NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey RECONNAISSANCE

Field No. CHART 12289

Registery No. D-110

LOCALITY

State WASHINGTON, D.C.

General Locality ANACOSTIA RIVER

Sublocality WASHINGTON NAVY YARD

1984

CHIEF OF PARTY
CAPT. J. W. DROPP

LIBRARY & ARCHIVES

DATE

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

NOAA FORM 77-28 (11-72)

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

REGISTER NO.

~~N.A.~~ D-110

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. NONE
(CHART 12289)

State WASHINGTON, D.C.

General locality ANACOSTIA RIVER

Locality WASHINGTON NAVY YARD

Scale 1:5000 Date of survey 2 April thru 6 April 1984

Instructions dated Project No. NONE

Vessel NOAA SHIP MT. MITCHELL LAUNCH 2221

Chief of party CAPT. J.W. DROPP

Surveyed by J.A. MILLER, D. R. RICE, L. A. LAPINE

Soundings taken by echo sounder, hand lead, pole ~~RAYTHEON DE 719~~

Graphic record scaled by MT. MITCHELL PERSONNEL

Graphic record checked by MT. MITCHELL PERSONNEL

Protracted by PDP 8e Automated plot by Xynetics 1201 Plotter (AMC) HOUSTON DP 3 (Field)

Verification by Atlantic Hydrographic Section ~~J.A.M.~~

Soundings in fathoms feet at MLW MLLW

REMARKS: AWOLS/SURF Check
10/16/92, MCR

KWW

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

☆ U.S. GPO: 1974-0-768-081/1207

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* = Sections removed from this report and filed with the field records.

DESCRIPTIVE REPORT
TO ACCOMPANY
RECONNAISSANCE SURVEY OF WASHINGTON NAVY YARD

A. PROJECT

THIS RECONNAISSANCE SURVEY WAS CONDUCTED AT THE REQUEST OF THE U.S. NAVY TO EVALUATE THE ACCURACY AND ADEQUACY OF AVAILABLE HYDROGRAPHIC INFORMATION IN THE VICINITY OF THE SLIPS AND ALONG THE SEAWALL AT THE WASHINGTON NAVY YARD, WASHINGTON, D.C. NO PROJECT INSTRUCTIONS WERE ISSUED FOR THIS SURVEY.

B. AREA SURVEYED

THE AREA SURVEYED ON THIS PROJECT IS ON THE ANACOSTIA RIVER, WASHINGTON, D.C., FROM THE WESTERN LIMITS OF THE WASHINGTON NAVY YARD TO THE EASTERN LIMITS OF THE WASHINGTON NAVY YARD; FROM THE NORTH SHORE OF THE RIVER ALONG THE WASHINGTON NAVY YARD SOUTH TO MID-CHANNEL OF THE RIVER.

THE GEOGRAPHIC LIMITS OF THE SURVEY ARE AS FOLLOWS:

38°52'22.4" N
77°00'11.0" W

38°52'22.4" N
76°59'30.0" W

38°52'~~09~~10.0" N
77°00'11.0" W

38°52'~~09~~10.0" N
76°59'30.0" W

THIS AREA WAS SURVEYED FROM 2 APRIL 1984 TO 6 APRIL 1984.

C. SOUNDING VESSEL

VESSEL NUMBER 2221, A TWENTY-TWO FOOT BOSTON WHALER FROM NOAA SHIP MT MITCHELL, PERFORMED ALL WORK ON THIS SURVEY. THIS VESSEL WAS SET UP FOR NON-AUTOMATED HYDROGRAPHY. THERE WERE NO UNUSUAL VESSEL CONFIGURATIONS THAT WOULD AFFECT THE SURVEY.

D. SOUNDING EQUIPMENT AND CORRECTIONS TO ECHO SOUNDINGS

THE FATHOMETER USED ON THIS SURVEY WAS A RAYTHEON, MODEL DE 719, SERIAL NUMBER 3947. ADDITIONAL SOUNDINGS WERE MADE WITH A CALIBRATED LEADLINE.

ALL SOUNDINGS TAKEN WITH THE RAYTHEON DE 719 WERE CORRECTED FOR VELOCITY, INSTRUMENT INITIAL, TRANSDUCER DRAFT, AND ACTUAL TIDES. Approved tides were applied during survey processing at AHS.

VELOCITY CORRECTIONS APPLIED TO THE SOUNDINGS WERE DETERMINED FROM BARCHECKS. VERTICAL CASTS WITH A LEADLINE WERE TAKEN AND COMPARED TO THE FATHOMETER DEPTHS, BUT, DUE TO HEAVY SILTING, WERE DISCOUNTED.

THE MAXIMUM DEPTHS SURVEYED IN THE RIVER WERE APPROXIMATELY TWENTY-~~FOUR~~ two FEET. BARCHECKS WERE TAKEN AT SIX, TWELVE, EIGHTEEN AND TWENTY-FOUR FEET.

CLOSE ATTENTION WAS PAID TO THE INSTRUMENT INITIAL WHILE SURVEYING. SEVERAL TIMES DURING THE COURSE OF THE SURVEY THE INITIAL WAS RESET. DURING THE SCANNING PROCESS, VARIATIONS IN THE INITIAL ON THE FATHOGRAM WERE NOTED AND APPROPRIATE CORRECTORS WERE APPLIED.

THE TRANSDUCER DRAFT WAS MEASURED FROM THE WATERLINE TO THE BOTTOM OF THE TRANSDUCER, RESULTING IN A DRAFT OF 1.3 FEET. THIS CORRECTION WAS APPLIED TO ALL SOUNDINGS EXCEPT THOSE TAKEN WITH A LEADLINE. NO SETTLEMENT AND SQUAT CORRECTORS WERE APPLIED, AS THE SPEED OF THE VESSEL NEVER VARIED FROM THE IDLE SPEED CAPABLE ON VESSEL 2221.

BARCHECK ABSTRACTS, A VELOCITY GRAPH, A LEADLINE CALIBRATION FORM, AND A COPY OF THE ACTUAL TIDES USED FOR SOUNDING CORRECTIONS ARE INCLUDED IN THE APPENDIXES OF THIS REPORT.

E. SURVEY SHEETS

NUMBER OF SHEETS	DATA	SKEW	SCALE
1	SMOOTH	0,21,54	1:1000*
3	ROUGH	0,21,54	1:1000*

F. CONTROL STATIONS

THERE WERE TWO HORIZONTAL CONTROL STATIONS USED IN THIS SURVEY:

S.E. 159-A, 1960
WASHINGTON MONUMENT, 1913

BOTH STATIONS ARE THIRD ORDER, CLASS I POSITIONS.

