not covered by wire drag operations due to its location in a danger area for mines. The southern half was covered by the high speed launch 1257 with 50 meter spacing, OPR 492, Sheet WH 10-3-70. The 34' shoal was not located in the area covered by wire drag operations.

ATTACHMENT V
Continued

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

ITEM A

The vessel reported sunk at 38°48.5'N, 74°55.5'W was investigated with a 1 mile radius circle search, however the wreck was not located. Recommend wreck remain uncharted.
Originates with NOS CL-800 (70) Area cleared 34 and 37 in part.

ITEM A(1)

While conducting wire drag operation, searching for Item A, on P day, 18 September 1970, a sunken wreck was located at 38°49'14"N, 74°55'00"W, with least depth of 31.0 feet MLW. This wreck is not Item A. The wreck was cleared on R day, strip #3 to ~~29~~ 30' and again S day strip #1 to ~~31~~ 30. Recommend wreck be charted and cleared by wire drag to 30 feet.
diver/leadline depth determined to 31 feet.

ITEM A(2)

While dragging on R day a sunken navigational buoy was located at 38°49'2~~4~~3"N, 74°55'5~~8~~7"W with least depth of 28.0 feet MLW. At that time diving investigations showed the buoy to be upright. An attempt to wrap the buoy from the opposite direction at an effective depth of 35 feet was unsuccessful. After relocating the buoy with a wire bottom sweep, investigating divers found the buoy to be laying on its side. The buoy, outside the project limits, has been cleared ~~to 35~~ to a maximum depth of 35' in two directions, and does not constitute a hazard to navigation. An attempt by the Coast Guard to recover the buoy was unsuccessful. Another attempt will be made upon resumption of OPR-480. Recommend that this obstruction remain uncharted. See addendum & cloth tracing in this D.R.
Originates L 1193 (70) Cleared 35 ft on strip T-2, and 34 ft on strip U-2.

ITEM B

Previously covered on Sheet A

ITEM C

Previously covered on Sheet A.

Note: All additional pre-survey review items amendment to instructions dated 13 July 1970 are now complete.

ATTACHMENT VI

STATISTICS

DATE	DAY LETTER	STRIP NO.	VOL. NO.	POSITIONS	LINEAL NAUTICAL MILES	SQUARE NAUTICAL MILES
26 AUG 70	A	1	1	55	6.0	3.6
27 AUG 70	B	1	1	53	5.4	3.2
31 AUG 70	C	1	1	48	4.1	2.5
1 SEPT 70	D	1	1	12	1.0	0.6
	D	2	II	33	3.3	2.0
2 SEPT 70	E	1	II	31	3.7	1.1
	E	2	II	42	2.3	1.8
3 SEPT 70	F	1	II	19	0.8	0.6
	F	2	III	43	4.2	3.8
8 SEPT 70	G	1	III	17	2.1	1.3
	G	2	III	22	1.5	0.9
9 SEPT 70	H	1	III	16	1.6	1.3
10 SEPT 70	J	1	III	21	1.6	0.8
11 SEPT 70	K	1	IV	21	1.3	0.5
	K	2	IV	14	1.4	0.6
	K	3	IV	5	0.7	0.2
15 SEPT 70	L	1	IV	9	1.0	0.3
16 SEPT 70	M	1	IV	33	3.7	1.8
	M	2	IV	31	1.9	1.4
17 SEPT 70	N	1	IV	23	3.0	2.1
	N	2	IV	21	2.5	1.5
18 SEPT 70	P	1	V	16	1.5	0.9
22 SEPT 70	Q	1	V	16	1.6	0.6
	Q	2	V	23	2.0	0.8
	Q	3	V	22	2.5	1.0
23 SEPT 70	R	1	V	7	0.8	0.3
	R	2	V	12	1.1	0.7
	R	3	V	15	2.2	0.7
24 SEPT 70	S	1	V	12	1.5	0.6
	S	2	V	26	1.7	0.7
28 SEPT 70	T	1	VI	17	1.5	0.8
	T	2	VI	16	1.2	0.7
30 SEPT 70	U	1	VI	20	1.8	0.9
	U	2	VI	17	1.5	0.8
TOTALS	19	34	6	788	74.0	41.4

FORM #3

COMPUTER PARAMETERS FOR ELECTRONICALLY CONTROLLED SURVEYS

(RANGE-RANGE)

(1) PROJECT NO. OPR-480 (2) H. NO. H-9173 (3) FIELD NO. RH 20-2-70 WD

(4) TYPE OF CONTROL: __ SHORAN, ✓ RAYDIST, __ HI-FIX, __ RADAR
FREQUENCY (FOR CONVERSION OF RAYDIST OR HI-FIX LANES TO METERS) 3300.4 kc

(5) RANGE ONE (R1) STATION NAME Cotton Patch 2, 1962
LATITUDE 38 ° 34 ' 46.641 "
LONGITUDE 75 ° 03 ' 33.774 "

(6) RANGE TWO (R2) STATION NAME Chop, 1970
LATITUDE 38 ° 47 ' 29.910 "
LONGITUDE 75 ° 05 ' 23.944 "

(7) AZIMUTH FROM R1 TO R2 ° ' "

(8) BASELINE LENGTH IN METERS M.

