

8878

Diag. Cht. No. 1222-3.

FORM C&GS-504

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

DESCRIPTIVE REPORT

Type of Survey Hydrographic

Field No. 746-10-1-66 Office No. H-8878

LOCALITY

State Virginia

General locality Hampton Roads

Locality Hampton Flats

1966

CHIEF OF PARTY

R. M. Petryczanko

LIBRARY & ARCHIVES

DATE January 17, 1967

USCOMM-DC 37022-P66

8878

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

HYDROGRAPHIC TITLE SHEET

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

REGISTER No. H-8878

Field No. 746-10-1-66

State VIRGINIA

General locality HAMPTON ROADS

Locality HAMPTON FLATS

Scale 1:10,000 Date of survey Mar. 18 to May 5, 1966

Instructions dated Feb. 14, 1966

Vessel HYDROGRAPHIC FIELD PARTY 746

Chief of party RICHARD M. PETRYCZANKO

Surveyed by RICHARD M. PETRYCZANKO

Soundings taken by ~~FATHOMETER~~, graphic recorder, ~~HAND LEAD, WIRE~~ POLE

Fathograms scaled by PARTY PERSONNEL

Fathograms checked by PARTY PERSONNEL

Protracted by FRED BEAN (NORFOLK HYDROGRAPHIC BRANCH)

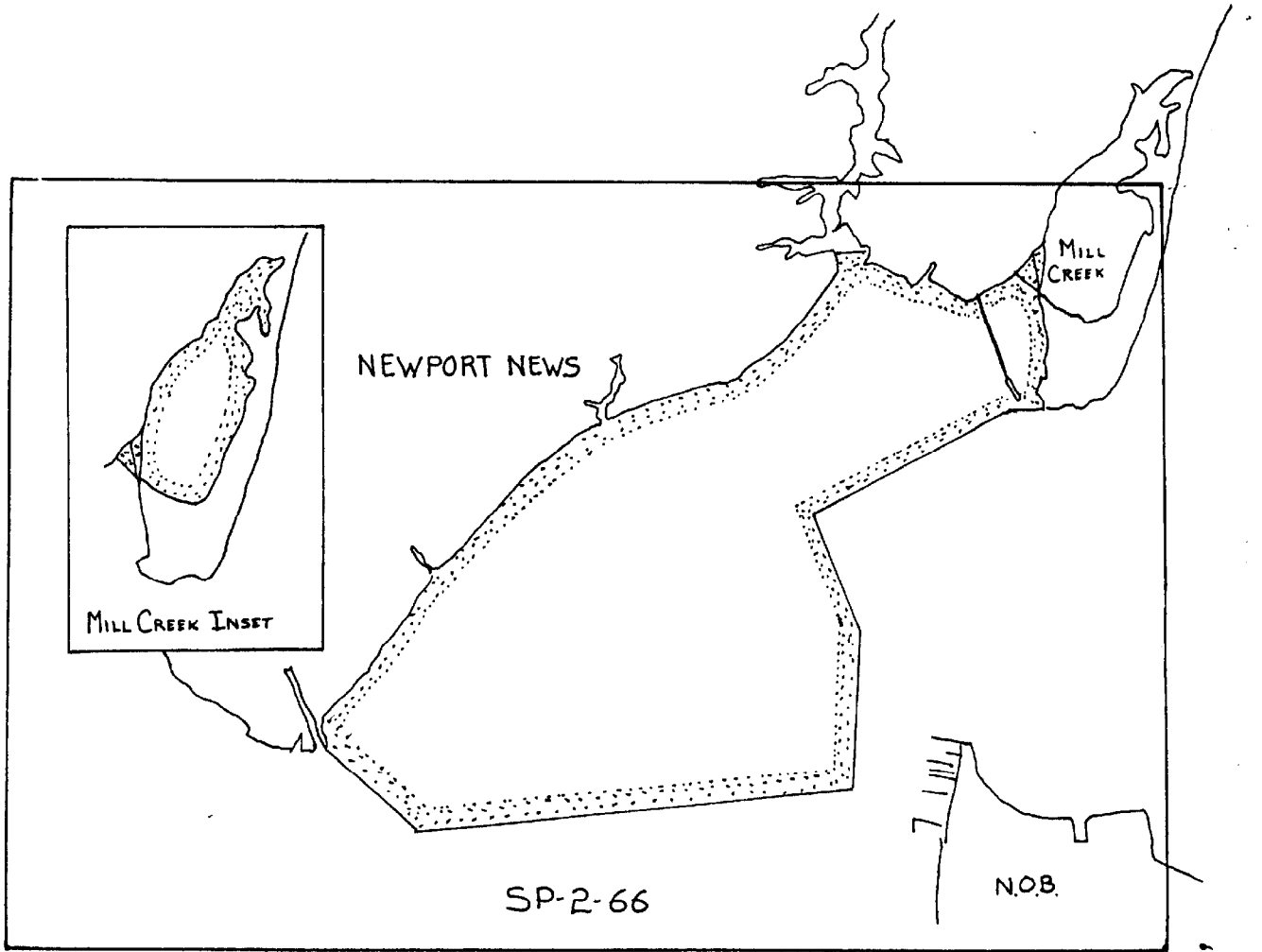
Soundings penciled by FRED BEAN " " "

Soundings in ~~FATHOMS~~ feet at MLW ~~MEAN~~ are true depths.

REMARKS:

.....
.....
.....
.....
.....

SHEET LAYOUT



A. PROJECT:

Authority for this survey was contained in Instructions dated 14 February 1966, entitled INSTRUCTIONS-- Special Project-2-66--Hampton Roads, Virginia, reference C3.2.

B. AREA SURVEYED:

The area covered by the survey is the Hampton Flats area of Hampton Roads, Virginia. The limits of the survey are inshore from Lat. $37^{\circ} 01.30' N$, Long. $76^{\circ} 20.41' W$; to Lat. $36^{\circ} 51.30' N$, Long. $76^{\circ} 18.10' W$; to Lat. $36^{\circ} 59.59' N$, Long. $76^{\circ} 20.20' W$; to Lat. $36^{\circ} 57.79' N$, Long. $76^{\circ} 24.79' W$ and including Mill Creek.

The survey was made from 18 March 1966 to 5 May 1966. It junctions with prior surveys H-4077, H-4078, H-6812, H-7171, H-7824, and H-7894. Mill Creek was unsurveyed previously.

C. SOUNDING VESSELS:

Hydrography was performed by Launch 1207 and Skiff 6450. Launch hydrography is denoted on the boatsheet by violet color, and skiff hydrography by red color.