G. HYDROGRAPHIC POSITION CONTROL

THE RANGE-AZIMUTH METHOD OF CONTROLLING THE SURVEY WAS USED FOR ALL SOUNDINGS TAKEN FROM VESSEL 2221. THE POSITIONS FOR THE

*SEE PAGE 5

LEADLINE DEPTHS ALONG ALL PIER FACES AND THE SEAWALL WERE DETERMINED BY STARTING AT THE SOUTHWEST CORNER OF THE MARINE RAILWAY SLIP AND MEASURING FIFTEEN (15) METER INCREMENTS WEST ALONG EACH PIER, AND ALONG THE LENGTH OF THE SEAWALL. THE SAME SPACING WAS USED PROCEEDING EAST FROM THE SOUTHEAST CORNER OF THE MARINE RAILWAY TO THE EASTERN LIMITS OF THE NAVY YARD.

FOR THE RANGE-AZIMUTH WORK A WILD T-2 THEODOLITE WAS SET UP ON STATION S.E. 159-A, 1960 ALONG WITH A DEL NORTE REMOTE UNIT CODE 88. VESSEL 2221 WAS EQUIPPED WITH THE DEL NORTE DMU AND MASTER UNIT. A LISTING OF THE EQUIPMENT AND SERIAL NUMBERS FOLLOWS:

WILD T-2 THEODOLITE	SN 270101
DEL NORTE DMU	SN 122
DEL NORTE MASTER	SN 217
DEL NORTE REMOTE	SN 1062
HEWLETT-PACKARD 3810B EDMI	SN 1929A00340

THE METHOD OF CALIBRATING THE DEL NORTE UNITS WAS BY SETTING A HEWLETT-PACKARD 3810B ELECTRONIC DISTANCE MEASURING INSTRUMENT ON STATION S.E. 159-A, 1960, AND MEASURING TEN DISTANCES TO A LARGE CLEAT ON THE EDGE OF PIER 3. VESSEL 2221 WAS ABLE TO COME ALONGSIDE THE PIER WITH THE DEL NORTE MASTER UNIT DIRECTLY NEXT TO THE CLEAT. A DIRECT COMPARISON OF DISTANCES BETWEEN THE DEL NORTE AND THE MEAN OF THE TEN MEASUREMENTS FROM THE H-P 3810B WAS THEN OBSERVED IN THE MORNING AND EVENING ON BOTH DAYS THAT HYDROGRAPHIC SURVEYING WAS CONDUCTED. THE RESULTS OF THESE COMPARISONS FOLLOWS:

MEAN OF TEN H-P 3810B MEASUREMENTS: 437.95 M

			CORRECTION APPLIED
JD 096 -	MORNING	426 M	
	AFTERNOON	427 M	+11.45 M
JD 097 -	MORNING	425 M	
	AFTERNOON	426 M	+12.45 M

THE POSITIONING CONTROL ON THIS SURVEY MEETS THE MINIMUM REQUIREMENTS FOR A 1:5000 SURVEY. FOR CLARITY, THIS SURVEY IS PLOTTED AT A 1:1000 SCALE. *The smooth sheet is plotted at the scale of 1:2,500.*

H. WATERFRONT PLANIMETRY VERIFICATION

THE ENTIRE SHORELINE, INCLUDING THE PIERS OF THE WASHINGTON NAVY YARD, WERE POSITIONED BY A TACHYMETRIC SURVEY FROM STATION S.E. 159-A, 1960, USING A HEWLETT-PACKARD 3810B ELECTRONIC DISTANCE MEASURING INSTRUMENT. THE METHOD OF THIS SURVEY IS AS FOLLOWS:

ON JD 093 THE H-P 3810B WAS SET UP ON STATION S.E. 159-A, 1960. AN INITIAL WAS TAKEN ON THE WASHINGTON MONUMENT, 1913. AN OFFICER FROM THE MT MITCHELL CARRYING A POLE WITH A SET OF PRISMS ATTACHED STARTED AT THE EASTERN LIMITS OF THE NAVY YARD. AT EVERY CORNER OR CHANGE IN DIRECTION OF THE SEAWALL AND PIERS, AN ANGLE AND DISTANCE WERE MEASURED.

THIS INFORMATION WAS RECORDED ON NOAA FORM 76-109, "OBSERVATIONS OF HORIZONTAL DIRECTIONS, TRAVERSE AND EDMI MEASUREMENTS, LEVELING", WHICH IS INCLUDED WITH THIS REPORT. A DATA TAPE WAS MADE FOR AUTOMATED PLOTTING OF THE SHORELINE.

THE AREAS OF SHORELINE WITHIN THE LIMITS OF THIS SURVEY HAVE NOT CHANGED SINCE THE 1973 PRIOR SURVEY (H-9380).

I. HARBOR RECONNAISSANCE

THE PIER FACILITIES AT THE WASHINGTON NAVY YARD ARE EXCELLENT FOR SMALL BOATS OR LARGE SHIPS WITH DRAFTS OF LESS THAN ~~FIFTEEN~~ *FOURTEEN* (14) FEET. PERMISSION TO BERTH AT THE NAVY YARD MUST BE RECEIVED FROM THE U.S. NAVY PRIOR TO DOCKING. — *NOTE — See the Evaluation Report. The obstructions found and the shoaling in the vicinity of pier 5 further limits the suitability of these facilities.*

SOUNDING LINES WERE RUN COVERING THE APPROACHES TO THE PIERS AND SEAWALL. FROM MID-CHANNEL THE BOTTOM IS FLAT AND SILTY, WITH DEPTHS NEAR TWENTY FEET OR DEEPER. NO OBSTRUCTIONS ON THE APPROACHES TO THE PIERS HAVE BEEN REPORTED OR DISCOVERED DURING THIS SURVEY. — See the Evaluation Report, sections 7.a. & c.