(9) LOCATION OF SURVEY WITH RESPECT TO ELECTRONIC BASELINE: CHECK ONE

(TO DETERMINE: IMAGINE AN OBSERVER STANDING AT R1 AND LOOKING DIRECTLY AT R2 --- IF THE SURVEY AREA IS TO THE LEFT OF THE LINE, THE SIGN IS NEGATIVE; IF THE SURVEY AREA IS TO THE OBSERVER'S RIGHT FROM R1 TO R2, THE SIGN IS POSITIVE.)

__ -A ✓ +A

(10) IF SHORAN CORRECTIONS ARE APPLIED BY THE EQUATION, K(X) + C = D WHERE X IS SHORAN DISTANCE AND D IS TRUE DISTANCE, ENTER THE CONSTANT COEFFICIENTS OF THE EQUATION BELOW:

K(R1) _____, C(R1) _____, K(R2) _____, C(R2) _____

(11) NUMBER OF VELOCITY TABLES TO BE USED:

__ NONE, __ ONE,
__ More than One

[illegible] BOUNDARY:

[illegible]

(12) [illegible] ALL DATA ON THIS SURVEY- ✓

THIS FORM APPLIES TO PART OF THE DATA ON THIS SURVEY- ____

TIME AND DATE LIMITATIONS: FROM _____ TO _____

POSITION NUMBER LIMITATIONS: FROM _____ TO _____

THIS FORM #3 SHEET #_____ OF _____ SHEETS FOR [illegible]

Del Bay ent.

FORM # 1

FIG. 15

PARAMETERS FOR DIGITAL COMPUTING

POLYCONIC PROJECTION

(1) PROJECT NO. OPR-480

(2) H NO. H-9173

(3) FIELD NO. RH 20-2-70 WD

(4) REQUESTED BY VER. BR.

(5) SHIP OR OFFICE AM C

(6) DATE REQUIRED 11-23-70

(7) VISUAL ☐

(8) ELECTRONIC ☑ (FILL OUT FORM #3)

(10) XKN (SP 5) DISTANCE FROM CMER TO EAST EDGE (NYX = 1) OR WEST EDGE (NYX = 0). ~~191.4~~ 13,191.4 METERS

(11) YKN (SP 241) DISTANCE FROM EQUATOR TO SOUTH EDGE OF SHEET. 4,286,534.5 METERS

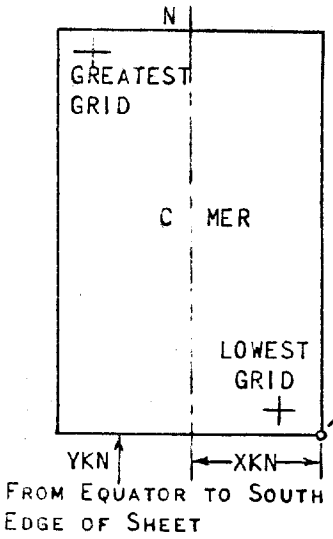
(12) CENTRAL MERIDIAN 74° 56' 00"

(13) SURVEY SCALE 1: 1:20,000

(14) SIZE OF SHEET (CHECK ONE) 36X54 ☑ 42X60 ☐ OTHER ____ ☐

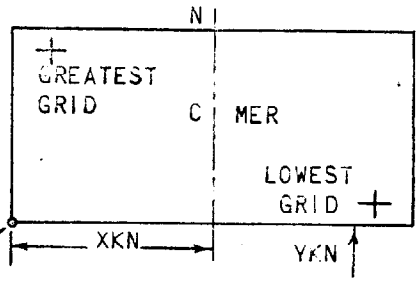
(15) NYX, ORIENTATION OF SHEET (CHECK ONE)

NYX = 1 ☐



FROM EQUATOR TO SOUTH EDGE OF SHEET

NYX = 0 ☑



FROM EQUATOR TO SOUTH EDGE OF SHEET

(9) PLOTTER ORIGIN (CORNER OF SHEET)