D. SOUNDING EQUIPMENT:

Raytheon type DE-723 fathometer #541 was used aboard Launch 1207 in water ranging from $4\frac{1}{2}$ to 70 feet in depth. Velocity corrections were determined by means of bar check comparisons, and a phase comparison taken to determine the offset (if any) of the correction curve with the changing of scales. The initial trace was held at 1.0 foot, and squat and settlement values were taken from data obtained by the ship WHITING, whose launches are similar to 1207.

A 14 ft. sounding pole was used in conjunction with Skiff 6450. Skiff hydrography constituted approximately 19% of the entire survey.

E. SMOOTH SHEET:

The smooth sheet ^{was} ~~will be~~ plotted by the Atlantic Marine Center Processing Office. ✓

F. CONTROL:

Visual control was used throughout the entire survey. ✓
Planetable and triangulation points were used in conjunction with sextants to determine three-point fixes that were then plotted on the boat sheet using a three-arm protractor.

With the exception of triangulation points, all signals in the main body of the survey were located by planetable methods. Two topographic sheets were drawn on ^{plastic} ~~mylar~~ and are included in the survey records. Most of this work was performed from eccentric stations, these being described in a sketchbook entitled Planetable Setups (Eccentric), and included in the survey records. It should be noted by anyone working with the topographic sheets that cuts taken from the eccentric of triangulation station Yellow House, Round Cupola, have been rejected on the easterly sheet. The position of signal NEW was computed, since it was used as a planetable station. It was computed from triangulation stations Peake, 1944, and Newport News Middle Ground Lighthouse, 1903. Position computations to the station from each of the two triangulation stations were computed by plane coordinate methods and agreed exactly with each other. This data is included in the survey records. ✓ *sheets destroyed after review of present survey*

Signals in Mill Creek were located by theodolite cuts. ✓
Angles were turned from triangulation stations and rays plotted on the boatsheet with a three-arm protractor-- the intersection of these rays being the plotted positions of the signals. Rays were drawn from at least three stations and each intersected perfectly with the other two at each signal. Data for these cuts are contained in Form 251a (Observations of Horizontal Directions), also included as part of the survey records.

A complete list of signals is given in the Appendix.

G. SHORELINE:

Shoreline was transferred to the boatsheet from blowups of chart 400. The northern half of Mill Creek, which does not appear on the chart, ~~were~~ located by sextant fixes. High water lines were verified by the hydrographic party before they were inked, and low water lines delineated by hydrography performed at high tides. Except for features noted in the hydrographic records, there have been no significant changes in shoreline.

H. CROSSLINES:

Crosslines agree very well with the basic hydrographic pattern, and represent approximately 7 % of the total hydrography performed.

I. JUNCTIONS:

see Review Report Section 5
Junctions with prior surveys agree within two feet except in the area of the Hampton Roads Bridge Tunnel and the new entrance to the Hampton River Channel (both of which have been added since the prior surveys). The areas surrounding these changes agree well.

J. COMPARISON WITH PRIOR SURVEYS:

Bottom configurations agree well with prior surveys, with the exceptions of the previously mentioned items.

The area around the 5 ft. sounding at Lat. $36^{\circ} 59.43'N$, Long. $76^{\circ} 22.38'W$, (H-4078), was developed carefully and a depth of $6\frac{1}{2}$ feet was the shoalest recorded (development #3-- overlay). *Sndg Vol. shows least depth to be 6.8' Recorded on Survey as 7'*

Mill Creek had not been surveyed previously.

The following pre-survey review items were investigated.

1. The sunken wreck charted in Lat. $37^{\circ} 00' 39.0''N$, Long. $76^{\circ} 19' 15.9''W$ was searched for by dragging. Nothing was found. This area has been dredged, and it is possible the wreck was removed. *Wk has been removed from chart.*
2. The piles charted at Lat $37^{\circ} 00' 41''N$, Long. $76^{\circ} 20' 53.1''W$ exist as described.

J. (cont'd)

3. The pier ruins charted in Lat. $36^{\circ} 59' 14''$ N, Long. $76^{\circ} 23' 16''$ W, exist as described. ✓
4. The piling charted in Lat. $36^{\circ} 58' 54.4''$ N, Long. $76^{\circ} 23' 17.3''$ W, exists. It is completely submerged, however, and was located by dragging (see pos. 4k and 5k--skiff). The depth recorded was obtained by tapping the pile with a sounding pole (7 1/2 ft. at low water). ✓
5. The piles charted in Lat. $36^{\circ} 58' 56.0''$ N, Long. $76^{\circ} 23' 25.5''$ W, exist as described. ✓

NOTE: items #4 and #5 are separate obstructions.

6. The entrance to the yacht basin at Salters Creek, Lat. $36^{\circ} 58' 53''$ N, Long. $76^{\circ} 23' 46''$ W, was thoroughly developed. There is no channel as such, and 2 ft. is the controlling depth. The two 5' charted snags in Salters Creek originate with L-498 (1450), BP 76673 ✓
7. The wharf ruins charted in Lat $36^{\circ} 58' 04''$ N, Long. $76^{\circ} 24' 23''$ W, exist as charted. ✓
8. The 19 ft. sounding at Lat. $36^{\circ} 57' 23.5''$ N. Long. $76^{\circ} 24' 17.3''$ W was investigated (development #2--overlay). There is no indication of a 19 ft. sounding. 19-ft sounding originated with CofE BP 41657 (1946) - appears to be spoil mound probably from dredging 22 years ago. Lines of development on the present survey reveal least depths of 21 feet. Considering datum differences of 1/2 ft and a general increase in depths in this area, the 19-ft. sounding should be disregarded. ✓
9. The 25 ft. obstruction at Lat. $36^{\circ} 57' 41''$ N, Long. $76^{\circ} 22' 14.5''$ W, was investigated by development procedures (development #1--overlay). No trace could be found of the obstruction, but it is recommended that it ~~be~~ continue to be charted until more positively disproved by a proper wire drage apparatus. Disregard 25' - cleared by 27' on H-7602WD. Developed wrong area about 300 meters N.W. of charted 25 sounding. See Review Item 7 AU) ✓
10. The item mentioned in Atlantic Marine Center correspondence dated 26 April 1966, was searched for and found (pos. 5p--launch). Its position is Lat. $36^{\circ} 59' 57.0''$ N, Long. $76^{\circ} 18' 44.4''$ W. Subm. Piles ✓

K. COMPARISON WITH THE CHART:

The profile of the bottom is generally the same as depicted on Chart 400, revised June 14, 1965, except for two areas. Hampton ~~bar~~ appears to be generally one to two feet deeper throughout, and the area around the middle of Phoebus Channel appears to have been dredged. The 3 ft. sounding charted at Lat. $36^{\circ} 00.48'N$, Long. $76^{\circ} 19.02'W$, is now 16 ft. and other shoal soundings charted in the mid-eastern side of the area between the Hampton Bridge Tunnel and Ft. Monroe have been deepened.