J. DEFICIENCY INVESTIGATIONS

AT THE TIME OF THIS SURVEY NO WRITTEN PROJECT INSTRUCTIONS, PRIOR SURVEYS, OR PSR INVESTIGATION INFORMATION HAD BEEN SENT TO MT MITCHELL. THE OFFICER-IN-CHARGE OF THE SURVEY HAD ONLY A COPY OF NOAA CHART 12289, "POTOMAC RIVER, MATTAWOMAN CREEK TO GEORGETOWN," 42ND EDITION, 25 JUNE 1983 TO COMPARE THE SURVEY WITH. DURING THE COURSE OF THE SURVEY, THREE AREAS REQUIRING FURTHER INVESTIGATION WERE DISCOVERED. THE FIRST WAS ALONG THE SEAWALL, APPROXIMATELY 210 METERS WEST OF PIER 5, WHICH PROVED TO BE DEBRIS FROM A LARGE ~~SEWAGE~~ SEWER OUTFALL. A ~~LEADLINE~~ LEAST DEPTH WAS TAKEN ON THE DEBRIS, WHICH REDUCED TO ~~NINE~~ ELEVEN FEET WHEN CORRECTED FOR TIDES. DIVERS WERE SENT DOWN ON JD 097. THE DEBRIS PROVED TO BE WOOD AND BRANCHES THAT EXTENDED THREE FEET OUT FROM THE SEAWALL.

THE SECOND AREA IS THAT IMMEDIATELY SOUTH OF THE ENTRANCE TO THE SLIP ON THE WEST LIMITS OF THE NAVY YARD. An ~~TWELVE~~ ELEVEN FOOT DEPTH WAS RECORDED AMONGST SIXTEEN AND EIGHTEEN FOOT DEPTHS ON A STRAIGHT LINE APPROACH TO THE SLIP. A CHECK OF THE FATHOGRAM (JD 097, BETWEEN POSITIONS 253+3 AND 254) INDICATED THAT THIS WAS AN OBSTRUCTION. THERE WAS NO EVIDENCE OF AN OBSTRUCTION ON ANY OTHER LINES RUN IN THE IMMEDIATE VICINITY, NOR ANY INDICATION ON THE 1973 PRIOR SURVEY OR ON NOAA CHART 12289. ON THE CHART THERE IS A WRECK PLOTTED IN CLOSE PROXIMITY TO THE SLIP, AND THIS OBSTRUCTION MAY BE EVIDENCE OF THAT WRECK. THE OBSTRUCTION WAS NOT PICKED UP ON THE FATHOGRAM UNTIL THE NIGHT OF JD 097, WHEN SURVEY OPERATIONS HAD ALREADY CEASED (DUE TO TIME CONSTRAINTS ON VESSEL 2221) ON THIS PROJECT. NO DEVELOPMENTS OR DIVING INVESTIGATIONS WERE MADE ON THIS OBSTRUCTION. IT IS RECOMMENDED THAT THIS OBSTRUCTION BE DEVELOPED FURTHER. — Concur — See section 7.a. of the Evaluation Report.

THE THIRD AREA OF THE SURVEY THAT REQUIRES FURTHER INVESTIGATION IS THAT AREA ALONG THE WEST AND SOUTH SIDES OF PIER 5, WHICH SHOWS EVIDENCE OF SHOALING. Concur A COMPARISON WITH PRIOR SURVEY H-9380 ALSO RESULTS IN SOME LARGE DISCREPANCIES IN SOUNDINGS. ON H-9380 THERE ARE FOUR-FOOT SOUNDINGS AMONGST FOURTEEN TO NINETEEN-FOOT SOUNDINGS ON THIS SURVEY. SINCE PRIOR SURVEY H-9380 WAS NOT AVAILABLE TO THE OFFICER-IN-CHARGE UNTIL AFTER THIS SURVEY WAS COMPLETED, THERE WERE NO DEVELOPMENTS OR SEARCHES MADE FOR THESE FOUR-FOOT SOUNDINGS. THESE SHALLOW SOUNDINGS SHOULD BE CARRIED ON THE CHARTS UNTIL SUCH TIME THAT A FURTHER INVESTIGATION PROVES OR DISPROVES THEM. — See the Evaluation Report, section 6.

K. CHANNEL AND SHOAL INVESTIGATIONS

THE ONLY SHOALING FOUND IN THIS SURVEY WAS THAT OF THE PREVIOUSLY MENTIONED AREA AROUND PIER 5. IN MID-CHANNEL OF THE ANACOSTIA RIVER, DEPTHS WERE UNIFORM AT ~~TWENTY-ONE~~ NINETEEN TO TWENTY-TWO FEET WITHIN THE LIMITS OF THIS SURVEY.

L. RECONNAISSANCE HYDROGRAPHY

THIS SURVEY WAS REQUESTED BY THE U.S. NAVY TO DETERMINE THE DEPTHS ALONGSIDE THE PIERS AND WITHIN THE SLIPS AT THE WASHINGTON NAVY YARD. THIS SURVEY MEETS NOS 1:5000 REQUIREMENTS, AND FOR CLARITY A LARGER SCALE OF 1:1000 WAS USED TO PLOT THE SURVEY. A COMPARISON WITH NOAA CHART 12289, EDITION 42, 25 JUNE 1983, SCALE OF 1:20000 (INSET) WAS MADE. THERE WERE ONLY THREE SOUNDINGS FROM THE CHART THAT FELL WITHIN THE NAVY YARD AREA. OF THESE, TWO SOUNDINGS SHOWED NO DIFFERENCES WITH THIS SURVEY. ONE SOUNDING WAS ONE FOOT DEEPER THAN THIS SURVEY. A MOORING BUOY LOCATED EAST OF THE MARINE RAILWAY SLIP ON THE EASTERN END OF THE NAVY YARD IS NO LONGER THERE AND SHOULD BE REMOVED FROM THE CHART. — See sections 7.a. & b. of the Evaluation Report.

THIS SURVEY WAS COMPARED TO A 1973 PRIOR SURVEY, REGISTRY NUMBER H-9380. ONE HUNDRED AND TWENTY SOUNDINGS WERE COMPARED WITH THIS SURVEY WITH THE FOLLOWING RESULTS:

76 SOUNDINGS (63%) WERE WITHIN ± 1 FOOT
98 SOUNDINGS (81%) WERE WITHIN ± 2 FEET
116 SOUNDINGS (97%) WERE WITHIN ± 3 FEET

FOUR SOUNDINGS FROM THE 1973 PRIOR SURVEY HAD DIFFERENCES GREATER THAN SIX FEET. THESE ARE THE SHALLOW SOUNDINGS NEAR PIER 5 THAT HAVE PREVIOUSLY BEEN DISCUSSED IN SECTION J.