LATITUDE 38° 42' 50"

LONGITUDE 75° 05' 06"

GRID LIMITS

(16) GREATEST LATITUDE 38° 52' 00" (PROJECTION LINE

(17) LOWEST LATITUDE 38° 43' 00" INTERVAL, PAGE 4

(18) DIFFERENCE 09' 00" HYDRO MANUAL)

(19) 01' 00"

(20) 09 YSN

(21) GREATEST LONGITUDE 75° 04' 00"

(22) LOWEST LONGITUDE 74° 47' 00"

(23) DIFFERENCE 17' 00"

(24) 01' 00"

(25) 17 XSN

LIST G.P. OF ALL STATIONS TO BE PLOTTED ON THIS PROJECTION ON THE BACK OF THIS FORM. (DEG., MIN., SEC.)

VERIFICATION BRANCH, AMC

ADDENDUM
To Accompany

WIRE DRAG SURVEY H-9173 (RH 20-2-70WD)

GENERAL

This appears to be a very good wire drag survey except for the items listed below.

(1) A split exists at Lat. 38-49.3', Long. 74-47.9' ✓

(2) A 34 foot grounding was not cleared at Lat. 38-49.7' Long. 74-56.7'. Prior survey H-4799 (27) shows 31 ft. ✓

(3) Two 42 foot groundings were not cleared in the vicinity of Lat. 38-49.3' Long. 74-48.0'. ✓

(4) The field party failed to properly obtain and/or record hydrographic data. Ref: H-9723 (1177) Pg. 6 item K

(a) The sunken wreck at Lat. 38-49.2', Long. 74-55.0 was located by the drag hang at 15P. A detached position was not observed and the sounding was field recorded as shown in the daily journal and tender volume on P day. The position shown in the smooth tender record was written by a field officer at a later date. The time of the sounding was derived from notes on diver activities recorded in G.L. record. P.S.I. I 39 wk restored as prev. charted. jsc 7/2/90

(b) Navigation buoy R "2A" was plotted on drag hangs.

(c) Positions 1 thru 17T were not smooth plotted because of excessive lift. The area was adequately covered by other lines. ✓

(d) Line 9 thru 20R was plotted on a smooth overlay and attached to the descriptive report for the sole purpose of showing the position of the sunken navigation buoy at Lat. 38-49.3' and Long. 74-56.0'. The line was rejected for smooth sheet use because of excessive lift, or rather lack of tests. The approximate effective depth was 28 feet. The area was later cleared at 34 feet, 1 thru 20U and 35 feet, 19 thru 34T. (See item A(2), attachment 5) ✓

All groundings are shown with effective depths in penciled circles. Solid hangs are shown in the same manner but have leadered notes giving available data.

Norfolk, Va.
April 22, 1971

Hugh L. Preffitt
Chief, Verification Br., AMC

FORM 197
(3-16-55)

GEOGRAPHIC NAMES

Survey No. H-9173 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	
Atlantic Ocean										1
Delaware Bay.										2
										3
										4
										5
										6
										7
										8
										9
										10
										11
										12
										13
										14
										15
										16
										17
										18
										19
										20
										21
										22
										23
										24
										25
										26
										27

PREPARED BY

Frederick W. Rockett

CARTOGRAPHIC TECHNICIAN.

APPROVED BY

A. Joseph Wright

CHIEF GEOGRAPHER

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. ~~[illegible]~~ 9173 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	11					
BOXES						1-Hydro.Records

T-SHEET PRINTS *(List)*

SPECIAL REPORTS *(List)*

1 Cahier-Drag Strip Data filed under OPR-480

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				1576
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		200		
SPECIAL ADJUSTMENTS		100		
ALL OTHER WORK		33		
TOTALS		333		

	BEGINNING DATE	ENDING DATE
PRE-VERIFICATION BY		
VERIFICATION BY R.W. Derkazarian	Mar 17, 1976	Oct 6, 1976
REVIEW BY		

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-9173 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 Robert W. Derkazarian

Date Oct 6, 1976

FORM C&GS-946A (11-65)

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See Derkazarian for Verifiers Report Rm 420 WCS #1