A TELEPHONE CALL TO HAMPTON ROAD TUNNEL COMMISSION CONFIRMED THE FACT FERRY FENDER PILES CHARTED AT $\phi 36^{\circ} 57'$ & $76^{\circ} 24'$ HAVE BEEN REMOVED. THIS HAS BEEN INDICATED BY SOUNDING LINES RUNNING THROUGH THEM.

L. ADEQUACY OF SURVEY: *FERRY FENDER PILES AT $\phi 37^{\circ} 00.35'$ & $76^{\circ} 19.9'$ ALSO REMOVED. FILES NOT CURRENTLY CHARTED. HLP*

This survey is considered complete and adequate to supersede prior surveys for charting.

M. AIDS TO NAVIGATION:

See review report sect 7c.

A comparison of the boatsheet and Chart 400 indicated that all aids to navigation are approximately as charted except the following:

1. White lighted beacon "A" appears to be at Lat. $36^{\circ} 59.03'N$, Long. $76^{\circ} 21.40'W$, which is approximately 50 meters north of its charted position. *charted pos. agree with present survey pos.*
2. Buoys #2A, #7, #8, and #9 in the Hampton River entrance channel have been replaced by beacons. A black can buoy is positioned in mid-channel at Lat. $37^{\circ} 00.15'N$, Long. $76^{\circ} 19.43'W$. No hazards to navigation were noted, so it is possibly merely out of position. *- Not plotted -*
3. Can buoy "1A" at the entrance to Phoebus Channel has been removed, and ~~bell~~ ^{red} buoy "2" has been placed at Lat. $36^{\circ} 59.94'N$, Long. $76^{\circ} 18.75'W$, to mark the obstruction at Lat. $36^{\circ} 59' 57''$, Long. $76^{\circ} 18' 44''W$, (pre-survey review item #10).

A comparison of the boatsheet and Light List, Vol. I, Atlantic Coast (1965), indicates that, the depth of water beneath Hampton Flats Light "A" has changed from the published 14 ft. to 11 ft.

N. STATISTICS:

	<u>days</u>	<u>positions</u>	<u>mi. sounding line</u>
Launch	14	1342	228.1
Skiff	10	518	53.7

Total area of hydrography = 13 sq. naut. mi.

O. MISCELLANEOUS:

None

P. RECOMMENDATIONS:

No part of the survey is considered inadequate for charting.

TIDE NOTE

Tidal data was to have been provided by the Sewell's Pt. Standard Tide Gage, Norfolk Naval Operating Base, Virginia. Values from this station, however, were found to be in error during the months of March and April 1966. Data was therefore provided by Portsmouth Naval Shipyard gage instead, and corrected to yield values at Sewell's Pt. A time correction of -14 min. and a range correction of -0.3 ft. at high tide (proportionately applied between high and low waters) were applied to Portsmouth values, as per Tides Section correspondence dated 28 April, 1966 (see Appendix). Data for May 1966 was taken directly from the Sewell's Point Gage.

Hydrography in Mill Creek was performed in a single day. Tidal data was obtained from periodic observations of a temporary tide staff while hydrography was being performed. The staff was set in the mouth of Mill Creek. Staff data was sent to Tides Section, where Mean Low Water was calculated to be 2.5 feet.