THE TREND OF SOUNDINGS FROM THIS SURVEY SHOWED DEPTHS GENERALLY SHOALER THAN THE 1973 PRIOR SURVEY, WHICH MAY BE ATTRIBUTED TO SILTING AND IS TO BE EXPECTED IN A RIVER OVER THE COURSE OF ELEVEN YEARS.

DURING THIS SURVEY, SOUNDING LINES WERE RUN IN THE FOLLOWING MANNER: PERPENDICULAR TO THE SHORELINE; PARALLEL TO THE PIER FACES; IN ARCS WHICH CROSSED MANY OF THE LINES RUN INTO AND OUT FROM SHORE. THESE ARCS WERE NOT MEANT TO BE CROSSLINES, BUT ADDITIONAL COVERAGE FOR THE APPROACHES TO THE PIERS. HOWEVER, THE SOUNDINGS FROM THE ARCS SHOW GOOD AGREEMENT WITH THE OTHER LINES, WITH DEPTH AGREEMENTS OF ± ONE FOOT.

ON THE SMOOTH FIELD SHEET THERE ARE AREAS ALONG THE PIERS AND SEAWALL WITH NO SOUNDINGS. NAVY VESSELS OF VARIOUS SIZES TIED TO THE PIERS PREVENTED SURVEYING IN THESE AREAS.

ON THE SMOOTH FIELD SHEET THE OUTLINE OF A SHIP, THE U.S.S. BARRY, IS DRAWN IN. THIS NAVY DESTROYER IS PERMANENTLY MOORED AT PIER 2 AS A NAVAL RESERVE TRAINING SHIP AND MUSEUM SHIP. DETACHED POSITIONS (168,169) WERE TAKEN ON THE PORT AND STARBOARD QUARTERS. A SOUNDING LINE WAS RUN DOWN THE STARBOARD SIDE TO DELINEATE THE HULL. THE SHIP IS HELD IN PLACE BY A SERIES OF MOORING CHAINS ATTACHED BELOW THE WATERLINE OF THE HULL

TO ANCHORS IMBEDDED IN THE BOTTOM BETWEEN PIERS 1 AND 2. EVIDENCE OF THE CHAINS MAY HAVE SHOWN UP ON THE FATHOGRAM OR THE LINE THAT WAS RUN ALONG THE STARBOARD SIDE OF THE SHIP (BETWEEN POSITIONS 171 AND 172). NO OTHER EVIDENCE OF THE CHAINS OR ANCHORS WERE FOUND.

See also sections 7.a.2)c) & d) of the Evaluation Report.

ON PRIOR SURVEY H9380, A TIDE STATION IS PLOTTED BETWEEN PIERS 4 AND 5. THIS TIDE STATION IS NO LONGER THERE, AND NO EVIDENCE OF ANY PILINGS OR SUPPORTS WERE FOUND.

BOTTOM SAMPLES WERE NOT TAKEN ON THIS SURVEY, ALTHOUGH BROWN SILT OR MUD CAME UP WITH EVERY LEADLINE CAST.

M. LANDMARK AND NON-FLOATING AIDS VERIFICATION

NO ATTEMPT WAS MADE TO VERIFY LANDMARKS WITHIN THE WASHINGTON NAVY YARD AREA.

N. NAVIGATION AIDS VERIFICATION

THERE WERE NO BUOYS, CHANNEL MARKERS, RANGES, OR NAVIGATION LIGHTS WITHIN THE LIMITS OF THIS SURVEY.—*See the Evaluation Report, section 7.b.*

O. COAST PILOT INSPECTION

THE CURRENT U.S. COAST PILOT DESCRIPTION OF THE SURVEY AREA IS ADEQUATE.

P. TIDE/WATER LEVEL OBSERVATIONS

ACTUAL OR REAL-TIME TIDE DATA WAS COLLECTED FROM A PERMANENT TIDE GAGE INSTALLED ON HAIN'S POINT, WASHINGTON, D.C. (TIDE GAGE NUMBER 859-4903). THIS GAGE WAS CHECKED BY NOAA TIDE PERSONNEL

IN ROCKVILLE BEFORE, DURING, AND AFTER THE START OF THE SURVEY. THE TIDE INFORMATION COLLECTED DURING THE SURVEY WAS CORRECTED FOR ZONING TO THE NAVY YARD AND WAS APPLIED TO THE SOUNDINGS ON THE SMOOTH SHEETS. THE TIDE INFORMATION GENERALLY DIFFERED FROM THE PREDICTED TIDES BY APPROXIMATELY 0.5 FEET. HOWEVER, DUE TO HEAVY RAIN STORMS DURING THE SURVEY, FLOODING WAS EXPERIENCED ON THE ANACOSTIA RIVER, RESULTING IN LARGE DIFFERENCES ON JD 096 AND JD 097.

SMOOTH TIDES FOR THE PERIOD OF THE SURVEY WERE REQUESTED FROM ROCKVILLE ON 23 APRIL 1984 AND WERE APPLIED ON THE SMOOTH FIELD SHEET.

Q. USER EVALUATION

NO RECOMMENDATIONS ARE MADE FOR CHANGES IN FORMAT TO NOAA CHART 12289.

R. PUBLIC RELATIONS

THE MT MITCHELL SURVEY PARTY MET FREQUENTLY WITH NAVY PERSONNEL AT THE WASHINGTON NAVY YARD. THEY SEEMED GRATEFUL FOR OUR SERVICES AND CERTAINLY SEEMED AWARE OF OUR ORGANIZATION AND CAPABILITIES.

S. STATISTICS

DATES OF SURVEY: 2 APRIL 1984 THRU 6 APRIL 1984
JD 093 THRU 097
NUMBER OF TACHYMETRIC POSITIONS: 57
NUMBER OF LEADLINE DEPTHS ALONG PIERS: 123
NUMBER OF HYDROGRAPHIC POSITIONS (INCLUDING LEADLINE DEPTHS): 425
TOTAL HYDRO MILES: 4.0
NUMBER OF DIVES: 1

T. MISCELLANEOUS

THERE ARE NO MISCELLANEOUS ITEMS TO BE REPORTED.