(3-25-63) NAUTICAL CHART DIVISION

RECORD OF APPLICATION TO CHARTS

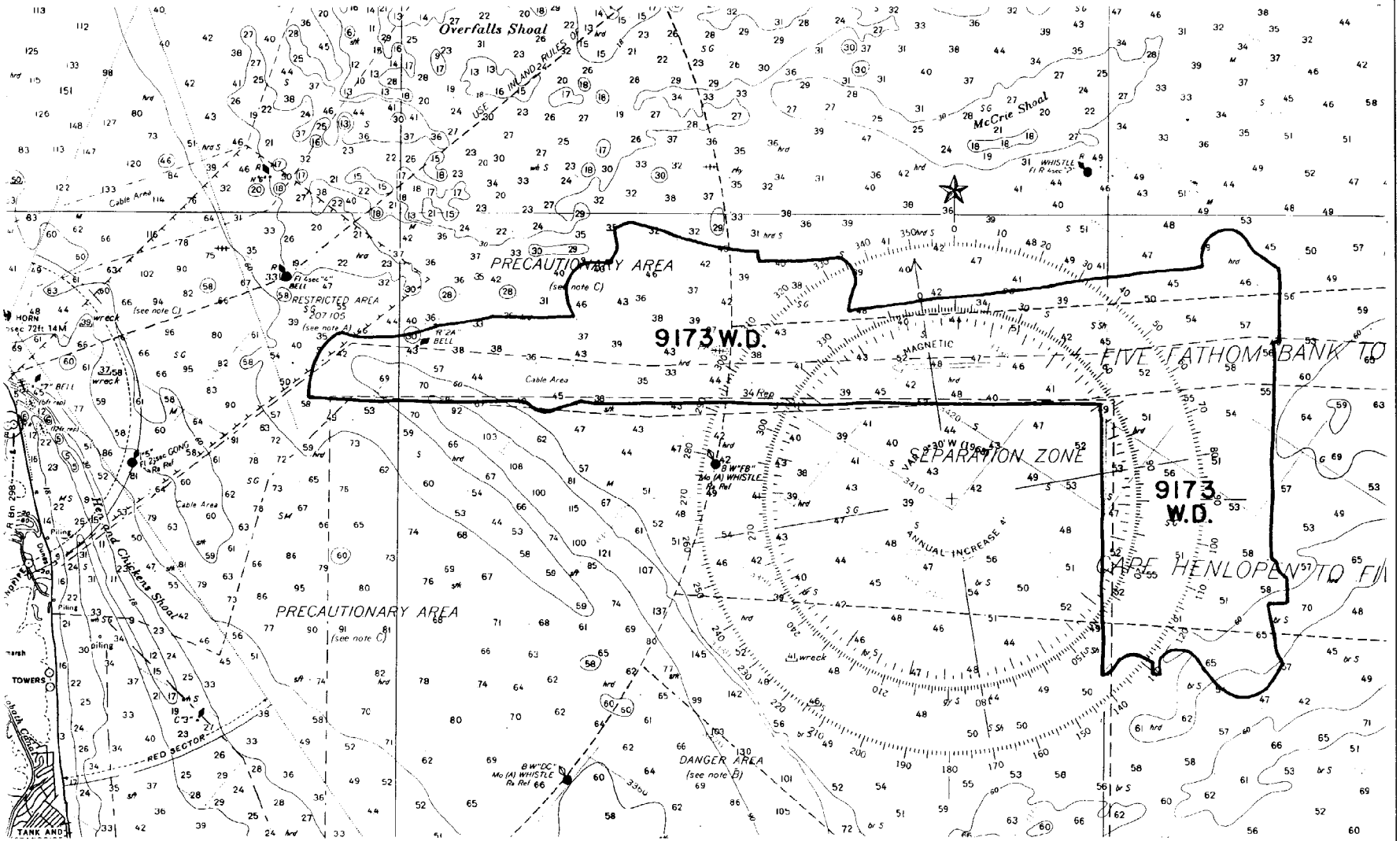
FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-9173 W.D.