APPENDIX

TIDE NOTE

SOUNDING CORRECTIONS

LIST OF STATIONS

CORRESPONDENCE

APPROVAL SHEET

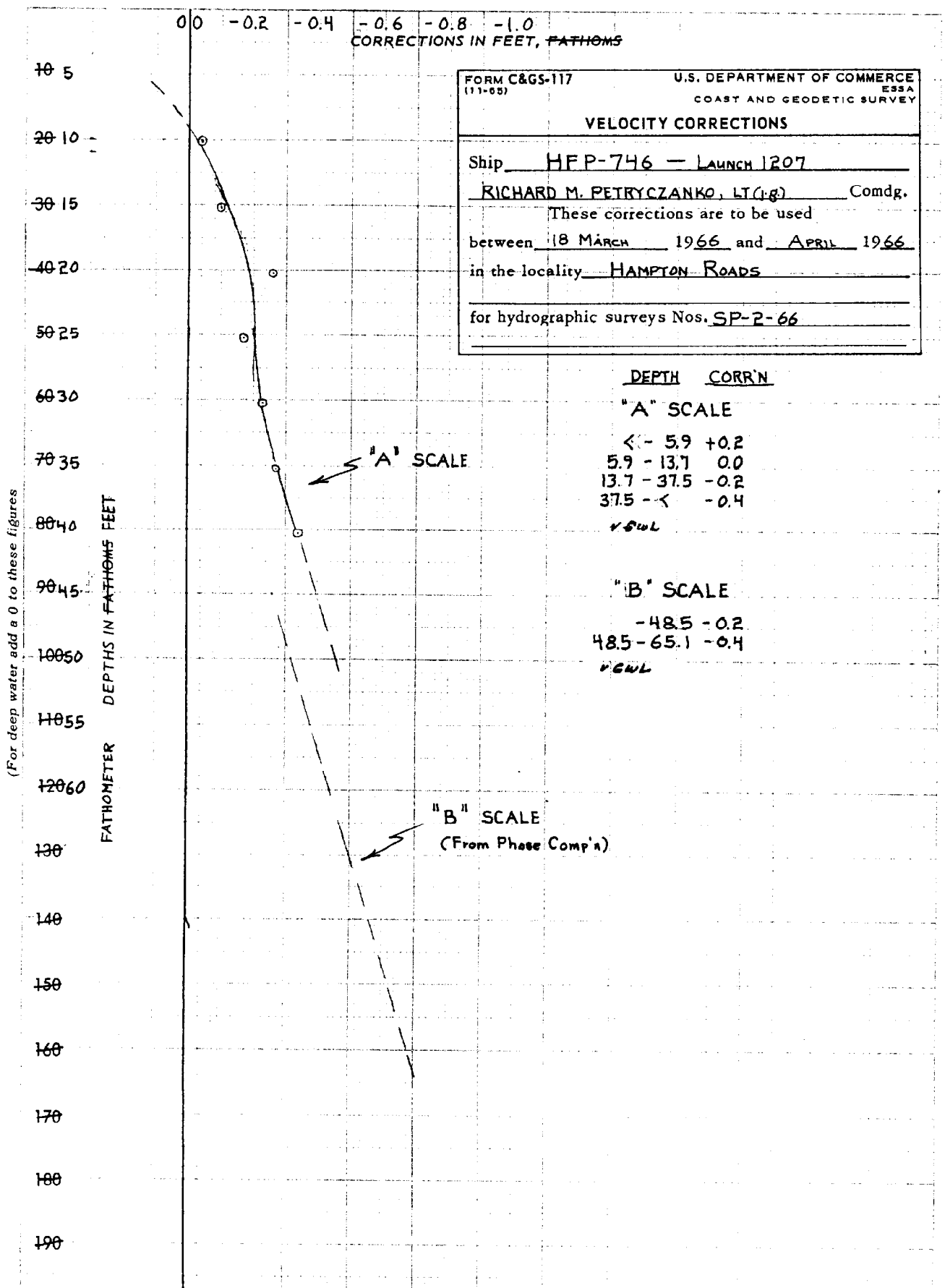
BAR CHECK RESULTS

LAUNCH 1207
 FATH DE-723 # 541

DATE/DAY	VOL / PAGE	5	10	15	20	25	30	35	40	45A	45B	50A	50B	55	60
3/18	a I 3		10.1	15.2	20.6	-									
3/18			10.0	15.0	20.4	-									
3/18	a I 43		10.0	15.2	20.5	-									
3/18			10.2	15.5	20.6	-									
3/21	b I 46		9.7	14.9	20.0	24.9	30.0	35.0	39.9	44.8	-				
			10.0	15.0	20.0	25.0	30.1	35.1	40.0	44.7	-				
3/21	b II 37		10.0	15.0	20.1	25.0	30.4	35.8	-						
			9.9	15.0	19.9	25.0	30.2	35.8	-						
3/22	c II		R												
			R												
3/22	c III 7		10.2	15.1	20.4	25.5	30.5	35.4	40.8	-					
			10.2	15.2	20.4	25.5	30.4	35.7	40.6	-					
3/23	d III 9		10.1	15.0	20.1	25.3	30.5	35.1	40.4	-					
			10.1	15.0	20.3	25.3	30.1	35.4	-						
3/25	e IV 25		9.9	14.9	20.0	25.0	30.0	34.7	-						
			10.0	15.2	-	25.0	30.0	34.7	-						
3/29	f IV 27		10.2	15.0	20.2	-									
			-	-	-	-									
3/29	f IV 35		10.6	15.5	20.5	25.3	30.3	35.2	-						
			10.6	15.0	20.1	25.2	30.3	-							
	Σ		171.8	256.7	324.1	302.0	362.8	387.9	201.7	89.5					
	MEAN	1	10.18	15.10	20.26	25.17	30.23	35.26	40.34	44.75					
	$\Sigma - R^*$		150.6					246.9							
	MEAN $\Sigma - R$		100.6					35.27							
	CORRN		-0.04	-0.10	-0.26	-0.17	-0.23	-0.27	-0.34	+0.25					
PHASE COMPARISON --		"A" SCALE		"B"		SQUAT		SETTLEMENT							
			46.1	46.0		46.0									
			46.1			46.1									
			46.1			46.0									
			46.0			46.0									
			46.1			46.0									
			46.2			46.1									
			46.5			46.2									
			46.5			46.5									
			46.6			46.2									
			46.5			46.3									
	AVERAGE		46.27			46.14									

r.p.m. CORR'N
 000 - 500 = 0.0
 500 - 2025 = +0.2
 2025 - 2600 = 0.0

(Let 1 inch equal 4 fathoms for deep water and 1 inch equal 0.4 fathom for shoal.)



LIST OF STATIONS ON H-8878 (SP-2-66)¹

SIGNAL *GC sheets destroyed* ORIGIN
after review of Hydro.

BLA	GRAPHIC CONTROL SHEET 746-B-66	Planetable position #5
BOA		Planetable position #8
BUX		Planetable position #10
BIL		T-2 cut
CUP		△ Yellow House, Round Cupola
COL		T-2 cut
DIP	GRAPHIC CONTROL SHEET 746-B-66	Planetable position # 6
GRE		T-2 cut
HAM		△ Hampton (Phoebus) Municipal Water Tank
IRE		△ Virginia Building Spire, 1913
LEG	GRAPHIC CONTROL SHEET 746-B-66	Planetable position #13
LON		T-2 cut
MID		△ Newport News Middle Ground Lighthouse, 1903
MON		△ Fort Monroe Tank, 1932
NAV		△ Naval Operating Base Tank, 1947
NEW		Computed (see para. F)
RAD		T-2 cut
RON	GRAPHIC CONTROL SHEET 746-A-66	Planetable position #30
RED	GRAPHIC CONTROL SHEET 746-B-66	Planetable position #11
SLA		△ Slate Colored House, Gable, 1906
SIN	GRAPHIC CONTROL SHEET 746-A-66	Planetable position #28 and T-2 cut
TOW	GRAPHIC CONTROL SHEET 746-B-66	Planetable position #12
WHI		Planetable position # 3
WES		Planetable position #31
WGH		△ Newport News, Radio Station WGH, Tower
WAT	GRAPHIC CONTROL SHEET 746-A-66	Planetable position #22 and T-2 cut
WER		△ Tower 28, 1951
WES		△ CHAMBERLAIN-VANDERBUILT HOTEL, WEST TOWER, 1932



ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
U.S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY
NORFOLK REGIONAL OFFICE
NORFOLK, VA. 23510
ATLANTIC MARINE CENTER
439 W. York Street

IN REPLY REFER TO:

April 26, 1966

LT(jg) Richard M. Petryczanko
Chief, Hydrographic Field Party 746

ADDITIONAL PRE-SURVEY REVIEW ITEM - PROJECT SP-2-66

1. The Coast Guard has reported a submerged obstruction in the vicinity of Old Point Comfort. This obstruction is approximately positioned at $36^{\circ}59'55''N$, $76^{\circ}18'44''W$, and is thought to be part of the demolished steamship pier.

2. You are instructed to conduct a hydrographic investigation of this area to verify or disprove the existence of this obstruction.