U. RECOMMENDATIONS

THIS SURVEY IS A RECONNAISSANCE SURVEY FOR THE U.S. NAVY, COVERING THE AREA OF THE WASHINGTON NAVY YARD ON THE ANACOSTIA RIVER. STRICT ADHERENCE TO STANDARD NOS HYDROGRAPHIC SURVEY METHODS AS OUTLINED IN THE NOS HYDROGRAPHIC MANUAL WERE FOLLOWED. SINCE CORRECTED, REAL TIDES FOR THE NAVY YARD WERE APPLIED TO THE SOUNDINGS ON THE SMOOTH SHEETS, THIS SURVEY SHOULD BE CONSIDERED ADEQUATE FOR THE NAVY TO DETERMINE THE SIZE AND DRAFT OF VESSELS THAT CAN DOCK AT THE NAVY YARD PIERS. IT IS RECOMMENDED THAT THE SMOOTH SHEET INTENDED FOR CHIEF WARRANT OFFICER STRICKLAND, 1ST LIEUTENANT'S DIVISION, WASHINGTON NAVY YARD, BE FORWARDED AS IS. THE OTHER SMOOTH SHEET AND DATA COLLECTED ON THIS SURVEY SHOULD BE KEPT BY NOS AS A REFERENCE FOR FUTURE SURVEYS OF THE AREA. AN EXTRA COPY OF THIS REPORT IS INCLUDED AND SHOULD BE SENT TO CWO STRICKLAND WITH HIS SMOOTH SHEET.

V. AUTOMATED DATA PROCESSING

THE FOLLOWING PROGRAMS WERE USED IN THE AUTOMATED PROCESSING OF THE DATA COLLECTED DURING THIS SURVEY:

RK 350 DATA REFORMAT 5/04/76
AM 602 ELINORE 12/08/82
RK 201 GRID, SIGNAL, LATTICE PLOT 4/18/75
RK 212 VISUAL STATION TABLE LOAD & PLOT 4/01/74
RK 216 RANGE-AZIMUTH NON-REAL TIME PLOT 2/24/84

W. REFERRAL TO REPORTS

NO OTHER REPORTS ACCOMPANY THIS DESCRIPTIVE REPORT.

RESPECTFULLY SUBMITTED,

John A. Miller

JOHN A. MILLER
ENSIGN, NOAA

WASHINGTON NAVY YARD
RECONNAISSANCE SURVEY

SIGNAL NAMES

005 S.E. 159-A, 1960

010 CAPITOL, HEAD OF LIBERTY, 1869

015 WASHINGTON MONUMENT, 1913

WASHINGTON NAVY YARD
RECONNAISSANCE SURVEY

SIGNAL GEODETIC POSITIONS

005	4	38	52	09679	077	00	04684	250	0000	000000
010	4	38	53	22909	077	00	33706	139	0000	000000
015	4	38	53	21681	077	02	07955	139	0000	000000

APPROVAL SHEET

The field work for this reconnaissance survey was conducted under the daily supervision of Ensign John A. Miller, Officer-in-Charge of the detached field party. I have reviewed this report with the final field sheet and approve them and the accompanying records. Together they represent a complete reconnaissance survey adequate to update charted hydrographic data in the Washington Navy Yard area, with exceptions noted in the body of this report.

Joe W. Dropp

CAPT Joe W. Dropp
Commanding Officer
NOAA Ship MT. MITCHELL S-222

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NOAA Ship MT MITCHELL S-222
General Delivery
Rockland, Maine 04841

May 19, 1984

TO: Mr. Earl Rayfield, N/MOA11

Thru: Joseph W. Dropp, CAPT, NOAA
Commanding Officer
NOAA Ship MT MITCHELL

FROM: John A. Miller, ENS, NOAA

SUBJECT: Washington Navy Yard Survey

I am forwarding a copy of the Washington Navy Yard smooth field sheet to CWO Strickland through your office. This sheet is complete as is. The original, on mylar, is being sent with a Descriptive Report to the Atlantic Marine Center, Norfolk. I am instructing AMC to send the mylar original to CWO Strickland, but this paper copy should be sufficient.

A brief description of the survey follows:

This survey was conducted from April 2, 1984 to April 6, 1984. The entire shoreline, including the piers, of the Washington Navy Yard were positioned by a tachymetric survey from station S.E. 159-A, 1960, located on the southern side of the Anacostia River. At every corner or change in direction of the seawall and piers an angle and distance were measured from this station. A data tape was made for automated plotting of the shoreline.

For clarity, a scale of 1:1000 was chosen to plot the survey data, although the survey meets NOS 1:5000 accuracy requirements. The range-azimuth method of positioning the survey vessel was employed from station S.E. 159-A, 1960. A Wild T-2 theodolite and a Del Norte Trisponder were used to furnish the azimuths and ranges. A Raytheon DE 719 fathometer and a calibrated lead-line were the sounding instruments.

Sounding lines were run covering the approaches to the piers and seawall. From mid-channel of the river the bottom is flat and silty, with depths near twenty feet or deeper. No obstructions on the approaches to the piers have been reported or discovered during this survey. An obstruction was found on the approach to the slip on the western edge of the Navy Yard. This may be evidence of the wreck that is marked on NOAA Chart 12289,

"Potomac River, Mattawoman Creek to Georgetown". This was discovered on the fatho-trace after survey operations had ceased. No further searches or developments were run in the area.

It should be noted that there is shoaling around pier 5. Some shallow depths near pier 5 that are inked in green on the smooth field sheet are carried forward from a 1973 prior NOAA survey, registry number H-9380.

Along the seawall, approximately 210 meters west of pier 5, an obstruction was found. This proved to be debris from a large sewage outfall or drain. A leadline depth was taken on the debris, which reduced to nine (9) feet when corrected for tides. Divers were sent down and found the debris to be branches and wood extending three (3) feet out from the seawall.

All soundings taken with the Raytheon DE 719 were corrected for vessel draft, instrument error, velocity of sound (determined by barchecks) and actual tides. Leadline soundings were taken along all pier faces and the seawall. These soundings were corrected for errors in the length of line and actual tides.

A detailed Descriptive Report on this survey is being sent to AMC with the mylar original. I will instruct AMC to send a copy of the report with the mylar original to CWO Strickland. In the meantime, a copy of this letter with the paper smooth field sheet should suffice in providing enough information for the determination of the size and draft of vessels that can dock at the Washington Navy Yard.

I would appreciate it if a copy of this letter is forwarded with the smooth field sheet to CWO Strickland. If there is any further information required, please contact me on NOAA Ship MT MITCHELL or through AMC.