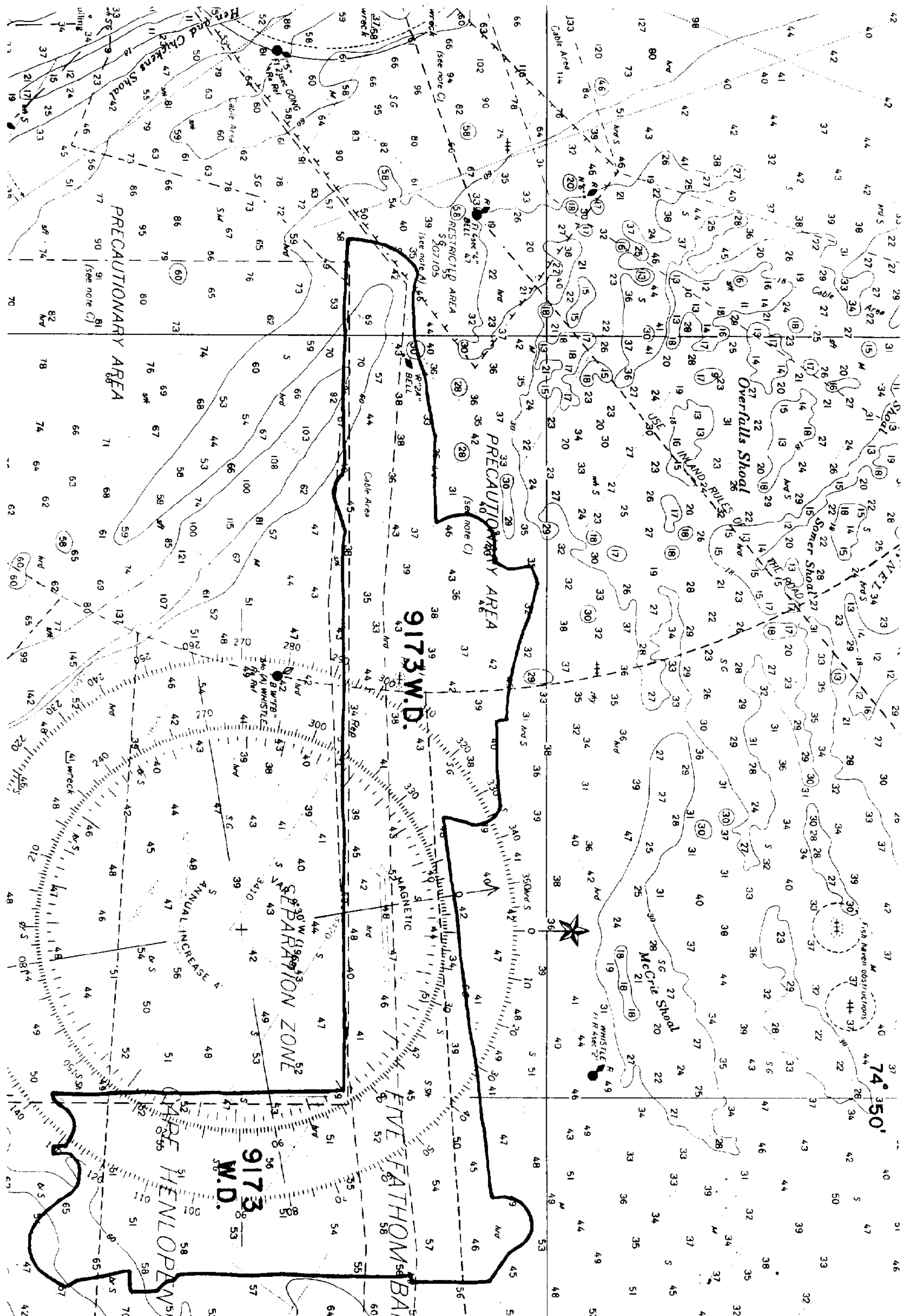
INSTRUCTIONS

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	C R EVERHART	~~Full~~ Part Before ~~After~~ Verification Review Inspection Signed Via
			Drawing No. APPLIED CRITICAL CORRECTIONS
1218	6-3-71	C. R. EVERHART	~~Full~~ Part Before ~~After~~ Verification Review Inspection Signed Via
			Drawing No. APPLIED CRITICAL CORRECTIONS
411	11/2/71	B. Fernanders	~~Full~~ Part Before ~~After~~ Verification Review Inspection Signed Via
			Drawing No. Examined, no critical corrections
1109	12/9/71	B. Fernanders	~~Full~~ Part Before ~~After~~ Verification Review Inspection Signed Via
			Drawing No. Appl critical corr only from chart 1219
1000	7-11-74	J. Bailey	Full ~~Part Before~~ After (Before) 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. Soberr	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


Overfalls Shoal
McCrie Shoal
PRECAUTIONARY AREA
(see note C)
RESTRICTED AREA
(see note A)
9173 W.D.
FIVE FATHOM BANK TO
SEPARATION ZONE
9173 W.D.
CAPE HENLOPEN TO
PRECAUTIONARY AREA
Herring Creek Shoals
RED SECTOR
DANGER AREA
(see note B)
TOWERS
TANK AND
MAGNETIC
ANNUAL INCREASE
INLAND RULES
Cable Area
wreck


PRECAUTIONARY AREA
9173 W.D.
SEPARATION ZONE
CAPE HENLOPEN TO FIVE FATHOM BANK TO CAPE
Overfalls Shoal
Somer Shoal
McCrie Shoal
Hen and Chickens Shoal
RESTRICTED AREA
INLAND RULES
MAGNETIC
ANNUAL INCREASE
Cable Area
38°50'
74°50'