Subm Piles per Sp (Violet) ✓ charted

J. Bull

J. Bull
CAPT, USESSA
Director
Atlantic Marine Center

SCM:ws

cc: C3.2 (Wheatley Ward)

★ (1550) DELAWARE BAY—Cape May—Cape May Canal West Entrance—
Lights established.—The following lights have been reported established as
indicated:

(a) Crow Shoal Range Front Light, showing *quick flashing white*, of 48,000
candlepower, visible on range line only, 60 feet above water, from a gray pipe
structure, about 535 yards 063° from Cape May Canal West Entrance North
Jetty Light (38°58'03" N., 74°58'03" W.).

(b) Crow Shoal Range Rear Light, showing *flashed white*, of 48,000 candle-
power, visible on range line only, 92 feet above water, from a gray pipe structure,
about 610 yards 040°30' from light in (a).

Note.—Above private aids maintained by Delaware River and Bay Authority,
Cape May, N.J.

(N.M. 11/66.)

(L.N.M. 5, C.G., New York, Feb. 4, 1966.)
C. & G.S. Chart 826SC, 1218, 1219.
C.G. Light List, Vol. I, 1965, Nos. 1798.5, 1798.6.
C. & G.S. Coast Pilot 3, 1961, pages 68, 72.

★ (1551) DELAWARE BAY—Cape May—Cape May Canal West Entrance—
Chart amendment.—The Lookout Tower in 38°58'03" N., 74°57'46" W. has been
removed and should be expunged.

(N.M. 11/66.)

(L.N.M. 7, C.G., New York, Feb. 17, 1966.)
C. & G.S. Charts 826SC, 1218, 1219, 1109.
C. & G.S. Coast Pilot 3, 1961, pages 68, 72.

★ (1552) CHESAPEAKE BAY—Hampton Roads—Hampton River—Phoe-
bus Channel—Obstruction—Buoys changed temporarily.—A submerged ob-
struction was reported in the vicinity of Old Point Comfort. The following
changes in buoyage have been temporarily made as indicated to mark route of
best water:

(a) Phoebus Channel Entrance Lighted Buoy 1 (LL 2771.5), replaced by a
black can with white reflector.

Approx. position: 36°59'57" N., 76°18'53" W.

(b) Phoebus Channel Entrance Buoy 1A, discontinued.

(c) Phoebus Channel Obstruction Lighted Buoy 2 (LL 2771.6) showing a
quick flashing red light, of low candlepower, established about 625 yards 240°
from Old Point Comfort Light (37°00'08" N., 76°18'24" W.).

(See N.M. 37(5292) 1965.)

(N.M. 11/66.)

(L.N.M. 6, C.G., Portsmouth, Feb. 9, 1966.)
C. & G.S. Charts 400, 562, 562SC.
C.G. Light List, Vol. I, 1965 (see above), and page 399.
C. & G.S. Coast Pilot 3, 1961, page 95.

HTP-746

APPROVAL SHEET
DESCRIPTIVE REPORT, H-8878

The boat sheet SP-2-66 was reviewed daily. The survey is adequate and approved.

Richard M. Petryczanko

Lt(jg) Richard M. Petryczanko
Officer-in-Charge, HFP-746

NORFOLK HYDROGRAPHIC PROCESSING BRANCH
ADDENDUM
To Accompany

HYDROGRAPHIC SURVEY H-8878 (746-10-1-66)

GENERAL

This appears to be an excellent basic survey. Soundings are in good agreement at crossings and depth curves follow normal patterns.

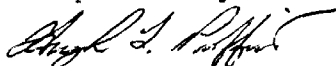
AIDS TO NAVIGATION

Lat. 37-00.16' Long. 76-19.42' - The unidentified can buoy (possibly C3), located on positions 10p (Lch. 1207) and 13d (skiff), was not smooth plotted as it falls in the middle of the channel and is undoubtedly out of position.

SHORELINE

Since there are no recent air-photo compilations, the shoreline was transferred from an enlargement of chart 400 and inked on the smooth sheet in brown.

Respectfully submitted,


Hugh L. Proffitt
Carto-Tech

Norfolk, Va.
Jan. 10, 1967

GEODETIC POSITIONS FROM LAMBERT COORDINATES
 (CALCULATING MACHINE COMPUTATION)

STATE-ZONE VIRGINIA - SOUTH $l =$ 0.60692 48249

Station NEW

C	-2,000,000.00	R_b	27,811,312.71
x	2,633,577.30	y	- 248,365.27
$x' = x - C$	+ 633,577.30	$R_b - y$	+ 27,562,947.44
$\tan \theta = x' \div (R_b - y)$	+ 0.0229865584	θ	+ 4740.4832"
θ	001° 19' 00.4832"	$\Delta\lambda = \theta \div l$	7810.6596"
$\cos \theta$	0.99973592	$\Delta\lambda$	+ 2° 10' 10.6596"
$R = (R_b - y) \div \cos \theta$	27,570,228.1'	Central Meridian	78° 30' 00"
ϕ	36° 59' 43.835" N	$\lambda = C. M. - \Delta\lambda$	76° 19' 49.340" W

Station

C		R_b	
x		y	
$x' = x - C$		$R_b - y$	
$\tan \theta = x' \div (R_b - y)$		θ	"
θ	° ' "	$\Delta\lambda = \theta \div l$	"
$\cos \theta$		$\Delta\lambda$	° ' "
$R = (R_b - y) \div \cos \theta$		Central Meridian	° ' "
ϕ	° ' "	$\lambda = C. M. - \Delta\lambda$	° ' "

Station

C		R_b	
x		y	
$x' = x - C$		$R_b - y$	
$\tan \theta = x' \div (R_b - y)$		θ	"
θ	° ' "	$\Delta\lambda = \theta \div l$	"
$\cos \theta$		$\Delta\lambda$	° ' "
$R = (R_b - y) \div \cos \theta$		Central Meridian	° ' "
ϕ	° ' "	$\lambda = C. M. - \Delta\lambda$	° ' "

Station

C		R_b	
x		y	
$x' = x - C$		$R_b - y$	
$\tan \theta = x' \div (R_b - y)$		θ	"
θ	° ' "	$\Delta\lambda = \theta \div l$	"
$\cos \theta$		$\Delta\lambda$	° ' "
$R = (R_b - y) \div \cos \theta$		Central Meridian	° ' "
ϕ	° ' "	$\lambda = C. M. - \Delta\lambda$	° ' "

COMP. MAP
 ✓
 12/24

TIDE NOTE FOR HYDROGRAPHIC SHEET

September 21, 1966

~~Naval Hydrographic Division~~ Atlantic Marine Center

Plane of reference approved in
14 volumes of sounding records for

HYDROGRAPHIC SHEET 8878

Locality: Hampton Flats, Chesapeake Bay, Virginia

Chief of Party: R. M. Petryczanko (1966)

Plane of reference is mean low water

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

Hampton Roads, Virginia

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

2.5 feet

Remarks


Chief, Tides and Currents Branch

Hydrographic Surveys (Chart Division)

HYDROGRAPHIC SURVEY NO. *H. 8878*...