NOAA FORM 61-29
(12-71)

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

REFERENCE NO.
N/CG244-69-92

LETTER TRANSMITTING DATA

DATA AS LISTED BELOW WERE FORWARDED TO YOU BY *(Check)*:

☐ ORDINARY MAIL ☐ AIR MAIL

☐ REGISTERED MAIL ☐ EXPRESS

☐ GBL *(Give number)* _____

TO:

NOAA/NATIONAL OCEAN SERVICE
Chief, Data Control Section, N/CG243
Bldg. WSC-2, Room 151
6015 Executive Blvd.
Rockville, MD 20852

DATE FORWARDED
16 September 1992

NUMBER OF PACKAGES
Two (2)

NOTE: A separate transmittal letter is to be used for each type of data, as tidal data, seismology, geomagnetism, etc. State the number of packages and include an executed copy of the transmittal letter in each package. In addition the original and one copy of the letter should be sent under separate cover. The copy will be returned as a receipt. This form should not be used for correspondence or transmitting accounting documents.

D-110 (CHART 12289)
WASHINGTON, D.C., ANACOSTIA RIVER
WASHINGTON NAVY YARD

Pkg. 1: (Tube)
1 Original Descriptive Report containing one smooth sheet.
1 Final Field Sheet.

Pkg. 2: (Box)
1 Folder containing the following raw field data:
1 NOAA Form 76-109.
1 Envelope containing data (printouts and an abstract) for Year Day 093.
2 Envelopes containing data (echograms and printouts) for Year Days 096, and 097.
1 Envelope containing data removed from the Descriptive Report.
1 Envelope containing sounding corrector data (TRA, Velocity, and Smooth Tides).
1 Cahier of Final Printouts.
1 Envelope containing one smooth Excess Sounding Overlay Smooth Position Overlay.

FROM: *(Signature)* Maurice B. Hickson III
Maurice B. Hickson, III

RECEIVED THE ABOVE
(Name, Division, Date)

Return receipted copy to:

Chief, Atlantic Hydrographic Section,
N/CG244
Atlantic Marine Center
439 West York Street
Norfolk, VA 23510-1114

09/15/92

HYDROGRAPHIC SURVEY STATISTICS
REGISTRY NUMBER: D-110

NUMBER OF CONTROL STATIONS	2
NUMBER OF POSITIONS	357
NUMBER OF SOUNDINGS	977

	TIME-HOURS	DATE COMPLETED
PREPROCESSING EXAMINATION	11	/ /
VERIFICATION OF FIELD DATA	103	03/20/92
ELECTRONIC DATA PROCESSING	31	
QUALITY CONTROL CHECKS	42	
EVALUATION AND ANALYSIS	42	09/15/92
FINAL INSPECTION	8	09/11/92
TOTAL TIME	237	

ATLANTIC HYDROGRAPHIC SECTION APPROVAL 09/15/92

NOAA FORM 76-155
(11-72)

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

GEOGRAPHIC NAMES

SURVEY NUMBER

D-110

Name on Survey	A ON CHART NO. 12289	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	
ANACOSTIA RIVER	X									1
WASHINGTON D.C. (title)	X									2
WASHINGTON NAVY YARD	X									3
										4
										5
										6
										7
										8
										9
										10
										11
										12
										13
										14
				Approved:						15
										16
				Charles E. Harrington						17
				Chief Geographer - N/CG2x5						18
				JUL 27 1992						19
										20
										21
										22
										23
										24
										25

NOAA FORM 76-155 SUPERSEDES C&GS 197

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
Rockville, Maryland 20852

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: September 27, 1991

MARINE CENTER: Atlantic

OPR: none

HYDROGRAPHIC SHEET: D-110

LOCALITY: Washington, D.C., Anacostia River - Washington Navy Yard

TIME PERIOD: April 4 - April 6, 1984

TIDE STATIONS USED: 859-4900 Washington, D.C.
Lat. 38° 52.4'N Lon. 77° 1.3'W

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 4.31 ft.

HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 2.9 ft.

REMARKS: RECOMMENDED ZONING

Apply a +6 minute time correction and a x1.05 range ratio to Washington, D.C.

Times are tabulated in Eastern Standard Time.

CHIEF, TIDAL DATUM QUALITY
ASSURANCE SECTION

COAST AND GEODETIC SURVEY
ATLANTIC HYDROGRAPHIC SECTION
EVALUATION REPORT

SURVEY NO.: D-110 FIELD NO.: NONE

Washington, D.C., Anacostia River, Washington Navy Yard

SURVEYED: April 2 through 6, 1984

SCALE: 1:5,000 PROJECT NO.: NONE

SOUNDINGS: RAYTHEON Model DE-719 Fathometer and Leadline

CONTROL: Hewlett-Packard Model 3810B (Tachymetric Survey Positioning), and Wild T-2 Theodolite and Del Norte Trisponder (Hydrographic Range-Azimuth Positioning)

Chief of Party.....J. W. Dropp

Surveyed by.....J. A. Miller
.....D. R. Rice
.....L. A. Lapine

1. INTRODUCTION

a. This survey is a reconnaissance survey. Generally reconnaissance surveys are suitable only to supplement existing data within the common area. However, due to the data density and the changes within the common area, the present survey is considered adequate to supersede some prior and charted data and to only supplement other existing data. See sections 6. and 7. of this report.

b. This survey is smooth plotted at the scale of 1:2,500 for clarity.

c. The smooth sheet is attached to this report. The accompanying overlays (position and excess sounding) are filed with the field records.

d. Notes in the Hydrographer's report were made in red during office processing.

2. CONTROL AND SHORELINE

a. Horizontal control for the present survey is discussed in sections F. and G. of the Hydrographer's report.

Horizontal control used for this survey during data acquisition is based upon the North American Datum of 1927 (NAD 27). Office processing of this survey is based on these values. The smooth sheet of this survey has been annotated with ticks showing the computed mean shift between the present survey datum, NAD 27, and NAD 83. To place this survey on the NAD 1983, move the projection lines 0.404 seconds (12.5 meters or 5.00 mm at the smooth plotted scale of the survey) south in latitude and 1.087 seconds (26.2 meters or 10.48 mm at the smooth plotted scale of the survey) west in longitude.

b. Shoreline for the south side of the Anacostia River on this survey is drawn on the smooth sheet in brown and is intended for orientation only. The brown shoreline is from prior survey H-9380 (1973). Shoreline for the north side of the Anacostia River is drawn on the smooth sheet in red from the present survey's tachymetric survey of the Washington Navy Yard's piers, bulkheads, and slips.

Detailed drawings #641582 and #641583 of 1954 and #1091361 of 1969 of the Washington Navy Yard's piers, bulkheads, and slips by the U.S. Navy were used for comparison with the present survey. These drawings reveal that there has been very little, if any, change in the shoreline in this area and agreement with the present survey is excellent with the exception of the southeastern corner of pier 6. The minor difference noted in the southeast corner of pier 6 cannot be shown at the chart scale and thus is not significant. Drawing #641582 of 1954 shows what appears to be dolphins associated with the slip on the east side of pier 6 which are different than the findings of the present survey. It is recommended that the compiler research this discrepancy. These features were not brought forward to the present survey.

3. HYDROGRAPHY

a. This survey is a reconnaissance survey. Crosslines were not specifically run. However, where crossings do occur, there is good agreement.

b. Depth curves were drawn at the standard intervals and adequately delineate the bottom configuration.

c. The development of the bottom configuration and investigation of features and least depths is considered adequate except:

1) Four uncharted *dangerous submerged obstructions* were located by this survey. One *obstruction* was adequately investigated. The other three were not. See section 7.a.4) of this report.

2) The charted *dangerous sunken wreck, PA* in latitude 38°52'20"N, longitude 77°00'10"W was not investigated. See section 7.a.5) of this report.

3) The shoals and shoaling in the vicinity of pier 5 were not adequately investigated. See section 6. of this report.

4. CONDITION OF SURVEY

The smooth sheet and accompanying overlays, hydrographic records, and reports adequately conform to the applicable requirements except as noted in sections 3. of this report and as follows. The deficiencies noted in this report are those which impact charting recommendations or affect accuracy, adequacy, or interpretation of this survey.

Leadline soundings along the slips, bulkheads, and piers of the Washington Navy Yard were taken during this survey (positions 1-123). These soundings were positioned by the "see boatsheet method" of positioning as described in section G. of the Hydrographer's report. During the verification stage of processing, this data was rejected as it could not be brought into reasonable coincidence with the range-azimuth controlled hydrography.

5. JUNCTIONS

This reconnaissance survey does not junction with any other survey. There were no junctional requirements.

6. COMPARISON WITH SURVEYS

a. PRIOR SURVEYS

H-9380 (1973) 1:10,000
U.S. Navy Drawings #641582 and #641583 (1954)

Prior survey H-9380 (1973) covers the present survey in its entirety. This prior survey has the additional detail of a sub-plan at the scale of 1:2,500 of the piers, bulkheads, and slips of the Washington Navy Yard. The comparison between the present and the prior hydrography indicates a general trend of shoaling within the common area. The most significant shoaling is along the piers and bulkheads rather than in the navigable portion of the Anacostia River. None of the obstructions found by the present survey are evident on this prior survey.

The prior hydrography plotted on the sub-plan of this area is generally 2-4 feet deeper than present hydrography with the exception of the area in the vicinity of pier 5. In this area, the prior survey shows 4 to 6-foot depths. The shoalest found by the present survey in these areas was 6 feet. Also a prior 4-foot sounding in latitude 38°52'20.5"N, longitude 76°59'57.9"W is in prior depths of 19-20 feet and present depths of 18 feet. This prior sounding is suspected to be in error; however, it originates from a depth verified by leadline on survey H-9380 (1973). Three shoaler prior soundings have been brought forward to the present survey. These shoal prior soundings have not been disproved but may not presently exist since the bottom in this area is silt and the structure of the shoal areas appear somewhat different. These shoal areas have not been adequately investigated for extent and least depth. Additional field work is recommended to fully investigate these shoals and prior soundings.

The prior hydrography plotted on the main sheet of H-9380 (1973) is in better agreement with the present survey than the sub-plan hydrography. The main sheet prior hydrography ranges from 3 feet deeper to 2 feet shoaler than present hydrography. The prior hydrography is generally 1-2 feet deeper than present depths. The general bottom configuration of the common area has remained similar. In the vicinity of pier 5, the prior hydrography on the main sheet indicates a shoalest sounding of 6 feet.

The U.S. Navy drawings #641582 and #641583 of 1954 are waterfront facilities surveys of the Washington Navy Yard that contain hydrography that extends into the Anacostia River only slightly more than the piers of the Navy Yard. This prior hydrography is generally 5-7 feet deeper than present hydrography within the common area. The prior hydrography is no longer of any value.

The differences that exist between the present and prior surveys are attributed primarily to the transference of bottom material (silting) which can be expected in a river area such as this area. See also section L. of the Hydrographer's report.

The present survey is a reconnaissance survey which normally is only suitable to supplement prior hydrography. However, since the present survey demonstrates significant shoaling within the common area, it is considered adequate to supersede the prior surveys within the common area with the exception of the prior soundings brought forward from survey H-9380 (1973).

b. SUBSEQUENT SURVEY
U.S. Army Corps of Engineers File B-32, Map 334 of 1990, Scale 1:2,400

This is a condition survey that is common to the present survey mainly in the navigable area of the Anacostia River. Only at the ends of the sounding lines did this survey sound near the piers and bulkheads of the Washington Navy Yard. Within the common area, this subsequent survey ranges from 0'-3'shoaler than the present survey. This is in agreement with the comparisons of present with prior hydrography that show an ongoing shoaling trend, presumably due to silting. The shoreline drawn on this subsequent survey is not as detailed as the present survey and contains many differences with other shoreline data, including the present survey. The present survey is considered adequate only to supplement this subsequent survey within the common area with the exception of the shoreline of the Washington Navy Yard. The U.S. Navy Facilities Drawings are considered the most accurate drawings of the piers, bulkheads, and slips of the Washington Navy Yard (see section 2.b. of this report); however, these data could not be registered to control available in the area relative to the present survey.

7. COMPARISON WITH CHARTS

12285 (26th Ed., Jan. 28, 1984)
12289 (42nd Ed., June 25, 1983)

a. HYDROGRAPHY

1) The charted hydrography within the common area is three soundings. The origin of these three soundings is uncertain. One may originate with the previously addressed prior survey H-9380 (1973) but it is suspected that all three are from U.S. Army Corps of Engineers surveys. The chart provides virtually no hydrographic information of the common area of this survey that is useful to the mariner except the maintained channel information. At the charting scale, it would be difficult to provide a reasonable hydrographic representation of the common area. Since the present survey is a reconnaissance survey and the source of the charted soundings is uncertain, it is recommended that the charted hydro be retained. The present survey is adequate to supplement the charted hydrography. The three charted soundings are:

a) The charted 14' sounding in latitude 38°52'16.1"N, longitude 76°59'32.5"W is where the present survey found 14'-15' depths.

b) The charted 16' sounding in latitude 38°52'16.9"N, longitude 76°59'42.0"W is where the present survey found 14'-15' depths.

c) The charted 17' sounding in latitude 38°52'21.0"N, longitude 77°00'04.5"W is where the present survey found 19' depths.