Records accompanying survey: Smooth sheets *1*...;

boat sheets *1*...; sounding vols. *14*...; wire drag vols. *0*...;

Descriptive Reports *1*...; graphic recorder envelopes *2*...;

special reports, etc. *1. C. A. K. E. F. G. H. I. J. K. L. M. N. O. P. Q. R. S. T. U. V. W. X. Y. Z.*

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

Number of positions on sheet	.....	<i>1860</i>
Number of positions checked	.....	<i>159</i>
Number of positions revised	.....	<i>0</i>
Number of positions revised (refers to depth only)	.....	<i>1</i>
Number of soundings/erroneously spaced	.....	<i>5</i>
Number of signals erroneously plotted or transferred	.....	<i>0</i>
Topographic details	Time	
Junctions	Time	
Verification of soundings from graphic record	Time	<i>12 hrs</i>
Special adjustments	Time	

Verification by *DAN R. MUNFORD*. Total time ~~*163 hrs*~~ ^{*193*} Date *Dec 20, 1966*

Reviewed by *Dennis J. Romasburg*. Time *96 hrs* Date *3-11-68*
Rev. D. R. Engle *44* *5-15-68*

OFFICE OF HYDROGRAPHY AND OCEANOGRAPHY

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MARINE CHART DIVISION

HYDROGRAPHIC SURVEY REVIEW

REGISTRY NO. H-8878

FIELD NO. 746-10-1-66

Virginia, Hampton Roads, Hampton Flats

SURVEYED: March 18, 1966 to May 5, 1966

SCALE: 1:10,000

PROJECT NO. SP-2-66

SOUNDINGS: DE-723 Depth
Recorder, 14" Sound-
ing Pole

CONTROL: Sextant fixes
on shore signals

Chief of Party..... R. M. Petryczanko
Surveyed by..... R. M. Petryczanko
Protracted by..... F. Bean (Norfolk)
Soundings plotted by..... F. Bean
Verified and inked by..... D. R. Munford
Reviewed by..... D. J. Romesburg
date: 3/11/68
Inspected by..... R. H. Carstens

1. Description of Area

This is a survey to check the adequacy of the charted hydrography in the northern portion of Hampton Roads for anchorage purposes. The survey covers Newport News Channel and Hampton Flats from Old Point Comfort to Newport News Point.

The bottom is generally smooth, covered with fine sand in the shoaler areas and with mud and silt in the greater depths. Two well defined bars, Hampton Bar and Newport News Bar, exist at lat. 36°59'80, long. 76°20'00, and lat. 36°57'71, long. 76°24'00 respectively at the outer limits of the flats. From Hampton Bar the bottom slopes gradually to natural maximum depths and from the Newport News Bar the bottom slopes gradually to the channel edge, where it drops abruptly to maximum depths.

2. Shoreline and Control

The shoreline originates with the enlargement of Chart 400 (Print date June 14, 1965) in compliance with

instructions contained in the letter from the Director, Atlantic Marine Center, dated February 14, 1966. The shoreline of the northern half of Mill Creek, which does not appear on the chart, was located by sextant fixes.

The source of the control is given in the Descriptive Report.

3. Hydrography

- A. Sounding line crossings are in good agreement.
- B. The usual depth curves were adequately delineated.
- C. The development of bottom configuration and least depth is adequate. However, better development for least depths and bottom configuration on the shoal indications centered at lat. $36^{\circ} 57'65''$, long. $76^{\circ} 23'50''$ would have been desirable. Additional bottom samples would have been desirable also, as a large portion of this area is used for naval, quarantine, customs, and immigration inspection anchorages.

4. Condition of the Survey

The field plotting, records, and reports are adequate and conform to the requirements of the Hydrographic Manual.

5. Junctions

In compliance with project instructions, adequate junctions were effected with H-6812 (1942-43) on the west, and with H-7894 (1951) on the south, except in approximate lat. $36^{\circ} 57'30''$, long. $76^{\circ} 24'00''$ where a small holiday exists.

Butt junctions were made with certain portions of H-7171 (1947) and H-7824 (1948-50) on the east where dredging and construction subsequent to the dates of those surveys had changed the bottom. The present survey supersedes H-7171 and H-7824 in these junctional areas. Off Sewells Point the present survey adjoins Corps of Engineers surveys in the Norfolk Harbor Channel.

6. Comparison with Prior Surveys

A.	H-447	(1:20,000)	1854
	H-877	(1:10,000)	1865
	H-1188	(1:20,000)	1873
	H-1213	(1:10,000)	1874
	H-2849	(1:15,000)	1907
	H-3788	(1:10,000)	1915
	H-4014	(1:7,500)	1918
	H-4077	(1:5,000)	1918-19
	H-4078	(1:10,000)	1918-19

A comparison between the prior and the present surveys reveals differences in depths which result from both natural causes and dredging operations. Extensive changes have occurred between the northeastern limits of Hampton Bar and the western shoreline of Old Point Comfort. A new entrance channel to Hampton River has been dredged and a landfill for the Hampton Roads Bridge Tunnel has been extended into the water approximately 1390 meters from the shoreline at lat. $37^{\circ}00'70''$, long. $76^{\circ}19'40''$. Dredging operations have increased the depths of the Newport News Channel and have caused some shoaling and depth differences along the channel edges. Two small channels, one at lat. $36^{\circ}59'90''$, long. $76^{\circ}22'21''$ with depths of 7 to 13 ft. and the other at lat. $36^{\circ}59'71''$, long. $76^{\circ}22'71''$ with depths of 7 to 9 ft., were evident on prior surveys. The present survey reveals no indications of the channels.

The depths on Hampton Flats have increased by an average of 1 foot. The numerous 6-ft. shoals recorded on prior surveys now have least depths of 7 feet. Least depths on Hampton Bar and Newport News Bar have increased by a 1 to 2 ft. average. On prior surveys the least depth on Newport News Bar was 5 feet. The present survey shows a least depth of 6 feet. Previously, the shoalest depths recorded on Hampton Bar were 1 and 2-ft. soundings. On the present survey the least depth recorded on Hampton Bar is 3 feet. Hampton Bar is essentially the same size and shape as on prior surveys except at its northeastern end where dredging occurred, but Newport News Bar has diminished in size by approximately 450 meters in length and 80 meters

in width. Shoaling has occurred in the greater depths. Apparent causes seem to be the spoil from the channel dredging operations and the deposition of sediments from the rivers which empty into Hampton Roads.