2) The present survey found four obstructions. Only one obstruction was investigated by divers and has a least depth. The other three obstructions were not investigated and additional field work to identify and obtain least depths is recommended. All four obstructions are recommended to be charted as *dangerous submerged obstructions*. These four obstructions are:

a) An *obstruction* with a least depth of 11' was found in latitude 38°52'21.81"N, longitude 77°00'03.06"W. This *obstruction* was diver investigated and was identified as *debris*. See also section J. of the Hydrographer's report.

b) An *obstruction* with a sounding of 11' was found in latitude 38°52'20.60"N, longitude 77°00'08.20"W. This *obstruction* was not specifically investigated. Additional field work is recommended at an opportune time to assure a least depth has been obtained.

c) An *obstruction* with a sounding of 12' was found in latitude 38°52'16.31"N, longitude 76°59'48.81"W. This *obstruction* was not specifically investigated. Additional field work is recommended at an opportune time to assure a least depth has been obtained.

d) An *obstruction* with a sounding of 14' was found in latitude 38°52'17.19"N, longitude 76°59'46.44"W. This *obstruction* was not specifically investigated. Additional field work is recommended at an opportune time to assure a least depth has been obtained.

3) The *dangerous sunken wreck, PA* charted in latitude 38°52'20"N, longitude 77°00'10"W. This *wreck* was not investigated and it is recommended to be retained as charted and additional field work is recommended to resolve this hazard to navigation.

4) The present survey found five dolphins, two at the entrance of one slip and three at the entrance of another slip. The chart has four dolphins which roughly correspond to four of the dolphins found by the present survey. It is recommended that present survey data pertaining to these dolphins supersede the charted data and that the five dolphins found and positioned by the present survey be charted as shown on the smooth sheet.

5) The shoals found (also evident on prior survey H-9380) in the vicinity of pier 5 are not indicated on the chart. It is recommended that a note be charted referring to this shoaling. See section 6. of this report for the discussion of this area.

6) There is a pipeline area and a tunnel area (chart 12289, 1992 Ed.) charted within the common area of this survey. No indications of these features were found by this survey and no notes were made by the Hydrographer pertaining to these features. It is recommended that these features be retained as charted.

b. AIDS TO NAVIGATION

Section N. of the Hydrographer's report states that there were no floating aids to navigation within the limits of this survey, but position 198 (latitude 38°52'20.67"N, longitude 76°59'54.04"W) is a detached position on a buoy (noted in the field records). This buoy is smooth plotted as a privately maintained buoy as it is not charted nor was any description provided by the hydrographer. It is recommended that this buoy not be charted since it has no apparent navigational value and it cannot be shown at the charting scale without obscuring significant shoreline detail. A mooring buoy charted in latitude 38°52'16.0"N, longitude 76°59'38.5" was not found by the present survey (see section L. of the Hydrographer's report). Due to the passage of time between data acquisition and office processing of this survey, it is recommended that the Command of the Washington Navy Yard be contacted prior to removing this mooring buoy from the charts.

c. MAINTAINED CHANNELS

The navigational area of the Anacostia River is maintained and is charted as being maintained to a depth of 17 feet for a portion and 14 feet for a portion of the common area. Present survey depths exceeded these noted channel depths by 1 to 5 feet except for the *obstruction* with a sounding of

12' found in latitude 38°52'16.31"N, longitude 76°59'48.81"W. Additionally, the stern of the permanently moored vessel USS BARRY encroaches into the maintained area by approximately 15 meters.

8. COMPLIANCE WITH INSTRUCTIONS

There were no Project Instructions for this survey. This survey adequately complies with the appropriate sections of the HYDROGRAPHIC MANUAL pertaining to reconnaissance surveys except as noted elsewhere in this report.

9. ADDITIONAL FIELD WORK

As noted in the Descriptive Report, this is a reconnaissance survey. This survey is adequate to supersede some data and supplement other data (see sections 6. and 7. of this report). Additional field work is recommended to resolve the items noted in section 6. and 7.a. of this report.

Franklin L. Saunders
Cartographic Technician
Verification of Field Data

Maurice B. Hickson, III
Cartographer
Evaluation and Analysis

for Robert A. Robeson
Deborah A. Bland
Senior Cartographic
Technician
Verification Check

APPROVAL SHEET
D-110

Initial Approvals:

The completed reconnaissance hydrographic survey has been examined with regards to presentation of survey results. The survey complies with National Ocean Service requirements except as noted in the Evaluation Report or the Descriptive Report.

This survey is not to be considered basic hydrographic survey data and is not approved as such.

R. D. Sanocki Date: 9-15-92

R. D. Sanocki
Chief, Hydrographic Processing Unit
Atlantic Hydrographic Section

I have reviewed the smooth sheet, accompanying data, and reports. This survey and accompanying digital data meet or exceed NOS requirements and standards for products in support of nautical charting except where noted in the Evaluation Report.

Christopher B. Lawrence Date: 9-15-92

Christopher B. Lawrence, CDR, NOAA
Chief, Atlantic Hydrographic Section

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Final Approval:

Approved: [signature] Date: 9/20/92

J. Austin Yeager
Rear Admiral, NOAA
For Director, Coast and Geodetic Survey

77° 00' 10"

77° 00'00"

76° 59'50"

76° 59' 40"

76° 59' 30"

WASHINGTON NAVY YARD

PIER 6

dols

marine railway slip

bkhd

dol

sewer outfall

Obstr (debris)

Obstr

PIER 5

pier

priv maint

PIER 4

silt

PIER 3

float(temporary)

PIER 2

USS BARRY

PIER 1

Obstr

76° 59' 40"

NAD 83
XYNETICS 1201
DAB 2-24-92

38°52'20"

shoreline broken to show soundings

floodgate

38°52'10"

A N A C O S T I A
R I V E R

005 SE 159-A, 1960

D-110
WASHINGTON, DC
ANACOSTIA RIVER
WASHINGTON NAVY YARD
2-6 APRIL 1984
SCALE 1: 2500
SOUNDINGS IN FEET AT MLW
HORIZONTAL DATUM: NAD 1927
SHEET 1 OF 1

Shoreline in brown from prior survey
H-9380 (1973) for orientation only

Detached soundings in violet
from H-9380 (1973)