Attention is called to the following items:

1. The 6-ft. sounding charted from H-4078 (1918-19) in lat. $36^{\circ}59'35''$, long. $76^{\circ}20'93''$ has not been disproved by the present survey and has been carried forward.
2. Bottom characteristics from H-4077 (1918-19) and 4078 (1918-19) have been brought forward to supplement the present survey.

With the addition of the above items the present survey is adequate to supersede the prior surveys within the common area.

B. H-7602 W.D. (1:20,000) 1945-48

This wire-drag survey covers only a small portion of the present survey. No conflicts exist between the present depths and the effective drag depths. Several depths from the wire-drag survey were transferred to the present survey in green ink.

7. Comparison with Chart 400 (Latest print date Sept. 25, 1967)

A. Hydrography

Charted hydrography originates principally with the previously discussed prior surveys supplemented by soundings from Corps of Engineers blueprints and partial application of critical information from the present survey, after verification and before review.

Specific attention is directed to the following items:

1. The 25-ft. ^{40.8"}sounding charted in lat. $36^{\circ}57'68''$, long. $76^{\circ}22'24''$ originates with Chart Letter No. 391 of 1948 (Pre-survey Review No. 9), which contains preliminary results of a

40.8"
40.8"
24"
14.4"

wire-drag investigation (W.D. 7602, 1945-8). An obstruction was hung at 16-ft. and 18-ft. at this position, but was apparently pulled out or broken off, as this area was subsequently cleared by a drag set at 25 feet. The 25-ft. sounding was charted from this information. The drag lines plotted from the 1948 field work of W.D. 7602 shows the 25-ft. sounding cleared by a drag of 27 feet. Depths of 28 feet were recorded on the present survey and adequately reveal the bottom configuration in this area. It is recommended that the 25-ft. sounding be deleted from the chart.

2. The 12-ft. sounding charted in lat. $36^{\circ}57'90$, long. $76^{\circ}24'30$ from H-4078 (1918-19) was probably erroneously recorded on the prior survey and should be disregarded. Present depths are adequate in this area.

3. The wreck charted in lat. $36^{\circ}57'97$, long. $76^{\circ}21'65$ from H.O. Notice to Mariners No. 1, 1947 and cleared to 30 feet by H-7602 W.D. (1945-48) was not investigated on the present survey and should be retained on the chart.

4. Explosives (Rep. 1962) PD charted in lat. $36^{\circ}58'58$, long. $76^{\circ}20'38$ from H.O. Notice to Mariners No. 12, 1962, was not investigated on the present survey and should be retained on the chart.

5. The sunken wreck charted in lat. $36^{\circ}59'80$, long. $76^{\circ}19'44$ from H.O. Notice to Mariners No. 35, 1965, was not investigated on the present survey and should be retained on the chart.

6. Two 6-ft. soundings one charted in lat. $37^{\circ}00'18$, long. $76^{\circ}19'26$ from Corps of Engineers blueprint 52512 (1955) and the other charted in lat. $37^{\circ}00'53$, long. $76^{\circ}20'40$ from Corps of Engineers blueprint 35993 (1941) have not been verified or disproved and should be retained on the chart.

With the exception of the above items the present survey is adequate to supersede the charted information.

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Attention is also called to the following items:

1. New piers at lat. $37^{\circ}01'13$, long. $76^{\circ}18'85$, lat. $37^{\circ}01'43$, long. $76^{\circ}18'70$, and lat. $37^{\circ}01'55$, long. $76^{\circ}18'50$ were located on the present survey. It is recommended that these piers be charted.

2. New piles at lat. $37^{\circ}01'16$, long. $76^{\circ}18'81$ were located on the present survey. It is recommended that these piles be charted.

B. Controlling Depths

Charted controlling depths originate with information from the Corps of Engineers subsequent to the date of the present survey and supersedes the present survey except as follows:

1. Newport News Channel - Charted controlling depths are from Corps of Engineers surveys prior to the date of the present survey (1965). However, the present survey did not develop the westernmost portion of the channel. Junctional survey H-6812 of 1942-43, used to supplement the present survey in this area, is in conflict with Corps of Engineers 1965 information and is superseded. The remainder of the charted controlling depths are in agreement with the present survey.

2. Phoebus Channel - Charted controlling depths are from Corps of Engineers information prior to the date of the present survey. The present survey indicates an 11-ft. depth (10.8) in lat. $37^{\circ}00.50$, long. $76^{\circ}18.96$ where the chart indicates a controlling depth of 11.8 feet.

C. Aids to Navigation

The charted positions of many floating aids disagree with the survey positions by 50 to 100 meters. The charted positions of the aids adequately serve the purposes intended.

Buoys marking the dredged Phoebus Channel on the present survey have been replaced by beacons and entrance buoys have been renumbered subsequent to the date of the present survey.

The can buoy charted in lat. $37^{\circ}00'.16$, long. $76^{\circ}19'.48$ was off station at the time of the present survey and was not plotted on the smooth sheet.

Other aids shown on the present survey are in substantial agreement with those charted and adequately mark the features intended.

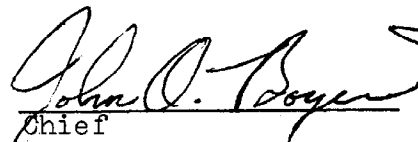

8. Compliance With Project Instructions

The survey adequately complies with the project instructions except for paragraph 15 of the instructions which states that bottom samples should be taken in accordance with Hydrographic Manual as specified for an original survey.

9. Additional Field Work

This survey is considered to be a good basic survey and is considered to be adequate for charting. No additional field work is recommended. However, any future survey in this area should include the development of the items noted in part 3 (c) of this review.

Examined and Approved:

 <u>John D. Boyer</u> Chief Marine Chart Division	 <u>Associate Director</u> Associate Director Hydrography and Oceanography
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RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-8878

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
400	12-3-67	Fannie Powers	Full Part Before After Verification ^{and before} Review Inspection Signed Via Drawing No. <i>Appl'd only critical information.</i>
562	12/3/67	F. B. POWERS	Full Part Before After Verification ^{before} Review Inspection Signed Via Drawing No.
400	10/12/69	J. H. MILLAN	Full Part Before After Verification Review Inspection Signed Via Drawing No. <i>44 FULLY APPLIED</i>
562	1-7-70	F. W. MALONE	Full Part Before After Verification Review Inspection Signed Via Drawing No. <i>Applied thru cht 400 Dwg 44</i>
			Full Part Before After Verification Review Inspection Signed Via Drawing No.
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The U.S. Weather Bureau displays storm warnings at the following approximate locations:

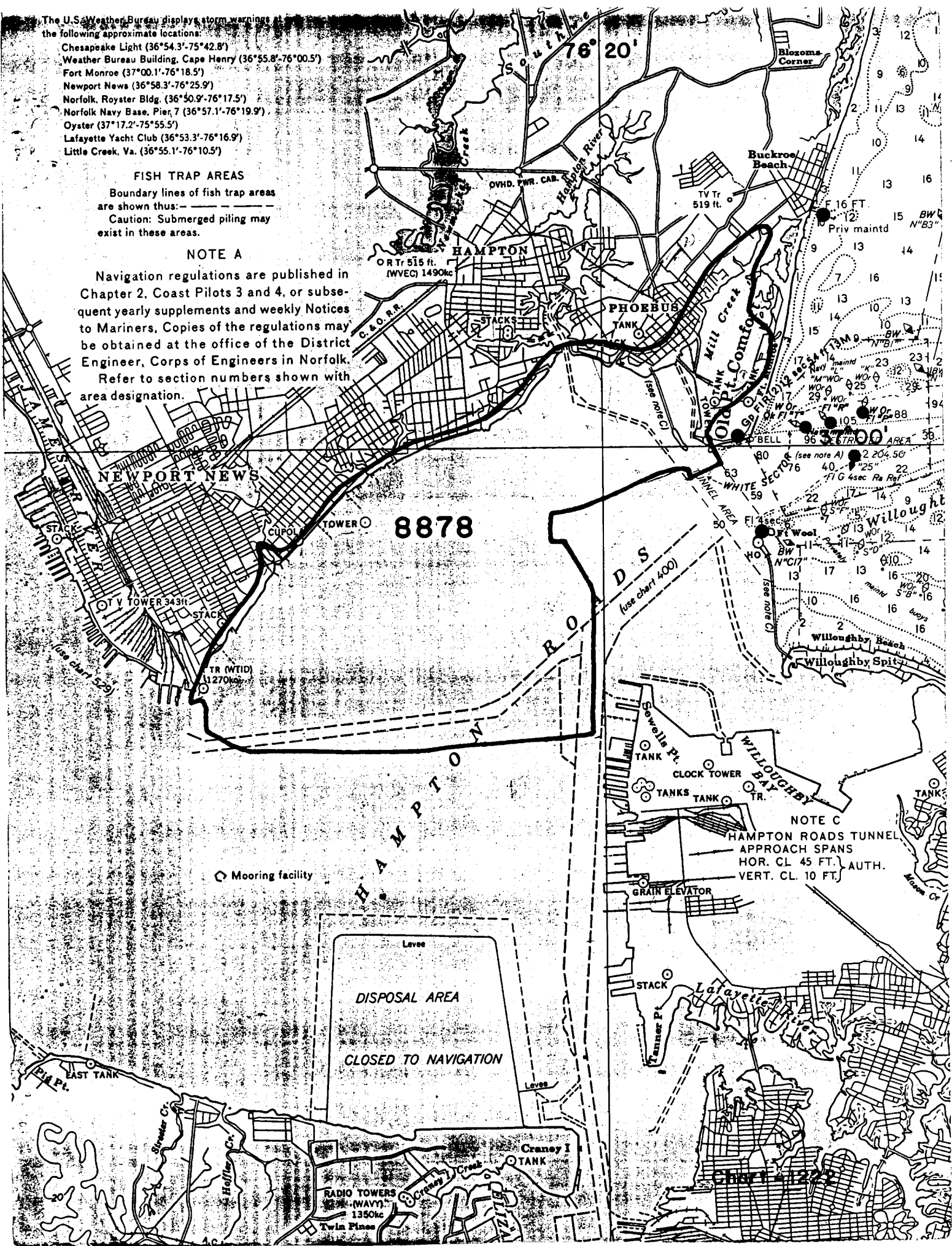
- Chesapeake Light (36°54.3'-75°42.8')
- Weather Bureau Building, Cape Henry (36°55.8'-76°00.5')
- Fort Monroe (37°00.1'-76°18.5')
- Newport News (36°58.3'-76°25.9')
- Norfolk, Royster Bldg. (36°50.9'-76°17.5')
- Norfolk Navy Base, Pier 7 (36°57.1'-76°19.9')
- Oyster (37°17.2'-75°55.5')
- Lafayette Yacht Club (36°53.3'-76°16.9')
- Little Creek, Va. (36°55.1'-76°10.5')

FISH TRAP AREAS

Boundary lines of fish trap areas are shown thus: Caution: Submerged piling may exist in these areas.

NOTE A

Navigation regulations are published in Chapter 2, Coast Pilots 3 and 4, or subsequent yearly supplements and weekly Notices to Mariners. Copies of the regulations may be obtained at the office of the District Engineer, Corps of Engineers in Norfolk. Refer to section numbers shown with area designation.



8878

DISPOSAL AREA
CLOSED TO NAVIGATION

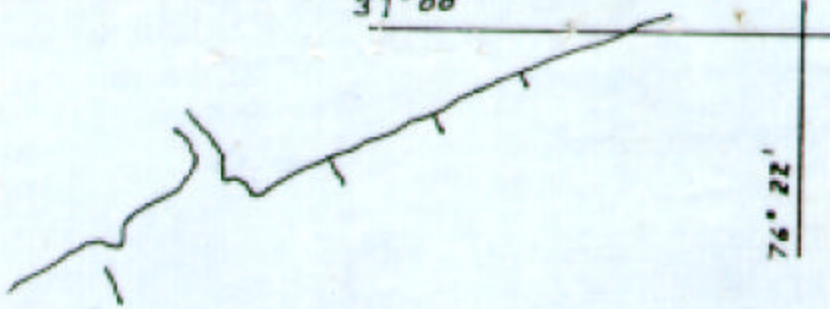
NOTE C
HAMPTON ROADS TUNNEL
APPROACH SPANS
HOR. CL. 45 FT. AUTH.
VERT. CL. 10 FT.

RADIO TOWERS
(WAVY)
1350kc

Craney I
TANK

37° 00'

76° 22'



Plotted on
Smooth
Sheet.

DEVELOPMENT #3

36° 59'

76° 22'





76° 23'

76° 22'

36° 50'

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DEVELOPMENT #2

item 9
smooth

Sheet.
Frö.
36° 57'

Plotted on